Nonpoint Source Management Program 2016 Annual Report

June 2017

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Woods Pond, Bridgton Photo credit: Colin Holme

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Executive Summary

This report summarizes activities and accomplishments of the Maine Department of Environmental Protection's Nonpoint Source Management Program (NPS Program) in 2016. DEP prepared this report to inform the public and EPA about Maine's progress controlling nonpoint source (NPS) water pollution. NPS pollution is a major source of water quality impact to Maine's lakes, streams, and coastal waters. DEP coordinates Maine's NPS pollution control programs to achieve widespread use of state-agency best management practice guidelines (BMPs) to prevent NPS pollution. The NPS Program uses a combination of statewide programs and targeted watershed projects to make progress restoring and protecting water quality. The NPS Program is funded, in part, under Sections 319 and 604(b) of the Clean Water Act by the U.S. Environmental Protection Agency (EPA).

This report provides an overview of Maine's NPS Program, DEP's NPS grants program, staff services for communities, the NPS Training and Resource Center and the Volunteer River Monitoring Program.

DEP uses a watershed-based approach as the coordinating framework to organize public and private sector efforts to identify, prioritize, and then implement activities to restore or protect waters. DEP administers a pass-through grant program that awards and monitors grants of federal Clean Water Act Section 319 and 604(b) funds for watershed projects to help restore or protect lakes, streams, and coastal waters from NPS pollution. These grants help communities identify nonpoint sources, prepare watershed-based management plans, and take action to reduce or prevent NPS pollution.

In 2016, 15 NPS watershed projects funded through the NPS grants program in previous years were successfully completed. This report provides a two-page summary of the outcomes for each project. These projects reduced pollutant loads to waters by 490 tons of sediment, 543 pounds of phosphorus and 969 pounds of nitrogen per year. DEP provided technical assistance and granted $929,823 of Federal Clean Water Act funds provided by EPA for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $895,180. DEP issued nine new grants ($750,086) using CWA Section 319 funds to help communities implement actions called for in their watershed management plans to restore impaired waters or protect waters threatened by NPS pollution. DEP issued grants using CWA Section 604(b) funds to develop watershed-based plans for Phillips Brook in Scarborough ($23,044) and East Pond in Smithfield ($20,556).

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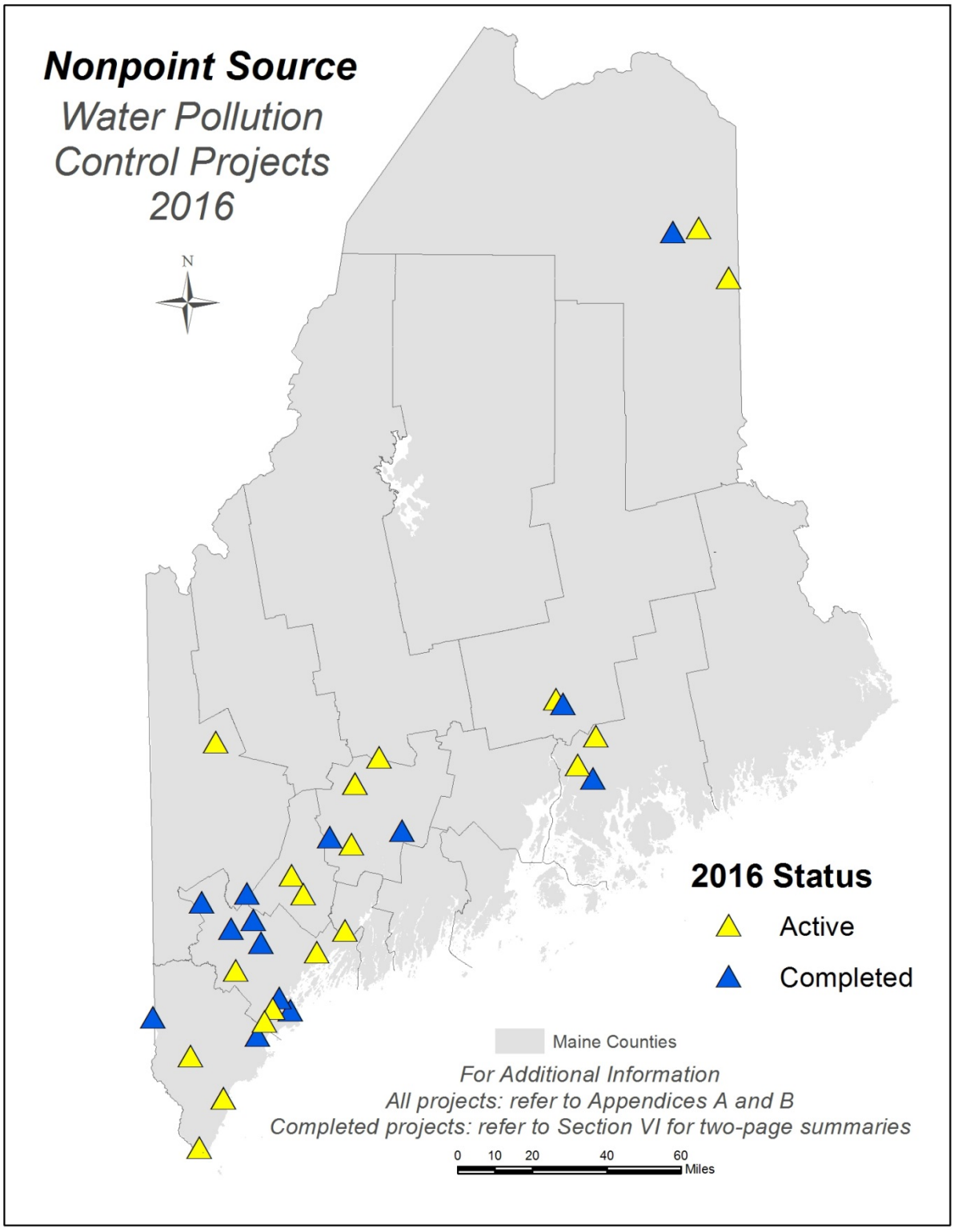
This report was funded, in part, by grant funds provided by the U.S. Environmental Protection Agency to the Maine Department of Environmental Protection under Section 319 of the Clean Water Act. Neither EPA nor DEP endorses any commercial product, service or enterprise mentioned in this publication.

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

NPS Water Pollution Control Projects Active in 2016



I. Introduction - NPS Management Program

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

Photo credit: Ben Tripp

The Maine Department of Environmental Protection (DEP) coordinates the State of Maine Nonpoint Source Pollution Program (38 MSRA 410) to achieve widespread use of state-agency "best management practice guidelines" (BMPs) to prevent NPS pollution. Since 1990, EPA has awarded funds under Section 319 of the Clean Water Act to help states and tribes address their most pressing NPS pollution problems. Section 319 monies that are provided by EPA to the State help fund a significant portion of Maine's NPS Program. NPS Program services are guided by the *Maine Nonpoint Source Management Program Plan 2015-2019*.

DEP helps communities and watershed groups assess water quality problems and take action to reduce or stop NPS pollution. Section 319 funds are used to provide grants for watershed projects to help local communities identify water pollution sources in watersheds and take action to restore or protect lakes, streams, or coastal waters.

This report summarizes the Nonpoint Source (NPS) Program activity and accomplishments in 2016 and fulfills annual reporting requirements of Section 319(h) of the Federal Clean Water Act. Each year, DEP prepares this report to inform the public and the U.S. Environmental Protection Agency (EPA) about Maine's progress controlling NPS water pollution.

II. 2016 Highlights - NPS Management Program

A. Fifteen NPS watershed projects funded through the NPS grants program in previous years were successfully completed. DEP provided technical assistance and granted $929,823 of Federal Clean Water Act Section 319 and 604(b) funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $895,180.

- BMPs were installed to reduce polluted runoff in the following 13 watersheds, thereby reducing pollutant loading to these waters by an estimated 543 pounds of phosphorus, 969 pounds of nitrogen and 490 tons of sediment per year - equivalent to about 43 dump truck loads:

Capisic Brook (Portland)
Crescent Lake (Raymond)
Dudley Brook (Castle Hill)
Great East and Wilson Lake (Acton)
Little Sebago Lake (Windham)
Long Pond (Belgrade)
Ogunquit River (Ogunquit)
Thompson Lake (Casco)
Toddy Pond (Orland)
Togus Pond (Augusta)
Trout Brook (Cape Elizabeth)
Wilson Pond (Wayne)
Woods Pond (Bridgton)

- Watershed-based plans were completed for Arctic Brook (Bangor) and Goosefare Brook (Saco). A plan provides assessment and management information and describes actions needed to restore NPS-impaired water bodies, or to protect water bodies threatened by NPS pollution.

B. EPA awarded $1,863,124 FFY 2016 Section 319 Clean Water Act funds to the DEP. Funds were used to fuel programs designed to evaluate, prevent, or reduce NPS pollution problems. Nine new NPS grants totaling $750,086 were issued to municipalities, soil and water conservation districts, and watershed groups for watershed implementation projects.

C. Following several years of work to reduce high *E. coli* bacteria levels, Pottle Brook in Perry was highlighted as one of EPA's Nonpoint Source Program Success Stories. Pottle Brook is considered a "Type 2 success story," which means significant progress was made toward achieving water quality goals, but the brook does not yet meet water quality standards. In 2010, the Town of Perry and DEP conducted sanitary surveys to identify potential sources of bacteria. The Town then worked with several homeowners to replace or repair malfunctioning septic systems, and a landowner adopted better manure management practices. In 2015, water quality sampling showed significant improvements in the stream's bacteria levels.

D. DEP provides technical assistance to Maine's eight Youth Conservation Corps (YCC) programs. The YCC programs hire high school students to install buffers, erosion control measures, and other conservation practices in lake and river watersheds. Most YCCs originally started as part of 319 grant projects and have continued with local funding support.

In 2015, the Maine Legislature enacted Public Law 365, which provides two years of funding at $20,000 per year to support YCCs doing work in lake watersheds. DEP issued a RFP and selected Lakes Environmental Association to pass through the state funds in 2016 and 2017. Seven YCCs received funds in 2016. The 2016 YCC Program Summary reported that the seven participating YCCs hired 50 young adults to install 362 conservation practices at 156 project sites.

30 Mile River Youth Conservation Corps

III. Maine NPS Management Program

A. Overview

The *Maine Nonpoint Source Management Program Plan 2015-2019* establishes program goals and strategies that Maine uses to make progress controlling NPS pollution. The NPS program uses both statewide programs and targeted watershed-based approaches to promote the use of state-agency defined "best management practice guidelines" (BMPs) to prevent water pollution.

DEP administers the NPS Program in coordination with EPA and other federal, state, and local governmental agencies, and non-governmental organizations. Five Maine agencies share responsibility for implementing NPS programs: the Departments of Environmental Protection; Agriculture, Conservation, and Forestry; Transportation; Health and Human Services, Division of Environmental Health; and Marine Resources. State agencies conduct programs that promote voluntary use of BMPs and implement State laws or rules which require meeting performance standards to protect water quality.

The NPS plan describes actions State Agencies will take over five years to make progress controlling NPS pollution, including 37 five-year objectives with actions and milestones. Outputs or accomplishments in 2016 are summarized Appendix C.

The NPS plan is available at: http://www.maine.gov/dep/land/watershed/nps-program-plan.html

B. Protecting Clean Waters

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

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

Developing Plans to Protect Lakes

Three new lake protection plans were developed by local entities following guidance developed by DEP and EPA. These three plans were all accepted by DEP and EPA, bringing the cumulative number of lake watershed-based protection plans accepted over the years to 17.

Lake Watershed-based Protection Plans Accepted by DEP

Watershed	Town	Date	Organization
Adams & Knickerbocker Lake	Boothbay	May 2015	Boothbay Region Water District
Alamoosook Lake	Orland	May 2015	Alamoosook Lake Association
Cobbossee Lake	Manchester	April 2015	Cobbossee Watershed District
Cold Stream Pond	Enfield	March 2016	Coldstream Campowners Association
Crescent Lake	Raymond	June 2013	Crescent Lake Watershed Association
Damariscotta Lake	Jefferson	May 2015	Damariscotta Lake Watershed Association
Ellis Pond	Roxbury	Jan 2015	Ellis Pond Watershed Committee
Great Pond	Franklin	February 2016	Franklin Great Pond Association
Lake Auburn	Auburn	July 2013	Lake Auburn Watershed Protection Commission
Little Sebago Lake	Windham	June 2013	Little Sebago Lake Association
North Pond	Buckfield	April 2016	North Pond Steering Committee
Panther Pond	Raymond	May 2015	Panther Pond Association
Phillips Lake	Dedham	April 2014	Phillips Lake Association
Sebago Lake & Crooked River	Naples	July 2015	Portland Water District
Thompson Lake	Oxford	June 2013	Thompson Lake Environmental Association
Toddy Pond	Orland	June 2013	Toddy Pond Association
Woods Pond	Bridgton	May 2013	Town of Bridgton

Implementation Projects to Protect Lakes

DEP invests Section 319 funds provided by EPA for NPS watershed projects to implement BMPs that reduce polluted runoff. These projects help protect clean waters that are threatened by NPS pollution. In 2016, Section 319 funds helped sustain or start NPS watershed implementation projects in 12 lake watersheds.

Alamoosook Lake (Orland)	Great East & Wilson (Acton)	Sebago Lake (Standish)
Cobbossee Lake (Winthrop)	Lake Auburn (Auburn)	Thompson Lake (Oxford)
Crescent Lake (Raymond)	Little Sebago Lake (Gray)	Toddy Pond (Orland)
Ellis Pond (Roxbury)	Phillips Lake (Dedham)	Woods Pond (Bridgton)

C. Restoring Impaired Waters

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

- **Water Quality Assessment, TMDL & Alternative Approaches.** DEP establishes a pollution allocation, also called a total maximum daily load (TMDL), for impaired waterbodies to comply with Section 303(d) of the Clean Water Act. A TMDL assessment estimates the necessary reduction in pollution from point and nonpoint sources in order for the waterbody to meet the state water quality classification.

  - In May 2016, DEP issued a final version of its *Vision for Assessment, Restoration, and Protection of Maine's Water Resources Under the Clean Water Act, Section 303(d) Program*. Available at: http://www.maine.gov/dep/water/monitoring/tmdl/vision-for-assessment-restoration-protection-of-maine-water-resources.pdf. This report includes priority waters to have TMDL assessment, or an alternative plan, completed during the years 2016 – 2022. The list includes 33 streams and two great ponds that are listed as impaired due to NPS issues.

  - In August 2016, DEP received EPA approval for a TMDL report for 21 streams in the State of Maine with dissolved oxygen and/or aquatic life impairments associated with NPS pollution. The TMDL report establishes the target nutrient and sediment loads for the watersheds of the impaired streams, provides documentation of impairment, and outlines the reductions needed to meet water quality standards. The report is available at: http://www.maine.gov/dep/water/monitoring/tmdl/tmdl2.html. Nine streams that had been included in a prior draft were put on hold to resolve concerns due to overlap with regulated Municipal Separate Storm Sewer Systems.

Algal bloom on Lovejoy Pond in Albion

- **Watershed-based Planning.** A watershed-based plan describes overall actions needed in a watershed to help restore water quality. EPA requires a watershed-based plan addressing nine minimum elements prior to use of 319 funds to help restore an impaired waterbody. For EPA guidance on watershed planning, refer to https://www.epa.gov/sites/production/files/2015-12/documents/watershed_mgmnt_quick_guide.pdf.

- **Implementing Pollution Reduction Measures**. Communities, agencies and individuals take action to apply conservation practices or BMPs to eliminate or control sources of NPS pollution. Typically work needs to be focused within a watershed for 10 years or more to restore an impaired waterbody. DEP provides technical and financial assistance to help communities improve watersheds and restore waters.

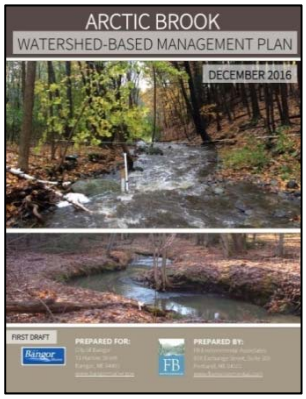
NPS Watershed Implementation Projects

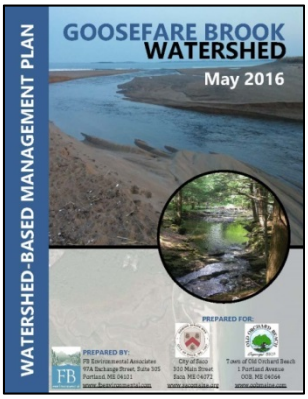
DEP allocates Section 319 funds to help communities implement their watershed-based plans to restore NPS-impaired waters. In 2016, Section 319 funds helped continue or start projects in 14 NPS-impaired watersheds:

Capehart Brook (Bangor)
Capisic Brook (Portland)
Concord Gully Brook (Freeport)
Dudley Brook (Chapman)
Goodall Brook (Sanford)
Hart Brook (Lewiston)
Long Pond & Great Pond (Belgrade)
Ogunquit River (Ogunquit)
Red Brook (Scarborough)
Spruce Creek (Kittery)
Trout Brook (Cape Elizabeth)
Topsham Fair Mall Stream (Topsham)
Upper Prestile Stream (Easton)
Wilson Pond (Winthrop)

Developing Plans to Restore NPS Impaired Waters

DEP provided services to help communities develop watershed-based plans (WBPs) to plan for actions needed to restore NPS impaired waters. The WBP helps Section 319-funded projects make progress restoring NPS impaired waters.





