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Pomperaug Watershed Protection Task Force addresses groundwater contamination by James Belden

Our watershed is a special place that through natural processes produces copious amounts of high quality water. However, in some places, human activities have resulted in the diminishment of the quality, safety, and quantity of water for both human and ecosystem needs. The Coalition recently joined forces in an initiative that will address diminishing water quality in one particular area of the watershed located at the heart of the Pomperaug Aquifer.

The well field in the Middle Quarter commercial district of Woodbury is the primary source for Woodbury's current and future water needs. Here, a history of groundwater contamination has necessitated the installation of equipment to ensure that the water meets drinking water standards. The good news is that the water company does a great job of delivering water that is safe to drink. The bad news is that there is a cost to doing that, and the possibility of further threat to our water supplies. US Geological Survey groundwater studies (fact sheet at http://pubs.usgs.gov/fs/2010/3002/pdf/fs20103002_Web.pdf) as well as other consultant-based studies have outlined the extent and nature of the contamination plume in the Middle Quarter. Additionally a remediation project regarding gasoline compound contamination has been conducted in the area through a State approved remediation plan.

To address the continuing threat to Woodbury's water supply, the environment, and the socioeconomic vitality of the community, the Town of Woodbury has joined with the Pomperaug River Watershed Coalition, the Pomperaug Health District, the Council of Governments of the Central Naugatuck Valley (COG), and the United Water Company to create the Pomperaug Watershed Protection Task Force.

Virginia Mason, Assistant Director of COG, noted: "The western towns of our region (Woodbury/Southbury) have been rapidly developing. That growth cannot occur without clean water. Thus, we have long been involved with water issues in the Town of Woodbury by way of the Pomperaug Water Authority and were actively involved in the formation of PRWC. The newly formed Task Force is now leading the way to address the contamination of Woodbury's water supply."

The Task Force aims to research and implement actions that will address the contamination issues and the availability of abundant, clean water; protect public health and safety; safeguard the environment; and benefit the socioeconomic health of the community. This dynamic group of partners also hopes the Task Force will become a long-term instrument that will address any other significant contamination within our Watershed communities. The makeup of the Task Force—a mix of local and regional agencies and organizations, with ties to state and federal entities—will provide a substantial framework to efficiently and effectively address these difficult issues.

Study of the Middle Quarter's contamination plume needs to be continued. As part of this, PRWC is implementing grassroots research methods of monitoring our water. As we noted in our summer newsletter, in June the Coalition's Science Committee began sampling water from several existing USGS monitoring wells with the help of the Pomperaug Health District and the state testing laboratory. Early findings indicate that our task will not be easy. According to our own data and several historical data records for the site, changing conditions can affect the water contaminant levels, and it's not clear how stable the dense chlorinated materials in the aquifer's glacial-till material are. To help resolve this critical issue, the Task Force is pursuing state and federal funding options. To this end, the group's aim is to work collaboratively on a mutually beneficial solution based on science and good public policy.

The USGS has prepared several reports that outline the movement of water and document contamination in the Pomperaug Aquifer. Many of these publications are available online through the science section of our website: www.pomperaug.org/NewScience.htm. Shown above is the latest fact sheet that discusses the "vulnerability of public supply wells to contamination."

Did you hear PRWC on WNPR's Faith Middleton Show?

James Belden and Dr. Allison MacKay from UConn joined Faith in October to discuss Connecticut's drinking water and research in the Pomperaug River.

To listen: <http://tinyurl.com/prwc-wnpr>



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The Pomperaug Watershed



A word from your Director

Since our fundraiser back in June, we have been especially busy. We are very proud of all the really great projects we have underway. With limited space, we were only able to feature some of them in this newsletter, but there are many, many more! So, I am giving up my space this issue so you can read about all the hard work of our staff, committees, volunteers, and project partners. They've all been doing a stellar job!

James Belden

Kids, kids everywhere!

