ENVIRONMENTAL NEWS

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Newsletter of the New Hampshire Department of Environmental Services May-June 2022

COMMISSIONER'S COLUMN

Charlestown drinking water project first to receive ARPA grant funding

In New Hampshire, the need for water and wastewater infrastructure investment far outpaces the availability of funds. In the 2021 solicitation for state revolving loan funds (SRF), NHDES received over $1 billion of planned project funding requests. This staggering need for infrastructure funding does not even include mitigating the risk posed by decrepit and failing culverts, funds required for planning or necessary system improvements such as cybersecurity.

Federal funding totaling $150 million from the American Rescue Plan Act of 2021 (ARPA) has been made available to NHDES by the Legislature and Governor and Executive Council to fund water infrastructure. ARPA is a $1.9 trillion economic stimulus bill intended to speed up the United States' recovery from the economic health effects of the COVID-19 pandemic and help head off the resultant recession. The Act defines eligible uses of the state and local funding, including responding to public health emergencies and workers performing essential work during the COVID-19 emergency, providing revenue relief to states and of particular note for us, making investments in water, sewer and broadband infrastructure.

In the development of the ARPA funding programs, NHDES focused on supplementing existing Drinking Water

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The first and second lines of defense: prevention and early detection of aquatic invasive species

New Hampshire has been battling aquatic invasive species infestations since the mid-1960s, when variable milfoil was first identified in the waters of Lake Winnipesaukee. Since then, a total of 91 waterbodies have become infested with one or more types of aquatic invasive species (AIS). These include 11 river systems and 80 lakes and ponds across the state. Adding all those individual infestations up, New Hampshire can count a total of 117 types of infestations, with some waterbodies plagued by up to six different AIS. The image below shows one site in southern New Hampshire with intermixed growth of variable milfoil and fanwort, with their long stems taking up much of the water column, pushing out native species and affecting natural habitat for aquatic life.

Milfoil and fanwort growth in southern New Hampshire waterbody.

The rate of infestation used to be multiple new infestations a year, but thanks to both prevention and early detection efforts, we have been able to reduce the rate of spread to one or less new waterbodies a year for the last several years.

Prevention

Prevention efforts include signs at boat launches, outreach and education efforts with various groups, and strategic laws and rules to prevent the overland spread of AIS in the aquarium and water garden trade bringing potentially harmful spe-

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SRF (DWSRF) and Clean Water SRF (CWSRF) programs and created several new programs to utilize all available infrastructure funding to meet the known demand and growing needs in the state. These programs include:

- Directing supplemental funding for drinking water, wastewater and stormwater infrastructure projects identified through the 2021 solicitation for the DWSRF and CWSRF programs.
- Creating a 100% grant program to target assistance to resident-owned communities/manufactured-home cooperatives (COOPS) in need of necessary comprehensive drinking water and wastewater system improvements.
- Supporting the expansion or creation of planning, long-term sustainability (asset management, energy audit measure implementation, water audit measure implementation) and cybersecurity implementation grant programs.
- Creating a critical flood-risk projects grant program to support flood resilience and stormwater management planning and assessment projects.
- Supporting the PFAS Remediation Loan Fund with the creation of an ARPA funding grant component.

