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Maine Department of Environmental Protection

Nonpoint Source Management Program 2009 Annual Report

April 2010

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Letter From the Watershed Director

Witherill aboard his yacht, "Allegro"

We all know that 2009 was a tough year for the economy all the way around. In the public sector, budgets at the local and state level were pared as revenues dropped off. State government shut-down days were implemented, and each passing day brought more news of financial hard times. In spite of all this, morale among those I have been working with, both inside and outside DEP, has remained surprisingly strong. For many of us who work in the field of environmental protection and stewardship, there is a sense of mission that really does help carry us through lean times.

This 2009 retrospective highlights the great work of many people from around the State of Maine, all working with a common purpose of improving Maine's environment. As you thumb through these pages, you'll find evidence of locals working to protect and restore their lakes and streams, whether by monitoring water quality, or by planting riparian buffers. You'll see the results of Youth Conservation Corps in action and of businesses that have stepped up to support stream restoration initiatives. You'll see the results of education and outreach activities that reached hundreds of people across the state. And you'll see that government did its part as well, with the Maine Legislature enacting several bills to assist property owners who want to fix or maintain camp roads around their lakes, and with the Federal government providing stimulus funding for several projects through the American Recovery and Reinvestment Act.

Each year brings new challenges. We can count on tight budgets for the foreseeable future that will limit the number of projects we can support. The good news is that there remains a strong demand for resources and a willingness of volunteers to roll up their sleeves and get to work. We look forward to continuing our local partnerships and finding new opportunities and creative solutions to make the most of the dollars that do come our way.

Don Witherill

Don directs the Division of Watershed Management at the Maine Department of Environmental Protection.

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A. Nonpoint Source Management Program Summary

Nonpoint Source Pollution (NPS), also known as polluted stormwater runoff, is one of today's biggest threats to healthy lakes, rivers, streams, estuaries and wetlands. When it rains or the snow melts, the water running off our driveways, parking lots, yards, farm fields, forestry operations and industrial sites carries with it small hitch-hiking pollutants. The pollutants include soil particles, nutrients from fertilizers or animal waste, bacteria from failing septic systems or animal waste, toxics from dripped or spilled petroleum products or household hazardous waste all washed during a storm event into our local water way. Due to NPS pollution, over 250 lakes in Maine do not meet watery quality standards or may be impaired in future years because of increasing development in their watershed. NPS pollution also impairs the water quality of many streams and coastal waters.

DEP helps watershed groups assess problems and reduce NPS pollution.

Since 1990, the United States Environmental Protection Agency (EPA) has provided funds under Section 319(h) of the Clean Water Act to help States and Tribes address their most pressing NPS pollution problems.

The Maine Department of Environmental Protection (DEP) administers and has overall coordination responsibility for Maine's Nonpoint Source Pollution Program (38 MSRA 410), a significant portion of which is funded with Section 319 Clean Water Act grants. NPS program services are guided by the *Maine Nonpoint Source Program: Program Upgrade & 15 Year Strategy* adopted in 1999. DEP helps communities and watershed groups assess water quality problems and take action to reduce or remove nonpoint source pollution. DEP especially values and relies on Section 319 funds to provide financial assistance for locally-driven watershed projects to help protect or improve Maine's lakes, streams, rivers and coastal waters.

This report summarizes Maine DEP's Nonpoint Source Program activities and accomplishments in 2009.

B. 2009 Highlights - Maine DEP NPS Program

DEP received $2,244,129 in federal fiscal year 2009 funding from EPA under Section 319(h) of the Clean Water Act. These funds were used for 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. About 40% of FFY 2009 Section 319 funds were passed-through to organizations for NPS projects or programs. DEP provided technical and financial assistance for 60 active NPS Watershed Projects to help protect or improve lakes, streams and coastal waters. Also, DEP used Section 319 funds to support the Maine Volunteer Lake Monitoring Program, Nonpoint Education for Municipal Officials (NEMO), the Maine Clean Marina and Boatyards Program and other DEP programs.

2009 Highlights – Maine DEP NPS Program

1. Nineteen (19) NPS Watershed Projects funded through the NPS Grants program in previous years were successfully brought to completion. The total amount of grant funds was $741,097 and local match funds was $644,532. See Section F (page 18) for a list of projects.
2. NPS Watershed Implementation Projects - Conservation practices (BMPs) were installed to reduce polluted runoff in 8 lake and 2 river watersheds: Branch Lake, Kennebunk Pond, Mantle Lake, Little

Sebago Lake, Long Lake (Bridgton), Sabattus Pond, Tacoma Lakes, Thomas Pond, Narraguagus River and the Northern Great Works River.

3. NPS Watershed Survey Projects describing polluted runoff sites were completed for 8 watersheds: Bond Brook, Brandy Pond, Goodall Brook, Hart Brook, Lincoln Lakes, McLean Brook, Pleasant River and Sabbathday Lake.

4. NPS Watershed Implementation Projects completed in 2009 reported estimated reductions in the amount of sediment and phosphorus loading to lakes or streams. In total, pollutant loading was reduced by about 477 pounds of phosphorus and 593 tons of sediment per year, equivalent to about 51 (8 cubic yard) dump truck loads of sediment.

5. Watershed-based plans were completed for six (6) impaired waterbodies: Bond Brook (Augusta), China Lake (China), Long Pond (Belgrade), Upper Prestile Stream (Mars Hill), Wilson Pond (Monmouth) and Long Creek (South Portland).

6. Fourteen (14) NPS Water Pollution Control Projects were funded through DEP's annual NPS Grants request for proposals competitive grant process. Projects begin work in January 2010.

7. Over 1,400 people (contractors, engineers, consultants, site evaluators, municipal officials and landowners) participated in DEP's Nonpoint Source Training & Resource Center training programs to learn methods to prevent NPS pollution. One hundred and sixteen (116) new individuals were certified in erosion and sediment control practices through the DEP Contractor Certification Program.

8. The Maine Volunteer Lake Monitoring program reached a level of 601 certified volunteer water quality monitors. These volunteers monitor 508 lake basins covering 504,000 lake acres, or 42% of Maine's lake surface area.

9. Maine NEMO, which provides outreach to municipal officials on how land use decisions are linked to water quality in their towns, provided 27 presentations to 1,224 people. NEMO planned and co-hosted a LID Workshop in cooperation with Maine Cooperative Extension, UNH Stormwater Center, Geosyntec, Maine DOT, Maine Department of Agriculture and funded by Casco Bay Estuary Partnership and the Maine Nonpoint Source Training Program.

10. The Maine Lakes Biomanipulation Project continued work to reduce algal blooms on East Pond, an impaired lake in the Belgrade Lakes chain, by removing excessive perch populations. The removal will enhance zooplankton populations and ultimately result in higher water transparencies due to increased consumption of blue-green algae by the zooplankton.

11. The recommendations of the *Lake Camp Road Report: An Evaluation of Ways to Reduce the Impact of Camp Roads, Driveways and Boat Launches on Lake Water Quality (December 2008)* were discussed by the Natural Resources Committee of the Maine Legislature. The Legislature enacted three bills to clarify and assist in the formation of road associations and to allow municipalities to repair private roads for the purpose of protecting or restoring lake water quality.

12. The *Long Creek Watershed Management Plan* (July 2009) was formally approved by EPA and DEP. The plan to restore water quality was developed through a two-year stakeholder process that involved South Portland, Portland, Westbrook, Scarborough, Cumberland County Soil and Water Conservation District, DEP, EPA, Conservation Law Foundation, local nonprofits and small and large businesses. In August 2009, all four municipalities voted to endorse an inter-local agreement to establish the Long Creek Watershed Management District to oversee implementation of the plan.

C. Nonpoint Source Management Program

1. Overview: Maine NPS Management Program

Maine's Nonpoint Source (NPS) 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 as follows:

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

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

State agencies conduct programs that: (1) implement State laws or rules requiring people to comply with performance standards governing certain land use activities to protect water quality; and (2) promote voluntary usage of best management practices. 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 that control potential sources of NPS pollution, including: the Stormwater Management Law; the Site Location of Development Law; Erosion and Sedimentation Control Law; the State Subsurface Wastewater Disposal Rules; the Natural Resources Protection Act; Land Use Regulation in Unorganized Territories; Pesticide Control laws; the Mandatory Shoreland Zoning Law; the Nutrient Management Act; the Forest Practices Act.

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

This report summarizes annual work accomplished by DEP. It does not summarize annual NPS work by the 7 other State agencies.

2. Protecting Clean Waters

Maine has significant water quality protection and restoration challenges and relatively limited resources for NPS programs. DEP prioritizes and balances the use of available NPS resources to protect or restore lakes, streams and coastal waters. Prevention of water pollution is a daunting challenge as our watersheds face increased development pressures over the years. DEP has learned that prevention of water pollution is far more feasible and less expensive than restoration of an already impaired waterbody. Therefore, DEP has invested a considerable portion of available NPS resources into protecting vulnerable threatened waters.

Local watershed stewardship offers the best hope for sustaining action to protect Maine's lakes streams, rivers 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 really take hold because they can increase local involvement in watershed management activities.

Maine has many capable and determined watershed stewardship groups and Soil and Water Conservation Districts (SWCD) working to protect watersheds and clean water. DEP invests considerable staff resources into supporting these groups and helping them carry out their goals and objectives. Some of the activities and projects that DEP supported in 2009 include the following:

- **Watershed Surveys** – DEP provides technical assistance and project oversight to local groups that conduct volunteer watershed surveys without 319 grant funding. In 2009, DEP provided assistance for survey of the Paradise Pond (Damariscotta) and Wilson Lake (Acton) watersheds. DEP staff also helped organize and carry out a watershed survey on Townhouse Pond (Milton, NH) and Great East Lake (Acton), which both flow into the Salmon Falls River on the Maine-New Hampshire border. The Great East Lake survey was part of a larger project funded by a 319 grant from the New Hampshire Department of Environmental Services (DES).

- **Watershed Roundtable** – Over 55 watershed managers from state agencies, municipalities, watershed organizations and SWCDs attended the DEP's 7th 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.

- **Youth Conservation Corps** –The DEP provides technical assistance and training to the seven (7) YCC programs throughout Maine. These YCC programs hire high school students to install buffers, erosion controls and other conservation practices in lake and river watersheds. Most of these programs originally started as part of 319 grant projects, but communities worked to find local funding to continue the programs after the grants ended. In 2009, the DEP hosted a YCC Roundtable, where YCC staff and organizers from all seven YCC programs had a chance to discuss common challenges, program budgets and unique elements of each program.

3. 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 the waters can support healthy habitats for fish and wildlife. DEP places waters that are found to be degraded (i.e., not supporting its designated uses and not attaining water quality standards) on a list of impaired waters. Restoring impaired waters is a major priority and involves three steps:

- **Assessment.** DEP must establish a pollution allocation (Total Maximum Daily Load - TMDL) for each impaired waterbody, in accordance with Section 303(d) of the Clean Water Act. A Total Maximum Daily Load assessment provides an estimate of how much pollution from point sources (e.g., industrial and municipal wastewater treatment plants) and nonpoint sources (e.g., runoff from urban land use, agriculture, roads, forestry, etc.) needs to be reduced in order to meet state water quality classification standards.
- **Watershed-Based Planning.** Preparation of a watershed-based plan is needed to describe overall actions needed in a watershed to help restore water quality. A watershed-based plan meeting EPA's nine minimum elements of watershed planning is required before receiving 319 funds for a NPS Watershed Project 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 nonpoint source pollution. Usually work needs to be conducted over 5 to 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 Assessments

DEP completed and received EPA approval of the Maine Statewide Bacterial TMDL in September 2009. The report applies to all bacteria impaired waters in Maine, covering both fresh and marine waters. The TMDL sets water quality targets to assure compliance with Maine Water Quality Standards. The report describes bacterial impairments, potential sources of contamination, the targets for healthy levels of bacteria, and approaches that could potentially restore these waters. The appendices contain data summaries and specific information on impaired waters that are listed in Maine's 2008 303 d list.

TMDL Assessments are complete for 43 other waterbodies. Of these, 31 lakes and five streams are impaired primarily due to nonpoint sources. Seven rivers and streams are impaired primarily by point sources. For more information, go to www.maine.gov/dep/blwq/docmonitoring/tmdl2.htm.

Watershed-Based Plans

DEP used 319 funds to help communities develop watershed-based plans meeting EPA NPS guidance for 10 NPS impaired watersheds. A watershed-based plan is intended to be a strategic plan for actions needed over a 5 to 10 year time-frame to achieve the load reductions called for in a TMDL to restore an NPS impaired waterbody. The plan is not a detailed tactical work plan, such as a 2-year work plan for a NPS Watershed Project.

- Watershed-based plans were completed for six impaired waters: Bond Brook (Augusta), China Lake (China), Long Pond (Belgrade), Upper Prestile Stream (Mars Hill), Wilson Pond (Monmouth) and Long Creek (South Portland).
- Watershed-based plans were in progress for Birch Stream (Bangor), Capisic Brook (Portland) and Red Brook (Scarborough).

Implementation

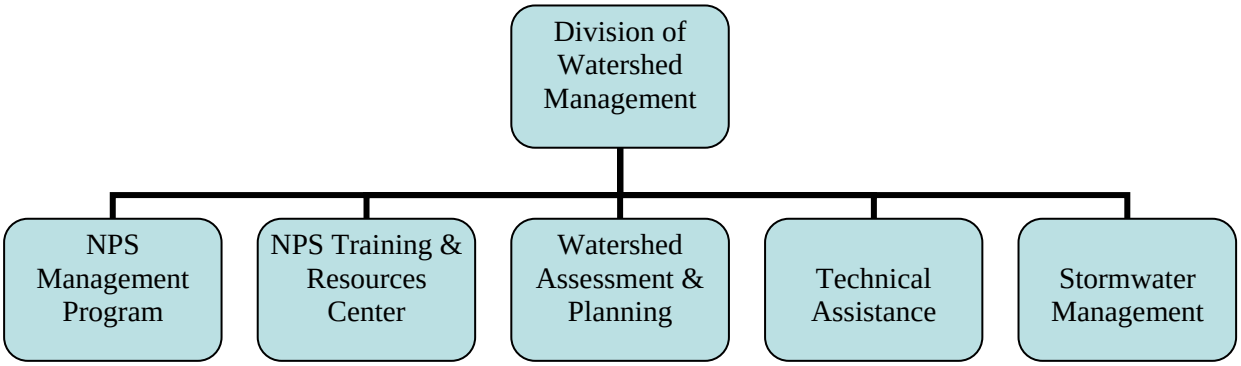
DEP allocates a portion of Section 319 funds for NPS Watershed Projects to implement BMPs that reduce pollutant loads to help restore impaired waters. During 2009, Section 319 funds helped sustain or startup NPS Watershed Projects to apply conservation practices (BMPs) in eight watersheds to help restore impaired waters. These waters each have an approved TMDL assessment report:

Annabessacook Lake (Monmouth)
China Lake (China)
Duckpuddle Pond (Waldoboro)
Highland Lake (Windham)
Pleasant Pond (Gardiner)
Sabattus Pond (Sabattus)
Togus Lake (Augusta)
Wilson Pond (Monmouth)

D. DEP NPS Program & Work Activities in 2009

1. Overview – Watershed Management Division

DEP's Division of Watershed Management administers NPS program services and watershed management. The Division is organized into five sections. The Nonpoint Source Management Program section administers the 319 grant program. The Nonpoint Source Training Center provides training to contractors, consultants and others and provides education and outreach. The Watershed Assessment and Planning section provides stormwater technical assistance and watershed management planning and assistance, and manages the Stream Team Program. The Technical Assistance section provides technical review of permit applications and maintains or develops Best Management Practices guidelines. The Stormwater Management section provides coordination for implementation of the federally delegated Maine Pollutant Discharge Elimination System (MEPDES) program.



2. Watershed Initiatives in 2009

The Division led or participated in several significant NPS initiatives in 2009. The following section highlights some of these efforts.

Long Creek Watershed Management Plan

Background - Long Creek flows through the highly developed Maine Mall area in South Portland. The watershed covers 3.45 square miles and extends into parts of Scarborough, Portland and Westbrook. The stream has been degraded over time due to increases in stormwater runoff and pollutants coming from the parking lots, roads, rooftops and other developed areas in the watershed. As a result, the creek is listed as one of 31 "urban impaired" streams in Maine. In response to a petition filed by the Conservation Law Foundation, the EPA announced that watershed parcels with one acre or more of impervious area would need a NPDES stormwater permit.

Watershed Plan Development - At the same time, a collaborative, community-based initiative was started to develop a watershed based management plan for the Long Creek watershed. The project was funded by a grant from DEP and EPA, convened by the City of South Portland and led by a Steering Committee made up of representatives from the four Long Creek watershed municipalities, area businesses, non-profit organizations and state agencies. After a two-year stakeholder process, the *Long Creek Watershed Management Plan* was formally approved by EPA and DEP in July, 2009.

