



Androscoggin River, 2021

The Clean Water Act: 50 Years Later

Reflections and Perspectives



Androscoggin River, 1973





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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

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FROM THE EXECUTIVE DIRECTOR

This year will mark the 50th anniversary of the passage of the federal Clean Water Act (CWA) of 1972, the landmark environmental legislation that has, to this day, defined how United States water resources are protected and restored. We are also celebrating 75 years since NEIWPCC's establishment by an act of Congress on July 31, 1947.



Although tremendous progress has been made in cleaning up our waterways, new challenges continue to arise, requiring our continued attention and efforts. In this issue of "Interstate Waters," NEIWPCC's leadership offers reflections and perspectives on the impact of the CWA, as well as the need for new advocates to drive forward its modernization.

The CWA was created in response to increased public concern for the environment and for the condition of the nation's waters. In my article, I provide some background and history of the overwhelming pollution in our nation's waterways, which led to the establishment of water quality standards.

Richard Friesner, director of water quality programs, explores the ongoing struggle to define "Waters of the United States," through legal challenges and court rulings. Christina Stringer, director of wastewater and onsite systems, then writes of the urgent need to address harmful emerging contaminants found in our water bodies. And, Heather Radcliffe, director of water resource programs and staff attorney, further explains how the CWA, despite its successes, continues to face many new complex issues, and needs a new generation of champions to make further progress.

Finally, Nelson Thibault, a longtime NEIWPCC commissioner, shares his story on the development of the country's first fully integrated sludge composting system.

We will share more stories and insights from our staff and commissioners throughout the rest of the year, in the next issue of "Interstate Waters" and through our website and social media. Please join us in marking the accomplishments of the past 50 years, as we continue our mission of advancing clean water for everyone.

Susan J. Sullivan
NEIWPCC Executive Director

Interstate Waters

Volume 6, Number 1



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HIGHLIGHTS FROM NEIWPC AND OUR PARTNERS

New Conservation Planning Tool

A new online interactive viewer is aiding in coastal resiliency planning in New York by showing potential marsh migration areas in the Long Island Sound. The “Marsh-Fate Interactive Viewer” depicts marsh migration over time on a parcel-by-parcel basis, under various sea level rise scenarios. It also overlays land tax-parcel and ecosystem information to assist conservation groups in defining and evaluating land-management opportunities. The viewer is the result of a three-year assessment by the New York State Department of Environmental Conservation and the Long Island Sound Study (LISS) in partnership with NEIWPC.



New Hudson River Curriculum Guide Advances K-12 STEM Learning

The Hudson River Estuary Program and partners have produced a new Hudson River Curriculum Guide. The inquiry-based, multi-component science guide is designed for teachers and students to enhance STEM learning, as well as deepen their engagement and understanding of the Hudson River and its watershed. The guide offers six thematic units: estuaries,



water and watersheds, climate and weather, interdependence in ecosystems, American eels, and human impacts, benefits and solutions. Each interdisciplinary unit is arranged by topic, and each topic includes lessons for elementary, middle, and high school levels. The units are designed to engage diverse learning styles, introduce students to the big ideas in science, expand their knowledge of environmental issues, and help them connect to the natural world around them.

Dam Removal Improves Water Quality, Flood Resilience, and Fish Habitat

The Lake Champlain Basin Program worked with the Franklin County Natural Resources Conservation District to oversee the removal of the Johnsons Mill Dam, located along the Bogue Branch in Bakersfield, VT. After decades of disuse, the stone and concrete dam was in a state of deterioration. Removing the approximately 220-foot-wide dam reconnected an estimated 23 stream miles of aquatic habitat in the Lake Champlain Basin for the first time since the early 1800s, resulting in improved water quality, flood resilience, aquatic organism passage, and reduced risk in the Missisquoi Bay watershed. Restoring the Bogue Branch to a free-flowing state also provides access to upstream habitat for native brook trout.



Franklin County Natural Resources Conservation District

Streambank stabilization along the Bogue Branch in Bakersfield, VT.

Exploring Expanded Nutrient Trading in Long Island Sound

An exploratory study into the opportunities and obstacles to expand water quality trading in the Long Island Sound watershed found that nutrient trading is unlikely to be an effective tool to meet water quality goals under current ecological, economic, and regulatory conditions in the Long Island Sound watershed. NEIWPC, in support of the Long Island Sound Study (LISS), had convened an interdisciplinary team of ecologists, economists, and policy experts to



Creating Valuable State-Tribe Communications

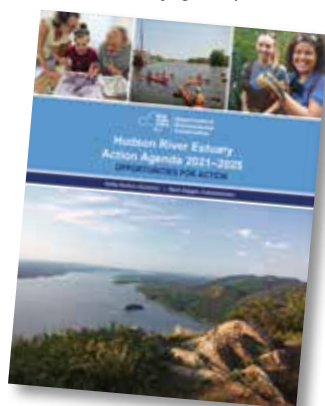
The “Meaningful State-Tribe Communication” webinar (part of the EPA-funded National 303(d)/TMDL webinar series), held in fall of 2021, focused on the importance of relationship-building between stakeholders. Speakers included Bruce Jones of the Northwest Indian Fisheries Commission; Nancy Schuldt of the Fond Du Lac Band of Lake Superior Chippewa’s Office of Water Protection; and Elizabeth Betancourt of California’s

analyze how an expanded water quality trading program could support LISS goals towards clean waters and healthy watersheds.

