



THE SOURCE



NEWSLETTER OF THE NHDES DRINKING WATER SOURCE PROTECTION PROGRAM
ON THE WEB AT WWW.DES.NH.GOV

WINTER 2013

USGS Study Shows New Hampshire Groundwater is Getting Saltier

A recently completed U.S. Geological Survey (USGS) study that examined chloride and sodium in New Hampshire groundwater confirms that concentrations of both constituents have increased statewide in recent years. Using data from public and private water supply wells, the USGS study found that after the year 2000, median concentrations have increased, particularly in the southeastern portion of the state, when compared to previous decades. The study received financial and technical support from DES's Drinking Water and Groundwater Bureau.

Statewide, the median chloride concentration in the 2000s was approximately 1.5 times higher than the median for the 1960s through the 1990s. Twenty-four percent of wells showed decreases in median chloride concentration, 34 percent showed no difference or a small increase (≤ 5 mg/L), and 42 percent showed large (> 5 mg/L) increases after 1995. Sodium concentrations increased by a factor of three over a similar period of time. Chloride and sodium concentrations were found to be highest in Rockingham and Strafford counties and lowest in Carroll, Coos and Grafton counties.

Large increases in median chloride and sodium concentrations as measured in individual wells after 1995 were found in parts of Belknap and Rockingham counties and in small clusters within Carroll, Hillsborough and Merrimack counties. The most prominent increases in Rockingham County are seen along the border with Massachusetts.

Approximately 100 public water systems had at least one groundwater sample (taken before treatment) with chloride concentrations equal to or exceeding the Secondary Maximum Contaminant Level (SMCL) of 250 mg/L between 1988 and 2010. While sodium affects water quality (taste), chloride is corrosive. Both are expensive to remove once dissolved in water. The U.S. Environmental Protection Agency has established an SMCL

of 250 mg/L for chloride because of potential cosmetic or aesthetic effects and a Drinking Water Advisory concentration of 20 mg/L for sodium for individuals on a 500 mg per day sodium restricted diet.

While the USGS study did not identify specific sources contributing salt to groundwater, the greatest use of salt is to prevent and manage icing on roads and parking lots. Higher concentrations in groundwater could be related to greater road density and greater use of road salt. This could reflect rapid growth trends in the southeastern portion of the state. Other possible sources of chloride and sodium in groundwater include septic systems, outdoor storage of salt and applications to private driveways. Beyond drinking water concerns, high concentrations of chloride and sodium in groundwater and stormwater runoff that discharge to lakes, rivers and streams can degrade water quality and affect aquatic life (insects, fish and aquatic plants).

The open file report with more details about the assumptions and limitations of this study can be obtained by contacting Laura Medalie of the USGS at lmedalie@usgs.gov. Additional information on the topic can be found at the New Hampshire Road Salt Reduction Initiative website at <http://des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/index.htm>.

national
groundwater
awareness week
March 10-16, 2013

For details, go to www.ngwa.org/Events-Education/awareness/Pages/default.aspx.



SPOTLIGHT ON MILTON

Moose Mountains Regional Greenways Conserves 130 Acres of Water Supply Lands in Milton

Moose Mountains Regional Greenways (MMRG) has announced that 130 acres in Milton, N.H., are newly protected by a conservation easement, thanks to the efforts of MMRG, its partners and the landowners. This conservation project helps protect water quality in the Salmon Falls watershed, a region whose waters are deemed by the U.S. Forest Service to be at very high risk for degradation due to conversion from forest land to other uses. The 130 acres are in natural forest and vegetative cover that provide natural water filtration and flood control and help cleanse the waters draining into the Salmon Falls River, a primary source of drinking water for Somersworth, N.H., and Berwick, Maine.

The land was protected through the federal Wetlands Reserve Program, a program of the USDA Natural Resources Conservation Service (NRCS), which provided funds to purchase the easement and to do future wetlands restoration work on the property. MMRG met with the landowners over a number of years, introduced them to the program and helped them enroll in the program.

The easement, completed this summer and held by NRCS, guarantees that the land will never be developed. The landowners continue to own and use their 130-acre property.

