Lead Presenter Info
Tom Danielson
Maine Department of Environmental Protection

TITLE: **TOXIC TIRE DUST: MONITORING OF 6PPD-QUINONE IN MAINE STREAMS**

FORMAT: PRESENTATION

ABSTRACT:

6PPD is a chemical used in automobile tires to prevent cracking and weathering. Over time, tires wear down through contact with the roads. The resulting tire dust collects on roads and can be washed into streams by rain or melting snow. In the environment, 6PPD reacts with ozone to from 6PPD-quinone, which is toxic to some aquatic life. Studies have shown that 6PPD-quinone can kill certain species of trout and salmon.   Concentrations of 6PPD-quinone tend to be highest following rain events and lowest during base flow conditions.   In 2024, the Maine Department of Environmental Protection (DEP) started phase one of a study of 6PPD-quinone in Maine streams and river. The purpose of the study was to determine the extent 6PPD-quinone contamination in Maine's streams and potential risk to brook trout and Atlantic salmon. In the first phase of the study, DEP collected 6PPD-quinone water samples from 38 sites associated with streams near roads with high traffic volume. Sample collection was not timed to coincide with rainstorms.   Highest concentrations of 6PPD-quinone were found in urban streams. In 2024, the U.S. Environmental Protection Agency set a 6PPD-quinone screening value of 11 ng/L (ppt) to protect aquatic life. Concentrations of 6PPD-quinone exceeded the screening value in 5 urban streams. DEP hopes to conduct phase 2 of the study in 2025, which will consist of collecting hourly 6PPD-quinone samples before, during, and after rainstorms from a few high priority sites.

SPEAKER BIO:

Tom Danielson leads the monitoring and assessment of PFAS and other toxics in fish, water, and sediment samples collected from Maine's lakes, streams, and rivers. He coordinates with the Maine Center for Disease Control and Prevention, which issues fish consumption advisories when necessary. Tom earned a Ph.D. in Ecology and Environmental Sciences from the University of Maine, a Master of Environmental Management from Duke University, and Master of Public Policy from Duke University, a B.S. in Wildlife Biology from the University of Massachusetts, and a B.B.A. in Finance from the University of Massachusetts.

Lead Presenter Info
Thomas Ballestero
University of New Hampshire

TITLE: **MONITORING BLUE CARBON IN BIORETENTION SYSTEMS**

FORMAT: PRESENTATION

ABSTRACT:

An investigation of carbon storage characteristics of bioretention systems was undertaken to determine whether these systems stored carbon. The hypothesis was that carbon accumulated in bioretention systems over time. The reasoning behind this hypothesis included: vegetation growing and dying thus building up carbon when not maintained, roots growing and dying contributing carbon, and the filtration of carbon in runoff (e.g., cigarette butts, leaves, paper). Maintenance might remove above-ground carbon but not below-ground carbon. Thus, with or without maintenance, it is possible that carbon sources build-up on the surface of, and within, bioretention systems, resulting in older systems displaying thicker zones of higher carbon content at and just below the surface. To test this hypothesis, various bioretention systems in Philadelphia, PA and New Hampshire were sampled and their carbon content measured. To address temporal variability, system construction dates were identified, and the carbon data stratified by time.

At targeted bioretention systems, soil samples were collected every 2 cm down to a depth of 20 cm using a stainless steel spoon, which was cleaned between samples. To prevent the walls of the excavation from collapsing and to define the areal extent of the sample, an 8-inch diameter plastic pipe was pushed into the system to match the excavated depth. A 20-year-old bioretention system at UNH was sampled during its deconstruction. Sampling occurred after the excavator sliced through the cross-section exposing the entire cross-section. For all samples, in the lab samples were weighed, oven-dried, weighed again, then carbon content was measured by loss on ignition using ASTM D7348 – 13 and -21.

SPEAKER BIO:

Tom Ballestero is the former Director of the University of New Hampshire Stormwater Center. His general area of expertise is the restoration of natural aquatic systems. This expertise includes efforts in stream restoration, wetlands restoration, living shorelines, and stormwater management. Dr. Ballestero has been at the University of New Hampshire since 1983.

Lead Presenter Info
Theresa McGovern
VHB

TITLE: **ENGAGING PROPERTY OWNERS IN STORMWATER IMPROVEMENT**

FORMAT: POSTER

ABSTRACT:

Join us for an informative presentation on the Property Owner Guide to Managing Stormwater on Commercial and Industrial Properties (aka, the Guide, completed in September 2024). The guide was thoughtfully crafted with the purpose of providing a high-level explanation of the problems associated with uncontrolled stormwater and what private large property owners can do to reduce stormwater volume and pollutants. This talk will discuss the guide and how it was developed with its audience in mind.

The audience for the Guide is property owners and managers of commercial and industrial properties as well as institutional properties who are responsible for making decisions regarding site improvements to manage stormwater. Because the audience does not include technical experts accustomed to thinking about stormwater issues, careful thought and consideration was given to the content, format, language and visuals used to convey the messages. The guide begins with simple and straightforward education about the impacts of stormwater, then provides illustrative case examples of how to identify stormwater pathways and options for managing stormwater on typical sites. The Guide's strives to show how implementation of Green Stormwater Infrastructure ("GSI") and non-structural best management practices can be practically achievable.

This guidance is timely in that it will help support compliance with New England region stormwater permits issued under the Residual Designation Authority (RDA) for private larger impervious surface property owners. These permits can been seen in Vermont know as the "3-acre rule", the draft permit released in October 2024 for select watersheds in Massachusetts, and will be likely coming in 2025 for select watersheds in Rhode Island, and New Hampshire. This guide was developed by VHB for the Southeast New England Program (SNEP) Network and supported by the Property Owner Guide Ad Hoc Committee comprised of members from various organizations, including the University of New Hampshire Stormwater Center, the Rhode Island Stormwater Innovation Center, the New England Environmental Finance Center, and RIDEM's Office of Water Resources.

SPEAKER BIO:

Theresa has extensive environmental consulting experience with focus on watershed evaluation and planning, water quality modeling, TMDL compliance, hydrology and hydraulics, and stormwater management and design. Currently, her work is focused on assisting clients with addressing impacts to impaired waters and regulatory compliance, particularly in the areas of NPDES and the Clean Water Act. She enjoys using technical approaches to develop creative and pragmatic regulatory compliance solutions.

Lead Presenter Info
Susan C. Peterson
Connecticut Department of Energy & Environmental Protection

TITLE: **THE RIPPLE EFFECT OF WATERSHED PARTNERSHIPS – A 25 YEAR PERSPECTIVE**

FORMAT: PRESENTATION

ABSTRACT:

In 1999, the Connecticut Department of Energy & Environmental Protection created the Watersheds program to promote the restoration and protection of water quality and management of related water resources and concerns within a watershed context, in Connecticut's major drainage basins.

Goals of the program have included coordinating with partners at local, state, regional and national levels; sharing and communicating information internally and externally; and providing technical and financial assistance to assorted watershed stakeholders, including public and private entities and individuals.

Though primarily focused on nonpoint source pollution, program work has naturally become intertwined with related point source issues, water quantity concerns and the human health and ecological co-benefits of clean water.

Susan C. Peterson has been fortunate to be one the Watersheds program's original "watershed coordinators". Susan will share her experiences and observations of working in the Housatonic River watershed for over 25 years. She will touch upon the myriad of partnerships and projects that she has seen flourish (or flounder) through the collective efforts of many to protect and restore the Housatonic River and its watershed. More significantly, she will describe the ripple effect that one project or action can have through-out a watershed community and the synergy that can be created by "connecting-the-dots" between partners and projects.

SPEAKER BIO:

Susan C. Peterson is an Environmental Analyst 3 in the Watersheds program at the Connecticut Department of Energy and Environmental Protection (CT DEEP) in the Bureau of Water Protection and Land Reuse - Water Planning and Management Division and has been with the Agency for over 25 years. She helps oversee projects for CT DEEP that have been funded by U.S. EPA through the federal Clean Water Act Section 319 Nonpoint Source Grant program and has also worked on other water quality and water resource issues, primarily within the Housatonic River and Farmington River watersheds. Prior to joining CT DEEP in 1999, Susan worked for several, non-profit nature education centers and environmental organizations.

Susan received a BA in Botany from Connecticut College in 1983, and a MES in environmental studies from Yale School of Forestry and Environmental Studies (now Yale School of the Environment) in 1992.

Lead Presenter Info
Steve Landry
New Hampshire Department of Environmental Services

TITLE: NO TEXT? NO DATA? NO SCATTER PLOTS? NO PROBLEM! THE BLACK BROOK NPS SUCCESS STORY (TYPE 1) PHOTO ALBUM AND FILM - MANCHESTER, NEW HAMPSHIRE.

FORMAT: PRESENTATION

ABSTRACT:

While New Hampshire is blessed with over 17,000 miles of streams and rivers, it is cursed with an equal number of stream crossings and more than 5,250 active and inactive dams.

A century-old dam across Black Brook was a direct link to water quality impairments and condemned a once thriving, free-flowing, environmental and recreational asset into a stagnant, anoxic, Maxwell Pond. The popular, urban, swimming spot was added to the 303(d) list in 2002. Environmental stakeholders quietly led by the New Hampshire NPS Management Program lobbied for municipal support and various funding partnerships over seven years to restore water quality through selective dam removal. The catalyst to this NPS Success Story was the collision of Mother Nature with infrastructure, bridges, a structurally compromised dam, liability concerns, and insufficient municipal budgets. Once Black Brook returned to its free-flowing condition, the dissolved oxygen levels rebounded, and the brook supported designated use of Aquatic Life Integrity.

