CHESAPEAKE
BAY JOURNAL
November 2024 Volume 34 Number 8
Independent environmental news for the Chesapeake region

Will a cleaner Chesapeake mean more fish and crabs? It's complicated

Page 18

SUPPLY & DEMAND

Workforce shortage slows some buffer plantings PAGE 14

A DAM COMES DOWN

Upstream habitat opened on South Anna River PAGE 16

LISTEN TO THE STREAMS

What 'soundscapes' reveal about an ecosystem PAGE 17

Bay Journal | P.O. Box 300 | Mayo, MD 21106

NONPROFIT ORG
U.S. POSTAGE
PAID
PERMIT 280
LANC., PA 17604

Surveys of striped bass in Maryland and Virginia indicate that reproduction rates are still poor. Read the article on page 13. (Will Parson/Chesapeake Bay Program)

CONTENTS

NEWS

7 Proposal for sand mine expansion near top of Bay draws ire
8 VA group asks state to rein in pollution from cruise ships
9 Loss of Potomac River water supply could cost billions
10 'Forever chemicals' found at MD plant, sparking investigation
11 Plans launch for Susquehanna Discovery Center and park
12 Deal to resume dredge disposal on Hart-Miller Island unravels
13 Striped bass reproduction in Bay still poor, surveys find
14 Workforce shortage in PA slows progress on stream buffers
15 Norfolk prepares for its next 100-year storm
16 Ashland Dam: If you remove it, will they come?
17 Researchers study soundscapes to monitor invasive plants
18 Will a cleaner Chesapeake mean more fish? It's complicated
20 With prices rising, groups blame slow rollout of renewables
21 MD announces new round of oyster restoration projects
22 Advocates ask VA for more aggressive PFAS policies
24 Volunteer leads hunt for abandoned oil and gass wells in PA
25 Richmond's plans to combat urban heat no longer on ice
26 Chesapeake advocate: Outdoor play should be a serious goal

TRAVEL

28 Escape by water: the forgotten side of the Underground Railroad

FORUM

30 Keys to a healthy Bay: access, transparency, diversity
31 **Chesapeake Born** | A big beautiful native has returned
32 This is the moment — to think big for the Chesapeake Bay

QUIZZES | EVENTS | RESOURCES

27 **Chesapeake Challenge** | Project Feederwatch
36 **Bulletin Board** | Volunteer | Events | Programs | Resources

COLUMNS

38 **Steward's Corner** | Bringing communities to the conversation
39 **On the Wing** | The bufflehead: itty-bitty duck, great big head
40 **Bay Naturalist** | The adaptable red fox lives among us

ON THE COVER

A blue crab crosses the road on Maryland's Eastern Shore. (Dave Harp)

Bottom photos: Left courtesy of the Alliance for the Chesapeake Bay, center by Whitney Pipkin, right by Craig Newcomb/Virginia Tech

CORRECTION

An October article about plans to build an indoor salmon farm on the lower Susquehanna River misstated the facility's projected production. The company hopes to produce 10,000 metric tons of salmon per year to start, expanding later to 20,000 metric tons.

EDITOR'S NOTE

Goals and aspirations

Goal setting is on my mind these days, as it is with many people involved in the Chesapeake Bay restoration effort.

In two months (almost guaranteed to fly by), it will be 2025. The year has loomed large in Bay cleanup work for the last decade. State and federal partners in the Chesapeake Bay Program set 2025 as a voluntary deadline for a large number of water quality and habitat goals. Many will not be meet by next year and some not for a long time.

The *Bay Journal* has been reporting on this sobering situation for a while now, but the regional conversation has shifted from what will or won't happen by 2025 to what can or should happen in the years to come. This is the third time the region has failed to achieve major, cooperatively defined restoration goals, so it's raising many questions about what small or large changes are needed, including to the goals themselves. Our coverage is following this debate, and we continue to in this issue with Karl Blankenship's article, "Will a cleaner Bay mean more fish? It's complicated."

We'll also be watching developments in December, when the Chesapeake Executive Council is expected to present plans to amend the Bay cleanup agreement "beyond 2025." The hardest work — hammering out the details — will likely begin next year.

At the same time, our team is setting goals for the *Bay Journal*. We're asking similar questions about our long-term vision, appropriate areas of emphasis and realistic timeframes. I'm glad that a 64,000 square-mile ecosystem, evolving science and interjurisdictional politics aren't direct factors in *Bay Journal* planning. But it's still a big job!

We're looking at strategic ways to grow and improve, and we want to increase both our audience and staff capacity. We're considering how the *Bay Journal* can continue to help fill the ever-larger gaps in local environmental reporting. And we're drawing on input from the latest reader survey to identify topics of strong interest, like land use and river health. As a nonprofit news organization, meeting fundraising goals is critical.

We want the *Bay Journal* to be as strong as it can be — to serve our readers now and to remain a robust resource for future generations.

— Lara Lutz

BY THE numbers

5,000
Approximate number of dams across rivers and streams in the Chesapeake Bay watershed that can block fish movements

165,000
Approximate number of places where roads cross streams in the Bay watershed, many of which have culverts that block or impede fish movement

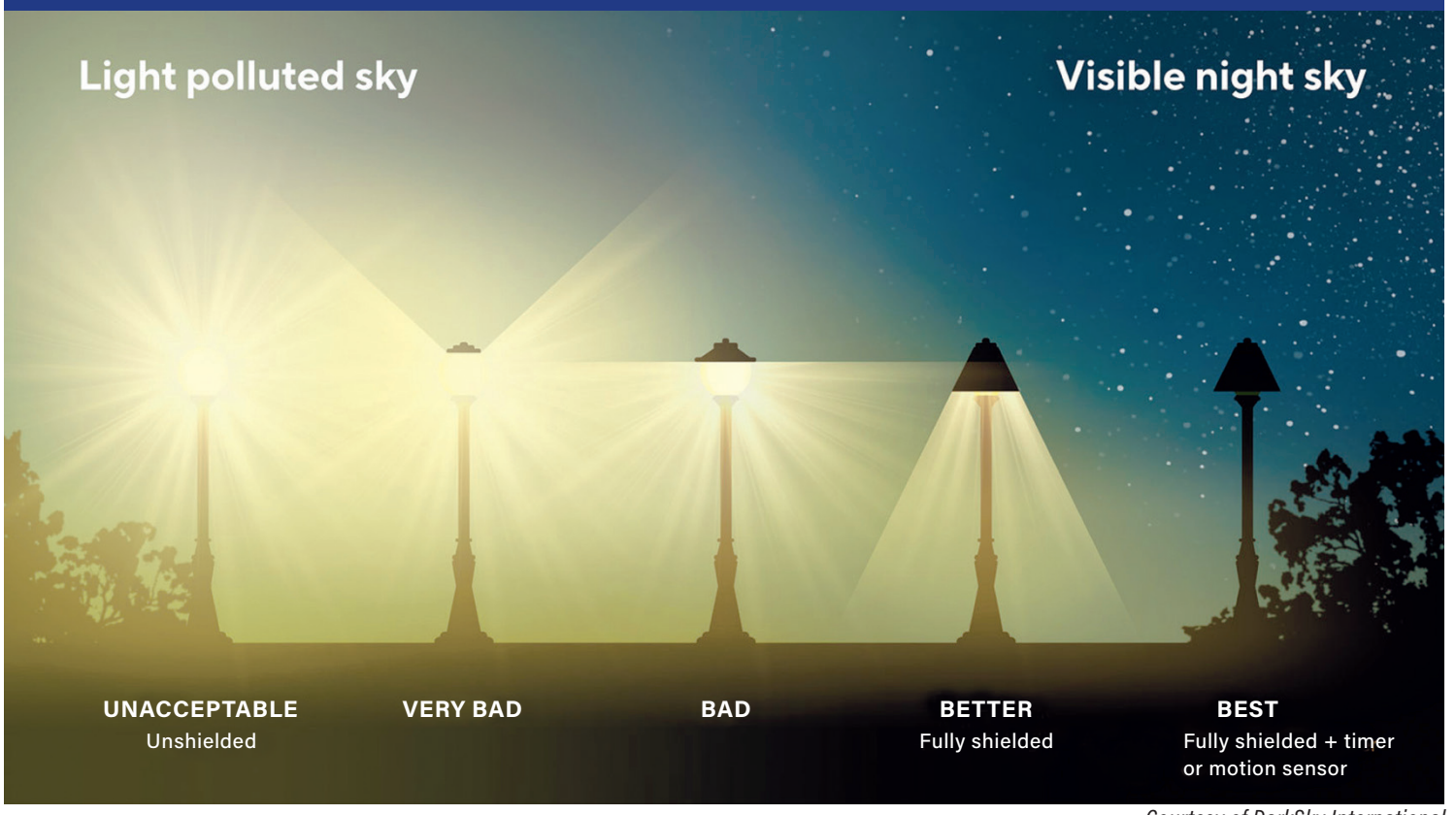
100,000–200,000
Average number of leaves on a mature deciduous tree

30,000
Estimated number of leaves produced for each 25 feet of an oak tree's height

4–5 million
The number of canvasback ducks that wintered on the Bay in the mid-1900s

< 1 million
The number of canvasback ducks that winter on the Bay now

Chesapeake region flooded ... with light



Courtesy of DarkSky International

Light pollution is the excess or poor use of outdoor artificial light. The problem is intense east of the Mississippi River, including in the Chesapeake Bay region.

Light pollution disrupts wildlife and insect behavior. Migrating birds and sea turtles confuse the light for the moon. Light can make it hard for bugs to hunt at night, find mates or find bodies of water to lay their eggs. And it intensifies the effects of carbon dioxide in the atmosphere. Constant light at night can also affect the human sleep cycle.

To reduce light pollution, some cities have adopted amber or colored shielded lights and others have "lights out" public awareness campaigns. Homeowners can help by using timed or motion sensor lights outdoors.

While the Bay region is flooded with artificial light, there are Dark Sky Parks and other hideaways where people can still connect with the night sky. Examples include Greenridge State Forest in Maryland, Cherry Springs State Park in Pennsylvania and Sky Meadows State Park in Virginia.

— L. Hines-Acosta

Electrofishing video

Last month, the *Bay Journal*'s Lauren Hines-Acosta produced a short video about electrofishing for invasive blue catfish that's had more than 14,000 views so far. Watch it at the *Bay Journa*l YouTube channel under "shorts."

An Island Out of Time

This film about Smith Island and its people, released in 2019, is the most popular documentary on the *Bay Journal* YouTube channel, topping 240,000 views. Haven't seen it yet? Tune in today, and share it with your friends and colleagues.

ABOUT US

The *Chesapeake Bay Journal* is published by Bay Journal Media, an independent 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 and the *Chesapeake Uncharted* podcast.

The *Bay Journal* is available in print and by email and is distributed free of charge. The print edition is published 10 times a year, and bundles are available for distribution at offices, libraries, schools, etc.

The Bay Journal News Service distributes *Bay Journal* content for free use by other news outlets across the region.

Publication is made possible by grants, reader donations and advertising revenue.

Views expressed in the *Bay Journal* do not necessarily represent those of any funding agency, organization, donor or advertiser.

Policies on editorial independence, gift acceptance and advertising are available at bayjournal.com/about.

STAFF

Lara Lutz, Editor / Executive Director (llutz@bayjournal.com)
Karl Blankenship, Editor-at-Large (kblankenship@bayjournal.com)
T. F. Sayles, Managing Editor / News Service Editor (tsayles@bayjournal.com)
Timothy B. Wheeler, Associate Editor / Senior Writer (twheeler@bayjournal.com)
Jacqui Caine, Marketing & Advertising Director (jcaine@bayjournal.com)
Jeremy Cox, Staff Writer (jcox@bayjournal.com)
Ad Crable, Staff Writer (acrable@bayjournal.com)
Dave Harp, Photographer (dharp@chesapeakephotos.com)
Lauren Hines-Acosta, Staff Writer (lhinesacosta@bayjournal.com)
Connie Hurley, Administrative Assistant (churley@bayjournal.com)
Whitney Pipkin, Staff Writer (wpipkin@bayjournal.com)

Content is selected and managed solely by Bay Journal editorial staff.

Copy editing by Speros Zakas.

Layout by Michele Danoff, Graphics By Design.

BOARD OF DIRECTORS

ADVERTISING

Advertising space is available in print and online.
Contact Jacqui Caine at 540-903-9298 or jcaine@bayjournal.com.

CONTACT US

by mail:
The Bay Journal | P.O. Box 300 | Mayo, MD 21106

subscriptions, donations & advertising:
jcaine@bayjournal.com or 540-903-9298

opinion columns and news:
tsayles@bayjournal.com or 410-746-0519

editor:
llutz@bayjournal.com or 410-798-9925

BAY JOURNAL NOTEBOOK

Bay Journal editor Lara Lutz attended the Chesapeake Bay Watershed Forum in October, which drew hundreds of people from across the Bay region. (Sara Levy/Alliance for the Chesapeake Bay)

Falling into a rhythm

The *Bay Journal* staff spent October canvassing the watershed for interesting stories.

Staff writer **Ad Crable** went on an outing with volunteer Laurie Barr, who has located more than 1,000 abandoned oil and gas wells in Pennsylvania, to find a few more. They found one that was emitting flammable methane and bubbling polluted water onto the forest floor.

Staff writer **Whitney Pipkin** ventured out in hurricane-remnant rains to see the Ashland Dam being dismantled north of Richmond. She strained to conduct interviews over the sound of the heavy machinery hammering away concrete and ripping out rebar. But the videos she took to impress her kids made the ringing in her ears well worth it.

Not all footage is easy to get. Just ask photographer **Dave Harp,** who has been looking for American eels. Editor-at-large **Karl Blankenship** and columnist **Tom Horton** recently joined him along Deer Creek in Pennsylvania to observe researchers seeking elusive adult eels as they head out to spawn in the Sargasso Sea. Capturing them on film will help depict the life cycle of eels for an upcoming *Bay Journal* film on the Bay's migratory species.

The team had an easier time capturing footage of electrofishing for invasive blue catfish recently, which staff writer **Lauren Hines-Acosta** turned into a short video. It has garnered more than 13,000 views and dozens of comments on our YouTube channel.

Staff writer **Jeremy Cox** journeyed to the Chesapeake Bay Maritime Museum in St. Michaels, MD, to report on the *Sailing to Freedom* exhibit for this month's issue. The exhibit highlights the largely forgotten role that waterways played in the Underground Railroad.

Editor **Lara Lutz** attended the annual Chesapeake Watershed Forum, looking for future story ideas amid conference sessions and conversations with enthusiastic attendees from across the Bay region.

And the *Bay Journal* staff capped off a month of reporting with a staff meeting spent delving into long-term reporting projects — and enjoying the rare chance for a little post-meeting social time in the temperate fall weather.

NEWS briefs

LOCAL
REGIONAL
NATIONAL

$3 million awarded for streams, acid mine drainage in PA

Ten projects in the Chesapeake Bay drainage area of Pennsylvania have been awarded grants totaling more than $3 million.

The funds will help plant streamside buffers, restore streambanks, create wetlands, remove "legacy" sediment and treat acid mine drainage.

The Pennsylvania Department of Environmental Protection awarded the grants using money from the U.S. Environmental Agency.

The Doc Fritchey Chapter of Trout Unlimited received $761,021, the largest of the grants, to restore 2,000 linear feet of Beck Creek in Lebanon County. The project will create a stable stream channel that meanders across the center of a restored floodplain, a 5-acre wetland and 10 acres of riparian buffer.

Also among the largest grants are $500,000 to the Chesapeake Bay Foundation for planting 100 acres of forested streamside buffers in Snyder County and maintaining existing ones in 12 other counties; $390,625 to the Lancaster County Conservation District for restoration work on Conowingo Creek; and $333,300 to the watershed Alliance of York for relocating and restoring a tributary of the South Branch of Codorus Creek.

The state also awarded $273,000 to the Schuylkill County Conservation District for designing projects to alleviate flooding in the Middle Creek watershed; $245,940 to the Watershed Alliance of York for restoring 800 linear feet of Centerville Creek; $214,000 to the Schuylkill County Conservation District for designing acid mine drainage treatment for the Upper Swatara Creek watershed; $184,579 to the York County Conservation District for restoring a tributary of Codorus Creek; $80,000 to the Huntingdon County Conservation District for maintaining two acid mine drainage treatment systems; and $56,968 to the Snyder County Conservation District for treating erosion along Susuehecka Creek. *— A. Crable*

VA maps out best spots to boost mussel habitat

The Virginia Department of Conservation and Recreation released a map of potential freshwater mussel habitats in Virginia waters on Oct. 17.

Freshwater mussels filter bacteria, algae and other small particles from the water, which helps improve water quality. They also provide a food source for other animals, and their shells eventually can act as nests for small fish.

Mussels used to be widespread in Virginia and Chesapeake Bay waters, but their populations have declined from decades of water pollution, dams that impede habitat and the introduction of invasive species. Only 25% of the 82 freshwater mussel species in Virginia are considered stable, according to the Department of Conservation and Recreation.

The department's Virginia Natural Heritage Program created the map to pinpoint places where planting native vegetation along streams and adding agricultural best management practices could have the biggest benefit for mussel habitats.

Water quality and conservation organizations can use the map to help prioritize their restoration work. Virginians can also use it to see which species may be in their local waters.

Explore the map by going to vanhde.org/content/map and selecting the "Potential Freshwater Mussel Richness" layer.

The map is part of a project funded by a grant from the Chesapeake Watershed Investments in Landscape Defense (WILD) program, administered by the National Fish and Wildlife Foundation.

State and nonprofit personnel search for freshwater mussels in Virginia's South Anna River. (Courtesy of Virginia Department of Conservation and Recreation)

See **BRIEFS**, *page 6*

briefs

From page 5

— L. Hines-Acosta

MD solar developers may have to pay preservation fee

Developers of utility-scale solar farms in Maryland might have to start compensating counties for erecting their sprawling arrays in preservation areas. In exchange, those projects would face fewer regulatory restrictions.

Local government officials and land preservation groups say they're working to soften as much of the measure's impact as they can before it is submitted as a bill in next spring's state legislative session. But they say they're unlikely to accomplish much because of the urgency in Annapolis to meet the state's ambitious greenhouse gas reduction goals.

"The trendline on this issue is worrisome," said Michael Sanderson, executive director of the Maryland Association of Counties, while speaking to the Worcester County Commissioners at a solar workshop. "And our forecast in the General Assembly is [that] we think we are on the losing side of this debate."

Democratic Gov. Wes Moore's administration has been working in recent months on what has been dubbed a "compromise" bill in collaboration

Solar panels in Kent County, MD. (Dave Harp)

with environmental leaders, the energy industry and counties. As of mid-September, the draft legislation was 80–90% complete, according to Sanderson's group.

The state has long sought to wrest more regulatory control of solar siting decisions from local governments. A 2019 ruling by Maryland's highest court affirmed that local governments have no authority to outright reject large solar projects.

The issue has been particularly heated in Carroll County, where leaders enacted a six-month moratorium on approvals of large solar projects in March 2023 and subsequently banned any siting on farmland.

State lawmakers failed to coalesce behind a bill during this year's session that would have addressed the industry's biggest flashpoint: how to offset the development of farmland and forests.

The current version of the legislation would establish a 4-mile-wide "solar development corridor" around existing major electric transmission lines. There, developers would get faster approvals and reduced planning costs — and counties would only have limited oversight.

In October, land conservancy advocates outlined their concerns in a letter. They estimate that 75% of the nearly 3 million acres contained within that proposed corridor are designated by the state to remain free from development. In some parts of the Eastern Shore, that number is as high as 96%, they said.

The proposed legislation would require solar developers to pay $3,500 per acre in protected areas within the corridor. That money would go toward a fund in the surrounding county for preserving land elsewhere for agricultural, conservation, historic preservation or related purposes. Such lands located outside the corridor would generate a $5,000-per-acre payment.

Conservation groups say the payments should be based on current land valuations in each county instead of a flat, statewide fee. And while the bill wouldn't loosen restrictions for easements, their letter nonetheless urged its authors to make that "explicitly clear."

— J. Cox

Dominion takes 'all of the above' approach to power future

Dominion Energy Virginia anticipates that the state will need twice as much electrical power 15 years from now as it does today — and that renewable energy alone will not be enough to meet the unprecedented demand.

The utility submitted its annual forecast of power needs to the Virginia State Corporation Commission on Oct. 15. The 400-page document details five options that would enable Dominion to meet the projected demand, all of which rely on delaying the retirement of fossil fuel-based power.

Dominion's press release stated that "80% of the plan's incremental power generation over the next 15 years is carbon-free" and "increasingly clean."

Peter Anderson, director of state energy policy with Appalachian Voices, is one of the environmental advocates taking issue with that characterization.

"Here the company publishes a plan that would retire none of its polluting fossil fuel units and instead build nearly six gigawatts of new methane gas generation over the next 15 years," he said.

The continued expansion of energy-intensive data centers in the region is the major driver of skyrocketing power demands, Dominion acknowledges in the report. And the area that includes the epicenter of data centers in Northern Virginia has the fastest growing power demands in the Mid-Atlantic region, the report states.

— Whitney Pipkin

Proposal for sand mine expansion near top of Bay draws ire

Petition from neighbors points to history of environmental problems at nearby sites

By Jeremy Cox

A Pennsylvania-based concrete masonry company with a spotty environmental track record in Maryland's Cecil County is facing fierce community resistance over its latest expansion plans there.

York Building Products is seeking to mine sand and gravel on a wooded 342-acre parcel perched on a peninsula between the mouths of the Susquehanna and North East rivers. Company officials say they plan to mine only 90 acres of the property.

Dozens of neighbors have joined a Facebook group against the project and decried the plans in person at local meetings. An online petition opposing the expansion has collected more than 1,000 signatures.

They fear the expansion will hurt property values, overload the rural road network with dump truck traffic and unleash muddy stormwater runoff into ditches and streams that lead to the nearby Chesapeake Bay.

York Building Products, a subsidiary of the construction and materials conglomerate the Stewart Companies, has operated mines in Cecil for decades. Although the company repairs the sites afterward, some neighbors say they aren't always happy with the results and that enough is enough.

"They constantly just take small bites out of the environment to the point you don't even notice that you don't have an environment anymore," said Frank Reynolds, who lives in nearby Perryville. "They know how to play the game. They've been doing it for years. They're very good at it."

State records show York has been fined more than $180,000 at other Cecil sites related to environmental violations dating back to 2015.

Company representatives didn't return phone or email messages seeking comments. But York officials have told the county that no mining will take place within 1,000 feet of any other property and that they will construct berms to deaden the noise. The county, they note, has already slated the property for mining activities.

The ongoing mining at the Perryville plant supports 500 direct and indirect employees, according to the company. Once the material there is extracted, York plans to transfer operations to the new site in three to five years. Excavation is expected to occur there for up to 20 years.

The company also will need to acquire a state mining permit before any work begins.

The Cecil County Planning Commission voted to approve the project in August, but the county's Board of Appeals tabled its decision a week later, pointing to traffic concerns. Trucks would access the property using a road that narrows to a single lane in an underpass beneath railroad tracks. York estimates that 87 trucks a day would use the road.

