NEIWPCC

Fall 2023

Interstate Waters

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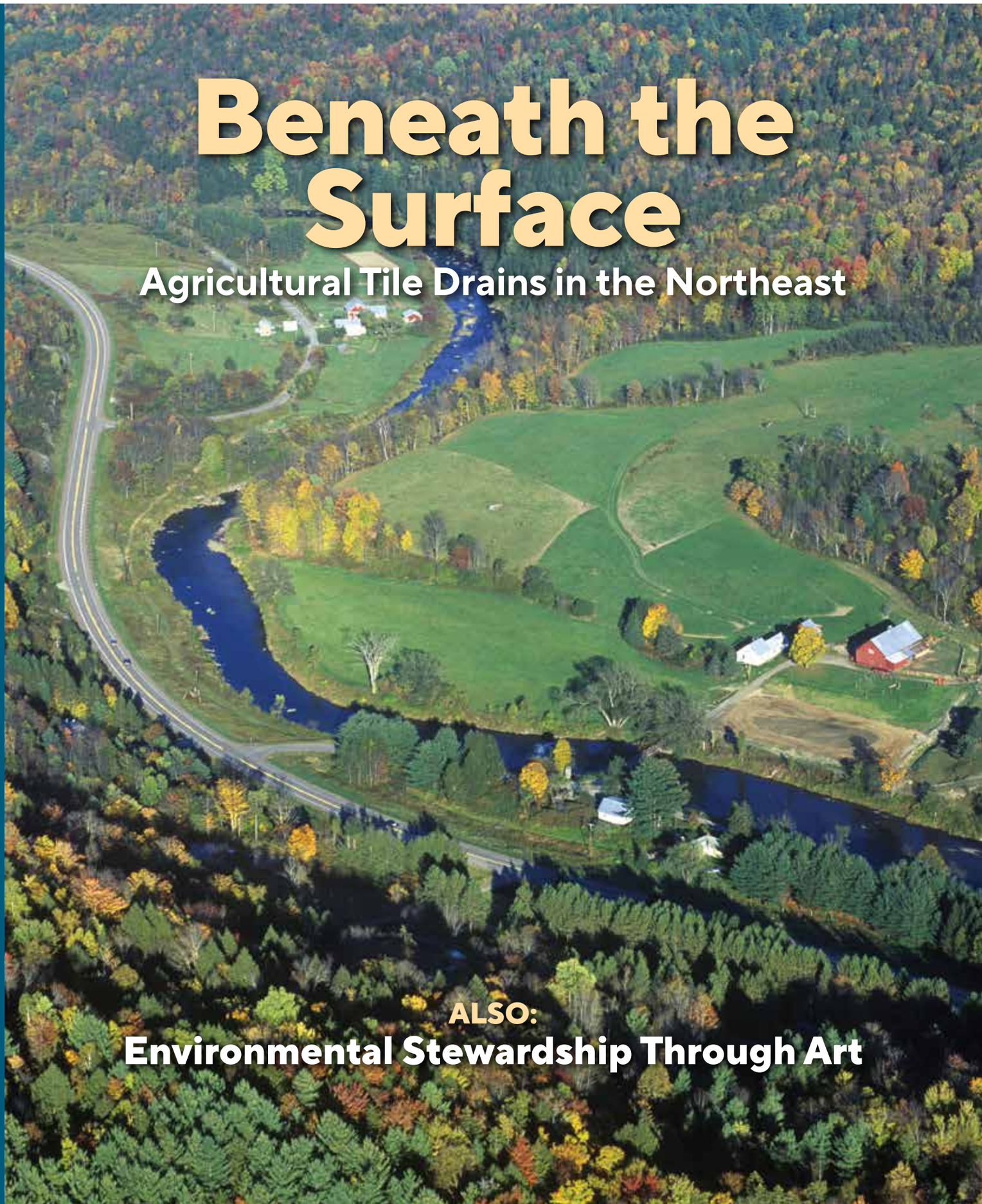

Beneath the Surface

Agricultural Tile Drains in the Northeast

ALSO:

Environmental Stewardship Through Art

Interstate Waters

Volume 7, Number 2, Fall 2023

Editor: Amy Magin
Contributing Editors: Cheyenne Ellis, Beth MacBlane
Contributors: James Brangan, Richard Friesner, Matthew Vaughan
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NEIWPCC
650 Suffolk Street, Suite 410, Lowell, MA 01854
Tel: 978-323-7929
www.neiwpcc.org

FROM THE EXECUTIVE DIRECTOR

Water, Water, Everywhere!

For us who work in *Water*, there is often a conversation had based on drought or flooding conditions. Flooding or drought. Back and forth – back and forth. Obviously, both are difficult to deal with and predict. I had taken to not speaking the words "climate change," rather focusing on "extreme weather events"; words people can agree to. But this summer's extreme weather has caused some of the worst flooding the Northeast has seen since Tropical Storm Irene in 2011.

Businesses are shut down, roads are closed, and many wastewater treatment plants were offline. More honest conversations about the human impact on our climate must be had and soon.

In April 2023, EPA announced new strict emissions limits to slow climate change impacts. According to The Associated Press:

- "EPA says the industry could meet the limits if 67% of new-vehicle sales are electric by 2032."
- "Scientists say July will end up being the hottest month on record and likely the warmest human civilization has seen."
- "As the biggest source of pollution in the U.S., transportation generates roughly 29% of heat trapping greenhouse gas emissions."

Really, nothing about this is novel news. Life experiences for many of us have done little to disabuse the notion that we are safe from climate change.

So, as NEIWPCC enters its 76th year, we will continue to work to engage and convene water quality professionals and other stakeholders across New England and New York to collaborate on clean water and environmental science challenges across shared regions, ecosystems, and areas of expertise; including extreme weather events.

