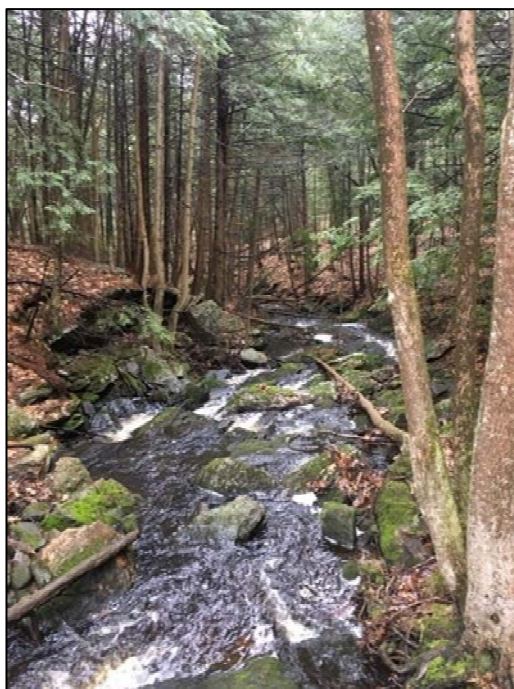


# Nonpoint Source Management Program 2020 Annual Report

*May 2021*

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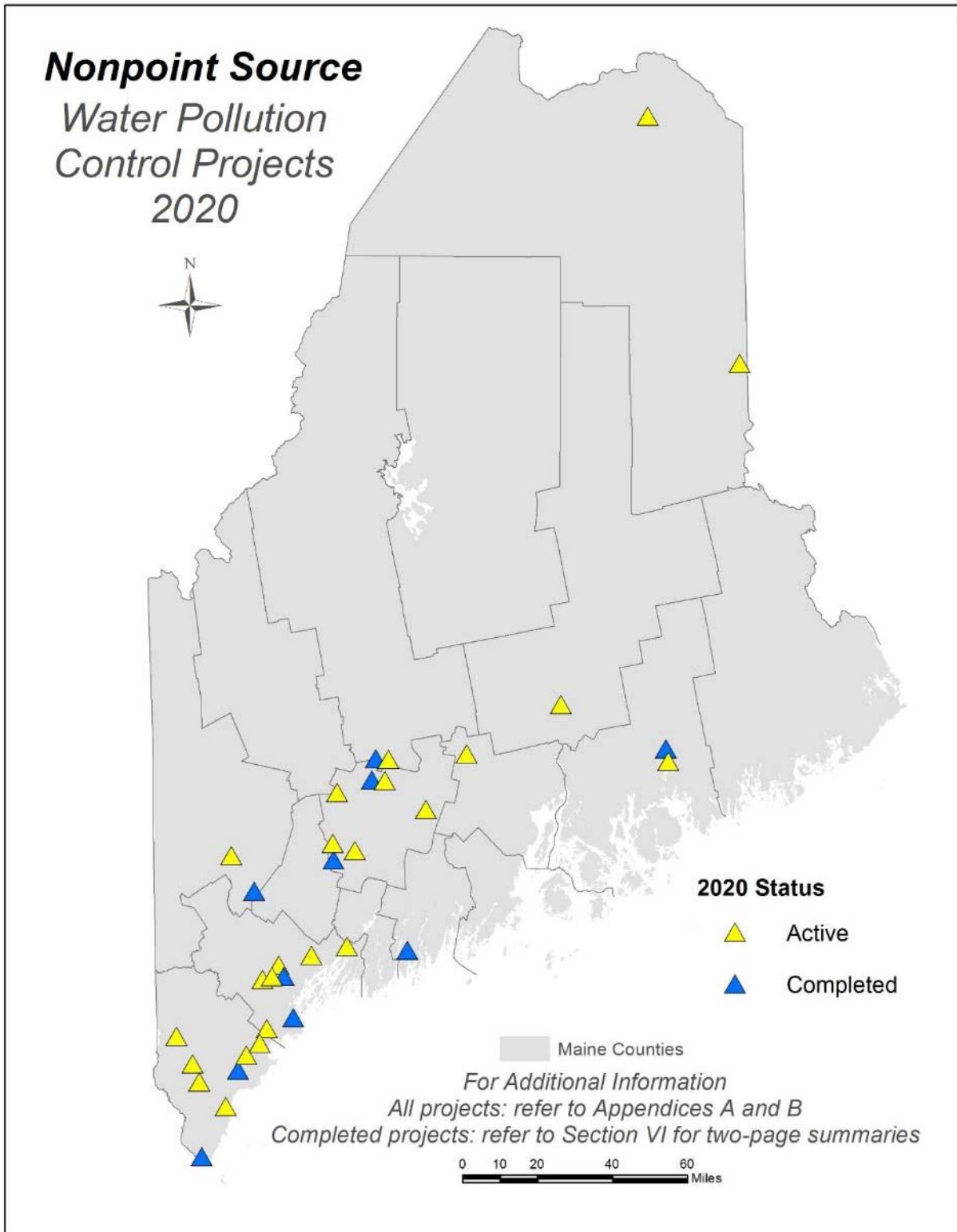
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Document available for download at: <http://www.maine.gov/dep/water/grants/319-documents/reports/>.

**NPS Water Pollution Control Projects Active in 2020**



## 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 2020. 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. 2020 Highlights - Maine NPS Management Program

**A. Maine's NPS Program During a Worldwide Pandemic** - COVID-19 posed unprecedented challenges to individuals, communities and institutions in Maine and around the world. When strict guidelines to control the spread of the disease went into effect in March 2020, it was initially unclear how Maine's NPS program would be affected. Although some planned activities were delayed, DEP staff and partners quickly found ways to adjust and even improve upon past approaches.

DEP's Volunteer River Monitoring Program (VRMP), watershed survey volunteers, DEP and our partners carried out fieldwork safely by wearing masks, driving separately and keeping socially distanced. All six planned watershed surveys were successfully completed using new, more efficient approaches, including virtual trainings and the Survey123 app. The NPS Training Center developed online training videos and interim recertification guidelines to help contractors to meet certification requirements.

**B. New Grant Awards** - EPA awarded \$1,931,339 FFY 2020 Section 319 Clean Water Act funds to the DEP. Funds were used to fund programs designed to prevent and reduce NPS pollution problems. Eleven new grants totaling \$918,175 were issued to municipalities, Soil and Water Conservation Districts, and watershed groups for watershed implementation projects.



VRMP Volunteers from Friends of Scarborough Marsh

**C. Projects Closed Out** - Ten NPS watershed projects funded through the NPS grants program in previous years were successfully completed. DEP provided technical assistance and granted \$587,811 of Federal CWA Section 319 and 604(b) funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at \$725,598.

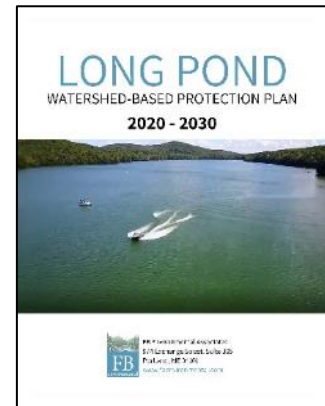
- BMPs were installed to reduce polluted runoff in the following seven watersheds, thereby reducing pollutant loading to these waters by an estimated 646 pounds of phosphorus, 226 pounds of nitrogen, and 314 tons of sediment per year<sup>1</sup> (equivalent to about 16 dump truck loads):

Abrams Pond (Eastbrook)	North Pond (Smithfield)
Adams Pond & Knickerbocker Lake (Boothbay)	Spruce Creek (Kittery)
Cochnewagon Lake (Monmouth)	Trout Brook (Cape Elizabeth)
Hogan and Whitney Ponds (Oxford)	

- Watershed-based plans were completed for Great Pond (Belgrade), Highland Lake (Windham) and Kennebunk River (Kennebunk). 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.

