



SUPPLY LINES WITH THE SOURCE



Newsletter of the NHDES Drinking Water & Groundwater Bureau
on the web at www.des.nh.gov

Spring 2014

ADMINISTRATOR'S COLUMN

Drinking Water Program Aims to Help Systems Deal with Climate Change

Sarah Pillsbury, Drinking Water and Groundwater Bureau

There's an old New England saying that everyone talks about the weather but nobody does anything about it. Fortunately, the Drinking Water and Groundwater Bureau (DWGB) at NHDES wants to help water systems prepare for the current and future impacts of climate change.

Earth's average weather conditions, referred to as its climate, have always changed and always will. However, an overwhelming majority of scientists have concluded that the current rate of change is nearly unprecedented in Earth's history. For instance, since 1970, year-round average temperatures in N.H. have risen by nearly 2 degrees Fahrenheit while winter temperatures have risen by 4 degrees. The state has, in general, experienced more precipitation each year, with more falling as rain and less as snow. More of this precipitation has fallen in extreme events than in the past. We have also experienced earlier ice-out dates on our lakes, earlier spring runoff, earlier spring lilac blooms, and longer growing seasons. Sea-level is also rising along our coast. The 2000s was the warmest decade in recorded history for N.H.

These changes pose significant risks to the state's water systems – risks that are predicted to only increase as time goes on. Climate trends that are expected to affect N.H. drinking water systems include: more intense rain-fall events; increased ice, wind and snow storms; earlier snow melt; and potentially more frequent and/or prolonged periods of dry weather and low groundwater levels in the summer. The effects range from reduced water quality and supply as well as storms that interrupt power supply and flood facilities.

Water systems in N.H. are already feeling these effects. Forty-three percent of community water systems (CWSs) responding to a DWGB survey noticed increased impacts from storms in the past five years. Eighteen systems with a total of 50 wells experienced flooding of wells in the previous five years. Eleven percent of the respondents reported that other components of their systems had been impacted by flooding, with pump houses being the most common.

Some systems are also feeling climate change impacts on water quality and water availability. Almost half of the surface water systems responding to the survey noticed increased impacts such as algae blooms and turbidity, both of which are associated with intense runoff events and higher temperatures. Fourteen percent of CWSs noticed increased impacts from extended dry periods.

Roughly half of survey respondents indicated that they want help from DWGB in dealing with climate change. We hear you. DWGB is finalizing an action plan that will guide our activities to help CWSs become more resilient to the disruptions associated with climate change. The plan identifies some of the greatest risks to CWSs and some examples of adaptation measures that CWSs could take. The plan also identifies priorities for changes to our policies, operations and other activities.

This issue of Supply Lines with The Source, kicks off a series of articles on climate change. To learn more about what DWGB can do to help your system, please contact me, or Bethann McCarthy. ♦



SPOTLIGHT ON CLIMATE RESILIENCE

Climate Change Impacts & Adaptation Strategies

Bethann McCarthy, Small Systems Engineer/Climate Resilience Coordinator

Climate change, also known as global warming, describes the changes in the long-term prevailing weather conditions of Earth. As discussed in the Administrator’s column, the very character of New Hampshire’s weather has been changing over the past several decades. Our climate is expected to continue warming far into the future, due to a buildup of carbon dioxide (CO²) in the atmosphere, primarily due to burning of oil, gas and coal. A warmer climate will continue to present challenges to New Hampshire’s public water systems:

- Climate change will result in more frequent and more extreme floods, causing infrastructure damage. Roads, bridges and access roads may be washed out, and critical infrastructure such as pump stations and wellheads may be flooded.
- Following extreme storms and floods, water systems may be without electricity for long periods.
- There will be more potential for contaminants in water due to high river flows carrying sediment, bacterial and chemical contaminants, and higher surface water temperatures increasing the amount of algal blooms, turbidity and bacteria in water. With the potential use of more disinfectants to treat turbid water comes the need to carefully monitor for potentially toxic disinfection by-products.
- Higher summer temperatures will increase demand. With higher demand, a change in precipitation patterns, more evaporation of surface waters, and reduced groundwater levels, there will be more stress on water supplies.

There are many ways that public water systems can prepare for the impacts of climate change. Some examples of “resiliency” or “adaptation” measures which could be taken are described below:

- Become a member of the New Hampshire Public Works Mutual Aid program. This network of private water systems, local governmental entities and village districts assist one another during emergencies through partnering agreements.



(Above) May 14, 2006 flooding at the Somersworth Water Treatment Plant.



(left) Ian Rohrbacher, operator at the Town of Somersworth’s Water Treatment Plant stands next to a generator that has been raised following extreme flooding events.

