Document #DEPLW0701 2005

Maine Department of Environmental Protection

Nonpoint Source Management Program Annual Report

2004

"CLEAN WATER STARTS WITH YOU"

March 31, 2005

Maine Department of Environmental Protection
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Table of Contents

The Maine Department of Environmental Protection acknowledges that preparation and publication of this report was funded, in part, with monies provided by the U.S. Environmental Protection Agency under Section 319 of the Federal Clean Water Act.

A.Nonpoint Source Management Program Summary

Nonpoint source (NPS) pollution is a challenging water quality problem in Maine and throughout America. NPS pollution comes from a variety of sources, including construction sites, roads, residential homes and agriculture, among others. Its make-up is varied as well, ranging from sediment to excess nutrients, to bacteria and toxic substances, and to increased water temperature. NPS pollution is typically conveyed to surface waters via runoff during storm events. It is the main reason why over 250 lakes in Maine are listed as impaired or most at risk due to development. It is also a major cause of impairment for a number of streams and coastal waters, and it is the reason many more are threatened.

To help protect Maine's threatened waters and to restore NPS impaired waters, the Department of Environmental Protection (DEP) administers the Nonpoint Source Management Program for the State of Maine. DEP staff has helped watershed groups all over the state to assess water quality problems and to take action to reduce or remove sources of water pollution. During 2004 there were more than 100 active projects around the state that were funded through the 319 Nonpoint Source Grant Program, with each local project sponsor providing a minimum of a 40% match to the grant funds. These projects are reducing pollutant loads to Maine's surface waters.

NPS pollution ranges from sediment, nutrients, bacteria, toxic substances, and increased water temperature.

DEP also uses 319 funding for a number of programs that are designed to reduce NPS water pollution problems. Staff funded by 319 provide technical assistance to local watershed groups and run education and outreach programs for a variety of audiences, including developers, building contractors, municipal officials, school children and the general public. Funds support assessment work through the Volunteer Lake Monitoring Program and through stream sampling for benthic macro-invertebrates (i.e., bugs that live on stream bottoms). Funds are also used to develop Total Maximum Daily Load (TMDL) allocations for waters that are determined to be impaired, as required by Federal law. Approximately 20 NPS TMDLs have been completed over the past 5 years. This annual report will highlight these and many of the other programs supported by 319 funding.

319 Program - 2004 Highlights

- Sixteen new NPS Water Pollution Control Projects were funded through both a competitive grant process and through the Watershed Improvement Financial Assistance Partnership, which the DEP supports in partnership with the Maine Department of Agriculture and Maine's sixteen Soil and Water Conservation Districts.

- Twenty-one projects funded through the 319 program in previous years were successfully brought to completion. (See page 14 for project summaries.) Among those projects:

    - Restoration work was carried out on the following lakes and streams: Cobbossee Lake, East Pond, North Pond, Maranacook Lake, Meduxnekeag Lake, Mousam Lake and South Perley Brook.
    - Watershed management plans were created for Forest Lake and Tripp Lake.

- Watershed surveys to determine pollutant sources were carried out on Crystal Lake, Kennebunk Pond, Little Sebago Lake, Maranacook Lake, Meduxnekeag Lake, Togus Stream and Lake and South Perley Brook.
- A DVD and accompanying brochure were created to educate loggers, foresters, landowners and others on proper methods for constructing forest roads.

- Significant progress was also made on other 319 funded projects and programs. (See page 56 for DEP NPS program and project activity summaries) Some highlights include the following:
  - Over 1,300 people received training through the Maine Nonpoint Source Training and Resource Center on topics that included erosion control, stormwater management, septic system installation and inspection, road maintenance and lakeshore landscaping.
  - A project to acquire high resolution landcover data was initiated in June 2004. This project, being carried out in cooperation with the National Oceanic and Atmospheric Administration and with the U.S. Geological Survey will provide a 5-meter resolution impervious dataset for the developed areas of Maine and a 5-meter resolution landcover dataset for the entire state. The project is expected to be completed in the summer of 2005.
  - A statewide stormwater outreach campaign, ThinkBlueMaine, kicked off in 2004, which included 4 radio public service announcements (PSAs) and a television PSA. This project was carried out in collaboration with 28 municipalities that are subject to regulation under the NPDES stormwater program.
  - A new coordinator was hired for the Maine Nonpoint Education for Municipal Officials (NEMO) program. The program provided outreach on the linkage between land use and water quality to 22 communities and produced the "Maine Resources Guide" to provide natural resource related information to local officials.

B. Introduction

The Maine Department Environmental Protection (DEP) delivers services to control nonpoint source water pollution to help protect or improve Maine's lakes, streams, rivers and coastal waters. This report summarizes accomplishments of DEP's Nonpoint Source Program activities in 2004 funded, in part, under Federal Clean Water Act Section 319 program in partnership with the U.S. Environmental Protection Agency (EPA). DEP's NPS program services are guided by the Maine Nonpoint Source Program: Program Upgrade & 15 Year Strategy, which was adopted in 1999.

Since 1990, EPA has provided federal funds under Section 319(h) of the Clean Water Act to help States administer NPS management programs. States are obliged to use funds according to National NPS Program Guidelines published by EPA. Section 319(h)(11) requires States to report annually on progress in their nonpoint source management programs, report available information on reductions of nonpoint source pollutant loadings and report on improvements to water quality resulting from implementation of nonpoint source management programs.

DEP has overall coordination responsibility for the Maine Nonpoint Source Pollution Program (38 MSRA 410). Seven other state agencies share responsibility for coordinating and implementing NPS programs as a part of their programs. This report does not cover NPS work accomplished by the seven other state agencies.

C. Nonpoint Source Management Program

1. Overview: Maine NPS Management Program

In 1991, the Maine Legislature enacted a Nonpoint Source Water Pollution Management Program statute (38 M.R.S.A. §410-I) to restore and protect water resources from NPS pollution. The basic program objective is to promote the use of the State agency-defined "best management practice guidelines" (BMPs) to prevent water pollution.

The overall aims of Maine's NPS Water Pollution Control Program are as follows:

- **Clean Water.** Prevent, control, or abate water pollution caused by nonpoint sources so that beneficial uses of water resources are maintained or restored and waters meet or exceed their classification standards.
- **Using Best Management Practices.** Best Management Practices are widely used in all Maine's watersheds to minimize transport of pollutants or excessive runoff from the land into surface or ground waters.
- **Locally Supported Watershed Stewardship.** Local community awareness results in commitment to maintaining or improving the condition of local water resources through citizen action. Watershed stewardship meets community needs and maintains beneficial uses of local water resources.
- **Compliance with Applicable Laws.** Regulated activities are done in compliance with existing State and Federal laws and rules that relate to control of nonpoint source water pollution.

DEP administers the NPS Program in coordination with other State, federal, and local governmental agencies as well as non-government organizations. Seven other State agencies share responsibility for coordinating and implementing NPS programs: Maine Departments of Agriculture Food and Rural Resources; Conservation, Maine Forest Service; Transportation; Economic and Community Development; Human Services, Division of Health Engineering; Marine Resources, and the State Planning Office.

State agencies conduct programs that: (1) implement a variety of enforceable authorities (State laws, rules and municipal ordinances, governing specific land use activities or locations that require people to comply with certain performance standards to protect water quality); and (2) encourage voluntary usage of BMPs. The State NPS agencies have formal and informal working arrangements with other State and federal agencies, municipalities, non-governmental organizations, and business sector associations to help control or prevent water pollution for nonpoint sources.

Maine's lead NPS agencies encourage voluntary actions by governments, organizations, industry and individuals to prevent or minimize the discharge of NPS pollutants. Program resources are assigned to support efforts to improve and protect waters that are threatened or impaired by NPS pollution. Maine's lead NPS agencies provide technical assistance and information about BMPs to agencies, municipalities, businesses and individuals. The NPS Training and Resource Center at DEP provides information and technical training on usage of BMPs. DEP administers grants to help fund NPS Water Pollution Control Projects to prevent or reduce water pollution caused by nonpoint sources.

Statewide regulatory programs implement several laws that control potential sources of NPS pollution, including: the Stormwater Management Law; the Site Location of Development Law; Erosion and Sedimentation Control law; the State Subsurface Wastewater Disposal Rules; the Natural Resources Protection Act; Land Use Regulation in Unorganized Territories; Pesticide Control laws; the Mandatory Shoreland Zoning Law; the Nutrient Management Act, the Forest Practices Act and others.

For information about Maine Best Management Practice Guidelines go to:
http://www.maine.gov/dep/blwq/training/npspubl.htm#bmp

DEP NPS Management Activities

Watershed planning and management is an approach to protecting water quality and quantity that focuses on whole watersheds. This is a departure from the traditional approach of managing individual wastewater discharges, and is necessary due to the nature of polluted runoff, which in most watersheds is the biggest contributor to water pollution. Polluted runoff is caused by a variety of land use activities, including development, transportation, agriculture and forestry, and may originate anywhere in the watershed. Due to its diffuse nature, polluted runoff has not been effectively managed through regulatory programs alone.

Watershed planning and management involve a number of activities, including: targeting priority problems in a watershed; promoting a high level of involvement by interested and affected parties; developing solutions to problems through the use of the expertise and authority of multiple agencies and organizations; and measuring success through monitoring and other data gathering.

A watershed is all of the land that drains to a given waterbody. Long-term water quality protection of any waterbody requires coordinated stewardship in the entire watershed.

DEP watershed management activities are directed at the the state, river basin, or individual watershed level. Education and training programs, many of which are offered through the Nonpoint Source Training & Resource Center, are designed to reach citizens living and working in the individual watersheds. Technical assistance is also offered by DEP staff to local groups, who are interested in surveying sources of pollution within their watersheds, and/or in developing watershed management plans. The DEP administers several grant programs designed to offer non-profit organizations assistance in carrying out these activties.

At the basin level, the department organizes monitoring and assessment of water quality around the major river basins and bases wastewater license decisions on this information. At the state level, the DEP works with other state and federal agencies, and non-government organizations to establish lists of the highest priority lakes, rivers and streams, and coastal waters. This information is used to direct agency resources to these areas. In addition, the DEP administers permit programs to manage potential new pollution sources throughout the organized municipalities in the state, including the Site Location Law, Natural Resources Protection Act and the Stormwater Management Law.

2. Protecting Clean Waters & Restoring Impaired Waters

Section 319 continues to be a vital and significant portion of the DEP funds used to control NPS water pollution. Maine's NPS program especially values and relies on 319 funds to provide financial assistance for locally-driven watershed projects. In 2004 over one half of all Maine's 319 funds were passed-through to local organizations for NPS projects that help protect threatened waters or restore impaired waters.

DEP has focused its NPS program resources to help protect vulnerable, threatened waters that meet water quality standards and restore impaired waters. Maine has significant water quality protection and restoration challenges and relatively limited resources for its NPS programs. DEP prioritizes and balances the use of available NPS resources to protect or restore lakes, streams and coastal waters. The 2004 Water Quality Assessment indicates that Maine has far more threatened waters than impaired waters. Prevention of water pollution is a daunting challenge as our watersheds face increased development pressures over the years. DEP has learned that prevention of water pollution is far more feasible and cost effective than restoration of an already impaired waterbody. Therefore, DEP has invested a considerable portion of available NPS resources into protecting vulnerable threatened waters. Also, DEP invests resources in restoring waters that do not meet state water quality standards.

3. NPS TMDL Implementation

The Total Maximum Daily Load (TMDL) List names waterbodies in Maine that do not meet state water quality standards in accordance with Section 303(d) of the Clean Water Act. TMDL assessments are conducted by DEP to estimate how much pollution from point sources (e.g., industrial and municipal facilities that discharge to water bodies) and nonpoint sources (e.g., runoff due to urban activities, agriculture, forestry, septic systems, and air deposition) needs to be reduced in order meet state water quality standards. As of 2004, TMDL Assessments are complete for 24 waterbodies. Most of the waters (16 lakes and 2 streams) are impaired primarily due to nonpoint sources.

Each year DEP allocates a portion of Section 319 funds to help fund NPS Watershed Projects to implement BMPs to reduce pollutant loads to help restore impaired waters. During 2004 Section 319 funds were used to help sustain or startup NPS Water Pollution Control Projects to implement BMPs in 11 watersheds with approved TMDLs.

NPS Watershed Pollution Control Projects with Approved TMDL Assessment	
China Lake	Sabattus Lake
Cobbossee Lake	Threecornered Pond
East Pond	Threemile Pond
Highland Lake (Windham)	Unity Pond
Mousam Lake	Webber Pond
Sebasticook Lake	

In addition, DEP used 319 funds to start developing of watershed-based plans to guide future NPS implementation work in four TMDL watersheds: Penjajawoc Stream (Bangor); Highland Lake (Windham); Highland lake (Bridgton); and Webber Pond. The plans will be completed in 2005. For more information about TMDLs and impaired waters refer to http://www.maine.gov/dep/blwq/docmonitoring/tmdl2.htm.

4. Support for Local Watershed Stewardship Groups

Protecting or restoring Maine's clean waters can be accomplished by local residents of any watershed with technical and financial assistance from DEP and other partners. Local watershed stewardship groups are needed for any project, plan or outreach effort to really take hold because they can help additional local involvement in watershed management activities. As such, DEP invests considerable staff resources into helping local watershed groups get organized and carry out their goals and objectives. Building local capacity offers the best hope for sustaining actions to protect or restore our lakes, streams, rivers and coastal waters over the long term. For a list of local, regional and state-wide organizations and programs focused on waterbodies and their watersheds, go to http://www.maine.gov/dep/blwq/group.htm.

Building local capacity offers the best hope for sustaining actions to protect or restore our lakes, streams, rivers and coastal waters over the long term.

D. NPS Grants Program

1. Nonpoint Source Water Pollution Control Projects

DEP administers a grants program to offer Section 319 grant funds for watershed-based projects that take actions to help restore or protect lakes, streams, or coastal waters that are impaired or considered threatened by polluted runoff. NPS projects help local communities recognize water pollution sources in watersheds and take action to restore or protect clean water. Since 1999 DEP has given priority to projects designed to take action over an entire watershed to protect or improve water quality. DEP has issued grants to help fund three types of watershed-based projects:

- **NPS Watershed Project**. Project focuses on implementing actions within an entire watershed to improve or protect a waterbody. The project is designed so that BMPs are implemented in a manner that leads to a significant reduction in NPS pollutant load to a waterbody. The load reduction is intended to improve or protect water quality of a waterbody. A NPS Watershed Survey (or other NPS assessment of equivalent detail) is needed to design and implement this type of project.

- **NPS Watershed Survey.** Project focuses on finding, describing and prioritizing NPS pollution sources in a watershed, and recommends BMPs for treating identified NPS sites. NPS Watershed Surveys provide essential information for planning and implementing NPS Watershed Projects.

- **Watershed Management Plan Development.** Project to develop and produce a locally-supported "Watershed Management Plan" to prompt widespread use of BMPs to prevent or abate NPS pollution sources within a watershed. A Plan may be needed to prepare for NPS Watershed Projects involving relatively large watersheds, multiple NPS categories and several municipalities and stakeholder groups.

For examples of projects funded under this annual RFP (1998 - 2004) refer to "Summaries of NPS Pollution Control Projects" at http://www.maine.gov/dep/blwq/docgrant/319.htm.

NPS Grant Administrative Guidelines

In October 2004, DEP issued a revised Nonpoint Source Grant Administrative Guidelines to help grantees and the Department administer Grant Agreements for NPS projects. The Guidelines detail reporting requirements and other information to help Grantees administer a NPS Water Pollution Control Project to comply with a Grant Agreement. Contents include descriptions of: Grantee & DEP Responsibilities; Project Deliverables; Procurement; Cost Sharing; Problem Resolution; Changes In Work; Payments; Nonfederal Match; Progress Reports; Final Project Report; and Closeout of a Grant Agreement. The Guidelines and the attached forms are posted on the DEP website at: http://www.maine.gov/dep/blwq/docgrant/319.htm

2. NPS Water Pollution Control Projects Projects Funded in 2004

In 2004 DEP provided 319 grants to start-up or continue 11 NPS Water Pollution Control Projects. Ten projects received grants as an outcome of the annual NPS RFP issued in March 2003. DEP directed a grant to one project (Penjajawoc Stream).

Project ID#	Grantee	Project Title	Grant Amount	Match Amount
2004R-01	Cumberland County SWCD	Forest Lake Conservation Project I	59,635	49,715
2004R-02	Cumberland County SWCD	Little Sebago Lake Conservation Project I	99,839	75,104
2004R-03	Cumberland County SWCD	Highland Lake Conservation Project II	138,636	99,795
2004R-04	Knox-Lincoln SWCD	Clary Lake NPS Pollution Control Project	33,750	22,500
2004R-05	Belgrade Region Conservation Alliance	Messalonskee Lake Watershed NPS Remediation I	74,730	53,640
2004R-06	Kennebec County SWCD	Togus Watershed NPS Reduction Project	85,198	57,644
2004R-07	York County SWCD	Great Works River Watershed Management Plan	22,584	15,915
2004P-08	Cobbossee Watershed District	Maranacook Lake Watershed Management Plan	25,066	27,319
2004R-09	Time & Tide RC&D	Project to Develop a Sheepscot River Watershed Management Plan	62,565	42,490
2004P-10	Presumpscot River Watch	Piscataqua River (E. Branch) Watershed Survey	14,020	9,850
2003-34A	Bangor, City of	Penjajawoc Stream Watershed Management Plan Development	19,260	14,970
Totals:			**635,283**	**468,942**

3. Results: Request for Proposals – FY 2005 Grants for NPS Pollution Control Projects

In March 2004, DEP requested proposals for projects to help restore or protect lakes, streams, or coastal waters that are polluted or considered threatened. The funding source was anticipated FFY 2005 federal funds provided to Maine by EPA under Section 319(h). DEP allocated $580,000 for projects under the RFP. Public organizations such as state agencies, soil and water conservation districts, regional planning agencies, watershed districts, municipalities and nonprofit 501(c)(3) organizations were eligible recipients. DEP allocated 80% of available funds for NPS Watershed Projects. These projects focus on implementing "on-the-ground" actions in a watershed to improve or protect a waterbody. Also $200,000 were reserved for projects crafted to help restore impaired waters that has a TMDL assessment approved by EPA under Section 303(d) of the Clean Water Act .

