



# THE SOURCE



NEWSLETTER OF THE NHDES DRINKING WATER SOURCE PROTECTION PROGRAM  
ON THE WEB AT [WWW.DES.NH.GOV](http://WWW.DES.NH.GOV)

SUMMER 2009

## Stressed Basins – Project Overview

By Rick Chormann, Senior Hydrogeologist, New Hampshire Geological Survey

Water resources in New Hampshire have always been seen as plentiful and virtually inexhaustible. However, increasing development pressures, especially in the southeastern portion of the state, have begun to challenge this perception. Before taking action, resource planners and managers first need to identify those watersheds that are likely to be experiencing the most “stress” due to water withdrawals. The Stressed Basins Project has been undertaken by the N.H. Geological Survey (NHGS) as an initial, systematic screening of water demand versus availability across the entire state. The project is part of the first phase of the state Water Resources Plan process, led by DES in connection with the legislature’s Water Resources Committee (at [www.des.nh.gov](http://www.des.nh.gov), click on “Water Resources Plan” in the A to Z List).

Current levels of stress on existing water resources need to be assessed as part of any planning process designed to meet future demands while minimizing unacceptable environmental impacts. NHGS was able to take full advantage of its role as steward of several key datasets, including registered water use and surface water hydrography, to develop a water balance index (WBI) as an indicator of hydrologic stress. The WBI is calculated as the ratio of total net water withdrawals to estimated summer streamflow.

NHGS subdivided the landscape into thousands of discrete geographic units (an average of 0.5 square miles in size – the area of the entire state is approximately 9,350 square miles) using a GIS and digital elevation data to automate the process. These landscape units, referred to as “catchments,” define the land area that drains to the surface water network between confluences (points where one stream or river joins another) or to any pond or lake that is at least five acres in size.

WBI values were calculated in two different ways for each catchment, one representing stress solely within the local limits of the catchment and another representing the cumulative effect of stresses within the local catchment and its upstream contributing area. In both cases, water availability was estimated based upon natural streamflow dur-

ing summer low flow (i.e., seasonally stressed) conditions. Streamflow during summer is generally considered to be supplied by groundwater that discharges into the stream channel.

The value for total net water withdrawals that serves as the numerator in the WBI ratio was estimated by combining water use data from a number of sources for the year 2005. These include registered water withdrawals and returns as reported to NHGS by facilities that use more than 20,000 gallons per day and estimates of withdrawals and returns by unregistered water systems (a combination of community and non-community water supplies) provided by the U.S. Geological Survey (USGS). Estimates for total water withdrawals by households with private wells and returns by households with on-site septic systems were originally developed by USGS for census blocks and then partitioned by NHGS based on catchment boundaries.

The WBI serves to highlight those catchments that are likely to be “most stressed” or “least stressed” from a water quantity perspective. This information will be of value to water suppliers, watershed managers and towns working to manage land use as it relates to withdrawals and returns within relatively stressed watershed areas.

The approach developed by NHGS for calculating the WBI can be readily modified to incorporate many other watershed characteristics of interest to land and water resource managers.

GIS data created for the project will ultimately be available for download from GRANIT, the New Hampshire GIS data clearinghouse. Maps of each of the 8-digit watersheds will be posted on the NHGS webpage (at [www.des.nh.gov](http://www.des.nh.gov), click on “Geology” in the A to Z List) for viewing and download later this summer.

Contact Rick Chormann at (603) 271-1975 or [frederick.chormann@des.nh.gov](mailto:frederick.chormann@des.nh.gov) for additional information. •



# Spotlight On ... The Cocheco River “Designation”

By Laura Weit, Acting Rivers Coordinator, DES Watershed Management Bureau

This spring, legislation was passed to designate the Cocheco River into the Rivers Management and Protection Program (RMPP) established under RSA 483. Designation is a major step toward a coordinated effort to protect the river’s outstanding characteristics and maintain public use. The Cocheco’s designation will eventually lead to a local watershed management plan that summarizes actions designed to protect water quality and in-stream flow levels through coordinated management and protection of land within river corridors and tributary drainage areas. While the Cocheco River is not directly used as a water supply, Farmington and Rochester have relatively shallow public water supply wells within 500 feet of the river.

