ENVIRONMENTAL NEWS

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Newsletter of the New Hampshire Department of Environmental Services November-December 2019

COMMISSIONER'S COLUMN

Flood hazards handbook released

In New Hampshire, the most common and costly type of disaster we experience is flooding. A town or city's existing resources – staff, plans and preparations, regulations and compliance procedures, and equipment and supplies – serve as the first line of defense in keeping people, property and infrastructure safe from floods. However, in most cases, they need backup.

It can be daunting in the aftermath of a flooding disaster to find the assistance available to local governments when there are so many different agencies – on the state and federal level – that provide it. That's why the New Hampshire Silver Jackets, a state-led flood risk management team of state and federal agencies, was established in 2015. Started as a "response and recovery" team formed in the aftermath of Tropical Storm Irene in 2011, the Silver Jackets has evolved into a major collaborative effort to not only respond to flooding disasters but also help communities prepare for and guard against the destruction they can cause.

A perfect example of this work is the recent publication of the *New Hampshire Flood Hazards Handbook: A Guide for Municipal Officials*. The handbook is a resource created by the New Hampshire Silver Jackets as an information source for communities to prepare for, respond to, recover from and mitigate floods. It offers information on federal and state resources broken down into three topical sections: before, during and after the flood.

This work spans several programs

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Coastal flooding science updated with companion guidance

Coastal flooding is now a regular occurrence in several of our coastal New Hampshire communities. NHDES has been working closely with researchers at the University of New Hampshire (UNH) to help our state agencies and communities understand the coastal flood risks we face and how we can best prepare for the impacts. Up-to-date scientific projections and guidance on how to apply the science in state and local decisions is paramount for enhancing the resilience of our coast. Tasked by the State Legislature (RSA 483-B:22), NHDES has convened a Science and Technical Advisory Panel (STAP) comprised of key state agencies, regional planning commissions, the University of New Hampshire (UNH), coastal municipalities and other adaptation practitioners to oversee and contribute to the first update of the New Hampshire Coastal Risk and Hazards Commission 2014 STAP report, entitled *Sea-Level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Future Trends*. The 2019 New Hampshire Coastal Flood Risk Summary is comprised of two parts: a summary of best available science (Part I: Science) and companion guidance for how to use the science in decision-making (Part II: Guidance for Using Scientific Projections - DRAFT).

Hampton Beach, NH during a king tide event. Credit: Will Brown

Published in August 2019 by UNH researchers, Part I: Science synthesizes best available science relevant to coastal flooding in New Hampshire and includes updated projections for relative sea-level rise, coastal storms, groundwater rise and extreme precipitation. Key findings from Part I: Science are provided below and are described in more detail in the report.

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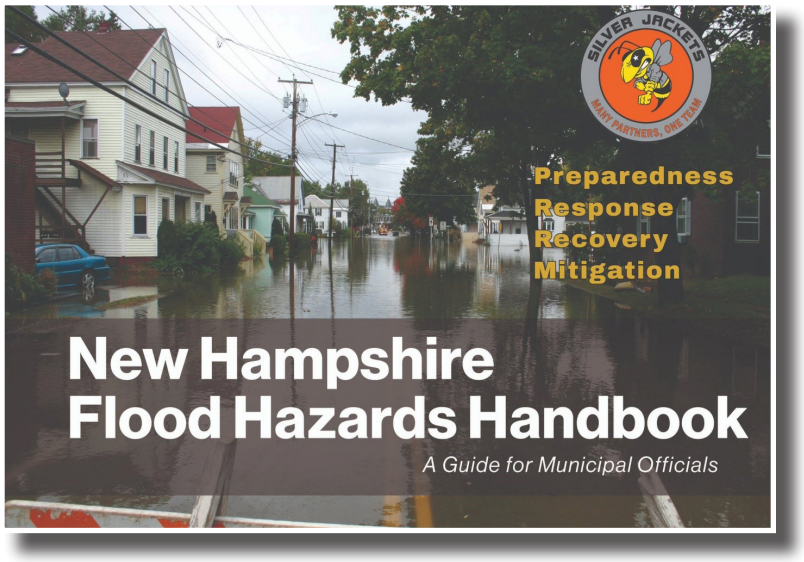
within NHDES, and some of the pertinent subjects for our department that you can find in the handbook are: accessing stream crossing assessment data; accessing ice jam and flood hazards information; dams, including Emergency Action Plans (EAPs); preparedness measures, and recovery considerations; cleaning up after a flood; debris removal assistance and post-flood event permitting; public water systems and wells; intensifying precipitation and rising sea levels; and LiDAR data and access.