**D. Lake Watershed-based Protection Plans** – DEP and EPA reviewed and accepted the following seven lake watershed-based protection plans in 2020. Lake associations, Cobbossee Watershed District and Portland Water District developed these plans and carried out the supporting watershed surveys with local resources and funding. Five of the six groups then applied for and received CWA Section 319 funding in 2020 to help implement these plans.

Lake Anasagunticook (Canton)	Square Pond (Acton)
Lake Penesseewassee (Norway)	Torsey Pond (Readfield)
Long Pond (Parsonsfield)	Watchic Lake (Standish)
Sebago Lake/Crooked River	



**E. Maine DEP's Clean Water State Revolving Fund (CWSRF)** – The CWSRF program helped fund \$6.4 million in NPS projects in 2020. This included \$6.1 million in CWSRF linked-deposit forestry program, which makes below-market-rate financing available for forestry BMPs and environmentally friendly logging equipment. Another \$300,000 helped finance the removal and replacement of four oil storage facilities.

**F. New Certification Program for Stormwater BMPs Inspections** – In 2020, DEP relaunched its certification program for inspection and maintenance of stormwater BMPs with updated inspector qualifications and experience requirements and an improved test. Quality inspections are critical to help ensure stormwater BMPs are properly functioning and that necessary maintenance takes place.

<sup>1</sup> 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 2020 are summarized in 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 2020, seven new lake protection plans (indicated with an \* below) were developed by local entities using guidance developed by DEP and EPA. One plan expired in 2020 and needs to be updated. With these changes, there are 34 active lake watershed-based protection plans that have been accepted by DEP and EPA. In addition, Section 604(b) funds helped partners develop a nine-element plan for Highland Lake (Windham).

#### Lake Watershed-based Protection Plans Accepted by DEP

Abrams Pond (Eastbrook)	Mousam Lake (Acton)
Adams & Knickerbocker Lake (Boothbay)	North Pond (Buckfield)
Alamoosook Lake (Orland)	North Pond (Norway)
Bauneg Beg Lake (Sanford)	North Pond (Smithfield)
Cobbossee Lake (Manchester)	Panther Pond (Raymond)
Cold Stream Pond (Enfield)	Parker Pond (Chesterville)
Crescent Lake (Raymond)	Pennesseewassee Lake (Norway)*
Damariscotta Lake (Jefferson)	Phillips Lake (Dedham)
Ellis Pond (Roxbury)	Sebago Lake & Crooked River (Naples)*
Forest Lake (Windham)	Square Pond (Acton)*
Georges Pond (Franklin)	Toddy Pond (Orland)
Great Pond (Franklin)	Torsey Pond (Readfield)*
Hogan & Whitney Ponds (Oxford)	Varnum Pond (Wilton)
Lake Anasagunticook (Canton)*	Watchic Lake (Standish)*
Lake Auburn (Auburn)	Whetstone Pond (Abbott)
Long Pond (Parsonsfield)*	Wilson Lake (Wilton)
McGrath Pond & Salmon Lake (Oakland)	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 2020, Section 319 funds helped sustain or start NPS watershed implementation projects in the following 12 lake watersheds:

Abrams Pond (Eastbrook)	Forest Lake (Gray)	McGrath Pond & Salmon Lake (Oakland)
Adams Pond & Knickerbocker Lake (Boothbay)	Highland Lake (Windham)	North Pond (Smithfield)
Bauneg Beg Lake (Sanford)	Hogan & Whitney Ponds (Oxford)	Parker Pond (Chesterville)
Cobbossee Lake (Winthrop)	Mousam Lake (Acton)	Penneseewassee Lake (Norway)

## **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\\_mgmt\\_quick\\_guide.pdf](https://www.epa.gov/sites/production/files/2015-12/documents/watershed_mgmt_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 2020, DEP accepted nine-element WBPs for Great Pond (Belgrade) and Kennebunk River (Kennebunk).
- Work began to develop nine-element WBPs for Black Brook (Windham), Wilson Pond (Monmouth) and Unity Pond (Unity); and planning efforts continued for Cross Lake (Cross Lake TWP), China Lake (China), and Mare Brook (Brunswick).



- At the end of 2020, there were 29 active nine-element WBPs for NPS impaired waters. 13 additional WBPs need to be updated since they are more than ten years old, but efforts are underway to update five of them.

#### Watersheds with Nine-Element Watershed Plans Accepted by Maine DEP

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

#### NPS Watershed Implementation Projects

DEP allocates Section 319 funds to help communities implement their watershed-based plans to restore NPS-impaired waters. In 2020, Section 319 funds helped continue or start projects in the following 11 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)	Trout Brook (Cape Elizabeth)
Georges Pond (Franklin) <sup>2</sup>	Phillips Brook (Scarborough)	



<sup>2</sup> Georges Pond will be listed as impaired in DEP's next Integrated Report, planned for release in spring 2022.

## 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.

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 16 active implementation projects in 2020.

2020 NPS Pollutant Load Reductions		
<b>Sediment</b> 530 tons/year	<b>Phosphorus</b> 452 pounds/year	<b>Nitrogen</b> 381 pounds/year

## E. Section 319 Grant Administration

EPA awarded \$1,931,339 of FFY 2020 Section 319 funds to DEP. Of FFY 2020 Section 319 funds, 51% (\$985,013) were allocated for implementation of nine-element WBPs for restoration projects or alternative plans for protection projects. This includes funds (\$66,838) for DEP staff services to help implement WBPs and grant funds (\$918,175) for 11 projects to implement WBPs. Five of the funded projects (\$437,895) will implement nine-element plans for impaired waters, and six projects (\$480,280) 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 2017 - 2020, including monitoring sub-recipient performance on 35 NPS grant projects and providing other DEP NPS program services.

### Summary of FFY20 319 Grant and Match Allocations

Activity	Program Funds Subtotal	Project Funds Subtotal	Section 319 Total	Nonfederal Match
NPS Grants for Watershed Implementation	-	\$918,175	\$918,175	\$758,246
NPS Training Center	\$9,000	-	\$9,000	-
Small Community Grants Program	-	-	-	\$993,454
DEP Staff, Fringe, Travel, Other & Indirect (State Fiscal Year 2020 21.84%) <sup>3</sup>	\$937,326	\$66,838	\$1,004,164	\$392,976
<b>Totals</b>	<b>\$946,326</b>	<b>\$985,013</b>	<b>\$1,931,339</b>	<b>\$2,144,676</b>

<sup>3</sup> Section 319 funded 8 FTEs and one AmeriCorps volunteer

## IV. NPS Program Activities in 2020

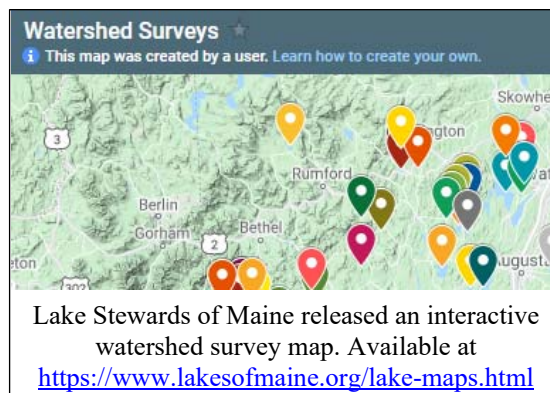
### A. DEP Services for Watershed Groups and Municipalities