The Cocheco River, a tributary of the Piscataqua River, begins in northern Strafford County and runs southeastward, through New Durham, Middleton, Farmington, Rochester, and Dover. The river’s watershed is approximately 185.2 square miles and a 34.8 mile segment from headwaters south of March’s Pond in New Durham to the tidal limits at the Cocheco Falls Dam in Dover has been designated.

Perhaps the most important and unique feature of the RMPP is the opportunity for water suppliers, municipalities, and stakeholders to participate through local river

management advisory committees in multi-town corridor planning and implementation efforts. A local river management advisory committee (LAC) is appointed for each designated river. Each LAC is comprised of representatives from each riverfront municipality and is responsible for developing a local river corridor management plan and commenting on activities affecting the river that require state or federal permits. Representatives come from a broad range of interests, including but not limited to local government, business, conservation, recreation, agriculture, and riparian landowners. This diversity helps bring a variety of perspectives to bear on resource protection and development issues.

A river or river segment may be nominated for state designation by any citizen or organization in the state. Sponsors must submit a description of the river’s values and characteristics to the DES commissioner. If the commissioner determines that the river or river segment meets the criteria in RSA 483:6, the nomination is forwarded to the state legislature and governor for approval. DES provides technical assistance to local river management advisory committees and other interested local and regional groups and officials on corridor management planning and other issues. For more information about the RMPP or to get involved in the process of developing a corridor management plan, contact Laura Weit, Acting Rivers Coordinator, at (603) 271-8811 or [laura.weit@des.nh.gov](mailto:laura.weit@des.nh.gov). Visit the RMPP web page at [www.des.nh.gov](http://www.des.nh.gov) and click on “Rivers Management and Protection Program” in the A to Z List. •

---

## 2010 Local Source Water Grant Applications Now Available

Applications for the next round of Local Source Water Protection grants are now available on the DES website at [http://des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp\\_grants.htm](http://des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp_grants.htm). The deadline for applying is November 2, 2009. The grants are available to public water suppliers, municipalities, regional planning agencies, non-profit organizations, educational institutions, conservation districts, and state agencies. Postcards announcing the availability were mailed out in June. Applicants can receive up to \$20,000 to develop and implement programs to protect public drinking water sources including watershed planning, delineation of protection areas, assessment of threats to water supply sources, implementation, and source security.

Projects for the 2009 grant cycle included source security measures, underground storage tank removal within the sanitary radius, development of town-wide source protection plans, accessibility of source water-related data and

**Grants, continued on page 4**

*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	Michael J. Walls
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](mailto:pierce.rigrod@des.nh.gov)  
[www.des.nh.gov](http://www.des.nh.gov)  
*Printed on Recycled Paper*

# Municipalities Have a New Drought Mitigation Option

Municipal and privately-owned water systems have had the authority to implement water use restrictions for water system customers for many years. Water systems with potential water supply shortages have often restricted or banned residential lawn watering to ensure an adequate water supply is maintained.

In 2007, the legislature adopted RSA 41:11-d, which enables municipalities to restrict residential lawn watering within their political boundaries if the state or federal government declares a drought condition for that region of the state. This authorizes a municipality to adopt regulations to restrict residential lawn watering during a drought for properties that obtain water from public water systems, private wells or surface water bodies. The legislature adopted RSA 41:11-d because of experiences during the 2001-2003 drought when municipalities and the state found it had no clear process to curtail residential lawn watering, even in neighborhoods where private residential wells were going dry. During the drought, homeowners with dry wells spent thousands of dollars to replace or deepen wells and experienced long waits (in some cases months) due to the increased demand for water well contractor services. Many homeowners resorted to cross-connecting their home plumbing system via a garden hose to a neighbor's home or

illegally dumping water hauled to their property into their dewatered well.

In order to adopt residential lawn watering regulations for drought conditions, the local governing body must establish the regulations and post them for at least three calendar days before implementation. RSA 41:11-d allows for broad flexibility in developing residential lawn watering restrictions and the governing body of the town can specify how, where, when, and to what extent the lawn watering restrictions apply. The governing body may also enforce the lawn watering restrictions by imposing fines in accordance with RSA 625:9.