Plan Implementation - Cumberland County SWCD and DEP worked with the towns and partners to begin implementing the plan in 2009. In August, a riparian buffer planting and stormwater storage

project was completed though a loan from the Maine Clean Water State Revolving Fund made possible by the American Reinvestment and Recovery Act. The Maine DOT installed a section of porous asphalt on Maine Mall Road with funding from the Recovery Act. Under a separate DEP grant, Cumberland County SWCD completed the Long Creek Watershed Implementation Property Database Project. This project developed and established a database that could support implementation of the plan. The database contains property information such as parcel features, impervious areas, location of best management practices and property owners and operators. It allows the tracking of treated impervious areas, BMP performance and maintenance needs throughout the watershed.

Long Creek Watershed Management District and Permit Development - Cumberland County SWCD worked with municipalities to develop an inter-local agreement to establish the Long Creek Watershed Management District that would carry out the watershed plan and coordinate many of the activities required under a Long Creek Waste Discharge General Permit. By year-end, all four municipalities voted to endorse an inter-local agreement, and State enabling legislation was passed to provide clear authority for the District to operate.

In June, the first of many landowner meetings was held to create a participating landowner agreement to provide a means for landowners to fulfill their obligations as outlined in the management plan and obtain a Long Creek Waste Discharge General Permit. The agreement was essentially completed in December 2009. In July Cumberland County SWCD began an on-the-ground inventory of 129 properties that assessed maintenance needs and credits for on-going good maintenance and good housekeeping practices. This DEP-funded grant project also created a general Operations and Maintenance Plan that was circulated to landowners for comment.

Long Creek information is available at http://www.restorelongcreek.org.

Lake Camp Roads

Many of the over 12,000 miles of private camp roads in watersheds of Maine's Great Ponds are poorly maintained and eroding into Maine lakes. The recommendations of the *Lake Camp Road Report: An Evaluation of Ways to Reduce the Impact of Camp Roads, Driveways and Boat Launches on Lake Water Quality* (December 2008) were discussed by the Natural Resources Committee of the Maine Legislature in the Spring of 2009. As a result of this discussion and in response to the report's recommendations, the following occurred in 2009:

- Three bills were passed by the Legislature to clarify and assist in the formation of road associations and to allow municipalities to repair private roads for the purpose of protecting or restoring lake water quality.
- *A Guide to Forming Road Associations* was updated to be more user-friendly and include new legislation and guidance.
- The NPS Training Center held a workshop on how to form a road association and how to complete the new road evaluation form. More workshops are scheduled for 2010.

Lake Camp Road Report, *Guide to Forming Road Associations*, new legislation and other camp road resources are available at http://www.maine.gov/dep/blwq/docwatershed/camp/roads/index.htm.

Water Quality Management Planning Grants - American Recovery & Reinvestment Act

With passage of the American Recovery and Reinvestment Act of 2009, DEP received $306,400 under Section 604(b) of the Federal Clean Water Act for water quality management planning. DEP passed-through 100% of the funds to provide financial assistance for water quality planning.

In March, DEP issued a request for proposals for watershed-based water quality management planning and/or assessment needed to plan for restoring urban impaired streams designated under Chapter 502 of the Maine Stormwater Management Rules. There are 31 streams in Maine that do not attain state water quality classification standards due to pollution from urban areas. The RFP offered funds for planning and assessment projects, such as comprehensive watershed management plans; stormwater utility district feasibility studies; restoration planning and projects development; green infrastructure projects development; and assessment and monitoring activities to support plan development. In August, DEP issued 4 grants for watershed-based water quality management planning to help restore urban impaired streams.

- Bangor will develop a Stormwater Utility program. Work involves developing plans and a sustainable community-supported long term funding mechanism to implement best management practices designed to improve water quality of streams in Bangor.
- Portland will develop a locally supported watershed based plan that will outline a strategy to help restore the water quality of Capisic Brook in order for it to attain its Class C water quality
- Scarborough will develop a locally supported watershed based plan that will outline a strategy to help restore the water quality of Red Brook in order for it to attain its Class C water quality.
- Cumberland County SWCD will establish institutional structures needed to implement the Long Creek Management Plan and establish a Long Creek Watershed Management District.

Projects Funded	Grantee	604(b)Grant	Nonfederal Match
Bangor Stormwater Utility Planning	City of Bangor	70,000	107,001
Long Creek Restoration: From Planning to Implementation	Cumberland County SWCD	90,000	46,083
Red Brook Watershed Based Management Plan	Town of Scarborough	48,605	37,727
Capisic Brook Restoration Plan	City of Portland	97,795	67,128
Total		$306,400	$257,939

Maine Hosts New England NPS Conference in Portland

In May, Maine DEP co-hosted the New England Interstate Water Pollution Control Commission's 20th Annual Nonpoint Source Pollution Conference at the Eastland Park Hotel in Portland. Since 1990, the Annual Nonpoint Source (NPS) Pollution Conference has been the premier forum in our region for sharing information and improving communication on NPS pollution issues and projects. The three-day conference brought together people from New England and New York State involved in NPS pollution management, including participants from state, federal, and municipal governments, private sector, academia and watershed organizations.

Conference presentations are archived at http://www.neiwpcc.org/npsconference.

3. Summaries of Statewide NPS Programs

DEP directly funds several ongoing programs and projects using 319 funding. Some of these programs are carried out by DEP staff and others are implemented by partner organizations. The following pages include descriptions of each program and accomplishments in 2009.

LakeSmart

The LakeSmart program was established in 2002 to promote a new norm for shorefront and watershed development by rewarding 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 properties and 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 2009:

- **Awards**: Issued **31** LakeSmart Awards and another **29** recognition certificates to individuals that received high marks in at least one of the four evaluation categories. Total LakeSmart Award properties to date are **245**.
- **Screeners Pilot Program**: The program partnered with the Congress of Lake Associations to train 35 volunteers as screeners on 10 pilot lakes. Screeners visit properties, provide limited technical assistance and recommend award-quality properties to the certified evaluators. This approach is expected to save money as well expand the spread of the program.
- **Gold Status Pilot Program**: Three lakes have now met the goal of having over 15% of shorefront properties certified as LakeSmart. Volunteers from two of these Gold Status lake associations (Anasagunticook and Wilson) were trained to continue their own property evaluations.

For More Information:

Barb Welch, Maine DEP – (207) 287-7682, Barb.Welch@maine.gov
LakeSmart website – http://www.maine.gov/dep/blwq/doclake/lakesmart/index.htm

Maine Clean Boatyards & Marinas Program

The Clean Boatyards and Marinas Program is a partnership between the Maine State Planning Office, Maine Marine Trades Association and other industry, state and federal agencies and environmental organizations. The program promotes best management practices in boatyards and marinas. Participants conduct a facility self-assessment in five areas of concern: stormwater runoff management, erosion and sedimentation control; boat maintenance and repair, fueling activities and petroleum control; waste recycling, disposal and storage; and boat pumpouts and sewage. The program provides technical assistance, conducts verification visits and publicly recognizes facilities that meet award standards.

Kennebunkport Marina received Clean Marina flag and certification

Accomplishments in 2009:

- Designated four new facilities, and recertified one facility. Conducted verification visits at four additional facilities that will continue to work towards certification.
- Distributed transient boater education packets and bilge socks.

- Distributed educational materials at Maine Boat Builders Show; Maine Boats, Homes and Harbors Show; and the Maine Marine Trades Association (MMTA) Annual Meeting.
- Presented information about the program at three MMTA regional meetings and distributed informational packets.
- Updated brochures and program materials to reflect new information and BMPs.

For More Information:

Matt Nixon, Maine State Planning Office – (207) 287-1491, matthew.e.nixon@maine.gov
Clean Marinas Website – www.mainemarinetrades.com/clean_marinas/default.asp

Maine Lakes Biomanipulation

The project aims to improve water quality on East Pond, an impaired lake in the Belgrade Lakes chain, by removing introduced perch and black crappie fish populations in the pond. This targeted removal will enhance zooplankton populations and ultimately result in higher water transparencies due to increased consumption of blue-green algae by the zooplankton. Phase I of the project assessed water quality conditions and fish assemblages in East and downstream North (control) ponds. Phase II (fish removal) started in East Pond following ice-out in 2007, continued during the spring of 2008 and 2009 and will continue in 2010.

Beach seining on East Pond

Accomplishments in 2009

- Trap-netting removed a total of **1.6 tons** of targeted fish species (compared to 10 tons in 2007 and 2.3 tons in 2008). 62% of the catch by number was white perch (compared to 88% in 2007 and 57% in 2008), along with 21% yellow perch and 17% black crappie. Released non-target fish species (golden shiner, white sucker, chain pickerel, black bass, sunfish, brown bullhead, eel, and trout) comprised 6% of the catch (compared with 2% in 2007 and 10% in 2008).
- Completed bi-weekly water quality sampling (May-October) for total phosphorus, chlorophyll-a, water transparency, dissolved oxygen-temperature profiles, and phytoplankton and zooplankton assemblages in both East and North Ponds, with assistance from University of Maine (Orono) project M.S. graduate student, Kristin Ditzler, and project technician, Dennis Anderson.
- Assessed fish assemblages in East and North Ponds on a monthly basis (July to September) using a standardized combination of active fishing gears including: pre-dusk sinking gill netting, expert baitfish angling, and night-time beach seining. Quenton Tuckett, Ph.D. student from the University of Maine, Orono, and fish technicians tagged and released **1,489** white perch for mark-recapture studies and estimated the adult white perch population as **11,055** in 2009 (compared to 10,629 in 2008 and 22,267 in 2007).
- Preliminary results indicate that nuisance blue-green algal blooms still occur in East Pond; however, bloom prevalence has shifted to late August and September. As a result, there has been some improvement in water quality in terms of the length of time during the summer when water quality standards are achieved.

For More Information:

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Melissa Evers, Maine DEP – (207) 287-2838, Melissa.Evers@maine.gov
Biomanipulation Project Website - www.maine.gov/dep/blwq/doclake/biomanipulation/index.htm

Program Highlight

Maine Nonpoint Education for Municipal Officials (NEMO) Program

Maine NEMO provides outreach to municipal officials on how land use decisions are linked to water quality in their towns. NEMO is 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 provide program funding.

Accomplishments in 2009: NEMO conducted 27 presentations attended by 1224 people including:

Low Impact Development (LID) Workshop

Recent studies have indicated that a major barrier to getting LID techniques on the ground is a lack of exposure and design experience with our target audience of municipal stormwater professionals (Lassiter 2008; Goodwin, Perry, Burns and Chan, 2008; Nowacek, 2003) . This barrier has also been noted in evaluations from regional LID conferences in Northern New England.

To address this barrier, Maine NEMO planned and co-hosted a LID Workshop in cooperation with Maine Cooperative Extension, NH Stormwater Center, Geosyntec, Maine DOT, Maine Department of Agriculture and funded by Casco Bay Estuary Partnership and the Maine Nonpoint Source Training Program. The workshop was designed to address those barriers and tailored very specifically to the target audience and their identified needs.

- The workshop (held in Portland on December 2, 2009) focused on reviewing LID in cold climates with an emphasis on porous pavement and gravel wetlands for nutrient removal. The workshop was attended by 168 people from Maine, Rhode Island, Massachusetts, New Hampshire, Alaska, and Montreal and Jerome, Quebec.

James Houle of the UNH Stormwater Center spoke about gravel wetlands

Maine LID Conference Attendees

51%	Engineers
24%	Municipal Staff
11%	State Staff
5%	Regional Planners/Staff
4%	Designers
5%	Developers /Field Professionals/Academics

- **Conference Evaluations** - 70% of conference attendees said that they "intend to apply something I learned at this workshop to improve my town"; 77% indicated their ability to review LID as part of a development plan improved as a result of the workshop; and 80% indicated that they were now comfortable with incorporating LID into their community's developments.
- **Conference Feedback** - *"The design standards session was very valuable as it provided a hands on approach to applying LID concepts," "I thought that the speakers' passion for their subject material helped keep the audience engaged." "Working in the small groups and listening to what other groups thought was invaluable,"*

Collaborations with Municipalities

- **Dixmont** passed their Comprehensive Plan (much to the surprise of the planning committee) after working with Maine NEMO to educate townspeople on the benefits of such a plan. The plan was overwhelmingly approved despite initial fears that planning inhibits personal property rights, and a history of being voted down in previous years. *"Thank you for coming to Dixmont and helping us with the informational session on comprehensive planning. I heard several very positive remarks about your presentation, and I liked the way you presented the issue facing towns… It was very effective." – Judy Dann, Dixmont Comp Plan committee*
- Maine NEMO continues to work with **Bangor** on LID and Urban Impaired Watershed issues. Recently an engineer in Bangor said, *"You are an effective presenter and are spreading the word. Sometimes people like myself who do nothing but development get a reputation of paving everything. When we can employ some techniques as you discuss during presentations, it helps the perception of our efforts and it has marketing benefit besides. I am not a skeptic of LID anymore, and you were the start of my transformation."*
- **Scarborough** tallied the open space acreage in conservation subdivisions. Since 2005, 180 acres of open space has been conserved through the conservation subdivision requirements that started with a NEMO presentation. Scarborough is also expanding the impervious analysis started by NEMO.
- Presentations in **York** and providing staff with training opportunities have led to an increase in the LID requirements for development within the town. York Planner, Christine Grimando, said that "*as a result of attending the pragmatic training in Hallowell, I was able to craft language for our town's ordinance that requires developers to explore LID potential for their site".*
- **Ogunquit** has preserved 570 acres in open space since initial efforts that began with several Maine NEMO presentations in town.
- Efforts by the Belgrade Region Lakes Alliance and China Lakes Region to improve the understanding of development impacts and incorporate LID regionally have been supported by several NEMO presentations and participation in community workshops. The CEO of China said that LID efforts "*…were dead in town until resuscitated by NEMO's continued involvement and influence."*

Other Presentations and Activities

- Maine NEMO presented impervious analysis work for four watersheds at the NEIWPCC conference and the Maine Water Conference. Portions of this work is being used as part of the watershed planning process for Red Brook, and the Town of Scarborough will continue the impervious analysis and update information to reflect recent zoning changes.
- Maine NEMO continues to support education efforts in Phase II communities with assistance on BMP/LID adoption for individual landowners in Lewiston/Auburn/Sabattus, and is preparing to provide updated public works education in these communities.
- Maine NEMO provided balance and input to the Chapter 500 LID and Infiltration subcommittee discussions.
- Maine NEMO partnered with the Eastern Maine Development Council on implementation of a USDA grant on LID, and provided a full day workshop for the Dover-Foxcroft area.

For More Information:

LaMarr Clannon, PETE – (207) 771-9020, lcannon@maine.rr.com
Don Witherill, DEP – (207) 287-7725, Donald.t.witherill@maine.gov
Maine NEMO Website – www.mainenemo.org

Maine Nonpoint Source Training & Resource Center

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

Accomplishments in 2009:

- Provided training to **479** participants in erosion control practices for contractors and certified **116** new individuals through the Contractor Certification program.
- Co-sponsored a Low Impact Development (LID) workshop to promote the concept to designers, municipal officials and other groups and assisted with the coordination of the 2009 NPS Conference: **301** participants
- Coordinated training on the new wastewater disposal rules and the installation, design, and inspection of septic systems: **417** participants.
- Coordinated training in the maintenance and inspection of stormwater best management practices for engineers, consultants and municipal officials: **237** participants.
- Distributed over **252** copies of publications and **15** videotapes/DVDs.

For More Information:

Bill Laflamme, DEP – (207) 287-7726, william.n.laflamme@maine.gov
NPS Training Center Website – www.maine.gov/dep/blwq/training/index.htm

Maine Stream Team Program & Volunteer River Monitoring Program

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

The Volunteer River Monitoring Program (VRMP) is a special project of the MSTP. The VRMP provides quality assurance services, training, volunteer certification, data archiving, and annual water quality report services.

MSTP Accomplishments in 2009:

- Distributed three issues of the Stream Team newsletter in electronic form (see website listed below).
- Helped coordinate and run **five** rapid stream habitat/geomorphology survey trainings, and then compiled data and photographs for the citizen groups.
- Continued to work with municipalities, SWCDs and other partners to develop watershed management and restoration strategies for Long Creek (South Portland), Red Brook (Scarborough), City of Bangor, Sunday River (Newry), Mere Brook (Brunswick) and Pleasant River (Windham).

- Provided technical assistance and educational outreach to a variety of stream teams and watershed councils and coalitions around the state.

VRMP Accomplishments in 2009:

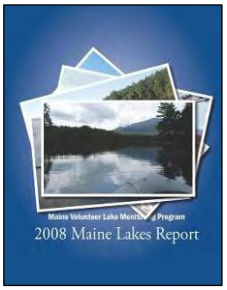
- Launched the VRMP program in June 2009 after its Quality Assurance Project Plan was approved by USEPA.
- Trained and certified volunteers working with **9** volunteer organizations on a number of streams and rivers.
- Water quality data report is anticipated for Spring 2010.

