

COMMISSIONER'S COLUMN

NHDES marks 35 years of environmental protection

This year, NHDES celebrates 35 years as an organization. The department was created legislatively by pulling together a number of independently operating programs and agencies under one umbrella, including the Water Supply and Pollution Control Commission, the Water Resources Board, the Air Resources Agency and the Office of Waste Management. As a practical matter, the four separate agencies responsible for environmental permitting and regulation were merged to create a single department that would operate in a more coordinated and consistent manner to benefit stakeholders and customers. The law to create the agency was, coincidentally, signed into law by another Governor Sununu, John H. Sununu, the father of our current Governor, Chris Sununu.

Early in its history, NHDES responded to environmental challenges that would be difficult for many of us to think of today. Thirty-five years ago, portions of New Hampshire had unacceptably high levels of carbon monoxide, sulfur dioxide, small particle and ozone air pollution. With the passing of the Clean Air Act and the efforts of NHDES to address sources of the pollution, New Hampshire has much better air quality throughout the state. Clean air doesn't just clear the skies, improving visibility of our beautiful scenery, but it also improves our health and quality of life. Today, all portions of the state now meet federal standards for clean air.

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NHDES awards wetlands protection and stream enhancement grants

The NHDES Aquatic Resource Mitigation (ARM) Fund Program has awarded grants for seven projects in the Salmon Falls-Piscataqua River Service Area totaling \$1,866,306.

The ARM Fund is an in-lieu fee option for projects impacting wetlands and streams that cannot avoid or minimize impacts, and are not able to provide other suitable forms of mitigation. An ARM Fund Site Selection Committee is charged with identifying proposals to be funded by selecting high-priority projects that most effectively compensate for the loss of functions and values from the projects that paid into the Fund. Projects determined to be appropriate for receipt of ARM Fund monies are subject to approval by the US Army Corps of Engineers and the New Hampshire Wetlands Council.

Projects

Champlin Forest Addition, Rochester – \$110,000

The Society for the Protection of New Hampshire Forests will use ARM funds to permanently protect a 122-acre parcel of land be held by the Land and Community Heritage Investment Program. This parcel extends the existing 185-acre William H. Champlin, Jr. Forest in Rochester, NH, which will result in over 300 contiguous acres of protected forests and wetlands within a suburban area continually faced with development pressures. The property has high-value aquatic resources

ARM, cont. page 3



Pike-Lamprey emergent wetland. Image credit: Mark West

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In 1980, the average annual fecal bacteria count in the Merrimack River were nearly 20,000. That was down from over 200,000 in the 1970s. Today, the only time we find fecal bacteria counts that are worthy of mention are after large rain storms; annual averages are miniscule. Similarly, Lake Winnepesaukee used to turn green and had to be treated repeatedly with harsh chemicals. Today, the lake is in relatively good shape. These improvements are the result of huge investments by communities, the state and federal programs. Some of these gains are now at risk. We are seeing a rise in cyanobacteria blooms across the state due to increasing development pressure around waterbodies and warming temperatures. After 35 years, it is time again to focus on water quality to protect our hard-won gains.

Over the years, science and technology have developed and grown to help us to be able to advance our knowledge and treatment of environmental problems. In no area of our work is that more evident than our efforts to ensure that New Hampshire residents have clean safe drinking water. Thirty-five years ago, we were analyzing contaminants in the tens of parts per billion and now we are looking for them in orders of magnitude lower in the parts per trillion. Our drinking water and wastewater plants have needed to evolve with the times, and today we stand on the precipice of unequalled investment into our drinking water and wastewater infrastructure, the likes we haven’t seen since the environmental revolution of the late 1960s and early 70s. Between the federal American Rescue Plan Act (ARPA) and the bipartisan Infrastructure Investment and Jobs Act, NHDES stands to offer more than half a billion dollars to our cities and towns to help them to modernize their systems, many of which are woefully out of date.

Many of the original goals set out by the enacting legislation that created NHDES are still at the heart of our work today. We strive to provide excellence in customer service to all, whether a multinational business looking to relocate to the state or a homeowner looking for a copy of their septic system plan. We work to provide real-time information to the public on the things that impact their daily lives, such as the quality of the air we breathe and the water we drink, the water testing results at a favorite public beach, or the status of a permit application.

