



SUPPLY LINES WITH THE SOURCE



Newsletter of the NHDES Drinking Water & Groundwater Bureau
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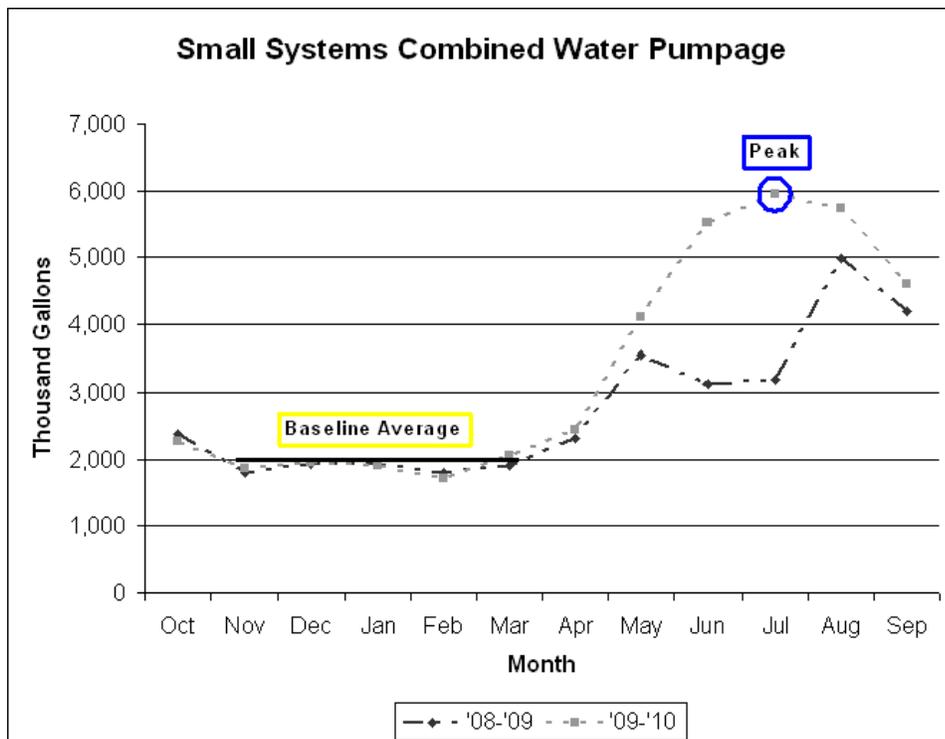
Spring 2011

The Impacts of Weather on Water Use

Meeting consumer water demand, evaluating the effectiveness of a recent efficiency measure, or setting water rates requires accurate water use data. These tasks also require a thorough understanding of how the data may be affected by seasonal factors such as temperature and precipitation. DES, in cooperation with Weston & Sampson, recently completed a preliminary analysis of water use during 2008-09 and 2009-10 “water years” to determine how weather conditions affect water consumption and corresponding pumpage rates of community water systems. Initial study results suggest significant increases in the volume of water being pumped from community wells during drier and warmer summers.

The summers of 2009 and 2010 differed significantly in New Hampshire and provide an excellent opportunity to review trends in water consumption as related to weather. According to the Northeast Regional Climate Center, New Hampshire’s 2010 summer was on average 5 degrees higher and had 6 inches less rainfall than the summer of 2009.

A water year begins in October, typically the driest part of the year, and ends in September of the following year. By reviewing pumpage data over the course of a water year, winter and summer trends may easily be discerned. For the purpose of the analysis, winter included October through April (non-irrigation months), while summer included May through September. This type of breakdown allows baseline averages for indoor use to be determined and peaking factors related to outdoor discretionary use to be quantified.



The analysis reviewed public water system pumping data reported to the N.H. Geological Survey through the Water Use Registration and Reporting Program over two water years (2008-09 and 2009-10). The data were stratified according to the size of the population the system serves: large systems (more than 3,000 people), medium systems (500 to 3,000 people) and small systems (less than 500 people). Combined pumping rates from multiple water systems were used to better identify overall trends and reduce statistical “noise” associated with seasonal population changes and differences in the water use sectors served by the systems. Medium and small systems with known meter error, high leakage levels, and high winter populations due to the close proximity to ski areas were excluded from the analysis.