Content is also included for flood-related activities conducted by other Silver Jacket agencies, including New Hampshire's Division of Homeland Security and Emergency Management, Office of Strategic Initiatives and Department of Transportation; National Weather Service Forecast Office-Gray, Maine; and United States Army Corps of Engineers, among others.

Incorporated into the handbook is the Flood Response and Recovery Checklist, which can be used by municipal officials to identify and manage priority activities when a flood event happens, and an Agency Contact List for more information about specific topics covered.

I encourage all municipal officials to download a copy of the *Flood Hazards Handbook* from the New Hampshire Silver Jackets team website to learn how it can help their community work toward a more flood-resilient future. ■

Using Play-Doh to teach waste reduction

The New Hampshire Pollution Prevention Program (NHPPP) utilized Play-Doh Fun Factories to simulate real life industrial processes for a new Hazardous Waste Coordinator (HWC) training program. Participants were tasked with creating Play-Doh "products" under strict deadlines while minimizing waste. Although this may seem like child's play, this activity encourages participants to work collaboratively to solve potential issues in their work, reevaluate their waste generation and apply waste reduction strategies that benefit the environment and their organizations.

New Hampshire requires all businesses that generate large quantities of hazardous waste be trained and certified by NHDES. The HWC certification program provides education about hazardous waste management regulation and to enhance environmental stewardship. NHPPP works with businesses and organizations to eliminate waste by modifying production processes, promoting the use of non-toxic substances, implementing conservation techniques, and reusing materials instead of putting them into the waste stream.

Changes to admin fines and penalties

On July 19, 2019, Governor Sununu signed HB614 into law, making several changes to the authority of NHDES to impose administrative fines and other penalties for air and water pollution violations. Fine amounts in most of the affected statutes have not changed in over 20 years.

First, the new law increases the maximum administrative fine that NHDES can impose from $2,000 to $4,000 per violation, and provides specific authority for each day to be considered a separate violation. The changes were made to statutes that authorize NHDES to regulate air pollution, acid rain, air toxics, asbestos management, oil discharge, drinking water, groundwater protection, and water management. NHDES imposes administrative fines on a case-by-case basis, so fine amounts actually imposed will vary.

Second, the new law increases the maximum civil penalty amount to which violators may be subject for certain violations relating to air pollution control, oil spills, drinking water, and groundwater protection.

Finally, the new law authorizes NHDES to issue administrative orders, including emergency orders, for violations relating to water management.

The law will go into effect on January 1, 2020. ■

ENVIRONMENTAL NEWS

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- Melting land-based glaciers and ice sheets are now the major contributor to sea-level rise.
- Relative sea-level in New Hampshire is rising and is projected to rise for centuries; for example, relative sea-level is likely to rise between 0.5-1.3 feet by 2050 and between 1.0 – 2.9 feet by 2100 if global greenhouse gas concentrations stabilize; however, there is a risk of much greater sea-level rise if global greenhouse gas concentrations continue to grow and the rate of ice mass loss from Antarctica accelerates rapidly.
- Impacts from storm surge in coastal New Hampshire will increase with relative sea-level rise.
- The frequency of extreme precipitation events is projected to increase over the course of the next several decades, especially in the springtime.
- Mean groundwater levels are expected to rise as a percentage of relative sea-level rise.
- Freshwater flooding is expected to increase in the future.

Part I: Science was reviewed by an external panel of regional experts, including representatives from the Northeast Regional Climate Center at Cornell University, Massachusetts Institute of Technology, Purdue University, Rutgers University, U.S. Geological Survey, HydroAnalysis, Inc., and the National Oceanic and Atmospheric Administration.

