Nonpoint Source Management Program
2019 Annual Report

May 2020

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Annabessacook Lake, Winthrop
Photo credit: Ryan Burton, Cobbossee Watershed District

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
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Executive Summary

This report summarizes activities and accomplishments of Maine's Nonpoint Source Management Program (NPS Program) in 2019. Maine Department of Environmental Protection (DEP) prepared this report to inform the public and the U.S. Environmental Protection Agency (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 Management Program and works with other State agencies to achieve widespread use of state-agency best management practice (BMP) guidelines 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 by the U.S. EPA under Sections 319(h) and 604(b) of the Clean Water Act (CWA).

Maine DEP uses a watershed-based approach as the coordinating framework to organize public and private sector efforts to protect and restore waters. DEP administers a pass-through grant program that awards and monitors grants of federal CWA 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 act to reduce or prevent NPS pollution.

In 2019, 15 NPS watershed projects funded through the NPS grants program in previous years were successfully completed. These projects reduced pollutant loads to waters by 690 tons of sediment, 1,423 pounds of phosphorus and 901 pounds of nitrogen per year. DEP provided technical assistance and granted $1,078,140 of CWA funds provided by EPA for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $1,916,285. This report provides two-page summaries for each project.

DEP issued 13 new grants ($1,105,676) in 2019 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 also issued three grants using CWA Section 604(b) and Section 319 funds to develop watershed-based plans for Cross Lake in Aroostook County ($17,419), Mare Brook in Brunswick ($32,181), and China Lake in China ($27,590).

Popham Beach State Park, Phippsburg

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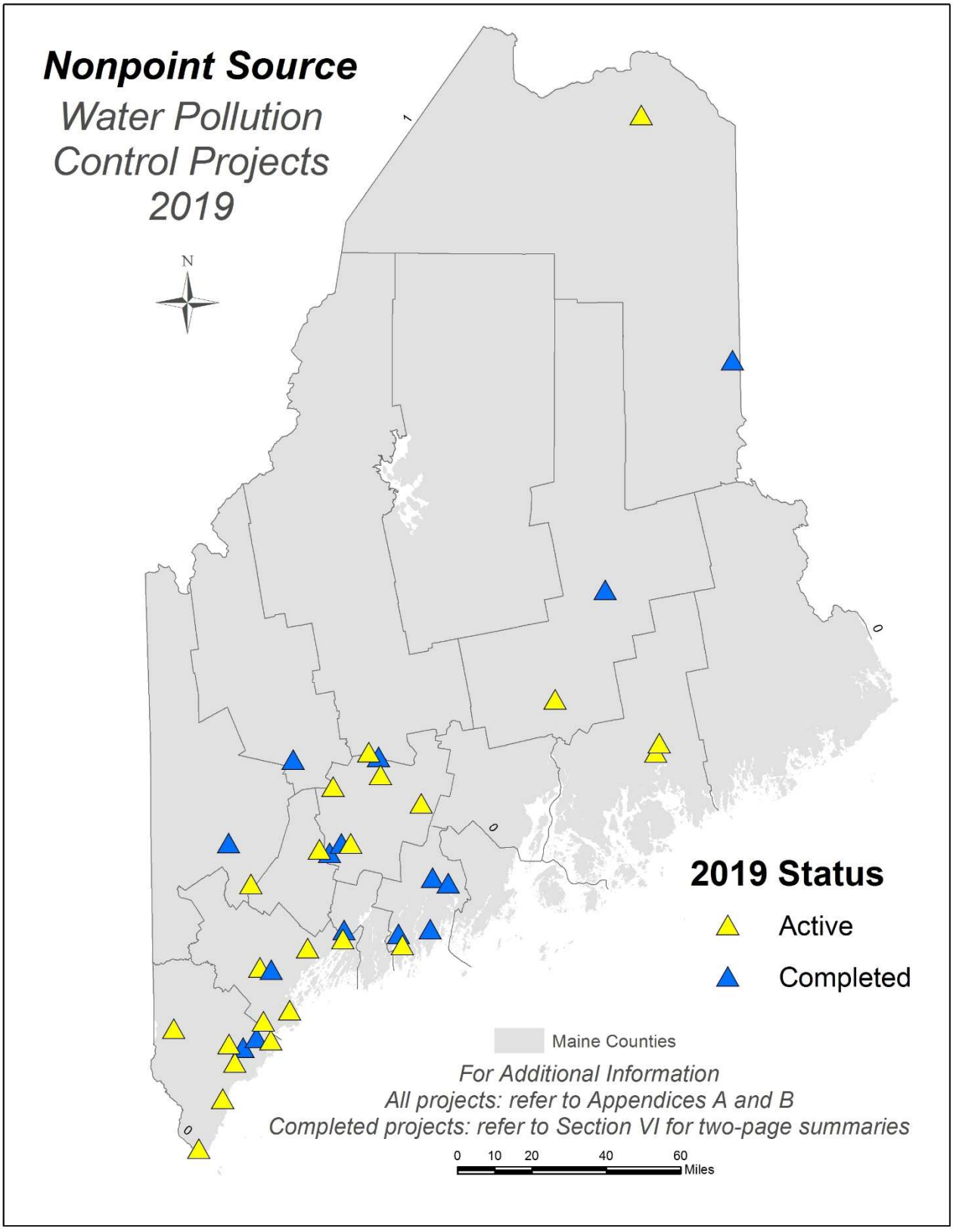
This report was funded, in part, by grant funds provided by the U.S. Environmental Protection Agency to the Maine Department of Environmental Protection under Section 319 of the Clean Water Act. Neither EPA nor DEP endorses any commercial product, service, or enterprise mentioned in this publication.

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

NPS Water Pollution Control Projects Active in 2019



I. Introduction

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

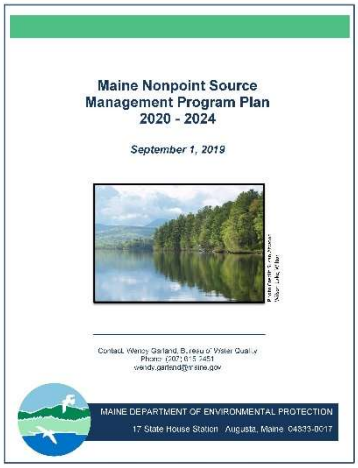
Maine DEP coordinates the State of Maine Nonpoint Source Pollution Program (38 MSRA 410) to achieve widespread use of state-agency "best management practice guidelines" to prevent NPS pollution. Since 1990, EPA has awarded funds under CWA Section 319(h) to help states and tribes address the most pressing NPS pollution problems. Section 319 funds that are provided by EPA to the State help support a significant portion of Maine's NPS Program. NPS Program services are guided by the *Maine Nonpoint Source Management Program Plan 2020-2024*.

DEP coordinates with other State agencies on statewide programs to reduce NPS pollution. CWA Sections 604(b) and 319 funds are used to provide grants for watershed projects to help local communities identify water pollution sources in watersheds and act to restore or protect lakes, streams, or coastal waters.

This report summarizes the Nonpoint Source Program's activities and accomplishments in 2019. Each year, DEP prepares this report to inform the public and the EPA about Maine's progress controlling NPS water pollution and fulfill annual reporting requirements of Section 319(h) of the Federal CWA.

II. 2019 Highlights - NPS Management Program

A. Maine NPS Management Program Plan – DEP completed an update of Maine's NPS Management Program Plan in collaboration with MaineDOT, Maine Department of Agriculture and Forestry, Maine Department of Marine Resources, Maine Department of Health and Human Services, and other partner organizations. The 2020-2024 plan establishes program goals, strategies and actions that State agencies will implement over the next five years to make progress controlling and preventing NPS pollution. EPA approved Maine's plan in September 2019.



B. New Grant Awards - EPA awarded $1,853,540 FFY 2019 Section 319 Clean Water Act funds to the DEP. Funds were used to fuel programs designed to evaluate, prevent, and reduce NPS pollution problems. Thirteen new grants totaling $1,105,676 were issued to municipalities, Soil and Water Conservation Districts, and watershed groups for watershed implementation projects.

C. Projects Closed Out - Fifteen NPS watershed projects funded through the NPS grants program in previous years were successfully completed. DEP provided technical assistance and granted $1,078,140 of Federal CWA Section 319 and 604(b) funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $1,916,285.

- BMPs were installed to reduce polluted runoff in the following 11 watersheds, thereby reducing pollutant loading to these waters by an estimated 1,423 pounds of phosphorus, 901 pounds of nitrogen, and 690 tons of sediment per year[1] (equivalent to about 35 dump truck loads):

  Adams Pond & Knickerbocker Lake (Boothbay)
  Cochnewagon Lake (Monmouth)
  Cold Stream Pond (Enfield)
  Damariscotta Lake (Jefferson)
  East Pond (Smithfield)
  Goosefare Brook (Saco)
  Meduxnekeag River (Houlton)
  North Pond (Norway)
  Thatcher Brook (Biddeford)
  Topsham Fair Mall Stream (Topsham)
  Wilson Lake (Wilton)

- Watershed-based plans were completed for the Medomak River (Waldoboro) and Annabessacook Lake (Winthrop). 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. Watershed and water quality assessment projects were also completed for Highland Lake (Windham) and the Lower Pemaquid River (Bristol) to help lay the foundation for future watershed plans.

D. Maine DEP's Clean Water State Revolving Fund (CWSRF) – The CWSRF program helped fund $6.7 million in NPS projects in 2019. This includes $5.4 million in the CWSRF linked-deposit forestry program, which makes below-market-rate financing available for forestry BMPs and environmentally friendly logging equipment. In addition, $0.7 million was provided in financing for the removal and replacement of four oil storage facilities; $170,735 was used by the City of Portland to install six under-drained soil filters to treat stormwater runoff; and $400,000 helped fund an alum treatment on Lake Auburn (see below).

E. Septic System Inspection Requirement for all Shoreland Zones – In 2019, the Maine legislature expanded M.R.S. 30-A §4216 to require inspections of septic systems located in all Shoreland Zones during property transfers. Since 2007, this requirement has applied only to properties in the Coastal Shoreland Zone. The purpose of this requirement is to identify malfunctioning septic systems.

The Auburn Water District used $400,000 in CWSRF to help carry out an alum treatment of Lake Auburn. The goal was to reduce phosphorus concentrations and algae growth in the lake, which serves as a public drinking water supply for over 46,000 residents.

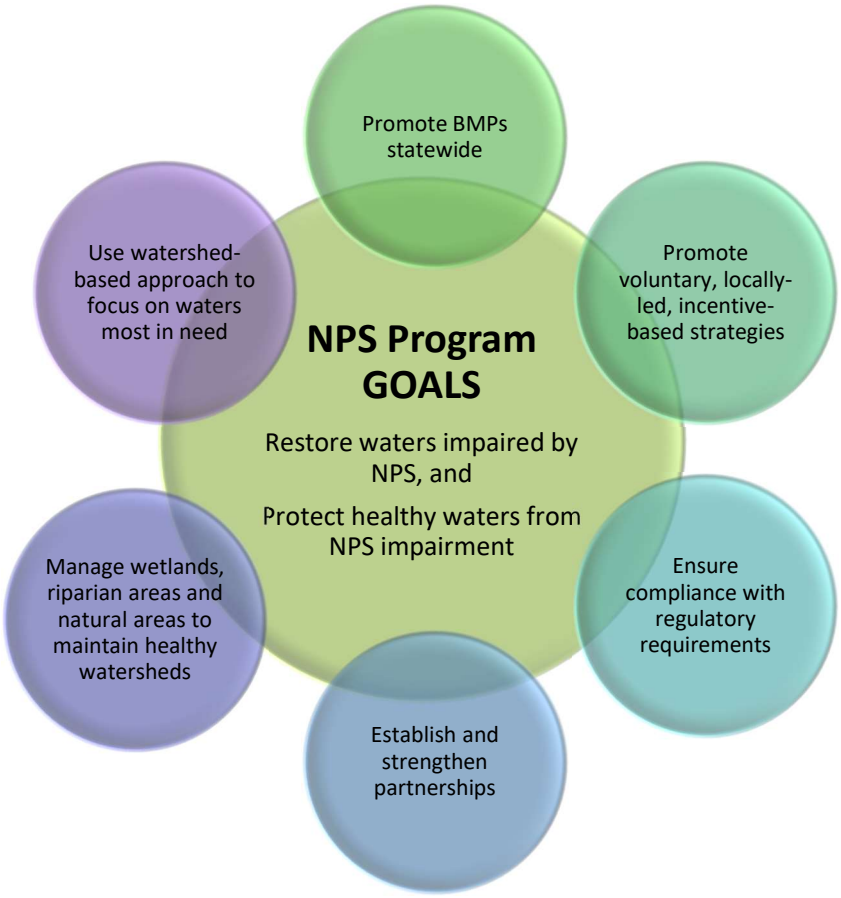
[1] Pollutant load reduction estimates are based on approved methods and assume proper installation and maintenance of Best Management Practices. (See Section III.D.)

III. Maine NPS Management Program

A. Overview

The *Maine Nonpoint Source Management Program Plan 2020-2024* 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 practices (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: 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 that 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 63 five-year objectives with actions and milestones. Outputs or accomplishments in 2019 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 in both protecting and restoring lakes, streams, and coastal waters. Although considerable resources are focused on restoring impaired waters, DEP also invests in 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 municipalities, watershed stewardship groups and Soil and Water Conservation Districts working to protect watersheds and clean waters.

Developing Plans to Protect Lakes

In 2019, a new lake protection plan was developed for Bauneg Beg Lake by local entities using guidance developed by DEP and EPA. Three plans expired in 2019 and need to be updated. With these changes, there are 29 active lake watershed-based protection plans that have been accepted by DEP and EPA.

Lake Watershed-based Protection Plans Accepted by DEP

Abrams Pond (Eastbrook)	McGrath Pond & Salmon Lake (Oakland)
Adams & Knickerbocker Lake (Boothbay)	Mousam Lake (Acton)
Alamoosook Lake (Orland)	North Pond (Buckfield)
Bauneg Beg Lake (Sanford)	North Pond (Norway)
Cobbossee Lake (Manchester)	North Pond (Smithfield)
Cold Stream Pond (Enfield)	Panther Pond (Raymond)
Crescent Lake (Raymond)	Parker Pond (Chesterville)
Damariscotta Lake (Jefferson)	Phillips Lake (Dedham)
Ellis Pond (Roxbury)	Sebago Lake & Crooked River (Naples)
Forest Lake (Windham)	Toddy Pond (Orland)
Georges Pond (Franklin)	Varnum Pond (Wilton)
Great Pond (Franklin)	Whetstone Pond (Blanchette)
Hogan & Whitney Ponds (Oxford)	Wilson Lake (Wilton)
Lake Auburn (Auburn)	Woods Pond (Bridgton)

Implementation Projects to Protect Lakes

DEP allocates Section 319 funds provided by EPA to protect clean waters that are threatened by NPS pollution. In 2019, Section 319 funds helped sustain or start NPS watershed implementation projects in the following 12 lake watersheds:

Abrams Pond (Eastbrook)	Damariscotta Lake (Jefferson)	North Pond (Norway)
Adams Pond & Knickerbocker Lake (Boothbay)	Hogan and Whitney Ponds (Oxford)	McGrath Pond and Salmon Lake (Oakland)
Cobbossee Lake (Winthrop)	Mousam Lake (Acton)	Parker Pond (Chesterville)
Cold Stream Pond (Enfield)	North Pond (Smithfield)	Wilson Lake (Wilton)

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 lists 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, including TMDLs & Alternative Approaches.** In addition to DEP's water quality monitoring and assessment programs, 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 for the waterbody to meet the state water quality classification.
- **Watershed-based Planning.** A watershed-based plan (WBP) 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 install 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.