The project earned recognition with a Type 1 Section 319 Nonpoint Source Program Success Story in 2010. The project was also selected by American Rivers as one of three in the country to be featured in their Restoring America's Rivers – Preparing for the Future film that focused upon flooding, community decision makers, and restoration of vital habitats for fish and wildlife.

This presentation, free of tiny fonts, scatter plots, regression analyses, too many bullets, and text-heavy slides far to mashed together to see from the back of the room (you know who you are…) summarizes the seven-year saga leading to dam removal, and the partnerships and funding that led to NPS Success Story glory. Attendees will view the Black Brook chapter from the American Rivers film, and marvel at 15 years (and counting!) of Black Brook channel evolution and geomorphic transition back to equilibrium. We don't need words and numbers on slides to communicate at this point in our NPS Conference relationship, do we? Remember that if this visual-only talk relationship does not work out between us, it's me, not you.

SPEAKER BIO:

Steve Landry is a graduate of the UMASS Environmental Sciences Program. He still has nightmares from three semesters of Organic Chemistry. He began his 30-year career with NHDES as an Aquatic Biologist before transitioning to the Nonpoint Source (NPS) Management Program where he serves as the New Hampshire NPS Program Coordinator. He takes great pride in working with colleagues and collaborators on watershed-based plan development and implementation, dam removals, stream and river restoration, and the New Hampshire Green SnowPro Salt Reduction Program. In certain NPS circles, he likes to mention that he was the Project Manager for eight of the eleven NPS Success Stories achieved in New Hampshire. Outside of work, Steve can be found training for or suffering from competitive running that he really should have given up years ago, enjoying adventures with his wife, and managing the NPS pollutant load generated by their two cats.

Lead Presenter Info
Rob Adams
Halvorson | Tighe & Bond Studio

TITLE: **PUBLIC REALM AND CLIMATE CHANGE: AN OPPORTUNITY FOR THE ARTS**

FORMAT: **PRESENTATION**

ABSTRACT:
We ask a lot of our public spaces. They are places where community comes together, where nature can inspire, where we seek refuge from heat, where stormwater collects and infiltrates, and where art is a catalyst for ideas. With the forecast of rising seas and increased storm events, should our public spaces be devoted to barriers and basins or are our open spaces capable of doing BOTH the things we love AND be an integral part of our flood protection and stormwater mitigation? Historically, that is exactly what our open space networks aspired to achieve (Boston's Emerald Necklace). Today, waterfront communities are exploring a variety of strategies to allow our pubic realm to provide multiple layers of co-benefits including climate change mitigation and protection from rising sea levels and storm intensity. The Channelside project in the Boston's Fort Point Channel neighborhood is seeking to achieve those lofty goals by using the visual and performing arts as the inspiration for the forms and program for the large open spaces being designed amongst the new and historic fabric of the waterfront neighborhood. Flood protection levees are reimagined as performing art venues, infiltration zones provide large civic event spaces, and the neighborhood's artists will be encouraged to incorporate their work within the open space to further share the narrative of our how the arts and creative thinking provide an opportunity for our public spaces to achieve new levels of community benefits.

SPEAKER BIO:
Robert Adams is a Principal Landscape Architect with professional experience that includes urban parks, plazas, and streetscapes; campus design; resilient waterfronts; large greenway master plans; and detailed garden design. He has served as Project Director for several award- winning projects, including Climate Ready South Boston, recipient of the 2019 APA-MA Resiliency Planning Award and the iconic Ulfelder Healing Garden at Massachusetts General Hospital, the first healing garden to be added to the Smithsonian Archive of American Gardens.

A talented and imaginative designer, Rob is proficient in the production of presentation materials and is a confident and knowledgeable speaker who has presented at numerous public meetings and workshops. His resilient design and place-making expertise has led him to speak at many prestigious conferences, including the AIA National Conference and the CleanMed Conference. In addition to his design and communication skills, Rob oversees projects through completion with his extensive knowledge of construction methods and detailing.

Rob is a member of the PLAN Downtown Advisory Group and visiting faculty member for a resilient design studio at Boston Architectural College, whose trip to The Netherlands to exchange ideas for resiliency was recently featured in the article, "Giving water free reign" for ArchitectureBoston.

Lead Presenter Info
Michale Glennon
Paul Smith's College Adirondack Watershed Institute

TITLE: **Wᴏᴏʟ ᴀɴᴅ Wᴀᴛᴇʀ: Sᴛɪᴛᴄʜɪɴɢ ᴛʜᴇ Sᴛᴏʀʏ ᴏꜰ Wᴀᴛᴇʀ ᴡɪᴛʜ Fɪʙᴇʀ Aʀᴛ**

FORMAT: Pʟᴇɴᴀʀʏ

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ABSTRACT:

Wool and Water is a collaborative project that blends fiber art with scientific information to create visual representations of changing water quality conditions in the Adirondacks and Lake Champlain Basin. Originally created in association with the 50th anniversary of the Clean Water Act in 2022, the aim of this project is to showcase the legacy of protecting clean water in the Champlain Basin and beyond. Knitting, crochet, weaving and other fiber arts are used to illustrate concepts and trends related to our waterways, and to provide inspiration for their protection.

Wool and Water features more than 50 works that highlight water-related concepts and stressors ranging from the basics of lake stratification and turnover to the impacts of pollutants on aquatic life. Several pieces highlight some of the major research and monitoring subjects of the Adirondack Watershed Institute and the Lake Champlain Basin Program including road salt contamination, aquatic invasive species, and climate change. I will describe how this project provides a unique approach to environmental education for multiple audiences, how it has led to collaborations and new opportunities, and what we have learned about its power to inspire action to protect clean water.

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SPEAKER BIO:

Michale Glennon a Senior Research Scientist at the Paul Smith's College Adirondack Watershed Institute. She is an ecologist and uses wildlife as a tool for understanding threats to ecological integrity and watershed health. Michale helps provide leadership to AWI's scientific research program, support high quality research opportunities for students, and advocate for science in support of the management and stewardship of the natural resources of the Adirondack Park. Michale has a B.S. from Dartmouth College, and M.S. and Ph.D. from SUNY-ESF. She also leads Wool and Water, a data art project that blends fiber art with scientific data to create visual representations of changing water quality conditions in the Adirondacks and Lake Champlain Basin. This collaborative project uses knitting, crochet, weaving and other fiber arts to tell the stories of our waterways and inspire their protection.

Lead Presenter Info
Melissa DeFrancesco
The Nature Conservancy Connecticut

TITLE: COMMUNICATING WATER POLLUTION REDUCTION SUCCESSES THROUGH VISUAL STORYTELLING: BEHIND THE SCENES OF THE LONG ISLAND SOUND COASTAL WATERSHED NETWORK'S NEW DOCUMENTARY SERIES

FORMAT: PRESENTATION

ABSTRACT:

The Long Island Sound Coastal Watershed Network (the Network) was launched in 2020 by organizing members The Nature Conservancy Connecticut, Citizens Campaign for the Environment, and Save the Sound. Together, our organizations develop and deliver timely and relevant programs that foster shared learning about ways to address pollution problems, build capacity, and collaborative implementation of local projects that target and reduce pollution from sewage, stormwater, fertilizers, and marine debris. Over the past four years, the Network has brought together local governments, NGO's, researchers, educators, and foundations as well as civil society leaders, businesses, and concerned residents with the aim of increasing connections and collaboration across Long Island Sound's coastal watersheds.

After several years of programming and connecting for water conservation across New York and Connecticut, many of the Network's members and member organizations have accomplished successful water pollution reduction projects. Each project that is completed adds to the collective knowledge repository of the Network. The idea for a film project was born out of the necessity to creatively communicate these successes, in order to inspire more.

The main goals of this documentary series are:
- To present, in engaging and creative ways, examples of successful water quality collaborations across the LIS coastal watershed in visually interesting, short-form documentary style.
- To develop evergreen communications materials that can be used to engage and inspire individuals/organizations to pursue new clean water partnerships and projects.

The topic of each video is themed to match one of the Network's target pollution types (nitrogen, marine debris, and bacteria/pathogens), with the fourth video focused on nature-based solutions. The proposed presentation will feature a discussion of the motivations behind creating the documentary, some insights and lessons learned from the filmmaking process, and will include a viewing of at least one video in the series (~5 minutes each). While we frequently talk about cross-state and multidisciplinary collaborations happening in the watershed, this documentary allows for a unique, up-close look at specific on-the-ground projects, both completed and ongoing. Through the videos, you'll gain insight from scientists, experts, and civilians who are making positive strides towards a cleaner Long Island Sound, and hopefully get inspired by their work!

SPEAKER BIO:

Melissa DeFrancesco, Watershed Conservation Coordinator at The Nature Conservancy Connecticut has a background in science communications and a holistic understanding of watershed dynamics. She holds a B.A. in Environmental Studies and Anthropology with a focus in Chesapeake Regional Studies from Washington College.

Lead Presenter Info
Martha Sheils
New England Environmental Finance Center

TITLE: **BUFFER RESTORATION GUIDE TO HELP PROPERTY OWNERS IMPLEMENT RESTORATION PROJECTS**

FORMAT: PRESENTATION

ABSTRACT:

The Southeast New England Program Network (SNEP Network) is one of EPA's Southeast New England Program (SNEP) projects. The SNEP Network offers free training, technical assistance, and innovative regional tools and resources to municipalities, organizations, and Tribes to help them achieve healthy watersheds, sustainable financing, and long-term climate resilience.