The analysis identified several limiting factors, including the lack of a regulatory driver to create demand for trading credits, resulting in insufficient demand to support a trading program. This is in part due to the success of the existing Nitrogen Credit Exchange, as well as most point sources in the watershed already discharging nitrogen well within their applicable regulatory limits. The report acknowledges that under different conditions – such as changes to the regulatory or ecological conditions in the watershed – nutrient trading could be reevaluated.

Hudson River Estuary’s Agenda for Conservation and Restoration

The Hudson River Estuary Program released an updated 2021-2025 action agenda to serve as a conservation and restoration blueprint to guide its work. Community groups and citizens throughout the region provided input for the plan, which proposes collective action by New York State and collaborating stakeholders. The document is organized around three themes: a vital river ecosystem, including the benefits of sustainable estuarine fisheries, robust river habitats, and clean Hudson River water; a thriving and resilient watershed, encompassing healthy tributaries, climate-adaptive communities, and conserved natural areas for wildlife, source water, climate resilience, and scenery; and people living well with nature, covering an informed and engaged public as well as an accessible river for people of all ages and abilities.



Central Valley Regional Water Board. BryAnna Vaughan, water quality program coordinator for the Bishop Paiute Tribe, opened the webinar with a reflection that successful communication

between states and tribes can protect natural resources and strengthen tribal sovereignty. The speakers’ recommendations for participants in projects involving tribal and state or federal agencies, include focusing on relationship-building early in the process; recognizing cultural differences in communication styles and preferences; and working to build a collaborative, culturally aware approach.



NEIWPCC Thanks Northeast Congressional Delegates for Support of Infrastructure Act

After years of ongoing debates in Washington, D.C. about the need for comprehensive infrastructure legislation, Congress acted by passing a \$1.2 trillion bipartisan legislative package, H.R. 3684, the Infrastructure Investment and Jobs Act. President Joseph Biden signed the bill into law in November 2021. NEIWPCC thanks the Northeast Congressional delegates who supported this critical infrastructure bill. Approximately \$550 billion of the total is new funding, of which almost \$51 billion is allocated to much needed drinking water, wastewater, and stormwater infrastructure funding.

HIGHLIGHTS FROM NEIWPC AND OUR PARTNERS

Megan Lung



Three Projects Announced to Help Protect Hudson River Estuary

The New York State Department of Environmental Conservation (NYSDEC) announced \$349,922 in contract awards for three projects to help communities improve climate resiliency, mitigate local flooding, and restore aquatic habitats. Funding for these projects is provided by the New York State Environmental Protection Fund and is administered by NYSDEC's Hudson River Estuary Program in partnership with NEIWPC. Two of the projects will create designs and conceptual engineering plans for climate resilient and connected waterfronts in the city of Hudson, and the village and town of Ossining. The third project will develop municipal management plans for road-stream crossings and dams within the towns of Red Hook and Milan.

Students Participate in Hudson River Research

Fifteen high school and college students from communities across the Hudson Valley completed an innovative two-week research program with education staff and scientists at the Norrie Point Environmental Center in Staatsburg, NY. Through "The Institute Discovering Environmental Scientists" (TIDES) program, students conducted environmental research projects along the banks of the Hudson River and in freshwater tidal wetlands examining water quality, plant life, and fish biological diversity of the estuary. They worked together to formulate scientific questions, gather field data, conduct scientific analysis and create a scientific presentation.

TIDES is a summer field research and laboratory science experience with NYSDEC Hudson River National Estuarine Research Reserve, the Hudson River Estuary Program, the Cary



Institute of Ecosystem Studies, and the Margaret A. Davidson Graduate Fellowship. Support was also provided by NEIWPC staff and funding.

USGS Monitoring Study Informs CT Phosphorus Reduction Strategy

The U.S. Geological Service (USGS) published results from a multi-year monitoring effort using dissolved oxygen to examine the effects of phosphorus loading in Connecticut streams. The study was funded by the Connecticut Department of Energy and Environmental Protection (CT DEEP) and facilitated by NEIWPC. CT DEEP used the data to develop an interim phosphorus reduction strategy to establish water-quality-based phosphorus limits in nontidal freshwaters for industrial and municipal water pollution control facilities.

Phosphorus, a nutrient which occurs naturally, can impair a body of water when too much of it is present in aquatic ecosystems. Fertilizers, wastewater, automobile exhaust, and animal waste are all contributors to increased amounts. The amount of dissolved oxygen in a stream or lake is an indicator of water quality, and when it becomes too low, fish and other aquatic organisms cannot survive.





Katie Kain, U.S. Fish & Wildlife Service

A riparian forest restoration site in Vermont, shortly after planting in 2010. Below, the site with establishing trees in 2015.

