

COMMISSIONER'S COLUMN

New pitcher program

When Water Division Director Tom O'Donovan learned about the health effects of low levels of arsenic in private well water – particularly as they affect newborns, infants, and pregnant women – he was determined that NHDES have a role in addressing the issue. Director O'Donovan had attended the March 2019 meeting of the New Hampshire Arsenic Consortium and heard researchers from Dartmouth College report that drinking water from private wells with more than five parts per billion (ppb) of arsenic increased the incidence of adverse birth outcomes (reduced birth weight and head circumference, for example), gestational diabetes in mothers, and increased infections during infancy.

The research had been conducted in New Hampshire, and the level of arsenic exposure in the study is quite common in the state. About half the state's residents use private wells as their water source at home, and the US Geological Survey estimates that up to 30% of those wells have arsenic levels of 5 ppb or more. That research also informed the department's recommendation to revise the drinking water and groundwater standards for arsenic (see page 5 of the [March-April 2019 issue of Environmental News](#)).

Arsenic in private well water had long been a focus of the New Hampshire Arsenic Consortium and NHDES' more broadly focused private well outreach efforts. NHDES and its partners urge private well users to get their water tested, understand what the test results mean, and make any decisions about water treatment based on the test results. NHDES developed the *Be*

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NHDES Air Pollution Monitoring Network continues to operate during pandemic

The COVID-19 pandemic has impacted New Hampshire in many ways, but one thing New Hampshire residents have been able to count on is that NHDES is still monitoring air quality to ensure public safety. On March 18, 2020, EPA issued a memorandum regarding Ambient Air Monitoring Programs Continuity of Operations Associated with the COVID-19 Response. The memo notes that during an emergency “ambient air monitoring programs are a mission essential function” and urges states to continue their monitoring programs to the “best of their ability, while considering employee health and safety.” NHDES' Air Monitoring Program (AMP) had already taken steps to ensure safety of staff prior to this memorandum while waiting to learn whether the monitoring stations would continue operating. With the release of the EPA memo, AMP began to implement an immediate response, providing for personal protection of staff as well as keeping the entire network operating. Because of this effort, New Hampshire has maintained reliable real-time, air quality data, 24-hours a day from 13 locations around the state, to ensure the protection of public health, and it affords NHDES air quality staff the opportunity to quantify some of the air pollution impacts of state and regional “stay at home” orders on our air quality.

The COVID-19 pandemic came to New Hampshire in earnest in March, a time

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Well Informed web-based water test interpretation tool to help private well users make such informed decisions.

Inspired by programs elsewhere that include filter pitchers in welcome boxes for pregnant women, Director O'Donovan directed Drinking Water and Groundwater Bureau (DWGB) staff to design a program that would put filter pitchers in the hands of pregnant women. Working with the Division of Public Health Services (DPHS) in the New Hampshire Department of Health and Human Services, DWGB identified the WIC program (Special Supplemental Nutrition Program for Women, Infants, and Children) as potential partners, and the WIC program director was soon on board. The target population for the project would be those most vulnerable and least able to afford fixed (whole-house or point-of-use) treatment systems: pregnant women who qualified for WIC services on the basis of income. WIC is a federally-funded program that works through the State to support WIC nutrition clinics; the local clinics are run by four regional non-profit organizations. The State WIC director quickly had the four regional directors on board with the program as well.

By June 2019, the project partners had obtained funding from the Drinking Water and Groundwater Trust Fund Advisory Commission for Phase One, which will last five years. NHDES has hired a contractor to execute most aspects of the project. A Project Advisory Committee includes NHDES; various DPHS programs including New Hampshire Healthy Lives (Chronic Disease Prevention and Screening), Maternal and Child Health, Biomonitoring, the water laboratory, and WIC; and the regional WIC directors. After developing protocols and materials, and training the WIC clinic nutritionists who have direct contact with the women served by the WIC clinics, the project will include a six-month pilot followed by evaluation and possible modification, and then enrollment of all qualifying women for 24 months.

