CHESAPEAKE
BAY JOURNAL
January/February 2025 Volume 34 Number 10
Independent environmental news for the Chesapeake region

Coal ash sites pepper the Chesapeake watershed

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Bay Program aims to revise 2014 cleanup agreement PAGE 13

NEW WILDLIFE REFUGE

A new national wildlife refuge launches in MD PAGE 17

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Maryland Gov. Wes Moore has said he will introduce legislation that would help boost aquaculture. Read about this and other environmental bills in Maryland, Pennsylvania and Virginia on page 22. (Dave Harp)

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EDITOR'S NOTE

Pondering partnerships

When I first started working on Chesapeake Bay issues nearly 30 years ago, the region was giddy about partnerships. Working across geographic boundaries and tackling projects that involve government, nonprofit and business partners is quite common today, but that wasn't the case at the time.

Leading the pack was the Chesapeake Bay Program itself: an entirely voluntary partnership between states and the federal government working to restore the Bay. It was innovative. Groups from abroad and across the nation visited their shared office space in Annapolis to learn how the program honored both a watershed framework and the varied political frameworks of its partners. For decades now, they have been partners in both dialogue and action.

The partners set regional cleanup goals — also voluntary — and put them in writing. The latest of those pacts was signed in 2014. And last December, following an intense year-long debate about next steps, the program's top leadership agreed to revise that document instead of replacing it. However, the extent of the revisions is wide open: The process could deliver tweaks or dramatically rewrite goals and timeframes. (See the article by Jeremy Cox on page 13.)

The meeting where this decision was announced included a fervent celebration of Bay partnerships. It is indeed an important example of a 40-year team effort between Republican and Democratic administrations, with lawmakers on both sides of the aisle supporting their work with policies and funding. Together, they have made progress and held the line against new pollution challenges.

But the cheering drowned out a difficult truth: The Bay Program has repeatedly failed to meet its most fundamental cleanup goals.

Let's be clear that past and future progress hinges on an inspired regional partnership. But partnership is not a goal in and of itself. The key question is whether the mechanisms of the Bay Program partnership will support the bold, courageous thinking needed for the next era of Bay restoration.

— Lara Lutz

ON THE COVER

Patuxent Riverkeeper Fred Tutman and neighborhood coalition leader Kamita Gray stand at the entrance to the coal ash landfill in Brandywine, MD. (Dave Harp)

Bottom photos: left by Ad Crable, center by Dave Harp, right by Matt Kane/The Nature Conservancy

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BY THE numbers

$18.9 billion
Value of outdoor recreation to Pennsylvania's economy

$13.4 billion
Value of outdoor recreation to Virginia's economy

$9.4 billion
Value of outdoor recreation to Maryland's economy

$1.5 billion
Value of outdoor recreation to the District of Columbia's economy

$33.9 billion
Value of outdoor recreation to New York state's economy

$2.1 billion
Value of outdoor recreation to West Virginia's economy

$1.6 billion
Value of outdoor recreation to Delaware's economy

**All figures based on 2023 data from the U.S. Bureau of Economic Analysis*

The amazing journey of American eels

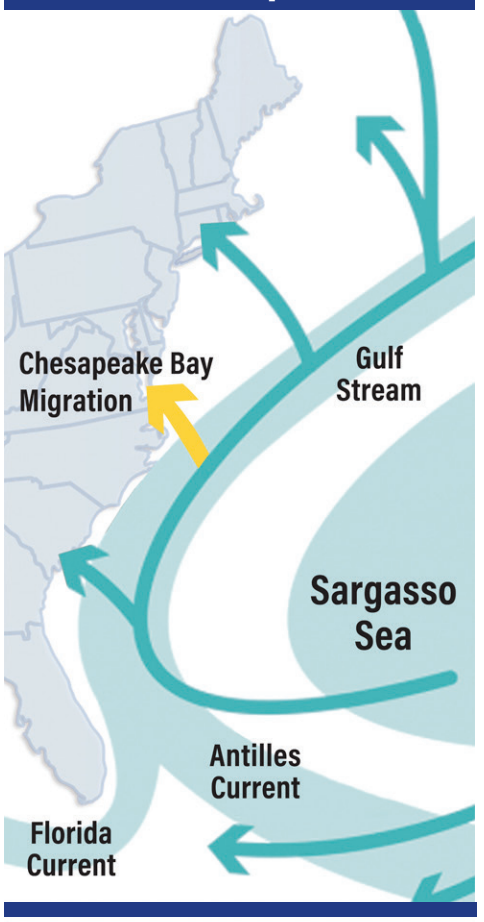
American eels take a unique and long journey to reach their home in the Chesapeake Bay watershed. While some eels stay in the Bay, most travel upriver. They are the only fish in the Bay watershed that spend most of their lives in freshwater and spawn in saltwater.

In the fall, mature eels leave the Bay and its rivers for the Sargasso Sea. It's a 2 million square mile expanse of Atlantic Ocean east of the Bahamas. The eels reach the area around February to spawn and then die. Ocean currents carry the tiny transparent larvae to the U.S. coast.

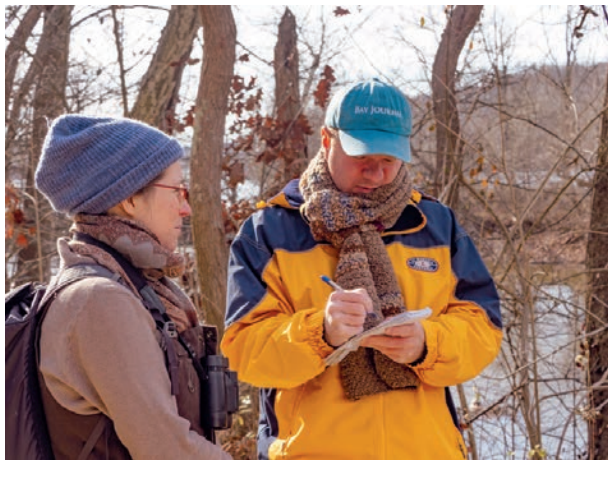
Right before entering the Bay, the eels become brown, and their hunt for a home begins. Some travel at night searching for freshwater upriver. They wiggle and use their slime to cross bits of ground and climb waterfalls. They earn a yellow hue a few months later and stay in the rivers. Once sexually mature, they turn silver and race back towards the Sargasso Sea. The cycle begins again. ■

— Lauren Hines-Acosta

American Eels: Path to the Chesapeake



Photos by Dave Harp. Map adapted by the Bay Journal with source material from Canadian Wildlife Federation.



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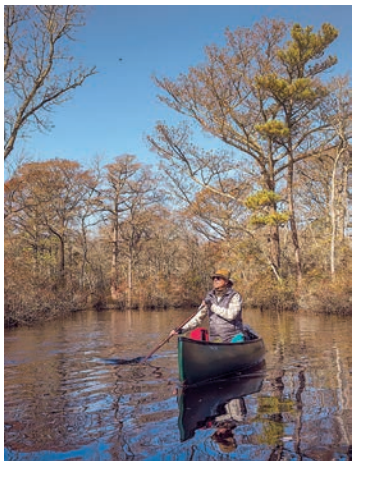

Nassawango Legacy

This short *Bay Journal* film will take you on a tour of Maryland's Nassawango Creek and show how one family has worked to protect it for generations to come. Find it at *bayjournal.com/films*.

ABOUT US

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BAY JOURNAL NOTEBOOK

Early January snow led to a Bay Journal snowman in the yard of photographer Dave Harp. (Dave Harp)

A wintry mix of reporting

The *Bay Journal* was well represented at the annual meeting of the Chesapeake Bay Executive Council on Dec. 10 in Annapolis. It's where the big decisions get made by state and federal officials, including Bay state governors. In attendance were editor **Lara Lutz**, photographer **Dave Harp** and staff writer **Jeremy Cox**. An article about the outcomes is in this issue.

And before schools let out for the holidays, Dave was also in Annapolis to speak about the Bay to fourth graders at the Key School. He marveled at how the students used bottle caps to make Secchi disks that could measure water clarity.

Meanwhile, senior writer **Tim Wheeler** attended a screening of the *Bay Journal* film, *A Passion for Oysters*, in Havre de Grace, MD, where he answered audience questions about the Bay, the state of environmental journalism and, yes, oysters. Readers can view all of the *Bay Journal*'s films for free at *bayjournal.com/films*.

The reporting process for some recent articles has called our attention to the increasing challenges with transparency in the government and corporate sectors. Our team began working on the coal ash story in this issue several months ago, but progress was repeatedly stymied by slow responses from some state agencies. Staff writers **Whitney Pipkin** and **Lauren Hines-Acosta** were eager to read a December report that assesses environmental concerns about data centers in Virginia. But it failed to provide any details on the volume of water consumed by data centers because companies often use nondisclosure agreements to shield that information. That's a topic for reporting in the new year.

And January's first storm confirmed it: Not all snow days are created equal! That was especially true for *Bay Journal* staffers, who are based throughout the Bay watershed. The storm brought up to a foot of snow for some and nearly none for others. Dave Harp used the snow that fell on the Eastern Shore to make a *Bay Journal* reporter snowman.

Editor-at-large **Karl Blankenship** was invited to speak at an even colder place: the National Monitoring Conference in Green Bay, WI, in March. He will be discussing the Bay cleanup effort, drawing on insights from his "Ag & the Bay" series.

End-of-year federal bills offer support for Bay work

Congress gave Chesapeake Bay restoration advocates a few gifts as it wrapped up its year-end business by renewing support for key programs, bolstering support for oyster recovery and promoting outdoor recreation and education.

In a major piece of bipartisan legislation, Congress overwhelmingly approved the America's Conservation Enhancement (ACE) Reauthorization Act, which supports habitat and wildlife conservation efforts nationwide.

In this region, the act reauthorizes the U.S. Environmental Protection Agency's Chesapeake Bay Program Office, the U.S. Fish and Wildlife Service's Chesapeake WILD Program and the National Park Service's Chesapeake Gateways program through 2030.

Such periodic reauthorizations are typically required for programs to be funded in the future, though they do not guarantee that Congress will provide money for them in the annual appropriations process.

The EPA Bay Program Office coordinates the work of states and federal agencies to achieve Bay restoration goals. It supports water quality monitoring and computer modeling, and it provides grants to states, nonprofit organizations and others to support Bay-related work. The act authorizes $92 million per year for the program.

The Chesapeake WILD (Watershed Investments for Landscape Defense) Program makes grants that improve fish and wildlife habitat and promote community engagement and public access to the water. The program is authorized at $15 million a year.

Chesapeake Gateways is a system of 200 natural, cultural, historic and recreational sites that provide a "gateway" for people to learn about and experience the Bay and its rivers. The program is authorized at $3 million a year.

Earlier in December, Congress signed off on the Watershed Resources Development Act, which guides actions by the U.S. Army Corps of Engineers. The act increased the amount the Corps is allowed to spend on oyster restoration in the Bay region from $100 million to $120 million.

In addition, Congress approved the Expanding Public Lands Outdoor Recreation Experiences Act (EXPLORE), aimed at increasing public access to the water and recreation on public lands. It helps improve and expand trail networks, restore campgrounds and modernize other infrastructure that supports outdoor recreation.

The legislation includes the Outdoors for All Act, which provides federal support for trails, green spaces, playgrounds and cultural gathering spaces in underserved communities.

— K. Blankenship

Lawsuit filed to ban ATVs in PA state forests

A Pennsylvania environmental group is suing to ban all-terrain vehicles from state forests and parkland in the northwestern part of the state.

The Pennsylvania Environmental Defense Foundation filed a lawsuit in the Commonwealth Court of Pennsylvania on Dec. 2 against Democratic Gov. Josh Shapiro and the state Department of Conservation and Natural Resources. The group argues that the state constitution requires them to preserve "the clean air, pure water, and natural, scenic, historic and esthetic values of these public natural resources."

Instead, the group said, ATV use in state forests is causing "degradation, diminution and depletion of the high value natural resources of our commonwealth."

It is the latest round in decades of controversy over ATV use on public lands.

ATVs have been allowed on specific trails in state forests since 1985. But in 2001, citing erosion problems and the creation of illegal "rogue" trails that were damaging sensitive environmental areas, DCNR placed a moratorium on any new trails and banned ATVs on state forest roads.

Meanwhile, the popularity of ATVs grew rapidly, pressuring state agencies for more routes on public lands. In 2020, legislators mandated a pilot project to connect isolated existing trails with forest and public roads all the way to the New York state line.

The 793-mile network opened in 2023 as the Northcentral Regional ATV Trail Connector.

A Penn State study found that the trails generated $23.4 million in 2022 and 2023 for local businesses and that 10,799 passes were sold during the first three years of official access.

A DCNR review said the trail system had little impact on forest resources but notes that 71% of state forest visitors surveyed who don't use ATVs said they disliked ATVs for dust and noise. In addition, 46% of people who live near the new trail system disapproved of the project. *— A. Crable*

See **BRIEFS**, *page 6*

briefs

From page 5

VA commission denies request to regulate hickory shad

The Virginia Marine Resources Commission voted on Dec. 3 to deny the Virginia Coastal Conservation Association's petition to establish a 10-fish daily creel limit for hickory shad.

Three board members were concerned about setting fishery regulations without scientific backing. All board members were in favor of denying the petition.

Hickory shad acts as an ecosystem bridge between the zooplankton they eat and the predators that eat hickory shad. Currently, the catch is not regulated in the Virginia portion of the Chesapeake Bay watershed.

CCA Virginia has been proposing protections for the species since 2019. Wayne Young, the group's hickory shad team coordinator, said the population of all four shad species has declined and the creel limit could potentially prevent overharvesting.

There is no stock assessment and little data on the species. According to the state Department of Wildlife Resources, catch rates have been declining in the James and Rappahannock rivers for the last four years.

The Virginia Institute of Marine Science found that the limit is unnecessary, and anecdotal data suggest that the passage of hickory shad through Virginia rivers during spawning season is consistent overall. Lyle Varnell, VIMS associate director for advisory services, told the commission that the institute would begin monitoring hickory shad in 2025. *— L. Hines-Acosta*

Chesapeake advocates eye 2025 for new Bay recreation area

Congress dashed hopes for a Chesapeake National Recreation Area to be created in 2024 by leaving town without finalizing action on what's long been a priority for Bay advocates.

Although the Senate unanimously approved the measure on Dec. 18, the House did not act, pushing consideration into 2025 after the next Congress is seated.

While the bill did not come up for a vote in the House, it did have bipartisan support and advocates expressed optimism at the momentum. Now, though, the legislation will have to be reintroduced in both the House and the Senate.

The recreation area would be managed by the National Park Service and unite a series of voluntary participating sites that would highlight the Bay's natural, cultural and historic resources.

Supporters say the recreation area would help tell stories of indigenous peoples, free and enslaved Blacks, the role the Bay played in the earliest days of the Maryland and Virginia colonies and the key role the Bay has played and continues to play in the region's environmental health and economy.

Bay advocates have wanted to expand the presence of the National Park Service in the Chesapeake region for decades. They hope it would attract more attention, build public engagement and increase support for Bay-related efforts. *— K. Blankenship*

Researchers hope forest farming will help save ramps

Researchers have pinpointed habitats where ramps, a type of wild onion, might be grown in Pennsylvania in hopes that "forest farming" will take pressure off harvesting the native Appalachian forest plant in the wild. Ramps have become increasingly popular with foragers and in culinary circles because of their garlic-onion flavor.

But scientists are worried that too much harvesting could harm ramp populations in the wild because they only grow in specific forest microclimates.

A Penn State research team has been studying how to grow and harvest ramps as a potential forest crop since 2017. In their latest study, published in the journal *Wild*, they list the types of forest settings where ramps might be grown successfully.

"Not just any forest will do," said Ezra Houston, one of the authors of the study.

The Penn State team will begin sharing their potential locations for farming ramps in 2025. The state Department of Conservation and Natural Resources funded the research. *— A. Crable*

VA protects almost 7,000 acres in Bay watershed

Virginia Gov. Glenn Youngkin announced $14.4 million worth of land conservation grants on Nov. 27, much of it awarded to locations in the Chesapeake Bay watershed.

The funds from the Virginia Land Conservation Foundation will go toward 28 projects across the state. Within the 11,200 acres of protected land, about 62% are in the Bay watershed.

The grants invest in tribal land acquisitions, waterfront access, new public parks, historical lands and habitat for threatened species.

The Middle Peninsula Chesapeake Bay Public Access Authority, for example, received $255,000 to acquire more than 500 acres of coastal and waterfront land along the York River. The project will provide underserved communities with recreational opportunities such as hunting, fishing, swimming and wildlife watching.

In Amherst County, the Monacan Indian Nation will use its grant to acquire about 100 acres of land adjacent to the tribe's Museum and Culture Center.

The Patawomeck Indian Tribe will gain more than 14 acres of land along the Rappahannock River. The tribe intends to create a public access trail and a small boat loading area.

The Conservation Fund received the largest award of $2 million to preserve 86 acres of the fifth President James Monroe's Oak Hill estate in Loudon County. The land will be open for historical interpretation and hiking. *— L. Hines-Acosta*

Catch restrictions for striped bass put on hold until 2026

Decision made amid uncertainty and debate

By Timothy B. Wheeler

After agreeing earlier this fall that beleaguered Atlantic striped bass may be urgently in need of additional protection, East Coast fishery managers have chosen instead to take more time to "get it right" before imposing new fishing restrictions.

Meeting in Arlington, VA, the Atlantic States Marine Fisheries Commission's striped bass management board voted against ordering immediate cuts in recreational and commercial catch despite pleas to do so from conservationists and many sports anglers.

Rather, amid disagreement over the most equitable way to impose coastwide reductions, the board opted to launch a nearly yearlong process of methodically developing new rules to take effect in 2026.

Mike Luisi, a fishery manager with the Maryland Department of Natural Resources and a member of the board, defended the delay. It gives time to address the problems besetting striped bass "holistically and comprehensively," he said, balancing the economic impacts of new restrictions with the need to safeguard the fish population.

Conservationists expressed disappointment and frustration with the outcome of the meeting. Stripers Forever, a Massachusetts-based group of sports anglers, said the board had "voted to 'kick the can down the road' again."

Striped bass are found in the Atlantic from Maine to the Carolinas, but the Chesapeake Bay, where they're also called rockfish, is the primary spawning and nursery ground for 70% to 90% of the entire stock. The coastwide population is currently struggling to recover from years of being overfished. Reproduction in the Bay has been poor in Maryland waters for six straight years and for the past two years in Virginia, juvenile fish surveys indicate.

The board decided in October to hold a special session after being informed that, despite catch reductions already imposed to rebuild the stock, the odds of succeeding by the end of the decade had slipped below 50%. Adding to the urgency is an expected surge in the 2025 catch when the last bumper crop of striped bass spawned in the Bay is expected to reach legally catchable size.

Of more than 4,000 public comments received before the December meeting, the vast majority wanted the board to act now.

Meanwhile, with voluntary angler surveys indicating the catch this year has been lower than expected, the board's fisheries experts modified their projections, saying more cutbacks might not be needed to stay on track, or they still might need to reduce harvest by up to 14%. The experts said their projections were clouded by uncertainties, including how anglers would respond to catch restrictions under consideration.

Robert T. Brown, president of the Maryland Watermen's Association and a member of the board, argued that commercial harvesters already are suffering from previously ordered cuts, and he noted that sports anglers account for the bulk of the striped bass taken each year from the population, including those that die from catch and release.

"We need to take time to do this right," Brown said.

David Sikorski, Maryland director of the sports angling Coastal Conservation Association and another board member, was among those who had supported immediate action. But he switched after the proposed commercial catch quota was eased, saying he could not support a plan that doesn't require real sacrifices from all who take striped bass from the water.

"The striped bass population abundance and fisheries vary up and down the coast, and [this] meeting highlights how difficult coastwide fisheries are to manage in times like these," Sikorski said on social media.

Chris Moore, the Chesapeake Bay Foundation's Virginia director, called the delay "unfortunate" given the troubling run of weak reproduction in the Bay.

"Striped bass are experiencing a host of stressors, from degraded habitat due to climate change to invasive predators such as blue catfish," Moore said in a statement after the meeting. "These challenges will make it even harder for striped bass to rebound like they have in the past. Lack of action is disappointing and a missed opportunity to help [rebuild] this iconic species." ■

Judge orders tighter pollution permit for MD poultry plant

Ruling says discharge limits don't provide required safeguards for Transquaking River

By Timothy B. Wheeler

A Maryland judge has sided with environmental groups and ordered state regulators to tighten up pollution limits on an Eastern Shore poultry rendering plant with a history of violations.

Dorchester County Circuit Court Judge William H. Jones directed the Maryland Department of the Environment to revoke the discharge permit it issued to Valley Proteins in 2023 and impose more stringent requirements on the facility to safeguard water quality in the Transquaking River, a tributary of the Nanticoke River.

The Chesapeake Bay Foundation, Shore-Rivers, Dorchester Citizens for Planned Growth, Friends of the Nanticoke River and Wicomico Environmental Trust had jointly filed a lawsuit in February 2023 asking the court to review the permit MDE had issued a month earlier.

