

COMMISSIONER'S COLUMN

First in the nation permit issued to restore the Great Bay Estuary

Many years of discussion, controversy and monitoring have culminated in a novel approach to addressing the degradation of the Great Bay estuary, one that will benefit the people, water and eelgrass in those waters.

Eelgrass (*zostera maritima*) is a plant that few people ever see. It is a seagrass that provides numerous ecological benefits to estuaries. Yet in the seacoast region of New Hampshire, its decline has had major ramifications for both the ecosystem and the communities that surround the Great Bay estuary. Back in 2003, the Piscataqua Region Estuaries Partnership (based out of UNH) reported that the "Eelgrass cover in Great Bay has been relatively constant for the past 10 years at approximately 2,000 acres." A mere six years later, more data had been collected and the analysis was bleak, "Eelgrass cover in the Great Bay itself has declined by 37% between 1990 and 2008 and has completely disappeared from the tidal rivers, Little Bay, and the Piscataqua River." These losses mirror eelgrass declines around the world and have been shown to be caused by excess pollution, especially nitrogen.



The disappearance of eelgrass, loss of oysters (a decline of over 95%) and other signs of ecological stress, led to a serious conversation about how to restore this amazing body of water. The alarm was sounded and the scientists and managers responded. Since that time, we understand a great deal more about the estuary. And, the municipalities that discharge wastewater and stormwater to the estuary have made great strides in reducing their pollution. However, the path towards a

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Summer beach monitoring

Summer is almost upon us in New Hampshire and that means warm temperatures, trips to the beach and swimming to cool off. The NHDES Beach Inspection Program (BIP) is responsible for monitoring 16 coastal beaches up to twice per week during the swim season to monitor the conditions of the beach and the quality of the water for recreational contact. Funding for the program comes from the [federal BEACH Act](#), an amendment to the Clean Water Act. The goal of the program is to reduce risks to public health by informing beach-goers when [fecal-indicator bacteria](#) levels are elevated through regular testing and public notification.

BIP defines the swim season as lasting from Memorial Day to Labor Day when beach visits are at their peak. Nearly 800 coastal beach water samples are collected and tested for fecal bacteria each summer. Overall, coastal beach waters are in excellent condition, with fecal bacteria levels better than state criteria in over 95% of the samples collected since 2003. In 2020, there were ten coastal beach advisories at seven beaches with 44 total beach advisory days. With 1,424 total beach days across all beaches, this is only 3.1% of days when beach advisories were in place. Annual reports for each of the coastal beaches can be found at the [NHDES OneStop Database](#).

NHDES also dedicates significant time and effort to reduce public health risks at inland public beaches by monitoring freshwater beaches for both fecal bacteria and [cyanobacteria](#). Over the

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regulatory process to lock in those improvements and to continue to make progress has been extremely controversial. Legal battles ensued. Trust between regulators and permittees was in short supply. Disagreements over the science were constant.

Now, that has begun to change. In 2019, in response to requests for a flexible approach to permitting from the communities and the state, EPA proposed a draft Nitrogen General

Permit to cover the 13 wastewater treatment plants (WWTPs) in 12 communities. This is a novel approach that has never been attempted anywhere in the country. The permit sets out an adaptive management approach that includes effluent limitations for the WWTPs and five elements of adaptive management. Those five elements include ambient monitoring, pollutant tracking and accounting, nitrogen reduction planning and implementation, development of nitrogen targets for future permitting, and the potential for a sector-by-sector nutrient allocation plan. Interestingly, this Nitrogen General Permit was voluntary, that is, the permittees could “opt-in” if they wished. If not, then EPA would create an individual permit that would not have included the flexibility afforded by the general permit, and most resulted in a stricter effluent limit at the WWTP.

The General Permit was issued on November 24, 2020 and was effective beginning on February 1, 2021. By April 1, 2021, all 12 communities decided to opt-in and are now in the process of developing plans as required for the five elements of adaptive management by July 30, 2021. They are also creating an inter-municipal agreement (IMA) that will link their efforts together so that they can “row in the same direction.” However, not everyone was happy with the Nitrogen General Permit. The Conservation Law Foundation (CLF) expressed their concern that the flexible nature of the permit could allow the communities to make little progress in pollution reductions. To assuage their concerns, the cities of Portsmouth, Dover and Rochester recently entered into an agreement with CLF that expands some of the accountability measures to ensure that nutrient reductions will result from things like stormwater treatment, reduced fertilizer use, and properly functioning septic systems. As a result of the agreement, CLF will stand up a stakeholder committee to interact with the communities and the cities will develop annual lists of projects that can be reviewed by the stakeholders. The cities and CLF will also create a joint project related to water quality improvements.