In May, DEP received 31 proposals requesting a total of 1.5 million dollars. The proposals were generally very strong and demonstrate that numerous local community-based partnerships value clean water and are recognizing and finding solutions to NPS problems. DEP provided notice of award to all respondents advising that 18 projects will be funded with anticipated FFY 2005 monies provided to DEP by EPA. Grants were planned for March 2005 to enable start-up of projects in April. The following tables provide a summary of the results of this RFP. For more information, contact Norm Marcotte, DEP (207) 287-7727 or norm.g.marcotte@maine.gov.

Results – Request For Proposals
FFY 2005 Grants for Nonpoint Source Water Pollution Control Projects

Project Type	RFP Allocation Target	Funds Requested	Funds to be Awarded April 2005
Watershed Project	$460,000	$1,361,664 21 proposals	$503,003 9 projects
Watershed Survey or Watershed Management Plan	$120,000	$156,142 10 proposals	$111,666 9 projects
Totals	**$580,000**	**$1,517,806 31 proposals**	**$614,669 18 projects**

Projects Scheduled to be Awarded NPS Grants in Spring 2005

Watershed Surveys				
Proposal Title	**Grantee**	**Budget**		
		Grant	**Match**	**Total**
Spruce Creek Watershed Survey	The Wells Reserve	10,400	13,325	23,725
Wilson, Dexter and Berry Ponds Watershed Survey	Cobbossee Watershed District	7,518	5,088	12,606
Moose Brook Watershed Survey	Friends of the Royal River	11,350	10,566	21,916
West Branch Piscataqua River Watershed Survey	Presumpscot River Watch	13,520	9,650	23,170

Proposal Title	Grantee	Budget		
		Grant	Match	Total
Unity Pond Watershed Survey II	Waldo County SWCD	10,800	7,200	18,000
Taylor Pond Watershed Survey	Androscoggin Valley SWCD	12,368	8,982	21,350
Hancock and Sand Ponds Watershed Survey	Cumberland County SWCD	12,755	9,043	21,798
Dexter Lakes NPS Watershed Survey (Wasookeag, Echo)	Penobscot County SWCD	17,540	11,790	29,330

NPS Watershed Projects				
Proposal Title	**Grantee**	**Budget**		
		Grant	**Match**	**Total**
Highland Lake Watershed Improvement Project	Cumberland County SWCD	98,008	65,529	163,537
Libby Brook Conservation Project	Cumberland County SWCD	57,176	45,165	102,341
New Meadows River Watershed Project	Town of Brunswick	38,500	37,799	76,299
Salmon-McGrath Load Abatement Project, Phase III	Kennebec County SWCD	49,360	34,004	83,364
Echo Lake Watershed NPS Remediation Project	Kennebec County SWCD	44,522	36,604	81,126
No Name Pond Conservation Project, Phase I	Androscoggin Valley SWCD	40,360	28,437	68,797
Lake Auburn NPS Improvement Project	Lake Auburn Watershed Protection Commission	53,770	47,938	101,708
Panther Pond Conservation Project, Phase I	Town of Raymond	43,945	39,825	83,770
Totals, all projects		**614,669**	**479,263**	**1,093,933**

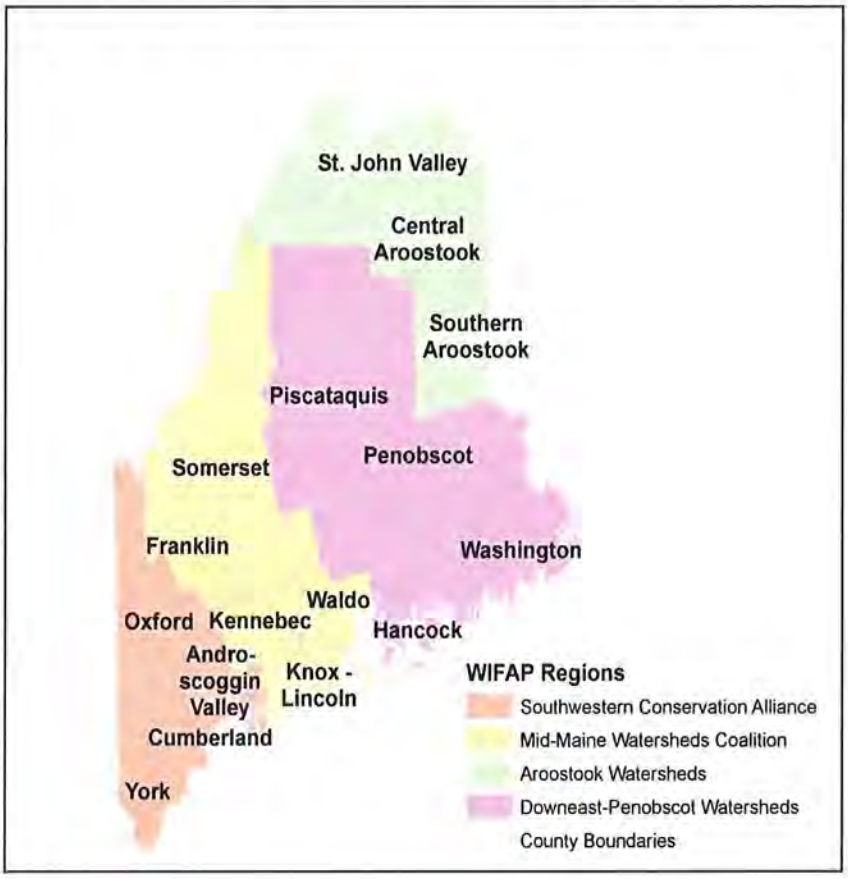
4. WIFAP - Watershed Improvement Financial Assistance Partnership

Background.

The Watershed Improvement Financial Assistance Partnership (WIFAP) provides financial assistance to help Maine's Soil and Water Conservation Districts (SWCD) conduct watershed-scale NPS projects to restore or protect lakes, stream or coastal waters that are polluted or considered threatened. SWCDs help forge local partnerships (e.g., towns, watershed organizations, landowners) to reduce pollutant loading to waterbodies by installing BMPs (erosion & sediment controls, improving riparian areas, etc) at significant NPS sites in the watershed. For WIFAP, Maine's 16 Districts organized into 4 watershed regions. EPA-New England and the Maine Association of Conservation Districts are cooperating partners. In the first 4 years (2000-2003) DEP and the Maine Department of Agriculture, Food, & Rural Resources (DAFRR) awarded $1.44 million ($960,000 319; $480,000 State) in grants to Districts to start-up or help sustain NPS projects in 24 watersheds.

In 2004 WIFAP was funded at $320,000 with State funds ($80,000) administered by DAFRR and EPA Section 319 funds ($240,000) administered by DEP.

Soil & Water Conservation Districts - WIFAP Regions



WIFAP Projects Completed in 2004

The seven WIFAP-funded NPS projects listed below were completed in 2004. The projects are summarized in Section F of the report.

2000R-40	Mousam Lake Water Quality Improvement Project
2000R-43A	Unnamed Brook, Prestile Stream, Pollutant Load Reduction Project
2000R-43B	South Perley Brook Project: NPS Watershed Survey
2001R-27A	South Perley Brook Restoration Project: BMP Implementation
2001R-27B	Meduxnekeag (Drews) Lake NPS Watershed Survey
2001R-26A	Maranacook Lake (North Basin) Stabilization Project
2002R-23B	Togus Watershed Survey

WIFAP Grants Awarded in 2004

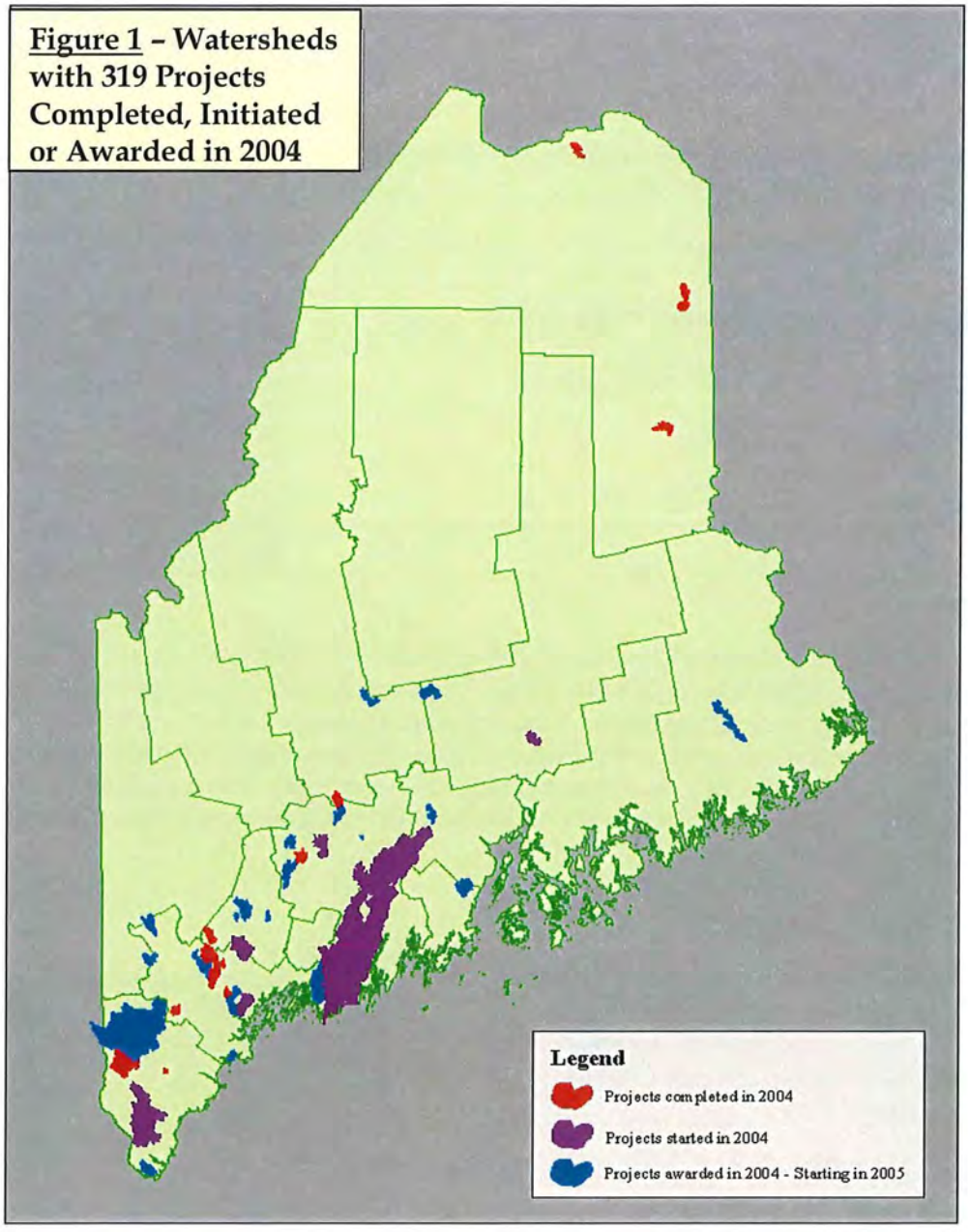
Soil and Water Conservation Districts in the four regions developed work plans for NPS projects under WIFAP Program Guidance. DEP and DAFRR provided a $80,000 grant award for each region. The six NPS Water Pollution Control Projects Projects developed under Watershed Improvement Financial Assistance Partnership in 2004 are listed in the following table.

WIFAP Region Grantee	Project Title ID number	Budget		
		WIFAP Grant	Local Match	Total
Southwestern Conservation Alliance	Little Ossipee Improvement Project Phase I - Implementation 2004R-24A	70,000	32,777	102,777
York County SWCD	Little Sebago Lake Improvement: BMP Design & Shoreland Assessment 2004R-24B	10,000	3,771	13,771
Mid-Maine Watersheds Coalition	Maranacook Lake Watershed NPS Reduction Project, Phase 2 2004R-26A	70,000	51,064	121,064
Kennebec County SWCD	Great Moose Lake Protection Project: NPS Watershed Survey 2004-26B	10,000	5,000	15,000
Aroostook Watersheds St. John River Valley SWCD	S. Perley Brook Restoration Project: BMP Implementation - Phase II 2004R-23	80,000	93,400	173,400
Downeast–Penobscot Watersheds Washington County SWCD	Old Stream Protection Project 2004R-25	80,000	26,000	106,000
Totals		**320,000**	**212,012**	**532,012**

E. Summaries of NPS Water Pollution Control Projects Completed in 2004

In 2004, 21 projects funded through the 319 grants program were successfully completed. See Figure 1 for locations of these watersheds and other watersheds with project initiated or awarded in 2004. Descriptions of each project are included in the following pages. In 2005, DEP staff plan to use these project summaries to create a catalog of completed 319 projects. The catalog will be added to in successive years and serve as a reference for 319 grant projects completed throughout the state. Additional project information can be obtained from the DEP or project sponsor.

This figure shows watershed locations with 319 projects completed, started or awarded during 2004.



Androscoggin Watershed
Roadside Erosion Control Project, Phase II
#2000-04

Waterbody Name:	Androscoggin River Watershed
Location:	Androscoggin, Franklin, Sagadahoc and Oxford Counties
Waterbody Status:	N/A
Project Sponsor:	Androscoggin Valley SWCD
Project Duration:	April 2000 - June 2004
319 Grant Amount:	$80,530
Local Match:	$253,859

PROBLEM:

Roadside erosion and sedimentation is one of the major causes of NPS pollution in Maine. Roadside erosion has been documented as a major contributor of sediment and nutrients to lakes and streams in watershed surveys in the Androscoggin River watershed and throughout the state. The lack of understanding about soil stabilization, a resistance to change and insufficient funding can be a handicap for local road crews and town officials and can be difficult to overcome. Proper maintenance and the prevention of chronic erosion within roadside ditches and at culvert crossings could be a major step to healthier streams, lakes and rivers.

PROJECT DESCRIPTION:

The purpose of this project was to expand the use of conservation practices on road construction and maintenance projects throughout the Androscoggin River watershed in order to reduce soil erosion and sedimentation in streams and lakes.

This was accomplished by offering educational workshops, roundtable discussions and field training as well as by providing technical assistance and construction oversight to municipal and state road crews. In all, 240 individuals from 52 communities from within and outside the watershed were offered the opportunity to participate including road foremen, road crews and town officials. Maine DOT road crews and one New Hampshire town also participated in the training.

PROJECT OUTCOMES:

- The education component of this grant included: 7 direct mailings of a project newsletter to 52 towns; 9 workshops about various topics offered throughout the watershed; and 7 presentations and displays at outreach events.
- Technical assistance was provided to 18 communities and 12 others received more informal help. Roadside erosion control BMPs were installed at 9 sites with cost-sharing from the grant. 39 communities benefited from a demonstration project.
- The construction projects consisted of installing several culverts with proper sizing and outlet protection; reshaping and stabilizing roadside ditches; installing waterbars and ditch turnouts for runoff discharge to a stable buffer; and maintaining and stabilizing several miles of gravel roads.
- Soil loss was computed for one site (Newry stream crossing) and was estimated at 36 tons per year.
- Improvement at the sites in Auburn, Minot, Raymond, Greenwood, Greene and Fayette made a positive and direct impact on water quality of abutting streams or ponds. Fish habitats were significantly improved because of enhancements at stream crossings.
- The project generated $200,000 more match contribution than was required and 1700 hours of volunteer participation for the successful completion of this project. The project was highly appreciated by local as well as state road crews, and all were disappointed that the grant could not continue to provide them with an education and discussion venue, technical assistance and project seed money.

PROJECT PARTNERS:

Maine Local Roads Center, Maine Department of Transportation

Maine Department of Inland Fisheries and Wildlife

39 Towns

CONTACT INFORMATION:

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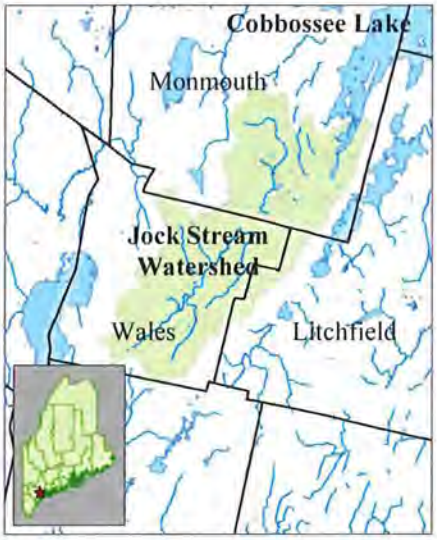
Phoebe Hardesty, Androscoggin Valley SWCD – (207) 753-9400, phoebeh@maine.rr.com

Cobbossee Lake Restoration: Reduction of Phosphorus in the Jock Stream Watershed

#99R-29

Waterbody Name:	Cobbossee Lake, Jock Stream
Location:	Monmouth, Wales, Litchfield Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Sponsor:	Kennebec County SWCD
Project Duration:	July 1999 – December 2004
319 Grant Amount:	$220,040
Local Match:	$152,117



PROBLEM:

Cobbossee Lake is one of Maine's premier bass fishing lakes and a source of drinking water supply for Augusta. The lake has a surface area of 5200 acres and a watershed of 32 square miles located in Winthrop, Manchester, and Monmouth about 5 miles from the state capitol - Augusta. The lake has a long history of nuisance algal blooms during summer months. Nonpoint source pollution is the primary cause of the impaired water quality.

