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Nonpoint Source Management Program 2012 Annual Report

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Executive Summary

This report summarizes activities and accomplishments of the Maine Department of Environmental Protection's Nonpoint Source Program in 2012. The NPS Program is funded, in part, under Section 319 of the Clean Water Act (CWA) by the U.S. Environmental Protection Agency (EPA). The Department prepared this report to inform the public and EPA about Maine's progress controlling nonpoint source (NPS) water pollution. NPS pollution is a major source of water quality impact to Maine's lakes, rivers, streams, and coastal waters. The Department coordinates Maine's Nonpoint Source Pollution Program to achieve widespread use of state-agency defined "best management practice guidelines" (BMPs) to prevent NPS pollution.

The Department's NPS program provides technical services and grant opportunities to help communities assess NPS water quality problems and take action to implement BMPs that prevents NPS pollution in order to restore or protect clean water. Accomplishments of several statewide NPS programs are described including: the NPS Training and Resource Center; NPS Outreach; the LakeSmart recognition program; the Maine Volunteer Lake Monitoring Program; the Volunteer River Monitoring Program; the Maine Nonpoint Education for Municipal Officials program; engineering review of permit applications; and expansion of the Clean Water State Revolving Fund loan program for agricultural BMPs.

The Department uses a watershed-based approach as the coordinating framework to organize public and private sector efforts to identify, prioritize, and then implement activities to restore or protect waters. A pass-thru grants program is administered that awards and monitors sub-grants of federal CWA Section 319 & 604b funds for watershed projects to help restore or protect lakes, streams, rivers or coastal waters from NPS pollution. These grants help communities identify nonpoint water pollution sources, prepare watershed-based management plans, and take action to reduce or prevent NPS pollution. Through 2012, DEP accepted 24 watershed-based management plans for NPS impaired waterbodies. Eighteen NPS watershed projects funded through the NPS Grants program in previous years were successfully brought to completion. This report provides a two-page outcome summary of each completed project. These projects reduced pollutant loads to waterbodies by 973 tons of sediment and 884 pounds of phosphorus per year – equivalent to 84 dump truck loads. DEP provided technical assistance and granted $887,238 of Federal Clean Water Act funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $896,779. The Department provided NPS grants for 15 new watershed projects.

In addition, the Department is pleased to report that due to watershed work over many years, the Department removed Echo Lake (Presque Isle) from Maine's Clean Water Act Section 303(d) impaired waters list. Installation of sedimentation and erosion control BMPs and a gradual decline in active cropland in the Echo Lake watershed reduced sediment and phosphorus loads entering the lake, leading to improved water quality.

Table of Contents

This report was funded, in part, by grant funds provided by the U.S. Environmental Protection Agency to the Maine Department of Environmental Protection under Section 319 of the Clean Water Act. Neither EPA nor DEP endorses any commercial product, service or enterprise mentioned in this publication.

A. Nonpoint Source Management Program

Nonpoint source pollution is a major source of water quality impact to Maine's lakes, rivers, streams, and coastal waters. When it rains or the snow melts, the water running off our driveways, parking lots, yards, farm fields, forestry operations, and industrial sites carries hitchhiking pollutants. Pollutants include sediment from erosion; nutrients from fertilizers or animal waste; bacteria from failing septic systems and animal waste; and toxics from dripped or spilled petroleum products. This polluted runoff washes off the land and flows into our waterways.

The Maine Department of Environmental Protection coordinates the State of Maine Nonpoint Source Pollution Program (38 MSRA 410) to achieve widespread use of state-agency defined "best management practice guidelines" (BMPs) to prevent NPS pollution. Since 1990, EPA has awarded funds under Section 319 of the Clean Water Act to help states and tribes address their most pressing NPS pollution problems. Section 319 monies help fund a significant portion of Maine's NPS program. NPS program services are guided by the *Maine Nonpoint Source Program: Program Upgrade & 15 Year Strategy* adopted in 1999. Maine DEP helps communities and watershed groups assess water quality problems and take action to reduce or stop NPS pollution. Section 319 funds are used to provide grants for watershed projects to help local communities identify water pollution sources in watersheds and take action to restore or protect lakes, streams, or coastal waters.

This report summarizes the Nonpoint Source (NPS) Program activity and accomplishments in 2012. The report fulfills annual reporting requirements of Section 319(h) of the Federal Clean Water Act. Each year, Maine DEP prepares this report to inform the public and the U.S. Environmental Protection Agency (EPA) about Maine's progress in controlling NPS water pollution.

B. 2012 Highlights - Maine DEP NPS Program

DEP received a grant award for $1,822,337 of FFY2012 funds from EPA under Section 319 of the Clean Water Act. Funds were used to fuel programs designed to identify, prevent, or reduce NPS pollution problems. DEP provided technical assistance to local watershed groups, and education and outreach programs for various audiences including developers, building contractors, municipal officials, teachers, and the general public. Forty-five percent of the Section 319 funds were passed through to organizations for NPS projects or programs. DEP provided technical and financial assistance for 42 NPS Watershed Projects to help protect or improve lakes, streams, and coastal waters. DEP used Section 319 funds to support the Maine Volunteer Lake Monitoring Program, Maine Nonpoint Education for Municipal Officials (NEMO), and other statewide programs.

Maine DEP NPS Program Highlights

1. DEP removed Echo Lake (Presque Isle) from Maine's Clean Water Act Section 303(d) impaired waters list. Installation of sedimentation and erosion control BMPs and a gradual decline in cropland acreage reduced sediment and phosphorus loads over many years, leading to improved water quality.

2. Eighteen NPS Watershed Projects funded through the NPS Grants program in previous years were successfully brought to completion. DEP provided technical assistance and granted $887,238 of Federal Clean Water Act funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $896,779. See Section F for project summaries.

    - Best management practices (BMPs) were installed to reduce polluted runoff in 10 lake watersheds: Branch Lake (Ellsworth), Christina Reservoir (Fort Fairfield), Little Sebago Lake (Windham), Nickerson Lake (New Limerick), Panther Pond (Raymond), Pattee Pond (Winslow), Pushaw Lake (Old Town), Sabattus Pond (Sabattus), Thompson Lake (Otisfield) and Wilson Pond (Monmouth). These projects reduced pollutant loading to these lakes by 884 pounds of phosphorus and 973 tons of sediment per year - equivalent to 84 dump truck loads.

    - NPS Watershed Survey Projects were completed for four lakes and two streams: Parker, David and Tilton Ponds (Fayette) and Pushaw Lake (Old Town); McLean Brook (St. Agatha) and Williams Brook (Presque Isle). NPS surveys find, describe, and prioritize NPS pollution sources in a watershed and recommend BMPs to reduce polluted runoff.

    - A watershed-based management plan was completed for 2 NPS impaired streams, Trout Brook (South Portland & Cape Elizabeth) and Pearce Brook (Houlton).

3. The annual request for proposals for NPS Water Pollution Control Projects funded 13 NPS watershed projects that will begin work in early 2013.

4. DEP collaborated with local partners working on 42 active Section 319 NPS Water Pollution Control Projects funded under NPS grants issued in 2009, 2010, 2011 and 2012.

5. DEP, the Department of Agriculture, Conservation and Forestry, the Maine Municipal Bond Bank, and the Finance Authority of Maine collaborated to expand the Clean Water State Revolving Fund loan program for agricultural BMPs. Loans may be used for NPS abatement projects that reduce or treat agricultural runoff, conserve irrigation water use or construct irrigation reservoirs to reduce water withdrawals to maintain stream flows for fish and other aquatic life.

6. The Maine Volunteer Lake Monitoring Program produced the *2011 Maine Lakes Report*, which reported volunteers obtained 3,907 Secchi transparency readings; 17,359 dissolved oxygen readings; 1,150 total phosphorus samples; and 664 chlorophyll-a samples. These data were collected from 400 lake stations on 329 lakes representing 42 percent of Maine's lake surface area.

7. Over 1,600 people (contractors, engineers, consultants, and municipal officials) participated in DEP's Nonpoint Source Training & Resource Center training programs to learn methods to prevent NPS pollution. Six hundred and seventy new individuals were certified in erosion and sediment control practices through the DEP Contractor Certification Program.

8. DEP provided technical and financial assistance to help seven communities develop watershed plans to determine actions needed to restore NPS impaired streams

C. Maine NPS Management Program Overview

Maine's Nonpoint Source Water Pollution Management Program (38 M.R.S.A. §410-I) helps restore and protect water resources from NPS pollution. The basic objective of the NPS program is to promote the use of state-agency defined "best management practice guidelines" (BMPs) to prevent water pollution. The overall aims of Maine's NPS Water Pollution Control Program are:

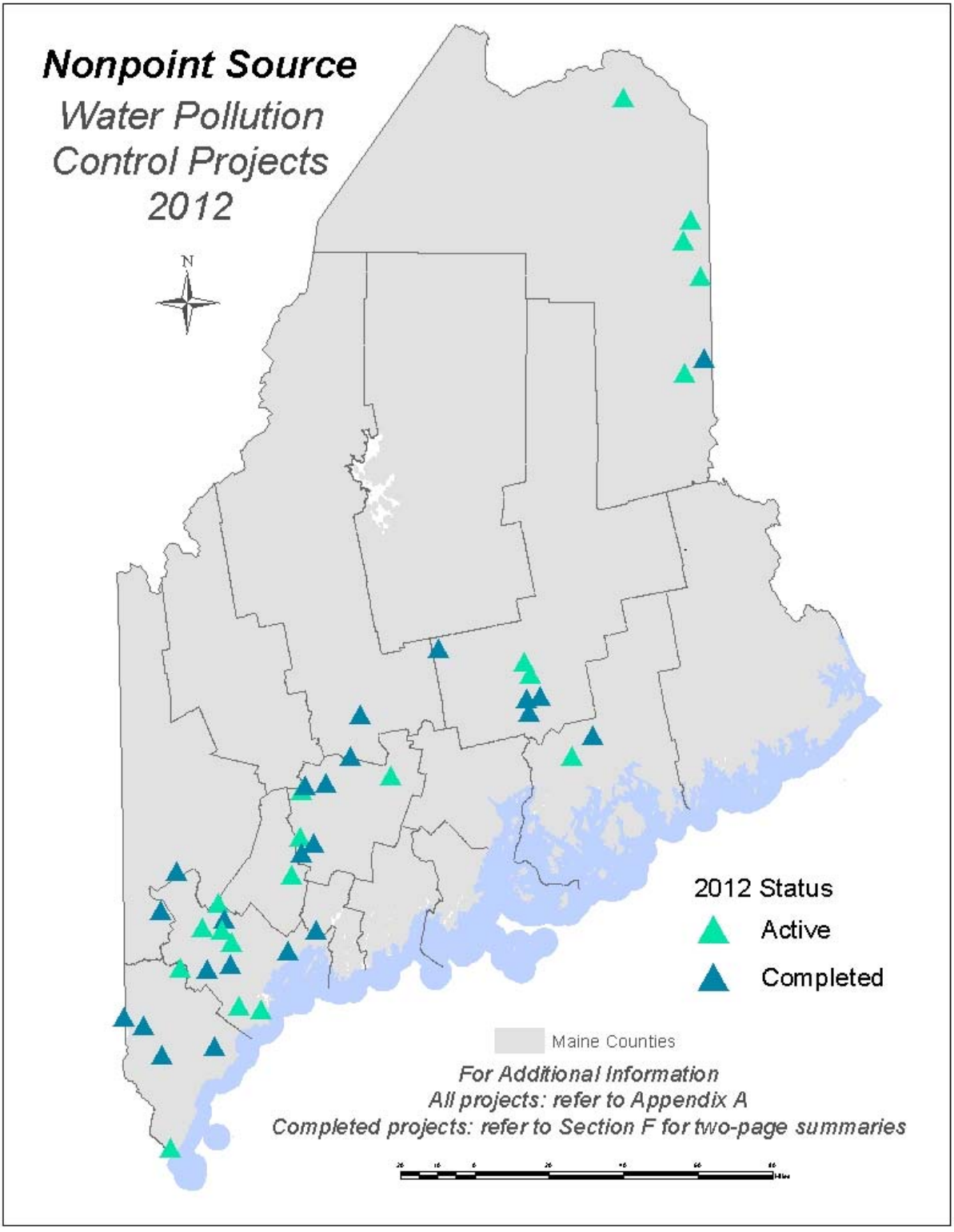
- **Clean Water.** Prevent, control, or abate water pollution caused by nonpoint sources so that beneficial uses of water resources are maintained or restored and waters meet or exceed their classification standards.
- **Using Best Management Practices.** Best Management Practices are widely used in 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 a commitment to maintain or improve 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 comply with existing State and Federal laws and rules that relate to control of NPS water pollution.

DEP administers the NPS Program in coordination with EPA and other federal, state, and local governmental agencies, and non-governmental organizations. Six Maine agencies share responsibility for coordinating and implementing NPS programs: the Departments of Environmental Protection; Agriculture, Conservation, and Forestry; Transportation; Economic and Community Development; Health and Human Services, Division of Environmental Health; and Marine Resources. State agencies conduct programs that implement State laws or rules requiring people to comply with performance standards governing certain land use activities to protect water quality, and that promote voluntary use of BMPs. Maine's NPS agencies have working arrangements with other State and federal agencies, municipalities, non-governmental organizations, and business sector associations to help control or prevent nonpoint source water pollution.

Statewide regulatory programs implement several laws to control potential sources of NPS pollution, including: the Storm Water Management Law; the Site Location of Development Law; the Erosion and Sedimentation Control Law; the State Subsurface Wastewater Disposal Rules; the Natural Resources Protection Act; Pesticide Control laws; the Mandatory Shoreland Zoning Law; the Nutrient Management Act; and the Forest Practices Act.

Maine's lead NPS agencies encourage voluntary actions by governments, organizations, industry, and individuals to prevent or minimize polluted runoff. Programs support efforts to improve and protect waters threatened or impaired by NPS pollution. Maine's lead NPS agencies provide technical assistance and information about BMPs to municipalities, businesses, and individuals. The NPS Training and Resource Center at DEP provides information and technical training on BMP use. DEP administers grants to help fund NPS Water Pollution Control Projects to prevent or reduce water pollution caused by nonpoint sources.

Map of NPS Water Pollution Control Projects Active in 2012



1. Protecting Clean Waters

DEP invests a considerable portion of available NPS control efforts to protect clean waters that are considered threatened by NPS pollution. Preventing nonpoint water pollution of Maine's abundant clean waters is important. Preventing NPS water pollution is far more cost effective for protecting water quality than the long term efforts needed to restore an impaired waterbody. Maine has significant water quality protection and restoration challenges and fixed resources for NPS programs. DEP prioritizes and balances the use of available NPS resources to make progress both protecting and restoring lakes, streams, and coastal waters.

Protecting Maine's clean waters can be accomplished by local residents with technical and financial assistance from DEP and other partners. Local stewardship is needed for any project, plan, or outreach effort to effectively take hold because residents can increase local involvement in watershed management activities. Maine has many capable and determined watershed stewardship groups and Soil and Water Conservation Districts working to protect watersheds and clean water.

NPS Watershed Implementation Projects

To help protect clean waters considered threatened by NPS pollution, DEP invests Section 319 funds for NPS projects to implement BMPs that reduce polluted runoff. During 2012, Section 319 funds helped sustain or start NPS watershed implementation projects in 17 watersheds.

Beech Hill Pond (Otis)	McLean Brook (St. Agatha)	Sebago Lake (Sebago)
Branch Lake (Ellsworth)	Moose Pond (Bridgton)	Square Pond (Shapleigh)
Cochnewagon Lake (Monmouth)	Nickerson Lake (New Limerick)	Thompson Lake (Otisfield)
Crescent Lake (Raymond)	Panther Pond (Raymond)	Wilson Lake (Acton)
Great East Lake (Acton)	Pattee Pond (Winslow)	Wassookeag Lake (Dexter)
Little Sebago Lake (Gray)	Pushaw Lake (Old Town)	

2. Restoring Impaired Waters

State and federal water quality laws require that waters attain their assigned water quality classification standards. DEP monitors water quality conditions of Maine's rivers, lakes, and coastal waters to determine if the public can use the waters for designated uses such as recreation, swimming, fishing, shellfish harvesting, and drinking water supply, and if the waters support healthy habitats for fish and wildlife. DEP places waters that are found to be degraded (i.e. not attaining water quality standards needed to support designated uses) on the impaired waters list. Restoring impaired waters involves three steps:

- **TMDL Assessment.** DEP must establish a pollution allocation (Total Maximum Daily Load - TMDL) for each impaired waterbody, according to Section 303(d) of the Clean Water Act. A TMDL assessment provides an estimate of how much pollution from point sources and nonpoint sources needs to be reduced in order for the waterbody to meet state water quality classification standards.

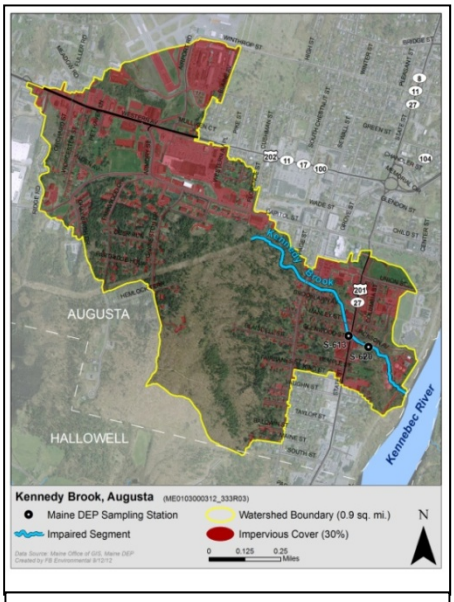
Collecting bacteria samples

- **Watershed-based Planning.** A watershed-based plan describes overall actions needed in a watershed to help restore water quality. EPA requires a watershed-based plan addressing nine minimum elements prior to use of 319 funds to help restore an impaired waterbody.
- **Implementing Pollution Reduction Measures**. Communities, agencies, and individuals take action to apply conservation practices or best management practices (BMPs) to eliminate or control sources of NPS pollution. Usually work needs to be focused within a watershed for 10 years or more to restore an impaired waterbody. DEP provides technical and limited financial assistance to help communities improve watersheds and restore waters.