New Podcast Focuses on Riparian Forest Restoration

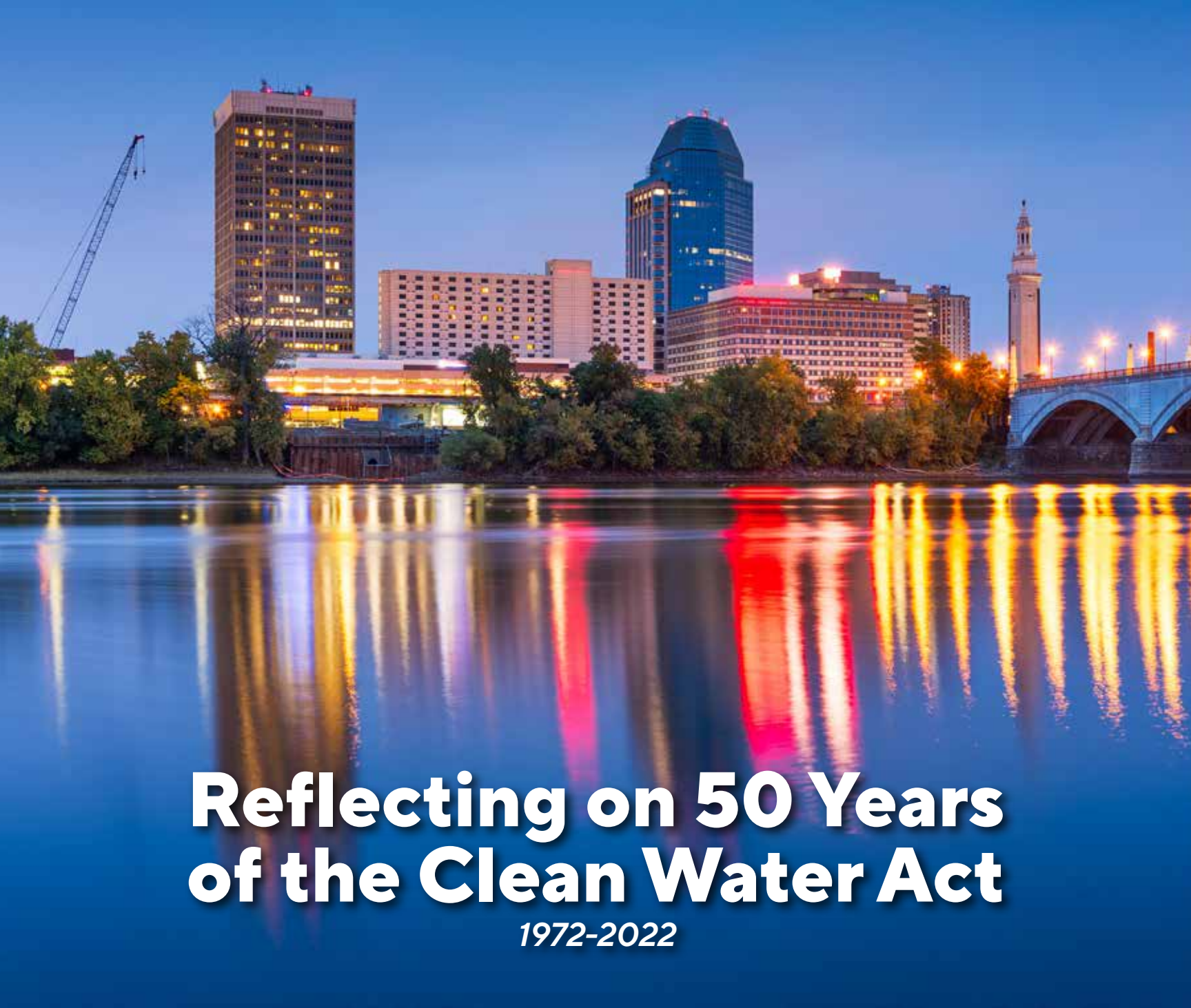
A new podcast debuted in fall 2021 to reach professionals working on restoring riparian forests. “Restoration Roundup,” produced by Vermont’s Watershed Forestry Partnership, provides information on improving the success of restoration projects and ultimately, local water quality. Currently, water

quality conditions of the Lake Champlain basin fail to meet Clean Water Act standards for phosphorus, a nutrient pollutant primarily from nonpoint sources that stimulates excessive algae growth. Restoring a riverbank’s habitat – riparian areas or corridors – is one way to limit phosphorus inputs. The project is funded by the Environmental Protection Agency under an assistance agreement to NEIWPCC in partnership with the Lake Champlain Basin Program. 🌿



Katie Kain, U.S. Fish & Wildlife Service

For more information about these stories, go to the News page on NEIWPCC’s website, at www.neiwpcc.org. You can also get our online news posts sent straight to your inbox! Email communications@neiwpcc.org to subscribe to our e-newsletter, “Streamlined.”



Reflecting on 50 Years of the Clean Water Act

1972-2022

BY SUSAN SULLIVAN

1 972. Some of you were children, others were environmental advocates and college students, and many not even born. Yet 1972 was the year one of the most important pieces of legislation was enacted by the United States Congress and signed into law by the president. The Clean Water Act (CWA), also known as the Federal Water Pollution Control Act Amendments of 1972, was authorized to restore and maintain clean and healthy waters.



Susan Sullivan is the executive director of NEIWPC

Before the CWA, water quality in significant portions of the United States was reprehensible; filthy, unswimmable, toxic. Rivers and streams ran different colors every day. The Hudson River contained bacteria levels of 170 times the safe limit. In 1984, the Environmental Protection Agency (EPA) designated a long stretch of the river a Superfund site — meaning, in the EPA’s own words, “some of the nation’s most contaminated land.”

During the early to mid-20th century, rivers in New England were among the most polluted in the country because large amounts of untreated municipal and industrial sewage were released

directly into surface waters. At the turn of the 20th century, outbreaks of typhoid fever and other infectious diseases were common in urban areas that used polluted rivers as a source of drinking water. As late as the mid-1960s, more than 120 million gallons per day of untreated or minimally treated wastewater were discharged into the Merrimack River (U.S. Department of the Interior, 1968). In the early 1970s, the Connecticut River was so polluted it was referred to as a “landscaped sewer” by the EPA.

