# ENVIRONMENTAL NEWS

NHDES

Newsletter of the N.H. Department of Environmental Services November-December 2011


**FIRST IN THE NATION**

*DES recently unveiled its state-of-the-art public drinking water and wastewater systems training facility. The remodeled facility is believed to be the only one of its kind in the country, whose design was based on suggestions from water system operators and training professionals. The new training facility is a fully operable, scaled version of a typical water system pump station, housed completely indoors, and utilizing a primarily closed-loop system to conserve water. This innovative approach allows for functional year-round training.*

**COMMISSIONER'S COLUMN**

## Studying the sustainable use of water in N.H.

The numbers are staggering when one considers the breadth of the Granite State's water resources: 17,000 miles of rivers and streams, a thousand lakes, 238 miles of ocean and estuarine coastline, 2,500 public water systems, and 1.3 million residents whose health and quality of life depend on these resources. Taking note of both our abundant water resources and our reliance on water resources and infrastructure for economic vitality, health, and quality of life, Gov. Lynch established the Water Sustainability Commission on Earth Day, April 22, 2011.

The importance of water to our quality of life and economic vitality is profound. Our tourism-based economy depends on healthy aquatic ecosystems. Our businesses depend on affordable water supplies and wastewater disposal. The costs to municipalities and businesses of damage caused by mismanagement or inadequate planning related to stormwater and flooding are staggering. The health of our families depends on the water we drink, whether it's from public wa-

Commissioner, *continued on page 2*

**GOVERNOR'S MESSAGE**

## 2011 Governor's P2 awards announced

The Governor's Award for Pollution Prevention was established back in 1994 as a way to recognize New Hampshire businesses and organizations that make a special commitment to our environment by successfully reducing or eliminating wastes at the source. The award also serves as inspiration for other businesses to undertake programs that will eliminate waste, help protect our environment and add to the bottom line.

In the 17 years since the award was established, businesses across the state continue to work hard to reduce pollution and their impact on New Hampshire's environment.

This year there are two winners, both of which have previously received the Governor's Award. Monadnock Paper Mills of Bennington won in 1998, 2006, was an honorable mention in 2007, and continues to further its pollution prevention efforts in 2011. Monadnock implemented five projects that reduced their annual water use by 10 million gallons, and improved boiler efficiency to reduce oil usage by 77,500 gallons of oil per year. Motors and hoists were eliminated, and the number of trucks used to haul short paper fiber was reduced by 30 percent.

In 2010, Monadnock Paper removed over 50,000 dry pounds of materials from the wastewater la-

Governor, *continued on page 8*

## Commissioner

*continued from page 1*

ter systems or private wells.

The Commission's charge is to "study and evaluate the quality, availability, and sustainable use of surface water and groundwater ... in order to identify and prioritize actions necessary to ensure that both the quantity and quality of water are protected, and the state's water resources are managed in a sustainable manner so as to protect New Hampshire's economy and quality of life." The Commission's final report is due June 1, 2012.

Although this seems like a dauntingly brief period in which to "study and evaluate" and to "identify and prioritize actions," a great deal of the groundwork has already been laid. In 2008, DES and its partners prepared the *New Hampshire Water Resources Primer*. The past few years have seen reports and recommendations issued by the Groundwater Commission, Stormwater Commission, Flood Management Study Commission, Climate Change Policy Task Force, and Land Development Commission, and the Commission to Study Water Infrastructure Sustainability Funding is expected to wrap up its work in June of next year.

To complete its work on time, the Water Sustainability Commission has divided itself into three subcommittees – Information Gathering, Public Engagement and Implementation Plan – and will hold at least one public meeting in each of the five Executive Council districts. These public forums are primarily opportunities for the Commission to incorporate the public's concerns into its deliberations, but they are also a means of having a public conversation about the importance of the state's water resources and infrastructure, the challenges the state faces in sustainably managing those resources, and the difficult choices we have before us.