Best regards,

Susan J. Sullivan
NEIWPCC Executive Director

Interstate Waters

Volume 7, Number 2

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Cover: Aerial view of farm near Stowe, Vermont

Rhode Island Department of Environmental Management

Water Chestnut Management

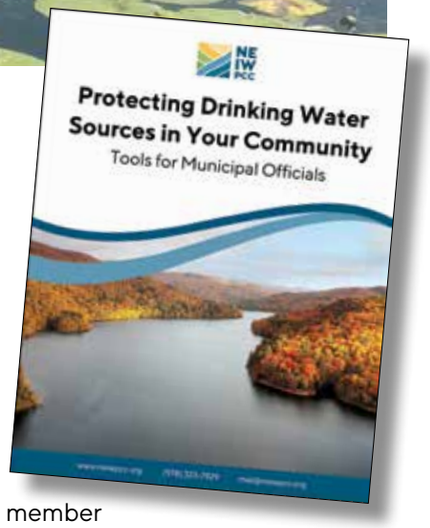
In June, several southeastern New England environmental organizations banded together in recruiting volunteers to help remove water chestnut from local ponds in the Blackstone and Ten Mile River watersheds. The project was part of a $262,077 grant awarded to NEIWPCC by the Southeast New England Program for habitat restoration efforts in these two interstate watersheds located in Massachusetts and Rhode Island.

Water chestnut (*Trapa natans*) is an aquatic invasive plant that overtakes slow-moving waterways, lakes and ponds and negatively impacts freshwater ecosystems. The plant's foliage grows quickly and forms dense mats of vegetation that can impede recreational activities and cause significant economic and environmental harm. Left uncontrolled, water chestnut outcompetes native aquatic plants, jeopardizes biodiversity, alters fish and wildlife habitat, and disrupts the ecological balance of aquatic ecosystems.

The volunteers set off in kayaks and canoes to hand-pull the weed from the water, and then carried their filled buckets back to shore. Motorboat owners also assisted, by ferrying the muddy plants to and from open water to land. And, local landowners contributed to the efforts by offering open ground space for the removed water chestnut to decay.

The project is empowering local communities, including environmental justice areas, to tackle European water chestnut in urban ponds in other ways as well, include large-scale herbicide treatment; and is providing technical assistance and training to local municipalities about invasive species management.

Toolkit Offers Resources for Protecting Source Water in Communities



NEIWPCC has issued an updated source water protection toolkit, which is now available on NEIWPCC's website for use by municipal and regulatory officials throughout the seven member states. The document provides information and resources to stakeholders on how they can better protect drinking water sources in their communities. An accompanying outreach guide is also available. The toolkit includes information on issues such as climate change, hazardous materials and contaminants of emerging concern, septic systems and stormwater.

Learn About NEIWPCC Staff's Environmental Work in New York in New Video Series

NEIWPCC launched a new video series spotlighting staff from across the Northeast and the work they do to advance clean water. In each short clip, viewers can explore what it is like to work in both the laboratory and the field throughout NEIWPCC. The series leads off with NEIWPCC's Environmental Analyst Sarah Fernald, who is a research coordinator with the Hudson River National Estuarine Research Reserve, in the New

York State Department of Environmental Conservation.

Fernald oversees the delivery of system-wide programs at the reserve and conducts research and monitoring on topics such as submerged aquatic vegetation, tidal wetlands and shoreline habitat mapping. She also oversees the management of the Norrie Point Environmental Center Laboratory and Research Reserve field equipment.

The videos can be found on NEIWPCC's website, YouTube and other social media channels.

Program Rewards Long Island Homeowners

In an effort to reduce stormwater runoff — one of the leading causes of nitrogen pollution in waterways — a new program is providing homeowners on Long Island with up to $500 to offset the expense of installing green infrastructure on their properties. The "Long Island Garden Rewards Program" is offering the grants to help cover the cost and maintenance of runoff mitigation projects, including rain barrels, native plantings, and rain gardens.

Rain barrels reduce stormwater runoff by collecting and storing rainwater for homeowners to use in their yards and gardens, helping to reduce water consumption. Native plants — which are heartier and more resilient to local climate conditions — reduce water, fertilizer and pesticide usage, and promote biodiversity. Rain gardens collect rainwater from roofs, driveways and other surfaces and allow it to soak into the ground. The gardens filter stormwater before it reaches local waterways, thereby mitigating flooding caused by pavement.

NEIWPCC, in partnership with the Long Island Regional Planning Council and the New York State Department of Environmental Conservation, introduced the program, encouraging homeowners to become a part of the solution in protecting groundwater.

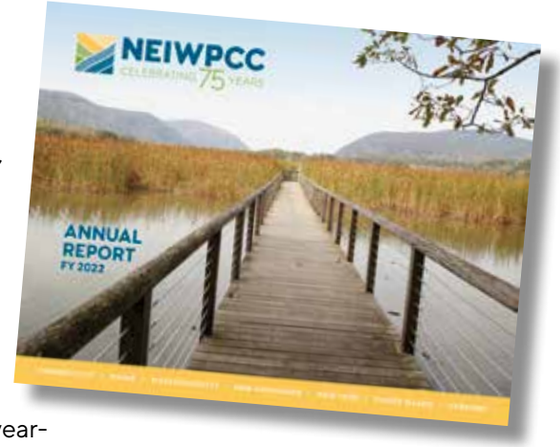
LUSTLine Focuses on Underground Storage Tanks Challenges

In the latest issue of LUSTLine, the national publication for the underground storage tanks (USTs) industry, the cover story tells the "Tale of the Terrifying Tank," about a leaking underground storage tank (LUST) on a small tribal nation on the Kansas-Nebraska border. The article describes how the leak was identified and the procedures that followed to rectify the situation.

In another article, Mark Barolo, acting director of the Environmental Protection Agency's (EPA) Office of Underground Storage Tanks, writes about ongoing efforts to incorporate environmental justice into the tanks program. Barolo discusses the EPA-developed program EJScreen, which is a tool that helps states identify priority areas of concern for environmental justice work. Additional articles focus on LUST cleanup site programs, the impacts of flooding on USTs, an Interstate Technology and Regulatory Council workshop, and environmental, social and governance reporting. LUSTLine can be viewed on NEIWPCC's website.