The Total Maximum Daily Load (TMDL) water quality assessment reported that elevated levels of phosphorus in Jock Stream accounted for about one-third of the phosphorus load to Cobbossee Lake. The report found that agriculture, primarily dairy farms, was a significant phosphorus source and recommended conservation practices to improve existing conditions. A subsequent survey found that many roads and road ditches were also phosphorus and sediment sources.

PROJECT DESCRIPTION:

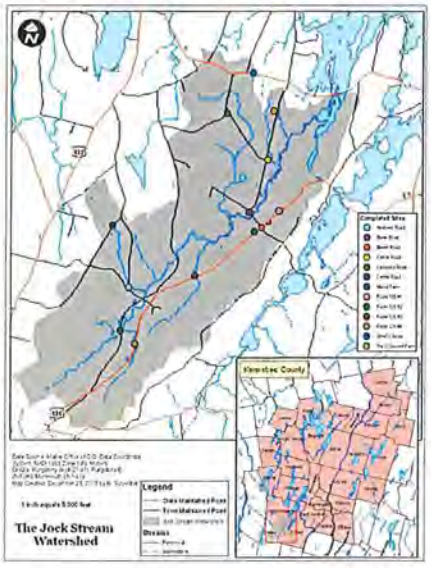
The project goal was to help restore Cobbossee Lake water quality by reducing annual total phosphorus entering the lake from the Jock Stream watershed. This was accomplished by reducing sediment and associated phosphorus export from roadways and farms - via the installation of improved roadside drainage and agricultural (livestock) BMPs. The SWCD and NRCS worked with farmers to install winter manure storage facilities, write nutrient management plans, install livestock exclusion fencing & alternative water systems, and install heavy use areas in barnyards. The SWCD collaborated with 3 towns and MDOT to identify, design, and fix many roadside runoff problems that were sediment and phosphorus sources.

Cobbossee Watershed District conducted a water quality monitoring program in Jock Stream and Cobbossee Lake to evaluate the restoration project. The lake was monitored to assess attainment of water quality goals. Jock Stream monitoring stations were sampled bi-monthly from spring to fall for phosphorous, dissolved oxygen and bacteria.

PROJECT OUTCOMES:

- The project's Water Quality Report (11/04) evaluated historical and new data collected during this project. The report finds Cobbossee Lake & Jock Stream water quality has improved.
  - o The water clarity of Cobbossee lake from 1976 to1996 was relatively poor (average 2.0 meters) compared to significantly improved conditions over the past 7+ years (average 2.6 meters). Notably, the minimum annual water transparency during the summer of 2004 was 2.8 meters. Some of the water quality improvement over the last decade can be attributed to a reduction in the total phosphorus loading from Jock Stream.
  - o Phosphorus levels in Jock Stream are meeting the goal set in the TMDL report.
- 13 road projects were completed with 3 towns and MDOT including 45 BMPs installed to reduce erosion and sediment. Construction costs totaled $177,534 ($98,437 grant; $79,097 local match). Monmouth received an award from the American Public Works Association for one of the projects.
- Agricultural BMPs were installed at 3 farms. At a beef farm 2 livestock exclusion and watering systems, a manure storage system, and a heavy use area (a hardened area that animals use often) were designed and installed. At a dairy farm, 1 livestock exclusion and watering system and a heavy use area were designed and installed. The owners of a third farm agreed to set aside land to let filter strip grow in naturally. Construction costs totaled $84,510 ($55,410 grant; $29,100 local match). Nutrient management plans were adopted for 3 farms. Also, 3 farming operations were discontinued during the study period.
- Nonpoint Source Road Erosion Survey of the 30 miles of roads in the Jock Stream watershed was completed. The report documented 32 problem sites in 3 towns.

Map of BMP Locations



PROJECT PARTNERS:

Town of Monmouth

Town of Wales

Town of Litchfield

Cobbossee Watershed District

USDA - Natural Resources Conservation Service

Maine Department of Transportation

CONTACT INFORMATION:

Melissa Laser, Kennebec County SWCD – (207) 622-7847

Norm Marcotte, DEP – (207) 287-7727, norm.g.marcotte@maine.gov

Crystal Lake Watershed Survey
#2003P-05

Waterbody Name:	Crystal Lake
Location:	Gray - Cumberland County
Waterbody Status:	NPS Priority Watershed, Most At Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	April 2003 – April 2004
319 Grant Amount:	$12,745
Local Match:	$9,296

PROBLEM:

Crystal Lake has a surface area of 189 areas and flushes during periods of high water into Mill Pond. Its direct watershed covers 1.7 square miles and is part of the larger Collyer Brook and Royal River Watersheds. The lake's shoreline is almost completely ringed with about 180 seasonal and year-round homes, and the lake has a public boat ramp and beach, which receives heavy summer recreational use.

The pond has been monitored since 1974, and the data indicates that the pond has moderate depletion of dissolved oxygen in the hypolimnion in late summer. As a result, Crystal Lake is listed on the NPS Priority Watersheds list and list of lakes "Most at Risk from New Development" under the Maine Stormwater Law.

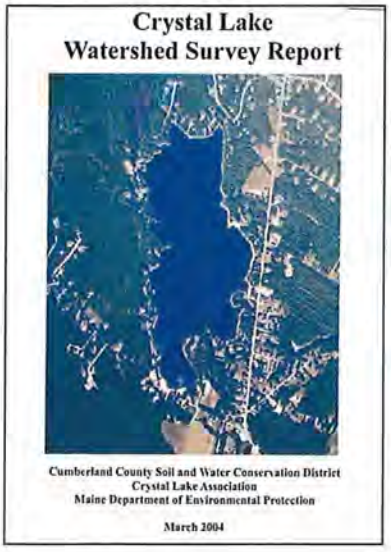
PROJECT DESCRIPTION:

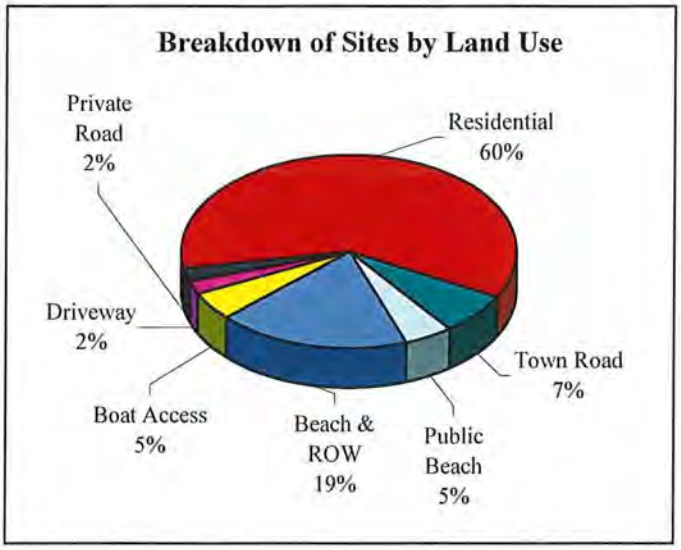
The purpose of the project was to identify, document and prioritize soil erosion sites in the Crystal Lake Watershed and to recommend conservation practices for each of these sites. Survey methods were based on those outlined in the DEP publication, *Citizen's Guide to Lake Watershed Surveys*. The volunteer training session was held on May 18, 2003 and was modified to provide more hands-on training in the field. The 13 volunteers were trained to identify erosion problems, rate water quality impact and develop recommendations. About ¾ of the survey was completed on the day of the training.

Technical staff compiled the survey data, developed maps and created the *Crystal Lake Watershed Survey Report*. In total, 42 sites were identified that are impacting or have the potential to impact Crystal Lake. None of the sites were rated with a high impact to the lake, 14 were rated as medium impact and 28 were rated as low impact. Survey reports were distributed to the public; and presentations were delivered at the Crystal Lake Association's annual meeting and a Gray Town Council meeting; and project information appeared in local newspapers and on the local cable access channel.

PROJECT OUTCOMES:

- Project staff and volunteers surveyed the entire Crystal Lake Watershed and documented 42 erosion sites. They also developed preliminary recommendations for each site and rated the impact to the lake, cost, and technical level required to fix each site.
- Project staff produced the *Crystal Lake Watershed Survey Report* (March 2004), which summarizes watershed survey findings, lists specific information on each identified site and outlines next steps for watershed stewardship.
- The project steering committee distributed copies of the report to municipal officials and all 180 lakefront households. Those residents with identified erosion sites also received a customized letter attached to the report explaining their specific issues and recommendations.
- The detailed information collected through the survey was shared with the newly formed Royal River Youth Conservation Corps (YCC). The Royal River YCC planned to use this information to identify candidate sites for their 2004 construction season.





PROJECT PARTNERS:

Crystal Lake Association

Town of Gray

CONTACT INFORMATION:

Wendy Garland, DEP - (207) 822-6320, wendy.garland@maine.gov

Betty Williams, Cumberland County SWCD – (207) 856-2777, betty-williams@me.nacdnet.org

East Pond and North Pond NPS Remediation Project
#2001R-02

Waterbody Name:	East Pond and North Pond
Location:	Oakland, Smithfield, Mercer and Rome - Kennebec and Somerset County
Waterbody Status:	Impaired, NPS Priority Watersheds
Project Grantee:	Belgrade Regional Conservation Alliance
Project Duration:	April 2001 – August 2004
319 Grant Amount:	$42,641
Local Match:	$40,505

PROBLEM:

East Pond is located in the towns of Oakland (Kennebec County) and Smithfield (Somerset County). North Pond is located in the towns of Rome (Kennebec County), Smithfield and Mercer (Somerset County). East Pond is a 1724 acre lake and has a 4.3 square mile watershed. North Pond has a surface area of 2253 acres and a 14.6 square mile watershed. East Pond is at the top of the Belgrade Lakes drainage system. East Pond flows into North Pond and North Pond drains to Great Pond.

East Pond has been monitored since 1975 and water quality is considered to be below average to poor. The lake experienced algal blooms in 1993, 1995, 1998, 1999, 2002, and 2003. The pond is on the list of impaired lakes and had a TMDL (loading allocation) completed. Water quality monitoring data for North Pond has been collected since 1970 and water quality is considered to be below average. Both ponds are on the NPS Priority Watersheds list. The Belgrade Regional Conservation Alliance (BRCA) completed a watershed survey and management plan for both ponds.

PROJECT DESCRIPTION:

The purpose of the East Pond and North Pond Remediation Project was to begin addressing threats to water quality by installing conservation practices on specific sites that will correct erosion and runoff problems. These also demonstrate conservation practices for town officials, lake property owners, lake associations, and the general public.

BRCA staff coordinated the installation of conservation practices on 24 sites including 1 town road, 10 camp roads, 3 driveways, 9 residential vegetated buffer sites, and 1 beach. The BRCA Conservation Corps addressed an additional 20 smaller sites through installation of buffers, riprap, mulch, and french drain. Over three field seasons, 192 landowner contacts were made. Tours were also provided to camp road commissioners to educate them on what could be done on their road.

PROJECT OUTCOMES:

- 17 problem sites were installed on East Pond and 8 sites on were installed on North Pond. A total of 2.56 miles of road were re-built and 7,711 square feet of buffer garden were installed.
- A large variety of conservation practices were installed including the following:

Re-graded/crowned roads (7)
New road surface material (13)
Ditch installation (9)
Recycled asphalt installed (1)
Ditch stabilization (3)
Culvert installation (5)
Culvert inlet/outlet stabilization (2)
Sediment basin (3)
Turn-outs (10)
Vegetated buffer plantings (9)
French drains (2)
Bank stabilization (2)
Riprap (1)
Terraces (4)
Berm (1)
Trail mulched (2)
Sediment trap/settling basin (2)
Drywell (2)
Mulch berm (1)
Permanent mulching (1)
Rubber razors (3)

- The estimated Pollutant Load Reduction resulting from the project totaled 11 tons/year of sediment and 14.5 pounds/year of phosphorus (WEPP:Road model and Colby College).
- Community outreach and education occurred through landowner contacts, contractor education and demonstration of a highly visible demonstration sites.

PROJECT PARTNERS:

Belgrade Regional Conservation Alliance
BRCA Conservation Corps
North Pond Association
East Pond Association
Town of Smithfield
Maine Department of Transportation
Pine Tree Camp

CONTACT INFORMATION:

Mary Ellen Dennis, DEP – (207) 287-7729, mary-ellen.c.dennis@maine.gov
Mike Little, Belgrade Regional Conservation Alliance – (207) 495-6039, brca@gwi.net

Forest Lake Watershed Management Plan Project
#2002-04

Waterbody Name:	Forest Lake
Location:	Gray, Windham and Cumberland - Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	April 2002 – April 2004
319 Grant Amount:	$27,622
Match:	$24,654

PROBLEM:

Forest Lake is a 210-acre lake that is developed with about 380 shoreline homes and located primarily in the Towns of Gray, Windham and Cumberland. Each of these towns has frontage on the lake and comprises a significant portion of the 3-square-mile watershed. The lake is the headwaters of the Piscataqua River, which flows into the Presumpscot River.

The lake has been monitored by the DEP and volunteers since 1974, and data indicates that there is moderate dissolved oxygen depletion in the bottom waters of the lake in late summer. As a result, the lake is listed on the state's NPS Priority Watersheds list and list of lakes "Most at Risk from New Development" under the Maine Stormwater Law. In 1994 the Forest Lake Association (FLA) conducted a watershed survey with technical assistance from Lake and Watershed Resource Management Associates. The FLA also conducted an independent septic system survey.

PROJECT DESCRIPTION:

The purpose of the project was to develop a watershed management plan for the Forest Lake Watershed that would be used to guide long-term lake protection efforts in the community. In the first phase of the project, staff and volunteers collected information on the watershed problems and needs. In May 2002,14 volunteers helped update the 1994 watershed survey and identified 112 erosion sites. The project also conducted a shoreline survey to assess the lakefront buffers and distributed a survey to all watershed households to evaluate septic system characteristics and maintenance practices.

The collected information was then shared with the community and used to develop a watershed management plan. In April 2003, about 50 residents and town officials participated in a daylong community forum where they identified issues and developed strategies to protect Forest Lake. Participants then formed four workgroups and met throughout the summer to further flesh out these strategies. Staff created the draft plan, obtained public input and distributed copies of the final plan to the public.

Sediment delta from erosion on roads and residential properties.

PROJECT OUTCOMES:

- Project staff and volunteers surveyed the entire Forest Lake Watershed and documented 112 erosion sites. They also developed recommendations for each site, rated the impact to the lake and cost and technical level required to fix each site, and estimated the pollutant load for many of the sites.
- Project staff produced the *Forest Lake Watershed Survey Report* (April 2003), which summarizes watershed survey findings and lists specific information on each identified site.
- About 50 watershed residents and municipal officials attended a daylong Community Watershed Forum in April 2003. The issues identified and the preliminary strategies developed during the forum formed the framework for the Watershed Management Plan.
- The highly successful Community Watershed Forum was designed as a tool to gather public input and to inform and involve the watershed community. This innovative approach generated approximately $12,000 in in-kind match through forum participation, donations, Design Team planning and Action Team work. A ten-page *"Summary of Proceedings"* was prepared to provide an overview of the planning process, budget and outcomes.
- The *Forest Lake Watershed Management Plan* was completed in December 2003.

PROJECT PARTNERS:

Forest Lake Association
Town of Cumberland
Town of Gray
Town of Windham

CONTACT INFORMATION:

Wendy Garland, DEP - (207) 822-6320, wendy.garland@maine.gov
Betty Williams, Cumberland County SWCD – (207) 856-2777, betty-williams@me.nacdnet.org

Kennebunk Pond Watershed Survey
#2002-09

Waterbody Name:	Kennebunk Pond
Location:	Lyman - York County
Waterbody Status:	NPS Priority Watershed, Most At Risk
Project Grantee:	York County SWCD
Project Duration:	April 2002 – February 2004
319 Grant Amount:	$6,152
Local Match:	$6,257

PROBLEM:

Kennebunk Pond has a surface area of 224 acres. Its watershed covers 500 acres (0.75 square miles) and is part of the larger Kennebunk River Watershed. The pond's shoreline is highly developed with about 150 seasonal camps and year-round homes, and includes a town-owned beach and boat ramp near the outlet of the pond. The pond has been monitored since 1980, and the data indicates that the lake has high depletion of dissolved oxygen in the deep waters in late summer. As a result, Kennebunk Pond is listed on the NPS Priority Watersheds list and list of lakes "Most at Risk from New Development" under the Maine Stormwater Law.

PROJECT DESCRIPTION:

The primary purpose of the project was to identify, document and prioritize soil erosion sites in the Kennebunk Pond Watershed and to recommend conservation practices for each site. The secondary purpose of the project was to help raise community awareness and encourage the mitigation of identified erosion problems.

Survey methods were based on those outlined in a *Citizen's Guide to Lake Watershed Surveys*. On May 18, 2002, 21 volunteers were trained to identify erosion problems, rate water quality impact and develop recommendations. Volunteers also recorded information about the size and type of vegetation along the shorefront. In total, 130 sites were identified that are impacting or have the potential to impact the lake.

Technical staff compiled the survey data, developed maps and created the ***Kennebunk Pond Watershed Survey Report***. Color reports were distributed to municipal officials and about 200 landowners and a presentation was delivered at the KPA's annual meeting and a Lyman Select Board meeting. Project staff also estimated pollutant load associated with medium and high impact sites and conducted a survey to assess the effectiveness of the training.