The forums will build on the work that has already been done to engage the public. In conjunction with the preparation of the *Water Resources Primer*, DES worked with the UNH Survey Center to poll legislators and local policymakers regarding water-related concerns. Since then, DES staff conducted 16 public meeting throughout the state and met with 12 Rotary clubs in an effort to engage the business community. Many public meetings were also held by the various other commissions mentioned above, most notably the Groundwater Commission's outreach meetings in each of the state's nine planning regions.

The Commission is a diverse panel of 15 individuals of whom only two – Fish and Game Executive Director Glenn Normandeau and I – are state officials, and is chaired by John Gilbert, who brings three decades of experience as an environmental engineering practitioner, business leader, and consultant to the job. Mr. Gilbert also chairs the state's Water Council. The other commissioners represent the private sector, local governments, environmental interests, and academia. This breadth of backgrounds represented on the Commission will be extremely important as the group weighs the many water-related challenges facing the state and sets priorities to move the state toward a sustainable water future. For more information, please see http://www.nh.gov/water-sustainability/.

Tom Burack, *Commissioner*

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NHDES

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*Volunteers pick up trash on Foss Beach in Rye. More than 1,000 volunteers collected over 7,500 pounds of litter on New Hampshire beaches during International Coastal Cleanup Day in September. Cigarette butts, rope, food wrappers, plastic bags and fishing tackle are commonly found during the annual beach cleanups. This year, disks from the Hooksett wastewater treatment plant were also found. The Blue Ocean Society coordinated the state's cleanup with funding provided by the DES Coastal Program. Photo by Mike Toepfer.*

**INNOVATIVE TRAINING**

# Reduce road salt. Become a Green SnowPro

*by Eric Williams, Watershed Assistance Administrator*

Road salt applicators can now get green credentials and possibly make more green, too. A new certification program in New Hampshire addresses a gap in professional accreditation and a growing environmental problem at the same time.

Since 1941, when New Hampshire was the first state to use road salt for regular highway maintenance, background chloride levels have increased 100 times in some watersheds.

Almost 200,000 tons of salt are now applied in the state each winter and consequently more than 40 water bodies in the state are polluted from chloride.

The chloride problem is more challenging than other water quality concerns due to the complete solubility of the chloride ion. Once salt is dissolved in water it cannot be removed by any practical means until it flows out of the watershed. This occurs relatively quickly in surface waters (rivers and streams) but when salt-laden runoff from roads and parking lots enters the groundwater, it can take a long time to leave the system since groundwater moves much more slowly than surface water.

Since there is no feasible way to remove the salt, then the only option to deal with the problem is to use less. Salt alternatives, such as calcium magnesium acetate, are part of the solution, but since sodium chloride is so much cheaper, a focus on salt reduction is needed.

Long considered to be a highway problem, recent studies in the southern I-93 corridor have shown that up to 50 percent of the total salt load is coming from private parking lots and driveways. So in addition to state and municipal highway crews, salt reduction is needed from the diverse array of private salt applicators, who number in the thousands.

Since salt applicators' primary goal is maintaining safety, the New Hampshire approach to salt reduction is to improve efficiency in salt use. Applying salt when it is not needed adds unnecessary pollution to local water bodies and wastes money.

To improve communications with private applicators and increase training opportunities, the University of New Hampshire Technology Transfer Center (UNH T2) created the Green SnowPro certification program. The voluntary program allows salt applicators to become green certified by participating in training and passing a test.

*Spreader calibration demonstration at Green SnowPro workshop held in Derry.*

Training topics include: how salt works, anti-icing with liquids, pre-wetting, spreader calibration, material storage and housekeeping, and salt accounting. UNH T2 developed a web-based salt accounting system so that applicators can track usage storm by storm or annually.

The first two training sessions were at maximum capacity and resulted in over 100 applicators earning Green SnowPro certification.

This response is attributed to several factors. Green certification can be an asset in marketing winter maintenance services to clients concerned about environmental impact. Applicators learn techniques that maintain level of service while using less salt, saving time and money. Increased professionalism is better business and can reduce risk exposure.