The SNEP Network developed the Buffer Restoration Guide to assist public and private property owners in the SNEP region who are interested in restoring and improving buffers along a river, pond, lake, or the coast. The guide was developed to give buffer property owners enough information and resources to design and implement their own restoration project. The presentation will showcase the Buffer Restoration Guide website with visual representations of concepts and methods for restoring riparian buffers. The presentation will include a case study that highlights the technical assistance the SNEP Network provided to the Town of South Kingstown, RI, over the course of several years that led to the development of the Buffer Restoration Guide. The case study will describe the development of riparian buffer restoration plans and stormwater control measure designs to manage untreated stormwater discharges to Indian Run Brook that flows through Peacedale Village Green. In 2024, South Kingstown was awarded a Bay and Watershed Restoration Grant to implement the Indian Run Brook Restoration project which includes riparian buffer plantings and stormwater retrofits.

The EPA Southeast New England Program (SNEP) was formed in 2012 to find, test, and adopt a variety of new and innovative approaches to build resilient ecosystems and connect communities through action, collaboration, innovation, and seed funding.
The SNEP Network started in 2019 and is a project of the New England Environmental Finance Center.

SPEAKER BIO:

Martha P. Sheils is the Director of the New England Environmental Finance Center (NEEFC) based at the University of Maine in Portland. The NEEFC has been providing training, technical assistance, and capacity building for over 23 years to communities, tribes, and small businesses, with a focus on underserved, marginalized, and rural communities that are most in need of assistance and added capacity. The mission of the NEEFC is to meet communities where they are at, build capacity at the local level and to move projects forward from planning to funding/financing, and ultimately to implementation. Martha manages NEEFC's program areas with a focus on funding/financing for drinking water and clean water infrastructure, including green infrastructure, nature-based solutions and sustainable stormwater financing. Martha has a BA from Rutgers University in Economics and a Master of Environmental Management degree from Duke University's Nicholas School of the Environment.

Lead Presenter Info
Maggie Mills
FB Environmental Associates

TITLE: SMALL TOWNS, BIG FIXES: THE OPPORTUNITIES AND CHALLENGES OF TRANSFORMATIVE RESTORATION PROJECTS IN SMALL COMMUNITIES

FORMAT: PRESENTATION

ABSTRACT:

In 2022, the Town of Gouldsboro and FB Environmental Associates completed a Vulnerability Assessment and Action Plan to enhance town-wide climate resilience. Through that assessment, the Corea Harbor Marina, Docks, and Working Waterfront was identified as a priority due to the potential isolation of residents during a flood event and the economic reliance on the Corea Harbor Lobster Co-op. With leadership from local volunteer Bill Zoellick and the Gouldsboro Shore Committee, scientists at FBE and engineers at Streamworks are now working to design solutions for two flood-prone road sections: the causeway to Crowley Island and a tidal crossing from Arrowhead Lake. These projects showcase the challenges of coastal restoration in the face of rising seas and increased storms in small towns. Through this presentation, we will share the opportunities and challenges we have encountered as we pursue community-supported large-scale restoration on a small-town budget

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SPEAKER BIO:

Maggie has been working in natural resource planning across Maine for a decade and leads community planning efforts at FB Environmental. She has a Bachelor's degree in Ecology and Environmental Sciences from the University of Maine at Orono and a Master's degree in Geography with a focus in Hydrology from the University of Colorado at Boulder. At FB Environmental, Maggie manages our natural resource planning projects including municipal planning (comprehensive plans, open space plans) and watershed planning (lake, river, and stream) and supports our work in grant writing and management, lake and river monitoring and restoration, and climate change vulnerability assessment. Maggie's passion is bringing science to communities and identifying solutions to strengthen communities and their natural resources.

Lead Presenter Info
Madeline Sileccha
NEIWPCC

TITLE: DYNAMIC PARTNERSHIPS: THE RECIPE FOR LONG-TERM SOURCE WATER PROTECTION IN A LOW-CAPACITY COMMUNITY

FORMAT: POSTER

ABSTRACT:

New York State's Drinking Water Source Protection Program (DWSP2) provides public water systems the opportunity to receive free technical assistance (TA) to develop a locally led DWSP2 Plan that includes actions to actively protect their source water and its contributing watershed. A key to a long-lasting DWSP2 Plan is a diverse and motivated stakeholder group who implements the plan's source water protection actions. The Village of Margaretville, a Catskill Mountain municipality in New York, started the program with a small stakeholder group due to their limited capacity. Throughout plan development, TA providers grew the expertise of the stakeholder group by coordinating with institutions and agencies to participate in non-traditional ways. In order to provide the municipality with a diverse stakeholder group, TAs orchestrated a series of outreach techniques. This presentation will describe the methods used and how they successfully setup long-term and community driven partnerships to aid the Village's DWSP2 Plan to withstand the test of time.

SPEAKER BIO:

Madeline serves the NYSDOH in the Bureau of Water Supply Protection as a technical assistance provider to New York State's Drinking Water Source Protection Program. She coordinates with municipalities, Local Health Departments, and non-governmental entities to develop source water protection and implementation strategies at the local level. Madeline holds a B.A. in Environmental Studies with a minor in Political Science and International Studies from Siena College.

Lead Presenter Info
Lys Gant
Save the Sound

TITLE: WATERSHED STEWARDSHIP: A COLLABORATIVE MULTI-STAKEHOLDER AFFAIR FOR THE MILL RIVER IN SOUTHCENTRAL CONNECTICUT

FORMAT: PANEL

ABSTRACT:

In 2018 the Mill River Watershed Based Plan was completed through the collaboration of a robust stakeholder group convened by Save the Sound. The Mill River Watershed Association (MRWA) hit the ground running with two priority projects implemented within 5 years of plan completion. The projects infiltrate more than 100 million gallons of stormwater annually and partners continue to further stewardship and education throughout the watershed.
This session will focus on the dynamic partnerships that implemented multiple interrelated projects. Participants will hear about the conversion of a dead-end roadway into a bioretention parklet, and how stakeholders collaborate and educate the community on the importance of protecting the Mill River.

The Mill River Trail Green Infrastructure Corridor transformed over 12,000 SF of degraded, unused roadway into a bioretention system as a waypoint along a local trail. Conceived during the watershed planning process, the project manages runoff from nearly two acres of an urban residential catchment and provides opportunities to engage two neighboring elementary schools.

MRWA's residential watershed management efforts have focused on pollinator gardens, a green award program, and a catch basin "No Dumping" marking project. Various stakeholders collaborated to make these projects a success in promoting watershed protection at the residential scale.

The need to continue to build partnerships that amplify community voice and leadership in environmental stewardship and justice within the lower Mill River watershed, led to the formation of the Urban Waters Initiative (UWI). Supported though a pilot program established by CTDEEP, now in year two, UWI has led to new connections between environmental organizations and residents. This session will highlight the relationship between partners and how they build momentum for further collaboration on implementation in the watershed.
Stakeholders formed the Urban Waters Initiative (UWI) to create and nurture connections between environmental organizations and residents to amplify community voice and leadership in environmental stewardship and justice within the lower Mill River watershed.

SPEAKER BIO:

Lys Gant is a member of Save the Sound's Ecological Restoration team as their Watershed Liaison. Lys will be working with various community members and stakeholders on Green Infrastructure Projects primarily those within the Mill, Pequonnock, Quinnipiac, and West River Watersheds.

Lys comes to Save the Sound from CitySeed, a New Haven based food justice organization where they worked closely with agricultural producers, small businesses, and community members to fight for a just and equitable food system on both a local and state-wide level. They still regularly help out on farms around the state as they cannot resist getting their hands dirty. They are excited to come back to their roots and use their experience in working with community members to help Save the Sound's many Green Infrastructure Projects work for the people who are most affected by environmental injustice.

Lead Presenter Info
Laura Collins
New England Environmental Finance Center

TITLE: **UNLOCKING CWSRF FUNDING FOR NPS AND STORMWATER PROJECTS IN NEW HAMPSHIRE**

FORMAT: PRESENTATION

ABSTRACT:

While there's no shortage of New Hampshire municipalities in need of funding to address stormwater and nonpoint source (NPS) pollution challenges, it can be difficult for municipal staff to find the time to identify projects, build community support, and go after funding. The New England Environmental Finance Center (NEEFC) and the New Hampshire Department of Environmental Services (NHDES) are working together to identify capacity constrained communities and help fill these gaps, develop cost-effective solutions, and navigate the State Revolving Fund (SRF) funding application process. The NEEFC's New England Water Infrastructure Network (NEWIN) provides free technical assistance to help municipalities access funding for stormwater, nonpoint source pollution, wastewater, and drinking water needs through SRFs and other sources. Stormwater and NPS pollution are a key focus of NHDES's Clean Water SRF (CWSRF) Program, which offers stormwater (including NPS) planning and infrastructure loans with principal forgiveness, low-interest loans, and stormwater asset management grants. The unique collaboration between NEWIN and NHDES has resulted in multiple municipal assistance projects seeking funding to address a variety of stormwater and NPS issues in New Hampshire. NEWIN assistance has included dam removal feasibility for improved water quality, water recreation management planning, and ESRI StoryMap development to support community engagement in the upper Saco River, inventory and mapping, catchment investigations, and assistance with meeting federal stormwater permit requirements. Engaging and communicating with municipal leadership, residents, and non-resident water quality stakeholders is a key component of these projects. We will provide examples from our work together, highlighting municipal projects seeking CWSRF stormwater and NPS funding and the specific communications and community engagement approaches and storytelling tools we're employing in these projects.