For More Information:

Jeff Varricchione, DEP – (207) 822-6317, jeffrey.t.varricchione@maine.gov
Stream Team Website – www.maine.gov/dep/blwq/docstream/team/streamteam.htm
VRMP Website – http://www.maine.gov/dep/blwq/docstream/vrmp/index.htm

Maine Volunteer Lake Monitoring Program (VLMP)

319 funding primarily supports the educational aspects of the VLMP including training volunteer monitors to collect quality data, producing three newsletters and one Annual Report per year and holding an annual meeting to share information about lake water quality issues. Volunteers monitor assigned lakes twice a month for 5-6 months of each year, enter data into electronic format and assist in the local coordination of VLMP activities. The total match generated by the volunteers more than doubles the 319 funding level.



Accomplishments in 2009:

- Produced the *2008 Maine VLMP Annual Report*, which reported that during 2008 volunteers obtained 3,555 Secchi transparency readings; 15,623 dissolved oxygen readings; 1,044 total phosphorus samples; and 485 chlorophyll-a samples. These data were collected from 398 lake stations representing 503,509 lake acres which amounts to 42% of Maine's lake surface area.
- Produced three newsletters and convened the 2009 Annual Meeting, which was attended by over 90 people.
- Trained more than 50 new volunteers for transparency and 20 for dissolved oxygen, for a total of 601 volunteers certified to obtain Secchi transparency data and 170 volunteers certified to collect dissolved oxygen data. Recertified more than 65 volunteers for transparency, more than 70 volunteers for dissolved oxygen and more than 75 on the website using the Virtual Secchi Recertification tool.
- Encouraged collection of transparency readings on days that the Landsat satellite passed Maine.
- Reached a level of 601 certified volunteer water quality monitors in the program monitoring 508 lake basins.

For More Information:

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

Statewide NPS Outreach

This NPS Outreach program disseminates information to raise awareness and move people toward more environmentally friendly behaviors. The program partners with organizations with similar target audiences and similar BMPs such as LakeSmart, YardScaping and ThinkBlueMaine as well as youth and educators through the Children's Water Festivals and Envirothon. The program employs and promotes social marketing techniques to increase effectiveness.

Accomplishments in 2009:

- Supported the Southern Maine Children's Water Festival, which reached approximately 700 students and their teachers. AmeriCorps educators reached an additional 1,000 students with watershed protection messages in classroom presentations, Lake Days and other events.
- Distributed four issues of the Nonpoint Source Times, which recently completed its 18th year of publication. Available at www.maine.gov/dep/blwq/newslet/npstarchiv.htm
- Partnered with ThinkBlueMaine communities to air the TV Ad, affectionately known as 'Rubber Ducky', to a statewide audience. The ad has exceeded expectations in raising awareness of stormwater pollution issues. Efforts are underway to produce a Ducky II ad which will focus on lawn care practices.

For More Information:

Kathy Hoppe, DEP - (207) 760-3134, kathy.m.hoppe@maine.gov
NPS Outreach Website – www.maine.gov/dep/blwq/doceducation/nps/

E. NPS Grants Program

1. Overview of Nonpoint Source Water Pollution Control Projects

DEP administers a NPS grants program to offer Section 319 grant funds for watershed-based projects that take actions to help restore or protect lakes, streams, or coastal waters that are impaired or considered threatened by polluted runoff. Through the NPS Grant Program, DEP issues grants to local project sponsors who provide a minimum of a 40% match to the grant funds. NPS projects help local communities identify water pollution sources in watersheds and take action to restore or protect clean water. DEP issued grants to help fund three types of watershed-based projects:

- **NPS Watershed Project**. Project focuses on implementing actions within an entire watershed to improve or protect a waterbody. The project is designed so that BMPs are implemented in a manner that leads to a significant reduction in NPS pollutant load to a waterbody. The load reduction is intended to improve or protect water quality of a waterbody. A NPS Watershed Survey (or other NPS assessment of equivalent detail) is needed to design and implement this type of project.
- **NPS Watershed Survey.** Project focuses on finding, describing and prioritizing NPS pollution sources in a watershed, and recommending BMPs for treating identified NPS sites. NPS Watershed Surveys provide essential information for planning and implementing NPS Watershed Projects.
- **Watershed-Based Plans.** A watershed-based plan is intended to be a strategic plan for actions needed over a 5 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 2009

In 2009 DEP provided grants for the following NPS projects. Ten projects received grants in March based on the annual NPS RFP issued in April 2008. In addition, DEP worked on 31 active projects awarded funds in previous years (2008, 2007 and 2006).

Project Title	Grantee	Project #	Grant	Match
Cobbossee Stream Watershed Survey	Kennebec County SWCD	2008PP30	8,000	5,400
Cochnewagon Lake Watershed Survey	Cobbossee Watershed District	2008PP29	8,731	6,072
East Pond Biomanipulation, Phase 3	University of Maine	2009RT16	50,500	9,900
Green Lake Watershed Improvement Project, Phase I	Hancock SWCD	2009RR01	50,685	33,990
Long Creek Watershed Implementation Property Dbase	Cumberland County SWCD	2009RR15	30,000	21,153
Long Pond Water Quality Protection, Phase I	Belgrade Regional Conservation Alliance	2009RT07	49,750	33,200
Panther Pond Conservation Project, Phase II	Raymond, Town of	2009RR02	63,289	51,845
Pleasant Lake-Parker Pond Conservation Project (Casco)	Cumberland County SWCD	2009RR03	80,711	55,173
Pushaw Lake NPS Watershed Project, Phase 2 & Survey	Penobscot County SWCD	2009RR05	75,000	50,760
Sebago Lake Conservation Project, Phase I	Portland Water District	2009RR04	86,080	99,274
Thompson Lake Watershed Survey, Southern Section	Thompson Lake Environmental Asso.	2009RR08	16,190	11,110
Wilson Pond Water Quality Improvement Project	Cobbossee Watershed District	2009RT06	62,130	70,705
Total			$581,066	$448,582

3. Request for Proposals: FY 2010 Grants for NPS Pollution Control Projects

In 2009 DEP modified the NPS request for proposals (RFP) in 2 aspects: (1) to set-aside a portion of funds for projects to restore waters that have a relatively higher restoration potential; and (2) to help users develop stronger proposals for stream surveys.

- 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 national NPS success stories. To qualify as a success story, a waterbody must have been listed as impaired and the waterbody is partially or fully restored due to actual NPS control or restoration efforts. To help meet Section 319 program objectives, DEP developed a list of impaired waters in Maine that have a relatively high potential to be either fully or partially restored in the next five years. The NPS RFP issued in 2009 reserved funds ($220,000) for NPS projects intended to help restore NPS impaired waters that have a relatively high potential to be partially or fully restored within 5 years.
- DEP developed new guidance "Stream Survey Guidance for NPS Projects" (February 2009, 4 pg) to help NPS grant applicants develop effective proposals to conduct stream watershed surveys. DEP's Maine Stream Team Program developed the *Stream Survey Manual (Vol. 1): A Citizen's Guide to Basic Watershed, Habitat, and Geomorphology Surveys in Stream & River Watersheds* (February 2009). The manual provides guidance on Stream Watershed Surveys and Stream Corridor Surveys.

DEP issued the annual NPS RFP in April, 2009 and received 24 proposals requesting about 1.1 million dollars. This response demonstrates that local community-based partnerships value clean water and are recognizing and finding solutions to NPS problems. A review committee evaluated and scored the proposals. In July DEP announced the 14 highest ranked projects to be funded with FFY 2010 319 funds. DEP worked with grantees to adjust work plans as needed to secure final approval. Grants were planned to enable start-up of projects for January 2010.

Results – Request For Proposals
FFY 2010 Grants for Nonpoint Source Water Pollution Control Projects

Project Type	Funds Requested	Funds to be Awarded
NPS Watershed Implementation Project	$1,045,345 16 proposals	$531,161 8 proposals
NPS Watershed Survey	$100,272 8 proposals	$71,728 6 proposals

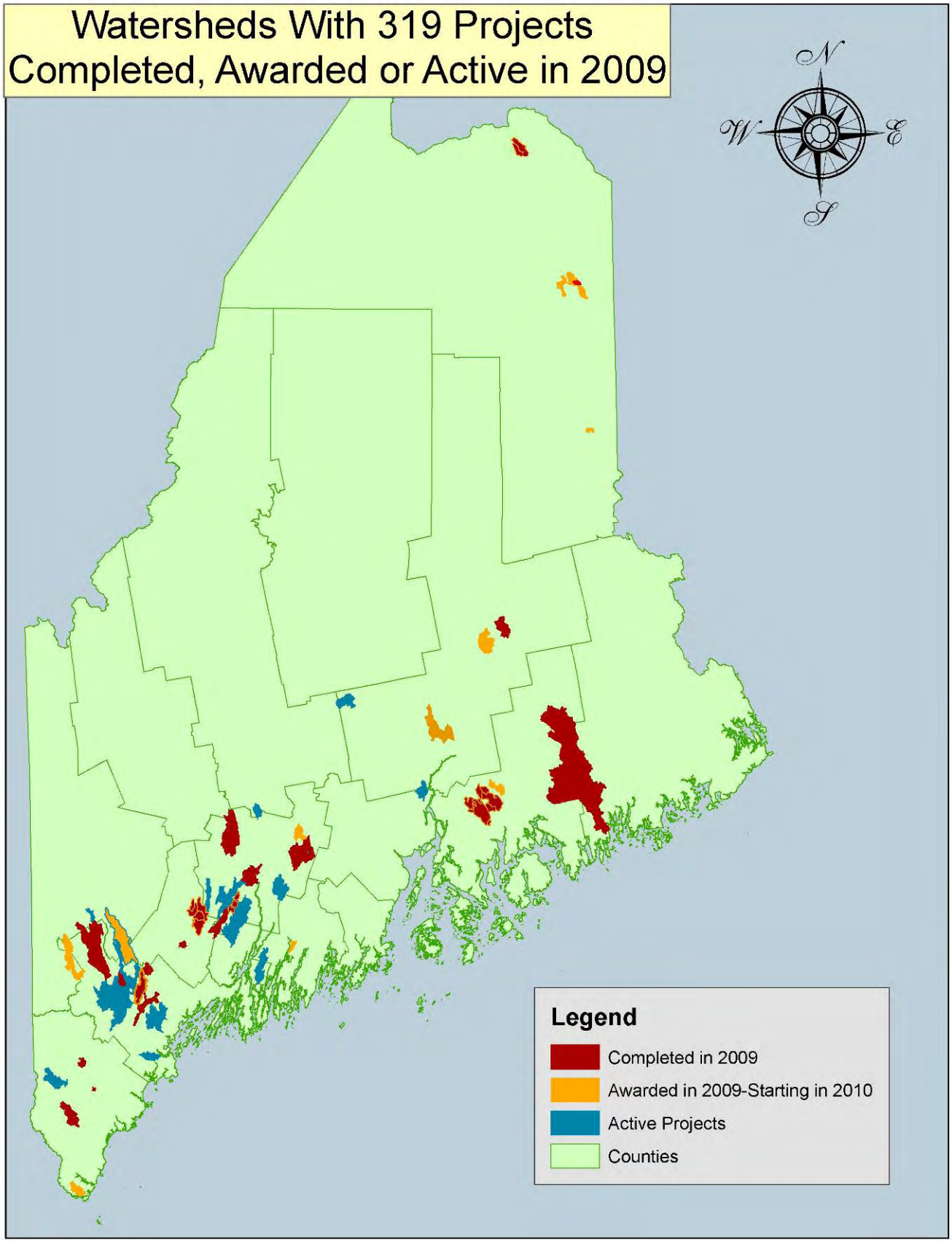
NPS Projects to be Awarded Grants in January 2010

NPS Watershed Implementation Projects			
Project	***Grantee***	***Grant***	***Match***
Branch Lake Watershed Improvement Project, Phase II	Hancock County SWCD	54,184	36,230
Little Sebago Lake Conservation Project, Phase 3	Cumberland County SWCD	95,391	73,395
McLean Brook Watershed BMP Implementation Project	St. John Valley SWCD	39,312	26,484
Nickerson Lake Conservation Project, Phase I	Southern Aroostook SWCD	64,789	43,910
Pattee's Pond Watershed NPS Reduction Project, Phase 1	Town of Winslow	59,450	51,470
Sabattus Pond Watershed Project – Phase 3	Androscoggin Valley SWCD	77,066	93,402
Spruce Creek Watershed Improvement Project, Phase II	Town of Kittery	79,780	101,346
Thompson Lake Watershed Improvement, Phase III Otisfield	Thompson Lake Environmental Association	61,189	40,976
Subtotal		531,161	467,213
NPS Watershed Surveys			
Project	***Grantee***	***Grant***	***Match***
Beech Hill Pond Watershed Survey	Hancock County SWCD	12,899	8,800
Coldstream Pond NPS Watershed Survey	Penobscot County SWCD	9,600	8,020
Dyer River Watershed NPS Survey Project	Sheepscot Valley Conservation Association	13,000	10,000
Moose Pond Watershed Survey	Cumberland County SWCD	15,563	10,626
Upper Pushaw NPS Watershed Survey	Penobscot County SWCD	11,540	8,000
Williams Brook Subwatershed Survey and Prestile Stream Citizen Storm Watchers	Central Aroostook SWCD	9,126	19,279
Subtotal		71,728	64,725
Total		602,889	531,938

F. Summaries of NPS Water Pollution Control Projects Completed in 2009

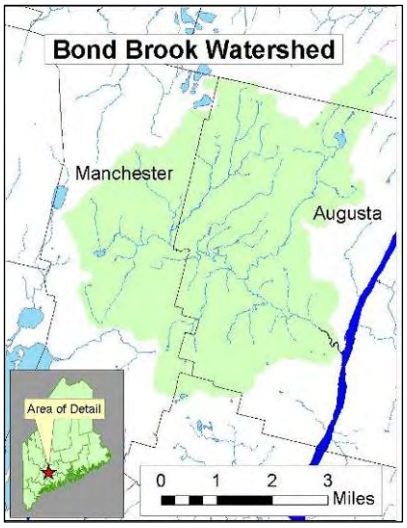
Nineteen (19) projects funded through the NPS grants program were successfully completed in 2009. Concise two-page summaries of each project are included in the following pages and will be uploaded to the PEARL database (www.pearl.maine.edu). Additional project information can be obtained from the DEP or the project sponsor. The map on the following page shows locations of watersheds with NPS projects completed, started, awarded or already underway in 2009.

NPS Project Title	Page
Bond Brook Watershed Planning & Salmonid Protection Project	20
Branch Lake Watershed Improvement Project – Phase 1	22
Brandy Pond Watershed Survey	24
Goodall Brook Survey & Hotspot ID Project	26
Hart Brook Unified Subwatershed & Site Reconnaissance Survey	28
Kennebunk Pond Watershed Improvement Project	30
Kennedy Brook / Mantle Lake Watershed Improvement	32
Lincoln Lakes NPS Watershed Survey Project Phase I	34
Little Sebago Lake Conservation Project Phase II	36
Long Lake Watershed Improvement, Phase II	38
Long Pond (Belgrade) Watershed-based Management Plan	40
McLean Brook NPS Watershed Survey	42
Narraguagus River Protection Project, Phase 2	44
Northern Great Works River Watershed Improvement Project, Phase I	46
Pleasant River NPS Watershed Survey	48
Sabattus Pond Watershed Project, Phase II	50
Sabbathday Lake Watershed Survey Project	52
Tacoma Lakes NPS Abatement Project	54
Thomas Pond Conservation Project Phase II	56


Watersheds With 319 Projects Completed, Awarded or Active in 2009
N
W
E
S
Legend
Completed in 2009
Awarded in 2009-Starting in 2010
Active Projects
Counties

Bond Brook Watershed Planning & Salmonid Protection Project
#2006R-11

Waterbody Name:	Bond Brook
Location:	Augusta, Manchester – Kennebec County
Waterbody Status:	NPS Priority Watershed, Urban Impaired Stream (one tributary)
Project Grantee:	Trout Unlimited
Project Duration:	April 2006 – April 2009
319 Grant Amount:	$49,450
Local Match:	$22,000



PROBLEM:

The Bond Brook watershed covers about 21 square miles and includes Stone Brook, Spring Brook, Tanning Brook, Rockwood Brook and several unnamed tributaries. It is located primarily in the Town of Manchester and City of Augusta, and is a tributary to the Kennebec River. The upper sections of the watershed include woodlands, undeveloped fields, farms and low density residential development. The lower section is more intensely developed with high density residential and commercial development.

Despite urban development in the lower part of the brook, Bond Brook and most of its tributaries remain in overall good condition. The brook supports naturally-reproducing populations of salmonids and anadromous fishes and meets Class B water quality standards in most areas. However, recent monitoring indicates the stream is being stressed and water quality may be deteriorating. One unnamed tributary fails to meet aquatic life standards and has a watershed impervious area close to 27%.