For more information about Green SnowPro certification, contact Patrick Santoso at (603) 862-2826, or see www.t2.unh.edu for more information. ■

**COMING UP**

## November 16-17

**NH Local Government Center's 70th Annual Conference**

Radisson Hotel, Manchester, NH. See http://www.nhlgc.org/trainingevents/annualconference.asp for agenda and to register on-line. For information: (603) 224-7447.

# Protecting against future flood damage after Tropical Storm Irene

*Shane Csiki, Fluvial Geomorphology Specialist, New Hampshire Geological Survey*

Almost everyone in the Granite State was recently affected by the power of Mother Nature when Tropical Storm Irene barreled through the state on August 28, bringing wind and lots of rain to all. While many were inconvenienced with power outages and downed trees, residents along the state's rivers and streams were alarmed as the rain continued to pour and the rivers rose rapidly, particularly in the North Country where eight or more inches of rain fell in locations. Some of our rivers did not simply flood the land around them, but washed away stream banks, culverts, whole trees and in some situations, severely impacted roads as well as private residences. From the Peabody River in Gorham to the Mad River in Thornton, and from the East Branch of the Pemigewasset in Lincoln to small brooks in Dorchester, residents quickly saw that rivers not only flood during record flows, but carve and wash away land, through a process known as fluvial (river) erosion.

## Rivers constantly on the move

On the Peabody River in Gorham, whole stream banks were eroded away; some homeowners who once had 20 feet of land between them and the river have less, or worse, none. One road was severely damaged when, during the height of the flood, the river blew through a berm and a second path of the river formed, carving a large ditch along the side of the road before re-entering the river further downstream. The power of the water was seen on the Mad River as it washed away sections of Route 49, and, in one spot, completely cut off access to Waterville Valley for a short period of time. Loon Mountain Resort did not get away unscathed as the East Branch of the Pemigewasset River washed away the banks, exposing the loose sands and boulders within, and severely damaging the bridge that provides the main access to the facility. Even the smaller Bucks Brook in Dorchester overtopped a culvert and the brook started flowing down the road, even to the point of eroding the roadbed and creating meanders for itself!

*Province Road in Dorchester after Bucks Brook overflowed onto the roadway.*

*Mad River where bank erosion washed away Route 49.*

These examples from Irene alone, plus the avulsion on the Suncook River after the Mother's Day flood in 2006, show how dynamic rivers can be when in flood. One has to look no further than an aerial photograph of a local river to soon see evidence of past fluvial erosion and dramatic changes in its course over time. Close inspection will quickly reveal places near a river where it has flowed in the past. Given enough time, a river will meander back and forth on its own through its valley, similar to the wandering path water takes when you run it down a glass window. The speed at which this occurs can be drastically increased when pressures are placed on a river through dredging, confining a river through an undersized culvert or placing whole lengths of stone, or riprap, along its banks. If you look downstream of a reach that has had one of these activities, you will often find erosion, because a river's ability to erode increases significantly after exiting a more confined area. Many examples of this can be seen throughout the Granite State.

## Keeping the work of rivers in mind during recovery

After the passage of Irene, the DES Wetlands Bureau received many requests by riverfront landowners to repair or stabilize their eroded stream banks. Many of these were requests to place riprap stone to stop the erosion. While the Wetlands staff were hard at work handling these requests, staff from the fluvial erosion hazard program in the New Hampshire Geological Survey and the Rivers Management and Protection Program toured the state and saw the damage first-hand. We saw examples of houses that previously had 15 feet to 20 feet of land between them and their river are now sitting, literally, atop the stream bank. Other property owners were affected by stream banks that washed away, even if their house was not perched on the brink.