The appeals board set a Jan. 16, 2025, deadline for York officials to return with a plan to ensure those trucks don't pose a safety hazard.

Darlene McCall, another neighbor, said she has alerted state officials on at least two occasions to environmental violations committed by York at its existing mine nearby. In one instance nearly a decade ago, she recalled spotting silt-laden water flowing down a creek away from its existing mine in Perryville.

"It was like chocolate milk flowing into the creek, and it flowed that way for two weeks," McCall said.

The Maryland Department of the Environment fined York $30,000 in 2017 for one violation. Four years later, the agency cited the company again for a similar problem, assessing another $30,000 penalty. Such actions suggest that York doesn't prioritize environmental protection, McCall said.

"They're based in Pennsylvania, and they don't care what happens here," she said.

The company has been fined four times this year alone for violations at its Port Deposit site.

"These guys continually get fined, but there's no recourse," said Charlie Boyle, who also lives near the proposed mine expansion. "They pay their fine, and then it's business as usual." ■

VA group asks state to rein in pollution from cruise ships

Recent plans to bring passenger ship to York River triggered wider concerns

By Whitney Pipkin

A 3,000-person cruise ship is no longer planning to anchor in Virginia's York River, a temporary win for some residents of Yorktown, who opposed it. But the group has since expanded its area of concern to include the environmental impact of all cruise ships pulling into Virginia's coastal and Chesapeake Bay waters.

They are now asking the Virginia Department of Environmental Quality to consider enacting a broader suite of regulations that would apply to "ocean-class" passenger cruise ships in state waters.

"Mega cruise ships are like floating cities that generate power and discharge waste on a scale far exceeding that of other vessels," members of the group called Protect Virginia wrote in an op-ed for the Newport News *Daily Press*.

Their petition to the state, which is open to public comments on both the air and water implications until Nov. 11, asks the environmental agency to require cruise ships in state waters to use low-sulfur fuel and to ban the use of open-loop scrubbers, technologies that one report said "take harmful pollutants out of [air emissions] and dump them into the water."

Princess Cruises cancelled plans to bring its cruise ship to Yorktown, VA, in 2024 but remains interested in adding the York River to its routes. (Courtesy of Princess Cruises)

The petition, which will be considered separately by both the air and water boards of the agency, also asks the state to restrict discharges of "graywater, blackwater and other environmentally detrimental waste products" coming from the ships. It suggests that requiring cruise ships docking near cities to tap into the local power grid could reduce nearshore emissions coming from the vessels while they are idling at ports. Cruise ships are subject to some international and federal regulations, but reports have found enforcement and monitoring to be lacking.

"Virginia should have tougher regulations than the federal standards," Yorktown resident Elizabeth Wilkins said. "Several states have done that as well."

Virginia's cruise ship traffic is currently concentrated in Norfolk but has been growing as the industry recovers from the coronavirus pandemic.

Carnival Cruise Line has been visiting Norfolk since 2002 but began continually operating out of the port from May to October in 2023. About 250,000 cruise passengers visited the city that year, according to Leisure Group Travel. And, starting in 2025, the cruise line's 3,875-passenger Carnival Sunshine will begin sailing out of Norfolk's port on the Elizabeth River year-round.

Princess Cruises, a smaller subsidiary of Carnival, had planned to bring Its 16-deck *Island Princess* up the York River to call at the historic city of Yorktown this year. But the cruise line cancelled that plan in February, opting instead to bring the ship to Norfolk.

Frank Wagner, a former state representative and current lobbyist for Princess Cruises, mentioned in an August op-ed the cruise industry's ongoing interest in bringing more tourists to the state, especially to historic sites. And he indicated that the company's hopes to travel the York River, though cancelled for now, have not waned.

"Our current traffic situation precludes running buses from Norfolk to these locations, which opens up opportunities for cruise ships to call on Newport News or on the York River," Wagner wrote. "Cruise schedules are put together a year or two in advance. The time to act is now." ■

Loss of Potomac River water supply could cost billions

Options sought in case drought or contamination temporarily prevents withdrawals from the river

By Whitney Pipkin

A new report forecasts the steep economic impact that losing even temporary access to water from the Potomac River would have on the Washington, DC, region. That limited access could be caused by a severe drought, natural disasters or an environmental catastrophe polluting the water.

The Potomac River is currently the sole drinking water source for about five million people, including the entire District of Columbia.

The report from the Interstate Commission on the Potomac River Basin also found that the region could lose as much as $15 billion in gross regional product in the first month without water access. Businesses that rely on having access to water from the river range from restaurants to government offices.

"That's 10 times what the federal government spends every year to protect drinking water in this country," said Mae Stevens, CEO of the American Business Water Coalition, during a press conference that was held on Sept. 24.

David Gadis, CEO and general manager of DC Water, said that algal blooms, an oil spill and drought have threatened the public water supply in the Potomac River watershed. (Toy Box Studios)

Stevens and others are citing the report in their requests for additional federal funding to help solve the problem. The U.S. Army Corps of Engineers is exploring options that could make the region's water supply more diverse and resilient. Those future plans could include constructing additional reservoirs, tapping into an aquifer and focusing on water reuse.

The water for DC is currently supplied by the Washington Aqueduct, which is run by the Corps of Engineers. It is entirely dependent on the Potomac River as its source of raw water. DC Water's CEO and general manager, David Gadis, said during the press conference that the system has "approximately less than 24 hours of water in supply" at any given time.

Michael Nardolilli, executive director of the river basin commission, said the study will cost $3 million and take three years to complete. Federal legislators have presented bills that would pay for some or all of the study, but not all of the funding has been approved.

Jack McDougle, president and CEO of the Greater Washington Board of Trade, called the findings about the economic impacts of water loss "sobering."

Others pointed out that a future in which the Potomac River can't provide enough water for a few days or longer is not hard to imagine. The Potomac River basin experienced a drought this summer, with precipitation levels dropping nearly four inches below normal for about 60 days. The Metropolitan Washington Council of Governments issued a drought watch, which is one stage before issuing mandatory water restrictions for the region.

Gadis of DC Water said algal blooms in the Potomac River and an oil spill in recent weeks had also threatened to affect the water supply, along with drought conditions.

"Congress," he said, "has an opportunity to act." ■

View the full Potomac River water supply report at potomacriver.org/news/watersupply.

‘Forever chemicals’ found at MD plant, sparking investigation

Source of PFAS contamination at Perdue soybean plant remains unknown as company cooperates

By Jeremy Cox

Tests showing elevated levels of PFAS in the groundwater at Perdue AgriBusiness’s soybean processing facility near Salisbury, MD, have triggered a wider investigation in the surrounding community and a class-action lawsuit.

The company, a subsidiary of poultry giant Perdue Farms, has coordinated with the Maryland Department of the Environment to notify residents of 550 homes within a half-mile radius of the facility. The letters, dated Sept. 30, seek permission from property owners to allow an independent contractor to sample their well water. Perdue is also offering free bottled water to any affected home.

“This is very much an emerging issue,” Perdue CEO Kevin McAdams said. “We did this out of an abundance of caution. We worked with MDE, and we wanted to come forward.”

In an Oct. 22 update, Perdue officials said they had received completed questionnaires from 250 of the property owners and had begun making bottled water available to those who requested it. They said that initial tests detected PFAS at “some properties within the testing area” but didn’t specify how many.

MDE officials say the testing at the Eastern Shore facility grew out of an ongoing statewide search for potential PFAS contamination. The agency has gathered test results from all of the state’s more than 450 community water systems in recent years and has begun analyzing samples from nonresidential providers, such as schools.

“We are working closely with the company and local leaders to support the residents who may be affected by the discovery of PFAS contamination in the groundwater,” said MDE Secretary Serena McIlwain in a statement. “PFAS is an emerging area of concern in Maryland and across the nation. We appreciate Perdue’s cooperation in addressing this matter.”

PFAS, or per– and polyfluoroalkyl substances, have been used for decades in a wide variety of products, such as firefighting foam, carpeting, food packaging, cosmetics and more. PFAS include thousands of chemicals, some of which have been found to cause decreased fertility, increased cancer risk and other health problems.

PFAS contamination has been found in groundwater at the Perdue AgriBusiness soybean processing plant near Salisbury, MD. (Jeremy Cox)

PFAS don’t break down easily and can stick around in the environment or even human blood for many years. Because of this, the substances are often referred to as “forever chemicals.”

In April, the U.S. Environmental Protection Agency finalized a rule reducing the drinking water limit from 70 parts per trillion to 4 parts per trillion, essentially the threshold at which it can be detected by existing technology.

Testing at the 250-acre Perdue plant found levels both below and above that threshold, ranging from below the federal standard to 1,370 parts per trillion for one well.

The toxic chemical was first detected in the plant’s wastewater system, officials say. Subsequent groundwater tests resulted in more detections. State and company officials hope that the testing conducted at homes around the facility helps shed light on the nature and extent of the underground contamination.

Meanwhile, a law firm has filed a class-action lawsuit against Perdue on behalf of five of the plant’s neighbors.

The suit was filed by Baird Mandalas Brockstedt & Federico on Oct. 11 in the U.S. District Court in Baltimore. It claims that MDE discovered the elevated PFAS levels in September 2023 in the plant’s treated wastewater, which was being sprayed on the site’s cropland and forested areas. Some was also being discharged directly into a small stream.

The legal documents accuse Perdue of failing for many years to test the wastewater before using it as irrigation to make sure it was safe. Even after the initial test results, Perdue took no action, the suit alleges, to halt the contamination or notify nearby residents for a full year.

The lawsuit states that some of the plaintiffs suffer from a “variety” of health problems known to be caused by PFAS exposure, but it doesn’t specify what they are. In addition to calling for Perdue to stop the pollution, the action seeks potentially millions of dollars in damages to cover a medical monitoring program, the loss of quality of life, the loss of property value and other costs.

Perdue issued a statement noting that it remains to be determined what’s causing the contamination.

“We recognize the concern this may cause nearby property owners and, as we have previously shared, we are fully cooperating with MDE and actively investigating all possibilities, including other potential sources in the area,” the company said. “We have always prioritized the safety and well-being of our community, and this case is no exception. Perdue will continue to engage transparently with our neighbors and the community throughout this process.”

Perdue officials have said they don’t use PFAS in any of the facility’s manufacturing.

The only time that PFAS are known to have contaminated the site was about five years ago during an accidental discharge of firefighting foam, said Drew Getty, Perdue’s vice president of environmental sustainability. The plant opened in the 1960s.

Perdue has set up a dedicated website with information for residents and ways to contact the company about the contamination.

The facility is just east of the Salisbury city limits but is across a highway from a bustling residential subdivision. Homes also run along the road in front of the plant.

Beaver Run Elementary School stands just outside the half-mile testing radius. A spokeswoman for Wicomico County Public Schools said the school’s drinking water system was switched from well water to public water during its reconstruction a few years ago.

The same Perdue site was the subject recently of a separate MDE action. Along with the Maryland Attorney General’s Office, MDE in July fined Perdue $12 million after discovering the company had installed new machinery without a permit and without proper air-pollution controls. ■

Plans launch for Susquehanna Discovery Center and park

Historic PA farm and homestead near river were prominent in Underground Railroad, Civil War

By Ad Crable

An 87-acre farm and homestead near the Susquehanna River that figured prominently in both the Underground Railroad and a Civil War skirmish will not sprout a warehouse. And the historic stone home will not be demolished.

Instead, the property has been tapped to become a $25 million Susquehanna Discovery Center & Heritage Park, providing a cultural touchstone for future generations.

The 225-year-old stone Mifflin House, its historic barn complex and fields in York County on the edge of the riverside town of Wrightsville will be repurposed as the new headquarters and visitors center for the Susquehanna National Heritage Area. The heritage area was created by Congress in 2017 to tell the stories of the region and attract visitors from afar.

The heritage area purchased the property for $5.25 million from the Conservation Fund in late 2023. The environmental nonprofit had bought the property in 2022 and held it until money could be raised to save it.

Officials hope the site will become a national destination.

"While history and culture can be presented anywhere, there is no substitute for traversing historic ground while seeking to establish a kinship with those in the past to broaden our perspectives," said historian Eric Menzer, board chair for the Susquehanna National Heritage Area.

About 60 local, state, federal and historic preservation officials attended a groundbreaking on Sept. 27 and celebrated the release of a concept plan in a nook of the barn and milking parlor.

Those preliminary plans include repurposing the 160-year-old bank barn as the Susquehanna Discovery Center, a world-class visitor center for the recreational, natural, cultural and historic resources in the Susquehanna National Heritage Area. It will house heritage exhibits, program space, a vista of the property — possibly from one of its silos — a gift shop, cafe and offices.

A separate on-site museum would display 300 years of art, books, maps and illustrations of the Susquehanna River.

An eight-acre corner of the farm adjacent would be set aside for the possible building of a hospitality center with a hotel, restaurant and retail businesses.

The historic Mifflin House and farm along the Susquehanna River in York County, PA, will be repurposed into a visitor gateway and headquarters for the Susquehanna National Heritage Area. (Susquehanna National Heritage Area)

The Mifflin House, which sits like a beacon on a hill with views of the Susquehanna only 1,200 yards away, will be a centerpiece for tours describing the pivotal role the house and farm buildings, as well as the surrounding counties, played in the Underground Railroad.

The Underground Railroad was a network of routes, safe houses and supporters that aided people escaping slavery.

A new park at the river will feature a canoe and kayak launch, viewpoints, picnic areas and fishing access.

The current farm fields and woods will have interpretive trails that mark the Civil War battlefield where in June 1863 some 1,500 local Union volunteer defenders, including freed Black men, entrenched on the farm to defend the river crossing. They came under attack from 1,800 Confederate troops, the vanguard of a larger force bent on crossing the river and invading Lancaster County. Artillery set up on the hill next to the stone house fired on the troops and toward the bridge.

Federal soldiers and residents of the two towns burned the covered bridge spanning the river, thus thwarting the invasion.

A secret history

In 1800, recently married Jonathan Mifflin and Susanna Wright from two local Quaker families on both sides of the river had the Mifflin House built on top of a prominent knoll amidst at least 200 acres of farmland. They called it Hybla.

Like other Quakers in the area who participated in a religiously inspired civil rights movement, they made their farm a safe house on the Underground Railroad near the only bridge across the Susquehanna between Harrisburg and Port Deposit, MD.

Over 40 years or so, dozens if not hundreds of freedom seekers may have hidden in the house, as well as the barn, spring house and other farm buildings on their dangerous journey. The Mifflins worked with Robert Loney, formerly enslaved in Virginia, to ferry the fugitives across the river, often at night.

In 1840, their son, Samuel W. Mifflin, took over the house and continued the Underground Railroad operation until 1846.

At the groundbreaking celebration, Kathleen Anderson, an African-American from Lancaster, talked about how she did not learn much about Black history in school.

"My family, my neighbors, my city, my state, my country should know about what happened in this area concerning the Underground Railroad," said Anderson, who is vice president of the African American Historical Society of South Central Pennsylvania. "It needs to be told. But we all need to know that we are all in this together. African American history is American history."

Erik Kirkland, on the heritage area's board and whose grandfather came to the area after being emancipated in South Carolina, added, "Without question, this place is a key story in American history."

A fight for history

In the 1990s, owners of the Mifflin House farm began selling it off for an industrial park, golf course, homes and a convenience store.

Then came word that the last 87 acres that included the Mifflin House and some of the battlefield would be developed for another warehouse. Local groups and residents filed lawsuits and challenges to zoning ordinances to at least save the historic house.

The state deemed the site eligible for the National Register of Historic Places in 2017. And Preservation Pennsylvania named Mifflin House as one of the state's most endangered historic properties.

Eventually, the developer agreed to let the Mifflin House be relocated, but many in the effort resisted, claiming that in moving the historic structure elsewhere, much of the history would be lost. Advocates expanded their goal to preserve the entire property and make it a centerpiece of the heritage area.

In 2019, the developer agreed and gave the coalition two years to drum up the $5.25 million purchase price.

Though it was slow going, momentum built, and donations and grants piled up. But when it was clear that full funding wouldn't be in hand by the deadline, the Conservation Fund bought and held the land until money was secured.

The state Department of Conservation and Natural Resources put up more than $2 million. More than a dozen other partners, from small to large foundations, other state agencies, York County and others came forward with funds.

The next step is a multiyear planning, design and fundraising effort. But the heritage area plans to begin public tours of the house and property in the spring. ■

Deal to resume dredge disposal on Hart-Miller Island unravels

Company withdraws offer of $40 million amid pushback from birders, local residents

By Timothy B. Wheeler

An offer of $40 million seems like a lot to pass up. But it wasn't nearly enough to persuade some eastern Baltimore County residents to go along with a plan to put sediment from the Patapsco River bottom on an island in the Chesapeake Bay near their homes.

Tradepoint Atlantic, the company redeveloping the defunct Bethlehem Steel complex on Sparrows Point, had offered that sum to Baltimore County if local officials agreed to let it use Hart-Miller Island as the disposal site for 4.2 million cubic yards of sediment the company plans to dredge up for a new $1 billion ship terminal.

Aaron Tomarchio, Tradepoint's executive vice president, called the proposed deal a "win-win" for his company and the county's residents. Company officials thought it would shorten the timetable for building the new terminal, now projected to open in 2028, and it would provide millions of dollars for long-sought community improvements.

With Baltimore's economically vital port temporarily shut down last spring by the Key Bridge collapse, Maryland lawmakers quickly embraced the idea. Their only caveat was that the company would have to reach a "community benefits agreement" with the county by the end of 2024.

About half the money from Tradepoint was to go toward improving the 1,100-acre island, while the rest was to be parceled out for community improvements on the mainland.

Some residents, though, wanted no part of it. At an early October meeting, about 90 residents aired fears that the muck to be put on the island would pollute the water and poison their waterfront communities. Others worried it would destroy wetlands that attract a stunning array of waterfowl, shorebirds and songbirds, including some rarely seen in Maryland.

"You call it dredged material, I call it toxic waste," said Mary Taylor, a longtime Essex resident. "I think we've all been dumped on enough."

Hart-Miller was in fact created with dredged material, more than 100 million cubic yards of it dredged over 25 years to maintain depths in Baltimore's shipping channels.

Birders scan the wetlands and water on Hart-Miller Island in Baltimore County, MD, as part of a tour hosted by the Maryland Environmental Service. (Timothy B. Wheeler)

Waterfront residents and environmentalists bitterly opposed the island's creation back then, arguing the muck would leach toxic contaminants into the Bay, killing fish and threatening public health. They fought the plan in court for several years before finally losing.

The state finally stopped depositing dredged sediment on the island at the end of 2009. Seven years later, the Department of Natural Resources opened a 290-acre state park on the island's southern end with a sandy beach, picnic tables and campsites accessible only by private watercraft.

The remaining 750 marshy acres on the north side were supposed to be added to the park, but the state has never come up with the estimated $47 million needed for that.

Some residents still suspect the island is already polluting but, while there is some groundwater contamination, surface water drained through outfalls meets state discharge limits. Even so, birders flock to take state-guided bird-watching tours of the island's closed north cell.

One sunny October morning, a group of camera– and scope-toting birders spotted 73 different winged species, including black-and-white avocets, least bitterns and a majestic pair of trumpeter swans in flight. Over the years, more than 300 species have been observed there, including some seen nowhere else in Maryland.

Joe Corcoran, president of the Baltimore Bird Club, said birders feared that the marsh habitat attracting so many birds would be lost for a decade or more if Tradepoint Atlantic spread dredged material there. He and Kathy Lambrow, another club leader, called on the company to spare at least 100 acres of wetlands from disturbance.

At the October meeting, after 90 minutes of back and forth, organizers asked for a show of hands. Nearly everyone in the room signified their opposition to the deal.

And two days later, before a "steering committee" of neighborhood leaders could vote on whether to recommend approval of the project, Tradepoint Atlantic announced it was withdrawing its offer and would pursue an alternative plan for disposing of its dredged material.

Tomarchio, who hadn't been invited to the meeting, attributed the unraveling of the deal to a "vocal minority" that he contended spread misinformation about the plan. "It was an unfortunate scenario, [but] when we started this process, we said we would listen to the community."

Tradepoint is now planning to deposit its dredged material elsewhere — some of it at Sparrows Point and much of it likely in the Atlantic Ocean.

County officials, who had supported the deal, expressed their disappointment at its collapse.

Paul Brylske, a leader of the Friends of Hart-Miller Island and a member of the steering committee, was unable to attend the meeting, he said, or he would have tried to make the case that the deal was worth more discussion.

Brylske faulted some opponents with making misstatements about the deal. But he also said he thought the community hadn't been given enough time to digest it, and Tradepoint Atlantic hadn't made enough effort to address public concerns.

Now, he said, "I don't see the north cell ever becoming a state park … because the state's not going to have the money, and we're not going to have another opportunity like this."

Corcoran said he was disappointed, too. But without assurance some wetlands would be protected, it is "better off to leave it the way it is," he said, "because the birds are happy out there now." ■

Striped bass reproduction in the Bay still poor, surveys find

Fisheries managers eye more seasonal closures, other steps

By Timothy B. Wheeler

Striped bass continue to suffer from poor reproduction in the Chesapeake Bay, the latest surveys show. The findings have prompted East Coast fishery managers to move toward ordering another round of catch cutbacks in 2025 on the popular migratory finfish.

An annual seine survey of Maryland's portion of the Bay collected just 2 juvenile striped bass per haul of the net, the sixth straight year of dismal spawning success, the Department of Natural Resources reported. Though better than the near-record low tally for 2023, it is still well below the long-term average of 11 young fish per haul.

A similar survey of Virginia waters found significantly below-average numbers of recently spawned striped bass there for the second year in a row. The number collected per seine this year was 3.34, less than half the long-term average for that state's portion of the Bay of 7.77 fish per haul.

Chris Moore, the Chesapeake Bay Foundation's Virginia executive director, said the survey results "continue a disturbing trend for our most iconic Bay finfish and make it clear that rebuilding the striped bass population is not guaranteed." He called for further steps to improve spawning success, including seasonal closures of fishing and restoring habitat.

Striped bass are found in nearshore waters from Canada to Florida, but the Chesapeake is the primary spawning and nursery ground for 70% to 90% of the Atlantic coast stock. Also known in the Bay region as rockfish, they are highly sought after by sport and commercial fishers.

Their spawning success typically varies from year to year, but the overall coastal population has been maintained by bumper crops of juveniles produced every few years. This string of six years of weak reproduction in Maryland is the longest since overfishing in the 1970s and '80s led to a near-collapse of the population, prompting catch restrictions coastwide and even outright bans in Maryland and Virginia.

The population rebounded, but in 2018 scientists declared them overfished again,

Maryland and Virginia conduct annual seine surveys of key striped bass nursery areas to count and measure the juvenile fish. (Chesapeake Bay Foundation)

warning that even catch-and-release fishing was a major factor because fish hooked in hot weather often died after being released.

The Atlantic States Marine Fisheries Commission, which oversees near-shore fishing of migratory fish along the East Coast, has since then ordered a series of restrictions on the recreational and commercial catches. An updated stock assessment, which the commission discussed Oct. 23 in Annapolis, finds that striped bass remain overfished and the odds of achieving the goal of rebuilding the population by 2029 have fallen below 50%.

