

September 2020

# Interstate Waters



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NEIWPCC is a regional commission that helps the states of the Northeast preserve and advance water quality. We engage and convene water quality professionals and other interested parties from New England and New York to collaborate on water, wastewater, and environmental science challenges across shared regions, ecosystems, and areas of expertise.

## Interstate Waters

Volume 4, Number 2 • September 2020

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Circulation: Lee-Ann Wilder

Graphic Design: Newcomb Studios

*Interstate Waters* is published by NEIWPCC. It is funded by a grant from the U.S. Environmental Protection Agency and distributed free of charge to subscribers. To subscribe to *Interstate Waters*, email us at [iwr@neiwppc.org](mailto:iwr@neiwppc.org). Type "Subscribe" in the subject field and provide your full mailing address. In the body of your email, please indicate whether you also wish to receive our quarterly email newsletter, *iWR*.

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## From the Executive Director

# Pandemic Year

THE EVENTS OF THIS SPRING HAVE ROCKED our member states and the world. NEIWPCC has reorganized itself to face a future that is utterly uncertain.

Our youth program, the subject of a story in this issue, was canceled due to COVID-19 for this summer. We plan to bring it back next year. Another story describes the extraordinarily successful Watershed in Every Classroom program in the Lake Champlain watershed. The program had to conclude with virtual rather than actual workshops this year.

But other stories in this magazine describe how states and NEIWPCC are rallying to solve the many problems emerging from the pandemic. We are finding new ways to work, all while keeping safe the public, the staff, and those whom we support.

We've moved forward with a contemporary identity for NEIWPCC, also described in this issue, which will help us to achieve our goals.

Currently NEIWPCC's staff, normally working in nineteen different locations, have altered work conditions resulting from NEIWPCC requirements, Governor states of emergency, and federal expectations. Our base office locations have been reoccupied since July 13 with staggered office schedules to ensure social distancing with employees working remotely where feasible. We are working hard to be flexible, accommodating, and vigilant about our work and our staff's health.

One of the hardest of many hard decisions this spring was postponing events that had been developed for the better part of a year. Today the same planning horizons force us to look six to nine months into an unknowable future, and decide now.

Under these circumstances, rosy predictions would be an invitation for the reader's scorn. Nonetheless, I can tell you this.

The states, and NEIWPCC, are rising to the challenge. We remain dedicated to our vision of sustainable clean water in the Northeast.

We have amassed a wonderful group of talented people, all of whom are valuable additions to NEIWPCC. We intend for our talent to remain in place, supporting the mission and vision and values of NEIWPCC. The protection of public health and the environment is always important, no matter what else might be happening.

Finally, we are learning and adapting, with new skills and modes of work, with safe online training options, and with the same skill and professionalism that has characterized our efforts for decades.



Susan Sullivan

NEIWPCC Executive Director

## From 'Program' to 'Partnership'

**T**he **Peconic Estuary Partnership** is the new name of the Peconic Estuary Program. The change reflects PEP's role in engaging and convening stakeholders at all levels to protect the Peconic estuary. The change comes as PEP is finalizing its new comprehensive conservation and management plan for the next ten years. PEP is a program partner of NEIWPCC.



joined the staff of what is now the Connecticut Department of Energy and Environmental Protection twenty-seven years ago as a sanitary engineer. She succeeds **Denise Ruzicka**, who retired from Connecticut DEEP late last year and who has long represented that arm of DEEP at meetings of NEIWPCC's executive committee and commissioners.

We are pleased to welcome **Peter Walke**, who was appointed commissioner of the Vermont DEC in February. Walke was deputy secretary for the Vermont Agency of Natural Resources for three years, and previously served as chief of staff for the New York Department of Environmental Conservation. He replaces **Emily Boedecker**, who had served in that post for three years.



**Tom Groves**, NEIWPCC's director of wastewater and onsite systems, celebrated his thirtieth anniversary with NEIWPCC in March. Groves joined NEIWPCC in 1990 as the groundwater coordinator and, since 2000, has led the Wastewater and Onsite Systems programs. Congratulations!

The **Association of Clean Water Administrators**, a national organization, has rotated its representation from the Northeast. **Tracy Wood**, the administrator of New Hampshire's Wastewater Engineering Bureau, now represents Region 1, replacing **Alicia Good**, the former assistant director of Rhode Island's Office of Water Resources. The group has tapped **Evelyn Powers**, the executive director of the **Interstate Environmental Commission**, to represent interstate organizations; she replaces NEIWPCC Executive Director **Susan Sullivan**. **Carol Lamb-LaFay** continues to represent Region 2; she is the Director of the Bureau of Water Permits in New York.

This year we celebrate and thank **Richard Lyons** and **Dennis Lutz** for their years of service as NEIWPCC commissioners. Lyons has served as a New York commissioner for five years. In June 2015, he retired as executive director of the Albany County Water Purification District and now works there part-time as a project manager. Lutz, the director of public works for Essex, Vermont, has served as a commissioner for ten years.

Congratulations to **Jennifer Perry**, the new director of Connecticut's Water Planning and Management Division. Perry

Congratulations to **Courtney Schmidt**, PhD, who received the Stratification Award from the **New England Estuarine Research Society (NEERS)**, given to members who go above and beyond. She was honored at the Society's virtual Fiftieth Anniversary Conference in June. Schmidt, who works for NEIWPCC as the staff scientist for the **Narragansett Bay Estuary Program**, a program partner of NEIWPCC, serves as treasurer for NEERS.

Congratulations to **Joyce Novak**, PhD, program director of the **Peconic Estuary Partnership**, who was recently appointed as an adjunct assistant professor in the Marine Atmospheric Sciences at **Stony Brook University**.

This issue of *Interstate Waters* will be the editor's last. **Adam Auster**, NEIWPCC's director of communications and outreach, is moving on. Auster created the publication in 2017. We wish him well. 🌊



Nelle D'Aversa

*This seaweed harvest absorbed nitrogen that could otherwise feed harmful algae and plankton blooms in the Long Island Sound. NEIWPCC staff members at the Long Island Sound Study are exploring the potential to extract nitrogen nutrients biologically. The nutrients originate in fertilizers and other sources in the watershed, which stretches to Canada.*

### Ongoing: Permit Review

A plan to curtail the time states have to act on discharge permits, and the grounds on which states may base their actions, has been challenged in court by a coalition of twenty states and the District of Columbia.

The Clean Water Act Certification Rule, which had been proposed in **Docket No. EPA-HQ-OW-2019-0405**, will take effect on September 11, unless stayed by the courts.

NEIWPCC last year warned the EPA that the rule would violate the Clean Water Act by “diminishing state water authority to protect water resources.”

As reported in the February, 2020, and September, 2019, issues of *Interstate Waters*, the rule, if allowed, would govern state review of projects under Section 401 of the Clean Water Act.

That part of the Clean Water Act bars the federal government from permitting activities that may result in a discharge, unless a state or a tribe certifies or waives compliance with existing water-quality requirements.

The rule allows the federal government to override state certification denials or conditions, and to impose other restrictions on state review.

Six of the seven NEIWPCC states joined the July 21 lawsuit asking the U.S. District Court for the Northern District of California to declare the rule unlawful and to set it aside.

The EPA initiated the rule-making process in response to **Executive Order 13868**, which is largely about streamlining rules for the siting of energy facilities.

However, in preliminary comments last year, NEIWPCC Executive Director Susan Sullivan warned that the rule would “result in increased certification delays, denials, and confusion.”

NEIWPCC anticipates that the rule would subject states to lawsuits, leading to longer delays in resolving permit requests.

### New: Water Quality Criteria

The EPA has extended by thirty days the commenting period on complex federal water-quality standards intended to guide states and tribes in setting numeric nutrient criteria for lakes and reservoirs.

As this issue of *Interstate Waters* was going to press, comments in **Docket ID No. EPA-HQ-OW-2019-0675**, “Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs of the Contermin-



nous United States: Information Supporting the Development of Numeric Nutrient Criteria,” were scheduled to close on August 20.

NEIWPCC and others had requested more time for the states to review the new guidance when it was first introduced on May 22. NEIWPCC also asked for training and support for state personnel before the close of the comment period.

The proposed criteria and their 26 supplementary documents include computer models and are based on national data. These criteria are technically complex and represent a new approach to model-based water quality standards.

In a June 26 letter to David Ross, assistant administrator at the EPA, NEIWPCC Executive Director Susan Sullivan said, “states need more support from the EPA to understand these models and how the resulting criteria would be implemented.”

“Our member states are co-regulators with the EPA under the Clean Water Act,” Sullivan reminded Ross.

### New: Lead and Copper

A February 12 letter from NEIWPCC Executive Director Susan Sullivan describes technical and administrative steps that the federal government should take to help states implement proposed changes to the Lead and Copper Rule.

The changes, proposed in **Docket No. EPA-HQ-OW-2017-0300**, establish a threshold amount for lead in drinking water of 10 parts per billion. They would be the first revisions to the rule since 1991.

Sullivan told the EPA that the new rule should include “more explicit language related to water quality parameter monitoring” to allow for targeted monitoring. She

also suggested spacing the implementation of a new requirement that states develop a comprehensive inventory of lead service lines “to stagger the workload of approving and updating the inventories.”