Says MMRG Director of Land Conservation Keith Fletcher, "Pro-

tection of this parcel adds substantially to the conservation lands in Milton. It protects and restores important water resources and functions. It also meets the landowners' goal to keep the land the way it is, in perpetuity. MMRG is grateful to the landowners for following through with their vision of preserving their beautiful land for future generations, and to our partners at NRCS for their hard work to bring the project to fruition."

For more information about this project or other conservation efforts underway through MMRG, contact Virginia Long at (603) 817-8260 or info@mmrg.info.

Top Reason to Conserve Land is Water Quality Protection

In a recent survey of likely 2012 voters completed by the UNH Survey Center, "preserving land for water quality protection" was important or very important to 99 percent of respondents, topping the list of reasons to conserve land. Other reasons cited by likely voters included preserving forest land and working forests, wildlife habitat, farmland, historic and cultural sites, and recreational opportunities. The survey, conducted during June and July 2012, was conducted for the Society for the Protection of New Hampshire Forests, The Nature Conservancy, and the Trust for Public Land. The margin of sampling error for the survey was +/- 4.4 percent. The New Hampshire Conservation Attitude Survey Highlights Report is available at <http://forestsociety.org/pdf/conservation-funding-highlights-report.pdf>.

The Source, the quarterly newsletter of the DES Drinking Water Source Protection Program, is published by the N.H. Dept. of Environmental Services.



29 Hazen Drive
PO Box 95
Concord, NH
03302-0095
(603) 271-3503

Commissioner	Thomas S. Burack
Asst. Commissioner	Vicki Quiram
Division Director	Harry T. Stewart
Bureau Administrator	Sarah Pillsbury
Program Manager	Paul Susca
Editors	Pierce Rigrod Holly Green

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

Printed on Recycled Paper

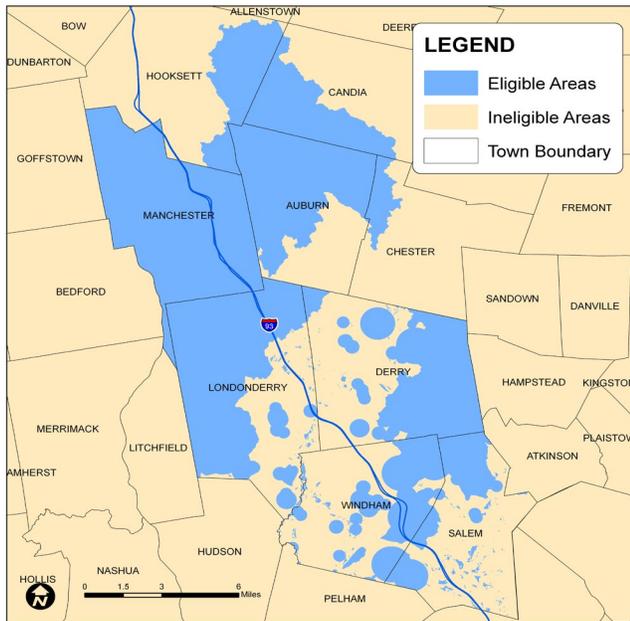
DES-DOT Water Supply Land Conservation Program Featured in National Webinar Series

A webinar series focusing on how states can better coordinate land use, clean water and drinking water policies to protect public health and the environment includes a presentation on how DES is partnering with the N.H. Department of Transportation (DOT) to use federal mitigation funds to conserve sensitive

lands. In the webinar “Non-Traditional Sources of Funding for Source Water Protection,” DES’s Water Supply Land Protection Grant Coordinator Holly Green describes the DES-DOT program. The webinar is available at <http://landuseandwater.org/webinar101112.html>. The series, developed by the Trust for Public Land, the Smart Growth Leadership Institute and the Association of State Drinking Water Administrators, is available at <http://landuseandwater.org/lessons.html>.

Federal funding available through DOT is helping to mitigate impacts to wetlands and water quality associated with the widening of Interstate 93 between the Massachusetts border in Salem and the I-93/I-293 interchange in Manchester. The grants assist municipalities and land trusts in acquiring land or conservation easements in drinking water source protection areas.