According to the data, the average pumping rates

Trends, continued on page 3



SPOTLIGHT ON LAKE WINNIPESAUKEE

An Innovative Web-based Watershed Plan: The Winnepesaukee Gateway

by Pat Tarpey, Watershed Outreach Coordinator, Lake Winnepesaukee Watershed Association

An innovative web-based management plan for several Lake Winnepesaukee sub-watersheds is expected to facilitate unparalleled levels of coordination among the project's many partners.

Recognizing that no one entity can succeed in protecting the land and water resources of the watershed, the communities of Meredith, Laconia and Gilford worked with the Lakes Region Planning Commission, Lake Winnepesaukee Watershed Association, and numerous other partners to complete the first web-based watershed management plan for Meredith, Paugus and Saunders Bays of Lake Winnepesaukee. This plan embodies the approach adopted by the partners to develop a comprehensive Lake Winnepesaukee Watershed Management Plan on a sub-watershed basis.

Development of the plan for Meredith, Paugus and Saunders Bays required understanding each bay's current water quality, as well as that of the entire lake, setting local water quality goals, identifying land uses that potentially contribute large loads of pollutants, quantifying those loads, and identifying and developing methods to stabilize or reduce the pollutant inputs. Paugus Bay was of particular interest to Laconia due to its role as the primary drinking water source for the city. Paugus Bay's water quality is affected by activities and landscape change happening as far north as Green's Basin in Moultonborough or as far south as Alton Bay.

The Lakes Region provides a backdrop for the wide variety of activities to be found here. Accommodat-

ing the interests and needs of all the people who live, work, and play there can lead to unintended consequences and negative impacts, such as introduction of non-native invasive species, loss of wetlands, habitat fragmentation, algal blooms and public health related issues.

The management plan provides the communities with an online tool to monitor and track the implementation of more than 50 recommendations identified by the three communities. Being on the web provides a means to inform and involve the public, opportunities for individual action, and coordination of activities and communication between and among communities. It is the intent of the management plan that the strategies and best management practices identified by the communities become an action plan or road map to enable the communities to achieve the goal of halting or minimizing further water quality degradation due to pollutant inputs.

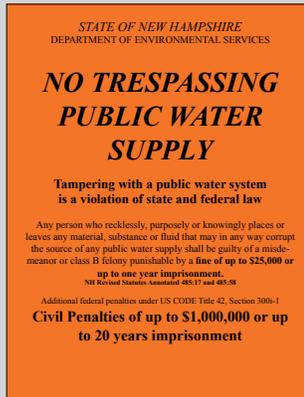
The plan's website, Winnepesaukee Gateway (www.winnigateway.org), will serve as a resource to individuals and community officials. It will be a convenient place to store and retrieve information, maps, photos, on-going projects, water quality data and site restoration plans on a continuing basis. The website will create opportunities for students, professionals and the general public to learn more about the watershed as the information is developed and released from credible sources. Check it out today. •

ENTER TO WIN A "No Trespassing" Sign Metal Reflective 12" X 18"

Enter by May 31 by sending an e-mail to
johnna.mckenna@des.nh.gov.

The drawing will be held on June 1, 2011.
99 signs will be given out.

For questions, please contact
Johnna McKenna at (603) 271-7017
or johnna.mckenna@des.nh.gov.



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Electronic Transfer of Lab Data Works!

Last February the DWGB announced the release of the electronic transfer application. Electronic transfer provides a method for accredited laboratories to submit drinking water sample results to DWGB through DES's OneStop website. DWGB established a deadline of January 2011 for all labs to report public water system samples electronically.

Laconia Water Works and Pennichuck Water Works laboratories were the first to use the application and electronically submit their sample results to DWGB. Throughout the year, several laboratories also transitioned from using paper to reporting electronically. By the end of January 2011, DWGB received over 95 percent of all compliance results electronically.

Electronic transfer is not only a paperless process, it provides a more efficient and accurate transfer of data. Since electronic transfer ensures a consistent format for reporting sample results, one laboratory can subcontract analyses and submit results on behalf of another laboratory.

The public water system contact is immediately notified when the laboratory electronically submits its samples. DWGB usually processes results within 48 hours of the submittal. Once the samples are pro-

Public Water Systems—

By the end of March 2011, DWGB will only accept samples from labs that report electronically. If your lab is not on the list, please urge them to electronically report your data to DWGB. Ask them to contact Laurie Cullerot at (603) 271-2954 or laurie.cullerot@des.nh.gov as soon as possible to ensure your sample results will be accepted.

cessed, a status report is sent to the laboratory and the public water system contact.