The five-year permit allows a nearly four-fold increase in the amount of wastewater the Valley Proteins plant in Linkwood could release into the Transquaking if it first meets some requirements, including raising levels of fish-sustaining dissolved oxygen in its effluent.

An MDE spokesman said at the time that the permit requires "substantial reductions" in pollution levels in the plant's discharge. In court filings, the agency also noted that the permit complies with a total maximum daily load (TMDL), or "pollution diet," set 24 years ago for the river.

Like many streams and rivers in the Chesapeake Bay watershed, the Transquaking suffers from excessive nutrient levels, mainly from runoff or seepage from farmland. The rendering plant's discharge flows downstream into a dammed stretch of the river known as Higgins Millpond, where the environmental groups say the plant's effluent can linger for up to nine days. Fish kills and harmful algal blooms have occurred there, and a sign warns residents not to touch the water.

In their lawsuit, the groups contended that MDE based its decision on a flawed analysis of the Transquaking watershed and failed to comply with federal and state law by not requiring more stringent pollution limits. They argued that MDE is required to set discharge limits that ensure the pond and river are safe for swimming, fishing and wildlife. And despite the 2000 pollution diet, they said, the river has continued to show signs of decline, including algal blooms and high bacteria levels.

MDE cited a lack of data about conditions in the Transquaking but defended its decision by saying that its computer modeling indicates the mill pond would be impaired even if the rendering plant wasn't there.

Jones said that "since the inception of the Transquaking TMDL, the department has both acknowledged the ever-deteriorating water quality of Higgins Millpond and used its discretion to postpone further assessment of its water."

He found that the permit limitations on nutrients are not sufficient to meet water quality standards, as required by law. Citing data on discharges from 2007 through 2020, he said that the new permit would actually allow increases.

The judge, though, rejected environmentalists' objections to the timetable MDE gave Valley Proteins for upgrading its plant and meeting permit limits. He also brushed aside their contention that the permit should regulate offsite transport of semisolid poultry offal, a byproduct of the rendering process.

Notwithstanding, the Bay Foundation hailed the judge's ruling as a "huge win for clean water".

Likewise, Fred Pomeroy, president of Dorchester Citizens for Planned Growth, said that "we look forward to a new era of improving water quality on the river."

MDE spokesman Jay Apperson said state regulators are reviewing the judge's opinion "and will respond appropriately."

MDE did not appeal the ruling, but Darling Ingredients, the Texas-based company that owns the Linkwood plant, has filed a notice of appeal to the Appellate Court of Maryland. ■

Shimkin stepping down as Bay Program director

Leadership helped set stage for 'Beyond 2025'

By Karl Blankenship

The U.S. Environmental Protection Agency's Chesapeake Bay Program Office, which coordinates regional efforts to restore the nation's largest estuary, will be under new leadership this year as it crafts yet another cleanup plan for the Bay.

Martha Shimkin, who has directed the office since December 2023, retired at the end of 2024.

"It has been such an honor and privilege to lead this office and partnership," Shimkin said. But, she said, it is time to "enjoy the 'life' part of the work-life balance."

Lee McDonnell, who heads the office's Science, Analysis and Implementation Branch, will serve as its acting director.

Shimkin was with the office for four years, serving the first three as its deputy director before stepping up to the top position.

The past year has been a challenging one for the Bay Program partnership as state and federal agencies, nonprofit organizations and others have worked to decide what should happen with Chesapeake restoration efforts after 2025.

Martha Shimkin, director of the U.S. Environmental Protection Agency's Chesapeake Bay Program Office, speaks at the Chesapeake Executive Council meeting in Annapolis on Dec. 10, 2024. (Dave Harp)

That is the deadline for many restoration goals established in the 2014 Chesapeake Bay Agreement, a document signed by state governors, the EPA administrator and others. It sets goals for a range of restoration activities, but many critical goals are far off track, including those for restoring wetlands, planting streamside forest buffers and expanding urban tree canopies. It will also be the third time the Bay Program has set and missed goals for reducing nutrient pollution, which has been a cornerstone of work to improve Bay water quality.

Shimkin was co-leader of a "Beyond 2025" effort that conducted dozens of meetings and extensive outreach to determine what should come next. That resulted in a recommendation that the 2014 agreement be updated with all of its goals re-examined to determine whether they should be kept, dropped or revised with new objectives and timeframes.

The recommendation was endorsed Dec. 10 by the Chesapeake Executive Council, which includes state governors, the EPA administrator, District of Columbia mayor and chair of the Chesapeake Bay Commission, representing state legislatures.

With the first phase of the Beyond 2025 effort completed and its recommendations endorsed, Shimkin said she was ready to leave the next phase to others.

"It's good timing," she said. "It's been a lot to lead that and manage the overall office."

The EPA Bay Program Office coordinates restoration work among its partners and provides grants to support their efforts. It also helps maintain key operations such as water quality monitoring and the development of sophisticated computer models.

Its budget has swelled from $90 million to $140 million in recent years, thanks largely to an influx of money from the Bipartisan Infrastructure Law, though that money will soon be exhausted.

Shimkin, with more than 30 years of federal service, said she was pleased that in the past year strategies have been developed to increase the pace of restoring wetlands, planting forest buffers and expanding tree cover in urban areas. The Executive Council also approved the creation of a new Agricultural Advisory Committee, which is intended to help accelerate nutrient control efforts on farmland.

"It's been the honor and a privilege of my life, of my career, to be able to be at this office, and I leave it with pride," she said. "I'm never fully leaving. I'll always have a little bit of my heart in this program." ■

Court rules that VA's removal from RGGI was 'unlawful'

Decision addresses who has authority to end state participation in climate program

By Lauren Hines-Acosta

The Floyd County Circuit Court judge ruled Nov. 20 that it was "unlawful" for Virginia to be removed from the Regional Greenhouse Gas Initiative, or RGGI.

Judge Randall Lowe ruled that the "only body with the authority to repeal the RGGI regulation would be the General Assembly … because a statute, the RGGI Act, requires the RGGI regulation to exist."

In a written opinion, Lowe said the RGGI Act explicitly circumvents the State Air Pollution Control Board and only granted the Department of Environmental Quality director authority to enter the initiative — but not full discretion over Virginia's involvement.

The decision could open the door for Virginia to rejoin the multistate climate initiative. Republican Gov. Glenn Youngkin's press secretary, Christian Martinez, said that the governor's administration will pursue an appeal.

RGGI is a partnership between 11 states that aims to reduce carbon dioxide emissions in the power sector by 30% by 2030. To reduce emissions, states in the RGGI program make power plants pay a fee if they exceed their emission limits.

Virginia was part of the initiative from 2021 to 2023. During that time, RGGI raised more than $800 million for flood resilience and home energy efficiency programs. Emissions from power plants fell by more than 20% while the state was part of RGGI, according to the U.S. Environmental Protection Agency.

The General Assembly passed the Clean Energy and Community Flood Preparedness Act in 2020, which allowed Virginia to join the initiative.

But Youngkin pushed to remove the state from RGGI. In June 2023, the State Air Pollution Control Board, the Virginia Department of Environmental Quality and its director voted to pull Virginia out. Youngkin said at the time he was seeking to save consumers money on their electric bills.

Four environmental organizations filed a petition in Fairfax County Circuit Court in August 2023, arguing that Youngkin's administration exceeded its authority because the General Assembly had already codified Virginia's participation into law.

The Fairfax judge dismissed three of the four plaintiffs because they didn't receive any direct injuries from ending the state's participation in RGGI. The judge transferred the case to Floyd County Circuit Court in November last year.

Virginians in August 2023 protest efforts to end the state's membership in the Regional Greenhouse Gas Initiative, or RGGI. (Jen Lawhorne)

That court recognized the standing of the Association of Energy Conservation Professionals, the only remaining plaintiff. In the written opinion, Lowe said the business of the last plaintiff depends on the Weatherization Deferral Repair program, which is funded through RGGI.

In response to the ruling, the Youngkin administration and State Senator Bryce Reeves (R-District 28) said in their statements that the initiative acts as "a hidden tax" in utility bills.

A utility can ask the State Corporation Commission to raise its customer rates to cover the cost of a program the utility must comply with.

In 2021, the monthly fee from RGGI for the average Dominion Energy customer was $2.39. The fee was paused after Youngkin announced he intended to withdraw Virginia from the initiative. The monthly fee was then added back in September 2023 as $4.64 to make up for the period when costs weren't covered but the state's participation continued. Dominion Energy plans to eliminate the fee in July.

Dominion spokesperson Jeremy Slayton said in an email the company is reviewing the court's decision and any reinstatement of RGGI charges would have to go through the State Corporation Commission.

Environmental groups across the state celebrated the court's decision, urging Virginia to rejoin RGGI quickly.

"There is a lot of interest in getting Virginia back in this program as quick as we can, so we can start putting that money to work, start cleaning folks' air and start doing our part to address climate change," said Lee Francis, deputy director of the Virginia League of Conservation Voters.

The fees that power plants pay go toward Virginia's Community Flood Preparedness Fund and the Housing Innovative Energy Efficiency fund, which support flood mitigation projects and making homes more power efficient.

Senate Majority Leader Scott Surovell (D-District 34) said on X, "[Youngkin's] decision has now cost Virginians over $200 million [dollars] of funds that could have been appropriated in the last two years to protect the Commonwealth against flood damage like what just happened in southwest Virginia because of Hurricane Helene."

With the absence of RGGI funds, the state allocated $100 million from the general fund to the Community Flood Preparedness Fund during the 2024 session. It's now in its fifth round, offering $85 million to local governments, including those in southwest Virginia.

After the judge has entered a final order, the case could be appealed to the Virginia Court of Appeals. It could then continue to the state supreme court.

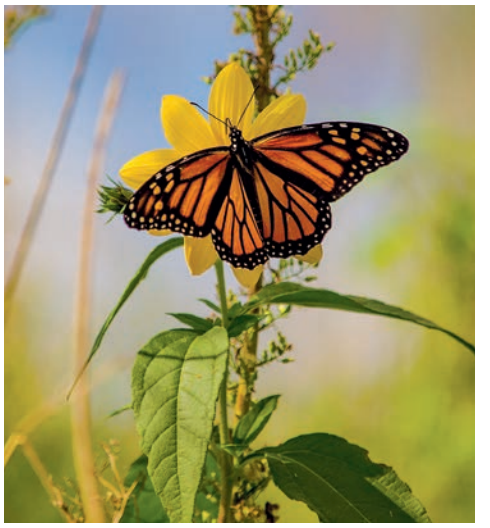
"We want to do everything we can in our power to get Virginia participating in RGGI as quickly as possible," Nate Benforado said, senior attorney with the Southern Environmental Law Center. "But there certainly will be a few more steps before we see how quickly that's going to happen." ■

Endangered status proposed for eastern hellbenders

Monarch butterflies and four mussel species also up for federal protection

By Whitney Pipkin

The U.S. Fish and Wildlife Service has proposed listing the eastern hellbender as an endangered species. (Tierra Curry/Center for Biological Diversity)



Dramatic declines in the monarch population have led the U.S. Fish and Wildlife Service to propose listing them as "threatened" under the Endangered Species Act. (Dave Harp)

The eastern hellbender, a salamander recently named Pennsylvania's state amphibian, is now on its way to becoming a federally endangered species. The long-awaited designation could help fund conservation efforts in the Chesapeake Bay watershed and beyond.

The U.S. Fish and Wildlife Service on Dec. 13 proposed protecting the eastern hellbender under the federal Endangered Species Act, kicking off a 60-day public comment period. The action comes after the Center for Biological Diversity and other advocates won a federal court challenge of the agency's previous denial of the designation. A U.S. District Court judge in New York in late 2023 ordered the U.S. Fish and Wildlife Service to redo its analysis.

"I literally burst into happy tears when I heard that hellbenders were finally going to get the Endangered Species Act protection they need to recover," said Tierra Curry, a senior scientist at the Center for Biological Diversity, in a statement. "Protecting these giant salamanders will give umbrella safeguards to thousands of other species that rely on clean rivers."

In a separate action, the Fish and Wildlife Service also proposed describing thousands of river miles from New York to Georgia as critical habitat for endangered mussel species. Some of the 3,974 miles of stream habitat under consideration are in Pennsylvania, Virginia and West Virginia, and they are home to four vulnerable species: rayed bean, sheepnose, snuffbox and spectaclecase mussels. There is a 60-day comment period on the proposal, ending Feb. 11.

Also in December, the federal agency proposed a "threatened" listing for one of the country's most beloved species, the monarch butterfly. Under the Endangered Species Act, that designation includes species-specific protections and a collaborative conservation strategy. The agency is seeking public comments on the proposal until March 12.

The distinctive orange-and-black monarch is one of the most recognizable insects in North America. The species' eastern migratory population is estimated to have declined by about 80%, the agency said in a press release. Habitat loss and exposure to pesticides across the monarchs' vast migratory route are among the factors contributing to their decline.

"Although many people have already helped conserve the butterfly, additional habitat and protections are needed to ensure the species is conserved for future generations," the release said.

For the hellbender in particular, according to environmental groups that have advocated for its endangered status, the federal protection could have a broader benefit for water quality in the region.

Hellbenders need clean, well-oxygenated water to survive. Measuring up to two feet long and four pounds in weight, the slippery species is the largest salamander in North America. The eastern hellbender is one of two subspecies in the U.S. The other, the Ozark hellbender that lives in Missouri and Arkansas, was listed as an endangered species in 2011, and the distinct Missouri population was listed in 2021.

The salamander became Pennsylvania's state amphibian in 2019 as part of an effort to raise awareness about its plight. Dr. Peter Petokas, a biology professor at Lycoming College in Pennsylvania, told the *Bay Journal* that year that his students had found viable populations of eastern hellbenders remaining in only four mountain tributaries of the Susquehanna River.

In a press release about the endangered status proposal, the Center for Biological Diversity said that only 12% of the eastern hellbender populations are considered stable and successfully reproducing throughout their 15-state range. Hurricane Helene in 2024 further damaged hellbender populations in some of the healthier portions of their range in North Carolina and Tennessee.

The center's research found in 2019 that listing a species under the Endangered Species Act — and garnering the protection that comes with it — is 99% effective at preventing their extinction. ■

Feds, state close in on building new island in Bay

Study of James Island project provides detailed look at plans, impacts

By Jeremy Cox

A sliver of land was among the remnants of James Island in the Chesapeake Bay, shown here in 2022. (Dave Harp)

James Island is gone. Long live James Island.

The U.S. Army Corps of Engineers and Maryland Port Administration are finalizing their proposal to resurrect an island that has vanished beneath the waves of the Chesapeake Bay. If all goes according to plan, James Island will convert more than 2,000 acres of open water into prime habitat for migratory birds while helping to protect communities on the vulnerable Eastern Shore from further erosion.

At the same time, it will solve an unending problem for the Port of Baltimore: finding a placement site for the built-up sediment dredged annually from the Bay's shipping channels.

With the November release of the project's final Environmental Impact Statement (EIS), the two agencies took a critical step toward beginning construction on what is poised to become the largest human-made island in the Bay. The island is set to rise north of Dorchester County's Taylors Island just outside the mouth of the Little Choptank River. It will be built using the mucky sediment cleared from shipping channels.

The report presents the most detailed look yet at how the massive undertaking will take place. Several state and federal agencies, along with members of the public, submitted comments to which the Army Corps was required to reply. Here's a summary of key topics.

Where will the sediment come from?

That would be the approach channels in the Upper Bay that lead to the Port of Baltimore and the Chesapeake and Delaware Canal, which bisects the northern Delmarva Peninsula. For nearly 30 years, that material has been used to rebuild Poplar Island just offshore from Tilghman Island on Maryland's Eastern Shore.

Will that muck be contaminated?

That's a big concern shared by many in the fishing community. "You don't know how toxic it is, even though they're supposed to test it," said Bob Whaples, a longtime waterman, in an interview.

The Army Corps said in the EIS that "existing data do not support [such] claims." The sediment is routinely sampled, and the results are sent to the Maryland Department of the Environment. If the material isn't safe enough, it won't be placed on the island, the Corps said.

A legacy of shore-hardening and industrial pollution has led to widespread contamination of Baltimore Harbor. But James Island, like Poplar, would source its material from the Upper Bay, which derives cleaner silt from the Susquehanna River flows and shoreline erosion, the Army Corps wrote.

Why is this happening now?

Poplar is set to reach its 1,715-acre capacity around 2030. Each year, dredges scoop up around 3 million cubic yards of silt from the bottom of the channels to keep them open for huge container ships. The state of Maryland bans the placement of dredge material into open water. So, officials are on the clock to prep Poplar's replacement. Construction on James is targeted to begin by the end of 2025.

How will the new James Island be protected from erosion and sea level rise?

Like Poplar, much of James will be ringed by a formidable stone dike, measuring 20 feet high above the low-water line and about 9 miles in circumference. Holding cells must be finished before the dredge material is brought in. That's because the fine-grained silt is mixed with water before being transported by pipe; it would wash away into the surrounding Bay without containment.

Bay islands are typically bounded by sand or marshes. Isn't all that stone unnatural?

Yes, which is why the Army Corps is mulling a slight alteration to the approach it used for Poplar.

The stone barrier there has helped attract fish around the outside of the island, delighting local anglers. But few larger specimens are brave enough to make their way inside the island's perimeter using the long culverts that serve as outfalls for the internal creeks, said Jonathan Watson, a fish biologist for the National Oceanic and Atmospheric Administration (NOAA).

"It's kind of a scary place for fish to venture into," he said.

Watson and his colleagues recommended constructing wider, deeper inlets and connecting them with habitats that fish love, such as wetlands and offshore rock reefs. The Army Corps indicated it will adopt these practices years down the road after the material settles into place.

"We want to build off what we did on Poplar, but make it Poplar 2.0," said Angie Sowers, an Army Corps planner.

The James marshes are being designed to support living things. Which ones?

The EIS comments show agencies at odds over which species should benefit most from the effort. The answer to that dilemma has big implications for how the island is built.

Slightly over half of the island's acreage is set to become wetlands. Transforming most of that acreage into "high marsh" habitat, as advocated by the U.S. Fish and Wildlife Service, would give the island more protection from sea level rise and make it more hospitable to rare bird species. Favoring a lower footing, as promoted by NOAA scientists, would be more conducive to aquatic species.

In the final EIS document, the Army Corps proposes a 50–50 split between high and low marshes. At Poplar, the low marsh acreage prevails by a 4-to-1 ratio over high marsh.

"This entire project is a balancing act of providing benefits to all the species that use this habitat," Sowers said.

Couldn't some of the silt help shore up low places elsewhere?

Much of coastal Dorchester County is in danger of being swallowed up by sea level rise. Officials with NOAA and the Maryland Department of Natural Resources pushed the Army Corps to divert some of the material bound for James toward restoring wetlands on the county's mainland.

"We're trying to address sea level rise in a lot of places," said Tony Redman, who oversees DNR's environmental review program.

But to expand the project's goals would require a new authorization from Congress or a reevaluation study, Sowers said. Either move would delay construction by several years. And it would cause the effort's $4 billion budget to balloon.

"If you have to spread a large amount of dredge materials over vast areas, that's going to be much, much more expensive than taking it to one place," said Lorie Staver, an ecologist with the University of Maryland Center for Environmental Science. ■

Bay Program to revise 2014 Chesapeake cleanup agreement

Chesapeake Executive Council seeks to shore up restoration effort amid uncertainties

By Jeremy Cox

State and federal leaders of the Chesapeake Bay cleanup have set a Dec. 31, 2025, deadline for officials to update the agreement that has governed the effort for more than a decade.

Most of the goals set in that agreement, which define regional objectives for everything from oyster restoration to pollution reduction to environmental education, have deadlines tied to the end of 2025, but many are far off track.

The new directive requires the state-federal Chesapeake Bay Program to consider new goals for objectives that have been met and to reconsider goals and time frames for efforts that are coming up short, often by wide margins — including the long-running work to reduce nutrient pollution in the Bay and its rivers.

The leaders also created an Agricultural Advisory Committee to improve communication with the farm community, where states are focusing most of their future nutrient efforts.

The directives issued Dec. 10 at the annual meeting of the Chesapeake Executive Council, which sets Bay cleanup policy, were accompanied by bipartisan calls for state and federal officials to combat political uncertainties by making more tangible progress.

"This is a time we have to move unafraid," said Maryland Gov. Wes Moore, a Democrat who was re-elected to a second term as chair of the council at the meeting in Annapolis.

His Republican counterpart in Virginia echoed that sentiment.

"I have repeatedly urged us to address the needs of the Chesapeake Bay with great practicality and urgency," Gov. Glenn Youngkin said.

It marked the first time in a decade that at least three governors have attended the annual meeting. Moore and Youngkin showed up in person while Pennsylvania's Democratic Gov. Josh Shapiro appeared virtually because fog scuttled his flight plans.

Moore was last year's lone gubernatorial participant.