Once voluntarily enrolled, a participant (pregnant woman using a private well) would be handed a water test kit, take a water sample and mail it to the DPHS water lab, receive arsenic results and phone-based support from the contractor, and if the results are over 5 ppb, receive a filter pitcher and three years' worth of replacement filter cartridges. A key aspect of the project is the two years of contact provided to participants by the contractor; the periodic check-ins will help mothers use filter pitchers properly and inform the contractor about challenges the mothers experience understanding test results and using the filter pitchers. For this project, NHDES identified a filter pitcher that is very effective at removing arsenic. Finally, after two years of support and a wrap-up survey, participants will be provided with a coupon code to enable them to order an additional free 12-month supply of filter cartridges, which would require them to take action to order the cartridges, priming them to continue the practice on their own.

Soon after the WIC clinics – along with nearly everyone else – shifted to providing services remotely in March 2020, it became clear that the early July date for the beginning of enrollment of participants in the pilot would be delayed. DWGB and DPHS worked with the contractor to transition the pilot to a remote enrollment model, which is scheduled to roll out in early September (pending G&C approval of the modified contract). WIC nutritionists will screen and enroll participants over the phone, and the contractor will mail sampling kits to the participants.

Over the course of the five-year project, an estimated 1,750 pregnant women will have their well water tested for arsenic and up to 524 will use filter pitchers to remove arsenic for three years, all at no cost to the participants. In the process, DWGB and DPHS will learn directly from participants about any difficulties they may have using the filter pitcher, changing filters, etc.; understand how the filter pitchers were actually used; and assess the overall value and effectiveness of this approach to reducing arsenic consumption. Ultimately, the project will inform plans to scale up to a broader population, either through outreach, distribution of filter pitchers or other treatment systems, or a combination of the two. I am looking forward to the success of this innovative program. ■



ENVIRONMENTAL NEWS

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

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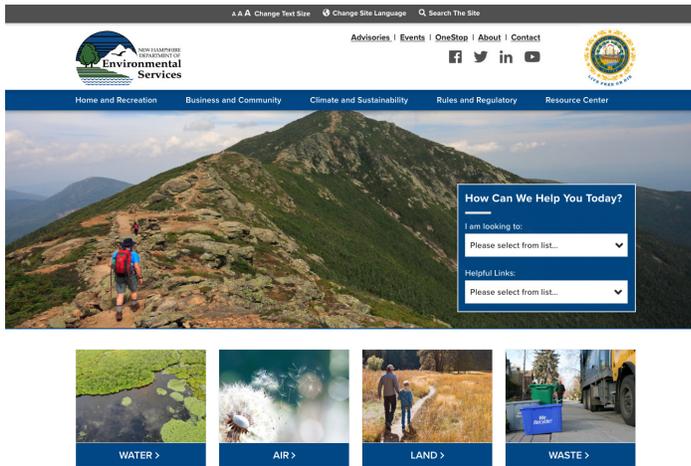
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Printed on recycled paper.

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when air quality in New Hampshire is most affected by small particle pollution from residential wood burning. In addition, April and May represent a transition period from winter wood burning to summertime smog/ozone events. Due to the involvement of multiple air pollutants, NHDES could not prioritize monitoring for a single air pollutant. Instead, the entire network had to be maintained to ensure reliable, high quality collection and analysis. Periods when air pollution concentrations are higher than normal can happen any time of year and NHDES needs to track it on a daily basis to support public air quality forecasts and to demonstrate that the state is meeting federal air quality guidelines for clean air.