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 2020 included:

- **Municipal Comprehensive Plan Reviews** - DEP staff provided maps and data to 47 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 2020, assistance was provided to the following nine towns:
  - Caratunk
  - Gray
  - Katahdin Region
  - Kennebunk
  - Kingsbury Plantation
  - Ludlow
  - Oakland
  - Thomaston
  - Turner
- **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 2020, DEP assisted with the following six watershed surveys:

- Bear Pond (Hartford)
- China Lake (China)
- Legion Pond (Kittery)
- Long Pond (Belgrade)
- Lovejoy Pond (Fayette)
- Moose Pond (Bridgton)



Staff also provided assistance to lake associations to help plan 2021 surveys for Branch Lake (Ellsworth), Clearwater Lake (Farmington), Great East Lake (Acton) and Lake Winnecook (Unity). DEP partnered with the Lake Stewards of Maine (LSM) to conduct a Zoom watershed survey workshop, which was attended by 42 volunteers from numerous lakes. DEP also helped LSM review applications to their small grants program, which provides mini-grants to help fund watershed surveys.

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

Biddeford Pool (Biddeford)	Kennebunk River (Kennebunk)
Card Brook (Ellsworth)	Mare Brook (Brunswick)
Dickey Brook (Cross Lake TWP)	Trout Brook (South Portland)
Kennedy Brook (Presque Isle)	

- 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 2020 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 2020, DEP provided watershed maps upon request and assistance to many organizations and groups focused on the following watersheds:
 

Belgrade Lakes (Belgrade)	Long Pond (Parsonsfield)
Cross Lake (Cross Lake Township)	Ogunquit River (Ogunquit)
Georges Pond (Franklin)	Spinney Creek (Eliot)
Great East Lake (Acton)	Togus Pond (Augusta)
Long Creek (South Portland)	Wilson Lake (Acton)
- Watershed Roundtable** - Over 70 watershed managers from state agencies, municipalities, watershed organizations, and SWCDs attended the DEP's 18<sup>th</sup> annual Watershed Managers Roundtable in Augusta in October. Given Covid-19 restrictions, the 2020 gathering was a half-day event hosted via Zoom with a full-group roundtable and lightning round presentations.
- 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. In 2020, Lakes Environmental Association completed one project on Otter Pond (Bridgton), and Cobbossee Watershed District used compensation funds for Annabessacook and Cobbossee Lakes to purchase a new high-efficiency street sweeper for the Towns of Winthrop and Monmouth.



**Otter Pond Lake Phosphorus Compensation Project** - Lakes Environmental Association used compensation funds to address a chronic erosion problem on Otter Pond Road. **Before** (above left) - 1000 feet of severely eroding road directed runoff into Otter Pond. **After** (above middle and right) - The road was re-graded with crushed gravel, and waterbars, turnouts and level lip spreaders were installed to divert runoff into vegetation.

## 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 NPS pollution. In addition, the Center acts as a clearinghouse for information on nonpoint source pollution and BMPs.

### **Accomplishments in 2020:**

- Trained 389 participants in Basic and Advanced Erosion and Sediment Control (BAESC) practices through nine in-person courses (345) and an interim online course (44). When in-person trainings were canceled due to Covid-19, temporary procedures were put in place to allow certification using previously recorded online trainings and extend current certification by one year.
- Conducted two trainings on the maintenance and repair of gravel roads (66 participants). Provided one continuing education workshop to a Maine home inspectors' group on BMPs and land use regulations (22 participants).
- Developed, recorded and prepared to launch nine new hour-long online training modules that will be available for program credit in early 2021. Partnered with several Maine DEP programs as well as Maine DOT, Maine Department of Agriculture, Forestry and Conservation, Maine Audubon, and Army Corps of Engineers to develop additional online training materials.
- Provided online continuing education training to 108 individuals. Approved five trainings through third party organizations of courses qualifying for recertification in Erosion Control Practices including courses in septic system installation and pond construction.
- Created and presented a new four-hour continuing education course on winter BMPs for contractors. Provided three in-person continuing education classes to 23 individuals previously certified in erosion and sediment control practices.
- Developed requirements to certify erosion control inspectors. Coordinated with other DEP programs to update qualifications, requirements, and testing for certification in inspection and maintenance of stormwater BMPs.



The NPS Training Center hosted a small number of in-person trainings in 2020 due to Covid-19 restrictions and developed new online training options.

### **For More Information:**

John Maclaine, DEP – (207) 615-3279, [john.maclaine@maine.gov](mailto: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 2020:**

- VRMP staff and partners trained and certified/re-certified volunteers from seven volunteer organizations to monitor 48 rivers and streams and one harbor statewide.
- Despite the pandemic, water quality data were collected by 54 volunteers at 99 sites during 700 sampling events.
- Data collected included temperature, dissolved oxygen, conductivity, bacteria, chlorophyll, and nutrients.
- Updated the Volunteer River Monitoring Quality Assurance Project Plan (March 2020).
- Piloted volunteer use of electronic data collection via Survey123.



### **For More Information:**

Kristin Feindel – (207) 215-3461, [kristin.b.feindel@maine.gov](mailto:kristin.b.feindel@maine.gov)

VRMP Website – [www.maine.gov/dep/water/monitoring/rivers\\_and\\_streams/vrmp/index.html](http://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 \$6.4 million in the following types of NPS projects in 2020.

### Accomplishments in 2020:

- 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 2020, 18 loans were made under this program totaling \$6.1 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 2020, a total of \$0.3 million was provided in financing for the removal and replacement of four oil storage facilities.



Whole tree processor.



Brush mat on logging road.

### For More Information:

John True, CWSRF Program Manager – (207) 287-7808, [john.n.true@maine.gov](mailto:john.n.true@maine.gov)

Clean Water SRF Website – <http://www.maine.gov/dep/water/grants/srfparag.html>

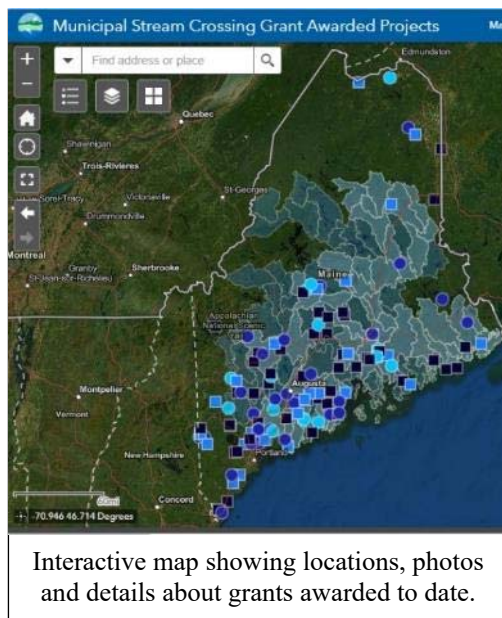
## E. Municipal Stream Crossing Grants Program – Maine Transportation Bond

In 2014, Maine voters approved the first referendum for a “Clean Water for Maine” bond, resulting in \$5.4 million invested in Maine stream crossing upgrades over three initial rounds grants. Since then, DEP has received funding for the upgrade and replacement of municipal culvert stream crossings through Transportation Bonds approved by voters and the Maine Legislature in 2017, 2018, and 2020.