Similarly, Sullivan suggested that the EPA “have a full data management program in place” before introducing new data reporting requirements “to an already complex reporting process.”

### Ongoing: Clean Water Act

Over the objections of the seven NEIWPCC states and others, a Trump administration rule to curtail federal jurisdiction of many of the nation’s water resources took effect on June 22.

The Navigable Waters Protection Rule drastically narrows the scope of federal jurisdictions over wetlands and seasonal waterbodies. In April of last year, NEIWPCC told the EPA in comments in **Docket No. EPA-HQ-OW-2018-0149** that the states “sternly object to any reduction in the legal federal protection provided our water resources.”

The rule excludes all groundwater and seasonal waterbodies, and some ditches, artificially irrigated areas, stormwater-control features, wetlands converted to croplands before 1986, and other water resources.

A federal court has blocked the rule in Colorado.

On February 27, the EPA’s own Science Advisory Board told Administrator Andrew Wheeler that “the proposed rule lacks a scientific justification, while potentially introducing new risks to human and environmental health.”

Meanwhile, the administration’s repeal of the 2015 Clean Water Rule took effect on December 23, sixty days after its publication in the Federal Register.

The 2015 rule had systemized the administration of the Clean Water Act based on the current standard for federal jurisdiction articulated by then Supreme Court Justice Anthony Kennedy in 2006.

That standard, that the Clean Water Act applies to all water resources with a “significant nexus” to a traditional navigable waterway, may be challenged directly in future Supreme Court cases.

### Completed: Water Reuse

The EPA has published the first version of its National Water Reuse Action Plan following a round of public comments. The document articulates thirty-seven actions

to advance water reuse. The agency has also produced an online portal to track the progress of these efforts.

The EPA had put this publication out for comments in **Docket No. EPA-HQ-OW-2019-0174**. The comment period closed December 16. NEIWPCC's comments were generally supportive and cited proposed project areas where the organization could be helpful in gathering information and fostering collaboration between states.

### New: Federal Funds

On May 12, NEIWPCC asked the chief of the National Resources Conservation Service to expand funding opportunities in the Northeast under the Regional Conservation Partnership Program (RCPP) and ease a requirement that makes it harder for some groups to apply for RCPP funds.

The RCPP, a project of the NRCS, addresses a range of farm-related issues including watershed and natural-resource concerns. Under past funding rounds, groups were able to tap these funds to improve water quality in agricultural areas across the Northeast, including in the Lake Champlain and Long Island Sound watersheds.

In written comments in **Docket ID NRCS-2019-0012**, NEIWPCC praised the program and requested changes to make funds more usable in cases where a single entity coordinates the work of multiple partners.

### Ongoing: Regional EPA Lab

NEIWPCC has brought its defense of the regional EPA laboratory in Chelmsford, Massachusetts, to the General Services Administration.

The area congressional delegation has also weighed in favor of keeping the lab open.

The lab's central location allows for rapid response to spills and fires, and is a boon to states using the facility for training.

Massachusetts Senators Edward Markey and Elizabeth Warren, and Congressional Representative Lori Trahan, cited the lab's role responding to a chemical-plant fire in Danvers. They praised the facility's response to disruptions in air-quality monitoring caused by Hurricane Irene, and its assistance to states responding to emerging threats such as PFAS.

In a February 5 letter, the delegation told EPA Administrator Andrew Wheeler that the facility "has provided important emergency response capabilities, field and laboratory studies, and technical expertise to New England states."

In its June 8 letter to the GSA, NEIWPCC emphasized these and other points. NEIWPCC had previously made this case to the EPA and to members of Congress.

### Ongoing: Water Quality Trading

Comments have closed on a proposal to allow the trading of water-quality credits to satisfy some of the requirements of the National Pollution Discharge Elimination System. NEIWPCC had expressed cautious support for the idea in an October 31 comment in **Docket No. EPA-HQ-OW-2019-0415**.

Properly designed trading systems can be a cost-effective way to reduce pollution in a watershed. NEIWPCC's comments focused on the importance of flexibility and clarity for states if a trading system is allowed. The comments also identified potential difficulties in accounting accurately for nonpoint-source reductions.

Comments on the proposed rule closed on December 18 after being extended once.

### Ongoing: Algal Blooms

The EPA is continuing to mull comments from NEIWPCC and others about a plan that could direct federal resources to state and local responses to harmful algal blooms.

The initiative was originally a response to freshwater blooms of great toxicity, such as the 2014 bloom in Lake Erie. That event led to a blanket warning from the City of Toledo against drinking tap water, which lasted for three days. However, NEIWPCC suggested that toxicity "should not be the primary metric" of severity.

The EPA opened **Docket ID No. EPA-HQ-OW-0463** as a "notice of intent to develop a policy" last year. 🏡

— Adam Auster



*The federal government stopped protecting many of the nation's wetlands under a regulatory change that took effect on June 22.*

# Youth and the Environment

*This thirty-year-old program enriches in many ways*



By KALE CONNERTY

**T**HE TEENS SENT TO US FROM THE Lowell career center don't want to spend their summer at a wastewater treatment plant. They haven't thought at all about Lowell's Duck Island treatment facility, tucked from view behind a thin line of trees on route MA 110, other than when the smell overcomes them as they walk past the plant or ride by on the school bus or their bikes. They haven't considered the team of operators, maintenance workers, and managers treating a dozen vats of sewage so it's no longer sew-

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*Kale Connerty is an information officer in NEIWPCC's Lowell office. She began working for NEIWPCC as an intern in 2018, serving as coordinator of that summer's Youth and the Environment Program. NEIWPCC canceled YEP in 2020 in the face of the coronavirus pandemic, but plans to offer the program in 2021.*

age but clean water, ready to pump back into the Merrimack River.

Nor could they have imagined they'd be hosing down the sides of those vats, learning how the plant works, or getting up close to the sludge, wipes, and trash that disappeared down the drains in Lowell, Dracut, Tyngsborough, Chelmsford, and Tewksbury, Massachusetts. They just want a summer job.

I saw this in 2018, when I was coordinator of NEIWPCC's Youth and the Environment Program (YEP). But the program and its participants are different every year.

The wastewater industry is aging. It's no secret that both its infrastructure and retiring workforce need replacement. For almost thirty summers, a network of organizations—NEIWPCC, EPA Region 1, the Lowell Career Center, and the Lowell Regional Wastewater Utility—have worked together to run the Youth and the Environment Program in Lowell, Massachusetts, exposing underserved teens to opportuni-

ties in the wastewater industry and other environmental fields.

While its main stated goal is to target high-schoolers who might consider entering the wastewater profession after graduating, only a few YEP teens have joined the industry as operators. However, NEIWPCC also measures the success of this thirty-year-old program in how it has taught underserved teens about water, wastewater, the environment, and the professional world.

In 2019, with additional support from the EPA, the YEP network expanded to nearby Lawrence, Massachusetts, where NEIWPCC ran a sister program in conjunction with Lowell's.

## The Program

For six weeks in the summer of 2019, Lowell and Lawrence high-schoolers had hands-on experience in the wastewater and drinking-water fields. During mornings in Lowell, four teens shadowed and

assisted wastewater operators, lab technicians, and other employees at the Lowell Regional Wastewater Utility, also known as Duck Island. They also completed maintenance tasks like weeding or hosing down the plant's primary and secondary clarifiers. In Lawrence, four teens split their time between the Greater Lawrence Sanitary District (GLSD) wastewater facility and the city's drinking-water plant.

The MassHire career centers in each city, have summer youth employment programs, hired and paid the teens.

Their work at the treatment plants was overseen by Youth and the Environment Program coordinators—college interns hired by NEIWPPCC.

Afternoons, the teenagers attended lessons taught by the YEP coordinators. Usually the lessons focused on environmental issues, including the water cycle, wastewater treatment basics, wetlands, and climate change. Some lessons were aimed more at career and college preparation, money management, goal-setting, and job readiness.

About once a week, the two groups went on field trips—usually together—to complement their environmental lessons. These included an EPA-guided hike through a wooded wetlands reserve in Dracut, a tour of Boston's Deer Island wastewater treatment plant, and boat rides and water quality sampling on the Merrimack River and on Squam Lake in New Hampshire..

At the end of the six weeks, the students prepared presentations to give during a graduation ceremony, where they described their summer to an audience of EPA, NEIWPPCC, and MassHire career center staff members. They received certificates from the EPA and presented the directors of the utility plants with a group photo on a plaque.

Lessons, field trips, and treatment plants: this has been the general structure of the program since it began thirty years ago. Each year, the YEP coordinators put their own spin on the program, and in 2019, with the Lawrence program running for the first time, there were opportunities for the programs to overlap.

## Two Faces of YEP

One side of the YEP program is about drawing young people into wastewater and other environmental fields.

In 2016, EPA New England produced a video about YEP, which is available on NEIWPPCC's website. In the video, Jay Pimpare, an EPA official who's supported the program for years, describes how some of the program participants have gone on to join the environmental field. He says YEP is an



*For almost thirty years, a network of organizations has worked together to run the Youth and the Environment Program in Lowell, Massachusetts. In 2019, NEIWPPCC received an EPA grant to start a new sister program in Lawrence.*

important program because “the wastewater field is an area where there is a growing need for individuals to become more involved in order to fill the gap left by retiring operators.”