Developing Plans to Restore NPS Impaired Waters

DEP provided services and Sections 604(b) and 319 grant funds to help communities develop WBPs, which will then be used to guide restoration of NPS impaired waters.

- In 2019, DEP accepted four nine-element WBPs. Plans were developed or updated for Annabessacook Lake (Winthrop) and the Medomak River (Waldoboro) through CWA Section 604(b) grant projects, and local partners provided funding to develop or update plans for Georges Pond (Eastfield) and Hart Brook (Lewiston).
- Work began to develop nine-element WBPs for Mare Brook (Brunswick), Cross Lake (Cross Lake Township) and China Lake (China); and planning efforts continued for Great Pond (Belgrade), Highland Lake (Windham), and Kennebunk River (Kennebunk).
- At the end of 2019, there were 28 active nine-element WBPs for NPS impaired waters. The Bond Brook, China Lake, Dudley Brook, Long Creek, Upper Prestile Stream, and Wilson Pond WBPs expired in 2019 and will need to be updated since they are more than ten years old.

Watersheds with Nine-Element Watershed Plans Accepted by Maine DEP

Annabessacook Lake (Winthrop)	Kennedy Brook (Presque Isle)
Arctic Brook (Bangor)	Long Pond & Great Pond (Belgrade)
Birch Stream (Bangor)	Medomak River (Waldoboro)
Bond Brook (Augusta)	Meduxnekeag River (Houlton)
Cape Neddick River (York)	Ogunquit River (Ogunquit)
Capehart Brook (Bangor)	Pearce Brook (Houlton)
Capisic Brook (Portland)	Phillips Brook (Scarborough)
Cochnewagon Lake (Monmouth)	Pleasant River (Windham)
Concord Gully Brook (Freeport)	Red Brook (Scarborough)
East Pond (Smithfield)	Spruce Creek (Kittery)
Georges Pond (Franklin)	Thatcher Brook (Biddeford)
Goodall Brook (Sanford)	Topsham Fair Mall Brook (Topsham)
Goosefare Brook (Saco)	Trout Brook (Cape Elizabeth)
Hart Brook (Lewiston)	Whitten Brook (Skowhegan)

NPS Watershed Implementation Projects

DEP allocates Section 319 funds to help communities implement their watershed-based plans to restore NPS-impaired waters. In 2019, Section 319 funds helped continue or start projects in the following 12 NPS-impaired watersheds:

Capehart Brook (Bangor)	Goosefare Brook (Saco)	Spruce Creek (Kittery)
Cochnewagon Lake (Monmouth)	Meduxnekeag River (Houlton)	Thatcher Brook (Biddeford)
Concord Gully Brook (Freeport)	Ogunquit River (Ogunquit)	Topsham Fair Mall Stream (Topsham)
East Pond (Smithfield)	Phillips Brook (Scarborough)	Trout Brook (Cape Elizabeth)

D. NPS Pollutant Load Reductions

EPA's 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 (GRTS) database. The following table shows load reductions reported for 19 active implementation projects in 2019.

2019 NPS Pollutant Load Reductions		
Sediment 399 tons/year	**Phosphorus** 1,470 pounds/year	**Nitrogen** 568 pounds/year

E. Section 319 Grant Administration

EPA awarded $1,853,540 of FFY 2019 Section 319 funds to DEP. Of FFY 2019 Section 319 funds, 51% ($951,725) were allocated for implementation of nine-element WBPs for restoration projects or alternative plans for protection projects. This includes funds ($40,000) for DEP staff services to help implement WBPs and grant funds ($911,726) for ten projects to implement WBPs. Five of the funded projects ($445,000) will implement nine-element plans for impaired waters, and five projects ($466,726) will implement alternative WBPs to protect NPS priority watersheds threatened by NPS pollution.

Section 319 funds also supported eight DEP NPS program staff positions. DEP administered the Section 319 grants awarded to DEP under federal fiscal years 2016 - 2019, including monitoring sub-recipient performance on 38 NPS grant projects and providing other DEP NPS program services. Given the program need to help partners complete watershed-based plans, program funding was also allocated to supplement the Section 604(b) watershed plan development grant program. One planning grant was funded in 2019 for China Lake ($27,590), and the remaining $45,000 will be used for plan development project(s) selected in spring 2020.

Summary of FFY19 319 Grant and Match Allocations

Activity	Program Funds Subtotal	Project Funds Subtotal	Section 319 Total	Nonfederal Match
NPS Grants for Watershed Implementation	$0	$911,726	$911,726	$681,581
NPS Grants for Watershed Planning	$72,590	$0	$72,590	$32,530
DEP Staff, Fringe, Travel, Other & Indirect (State Fiscal Year 2019 18.95%)[2]	$829,225	$40,000	$869,224	$521,582
Totals	$901,815	$951,726	$1,853,540	$1,235,693

[2] Section 319 funds 8 FTEs and one AmeriCorps volunteer

IV. NPS Program Activities in 2019

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 2019 included:

- **Municipal Comprehensive Plan Reviews -** DEP staff provided maps and data to 52 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 2019, assistance was provided to the following 11 towns:

  - Cape Elizabeth
  - Cherryfield
  - Columbia Falls
  - Durham
  - Friendship
  - Georgetown
  - Lamoine
  - Lisbon
  - Searsport
  - Topsham
  - Waldoboro

- **Lake Watershed Surveys -** Volunteer watershed surveys find, describe, and prioritize NPS pollution sources and recommend BMPs needed at specific NPS sites to reduce polluted runoff to lakes. DEP grant funds are typically not available to help support watershed surveys. However, DEP provides technical assistance and project oversight to local groups that conduct locally-funded volunteer watershed surveys. After completing surveys, many of these groups use the survey findings to develop lake watershed-based protection plans that will guide local stewardship efforts and open the door to possible 319 grant funding.

  In 2019, DEP assisted with the following seven watershed surveys:

  - Lake Anasagunticook (Canton)
  - Cross Lake (Cross Lake Township)
  - Long Pond (Parsonsfield)
  - Pennesseewassee Lake (Norway)
  - Square Pond (Acton)
  - Togus Pond (Augusta)
  - Watchic Lake (Standish)

Lake Anasagunticook survey volunteers

  Staff also provided assistance to lake associations to help plan future surveys for Branch Lake (Ellsworth) and Lake Winnecook (Unity). DEP partnered with the Lake Stewards of Maine (LSM) to conduct a watershed survey workshop, which was attended by volunteers representing seven different lakes. DEP also helped LSM review applications to their small grants program, which provides grants to help fund watershed surveys.

- **Stream Water Quality Monitoring –** DEP staff conducted water quality assessments on the following streams to help with current or anticipated planning efforts or help assess progress meeting restoration goals:

  Chenery Brook (Falmouth)
  Concord Gully Brook (Freeport)
  Dickey Brook (Cross Lake Township)
  Hobbs Brook (Falmouth)
  Kenduskeag Stream (Bangor)
  Kennebunk River (Kennebunk)
  Mill Brook (New Limerick)
  Mill Creek (Falmouth)
  Oliver Brook (Houlton)
  Pleasant River (Windham)
  Scitterygusset Creek (Falmouth)
  Webes Creek (Falmouth)

- **Youth Conservation Corps (YCC) -** The DEP provides some technical assistance 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 2019 to promote information sharing and collaboration between the YCCs.

- **Watershed Group Support -** DEP supports the work of watershed associations and communities through presentations at annual association meetings and technical assistance outside of 319 grant-funded projects. In 2019, DEP provided watershed maps upon request and assistance to many organizations and groups focused on the following watersheds:

  Belgrade Lakes (Belgrade)
  Cross Lake (Cross Lake Township)
  Georges Pond (Franklin)
  Long Creek (South Portland)
  Long Pond (Parsonsfield)
  Togus, Lower Togus & Threecornered Ponds (Augusta)

- **Watershed Roundtable -** Over 80 watershed managers from state agencies, municipalities, watershed organizations, and SWCDs attended the DEP's 17th annual Watershed Managers Roundtable in Augusta in October. 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.

- **Lake Phosphorus Compensation Fee 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. One project was completed on China Lake in 2019, and several projects were lined up for 2020.

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 2019:

- Trained 659 participants in Basic and Advanced Erosion and Sediment Control practices.
- Provided two training programs in the Maintenance and Repair of Gravel Roads with 44 participants.
- Provided one continuing education workshop on 'Lakefront Property Values and Water Quality' for real estate professionals. The four-hour workshop was attended by 150 participants.
- Approved seven training opportunities through third party organizations of courses qualifying for re-certification in Erosion Control Practices including courses in septic system installation, forestry road building, wetland identification, and pond construction.
- Provided continuing education training to 109 individuals previously certified in erosion and sediment control practices.
- Provided on-line continuing education training to 248 individuals.

In 2019, the NPSTC provided erosion and sediment control training and certification to a record number of contractors from Aroostook County to York County.

For More Information:

John Maclaine, DEP – (207) 615-3279, john.maclaine@maine.gov
NPS Training Center Website – http://www.maine.gov/dep/land/training/index.html

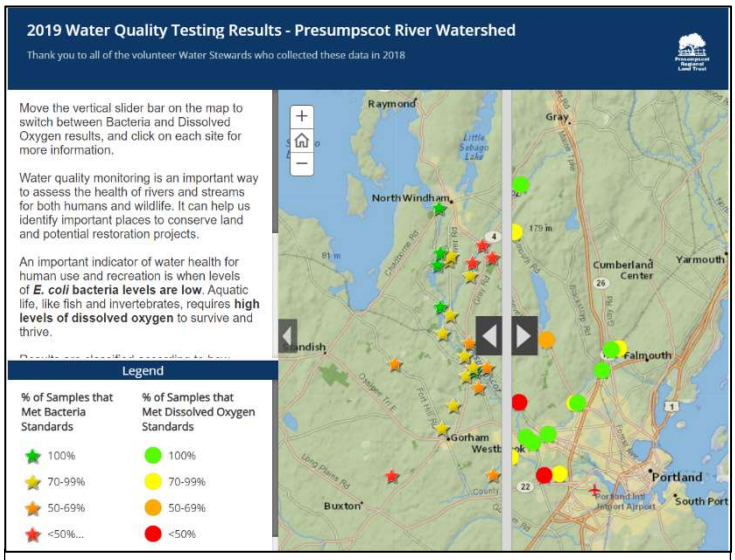
C. Maine Volunteer River Monitoring Program

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 (QAPP) 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 also review the data entered by the volunteer groups, upload acceptable data to DEP's database, and produce an annual report.

Accomplishments in 2019:

- VRMP staff and partners trained and certified/re-certified volunteers from seven volunteer organizations to monitor 48 rivers and streams and one harbor statewide.
- Water quality data were collected by 62 volunteers at 127 sites during 760 sampling events.
- Data collected included temperature, dissolved oxygen, conductivity, bacteria, chlorophyll, and nutrients.
- A total of 19 new sampling sites were added, including monitoring 11 new streams and rivers draining to the Scarborough Marsh and the Weskeag River.



VRMP partner Presumpscot Regional Land Trust displays 2019 monitoring data in an interactive online platform at www.prlt.org/water

For More Information:

Kristin Feindel – (207) 215-3461, kristin.b.feindel@maine.gov
VRMP Website – www.maine.gov/dep/water/monitoring/rivers_and_streams/vrmp/index.html

D. Clean Water State Revolving Fund

In Maine, the Clean Water State Revolving Fund (CWSRF) finances NPS projects through several different direct loans, pass-through loans and linked-deposit loans. These programs funded $6.7 million in the following types of NPS projects in 2019.

Accomplishments in 2019:

- The CWSRF linked-deposit Forestry program makes below market-rate financing available for Forestry BMPs and the purchase of environmentally friendly logging equipment. Loan recipients must comply with forest industry harvesting standards and environmental inspections. In 2019, 20 loans were made under this program totaling $5.4 million.
- The CWSRF and the Finance Authority of Maine established a pass-through loan program for the removal and/or replacement of commercial above-ground and underground oil storage facilities or tanks. In 2019, a total of $0.7 million was provided in financing for the removal and replacement of four oil storage facilities.
- The Auburn Water District expended $400,000 in CWSRF funds as their share of an $800,000 aluminum compound treatment of Lake Auburn to reduce phosphorus concentrations and algae growth in a public drinking water supply source.
- As part of a larger combined sewer overflow abatement project, the City of Portland expended $170,735 in CWSRF funds to install six under-drained soil filters to capture and treat stormwater runoff.

One of six under-drained soil filters installed to treat stormwater in the City of Portland.

Lake Auburn aluminum compound treatment.

For More Information:

John True, CWSRF Program Manager – (207) 287-7808, john.n.true@maine.gov
Clean Water SRF Website – http://www.maine.gov/dep/water/grants/srfparag.html

E. Stream Culvert Projects – Maine Water Bond

In 2014, Maine voters approved the first referendum for a "Clean Water for Maine" bond. Since then, DEP has developed a grant program to disseminate these funds for stream crossing or culvert upgrades and for 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 November 2017, voters approved $5 million in bond funding for upgrading culverts at stream crossings in order to improve fish and wildlife habitats and increase safety. Two RFPs under this funding ($5 million total) were released in 2019.
- In November 2018, voters approved another $5 million in bond funding for upgrading culverts at stream crossings in order to improve fish and wildlife habitat and increase safety. Two RFPs under this funding ($5 million total) will be released in 2020.
- Two rounds of municipal culvert grants were awarded in 2019. The program received a total of 89 proposals and 56 projects were awarded grant funds to upgrade undersized stream crossings to provide fish and wildlife passage, improve water quality, decrease flooding, and improve public safety. These grants represent a cost-effective investment of public funds.
- In the summer of 2019, the NPSTC coordinated and provided four regional trainings for municipal officials interested in submitting proposals for stream-crossing upgrade funding. The trainings were attended by 84 municipal officials and consultants. The trainings resulted in an increase in proposals for the second round in 2019 funding and dramatically increased the quality of applications. The workshops focused on stream crossing design for Stream Smart Road Crossings and included partners from Maine DEP, Army Corps of Engineers, and Maine Audubon.

The Town of Wilton received an $80,000 culvert grant to replace the undersized and unstable culvert on Pond Road (above left) with a 17.5-foot wide open-bottom concrete box structure (above right). The project provided fish habitat, water quality, and climate resiliency benefits.

For More Information:

John Maclaine, DEP – (207) 615-3279, john.maclaine@maine.gov
Culvert Bond Website – https://www.maine.gov/dep/land/grants/stream-crossing-upgrade.html

F. Other Program News

Cochnewagon Lake Alum Treatment

Cochnewagon Lake in Monmouth has experienced summer algal blooms for more than a decade due to the high amounts of internal phosphorus loading from the lake's bottom sediments. In June, an alum treatment was conducted to control the lake's internal recycling of phosphorus. The chemicals were distributed through the water column to the lake bottom using a barge delivery system designed to mix and distribute the alum. Initial water quality monitoring indicates that the treatment was effective, and it is anticipated that the lake will be removed from Maine's list of impaired lakes in the next few years. The project was carried out by the Cobbossee Watershed District (CWD). Funding included a $175,000 CWA Section 319 grant, $175,000 from the Town of Monmouth, and over $32,000 of in-kind match from CWD and local volunteers.