2022 Annual Report Recaps Clean Water Progress

NEIWPCC's annual report for fiscal year 2022 is now available online and in print. The publication presents a synopsis of NEIWPCC's continued commitment to helping the Northeast preserve and advance clean water by supporting program partners and state environmental programs. This includes numerous conferences NEIWPCC hosted, such as the Northeast Aquatic Biologists, the 32nd Annual Nonpoint Source, the National State Revolving Fund Workshop and the biannual National Tanks.



The report also presents information on the quality management program activities, communications and outreach efforts, end-of-year data from the wastewater training program, financial statements, and NEIWPCC's year-long celebration of its 75th anniversary and the 50th anniversary of the Clean Water Act. In commemoration of those milestones, NEIWPCC produced a variety of multimedia content highlighting water quality achievements and successes throughout the past seven decades.

Annual Nonpoint Source Conference Focuses on Environmental Justice

In April, the 33rd Annual Nonpoint Source (NPS) Conference was held in Saratoga Springs, New York, drawing more than 120 attendees from across the country. The conference focused on NPS pollution and its effects on the environment, with an overarching theme of "Environmental Justice, Equity, and Climate Change."

The event's speakers emphasized the importance of collaboration and communication among stakeholders to work together to achieve common goals of water quality. Experts presented on topics such as harmful algal blooms, dam removal, and nature-based solutions. The sessions provided a forum for exchanging ideas and exploring innovative solutions for protecting water resources, vulnerable communities and promoting sustainable development.

One of the key messages conveyed throughout the conference was the importance of incorporating environmental justice and equity in NPS pollution management. Several speakers drew attention to the problem of how this pollution disproportionately affects low-income and minority communities, and that addressing this inequity requires active engagement with these communities to ensure their voices are heard and their needs are met.

Maine Commissioner Shares Wastewater Career Journey

Stacy Thompson, deputy director of the Saco (Maine) Water Resource Recovery Department, shares how she unexpectedly entered the clean water industry and what she loves about her career in a new video featured on NEIWPCC's website and YouTube channel. Thompson, who is also a NEIWPCC commissioner, began her career working in the facility's laboratory, advancing to lead operator and eventually landing her current position as deputy director.

For more information about these stories, visit NEIWPCC's website at www.neiwpcc.org to view the "News" page. Sign up for NEIWPCC's monthly e-newsletter, Streamlined, at the bottom of the homepage.

Clean Water Pod Wraps With a View to the Future

The first season of Clean Water Pod podcast explored the challenges and successes of restoring and protecting water quality under the Clean Water Act (CWA). Hosted by Jeff Berckes, digital equity organizer for the state of Iowa, the concluding episodes of the series continued to feature conversations with environmental professionals from across the country, offering a variety of perspectives and stories (see Interstate Waters, Spring 2023, for a summary of the first four episodes).

Episode five focused on Total Maximum Daily Loads (TMDLs). Part equation and part plan, a TMDL defines the maximum amount of a specific pollutant allowed in a waterbody for it to meet designated water quality standards. It serves as a watershed-level planning tool for restoring water quality. The Clean Water Act Section 303(d) requires all states, territories, and tribes to identify waterbodies that do not meet water quality standards and develop TMDLs for them, which are approved by the EPA.

Berckes was joined by Traci Iott and Ron Steg, who shared their experiences working on TMDLs in coastal New England and the Rocky Mountain region. Iott is the supervising environmental analyst with the Water Quality Group at the Connecticut Department of Energy and Environmental Protection (CT DEEP). Steg is the TMDL and assessment program manager for the Wyoming Department of Environmental Quality. Their conversation covered the role of assessment and monitoring, water quality models and innovative tools, and collaboration in TMDL development.

"As we move forward into the next 50 years of the 303(d) program," said Iott, "we need to consider new tools and use science-based decision making to approach challenging water quality issues – whether it's nutrients or environmental justice – and be able to communicate and analyze these issues on a large scale."

In the sixth episode, Berckes explored the CWA's National Pollutant Discharge Elimination System (NPDES) permit program with guests Jeff Poupart, section chief of Water Quality Permitting with the North Carolina Department of Environmental Quality; and Joe Haberek, administrator of Surface Water Protection in the Rhode Island Department of Environmental Management's Office of Water Resources.

The trio spoke about levels of treatment for point source discharges and NPDES permits; and shared accomplishments within their states, including reopening areas to shellfishing in Rhode Island for the first time in more than 70 years, removing two major rivers from the impaired waters list, and successfully permitting coal ash leachate.

Episode seven explored the 319 Grant Program, established by the 1987 amendments to the Clean Water Act to support state, territory and tribal nonpoint source implementation projects. The podcast featured guests Steve Konrady, western Iowa basin coordinator for the Iowa Department of Natural Resources Water Quality Bureau; and Michaela Lambert, nonpoint source and basin team section supervisor with the Kentucky Division of Water. They discussed implementing nonpoint source funding in their respective states, and working with communities to build support for water quality improvement projects.

"Citizen science is a valuable education and outreach tool," said Konrady. "When people get involved in sampling their local waterbody, they tend to be more informed about water quality issues and more passionate for cleaning up their watersheds and waterways."