The other side to the program is about providing “inner-city, disadvantaged high school students with opportunities—summer jobs—in the environmental field, to explore potential careers, to help protect the environment and protect water quality,” explains Dave Chin, a retired EPA official formerly involved with YEP, in the same video.

“Disadvantaged,” “inner-city,” “urban,” and “underprivileged”—these are the kinds of words NEIWPPCC and the EPA have historically used to describe the teens who participate in YEP.

Behind those words, and what plays out every summer over the course of the program's six weeks, is a complicated issue of environmental justice. The teens we are working with all come from families below certain income levels as determined by MassHire. Many of the teens we work with are excited to earn their first paycheck. Many hope to be the first in their families to attend college. Many are Black or Brown—some are immigrants or refugees, or their parents are—working with an overwhelmingly white and male group of environmental professionals at the treatment

plants, and an overwhelmingly white, college-educated, group of environmental professionals at NEIWPPCC and from the EPA.

Many of us were drawn to the environmental field because we grew up in small, rural communities and frequently vacation near the countless mountains, lakes, woods, and beaches the Northeast has to offer. Some of the teens' families don't own cars, so have no easy way to leave the city. They have never been immersed in “nature” or wildlife.

In Lowell, on a day when the smell from Duck Island is particularly strong, some people might experience fleeting discomfort, make a passing comment, as they drive by on their way into or out of the city. Some of the teens live near the wastewater treatment plant, and have to put up with the smell more regularly. The contrast sheds light on broader issues in our region, but this program offers a model for how to increase availability of opportunities for, and expand the worldviews of, these underserved young people.

## Mixed Emotions

When they first hear they're working at a wastewater treatment plant, most of the teens are “disappointed,” says Edwardo, diplomatically. Edwardo, one of the teens from 2018, returned in 2019 for another season of YEP. (Edwardo's last name, and those of



*Hosing down the clarifiers at Duck Island.*

other YEP students, are withheld.)

I knew Edwardo from my summer as a YEP coordinator. He was a smart, thoughtful, and hardworking member of the group, whose interests included history and meteorology. In the summer of 2019 he was preparing for his senior year studying the electrical trade at Greater Lowell Technical High School. When I recently caught up with him by text message, he said he had graduated and would be pursuing a computer science degree at Middlesex Community College.

In both Lowell and Lawrence, the teens sign up for employment through their city's career center but might not know ahead of time where they'll be placed. Sometimes they're in for a rude awakening. I remember the complaints about the smell when I ran the program in 2018, the fake retching noises, the complete disbelief ("I thought I was going to be working with kids this summer!"), and dissociative humor of "telling people you work at a 'poop factory.'"

"But a couple weeks in and that goes away," Edwardo said.

Amanda Brosnan, an environmental studies major who coordinated the 2019 Lowell program, said her teens "were just excited to have somewhere to go, to be making money rather than sitting around all summer." Those who've been involved in running YEP for years—like Jay at EPA New England or Tom Groves, head of NEIWPCC's Wastewater and Onsite Systems Division—say that many of the teens spend

their money right away on new clothes and shoes to show off at school.

But after dedicating one of the afternoon lessons to talking about financial literacy, I found in 2018 that some of the teens wanted to save, whether it was for a birthday present for their sister or for a car so they'd have a way to get out of the city. The 2019 YEP coordinators talked about some of the financial goals their teenagers set up at the beginning of the program: to save up to live with a friend, for Driver's Ed, to build a computer from scratch.

Compared to some previous years, the 2019 group of teens seemed more prepared for the type of work they'd be doing at the plants. In both the Lowell and Lawrence programs, all were studying a trade at a technical school. The career centers assigned each program four students. In Lowell, there was Edwardo (electric), Dmitri (electric), Cesar (auto tech), and Tesania (metal fabrication). In Lawrence, Hildaliz (electric), Stephanie (pre-engineering), Joskar (plumbing) and Jorjany (plumbing). There were lots of opportunities for the students to do work in or adjacent to their field.

Studying a trade might suggest these students are

less likely to become a wastewater operator. Nonetheless, the plant superintendents, Cheri Cousens at GLSD and Mark Young in Lowell, said they were excited to work with tech students who might one day apply their trade to the wastewater industry.

At the very least, those teens will never forget why treatment plants exist.

## Environmental Awareness

In New York City, NEIWPCC administers a grant to the National Partnership for Environmental Technology Education (PETE) to run the Youth-in-the-Environment Initiative, a similar program. There, teens from the Bronx work for the city's Department of Environmental Protection in various sectors of the water-pollution-control field, wastewater especially.

Kirk Laflin, the executive director of National PETE, says that as these teens come from low-income families, many of them live near the wastewater treatment plant. Those demographics parallel those in the Lowell program. "There's an environmental justice component in this," he says. Even if they don't join the field, by teaching them and giving them this work experience, they can be "more informed community members, more informed voters" when it comes to keeping their environment clean and safe.

For many of the teens who attend schools where environmental science isn't a mandatory class or isn't offered, this was their first time learning about some of these topics.

In 2018, I remember having to scale back my environmental lesson plans, after realizing some of the students didn't remember or had never been taught the water cycle.

Kathryn Piasecki, an engineering major who ran the 2019 Lawrence program, said coordinating YEP was an opportunity to recognize her privilege. She "worried about feeling preachy" when it came to lessons about how the students can be environmentally conscious citizens. For instance, she said they might not have control over the kind of food that's put on their plates.

Kathryn mentioned a student that lives in an apartment complex that doesn't have recycling. "She wants to be able to recycle but she can't. She wants to help but she can't."

Both Kathryn and Amanda described how it





felt to navigate the multiple roles of being YEP coordinator. “The hardest part was finding that balance between being a supervisor to them—being their boss—and being their teacher and friend and doing work tasks with them,” said Kathryn. She said being a YEP coordinator was her first “teacher role” and that leading the lessons was her favorite part of the program. “I got to see their growth and their interest develop, in stuff that’s not necessarily on their academic radar.”

James Plummer, a NEIWPC environmental analyst who was the YEP coordinator in 2016 and 2017, says he continues “hearing from many of those guys who reach out to ask for career advice or just to check in. Being many of their first professional experiences, it was important to lead with that in mind and be a friend while mentoring.”

“Many of the youth don’t have strong mentors in the professional world,” he says.

“I enjoy being in a mentor-like role,” says Amanda. “It’s all about how you communicate with them.”

### Mentorship

For some of the teenagers, YEP is their first time forming mentor-mentee relationships, and their first time being treated as adults, not just high-school students.

Tom Kawa was the superintendent at Duck Island; he retired before the 2019 program. I remember Tom telling my YEP students how dirty the Merrimack used to be when he was young, before the Clean Water Act and before the wastewater treatment plant. He described the smell, the colors, the stuff floating in the water, and the fish you could or couldn’t catch—the stories so many have of so many polluted rivers.

When I talk about YEP and the Lowell treatment plant, many people familiar with the area wrinkle their nose. On a windy day or after a big rain event, and sometimes just driving by the treatment plant with the windows down, the smell is accosting. But many who grew up in Lowell just a couple decades ago say, “It used to be so much worse.”

One day the teens showed up for work to experience a new rotten-egg odor, inspiring a few fake gags from the group. One of the teenagers, Abdiel, who considered himself “shy” but made the extra effort to ask questions, learn, and “be professional,” asked Tom about the smell.