PROJECT OUTCOMES:

- Project staff and volunteers surveyed the entire Kennebunk Pond Watershed and documented 130 erosion sites. They also developed preliminary recommendations and rated the impact to the lake and the cost and technical level required to fix each site.
- The *Kennebunk Pond Watershed Survey Report* (July, 2003) was produced. The report summarizes watershed survey findings, lists specific information on each identified site and outlines next steps for watershed stewardship.
- Staff estimated that approximately 18 tons of sediment washes into the pond each year from the 26 high and medium impact sites (Region 5 Method).
- Almost a year after the survey training, staff sent questionnaires to the 21 volunteers to assess the effectiveness of the training. Of the 16 returned surveys, 9 indicated that they had taken measures to improve their properties and most seemed to understand the pollution issues facing the pond. All respondents seemed to like the training format and felt like the project was well worth their time.
- The project helped spark stewardship on many levels. Seven property owners requested technical assistance; the Lyman Conservation Commission was reestablished after the presentation to the Select Board; and neighboring lake associations stepped up their lake protection efforts.

PROJECT PARTNERS:

Kennebunk Pond Association

Town of Lyman

CONTACT INFORMATION:

Wendy Garland, DEP - (207) 822-6320, wendy.garland@maine.gov

Debbie St. Pierre, York County SWCD – (207) 324-7015, debbie.stpierre@me.nacdnet.net

Little Sebago Lake Watershed Survey, 2003
#2003P-02

Waterbody Name:	Little Sebago Lake
Location:	Gray and Windham - Cumberland County
Waterbody Status:	NPS Priority Watershed, Most At Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	April 2003 – November 2004
319 Grant Amount:	$16,042
Local Match:	$17,685

PROBLEM:

Little Sebago Lake has a surface area of 1898 acres, numerous perennial tributaries and three distinct basins. Its watershed covers 13.3 square miles and is part of the larger Pleasant River and Presumpscot River Watersheds. The lake's shoreline is heavily developed with over 1200 seasonal camps and year-round homes and an extensive network of private roads. The lake also has a state-owned boat ramp, a private 43-site campground and Aimhi Lodge, a commercial operation with 23 rental units.

The pond has been monitored since 1975, and the data indicates that the lake has moderate depletion of dissolved oxygen in the hypolimnion in late summer. As a result, Little Sebago Lake is listed on the NPS Priority Watersheds list and list of lakes "Most at Risk from New Development" under the Maine Stormwater Law. In 2002, the Cumberland County Soil and Water Conservation District (SWCD), Little Sebago Lake Association (LSLA) and Maine DEP conducted a survey of the northern watershed.

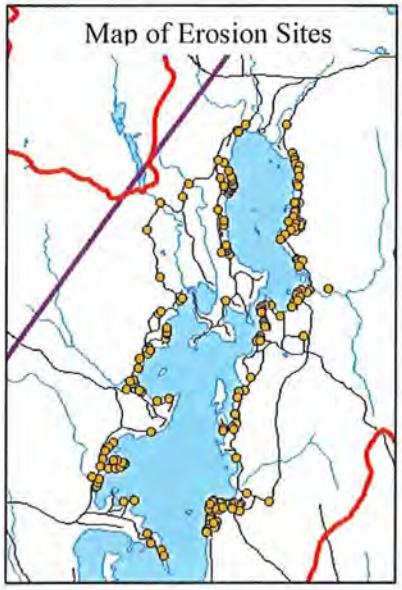
PROJECT DESCRIPTION:

The purpose of the project was to identify, document and prioritize soil erosion sites in the southern half of the Little Sebago Lake Watershed and to recommend conservation practices for each site. Survey methods were based on those outlined in a *Citizen's Guide to Lake Watershed Surveys*. On May 17, 2003, 14 volunteers were trained to identify erosion problems, rate water quality impact and develop recommendations. The survey area was divided up into ten sectors, and volunteers and technical staff completed the survey over the summer. In total, 130 sites were identified that are impacting or have the potential to impact the lake. Engineering designs were developed for five of the high priority sites.

Technical staff compiled the survey data, developed maps and created the ***Little Sebago Lake Watershed Survey Report***. Survey reports were distributed to the public; and a presentation was delivered at the LSLA's annual meeting; a lake cruise was held for municipal officials; and project updates appeared in local newspapers and on local cable access channels.

PROJECT OUTCOMES:

- Project staff and volunteers surveyed the southern half of the Little Sebago Lake Watershed. Since the northern half was surveyed in 2002, the entire 13.3 square mile watershed has now been surveyed.
- The survey documented 130 erosion sites. They also developed preliminary recommendations for each site and rated the impact to the lake and cost and technical level required to fix each site.
- Engineering designs were completed for five high priority sites identified in the survey. These designs and the initial landowner contact established through this project will help lay the groundwork for implementation work in the watershed.
- The ***Little*** *Sebago Lake Watershed Survey Report: Part II – South of Lyon's Point* (June, 2004) was produced. The report summarizes watershed survey findings, lists specific information on each identified site and outlines next steps for watershed stewardship.
- The project steering committee distributed copies of the report to the municipal officials, 70 households and 8 road associations around the lake with identified erosion problems. The residents and road associations with identified erosion sites also received a customized letter attached to the report explaining their specific issues and recommendations.



PROJECT PARTNERS:

Little Sebago Lake Association

Town of Gray

Town of Windham

CONTACT INFORMATION:

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Maranacook Lake-North Basin Watershed Survey & Demonstration Project
#98-18

Waterbody Name:	Maranacook Lake - North Basin
Location:	Readfield - Kennebec County
Waterbody Status:	NPS Priority Watersheds, Most At Risk
Project Grantee:	Town of Readfield
Project Duration:	March 2000 – January 2004
319 Grant Amount:	$12,750
Local Match:	$11,678

PROBLEM:

The north basin of Maranacook Lake is located almost entirely in the Town of Readfield. It has a surface area of 595 acres and a 12.7 square mile watershed. The north basin flows into the southern basin of Maranacook Lake -a secondary water supply for the Town of Winthrop. The southern 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. Water quality is threatened by increasing development and year-round home conversions. Oxygen depletion occurs annually at depths below 20 feet, which allows phosphorus to be released from bottom sediments, adds to the level of phosphorus in the water and renders the cooler bottom waters unusable by fish. The potential for nuisance algal blooms is above average.

PROJECT DESCRIPTION:

The purpose of the project was to survey and identify existing and potential sources of erosion, construct a demonstration project, plan for implementation of conservation practices at other identified problem sites, and educate shoreland land owners and citizens of Readfield about water quality protection.

Nearly 30 volunteers participated in a training workshop and the survey of 25 camp roads. A total of 108 erosion sites were identified. In addition, the Cobbossee Watershed District and Kennebec County SWCD completed a shoreline survey by boat of the entire 10.2 miles of shoreline and identified 980 feet of eroded shoreline. Numerous conservation practices were installed and demonstrated on Thorpe Shores Road and two adjacent driveways. A Youth Conservation Corp was assembled and assisted in the demonstration projects. Two mailings were sent to the about 300 property owners in the watershed prior to and after completion of the survey. Five articles were published and the annual town report included information about the project. The survey results were presented at a town selectboard meeting.

PROJECT OUTCOMES:

- 108 erosion sites and 980 feet of eroded shoreline were identified in the watershed and shoreline survey. A watershed survey report was completed- "Maranacook Lake-North Basin Camp Road & Shoreline Erosion Survey Summary Results", August 2001.

- Camp road and driveway demonstration projects were installed on Thorpe Shores Road and included the following:

  Road re-shaped
  Culvert replacement (2)
  Culvert armoring and plunge pools (2)
  Ditch re-shaped (2000')
  Ditch armored (1000')
  Ditch turn-outs (4)
  Rubber razor blades (2)
  Open-top box culverts (3)
  Vegetated buffer
  Waterbars (7)
  Project and BMP identification signs

- The demonstration work spurned additional conservation practice installation. The Thorpe Shores Road Association took initiative to raise funds for remediation on the remaining segment of road not included in the demonstration project. Other road associations have installed conservation practices with assistance from Kennebec County SWCD.

- Cobbossee Watershed District obtained a NPS 319 Grant to survey the southern basin and develop a management plan for the entire Maranacook watershed starting in April 2005.

PROJECT PARTNERS:

Town of Readfield
Cobbossee Watershed District
Kennebec County Soil and Water Conservation District
Hillier & Associates, Inc.
Readfield Boy Scout Troop 650 & Youth Conservation Corps
Readfield Conservation Commission
Friends of Maranacook Lake

CONTACT INFORMATION:

Mary Ellen Dennis, DEP – (207) 287-7729, mary-ellen.c.dennis@maine.gov
Clifford Buck, Town of Readfield – (207) 685-493

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

CONTACT INFORMATION:

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Nate Sylvester, Kennebec County SWCD – (207) 622-7847, www.kcswcd.org

Meduxnekeag (Drew's) Lake Restoration Project: Phase I, NPS Watershed Survey

#2001R-27B - WIFAP

Waterbody Name:	Meduxnekeag (Drews) Lake
Location:	Linneus, New Limerick - Aroostook County
Waterbody Status:	NPS Priority Watersheds
Project Grantee:	Southern Aroostook SWCD
Project Duration:	November 2001 - December 2004
319 Grant Amount:	$6,000
Local Match:	$4,000 (ME Dept. Ag.), $197 (local)

PROBLEM:

Meduxnekeag Lake is experiencing declining water quality (draft trend analysis) with reduced water clarity and the loss of oxygen in at 15 meter depth (3ppm). The lake is under ever increasing development pressure for both seasonal and year round homes.

In 1998, a Serve Maine AmeriCorps member helped local residents survey the residential sections of the watershed. The survey identified eroding driveways, poor ditching, poorly installed or maintained culverts, and a lack of buffers. However, the survey did not cover the forested lands and the woods access roads. The survey was also a few years old. The remaining sections of the watershed need to be surveyed and the problem sites from 1998 need to be evaluated resulting in a prioritization of NPS problem sites.

PROJECT DESCRIPTION:

The Southern Aroostook SWCD worked closely with local land owners and the Drews Lake Property Owners Association to identify and confirm NPS problems either identified in the original 1998 work or review new issues. Working with Maine Forest Service staff, District staff surveyed the lands in forest management for NPS problem sites. The result is a complete survey with problems identified and prioritized.

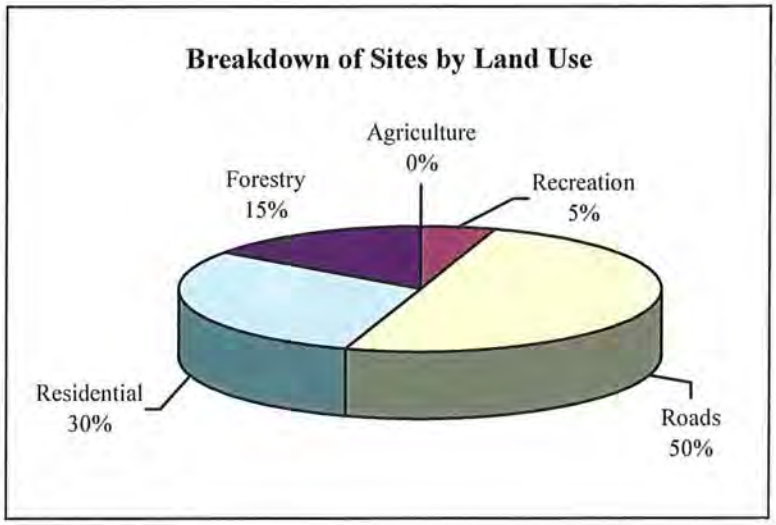
The District determined that 50% of the NPS problems were related to roads, 30% residential, 15% forestry, and 5% recreation. Load reductions were calculated for 5 of the priority sites. If BMPs were to be implemented on these sites a total of 82 tons/yr of sediment, 137 lbs/yr of nitrogen and 82 lbs/yr of phosphorus would no longer be reaching the lake.

Crushed culvert identified in survey

PROJECT OUTCOMES:

- The whole watershed (10,654 acres) has now been surveyed.
- NPS sites in the watershed were identified and ranked.
- A partnership with Drews Lake Property Owners Association was created.
- An implementation project (#2002R-24A - Meduxnekeag Lake Restoration Project) was started to fix some of the priority sites identified in the watershed survey.

Scouring of ditch. Long run with no cross culverts or turnouts.



PROJECT PARTNERS:

USDA Natural Resource Conservation Service, Houlton Office

Maine Forest Service, Southern Aroostook Office

St. John Resource Conservation and Development

Drews Lake Property Owners Association

CONTACT INFORMATION:

Kathy Hoppe, DEP – (207) 764-0477, kathy.m.hoppe@maine.gov

Andrea Newman, Southern Aroostook SWCD – (207) 532-2087, saswcd@saswcd.org, http://saswcd.org

Mousam Lake Water Quality Improvement Project

#2000R-40 - WIFAP

Waterbody Name:	Mousam Lake
Location:	Acton and Shapleigh - York County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	York County SWCD
Project Duration:	November 2000 – December 2003
319 Grant Amount:	$60,000
Match:	$39,920 (local), $40,000 (ME Dept. Ag.)

PROBLEM:

Mousam Lake is a 926-acre lake located in the Towns of Acton and Shapleigh. Its watershed covers 22 square miles and also includes Square Pond, Loon Pond and Goose Pond. Mousam Lake's shoreline is heavily developed with over 2,200 residences, and there are nearly 3,000 parcels in the watershed. The lake has been monitored by the DEP and volunteers since 1974 and is considered to be declining based on measures of secchi disk transparency, total phosphorus and chlorophyll a. There is also significant depletion of dissolved oxygen in the bottom waters of the lake in late summer. Mousam Lake is on the DEP/EPA 303(d) listing of water non-attaining state water quality standards (TMDL List).

The York County Soil and Water Conservation District (SWCD), Mousam Lake Region Association (MLRA), Town of Acton and Town of Shapleigh started lake protection efforts in 1997 when they conducted a 319-funded survey to identify erosion problems in several hotspots around the lake. They conducted a BMP Demonstration Project from 1999-2001 and installed conservation practices at six erosion sites around the watershed. Since Mousam Lake does not meet state water quality standards, a phosphorus nutrient loading plan (TMDL Assessment) was completed in 2002.

PROJECT DESCRIPTION:

The purpose of the project was to reduce soil erosion and polluted runoff sources to Mousam Lake, build local commitment to lake protection and ultimately to improve water quality. Staff and volunteers coordinated and installed conservation practices at 15 town and private road sites and provided technical assistance to 77 landowners. In addition, the project established a summer Youth Conservation Corps (YCC) that provided watershed residents and road associations with labor to install conservation practices at an additional 17 sites.

The project also distributed three educational newsletters to all watershed households; delivered presentations at the MLRA annual meetings; posted "Gold Star" signs at all construction sites; held three hands-on workshops; and printed numerous articles in local and regional newspapers.

PROJECT OUTCOMES:

- The project fixed 15 large-scale erosion problems in the watershed, thereby keeping an estimated 77 tons of sediment out of the lake each year (EPA Region 5 Method).
- The Mousam Lake Youth Conservation Corps was established through the grant. The YCC installed conservation practices on 17 road and residential sites in 2001. The YCC program was so successful, the Towns of Acton and Shapleigh and the MRLA funded the program in 2002 and 2003.
- Project staff provided technical assistance to 77 landowners through the projects – far exceeding the goals of 15 written into the original workplan.
- Numerous articles were printed about the project and the YCC in local and regional newspapers. The Portland Press Herald, Journal Tribune and Sanford News ran feature stories and photos on the YCC in the summer 2001. This high-profile coverage helped build widespread support for continued local funding for the YCC program.
- The project accomplished work through a variety of innovative partnerships and funding sources. The Maine Department of Agriculture provided $40,000 in cash match through the WIFAP program. The state road site was fixed by DOT's SWQPP grant program. Local volunteers and town road commissioners completed much of the other construction. Local match totaled almost $40,000 – $15,000 over the original project goal.

York County SWCD, Maine Department of Transportation, and volunteers from Maplestone School planted vegetated buffers at the foot of Mousam Lake to keep polluted stormwater out of the lake.

The project was funded through by a grant from the DOT's Surface Water Quality Protection Program (SWQPP).

PROJECT PARTNERS:

Mousam Lake Region Association
Town of Acton
Town of Shapleigh
Maine Department of Agriculture
Maine Department of Transportation


Teens are working hard and loving it

These teens are in the trenches

Youth conservationists give vulnerable Mousam Lake a fighting chance against pollution.

Save the lakes

Project at Mousam should serve as model for other communities

Foot of lake gets a facelift

CONTACT INFORMATION:

Wendy Garland, DEP - (207) 822-6320, wendy.garland@maine.gov
Debbie St. Pierre, York County SWCD – (207) 324-7015, debbie.stpierre@me.nacdnet.net

Raymond Pond and Crescent Lake Demonstration Project
#2001R-03

Waterbody Name:	Raymond Pond and Crescent Lake
Location:	Raymond and Casco - Cumberland County
Waterbody Status:	NPS Priority Watersheds, Most At Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	May 2001 – November 2004
319 Grant Amount:	$58,710
Local Match:	$88,529

PROBLEM:

Crescent Lake and Raymond Pond are located in the Towns of Raymond and Casco. Raymond Pond is a 346-acre lake and has a 4.4 square mile watershed. It is the largest of five ponds that drain into Crescent Lake. Crescent Lake covers 716 acres and has a direct watershed of 6.1 square miles. Crescent Lake flows into Panther Pond, which in turn, empties into Sebago Lake, a public drinking water source for over 45,000 households in Southern Maine.