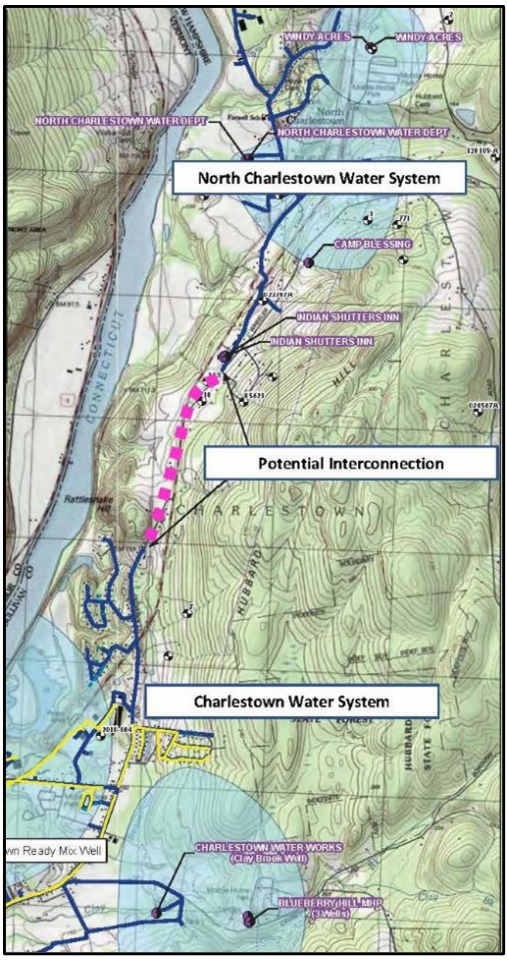
NHDES is excited to announce that the first ARPA-funded infrastructure project received final approval by Governor Chris Sununu and the Executive Council at their meeting on March 23. The approval was for a combination ARPA and DWSRF loan funds totaling $4,289,000 for a drinking water project in the Town of Charlestown. The funds will be used to make water system improvements, including completing the interconnection of the Charlestown Water System (CWS) and the North Charlestown Water System (NCWS) to address arsenic exceedances in wells serving the NCWS. The project will also include the construction of a booster pump station to address low-pressure areas within the existing NCWS. By interconnecting the two systems, the users of these systems will have improved water quality and reliability.

As of April 2022, NHDES had offered more than $100 million in ARPA grants to 230 projects.

These potential grant recipients are currently working to submit final project paperwork to NHDES for submission and approval by the Governor and Executive Council.

If your community is evaluating funding options for water system projects, whether they are at the planning phase, construction or looking to improve long-term system management, there is still ARPA funding available to support whichever phase the project is in. NHDES is currently soliciting for the cybersecurity implementation program, and the 2022 DWSRF and CWSRF programs are actively soliciting applications now, due by June 1. This includes Clean Water planning, asset management, and energy audit programs, and the first dedicated solicitation for the Assistance for Disadvantaged Communities grant program.

For more information regarding infrastructure funding programs such as ARPA, please visit the NHDES Infrastructure Funding website. ■



Proposed interconnection between the CWS and the NCWS. Map created by VHB, Inc. (Bedford, NH) with markup by NHDES.

ENVIRONMENTAL NEWS NHDES

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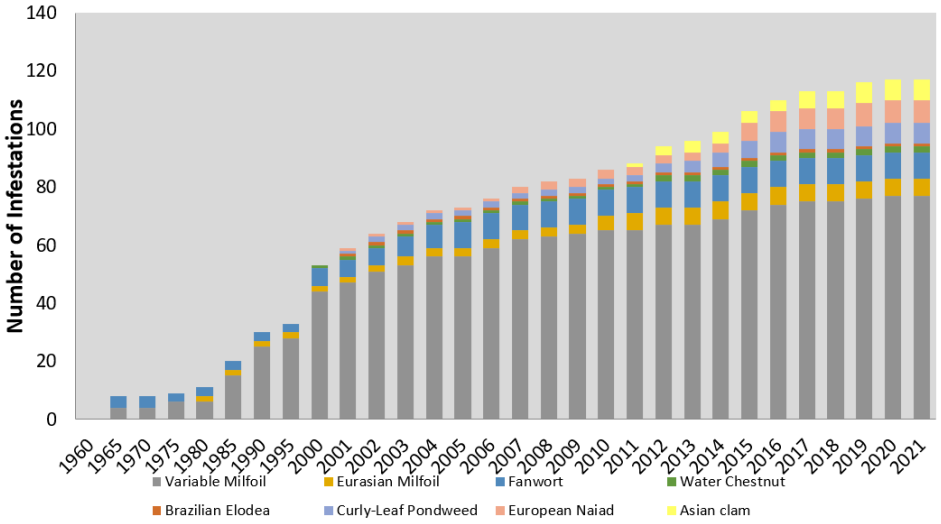
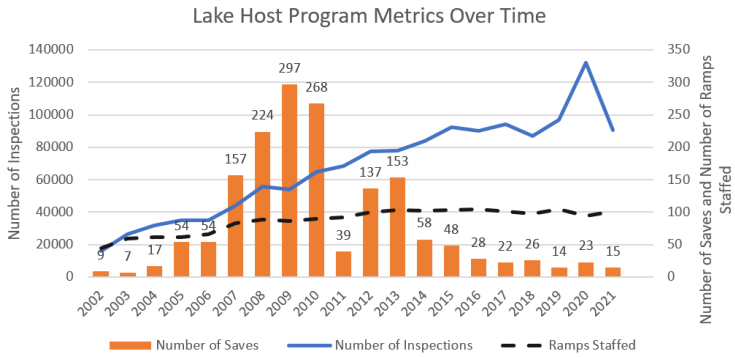
cies into the state through retail trade, and with transient boats moving species between waterbodies. "Clean, drain and dry" messaging has also been used for several years to inform boaters of actions they should take to decontaminate and disinfect their recreational gear.