For properties in imminent danger,

*East Branch Pemigewasset River at Loon Mountain.*

it is important to protect the house or building to survive the next big flow. In those cases, stone riprap is often the only option. However, a plan to line a stream bank with hundreds of feet of stone riprap may not be the best approach if a structure is not in imminent danger. In many cases, stream banks downstream have also sustained considerable erosion where loose sand and gravel are now fully exposed to the force of water, with no vegetation or tree cover left to help the banks stay in place. The placement of whole lengths of stone to stabilize banks can act to transfer the force of the water downstream, leading to more erosion. Buildings along the river downstream of a proposed stone riprap site, even if not presently in danger of falling into the river, could be at greater risk in the future during another high flow event.

Similarly, replacement of culverts that have been blown out by floods requires consideration of river processes. A replacement culvert of the same size as the original has the potential to fail again. During a flood, an undersized culvert can act like a small dam, holding water behind it, until the pressure is so great that the culvert and roadway are simply washed away. The resulting flood can wash away banks downstream, creating further impacts to property owners and other infrastructure – such as more undersized culverts. As projects are undertaken or proposed on the rivers and streams of the state, it is important to consult with experts in river science and engineering professionals to ensure that what we do today does not create devastating consequences in a future flood.

*Two views of the destruction on the Peabody River in Gorham. Above, many homeowners lost much of the land between their houses and the river. Right, flooding carved away large portions of riverbank.*

It is a fine balance – the need to protect a house from imminent destruction, while trying to reduce potential to create conditions that will likely result in damage to other downstream properties; or avoid recreating the conditions that caused a culvert to fail in the first place. This is why, after a major event such as Irene, it is essential to have an eye to the present condition of the river bed and banks along its length and to consider the river as a whole system, as decisions are made on repair and bank stabilization. We must be mindful that no two rivers behave exactly alike. Furthermore, it is important to remember that erosion of riverbanks occurs naturally, and it is impossible to try to fully stop it.

## Moving forward

The NH Geological Survey is home to our state's fluvial erosion hazard program, modeled after the very successful program developed in Vermont. We have begun to assess the rivers of the state to identify those areas that are most susceptible to the kind of erosion that we saw during Irene, so that we have a much greater understanding of where considerable erosion is likely to occur in the future. NHGS also coordinates the collection of bridge and culvert assessment data in New Hampshire, and storage of this information in a database. Information is made available to communities and planning commissions to prioritize culvert rehabilitations and replacements for problematic structures as funding is available. We also continue to improve the technological capabilities of our assessments so that the best knowledge on river process and data collection are brought to bear to provide the best possible information to citizens and local and state officials concerned about protection of public safety and our state's rivers. ■

RULES/REGULATORY

## New federal boiler rule

On March 21, 2011, the US Environmental Protection Agency finalized the new federal boiler rule aimed at reducing the emissions of hazardous air pollutants from existing and new industrial, commercial and institutional boilers. The rule is entitled *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* [40 CFR Part 63, National Emissions Standard for Hazardous Air Pollutants (NESHAP), Subpart JJJJJJ], otherwise known as the "Boiler Area Source Rule." This rule affects boilers that burn coal, oil, biomass, or other solid and liquid non-waste materials that are located at area source commercial (laundries, apartments, hotels), institutional (schools, churches, medical centers, municipal buildings), or industrial (manufacturing, printing, greenhouses) facilities. Information and copies of the federal boiler regulations and other materials can be found at the EPA's website at http://www.epa.gov/boilercompliance/. Additional information and guidance for New Hampshire sources can be found under "Boiler Rule" on the "A to Z List" at http://des.nh.gov, or by calling the DES Air Permitting Program at (603) 271-1370. ■

COMMUNITY SERVICE

***Olé!*** *Valerie David, ARD, took the prize for the Best Poultry Chili at the recently held First Annual "DES Chili Bowl"! Over $375 was raised to benefit Operation Santa Claus. Also winning were: Jillian McCarthy – Best Vegetarian Chili, and Michele Regan – Best Beef Chili. Photo by Melanie Doiron.*