In mid-September Woodbury Middle School hosted its annual Make a Splash Day, a full day of water activities for seventh graders. PRWC joined in the fun by presenting a new (to us) activity called Stormwater in a Jar. Students learned about the collective effect that pollution--represented by glitter, kool-aid, food coloring, cooking oil, and other household substances--has on our rivers and Long Island Sound. As we told the kids, this pollution often results from the day to day activities of individuals – even something as minor as a small oil leak from a car. When there are many people with the same issue, it can mean big problems for our water! Students also learned about the water cycle (how water circulates across the globe by means of precipitation, evaporation, and condensation), macroinvertebrates (“river bugs”), water-borne illnesses and safe drinking water, and water conservation from several other guest speakers.

Our educational programs also benefit high school students. In conjunction with the Education Connection in Litchfield and the Housatonic Valley association, the National Oceanic and Atmospheric Administration (NOAA) been granted three years of funding through its B-WET program to support our program called Project Periphyton. Periphyton is the “fuzzy stuff” that grows on the stream bottom and can be used to track climate change. Project Periphyton is a hands-on curriculum that trains teachers and students about how to collect physical, chemical, and biological stream and salt water data with their students. During this first, pilot year of the project, nearly 200 students from four high schools – Pomperaug High School, Wamogo School, Housatonic Valley Regional High School, and The Sound School -- will monitor the Pomperaug and Housatonic Rivers as well Long Island Sound. This fall, the teachers gathered in the Barn at Audubon at the Bent of the River for training, and subsequently took their students out to the rivers for the first of their three sampling trips scheduled for this school year. PRWC is working with teachers and students at Pomperaug High School and Wamogo Regional High School in Litchfield.



(left) Seventh graders at Woodbury Middle School learn about things that can pollute our rivers, streams, and Long Island Sound during Make a Splash Day.



(bottom) Several area high school students are participating in Project Periphyton. Environmental Science students at Pomperaug High School use a test kit to measure alkalinity in Eight Mile Stream. AP Biology students from Wamogo Regional High School posed for a picture after testing the Pomperaug River at Three Rivers Parks in Woodbury.



Ecology author reads the Pomperaug landscape

In August, renowned New England ecologist and author Tom Wessels visited the Pomperaug Watershed to lead a forest ecology hike. Welcomed as a “forest wizard,” Wessels shared his magic with a sold-out audience of 50 people. The half-day program was based on his book *Reading the Forested Landscape: A Natural History of New England* and introduced people to approaches used to interpret a forest’s history while wandering through it.

“Using evidence such as the shapes of trees, scars on their trunks, the pattern of decay in stumps, the construction of stone walls, and the lay of the land, it is possible to unravel complex stories etched into our forested landscape,” explained Tom, a Connecticut native who now lives in Vermont and a professor of ecology at Antioch University in New Hampshire.

During an indoor lecture, Tom provided the rapt audience with an overview of New England’s historic land use patterns and major types of natural or human-induced forest disturbances – like fire, hurricanes, nor’easters, logging, crop production, and pasturing livestock – and the evidence each of these may leave behind. Afterward, the group followed Tom out into the woods at Audubon at Bent of the River, where they practiced looking for and interpreting the clues found along the trails. Just a few minutes into the walk, Tom stopped to point out how the forest floor on one side of the trail was smooth. “Why would the forest floor be like that?” he asked the crowd. A few took a guess. Then Tom told us that it was likely that some sort of crop like oats, flax, or wheat was grown there. He followed up with another question: “Based on tree types, size, and age, how long ago was this area a crop field?” There were a few decent guesses, as people began to get the hang of reading the landscape.

We followed Tom around the woods for about two hours, learning his tricks as we walked. Aptly described, his process could easily be called forest forensics, since it is quite similar to interpreting a crime scene. In fact, *Forest Forensics* is the title of Tom’s new book, which was released in September. The subtitle indicates that it’s a “field guide to reading the forested landscape,” complimenting his previous book on this subject. It’s a must-have for any nature lover! Hint, hint – you might want to add it to your holiday wish list, either for yourself or as one to pass along. Tom’s other books include: *The Granite Landscape*, *Untamed Vermont*, and *The Myth of Progress: Toward a Sustainable Future*. They’re all available on Amazon.com.