While we are busy at NHDES working to address the environmental challenges of today and tomorrow, it is important to stop and to recognize the wide-ranging accomplishments of the past 35 years of environmental and public health protection, as well as the dedicated, professional staff and our many partners in our communities, businesses and nonprofits who have helped bring these successes about. We look forward to the challenge of ensuring that New Hampshire will be an even better place to live, work and play 35 years from now. ■

Annual holiday food drive

NHDES employees once again helped the Capital Region Food Program’s Holiday Food Basket Project by collecting \$4,836 in donations. Instead of the traditional food drive, NHDES collected donations electronically via GoFundMe, and inspired giving through some spirited challenges and a focus on the need in our communities, especially during this difficult pandemic. ■

Capital
Region Food
Program



ARM *continued from page 1*

with 14 acres of forested and scrub-shrub wetland, and 3,350 linear feet along an intermittent stream that feeds the perennial waters of Clark Brook, which lies in a wellhead area. The project will protect 108 acres of forested upland on Gonic Hill, one of the highest points in Rochester, and will provide a substantial buffer to help secure the water quality of these wetlands and Clark Brook.

Chelsey Brook Culvert Replacement, Lee – \$245,000

The Town of Lee will use ARM funds to replace a deficient culvert to enhance aquatic connectivity and fish passage of Chelsey Brook in Lee, NH. The current structure is significantly undersized for the stream width. The pipe impairs fish and wildlife passage, and inhibits natural water and sediment transport. The project site is located 1,000 feet upstream from the confluence with the Oyster River, a New Hampshire Designated River, and is the first crossing migratory fish encounter. The project will replace the seven-foot metal pipe with a 15-foot span and box culvert embedded with natural sediment to simulate the natural stream channel. Replacing this stream crossing will create continuous connectivity for the first 1.8 miles of Chelsey Brook and provide water velocities, depths and substrate transport consistent with the natural stream.

Jones Brook-Branch River Project, Milton – \$475,000

The Southeast Land Trust of New Hampshire will use ARM funds to permanently protect roughly 563 acres of the Jones Brook-Branch River catchment area through a conservation easement. This property has diverse aquatic resources, which include approximately 123 acres of wetlands dispersed across 18 wetland units, 19 vernal pools, and 4.7 miles of streams. Most of the property (97%) is ranked high-quality habitat by the New Hampshire Fish and Game 2020 Wildlife Action Plan and a total of 51 wildlife species of New Hampshire Special Concern are documented on this property. This area has been identified in the Land Conservation Priorities of Coastal Resource (2021) as having the greatest pollutant attenuation due to high functioning buffers and the entire property is within the Somersworth Water Works Source Water Protection Area.

North Mill Pond, Portsmouth – \$419,306

ARM funds will be used by the City of Portsmouth to restore a degraded tidal shoreline to improve water quality, wildlife habitat connectivity, and support marsh migration within North Mill Pond. The site is currently an abandoned industrial area overgrown with invasive plants and a highly eroded shoreline. The project will result in roughly 0.46 acres of wetlands enhancements and about 0.27 acres of wetland creation that will consist of rocky intertidal tide pool habitat, low marsh and high marsh areas. To address issues from the surrounding developed land, storm water will be captured by a combination of treatment devices, and

material for an adjacent community park and walkway will use pervious surfaces.

Oyster River Restoration Topaz Drive Culvert Replacement, Barrington – \$300,000

The Nature Conservancy will use ARM funds to fully restore aquatic fish and wildlife passage at a degraded stream crossing on the Oyster River in Barrington. The current culvert is too small for full stream flow, is perched by over one foot and is a complete barrier for all aquatic organisms. This project is a long-standing priority in the Salmon Falls-Piscataqua watershed to restore aquatic connectivity for several Species of Greatest Conservation Need in New Hampshire that occur in the vicinity, including American brook lamprey, American eel, brook trout, Blanding’s turtle and spotted turtle. The proposed stream crossing is a 30-foot wide, open-bottom steel bridge that will result in 5.2 miles of fully reconnected upstream habitat on the Oyster River.



Oyster River perched culvert. Image credit: The Nature Conservancy

Pike-Lamprey River, Durham – \$220,000

ARM funds will be used by the Southeast Land Trust of New Hampshire to permanently conserve roughly 37.4 acres along the Lamprey River in Durham. 91% of the property is high-ranked habitat, and includes a diverse landscape, including horse pasture, forest, intermittent streams, wetlands and numerous vernal pools. All of the wetlands and streams on the property flow to the federally designated Wild and Scenic Lamprey River, which is also a NHDES Designated River.