SPEAKER BIO:

Laura manages the NEEFC's New England Water Infrastructure Network (NEWIN) and provides direct technical, financial, and project management support for the region's municipalities, utilities, and tribes. She has a background in water resource management, with expertise in community-driven program management, strategic planning, and impact evaluation. She holds a Master's of Environmental Management from Duke University.

Lead Presenter Info
Kerrie Garvey
Watershed Consulting

TITLE: STORMWATER PERMITTING COMMUNICATION THOUGH STORY MAPS, A CASE STUDY IN BARRE TOWN, VERMONT

FORMAT: POSTER

ABSTRACT:

In 2020, the State of Vermont issued the "3-acre permit", requiring stormwater management for sites with three or more acres of impervious surfaces without a current stormwater permit. This includes commercial and residential developments that were built under a pre-2002 stormwater permit. Many of the residents that live in these neighborhoods or own commercial properties were unaware of this legislation and were ill equipped to comply with the requirements of the permit even if they were aware, putting them at risk of accruing fines and being unable to sell their property due to this outstanding permit.

There are seven such sites in the Town of Barre that are the focus of this project, six residential subdivisions and one commercial complex with approximately 150 separate landowners collectively. These sites are required to complete the technical stormwater permit application and develop an engineering design to meet the permit standards, which is unlikely to be feasible for these residents. As such, the Town of Barre has been working with Watershed Consulting and Stone Shore Municipal Consulting to educate landowners about the permit, complete the necessary field and desktop work to develop a design for each site, and submit the stormwater permit application. While the communication toolbox included in person and remote meetings, mailed letters, and correspondence with the Town, the main communication tool was a StoryMap developed for this project.

The StoryMap has been updated throughout the project to notify stakeholders of upcoming field work and next steps for the project. It also contains information about the 3-acre permit itself, the project tasks, a copy of letters sent out to landowners, contact information for the project team, and a series of interactive and static maps. The maps provided give an overview of the town's 3-acre designated sites, show the impervious cover for each study site, and depict the proposed designs for permit compliance as they are developed. This StoryMap has streamlined communication for these neighborhoods, answering frequently asked questions and giving stakeholders an opportunity to receive regular updates about each of the project components as they occur. These updates can include more information than would be possible with most other forms of communication, incorporating photos and maps as needed. This StoryMap allows the project team to be focused on the technical tasks and spend less time corresponding with the approximately 150 individual property owners within the seven project sites.

SPEAKER BIO:

Kerrie Garvey, GISP, is the GIS Program Manager at Watershed Consulting Associates, based in Burlington, VT. She holds a Bachelor of Science from Colby-Sawyer College and a Master of Science from the University of Vermont where she focused on utilizing GIS technology to study and improve real world water quality issues. At Watershed Consulting, she focuses on GIS technologies, stormwater master planning, watershed management planning, water quality and hydrologic modeling, and river management.

Lead Presenter Info
Kelsey Johnson
Saco Watershed Collaborative - University of New England

TITLE: THE JOURNEY OF THE SACO WATERSHED COLLABORATIVE: CREATING A WATERSHED BASED COMMUNICATION NETWORK TO ESTABLISH RESOURCE RESILIENCY

FORMAT: PRESENTATION

ABSTRACT:

The Saco Watershed Collaborative is a great example of consensus-based watershed conservation with over 50 partner organizations and 66 municipalities in two states. This presentation will go over the ten-year history of the collaborative with a focus on where we have found success and positive momentum in establishing the network and fostering community resilience. The presentation will also focus on how we currently are building momentum and capacity in the watershed. This ongoing work includes identifying and fine tuning social networking strategies. Strategic funding processes for project implementation including the use of SRF funding. The development of a GIS story-map as an interactive educational tool to support community resilience and a source water protection plan.

SPEAKER BIO:

Kelsey Johnson is the Outreach Coordinator for the Saco Watershed Collaborative at The University of New England School of Marine and Environmental Programs. Kelsey has a bachelors degree in marine and coastal policy and management from The University of Rhode Island and a masters degree in secondary science education from The University of Southern Maine. Kelsey has worked in conservation and science based education with multiple environmental nonprofits and in the public sector. She focuses on creating science based messaging, educational experiences and communication strategies to support sustainable solutions. This work currently includes coordinating the Saco Watershed Collaborative projects and working directly with students as an adjunct instructor.

Lead Presenter Info
Kate Riley
Kleinfelder, Inc.

TITLE: CREATIVE AND ENGAGING SOLUTIONS FOR STORMWATER POLLUTION PREVENTION

FORMAT: POSTER

ABSTRACT:

Kleinfelder supports several municipalities in Massachusetts with fulfilling the public education and outreach requirements of the National Pollutant Discharge Elimination System (NPDES) program, which is administered by the Environmental Protection Agency. This permit specifically targets stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s). Our efforts focus on creatively engaging communities to raise awareness about stormwater management and the actions residents can take to reduce pollution in local waterways.

We creatively enhance standard materials by incorporating engaging and interactive elements that are customized to the clients' needs. A few examples include:

- Dog Waste Bags: Distributed to encourage pet owners to collect and properly dispose of pet waste, preventing it from entering stormwater drains.
- Postcards: Created to educate residents about the harmful impacts of lawn fertilizers and provide tips on minimizing their use to protect water quality.
- Lawn and Leaf Bags: Provided to encourage the collection of lawn clippings and leaves, preventing them from clogging storm drains and contributing to water pollution.
- Air Fresheners: Designed to hang in cars, these serve as reminders for residents to move their vehicles for street sweeping, ensuring streets are clean and storm drains are unobstructed.
- Social Media Campaigns: Launched to reinforce the importance of individual actions in preventing stormwater runoff and to share practical tips for residents.

Additionally, we have developed some more innovative community outreach program for key clients including:

- Customized Interactive Stormwater Model that visually demonstrates how runoff flows from city streets through the municipal pipe system and into local waterways. This model is an effective and engaging tool to educate the public about the journey of stormwater and its potential impacts on the environment.
- Interactive Pipe Game where children can construct a pipe system and use a marble to simulate the flow of stormwater through the pipes. This hands-on activity helps children understand the concepts of stormwater management in a fun and engaging way.

Through these initiatives, we aim to foster a sense of community responsibility and proactive engagement in stormwater management. By leveraging creative communication strategies, we help municipalities not only meet regulatory requirements but also build a more informed and environmentally conscious public. Our work demonstrates the power of creative outreach in achieving sustainable environmental outcomes and highlights the critical role of public participation in protecting our water resources.

SPEAKER BIO:

Kate comes to Kleinfelder with extensive public outreach and engagement experience at both the municipal and state levels developing comprehensive strategies addressing critical civil, environmental, and public health issues. Her work touches a range of topics, including street design, sewer separation, climate change resilience, safe drinking water, and stormwater management.

Kate is passionate about collaborating with communities, building stakeholder understanding and consensus while ensuring effective project communication. Kate connects people and projects by taking complex technical information and making it accessible to broad audiences.

As part of the Kleinfelder's Visualization and Engagement team, Kate will continue to be a force for inclusive community engagement, driving transformative projects in the Northeast

Lead Presenter Info
Julianne Busa
Fuss & O'Neill

TITLE: **WHERE SCIENCE MEETS ART: RESTORING WETLANDS. RESTORING SENSE OF PLACE.**

FORMAT: PRESENTATION

ABSTRACT:

Restoration projects offer an immense opportunity—not only to heal the landscape, but also to heal humans' relationship to the land, and restore a sense of place. Restoration efforts also tend to stir up strong feelings—both in support of and against a project. For both of these reasons, the human aspect of ecological restoration projects can be just as compelling as the science. There are ample opportunities to merge restoration science with art and placemaking, to tap into local emotions and histories to understand the connections between surrounding neighborhoods and the site, and to improve restoration outcomes by looking beyond the science.

Different sites tell different stories—whether it's the way a long-abandoned cranberry bog holds an important place in resident's childhood memories, the industrial history of a mill pond and the workers that crossed its waters to the factory every day, or the years of accumulated golf balls at the bottom of a pond on a retired course that's destined for re-wilding.

How we approach restoration in these various places needs to be driven by good science: hydrology, geomorphology, knowledge of wetland soils and plants – but if we fail to also give sufficient weight to the humanist and artistic side of restoration, we may miss out on a real opportunity for engagement—both during the critical design period where a lack of buy-in can tank even the best of projects, and during the post-restoration life of a project.

Case studies from a cranberry bog restoration in West Yarmouth and a golf course re-wilding project in Northampton, MA will serve as examples to highlight a few of the many ways that artistic elements can become a means of telling the story of the land's history, and how thoughtful placemaking can be used to educate visitors about dynamic landscape processes and forge relationships between people and place that ultimately contribute to healing and rejuvenation for both.