PROJECT DESCRIPTION:

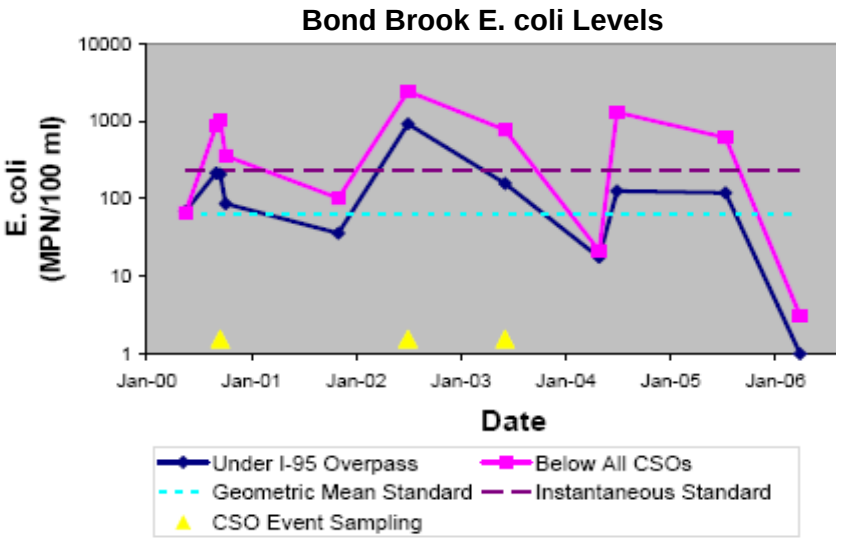
The primary goals of this project were to increase public awareness, build long term stakeholder support and develop a watershed management plan for Bond Brook. The project was managed by staff from Trout Unlimited and Kennebec County SWCD. A technical advisory committee met three times to guide the development of a report of existing stream data. In 2006 and 2007 volunteers conducted stream corridor surveys in the lower part of the brook and gathered additional information on stream conditions and problems. The Project Manager collected information by walking about half of the upper watershed, and a geomorphologist was hired to complete a survey on the lower part of Bond Brook.

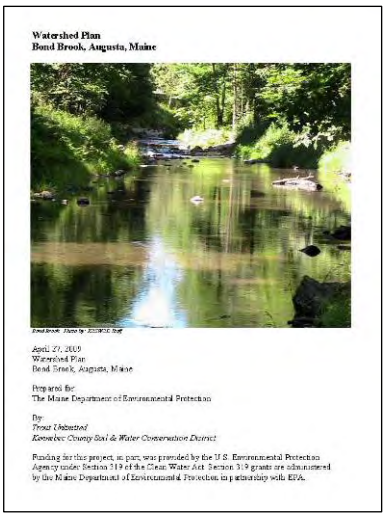

Severe bank erosion along brook

Public education and awareness was increased through tours of the brook with the local newspaper, editorials and slideshows. The Watershed Planning Committee met two times, and two public meetings were held to provide input on the plan. The *Management Plan – Bond Brook, Augusta, Maine* was finalized in March, 2009.

PROJECT OUTCOMES:

- A comprehensive report, *Review of Existing Information and Data on the Present Condition of Bond Brook and its Watershed*, was completed.
- Additional information was gathered about the stream through stream walks, Stream Corridor Surveys, and a geomorphologic survey.
- Local support and interest was generated in Bond Brook. Next steps will involve working with recreational interests around adjacent City property which is being developed for trails and skiing, and possibly connecting this with the upper watershed.
- The *Management Plan-Bond Brook, Augusta, Maine* was completed in March 2009. The plan includes the following components: description of condition of the brook and watershed; discussion of threats, stressors and impairment; tools for protecting and improving the brook; and action plan.





PROJECT PARTNERS:

Kennebec County SWCD
City of Augusta
Greater Augusta Utility District
Maine Department of Inland Fisheries and Wildlife
Maine Department of Marine Resources
Atlantic Salmon Commission

CONTACT INFORMATION:

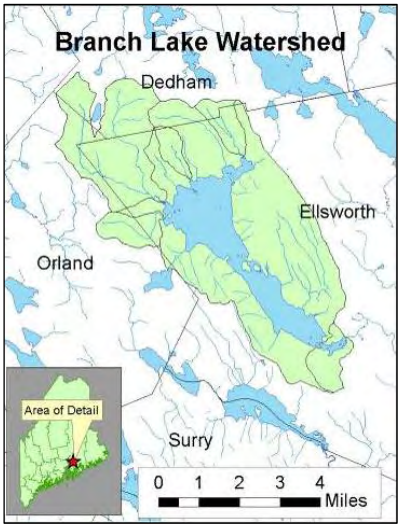
Mary Ellen Dennis, Maine DEP – (207) 287-7729, mary-ellen.c.dennis@maine.gov

John Blais, Kennebec County SWCD – (207) 622-7847 (ext 3), john@kcswcd.org

Branch Lake Watershed Improvement Project – Phase I

#2007RR01

Waterbody Name:	Branch Lake
Location:	Ellsworth, Dedham, Orland – Hancock County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Hancock County SWCD
Project Duration:	April 2007 – March 2009
319 Grant Amount:	$73,165
Local Match:	$69,517



PROBLEM:

Branch Lake, also known as Branch Pond, 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 lake's 23.4 square mile watershed is largely undeveloped, there is continued development pressure due to Branch Lake's proximity to Bangor and Ellsworth.

In 1998, the University of Maine Cooperative Extension (UMCE) conducted a Watershed Stewards program for Branch Lake residents. This led to a volunteer watershed survey that identified 140 erosion sites. From 1999 - 2002, the *Branch Lake BMP Demonstration 319 Project* fixed 15 priority sites and conducted watershed outreach. Hancock County SWCD received Phosphorous Compensation Funds from the Maine DEP to mitigate another four high priority gravel road sites. In 2005, Hancock County SWCD started updating the 1998 survey in the northeast region of the watershed and documented 62 sites with the potential to negatively affect water quality.

PROJECT DESCRIPTION:

The goal of the project was to reduce sediment loading to Branch Lake by fixing NPS sites in the northeast section of the watershed. The project addressed 33 sites in the target areas, including a vegetative buffer and ramp stabilization demonstration project at the public boat launch. The project also completed 38 technical assistance visits to help camp owners fix NPS problems, completed the watershed survey update, and trained 23 local residents through UMCE's Watershed Stewards Program.

Ditch stabilization project

UMCE staff held an Outreach Planning Session for steering committee members and watershed residents to guide long term public outreach and education efforts. This outreach session used the LOGIC-model to help the group develop specific, measurable outreach objectives, a target audience, methods for delivering their message, indicators of success, an implementation strategy and evaluation techniques.

PROJECT OUTCOMES:

- A total of 33 sites (26 road sites and 7 residential sites) were addressed in the northeastern section of the watershed to reduce erosion and help protect water quality. Some of the conservation practices installed included vegetative buffers, new culverts, ditching, open-top culverts, and turnouts.
- Annual pollutant loading to Branch Lake was reduced by an estimated 180 tons of sediment, 159 pounds of phosphorous and 318 pounds of nitrogen (Region 5 Method and WEPP Model).
- A long range plan for education and outreach needs in the Branch Lake watershed was completed. This plan guided the project's gravel road maintenance workshops (83 participants), LID workshop, watershed survey trainings (33 volunteers) and boat cruise for City of Ellsworth staff and city council.
- The project completed an updated watershed survey and identified 130 erosion sites. Results were documented in the report, *Branch Lake Watershed Survey 2008.*


Before


After


Before


After

PROJECT PARTNERS:

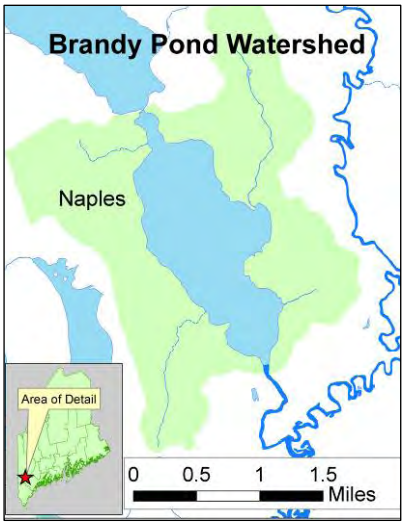
City of Ellsworth
Branch Pond Association
University of Maine Cooperative Extension

CONTACT INFORMATION:

Greg Beane, Maine DEP – (207) 941-4292, greg.e.beane@maine.gov
Megan Facciolo, Hancock County SWCD – (207) 667-8663, megan.facciolo@me.nacdnet.net

Brandy Pond Watershed Survey
#2008PP08

Waterbody Name:	Brandy Pond (Bay of Naples)
Location:	Naples, Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	March 2008 – September 2009
604(b) Grant Amount:	$12,870
Local Match:	$5,904



PROBLEM:

Brandy Pond (also known as the Bay of Naples) has a surface area of 733 acres and a watershed area of 3.6 square miles. Brandy Pond is connected to Long Lake by the Naples swing bridge and causeway and to the Songo River and Sebago Lake by the Songo locks. Since Brandy Pond lies at the center of this popular 35-mile-long corridor, it experiences heavy boat traffic throughout the summer. Brandy Pond's shoreline is fringed with 204 seasonal and year-round homes, two commercial marinas and several businesses, and the watershed includes a golf course and numerous businesses along Route 302.

The Maine DEP and Lakes Environmental Association (LEA) have tested Brandy Pond's water quality since 1976. This testing indicates that the bottom waters of the lake experience moderate oxygen depletion, which can limit the pond's coldwater fish habitat. Because of this stress on the fishery and substantial development in the watershed, LEA rates Brandy Pond as a moderate to high degree of concern. In addition to its water quality monitoring program on the pond, LEA helps watershed residents address erosion problems through its *Clean Lake Check-Up* program.

PROJECT DESCRIPTION:

The purpose of the project was to identify, document and prioritize soil erosion sites in the Brandy Pond watershed. Survey methods were based on those outlined in the DEP publication, *Citizen's Guide to Lake Watershed Surveys*. Letters were sent to roughly 800 watershed landowners notifying them of the survey and inviting their participation in the project. Due to the lower than expected number of local volunteers, project staff enlisted the University of Southern Maine's Soil and Water Engineering class to help with the survey.

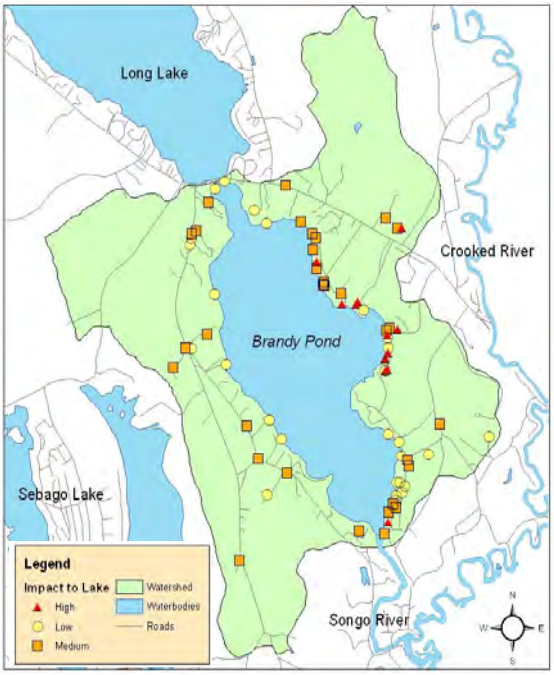

Winter sand and shoulder erosion

Sixteen USM students and five local volunteers were trained in survey methods prior to the survey. The watershed survey was held on April 19, 2009. Most of the watershed was surveyed that day, and technical staff checked their work throughout the summer. Survey data was summarized in the *Brandy Pond Watershed Survey Report*. Survey reports were distributed to town officials and posted on the Cumberland County SWCD website (www.cumberlandswcd.org).

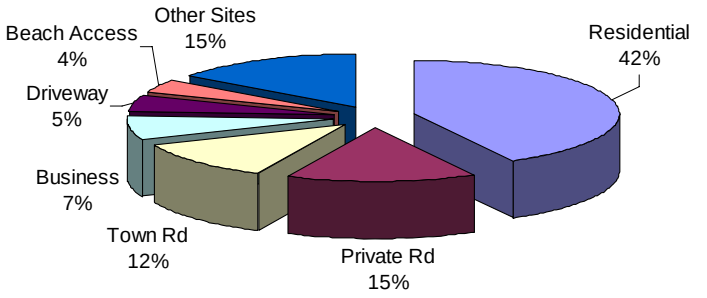
PROJECT OUTCOMES:

- Project staff and volunteers surveyed the entire Brandy Pond watershed and documented 73 erosion sites. Most identified sites were associated with residential areas (42%), private roads (15%) and town roads (12%).
- The *Brandy Pond Watershed Survey Report* was completed in September 2009. The report summarizes watershed survey findings and lists specific descriptions and recommendations for identified sites.
- The project led to a new partnership with the University of Southern Maine. The watershed survey fit in well with the USM course and provided a real-world opportunity for students to apply their knowledge. Student assistance was also invaluable and helped complete the survey as planned.

Brandy Pond Watershed Survey Sites



Percentages of Identified Erosion Sites by Land Use



PROJECT PARTNERS:

Lakes Environmental Association
Portland Water District
University of Southern Maine
Town of Naples

CONTACT INFORMATION:

Wendy Garland, DEP – (207) 822-6320, wendy.garland@maine.gov
Jami Fitch, Cumberland County SWCD – (207) 892-4700, jami@cumberlandswcd.org

Goodall Brook Survey and Hotspot ID Project

#2007PP09

Waterbody Name:	Goodall Brook
Location:	Sanford – York County
Waterbody Status:	Tributary to NPS Priority Watersheds (Great Works River and Bauneg Beg Pond)
Project Grantee:	York County SWCD
Project Duration:	April 2007 – March 2009
604(b) Grant Amount:	$14,635
Local Match:	$11,300

PROBLEM:

Goodall Brook is a tributary of the Great Works River and Bauneg Beg Pond, both of which have been identified by DEP as High Priority NPS Watersheds. Goodall Brook has a 0.6 square miles watershed within the 16.4 square mile Northern Great Works watershed. Goodall Brook's watershed has a mix of commercial, residential and recreational land uses, with approximately 29% of the watershed area being comprised of impervious surfaces. In 2004, York County SWCD conducted a 319-funded watershed survey of the Northern Great Works watershed. This survey identified numerous sites affecting Goodall Brook. However, due to the high density development in Goodall Brook's watershed, it became apparent that a more detailed assessment was needed.

PROJECT DESCRIPTION:

The primary purpose of this project was to identify and prioritize "hot spot" sources of stormwater runoff from residential and commercial properties in the Goodall Brook watershed. The survey used the Neighborhood Source Assessment (NSA), Streets and Storm Drains (SSD) and Hotspot Site Investigation (HSI) survey techniques developed by the Center for Watershed Protection.

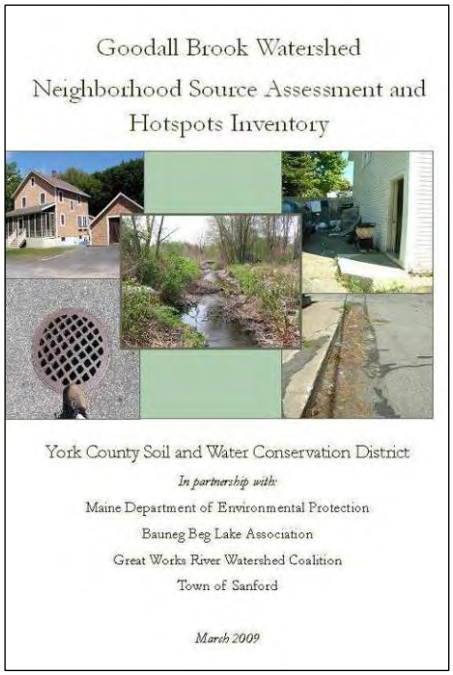
Oil stain visible on a street draining to Goodall Brook

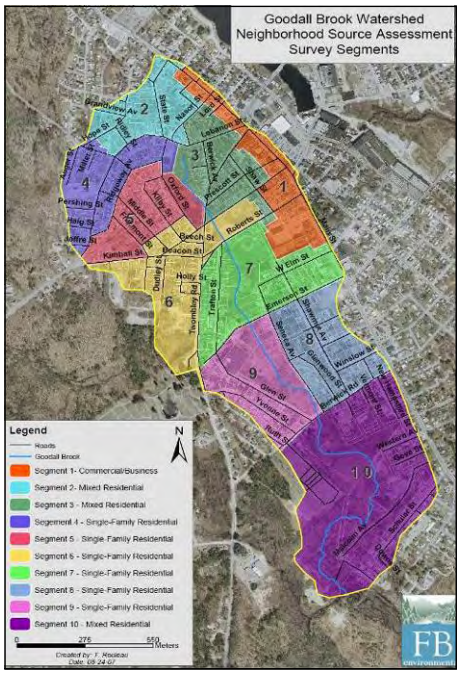
On August, 28, 2007, 18 volunteers and staff collected information and completed the three types of surveys in 10 neighborhood sectors. The NSA survey evaluated yard and lawn conditions, driveways, sidewalks and curbs, rooftop runoff and common areas. The SSD survey evaluated pollutant accumulation on street surfaces and near storm drains. The HSI survey evaluated vehicle operations and parking, outdoor storage of materials, turf management, waste management and stormwater infrastructure.

