Connecticut River Watch Program

Using Data to Protect and Improve Water Quality

Connecticut Department of Environmental Protection

Nonpoint Source Management Program

Success Stories

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Connecticut Department of Environmenatl Protection, 79 Elm Street, Hartford, CT 06106-5127 - Arthur J. Rocque, Jr., Commissioner

The CRWP

The Connecticut River Watch Program (CRWP) is a support service for community-based watershed management programs working in the Connecticut River basin in Connecticut, sponsored by the Middlesex County Soil and Water Conservation District (MCSWCD). The program assists local communities in designing and implementing water quality and habitat assessment programs, and in using the information to guide watershed management activities. From 1992 to 2000, the CRWP conducted a study of water quality and stream health in the Mattabesset River watershed. The information generated by CRWP has been used to promote improved watershed management among watershed communities and their residents. CT DEP has used CRWP data to: assess problem areas and issues; help target funds; and, supplement ambient monitoring data in its state water quality reports.

Environmental Problems

While Connecticut River exhibits low pollutant concentrations the large volume of water discharged over the course of a year results in high cumulative pollutant input to Long Island Sound. Excessive nitrogen pollution, originating from throughout the watershed, has been identified as the cause of low dissolved oxygen conditions, and the non-attainment of water quality standards in the Sound.

The Mattabesset River watershed is heavily urbanized, and has nonpoint source (NPS) water quality problems caused by runoff from impervious surfaces, sedimentation from construction activities, and erosion and increased temperatures due to the loss of streamside vegetation. (See **Nonpoint Source Pollution sidebar**).

The Resource

The Connecticut River basin is the largest watershed in New England, comprising approximately 16,000 square miles and eight million residents in parts of four states and Canada. The river flows south from near the U.S.-Canada border to Long Island Sound. The Connecticut River basin accounts for approximately 28 percent of Connecticut's land area and about 70 percent of the freshwater flowing into Long Island Sound each year.

One of Connecticut River's tributaries is the Mattabesset River, located in central Connecticut. Its watershed comprises 110 square miles, including areas of Berlin, Cromwell, Durham, Guilford, Meriden, Middlefield, Middletown, New Britain, Newington, Plainville, Rocky Hill and Southington. From its headwaters near Merimere Reservoir in Berlin and Meriden, the Mattabesset River flows 18 miles to the Connecticut River. Due to its high level of urban and suburban development, close to 20 percent of the watershed is covered by impervious surfaces, including roads, buildings, and parking lots. However, it is also one of thelarger rivers in the state without a municipal sewage treatment plant discharge. A unique natural feature of the watershed is Cromwell Meadows, a large freshwater tidal wetland at the Mattabesset's confluence with the Connecticut River. Cromwell Meadows provides habitat for several state-listed plant species, wetland birds and other wildlife. Several anadromous fish species - e.g. American shad, blueback herring and alewives - spawn in the lower portions of the Mattabesset river below the first dam.

Nonpoint Source Pollution

Nonpoint source (NPS) pollution is diffuse in nature, both in terms of its origin and in the manner in which it enters surface and ground waters. It results from a variety of human activities that take place over a wide geographic area. Pollutants usually find their way into waters in sudden surges, often in large quantities, and are associated with rainfall, thunderstorms, or snowmelt. NPS pollution generally results from land runoff, precipitation, atmospheric dry deposition, drainage, or seepage. Hydromodification - physical disturbances to a water resource caused by filling, draining, ditching, damming, or otherwise altering wetlands and stream courses - is also considered a nonpoint source problem.

During the past century, land adjacent to the river was developed largely for commercial and industrial purposes, effectively blocking the river from both sight and public access. As a result, the river was not used as a recreational resource, and over time it was neglected. Until recently, lack of the public's interest in the river hindered efforts to restore water quality and habitat in the watershed.

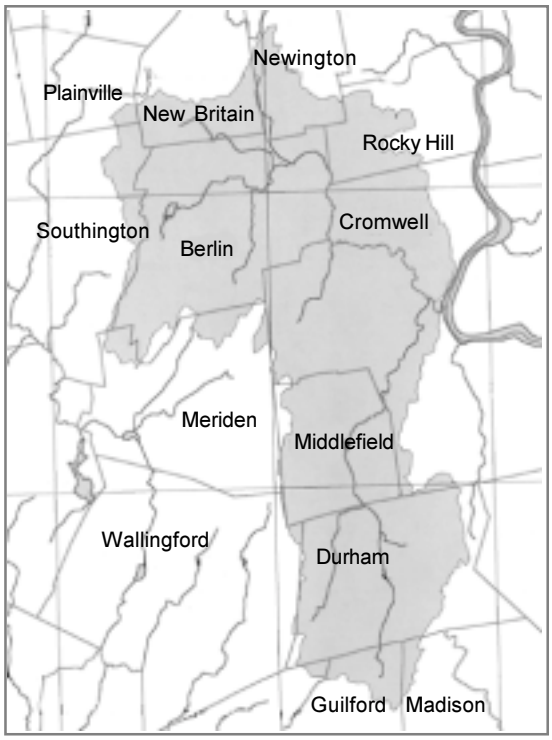
Monitoring and assessment by CT DEP and CRWP have documented high levels of bacteria and nutrients (nitrogen and phosphorus), high turbidity associated with storm events; trash, from poor solid waste management; and reduced diversity and quantity of aquatic macroinvertebrates, due to degraded habitat. These water quality and habitat problems reduce recreational opportunities, like fishing and canoeing, and make the river a less enjoyable place to be.