SPEAKER BIO:

Julie is a Professional Wetland Scientist and Certified Senior Ecologist who leads the Fuss & O'Neill's Ecological Restoration practice out of the Springfield, MA office and is a co-lead of the firm's Massachusetts Climate Resilience practice under the state MVP program. She has over 15 years of experience in the areas of resilience planning, sustainability, soil science, and ecological modelling. Julie works extensively with municipal clients on ecological restoration, climate and flood resilience, stormwater/watershed management and MS4 compliance projects. She has served as a technical lead and project manager on projects including: cranberry bog restoration (Nantucket, MA; West Yarmouth, MA); stream and wetland restoration design (Northampton, MA; Southwick, MA); dam removal and river restoration (Haverhill, MA; Uxbridge, MA); culvert and stream improvements to improve aquatic passage (South Hadley, MA; Belchertown, MA); and nature-based slope stabilization and green infrastructure design (Easthampton, MA). Julie serves as co-lead of the Massachusetts Ecosystem Climate Adaptation Network Slow the Flow Working Group and is the Chair of the Easthampton Conservation Commission.

Lead Presenter Info
Max Rome
Charles River Watershed Association

TITLE: **BUILDING COMMUNITY SUPPORT FOR WATERSHED RESTORATION & RESILIENCE**

FORMAT: PRESENTATION

ABSTRACT:

Charles River Watershed Association (CRWA) and staff from the majority of the watershed's 35 cities and towns have been working together since 2020 to address climate-driven flooding at the watershed scale. A key piece of this work has been identifying on-the-ground opportunities to reduce flooding through a combination of technical work and community engagement efforts. Through a variety of strategies, including attending community events and putting on small workshops, the team has engaged hundreds of residents in planning for a more resilient future. The team has successfully worked with community based organizations (CBOs) to reinvigorate community-identified projects with a focus on climate resilience. The team has successfully moved multiple projects into advanced design and implementation phases with an eye toward collective action to mitigate flooding. This presentation will focus primarily on the resident engagement techniques and strategies employed as part of this initiative. Our team will discuss the approach to engaging residents that do not self-identify as environmentalists in this urban watershed where more than 60% of residents live in state classified Environmental Justice neighborhoods. We will share lessons learned and support a discussion among audience members about what is and is not working in their communities.

SPEAKER BIO:

Julie is a long time employee of CRWA, in her current role as Climate Resilience Director she runs the Charles River Climate Compact (CRCC), a regional coalition of cities and towns working together to address the many issues our natural and built environments face as we confront a changing climate. Julie helped found the CRCC in 2019 and has since grown the group to include most of the city and towns in the watershed and also led the development of the Charles River Flood Model, a municipal climate planning tool that provides information on where and when flooding will occur as a result of climate change. Julie has a B.A. in Mathematics from Boston College and an M.S. in Environmental Science from the University of Massachusetts, Boston.

35ᵀᴴ ANNUAL NONPOINT SOURCE POLLUTION CONFERENCE ABSTRACTS

Lead Presenter Info
Jennifer Relstab
Horsley Witten Group, Inc.

TITLE: ONE SMALL STEP: INTEGRATING NATURE-BASED SOLUTIONS WITHIN MAILLET, SOMMES AND MORGAN CONSERVATION AREA TO ADDRESS REGIONAL FLOODING IN THE MYSTIC RIVER WATERSHED

FORMAT: PRESENTATION

ABSTRACT:

Starting in 2020, the Upper Mystic working group of the Resilient Mystic Collaborative (RMC) has been prioritizing efforts toward watershed-scale flood management to strengthen community resilience to climate impacts that include increased intensity, duration, and frequency of extreme precipitation events. Through rigorous desktop modeling and field analyses completed as part of a FY2019 Regional Municipal Vulnerability Preparedness Grant (MVP), several Upper Mystic communities identified dozens of locations for installation of regional constructed stormwater wetlands to mitigate current and future flooding and improve water quality that would also advance environmental justice and open space connectivity. The Maillet, Sommes and Morgan (MSM) Conservation Area in the Town of Reading was identified as one of the top six sites selected out of over 425 sites.

The Town of Reading Engineering Department partnered with the Mystic River Watershed Association (MyRWA) to engage the community in virtual and in-person public meetings; implement direct engagement strategies for abutters and the town at large, through flyering, door-to-door meetings and broad traditional and social media strategies. Over two years, they gathered information on community concerns and educated residents on the value of nature-based solutions to address climate challenges in the watershed. Additionally, the Reading Engineering Department collaborated with their Trails Committee and Conservation Commission to gather valuable insights into how the existing pathways and overlooks as well as wildlife habitat could be enhanced through the use of nature-based approaches.

In 2023, with funding from MVP and a congressional earmark, the Town of Reading and Horsley Witten Group, Inc., finalized the design, secured permits and commenced construction of a constructed stormwater wetland with over 60 native tree plantings and 20,000 native plugs that can manage and treat 1.5 acre feet of stormwater runoff before it flows to the Aberjona River. The design integrates an accessible parking area and a quarter mile of accessible pathways with overlooks, boardwalks, seating areas and interpretive signage to create a multi-functional open space for residents of all abilities to enjoy nature. The project was completed and opened to the public in September 2024. The Town of Reading Engineering Department is currently working with other communities within the RMC and MyRWA to advance similar local and regional projects under an ongoing MVP grant.

SPEAKER BIO:

Jen Relstab has over 20 years of professional experience in civil and environmental engineering. Her expertise is in green stormwater infrastructure and ecological restoration assessment, design, and implementation. She has extensive knowledge of stormwater management design and permitting; watershed planning; hydraulic/hydrologic modeling; and GIS mapping, analysis, and modeling. Jen works with multiple municipalities around Massachusetts integrating nature-based solutions with open space improvements to achieve creative, multi-functional sites that are climate resilient, sustainable and low maintenance. Several of these projects have been funded by grants, which Jen has written or collaborated on with non-profits and municipal staff.

Lead Presenter Info
Jean Christy
Tighe & Bond, Inc.

TITLE: BRINGING GREEN INFRASTRUCTURE TO LIFE: USING STORYMAPS TO COMMUNICATE DESIGN GUIDELINES

FORMAT: PRESENTATION

ABSTRACT:
This presentation showcases the Town of Longmeadow's innovative approach to promoting green infrastructure and enhancing the natural and human ecosystems within the municipality. Through the development of Green Infrastructure Guidelines and a web-based StoryMap, the Town engaged in community outreach and education, while also providing technical information to a variety of users in manageable formats.

The StoryMap is a digital narrative tool that combines text, images, and interactive experiences to present information in an engaging and accessible way. It features case studies of green infrastructure retrofits into Town-owned facilities, a Best Management Practice (BMP) Matrix and reference details, a parcel data viewer, and a BMP selection tool. The StoryMap is accessible from the Town's website and through QR codes located on educational signage at BMPs throughout the town.

This presentation will highlight the StoryMap's ability to use multimedia to take users on a journey through green infrastructure and the Town of Longmeadow's efforts to educate the public and professional members of the community. The presentation will also explore the intersection of art, technology, and community engagement in watershed restoration and protection. Attendees will gain insights into how the use of StoryMaps can effectively communicate technical information and engage communities in environmental initiatives.

SPEAKER BIO:
Jean Christy, PE is a Principal Engineer at Tighe & Bond. She has over 20 years of experience in the management, design, permitting and construction of civil engineering design projects that range from site and roadway design to complex stormwater management treatment systems. She is a recognized professional in Massachusetts with her understanding of hydrology and hydraulics, and compliance with both local and state regulations. Her professional interests in green infrastructure and low-impact development approaches to stormwater management are advantageous in urban and campus-centric designs.

Lead Presenter Info
James Houle
University of New Hampshire

TITLE: FORENSIC DECONSTRUCTION OF TWO 20 YEAR OLD GREEN INFRASTRUCTURE STORMWATER CONTROL MEASURES

FORMAT: PRESENTATION

ABSTRACT:

Contemporary problems require contemporary, sustainable solutions. Communities in New Hampshire and around the country are struggling with the dual challenges of nonpoint source (NPS) pollution, carried by stormwater, and the need to mitigate increased flooding brought on by the impacts of climate change. Polluted stormwater remains the largest threat to water quality nationwide. In recognition of this, permits issued by the EPA and state agencies require communities to adapt their approaches to managing stormwater to reduce the NPS pollution.

Complying with these requirements, however, is difficult and often beyond a community's resources. More information is required on the long-term operation and functionality of stormwater control measures, particularly green infrastructure installations such as bioretention systems and engineered wetlands.

The UNH Stormwater Center received funds to investigate and forensically research two common green infrastructure technologies (bioretention and subsurface gravel wetlands) to evaluate long term efficacy of system components. While numerous publications on system design and performance are available there is limited information on the efficacy of long-term operations. The systems will be systematically deconstructed to access all surface and subsurface layers and analyses performed to assess long term function and operations. Investigations included the following:

Concentrations of typical pollutants associated with stormwater:
- Total Solids
- Total Nitrogen
- Total Phosphorus
- Fecal Indicator Bacteria
- Total Petroleum Hydrocarbons

In addition to pollutants commonly associated with stormwater additional analyses will include:
- Plant species investigation
- Root penetration assessment
- Comparisons with physical characteristics of in-situ material with virgin material (soil, gravel, etc)
- Carbon sequestration assessment (blue carbon)
- Pipe integrity
- Hydraulic capacity of internal components

Analyses was conducted horizontally and vertically across each of the system segments including forebay, treatment areas and all cross-sectional components of each layer including soil, stone, and pipes. Results will be highlighted and discussed in this presentation.

SPEAKER BIO:

James Houle is the Director for the Stormwater Center. His responsibilities include directing and managing the Stormwater Center's growing body of research projects. Areas of expertise include diffusion of innovative stormwater management solutions, the design and implementation of innovative stormwater control measures including green infrastructure (GI), and low impact development (LID) strategies, planning and implementation, operation and maintenance, and water resource monitoring.