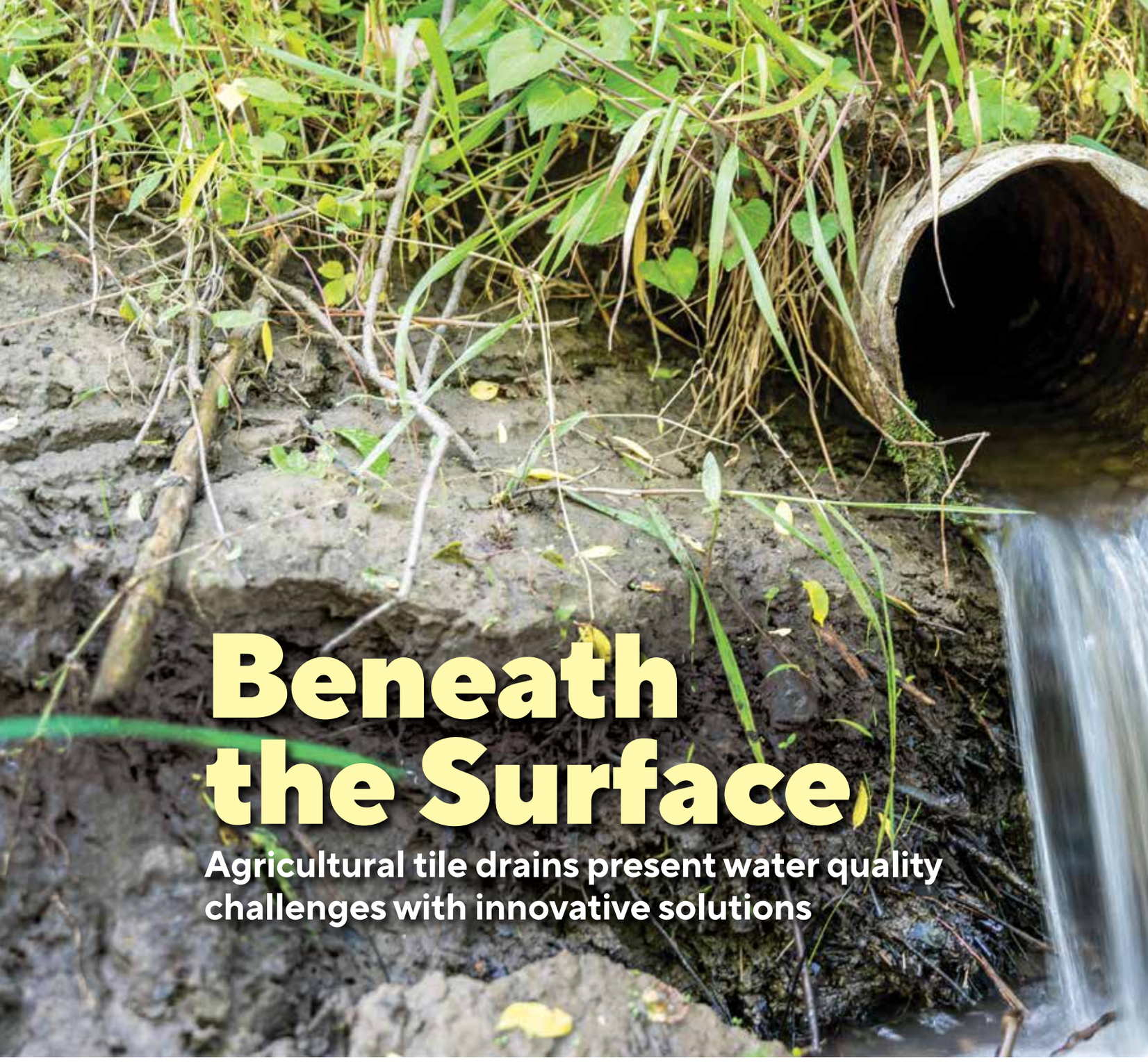
Lambert added, "We've worked to develop strong partnerships that have helped us to leverage funds and efforts. Partnering with other organizations that are environmentally oriented like watershed groups and organizations, universities, and other government entities have helped us to pursue success."

The season's final episode looked to the future. Guest Benita Best-Wong, deputy assistant administrator for the Office of Water at the U.S. Environmental Protection Agency (EPA) acknowledged the successes of the Clean Water Act but noted that there is still work to be done to clean up the nation's waterways. "The biggest challenge we face is undoubtedly our ability to impact nonpoint source pollution," she said. "It's hard to regulate discharges from diffuse sources."

The episode also featured comments from previous guests on challenges facing the next 50 years of the CWA. Common themes emerged, including climate change, PFAS and environmental justice.

"We need to make more progress on ensuring that we're providing clean water for all," said Best-Wong, "regardless of a person's zip code, their skin color, or the amount of money that they have in their pockets. I'm really pleased with the work that we're doing at the agency [EPA] to make our resources and grants more accessible to low-income communities, and the work that we're doing to establish technical assistance programs."

The Clean Water Pod is funded by a grant through the U.S. EPA and produced by Flip the Field and NEIWPCC. It is available on most podcast platforms, including Apple, Spotify and Google.



Beneath the Surface

Agricultural tile drains present water quality challenges with innovative solutions

By Matthew C. H. Vaughan

In forested watersheds, we are accustomed to seeing tranquil headwater streams and cascading rivers flow through the trees. In cities, gutters and storm drains replace these natural features to move water through the urban environment. For agricultural landscape, however, hidden "tile drains" make up water conveyance systems that are often unknown or poorly understood.

Tile drains are pipes that run under the surface of farm fields to move water away from the crop root zone and redirect it to a ditch or waterway. Where natural drainage is poor, these systems are considered critical by farmers for crop yields and management. However, their use creates challenges that demand innovative solutions to mitigate impacts on water quality.

Agricultural tile drainage is not new; the term "tile drain" comes from the early use of ceramic tiles for agricultural drainage by ancient Romans. Today, perforated plastic pipes are typically installed at 2-4 feet below the soil surface, draining excess water from large areas of land that would naturally be too wet to effectively grow crops, creating more arable land. Tile drainage is widely used in the Northeast United States and around the country. By about 1970, these systems drained roughly half of the wetlands in the U.S. In the Lake Champlain Basin, there are some agricultural subwatersheds that are estimated to be 70% tile-drained.

For a farmer, tile drains have several benefits, including

Matthew C. H. Vaughan, Ph.D., is a NEIWPCC environmental analyst, and chief scientist at the Lake Champlain Basin Program.

increased crop yields and improved access to fields during wet conditions. Because tile drains reduce surface water runoff and erosion and can reduce phosphorus loss in some cases, their use was once considered to be a best management practice to benefit water quality. More recently, studies have shown that in some cases tile drains can increase the total amount of water and nutrient runoff from a field, especially when cracks in dry soils create pathways for water, sediment, and nutrients to travel through the field to tile drains.