On July 23 and September 5, 2008, technical staff completed a rapid geomorphic assessment (RGA) of the upper, middle and lower portions of Goodall Brook. The purpose of the assessment was to assess stream channel dynamics and gain a better understanding of the riparian corridor and substrate conditions for each representative stretch of the stream.

PROJECT OUTCOMES:

- The *Goodall Brook Watershed Neighborhood Source Assessment and Hotspots Inventory* was completed in March of 2009. The report outlined the survey process, key findings from each survey, and a list of retrofit opportunities and recommendations. Survey methods were adapted from The Center for Watershed Protection's methods for *Neighborhood Source Assessment (NSA) and Hotspots Inventory(HIS)* surveys.
- The NSA survey found that 78% of the neighborhood sectors ranked as High impact on the NPS Pollution Severity Ranking Index. The HSI survey identified 11 potential hotspots, including five commercial businesses, five municipal properties and one housing complex.
- A rapid geomorphic assessment (RGA) was completed for three representative segments of Goodall Brook. A two-page summary of RGA findings was included in the project's survey report.
- Project and Maine DEP staff modified NSA and SSD forms to better fit the watershed and survey needs and used the new forms to survey Sector 10. The information gathered in this one sector provided more quantitative data and proved more useful in developing specific recommendations for the watershed. These new forms were later used in other DEP-funded survey projects.





PROJECT PARTNERS:

Town of Sanford
Bauneg Beg Lake Association
Great Works River Watershed Coalition

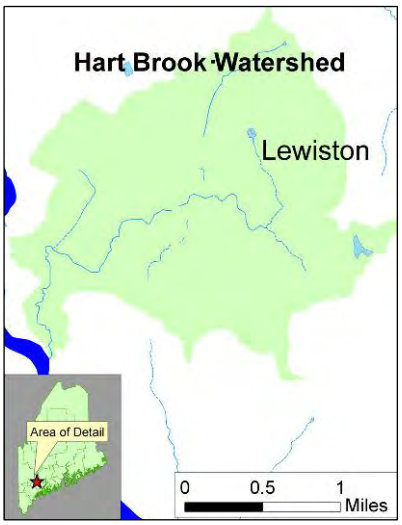
CONTACT INFORMATION:

Donald Kale, Maine DEP – (207) 822-6319, donald.kale@maine.gov
Joe Anderson, York County SWCD – (207) 324-0888, janderson@yorkswcd.org, www.yorkswcd.org

Hart Brook Unified Subwatershed and Site Reconnaissance Survey

#2008RT10

Waterbody Name:	Hart Brook (Dill Brook)
Location:	Lewiston, Androscoggin County
Waterbody Status:	Urban Impaired Stream
Project Grantee:	City of Lewiston
Project Duration:	March 2008 – October 2009
319 Grant Amount:	$12,980
Local Match:	$12,624



PROBLEM:

Hart Brook is a Class B urban stream that is approximately 3.7 miles long with a watershed of 3.4 square miles. The brook, which flows into the Androscoggin River, is impaired for aquatic life and dissolved oxygen levels exhibit drastic swings. Potential sources for the impairment include urban nonpoint source pollution and habitat issues.

The watershed is a mix of residential, commercial, industrial, and undeveloped land and is approximately 22% impervious. The watershed also includes the area around the Maine Turnpike Exit 80, which is a prime new commercial development area of the City of Lewiston. A Watershed Management Plan was completed for the brook in 2008, and the City is implementing aspects of the plan as a part of its MS4 permit requirements.

PROJECT DESCRIPTION:

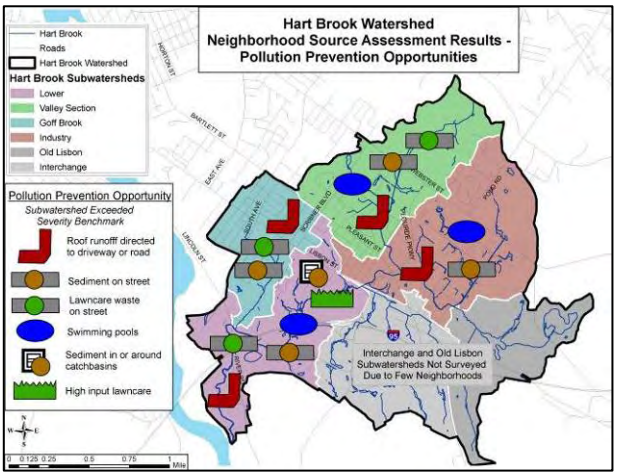
The purpose of this project was to conduct the Center for Watershed Protection's (CWP) Unified Subwatershed and Site Reconnaissance (USSR) assessment within the Hart Brook watershed neighborhoods, conduct an educational campaign in the neighborhoods, and install at least two residential pollution prevention projects.

The USSR survey, completed on July 22, 2008, was a quick and inexpensive means to identify resident behaviors and activities that could be major pollution sources within the watershed. Survey participants conducted Neighborhood Source Assessments (NSA) and Streets and Stormdrains (SSD) inspections, filling out modified versions of the CWP forms. Each neighborhood in the survey exceeded the CWP severity benchmark in the direct connection of home roof runoff to driveways or streets. This finding guided outreach efforts and resulted in the distribution of 10 rain barrels and installation of three rain gardens in the watershed. Educational information was also sent to each homeowner in the watershed neighborhoods.

Rain barrels painted by volunteers

PROJECT OUTCOMES:

- Neighborhood Source Assessment (NSA) and Streets and Storm Drains (SSD) surveys were completed in residential neighborhoods, which included 437 homes on 25 streets in the Hart Brook watershed.
- Survey findings were summarized in the *Hart Brook Urban Stream Watershed Inventory Report* (September 2009), which includes survey results, analysis of the data, and recommendations to address the identified sources.
- The project carried out a targeted educational program – including three mailings to all residents in the watershed – that focused on encouraging residents to reduce runoff from their properties with practices such as rain barrels and rain gardens.
- Ten rain barrels were painted by Lewiston residents and distributed to interested landowners. Three rain gardens were installed at homes in different neighborhoods. The rain barrels and rain gardens provided local on-the-ground examples of the stormwater reduction practices recommended in the watershed.



Rain garden installed in one watershed neighborhood

PROJECT PARTNERS:

Androscoggin Valley Soil and Water Conservation District
Pike Industries
Androscoggin Land Trust
Lewiston Multi-Purpose Center
Adult Basic Literacy and Education (ABLE)
Davis Landscaping Company

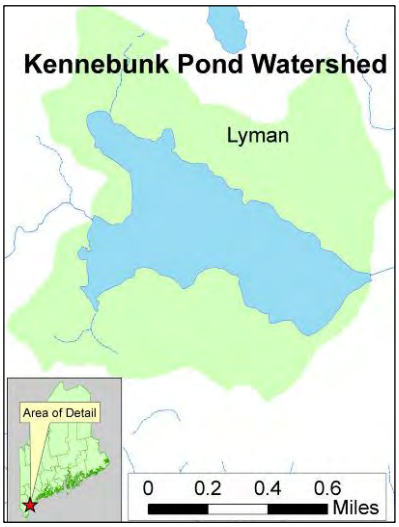
CONTACT INFORMATION:

Kristin Feindel, DEP – (207) 287-5586, kristin.b.feindel@maine.gov
Jan Patterson, City of Lewiston – (207) 513-3009 x3421, jpatterson@ci.lewiston.me.us

Kennebunk Pond Conservation Project

#2005R-17

Waterbody Name:	Kennebunk Pond
Location:	Lyman, York County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Sponsor:	York County SWCD
Project Duration:	April 2006 – August 2009
319 Grant Amount:	$49,330
Local Match:	$74,629



PROBLEM:

Kennebunk Pond is a 198-acre pond that is highly developed with over 200 seasonal camps and year-round homes, a town beach, and boat launch. The pond has a 0.75 square mile watershed and it flows via two outlets into the Kennebunk River.

The Kennebunk Pond Association (KPA) and Maine DEP have monitored water quality on Kennebunk Pond since 1980. Water quality is considered to be above average, based on water clarity, total phosphorus and Chlorophyll-a. However, recent dissolved oxygen profiles show high oxygen depletion in deep areas of the lake. This is a sign that the pond water quality and coldwater fishery is under some stress. In 2002, the KPA, York County SWCD and Maine DEP conducted a 319-funded watershed survey and identified 67 erosion sites. A shoreline buffer survey also found that there are inadequate buffers on 42% of the lake's properties.

PROJECT DESCRIPTION:

The project purpose was to significantly reduce erosion and the export of phosphorus into Kennebunk Pond. The project also aimed to raise awareness and foster long-term watershed stewardship. Conservation practices were installed on 20 sites from the watershed survey, and the pond's neighborhood districts installed 7 buffers. Project staff provided technical assistance to 36 landowners during the project.

KPA neighborhood representatives distributed project fact sheets to shoreline property owners, and three project brochures were mailed to residents during the project. Project updates were presented to the Town of Lyman and at KPA annual meetings; signs were posted at project sites; and 16 people visited project buffer plantings during a 'cruise the buffer' tour after the 2008 KPA annual meeting.

75 different volunteers donated over 700 hours to plant buffers and install conservation practices during the project.

PROJECT OUTCOMES:

- The modestly-sized project successfully fixed erosion problems at 20 medium and high impact erosion sites and established buffers at another 7 sites. The project installed 510 buffer plants, 5 culverts, 325 feet of ditching, 8 detention basins, 153 cubic yards of mulch, 10 dripline trenches, 7 water diverters and 1 rain garden.

- Pollutant loading to Kennebunk Pond was reduced by an estimated 17.2 tons of sediment and 14.6 pounds of phosphorus per year (EPA Region 5 Method and WEPP Model).

- Local match for the project totaled $74,629, more than double the original project goal. Much of this match can be attributed to the extraordinary involvement of over 75 KPA leaders and local residents, who donated over 700 hours of their time on 24 of the 27 project sites.

- The project helped build the capacity of the local community for ongoing lake stewardship. The KPA membership increased by about 10%, and two private roads became active road associations over the course of the project.

- In 2006 Kennebunk Pond was removed from the DEP's "Watch List". Although this project did not begin until 2006, previous outreach from the 2002 watershed survey and KPA may have played a role in this improved condition.

PROJECT PARTNERS:

Kennebunk Pond Association
Town of Lyman

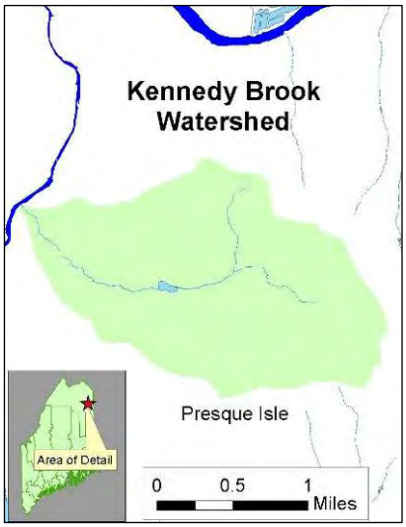
CONTACT INFORMATION:

Wendy Garland, DEP – (207) 822-6320, wendy.garland@maine.gov
Joe Anderson, York County SWCD – (207) 324-0888, janderson@yorkswcd.org

Kennedy Brook/Mantle Lake Watershed Improvement

#2007WW21 - WIFAP

Waterbody Name:	Kennedy Brook and Mantle Lake
Location:	Presque Isle – Aroostook County
Waterbody Status:	Tributary to NPS Priority Watershed (Presque Isle Stream)
Project Grantee:	Central Aroostook SWCD
Project Duration:	September 2007 – September 2009
319 Grant Amount:	$30,000
Local Match:	$25,890 (local), $20,000 (ME Dept Ag)



PROBLEM:

Kennedy Brook is a subwatershed of Presque Isle Stream, and Mantle Lake is an impoundment situated midway between the headwaters and the confluence with Presque Isle Stream. Mantle Lake is the focal point of a busy city park with trails, bathrooms, picnic shelters and playground equipment.

Row crop agricultural land occupies 42% of the Kennedy Brook watershed. Because of the climate in northern Maine and the nature of row crop (particularly potato culture), fields may be bare 7 months of the year. The short growing season and late potato harvest in the fall often preclude farmers from establishing a cover crop in time for winter. This leaves fields susceptible to soil erosion from November until late June or early July, when a new crop is well established. Agricultural land is the major contributor of sediments in the Kennedy Brook watershed and in particular to Mantle Lake. A major agricultural operation in the watershed is the Christie Farm. This farm has 270 acres or 15% of the watershed. The watershed survey identified this area as a high priority.

PROJECT DESCRIPTION:

The project purpose was to improve water quality of Kennedy Brook and Mantle Lake by reducing sediment loads from agricultural land. The project focused on the steepest agricultural fields in the watershed

Aerial view of Cavendish Farm

NRCS engineers surveyed the site, completed an assessment and designed two sediment basins with attendant rock-lined waterways, spillways and rock aprons. The basins were designed to collect sediments from the water and spread the output in a vegetated buffer. The design will provide 25 year, 24 hour protection and allow routine cleanout. Cavendish Farms, Maine provided a contractor to install the BMP structures, matched construction costs and agreed to a long-term maintenance plan.

PROJECT OUTCOMES:

- Best management practices were installed to capture soil lost from 65 acres of row-cropped fields in the Kennedy Brook and Mantle Lake watersheds.
- Pollutant loading to Kennedy Brook and Mantle Lake was reduced by an estimated 75 tons of sediment, 126.2 pounds of phosphorous and 252.3 pounds of nitrogen per year (RUSLE Method).
- The project generated momentum that will help address additional NPS pollution sources to Kennedy Brook and Mantle Lake.

Rock-lined waterways collect runoff from fields

Waterways transport runoff into sediment basins

PROJECT PARTNERS:

USDA Natural Resources Conservation Service, Presque Isle Field Office

Maine Department of Agriculture

Cavendish Farms, Maine

CONTACT INFORMATION:

Kathy Hoppe, Maine DEP – (207) 760-3134, Kathy.M.Hoppe@Maine.gov

Linda Alverson, Central Aroostook SWCD – (207) 764-4153 ext. 130, linda.alverson@me.nacdnet.net.

Lincoln Lakes NPS Watershed Survey
#2007PP10

Waterbody Name:	Little Round Pond, Folsom Pond, Upper Pond and Crooked Pond
Location:	Lincoln – Penobscot County
Waterbody Status:	NPS Priority Watersheds (all four)
Project Grantee:	Penobscot County SWCD
Project Duration:	May 2007 – December 2008
604b Grant Amount:	$16,576
Local Match:	$14,078

PROBLEM:

Little Round, Folsom, Upper and Crooked Ponds are part of a chain of 14 lakes and ponds in the Town of Lincoln. All four ponds are listed as NPS Priority Watersheds. There is limited water quality data on any of these waterbodies. However, data collected in 2001 indicates that Upper Pond and Folsom Pond have moderate to high algal bloom potentials.

Due to the proximity to Bangor, there has been an increase in development within these watersheds over the last several years. A 30-lot subdivision was approved on Folsom Pond in 2002, and another 30 lots were approved the following year. The University of Maine Cooperative Extension conducted a Watershed Stewards program and coordinated a volunteer watershed survey for Upper Cold Stream Ponds (also called Big and Little Narrows) in 2006.

PROJECT DESCRIPTION:

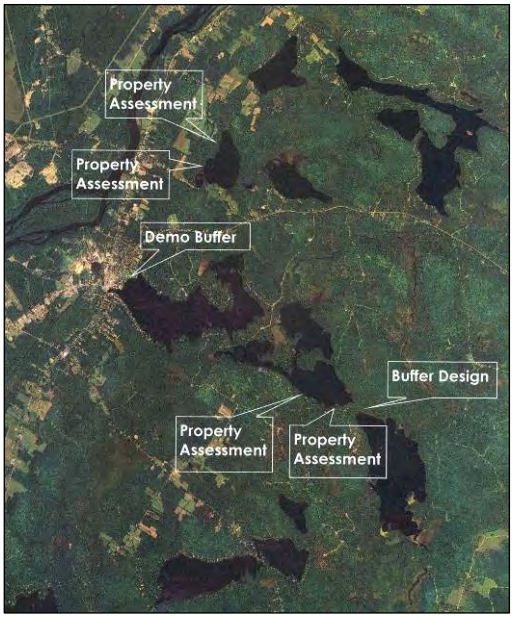
The purpose of this project was to identify sources of NPS pollution in the Folsom, Upper, Little Round and Crook Pond watersheds. Due to lower than expected volunteer involvement, the surveys were completed by an AmeriCorps volunteer in the summer of 2007. Project staff decided not to survey Little Round Pond since the pond's small watershed (less than one acre) is protected by the Town of Lincoln.