Dr. Houle holds a Ph.D. in Natural Resources and Environmental Science and has over twenty years of experience with water quality related issues in New England and is a certified professional in storm water quality (CPSWQ) and a certified professional in erosion and sediment control (CPESC).

Lead Presenter Info
Jacqueline Moss
DC Department of Energy and Environment

TITLE: **ENGAGING NEW AUDIENCES IN RIVERSMART HOMES, A RESIDENTIAL STORMWATER MANAGEMENT PROGRAM**

FORMAT: PRESENTATION

ABSTRACT:

RiverSmart Homes is a program within the District of Columbia's Department of Energy and Environment that provides financial and technical incentives and assistance to residents to manage stormwater on their properties. Since its inception in 2009, RiverSmart Homes has helped residents install over 20,000 stormwater Best Management Practices (BMPs). These BMPs include rain barrels, shade tree plantings, rain gardens, native plant landscaping, impervious surface removal and permeable pavers.

RiverSmart Homes has had tremendous success building brand recognition among DC residents. Much of this success can be attributed to high levels of engagement from motivated and educated residents. A large portion of participants find out about the program through passionate friends or neighbors who already participated. However, despite these successes, we face challenges engaging with underserved communities. Our current goal is to increase engagement in these communities by performing outreach to educate new audiences of DC residents about our local watershed challenges and the opportunity they have to become stewards of their environment.

RiverSmart Homes is currently developing a new outreach plan that includes the following strategies:
- Utilizing GIS to target residents in our priority sub watersheds with direct mail advertising
- Showing up to community events to meet residents where they live
- Updating the program's language to be more inclusive of renters and develop a strategy to help renters learn that they are eligible for the program.
- Creating the RiverSmart Ambassadors Program where ambassadors are residents of our historically underserved parts of the city who have participated in the program and work with our team to conduct outreach and environmental education on behalf of the program.
- Creating consistent marketing materials so that RiverSmart Homes is recognized as a brand even by less community members.
- In this session, you will learn about our outreach strategies moving forward and some of the challenges we still face.

SPEAKER BIO:

Jacqueline has worked at the DC Department of Energy and Environment for two years as a member of the RiverSmart Homes team completing stormwater assessments for residents of DC. Originally from Ohio, Jacqueline attended The Ohio State University and majored in Civil and Environmental Engineering. In her free time, she enjoys reading, hiking and going to concerts.

Lead Presenter Info
Helen Golimowski
Devereux Consulting, Inc.

TITLE: ECOSYSTEM BENEFITS BROWSER: HOW A SINGLE TOOL IDENTIFIES RELATIONSHIPS BETWEEN WATER QUALITY PRACTICES AND CLIMATE RESILIENCE

FORMAT: POSTER

ABSTRACT:
The Chesapeake Assessment Scenario Tool (CAST) is a web-based nitrogen, phosphorus and sediment load estimator tool that streamlines environmental planning. In addition to nitrogen, phosphorus and sediment goals, there may be additional, complementary objectives to best management practice (BMP) implementation called ecosystem benefits (often referred to as co-benefits). Examples of ecosystem benefits include: improve stream health, increase fish habitat, and mitigate climate change effects. Identifying these additional objectives early in the planning process allows for selection of BMPs that meet the load reduction goals as well as achieve these complementary objectives. The Chesapeake Bay Program developed the Ecosystem Benefits Browser, an interactive tool that visualizes and summarizes the Goals, Outcomes, and Ecosystem Benefits associated with CAST BMPs. When using the browser online, users may click on the topic bubbles to explore the relationships between the Chesapeake Bay Program Goals and Outcomes, and CAST BMPs. These goals are based on the 2014 Chesapeake Bay Watershed Agreement, an inclusive, goal-oriented document that addresses current and emerging environmental concerns and aligns federal directives with state and local goals to create a healthy Bay, including climate adaptation. The data available in the Browser are applicable to any watershed, not just the Chesapeake Bay, and can be used in tandem with cost effectiveness to increase public acceptance of BMPs that meet multiple objectives. Using the Ecosystem Benefits Browser, anyone may quickly and easily identify which water quality practices support climate resiliency of Bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms, and sea level rise, and can use that information as justification for funding and implementation of those practices.

SPEAKER BIO:
Helen C. Golimowski is a Watershed Data Analyst at Devereux Consulting. Helen is a 2018 BA graduate of the Environmental Studies Program at the University of Maryland, Baltimore County and is currently pursuing an MS in Geographic Information Systems and Spatial Analysis from West Virginia University. While studying at UMBC, Helen was an intern with the Spa Creek Conservancy in Annapolis where she did ground-level data collection and supported GIS mapping projects. Helen also participated in water quality data collection in her undergraduate environmental science courses. She supports Devereux Consulting's projects related to decision support tools for water quality improvements in major watersheds around the Mid-Atlantic region.

Lead Presenter Info
Ellen Biegert
Horsley Witten Group

TITLE: **A TALE OF TWO TINY WETLAND PARKS**

FORMAT: PRESENTATION

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ABSTRACT:
This presentation will tell the story of two small, constructed stormwater wetlands and how they were created. It will walk listeners through their past, (history & existing conditions), their hopes and dreams (design process), the drama each endured (construction surprises), their bright futures and the impacts they will have on visitors, wildlife and clean water. Proving to us all that even a small stormwater practice can have a big effect.
The first tale is of a constructed wetland in an environmental justice community in Brooklawn Park, New Bedford MA and how it replaced an eroding landscape, created a naturalized pond buffer and became a park feature by integrating walking paths into a naturally vegetated stormwater management system.
The second is of a small, constructed stormwater wetland in Nantucket, MA that helped transform a nuisance flooding eyesore into a pocket park and public amenity by creatively using micro topography, and plants to reshape the land, to collect, capture, move and treat the stormwater within a restored wetland habitat.

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SPEAKER BIO:
Ellen is a Registered Landscape Architect and senior designer at Horsley Witten Group with over ten years of professional experience. She is driven to integrate green design and open space into neighborhood, urban and natural contexts to create spaces that allow people to connect with nature and improve our natural systems.

Lead Presenter Info
Delaney Samons
Chesapeake Bay Trust

TITLE: CHESAPEAKE BAY WATERSHED SUCCESS STORIES: POOLING RESOURCES TO REDUCE POLLUTANTS AND CREATE A HEALTHIER ENVIRONMENT

FORMAT: PRESENTATION

ABSTRACT:

Nonpoint source pollution necessitates a creative approach to stormwater management and efforts to improve water quality in the Chesapeake Bay Watershed. The Chesapeake Bay Trust (Trust) is a nonprofit grantmaking organization working to connect local communities to resources to protect and restore the Chesapeake Bay watershed. We adopt a number of stormwater management practices within our work to connect local communities to resources to protect and restore the Chesapeake Bay. The Trust pools funding resources through our partnerships with local, state, and federal government agencies; Chesapeake Bay plate revenue; and other sources of funding to create grant programs that implement projects leading to a healthier watershed for people and the environment. This presentation will focus on our partnerships and programs that connect communities to resources to manage stormwater and realize a set of co-benefits to improve the environment and strengthen communities. At a local level, you'll hear about our residential rebate programs which support homeowners in treating stormwater on their properties, creating community stewards and a healthier Bay. This presentation will also highlight success on a larger-scale, showcasing community-led efforts to design green spaces and target environmental issues including stormwater runoff, urban heat islands, and climate change. Lastly, we'll touch on a community driven project to combat a food desert through a community garden, bringing healthy food to residents and restoring a safe green space for communities. Listeners will gain insight into the importance of forming partnerships throughout watersheds (in this case, the Chesapeake Bay), to increase awareness and education of, and implement practices to improve the watershed and the surrounding communities.

SPEAKER BIO:

Delaney joined the Chesapeake Bay Trust in June of 2023. She now serves as a Program Officer for the Restoration Team. Prior to joining the Trust, she attended Salisbury University, where she received a B.A. in Environmental Studies with a focus in Environmental Justice. During her time at the Trust, Delaney has supported numerous programs on the Restoration Team, learning with each one. Through her work, Delaney engages with many communities to realize implemented projects leading to a healthier Bay. Delaney grew up in the Chesapeake Bay region and enjoys spending time out on the water with family and friends. The opportunity to have a positive impact on the Chesapeake Bay watershed drives Delaney's passion in her work.

Lead Presenter Info
David Dickson
University of Connecticut

TITLE: INTEGRATING BEHAVIORAL SCIENCE WITH SPATIAL MODELING TO TARGET NITROGEN FERTILIZER REDUCTION PROGRAMS

FORMAT: PRESENTATION

ABSTRACT:

Nutrient impacts from residential lawns are a persistent and increasing concern as urban populations increase and limited progress has been made to change household behaviors. This is particularly true in the Long Island Sound (LIS) watershed where the attainment of nutrient-reduction goals is reliant on addressing household behaviors such as lawn fertilizer use. While the impacts of excessive fertilization are well known, minimal attention has been paid to understanding behaviors by residential households, how to effectively implement behavior-change campaigns, and implications for attaining nutrient-reduction goals.

This presentation will highlight a novel, integrated economic-hydrologic model that predicts high lawn fertilizer impact areas based on household characteristics combined with spatially-explicit nitrogen load and transport estimates to coastal waters. The model then predicts subsequent impacts of prospective behavior-change campaigns on fertilizer use and associated nitrogen delivery. The intent is to effectively target scarce resources for nitrogen reduction programs in those areas where (1) behavioral research indicates a high likelihood of lawn fertilization and (2) nitrogen from residential lawn fertilizer is having the largest impact on impairments.