As a result, the Mattabesset River is on the state's list of impaired surface waters, entitled *Connecticut Waterbodies Not Meeting State Water Quality Standards*. CT DEP issues this report periodically as required by section 303(d) of the federal Clean Water Act. The list is based largely on the the results of a monitoring and assessment biennial report entitled, *Connecticut's Water Quality Report to Congress*, which describes the general condition of the state's waters (see **What are 305(b) Reports and 303(d) Lists?** sidebar).

Based in part on this listing, the watershed is identified in Connecticut's Unified Watershed Assessment (UWA) as a Category 1 watershed, making it a high priority for restoration. Connecticut's *Nonpoint Source Assessment and Management Plan* also identifies the Mattabesset Rivers as a high priority for nonpoint source management.

What are 305(b) Reports and 303(d) Lists?

Section 305(b) of the federal Clean Water Act requires states to report every two years on the general condition of their waters. Section 303(d) requires states to produce lists of impaired waters and prioritize them for development of total maximum daily loads (TMDL). A TMDL is a determination of how much pollution a waterbody can assimilate while still meeting water quality standards. These reports are based on water quality monitoring and assessment activities conducted by CT DEP, US EPA, the U.S. Geological Survey (USGS), the Connecticut Department of Public Health (CT DPH), and citizen monitoring groups, including the Connecticut River Watch Program. The state's ambient monitoring program is administered jointly by the CT DEP and USGS, while some intensive surveys are conducted with US EPA assistance. CT DEP provides technical and financial assistance to support volunteer monitoring programs, which often conduct detailed assessments in support of high priority watershed management activities.



Mattabesset and Coginchaug basins

Solutions

In 1992, the MCSWCD applied for and received Section 319 grant funds from the CT DEP for watershed management activities in the Mattabesset River watershed. It was the first 319 grant awarded by CT DEP for the specific purpose of conducting comprehensive watershed management. CRWP was created to collect water quality and habitat data, to document current conditions, to help build a contituency for the river to advocate for its restoration and protection and to guide river improvement activities. Over the years, CRWP has involved more than 200 volunteers in collecting and analyzing water and aquatic invertebrate samples, and conducting "stream walks", which are visual surveys of physical characteristics of the stream channel, banks and adjacent land. CRWP then shares this data with the CT DEP, municipal governement agencies, and local newspapers to raise awareness of problems and, ultimately, encourage solutions.

CRWP data has been used by MCSWCD to prioritize watershed management activities, including municipal technical assistance programs, demonstration projects and public outreach and participation. The CT DEP uses this data to document problems, target the use of 319 funds, and to aid in the preparation of CT's 305(b) report, watershed municipalities use this data to locate pollution sources and justify the need for improvement projects; and by a group of watershed stakeholders in developing a management plan for the river.

Results

After years of neglect, the Mattabesset River is slowly being rediscovered, and is now recognized as an important regional resource to be restored and protected. Program volunteers have become environmental advocates for river restoration and its protection. As one volunteer stated, "If you're actually out there doing the work, maybe you'll think twice before the next time you want to dump a tire there. You can't have the federal government doing everything. You have to do it at a local level." (*Hartford Courant*, May 15, 2000). By involving members of the community in river monitoring activities and publicizing program activities and publishing water quality results in area newspapers, the watershed community is informed and better prepared to take on the job of long-term river stewardship and management.

The MCSWCD has conducted other watershed management activities that build on and complement the CRWP's work, and have contributed to the new-found interest in protecting and better managing the community's water resources. Technical assistance programs on NPS pollution and stormwater management for municipal staff and land use commissioners, developers, and contractors have resulted in greater awareness of the importance of using Best Management Practices to reduce NPS. These groups also have developed better working relationships because the municipalities are more clearly stating their expectations regarding NPS management. Demonstration projects have resulted in the restoration of degraded areas and the reduction of NPS pollution (sediment, nutrients) in the watershed, and have provided examples for future restoration efforts.