TMDL Assessment

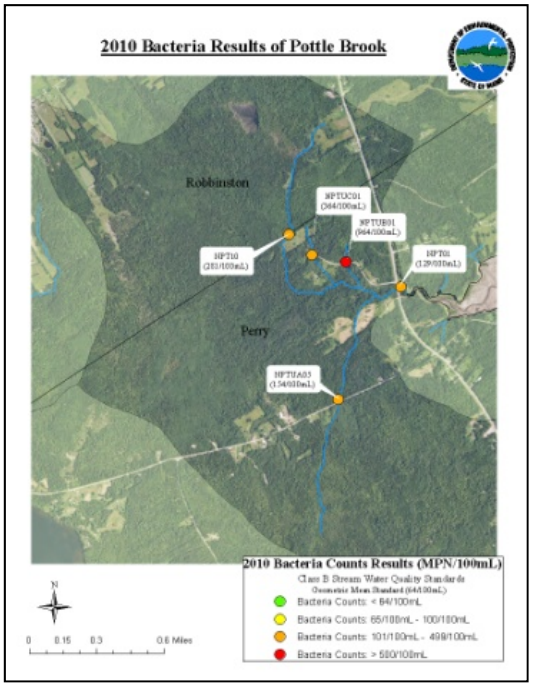
In 2012 EPA approved DEP's Statewide Impervious Cover (IC) TMDL. The IC-TMDL is applied to 29 impaired streams and the associated documents are available at:
http://www.maine.gov/dep/water/monitoring/tmdl/tmdl2.html
The IC-TMDL covers impairments that are attributed to urban runoff in watersheds with impervious cover that ranges from 7 to 50%. These IC-TMDLs address macroinvertebrate, habitat, and dissolved oxygen impairments and use impervious cover as a surrogate for the complex mix of pollutants and altered hydrology associated with urban landscapes. The TMDL provides examples of watershed plans and BMP implementation to encourage stakeholders to initiate planning efforts and restore streams. Each of the 29 streams has an individual TMDL report that is designed for use by stakeholders and summarizes DEP's water quality results and land use data. Each report provides useful watershed maps and background information for:

- Town officials who focus on local water quality issues;
- Development of watershed plans, and
- Grant applications



Information in the IC- TMDL of a 30% impervious watershed

For the third season DEP staff and an AmeriCorps volunteer, partially funded by Section 319, conducted follow-up monitoring on the Statewide Bacteria TMDL, approved in 2009. The objectives were to identify specific sources of bacteria through sampling for E. coli and sanitary surveys; eliminate these problems; and remove the impaired stream segment from the 303d list. In 2012, 18 streams were sampled. They were selected from the TMDL list based on high restoration potential; adverse impact on downstream beaches; follow-up on previous sampling efforts; and to characterize natural levels of bacteria at clean sites. Over 500 samples were collected using a diagnostic approach that narrowed down NPS inputs to specific subwatersheds and identified manageable areas for sanitary surveys. In 2012, in conjunction with EPA, the project added sampling for personal care products and/or pharmaceuticals to identify potential sources of bacteria. This project identified failing septic systems that have since been cleaned up. The DEP anticipates streams such as Pottle Brook (shown at right), will be taken off the impaired waters list as the project proceeds.



Watershed-based Planning

DEP helped seven communities develop watershed plans to determine actions needed to restore an NPS impaired waterbody. EPA requires a watershed plan addressing nine minimum elements to become eligible to receive Section 319 funds to help restore an NPS impaired waterbody. This plan helps ensure Section 319-funded projects make progress towards restoring NPS impaired waters.

- A watershed-based management plan was completed for two NPS impaired stream, Trout Brook (South Portland & Cape Elizabeth) and Pearce Brook (Houlton).
- Development of a watershed-based plan was underway for five streams: Concord Gully Brook (Freeport); Goodall Brook (Sanford); Meduxnekeag River (Houlton); Thatcher Brook (Biddeford); and Topsham Fair Mall Brook (Topsham).

Through 2012, DEP has approved 24 watershed-based management plans for NPS impaired waterbodies:

Annabessacook Lake (Monmouth)	Pleasant Pond (Gardiner)
Birch Stream (Bangor)	Pleasant River (Windham)
Bond Brook (Augusta)	Upper Prestile Stream (Fort Fairfield)
Capisic Brook (Portland)	Red Brook (Scarborough)
Capehart Brook (Bangor)	Sabattus Pond (Sabattus)
China Lake (China)	Spruce Creek (Kittery)
Dudley Brook (Castle Hill)	Threemile Pond & Webber Pond (China)
East Pond (Smithfield)	Trout Brook (So. Portland)
Hart Brook (Lewiston)	Togus Pond (Augusta)
Long Creek (South Portland)	Unity Pond (Unity)
Long Pond & Great Pond (Belgrade)	Whitten Brook (Skowhegan)
Pejajawoc Stream (Bangor)	Wilson Pond (Monmouth)

NPS Watershed Implementation Projects

To help restore NPS-impaired waters, DEP allocates a portion of Section 319 funds for NPS Watershed Projects to implement BMPs that reduce pollutant loads. During 2012, Section 319 funds helped sustain or start NPS Watershed Projects to implement BMPs in these 11 NPS impaired waters:

Annabessacook Lake (Monmouth)	Penjajawoc Stream (Bangor)	Spruce Creek (Kittery)
Capehart Brook (Bangor)	Pleasant Pond (Gardiner)	Wilson Pond (Winthrop)
Christina Reservoir (Fort Fairfield)	Pleasant River (Windham)	Whitten Brook (Skowhegan)
Long Pond (Belgrade)	Sabattus Pond (Sabattus)	

Echo Lake Restored

DEP removed Echo Lake (Presque Isle) from Maine's Clean Water Act Section 303(d) impaired waters list. Between 1976 and 2001, Echo Lake regularly experienced nuisance algal blooms. Phosphorus concentrations in the lake were high, consistently over 20 ppb. Eroded soil from cropland, residential development and roads contributed to the declining water quality. DEP added Echo Lake to the state's 303(d) list of impaired waters. Between 2001 and 2007, DEP and the Central Aroostook Soil and Water

Conservation District helped landowners recognize erosion problems and install sediment and erosion control BMPs at high priority sites. Installation of sediment and erosion control BMPs and a gradual decrease in cropland acreage over many years reduced sediment and phosphorus loads, which led to improved water quality. Over the past 10 years, algal levels have declined and water clarity has gradually improved. Echo Lake now meets Class GPA water quality standards.

3. NPS Pollutant Load Reduction

The NPS pollutant load reductions achieved in 2012 is considerably more than reported in 2011. NPS load reductions for all Section 319-funded NPS implementation projects are reported in the EPA Grants Reporting and Tracking System (GRTS) database.

NPS Pollutant Load Reductions in 2012 26 NPS Watershed Implementation Projects		
Sediment	Phosphorus	Nitrogen
1,230 tons/year	1,350 lbs/year	2,500 lbs/year

NPS Pollutant Load Reductions in 2011 21 NPS Watershed Implementation Projects		
Sediment	Phosphorus	Nitrogen
582 tons/year	608 lbs/year	1392 lbs/year

In 2012, ten implementation projects funded in previous years were successfully completed. Best management practices (BMPs) were installed to reduce polluted runoff in 10 lake watersheds: Branch Lake (Ellsworth), Christina Reservoir (Fort Fairfield), Little Sebago Lake (Windham), Nickerson Lake (New Limerick), Panther Pond (Raymond), Pattee Pond (Winslow), Pushaw Lake (Old Town), Sabattus Pond (Sabattus), Thompson Lake (Otisfield) and Wilson Pond (Monmouth). These projects reduced pollutant loading to these lakes by 884 pounds of phosphorus and 973 tons of sediment per year - equivalent to 84 dump truck loads.

National Section 319 program guidelines require load reduction estimates for projects that will result in load reductions of sediment or nutrients (nitrogen and phosphorous). EPA recognizes that due to runoff variability, load reductions associated with BMP projects cannot be directly measured. Load reduction estimates for Maine Section 319 projects are developed using simple models. DEP and grantees use methods described in the EPA "Region 5 Model" and/or the U.S.D.A. Forest Service Water Erosion Prediction Project - Road (WEPP - Road) computer model to estimate NPS load reductions.

These models are described at the following websites: http://it.tetratech-ffx.com/steplweb/ and http://forest.moscowfsl.wsu.edu/fswepp/.

D. DEP NPS Program & Work Activities in 2012

1. NPS Program Management

FFY 2012 319 Grant Award Budget & Allocation Summary

During FFY2012 EPA awarded $1,822,337 in Section 319 funds (base $663,000; incremental $1,159,337) to Maine DEP. Base funds may be used for statewide NPS programs. Incremental funds are to be used for watershed projects to help improve NPS impaired or threatened waterbodies. The table below shows how DEP allocated 319 grant funds. DEP used about 55% ($1,005,987) of 319 funds to support 10 DEP staff positions and 45% ($816,350) primarily for pass-through grants to local governments and watershed groups for NPS projects.

Activity	*Provider*	*Base-319*	*I-319*	*Total 319*	*Non-federal Match*
NPS Project Funds					
NPS Grants for Watershed Projects	grantees	0	731,630	731,630	576,732
Volunteer Lake Monitoring Program	VLMP	20,000	0	20,000	158,227
Americorps / interns	MCC*	19,720	0	19,720	0
NPS Training & Resource Center	DEP	45,000	0	45,000	0
Small Community Grants Program	DEP	0	0	0	150,000
Subtotal		84,720	731,630	816,350	884,959
DEP Personnel, Other & Indirect 10 FTEs	DEP	578,280	427,707	1,005,987	624,013
Total		663,000	1,159,337	1,822,337	1,508,972
EPA 2012 Section 319 Grant Award		663,000	1,159,337	1,822,337	1,215,498

* MCC – Maine Conservation Corps

DEP Staff Services

DEP's Division of Watershed Management administered the NPS program and provided the following watershed management services:

- The NPS Management Program section administered the NPS program.
- The NPS Training and Resource Center provided training, education, and outreach to contractors, consultants, and others.
- The Watershed Assessment and Planning section provided stormwater technical assistance, watershed management planning and assistance, and manages the Stream Team and Volunteer River Monitoring Program (VRMP).
- The Technical Assistance section provided technical review of permit applications and maintains or develops Best Management Practices guidelines.
- The Stormwater Management section administered implementation of the Maine Pollutant Discharge Elimination System (MEPDES) stormwater permit program. (Note this section is funded by permit fees, not Section 319 funds).

In December 2012, DEP reorganized NPS services delivery within the Bureau Land & Water Quality to improve internal functioning and reduce personnel costs. Services provided by the Division of Watershed Management were moved to other divisions. The watershed assessment and planning unit, NPS management unit, and NPS-related technical assistance services moved to the Division of Environmental Assessment. The stormwater management unit moved to the Division of Land & Water Quality Management. Review of permit applications moved to the Division of Land Resource Regulation. The NPS Training and Resources Center moved to the Office of Communications and Education within the Commissioner's Office.

NPS Program Activities

- DEP completed closeout of all NPS Projects previously funded under the FFY 2009 319 grant. DEP continues to administer 319 annual grants for FFY 2010, 2011, and 2012 including sub-recipient monitoring of the 45 active grant awards.
- DEP entered appropriate grant and project information into the EPA Grants Reporting and Tracking database (GRTS).
- DEP participated on workgroups and submitted comments to help EPA develop new NPS program and grant guidelines for states and territories. As part of developing new guidelines, EPA convened a meeting of state NPS program coordinators and EPA staff in Annapolis, Maryland. DEP presented a talk on nine-element watershed-based plans and exhibited an alternate planning approach that Maine uses to restore impaired lakes and protect lakes threatened by NPS pollution.
- DEP helped the Natural Resources Conservation Service evaluate opportunities and select two Maine NPS-impaired watersheds for the National Water Quality Initiative: the Nickerson Lake sub-watershed located in the Meduxnekeag River watershed in southern Aroostook County and the Alder Stream sub-watershed located in the Sebasticook Lake watershed in Penobscot County. NRCS will work in the two watersheds to help farmers and forest landowners improve water quality and aquatic habitats. NRCS will help producers implement conservation and management practices through a systems approach to prevent, control, or trap nutrient and manure runoff. Qualified producers will receive assistance for installing conservation practices.

Rain garden on Nickerson Lake, New Limerick

DEP Staff Services for Watershed Groups and Municipalities

DEP invests considerable staff resources to help watershed groups reduce NPS water pollution. Some of the activities and projects that DEP supported in 2012 include:

- **Watershed Surveys** – A NPS Watershed Survey assesses a watershed to find, describe, and prioritize NPS pollution sources and recommend BMPs needed at specific NPS sites to reduce polluted runoff to help protect water quality. DEP provides technical assistance and project oversight to local groups that conduct volunteer watershed surveys without Section 319 grant funding.

  In 2012, DEP provided assistance for surveys of the Five Kezar Ponds (Waterford, Stoneham, Lovell), Kezar Lake (Lovell), Minnehonk Lake (Mt. Vernon) and Woods Pond (Bridgton). DEP also worked with the Volunteer Lake Monitoring Program to hold a workshop on conducting watershed surveys. The workshop was attended by 18 people representing seven lakes.

DEP provides technical assistance to groups working to protect their lake, like these volunteers from the Five Kezar Ponds 2012 watershed survey.

- **Watershed Association Support** – The DEP supports the work of lake and watershed associations through presentations at annual association meetings and providing technical assistance. In 2012, DEP assisted the following groups (outside of 319 grant-funded projects): Georges Pond (Franklin), Little Ossipee Lake (Waterboro), Mousam Lake (Acton), Northeast and Milton Ponds (Lebanon), Panther Pond (Raymond), Quimby Pond (Rangeley), and Watchic Lake (Standish). The DEP also provides watershed maps to lake and watershed groups upon request.

- **Watershed Roundtable-** Over 60 watershed managers from state agencies, municipalities, watershed organizations, and SWCDs attended the DEP's 10th annual Watershed Managers' Roundtable. This informal, day-long event provides an opportunity for networking, sharing lessons learned, and discussing common problems in both rural and urban watersheds across the state.

- **Municipal Comprehensive Plan Reviews** – DEP staff provide maps and data to municipalities starting the comprehensive planning process. After plans are submitted to the state, DEP staff review the water resources sections of municipal comprehensive plans for consistency with agency goals, programs and policies. In 2012, assistance was provided to the following towns: Cumberland, Ft. Kent, Mapleton, Castle Hill, Chapman, Auburn, Starks, Rangeley, Leeds, Lincoln, Milbridge, and Hudson.

YCC crew members help protect water quality one conservation practice at a time.

- **Youth Conservation Corps** – The DEP provides technical assistance and training to the nine YCC programs. These YCC programs hire high school students to install buffers,

erosion control measures, and other conservation practices in lake and river watersheds. Most of these programs originally started as part of 319 grant projects, but communities work to find local funding to continue the programs after the grants have ended.

- **Urban Watershed Mapping** – DEP staff and two summer interns helped complete mapping projects in several urban stream watersheds to help municipalities develop watershed-based plans. Watershed boundaries and/or stormwater outfall catchments were field-checked and mapped for Arctic Brook (Bangor), Concord Gully (Freeport), Goodall Brook (Sanford), and Topsham Fair Mall Stream (Topsham). Impervious cover was also delineated in GIS for Goodall Brook and Concord Gully.

- **Stormwater Compensation Fee (SCF) Projects** – Under the Maine Stormwater Law, developers in certain lake watersheds have the option to pay a compensation fee in lieu of constructing additional BMPs to comply with a portion of a parcel's phosphorus budget. DEP staff works annually with seven partner organizations to identify and implement phosphorus mitigation projects in these watersheds. Several projects were completed with SCF funds in 2012 including work in the Estes Lake watershed in Alfred. George Roberts Company, a concrete manufacturing company adjacent to the Littlefield River, installed three prototype bioretention units to treat runoff from most of its 9.5 acre site. This work, along with the company's other environmental initiatives, earned George Roberts Company a Governor's Awards for Environmental Excellence in 2012.

Governor LePage, DEP Commissioner Aho Honor George R. Roberts Co. for Environmental Excellence

- **NPS Site Tracker** – The NPS Site Tracker tool assists watershed groups with managing information on erosion sites in their watersheds. The tool allows prioritization of erosion sites, tracking of sites as they are fixed, and listing of new sites as they are discovered. The Tracker combines an Excel spreadsheet with electronic photo organization and online mapping of sites. The DEP helped the following groups set up and start to use the NPS Site Tracker: Little Sebago Lake Association, Panther Pond Association, and 30 Mile River Watershed Association.

2. Expanded Agricultural BMPs Loan Program

DEP, the Maine Municipal Bond Bank (Bond Bank), Department of Agriculture, Conservation and Forestry (DACF), and the Finance Authority of Maine (FAME) collaborated to expand the Clean Water State Revolving Fund (CWSRF) loan program for agricultural BMPs. The CWSRF was created in 1987 under Title VI of the Federal Water Pollution Control Act to establish a water pollution control revolving fund to help financing construction of publicly owned treatment works (POTWs), implementing NPS management programs, and implementing conservation and management plans in national estuary watersheds. The CWSRF is a major source of low-interest financing for POTWs and other municipal projects, as well as privately owned NPS projects intended to protect or improve the quality of surface and groundwater.

DEP and the Bond Bank jointly administer the CWSRF. DEP administers the technical aspects of the program and project eligibility; the Bond Bank is the financial manager of the fund. In 1999, DEP and the Bond Bank partnered with FAME and the Department of Agriculture, which is now part of the DACF,

to implement the Nutrient Management Loan Program (NMLP) for the construction of containment and handling facilities for manure and milk room waste. Between 1999 and 2006, 14 loans totaling slightly more than $1.3 million were made to farmers for these facilities. DACF worked with DEP to expand eligible projects to include other agricultural NPS abatement BMPs. DEP worked with the EPA to receive the necessary approval to expand eligibility under the existing NLMP program. The expanded program required revision of the Memorandum of Understanding between all parties and rule changes for FAME to enable loans for the newly eligible projects.