DEP has developed a grant program to disseminate these funds for stream crossing culvert upgrades. NPSTC has provided additional workshops for municipal officials, public works staff, engineers, and consultants on the design of Stream Smart Road Crossings. Program funds are intended to improve public safety by reducing the risk of culvert failures and flooding; improve fish habitat by removing barriers to fish passage; size crossings to meet 1.2 times the stream’s bankfull width with a natural stream bottom or open-bottomed structure; improve water quality; and represent a cost-efficient and effective investment.

### **Accomplishments in 2020:**

- In November 2017, voters approved \$5 million in bond funding for upgrading culverts at stream crossings. Two RFPs under this funding (\$5 million total) were released in 2019. 55 upgrade projects have been funded, and at least 18 were completed in 2020.
- In November 2018, voters approved another \$5 million bond. One RFP under this funding (\$5 million total) was released in fall 2020. Maximum award amounts were increased, and DEP expects to award approximately 50 projects in early 2021 with most projects expected to be completed in 2021.
- In 2020, the NPSTC scheduled five regional trainings for municipal officials interested in submitting proposals. Although these in-person events were cancelled due to Covid-19, a two-hour online training (<https://youtu.be/-1kjctR8GYs>) was developed and shared in lieu of in-person workshops. The online training was viewed by 98 individuals. These trainings have resulted in a noticeable increase in the quality of proposals and designs since they began prior to the second round in 2019.



### **For More Information:**

John Maclaine, DEP – (207) 615-3279, [john.maclaine@maine.gov](mailto:john.maclaine@maine.gov)

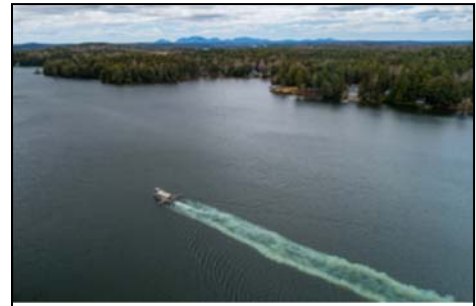
Culvert Bond Website – <https://www.maine.gov/dep/land/grants/stream-crossing-upgrade.html>



## F. Other NPS Program News

### **Georges Pond Alum Treatment**

In May 2020, the first of two planned alum treatments was carried out on Georges Pond in Franklin to help curtail the pond's chronic cyanobacteria blooms. Georges Pond experienced its first cyanobacteria bloom in 2012. Blooms of varying intensities continued annually, reducing average water clarity by 1.5 meters. Georges Pond Association (GPA) and DEP conducted a watershed survey in 2013 and identified 53 NPS sites contributing to the problem, and additional water quality monitoring confirmed the role of internal recycling in fueling the blooms. GPA developed the Georges Pond Watershed-based Management Plan (2020), which recommended installation of watershed BMPs to address the external loading and an alum treatment to address the internal loading. In 2020, GPA received a CWA Section 319 grant for the Phase I project that will address 20 NPS sites. GPA also raised \$180,000 in local funds and treated 131 of the pond's 358 acres with an initial dosage designed to stop cyanobacteria blooms in the short term. After the first alum treatment, GPA recorded 22.3 feet water clarity, the best reading since records were first kept in the 1970s. GPA plans to address remaining NPS sites in the next few years in order to provide long-lasting water quality benefits.



Georges Pond initial alum treatment

### **Living Shorelines Demonstration Projects**

Two coastal living-shoreline demonstration projects were installed and monitored in Brunswick in May and June 2020. The pilot projects were spearheaded by the Maine Geological Survey, funded by the National Oceanic and Atmospheric Administration (NOAA) and supported by numerous state and local partners. The project demonstrates the use of “soft” stabilization techniques including bagged oyster shell and embedded tree “runners.”

Although living shoreline approaches have been employed for stream and coastal dune restoration for the past few decades in Maine, they have not been used on coastal marshes, coastal bluffs, or lake shorelines. These Brunswick demonstration projects as well as another demonstration planned for Sebago Lake State Park in 2021 will help build understanding and experience for expanded use of this approach in the future. For more information about the Brunswick project and living shorelines resources, go to <https://www.maine.gov/dacf/mgs/explore/marine/living-shorelines/>.



**Maquoit Bay Living Shoreline Demonstration Project** – To stabilize the eroding high marsh edge, Tensar GeoReef baskets were tucked under logs and filled with oyster shell. Coir bags were staked into place above the baskets. Photo credit: Maine Geological Survey

### **West Harbor Pond Siphon Improves Water Quality**

West Harbor Pond in Boothbay was created in 1880 when a dam was constructed across the mouth of Campbell Cove to create a freshwater pond for ice production to supply the large urban centers of the Eastern Seaboard. A passive siphon was installed to evacuate sea water trapped behind the dam at the time of construction and purge sea water that enters the pond at extreme high tides. Because of its greater density, this saltwater sinks to the pond bottom and, if not removed, prevents the seasonal turnover and reoxygenation of the pond. Until it failed in 2008, the siphon continued to protect the water quality of the pond and maintain an alternative freshwater public water supply for the Boothbay Region Water District.



Historic Ice Harvesting - West Harbor Pond

Due to concerns about declining water quality associated with the siphon failure, the West Harbor Pond Watershed Association (WHPWA) and Boothbay Region Sewer District started a water quality testing program in 2010. Monitoring revealed that the saltwater in the lower levels of the pond, from approximately 15 ft. to the bottom, was permanently deoxygenated and incapable of supporting most aquatic species. In 2017 the Maine Coastal Program awarded the WHPWA and the Town of Boothbay Harbor a Coastal Communities Grant to prepare plans for a replacement siphon. In March 2019, a new siphon was installed with local funding. Subsequent water quality monitoring indicates that the siphon successfully lowered the pond's salinity so that it was able to partially turn over and substantially reoxygenate. In addition to the siphon project, WHPWA conducted a 2018 watershed survey with DEP assistance and is working to address identified NPS sites through its LakeSmart program.

### **New Stormwater BMP Inspection Certification Program**

In 2020, DEP relaunched its certification program for inspection and maintenance of stormwater BMPs with updated inspector qualifications and experience requirements and an improved test. Quality inspections are critical to help ensure stormwater BMPs are properly functioning and that necessary maintenance takes place. DEP's NPS Training Center and staff from several other DEP programs spearheaded the effort. For more information, refer to <https://www.maine.gov/dep/land/stormwater/stormwaterbmps/certification/index.html>.



Thompson Lake, Casco  
Photo Credit: Kathy Cain

## 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 from the EPA 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.



Watershed survey conducted for the Annabessacook Lake watershed plan



New ditch and turnout installed as part of Parker Pond Protection Project Phase II

## B. Grant Awards Issued and Started in 2020

DEP issued nine new grants (\$619,585) in 2020 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 (\$86,062) using CWA Sections 604(b) and 319 funds to develop watershed-based plans for Black Brook in Windham, Unity Pond in Unity, and Wilson Lake in Monmouth.