All electronically transferred sample results are posted on DES's OneStop website after they are accepted and processed by DWGB. The results are immediately available for review by the analyzing laboratory, the public water system operator, owner and consumers. Recently, a private contractor commented on the increased timeliness with which the data can be accessed for evaluating drinking water quality.

For a list of accredited drinking water laboratories that submit sample results electronically, go to www.des.nh.gov/organization/divisions/water/dwgb/index.htm and look under "Hot Topics." •

Our Editors Want to Hear from You

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Trends, *continued from page 1*

for a wet summer (2009) exceeded the average winter baseline by a ratio of 1.40 to 1.00. The summer of 2010, a dry summer, had a ratio of 1.74 to 1.00. Peak month pumpage occurred in 2010 across all four groups, with the average ratio to baseline at 2.02 to 1.00. Large and medium systems behaved similarly while the small systems that were analyzed experienced considerably larger increases above the baseline.

DES and Weston & Sampson have completed additional analysis of the data to evaluate the potential impacts of water rates, water efficiency programs, and water use restrictions on consumption. This updated analysis was presented at the 2011 New Hampshire Water and Watersheds Conference at Plymouth State University on March 25, 2011. However, results were not available at the time of this writing. Contact Derek Bennett (603) 271-6685 or derek.bennett@des.nh.gov, or Brian Goetz (800) 726-7766 or goetz@wseinc.com for more information about the results of this study. •

Public Water System Pumping Data

	10 Large Systems	4 Medium Systems (>1000 connections)	4 Medium Systems (<1000 connections)	7 Small Systems
Baseline Average Winter Pumpage	43.08 MGD	1.19 MGD	0.39 MGD	0.07 MGD
Summer 2009 to Baseline ratio	1.30 to 1.00	1.14 to 1.00	1.26 to 1.00	1.89 to 1.00
Summer 2010 to Baseline ratio	1.56 to 1.00	1.29 to 1.00	1.55 to 1.00	2.57 to 1.00
Peak Month to Baseline ratio	1.86 to 1.00	1.45 to 1.00	1.81 to 1.00	2.95 to 1.00
(MGD = million gallons per day)				

Results of 2010 Infrastructure Needs Analysis Now Available

As New Hampshire public water system owners and operators are well aware, every system includes components that need replacement as they approach the end of their useful life. It is relatively easy to determine when to replace certain components, such as pumps and treatment equipment, which can be inspected regularly for tell-tale signs of failure. Underground facilities such as piping and valves are more difficult to inspect, but it is well known that even these components have a statistically predictable service life. Good asset management dictates that replacement costs be anticipated so that funds will be available as these costs occur.

The firm of Wright-Pierce, under contract with the DWGB, has completed an infrastructure cost analysis that predicts replacement costs for all community water systems in New Hampshire over the next 20 years. Although the service life of system components varies widely, ranging from 15 years for instrumentation, for example, and 100 years for buried ductile iron pipe, this analysis considers replacement costs expected within a 20-year time frame. The analysis focuses on existing facilities and does not include system expansion needed for population and business growth.

Although distribution and transmission piping account for about 77 percent of the above total replacement costs, these components account for less than 50 percent of 20-year costs as piping typically has a longer service life (as much as 100 years for ductile iron) as compared to other water system components.

An estimation of costs provides a starting point in the discussion of raising adequate funds for replacing aging infrastructure. Since all water system components will eventually need replacement, even the ductile iron distribution piping and structural components of treatment plants assigned a 100-year service life are included in the analysis. Funds for replacement have been traditionally raised through local taxation or user fees. The necessity of governmental loans or grants to supplement locally-raised funds is expected to be an ongoing discussion at both the state and federal levels.

The analysis report will be available through the DWGB home page at www.des.nh.gov/organization/divisions/water/dwgb/index.htm in April 2011. •

2010 Infrastructure Needs Summary for Community Water Systems in New Hampshire (Costs in Millions)		
Asset Category	2010 Total Replacement Cost	20-year Replacement Cost
Distribution/Transmission	\$3,688.5	\$802.4
Treatment/Pumping	\$730.2	\$665.5
Storage	\$280.8	\$91.5
Other	\$66.7	\$65.1
Totals	\$4,766.2	\$1,624.5

In contrast with the EPA needs survey conducted every five years, which is based on a random sample of systems, the Wright-Pierce analysis is based on an inventory of all capital assets associated with the 723 community systems operating in New Hampshire. When precise information about capital assets is not available, such as the amount of distribution piping, an estimate was calculated through a predictive model based on the known service population of each system. The 2010 capital replacement costs are based on actual planning, design, and construction costs compiled in recent years and adjusted for inflation to 2010 dollars.