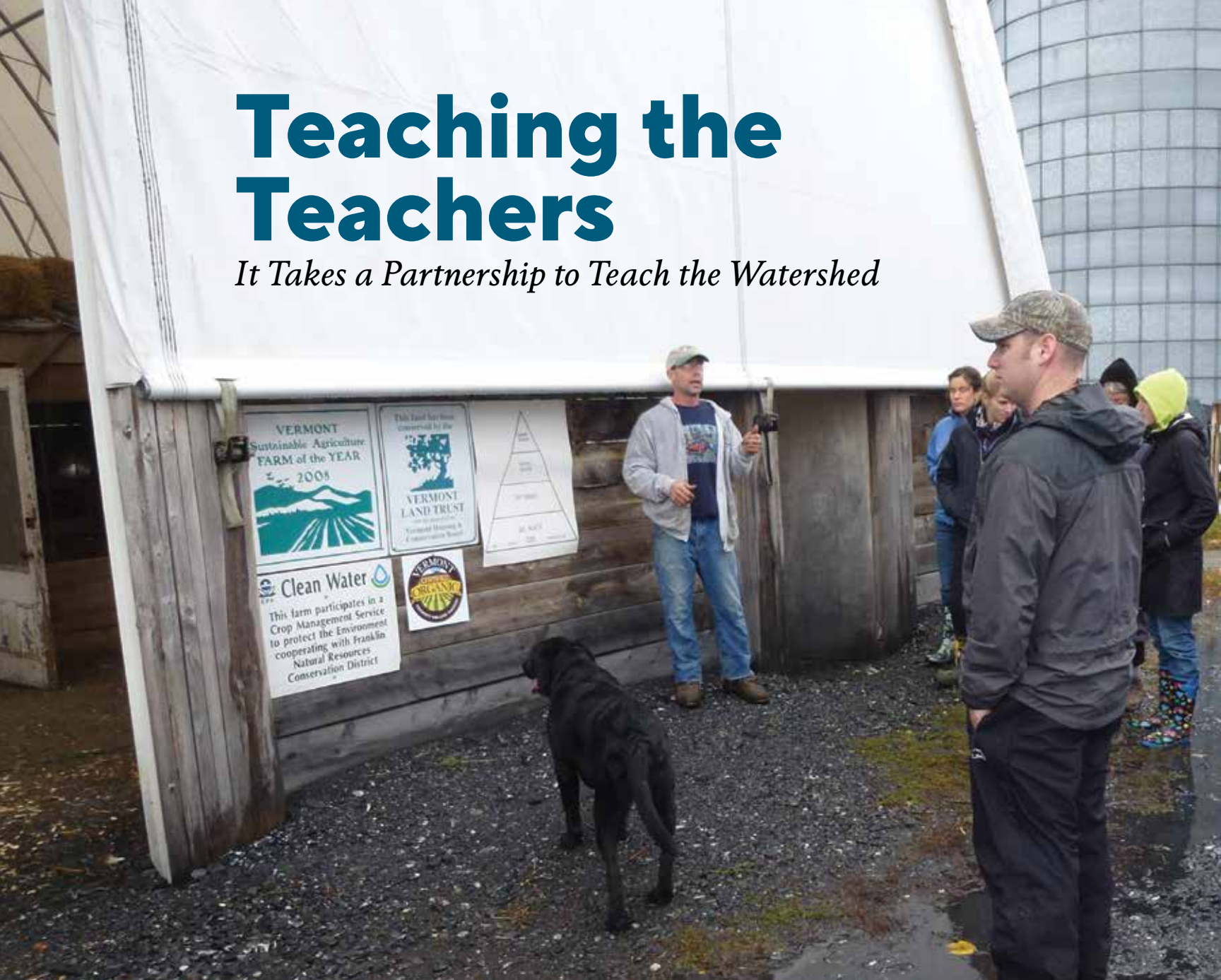
“The digesters have gone anaerobic,” Tom said. He described how the blowers in one of the aeration tanks had failed and needed to be replaced. At that stage

*continued on page 18*



# Teaching the Teachers

*It Takes a Partnership to Teach the Watershed*



BY COLLEEN HICKEY

**I** used to kayak on Missisquoi Bay and jump into the Rock River right behind the farm when I was much younger.

Guy Choiniere is telling the story of his Vermont dairy farm and the land on which it grows. A group of schoolteachers from Vermont and New York (and a teacher from Denmark) listens and learns. For the teachers, it is day six of the eleven-day Watershed for Every Classroom course that a consortium offers every other year from July through May.

*Colleen Hickey is the Education and Outreach Coordinator for the Lake Champlain Basin Program and the lead staff member supporting the Champlain Basin Initiative. She is a NEIWPCC staff member and has been on the LCBP staff since its inception in 1991.*

By teaching teachers, the course has brought knowledge and appreciation of the Champlain watershed to thousands of primary and secondary students in New York and Vermont.

*Our local landscape has changed dramatically as large rainstorms have changed the river system, creating a deep channel with steep banks, sending everything in its path quickly to the bay.*

Choiniere wants the teachers to see how the landscape has changed over time. He holds an aerial photograph of the farm from decades earlier next to a recent one. The historic photo shows land acreage with minimal fencing that lacks most of today's trees and vegetative cover.

The recent aerial photograph shows forested buffers, gravel travel lanes for cows, fencing to restrict cow access to the river

and its banks, wetland grass planted in runoff areas, and a roof runoff-collection system that prevents clean water and barnyard water from mixing.

The teachers are focusing on farm systems today. Throughout the course, they are learning as both adults and teachers about agricultural pollution, urban runoff, biological diversity, historic settlement patterns, river systems, and more. Then, as educators, they will devise ways to share this knowledge with their students, the future stewards of the Champlain basin.

The Choiniere Family Farm straddles the Rock River, which leads into Missisquoi Bay on the U.S.–Canada border. Some of the teachers had never been to a farm. It is important for them to learn about agricultural issues facing Lake Champlain.

Vermont's environmental plans call for phosphorus reductions of about 40 percent from farms. One of the goals of the wa-



*Left: at the Choiniere farm, Highgate, Vermont, in 2012. Right: middle school teacher Sandra Fary stoops to catch a frog in North Hero, Vermont, in 2008.*

their students. Choiniere's farm provides a clear and creative way to explore that topic.

### It Takes a Partnership

Teaching teachers has been part of the Lake Champlain Basin Program from the organization's inception in 1991. In 1992, the LCBP joined with Shelburne Farms in Vermont and partners in Québec and New York to start a watershed-education program called the Champlain Basin Education Initiative (CBEI). The LCBP funds and provides administrative and content support to the partnership, which in turn trains and supports teachers.

Amy Demarest, a partner and former lead instructor for the training program, A Watershed for Every Classroom (WEC). "In the course of the year, participants embrace the Lake Champlain Basin as a unique textbook their students will come to read," she said. "Teachers travel throughout the basin and get their feet in the river, boots on the mountain trail, and arms paddling."

The participating teachers "work with visiting experts as they examine plants, old forts, water quality, ancient artifacts, and geologic patterns in rocks," she said.

The educators program has become a model for others, including a course in Hawaii. Hundreds of teachers have participated in either one-day workshops or the yearlong Watershed for Every Classroom course, which began in 2007.

Shelburne Farms and the LCBP remain anchor partners to this day. Other current collaborators include the Lake Champlain Sea Grant and many local and regional organizations. A community of university professors, state employees, local governments, and nonprofits teach, serve as community resources, or provide exciting learning locations. The ECHO Leahy Center for Lake Champlain, where two LCBP staff members run the center's Resource Room, is an important partner.

Shelburne Farms is a national leader in place-based education that played a central role in the design of WEC. Megan Camp, Shelburne Farms' vice president and program director, explains that her organization oversaw the evaluation of all the CBEI programs in the late 1990s. At that time, CBEI had been offering one-day workshops and a weeklong course. "We learned that the 'dosage' of professional development should be a nine-month to yearlong pro-



gram to achieve more staying power" and to support "a sustained change in teacher practice," she said. Accordingly, WEC's year-round approach was born.

Those same findings informed the design of the nationally replicated Forest for Every Classroom partnership of the National Park Service and the U.S. Forest Service, and the Park Service's award-winning Park for Every Classroom. Shelburne Farms is the primary partner for both programs.

Shelburne Farms managed a formal appraisal of WEC after the first year, and a second this year. The course and the one-day workshops are continually revised in response to participant evaluations.

### Outside the Classroom

One of the challenges facing the course instructors for Watershed in Every Classroom is to convince a teacher to take students out of the classroom and into rivers, wetlands, fields, and forests. WEC starts by examining the natural resources and human-development patterns of the Champlain basin, and adds local and regional historical perspectives. The group experience of this exploration, in every class and all weather,

### Many Partners

The current collaborators in A Watershed in Every Classroom are the Community Sailing Center, the ECHO Leahy Center for Lake Champlain, the Lake Champlain Basin Program, the Lake Champlain Maritime Museum, the Lake Champlain Committee, the Lake Champlain Sea Grant, and Shelburne Farms.

tershed course is for teachers to help their students understand the issues facing Lake Champlain, including pollution.

By noon, Choiniere and the teachers have explored best management practices for water quality, farm economics, land conservation, and herd health as they relate to organic grass-fed dairy practices. A soil-health pyramid, a permanent fixture fastened to a wall of Choiniere's barn, serves as a primary point of discussion.

*It's important that teachers and the public understand [soil health], and do what we can to keep the soil where it belongs—along the banks.*

Choiniere is a strong believer in improving soil health, which, in turn, influences overall farm health. The teachers focus on "how systems work" that day, an important concept that they will need to instill in

makes educators comfortable preparing their students for similar experiences. Woven together, these experiences tell a story about the watershed that is integrated and complete.

Kim Brockway, a fourth-grade teacher for the C.P. Smith Elementary School in Burlington, participated in WEC three years ago. "During our Watershed for Every Classroom course, we developed a curriculum to bring kids outside each week into a local wooded park," she says.

At first, her students were hesitant to learn outside because it was new to them. It only took a month or so before they looked forward to their weekly outdoor adventure. Brockway adds, "Our time in the woods includes both recess and guided explorations connected to curriculum. Our recess woods time allows students the freedom to engage in imaginative play in a way that time on our playground does not."

Woods time is just one piece of her curriculum. "Students explore our local river through stream monitoring and they also sail on Lake Champlain," Brockway says. "We partner with a number of local organizations to help improve the watershed through riparian buffer plantings."

By the end of the year, Brockway's students have developed a sense of place and understand that Lake Champlain's watershed extends well beyond the immediate shoreline. This year, they also learned that students can help the lake's future health, as they did by planting trees along a major tributary.