The expanded Nutrient Management Loan Program will now be administered by DACF and FAME. DEP and the Bond Bank will provide FAME with up to $3,000,000 from the repayment monies in the CWSRF to finance FAME loans for eligible projects. DACF will review the projects for program eligibility in accordance with the agreement and ensure that the projects are completed in accordance with USDA Natural Resources Conservation Services (NRCS) design criteria.

The NLMP program was expanded to fund NPS abatement projects that reduce or treat agricultural runoff, conserve irrigation water use, and reduce the impact of agricultural irrigation water withdrawals to stream flows and aquatic life by constructing irrigation reservoirs. The eligible projects now approved for funding align very well with agricultural NPS BMPs and projects needed to comply with the Department's Chapter 587: In-Stream Flows and Lake and Pond Water Levels rule.

Through FAME, farmers are eligible to borrow up to $450,000 for approved projects at a fixed interest rate of 2% for up to 20 years. Additional FAME fees of approximately 1% apply to the loans. For more information on the loan program refer to:
http://www.famemaine.com/files/Pages/business/businesses/direct_loans/Nutrient_Mgt_Loans.aspx

3. Summaries of Statewide NPS Programs

DEP funds several ongoing programs and projects using 319 funding. Programs are carried out by DEP staff or by partner organizations. This section provides descriptions of these programs and accomplishments during 2012:

LakeSmart
Maine Lakes Biomanipulation
Maine Volunteer Lake Monitoring Program
Maine Volunteer River Monitoring Program
Engineering Services
Statewide NPS Outreach
Maine Nonpoint Source Training and Resource Center
Maine Nonpoint Education for Municipal Officials

LakeSmart

The LakeSmart program was established in 2002 to promote a new norm for shorefront and watershed development by recognizing property owners who stop erosion, manage stormwater, maintain their septic system, leave native vegetation or plant vegetation along shorelines, minimize lawns and open recreation areas, and reduce fertilizer and pesticide use. Trained LakeSmart evaluators from local watershed groups or Soil and Water Conservation Districts visit properties and evaluate four categories. Properties that score high in all four categories are certified as LakeSmart

LakeSmart Property

properties and the owners receive signs to place prominently on the shorefront and/or road frontage. Properties that score high in one to three categories receive recognition certificates and are encouraged to work toward full LakeSmart status.

Accomplishments in 2012:

- Issued eight LakeSmart awards and evaluated 17 additional award winning properties. To date, there are 488 LakeSmart Award properties.
- Completed an evaluation of the program.
- The Maine Congress of Lake Associations (COLA) agreed to administer the LakeSmart recognition program beginning in 2013. DEP staff provided information and technical assistance to help COLA prepare to operate the program.

For More Information:
Bill Laflamme, Maine DEP at 215-9237 or william.n.laflamme@maine.gov
Maggie Shannon, Maine COLA at 877-254-2511 or info@mainecola.org

Maine Lakes Biomanipulation

The aim of this project is to improve water quality on East Pond, an impaired lake at the head of the Belgrade Lakes chain, through reduction of four fish species: non-native white perch, black crappie, landlocked alewife, and native yellow perch. The goal of this six-year annual targeted fish removal is to enhance zooplankton survival and consumption of nuisance blue-green algae, ultimately resulting in greater water transparencies. Phase I of this project in 2004-2006 assessed baseline water quality conditions and fish assemblages in East Pond in Oakland and Smithfield and the control waterbody, North Pond in Smithfield. Phase II, fish removal, began in East Pond following ice-out in 2007 and continued through the spring of 2012.


Fish Processing

Accomplishments in 2012:

- Trap-netting removed nearly 16 tons of targeted fish species. By the number of fish, 98% of the catch was made up of white perch. Released non-target fish species (*golden shiner, white sucker, chain pickerel, black bass, sunfish, brown bullhead, American eel and a few trout*) comprised only 0.6% of the catch.

Year	Wt. of catch removed (tons)	White perch as % of catch	Released non-target fish as % of catch
2012	16	98	0.6
2011	11	92	0.5
2010	6	83	0.7
2009	1.6	62	6
2008	2.3	57	10
2007	10	88	2

- Bi-weekly water quality sampling (May to October) for total phosphorus, chlorophyll-a, water transparency (Secchi disk), dissolved oxygen-temperature profiles, and phytoplankton-zooplankton assemblages in both East and North ponds was carried out by University of Maine (Orono) project Ph.D. graduate student Quenton Tuckett. The Cooperative Agreement with U-Maine was extended to 31 December 2012 and the final Phase III segment of this project (2013-2015) will be completed through the lakes assessment section of Maine DEP-DEA.

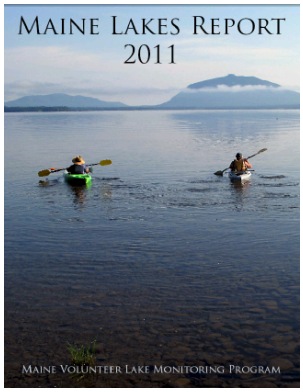
- Fish assemblages in East and North ponds were assessed monthly, June through September, using a standardized combination of active fishing gear including pre-dusk sinking gill nets, expert baitfish angling, and night-time beach seining. Tuckett and fish technicians tagged and released 2,000 white perch for mark-recapture studies and have estimated the adult white perch (spawning) population at 243,686 in 2012 (compared to 603,380 in 2011; 213,986 in 2010; 200,918 in 2009; 10,628 in 2008; 77,566 in 2007; and 174,000 in 2006).

- Similar to 2010, in 2012, another early ice-out occurred in early April and a warmer summer resulted in a productive growing season and earlier nuisance algae blooms on East Pond. In contrast, the more typical ice out and growing season in 2011 resulted in very good water quality and transparency measures through Labor Day – with just a few weeks of nuisance algae blooms in mid-late September. Prior to this, water quality results indicated that nuisance blue-green algae blooms still occurred in East Pond, however, bloom prevalence had noticeably shifted to later August and September (2004 thru 2009). Hence there was considerable improvement in water quality relative to the length of time in the summer when water quality/clarity standards (2.0 meters or better) were achieved.

For More Information:

David Halliwell, Maine DEP – (207) 215-9343, david.halliwell@maine.gov
Melissa Evers, Maine DEP – (207) 215-3879, melissa.evers@maine.gov

Maine Volunteer Lake Monitoring Program (VLMP)



Funding received under Section 319 partially supported the educational aspects of the VLMP including training of volunteer monitors to collect quality data, production of three newsletters and one annual report in 2012, and the VLMP annual meeting where information about lake water quality and monitoring topics is presented. Volunteers monitor their assigned lakes twice a month for five to six months each year, enter data into electronic format, and assist in the local coordination of VLMP activities. The total match generated by the volunteers is more than triple the Section 319 funding level.

Accomplishments in 2012:

- Produced the *2011 Maine Lakes Report*, which reported that during 2011, volunteers obtained 3,907 Secchi transparency readings; 17,359 dissolved oxygen readings; 1,150 total phosphorus samples; and 664 chlorophyll-a samples. These data were collected from 400 lake stations on 329 lakes representing approximately 42% of Maine's lake surface area.
- Produced four newsletters and convened the 2012 Annual Meeting, which was their 41st Anniversary Celebration attended by more than 100 people.

- Encouraged collection of transparency readings on days that the Landsat satellite passed Maine.
- Trained more than 23 new volunteers for transparency and eight for dissolved oxygen, for a total of 419 volunteers certified to obtain Secchi transparency data and another 183 volunteers certified to collect both transparency and dissolved oxygen data. VLMP also recertified 78 volunteers for transparency, 83 volunteers for dissolved oxygen, and recertified 107 volunteers online using the Virtual Secchi Recertification tool.
- Reached a level of 601 certified volunteer water quality monitors in the program. These volunteers were monitoring 483 lake basins in Maine by the end of 2012.

For More Information:

Linda Bacon, DEP Project Manager – (207) 441-0462, linda.c.bacon@maine.gov
Scott Williams, VLMP – (207) 783-7733, Scott.Williams@MaineVLMP.org
VLMP Website – www.mainevolunteerlakemonitors.org/

Maine Volunteer River Monitoring Program

The Volunteer River Monitoring Program (VRMP) began in 2009. Prior to 2009, a number of volunteer river groups were working independently, all using different sampling or analysis methods, data management systems, and quality assurance/quality control requirements. Other groups were interested in monitoring, but did not have the resources to do it on their own. The VRMP provides technical support and resources to a network of volunteer groups. This support includes quality assurance services, training, volunteer certification, data archiving, and annual water quality report.

Currently there are nine watershed groups throughout the State that are part of the VRMP Program. These groups monitor the Kennebunk River and Mousam River in south coastal Maine, Presumpscot River in Cumberland County; Upper Androscoggin River in Western Maine and the Lower Androscoggin River in mid-coast Maine; Rockport Harbor and tributaries in mid-coast Maine, Bagaduce River, a coastal river in eastern Maine; Penjajawoc Stream in the City of Bangor, Penobscot County; and Prestile Stream in Northern Maine, Aroostook County.

VRMP Accomplishments in 2012:

- The VRMP completed its fourth year. The program is now on track with the report provided to monitoring groups by late winter.
- Trained and certified or recertified volunteers associated with nine volunteer organizations on a number of small and major river and stream systems statewide.
- Monitors covered an area of over 1000 square miles of watershed. A total of 48 volunteers monitored 82 sites and completed 478 sampling events.

- Data collected included temperature, dissolved oxygen, conductivity, bacteria, turbidity and total suspended solids.
- Water quality data report completed in March 2012.

For More Information:

Mary Ellen Dennis, DEP – (207) 215-7946, mary-ellen.c.dennis@maine.gov
VRMP Website – http://www.maine.gov/dep/water/monitoring/rivers_and_streams/vrmp/index.html

Engineering Services

DEP provides technical assistance and guidance to consultants, permit applicants, and the general public. The environmental engineers evaluate permit applications under the Site Location of Development Law, the Storm Water Management Law and the Natural Resources Protection Act program. They review the designs and oversee the implementation of stormwater management practices that control peak flows and provide treatment of stormwater runoff from new developments. Specific requirements are applied to the developments that are in urban impaired stream watersheds or the watersheds of most-at-risk lakes. The staff is also available to the 319 Program, Soil and Water Conservation Districts, watershed associations, towns, Maine Department of Transportation, and environmental organizations to offer technical assistance concerning erosion and sedimentation control, stormwater management, and runoff mitigation.

Accomplishments in 2012:

- Reviewed project applications under the Storm Water and Site Location laws to ascertain whether the applications are satisfying the requirements of these laws. Staff evaluated the projects' engineering designs for site layout, stormwater management for quality and quantity, for environmental impact (wetlands, streams, steep slopes, and other environmental concerns), erosion control during construction, and for long-term maintenance and effectiveness. In 2012, provided assistance and oversight for 156 new development and redevelopment projects, 17 of which were in a most-at-risk lake watershed and 10 in an urban stream watershed.
- Maintained communication and facilitated discussions with engineers from towns that have delegation for Site and stormwater permitting and with Soil and Water Conservation Districts that have an MOU to perform such permit review.
- Regularly developed, assessed, or modified BMPs for stormwater management or site stabilization. The outcomes include new guidance standards, documents, and revisions to the Maine BMP design manuals. This past year the following topics were addressed: bioslope BMPs, pervious concrete slabs, and redesign of the treatment layers for underdrained filter basins.

For More Information:

Marianne Hubert, Watershed Management Unit, (207) 215-6485, marianne.e.hubert@maine.gov
Stormwater BMP manual: http://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html
Erosion Control BMP manual: http://www.maine.gov/dep/land/erosion/escbmps/index.html

Statewide NPS Outreach

The Statewide NPS Outreach program was discontinued. Outreach related services will be provided through the Maine NPS Training and Resource Center. Existing projects were completed.

Accomplishments in 2012:

- Completed a three-year partnership with the Maine Association of Conservation Districts (MACD) and the county Soil and Water Conservation Districts to pilot two outreach efforts to reduce water quality impacts from unpaved private roads. Two "forming road association" workshops were held in 2011, and technical assistance was provided to residents on 10 roads to form road associations and to 10 road associations to evaluate their road and develop a road maintenance plan.

For More Information:

Kathy Hoppe, DEP - (207) 551-3134, kathy.m.hoppe@maine.gov

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 an inventory of NPS publications and DVD lending library, and acts as a clearinghouse for information on nonpoint source pollution and best management practices.

Accomplishments in 2012:

- Provided training to 1236 participants in erosion and sediment control practices for contractors, and certified 670 additional individuals in the Voluntary Contractor Certification program. This is the largest number of individuals certified in one year and nearly doubles the total number certified at the end of 2010 from 854 to over 1630**.**
- Provided workshops on salt management, gravel road maintenance and co-sponsored workshops on "Stream Smart" road crossings to 299 participants.
- Provided training on environmental laws for well drillers and shorefront property owners: 38 participants.
- Provided continuing education training on flocculants and permeable road bases to 45 certified contractors

For More Information:

Bill Laflamme, DEP – (207) 215-9237, william.n.laflamme@maine.gov
NPS Training Center Website – http://www.maine.gov/dep/land/training/index.html

Maine Nonpoint Education for Municipal Officials (NEMO) Program

Maine NEMO provided outreach to municipal officials on how land use decisions are linked to water quality in their towns. NEMO was based at the office of the Partnership for Environmental Technology Education (PETE) in South Portland. The Maine State Planning Office Coastal Program and the Department of Health and Human Services Drinking Water Program also provided program funding. As of July 2012, 319 funding for this program was discontinued.

Municipal officials learn about BMPs.

Accomplishments in 2012:

- Conducted 24 NEMO presentations attended by 706 people.
- Hosted "Save Money and Generate Community Support with LID" half-day workshop for the Bangor Region in partnership with BASWG and UMaine Cooperative Extension focused on large community LID retrofit projects, cost savings, maintenance issues, improved treatment, flood control and community support. The primary presenter was Michigan Drain Commissioner Patrick Lindemann with four of his engineering staff. The 40 attendees (18 municipal staff, 13 engineers, 9 planners) qualified for continuing education credits.
- Participated in statewide Impervious Cover (IC) Total Maximum Daily Load (TMDL) meetings. Presented TMDL and LID information for Card Brook promoting the South Portland LID website for use of LID on small coastal lots. Follow-up included Land Use and Water Quality presentation uploaded to City of Ellsworth website and ordinance language sent to City Planner.
- Continued work on the EPA wetlands grant with State Planning Office for the Bangor Area Suitability of Development Study to utilize keypad polling and Community Viz to determine community values and optimal development scenarios for the seven town region. This project also integrates the Greenprinting Project by Trust for Public Land done in the region. Four meetings were held with 41 Town Officials and employees in March 2012 to collect stakeholder input on desirable neighborhoods, perception of growth, and indicators to track during the analysis. To date there is an updated logic model for the project, preliminary build outs, standardized parcel data across the seven towns using the Land Use Code Standards, indicators, and staff input.
- Presented "Forging the Link" materials linking cost savings to developers with implementation of LID at 12 events and three webinars.
- Partnered with Eastern Maine Development Commission on a series of LID workshops on "Small-Scale Stormwater Solutions for Small-Town Maine". Other LID work included: presentation "Striking a Balance on Water Quality issues" in Ellsworth, providing city of Bangor LID model ordinance information and Windham with model ordinance language, 2 informational workshops for the China Regional Lakes Alliance, LID training for Maine Landscapers and Nursery Association (MELNA), and promoting LID for pollutant removal prior to infiltration to the Salmon Falls Watershed Collaborative.

For More Information:

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E. NPS Grants Program

1. Overview of Nonpoint Source Water Pollution Control Projects

DEP uses a watershed-based approach as the coordinating framework to organize public and private sector efforts to identify, prioritize, and then implement activities to restore or protect waters. A pass-thru grants program is administered that awards and monitors sub-grants of federal CWA Section 319 & 604b funds for watershed projects to help restore or protect lakes, streams, rivers or coastal waters from NPS pollution. These grants help communities identify nonpoint water pollution sources, prepare watershed-based management plans, and take action to reduce or prevent NPS pollution. Through the NPS Grant Program, DEP issues grants to local project sponsors who provide a minimum of a 40 percent match to the grant funds. DEP issued grants to help fund three types of watershed-based projects:

- **NPS Watershed Implementation 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 recommending BMPs for treating identified NPS sites to reduce polluted runoff. NPS Watershed Surveys provide essential information for planning and implementing NPS Watershed Projects.
- **Watershed-based Plan.** A watershed-based plan is intended to be a strategic plan for actions needed over a five to 10 year timeframe to achieve the load reductions called for in a TMDL to restore an NPS-impaired waterbody.

2. NPS Water Pollution Control Projects Funded in 2012

DEP provided grants for seven NPS watershed implementation projects, five projects to develop a watershed-based management plan, and three watershed surveys. Ten projects received grants based on the outcome of the annual NPS Projects Request for Proposals DEP issued in April 2011.