Recent water quality challenges in Lake Erie became a warning sign for the potential impacts of tile drains and how they can combine with other watershed pressures. Actions spurred by the Clean Water Act since the 1960s had successfully lowered total phosphorus inputs to Lake Erie by about 20,000 metric tons annually by the 1990s. Although total phosphorus inputs have remained relatively stable since then, dissolved phosphorus inputs have increased, in a change that has been called the "re-eutrophication" of Lake Erie. In 2014, cyanobacteria blooms driven by these changing phosphorus inputs caused water service interruption for 400,000 Ohio residents. Along with several factors such as climate change, farm management changes, and invasive species, tile drains have been identified as a potential major contributor to increased dissolved phosphorus in western Lake Erie.

The Lake Champlain Basin Program (LCBP) and local partners began to focus on tile drains in 2015, when the Vermont state legislature passed a law to require agricultural regulations to be updated and include requirements to reduce nutrient loss from tile-drained fields. The law also formed the Tile Drain Advisory Group, which includes farmers, tile drain installers, extension workers, agronomists, state agencies, LCBP, and other water quality experts to tackle this issue in the Lake Champlain Basin. The LCBP worked with these partners to better understand this issue and develop management strategies.

We began our work by collecting existing knowledge about tile drains and their influence on hydrology and nutrient transport. LCBP supported a comprehensive literature review that compiled relevant tile drainage research from other parts of the country. This science had a direct impact: after submission to the Vermont state legislature, the legislature rapidly adopted Required Agricultural Practices that all farms

Stone Environmental

Tile drain networks remove water from below farm fields. This monitoring system intercepts the tile drain to collect water quality samples before it discharges to a ditch. Data from 17 monitoring stations like this one have informed impacts of tile drain systems on water quality in the Lake Champlain Basin.

must follow when installing or maintaining tile drainage.

In addition to collecting knowledge from other regions, we knew that collecting local data on tile drain discharge would be critical to understand their impact in the Lake Champlain Basin. Since 2017, LCBP has supported water quality monitoring at 17 tile drain sites in regions with varying agricultural practices and soil types. Among several important findings, this work has shown us that tile drain discharge contributes about a quarter of the phosphorus load to Jewett Brook, the tributary to Lake Champlain with the highest phosphorus concentrations. Following the conclusion of these monitoring studies, LCBP now funds two separate research farms (one in New York and one in Vermont) that will use paired watershed experimental designs to better understand the impacts of tile drains and solutions for minimizing their contributions to nutrient pollution.

Although on-the-ground research is critical, the Tile Drain Advisory Group also knew that computational modeling would be a powerful tool to cost-effectively answer questions about which practices would best limit phosphorus loss on tile-drained fields. LCBP supported a study to compare surface and tile drain runoff and phosphorus loading under multiple management scenarios. From this research, we gained evidence for the benefit of stacked conservation practices in tile-drained fields. For example, although no till or cover cropping practices alone have benefits to reducing phosphorus loss, we found that combining these practices has a greater effect on reducing phosphorus loss than either practice in isolation.

Finally, LCBP supports work to design and test tile drain filters that chemically capture phosphorus at the end of a pipe network before it enters a waterway. The science for this type of phosphorus removal is well understood; the remaining challenge is to develop systems that will be effective in the field, low-maintenance and low-cost. LCBP has funded two pilot studies which achieved promising results, with an 80% reduction of dissolved phosphorus concentrations and loads from tile-drained fields. These successes have fueled increased interest and investment; LCBP continues to support tile drain filter applications in critical nutrient source areas and extended our testing of this technology to include a stormwater pond outflow.

Because of their importance for farm viability, tile drains are here to stay. As with other watershed changes and pressures, we need to understand their watershed-scale impacts, design solutions to reduce these impacts, and share our findings with watershed managers and policymakers. Getting the word out about this work was a motivating factor to launch the LCBP Science Blog, which provides easy-to-read summaries of our research findings to partners who can use the knowledge to improve water quality. Shared knowledge, new tools, and science-driven management together create the opportunity to make progress toward our water quality goals.

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The impacts of tile drains demand innovative solutions. The Lake Champlain Basin Program has funded multiple projects to design and test filters that chemically remove dissolved phosphorus from tile drainage water.