Like most watershed course graduates, Brockway has learned to adapt her teaching needs to the reality of her school's avail-

*continued on page 14*



*Atop Mt. Jo in the Adirondacks.*

## A Year o

**1 July 16, 2018: Geology and Ecology.** WEC introduction and overview at Shelburne Farms (Vermont). Paddle the LaPlatte River with University of Vermont Field Naturalist Alicia Daniels while making natural-resource-based event maps. Meet with Dr Char Mehrtens, UVM geologist, atop Mt Philo.

**2 July 17: Change Over Time.** Meet at the Lake Champlain Maritime Museum (Vermont) for a curriculum workshop to form essential questions and examine big ideas that may be the bases for curriculums. Presentation by Museum Director Susan Evans regarding human history and settlement patterns in the Champlain Basin. Row longboats across the lake to Willsboro, New York.

**3 July 18: Human Impact and History.** Meet at the Crown Point (New York) State Historic Site. View the program at the visitor center on the history of Fort Crown Point. Explore the fort, the visitors center, and, across the bridge in Vermont, the Chimney Point Historic Site to experience what may excite students. Then share the result using a student voice. At Heart Lake, in the Adirondacks, hear a presentation on citizen science and climate change, and view student artistic interpretations, with Dr Curt Stager of Paul Smiths College. Hike around Heart Lake with a guide from the New York Department of Environmental Conservation. Optional hike up Mount Jo or a swim.

**4 July 19: River Communities and Citizen Science.** Lake Placid and the Ausable River. Curriculum Workshop, "What Is Place Based Curriculum Design?" Gather water-quality sampling (chemical, physical, biological) and discuss service learning. Optional stop at historic John Brown House.



# f Watershed Engagement



- 5 **July 20: Human Impact.** Burlington, Vermont. Curriculum workshop and discussion of protocol practices. Walking or cycling tour of green-stormwater sites, and an ice cream social.
- 6 **October 13: How Do People Take Care of this Land and Water?** Visit the Missisquoi Wildlife Refuge (Vermont) for an exploration walk incorporating how native peoples may have used the site and how things have changed over time. Engage in curriculum planning. Visit the Choiniere Family Farm, an organic grass-fed dairy farm in Highgate. Visit Green Mountain Dairy, a larger dairy farm in Sheldon, Vermont, that makes electricity from methane.
- 7 **October 14: Place Based Education.** Meet over breakfast with a St. Albans, Vermont, city engineer to discuss wastewater treatment planning for a city that discharges into an impaired bay. Take a stormwater walk with a regional planner through several uphill neighborhoods. Meet with a local teacher to explore options for teaching about place.
- 8 **January 11, 2019: How To Use Special Collections.** Meet at the University of Vermont, Burlington. Explore special collections and conduct one specific search per participant relevant to their lessons. Also, review curriculum for work to date.
- 9 **April 6: Exploring Student Work and Presentations.** Scheduled for Shelburne Farms with three guest teams, this event had to be canceled in 2019. Participants instead assessed experiences.
- 10 **May 3, Curriculum, River Mapping, Protocols, and What Lies Ahead.** North Hero, Vermont. Presentation of final work.
- 11 **May 5, Exploration of Geologic Sites Using Event Maps and Resource Guides.** Fisk Quarry and Goodsell Ridge (Vermont). Topics included using event maps to help students observe and sketch features of the landscape. Wildflower investigations and use of resource guides. Final evaluation.



*Teachers sein for fish in Missisquoi Bay with Québec fish-and-wildlife biologists in 2007.*

## Teaching the Teachers

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able resources. The cost of chartering buses for programs can be prohibitive, but her students are willing to walk and bicycle to nearby locations. Watershed for Every Classroom also gives participants small stipends for their schools to help offset the costs of implementing programs.

### Student Work

Although Brockway was the only WEC graduate from her school, she joined with WEC colleagues Keith Brown and Joni Pecor from the nearby J.J. Flynn Elementary School. With support from a WEC grant, students from both schools met with a local artist, Peter Katz, from Generator Maker Space in Burlington. They created laser-cut wooden artwork that expresses the students' enhanced understanding of the basin and its ecosystem. This work was beautifully displayed against the backdrop of Lake Champlain during the World Water Day program in 2017 for about 125 guests.

Every spring, World Water Day features student art, videography, songs, writing, and photography completed by students from around the watershed. The CBEI



*Instructor Amy Demarest helps teachers Isabelle Gregoire (Sutton, Québec) and John Little (Montgomery, Vermont) develop curriculum activities for the Missisquoi River, the watershed in which they teach.*

started this local event in 2015 to showcase student work in a public setting. The event was inspired by the United Nations' World Water Day, held each year on March 22.

### Making Connections

The Champlain Basin Educational Initiative offers the eleven-day Watershed for Every Classroom from July through May.

## A Path to Better Teaching

BY SONAL PATEL-DAME

WHEN I STARTED TEACHING AP Environmental Science at Plattsburgh High School, I just went through the motions of “teaching” what was in the standards to get students ready for the AP exam in May, as if that were the most important part of my role as their teacher. I was most certainly not inspiring students to consider environmental science as a major in college or even to appreciate their home.



was heavily into mining and logging.

I was inspired to use the Lake Champlain watershed as my theme for the year. The WEC partners helped me find experts in the area to weave the watershed into my class.

My students delineated watersheds with Dr Eileen Allen, a GIS specialist from SUNY Plattsburgh. We took data on lake temperatures and depths to discover lake stratification and turnover with the Adirondack Watershed Institute at Paul Smith's College. This led us to study how organisms in the lake survive our harsh winters.

We identified macroinvertebrates from upstream and downstream in the Saranac River with Nate Trachte and Ashley Eaton from the Lake Champlain Sea Grant. We raised and released Atlantic salmon with Don Lee from Trout Unlimited.

Thanks to WEC, my AP Environmental Science course went from “I have to tell you all of this content before the test” to “Let's discover our watershed together.”

Through these experiences, my students understood the importance of our basin, and how they could make an impact on its health. They have created a fall and spring newsletter, highlighting some of their favorite moments of the AP Environmental Science course. Several have expressed interest in majoring or minoring in environmental science in college.

If nothing else, students have learned how truly fortunate we are for being able to live in a beautiful area and to be able to call the Lake Champlain basin our home.

When teachers are passionate about a topic, it becomes a part of life to many students. Let's bring back outdoor education and raise a generation of children who appreciate, and will protect, the natural world.

*Sonal Patel-Dame teaches chemistry and environmental science at Plattsburgh High School. Enrollment in her AP Environmental Science class grew from less than ten to more than thirty students after she took the WEC class and students began sharing their own classroom experiences with others.*



Staff members from the Lake Champlain Maritime Museum coach the 2018–19 WEC class across Lake Champlain.

Teachers may also participate in one-day workshops throughout the calendar year.

The topics for the one-day workshops have included invasive species, a review of the state of Lake Champlain, and the geologic history of New York’s Ausable Chasm.

A workshop at Fort Ticonderoga helped some thirty teachers incorporate primary source documents into their teaching. Members of the Fort Ticonderoga staff

led sessions, some using the fort’s historical documents.

The CBEI partners help educators explore the Lake Champlain watershed and understand human impacts on the landscape. They strengthen the teachers’ abilities to deliver rigorous and engaging place-based experiences to their students. Outcomes include spending quality time in the field with experts, establishing com-

munity connections, providing experiential learning and reflection, and curriculums to meet specific needs identified by states or districts.

As teachers implement programs in their communities, partners connect Watershed for Every Classroom participants with community specialists. In the 2018–2019 teaching cycle, CBEI partners linked WEC participants to a climate scientist, town planners, stormwater infrastructure leaders, ecologists, geologists, Adirondack Park recreation leaders, museum educators, geographers, and farmers and other business owners. Linking the schools to local authorities strengthens community bonds and gives students the experience of learning directly from experts and others.

Working together benefits teachers and CBEI partners alike. Elizabeth Lee, director of education for the Lake Champlain Maritime Museum, said, “It’s great to have other organizations to refer students and families to when they need specialized resources I don’t have. I love sharing what my organization does and using our strengths to compliment other watershed assets.”

While partners meet frequently to revise upcoming workshops and courses, recruiting teachers can be a daunting task. For teachers, one more task in their academic lives is a big lift, so CBEI encourages in-school teams to participate. It is easier for teams to support student learning and

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## From Theory to Practice

By FINN GARDNER-PUSCHAK

*From an AP Environmental Science student evaluation:*

WHILE TAKING THIS class, I learned about the ecological system of the world. Bringing these large-scale ideas like populations, pollution, water quality, and weather to a small local environment helped my comprehension of these ideas as well as an opportunity to interact and value my local area.

Through multiple local guest speakers, I learned of a position as a Lake Champlain boat steward protecting the



lake from invasive species. I attained this job and continue to help the local watershed with a passion I got from this class and its Champlain watershed emphasis.