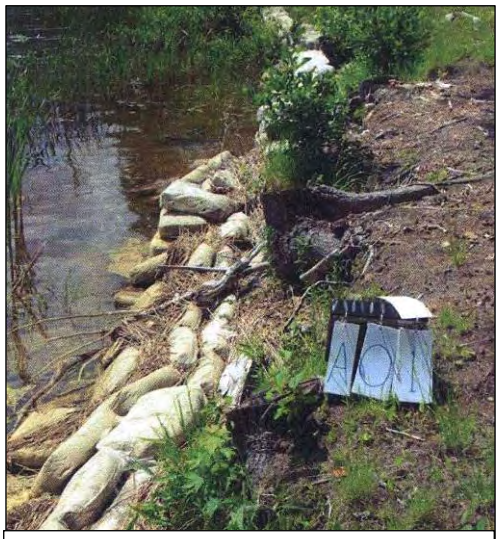
Students plant a buffer on Mattanawcook Lake

The project also aimed to raise public awareness of NPS issues through town-wide outreach, press releases, classroom visits and the installation of demonstration practices on a highly visible property. The project provided technical assistance to four landowners and completed a buffer design for another property. To achieve long term lake stewardship, the project encouraged the formation of lake associations and a Lincoln Lakes Alliance.

PROJECT OUTCOMES:

- NPS watershed surveys were completed by the project's AmeriCorps volunteer on Folsom, Crooked and Upper Ponds in the summer of 2007.
- The *Lincoln Lakes NPS Watershed Survey* report documents survey findings. 47 NPS sites were identified including 47% residential, 34% on private roads and 15% driveways.
- Mattanawcook Junior High School students volunteered over 90 hours to install a demonstration Lakeside Landscape along 134 feet of shoreline on Mattanawcook Lake at the school.
- With help from the University of Maine Cooperative Extension, Maine Congress of Lake Associations and the Town of Lincoln, the property owners of Upper Cold Stream Ponds formed Lincoln's first lake association. 95 individuals attended the introductory meeting.





Failed retaining wall identified in the Upper Pond watershed survey

PROJECT PARTNERS:

University of Maine Cooperative Extension
USDA Natural Resources Conservation Service
AmeriCorps, Maine Conservation Corps
Town of Lincoln
Maine Congress of Lake Associations
Upper Coldstream Ponds Association

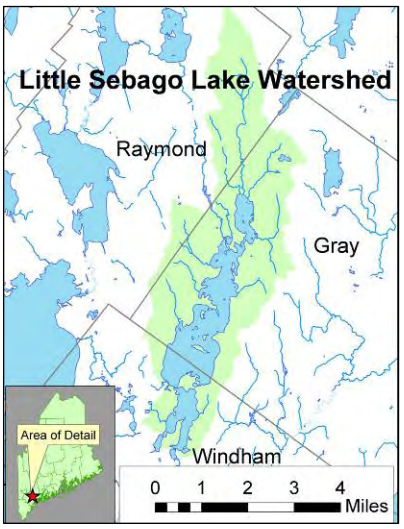
CONTACT INFORMATION:

Ken Libbey, Maine DEP – (207) 941-4056, ken.libbey@maine.gov
Chris Brewer, Penobscot County SWCD – (207) 990-3676, chris.brewer@penobscotswcd.org

Little Sebago Lake Conservation Project: Phase II

#2006R-04

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:	March 2006 – March 2009
319 Grant Amount:	$79,854
Match:	$117,284



PROBLEM:

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

The pond has been monitored since 1975, and the data indicates that the lake has moderate depletion of dissolved oxygen in the hypolimnion in late summer. In 2002 and 2003, Cumberland County SWCD, Little Sebago Lake Association (LSLA) and Maine DEP completed NPS surveys of the entire watershed and identified 327 erosion sites. The *Little Sebago Lake Conservation Project – Phase I* (#2004R-02) kicked off implementation efforts in 2004 by fixing 55 documented erosion problems and starting a summer Youth Conservation Corps (YCC). A smaller grant project (#2004R-24B) concurrently fixed another two high impact watershed sites.

PROJECT DESCRIPTION:

The purpose of the project was to reduce polluted runoff to Little Sebago Lake. Conservation practices were installed at 10 high priority sites on private roads. The Little Sebago YCC provided landowners with labor to fix another 54 sites. Technical assistance was provided to 44 landowners.

Project articles appeared in the local newspapers, Portland Press Herald and the LSLA newsletter. A postcard with information about project opportunities was sent to all landowners with sites identified in the watershed surveys. A final project brochure and annual YCC summary reports were provided to the Gray and Windham town councils, steering committee members and LSLA board members. Project updates were also presented to the town councils and at the LSLA annual meeting.

Youth corps comes to the aid of Little Sebago Lake

DON PERKINS

Portland Press Herald, August 26, 2006

PROJECT OUTCOMES:

- The project fixed erosion problems at 10 priority watershed sites. This work prevented an estimated 26.4 tons of sediment and 22.5 pounds of phosphorus from reaching the lake each year (Region 5 Method).

- 54 additional sites were addressed by the summer Youth Conservation Corps in 2006 and 2008. (The 2007 season was paid for with funds remaining in the Phase I budget). The YCC planted 713 plants, spread 91 cubic yards of erosion control mulch, stenciled 112 stormdrains, installed 18 runoff diverters and stabilized over a mile of ditches. Although the LSLA cannot afford to continue its own YCC, they pledged $5,000 towards a regional YCC that will continue to do work around the lake.

- Local match contributed to the project totaled $117,284, which far exceeded the original project goal of $73,386. In addition to landowner contributions, match sources included a $5,003 grant from the DEP's Stormwater Compensation Fund to help fund the Deer Acres Road project; $10,000 in cash match from the LSLA; $3,000 in YCC payroll services from the Town of Windham; and $77,666 from the Town of Gray to design and construct the Westwood Road project.

PROJECT PARTNERS:

Little Sebago Lake Association
Town of Gray
Town of Windham

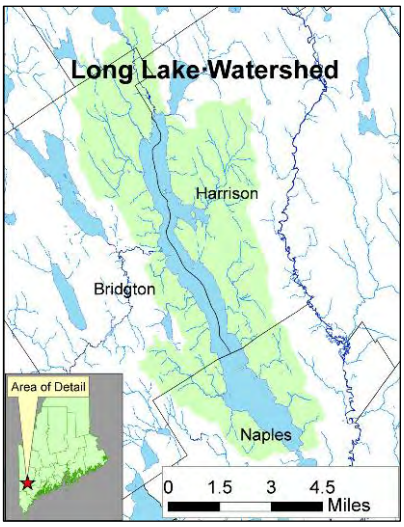
CONTACT INFORMATION:

Wendy Garland, DEP – (207) 822-6320, wendy.garland@maine.gov
Jami Fitch, Cumberland County SWCD – (207) 892-4700, jami@cumberlandswcd.org

Long Lake Watershed Improvement Project, Phase II

#2006R-01

Waterbody Name:	Long Lake
Location:	Naples, Bridgton, Harrison, Waterford, Denmark – Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	September 2006 – November 2009
319 Grant Amount:	$59,567
Local Match:	$43,325



PROBLEM:

Long Lake is a large 5,358-acre waterbody located in the Towns of Bridgton, Harrison and Naples. The lake's direct watershed covers 36 square miles and extends into Waterford and Sweden. Long Lake has a flushing rate of 0.94 times per year, and it flows into Brandy Pond and Sebago Lake. The lake is a popular year-round destination and is developed with 935 seasonal and year-round homes, three public boat launches, one commercial boat launch, two commercial marinas, seven commercial campgrounds, two large boys and girls summer camps and many businesses along the south and west edge of the lake.

Lakes Environmental Association (LEA) has been collecting water quality data on Long Lake since 1976. The lake was placed on the State's list of impaired waters due to a declining water quality trend, and a TMDL Assessment for the lake was completed in 2005. The DEP removed Long Lake from the impaired list in 2006 because of improved trophic state and water quality. *Phase I* of the Long Lake Improvement Project, which extended from 2005 - 2008, fixed erosion problems at 27 sites and established a Long Lake Youth Conservation Corps (YCC).

PROJECT DESCRIPTION:

The primary purpose of the Phase II project was to significantly reduce erosion and export of sediment and phosphorus into Long Lake. The overall goal of Phase II was to address existing erosion issues on the identified road and shoreline phosphorus hot spots; solidify the YCC as a means to provide long-term support for installation of residential conservation practices; and enhance the three watershed towns' shoreland zoning ordinances to put in place long-term protections for Long Lake's water quality.

2008 Long Lake YCC

PROJECT OUTCOMES:

- 36 NPS sites were addressed during the project. BMPs installed at these sites included waterbars; infiltration steps; stone and vegetated swales; plunge pools and sediment basins; shoreline vegetation; road grading and crowning; and mulched paths.
- The 13 high priority NPS abatement projects successfully prevented 87 tons of sediment and 74 pounds of phosphorus from entering Long Lake each year (Region 5 Method).
- The Long Lake YCC addressed 21 erosion problem sites throughout the watershed.
- LEA worked with the Town of Harrison to update its Shoreland Zoning Map. The previous version of the map had not been updated since 1993 and was in black and white. The new map created for Harrison used color and the most current data layers available. Several new areas, including high or moderate value wading bird habitat, were added as Resource Protection District. The new Shoreland Zoning map was adopted at town meeting in June of 2007.
- LEA also worked on updating Bridgton's Shoreland Zoning Map during the project. The primary focus for these revisions was the addition of newly identified high and moderate value wading bird habitat into the Resource Protection District. The map also incorporated several other revisions based on landowner, planning board and DEP input. The new Shoreland Zoning Map was adopted at town meeting in June of 2009.

Private Camp Driveway Before

Private Camp Driveway Before

PROJECT PARTNERS:

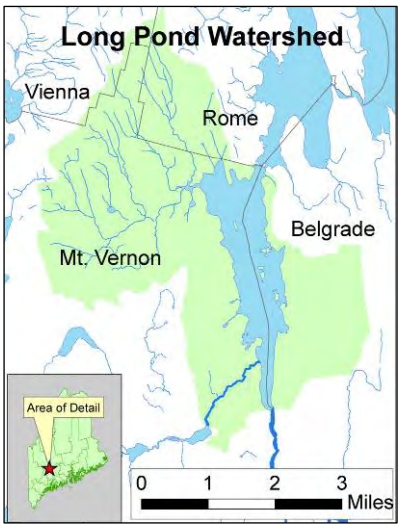
Lakes Environmental Association
Town of Bridgton
Town of Harrison
Town of Naples

CONTACT INFORMATION:

Donald Kale, Maine DEP – (207) 822-6319, donald.kale@maine.gov
Jami Fitch, Cumberland County SWCD – (207) 892-4700, jami-fitch@me.nacdnet.org

Long Pond (Belgrade) Watershed-Based Management Plan
#2008PP33

Waterbody Name:	Long Pond
Location:	Belgrade, Mount Vernon, Rome, Vienna – Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	Kennebec County SWCD
Project Duration:	December 2008 – December 2009
604b Grant Amount:	$23,270
Local Match:	$13,905



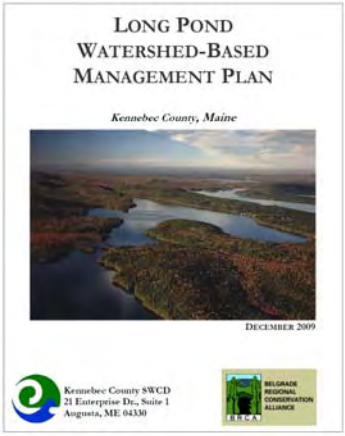
PROBLEM:

Long Pond is a large (4.2 square mile) dual basin lake and the sixth lake in the Belgrade chain of lakes. It has a direct watershed of 22 square miles and an indirect watershed of 64 square miles, which includes the watersheds of Great Pond, North Pond, East Pond, Salmon Lake and McGrath Pond. Over the past three decades, total phosphorus levels have increased and the water clarity has declined in Long Pond by more than one meter. In 2006, Maine DEP listed Long Pond as having "impaired" water quality based on decline in trophic status. In April 2008, the U.S. Environmental Protection Agency approved the Total Maximum Daily Load (TMDL) evaluation conducted by DEP. The TMDL found upstream watersheds, primarily Great Pond, as a major source of phosphorus to Long Pond.

A 2002 NPS watershed survey documented 211 sites that have an impact on water quality. Over two-thirds of the sites were residential sites, 11% were driveways and 6% were private camp roads. In 2007 and 2008, Colby College's Environmental Assessment Team conducted watershed analyses and land-use studies of Long Pond. They documented over 400 buffer and road sites with "fair" or "poor" ratings and made recommendations for specific improvements.

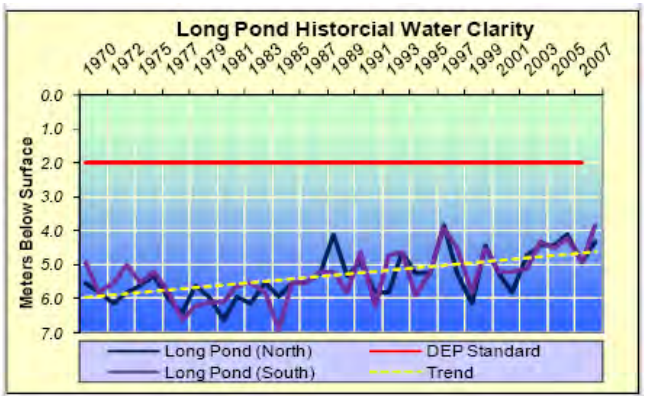
PROJECT DESCRIPTION:

The goal of the project was to develop a community supported watershed-based management plan that would identify actions needed to improve or stabilize water quality in Long Pond. Project staff and the Belgrade Regional Conservation Alliance (BRCA), a regional land and lake trust, developed the project work plan to engage stakeholders and develop local support. FB Environmental Associates provided extensive consultant services to facilitate the planning process and help develop the plan under guidance of the steering committee.



PROJECT OUTCOMES:

- The *Long Pond Watershed-Based Management Plan* was completed in December 2009. The BRCA and the Long Pond Watershed Steering Committee will carry out the plan over the next 10 years. In 2010 they will work to develop sustainable funding to implement this plan.
- The plan provides a "road map" for the Long Pond Steering Committee outlining work needed in six categories: Education & Outreach, Municipal Ordinances, Private & Public Roadways BMPs, Septic Systems, Monitoring & Assessment, and Administration & Funding. Each category details specific action items, responsible parties, potential funding sources, approximate costs, and an implementation schedule.
- A *Buildout Analysis* (September 2009) was completed to estimate potential future land use development and impact of phosphorus export in the Long and Great Pond watersheds to help the towns consider how to plan for growth and protect lake water quality and community resources.
- A thorough evaluation of existing ordinances and sustainable development principles was completed. Recommendations to improve ordinances are summarized in the *Long Pond Municipal Ordinance Review* (September 2009).
- Over 60 stakeholders contributed comments at the community forum to kick-off the project.



Participants at the community forum

PROJECT PARTNERS:

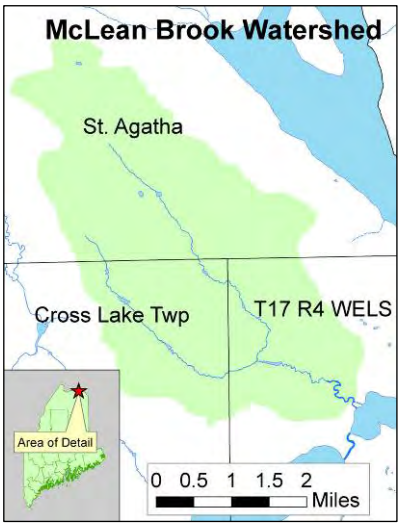
Belgrade Regional Conservation Alliance (BRCA)
Belgrade Lakes Association
Towns of Belgrade
Town of Rome
Town of Mount Vernon

CONTACT INFORMATION:

Norm Marcotte, Maine DEP - (207) 287-7727, norm.g.marcotte@maine.gov
Peter Kallin, Ph.D., BRCA – (207) 495-6039, brcapk@gwi.net, http://www.belgradelakes.org
John Blais, Kennebec County SWCD – (207) 622-7847, john@kcswcd.org

McLean Brook NPS Watershed Survey
#2008RR07

Waterbody Name:	McLean Brook
Location:	St Agatha, T17 R4 WELS – Aroostook County
Waterbody Status:	Tributary to NPS Priority Watershed (Long Lake)
Project Grantee:	St. John Valley SWCD
Project Duration:	November 2007 – February 2009
319 Grant Amount:	$6,115
Local Match:	$4,098



PROBLEM:

McLean Brook is a small stream with a watershed covering 12.9 square miles. The stream flows directly into Long Lake, which then flows into Mud Lake and Cross Lake (listed as impaired by DEP). In July 2006, following heavy rainstorms, a large delta of sediment laden water was visible in Long Lake at the mouth of McLean Brook. The plume extended though Long Lake and into Mud Lake. A cursory investigation by DEP revealed excessive row-crop erosion occurring in the headwaters of McLean Brook.