Chapter 12 of the New Hampshire Water Resources Primer has more information on the occurrence and effects of drought in New Hampshire. (See <http://des.nh.gov/organization/divisions/water/dwgb/wrpp/primer.htm>). DES also maintains drought information, including the N.H. Drought Management Plan, on its website at [www.des.nh.gov](http://www.des.nh.gov) (click on "Drought Management" in the A to Z List). Information about water conservation and water use restrictions that public water systems may implement can be found at [www.des.nh.gov](http://www.des.nh.gov), and click on "Water Conservation" in the A to Z List. •

## Notes from the 2009 Drinking Water Source Protection Workshop

This year's Drinking Water Source Protection workshop attracted over 180 water supply managers, land use officials, and academic and non-profit staff, making it the largest source water protection event in New England. The morning sessions featured an overview of the progress being made to develop the first state water plan and the challenges that lie ahead. DES Commissioner Thomas Burack's opening remarks commended local water suppliers, municipalities, and other stakeholders on the significant progress already made to protect public water supplies. He also discussed the challenges that can potentially affect our water supplies, including climate change, changes to our landscape, as well as our need to maintain water supply infrastructure and improve our technical understanding of water resources.

Commissioner Burack presented Thomas Cravens (Portsmouth DPW) with this year's Drinking Water Source Protection Award. The award recognizes a water system, municipality, organization, or person for exemplary efforts to protect drinking water sources. Mr. Cravens was honored for his many years of work to protect Portsmouth's water supply wells and Bellamy Reservoir. Congratulations, Tom!

This event featured an array of vendors and technical

and non-technical presentations. Topics included human health impacts associated with harmful water-borne algae, expanding the use of the Merrimack River as a public water supply source, examples of innovative landscape design and low impact development techniques to enhance water quality, and a review of riparian buffer protection in water supply watersheds. To review speaker presentations, visit [www.des.nh.gov](http://www.des.nh.gov) and click on "Drinking Water Source Protection Program" in the A to Z List. •

### Get Your Own Copy of the Water Resources Primer

Contact the DES Public Information Center at (603) 271-2975 or email [pip@des.nh.gov](mailto:pip@des.nh.gov).

Request a copy of report number R-WD-08-23. The cost is \$25 per copy.

Or, download a copy at [www.des.nh.gov](http://www.des.nh.gov); click on "Water Resources Primer" in the A to Z List.

---

# Coming This Summer: New Watershed Planning and Innovative Zoning Initiatives

Watershed planning and zoning are important tools for protecting surface water resources and, for a number of the 54 surface water sources, some important planning and zoning activities will be taking place beginning this summer. Funding through the American Reinvestment and Recovery Act (ARRA) will allow New Hampshire's nine regional planning commissions and the Connecticut River Joint Commissions to begin a series of watershed-related projects that include prioritizing land conservation, adopting model zoning ordinances, and conducting outreach and educational activities to promote the protection of sensitive water resources.

Each RPC will be provided funds to work with their member communities to develop and adopt innovative land use controls, e.g., zoning, similar to those found in DES's Innovative Land Use Guidebook. In addition, all of the RPCs will be completing at least one watershed related project, some within watersheds that recharge surface water sources. The Lakes Region Planning Commission will be updating the Pemigewasset River Corridor Management Plan, while the Central Regional Planning Commission will

be updating the Contoocook River Management Plan. Other projects include promoting water quality in the Isinglass River Watershed and assessing the geomorphology of the Ammonoosuc River as part of the development of a river corridor management plan.

Each of these projects will have a public input process involving local meetings to solicit input and feedback. If you're interested in finding out more about a specific project and how you can contribute or comment, contact Laura Weit, Acting Rivers Coordinator,\* at (603) 271-8811 or [laura.weit@des.nh.gov](mailto:laura.weit@des.nh.gov). •

---

## Grants, continued from page 4

geographic information system (GIS) maps via the web, and the nomination of the Mascoma River as a "designated river" into the NH Rivers Management and Protection Program. For questions regarding the grant program, please contact Johnna McKenna at (603) 271-7017 or [johnna.mckenna@des.nh.gov](mailto:johnna.mckenna@des.nh.gov). •

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