Project Title	Grantee	Project #	Grant	Match
Bear Pond Watershed Survey	Oxford County SWCD	2012PP21	15,960	12,021
Beech Hill Pond Watershed Improvement Project	Hancock County SWCD	2012RR02	58,125	38,770
Concord Gully Brook Watershed Management Plan	Cumberland County SWCD	2012RT18	36,720	29,018
Goodall Brook Watershed Management Plan Development	Sanford, Town of	2012RT17	40,154	43,151
Great East Lake & Wilson Lake Watershed Implementation, Phase I	Acton Wakefield Watershed Alliance	2012RR01	67,641	86,566
Meduxnekeag River Watershed-based Plan	Southern Aroostook SWCD	2012RT19	13,748	12,580
Moose Pond Watershed Improvement Project	Cumberland County SWCD	2012RR03	60,371	42,068
Parker Pond Watershed Protection Project	30 Mile River Watershed Association	2012RR23	62,372	47,124
Penjajawoc Stream Watershed LID Retrofit Project	Bangor, City of	2012RT05	36,620	25,615
Sebago Lake Watershed Implementation Project, Phase II	Portland Water District	2012RR04	86,484	96,253
Sucker Brook Watershed & Stream Corridor Survey	Bangor, City of	2012PT22	28,942	30,910
Thatcher Brook Watershed-Based Management Plan	Biddeford, City of	2012RT20	59,958	59,260
Topsham Fair Mall Stream Watershed-Based Management Plan	Topsham, Town of	2012RT16	38,912	26,500
Upper Prestile Stream Main stem Watershed Survey	Central Aroostook SWCD	2011PT18	8,336	6,885
Whitten Brook Watershed Restoration Project, Phase I	Skowhegan, Town of	2012RT15	88,649	59,223
		Totals	702,992	615,944

3. Request for Proposals: FFY 2013 Grants for NPS Pollution Control Projects

The NPS RFP reserved funds ($175,000) for NPS projects to help restore NPS-impaired waters. Restoring NPS-impaired waters is a national priority of the EPA Section 319 program. EPA requires that states allocate Section 319 funding for restoration projects and document restorations as Section 319 NPS success stories. To qualify as a success story, an impaired waterbody must be partially or fully restored as a result of NPS abatement work in the watershed.

In April 2012, DEP issued the annual NPS RFP. In June DEP received 20 proposals requesting $1,041,276. The response demonstrates many local community-based partnerships value clean water and are prepared to start or continue work to reduce polluted runoff. A review committee evaluated and scored the proposals. In August DEP announced that the 13 highest-ranked projects will be funded. DEP worked with grantees as needed to adjust work plans to secure approved grant agreements (contracts). DEP prepared complete grant agreements to enable beginning projects by February 2013.

Results – Request for Proposals

FFY 2013 Grants for NPS Water Pollution Control Projects

Project Type	*Funds Requested*	*Funds to be Awarded*
NPS Watershed Implementation Project	$890,172 14 proposals	$570,994 9 proposals
NPS Watershed Survey or Watershed Planning	$151,104 6 proposals	$85,324 4 proposals

NPS Projects to be Awarded Grants by February 2013

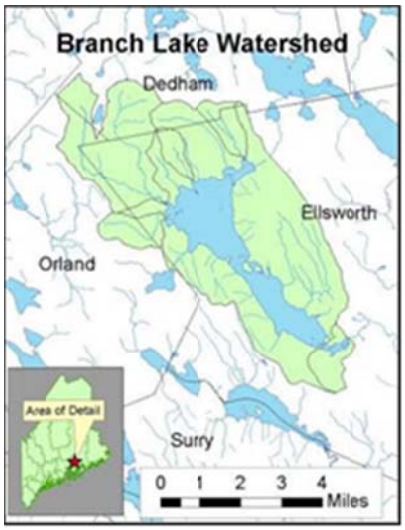
NPS Watershed Implementation Projects			
Project	*Grantee*	*Grant*	*Match*
Beech Hill Pond Watershed Protection Project Phase II	Hancock County SWCD	48,780	33,755
Phillips Lake Watershed Protection Project	Hancock County SWCD	59,310	39,560
Horne Pond Watershed Protection Project	York County SWCD	56,715	57,666
Nickerson Lake Protection Project, Phase II	Southern Aroostook SWCD	58,362	38,928
Parker Pond Watershed Protection Project	30 Mile River Watershed Association	62,372	47,124
Crooked River Protection Project, Phase I	Cumberland County SWCD	98,542	67,418
Spruce Creek Watershed Restoration Project, Phase III	Kittery, Town of	75,750	74,055
Worromontogus (Togus) Pond Restoration Project, Phase 3	Kennebec County SWCD	40,800	27,400
Trout Brook Restoration Project, Phase I	South Portland, City of	70,363	48,072
	Subtotal	570,994	433,978
NPS Watershed Surveys			
Stroudwater River Watershed Survey	Cumberland County SWCD	18,333	12,905
Bear Pond Watershed Survey	Oxford County SWCD	15,960	12,021
Sucker Brook Watershed and Stream Corridor Survey	Bangor, City of	28,942	30,910
Cobbossee Lake Watershed Survey	Cobbossee Watershed District	23,089	16,062
	Subtotal	86,324	71,898
	Total	657,318	505,876

F. Summaries of NPS Water Pollution Control Projects Completed in 2012

Concise two-page summaries of each project are included in the following pages and will be uploaded to the Knowledgebase database, http://www.gulfofmaine.org/kb/2.0/search.html. Additional project information can be obtained from the DEP or the project grantee. The map on page 4 shows the locations of watersheds with NPS projects awarded, completed, or underway in 2012.

Branch Lake Watershed Improvement Project, Phase II
2010RR01

Waterbody Name:	Branch Lake
Location:	Ellsworth – Hancock County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Hancock County Soil and Water Conservation District
Project Duration:	January 2010 – September 2012
319 Grant Amount:	$89,184
Local Match:	$50,230



PROBLEM:

Branch Lake is a 2703 acre waterbody that serves as the public water supply for the City of Ellsworth. The lake's 27 mile shoreline is fringed with over 200 shorefront camps. Although the 23.4 square mile watershed is largely undeveloped, there is continued development pressure due to Branch Lake's proximity to Bangor and Ellsworth. Lake water quality is considered excellent with low potential for algal blooms. The lake flushing rate of 0.41 per year is low compared to the average rate for Maine lakes of 1-1.5 per year. Recent data show the potential for phosphorus to leave the bottom sediments and become available to support algae has increased. Also, over recent years there has been significant dissolved oxygen depletion in deep areas during warm summer months.

In 1998 a volunteer watershed survey identified 140 erosion sites. In 2008, an updated watershed survey was completed documenting 130 erosion sites. A *Phase I* grant project (2007RR01) completed in 2009, fixed 33 documented erosion problems. The majority of NPS problems observed were excessive erosion and sediment from town roads, private roads, and residential properties.

PROJECT DESCRIPTION:

Phase II work continued action to protect Branch Lake by reducing erosion and the export of sediment and phosphorus in the northwestern section of the Branch Lake watershed. Beginning in the spring of 2010, Phase II focused on reducing sediment loadings by restoring 12 high and medium priority road sites selected from the 2008 watershed survey. The remaining medium and low priority areas were addressed with local in-kind match and technical assistance from the District. Phase II also included a 50% cash match and a technical assistance program offered to at least 20 residential properties to carry out NPS 'fixes' such as the installation of vegetative buffers or water diverters on driveways. In total, conservation practices that reduced erosion and polluted runoff were implemented at 32 sites.

Public outreach and education was an essential component of this project and the grantee followed the Branch Pond Outreach Plan, developed in Phase I using the LOGIC-Model (SMART).

PROJECT OUTCOMES:

- Successfully repaired 26 erosion sites including 11 gravel camp road sites improved with new cross culverts, inlet and outlet plunge pools, ditching, ditch turnouts, and stabilization. A bridge was constructed over Dean Brook to prevent washout of a camp road at an undersized and deteriorated stream crossing that was also a barrier to fish passage. Fourteen residential sites installed sediment and erosion control BMPs, including buffers and 400' of shoreline stabilization.
- Over 60% of the documented residential sites identified in the updated Watershed Survey were addressed.
- Pollutant loading to Branch Lake was reduced by an estimated 122 tons of sediment, 103 pounds of phosphorus, and 207 pounds of nitrogen per year (Region 5 Method).
- Education and outreach efforts continued using the "Outreach Plan for the Branch Pond Watershed" developed during Phase I. Due to this outreach and technical assistance, many landowners installed BMPs.
- A gravel road maintenance workshop was held for 25+ attendees.

PROJECT PARTNERS:

University of Maine Cooperative Extension
City of Ellsworth
Branch Pond Association
Walls Farm Way Road Association
Branchview North Road Association
Sargent Drive Road Association

CONTACT INFORMATION:

Greg Beane, DEP, 299-4703, greg.e.beane@maine.gov

Megan Facciolo, Hancock County SWCD, 207-667-8663, hancockcountyswcd@outlook.com

Gravel Road Workshop

Before: Failing culverts contribute erosion issues into a stream that empties into Branch Lake.

After: A new bridge reduces erosion issues and sediment getting to the lake.

Christina Reservoir Watershed Improvement Project
2010RT18

Waterbody Name:	Christina Reservoir
Location:	Fort Fairfield – Aroostook County
Waterbody Status:	Impaired – TMDL Completed
Project Grantee:	Central Aroostook SWCD
Project Duration:	September 2010 – September 2012
319 Grant Amount:	$43,335
Local Match:	$33,395

PROBLEM:

Because of the short growing season in northern Maine and the nature of row crop agriculture, fields may be bare seven months of the year. The short growing season and potato harvest in the late fall often preclude farmers from establishing a cover crop in time for winter. Crop rotations in this watershed are either a two-year rotation (potato – grain) or a three-year rotation (potato-grain-hay). The potato year of a rotation leaves fields susceptible to soil loss from November until a grain crop is well-established in late June or early July. The soil vulnerability coincides with winter thaws, spring run-off, and early summer thunderstorms. Row crop agriculture occupies 39% of the watershed, but contributed 87% of the NPS sites in the watershed and 78% of the medium to high impact NPS sites.

The TMDL for Christina recommends that sediment loads be decreased 50 percent or 0.8 tons per acre per year. The TMDL study estimates that cropland contributes 50 tons per year of sediment to Christina Reservoir.

CASWCD and USDA-NRCS staff have met with landowners in the watershed to review survey findings, offer suggestions for BMPs and review potential funding sources. Three landowners agreed to participate in improvement projects. Two of these landowners do not qualify for USDA funding because of income source restrictions. The function of BMPs in the northwest corner of the watershed is dependent on installing a system of waterways, diversion, and field headland grading. This system of BMPs crosses ownership boundary lines and isn't easily addressed by USDA-Farm Bill funds because those funds are allocated by individual land owner.

Grass-lined waterway in potato field

PROJECT DESCRIPTION:

The project focused on sites rated medium to high impact on water quality located on three farms. The BMPs chosen focused on common row crop conservation practices (grass or rock lined waterways, buffers, reshaping). CASWCD provided grant administration and coordination between growers and

USDA-NRCS. USDA-NRCS provided joint construction oversight with CASWCD to ensure that construction meets USDA construction standards for the planned BMPs.

PROJECT OUTCOMES:

- Seven medium to high priority NPS sites were addressed with grass and rock-lined waterways, elimination, and replacement of a steep access road, reshaping field edges to direct stormwater runoff into stable vegetated areas and vegetative buffer plantings.
- A two-acre riparian buffer was established between highly erodible crop land and Christina Reservoir to filter sediment from runoff and provide wildlife habitat.
- Pollutant loading to the reservoir was reduced by an estimated 137 tons of sediment, 98 pounds of phosphorus, and 273 pounds nitrogen per year. This exceeds the TMDL sediment reduction target by over 2 times. USDA-NRCS recognized Christina and the Prestile Stream watershed as a local priority and funded a special technical assistance project in the watershed to help growers develop nutrient management plans.

PROJECT PARTNERS:

Local landowners
USDA-Natural Resources Conservation Service

CONTACT INFORMATION:

Kathy Hoppe, DEP 207-540-3134, kathy.m.hoppe@maine.gov
Kathryn Watson, Central Aroostook SWCD,
207-764-4153, Kathryn.Watson@me.nacdnet.net

Rock-lined waterway discharging into a small pool with a level lip spreader that discharges into a riparian buffer.

Grass-lined waterway directing field runoff into a small pool with a level lip spreader that discharges into a wooded buffer.

Crooked River Watershed Survey Project
#2010PT19

Waterbody Name:	Crooked River
Location:	Bethel, Albany, Waterford, Norway, Otisfield, Harrison, Casco, and Naples – Oxford and Cumberland Counties
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Cumberland County Soil & Water Conservation District
Project Duration:	January 2011 – April 2012
604(b) Grant Amount:	$28,244
Local Match:	$16,201

PROBLEM:

The Crooked River is approximately 50 miles long and has a watershed area of nearly 120 square miles. It supplies over 40 % of the surface inflow to Sebago Lake; a water supply to 200,000 customers in the Greater Portland area. The Crooked River supports one of only four known indigenous populations of landlocked Atlantic Salmon (*Salmo salar*) in Maine. Eighty-five percent of the watershed is undeveloped, 10.5% is developed (primarily in the southern portion), and agricultural land covers 4.5% of the watershed with much of it in hayfields and fallow lands.

Portland Water District (PWD) monitors the river at seven sites from Naples to Albany. The PWD 2008-09 Water Quality Report documented high levels of phosphorus in the southernmost station and high levels of fecal coliform bacteria at all seven stations. The signs of stress exhibited in the Crooked River are likely due to polluted runoff from development, particularly in the southern portion of the watershed.

PROJECT DESCRIPTION:

The purpose of this project was to identify, document, and prioritize polluted runoff sites in the Crooked River watershed and to recommend Best Management Practices (BMPs) that can be installed to mitigate problems at these sites. The project capitalized on the existing efforts of project partners to continue raising awareness of the connection between land use and water quality. During the summer of 2011, Cumberland County Soil & Water Conservation District (CCSWCD), project partners, and volunteers completed a watershed survey of almost the entire watershed. The upper half of the watershed was to be surveyed using available Google Earth and topographic maps. However due to volunteer interest, the work plan was reworked to survey the upper watershed using on-the-ground watershed survey methods. In June 2011, CCSWCD and Oxford County SWCD partnered with the Sebago Chapter of Trout Unlimited to complete a riparian corridor survey. Using methods developed by Sheepscot River Watershed Council, Trout Unlimited volunteers and District staff kayaked and canoed the lower half of Crooked River and part of the upper river to conduct the survey.

Trout Unlimited volunteers conducting a riparian corridor survey by kayak.

A volunteer documents an erosion site.

PROJECT OUTCOMES:

- Due to the large watershed size (120 square miles), the watershed survey initially focused on the more-developed lower four towns. However, due to volunteer interest, three of the four upper towns were also surveyed using on-the-ground survey methods. A riparian corridor inventory documented conditions on the lower half of the river and parts of the upper river corridor.
- Two hundred NPS problem sites were identified during the watershed survey and twenty problem sites were identified during the river corridor inventory. A summary of findings was documented in the "Crooked River Watershed Survey" report completed in March 2012.
- Trout Unlimited volunteers and the riparian corridor inventory were featured on WCSH6, in "Bill Green's Maine" television show.
- Presented a PowerPoint presentation of survey findings to municipal officials in four towns.
- Involvement and support exceeded expectations and was instrumental in success of this project. Major project partners included Portland Water District, Maine Inland Fisheries & Wildlife, Trout Unlimited, Lakes Environmental Association and Western Foothills Land Trust.
- In spring 2013, CCSWCD will begin a project to install BMPs at the high priority NPS problem sites using Clean Water Act Section 319 funds.

PROJECT PARTNERS:

Cumberland County Soil & Water Conservation District
Oxford County Soil & Water Conservation District
Maine Department of Environmental Protection
Maine Department of Inland Fisheries & Wildlife
Portland Water District
Lakes Environmental Association
Trout Unlimited Sebago Chapter
Western Foothills Land Trust

CONTACT INFORMATION:

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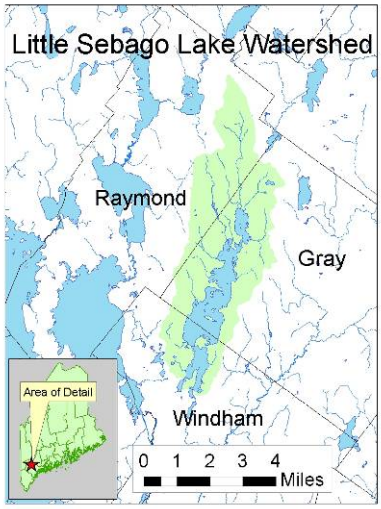
Heather True, CCSWCD, (207)-892-4700, htrue@cumberlandswcd.org

Little Sebago Lake Conservation Project: Phase III

#2010RR02

Waterbody Name:	Little Sebago Lake
Location:	Gray and Windham – Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Sponsor:	Cumberland County SWCD
Project Duration:	January 2010 – September 2012
319 Grant Amount:	$79,854
Local Match:	$86,731



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 has a state-owned boat ramp and an infestation of invasive variable-leaf milfoil, which is being actively managed by the Little Sebago Lake Association (LSLA).

The lake has been monitored since 1975, and the data indicate that the lake has moderate depletion of dissolved oxygen in the hypolimnion in late summer. In 2002 and 2003, the Cumberland County Soil and Water Conservation District (SWCD), LSLA, and Maine DEP completed NPS surveys of the entire watershed and identified 327 erosion sites. A *Phase I* grant project (#2004R-02) fixed 55 documented erosion problems and started a summer Youth Conservation Corps (YCC). A smaller grant project (#2004R-24B) concurrently fixed another two high-impact watershed sites. Most recently, a *Phase II* project (#2006R-04) fixed 10 priority NPS sites, and the YCC installed conservation practices at 54 residential sites.

PROJECT DESCRIPTION:

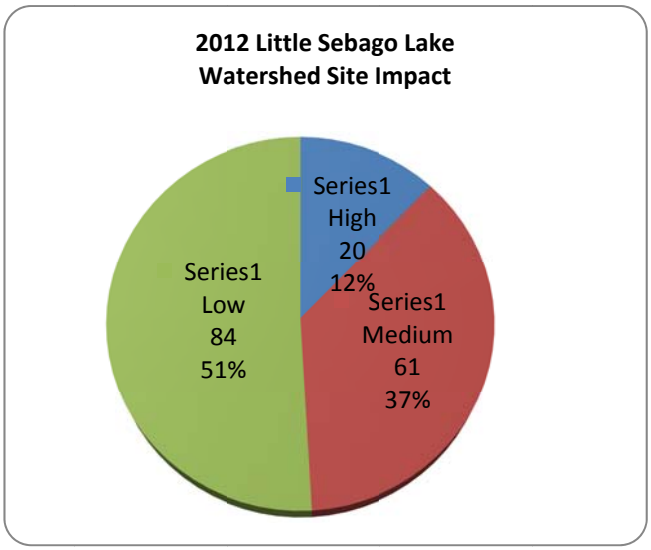
The purpose of the *Phase III* project was to significantly reduce soil erosion and polluted runoff to Little Sebago Lake. Also, this project provided technical assistance to landowners and road associations, raise awareness about watershed problems, and foster long-term watershed stewardship.