- In 2016, DEP accepted nine-element WBPs for two impaired waters: Arctic Brook (Bangor) and Goosefare Brook (Saco).
- Work began to develop nine-element WBPs for East Pond (Smithfield), Kennedy Brook (Presque Isle), and Phillips Brook (Scarborough).
- WBPs are typically written to be implemented over a ten-year period, and nearly a dozen DEP-accepted plans will be more than 10 years old by 2020. DEP developed a guidance document for groups to use as they update these aging or expired plans. This brief, five-page document outlines the recommended steps involved with a plan update; required plan components; plan submission and review process; and available resources to assist with plan updates. The document can be found at http://www.maine.gov/dep/water/grants/319-documents/Guidance-for-Updating-Maine-Watershed-based-Plans.pdf.
- Through 2016, there were 34 active nine-element WBPs describing actions needed to restore NPS impaired waters:

Watersheds with Nine-Element Watershed Plans Accepted by Maine DEP

Annabessacook Lake (Monmouth)	Meduxnekeag River (Houlton)
Arctic Brook (Bangor)	Ogunquit River (Ogunquit)
Birch Stream (Bangor)	Pearce Brook (Houlton)
Bond Brook (Augusta)	Penjajawoc Stream (Bangor)
Cape Neddick River (York)	Pleasant Pond (Gardiner)
Capehart Brook (Bangor)	Pleasant River (Windham)
Capisic Brook (Portland)	Red Brook (Scarborough)
China Lake (China)	Sabattus Pond (Sabattus)
Cochnewagon Lake (Monmouth)	Spruce Creek (Kittery)
Concord Gulley Brook (Freeport)	Thatcher Brook (Biddeford)
Dudley Brook (Castle Hill)	Togus Pond (Augusta)
East Pond (Smithfield)	Topsham Fair Mall Brook (Topsham)
Goodall Brook (Sanford)	Trout Brook (Cape Elizabeth)
Goosefare Brook (Saco)	Unity Pond (Unity)
Hart Brook (Lewiston)	Upper Prestile Stream (Fort Fairfield)
Long Creek (South Portland)	Whitten Brook (Skowhegan)
Long Pond & Great Pond (Belgrade)	Wilson Pond (Monmouth)

D. NPS Pollutant Load Reductions and Water Quality Improvements

NPS Pollutant Load Reductions

EPA Section 319 program guidelines require load reduction estimates for projects that will result in load reductions of sediment or nutrients (nitrogen and phosphorous). EPA recognizes that due to runoff variability, load reductions associated with BMP projects cannot be directly measured. Load reduction estimates for Maine Section 319 projects are developed using simple models. DEP and grantees use methods described in the EPA "Region 5 Model" and/or the USDA Forest Service Water Erosion Prediction Project - Road computer model to estimate NPS load reductions. These models are described at: http://it.tetratech-ffx.com/steplweb/ and http://forest.moscowfsl.wsu.edu/fswepp/

NPS load reductions for Section 319-funded implementation projects are reported in the EPA Grants Reporting and Tracking System database. The following table shows load reductions reported for all active implementation projects in 2016.

2016 NPS Pollutant Load Reductions 30 Implementation Projects		
Sediment	Phosphorus	Nitrogen
7,256 tons/year	536 lbs/year	912 lbs/year

Pottle Brook Section 319 NPS Program Success Story

Following several years of work, Pottle Brook in Perry was highlighted as a success story on EPA's Nonpoint Source Program Success Stories website (https://www.epa.gov/nps/nonpoint-source-success-stories). Pottle Brook is considered a "Type 2 success story," which means significant progress was made toward achieving water quality goals, but the brook does not yet meet water quality standards.

In 2002, Pottle Brook was placed on the State's 303(d) list of impaired waters because *E. coli* bacteria levels in the stream exceeded Maine's Class B water quality standard of 64 most probable number per 100 milliliters (mpn/100 mL). The Town of Perry and DEP conducted a sanitary survey in 2010 to identify potential sources of bacteria. The Town then prompted property owners with identified issues to address problems. As a result, several homeowners replaced or repaired malfunctioning septic systems, and a horse paddock owner in the watershed adopted better manure management practices. In 2015, water quality sampling showed that the *E. coli* geometric mean for Pottle Brook lowered to 77 mpn/100 mL. The downward trends in bacteria levels and improved water quality are expected to continue. (See pages 10-11 for the two-page story.)

E. Section 319 Grant Administration

EPA awarded $1,863,124 of FFY 2016 Section 319 funds to DEP. Forty-six percent (46%) of FFY 2016 Section 319 funds ($852,171) were used for NPS grants to municipalities, soil and water conservation districts, and watershed groups for watershed implementation projects. Section 319 funds also supported nine DEP NPS program staff positions. DEP administered the Section 319 grant awarded to DEP under federal fiscal years 2012 - 2016, including monitoring sub-recipient performance on 39 grants for NPS watershed projects and other DEP NPS program services. In June 2016, DEP issued the *NPS Management Program 2015 Annual Report*.

Summary of FFY16 319 Grant and Match

Activity	Program Funds Subtotal	Project Funds Subtotal	Section 319 Total	Nonfederal Match
NPS Grants for Watershed Projects	0	852,171	852,171	623,565
NPS Training & Resource Center	9,000	0	9,000	0
Small Community Grants Program	0	0	0	80,000
DEP Staff (9 FTE), Other & Indirect	956,953	45,000	1,001,953	637,927
Totals	$965,953	$897,171	1,863,124	$1,341,492

Forty-eight percent (48%) of FFY 2016 section 319 funds ($897,171) were used for implementation of nine-element WBPs for restoration projects or alternative plans for protection projects. This includes funds ($45,000) for DEP staff services to help implement WBPs. DEP also passed through $750,086 for nine projects to implement WBPs and allocated the remaining $102,085 for additional project(s). Five of the funded projects ($368,286) will implement nine-element plans for impaired waters, and four projects ($381,800) will implement alternative WBPs to protect NPS priority watersheds threatened by NPS pollution.

NONPOINT SOURCE SUCCESS STORY

Maine

Septic System Repairs and Manure Storage Practices Reduce Bacteria Levels in Pottle Brook

Waterbody Improved

High *Escherichia coli* bacteria from both human and animal sources caused the Maine Department of Environmental Protection (DEP) to place Pottle Brook on its 2002 Clean Water Act (CWA) section 305(b)/303(d) list of impaired waters. Maine DEP partnered with the local government to conduct sanitary surveys that identified problem areas needing to be addressed. Implementing best management practices (BMPs), including the repair and replacement of a number of septic systems by property owners and improvements in manure storage practices by a horse paddock owner, reduced bacteria levels in the brook to those that are closer to the Maine Class B water quality standard. The downward trends in bacteria levels and improved water quality are expected to continue.

Problem

Pottle Brook is a small Class B stream in Perry and Robbinston, Maine, with a length of 2 miles and a watershed area of 3.1 square miles (Figure 1). The brook flows easterly and drains into Passamaquoddy Bay. The sparsely populated watershed is only 1 percent developed; the predominant cover type is forest (82 percent), with a small amount of agriculture (3.4 percent) consisting primarily of hayfield.

In 2002 Pottle Brook (segment ME0105000203_508R02) was included in Maine's Integrated Water Quality Monitoring and Assessment Report (CWA section 303[d] report) because monitoring data showed that *E. coli* bacteria levels exceeded the Maine Class B geometric mean water quality standard of 64 most probable number per 100 milliliters (mpn/100 mL). DEP suspected the excessive bacteria in the brook could be due to malfunctioning septic systems, animal waste, pet waste or other nonpoint sources.

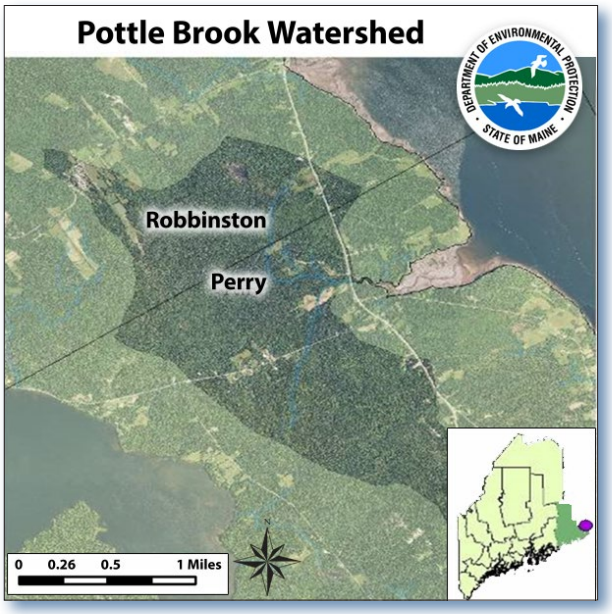


Figure 1. The Pottle Brook watershed (dark green).

Project Highlights

Maine DEP conducted water quality monitoring at five locations (Figure 2) from 2007 through 2015 to better understand the nature of the impairment and to help identify bacteria sources. Five sampling locations were distributed throughout the watershed, with two located on the mainstem and three on tributaries. The sampling sites included NPT01 (on the mainstem at U.S. Route 1) and NPTUA05 (on the Lake Road tributary). In 2009 Maine DEP developed a statewide total maximum daily load for bacteria, which included an assessment of Pottle Brook.

To determine the sources and location of bacteria in the Pottle Brook watershed, Maine DEP and the town of Perry conducted sanitary surveys in 2010–2011 that resulted in 19 properties being inspected (Figure 3). Of the inspected sites, six were identified as having septic system and/or animal waste problems, several of which were located adjacent to a tributary of the brook

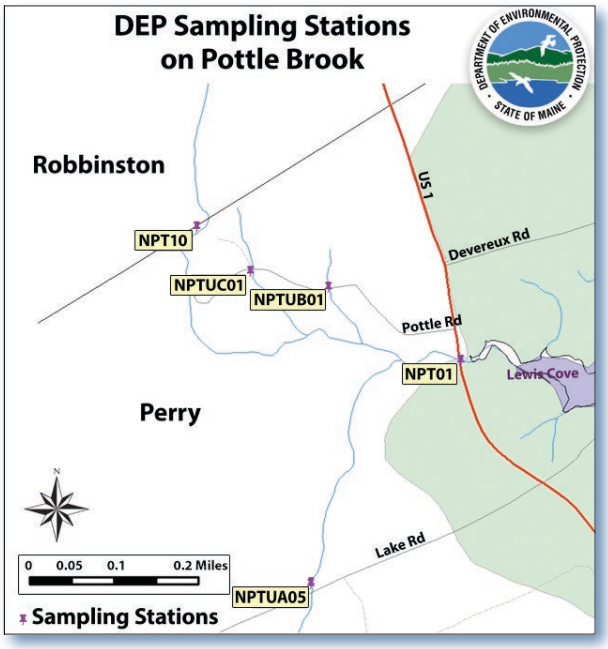


Figure 2. Sampling sites in the Pottle Brook watershed.

that runs under Lake Road ("Lake Road tributary"). The town of Perry prompted property owners with identified issues to address problems and, as a result, homeowners replaced or repaired malfunctioning septic systems, and a horse paddock owner in the watershed adopted better manure management practices for a paddock containing approximately 15 horses. Six sites were treated overall, including four within the Lake Road tributary subwatershed of Pottle Brook.

Results

Bacteria levels have dropped over time. In 2007 and 2010 the *E. coli* bacteria geometric mean for water samples taken from Pottle Brook at sampling site NPT01 was 84 and 129 mpn/100 mL, respectively, exceeding the Maine geometric mean standard of 64 mpn/100 mL for class B waters. In 2015 water quality sampling showed that the *E. coli* geometric mean for Pottle Brook lowered to 77 mpn/100 mL. Also in 2015, five of the six samples were well below the instantaneous (single sample) standard of 236 mpn/100 mL.

This improvement in water quality on the mainstem of Pottle Brook can be partly attributed to reduced bacteria levels observed in the Lake Road tributary (at site NPTUA05), where several malfunctioning septic systems were repaired. In 2010 the geometric mean for the Lake Road tributary was 154 mpn/100 mL. Following septic system repairs, bacteria levels lowered to less than 44 mpn/100 mL, which attains the class B standard of 64 mpn/100 mL (Figure 4).

Figure 3. DEP employee performs sanitary survey.

Partners and Funding

The town of Perry (including its licensed plumbing inspector, property owners and a horse paddock owner) partnered with the Maine DEP's Division of Environmental Assessment and Division of Water Quality Management to perform sanitary surveys, oversee septic system repair/replacement and improvements in animal waste management. U.S. Environmental Protection Agency CWA section 319 funds supported DEP staff services and Americorps volunteer participation.

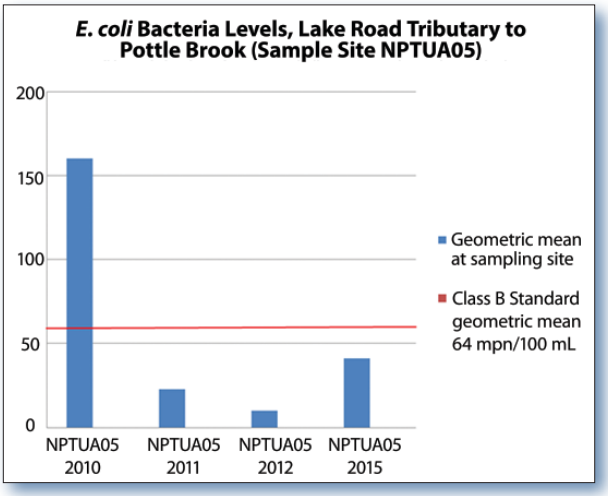


Figure 4. Bacteria levels declined after project implementation.

U.S. Environmental Protection Agency
Office of Water
Washington, DC

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IV. NPS Program Services

A. DEP Services for Watershed Groups and Municipalities

DEP provides considerable technical assistance to help watershed groups and towns reduce NPS water pollution. Some of the activities and projects that DEP supported in 2016 include:

- **Municipal Comprehensive Plan Reviews** – DEP staff provide maps and data to municipalities starting the comprehensive planning process. After plans are submitted to the state, DEP staff review the water resources sections of municipal comprehensive plans for consistency with agency goals, programs, and policies. In 2016, assistance was provided to the following four towns: Bustin's Island in Freeport, Richmond, Easton, and Wayne.

- **Watershed Surveys** – Volunteer watershed surveys assess watersheds to find, describe, and prioritize NPS pollution sources and recommend BMPs needed at specific NPS sites to reduce polluted runoff to help protect water quality. DEP provides technical assistance and project oversight to local groups that conduct volunteer watershed surveys without Section 319 grant funding. After completing surveys, many of these groups proceed to create lake watershed-based protection plans that will guide local stewardship efforts and open the door to possible 319 grant funding.

  In 2016, DEP assisted with the following five watershed surveys:

  - Echo Lake (Fayette)
  - North Pond (Norway)
  - North Pond (Rome)
  - Worthley Pond (Peru)
  - Varnum Pond, Pease Pond and Wilson Lake (Wilton)

Fred Dillon (City of South Portland) takes a water quality reading of Barberry Creek during a stream screening with Maine DEP.

  Staff provided assistance to lake associations to help plan 2017 surveys for Whitney/Hogan Ponds (Oxford) and Forest Lake (Windham). DEP partnered with the Volunteer Lake Monitoring Program (VLMP) to conduct a watershed survey workshop, which was attended by 13 volunteers representing 12 lakes. DEP also helped VLMP develop their small grants program to help fund watershed surveys.

- **Stream Water Quality Monitoring** – Staff conducted preliminary water quality assessment on the following streams to help with current or anticipated planning efforts or help assess progress with restoration goals:

  Amsden and Hacker Brooks (Ft. Fairfield)
  Barberry Creek (South Portland)
  Birch Stream and Penjajawoc Stream (Bangor)
  Goosefare Brook (Saco)
  Kennedy Brook (Presque Isle)
  Prestile Stream (Easton and Westfield)
  Mare Brook (Brunswick)
  Phillips Brook (Scarborough)
  Pleasant River (Windham)
  Pottle Brook (Perry)
  Topsham Fair Mall Stream (Topsham)

- **Youth Conservation Corps** – The DEP provides technical assistance and training to Maine's eight YCC programs. These YCC programs hire high school students to install buffers, erosion control measures, and other conservation practices in lake and river watersheds. Most of these programs originally started as part of 319 grant projects and continued with local funding support. DEP staff hosted a YCC Roundtable in March 2016 to promote information sharing and collaboration between the YCCs.

  In 2015, the Maine Legislature enacted Public Law 365, which provided two years of funding at $20,000 per year to support YCCs doing work in lake watersheds. DEP issued a RFP and selected Lakes Environmental Association to pass through the state funds in 2016 and 2017. Seven youth conservation corps received funds in 2016. The 2016 YCC Program Summary reported that the seven participating YCCs hired 50 young adults to install 362 conservation practices at 156 project sites. The required two for one match was far exceeded.

- **Urban Watershed Mapping** – DEP staff and an AmeriCorps member helped complete mapping projects in urban stream watersheds where municipalities are developing watershed-based plans. In 2016, watershed boundaries and stormwater outfall catchments were mapped in the field and entered into GIS for Kennedy Brook in Presque Isle. Stormwater catchments were also finalized for Barberry Creek in South Portland.

- **NPS Site Tracker Support** – The NPS Site Tracker tool assists watershed groups with managing information on NPS sites in their watersheds. The tool allows users to prioritize efforts, prompt maintenance where needed and add new sites as they are discovered. The Tracker is an Excel spreadsheet, and electronic photos and online site maps can also be incorporated. DEP helped update Site Trackers for Little Sebago Lake (Windham) and Trout Brook (South Portland).

- **Watershed Group Support –** DEP supports the work of watershed associations and communities through presentations at annual association meetings and providing technical assistance outside of 319 grant-funded projects. In 2016, DEP provided watershed maps upon request and assistance to many organizations and groups focused on the following watersheds:

  Belgrade Lakes
  Cold Stream Pond (Enfield)
  Cobbossee Lake Watershed
  Goodall Brook (Sanford)
  Highland Lake (Windham)
  Long Creek (South Portland)
  Meduxnekeag River
  Pennesseewassee Lake (Norway)
  Thatcher Brook (Biddeford)
  Watchic Lake (Standish)

- **Watershed Roundtable-** Over 50 watershed managers from state agencies, municipalities, watershed organizations and SWCDs attended the DEP's 14th annual Watershed Managers Roundtable held at the Viles Arboretum in Augusta in November. 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.

- **Stormwater Compensation Fee (SCF) Projects** – Under the Maine Stormwater Law, developers in certain lake watersheds have the option to pay a compensation fee in lieu of constructing additional BMPs to comply with a portion of a parcel's phosphorus budget. DEP staff works annually with seven partner organizations to identify and implement phosphorus mitigation projects in these watersheds. No projects were completed in 2016; however, several projects were developed for implementation in 2017.

B. Maine Nonpoint Source Training and Resource Center

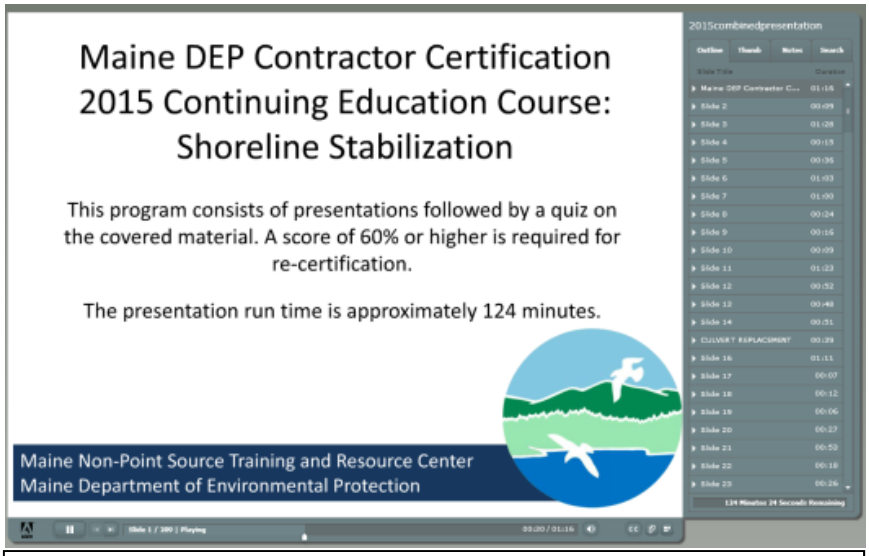
The Maine Nonpoint Source Training and Resource Center's primary focus is to provide training to various groups throughout the state to help them prevent nonpoint source pollution. In addition, the Center maintains an inventory of NPS publications and acts as a clearinghouse for information on nonpoint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

Accomplishments in 2016:

- Provided training to 293 participants in erosion and sediment control practices for contractors, and certified 138 additional individuals and one new company in the Voluntary Contractor Certification program. A total of 2,930 individuals and 43 companies are now certified.
- Provided two field-based workshops on Erosion Control Products with a total of 58 attendees.
- Developed an on-line course on Shoreline Stabilization to provide an additional opportunity for continuing education for individuals certified in erosion control practices. Available at http://stateofmaine.adobeconnect.com/recert2015/.
- Provided continuing education training on Shoreline Stabilization to 128 individuals previously certified in erosion and sediment control practices.
- Provided on-line continuing education training and training to 151 previously certified individuals. Available at http://stateofmaine.adobeconnect.com/nps_cert2014/.