### NPS Grants Issued in 2020

Project Title	Grantee	Project #	Grant	Match
Bauneg Beg Lake Protection Project Phase I	York County SWCD	20200005	52,601	41,013
Black Brook Watershed Management Plan Project	Cumberland County SWCD	20190017	17,862	21,604
Forest Lake Protection Project Phase III	Cumberland County SWCD	20200002	86,381	78,947
Georges Pond Protection Project Phase I	Georges Pond Association	20190005	45,960	33,106
Goodall Brook Restoration Project Phase II	City of Sanford	20200004	79,174	91,017
Goosefare Brook Restoration Project Phase III	City of Saco	20200008	69,028	49,258
Highland Lake Watershed Protection Project Phase IV	Cumberland County SWCD	20200010	102,318	71,117
Lake Penesseewassee Protection Project Phase I	Oxford County SWCD	20200009	77,282	57,678
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
Unity Pond (Lake Winnecook) Watershed-	Waldo County SWCD	20200006	45,508	18,156
Wilson Pond Watershed-based Plan Update Project	Cobbossee Watershed District	20190016	22,692	8,289
Totals			\$705,647	\$588,071

### C. Grants Selected under 2020 Request for Applications (RFA)

In March 2020, DEP issued an RFA for projects to help communities implement their watershed-based plans and make progress restoring or protecting a waterbody. DEP received 15 applications and issued conditional grant awards for all 15 projects (one with partial funding). Three projects started in fall 2020, and the other 12 projects will begin in 2021.

#### Conditional Grant Awards under Section 319 RFA

Project Title	Grantee	Project #	Grant	Match
Abrams Pond Protection Project Phase II	Town of Eastbrook	20210006	68,349	45,625
Adams Pond and Knickerbocker Lake Phase III	Boothbay Region Water District	20200007	42,940	34,376
Damariscotta Lake Protection Project Phase II	Midcoast Conservancy	20210009	31,535	25,330
Goosefare Brook Restoration Project Phase III	City of Saco	20200008	69,028	49,258
Hart Brook Restoration Project Phase III	City of Lewiston	20200012	150,000	153,972
Highland Lake Watershed Protection Project Phase IV	Cumberland County SWCD	20200010	102,318	71,117
Lake Anasagunticook Protection Project Phase II	Oxford County SWCD	20210001	51,655	34,444
Lake Penneesseewassee Protection Project Phase I	Oxford County SWCD	20200009	77,282	57,678
Long Pond Restoration Project Phase I	York County SWCD	20210008	70,610	47,128
Mousam Lake Protection Project Phase II	York County SWCD	20210003	65,994	47,533
Pleasant River Restoration Project Phase II	Cumberland County SWCD	20210005	63,421	60,321
Sebago Lake Protection Project Phase IV	Portland Water District	20210004	79,043	94,407
Square Pond Protection Project Phase III	York County SWCD	20210002	93,661	62,539
Thatcher Brook Restoration Project Phase III	City of Biddeford	20200011	106,102	75,867
Watchic Lake Protection Project Phase I	Watchic Lake Association	20210007	75,632	49,802
Totals			\$1,147,570	\$909,397

## VI. Summaries of NPS Projects Completed in 2020

Ten watershed projects funded through the NPS grants program in previous years were successfully completed. DEP provided technical assistance and granted \$587,811 of Federal Clean Water Act funds for these projects. Grantees, partners, and landowners contributed matching funds or services valued at \$725,598.

- BMPs were installed to reduce polluted runoff in nine watersheds, including seven lake and two stream watersheds. Over the course of these projects, NPS work reduced annual pollutant loading to these waters by 314 tons of sediment, 646 pounds of phosphorus, and 226 pounds of nitrogen per year.
- Watershed-based plans were completed for Great Pond (Belgrade), Highland Lake (Windham) and Kennebunk River (Kennebunk). 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>.

Project Title	Page Number
Abrams Pond Protection Project Phase I	21
Adams-Knickerbocker Lake Protection Project, Phase II	23
Cochnewagon Lake Restoration Project, Phase III	25
Great Pond Watershed-based Plan Development	27
Highland Lake Watershed Management Plan Project	29
Hogan - Whitney Ponds Protection Project Phase I	31
Kennebunk River Watershed Plan Development Project	33
North Pond NPS Watershed Protection Project, Phase I	35
Spruce Creek Restoration Project, Phase V	37
Trout Brook Restoration Project Phase III	39

## Abrams Pond Watershed Protection Project, Phase I

### #20190003

Waterbody Name:	Abrams Pond
Location:	Eastbrook and Franklin - Hancock County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Hancock County SWCD
Project Duration:	January 2019–December 2020
319 Grant Amount:	\$79,418
Local Match:	\$53,773



### PROBLEM:

Abrams Pond is a 435-acre pond with a maximum depth of 27 feet, a mean depth of 18 feet and a flushing rate of 0.41 times per year. Its 1.7 square mile watershed is 73% forested, 20% agricultural (blueberries and hay) and 7% residential development. Abrams Pond is the headwater that feeds into Scammon Pond, Webb Pond, Webb Book, Graham Lake, and the Union River. The Union River is part of the Designated Critical Habitat for the Atlantic Salmon, Gulf of Maine Distinct Population Segment under the Endangered Species Act.

Maine DEP and Lake Stewards of Maine have collected data on the water quality of Abrams Pond since 1980. According to these data, Abrams Pond water quality is considered to be below average based on measurements of clarity, total phosphorus, and chlorophyll-a. The potential for algal blooms on Abrams Pond is considered high, and blooms occurred in 1999, 2002, and 2012. Abrams Pond is currently listed on Maine DEP's Nonpoint Source Priority Watersheds list as "Watch List", which indicates that the lake is near the impairment threshold. In 2014, a watershed survey was conducted by volunteers of Abrams Pond Association (APA), with the assistance of Maine DEP and Hancock County SWCD and 34 NPS sites were identified.

### PROJECT DESCRIPTION:

The purpose of this watershed protection project was to reduce erosion and export of sediment and nutrients into Abrams Pond. This was accomplished by installing conservation practices at problem sites identified during the 2014 watershed survey, providing technical and financial assistance to interested watershed residents, and developing an education and outreach plan that will help guide the local pond association and towns in their ongoing watershed stewardship activities.



Photo credit: Alan Hershey

**PROJECT OUTCOMES:**

- Project staff visited 24 sites and provided technical recommendations to reduce erosion-related runoff of sediments and nutrients.
- Grant funds helped facilitate installation of erosion and sediment control BMPs at nine sites to protect pond water quality. Of these sites, seven sites were identified as high priority and two medium priority NPS pollution sites by the 2016 watershed survey. Five were on private roads and four were on residential properties.
- Pollutant loading to Abrams Pond was reduced by an estimated 77 tons of sediment, 64 pounds of phosphorus, and 127 pounds of nitrogen per year (Region 5 Method).
- The project produced an NPS pollution brochure and developed an Outreach and Education Plan that will be used by the Towns of Eastbrook and Franklin in the upcoming Phase II project.



Dinsmore Road – Undersized 12” culvert was replaced with a 24” culvert and stable plunge pool.



Dinsmore Road – Chronically eroding road was stabilized with crushed gravel and graded to direct runoff into rock-lined ditch and turnout.

**PROJECT PARTNERS:**

Abrams Pond Association  
Town of Eastbrook

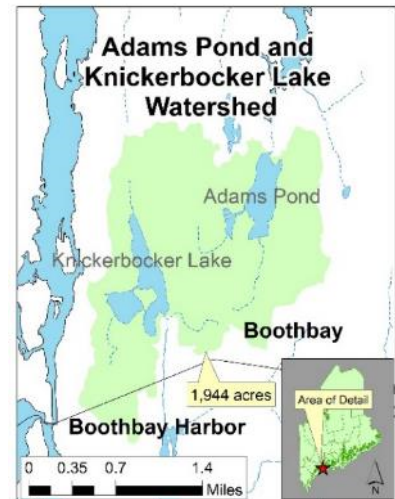
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Jeffrey Norment, Hancock County SWCD – (207) 667-8663 [jnorment@hancockcountyswcd.org](mailto:jnorment@hancockcountyswcd.org)



## Adams Pond and Knickerbocker Lake Watershed Protection Project, Phase II #20180009

Waterbody Names:	Adams Pond and Knickerbocker Lake
Location:	Boothbay, Boothbay Harbor - Lincoln County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Sponsor:	Boothbay Region Water District
Project Duration:	January 2019–December 2020
319 Grant Amount:	\$44,510
Local Match:	\$52,175



### 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 watershed streams 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. From 2017-2019, a Phase I project installed BMPs on 24 sites and reduced annual pollutant loading to the ponds by 77 tons of sediment and 65 pounds of phosphorus.