Drone view of the Cochnewagon Lake alum treatment. Photo credit: Ryan Burton, CWD

CWD has collected water quality data on Cochnewagon Lake since 1975, and the first severe algal bloom was documented on the lake in 1980. Subsequent blooms prompted CWD to undertake a diagnostic study that determined internal phosphorus recycling was the primary source of phosphorus. CWD conducted a nutrient inactivation (alum) treatment in 1986. Water quality improvements were significant and algal blooms were not observed for nearly 20 years. Beginning in 2005 however, the lake's previously clear water (6 - 8 m transparency) became opaque and green (< 2 m transparency). Total phosphorus, chlorophyll-a, and Secchi disk transparency data indicated that the lake no longer met water quality standards, and in 2012 DEP added Cochnewagon Lake to its list of impaired lakes with the note "Alum treatment no longer effective".

The 2019 alum treatment followed ten years of work to address phosphorus loading from the lake's surrounding watershed. In 2009, CWD conducted an NPS watershed survey and identified 50 erosion sites on 25 roads surveyed. Recommendations for reducing runoff and phosphorus were made for 96 of 108 properties surveyed. From 2011-2013, CWD conducted a Section 319-funded Phase I project that implemented BMPs at 20 road sites and 11 shorefront sites. From 2014-2016, CWD developed a watershed-based plan with a Section 604(b) grant that outlined future restoration actions. From 2017-2019, a Section 319-funded Phase II project provided cost-sharing to address chronic erosion problems on 15 road and driveway sites and cost-sharing for Youth Conservation Corps labor on 21 shorefront sites.

Coal Tar Sealant Ban

In 2019, the Maine legislature passed 38 M.R.S. §419E, which prohibits the sale and application of coal tar sealant products on driveways and parking lots. Beginning in October 2023, wholesale and retail sales of coal tar sealant products are prohibited, and application of coal tar sealant products is prohibited beginning in October 2024. Maine's ban was enacted after numerous studies documented the impacts of the product's polycyclic aromatic hydrocarbons (PAHs) on human health and the environment. In terms of water quality impacts, stormwater runoff can carry PAHs from pavement directly into streams, lakes, and marine waters, putting fish and other aquatic life in jeopardy.

Sealant applied to parking lot draining to Thatcher Brook in Biddeford.

Inspection Requirement for Septic Systems Located in the Shoreland Zone

Since 2007, Maine has required an inspection of any septic system located in the Coastal Shoreland Zone (within 250 of the upland edge of a coastal wetland) by a person certified by the Department of Health and Human Services during property transfers with exceptions for systems less than three years old or which have been inspected by a certified inspector within the prior three years (M.R.S. 30-A §4216). In 2019, M.R.S. 30-A §4216 was amended to require inspections of septic systems located in all Shoreland Zones during property transfers commencing on January 1, 2020. The purpose of this requirement is to identify malfunctioning septic systems.

Long Creek Mainstem Restoration Project

In October, the Long Creek Watershed Management District (LCWMD) carried out a large-scale stream habitat restoration project along 2,300 linear feet of Long Creek between Maine Mall Road and Foden Road in South Portland. The primary objective of the restoration project is to enhance habitat conditions for fish, insects, and other aquatic organisms as well as restore natural stream and floodplain functions to help Long Creek meet and sustain its state water quality classification.

The $850,000 project involved extensive additions of wood to the channel to improve habitat and flow complexity; additions of gravel and cobble to improve the streambed; removal of excess fill in the floodplain; stabilization of two large bank failures using rootwads and stone; placement of gravel mounds in the restored floodplain to provide long-term replenishment to the creek; and restoration of the riparian buffer through invasive plant species removal and native plantings.

Contractors install rootwads and woody debris in the stream to create habitat and restore floodplain connectivity.

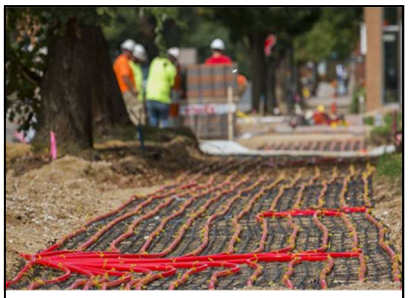
DEP Publication: Stream Stressor Guide

DEP released the *Guide to Identifying Stream Stressors*. The 51-page document is designed for use by watershed management and water resource professionals. It provides information about stressors that can impair a stream's biological community and gives guidance on how to identify which stressors and causal pathways are impairing or threatening a stream. The objective is to ensure that any plans to restore or protect a stream focus on the issues that are most important to the health of that particular stream. The document is available at: www.maine.gov/dep/land/watershed/Stream%20Stressor%20Guide%20October%202019final.pdf.

DEP Issue Profile: Impact of Deicing Salt on Maine Streams

DEP released the four-page issue profile, *Impact of Deicing Salt on Maine Streams*, which presents how salt use in developed areas has adversely impacted aquatic life in some streams in Maine and offers strategies to help reduce salt use and stream contamination.

Some of the highlighted strategies include following Maine's BMP Manual for Snow and Ice Control, developing property salt management plans, managing stormwater to reduce infiltration of salty runoff, and installing practices such as heated sidewalks and solar parking canopies that reduce the areas that need to be treated with deicing salt. Available at https://www.maine.gov/dep/land/watershed/Impact-of-Deicing-Salt-on-Maine-Streams.pdf



Heated sidewalks being installed in downtown Holland, MI. Photo: Shandra Martinez

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. Through its pass-through grants program, DEP administers 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 that include EPA's nine key elements. A plan provides assessment and management information and describes actions needed over a 10-year period to restore NPS-impaired waters or to protect unimpaired waters considered threatened by NPS pollution. A thorough assessment of NPS problems (e.g., 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.

Angie Wotton (Southern Aroostook SWCD) showcases a field overwintered with a 11-species cover crop mix. The work was part of the 319 grant-funded Meduxnekeag River Restoration Project (left). Fall cover cropping is one of many BMPs being promoted to improve soil health, protect water quality and reduce cropland erosion on bare fields (right).

B. Grant Awards Issued in 2019

DEP issued 13 new grants ($1,105,676) in 2019 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 also issued three grants ($77,190) using CWA Sections 604(b) and 319 funds to develop watershed-based plans for China Lake in China, Cross Lake in Aroostook County, and Mare Brook in Brunswick.

NPS Grants Issued in 2019

Project Title	Grantee	Project #	Grant	Match
Abrams Pond Protection Project Phase I	Hancock County SWCD	20190003	79,418	58,759
Adams-Knickerbocker Lake Protection Project, Phase II	Boothbay Water District	20180009	44,510	33,140
Capehart Brook Restoration Project, Phase III	City of Bangor	20180010	125,000	85,000
China Lake Watershed-Based Plan Development Project	Kennebec County SWCD	20190013	27,590	27,762
Cobbossee Lake Protection Project, Phase II	Cobbossee Watershed District	20180011	90,410	60,634
Cross Lake Watershed-Based Plan Development Project	County of Aroostook	20190011	17,419	30,482
Goosefare Brook Restoration Project Phase II	Town of Old Orchard Beach	20190008	111,145	78,434
Hogan - Whitney Ponds Protection Project Phase I	Oxford County SWCD	20190005	50,100	34,856
Mare Brook Watershed-Based Plan Development Project	Town of Brunswick,	20190012	32,181	38,575
Mousam Lake Protection Project Phase I	York County SWCD	20190010	94,981	76,597
Ogunquit River Restoration Project Phase III	Town of Ogunquit	20180012	59,990	40,619
Parker Pond Protection Project Phase II	30 Mile River Watershed Association	20190006	98,132	74,151
Phillips Brook Restoration Project Phase I	Town of Scarborough	20190007	115,623	81,330
Salmon Lake McGrath Pond Protection Project Phase I	7 Lakes Alliance	20190001	64,095	54,935
Trout Brook Restoration Project Phase III	Cumberland County SWCD	20190002	45,072	30,787
Thatcher Brook Restoration Project Phase II	City of Biddeford	20190004	127,200	84,800
Totals			$1,182,866	$890,861

C. Conditional Grant Awards under 2019 Request for Proposal (RFP)

In May 2019, DEP issued an RFP for projects to help communities implement their watershed-based plans and make progress restoring or protecting a waterbody. Six proposals were received, requesting $416,465. DEP issued conditional grant awards for all six projects, and projects will begin in 2020.

Conditional Grant Awards under Section 319 RFP

Project Title	Grantee	Project #	Grant	Match
Bauneg Beg Lake Protection Project Phase I	York County SWCD	20200005	52,601	41,013
Forest Lake Protection Project Phase III	Cumberland County SWCD	20200002	86,381	78,947
Georges Pond Protection Project Phase I	Georges Pond Association	20190015	45,960	33,106
Goodall Brook Restoration Project Phase II	City of Sanford	20200004	79,174	91,017
Meduxnekeag River Restoration Project Phase II	Southern Aroostook SWCD	20200001	33,591	23,537
North Pond Protection Project Phase II	7 Lakes Alliance	20200003	118,758	112,505
Totals			$416,465	$380,125

VI. Summaries of NPS Projects Completed in 2019

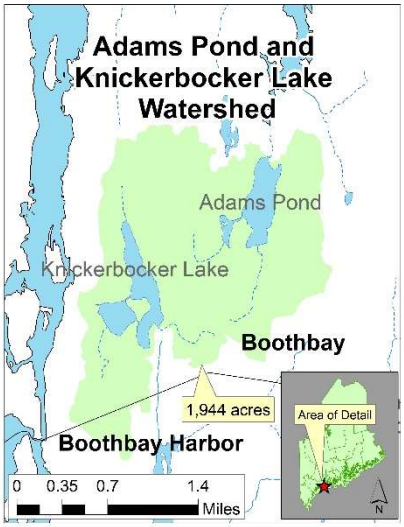
Fifteen watershed projects funded through the NPS grants program in previous years were successfully completed. DEP provided technical assistance and granted $1,078,140 of Federal Clean Water Act funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at $1,916,285.

- BMPs were installed to reduce polluted runoff in 11 watersheds, including eight lake and four river or stream watersheds. Over the course of these projects, NPS work reduced annual pollutant loading to these waters by 1,423 pounds of phosphorus, 901 pounds of nitrogen, and 690 tons of sediment per year - equivalent to about 26.5 dump truck loads.
- Watershed-based plans were completed for Lake Annabessacook (Winthrop) and the Medomak River (Waldoboro). Watershed assessment and water quality monitoring were conducted for Highland Lake (Windham) and the Lower Pemaquid River (Bristol) in preparation for future watershed-based plans. Watershed-based plans provide assessment and management information and describe 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.

Adams Pond and Knickerbocker Lake Watershed Protection Project
#2017RR01

Waterbody Names:	Adams Pond and Knickerbocker Lake
Location:	Boothbay and Boothbay Harbor - Lincoln County
Waterbody Status:	Most at Risk, NPS Priority Watershed
Project Sponsor:	Boothbay Region Water District (BRWD)
Project Duration:	January 2017 – October 2019
319 Grant Amount:	$43,300
Local Match:	$48,045



PROBLEM:

Adams Pond (80 acres) and Knickerbocker Lake (110 acres) are the public water supply for the towns of Boothbay, Boothbay Harbor, and Southport. Although significant parts of both watersheds remain undeveloped, erosion and runoff associated with existing development contribute soil and phosphorus to the lakes and adversely affect water quality. Based on measures of Secchi disk transparency, total phosphorus and chlorophyll-a, the water quality of both lakes is considered below average. Dissolved oxygen (DO) levels in Adams Pond and Knickerbocker Lake in recent years show DO depletion in deep areas of the lake. There is a high potential for phosphorus to leave the bottom sediments and become available in the water column in both lakes.

A 2014 watershed survey identified 48 NPS sites in the Adams Pond and Knickerbocker Lake watersheds. Post-survey fieldwork identified four more high priority sites. Census data show Boothbay's population is growing at a rate higher than the state average and two large developments within the watersheds are expected to increase population growth and stimulate more development. Because the Adams Pond and Knickerbocker Lake watersheds are centrally located, easily accessible by major roadways, and largely undeveloped, they are particularly attractive for development.

PROJECT DESCRIPTION:

The overall goal of this project was to improve the water quality of Adams Pond and Knickerbocker Lake by reducing or eliminating NPS pollution loading to the lakes. The project work plan called for the installation of sediment and erosion control BMPs at 17 priority NPS sites within the watershed and outreach to foster more environmentally-sensitive development in the future.

Infiltration steps installed at a property on Knickerbocker Lake.

PROJECT OUTCOMES:

- Remediation of 24 sites on 19 properties in the Adams Pond and Knickerbocker Lake watersheds. BMPs were installed on 11 high impact, 10 medium impact, and three low impact NPS pollution sites on town roads, private residential properties, and water district land.
- Reduction of sediment loading by 15.64 tons/year in Adams Pond and 61.31 tons/year in Knickerbocker Lake. Reduction of phosphorus loading by 13.3 pounds/year in Adams Pond and 52.1 pounds/year in Knickerbocker Lake. (Region 5 Method and WEPP Model)
- Increased public awareness through outreach to watershed property owners, town residents, town employees, and water district staff through seven press releases and presentations at the annual Knickerbocker Lake Association meetings in 2017, 2018 and 2019.
- BRWD covered the match costs and provided the labor for many of the projects, which helped bring private property owners on board with many of these projects and resulted in the project exceeding its targets for NPS sites (7 more NPS sites than planned) and local match (exceeded by $10,638).

Before: Failed culvert; driveway washed out

After: New, armored culvert and paved driveway

PROJECT PARTNERS:

Knickerbocker Lake Association
Knox-Lincoln SWCD
Town of Boothbay

CONTACT INFORMATION:

Sue Mello, BRWD – (207) 633-4723 x111, suem@bbrwd.org
Amanda Pratt, DEP – (207) 699-9279, Amanda.Pratt@maine.gov

Updating the Watershed-Based Plan for Annabessacook Lake
#2017PT14

Waterbody Name:	Annabessacook Lake
Location:	Monmouth & Winthrop - Kennebec County
Waterbody Status:	Impaired, Most at Risk, NPS Priority
Project Grantee:	Cobbossee Watershed District
Project Duration:	October 2017 – December 2019
604b Grant Amount:	$13,075
Local Match:	$13,107

PROBLEM/NEED:

Annabessacook is a 1,391-acre lake with a direct watershed area of 21.2 square miles. There is a considerable amount of developed land in the watershed near the lake, including the urban center of Winthrop, 182 shorefront residences, and a 100-site campground. The urban centers of Monmouth and North Monmouth are located adjacent to lake tributaries.

Lake water quality has improved significantly since it was severely polluted by discharges of sewage and polluted runoff in the 1960s and 1970s. Since 2000, throughout the summers, the mean annual Secchi disk transparency has exceeded four meters. However, Annabessacook Lake experiences occasional nuisance algal blooms during the fall turnover period, reducing water clarity to less than 2.0 meters and keeping it on Maine's list of impaired lakes. Soil erosion from watershed sources and internal loading from lake sediments are the primary sources of phosphorus to the lake. Cobbossee Watershed District (CWD) has spearheaded numerous water quality improvement projects over the past decades, including Phase I (#2007RR07) and Phase II (#2011RT15) Section 319 grant-funded implementation projects that installed BMPs at 34 sites. CWD completed the *Annabessacook Lake Phosphorus Control Action Plan and TMDL* (PCAP/TMDL) in 2004 and the *Annabessacook Lake (Winthrop & Monmouth) Watershed Based Plan* (#2004R-30) in 2007.