There is still over \$2 million available, and the next grant round will be in spring 2013. Eligible land is restricted to the southern I-93 corridor communities of Salem, Windham, Derry, Londonderry and Manchester and the Lake Massabesic Watershed, which includes portions of Auburn, Hooksett, Candia and Chester (see the map). Contact Holly Green at (603) 271-3114 or holly.green@des.nh.gov for more information. •



NEWMAN: A Collaborative Approach to Managing and Protecting New England’s Surface Water Supplies

Submitted by John M. O’Neil, Manchester Water Works

Manchester Water Works and EPA have partnered to establish the New England Watershed Managers Collaborative (NEWMAN) to help public water systems in New England with surface water sources to address the variety of today’s land and water management challenges.

Source water protection is an important first step to a multi-barrier approach, which was designed to protect drinking water resources and has been practiced for centuries. Before modern treatment, many systems in New England invested in conserving sensitive lands to protect water supplies. Forests and natural landscapes around lakes, rivers, streams and wetlands remove pollutants that would otherwise reach the source, lower water quality and potentially increase treatment costs.

Management of conserved land comes with many costs and challenges. With growing populations and

demand for recreation, watershed managers need to evaluate land management options around and within surface water supplies. The NEWMAN Collaborative provides surface water systems in New England with an opportunity to share experiences and solutions regarding an array of watershed management challenges.

The NEWMAN Collaborative plans to develop a resource guide. It will include regional public water system contacts that have experience handling land and water management challenges, plus links to available guidance and other technical resources. The NEWMAN Collaborative will distribute a survey to public water systems with active surface water sources in the spring of 2013 and expects to have the directory completed and available by early 2014.

For more information on the collaborative, contact John O’Neil at jmoneil@manchesternh.gov. •

USGS Mapping Tools Help Prepare for Future Floods

The U.S. Geological Survey (USGS) has developed several tools that may help states and water utilities be better prepared for flooding situations.

USGS WaterAlert is a service that sends email or text messages when certain parameters exceed user-definable thresholds, as measured by a USGS real-time data-collection station. Real-time data from USGS gages are transmitted via satellite or other telemetry to USGS offices at various intervals, in most cases, once every one or four hours. Emergency transmissions, such as during floods, may be more frequent. WaterAlert includes several different sites across New Hampshire, including three groundwater, five precipitation, 10 water quality and over 50 surface water sites.

USGS StreamMail can be used in tandem with WaterAlert. USGS StreamMail provides a method to query a USGS gaging site via email, cell phone text message or handheld device for gage height and streamflow. For more information on these tools, visit <http://water.usgs.gov/wateralert>.

The USGS Flood Inundation Mapping Program focuses its efforts at state and local levels to help communities understand flood risks and make cost-effective mitigation decisions. Inundation maps identify where the potential threat of floodwaters is greatest. The maps show the land areas and features that would likely be submerged and the expected depth of the floodwaters when a stream flow gage upstream rises. The maps are part of a national USGS effort to help emergency managers quickly assess evacuation routes, determine when and how to evacuate residents threatened as

floodwaters rise, and better focus flood response and recovery efforts.

The mapping program now includes a 16.5-mile stretch of the Suncook River that has frequently flooded adjacent homes. On May 15, 2006, the flooded river changed course, increasing the potential flood hazards to communities downstream. The maps extend from the USGS streamgage at Depot Road in North Chichester to the Merrimack River, and include portions of the towns of Chichester, Epsom, Allenstown, Pembroke and the community of Suncook. The Suncook River flood inundation maps can be accessed at the USGS website http://water.usgs.gov/osw/flood_inundation. •

Please Help DES Update Water and Sewer Line Data

Over the next year, DES will be updating our GIS water and sewer line data layer for municipalities and community water systems. Having a more accurate data layer enhances DES's ability to assess infrastructure needs, respond to emergencies and coordinate planning efforts. DES will be contacting municipalities and community water systems over the coming months to request copies of digital water and sewer line data. If the data are not available digitally, alternative arrangements are possible. For questions, please contact Johnna McKenna at johnna.mckenna@des.nh.gov or (603) 271-7017. •