### PROJECT DESCRIPTION:

The overall goal of this Phase II project was to improve the water quality of Adams Pond and Knickerbocker Lake by reducing or eliminating nonpoint source pollution discharges to the lakes. The project work plan called for the installation of sediment and erosion control BMPs at 11 priority NPS sites within the watershed. Public outreach for the project included direct landowner contact, presentations at the Knickerbocker Lake Association annual meeting and other public meetings, and postings on social media and in newsletters.



Geocell grid pavement system being installed at a commercial property.

**PROJECT OUTCOMES:**

- Seven NPS abatement projects were completed on five high impact and two medium impact sites in the watersheds. The Town of Boothbay addressed one site at a town facility, and BRWD and private property owners completed six projects at one residential property, one private road, two driveways, one summer camp, and one commercial parking lot.
- The completed project prevented 22.4 tons of soil and 19 pounds of phosphorus from reaching Adams Pond annually and 8.4 tons of sediment and 7.1 pounds of phosphorus from reaching Knickerbocker Lake annually (Region 5 Method).
- Project staff delivered presentations about the project at a Rotary Club meeting (75 participants), Knickerbocker Lake Association meeting (100 participants) and planning board workshops.
- BRWD covered the match cost and provided the labor for many of the projects, which helped bring private property owners on board and resulted in the project exceeding its match target (planned \$28,340, actual \$52,175).



**Pine Woods Road Before** - Severely eroding, steep road with no stormwater controls



**Pine Woods Road After** - Newly paved road surface with armored ditches and turnouts

**PROJECT PARTNERS:**

Knox-Lincoln SWCD  
Town of Boothbay  
Knickerbocker Lake Association

**CONTACT INFORMATION:**

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Sue Mello, BRWD – (207) 633-4723 x111 [suem@bbrwd.org](mailto:suem@bbrwd.org)

## Cochnewagon Lake Restoration Project Phase III: In-Lake Alum Treatment #20180001

Waterbody Name: Cochnewagon Lake

Location: Monmouth - Kennebec County

Waterbody Status: NPS Priority Watershed, Impaired

Project Grantee: Cobbossee Watershed District

Project Duration: January 2018–December 2020

319 Grant Amount: \$175,000

Local Match: \$213,024



### 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, 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). A Phase II project (#2017RT03) was completed in 2020 that addressed 15 road sites and three shorefront sites.

### PROJECT DESCRIPTION:

This Phase III project aimed to reduce internal release of phosphorus from lake sediments by applying aluminum sulfate and sodium aluminate directly to the lake, which bind with phosphorus both in the water column and the sediments. This treatment is expected to last for at least 20 years. Extensive planning and meticulous attention to detail were required to coordinate and successfully carry out this project. This was the second lake alum treatment in Maine aimed at reducing internal loading in the past 30 years.



**PROJECT OUTCOMES:**

- The project applied alum to 225 acres of Cochnewagon Lake at a dosage of 39 g Al/m<sup>2</sup>, resulting in an estimated 366 lbs/year reduction in phosphorus loading (determined using phosphorus mass calculations).
- CWD conducted extensive water quality monitoring before, during, and after the alum treatment to determine treatment effectiveness and ensure that safety standards were met.
- Based on 2019 water quality monitoring, the alum treatment restored Cochnewagon Lake from a eutrophic to a mesotrophic lake. There were no cyanobacteria blooms or internal phosphorus loading, and water transparency was the clearest recorded in 17 years. After additional monitoring is conducted, it is anticipated that Cochnewagon Lake will be removed from DEP's impaired waters list.
- Extensive community involvement and support contributed to the project's success. Local match included \$175,000 from the Town of Monmouth, and project match exceeded work plan targets by over \$25,000.



Photographs of the Cochnewagon Lake alum treatment

**PROJECT PARTNERS:**

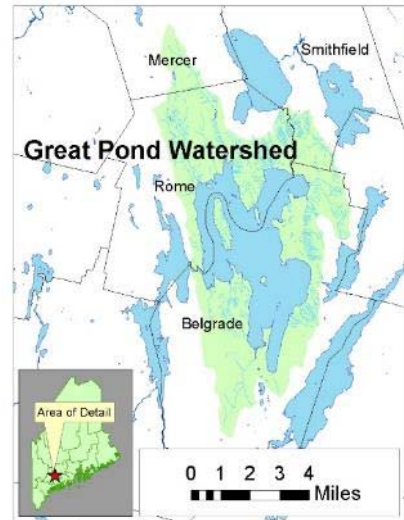
Town of Monmouth  
Water Resource Services, Inc.  
SOLitude Lake Management

**CONTACT INFORMATION:**

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Amanda Pratt, Maine DEP, (207) 699-9279, [Amanda.Pratt@maine.gov](mailto:Amanda.Pratt@maine.gov)

## Great Pond Watershed-Based Plan Development #20180007

Waterbody Name:	Great Pond
Location:	Belgrade, Rome, Mercer, and Smithfield - Kennebec and Somerset Counties
Waterbody Status:	Impaired, NPS Priority Watershed, Most at Risk
Project Grantee:	Kennebec County SWCD
Project Duration:	January 2019–December 2020
319 Grant Amount:	\$18,622
Local Match:	\$39,645



### PROBLEM:

Great Pond has a surface area of 8,186 acres and is part of the Belgrade Chain of Lakes. Salmon Lake and North Pond drain to Great Pond which then flows to Long Pond and on to Messalonskee Lake. Great Pond is listed as impaired because of increasing phosphorus and decreasing clarity trends. An increase over time in the spatial extent of low levels of oxygen in deeper areas of the lake during the summer months may be contributing to the increasing phosphorus trend due to internal loading of phosphorus from the sediments. The pond also exhibits growths of *Gloeotrichia*, a type of cyanobacteria, in many years during the summer and has experienced fall algal blooms in some years.

Since 2009, four Section 319-funded grants remediated 51 NPS sites on town and camp roads on Great and Long Ponds, thereby reducing annual phosphorus loading to Great Pond by 163 pounds. A summer Youth Conservation Corps installed an additional 291 BMPs in the Great Pond watershed since 2009. Belgrade Lakes Association completed a watershed survey in 2018, which documented 237 sites that were contributing nonpoint source pollution to the lake.