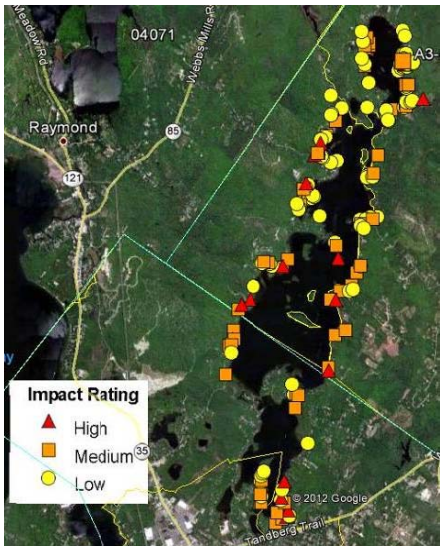
YCC installs infiltration steps at a lakefront property.

Conservation practices were installed to fix 10 high priority sites on private roads. The Casco Bay YCC provided landowners with labor to install 100 conservation practices such as buffers and infiltration steps at 18 residential sites. Project staff provided technical assistance to 71 landowners, presented at LSLA annual meetings and created a brochure to highlight project outcomes. A follow-up survey was also conducted in 2012 to evaluate conditions at sites identified in the 2002 and 2003 watershed surveys.

PROJECT OUTCOMES:

- The project fixed erosion problems at 10 priority watershed sites. This work prevented an estimated 47.9 tons of sediment and 40.7 pounds of phosphorus from entering Little Sebago Lake each year (Region 5 Method and WEPP Road Model).
- The Casco Bay Youth Conservation Corps installed over 100 conservation practices at 18 residential properties during the summer of 2010 and 2011. Conservation practices installed included water diverters, roof drip-line trenches, dry wells, infiltration steps, mulched pathways and recreation areas, shoreline buffers, riprap turnouts, sediment basins/plunge pools, and infiltration trenches.
- During the summer of 2012, technical staff and volunteers reviewed sites identified in the 2002 and 2003 watershed surveys. Surveyors found that 146 sites had been 'fixed' while 164 sites continue to be problems. Also, although most of the priority sites have been fixed over the past 10 years, there are 20 high impact and 61 medium impact sites remaining. (See figure and map below).
- All existing and fixed sites were incorporated into a Watershed Sites Tracker tool (including Excel spreadsheet and Google maps). A LSLA subcommittee is working to develop next steps to continue targeting existing problems and prompt ongoing maintenance at fixed sites.





PROJECT PARTNERS:

Casco Bay Youth Conservation Corps
Little Sebago Lake Association
Town of Gray
Town of Windham

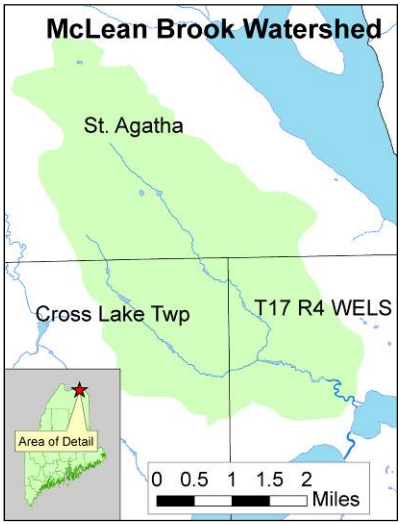
CONTACT INFORMATION:

Wendy Garland, DEP – (207) 615-2451, wendy.garland@maine.gov
Heather True, Cumberland County SWCD – (207) 892-4700, htrue@cumberlandswcd.org

McLean Brook Watershed BMP Implementation Project

2010RR03

Waterbody Name:	McLean Brook
Location:	St Agatha – Aroostook County
Waterbody Status:	Attains Class B
Project Grantee:	St. John Valley SWCD
Project Duration:	January 2010 – October 2012
319 Grant Amount:	$33,044
Local Match:	$42,443



PROBLEM:

McLean Brook is located near the Canadian Border. The upper watershed topography is dominated by rolling, hilly farm fields, with slopes averaging 2% to 8% on Plaisted/Howland soils, however some slopes exceed 25% on Thorndike soils. Lower in the watershed the dominant land features include active industrial timberlands and wooded wetlands. McLean Brook and its tributaries occupy the open valleys between ridges; residences in the watershed are mostly farmsteads.

McLean Brook is classified as a Class B Stream and has an 8,260 acre watershed. Over the past decade there have been numerous calls to the DEP concerning a sediment plume from McLean Brook entering Long Lake. In 2009 DEP sampled the brook for the first time and found it failed to attain Class B standards. In 2008 the St. John SWCD completed a watershed survey identifying a number of agricultural-related NPS pollution issues, some of which could be addressed with conservation practices. The shape of agricultural parcels in this area is long and narrow, which limits the use of conservation practices such as contour planting. In addition, the timing of the potato harvest in this northern climate severely limits establishing a post-harvest winter cover crop. Overall, the majority of McLean Brook's water quality issues are due to row crop production in the upper watershed that has resulted in sediment and nutrient loads to the Brook.

PROJECT DESCRIPTION:

The 319-funded watershed survey completed by the St. John SWCD identified six major NPS sites, one is an ATV crossing and the other five are a combination of agricultural and road issues. Specifically, many of the tillage practices encroach on local roads or discharge storm events onto local roads and into associated ditches without any method of pollutant removal, treatment, or filtration. To solve these problems District staff coordinated communication and design plans between landowners, the town of St. Agatha, and the NRCS. During the

A grass-lined waterway breaks up the watershed and diverts field runoff into a stabilized area.

project, it was discovered that St. Agatha did not have the ownership and road maintenance responsibilities for Flat Mountain Road but rather those lay with the Maine DOT. The District then coordinated with Maine DOT and the local grower/landowner to design and install road-related BMPs.

PROJECT OUTCOMES:

- Numerous BMPs were installed to reduce erosion and sediment on about 500 acres of row crops, local and state roads.
- The Town of St. Agatha and farmers cooperated on installing BMPs on town roads and farm fields.
- Maine DOT, local farmer and St. John SWCD installed a road ditch turnout into a buffer at the edge of a field.
- An eroding ATV trail stream crossing and the approaches to the crossing were stabilized.
- Pollutant loading to McLean Brook was reduced by 887 tons of sediment, 1,008 pounds of phosphorus, and 1,976 pounds nitrogen per year.

PROJECT PARTNERS:

Local landowners
Town of St. Agatha
Maine Department of Transportation

CONTACT INFORMATION:

Kathy Hoppe, DEP, 207-540-3134, kathy.m.hoppe@maine.gov

Sigrid Houlette, St. John SWCD, 207-834-3311, sigrid.houlette@me.nacdnet.net
www.sjv.me.nacdnet.org

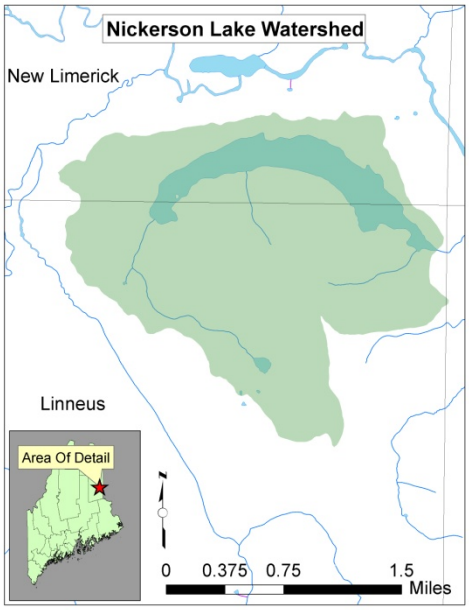
Town road lacking a stabilized ditch

Town road with a grass-stabilized ditch

Nickerson Lake Conservation Project Phase I

2010RR04

Waterbody Name:	Nickerson Lake
Location:	New Limerick – Aroostook County
Waterbody Status:	Attains Class GPA
Project Grantee:	Southern Aroostook SWCD
Project Duration:	January 2010 – September 2012
319 Grant Amount:	$64,789
Local Match:	$49,263



PROBLEM:

New development, renovation of seasonal camps to year-round residences, increased camp road traffic concurrent with year round use, and subsequent road degradation all contribute to nonpoint source (NPS) pollution to Nickerson Lake. Preliminary results from the spring 2009 lake survey indicate that 35% of pollution runoff comes from erosion from camp roads. Nickerson Lake is also close to the Town of Houlton and Interstate 95. This region has experienced a significant increase in development over the past decade.

The Nickerson Lake Wilderness Preservation Corporation voted to conduct a survey of their watershed in the spring of 2009. The survey identified 48 erosion sites which included town and private roads (35%), driveways (42%), camp lots (13%), shoreline (8%) and boat landing sites (2%). The sites were ranked for impact on water quality, 17% were rated high impact, 58% were medium impact, and 25% low impact.

Highly erodible soils data indicate that 70% of the acreage in the Nickerson Lake watershed is highly erodible or potentially highly erodible land, with moderate to severe slopes ranging from 5 to 25%.

PROJECT DESCRIPTION:

The Nickerson Lake Conservation Project – Phase I was managed by the SASWCD and guided by a steering committee made up of local partners including the Nickerson Lake Wilderness Preservation Corporation, Houlton Community Golf Course, the Towns of Linneus and New Limerick and the Houlton Band of Maliseet Indians.

Activities focused on reducing sediment loading by installing BMPs to address erosion from camp roads, residential sites, and one public site - all of which had been identified in the 2009 watershed survey. Project staff provided technical assistance and education to many landowners. Five hands-on educational workshops were held, and topics covered included: camp road maintenance, rain garden installation, and a conservation landscaping workshop focused on vegetative buffers. Outreach to the Nickerson Lake community was reached through mailings and press releases in local newspapers. Workshops as well as the availability of technical assistance and grant cost-shares were advertised.

PROJECT OUTCOMES:

- Six camp road NPS sites were addressed with BMPs including the introduction and installation of rock burritos. Fifteen residential sites and two public recreational sites (a golf course and a state public beach) also were addressed with sediment and erosion control BMPs.
- Technical assistance was provided to residents on creating vegetative buffers and preventing erosion on driveways.
- The LakeSmart program recognized several landowners for maintaining lake friendly BMPs on their properties.
- Pollutant loading to Nickerson Lake was reduced by an estimated 255 tons of sediment, 255 pounds of phosphorus and 511 pounds nitrogen per year.

PROJECT PARTNERS:

Local landowners
Nickerson Lake Wilderness Preservation Corporation

Nickerson Lake shoreline erosion before BMP installation

Nickerson Lake shoreline after BMP installation

CONTACT INFORMATION:

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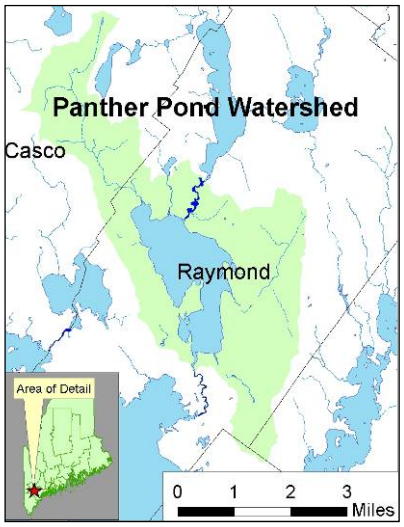
Angela Wotton, Southern Aroostook SWCD, 207-532-2087, angela.wotton@me.nacdnet.net
http://www.saswcd.org/

Panther Pond Conservation Project – Phase II
#2009RR02



Waterbody Name:	Panther Pond
Location:	Raymond, Casco – Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Sponsor:	Town of Raymond
Project Duration:	April 2009 – March 2012
319 Grant Amount:	$63,289
Local Match:	$56,475

PROBLEM:

Panther Pond is a 1439-acre lake located in the Town of Raymond. Panther Pond's shoreline is developed with over 300 homes, four youth summer camps, and an extensive network of unpaved camp roads. The direct watershed covers 12.3 square miles, and the larger watershed includes Crescent Lake, Raymond Pond, and several smaller ponds. Panther Pond contributes about 18% of the flow into Sebago Lake, which serves as a drinking water supply for the Portland region.

The Raymond Waterways Protective Association (RWPA) and Maine DEP have monitored water quality on Panther Pond since 1974. Data indicate that the lake experiences moderate depletion of dissolved oxygen in late summer. In 2002 the Panther Pond Association (PPA) formed to promote conservation efforts in the watershed. In 2003, the PPA, RWPA, Cumberland County SWCD, and Maine DEP conducted an independently-funded watershed survey and identified 84 erosion sites contributing an estimated 61 tons of sediment per year to the lake. A *Phase I* grant project (#2005R-17) installed conservation practices at 26 large-scale erosion sites and 20 smaller sites through small matching grants, reducing pollutant loading to Panther Pond by an estimated 31 tons of sediment per year.

PROJECT DESCRIPTION:

Rain garden installed with a small matching grant.

The purpose of the project was to build on the momentum generated by the *Phase I* project and address most of the remaining sites identified in the watershed survey. The project also aimed to raise awareness about watershed problems and foster long-term watershed stewardship. At least 13 high and medium priority sites were targeted for NPS abatement projects, and small matching grants were allocated for another 20 low to medium impact sites on residential properties. A project brochure was mailed to all watershed landowners at the start of the project, and landowners with identified erosion or buffer issues were contacted to get involved in the project. Two boat tours were conducted to highlight projects completed through the project. Project updates were presented at RWPA and PPA's annual meetings, and project materials were included on the RWPA website, RWPA newsletters and PPA mailings.

PROJECT OUTCOMES:

- The project successfully completed 14 NPS Abatement Projects including six private road sites, two town road sites, one state road site, two Boy Scout camp sites and three ATV sites. For the ATV sites, project staff worked with local clubs, Scout Troops and other volunteers built bridges to eliminate vehicle traffic through two tributary streams.

- Small matching grants ($300 each) were awarded for another 22 sites to install conservation practices such as buffers, rubber razor diverters, waterbars and infiltration steps. Many of these conservation practices were installed by local residents, who volunteered to help their friends and neighbors.

- Pollutant loading to Panther Pond was reduced by an estimated 33 tons of sediment and 28 pounds of phosphorus per year (EPA Region 5 Method and WEPP Road Model).

Before: Erosion at trail approach to bridge and at the stream. Bridge was in poor repair (left) and ATVs using trail through the stream (right)

After: Volunteers repaired bridge and stabilized approaches with crushed stone. Large boulders and signs installed to discourage future stream access.

PROJECT PARTNERS:

Cumberland County SWCD
Panther Pond Association
Portland Water District
Raymond Waterways Protective Association

CONTACT INFORMATION:

Wendy Garland, DEP – (207) 615-245, wendy.garland@maine.gov
Betty Williams, RWPA – (207) 831-7157, lakes@raymondmaine.org

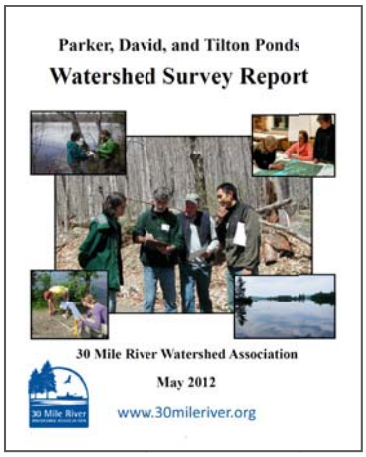
Parker, David, and Tilton Ponds Watershed Survey
#2011RR08

Waterbody Name:	Parker, David, and Tilton Ponds
Location:	Chesterville, Fayette, Mt. Vernon, Vienna – Franklin & Kennebec Counties
Waterbody Status:	Parker - NPS Priority Watershed
Project Grantee:	30 Mile River Watershed Association
Project Duration:	February 2011 – July 2012
319 Grant Amount:	$17,238
Local Match:	$12,066

PROBLEM:

Parker, David, and Tilton Ponds form one of the northern branches of the "30 Mile River," a connected chain of lakes in central Maine. Parker Pond is the largest of the three ponds, and has a surface area of 1524 acres, a direct watershed of 6.3 square miles, and an average depth of 31 feet. The ponds are a valuable resource for the public with excellent bass, salmon, and brook trout fisheries; state-owned islands; and public boat and hiking access. Water quality monitors have noticed significant declines in water clarity in recent years. Shoreland development and the resulting non-point source pollution are among the biggest threats to these ponds. Most of the development on the ponds occurred before current shoreland zoning laws were in place. There are also many private camp roads throughout all three watersheds, most located very near the waterbodies. It is suspected that many of these roads are major sources of phosphorus.

PROJECT DESCRIPTION:



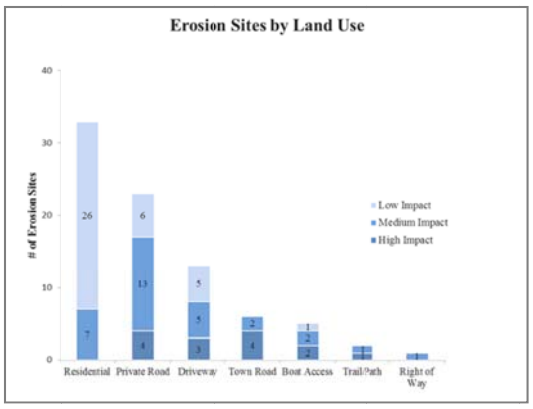
The purpose of this project was to identify, document, and prioritize soil erosion and phosphorus pollution sites in the watersheds of Parker, David, and Tilton Ponds, to raise public awareness, and to encourage active stewardship. The long-term goal is to reduce watershed pollutant loading to improve and protect the water quality of the ponds.