Crescent Lake and Raymond Pond are developed with over 280 and 150 seasonal and year-round homes, respectively. Water quality on both ponds is threatened by rising development pressures and year-round home conversions. The ponds have been monitored since 1974 and the data indicates that both ponds have significant depletion of dissolved oxygen in the bottom waters in late summer. The Raymond Conservation Commission spearheaded watershed surveys for both ponds in 1998 and 1999, one with a 319 grant and one independently.

PROJECT DESCRIPTION:

The purpose of the Raymond Pond/Crescent Lake Demonstration Project was to demonstrate a variety of conservation practices that reduce erosion, raise awareness about watershed problems and foster long-term watershed stewardship. Staff and volunteers installed conservation practices at 15 demonstration sites, provided technical assistance to 22 landowners, conducted 11 hands-on workshops and hosted two public tours of completed sites. The project also coordinated a Community Watershed Forum, which brought together residents and officials to discuss long-term lake protection strategies.

Project fact fliers were sent to all watershed residents; numerous project updates were printed in local newspapers and newsletters; and "virtual tours" were presented to Town Select Boards. The Portland Water District also delivered their Hydrologics program to classes in the Jordan Small Middle School.

PROJECT OUTCOMES:

- 15 erosion sites were stabilized on a variety of sites including private roads, town roads, driveways, residential properties, a commercial campground and a summer youth camp.
- The large variety of conservation practices were installed including the following:

Open top culvert (2)	Culvert sleeve (2)
Vegetated buffer plantings (5)	Sediment basin (2)
Infiltration/dripline trenches (4)	Permanent mulching (2)
Earthen waterbars (1)	Riprap stabilization (2)
Turnouts (20)	Waterbars (7)
Level spreaders (15)	Infiltration steps (7)
Culvert inlet/outlet stabilization (5)	Culvert installation (6)
Ditch stabilization (7)	Infiltration basin (1)
Re-grading/crowning roads (4)	Bank stabilization (1)
Plunge pool (1)	Trail mulching (2)

- Staff estimated that the 15 erosion control projects reduced pollutant loading to the lakes by 64 tons each year (US EPA, Region 5 Method and WEPP:Road model).
- The project's Community Watershed Forum brought together 34 participants to think about ways to achieve long-term watershed stewardship and helped prompt the local monitoring group, RWPA, to expand its role into active stewardship and hire its first Executive Director.

Before *- This Right of Way experienced severe erosion that flowed directly into Crescent Lake.*

After *- 24 volunteers spread mulch and installed two waterbars, two open-top culverts and seven stairs to divert runoff into adjacent vegetation.*

PROJECT PARTNERS:

Town of Raymond
Portland Water District
Raymond Waterways Protective Association
Raymond Conservation Commission
Camp Agawam
Town of Casco

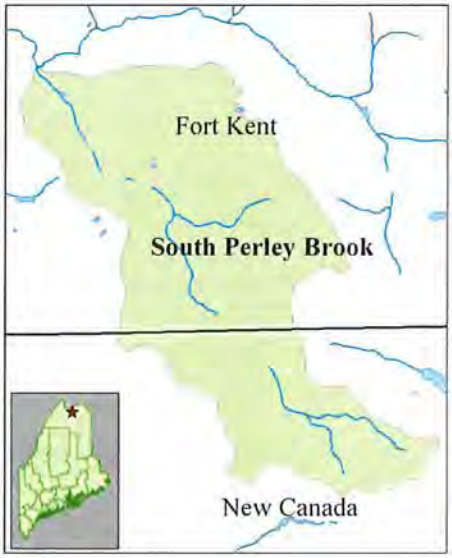
CONTACT INFORMATION:

Wendy Garland, DEP - (207) 822-6320, wendy.garland@maine.gov
Jami Fitch, Cumberland County SWCD – (207) 856-2777, jami-fitch@me.nacdnet.org

South Perley Brook Restoration Project: Phase I, NPS Watershed Survey

#2000R-43B WIFAP

Waterbody Name:	South Perley Brook
Location:	Ft. Kent – Aroostook County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	St. John Valley SWCD
Project Duration:	February 2001 - January 2003
319 Grant Amount:	$7,000
Local Match:	$2,833



PROBLEM:

Perley Brook is threatened with not meeting Class B water quality standards as a result of agricultural runoff form both livestock & row crop activities. Measures have been taken in the past to curb some of the sources, including work done by the Soil Conservation Service during the mid-1970s through the mid-1980s. Currently, many of the water quality problems threatening Perley Brook involve nutrient loading form several agricultural fields and pastures. Approximately 52% of the watershed is in agricultural activities.

A survey of the major non-point sources of pollution, including agricultural and associated roads within the watershed, is needed to locate and prioritize pollutant sources and provide suggested solutions (BMPs) .

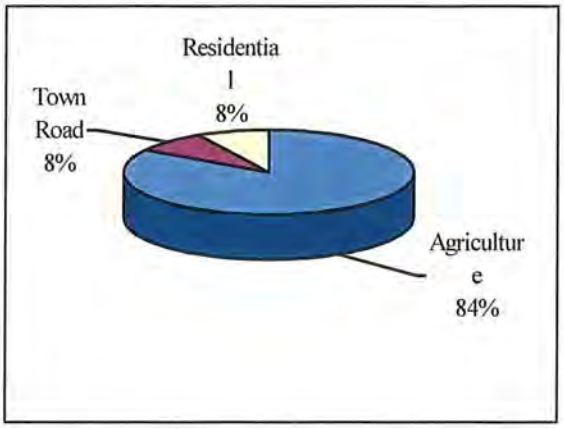
PROJECT DESCRIPTION:

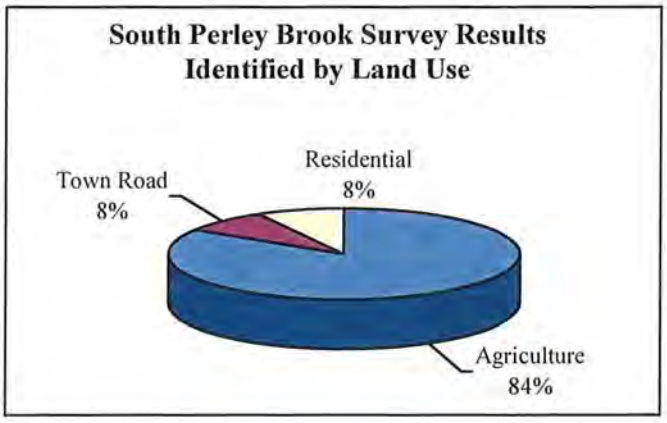
The goal of this project was to inventory the watershed for NPS pollution sources. St. John SWCD staff met with local landowners to discuss the project and gathered information on known problems. With assistance from Natural Resource Conservation Service, SWCD staff conducted a walking/field survey of the watershed to assess NPS problems. The result was a watershed report with a list of concerns, potential solutions and cost estimates. This information was presented to the landowners and municipality. The next phase of the project will work to install BMPs on the identified NPS sites.

Soil erosion around town road culvert

PROJECT OUTCOMES:

- The report, *South Perley Brook Restoration Project Phase I: NPS Watershed Survey*, was produced and distributed in 2001.
- Project staff identified 13 NPS sites in the 2,000 acre sub-watershed to South Perley Brook.
- Phase II of project has started and is moving forward with implementing BMPs on some of the identified sites.





Cattle access to stream causing erosion

PROJECT PARTNERS:

Natural Resource Conservation Service, St. John Valley Office.

Maine Department of Agriculture

CONTACT INFORMATION:

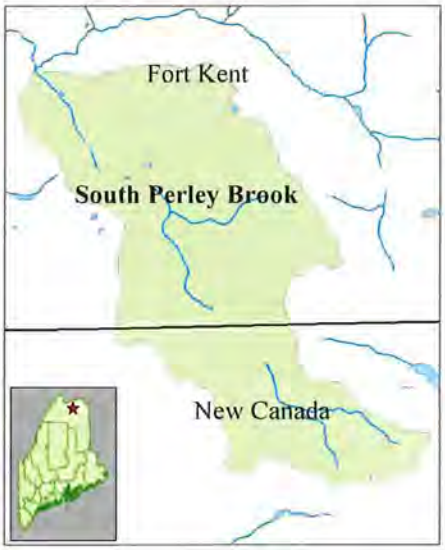
Kathy Hoppe, DEP – (207) 764-0477, kathy.m.hoppe@maine.gov

Heidi Royal, St. John Valley SWCD – (207) 834-3111, heidi.royal@me.nacdnet.net, sjv.me.nacdnet.org

South Perley Brook Restoration Project: BMP Implementation

#2001R-27A - WIFAP

Waterbody Name:	South Perley Brook
Location:	Ft. Kent – Aroostook County
Waterbody Status:	NPS Priority Watershed
Project Grantee :	St. John Valley SWCD
Project Duration:	November 2001 - December 2004
319 Grant Amount:	$54,000
Local Match:	$36,000 (ME Dept. Ag.), $68,463 (local)



PROBLEM:

Perley Brook's water quality is presently threatened with nutrient loading from several agricultural fields and pastures, primarily due to run-off from both livestock and row crop activities. Approximately 52% of the watershed is estimated to be in agricultural production activities.

A survey of the major NPS sources, including agriculture and associated roads was conducted in the spring & summer of 2001. Five major landowners within the 2000+ acre watershed are producing potatoes with a grain rotation, and beef. The livestock have been allowed access to tributaries and other sensitive areas and there are inadequate manure storage facilities. In addition, the lack of winter cover on the potato ground can result in both soil and nutrient export.

PROJECT DESCRIPTION:

Working with the Natural Resource Conservation Service, the St. John Valley SWCD contacted and worked with area landowners in designing site-specific erosion and nutrient control BMPs for six sites. As this project developed the District also worked with the Maine Dept. of Agriculture in assisting a landowner with a separate grant application. The District also worked to install additional BMPs as EQIP funds became available, freeing up 319 funds for other BMP work as well as a watershed survey of the remaining section of South Perley Brook.

Cattle access to stream

The following BMPs were constructed: cattle exclusion fencing and alternative water sources, heavy use areas and manure/waste storage pits on two separate farms, dam outlet stabilized, culvert replacement and armoring/rip rap, and winter cover.

PROJECT OUTCOMES:

- Six significant NPS sites were treated with nine different BMPs.
- By tapping into Federal EQIP funding, the value of the project increased by $22,795.
- A brochure entitled "South Perley Brook Water Quality Project" was produced and distributed.
- Load reduction estimates for four of the BMPs are 97.5 tons of sediment/year, 118.31 lbs/yr of phosphorus, 190 lbs/yr of nitrogen and 1,088 lbs/yr of chemical oxygen demand (COD).
- The project built momentum in the watershed and led to further BMP implementation in 319 project #2004R-23.

Crop land erosion

Winter cover to reduce soil erosion

After fencing cattle out of stream, vegetation returned to stabilize the stream banks

PROJECT PARTNERS:

Natural Resource Conservation Service, St. John Valley Office.

Maine Department of Agriculture

CONTACT INFORMATION:

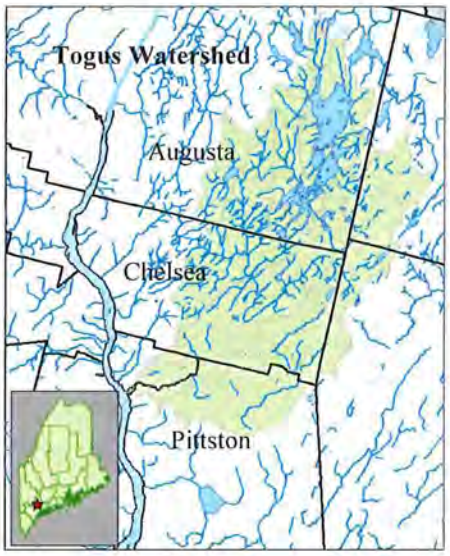
Kathy Hoppe, DEP – (207) 764-0477, kathy.m.hoppe@maine.gov

Heidi Royal, St. John Valley SWCD – (207) 834-3311, heidi.royal@me.nacdnet.net, sjv.me.nacdnet.org

Togus Watershed Survey Project

#2002R-23B WIFAP

Waterbody Name:	Togus Pond, Little Togus Pond, Lower Togus Pond, and Togus Stream
Location:	Augusta, Chelsea, Randolph, Pittston, Windsor and Whitefield – Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Sponsor:	Kennebec County SWCD
Project Duration:	January 2003 – March 2004
319 Grant Amount:	$10,000
Local Match:	$5,000



PROBLEM:

The Togus watershed consists of Togus Pond (660 acres), Little Togus Pond (93 acres), Lower Togus Pond (230 acres), and Togus Stream (7.4 miles). In total, the entire watershed covers 36.25 square miles and is part of the larger Kennebec River watershed. Water quality monitoring data since 1976 indicates that Togus Pond has a history of nuisance algal blooms, and the pond is characterized by heavy shoreline development. Lower Togus Pond has been monitored since 1989 with data indicating a high potential for nuisance algal blooms due to generally shallow depths. Additionally, Togus stream, which flows into the Kennebec River, does not attain dissolved oxygen standards and has high temperatures. The combination of these problems has resulted in the Togus Watershed being placed on the TMDL and Non-Point Source Priority Watersheds Lists.

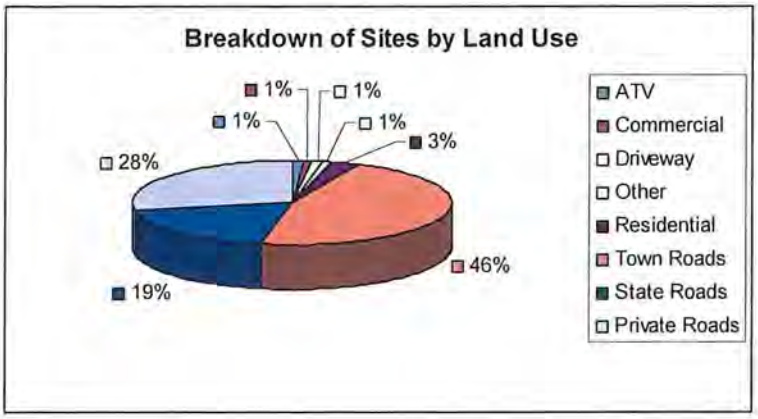
PROJECT DESCRIPTION:

The primary purpose of this project was to identify, characterize, and prioritize nonpoint source pollution sites within the watershed, and recommend conservation measures for each of these sites. A secondary objective was to raise public awareness throughout the watershed regarding stormwater runoff and the effects of runoff on water quality.

On Saturday March 29, 2003, a team of 17 volunteers participated in a one-day training session covering lake ecology, nonpoint source pollution, identification, and documentation of erosion sites in the field. The volunteers conducted the survey in groups of two during April, May and June of 2003. All of the sites were revisited by staff from the Kennebec County SWCD during the summer of 2003. Technical staff compiled the survey data, developed maps, and created the *Togus Watershed Survey Report.* In total, there were 144 NPS sites identified. Of these, 56 were rated with a high impact to the lake, 39 were rated as medium impact, and 34 were rated as low impact. The results of the survey report were reported in a press release that was sent to the local news sources.

PROJECT OUTCOMES:

- Project staff and volunteers surveyed the entire Togus Watershed and documented 144 NPS sites (Priority: 56 High, 39 Medium, and 34 Low). They also developed preliminary recommendations for each site and rated the impact to the lake, cost, and technical level required to fix each site.
- Community cooperation and response to this project was excellent. Representatives from the Town of Chelsea and the City of Augusta, the Togus Pond Association, Trout Unlimited, Friends of Kennebec Salmon, Togus Veterans Affairs, Maine Association of Conservation Districts and DEP were all actively involved in various stages of the project.
- Project staff produced the ***Togus Watershed Survey Report*** (March 2004), which summarizes watershed survey findings, and outlines next steps for watershed stewardship. This information was passed on to local news sources, and a public meeting is scheduled for May when the implementation phase begins.
- The Kennebec SWCD received a grant to begin NPS pollution remediation in the watershed. The project began in May 2004. Through the project, at least 30 sites in the watershed will be fixed. The project will provide cost share funding to towns, road associations and landowners to remediate sites throughout the watershed. There is $53,000 available to cost share practices through the grant.



PROJECT PARTNERS:

City of Augusta
Town of Chelsea
Togus Pond Association
Trout Unlimited
Friends of Kennebec Salmon
Togus Veterans Affairs
Maine Association of Conservation Districts

CONTACT INFORMATION:

Melissa Laser, Kennebec County Soil & Water Conservation District – (207) 622-7847

Jessie Mae MacDougall, DEP – (207) 287-5586, jessiemae.macdougall@maine.gov

Tripp Lake Watershed Management Plan Development
#2002-14

Waterbody Name:	Tripp Lake
Location:	Poland, Androscoggin County
Waterbody Status:	NPS Priority Watersheds
Project Grantee:	Androscoggin Valley SWCD
Project Duration:	April 2002 – November 2004
319 Grant Amount:	$21,645
Local Match:	$16,043

PROBLEM:

Situated within commuting distance of the cities of Lewiston-Auburn, Portland, and Augusta, the Town of Poland is growing, with new homes and seasonal conversions added annually to each of its lake watersheds. The Tripp Lake watershed has large areas of shoreline residential development, and supports a summer youth camp and two commercial campgrounds. The town beach is intensively used, and a public boat dock provides access to the pond for the regional population.

A nonpoint source pollution survey of the watershed conducted in 1996 identified 87 residential and road erosion sites. A successful watershed demonstration project was completed in December 2000, and the Androscoggin Valley Council of Governments has been working with the Town of Poland on their comprehensive plan, ordinances and planning for infrastructure improvements. Momentum has been growing among watershed citizens and municipal officers for protecting Poland's water resources.