The CWA was a response to increased public concern for the environment and for the condition of the nation’s waters. According to EPA’s website, the CWA established the basic structure for regulating discharges of pollutants



Springfield, Massachusetts

into the waters of the United States and regulating quality standards for surface waters. Not preventing pollution; regulating it, and controlling the amounts that could be released.

Under the CWA, the EPA and the states implemented pollution control programs such as setting wastewater standards for industry, water quality standards for coastal and fresh waters and national water quality criteria recommendations for pollutants in surface waters.

It's been 50 years, and by most people's standards, the CWA has been wildly successful. Residents no longer have a distant relationship with their local water bodies. The waters run clear and blue; fish and other wildlife survive and

multiply. People swim, boat, and relax along the water's shores. They actually clean and eat the fish that they catch.

That's not to say that serious pollution threats don't remain. They do; from urban, rural and industrial sources. From emerging contaminants of concern, from PFAS, from non-point sources of pollution. There are many avenues for our waters to become contaminated even now, 50 years since the passage of the CWA.

In an October 2020 summary, the Rhode Island Department of Environmental Management indicated that it has 890 waterbodies that state agencies and their partners monitor for quality. Of these, 39% are stressed by pollution or unwanted guests — an example of the work that still needs to be done in the Northeast and in the nation. But today, in the majority of our nation's watersheds,

The CWA was a response to increased public concern for the environment and for the condition of the nation's waters. It established the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

the biggest source of water pollution is not water resource recovery facilities or factories, but runoff from a variety of urban, suburban and rural sources. Solutions are not simple. Americans need to work together to ensure progress continues to be made. Hard discussions need to be had. We have done it already and we can continue to make progress and succeed.

We need to continue on our path. Control pollution, find new technologies to improve our cleanup techniques, educate our people

and train our staff. We need to remember that a clean and healthy environment ensures a clean and healthy life for us and the generations to come. NEIWPCC is committed to continuing our journey. We look forward to working with the many partners we have and the others we will meet along the way. 🌊



The Cuyahoga River in Cleveland, Ohio burns in 1969. Public outcry over this incident went a long way to convincing Congress to pass the CWA.

Defining WOTUS

BY RICHARD FRIESNER

The Clean Water Act (CWA) has fundamentally altered how Americans, and the world, interact with one of our most basic parts of the environment. The definition of “Waters of the United States” (WOTUS) provides the basis for the CWA and determines the extent of federal legal jurisdiction for all the other requirements in the law. For water professionals today, the only thing constant about the definition of WOTUS is change.

The CWA’s objective is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” By passing the CWA in 1972, Congress set a national goal to eliminate the discharge of pollutants into navigable waters by 1985. The U.S. Environmental Protection Agency (EPA) along with the U.S. Army Corps of Engineers (USACE) were authorized to implement the CWA by issuing permits, including those for the National Pollution Discharge Elimination System (NPDES).

Initially, USACE defined WOTUS as waters “subject to the ebb and flow



Richard Friesner is the director of NEIWPCC's water quality programs

of the tide,” or waters used (or that could be used) “for purposes of interstate or foreign commerce.” Enter the courts! Soon after the USACE published this definition, the U.S. District Court in Washington, D.C. struck it down, determining it was too narrow. The court ruled that

“Congress...asserted federal jurisdiction over the nation’s waters to the maximum extent permissible under the Commerce Clause of the Constitution” (NRDC v. Callaway, 392 F. Supp. 685, (D.D.C. 1975)) and that the definitional test of traditional navigability was too limiting.

This struggle between federal agency definitions, legal challenges, and court rulings has continued through today. Many of these challenges center on the protections in the CWA for wetlands — how they are defined and to what extent they are federally protected. Cases including the U.S. v. Riverside Bayview Homes, Inc., Solid Waste Agency of Northern Cook County v. U.S., and Rapanos v. U.S. — all of which presented challenges to federal jurisdiction over waterways — have sought to settle the definition of what is covered at the federal level by the CWA.

The 2001 Rapanos case resulted

in a plurality ruling (a fractured 4-1-4 decision) at the U.S. Supreme Court, in which Justice Antonin Scalia wrote that “only those relatively permanent, standing, or continuously flowing bodies of water” that have a “continuous surface connection” to another water were included in the definition. Justice Anthony Kennedy concurred, adding a “significant nexus” test to waters that were navigable or could be reasonably considered as such. EPA and USACE issued guidance on the “significant nexus” test in 2007 but didn’t directly alter the definition of WOTUS.

Fast forward to the 2015 WOTUS rule, which expanded the definition while also categorically excluding certain water bodies. This also created a case-by-case “significant nexus” test for neighboring waters to determine if they fell within the federal purview and protections based on scientific understanding of physical, chemical, and biological characteristics.

Legal challenges to the 2015 WOTUS rule created a confusing patchwork of states where it was accepted as law in some of them and invalidated in other ones. Eventually, it was repealed and replaced in a two-step process with the 2020 WOTUS rule stemming from President Donald Trump’s executive order. This rule narrowed the definition



with a set of exclusions and a focus on law over scientific understanding and sought to align more directly with Justice Scalia's ruling.

President Joe Biden's administration has since rescinded the previous executive order. Now, EPA and USACE are proposing a two-step process to repeal the 2020 WOTUS Rule and create a new WOTUS rule and definition.