*Finn Gardner-Puschak was a Lake Champlain boat-launch steward in the spring and summer of 2019 and 2020. His words are from his evaluation of Patel-Dame’s 2018–2019*

*AP Environmental Science class. The Lake Champlain Basin Program’s seasonal boat-launch stewards promote practices to block the spread of nonnative species. Their work is described in the September, 2019, issue of Interstate Waters.*

# Reinventing NEIWPCC

*Two thousand twenty was going to be a year of change for NEIWPCC. Then everything changed.*



# NEIWPCC

IT WAS WITH REGRET THAT NEIWPCC's executive director, Susan Sullivan, met with her senior team on March 12 to postpone the annual gathering of the entire NEIWPCC staff from across the Northeast, scheduled for March 27. It was our first coronavirus-related postponement.

The once-a-year All-Staff Meeting, valuable to NEIWPCC, was to introduce a new look for NEIWPCC, and a new way of telling the world about what we do. We reluctantly replaced the event with an abbreviated virtual gathering and a November rain date.

The public launch of the "new NEIWPCC" went forward as scheduled on April 22. By then, many spring conferences and training classes had been rescheduled or postponed, and most of the staff had been teleworking for a month.

The new bottlenecks and constraints from working and meeting remotely would challenge every aspect of our work, and that of our state and place-based partners.

*Adam Auster is NEIWPCC's communications director. Michele Levy, a brand strategist who developed NEIWPCC's new message, contributed to this story.*

Over time, however, some new modes of work would grow into new innovations. Exploring remote training for environmental professionals, for instance, had been a long-term goal. Suddenly it was a necessity.

## Reintroducing NEIWPCC

Over the past two years, we realized that to deliver fully on our mission—to advance clean water in the Northeast through collaboration with, and service to, our member states—we needed to communicate better our intent, work, and impact.

We consulted with hundreds of stakeholders through workshops, surveys, and one-on-one conversations. We considered where we fit in the water quality world, and thought about where we wanted to head over the next few decades.

While it was difficult to part with the old logo, we felt we needed a new look that better represented our dynamic, collaborative, and cross-cutting nature. We de-

veloped this description of our goals, role, and work:

*NEIWPCC is a regional commission that helps the states of the Northeast preserve and advance water quality.*

We describe our work as follows:

- **Connections:** We engage and convene water quality professionals and other stakeholders across the Northeast to collaborate on clean water and environmental science challenges across shared regions, ecosystems, and areas of expertise.
- **Protection:** We conduct research into water-related topics, monitor related environment factors, and fund such work by others. We also implement and fund environmental restoration and other on-the-ground projects.
- **Training:** We develop, coordinate, and conduct training courses that serve water quality professionals regionally and nationwide.



- **Education:** We fund and/or staff programs that engage the public through events, exhibits, web and print publications, and other outreach activities.

- **Engagement:** We actively represent the interests of member states at meetings with federal and state officials and in regional and national water and wastewater associations.

These goals and values have really been part of NEIWPCC since our inception in 1947. The current crisis challenges us to live up to these aspirations under rapidly changing conditions.

## Fulfilling Our Role

Meanwhile, NEIWPCC scrambled to find ways to help states and partner organizations that were themselves struggling because of the virus. In the Champlain basin, many local watershed and heritage groups rely on field-based outreach work for annual grant revenue. These organizations faced operating shortfalls due to pandemic restrictions.

The Lake Champlain Basin Program was able to repurpose funds awarded by the Great Lakes Fishery Program to NEIWPCC on behalf of the LCBP. It awarded more than \$50,000 in general operating grants in April. Time elapsed from announcement to awards: two weeks.

NEIWPCC's workgroups quickly became hubs of information and support for states coping with new working conditions, staffing levels, and problems. Wastewater operators needed personal protective equipment, which was (and remains) in short supply. Environmental monitoring stopped in many states, later to resume (sometimes) under restrictions and conditions.

Some workgroups that had only met several times a year held regular telephone meetings. Ad-hoc conference calls and Zoom meetings filled gaps. Webinars filled in for postponed conferences.

## Online Training

One of the biggest challenges confronted NEIWPCC's Wastewater and Onsite Systems Division, which trains wastewater and drinking-water operators. The division plays a special training and certification role for Maine and Massachusetts. How, then, to provide training to new and continuing operators? What to do about the regular recertification of a workforce that was no longer able to fulfill continuing education requirements?

NEIWPCC's online wastewater training made its debut on June 10, a two-hour session on collection systems taught by NEIWPCC's training coordinator, Don Kennedy.

Kennedy and other NEIWPCC instructors offered an additional thirteen online sessions through the end of July on such topics as sampling techniques, centrifugal pumps, and wastewater fundamentals for breweries.

In Maine, NEIWPCC's Joint Environmental Training Coordinating Committee resumed its Wastewater Operator School online after restrictions on gatherings interrupted the program.

The Wastewater Operator School is a six-month, twelve-session introduction to the wastewater field. The current class

will be able to complete the course later this year.

Meanwhile, NEIWPCC coordinated with states as they delayed their recertification deadlines for operators and faced possible shortfalls in wastewater plant personnel.

As this issue of *Interstate Waters* goes to press, there is no "new normal" and business is decidedly not as usual. Nonetheless, we are in business.

Together, the states and the staff are meeting the challenges of pandemic life in ways that do credit to our values, old and new. 🌈



## Our New Look

NEIWPCC'S NEW LOGO DRAWS ON VISUAL REPRESENTATIONS OF WATER, land, and agriculture, and of topological lines. It emphasizes the "new" name: NEIWPCC (NŪ-Ē-PIK)—our "old" acronym repurposed.

The seven shapes within the square represent the collaborative nature of our member states: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

The organic, dynamic shapes are reminiscent of ever-changing blue shorelines, surrounding healthy green ecosystems, and warm sunny skies.

The open spaces between the swashes are inspired by charts and topographic maps. These spaces between the swashes also represent the multiple entry points for our work and pathways into our friendly, welcoming community.



## YEP

continued from page 9

of treatment, the water was supposed to look like a “frothy mocha latte” as he described it. Instead it looked like coffee left sitting for two days. The tank’s carefully maintained ecosystem had gone rancid.

Tom explained to the 2018 students how the treatment plant works: how the clarifiers they’re tasked with hosing down settle out solids and FOG (fats, oils, and grease) from the wastewater. Then microbes—“bugs”—and oxygen do most of the hard work, digesting the excess nutrients in the water and congealing them into solids that will later settle out in more clarifiers. Towards the end of the program, the teens turned that knowledge into a short tour of the plant for NEIWPC employees.

Abdiel, by asking the Lowell Wastewater staff questions like how the plant worked or how they got into the field, invited the mentorships between the teens and the staff that I watched form in 2018.

When Tom learned that Abdiel and Edwardo were both studying the electrical trade at Lowell’s technical school, he set all four of the teens up to work with the electricians. The group formed a particular bond with one of the electricians, Dan Kelleher, whom they shadowed.

Dan not only told them about the field but gave them life and career advice. Things about finding “work with your head, not your body” while you’re young, reading more, and how there’s more to life than getting rich: all things that, coming from an adult with a trade background like them, carried weight for the teens.

At the end of the program, it’s a tradition for the YEP coordinators to bring in thank-you cards for the group to sign. The 2018 teens each thought through a note for their mentors at the treatment plant. Abdiel took extra care choosing words for Dan.

“No one’s ever talked to me like Dan, giving me life advice like that,” he said. “Thanks for being a hero,” he wrote.

The 2019 program offered different opportunities for the students than in 2018. Many Duck Island em-



ployees were extra busy with construction projects at the plant, so the teens’ work assignments adjusted accordingly. They spent more time with the wastewater operators than the 2018 group, shadowing them and checking readings at different stages of the treatment process. YEP coordinator Amanda said, “There were a few [operators] that really took us under their wing.” She told how the operators eventually let the students take dissolved oxygen measurements on their own.

At the Greater Lawrence Sanitary District, Cheri, the plant director, worked closely with the teens to set them up with opportunities. “Cheri would go out of her way to be like, ‘Joskar, I want you to meet this plumber,’” Kathryn, the Lawrence YEP coordinator said. She said Cheri provided one of the teens with opportunities that helped her figure out whether she was studying the right trade.

Kathryn said Hildaliz often asked the GLSD employees what their favorite part of the job was. “They always [talked about] the satisfaction of knowing they’ve done something to keep water clean.”

Similarly, Amanda said one of the wastewater operators told her group, “Our first job is to send out the water as clean as it can be.”

### City Kids in Nature

For some of these teenagers, who’ve grown up in a city and might not have a car, the YEP field trips are an introduction to nature.

“Cesar would always be like, ‘this is beautiful!’ And it would be like, just the trees on the highway, on our way to a field trip,” Amanda, the Lowell coordinator, said.

Alijah, who was studying HVAC at the Greater Lowell Technical School, was the only 2018 student who’d ever been hiking. I eventually noticed his keen interest in animals. He tried catching frogs on our wet-



*Pulling invasive water chestnuts on the Charles River.*

lands trip, eagerly fed goats on a dairy farm, and stood still, knee deep in Walden Pond, for ten minutes so fish would draw near. When he tried and failed to grab one, he turned around, shouting at me how close it had come.

In July 2019, I went on the wetlands field trip to East Richardson Preserve in Dracut, a program mainstay led by Jay and an EPA Region I colleague, Jackie LeClair.