AMP staff are the heart and soul of the monitoring operation; they perform monitoring site visits, equipment calibrations and maintenance, trouble-shoot malfunctions, and transport supplies and equipment between our monitoring stations and our headquarters. NHDES thanks AMP staff for their continued hard work and support not only during this time but year-round. When the next polluted air mass develops, NHDES will be able to predict it, monitor the levels of pollutants, advise the public, if need be, and then track air quality for compliance with federal guidelines, even in the midst of the COVID-19 pandemic. We can breathe easier knowing our air quality is being monitored and any public advisories are coming out in a timely manner. New Hampshire is very fortunate to enjoy good air quality most of the time! We thank our monitoring staff for their expertise and diligence especially during this pandemic. ■



New funds available for Brownfields cleanup grants

The NHDES Brownfields Program is making \$400,000 available for two or more cleanup grants and is soliciting applications from interested eligible entities. Brownfields sites are defined under the federal brownfields law, known as the Brownfields Revitalization Act of 2002 as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.” Our program strives to help communities overcome some of the barriers to successful brownfields redevelopment. One of these barriers is the uncertainty regarding the availability of funding to address contamination. The cleanup grants will provide funding to conduct cleanup activities on underutilized and abandoned properties in an effort to position them for redevelopment and put them back into productive use. Individual grants will be limited to no more than \$200,000 per site. The deadline for submitting applications is August 31, 2020.

Applications and questions can be directed to Michael McCluskey at michael.mccluskey@des.nh.gov or (603) 271-2183 or Melinda Bubier at melinda.bubier@des.nh.gov or (603) 271-1169. ■

The NHDES website is getting a makeover

Coming soon! The NHDES website will be getting a fresh new look, complete with an update to the navigation system. All the information you need and want will still be there but will be organized in a much more intuitive way, based on environmental topics. There will also be a keyword searchable document library that will put all NHDES fact sheets, reports, guidance documents, outreach materials and more at your fingertips. The site will be fully mobile-ready, making accessing the information you need even easier. Keep an eye out for more information about when the new website will be going live. ■

Was our air cleaner with stay-at-home orders in place?

Reduced air pollution during the COVID-19 pandemic has made headlines all over the world. New Hampshire also enjoyed some cleaner than normal air due to the pandemic. Most of the newspaper articles are focusing on a single air pollutant: nitrogen oxides. Nitrogen oxides, which include nitrogen dioxide (NO₂), are a very common and widespread air pollutant that is chemically involved in producing other air pollutants such as ozone, small particles and acid deposition. Burning almost any type of fuel will produce nitrogen oxides, including fuel used in home furnaces, power plants and of course automobiles and trucks. When the COVID-19 pandemic struck, economic activity was reduced and perhaps the biggest change could be seen on the highways during rush hour when there were far fewer people driving their cars to and from work. New Hampshire traffic counts found that total highway traffic was reduced by just over 50% in April compared to February levels. Most of this reduction was from passenger cars and this resulted in far fewer nitrogen oxide emissions from gasoline combustion. Comparatively, truck traffic was only down slightly as goods still needed to be shipped and home delivery increased. NO₂ measured in Londonderry were about 30% below 2019 levels.

concentrations. Many places in the country are also measuring various degrees of lower NO₂ concentrations. Generally, remote rural areas saw less reduction than emission rich urban areas. Cities like Washington D.C. and New York City experienced roughly 40 to 50% lower than normal NO₂ concentrations in April during the middle of the stay at home orders. April and May began to show signs of economic recovery and higher traffic levels. As a result, NO₂ concentrations have already rebounded and are now slightly above 2019 levels. Other air pollutants, such as ozone and sulfur dioxide never dropped below 2019 concentrations and now are slightly higher than last year's levels.

NHDES has worked hard to reduce air pollution and normally has "good" air quality on most days. The COVID-19 pandemic helped to make things a little cleaner for a while, which is at least a little good news, during the very challenging times associated with the pandemic. ■

