

OTTER TAIL LAKE, MINNESOTA

PROBLEM

The community around Otter Tail Lake in western Minnesota saw a decline in lake water quality. An environmental assessment revealed that substandard wastewater systems, untreated sewage discharges to surface waters, and intensive shoreline development contributed to high levels of phosphorus in the lake, causing elevated algae growth and an overall decline in water quality.

SOLUTION

The community formed a management district to identify and repair/replace malfunctioning systems and manage the wastewater treatment systems of four townships situated on six area lakes.

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OVERVIEW

Otter Tail Lake—a popular fishing and recreational lake—lies in the heart of Otter Tail County. Residential and commercial

development surrounds the majority of the lake. In 1984, the Otter Tail Water Management District (OTWMD) was formed under the authority of the Minnesota statute which governs the formation of subordinate sanitary sewer districts. The OTWMD assumed responsibility for maintaining 1,640 individual wastewater systems and 13 clustered systems. The program consists of:

- **Operating permit requirements**
- **Routine inspection and maintenance contract requirements**
- **Maintenance of a system inventory**
- **Collection of groundwater and surface water monitoring data**

ACTIVE OR PASSIVE MANAGEMENT

The district's authority includes planning, design, construction, operation, and maintenance of wastewater treatment systems. The district maintains systems for active (permanent) customers. Permanent systems are inspected every two years. System owners maintain passive (seasonal

use) systems, with oversight by the district and inspections every three years. The OTWMD contracts with independent, state-licensed, service providers in order to provide management services. The district also maintains a list of accepted installers and pumpers that homeowners can hire.

The preventive maintenance program includes inspecting tanks and checking lift stations to ensure proper functioning. The OTWMD has the authority to issue compliance orders and to assign repair costs and penalties to customers' property tax statements.

Monitoring wells around clustered drainfields sample groundwater quality. The OTWMD also conducts surface water monitoring.

FUNDING SOURCES

The annual operating budget for the OTWMD is \$200,000, funded by user fees ranging from \$43 for seasonal residences to \$151 for permanent residences. The district has one full-time and two part-time employees.

RESULTS

After the program's inception in 1984, the OTWMD upgraded 850 treatment systems. The district installed 16 clustered systems for 260 connections and repaired or

replaced 590 other treatment systems. The district also serviced a total of 350 other systems, including full inspections, septic tank pumping, and installation of new tank risers and covers. In the past decade, the district has replaced or repaired only 17 systems (out of nearly 1,500).

The district's actions resulted in documented water quality improvements. For example, surface water monitoring of the lake has revealed declining phosphorus and algae concentrations and overall improved water quality. Nitrate concentrations have dropped from 1 mg/L to approximately 0.2 mg/L; Secchi depth has increased from 2.4 feet to about 4 feet.

References and Resources

Christopherson, S. and Anderson, J., 2004. Twenty Years of Successful Onsite Wastewater Management, The Otter Tail, Minnesota Water Management District. National Onsite Wastewater Recyclers Association Conference, Albuquerque NM.

National Onsite Demonstration Program. No date. Phase IV Case Study. www.nesc.wvu.edu/NODP.

Population data—Otter Tail County Coalition of Lake Associations.