ADAPTATIONS Continued on page 3...

Supply Lines with The Source, a newsletter of NHDDES Drinking Water and Groundwater Bureau, is published by:



29 Hazen Drive
PO Box 95
Concord, NH
03301

Commissioner	Thomas S. Burack
Asst. Commissioner	
Division Director	Harry T. Stewart
Bureau Administrator	Sarah Pillsbury
Editors	Pierce Rigrod Holly Green
Design Editor	Laurel Pushee
<i>Printed on Recycled Paper</i>	

To subscribe, contact Pierce Rigrod at (603) 271-0688 or pierce.rigrod@des.nh.gov www.des.nh.gov

ADAPTATIONS Continued...

- Maintain an inventory (including photographs and date of installation) of all assets. This will make it easier to obtain repairs or replace equipment during or after an emergency and will assist in preparing insurance claims and in obtaining U.S. Federal Emergency Management Agency (FEMA) reimbursement and Hazard Mitigation Funding.
- Have a generator on site or readily available. If there is not a generator on site, systems should include a transfer switch to readily accept a generator when necessary.
- Conserve your source water. Encourage and implement water conservation techniques. This is especially important as demand is likely to rise, and supplies decrease, during summer months due to the extended length of the hot weather season and higher temperatures.
- Install and utilize pump run time meters (i.e, hour meters) to track the amount of time that well pumps are running. This data can help to detect a decreasing well yield before an emergency situation occurs.
- Flood proof your system. Raise system components above flood levels or protect against flooding by berming or installing door dams. Strap storage tanks to prevent flotation during floods.
- Expand resources by developing interconnectivity to an adjacent water system.



(Above) A flooded well in Warner NH.

As part of our effort to help water systems become resilient to climate change, we'll be including articles in future newsletters to expand on some of these topics. We'll also provide some information on becoming more energy efficient, which will help to prevent the more extreme impacts of climate change and reduce operational costs. If you would like more information, please contact Bethann McCarthy at Bethann.Mccarthy@des.nh.gov or (603) 271-2949. ♣

Operator Certification Revoked

While the vast majority of certified water operators in New Hampshire are exceedingly diligent, enforcement actions involving operators who fail to uphold the responsibilities of their certification are necessary in order to protect public health.

In 2013, NHDES Water Works Operator Program took action to revoke one operator's certification. In this case, allegations supporting the license action included the connection of an unapproved supply; failure to use care, judgment and knowledge in performance of duties; and falsification of records. These claims were argued during an administrative hearing with both parties represented by counsel. The decision passed down by the hearings officer upheld revocation of the certification. For questions about the Water Works Operator Certification Program or operator responsibilities, contact Wade Pelham of the NHDES Drinking Water Bureau at Wade.Pelham@des.nh.gov or (603) 271-2410. ♣



EPA's Revised Total Coliform Rule is Here

The U.S. Environmental Protection Agency (EPA) has revised the 1989 Total Coliform Rule based on input from the regulated community, regulatory agencies, and variety of professional associations. The Rule was developed to increase public health protection from pathogenic microbial contaminants. It requires all public water systems to monitor for the presence of total coliform bacteria in the distribution system. The revised Rule is published in the February 13, 2013, Federal Register, pages 10269-10365, and can be found at www.gpo.gov/fdsys/search/home.action; search for "2012-31205."

The new Revised Total Coliform Rule (RTCR) continues to focus on protecting public health and providing incentives for improved operation. Key changes in the RTCR include the following:

- Since the presence of total coliform is an indicator of potential pathways for contamination, its presence (or lack of sampling) will trigger the need for the PWS to conduct an assessment of their system. "Level 1" and "Level 2" assessments, as defined in the RTCR, will be required based on such factors as the number and frequency of positive total coliform samples and the number and frequency of missed samples. The purpose is to evaluate the possible presence of sanitary defects, defects in distribution system monitoring practices, and the likely reason that the samples were total coliform positive.
- *The Maximum Contaminant Level (MCL) for total coliform was eliminated.* The RTCR includes an MCL for E. coli. This should minimize the number of MCL violations issued and subsequently reduce the public notice requirements. The RTCR updates sampling site plan and monitoring requirements, including changes to the number of repeat and additional routine samples required. New reduced monitoring criteria are also included.
- *There is new focus on seasonal non-community water systems (those that don't operate year round and have a start-up and shut-down phase of operation).* The RTCR specifies monthly monitoring and requires a state-approved start-up procedure with a system certification to be sent to the state verifying that the procedure was followed.