Oyster aquaculture in New Hampshire

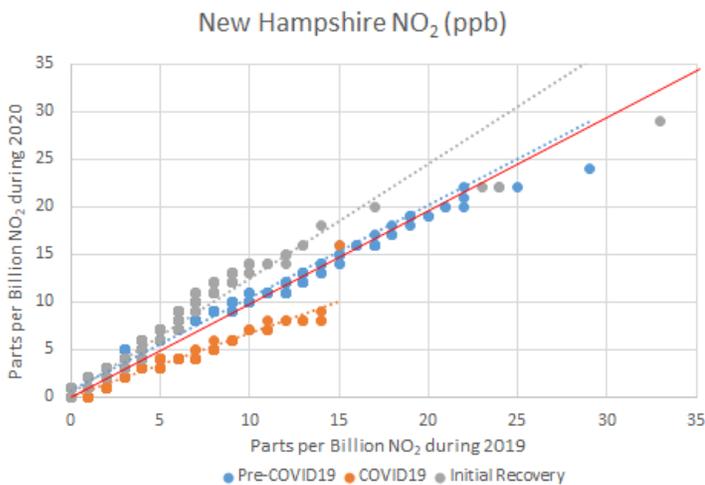
A visit to nearly any seafood restaurant on the Seacoast reveals a thriving "raw bar" for patrons to enjoy, and among the selections available is an impressive array of oysters grown in New Hampshire. Aside from providing employment for the small business owners who run the farms, not to mention the seafood distributors, retailers, and area restaurants, commercial aquaculture also brings many environmental benefits to the state's coastal ecosystems.

What is Aquaculture?

Commercially raised oysters in New Hampshire are grown on public lands and waters. Farmers must apply for a NH Fish and Game aquaculture license. Each year farmers pay a license fee, a per acre fee for the lands and waters they use, and a per-oyster fee on all sales, to the state. After securing a license, farmers employ a variety of techniques to grow their crop. Some invest in gear that allows them to raise the baby oysters they purchase from commercial hatcheries in neighboring states. This gear includes "oyster condos," or stackable cages that house mesh bags of baby oysters. As the young oysters grow, they are moved to larger cages. Others plant young oyster directly on the bottom of their licensed area, and a few are trying limited "floating cage" arrangements. All gear needs to be cleaned regularly, and the young oysters are repeatedly cleaned and sorted by size over the approximately three-year period it takes them to reach market size. No pesticides, fertilizers, or biocides are used on commercial oyster farms in New Hampshire.

Growth of Industry

Although there were a handful of commercial oyster farms



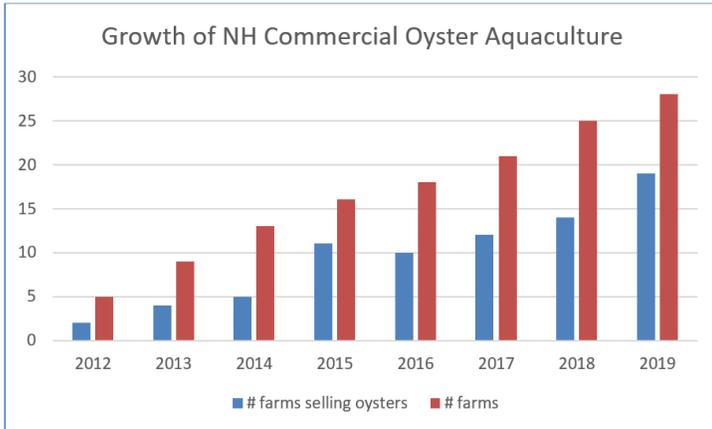
The scatter plot compares New Hampshire's measured NO₂ data for the same time periods during January through early June 2019 and 2020. The pre-COVID is January through early March, 2020. COVID is from around March 15th to around April 20, and the initial recovery is April 20 to early June. The orange series of dots during the COVID stay-at-home period, of approximately March 15 through April 20, slopes in the direction of lower concentrations during 2020 than for the matching period in 2019. This type of pattern was repeated for carbon monoxide, which is another pollutant commonly associated with automotive traffic. Carbon monoxide levels were down almost 40% but are now back to 2019 levels.

New Hampshire is not alone in seeing reduced NO₂

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operating in New Hampshire prior to 2011, growth of the industry really began in 2012. New farms typically do not have market-sized oysters to sell for two or three years, but after that, the number of oysters they produce each year grows as the farm matures and becomes more efficient at production. Over the last several years there have been 3-5 new farms created annually, and in recent years, total sales have increased by over 30 percent each year. The total harvest in 2019 was just short of 600,000 oysters, with a wholesale commercial value of over \$450,000.