Every year as the group walks through the East Richardson Preserve down to a large pond, the EPA members will stop, stoop down, and pull from the ground Indian cucumbers, tiny edible roots that are noticeable by their distinctive leaf pattern. In 2018 only Edwardo was brave enough to taste the plant, but in 2019 nearly all of the students tried one. It has a mild flavor that is nutty but cucumber-like.

When they reach the pond, each year the EPA officials explain why wetlands are important. By the end of the 2018 summer, my YEP students had the big three reasons memorized: they act as a sponge, they act as a filter, and they serve as important habitat. Echoing the last, one of the EPA scientists in 2019 turned to face the pond, throwing his arms out. "This is habitat. It shouldn't be developed. This is gorgeous!"

On the same field trip in 2018, I remember Abdiel asked why everything was so "dirty." The teens that year not only found a lot of nature to be "dirty," they also were afraid of getting dirty, of sitting on grass or logs or ruining their shoes.

Abdiel suggested trees be replanted in rows and the ground be cleared of leaves. "Make it neat," he concluded. His question surprised me, and I found myself trying to explain something I'd learned and taken for granted from a young age, what felt like a mix of science and the spiritual: how all the different processes of growth and decay were working together, how all of it was already exactly where it was supposed to be.

Later, before we left, I remember Abdiel saying, "I'd like to come back here sometime to clear my head. It's peaceful."

## Graduation

The Duck Island conference room was packed for the 2019 graduation ceremony on August 15. EPA and NEIWPCC staffers, representatives from the Lowell Career Center, the directors of the Lawrence and Lowell utilities, wastewater operators, and parents all came to listen to a few speeches and watch the YEP students' present on their summer.

Jay and Jackie from EPA Region I talked about the planning that went into establishing the Lawrence YEP program the



*Field trip with EPA New England to East Richardson Preserve in Dracut, Massachusetts.*

summer before, and how money to run the program comes from Region I's wetlands division. "It's a great program. I will do whatever I can every year to keep this program running," Jackie said.

Both plant managers, Mark and Cheri, spoke.

Cheri made a point of individually thanking each student for their hard work. Mark encouraged the teenagers to consider future opportunities in the wastewater and drinking-water industries. "There are a lot of jobs opening 'cause old guys like me are retiring."

The teens' graduation presentations reviewed their work at the treatment plants, what they learned during afternoon lessons, and field trips. Cesar, the "spunky" one of the group, as YEP coordinator Kathryn put it, started the Lowell presentation. Leaning casually over the podium at the front of the room, he welcomed and thanked everyone for coming. "Before we begin, I wanted to ask, how's everyone doing today?" Everyone laughed, the ice was broken, and many of the teens who were nervous to present visibly relaxed.

When someone asked the students what they were most proud of from the year, there were many responses.

"We all did a lot of work!"

"Spending my summer learning about new opportunities I might have in the future."

"Learning about new career opportunities."

"Working with the engineers."

"Getting this opportunity to learn about the environment around us and how a small thing can make a big impact."

Someone else asked what they were most surprised to learn that year.

"How Lawrence [GLSD] tries to reuse ev-

erything that comes through the plant."

Jay said he liked telling the Lawrence students that they're drinking the water that just came from the Lowell wastewater plant. "It's all a cycle, all down the river," he said, referring to the many wastewater and drinking water plants discharging and taking from the Merrimack.

Edwardo chimed in with his perspective from participating in two years of YEP. "Before you come here, you don't think about where your water goes, where your waste goes. Well, it comes here." Everyone laughed. "Since last year... I always keep that in the back of my head."

Later, I asked Amanda and Kathryn how they felt about their experiences as YEP coordinators. "It was more rewarding than I ever thought it was going to be," Kathryn said. "Working with four teens, you get to really make connections."

For Amanda, the YEP experience is "so powerful that you just look past the fact that you're at a wastewater treatment plant... at the end of it you really respect [the utility employees] because they love the business too."

The 2020 Youth and the Environment Program was canceled due to COVID-19 concerns, but would have marked thirty years since the program started.

"Our youth and the environment programs are so important, but would not be possible without the unique partnerships NEIWPCC and the EPA have fostered in Lowell, Lawrence, and New York," says Susan Sullivan, NEIWPCC Executive Director. In 2019, NEIWPCC was working with some of our commissioners to see what kinds of opportunities there were to run similar programs in our other member states. "In the future we hope there are more of these kinds of programs in the Northeast." 🌊



Guy Choiniere from Choiniere Family Farm is flanked by the 2018–2019 WEC participants and the CBEI partners.

## Teaching the Teachers

*continued from page 15*

to recommend new teaching practices for their schools. Another incentive for teacher participation is the opportunity to explore the watershed as adult learners before they teach their students.

### Tuition

The Lake Champlain Basin Program provides baseline funding for the CBEI Watershed for Every Classroom course and several one-day workshops, primarily with funds from the EPA or the Great Lakes Fishery Commission. Class sizes have

ranged from six to seventeen participants. LCBP covers instructor fees, provides partner stipends to offset participation costs, and offers some of the awards for World Water Day.

The teachers pay a \$500 course fee, which offsets the expenses for the three overnight programs during the WEC course, and have an option to earn six credits for an additional \$1,000. Partners also contribute time, facilities, World Water Day awards, and specialized expertise and assets.

### Continuing Education

Once teachers begin to incorporate their new content and teaching protocols from

the Watershed for Every Classroom course, it is often beneficial for them to check back in with partners and colleagues. CBEI offers alumni workshops to expand content knowledge and to provide networking opportunities. The one-day workshops also provide opportunities for past participants to invite a colleague or another member of their school's teaching team.

In 2020, Shelburne Farms has wrapped up WEC's second comprehensive program assessment, based in part on participant evaluations. The continuing education is ongoing, and flows both ways. 🌈



## Pulling Together

**L**AST WINTER, NEIWPC PRACTICED ITS normal diligence in bringing together state and, often, federal officials to make progress on common issues. These included new examinations for wastewater operators, algal blooms, PFAS, and alternatives to traditional total maximum daily loads.

The Northeast Aquatic Biologist Conference in early March, the first big event of our busy 2020 conference season, drew

more than 140 participants to the conference venue in Newport, Rhode Island.

Then, in March, our states were challenged in every way by the emerging novel coronavirus. The pandemic disrupted environmental protection programs across the region and the nation. The virus, and the new needs of the states, challenged us too. (See “Reinventing NEIWPC,” page 16.)

### Adaptations

As our staff and those of the states adapted to working remotely and other health-related restrictions, we also grappled with new issues, such as the need for personal

*continued on page 22*

*With this issue, “Connections” replaces “Workgroup Roundup” as an editorial department that features NEIWPC’s work convening state and other partners to work on common issues.*

### Workgroup Meetings

November 2019–July 2020

#### 2 in November

Water Resources Adaptation and Climate Change November 4  
Nonpoint Source November 21

#### 2 in December

Massachusetts Training Advisory Committee December 18  
Source Water Protection December 19

#### 4 in January

Total Maximum Daily Loads January 14  
Northeast Aquatic Biologists January 28  
Water Quality Standards January 22  
Volunteer Monitoring January 23

#### 1 in February

Nonpoint Source February 19

#### 5 in March

Onsite Wastewater March 9, 30  
Joint Meeting of Wastewater Certification with Trainers Forum March 18  
Residuals March 24  
Source Water Protection March 25

#### 13 in April

Joint Meeting of Wastewater Certification with Trainers Forum April 1, 8, 15, 22, 29  
Residuals April 2, 16, 30  
Special meeting on summer monitoring amidst COVID concerns April 6  
Onsite Wastewater April 13, 27  
Tracking and Accounting Collaborative April 22  
Nonpoint Source April 23

#### 10 in May

Underground and Leaking Underground Storage Tanks May 6\*  
Source Water Protection May 7  
Joint Meeting of Wastewater Certification with Trainers Forum May 13, 27  
Residuals May 14, 28  
Tracking and Accounting Collaborative May 19  
New England Biological Assessment of Wetlands May 20\*  
National Pollutant Discharge Elimination System May 20  
Emerging Contaminants May 20

#### 6 in June

Tracking and Accounting Collaborative June 25  
Residuals June 11, 25  
Nutrients June 15  
Joint Meeting of Wastewater Certification with Trainers Forum June 24  
Onsite Wastewater June 25

#### 5 in July

Residuals July 9, 23  
Water Quality Standards July 13  
Joint Meeting of Wastewater Certification with Trainers Forum July 15  
Source Water Protection July 22\*

*\*indicates presentation at meeting*

### Workgroup Presentations

#### Tanks Workgroup Meeting, May 20

“Bridgewater, Connecticut, Convenience Store.” Allison Forrest-Lauippa, environmental analyst, Leaking Underground Storage Tank Coordination Program, Connecticut Department of Energy and Environmental Protection.

“What Could Possibly Go Wrong?” Joe Cunningham, PE, senior environmental engineer, Office of Land Revitalization and Sustainable Materials Management, Rhode Island Department of Environmental Management.

#### NEBAWWG Meeting, May 20

“Regional Wetland Functional Assessment Method Update.” Erica Sachs Lambert, EPA, and Paul Minkin, U.S. Army Corps of Engineers.