PROJECT DESCRIPTION:

The purpose of this project was to develop a locally generated management plan for long-term water quality protection of Tripp Lake, through interactive public meetings, surveys, and education. The planning procedure was open and inclusive. A survey was sent to watershed property owners describing the purpose of the plan and seeking feedback on knowledge of watersheds, use of the lake and watershed, what factors might contribute to a decline in water quality and suggestions for lake protection. An action plan was created incorporating the survey and public meeting responses, which was then sent into the community for comment along with a questionnaire.

Poland's Code Enforcement Officer provided a significant amount of material on current land use and development, current zoning laws and the rate of development within the town as a whole. A phosphorus build-out scenario was done, and maps of zoning districts were created.

Painting of Tripp Lake Island by Jason W. Izumi

PROJECT OUTCOMES:

- The *Tripp Lake Watershed Management Plan* was completed. It is a beautifully written document that reflects the area's history and culture, as well as the watershed's unique physical and ecological characteristics. The plan will provide a basis for future steps and informed decision making in the Tripp Lake Watershed.
- Computerized maps in the Watershed Management Plan include the following:
  - Zoning Districts Overlay with Tax Map Lots
  - An elevation projection and watershed slopes using 3-D modeling
- Key findings of the watershed growth indicators and the phosphorus build-out scenario include:
  - Total housing units in Poland went up 22.2% in the ten years from 1990-2000.
  - Year-round residential growth from 1980-2000 went up 36%.
  - Adding just a little over 30 lbs. of phosphorus could increase the lake phosphorus level by about 10%, enough to trigger an algal bloom and stress fish habitat.
  - It would only take 138 new "dwelling units" in the Tripp Lake watershed to yield 30 lbs. of phosphorus. Between 1990 & 2000, 421 new houses were constructed.
- The Action Plan includes 11 categories of issues and concerns with 92 Actions to address those concerns.

PROJECT PARTNERS:

Town of Poland

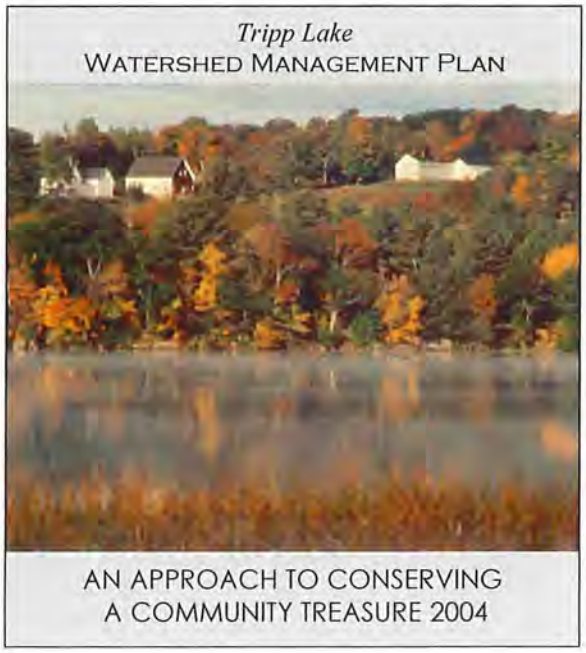
Tripp Lake Improvement Association

Androscoggin Valley SWCD

Androscoggin Valley Council of Governments

Poland Historical Society

Land and Watershed Resource Management Associates



CONTACT INFORMATION:

Jessie Mae MacDougall, DEP - (207) 287-5586, jessiemae.macdougall@maine.gov

Phoebe Hardesty, Androscoggin Valley SWCD – (207) 753-9400 x. 403, phoebeh@maine.rr.com

Unnamed Brook, Prestile Stream Pollutant Load Reduction

#2000R-43A - WIFAP

Waterbody Name:	Unnamed tributary to Prestile Stream
Location:	Westfield – Aroostook County
Waterbody Status:	Impaired, NPS Priority Watersheds
Project Grantee:	Central Aroostook SWCD
Project Duration:	February 2001 - July 2004
319 Grant Amount:	$50,517
Local Match:	$30,208 (ME Dept. Ag.), $18,610 (local)

PROBLEM:

During most runoff events many tributary brooks as well as the main stem of the Prestile stream turn mild chocolate colored as a result of excessive sediment loads. Soil washed from cropland (potatoes, grain & broccoli) is a major source of water pollution of Prestile Stream and its tributaries.

Approximately 25,000 acres of cropland and 10 livestock operations are in the Prestile Stream watershed. While many BMPs have already been implemented on cropland, additional ones are needed throughout the Prestile Stream watershed to capture the sediment and nutrients before it reaches the tributaries or main stem. An unnamed brook in Westfield is one of the many brooks in the watershed that receive excessive nutrient and sediment loads form croplands. The unnamed tributary discharges in the non-attainment section of the Prestile Stream.

PROJECT DESCRIPTION:

Central Aroostook SWCD, working with the landowner and NRCS designed a series of BMPs to capture both sediments and nutrients coming off the cropland in the watershed of the Unnamed tributary. The BMPs included diversions, waterways, nutrient and sediment control systems (settling basin and pond), and buffers. The nutrient and sediment control system is a special designed BMP originally for potato ground in the St. John Valley by NRCS to address excessive soil and nutrient issues in lake watersheds. This is the first application of this BMP in central Aroostook. For more information, go to www.me.nrcs.usda.gov/features/CentralAroosSuccess.html

Potato crop land that drains to nutrient & sediment control BMP

PROJECT OUTCOMES:

- Many unique BMPs for the central Aroostook region were demonstrated. These included a Nutrient and Sediment Control Structure, which includes sediment basin, level lip spreader, shallow pond & deep-water pond.
- Soil & nutrients off 108 acres of bare ground were captured.
- 13,200 kilograms (14.5 tons) of total suspended solids were captured per year.
- 27 kilograms of total phosphorous were captured per year (60 lbs. of phosphorous or 10,000 pounds of fertilizer).

NRCS staff explain how the nutrient & sediment control structure works at BMP tour. (First component of system, the sediment basin.)

Nutrient & sediment control structure under construction.

Construction of pond and outfall components of nutrient and sediment control system

PROJECT PARTNERS:

Natural Resource Conservation Service, Presque Isle Office
Smith Farms of Presque Isle

CONTACT INFORMATION:

Kathy Hoppe, DEP – (207) 764-0477, kathy.m.hoppe@maine.gov
Linda Alverson, Central Aroostook SWCD – (207) 764-4153 ext 130, linda.alverson@me.nacdnet.net

Watchic Lake Demonstration Project
#2000-18

Waterbody Name:	Watchic Lake
Location:	Standish, Cumberland County
Waterbody Status:	NPS Priority Watershed, Most At Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	April 2000 – June 2004
319 Grant Amount:	$62,130
Local Match:	$46,955

PROBLEM:

Watchic Lake is a 448-acre lake located in the Town of Standish. The shoreline is developed with about 250 camps and year-round homes. The lake receives a significant amount of recreational use from the popular Kiwanis Beach facility. Watchic Lake's watershed covers 3.5 square miles and is part of the larger Saco River Watershed.

The lake has been monitored since 1974,and the data indicates that the lake has significant depletion of dissolved oxygen in the hypolimnion in late summer. There is also a moderate to high risk of nuisance algal blooms or internal phosphorus recycling problems. As a result, Watchic Lake is listed on the NPS Priority Watersheds list and list of lakes "Most at Risk from New Development" under the Maine Stormwater Law. The Cumberland County Soil and Water Conservation District (SWCD) and Watchic Lake Association (WLA) started lake protection efforts in 1998 when they conducted a watershed survey of the lake with a 319 grant.

PROJECT DESCRIPTION:

The goal of the project was to protect and improve Watchic Lake's water quality by reducing sources of polluted runoff in the watershed, providing one-on-one technical assistance to landowners, raising awareness about watershed problems and promoting local stewardship.

Project staff and volunteers provided technical assistance to 12 landowners and installed a variety of conservation practices at 13 demonstration sites—including a large-scale mitigation project on Watchic Terrace Road and a highly visible project at Kiwanis Beach. Outreach was carried out through presentations at WLA, Standish Planning Board and Town Council meetings and to Bonny Eagle High School classes. Numerous articles were also printed in the WLA newsletter; watershed boundary signs and demonstration signs were posted; and nine hands-on workshops were held.

PROJECT OUTCOMES:

- A variety of conservation practices were installed at 13 erosion sites including one commercial beach, two driveways, six residential areas, one boat launch, one state road and two private roads.
- The highest impact erosion problem on the lake, Watchic Terrace Road, was successfully repaired by installing several catch basins, curbing and a settling pool and paving the entire road. This complex project was made possible through leadership by the WLA and significant cash match by landowners and the WLA. Estimated soil loss avoidance on this site alone totaled 22 tons/year.
- The project's total estimated pollutant load reduction was 38 tons of sediment per year (US EPA, Region 5 Method and WEPP:Road model).
- The project accomplished work through a variety of innovative partnerships and funding sources. The state road site was fixed by DOT's SWQPP grant program. One residential site was fixed by Bonny Eagle students through a DEP Watershed Stewardship grant. The Kiwanis Beach project was funded in part by a grant from the National Federation of Garden Clubs and installed with volunteer labor from a local garden club, Kiwanis, and employees of a local business, Utilities Inc.

Kiwanis Beach *– 38 volunteers from local businesses, garden clubs, Kiwanis and the WLA chipped in to plant shrubs, build infiltration steps, repair failed retaining walls, and install a drywell.*

PROJECT PARTNERS:

Watchic Lake Association
Town of Standish
Kiwanis Club of Standish
Maine Department of Transportation
Utilities, Inc.
Wildridge and Grandiflora Garden Clubs
Bonny Eagle High School
Shell Oil Company

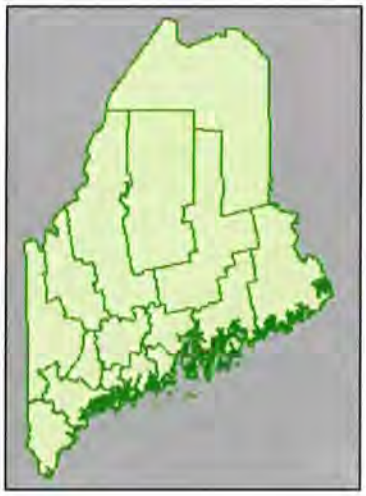
CONTACT INFORMATION:

Wendy Garland, DEP - (207) 822-6320, wendy.garland@maine.gov

Betty Williams, Cumberland County SWCD - (207) 856-2777, betty-williams@me.nacdnet.org

Building Logging Roads to Mitigate Adverse Water Impacts
#2000-03

Waterbody Name:	N/A
Location:	Statewide
Waterbody Status:	N/A
Project Grantee:	University of Maine
Project Duration:	July 2000 – August 2004
319 Grant Amount:	$32,186
Local Match:	$23,354



PROBLEM:

Logging roads, trails and landings are by far the major sources of soil erosion and potential sedimentation associated with timber harvesting in Maine. Little attention has been given to conveying information on ways to construct efficient logging access systems that (a) minimize the amount of exposed soil resulting from road building activity; and (b) are effective in mitigating the momentum of water introduced to road surfaces from rain events and/or snow melt.

Fitting BMPs to poorly located and constructed roads reduces BMP effectiveness, and scraping road surfaces into the forest floor can result in roads banked on each side, which is undesirable. Shedding water from these roads is difficult since the road surface is generally below ground level. Conversely, using excavators to build logging roads allows the road to be elevated above surrounding ground, enhancing drainage and efficient diversion of surface flows. Steep terrain skid trails increase velocity of water intercepted by roads, increasing its erosive force. Well-constructed switchbacks can alleviate this problem. Sound forest road construction requires planning, knowledge of soils and familiarity with water engineering and road construction principles. Clear examples of such methods are lacking.

PROJECT DESCRIPTION:

The primary project goal was to develop a DVD illustrating sound methods for constructing forest roads that minimize soil exposure and water quality problems. This new DVD resource was showcased at two workshops for loggers, foresters, forest engineers, educators and landowners. The DVD is intended as a point of departure for both discussions and forestry BMP field demonstrations and will be widely distributed. An accompanying multi-page brochure was created that summarizes the major points shown in the DVD.

PROJECT OUTCOMES:

- A DVD of recommended forestry road construction methods was produced and will be widely distributed to foresters, forest engineers and landowners. The DVD focuses on the following aspects of forest road construction that can help prevent or minimize water quality problems:
  - laying out roads to maintain an acceptable grade
  - building switchbacks
  - using an excavator to build a road surface
  - using gravel appropriately
- A multi-page brochure was created that summarizes the main points in the DVD.
- Two workshops were held to introduce the forestry community to the new DVD resources. One of the showings was at the annual meeting of New England Regional Council on Forest Engineering.

PROJECT PARTNERS:

University of Maine - Department of Forest Management
University of Maine Cooperative Extension
New England Council on Forest Engineering
Sustainable Forestry Initiative
Small Woodlot Owners Association of Maine

CONTACT INFORMATION:

Tony St. Peter, DEP - (207) 287-2116, tony.stpeter@maine.gov
Andrew Egan, University of Maine – (207) 581-2841, www.forest-resources.umaine.edu

Gravel Road Surface Maintenance Demonstration – Phase I
#2001-39

Location:	Androscoggin, Cumberland, Franklin, Kennebec, Oxford, Somerset, York Counties
Project Grantee:	Franklin County SWCD
Project Duration:	January 2002 – June 2004
319 Grant Amount:	$57,988
Local Match:	$119,844

PROBLEM:

Erosion of gravel roads in Maine is widely recognized as a major source of external phosphorus loading to lakes in Maine that are threatened by cultural eutrophication. Historically, the gravel camp roads in Maine's lake watersheds have been owned by individuals or groups of residential property owners. Consequently, repair and maintenance of these roads has been their sole responsibility, with little or no practical assistance from public resources. As a result, public waters are experiencing unacceptably high phosphorus loading from camp roads, with unacceptably low participation from local, county or state organizations in addressing lake water quality from this important category of non point source pollution. Proper road grading has been shown to be a significant portion (20-30%) of annual camp road maintenance and repair expenses.

PROJECT DESCRIPTION:

The purpose of this grant was to demonstrate the practical techniques to properly grade and maintain gravel roads to minimize erosion of road surfaces and to significantly reduce phosphorous loading to lakes and other water bodies. Training sessions for those wishing to use the equipment were held in the seven county SWCD regions. The classroom portion of the training provided instruction on the construction and the proper maintenance of gravel roads and on Maine DEP's rules and regulations for permits. The afternoon outdoor portion of the sessions provided participants with the opportunity to learn how to properly use the Front Runner in a hands-on, behind the wheel training on pre-selected gravel roads.

After individuals were trained to use the equipment and had the proper vehicle to run the Front Runner, they were encouraged to borrow the equipment as needed. During the first season three Front Runners were purchased through the grant, which were shared by seven districts. There was sufficient funding to purchase an additional 3 Front Runner Units and spare tines for each at the end of the project, because of a high level of in-kind match. Oxford County opted out of the program so each of the remaining six SWCD districts now have their own unit. The units are being used to demonstrate road maintenance during annual gravel road workshops held across the state and by trained individuals to maintain their own gravel roads.

PROJECT OUTCOMES:

Training Sessions:

- 6 training sessions were originally planned in the grant
- 14 training sessions actually were conducted during the grant period
- 10 training sessions were held previously in conjunction with the DEP training center in 2003

Roads treated:

- 12 roads were originally planned to be improved through in the grant
- 30 roads were actually treated during the 14 training sessions
- 6 miles of road were originally planned for treatment
- 33.3 miles of road were actually treated during the 14 training sessions
- 23 additional miles of treatment were reported by the individuals that attended the 14 training sessions

PROJECT PARTNERS:

Androscoggin Valley SWCD

Cumberland County SWCD

Kennebec County SWCD

Franklin County SWCD

Oxford County SWCD

Somerset County SWCD

York County SWCD

Maine Department of Transportation, Clyde Walton

Russ Lanoi – inventor and producer of the Front Runner - describing the proper road surface material.

CONTACT INFORMATION:

Jessie Mae MacDougall, DEP - (207) 287-5586, jessiemae.macdougall@maine.gov

Rosetta Thompson, Franklin County SWCD – (207) 778-4279, rosetta-thompson@me.nacdnet.org

For more information on the Front Runner, visit www.ruralhometech.com/fr/main.php.

Timber Harvesting BMP Demonstration Area
#99-07

Waterbody Name:	Unnamed Brook
Location:	Lyman - York County
	Sid Emery Forest
Project Grantee:	University of Maine
Project Duration:	March 1999 – May 2004
319 Grant Amount:	$31,694
Local Match:	$26,148

PROBLEM:

Forestry Best Management Practices (BMPs) are used throughout the state to address NPS pollution originating from harvesting operations. Entities such as the Certified Logging Professional Program (CLPP), Sustainable Forestry Initiative (SFI), the Professional Logging Contractors (PLC) of Maine, and the Small Woodland Owners Association of Maine (SWOAM) are active in educating their constituents about forestry BMPs. Through a DEP Section 319 grant secured in 1997 (ID #95-21) the University constructed a Forestry BMP Demonstration Area on its University Forest in Orono, to help serve the forestry education needs of northern Maine. However, research within the logging community indicated that the greatest expense associated with forestry training is the loss of production time incurred by the training itself, including travel time. The location of demonstration sites is a key element to their success, and sites serving the needs of non-industrial private forest ownerships (characterizing most of the southern half of the state) was lacking. There was a critical need to establish a readily-accessible, well-maintained forestry BMP demonstration site for the large population of loggers, non-industrial private forest owners, foresters, and interested citizens in the southern and central Maine region.