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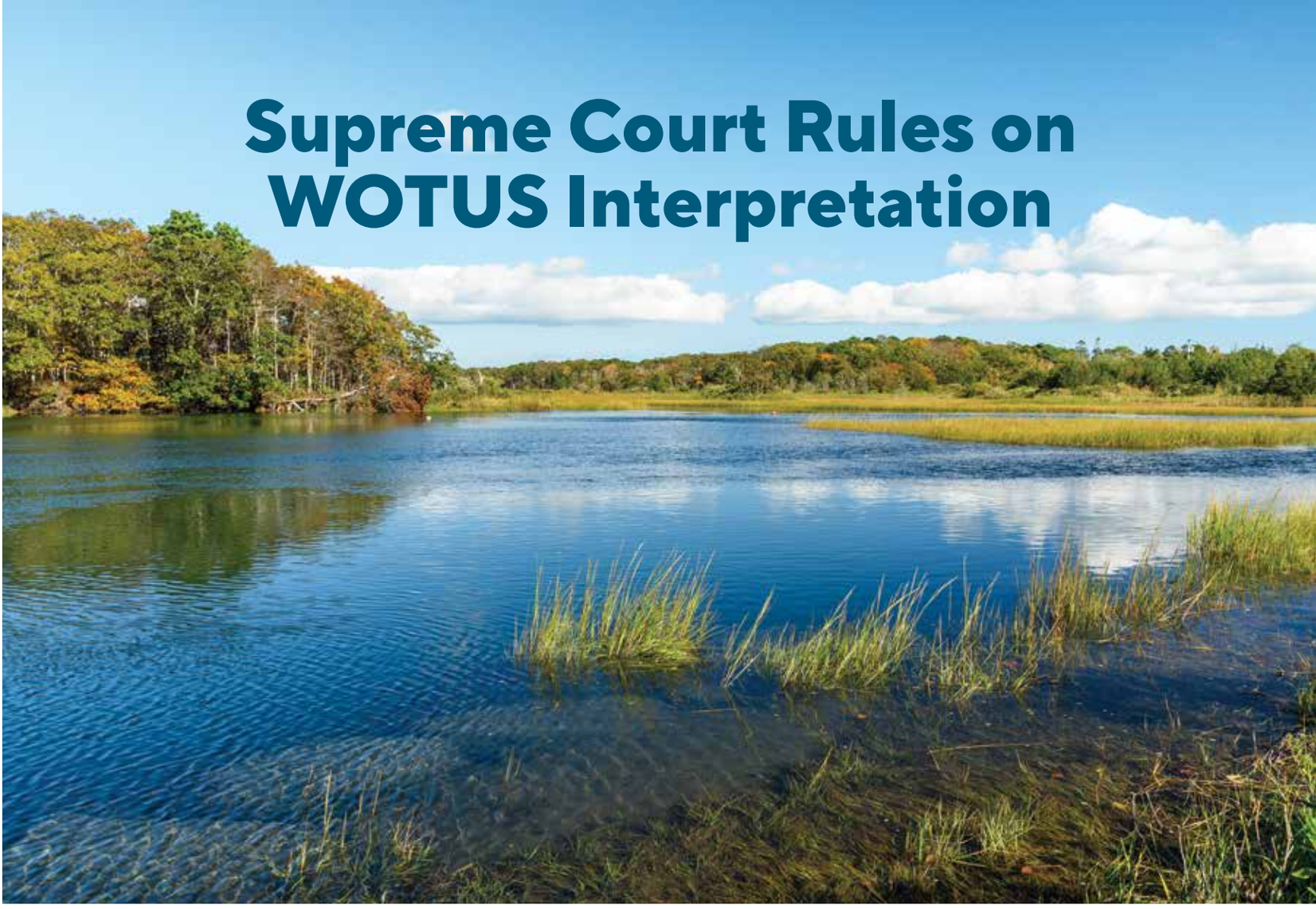
Supreme Court Rules on WOTUS Interpretation



By Richard Friesner

This past May, the Supreme Court of the United States (SCOTUS) released a decision in the case of Sackett v. Environmental Protection Agency, which aimed to better interpret and define "Waters of the United States (WOTUS)," as used in the Clean Water Act.

Justice Samuel Alito, writing for the majority, said that the Environmental Protection Agency (EPA) could not regulate discharges into wetlands that are near bodies of water unless the wetlands have a continuous surface connection to the waters. At issue between the major and concurring opinions of the court was the interpretation of the word "adjacent." Under the Clean Water Act (CWA), wetlands "adjacent" to WOTUS are protected. However, Alito ruled this means "wetlands that are separated from navigable waters cannot be considered part of those waters, even if they are located nearby." Therefore, the CWA will only apply to wetlands that flow into neighboring navigable waters.

In a concurring opinion, Justice Brett Kavanaugh wrote, "Because of the movement of water between adjacent wetlands and other waters, pollutants in wetlands often end up in adjacent rivers, lakes and other waters." He expressed concerns with the new ruling, adding, "By narrowing the act's coverage of wetlands to only adjoining wetlands, the court's new test will leave some long-regulated adjacent wetlands no longer covered by the Clean Water Act, with significant repercussions for water quality and flood control throughout the United States."

Since 1972, when a bipartisan majority in Congress overwhelmingly passed the CWA, governing the discharge of pollutants into the nation's navigable waters, there has not been a clear definition of exactly where this applies – which "waters" are granted the protections (see "Defining WOTUS," Interstate Waters, Spring 2022).

The EPA and the United States Army Corps of Engineers (USACE) first developed and implemented regulations defining WOTUS in the 1980s. Since then, court cases have challenged the scope of the federal government in regard to the definition of WOTUS, with a lot of debate and leading to modifications. The most recent decision follows through previous rulings:

United States v. Riverside Bayview Homes, Inc. (1985)

The CWA prohibits any discharge of dredged or fill materials into WOTUS-defined navigable waters unless authorized by a permit issued by the USACE. In this case, Riverside Bayview began placing fill materials on its property near the shores of Lake St. Clair, Michigan. The USACE filed suit to prevent Riverside Bayview from doing so without a dredge and fill exception from the Corps. Ultimately, the Supreme Court unanimously upheld wetlands *adjacent* (emphasis is intentional) to other jurisdictional waters are subject to CWA jurisdiction.

continued on page 12

Richard Friesner, Ph.D., is NEIWPCC's director of water quality programs.

Environmental Stewardship Through Art

By James Brangan

Art inspires appreciation, which spurs understanding that leads to positive action. In 2019, the Lake Champlain Basin Program (LCBP) established an Artist-in-Residence (AiR) grant program to help artists, students, and their audiences make those connections.

In the first year of the program, a grant supported the Friends of the Winooski River, who brought artists into local schools for students of all ages to learn about the Basin and interpret what they have learned through the arts. The following year, BluSeed Studios in Saranac Lake, New York recruited six artists — including three from the Mohawk Community — who worked with an environmental science professor from Paul Smiths College. The artists developed an in-depth understanding of the issues facing the Lake Champlain Basin and interpreted those issues through paintings, multimedia with ceramics, paper and fiber arts and poetry.

Art makes a difference in our lives. Music compels us to dance and sing. Theater and films can make us cry or roll with laughter. Writing informs and entertains us. Visual arts make us think. Humans have an innate need to create. Cave paintings featuring successful hunts and sculpted figurines honoring deities date back 40,000 years.