Fishery managers and scientists in both states survey traditional striped bass spawning areas every year, sweeping shallow waters multiple times through the summer with a 100-foot seine net. In Maryland, the survey regularly samples the Choptank, Nanticoke and Potomac rivers and the upper Chesapeake Bay. This past summer, DNR also surveyed the Patapsco, Magothy, Rhode, West, Miles and Tred Avon rivers, where they likewise found fewer juvenile striped bass.

In Virginia, annual checks are made in the Rappahannock, York and James River systems. Fish captured in the net are counted, measured and returned alive to the river. The young striped bass collected range from 1.5 to 4 inches in size. Fish spawned this spring would normally reach catchable size in three to four years.

Joseph (Brody) Phillips, left, Jack Buchanan, and Anna DeMotte of the Virginia Institute of Marine Science seine for juvenile striped bass in the James River in July 2023. (Chesapeake Bay Foundation)

Researchers have suggested the poor survey results may stem at least in part from warmer, drier winters triggering earlier spawning, before there are enough microscopic zooplankton in the water on which striped bass larvae depend for food.

"These results underscore the complexity of managing a coastal migratory species whose life cycle is influenced by environmental conditions during a brief spawning period," said Lynn Fegley, Maryland DNR's fisheries and boating director. "We will continue to explore ways to conserve and enhance the spawning population during this time when we are adding fewer young fish to the population."

Though proof is lacking, others suspect the dramatic increase of blue catfish throughout the Chesapeake may also be a factor, as the invasive species eats other fish and crabs when it reaches a certain size.

A recently published study by researchers at the Virginia Institute of Marine Science also finds that poor conditions in shallow near-shore areas, where juvenile striped bass spend their summers, may reduce their abundance.

Spurred by the discouraging news from the Bay, the Atlantic States commission's striped bass management board voted Oct. 23 to hold a special meeting in December to consider ordering more recreational and commercial fishing cutbacks coastwide in 2025. Commissioners said prompt action was needed to protect the last good crop of rockfish, which spawned in 2018, from being caught up as they reach legally catchable size.

Managers agreed to look at requiring seasonal closures, when anglers would be barred either from harvesting or even intentionally catching and releasing striped bass. Another option would be changing current narrow size limits on which fish can be kept if caught. The board also plans to consider cutting the commercial harvest quota. Preliminary estimates call for a 15% reduction from 2024 levels in overall harvest and deaths of fish caught and released. ■

Workforce shortage in PA slows progress on stream buffers

Funds are increasingly available, but contractors and trained workers are in short supply

By Ad Crable

Record amounts of funding are helping to boost the planting of forested streamside buffers throughout the Chesapeake Bay region. But a workforce shortage is stunting momentum in some areas.

Volunteers swarming along streams to plant seedlings in communities help keep the riparian buffer movement in the news. But contractors, not volunteers, plant most of the trees in Bay states.

And they currently lack enough staff to keep up with the demand, especially for the crucial three to five years of monitoring and maintenance needed after trees are in the ground, say conservation groups scrambling to establish the buffers.

In the past, landowners who allowed buffer projects on their properties were typically responsible for the follow-up work, but too many plantings failed for lack of care. Increasingly, monitoring by trained workers is baked into projects.

"The day the trees get planted is the easiest day in the five-year stretch of buffer management," said Lamonte Garber, watershed restoration coordinator at the Stroud Water Research Center.

Workers entrusted with keeping the trees alive need to be certified in the use of pesticides to control invasive plants. They also do a lot of manual labor like pulling up weeds and re-staking tubes that encase the young trees.

"This has been a problem for a very long time in the riparian movement. There's a lot of work to be done, but there's just not a lot of people doing it," said Ryan Davis, senior forests projects manager for the Alliance for the Chesapeake Bay.

"We're all acutely aware most of our contractors are at capacity, and we're treading water. There is a spiked increase in implementation, but we need a huge increase to get all our goals done," he said.

The problem is most acute in Pennsylvania, but projects in Maryland and Virginia have encountered labor shortages as well.

Forested riparian buffers are one of the easiest and best-bang-for-the-buck conservation practices. Increased funding and renewed interest have recently driven up the number of projects in Bay drainage states.

Buffers absorb nutrient pollution and soil runoff from agriculture, reduce erosion, guard against flooding, cool water and increase fish and wildlife habitat.

Rebecca Lauver of the Alliance for the Chesapeake Bay performs maintenance on a forested streamside buffer in Lancaster County, PA. (Caroline Grass/Chesapeake Bay Program)

Contractors are often small businesses that specialize in tree planting and care. Usually, they are landscaping outfits that have expanded and have workers certified in herbicide spraying.

Despite the increased demand for their expertise, contractors have been hesitant to increase staff until they are convinced that the buffer expansion will be long-term and sustainable for their businesses, a variety of conservation groups said.

"There needs to be a case made to the business community as to why this is worth it for them," said Allyson Gibson, executive director of Lancaster Clean Water Partners.

"Another reason is that, in ag and conservation work, there is this artificially low price point. Even in our rural areas, if we were paying more there would be people in landscaping businesses that would do this work," said Matt Ehrhart, the Stroud Water Research Center's director of watershed restoration.

Some 95% of Stroud's streamside buffer work is handled by contractors, Ehrhart said. Stroud had planned a large buffer project this fall but delayed it until spring, partly because of dry soil conditions but also because of "limited accessibility of our contractors," he said.

"The fundamental story here is that for there to be an abundant supply of contractors for this work, there needs to be long-term and predictable and significant demand for the work, and we just don't have that in Pennsylvania. It will take more than just a blush of funding to move the needle," Garber added.

The Chesapeake Bay Program has a goal to plant 900 miles of streamside buffers in the Bay watershed each year, but that goal has never been reached. The highest amount was 721 miles in 2009. In most years, the total has been less than 300 miles.

Still, the miles of buffers planted have increased every year throughout the Bay watershed since 2019, according to the Bay Program.

And even though states aren't reaching their yearly goals, the number of grants and projects is increasing significantly.

Bay-drainage states together planted buffers along 457 miles of streams in 2022 and 640 miles in 2023.

The Chesapeake Conservancy ran into the worker shortage problem after it committed to a buffer project on 100 acres in Pennsylvania. To their surprise, when they put out a request for proposals for the project, no one would commit to the post-planting care.

To head off future problems, the conservancy obtained funding from the state Department of Conservation and Natural Resources and reached out to Susquehanna University. They hired four students and trained them to recognize harmful invasive plants eager to choke out seedlings. The students obtained certification for applying herbicides when ripping out by hand is not enough. The students were paid $16.70 an hour.

Now in the second year of the program, trained students are caring for 21 properties up to 60 miles away from their school.

"They get to do something that's tangible, and you can pat yourself on the back at the end of the day," said Matt Wilson, an earth and environmental sciences professor at the college and coordinator the program.

The program has been so successful that the Chesapeake Conservancy has been awarded a $2 million grant from the U.S. Forest Service to expand its workforce training program. In Pennsylvania and Maryland, 200 people in underserved communities, AmeriCorps members and Susquehanna University students will be paid for training. Another 200 volunteers will be trained by the Lancaster Conservancy.

Eager volunteer squads, such as the Alliance for the Chesapeake Bay's Riparian Rangers and the Pennsylvania Horticultural Society's Tree Tenders, will continue to play an important role in planting trees and monitoring their wellbeing. But the task simply needs more trained help to keep up.

"There's been this huge celebration across the Bay watershed that we've pumped up our riparian buffer numbers in recent years," said Carly Dean, director of the Chesapeake Conservancy's Chesapeake Tributaries Initiative.

"But with that we need to be more prepared. It's all about getting more people trained about doing planting and maintenance so we can keep up with this accelerated pace of conservation." ■

City of Norfolk prepares for its next 100-year storm

Delays and miscommunications raise questions and concerns about project plans

By Lauren Hines-Acosta

As a wide swath of the southeastern U.S. recovers from the record-breaking devastation of hurricanes Helene and Milton, Norfolk is trying to prepare for its next 100-year storm.

The U.S. Army Corps of Engineers is close to finalizing the Phase 1A designs of its Coastal Storm Risk Management project for Norfolk, where the sea level is rising faster than anywhere else on the East Coast. Miscommunication between residents and the U.S. Army Corps of Engineers has created friction, while the city races to complete the project before a 100-year flood eventually hits. Residents continue to have questions as more drafts from the Corps come to fruition.

"The cost of doing nothing is just not an acceptable proposition for us," said Kyle Spencer, Norfolk's chief resiliency officer.

The Coastal Storm Risk Management project has proposed nine miles of floodwalls, 10 pump stations, 11 tide gates, oyster reefs and "living shorelines" to line Norfolk's waterfront. The project is divided into five phases across the city with an estimated cost of $2.6 billion. It's expected to provide Norfolk with $122 million in annual net benefits from reduced flood damage.

A 100-year storm that causes an extreme storm surge has only a 1% chance of happening every year. But Navid Tahvildari, coastal engineering professor at Old Dominion University, said Norfolk and other coastal cities across the country are likely to see that probability increase because of climate change.

"Thankfully, they happen rarely, but once they happen, they have dramatic impact on a city and the region," Tahvildari said. "So, that's why those extreme events are of interest for federal and local and state agencies to be able to prepare for the worst."

Many of Norfolk's project designs are still being workshopped. The city and the Corps' Norfolk district in June officially showed the Freemason Harbour Condominium Association a draft plan for a floodwall going through their historic district.

Residents did not like what they saw. The wall's proposed route would split the community, leave a building in the flood zone and block the waterfront view that gives condos there a high property value. This part of the project, Phase 1C, is not final.

Kyle Spencer, Norfolk's chief resiliency officer, talks with city residents about the Coastal Storm Risk Management project during an open house on March 14. (Courtesy of the City of Norfolk)

The city and Army Corps hosted outreach events with several condo associations from February to September and held open houses for the city to present the project in March.

Kristin Mazur, coastal risk program manager with Norfolk's Army Corps, said the city shared draft graphics of potential floodwall routes from a brainstorming session. "There's been, honestly, a misunderstanding from that community thinking that we're further along than we are," she said.

But Eric Thompson, president of the Freemason Harbour Condominium Association, takes issue that the project focuses on a 100-year flood instead of the regular nuisance flooding.

"Our expectation was that a solution being proposed by the city and the Army Corps of Engineers would address those two … most relevant issues, and neither of those issues are fixed by this solution," Thompson said.

Spencer said they can protect residents against both. He cited the city's 2018 Green Infrastructure Plan as one way Norfolk is addressing nuisance flooding. The plan describes restoring creeks, replacing pipes with ditches, expanding marshes and adding tree canopy, all to create more natural water storage.

While one community doesn't want its wall, another is asking for one.

Kim Sudderth is a local activist in Berkley. Many of her neighbors have homes the Army Corps has identified as at-risk and eligible for "refitting" — lifting homes, filling basements and floodproofing — but not the robust infrastructure other areas might receive.

The U.S. Army Corps of Engineers uses a benefit-cost analysis to evaluate whether expensive levees and floodwalls exceed the property value they protect. It also considers a project's effects on natural resources, economic activity and communities.

Southside neighborhoods like Berkley and Campostella were redlined in the 1930s or deemed risky because they had predominantly African American communities. Ongoing economic disparities and lack of public investments in those areas furthered the problems, so they didn't "qualify" for expensive flood protections like floodwalls.

"If you're basing decisions on protecting a community … off of an original discrimination, then you're just continuing it," Sudderth said.

The community asked the Army Corps to reconsider. They pointed toward President Joe Biden's Environmental Justice 40 initiative, which directs 40% of certain federal program funds go to disadvantaged communities.

Sudderth is glad the city heard them, and the city council added a resolution in 2023 to re-evaluate the Southside for structural elements. But the funding to conduct the re-evaluation must be approved by the U.S. Congress. The study didn't receive funding this fiscal year.

Spencer said there's no "congressional crystal ball" for predicting what might happen. Virginia senators have submitted a budget request for congressional funding for the re-evaluation from the 2025 energy and water appropriation bill, according to Lori Sharp, a Norfolk spokesperson.

"We're still kind of stuck at square one," Sudderth said. "So, I'm still hopeful that we will get what we need in order to protect our community."

Federal funding will only cover 65% of the costs for the citywide project. That means the city and state of Virginia need to cover the remaining 35%, or $931 million.

Norfolk already received $25 million in December 2023 from the state's Community Flood Preparedness grant program, funded by the Regional Greenhouse Gas Initiative. But that stream has dried up since Republican Gov. Glenn Youngkin pulled Virginia out of RGGI in June 2023.

The Association of Energy Conservation Professionals filed a lawsuit challenging the withdrawal. The case was finally heard in the Floyd County Circuit Court on Sept. 16. The judge has not yet made a ruling.

"A loan for a small county or town, they just don't have the money," said Norfolk City Councilmember Andria McClellan. "So, I really hope that the state reconsiders that and sticks with the grant program instead."

The project will be adjusted for inflation, so the cost is allowed to exceed the estimated amount by 20%, according to Michelle Hamor, planning and policy branch chief with Norfolk's Army Corps.

Norfolk plans on continuing to speak with residents as it makes designs. Out of the 1,000 homes eligible for refitting, the city will reach out to owners of the 80 homes that have been identified as the most at-risk for flooding.

A detailed draft of Phase 1A will be completed in November, and a final draft will be presented in March 2025. Phase 1A includes a levee stretching east from the Berkley Bridge along the Elizabeth River with a natural shoreline extending past Harbor Park stadium. The city will begin designing the rest of Phase 1 in November. ■

Ashland Dam: If you remove it, will they come?

Dam demolition on VA's South Anna River could open hundreds of miles to migratory fish

By Whitney Pipkin

Excavators demolish a dam on the South Anna River in Ashland, VA, on Oct. 1. Removing the dam gives migratory of fish access to more than 400 miles of historic spawning grounds. (Whitney Pipkin)

The environmental studies professor can't help but whoop when he rounds the corner to see heavy machinery demolishing a dam that has blocked fish passage for more than a century.

"I love that," Charles "Chas" Gowan hollers over a barrage of hydraulic hammering.

Gowan works at Randolph-Macon College a few miles from this stretch of the South Anna River in Ashland, VA. He's been waiting a long time for this dam that once ran a mill to be removed. So has Alan Weaver, fish passage coordinator for the Virginia Department of Wildlife Resources, who's monitored fish species here for more than 30 years.

To hear them tell it, species like hickory shad, American shad and striped bass have been knocking at the door of this dam for years, waiting for its removal to open up more than 400 miles of historic spawning grounds. Weaver has seen similar species venture to the upper reaches of the Rappahannock River since the even larger Embrey Dam was removed in 2004, and he's confident they'll see similar results here.

"It's pretty much guaranteed that the target fish will go from there," he said, pointing to the downstream side of the dam from where he stood above it, "to here."

Still, knowing that a dam removal will benefit wildlife and stream health is one thing; getting it removed is another. For starters, it requires extensive permitting and can cost millions of dollars, leaving localities or river groups vying for federal money.

But the Ashland Mill Dam is the first in Virginia to be removed by a private company to generate mitigation credits. That means the costs will essentially be reimbursed by other projects that are required to offset environmental impacts.

"Some folks think projects like this only come from public funds, and that's not the case," said Brad Breslow, senior project manager for Davey Mitigation, which is paying the upfront cost of the dam removal. "It's on us to do the work and make sure it's successful. We don't make money until someone buys the credits and they're allocated to permitted impacts elsewhere."

Projects that would qualify to purchase the credits would be those impacting streams in the York River basin. The South Anna River flows into the Pamunkey River north of Richmond, which later joins the Mattaponi to form the York River.

The Nature Conservancy keeps a ranked list of dams, culverts and other in-stream barriers whose removal could improve fish passage in the Chesapeake Bay region. The tool helps identify potential projects that are "the best bang for their buck," Weaver said. Of the dams that are no longer actively used in Virginia, the Ashland Mill Dam has been at the top of the list for years.

Davey Mitigation got involved, Breslow said, when they found the dam removal on the potential-projects list of another company they recently acquired. His larger company had the financial capacity and expertise to tackle the job.

The U.S. Army Corps of Engineers and Virginia Department of Environmental Quality co-chair an interagency review team that permits mitigation projects like these. That team determines how to quantify and credit the ecological benefits to ensure it offsets others in accordance with the Clean Water Act's "no net loss" policy. Though dam removals in other states have been used for mitigation credits, this was the first for the Corps' Norfolk District.

"There's no playbook for a project like this," Breslow said. "It's going from a lake to a river."

Made of concrete, river stones and rebar, the 13-foot dam stretched 210 feet across the river since at least the early 1900s, and wooden versions preceded it. The dam formed a reservoir of water upstream that will shrink with its removal.

Typically, the first step is to create a controlled breach in the dam that would slowly drain the pent-up water, preventing too much sediment from gushing downstream at once. But this summer, the dam began the dewatering process on its own, when a wooden gate sprang a leak.

"That made it easier on us," said Robert Osborne, president of North Carolina-based Backwater Environmental, which was contracted to do the removal work onsite.

By the time his crews began demolishing the dam on Sept. 24, a large sandbar had emerged upstream, and other lake-to-river changes were well underway.

"When we get a good flow, this sand's gonna go," said Gowan, the Randolph-Macon College professor, standing on the sandbar just above the dam while it was being dismantled in early October. "This river rips."

Gowan would know. He and his students have been measuring the river's velocity, depth and rate of sand erosion along with other indicators of stream health for months now in anticipation of the dam removal. His problem-solving classes focus on giving environmental students real-world experience in monitoring water quality. It doesn't get much better than a dam removal, he said.

"We've been running these courses for 15 years, and they are all cool in some regard," he said. "But this one's, I think, near the top."

Students in these classes will now be monitoring how the South Anna River changes over the next decade. Students working with professor Stephanie Coster will conduct environmental DNA analysis in the stream, detecting changes in the make-up of fish species over time. And experts from Wetland Studies, a Davey Company, will be monitoring and reshaping the emerging stream for the best outcomes.

These levels of monitoring are part of what makes the Ashland Mill Dam removal so unique. Along with college students, Weaver, of the state Department of Wildlife Resources, has been tracking fish species below and above the dam since he started his job in 1993.

While some American eels have made their way around the dam during high flows, Weaver knows that shad, herring, striped bass and sea lamprey have not. These are among the seven species the project aims to benefit, and Weaver wonders if others, like Atlantic sturgeon, might make use of upstream waters too.

A smaller dam located nine miles upstream of the Ashland Mill Dam is likely passable for fish during high spring flows, Weaver said. These considerations and others are part of the math that projects the dam removal could open access to as many as 476 stream miles. Whether the fish will go that far is another question.

Weaver said his department has documented American shad 28 miles upstream of where the Embrey Dam used to be on the Rappahannock, for example, while hickory shad and alewife herring have only ventured about five miles past the site. The removal has also benefitted eels, whose migrations and population growth can be hampered by dams. And those numbers could further improve with the expected removal of the Rapidan Mill Dam on a Rappahannock tributary.

"My biggest interest is going to be not only that the target fish get past here, but how much habitat do they use," Weaver said. "We want to give them back their historic range."

Regardless of how far upstream the migratory fish venture this coming spring, Weaver and Gowan plan to find them.

"Oh, I can't wait to catch an American shad right here," Gowan said, standing on a sandbar above the dam that, with just two or three more heavy rains, will completely wash away. ■

Researchers study soundscapes to monitor invasive plants

'Listening' to an ecosystem might be a useful remote monitoring tool for land managers

By Lauren Hines-Acosta

Every landscape has its sounds. Spring peeper frogs squeak to echo their fellow musicians. Crickets and cicadas thrum their tune in a concert of thousands. And migratory birds on their way north or south add their own music.

Within this endless symphony, Virginia Tech researchers are studying how invasive plants affect the soundscape of ecosystems in Maryland and Virginia, restored streams in particular. They hope their findings can give land managers an audio tool to remotely detect the presence of invasives.

While plants themselves don't make audible sounds — unless you count such things as falling branches or rustling leaves — they do offer habitat to sound-making creatures from birds to insects to amphibians.

Two studies at Virginia Tech are focusing on just that.

"Soundscape work … offers a really cost effective, time effective, data intensive way to measure a lot of aspects of the animal community at once," said Virginia Tech doctoral student Gabrielle Ripa, who is leading one of the studies.

Ripa hopes to hear how invasive plants affect urban streams. She sampled vegetation at 46 pairs of restored and unrestored streams and set up microphones at 20 pairs throughout Maryland.

She is listening for differences between the sites. For example, birdsong from a particular species could indicate the presence of plant life — native or not — that supports that species. The absence or presence of frog calls might indicate the absence or presence of insects that are part of the frogs' diet. Her sampling, paired with her recordings, will help reveal whether invasive plants are the cause.

Meanwhile, another Virginia Tech doctoral candidate, Grace O'Malley, is examining the same issue by installing microphones at 16 sites in the area of Blacksburg, VA. This study will test whether there is an audible difference between similar sites that have either native or nonnative plants.

Her hypothesis is that invasive plants like Japanese stiltgrass, which dominate a site by crowding out natives, will deter native insects and animals — or attract nonnative or undesirable species.

Virginia Tech doctoral student Gabrielle Ripa makes notes from observations of a restored stream near Annapolis, where she has installed recording equipment. (Craig Newcomb/Virginia Tech)

Both studies are recording a few minutes of their sites every day for a year. That's terabytes of data. To go through it all, the researchers hope to use artificial intelligence models and software that can identify certain sounds in the recordings.

They will also use mathematical formulas that assign numeric values to acoustic features like amplitude, pitch and saturation. In other words, every sound has a unique fingerprint of these characteristics.

The analysis will also have to weed out sounds that are not associated with the ecosystem or plants in question: human noises like aircraft, sirens and road traffic, as well as storms, heavy winds and even passing flocks of birds.

Recording the soundscape could be a cost effective tool for land managers. Instead of sending someone to a site regularly, AI models could "listen" to see if the soundscape is changing. Then, they could send someone to check.

Virginia Tech doctoral students Grace O'Malley (foreground) and Gabrielle Ripa visit a restored stream near Annapolis where they've set up audio recorders to capture the "soundscape" for a few minutes every day over the course of a year. (Craig Newcomb/Virginia Tech)

"I can hear more than I can see," said Bryan Pijanowski, one of the nation's leading experts on soundscape ecology. As director of Purdue University's Center for Global Soundscapes, he has conducted sound studies in almost every major biome in the world.

The rhythm or tempo of an area, Pijanowski said, can indicate an ecosystem's health. Usually, insects and amphibians make those rhythmic sounds. As the base of the food chain, they need to be present to support the rest of the ecosystem.

Unlike video or still cameras, which ordinarily can only look in one direction, microphones can capture audio from every direction. Recordings can act as "digital fossils" for land managers to refer to instead of a surveyor's notes.

This technology is being used by the Maryland Department of Natural Resources and in the private sector, though usually limited to birdsong and specific species.

Christopher Streb of Biohabitats, a Maryland ecological restoration company, has experimented with soundscape technology and says the latest research has already made it a more useful tool.