The approach integrates multiple models including: (1) econometric modeling using household survey data to predict parcel-level residential lawn fertilizer applications, (2) landscape predictions for residential lawn fertilizer use in coastal Connecticut and New York (~884,000 single-family households), (3) a spatially explicit nutrient transport model (N-Sink) to predict nitrogen loads to LIS, and (4) contingent behavior modeling to examine willingness to reduce fertilizer use in response to prospective policy interventions. The project also assesses whether nitrogen loads from high fertilizer use and transport areas have disproportionate impacts on environmental justice communities.

SPEAKER BIO:

Dave Dickson is an Extension Educator, the Director of the UConn Center for Land Use Education and Research (CLEAR), and the Co-Director of the CT NEMO program. CLEAR seeks to provide communities with tools, research, and support to make land use decisions that balance natural resource protection with community growth. This support focuses on these programmatic areas: water, climate resiliency, land use planning, mapping, sustainable food, and STEM education. As the Co-Director of the NEMO program at CLEAR, he works primary on municipal stormwater management issues, but also provides outreach and training focused on mobile mapping technologies as a member of CLEAR's Geospatial Training Program and instructor in the Natural Resources Conservation Academy.

Lead Presenter Info
Daniel Macadam
University of New Hampshire Stormwater Center

TITLE: REVOLUTIONIZING STORMWATER SCM MONITORING: GETTING ACCURATE, HIGH-RESOLUTION WATER QUALITY DATA WITH UV-VIS PROBES

FORMAT: POSTER

ABSTRACT:

The University of New Hampshire Stormwater Center (UNHSC), supported by EPA Region 1, has developed innovative real-time monitoring techniques for SCM assessment, representing a paradigm shift in stormwater management. This research introduces advanced real-time optical ultraviolet-visual spectrophotometers (UV-Vis) for empirical water quality data collection. A hybrid bioretention/subsurface gravel wetland in Chatham, MA, designed to treat 0.3 inches of rainfall over 9.3 acres of impervious area, was monitored for 62 non-winter events from 2020-2022. Real-time UV-Vis probes, using the Beer-Lambert Law and a field and laboratory calibrated Partial Least Squares prediction model, effectively converted spectral absorbance to concentrations of TSS, TN, TP, and DOC. The study supports the development of global calibration curves for stormwater runoff, enhancing monitoring efficiency and reducing costs. The results validate existing EPA Region 1 Performance Curves for accurate SCM performance predictions without intensive monitoring. These findings also highlight the potential for next-generation SCM water quality monitoring with high-resolution, in situ UV-Vis probes.

SPEAKER BIO:

Daniel Macadam is a Research Engineer and Ph.D. Candidate at the University of New Hampshire Stormwater Center. His work focuses on the planning, implementation, and performance monitoring of Stormwater Control Measures, which includes site surveying and analysis, design, experimental data collection and analysis, and performance assessment. He has experience in geospatial analysis, hydrologic and hydraulic modeling, and numerical programming.

Lead Presenter Info
Dana Allen
FluidState Consulting

TITLE: **UNCOVERED MUNICIPAL SALT AND SAND STORAGE FACILITIES IN VERMONT AS PERENNIAL POINT SOURCES OF CHLORIDE POLLUTION IN ADJACENT SURFACE WATERS: RESULTS FROM A YEAR OF MONITORING.**

FORMAT: PRESENTATION

ABSTRACT:

In Vermont's Lake Champlain Basin, there are approximately 126 towns. Most of these towns store deicing material for use on local roads and municipal parking lots. A 2023 study by University of Vermont professor Dr. Stephanie Hurley and Dana Allen of FluidState Consulting investigated deicing material storage in the Lake Champlain Basin and found that across 29 towns, there were 36 uncovered deicing material piles, most of which were reported as 'salt and sand' with remainder reported as sand and gravel only. These uncovered piles are exposed to rain and snow events, making them more likely to wash off and influence local water quality with high chloride inputs. In 2024, chloride concentrations were measured in adjacent surface waters upstream and downstream of two of the uncovered salt and sand piles. From April to November, continuous conductivity was measured in adjacent streams and monthly grab samples were analyzed for chloride in a laboratory.

The results indicate significantly higher chloride concentrations at downstream sites when compared to upstream. Both downstream sites exceeded the EPA and VANR chronic threshold for chloride pollution at times and one site exceeded the acute standard threshold on several occasions. This presentation will explore those results using the StoryMap created for the project and supplemented by a presentation of the statistical data.

SPEAKER BIO:

Dana Allen, Principal at FluidState Consulting, has a B.A. from Middlebury College in Environmental Studies and Geography and M.Sc. from the University of Vermont. Dana has worked in Vermont in water quality and stormwater management since 2013 on diverse projects from master planning to design and implementation. FluidState Consulting conducts drone mapping, innovative online mapping, design, and planning in the water quality space. FluidState has conducted chloride monitoring in numerous locations throughout Vermont for much of the past decade.

Lead Presenter Info
Christopher C. Obropta
Rutgers University

TITLE: EMPOWERING GREEN INFRASTRUCTURE CHAMPIONS TO IMPLEMENT PROJECTS IN UNDERSERVED OVERBURDENED COMMUNITIES

FORMAT: PRESENTATION

ABSTRACT:

The Rutgers Cooperative Extension (RCE) Water Resources Program is starting its seventh year of the Green Infrastructure Champions Training Program. With over 600 certified Green Infrastructure Champions, it has become more important than ever to provide them with technical and financial support to use their training to get green infrastructure projects in the ground. Over the last two year, we were able to secure funding from the New Jersey Sea Grant Consortium to assist and empower Green Infrastructure Champions to lead green infrastructure initiatives in underserved overburdened communities. We assisted fifteen Green Infrastructure Champions by providing project coordination, technical support, and construction management for their green infrastructure projects. Our support included the design of green infrastructure practices such as rain gardens and bioswales. We also helped them implement these projects by providing them funding for project materials and hiring contractors. We helped them coordinated with local public works staff and municipal engineering departments to approve the projects and provide support for installation. While we worked diligently to manage the technical side of implementing the project, it was critical for the Green Infrastructure Champion to take the lead on community outreach and engagement, including communication with municipalities and stakeholders, volunteer coordination, and maintenance planning to ensure the long-term viability of the projects. This effort empowered 15 certified Green Infrastructure Champions to install 13 projects that manage a total volume of 828,231 gallons of stormwater annually. A total drainage area of 53,936 square feet is managed with almost all the drainage area being impervious surfaces including building rooftops and pavement. In addition to water quantity, these green infrastructure practices remove pollution from runoff, including 0.61 pounds total phosphorus (TP), 3.14 pounds total nitrogen, and 129.2 pounds total suspended solids (TSS) on an annual basis.

This presentation will discuss this effort to empower Green Infrastructure Champions to help environmental justice communities and future plans for incorporating Green Infrastructure Champions into an effort to encourage the adoption of rain gardens by residential property owners.

SPEAKER BIO:

Christopher C. Obropta, Ph.D., P.E is the Director of the New Jersey Water Resources Research Institute, an Extension Specialist in Water Resources with Rutgers Cooperative Extension, and a Professor with the Department of Environmental Sciences at the School of Environmental and Biological Sciences, Rutgers University. Dr. Obropta leads a highly specialized staff from the Rutgers Cooperative Extension Water Resources Program to identify and address water resources issues by engaging and empowering communities to employ practical science-based solutions to help create a more equitable and sustainable New Jersey. Over the last twenty years, he and his staff have been working with communities to implement green infrastructure practices throughout New Jersey to help these communities increase their climate resilience.

Lead Presenter Info
Brenda Zollitsch
University of Southern Maine

TITLE: ENGAGING COMMUNITY MEMBERS AT THE POINT OF POLLUTION: SHARING OUTFALL FOLLOW THE FLOW SIGNSEARCH PROJECT IN THE GREATER BANGOR AREA

FORMAT: PRESENTATION

ABSTRACT:

Over the last five years, the Bangor Area Stormwater Group has been developing a strong brand awareness around water pollution images and stormwater pollution prevention. Working with a marketing firm, the BASWG has developed a set of highly recognizable and engaging emojis that represent both clean water and common pollutants. Community members see these images in combination with stormwater pollution prevention messages throughout the region - in public locations, at municipal offices, online via social media, on YouTube, and in places like the Maine Discovery Museum. Building on the principals of social marketing for behavior change, this project has received support and funding from a variety of partners. Taking the project to the next level, funding from multiple grantors has made it possible to develop a new Outfall SignSearch project which has selected centralized, public-facing signs at outfalls on the Penobscot and Stillwater rivers, as well as Penjawok Stream and Sucker Brook. These carefully designed outfall signs include municipal logos, the emoji images, pollution prevention messages, a call to action, and a QR code linking the individual with opportunities to share local observations, play pollution prevention games, and learn about citizen engagement activities that help reduce stormwater pollution. This presentation will provide an overview of the project, a progress report, and information about how the project can serve as a model for citizen outreach and engagement in other communities.

