



## Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# Vermont

## Area Residents Keep Shelburne Beach Open Unnamed Tributary to Shelburne Beach, VT

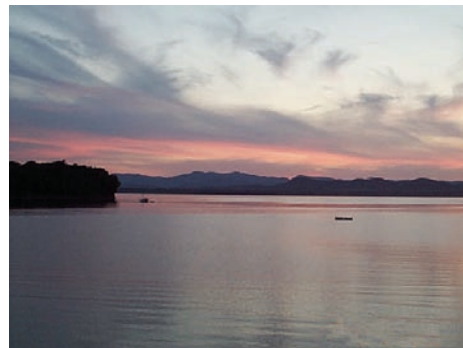
### Waterbody Improved

Bacteria leaking from residential septic systems caused exceedances of Vermont's *E. coli* criteria in a tributary to Shelburne Beach, resulting in occasional beach closures. As a result, Vermont placed the one-mile unnamed tributary on its section 303(d) list for *E. coli* in 1998. The Town of Shelburne identified the potential source of the bacteria, prompting improvements to a number of residential septic systems along the stream. Subsequent monitoring data showed that the stream and beach consistently met water quality standards, and the tributary was removed from the state's 303(d) list in 2004.

### Problem

Shelburne Beach is a town swimming beach on a central portion of Lake Champlain in the town of Shelburne, Vermont. The state has classified the beach and the unnamed tributary to the beach as class B waters—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.”

The town monitors *E. coli* levels at the beach, including at a station at the mouth of the tributary, about 20 times a year during the swimming season, to check for compliance with Vermont's *E. coli* criteria. The criteria are 77 colony-forming units (cfu) per 100 milliliters for Class B waters. Among other purposes, the *E. coli* standard is designed to protect human health by preventing exposure to harmful levels of pathogens. Monitoring results for a number of years in the mid- to late 1990s indicated occasional exceedances of the *E. coli* standard at the monitoring station at the tributary mouth, causing occasional closures of the beach. The high *E. coli* counts resulted in the state's adding the unnamed tributary to the 303(d) list in 1998.



Coordinated efforts by area residents to control bacteria levels permit the continual enjoyment of Shelburne Beach

### Project Highlights

In 1997 the town commissioned a study to find the source of the bacteria in the tributary, and the study identified six residential septic systems along the stream as the most likely source. Based on the findings of the study, the town encouraged the homeowners of concern to correct the deficiencies in their septic systems. Between 1998 and 2001, all six homeowners rebuilt their systems by installing new tanks and leach fields.

## Results

The data summarized in Table 1 show that the *E. coli* standard was exceeded occasionally during the years 1996 to 1999. Although data are not available for 2000 and 2001, the data for 2002 and 2003 (following septic system improvements) show that the Vermont water quality standards for *E. coli* were met 100 percent of the time during those years. Accordingly, the state removed the tributary from the 303(d) list in 2004.

## Partners and Funding

The restoration work in this case was funded by the Shelburne homeowners, who together spent approximately \$90,000 to rebuild their on-site septic systems. The Town of Shelburne supported this work with seasonal bacteria monitoring and funding for the study that identified the bacteria source. Vermont Department of Environmental Conservation staff, funded with section 319 funds, provided some technical assistance to the town during the source-tracking phase.

**Table 1. Summary of *E. coli* data at the mouth of the southern tributary to Shelburne Beach**

Year	Number of samples taken throughout the season	Number of samples that exceeded Vermont's <i>E. coli</i> criterion of 77 CFU/100 mL	Average <i>E. coli</i> count for samples that exceeded criterion(CFU/100 mL)	Number of days beach was closed to swimming
1996	31	1	240	1
1997	28	3	197	1
1998	26	3	3,033	4
1999	16	1	130	0
2002	21	0	--	0
2003	21	0	--	0



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