A program that has resulted in a significant reduction of AIS spread is the Lake Host Program, run by the New Hampshire Lakes Association (NH LAKES), funded in part by grants from NHDES and other sources, as well as volunteer time from both public and private entities. The Lake Host Program is an outreach and inspection program that puts staff at 100 of the highest-use boat launch sites in the state. Lake Hosts are trained by NHDES and NH LAKES to educate boaters about AIS and their impacts and spread, and they also conduct courtesy boat inspections to spot and remove AIS before the boater launches and after they pull out of a waterbody. Each year, the Lake Host program reaches more and more boaters, and the last few years they have exceeded 100,000 interactions and inspections each year. While inspections have gone up, it is encouraging to see the rate of "saves" go down (a save is when an AIS is removed from a boat or trailer), an indication that outreach and education efforts are paying off, and boaters are doing more self-inspections to remove tag-along species from their vessels. NHDES awards over $260,000 a year for these efforts, and those grants in turn leverage several hundreds of thousands of dollars from other sources to support this important program.



Early Detection

Early detection efforts are largely done thanks to an extensive network of volunteer monitors throughout New Hampshire. Over 300 waterbodies (both lakes and rivers) in the state participate in some type of volunteer monitoring, including Weed Watching, which is NHDES' program to train volunteers how to monitor their waterbodies for AIS, to find new infestations early, and report them to NHDES for verification and action. NHDES field biologists have also found new infestations through their daily work on waterbodies across the state during the growing season.

Historically, many infestations were found when they were already covering acres of a waterbody, when involved and long-term management were required to get infestations under control, and eradication was unlikely. Now, with a trained network of volunteers and busy field biologists, many new infestations have been caught in early stages, when eradication is still feasible with fast and strategic management efforts. Some of our volunteers have even found new infestations at a single plant stage, which is remarkable!

New Hampshire continues to stay current with the science of AIS, so that we can continue to expand programs as needed to address current and future threats to our surface waters from these species.

If you are interested in keeping an eye out for AIS by becoming a Weed Watcher, please email amy.smagula@des.nh.gov. We have developed a book of common aquatic plants, which includes native plants as well as aquatic invasive plants to be on the lookout for. Links to more information, including fact sheets, plant identification tips and maps of infestations can be found on the NHDES invasive species webpage.