"Now it seems actually doable, whereas when we were kind of getting into it four or five years ago, it was very, very much the Wild West," Streb said. "We're practitioners, so we depend on that research community to help build the tool out."

While Virginia Tech researchers will be analyzing and collecting data for another few months, O'Malley is already hearing a difference.

Virginians heard it for themselves at an Acoustic Invasion immersive art installation recently at Virginia Tech. David Franusich, multimedia designer at the university's Institute for Creativity, Arts and Technology, collaborated with O'Malley to showcase some of her audio at galleries, including the Torpedo Factory in Alexandria, VA.

Franusich said the difference is subtle. Instead of one bird or frog dominating the soundscape, invaded and native areas can, at different times of day, sound like two different places.

Ripa and O'Malley might experience this as they collect data and listen. Ripa plans to publish a paper on her research by May 2025. ■

Will a cleaner Chesapeake mean more fish? It's complicated

Science panel calls for evolution, not revolution, in recalibrating Bay restoration work

By Karl Blankenship

For decades, Chesapeake Bay cleanup efforts have been driven by a simple equation: Cleaner water equals more fish and shellfish.

The 1983 Chesapeake Bay Agreement, which launched the state-federal restoration effort, made that clear as it sought to reverse the Bay's "historical decline in the living resources." It would do so, the agreement said, by addressing pollution flowing into the Bay.

The living resources goal was reiterated in the next two cleanup agreements in 2000 and 2014, and the pollution goal aimed at making it happen has been refined to measurable targets for reducing nutrient pollution in the water.

But would achieving those goals actually result in more fish, crabs and oysters?

It's complicated.

Bay scientists caution that the link between nutrient reductions and increased fish abundance is highly uncertain. In a report last year, they warned of a need for "grounding" the public's expectations about the recovery of aquatic life even if cleanup goals are met.

In the May 2023 Comprehensive Evaluation of System Response (CESR) report, the Scientific and Technical Advisory Committee of the state-federal Chesapeake Bay Program cautioned that other factors — such as temperature, salinity, river flows and structural habitats — play important roles in determining fish abundance. Compared with those, the water quality role can be small.

"Considerable uncertainty," they wrote, "will accompany any effort to predict how fish and shellfish populations respond to changes in water quality alone."

At the same time, scientists who worked on the report are quick to say that doesn't mean the Bay Program should walk away from its nutrient reduction commitments. Rather, they say, it points to the need to better understand the relative importance of water quality improvements and other factors, such as habitat restoration, in boosting aquatic populations.

That could inform efforts to balance spending on nutrient controls with other things, such as restoring wetlands or other habitat, to produce the greatest benefit for the widest variety of species.

Striped bass and some other fish might benefit from improved water quality, but reducing nutrient pollution might not help others, such as menhaden. (Dave Harp)

"We're really saying this is an evolution, not a revolution," said Kenny Rose, a fisheries scientist with the University of Maryland Center for Environmental Science who was the lead author of the living resources section of the CESR report. "And it's what a large restoration program should be doing. It is moving along with changing information."

The best place to figure that out, according to the report, is in shallow water areas that fringe the Bay and the tidal portions of tributaries that are disproportionately important for a wide range of creatures.

That recommendation has spurred recent interest within the Bay Program to focus increased pollution reduction and habitat restoration work on a handful of targeted nearshore areas.

The challenge of change

While not a revolution, that would be a significant change in direction — and it would also pose significant scientific challenges.

Historically, nutrient reduction actions have generally been aimed at improving the deepest parts of the upper Bay. That's where water quality is the worst, and the theory is that improving deepwater conditions will improve other areas around the Bay as well.

But the CESR report warns that cleanup progress has been slow, the Bay has not responded as rapidly as expected, and that the deepwater goals may not be fully attainable.

It also pointed out that, when it comes to helping aquatic life, focusing most nutrient reduction efforts on deepwater areas could detract from other actions that would more directly help aquatic life.

That has triggered interest in creating a "tiered approach" to reducing nutrient pollution. In that approach, some shallow-water areas with a high potential to show results would get greater priority, even if their impact on deeper water would be relatively small.

Those nearshore areas would, in effect, become incubators for understanding how — and whether — alternate approaches to Bay restoration might produce better results for fish and shellfish.

That doesn't mean that all emphasis would be removed from deepwater areas, said Lee McDonnell, chief of the science, analysis and implementation branch of the U.S. Environmental Protection Agency's Chesapeake Bay Program Office.

Some focus on those areas is important because when oxygen disappears there, it triggers conditions that release nutrients stored in the sediment, making overall Bay water quality even worse.

"We can't ignore the deep water [or] deep channel and say everybody's going to focus on shallow water," McDonnell said.

At the same time, he said, there is a public expectation that cleanup actions will result in tangible benefits.

"We're asking for behavior change in people, and their expectation is that they should be able to see some kind of change and experience it," McDonnell said. "There's a much better chance of doing that in the shallow waters than in the deep trench."

Shifting more resources to shallow water could slow the rate of progress in deepwater areas, but many scientists say the change is worth the trade-off if it results in quicker, more tangible benefits for aquatic life.

"This tiered implementation is not saying you're taking your foot off the gas of the pursuit of a long-term goal," said Penn State ecologist Denice Wardrop, one of the lead authors of the CESR report. "But at the pace we're going, you need an interim goal because you're going to be losing living resources on the way to the long-term goal. And you don't need to."

Finding the balance

McDonnell, Wardrop, Rose and a handful of others have been meeting for months to figure out how to identify shallow areas to be prioritized — and how to assess whether their actions are making a difference. It's a complex task.

Reducing nutrient loads in the Bay system have long been seen as a way to help living resources. The nutrients spur algae blooms that cloud the water and block sunlight from reaching underwater grass beds, which provide important habitat for juvenile fish and crabs, waterfowl and other species.

When the excess algae die, they decompose in a process that removes oxygen from the water, sometimes causing oxygen-starved "dead zones" that plague the deepest parts of the upper Bay each summer.

The nutrient reduction goals assigned to each Bay state and major tributary aim to improve those conditions, allowing more sunlight to reach underwater plants and largely eliminate dead zones.

That would certainly allow underwater grass meadows to expand and would benefit

Scientists say pairing nutrient reductions with actions like oyster reef restoration, which improves local conditions, might produce better overall results for the abundance of marine species. (Dave Harp)

bottom-dwelling organisms, such as clams and worms, that can suffocate if oxygen levels get too low.

The increased oxygen is intended to help fish and crabs as well, but whether that would lead to greater abundance is unclear.

For one thing, those species can simply move if water conditions get bad. And many, such as striped bass, blue crabs, shad and others, spend most of their lives — or at least important life stages — outside the Chesapeake. Conditions in those areas often are more important in determining their abundance.

Further, reduced algae production isn't always a good thing. While excess amounts can trigger poor oxygen levels, algae is also an important food, especially for fish in their early life stages, as well as for some adult fish, like menhaden, which are themselves an important food for larger fish and birds.

Indeed, a 2017 EPA study found that while species like striped bass and oysters might benefit from the improved water quality, the reduced algae production might hamper populations of others, such as Atlantic menhaden.

The CESR report also stated that "living resource abundance may eventually decrease as nutrient loads continue to decrease and [water quality goals] approach full attainment."

"[There are] always going to be winners and losers," said Tom Ihde, a researcher at Morgan State University's Patuxent Environmental & Aquatic Research Laboratory, who also worked on the CESR report. "If you're managing menhaden populations versus the blue crab, you're concerned about very different things."

Ihde has worked on complex computer models that try to tease out how various species respond to different variables. In a 2017 paper, he examined the responses of nearly 50 aquatic species to a variety of ecological changes.

He found that achieving the clean water goals only had a small impact on most species — though some, like blue crabs and white perch, showed benefits.

That influence was dwarfed by the impact of temperature increases. Achieving water quality goals does little to offset that problem for most species, he found.

That shouldn't be totally surprising, Ihde said, because temperature affects everything in the system, such as growth rates, the timing of reproduction and food production.

"It's not that the nutrient reductions are not having an effect," Ihde said. "It is, and we're seeing change. But it's that temperature is much more of a change."

It's never just one thing

Other factors — salinity, the amount of freshwater flowing into the Bay during spring spawning periods, fishing pressure, disease and loss of structural habitats — are also important in influencing species abundance.

A recent Bay Program report looked at the habitats of forage fish, which are small species eaten by larger fish and birds. The researchers found that shoreline hardening played an important role in predicting their abundance. The most sensitive forage species go away when just 10% of an area's shoreline is covered by bulkheads or rip-rap. And many comparatively tolerant species disappear when that amount reaches 30%.

The CESR report noted that benefits of water quality improvements "will be modest" if such factors are limiting populations.

But, it said, pairing water quality work with other actions — restoring wetlands, replacing hardened shorelines with living shorelines or building oyster reefs — might yield better overall results.

There is some evidence of that. In recent years, state and federal agencies have worked to restore large oyster reefs in 11 Bay tributaries.

Monitoring has shown that underwater grasses are rebounding in areas near the reefs, very likely a result of oysters filtering the water. Other studies have found that oyster reefs help remove nutrients from the water.

"We feel pretty confident that doing large-scale oyster restoration leads to ecological benefits," said Bruce Vogt of the National Oceanic and Atmospheric Administration Chesapeake Bay Office. "We have very clear evidence that the oyster reefs are cleaning the water and produce better clarity."

Fish abundance is also higher near the reefs, though Vogt said it is less clear whether the reefs are boosting fish reproduction or merely attracting fish from other areas.

That is the type of question that scientists say could be cleared up by targeting some shallow water areas for more intense work and monitoring the results.

Still, understanding impacts in a given area — and predicting whether positive signs in one area would be repeated in others — is no easy task in a system as large and complex as the Chesapeake.

"Not all oyster habitats are equal, and not all seagrass habitats are equal," said Mark Monaco, a senior scientist with NOAA's National Centers for Coastal Ocean Science and an author of the CESR report. "How do those relationships hold up across the Bay in specific areas? And would an enhancement in habitat restoration actually move the dial in a particular area?"

Getting to a tipping point

The good news, Monaco said, is that a lot of data is available. Fish surveys and studies have taken place in the Bay for decades. They've never really been integrated with information on habitats, water quality and other variables that can impact fish, but that work has begun.

It will take at least two years to glean needed information from that data and identify shallow water areas for emphasis, according to those working on the process.

And there are a lot of basic details to work out along the way: What does "shallow water" actually mean? Is that two feet deep or six feet deep? What species and what life stages should be included in an analysis? How big of an area would be targeted?

The hope, said McDonnell of the EPA Bay Program Office, is to find shallow areas near an ecological "tipping point" where a realistic amount of action can turn an area of poor habitat into fair habitat, or a fair area into a good area, and produce faster improvements for the species that live there.

"If we're going to have this tiered implementation, it has to be grounded in science," he said. "If we're going to do something different than we're doing now, there ought to be a reason for it. I'm hoping this is our good reason." ■

American eels are comparatively tolerant of poor water quality, but they would benefit from habitat improvements — especially the removal of dams that limit their upstream migration for spawning. (Dave Harp)

With prices rising, groups blame slow rollout of renewables

Higher wholesale prices likely to be reflected in consumer electric bills

By Ad Crable

Electric bills for residents in Chesapeake Bay drainage states could rise as much as 24% now that wholesale electricity prices have risen to record levels. That surge came at an auction held for power companies to lock down guaranteed power during extreme weather events.

The spike in the price to reserve power for air conditioning and heating emergencies in 2025–2026 was more than nine times the previous record.

Renewable energy advocates say the shocking hikes at the July auction were avoidable, and they blame PJM Interconnection, the regional grid operator, for dragging its feet in incorporating solar energy, wind power and battery storage projects into the mix.

PJM countered that the escalated price was the result of market forces, swelling energy demand from data centers, and federal government reforms.

Exactly how much the higher wholesale prices will drive up electric bills for consumers depends on their power company and location in the grid.

According to estimates from Maryland's Office of People's Counsel, residential customers of Baltimore Gas and Electric could see their bills increase by 15%.

Ratepayers in the Allegheny Power System, which includes part of Potomac Edison, may see a 24% rise. Pepco customers could see a 10% hike, while ratepayers in Delmarva Power's southern zone might see only a 2% rise.

Exelon, which has customers in Maryland, Pennsylvania, Delaware and the District of Columbia, said it expects "significant" rate increases but gave no specifics. PPL, formerly Pennsylvania Power and Light, projected that residential bills would rise $10 to $15 per month.

Dominion Energy, in contrast, said ratepayers will mostly be insulated from higher bills because the company owns power plants that benefitted from the higher prices paid for reserved power.

The new rates, affecting 65 million customers, go into effect in June 2025.

Renewable energy groups say that a backlog in permitting wind and solar projects is one reason that higher electric bills are coming for some residents in the Bay region. (U.S. Dept. of Agriculture)

The sticker shock has sparked finger pointing from environmental and clean energy groups. PJM is the nation's largest grid operator, controlling the flow of electricity and wholesale power prices in 13 states and the District of Columbia.

The groups blame PJM for permit backlogs that are keeping hundreds of cheaper wind power, solar energy and battery storage projects from infusing the grid with new power sources. Some 97% of projects in PJM's backlog are renewable energy.

PJM has also been criticized for not planning adequate transmission lines to distribute power from the large bank of renewable energy projects when they come online.

Critics say consumers will have to pay more because of the failure of gas and coal sources to generate promised power during extreme cold from Winter Storm Elliott in 2022, which came close to causing rolling blackouts.

Some 63% of "guaranteed" power from gas-fired plants and 28% of coal-fired plants couldn't be delivered during that storm because of frozen equipment and supply problems. Solar, wind, nuclear and hydroelectric sources, meanwhile, performed well, according to PJM.

As a result of the delivery failure, the Federal Energy Regulatory Commission subsequently downgraded their reliability, driving up the cost paid for guaranteed power in PJM's power auction in July.

"PJM fell behind on interconnection and long-term transmission planning years ago, and now the problems are just cascading and piling up," said Jon Gordon, director of Advanced Energy United, a renewable energy association of businesses.

John Quigley, a senior fellow at the University of Pennsylvania's Kleinman Center for Energy Policy, thinks it's time policymakers demand a decarbonized grid and put pressure on PJM to stop relying so heavily on gas-fired plants.

"The energy mix saddling PJM customers and their wallets reflects a failure to adequately plan and act to diversify the resource mix to ensure an affordable and reliable power grid," Quigley said.

PJM said that the record high prices for electricity were caused by a combination of retired coal power plants and increased demand for electricity from data centers, manufacturing and electric vehicles, as well as federal market reforms requiring improved performance from fossil fuel power sources during weather anomalies.

Responding to criticism of its renewable energy backlog, PJM said it has reforms in place. And it noted that significant renewable energy projects have received permits but have not been built because of "external challenges, including financing, supply chain and siting/permitting issues."

"The significantly higher prices in this auction confirm our concerns that the supply/demand balance is tightening. The market is sending a price signal. That should incentivize investment in resources," said PJM president and CEO Manu Asthana.

The dramatic spike in weather-related power generation and fears of inadequate power are already prompting moves by PJM and the Pennsylvania legislature.

Fearing a shortage of power in the entire grid, PJM is paying Talen Energy to keep running its two fossil-fuel-powered power plants on the Patapsco River south of Baltimore until at least 2028. Talen had previously announced it would close the plants in mid-2025. BG&E customers are expected to pay 5% higher bills to keep the plants open, on top of bill increases from the higher wholesale prices.

In Pennsylvania, Republican State Sen. Gene Yaw, a natural gas advocate, said he will be introducing a bill to create a multibillion-dollar revolving fund to offer low-interest loans for building more gas-fired power plants in the state.

"Pennsylvania has significant natural gas supplies to fuel power plants," he said. "I think the handwriting has been on the wall for a couple years as to where things are going to go. The PJM auction just kind of confirmed what a lot of people have been talking about with the supply situation." ■

The Herbert A. Wagner gas– and oil-fired generating station sits along Baltimore's Patapsco River. PJM Interconnection, which manages the regional electric grid, is paying the plant's owner to keep the facility operating until 2028. (Acroterion/CC BY-SA 4.0)

MD announces new round of oyster restoration projects

Three sanctuary sites selected for large-scale revival would bring the state total to eight

By Timothy B. Wheeler

As Maryland works to complete the last of five large oyster restoration projects it committed to a decade ago, state officials have decided to tackle three more.

The state has restored more than 1,100 acres of reefs so far in Harris Creek and the Little Choptank, Tred Avon and Manokin rivers, all on the Eastern Shore, and in the St. Mary's River off the lower Potomac.

Now, the Department of Natural Resources has announced it intends to restore and repopulate hundreds of acres more in oyster sanctuaries in Herring Bay on the Western Shore and in the Nanticoke River and Hooper Strait on the Eastern Shore.

"These three large-scale restoration sanctuaries represent a new chapter for oyster restoration in Maryland," DNR Secretary Josh Kurtz said in announcing the selection on Oct. 9. "We've had tremendous success with our existing restoration sanctuaries, and we're excited to build on that achievement and keep up the momentum for oyster recovery in the Chesapeake Bay."

Maryland and the federal government have spent more than $87 million so far rebuilding reefs and planting hatchery-reared oyster spat in the first five sanctuaries. The effort has proven durable to date with nearly all reefs that are at least 6 years old yielding the minimum expected densities of bivalves, or better — and 83% sustaining the hoped-for goal of more than 50 oysters per square meter.

All but the Manokin, off Tangier Sound, are considered at least initially "restored." DNR expects to finish seeding the Manokin in 2025, which would meet the deadline set in the 2014 Chesapeake Bay Watershed Agreement. Under that pact, Maryland and Virginia each pledged to undertake large-scale restoration of oyster habitat in five of their Bay tributaries. Virginia has completed restoration in four of the five rivers it targeted — the Lafayette, Piankatank, Great Wicomico and Lower York — with just 38 acres left to reach its goal in the Lynnhaven River in Virginia Beach.

The state-federal Chesapeake Bay Program is moving to update the 2014 agreement. Anticipating new oyster restoration goals, Maryland's DNR sought feedback from its Oyster Advisory Commission in late summer on which sanctuaries to work on next.

Hatchery-reared oyster spat grown on old oyster shells are blasted off a boat by a water cannon at an oyster sanctuary in Maryland's Tred Avon River. (Dave Harp)

Herring Bay, Hooper Strait and the Nanticoke River were among the commission's top choices, officials said.

Chris Judy, DNR's shellfish division manager, said the department is looking to spend $16.3 million to start on these new large restoration projects. But more funding will be needed in future years to complete them, he added.

The actual acreage to be restored will be set after further study of the selected areas, DNR officials said. But they expect the Hooper Strait project to be comparable in size to the state's three largest restoration sites so far. Harris Creek and the Little Choptank and Manokin rivers ranged from 348 to 455 acres.

Hooper Strait, a narrow waterway connecting the Nanticoke and a few other Eastern Shore tributaries to the Chesapeake, has about 5,000 acres of historic oyster bottom, according to a 2021 DNR report. The area to be seeded, though, is likely to be a fraction of that.

Herring Bay could be the state's largest project yet. About 20 miles south of Annapolis, it has almost 8,000 acres of historic oyster bottom, according to the DNR report. Though some has silted over, there is still extensive firm bottom, and DNR officials are planning to build new reefs there in addition to planting spat-on-shell.

The entire Nanticoke River was put off-limits to commercial oyster harvest in 2010 when the state expanded its network of oyster sanctuaries. But only a small part of the river is historic oyster bottom, and DNR officials estimate it will require planting just 175 acres.

"Together, these three restoration sanctuaries will strengthen the diversity of Maryland's sanctuary program," said Lynn Fegley, DNR's fishing and boating services director. "With new projects on both the Western and the Eastern Shore, as well as the mid- and lower Bay, we're helping to spread out disease risk and increase the oyster broodstock across all areas of the Chesapeake Bay."

The new effort is being launched at a financially challenging time for Maryland with fiscal experts warning that a mismatch between tax revenues and state spending could lead to structural deficits of billions of dollars in the next few years. Unless something changes, that budget crunch could pose a hurdle to the new projects.

For the three new projects, DNR's Judy said the department has requested $14.5 million be included in the state's capital budget for fiscal year 2026 to pay for 75 acres of reef construction and seeding in Herring Bay and Hooper Strait. Another $1.8 million would be directed toward seeding the Nanticoke sanctuary. Whether those requests are granted ultimately depends on General Assembly action next year.

Some federal funding could help. The National Oceanic and Atmospheric Administration recently awarded Maryland a $10 million grant to build 50 to 75 acres of reefs within an existing oyster sanctuary. DNR's Judy said officials plan to use that money in the new effort.

Pending funding availability, DNR expects to start planting in the Nanticoke in the spring and summer of 2025. Work will begin in Herring Bay in 2026 and in Hooper Strait sometime afterward.

Even before announcing these three large projects, DNR had begun a new restoration effort in Eastern Bay, where state lawmakers directed that $2 million a year be spent in 2024 and 2025 on spat-on-shell plantings, divided equally between sanctuaries and public fishery areas. Watermen had complained this summer that the sanctuaries there were getting all the plantings, but by fall the wild harvest areas had gotten more, Judy said. ■

Advocates ask VA for more aggressive PFAS policies

Groups call for more monitoring at facilities flagged as likely to discharge 'forever chemicals'

By Whitney Pipkin and Lauren Hines-Acosta

The federal government has now defined how much is too much when it comes to PFAS, or "forever chemicals," in drinking water. But that still leaves a lot of leeway as to how states will monitor or regulate PFAS found in rivers and streams.

In Virginia, laws passed so far require agencies to find and address specific sources of PFAS pollution when they have contaminated a public drinking water system. But clean water advocates want the state to require more monitoring now at facilities known to be possible sources of PFAS so that action can be taken more quickly when additional federal limits are finalized.

PFAS, or per– and polyfluoroalkyl substances, include thousands of synthetic chemicals that have been widely used since the 1940s in a variety of industrial and consumer products. That includes firefighting foam, nonstick cookware, water– and stain-repellent fabrics and some food packaging.

PFAS have been found in the drinking water or groundwater of nearly 2,800 communities nationwide, including dozens in the six-state Chesapeake Bay watershed. Much of the contamination has been found near military facilities or airports where firefighting foam laden with PFAS was deployed or stored.

Studies have linked long-term exposure to even low levels of some of the chemicals with serious health problems, including cancer and damage to reproductive and immune systems. But setting standards that define how much PFAS is too much has been a long process.

The U.S. Environmental Protection Agency in April set its first legally enforceable drinking water standards for six types of PFAS, which will go into full effect in the coming years.

When PFAS are found in a public drinking water system, operators go to companies like SL Environmental Law Group to figure out their next steps. Senior partner Ken Sansone with the California-based law firm said the EPA standards "are a floor for states" — standards that they are free to go above but not below.

Some states have already chosen to do more. They've set their own limits, for example, on how much PFAS can be present in biosolids or in the fish that people eat.