For More Information:

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



Online training course in Shoreline Stabilization.

C. Maine Volunteer River Monitoring Program

The purpose of the Volunteer River Monitoring Program (VRMP) is to provide a standardized approach to river and stream monitoring. Volunteer groups participating in the Program collect data under the VRMP Quality Assurance Program Plan and develop Sampling and Analysis Plans (SAPs) specific to their needs. The volunteer organizations are also responsible for recruiting and organizing the volunteers, attending an annual training/certification, and entering the data electronically.

The VRMP provides technical support and resources to the volunteer groups. This support includes assistance with SAP development/updates, annual training, and equipment maintenance and loan. VRMP staff review the data entered by the volunteer groups, upload acceptable data to DEP's database, and produce an annual report.

Accomplishments in 2016:

- Completed the *Volunteer River Monitoring Report – 2015 Data Report* (April 2016).
- VRMP staff trained and certified/re-certified volunteers from seven volunteer organizations on a number of small and major river and stream systems statewide.
- Water quality data was collected by 41 volunteers at 77 sites during 453 sampling events.
- Data collected included temperature, dissolved oxygen, conductivity, bacteria, chlorophyll, and nutrients.
- Updated "Sampling & Analysis Plans" for Androscoggin River Watershed Council, Friends of Merrymeeting Bay, Mousam-Kennebunk Alliance, Presumpscot River Watch, Rockport Conservation Commission and Skowhegan Conservation Commission.

For More Information:

Mary Ellen Dennis, VRMP Coordinator – (207) 215-7946, mary-ellen.c.dennis@maine.gov
VRMP Website – https://www1.maine.gov/dep/water/monitoring/rivers_and_streams/vrmp/index.html

Friends of Weskeag volunteers, 2016

D. Other Program News

University of Maine Publication on Maine's Biological Criteria

The University of Maine released this 87-page technical bulletin describing Maine DEP's technical and policy approach to biologically-based water quality. The bulletin includes eight case studies, NPS pollution management applications and a discussion on the improved environmental outcomes that have resulted using this approach. Available for download at http://digitalcommons.library.umaine.edu/aes_techbulletin/205/

Reference: Davies, S.P., F. Drummond, D.L. Courtemanch, L. Tsomides, and T.J. Danielson. 2016. Biological Water Quality Standards to Achieve Biological Condition Goals in Maine Rivers and Streams: Science and Policy. Maine Agricultural and Forest Experiment Station. Technical Bulletin 208.

Clean Water State Revolving Fund Projects

In Maine, the Clean Water State Revolving Fund (CWSRF) funds NPS projects through several different direct loans, pass-through loans and linked-deposit loans. These programs helped fund $3.7 million in the following types of NPS projects in 2016. For more information, contact John True, CWSRF Program Manager, john.n.true@maine.gov.

- The CWSRF program provides low interest-rate financing for Forestry BMPs and the purchase of environmentally friendly logging equipment in the logging industry. In 2016, 13 loans were made under this program totaling $2.7 million.
- The City of Portland used $260,000 in CWSRF (awarded in 2015) to install ~1,600 square feet of biofilters and green infrastructure-integrated planters.
- The City of South Portland used $757,400 in CWSRF (awarded in 2015) for the installation of bioretention cells and a subsurface gravel wetland in a combined sewer overflow separation project affecting 27 acres of the watershed.
- The CWSRF began working with the Finance Authority of Maine to establish a pass-through loan program for the removal and/or replacement of above-ground and underground oil storage facilities or tanks. FAME is working on the rule making for the program, expected to be in place in 2017.

Gravel wetland installed in South Portland in 2016 with CWSRF

Biofilter installed in Portland in 2016 using CWSRF

Culvert Bond Projects

In 2014, Maine voters approved a referendum for a "Clean Water for Maine" bond. Since then, DEP has developed a grant program to disseminate $5 million for stream crossing or culvert upgrades and $400,000 for the restoration of wetlands. Program funds are intended to improve public safety by reducing the risk of culvert failures; include provisions for climate change, flood protection, and resiliency; improve fish habitat by removing barriers to fish passage; and restore wetlands that improve wildlife habitat. In addition to the program goals listed above, projects also provide NPS and stream habitat benefits.

In 2016, DEP released the program's second Request for Proposals (RFP) and received 85 applications totaling 6.8 million dollars. In June, 29 projects and $2.4 million in grant money were awarded. Several of the projects are directly connected to ongoing 319 projects. The Industrial Park Road culvert replacement in Saco, for example, will remove one of three severe fish barriers identified in the *Goosefare Brook Watershed-based Plan*. Culvert replacement projects were also selected in the Phillips Lake watershed (Dedham) and Great Pond watershed (Franklin). For more information, go to http://www.maine.gov/dep/land/water_bond_rfp.html.

V. NPS Grants Program

A. Overview

DEP uses a watershed-based approach as the coordinating framework to organize public and private sector efforts to identify, prioritize, and then implement activities to restore or protect waters. A pass-through grants program is administered that awards and monitors sub-grants of federal CWA Section 319 and 604(b) funds for watershed projects to help restore or protect lakes, streams, rivers or coastal waters affected by NPS pollution. DEP issues grants to local project sponsors to help fund two types of watershed-based projects:

- **Watershed-based Plan Development.** DEP offers grants to help communities develop watershed-based management plans. A plan provides assessment and management information and describes actions needed over a 5-10 year period to restore NPS-impaired water or to protect unimpaired waters considered threatened by NPS pollution. A thorough assessment of NPS problems (e.g., an NPS watershed survey) is needed to prepare an informed watershed plan.
- **Watershed-based Plan Implementation**. DEP offers grants to help communities implement their watershed-based plans and carry out actions called for in the plan to make progress restoring or protecting a waterbody.

B. NPS Water Pollution Control Projects Funded in 2016

DEP issued nine grants ($750,086 Section 319h) to help communities implement actions called for in their watershed management plans to restore impaired waters or protect waters threatened by NPS pollution. DEP issued Section 604(b) grants to develop watershed-based plans for Phillips Brook in Scarborough ($23,044) and East Pond in Smithfield ($20,556). Clean Water Act Section 319 and 604(b) funding for these grants was provided to DEP by EPA.

NPS Grant Projects Funded in 2016

Project Title	Grantee	Project #	Grant	Match
Alamoosook Lake Watershed Protection Project	Hancock County Soil & Water Conservation District	2016RR01	132,217	88,145
Cobbossee Lake Watershed Protection Project	Cobbossee Watershed District	2016RR02	93,430	68,096
Concord Gully Brook Watershed Restoration Project, Phase I	Cumberland County Soil & Water Conservation District	2016RT09	44,300	33,429
East Pond Watershed-based Plan Update	Kennebec County Soil & Water Conservation District	2015PT10	20,556	17,578
Ellis Pond Watershed Protection Project, Phase I	Oxford County Soil & Water Conservation District	2016RR03	96,826	67,345
Goodall Brook Watershed Restoration Project, Phase I	City of Sanford	2016RT08	84,526	63,775
Hart Brook Restoration Project	City of Lewiston	2016RT04	94,000	66,647
Long Pond Watershed Restoration Project, Phase IV	Belgrade Region Conservation Alliance	2016RT05	76,120	81,660
Ogunquit River Watershed Restoration Project, Phase II	Town of Ogunquit	2016RT06	69,340	46,658
Phillips Brook Watershed Plan Development	Town of Scarborough	2015PP09	23,044	43,225
Sebago Lake Watershed Protection Project, Phase III	Portland Water District	2016RR07	59,327	48,884
Totals			$793,686	$625,442

The **Ellis Pond Phase I** project plans to address 52 of the 183 erosion sites identified during their 2014 watershed survey.

C. Request for Proposals: Grants for NPS Pollution Control Projects

In March, DEP issued an RFP offering Section 604(b) funds for projects to develop a watershed-based management plan. DEP received two proposals requesting $75,625. DEP issued one grant of $41,600 to the City of Presque Isle for the development of a WBP for Kennedy Brook. The project started in November.

In May, DEP issued an RFP for projects to help communities implement their watershed-based plans by carrying out actions to make progress restoring or protecting a waterbody. Twelve proposals were received requesting $915,127. DEP issued conditional grant awards for all 12 projects with a combined grant amount of $902,829.

Conditional Grant Awards under 2016 RFPs

Project Title	Grantee	Project #	Grant Section 319	Match
Adams Pond, Knickerbocker Lake Watershed Protection, Phase I	Boothbay Region Water District	2017RR01	43,300	37,447
Cape Neddick River Watershed Restoration Project, Phase l	York, Town of	2017RT02	30,676	24,446
Cochnewagon Lake NPS Watershed Restoration Project, Phase II	Cobbossee Watershed District	2017RT03	95,117	77,823
Cold Stream Pond Watershed Protection Project, Phase I	Penobscot County SWCD	2017RR04	47,345	47,950
Damariscotta Lake Watershed Restoration Project, Phase 1	Midcoast Conservancy	2017RR05	127,478	101,250
Goosefare Brook Watershed Restoration Project, Phase l	Saco, City of	2017RT06	124,594	90,090
Great East Lake & Wilson Lake Watershed Protection, Phase 3	Acton Wakefield Watersheds Alliance	2017RR07	$42,387	28,276
Great Pond Watershed Protection Project	Hancock County SWCD	2017RR08	65,505	46,150
Kennedy Brook / Mantle Lake Watershed Plan Development	Presque Isle, City of	2016PT10	41,600	23,000
Meduxnekeag Watershed Implementation Conservation	Southern Aroostook SWCD	2017RT09	19,810	31,276
Panther Pond Protection Project, Phase III	Raymond, Town of	2017RR10	64,827	54,156
Thatcher Brook Watershed Implementation Project, Phase I	Biddeford, City of	2017RT11	139,790	99,521
Topsham Fair Mall Stream Restoration Road Barrier Mitigation	Topsham, Town of	2017RT12	102,000	87,413
Totals			$944,429	$748,798

VI. Summaries of NPS Water Pollution Control Projects Completed in 2016

Fifteen NPS watershed projects funded through the NPS grants program in previous years were successfully completed. DEP provided technical assistance and granted $929,823 of Federal Clean Water Act funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $895,180.

- BMPs were installed to reduce polluted runoff in 13 watersheds, including nine lake and four river or stream watersheds. Over the course of these projects, NPS work reduced pollutant loading to these waters by 543 pounds of phosphorus, 969 pounds of nitrogen and 490 tons of sediment per year - equivalent to about 43 dump truck loads.
- Watershed-based plans were completed for Arctic Brook (Bangor) and Goosefare Brook (Saco). A plan provides assessment and management information and describes actions needed to restore NPS-impaired water bodies, or to protect water bodies threatened by NPS pollution.

  Two-page summaries of each project are included in the following pages. These summaries will be uploaded to the Gulf of Maine's Knowledgebase database located at: http://www.gulfofmaine.org/kb/2.0/search.html.

Arctic Brook Watershed-based Plan Development Project
#2014PT14

Waterbody Name: Arctic Brook

Location: Bangor, Penobscot County

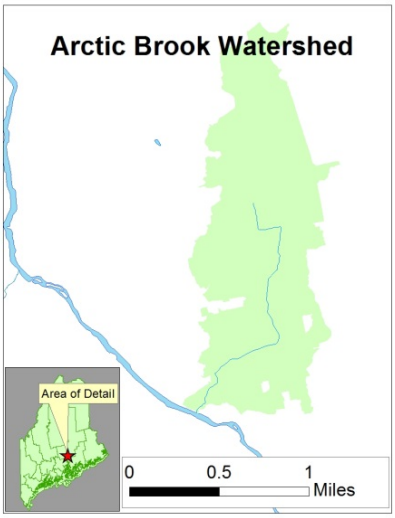
Waterbody Status: Impaired

Project Grantee: City of Bangor

Project Duration: May 2015 – December 2016

604(b) Grant Amount: $42,000

Local Match: $23,826



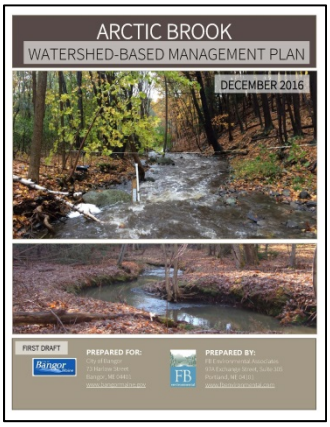
PROBLEM:

Arctic Brook is approximately 1.4 miles long and is located in the City of Bangor. Its 1.2 square mile watershed has a mix of commercial and residential development and includes Bangor High School, the City Nursery, Broadway Shopping Center, and a section of I-95. The stream does not meet water quality standards for aquatic life use and is listed on the State's 303(d) list of impaired waters. The Maine DEP conducted benthic monitoring in 1997 and the City in partnership with DEP, conducted additional benthic monitoring in 2014. The benthic monitoring data indicates that Arctic Brook is "non-attaining" (NA), meaning that it does not meet class B water quality standards. Stormwater runoff from impervious cover (IC) is likely the largest source of pollution to the brook.

In 2010, a Level 1 stream corridor survey (rapid habitat and geomorphic assessment) was conducted on Arctic Brook by the DEP, City of Bangor, and AmeriCorps staff. Results of the survey indicate that riparian cover in the brook has been severely impacted by development resulting in undercut banks, severe bank erosion, and degradation of streamside cover.

PROJECT DESCRIPTION:

The purpose of the project was to develop a watershed-based plan to guide the restoration of Artic Brook. The City of Bangor managed the project with the help of a consultant who assisted with the technical aspects.



The project relied heavily on the input of a technical advisory committee (TAC) that helped identify stressors and provided input for developing the watershed-based plan. The TAC oversaw development of a Sampling and Analysis Plan (SAP) that guided a stream corridor assessment and a professional geomorphic assessment of the entire stream. Also, a stormwater retrofit reconnaissance inventory catalogued and prioritized nonpoint source pollution hotspots within the watershed and identified and described stormwater BMP retrofit sites. The inventory data from both the stream corridor assessment and retrofit inventory will be used by City staff and community members when making management decisions for the brook.

PROJECT OUTCOMES:

- With guidance from a technical advisory committee, the project developed the *Arctic Brook Watershed-based Management Plan* (December 2016). Development of the watershed-based plan involved conducting a stressor analysis and identifying and prioritizing opportunities to install new or upgrade existing stormwater BMP's.

- The project's stream and watershed assessments resulted in the following reports: Stream Corridor Assessment Summary Report; Stormwater Retrofit Reconnaissance Inventory Summary Report; and Fluvial Geomorphological Assessment and Report.

- Public outreach included posting a project description on the City of Bangor's website and producing two press releases. A letter describing the project was mailed to landowners within the watershed.

Section of Arctic Brook during summer baseflow conditions (Note extensive riprap)

Arctic Brook during a three-inch rainstorm

PROJECT PARTNERS:

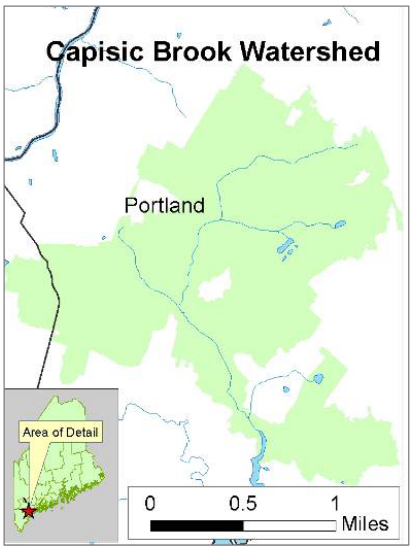
FB Environmental
Maine Department of Transportation
Stillwater Environmental Engineering

CONTACT INFORMATION:

Greg Beane, Maine DEP, (207) 299-4703, greg.e.beane@gmail.com
Richard May, City of Bangor, (207) 992-4243, richard.may@bangormaine.gov

Capisic Brook Watershed Restoration Project, Phase I
#2014RT04

Waterbody Name:	Capisic Brook
Location:	Portland, Westbrook – Cumberland County
Waterbody Status:	Urban Impaired Stream
Project Grantee:	Cumberland County SWCD
Project Duration:	May 2014 – December 2016
319 Grant:	$47,485
Local Match:	$73,630



PROBLEM:

Capisic Brook is approximately 2.5 miles long and flows into the Fore River. The stream's watershed covers 1500 acres in Westbrook and Portland. Impervious surfaces cover about 31% of the watershed. Land uses include residential development and about 250 commercial and light industrial businesses. The brook is considered impaired because it does not attain class C water quality standards.

In the upstream sections near Evergreen Cemetery, Capisic Brook has a healthy macroinvertebrate community, good water quality, and adequate habitat. The downstream station above Capisic Pond has impaired biota, poor water quality, and degraded habitat. Impairments are caused by polluted stormwater runoff, increased peak flows due to the extensive impervious cover, and combined sewer overflows. Since 1996, Portland has made significant progress toward the separation of the sanitary and storm sewer system. In 2009, the City of Portland received an American Recovery and Reinvestment Act grant (#2009SP04) to develop a watershed-based plan for the stream. Following plan completion in 2011, Cumberland County Soil and Water Conservation District (SWCD) partnered with Portland to carry out the program, *Greener Neighborhoods, Cleaner Streams* (GNCS), targeted at residential homeowners.

PROJECT DESCRIPTION:

The purpose of the Phase I project was to work to restore Capisic Brook by implementing key actions in the watershed plan. The project aimed to engage watershed businesses by holding a stakeholder meeting, providing technical assistance to 74 properties, and developing a property tracking database. Unfortunately, outreach did not generate enough interest to meet project goals. This was due in part, to Portland's adoption of a stormwater service charge during the project. It was hoped that the businesses would opt to get involved in order to receive credits, but the new fees proved to be a distraction and did not offer incentives for good housekeeping practices. The project did successfully engage watershed residents through workshops, storm drain stenciling, and mailings as part of the City's GNCS program.