PROJECT DESCRIPTION:

A project Advisory Committee reviewed potential locations and selected the Sid Emery Demonstration Forest in Lyman, Maine for their demonstration site. BMP demonstration sites were planned and established based on an assessment of which practices were most effective in illustrating water quality protection and erosion control; what the intended audiences could most easily relate to and utilize; which practices could be most effectively demonstrated; and which practices the site best lent itself to.

A user field guide, signage, and visitor sign-in book was developed to explain the project BMPs, guide visitors through the area and gauge public attendance. Workshops were organized, focusing on the following primary user audiences: professional loggers and foresters; forestland owners; and natural resource educators. Site maintenance will occur through in-kind support from local logging contractors.

PROJECT OUTCOMES:

- The following conservation practices were installed, replaced, and/or rejuvenated at the Sid Emery Forest to demonstrate a variety of logging BMPs:
  - Wooden skidder bridge (as a temporary stream crossing)
  - Swamp crane mats
  - Open-top box culvert
  - Cross-drainage culvert
  - Water bars
  - Broad-based drainage dips (run-off control)
  - Use of geotextile fabric (part of effective erosion control techniques)
  - Forest road grading/crowning/ditching
  - Streamside management zones
- Interpretive signs were installed at the Forest; a tour brochure was created; and targeted workshops were held to explain and promote on-site features to the public.

Swamp crane mats were installed to minimize soil disturbance by skidders in sensitive/wet areas.

PROJECT PARTNERS:

University of Maine, Department of Forest Management
University of Maine Office of Sponsored Program and Office of Professional Development
University of Maine College of Natural Sciences, Forestry, and Agriculture
University of Maine Cooperative Extension Office
University of Maine Forestry and Agriculture Experiment Station
Maine Forest Service
Sustainable Forestry Initiative;
Certified Logging Professional Program
American Pulpwood Association
Small Woodland Owners Association of Maine

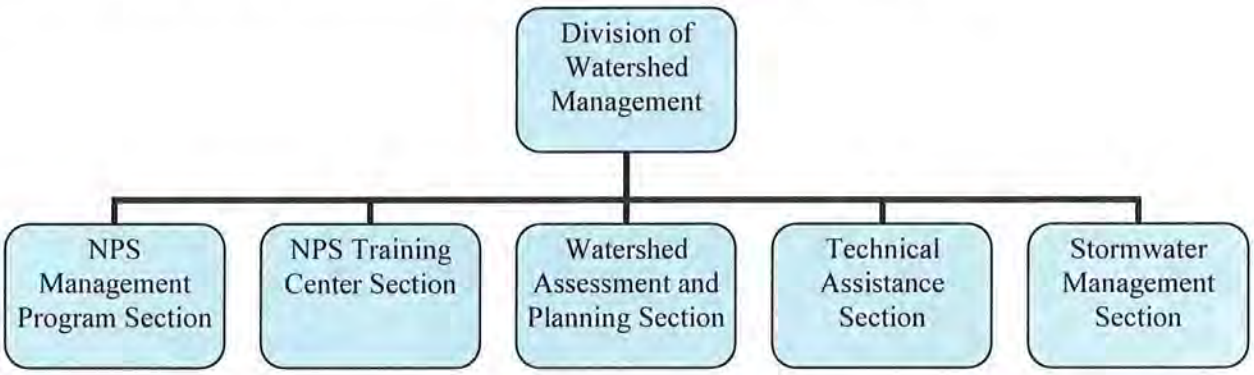
CONTACT INFORMATION:

Tony St. Peter, DEP - (207) 287-2116, tony.stpeter@maine.gov
Andrew Egan, University of Maine – (207) 581-4739, andy_egan@umenfa.maine.edu

F. DEP NPS Program & Project Activities in 2004

1. Overview

The Division of Watershed Management administers DEP's NPS program services and watershed management and is organized in five units. The Nonpoint Source Management Program unit administers the 319 grant program. The Nonpoint Source Training Center provides training to engineers, consultants and others; as well as providing education and outreach. The Watershed Assessment and Planning unit provides stormwater technical assistance and watershed management planning and assistance, and manages the Stream Team Program. The Technical Assistance Unit provides technical review of permit applications and maintains or develops Best Management Practices guidelines. The Stormwater Management unit provides coordination for implementation of the MEPDES Program.



2. Summaries

In addition to the competitive grants program, DEP directly funds several programs and projects using 319 funding. Some of these programs are carried out by DEP staff and others are implemented by partner organizations. The following pages include descriptions of each of the following programs and major accomplishments in 2004. Table shows 319 amounts used to help fund these projects. Amounts do not include DEP personnel services costs associated with conducting the work.

DEP NPS Program and Project Activities in 2004

Ambient Biological Monitoring – Benthic Macroinvertebrates	15,000
Maine Lakes TMDL Assessments	178,250
Maine Landcover Dataset 2004 (MELCD 2004)	115,000
Maine Volunteer Lake Monitoring Program	55,000
Atlantic Salmon Rivers Assistance	DEP staff only 0
Stream Algae (Periphyton)	20,000
Statewide NPS Outreach	66,000
Maine Stream Team Program	7,000
Maine Nonpoint Education for Municipal Officials (NEMO) Program	100,000
Maine Nonpoint Source Training and Resource Center	98,000
Maine Lakes Biomanipulation	50,000
Maine Lakes Technical Assistance – Southern Maine	60,000
Maine Lakes Technical Assistance – Central Maine	60,000

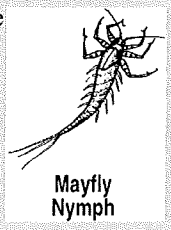
Ambient Biological Monitoring - Benthic Macroinvertebrates

The NPS project Bioassessment of Impacted Streams evaluates benthic macroinvertebrate communities of Maine streams and rivers with suspected nonpoint source problems to determine if they are impaired.

Major Accomplishments in 2004:

- Fifteen stations sampled in 2003 were analyzed to assess the condition of the benthic macroinvertebrate community and to determine the aquatic life attainment status.
- Six of the 15 stations (40%) collected in 2003 failed to attain aquatic life standards of their assigned class.
- Samples were collected from 15 stations to evaluate the composition of the resident biological community and to determine aquatic life attainment status. Analysis will follow in 2005.
- An RFP for taxonomic identification was completed this fall and a contract to identify 2004 samples is currently being completed.

Benthic macroinvertebrates are animals without backbones that can be seen with the naked eye and live on the stream bottom, such as mayflies, stoneflies, and caddisflies, crayfish, snails, and leeches.



For More Information:

Leon Tsomides, DEP - (207) 287-7844 or leon.tsomides@maine.gov

Maine Lakes TMDL Assessments

This is an ongoing project since 1999 to study 33 TMDL lakes (i.e., lakes with impaired water quality and listed on the 303(d) list) and prepare TMDL reports, with recommendations for the effective control of nonpoint through recommended implementation plans. The project has been facilitated through a contract with the Maine Association of Conservation Districts (MACD), working directly with Soil and Water Conservation Districts within representative counties statewide.

Major Accomplishments in 2004:

- Completion and EPA approval of six combined Phosphorus Control Action Plan (PCAP) and Total Maximum Daily (Annual Phosphorus) Loading (TMDL) reports for the following waterbodies:
- Annabessacook Lake (May 18) and Pleasant Pond (May 20) in cooperation with the Cobbossee Watershed District (CWD).
- Sabattus Pond and Highland Lake - Bridgton (August 12), latter in cooperation with Lakes Environmental Association (LEA).
- Toothaker and Unity ponds (September 16), latter in cooperation with Unity College.

For More Information:

Dave Halliwell, DEP - david.halliwell@maine.gov,
http://www.maine.gov/dep/blwq/docmonitoring/tmdl2.htm

Maine Landcover Dataset 2004 (MELCD 2004)

The State of Maine has benefited greatly from using National Landcover Dataset (NLCD) and Maine Gap Analysis (MEGAP) to conduct landscape analysis. However, as both of these products age, users become increasingly aware of limitations due to resolution and time constraints. The State of Maine has teamed up with the National Oceanic & Atmospheric Administration (NOAA) Coastal Services Center, United States geologic Survey (USGS) Data Center, and Space Imaging to produce a collaborative new landcover/imperviousness product which adds value to newer NLCD 2001 data and increases resolution. The new dataset will be based on 5-meter SPOT-5 data, with a vintage date of 2004, and be fully integrated with USGS and NOAA efforts in our area. The products will include a 5-meter resolution imperviousness dataset for developed areas of Maine and a 5-meter resolution landcover dataset for the entire state. The products are tightly integrated and designed to complement the federally equivalent land cover projects currently underway. 319 funded the initial purchase of SPOT-5 data. Other state agencies have funded the services and fieldwork portions of the project. The imperviousness data will be delivered in late February 2005, the landcover data will be delivered in July 2005, and an accuracy assessment will be delivered in August 2005, upon project completion.

Major Accomplishments in 2004:

- Project started June 2004
- Initial training data collected August - October 2004
- LandSat mosaic delivered October 2004
- SPOT-5 data collection completed, October 2004
- SPOT-5 data delivered, December 2004.

For More Information:

Michael Smith, DEP - michael.smith@maine.gov. Web: http://www.maine.gov/dep/gis

Maine Volunteer Lake Monitoring Program (VLMP)

Grants awarded under the 319 program primarily support the educational aspects of the VLMP: training of volunteer monitors to collect quality data, production of three newsletters per year in addition to the Annual Report and the annual meeting to share information about lake water quality issues. The total match generated by the volunteers associated with the program is in excess of twice the 319 funding level. Volunteers monitor assigned lakes twice a month for 5-6 months of each year. Volunteer match is also generated as participants attend monitoring workshops, the annual meeting, enter data into electronic format and assist in the local coordination of VLMP activities.

The Maine Volunteer Lake Monitoring Program (VLMP) is a statewide nonprofit organization dedicated to protecting Maine's lakes and ponds through the acquisition of scientific data, and to enhancing public awareness about the ecological, aesthetic and economic value of our lakes.

Major Accomplishments in 2004:

- Produced 2003 Maine Volunteer Lake Monitoring Program Annual Report (April, 2004), which reported:

- Volunteers monitored 43% of Maine's lake surface area.
- Volunteers obtained 3,582 Secchi transparency readings, 14,246 dissolved oxygen readings, and 1,247 total phosphorus samples.
- Produced three newsletters (Winter, Summer, Fall)
- Convened Annual Meeting
- Trained 75 New volunteers
- Recertified 102 transparency and 62 dissolved oxygen volunteers

For More Information:

Linda Bacon, Project Manager, DEP - (207) 287-7749, Linda.C.Bacon@Maine.gov
Scott Williams, VLMP - (207) 783-7733, Scott.Williams@MaineVLMP.org
http://www.mainevolunteerlakemonitors.org/

Atlantic Salmon Rivers Assistance

NPS pollution can not only degrade river water quality but also hinder restoration of endangered wild Atlantic salmon. The purpose of this program is to manage 319 grants and provide technical assistance to local based watershed groups with the goal of reducing NPS pollution. The program is active in the watersheds of the Dennys, East Machias, Machias, Pleasant and Narraguagus Rivers and Cove Brook.

Major Accomplishments in 2004:

- Completed an NPS survey of the blueberry barrens in the Dennys River watershed.
- Developed of an NPS restoration plan to fix one of the single largest NPS sites in the Dennys River Watershed.
- Completed an NPS survey of the Cove Brook watershed.
- Applied for and received a NPS implementation grant to restore the Santiago property in Columbia Falls.
- Developed a BMP manual for Salmon River watersheds.

For More Information:

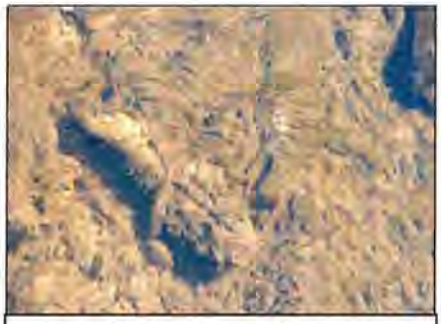
Greg Beane, DEP - (207) 941-4292, greg.e.beane@maine.gov

Stream Algae (Periphyton)

The Biological Monitoring Program is developing a stream algae assessment tool to complement the benthic macroinvertebrate sampling. The algal community is directly influenced by non-point sources of nutrients, sediment, and other factors that influence water quality. The Program intends to use stream algae data and accompanying water chemistry data to help establish ecologically meaningful nutrient criteria and to build a second model for predicting aquatic life use attainment.

Major Accomplishments in 2004:

- Forty (40) 2003 algae samples were sent to Michigan State University for taxonomic and biomass analysis.
- In 2004, collected forty (40) algae samples, primarily in the St. John River basin. Many of the locations were sampled for both algae and benthic macroinvertebrates. Samples to be sent to Michigan State University for taxonomic and biomass analysis in 2005.
- Collected water chemistry samples at each sample location (Nitrate+Nitrite, Total Kjeldahl Nitrogen, Total Phosphorous, Soluble Reactive Phosphorous, Dissolved Organic Carbon, Alkalinity, and Dissolved Silica.)



Benthic algae in Prestile Stream, Westfield, 2003.

- Completed an overhaul of the algae database and wrote Visual Basic code that calculates summary variables and autecological indices.

For More Information:

Tom Danielson, DEP - (207)-287-7728, thomas.j.danielson@maine.gov

Statewide NPS Outreach

Much of NPS pollution is the result of individual actions/behaviors throughout the state. In order to reduce NPS pollution, there is a need to encourage new more environmentally friendly behaviors. The Statewide NPS Outreach project aims to share NPS efforts throughout the state with MDEP's partners through the NPS Times Newsletter and to raise awareness and encourage behavior change through both mass media and local efforts.

Major Accomplishments in 2004:

- 4 issues of the NPS Times distributed both electronically and in hard copy (copies available at http://www.state.me.us/dep/blwq/doceducation/newsletter.htm)
- 2 soil erosion radio public service annoucements (PSA) were modified to fit with stormwater PSAs.
- 4 radio PSAs (2 were about soil erosion and 2 covered stormwater issues) aired statewide for 6 weeks during the summer

- Joint project with 24 municipalities with regulated muncipal separate storm sewer systems (MS4s) to raise awareness of path stormwater takes and pollution sources; involved modifying & airing a TV PSA from San Diego (MS4s match approximately $100,000 for air time).
- The joint effort created the ThinkBlueMaine Partnership and identity: www.ThinkBlueMaine.org
- Market research measured the effectiveness of the ThinkBlueMaine campaign effort and showed clear effectiveness with over 14% of adult Maine citizens correctly recalling the ads and almost a 1/4 saying they had or will take action to protection water quality.

- 6% of those surveyed in a statistically significant phone survey identified soil erosion as a source of water pollution. This is up from zero when the question was first asked in 1996. In fall 2004 survey, soil erosion was tied for 4th as most common answer given.
- Hosted a North and South Children's Water Festival for about 1,600 students and their teachers.

For More Information:
Kathy Hoppe, DEP - (207) 764-0477 or kathy.m.hoppe@maine.gov.
http://www.maine.gov/dep/blwq/doceducation/nps/

Maine Stream Team Program

The Maine Stream Team Program (MSTP) is a project dedicated to assisting local citizens and grassroot organizations interested in being stewards of their local stream resources. The program serves as a clearinghouse of stream-related information, acts as a catalyst for networking and partnering amongst local stream and river groups, and provides reference materials and training opportunities to advance stream protection efforts throughout the state. A "stream team" is a group of individuals that have banded together to learn about and protect their local stream or river.

Major Accomplishments in 2004:

- Published 3 issues of the MSTP Newsletter - distributed both in hard copy and electronically (see website listed above).
- Hosted the Maine Stream Summit – 2004; 81 attendees.
- MSTP helped coordinate and run 7 rapid stream survey trainings plus 1 stream substrate bottom characterization.
- Provided assistance for 1 watershed survey.
- Assisted 3 groups in local water quality monitoring.
- Provided technical and educational assistance to 5 stream teams and watershed councils.

For More Information:
Jeff Varricchione, DEP - (207) 822-6317 or jeffrey.t.varricchione@maine.gov
http://www.state.me.us/dep/blwq/docstream/team/streamteam.htm

Maine Nonpoint Education for Municipal Officials (NEMO) Program

The Maine NEMO program provides outreach to municipal officials on how land use decisions are linked to water quality in their towns. LaMarr Cannon is the NEMO coordinator, based at the office of the Partnership for Environmental Technology Education in South Portland. The Maine State Planning Office Coastal Program and the Department of Health and Human Services Drinking Water Program also provide funding for the program.

Major Accomplishments in 2004:

- Provided thirteen NEMO Presentations and related services to municipalities and other land use decision makers in 22 communities.
- Coordinated efforts with the DEP Stormwater Phase II program to include municipal employees in the Train the Trainer program and direct marketing of the NEMO program to regulated communities.
- Collaborated with the Drinking Water Program and Maine Rural Water to create a source water protection presentation.
- Produced The Maine Resources Guide.
- Provided technical assistance to communities as follow up to the NEMO presentation including open space planning information to the Spruce Creek Watershed Group in Kittery; materials to the town of China for a public awareness campaign; model ordinances language to UM Cooperative Extension; GIS map materials to 15 towns; and use of GIS for theoretical build-out of towns based on current land use regulations for 5 towns.

For More Information:
LaMarr Cannon, NEMO Coordinator: PETE - (207) 771-9020; lcannon@maine.rr.com
Don Witherill, DEP - (207) 287-7725 or donald.t.witherill@maine.gov
http://www.mainenemo.org/

Maine Nonpoint Source Training and Resource Center

The Maine Nonpoint Source Training and Resource Center's primary focus is to provide training to various groups throughout the state to help them prevent nonpoint source pollution. In addition, the Center maintains a publications and videotape library and acts as a clearinghouse for information on nonpoint source pollution and best management practices.