Rulemaking is anticipated to begin for New Hamp-

shire this spring, and the N.H. state rule is targeted to be put into effect by January 2015. NHDES will keep systems informed as the rulemaking progresses.

If you have any questions on the revised EPA rule or the upcoming rulemaking for the state, please contact Selina Makofsky at Selina.Makofsky@des.nh.gov or (603) 271-4109. ♦

Criminal Background Checks Required for NH Youth Skill Camps

In recognition of a need to protect children, New Hampshire implemented a new law, effective January 1, 2014, requiring Youth Skill Camps to perform background checks for camp owners, employees and volunteers who may be left alone with any child or children. A 'Youth Skill Camp' is a non-profit or for-profit program for teaching a skill to minors. Such skills include, but are not limited to, the teaching of sports, the arts, and scientific inquiry.

The New Hampshire Department of Environmental Services is currently working with stakeholders to draft administrative rules for the Youth Skills Camps Program and create a form for camps to use to certify that their staff background checks have been completed. Formal rulemaking will not start until Spring of 2014, but the statutory requirements are already in effect. If you believe your camp or program meets the statute's criteria, please send certification that the required background checks have been completed, along with the \$25 fee, to the address below:

NHDES-DWGB
Attn: Youth Skill Camp
Certification
PO Box 95
Concord, NH 03302-0095
Please make checks payable to: Treasurer, State of NH.



If you have any questions, please contact Barbara Davis at Barbara.Davis@des.nh.gov, or (603) 271-2542 or Jocelyn Weldon at Jocelyn.Weldon@des.nh.gov, or (603) 271-0672. ♦

Get Ready For a 4th Grade Water Science Fair!

Eric Swope, Industrial Pretreatment Coordinator for the City of Keene

Do you understand how water moves up a plant stem, against the force of gravity, to its leaves and flowers? How about the role that density plays in whether something will sink or float? Would you like to know how to keep stormwater from washing pollutants into our rivers? Or do you want to know more about refraction, the water cycle, water conservation, and how to protect our drinking water? Try asking one of Keene's fourth grade students and you may be surprised to find out how much they know!

Following the example set by Manchester Water Works, The Water and Wastewater Divisions of the City of Keene's Public Works Department have been partnering with Keene schools by sponsoring and organizing fourth grade water science fairs in Keene elementary schools since 1997.

Having water-literate citizenry is of utmost importance and an important goal for New Hampshire. The N.H. Drinking Water Week Coalition promotes this goal through their participation in the N.H. Water Science Fair and Annual N.H. Drinking Water Week Festival. The coalition is seeking participation from other public water systems in encouraging fourth grade Water Science Fairs in their communities. The following is a brief description of how we put together the event in Keene.

In late January or early February, City of Keene staff visit the schools to invite students to do a science project focused around the common theme of water. Students from each of Keene's five public elementary schools choose a water-related topic to study, then research, experiment and prepare their projects until April, when they present their projects to a team of judges at their school. Projects all have a water theme, but may cover an amazingly wide variety of topics. A tremendous amount of effort and enthusiasm goes into these projects and many children truly become the fourth grade experts in their subject areas.

The top few projects from the city fair qualify for the N.H. State Water Science Fair, which is held in conjunction with the N.H. Drinking Water Week Festival, held annually during the first week in May. The festival is a fun and educational event with lots of water-related displays and activities for the kids. This year's event will be held at the Manchester Water Works.

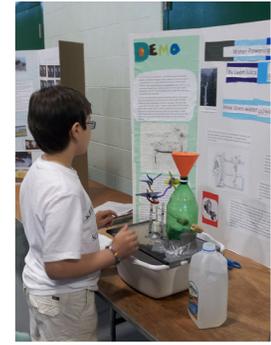


(Above) a student from Jonathan Danieles School in Keene and her project on water purification

The Fourth Grade Water Science Fairs encourage curiosity and creativity while providing an opportunity for children to really dig into topics that interest them. Students learn how to research a subject, apply the knowledge by creating a model or demonstration, and present what they have learned. For many, it also sparks an interest in the sciences and connects them to water-related issues. It also just may be an inspiration for our future scientists, policy makers, leaders and water-literate citizens! We applaud their curiosity, the effort put into their work, and their academic achievement. We also help keep it fun by offering prizes to everyone who completes a project, with special prizes and trophies for the winners.

The fairs receive strong support from teachers, students, parents, local organizations and City staff, and they provide a setting for the students to connect to our water resources in a fun and exciting atmosphere. Personally, I find it worthwhile enough that I also volunteer to help with fourth grade water science fairs in Marlborough and Harrisville. If you are interested in promoting a fourth grade water science fair in your town or city and would like to know more about how, contact Laurel Pushee, Education Coordinator for NHDES Source Water Protection Division at Laurel.Pushee@des.nh.gov, or (603) 271-4071. You can also contact me, Eric Swope, eswope@ci.keene.nh.us, or at (603) 357-9836 x6504. ♦

Eric Swope has been helping to coordinate Fourth Grade Water Science fairs in Keene since 2001.