Sam Plummer Road Stream Crossing, Milton – \$97,000

The Strafford County Conservation District will use ARM funds to replace an undersized and deteriorating metal pipe culvert that conveys a perennial tributary to Lyman Brook in Milton, NH. The existing structure is undersized and vulnerable to flooding, and is a barrier to fish and wildlife passage. This project will replace the structure with an open-bottom span that can pass the 100-year peak flows and will be fully passable by all aquatic organisms. Replacing this barrier will regain headwater access to approximately 1.2 miles of excellent instream cold water habitat and benefit multiple aquatic species. ■

ENVIRONMENTAL
NEWS NHDES

Environmental News is published six times a year by the New Hampshire Department of Environmental Services.

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Rising Tides Photo Contest

The New Hampshire Coastal Adaptation Workgroup is a collaboration of 30+ organizations, including NHDES, working to ensure that New Hampshire’s coastal watershed communities are resourceful, ready and resilient to extreme weather and long-term climate change.

Now a regular event, the Rising Tides photo contest aims to raise awareness of New Hampshire’s rising tides. Formerly known as the King Tide Photo Contest, the rebranded initiative aims to raise awareness about sea-level rise and the increasing frequency of high tide flooding in New Hampshire. The most recent contest received over 60 eligible submissions. Members of the public were invited to vote online for their favorite submissions in each of four contest categories. The following submissions received the most votes in each category and are hereby declared the winners of the 2021 Rising Tides Contest.

Contest winners have been notified and will receive a \$100 gift card to a local restaurant of their choosing.

Please direct all questions to Nathalie DiGeronimo, Resilience Project Manager with the NHDES Coastal Program, at nathalie.m.digeronimo@des.nh.gov or (603) 559-0029. ■



High Tide – Atlantic Coast

Futuristic Reflections: The properties of this little community have become one with the Atlantic Ocean during King Tide, making daily life a bit more challenging.

Credit: Ned Harvey



Community Resilience – Atlantic Coast

The seawall in Hampton helps protect Route 1A and nearby businesses from high tide flooding. But, even with the seawall, high tides, especially those that coincide with storm events, can breach the wall, leading to localized flooding and hazardous road conditions.

Credit: Melissa Brogle



Community Resilience – Great Bay

Sea level rise is detrimental to our salt marsh habitat – one of the most productive ecosystems in the world. But innovative stabilization techniques like this “living shoreline” at Wagon Hill Farm in Durham are helping this natural shoreline habitat survive as the waters rise.

Credit: Alaina Rogers

High Tide – Great Bay

Follow the Red Brick Road: Vulnerability of Durham Landing. King tides don’t just affect the coast, they have a disruptive effect on the bays and rivers as well.

Credit: Jennifer Dubois



2021 Employee of the Year – Erin Holmes



Erin’s work on the Southern New Hampshire Regional Interconnection drinking water project was incredibly impressive. Not only was this the largest such project in state history, but it was also negotiated and built in record time, which is a clear indication of Erin’s leadership and organizational skills. If her work on the Drinking Water and Groundwater Trust Fund weren’t enough, last fall, Erin was tasked with creating (in two weeks!!!) a brand new program to help low-income residents whose wells were impacted by the drought. This was again a first for New Hampshire. No such program existed before Erin and the rest of NHDES put together what has become an award-winning program that has helped many New Hampshire families get safe and reliable drinking water. Not enough, not for Erin - she is now working on coordinating NHDES’ activities related to the federal American Rescue Plan Act funding that will be monumental for providing potentially hundreds of millions of dollars for drinking water and wastewater infrastructure upgrades that are sorely needed for our New Hampshire communities.

Congratulations, Erin!

The Employee of the Year Award highlights the outstanding work performed by NHDES staff throughout the year. Once again, this year we have seen numerous examples of staff members going the extra mile in performing their jobs.

The criteria for the Employee of the Year Award are:

- Significant impact or innovation within NHDES or the State.
- Initiative and leadership.
- Improved efficiency.
- Improved interagency cooperation. ■

Service Time Awards

The following NHDES employees celebrated a milestone in years of service to the State of New Hampshire in 2021. Congratulations!