### PROJECT DESCRIPTION:

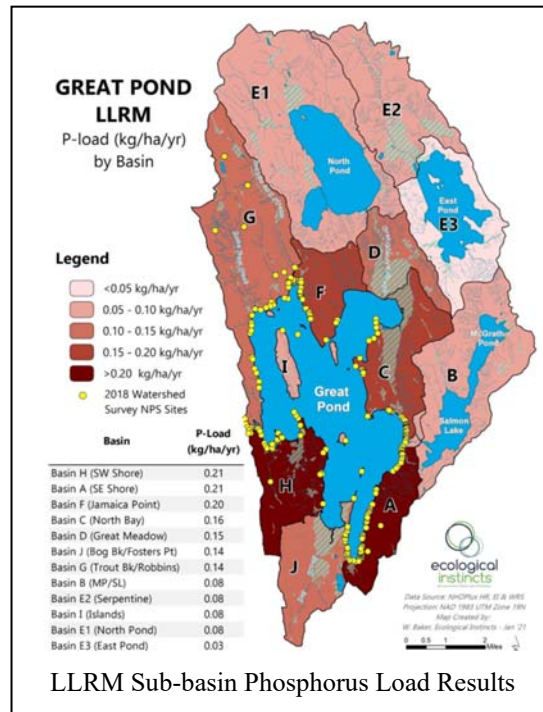
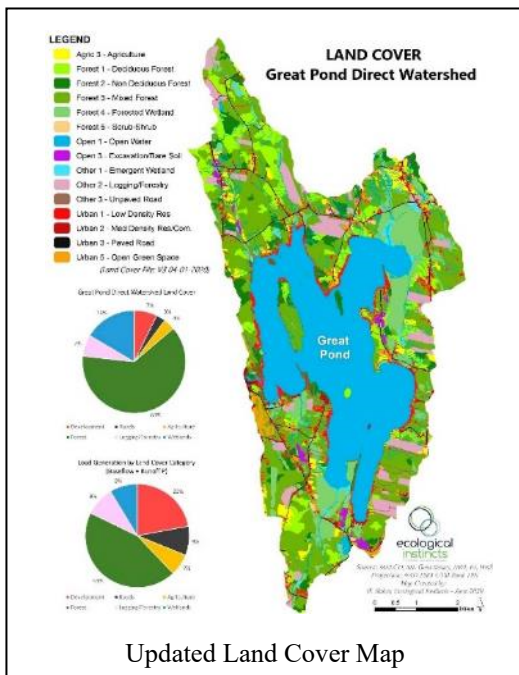
The purpose of the Great Pond Watershed-Based Management Plan (WBMP) Project was to develop a comprehensive WBMP for Great Pond that included EPA's nine minimum elements for watershed-based plans and well-developed implementation strategies that will effectively restore the water quality of Great Pond over the next 10 years. The plan established water quality thresholds, evaluated the need for in-lake treatment strategies, and developed water quality restoration strategies for addressing current sources of NPS pollution in the lake and its watershed. The project was guided by a steering committee and technical advisory committee that each met three times during the project.



Photo Credit: Alex Wall

**PROJECT OUTCOMES:**

- The *Great Pond Watershed-based Management Plan* was completed and approved by DEP.
- An updated land cover map was created to accurately characterize the percentage of each land use in the watershed. A Lake Loading Response Model (LLRM) was created to model the contribution of phosphorus to the lake from different land uses. The LLRM also divided the watershed into sub-basins and modeled the amount of phosphorus contributed from each.
- A public meeting to discuss the plan was held on Zoom and was attended by over 100 people.
- A thorough water quality analysis of existing data was undertaken to characterize trends and estimate the relative contribution of phosphorus from internal sediment loading. Through this project it was determined that internal loading is a less significant source (<400 kg/year) than originally thought.
- The goal of the plan is to restore water quality in Great Pond by reducing the frequency of high phosphorus readings, low water-clarity events, and addressing phosphorus sources in the watershed. Water quality benchmarks include keeping the average phosphorus level at or below 8.5 ppb and the average clarity at or above 6.5 meters and reducing phosphorus loading by 130 kg/year.



**PROJECT PARTNERS:**

- 7 Lakes Alliance
- Belgrade Lakes Association
- Colby College
- Ecological Instincts
- Towns of Belgrade and Rome

**CONTACT INFORMATION:**

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 Amanda Pratt, Maine DEP - (207) 699-9279, [Amanda.Pratt@maine.gov](mailto:Amanda.Pratt@maine.gov)

## Highland Lake Watershed-Based Management Plan #20180008

Waterbody Name:	Highland Lake
Location:	Falmouth, Windham, Westbrook - Cumberland County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Cumberland County SWCD
Project Duration:	January 2019–March 2020
604(b) Grant Amount:	\$16,540
Local Match:	\$25,917



### PROBLEM:

Highland Lake covers 623 acres and its 8.4 square mile watershed is part of the Presumpscot River watershed. DEP staff and Highland Lake Association (HLA) volunteers have monitored Highland Lake's water quality since 1974. Highland Lake is currently listed as threatened on the Maine DEP's Nonpoint Source Priority Watersheds list, having been downgraded from impaired status in 2010 after three phases of successful 319 grant-funded implementation projects.

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 bloom. This problem was the impetus for the creation of the Highland Lake Leadership Team (HLLT), composed of the lake association, Town of Falmouth, and Town of Windham, and more extensive study of the lake and watershed. In 2018, a locally-funded watershed survey identified 129 NPS sites in the watershed. The Highland Lake Watershed Assessment Project (#2017PT16) inspected existing watershed BMPs and compiled existing water quality and watershed data in preparation for plan development.

### PROJECT DESCRIPTION:

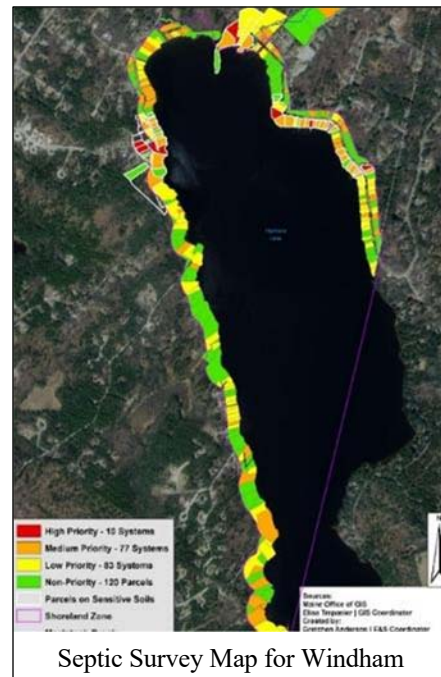
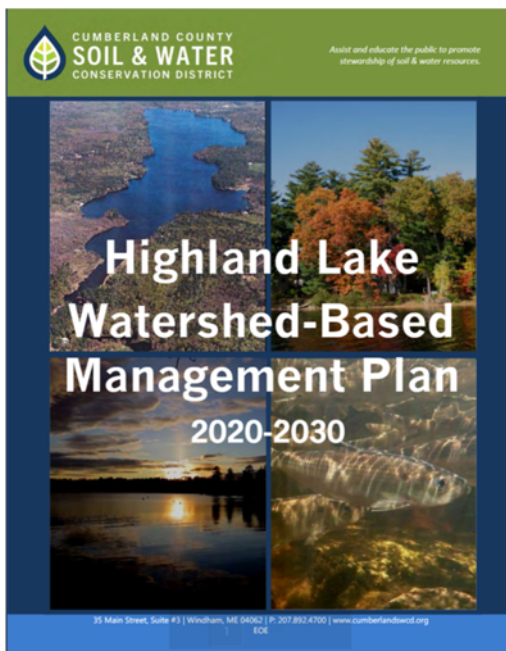
This project goal was to develop a 10-year plan for improving Highland Lake water quality. Water quality data analysis, public meetings, a septic system survey, and pollutant load reduction estimates, and a stream crossing survey were completed and helped to inform the development of the final WBMP. A technical advisory committee met eight times during the project to review available data and oversee plan development.