Environmental Benefits of Oyster Farming

Oysters, whether growing on natural reefs or on a licensed aquaculture farm, provide many environmental benefits. Oysters are filter-feeders, meaning they pump up to 50 gallons of seawater through their systems per day. In doing so, they feed on microscopic plants and animals, removing them from the water column and improving water clarity. This in turn benefits submerged aquatic vegetation such as eel-grass. Through their feeding process, oysters remove nitrogen from the water column. Both natural oyster reefs and aquaculture gear provide three-dimensional structure to the environment, providing habitat for crabs, worms, juvenile fish, and other forage for larger fish and marine species. And the new oysters brought to the system by oyster farming spawn each summer, releasing millions of oyster larvae into the water column, which will be dispersed through the estuary and create the next generation of oysters. Finally, as a sustainable and green industry, oyster farming provides a valuable alternative to the harvest of wild stocks of shellfish.

The number of adult oysters in New Hampshire has dramatically declined since the early 1990s, going from 25 million oysters in 1993 to approximately 2 million in recent years. The loss of so many filter-feeding shellfish to disease, siltation, and other factors no doubt has had a negative impact on the water quality and ecosystem health of the Great Bay. But with the addition of millions of young oysters to the system via aquaculture, coupled with the restoration of nearly 26 acres of oyster reefs since 2000, there is hope that the environmental benefits lost with the crash of natural oyster populations will return.



Commercial Oyster Farmer sorting mature oysters.

Impacts of the COVID-19 Pandemic

Restaurant closures and loss of markets severely depressed oyster sales in March and April of 2020. Some oyster farmers began to pivot toward direct sales to consumers, rather than traditional sales to seafood wholesalers and distributors, to help bolster sales. Consumers searching for contact information for direct sales of oysters (and many other types of seafood) can consult the [Local Seafood Finder in NH](#) storymap.

As the state's economy begins to reopen, there is hope that demand for oysters will return and support continued growth of the industry.

NHDES Response during the pandemic

The NHDES Shellfish Program, along with the New Hampshire Department of Health Human Services and the New Hampshire Fish and Game Department, remains committed to keeping harvest areas open for both commercial and recreational harvest during the COVID-19 pandemic. This includes ongoing sampling and laboratory analyses of seawater and shellfish tissues for bacteria, as well as surveillance for harmful algal blooms such as "red tide," and response to accidental pollution issues such as an 800,000-gallon discharge of treated but undisinfectated wastewater from the Exeter treatment facility this spring. Ongoing monitoring is necessary to maintain the regulatory conditions that allow the commercial shellfish industry to legally harvest and engage in interstate commerce.

Please visit the [New Hampshire Coastal Atlas](#) for updated information on shellfish harvest areas. ■

Freshwater beach monitoring for summer 2020 bathing season

As the beaches at the state's freshwater lakes and ponds are opening back up, it is important to practice safe swimming and to be vigilant for potential health concerns, such as cyanobacteria. This summer, NHDES will focus on monitoring, assessing and responding to cyanobacteria blooms. The Beach Inspection Program will not be sampling freshwater beaches regularly for fecal bacteria, as it has in the past, due to lab capacity and logistical challenges posed by the pandemic.