35 YEARS

Karlee Kenison
Timothy Noury
Robert Livingston

30 YEARS

Raymond Walters
Kim Boone
Tod Leedberg
Gregg Comstock
Wendy Stout
Stephen Sawicki

25 YEARS

Ridgely Mauck
Tricia Madore
Andrew Chapman
David Larson
Ted Diers
Jeffrey Underhill

20 YEARS

Carolyn Guerdet
Sheri Eldridge
Linda Lester
David Healy
Sally Soule
Barbara Dorf-schmidt
Christie Faro
Ken Edwardson
Jason Domke

15 YEARS

Michael Little
Emily Jones
Michele Regan
Erik Paddleford
Philip Massey

10 YEARS

Alan Williams
John McCutcheon
Donna Tourigny
Chris Dunbar
Jason Young
Nancy Lesieur
David Moody
Judy Houston

RETIREMENTS

Spruce Wheelock
Kenneth Noyes
Paul Rydel
Rick Chormann
Arthur O’Connell
Eric Abrams
Anne Bailey
Rick Skarinka
Melissa Zych

David S. Chase Award for Extraordinary Achievements in Science – Chris Nash



Chris works tirelessly as the Shellfish Program Manager, often taking on responsibilities that go far beyond the scope of what is expected of a state employee. His detailed, innovative and industrious approaches not only help to ensure public health protection for shellfish consumers, but also facilitate the rapid development of a growing commercial shellfish industry in New Hampshire. Chris thrives when faced with making difficult public health decisions that require critical thinking, scientific analysis and collaborative efforts. He frequently whips up rigorous studies to test the effects of conditions or pollution sources on shellfish. Below are a few examples:

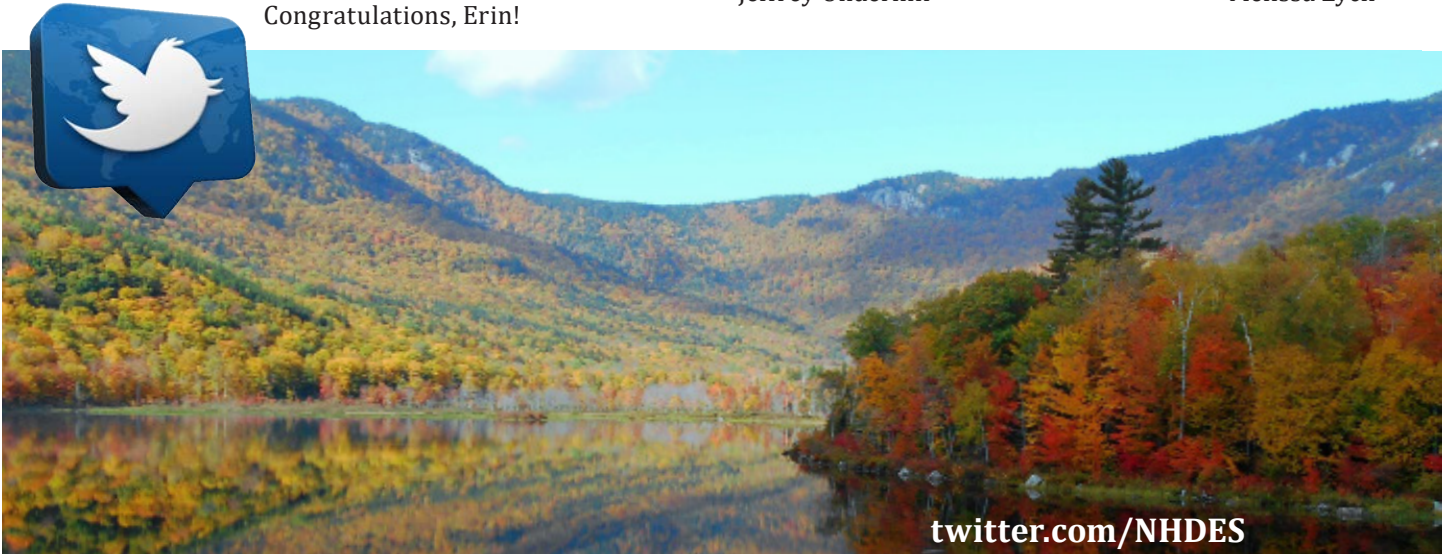
- Relative to vibrio growth in aquaculture, Chris designed a study to determine the summer temperatures that shellfish cages might experience. Because he worked

with the farmers to attach sensors to their equipment, they respected the results that could limit their operation.