(Above) a Symonds School Student gives a demonstration for his project on water power

NRCS and U.S. Forest Service Partner to Improve Forest Health and Water Quality

Betty Anderson, NRCS Public Affairs Specialist

New Hampshire is one of 13 states that will benefit from a new multi-year partnership announced on February 11 by the Natural Resources Conservation Service (NRCS) and the U.S. Forest Service (USFS). This partnership will invest \$30 million in 13 projects across the country, including \$960,000 in New Hampshire, to help protect water supplies and water quality, mitigate wildfire threats and improve wildlife habitat for at-risk species. The project, called the “Chiefs’ Joint Landscape Restoration Partnership” will work to improve the health and resiliency of forest ecosystems where public and private lands meet across the nation.

“Both of these agencies have the same goal – improving the health of our forest lands,” said Rick Ellsmore, NRCS New Hampshire State Conservationist. “By combining resources and working in a coordinated fashion, this partnership will restore lands across large landscapes regardless of ownership.”

“Habitat quality and water quality don’t stop at boundaries between public and private lands,” Ellsmore said. “By working together, we can provide more assistance to help public and private landowners and managers put conservation solutions on the ground, providing greater benefits to surrounding communities and habitats, such as improving or restoring riparian buffers or reducing the threats associated with potential drinking water contaminants, as well as aquatic and terrestrial invasive species.

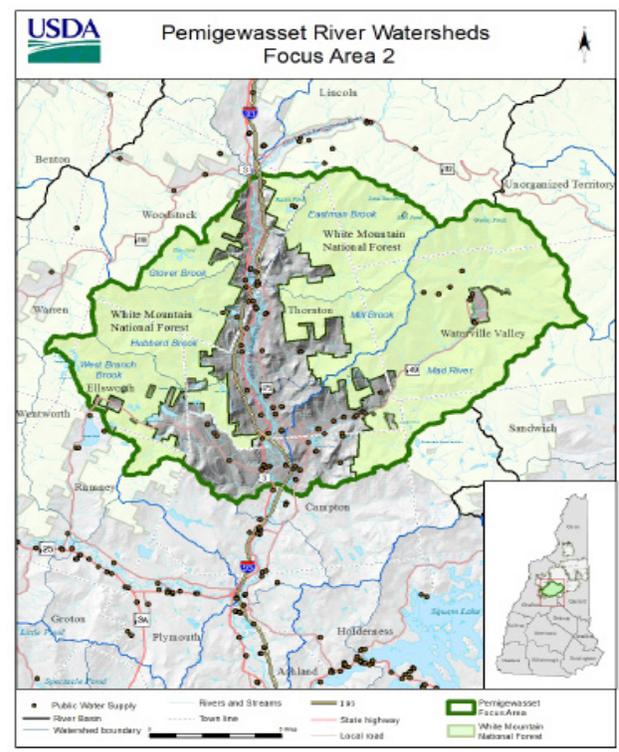
In New Hampshire, projects will be initiated within the Saco and Pemigewasset River watersheds and will build on existing projects with local partnerships already in place. Maps of the study areas are available upon request from NRCS (see map at right). By leveraging technical and financial resources and coordinating activities on adjacent public and private lands, conservation work by NRCS and USFS will be more efficient and effective in these watersheds.

The New Hampshire project will focus on improving drinking water. New Hampshire has the fastest growing population in New England and ranks second in the country for the percentage of people served by private wells. NRCS and USFS will work to provide landowners access to conservation resources that improve land management and reduce sedimentation in headwater streams on public lands. The project will have a direct impact on drinking water quality for eight New

Hampshire communities. Funding for this fiscal year includes \$250,000 from the Forest Service for work on the White Mountain National Forest and \$710,000 from the NRCS.

“We have a long history of working with various federal, state and conservation organizations to implement solutions on the ground,” said Tom Wagner, White Mountain National Forest Supervisor. “The Chiefs’ Joint Landscape Restoration Partnership is an opportunity for us to pool our resources and really focus on local restoration.”

For more information contact Beth Ann Finlay at (603) 353-4651 x106 at the Grafton County Conservation District office, or Nels Liljedahl at (603) 447-2771 x102 at the Carroll County Conservation District office. ♠



(Above) An NRCS map of the Pemigewasset River Watershed, one of the focus areas identified for the pilot project. Maps are available upon request.