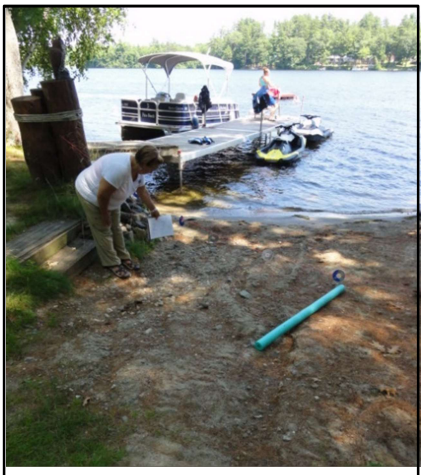
PROJECT DESCRIPTION:

The project purpose was to update the Annabessacook Lake Watershed-Based Plan, which had expired in 2017, and guide future efforts to restore water quality. The project included a watershed survey, additional water quality monitoring to help calculate internal phosphorus loading from lake sediments and drafting of a new plan. A project steering committee met twice to help organize the watershed survey and provide input on the project. CWD provided project updates to the Monmouth and Winthrop Selectboards, CWD Board of Trustees, and Annabessacook Lake Improvement Association (ALIA).

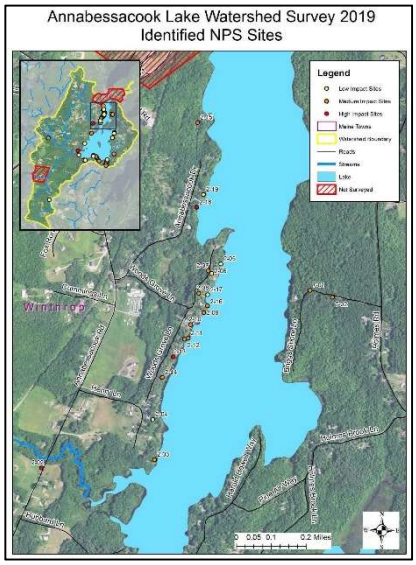
Photo credit: Ryan Burton

PROJECT OUTCOMES:

- The updated *Annabessacook Lake Watershed-Based Plan (2020-2029)* was completed in December 2019. The plan establishes a water quality goal and load reductions needed for Annabessacook Lake and identifies necessary actions, timelines, anticipated funding sources, parties responsible to implement the plan and other elements required by EPA.
- In June 2019, 22 volunteers and technical staff conducted the Annabessacook Lake watershed survey and documented 43 NPS sites. Of these, 4 were rated as high impact, 25 as medium impact and 14 were low impact. The *Annabessacook Lake Watershed Survey Report* (October 2019) describes survey results and includes maps of all identified NPS sites.
- The 2004 Annabessacook Lake PCAP/TMDL determined that the average annual epilimnetic total phosphorus concentration would need to decline from 17 ppb to 15 ppb to attain bloom-free conditions. Based on water quality monitoring conducted during this project, it appears that this TMDL goal has been achieved, likely as a result of the Phase and I and II watershed implementation projects and an aggressive municipal street sweeping program.
- Water quality monitoring and data analysis conducted through the project documented that the internal recycling component of the annual phosphorus load to Annabessacook Lake has been gradually declining over time. The plan anticipates that internal loading will further decline by another 50 kg/year by 2029, which would equate to a 33% reduction from the TMDL's reported load.



NPS site identified during watershed survey



PROJECT PARTNERS:

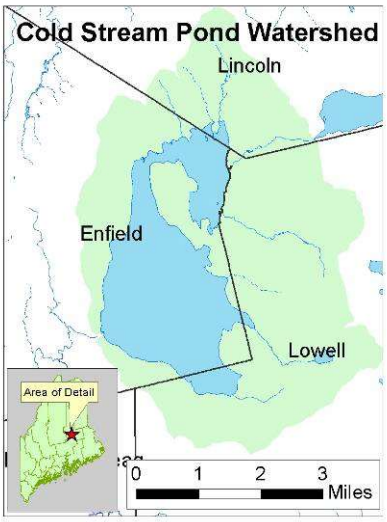
Annabessacook Lake Improvement Association
Friends of the Cobbossee Watershed
Town of Monmouth
Town of Winthrop

CONTACT INFORMATION:

William Monagle, Cobbossee Watershed District – (207) 377-2234, wmonagle@roadrunner.com
Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov

Cold Stream Pond Protection Project, Phase I
#2017RR04

Waterbody Name:	Cold Stream Pond
Location:	Enfield, Lincoln, Lowell – Penobscot County
Waterbody Status:	NPS Priority Watershed
Project Grantee:	Penobscot County SWCD
Project Duration:	January 2017 – December 2019
319 Grant Amount:	$47,345
Local Match:	$48,386



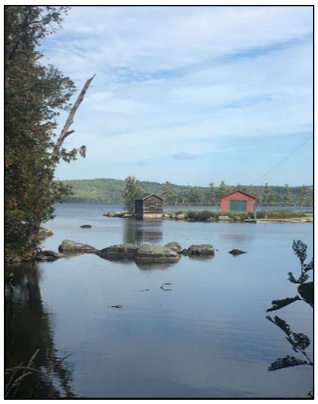
PROBLEM:

Cold Stream Pond is a 3,619-acre pond with a watershed of 21.7 square miles. The pond supports a cold-water fishery and is a highly valued ecological and recreational resource in the area; however, it is under intense development pressure. The greatest threat to water quality in Cold Stream Pond is polluted runoff from storm events when soil and nutrients, particularly phosphorous, wash into the pond. Excessive amounts of phosphorous, when introduced to a water body, may result in a decline in water quality.

In 2011, Penobscot County SWCD received a Section 319 grant (#2010RR15) to coordinate a watershed survey, which identified 142 NPS sites. Most sites were found on residential properties, and approximately 20 percent of the sites were associated with private camp roads. Taken individually, most problems identified in the watershed survey were rated as having low to moderate impact. However, collectively they have the potential to seriously impact water quality of Cold Stream Pond. The Coldstream Camp Owner's Association (CSCOA) developed the *Cold Stream Pond Watershed-based Protection Plan* (WBP) in 2016.

PROJECT DESCRIPTION:

The Cold Stream Pond Protection Project (Phase I) aimed to address the highest priority NPS sources identified in the watershed survey and WBP. NPS pollution was reduced through the installation of BMPs on priority road and residential sites. LakeSmart property screenings, road maintenance workshops, and public outreach aimed to increase awareness of water quality threats and effective practices to protect water quality.



Penobscot County SWCD served as project manager, and CSCOA provided local coordination and volunteer match. Kennebec County SWCD provided technical expertise on erosion and sedimentation control BMP design and implementation. The Towns of Enfield and Lincoln provided match in the form of cash, use of town equipment and public works labor. A steering committee consisting of representatives from PCSWCD, KCSWCD, CSCOA, Maine DEP, and the Towns of Enfield and Lincoln helped guide the project.

PROJECT OUTCOMES:

- Through the grant, BMPs were installed at 10 NPS Abatement Road Sites. Installed BMPs included ditch stabilization, check dams, plunge pool, armored inlet/outlets, culvert replacement, a Stream Smart crossing, turnouts, mulching, shore and bank stabilization, and road grading.
- The LakeSmart program became widely popular on Cold Stream Pond as a result of this grant. The original project goal was to conduct 10 LakeSmart evaluations, and nineteen were completed with more camp owners requesting them for the summer of 2020. CSCOA will continue to carry out LakeSmart evaluations as one of its ongoing programs.
- An estimated annual reduction of 350.9 tons of sediment, 297.9 pounds of phosphorus, and 596.0 pounds of nitrogen was achieved through the project (Region 5 Method and WEPP Model), and over 230 feet of shoreline was stabilized.
- The project helped raise local awareness through numerous outreach activities including four newsletter articles, six project presentations, numerous web postings, a camp road maintenance workshop (nine participants) and basic and advanced erosion control workshop (28 participants).

Birch Lane ditches armored with stone and seed/mulch and check dams installed.

Bridge constructed to replace a failing culvert

PROJECT PARTNERS:

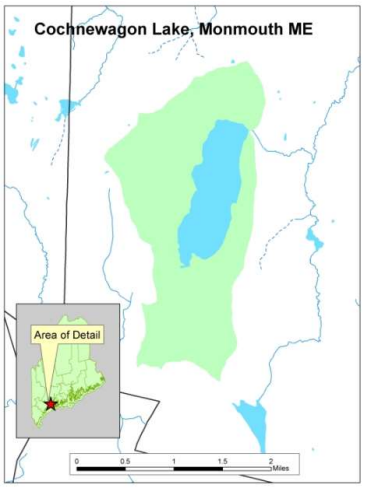
Cold Stream Pond Camp Owners Association
Kennebec County SWCD
Town of Enfield
Town of Lincoln

CONTACT INFORMATION:

Amy Polyot, Penobscot County SWCD – (207) 947-6622 x 3, amy.polyot@me.nacdnet.net
Greg Beane, Maine DEP – (207) 299-4703, greg.e.beane@maine.gov

Cochnewagon Lake NPS Watershed Restoration Project Phase II
#2017RT03

Waterbody Name:	Cochnewagon Lake
Location:	Monmouth - Kennebec County
Waterbody Status:	NPS Priority Watershed, Impaired
Project Grantee:	Cobbossee Watershed District
Project Duration:	January 2017 – December 2019
319 Grant Amount:	$95,117
Local Match:	$95,319



PROBLEM:

Cochnewagon Lake is a 386-acre lake within a 3.4 square mile watershed, located entirely in Monmouth, Maine. The primary land cover in the watershed is forest, followed by agriculture and development. Cochnewagon is a multi-use lake and a prominent feature in Monmouth. Approximately 100 residences dot the shoreline. Public use areas are located near downtown Monmouth including a public beach and town-maintained boat launch. In 1986, Cobbossee Watershed District (CWD) did an in-lake nutrient inactivation treatment, which restored good water quality to Cochnewagon Lake for nearly 20 years. Eventually, however, the effectiveness declined, as evidenced by late summer algal blooms and associated elevated chlorophyll and phosphorus concentrations. The Maine DEP listed the lake as impaired in the 2012 Integrated Water Quality Monitoring and Assessment Report.

In 2009-2010, CWD conducted an NPS watershed survey and identified 50 erosion sites on 25 roads surveyed. Recommendations for reducing runoff and phosphorus were made for 96 of 108 properties surveyed. From 2011-2013, CWD conducted a 319-funded Phase I project (#2011RR02) that implemented BMPs at 20 road sites and 11 shorefront sites. In 2016 CWD developed the Cochnewagon Lake Watershed-based Plan (WBP), which recommended additional watershed load reductions and another alum treatment (#2013RT26). An alum treatment was funded and carried out in 2019 through a separate 319-funded grant project (#20180001).

PROJECT DESCRIPTION:

The Cochnewagon WBP defined and set reduction goals for external and internal phosphorus sources causing Cochnewagon Lake water quality impairment. The Phase II project purpose was to achieve reduction goals for the external phosphorus loading to the lake. To achieve this target, the project intended to implement BMPs at 15 road sites and 20 shorefront sites; provide technical assistance at 25 or more shorefront sites; carry out public information and education actions in the WBP; and conduct water quality monitoring. The project was guided by a local steering committee that included representatives from the Town of Monmouth and watershed residents.

Pine Drive after BMPs installed

PROJECT OUTCOMES:

- The project provided cost-sharing assistance to address chronic erosion problems on 15 road and driveway sites and three shorefront sites. Road projects involved installation of runoff diversions, new or improved turnouts, bluestone or recycled asphalt on road surfaces, riprap in ditches or at culvert inlets/outlets, and level spreaders.
- Work completed through the project reduced pollutant loading to Cochnewagon Lake by an estimated 45 tons of sediment and 35 pounds of phosphorus per year (Region 5 Method and WEPP Model). This reduction met the watershed plan's goal of reducing annual loading by 15 kg phosphorus and will help extend the effectiveness of the 2019 alum treatment.
- Friends of the Cobbossee Watershed (FOCW) provided LakeSmart-Start! technical assistance visits to 26 property owners, which led to the YCC carrying out an additional 21 BMP projects at 18 properties.
- Project outreach included a pontoon boat tour, public meeting, 100 hours of NPS classroom education in Monmouth schools and two watershed science days at Cochnewagon Lake for 60 students.
- CWD collected an extensive amount of data that is sufficient to describe Cochnewagon Lake's condition and to track future improvements resulting from restoration efforts.
- Local residents, road associations, CWD and other partners contributed a significant amount of local match to the project. Project match exceeded the work plan goal by $17,496.

Cochrane Drive - Extensive bank and ditch erosion (left) was addressed by reshaping the steep bank; seeding and mulching the new slope; and armoring the ditch with riprap (right).

PROJECT PARTNERS:

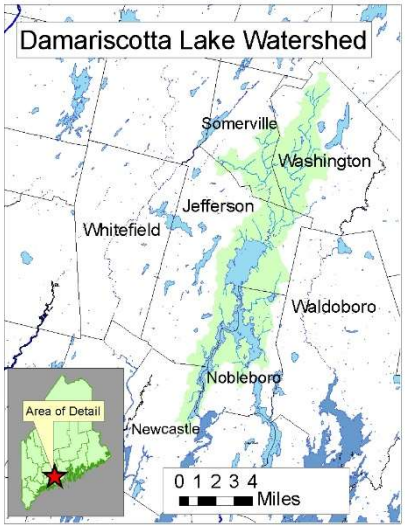
Friends of the Cobbossee Watershed
Town of Monmouth
Private Road Associations

CONTACT INFORMATION:

Wendy Dennis, Cobbossee Watershed District, (207) 377-2234, cwd@fairpoint.net
Wendy Garland, DEP, (207) 615-2451, wendy.garland@maine.gov

Damariscotta Lake Watershed Protection Plan, Phase I
#2017RR05

Waterbody Name:	Damariscotta Lake
Location:	Jefferson, Nobleboro, and Newcastle - Lincoln County
Waterbody Status:	Most at Risk, NPS Priority Watershed
Project Sponsor:	Midcoast Conservancy
Project Duration:	January 2017 – December 2019
319 Grant Amount:	$110,911
Local Match:	$73,940



PROBLEM:

Damariscotta Lake is a large lake (4,625 acres) of exceptional regional value for its recreational offerings and its significant cold-water fishery. The lake has a state park on its shore (approximately 50,000 visitors each year) and is in a high growth region of the state. The lake is listed as an NPS Priority Watershed due to its sensitivity to additional phosphorous inputs due to the lake's hydrology and threats in the watershed.

Much of Damariscotta Lake's 46.4 square mile watershed was surveyed for NPS sources in 1990, 1992, 1999, and 2014. One hundred ninety-three NPS problem sites were identified in the 2014 survey. Post-survey fieldwork identified an additional 15 NPS sites. Runoff, erosion, and sedimentation problems were found associated with roads, residences, commercial establishments, agriculture, and forestry operations. A watershed-based lake protection plan was completed in 2015.

PROJECT DESCRIPTION:

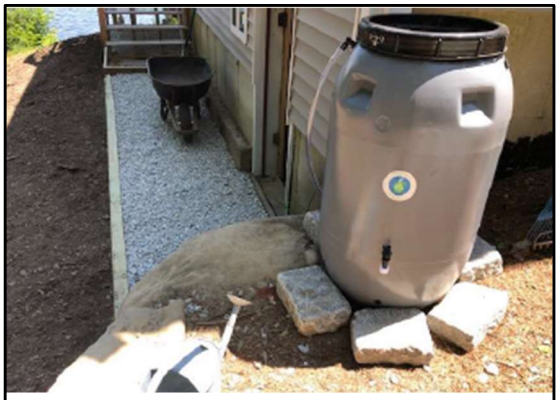
The purpose of this project was to maintain or improve the water quality of Damariscotta Lake by implementing specific objectives of the *Damariscotta Lake Watershed Management Plan*. The project aimed to eliminate or reduce sources of sediment and phosphorus pollution by implementing BMPs at high priority sites and conduct outreach to educate the public and promote watershed stewardship.