Conservation work has been completed in the past on some of the agricultural fields in the McLean Brook watershed, but potato production in northern climates leaves the soil exposed to erosion much of the year. The soil is suitable for agricultural production when crops are planted on the contour. However, when the state sold the farm plots years ago, they were sold as narrow strips of land making contour plowing impossible.

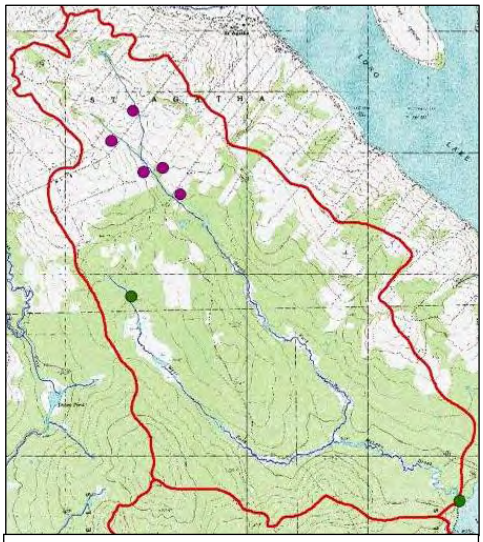
PROJECT DESCRIPTION:

With assistance from Natural Resources Conservation Service (NRCS) and Maine Forest Service (MFS) staff, the St. John Valley SWCD conducted a NPS survey of the tributary and its watershed, using methods adapted from the DEP's stream survey manual. St. John Valley SWCD staff met with local landowners to discuss the project's intent and to gain insight about the existing land-use concerns.

A final report was completed and distributed to the Town of Agatha, the NRCS, MFS, Irving Forestlands and local landowners. The report included maps, photos, survey methods, background, and tables listing problems, solutions and costs.

PROJECT OUTCOMES:

- NRCS and District staff and environmental students from the University of Maine at Fort Kent completed a NPS survey of the McLean Brook watershed. The survey provided a real-world opportunity for students to get field experience and learn about NPS sources of pollution, agricultural practices and BMPs.
- The survey identified six NPS sites as major contributors. Five sites are agricultural related and one site is an ATV stream crossing.
- The District plans to work with landowners on exploring appropriate and innovative conservation practices to address problem areas, and will utilize the final report as a catalyst for procuring cost-share funds through 319 or such USDA programs as the *Environmental Quality Incentives Program* (EQIP), to assist with the implementation of such conservation practices. As a result of the survey, the NRCS's Local Work Group has designated McLean Brook as a priority for EQIP funding.
- A Final Survey Report documenting all the NPS findings was produced and is available at the District along with an informational brochure.



McLean Brook Watershed Survey
NPS Site Locations

Sediment-laden runoff from a farm in the McLean Brook watershed

PROJECT PARTNERS:

University of Maine at Fort Kent, Environmental Studies Students
USDA Natural Resource Conservation Service, Ft. Kent Office

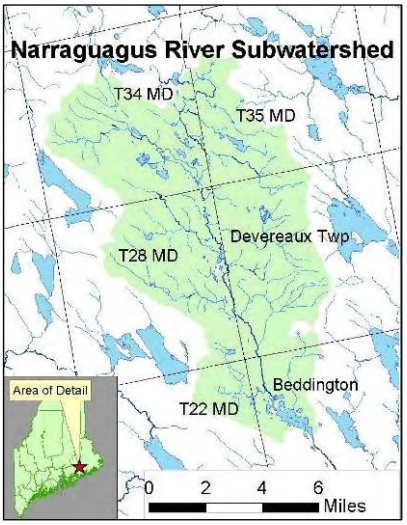
CONTACT INFORMATION:

Kathy Hoppe, Maine DEP – (207) 760-3134, Kathy.M.Hoppe@maine.gov
Casey Cote, St. John SWCD – (207) 834-6435, casey.cote@me.nacdnet.net, www.sjv.me.nacdnet.org

Narraguagus River Protection Project, Phase 2

#2007WW-23 – WIFAP

Waterbody Name:	Narraguagus River
Location:	T28MD and Devereaux TWP – Hancock & Washington Counties
Waterbody Status:	NPS Priority Watershed, Atlantic Salmon River
Project Grantee:	Washington County SWCD
Project Duration:	March 2008 – February 2009
319 Grant Amount:	$30,000
Match:	$13,800 (local), $20,000 (ME Dept. Ag.)



PROBLEM:

The Narraguagus River is listed among 11 rivers in Maine with a federally endangered Distinct Population Segment of Atlantic salmon. According to the Atlantic Salmon Recovery Plan, the river is second only to the Machias River in its importance to Atlantic salmon in Downeast Maine. Soil erosion detrimentally affects salmon habitat and contributes to "embeddedness", where soil particles fill in the spaces of coarse gravel and make it unsuitable for spawning and juvenile habitat.

The *Narraguagus River Watershed Nonpoint Source Pollution Management Plan* was completed in January, 2003 with 319 grant funding. Washington County SWCD conducted a NPS survey in the subwatershed of the Narraguagus River where the majority of high value salmon habitat is located and identified 21 NPS sites, the majority of which were eroding stream crossings. A *Phase 1* grant project fixed 11 of the identified sites in this subwatershed.

PROJECT DESCRIPTION:

The project continued to focus on the highest priority subwatershed of the river, which contains the greatest amount of critical habitat for spawning and rearing juvenile salmon. This subwatershed extends southward from the outlet of Deer Lake to the outlet of Beddington Lake. Best Management Practices were installed at six of the remaining priority NPS sites. All BMP installation work was done by a contractor certified by the Maine DEP's contractor certification program.

Riprap was used to stabilize sideslopes at the Sinclair Brook crossing on the 45000 road.

Treating these sites significantly reduced the amount of sediment washing into the river annually, protecting critical salmon habitat. The project also helped educate landowners about proper BMPs so that these practices will be used and maintained properly during future work in the watershed.

PROJECT OUTCOMES:

- The project installed BMPs to fix 6 NPS sites in the target subwatershed.
- Several "squash" culverts were successfully installed at stream crossings. This method serves as a cost effective substitute for arch culverts.
- A coarse gravel bridge apron was installed at Gould's Brook to reduce the amount of sediment getting into the brook from logging trucks. Gould's Brook is an important tributary to the Narraguagus River and is annually stocked with Atlantic salmon fry by the Bureau of Sea Run Fisheries.
- The project reduced NPS pollutant load to the Narraguagus River by an estimated 74 tons of sediment per year (WEPP Model and Region 5 Method).
- The project was completed in close cooperation with the landowner, American Forestry Technologies (AFT), which owns and maintains a large amount of timberland in the Atlantic salmon watersheds. From this project, AFT learned the proper application and maintenance of BMPs, which they will apply to their forest roads in the future.

"Squash" culverts installed in tributaries of the Narraguagus River. The shape of these culverts allows more water to pass than traditional round culverts. The culverts are much more cost effective than arch culverts.

PROJECT PARTNERS:

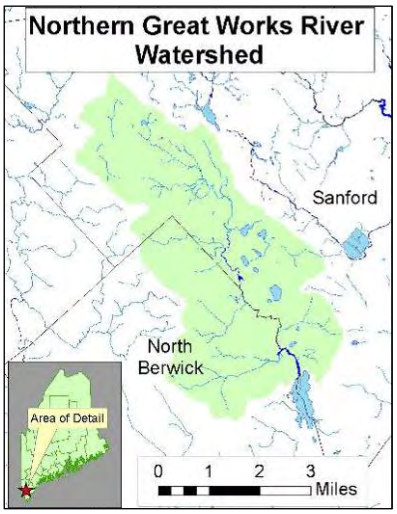
American Forestry Technologies
Narraguagus River Watershed Council
Maine Land Use Regulation Commission
Maine Department of Agriculture

CONTACT INFORMATION:

Greg Beane, Maine DEP, Phone (207) 941-4292, greg.e.beane@maine.gov
Nate Pennell, Washington County SWCD – (207) 255-0936, nate.pennell@verizon.net

Northern Great Works River Watershed Improvement Project, Phase I
#2006R-2

Waterbody Name:	Northern Great Works River
Location:	Sanford and North Berwick – York County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	York County SWCD
Project Duration:	April 2006 – October 2008
319 Grant Amount:	$30,760
Local Match:	$31,972



PROBLEM:

The Northern Great Works River watershed covers approximately 16.4 square miles and is part of the larger Great Works River watershed, which flows through six towns and empties into the Salmon Falls River. Portions of the watershed are highly developed, particularly in the Goodall Brook subwatershed in the Town of Sanford. According to the Maine DEP's TMDL report for the Salmon Falls River (May, 1999), the Great Works River is the single largest contributor of NPS pollution to the Salmon Falls Estuary. The Great Works River Watershed Coalition conducts water quality monitoring on 18 sites in the watershed.

From 2001 - 2006 local volunteers and technical staff conducted NPS surveys in the watershed and identified 142 erosion sites along roads, parking areas, fields, stream banks and foot paths. 64 sites were identified in the Northern Great Works River watershed. In 2007 the Goodall Brook Hotspots survey collected additional information on NPS sources and restoration opportunities in the Goodall Brook watershed. The *Great Works River Watershed Management Plan* was completed in January 2007.

PROJECT DESCRIPTION:

The main goal of this project was to address 20 of the 64 sites identified in the 2004 survey of the Northern Great Works River watershed. A secondary goal of the project was to continue raising awareness in the watershed and the local community through landowner technical assistance; presentations to the Towns of Sanford and North Berwick and the Bauneg Beg Lake Association; press releases; and a community roundtable workshop.

Construction projects were coordinated by the staff from York County SWCD and FB Environmental with help from local volunteers. Many of the projects were completed in partnership with the Town of Sanford along town roads and a town park.

PROJECT OUTCOMES:

- The project installed BMPs to fix erosion problem on 20 NPS sites. Sites included a variety of land uses including town roads, a town park and streambank areas. The project provided technical assistance visits at 10 sites including a golf course and wastewater outfall.
- Pollutant loading to the Northern Great Works River was reduced by an estimated 11.6 tons of sediment and 9.9 pounds of phosphorus per year (Region 5 Method).
- Project staff collaborated with the Maine Nonpoint Source Education for Municipal Officials (NEMO) program to hold a classroom training and field session on stormwater management and "good housekeeping" for water quality protection. Participants included 20 people from Sanford's public works department and 12 participants from North Berwick's public works department.
- An AmeriCorps group based out of Washington D.C. worked for several days in 2007 and 2008 to remove hundreds of pounds of the invasive plant Japanese knotweed from a 300-foot long section along Goodall Brook. They covered the banks with weed barrier and replanted the area with 100 native trees and shrubs. The project was featured in an article in the Sanford News in 2007.

Goodall Brook Buffer Restoration Project – National AmeriCorps volunteers worked for several days in 2007 and 2008 to remove Japanese Knotweed along 300 feet of streambank and replanted the area with over 100 native trees and shrubs. Weed barrier and a thick layer of Erosion Control Mix were placed between plantings to control the regrowth of the knotweed.

PROJECT PARTNERS:

Bauneg Beg Lake Association
Great Works River Watershed Coalition
Nonpoint Education for Municipal Officials (NEMO)
Town of Sanford
Town of North Berwick
National Conservation Corps, AmeriCorps

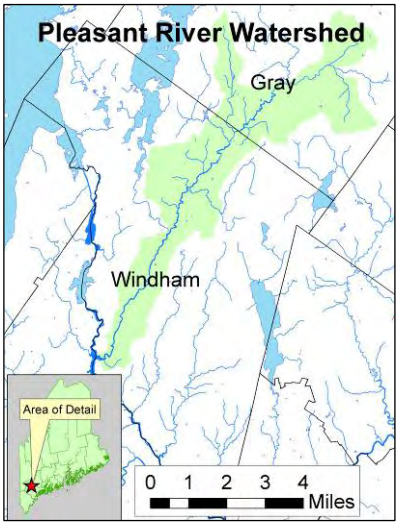
CONTACT INFORMATION:

Don Kale, Maine DEP – (207) 822-6319, donald.kale@maine.gov
Joe Anderson, York County SWCD – (207) 324-0888, janderson@yorkswcd.org, www.yorkswcd.org

Pleasant River NPS Watershed Survey

#2008PP09

Waterbody Name:	Pleasant River
Location:	Gray and Windham – Cumberland County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Presumpscot River Watch
Project Duration:	April 2008 – September 2009
604b Grant Amount:	$17,690
Local Match:	$15,110



PROBLEM:

The Pleasant River watershed covers 29 square miles and is within the greater Presumpscot River watershed. Presumpscot River Watch (PRW) volunteers have monitored four stations on the Pleasant River since 1989, and their data show that the river has consistently failed to meet the class B standards for dissolved oxygen since 1999. One site in the upper portion of the river failed to meet the class B standards every year from 2000 through 2005. Data shows an increase in bacteria levels, with *E coli* numbers repeatedly exceeding the class B standard in both dry and wet weather.

As a result, PRW and its partners have identified the Pleasant River as the top threat to the water quality of the Presumpscot River and Casco Bay. In 2005 PRW was one of several Presumpscot River Watershed Coalition partner organizations to be awarded a Targeted Watershed Initiative Grant from the US EPA for the restoration of the Presumpscot River.

PROJECT DESCRIPTION:

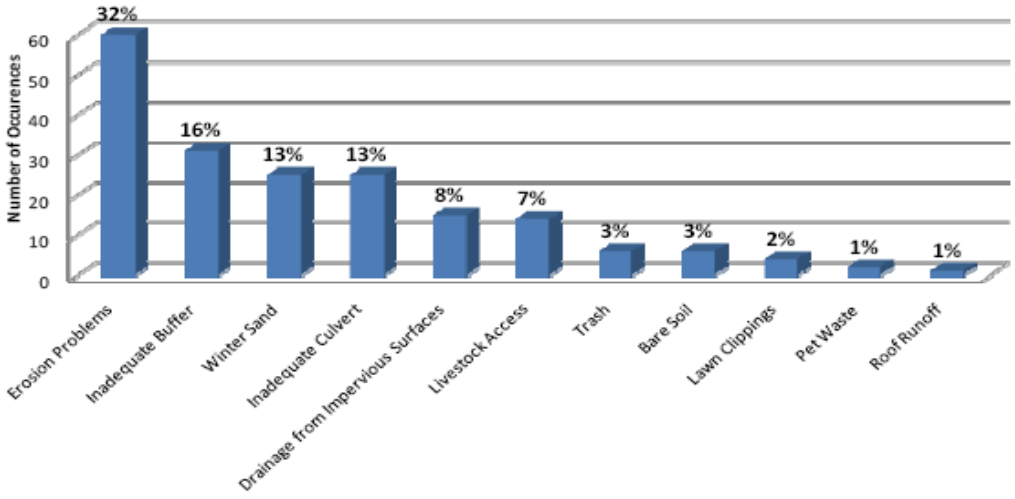
The goal of this project was to identify, document and prioritize polluted runoff sites in the Pleasant River watershed and recommend Best Management Practices (BMPs) for each of these sites. On July 7, 2008, 22 volunteers and technical staff received training on field survey techniques. Teams then surveyed assigned sectors and documented polluted runoff sources using cameras, field sheets and handheld GPS units. Pollutant loading estimates were completed for the 23 high and medium impact sites.

Three high-density areas (downtown Gray, Falmouth Road in Gray and Route 302 in Windham) were surveyed using a modified version of the Center for Watershed Protection's Neighborhood Source Assessment and their standard Hotspots Inventory forms. Stream corridor surveys were completed along sections of Thayer River and Thayer Brook, and additional observations were made during a canoe trip along the Pleasant River. Survey findings were summarized in a final survey report, and survey information was shared with the public through press releases and a postcard mailing to landowners.