Ultimately, these processes have left water professionals and state agencies in a constant dance of change between old and new(er) federal regulations. Many states have adopted their own sets of water and wetlands regulations and assessment methods. In some cases, the state regulations have maintained a level of protection as the federal WOTUS definition has changed. In the Northeast, the states maintain strong water and wetlands permitting and monitoring programs as they continue to work towards the ultimate goals of the CWA "to restore and maintain the chemical, physical, and biological integrity of the nation's waters."

NEIWPCC has played an important role over the years 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 advance clean water throughout the region. NEIWPCC stands ready to

continue to support the states of the Northeast over the next 50 years of the CWA as we collectively seek to protect human health and the environment. 🌿

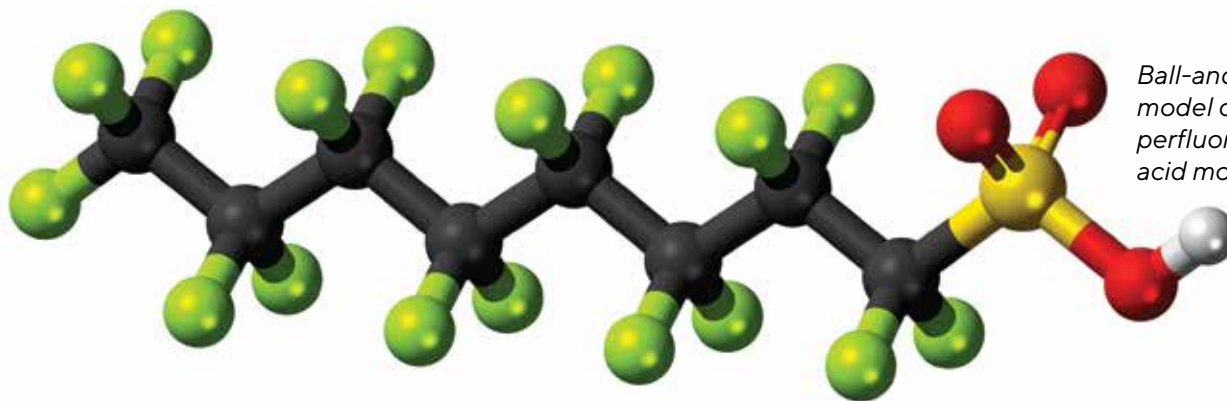
NEIWPCC Comments on Proposed Rule for WOTUS Definition

NEIWPCC recently submitted a letter to the EPA and the USACE, commenting upon the proposed rule that helps determine what is defined as "Waters of the United States" (WOTUS), and thus subjected to federal regulation as part of the U.S. Clean Water Act.

In this letter, NEIWPCC supports and amplifies our member states' voices, that WOTUS determinations be based upon the consensus of scientific findings, especially those that are needed to protect sensitive waterways such as ephemeral streams.

Due to a recent court decision vacating the most recent 2019 rule, WOTUS regulations have now been defaulted to 1980s era statutes. Currently, the EPA and USACE have asked for public comments on their two-step rulemaking process. The first step is concerned with establishing guidelines that would update and replace the current rule; step two is focused on implementing a system where the rule may be updated or amended.

Over the last decade, there have been many challenges to WOTUS, as federal administrations have fought both to limit and refine, or expand, the WOTUS rule. The Supreme Court of the United States has weighed in on the process and interpretation of legal challenges to WOTUS. Although states reserve the right to determine their own regulations, federal regulations often serve as a backstop against bordering states that may greatly differ within regulatory practices. As such, the rule has impacts to waterbodies such as lakes, streams, and both fresh and saltwater wetlands.



Ball-and-stick model of the perfluorooctanesulfonic acid molecule

Addressing Emerging Contaminants

BY CHRISTINA STRINGER

In 1962, the landmark work “Silent Spring” posed the question, “Can anyone believe it is possible to lay down such a barrage of poisons on the surface of the Earth without making it unfit for all life?” Rachel Carson’s exploration of the negative effects of DDT — an insecticide used in agriculture — on animal health is perhaps the first time an emerging contaminant was brought to the forefront of the public consciousness. Emerging contaminants, or contaminants of emerging concern (CECs), are unregulated substances found in waterbodies that may cause ecological or human health impacts.

There have been many CECs that have been the focus of environmentalists and regulators throughout modern history. Lead and arsenic are both legacy contaminants that humans have been producing for thousands of years. Lead mining is believed to predate the Bronze or Iron Ages and ancient Romans used the metals extensively for pipes and baths. The negative health impacts of lead exposure, however, weren’t recognized until the 1970s. Environmental lead concentrations have declined due to global efforts to curtail



Christina Stringer is NEIWPC’s director of wastewater and onsite systems

usage yet lead in drinking water remains an active area of scientific research today.

Arsenic compounds were first used as a pesticide in China as early as 900 A.D. and have been used in the United States for the same purposes for hundreds of years, until DDT became popular and was thought to be a less harmful replacement. Today, arsenic is still considered to be a CEC in some geographic regions, including areas of the Northeast, as changes in aquifer

usage cause mobilization of geochemical arsenic.