NHDES is happy to have participated with EPA and the communities in the development of this approach and permit. Last July, I sent a letter to EPA that outlines NHDES' commitment to assist the communities. Examples include contributions of funding and staff support for ambient monitoring and pollution tracking, technical assistance, analysis of state policies that could help reduce nitrogen, and a focus on improving science to support future permit targets. Finally, NHDES is most pleased that the agencies, organizations and municipalities can move forward together to improve the health of the Great Bay estuary. And, we encourage all residents of the state to visit Great Bay, take in its beauty, and maybe even dip your head below the water surface to see the eelgrass for yourself. ■

Starting May 7, NHDES will be reopening its Concord and Portsmouth locations to the public. We would like to thank everyone for working with us this past year as we worked to ensure continuity of service while protecting the health of our customers and our staff.



ENVIRONMENTAL NEWS

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past several years, BIP has modified its freshwater beach sampling program to focus on the most popular inland beaches and those that have had the most frequent advisories. In this way, staff are most effectively applying their available time to beaches that either see the greatest number of users or are most likely to have high bacteria levels. At the time of publication, the schedule for monitoring freshwater beaches is still in development for 2021 as NHDES works to ensure that swimming beaches are screened for bacteria levels as effectively as possible.

For coastal and freshwater beaches, BIP maintains an [interactive map of beaches](#) inspected with current advisories. The map is updated daily with the most current advisory information. Additionally, the [NH Beach Inspector Twitter feed](#) is used to provide updates on beach advisories directly to the public. NHDES strongly encourages all beach goers to check one of these media outlets prior to traveling to a beach for the day to make sure there is not an advisory.

For the upcoming beach season in 2021, six coastal beaches will be sampled twice per week, including some of our largest public beaches, such as Hampton Beach, Wallis Sands and Jenness Beach. In addition, two beaches will be sampled once per week and eight will be sampled every other week. Check the beach map during the swim season to see which beaches are sampled.

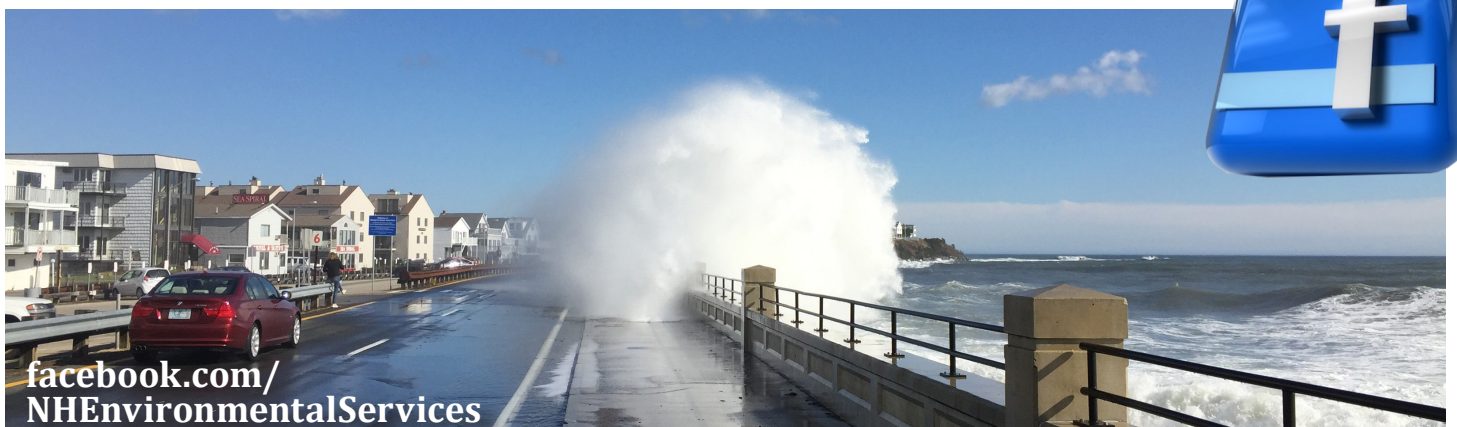
NHDES encourages the public to be diligent when swimming in natural waterbodies, whether there is an advisory or not.