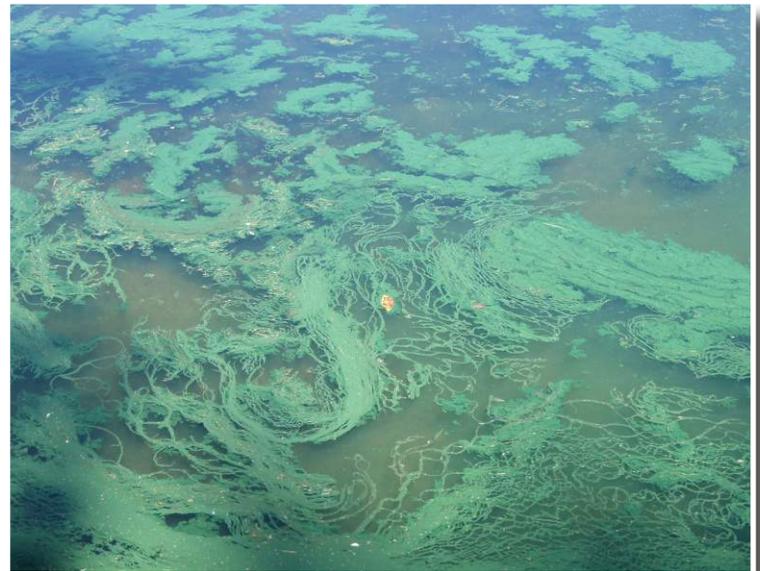
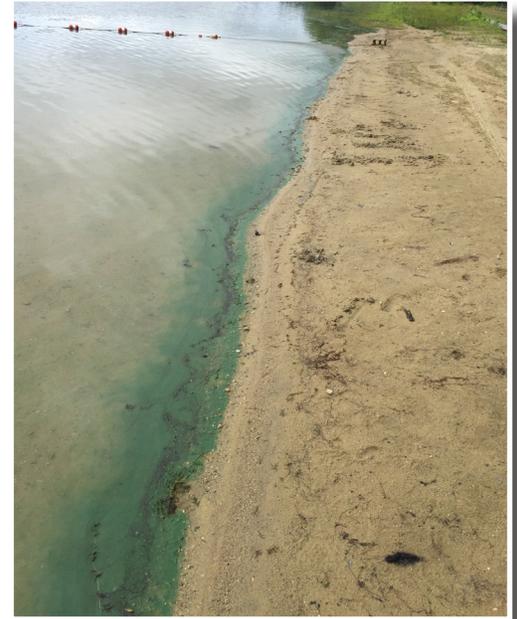
The Beach Program will, however, maintain an active monitoring program that will be able to respond in cases when public health risks arise and can ramp up at areas with a history of bacterial problems. Beach owners and municipalities can still collect water samples themselves and submit the samples to a number of available labs for analysis. In addition, an [illness report form](#) is available for reporting bathing-related illnesses. The public is encouraged to submit this form to the Beach Program if someone becomes ill after swimming in one of the state's waterbodies. That will help protect all of us.

The public is also strongly encouraged to keep an eye out for cyanobacteria in state waterbodies. As the water temperatures warm, some lakes and ponds may display bright green surface scums or dingy green water throughout the water. These are signs that a cyanobacteria bloom is present.

Cyanobacteria can produce toxins that are harmful to humans, pets and livestock. Toxins can cause acute health effects, including irritation of skin and mucous membranes, nausea, vomiting and diarrhea. In some cases, short-term exposure can also result in nervous system interference including tingling, burning or numbness sensations. Prolonged exposure can also lead to liver or kidney problems.

Cyanobacteria blooms are extremely unpredictable, occurring sporadically anywhere or anytime. Therefore, as a precaution, the Beach Program recommends against swimming in areas of lake or ponds with a suspected cyanobacteria bloom and restricting pet or livestock access.

If you see what you believe is a cyanobacteria bloom, please report it via text or phone call to (603) 848-8094 or email to HABS@des.nh.gov. We also ask that you include a photo of the bloom. A response to a reported potential bloom will typically occur within 24 hours. Bloom alerts or lake advisories will be issued following confirmation of the condition and will be posted on the [NHDES website](#). ■



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A collaborative approach to training Waste Management Division program operators during COVID-19

The training programs in the Waste Management Division, which includes Hazardous Waste Coordinator Certification (HWCC), Solid Waste Operator Training (SWOT), and Underground Storage Tanks (UST), are collaborating on options for online training for their combined 3,600 operators.