In the past 30 years, the environmental community has faced many more CEC challenges, including mercury, acid rain, PCBs, dioxins, and pharmaceuticals and personal care products (PPCPs). Today, we are squarely focused on challenges related to per- and polyfluoroalkyl substances (PFAS) and microplastics. CECs are especially challenging; by definition we are dealing with the unknown. Having to wait for science and technology to catch up to regulatory needs takes time and patience. The



data needed to make informed and scientifically defensible management choices is costly and time consuming. The general public often doesn't fully comprehend the extent of information that is needed to inform regulation and the amount of time

Having to wait for science and technology to catch up to the regulatory needs takes time and patience. The data needed to make informed and scientifically defensible management choices is costly and time consuming.

it truly takes. Often these efforts are happening in the background, and the public isn't aware of the pollutant issue until researchers have more information, and regulators and legislators are able to make progress as quickly as the bureaucratic red tape allows. PFAS has been unique because it received attention in the mainstream news early on, and legislators have been forced to take action quickly due to the outcry and concerns of their constituencies.

Tackling emerging contaminants is a complex issue that involves regulators, researchers, and operators. Multiple federal state statutes, including the Clean Water Act (CWA), issue authorities to the Environmental Protection Agency (EPA) and states that can be used to address CECs. The primary mechanism to control any kind of contaminant, emerging or otherwise, in surface water is through National Pollutant Discharge Elimination

utilize because of a lack of data needed to support criteria.

Finally, and of the utmost importance, the CWA authorizes the EPA to designate CECs as toxic pollutants (Section 307) or hazardous substances (Section 311). These designations are especially important because they establish liability for their release, including responsibility for costs and damages.

In "Silent Spring," Rachel Carson observed, "We stand now where two roads diverge. But unlike the roads in Robert Frost's familiar poem, they are not equally fair. The road we have long been traveling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster. The other fork of the road — the one less traveled by — offers our last, our only chance to reach a destination that assures the preservation of the earth."

System (NPDES) permits, or the state equivalents in those states with an authorized program. The CWA allows CECs to be addressed through technology-based effluent limitations and water-quality-based requirements. However, those authorizations are often difficult to



Statue of Rachel Carson, Waterfront Park in Woods Hole, Mass.

Despite all of the progress we've made in the 50 years of the CWA, it still feels like we are standing at that proverbial fork in the road. As we spend this year celebrating this landmark approach to protecting our waters, we also need to spend time reflecting how we can improve the CWA to better prepare us to address the CECs of today and tomorrow. 🌊



Meeting Challenges in Modernizing the Clean Water Act

BY HEATHER RADCLIFFE

October 2022 marks the 50th anniversary of the Clean Water Act (CWA) and 35 years since its last major amendments. While there is much to celebrate – undeniably, significant progress in water quality has been made since 1972 – it is time to move forward from boasting that our rivers no



Heather Radcliffe is NEIWPCC's director of water resource protection programs and staff attorney

longer catch fire. Despite more than forty years of regulation, “the physical, chemical, and biological integrity of the Nation’s waters” have not, in the words of the act, been “restore[d] and maintain[ed],” and all our nation’s waters have not achieved the act’s fishable, swimmable goal (33 U.S.C. §125(a)).

In 2012, as an intern in the Communications Division at NEIWPCC, I wrote a paper, “Reauthorization of the Clean Water Act,” which began with almost the same two introductory

sentences as above; merely a different timeframe. Now, 10 years into my career at NEIWPCC as the director of water resource protection programs, the same statements hold true. While the CWA – originally written to address the demands of society and the environment as they existed in 1948 and 1972 – succeeded in reducing the point sources it was meant to, namely, the direct discharge of raw sewage and other pollutants into our nation’s waters, we continue to face many complex challenges not anticipated by the original authors of the act.

The 2012 paper, reprinted as a special report in the 2015 issue of “Interstate



Waters,” highlighted a slew of current water challenges across our nation, including jurisdiction, aging water and wastewater infrastructure, funding needs and affordability, a watershed approach, nonpoint-source pollution, green infrastructure, the energy-water nexus, and climate change. These issues still exist today.

In October 2020, NEIWPCC updated our “Water Program Priorities,” articulating the programmatic goals of our organization. These primary areas of concern provide a snapshot of the evolving water-related topics on which NEIWPCC is prepared to make progress, and on which our member states have indicated interest in our attention. The priorities include:

- ▶ Contaminants of Emerging Concern/PFAS.
- ▶ Watershed Planning and Waterbody Protection.
- ▶ Infrastructure and State Revolving Fund.
- ▶ Clean Water Act Modernization.
- ▶ Training and Certification.

These are areas of national importance, for affluent communities, for underserved and underrepresented communities, for all of us who require access to clean and safe water – which is, in fact, all of us.

Investment in wastewater and drinking water infrastructure is also one of the highest priorities of our member states, and the availability of federal funds is the key to the feasibility of catching up on the backlog of necessary work. Congress has heard the call. They have passed the single largest federal investment in water. The Bipartisan Infrastructure Law is poised to address the undervalued wastewater and drinking water infrastructure that is essential to the health and safety of our nation. Adequate funding is needed to ensure governments are able to reasonably and fully execute the CWA’s mandates and goals. Will this law move us toward more fishable, swimmable waters? It will certainly help immensely and we who work in organizations with the mission of advancing clean water are thankful for the increased financial support. Yet

the question remains: when will we have a new water champion to modernize the CWA? At a time when water infrastructure is forefront in the minds of those working on the Hill, is it ripe for review?

We can continue to highlight the same challenges; we can continue to document the same priorities. But what we truly need is action. At NEIWPCC, we are prepared to use our values of leadership, collaboration, education, service, and science to collaborate on clean water and environmental science challenges across shared regions, ecosystems, and areas of expertise. The CWA does not address groundwater and interconnected watersheds; it does not address emerging and already emerged contaminants such as the headliner PFAS; it does not address environmental justice.

