Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Iowa

Sediment Basins at Slip Bluff Lake Reduce Sediment by 85 Percent

Waterbody Improved Even though 70 percent of Slip Bluff Lake's 240-acre watershed lies within Slip Bluff Lake Park, erosion occurring throughout the watershed created a sediment problem in the lake. Sediment control basins were constructed throughout the watershed to slow sediment delivery, and the lake's shoreline was stabilized with riprap. Sediment delivery was reduced by 64 percent, exceeding the 50 percent goal set by the total maximum daily load (TMDL).

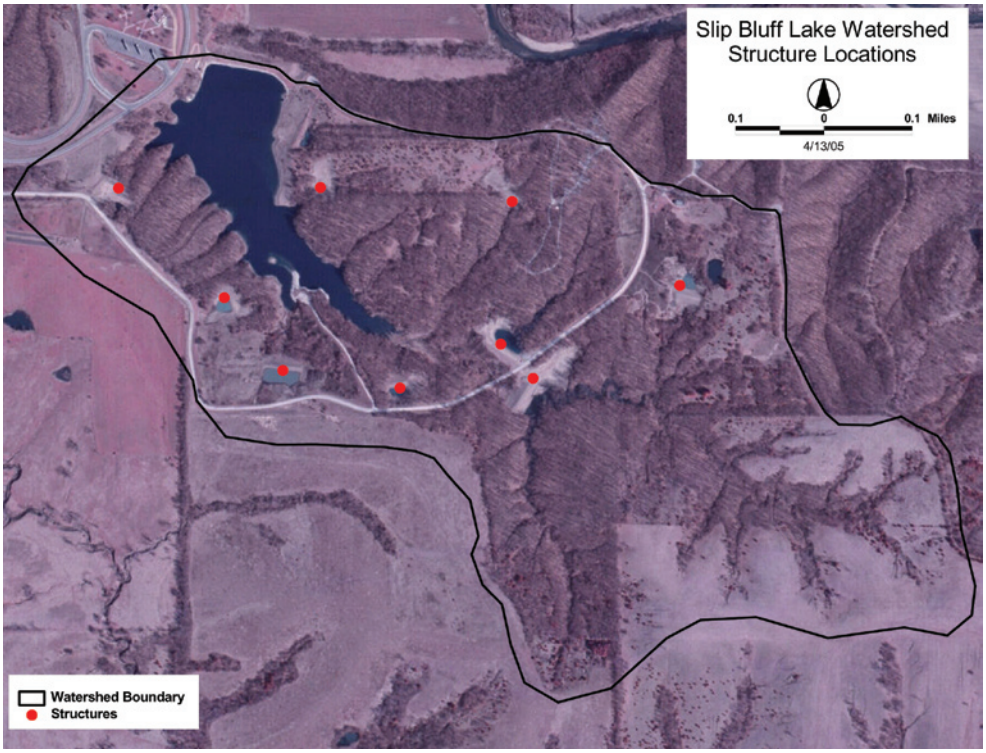
Problem

Iowa included Slip Bluff Lake on the state's 1998 303(d) list because of impairments due to siltation. The main source of sediment delivery to the lake was gully and streambank erosion in the forested areas of the watershed. This erosion contributed colloidal clays, which stay in suspension for long periods. Shoreline erosion was also contributing large amounts of sediment to the lake.

Project Highlights

In August 2001 EPA approved a TMDL for siltation that called for a 50 percent reduction in sediment delivery to the lake. To accomplish this goal, the Decatur County Conservation Board and the Decatur Soil and Water Conservation District proposed the construction of two large basins to slow sediment delivery originating from gully erosion. The Iowa Department of Natural Resources' (IDNR) Nonpoint Source Pollution Program provided further suggestions to address the problem using a watershed approach. As a result, the plan was expanded to include seven smaller sediment basins throughout the watershed. To further stabilize the shoreline of Slip Bluff Lake, the Iowa Department of Transportation and the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation (IDALS-DSC), provided funds to riprap portions of the shoreline.

Sediment basins prevent excess sediment from reaching the lake by collecting runoff water and allowing sediment to settle out of the water and be deposited in the sediment basin.



Sediment control structures were constructed throughout the watershed to reduce sediment delivery to the lake.

To ensure the continued success of this project, the Decatur County Conservation Board maintained the project by planting additional seedings in exposed soil on the constructed sediment basins.

Results

Following the installation of the sediment basins, sediment delivery to Slip Bluff Lake was recalculated. Monitoring data indicate a 64 percent reduction in sediment delivery, exceeding the 50 percent goal set by the TMDL. The sediment reduction also resulted in a 50 percent improvement in water transparency. Slip Bluff Lake is no longer listed on the Iowa 303(d) list for sediment.

Partners and Funding

IDALS-DSC Watershed Protection Program Funds totaling $35,000 covered the cost of constructing the two large sediment basins, and IDNR, through section 319, provided $31,219 for the construction of the seven smaller sediment control structures. The Decatur County Conservation Board provided additional project funding, and IDALS-DSC and the Iowa Department of Transportation provided funds for riprap of portions of the shoreline. The IDNR Fisheries Bureau helped determine the impact of the project by conducting an aquatic life assessment at Slip Bluff Lake.

U.S. Environmental Protection Agency
Office of Water
Washington, DC

EPA 841-F-05-004E
July 2005

For additional information contact:

Richard Erke
Decatur County Conservation Board
641-446-7307

Kevin Reynold
Natural Resources Conservation Service
641-446-4135

Ubbo Agena
Iowa Department of Natural Resources
515-281-6402