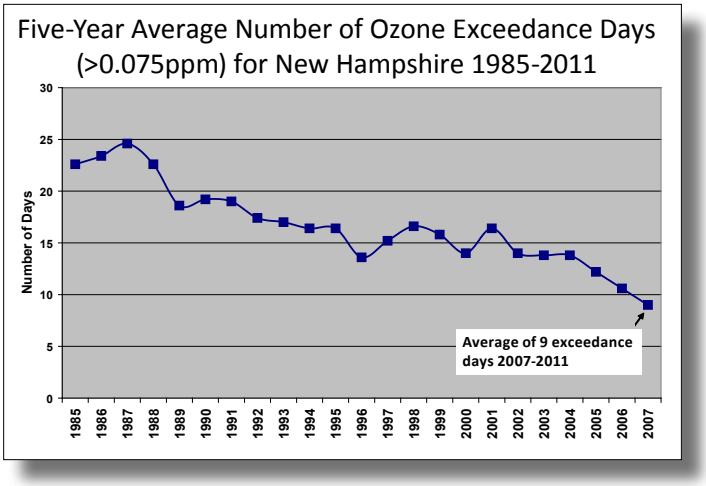
POSITIVE TRENDS

## 2011 Ozone Season

Air quality in New Hampshire continued to show improvement during 2011. To date, only two days in 2011 exceeded the 8-hour average National Ambient Air Quality Standard (NAAQS) of 0.075 parts per million (ppm) for ozone in New Hampshire: July 11 and July 21.

On July 11, three locations went slightly over the ozone NAAQS, reaching 0.076 ppm on the summit of Pack Monadnock in Peterborough, and 0.077 ppm in both Rye and Londonderry. Higher concentrations occurred on July 21 when Londonderry, Nashua, Rye and Portsmouth recorded ozone values ranging from 0.083 ppm to 0.091 ppm. Both event days were characterized by temperatures in the mid-90s, sunny skies and southwest winds. Such weather conditions are typical of historical ozone events in New Hampshire. However, longer term trends now show that fewer ozone events are occurring than in the past under similar weather conditions and that, when they do occur, they are less severe in nature.

The two ozone events of 2011 are a drop from nine in 2010 and comparable to the two in 2009. There tends to be a lot of variability in the number of ozone events recorded from year to year as the weather patterns are never exactly the same, but there is a clear trend of steady improvement in New Hampshire ozone levels since the early 1990s that goes beyond weather variability. The benefits of the Clean Air Act and the hard planning work conducted by the states have provided pollution emission reductions leading to cleaner air in the heavily populated region along the Northeast seaboard. The recent economic downturn may also have contributed to improved air quality to a small degree as manufacturing and vehicle-miles traveled were not as significant as they would be in a stronger economy. ■



**RULES/REGULATORY**

# 2008 ozone standard – revised, reconsidered, reaffirmed

After years of waiting for the US Environmental Protection Agency to reconsider or implement the National Ambient Air Quality Standard (NAAQS) for ozone put forth in 2008, we finally know what the plan is: EPA will not reconsider that standard and will move forward with implementing it, as is, immediately.

The federal Clean Air Act requires EPA to review the NAAQS for the six criteria pollutants (lead, carbon monoxide, sulfur dioxide, particulate matter, ozone, and nitrogen oxide) every five years, and, if appropriate, put forth new standards. In 2008, EPA issued a revised 8-hour NAAQS for ozone of 0.075 parts per million, a higher standard than the one set in 1997 at 0.08 ppm. EPA's Clean Air Scientific Advisory Committee (CASAC) had recommended a stricter standard of between 0.06 ppm and 0.07 ppm.

Whenever there is a revision of a NAAQS, usually there is a law suit. Rather than attempt to defend the standard, EPA announced that it would reconsider it. At that point, EPA suspended implementation of the 2008 ozone standard. On January 19, 2010, EPA proposed an ozone NAAQS in the same range as that recommended by CASAC (between 0.060 and 0.070 ). EPA requested comments on exactly where in that range the final standard should be set. As the nation awaited EPA's decision, time passed and the next required review of the ozone standard – in 2013 – loomed ever closer.