A New Program

New Hampshire is also continuing to work to educate boaters who come into New Hampshire from other states, where different AIS are present, so that they don't bring additional species into the state when they visit New Hampshire's waters. In 2021, an out-of-state boater decal program went into effect, requiring boaters with vessels registered in a state other than New Hampshire to purchase an invasive species decal. An online vendor site was established with information about AIS and a portal to purchase a $20 decal, which they affix to their vessel. The platform allows us to gather information about the number and types of vessels visiting New Hampshire from out of state, and proceeds from decal sales will be used for prevention and control efforts for AIS infestations in New Hampshire. This program is still growing, but we hope that it will help continue to educate transient boaters about the role they play in keeping waterbodies free from AIS.

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35 Years at NHDES: perspective from staff who have helped shape the agency from the beginning

In honor of NHDES' 35th anniversary, we are asking staff who have been here since the agency's formation to look back at their time here and what they see for our future. In this edition, we hear from Air Resources Division Director Craig Wright, who started with NHDES in 1988.

What made you want to work at NHDES in the first place?

In 1987, I was working at a small R&D [research and development] company in Waltham, MA, and was commuting three hours per day, and I knew I didn't want to move to the big city. So I applied for a job here at DES as Air Permitting Engineer. My original intent was to stay here for maybe a year or two and then return to the private sector. But as it turned out, there were great opportunities for professional growth here at DES and I realized that the work here really spoke to me as I have always loved the outdoors and our natural environment. Working here really means something to me. Plus, I was born and raised in New Hampshire and went to UNH, and having a long-term professional career serving the State of New Hampshire seemed like something I really wanted to accomplish. It's nothing I ever envisioned myself doing, but it's been really a remarkable 34, almost 35 years.

How many and what types of positions have you held at the department?

My entire career at DES has been within the Air Division. I've had six different jobs, starting out as a permit engineer, I worked my way through the permit program, eventually becoming the assistant division director and then finally the Air Director in 2013. My career here started two years before the 1990 Clean Air Act Amendments, which became the catalyst for a major expansion of the air program in New Hampshire and the entire country. It has been a remarkable ride and experience.

What were the biggest environmental challenges of the day when you first started here?

Speaking from an air quality standpoint, when I first started, the biggest challenge was our failure to comply with the ozone national ambient air quality standard [NAAQS], a federal health-based standard. Ozone has historically been our biggest regulatory driver and back then, it was not unusual to have 15 or 20 days a summer when ozone levels in New Hampshire exceeded the NAAQS. Today, we are officially in compliance with the ozone standards. We still on occasion have some [exceedance] days during the summer primarily from transported pollution into the state. Another significant challenge we faced in those early days was implementing the new federal Clean Air Act Amendments of 1990. With that, we needed to implement a number of air quality control

programs including the federal Title V Permit program, NOx and VOC RACT, Stage II for gasoline recovery at filling stations, Transportation Conformity and reformulated gasoline. All of these things were new to us so it was really something that we had never seen or done before, so it was a remarkable time.

What are some of the biggest changes you've seen at the department over the last 35 years?

DES was formed in 1987, the year before I started, but I still remember that in those early years I worked here at DES, the Air Division was located in downtown Concord, separated from most of DES. Seeing that DES was a new agency and we were physically separated, it didn't really seem like we were a department. We finally moved up to Hazen Drive and joined the rest of the department in 1999, as I recall, and that's where really started to feel like we were part of a department.

About 10 years ago, we really started to embrace technology as a means to make us more efficient in our day-to-day work, and we have really seen some great advances in our data management and business processes.

During my tenure here, DES has always been a largely professional staff-based organization and in recent years we have lost a lot of long-serving, ultra-talented and dedicated people to retirements. This has presented so many challenges, but it has been great to see some of new, young talent we have attracted over the last several years, which is great for the future of DES.

What are some of the biggest changes you've seen in the state over the last 35 years?

We know that the population of New Hampshire has increased quite a bit in the last 35 years and that puts lot of de-

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mands on our natural environment. It also seems like more people than ever like to get out and enjoy our mountains, lakes and forests, and I can't blame them! I really think that that makes our mission more important than ever.