Take notice of the beach and water conditions: are waterfowl or animal excrement apparent; are there are high volumes of people swimming at the peak hours of the day; has there been significant rainfall that may have washed contaminants into the water; does the water look cloudy, discolored or scummy? Try your best to avoid swallowing water and rinse off before and after swimming to help protect yourself and others. Do not feed waterfowl, as this is not healthy for the birds or the people that swim in these waters. Please [report any beach-related illness](#) to NHDES.

Learn more about how NHDES is promoting [Healthy Swimming](#):

- [Public Beaches webpage](#)
- [Harmful Algal Blooms webpage](#)
- Join a beach clean-up! [Clean Beaches webpage](#) ■



Celebrating Earth Day

On Earth Day, April 22, NHDES Commissioner Bob Scott toured four NHDES projects and sites to highlight great work being done across the state to protect public health and the environment. The tour started at a Gilmanton home receiving a new well thanks to the [Low-Income Residential Drought Assistance Program \(DAP\)](#). Commissioner Scott was joined by Gov. Sununu to commemorate the program that was created in 2020 to provide short-term relief with the provision of bottled water and financial assistance for activities associated with improving or replacing the homeowner's well or connecting the residence to an available community water supply.

To date, NHDES has received 88 applications and approved 71 for financial assistance. Ninety percent of the projects are for replacing a dug well with a drilled bedrock well, which solves the lack of water the homeowners are experiencing but also increases the drought resiliency of their water source. The program continues to be a resource for homeowners in 2021.



The Cherussery family's dug well first exhibited a lack of drought resiliency when it was dry during the summer of 2018. The family used a pond on their property as a source of non-potable water to ease the loss of their supply. Once again, in 2020, the well became dry as drought conditions were exhibited across the state. Even with extreme water conservation measures implemented by the family, the lack of water significantly impacts their daily life.

The Drinking Water and Groundwater Trust Fund Advisory Commission approved funding of \$1.5 million to this program in October 2020: Emergency Drought Assistance Initiative (10-23-20).

Commissioner Scott then stopped by the Winnepesaukee River Basin Program (WRBP) site in Franklin – named the most energy efficient wastewater treatment plant in New Hampshire in 2019 – to commend staff for the continuation



L-R: Water Division Director, Tom O'Donovan; WRBP Admin Sharon McMillin; Commissioner Bob Scott

of the facility's energy efficiency efforts with the installation of another "turbo" style blower and installing a new emergency, back-up generator. The efficient, diesel generator will provide an estimated 60% reduction in fuel use and reduce electricity generation by the utility; reducing greenhouse gas (GHG) emissions from the WWTP by an estimated 739 pounds/hour of generator run time.

Commissioner Scott went from Franklin to Durham, for a tour of the living shoreline along the tidal portion of the Oyster River at Wagon Hill Farm – the first of its kind in the state. This innovative restoration project was designed specifically to reduce erosion, replace salt marsh habitat, improve shoreline appearance, and accommodate salt marsh migration resulting from sea-level rise. Finished in early 2020, the project will be monitored by the Town of Durham and the University of New Hampshire over the next five years to determine the suitability of the design and whether adaptive management strategies are needed.

The success of the living shoreline at Wagon Hill depends upon thriving salt marsh vegetation. In order to ensure the long-term health of the salt marsh vegetation, visitors should stick to the specified water access point outside of the fence barrier, viewing the living shoreline from the trail or the observation platform (perfect for photos!), and refraining from walking or allowing dogs on the restored marsh surface. To learn more generally about the project, members of the public are encouraged to visit Wagon Hill Farm's shoreline and view the educational kiosk, which was designed by partners at Strafford Regional Planning Commission (SRPC).

The last stop of the Earth Day tour for Commissioner Scott was at the Londonderry Air Quality Monitoring Station, which is powered by solar panels. NHDES operates a network of air monitoring sites throughout New Hampshire that help us assess the state's air quality as well as the quality of the air coming from areas upwind and what we contribute to downwind areas. The Londonderry station came online January 1, 2011; the site chosen for its central proximity to the highly populated southeastern suburban portion of New Hampshire. ■

New air analyzer improves emission detection

NHDES' Air Resources Division purchased a new flame ionization detection (FID) analyzer using EPA grant funding. This new analyzer replaces a 15-year old, obsolete FID analyzer, which is no longer being supported or maintained by the manufacturer. To ensure compliance with EPA regulations, NHDES must have an FID analyzer that can be maintained and calibrated on a regular basis to ensure the quality and accuracy of the results obtained. The new FID analyzer, a Thermo Scientific TVA2020, is a significant upgrade from the previous unit. In addition, the TVA2020 will allow NHDES to better monitor sources that emit volatile organic compounds (VOCs) to the ambient air; and is a valuable tool to use to determine a source's compliance with VOC emission limits. To operate the TVA2020 accurately and effectively as a compliance tool, NHDES will be able to receive maintenance services and other support for the analyzer from the manufacturer.