"I think [the attendance this year] says a lot at this really pivotal moment for the Bay," said Choose Clean Water Coalition director Kristin Reilly.

The fog that enveloped much of the Bay region on the morning of the meeting served as a metaphor for concerns about the program's future. Many worry that Donald Trump's return to the White House could lead to renewed battles on Capitol Hill over the program's funding and maybe even its existence.

Virginia Gov. Glenn Youngkin (left) and Maryland Gov. Wes Moore, members of the Chesapeake Executive Council, attend the group's annual meeting on Dec. 10, 2024, in Annapolis. (Dave Harp)

The first Trump administration proposed severe cuts to the Bay Program all four years he was in office, with its first budget calling for the elimination of its $73 million budget. Congress, though, continued backing the partnership at existing or higher funding levels.

In the wake of the Executive Council meeting, Reilly said, the hard part comes next: everyone following through on their promises. "We're very interested to see implementation and how it actually plays out over the next couple of years," she said.

The council's members include the governors of Maryland, Pennsylvania, Virginia, West Virginia, New York and Delaware; the administrator of the U.S. Environmental Protection Agency; the mayor of the District of Columbia; and the chair of the Chesapeake Bay Commission, a bipartisan group representing state legislatures.

Virginia state Del. David Bulova, chairman of the Bay Commission and a Democrat, also attended in person. The other governors and EPA administrator sent representatives.

The council sets the top-line agenda for the Bay Program, which has guided efforts to revive the estuary for more than four decades. Despite billions of dollars in pollution-control investments, those efforts have met with mixed results and major lags in reducing nutrient pollution from farms and urban stormwater runoff.

Many of the 31 goals outlined in the Bay Program's current 2014 agreement face a deadline in 2025. Some have been achieved, but several of the most far-reaching objectives, such as those for nutrient pollution, wetland restoration and streamside forest buffer plantings, are far off track.

It will mark the third time the partnership has come up short on meeting nutrient reduction goals, critical for reducing the oxygen starved "dead zone" in the Bay.

The Executive Council's Dec. 10 directive calls on the Bay Program's Principals' Staff Committee, which is composed of top state and federal environmental officials, to update the 2014 agreement. Under pressure from environmental advocates, language was added to the document urging the Bay Program to make "every effort" to complete revisions by the end of 2025, a year earlier than initially proposed.

The amount of work is formidable. Performing the top-to-bottom update is likely to test the program's longtime "consensus-based approach" like never before.

Debates during the past year have hinged on whether the program needs to shift its emphasis from improving water quality in the Bay's deepest waters to addressing the needs of people and living resources in the shallower nearshore waters of the 64,000-square-mile watershed.

Many people involved with the cleanup effort, including in the Bay Program itself, have come to embrace that more holistic approach, which the program's scientific advisors laid out in a 2023 report. Improvements in shallow areas, they say, would be realized and appreciated more quickly.

Moore pointed to the report, titled the Comprehensive Evaluation of System Response, as a blueprint for future action.

"We're making sure that the Chesapeake goals are focused on people and communities," Moore said. "And we need to help areas where most people and wildlife interact with the Bay, and that means shallow waters along the coast."

Youngkin said that when he was briefed about the Bay effort upon taking office in January 2022, he recognized that the partners would fall short of many of the 2025 targets. He found many of the goals to be "unclear." And he said he had to work with lawmakers to ensure adequate state funding for some of the initiatives, such as a cost-share program that helps farmers install pollution controls.

"We must pursue measures, not [computer] models, and set goals that are achievable," Youngkin said.

In addition to updating the 2014 agreement, the latest directive calls on officials to "streamline" the existing partnership to be more manageable for program staff.

There was little talk publicly at the signing event about the goals that have been missed or what might be done to achieve them. But there were plenty of rallying sentiments.

Shapiro ticked off several Pennsylvania accomplishments, including investing more than $1 billion in restoration efforts since 2019 and opening three state parks that protect 3,500 acres of land along Bay tributaries.

"Hear me on this: Pennsylvania is all in," Shapiro said. "We're at the table again … and I'm confident we will be able to make progress together." ■

Does treating acid mine drainage cause another problem?

Scientist says process could be releasing more phosphorus pollution to streams, Bay

By Karl Blankenship

On a cool November morning, Charles Cravotta was highlighting a smelly environmental success story — and one that might have a surprising side effect.

A combination of ponds, limestone and compost were treating a portion of the acidic chemical cocktail draining from a long-abandoned coal mine and heading toward Shamokin Creek in central Pennsylvania.

Over many decades, dissolved iron in the acidic runoff had stained the streambed orange from rust-like deposits. The iron and other metals had rendered the stream fishless — a common occurrence in Pennsylvania's coal mining regions.

"When this treatment system was built, it was obviously working, because the air smelled really bad," said Charles Cravotta, a retired U.S. Geological Survey scientist.

That's because the compost material changed the sulfur in the water to sulfide, which reduces its acidity, but produces the pungent "rotten egg smell" in the process. "Your nose is more sensitive than a lot of instruments that might be used to measure it," he noted.

The odor was still present, showing that the system continues to reduce contamination more than 20 years after it was built.

Decades of work, which is accelerating in recent years, is helping decrease acidic runoff from abandoned mines and bring streams once devoid of fish and aquatic insects back to life.

But Cravotta now suspects those improvements might be unexpectedly contributing to another problem.

"Most of us would argue it's a good thing" to clean up places like Shamokin Creek, Cravotta told an audience at Bucknell University in November, where he delivered the keynote address at the annual Susquehanna River Symposium. "But it could have implications for the transport of phosphorus."

In a paper published in *Science of the Total Environment* in 2024, Cravotta and several colleagues suggested that as streams become less acidic, they could be releasing long stored phosphorus from their sediment. Phosphorus is a nutrient that fuels algae growth in freshwater streams as well as the Chesapeake Bay.

Decades of acidic mine drainage turned this Pennsylvania streambed orange and lifeless, which is not uncommon in the state's coal mining regions. (Karl Blankenship)

The idea has been drawing attention, especially as phosphorus in the Bay watershed has been proving more difficult to control than previously thought.

Most phosphorus in rivers adheres to sediment and slowly moves downstream as particles are picked up during storms, washed downriver, then redeposited until the next storm. It can take years or decades for particles to reach the Chesapeake.

But a portion of the phosphorus is dissolved in the water and moves downstream faster. That dissolved phosphorus is also more easily taken up by algae and can trigger potentially harmful, even toxic, blooms in streams and the Bay.

In the past, acidic conditions created by abandoned mine discharges promoted the binding of phosphorus to sediment, Cravotta said, and metals in the discharge are particularly effective at absorbing the nutrient and storing it with sediment on the stream bottom.

But as pH — a measure of acidity in the water — increases and water becomes more "neutral," Cravotta said conditions are created that could help release stored phosphorus into the water.

It's not an entirely novel concept. Lab studies show that increasing pH levels facilitate the release of stored phosphorus. And in the Great Lakes region, scientists have attributed rising dissolved phosphorus concentrations in some largely forested stream and lake watersheds to rising pH levels — a result, they say, of efforts to control air pollutants that caused acid rain.

Those air quality improvements also play a role in the Bay watershed. But Cravotta said in coal regions, mine drainage was historically the main source of acidity. It is estimated that a third of all abandoned mine lands in the U.S. are in Pennsylvania, and more than 5,500 miles of streams in the state are impaired by acid drainage from those defunct mines.

Scientists measure pH on a scale that ranges from 1 to 14 with 1 being something like battery acid and 14 being extremely alkaline like bleach or drain cleaner. In the past, Cravotta noted, some mine-impacted streams in Pennsylvania's coal mining regions had a pH as low as 4 or 5, essentially the acidity of tomato juice.

But now, typical pH measurements in the north and west branches of the Susquehanna River are often about 8. In the lower Susquehanna, they can hit 9 or higher. A pH of 8 or 9 is in the range where phosphorus bound to particles can be desorbed into the water column, Cravotta said.

Phosphorus has been a growing concern in the Bay region, as water quality monitoring by the USGS has shown that concentrations are unchanged or increasing at a majority of sites despite decades of cleanup efforts.

And while most monitored phosphorus is attached to sediment, dissolved phosphorus is increasing in many areas.

Whether changes in pH are a significant reason for those trends is unclear, Cravotta acknowledged. "This is a factor that hasn't been considered carefully," he said. "I've basically raised the flag."

Other factors are likely major contributors, especially the intensification of animal agriculture, which generates phosphorus through manure. The expanded use of road salt also creates conditions that release dissolved phosphorus into rivers and streams.

It's also unclear how much of the released phosphorus actually reaches the Bay because it might be used up by algae in rivers long before it reaches the estuary. But, in that case, the increase of dissolved phosphorus could be fueling local problems in rivers and streams, many of which have increasingly frequent blooms of cyanobacteria and other algae, Cravotta noted.

If correct, it creates a conundrum that would have no simple solution.

Improved stream health from cleaning up mine discharges and reducing acid rain has been a major environmental success story. In some places, streams once considered "dead" now support reproducing trout populations.

If those actions are converting long-stored particulate phosphorus into its dissolved form, it could mean the Bay region — already far behind in its nutrient reduction goals — may need additional actions to meet water quality objectives.

Cravotta said the issue illustrates the complexity of the interactions among physical, chemical and biological processes and how they can complicate efforts to improve water quality. "The bottom line is there's a lot of things happening that we're maybe not all aware of," he said. ■

Region loses Vince Leggett, champion of Bay's Black history

Trailblazing work highlighted stories, photos and led to successful land conservation

By Jeremy Cox

Vincent Leggett, a historian who championed the preservation of Black stories and places associated with the Chesapeake Bay, died Nov. 23. He was 71 years old.

Leggett spent years documenting the lives of others and led a storied life of his own. In 1984, Leggett launched the Blacks of the Chesapeake Foundation, a project dedicated to collecting stories and artifacts of African American maritime life on the Bay. A decade later, he coalesced the effort into a nonprofit organization that frequently interacted with schools, museums and community groups.

Leggett gathered his research into a pair of influential books, 1997's *Blacks of the Chesapeake* and 1999's *The Chesapeake Bay Through Ebony Eyes*. Although he didn't own a boat, he was named an "Admiral of the Bay," an honorary title given to Maryland environmental leaders. The Chesapeake Conservancy named him a "Champion of the Chesapeake" in 2022.

Tributes poured in from across the Bay region.

"Vince leaves behind a legacy of a more complete and vivid telling of the history of the Bay and its people," said Chesapeake Bay Foundation President and CEO Hilary Harp Falk. "We are all better for his leadership in celebrating the region's rich Black history. We will miss his partnership and friendship."

For many young Black environmental leaders in the Mid-Atlantic region, Leggett was a trailblazer.

"Vince Leggett was not only a mentor, but a friend," said Carmera Thomas-Wilhite, the Bay Foundation's vice president for diversity, equity, inclusion and justice. "He was always an advocate for the next generation. It was an honor to learn from him. We will celebrate his legacy by continuing to share stories from all communities around the Bay."

Joel Dunn, head of the Chesapeake Conservancy, said that one of Leggett's signature achievements was his crusade to preserve a slice of waterfront land that is now known as Elktonia-Carr's Beach Heritage Park in Annapolis. In the 1950s and '60s, the area attracted African American crowds by the thousands with its sandy beaches and entertainment from some of the top Black performers of the day, such as Little Richard, Aretha Franklin, Billie Holiday, Duke Ellington and the Temptations.

Vincent Leggett, a champion of Black heritage on the Chesapeake Bay, stands by the Annapolis waterfront in 2018. (Will Parson/Chesapeake Bay Program)

Leggett pieced together a coalition of partners to acquire the land, culminating with the $6.4 million purchase in 2022. "It was like putting together a million-piece jigsaw puzzle," Leggett told the *Bay Journal* at the time. "No one entity was strong enough to do it on its own."

"Vince's work," Dunn said, "transcended the archives and pages of history books — he built bridges connecting people and communities, fostered understanding and inspired a collective commitment to justice and equity. As a mentor and friend to so many, he shared his wisdom generously, guiding others to take up the mantle of preserving and celebrating Black history."

Leggett was born in 1953 to Charlie Leggett, a labor representative, and Willie Mae Leggett, an elementary and special education teacher. Growing up in Baltimore, he learned to love the outdoors during fishing and hunting trips with his father.

His early career revolved around education, serving as an education planner for Baltimore City Public Schools and a supervisor of educational planning and student demographics for the public school system in Anne Arundel County, MD. He later worked as campus planner and academic advisor for Anne Arundel Community College. And he served for a time as president of the county's Board of Education.

He founded an Annapolis-based government relations consulting firm, lobbying for environmental causes, equitable education funding, clean energy and historical preservation. And he co-founded another nonprofit, the Chesapeake Ecology Center, which created native landscape demonstration gardens at the J. Albert Adams Academy, an alternative education middle school in Annapolis.

In 2000, the Blacks of the Chesapeake Foundation was designated as a Local Legacy Project by the Library of Congress and U.S. Congress. Its collection grew to more than 40,000 images portraying Black water workers and the equivalent of more than 400 linear feet of material records, broadsides, research papers, books, magazines, journals and articles.

Leggett said his research demonstrated that the Chesapeake Bay's culture would be greatly diminished without its Black contributions. That, he noted, applies to modern environmental stewardship as well.

"We need to shatter the myth that people of color are not interested in environmental issues that affect their communities." Leggett told the *Bay Journal* in 2006. "If you ask, do people want good water, clean air, clean playgrounds, they'll say 'yes' every time. That's the essence of environmental issues, though they get dressed up in a lot of ways."

In later years, Leggett and his group partnered with the organization Minorities in Aquaculture to promote their shared goals of increasing diversity and amplifying Black history in the seafood sector. Imani Black, who founded Minorities in Aquaculture, said she immediately called her group's leadership after learning of Leggett's death.

"We've all just been like, 'Now, our work is 10 times more important,'" Black said. "We just want to carry on Vince's legacy and his work."

The Blacks of the Chesapeake's board of directors announced Dec. 6 that M. DeLois "Dee Dee" Strum, the organization's chief administrative officer, will assume the role of interim chief executive officer. ■

Report: Data centers pose enormous power demands in VA

Information on projected water use is often lacking, impacts unclear

By Whitney Pipkin

If the data center industry continues to grow at an unconstrained pace in Virginia, the state will struggle to supply enough power to meet local energy demands. And ratepayers will help foot the bill for the new infrastructure the industry's buildout requires.

These are among the findings of a 156-page report solicited by the state's General Assembly last year and presented to a group of legislators on Dec. 9. A six-person team from the Joint Legislative Audit and Review Commission (JLARC) spent the past year conducting 300 interviews with stakeholders and working with two contractors to complete the study, which details the economic, environmental and societal costs and benefits of the industry to the state.

Environmental advocates, who have been raising alarms about the outsized growth of data centers in Virginia, applauded the research effort. But some said they were disappointed that the report didn't provide enough factual details or strong enough recommendations to lawmakers. The study could inform a spate of data center-related legislation expected to be introduced during the state's 2025 legislative session, which began Jan. 8.

"Our existing systems — at the local, state and utility level — are simply not equipped to handle the speed and scale of data center growth in Virginia," said Nate Benforado, a senior attorney focused on energy policy at the Southern Environmental Law Center, after reviewing the report. "We can't afford delaying reforms."

In late 2023, nearly 30 environmental, preservation and climate advocacy groups joined forces to create the Virginia Data Center Reform Coalition, focused on supporting legislative action to rein in what they see as a largely unregulated industry. They worked with lawmakers to introduce more than a dozen data center-related bills in early 2024, but none were passed.

Instead, legislators commissioned the JLARC study. The data center industry contributes an estimated $5.5 billion in labor income and $9.1 billion to the economy in Virginia annually, the research found. But most of its 74,000 jobs are generated during the construction phase rather than ongoing operations.

Chief legislative analyst and project leader Mark Gribbin presents findings about data center impacts to Virginia lawmakers on Dec. 9, 2024, in Richmond. (Lauren Hines-Acosta)

Since 2010, Virginia has offered a sales tax exemption to attract data centers to the state. The exemption provided nearly $930 million to the industry in fiscal year 2023, Virginia's largest economic development initiative, the study found.

The report confirms that Northern Virginia hosts by far the largest data center market in the world. The region includes the three Virginia counties closest to the nation's capital: Loudoun, Fairfax and Prince William. There, the industry currently consumes 4,140 megawatts of power, the report states — more than twice as much as the world's second-largest data center market in Beijing. That's according to the commission's analysis of a Cushman & Wakefield 2024 Global Data Center Market Comparison.

Northern Virginia currently constitutes 13% of all reported data center operational capacity in the world and 25% of the capacity used in the Americas, the report says.

But the amount of power needed to run data centers of the future — the ones making artificial intelligence possible — is quickly dwarfing even these numbers. AI data centers like the one approved in March in central Virginia's Hanover County are expected to consume 2,400 megawatts of power. For comparison, the Surry Power Station's two nuclear reactors have the capacity to generate 1,600 megawatts of power.

This exponential growth is driving an "immense increase" in Virginia's energy demand. If unconstrained by regulators, lawmakers or market factors, the industry is expected to drive a 183% increase in power demand in the state by 2040, the report states.

The report also asserts that supplying such power would be "very difficult" and that providing even half of it would require importing power that's generated outside the state. Meeting projected power needs would require adding solar energy facilities at twice the pace they were added in 2024, and a new large natural gas plant every other year. Wind power would need to be greater than what's projected from all of the state's currently identified offshore projects, and new nuclear plants would need to come online. And this does not take into account Virginia's ability to meet the General Assembly's commitments in the 2020 Virginia Clean Economy Act for utilities to deliver electricity from 100% renewable sources by 2045.

Julie Bolthouse, land use director for the Piedmont Environmental Council, said the finding that utilities are required to "give power to people too" is significant. The General Assembly, the report suggests, could also consider establishing caps that protect ratepayers "from undue costs."

The study found that unprecedented growth in energy demand driven by data centers could put the electric grid that serves all customers at risk of becoming unreliable unless certain steps are taken.

The report advises lawmakers to consider policy changes to ensure the data center industry takes on more of the risk for creating additional power generation infrastructure, while limiting the risk and cost to others, such as state residents.

Addressing concerns about water use by data centers, the report points to the Department of Environmental Quality's program that regulates surface water withdrawals. But it said that only two data centers fall under that program. The rest receive water much like any office building — through a local water utility.

The report does not offer specific data on the volumes of water consumed by the industry in the region. It says only that data centers currently account for as little as 2% and as much as 21% of water use at the six water utilities the research staff interviewed. Data centers were typically one of the largest customers and, at two of the six facilities, they were the largest customer.

"While the state as a whole is relatively water rich, water is a limited resource for some Virginia localities," the report warns. In June 2024, a state task force issued a drought watch for all of Virginia due to below-normal precipitation.

The report also suggests that localities concerned about water resources should get more information from data centers before approving projects. But then it states that such information can be hard to obtain before a project is approved.

"State law is not clear on localities' ability to require a proposed data center development to provide a water use estimate or to consider water use in their rezoning and special use permit decisions," the report says.

The Piedmont Environmental Council contended in a written statement that the policy recommendations in the report, in general, "don't match the severity of the impact" of data centers.

"Similarly," the statement adds, the report "failed to recognize that these concentrated data center hubs are often consuming water from the same watershed … exacerbating future water supply challenges." ■

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New national wildlife refuge announced for Southern MD

Collaboration aims to protect 40,000 acres across four counties

By Timothy B. Wheeler

The Chesapeake Bay watershed has a new national wildlife refuge, its first in more than 25 years. The refuge aims to protect a vast area of critical habitat for birds and rare fish, insects and plants in rapidly developing Southern Maryland.

Capping nearly 15 years of discussion and planning, U.S. Interior Secretary Deb Haaland announced the establishment of the Southern Maryland Woodlands National Wildlife Refuge in December 2024.

Its goal: conserving up to 40,000 acres of land over the next 30 years, not in one huge swath but as a collection of parcels across five counties: Anne Arundel, Calvert, Charles, Prince George's and St. Mary's.

Haaland called the new refuge's creation "an incredible milestone in locally led conservation efforts," the product of collaboration among federal, state and local governments and multiple nonprofit conservation groups, including the Chesapeake Conservancy, American Chestnut Land Trust and the Nature Conservancy.

Greg Bowen, head of the Southern Maryland Conservation Alliance, the umbrella group for the collaboration, called the refuge's formation "a huge win for land conservation in the region." He predicted it would boost the region's economy through increased tourism and outdoor recreation while also preserving farmland and forests from loss to development.

More than half of Maryland's forests and wetlands that existed prior to European settlement have been lost, with about 1 million acres of that developed just in the last 50 years. The greater Washington-Baltimore region's population continues to grow. It is expected to top 20 million in less than 30 years, noted Joel Dunn, who until the end of 2024 was president and CEO of the Chesapeake Conservancy.