- Worked closely with FDA on development of methods to include state programs in WWTP dye studies. Chris has been able to get more studies for New Hampshire and created a program for states to work together and learn from each other.
- Became a leader in understanding the dynamics of Male Specific Colifage (MSC) in WWTPs and the environment. The MCS studies he designed are informing the national discussion on how to use this measurement for virus detection.
- Fecal coliform sampling methods comparison study, the results of which will directly impact the NPDES permits on the Seacoast and inform a national discussion for shellfish programs.

Congratulations, Chris!

The David S. Chase Memorial Award for Extraordinary Achievements in Science is presented to a deserving NHDES scientist who possesses the special skills and dedication necessary to continue the pursuit of scientific discovery at the agency. The award is named in honor of the late Dr. David S. Chase, who served as the Radon Program Manager at NHDES and the Department of Health and Human Services for 16 years. His devotion to his work made a significant impact on our understanding of radon, and how the public can mitigate the risks associated with this compound. After Dr. Chase’s passing, this award was established to recognize other NHDES employees who have made important accomplishments in the field of science. ■



Derry-area Landscaping for Water Quality workshop

Pavement, fertilizer, and sand! Oh my! In November, NHDES, the University of New Hampshire (UNH) Extension, landscape designer/educator Lauren Chase-Rowell and the town of Derry teamed up for a two-day Landscaping for Water Quality Workshop to showcase how ecological designs and landscape features can be used to protect water bodies from the potentially detrimental effects of stormwater runoff from areas such as impervious surfaces, managed lawns and turf, and erodible materials. Attendees took what they learned and applied the concepts to make recommendations to meet the needs of Derry’s popular Hood Park and Pond.



A very communicative and interactive group of 30 participants made up of landscapers, landscape designers, advocacy group members, public works staff and other environmentally-minded land managers were submerged and engaged in water-friendly topics both virtually and in-person. Local, state and regional experts presented virtually on watershed management, stormwater runoff, ecological landscape designs, turf management, state and local municipal rules and efforts, soil properties and functions, native plant species and more.

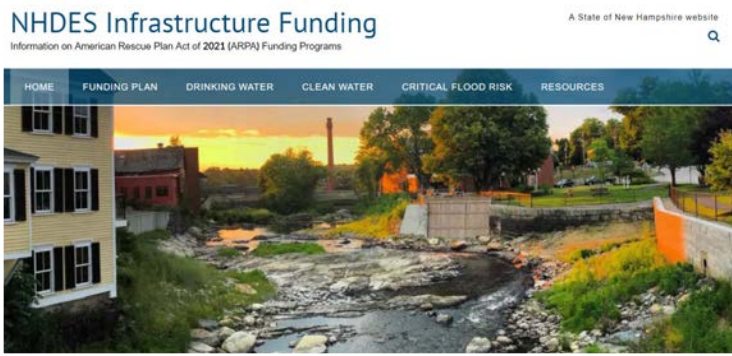
During an hour-long in-person visit to Hood Park and Pond, attendees first engaged in a site awareness exercise designed to awaken and employ all of their senses to assess the park. They were then set free to observe and explore the park, taking notes and making sketches and asking questions, all the while keeping in mind the concepts they were learning and the goals of park and pond managers. The sloping park revealed signs of water, sand, and sediment shedding from the pathways, beach, play areas and grounds into the pond. Workshop partner host Craig Durrett, Derry’s Environmental Planner, imparted that the pond was distressed from goose droppings, excess nutrients, low dissolved oxygen, and more. Town residents spoke out through a recent charrette expressing the desire for nature-based learning,

fitness equipment and a splash pad for younger children. Workshop participants worked around adults walking dogs and kids of all ages playing basketball, riding bikes, swinging and climbing in the playground, and hanging around their cars in the parking lot.

The culmination of the workshop was the participants’ presentation of landscaping and management designs to improve the park’s function and the pond’s water quality. They suggested augmenting the pond’s vegetative buffer, capturing road and parking lot runoff with vegetated swales before it can be piped to the pond, adding native understory and conifers to compliment the mature white oaks, installing a viewing platform, replacing an unused area with a pollinator garden, hosting an outreach event to remove invasive plant species, and so many more creative and thoughtful ideas. These designs were captured, considered, consolidated and presented to Derry for consideration as they work to improve the park and pond.

