

Highland Lake Conservation Project, Phase II

#2004R-03

Waterbody Name: Highland Lake

Location: Falmouth, Windham, Westbrook –
Cumberland County

Waterbody Status: Impaired, NPS Priority Watershed, Most at Risk

Project Grantee: Cumberland County SWCD

Project Duration: April 2004 – March 2008

319 Grant Amount: \$225,636

Local Match: \$180,117



PROBLEM:

Highland Lake covers 623 acres, has a maximum depth of 67 feet, an average depth of 22 feet, and a flushing rate of 0.7 flushes per year. Its watershed covers 8.4 square miles and is part of the Presumpscot River Watershed. The Maine DEP and Highland Lake Association (HLA) volunteers have monitored Highland Lake's water quality since 1974. The lake was placed on the State's list of impaired waters due to a declining water quality trend. Dissolved oxygen levels in the lake's bottom layer are also at critically low levels, threatening the lake's trout population, which needs cold oxygen-rich water to survive.

Efforts have been underway for several years to address this decline. Cumberland County SWCD and HLA volunteers completed a watershed survey in 1997 and identified 104 erosion sites (42% private roads, 13% state and town roads, and 24% residential). Cumberland County SWCD created the *Highland Lake Watershed Management Plan* in 1999 and carried out a grant project from 1999 - 2002 to install BMPs on both residential and road sites. The Highland Lake Youth Conservation Corps (YCC) formed through this project and installed BMPs on 88 sites in the watershed during 2000 - 2002. The lake's TMDL report was completed in 2003.

PROJECT DESCRIPTION:

The primary purpose of this project was to significantly reduce erosion and export of sediment and phosphorus into Highland Lake by installing conservation practices at NPS sites throughout the watershed. Project staff worked with road associations and residents to fix 13 priority road sites. Matching grants were provided to 50 landowners to install buffers and other conservation practices, and the Highland Lake YCC provided labor on many of the projects. Technical assistance visits were provided to 145 landowners.

The project also raised awareness through a Cruise the Buffers tour; presentations at two HLA annual meetings and the Towns of Windham and Falmouth; two hands-on workshops; watershed signs and numerous articles in newsletters and local newspapers. The work plan was extended for an additional year due to an \$85,000 project amendment in 2005 and a \$36,000 Stormwater Compensation Fee Fund Project awarded in 2007.



PROJECT OUTCOMES:

- 13 priority road sites were stabilized and improved through the project. In total, the project resulted in the installation of 1470 feet of ditches, 425 feet of swales, nine new culverts, two settling basins, three plunge pools, nine turnouts, and one French drain. In addition, 4,625 linear feet of pavement was installed; 450 linear feet of road surface was improved with new material, crowning and grading; and five existing culverts were stabilized with riprap.
- Pollutant loading to Highland Lake was reduced by an estimated 143 tons of sediment and 105 pounds of phosphorus per year (EPA Region 5 Method).
- Residential and Plant Matching Grants (\$100) were awarded to 51 landowners and resulted in the installation of numerous conservation practices including 1,000 shrubs, trees and groundcovers.
- Approximately 30 volunteers attended three hands-on workshops during the project. Participants increased their knowledge about lakefront buffers, rain gardens, and using the Frontrunner to properly grade, crown, and maintain gravel roads.
- Funding from this project supported the continuation of the Highland Lake Youth Conservation Corps program that installed over 200 conservation practices on 54 residential properties and 32 private road sites.



Overlook Drive - before



Overlook Drive - after

PROJECT PARTNERS:

Highland Lake Association
Highland Lake Youth Conservation Corps
Maine Department of Transportation
Towns of Westbrook, Falmouth and Windham

CONTACT INFORMATION:

Don Kale, DEP – (207) 822-6319, Donald.Kale@maine.gov
Betty Williams, Cumberland County SWCD – (207) 892-4700, betty-williams@cumberlandswcd.org

Suggested Citation:

Maine Department of Environmental Protection (2009) “Nonpoint Source Management Program 2008 Annual Report,” Document# DEPLW-0973 2009. Augusta: MDEP.