A fishing pier reaches into the mouth of the Appomattox River in Hopewell, VA, where environmental organizations have asked for PFAS sampling at a chemical plant and the city wastewater treatment facility. (Will Parson/Chesapeake Bay Program)

The EPA has published draft criteria for limiting certain PFAS in waters that support aquatic life but doesn't yet have final standards in place. That means there are no federal restrictions on PFAS in water discharged into streams and rivers from industrial facilities and wastewater treatment plants.

PFAS policy in Virginia

Virginia's General Assembly has passed laws aimed at addressing PFAS in each of the past three years.

In 2022, lawmakers allocated money to the Department of Environmental Quality to sample surface and groundwater. DEQ detected at least one forever chemical at 61% of the 224 sites it sampled. Then, in 2023, the state required industrial facilities that are known to process or clean PFAS products and send their water to a public wastewater treatment plant to test the wastewater and report the results to the plant that treats it.

In 2024, the General Assembly passed a bill directing any facility that could be a large source of PFAS in a public drinking water system to report its manufacture or use of the chemicals within 90 days of a request from DEQ. The law also directs DEQ to find the source of contamination when levels exceed a certain threshold in drinking water.

And, in October, the Virginia Department of Health published its first guidelines for when to issue fish consumption advisories based on PFAS contamination.

But David Sligh, conservation director at Wild Virginia, wants to step up the pace. He and others say that the state should require additional monitoring as a condition of water discharge permits at facilities the EPA has already identified as likely dischargers of PFAS. This, they say, would more quickly pinpoint where PFAS are being discharged directly into water bodies.

Wild Virginia assembled its own PFAS dataset by talking with wastewater authorities and analyzing data that DEQ collected from facilities with permitted discharges. After reviewing data from 21 of the 151 sewage treatment plants in Virginia, the organization found that 20 had significant concentrations of PFAS in their treated wastewater, which they discharge into streams.

In a PFAS webinar hosted by Wild Virginia, Sligh said he sees any detectable amount of PFAS as dangerous.

"So far, DEQ is not [looking], or essentially is refusing to go and look, for these data where they exist, and then even when they have it, they're refusing to do anything in the permitting system to control it," Sligh said. "And we find both of those things to be totally irresponsible."

But federal guidelines do not require DEQ to seek out potential sources for PFAS found in surface waters. That's because safety thresholds were only recently released by the EPA and are still in draft form.

DEQ spokesperson Irina Calos said that Virginia will update its policies to reflect the EPA's criteria when those federal standards are finalized. That could be this fall.

Caught in transition

Meanwhile, several wastewater treatment and industrial plants in the state are renewing permits to discharge into waters that could soon be subject to those regulations. The EPA has noted that some of them are likely dischargers of PFAS.

Carroll Courtenay, staff attorney for the Southern Environmental Law Center (SELC), said she has commented on 18 draft wastewater discharge permits like these in Virginia in recent years.

Virginia is required to find and address specific sources of PFAS pollution, often called "forever chemicals," when they are found in drinking water systems. (Dave Harp)

Members of the Sierra Club attend a public meeting about the AdvanSix water discharge permit in Hopewell on Sept. 12. (Lauren Hines-Acosta)

SELC, Wild Virginia, the James River Association and other organizations are asking DEQ to require these plants to monitor PFAS in their discharge waters now, in part so that the data could be available if subject to new regulations.

Two facilities have triggered concerns in Hopewell, south of Richmond: the city's wastewater treatment plant and a major manufacturer called AdvanSix Resins and Chemicals LLC. Both discharge into Gravelly Run, a small James River tributary, and have permits up for renewal.

Tests by the Waterkeepers Alliance, published in 2022, found PFAS in Gravelly Run.

"Gravelly Run receives effluent from the Hopewell wastewater treatment plant as well as AdvanSix, and together they make up about 100% of the flow of that tributary," said James Riverkeeper Tom Dunlap. "If it's not coming from AdvanSix, it's coming from the wastewater treatment plant that receives effluent from other industrial facilities."

Janeen Lawlor, vice president of communications for AdvanSix, said in a statement that the plant's manufacturing operations "do not use or produce PFAS." The plant does take in large amounts of water from the James River to run its operations, much of which is later discharged into Gravelly Run.

It seems unlikely, though, that the state will require monitoring at this time. In response to public comments on the AdvanSix discharge permit, DEQ stated that there were "currently no water quality standards for PFAS and no EPA-approved test methods … for PFAS" and that DEQ "is not aware of any monitoring data that indicates the presence of PFAS in Gravelly Run."

In response to questions from the *Bay Journal,* DEQ spokesperson Irina Calos said that "to our knowledge, neither the [Waterkeeper Alliance] report nor the data it contains had been submitted to DEQ" previously and was therefore not considered in the permit development process. Dunlap, the James Riverkeeper, contends otherwise.

The EPA has said that states can use its draft criteria for PFAS in waterbodies not covered by the drinking water threshold to establish water quality standards and monitoring programs. SELC's Courtenay contends that DEQ can and should use that authority to require PFAS monitoring at certain industrial facilities.

"We are in agreement that this could help address [PFAS] at the source," Dunlap said. "But also, for [each] dollar spent on a public health concern, it's more cost-effective to treat it at the source as opposed to remediation in the environment."

Sansone, the PFAS contamination lawyer, said the EPA classified PFOA and PFOS as hazardous materials. This means whoever generated or disposed of the hazardous material is responsible for cleaning it up. While that doesn't regulate wastewater discharges, it does begin to set a standard for removing PFAS in other sources of water.

"It's a great starting point, but it's really just the end of the beginning, rather than the beginning of the end," Sansone said. "I think we're going to see a lot more regulatory activity around PFAS over the next several years." ■

Environmental groups have asked Virginia to require AdvanSix, located in Hopewell, to monitor for PFAS as part of its permit to discharge water into Gravelly Run, a James River Tributary. (Whitney Pipkin)

Volunteer leads hunt for abandoned oil and gas wells in PA

Wellheads still send toxins, methane into the environment

By Ad Crable

Do you smell it?" Laurie Barr yelled as she tromped through an overgrown bottomland between remote wooded mountains in state game lands northeast of State College, PA.

She had whiffed the rotten-egg smell of hydrogen sulfide and was soon at the foot of a tire-size round puddle of water seeping onto the surface. The pool was audibly burping bubbles.

A hot spring, perhaps? No. Barr proved it by holding a small clump of dry grass, lighting it and suspending it briefly over the bubbling seep. With a puff, flames danced above the water for a few seconds.

Methane, escaping from an abandoned gass well, was the cause. Its iron wellhead lay about 50 feet away, also discharging polluted water and methane. Trails converged on the oozing puddle from several directions, made by white-tailed deer that crave the salt from the briny water.

The uncontrolled leak also contained arsenic, which flows into a stream that ultimately leads to the Chesapeake Bay.

It was only the second time she had lit an abandoned well to prove a point, a short demonstration for which she was approved by the Pennsylvania Fish and Game Commission. She will still be criticized for the act, she predicted. "People will say, 'You could have burned the forest down!' But people need to see things. You can't just tell people about things. They won't listen."

Methane is a potent greenhouse gas, estimated to be 80 times more damaging to the atmosphere than carbon dioxide but not as long lasting.

For the last 13 of her 64 years, Barr has devoted much of her life to searching for, and making public, the hundreds of thousands of abandoned oil and gas wells in Pennsylvania that were never properly capped and continue to spew methane and toxins into the air and water.

She has become a well-known crusader — and thorn in the side of drillers — for finding and urging the proper sealing of the abandoned wells that pock Pennsylvania.

She has recruited a small team of volunteers more than willing to follow her into the woods and even urban areas to find lost or unplugged wells. They have found some underwater, in yards and even under buildings.

Laurie Barr burns a small clump of grass in a short, approved demonstration of the flammable nature of methane escaping from an abandoned gas well in Pennsylvania. (Ad Crable)

But make no mistake, the Save Our Streams PA nonprofit group she founded in 2010 has been mostly a one-woman show of impassioned purpose.

The commercial photographer and graphics designer, who lives with her dog on a small farm in Ulysses in the northcentral Pennsylvania mountains, has worn out two vehicles in the process — bouncing along back roads in search of wells, traveling to rallies and testifying before legislative bodies.She's also been sued twice and chased from oil and gas rigs on public lands.

She and her team of volunteers have found more than 1,000 lost and unplugged oil and gas wells, which they promptly reported to the state Department of Environmental Protection. Acting DEP secretary Jessica Shirley acknowledges that these wells are nothing less than "ticking time bombs."

Fifty-four of the wells they have reported have been plugged with concrete to stop methane and pollution leaks. That may not seem like a high percentage, but consider

Methane and arsenic leak from the metal casing of an abandoned wellhead in Pennsylvania. (Ad Crable)

that, to date, only about 3,000 of an estimated 350,000-750,000 abandoned wells have been plugged by DEP. The effort is gaining momentun, though, with hundreds of millions of dollars pledged to Pennsylvania under the federal Infrastructure Investment Act.

The state's earliest wells date from the 1850s, more than 100 years before oil and gas drillers needed a permit or were even required to report the well's existence to the state. Before 1956, neither were required.

Some wells are now just holes in the ground, their metal casings long gone — scavenged for money or removed during World War II for the war effort.

Barr is aware of the lack of funding and of the sheer number of unplugged wells. And she acknowledges that many thousands of them will not be plugged for generations, if ever. But someone, she insists, needs to speak up about the problem.

"Yes, I get very frustrated," she said. "But nobody was talking about abandoned wells in 2011. And most people know what an abandoned well is now. It's not just me. I've had a lot of help and support and there are [a] lot of people working on abandoned well issues now that weren't doing it when we first started."

Early on, Barr had concentrated her energies against the nascent fracking (hydraulic fracturing) industry — until 2010, when, in separate incidents, two homes exploded from the buildup of methane gas escaping from abandoned conventional wells.

It shocked and horrified her, and drove home the realization that the abandoned well problem was far from public knowledge. So she shifted gears. She is now a self-taught citizen scientist, tossing around arcane terms like "jerker rod" and "pump jack" to describe well rigs.

She sometimes overlays satellite photos with old oil and gas industry maps to steer her to likely spots. She urges geocaching enthusiasts to look for wells and organizes regular "scavenger hunts," inviting the public to join her on forays.

Barr's efforts are funded by $10,000 yearly from a private anonymous donor.

Now, severe arthritis and brittle bone disease have forced her to slow down, and she spends more time training younger people willing to carry on the quest.

She also wants to write a memoir about her experiences and the legacy environmental problem that may never go away. One focus of the book, she said, will be about the failure of DEP as a regulatory agency to solve the problem.

"[DEP needs] to be replaced," she said. "They've bitten off more than they can chew. They are not functioning at the level they need, they are not funded at the level they need and they are not staffed at the level they need. They are dysfunctional." ■

Richmond's plans to combat urban heat no longer on ice

RVAGreen 2050 and other initiatives aim to reduce heat inequity

By Lauren Hines-Acosta

City workers remove debris and invasive plants from a parcel of forest in south Richmond in July. (Courtesy of Southside ReLeaf)

Richmond Sustainability Director Laura Thomas (far left) and Adam Ortiz, administrator of EPA's mid-Atlantic region (second from right), help plant the first trees as part of the Cool the City campaign in south Richmond in September. (Lauren Hines-Acosta)

Even though it was a hot day, Lisa Aikins-Afful, outreach and engagement coordinator from Southside ReLeaf in Richmond, didn't feel bad about inviting people outside to see where a new park in their neighborhood will be. The wooded plot's thick canopy, she said, cooled the air by almost 30 degrees. And the neighbors were excited to share their ideas on how to make it a community park.

That land will become one of the city's five new parks to provide relief in Richmond's hottest areas. It's part of the RVAGreen 2050 plan that the city council approved in early 2023 under the city's master plan. It addresses sustainability goals including heat disparity — something Richmond has struggled with for decades. Now, those projects are finally taking root.

"There is a great momentum building around these initiatives with not just community-based organizations and nonprofits, but there's this kind of passion with the city to kind of really do this work, and we're just glad to be a part of it," Amy Wentz, Co-founder of Southside ReLeaf, said.

As in many U.S. cities, Richmond's Home Owners' Loan Corporation in 1937 deemed certain neighborhoods in the city as risky investments and "redlined" them because they had large African American populations like those south of the James River. As a result, developers didn't plant trees, build parks, add shade structures, or otherwise invest in green space in those neighborhoods.

A study by the Science Museum of Virginia and other researchers found formerly redlined neighborhoods nationally are up to seven degrees hotter in the summer than those that were not. Jeremy Hoffman, the study report's primary author, said a "deep green" park can be up to 16 degrees cooler than nearby neighborhoods in Richmond.

Extreme heat can exacerbate existing illnesses like diabetes, asthma and heart disease, according to the U.S. Centers for Disease Control.

RVAGreen 2050 strives to reduce urban heat by increasing tree canopy and adding cooling surfaces that reflect light, such as lightly colored pavements, or roof gardens. The plan also calls for all residents to be within a 10-minute walking distance of a park.

As of 2017, 75% of Richmonders were within that 10-minute range. Since then, the city's Department of Parks and Recreation and local nonprofits have expanded that to 80%.

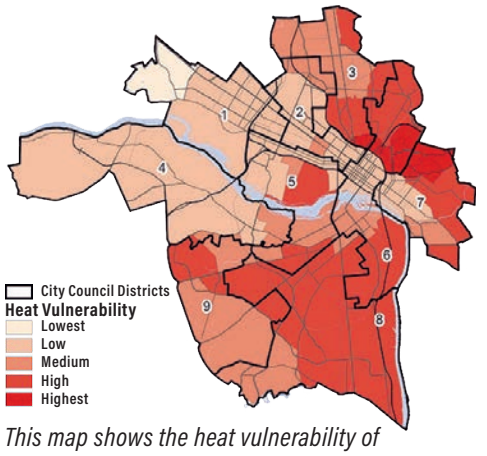
Working groups appointed by Mayor Levar Stoney found five plots of unused city-owned land, comprising 36 acres, in 2020. The city council later that year approved an ordinance to ensure the acreage would become parkland.

Parks and Recreation and local nonprofits like Southside ReLeaf are now building the first park on Ernest Road and talking with community members.

City councilmember Nicole Jones is looking forward to bringing shade and green space to the 9th District in south-central Richmond, which she represents and which is one of the most heat vulnerable. But she said the city needs to make sure people will and can use it.

Jones said people in her district aren't used to trails since there are so few. From there, easy access to green space like the James River Park System is difficult without a car. Jones added that the new parks should be along a bus line, for example.

"Fixing things without bringing people to the table doesn't help educate them so that they can do things better," Jones said. "This climate situation is going to require all of us to do things differently, and I think the best way to do that is to have people involved at the start of it."



This map shows the heat vulnerability of Richmond neighborhoods in 2017 and considers temperature, lack of central air conditioning and other factors that can make living with heat difficult. (City of Richmond)

The city's parks department is also outlining the first parks master plan since the 1970s, called Richmond Inspire. A landscape architecture firm called Design Workshop, which the city is consulting, found that even the city's parks — as many as 52% are not designed to maximize natural cooling factors.

To minimize displacing residents who might not be able to afford to live near the new parkland, the RVAGreen 2050 plan calls for additional affordable housing nearby.

Parks and Recreation doesn't have a regular stream of funding for creating parks. The RVAGreen 2050 plan lists proffers and bonds to help fund these shaded spaces. But Ryan Rinn, capital projects planner at Parks and Recreation, said there has been no legislative action on that since the ordinance passed.

Instead, Rinn and Southside ReLeaf's Amy Wentz have relied on a variety of grants. The biggest help comes from the city's capital budget of $1 million, which helped the city secure funding from the U.S. Department of Agriculture, the Bipartisan Infrastructure Law and the American Rescue Plan Act.

Meanwhile, the Richmond Office of Sustainability received $6 million from the USDA in September for its Cool the City campaign. The city will plant 3,000 trees in south Richmond to address urban heat and stormwater issues.

Reforest Richmond is another collaborative campaign involving Parks and Recreation, local tree-focused organizations and community groups. They aim to increase Richmond's tree canopy to 60% by 2037. That is a goal the city's master plan, which estimates the current canopy to be 42% — though there are neighborhoods in the city with as little as 2% tree cover.

The USDA funding will help develop the city's first Urban Forestry Master Plan, which will build a more accurate tree index and help bring the whole city to a higher baseline.

The city's Office of Sustainability is also in the research phase of developing an Urban Heat Island Reduction plan, which could include mandating shade structures at bus stops and businesses. Other tactics could be adding cool surfaces like light-colored pavement, which absorbs less heat, along with incentivizing developers to include these methods. Sustainability Director Laura Thomas hopes to have a plan ready by next spring. ■

Chesapeake advocate: Outdoor play should be a serious goal

A 'rising star' in Shenandoah Valley conservation work focuses on equitable access to nature

By Jeremy Cox

Editor's note: This interview is part of a series highlighting young professionals at work in the Chesapeake Bay arena. Listen to the full interviews in our Chesapeake Uncharted podcast.

Maya Alexander has worked professionally in environmental advocacy for just a few years, but she has already left a significant mark on the field.

She serves as the community engagement manager for the Alliance for the Shenandoah Valley, a nonprofit based in New Market, VA, with a mission to protect the region's farms, forests, waterways and communities.

In September 2023, the Virginia Conservation Network presented Alexander, 30, with its Rising Star award at its first Conservation Awards ceremony.

She was lauded for organizing a forum in Harrisonburg in which people of color discussed their interactions during outdoor recreation. She also was cited for her deft handling of opponents and supporters at a series of community input sessions she hosted about a proposed rail trail. And she won praise for a webinar she produced about one of the last Black families still on their inherited land in Augusta County.

"I want to make sure that I do my part as a Black woman and especially one in this environmental field, to make sure that it is welcoming," Alexander said in an interview. "I see myself trailblazing, so that folks who come after me feel comfortable in these traditionally white spaces."

The native of Columbia, MD, also has made career stops at the National Aquarium in Baltimore and the Chesapeake Bay Foundation. She spoke with the *Bay Journal* about her experiences. This interview has been edited for length and clarity.

Question: Did you have nature in your childhood?

Answer: As far back as I can remember, I was always outside. I used to want to be an entomologist. Like, I loved the bugs. We were out all the time riding bikes, trying to go down to the creek, the Little Patuxent River. I have lots of childhood memories there.

Q: You're a community engagement manager. What does that title mean to you?

A: Making sure that folks know what projects are coming in the area and how to make sure that they have the information to help make informed decisions. I connect communities with whatever we've got going on, helping to put on events that align with our mission and vision.

Maya Alexander works to connect people and the environment as the community engagement manager for the Virginia-based Alliance for the Shenandoah Valley. (Courtesy photo)

Q: What are some of the important things you've learned while navigating outdoor spaces as a person of color?

A: I love that we have a national park and national forest, the public lands, and they're accessible, but also acknowledging [the importance of] safety when you do go into the wilderness. You are more vulnerable, as opposed to maybe going to an urban park.

Being a Black woman, noting where I am in the region of the Shenandoah Valley, there are a lot of battlefields and historical things out here. With that comes some symbols that can be triggering for me. I just make sure I'm mindful of my feelings and how I can feel discomfort in the moment. Don't let it stop me. But again, just acknowledging that those are there.

Q: You helped coordinate an event called "The Outdoors is Yours." What was that about?

A: That's one I'm very proud to have worked on with so many other partners in the region. It was an evening event, where we gathered the community to come and [we] provided childcare and dinner. It was having the community hear the stories of the different ways in which [people of color] have had introductions to the outdoors, where traditionally we've been excluded.

We talked about some barriers, like is the price too high to get into the Shenandoah National Park or what if there's no safe way to bike or walk in their neighborhood. Over 100 folks came from the community, and it was great.

Q: What was your main takeaway from that experience?

A: There's an appetite for us to make sure that we are making outdoor spaces for everyone, making sure they are inclusive — not just for folks of different ethnicities and races, but also for people with physical disabilities.

Q: When you give people a say, you might hear some criticism, and that was the case with your workshops about the proposed Shenandoah Rail Trail. How did you handle that?

A: To the folks who don't want to lose the history, the way we've been framing it is we're very much *restoring* this. We acknowledged that it was a train that folks used to travel in between the towns and deliver goods. [But] that was in the past. Now it's not being used at all. So, how can we turn it into something that can be used for the communities once again, just in a different way? I totally understand change is hard, right? But just trying to reframe it: Maybe you're not so much losing something but gaining something in return.

Q: One of the major goals of the Chesapeake Bay cleanup is to increase recreational opportunities. What would you tell the powers that be about what should be done to better connect people with those resources?

A: How much time do you have? I really think I'm biased with the "people aspect" from my background in psychology. I know, we fund a lot of work in clean water, putting in [agricultural best management practices] and all that. And I'm not saying that's not important work. But just as important as that work is making sure that the community that lives right along the river and maybe next to a factory also has access to natural resources.

They have the right to clean water and clean air. Maybe it's increasing shade in the neighborhood. Planting trees so they have shade and are not more susceptible to the heat island effect [while also helping] with the quality of our waterways. So, leaders should hone in more on the connections between the people and the environment. ■

CHESAPEAKE CHALLENGE

— Kathleen A. Gaskell

Project Feederwatch:

a birder's-eye view of winter species

A

The Cornell Lab of Ornithology's 2024–25 Project FeederWatch runs Nov. 1 to April 29. This citizen science project, a collaboration between the Cornell Lab of Ornithology and Birds Canada, counts the birds that visit feeders across North America every winter. This data helps scientists track changes in the ranges and abundances of species over time.

Do I have to be a bird brain to participate? Not really, although it does help to familiarize yourself with the birds you are likely to see in your area.

Count me in! Where should I do next? Visit *feederwatch.org* to register and learn how to record your data. After that, it's up to you: Watch birds that visit your yard, nature center, local park — anywhere. Set up a weekly schedule or count just once all winter.

Bird alert! Because species are monitored throughout the winter, FeederWatch data is valuable because it reveals gradual changes in many bird populations as well as their winter ranges. If observations alert scientists to a long-term decline, they can begin evaluating why. A diminishing food supply or loss of suitable habitat? The increase of another competitive species? What they learn informs them in making recommendations for the birds' recovery before it is too late.

Does the site need a feeder? No, but it helps.

B

Cheep participation: The annual fee of $18 for U.S. participants provides them with online and mobile tools to learn about birds; a year-end summary and highlights; a double-sided poster of common eastern and western feeder birds; a calendar; and digital access to *Living Bird* magazine. The fee also helps the nonprofit Cornell Lab pay for maintaining the website and database, analyzing the data and sharing the results.

Title image: *Tufted titmouse (Michele Danoff)*

A *A northern cardinal (female), the most common feeder visitor in five of the six Bay states last winter. (Michele Danoff)*

B *A blue jay, the most common feeder visitor last year in one Bay state and among the top five in three others. (Jo Zimmy/CC BY-NC-ND 2.0)*

C *A dark-eyed junco, the second most common feeder visitor in 2023–24 in Project FeederWatch's northeast region, which includes the Bay watershed. (Michele Danoff)*

C

Which birds are where?