Seasonal Systems: Five Ways to Start the Season Right

In New Hampshire, about 750 public water systems are classified as “seasonal.” These include campgrounds, youth camps, motels and schools. Here are five tips to help get your season off to a good start.

1. **INSPECT** your water system (pipes, tanks, treatment, etc.) in advance of opening and start-up of equipment.
2. **TEST** all equipment to make sure it is in good working order and nothing leaks.
3. **FLUSH** water through the entire water system by opening blow-off valves and faucets to blow out the sediment and stagnant water.
4. **DISINFECT** all sources, pressure tanks, storage tanks, and distribution lines and flush again.
5. **SAMPLE:** Collect bacteria samples at different locations prior to use.

For more information, refer to fact sheet WD-DWGB-7-10, “Seasonal Water System Operation and Maintenance,” which can be found at www.des.nh.gov/organization/divisions/water/dwgb/index.htm and click on “Fact Sheets” under the “Publications” heading. •

Drinking Water Enforcement Activity in 2010

The DWGB offers assistance to public water systems in maintaining compliance with federal and state drinking water regulations. Despite this assistance, contamination issues and/or repeated violations of regulations sometimes require DWGB to initiate enforcement actions.

DWGB employs a hierarchy of enforcement actions beginning with a Letter of Deficiency (LOD). An LOD is a formal letter which identifies violations of specific regulations. The LOD requests that the water system's owner bring the system back into compliance by taking certain actions within specified time periods. During 2010, DWGB issued 231 LODs. Bacteria related violations, public notice for bacteria and chemical violations, and sanitary survey violations constituted the bulk of the LODs.

An Administrative Order (AO) is issued in response to particularly serious violations or when a system continues to accrue violations after receiving an LOD. An AO is a legally enforceable document that requires the water system owner to correct violations by completing enumerated actions by specified deadlines. Most AOs are recorded at the county registry of deeds to alert property buyers and financial institutions of compliance issues at a water system. Failure to comply with an AO may result in an Administrative Fine or referral of the case to the Attorney General's Office (AGO) for imposition of criminal or civil penalties. DWGB issued eight AOs in 2010. The water systems that received an AO all accrued multiple violations.

An Administrative Fine (AF) imposes a monetary penalty for regulatory violations. Three AFs were issued in 2010. One violator paid the fine in full and the other two reached a Motion to Accept Settlement Agreement with DWGB. These AFs were related to installing well pumps without a valid license or constructing wells without a valid license.

On occasion, a violation is considered by DWGB to be so serious and/or intentional that the case is referred directly to the AGO for enforcement. DWGB referred a case to the AGO in 2010 concerning an unlicensed individual installing well pumps. Also, in May 2010, Grafton County Superior Court accepted the AGO's Final Decree against a water system that had numerous violations. The water system was ordered to pay a \$55,000 civil penalty.

DWGB also has the authority to require a public water system to issue a boil water order for a variety of health-related reasons. The most common is the discovery of *E. coli* or fecal bacteria in a water sample. In 2010, DWGB required a total of 19 boil water orders.

For more information on enforcement issues, contact Emily Jones at (603) 271-0713 or emily.jones@des.nh.gov, or Eric Skoglund at (603) 271-5109 or eric.skoglund@des.nh.gov. LODs, AOs, and AFs issued by DES programs can be viewed online at www2.des.state.nh.us/Legal for a minimum of five years after the date of issuance. •

OneStop Database Receives Upgrade

Frequent users of the DES OneStop online database have already noticed the difference—for the better!

After months of sorting data and testing functionality, the OneStop Redesign Team “soft launched” the renewed and revised OneStop database before the holidays. Over the next several weeks, bugs were worked out of the system with the help of constructive comments by users.

So what is new on OneStop? The new features include the ability to:

- Use a single search page to retrieve selected DES information by PWS ID.
- Search by general areas of interest, e.g., air or water related interests, fuel storage leaks.
- Search by specific areas of interest, e.g., public water systems, underground storage tanks.

- Locate most individual sites using a “Map It” tool.
- Access search help and provide comments from the top menu bar.

Sampling schedules and all analysis request forms can be found online at www.des.nh.gov; click on “A to Z List” and select “Public Water System Search.” Once you reach the OneStop Search screen, type in your PWS ID in the “Any DES Interest Primary ID/Master ID” box and click Enter. On the Search Results screen, click on “Public Water System” in the column labeled “Interest(s) at this location.”