Planning for the watershed survey began in early 2011 using a steering committee composed of representatives from all partner groups. All landowners within the three watersheds were contacted to inform them of the survey and give them the opportunity to opt-out. In the spring and summer of 2011, all developed portions of the watersheds were surveyed for sources of NPS pollution by 27 trained volunteers and 10 technical staff. After survey results were compiled, an educational summary and a full report were produced. The full report was distributed throughout the four communities and included summaries of data, photos of erosion problems, maps of the site locations, and recommendations for next steps. In May 2012, all landowners who participated in the survey received either a postcard thanking them for their participation

and a link to the survey report; or if their property had issues impacting water quality, a personalized letter describing what was found on their property, the general survey results, and information on how they could take advantage of the 30 Mile River Watershed Association Youth Conservation Corps to help with corrective action.

PROJECT OUTCOMES:

- Survey of the Parker, David, and Tilton Ponds Watershed, documenting 83 erosion sites – see the figure below for breakdown of site land use and impact rating. Site information was managed using the NPS Site Tracker excel spreadsheet and Google Earth mapping.
- Completion of the *Parker, David, and Tilton Ponds Watershed Survey Report* (May 2012) summarizes survey findings and lists specific descriptions and recommendations for identified sites. Survey results provided a starting point for beginning to work with the largest road association on Parker Pond, located in the part of Parker Pond with the highest concentration (70%) of sites.
- Project built awareness of NPS pollution and stewardship throughout the communities and strengthened collaboration with new and existing partners for future work addressing NPS pollution.
- An estimated reduction of 47 pounds of phosphorus loading from the high and medium impact sites (WEPP Road Model and Region 5 Method) and development of BMP designs for eight high impact sites.



PROJECT PARTNERS:

Basin-David-Tilton Ponds Association	Kennebec County SWCD
30 Mile River Watershed Association	Parker Pond Association
Town of Chesterville	Town of Fayette
Town of Mount Vernon	Town of Vienna

Volunteers & technical staff at the April 2011 training

CONTACT INFORMATION:

Kristin Feindel, DEP – (207) 215-3461, kristin.b.feindel@maine.gov

Lidie Robbins, 30MRWA – (207) 670-7298, info@30mileriver.org

Pattee Pond Watershed NPS Reduction Project, Phase I
#2010RR05

Waterbody Name:	Pattee Pond (Pattee's Pond)
Location:	Winslow – Kennebec County
Waterbody Status:	Most at Risk, NPS Priority Watershed
Project Grantee:	Town of Winslow
Project Duration:	March 2010 – February 2012
319 Grant Amount:	$59,280
Local Match:	$72,070

PROBLEM:

Pattee Pond is a 515 acre lake with a mean depth of 15 feet and a direct watershed of 6,430 acres. The pond is a valuable resource for the regional. The shoreline is dotted with over 105 seasonal and several year-round residences. A private campground and boys' camp are located along the shoreline. Volunteers have tested water quality for approximately 40 years. Pattee Pond's water quality is considered below average with a long-term average secchi reading of 9.5 feet and occasional algae blooms. A volunteer-led watershed survey was completed by the Pattee's Pond Association (PPA) and technical leaders in the fall of 2007 and identified 97 soil erosion sites. Of these sites, 57 percent were in residential areas, 22% were on private roads, 8% were driveways, 7% were boat accesses, and 6% were other. High and medium impact sites made up 51% of the residential sites and 76% of the private road sites.

PROJECT DESCRIPTION:

Project Sites

The purpose of this project was to reduce the amount of sediment and phosphorus reaching waters in the Pattee Pond watershed, and to promote watershed stewardship. This project demonstrated the benefits of the cooperation among several local partners. The Town of Winslow had the fiscal and administrative responsibility for the overall project and the YCC. The KCSWCD provided technical expertise for construction work and pollutant loading calculations. The PPA provided hundreds of volunteer hours for technical assistance, fund raising, administrative tasks, and rake and shovel work.

The project was a mix of road construction work, technical assistance visits by trained volunteers, YCC conservation projects, and educational events. In the first year, grant projects were completed on three camp roads and a boys' camp shoreline that were identified in the watershed survey as severe erosion problems. Owners on several other roads saw the change in sediment-laden runoff at the grant sites and paid to have parts of their roads resurfaced and crowned properly, without grant funds. The work of the YCC also inspired several other landowners to install conservation practices on their properties without grant funds. Trained PPA volunteers provided free technical assistance visits. Information about

conservation practices was distributed through six PPA newsletters, two major newspaper articles, several public presentations, a brochure, and three educational workshops.

PROJECT OUTCOMES:

- Installation of 40 BMPs at six NPS sites in the watershed, including several high priority road sites like the Pickerel Point Road causeway culvert and Whitefish Road.
- Two seasons of Youth Conservation Corps projects around the pond, completing 69 BMPs on 12 sites, including shoreline plantings, infiltration steps, and use of erosion control mulch.
- Technical assistance training of eight local volunteer evaluators, resulting in evaluations of 34 properties and implementation of the recommendations without grant funds at 10 properties.
- Pollutant loading reduction of an estimated 50 tons of sediment and 54 pounds of phosphorus annually (WEPP Road Model and Region 5 Method).
- Surpassing the planned project match by over $20,000, much of it due to the hundreds of volunteer hours by members of the Pattee's Pond Association.

YCC project site work: infiltration steps, plantings, and erosion control mulch

Brochure showing completed grant work and encouraging use of conservation practices

PROJECT PARTNERS:

Pattee's Pond Association

Kennebec County SWCD

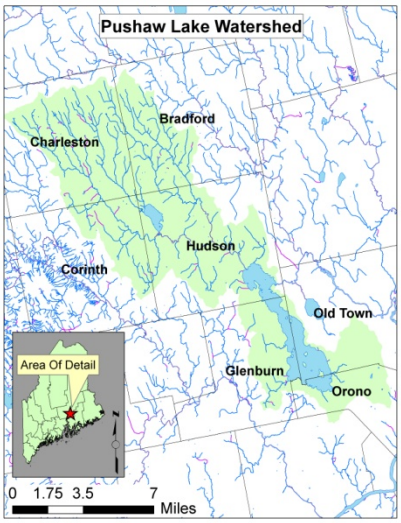
CONTACT INFORMATION:

Kristin Feindel, Maine DEP – (207) 215-3461, kristin.b.feindel@maine.gov

Dennis Dacus, Town of Winslow – (207) 287-2776, ddacus@winslow.me.gov

Pushaw Lake Watershed Project: Phase II & Watershed Survey
2009RR05

Waterbody Name:	Pushaw Lake
Location:	Old Town, Hudson– Penobscot County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Penobscot County SWCD
Project Duration:	March 2009 – March 2012
319 Grant Amount:	$75,000
Local Match:	$55,953



PROBLEM:

Pushaw Lake is a 4,680 acre lake located in Orono, Old Town, Glenburn, and Hudson. The lake is on the NPS Priority Watersheds list due to water quality issues and high development pressure. Pushaw Lake water quality has been a concern since 1970 when the University of Maine documented an algal bloom. While the potential for nuisance algal blooms is listed as low to moderate, increasing algae growth was observed during the summers of 2001-2008 in isolated areas of the lake. Recently, phosphorous levels have increased. The five-year moving averages show an increase of three ppb phosphorous and recent results have been as high as 20.6 ppb.

In 2001-2002 twenty local citizens participated in the Watershed Stewards Program offered by the University of Maine Cooperative Extension (UMCE), and they subsequently recruited additional volunteers to conduct a watershed survey. The resulting survey documented 259 NPS pollution sites in the direct watershed of Pushaw Lake.

PROJECT DESCRIPTION:

The goals of this project were to protect and improve Pushaw Lake water quality. The goals were met through a multi-phased approach with funding and technical support to address the documented erosion and sediment problems. Phase I activities conducted from April 2006 to September 2008 targeted implementation and technical support to the towns of Glenburn and Hudson with education and outreach aimed at the entire lake community. Phase II implemented BMPs in Old Town and Hudson, and updated an NPS watershed survey which documented conservation needs at specific sites in the watershed. The Penobscot County Soil and Water Conservation District (PCSWCD) targeted the municipalities of Old Town and Hudson and provided technical and cost-share assistance to implement BMPs on private and municipal sites identified in the watershed survey. BMPs were installed on residential lots, city and private roads, the city boat launch, and private driveways. The PCSWCD contacted landowners of the identified candidate sites and assessed their capacity to implement BMPs. This was accomplished through direct mail or phone contact by the Greater Pushaw Lake Association (GPLA) and through press releases in the Bangor Daily News, Penobscot Times, The Weekly, and the GPLA newsletter.

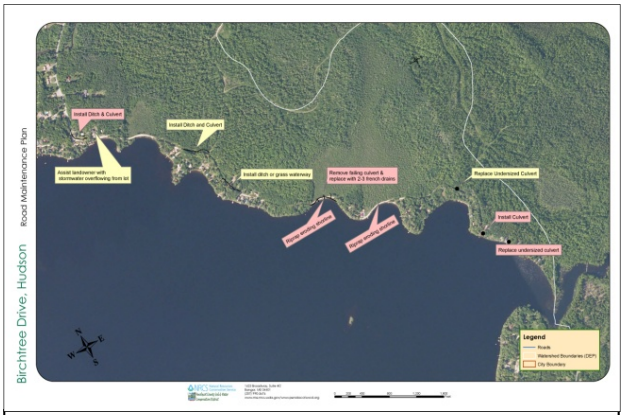
PROJECT OUTCOMES:

- 27 BMPs were installed in Old Town and Hudson resulting in an estimated annual reduction of approximately 189 tons of sediment, 189 pounds of phosphorous and 378 pounds of nitrogen from entering the lake.
- Watershed survey data was updated for the watershed area in the Town of Hudson. The old data was replaced, and 77 sites were identified. Out of the 77 sites only three were highest priority, most of the sites were related to the lack of buffer or shoreline protection.
- 15 people received technical assistance for erosion issues on their properties in the watershed.
- UMCE and PCSWCD developed an outreach plan based on a landowner opinion survey data and an outreach logic model. GPLA will use the outreach plan in the future to increase landowner use of BMPs in the watershed to protect lake water quality.
- The collaborative effort that took place during this project fostered a revitalized GPLA that is changing their bylaws to become a more effective organization. GPLA is also developing a new membership drive to create a stronger organization to help implement their outreach plans.

PROJECT PARTNERS:

Greater Pushaw Lake Association
Rogers Landing Road Association
Town of Old Town
University of Maine Cooperative Extension

An example of a BMP installed on Woodland Ave to prevent erosion and sedimentation.



Birchtree Drive sediment and erosion problems (NPS Sites) that were corrected.

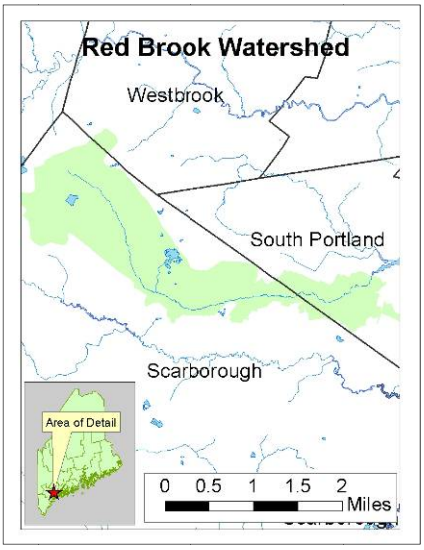
CONTACT INFORMATION:

Greg Beane, MDEP, 299-4703, greg.e.beane@maine.gov

Chris Brewer, PCSWCD, 947-3555, chris.brewer@penobscotswcd.org

Red Brook Hydrologic Assessment Project
#2010PT21

Waterbody Name:	Red Brook
Location:	Scarborough and South Portland – Cumberland County
Waterbody Status:	Urban Impaired Stream
Project Grantee:	Town of Scarborough
Project Duration:	July 2012 – December 2012
604b Grant:	$7,800
Local Match:	$17,940



PROBLEM:

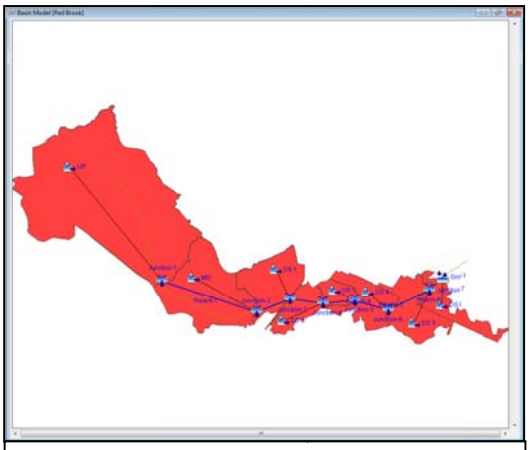
Red Brook is a small, 7.15 mile-long stream that flows into Clark's Pond and the Fore River. The 3.2 square mile watershed includes a relatively undeveloped upper watershed, sections of the Maine Turnpike and I-295, a regional waste incinerator, and a high-density commercial area at the base of the watershed.

Water quality in the upper portions of the stream is considered to be relatively stable, and the stream supports a brook trout population. However, the stream does not meet Class C standards and is impaired due to habitat degradation and PCB contamination. A PCB-contaminated site in the upper watershed was sealed in 2009, and levels in fish tissue are expected to decrease over time. Habitat degradation is found primarily in the lower sections of the stream due to past channel alterations and near-stream development. The *Red Brook Watershed Based Management Plan* was completed in 2011 with funding from a 604b ARRA grant (#2009SP03).

PROJECT DESCRIPTION:

The primary purpose of the project was to develop a hydrologic model called for in the *Red Brook Watershed Based Management Plan*. The model will enable future evaluation of stream hydraulics and projects to improve in-stream habitat, stream crossings and watershed restoration.

The Town paid the project consultant to process raw aerial LiDAR data from 2006 and 2011 into two-foot contours of the watershed. Fieldwork was also conducted to ground-truth watershed boundaries and stream culverts, and to conduct field reconnaissance to evaluate modeling needs. A QAPP was developed and approved with input from Maine DEP and US EPA staff, and a preliminary model as developed using HEC-HMS software.



Screen shot from HEC-HMS model.

PROJECT OUTCOMES:

- A hydrologic model was developed for Red Brook using the HEC-HMS model. The model can now be used to help prioritize and design restoration projects as part of Red Brook Plan implementation efforts.
- A GIS data layer of two-foot contour lines was developed for the Red Brook watershed.
- The *Red Brook Hydrologic Assessment Project Quality Assurance Project Plan (QAPP)* was completed and approved in December 2012. If EPA grant funds are acquired to complete and run the model, the same QAPP can be referenced. Only an appendix will be required.

The HEC-HMS model will be used to evaluate and design future in-stream and culvert rehabilitation projects such as those shown above. The goal is to restore stream habitat and remove fish barriers.

PROJECT PARTNERS:

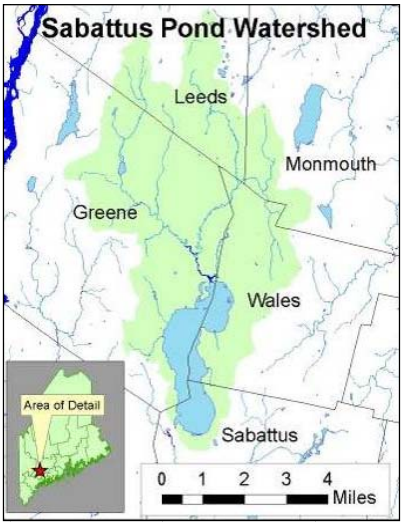
AMEC Environment & Infrastructure, Inc.

CONTACT INFORMATION:

Wendy Garland, DEP – (207) 615-2451, wendy.garland@maine.gov
Jim Wendel, Town of Scarborough – (207) 730-4043, jwendel@ci.scarborough.me.us

Sabattus Pond Watershed Project Phase III
#2010RT06

Waterbody Name:	Sabattus Pond
Location:	Greene, Sabattus, Wales – Androscoggin County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	Androscoggin Valley SWCD
Project Duration:	January 2010 – September 2012
319 Grant Amount:	$77,066
Local Match:	$99,069



PROBLEM:

Sabattus Pond is a shallow 2,036-acre waterbody with a direct watershed of 25.3 square miles. Sabattus Pond has a high recreational value since it is managed as a warm water fishery, hosts more than a dozen types of fish, and has public access. Agricultural use in the watershed has declined in the last 20 years, and there has been a large increase in conversions of summer camps to year-round residences, and general development.

Sabattus Pond has experienced algal blooms for more than 40 years and does not meet state water quality standards. Over the last 20 years, the water quality of the pond has shown some improvement, but it continues to bloom annually. In 2004, a Phosphorus Control Action Plan (TMDL Assessment) was prepared and approved. Watershed surveys identified erosion and sedimentation problems on developed areas, roads and agricultural lands. *Phase 1* of 319-funded watershed work was completed in 2006, and *Phase 2* was completed in 2009. Between the two projects, BMPs were constructed at 31 sites, including riparian buffers, private and town road improvements, driveway stabilization, private road work, and shoreline stabilization. Technical assistance also prompted landowners to adopt BMPs at many other sites.

PROJECT DESCRIPTION:

The purpose of this project was to reduce phosphorus and sediment loading in accordance with the 2007 Sabattus Pond Watershed Based Plan by installing BMPs and buffer plantings. The overall goal was to reduce phosphorus to reduce the magnitude and duration of algae blooms and improve the water quality.

Shoreline stabilization project

Seventeen sites were stabilized, including 14 construction sites and three shoreline buffer sites. Members of the SPWP supported the grant by donating their time to help plant 150 feet of buffer for landowners with health problems, publishing seven related articles in the SPWP

newsletter, and meeting with the Sabattus Pond Dam Commission to discuss other methods of reducing phosphorus and future collaboration.

PROJECT OUTCOMES:

- Conservation practices were installed at 17 sites in the watershed, including several high impact road sites and three buffer sites. Projects included redirecting road and driveway runoff to buffers, installing and armoring culverts, creating and stabilizing ditches, planting vegetation, and stabilizing eroding shoreline.
- Pollutant loading to Sabattus Pond was reduced by an estimated 50 tons of sediment and 45 pounds of phosphorus per year (Region 5 Method and WEPP Model). New buffers were established along 330 linear feet of shoreline.
- Completion of 24 technical assistance visits to evaluate sites and recommend BMPs, surpassing the number of visits required by the grant work plan.