Black-capped and Carolina chickadees were the most common species seen at the 9,700 Cornell Lab Project FeederWatch sites in the northeast region of the U.S. in the winter of 2023–24. The next four species, in order, were dark-eyed juncos, northern cardinals, downy woodpeckers and blue jays. See if you can match the species most commonly seen (in order) last winter in the Chesapeake Bay watershed states. (Note: These data are for the entire state, not just the area in the watershed). Answers on page 36.

Delaware (66 FeederWatch sites)
District of Columbia (17 sites)
Maryland (384 sites)
New York (1,246 sites)
Pennsylvania (924 sites)
Virginia (868 sites)
West Virginia (71 sites)

1. Northern cardinal, house finch, Carolina wren, tufted titmouse, mourning dove
2. Blue jay, dark-eyed junco, black-capped chickadee, northern cardinal, downy woodpecker
3. Northern cardinal, downy woodpecker, house finch, mourning dove, tufted titmouse
4. Northern cardinal, house finch, mourning dove, dark-eyed junco, blue jay
5. Northern cardinal, tufted titmouse, blue jay, downy woodpecker, American goldfinch
6. Northern cardinal, dark-eyed junco, house finch, mourning dove, downy woodpecker
7. House sparrow, northern cardinal, mourning dove, American robin, blue jay

To see the top 25 bird species in various areas dating back to 1988–89, visit *feederwatch.org*, then scroll down to "Top 25 Birds."

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

Top photo: Visitors explore "Sailing to Freedom: Maritime Dimensions of the Underground Railroad" at the Chesapeake Bay Maritime Museum during the opening of the exhibit in September. (George Sass/CBMM)

Bottom photo: Log canoes once helped carry enslaved people to freedom. This model of the two-masted log canoe, Glide, is part of the "Sailing to Freedom" exhibit at the Chesapeake Bay Maritime Museum. (Dave Harp)

Escape by water: the forgotten side of the Underground Railroad

By Jeremy Cox

The phrase "Underground Railroad" — a term describing the network of routes and stations that freedom-seekers used to flee from slavery — demonstrates the limits of metaphor.

Let's take the second half first: "railroad." There was not a physical rail system that conducted enslaved African Americans northward. Although some did travel by rail, it was often too dangerous.

Then, there's the first half: "underground." It fits in the sense that people escaping bondage did so covertly, as if "underground" to evade detection and capture. But the word suggests perhaps too much emphasis on "ground," as in solid earth.

A new exhibit at the Chesapeake Bay Maritime Museum in St. Michaels, MD, challenges visitors to reconsider their preconceived notions about how enslaved people achieved self-liberation. Through photographs, artifacts, maps, models and original documents, *Sailing to Freedom* underscores that, for many, water was the primary avenue toward salvation.

They hid deep in the cargo holds of sailing schooners bound for northern ports. They rowed themselves in skiffs toward distant shores. Those enslaved as sailors could escape by impersonating free Black mariners. And at least one man squeezed himself inside a wooden crate and had himself transported by steamboat.

"Everybody who hears about it basically has the same reaction," said Timothy Walker, the University of Massachusetts-Dartmouth historian who edited the book on which much of the exhibit's material is based. "[They say,] 'It had never occurred to me [for them to travel by water], but it makes a lot of sense.'"

In that regard, the exhibit, which opened in September and continues through the end of 2025, highlights the Chesapeake Bay's central role in many escapes.

Pursuit of knowledge

Efforts by Walker and others in recent years have pushed back against the predominant scholarly focus on overland paths to freedom on the Underground Railroad. For many reasons, he argues, water routes, where possible, offered a clearer path to freedom.

After all, compared with an overland trip, a maritime voyage typically promised greater speed and safety. When trekking on foot, an enslaved person could expect the going to be slow, rife with logistical obstacles and permeated with dangers. These included potential run-ins with slave catchers and the physical challenges of the long journey.

Escapes by sea, in contrast, usually didn't involve any stops, greatly reducing the chances of getting caught. And the trip could be accomplished in a matter of hours or days instead of weeks or months, limiting the physical demands.

Given the Underground Railroad's clandestine nature, historians will never know exactly how many freedom-seekers went by water. But clues suggest that an "astonishingly large number" did just that, Walker said. For example:

- Among the 220,000 known "runaway slave" newspaper ads placed by owners seeking the public's help in getting them back, thousands mention that the enslaved persons had fled by sea.
- There were multiple pieces of state, federal and local legislation seeking to thwart escapes by the water. One of the exhibit's items is an image of a public notice published in either the *New Bedford Medley* or *Marine Journal* in 1797. In it, a sea captain, William Taber, announced his discovery of a 27-year-old enslaved man named James mid-journey after departing from Virginia's York River. Such notices were required by the Fugitive Slave Act of 1793.
- More than two-thirds of the 100 escape narratives written by former enslaved people before the Civil War describe water as the primary mode of travel. Many enslaved African Americans in the South worked in maritime trades and used their knowledge of the sea to make their passage.

Walker's scholarship in the subject began in 2011 with the first in a series of teacher training workshops, funded by the National Endowment for the Humanities, in his home of New Bedford, MA. That begat the 2021 book, *Sailing to Freedom: Maritime Dimensions of the Underground Railroad*, a collection of essays written by fellow scholars, with Walker serving as the project's editor.

Sisters Mary and Emily Edmonson tried to escape slavery in Washington, DC, by sailing up the Chesapeake Bay on the Pearl. They were captured but were later freed and became well known in the abolitionist movement. (George Sass/CBMM)

The following year, he partnered with the New Bedford Whaling Museum to transform the unfolding historical narrative into an exhibit. Then, it went on the road, going on display in 2023 at the Portsmouth Art & Cultural Center in Virginia and this past summer at the Martha's Vineyard Museum off the coast of Massachusetts.

Now at the Chesapeake Bay Maritime Museum, Walker's exhibit continues to grow with additions made by Portsmouth Museums. The St. Michaels museum also contributed several notable items.

The museum opened in 1965 on Navy Point, a once-bustling cluster of docks, workboats and packing houses on the Eastern Shore's Miles River. The 18-acre campus features historic buildings, exhibition galleries and a fleet of floating historic vessels.

Mailed to freedom

The *Sailing to Freedom* exhibit makes a suitable companion to the facility's other water-themed materials, said Jen Dolde, director of curatorial affairs and exhibitions.

"It's really a central story, talking about the Bay as a highway that intersects so much of [the region's] economics and transportation and communication," she said.

The Chesapeake was an integral component of the Underground Railroad, providing 200 miles of relatively smooth passage between the slave state of Virginia and the free state of Pennsylvania, by way of the Susquehanna River. The estuary's many rivers gave access farther inland to its waters.

"The Chesapeake was one of the central places from which enslaved people found their way up to freedom," Dolde said. "There are plenty of Chesapeake stories."

Like the story of Henry "Box" Brown.

Brown, born in 1815, was hired out to a tobacco factory in Richmond, VA. He had a wife, Nancy, and three children. Although he paid her enslaver not to sell his family, the man sold them anyway in August 1848 to another slaveholder in North Carolina.

Afterward, Brown hatched a plan to use both the mail and the water to make his escape. On March 29, 1849, the 200-pound Brown crouched inside a crate not much bigger than an end table and, with the help of two friends — a free Black man and a white shoemaker — had himself shipped to a Philadelphia abolitionist.

"I laid me down in my darkened home of three feet by two, and like one about to be guillotined, resigned myself to my fate," Brown later wrote.

The box was carried by wagon and then by train to a depot near the Potomac River at Aquia Landing. There, it headed by steamboat to Washington, DC, where it was transferred by wagon to a waiting train, bound for Philadelphia.

Along the 350-mile journey, Brown was turned over on his head three or four times, despite the "this side up with care" label attached to the box. For 27 hours, he maintained his silence. His only sustenance consisted of a small bladder of water and a few biscuits. When members of the Philadelphia Vigilance Committee opened the box, a joyous Brown stood up.

Visitors read historical notices and articles in the "Sailing to Freedom" exhibit, one of which states that 44 enslaved people had escaped from the area of Cambridge, MD, within two weeks. (George Sass/CBMM)

As part of the museum's preparation for the exhibit, teens participating in its Museum Masters camp built a recreation of Brown's crate, modeling their design and dimensions after descriptions from historic manuscripts.

"We kind of had a troubleshooting session," said Jim Koerner, the museum's exhibition designer. "We talked about exhibit design — what goes into it, how would you approach this? Actually, the solution that we came up with as a group is the solution that's on the wall."

Inside the exhibit room, the freshly constructed box rests beneath an illustration of Brown's emergence, a reprint of the original, drawn in 1872.

The students also were inspired to add one last item to the display after hearing an interpreter sing during a visit to the Harriet Tubman Museum and Educational Center in nearby Cambridge. Now, a placard next to the box shows the lyrics of the song that Brown sang upon gaining his freedom.

'An inspirational message'

The entire *Sailing to Freedom* story unfolds across a large, windowless room.

One of the biggest displays is about Frederick Douglass and Harriet Tubman, two of America's most famous abolitionists. Both were born into slavery. Both were from Maryland on the Eastern Shore of the Chesapeake Bay. And in each of their biographies, water played a critical role.

Tubman grew up in low-lying Dorchester County, where she was hired out to trap muskrats and chop wood among marshes, rivers and canals. In 1849, she fled slavery, traveling northeast along the Choptank River for part of the journey.

She then became one of the Underground Railroad's most prolific "conductors" returning to the Eastern Shore 13 times, ushering 70 family members and friends to freedom while aiding in the self-emancipation of 50 others.

Douglass, a native of neighboring Talbot County, gained his freedom in 1838 by taking a train from Baltimore to New York City. The trip also involved a ferry ride across the Susquehanna. But that wasn't the most important nautical aspect of the story.

Having previously toiled as a shipyard foreman, his connections to the industry helped him obtain the things he needed to plausibly pose as a free person for the journey: a mariner's outfit and borrowed Seaman's Protection Papers.

The exhibition contains caulking tools similar to those Douglas would have used on vessels.

Freedom-seekers in the Chesapeake region also received aid at times from sympathetic white captains. The exhibit tells of some, including William Baylis, who was arrested after he was caught on the James River trying to transport five escapees aboard his cargo schooner. He was sentenced to 40 years in prison, but the Civil War ended his captivity after just six.

But more often, those who used waterways to find freedom appeared to do so alone, Walker said. He hopes that such stories inspire people amid America's ongoing racial re-reckoning.

"The way the Underground Railroad is often taught is [that it was] well-meaning white abolitionists helping poor Blacks to escape," he said. The story he tells in his book and exhibit puts the agency in the hands of the enslaved people themselves. Walker added, "I think that's a highly inspirational message today." ■

IF YOU GO

SAILING TO FREEDOM: MARITIME DIMENSIONS OF THE UNDERGROUND RAILROAD

Where: Chesapeake Bay Maritime Museum 213 North Talbot St., St. Michaels, MD

When: Now through 2025

Cost: Included with museum admission. Tickets are $20 for ages 18-64 and $8 for ages 6-17

Contact: Call 410-745-2916 or visit www.cbmm.org.

Keys to a healthy Bay: access, transparency, diversity

By Chuck Herrick

The Chesapeake Bay Program Stakeholders' Advisory Committee is one of the few nongovernmental voices within the formal structure of the federal-state Chesapeake Bay Program, which guides the Bay cleanup effort. The committee was established in 1984 to advise Bay Program leadership on policies and programs impacting residents of the Chesapeake watershed.

Appointed by the governors of the Bay states, the mayor of the District of Columbia and the board of the Alliance for the Chesapeake Bay, the committee's 28 volunteer advisors represent a variety of stakeholders. We are restoration practitioners, farmers, retired government officials, environmental philanthropy specialists, policy researchers, community and watershed organizers, educators, land conservationists and environmental justice advocates. Our members have carefully reviewed the draft of the Bay Program's "Beyond 2025" report, which charts a path beyond the deadlines associated with the many goals of the 2014 Chesapeake Bay Watershed Agreement.

The Beyond 2025 document addresses many critical issues and includes a wide range of thoughtful recommendations. Our members have recommended simplifying the Bay Program structure, increasing the transparency of its deliberations and operations, maintaining the frequency of two-year milestone reporting, and critically reviewing and updating the 2014 agreement to assure that it responds to changing conditions. We have also suggested establishing a new near-term deadline for the pollution reduction goals currently set for 2025.

But to me, an especially important aspect of the report is its recommendation on environmental justice. "The program and partnership should commit to inclusive and meaningful engagement of people and communities that have been historically underrepresented, under-resourced and underserved," the report reads, adding that the partnership must "institutionalize and actualize" its plan for diversity, equity, inclusion and justice.

Turner Station is a historically Black community near the heavily polluted former steel mill at Baltimore's Sparrows Point. The Stakeholders Committee is urging the Chesapeake Bay Program to prioritize equity and inclusion in its "Beyond 2025" roadmap. (Ethan Weston/Chesapeake Bay Program)

I don't think this recommendation is important because it's a moral imperative, which it is. And I don't think it's important because it's consistent with the arc of history, which it is. There is, in my view, another compelling logic.

I'm convinced that we'll never "fix" the Bay until we learn to deal with nonpoint pollution. We'll never deal with nonpoint pollution until we have enough effective best management practices (BMPs), and we'll never have enough effective BMPs until all Bay watershed communities take full ownership of its health, which won't happen until all people in the watershed have an equal say in and equal benefit from the stewardship of the Bay and its tributaries.

It also won't happen until communities have the resources they need to initiate and maintain BMPs that make sense in their neighborhoods. In other words, a deep and committed approach to inclusion and justice is a causal prerequisite to the long-term stewardship of the Bay watershed. I believe that inclusivity and belonging, not merely programmatic attributes, must be the wheels on which the Bay Program moves.

Like all large institutions, government and private, we've inherited systems that historically functioned in an exclusionary way — some by design to limit access, benefits and equal participation; others that are merely carried along by the inertia of "business as usual." Designing inclusionary spaces must be intentional. It doesn't automatically happen when we make statements of intent. The act of lowering barriers is an *act*, after all — not an intent. We have to look at our systems, ask what needs to change, and then do the work.

So, what might it look like if we took meaningful steps to "institutionalize and actualize" inclusiveness and leadership diversity within the Bay Program? Three things come to mind.

Improving grant access: Local and community capacity building is critical for the long-term stewardship of the Bay. Over the years, Bay Program partners have received substantial federal, state and philanthropic funding. But it has not been distributed equitably; community groups and underrepresented stakeholders are too often left wanting. The Stakeholders' Advisory Committee has pursued a sustained agenda to make Bay Program partners aware of the systemic nature of funding disparities, and the partnership now needs to implement an aggressive program of networking and outreach. Without that, it cannot identify underrepresented groups that might benefit from incorporating BMPs into other community endeavors.

Simplifying grant administration: In our response to the Beyond 2025 report, we recommended that the Bay Program's Executive Council kick off an aggressive, partnership-wide effort to identify key factors that frustrate community groups in seeking grant funding. The effort should involve agency grants officers, officials from oversight bodies such as the Office of Management and Budget, and legal counsel to help with contracts and grants.

While large nonprofit organizations have the people and resources to deal with the labyrinthine process of seeking and managing grants, a community organization with a staff of two or three is likely out of its depth. We recognize that some of these factors exist to assure good stewardship of taxpayer dollars, but this is clearly a situation in which public resources can and should be better balanced.

Facilitating engagement: The members of our committee are all volunteers. Indeed, many people who invest time, physical effort and passion in matters of Bay and watershed stewardship do so as volunteers. But volunteerism is a privilege that many people struggle to exercise because of job demands, family care obligations and income shortfalls. A reliance on volunteerism can limit the number and variety of voices that engage in Bay-related deliberations. This is why we have recommended that the Bay Program partners provide need-based honoraria to broaden and diversify its volunteer base.

Things like this are not just nice and appropriate. If "institutionalized and actualized," they will act as force multipliers for all Bay Program actions. They will help us to meet pollution reduction goals, achieve water quality objectives, sustain a healthy resource base and benefit all communities within the Bay watershed. ■

Chuck Herrick, Ph.D. is chair of the Stakeholders' Advisory Committee to the Chesapeake Bay Executive Council. He has consulted extensively with U.S. government agencies and water utility organizations on a variety of environmental issues. He teaches the history of American Environmental Policy at New York University.

Two centuries later, a big beautiful native has returned

By Tom Horton

A pair of trumpeter swans, one of four pairs now nesting in the upper Bay area, makes a home on a pond in Maryland's Anne Arundel County. (Dave Harp)

Nearly three decades ago on a chill, still December afternoon, I watched three majestic trumpeter swans touch down in a Chesapeake salt marsh.

It was a sight that had not been seen on the Bay for nearly two centuries, not since this bird — the world's largest flighted waterfowl — had been hunted out, its feathers prized for ladies' powder puffs and fancy hats.

(And yes, we do still have a robust migration of tundra swans, smaller cousins of the trumpeters, which visit the Bay annually in November from Alaska.)

That return of the trumpeters was somewhat contrived but immensely hopeful, I wrote at the time. The trumpeters had been raised in captivity and imprinted to follow an ultralight plane some 100 miles from Warrenton, VA, to Maryland's lower Dorchester County.

The hope was that humans could teach the big birds to "remigrate" to the Chesapeake from remnant populations that still survived in other parts of the U.S. and Canada.

I couldn't resist comparing their touchdown that afternoon with "the Eagle has landed" news that flashed around the globe in 1969 when humans first reached up and touched the moon.

That was a triumph of computers, engineering, metallurgy and chemical propellants — bursting the very bonds of gravity — an event of explosive force and high technology.

The swanfall of 1997 employed a gossamer-winged ultralight, a flying device resembling drawings by Leonardo da Vinci in the 1400s, weighing less than a dozen swans and designed to fly low and slow. But the event probed a frontier at least as important as outer space: one of recovery and restoration, reconnecting the planet's old natural circuits that earlier generations had ripped asunder.

The anticipated new migratory route never came to fruition. Fortunately, no one told the trumpeters. Throughout the decades since, little noticed, wild trumpeters from western and northern populations would in some winters appear briefly, just one or a few birds, in parts of the Bay and its watershed.

Trumpeters seem to be explorers in contrast to the tundra swans that are locked into a rigid schedule by their evolutionary strategy of migrating some 9,000 miles a year between Alaskan and Yukon nesting grounds and wintering on the Chesapeake and in North Carolina.

And then in 2021, for reasons known only to themselves, a pair of trumpeters decided to stay — to nest on Hart-Miller Island in the Bay off Baltimore County, a place constructed both as a park and a safe place to put toxic sediments dredged from Baltimore's shipping channels.

And now we have at least four documented successful trumpeter nests in the Maryland portion of the Chesapeake with several young swans, or cygnets, according to Gabe Foley, coordinator of the Maryland-DC Breeding Bird Atlas.

Two nests are in Anne Arundel County, one near Davidsonville and one on Naval Academy land at Greenbury Point. The pair near Davidsonville (on private property) appeared to have at least three young recently when *Bay Journal* photographer Dave Harp and I were scouting.

Another pair is nesting on several acres of wetland near a Home Depot in Harford County, MD. Yet another couple appeared for a while near Laurel, MD, on the federal Patuxent Research Refuge, but they have not been seen there for some months, a spokesman said.

No one knows for sure, but the Bay's newest species of swan appears to have come from an established population in Ontario, Foley said.

What we are gaining is a most impressive creature with wingspans that can exceed 7 feet, standing up to 4 feet tall and weighing up to 40 pounds (though average weights are more in the 20s and 30s).

And their call! While one might confuse trumpeters for tundra swans on sight, the sonorous, deeply resonant tone of *Columbus buccinator* (the trumpeter) contrasts sharply with the shriller, wild baying of tundras.

A young trumpeter's growth would shame the best efforts of Perdue and Tyson with commercial poultry. A young one can go from slightly under half a pound on hatching to 20 pounds in 15 weeks.

So it is time to celebrate this return of the native, to marvel at its presence gracing ponds and rivers of the Bay and its watershed.

However.

I recall the words of a famous science fiction writer who said the best science fiction doesn't look two centuries into the future and conjure sleek automobiles; rather, it envisions traffic jams and gridlock.

So it occurs to me that the trumpeters have lifestyles a lot like the invasive mute swans that Maryland only recently finished eradicating.

They were eradicated because they did not migrate; they ate our beleaguered submerged grasses all summer long and competed aggressively for nesting space with all manner of native species. And they were multiplying rapidly.

That behavior pretty much describes the trumpeter swan, which can make modest (several hundred mile) migrations if need be, but tends to stay resident. Unlike the situation with the mutes, of Asian origin, it would be a lot harder to justify eradicating a species that flourished throughout most of the Chesapeake's history.

Fortunately, we are a long way from having to contemplate whether, after leaving an ecosystem for two centuries, you can go home again. ■

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.

This is the moment — to think big for the Chesapeake Bay

By Hilary Harp-Falk

If you're a fan of the Baltimore Orioles, you know that getting a shot at the World Series doesn't come easily or very often. A perennial underdog since the early 1980s, the Os have for the last two seasons had a legitimate shot at the big prize. It hasn't happened yet, and sadly we can only wait until next year.

What lesson can we take from the Os? Before you achieve something great, you will likely fail many times. But you will learn from your mistakes and try again and again to get to the top of the figurative hill. You can't ever give up. As the president and CEO of the Chesapeake Bay Foundation, I've thought about this a lot in a year when the Bay restoration effort is facing its own critical moment.

In just a couple of months it will be 2025, the year targeted by the Chesapeake Bay Program — the partnership between the federal government and six Bay states, plus the District of Columbia — for achieving its many goals to reduce pollution and restore wildlife populations throughout the watershed.

Some goals, like the one for oyster restoration, will be met. Others will not — like the goal of reducing nutrient and sediment-pollution from farms and developed lands.

The U.S. Environmental Protection Agency's latest assessment of progress toward water quality goals, released Aug. 14, show that while tremendous progress has been made, we still have a long way to go.

That's why we are calling for the six governors and federal leaders in the Chesapeake Bay Program partnership to formally recommit to working together and pledge to update the Chesapeake Bay Agreement by the end of 2025, including a new timeline for water quality goals that should be measured in years, not decades.

Sometimes it can feel like déjà vu; this will be the third missed Bay restoration deadline since the Bay Program partnership formed in 1983.

But while I share the sense of frustration that we're not there yet, I don't share the despair. Each time we've fallen short, we've recommitted and made important changes that led to progress. We've learned a lot about what works and what doesn't. History can and should teach us, but we are not bound to repeat it.

The historic Thomas Point Shoal Lighthouse, built in 1875, stands near the mouth of Maryland's South River as it flows into the Chesapeake Bay. (Will Parson/Chesapeake Bay Program)

We can envision a different future — one informed not only by what was, but what could be: open beaches on the Potomac River, a swimmable harbor in Baltimore, clean creeks for our kids to play in alongside farms that actively build healthier soil and waterways.

And we need to. We need to envision a Bay watershed with a changing climate, a growing population and the ability to provide food, energy and a high quality of life. We need to envision how these things can work together, within a healthy ecosystem.

At the same time, outcomes matter. We should not only dream big, but also think bigger about solutions to age-old problems, like the pollution that comes from agricultural and developed land.

Approaching these problems the same way we have before isn't enough. We also need to think bigger about how we work together and who we include, because no one can do this alone.