PROJECT OUTCOMES:

- The project made direct contact with the watershed's 250 businesses through two mailings and phone calls to help raise awareness about the connection between stormwater runoff from their properties and impacts to Capisic Brook. Twenty-two business owners attended a stakeholder meeting in May 2015, and parcels in the watershed received technical assistance.

- A tracking spreadsheet was developed to document site conditions, existing BMPs, stormwater retrofit opportunities, and Operation and Maintenance (O&M) needs for each business property in the watershed. Information collected during the eight technical assistance visits was entered into the spreadsheet, and additional information can be added for other businesses over time.

- Through the *Greener Neighborhoods, Cleaner Streams* residential outreach program, the project made over 750 individual contacts with homeowners and students in the watershed. In addition, 62 storm drains (including two murals) were stenciled, and the GNCS website (http://www.cleanerstreams.org/) and social media accounts were updated.

CAPISIC BROOK WATERSHED INVENTORY OF OUTREACH

	Address			Contact	Date Visited	Sub-Watershed
	68 Bishop Street			Praver - 522-0330	12/22/2015	North Trib
SECTION A: Sediment		**YES (1)**	**NO (2)**	**NOTES**		
A1	Accumulated sediment anywhere on the site?	1				
A2	Where (ID on map)			entrance drive and north parking area		
A3	Suspected Cause			Lack of sweeping, application rates.		
A4	Any visible erosion?		2			
A5	Where (ID on map)					
A6	Cause?					
A7	Bare areas/lack of vegetation less than 90%		2			
A8	Any unstable slopes?		2			
A9	If yes, where (ID on map)					
SECTION A TOTAL:		**1**	**3**			
SECTION B: Catch Basins		**YES (1)**	**NO (2)**	**NOTES**		
B1	Visible debris/oil in basin?	1		No catch basins on site- oil observed in sheet flow during rain event.		
B2	geolocate/GPS all?			Sheet flow only		

Excerpt from the Capisic Brook Commercial and Industrial Property Tracking Database

PROJECT PARTNERS:

Casco Bay Estuary Partnership
City of Portland
Town of Westbrook
Westbrook Housing Authority

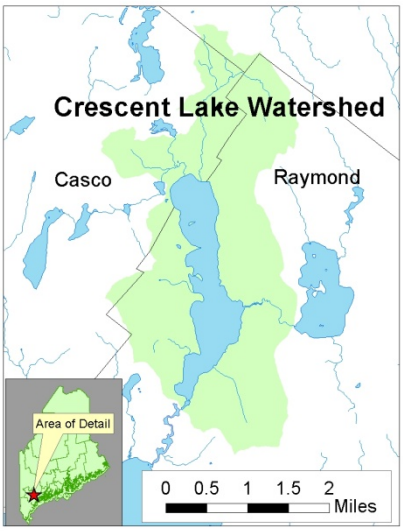
CONTACT INFORMATION:

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

Crescent Lake NPS Watershed Protection Project, Phase II

#2014RR03

Waterbody Name:	Crescent Lake
Location:	Raymond and Casco - Cumberland County
Waterbody Status:	NPS Priority Watersheds, Most At Risk
Project Grantee:	Town of Raymond
Project Duration:	March 2014 – October 2016
319 Grant Amount:	$82,049
Local Match:	$80,369



PROBLEM:

Crescent Lake covers 716 acres and has a direct watershed of 6.1 square miles. Several smaller lakes flow into Crescent Lake, which then flows into Panther Pond and Sebago Lake, a public drinking water source for over 45,000 households in Southern Maine. Crescent Lake is developed with over 290 seasonal and year-round homes, a commercial campground, several private youth camps, two public beaches, one formal boat access, and an extensive network of private unpaved camp roads.

The Maine DEP and Raymond Waterways Protective Association (RWPA) have monitored Crescent Lake's water quality since 1974. Water quality is considered above average; however, there is significant depletion of dissolved oxygen in the hypolimnion in late summer. The Raymond Conservation Commission spearheaded a watershed survey in 2000, and the Raymond Pond and Crescent Lake BMP Demonstration Project (#2001R-03) addressed 13 NPS sites and provided technical assistance to 12 landowners in the watershed. In 2009, the Crescent Lake Watershed Association (CLWA) formed and joined the Maine Lake Society's LakeSmart program. That same year, project staff and volunteers visited sites from the 2000 watershed survey and identified 70 priority areas. From 2011 to 2013, Phase I of the Crescent Lake NPS Watershed Protection Project (#2011RR03) installed conservation practices at 21 of the identified priority sites and provided small matching grants to address 11 residential sites.

PROJECT DESCRIPTION:

The main purpose of this project was to significantly reduce the pollutant load to Crescent Lake through implementation of conservation practices that reduce the erosion and export of sediment and phosphorus. This Phase II project built on the momentum generated by Phase I, and benefited from the support of an active steering committee and community partners. The project addressed erosion issues at 25 sites, including roads, driveways, youth camps, the public boat launch, beach parking, and residential properties. The combined work of Phases I and II resulted in the reduction of 81 tons of sediment and 68 pounds of phosphorus into the lake. Future work and outreach will be supported through local partners and the continuation of the LakeSmart program.

CLWA volunteers planted bushes and spread Erosion Control Mulch at Town Beach

PROJECT OUTCOMES:

- The project fixed a total of 25 NPS sites in the watershed. This included 11 priority erosion problems, such as the public boat launch, public beach parking area, private gravel roads, and town road ditches. Another 10 residential sites were addressed through a small matching-grants program.
- The project successfully engaged two of the lake's summer camps, Camp Agawam and Camp Laurel South. Four erosion sites were addressed, including remediation of a large, visible, high-priority site at Camp Laurel South. The steep eroding slope known as "ski beach" was stabilized with coir log terraces, plants, erosion control mulch, and access stairs. This site work was completed with $4,000 in grant funding and $9,912 in match.
- Twenty-eight landowners in the watershed received free technical assistance. Two public workshops were held, including a hands-on buffer planting at the Raymond Town Beach. Several brochures and other outreach materials were completed, including the Lake-Friendly Living brochure that was mailed to all CLWA members.
- Pollutant loading to Crescent Lake was reduced by an estimated 56 tons of sediment and 46 pounds of phosphorus per year (Region 5 Method and WEPP Model).

Remediation of the highly eroding "ski beach" at a youth camp

PROJECT PARTNERS:

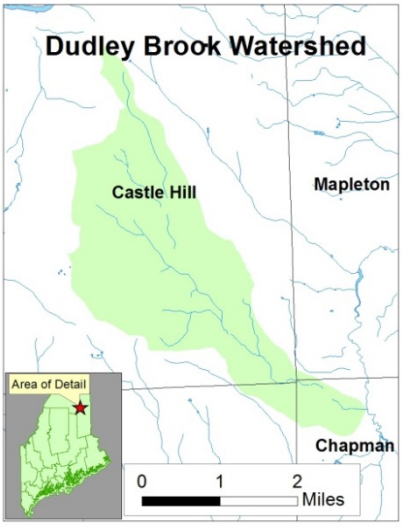
Crescent Lake Watershed Association
FB Environmental Associates
Cumberland County SWCD
Raymond Waterways Protective Association
Town of Casco

CONTACT INFORMATION:

Kristin Feindel, Maine DEP- (207) 215-3461, kristin.b.feindel@maine.gov
Don Willard, Town of Raymond - (207) 655-6994, don.willard@raymondmaine.org
FB Environmental - (207) 221-6699, info@fbenvironmental.com

Dudley Brook Restoration Project Phase 1
#2012RT24

Waterbody Name:	Dudley Brook
Location:	Castle Hill, Mapleton & Chapman – Aroostook County
Waterbody Status:	Impaired, NPS Priority
Project Grantee:	Central Aroostook SWCD
Project Duration:	September 2014 – November 2016
319 Grant Amount:	$26,661
Local Match:	$16,852



PROBLEM:

Dudley Brook flows southeast through Castle Hill before terminating at its confluence with Presque Isle Stream. Dudley Brook is approximately 6.4 miles in length and has a watershed area of 4,059 acres (1,643 ha). Land use is a mix of forested areas (69%), cultivated agriculture (18%), 6% wetlands, 5% pasture/hay land, and only 2% residential development along roadways. Dudley Brook is classified as a Class A water body, but due to nonpoint source (NPS) pollution, part of the brook fails to meet Class A water quality standards. The lower watershed is dominated by potato production where there is clear evidence of soil erosion and deposition in the brook and impoundment. The fields in the lower watershed are planted up and down the slope with potato rows directed at the impoundment or road ditch that discharges to the stream. The agricultural fields off the West Chapman Road need waterways rebuilt, a filter strip constructed, a riparian forest buffer established, and if possible a winter cover crop established each year after potato harvest.

PROJECT DESCRIPTION:

The CASWCD worked with the major agricultural land manager for the land adjacent to the nonattainment reach in the watershed to implement BMPs. The sites chosen were concentrated in an area adjacent to and immediately above the Chapman impoundment. The original project called for six different BMPs. However, after NRCS and District staff spent additional time viewing the fields it became clear that one large BMP project (sediment basin with stable waterway and rubber razor) and one smaller project (winter cover) best addressed the NPS pollution sources. The landowner and land manager were supportive of the changes. This resulted in a grant increase from $14,689 to $26,661 and additional time to complete the project.

Bare agricultural field adjacent to impoundment and stream

PROJECT OUTCOMES:

- A new winter cover BMP was introduced to the grower on 25 acres of land immediately adjacent to the stream and impoundment. This practice alone reduced the sediment load by 35 tons/year or about 50% of the TMDL target.
- 13 acres of agricultural land and farm access road runoff has been directed into a sediment basin by a new grassed waterway.
- The NPS pollutant load changes for these two projects are as follows: 64 tons/year of soil was retained; loading to Dudley Brook was reduced by 105 pounds/year of phosphorus, and 210 pounds/year of nitrogen (Region 5 and RUSLE). These numbers represent 89% of the TMDL-targeted soil reduction, 10% of the phosphorus, and 8% of the nitrogen targets.

Sediment basin with grass waterway

Agricultural field with winter cover adjacent to impoundment and stream

PROJECT PARTNERS:

USDA Natural Resource Conservation Service - Local and State Offices

CONTACT INFORMATION:

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

Hollie Umphrey, Central Aroostook SWCD - (207)764-4153 #3, centralaroostookswcd@gmail.com

Goosefare Brook Watershed-based Management Plan Development Project
#2013RT25

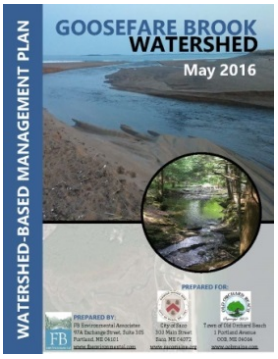
Waterbody Name:	Goosefare Brook
Location:	Saco and Old Orchard Beach – York County
Waterbody Status:	Urban Impaired Stream
Project Sponsor:	City of Saco
Project Duration:	February 2014 – June 2016
604(b) Grant Amount:	$45,952
Local Match:	$33,616

PROBLEM:

Goosefare Brook flows directly into Saco Bay mid-way between Old Orchard Beach and Ferry Beach State Park, two major beaches on the longest recreational sand beach in the State of Maine. Much of the estuary is part of the Rachel Carson National Wildlife Refuge. The watershed covers 9.2 square miles and includes a mix of residential, commercial, and recreational land uses. Goosefare Brook does not meet its statutory Class B classification for aquatic life use, based on non-attainment for macroinvertebrates, and six toxic metals. The stream and its main tributary, Bear Brook, are impaired for bacteria. The toxic metals impairment is currently under further investigation by the EPA; however, much of the problem appears to be associated with a legacy source from past industrial activities next to the stream. In 2001 the City of Saco conducted a watershed survey (#2001R20) and identified 78 NPS sites in the watershed.

PROJECT DESCRIPTION:

The purpose of the project was to develop a locally-supported watershed management plan outlining a strategy to restore Goosefare Brook. The project coordinators were the City of Saco and York County SWCD with consulting support from FB Environmental. Information about Goosefare Brook was compiled from past studies, and extensive additional information was collected to better understand stream impairments, stressors, and pollution sources. Water quality data were collected; a stream corridor survey was conducted to identify erosion, buffer, and other issues adjacent to the stream; watershed boundaries, stormwater outfall catchments, and impervious cover were mapped; and stormwater retrofit options were evaluated.



A community meeting, attended by over 50 people, was held in June 2015. A steering committee developed plan strategies and priorities using input from water quality and technical subcommittees. Thornton Academy conducted an intercept survey in to gather information on public awareness and support for Goosefare Brook. A draft plan was posted for public comment and stakeholder comments were incorporated into the final plan. An overview of the plan was presented to both municipalities, who accepted the plan and appointed members to serve on the Goosefare Brook Restoration Committee.

PROJECT OUTCOMES:

- The water quality monitoring and watershed studies completed through the project helped identify specific impairments, stressors, and pollution sources for different parts of the stream. This in-depth understanding of the stream and its watershed formed the basis for a focused and informed plan.
- The *Goosefare Brook Watershed-based Management Plan* was completed in May 2016. The Plan includes background information, results of stream and watershed assessments, maps, and an action plan. Available at: http://www.sacomaine.org/residents/news_and_agendas/goosefare_brook.php
- The project helped focus local attention on Goosefare Brook. An AmeriCorps volunteer with the Maine DEP worked with the Old Orchard Beach Campground and City of Saco to coordinate a volunteer cleanup of a tire dump identified through the project. Approximately 60 tires and other debris were removed in the fall of 2015. Questions raised by the project about potential ongoing water quality impacts from toxics led to a focused study of the issue by EPA in the summer of 2016.
- The project laid the foundation for restoration efforts in the watershed. The City of Saco was awarded a culvert bond grant to address one of three high-priority fish barriers. The City was also awarded a 319 grant for the *Goosefare Brook Watershed Restoration Project- Phase I*, which begins in 2017.

Theresa Galvin from YCSWCD conducted water quality monitoring

Old Orchard Beach Town Manager, Larry Mead, served as the keynote speaker at the June 2015 Community Meeting

PROJECT PARTNERS:

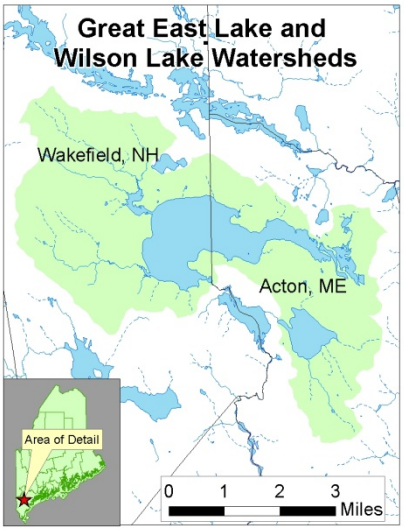
FB Environmental Associates
Maine Healthy Beaches
ME Dept. of Inland Fisheries & Wildlife
ME Dept. of Transportation
Maine Turnpike Authority
Nature Conservancy
Ocean Park Association
Thornton Academy
Ocean Park Conservancy Society
Town of Old Orchard Beach
US Fish and Wildlife Service

CONTACT INFORMATION:

Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov
Joe Laverriere, City of Saco – (207) 284-6641, jlaverriere@sacomaine.org
Theresa Galvin, York County SWCD – (207) 432-4543, tgalvin@yorkswcd.org

Great East Lake and Wilson Lake Watershed Protection Project, Phase II
#2015RR02

Waterbody Name:	Great East Lake and Wilson Lake
Location:	Acton – York County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Acton Wakefield Watersheds Alliance
Project Duration:	May 2015 – November 2016
319 Grant Amount:	$55,356
Local Match:	$60,767



PROBLEM:

Wilson Lake lies entirely in Maine, and Great East Lake lies on the state border in Wakefield, New Hampshire and Acton, Maine. Great East Lake covers 1,707 acres and its watershed covers 15.3 square miles. Wilson Lake covers 208 acres with a watershed of 3.9 square miles. Great East Lake is developed with over 700 homes, and Wilson Lake is surrounded by over 200 homes. Each lake has a public boat launch, and Great East Lake is widely used for recreation with an average of 1500 visiting boats each season. Both lakes drain into Horn Pond and comprise the headwaters of the Salmon Falls River, which flows along the state border and serves as a drinking water supply for over 28,000 people.

Volunteers have monitored water quality on both lakes for several decades. Water quality on Great East Lake is considered outstanding, and Wilson Lake's water quality is average with high oxygen depletion in late summer. In 2006 the Acton Wakefield Watersheds Alliance (AWWA) and its summer Youth Conservation Corps (YCC) formed to protect the water quality of ten lakes in Acton and Wakefield. In 2008, AWWA received a NH 319 grant to complete a watershed-based plan for the upper Salmon Falls River watershed. The project included a watershed survey on Great East Lake, which identified 177 NPS sites. In 2009, DEP and the Wilson Lake Association carried out a watershed survey and identified 72 NPS sites. In 2010, NH DES funded a project to fix NPS problems on the NH side of Great East Lake's watershed. In 2012, a Maine DEP 319 project (#2012RR01) addressed NPS problems on seven road sites and installed conservation practices on 16 residential sites using its YCC.

PROJECT DESCRIPTION:

The project purpose was to reduce erosion and pollutant loading to Wilson and Great East Lakes. All work was done in Maine. Cost-sharing assistance was provided to the Lakeside Drive Road Association to fix severe erosion problems on two road sites, and AWWA's YCC provided labor to address 11 residential sites. Project staff provided technical assistance to 22 additional landowners. Septic system surveys were conducted for both lakes, and project information was shared with the community through lake association newsletters, the AWWA website, and emails.

AWWA's YCC installed 34 BMPs on 11 properties on Great East and Wilson Lakes

PROJECT OUTCOMES:

- The project installed conservation practices on two high priority sites on Lakeside Drive. This steep road had been chronically eroding for many years but was not able to be addressed until AWWA helped with the formation of the Lakeside Drive Road Association in 2014. Erosion was mitigated along over 1300 feet of road by installing numerous BMPs, including road grading and crowning, culvert and ditch enhancements, level spreaders, plunge pools, sediment basins, and paving.
- AWWA's YCC program installed 34 BMPs on 11 project sites (10 planned), and project staff provided technical assistance to an additional 22 landowners in the project area.
- Work completed through the project reduced pollutant loading to Great East Lake by an estimated 60 tons of sediment and 51 pounds of phosphorus per year and to Wilson Lake by an estimated three tons of sediment and two pounds of phosphorus per year (Region 5 Method and WEPP Model).
- Septic surveys were developed for both lakes to gather information about the status of septic systems around the lakes and prompt action where needed. Surveys were sent to 580 homeowners and 204 responses were received (35% response rate). The resulting information was summarized in reports, which were posted on the websites of both lake associations.