The analyzer has been primarily used to monitor for landfill gas and other VOCs at facilities such as landfills, printing op-

erations, fabric coating operations, Superfund sites, and biodiesel producers. NHDES staff members have identified numerous areas of fugitive emissions at New Hampshire landfills that would not otherwise have been identified without the aid of the analyzer. The analyzer is a critical component of NHDES' regulation of these types of sources and is essential for reducing the exposure of the public to landfill emissions, particularly noxious odors. ■



#ThisIsNH Earth Day photo contest winner



We asked for images of Earth Day actions or beautiful New Hampshire locations and you delivered. The winner of the #ThisIsNH Earth Day photo contest is Bob Glowacky with this beautiful image of the Exeter River. Bob writes, "The sun sets over the recently freed Exeter River falls in downtown Exeter, NH. A dam stood here for nearly 400 years but now the river runs free to the sea." Thanks to everyone who submitted images and congratulations, Bob! ■



Conducting field work during a pandemic

The NHDES Air Resources Division Compliance Bureau usually conducts 50 to 60 on-site, full compliance evaluations of permitted stationary sources and observes 80 to 100 compliance stack testing and monitoring activities each year. In addition, Compliance Bureau staff perform 30 to 40 on-site inspections related to asbestos in schools, respond to 70 to 80 air-related complaints with an on-site investigation, and complete in-person inspections of asbestos renovation and demolition projects. When stay-at-home orders were issued in March 2020, due to the COVID-19 pandemic, the Compliance Bureau implemented new safety protocols to reduce the risks associated with exposure to and spread of the virus by cancelling in-person meetings and minimizing on-site compliance activities by its staff.

Despite that significant change, Compliance Bureau staff found ways to overcome the challenge and continue to fulfill mission-critical functions. Since NHDES had already submitted its annual plan to EPA with a commitment to conduct a specified number of inspections, NHDES worked with EPA to find a way to complete the required inspections remotely. This was accomplished through a combination of off-site record reviews and outside observations at permitted stationary sources. In addition, NHDES has a long-standing policy of observing all compliance stack testing and monitoring

activities that occur in New Hampshire. This ensures that the activities are conducted in accordance with established test methods which reduces costs to sources associated with retesting and produces results that are accurate. Staff used virtual platforms to conduct meetings and communicate with sources during inspection and stack testing and monitoring activities. NHDES is continuing to work with other states and EPA to find new ways to conduct off-site, virtual, inspections and observations during testing and monitoring activities to enable more thorough, real-time observations of permitted devices and processes. These efforts ensured the regulated community and our NHDES staff were safe, and our air quality uncompromised. ■



Collaborative training developed for solid waste operators

The Solid Waste Operator Training (SWOT) Program has partnered with the Northeast Resource Recovery Association (NRRRA) to provide a two-part online workshop series discussing Waste Diversion for solid waste operators, those affiliated with solid waste facilities and any other interested parties. The purpose of the training is to provide attendees with alternative methods for handling solid waste instead of landfilling and incineration. The workshops were developed specifically with New Hampshire communities in mind. The first session, “[Implementing Waste Diversion – Beyond Recycling](#),” occurred in April. Topics of discussion included waste diversion and why it is important; how communities can calculate waste diversion rates; and specific strategies and examples of how New Hampshire municipalities can reduce their waste. The strategies discussed in the first training included compacting construction and demolition debris, implementing Pay-As-You-Throw programs, composting, swap shops, full cost accounting and textile bins, and resident education.

The second session, “Understanding Recycling Markets and Practical Tips,” is scheduled for June 2 from 9 AM-noon. This second part of the workshop series will focus on recycling solid waste. NRRRA has been assisting municipalities with their recycling needs for 40 years and will be covering practical tips and tricks; success stories; and implementa-

tion techniques they have learned along the way that will make residents want to follow along. The key to recycling is to customize it to your town following market trends and NRRRA can assist with that. If you are interested in attending, please [register for this session](#).