Major Accomplishments in 2004:

- Erosion Control Practices training for Contractors and Americorps volunteers: 244 participants
- HydroCad Stormwater Management software for engineers: 78 participants
- Certified Professional in Stormwater Quality: 17 participants
- Pollution Estimation Techniques: 50 participants
- Conservation Expo: 128 participants
- Installation and Inspection of Septic Systems: 414 participants
- Septic System Training For Homeowners: 42 participants
- LakeSmart Landscaping For Homeowners and Landscape Professionals: 193 participants
- Unpaved Road Maintenance and Highway Design: 187 participants

- Newly certified 26 individuals in the Volunteer Contractor Certification Program and issued 27 LakeSmart awards
- The Center distributed over 200 copies of publications and 34 videotapes in 2004.

For More Information:
Bill LaFlamme, DEP - (207) 287-7726 or William.laflamme@maine.gov
http://www.state.me.us/dep/blwq/training/index.htm

Maine Lakes Biomanipulation

This project is a two-phased, post-TMDL mitigation project to initially assess relationships between existing and historical water quality conditions and fish assemblages in East and North ponds (Belgrade Lakes). The second phase is to implement commercial fish removal to reduce juvenile white perch biomass and enhance phytoplanktivorus zooplankton populations - resulting in improved water quality conditions (water transparencies) because of increased consumption of phytoplankton.

Major Accomplishments in 2004:

- Assessed the East Pond fish assemblage, including springtime trapnetting (capture-recapture population estimates) and summertime juvenile fish capture for analyzing predator-prey (zooplankton) food relationships.
- Signed a cooperative agreement/contract with University of Maine, Orono in place to support a M.S. project graduate student.
- Completed monthly water quality sampling (May to October) including phosphorus and chlorophyll-a, water transparency, and dissolved oxygen - water temperature profiling. Phyto- and zoo-plankton were also collected.
- In cooperation with Maine DIFW, 125 black bass were angled and permanently marked with visual implant tags and three black bass tournaments were monitored during the summer and early fall.
- Presented introductory project talk at the North American Lake Management Society annual conference in Victoria, British Columbia, Canada.

For More Information:
Dave Halliwell and Melissa Evers, DEP, david.halliwell@maine.gov, (207) 287-7649 and melissa.evers@maine.gov (207) 287-2838
http://www.state.me.us/dep/blwq/doclake/biomanipulation/index.htm

Lakes Program Technical Assistance - Southern Maine

The Cumberland County Soil and Water Conservation District provided technical services: to help lake watershed communities, other SWCDs and DEP with the development and implementation of lake protection and restoration projects; to promote water quality protection in lake watersheds through education and outreach; and to provide landowners, road associations and municipalities with technical assistance to resolve site-specific nonpoint source pollution problems. The service area were lake watersheds in Androscoggin, Cumberland, Oxford, Sagadahoc and York Counties. Work targeted lakes on the state's "*NPS Priority Watersheds*" and "*Lakes Most at Risk from Development*" lists.

Major Accomplishments in 2004:

- Helped develop grant proposals and work plans for protection, restoration or outreach projects for 20 watersheds.
- Provided services (technical assistance to towns and landowners, BMP design, outreach, etc) to help implement 19 active NPS Watershed Projects and NPS Watershed Surveys.
- Provided technical assistance and outreach and education services to lake associations, municipal officials and lakeshore landowners.
- Under direction of DEP, compiled field survey data and prepared a report on regarding compliance with the State Erosion and Sediment Control Law. The Maine Legislature directed DEP evaluate past and projected compliance with the law. DEP used the report to develop recommendations for improving compliance.

For More Information:

Tamara Lee Pinard, Cumberland County SWCD; tamara-lee-pinard@me.nacdnet.org

Lakes Program Technical Assistance - Central Maine

Kennebec County Soil and Water Conservation District provided technical services to: help lake watershed communities, other SWCDs, and DEP with the development and implementation of lake protection and restoration projects; promote water quality protection in lake watersheds through education and outreach; and provide landowners, road associations and municipalities with technical assistance to resolve site-specific nonpoint source pollution problems. The service areas were lake watersheds in Kennebec, Franklin, Somerset, Waldo, Knox and Lincoln counties. Work targeted lakes included on the state's "*NPS Priority Watersheds*" and "*Lakes Most at Risk from Development*" lists.

Major Accomplishments in 2004:

- Helped develop grant proposals and work plans for protection, restoration or outreach projects for 4 watershed projects.
- Provided services (technical assistance to towns and landowners, BMP design; outreach, project management, etc) to help implement 6 active NPS Watershed Projects and NPS Watershed Surveys.
- Provided technical assistance and education and outreach services to lake associations, municipal officials and lakeshore landowners to help resolve erosion problems.
- Produced customized GIS maps for over 15 lake stewardship projects.
- Under direction of DEP, compiled field survey data and prepared a report on compliance with the State Erosion and Sediment Control Law. The Maine Legislature directed DEP evaluate past and projected compliance with the law. DEP used the report to develop recommendations for improving compliance.

For More Information:

Nate Sylvester, Kennebec County Soil & Water Conservation District; nate@kcswcd.org

G. Appendix

1. NPS Projects Active in 2004

This following table lists NPS projects that were active during 2004. Twenty-one (21) of these projects were completed in 2004. Note: SWCD = Soil and Water Conservation District

Project ID#	Grantee	Project Title	Grant Amount	Match Amount
2004R-01	Cumberland County SWCD	Forest Lake Conservation Project I	59,635	49,715
2004R-02	Cumberland County SWCD	Little Sebago Lake Conservation Project I	99,839	75,104
2004R-03	Cumberland County SWCD	Highland Lake Conservation Project II	138,636	99,795
2004R-04	Knox-Lincoln SWCD	Clary Lake NPS Pollution Control Project	33,750	22,500
2004R-05	Belgrade Region Conservation Alliance	Messalonskee Lake Watershed NPS Remediation I	74,730	53,640
2004R-06	Kennebec County SWCD	Togus Watershed NPS Reduction Project	85,198	57,644
2004R-07	York County SWCD	Great Works River WMP	22,584	15,915
2004P-08	Cobbossee Watershed District	Maranacook Lake WMP	25,066	27,319
2004R-09	Time & Tide	Project to Develop a Sheepscot River WMP	62,565	42,490
2004P-10	Presumpscot River Watch	Piscataqua River (E. Branch) Watershed Survey	14,020	9,850
2004-12	Partnership for Environmental Technology	NPS Education for Municipal Officials	100,000	---
2004-13	Lakes Volunteer Monitoring Program	Lakes Volunteer Monitoring Program, 2004	55,000	---
2004R-23	St. John Valley SWCD	South Perley Brook Restoration Project II, BMP Implementation	60,000	113,400
2004R-24A	York County SWCD	Little Ossipee Improvement Project I - Implementation	52,500	50,277
2004R-24B	York County SWCD/ Cumberland County SWCD	Little Sebago Lake Improvement Project: BMP Design / Shore Assessment	7,500	6,271
2004R-25	Washington County SWCD	Old Stream Protection Project	60,000	46,000
2004R-26A	Kennebec County SWCD	Maranacook Lake Watershed NPS Reduction Project Phase II	55,000	56,064
2004R-26B	Kennebec County SWCD/ Somerset County SWCD	Great Moose Lake Protection Project: Watershed Survey	5,000	10,000
2003-01	Wells National Estuarine Research Reserve	Ogunquit River Watershed Survey and WMP, I	32,800	24,820
2003P-02	Cumberland County SWCD	Little Sebago Lake Watershed Survey II	16,042	17,308
2003R-03	Project SHARE	Dennys River WMP	63,900	42,600
2003P-04	York County SWCD	Northern Great Works River WS	9,800	8,350
2003P-05	Cumberland County SWCD	Crystal Lake WS	12,745	9,270
2003-06	Citizen's Association of Liberty Lake	Lake St. George Watershed Project	20,404	14,096
2003-07	Oxford County SWCD	Bear Pond. WQ Improvement Project	35,758	23,358
2003-08	Kennebec County SWCD	Salmon-McGrath Pollutant Load Abatement, Phase 2	80,420	53,700
2003R-09	Belgrade Region Conservation Alliance	Long Pond Remediation Project I	55,930	39,650
2003R-10	Cumberland County SWCD	Thomas Pond Conservation Project, I	46,147	30,359

Project ID#	Grantee	Project Title	Grant Amount	Match Amount
2003R-11	Cumberland County SWCD	Tannery Brook Water Quality Improvement Project - Phase I	76,486	63,154
2003R-12	York County SWCD	Mousam Lake Water Quality Improvement Project	142,902	105,721
2003R-13	Kennebec County SWCD	Bond Brook NPS Reduction Project	77,750	52,100
2003-14	Partnership for Environmental Technology Education	NEMO funding, source #2 of 2	50,207	---
2003R-16A	Central Aroostook SWCD	Echo Lake Watershed Implementation	54,000	18,000
2003R-16B	Central Aroostook SWCD	North Perley Brook Survey	6,000	2,000
2003R-17A	Androscoggin Valley SWCD	Middle Range Pond Implementation, I	54,000	18,000
2003R-17B	Androscoggin Valley SWCD	Little Ossipee Lake Improve. Project	6,000	2,000
2003R-18	Washington County SWCD	Northern Stream Protection Project	60,000	20,000
2003R-19A	Waldo County SWCD	Unity Pond Watershed Restoration, I	42,000	14,000
2003R-19B	Waldo County SWCD	Biscay Pond Watershed Survey	18,000	6,000
2003R-20	Belgrade Region Conservation Alliance	East Pond Restoration Project, II	76,000	52,000
2003R-21	Penobscot County SWCD	Sebasticook Lake Watershed Project, III	76,000	50,834
2003-26	Volunteer Lake Monitoring Program	Volunteer Lake Monitoring Program	51,253	115,365
2003-34A	Bangor, Town of	Penjajawoc Stream WMP Development	19,260	14,970
2002R-01	Androscoggin Valley SWCD	Sabattus Pond Watershed Project, I	100,000	67,000
2002-02	Cumberland County SWCD	Little Sebago Lake Watershed Survey, I	11,249	16,841
2002R-03	Wells National Estuarine Research Reserve	York River Watershed Survey and WMP	42,694	28,543
2002-04	Cumberland County SWCD	Forest Lake WMP Project	27,622	20,218
2002P-05	St. Agatha, Town of	Long Lake Watershed Survey, III	11,250	10,500
2002R-06	Oxford County SWCD	Sunday River Subwatershed Project, I	96,649	78,914
2002R-07	Penobscot County SWCD	Sebasticook Lake Watershed Project, I	21,310	15,540
2002-08	Androscoggin Valley Council of Govermments	Norway Lakes Improve. Project, III	44,700	29,800
2002-09	York County SWCD	Kennebunk Pond Watershed Survey	6,152	6,210
2002P-10	South Portland Land Trust	Trout Brook Watershed Survey	7,117	5,563
2002-11	Brunswick, Town of	New Meadows River Watershed Survey & WMP	35,000	23,350
2002R-12	Kennebec County SWCD	West Branch Sheepscot WQ Restoration, II	169,300	150,000
2002P-13	Echo Lake Association	Echo Lake Watershed Survey	7,368	5,000
2002-14	Androscoggin Valley SWCD	Tripp Lake WMP Development	21,645	14,506
2002-15	Cumberland County SWCD	Tannery Brook WMP Project	31,652	21,903
2002R-16	Belgrade Region Conservation Alliance	Great Pond Watershed Remediation, I	63,670	43,572
2002-17	Pocasset Lake Association	Pocasset Lake Watershed Survey	6,558	4,496
2002P-18	Mt. Desert Island Water Quality Coalition	Eddie Brook Watershed Survey	4,588	6,795

Project ID#	Grantee	Project Title	Grant Amount	Match Amount
2002P-19	Limestone, Town of	Trafton Lake Watershed Survey	10,042	6,149
2002-20	Brettuns Pond Association	Brettuns Pond WMP	8,404	5,660
2002R-21A	Oxford County SWCD	Keoka Lake Implementation, I	56,000	14,000
2002R-21B	Oxford County SWCD	Middle Range Pond Assessment	4,000	6,000
2002R-22	Penobscot Valley SWCD	Sebasticook Lake Watershed Project, II	60,000	20,000
2002R-23A	Knox-Lincoln SWCD	Boothbay Region Water Supply Remediation	50,000	20,000
2002R-23B	Knox-Lincoln SWCD	Togus Watershed Survey	10,000	5,000
2002R-24A	Southern Aroostook SWCD	Meduxnekeag Lake Restoration, I	54,000	18,000
2002R-24B	Southern Aroostook SWCD	Kennedy Brook Watershed Survey	6,000	2,000
2002R-25	China Region Lake Alliance	China/Webber/Threemile Watershed Project	103,422	144,702
2002-26	Partnership for Environmental Technology Education	NEMO: Nonpoint Source Education for Municipal Officials 2002-2003, 4th Yr.	100,000	60,083
2002-27	Volunteer Lake Monitoring Program	Volunteer Lakes Monitoring Program	50,000	104,992
2002-45	York County SWCD	Publish Guide to Forming a Road Association	17,000	5,000
2001-01	Maine Marine Trade Association	Clean Marinas & Boatyards	60,637	40,425
2001R-02	Belgrade Region Conservation Alliance	East and North Pond Remediation	42,641	34,440
2001R-03	Cumberland County SWCD	Raymond Pond and Crescent Lake Demonstration	58,710	53,699
2001-04	Hancock County SWCD	Green & Phillips Lakes Watershed Project	51,675	34,484
2001P-05	Citizen's Association of Liberty Lakes	Lake St. George Watershed Survey	1,820	9,120
2001-06	York County SWCD	Bauneg Beg Lake BMP Demonstration	30,883	20,978
2001-07	Time & Tide	Weskeag River BMP Demonstration	31,344	20,970
2001R-08	Belgrade Region Conservation Alliance	Messalonskee Lake And Long Pond Watershed Survey and Mgt. Plan Development	54,423	41,748
2001R-09	China Region Lake Alliance	Camp Road Runoff Abatement	36,725	25,000
2001R-10	Androscoggin Valley SWCD	Thompson Lake WMP Implementation Project	119,443	80,027
2001R-11	Damariscotta Lake Watershed Association	Damariscotta Lake WMP Implementation Project	110,420	78,310
2001-12	Portage, Town of	Portage Lake BMP Demonstration Project	25,252	17,048
2001P-15	Wells National Estuarine Research Reserve	Branch Brook/Merriland River/Little Riv.er WMP	19,800	22,567
2001R-16	Wayne, Town of	Androscoggin Lake WMP	9,600	7,300
2001-18	North Yarmouth, Town of	North Yarmouth Erosion Control Demonstration	9,615	6,879
2001-19	Androscoggin Valley SWCD	Allen Pond Demonstration Project, II	36,410	24,395
2001R-20	Saco, Town of	Goosefare Brook Watershed Survey	24,000	40,900
2001R-24A	Cumberland County SWCD	Sabbathday Lake Water Quality Improvement Project	54,000	53,379
2001R-24B	Cumberland County SWCD	Keoka Lake Improvement I, Watershed Survey	6,000	---

Project ID#	Grantee	Project Title	Grant Amount	Match Amount
2001R-25A	Washington County SWCD	East Machias River Salmon Habitat Improvement	36,000	71,900
2001R-25B	Washington County SWCD	East Machias River Watershed Survey	6,000	7,200
2001R-26A	Kennebec County SWCD	Maranacook Lake North Basin Stabilization	54,000	66,000
2001R-26B	Kennebec County SWCD	Wesserunsett Stream I, Watershed Survey	6,000	8,500
2001R-27A	St. John Valley SWCD	South Perley Brook Restoration	54,000	81,668
2001R-27B	St. John Valley SWCD	Meduxnekeag Lake Watershed Survey	6,000	4,000
2001R-28	Cumberland County SWCD	Frost Gully Brook Retrofit, II	85,634	56,138
2001R-29	Cumberalnd County SWCD	NEMO, Year 3	99,979	42,000
2001-39	Franklin County SWCD	Gravel Road Surface Maintenance Demonstration	57,988	40,974
2000-03	University of Maine	Building Logging Roads to Mitigate Adverse Water Impacts	32,186	23,354
2000-04	Androscoggin Valley SWCD	Androscoggin Roadside Erosion Control Project, II	80,530	53,955
2000-07	Somerset County SWCD	Wesserunsett Lake BMP Demonstration / Ordinance Implementation	13,745	10,250
2000-09	Cobbossee Watershed District	Pleasant Pond Watershed Survey	8,476	10,331
2000-18	Cumberland County SWCD	Watchic Lake Demonstration Project	62,130	31,680
2000-19	Waldo County SWCD	Swan Lake BMP Demonstration Project	12,578	10,050
2000R-31	Central Aroostook SWCD	Prestile Stream WMP	49,815	33,210
2000R-35	Somerset County SWCD	Fish Brook WQ Restoration, Phase I	180,497	86,377
2000R-37	Knox-Lincoln SWCD	Duckpuddle Pond Restoration Project	139,335	96,373
2000R-40	York County SWCD	Mousam Lake Water Quality Improvement Project	60,000	65,015
2000R 43A	Central Aroostook SWCD	Prestile Stream Tributary, Load Reduction	53,000	67,500
99-05	Penobscot County SWCD	Cold Stream Pond Watershed Survey & BMP Demonstration	27,600	25,760
99-07	University of Maine	Timber Harvest BMP Demonstration Area	31,694	26,148
99R-29	Kennebec County SWCD	Cobbossee Lake Restoration by Reduction of Phosphorus in Jock Stream	220,040	124,040
98-18	Readfield, Town of	Maranacook Lake North Basin Watershed Survey and Demonstration	12,750	11,220