Prior to the Phase II project, Lakeside Drive and Foley Way contributed an estimated 47 tons of sediment and 40 pounds of phosphorus to Great East Lake each year. In June 2015, numerous BMPs were installed to stabilize the road surface and direct runoff into vegetated areas. Several large rainfall events tested the BMPs that summer. Most of the BMPs worked as designed, and the contractor and road association made some adjustments as well.

PROJECT PARTNERS:

Great East Lake Improvement Association

Lakeside Drive Road Association
Wilson Lake Association

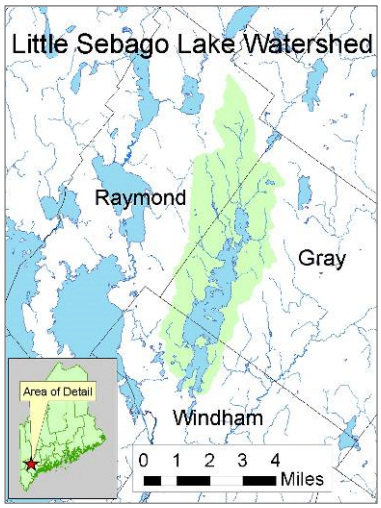
CONTACT INFORMATION:

Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov

Linda Schier, AWWA – (603) 473-2500, info@AWwatersheds.org, www.AWwatersheds.org

Little Sebago Lake Watershed Protection Project, Phase IV

#2013RR27



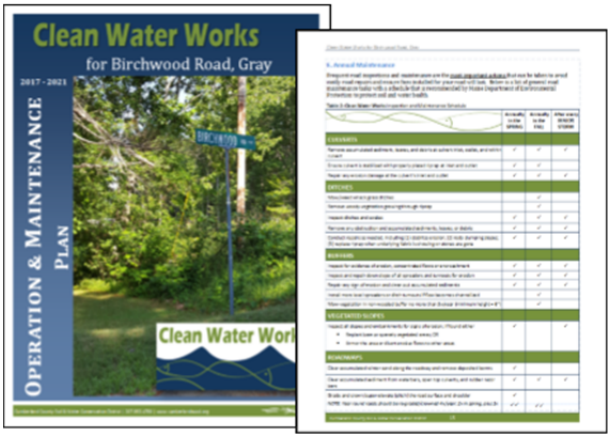
Waterbody Name:	Little Sebago Lake
Location:	Gray and Windham, Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Sponsor:	Cumberland County SWCD
Project Duration:	March 2014 – December 2016
319 Grant Amount:	$96,670
Match:	$84,485

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. There is a state-owned boat ramp on the lake. There is an infestation of invasive variable-leaf milfoil, which is being actively managed.

The lake has been monitored since 1975, and the data indicate that the lake has moderate depletion of dissolved oxygen in the hypolimnion in late summer. In 2002 and 2003, the Cumberland County Soil and Water Conservation District (CCSWCD), LSLA and Maine DEP completed NPS surveys of the entire watershed and identified 327 erosion sites. Four 319 grants from EPA have helped address the identified sites. A *Phase I* grant project (#2004R-02) fixed 55 documented erosion problems and started a summer Youth Conservation Corps (YCC), and a smaller grant project (#2004R-24B) concurrently fixed another two high-impact watershed sites. A *Phase II* project (#2006R-04) fixed 10 priority NPS sites, and the YCC installed conservation practices at 54 residential sites. The *Phase III* project (#2010RR02) addressed another 10 private road sites and 18 residential sites.

PROJECT DESCRIPTION:



The purpose of the *Phase IV* project was to reduce polluted runoff to Little Sebago Lake and develop long-term programs for the lake association to carry out over time. The project aimed to address 12 priority erosion sites and ultimately fixed six sites. CCSWCD convened three private road meetings to explore road association needs; developed Operation and Maintenance Plans for 15 private roads; and worked with LSLA to develop a small grants program for homeowners. Project outreach included presentations for town councils and LSLA annual meetings and a final project brochure.

PROJECT OUTCOMES:

- The project fixed erosion problems at six priority watershed sites. The Sucker Brook project used innovative techniques to stabilize an eroding streambank, while also maintaining natural stream characteristics and habitat. Overall, the projects prevented an estimated 11 tons of sediment and 9.5 pounds of phosphorus from entering Little Sebago Lake each year (Region 5 Method and WEPP Road Model).
- Road Operation and Maintenance (O&M) Plans were developed for 15 roads. The plans outline actions that will improve the roads and protect the health of the lake, including providing inspection forms for the road association to keep track of needed maintenance and completed work.
- Project staff helped LSLA pilot two residential programs through the project. A mini-grant program offered up to $500 to help landowners implement recommended practices, and a 'BMP of the Year' program provided Erosion Control Mix and pre-made rubber razors to homeowners at cost.
- LSLA and road associations contributed significant cash match and in-kind services to the project. Local match totaled nearly $85,000 (almost $15,000 over the work plan goal).

Ramsdell Road and Sucker Brook – Prior to construction, there was significant streambank erosion resulting from misaligned double culverts under Ramsdell Road. It was cost prohibitive to replace the culverts, so CCSWCD staff used natural channel design principles to address the problem. Seven root wads were installed along the stream's eroding bank (above left); two J-hook rock vanes and converging rock clusters (above right) were placed in the stream to dissipate energy and direct flow away from the bank; and plantings and mulch were placed on the stream bank.

PROJECT PARTNERS:

Birchwood Road Association
Town of Gray
Little Sebago Lake Association
Ramsdell Road Association
Town of Windham

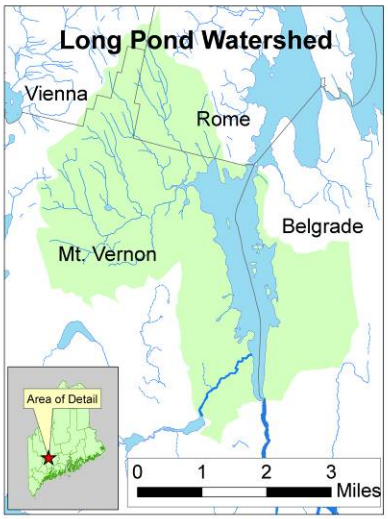
CONTACT INFORMATION:

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

Long Pond NPS Watershed Restoration Project, Phase III

#2014RT06

Waterbody Name:	Long Pond
Location:	Belgrade, Mt. Vernon, Rome, Vienna – Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	Belgrade Regional Conservation Alliance (BRCA)
Project Duration:	January 2014 – December 2016
319 Grant Amount:	$74,460
Local Match:	$109,035



PROBLEM:

Long Pond is located in northwestern Kennebec County and is the sixth lake in the Belgrade chain of lakes. It has a direct watershed of 22 square miles (14,300 acres) and an indirect watershed of 64 square miles (41,000 acres) that includes the watersheds of Great Pond, North Pond, East Pond, Salmon Lake, and McGrath Pond. Great Pond empties into Long Pond, and Great Pond accounts for more than 70% of the total indirect watershed area, and close to 50% of the entire watershed area, and therefore has a large influence on the water quality of Long Pond. Water quality data has been collected since 1970, and over the past three decades the water clarity has declined by more than one meter. Due to declining water quality, DEP listed Long Pond as an "impaired waterbody" on the State's 2006 303(d) list. In 2008 a TMDL was completed that identified nonpoint source pollution (NPS) in the direct watershed, as well as in the watersheds of upstream lakes (particularly Great Pond) as primary sources of declining water quality. A watershed survey completed by BRCA in 2002 identified 211 NPS sites. Colby College completed a watershed survey in 2007-08 and identified an additional 400 sites, including sites where shoreline buffers could be enhanced. In 2009, BRCA and Kennebec County SWCD completed a watershed-based management plan. BRCA completed two 319-funded implementation projects (#2009RT07 and #2011RT07). Phase I implemented NPS Best Management Practices (BMPs) at 19 sites and 21 Youth Conservation Corps (YCC) sites. NPS BMPs were implemented at 54 sites, 40 YCC projects were completed, and road management plans were developed in Phase II.

PROJECT DESCRIPTION:

The purpose of this project was to reduce phosphorous loading to the lake by continuing to implement actions listed in the Long Pond Watershed-Based Management Plan (December 2009). Best management practices were installed at NPS sites, with a focus on addressing high priority camp roads. Technical assistance was provided to road associations and road management plans were developed or updated. The BRCA (YCC) implemented BMPs at additional sites. Outreach was provided through road maintenance workshops.

PROJECT OUTCOMES:

- BMPs were installed at 61 NPS sites, exceeding the project goal of 20 sites. Sites included 12 camp roads, two town roads, three homes, and two camp association properties.
- Five Road Management Plans (RMPs) were developed and seven updated as construction projects were implemented. These plans are effective tools to help road associations, towns, and homeowners plan and budget work; and provide contractors clear construction specifications.
- Youth Conservation Corps (YCC) projects were implemented at 52 NPS sites, exceeding the project goal of 30 NPS sites.
- Two road workshops were held, one for town officials and contractors and one for lake and road associations.
- Outreach was conducted with towns, particularly with the town of Rome, that resulted in the implementation of two projects. Working on town roads in addition to camp roads is a critical component in improving water quality in the watershed.
- Work completed through the project reduced pollutant loading to Long Pond by an estimated 145 tons of sediment and 125 pounds of phosphorus per year.

Wildewood Estates - lake access parking and diversion swale

Granite Estates - bluestone gravel and ditching turnouts

PROJECT PARTNERS:

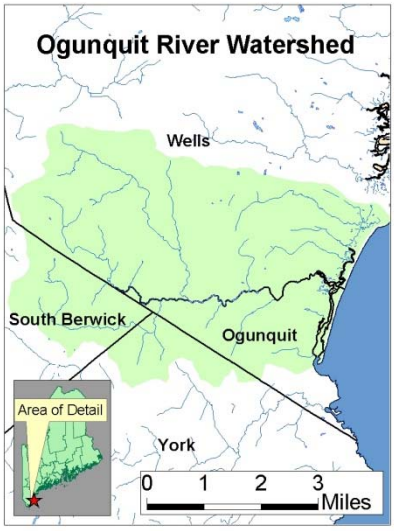
Belgrade Lakes Association
Kennebec County SWCD
Maine Lakes Resource Center
Towns of Belgrade, Mt Vernon and Rome

CONTACT INFORMATION:

Charlie Baeder, BRCA, (207) 495-6039, brcacb@belgradelakes.org
Mary Ellen Dennis, DEP, (207) 215-7946, mary-ellen.c.dennis@maine.gov

Ogunquit River Watershed Restoration Project, Phase I
#2014BB09

Waterbody Name:	Ogunquit River
Location:	Ogunquit and Wells - York County
Waterbody Status:	NPS Priority Watersheds, Tidal Portion Impaired, Most at Risk
Project Grantee:	Town of Ogunquit
Project Duration:	March 2014 – December 2016
319 Grant Amount:	$92,050
Local Match:	$149,260



PROBLEM:

The Ogunquit River watershed is an approximately 21 square mile coastal southern Maine watershed located in Ogunquit, South Berwick, York, and Wells, Maine. The river is tidally influenced downstream of the Route 1 crossing and flows through salt marshes before emptying into the Gulf of Maine behind Ogunquit's 3.5 mile barrier beach. The Ogunquit River is a high value area of heavy contact recreation (swimming, boating, and fishing) enjoyed by over a million residents and visitors each year.

Polluted runoff impacts the river, including stormwater and malfunctioning septic systems stemming from residential, municipal, and commercial properties. The Ogunquit River estuary is listed in Maine's Integrated Report (2012) as impaired under Category 4-A: Estuarine and Marine Waters Impaired by Bacteria (fecal pollutants), and is included in the *Maine Statewide Bacteria Total Maximum Daily Load* (August 2009). Seven times since 2010, advisories have been issued at the beach at the outlet of the Ogunquit River. Enterococci bacteria results at this location have been as high as 2,481 colonies/100mL. In the Leavitt Stream, a tributary to the Ogunquit River near its outlet, Enterococci bacteria have been as high as 4,884 colonies/100mL. Canine detection methods used in 2012 and 2013 showed that human waste was a potentially significant source of bacteria at multiple sites throughout the watershed, including the Leavitt Stream and the outlet of the Ogunquit River. In 2013, the Town of Ogunquit and its consultant FB Environmental Associates, updated the 2003 watershed survey and 2007 watershed plan. The *Ogunquit River Watershed Based Plan (July 2013)* focuses on ways to address sources of bacteria and nutrients in the watershed.

PROJECT DESCRIPTION:

The primary purpose of this project was to reduce bacteria levels in the Ogunquit River by addressing several polluted stormwater runoff sites, and prompt actions to address other bacteria sources such as malfunctioning septic systems and any identified sewer problems. The project also aimed to raise community awareness and engagement in solutions. Targeted water quality monitoring and hotspot investigation continued to help guide the Town with septic maintenance outreach. Smoke testing in a targeted area did not reveal any sewer issues or cross-connections.

Educational sign at the Ogunquit Community Center rain garden

PROJECT OUTCOMES:

- Installation of 12 conservation practices at a total of five NPS pollution sites. This included a bio-retention BMP at a town parking lot, a rain garden and educational sign at the Town Community Center, plantings and erosion control mulch at a motel, and residential BMPs.
- Use and creation of a septic and sewer database to prompt homeowner compliance with the septic system pump-out ordinance.
- Two years of water quality monitoring and reporting, including continued bacteria hotspot identification.
- Seven public outreach events to the community, including two workshops, one residential social, and four presentations.
- Testing in the Riverside Beach area helped determine that bathing water from the nearby shower facility was contributing water with high bacteria concentrations to the river and beach area. As a result, the Town of Ogunquit disconnected the washwater from the showers from the outfall pipe and connected it to the sewer system. This greatly reduced the flow from the outfall pipe, and it now only flows during wet weather events.
- Providing match of $149,000, which was $77,000 more than required by the grant work plan.
- Pollutant loading reduction to the Ogunquit River of an estimated 1.6 tons of sediment, 7.5 pounds of phosphorus, and 34.3 pounds of nitrogen per year *(STEPL).*

Installation of bio-retention unit to treat the runoff from the Ogunquit Lower Parking Lot

PROJECT PARTNERS:

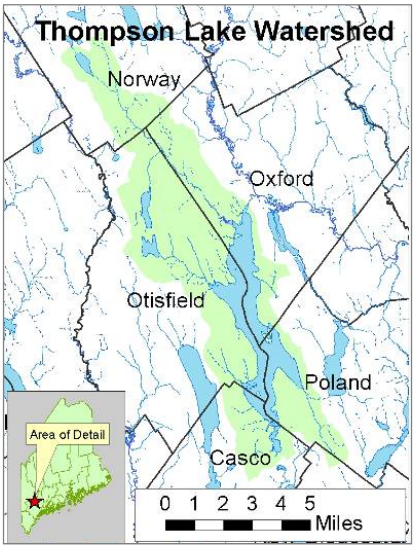
Ogunquit Conservation Commission
Ogunquit Sewer Department
Town of Ogunquit
FB Environmental Associates
Maine Healthy Beaches
York County SWCD

CONTACT INFORMATION:

Kristin Feindel, Maine DEP – (207) 215-3461, Kristin.b.feindel@maine.gov
Mark O'Brien, Town of Ogunquit – (207) 646-5139, townmanager@townofogunquit.org
FB Environmental – (207) 221-6699, info@fbenvironmental.com

Thompson Lake Watershed Protection Project Phase IV, Casco and Poland
#2014RR07

Waterbody Name:	Thompson Lake
Location:	Casco, Poland, Oxford, Norway and Otisfield - Cumberland, Androscoggin and Oxford Counties
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Cumberland County SWCD
Project Duration:	March 2016 – December 2016
319 Grant Amount:	$82,073
Local Match:	$74,845



PROBLEM:

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

In addition to its monitoring and invasive plant programs, Thompson Lake Environmental Association (TLEA) has focused efforts on watershed stewardship for many years. They conducted partial watershed surveys in 1995 and 1999, started a summer Youth Conservation Corps (YCC) in 2002, and partnered on 319 grants from EPA. Watershed surveys were updated from 2008-2010 with a combination of independent funding and a 319 grant (#2009RR08). In 2010-2012, a Phase III 319 grant project (#2010RR08) addressed 18 priority NPS sites and provided 10 residential matching grants in the town of Otisfield. The *Thompson Lake Watershed Protection Plan* was completed in 2013.

PROJECT DESCRIPTION:

The purpose of the Phase IV project was to significantly reduce pollutant loading associated with erosion sites located in Casco and Poland. Fourteen priority sites were targeted for abatement projects, and another 16 sites were targeted for work by the YCC. The project also visited past BMP installations to assess site conditions and maintenance needs. Letters were sent to each landowner to share this information and prompt maintenance where needed. Information about previous and Phase IV abatement projects was added to Thompson Lake's NPS Site Tracker. Project outreach included presentations at two town council meetings and two annual TLEA meetings, four TLEA newsletter articles, and a final project summary sheet.

2014 Thompson Lake YCC Crew

PROJECT OUTCOMES:

- A total of 12 NPS Abatement Projects were completed including three road sites, four driveways, one boat launch, two rights-of-way, and two lake access sites. Estimated pollutant load reductions associated with these projects totaled 27 tons of sediment and 23 pounds of phosphorus per year (Region 5 Method and WEPP Road Model).
- The Thompson Lake Youth Conservation Corps installed conservation practices at another 16 projects in Casco and Poland in 2014 and 2015.
- Project staff trained TLEA volunteers to evaluate site conditions, BMP function and maintenance needs at past BMP installations. Volunteers visited 33 sites, and documented their findings. They then followed up with road associations and landowners by letter or by personal contact providing suggested actions and information on available resources.

Heath Road Boat Launch (Before) – This site was severely eroded due to heavy use as an unofficial boat launch and snowmobile access

Heath Rd. Boat Launch (After) – Split face blocks were installed in a terraced manner. Stone riprap and geotextile were placed around the blocks to support the road shoulder and pavement edge.