Work in this roadway included ditch installation, riprapping, and installation of turnouts and sediment pools

Redirected runoff & stabilized eroded boat ramp

Before – Boat ramp erosion

After – culvert outlet armored, road runoff redirected through super elevation, and stabilization of ramp with cement planks

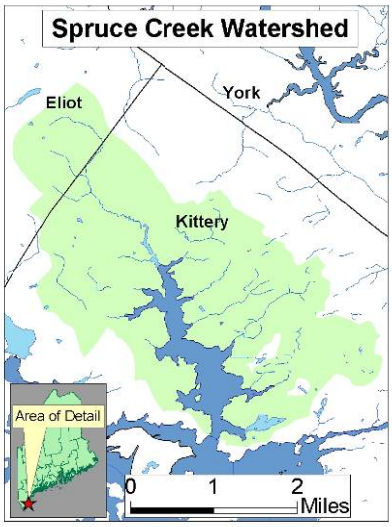
PROJECT PARTNERS:

Sabattus Pond Watershed Partnership
Town of Sabattus
Town of Greene
Town of Wales

CONTACT INFORMATION:

Kristin Feindel, Maine DEP – (207) 215-3461, kristin.b.feindel@maine.gov
Sue Gammon, Androscoggin Valley SWCD – (207) 753-9400 x404, susan.gammon@oxfordnetworks.net

Spruce Creek Watershed Improvement Project – Phase II
#2010RT07



Waterbody Name: Spruce Creek

Location: Kittery and Eliot – York County

Waterbody Status: NPS Priority Watershed, Impaired

Project Grantee: Town of Kittery

Project Duration: December 2009 – September 2012

319 Grant Amount: $79,780

Local Match: $134,108

PROBLEM:

The Spruce Creek watershed covers 9.6 square miles in Kittery and Eliot in southernmost Maine. The creek flows into the Piscataqua River about 1.5 miles from where the river meets the Gulf of Maine. The creek is primarily fed by six freshwater streams and includes approximately three square miles of tidal area (including high salt marsh, ledge, and mud flats). Watershed land use includes sparse residential development and some active farmland and woodlots in the upper reaches in Eliot. Along the Route 1 and Route 95 corridor, there are extensive impervious areas in commercial strip malls, roads, and interchanges. The tidal portion is residential with larger homes along the immediate shoreline.

The Maine DEP lists Spruce Creek as impaired due to bacterial contamination, low dissolved oxygen, toxic contamination, and a compromised ability to support aquatic life. Although a portion of Spruce Creek was open to shellfish harvesting in the past, the flats have been closed since 2005 due to poor water quality and high fecal coliform concentrations. The Spruce Creek Association (SCA) formed in 2002 to promote watershed stewardship and now has over 180 members. A survey completed in 2007 (#2005R-01) identified 197 NPS sites and provided preliminary recommendations for those sites. A Phase I project (#2008RR01) installed conservation practices at six sites, hosted nine septic and residential socials, completed an intercept survey, and initiated a residential pledge program.

PROJECT DESCRIPTION:

The goal of this project was to reduce bacteria loading and the export of sediment and nutrients into Spruce Creek to improve water quality and help re-open shellfish harvest areas. This was accomplished through the installation of Best Management Practices (BMPs) at residential, town, and commercial properties. Bacteria sources were pursued through a Maine Department of Marine Resources sanitary survey, stormwater investigations, and development of a septic system ordinance.

Project outreach was accomplished through continuation of the residential pledge program; presentations at eight workshops and events; and numerous articles in local newspapers and the Save Kittery Waters website.

PROJECT OUTCOMES:

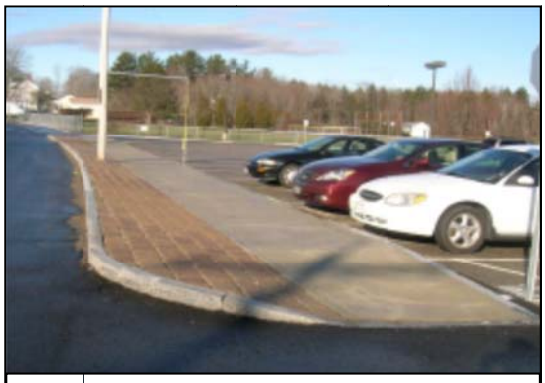
- Stormwater BMPs including rain barrels, permeable pavers, and buffers were installed at three commercial properties (Bob's Clam Hut, Robert's Maine Grill and the GAP Outlet) and at the Shapleigh School. Twenty one additional BMPs including rain gardens, infiltration trenches, and buffers were installed at five residential properties. Volunteers contributed over 1,526 hours to help with the residential projects.

- One residential overboard discharge located 30 feet from Spruce Creek was discovered through the project. The system was replaced with a modern septic system and leach field, which cost the landowner $44,000.

- Annual pollutant loading to Spruce Creek was reduced by an estimated 31 pounds of nitrogen and 1.6 tons of sediment per year (Region 5 Method).

- The Town of Kittery completed a draft septic ordinance that would require regular pump-outs and inspections of privately owned septic systems. The project supported ordinance development by attending two public meetings and creating and distributing outreach materials.

- 54 people pledged to complete a total of 648 watershed-friendly practices on their properties through the Save Kittery Waters Pledge Program.



Permeable pavers installed at Shapleigh School

Rain barrel installed at Bob's Clam Hut

PROJECT PARTNERS:

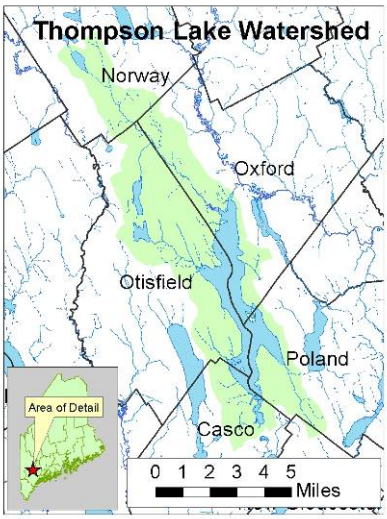
Maine Department of Marine Resources
Maine Nonpoint Education for Municipal Officials (NEMO)
Spruce Creek Association
University of New Hampshire Cooperative Extension
Wells Reserve National Estuarine Research Center

CONTACT INFORMATION:

Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov
Mary Ann Conroy, Town of Kittery – (207) 439-0333, mconroy@kitteryme.org
Emily DiFranco, FB Environmental – (207) 221-6699, emilyd@fbenvironmental.com

Thompson Lake Watershed Improvement Project – Phase III, Otisfield
#2010RR08

Waterbody Name:	Thompson Lake
Location:	Casco, Poland, Oxford, Norway and Otisfield – Cumberland, Androscoggin and Oxford Counties
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Thompson Lake Environmental Association
Project Duration:	January 2010 – September 2012
319 Grant Amount:	$61,189
Local Match:	$56,704



PROBLEM:

Thompson Lake is a large, high quality lake that covers 4,225 acres. The lake is a regional attraction with two public launches, a private marina, public beach, and three summer youth camps. The watershed covers 35 square miles and includes 1,200 seasonal and year-round residences. The lake's water quality, which has been monitored since 1977, is considered to be excellent with average water clarity of 8.8 meters and little dissolved oxygen depletion. However, there are concerns about NPS pollution from shoreline development and the watershed's extensive network of town and private gravel roads.

In addition to its monitoring and invasive plant programs, Thompson Lake Environmental Association (TLEA) has focused efforts on watershed stewardship for many years. They conducted partial watershed surveys in 1995 and 1999, partnered on 319 grants, and started a summer Youth Conservation Corps (YCC) in 2002. In 2008, TLEA took the initiative to fund and complete a survey of the Otisfield section of the watershed, and they completed survey updates for the rest of the watershed in 2009 and 2010 with a Maine DEP grant (#2009RR08).

PROJECT DESCRIPTION:

The purpose of the Phase III project was to significantly reduce pollutant loading associated with erosion sites identified in the 2008 Otisfield watershed survey. 18 town and private roads were targeted for abatement projects since these land uses were identified as the biggest problems. Ten *Residential Matching Grants* and 25 technical assistance visits were provided for residential property owners. TLEA's YCC Program also provided labor and technical assistance on several of the abatement and matching grant projects. Project outreach included two workshops, two house meetings, public presentations, press releases, and a final project brochure.

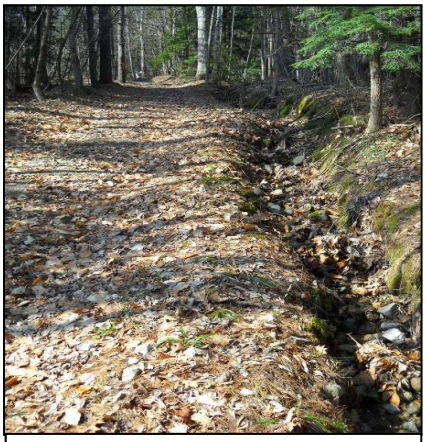
10 people attended a buffer workshop, led by a horticulturist. This spurred installation of several buffer plantings in the Silvaqua neighborhood.

PROJECT OUTCOMES:

- 18 NPS Abatement Projects were completed including eight town road sites, seven private road sites, two beach access sites, and one town road/construction site. Estimated pollutant load reductions associated with these projects totaled 76.5 tons of sediment and 65 pounds of phosphorus per year (Region 5 Method and WEPP Road Model).

- Project staff provided "Thompson Lake Tune-Ups" (technical assistance) to 25 watershed residents. The project completed 10 Residential Matching Grants, and several of these projects were installed with help from the Thompson Lake Youth Conservation Corps.

- Numerous news articles, press releases, and web postings were published about the project, and presentations were delivered at two TLEA annual meetings and two Otisfield Select Board meetings. In addition, two workshops and two "house meetings" covered a range of topics including buffers, gravel road maintenance and Otisfield shoreland zoning regulations.



Before – This unpaved road was identified as a high impact problem. Erosion from the road surface and ditch washed directly into Thompson Lake.

After –The road was crowned and a rubber razor was installed to shed water to the ditch. The ditch was reshaped and stabilized with angular rocks.

PROJECT PARTNERS:

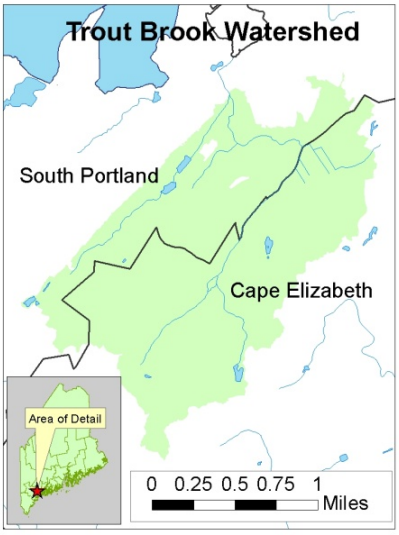
Cobbs Cove Road Association
Jillson Camp Road Association
Oxford County SWCD
Silvaqua Owners Association
Town of Otisfield

CONTACT INFORMATION:

Wendy Garland, DEP – (207) 615-2451, wendy.garland@maine.gov
Thompson Lake Environmental Association – (207) 539-4535, tlea@fairpoint.net
Jeff Stern, Fiddlehead Consulting – (207) 583-2723, sternjm@hotmail.com

Trout Brook: Development of a Watershed-Based Management Plan
#2010PT20

Waterbody Name:	Trout Brook
Location:	South Portland and Cape Elizabeth – Cumberland County
Waterbody Status:	Urban Impaired Stream (Kimball and Trout)
Project Sponsor:	City of South Portland
Project Duration:	January 2011 – December 2012
604b Grant Amount:	$35,300
Local Match:	$36,151



PROBLEM:

Trout Brook is approximately 2.5 miles long, originates in Cape Elizabeth and includes Kimball Brook and several unnamed tributaries. Its 2.35 square mile watershed transitions from woodland headwaters through agricultural lands, wetlands, the newly established Trout Brook Nature Preserve, and dense residential developments before flowing into Mill Cove, and eventually Portland Harbor. The stream supports a brook trout fishery, likely due to its abundant cold water springs. However, neither Trout Brook nor Kimball Brook meets Class C standards for habitat or aquatic life. In 2002, the South Portland Land Trust and Maine DEP conducted a watershed survey and stream habitat walk (#2002P10) and identified 86 NPS sites in the watershed. The Trout Brook TMDL study was completed in 2007.

PROJECT DESCRIPTION:

The purpose of the project was to develop a locally-supported watershed management plan that outlines a strategy to restore Trout Brook. The project was coordinated by the City of South Portland and Cumberland County SWCD and guided by a steering committee. Information about Trout Brook was compiled from past studies, and extensive additional information was also collected to better understand stream impairments, stressors, and pollution sources. Water quality data were collected; a stream corridor survey was conducted to identify erosion, buffer, and other issues adjacent to the stream; watershed boundaries, stormwater outfall catchments, and impervious cover were mapped; and stormwater retrofit options were evaluated.

Brook trout from the 1999 fish survey

A project web site was created, and a mailing was sent to watershed residents to publicize the project. A community meeting was held in June 2011 and was attended by 49 residents. Residential and Stream/Technical workgroups helped develop plan strategies and priorities. A draft plan was posted for public comment and stakeholder comments were incorporated into the final plan. An overview of the plan was presented to the Cape Elizabeth and South Portland Councils in December 2012. Both Councils provided positive feedback about the plan and future municipal involvement.

PROJECT OUTCOMES:

- The water quality monitoring and watershed studies completed through the project identified specific impairments, stressors, and pollution sources for different parts of the stream. This understanding of the stream and its watershed formed the basis for an informed watershed management plan.
- The *Trout Brook Watershed Management Plan* was completed in December 2012. The Plan includes background information, results of stream and watershed assessments, maps and an action plan. Available at: www.cumberlandswcd.org/publications/ws_pubs/trout_brook/wmp/TB_wmp.pdf
- The project helped focus local attention on Trout Brook. The Portland Water District selected Trout Brook as the location to release brook trout that they had raised with local schools during the year. In May 2012, 300 elementary and middle school students visited the stream and released trout fry.
- The project also laid the foundation for upcoming restoration efforts in the watershed. Several problem sites identified in the stream corridor survey have already been addressed, and local farms have already changed some practices to reduce nutrient loading to the stream. In September 2012, the City of South Portland used a small grant from the Casco Bay Estuary Partnership to implement several stream habitat improvement projects recommended in the plan. The City was also awarded a 319 grant for the *Trout Brook Restoration Project- Phase I*, which will begin in spring 2013.

PROJECT PARTNERS:

Casco Bay Estuary Partnership
Cumberland County SWCD
Maxwell's Farm
Maine Board of Pesticide Control
South Portland Land Trust
South Portland Conservation Commission
Town of Cape Elizabeth
University of Southern Maine
Unity College
University of Maine Orono

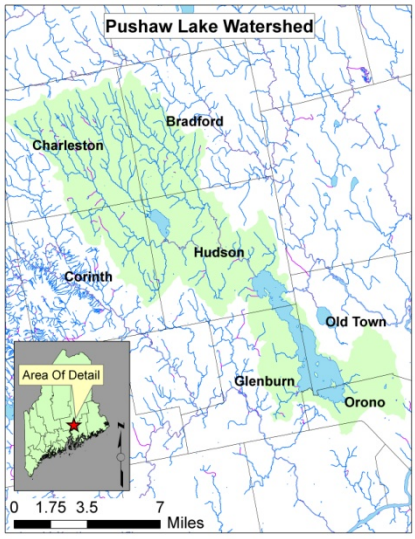
Inadequate buffer and yard waste problems noted at a site during the stream corridor survey.

CONTACT INFORMATION:

Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov
Fred Dillon, City of South Portland – (207) 347-4138, fdillon@southportland.org
Kate McDonald, Cumberland County SWCD – (207) 892-4700, kmcdonald@cumberlandswcd.org

Upper Pushaw Lake NPS Watershed Survey
2009PP18

Waterbody Name:	Pushaw Lake and Little Pushaw Pond
Location:	Hudson, Charleston, Corinth and Bradford – Penobscot County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Penobscot County Soil and Water Conservation District
Project Duration:	January 2010 – December 2011
319 Grant Amount:	$3,804
Local Match:	$2,941



PROBLEM:

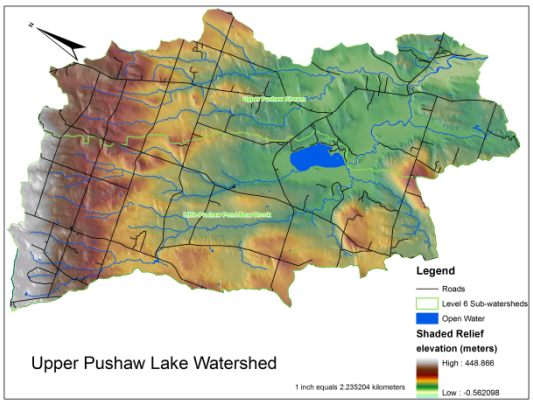
Pushaw Lake is a 4,680 acre lake located in Orono, Old Town, Glenburn, and Hudson. The lake is on the NPS Priority Watersheds list due to water quality issues and high development pressure. Pushaw Lake water quality has been a concern for more than 30 years; in 1970 the University of Maine documented an algal bloom. While the potential for nuisance algal blooms on Pushaw is listed as low to moderate, increased algae growth was observed during the summers of 2001-2008 in some areas of the lake. Phosphorous levels have increased over the past few years. The five year moving averages show an increase of 3 ppb phosphorous and recent results have been as high as 20.6 ppb.

Farm located in Upper Pushaw Lake Watershed

Despite Pushaw Lake's history as a lake of concern, the District has never formally surveyed the upper watershed (which includes Little Pushaw Pond). The Pushaw NPS Implementation Project Phases I and II have reduced soil erosion and phosphorus loading into the lake. The District needed to survey the upper watershed, including agricultural lands, to determine if there are any critical nonpoint source areas that need to be addressed to achieve long-term protection.

