



## Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# New York

## Implementing Agricultural Best Management Practices Restores Upper Tonawanda Creek

### Waterbody Improved

Nutrients and sediment in runoff from agricultural activities and other nonpoint sources impaired the water supply use for the upper portion of Tonawanda Creek in Wyoming and Genesee counties in New York. As a result, the New York State Department of Environmental Conservation (NYSDEC) included this segment on the New York State Priority Waterbodies List in 1996 and added it to the Clean Water Act (CWA) section 303(d) list of impaired waters in 2004 for silt and sediment. The soil and water conservation districts (SWCDs) in both counties worked with farmers to install agricultural best management practices (BMPs) to reduce sediment and nutrient pollutant loads in the watershed. The upper portion of Tonawanda Creek now meets water quality standards for total dissolved solids, prompting NYSDEC to remove it from New York's list of impaired waters in 2012.

### Problem

New York's Tonawanda Creek is a 101-mile-long tributary to the Niagara River. The creek drains approximately 631.9 square miles, making its watershed one of the largest in western New York. The watershed drains portions of Wyoming, Genesee, Niagara and Erie counties, as well as the Tonawanda native reservation area. The principal land use in the watershed is agriculture (45 percent; primarily dairy, vegetable crops and cash crops), followed by forest (27 percent), urban/residential (17 percent) and wetlands (11 percent). Tonawanda Creek flows through the former lake bed of the prehistoric Glacial Lake Tonawanda, and many of the wetlands in the watershed are remnants of that earlier time.

In 2004 NYSDEC added the Upper Tonawanda Creek and Minor Tributaries assessment unit (which includes approximately 255 stream miles upstream of the city of Batavia) to the CWA section 303(d) list of impaired waters for failing to support its water supply use because of elevated levels of silt and sediment (Figure 1). New York's water quality standards for total dissolved solids (TDS) require that levels remain below 500 milligrams per liter (mg/L). (TDS is a surrogate for silt and sediment.) Water quality monitoring data collected in 1993 and 1994 indicated that TDS levels in the upper portion of Tonawanda Creek regularly exceeded the state's water quality standard, with maximum values of approximately 800 mg/L. The major sources of the silt and sediment were agriculture and streambank erosion.

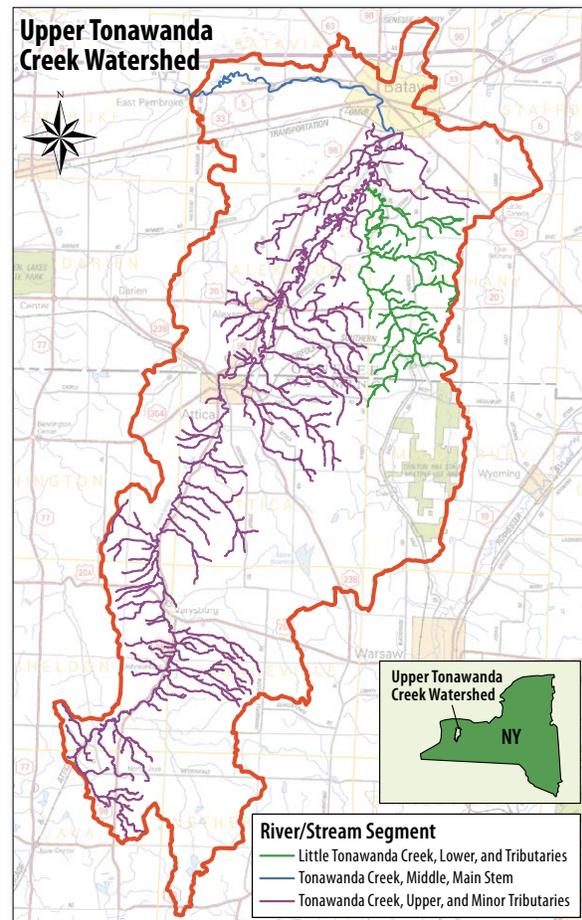


Figure 1. Upper Tonawanda Creek watershed.

## Project Highlights

New York's Nonpoint Source Management Program (NPS Program) established a network of County Water Quality Coordinating Committees in the early 1990s. Each county committee assessed its county's nonpoint source and water quality management priorities and developed County Water Quality Strategies to address them. The strategies developed for both Wyoming and Genesee counties identified the Tonawanda Creek watershed as a high priority. Subsequently, both counties completed County Agricultural Environmental Management (AEM) Strategic Plans, which identify agricultural nonpoint source concerns in the priority watersheds and prioritize the BMPs needed to address the concerns.

To support these strategic plans, the Tonawanda Creek Watershed Agricultural BMP Implementation Project was initiated in 2001. In the first phase of the project, detailed AEM assessments were completed on 68 farms to inventory current farming activities and potential environmental concerns, assess and prioritize areas of concern, and develop conservation plans to address these concerns and farm goals. After completing AEM assessments, project partners began implementing agricultural BMPs within the watershed. Since 2006 New York Environmental Protection Fund (EPF) grants have supported implementation of a wide range of conservation practices to address nutrients and sediments on 12 farms in the upper portion of the Tonawanda Creek watershed. The BMPs have included conservation tillage practices, cover cropping, pasture and grazing management, fencing, livestock water supplies, filter strips, barnyard management systems, silage leachate management systems, and waste storage and transfer systems. The Tonawanda Creek watershed remains a high priority in updated water quality strategies and AEM strategic plans for this area; therefore, it will be considered for future funding support through EPF and other New York State grant programs.

## Results

The Wyoming County and Genesee County SWCDs' activities to support agricultural BMP implementation reduced soil erosion, sedimentation and nutrient losses from farms and contributed to improvements in water quality in Upper Tonawanda Creek (Figure 2). Water quality sampling conducted in 2006 showed average TDS values of approximately 270 mg/L, with a maximum value of 302 mg/L. These concentrations were significantly below the 500 mg/L standard. In 2010 additional biomonitoring



Tonawanda Creek Watershed Committee

Figure 2. Implementing best management practices have led to water quality improvements in upper Tonawanda Creek.

continued in the watershed to track water quality improvements. On the basis of these data, NYSDEC removed the Upper Tonawanda Creek and Minor Tributaries assessment unit from the CWA section 303(d) list of impaired waters in 2012.

## Partners and Funding

A comprehensive partnership between the Wyoming County and Genesee County SWCDs, regional and state agencies, and citizen and farmer groups has helped to implement BMPs and has led outreach and education efforts related to improved management practices. The two phases of the Tonawanda Creek Watershed Agricultural BMP Implementation Project were supported by \$943,029 in Agricultural Nonpoint Source Implementation Program funds provided through the New York EPF. The EPF provides the state's CWA section 319 matching funds. Landowner and sponsor matches contributed an additional \$704,295 for agricultural projects in the Tonawanda Creek watershed. The nonpoint source BMPs implemented in the watershed are consistent with the New York Nonpoint Source Program's *Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State*.

The Tonawanda Creek Watershed Committee was formed in 2010 to continue the mission to protect, conserve and restore the quality of Tonawanda Creek and its watershed. This committee is a multi-county alliance (Wyoming, Genesee, Erie and Niagara counties) that includes state, local and tribal officials and interested citizens. Its work is critical to maintaining the quality of portions of Tonawanda Creek that have shown improvements and to continuing to restore Lower Tonawanda Creek.



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