PROJECT PARTNERS:

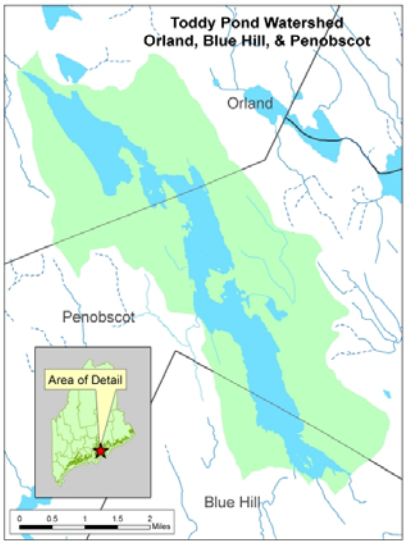
Thompson Lake Environmental Association
TLEA Youth Conservation Corps
Town of Casco
Town of Poland

CONTACT INFORMATION:

Wendy Garland, DEP – (207) 615-2451, wendy.garland@maine.gov
Heather True, Cumberland County SWCD, (207) 892-4700, htrue@cumberlandswcd.org
Thompson Lake Environmental Association – (207) 539-4535, tlea@fairpoint.net

Toddy Pond Watershed Protection Project
#2014RR01

Waterbody Name:	Toddy Pond
Location: Hancock County	Orland, Surry, Blue Hill & Penobscot -
Waterbody Status:	Unimpaired
Project Grantee:	Hancock County SWCD
Project Duration:	April 2014 – December 2016
319 Grant Amount:	$77,926
Local Match:	$80,931



PROBLEM:

Toddy Pond is a 2,408 acre lake with a direct drainage area of 17.2 square miles. Water quality data has been collected by the Maine DEP and the Volunteer Lake Monitoring Program for Toddy Pond since 1977. The water quality of Toddy Pond is considered to be above average and the potential for nuisance algae blooms is low. However, the Toddy Pond watershed is experiencing significant development pressure and many seasonal camps have recently been converted to year-round residences resulting in increased use of gravel roads and soil erosion from construction activities. In 2012, Hancock County SWCD received a EPA CWA 319 grant (#2011PP19) to conduct a watershed survey and identified 147 problem sites in the watershed. Hancock County SWCD and the Toddy Pond Association used this information to create the *Toddy Pond Watershed-based Protection Plan* (2013).

PROJECT DESCRIPTION:

The purpose of the project was to implement key parts of the Toddy Pond Watershed-based Protection Plan. The project was managed by the Hancock County SWCD and guided by a steering committee consisting of District staff, members of the Toddy Pond Association (TPA), Maine DEP, and Orland, Surry, Blue Hill, Penobscot, and Toddy Pond watershed residents.

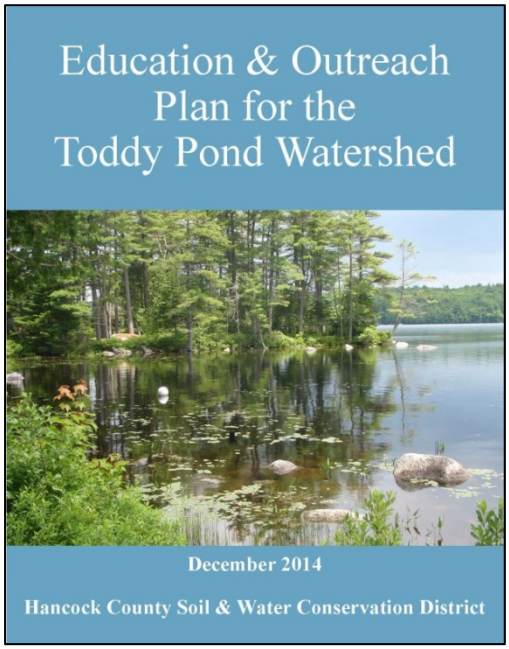
Beginning in the spring of 2014, the Toddy Pond Watershed Protection Project focused on reducing sediment loadings by restoring high- and medium-priority road sites selected from the watershed survey. Lower priority sites were addressed through technical assistance from the District and use of in-kind match. The guidance document "Using Project Funds for Construction of BMPs at Road-related Sites" was used to evaluate road-related NPS sites and determine if NPS project funds could be used to help a landowner pay for construction of road-related BMPs.

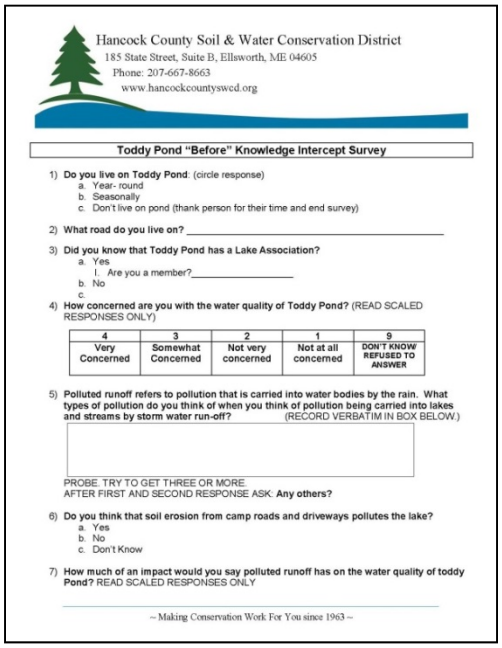
PROJECT OUTCOMES:

- Erosion and sedimentation BMP's were installed at 44 NPS sites in the watershed resulting in an estimated annual reduction of 100 tons of sediment, 97 pounds of phosphorous, and 169 pounds of nitrogen reaching Toddy Pond (Region 5 Method). Public outreach and education was an essential component of this project and five outreach planning sessions were held involving Steering Committee Members, TPA members, town officials, and watershed residents.)

- These LOGIC-Model based outreach sessions guided the group in an Education and Outreach Plan that included the following elements: Specific, Measurable (SMART) objectives for outreach; Means to identify a target audience; Methods of delivering their message; Indicators of success; Implementation strategy; and Evaluation Techniques.

- Twenty five watershed residents received technical assistance on installing erosion and sedimentation BMPs at their property.




Hancock County Soil & Water Conservation District
185 State Street, Suite B, Ellsworth, ME 04605
Phone: 207-667-8663
www.hancockcountyswcd.org

Toddy Pond "Before" Knowledge Intercept Survey

1) **Do you live on Toddy Pond**: (circle response)
   a. Year- round
   b. Seasonally
   c. Don't live on pond (thank person for their time and end survey)

2) **What road do you live on?** _____

3) **Did you know that Toddy Pond has a Lake Association?**
   a. Yes
      I. Are you a member?_____
   b. No
   c.

4) **How concerned are you with the water quality of Toddy Pond?** (READ SCALED RESPONSES ONLY)

4	3	2	1	9
Very Concerned	Somewhat Concerned	Not very concerned	Not at all concerned	DON'T KNOW REFUSED TO ANSWER

5) **Polluted runoff refers to pollution that is carried into water bodies by the rain. What types of pollution do you think of when you think of pollution being carried into lakes and streams by storm water run-off?** (RECORD VERBATIM IN BOX BELOW.)

PROBE. TRY TO GET THREE OR MORE.
AFTER FIRST AND SECOND RESPONSE ASK: **Any others?**

6) **Do you think that soil erosion from camp roads and driveways pollutes the lake?**
   a. Yes
   b. No
   c. Don't Know

7) **How much of an impact would you say polluted runoff has on the water quality of toddy Pond?** READ SCALED RESPONSES ONLY

~ Making Conservation Work For You since 1963 ~

PROJECT PARTNERS:

Toddy Pond Association

Towns of Orland, Surry, Blue Hill and Penobscot

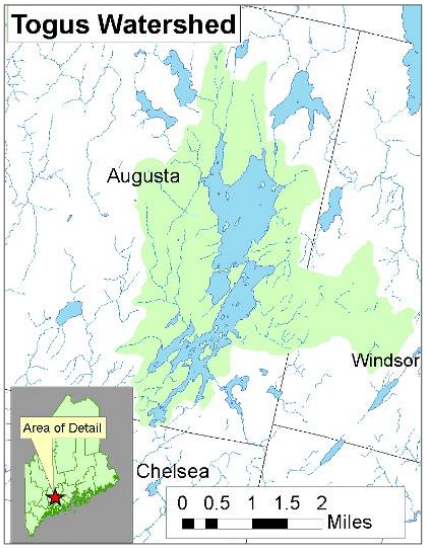
CONTACT INFORMATION:

Zack Steele, Hancock County SWCD (207) 667-8663 zsteele@hancockcountyswcd.org
Greg Beane, DEP (207) 299-4703 greg.e.beane@maine.gov

Togus Pond Watershed Restoration Project, Phase III

#2013RT07

Waterbody Name:	Togus, Little Togus and Lower Togus Ponds
Location:	Augusta and Windsor – Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	Kennebec County SWCD
Project Duration:	April 2013 – June 2016
319 Grant Amount:	$40,800
Local Match:	$23,081



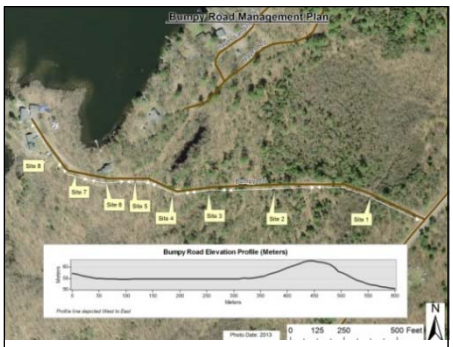
PROBLEM:

The Togus Pond watershed covers 36 square miles and includes Togus Pond, Little Togus Pond, Lower Togus Pond, and Togus Stream. Water quality monitoring data for Lower Togus Pond has been collected since 1989, and the water quality is considered to be below average based on measures of water clarity, total phosphorus, and Chlorophyll-a. The potential for nuisance algal blooms on Lower Togus Pond is high. Water quality monitoring data for Togus Pond has been collected since 1976, and the lake has a history of blooms.

A 2003 NPS watershed survey identified over 100 problem pollution sites. Most sites were associated with roads and residential areas and some involved commercial businesses and town/state roads. Approximately half of the pollution sites identified during the survey were ranked as medium or high priority due to their impact or potential to impact water quality. In addition to soil erosion, the watershed's TMDL Report (2005) suggested that 25% of the pond's phosphorus load comes from septic systems. From 2004 – 2006, a Phase I project (#2004R-06) completed repair work on 36 problem sites, which reduced pollutant loading to the pond by an estimated 24 tons of sediment and 24 pounds of phosphorus per year. The Phase II project (#2008RT03) addressed another 31 problem road sites and established five vegetated buffers.

PROJECT DESCRIPTION:

The Phase III project aimed to reduce watershed phosphorus loading and make progress restoring the pond's water quality. The project sought to install erosion control BMPs on 15 NPS problem sites and develop six Road Maintenance Plans. Technical assistance was also provided to participating landowners and road associations to promote and achieve voluntary remediation on as many other problem sites as possible. Project outreach included presentations at the lake association annual meetings, two camp road workshops, and press releases.



Road Management Plan excerpt

PROJECT OUTCOMES:

- The District developed clear, practical, site-specific, written recommendations (Gravel Road Design & Maintenance Plans) for long-term maintenance on six roads near the shoreline of the Pond (totaling 5.8 miles of road). These plans were well received. Landowners and road associations began implementing their plans to improve and stabilize roads and prevent road sediment from washing into the pond.
- NPS problems on 10 high priority road-related sites were addressed by installing ditching, culverts, plunge pools, new surface material, drainage improvements, and other BMPs.
- Work completed through the Phase III project reduced pollutant loading into Togus Pond by about 12.7 tons of sediment and 10.7 pounds of phosphorus per year (Region 5 Method and WEPP Model).

Tasker Road – Prior to the project, the road experienced chronic erosion problems for many years and a cross-culvert had failed, washing sediment into Togus Pond. The road association received cost sharing to install 550 feet of ditching, rebuild the road using geotextile fabric, and install a new 18" culvert. The work reduced pollutant loading to the lake by an estimated 8.5 tons of sediment and 7.0 pounds of phosphorus per year.

PROJECT PARTNERS:

City of Augusta

Maine Department of Marine Resources

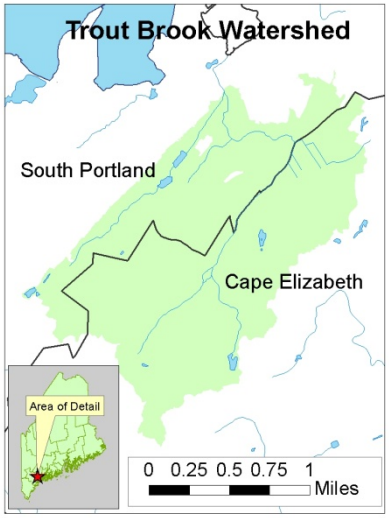
Worromontogus Lake Association

CONTACT INFORMATION:

Dale Finseth, Kennebec County SWCD – (207) 622-7847, Dale@kcswcd.org

Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov

Trout Brook Watershed Restoration Project, Phase II
#2014RT08



Waterbody Name:	Trout Brook
Location:	South Portland and Cape Elizabeth - Cumberland County
Waterbody Status:	Urban Impaired Stream (Kimball and Trout)
Project Sponsor:	Town of Cape Elizabeth
Project Duration:	April 2014 – December 2016
319 Grant Amount:	$120,185
Local Match:	$51,950

PROBLEM:

Trout Brook is approximately 2.5 miles long, originates in Cape Elizabeth and includes Kimball Brook and several unnamed tributaries. Its 2.4 square mile watershed transitions from woodland headwaters through agricultural lands, wetlands, the Trout Brook Nature Preserve, and dense residential developments before flowing into Portland Harbor. The stream supports a brook trout fishery, likely due to its abundant cold water springs. However, neither Trout Brook nor Kimball Brook meets Class C standards for habitat or aquatic life. In 2002, the South Portland Land Trust and Maine DEP conducted a watershed survey (#2002P10) and identified 86 NPS sites in the watershed. The Trout Brook TMDL study was completed in 2007, and the ***Trout Brook Watershed-based Plan*** (#2010PT20) was completed in December 2012. A Phase I 319 grant project (#2013RT08) helped fund the installation of conservation practices three priority NPS sites and form the Trout Brook Youth Conservation Corps, which planted 12 residential buffers along nearly 600 feet of stream.

PROJECT DESCRIPTION:

The primary purpose of the Trout Brook Phase II project was to significantly reduce nutrient loading from the upper watershed. The project aimed to install conservation practices at six sites on two properties, the Walnut Hill Equestrian Center and the Church of Latter Day Saints, which are located next to the stream. Although one key project could not be completed due to the equestrian center closure, two replacement projects were completed in its place.

A Focal Point system was installed next to the stream to treat parking lot runoff.

Project outreach included two presentations to the Cape Farm Alliance, signage at one of the high-visibility project sites and articles in the Forecaster newspaper and South Portland newsletter. Water quality monitoring was conducted adjacent to the project focus area to help identify improvements in dissolved oxygen following the construction projects.

PROJECT OUTCOMES:

- Five priority projects were completed through the Phase II project. A Focal Point bioretention system was installed to treat church parking lot runoff, and an existing detention basin was retrofitted to provide better treatment of parking and horse paddock runoff. A covered manure storage facility was built for the equestrian center prior to the property being placed on the market.
- Although the property sale prevented the installation of a gravel wetland; grants funds were used to cost-share the installation of a StormTree system by the City of South Portland and replacement of two failing, eroded culverts by Down Home Farm. The project's success in finding alternative construction projects in the last three months of the project demonstrated the strength of local partnerships. Although there was not time to complete more work, two additional projects (e.g., livestock exclusion fencing and a raingarden) were identified for future phases.
- An estimated 1.6 tons of sediment, 52 pounds of phosphorus, and 556 pounds of nitrogen are being kept out of Trout Brook each year from the activities completed under this grant (Region 5 and STEPL Methods).

A StormTree system was installed to treat 0.5 acres of impervious area. An educational sign will be placed at the site to explain the BMP function.

A covered manure storage facility was built at Walnut Hill Equestrian Center to prevent horse manure from washing into Trout Brook.

PROJECT PARTNERS:

City of South Portland
Cumberland County SWCD
Down Home Farms
Walnut Hill Equestrian Center

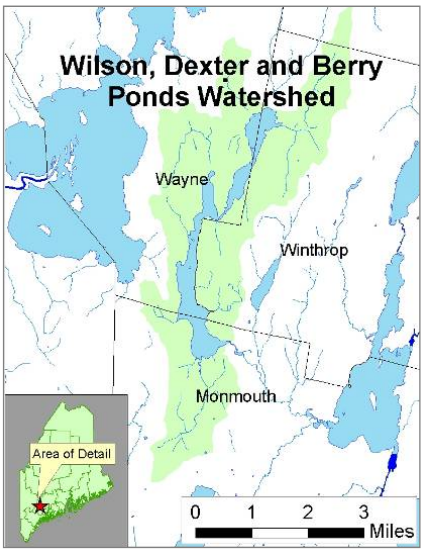
CONTACT INFORMATION:

Maureen O'Meara, (207), 799-0115, maureen.omeara@capeelizabeth.org
Wendy Garland, Maine DEP, (207) 615-2451, wendy.garland@maine.gov

Wilson Pond NPS Watershed Restoration Project, Phase II

#2014RT05

Waterbody Name(s):	Wilson Pond
Location:	Wayne, Monmouth, Winthrop – Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	Cobbossee Watershed District (CWD)
Project Duration:	March 2014 – December 2016
319 Grant Amount:	$48,745
Local Match:	$32,497



PROBLEM:

Wilson Pond is a moderate-sized lake that has been monitored for nearly 40 years by CWD. It is classified as having moderate to sensitive water quality due to rising levels of total phosphorus, reduced water clarity, and depletion of dissolved oxygen in bottom waters. The two smaller upstream ponds (Dexter and Berry) exhibit consistent clarity, high flushing rates, and have sizable drainage areas. Dexter and Berry Ponds are therefore likely influential to Wilson Pond's water quality. All three ponds are listed as "Lakes at Most Risk from Development" under the Stormwater Management Law. Wilson Pond was listed on the 303(d) list in 2006 and a TMDL was approved in 2007. Nonpoint sources in the watersheds include eroding camp roads, eroding public roads, shoreline erosion, agricultural runoff, and runoff from developed areas. A Phase I Project (#2009RT06) fixed 24 sites on five roads and one driveway.

PROJECT DESCRIPTION:

The project goal was to continue the Phase I project goals through installation of BMPs on camp roads, public roads, and the shoreline. During this project, 16 BMPs were installed on five camp roads and one public road/boat launch site. The Friends of Cobbossee Watershed's (FOCW) Youth Conservation Corps stabilized over 500 feet of shoreline. Technical assistance was provided through the development of Gravel Road Design and/or Maintenance Reports and through the LakeSmart Start! Program.

Education and outreach was provided to lakeshore owners through targeted efforts by FOCW. CWD and FOCW provided presentations at annual lake association meetings. FOCW also completed classroom education programs for students from Monmouth and Winthrop (without grant support). Overall, interest and participation on the part of landowners improved during this project compared to the first phase of the project. In the future, several remaining serious erosion sites will need to be addressed. In particular, one large gully that has deposited an extensive delta of upland soils into the pond was not addressed in this phase due to a lack of time and funds.

Woodland Road Project

PROJECT OUTCOMES:

- Five camp road upgrades and one public road/boat launch project, involving 16 NPS sites, were designed and installed to reduce erosion and provide improved treatment of stormwater runoff. All six road projects were successful resulting in an anticipated reduction in annual phosphorus loading to the lake of 8.1 pounds per year and annual sediment loading of 14.1 tons per year (Region 5 Method).
- Shoreline stabilization- over 500 linear feet of eroding shoreline was stabilized using a combination of rip-rap and geotextiles.
- Education enhancement- Students from the three watershed towns benefited from the FOCW's watershed education program. And, through the various public outreach vectors and the direct personal contact provided by the LakeSmart-Start! Program – the Berry Dexter Wilson Watershed Association (BDWWA) as well as the local watershed community as a whole – gained a better understanding of lake and watershed linkages.
- Camp Roads/Road Associations- In addition to the BMP projects noted above, residents on seven camp roads received technical guidance in the form of Gravel Road Design and Maintenance Recommendations. All residents on private camp roads in the watershed were provided an opportunity to receive legal guidance at the Private Road Association Workshop.