From an environmental standpoint, I believe we have seen remarkable accomplishments across all of the DES programs and from a core standpoint our air, water and lands are in better shape than when I started 34 years ago. We still have major challenges, but I think the last 35 years have been good overall for New Hampshire's environment. Our air is cleaner to breathe and our water is safer to drink overall, but we still have challenges to meet.

What environmental successes have you seen or been a part of?

Since 1990, with the passing of the Clean Air Act amendments and a number of State statutes, we have seen air emissions of all the criteria and air toxics emissions decrease in the last 35 years. That represents a lot of hard work by hundreds of dedicated people through the years.

As a result, we have seen improvement across the board. We have seen steady improvement in air quality across the state, whether it's ozone pollution generated within the state or transported into the state from upwind states. We've also seen improvements in our valley areas for fine particulate matter, which results from people heating their homes with wood. Wood is good, as I always say, we just need to make sure we're burning the right wood in the right device in the right manner.

Back in the late 1990s, I was the lead permit engineer for two new natural gas-fired power plants in New Hampshire, and I didn't realize it at the time but that was the beginning part of the transition of our power grid being based on coal and oil to natural gas, which has ultimately led to great improvements in air quality across the state.

Compared to the early days, we have seen great improvements in our ambient air monitoring program. When we used to monitor for particulate matter, [we] needed to go out to the site, collect a filter, send it off for analysis and then get a report weeks later. Now, we are able to post the current levels almost live on our website.

I think the other big success I've seen has been here at DES. I really believe that the three divisions and the commissioner's office are more integrated than they've ever been, and I think this has resulted overall to better environmental outcomes for the state.

What are the biggest challenges you see for the next 5, 10, 15, or 35 years?

Dealing with impacts of climate change, which has widespread environmental impacts. We've all seen the droughts. We've all seen the extreme weather events. Last summer, we had western U.S. wildfires that led to unprecedented PM [particulate matter] levels here in New Hampshire. That's thousands of miles away. I think to that end, we need to:

- Continue to work with our local communities on planning for extreme weather events.
- Continue to transition our power grid to cleaner forms of energy.
- Continue to seek improvement to our transportation sector, which is our largest source of emissions today. I think we are on the verge of seeing a major change in our transportation sector to more electric vehicles and other cleaner technologies and, hopefully, we can continue to support those efforts.

If the last five years has taught us anything, it is the challenges we all face from emerging contaminants are going to be enormous and it impacts all of the DES Divisions from an air, water and waste management standpoint.

Demands on the agency from outside forces are at an all-time high, and we need to continue to manage things accordingly. I think in the age of the internet and information availability, managing and responding to expectations put upon us is more important than ever. I know DES is up to the challenges. ■

Haze caused by the 2021 western wildfires in New London, NH

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It's Boating Season

Boating season is already underway in New Hampshire. NHDES asks all boaters to be aware of the threats posed by AIS, and to help do their part in preventing the spread of AIS.

It's as simple as this:

CLEAN off any mud, plants, animals and algae from boats, trailers and equipment.

DRAIN your boat and equipment away from the waterbody.

DRY anything that comes into contact with the water.

Any plants, animals and algae found during your inspection should be removed and disposed of away from a waterbody. ■

Marinas and boat washing

The Small Business Technical Assistance Program and the Groundwater Discharge Permitting and Registration Program, in partnership with the NH Marine Trade Association (NHMTA), are working together to update current groundwater discharge registrations at marinas and encourage marinas that have not yet registered with NHDES to do so. "We need to build awareness and action throughout the entire marine industry to make sure we continue to be stewards of the health of New Hampshire's lakes, ponds and waterways. We appreciate working with DES to make this happen," stated Peter MacCallum, President of NHMTA. Detergents are probably the most common type of pollutant associated with boat washing and detailing practices, and if discharged improperly they may cause water quality degradation. Marinas have options for managing boat washing wastewater such as discharge to sewer, holding tank, or to the ground. All options require registration with NHDES. Visit Marinas: Managing Boat Wash Wastewater for further information. ■

Cybersecurity Infrastructure Improvement Grants

Now accepting applications for Cybersecurity Implementation Grants through the American Rescue Plan Act (ARPA) to support cybersecurity improvements to drinking water and/or wastewater systems. Up to $50,000 of grant funding is available per drinking water or wastewater system.

