Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Minnesota

Phosphorus Reductions Achieved in Sauk River Chain of Lakes

Waterbody Improved

The Sauk River Chain of Lakes is an interconnected system of 14 bay-like lakes fed by the Sauk River in Central Minnesota. The Sauk River Chain of Lakes is impaired by phosphorus and total suspended solids due to row cropping and livestock operations, as well as discharges from on-site septic systems. Agricultural best management practices (BMPs) and upgrades to septic systems and municipal wastewater treatment facilities throughout the Sauk River Chain of Lakes watershed have reduced total phosphorus concentrations to 176 μg/L—nearly achieving the regional goal of 100–150 μg/L—representing a 48 percent decrease in total phosphorus loading.

Problem

Much of the watershed is intensely farmed with row crops and livestock operations as the main components of the economy. Over the past 25 years, the area has experienced continued growth as a popular recreation area. The transformation of homes around the lakes from smaller, seasonable cabins to larger, year-round residences has prompted concern over the impact on-site septic systems have on area water quality. In 2002 the state added the Sauk River Chain of Lakes to the 303(d) list for impairments from phosphorus.

Vegetative filter strips, installed along shorelines (lower picture), help reduce nutrient transport to the lakes.

Project Highlights

The Sauk River Chain of Lakes Watershed Management Project was initiated in 1997 to maintain and improve water quality by reducing the impacts of nonpoint source pollution. To reduce erosion and phosphorus runoff from agricultural areas, the project partners installed and improved 50 agricultural waste storage facilities, generated more than 40 Manure Management Plans, installed feedlot filter strips and retention basins, and enrolled more than 5,000 acres into the U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) Conservation Reserve Program. Vegetative buffer strips were planted and shoreline areas were restored to prevent erosion along riparian

areas. To address failing septic systems, project partners conducted an extensive outreach and education program to raise awareness about proper septic system maintenance. Low-interest loans from the State Revolving Fund were used to upgrade septic systems for 32 lakeshore residents and 2 resorts.

In addition to efforts to reduce phosphorus from nonpoint sources, in the early 1990s the Sauk River watershed was the first major watershed in the state to implement a watershed-wide phosphorus discharge limit of 1.0 mg/L for wastewater treatment facilities. Implementation of this standard contributed substantially to improvements in the Sauk River and allowed water quality improvements from projects made possible by the 319 program to become more evident.

Results

Total phosphorus concentrations have been reduced in the Sauk River Chain of Lakes from 300 to 1,200 µg/L in 1985 to 176 µg/L in 2002 and 2003, representing a 48 percent decrease in total phosphorus loading. A total maximum daily load has not yet been developed, but progress is being made toward the ecoregion average goal of 100-150 µg/L for total phosphorus. This progress has been made in spite of two decades of wet weather that has increased average annual flows by 30 percent, a factor that generally impedes measurement of improvements in water quality.

Partners and Funding

The Sauk River Watershed District (SRWD) was the official project sponsor and coordinating agency for the project. The SRWD worked with the USDA Natural Resources Conservation Service (NRCS), Stearns

Waste storage facilities at livestock operations help reduce nutrient runoff to the lakes. Project partners installed and improved 50 storage facilities.

County Soil and Water Conservation District, Minnesota Pollution Control Agency (MPCA), Minnesota Board of Soil and Water Resources, Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service, Stearns County Environmental Services, Sauk River Chain of Lakes Association, Joint Powers Association, Pheasants Forever Inc., Farm Service Agency, Sauk River Chain of Lakes Citizen Steering Committee (with representatives from the agricultural community, lakeshore property owners, and township board members), and local landowners.

Project costs since 1999 are estimated at $3.1 million. Section 319 provided $750,000 in funding to assist farmers with the installation of agricultural BMPs and the septic system maintenance education program. Other funding sources included $201,748 from the USDA NRCS Environmental Quality Incentives Program, $258,206 from the Minnesota state cost-share program, $465,221 from MPCA Clean Water Partnership funds, and $1.4 million in loans from the Clean Water Act State Revolving Fund.

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