Author and forest ecologist Tom Wessels, with his identifying “old-growth” white beard, stops along the trail to direct hikers’ eyes to unique clues in the woods that tell of the forest’s history.



Middle school students from Chase Collegiate help their teacher Terri Hale identify the “river bugs” they collected from the Pomperaug at Hollow Park in Woodbury.

“River bugs” indicate very good water quality

PRWC extends a HUGE thank you to all of the volunteers who participated in our Fifth Annual Macroinvertebrate Survey, held on September 25th. A record number of volunteers, more than 50, helped us survey the small, spineless, creatures that live in our rivers and streams. The survey is part the statewide citizen science project – Rapid Bioassessment in Wadable Stream and River by Volunteer Monitors (RBV) – supervised by Mike Beauchene from the Connecticut Department of Environmental Protection. Data gathered by volunteers is included in the state’s annual water quality report to Congress, required by the Clean Water Act.

Beauchene stresses the importance of the program and of volunteer surveyors when he reminds groups like ours that there are nearly 6000 miles of continuously flowing rivers and streams in Connecticut. Stretched end to end, that’s longer than the US/Canada border and US/Mexico border combined. With very limited staff resources at the DEP, volunteers play a critical role in assessing the state’s water.

We are grateful to the volunteers from all walks of life who participated in the morning training session at the Woodbury Town Office Annex and in the afternoon field surveys. Several volunteers were students: some came on their own and others came with their school. Schools represented included Westover School, Chase Collegiate, Naugatuck Valley Community College, and Rumsey Hall; there was also a team from the InterAct Club at Pomperaug High School. The cadre of surveyors was rounded out with several community members of all ages, a few who have participated in the project in previous years.

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"River Bugs" (continued from Page 3)

During the morning training session, volunteers learned about macroinvertebrates and how to collect them. Macroinvertebrates, often referred to as "river bugs," are the small organisms that spend part of their life cycle clinging to rocks and debris on the bottom of streams and rivers. They can tell us a lot about the health of a river. Some of the creatures are fussy about their environment – they need lots of oxygen, cool water, a good food source, and very little to no pollution. Their presence is a good indicator of excellent water quality. Where they are absent, water quality is likely poor.

After a demonstration of how to collect the macroinvertebrates and how to sort and identify them, the volunteers were broken into survey teams. Each team was provided with a set of survey equipment and directions to their survey site, and sent off to 11 different locations, including Transylvania Brook downstream from the Southbury Training School, Pomperaug River at Hollow Park in Woodbury, and the Weekepeemee River at Two Rivers Preserve in Bethlehem.

The data collected – a data sheet and a voucher sample – were submitted to Beauchene at the DEP for verification and a water quality determination. Results returned to PRWC show that all 11 of the survey sites still have very good water quality, though most sites had fewer of the "fussy" river bugs than previous years. This was attributed to the considerably low streamflow levels following an extremely hot, dry summer. In previous years, the number of desirable creatures has put the Pomperaug River and its tributaries in the excellent water quality category.

For a complete data from this year's survey and the previous four years' as well as to view more pictures from the project, visit www.pomperaug.org/MacroInvertebrate.htm. For assistance in interpreting the results, please contact us at 203-267-1700.

Welcome to our team!

When you call the PRWC office, you'll hear a new voice at the other end of the line. We're delighted to welcome a new member to our office team. Amy Burton, a new resident to the Watershed, is joining us as Administrative Coordinator. Amy and her family found a home in Woodbury when they moved out east from Ohio this summer after her husband accepted a job in Danbury. Being new to the area, Amy was very interested in finding a job that is community-based. And that she has! Amy comes to the Coalition with more than 10 years of business administrator experience, including five-plus years working with non-profit organizations. She has a strong set of computer, accounting, and volunteer management skills that will be put to very good use. Please help us make her feel at home and part of the Watershed community!

We bid a bittersweet farewell to Patti Doyle, our previous Administrative Coordinator, at the end of September. Patti worked with us part-time for more than three years, while also working part-time at another job. She returned full-time to her other employer, where she previously worked full-time for 17 years. Patti will be sorely missed at the PRWC office and we wish her all the best!