In March, operators were put on hold in regard to earning credit hours or obtaining initial certification via conventional methods (for instance, in-person training). The HWCC program led the charge by offering training modules online to small groups. They worked out many of the kinks, and shared information amongst the other trainers. Each program has its own set of statutes and rules, but they all have the same purpose – to train operators to uphold the conditions of a permit, registration or governing rule.

HWCC

Env-Hw 509.04 requires that New Hampshire full quantity generators (FQG) have at least one NHDES certified Hazardous Waste Coordinator per FQG facility location. NHDES Certified Coordinators are required to take an initial training and exam, as well as attend an annual refresher class to keep certification valid. All in-person trainings have been postponed from March until at least September 2020.

A HW Basic Refresher-Online webinar has been established to help with fulfilling the annual training requirement. Program staff started with small groups, but anticipate accommodating larger numbers in the near future as skill and confidence in the platform increases. The possibility of a call for accommodating business' needs for the long term is anticipated. Providing them access to education and the knowledge required to manage hazardous waste safely during a time period of limited face to face contact and potential staffing shortages.

Attendees are required to sign in individually (although an alternative sign-in option is being explored for facilities with multiple people attending the same webinar), and poll questions are asked throughout the day to gauge attendee attention. Basic Refresher-Online runs from 8:30 AM-3:00 PM. Currently, GoToWebinar is the platform being used, but others are being explored for a more interactive component to accommodate those that are required to take the Basic Certification and exam.

UST

Per Env Or-400 owners and/or operators of USTs require initial training and on-going professional development (in the form of on-going 2-year recertification). All in-house classes for UST Class A & B Operators are postponed. Program staff are currently looking into options on how to conduct future classes, potentially via webinar or other online training, and will let operators know as soon as a plan is in place. The website is updated with the current status of training on a

regular basis.

In the interim, pending new facility owners will need to find and designate a certified A & B operator until initial certification is offered again. This may be accomplished by hiring a person or contractor that has been certified by an approved training program.

SWOT

Solid Waste operators in New Hampshire are required in RSA 149-M to be certified through NHDES. As part of that certification, each operator must attend an initial training course and then fulfill 2.5 hours of continuing professional development hours annually. Operators have the option to choose any training that meets the definition of continuing professional development in Env-Sw 1600 for their annual renewals. Generally, operators attend a workshop hosted by NHDES on a variety of things that affect their day to day operations.

The SWOT Program has postponed all in-person training through August, including Basic Training, which is required per statute. Currently, the SWOT Coordinator is piloting one workshop with a small group of attendees and has plans to record that session to make it available to all operators as a pre-recorded training. She is also working with the instructors for Basic Training to run a live class for the backlog of applicants.

By using a collaborative effort now, the programs will hopefully be able to expand the online option for some of their classes for the foreseeable future. There are still challenges that need to be overcome, including a State learning management system, but by working together during this time, hopefully a sustainable path forward will be found. ■





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Whitewater park receives permits

NHDES recently approved wetlands and shoreland permits for the City of Franklin in partnership with Mill City Park, a nonprofit entity, to build on the Winnepesaukee River what is believed to be a first-of-its kind “community whitewater and outdoor park” in New England. The whitewater park, which ends at the base of Franklin’s downtown, is the foundation of the redevelopment and cornerstone of the City’s rebranding efforts as an outdoor recreation destination.

“This is much more than just a wetlands permit” said Franklin’s Mayor, Tony Giunta. “This permit is a clear sign the Department of Environmental Services will work with you to make unique complex projects like this become a reality. My greatest appreciation to the Department and all those who worked on this project and maintained a cooperative, supportive attitude for ultimately achieving this complex permit. Realization of this whitewater park will improve the lives of Franklin citizens and will make our City, region, and State a destination for countless whitewater enthusiasts and their families” said Mayor Giunta.

Efforts in the Franklin community to build the whitewater park have been underway for a num-

ber of years. According to the City of Franklin, the wetlands permit gives them the ability to schedule construction of the in-river features, making this project a reality and creating a domino effect for multiple other economic development priorities. Receiving the wetlands and shoreland permits signal a major milestone for the project. ■

