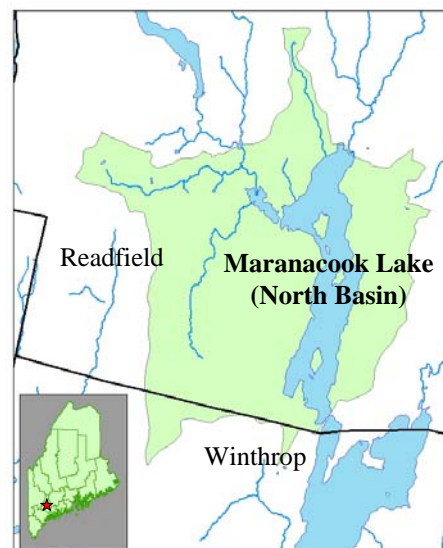


Maranacook Lake (North Basin) Drainage Stabilization Project

#2001R-26A - WIFAP

Waterbody Name: Maranacook Lake - North Basin
Location: Readfield - Kennebec County
Waterbody Status: NPS Priority Watershed, Most At Risk
Project Grantee: Kennebec County SWCD
Project Duration: January 2002 – November 2004
319 Grant Amount: \$54,000
Local Match: \$31,109 (local) \$36,000 (ME Dept. Ag.)



PROBLEM:

The north basin of Maranacook Lake is located almost entirely in Readfield. The lake is the secondary drinking water supply for Winthrop. The North Basin has a surface area of 595 acres and a 12.7 square mile watershed. The North Basin flows into the south basin. The south basin flows to Annabessacook Lake and then to Cobbossee Lake.

The North Basin is heavily developed and has 92 year-round homes, 178 seasonal homes and a summer youth camp. Approximately 21 camp roads lead to the north basin from three primary or secondary roads. Water quality is threatened by increasing development and year-round home conversions. The water quality of the basin is considered average based on monitoring information since 1976. Oxygen depletion occurs annually at depths below 20 feet. This condition allows for phosphorus to be released from bottom sediments, adding to the level of phosphorus in the water and rendering the cooler bottom waters unusable by fish. The potential for nuisance algal blooms is above average.

PROJECT DESCRIPTION:

An NPS watershed survey conducted in 2000 documented 108 erosion sites in the watershed. The project goal was to install BMPs at the highest priority erosion sites to reduce sediment and phosphorus getting into the lake and protect the water quality of the North Basin.

The project initially focused on a single 124-acre catchment on the east side of the lake. Here, an old raised railroad bed intercepts nearly all of the drainage and concentrated water at several box culverts under the railroad bed. This drainage area had several chronic erosion sites and a very large gully that created a visible sediment delta in the lake and had evidently deposited hundreds of tons of soil over several decades. After extensive onsite design consultations, the District determined that BMPs needed to stabilize the gully were considerably less expensive than originally anticipated. Therefore, KCSWCD



expanded the project to install BMPs at many more of the highest priority NPS sites in the watershed, involving severe erosion and sedimentation from 1 town road, 5 camp roads and shoreline stabilization.

PROJECT OUTCOMES:

- Gully BMP design changes and donated labor services provided by The Friends of Cobbossee Watershed Conservation Corps enabled the District to expand the project to the entire North Basin watershed and fix additional NPS sites.
- Most of the project funds were used to achieve on-the-ground installation of BMPs. Forty -one (41) erosion control BMPs were installed at 8 high priority NPS sites. BMP installations occurred on portions of 6 gravel roads over about 2 miles, including new or improved road ditches (1.6 miles), road surface grading, culverts, ditch turnouts, etc. A total of 836 feet of shoreline was stabilized with the involvement of 8 landowners. Additionally, one large eroding gully was stabilized.
- Sediment loading into the North basin was reduced by roughly 125 tons/year (about 93 cubic yards of sediment). That's equivalent to about eleven (8 yard) dump trucks! The one gully site caused most of this sedimentation (108 tons/year). Two methods used to estimate load reductions: EPA Region 5 Model (gully erosion equation) and the internet based program, WEPP (Water Erosion Prediction Project) Interface for Predicting Forest Road Runoff, Erosion, and Sediment Delivery.
- Community cooperation and response to this project was excellent. Under the WIFAP program, the District secured funding for Phase 2 (# 2004R-26A) to install BMPs at NPS sites and outreach to watershed residents. The project helped the community recognize the need and value of developing a locally-supported watershed management plan (FMI, NPS Project #2004P-08).



PROJECT PARTNERS:

Town of Readfield

Friends of Cobbossee Watershed

Numerous Landowners

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