"This is one of the most pristine landscapes on the Chesapeake Bay watershed's western shore," Dunn said, "and it faces many threats. Our forests continue to be converted at a rate of about 54 acres a day, and more than 6 million acres of the forest and wetland resources in our watershed remain vulnerable to development."

The new refuge, Dunn added, "offers an opportunity to halt and even reverse biodiversity loss in this important place and in a way that fully integrates and respects the leadership and rights of Indigenous peoples and local communities."

In the works since 2010, planning for the new refuge kicked into high gear in 2023, when the U.S. Fish and Wildlife Service formally proposed it and sought public feedback. Federal officials initially declared that they wanted to conserve up to 30,000 acres over the next 30 years. But, soon after, they increased that goal by another 10,000 acres.

Over the years, wildlife service biologists have identified more than 169,000 acres of ecologically valuable land in the five-county area that are currently unprotected from development. The best of those parcels totaled a little more than 40,000 acres, explained Dan Murphy, chief of habitat restoration and conservation in the wildlife service's Chesapeake Bay field office.

The refuge would focus on acquiring land from willing donors or sellers from the Bowie area south to Solomons along the lower Patuxent River and also in the watersheds of four Potomac River tributaries: Nanjemoy and Mattawoman creeks, Zekiah Swamp and McIntosh Run.

Rather than one contiguous refuge, wildlife service officials plan a "landscape scale" refuge similar to the Rappahannock River Valley National Wildlife Refuge in Virginia. That refuge, established in 1996, encompasses about 10,000 acres in a series of mostly unconnected tracts across five counties.

Management of the new refuge would fall for now to the staff of the 13,000-acre Patuxent Research Refuge midway between Baltimore and the District of Columbia.

The areas targeted for conservation in Southern Maryland harbor shrinking habitat for waterfowl, shorebirds, forest-interior and grassland-dependent birds as well as threatened and endangered species such as the dwarf wedgemussels, Atlantic and shortnose sturgeons, puritan and northeastern tiger beetles and northern long-eared bats.

The refuge's first acquisition is a 31-acre tract on the Nanjemoy Peninsula, which was donated by the Nature Conservancy.

"The Nature Conservancy first began protecting land along Nanjemoy Creek almost 50 years ago in 1978, when we recognized how important and special this landscape was for local wildlife and regional biodiversity," said Kahlil Kettering, executive director of the conservancy's Maryland and DC chapter.

One of the most forested and undeveloped areas in Maryland's upper coastal plain, the peninsula also harbors Native American sites and other places of cultural and historical significance. The conservancy began acquiring land there in the 1970s to protect what was then the largest great blue heron rookery on the East Coast north of Florida. The birds abandoned the rookery about 15 years ago, but the conservancy continued to work there to save habitat for federally endangered dwarf wedgemussels, said spokesman Matt Kane.

The conservancy plans to donate additional parcels to the refuge totaling more than 300 acres, but Kane said it will retain much of its Nanjemoy preserve for the time being, in part to continue building a collaborative relationship with the Piscataway Native American communities. ■

Photo: A wood thrush perches on a branch in the first parcel of land acquired for the new Southern Maryland Woodlands National Wildlife Refuge. (Matt Kane/The Nature Conservancy)

‘Ticking time bombs’ – Coal ash dumps pepper Bay watershed

Regulatory oversight leaves gaps, questions about water contamination

By Timothy B. Wheeler and Whitney Pipkin

Next door to North Keys Community Park in Brandywine, MD, sits a 140-acre landfill where millions of tons of coal ash have been dumped since 1970. Toxic chemicals in the ash have seeped into the groundwater beneath the site and at one time ran off into a nearby creek.

Kamita Gray, leader of a neighborhood coalition in southern Prince George’s County where the park is located, can’t understand why such hazards are tolerated so close to the majority-Black community’s only park, where children play and families picnic and fish.

“They came and put a Little League baseball field right next to the mound of coal ash,” she said.

The power company that owns the landfill agreed under state legal pressure a dozen years ago to stop the seepage. Measures have been taken to control it, but groundwater contaminant levels beneath the landfill remain unsafe — and in some cases are still rising, according to Maryland Department of the Environment records.

The amount of coal being burned to produce power in the U.S. has sharply declined over the last two decades as utilities switch to natural gas or renewable energy. But in the Chesapeake Bay watershed, as in many other parts of the country, the ash remains.

Using public records and remote sensing, researchers commissioned by the Maryland Department of Natural Resources have compiled an inventory of coal ash piles and storage pits left behind across the six-state Bay watershed since the 1950s. Though the list is far from complete, they have tallied nearly 100 locations, ranging individually from five acres to hundreds. In all, they hold an estimated 200 million tons of ash.

Neighborhood coalition leader Kamita Gray stands beside a well that is used to monitor for coal ash contamination at the edge of a community park in Brandywine, MD. (Dave Harp)

Some of them are monitored and managed, particularly those impoundments and landfills next to power plants. Others have been nearly forgotten beneath shopping centers, athletic fields and even homes. Many have never been checked for leaks because, until lately, it wasn’t required. And some still aren’t subject to any oversight.

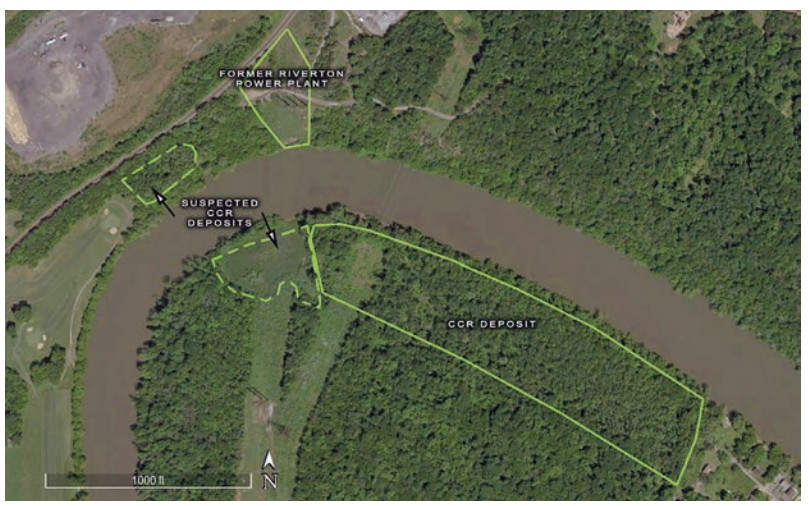
“Maryland has been burning coal to produce power going back to the early 1900s,” said Jason Litten, who spearheaded the inventory project as co-director of Frostburg State University’s Western Maryland Regional GIS Center. At the time, he said, “They didn’t seem to have much concern about where the ash was dumped.”

Coal ash contains toxic chemicals and metals such as arsenic, a known carcinogen, and neurotoxins like lead and mercury, which pose health risks for people, fish and wildlife. The light powdery particles known as fly ash, which comprise the bulk of the residue from burning coal, can readily leach from unlined storage lagoons and pits into groundwater. Over time, the toxic plume spreads and can seep into streams and rivers.

That’s why DNR’s power plant research division, which has been tracking coal ash disposal sites in Maryland for decades, decided a few years ago to update the inventory and expand the search beyond the state. Richard Ortt, DNR’s resource assessment director, called it “a major concern for the Chesapeake Bay and its tributaries.”

While the inventory doesn’t identify any new sites known to be fouling Bay tributaries, Ortt said, it does list numerous sites with groundwater contamination, which ultimately could make its way into streams and rivers.

“They’re more like ticking time bombs,” he said of all the listed sites. “If we don’t address them, we know there will be groundwater contamination.” And some of that, he noted, will be in or next to low income areas or minority communities like Brandywine, raising environmental justice concerns.” In the meantime, he said, the locations need to be recorded to alert future purchasers and developers of the risks of disturbing contaminated soils.



This photo shows the former location of the Riverton power plant along the Shenandoah River near Front Royal, VA, marked to indicate likely and suspected disposal sites for coal ash. (Courtesy of Frostburg State University)

This 1963 photo shows smoke rising from the Riverton plant. Most of the areas across the river were likely coal ash disposal sites. (Courtesy of Frostburg State University)

Disasters spur regulation

Coal ash leapt into national consciousness as an environmental threat in 2008 when a dike holding back more than 5 million cubic yards of it in an impoundment pond failed in Tennessee. The flood knocked homes off foundations, spilling black sludge across 300 acres and into two rivers. Another widely publicized spill occurred in 2014 when a drainage pipe beneath an impoundment in North Carolina released nearly 40,000 tons of coal ash into the Dan River along the Virginia border.

The following year, the U.S. Environmental Protection Agency finalized the first nationwide limits on safe disposal of coal ash from power plants. The rule sought to prevent more failures of coal ash impoundments or lagoons, and it required monitoring and remediation. Utilities subsequently reported unsafe levels of toxic

substances in groundwater beneath 91% of the ponds that were checked.

Even before EPA acted, Maryland adopted its own regulations in 2008 on coal ash disposal. The state moved after arsenic, cadmium and other toxics associated with fly ash were discovered in residential wells near an unlined former gravel pit in Gambrills. There, Constellation Energy dumped millions of tons of ash from Baltimore area power plants over a 12-year period.

Constellation paid a $1 million fine to the state and reached a $45 million out-of-court settlement with area residents. As part of it, the company agreed to pay for public water hookups to more than 80 homes.

The EPA's initial coal ash regulation, however, exempted about half of all known disposal sites, including those closed before it took effect in 2015. In May 2024, the agency moved to close that loophole with a new rule requiring monitoring and cleanup of inactive surface impoundments at shuttered power plants and other historical coal ash disposal areas.

That rule, which took effect in November 2024, requires owners and operators of those previously unregulated coal ash dumps to report them to regulators by May 2025 and begin monitoring them for groundwater contamination.

Gaps remain

But there are still gaps. The EPA's coal ash rules don't cover piles left by factories and other facilities that burned coal solely to power their own machinery, according to an agency official. The EPA's press office allowed the *Bay Journal* to interview the official only if he was not named.

An even bigger concern, environmental advocates say, is that the federal rules don't go far enough in addressing risks from the widespread use of coal ash as fill material to build highways, industrial parks, golf courses and more. Earthjustice, citing figures from the American Coal Association, estimates that 180 million tons of ash have been used as "structural fill" since 1980.

"I hope state regulators are willing to take a look at the many unmonitored sites in this [DNR inventory]," said Lisa Evans, senior counsel at Earthjustice, "including areas of structural fills, off-site landfills and mine fills."

"To date," she added, "state regulators have largely failed to fill the void where federal regulations do not apply.… At the very least, information concerning the past disposal of toxic waste at these sites must be made public and available in a state database."

More than 850,000 tons of coal ash have been excavated from the Westland coal ash landfill near the Potomac River in Montgomery County, MD, and used to make cement. (Courtesy of Frostburg State University)

Nearly 70 of the ash disposal sites in the DNR inventory — which is still in draft form and not officially released — are located in Maryland. Other deposits are listed in Virginia, Pennsylvania, New York, West Virginia and Delaware. The numbers identified outside Maryland are almost certainly undercounts because the DNR contractors had less information about other states.

You can find the inventory, which is not published elsewhere, through a link in the web version of this article at *bayjournal.com*.

Maryland

More than a third of the sites listed in Maryland are in Allegany and Garrett counties, where coal ash has been deposited to fill in old mine pits. A like number, though, are in Baltimore and its suburbs, associated with current and former power plants.

DNR's Ortt told state lawmakers in 2024 that only one in three of the Maryland sites, or about 23, had been monitored for toxins in groundwater. Nine, or more than one-third of those that had been checked, had significant contamination, according to the inventory.

DNR, which has been tracking coal ash for years to encourage its safe reuse in making cement and other building products, has shared its inventory with the Maryland Department of the Environment, which oversees the disposal of "coal combustion residuals," or ash.

"There are some sites on there that we weren't aware of," said Edward Dexter, who retired in December 2024 as head of solid waste management at MDE.

Along with taking legal action over the ash-contaminated wells in Gambrills, MDE also filed a lawsuit in 2010 against the owner of the Brandywine ash landfill, alleging it was leaching pollutants into groundwater and Mattaponi Creek, a Patuxent River tributary. Only a small, newer portion of the 139 acres used to bury ash there is lined to prevent contaminants from seeping into groundwater. The state subsequently sued over similar pollution from two other ash landfills owned by the same company in the Potomac River watershed.

In 2013, the landfills' owner, Texas-based GenOn, agreed in a federal consent decree to pay a $1.9 million penalty and stop ground and surface water pollution at all three sites.

Twelve years later, groundwater beneath Brandywine still contains unsafe levels of arsenic, mercury and four other pollutants, according to MDE, and levels of a few contaminants have increased since the company submitted its cleanup plan. A 2019 report on coal ash pollution by the Environmental Integrity Project rated the Brandywine landfill as one of the 10 most contaminated sites in the nation.

GenOn did not respond to multiple requests for comment.

Virginia

Concerns about coal ash soared in Virginia in the late 2010s when environmental groups alleged that unlined pits at three Dominion power plants were leaking contaminants into the Potomac, James and Elizabeth rivers.

In 2019, the state passed legislation requiring Dominion to recycle 25% of the ash stored at four of its plants and safely dispose of the rest in a lined landfill by 2032, or by 2039 if the plants switch from coal to natural gas. Dominion spokesperson Jeremy Slayton said those efforts are underway and scheduled to be complete by 2034.

In response to the EPA's 2024 rule, Slayton said Dominion is planning to perform initial evaluations of any coal ash storage sites not previously regulated.

Half of the 10 Virginia ash disposal sites listed in the DNR inventory are owned by Dominion. Three others have been regulated for years under state rules governing solid waste landfills, according to Irina Calos, a spokesperson for the Virginia Department of Environmental Quality.

Two other ash disposal sites are at former power plants. They are not among the sites listed on the DEQ website and are now likely subject to the EPA's 2024 rule.

Litten, the inventory's lead researcher, said he stumbled on a decades-old ash deposit that illustrates how tough it can be to track them down.

LiDAR, which uses lasers to conduct remote sensing of the Earth's surface, spotted indentations in a forested area near Front Royal, VA, that indicated a coal ash impoundment. Litten scoured old news archives to find that Potomac Edison of Virginia had built a 35-megawatt coal-fired plant across the river from the site in 1949. The now-demolished plant converted to burning oil in 1973 and ceased operations a decade later.

The company still owns the land, which actually has three ash disposal sites, said Will Boye, a spokesperson for FirstEnergy, which acquired Potomac Edison. Boye said the company plans to do testing and determine what it must do to comply with the rules.

Pennsylvania

In Pennsylvania, the DNR inventory lists eight coal ash disposal sites along the Susquehanna River and its tributaries (plus one that is outside the Bay watershed).

Two of the sites, Brunner Island and Montour, have unlined ponds and have documented groundwater or surface water contamination — or both — while a third just downriver from Wilkes-Barre has "potentially polluted ground & surface water at levels dangerous to human health," according to the inventory.

See **COAL ASH**, *page 20*

COAL ASH *from page 19*

The Brunner Island power plant just south of Harrisburg has been particularly controversial. Four environmental groups sued the plant's owner, Talen Energy, which settled in 2019 by signing a federal consent decree pledging to close and excavate one of its active but leaking ash landfills by 2031 and address leaks elsewhere onsite. The company is in compliance with the decree's terms, spokeswoman Taryne Williams said. Talen also agreed to pay a $1 million fine to the Pennsylvania Department of Environmental Protection.

In December 2024, the Center for Biological Diversity filed a notice of intent to sue Talen, accusing the company of failing to conduct required monitoring and remediation of groundwater pollution beneath one of Brunner Island's coal ash ponds. A Talen spokesperson said the group's notice "contains significant legal and factual errors and omits key information."

The Pennsylvania DEP has regulated the transport, storage and disposal of coal ash as a "residual waste" since 1992, according to DEP press secretary Neil Shader.

With federal rules issued since then, the state and the EPA currently share oversight of ash disposal sites, he said, adding that the state requirements "are considered among the most robust in the nation." He did not provide specifics about sites said to be polluting groundwater or surface water.

Ash fill worries

Many of the sites listed in the DNR inventory are not next to power plants but rather places where ash was used as fill material. In Maryland, MDE has authorized ash to be dumped in old coal mine pits as a way of preventing acidic runoff into nearby streams. Ash from the Warrior Run power plant in Cumberland, which shut down in 2024 after 25 years, was high in alkalinity because coal was burned there with limestone. That quality helps neutralize acidic drainage from the many old underground mines in the region, which historically rendered streams and rivers there toxic for many fish.

But unlike regulated ash disposal landfills, there are no liners beneath the mine sites to keep contaminants in the ash from seeping into streams. State rules require testing of nearby waterways, though, and the quantities of ash used at most sites reportedly were relatively small.

Construction has also taken place on top of decades-old ash disposal sites. In Baltimore, unknown amounts of ash from since-demolished power plants were deposited in the 1950s and 1960s along the Patapsco River in or beside two predominantly Black neighborhoods. Houses were built over part of a 250-acre disposal site in Cherry Hill, and a 12-acre Westport disposal site is now being redeveloped as waterfront housing.

Earthjustice's Lisa Evans said she was troubled to read in the inventory about places where homes had been built over coal ash deposits. She noted that the EPA in 2023 raised concerns about health risks from exposure to arsenic and radium in so-called structural fills.

"What I think communities like that should do if they were built on top of coal ash," Evans said, "is determine if gamma radiation from the ash can cause a problem."

Recycling solution?

While the EPA rules mandate monitoring and remediation of contamination, they do not necessarily require removal of the ash. The rules allow "closure" of old, unlined landfills by capping them to prevent rain from seeping down through the ash into groundwater. But environmental advocates contend it a temporary remedy at best.

"We want [to] get it away from water where it can be mobilized, get into drinking water sources and kill fish," said Betsy Nicholas, vice president of the Potomac Riverkeeper Network.

But "the best possible use of it," Nicholas added, "is to get it into something like bricks and concrete so it can't be mobilized."

Federal and state regulators have permitted and even encouraged "beneficial use" of coal ash in making cement and other building products, where the contaminants are essentially trapped in the material and can't get into air or water. Nationwide, more than half the ash still produced is thus recycled, according to the American Coal Association.

Across the Bay watershed, about 2 million tons of ash are recycled annually, according to DNR's Ortt. Much of that goes to Union Bridge, MD, where a plant owned by Heidelberg Materials uses recycled coal ash to make cement.

Recycling coal ash that way also benefits the climate, releasing about 10% less carbon dioxide into the atmosphere than when other raw materials are used to make ordinary Portland cement, according to Jeff Sieg, North American spokesperson for the Germany-based company.

"This plant was built around the use of fly ash," said Union Bridge plant manager Walter Smith. His facility has been getting coal ash from Pennsylvania's Brunner Island plant as well as from GenOn's Westland

Coal ash has been trucked to this plant in Union Bridge, MD, where it will be used to make cement. (Timothy B. Wheeler)

ash landfill on the Potomac in Montgomery County, MD. That is one of the three sites where GenOn is under a consent decree to stop contamination.

"Why aren't we using [more of] this stuff to build our bridges and communities?" asked Potomac Riverkeeper Dean Naujoks. "We have these giant coal ash landfills leaking, [and] they need to be cleaned up. To me, it's a win-win."

Trump rollback?

Despite complaints about the EPA's latest coal ash rule, environmental advocates worry it may not be enforced.

During the first Trump administration, the EPA delayed deadlines for complying with the 2015 rule, which had been finalized at the end of the Obama administration. The Trump administration then proposed changes to the rule that environmentalists contended would significantly weaken it. The Biden administration dropped those and instead developed the 2024 rule. But an industry lawsuit challenging the latest rule is pending, and some coal state members of Congress tried without success in 2024 to hold it up.

"You think that you've solved the problem … shown that the waste needs to be cleaned up," said Earthjustice's Evans. "But then it's subject to the political whims of whoever is in office."

One Maryland lawmaker wants to provide a stopgap in her state if the EPA does pull back on coal ash regulations. Del. Mary Lehman, a Prince George's County Democrat, has introduced a bill that would require MDE to adopt state regulations that mirror the current federal rules.

"We think there's a good chance that the new EPA will try to roll back a lot of regulations, including this one," she said in an online briefing days before the Maryland General Assembly convened on Jan. 8. "We don't feel like we have any time to lose."

Kamita Gray, the Brandywine neighborhood coalition leader, would agree.

"We need to figure it out," she said. "You have people's health at risk." ■

Brook trout revival in West Virginia bucks the trend

Decades of work led by Trout Unlimited delivers results in Potomac River watershed

By Ad Crable

A 19-year stream project that began in the nooks and crannies of mountain ravines in West Virginia has transformed the headwaters of the Potomac River into one of the most robust wild brook trout fisheries south of Maine and the Adirondacks.

The restoration work, spearheaded by the nonprofit Trout Unlimited, is all the more inspirational as it comes at a time of considerable effort to save brook trout, the only trout native to the East Coast. Often described as exquisitely beautiful, they need clear, cool water to survive.