- At an athletic field next to Belcher Brook in Berlin, turf that was previously mowed right up to the stream was allowed to return to a more natural, vegetated stream buffer. The ten-foot wide buffer filters out nutrients and other pollutants in runoff, and improves fish and wildlife habitat.

- At Progress Park in Cromwell, a severely eroding development site adjacent to the river was stabilized, riparian vegetation was reestablished, and a sediment basin and rip-rap lined channel were installed. In addition, a sediment bar was removed, improving hydrologic conditions in that stretch of the river.

- In response to a CRWP report of high bacteria levels in Willow Brook in New Britain, CT DEP investigated that probelm and subsequently ordered the city to address both sanitary sewer overflows during dry and wet weather conditions and illegal cross connections of sanitary waste to stormwater collections systems. New Britain has since completed a study of their entire sewer system and now is securing financing of approximately $20 million to eliminate those problems.

- On Beech Street in Middletown, a stormwater catch basin at the base of a steep hill was discharging heavy loads of sediment into Ravine Park Pond next to the street. An innovative stormwater treatment system was installed and has significantly reduced those sediment loads and improved aquatic habitat.

- On West Swamp Brook in Middletown, MCSWCD worked with a private bioengineering firm to stabilize an eroding streambank that was causing downstream sedimentation and encroaching on a private residence. Instead of the traditional rip-rap solution (i.e., piling rocks on the bank), they used an innovative method of "solft armoring" involving coconut fiber logs and native plant species.

As a result of public education and involvement activities-including a major river clean-up in which several junk cars were removed from Cromwell Meadows, storm drain stenciling projects, and an annual watershed awareness week-watershed residents know more about NPS pollution, habitat restoration and how they can get involved in watershed management. This has led to increased interest in river stewardship and the establishment of the Mattabesset River Watershed Association. There also has been renewed interest in the Mattabesset River as a recreational resource as seen in the recent construction of a canoe launch in Cromwell, the first official public access point on the river.

The Mattabesset River now has a new watershed management plan, developed by watershed residents, representatives from local businesses, environmental groups, and municipal, state and federal agencies. This plan would not have been possible seven or eight years ago, when the river was under-appreciated by some, and virtually unknown by others. The growing support for the river was instrumental in mobilizing the community to create and endorse the plan, and will be even more important to ensure that the plan is implemented.

Photo provided by MCSWCD

Volunteers Danielle Piraino and Joel Nick collect a benthic macroinvertebrate sample in the Mattabesset River

Future Plans

The CRWP has worked with the CT DEP to expand its geographic scope to include other high priority Connecticut River sub-watersheds. A CRWP Advisory Committee comprising representatives from federal, state, and local agencies and organizations was formed in 1998 to help establish priorities for the new, expanded program. Currently, CRWP has an ongoing program in the Mattabesset River watershed, and has initiated new monitoring and assessment programs in the Hockanum and Eightmile watersheds in conjunction with ongoing watershed management projects.

The "*Management Plan for the Mattabesset River Watershed* ," was completed and endorsed by the municipal chief elected officials and other watershed stakeholders in September 2000. The plan recommends continued monitoring of the Mattabesset River and its tributaries, further "detailed investigations of pollution problems" leading to greater restoration of this important resource.

Project Partners and Funding

CRWP partners include: CT DEP, US EPA, USGS, USDA/NRCS, Middlesex and Tolland County SWCDs, River Watch Network, Connecticut River Watershed Council, UConn Cooperative Extension System, The Nature Conservacy, area universities, and watershed municipalities, all of which are represented on the program's advisory committee.

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Contacts

For more information regarding the Connecticut River Watch Project contact:

Jane Brawerman, CT River Watch Program
(860) 346-3282 jane-brawerman@ct.nacdnet.org

Ernest Pizzuto, CT DEP Monitoring & Assessment
(860) 424-3715 ernest.pizzuto@po.state.ct.us

Guy Hoffman, CT DEP Monitoring & Assessment
(860) 424-3733 guy.hoffman@po.state.ct.us

Stan Zaremba, CT DEP NPS Coordinator
(860) 424-3730 stanley.zaremba@po.state.ct.us

Deb Frey, CT DEP NPS Fiscal Administration
(860) 424-3810 deborah.frey@po.state.ct.us

Mel Cote', US EPA CT NPS Coordinator
(617) 918-1553 cote.mel@.epa.gov

CT DEP and US EPA websites
http://dep.state.ct.us
http://www.epa.gov/owow/nps/education.html

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Connecticut Department of Environmental Protection
Bureau of Water Management, Planning & StandardsDivision
Nonpoint Source Management
79 Elm Street, Hartford, CT 06106-5127
(860) 424-3726