For more information and eligibility criteria, please visit the NHDES Infrastructure Funding – Cybersecurity Improvements Assistance webpage. ■

Instream Flow program to hold outreach sessions on the designated Ashuelot River

The NHDES Instream Flow Program is currently contracting a Protected Instream Flow Study of the Ashuelot River, in order to determine its appropriate instream flows. Concurrent with this study, baseline temperature, conductivity, and water level data are being collected by NHDES along the 65-mile designated reach to document "baseline" conditions.

On May 17 and 18, 2022, NHDES Instream Flow Staff will be setting aside an hour (1-2 PM, rain or shine) during datalogger deployment activities to meet with people interested in the Ashuelot River, the program, and the ongoing study to join us during our deployment activities. We'll show you the equipment we use to collect the environmental data, some of the data collected during last year's work, and describe the program's approach to designated river protection. If you wish, you'll be able to follow the staff to a deployment location and observe the process. Details regarding the events can be found on the NHDES Instream Flow webpage. ■

NHDES celebrates Earth Day

To celebrate and express staff appreciation in our 35th year as an agency, Commissioner Bob Scott & the senior leadership team handed out Balsam fir saplings as staff arrived for work. Thank you for your commitment and dedication to your work! ■

Innovative Approaches to Stormwater Management Improve Resiliency

by Ben Sweeney, NHDES Coastal Program, and Kyle Pimental, Strafford Regional Planning Commission

As a result of a collaborative effort, the City of Dover has implemented several stormwater management strategies seeking to address impacts from climate change.

In 2020, the City of Dover, in partnership with the Strafford Regional Planning Commission (SRPC), received funding through the NHDES Coastal Program Resilience Planning Grant Program to implement several actions identified in the City's 2018 Climate Adaptation Master Plan, including addressing extreme heat and increased stormwater runoff from increases in precipitation. The goal of the project was to strengthen Dover's resilience to climate change by improving the City's urban landscape through various mechanisms and providing education on innovative approaches to stormwater design.

2006 flooding of the Cocheco River at Henery Law Park

The project had three components. The first was the creation of an Urban Street Tree Plan for the Central Business District that provides a series of recommendations for future tree plantings, cost-effective structural measures for stormwater to help urban street trees thrive, and best management practices for addressing invasive species.

The second was amendments to the City's Complete Streets and Traffic Calming Guidelines. Revisions included, but are not limited to, emphasizing the connection between providing safe and accessible streets with a complete street approach that generates environmental protection and stormwater management benefits. For example, the policy states that whenever possible…

> *"…innovative, and educational stormwater infrastructure and best management practices, such as vegetation, landscaping, and on-site stormwater treatment infrastructure, including bioswales, planters, rain gardens, and street trees, shall be designed and integrated into the construction/ reconstruction or retrofit of a street. These elements not only treat stormwater, but they can also be used to create an attractive streetscape and slow vehicles speeds – which is critical for pedestrian safety."*

The final component of the project was the installation of a stormwater retrofit in the downtown core and an associated outreach campaign. According to Deputy Director of Community Services, Bill Boulanger, the construction of biofiltration systems in urban cores can be difficult. As a result, he and the UNH Stormwater Center collaborated on their own design. This design, known locally as a "Boulanginator," is a precast concrete media box filled with a mixture of organic materials, such as bark chips, sand and residuals from the drinking water treatment plant, that is then tied into a tree box filter to treat stormwater. What makes this stormwater approach different from other systems is that it has a baffle wall and trash rack in the concrete tank that separates the filter media from a sump area. This innovative design feature is vital as it ensures that all the settled materials, such as sands and debris, and floatables, such as trash, never get to the filter media. It is a low-maintenance, low-cost technique that can be cleaned with just a sump and a regular catch basin maintenance program, and can easily be implemented by other communities that are trying to incorporate stormwater treatment within the built environment.