Despite climate change and loss of habitat, the Potomac Headwaters Home Rivers Initiative has become a beacon of hope.

"This is the largest square mileage of genetically interconnected brook trout that you will see. The data shows that where we restore these streams, they persist, even in the face of climate change," said Dustin Wichterman, who has been overseeing Trout Unlimited's work on the project for the last decade.

"Climate change is concerning, but we're working in the best of the best [of brook trout habitat]."

That best includes the trout themselves. In many parts of the East, even wild brook trout stem from a Vermont strain that is widely used for stocking. But native brook trout in the isolated Potomac headwaters have genetics that are highly specific to that location.

"To know your 15-inch fish is legit and is in the same group that has been here for 20,000 years is pretty cool," Wichterman said.

Trout Unlimited began focusing on the eastern panhandle of West Virginia in 2005. It targeted a region of more than 1,000 streams with historic brook trout populations and springs that help keep water cold.

But there was severe habitat degradation.

Clear-cutting for the timber industry left a mark, and there were more recent problems, too, such as erosion and nutrient pollution from agricultural runoff. A series of devastating floods had sheared away streambank trees.

In an effort to protect their land from further damage, farmers and other landowners had bulldozed rock berms along the streams, making them shallow and allowing the unbuffered, over-widened water to be heated by the sun.

Dustin Wichterman of Trout Unlimited holds a trophy wild brook trout caught and released on a tributary to the North Fork of the Potomac River in West Virginia. (Courtesy of Dustin Wichterman)

The flooding and regrading of streams took away pools, natural meandering flow, boulders and other habitat. "Some were basically ditch lines," Wichterman said, disconnecting the streams from their floodplains.

To begin, Trout Unlimited examined satellite and LiDAR remote sensing images to learn where streams had lost sheltering trees and suffered from erosion. They drove around and looked for defects.

Crews then scaled steep forest ravines, often in national forests, to work on streams that were sometimes so narrow they could jump across them. They reestablished vegetated buffers and felled trees, allowing them to lie in the water to create habitat. They replaced culverts where erosion prevented fish from reaching spawning areas. And they replaced low bridges where debris could collect and block streams.

Next, the crews moved downstream to farmland and other private properties. Work shifted to major tributaries of the Potomac, such as the North Fork and South Branch.

Wichterman met some resistance when he first proposed working on private properties. But landowners fondly remembered when they and their families caught colorful brook trout in the streams passing through their land.

"A lot of these folks have known what the fishery was like," Wichterman said. "They tell me the stories. I had one lady in her 70s say, 'I just want to see green trees growing along the stream again.' There was a lot of nostalgia."

Combatting erosion was one of the biggest incentives for wary landowners to allow restoration work.

"It took us close to 10 years to get a stronghold and for people to recognize that we were there," Wichterman said. "Now people are knocking on our doors."

In the more accessible bottomlands, the crews could use bulldozers to move things around in the stream to improve habitat. Also, livestock was fenced out of the water and provided with troughs and designated stream crossings. Once-trampled stream banks grew up with new trees and native plants that capture runoff and shade the water.

To date, more than 400 farms in five counties have added best-management practices. More than 100 miles of streams have been restored. Some 1.5 million feet of fence have been strung to keep livestock from trampling banks and defecating in the water. Approximately 2,000 acres of streamside land have become planted buffers.

Streams that were mostly dead now teem with three age classes of brook trout up to 15 inches long — trophy-size for the species. Brookie numbers have quadrupled in some areas.

Most importantly, hundreds of small far-flung streams have been connected with each other and with main branches so that trout can move freely between them to feed, spawn and access colder water during summer.

At the same time, the project is helping local economies by using area contractors, boosting recreation and improving farming.

Funding for the program has grown from $300,000 a year to more than $6 million annually. About half has come from federal sources and half from Trout Unlimited. Federal partners include the U.S. Forest Service, the National Resources Conservation Service and the U.S. Fish and Wildlife Service. The National Fish and Wildlife Foundation, state agencies, private foundations and other sources augment funding.

Those who work with Wichterman can't imagine anyone else running the show at the ground level.

The 39-year-old fisheries biologist grew up in the mountains of West Virginia and chased trout as a boy. Even then he took note of the damage that was being done to native trout waters.

Wichterman hit the ground running. He drummed up money. He worked tenaciously with landowners, using his down-to-earth style to open doors. Sometimes, he'd get permission to do work after more than a year of resistance.

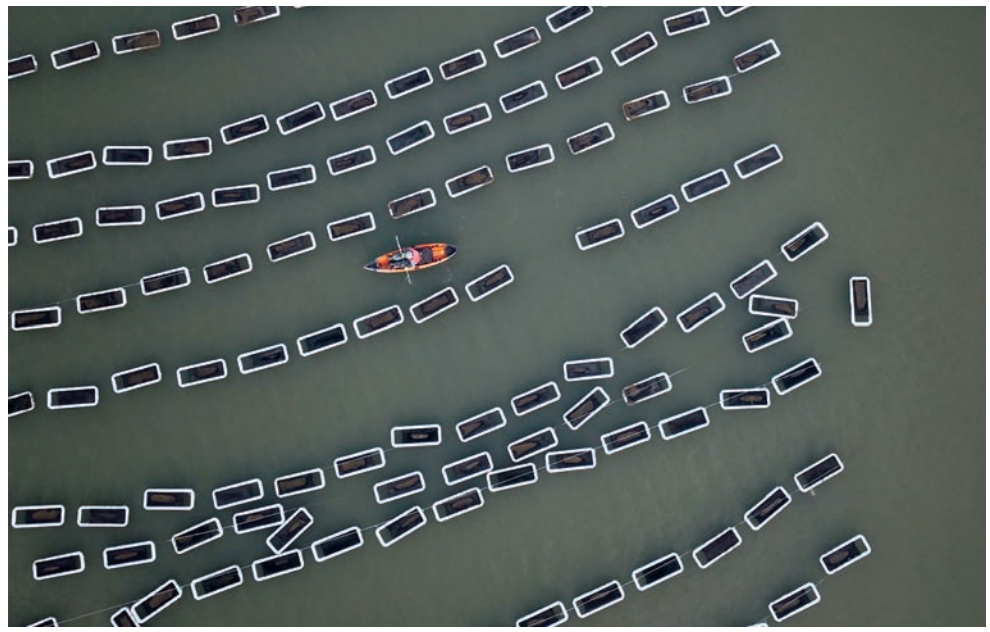
"They see his passion for it in his conversations, and he's able to relate well in terms that they understand," said Ryan Cooper, who manages the Potomac headwaters initiative at Trout Unlimited.

For Wichterman, there's something special about wild brook trout and the waters where they swim.

"They represent the purest form of joy and the purest environments I know," he said. "Where they live brings me more happiness than really anywhere I've ever been."

Ultimately, Wichterman said, his work "is doing something good for the next generation."

He's already seeing proof. His daughter Brooklynn caught her first brookie at age 2 on a fly rod and dry fly in one of the restored streams. ■



Bay state lawmakers tackle wide range of 'green' bills

Many environmental groups put renewable energy at the top of their wish lists

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

In state capitals across the Chesapeake Bay region this year, lawmakers are expected to grapple with renewable energy — how to produce more of it and how to pay for it.

While that theme may unite Maryland, Virginia and Pennsylvania, it is far from the only environmental priority expected to make waves in those Bay drainage states. Here's a look at the environmental moves each state might make during their legislative sessions this spring.

Maryland

In Maryland, lawmakers will face a fresh batch of legislation on familiar environmental issues during their 90-day General Assembly, which opened Jan. 8. Topping the green wish list are bills to expand clean energy generation, build more climate-friendly buildings and boost the health of the Bay.

Budget bust: Much will depend on how legislators deal with the state's worsening fiscal crisis. The projected budget gap has grown from $1 billion in the current fiscal year to $2.7 billion in the next one, which begins July 1.

Activists say their overriding priority is to preserve environmental agencies and programs from draconian cuts.

"We know that everything is on the table, and everybody needs to be looking at being part of the solution," said Kristen Harbeson, political director of the Maryland League of Conservation Voters. "But we want to be sure we are protecting what keeps our air, water and land healthy as well as our community safe."

Democratic Gov. Wes Moore has announced he will introduce what he calls the Bay Legacy Act. It would expand protections for public lands, support agriculture and oyster farming, and boost water quality monitoring.

"We are at a real pivotal moment for Bay restoration, so this is not [the] time to necessarily backslide," said Allison Colden, Maryland executive director of the Chesapeake Bay Foundation.

Returning bills: Environmental groups have coalesced around three bills, two of which have failed to win approval in previous years.

The Abundant, Affordable Clean Energy Act would overhaul Maryland's incentives for developing renewable energy projects while ensuring that ratepayers benefit from them.

Another would authorize the Maryland Department of the Environment to consider cumulative impacts and environmental justice concerns in deciding whether to issue air and water pollution permits. A bill addressing only wastewater permits in 2024 failed to pass.

Groups also want lawmakers to boost recycling by adding a refundable deposit to the price of every beverage container sold, redeemable when consumers return their bottles or cans. "Bottle bills" have repeatedly died in Annapolis, but advocates hope to succeed this year, citing estimates that only about 25% of the 5.5 billion drink containers sold annually in Maryland get collected for reuse.

Sidestepping new spending: Most of the bills supported by activists would add little or no costs while a couple would raise revenue.

"We know that the dollars are tight," said Josh Tulkin, director of the Maryland Sierra Club. "We are also trying to be part of remedying that situation."

Advocates are making another run at passing what they call the RENEW Act, which would levy a one-time fee on the world's top corporate emitters of climate-altering greenhouse gases over the last 30 years. The bill went nowhere in 2024, but supporters contend it could bring in up to $9 billion overall. That could help the state, they say, meet the projected $1 billion needed annually to reduce greenhouse gas emissions 60% by 2031.

Another bill would charge a fee on coal transported across Maryland. The projected $300 million collected annually would be spent cleaning up pollution and easing asthma around the coal export terminal in Baltimore's Curtis Bay and elsewhere statewide, proponents say.

Greener buildings: The Better Buildings Act would promote construction of buildings that don't rely on fossil fuels.

Climate and transportation: Environmentalists want to formally align Maryland's long-term transportation planning with the state's climate action goals and put a higher priority on transit projects.

PFAS: One bill would prohibit pesticides containing so-called "forever chemicals," while another would require the state to test for PFAS in biosolids being spread on farm fields.

Power lines: Inspired by the recent furor over a proposed transmission line across rural Maryland, at least one bill would seek to curb loss of preserved farmland to such projects.

Virginia

Virginia lawmakers must grapple with increasing energy demands, fight flooding and figure out what to do with a $1.2 billion surplus. The session began Jan. 8 and ends Feb. 22.

Solar: The Virginia Clean Economy Act requires Dominion Energy to source 100% of its energy from renewables by 2045 and install 16.1 gigawatts of solar and onshore wind energy by 2035.

Top left photo: Pennsylvania advocates hope to pass legislation in 2025 that opens the door to "community solar" programs, enabling residents to pay for and potentially save money through privately built solar arrays. (Dave Harp)

Top right photo: These floats, seen from above, are part of an oyster aquaculture operation near Cambridge, MD. Maryland Gov. Wes Moore said he will introduce a bill in 2025 to support aquaculture, as well as land conservation, agriculture and water quality monitoring. (Dave Harp)

Carrie Hearne, executive director of the Commission on Electric Utility Regulation, said local governments are increasingly denying solar farms for many reasons but hopes new measures will help inform their reviews.

The newly proposed legislation would standardize local ordinances, provide technical assistance and establish a state review board.

"What we are working for this session is legislation that would give localities a chance to weigh in on what they think regional energy planning should look like," said Jay Ford, Virginia policy manager for the Chesapeake Bay Foundation.

Data centers: Data centers in Virginia, which house much of the world's internet traffic, are expected to increase energy demand by 183% by 2040 if unconstrained, according to the Joint Legislative Audit and Review Commission. (See story, p. 16.)

Last year, lawmakers sponsored 17 data center bills. All failed. Julie Bolthouse, director of land use with the Piedmont Environmental Council, expects to see legislation requiring transparency from data center companies regarding noise, energy demand, water usage and emissions.

Those bills are likely to focus on adding state oversight, such as having the Department of Environmental Quality and the State Corporation Commission provide counties with information about potential impacts on natural resources.

Bolthouse also expects to see legislation on protecting ratepayers from bearing the cost of new transmission lines for these centers and revising the tax credit so that only the most sustainable projects qualify.

Environmental justice: A bill supported by Virginia Interfaith Power and Light requires environmental justice to be factored into the comprehensive planning process.

Flood resilience: The Chesapeake Bay Foundation helped draft legislation to establish a long-term wetlands workgroup and create a fund for helping homeowners build large living shorelines.

Executive director Mary-Carson Stiff of Wetlands Watch said she's hoping to get another $100 million allocated toward the Community Flood Preparedness Fund. It helps regions plan for and add projects that mitigate flooding. The fund originally relied on the Regional Greenhouse Gas Initiative, which isn't active. But a recent court case from Floyd County could reinstate it.

Norfolk has used the fund to pay for part of its Coastal Storm Risk Management Project. While the federal government pays 65%, Norfolk must pay the remaining $931 million. The city hopes the state will pitch in. With similar projects in their infancy, Stiff said the state should create a process to determine how the state will process such requests.

A Maryland bill under consideration in 2025 would charge a fee on coal transported across the state. The money would help clean up pollution and ease the asthma burden in impacted communities. (Dave Harp)

Budget bump: Lawmakers are entering the second year of the biennium state budget with a $3.2 billion surplus over 2025 and 2026. Republican Gov. Glenn Youngkin amended the budget to put $25 million of that surplus toward updating Richmond's combined sewer overflow system, $17.4 million toward wastewater treatment and $26 million toward agricultural best management practices.

Environmental groups, lobbyists and lawmakers will all try to get some of those funds. One bill proposes installing electric vehicle charging stations in rural areas. A bill to fund the three-year menhaden study, which was tabled last year, will be up for review again. Others will request money for the Stormwater Local Assistance Fund, land conservation, invasive species management and environmental education.

Aimee Perron Seibert, partner of the lobbying firm Commonwealth Strategy Group, said in a webinar that legislators will be cautious about spending the surplus because of uncertainty around what will happen at the federal level with a new administration. However, she said, lawmakers are open to one-time spending requests.

Pennsylvania

In the nation's only divided-party state legislature in 2024, environmental groups in Pennsylvania helped get several bills across the finish line. That momentum bodes well for several priorities in 2025, they suggest.

Pennsylvania's legislature last year put bills in place that provide funds for powering schools with solar energy, plugging abandoned oil and gas wells, cleaning up agricultural and stormwater runoff, and fighting acid mine drainage. Now, environmental groups aim to resolve unfinished business.

"We want to make sure Pennsylvania does its part to push the ball forward," said Michael Mehrazar, advocacy manager for PennFuture.

The General Assembly session runs from Jan. 7 through Dec. 31.

Letting the sun in: Chief among the goals is opening the door to a community solar program, already running in 24 states, including those on Pennsylvania's borders. Community solar would enable residents to pay for and potentially save on their power bills from privately built solar arrays.

With bipartisan support, a bill setting up community solar passed the State House in 2024 but did not come up for a vote in the Republican-controlled Senate, primarily because a provision that would have benefited utilities wasn't ironed out.

"It's coming, it's working and it's incredibly popular," said Molly Parzen, executive director of the Conservation Voters of Pennsylvania. She pointed out that all of the legislators with pro-environmental track records were re-elected in November.

Raising the stakes: Lawmakers will also be considering legislation that requires the state to increase power generation from renewable sources.

Democratic Gov. Josh Shapiro has proposed an energy plan to combat climate change that would require that 35% of the electricity would come from solar, wind, nuclear and other clean sources by 2035. The current standard is 4%. That places Pennsylvania — the nation's second-largest energy-producing state — at a lowly 45th in the nation in requiring renewable energy.

"This is really much needed and long overdue. We really are near the bottom of the barrel when it comes to clean energy development," said Jen Quinn, legislative and political director of the Sierra Club Pennsylvania Chapter.

RGGI: The fate of the state's bid to join the Regional Greenhouse Gas Initiative remains unsettled. Former Democratic Gov. Tom Wolf took executive action to join RGGI in 2019. Opposing Republican legislators filed a legal challenge, and the Pennsylvania Commonwealth Court ruled in 2023 that the legislature would have to pass legislation to join the 13-state cap-and-trade compact.

Shapiro has appealed the ruling. Also, following recommendations from an advisory group, he has also proposed an alternative: a state-specific cap-and-invest proposal called the Pennsylvania Climate Emissions Reduction Act.

Some environmental groups favor the established RGGI compact, citing efficiencies with a regional system. Still, the Conservation Voters of Pennsylvania, PennEnvironment, PennFuture and the Sierra Club Pennsylvania Chapter all said they would support the governor's proposal.

"We would much prefer the courts rule with us that Pennsylvania can participate in RGGI. It's time tested … but if the courts rule that that is not an option, this bill is a good alternative," said Flora Cardoni, deputy director of PennEnvironment.

More environmental bills: Some groups are supporting a bill to require energy and water efficiency in household appliances not already covered by federal regulations. It would include devices such as fryers, steam cookers, faucets, portable toilets and water coolers.

Other initiatives would fund a program to remove lead pipes from schools, secure state funds to combat invasive species and expand access to electronic waste recycling centers.

But don't expect bills to place further controls on natural gas fracking in the state. "I think getting anything through with the current makeup of the Senate around fracking would be difficult," Parzen said. ■

How does the wildlife cross the road — without getting hit?

Tour of wildlife crossing in VA emphasizes the need to fund other similar projects

By Whitney Pipkin

A wildlife crossing stretches 192 feet under the Virginia's Fairfax County Parkway (VA Route 286), completed in 2010. (Whitney Pipkin)

U.S. Rep. Don Beyer (D-VA) joined a tour of the wildlife crossing constructed at Fort Belvoir, VA. (Whitney Pipkin)

Thousands of commuters take the Fairfax County Parkway to their jobs at Fort Belvoir, VA, each day. But few know they are also driving over one of the best wildlife crossings in the state — one that could be preventing them from hitting a deer on their way to work.

Beneath the bustling road is a concrete-sided underpass that would be big enough to accommodate a passing semitruck or railcar. But this was built for wildlife. A rocky stream runs along the bottom on one side, and vegetation grows on the other under a large metal grate that allows light to filter in. Those who look closely might see tracks in the gravelly dirt from the coyotes, foxes or raccoons that use this underground highway to get from one forested area to another.

But for the noise of traffic above, the underground space feels a bit like a forgotten oasis.

"I get chills every time I come to this crossing," said Jessica Roberts, director of habitat connectivity for Wild Virginia. "This is pretty much the only one in Virginia that looks like this."

Roberts is part of a growing coalition in Virginia that wants to see crossings constructed at key wildlife intersections across the state. The crossings, they contend, can sharply reduce car accidents, improve flood resilience and connect wildlife to habitats that have been bisected by roads. But, like most infrastructure projects, they cost a good bit of money.

That's why Roberts brought a group of legislators, staffers and researchers out to get a closer look at the crossing located near many of their home bases in Northern Virginia. A big part of the goal? To convince stakeholders a lack of wildlife crossings is costing them money.

Virginia ranked ninth in the country for having the highest number of wildlife-vehicle collisions, up from 15th in 2022, according to car insurance insights from State Farm. The state averages 60,000 animal-involved accidents annually, costing agencies and individuals about $41,000 per collision. Since 2015, these crashes have cost the state about $533 million a year.

Other Chesapeake Bay states are in a similar predicament. West Virginia is the state where drivers are most likely to hit an animal. Pennsylvania, where wildlife crossing work is also under way, is ranked fourth.

In Virginia, legislators identified the need for a Wildlife Corridor Action Plan in 2020, but funding has been hard to come by. The Federal Highway Administration currently has a pilot program offering grants for wildlife crossing projects that have at least 20% of their costs covered by state or other funding sources.

A 2021 study also demonstrated that certain investments to exclude wildlife from busy roads could end up saving the state money. The Virginia Transportation Research Council looked at the difference it made to add 8-foot fencing along both sides of Interstate 64 in Charlottesville, where two culverts running under the road already provided a wildlife crossing. The fencing, the researchers hypothesized, would help steer animals toward the culvert and away from a direct road crossing.

In the three years after the fencing was put up, researchers found deer were five times as likely to use the culvert and deer-vehicle crashes were reduced by 96%. The study found that the fencing essentially paid for itself in less than two years and would save the state millions of dollars in avoided accidents over its 25-year lifetime.

The Fort Belvoir crossing also includes exclusionary fencing along the road above. Roberts told the group that an even longer fence would help drive more animals to use it and that dedicated state funding would make more projects like it possible.

Virginia Sen. Dave Marsden (D-Fairfax), who joined the tour with several of his staff members, agreed. He said the state's action plan has been a good start, but that the next steps are to prioritize sites and go after funding.

"We need to focus on key areas, on interstates and major highway corridors where we can make a difference and point to it," he said.