The project work plan called for the installation of BMPs at 45 NPS sites, including 15 sites via cost sharing and 30 sites through the summer Youth Conservation Corps (YCC) program. In total, 111 BMPs were installed at 37 NPS sites. Long-term public support and involvement was encouraged through newsletters and press releases. Education and outreach was carried out primarily through a gravel roads workshop, newsletters, press releases and meetings with town officials.

PROJECT OUTCOMES:

- The project addressed erosion and stormwater problems through the implementation of 69 BMPs installed at 29 total NPS sites by the YCC, and 42 BMPs installed at eight NPS sites through cost-sharing. BMPs included road re-shaping, ditching, turnouts, culvert replacements, infiltration steps, rain gardens, rubber razors, buffer plantings, dripline trenches, and many others.
- The eight NPS cost-share projects prevented an estimated 72.3 tons of soil, 62 pounds of phosphorus, and 119.8 pounds of nitrogen from reaching Damariscotta Lake annually (Region 5 Method).
- The YCC had three successful seasons. A total of nine young adults from the region had the opportunity to learn and implement conservation practices and educate landowners on the impact these projects have on the health of Damariscotta Lake.
- Midcoast Conservancy and Knox-Lincoln Soil and Water Conservation District (SWCD) coordinated and conducted a Gravel Roads workshop for contractors (30 attendees). Three newsletter articles reached 1,800 landowners in and surrounding the Damariscotta Lake watershed, and four press releases were distributed through the local newspaper to share the progress and success of the project.
- In addition to the 37 sites described above, project staff conducted 25 site visits to provide advice and support to concerned landowners.

New 180' culvert and plunge pool installed to capture and filter runoff



Rain barrel and dripline trench installed to capture and infiltrate roof runoff

PROJECT PARTNERS:

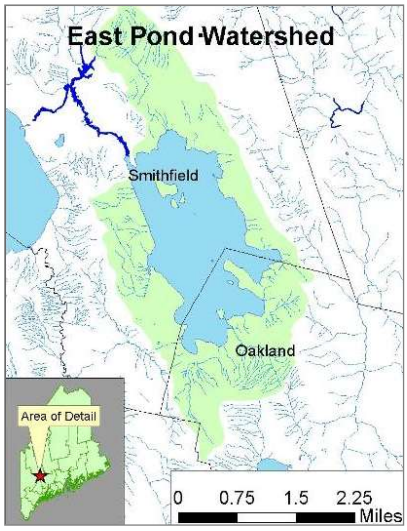
Knox-Lincoln SWCD
Town of Jefferson
Town of Newcastle
Town of Nobleboro
Town of Somerville
Town of Washington
Interfluve

CONTACT INFORMATION:

Addie Halligan, DEP – (207) 441-9057 Addie.Halligan@maine.gov
Anna Fiedler, Midcoast Conservancy – (207) 389-5153, anna@midcoastconservancy.org

East Pond Restoration Project, Phase IV: In-Lake Treatment
#20180002

Waterbody Name:	East Pond
Location:	Smithfield and Oakland - Somerset and Kennebec County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	7 Lakes Alliance
Project Duration:	January 2018 – May 2019
319 Grant Amount:	$232,000
Local Match:	$828,294



PROBLEM:

East Pond is the headwater lake in the seven-lake chain known as the Belgrade Lakes. East Pond has a surface area of 1,720 acres, is spring fed with no major inlets and has a slow flushing rate of 0.37 flushes/year. The watershed has a relatively small direct drainage of 2,832 acres, and land cover is 79% forested, 15% developed land, 6% wetlands, and <1% agriculture. The shoreline contains numerous residential homes and camps, three summer youth camps, two commercial camps and one public boat launch. Water quality data has been collected in East Pond since 1975. East Pond has experienced persistent algal blooms since 1993, predictably occurring each year between July and September.

The first NPS watershed survey was conducted by the Belgrade Regional Conservation Alliance (now 7 Lakes Alliance) in 1999, followed by three Section 319 implementation projects between 1999 and 2012 that addressed 64 NPS sites. A TMDL (2001) report estimated that both internal loading and watershed loading were significant contributors to the poor water quality. In 2007, Kennebec County SWCD in cooperation with BRCA, DEP and the East Pond Association developed a watershed-based plan (WBP). In 2014, another watershed survey documented 124 NPS sites with 60% rated as low impact. The *East Pond Watershed-Based Management Plan* was updated in 2018. To eliminate algal blooms, the plan recommended addressing the remaining NPS sources in the watershed as well as conducting a single treatment of alum to inactivate surficial sediment phosphorus.

PROJECT DESCRIPTION:

The project purpose was to implement a key recommendation of East Pond Plan by carrying out an in-lake alum treatment. Phosphorus loading estimates in the plan indicated that internal loading represents 50% of total phosphorus loading to the lake and that treating anoxic areas of the lake (670 acres) with alum would reduce internal loading by 75-90% and reduce total average phosphorus in the water column from 18 to 12 ppb. The project aimed to treat this target area and conduct follow-up monitoring to evaluate the project success in meeting the water quality restoration goal.

Drone view during alum treatment

PROJECT OUTCOMES:

- The 676-acre treatment area was treated with aluminum compounds in two phases, with 25g/m^2 applied in June and 20g/m^2 applied in October. This was the largest alum project ever conducted in New England and by the application contractor. Because of the size of the treatment area and the amount of chemicals applied (360,000 gallons), the contractor built a larger barge, which was then used during the second phase of the application to apply more chemical per trip.
- Intensive water quality monitoring conducted by Colby College, 7 Lakes, DEP, and East Pond Association before, during, and after the treatment showed promising initial results. No algal blooms were documented in East Pond in 2018, and Secchi disk transparency measurements were at five meters throughout summer and fall 2018. One resident reported, "our daughter who is highly allergic to the algae is enjoying allergy-free swimming in August for the first time in about 20 YEARS!"
- Colby College's preliminary analysis of water quality samples from September and October 2018 indicated that water column total phosphorus was reduced to 10 ppb. Maine DEP reported similar lab results.
- The East Pond Association and 7 Lakes secured numerous project pledges and donations from private foundations, residents and local businesses. The final project match was $828,294, exceeding the original match target by over $90,000.

SOLitude Lake Management barge on final day of alum treatment

PROJECT PARTNERS:

Colby College
East Pond Association
Town of Oakland
Town of Smithfield
SOLitude Lake Management
Water Resource Services

CONTACT INFORMATION:

Charlie Baeder, 7 Lakes Alliance – (207) 495-6039, charlie.baeder@7lakesalliance.org
Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov

Goosefare Brook Restoration Project, Phase I

#2017RT06

Waterbody Name:	Goosefare Brook
Location:	Saco and Old Orchard Beach - York County
Waterbody Status:	Urban Impaired Stream, Impaired
Project Sponsor:	City of Saco
Project Duration:	January 2017 – December 2019
319 Grant Amount:	$139,203
Local Match:	$92,018

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 appears to be associated with a legacy source from past industrial activities next to the stream. Otherwise, portions of the stream that are not meeting Class B standards are downstream of major development, highlighting the need to minimize stormwater runoff.

In 2014, the City of Saco received a Section 319-funded watershed planning grant (#2013RT25). The City, Town of Old Orchard Beach, York County SWCD, DEP and many other project partners were involved in the planning process, and the watershed-based plan was completed in May 2016. The overall purpose of the *Goosefare Brook Watershed Management Plan* is to improve conditions in Goosefare Brook so that it meets Class B water quality standards, prevent future water quality impacts to the brook and downstream waters, and build community awareness and support for the restoration and protection of Goosefare Brook.

PROJECT DESCRIPTION:

The specific purpose of this project was to install stormwater retrofits that will help improve conditions in Goosefare Brook and engage the public through various outreach initiatives. The major project goal was to install 12 high and medium-priority stormwater retrofits and stream corridor improvement projects to reduce pollutant loading to the stream and improve stream habitat. Additionally, the project included an education and outreach component to engage and educate the local community, students, partner organizations, and stakeholders, and worked to develop a fill ordinance in Old Orchard Beach.

Volunteers and sixth grade students stenciled more than 100 storm drains.

PROJECT OUTCOMES:

- Five stormwater retrofit projects were constructed in the watershed, and eight habitat stream enhancement projects were completed. BMPs included riparian buffer plantings, culvert removals and replacements, biofiltration systems, gravel wetlands, and tree box filters.
- One Private Property Matching Grant project was completed. This project garnered $17,752 in matching funds to install a gravel wetland that treated 70,126 square feet of impervious area.
- Approximately 40 volunteers participated in four clean up days in both the Town of Old Orchard Beach and City of Saco. A separate April Stools Day cleanup event attracted about 50 attendees. Sixty-nine students stenciled nearly 100 storm drains in the watershed.
- At least three press releases were published highlighting the work completed in the watershed.
- Efforts were made to draft a Fill Ordinance in the Town of Old Orchard Beach, but the ordinance was not able to garner the support needed to be approved. The town then shifted their focus on developing a Chapter 71 Post-Construction Stormwater Ordinance to protect Goosefare Brook. This ordinance will continue to be pursued in the Goosefare Brook Phase II project.

Stormwater retrofit project that featured a biofiltration system.

Gravel wetland installed as part of the Private Property Matching Grants task.

PROJECT PARTNERS:

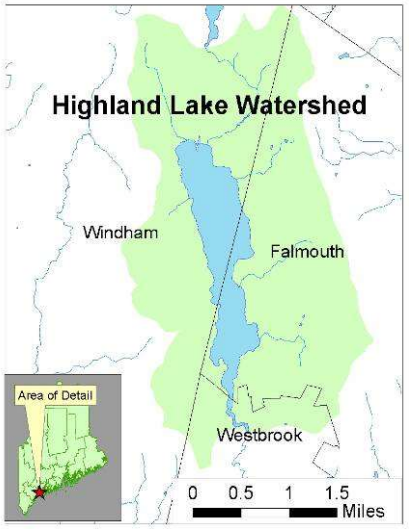
Loranger Middle School
Old Orchard Beach Conservation Commission
Thornton Academy
Town of Old Orchard Beach
York County SWCD

CONTACT INFORMATION:

Joe Laverriere, City of Saco – (207) 284-6641, jlaverriere@sacomaine.org
Jennifer Harris, York County SWCD – (207) 324-0888 x 208, jharris@yorkswcd.org
Addie Halligan, Maine DEP – (207) 441-9057, addie.halligan@maine.gov

Highland Lake Watershed Assessment Project
#2017PT16

Waterbody Name:	Highland Lake
Location:	Falmouth, Windham, Westbrook - Cumberland County
Waterbody Status:	Most at Risk, NPS Priority Watershed
Project Grantee:	Cumberland County SWCD
Project Duration:	November 2018 – December 2019
604(b) Grant Amount:	$5,460
Local Match:	$2,688



PROBLEM:

Highland Lake covers 623 acres and its 8.4 square mile watershed is part of the Presumpscot River drainage. DEP staff and Highland Lake Association (HLA) volunteers have monitored Highland Lake's water quality since 1974. Highland Lake was previously listed as impaired due to a declining water quality trend. However, three phases of successful 319 grant-funded implementation projects led to water quality improvements and removal from DEP's impaired list in 2010. The lake is currently listed as threatened on the Maine DEP's Nonpoint Source Priority Watersheds list.

In 2014, the lake experienced a picocyanobacteria bloom for the first time. This bloom reduced Secchi disk transparency in the lake to less than two meters in late July. The bloom occurred again from 2015 – 2017, followed by two summers of reduced clarity but no official bloom. This problem was the impetus for the development of a new watershed-based plan for Highland Lake and more extensive study of the lake and watershed.

PROJECT DESCRIPTION:

This project aimed to compile and review existing water quality and watershed survey information for Highland Lake and to assess the condition and maintenance needs associated with existing Best Management Practices (BMPs) in the watershed. This information will be incorporated into a watershed-based plan (WBP) project, which was funded through a 604(b) grant and will close out in 2020 (Highland Lake Watershed-Based Management Plan Project #20180008). The WBP will provide a 10-year adaptable guidance plan for improving Highland Lake's water quality.

Photo credit: Rosie Hartzler, Highland Lake Association

PROJECT OUTCOMES:

- Project partners inspected existing BMPs on 34 private roads in the watershed and documented their current condition. Fifteen of these roads were found to be in need of maintenance or repair.
- Results from BMP inspections were entered into Highland Lake's NPS site tracker to help inform future work. Some of the identified sites have already been addressed through town grants.
- Existing water quality and other watershed data were collected, compiled and assessed to make sure they met quality assurance standards. These data will be used to inform the Highland Lake Watershed-based Protection Plan, due to be completed in 2020.

Examples of roads assessed during BMP inspections

PROJECT PARTNERS:

Highland Lake Association
Highland Lake Leadership Team
Town of Falmouth
Town of Windham

CONTACT INFORMATION:

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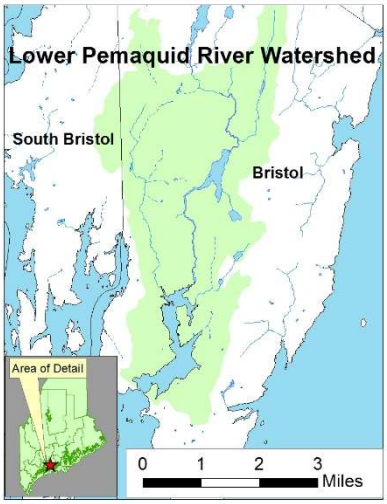
Amanda Pratt, DEP – (207) 699-9279, Amanda.Pratt@maine.gov

Lower Pemaquid River Watershed Assessment Project
#2017PT15

Waterbody Name:	Pemaquid River (Lower)
Location:	Bristol - Lincoln County
Waterbody Status:	Impaired, NPS Priority
Project Grantee:	Town of Bristol
Project Duration:	October 2017 – March 2019
604(b) Grant Amount:	$6,525
Local Match:	$10,700



PROBLEM:

The Pemaquid River is a 19-mile-long river with its headwaters at Tobias Pond in Waldoboro and its outlet at Pemaquid Harbor and John's Bay in Bristol. The entire watershed area is 46.9 square miles with approximately four square miles below the head of tide. The project focus area was the lower portion of the watershed below the Bristol Mills Dam, nearly 30% of the total, including 5.2 miles of freshwater main stem and 2.6 miles of tidal estuary. The project team focused on this area because previous water quality sampling data suggests that water flowing past the Bristol Mills Dam is uncontaminated for fecal indicator bacteria, leading the team to suspect sources of bacterial contamination were in the lower watershed. This allowed the project team to focus resources in the areas of highest concern.

The Town of Bristol is one of the leading softshell clam producers in the State, despite experiencing frequent closures due to NPS pollution (primarily fecal indicator bacteria). The estimated annual value of the clamming harvest is between $500K and $1M. Shellfish beds on parts of the lower Pemaquid River have been closed to harvesting since 1989 due to bacteria contamination. Property owners as well as the Town of Bristol put considerable effort into removing overboard discharge systems in the immediate vicinity of the area and by the end of 2012, most systems had been deactivated. Despite these efforts, water quality did not improve. This led the project team to suspect that nonpoint sources, including domestic and farm animals, beavers, geese and other migratory birds, as well as as-yet-unidentified failing septic systems, and overboard discharges are contributing to the continued poor water quality.

