NONPOINT SOURCE SUCCESS STORY

New Jersey

Riparian Restoration Projects Improve Water Quality in the Lower Musconetcong River

Waterbody Improved

A loss of riparian buffers, combined with increased stormwater runoff, led to elevated erosion rates and high sediment levels in the lower Musconetcong River. As a result, 14 miles of the lower Musconetcong River was placed on the 2010 New Jersey's Clean Water Act (CWA) section 303(d) list of impaired waters for total suspended solids (TSS) on the basis of data collected between 2000 and 2004. The North Jersey Resource Conservation & Development Council (NJRC&D) and Musconetcong Watershed Association initiated riparian restoration projects along sections of Musconetcong River and its tributaries, which improved water quality in the lower Musconetcong River. As a result of this effort, the Musconetcong (below Warren Glen) assessment unit was delisted for TSS impairment in the 2012 New Jersey Integrated Water Quality Monitoring and Assessment Report.

Problem

The Musconetcong River, a tributary of the Delaware River, is approximately 42 miles long with a drainage area of about 158 square miles (Figure 1). The Musconetcong River flows through parts of Sussex, Morris, Warren and Hunterdon counties within the Highlands region in northwestern New Jersey. This area is an important recreational resource, characterized by rolling hills, agricultural operations and forested areas. The Musconetcong River (below Warren Glen) assessment unit, approximately 14.2 miles long (HUC14 02040105160070-01), is classified as a trout maintenance waterbody. This lower portion of the Musconetcong River is dominated by forests, agricultural operations and a significant amount of suburban development along its corridor. Early characterization efforts of this watershed indicated that a loss of riparian buffers throughout the watershed was negatively affecting water quality. New Jersey's water quality standards for the protection of aquatic life in trout maintenance waters requires maximum TSS concentrations of less than 25 milligrams per liter (mg/L). Data collected between 2000 and 2004 indicated that this standard was not being met, leading to the placement of this segment on New Jersey's 2010 CWA section 303(d) list of impaired waters.

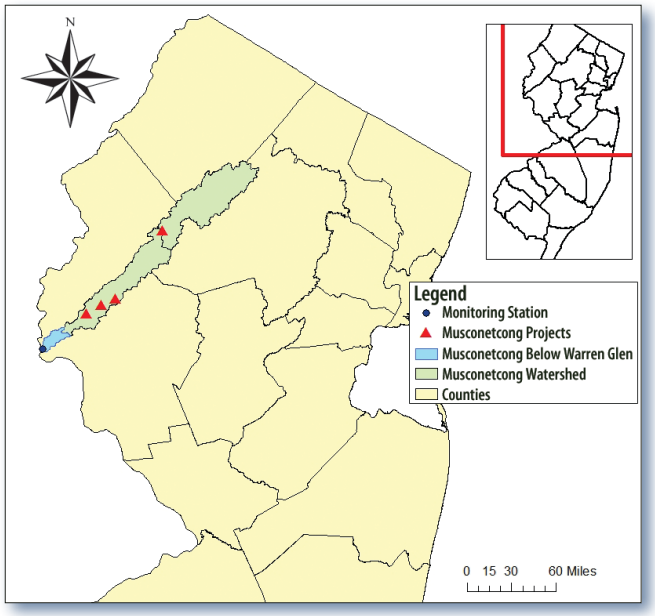

Figure 1. The Musconetcong River watershed is in northern New Jersey. The Musconetcong (below Warren Glen) assessment unit is at the base of the watershed.

Project Highlights

In 2000 the New Jersey Department of Environmental Protection (NJDEP) launched a statewide watershed initiative that supported and expanded local partnerships within each of the state's 20 watershed management areas. As part of this statewide initiative, a restoration effort was targeted for the Musconetcong River watershed. NJRC&D completed four riparian restoration projects (e.g., riparian tree plantings) in the Musconetcong River watershed between October 2001 and May 2006 (Figure 2). A Watershed

Figure 2. A restoration project on Bowers Brook at the M&M Mars Site in Hackettstown transformed a low-quality, turf-grass riparian area (top photo, as seen in September 2001) into a healthy, wildlife-friendly riparian corridor (bottom photo, as seen in July 2003).

Ambassador, stationed at the NJRC&D office, assisted with implementing and maintaining riparian restoration projects, performing stream visual assessments, and conducting numerous educational programs in the watershed. These restoration projects were part of a larger collaborative watershed approach that included watershed education and outreach components to expand awareness in the region. Partnership projects and community service opportunities were instituted by the NJDEP's AmeriCorps New Jersey Watershed Ambassadors Program during this period.

Results

The restoration activities contributed to water quality improvements. The NJDEP's ambient monitoring data collected in the Musconetcong (below Warren Glen) assessment unit between January 1, 2006, and December 31, 2010, demonstrated that this waterbody was meeting the TSS standard (25 mg/L). The improvement in water quality can be seen in sampling data from sampling stations DRBCNJ0025 and 01457400, which show a decreasing number of samples exceeding the maximum allowable pollutant concentration over time (Figure 3). As a result, New Jersey removed the Musconetcong (below Warren Glen) assessment unit from its 2012 list of impaired waters for TSS.

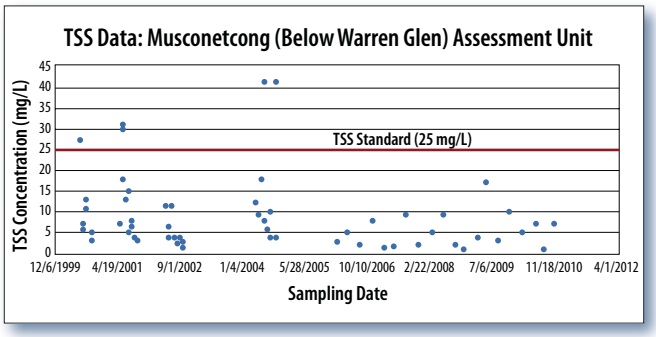

Figure 3. The improvement in water quality can be seen in sampling data from stations DRBCNJ0025 and 01457400 which show that all samples met the TSS criterion after completion of the restoration projects in 2006.

Partners and Funding

In 2000 NJRC&D was awarded a $180,000 CWA section 319(h) grant to initiate riparian buffer restoration within the Musconetcong watershed. In 2001 NJRC&D was awarded a $412,000 CWA section 319(h) grant to implement riparian restoration projects and create an open space acquisition program throughout the northwest section of New Jersey (Upper Delaware Water Region). This project involved the creation of a Riparian Advisory Committee composed of various federal, state, county and local government officials; representatives from the agricultural, lake and educational communities; the Musconetcong Watershed Association; and interested watershed residents. Four riparian restoration projects were completed between October 2001 and April 2006 in the Musconetcong River watershed at a cost of approximately $160,000, which was a subset of the 2000 and 2001 grants. These restoration projects were completed with assistance and volunteer participation from local stakeholder participants and the Musconetcong Watershed Association.

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