The state's first Wildlife Corridor Action Plan, published in May 2023, identified 26 "nexus areas" where biodiversity corridors overlap with areas where wildlife are often involved in collisions. Roberts recently worked with Misty Boos from the Wildlands Network to create an additional map that narrows down those priorities even further. The map notes locations with high flood risks and high rates of social vulnerability.

"What we want to do in the future is direct state funds to areas that have all four," Roberts said.

While wildlife crossings in the American West and Canada often feature bridges conveying animals over busy roads, the best option in Virginia, Roberts said, is often an underpass. These can follow the flow of a stream that already needs to be conveyed beneath the road and which animals are likely to follow for a way across.

There are other benefits to pairing wildlife crossings with stream crossings. Benjamin Bradley is an engineer with Trout Unlimited whose job is to design stream passages that mimic the flow, velocity and character of the waterway before and after the road crossing.

One of the best ways to do that is to keep the stream as it is (or mimic the way it would have been before a road was built) and "put a lid on it" that can support the road.

Having structures that are wide enough for the stream to shift its pathway over time or to swell with water during floods creates more resilience in the system, preventing the need for costly maintenance in the future. That's what Bradley saw when he visited the Fort Belvoir crossing.

"You can see that the stream has shifted over time, but we haven't had any impacts to passage," he said. "This is what we want to see from an aquatic perspective." ■

Menhaden might not be source of osprey troubles, some say

Fisheries scientists challenge study linking nest failures to commercial overfishing

By Timothy B. Wheeler

A widely publicized study pointing to a shortage of Atlantic menhaden as the cause of osprey nest failures in the Chesapeake Bay has come under fire from a trio of Virginia fisheries scientists.

The study, published a year ago by researchers with the College of William & Mary's Center for Conservation Biology, linked a drastic decline in osprey reproduction in Virginia's Mobjack Bay with a drop in the availability of menhaden, the migratory fish that once made up the bulk of the birds' diet. They suggested that newly hatched osprey chicks were starving in the nest for lack of menhaden and suggested that commercial harvest limits on the fish be further tightened.

That research report, the lead author of which was center director Bryan Watts, gave credence to complaints by conservationists and sports anglers about large-scale commercial menhaden harvests in the Bay. Those groups have long contended that a Virginia-based fishing fleet operated by Omega Protein has been depleting menhaden stocks in the Chesapeake, depriving Atlantic striped bass and other fish of a vital source of forage.

The commercial menhaden harvest in the Bay has been capped since 2006 at 51,000 metric tons, but conservationists and recreational anglers argue that the cap does not leave enough of the fish in the Chesapeake to sustain species that feed on them. Lacking firm evidence, they have failed so far to convince fishery managers to reduce or even ban large-scale commercial menhaden harvests in the Bay.

With the center's study saying ospreys are threatened by a menhaden shortage, the Atlantic States Marine Fisheries Commission, which regulates nearshore fishing from Maine to Florida, formed a work group in September to weigh whether existing harvest limits need to be tightened.

In October, though, *Frontiers in Marine Science*, the same journal that published the osprey paper, carried a critique of it by Professor Robert LaTour and two other researchers at the Virginia Institute of Marine Science, another division of William & Mary.

An osprey peers out from its nest, built on a channel marker in the Bay. (Dave Harp)

LaTour and his colleagues faulted the data and statistical methods used in the center's study and disputed the claim that it showed ospreys' nesting woes could be attributed to a decline in the menhaden population.

They concluded that "while we share concerns about the demographic and foraging trends of osprey in Mobjack Bay, the analyses presented in [the study] do not establish a clear relationship with menhaden abundance and availability."

LaTour said he felt compelled to take issue with the study because its conclusions had been widely shared and fishery managers were being pressed to act based on it.

"Once you release results as [Watts] did with press releases, you can't really un-ring the bell," LaTour said.

The VIMS scientists don't dispute the center's findings that osprey reproduction has declined, but they disagree with the way the bird biologists assessed trends in the number of menhaden frequenting Mobjack Bay. There aren't any surveys of menhaden there that go back to the 1970s, when the Center for Conservation Biology began tracking osprey nesting. So, the center's researchers used a coastwide index of menhaden abundance that was based on surveys conducted by multiple states over that time period. The critics contend that the coastwide index couldn't accurately reflect localized variations in menhaden populations.

Watts acknowledged that a coastwide menhaden population index was not the best yardstick of abundance in Mobjack Bay.

"I didn't like it, either," he said. But with no long-term surveys of menhaden in Mobjack or even the Virginia portion of Chesapeake Bay, Watts continued, "I felt like we were using the best data available."

Watts said he doesn't disagree with some of the criticism from the VIMS scientists. But, notwithstanding the flaws they cited in the statistical analysis, Watts insisted that the center's field observations of osprey nests over time had shown that the adult birds were catching fewer menhaden to feed their chicks and fewer young birds were surviving.

"Scientists disagree all the time," he said. "But when you back away from the details here, it really doesn't change [the fact that] osprey chicks are starving in the nest because there aren't enough menhaden to support them."

Watts broadened the center's osprey study beyond Mobjack Bay in 2024, working with scientists from the U.S. Geological Survey to follow nesting in 12 locations around the Chesapeake. That fieldwork found similarly poor reproduction in 10 sites along the Bay's mainstem, where menhaden typically can be found, while osprey pairs produced more young in two freshwater areas where they feed on different fish.

LaTour said he doesn't doubt that there are fewer menhaden in the Bay for ospreys to feed on, but he said the evidence is lacking to pin that on the Omega Protein fishing fleet. He suspects instead that there's been a change in the distribution of menhaden in the Chesapeake. He noted there have been likely climate-induced shifts seen in the distribution of other fish populations along the Atlantic coast.

On one thing, LaTour and Watts completely agree — the need for more focused data on menhaden abundance in the Chesapeake. At the request of Virginia lawmakers, LaTour and other VIMS scientists drew up a plan in 2023 for conducting such a study, but in its 2024 session the General Assembly put off deciding until 2025 whether to fund it.

Omega Protein, which also participated in the planning for the study, said it had no hand in blocking legislative action. At a processing plant in Reedville, VA, the Canada-based company converts menhaden caught in the Bay and along the Mid-Atlantic coast into pet food and nutritional supplements. Omega has long enjoyed legislative support, and it has resisted any further catch restrictions, citing a 2022 finding by the Atlantic States commission that the coastwide menhaden population is not overfished.

Industry defenders of Omega point out that Maryland's annual survey of juvenile fish found more young menhaden in the upper Bay in each of the last two years than have been seen since 1990. Those little fish, spawned in the ocean, spend most of their first year in the Bay but head back to sea in the fall, returning as adults the following spring. That may undercut conservationists' claims that striped bass lack sufficient menhaden to sustain themselves, but ospreys tend to prey on fish larger than those "young of year" visitors, studies have shown.

The Atlantic States commission workgroup that is studying whether new menhaden harvest limits are warranted in the Bay or elsewhere reported in late October that it likely would need until spring to conclude its deliberations.

"They're searching for science-based information to allow them to formulate those recommendations," LaTour said, "but the reality is that information is a long way away."

Watts vowed to keep digging to find out what is happening with the Bay's ospreys. He said he plans to expand the field study further in 2025.

"One thread doesn't make a tapestry," he said. "You can't see the whole picture." But if researchers keep collecting data, Watts concluded, "the picture will become clearer over time." ■

Bay conservation leader: Make 'nature's comeback' a reality

Joel Dunn steps down as president of Chesapeake Conservancy

By Jeremy Cox

When Joel Dunn took the reins of the Chesapeake Conservancy in 2010, the group had only three paid employees, 14 regular volunteers and just shy of $770,000 in annual revenues.

When he stepped down from the president and CEO position at the end of 2024, he left behind a juggernaut with about 50 employees, 170 volunteers and $24 million in yearly proceeds.

During his tenure, the conservancy helped protect thousands of acres of land across much of the Chesapeake Bay watershed. Those include the Harriet Tubman Underground Railroad National Historical Park in Maryland and the return of Fones Cliffs, a 465-acre tract along the Rappahannock River, to the waterway's namesake tribe in Virginia.

Dunn will be staying in the land conservation sector, helping the Campaign for Nature strive toward its goal of protecting 30% of the world's lands and oceans. He plans to remain in Annapolis, working remotely.

He spoke with the *Bay Journal* about his time at the conservancy and what it will take to conserve more of the watershed. This interview has been edited for length and clarity.

Question: Why are you making this move now?

Answer: I've spent 20 years working in the Chesapeake Bay now. When I was a little kid, I had a passion for the rainforest. I actually went to college with a focus on [studying] rainforests. I spent a year and a half in Central and South America. After I left, a bunch of the sites where I was working actually got cut down. So, I realized that just studying the rainforests wasn't going to save them.

The World Wildlife Fund put out a report [recently] that said we've seen a 73% decrease in the world's monitored wildlife populations since I was born. Some of the largest decreases are in the Global South. A lot of these Global South countries have made this commitment to protect 30% of their nature by 2030, which I really love

Joel Dunn, who led the Annapolis-based Chesapeake Bay Conservancy for 14 years, stepped down at the close of 2024. (Dave Harp)

and admire. So, I'm really excited to join the Campaign for Nature and help them accomplish those objectives.

Q: Let's talk about the Chesapeake. According to data collected through 2022, nearly 1.64 million acres of land in the watershed have been permanently protected since 2010. How do you feel about that progress?

A: I'm pretty happy about it. I've either chaired or vice-chaired the Partners for Open Space in Maryland for the last 14 years, and those public access goals and land conservation goals have been our major focus. Maryland met its "30 by 30" goal [30% of land protected by 2030] already. It has now moved on to a "40 by 40" goal.

The rest of the Chesapeake still has a way to go, but I think we're going to hit our 2 million acre goal [under the 2025 Bay cleanup agreement], and we're going to hit 300 access sites by 2025. I'm really proud to have been a significant contributor to those goals.

Q: Why was Maryland able to meet its goal six years early?

A: Funding partnerships. There was some technological innovation that really helped. [But] the great thing about land conservation is it delivers tangible results that people can experience. It builds support for additional

Approximately 1.64 million acres of land in the Bay watershed were protected with conservation easements between 2010 and 2022. (Courtesy of the Potomac Conservancy)

conservation when people can go to a place and see, hear, smell and touch nature.

Q: If you do the math for the whole Bay watershed, it works out to about 22% of the land being protected so far. Do you think it's possible to reach the 30% goal by 2030?

A: Well, I would like to see it happen. The states have been the drivers of funding for conservation. That's the key — to get those state legislatures to either maintain or grow their commitments. And people supporting their local land trusts is absolutely essential, too, because they're natural advocates and deliver tangible results.

The other thing is demonstrating how land conservation benefits everybody. We had some really intentional projects with tribes and with the Black community and Hispanic community. And it showed how land conservation and public access really are beneficial to all of society and every culture.

Q: You were present recently at an event celebrating the creation of the Southern Maryland Woodlands National Wildlife Refuge, the first new refuge in the watershed in 25 years and the first in Maryland in 60 years. But just 31 acres out of the 40,000 goal are in public hands. What's your advice to those who will carry the ball forward?

A: These refuges or parks often take decades to reach their full potential. The boundary will allow our federal legislators to bring federal Land and Water Conservation Fund monies and other resources to Maryland to preserve these lands. A lot of that money has been going out West to big landscapes, which are very important. But we love our landscapes, too.

We'd like to see some of that money coming here. I don't think it's equitably distributed, and this new refuge will provide an opportunity to help balance where those funds are going.

Q: You and the conservancy have been involved in shepherding some important properties into public hands. Which one stands out the most for you?

A: Carr's Beach is just a great example. It was so historic and so important. Vince [Leggett of the group Blacks of the Chesapeake, who passed away Nov. 23] had been saying for two decades he wanted to protect it. But he really couldn't get the institutional buy-in that he needed. So, we leveraged each other's knowledge and contacts and communities to advance that project. And it was so wonderful to see his dream come to fruition.

And that's a great example of a project that gives people entree to the Chesapeake Bay.

Q: 2025 is upon us, and Bay restoration leaders are going to spend the year updating the 2014 agreement. How would you like to see that play out?

A: I want everybody to feel like they're a part of nature's comeback. I realize we're not going to meet some of the 2025 restoration goals. But that doesn't mean you give up. You've got to take stock of where you are and revise those goals and set some new goals. ■

CHESAPEAKE CHALLENGE

— Kathleen A. Gaskell

Leaf through these maple facts


A


B


C


D

Seeing red: There are 13 maple species native to North America. The most widespread is the red maple. Species native to the Chesapeake region are the red, silver, sugar, mountain and striped maples, and the box elder — which, common name notwithstanding, is in fact a maple.

They're everywhere! Maple territory is vast, stretching 1,900 miles up the East Coast, from Florida to Quebec, and as far west as Minnesota and eastern Oklahoma. Maples account for the largest continuous range of any North American tree genus.

Music to our ears: Maple is a "tonewood" with a predictable dampening effect when translating vibrations into sound — clarifying individual notes. Instruments made of maple, entirely or partially, include guitars, violins, violas, double basses, cellos, drums and bassoons.

Red is black: Early European settlers of North America used red maple bark to produce black dyes and ink.

Maple keys, helicopters and whirlybirds: The seed pod of a maple is known to botanists as a samara. But its colloquial names refer to its shape or flight characteristics. It is a pair of conjoined, enclosed seeds, each seed having a papery, fibrous "wing" — making the whole resemble a windup key and causing it to helicopter down to earth in the fall.

Sweet sustenance: Roughly 2 fluid ounces of maple syrup contains 100% of the recommended daily allowance of manganese, 37% of riboflavin, 18% of zinc, 7% of magnesium and 5% of calcium and potassium. Its antioxidant levels are similar to a serving of banana or broccoli.

Title image: *The leaf of a red maple in fall. (Virginia State Parks)*

A *Snow is often still on the ground at the beginning of sugaring season. (Dave Pape)*

B *A boiler reduces sap to syrup at a maple festival in Marathon, NY. (Paul Cooper/CC BY-NC 2.0)*

C *The leaves of this sugar maple in summer are bright green. (Evelyn Fitzgerald/CC BY 2.0)*

D *Maple seed pods have wings that can ride the wind far from the parent tree. (Julie Falk/CC BY-NC)*

E *Sap drips from a a metal tap, called a spile, that is driven into the trunk of the tree. (Brad Smith/CC BY-NC 2.0)*

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


E

32 degrees of sweetness

If night temperatures of 32 degrees or below are followed by daytime temperatures of 32 or higher, it's time to start tapping the sugar bush (that's a stand of syrup-producing maples, for those saps unfamiliar with this term). Take this quiz for a short but sweet primer on this treat! Answers: page 36.

1. Sugar maples are known for their syrup, but three other maple species can also be tapped. Which three?
A. Black B. Red C. Silver D. Striped

2. On average, how many gallons of sap does it take to produce one gallon of syrup?
A. 10 B. 20 C. 30 D. 40

3. Although the tree's age and health, along with weather, can affect production, how many gallons of sap does the average tree produce?
A. 1–5 B. 5–15 C. 10–15 D. 15–20

4. To protect a maple's health, it shouldn't be tapped until it is old enough to produce sap and still have enough to nourish the tree. About how old is the tree at this point?
A. 20-25 years B. 30–35 years
C. 40–45 years D. 50–55 years

5. About how long does it take a healthy maple to heal a tap hole?
A. 3 years B. 6 years C. 9 years D. 12 years

6. In the summer, maples create sugar (sucrose) in their leaves through photosynthesis, then convert it to starch. This reserve energy is stored in the branches, trunk and roots. When temperatures start to rise in early spring, this starch mixes with water in the roots, which converts it back to sucrose, which then expands and is forced up to nourish the tree. What nutrient-transporting layer under the bark is tapped to collect this rising sap, used to make syrup?
A. Bark B. Cambium C. Heartwood D. Phloem

7. Which native peoples are generally credited with pioneering the process for making maple syrup?
A. Algonquian B. Cherokee
C. Iroquois D. Sioux

Nauticus reimagines maritime life in Norfolk through interactive exhibits

By Lauren Hines-Acosta

Top photo: Visitors explore the Nauticus maritime discovery center and the Elizabeth River waterfront in Norfolk. (Courtesy of the City of Norfolk)

Right photo: At Nauticus, Declan Lingle learns about fluid dynamics by using magnets to move plastic ships through liquid. (Lauren Hines-Acosta)

Ocean waves, seagull calls and soft drums greeted Brice Lingle and his three kids as a conveyor belt transported them to the top floor of Nauticus. His daughter Grace gravitated toward a displayed sailboat. Drawing on his days of sailing as a Boy Scout, Lingle explained each part of the boat.

"It's actually engaged my daughter in wanting to go sailing now," Lingle said.

Nauticus, a maritime discovery center along the waterfront in Norfolk, VA, opened three new exhibits in November, completing its $21.5 million Reimagine Nauticus campaign in time for its 30th anniversary. The five exhibits cater to new ways of learning by using high-tech interactive elements.

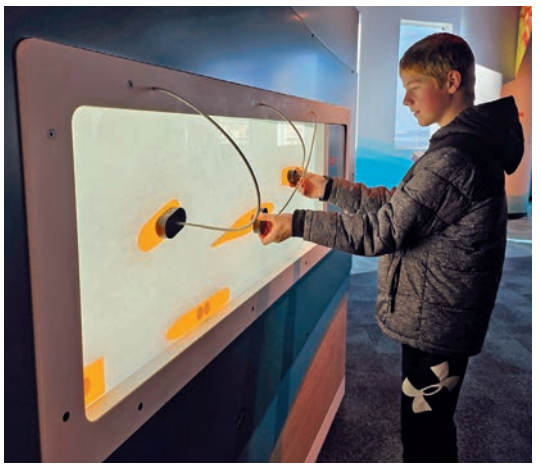
In addition to the *Design, Build, Sail* exhibit that caught Grace's attention, there are *Our Port* and *Heart of the Navy*. These three exhibits walk visitors through maritime life at one of the largest ports in the Chesapeake Bay. It lies in Hampton Roads, the region where the Chesapeake Bay and its rivers connect major cities like Norfolk, Virginia Beach and Hampton. The exhibits demonstrate the scientific principles of sailing, the port's maritime industry and the role of family in the Navy. Two other exhibits, *Norfolk in Time* and *Aquaticus*, opened in the summer of 2023.

"These galleries were designed to be illustrative of and indicative of Hampton Roads, and that's what we want," said Stephen Kirkland, executive director of Nauticus.

Time for something new

In 2019, Kirkland looked out on the sailboats crowding the Elizabeth River, many of them helmed by students in the museum's Sail Academy, a free four-year program for underserved youth. On the other side of complex, he could see the World War II battleship U.S.S. *Wisconsin*, permanently docked at the museum, crawling with visitors.

That's when Kirkland started to wonder whether the museum was getting stagnant — and he thought it was time for a change. He and his team began fundraising in 2020 to make Nauticus an entirely new and engaging experience for visitors. They reached their goal with donations from



Old Dominion University, Virginia Maritime Association, Dominion Energy, the Virginia Port Authority and more.

"Education has changed," said Elspeth McMahon, associate vice president for Maritime Initiatives at Old Dominion University. "People want to learn in a different way, and the exhibits are very hands-on and very engaging."

Kirkland plans to have local experts like welders stationed at the displays on busy weekends to

Grace Lingle, visiting Nauticus with her family, plays with the pulleys of a demonstration sailboat. (Lauren Hines-Acosta)

During a visit to Nauticus, Brice Lingle and his son Declan walk by a map of the city's port that highlights where and why ships dock there. (Lauren Hines-Acosta)

answer questions from visitors who are testing their skills with a welding simulator. Beginning on Feb. 11, a Carnival cruise ship will visit once a week, and Kirkland hopes the chief engineer and other cruise staff will also act as educators.

Some elements of the exhibits engage multiple senses. At one display, for example, visitors can squeeze a "bottle" to release the smell of buttered lobster while reading about imported seafood.

Exhibit designers followed the "three-thirty-three" rule wherever applicable. At the display about the huge meteor that shaped what is now the lower Chesapeake Bay, a visitor spending only three seconds there would likely learn, courtesy of the large display text, that the meteor struck 35 million years ago. A person lingering for 30 seconds will learn a bit more detail and might play with the augmented-reality sandbox. The fully engaged visitor, meanwhile, will spend three minutes on average, absorbing most of the information at hand.

Catherine Taterway, associate director of marketing at Nauticus, pointed out that the layout of the exhibits was intentional, too. For example, while learning about environmental resiliency in *Norfolk in Time*, visitors can adjust a mini floodwall and simulate a flood. Behind that display are windows looking out on the real floodwall along Norfolk's waterfront.

The exhibits also include modern technology for hands-on learning.

"Technology gets outdated so quickly that before long, what seems new to us is going to feel outdated," Kirkland said. "That's another goal of ours … to keep updating."