See copies of the [workshop presentations](#) and a [directory of landscape professionals](#) who have taken various landscaping related trainings hosted through UNH Extension. ■

ARPA and Infrastructure Funding



NHDES has launched a new [Infrastructure Funding web-site](#) that will be used to provide up-to-date information on drinking water, wastewater and stormwater programs related to the American Rescue Plan Act (ARPA) of 2021 and the Infrastructure Investment and Jobs Act of 2021. Funding can be used to cover infrastructure project assistance, cybersecurity improvements, clean water planning, critical flood risk planning grants and more. The website contains FAQs, information on how to apply and upcoming events and funding deadlines. Visit the website and [subscribe for email alerts](#) for announcements. ■

Staff in the NHDES Salt Reduction Program dream of a “green” Christmas

The time of year has arrived when the sounds of snow plows greet you in the morning after an evening snow-fall. Snow is cleared off and salt is applied to roadways, parking lots and sidewalks so you can safely commute to work, kids can get to school, and retail establishments can ensure the safety of their customers. Snow and ice management in New Hampshire is the responsibility of state, municipal and private entities. Our State Department of Transportation, Municipal Departments of Public Works and Road Agents, and countless commercial salt applicators typically associated with landscaping or construction companies combined, apply the bulk of winter salt and brine in the state during the winter season. But what happens to the salt afterwards? Where does it end up?

Unfortunately, salt, which is made up of sodium and chloride ions (NaCl), ultimately makes its way into our lakes, rivers and drinking water wells. With an estimated 400,000 tons (800 million pounds) of salt applied in the state each year, New Hampshire currently has over 50 chloride-impaired waterbodies that do not meet water quality standards under the United States Environmental Protection Agency (EPA) Clean Water Act. Chloride is a permanent pollutant and it only takes one teaspoon of chloride to pollute five gallons of water. It is estimated that about 25% of salt applied to roads and parking lots is wasted through over-application. The best way to prevent chloride contamination in surface and groundwater while maintaining safety is to apply salt, an alternative de-icing, or liquid brine at the right time, in the right place and the right amount.

The New Hampshire Voluntary Certified Commercial Salt Applicator Program (Green SnowPro) was created in 2010 to train commercial snow and ice management companies to reduce their salt application rates through best practices relative to the efficient, economical and effective use of de-icing products. Once certified, commercial plow drivers, and salt and brine truck operators – and the clients who hire them – receive limited liability for winter maintenance operations.



The first step to get certified by NHDES as a Green SnowPro salt applicator is to take the full course and exam. Long-standing courses and training were only offered through the NHDES partnership with the University of New Hampshire Technology

Transfer Center. Now an additional partnership with the Smart About Salt Council offers virtual trainings that meet Green SnowPro course requirements for both the [full course with exam](#) and the [refresher course](#) required every two years. These convenient, online courses can be completed at any time of the year and at a pace most suitable for the applicant. This has proven to be advantageous to the Green SnowPro audience since there is little down-time with these professionals who are engaged in landscaping, construction, and/or property management during the spring, summer, and fall, and then busy with snow and ice management in the winter.

Aubrey Voelker joined the NHDES [Salt Reduction Program](#) as the new Green SnowPro Coordinator in November 2021. With a salt pile-like stack of applications and snow already flying, the primary focus has been to get as many commercial salt applicators certified as possible. If you are preparing to engage the services of a snow and ice management company this winter, please consider a [Green SnowPro certified applicator](#).



As we head into the New Year, the focus of the program is shifting to partnering with municipalities as they will soon be recognized as eligible for Green SnowPro certification. Given that municipalities are the second largest contributor to salt applied in the state each winter, this partnership is key to achieving measureable salt reduction in New Hampshire.

The only way to reverse the alarming trend in chloride contamination we are seeing in our water bodies is for our state, municipal and, especially, our commercial snow and ice management professionals to apply less salt by implementing best salt reduction management practices. Green SnowPro applicators are uniquely qualified to both protect public safety and safeguard the environment. Please encourage the commercial salt applicators in your communities to become [Green SnowPro certified](#) by getting in touch with Aubrey Voelker by emailing salt@des.nh.gov. ■