New and revised databases will be added as they become available. We welcome your comments and suggestions for improvements. If you have not been to the new website, you will need to recreate your favorites since the pathways have changed. Your patience is appreciated. •

WaterSense Partnership for Utilities

Water conservation can substantially contribute to sustainability of existing water sources and reduce the need for water systems to replace or augment sources as new users are brought online or demands increase. EPA encourages water systems to partner with the WaterSense program to promote water conservation and efficiency. Efficient water use can also have major environmental, public health, and economic benefits by helping to improve water quality, maintain aquatic ecosystems, and protect drinking water resources. Using water more efficiently and purchasing more water-efficient products can also help mitigate the effects of drought.

Launched in 2006, the WaterSense program is sponsored by the EPA and offers partnership opportunities. WaterSense partners with manufacturers, retailers, distributors and utilities to bring WaterSense labeled products to the marketplace and make it easy to purchase high-performing, water-efficient products. WaterSense also partners with irrigation professionals and irrigation certification programs to promote water-efficient practices for landscape irrigation.



Below are a few suggestions from EPA to help you get started.

Getting Started:

- Designate a water efficiency coordinator.
- Develop a water efficiency plan. For more information, visit the EPA Water Conservation Plan guidelines at www.epa.gov/watersense/pubs/guide.html or find water conservation information on the DES website.
- Educate and involve employees, residents and school children in water efficiency efforts.

System Improvements—Keep a Tight System:

- Implement a water-loss management program, e.g., repair leaks. The water industry goal for unaccounted-for-water is no more than 10 percent.
- Strive for universal metering.
- Consider a reclaimed wastewater distribution system for non-potable uses.
- Ensure that fire hydrants are tamper-proof.
- Install high-efficiency toilets, or retrofit water-saving devices on existing ones.
- Install faucet aerators and low-flow shower heads in municipal buildings.

- As municipal appliances or equipment wear out, replace them with water-saving models.
- Eliminate “once-through” cooling of equipment with municipal water by recycling water flow to a cooling tower or replacing with air-cooled equipment.
- Minimize water used in space cooling equipment in accordance with manufacturer’s recommendations. Shut off cooling units when not needed.

Policies and Programs to Encourage Efficient Water Use:

- Ensure the rate structure encourages water efficiency or at least does not discourage it.
- Make retrofit kits for residences and businesses available free or at cost. Kits may contain low-flow faucet aerators, high efficiency showerheads, leak detection tablets, and replacement valves.
- Promote water-efficient landscape practices for homeowners and businesses, especially those with large, irrigated properties. Practices include use of native plants, landscape renovation to reduce water use, and more efficient irrigation.
- Offer incentive programs, e.g., rebates or tax credits, to homeowners and businesses to encourage replacement of plumbing fixtures and appliances with water-efficient models.
- Conduct water-use audits of homes, businesses, and industries. Audits provide users with invaluable information about how water is used and how usage might be reduced by specific measures.

To find out more about partnering with WaterSense, visit www.epa.gov/watersense/partners/index.html. Contact Ernst H. Kastning at the DWGB at (603)-271-0659 or ernst.kastning@des.nh.gov for more information. •

N.H. Environmental Laboratory Accreditation Program

Looking for an accredited laboratory? Check out the laboratory information query function at www2.des.nh.gov/CertifiedLabs/Certified-Method.aspx. For example, by searching on “Matrix: Drinking Water,” “Analyte Name: Lead,” and “State: NH” you can find all of the accredited laboratories in New Hampshire that perform drinking water lead analysis. A variety of different searches can be performed to meet your needs. Call (603) 271-2998 if you have any questions.

Protecting Water Quality in the Salmon Falls Headwaters

by Linda Schier, Acton Wakefield Watersheds Alliance

The Salmon Falls Headwater Lakes Watershed Management Plan (2010) is a unique multi-state effort to protect five lakes that make up the headwaters of the Salmon Falls River, a source of drinking water for Somersworth, N.H., and Berwick, Maine. For the first time, residents across the watershed that straddles the state line are talking to each other about how to achieve a common goal—maintaining high quality water in the lakes and throughout the headwaters of the watershed. FB Environmental Associates developed the plan in cooperation with the Acton Wakefield Watersheds Alliance (AWWA), DES, Great East Lake Improvement Association, Lovell Lake Association, Wilson Lake Association, Horn Pond Association, and Round Pond (Lake Ivanhoe) Association.