Stephen Kirkland, executive director of the Nauticus maritime discovery center in Norfolk, uses a welding simulator. (Lauren Hines-Acosta)

Our Port features a monitor where visitors can track cargo ships, fishing boats and other vessels everywhere on the Bay in real time. Aquaticus, an exhibit for small children, includes an interactive projector encouraging kids to clean the Elizabeth River. They must run around a projected pond to remove "trash." After there's no more trash, otters swim across the water.

Capturing maritime life

Because there are other naval museums in the country, Kirkland and his team decided to lean into the resources they had.

The *Design, Build, Sail* space teaches visitors about hydrodynamics, aerodynamics and buoyancy through interactive elements, including a real sailboat from the Nauticus sailing program.

"In this gallery space, [we're] taking the best of what we do with our kids on the sailboats and bringing it inside the building for visitors," Kirkland said.

As for *Our Port*, the walls are decorated with pictures of real welders, divers and engineers who work in the port. And the exhibit was curated with the maritime workforce shortage in mind. According to the Hampton Roads Workforce Council, the Hampton Roads area currently has about 10,000 job openings in the maritime sector, a number that could quadruple by 2030. The shortage stems from the current workforce retiring and high school graduates choosing college over trade work.

Old Dominion University's $150,000 donation went toward a display where visitors have to match a maritime career to a piece of equipment hanging on the wall. For example, a prism pole pairs with a surveyor job and climbing gear belongs to a wind turbine technician.

McMahon from ODU hopes *Our Port* will show students that these careers are an option.

"I want them to know that there are so many opportunities in the maritime industry, in many different fields, [and they] are right here in your own backyard," McMahon said.

To differentiate from other naval museums, the *Heart of the Navy* exhibit focuses on stories from Norfolk's naval history. It features a 6-foot-tall comic book that visitors can leaf through to read true stories of Navy heroism.

Navy Lt. Cmdr. Matt Valcourt, a nuclear submarine engineer based in Boston, visited Nauticus while on a work trip. After touring the *Heart of the Navy* exhibit, Valcourt said, "It's pretty clear that people have an immense amount of pride for the Navy in general."

Lastly, *Norfolk in Time* shows how the city is resilient — in more ways than one. The exhibit describes the flooding and environmental challenges facing Norfolk and other Hampton Roads cities. But it also tells the little-known story of Mary Louvestre. She was a free Black or mixed-race Norfolk woman who served as a Union spy during the Civil War.

When Kirkland asked visiting students if they've heard about the Battle of the Ironclads, the famous duel between the armored U.S.S. *Monitor* and C.S.S. *Virginia* (originally called the U.S.S. *Merrimac*), their hands shot up as they recalled the story from history class. But when he asked if they've heard of Louvestre, who is said to have provided the Union with construction plans for the C.S.S. *Virginia*, he was met with blank stares.

"There's so much more that a normal local might not know," Taterway said. "We really wanted to tell the bigger story of the port and how much impact it has in our city, but really all of Hampton Roads." ■

IF YOU GO

Nauticus, on the Elizabeth River at 1 Waterside Drive in Norfolk, is open 10 a.m. to 4 p.m. Tuesday through Saturday and noon to 4 p.m. on Sunday.

Tickets are $17.95 for ages 13 and up, $14 for ages 3 to 12 and free for children age 2 or under. Nauticus provides discounts for military members and seniors with valid ID.

General admission includes all-day access to the exhibits and self-guided tours aboard the U.S.S. *Wisconsin*, one of the last Iowa-class battleships built during World War II. Staff hosts educational programs on the ship throughout the day.

There is handicap parking in front of Nauticus. Other visitors are encouraged to park at the West Plume Street garage or use metered street parking. The garage costs $3 for one to two hours and $5 for two to three hours. Staff recommends one to two hours to explore the exhibits and battleship.

Photo: The aircraft carrier U.S.S. Bataan rests at port in the Norfolk Naval Shipyard in Virginia in 2016. (Sgt. Matthew Callahan/U.S. Department of Defense)

Development marches on, putting 'protected' forests in peril

By Forrest Mays

If you're reading this issue of the *Bay Journal,* chances are you know that the Chesapeake Bay, North America's largest estuary, is a vital ecosystem that supports a vast array of wildlife, provides livelihoods for millions and offers invaluable recreational opportunities. You likely also know that the Bay has suffered decades of degradation, ranging from industrial pollution and nutrient overloads from agriculture to unchecked development and the resulting destruction of habitat for plant and animal life.

One of the most critical steps toward restoring the Chesapeake Bay lies in preserving and repairing riparian forests — woodlands adjacent to the countless streams, creeks and rivers of the Bay's vast watershed. These not only filter stormwater before it reaches the waterways, but they are also biodiversity hotspots, climate regulators and habitat for many animals.

One such vital ecosystem is an 89-acre patch of mature forest known as Crystal Spring Forest, part of a privately owned tract about two miles southwest of downtown Annapolis. Nestled along Crab Creek, a Bay tributary by way of the South River, this vital patch of undisturbed forest is under threat from a proposed luxury retirement development by National Lutheran Communities & Services and associated entities.

Called the Village at Providence Point, the development would require clear-cutting more than 27 acres of what has been designated priority forest under the Maryland Forest Conservation Act, removing 64 significant trees and profoundly altering the area's environmental balance.

As a well established forest, Crystal Spring acts as the best kind of waterway buffer, filtering out pollutants such as nitrogen, phosphorus and sediment. Without this filtration, Crab Creek and, subsequently, the South River and Bay itself would be inundated with harmful runoff, exacerbating algae blooms and dead zones.

Like most mature forests, it is home to a diverse array of flora and fauna, and its destruction would displace countless species. Some 221 species of birds have been recorded there, including the American woodcock, a game bird now said to be rare in Anne Arundel County. The Anne Arundel Bird Club, a chapter of the Maryland Ornithological Society, considers Crystal Spring Forest one of the county's top 10 sites for migratory birds.

This view of Crystal Spring Forest in Annapolis shows Crab Creek, lower right, which joins Maryland's South River about five miles upstream of the Bay. (Mark Duehmig/markduehmig.com)

As a whole, the Crystal Spring tract is more than a forest. What makes this site truly unique is the diverse mosaic of habitats that include not just mature woods but also grasslands, vernal pools, wetlands, meadows and scrubland. These are year-round habitats for many animals, as well as valuable layover spots for wintering and migratory bird species like glossy ibis, gadwalls, and teal ducks. It is also prime nesting habitat for several prized neotropical migrants like scarlet tanagers, indigo buntings and blue grosbeaks.

Such forests also contribute to climate resilience, sequestering carbon and regulating local temperatures. Removing these trees not only releases stored carbon but also diminishes the area's ability to withstand climate change impacts, such as flooding and heat waves.

Though scaled-down from previous efforts to develop the Crystal Spring tract, the Lutheran Communities project would still destroy 27 acres of mature forest, replacing it with a 350-unit continuing care community and all the other necessary buildings and roads and parking lots that go with it. While marketed as a luxury retirement community, its cost to the environment is severe.

Among the irreversible damages from this project would be the removal of 64 significant trees, including several species of native oaks vital to the health of the ecosystem. A concentration of this many large oaks produces millions of acorns every year, a food source for many animals.

The key question from many of this project's opponents is this: What is the point of designating a forest, or any other tract of natural land, as a conservation priority if that designation is clearly temporary — easily undone with a "variance" approved by a city council? Another common question: Have alternative approaches been considered for this development? Could the developer use more non-forested portions of the property, preserving the priority forest and minimizing ecological harm?

Local residents and citizen groups, including my organization, the Crab Creek Conservancy, have fought tirelessly to halt this development. Appeals have highlighted procedural and legal errors, including the questionable approval of variances reversing the protection of priority forests. Despite setbacks in court, community advocates continue to challenge the decisions, emphasizing the need to prioritize ecological integrity over short-term development gains.

The fate of Crystal Spring Forest is not just a local issue; it is emblematic of the larger struggle to balance development with environmental stewardship in the Chesapeake region. Protecting this forest is a tangible step toward healing the Bay, ensuring clean water and safeguarding biodiversity for future generations.

More than just a patch of trees, Crystal Spring it is a lifeline for Crab Creek, a safeguard for the Bay and a testament to the power of community action. Let's stand together to ensure this irreplaceable resource is protected for generations to come. ■

Forrest Mays is president of the Crab Creek Conservancy (conservecrabcreek.org) in Annapolis.

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

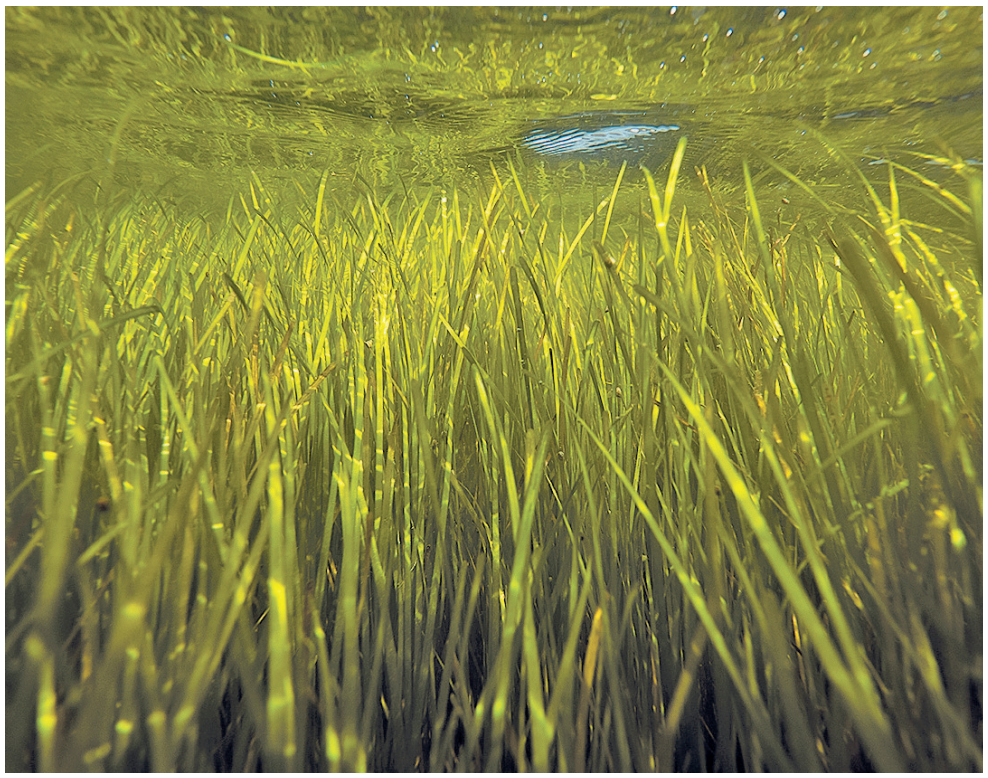
Letters to the editor should be 300 words or less. Submit your letter online at *bayjournal.com* by following a link in the Opinion section, or use the contact information below.

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

Contact T. F. Sayles at 410-746-0519, *tsayles@bayjournal.com* or P.O. Box 300, Mayo, MD 21106. Please include your phone number and/or email address.

Help for Chesapeake eelgrass: Will it come from the south?

By Tom Horton



Eelgrass provides important habitat for crabs and other aquatic life in the Chesapeake Bay, but its acreage has declined from heat stress. (Dave Harp)

When I look to add another shrub or tree to the backyard I'm turning from lawn to forest, I'm careful to select for heat resistance, anticipating warmer years to come, driven by climate change.

And thanks to generations of breeding and selection in the commercial plant world, it's pretty easy.

And I've often wondered whether science could do the same tricks with submerged aquatic vegetation, or SAV, of which Chesapeake Bay has more than a dozen varieties.

It'd be a real boost for the Bay, as one of its premier SAV species, eelgrass (*Zostera marina*), is in steep, long-term decline, and a major reason is that the water here is getting too warm for it.

I grew up taking eelgrass for granted, even cussing it when the thick beds of Zostera carpeted the Honga River of my youth in the 1950s, often fouling the propeller blades of my outboard motor.

It was thick enough to hide a very nice outboard that jumped off the transom of my skiff. My fault, really, because I hadn't mounted it properly. I searched for the motor for days, but never found it.

My dad (still sorry about that outboard, Dad) taught me that to catch rockfish, you'd look for a relatively rare bare spot and cast there. Fish would burst from the SAV and take the bait.

Within a couple decades the reverse became the norm: You'd look until you found a patch of underwater grass on the barren bottom and cast near it.

Forty years of Bay restoration effort has brought back the estuary's SAV acreage, of all species, to more than double the nadir of around 40,000 acres in the 1980s, to 90,000-100,000 acres nowadays, still far from the restoration goal of 185,000 acres.

But within that overall comeback is a more complicated story. Eelgrass, which was once an estimated 40% of total SAV, extending from Virginia nearly to the Bay Bridge, is now only about 20% of total acreage. Attempts to restore it by planting seeds or shoots from existing beds haven't been successful and have mostly ceased.

Worse, the remaining eelgrass is shifting from being a perennial plant, coming back from its roots every summer, to being more of an annual that comes back from its seeds, apparently a response to heat stress.

Because the seed only persists for a year or so, a couple of back-to-back bad years for reproduction could wipe out eelgrass permanently.

The widgeon grass (*Ruppia maritima*) that has largely filled in the gaps left by eelgrass is far better than barren bottom, but it's also a little like replacing a mature forest with shrubby vegetation.

Eelgrass, which tended to persist year-round, had substantially higher ecological values than widgeon, which dies in winter and is altogether quirkier, coming and going with even modest annual shifts in water quality.

Hope for eelgrass, for the Chesapeake, may lie just south in the coastal waters of North Carolina, which harbor the southern-most meadows of Zostera (whose ideal habitat is in colder waters extending up into Canada).

Could the Carolina eelgrass have evolved to be more heat tolerant, and could it be used to restock the Chesapeake?

To find out, researcher Erin Shields of the Virginia Institute of Marine Science (VIMS) teamed up with colleagues from the University of North Carolina at Wil-mington. On small experimental plots, they planted North Carolina Zostera seed around the York River and sowed Chesapeake seed in the warmer waters of North Carolina.

Seed in all test plots has successfully germinated. If in the coming year or so the North Carolina seed flourishes in the Chesapeake (and the Chesapeake seed does not in warmer Carolina waters), that will indicate heat resilience in the more southern eelgrass.

The scientists are also exploring the genetics of Chesapeake and North Carolina Zostera, which appear to differ significant-ly. The hope, Shields says, is to see if they can isolate specific genes for heat resilience.

Jessie Jarvis, Shields' colleague at UNC Wilmington, says Zostera in North Carolina has been showing signs of heat stress in the last decade but so far has been bouncing back to its normal acreage.

I asked the scientists why they didn't just transplant mature eelgrass between the two states. They said that literally moving species around like that would encounter daunting regulatory issues meant to stop the spread of invasives. Working with seed largely avoids that.

Shields and Jarvis emphasized that their work is just beginning. In the future are larger-scale experiments and perhaps gene editing of Zostera.

And funding for SAV research is always a problem.

Jarvis would like to involve all Zostera-growing coastal states from the Mid-Atlantic through New England — part of an even bigger picture known as "assistive migration."

It's already underway with species from corals to trees, as humans intervene to move southern-adapted species north in response to our warming climate.

SAV research, Baywide and worldwide, is in my opinion an area we need to grow. Of the four major habitats of coastal edges (corals, mangroves, saltmarshes and SAV) underwater grasses like Zostera have always been the most underappreciated, despite punching way above their weight, per acre, in seques-tering carbon, reducing pollution and providing habitat value.

If we someday repopulate the Bay with eelgrass — "ole black bladed grass," the Smith Islanders call it — I promise not to ever cuss it again. ■

Decked out for the holidays, the replica Choptank River Lighthouse in Cambridge, MD, is enveloped in fog on an unusually warm January day. (Dave Harp)

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Ice builds up along the shore at the mouth of Maryland's South River (Michele Danoff)

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BULLETIN BOARD

BULLETIN BOARD GETS NEW ADDRESS

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

EVENTS / PROGRAMS

WATERSHEDWIDE

What is next for the Chesapeake Bay
5:30–6:45 pm, Feb. 6. Chesapeake Bay Maritime Museum in Cambridge, MD, and virtually. The Chesapeake Bay Watershed Agreement established outcomes for the restoration of the Bay and its watershed. Leaders from the Chesapeake Bay Program, EPA and Chesapeake Bay Commission talk about the future of the agreement and what is next for conservation efforts. Suggested $8/pp. Registration: cbmm.org/ speaker-series.

Sustaining Humans and Nature Together
6–7 pm, Jan. 29. This Lancaster Conservancy (PA) online presentation will discuss how humans can improve relationships with species to build a planet that supports both people and nature. Presented by Dr. Oswald Schmitz, Yale University Professor of Population and Community Ecology and author of *The New Ecology: Rethinking a Science for the Anthropocene*. Free. Info: lancasterconservancy.org/events.

GreenScapes Symposium
9 am–4 pm, Feb. 14. Brookside Gardens and Montgomery Parks of Maryland present *Practical Tools for Designing Resilient Landscapes*, a live Zoom event. Learn from experts how to create resilient landscapes using native plants and design layouts that manage water runoff, survive droughts and support pollinators and wildlife. $60. Info and registration: search "Greenscapes Symposium."

PENNSYLVANIA

Winter Walk and History Hike
10–11 am and 2:30–3:30 pm, Jan. 25. Canoe Creek State Park, Hollidaysburg. Explore the Lakeside Trail in the morning and/or take a short walk in the afternoon to learn the connection between geology, industry, railroads and daily life. Free. Info: events.dcnr.pa.gov/event/winter-walk.

Appalachian Trail Hike
10 am, Feb. 15. Old Forge Picnic Area, Waynesboro. Join the Sierra Club for a 5-mile strenuous hike from Old Forge Picnic Area to view Chimney Rocks 1000 feet above. Keep in touch w/ leader in case of bad weather and prepare for a substantial climb. Free. but donations welcome. Registration: meetup.com/sierra-club-eastern-panhandle/events.

Discovering Our Spring Ephemeral Wildflowers
6–7 pm, Feb. 19. This Lancaster Conservancy online presentation will explore the world of spring ephemerals, examine their survival and reproductive strategies and provide identification tips. Free. Info: lancasterconservancy.org/events.

VIRGINIA

How to Create a Wildlife Sanctuary
10–11 am, Feb. 5. Bull Run Mountains Conservancy's Headquarters, Broad Run. Leslie Paulson, coordinator for N. Virginia Bird Alliance's "Wildlife Sanctuary" program, will talk about NVBA's wildlife sanctuary certification program and the steps you can take to get your property certified. Free. Light refreshments. Info: leopoldspreserve.com.

Leopold's Preserve Naturalist Walks
10 am–12 pm, Jan. 25: *Geology*: Discuss the geology of the Triassic basin using BRMC's rock collection to learn the basics of field geology.
10 am–12 pm, Feb. 15. *Dendrology*: Learn to identify trees by bark, buds, twig traits. Take a tree core to age a forest stand.
6:00–8:00 p.m, March 5: *Amphibians of Spring*.
Leopolds's Preserve, Broad Run. Free.
Info: leopoldspreserve.com/calendar.

Winter Birding at Powhatan
10–11 am, Feb. 8. Powhatan State Park, Powhatan. Take a ranger-guided walk through meadow and forest ISO local birds and winter migrants. Learn about winter survival tactics and identification by appearance, song, behavior, environmental context. One mile at easy pace, mostly flat terrain. Bring binoculars or some can be borrowed. Standard parking/admission fee; children welcome. Info: powhatan@dcr.virginia.gov or 804-598-7148.

Sky Meadows Winter Hike
10 am–12 pm, Jan. 18. Sky Meadows State Park, Paris. Join the Sierra Club for a 3-mile moderate hike on the South Ridge Trail Loop. Be prepared for 833-feet elevation gain and a mix of woodland and open meadows. Well-behaved dogs on leashes welcome. $10/vehicle parking/admission fee. Free, but donations welcome. Registration: meetup.com/sierra-club-eastern-panhandle/events.

Leopold's Preserve Homeschool Programs
10 am–noon: Jan. 14, age 13+; Jan. 22, all ages; Feb. 11, age 13+; Feb. 19, all ages. You and your child are invited on an adventurous outing to learn about nature. January theme: *Geology*; February, *Orienteering*. Free. Leopold's Preserve, Broad Run. Info: leopoldspreserve.com/calendar.

Woodcock Watch
5:45–7:00 p.m, March 4. Leopold's Preserve, Broad Run. Watch the evening "Sky Dance" of male woodcocks as they enter the mating season. Bring a folding chair, blanket, binoculars. Free. Info: leopoldspreserve.com/calendar.

Grassland Birds Lecture
10–11 am, March 5. Bull Run Mountains Conservancy's Mountain House Headquarters, Broad Run. "Bringing Back Virginia's Grassland Birds" will be presented by October Greenfield, co-coordinator for the Virginia Grassland Bird Initiative. Many grassland bird species are in severe decline in Virginia, but landowners and farmers can help bring these birds back. Free.
Info: leopoldspreserve.com/calendar.

