Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Iowa

Nine Eagles Lake Overcomes Siltation and Turbidity Problems

Waterbody Improved

Even though the Nine Eagles Lake watershed lies within Nine Eagles State Park and is almost entirely forested, erosion has created siltation and turbidity problems in the lake. Sediment basins were constructed to slow sediment delivery to the lake, and trails were reworked to reduce erosion. Post-project monitoring data reveal an 85 percent reduction in sediment delivery, exceeding the 50 percent reduction goal set by the total maximum daily load (TMDL).

Problem

In 1998 Iowa included Nine Eagles Lake on the state's 303(d) list due to high turbidity. The main cause of turbidity in the lake is colloidal clays, which remain suspended for long periods. The Iowa Department of Natural Resources (IDNR) completed a forestry management plan for the state park area in February 2001. A detailed assessment of the area identified improperly maintained trails and failing sediment ponds as two of the leading causes of erosion.

Project Highlights

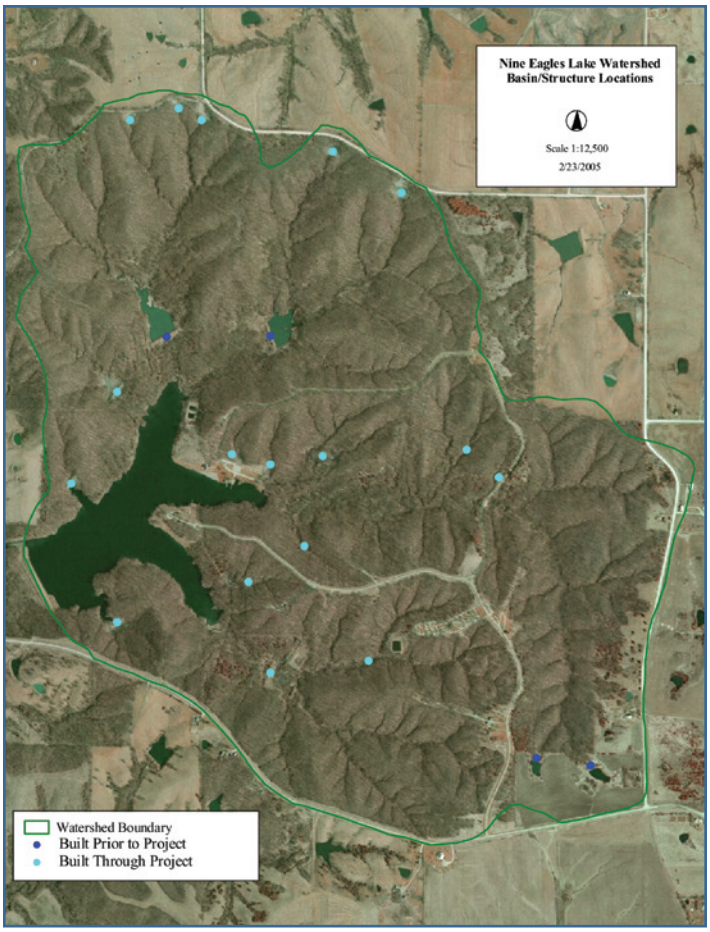
In 2001 EPA approved a TMDL for turbidity in the Nine Eagles Lake watershed. The TMDL established water clarity targets (as measured by a Secchi disk depth) of 1.25 meters and a 50 percent reduction in sediment delivery.

To accomplish these goals, IDNR developed an implementation plan for Nine Eagles Lake focusing on reducing sediment delivery in the watershed. Section 319 grant funds were used to construct 17 sediment basins. In 2003 the IDNR Parks Bureau rerouted and reworked some of the trails to reduce impacts. Throughout the project, care was taken to protect the forested areas, home to the endangered Indiana bat.

Nine Eagles Lake is a popular recreation area where visitors enjoy swimming, boating, and fishing.

Results

To evaluate the impact of the project, bathymetric mapping was used to map the original lake bottom and the depth of sediment deposits. Further monitoring of Nine Eagles Lake took place in 2000–2004 as part of the Iowa Lakes Survey.



Seventeen new sediment basins were constructed using section 319 funds.

After installation of the new sediment control structures, monitoring data indicated an 85 percent reduction in sediment delivery to Nine Eagles Lake, surpassing the TMDL target of a 50 percent reduction. The average Secchi disk depth increased to 1.7 meters (n=14), exceeding the TMDL target of 1.25 meters. Because the TMDL targets for sediment delivery reduction and Secchi disk depth have been met, IDNR has removed Nine Eagles Lake from the next 303(d) list of impaired waters for turbidity.

Partners and Funding

Many bureaus within the IDNR worked together throughout this project, including the Nonpoint Source Program, Forestry Bureau, Fisheries Bureau, Parks Bureau, and TMDL program. IDNR also called on the expertise of the U.S. Geological Survey to use benthic mapping to show the original lake bottom and the depth of sediment deposited in the lake. Section 319 grant funds totaling $139,689 provided the necessary funds to construct sediment basins throughout the watershed.

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