Part II: Guidance for Using Scientific Projections - DRAFT builds on Part I: Science and provides overarching principles and a step-by-step approach for incorporating projections for relative sea-level rise, coastal storms, groundwater rise and extreme precipitation into state and local land use planning and decision-making. Part II: Guidance for Using Scientific Projections - DRAFT also includes tools to facilitate the use of the scientific projections, including a worksheet and a Sea-Level Rise Mapper. NHDES and UNH Cooperative Extension partnered to organize a public input process, including two public input sessions and online survey, throughout the month of September 2019. Interested state and local government officials, professional planners, consultants involved in land use planning, zoning, permitting, land development, conservation, natural resources manager and members of the public were invited to attend the public input sessions and provided useful feedback. The 2019 STAP is in the process of revising Part II: Guidance for Using Scientific Projections - DRAFT to address the comments received during the public input period and plans to release a final version by end of March 2020.

Funding for this project was provided by the National Oceanic and Atmospheric Administration Office for Coastal Management under the Coastal Zone Management Act in conjunction with the NHDES Coastal Program.

For more information, please visit the New Hampshire Coastal Flood Risk Summary website. ■

Salt Shaker Awards

The 2019 Salt Shaker Awards were announced on Tuesday, September 10, at the 6th annual NH Salt Symposium. These awards recognize people in the snow and ice management business for their contributions to salt reduction and to the industry in general. Robert Sherwood of Bob Sherwood Landscape Company LLC in Dover received the Salt-n-Peppa Award for the salt professional exemplifying the best blending of participants in a salt reduction stew. Alizabeth Ricard, of Piedmont Excavation & Septic LLC in Epsom was honored with the Salt of the Earth Award, for the salt professional who best exemplifies a workingman's approach to salt reduction. Bill Boulanger of the Dover Department of Public Works received the Shaken, Not Stirred Award, for the James Bond of the salt profession, exemplifying a fearless, confident approach to salt reduction. The 6th Annual New Hampshire Salt Symposium was help September 10 at the Grappone Center in Concord, NH. Sponsored by the New Hampshire Department of Environmental Services, the University of New Hampshire Technology Transfer Center and the Snow and Ice Management Association, this daylong conference presents expert speakers in salt reduction practices, winter maintenance research, marketing, insurance and liability, liquid uses, interactive discussion sessions, and the awards presentation. ■

L-R: NHDES Commissioner Bob Scott, Bob Sherwood, Bill Boulanger, Alizabeth Richard, NHDES Watershed Bureau Admin. Ted Diers

EPA Merit Awards

Four individuals and three organizations in New Hampshire were recognized by the US Environmental Protection Agency (EPA) for their work to protect New England's environment, including two NHDES employees and a NHDES program. These environmental leaders were among the 25 recipients across New England honored by EPA's New England office at the 2019 Environmental Merit Awards ceremony held last fall.

Each year, EPA New England recognizes individuals and groups in the six New England states who are distinguished by their work to protect or improve the region's environment. The merit awards, given since 1970, honor individuals and groups who have shown ingenuity and commitment. They are awarded in the categories of individual; business (including professional organizations); local, state or federal government; and environmental, community, academia or nonprofit organization. Also, each year EPA presents lifetime achievement awards for individuals.

Recently retired former Wetlands Bureau Administrator Collis Adams was given an award for lifetime achievement for his leadership throughout his 19 years as administrator. In this position, Adams oversaw dredge, fill and construction in wetlands, surface waters, coastal areas, and protected shorelands. This past year, under his leadership, the Wetlands Bureau completed a multi-year initiative to adopt new wetlands rules. Throughout his career, Adams was actively involved with many organizations, including serving as chair of the state and national Association of Wetland Managers. His leadership will carry on with a passionate staff dedicated to the mission of protecting and preserving valuable wetlands while allowing reasonable development.

Mary Ann Tilton was given an individual merit award calling out her inspirational leadership focused on protecting resources while upholding the public trust. In her current position as the Wetlands Bureau Assistant Administrator, Tilton has streamlined permitting processes, led various working groups, and supervised enforcement and compliance activities. Among her many accomplishments, Tilton recently led an effort to rewrite coastal and inland state rules, which is the first rewrite of these rules since 1991.

The New Hampshire Coastal Program was recognized with a government merit award. Program staff Steve Couture, program administrator; Kirsten Howard, coastal resilience coordinator, and Nathalie Morison, coastal resilience specialist - have been key to New Hampshire being recognized as a national leader in climate adaptation planning. They

have secured and administrated hundreds of thousands of dollars in grants for coastal resilience efforts. The Coastal Program is a state and local leader, providing technical assistance to support state and municipal implementation of the NH Coastal Risk and Hazards Commission (CRHC) final report, Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise and Extreme Precipitation. This work has raised state agency and municipal awareness of CRHC recommendations; assisted municipalities in implementing priority CRHC recommendations; and provided capacity for state agencies to complete inventories of vulnerable state assets and coastal resilience audits of agency statutes and administrative rules, including NHDES. Staff are also active members of the Coastal Adaptation Workgroup, which provides technical assistance and education to municipalities on climate adaptation activities.