“Enhancing Northeast Wetland Monitoring and Assessment with Eco-Regional FQA Metrics.” Don Faber-Langendoen, NatureServe.

#### Source Water Protection Workgroup Meeting, July 22

“U.S. Geospatial Data on Private Wells and Underground Storage Tanks.” Alex Hall and Fran Kremer, PhD, EPA Office of Research and Development.

## Looking Back

### Fifty Years Ago

On April 10, 1970, NEIWPCC's commissioners initiated a regional water quality surveillance program. The new program was a first step in state monitoring efforts and served to evaluate the effectiveness of early water pollution abatement efforts. NEIWPCC selected the monitoring site, and state staff collected and analyzed samples. Federal and contracted laboratories served as backups.

### Thirty Five Years Ago

In May, 1985, NEIWPCC received a grant from the EPA to develop and distribute a national newsletter on state and federal underground storage tank regulatory activities. NEIWPCC published the first issue



of L.U.S.T.Line (still in production today) that August. Discussions were also in play to establish a national tanks conference.

The funds were in support of the 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act, which directed the EPA to initiate

a program aimed at regulating all major underground storage of petroleum products and hazardous substances.

### Twenty Years Ago

In 2000, NEIWPCC developed a Geographic Information Systems technology and data management document addressing the concerns of states for data quality, coordination, management, and distribution. "The Application of GIS Technology and Data Management in States' Source Water Assessment Programs" highlighted the approaches of five states to utilizing GIS and incorporating data management in their source water assessment programs. 🌈

— By Michelle St. John

### Connections

*continued from page 21*

protective equipment for wastewater operators. We had to gauge the threat of possible shortfalls in wastewater operators and sewage-sludge haulers, all essential workers.

Our conference season never happened, but we rescheduled them for next year. In some cases, we are offering new webinars paralleling the programmatic tracks postponed this year.

All meetings became remote meetings, by conference call or video conference, and there were many more of them. NEIWPCC's Residuals Workgroup met nearly every other week from late March through July, to discuss possible constraints on septic haulage and disposal, coronavirus pandemic contingency planning, PFAS, and other issues.

The Onsite Workgroup and the Trainer's Forum both met frequently about pandemic-related issues such as staffing concerns and public messaging to deter hygiene-conscious members of the public from clogging wastewater systems by flushing wipes. Other concerns included conducting inspections and certification examinations, meeting continuing education requirements, and finding ways to train socially distanced wastewater-operator candidates.

Much of the May 20 meeting of the NPDES Workgroup focused on impacts to work and permitting in the age of COVID-19. States generally reported that employees were adjusting to working remotely, and even that teleworking had allowed states to chip away at permitting backlogs.

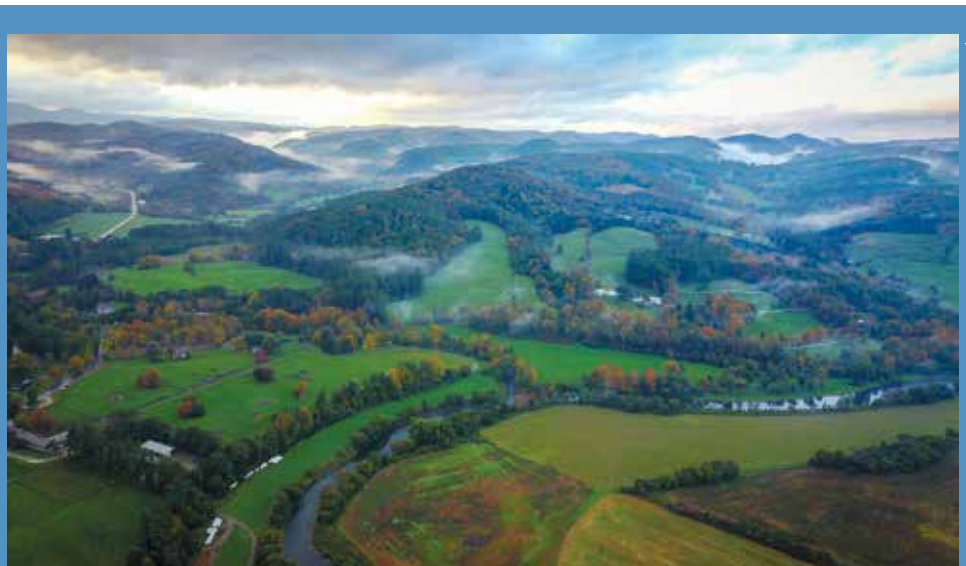
Special and ad-hoc meetings took up the effects of social distancing on monitoring

and inspection programs, and other issues. NEIWPCC's executive committee has met nearly every week since March.

As the public-health emergency continues to unfold, so does NEIWPCC's response. In early August, NEIWPCC decided that the 2021 Northeast Aquatic Biologist Conference will be held as a virtual event. The

conference would have been in Maine, and not until late winter. However, planning for the event would need to begin before September.

Nothing is certain; nothing feels safe. Nonetheless, NEIWPCC has moved quickly to adapt, and to fill new gaps among states as needs emerge from the current crisis. 🌈



## The Watershed Approach: The Importance of Partnerships

### 31st Annual Nonpoint Source Pollution Conference

**April 22–23**  
**Woodstock, Vermont**

Sponsored by the Vermont Department of Environmental Conservation,  
EPA Region 1, and NEIWPCC.



## Socially Distanced Eel Monitoring

**M**ISSING THIS YEAR FROM ONE of the premier citizen-science events of the Hudson valley: citizen scientists.

Since 2008, the Glass Eel Project has enlisted thousands of springtime volunteers who have counted and transported more than a million glass eels: the juvenile American eel, *Anguilla rostrata*.

But this year, because of pandemic safety restrictions, only staff members from the New York Department of Environmental Conservation, and from partners such as NEIWPC, sampled the eel migration, and only at some of the regular monitoring sites in the Hudson River estuary.

Yet the staff caught more than 400,000 eels this year, more than any other in the history of the project.

Amanda Simmonds, above, links by video call to a Wappinger's Falls, New York, junior high school class. Simmonds, an educator intern with the Student Conservation Association, stands before part of a fyke net in the Black Creek in Ulster County, New York, on April 27. Other masked crew members, not shown, are nearby.

During the 2020 COVID pandemic, many environmental educators adapted their field programs to provide remote encounters with the estuary and watershed.

The eels are collected using specialized nets and traps (fyke nets and eel "mops"), counted, weighed in groups, and released into their upstream habitat, often above dams. The project is managed by the DEC's Hudson River Estuary Program and Hudson River National Estuarine Research Reserve.

The eels hatch in the Sargasso Sea and spend the majority of their lives in fresh water.

Although the public outreach mission of this event was largely frustrated this year, the monitoring is still important to guide management plans for eel conservation and to engage communities in researching their local stream environment.

The staff followed robust safety and social distancing protocols to monitor the four stream sites for a full season. Other sites were partially monitored, or not sampled at all, this year.

Last year's event drew more than 750 volunteers. 🍷

— Adam Auster and Maude Salinger



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## Events

### 2020

**September 21–September 23**, online: Long Island Sound Study workshop, “Community-Based Social Marketing.” [bit.ly/LISS\\_SocialMedia](https://bit.ly/LISS_SocialMedia)

**September 21–23**, online: New England Water Works Association Annual Conference. [newwa.org](https://newwa.org)

**September 25**, Nashua, New Hampshire: New Hampshire Water Pollution Control Association trade show. [nhwpc.org/spring-meeting](https://nhwpc.org/spring-meeting)

**September 29–October 1**, online: National Coastal and Estuarine Summit. [estuaries.org/summit](https://estuaries.org/summit)

**October 5–9**, online: WEFTEC Connect conference and exhibition. [weftec.org](https://weftec.org)

**October 25–28**, Hampton, Virginia: National Onsite Wastewater Recycling Association Onsite Wastewater Mega-Conference. [nowra.org/2020mega](https://nowra.org/2020mega)

### 2021

**January 24–27**, Boston, Massachusetts: New England Water Environment Association Annual Conference. [annualconference.newea.org](https://annualconference.newea.org)

**Late winter** (to be announced), online: Northeast Aquatic Biologists Conference.

**March 23–26**, Detroit, Michigan: Water Environment Federation Collection Systems Conference. [wef.org/collectionsystems](https://wef.org/collectionsystems)

**April 22–23**, Woodstock, Vermont: Annual Nonpoint Source Pollution Conference. [bit.ly/Annual\\_NPS](https://bit.ly/Annual_NPS)

**July 28–30**, Portsmouth, New Hampshire: National State Revolving Fund Workshop. [bit.ly/SRF\\_Workshop](https://bit.ly/SRF_Workshop)

**September 21–23**, Pittsburgh, Pennsylvania: National Tanks Conference. [bit.ly/National\\_Tanks](https://bit.ly/National_Tanks)

**April 21–22**, Presque Isle, Maine: Joint Environmental Training Coordinating Committee North Country Convention. [jetcc.org](https://jetcc.org)

*Our cover: NEIWPCC's new logo stands forth against the backdrop of the original corporate seal.*