Art has also greatly influenced the conservation movement in North America, which goes back only 200 years. Key conservationists used visual and written forms of art to express their concerns. Writer James Fennimore Cooper warned against the overhunting of passenger pigeons — once so plentiful that their flocks blacked out the sun for days — in his novel "The Pioneers" in 1823. Four years later, John James Audubon wrote of the eradication of the Carolina parrot, which once ranged from Florida to Long Island and as far west as Colorado: "Our Parakeets are very rapidly diminishing in number; and in some districts, where twenty-five years ago they were plentiful, scarcely any are now to be seen."

Unfortunately, the last passenger pigeon died in a cage at the Cincinnati Zoo in 1914; the last Carolina parrot died in the same cage there four years later. However, Audubon's early paintings helped Americans better appreciate the diversity of birds in North America. While Audubon was developing his signature work between 1827-1839, "Birds of North America," the artists from the Hudson River School of painting were interpreting American landscapes in ways that were never seen before.

Living in the age of modern media where viewers can watch events happen in real time or view the world's greatest works of art in an instant, it is hard to imagine a time when Americans did not have access to images of the natural world. Newspapers began to include some crude wood engravings in the 1830s, but the first truly illustrated newspaper started in 1855. Zoos did not exist in the country in the early 19th century, until the first opened in Philadelphia, Pennsylvania, in 1874. The oldest public art museum in the U.S., the Wadsworth Atheneum Museum of Art in Hartford, Connecticut, opened in 1844.

Amateur landscape artist and architect Daniel Wadsworth was a patron of Thomas Cole, the founder of the Hudson River School. The paintings the school members produced are credited with changing Americans' perceptions about nature and building support for the early conservation movement. It is also well documented that Abraham Lincoln's decision to preserve the land that is now Yosemite National Park in 1864

Carolina Parrot by John J. Audubon

Students make art using plant materials from nearby Englesby Brook at Champlain Elementary School in Burlington, Vermont.

James Brangan is a NEIWPCC information officer and Champlain Valley National Heritage partnership coordinator.

was influenced by the drawings of the area's wonders by Thomas Ayres.

Yellowstone National Park has a similar history. For decades, Americans believed that the description of the geysers, bubbling mudpots, steaming rivers, and plunging waterfalls — all set in an unbelievable palette of colors — were simply tall tales by mountain men who had a reputation for embellishment. The June 1871 edition of Scribner's Monthly: An Illustrated Magazine for the People changed that perception. The publication included sketches of some of the geological features in Yellowstone country, which inspired painter Thomas Moran and photographer William Henry Jackson to join a United States Geological Survey expedition to the region later that year. Their art inspired the United States Congress and President Ulysses S. Grant to designate Yellowstone as the first national park in 1872.

Thomas Cole (1801–1848), The Oxbow, View from Mount Holyoke, Northampton, Massachusetts, after a Thunderstorm (1836), Metropolitan Museum of Art.

Art continued to play a role in the conservation movement well beyond the establishment of the National Park Service in 1916, which was tasked with protecting the scenery and wildlife in these designated federal lands. In addition to inspiring Americans to conserve their special places, art had a significant part in other important movements. For example, song played a vital role in the Suffrage Movement that got women the right to vote in 1920. The photographs of young children toiling in factories and farms taken by social reformers Jacob Riis, Florence Kelley, and Lewis Hine propelled new child labor laws in the early 20th century. Music played a role in ending the Vietnam War. Fiber arts helped better interpret the impacts of HIV when the massive AIDS quilt was displayed on the National Mall and across the country.

The LCBP continues to take inspiration from this rich history of using creative expression in the arts to inform and engage with local communities about the environment and its natural heritage. Three new LCBP AiR projects are underway this year. Over the next few months, musicians will work with scientists to make music from water monitoring data, interpret the impacts of dams using a floating structure, and explore the African American experience in the Champlain Valley using hip-hop and fiber arts.

The LCBP will issue another request for AiR proposals later this year, so art will continue to make a difference in building that essential connection from appreciation and stewardship of our natural and cultural resources.

The Grand Canyon of the Yellowstone is an oil on canvas painting created by English-American artist Thomas Moran in 1872.

Courtesy of Paul Smith's College

Water is Life, Dave Fadden, 2021, oil on canvas. Supported by an AiR grant.

WOTUS

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Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (2001)

The Solid Waste Agency of Northern Cook County, a consortium of Chicago-area cities and villages, sought to develop landfill for baled nonhazardous solid waste on a 533-acre parcel. The land had previously been used for sand and gravel mining, and over the years, the excavation trenches had evolved into ponds used by migratory birds. On this basis, USACE asserted jurisdiction and denied a permit to the consortium. However, SCOTUS ruled that the use of isolated ponds by migratory birds did not mean these waters were protected by the CWA.

Rapanos v. United States (2006)

In this ruling, SCOTUS reviewed if CWA protections extended to wetlands lying near ditches or manmade drains that eventually empty into traditional navigable waters. The case involved Michigan developer John Rapanos, who backfilled wetland areas on his property without a permit in order to build a mall. SCOTUS issued a 4-1-4 decision, establishing two different standards, and providing a method to determine whether a body of water should be considered a WOTUS and protected by the CWA.

Justice Antonin Scalia wrote that WOTUS only includes "relatively permanent, standing or continuously flowing bodies of waters," such as streams, rivers or lakes as well as wetlands that have a "continuous surface connection" to other waters considered WOTUS.

Justice Anthony Kennedy, in a concurring opinion, wrote that wetlands should be reviewed individually to determine if they have a "significant nexus" to a traditionally navigable water.

In the recent Sackett v. U.S. EPA case, the Supreme Court rejected this "significant nexus test" and narrowed the reach of the CWA protections.

Regulatory Changes to the WOTUS Definition

In 2015, the Obama Administration redefined WOTUS for the first time since the 1980s. The Clean Water Rule provided increased clarity on CWA jurisdiction, but opposition from various political, business, state and local stakeholders, such as the American Farm Bureau Federation, contended it was federal overreach. The Clean Water Rule immediately faced legal challenges, leaving the pre-2015 regulatory framework in effect in 28 states and the new rule in place in the remaining 22.