Merganser Lane – Before BMP Installation

Merganser Lane – After BMP Installation

PROJECT PARTNERS:

Berry Dexter Wilson Watershed Association

Friends of Cobbossee Watershed

Towns of Monmouth, Wayne and Winthrop

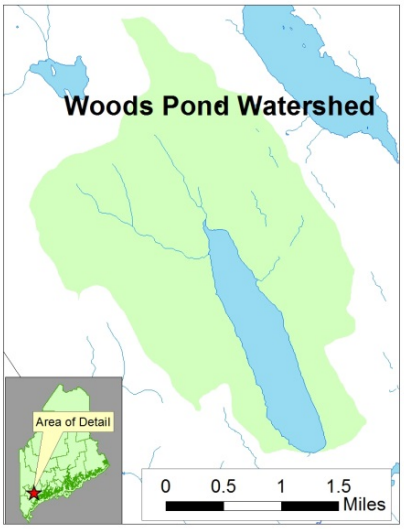
CONTACT INFORMATION:

Mary Ellen Dennis, DEP, (207) 215-7946, mary-ellen.c.dennis@maine.gov
Bill Monagle, Cobbossee Watershed District, (207) 377-2234, wmonagle@roadrunner.com

Woods Pond Watershed Protection Project, Phase I

#2014RR02

Waterbody Name:	Woods Pond
Location:	Bridgton - Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Lakes Environmental Association
Project Duration:	February 2014 – December 2016
319 Grant Amount:	$60,000
Local Match:	$110,137



PROBLEM:

Woods Pond covers 482 acres and has a direct watershed of 3,329 acres. The pond flows into Long Lake, Brandy Pond and Sebago Lake via Willett Brook. The Woods Pond shoreline is developed with 130 seasonal and year-round residences and there is a state-owned boat launch and two summer youth camps. Lakes Environmental Association (LEA) and volunteers have monitored the water quality of Woods Pond since 1976. Lake water quality is considered average; however there is frequently dissolved oxygen depletion and high phosphorus levels in bottom areas of the lake. There is growing concern about lower water clarity and increased nutrients like phosphorus, as well as increasing algae growth. These conditions accelerated during the previous decade, prompting LEA in 2012 to raise Woods Pond from a "Moderate" degree of concern to their "Moderate/High" level.

In 2012, the Woods Pond Water Quality Committee conducted a privately-funded survey of the watershed. Volunteers and project staff identified 79 NPS sites in the watershed, including 33 town and private road sites, 26 residential sites, eight driveway sites, and seven summer youth camp sites. The high and medium NPS sites were estimated to export 45 tons of sediment per year to the lake. The committee also created the Woods Pond Watershed-based Protection Plan (2013), which was the first alternative watershed-based plan approved by EPA and DEP (in accordance with EPA's 2013 NPS Program Guidelines.)

PROJECT DESCRIPTION:

The primary purpose of this project was to significantly reduce erosion and the export of sediment and phosphorus into Woods Pond by installing conservation measures throughout the watershed. The project also aimed to increase public awareness about watershed issues and foster long-term watershed stewardship. The project successfully met or surpassed all grant requirements. The resulting match of $110,000 was $67,000 more than required by the work plan.

Twenty five volunteers attended the workshop and helped with the buffer installation at Camp Wildwood.

PROJECT OUTCOMES:

- Installation of conservation measures at 17 NPS sites, including private roads and driveways, youth camps, a town road, and town beach.
- Surpassing the grant work-plan requirements with 27 technical assistance visits to residential properties and 12 conservation practice installations at residential sites.
- Outreach to the community through two workshops and a house meeting, which informed residents of the benefits of buffers, the importance of road maintenance, and Bridgton's shoreland zoning regulations. Additional outreach occurred through news articles; web postings; a final project brochure; and presentations at road association annual meetings, community events, and Bridgton Select Board meetings.
- Annual pollutant loading to Woods Pond was reduced by an estimated 38 tons of sediment and 32 pounds of phosphorus (WEPP Model and Region 5 Method).

The Town of Bridgton and the Wildwood Road Association worked together to address drainage challenges to reduce sediment washing into Sucker Brook, a major tributary of Woods Pond.

PROJECT PARTNERS:

Camp Wildwood
Cumberland County SWCD
Fiddlehead Environmental Consulting
Frost Farm Road Association
Kingswood Camp
Lakes Environmental Association
Woods Lake Association
Portland Water District
Town of Bridgton
Wildwood Road Association
Woods Pond Drive Association
Woods Pond Water Quality Association

CONTACT INFORMATION:

Kristin Feindel, DEP, (207) 215-3461, kristin.b.feindel@maine.gov
Colin Holme, Lakes Environmental Association, (207) 647-8580, colin@leamaine.org
Jeff Stern, Fiddlehead Environmental Consulting, (207) 595-0317, sternjm@hotmail.com

Appendix A. NPS Watershed Projects Closed in 2016

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Completion Date
Arctic Brook Watershed-based Plan Development Project	2014PT14	City of Bangor	42,000	23,826	Dec. 2016
Capisic Brook Watershed Restoration Project, Phase I	2014RT04	Cumberland County SWCD	47,485	73,630	Dec. 2016
Crescent Lake NPS Watershed Protection Project, Phase II	2014RR03	Raymond, Town of	82,049	80,369	Nov. 2016
Dudley Brook Restoration Project, Phase I	2012RT24	Central Aroostook SWCD	26,661	16,852	Nov. 2016
Goosefare Brook Watershed-based Plan Development	2013RT25	Saco, City of	45,952	33,616	May 2016
Great East Lake and Wilson Lake Watershed Protection Project - Phase 2	2015RR02	Acton Wakefield Watersheds Alliance	55,356	60,767	Nov. 2016
Little Sebago Lake Protection Project, Phase IV	2013RR27	Cumberland County SWCD	96,670	84,485	Dec. 2016
Long Pond NPS Watershed Restoration Project, Phase III	2014RT06	Belgrade Regional Conservation Alliance	74,460	109,035	Dec. 2016
Ogunquit River Watershed Restoration Project, Phase I	2014BB09	Ogunquit, Town of	92,050	149,260	Dec. 2016
Thompson Lake NPS Watershed Protection Project, Phase IV	2014RR07	Cumberland County SWCD	82,073	74,845	Dec. 2016
Toddy Pond Watershed Protection Project	2014RR01	Hancock County SWCD	77,926	80,931	Dec. 2016
Togus Pond Watershed Restoration Project, Phase III	2013RT07	Kennebec County SWCD	40,800	23,081	June 2016
Trout Brook Restoration Project, Phase II	2014RT08	Town of Cape Elizabeth	120,185	51,950	Dec. 2016
Wilson Pond NPS Watershed Restoration Project, Phase II	2014RT05	Cobbossee Watershed District	48,745	32,497	Dec. 2016
Woods Pond Watershed Protection Project, Phase I	2014RR02	Lakes Environmental Association	60,000	110,137	Dec. 2016

Appendix B. NPS Watershed Projects Active in 2016

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Planned Completion Date
Alamoosook Lake Watershed Protection Project	2016RR01	Hancock County SWCD	$132,217	88,145	Dec. 2017
Capehart Brook Restoration Phase II	2015RT01	City of Bangor	150,000	125,500	Dec. 2017
Cobbossee Lake Watershed Protection Project	2016RR02	Cobbossee Watershed District	93,430	68,096	Dec. 2017
Concord Gully Brook Watershed Restoration Project, Phase I	2016RT09	Cumberland County SWCD	44,300	33,429	Dec. 2017
East Pond Watershed-based Plan Update	2015PT10	Kennebec County SWCD	20,556	17,578	Dec. 2017
Ellis Pond Watershed Protection Project, Phase I	2016RR03	Oxford County SWCD	96,826	67,345	Dec. 2017
Goodall Brook Watershed Restoration Project, Phase I	2016RT08	City of Sanford	84,526	63,675	Dec. 2017
Hart Brook Restoration Project	2016RT04	City of Lewiston	94,000	66,647	Dec. 2017
Lake Auburn Watershed Improvement Project-Phase 1	2015RT03	Lake Auburn Watershed Protection Commission	148,438	116,472	Dec. 2017
Long Pond Watershed Restoration Project, Phase IV	2016RT05	Belgrade Region Conservation Alliance	76,120	81,660	Dec. 2017
Ogunquit River Watershed Restoration Project, Phase II	2016RT06	Town of Ogunquit	69,340	46,658	Dec. 2017
Phillips Brook Watershed Plan Development	2015PP09	Town of Scarborough	23,044	43,225	Dec. 2017
Phillips Lake Watershed Protection Project- Phase II	2015RR04	Hancock County SWCD	98,447	65,665	Dec. 2017
Red Brook Restoration Project, Phase I	2015RT05	Town of Scarborough	119,358	82,090	Dec. 2017
Sebago Lake Watershed Protection Project, Phase III	2016RR07	Portland Water District	59,327	48,884	Dec. 2017
Spruce Creek Watershed Restoration Project, Phase IV	2015RT06	Town of Kittery	59,050	62,875	March 2017
Topsham Fair Mall Stream Restoration Project, Phase I	2015RT07	Town of Topsham	95,997	66,405	May 2017
Upper Prestile Stream Main Stem I Subwatershed Phase 1	2015RT08	Central Aroostook SWCD	37,164	24,776	March 2017

Appendix C. Maine NPS Program Five-year Objectives, Actions, Annual Milestones and 2016 Accomplishments or Outputs (from Maine NPS Management Program Plan 2015-2019)

This section provides the five-year objectives, actions, milestones, schedule and annual outputs to date for Maine's NPS program. Table 9 focuses on DEP's watershed approach to improve and protect water quality. Tables 10 to 15 list objectives for Maine's statewide approach to address six major NPS pollution categories: developed areas, agriculture, transportation, forestry, subsurface wastewater disposal, and hydrologic modification. Table 16 lists objectives for partnerships, funding, and NPS program administration.

Table 9. Watershed Approach Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Prioritization: Complete revisions to the evaluation criteria and the methodology used for prioritizing lakes, streams and marine waters (NPS Priority Watersheds list) Partners: DACF, DMR	• For lakes, evaluate use of aluminum sediment core data in the lake vulnerability index when data is available. Update priority watersheds list incorporating results, if appropriate. • For streams, evaluate use of Recovery Potential Screening tool (EPA) to assist with prioritization of impaired and threatened streams. Update priority watersheds list incorporating model results, if appropriate. • For marine waters, work with DMR, Healthy Beaches Program and other partners to investigate ways to improve the prioritization as new data or methods becomes available. • Improve methodology to assign priority among NPS priority watersheds to progressively address protecting or restoring NPS priority watersheds.	1. Revised NPS priority watersheds list evaluation criteria and methodology			X			Jeff Dennis	For streams, continued progress with monitoring and review of threatened list. On track to revise criteria in 2017. For lakes, continuing to analyze lake sediment chemistry samples and incorporate into preliminary vulnerability index. For marine, worked closely with DMR to review data and rationale for 7 waters considered for addition to priority list.
2. Prioritization: Evaluate NPS priority lists annually as new information becomes available.	• Annually evaluate NPS priority watersheds lists. Announce public opportunity to submit requests and support for waterbodies to be added to the priority lists. • Update priority lists as needed; add or remove	2. Updated NPS priority watershed list	X ✓	X ✓	X	X	X	Kristin Feindel	Provided opportunity to request waters be evaluated for inclusion on priority lists. Updated list finalized and posted in

Table 9. Watershed Approach Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
	individual waterbodies as new information becomes available.								early 2017. 5 additions were made to the priority marine waters list.
3. Planning: Approve 5 nine-element watershed based plans (WBP) for restoration of impaired waters.	• Provide to decision makers the information needed to develop sound WBPs including data necessary to determine the dominant stressors contributing to the impairment and sufficient watershed and stream corridor information to identify and prioritize specific implementation activities needed to restore the waterbody. • Provide technical support, guidance and when available funding for development of effective WBPs.	3. Nine element WBPs	2 ✓ **3**	1 ✓ **2**	1		1	Wendy Garland	DEP approved 2 plans, Goosefare Brook (Saco) in April 2016 and Arctic Brook (Bangor) in December 2016.
4. Planning: Approve 10 alternative WBPs for protection of unimpaired waters.	Working with partners, provide technical assistance and funding for watershed surveys to support the development of lake watershed-based protection plans. Coordinate to secure EPA approval of alternative WBPs.	4. Alternative WBPs	2 ✓ **7**	2 ✓ **3**	2	2	2	Wendy Garland	DEP & EPA approved WBPs for 3 lakes: Cold Stream Pond (Lincoln); Great Pond (Franklin); and North Pond (Buckfield).
5. Planning: Approve updates of 3 existing nine-element WBPs.	Working with partners, provide technical assistance to support updates of nine-element WBPs.	5. Updated nine-element WBPs			1	1	1	Wendy Garland	On track. 3 plans (Birch, Penjajawoc and Hart Brook) in process of being updated with DEP support.
6. Planning: Develop guidance document to identify stream stressors.	Develop a guidance document to help partners identify stream stressors and develop WBPs for urban impaired streams.	6. Stream stressors guidance document		X				Mary Ellen Dennis	Prepared draft document in 2016. To be finalized in 2017.
7. Planning: Develop guidance document to update WBPs.	Develop guidance for updating WBPs that will be more than ten years old between 2015 and 2019 and share with groups associated with these plans.	7. Guidance document for updating WBPs		X ✓				Wendy Garland	Prepared draft guidance in 2016 and released in January 2017.

Table 9. Watershed Approach Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
8. Restoration: Fully or partially restore 2 NPS impaired waterbodies; Prepare NPS Success Stories that document the restorations.	• Provide technical support and funding through NPS Section 319 grant program to support implementation of WBPs for waters with high potential to be restored. • Work with local municipalities and interest groups to resolve pathogen contamination problems on bacteria-impaired waterbodies (includes marine and freshwaters). • Collect targeted water quality and biological health information to determine the effectiveness of implementation efforts and guide modifications to the WBP. • Evaluate available data to determine if water classification standards have been met or if there has been substantial incremental improvement in water quality and/or ecological condition.	8. NPS success stories about partially or fully restored waterbodies (WQ-10)					2	Wendy Garland	Ongoing, due in 2019.
9. Restoration: Collaborate with EPA and NRCS in the NWQI program to make progress restoring impaired waters.	• Coordinate with EPA and NRCS to select watersheds for the National Water Quality Initiative program (NWQI). • Conduct ambient water quality monitoring of Oliver Brook, within the Nickerson Lake - Meduxnekeag River subwatershed selected under the NRCS NWQI	9. Water quality monitoring results for Oliver Brook.		X	X	X	X	Kathy Hoppe	No monitoring conducted in 2016 because not enough BMP installation to date to see water quality response. DEP awarded 319 grant (#2017RT09) to SASWCD to implement WBP and supplement NRCS work in watershed.
10. Target efforts to maintain open shellfish harvesting areas or restore closed shellfish harvesting areas.	• MCP, DMR and DEP will identify priority target watersheds. MCP, DMR and DEP will help municipal and watershed groups adopt regulatory or non-regulatory measures, complete targeted projects, or implement recognized BMPs to reduce impacts to coastal water quality in target watersheds of priority	10. Number of municipalities that adopt: new plans and policies; regulatory or non-regulatory measures; complete	X **1**	X **2**	X	X	X	Wendy Garland	Ongoing focused work in Medomak River (Waldoboro) and Spruce Creek (Kittery). Added 5 new marine waters to NPS Priority list following DMR

Table 9. Watershed Approach Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
	shellfish growing areas. • This work will be conducted to make progress opening closed shellfish growing areas.	targeted projects; or implement BMPs							nominations.
11. Substantial Improvement: Demonstrate substantial Improvement in water quality and/or ecological condition in 3 NPS-impaired waterbodies.	• Provide technical support and funding through NPS Section 319 grant program to support implementation of WBPs for waters with high potential to be restored. • Work with local municipalities and interest groups to resolve pathogen contamination problems on bacteria-impaired waterbodies (includes marine and freshwaters). • Collect targeted water quality and biological health information to determine the effectiveness of implementation efforts and guide modifications to the WBP. • Evaluate data to determine if water classification standards have been met or if there has been substantial incremental improvement in water quality and/or ecological condition.	11. NPS success stories that show progress toward achieving water quality goals or about ecological restoration		1 ✓		1	1	Wendy Garland	Pottle Brook NPS Success Story issued by EPA in November.
12. Protection: Develop 2 guidance documents to estimate effectiveness of watershed protection efforts.	Develop metrics and methods to evaluate effectiveness of efforts to protect unimpaired threatened waters. • 2015 For lake watersheds • 2016 for stream and marine watersheds	12. Demonstrating protection guidance documents	X	X				Jeff Dennis	Lakes document started in 2016 and shared with EPA in March 2017.
13. Protection: Demonstrate effective protection of 8 unimpaired threatened waters.	• Provide technical support and funding through NPS Section 319 grant program to support implementation of WBPs. • Evaluate the effectiveness of the protection projects.	13. Watershed protection success stories		2	2	2	2	Jeff Dennis	Two draft case studies were developed in conjunction with draft lake protection metrics. These and two additional success

Table 9. Watershed Approach Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
									stories will be finalized in 2017.
14. Provide technical support to help watershed groups conduct NPS watershed surveys.	Provide training and technical assistance for NPS watershed surveys to help protect or restore NPS priority watersheds.	14. Completed NPS watershed surveys	3 ✓ **3**	3 ✓ **5**	3	3	3	Kristin Feindel	Watershed surveys completed for 5 lakes: Echo Lake (Fayette), Worthley Pond (Peru), North Pond (Norway), Wilson Lake (Wilton) & North Pond (Rome)

Table 10. Statewide Approach - Developed Areas Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Incorporate additional low impact development (LID) design practices into Maine's stormwater statutes and rules.	• Review Chapter 500 Stormwater Management Rules and proposed changes to Chapter 500 for opportunities to encourage or incentivize use of LID strategies and design practices.	1. By 2015, issue proposed revised Chapter 500 rules	X ✓					Mark Bergeron	
2. Regularly update the Maine Stormwater Best Management Practices (BMP) manual to reflect the	• Solicit input annually from consulting community and other interested parties. • Evaluate proposals for new or modified BMPs (including proprietary systems) for approval for use under Chapter 500 Stormwater Rules. • When reviewing the effectiveness of current BMP	2. Update manual as new or modified BMPs are approved	X ✓	X ✓	X	X	X	Jeff Dennis	Reviewed & approved 5 proprietary BMPs: Storm Capture, Stormtech Isolator Row, StormTreat, Filterra Bioretention System and Modular

Table 10. Statewide Approach - Developed Areas Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
current best management practices.	practice standards and specifications, consider the impacts of more frequent extreme wet-weather events. • Propose updates to manual as warranted, solicit input through public comment.								Wetland System as Chapter 500 General Standard alternatives. Updated manual accordingly.
3. Maintain the number of Contractors Certified In Erosion & Sediment Control BMPs.	DEP NPS Training and Resource Center will continue to administer the Erosion and Sediment Control Contractor Certification Program and track the number of certified contractors (increased from 1,630 in 2012 to 2,700 in 2014).	3. Number of Contractors Certified In Erosion & Sediment Control BMPs	X ✓ **2,862**	X ✓ **2,917**	X	X	X	Bill Laflamme	Number of certified Individuals increased to 2,917.
4. Provide municipalities with NPS training and resources to prompt and improve local water resource protection.	DEP NPS Training and Resource Center will use Adobe Connect to produce 20-minute educational programs and on-line resources for NPS training for municipal officials on topics such as NPS pollution prevention and low-impact development.	4. Adobe Connect educational programs completed	**1**	2 **1**		2		Bill Laflamme	An on-line continuing education program was produced on Shoreline Stabilization that can be used by municipal officials. Used by 128 people.
5. Document chloride salt impacts on streams.	Prepare a report summarizing DEP findings about how excessive chloride salt use in developed areas has adversely impacted aquatic life of some streams in Maine. Chloride salts degrade water quality, soil quality, and ecosystems. Specific effects vary by location.	5. Chloride salt impact on streams (document)			X			Kristin Feindel	Developed document outline and assignments. On track to be completed in 2017.
6. Provide municipalities with technical assistance on protection and restoration of local waterbodies.	Provide information to municipalities working on Comprehensive Plans and review plans for consistency and completeness.	6. Comprehensive Plan reviews completed	4 **6**	4 **4**	4	4	4	Jeff Dennis	Completed reviews of 4 plans: Bustins Island in Freeport, Richmond, Easton, and Wayne.