Leadership is key to getting this done, and it starts with the full attendance, in person, of the partnership's Chesapeake Executive Council at its annual meeting this December. The council includes the governors of each watershed state, the mayor of the District of Columbia, the administrator of the EPA and the chair of the Chesapeake Bay Commission.

Strong action from the Executive Council has been paramount in making progress throughout the restoration effort's history. It is critical that these leaders formally recommit to achieving the partnership's existing goals.

In this moment, when the watershed faces so many pressures from climate change and intensifying development and agriculture, it is also critical that by the end of 2025 they pledge to update the Chesapeake Bay Watershed Agreement to address challenges identified by the latest science.

In the absence of such commitments, there is a very real chance that the partnership will either dissolve or become increasingly ineffective beyond 2025.

Chesapeake Bay restoration started as a big, impossible dream. The thought of entire industries banning phosphorus detergent, a major water pollutant, was once unimaginable. But it happened. The idea of large-scale oyster reefs returning to the Bay's rivers seemed unreal, but they are growing and thriving.

We aren't there yet, but I know this team. We don't give up. We learn from the past and do better. We will have our moment. And it starts with this one. ■

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.

If you are interested in writing an opinion column, please contact managing editor T.F. Sayles at 410-746-0519, *tsayles@bayjournal.com* or P.O. Box 300, Mayo, MD 21106. Please include your phone number and/or email address.

Watermen tong for oysters on Broad Creek, a tributary of the Choptank River in Maryland. (Dave Harp)

Your generous donations help keep the Bay Journal afloat

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

BOOSTER

Susan Hauser
Easton, MD

Marie Pinto
Manassas, VA

ADVOCATE

William Dickinson
Alexandria, VA

Tim Karn
Hanover, VA

Melvyn Kay
Reston, VA

Sarah Fenno Lord
Reisterstown, MD

Michael & Wendy Moore
Chestertown, MD

Alan Pflugrad
Columbia, MD

Randy Turner
Thurmont, MD

John Vail
Worton, MD

BENEFACTOR

***In memory of Ed & Viola Steiner* from Phyllis Steiner**
Spring Grove, PA

Bob Cukla & Julie Flaherty
Boonsboro, MD

Elizabeth & Ralph Heimlich
Ellicott City, MD

Nancy Roisum
Salisbury, MD

Richard Wilton
York, PA

SPONSOR

***In memory of Wendy Lawson* from Michael King**
Montross, VA

Bruce Beasman
Baltimore, MD

Peter Boice
Rockville, MD

Choptank Communications
Cambridge, MD

Hal Delaplane
Waldorf, MD

Patricia Dove
Huntingtown, MD

David Eisenhauer
Disputanta, VA

James Gilmer
Rockville, MD

Charles Goebel
Easton, MD

James Hall
Wayne, ME

Bonnie & Jed Howell
Sudlersville, MD

Kathy Jones
Baltimore, MD

Susan Kidwell
Chicago, IL

John Lake
Mechanicsburg, PA

Ted Llana
Washington, DC

Ann MacNeille & Macy Nelson
Baltimore, MD

Thomas McCall
Arlington, VA

Amie McDaniels
Thurmont, MD

Alice Mignerey
College Park, MD

Edward Mihok
Cambridge, MD

Kate Naughten
Annapolis, MD

John Owens
Miami, FL

Marie Pinto
Lusby, MD

Keith Sappington
Riva, MD

John & Susan Stinson
Poolesville, MD

Andrea & Marvin Storey
Laurel, MD

William Tanger
Roanoke, VA

Fran Thompson
Mayo, MD

Edith Warner
Upper Marlboro, MD

Lothar Weber
Parkton, MD

Gerald Wiggen
Mechanicsville, MD

Elizabeth Williams
Decatur, GA

Mark Wyn
Arnold, MD

SUPPORTER

***In memory of Melva Maxine Hutzler* from David Hutzler**
Hagerstown, MD

Norm & Sara Bell
Monterey, VA

Jean Boal
Lancaster, PA

Ralph Brome
Greensboro, MD

Thomas Burns & Ursula Sherrill
Winchester, VA

Carol Buskirk
Camp Hill, PA

Mimi Clark
Mechanicsburg, PA

Carolyn Cradler
Columbia, MD

Jonathan Deford
Glen Arm, MD

Patricia Demme
Lanham, MD

William Dudley
Easton, MD

Joan Ellis
Guilford, CT

Dr. Howard Fleischer
Virginia Beach, VA

William Fletcher
Lusby, MD

Steven Frey
Chambersburg, PA

Frances Garvin
Laurel, MD

Jim Gearing
Alexandria, VA

Harry Gedney
Roanoke, VA

Michael Goyne
Leesburg, VA

Robert Griffin
Lusby, MD

Jack Hardy
Essex, MD

Lenneal Henderson
Claremont, VA

Daniel Hope III
Athens, GA

William Imhof
Wilmington, DE

Donna & Jack Jackson
Upper Marlboro, MD

James Jarvis Jr.
Glen Burnie, MD

Jeffrey & Tracy Kirchner
Lancaster, PA

Jerome & Linda Kuehnle
Lexington Park, MD

John Lahr
Pequea, PA

David Lenker
Camp Hill, PA

Larry Liebesman
Columbia, MD

Karin Limburg
Syracuse, NY

John Litzenberger
Centreville, VA

Brad Lutz
Baltimore, MD

Ken Maize
Knoxville, MD

Thank You To These Philanthropic Donors

Kayaks raft up on Mowbray Creek near Federalsburg, MD. (Dave Harp)

DONORS *from page 33*

Mr. & Mrs. David Martin
Lititz, PA

Janie Masby
Warrenton, VA

Clyde Meade
Springfield, VA

Richard Meade
Stockton, MD

Linda Anne Messick
Reedville, VA

Richard Miller
New Bloomfield, PA

Jessica Millstead
Bowie, MD

Henry Mortimer
Catonsville, MD

Peggy Mullen
King George, VA

Robert Mumper
Annapolis, MD

Mary Ann Nocerino
Great Falls, VA

Monica Noell
Prince Frederick, MD

Mary O'Neil
Baltimore, MD

Jonathan Phinney
Alexandria, VA

M.K. Rauch
Bristow, VA

Tom Reed
Annapolis, MD

Martel Ricketts
Leonardtown, MD

Lawrence Roberts & Nancy Walz
Garrett Park, MD

Robert Rogers
Frederick, MD

Richard Ross Jr.
Washington, DC

Kay Saderholm
Hyde Park, NY

Jane Schlegel
Hydes, MD

Mark Schlichter
Reisterstown, MD

Bob Smythe
Chevy Chase, MD

Sydney Sowell
Dunkirk, MD

Cynthia Squire
Baltimore, MD

Robert Stanhope
Cockeysville, MD

Sue Steczak
North East, MD

Joan Sweet
Havre De Grace, MD

Rollin Todd
Crofton, MD

Connie & Leonard Tritt
Carlisle, PA

Joan & Robert Vandegriff
Honey Brook, PA

Hong Woo
Taneytown, MD

Robert Wright
Salem, VA

Katherine Wychgram
Parkville, MD

FRIENDS

Sue Akerman
Baltimore, MD

Barbara Allera-Bohlen
Churchville, MD

Kristen Alverson
Melbourne, FL

Erwin Anderson
Burtonsville, MD

Sharon Andrews
Sudlersville, MD

Grace Arts
Woodbridge, VA

Susan Aubrey
Woodbridge, VA

Jacqueline Baker
North Spring, MD

Daniel Barnett
Shippensburg, PA

Howard Bauer
Whiteford, MD

Robert Beam
Henrico, VA

Linda Beck
Port Penn, DE

Gloria Bock
Trappe, MD

Jane Brandenburg
North East, MD

Gregory Brennan
Annapolis, MD

Michael Brown
Laurel, MD

Glenn Bucher
Chesapeake, VA

Roger Bucs
Hershey, PA

Nick Burgess
Dahlgren, VA

Roger Burkert
Ringoes, NJ

Joyce Campbell
Greenbelt, MD

Kenneth Carroll
Hartfield, VA

Walter Cate
Falls Church, VA

Susan Chaffinch
Denton, MD

Sue Chapin
Flemington, PA

Lani Clark
St. Marys City, MD

John Clatterbaugh
Midlothian, VA

Andree Conklin
Milford, NY

Evaline Cousler
North Wolf, PA

Jane Castle Craddock
Norfolk, VA

Mary & Robert Crafton
Grasonville, MD

Larry Crouse
North City, MD

Mickey & Sue Culp
North City, MD

Bernice Culver
Taneytown, MD

Colleen Dagen
Herndon, PA

Duane Davenport
Williamsburg, VA

Elaine Dickinson
Neavitt, MD

Norman Disney
North Pines, MD

John Dixon
California, MD

Tim Dorn
North Park, MD

Lisa Dorsey
Westminster, MD

Jan Dreher
Hickory, NC

Doug Dreyer
North Church, VA

Raymond Dueser
Charlottesville, VA

Jean Duncan
Arnold, MD

Christopher Evans
Reedville, VA

James Eveland
Hillsboro, MD

Scott Fisher
Arlington, VA

Debbie Flinchbaugh
Waynesboro, PA

Herb Floyd & Rhonda Franz
Trappe, MD

Nancy Franklin
Carrollton, VA

Christine & George Gaa
Baltimore, MD

Rod Gehr
North Solon, VA

George Geneaux
Annapolis, MD

Mark Gilbert
Jeannette, PA

Kathleen Gilliece
Clarksville, MD

Chip Glasgow
Potomac, MD

William Goodenow
Lewisburg, PA

Selwin Gray
Aurora, CO

Rafael Guastavino Jr.
Chestertown, MD

Chris & Harry Habecker
Swatara, PA

David Hafer
Lewisburg, PA

Stephen Hanyok
Elkton, MD

Charles Haslup
Annapolis, MD

Laura Haug
Havre de Grace, MD

Bette Haynie
Reedville, VA

Kelly Hedgepeth
Richmond, VA

Yes! I want to help the *Bay Journal* maintain and expand environmental reporting in the Bay region.

Enclosed is my tax-deductible gift of $_____

☐ **My check made payable to "Bay Journal Fund" is enclosed. OR ☐ Charge my Visa / MasterCard / Discover / AMEX.**

Card #:_____ Expires:_____ Security Code:_____

Name(s):_____

Address:_____

City:_____ State:_____ Zip:_____

Is this a memorial? Write name here:_____

Is this in someone's honor? Write name here:_____

☐ Please check here if you would like your gift to remain anonymous and not be recognized in the *Bay Journal.*

Please mail your donation to the Bay Journal Fund, P.O. Box 300, Mayo, MD 21106

☐ **$15–$49**	**Friend**
☐ **$50–$99**	**Supporter**
☐ **$100–$149**	**Sponsor**
☐ **$150–$249**	**Benefactor**
☐ **$250–$499**	**Advocate**
☐ **$500–$999**	**Booster**
☐ **$1,000–$2,499**	**Champion**
☐ **$2,500–$4,999**	**Guarantor**
☐ **$5,000 & Up**	**Philanthropist**

The Bay Journal Fund does not share the names of its donors or their addresses with other organizations.

The Robert O. Norris Jr. Bridge spans the Rappahannock River in Virginia between Lancaster and Middlesex counties. (Michele Danoff)

Our heartfelt thanks — your monthly support for the Bay Journal is invaluable!

We'd like to extend a special thank-you to the following people who have made regular monthly contributions to the *Bay Journal* in 2024. Steady support is incredibly helpful toward maintaining and expanding our reach. We truly appreciate their commitment to helping the *Bay Journal* be the best it can be.

Gregory Brennan
Annapolis, MD

Tim Dorn
Severna Park, MD

Doug Dreyer
Falls Church, VA

Herb Floyd & Rhonda Franz
Trappe, MD

George Geneaux
Annapolis, MD

Sandra Jarrett
Port Republic, MD

Lyn Kirby
Springfield, VA

Steve Lukaczer
Washington, DC

Sean Lynch
Easton, MD

Karen & Norman Meadow
Cockeysville, MD

Lynn & Thomas Owens
Glenn Dale, MD

Barbara Schmeckpeper
Columbia, MD

Lawrence Schneider
Fruita, CO

Jack & Susan Smith
Rockingham, VA

Ky & Olivia Su
Wilmington, DE

Zachary Sutton
Gaithersburg, MD

Robin Thieme
Shady Side, MD

Angela & Ronald Trivane
Annapolis, MD

Guy Wilkerson
Sterling, VA

Can you be a monthly supporter in 2025? If you'd like to add your name to this group, please contact Jacqui Caine today at jcaine@bayjournal.com or 540-903-9298. You can also become a monthly donor by visiting *bayjournal.com/donate* and select the recurring gift option.

Elaine Herr
Manheim, PA

Jean & Ronald Hill
North Air, MD

Roger Hommel
Richmond, VA

Joe Horchar
Nottingham, MD

Karen & Richard Hughes
North Chesterfield, VA

Pat Hurley
Crossville, TN

Rick Jacobs
Harrisburg, PA

Hale Johnson
Lancaster, PA

W. Grason Jones Jr.
Crosswicks, NJ

James Karwacki
Bordentown, NJ

Joel Kauffman
Emigsville, PA

Barbara Kiss
Washington, DC

Sister Betty Koehn
Timonium, MD

James Kosmides & Mignon Petrini
Annapolis, MD

Steven Krieg
North Market, MD

Charles Kropp
Vienna, MD

John Latsha
Lewisberry, PA

Blaine Leidy
North Arm, MD

Jan Levine
Baltimore, MD

Steve Lukaczer
Washington, DC

Charles Lunsford
Midlothian, VA

Sean Lynch
Easton, MD

Steve Maczuga
Chambersburg, PA

Martha Madary
Easton, MD

Nancy Markowitz
Camp Hill, PA

Carol J. Massey
North Beach, VA

Charlie Mauck
Littlestown, PA

James McCann
Crownsville, MD

Ed McCarthy
Harrisburg, PA

Joe McGovern
Middletown, PA

Kathleen McManus
Rockville, MD

Wade McMillion
Powhatan, VA

Karen & Norman Meadow
Cockeysville, MD

Kenneth Meisinger
North Park, MD

Frank Meyer
Virginia Beach, VA

Neal Meyerson
Millsboro, DE

Joe Mihalovich
North Arm, MD

Tweefie Milspaugh
Lutherville, MD

Delia & Peter Mirones
Tampa, FL

Michael Moscatello
Georgetown, TX

Allen Moss
North Laurel, NJ

N. Motter
Poquoson, VA

Dorothy Mumford
Annapolis, MD

Jeffery Munson
North Chesterfield, VA

Daniel G. Murphy
Clarksburg, PA

Suzanne Myers
Dover, PA

Ed Nawrocki
Columbia, MD

Stephen Neal
North Hill, PA

Barbara Nickel
North Berlin, PA

Lynn & Thomas Owens
Glenn Dale, MD

Nathan Owens
North Heights, MD

John Page
Lutherville, MD

Judith Anne Patterson
North Mill, MD

Richard Pazdalski
Burke, VA

Tom Peightel
Lemoyne, PA

Paul Pitera
Montross, VA

Bill Poulos
Kensington, MD

Perrie Prouty
Rockville, MD

Joseph Ragona
North Hills, MA

Scott Reichlyn
Westminster, MD

Judith Roa
Hollywood, MD

Margaret Robinson
Marydel, MD

William Rogers
Suffolk, VA

Kathryn Rothrock
Berlin, MD

David & Marion Royer
Newark, DE

Christine & James Ryan
Nottingham, PA

Melanie Ryan
Oxford, PA

Michael Sauers
Baltimore, MD

Barbara Schmeckpeper
Columbia, MD

Spencer Schmidt
Poolesville, MD

Lawrence Schneider
Fruita, CO

Diana Schroeher
Deale, MD

David Schwenker
Isle La Motte, VT

Judith & Melvin Selby
Brandywine, MD

Edward Shater
Mechanicsville, VA

John Siegling
North Island, SC

Fred Silver
Laurel, MD

Jim Spontak
Etters, PA

E. Stewart
Washington, DC

John Strumsley
Pasadena, MD

Ky & Olivia Su
Wilmington, DE

Joe Sugarman
Baltimore, MD

Greta Swanson
North City, MD

Theresa Tabulenas
Kilmarnock, VA

Tom Tennant
Seaford, DE

Robin Thieme
North Side, MD

Christine Tucker
Harwood, MD

Upper Node Designs
Jarrettsville, MD

Laurie Walton
Chincoteague, VA

Douglas & Teresa Ward
North Freedom, PA

David Webster
Petersburg, WV

Bill & Eileen Weldon
Williamsburg, VA

Dawn White
Gore, VA

Beth Wise
Selbyville, DE

Ray Yoder
Lebanon, PA

Nancy Zearfoss
Bushwood, MD

Frederick Zmitrovich
Hummelstown, PA

BULLETIN BOARD

BULLETIN BOARD GETS NEW ADDRESS

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

EVENTS / PROGRAMS

PENNSYLVANIA

Christmas Bird Count
4:30–7:30 pm, Dec. 14. Climbers Run Nature Preserve, Pequea. At intro indoor presentation learn to track your bird watching observations utilizing field guides, online apps, traditional survey resources. Then hit the trail to make observations as a part of the Solanco 2024 CBC. 13+, under 18 w/adult. Info: lancasterconservancy.org/events.

Ecological Restoration Certificate
9 am–3 pm, Dec. 14, Jan. 11 and 15. Horn Farm Center, York. Registration open for hands-on learning on mending degraded ecosystems and fostering resilient habitat. Gain experience practicing regenerative stewardship; recommended for landscape practitioners, conservation volunteers and educators, landowners. $495.
Info: hornfarmcenter.org/eco-restoration-cert.

VIRGINIA

Eagle Tour
11 am–1 pm, Nov. 17. Caledon State Park, King George. Learn about the life and history of Caledon's resident bald eagles, then enjoy a wagon ride to the beach to search the skies. Bring water, wear sturdy shoes, bring your own binoculars or borrow from a ranger. $5 parking fee; tour fee of $3/pp or $8/family (children welcome). Registration: 540-663-3861. Info: Caledon@dcr.virginia.gov.

Winter Tree Identification Workshop
10 am–2 pm, Nov. 16. Sky Meadows State Park, Delaplane. Explore the forests with master naturalist Paul Guay and find the key to IDing any tree, even in winter. Begins with a presentation on tree anatomy, symbiotic and parasitic relationships, tips and tricks to ID. Then test your skills on a two-mile guided hike. Bring water, lunch; wear sturdy shoes. Standard parking or admission fee applies. Children welcome. Info: 540-592-3556 or SkyMeadows@dcr.virginia.gov.

Community Clean-up Day: Mason Neck State Park
10:00 am–3 pm, Nov. 30, Dec. 28. Lorton. Meet with rangers at the Mason Neck State Park visitor center for a talk about conservation and get supplies (provided) to clean up the trash along the shore and trails. Bring water, dress for the weather, expect to get wet and a little dirty. Info: 703-339-2385 or masonneck@dcr.virginia.gov.

Dyke Marsh Bird Walks
8 am every Sunday. Dyke Marsh Wildlife Preserve between Old Town Alexandria and Mount Vernon. Meet in the Belle Haven Park south parking lot. Walks cancelled if weather conditions are unsafe, such as lightning, ice or heavy rain or snow. Info: fodm.org.

iNaturalist Guided Walk
3-4 pm, Dec. 7. Great Falls National Park, McClean, Overlook 3. For nature enthusiasts, hikers and photographers of all levels. A ranger will provide tips and tricks for photographing nature and using the iNaturalist app, contributing to community science. Info: nps.gov/grfa/planyourvisit/calendar.htm.

MARYLAND

Marshy Point Nature Center, Middle River
Advance registration required for all programs. Info: marshypoint.org/programs/event-calendar.
- 2 pm–3 pm, Nov. 17. *Sleepy Season*. Hibernation, brumation, aestivation are all forms of season-based dormancy. Learn who is preparing to take a "long winter's nap" and just how long that nap will be. Free.
- 11 am–12 pm, Nov. 25. *Pre-K Nature, Turkey Talk*. Introduce your little ones to nature's wonders while enjoying stories, crafts, songs, outdoor activities. $5 per child.
- 12–3 pm, Dec. 8. *Wreaths and Natural Ornaments.* Make wreaths, ornaments, other decorations using natural materials while enjoying the warmth of the fireplace. Costs vary based on wreath size.

Stream Water Chemistry
8:30–11:30 am, Nov. 15. Jug Bay Wetland Sanctuary, Lothian. Join the Stream Water Chemistry volunteer team to conduct field tests on dissolved oxygen and other parameters at important streams feeding Jug Bay. Water samples are also collected for lab analysis. This is a great way to learn how to use professional equipment, see the park and become involved in habitat monitoring. Free. Must be 18 to volunteer without a guardian. Registration required: jugbay.org/inspire_events/stream-water-chemistry-68.

Maryland Water Monitoring Conference
Nov. 21, Linthicum. Includes a plenary session, concurrent breakout sessions, posters, exhibitor tables, snacks, all-you-can-eat buffet lunch. Network and catch up with friends and colleagues during breaks. Registration, more info: shopdnr.com/2024MWMCRegistration.aspx.

Patuxent Research Refuge
Patuxent Research Refuge offers free public events, programs and other activities on its South Tract in Laurel. Check website for current info on North Tract public access. No preregistration required except where noted. List special accommodation needs when registering. Registration & info: 301-497-5772 (10 am–4 pm, Wed.-Sat.) or register online: fws.gov/refuge/patuxent-research/events.
Join email list: michael_cangelosi@fws.gov.
- *Kids' Discovery Center:* 10 am–12 pm (35-minute time slots, on hour), Wed.-Sat. Ages 3 to 10 w/adult. Crafts, puzzles, games, nature exploration, free booklet. Nov.: *Beavers: Master Builders/Watershed Sustainers*. Learn about life in the beaver household! Dec.: *Raccoons & Skunks*. Group arrangements possible. Registration strongly urged.
- *Family Fun:* 10 am–4 pm, Wed.-Sat. for drop-in/independent exploration. Staffed 10 am–1 pm, Nov. 15 & 16 [S]. All ages. Nov.: *Bird Migration*. Dec.: independent only. Hands-on learning activities, games, crafts.
- *Fall Perennial Pollinator-Habitat Planting:* 2-3 pm, Nov. 16 [S]. Adults/ages 12-17 w/adult. Free native plants, including "container gardens." Registration required.

Nestbox Trail Maintenance Day
9:30 am–12:00 pm, Nov. 16. Pickering Creek Audubon Center, Easton. Inspect nestboxes, making minor repairs as needed. Afterwards reconvene at the garden classroom to learn more about the center's nest monitoring programs. Info: pickeringcreek.org/programs/upcoming-programs.

C&O Canal Hike
10:30 am, Nov. 24. Riley's Lock, mile 22.8. Investigate the dams and locks providing water and access to the canal from the Potomac River. Dress for the weather, bring water, lunch/snack. Be prepared to walk 4-8 miles round trip. Rain or shine. Info: Pat White at 301-977-5628, hikemaster@candocanal.org or candocanal.org/events/continuing-hike-rileys-lock.