On September 2, 2011, President Obama decided that he "did not support asking state and local governments to begin implementing a new standard that will soon be reconsidered." EPA withdrew the proposed standard and, on September 22, 2011, announced that it will implement the 2008 ozone standard without change. So, with the law suit continuing in the background, EPA intends to designate areas of the country that do not meet the ozone standard based on the 0.075 ppm standard. These areas will be designated by mid 2012.

States were required to submit their recommendations for areas that do not meet the ozone standard in 2009. Governor Lynch recommended three areas that were not meeting the 2008 ozone standard based on certified data collected in 2006-2008. EPA stated in its September 22, 2011 memorandum that it has ozone monitoring data from the states for 2009 and 2010, which it will use, together with the states' recommendations, in making the final designations. (See http://www.epa.gov/air/ozonepollution/pdfs/OzoneMemo9-22-11.pdf.)

In addition, DES is planning to submit data from the 2011 ozone season, which ended September 30. This data, combined with the 2009-2010 data, will show that New Hampshire's air quality has improved and we have been in compliance with the 2008 ozone standard for the last three years. DES is optimistic that EPA will view the data similarly and conclude that all of New Hampshire is meeting the 2008 ozone standard. Then we can look forward to the review of that standard in 2013. ■



**GOING, GOING, GONE**

*The Buck Street East Dam in Allenstown resisted all attempts by the DES Dam Bureau to breach it on the first day it was scheduled to be removed. After additional equipment was brought in to tackle the substructure, the crew was able to begin to move the great granite blocks shown in the photo at left. In the middle photo, the blocks have been moved out of alignment as the dismantling continues. And, in the last photo, the river flows smoothly through the newly-breached dam. Photos by Grace Levergood.*

## Governor,

*continued from page 1*

goons that were previously sent to a landfill, instead mixed it with short paper fiber, and then added it to sand and compost to create manufactured topsoil. The short paper fiber is also used for animal bedding and to build organic matter in agricultural soils. Southeastern Container in Hudson has earned the prestigious 2011 Governor's Award for Excellence in Pollution Prevention for the company's achievements over the last several years. A manufacturer of plastic containers for the Coca-Cola bottling system, Southeastern Container has been a leader in waste reduction in New Hampshire and has embraced pollution prevention strategies throughout its operations. For 2011, the company has continued its energy reduction efforts through LED lighting retrofits, installation of a variable speed compressor, and installation of a Water Chiller System built by a local company in Portsmouth.

These installations have resulted in a reduction of 754,608 kilowatt hours, and a savings of $95,202 annually. Southeastern Container has consistently reduced the amount of plastic in its bottles and packaging over the years. This year, the company has incorporated a resin made from a biologically renewable resource, sugar cane ethanol.

Southeastern Container has won the P2 Award for the last five years in a row. In those five years of pollution prevention efforts, the company has reduced: raw material consumption by 2.8 million pounds; energy use by 7.8 million kWh; water use by 459,000 gallons; solid waste by 290,000 pounds; and carbon dioxide emissions by 12,000 tons.

All of these reductions have not only contributed to a cleaner environment for New Hampshire, they also saved Southeastern Container over $4.4 million. Excellence in pollution prevention is measured in many ways, but one of the things that sets this company apart is its efforts to encourage other facilities within the company to implement waste reduction strategies. In 2010, with the assistance and encouragement of the Hudson facility, Southeastern Container facilities in Virginia and Illinois were given environmental awards in those respective states.

*John Fischer of Southeastern Container (holding award) poses with Gov. Lynch (center), Commissioner Burack (right of the governor) and representatives from SEC.*

*Monadnock Paper official Mike Butler receiving the P2 Award from Gov. Lynch, with Mark Lombardi and Commissioner Burack joining in.*

I applaud these companies in implementing changes that are both right for the environment and for their bottom line. I urge others in industry to contact the NH Pollution Prevention Program at (603) 271- 6460 or www.des.nh.gov under the A to Z List look for pollution prevention to see how their own companies can benefit from efforts to prevent pollution.

John Lynch, *Governor*

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