As we celebrate this significant milestone anniversary of the CWA, we look to a new generation to champion the need for its modernization. 🌈



The First Fully Integrated Sludge Composting System

Durham, New Hampshire Wastewater Treatment Facility

BY NELSON THIBAULT

In the late 1970s, I was hired by a New Hampshire consultant engineering firm, Hoyle, Tanner & Associates (HTA), as onsite construction manager for the \$7 million expansion and upgrade of the Durham, New Hampshire Wastewater Treatment Facility.

Due to the funding, technology, and the politics it was an exciting opportunity to be part of this project and I developed relationships that last until this day.

Nelson Thibault is a NEIWPCC commissioner and retired chief officer at Hoyle, Tanner & Associates



Work was to be completed under the funding and requirements of the recently promulgated federal Clean Water Act, including \$5.25 million of federal EPA funding, \$1.4 million of state of New Hampshire funding, and \$350,000 of town of Durham and University of New Hampshire (UNH)

appropriations.

The project generated a great deal of public interest, not only because of the costs and financing – by today’s standards this would be a roughly \$30 million project – but also because it included several new technologies. The most controversial technology included the first-in-the-country fully integrated

sludge composting system. In short, the entire sludge collection, handling, treatment and disposal systems were designed around the composting process – a somewhat radical concept at the time. The treatment facility, which began operation in 1981, was designed to handle many tons of dewatered primary and secondary sludge per week.

The residents of Durham, home to UNH, generated many different opinions on the use of the compost on the town’s parks and playing fields. For example, some farmers and academics were pro-compost while some parents worried about it coming home on their children’s sports uniforms. Other concerns included odors to abutting properties, health of facility staff, and the safety of general use by both private homeowners and





businesses, such as the application of compost on lawns and gardens – including vegetable gardens. Also in question was whether the town should sell it, give it away, or bury it, and the inherent liabilities of each option.

Public interest really picked up when the facility was visited by head Boston TV (WCVB) news anchor and reporter Chet Curtis in his news helicopter. Once the project made the national media, it went the 1970s version of viral and was visited by engineers, politicians and press from all over the world. Due to New Hampshire's first-in-the-nation primary election, and the federal funding being spent on the project, the facility became a photo opportunity for several U.S. presidential candidates – though many kept the sludge piles far in the rear of the press!

It being the '70s, wastewater was not the only thing UNH students fed to the campus porcelain buddhas. Cannabis seeds – like tomato seeds – do not break down in the composting process. It was not long for word

to get out that the town's parks had some interesting weeds growing among the wild tomatoes. On at least one occasion the police and fire departments harvested a bumper crop for a very happy bonfire, after which the plant operators were instructed to turn and mix the compost piles on a regular basis to promote decomposition.

I was hired by Doug Hoyle of HTA with the understanding that this was a one project position. However, at its completion, the town requested HTA put



me on several other projects, including a combined town-university solid waste energy facility. In short, I went from a construction engineer to a senior owner at HTA over a career that spanned 35 years.

Through my experiences with this project and similar ones, I developed many productive professional relationships over the years with colleagues who were instrumental in our successes; specifically, the late George Crombie, Durham's former public works director, who was the real spearhead behind the project. Crombie was a true friend and gentleman, and one of many champions in the industry, who also served as secretary of natural resources for the state of Vermont, undersecretary of environmental affairs for the Commonwealth of Massachusetts, and as president of the American Public Works Association. I honor the work and accomplishments of Crombie and all the other professionals who were committed to undertaking and advancing the challenges of these projects. 🌈

MAKING WAVES

New NEIWPC Commission Leadership

At NEIWPC's September Executive Committee and Commission Meeting, the commissioners appointed **Peter LaFlamme** from Vermont as NEIWPC's new chair, and Jennifer Perry from Connecticut as vice chair.

LaFlamme, who was NEIWPC's previous vice chair, has directed the Vermont Department of Environmental Conservation's watershed management division since 2007. Perry, a licensed professional engineer with



Peter LaFlamme

extensive experience in wastewater systems, ground water and surface water permitting, dam safety and infrastructure management, has an almost 30-year history with the Connecticut Department of Energy and Environmental Protection.

Commissioners also re-elected **Harry Stewart**, a senior associate at Normandeau Associates in Bedford, N.H., as treasurer.

NEIWPC thanked outgoing chair **Mark Klotz** for his leadership and service to the commission. Klotz recently retired as director of the division of water, New York State Department of Environmental Conservation.

In Memoriam

Russ Chateaufort, former Rhode Island commissioner, passed away in January.

Russ served as the chief of groundwater and wetlands protection at the Rhode Island Department of Environmental Management, and more recently, as a senior project manager at the Horsley Witten Group.



Susan Sullivan, NEIWPC executive director, and **Jen Lichtensteiger**, environmental analyst, received recognition as part of the New England Water Environment Association's (NEWEA) 2021-22 Awards Program. NEWEA awarded Sullivan the Elizabeth A. Cutone Award, given to an individual who has demonstrated key executive leadership of a water, wastewater or other environmentally focused organization. Lichtensteiger received the Alfred E. Peloquin Award, which recognizes an individual whose personal service has contributed to excellence in plant operations either directly at a treatment plant, or indirectly through assistance to plant operations personnel.



Susan Sullivan



Jen Lichtensteiger

Lichtensteiger and NEIWPC Commissioner **Janine Burke-Wells** presented "Results from the Second National Biosolids Regulation, Quality, End Use, and Disposal Survey," at the NEWEA conference.