More information about New Hampshire's award winners can be found at EPA's 2019 Environmental Merit Award Recipients website. ■

Electric vehicles in New Hampshire are *Charging Forward*

National Drive Electric Week (NDEW) was September 14-22. Governor Sununu dedicated this week as "New Hampshire Drive Electric Week" and every effort was made to carry the torch. The Granite State Clean Cities Coalition (GSCCC) participated in six NDEW events, the Charge Forward Electric Vehicle (EV) Relay and co-hosted the Bi-State EV Connector with Vermont Clean Cities to celebrate advanced vehicle technology.

In New Hampshire, EV sales increased more than 55% from 2017 to 2018. That trend is expected to continue as new models become available. Major automakers such as Volvo, Ford and General Motors are progressing with EV commitments. Moreover, Shell, a major petroleum investor, acquired the EV charging network, Greenlots. Since Governor Sununu dedicated the full 15% of the Volkswagen Settlement to EV charging infrastructure, there has been growing interest to prepare for EVs.

GSCCC is a forum for sharing experiences and opportunities to get hands-on with the fuels and vehicles that propel us forward. In response to stakeholder's requests for guidance and education, GSCCC jumped into the EV conversation.

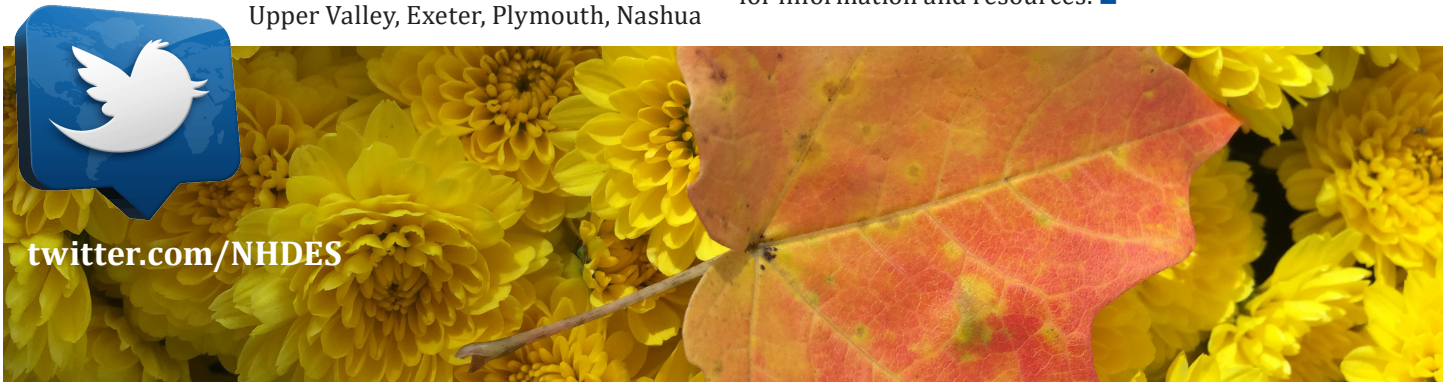
Through collaboration with Drive Electric NH, NH Sierra Club, NH Auto Dealers Association and ReVision Energy, the NDEW Concord Event took place at City Plaza. With stakeholder support, a diverse display of EVs and solar/charging options were showcased. Additional events were held in the Upper Valley, Exeter, Plymouth, Nashua and Portsmouth.

The Charge Forward EV Relay was the first-of-its-kind relay across New Hampshire. Spearheaded by Clean Energy NH, the Drive Electric NH coalition supported this unique event featuring local celebrities, like Greg Kretschmar of Greg & The Morning Buzz Radio Show, driving different EV models to favorite destinations equipped with charging stations.

The day began in Colebrook, NH's northernmost charging station, and ended in Portsmouth with a party at The Portsmouth Brewery, a Destination Electric participating business. There were several press stops along the route, including the New Hampshire Motor Speedway where a caravan of EV owners drove around the track. At each stop, the baton was passed to another EV driver who zoomed off to the next destination.