Greater Pushaw Lake Association Watershed Survey volunteers

PROJECT DESCRIPTION:



The *Upper Pushaw NPS Watershed Survey* was managed by the District and guided by a steering committee. The District, with input from Maine DEP and UMaine Cooperative Extension (UMCE) developed a three-stage watershed survey process to evaluate the upper watershed. Stage I was a windshield survey that took place in April of 2010. The windshield survey was conducted by volunteers with District and UMCE oversight and covered roads, stream crossings, and non-agricultural private properties. Stage II was a commercial agriculture survey conducted by the District using the extensive data already available from NRCS through conservation plans and Comprehensive Nutrient Management Plans (CNMPs). The database generated by Stage II included relevant data for agricultural property on 20 of 21 large farms in the upper watershed while maintaining farm privacy. Stage III was a hobby farm survey conducted by the District and UMCE. The objective of Stage III was to determine the number and location of hobby farms in the upper watershed.

PROJECT OUTCOMES:

- Based on the information gathered and reviewed during the survey process, it was determined that while there are NPS problem sites in the upper watershed, there are not many high priority sites of concern.
- Based on this survey information, while it is important to continue outreach to the entire watershed on NPS issues, protection of Pushaw Lake ultimately falls on the shoreline properties as they are the last line of defense to filter stormwater.
- In this watershed, agricultural impacts were not as great as anticipated. Agricultural operations that have access to services from NRCS are using NRCS cost share programs to reduce their impact.

PROJECT PARTNERS:

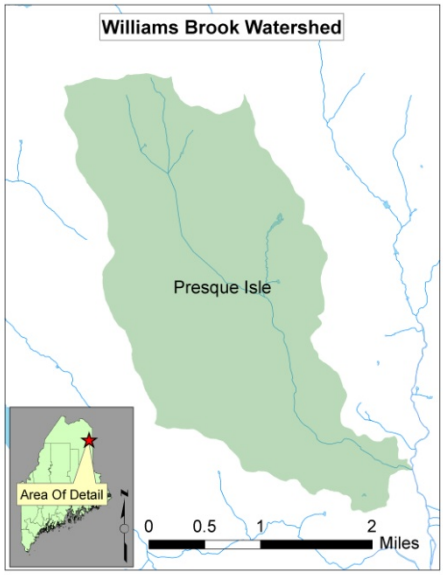
Towns of Hudson, Charleston, Corinth, and Bradford
Greater Pushaw Lake Association
University of Maine Cooperative Extension
USDA NRCS

CONTACT INFORMATION:

Greg Beane, Maine DEP – (207) 299-4703, greg.e.beane@maine.gov
Chris Brewer, PCSWCD – (207) 990-3676, chris.brewer@penobscotswcd.org

Williams Brook & Prestile Stream Citizen Storm Watchers
2010RR17

Waterbody Name:	Prestile Stream, Williams Brook
Location:	Presque Isle – Aroostook County
Waterbody Status:	Impaired
Project Grantee:	Central Aroostook SWCD
Project Duration:	January 2010 – February 2012
319 Grant Amount:	$10,776
Local Match:	$9,644



PROBLEM:

The large size of the 133,000 acre Prestile Stream Watershed makes it impractical to survey the entire watershed at once, so the watershed has been segmented into nine sub-watersheds. Two have been surveyed Frost/Allen and Christina Reservoir; and a third sub-watershed, Williams Brook, was the focus of this project. Both the 2005 *Prestile Stream Watershed Management Plan* and the 2009 (Draft) *Upper Prestile Stream Watershed-based Management Plan* call for the formation of a Storm Watcher group to educate and involve the public in managing and caring for the Prestile Stream Watershed, and to prioritize sub-watersheds for future watershed surveys.

The Williams Brook sub-watershed is one of the greatest NPS contributors to Prestile Stream according to the *2008 Prestile Stream (& Christina Reservoir) Total Maximum Daily Load (TMDL)*. This NPS loading is due to the large percentage of cropland in the sub-watershed, combined with low rates of BMP application. Using a watershed survey to determine the sources of nutrient and sediment loading will allow the CASWCD to recommend BMPs to landowners to significantly reduce NPS loading.

PROJECT DESCRIPTION:

A Storm Watcher survey collected storm event water samples to measure turbidity and Total Suspended Solids (TSS) as part of the Maine Volunteer River Monitoring Program (VRMP) administered by Maine DEP. CASWCD working with Maine DEP visited, mapped, and evaluated potential sampling sites for the survey. Eighteen sites were identified and samples collected from the main stem and tributaries.

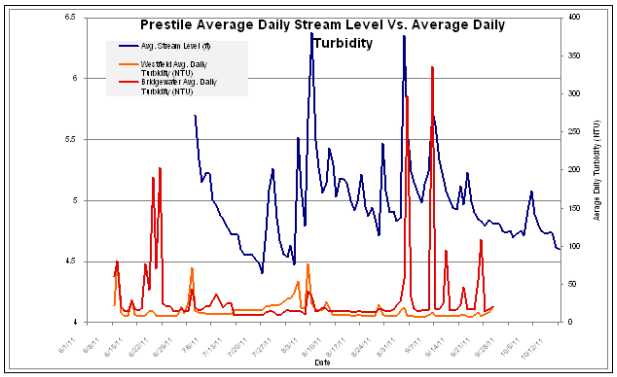


Figure 11. Daily Average Prestile Stream Level from MHWTF vs. Average Daily Turbidity at both

The Williams Brook watershed survey was completed using guidelines outlined in DEP publication, "*Stream Survey Manual Volume I: A Citizen's Guide to Basic Watershed, Habitat and Geomorphology Surveys in Stream & River Watersheds*." Natural resource professionals from USDA-NRCS, St. John

Aroostook RC&D, Maine Forest Service, MEDEP and CASWCD completed the survey. The survey was performed in the spring of 2010 after snow melt and before fields were plowed or planted. Survey observations, recommended BMPs, and potential cost-share sources were shared with individual landowners in the watershed.

PROJECT OUTCOMES:

- The formation of the Prestile Stream Storm Watcher group composed of 12 volunteers. For two years they collected stream samples measuring the turbidity and TSS of the Prestile Stream and its tributaries during storms. To our knowledge, this is the first effort to look at stream samples for turbidity during storm events in the VRMP program.
- Twelve new watershed stewards are applying their new knowledge to affecting the future of the watershed. One volunteer is active on their town's comprehensive planning committee.
- A Prestile Stream Storm Watchers Report that summarizes both the VMRP and sonde data results so that this information can be used to prioritize future District activities.
- A completed watershed survey of Williams Brook identifying over 150 NPS sites, 40 of which were high or medium impact.

PROJECT PARTNERS:

Maine Volunteer River Monitoring Program
USDA Natural Resource Conservation Service
Twelve Storm Watcher Volunteers
Maine Forest Service

CONTACT INFORMATION:

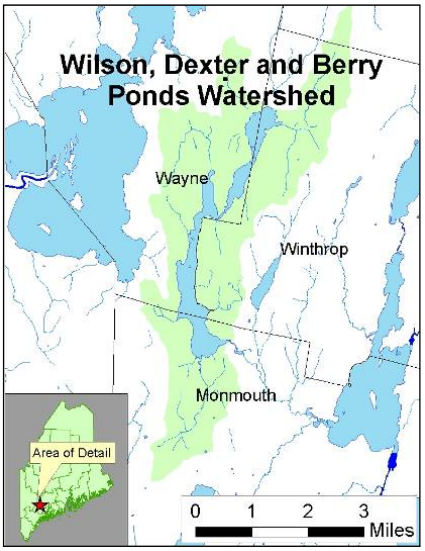
Kathy Hoppe- DEP, 207-540-3134, kathy.m.hoppe@maine.gov
Kassy Watson- Central Aroostook SWCD, 207-764-4153, Kathryn.Watson@me.nacdnet.net , http://www.caswcd.org/

CASWCD and Maine DEP staff collect water samples to determine turbidity

Westfield sample site after a storm, note turbid water

Wilson Pond Water Quality Improvement Project
#2009RT06

Waterbody Name(s):	Wilson Pond
Location:	Wayne, Monmouth, Winthrop – Kennebec County
Waterbody Status:	Impaired; NPS Priority Watershed
Project Grantee:	Cobbossee Watershed District (CWD)
Project Duration:	January 2009 – March 2012
319 Grant Amount:	$58,246
Local Match:	$65,755



PROBLEM:

Wilson Pond is a moderate-sized lake that has been monitored for over 30 years, with moderate to sensitive water quality and rising levels of total phosphorus, reduced water clarity, and depletion of dissolved oxygen in bottom waters. From the early 1980's to early 1990's Wilson exhibited reduced water clarity and over the last 16 years the water transparency readings have worsened. The two smaller upstream ponds (Dexter and Berry) are connected to Wilson and together exhibit consistent clarity, high flushing rates, and have a sizable drainage area. Dexter and Berry Ponds are likely influential to Wilson Pond's water quality. All three ponds are listed as "Lakes at Most Risk from Development" under the Stormwater Management Law. Nonpoint sources in the watersheds include eroding camp roads, eroding public roads, shoreline erosion, agricultural runoff, and runoff from developed areas.

PROJECT DESCRIPTION:

The intent of this project was to reduce erosion and phosphorus runoff by installing best management practices (BMPs) on 15-20 NPS sites (camp roads, public roads, and shorefront) and on 10 other shorefront sites using the local Youth Conservation Corps (YCC) in the watersheds of the three ponds. Project sites were previously identified and prioritized during a watershed survey (NPS project #2005R-02) in 2006. A 50:50 cost-share agreement procedure was used with property owners to install BMPs, with the process including site visits, plan reviews, post-construction inspections, site reporting, and pre- and post-construction documentation. Outreach efforts to residents, municipal officials, and local schools advertised the project, invited residents to participate, and provided useful information about the impacts that development and phosphorus can have on lake water quality.

PROJECT OUTCOMES:

- Repairs or upgrades were completed on five camp roads and one residential driveway involving 24 NPS sites. BMPs were designed to reduce erosion, improve drainage and treat stormwater runoff. The road/driveway project work resulted in an estimated annual load reduction of 6.4 lbs. of phosphorus and 10.9 tons of sediment.
- Over 300 lineal feet of eroding shoreline was stabilized with rip-rap and geotextiles. Fourteen landowner requests for technical assistance were received and acted upon.
- Following presentations on the impact of phosphorus to water quality, the Town of Wayne expressed eagerness to adopt formal phosphorus control standards in their land use ordinance.
- More than 360 local students and citizens were involved in and benefited from project outreach work and the education program efforts by the Friends of Cobbossee Watershed, CWD, KCSWCD and local LakeSmart-Start! activities. However, despite these accomplishments the overall level of participation by local property owners was less than expected, resulting in lower than anticipated project grant and match expenditures.

PROJECT PARTNERS:

Friends of Cobbossee Watershed
Kennebec County Soil and Water District (KCSWCD)
Towns of Monmouth, Wayne and Winthrop
Maine DEP/U.S. EPA

CONTACT INFORMATION:

Tony St.Peter - MDEP, 207-215-1752, tony.stpeter@maine.gov
Bill Monagle - Cobbossee Watershed District, 207-377-2234, wmonagle@roadrunner.com

Upper Chandler Lane – Before:
Ruts, shoulders severely-eroded, ditches are disconnected/ineffective.

Upper Chandler Lane – After:
Cross-drainage culverts installed, runoff directed into plunge pools, and surface gravel with a 6" crown was applied. Ditches were enhanced and rock-lined.

Appendix A. NPS Watershed Projects Active in 2012

Project ID# Codes:
20XX Appropriation year of funding source
RR Funding source - Section 319 Clean Water Act; waterbody attains water quality standards
RT Funding source - Section 319 Clean Water Act; NPS impaired waterbody
PP Funding source - Section 604(b) Clean Water Act

Project Title	Project ID#	Grantee	Grant Amount	Non-federal Match	Date Completed (**bold**) or To Be Completed
Annabessacook Lake NPS Watershed Restoration Project, Phase II	2011RT15	Cobbossee Watershed District	68,450	52,450	1/1/14
Bear Pond Watershed Survey	2012PP21	Oxford County SWCD	15,960	12,021	12/31/14
Beech Hill Pond Watershed Improvement Project	2012RR02	Hancock County SWCD	58,125	38,770	12/31/14
Branch Lake Watershed Improvement Project II	2010RR01	Hancock County SWCD	89,184	50,230	**8/27/12**
Capehart Brook NPS Restoration Project, Phase I	2011RT16	Bangor	60,000	42,124	4/30/14
Christina Reservoir Watershed Improvement Project	2010RT18	Central Aroostook SWCD	60,785	49,939	**12/30/12**
Cochnewagon Lake NPS Watershed Protection Project, Phase I	2011RR02	Cobbossee Watershed District	81,005	63,365	1/1/14
Concord Gully Brook Watershed Management Plan	2012RT18	Cumberland County SWCD	36,720	29,018	12/31/14
Crescent Lake NPS Watershed Protection Project	2011RR03	Raymond	79,133	118,128	1/1/14
Crooked River Watershed Survey	2010PT19	Cumberland County SWCD	28,244	26,429	**3/30/12**
Dexter Lakes NPS Watershed Project Phase III	2009RR21	Penobscot County SWCD	25,000	18,000	3/15/13
East Pond Biomanipulation Phase III	2009RT16	University of Maine	58,512	9,900	12/31/12
Goodall Brook Watershed Management Plan Development	2012RT17	Sanford	40,154	43,151	12/31/14
Great East Lake and Wilson Lake Watershed Implementation (Phase I Maine)	2012RR01	Acton Wakefield Watershed Alliance	67,641	86,566	12/31/14
Horne Pond Watershed Survey	2011RR06	York County SWCD	10,646	9,046	**1/25/12**

Project Title	Project ID#	Grantee	Grant amount	Non-federal Match	Date Completed (**bold**) or To Be Completed
Little Sebago Lake Conservation Project III	2010RR02	Cumberland County SWCD	95,391	73,395	**10/4/12**
Long Pond NPS Watershed Restoration Project, Phase II	2011RT07	Belgrade Regional Conservation Alliance	99,500	88,544	1/1/14
McLean Brook Watershed BMP Implementation Project	2010RR03	Saint John Valley SWCD	39,312	26,484	**10/31/12**
Meduxnekeag River Watershed Based Plan	2012RT19	Southern Aroostook SWCD	13,748	12,580	12/31/14
Moose Pond Watershed Improvement Project	2012RR03	Cumberland County SWCD	60,371	42,068	12/31/14
Nickerson Lake Conservation Project Phase I	2010RR04	Southern Aroostook SWCD	64,789	43,910	**12/30/12**
Nonpoint Education for Municipal Officials - 2011	2011BB09	Partnership for Environmental Technology	100,000	66,700	**8/7/12**
Panther Pond Conservation Project Phase II	2009RR02	Raymond	63,289	51,845	**3/15/12**
Parker Pond Watershed Protection Project	2012RR23	30 Mile River Watershed Association	62,372	47,124	12/31/15
Parker, David, and Tilton Ponds Watershed Survey	2011RR08	30 Mile River Watershed Association	17,238	11,716	**7/31/12**
Pattee Pond Watershed NPS Reduction Project Phase I	2010RR05	Winslow	59,450	51,470	**3/27/12**
Pejajawoc Stream Watershed LID Retrofit Project	2012RT05	Bangor	36,620	25,615	12/31/14
Pleasant River NPS Watershed Restoration Project, Phase I	2011RT04	Cumberland County SWCD	60,032	46,304	1/1/14
Pushaw Lake NPS Watershed Project, Phase 2 and Watershed Survey	2009RR05	Penobscot County SWCD	75,000	50,760	**9/14/12**
Red Brook Hydrologic Assessment Project	2010PT21	Scarborough	7,800	18,000	**12/31/12**
Sabattus Pond Watershed Project – Phase III	2010RT06	Androscoggin Valley SWCD	77,066	93,402	**10/29/12**
Sebago Lake Watershed Implementation Project Phase II	2012RR04	Portland Water District	86,484	96,253	12/31/14
Spruce Creek Watershed Improvement Phase II	2010RT07	Kittery	79,780	81,346	**10/4/12**

Project Title	Project ID#	Grantee	Grant amount	Non-federal Match	Date Completed (**bold**) or To Be Completed
Square Pond NPS Watershed Protection Project Phase II	2011RR01	York County SWCD	54,853	57,350	1/1/14
Sucker Brook Regional Corridor Survey and Watershed Survey	2012PP22	Bangor	27,942	30,910	12/31/14
Thatcher Brook Watershed Based Management Plan	2012RT20	Biddeford	59,958	59,260	12/31/14
Thompson Lake Watershed Improvement Phase III, Otisfield	2010RR08	Thompson Lake Environmental Association	61,189	40,976	**9/5/12**
Topsham Fair Mall Stream Watershed Based Management Plan Project	2012RT16	Topsham	38,912	26,500	12/31/14
Trout Brook: Development of Watershed Based Management Plan	2010PT20	South Portland	35,300	61,220	**12/31/12**
Upper Prestile Stream Main Stem Watershed Survey	2011PT18	Central Aroostook SWCD	8,336	6,885	12/31/13
Upper Pushaw Lake NPS Watershed Survey	2009PP18	Penobscot County SWCD	11,540	8,000	**3/14/12**
Volunteer Lake Monitoring Program (VLMP 2011)	2011BB10	Maine Volunteer Lake Monitoring Program	50,000	178,343	1/30/13
Volunteer Lake Monitoring Program (VLMP 2012)	2012BB10	Maine Volunteer Lake Monitoring Program	20,000	158,227	9/30/14
Whitten Brook Watershed Restoration Project, Phase I	2012RT15	Skowhegan	88,649	59,223	12/31/14
Williams Brook Subwatershed Survey & Prestile Stream Citizen Storm Watchers	2010RT17	Central Aroostook SWCD	10,776	18,275	**3/6/12**
Wilson Pond Water Quality Improvement Project	2009RT06	Cobbossee Watershed District	62,130	70,705	**3/13/12**

Kezar Lake watershed survey volunteers

Clean water starts with you!

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Document available for download at:
http://www.maine.gov/dep/water/grants/319-documents/reports/