Water Literacy in New Hampshire: The New Hampshire Water Education Plan

The New Hampshire Water Education Plan, building on the efforts of the New Hampshire Environmental Literacy Plan, aims to help build collaboration among schools, municipalities, local businesses and organizations to share resources and ideas in order to create a water-literate citizenry. The plan was developed by an advisory group representing educators and professionals from various natural resource groups, non-profit organizations, educational institutes and state agencies. Inside the plan are recommendations for New Hampshire's water education organizations (which could include municipalities or school districts), and NHDES, to enhance collaboration in youth water education. During the process of developing the plan, water education needs were identified through surveys and discussions with New Hampshire water educators and other interested stake holders.

Following public review and revisions on the draft document released in February, the first edition of the plan will be presented at the annual watershed conference on March 21, 2014, at Plymouth State University. Four short-term recommendations, five long-term recommendations, and six NHDES-specific recommendations are outlined.

NHDES Drinking Water and Groundwater Bureau plans to implement its Youth Water Education Programming to address the Bureau specific recommendations identified in the plan. The bureau also hopes to work with other partners including other NHDES programs and bureaus to identify how to implement the plan's recommendations within their organizations and groups. For example, N.H. Project WET has not yet worked with after school programs, early childhood programs or informal youth organizations, such as 4-H and Girl Scouts. The results of the spring 2013 survey of educators show that these audiences are eager for professional development in water topics. Teaming with other organizations who have reached these audiences, and/or working with afterschool networks and/or municipalities to better train staff to work with teachers and/or students, and educating them on water resources.

For more information regarding the plan, or if your organization or town is interested in knowing more about becoming a supporter or partner of the plan, please contact Laurel Pushee, the Education Outreach Coordinator for the NHDES Drinking Water and Groundwater Bureau, at Laurel.Pushee@des.nh.gov or (603) 271-4071. ♦

Reduce Energy Use & Save Money for Improvements

Studies have suggested that water utilities can reasonably achieve energy savings between 15 and 30 percent simply by making energy efficiency improvements! Utility companies in N.H. understand that the upfront cost of implementation is often the biggest deterrent for water and wastewater systems. So, the major electrical utilities in N.H. offer a variety of programs and incentives that can help to reduce these costs, including rebates for equipment replacement. Many times these incentives can be integrated into existing capital improvement projects. Additionally, electrical utilities can assist with understanding a system's electric bill, conducting energy use assessments, and identify available equipment replacement costs.

It has been estimated that over the next 10 years, 2.3 billion dollars will be needed for water infrastructure improvements in New Hampshire. By reducing energy costs, water and wastewater systems may be able to use those funds towards other system repairs or improvements to help bridge the gap. Contact your utility to learn more and start saving today! ♦

Contact information for the four major utilities in N.H.

Utility	Website	Customer Service Phone
Liberty Utilities	http://www.liberty-utilities.com/east/electricity/saving/index.html	1-800-375-7413
New Hampshire Electric Coop	http://www.nhec.com/energysolutions/	1-800-698-2007
Public Service of New Hampshire	https://www.psnh.com/SaveEnergyMoney/For-Business/Energy-Saving-Programs-and-Incentives.aspx	1-800-662-7764
Unitil	http://www.unitil.com/energy-efficiency/energy-efficiency-programs/electric-programs-rebates-assistance	1-800-852-3339

Attend the Drinking Water Source Protection Conference—April 30

Mark your calendars for the NHDES 2014 Drinking Water Source Protection Conference on Wednesday, April 30, from 8:30 A.M. to 4:00 P.M. at the Grappone Conference Center in Concord, N.H. Topics will include NHDES plans to address MtBE contamination, climate change risks and mitigation, developing water monitoring plans, the new EPA MS4 stormwater permit, research concerning the quality of New Hampshire's groundwater, and case studies of successful source water protection projects.

Registration and a full agenda are available at the American Ground Water Trust's website www.agwt.org (click on the "Events" tab at the top of the page). Continuing education credits (5.0 technical credit hours) are being offered through the NHDES Water Works Operator Program. ♦



Source Water Protection Grants Awarded

Ten Local Source Water Protection Grant applications submitted last November for the 2014 grant round will receive funding for security and source protection projects. Applications for the 2015 grant round will be available in late spring and due November 1, 2014. More information can be found at www.des.nh.gov; search for "lswp grants." ♦

PRSR STD
U.S. Postage
PAID
Concord, NH
Permit #1478

DRINKING WATER AND GROUNDWATER BUREAU
29 HAZEN DRIVE, CONCORD, NH 03301