The Bi-State EV Connector took place at Hypertherm in Lebanon. GSCCC and Vermont Clean Cities planned a full-day agenda, targeting fleets, businesses and municipalities in the Upper Valley of NH/VT, and showcasing the electrification of transportation, technology and equipment.

From propane-powered buses and compressed natural gas transit buses to EVs and charging stations, if you are considering an alternative fuel project, or have already implemented one, please reach out to GSCCC. Visit the GSCCC website for information and resources. ■



NHDES Snapshot: Wetland and Alteration of Terrain Compliance Inspections

NHDES staff can't fulfill the agency's mission only from our desks. To protect environmental quality and public health in New Hampshire, we are out in the field every day: testing water quality in our ponds and lakes, sampling private well water, monitoring air emissions, assessing storm damage, responding to oil and chemical spills, training water works and solid waste operators, and so much more. "NHDES Snapshot" is an occasional series that takes a quick look inside the day of one of those employees.

On a hot July day, Chelsea deRochemont and Meghan Killilea are getting ready to head out on a series of field inspections for the Wetlands Bureau. They strap on their hiking boots and grab the site plans and files. They also take an iPad with them to record their data and take photos of sites. Today, they will conduct several inspections all over Manchester.

The purpose of the field inspections is to ensure that entities with permits issued by the Wetlands and Alteration of Terrain (AoT) Bureaus are abiding by the conditions of those permits. The two bureaus issue thousands of permits every year, and compliance inspections are required to make sure specific criteria are being met before, during and after construction.

This is Chelsea's first summer as a Wetlands Compliance intern. Meghan is an Environmental Technician in the AoT Bureau and a former intern. They work as a team when they go out in the field for inspections, which is about three days each week. The other days are spent writing reports of the inspections or reviewing files for their next inspection.

Before going out in the field, Meghan and Chelsea review engineered site plans, wetland delineations, and erosion and sediment control plans for permitted projects. Upon arrival to the construction sites, Chelsea and Meghan visually inspect the area, take notes and pictures, and speak with project managers about the inspection process. One of the main goals of the inspections is to protect wetland areas and lessen the negative impacts of construction projects in the surrounding environment whenever possible. Chelsea and Meghan accomplish this by making sure proper erosion and sediment controls are appropriately installed. These controls, such as silt fences, guarantee that the stormwater runoff containing particles of construction materials, like silt and sand, do not enter wetlands. If this stormwater were to drain into wetlands, the turbidity, or cloudiness, of the water would increase. Increased turbidity of water is a form of pollution and can negatively affect nutrient supply and aquatic life. Similarly, if erosion of these construction sites is not appropriately managed, it can impact infrastructure like roads and bridges. Once the inspection is over, either Meghan or Chelsea will discuss the results and make suggestions to guarantee compliance with the project manager.

"It's really important that permits are in place so that we can lessen impacts on wetlands from construction," Chelsea said. "If these inspections were not done, the effects could be a lot worse, potentially impacting human and aquatic health." The job of the compliance inspector is fast-paced and requires a broad understanding of environmental and construction concepts as well as an attention to detail and excellent communication skills. The Bureaus hire interns each summer season and encourage those with an interest in public service and background in engineering and environmental regulation to apply. ■

Asbestos in schools

Make sure your schools' Asbestos Management Plans are up-to-date and in compliance with the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR 763, Subpart E. The purpose of AHERA is to ensure that local educational agencies safely manage asbestos-containing building materials found in schools to ensure students, faculty and the general public are not exposed to asbestos.

NHDES urges all schools to provide a safe and healthy educational environment. For more information, visit the NHDES Asbestos Management Program webpage or call (603) 271-4555.

NHDES provides funding for stream crossing replacements

At every point where a road intersects a river or wetland, a stream crossing is needed to convey the water underneath from one side to another. There are approximately 20,000 stream crossings intersecting our waterways throughout New Hampshire, with many acting as barriers to fish and wildlife passage, and preventing adequate water flow and sediment movement. Moreover, many of the crossings in the state are old, damaged and undersized, which presents a public safety hazard and flood risk. Undersized crossings cannot handle large stream flows and the likelihood of flooding increases, leading to expensive road repairs and washouts. With financial support from the NHDES Aquatic Resource Mitigation (ARM) Fund, four stream crossing upgrades were completed this summer that will improve public safety, infrastructure resilience and aquatic habitat restoration.