When asked for his thoughts on this project, Resilience Coordinator, Jackson Kaspari, said, "The pilot tree box filter project is a great example of practical innovation. This system allows for effective biofiltration of stormwater in a way that

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Installation of a tree box stormwater filter in the city core.

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limits detriments to the tree's health and is low-maintenance for municipal services. Resiliency is an all-encompassing concept. Building off this success, future related projects are needed to lessen our community's impacts and thus improve our environmental resiliency. However, those projects must be carefully developed, like the tree box filter, to ensure the infrastructure and associated life-cycle are also resilient by design."

As part of their outreach campaign, the City created and published an informative video entitled, "Tree Boxes and Stormwater Management in the Urban Core." The video details their innovative approach to treating stormwater and providing water to trees in an urban, downtown environment. The video includes interviews with Boulanger and Kaspari.

The City has highly skilled and experienced staff with an impressive history of securing grants to implement these projects, but a lack of dedicated funding can be a major impediment to local progress on stormwater management. The City's Stormwater Program currently must compete for General Fund dollars, but many other services with broad public support take precedence for funding, which can result in deferred planning, maintenance and capital improvements.

Therefore, the City partnered with the NHDES Coastal Program and Piscataqua Region Estuaries Partnership (PREP) to establish and support an Ad Hoc Committee to Study Stormwater and Flood Resilience Funding. In November 2020, Dover City Council created this stakeholder-led Committee of residents, business representatives, developers, non-profits and environmental advocates to "investigate, study, and identify and make recommendations to the City Council concerning various funding opportunities that may exist with respect to existing needs and future stormwater and flood resilience planning." The Committee's charge allowed it to review all potential funding solutions through an exploratory, fact-finding process to identify the most equitable funding solution capable of providing adequate and sustainable funding for increasing stormwater and flood resilience costs.

During the Committee's final meeting on January 10, 2022, members voted unanimously to approve its Final Report to the City Council that recommends pursuing a stormwater and flood resilience utility. Much like electric, water, and sewer utilities that are based on use, stormwater and flood resilience utility fees are based on the amount of impervious area on a property, which is directly related to the amount of stormwater generated from the property. The Committee believes this funding mechanism would create a more equitable, service-based distribution of costs.

The Committee presented their findings to City Council on February 2, 2022, and on February 23, City Council voted in favor of accepting their recommendations to pursue the adoption of a stormwater and flood resilience utility. The next steps are for City staff to work with the Dover Utilities Commission and the City's Ordinance Committee to develop the utility ordinance that will ultimately go back to City Council for approval. As recommended by the Committee, this will be a thoughtful and deliberate process that will include a substantial amount of public outreach and engagement. The utility ordinance is expected to be drafted and ready for a City Council vote in the fall of 2023.

The steps the City of Dover has taken to implement its Climate Adaptation Master Plan and secure reliable funding for on-the-ground stormwater and flood resilience projects is crucial to prepare for changing conditions. Extreme precipitation events will continue to become more frequent and threaten to overwhelm the capacity of municipal stormwater systems in the seacoast region, which could result in increased pollution to local waterbodies and public safety issues such as road closures. As such, the New Hampshire Coastal Flood Risk Summary, Part II: Guidance (2020) recommends communities plan for at least a 15% increase in extreme precipitation. By referencing the best available climate science and guidance, as well as adopting innovative approaches to stormwater management that improve resiliency, communities can save money, property, and most importantly, lives that could be at risk in the future. ■

Discover Wild New Hampshire

Approximately 8,000 people came out to enjoy the fun at Discover Wild NH this year. NHDES was there with informational displays and handouts, and recylced crafts for kids, including paper tube binoculars and turning old t-shirts into shopping bags. A great time was had by all! ■