Bare soil and inadequate erosion controls at a construction site

PROJECT OUTCOMES:

- The entire Pleasant River watershed was surveyed, and 95 NPS sites were documented. 35% of the sites were associated with town roads, 15% with private roads, 13% with residential areas, 11% with state roads and 9% with agriculture.
- The *Pleasant River Watershed Survey Report* was completed in September, 2009. The report includes a summary of the survey methods, analysis of findings and a list of identified NPS sites.
- A Stream Corridor Survey was completed for segments of Thayer River and Thayer Brook, and a canoe trip was completed along much of the Pleasant River. Observations were summarized in Section 6 of the *Pleasant River Watershed Survey Report.*
- The CWP's Neighborhood Source Assessment and Hotspots Inventory were completed in three sections of the watershed. The NSA evaluated a total of 352 residential units (216 in the Falmouth Rd. neighborhood, 110 in the Rte. 302 neighborhood, and 26 in downtown Gray). The Hotspot Inventory identified seven (7) 'potential' hotspot sites out of a total of seventeen (17) commercial properties surveyed.
- Pollutant loading estimates were completed for 23 high and medium impact sites in the watershed. These sites deliver an estimated 205 tons of soil and 191 pounds of phosphorus into the Pleasant River each year (Region 5 Method).



PROJECT PARTNERS:

Cumberland County SWCD
Town of Gray
Town of Windham
FlyFishingInMaine.com
Presumpscot River Watershed Coalition

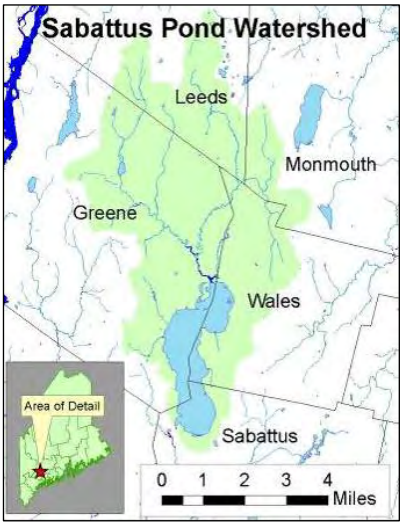
CONTACT INFORMATION:

Donald Kale, Maine DEP – (207) 822-6319, donald.kale@maine.gov
Heather True, Cumberland County SWCD – (207) 892-4700, htrue@cumberlandswcd.org

Sabattus Pond Watershed Project Phase II

#2006R-19 – WIFAP

Waterbody Name:	Sabattus Pond
Location:	Greene, Sabattus, Wales – Androscoggin County
Waterbody Status:	Impaired, NPS Priority Watershed, Most at Risk
Project Grantee:	Androscoggin Valley SWCD
Project Duration:	January 2007 – September 2009
319 Grant Amount:	$30,000
Match:	$30,027 (local) $20,000 (ME Dept. of Ag.)



PROBLEM:

Sabattus Pond is a shallow 2,036-acre waterbody with a direct watershed of 25.3 square miles. Sabbatus 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 20 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 sediment problems on developed areas, roads and agricultural lands. *Phase 1* of 319-funded watershed work was completed in 2006. BMPs were constructed at 19 sites, including riparian buffers, private and town road improvements, driveway stabilization 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 the magnitude and duration of algae blooms in Sabbatus Pond by installing conservation practices to help control phosphorus and sediment loading. The goal was to address erosion problems at priority sites, provide technical assistance to property owners, and to continue outreach to foster long-term stewardship.

Twelve sites were stabilized, including seven sites on two private roads, two shoreline stabilization sites, and three other private projects. Outreach activities included a well-attended public meeting, four articles in the SPWP newsletter, website postings and press releases. The SPWP actively promoted the grant, provided cash match to two projects and mailed packets of seeds to their membership to encourage planting of vegetation.

PROJECT OUTCOMES:

- Conservation practices were installed at 12 sites in the watershed. Projects included redirecting road and driveway runoff to buffers, installing and armoring culverts, creating and stabilizing ditches, installing infiltration steps and trenches, planting vegetation, and stabilizing eroding shoreline.
- Pollutant loading to Sabattus Pond was reduced by an estimated 69 tons of sediment and 63 pounds of phosphorus per year (Region 5 Method and WEPP Model). New buffers were established along 291 linear feet of shoreline.
- Technical assistance was provided at 22 different sites, almost double the number of visits required by the grant work plan.

Digging a trench for a new culvert installation.

Multiple homeowner conservation practices: infiltration steps, bank stabilization and vegetation, creation and mulching of path.

PROJECT PARTNERS:

Sabattus Pond Watershed Partnership
Town of Sabattus
Town of Greene
Town of Wales
Maine Department of Transportation

CONTACT INFORMATION:

Kristin Feindel, Maine DEP – (207) 287-5586, kristin.b.feindel@maine.gov
Sue Gammon, Androscoggin Valley SWCD – (207) 753-9400 x404, susan.gammon@me.nacdnet.net

Sabbathday Lake Watershed Survey
#2008RR14

Waterbody Name:	Sabbathday Lake
Location:	New Gloucester, Poland – Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	April 2008 – September 2009
319 Grant Amount:	$9,711
Local Match:	$9,387

PROBLEM:

Sabbathday Lake has a surface area of 331 acres and a 5.3 square mile watershed. The lake's shoreline is fringed with over 100 seasonal and year-round homes and a commercial beach, boat launch and snack bar facility. The watershed is home to the Sabbathday Lake Shaker Community, which owns 1,700 acres of working farmland, forest and the historic village area.

The Maine DEP and the Sabbathday Lake Association have collected water quality data on the lake since 1975. Water quality is considered to be above average based on water clarity. However, moderate dissolved oxygen depletion in deep areas of the lake indicates that there is a high risk of phosphorus recycling problems. In 1996 a DEP-funded watershed survey identified 75 erosion problems in the watershed. From 1998 to 2004, two grant projects fixed 16 of the priority sites, provided 57 landowner technical assistance visits and formed a summer Youth Conservation Corps, which later expanded into the larger Royal River watershed and continued through 2008.

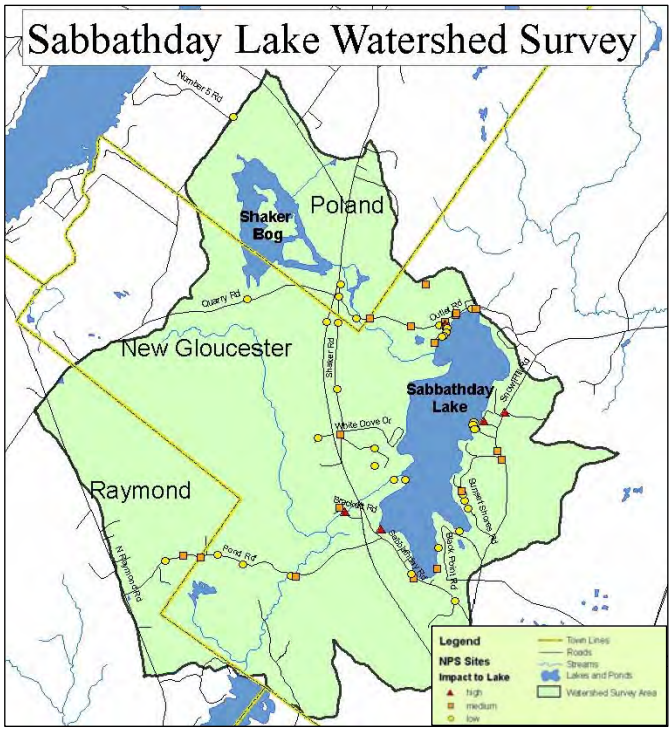
PROJECT DESCRIPTION:

The purpose of the project was to identify, document and prioritize remaining soil erosion sites in the Sabbathday Lake watershed. Survey methods were based on those outlined in the DEP publication, *Citizen's Guide to Lake Watershed Surveys*. On May 3, 2008, 27 volunteers participated in the training session and survey. Most of the watershed was surveyed that day. Technical staff checked their work and estimated pollutant loading from priority sites throughout the summer.

The watershed survey identified a total of 58 erosion sites. Survey data was summarized in the *Sabbathday Lake Watershed Survey Report.* Survey findings were presented at a New Gloucester Planning Board meeting and at SLA's 2009 annual meeting. The SLA also mailed all watershed residents information about the survey and how to get copies of the report. Residents with high and medium impact erosion sites received personalized letters describing the problems and a list of resources to encourage them to fix the issue.

PROJECT OUTCOMES:

- Project staff and volunteers surveyed the entire Sabbathday Lake watershed and documented 58 erosion sites. Most identified sites were associated with town roads (38%) and residential areas (31%).
- The *Sabbathday Lake Watershed Survey Report* was completed in April 2009. The report summarizes watershed survey findings and lists specific descriptions and recommendations for identified sites.
- Following the survey, the Sabbathday Lake Association immediately took the initiative to start addressing the identified erosion sites. They sent letters to landowners with high and medium impact sites; met with Town Public Works staff about town road sites; appointed a person to spearhead ongoing mitigation efforts; and funded several technical assistance visits by Cumberland County SWCD staff.



PROJECT PARTNERS:

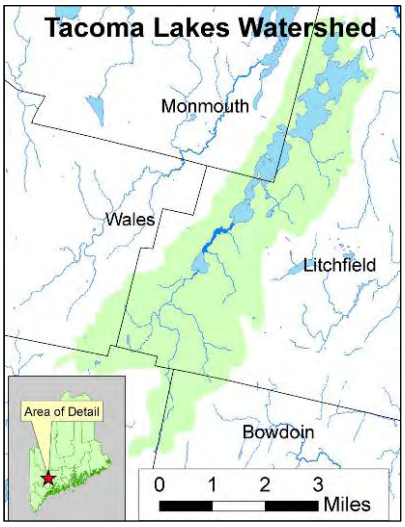
Sabbathday Lake Association
Town of New Gloucester
Sabbathday Lake Shaker Society

CONTACT INFORMATION:

Wendy Garland, DEP – (207) 822-6320, wendy.garland@maine.gov
Heather True, Cumberland County SWCD – (207) 892-4700, htrue@cumberlandswcd.org

Tacoma Lakes NPS Abatement Project
#2007RR04

Waterbody Name:	Sand, Woodbury, Buker, Jimmy and Little Purgatory Ponds
Location:	Litchfield and Monmouth – Kennebec County
Waterbody Status:	NPS Priority Watersheds, Most at Risk (Sand and Woodbury Ponds)
Project Grantee:	Kennebec County SWCD
Project Duration:	April 2007 – November 2009
319 Grant Amount:	$70,185
Local Match:	$58,680



PROBLEM:

The Tacoma Lakes are a chain of five ponds with a combined watershed area of 15.5 square miles. The smaller ponds are Buker Pond, Jimmy Pond and Little Purgatory Pond. Sand Pond and Woodbury Pond are the largest and deepest two ponds that are known for their excellent recreational fisheries and good water quality. However, the average Secchi disk measurements have decreased in these ponds for the past few years, and there has been a growing awareness of the need to protect their water quality. A 2006 NPS watershed survey found that erosion from public and private roads and runoff from shorefront properties are significant contributors to sediment and nutrient loading in the ponds.

PROJECT DESCRIPTION:

The project goal was to protect the water quality of the Tacoma Lakes, especially Sand Pond and Woodbury Pond, against further NPS pollution from camp roads and shorefront properties. Another goal was to promote the use of low-cost erosion control practices by shorefront and camp road owners and to encourage general stewardship and monitoring in the watershed.

Project outreach and technical assistance was conducted by the Kennebec SWCD and the Friends of the Cobbossee Watershed (FOCW). Technical assistance consisted of site visits to private residences and roads and meetings with Town officials regarding town road sites. A gravel road workshop and LakeSmart-Start visits by the FOCW furthered the outreach to local landowners. The Kennebec SWCD completed BMP work such as ditch installation, checkdams, and turnouts, road and driveway rebuilding and super elevation, culvert replacement and armoring, shoreline stabilization, and buffer installation. The FOCW completed smaller BMP construction work on private residences with the assistance of their Youth Conservation Corps (YCC).

Friends of the Cobbossee Watershed's Youth Conservation Corps

PROJECT OUTCOMES:

- The project installed conservation practices at 11 sites in the watershed, including significant projects on two town roads and several private residences and roads.
- The Friends of the Cobbossee Watershed's YCC fixed NPS problems at another 7 sites by installing buffer plantings, erosion control mulch, shoreline riprap and other BMPs.
- Technical assistance was provided by the Kennebec County SWCD and the Friends of the Cobbossee Watershed at a total of 47 different sites.
- Pollutant loading to the Tacoma Lakes was reduced by an estimated 8.4 tons of sediment, 8.1 pounds of phosphorus, and 16.4 pounds of nitrogen per year (WEPP Model and Region 5 Method).
- Approximately 823 linear feet of shoreline was stabilized through plantings, erosion control mulch and/or riprap.

Shoreline Erosion Stabilization with Rip-rap

Ditch Stabilization with Rip-rap and Checkdams

PROJECT PARTNERS:

Friends of the Cobbossee Watershed
Tacoma Lakes Improvement Society
Cobbossee Watershed District
Town of Litchfield

CONTACT INFORMATION:

Kristin Feindel, Maine DEP – (207) 287-5586, kristin.b.feindel@maine.gov
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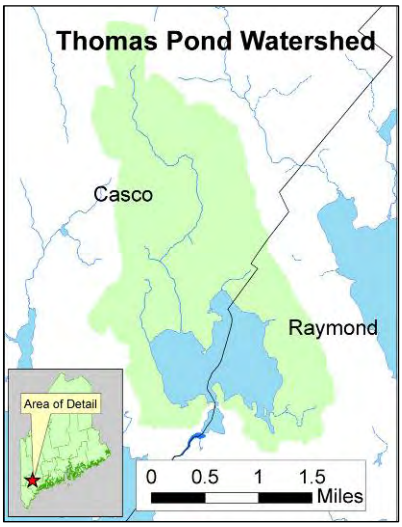
Thomas Pond Conservation Project – Phase II

#2006RR-06

Waterbody Name:	Thomas Pond
Location:	Raymond and Casco – Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Sponsor:	Cumberland County SWCD
Project Duration:	April 2006 – March 2009
319 Grant Amount:	$64,939
Local Match:	$71,002



PROBLEM:

Thomas Pond is a 497-acre lake located in the Towns of Raymond and Casco. Its watershed covers 4.5 square miles and is part of the larger Sebago Lake watershed, which serves as a drinking water source for over 200,000 people in Southern Maine. Raymond Waterways Protective Association (RWPA) and the DEP have monitored Thomas Pond since 1976. According to the monitoring data, the pond is considered to be average based on measures of Secchi disk transparency, total phosphorus and chlorophyll a. However, there is high depletion of dissolved oxygen in the bottom waters of the lake in late summer and the threat of internal phosphorus loading is also high.

In 2000 the Thomas Pond Improvement Association (TPIA), DEP and Cumberland County SWCD identified 125 erosion sites in an independently-funded watershed survey. From 2003 to 2005, the Thomas Pond *Phase I* project fixed 15 high priority sites in the watershed, planted over 300 buffer plants through a small matching grants program and provided technical assistance to 32 landowners.

PROJECT DESCRIPTION:

The primary purpose of the project was to significantly reduce erosion and the export of phosphorus into Thomas Pond. The project also aimed to raise awareness about watershed problems and foster long-term watershed stewardship. Conservation practices were installed on a total of 10 large abatement sites and another 25 smaller sites through small matching grants.

The project partnered with the University of Maine Cooperative Extension to conduct a Watershed Stewards Program. Extension provided eight free workshops on lake topics to over 20 residents. In return for this opportunity, the participants volunteered their time on lake protection projects. The project also coordinated the Casco and Raymond Community Watershed Forum on June 2, 2007. Over 50 local residents attended the half-day event and discussed water quality issues and action items in break-out groups and as a whole. Other outreach included an initial project fact sheet, press releases, a final project brochure and presentations to the towns, TPIA and RWPA.

Volunteers install a dripline trench

PROJECT OUTCOMES:

- The project fixed 10 high and medium priority erosion problems, thereby reducing pollutant loading to Thomas Pond by an estimated 46 tons of sediment per year (Region 5 Method). Another 25 sites were improved through residential matching grants.

- Local match contributed to the project totaled $71,002, which far exceeded the original project goal of $50,120. One of the sites on Thomas Pond Terrace was funded with a $9,400 grant from the DEP's Stormwater Compensation Fund. Another site on Libby Road was fully funded by the Federal Emergency Management Agency (estimated value of $45,639).

- The project helped increase stewardship efforts on Thomas Pond as well as neighboring lakes. Several participants in the project's Watershed Stewards Program volunteered for the Panther Pond and Raymond Pond 319 projects. The Raymond Casco Lakes Forum generated significant interest in the DEP's LakeSmart program, and the newly-formed Crescent Lake Watershed Association was accepted into the program in 2009.


Culvert inlet-before-early spring


Culvert Inlet and plunge pool-after

PROJECT PARTNERS:

Thomas Pond Improvement Association
Town of Casco
Town of Raymond
Portland Water District
Raymond Waterways Protective Association
University of Maine Cooperative Extension

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Volunteers from the Sabbathday Lake watershed survey project

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Document available for download at:
http://www.maine.gov/dep/blwq/docgrant/319_files/reports/index.htm