To view the recordings of other SWOT Workshops or to see the schedule of upcoming workshops, please visit the [SWOT webpage](#). For any questions regarding the SWOT Program, please contact Tara Mae Albert, SWOT Coordinator, at tara.m.albert@des.nh.gov or (603) 271-3713.

For information on the NRRRA, please go to www.nrrare-cycles.org. ■

FREE webinar series

NHDES, EPA and ENERGY STAR have teamed up to present a free webinar series on sustainable solutions for craft beverage producers. There are three webinars in the series. The first, [ENERGY STAR Treasure Map for Microbreweries](#), occurred on April 27 but it is not too late to sign up for the other two.

- [Innovative Solutions: CO₂ Capture Technology](#) – May 25, 1-2 PM.
- [How to Cultivate a Culture of Sustainability at Your Facility](#) – June 22, 2-3 PM.

Berlin, NH location remediated



Tucked into a Berlin, New Hampshire residential neighborhood on the top of a hill, is a small, run-down house and some associated outbuildings situated on approximately eight acres. Starting in the 1950s, a property owner began collecting and storing scrap metal consisting of iron, aluminum, copper and brass behind the home. While some metals were sorted and brought for recycling, much accumulated at the site over time.

In early 2000 a complaint was filed and inspection of the property by NHDES identified the presence of multiple 55-gallon drums, lead-acid batteries, and various scrap automotive parts and metals piled on much of the site. With oversight and routine inspections by NHDES, the property owner removed the drums, containers and batteries over the course of several years but unfortunately passed away and the property was left abandoned.

In 2018, the NHDES Brownfields Program was contacted by the City of Berlin, which was evaluating taking the property for back taxes. They were concerned about what issues may remain at the property, given the extensive amount of material previously stored at the site. NHDES was able to assist the City of Berlin, through the Brownfields Assessment Program, by contracting with an environmental consultant to perform a site investigation and environmental evaluation. The results of the investigation identified the presence of polychlorinated biphenyls (PCBs) and metals (primarily lead) in surface soils above State standards. Given the presence of PCBs, which require substantial resources to evaluate and remediate, NHDES referred the site to EPA for

evaluation by EPA Region 1's Removal Program. EPA contractors conducted a Preliminary Assessment/Site Investigation (PA/SI) in June 2019, and determined that a removal action to address soil contamination was warranted.

The results of the PA/SI identified three distinct areas on the site with surface soils contaminated with PCBs and/or lead. EPA's Emergency Response contractor mobilized personnel and equipment to the Site in September 2020 (work was initially scheduled to begin in April 2020, but was delayed due to COVID-19 restrictions) to conduct the contaminated soil removal. Initial site work focused on site preparation, including improving access, and clearing trees and other vegetation from the areas to be excavated.

On October 5, 2020, the EPA contractor began excavating contaminated soil. By December 2020, approximately 2,400 cubic yards (yd³) of PCB-contaminated soil, and 1,000 yd³ of lead-contaminated soil, were excavated. Removal of the soil from the site began in early April, 2021. The lead-contaminated soil will be disposed of in a regional landfill and the PCB-contaminated soil will be hauled to Worcester, Massachusetts, loaded onto rail cars, and disposed of in Michigan! The total project cost for the cleanup is expected to be up to \$1.4 million.

As work progressed, a new view unfolded; once overgrown and littered with the debris, the site is now cleared, has areas of clean soil and boasts a stunning view of the nearby mountains. The City is currently considering options for the property post cleanup. What was once a blight to a quaint neighborhood now has the potential to be an opportunity and source of tax revenue again for the City. ■





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The 2021 Water Festival went virtual

Over the past three decades, thousands of students have learned about protecting water at the New Hampshire Drinking Water Festival. This year, due to COVID-19 restrictions, the Festival went virtual.

Using a newly-developed website, the Virtual Festival was packed with over 40 videos and activities that connect with student's daily lives and explore how to keep water clean. Major themes included the water cycle, watersheds, groundwater, wildlife, the human water cycle, Water Heroes (career fields) and the Poetry Contest. Engaging lessons ranged from calculating a personal water

footprint to finding costly silent toilet leaks and learning how caddisflies stabilize streambeds against erosion. The online lessons and activities are designed

for students in third through fifth grades, but with the timeless importance of clean water, students in other grades (and adults) can benefit from them as well. All materials are free and openly available on the new [NH Water Festival website](#). While the poetry contest has closed, the virtual lessons are still available as is information about how your school can participate in the free in-person annual festival in May 2022. ■