Forest Bathing
10 am–12 pm, Nov. 23. Woodend Sanctuary, Chevy Chase. Join a Forest Bathing Guide for a soothing mindfulness walk. Japanese Shinrin-yoku can help de-stress and boost health and well-being by immersion in nature, connecting through senses of sight, hearing, taste, smell, touch. $40. Info: natureforward.org, Nature Classes & Field Trips.

Blackwater Guided Birding Tours
8 am–12 pm, Nov. 17 w/Terry Allen; Nov. 24 w/Ron Ketter; Dec. 15 w/Terry Allen. Cambridge. Meet at Blackwater National Wildlife Refuge visitor center then proceed in your vehicle to meet with guide at various hotspots on Wildlife Drive. Info: fws.gov/refuge/blackwater/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. Click on "cleanups."

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. December issue: November 11 January/February issue: December 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 27

1. Virginia
2. New York
3. Maryland
4. Delaware
5. West Virginia
6. Pennsylvania
7. District of Columbia

BULLETIN BOARD

PENNSYLVANIA

Middle Susquehanna volunteers
The Middle Susquehanna Riverkeeper needs volunteers in these areas:
- *Sentinels:* Keep an eye on local waterways, provide monthly online updates. Web search "Susquehanna sentinels."
- *Water Sampling:* Web search "Susquehanna Riverkeeper survey."
- *The Next Generation:* Volunteers wanted!

Many watershed organizations are aging out. Younger people are needed for stream restoration work, litter cleanups. Individuals, families, scouts, church groups welcome.
Info: MiddleSusquehannaRiverkeeper.org/watershed-opportunities.

Nixon County Park
Volunteer at Nixon Park in Jacobus. Info: NixonCountyPark@YorkCountyPA.gov, 717-428-1961.
- *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 trail improvements.

Info: supportyourparks.org, select "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.

State park, forest projects
Help with Department of Conservation and Natural Resources projects at state parks and forests: clear and create trails, habitat; repair and install plants, bridges, signs; campground hosts; interpretation programs and hikes; technical engineering, database assistance; forest fire prevention programs; research projects. Web search "PA DCNR conservation volunteers."

VIRGINIA

Leopold's Preserve
The White House Farm Foundation needs help with its conservation corp 8:30–11:30 am Fridays. Ages 13+. Maintain trails, restore habitat, remove invasive plants, clean up trash. Register: leopoldspreserve.com/calendar, click on date. Info: WHfarmfoundation.org.

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: volunteer@theVLM.org.

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. Register for an event: trashnetwork.fergusonfoundation.org.

Goose Creek Association
The Goose Creek Association in Middleburg needs volunteers for stream monitoring and restoration, educational outreach, events, zoning and preservation projects, river cleanups. Info: Holly Geary at 540-687-3073, info@goosecreek.org, goosecreek.org/volunteer.

Borrow cleanup supplies
Hampton public libraries have stream cleanup kits that can be checked out year-round, then returned after a cleanup. Call your local library for details.

MARYLAND

C&O Canal National Historical Park
Become a C&O Canal steward. "Adopt" a section of the park and throughout the year help ensure it remains clean and beautiful. Volunteers needed to adopt Cushwa Basin in Williamsport.
Info on this and other volunteer opportunities: canaltrust.org/programs/volunteer-programs.

National Wildlife Refuge at Patuxent
Call 301-497-5772 during staffed hours (NEW: 10 am-4 pm, Wed.-Sat.). Volunteer opportunities at Patuxent Research Refuge near Laurel include:
- *Kids' Discovery Center:* Help develop curriculum activities/become a docent. Ask for Barrie; specify "KDC."
- *Monarch Magic:* Adults & ages 16-17 w/adult registration on file. Learn about helping on the Monarch Magic Butterfly Team. Ask for Barrie; specify "Butterfly Team."
- *Pollinator-Habitat gardening and/or trail maintenance on South and/or North Tracts:* Free training (required). Ask for Diana Ogilvie, or email diana_ogilvie@fws.gov.
- *Friends' Wildlife Images Bookstore & Nature Shop:* Help a few hours a week, half day, all day: 10 am–4 pm, Wed.–Sat. Run register; assist customers. Ages 18+ (15-17 w/adult). Visit the shop in the visitor center; ask for Ann or email wibookstore@friendsofpatuxent.org.
- *Friends of Patuxent Research Refuge.:* Volunteer with events, hospitality, service hours, public conservation-education program development; help write grant proposals, develop 5ks/fundraisers/outreach. Email friendsprr@friendsofpatuxent.org.

Eastern Neck Refuge
Volunteer with Friends of Eastern Neck Wildlife Refuge in Rock Hall:
- *Visitor Contact Station & Gift Shop/Bookstore:* Answer questions, handle sales.
- *Butterfly Garden:* Pairs of volunteers are assigned a plot to plant, weed, maintain spring through fall.
- *Outreach:* Staff information booth at community events. Info: Contact page at friendsofeasternneck.org.

Chesapeake Bay Environmental Center
Volunteer at CBEC in Grasonville a few times a month or more often. 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: volunteercoordinator@bayrestoration.org.

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

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

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.

Patapsco Valley State Park
Volunteer 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, volunteerpatapsco.DNR@maryland.gov.

St. Mary's County museums
St. Mary's County Museum Division needs adults to help with student/group tours, special events, museum store operations at St. Clement's Island Museum or Piney Point Lighthouse Museum & Historic Park. Info: St. Clement's Island Museum, 301-769-2222; Piney Point Lighthouse Museum & Historic Park, 301-994-1471.

RESOURCES

WATERSHEDWIDE

Salt & nitrate test kits
The Izaak Walton League offers free kits for testing drinking water or a local waterway for chloride pollution from road salt at saltwatch.org and nitrate pollution at nitratewatch.org.

MARYLAND

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

Marine mammal/turtle sightings, strandings
Anyone who sees a marine mammal or sea turtle (especially if stranded, dead, sick, injured or entangled) in Maryland waters is encouraged to report it via the MD Natural Resources Police Hotline, 800-628-9944. Use an online form to report deceased marine mammals or sea turtles: news.maryland.gov/dnr. Enter "strandings" in the search field.

Free pumpout adapter kits
The Department of Natural Resources is offering state boat owners and marinas free adapter kits to help empty holding tanks securely at pumpout stations. The kit has a plastic adapter that screws into the existing waste discharge deck fitting, instructions, protective gloves, storage tube, QR code to a list of pumpout stations.
Info: Web search "MD DNR free pumpout kit" or contact Jennifer Jackson at 410-260-8772, pumpouts.dnr@maryland.gov. DNR also offers an online map of pumpout stations (web search "MD online pumpout map") and clean boating tip sheet (web search "MD clean boating").

Fishing report
The Department of Natural Resources' weekly Fishing Report includes fishing conditions across the state, species data, weather, techniques. Read it online or web search "MD DNR fishing report" to sign up for a weekly email report.

VIRGINIA

Apply for runoff assistance
The Prince William Soil & Water Conservation District no longer requires application periods for the Virginia Conservation Assistance Program, which helps HOAs, homeowners, schools, places of worship and others with urban soil erosion and water runoff. Interested parties can 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.

Bringing communities to the conversation, roundtable style

By Kayli Ottomanelli & Rick Mittler

Left: Local government officials discuss water quality issues at a July 24 roundtable in West Hempfield Township, PA, hosted by Lancaster Clean Water Partners and led by LGAC member Leo Lutz, mayor of the Columbia Borough. Right: LGAC member and Norfolk City Council Member Andria McClellan speaks at a July 30 clean water roundtable in Chesapeake, VA, hosted by the Hampton Roads Planning District Commission. (Left courtesy of the Alliance for the Chesapeake Bay; right courtesy of HRPDC)

When it comes to clean water, diverse communities require diverse solutions. Spanning more than 64,000 square miles across six states and the District of Columbia, the Chesapeake Bay watershed is home to roughly 1,800 local governments. At this vast scale, there is no one-size-fits-all approach to achieving clean water.

Members of the Chesapeake Bay Program's Local Government Advisory Committee (LGAC) understand this well. These 24 elected officials represent counties, towns, cities, boroughs and townships from across the watershed — all of different sizes, demographics and ways of life. Appointed by the governors of the watershed states (and the District of Columbia's mayor) to share their views, insights and experiences with state and federal decision-makers, LGAC members are the voice of local governments.

The Chesapeake Bay Program is a unique, state-federal partnership dedicated to restoring and protecting the Bay and improving water quality and living resources for its residents. In 2022, the Chesapeake Bay Executive Council, which is the Bay Program's governing body, directed the partnership to prepare comprehensive recommendations that "prioritize and outline the next steps for meeting the goals and outcomes of the Chesapeake Bay Watershed Agreement leading up to and beyond 2025." As the partnership maps out the future of the watershed restoration effort, the buy-in and support of local governments is critical for advancing restoration goals.

On July 1, 2024, the Beyond 2025 Steering Committee released its draft report for public feedback. On July 11, LGAC convened 73 local officials and staff from around the watershed for the 2024 Local Government Forum to discuss the draft report and its possible implications for local governments. The forum collected feedback to inform LGAC's recommendations to Bay Program leadership for their consideration related to these future efforts.

To reach an even broader audience of elected officials, LGAC followed the forum with a series of roundtables in July and August. Hosted around the watershed, these discussions gathered more than 70 local officials to talk about community challenges, share success stories and delve into how the future of the watershed restoration efforts may impact their locales.

On July 19, the Chesapeake Bay and Water Resources Policy Committee of the Metropolitan Washington Council of Governments took the first dive into discussing how the future of the watershed cleanup will impact local governments. With Takoma Park Council Member and LGAC member Cindy Dyballa at the helm, representatives of local governments from Maryland, Virginia and DC mulled over the lack of clarity and accessibility of the Beyond 2025 Steering Committee draft report, the challenges of translating broad recommendations into actionable steps. They also discussed the need to reconsider traditional approaches to land conservation and development.

The key sentiment the group shared was how critical it is that underrepresented communities have a meaningful role in the decision-making within the Bay Program partnership and that an equity lens be applied to initiatives across the watershed.

Leo Lutz, mayor of Pennsylvania's Columbia Borough and an LGAC member, led a roundtable July 24 in West Hempfield Township hosted by the Lancaster Clean Water Partners and the Campbell Foundation. Local leaders gathered there to explore how their communities can contribute to water quality efforts statewide.

Mayors, council members and representatives of townships and boroughs highlighted the positive strides Pennsylvania has made in the agricultural sector. And they spoke of the value of peer-to-peer "storytelling" — sharing success stories and cautionary tales with their peers in other jurisdictions.

On July 30, Virginia LGAC members Andria McClellan and Sheila Noll led a roundtable in the city of Chesapeake, hosted by the Hampton Roads Planning District Commission. This discussion also brought state partners to the table to share their perspectives. These state partners included Stefanie Taillon, deputy secretary of the Virginia Department of Natural and Historic Resources, who provided great insight into the Beyond 2025 process, as she served on the Steering Committee, and Kevin McLean, Chesapeake Bay program manager at the Virginia Department of Environmental Quality, who spoke about state resources and support available to local governments in their efforts to meet goals.

Finally, on August 1, the roundtable tour headed west, to capture the distinct perspective of the Shenandoah Valley. Joined by council members, town managers, vice mayors and county supervisors, LGAC member Richard Baugh led a vibrant discussion at city hall in Harrisonburg.

During the roundtable, Libby Clark, who serves as town manager, treasurer and town clerk in Mount Crawford, highlighted the importance of technical assistance for smaller towns. With her town having fewer than 500 residents and a small staff, she shared how vital it is to have technical assistance and support in accessing funding for clean water projects. Other officials corroborated that sentiment regarding small or under-resourced local governments, and there was excitement in the room about the opportunity to collaborate across jurisdictional boundaries.

Although each community brought diverse perspectives to the table, there were common themes at every roundtable. First and foremost, officials stressed the need for enhanced technical assistance and additional resources to implement their work. Secondly, attendees felt a greater emphasis should be placed on celebrating successes and significant progress that has already been made. Finally, there was significant interest in "sandboxing" specific practices and cultivating regulatory flexibility at the local government level to drive innovation and encourage new approaches to long-standing community goals.

Later this year, there will be a final roundtable discussion on the Delmarva Peninsula in partnership with the Delaware League of Local Governments. To learn more about the work of LGAC, visit *chesapeakebay.net/who/group/lgac.* ■

Kayli Ottomanelli is a local government projects associate with the Alliance for the Chesapeake Bay. Rick Mittler is a local leadership workgroup coordinator for the Alliance.

The bufflehead: an itty-bitty duck with a great big head

By Alonso Abugattas

A pair of buffleheads soars over a field, male in the lead. Buffleheads tend to fly high over land but much lower over water. (Casey Helton/CC BY 2.0)

The bufflehead is nothing if not punctual. Few other ducks are known to arrive in our neighborhood every winter within a few days of the date they arrived the previous year. The smallest of North America's diving ducks, the bufflehead likely evolved in size to allow it to nest in the tree cavities of woodpeckers, most commonly northern flickers, according to Canadian zoologist Gilles Gauthier.

Both its common name and taxonomic name, *Bucephala albeola*, refer to the duck's head, which is very large in comparison to its 13– to 16-inch body. "Bufflehead" is thought to have come from "buffalo head," and the scientific name can be loosely translated from its Latin and Greek roots as "bullheaded with a little white." Both of those features are especially evident on the male, which has a large wedge of white on its head, coming to a point just under his eye, and whose head is slightly larger than the female's, especially when he puffs it out on top. It also has iridescent green and purple highlights in bright sun. From a distance, floating on the water, the white wedge can make him look a bit like a male hooded merganser, but without the rich brown on its folded wings.

The somewhat smaller female bufflehead, meanwhile, looks quite different: brownish on top and pale gray below. And instead of the large white wedge on the side of her head, she has a small, horizontal, often cigar-shaped white patch behind and slightly below the eye. Immature buffleheads look like the females until they develop adult plumage in their second year.

Because of their small, chubby appearance, buffleheads are also called "butterballs," which may also allude to the large amounts of fat reserves they develop in the winter. They have many other colloquial names, including "spirit duck," a reference to their habit of disappearing underwater (diving for food) and then reappearing 15 to 25 seconds later. That was the name favored by Arthur Cleveland Bent, the U.S. ornithologist famous for his 21-volume *Life Histories of North American Birds*.

Butterballs or not, these are fast fliers, known to cruise at nearly 50 mph. They tend to fly low over the water but much higher over land, where they prefer to have woods below, as opposed to fields and grasslands. Being diving ducks, their legs are placed far back on their bodies, making them strong swimmers and divers but less than graceful on land. It's rare to see them walking unless it's a female leading her chicks to another water body. Unlike most other diving ducks, which have to "run" across the water for a short distance to get airborne, buffleheads take flight very quickly. When diving for food, they stay underwater for as long as 25 seconds.

Most of what they eat is animal matter. In freshwater, that's mostly invertebrates like damselflies, dragonflies, caddisflies and mayflies, amphipods or, especially in winter, clams. In brackish or salty water, they dine on shrimp, crabs, snails, mussels, mollusks, isopods and fish eggs, and even small finfish like sculpins. This diet may explain why, as ducks go, they are less than palatable to humans and therefore not a prized game bird, even though they are easily drawn to decoys.

Buffleheads are among the least social of ducks, normally found in small flocks of 2–10, if they're together at all beyond mated pairs. They are also unusual in that they are monogamous, forming long-term bonds with the same partners for many years. And they are known for great nest fidelity, normally returning to the same tree cavity to nest in each year — and, as mentioned, quite punctually, whether they are returning to their winter home or summer home.

They almost exclusively use northern flicker cavities on aspen and poplar trees, generally within several hundred feet from water. In fact, the ranges of both flickers and buffleheads almost overlap. This is an example of a metabiotic relationship. Flickers are fairly large, so their holes are the perfect size for the small ducks — big enough for the butterballs to come and go but small enough to exclude larger cavity nesters like the closely related goldeneye duck (*B. clangula*). Tree cavity nests also allow for higher nesting success than that of ground nesting ducks that are vulnerable to skunks, raccoons, foxes and other ground predators. Buffleheads will use human-made nesting boxes as well, again preferring much smaller boxes than those used by other cavity nesting ducks.

After forming their pair bonds over the winter, the birds head back to their breeding grounds in early April and early May, migrating at night. They're among the last ducks to leave their winter territory. The greatest concentration of breeding grounds, according to abundance maps maintained by the Cornell Lab of Ornithology, are in northwestern Canada, in a wide swath crossing through Saskatchewan, Alberta and Northwest Territory and petering out in Alaska.

They do very little nest preparation in advance of breeding, with no modifications to the entrance hole and using their own downy feathers for interior lining. They only have one brood a year; the hen lays and then incubates 8–10 yellowish white, olive or buff eggs for 28 to 33 days. During this time, the drake leaves to molt, disappearing into the marshes with what is called eclipse plumage. During this brief period, he looks much like the female and is unable to fly and therefore more vulnerable to predators.

After hatching, the young remain inside the nest for just a day or a day-and-a-half before taking a leap of faith out of the nest. They usually land unhurt on the ground below, ready to follow the mother to water. They fledge a bit less than two months later. It takes them a full year to obtain their adult plumage.

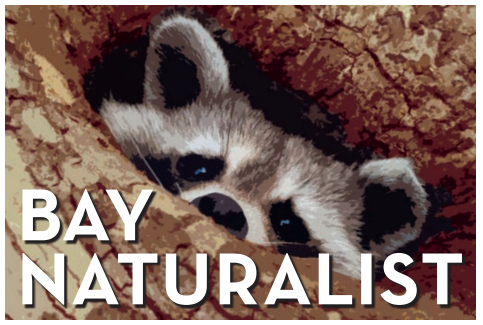
Buffleheads start leaving for the wintering grounds in October, settling mostly across the U.S. but sometimes going as far as Central America.

Being such small ducks, they have many predators. This includes peregrine falcons, snowy owls, bald eagles, golden eagles, red-tailed hawks, great horned owls and Cooper's hawks. This suppresses their average lifespan to less than three years, though they can live much longer if they manage to avoid predation. The oldest known bufflehead lived to 18 years and 8 months.

Buffleheads have increased their populations by about 3% from 1966–2019 with a breeding population of about 1.3 million pairs, according to the North American Breeding Bird Survey, and so appear to be doing well. They are still at risk from habitat destruction, needing mature trees near water that attract flickers. ■

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

The adaptable red fox lives among us, but ever so warily



By Kathy Reshetiloff

Although there are color variations, called morphs or phases, most red foxes are red on top with a white throat and chest, black lower legs and a telltale white tip on its bushy tail. (John Carrel/CC BY-NC-ND 2.0)

A red fox kit looks out from its den. Kits will begin to venture outside the den when they are about 1 month old and will strike out on their own at about 7 months. (U.S. Fish and Wildlife Service)

As more and more wild areas give way to residential or commercial purposes, we often need to travel farther to glimpse wild animals. But some creatures are easier to spot because they adapt easily to a variety of areas, including forests, grasslands and farms — and, yes, suburban neighborhoods and cities. One such animal in the Chesapeake Bay watershed is the red fox.

Found in most of North America, except parts of Canada and the southwestern U.S., red foxes find suitable food and comfortable shelter in both natural habitats and human-dominated areas. That is not to say, however, that these animals are approachable; they are still extremely cautious and wary of people. Although active during both day and night, you're most likely to see them at dusk or dawn.

The red fox (*Vulpes vulpes*) is in the Canidae family, which explains its dog-like appearance. It has a sharply pointed nose, erect ears and a bushy tail. The average adult is about 2 feet long, with the tail adding another 12 to 18 inches.

Most red foxes are red above and white underneath. The backs of the ears, lower legs and feet are black, and the long, bushy tail always sports a white tip. The name red fox is kind of a misnomer, as there are several color "morphs," including silver and cross. The silver type is almost completely black with silver tipped hairs. The cross type is reddish brown with a dark cross on its shoulders. But all color morphs of the red fox have a white tipped tail.

True to their adaptability, red foxes eat both plants and animals. Their varied diet includes insects, birds, mice, snakes and rabbits — along with nuts, berries and fruits, depending on the season and locale. They will also eat carrion.

Their hearing differs from many other mammals in that it is most sensitive to low-frequency sounds. The red fox listens, for example, for the underground digging, gnawing and rustling of small mammals. When it hears such sounds, it frantically digs into the soil or snow to capture the animal.

Cat-like while stalking prey, a red fox hunts larger quarry, such as rabbits, by moving in as close as possible, then attempting to run the prey down when it bolts. The red fox can run up to 30 mph and is able to jump over barriers that are 6 1/2 feet high. Even with a full belly, the red fox will continue to hunt, stashing excess food under snow, leaves or soft dirt.

An adult fox rarely retires to a den in winter. Instead it curls into a ball, wrapping its bushy tail about its nose and foot pads, and at times may be completely blanketed with snow. Adults are solitary until the mating season, which begins in late January or February.

Mating usually occurs from January through early March. One litter of 1 to 10 kits is born between March and May. The maternity den, often an enlarged groundhog den, is usually in sparse ground cover on a slight rise with a view of surrounding area. It may also be in a stream bank, slope, rock pile, hollow log or hollow tree. The den will be well marked with excavated earth, cache mounds where food is buried, holes where food has been dug up and scraps of bones and feathers.

Upon birth, most kits already show the white tail tip. Food is given to the first one that begs. Some young may die in years when food is scarce. At first, the mother predigests and regurgitates meat, but soon she brings live prey, enabling the kits to practice killing.

At about one month, the young begin to play above ground. Later, they hunt with their parents. Kits disperse at about 7 months, with males traveling up to 150 miles away and females remaining closer.

A red fox hunts for prey under the snow. Unlike many other mammals, its ears are especially sensitive to low-frequency sounds, like the movement of rodents underground. (U.S. Fish and Wildlife Service)

The adult red fox has few enemies other than people, dogs and cars. Disease such as rabies, mange and distemper often reduce local populations. For years, unregulated trapping and bounty payments took a heavy toll on red foxes. They rebounded after the collapse of the fur industry and the abolishment of most bounty payments.

Because they are generalists, able to survive on a variety of foods and live in different habitats, don't be surprised to find a red fox in your neighborhood. They are not dangerous unless they are rabid. However, like all wild animals, foxes should not be handled. If you see a red fox in your yard, chances are it is just cutting through — but, like other urban wildlife, it will be attracted to any food it can find there.

To reduce the likelihood of foxes frequenting your yard, ensure that all trash cans have tight fitting lids, never put meat scraps into a compost pile and never leave pet food outside. When people and wildlife share space, problems sometimes occur. Usually there are simple solutions to deterring "nuisance" animals. County animal control officers or extension agents can suggest deterrents or humanely remove problem wildlife.

In this increasingly developed environment, urban wildlife like foxes, raccoons, squirrels, bats and birds enrich our lives. Seeing wildlife in the backyard is often a child's first experience with the outdoor world, providing a connection to nature. With patience and common sense, people and wildlife can coexist. So stay alert and keep your eyes peeled. You never know what fascinating animal may be living right next door. ■