One of the plan's primary objectives is to reduce the amount of phosphorus entering the lakes and their tributaries. It includes a detailed water quality analysis, on-the-ground observations, land use modeling, and zoning recommendations. Recommendations include:

- A watershed- or region-wide phosphorus control ordinance for all new development.
- Reducing or removing grandfathering for both subdivision and shoreline zones.
- Encouraging cluster development.
- Passing ordinances to require less runoff and greater infiltration of stormwater through vegetative plantings and porous surfaces.

While the focus and action items are targeted to the Salmon Falls headwater lakes, the recommendations can guide decision-making throughout the Salmon Falls watershed.

In June 2010 AWWA was awarded a DES Watershed Assistance Grant to implement some of the recommendations in the plan. This two-year implementation project aims to protect the water quality in the five headwater lakes and their tributaries through restoration, outreach, monitoring, and planning initiatives. AWWA will work with the communities to fix existing problems, educate residents about the connections between activities on land and water quality, and work with community groups to ensure that future generations will be able to enjoy the benefits of high-quality waters. Below are descriptions of projects currently (or soon to be) underway.

- AWWA is working with the UNH Stormwater Center to develop a road maintenance plan for a town gravel road in Wakefield that will serve as a guide

for lake-friendly road maintenance throughout the watershed.

- The AWWA Youth Conservation Corps is working to correct erosion problems on residential properties that are degrading water quality.
- Community roundtables are bringing together lake association members, community decision-makers, and concerned citizens for brainstorming sessions to develop projects for future water quality protection.
- Floating classrooms designed to encourage participants to reduce their "Phosphorus Footprint" will be offered in the summer of 2011. The boat trips on local lakes will include water quality sampling, aquatic plant identification, and zooplankton examination.

The plan will be a useful and relevant tool for protecting the lakes and streams of Wakefield, N.H., and Acton, Maine, over the next 10 years and beyond. For more information about the project, contact Linda Schier, AWWA Executive Director, at (603) 473-2500 or info@awwatersheds.org. •

2011 Town Meetings Protect Groundwater

At town meetings across the state, voters provided a boost for local groundwater protection. Nine groundwater protection ordinances were adopted or amended bringing the total number of towns with groundwater protection zoning to 94. Local planners referred to DES's 2010 Model Groundwater Protection Ordinance as a guide for drafting new zoning language.

Congratulations to the Green Mountain Conservation Group, Lakes Regional Planning Commission, and Southern New Hampshire Regional Planning Commission who worked closely with local planning boards and concerned residents in many of these communities. •

Municipalities Adopting New Groundwater Protection Zoning

- Allentown
- Concord
- Deerfield
- Effingham
- Freedom
- Madison
- Raymond
- Sandwich
- Weare

Proposed Recommendations for Fluoride in Drinking Water

In January 2011, the U.S. Department of Health and Human Services (HHS) and the U.S. Environmental Protection Agency (EPA) released two proposed recommendations for both adjusted and naturally-occurring fluoride levels in drinking water. The purpose of the proposals is to maximize the health benefits of water fluoridation, an important tool in the prevention of tooth decay, while also reducing the possibility of children receiving too much fluoride.

There are several reasons for this change, including that Americans have access to more sources of fluoride than they did when water fluoridation was first introduced in the United States. The new guidance will update and replace original recommendations provided in 1962 by the U.S. Public Health Service.

The HHS and the Centers for Disease Control and Prevention are proposing that the recommended adjusted fluoride levels be consistently set at 0.7 ppm for all states. The current recommended level of adjusted fluoride in New Hampshire is 0.9 to 1.7 ppm.

This updated recommendation is based on recent

EPA and HHS scientific assessments of fluoride and the benefits of preventing tooth decay while limiting unwanted health effects. These scientific assessments will also guide the EPA in making a determination of whether to lower the MCL for fluoride, which is set to prevent adverse health effects.

A public comment period for the HHS recommendation ended in early February 2011. HHS expects to publish its final guidance for community water fluoridation in the spring of 2011.

All the public water systems in New Hampshire who fluoridate attended an all-day workshop on February 24 in Franklin. The N.H. Department of Health and Human Services' Division of Public Health Services, DWGB, and the New England Water Works Association coordinated the training.

More information about the proposed recommendations will be coming soon. Visit the Centers for Disease Control and Prevention website at www.cdc.gov/fluoridation for more details. •

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