SPEAKER BIO:

Brenda Zollitsch, PhD, is the facilitator of the Bangor Area Stormwater Group. She is also lecturer as part of the USM Muskie School of Public Service's MPPM Program teaching students public policy, policy analysis, sustainable communities, resilience practices and leadership skills, as well as research and assessment methods. Brenda has worked on water policy and management for over 25 years, including serving as Senior Policy Analyst for the National Association of Wetland Managers for ten years. She has been working with communities to engage the public in stormwater pollution prevention since BASWG's founding in 2003. Brenda also works as a consultant to environmental collaborations.

Lead Presenter Info
Lauren Jenness
Lake Champlain Basin Program/NEIWPCC

TITLE: **ALL IN - CREATING A UNIFIED LAKE CHAMPLAIN BASIN WIDE VOLUNTARY STORMWATER MANAGEMENT PROGRAM TO MEET REGULATORY GOALS**

FORMAT: PRESENTATION

ABSTRACT:

Meeting phosphorus reduction goals in the Lake Champlain Basin will require both regulatory and non-regulatory projects to improve water quality. Each of the three involved jurisdictions (Vermont, New York, and Quebec) have their respective regulatory programs - and they also have several different voluntary, non-regulatory water quality improvement programs. Under an initiative that seeks to unify these stormwater programs, project partners in each of the three regions are attempting to leverage and coordinate existing programs to help meet water quality goals within the broader Basin.

This presentation will first look at the Patrick Leahy Lake Champlain Basin Program (LCBP)/NEIWPCC's Stream Wise program which seeks to use social marketing and a cohesive branding and communications strategy to promote the adoption of meaningful stream and river riparian buffers to filter runoff, improve bank stability, and promote flood resilience. The program was developed in 2020 - 2021 and a pilot program with two organizations initiated in 2022. Since then the program has expanded to thirteen different organizations and has resulted in over 170 properties assessed with over 90 of them achieving the Stream Wise Award. We'll cover the challenges, opportunities, and successes of the Stream Wise program in the first section of the presentation.

Subsequently, we'll look at the developing Unifying Stormwater Initiative to see how the lessons of Stream Wise can potentially be applied to this new series of programs. From 2022-2024 the LCBP/NEIWPCC-funded "Unifying Stormwater Technical Assistance Programs for Private Properties in the Lake Champlain Basin" brought together about 20 practitioners, to assess the current suite of residential stormwater outreach, education, and assessment programs located in the Lake Champlain basin to determine ways to work together to be more effective. We will outline the outcomes of the project and current initiatives to develop an expanded LCBP/NEIWPCC grant program for residential site assessments and education.

SPEAKER BIO:

As an Environmental Analyst at NEIWPCC, Lauren works on collaborative efforts across LCBP programming to communicate technical knowledge about the lake, watershed and water quality best management practices to increase understanding about how everyone can do their part to protect, restore and enhance the waters of the Lake Champlain Basin. Among other responsibilities, she coordinates Stream Wise (https://streamwisechamplain.org), is the Assistant Manager of the Lake Champlain Boat Launch Steward Program, and works with the Lawn to Lake (https://lawntolake.org/) Partnership. She graduated from the University of Vermont with a B.S. in Environmental Studies in 2016 where her coursework focused on the intersections of nature, culture, and justice as well as geospatial technologies.

Lead Presenter Info
Andrew Sheerin
University of Rhode Island

TITLE: **DATA-DRIVEN APPROACH TO ENHANCING STREET SWEEPING IN URBAN AREAS**

FORMAT: POSTER

ABSTRACT:

This study employs a data-driven approach to enhance street sweeping in urban areas. Street sweeping is an effective nonstructural best management practice to reduce stormwater runoff pollution and prevent nearby waterbodies from being impaired. In urban environments, pollutants such as nutrients, heavy metals, hydrocarbons, and microplastics can accumulate rapidly, largely influenced by geographical and environmental parameters. Factors like land use, tree coverage, traffic volume, and season significantly correlate with the rate of pollutant accumulation. To address this, a Python and GIS-based tool, titled Stormwater Washoff and Pollution Tracker (SWPT), has been developed to analyze the geospatial distribution of pollutants and optimize street sweeping programs to mitigate stormwater runoff pollution. SWPT simulates the buildup, washoff, and removal of street solids under various street sweeping scenarios. A road prioritization model ranks road networks by incorporating user-defined weights for critical geospatial factors (e.g., land use, tree coverage). Optimization techniques are then applied to the road network to maximize the efficiency of street sweeper routes, ultimately reducing stormwater runoff pollution. The results generated by SWPT can assist states and municipalities in making informed decisions to improve their street sweeping programs. Additionally, the environmental impact of an enhanced street sweeping program are evaluated through a life cycle assessment.

SPEAKER BIO:

Andrew Sheerin is an Environmental Engineering Ph.D candidate at University Rhode Island. His research focuses on water quality modeling, aimed at evaluating the implementation of resilient systems for a sustainable planet.

Lead Presenter Info
Robert Hall
EcoRenew

TITLE: **MANAGING AQUATIC ECOSYSTEMS TO IMPROVE PHYSICAL FUNCTIONS AND SEQUESTERING NPS POLLUTION USING TRADITIONAL ECOLOGICAL KNOWLEDGE (TEK)**

FORMAT: PRESENTATION

ABSTRACT:

Nature is central to Indigenous lifeways and culture. Functioning ecosystems provide traditional food and medicinal treatments (i.e., ecosystem services) to communities. Concepts of sustainable ecosystems (i.e., functioning ecological physical processes) and the role of traditional ecological knowledge (TEK) are essential to indigenous communities' approaches to natural resource management. To date, water resource management in the United States has been most effective for point source (PS) pollution; however, non-point source (NPS) pollution remains a difficult problem (e.g., loss of habitat, excess sediment, emerging contaminants). The objective of any NPS assessment is to determine linkages between land uses, human activities, and the fate and transport of pollutants. The objective of this presentation is to show results from the USEPA Tribal Research program over the last 30 years and how the Proper Functioning Condition approach has been applied to NPS pollution. This research has shown stream and wetland reaches impacted by NPS pollution are associated with a loss of ecological functions. For example, impaired riparian functions alter physical (channel incision, sedimentation, water quantity), chemical (water quality, toxicity) and biological (benthic invertebrates, fish, harmful algal blooms) aquatic habitats. Improving ecological functions requires a proactive approach to management using leading indicators that signal when ecosystems are likely to lose functions. By contrast, the more common use of lagging indicators is a reactive approach that focuses on ecosystem functions which are already degraded. An alternative approach to assessment is determining the proper functioning condition of a stream and wetland riparian ecosystem. This approach focuses on vegetation, hydrology, soils and landform to evaluate ecological processes for NPS. Indigenous knowledge is an integrated and necessary part of the proper functioning conditions process. Using proper function condition (PFC) and TEK together increases understanding of how ecosystems work and assists decision makers in identifying the connections between form, function, management, and monitoring.

SPEAKER BIO:

After retiring from 40 years of government service, 29 of those with the USEPA, Robert Hall formed EcoRenew to provide environmental consulting services and training to clients (landowners and land managers). The company focuses on assessing the current status of environmental conditions and develops, with the owners/managers/staff, a plan to restore the area of concern to a more functional environmental ecosystem. During his time with USEPA Region IX, Mr. Hall focused his work and research on determining toxic effects (e.g., harmful algal blooms (HABs), sediment, organic and inorganic chemicals) and aquatic resources at local and landscape scales. The objective of these studies throughout the US, Canada, Mexico was to develop management plans to restore ecosystem functions. These projects addressed impacts from various environmental stressors to understand the interconnectivity of hydrologic systems and to recognize the fundamental changes to the water cycle, water quality, aquatic and terrestrial ecology and stream form and function. Mr. Hall began working with tribes in 1994 and created the Tribal Research Program within the USEPA Office of Research and Development (ORD) in 2000.

Lead Presenter Info
Abbie Winter
CT Department of Environmental Protection

TITLE: URBAN WATERS INITIATIVE PHASE 2 - STEWARDSHIP AND SCIENCE IN THE MILL RIVER WATERSHED

FORMAT: PANEL

ABSTRACT:
Recognizing the need to increase support for Environmental Justice Communities (EJCs), the Connecticut Department of Energy and Environmental Protection (CT DEEP) established an Urban Waters Initiative (UWI) with EPA provided funds. The Mill River Watershed in southern Connecticut was selected not only because of environmental and public access issues due to its urbanized nature, but also because of the robust partnerships in the watershed. The Mill River UWI completed its 2nd Phase in fall 2024, which focused on two components to better serve and connect the EJCs with the watershed: Engagement and Stewardship, and Community Science.
The Engagement work included an event series which centered the Mill River as a resource, alongside art, storytelling, poetry, and hands on learning to bring people into awareness and stewardship of their watershed. The Community Science work built capacity of the local water quality lab established in Phase 1, with the goal to empower people to understand their water health by directly involving municipalities, community groups, and schools in sampling.

Restoration of the urbanized Mill River Watershed is no easy feat, and it will require decades of effort and an abundance of community support. However, the UWI has the potential to initiate a transformation of the watershed into a valuable natural resource for nearby communities.

SPEAKER BIO:
Abbie Winter has worked within CT DEEP's Water Planning and Management Division since 2021. She previously monitored the state's ambient and Long Island Sound water quality, and currently serves as an Environmental Analyst within the Watersheds program. In this role Abbie manages nonpoint source water pollution control projects with a watershed approach to improve the water quality and overall health of Long Island Sound. Before her time at DEEP, Abbie received her bachelor's degree in Environmental Science and Biology at Bucknell University with research in amphibian biology, and a master's degree in Energy and Environmental Management with a certificate in GIS from the University of Connecticut.