

CASE STUDY

Integrating Science, Community Outreach & Education

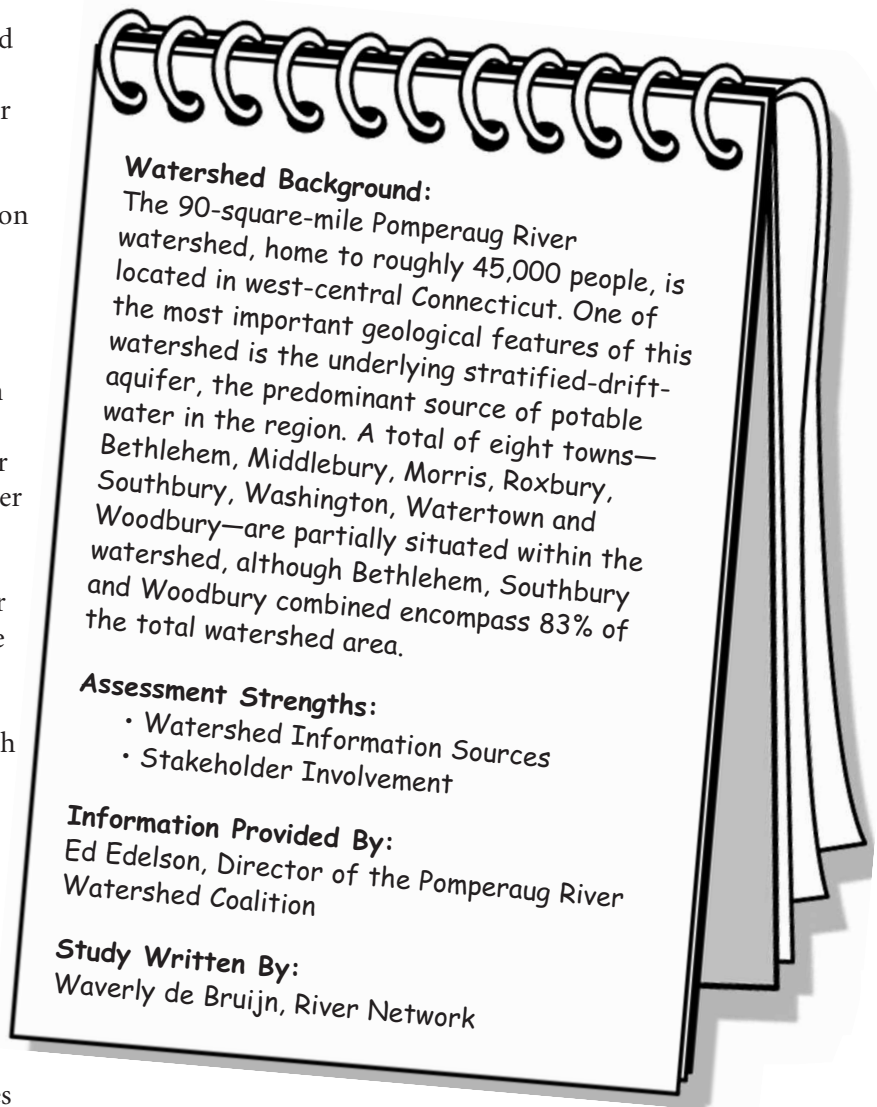
Pomperaug River Watershed, Connecticut

The Pomperaug River Watershed Coalition (the Coalition) is an example of a multi-stakeholder coalition. Its mission is to ensure that decisions regarding the health and protection of the watershed are based on sound science. The Coalition's board includes municipal representatives, water companies, environmental organizations such as land trusts and nature centers, engineers, water quality experts and citizen representatives. It formed in 1999 to determine how planned diversions of water from the aquifer (a request made by a power plant in a neighboring basin) and future land development would affect the flow in the river and the water table, and how river habitat would be affected by changes in the flow. These questions served as starting points for what would become Coalition's first major study, conducted jointly with the United States Geological Survey (USGS). This project, funded by the State of Connecticut, successfully modeled the subsurface and surface hydrology of the watershed. In addition, the project supported the development of an instream habitat model to examine the impacts of changes in river flow on fish habitat. Each of the hydrological and habitat models were then applied to a series of future scenarios, and now provide information from which decisions about watershed protection can be made.

Making Science Community-Friendly

In 2007, the watershed experienced a severe drought. Tom Meyer, a Coalition volunteer, realized that the information from the instream habitat study could be used to communicate the impact of the drought on the river ecosystem. He developed a Habitat Meter for each of the main rivers where a USGS flow gauge is present.¹ Each night, the

¹ The meter is shown on www.pomperaug.org in summary form with more detailed graphics on linked pages.



USGS data are downloaded and compared to various survival thresholds to determine if the existing flow and duration of that flow level is impairing fish habitat. The result of this data collection and analysis is shown on the home page of the Coalition's web site as a simple "traffic light" with green indicating adequate fish habitat conditions and red indicating catastrophic conditions.