MARYLAND

I Bird I Vote Conservation Summit
9 am–3 pm, Feb. 1. Chesapeake Bay Foundation, Annapolis. Audubon Mid-Atlantic invites you to this year's I Bird I Vote Conservation Summit for Maryland. Scientists, advocates and officials will highlight efforts to address how climate change and habitat loss effects birds and what can be done for their protection. $30 includes lunch, refreshments and all sessions. Scholarships are available; for more info contact Tess Wilson at tess.wilson@audubon.org. Registration: md.audubon.org/events/i-bird-i-vote-conservation-summit-maryland.

Blackwater Eagle Festival
9 am–4 pm, March 15. Blackwater National Wildlife Refuge, Cambridge. Celebrate birds of prey with live raptor programs, kids' activities, refuge tours, exhibits and more. Don't miss out on this free event for the whole family! Info: 410-228-2677 or fws.gov/refuge/Blackwater.

World Wetlands Day Festival
1–4 pm, Feb. 1. Anita C. Leight Estuary Center, Abingdon. Wetland deli, music, games, scavenger hunt, exhibitors, live animal demonstrations, more. Free; no registration required. All ages, under 18 w/ adult. Info: otterpointcreek.org/event.

Master Gardeners Plant Clinics
10 am–12 pm; March 1, *Seed Swap & Garden Day*; March 15, *Bugs Don't Bug Me*, UM Extension Educator, Beth Hill. Kent County Public Library, Chestertown. Bring your questions about gardening. Info: Paul Rickert at 410-778-1661 or prickert@umd.edu.

Flight of the Timberdoodle
5:15–6:30 pm, Feb. 27 and March 6. Pickering Creek Audubon, Easton. The male woodcock's unusual mating ritual is a sight to behold and will take place in Pickering Creek's grass meadow habitat. Begin with a classroom briefing before going out to listen for owls, frogs, ducks and woodcock's display. $7. Registration: pickeringcreek.org/programs/upcoming-programs.

Submission Guidelines

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

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

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

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

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

Answers to CHESAPEAKE CHALLENGE on page 27

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

BULLETIN BOARD

Quiet Waters Bird Club Walk
8–10:30 am, Jan. 19 and Feb. 16. Quiet Waters Park, Annapolis. Join the Anne Arundel Bird Club on their monthly walk through Quiet Waters on paved paths through mature deciduous forest, wood edges, mowed fields and wetlands. Meet at the parking lot at end of Quiet Waters Park Road past the dog park. Info: jcollatz@aol.com or fqwp.org. Select "Programs and Events/Calendar."

Universal Coprolite Day Celebration
10 am–3 pm, Feb. 19. Calvert Marine Museum, Solomons. Third annual celebration of fossilized poop, aka coprolites. Stations featuring fossilized feces and the stories they tell will be dispersed throughout the museum. The event will also feature a new Scats & Tracks activity. Included with museum admission. Info: 410-326-2042, calvertmarinemuseum.com.

Swain's Lock Field Trip
10 am–12:30 pm, Feb. 5. C&O Canal, Potomac. Nature Forward-guided leisurely-paced walk on the towpath looking and listening for over-wintering birds and wildlife. Practice winter botany skills and enjoy the expansive views along the Potomac River. Flat, but could be muddy or snow-covered. $46. Registration: natureforward.org/program/nature-classes.

Winter School's Out Camp Day
9 am–4 pm, Jan. 24. Pickering Creek Audubon Center, Easton. Students in grades K-7 are invited to spend the day exploring Pickering's ponds, woods and marshes with camp leaders. BYO lunch. $55/child. Registration: pickeringcreek.org/programs/upcoming-programs.

Birding at Chesapeake Bay Environmental Center
9 am–12pm, Jan. 25. Join the Baltimore Bird Club in Grasonville to look for ducks, geese, swans, sparrows, bald eagles, brown-headed nuthatches. Paths are unpaved and level. Info and weather updates: corcoran2921@gmail.com, 667-231-6453 or baltimorebirdclub.org.

Patuxent River Conference
8:30 am–3:30 pm, Feb. 6. Patuxent Research Refuge, Laurel. PAXCON brings together scientists, environmental educators, natural resource managers and anyone passionate about the health and future of the Patuxent River. Interact with presenters, exchange ideas, network. All ages welcome but geared for high school and older. $45, includes refreshments and lunch. Registration required. Info: PAXCON.org.

Patuxent Research Refuge
Patuxent Research Refuge offers free public events and activities on its South Tract in Laurel. No preregistration required except where noted. List special accommodation needs when registering. Registration and info: 301-497-5772 or fws.gov/refuge/patuxent-research/events.
- *Kids' Discovery Center:* 10 am–12 pm (35-minute time slots, on-hour), Wed. through Sat., ages 3-10 w/adult. Crafts, puzzles, games, nature exploration. January: *Raccoons & Skunks*. February: *Groundhogs*. Registration strongly urged.
- *"Wingspan" Game Days:* 10 am–1 pm on Jan. 25, Feb. 14, Feb. 22, Mar. 14, ages 12+. No experience needed. Come play the award-winning board game; learn more about birds. Registration required: sign in at Front Desk or online.
- *Family Fun:* 10 am–4 pm, Wed.-Sat. for drop-in/independent exploration. Staffed explorations: 10 am–1 pm on Jan. 17, Jan. 18, Feb. 14, Feb. 15: *Let it Snow! Winter Weather & the Water Cycle.*
- *Film & Speaker Series:* 5-7 pm: Feb. 7: *A 60-year Perspective on the Life of Rachel Carson*, U.S. Fish & Wildlife historian Mark Madison, Ph.D., presenter. March 7: *Flyways*, a look at migratory birds, all ages.

VOLUNTEER OPPORTUNITIES

WATERSHEDWIDE

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

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

PENNSYLVANIA

Middle Susquehanna volunteers
The Middle Susquehanna Riverkeeper needs volunteers 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:* 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. *Front Desk Greeter:* Ages 18+ can work alone, families can work as a team. *Habitat Action Team:* Volunteers locate, map, monitor, eradicate invasive species; install native plants, monitor hiking trails. Info: NixonCountyPark@YorkCountyPA.gov, 717-428-1961 or supportyourparks.org (select "volunteer").

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/install plants, bridges, signs; campground hosting; interpretation programs, hikes; technical engineering, database assistance; forest fire prevention programs; research projects. Web search "PA DCNR conservation volunteers."

VIRGINIA

Leopold's Preserve Conservation Corps
9 am–12pm every Friday in January. Broad Run. Projects include trail maintenance, habitat restoration, invasive plant management and trash cleanup. Suitable for volunteers aged 13+, minors w/adult. Registration: leopoldspreserve.com/calendar.

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. 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.

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 cleanup kits that can be checked out year-round, then returned after a cleanup. Call your local library for details.

MARYLAND

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

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 C&O volunteer opportunities: canaltrust.org/programs/volunteer-programs.

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 communityevents. Info: Contact page at friendsofeasternneck.org.

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

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 tours, community events. Info: 410-632-0090, fdeuter@lowershorelandtrust.org.

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

National Wildlife Refuge at Patuxent
Call 301-497-5772 during staffed hours (10 am-4 pm, Wed.-Sat.). Opportunities include:
- *Kids' Discovery Center:* Help develop curriculum activities/become a docent. Ask for Barrie; specify "KDC."
- *Friends' Wildlife Images Bookstore & Nature Shop:* Help a few hours a week, half day, all day: 10 am–3:30 pm Wed. through Sat. Run register, assist customers. Ages 18+ (15-17 w/adult). Visit the shop in the National Wildlife Visitor Center; ask for Ann, or email wibookstore@friendsofpatuxent.org.
- *Friends of Patuxent Research Refuge, Inc.:* Volunteer with events, hospitality, public conservation-education programs and "tabling" outreach; help write grant proposals, develop 5ks/fundraisers/other outreach. Info: friendsprr@friendsofpatuxent.org.

Where ‘surf’ meets ‘turf’ — a Chesapeake Bay watershed tale

By Kate Fritz

I’d like to tell you a story of two unexpected conservation allies showing us how two seemingly different worlds can unite for a shared cause: clean water. In the Shenandoah Valley of Virginia, the Alliance for the Chesapeake Bay brought together a waterman and a farmer to share their personal stories and professional passions, while breaking bread together. Theirs is a story of the captivating journey from the inland mountains and headwater streams of the Chesapeake watershed to the wide-open, salty expanse of the Bay itself.

We at the Alliance had the idea to create a short film about how humans, wildlife, land and water are all connected, so we went on a search for folks who know all about it. It led us to Bobby Whitescarver, who we knew through riparian buffer plantings on his farm, and we were then connected with waterman Daniel Knott. They met to discuss common conservation goals from vastly different perspectives, and the resulting film will premiere this March at the Wild & Scenic Film Festival.

The tale weaves together success stories, hope and the experiences of two people who depend on clean rivers and streams. It also shows the undeniable connection between the land and the water of the Bay watershed, and how we and its wildlife count on each other to not only survive but thrive.

Bobby Whitescarver, a Virginia conservationist, educator, farmer and owner of Whitescarver Natural Resources Management LLC, is known to many of us in the Bay restoration world. His enthusiasm for soil health, paired with his passion for Whiskey Creek Farm, which is operated by his incredible wife, Jeanne Hoffman, is contagious. Bobby is on a mission to demonstrate how our lands and communities are connected through water.

Waterman Daniel Knott and his wife Nicole (left) gathered with farmers Jeanne Hoffman and Bobby Whitescarver for conversation and a home-cooked dinner in Virginia’s Shenandoah Valley. (Adam Miller/Alliance for the Chesapeake Bay)

“I think we all want the same thing, we want clean air, clean water. We just have different ways of going about doing it.” – Bobby

Daniel Knott is a Virginia waterman, a retired U.S. Army lieutenant colonel and founder of Knott Alone-Hold Fast, an organization that gets veterans out on the Bay to create purpose and connection. When Daniel retired in 2016, he found his way to the water to heal his emotional wounds and has since committed to sharing his work on the water with other veterans to give them a support network to heal.

“When I was done with the military … I wasn’t necessarily in a good place. I thought to myself where I’ve been the happiest in my life and it was always doing something on the water, and crabbing was near and dear. So, I decided to go from helicopter pilot to crabber.” – Daniel

Bobby Whitescarver, a farmer and conservationist in Virginia, helps prepare a meal to be shared with Virginia waterman Daniel Knott, along with their wives. (Adam Miller/Alliance for the Chesapeake Bay)

The individual journeys of Bobby and Daniel help us understand how they came to their life callings. They both talk about responsibility and stewardship of our lands and waters, and the need for togetherness and inclusion in these efforts. While they started their work for different reasons, they stay in it for similar ones.

“We need to engrain [in people] that ownership of land or stewardship of the land or stewardship of the water … it comes with a great responsibility.” – Bobby

“… as we showcase how something way upstream in the mountains of western Virginia will affect the life down here and how it pollutes the Bay, they might start caring about it and taking their own individual steps.” – Daniel

Bobby and Daniel and their spouses, Jeanne and Nicole, convened in the heart of the Shenandoah Valley and quickly began cooking a meal together. Daniel wrestled the fresh, feisty blue crabs he caught into a steam pot, and together they picked crabs for the main course.

“… good, wholesome food here [upstream] means good, wholesome food in the Bay as whole. We are many miles away from the actual Bay, but we are connected through the water.” – Bobby

At the end of the day Bobby, Jeanne, Daniel and Nicole came together over a shared meal and common goals. They lifted their wine glasses as Bobby offered a toast — “so that we may learn the connection between land and water.”

It leaves us with the reminder that when we set the table and include different perspectives, we can share our stories and realize that we’re all here for the same reasons. When we celebrate the water and the land, the surf and the turf, we find connections no matter where we come from.

Cheers to delicious Chesapeake Bay-grown food, cleaner water and a brighter future. ■

Kate Fritz is CEO of the Alliance for the Chesapeake Bay.

Here comes the snow, and here comes the dark-eyed junco

By Alonso Abugattas

They're called "snowbirds" for a reason — not because they retreat to their Florida condos every winter. (That's a different animal.) For dark-eyed juncos (*Junco hyemalis*), the name comes from the fact that whenever there's snow on the ground, they seem to be everywhere, especially where there are bird feeders. For the most part, that's because the winter diet of *J. hyemalis* is primarily seeds, and when seed sources are buried under snow, they turn to plan B: the feeder.

Juncos are woodland sparrows and are quite variable in appearance, especially in the West and Southwest, where as many as a dozen subspecies, or "races," have been identified. In most of the eastern U.S., the version you'll see at the bird feeder or hopping around on your deck, is the "slate-colored" type, easily identifiable by its two-tone, top-and-bottom color scheme — a variable shade of slate gray on top and an off-white belly. One birder acquaintance of mine describes it as a gray sparrow that appears to have been dipped in white chocolate.

The word "junco" comes from *Juncus*, the largest genus in the rush family of wetland grasses, although the junco is not really a wetland bird. It prefers woodland or edge habitat. After dark-eyed juncos arrive in our neighborhood, though, they go wherever necessary to find food. Project FeederWatch has listed them as the most commonly reported winter bird. They're considered among the most abundant forest birds, with an estimated breeding population of 220 million, according to Partners in Flight. As with nearly all migratory bird species, that is an estimated 30% population decline since the 1960s.

Juncos are commonly found in mixed-species flocks (often accompanying white-throated sparrows and bluebirds in particular) of 10–30 birds. Where the different junco subspecies ranges overlap,

When plants and their seeds are buried under snow, juncos often turn to bird feeders. (Michele Dorsey Walfred/CC BY 2.0)

several types may flock together for the winter. There are definite hierarchical pecking orders to juncos that play out when they're feeding, with those juncos that arrive earlier to a winter territory ranking higher than later arrivals.

A group of sparrows can be referred to as a crew, a flutter, a meiny, a quarrel or a ubiquity — though my favorite, often used specifically for juncos, is a blizzard. Of course, very few seasoned birders use any of these terms, insisting that a flock is simply a flock, species notwithstanding.

The juncos' most distinguishing feature is the flash of white from their tail feathers as they take flight or flit nervously while feeding. The flashing is supposed to serve as both a warning device to fellow juncos and as a distraction to any predators following them. These sparrows are 5.5–6.5 inches in length and have long notched tails.

The normal summer range for our own slate-colored version is across Canada and the northern U.S., though they also occur along higher elevations such as down the Appalachians into Georgia. Some dark-eyed juncos do not migrate at all, including those in Appalachia. These year-round resident birds, like many nonmigratory birds, often have shorter wings than the ones that travel long distances. Among long-distance travelers, males tend to stay farther north, and the same individuals tend to go to the same wintering grounds each year.

Unlike in summer, when their diet is primarily insects, dark-eyed juncos forage on the ground in the winter, surviving mostly on seeds. (Ana & Victor/CC BY-NC 2.0)

A dark-eyed junco perches on a multiflora rose bush. Preferring seeds, it may or may not eat wild fruits. (Tom Murray/CC BY-NC 2.0)

Juncos feed in typical sparrow fashion: hopping along the ground, pecking and scratching for food, with 75% of their year-round diet made up of seeds. They're not too picky about the seed types, eating chickweed, sorrel, buckwheat and lambs-quarters, for instance. At bird feeders, they usually go for the spilled seed on the ground, preferring millet over larger sunflower. In the summer breeding season, by contrast, their diet consists mostly of insects, a dietary switch not uncommon among migratory songbirds and, when regurgitated, an important source of nutrition for nestlings.

Once they're back at their breeding grounds, often starting their migratory flights in March or April, males get very territorial in defending their woodland homes. Females pair up with them, favoring the fellows with the flashiest white tails. Nest sites, chosen by the female, are normally built on the ground — well concealed depressions with overhead cover, often along a slope or under an uprooted tree.

Juncos may also occasionally nest under buildings, along window ledges or even in hanging flowerpots. The nests are quite variable in design, taking 3–7 days to build and often using grasses, pine needles, twigs, leaves, moss, ferns and rootlets.

The female incubates the eggs, though both parents feed the high-protein insect diet to their chicks. There are ordinarily one or two broods per season and occasionally three. The number of broods can be a function of elevation — higher altitudes generally mean a single brood. The pair will produce three to six whitish eggs, and the number of eggs is generally lower with later nesting attempts. The eggs hatch in just less than 2 weeks. The young develop quickly, though they do not usually fledge and leave the nest until 9–13 days later. Junco nests are not commonly targeted by parasitic nesters like brown-headed cowbirds. Barring disease or predation, they may live 3–6 years. The record, though, is held by a junco whose leg band showed it to be more than 11 years old when it was captured and released in 2001. ■

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 season of the loon: If it's winter, they will come

By Kathy Reshetiloff

There's no red throat on the red-throated loon when it's overwintering in the Bay region. The red is part of the more colorful plumage it wears in its subarctic breeding grounds in summer. (Fishhawk/CC BY 2.0)

A common loon in winter, also lacking its distinctive breeding colors when it visits the Bay region in winter. (Nicole Beaulac/ CC BY-NC-ND 2.0)

Every fall thousands of ducks, swans and geese leave northern breeding grounds and fly south for the winter, seeking out the open-water bays, rivers and wetlands for habitat and food critical to their survival. Roughly one-third of the waterfowl that winter along the Atlantic Coast do so in the Chesapeake Bay region.

But there is another, sometimes overlooked northern visitor that overwinters here too — the loon.

Loons are submarines of the bird world. Webbed feet gracefully propel this bird underwater, giving the impression of submerged flight, as the loon stalks its prey. Diving, sometimes as deep as 200 feet, the loon snatches a fish in its dagger-like bill and returns to the surface to eat.

With sleek bodies, thick necks and short tails, loons float low in the water and can easily ride out fierce storms. Feet located toward the rear of the body make loons agile in water but awkward on land. They only come ashore to breed or when injured.

Though secretive and wary of humans, the loon's high-pitched wails, wild laughter and mournful yodels pierce the air, revealing the bird's position. Loons breed in freshwater ponds and slow rivers of the arctic and subarctic reaches of North America. Near the shoreline, loons fashion their nests from aquatic vegetation.

When people think of loons, it is the common loon (*Gavia immer*) that first comes to mind. During its summer breeding season far north of us — ranging from the northernmost edges of the U.S. and into Canada as far as the Northwest Territories — the common loon is easily identified by the black and white collar around its neck, black head and bill, and black and white spotted back.

The other loon we might see this time of year on the Chesapeake's edge and along the Atlantic coast is the considerably smaller red-throated loon (*Gavia stellata*). As with the common loon, its sportiest plumage comes in summertime — dove-gray head, white cheeks, red throat patch and black and white speckled back. Distinctive black and white stripes run up the back of its neck.

Unlike the considerably smaller red-throated loon, the common loon, shown here, must briefly "run" across the water's surface to get airborne. (Nicole Beaulac/CC BY-NC-ND 2.0)

In winter, when we're more likely to see loons, the plumage of both species is comparatively bland. The common loon changes to a gray head, neck and back with white cheeks, throat and breast. The red-throated loon, notably, loses its distinctive red throat and is essentially brownish gray on top and white below. In both species, males are generally larger than females, though there is little difference in plumage between the sexes, regardless of age or season.

You are more likely to see a common loon than a red-throat because the latter prefers deeper water and stays farther away from shore. The red-throat can lift off directly from the water, springing into the air with one strong flap of its wings. The bulkier common loon has to work a bit harder, needing to run across the surface briefly before getting airborne.

Both species are daytime feeders, subsisting primarily on fish. Common loons hunt individually in established territories, though at night they often gather in groups, known as rafts. The more sociable red-throated loons often feed in groups during winter.

By December, most red-throated loons in the Chesapeake region are dispersed from the Potomac River south to the mouth of the Bay. By late autumn, most common loons are found along the shoreline from the Mid Bay south to Virginia.

Because of their dependence on water, loons must migrate to ice-free areas during fall and winter. In flight, a loon's neck curves slightly downward, giving it a hunchbacked appearance. Loons are swift and powerful fliers, usually migrating singly or in small groups.

Loons begin their southern migration before nearby waters freeze, sometimes as early as August. On the East Coast, loons winter from New England to the Gulf Coast, including around the Chesapeake Bay. From mid to late October, loons begin arriving in the Mid-Atlantic region. Duller winter colors of both the common and red-throated loons provide camouflage as they brave the frigid waters of the Bay.

If you are out on the Chesapeake or trekking along the shoreline this winter, look out across the water. You may catch a glimpse of a loon riding the crest of a rough wave, then disappearing into the trough. Be patient. The loon will reappear on the next wave.

Listen carefully, and you may hear its call. The mournful wail gives the impression of homesickness. Perhaps the loon is lamenting its temporary exile from the placid ponds of the northern forests. By March, the instinct to breed will urge loons to fly back north to familiar nesting areas. ■

Kathy Reshetiloff is with the U.S. Fish and Wildlife Service's Chesapeake Field Office in Annapolis.