PROJECT DESCRIPTION:

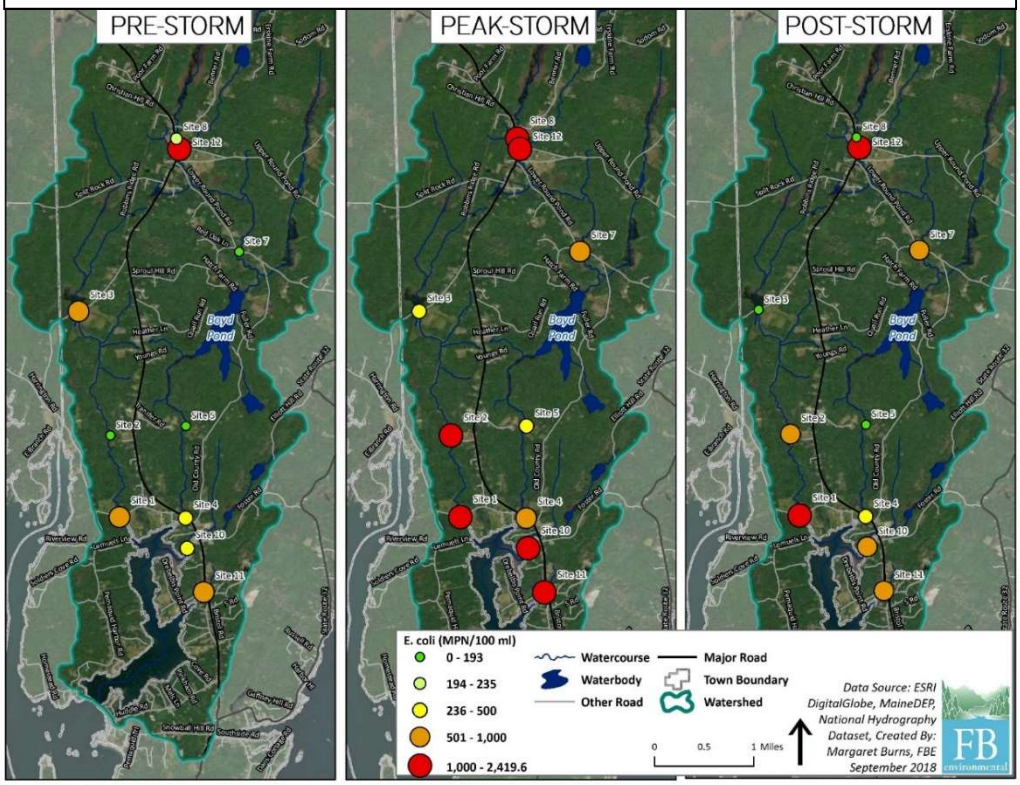
The purpose of the project was to compile and analyze existing data and collect additional sampling data to begin to identify potential pollution sources in the lower watershed. The local community and the shellfish committee were highly engaged in this project through participation as volunteers during the water quality sampling and at steering committee meetings. The eventual project goal is to create a watershed-based management plan (to be funded in the future) that will build upon the available data and local support to provide stakeholders with a roadmap to eliminate fecal bacteria contamination and ultimately remove the conditional closures in the estuary.

Volunteers train to do bacteria analysis at the Damariscotta River Association Lab.

PROJECT OUTCOMES:

- With the assistance of five local volunteers, a suitable precipitation event (defined as greater than 1" in 24 hrs. to match Maine DMR shellfish closure criteria) was sampled for *E. coli* before the storm, at the storm peak and after the storm at 11 predetermined sites in the lower watershed.
- Existing *E. coli* and fecal coliform data from Maine DEP, Pemaquid Watershed Association and Maine DMR was compiled into a comprehensive database for the Town. Shoreline septic survey results from Maine DMR were also included in the database.
- A table of proposed actions to eliminate pollution to Pemaquid Harbor to improve water quality, aquatic habitat, and the shellfish community was developed. The action table included action items, methods, responsible parties, and a completion timeline.

2018 Storm Sampling Results Map



PROJECT PARTNERS:

Pemaquid Watershed Association
Coastal Rivers Conservation Trust
(formerly Damariscotta River Association Lab)
Town of Waldoboro
FB Environmental Associates
Bristol Shellfish Committee

CONTACT INFORMATION:

Rachel Bizarro, Bristol Shellfish Committee – (207) 563-5270, rbizarro@bristolmaine.org
Christopher Hall, Bristol Town Administrator – (207) 563-5270, CHall@bristolmaine.org
Kristin Feindel, Maine DEP – (207) 215-3461, kristin.b.feindel@maine.gov

Medomak River Watershed-Based Plan Development
#2017PT13

Waterbody Name: Medomak River

Location: Waldoboro, Friendship, Bremen, Washington, Warren, Nobleboro, Jefferson - Lincoln County

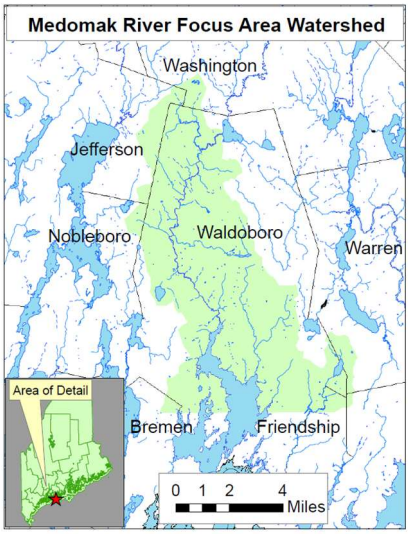
Waterbody Status: NPS Priority Watershed, Impaired

Project Sponsor: Town of Waldoboro

Project Duration: January 2017 – December 2019

604(b) Grant Amount: $22,000

Local Match: $21,015



PROBLEM:

The Medomak River is a 32.3-mile-long river with its headwaters in the Town of Liberty, reaching head of tide in Waldoboro, before entering Muscongus Bay. The entire watershed is 106.1 square miles with 80 square miles in the freshwater watershed and 26 square miles below head of tide. The project focus area was the lower portion of the watershed located below Medomak Pond, predominately in the Town of Waldoboro. This was chosen due to fecal indicator bacterial contamination in this portion of the watershed that has caused a significant loss of access to shellfishing in the river over the last decade.

The Town of Waldoboro was the leading softshell clam producer in the State of Maine in 2015, 2016 and 2017, despite experiencing regular closures due to nonpoint source pollution (primarily fecal bacteria). The estimated annual value of the clamming harvest is upwards of $1,000,000. Due to bacteria exceedances, Maine Department of Marine Resources (Maine DMR) limits shellfish harvesting on significant portions of the river.

A 1,218-acre section of the river is listed as impaired due to elevated fecal indicator bacteria. A strong inter-agency collaboration was formed in 2013 (referred to as the 'Medomak Task Force'), and it has worked tirelessly to eliminate sources of fecal bacteria to the river. Despite these efforts, the Medomak River estuary still suffers from elevated bacteria counts and therefore closures.

PROJECT DESCRIPTION:

This purpose of the project was to capitalize on past efforts and produce a detailed, user-friendly watershed-based management plan for the Lower Medomak River watershed. The plan aims to guide watershed restoration efforts to reduce fecal bacteria contamination and ultimately meet the goal of removing the conditional shellfish closures. The four major goals were to: build local support; develop a water quality database, conduct water quality analysis, and build on existing data through targeted sampling. The project also identified pollutant sources and developed a table of proposed actions to eliminate pollution.

Clammers harvesting shellfish in the mudflats.

PROJECT OUTCOMES:

- With the assistance of five local volunteers, a suitable precipitation event (defined as greater than 1" in 24 hrs. to match Maine DMR shellfish closure criteria) was sampled for *E. coli* before the storm, at the storm peak and after the storm at 11 predetermined sites in the lower watershed.
- The project team met with two landowners, who each provided valuable knowledge of BMPs for the watershed, knowledge of the estuary, and future opportunities for land conservation in the watershed.
- A complete database was created to organize pre-existing data collected in the watershed, with the creation of a Secondary Data Quality Assurance guide to ensure pre-existing data used for the project are adequate and all data were assessed for quality control and quality assurance. A gap analysis was conducted to outline missing data.
- University of Maine PhD student, Gabrielle Hillyer, released "drifter" buoys with GPS tracking-devices into the river that provided a high-frequency view of water movement within the estuary to be incorporated into a hydrodynamic model which could inform future management decisions of shellfish beds.
- An action plan was developed for the focus area through compilation of existing data and data collected during plan development, including; shoreline septic survey data, historical data, and 2018 fecal indicator bacteria storm sampling results.
- The *Lower Medomak River Watershed-based Plan* was written and accepted by DEP. The plan incorporates EPA's nine elements and provides stakeholders with a roadmap to eliminate fecal bacteria contamination.

PROJECT PARTNERS:

Town of Waldoboro
Town of Waldoboro Shellfish Committee
University of Maine, Darling Marine Center
Midcoast Conservancy (prev. Medomak Valley Land Trust)
Maine Department of Marine Resources
FB Environmental
Damariscotta River Association
Waldoboro Utility District

CONTACT INFORMATION:

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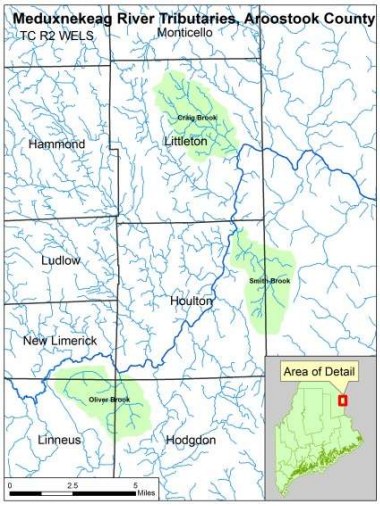
Margaret Mills, FB Environmental – (207) 221-6699 margaretb@fbenvironmental.com
Addie Halligan, DEP – (207) 441-9057 Addie.Halligan@maine.gov

Meduxnekeag River Restoration Project Phase I
#2017RT09

Waterbody Name:	Meduxnekeag River
Location:	New Limerick, Linneus, Hammond, Hodgdon, Houlton, Ludlow, Littleton - Aroostook County
Waterbody Status:	Impaired, NPS Priority Watershed
Project Grantee:	Southern Aroostook SWCD
Project Duration:	January 2017 – December 2019
319 Grant Amount:	$17,532
Local Match:	$12,160



PROBLEM:

The major land use below the confluence of the South Branch of the Meduxnekeag River to the Canadian border is row crop agriculture. The small tributaries Smith and Craig Brooks are 25% agriculture, while Oliver is 50%. Due to the short growing season, the nature of potato production, and past practices, soil erosion results in a significant phosphorous load to the Meduxnekeag and its tributaries. Small livestock producers, "hobby farms" can also have a significant impact on small tributary streams. The location of some of these operations along with their limited resources (land and equipment) results in water quality impacts from poor pasture and manure management.

From 2003-2007, the EPA-funded Winter Cover Project was successful in implementing practice changes in farm systems. Certain producers adopted application of fall cover crops and mulching of harvested potato fields. In 2015, SASWCD developed the *Meduxnekeag River Watershed Management Plan* (#2012RT19) with Section 319 grant funding. Starting in 2013, the watershed received additional funding for conservation practices through the NRCS-EPA National Water Quality Initiative. Local efforts have been bolstered by national soil health efforts to build soil and keep it and associated nutrients in the field.

PROJECT DESCRIPTION:

The project purpose was to promote soil improvement practices, winter cover and grass waterways in the lower section of the watershed by providing technical assistance, cost-sharing assistance, and outreach. Working with producers, the District helped develop seven different multi-species cover-crop mixtures and coordinated a central seed distribution site resulting in cost savings and positive farmer to farmer exchanges. The District promoted and created enthusiasm for the multispecies cover crop and soil health through three workshops and outreach in local papers, the District newsletter, and Facebook. The "Soil Your Undies" promotion along with conservation selfies created a good bit of buzz.

Farmer coffee and field tour

PROJECT OUTCOMES:

- Approximately 318 acres were planted with multi-species cover crop mixes and/or fall plantings for winter cover. In addition, tillage, a factor of soil degradation and carbon loss, was also reduced on many of these acres by eliminating fall plowing. BMP adoption spread during the grant. The District assisted one grower with five fields the first year and five growers with six fields the second year.
- Installed a watering system for a small livestock producer removing cow access from a tributary.
- Eleven BMP sites were addressed resulting in a reduction to the Meduxnekeag and its tributaries of 76 pounds of phosphorus, 151 pounds of nitrogen, and 76 tons of sediment (Region 5 Method).
- Producers also tapped into the NRCS Environmental Quality Incentives Program (EQIP) using multi-species cover on an additional 700 acres. Two producers have expanded the multi-species cover crop BMP on additional acreage with **no** financial assistance.
- The District partnered with NRCS and leveraged the 319 grant with a grant from the Broad Reach Fund to host a soil health workshop in 2017 and a "Farmer Coffee and Field Tour" in 2018 to educate farmers and invite them to change their soil management system. The workshop overcame the area's remote location by featuring national soils and crop experts and allowed local producers first-hand access to important soil health information.
- To reach the small livestock producers the District partnered with the local large animal veterinarian to host "Small Farm Animal, Barnyards & Pastures" workshop that included an offer for free technical and possible financial assistance for BMP installation. The District found working with this target audience to be time consuming and limited progress was made.

Cover crop of oats and tillage radish. The oats grow quickly and provide good coverage to prevent soil erosion. The radishes penetrate compacted soil layers to increase soil aeration and water infiltration, decrease compaction, and increase rooting depth for future plantings.

PROJECT PARTNERS:

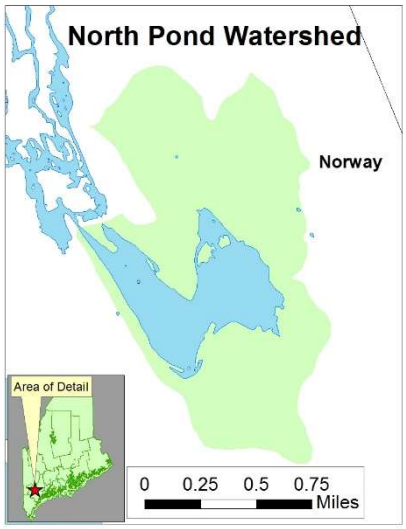
USDA Natural Resource Conservation Service
Wright Pearce Engineering (donated engineering services for small livestock producer)

CONTACT INFORMATION:

Angela Wotton, Southern Aroostook SWCD – (207) 532-2087, angela.wotton@me.nacdnet.net
Kathy Hoppe, DEP – (207) 540-3134, kathy.m.hoppe@maine.gov

North Pond Watershed Protection Project
#2016RR13

Waterbody Name:	North Pond
Location:	Norway - Oxford County
Waterbody Status:	NPS Priority, Most at Risk
Project Grantee:	Oxford County SWCD
Project Duration:	October 2017 – December 2019
319 Grant Amount:	$42,735
Local Match:	$60,313



PROBLEM:

North Pond has a surface area of 273 acres and a watershed of 1.3 square miles. Its shoreline is moderately developed with 85 seasonal and year-round residences. A small dam on the outlet maintains a constant shallow average depth in North Pond of approximately 10 feet. The pond's outlet stream flows from its northwest corner into a large bog complex and then into much larger Lake Pennesseewassee. Local residents access the pond by a Town of Norway public boat ramp at the pond outlet and a private boat ramp near the easterly end of the pond. The pond supports a warm water fishery with nine different species including largemouth bass, white perch, and chain pickerel.

Volunteers have monitored North Pond since 1976. The average transparency is 2.9 meters. However, the Secchi disk is often visible on the bottom of the pond, which limits the utility of this indicator on North Pond. The average total phosphorus value is relatively high at 17.3 ppb. This contributes to the DEP's characterization of North Pond as having below average water quality. From 1997 – 2003, Androscoggin Valley Council of Governments carried out three 319 grant projects (#97-09, #99-16 and #2002-08) to address the problems. Most of the projects were conducted in other nearby watersheds, but three projects were completed in the North Pond watershed. In 2016, the Lakes Association of Norway (LAON) raised local funding to conduct a watershed survey and identified 37 erosion sites. LAON completed the *North Pond Watershed-Based Protection Plan* in 2017.