Mill Brook before and after stream crossing replacement.

A recent culvert replacement in Concord restored connectivity between Mill Brook and the floodplain wetlands of the Merrimack River upstream. Before the project began, there was a small, outdated concrete pipe that frequently blocked higher water flow, leading to numerous washouts and road closures due to flooding. The old crossing also prevented fish and turtle movements, and floodplain connectivity. Several features of the new, larger crossing were included to facilitate aquatic organism passage through the culvert, including natural sediment embedded within the structure to mimic the local stream channel and wildlife shelves along the inside edge. The waterways were properly reconnected to improve both water quality and stream habitat. Furthermore, the culvert's design reduces flood risk and associated repair costs by allowing for high stream flows.

An old, metal pipe culvert on Lubberland Creek in Newmarket was also replaced this year. Lubberland Creek is the Great Bay Estuary's second largest contiguous salt marsh, and it provides critical passage for fish and other aquatic wildlife, such as the American eel. The undersized culvert was perched above the natural water level, preventing the American eel from migrating between freshwater and saltwater in the marsh, which is critical to their survival. Furthermore, the culvert was identified as high-priority to replace in the NHDES Coastal Program's Resilient Tidal Crossing Project due to its flood hazard and aging infrastructure. For years, the town had been implementing short-term and expensive solutions to fix flood damage, and knew that infrastructure replacement was necessary. With support from NHDES and various federal agencies, The Nature Conservancy and the Town of Newmarket replaced the old metal pipe with an appropriately sized, more beneficial box culvert that allows for natural tidal flows and upstream salt marsh migration for aquatic wildlife like the American eel, as well as a long-term solution to address flood hazards.

Since 2006, the ARM Fund has contributed financial support to several stream passage improvement projects throughout the state, such as the replacements in Concord and Newmarket. These projects have included the Sawyer Mill and Great Exeter Dam removals, the replacement of numerous culverts that prevented fish and wildlife passage, and in-stream grade controls to facilitate brook trout passage through a perched culvert. The goal of the projects funded by ARM are to restore aquatic connectivity and fish passage, improve flood resiliency and provide durable infrastructure solution to municipalities. ARM and several state partners have developed education materials, a mapping tool to display stream data, and worked collaboratively with grant applicants and recipients to identify crossings for replacement. Learn more about stream crossing replacements and ARM Fund grants on the ARM Program webpage. ■

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Environmental Services

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New Hampshire's air quality meets new SO_2 standard

In 2010, EPA revised the standard for sulfur dioxide (SO_2), establishing a limit of 75 parts per billion (ppb) averaged over a one-hour period. At the time of declaration, air quality in central New Hampshire with respect to SO_2 was 221 ppb, averaged over the years 2009-2011. While higher than the new standard, the area met previous air quality standards. A single source was providing the majority of SO_2 emissions at the time the new standard came into effect, namely, the coal-fired electric generating unit, Granite Shore Power LLC's Merrimack Station. Because of the emission source's location, portions of Hillsborough, Merrimack and Rockingham counties were designated as the Central New Hampshire Nonattainment Area by EPA.

In 2011, a flue gas desulfurization system was installed at Merrimack Station. SO_2 emissions decreased by 95% in 2012, the first full year of operation, and have declined annually since, resulting in improved air quality. Permit conditions imposed by NHDES will ensure that SO_2 emissions from Merrimack Station will not result in any further violation of the standard. NHDES presented a request for redesignation to the EPA last year, demonstrating that the air quality in Central New Hampshire was now meeting the standard, together with a maintenance plan that details how the standard will be maintained in the future. In September, EPA officially approved New Hampshire's redesignation request to "attainment."

The Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards for six common air pollutants to provide protection for the nation's public health and the environment. EPA periodically reviews and revises these standards. Compliance is met when the three-year average of the annual 98th percentile concentration is below the new threshold. In accordance with the CAA, states must, under these circumstances, examine air quality and declare to the EPA whether the state or portions thereof, meet or "attain" the standard or do not meet the standard, aka "nonattainment." Nonattainment status brings with it the responsibility to put into action a plan that will bring the area back into attainment. ■