Sarah H. Fernald, environmental analyst and Hudson River National Estuarine Research Reserve research coordinator, co-authored a paper, "Invasive water chestnut hinders tidal wetland development," published in "Earth Surface Processes and Landforms."

Noreen Gallagher, environmental analyst and New York State Department of Health drinking water specialist, presented the Drinking Water Source Protection Program during the Hudson River Watershed Alliance Annual Conference in 2021.

Leeann Hanson, information officer and JETCC coordinator, and NEIWPC Commissioner **Stacy Thompson**, deputy director of Saco Water Resource Recovery Department, participated in a podcast, "Water Up with These Prominent Women in the Water Industry," in October 2021.

Megan Lung, environmental analyst with the Hudson River Estuary Program, served as a panelist in the webinar, "Clearwater Presents: A Discussion with Black Environmental Industry Professionals," hosted by the Hudson River Sloop Clearwater.

James Plummer, environmental analyst, moderated the "Watershed Management: Watershed Resilience – From Adaptation Resources to Watershed Based Solutions" session at the NEWEA annual conference, and helped plan the Young Professionals Summit.

Maude Salinger, information officer and Hudson River Estuary Program communications and citizen participation, co-authored an article, "Germinating a NATURE Lab," published in New York State's "Conservationist" magazine.

Matthew Vaughan, environmental analyst and LCBP chief scientist, and **Mae Kate Campbell**, environmental analyst, were the first and second authors, respectively, in a paper, "Lake Champlain Community Scientist Volunteer Network Communicates Critical Cyanobacteria Information to Region-wide Stakeholders," published in the Journal of Contemporary Water Research & Education. 🌊

PARTING SHOT



The North Nashua River in Fitchburg, Massachusetts in the 1960s (left) and in the 1970s (right). Images courtesy of the Nashua River Watershed Association Archives.

The transformation of the Nashua River, as shown above flowing through Fitchburg, Massachusetts, is a visual representation of the success of the Clean Water Act and of a shift in cultural views and values towards our shared water resources. Like many New England rivers, the North Nashua supported the industrial economy throughout the 1800s and early 1900s with mills, bridges and dams appearing along its banks. Notably, several paper mills released their effluent into the river, dyeing it the same color of the paper they were manufacturing that day — making for a fun guessing game for local youth.

By the mid-1960s the North Nashua River was badly polluted with industrial waste. At the same time, a chorus of river advocates was growing in Fitchburg and across the country, demanding that our nation's long neglected — yet vitally important — waterways be restored. Things were changing. A flurry of laws were passed to enforce water quality standards and wastewater treatment, including: The Water Quality Act in 1965, followed by the Clean Waters Restoration Act in 1966, and the federal Clean Water Act in 1972. At the local level, petitions were signed and community clean-up committees and task forces formed.

Today, as the 50th anniversary of the Clean Water Act is celebrated, our waterways continue to face challenges — some old and some new — however, there is much to be proud of. Remarkable progress has been achieved to restore our waters and change public perception and expectation of these natural resources along the way. 🌊



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EVENTS

2022

April 24-30, **National Water Week**, Washington, D.C., www.waterweek.us

April 27-28, **32nd Annual Nonpoint Source Conference**, Woodstock, Vt., www.neiwpsc.org

May 3-5, **ACWA 2022 Spring Conference & Exhibition**, Sacramento, CA, www.acwa.com

May 18-19, **Long Island Sound Seaweed Bioextraction Symposium**, www.longislandsoundstudy.net

May 21, **World Fish Migration Day**, www.worldfishmigrationday.com

May 22-25, **New England Water Environment Association Spring Meeting and Exhibit**, Bretton Woods, N.H., www.newea.org

May 23-25, **Lake Champlain Research Conference**, Burlington, Vt., www.lcbp.org

May 24-27, **Water Environment Federation Residuals and Biosolids Conference**, Columbus, Ohio, www.wef.org

June 7-9, **New York Water Environment Association Spring Technical Conference and Exhibition**, Syracuse, N.Y., www.nywea.org

June 12-15, **American Water Works Association, ACE22** (hybrid), San Antonio, Texas, www.awwa.org/ace

June 27-28, **Water Environment Federation Stormwater Summit** (virtual), Minneapolis, Minn., www.wef.org

July 27-29, **National State Revolving Fund Workshop**, Portsmouth, N.H., www.neiwpsc.org

Sept. 13-15, **National Tanks Conference**, Pittsburgh, Pa., www.neiwpsc.org

Oct. 23-28, 11th **U.S. Symposium on Harmful Algae**, Albany, N.Y., www.neiwpsc.org

The Androscoggin River in Maine, pictured on the cover, was once an environmental and economic disaster. For almost a hundred years, a combination of raw sewage and industrial waste polluted the river to the point that by the 1950s and 60s, the smell had become unbearable in the Lewiston-Auburn area and large segments of the river were uninhabitable for fish and other aquatic life. Today, the Androscoggin would be almost unrecognizable from a short 50 years ago. People can enjoy paddling, fishing, and even swimming the river, which would have been unthinkable without the 1972 federal Clean Water Act (CWA).

While photos of Ohio's Cuyahoga River catching fire in the 1960s are famously linked to the environmental movement of the 1970s, it was the polluted, foul-smelling Androscoggin that served as inspiration for Maine Senator Edmund Muskie, who grew up on the river, to lead efforts to establish the CWA.