PROJECT DESCRIPTION:

The purpose of the project was to significantly reduce erosion and the export of sediment and phosphorus into North Pond by providing landowners with technical assistance and installing best management practices (BMPs). Cost-sharing assistance was provided to install BMPs at the larger high and medium impact sites, and Residential Matching Grants were provided for small residential BMPs. The project aimed to increase public awareness about watershed issues and foster long-term watershed stewardship through two workshops (one on buffers and one on private road maintenance), news articles, and presentations at Selectboard and LAON annual meetings.

LAON Board members were instrumental in helping coordinate and implement BMP projects on Beaver Way and many other project sites.

PROJECT OUTCOMES:

- The project addressed chronic erosion problems on 13 sites, thereby reducing pollutant loading to North Pond by an estimated 35.5 tons of sediment and 30 pounds of phosphorus per year (Region 5 Method).
- Project staff conducted 22 technical assistance visits, which resulted in 13 Residential Matching Grants to install BMPs to address small residential erosion problems.
- The Lake Association of Norway (LAON), Town of Norway, Norway Savings Bank, road associations, and other partners contributed a significant amount of local match to the project. Project match totaled nearly $60,313, over double the work plan goal of $29,800.
- LAON volunteers provided over 200 hours of in-kind volunteer and material contributions including applying over 48 cubic yards of Erosion Control Mulch and installing rubber razors to divert runoff from driveways into stable vegetation instead of flowing to the pond.

Prior to the project, Beaver Way experienced chronic erosion with direct flow into the lake (left). Several BMPs were installed including two culverts, riprap-lined ditches, two turnouts and a rubber razor (right). Pollutant loading was reduced by an estimated 17 tons of sediment and 14 pounds of phosphorus.

PROJECT PARTNERS:

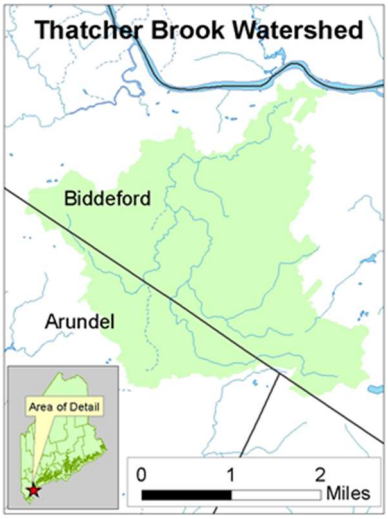
Androscoggin River Watershed Council
Lakes Association of Norway
Norway Savings Bank
Town of Norway

CONTACT INFORMATION:

Michele Windsor, Oxford County SWCD – (207) 744-3111, oxfordcountyswcd@outlook.com
Jeff Stern, Androscoggin River Watershed Council – (207) 595-0317, sternjm@hotmail.com
Wendy Garland, Maine DEP – (207) 615-2451, wendy.garland@maine.gov

Thatcher Brook Watershed Restoration Project, Phase I
#2017RT11

Waterbody Name:	Thatcher Brook
Location:	Biddeford and Arundel - York County
Waterbody Status:	Impaired, NPS Priority
Project Grantee:	City of Biddeford
Project Duration:	February 2017 – December 2019
319 Grant:	$131,240
Local Match:	$87,554



PROBLEM:

Thatcher Brook is a Class B urban impaired stream located in Biddeford and Arundel that flows into the Saco River. The stream is 7.7 miles long and has a 7.12 square mile watershed that includes large tracts of forested land, wetland, and pasture lands. The watershed also includes several major state roads and a designated growth area with existing retail and commercial development, industrial parks, and residential housing.

Thatcher Brook is listed as impaired because it does not meet aquatic life or bacteria standards. The stream did not meet aquatic life standards at the DEP's monitoring station on Lower Thatcher Brook in 2015, nor at the upstream station located below the confluence with the major tributary, Richardson Brook, when most recently sampled in 2012. Thatcher Brook was included on the DEP's Bacteria TMDL (2009) and Impervious Cover TMDL (2012). The primary stressors to the brook include stream channel alteration, elevated phosphorus, depressed dissolved oxygen, and habitat alteration. Elevated chloride is a potential secondary stressor in the watershed. The City of Biddeford developed the *Thatcher Brook Watershed Management Plan* (2014) with grant funding from Maine DEP and EPA.

PROJECT DESCRIPTION:

The primary purpose of this project was to implement action items recommended in the *Thatcher Brook Watershed Based Management Plan* with the ultimate goal of improving Thatcher Brook water quality so that it meets its Class B status. The City of Biddeford partnered with York County Soil and Water Conservation District (YCSWCD) to execute the proposed work. The project included instream habitat restoration, stormwater retrofits, stormwater technical assistance for commercial properties, ordinance development, and several education and outreach efforts.

Volunteers stencil storm drains in the Thatcher Brook watershed.

PROJECT OUTCOMES:

- Stream habitat was improved through two "chop and drop" habitat restoration projects and a road and culvert removal project.
- Pollutant load reductions totaled 0.54 tons/year of sediment, 2.09 pounds/year of phosphorus, and 10.85 pounds/year of nitrogen (Region 5/STEPL).
- Education and outreach included in-class tutorials and several field trips with Biddeford Middle School and High School students, two University of New England class projects, various presentations and creation of four press releases documenting the project.
- A total of 11 watershed signs were placed throughout Biddeford making the public aware of Thatcher Brook and the waters that drain to it.
- Seven technical assistance site visits in the Biddeford Industrial Park were completed, and seven Stormwater Operation and Maintenance Plans were created for commercial landowners.
- Ordinance changes were made in both the Town of Arundel and the City of Biddeford to further protect Thatcher Brook.

One of several felled trees used for chop and drop habitat restoration. Photo also shows a "before" view of the culvert under Medical Center Drive that was removed.

"After" photo of culvert removal site.

PROJECT PARTNERS:

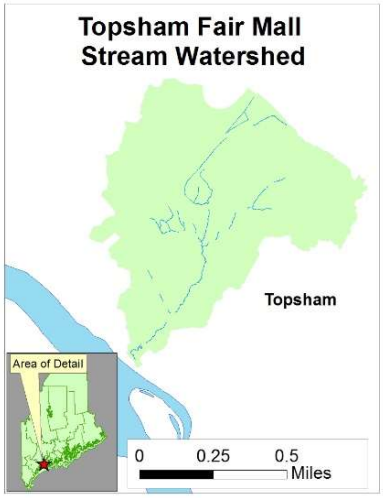
Maine Department of Transportation
York County SWCD
Town of Arundel
Maine Turnpike Authority
Biddeford Conservation Commission
University of New England

CONTACT INFORMATION:

Tom Milligan, City of Biddeford – (207) 284-9115, tmilligan@biddefordmaine.org
Jennifer Harris, YCSWCD – (207) 324-0888, jharris@yorkswcd.org
Amanda Pratt, DEP – (207) 699-9279, amanda.pratt@maine.gov

Topsham Fair Mall Stream Restoration Project – Phase II
#2017RT12

Waterbody Name:	Topsham Fair Mall Stream
Location:	Topsham - Sagadahoc County
Waterbody Status:	Urban Impaired Stream
Project Grantee:	Town of Topsham
Project Duration:	May 2017 – December 2019
319 Grant Amount:	$102,000
Local Match:	$328,930



PROBLEM:

Topsham Fair Mall Stream is an impaired stream in Topsham. Several large road crossings of the stream block the floodplain and significantly alter the flow and ecology of the stream. The 320-acre watershed has 79% of the land area developed, including 30% impervious surfaces. Undeveloped portions of the watershed are slated for growth in Topsham's Comprehensive Plan. This Class B stream was listed as impaired in 2008 due to habitat assessment and is included in the 2011 *Maine Impervious Cover TMDL*. Despite impairments, the stream is well oxygenated and groundwater recharge keeps temperatures low enough to make it a potentially valuable refuge for coldwater fish from the Androscoggin River.

The *Topsham Fair Mall Stream Watershed Based Plan* (2014) identified the need for reduction of salt entering the groundwater, modification of several stream crossings and installation of stormwater retrofits at 29 high-, moderate-high, and moderate priority sites. The Topsham Fair Mall Stream Restoration Phase I (#2015RT07) Section 319-funded grant project conducted salt management outreach, revised municipal ordinances to include chloride management considerations and to provide an opportunity to be minimalist with parking lot size, and installed catch-basin filters in several hotspot locations.

PROJECT DESCRIPTION:

The purpose of this project was to address the adverse effects of a high-priority existing barrier culvert on the stream, including both morphological impacts and mobility for macroinvertebrates and finfish such as Wild Eastern Brook Trout and Atlantic Salmon. The project leveraged DEP's Supplemental Environmental Project funds as well Town funds. This project was part of a phased approach to implementing key action items detailed in the long-term watershed-based plan to restore the Topsham Fair Mall Stream.

Installation of a Stream Smart crossing at River Road.

PROJECT OUTCOMES:

- Removal of a major stream constriction and barrier caused by two undersized hanging culverts at the River Road stream crossing by replacing the culverts with a Stream Smart 12-foot-wide box culvert.
- Restoration of the lower reach of the Topsham Fair Mall Stream to natural stream form.
- Access provided to an additional 700 feet of the stream as cold water refugia from the Androscoggin River.
- Contribution of $328,930 of match, which was $241,400 over the work plan estimate.

River Road crossing of the Topsham Fair Mall Stream.
Culvert inlets (top) and outlets (bottom) before and after the project.

PROJECT PARTNERS:

Wright-Pierce
U.S Fish and Wildlife Service

CONTACT INFORMATION:

Rod Melanson, Town of Topsham – (207) 725-1724, rmelanson@topshammaine.com
Kristin Feindel, Maine DEP – (207) 215-3461, kristin.b.feindel@maine.gov

Wilson Lake Watershed Protection Plan, Phase I
#2016RR11

Waterbody Name: Wilson Lake

Location: Wilton, Temple, Washington & Perkins Townships, Carthage, Jay – Franklin County

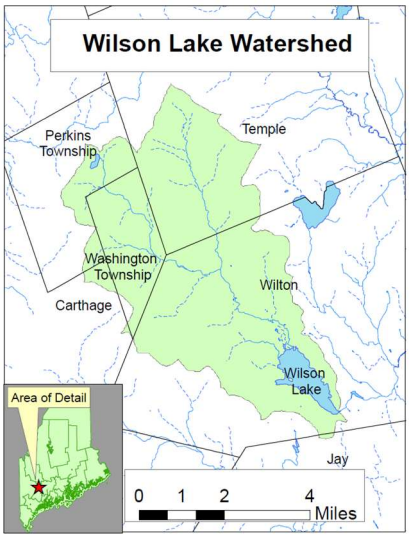
Waterbody Status: NPS Priority

Project Sponsor: Town of Wilton

Project Duration: February 2018 – December 2019

319 Grant Amount: $69,696

Local Match: $194,251



PROBLEM:

Wilson Lake, with a surface area of 479 acres and a 26 square mile watershed, is used extensively for swimming, fishing and boating and is important to the local economy. Maine Inland Fish and Wildlife reports 16 species of cold and warm water fish in Wilson Lake, including a small native salmon population. The lake is home to several important wildlife species including the Common Loon, the American Eel, and Bald Eagle. Water quality data has been collected in Wilson Lake since 1974, and a recent trend of declining water clarity, near the impairment threshold, led to its addition to the DEP Nonpoint Source Priority List.

Much of Wilson Lake's watershed was surveyed for nonpoint sources (NPS) in 2016. Sixty-two NPS problem sites were identified in the survey, across ten different land-use types. Nearly half of these sites were identified as medium to high impact. Road sites including town roads, state roads, and private roads combined to account for 50% of all sites. The *Wilson Lake Watershed-based Protection Plan* was completed by the Wilson Lake Association in May 2017.

PROJECT DESCRIPTION:

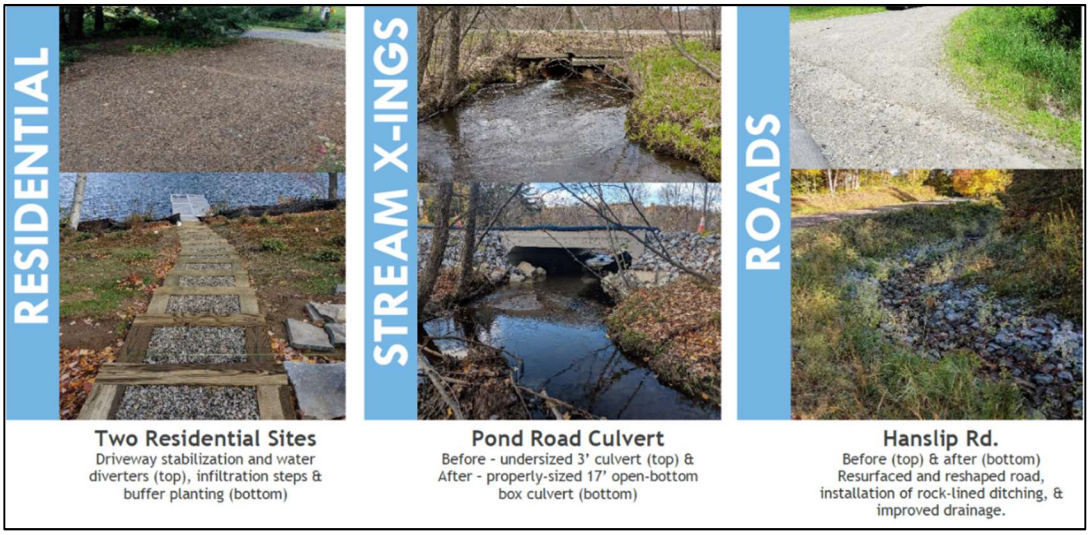
The purpose of this project was to reduce the pollutant load by addressing high priority NPS sites that deliver excess sediments and nutrients to the lake. This was accomplished through the targeted installation of conservation practices identified in the Wilson Lake Watershed Plan.

Watershed living brochure.

The project was guided by the Town of Wilton, the Friends of Wilson Lake, Ecological Instincts, and a steering committee. This project focused on the installation of BMPs at 11 NPS sites. Additionally, it aimed to raise awareness about watershed problems through personal contacts with landowners, development of brochures, LakeSmart programming, educational boat trips using the Maine Lake Society's floating classroom, and news articles and press releases about Wilson Lake and the grant.

PROJECT OUTCOMES:

- The project addressed erosion and stormwater problems through the implementation of 26 BMPs at 11 NPS sites. This included five town road projects, two town/public property projects, and four residential sites.
- The seven NPS abatement projects prevented an estimated 4.3 tons of soil, 3.8 pounds of phosphorus, and 8.6 pounds of nitrogen from reaching Wilson Lake annually (R5/GEE, R5/CEE, R5/Urban).
- A "Watershed Living" brochure was developed and mailed with the Town of Wilton's 2018 tax bill to approximately 2,500 watershed residents.
- More than 15 individual technical assistance visits were conducted at residential properties, which resulted in 10 completed NPS Site Plans, 10 drafted landowner cost-share agreements, and implementation of NPS site plans on four residential properties. An additional eight LakeSmart evaluations resulted in four new LakeSmart awards.
- Maine Lake's Society floating classroom made three trips to Wilson Lake. Two days were reserved for fourth graders, where students got the chance to learn about lake ecosystems, monitor water quality, and look at aquatic plants. The third day included three separate trips for community members, the town select board, and other town officials.