The same year, the watershed also experienced severe flooding, which damaged many homes. Working with the Natural Resources Conservation Service (under the U.S. Department of Agriculture) and the local council of governments, the

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Coalition used this post-flood time as a “teaching moment.” They organized several seminars to better educate local officials and all riparian owners about best practices for managing stream buffers to prevent erosion and flood damage.

Alert to how future development in the region might impact runoff patterns, another joint effort was initiated between the Council of Governments of the Central Naugatuck Valley (COGCNV), the Pomperaug River Watershed Coalition and the Nonpoint Education for Municipal Officials (NEMO) program.² COGCNV, with assistance from the NEMO team, created maps of current and future impervious coverage for each Valley town (which includes all towns within the Pomperaug watershed). The Coalition joined the initiative and used the impervious coverage maps to determine which lands were critical to protecting the watershed. The Coalition and COGCNV have used these maps to help local land trusts understand the hydrological value of certain land parcels in order to make better decisions on protecting open space.

Talking “New Science”

Once enough data was collected to shed light on the issues facing the Pomperaug River watershed, the Coalition’s biggest task was to interpret that data for public officials and property owners so they could make informed decisions about land use and development. In 2007, the Connecticut Community Foundation and the Southbury Community Trust Fund funded an outreach director position, allowing the Coalition to begin its communication efforts. The Coalition brought on Donna Lesch, who began the task of distilling the science



United States Geological Survey hydrologists during the 2007 flood.

Photo credit: Pomperaug River Watershed Coalition

gathered into key messages for the different audiences. Donna placed special emphasis on reaching elected leaders and the volunteer commissioners responsible for planning, zoning and inland wetlands. To do this, she developed a matrix of key audiences, key messages gleaned from the “new science” (combining the results of hydrological and instream habitat modeling) and the appropriate outreach tools to be used with each group. The Coalition made many presentations to garden clubs, historic societies, community organizations and Boy Scout and Girl Scout troops. A series of lectures were offered through a Life Long Learning Institute at the University of Connecticut and a program for local fifth graders on watershed science was initiated.

Perhaps the most valuable outreach tools developed by the Coalition for the Pomperaug River watershed are the Geographical Information System maps that show the land areas most critical to aquifer recharge. These maps have been given to towns within the watershed, and commissioners have been eager to get copies of these maps and their digitized geographic information.

This outreach effort has also had its challenges. The Coalition is limited by the

² NEMO is an educational program of the University of Connecticut Cooperative Extension System, Connecticut Sea Grant College Program and Natural Resources Management and Engineering Department. For more information, see nemo.uconn.edu.

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time available to train and review study findings with commissioners, who are often the ones making important land use decisions in the watershed. Because of this constraint, the Coalition has adjusted its approach during the 20-30 minutes available to them by focusing on just one area of new science and how it can be utilized in the decisionmaking processes of commissioners.

Impacts and Next Steps

Changes in the viewpoints of land use officials in the watershed have been achieved. Since the Coalition's initial inquiry to determine the effects of the water diversion proposal, the power plant project was modified to be gas-fired, requiring greatly reduced quantities of water and thereby mitigating potential threats to the river.³ Developers are being asked by municipal officials to maintain the existing hydrology of sites under development. Low Impact Development techniques are being



Photo credit: Pomperaug River Watershed Coalition

Stakeholders meet to discuss modeling.

recommended or requested. Citizens are more aware that flooding and drainage problems are a function of land use changes and not just random natural events.

Now that Coalition members have a much better understanding about water quantity

issues, their next goal is to focus on water quality. The Coalition plans to continue the work started by USGS as part of the National Water Quality Assessments project.

“For a ten year old watershed,” said Ed Edelson, Director of the Pomperaug River Watershed Coalition, “the Coalition is proud of our work to take an integrated, science-based approach to understanding our watershed, informing and arming our public with this information, and encouraging people to see the watershed as a shared resource and a shared responsibility for its active stewardship.”



RELATED PROGRAMS & PUBLICATIONS

Pomperaug Water Resources Management Project

The Coalition has developed a comprehensive, scientifically-based management plan in which it recommends strategies that can assist local and state government agencies, water utilities and landowners with managing allocation and preventing pollution of the finite water resources in the watershed.

www.pomperaug.org/wmp/index.htm

Assessment and Restoration of Instream Habitat for the Pomperaug, Nonnewaug and Weekepeemee Rivers of Connecticut

This study by Piotr Parasiewicz, Jeffrey Legros, Joe Rogers and Miira Wirth was published by the University of Massachusetts' Northeast Instream Habitat Program in January, 2007. It evaluates the low-flow related stresses to physical habitat and fish community and determines ecologically viable objectives for a management plan for the Pomperaug River watershed.

www.neihp.org/projects/pomperaug/index.htm

³Due to financial reasons, the project was postponed as the company went bankrupt. The rights have now been purchased by another company that is working on finalizing its plans to move forward.