



## Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# Vermont

## Improved Management of Farm Drainage Restores Taft Brook

### Waterbody Improved

Silage and milkhouse waste from a nearby farm degraded biological communities in a 0.1-mile section of Taft Brook. As a result, Vermont placed the stream on its 303(d) list for aquatic life use impairments due to excessive nutrients. Cooperation among the farm owner and other partners resulted in the construction of a waste storage system, which eliminated the cause of impairment. The Vermont Department of Environmental Conservation (VT DEC) expects to remove Taft Brook from its 303(d) list in 2006.

### Problem

Taft Brook, a 6-mile stream in the northern Vermont town of Westfield, is a tributary within the Missisquoi River watershed. VT DEC classifies Taft Brook as a Class B water—a designation defined as “suitable for bathing and recreation, irrigation and agricultural uses; good fish habitat; good aesthetic value; acceptable for public water supply with filtration and disinfection.”

In 1999, VT DEC monitored macroinvertebrates in Taft Brook using several different measures, including the EPT index—a measure of pollution-sensitive, aquatic insects inhabiting a waterbody. Streams showing high EPT richness are less likely to be polluted than streams showing low richness in the same geographic region. In addition, VT DEC evaluated Taft Brook’s biotic integrity (BI), which measures the presence of pollution-tolerant species. High BI values characterize streams with poor water quality and dominated by pollution-tolerant species.

Biomonitoring revealed that a 0.1-mile segment of Taft Brook had low EPT richness and high BI. These findings, along with other biomonitoring results, put the segment in noncompliance with Vermont Class B water quality standards for aquatic life support. As a result, Vermont

placed Taft Brook on its 303(d) list of impaired waters in 2000. VT DEC identified the drainage of nutrient-rich milkhouse and silage wastes from an adjacent farm as the likely cause of impairment.

### Project Highlights

Technical assistance staff from the Winooski Natural Resources Conservation District contacted the owner and operator of the nearby farm in 1999. The farm owner then applied for and received cost-share assistance from the U.S. Department of Agriculture (USDA) and the Vermont Agency of Agriculture to construct a waste storage system. The concrete storage lagoon was installed later that same year, accommodating drainage from the milkhouse and silo areas as well as manure wastes. This eliminated the source of nutrients contaminating Taft Brook.

### Results

In 2004, macroinvertebrate sampling found a decrease in pollution-tolerant species and an increase in sensitive species. The accompanying table shows the improvement in Taft Brook’s biomonitoring results and compares them with Class B water guidelines for aquatic

life support. Data highlighted in bold indicate the waterbody's failure to meet the Class B guidelines. As data from 2004 show, BI improved from 6.88 to 4.40, and EPT rose from 9.0 to 18.0—both within the guidelines for Vermont's Class B waters. Primarily because of the improvements to these key measures, VT DEC gave Taft Brook an overall assessment rating of "good," a passing grade under Vermont's water quality standards.

With the segment in compliance with aquatic life support criteria, VT DEC expects to delist Taft Brook in 2006. The waterbody is scheduled to be monitored again in 2009.

## Partners and Funding

Entities contributing to the design and construction of the waste storage facility included the USDA, which provided \$40,000 in cost-share funding; the Vermont Agency of Agriculture, which provided \$26,000 in cost-share assistance; and the farm owner, who contributed \$12,000. The Winooski Natural Resources Conservation District used \$500 in section 319 funding to provide outreach and technical assistance to the farmer. In addition, approximately \$2,000 in section 319 funding supported stream monitoring by VT DEC staff.

### Taft Brook Biomonitoring Results

Sampling site	Date	Assessment rating	EPT	BI
0.1	9/9/1999	Poor	<b>9.0</b>	<b>6.88</b>
0.1	10/26/2004	Good	18.0	4.40
Class B Guideline			> 16.0	< 4.50

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