PROJECT PARTNERS:

Town of Wilton / Wilton Highway Department
Ecological Instincts
Friends of Wilson Lake
Franklin County Soil and Water Conservation District

CONTACT INFORMATION:

Addie Halligan, DEP – (207) 441-9057, Addie.Halligan@maine.gov
Rhonda Irish, Town of Wilton – (207) 645-4961, manager@wiltonmaine.org
Whitney Baker, Ecological Instincts – (207)-293-8073, whitney@ecoinstincts.com

Appendix A. NPS Grant Projects Closed in 2019

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Completion Date
Adams Pond, Knickerbocker Lake Watershed Protection Project, Phase I	2017RR01	Boothbay Region Water District	43,300	48,045	Oct. 2019
Updating the Annabessacook Lake Watershed Based Plan	2017PT14	Cobbossee Watershed District	13,075	13,107	Dec. 2019
Cochnewagon Lake NPS Restoration Phase II	2017RT03	Cobbossee Watershed District	95,117	95,319	Dec. 2019
Cold Stream Pond Watershed Protection Project, Phase I	2017RR04	Penobscot County SWCD	47,345	48,386	Dec. 2019
Damariscotta Lake Watershed Protection Project, Phase I	2017RR05	Midcoast Conservancy	110,911	73,940	Dec. 2019
East Pond Watershed Restoration Project, Phase IV: In-Lake Alum Treatment	20180002	7 Lakes Alliance	232,000	828,294	May 2019
Goosefare Brook Restoration Project, Phase I	2017RT06	City of Saco	139,203	92,018	Dec. 2019
Highland Lake Watershed Assessment Project	2017PT16	Cumberland County SWCD	5,460	2,688	Dec. 2019
Lower Pemaquid River Watershed Assessment	2017PT15	Town of Bristol	6,525	10,700	March 2019
Medomak River Watershed-based Plan Development	2017PT13	Town of Waldoboro	22,000	21,015	Dec. 2019
Meduxnekeag River Watershed Project, Phase I	2017RT09	Southern Aroostook SWCD	17,532	12,160	Dec. 2019
North Pond Watershed Protection Project	2016RR13	Oxford County SWCD	42,735	60,313	Dec. 2019
Thatcher Brook Watershed Restoration Project, Phase I	2017RT11	City of Biddeford	131,240	87,554	Dec. 2019
Topsham Fair Mall Stream Restoration Project, Phase II	2017RT12	Town of Topsham	102,000	328,930	Dec. 2019
Wilson Lake Watershed Protection Project, Phase I	2016RR11	Town of Wilton	69,696	194,251	Dec. 2019

Appendix B. Active NPS Grant Projects

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Planned Completion Date
Abrams Pond Protection Project Phase I	20190003	Hancock County SWCD	79,418	58,759	Dec. 2020
Adams-Knickerbocker Lake Protection Project, Phase II	20190009	Boothbay Water District	44,510	33,140	Dec. 2020
Capehart Brook Restoration Project, Phase III	20180010	City of Bangor	125,000	85,000	Dec. 2020
China Lake Watershed-Based Plan Development	20190011	Kennebec County SWCD	27,590	38,575	Dec. 2021
Cobbossee Lake Protection Project, Phase II	20180011	Cobbossee Watershed District	90,410	60,634	Dec. 2020
Cochnewagon Lake Restoration Project, Phase III: In-Lake Alum Treatment	20180001	Cobbossee Watershed District	175,000	187,400	May 2020
Concord Gully Watershed Restoration Project, Phase II	20180004	Town of Freeport	90,675	90,675	Dec. 2020
Cross Lake Watershed-based Management Plan	20190011	County of Aroostook	17,419	30,482	Dec. 2021
Goosefare Brook Restoration Project Phase II	20190008	Town of Old Orchard Beach	111,145	78,434	Dec. 2020
Great Pond Watershed-based Plan Development	20180007	7 Lakes Alliance	18,622	21,271	Dec. 2020
Highland Lake Watershed Management Plan Project	20180008	Cumberland County SWCD	16,540	22,543	March 2020
Hogan - Whitney Ponds Protection Project Phase I	20190005	Oxford County SWCD	50,100	34,856	Dec. 2020
Kennebunk River Watershed Plan Development Project	20180006	York County SWCD	41,600	28,832	Oct. 2020
Mare Brook Watershed-based Plan Development	20190012	Town of Brunswick	32,181	27,762	Dec. 2021
Mousam Lake Protection Project Phase I	20190010	York County SWCD	94,981	76,597	Dec. 2020
Ogunquit River Restoration Project Phase III	20180012	Town of Ogunquit	59,990	40,619	Dec. 2020

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Planned Completion Date
North Pond NPS Watershed Protection Project, Phase I	20180003	7 Lakes Alliance	80,406	87,270	March 2020
Parker Pond Protection Project Phase II	20190006	30 Mile River Watershed Association	98,132	74,151	Dec. 2020
Phillips Brook Restoration Project Phase I	20190007	Town of Scarborough	115,623	81,330	Dec. 2020
Salmon Lake McGrath Pond Protection Project Phase I	20190001	7 Lakes Alliance	64,095	54,935	Dec. 2020
Spruce Creek Restoration Project, Phase V	20180005	Town of Kittery	38,200	27,846	Dec. 2020
Trout Brook Restoration Project Phase III	20190002	Cumberland County SWCD	45,072	30,787	Dec. 2020
Thatcher Brook Restoration Project Phase II	20190004	City of Biddeford	127,200	84,800	Dec. 2020

Appendix C. Maine NPS Program Five-year Objectives, Actions, Annual Milestones and 2019 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 2019
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 ✓	X		Jeff Dennis	Completed extensive revisions in 2017. No changes to criteria or methodology in 2019.
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.	2. Updated NPS priority watershed list	X ✓	X ✓	X ✓	X ✓	X ✓	Kristin Feindel	Updated list finalized and posted in February 2019.

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 2019
	• Update priority lists as needed; add or remove individual waterbodies as new information becomes available.								
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 ✓ **2**	 ✓ **1**	1 ✓ **2**	Wendy Garland	DEP accepted two nine-element WBPs for the following waterbodies: Georges Pond and Medomak River.
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 ✓ **4**	2 ✓ **8**	2 ✓ **1**	Wendy Garland	DEP and EPA approved alternative WBP for Bauneg Beg Lake.
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**	1 **2**	Wendy Garland	Annabessacook Lake and Hart Brook WBPs updated.
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			 ✓	Kathy Hoppe	'Maine DEP Guide to Identifying Stream Stressors' finalized in October 2019. Presented at Watershed Roundtable.
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	Completed.

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 2019
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**	2	Wendy Garland	Completed.
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	1) Meduxnekeag River - Oliver Brook monitoring conducted in 2014 prior to NWQI and in 2019 at NWQI closeout. Monitoring results will be reported in 2020 Annual Report. 2) Unity Pond - NWQI closed out. 3) Supported NRCS in developing watershed assessments for Cross Lake and Sheepscot River.

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 2019
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 shellfish growing areas. • This work will be conducted to make progress opening closed shellfish growing areas.	10. Number of municipalities that adopt: new plans and policies; regulatory or non-regulatory measures; complete targeted projects; or implement BMPs	X **1**	X **2**	X **3**	X **3**	X **4**	Wendy Garland	1) Medomak River, Waldoboro - WBP approved. 2) Lower Pemaquid River, Bristol - watershed planning grant project completed. 3) Spruce Creek, Kittery - Active 319 implementation grant. 4) Biddeford Pool, Biddeford - Met with stakeholders and collected initial monitoring data.
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 & 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	None submitted in 2019. DEP is evaluating data to determine waters with substantial improvement as candidates for the next five-year plan.
12. Protection: Develop 2 guidance documents to estimate	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	Participated in EPA-led discussions about protection metrics. Worked with the Town of

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 2019
effectiveness of watershed protection efforts.									Falmouth on a Maine Coastal Program grant project that will result in stream protection strategies in 2020.
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	No activity in 2019.
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 ✓ **5**	3 ✓ **5**	3 ✓ **7**	Amanda Pratt	Watershed surveys completed for 7 lakes: Lake Anasagunticook (Canton), Cross Lake (Cross Lake Township), Long Pond (Parsonsfield), Pennesseewassee Lake (Norway), Square Pond (Acton), Togus Pond (Augusta) and Watchic Lake (Standish).

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 2019
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 Stebbins	Completed.
2. Regularly update the Maine Stormwater Best Management Practices (BMP) manual to reflect the current best management practices.	• 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 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.	2. Update manual as new or modified BMPs are approved	X ✓	X ✓	X ✓	X ✓	X ✓	Jeff Dennis	Reviewed and made comments on Kraken Filter proprietary BMP. This is a replaceable cartridge system that treats for water quality and to meet Chapter 500 Standards. BMP is expected to be approved and incorporated into manual in 2020.
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 ✓ **2,419**	X ✓ **2,374**	X ✓ **2,395**	John Maclaine	Number of certified individuals totaled 2,395.
4. Provide municipalities with NPS training and resources to prompt	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	4. Adobe Connect educational programs completed	**1**	2 **1**	**1**	2 **1**		John Maclaine	Completed.

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 2019
and improve local water resource protection.	on topics such as NPS pollution prevention and low-impact development.								
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	'Impact of Deicing Salt on Maine Streams' was finalized and posted on DEP website in Feb. 2020.
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 **10**	4 **8**	4 **11**	Jeff Dennis	Completed reviews of 11 plans: Cape Elizabeth, Cherryfield, Columbia Falls, Durham, Friendship, Georgetown, Lamoine, Lisbon, Searsport, Topsham, and Waldoboro.
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 **32**	X **32**	X **44**	John Maclaine	Two workshops on maintenance and repair of unpaved camp roads with a total of 44 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 2019
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 ✓ **358** **20**	X ✓ **276** **30**	X ✓ **358** **34**	Mark Hedrich	a. 358 NMPs b. Estimate 34 NMPs due for updating 2020. 44 letters sent to holders of NMPs pending expiration. Approximately 25 site visits conducted related to NMP initiation or renewal, and more in progress.
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 ✓ **16** **7**	X ✓ **19** **4**	X ✓ **19** **3**	Mark Hedrich	a. 19 active LOPs, 2 are Provisional. One new LOP completed and 1 LOP renewal in progress. 2 potential LOP farms being evaluated. 3 LOP initiation/renewal letters sent out. 12 related site visits conducted. 2 PLOPs re- issued 2019. 2 full CAFO inspections wre conducted and 3 CAFOs had site reviews.
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;	3. By 2015, complete draft of rules; by 2016 hold public hearing; and by 2017 adopt the revised rules.	X	X	X	✓		Mark Hedrich	Completed (Rule adopted July 3, 2018).

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 2019
	• Update certification requirements for planners; • Address livestock access to waterbodies								
4. Continue to implement the Agricultural Compliance Program to resolve water-quality related complaints.	• Investigate complaints concerning farm operations that involve threats to human or animal health and safety, and to the environment. • 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.	4. Annual summary of water quality related complaints received, investigated, and resolved	X	X	X ✓	X ✓	X ✓	Matt Randall	22 various water quality complaints were investigated and resolved. Complaint reports provided to DEP and summary report created by DEP and shared with Nutrient Management Board and partners.
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	BMP brochure completed for horse owners. Distribution to be determined as part of horse/hobby farm stakeholder meetings in 2020.

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 2019
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 ✓	Taylor LaBrecque	All transportation-related projects contracted out by MaineDOT must comply with MaineDOT's Standard Specification 656: Erosion and Sedimentation Control. ESC training for MaineDOT M&O, transportation workers was held at 3 separate workshops in June and October 2019 (69 MaineDOT employees); basic ESC training was provided for new staff in March 2019 for 24 consultants and 14 MaineDOT employees; MaineDOT assisted DEP NPSTC in training contractors at 13 workshops from May to November. MaineDOT submitted the annual stormwater MOA report to DEP in Jan. 2020.
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 standards and specifications, consider the impacts of more frequent extreme wet weather events.	2. Update BMP manual as new or modified BMPs are approved by MaineDOT	X	X	X	X	X	Taylor LaBrecque	There are no new ESC BMPs, or other reasons, to update the MaineDOT Best Management Practices for Erosion and Sedimentation Control manual.

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 2019
	• Propose updates to manual as warranted.								
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 winter maintenance on its Winter Maintenance Research Reports webpage.	X ✓ **105**	X ✓ **79**	X ✓ **9**	X ✓	X ✓	Taylor LaBrecque	Due to staffing issues and retirements the MLRC did not hold any workshops in winter 2019. MaineDOT continues to investigate new products and technologies to reduce the use of chlorides; no new products or technologies were adopted to date in 2019.
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**		✓ **2**	✓ **4**	X ✓ **1**	Taylor LaBrecque	MaineDOT has exceeded the goal of reducing the number of outdoor sand/salt piles by 25%: As of the end of 2019, MaineDOT had 15 outdoor piles remaining. In 2019, MaineDOT converted 1 outdoor salt storage pile to an indoor pile. Funding for the Municipal Sand/Salt Facility Program ended in 2017, but the MLRC continues to provide planning and 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 2019
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 ✓ **73%**		Tom Gilbert	The biennial Maine Forestry BMP Use and Effectiveness report for the 2018-19 BMP monitoring seasons will include data from approximately 160 sites and will be released in the spring of 2020.
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 ✓ **93% & 117**	X ✓ **99% & 32**	X ✓ **93% & 178**	Tom Gilbert	Rangers inspected 2454 instances of water quality-related matters. Of these, 178 resulted in on site mitigation measures or were forwarded to another agencies.
3. By 2018, improve consistency for the regulated community by increasing the number of critical mass municipalities that have adopted statewide standards	• 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 harvest acreage. When critical mass is met, statewide standards will take effect in the unorganized areas.	3. By January 2016, 35 new municipalities adopt statewide timber harvesting standards, or DEP adopts ordinances for them.		X **7**	X **7**	 **8**	 **10**	Tom Gilbert	10 new critical mass towns adopted SWS in 2019, bringing the total number of critical mass towns to 234.

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 2019
for timber harvesting in shoreland areas from 182 to 252.	• 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.	By January 2017, an additional 35 new municipalities adopt statewide timber harvesting standards or DEP adopts ordinances for them.							

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 2019
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 ✓ **64 & all satisfactory**	X ✓ **70 & all satisfactory**	X ✓ **19 & all satisfactory**	Brent Lawson	Conducted 19 municipal reviews, identified deficiencies and made recommendations for corrections. Conducted 10 training sessions for LPIs, site evaluators and contractors. Conducted training for Maine Rural Water and DMR shoreline sanitary survey staff and went on actual inspections.
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 ✓	Brent Lawson	Milestone largely completed. Statutory changes have extended septic system inspection requirement to all shoreland zones. Rules drafted in 2019 regarding septic system inspections which include minimum inspection standards and revisions to the inspector certification process. The new rules will be adopted along with changes to the rules for septic system design in 2020.

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 2019
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			Mark Stebbins	Draft rules have been developed. Rulemaking process is planned for 2020.

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 2019**
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	Over 80 watershed managers from municipalities, NGOs, and SWCDs attended DEP's 17th annual roundtable on 10/29/19. 205 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 2019 totaled $6.7 million. Projects described in Section II. D. 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 2019**
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 ✓	X ✓	X ✓	X ✓	Wendy Garland	Completed satisfactory progress interview / review w/EPA for FY 2018 EPA issued a favorable determination June 18, 2019. The determination for FFY19 reporting period to be issued by summer 2020.
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	NPS Program Plan updated with extensive partner agency involvement. EPA issued approval letter September 24, 2019.

Togus Pond Watershed Survey

Clean water starts with you!

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