Table 10. Statewide Approach - Developed Areas Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
7. Prevent and mitigate NPS impacts from unpaved camp roads.	The NPSTRC will provide training workshops and/or online resources.	7. Number of participants receiving training	X **13**	X **7**	X	X	X	Bill Laflamme	A class on maintenance and repair of unpaved camp roads was held in Hancock County on 6/24/16 with 7 participants.

Table 11. Statewide Approach – Agriculture Lead Agency: Maine DAC			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Monitor agricultural operations to ensure compliance with the requirement to implement approved nutrient management plans (NMP).	• Evaluate agricultural operations (AOs) to determine if they need to develop and implement an approved NMP. • Track existing AOs with an approved NMP to ensure that their NMP is up-to-date. • Provide guidance for initial development of a NMP or for facilitating updates as needed. • Continue to identify AOs that need an NMP and help AOs comply with the obligation to operate according to a NMP.	1. Each year report: a. The number of AOs that maintain and implement an approved NMP; b. An estimate of the number of AOs that need a NMP.	X ✓ **343** **50**	X ✓ **362** **30**	X	X	X	Mark Hedrich	a. 362 NMPs b. Estimate 30 NMPs need to be updated. 68 letters sent for NMP renewals. 41 letters sent to holders of expired NMPs. Legal action threatened in 3 cases for failure to develop an NMP. One farm successfully taken to court for failure to develop an NMP. Approximately 32 site visits conducted related to NMP initiation or renewal.

Table 11. Statewide Approach – Agriculture Lead Agency: Maine DAC			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
2. Monitor agricultural operations to ensure compliance with requirement to operate according to a Livestock Operations Permit (LOP).	• Evaluate new or expanded agricultural operations (AOs) to determine their requirement for obtaining a LOP. • Continue to identify AOs that need a LOP and help AOs comply with the obligation to operate according to a LOP. • Evaluate farms to determine if they are considered a CAFO as defined by state or federal regulations. • Initiate steps for appropriate permitting of these entities as needed. • Conduct annual inspections of CAFOs to determine compliance with terms of the LOP.	2. Each year report: a. The number of AOs that operate according to a LOP; and b. An estimate of the number of AOs that need an LOP.	X ✓ **15** **8**	X ✓ **14** **10**	X	X	X	Mark Hedrich	a. 14 active LOPs. b. Estimate 10 LOPs needed. 10 LOP initiation/renewal letters sent out. 6 related site visits conducted. 4 LOP renewals issued. 4 LOPs in progress. 6 farms being pursued to initiate LOPs. 5 MEPDES evaluations completed. 2 farms threatened with legal action for failure to develop an LOP.
3. Update the Nutrient Management Program Rules	• Evaluate soil test timeframe validity, evaluate NMP variance operational timeline; • Incorporate Maine Phosphorous Index criteria if feasible; • Address carcass disposal issues; Incorporate Compost Management Plan criteria; • Update certification requirements for planners; • Address livestock access to waterbodies	3. By 2015, complete draft of rules; by 2016 hold public hearing; and by 2017 adopt the revised rules.	X	X	X			Mark Hedrich	Rules update behind schedule but on track for adoption in 2017. New section for Compost Management Plans (CMP) describes required components of a CMP, a certification process, qualifications of persons developing CMPs, and an inspection and approval process.
4. Continue to implement the Agricultural Compliance Program	• Investigate complaints concerning farm operations that involve threats to human or animal health and safety, and to the environment.	4. Annual summary of water quality related complaints received, investigated, and	X	X	X	X	X	Mark Hedrich	14 various water quality complaints were investigated and resolved. Annual summary report

Table 11. Statewide Approach – Agriculture Lead Agency: Maine DAC			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
to resolve water-quality related complaints.	• Prescribe new or modified site-specific best management practices where needed to resolve the issue, particularly water-quality-related matters. • Develop and maintain a database or spreadsheet to track and categorize agriculture complaints received and resolutions • Prepare a concise annual summary of water-quality related complaints received, investigated, and resolved.	resolved							was not prepared in 2016 but has been requested. On track to provide annually starting in 2017.
5. Develop a brochure for farmers outlining NPS pollution BMPs for farming operations.	• Consider Maine agricultural BMP guidelines, select ten or more of the most significant BMPs and develop an informative quick-read brochure for farmers. • Promote adoption of the BMPs by distributing the brochure at trade shows, meetings, educational events, and direct contact with farmers.	6. NPS BMPs brochure for farmers			X			Mark Hedrich	Not started yet; due in 2017.

Table 12. Statewide Approach - Transportation Lead Agency: MaineDOT			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Continue using Erosion and Sedimentation Control BMPs on applicable MaineDOT projects.	• Continue to implement and enforce MaineDOT Standard Specification 656. • Continue ongoing ESC training for MaineDOT staff and contractors. • Report on summary of MaineDOT activities as required by the Stormwater MOA between DEP and MaineDOT	1. Annual Stormwater MOA report to MDEP	X ✓	X ✓	X	X	X	Rhonda Poirier	ALL transportation-related projects contracted out by MaineDOT must comply with MaineDOT's Standard Specification 656: Erosion and Sedimentation Control. ESC training for MaineDOT staff and contractors was held six workshops (224 people). MaineDOT submitted an annual stormwater report to Maine DEP on February 5, 2016.
2. Regularly update the MaineDOT Erosion and Sedimentation Control BMPs manual to reflect the current BMPs.	• Receive input annually from vendors, contractors, and professionals as appropriate. • Evaluate proposals for new or modified BMPs (including proprietary systems) for approval for use. • When reviewing the effectiveness of current BMP practice standards and specifications, consider the impacts of more frequent extreme wet weather events. • Propose updates to manual as warranted.	2. Update BMPs manual as new or modified BMPs are approved by MaineDOT	X	X	X	X	X	Rhonda Poirier	There are no new ESC BMPs, or other reasons, to update the MaineDOT Best Management Practices for Erosion and Sedimentation Control manual at this time.
3. Promote chloride salt reduction BMPs to protect water quality while maintaining safe roads for travelling public.	• Continue Maine Local Roads Center (MLRC) training and BMP Task Force to promote snow and ice control BMPs to municipal PWs. • MaineDOT will continue to investigate new products, technologies, or efficiencies to reduce the use of chlorides.	3. MLRC will track number of towns that received training. MaineDOT will document its research or use of new products or technologies for	X ✓ 105	X ✓ 79	X	X	X	Rhonda Poirier	In 2016, the Maine Local Roads Center staff presented snow and ice control and other winter road maintenance training to 79 towns/cities, a special training class for Portland Public Services, two

Table 12. Statewide Approach - Transportation Lead Agency: MaineDOT			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
		winter maintenance on its Winter Maintenance Research Reports webpage.							counties, and 5 private contractors who work for towns or private businesses. MaineDOT continues to investigate new products and technologies to reduce the use of chlorides. No new products or technologies were adopted in 2016.
4. Promote reduction in the number of outdoor sand/salt piles.	• MaineDOT will reduce the number of outdoor sand/salt piles. • MLRC will continue technical assistance to towns regarding town salt storage facilities, and will continue its funding for improvement of salt storage facilities until 2016.	4. MaineDOT will reduce the number of outdoor sand/salt piles from 30 to 22 (25%).	✓ **8**				X	Rhonda Poirier	MaineDOT has met the goal of reducing the number of outdoor sand/salt piles by 25%: 8 of the remaining 30 outdoor sand/salt piles were eliminated in 2015; no additional outdoor sand/salt piles were eliminated in 2016. Maine Local Roads Center provides ongoing technical assistance to towns on salt storage options.

Table 13. Statewide Approach - Forestry Lead Agency: Maine Forest Service			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Increase overall effective BMP application on harvests from 83% to 90% or greater. Effective BMPs include all appropriately applied BMP practices, effective planning, and avoiding waterbody crossings.	• Offer BMP training programs, with partners including the Maine Sustainable Forestry Initiative, Certified Logging Professional, Qualified Logging professional program and Northeast Master logger. • Deliver existing or develop new and topic specific trainings as needed to address problem areas when identified by monitoring, compliance inspections and industry consultation. • Work with DEP and Maine Municipal Bond Bank and EPA to maintain CWSRF funding and promote the Maine Forestry Direct Link Loan Program financing to reduce NPS risk at timber harvest sites. • Apply northeast regional forestry BMP monitoring protocol on a biennial basis to assess use & effectiveness of forestry BMPs.	1. Maine Forestry BMPs Use and Effectiveness report that documents the achievement of the objective by 2018 (and interim progress by 2016)		X ✓ **85%**		X		Tom Gilbert	The biannual Maine Forestry BMP Use and Effectiveness report was released in 2016 for the 2014-2015 monitoring seasons. It was found that 85% of sites had overall effective application of BMPs during this monitoring period. This was a 2% improvement from the already impressive findings from the previous monitoring period. (Goal of 90% by 2019.)
2. Maintain the Forest Ranger-approved water quality inspections of timber harvest sites at over 90%.	• Forest rangers will continue routine inspections of timber harvests for environmental compliance. • MFS field foresters will continue to provide technical assistance to prevent problems from occurring and quickly fix problems encountered during inspections.	2. Percentage of approved water quality inspections & number of inspections referred for enforcement action	X	X ✓ **90.5% & 113**	X	X	X	Tom Gilbert	MFS Rangers conducted 531 water quality inspections in 2016. 113, or 21%, were referred for enforcement action. Out of these, 64, or 9.5% resulted in violations. Therefore 90.5% of inspections passed.
3. By 2018, improve consistency for the regulated community by increasing the number of critical	• Work with DEP to make significant progress toward adoption of statewide standards for timber harvesting in shoreland areas. Focus on the list of municipalities with the highest average timber	3. By January 2016, 35 new municipalities adopt statewide timber harvesting standards, or DEP		X **7**				Tom Gilbert	In 2016, seven new towns adopted SWS, increasing the total number of towns with statewide timber harvesting standards from

Table 13. Statewide Approach - Forestry Lead Agency: Maine Forest Service			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
mass municipalities that have adopted statewide standards for timber harvesting in shoreland areas from 182 to 252.	harvest acreage. When critical mass is met, statewide standards will take effect in the unorganized areas. • Provide outreach to municipalities that have not yet adopted statewide standards for timber harvesting in shoreland areas. • Encourage DEP to adopt ordinances for towns that do not act by 2017.	adopts ordinances for them. By January 2017, an additional 35 new municipalities adopt statewide timber harvesting standards or DEP adopts ordinances for them.			X				182 to 189. Despite multiple workshops and other outreach efforts, adoption rate has significantly declined compared to that during the onset of SWS in 2015. A more realistic target of 10 should be set for 2017.

Table 14. Statewide Approach - Subsurface Wastewater Disposal Lead Agency: Maine DHHS, Environmental Health			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Ensure municipalities properly implement Subsurface Wastewater Disposal (SSWD) rules.	• Conduct at least one municipal review of subsurface wastewater disposal activities for each municipality over the 5-year period ending 2019. There are 490 municipalities in Maine. About 100 reviews per year will be completed. • Respond to requests for assistance from municipalities. • Assist in the training and licensing of Local Plumbing Inspectors.	1. Number of municipal reviews completed in the year and number of municipal reviews found satisfactory	X ✓ **166 & all satisfactory**	X ✓ **130 & all satisfactory**	X	X	X	Glen Angell	Conducted approximately 130 municipal reviews. There were minor issues to deal with but no major ones. Conducted 5 training sessions for LPI's around the state plus attended and presented at the annual MBOIA conference on subsurface issues.
2. Improve the State's Voluntary Onsite Sewage Disposal System (OSDS) Inspection Program.	• Evaluate the current voluntary OSDS inspection program and certification process. Propose ways to strengthen the voluntary OSDS inspection program. These could take the form of statutory changes to make certification mandatory or through rule changes to clarify what must be included as part of an inspection. • Update Inspection Form to reflect changes implemented. • Modify training program to incorporate results of review and changes	2a. Feasibility report completed by 12/31/2016 2b. Proposed Statutory/Regulatory changes by 12/31/2017 2c. Revise Inspection Criteria by 6/30/2019		X	X		X	Glen Angell	Conducted a review of existing legislation to evaluate options for creating rules governing inspections. AGs indicated that one particular section did give some authority to pursue this. Requested approval to initiate a stakeholder group to formulate new Rules but that request had not been acted upon by the end of the year.

Table 15. Statewide Approach - Hydrologic Modification Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	Actions	Milestones	2015	2016	2017	2018	2019	Lead Contact	Accomplishments or Outputs in Year 2016
1. Adopt new standards for stream crossings (new, repair, replacement) designed to improve fish passage, hydraulic capacity, and resiliency to larger storm events.	• DEP will continue to participate, along with DOT, other state natural resource agencies, and private sector groups, in the development of an Aquatic Resource Management Strategy (ARMS) to reestablish the connectivity of stream systems. DEP will propose new standards for stream crossings under the Natural Resources Protection Act. • Identify funding mechanisms, develop training programs and to assess/prioritize watersheds where removing passage impediments will result in the greatest connectivity of fisheries habitats.	1a. By 2016, draft standards for public comment. 1b. By 2017, complete aquatic resource management strategy. 1c. By 2017, adopt new standards for stream crossings.	✓	X	X X			Mike Mullen	Rulemaking for new stream crossing standards began in 2016. Public comment is anticipated for fall 2017 with adoption by the end of 2017.

Table 16. DEP Programs, Partnerships and Funding Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	**Actions**	**Milestones**	2015	2016	2017	2018	2019	**Lead Contact**	**Accomplishments or Outputs in Year 2015**
1. Partnerships: Build and strengthen partnerships of the lead state agencies to coordinate efforts and effectively implement the Maine NPS Management Plan implementation.	Establish a NPS Lead Agency workgroup that will meet twice a year to report on progress with implementation of the Maine NPS Management Plan and seize opportunities for further collaboration.	1. NPS lead agency workgroup established	X					Wendy Garland	Not convened. Concluded more efficient to maintain regular contact and meet with each NPS Lead Agency as needed.
2. Partnerships: Build and strengthen partnerships at the program and project level to maximize effectiveness and efficiency of NPS mitigation efforts.	• Conduct the annual Watershed Roundtable to bring together watershed professionals to share information, network and collaboration. • Coordinate and improve the watershed managers' listserve to efficiently distribute and promote sharing of information and resources between partners.	2. Annual NPS Watershed Roundtable	X ✓	X ✓	X	X	X	Marianne Senechal	60 watershed managers from municipalities, watershed NGOs, and SWCDs attended DEP's 14th annual roundtable on 11/09/16. 183 people are subscribed to watershed listserve.
3. Funding: Facilitate CWSRF funding for NPS projects by exploring new funding avenues and publicizing funding opportunities.	• Look for opportunities to expand the eligibility of NPS controls that can be funded through the Clean Water State Revolving Fund (CWSRF) and mechanisms that can deliver that funding. • Determine if there are barriers to prioritization of NPS projects, and if so, develop recommendations and coordinate with the CWSRF program to encourage approval of NPS projects. • Track CWSRF projects and funding awarded to NPS projects and produce an annual summary report. • Publicize funding opportunities on the watershed managers' listserve.	3. Provide a summary of CWSRF funding on NPS projects in the annual NPS Program Report.	X	X ✓	X	X	X	Wendy Garland	CWSRF projects and funding for NPS projects in 2016 totaled $2.7 million. Projects described in Section D.3. of Annual Report.

Table 16. DEP Programs, Partnerships and Funding Lead Agency: Maine DEP			Schedule Planned (X #) Actual (✓ #)						
Five-Year Objectives	**Actions**	**Milestones**	2015	2016	2017	2018	2019	**Lead Contact**	**Accomplishments or Outputs in Year 2015**
4. NPS Management Program Administration: Continue to manage and implement the NPS program to meet program goals and work towards addressing the state's water quality problems as effectively and expeditiously as possible.	• DEP employs appropriate programmatic and financial systems that ensure section 319 dollars are used efficiently and consistent with fiscal and legal obligations (Section 319 grant program guidelines, EPA-DEP Performance Partnership Agreement). • In keeping with Clean Water Act Section 319 (h)(8) and (11), provide EPA with sufficient information, reports and data about Maine's 319 program to determine whether the state's progress for the previous fiscal year was satisfactory.	4. Maine's NPS Program continues to achieve satisfactory progress	X ✓	X **TBD**	X	X	X	Wendy Garland	Ongoing – TBD. Completed satisfactory progress interview / review w/EPA for FY 2015 EPA issued a favorable determination July 1, 2016. The determination for FFY16 reporting period to be issued in summer 2017.
5. NPS Program Administration: Update the Maine NPS management program plan by 2019.	Consult lead agencies and gather public input to update the Maine NPS management program for the next cycle (including milestones for 2020-2024).	5. EPA approved Maine NPS Management Program Plan by 10/1/19.					X	Wendy Garland	Not started yet, due 2019

Wilson Lake Watershed Survey Volunteers

Clean water starts with you!

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