The Trump Administration viewed the Clean Water Rule as an overreach of federal authority and in 2020 published the Navigable Waters Protection Rule (NWPR). This redefined WOTUS in a way that limited the kinds of waters subject to federal jurisdiction. The NWPR faced several legal challenges and was vacated in Pasqua Yaqui Tribe v. EPA in August 2021, leaving the pre-2015 regulatory framework in effect.

In 2023, the Biden Administration published a new rule to redefine WOTUS. Because it relies heavily on both the "relatively permanent" and "significant nexus" standards, the agencies will need to revise the rule in the wake of the May SCOTUS decision. The EPA is now working on a new rule to interpret the WOTUS definition congruent with the Sackett v. EPA decision.

NEIWPCC has, and will continue to, played an important role in supporting the states of the Northeast as they seek to comment on proposed changes to the WOTUS definition and implement these changes into their own water or wetlands permitting programs. Through NEIWPCC's work groups, states have been able to share and collaborate on ways to preserve and advance clean water quality throughout the region and will continue to work on fulfilling this mission.

Thomas Ballestero, NEIWPCC commissioner, and director and principal investigator at the University of New Hampshire Stormwater Center and an associate professor in the University's Civil Engineering Department, was featured on New Hampshire NPR discussing flooding and the impact of extreme weather on the state's aging infrastructure.

Jordan Bishop, environmental analyst, presented at the Northeast Aquatic Biologists Conference. **Maryann Dugan**, environmental analyst, and **Richard Friesner**, director of water quality programs, moderated a session, and NEIWPCC Commissioner **Paul Hogan** gave opening remarks.

Mae Kate Campbell, environmental analyst, was interviewed about flooding in Lake Champlain on WCAX 3 News.

Ian Dulin, environmental analyst, presented the updated Source Water Protection Toolkit to drinking water professionals at the New Hampshire Drinking Water Source Protection Conference.

Victoria Helle, environmental analyst, wrote an article in the winter 2022 issue of the New York Water Environment Association's (NYWEA) magazine, ClearWaters.

Thank You to Our Retiring Commissioner

Paul Hogan (Massachusetts) volunteered his time and energy to serve as a strong advocate for NEIWPCC since beginning his tenure as a commissioner in 2012. He will continue to work as a senior water resources, regulatory, and compliance specialist at Woodard & Curran. Previously, Hogan worked at the Massachusetts Department of Environmental Protection for 37 years, focusing on water pollution control and Clean Water Act issues. NEIWPCC thanks him for his years of service.

Eric Howe, program director for the Lake Champlain Basin Program, was quoted in the VTDigger.org article, "Officials warn of pollution as floodwaters reach Lake Champlain."

Erik Reardon, environmental analyst, presented at the New York State Federation of Lake Associations, Inc. 40th Anniversary Conference about the round goby and aquatic invasive species spread prevention through the NYS canal system.

Susan Sullivan, executive director, (shown below) participated in a panel discussion at the Interstate Technology and Regulatory Council (ITRC) Annual Meeting.

Matthew Vaughan, environmental analyst and chief scientist at the Lake Champlain Basin Program, was interviewed about water quality threats to Lake Champlain on Vermont's NBC 5.

Richard Friesner, director of water quality programs, (shown here with Executive Director Susan Sullivan) received NEIWPCC's Annual Achievement Award at the 2023 All Staff Meeting. Friesner was recognized for his reliable leadership, positive attitude and dedication to NEIWPCC.

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EVENTS

2023

Aug. 29-31, **StormCon**, Dallas, Texas, www.stormcon.com

Sept. 17-18, **Champlain Valley National Heritage Partnership International Heritage Summit**, Basin Harbor Club, Vergennes, Vt., www.champlainvalleynhp.org

Sept. 17-20, **New England Water Works Association Annual Conference**, Burlington, Vt., www.newwa.org

Sept. 30-Oct. 4, **WEFTEC Annual Technical Exhibition & Conference**, Chicago, Ill., www.weftec.org

Oct. 22-25, **National Onsite Wastewater Recycling Association Onsite Wastewater Mega-Conference**, Hampton, Va., www.nowra.org

Oct. 22-26, **North American Lake Management Society (NALMS) Conference**, Erie, Pa., www.nalms.org

Oct. 23-25, **ASDWA Annual Conference**, Greenville, S.C., www.asdwa.org

Oct. 24-25, **NE-NYWEA Risk & Resiliency Conference & Exhibit**, Stamford, Conn., www.newea.org

Nov. 1-2, **NorthEast Residuals & Biosolids Conference**, Portsmouth, N.H., www.nebiosolids.org

Nov. 2, **Green Mountain Water Environment Association Fall Tradeshow**, Burlington, Vt., www.gmwea.org

Nov. 5-9, **American Water Works Association Water Quality Technology Conference and Exposition**, Dallas, Texas, www.awwa.org

Nov. 6-9, **National Nonpoint Source Workshop**, Minneapolis, Minn., www.neiwpcc.org

2024

Jan. 21-24, **New England Water Environment Association Annual Conference**, Boston, Mass., www.newea.org

Feb. 5-7, **NYWEA 96th Annual Meeting Technical Conference and Exhibition**, New York, N.Y., www.nywea.org

March 10-13, **Annual WateReuse Symposium**, Denver, Colo., www.watereuse.org

Feb. 13-16, **WEF/AWWA Utility Management Conference**, Portland, Ore., www.wef.org

Feb. 14-16, **Northeast Aquatic Biologists (NAB) Conference**, Fairlee, Vt., www.neiwpcc.org

April 2-4, **Northeast Conference on The Science of PFAS: Public Health & the Environment**, Marlborough, Mass., www.newmoa.org

April 10-11, **Annual Nonpoint Source Conference**, Old Saybrook, Conn., www.neiwpcc.org