Heather Huntt (CCSWCD) presents at Highland Lake public meeting

**PROJECT OUTCOMES:**

- The *Highland Lake Watershed-Based Management Plan (2020)* was completed and accepted by DEP. The plan incorporates EPA's nine elements and lays out goals, objectives, and water quality benchmarks for Highland Lake over the next 10 years.
- The project engaged stakeholders within the Highland Lake community, allowing them an opportunity to contribute to the planning process. Public outreach was carried out through a public meeting (20 participants) and four articles in local newspapers.
- A septic system survey was completed that identified parcels that may be contributing nutrients to Highland Lake. The survey analyzed soils data and town records, which were used to prioritize areas for further study. A total of 21 high priority systems were identified.

**PROJECT PARTNERS:**

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

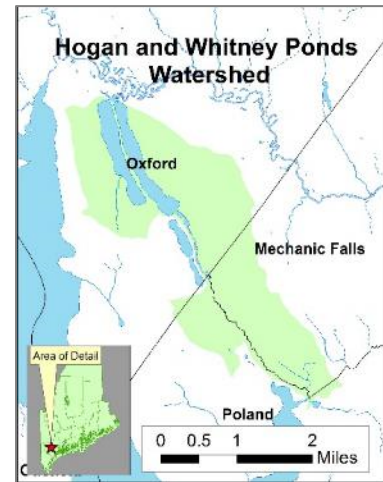
**CONTACT INFORMATION:**

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 Amanda Pratt, Maine DEP - (207) 699-9279, [Amanda.Pratt@maine.gov](mailto:Amanda.Pratt@maine.gov)



## Hogan-Whitney Ponds Watershed Protection Project, Phase I #20190005

Waterbody Name:	Hogan Pond and Whitney Pond
Location:	Oxford, Mechanic Falls, and Poland - Oxford County
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	Oxford County SWCD
Project Duration:	January 2019–December 2020
319 Grant Amount:	\$50,100
Local Match:	\$44,489



### PROBLEM:

Hogan Pond (178 acres) and Whitney Pond (167 acres) are located in Oxford, Maine and share a unique geological history shaped by the last ice age. They are separated by an esker (a narrow formation of land deposited by glaciers) and connected to each other by a navigable stream. These two lakes drain to the Little Androscoggin River, which then flows to the mainstem of the Androscoggin River. Both ponds have average water quality compared to other Maine lakes.

Like many other lakes in Maine, Hogan and Whitney Ponds' water quality are threatened by phosphorus enrichment, mainly in the form of nonpoint source (NPS) pollution from developed areas of land that drain to the ponds. To assess sources of NPS pollution in the watershed, the Hogan and Whitney Ponds Association (HWPA) conducted a watershed survey in 2017. In total, 95 erosion sites were identified in the survey. The largest numbers of problems were associated with residential properties (61), private roads (13), town roads (11), and beach sites (6). Aside from soil erosion, no other significant sources of phosphorus were observed during the survey.

### PROJECT DESCRIPTION:

The primary purpose of the Hogan-Whitney Ponds Watershed Protection Project, Phase I was to significantly reduce erosion and the export of sediment and phosphorus into Hogan and Whitney Ponds by providing landowner technical assistance and installing best management practices (BMPs) at 15 NPS pollution sites identified in the 2017 watershed survey. The project increased public awareness about watershed issues and fostered long-term watershed stewardship. During this project most of the highest impact NPS sites identified in the watershed survey were addressed.



Site visit conducted at Two Lakes Camping Area

**PROJECT OUTCOMES:**

- The project provided cost sharing and technical assistance to install BMPs at nine town road sites, three campground sites, and three residential sites. Landowners installed or enhanced vegetative buffers along 76 feet of shoreline.
- Seven Residential Matching Grants (up to \$350) were awarded to landowners to help install residential BMPs. Some landowners received plants from the 'Plant Bank', established with funding from the NE Grassroots Environment Fund and Norway Savings Bank. HWPB also coordinated the purchase and delivery of 12 cubic yards of Erosion Control Mix (ECM) to the Town of Oxford sand & salt shed area for property owners to apply to areas of their property that required soil protection.
- Annual pollutant loading to Whitney and Hogan Ponds was reduced by an estimated 131 tons of sediment and 111 pounds of phosphorus (Region 5 Method).
- Project staff conducted 25 technical assistance visits to landowners and town public works.
- The project hosted two outdoor, interactive workshops on road maintenance (7 participants) and buffer planting (17 participants).



Infiltration steps (left) and buffer planting (above) installed at a residential property on Hogan Pond

**PROJECT PARTNERS:**

Androscoggin River Watershed Council  
Hogan - Whitney Ponds Association  
New England Grassroots Environmental Fund  
Norway Savings Bank  
Town of Oxford

**CONTACT INFORMATION:**

Michele Windsor, Oxford County SWCD – (207) 744-3111, [oxfordcountyswcd@outlook.com](mailto:oxfordcountyswcd@outlook.com)  
Amanda Pratt, Maine DEP – (207) 699-9279, [Amanda.Pratt@maine.gov](mailto:Amanda.Pratt@maine.gov)

## Kennebunk River Watershed-Based Plan Development Project #20180006

Waterbody Name: Kennebunk River

Location: Lyman, Arundel, Kennebunk,  
Kennebunkport - York County

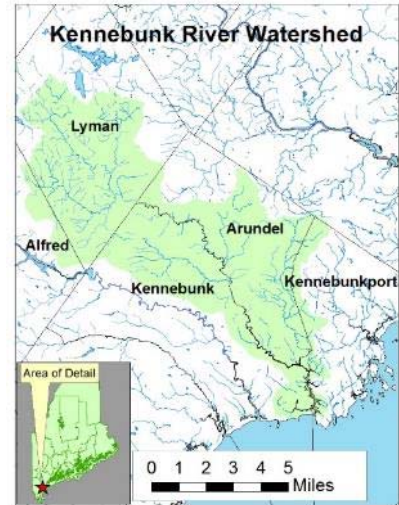
Waterbody Status: Impaired, NPS Priority Watershed

Project Grantee: York County SWCD

Project Duration: November 2018–December 2020

604(b) Grant Amount: \$41,600

Local Match: \$41,666



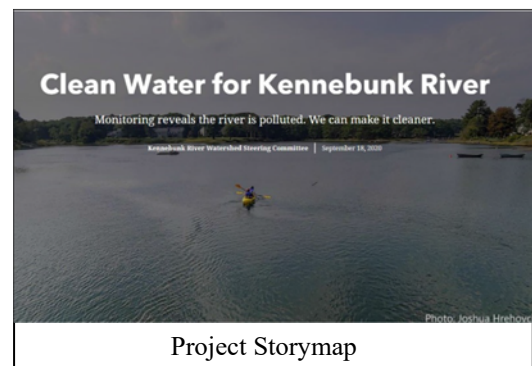
### PROBLEM:

The Kennebunk River extends 18 miles from its headwaters at the outlet of Kennebunk Pond through a mix of agricultural, forested and developed areas before reaching the tidal estuary and popular Gooch's Beach. The river's 59 square mile watershed includes seven major tributaries that support wild brook and brown trout. Striped Bass is fished below head-of-tide and brings many anglers to the river each year. The tidal portion of the river, south of the Route 9 bridge, is a popular cruising destination and home to 13 marinas providing over 300 slips. Restaurants, hotels, and event venues benefit from the river's scenic and aesthetic qualities. Charter and commercial fishing vessels depend on the quality of the water and the health of the river's fisheries. Gooch's Beach is a valuable recreational resource offering opportunities for swimming, surfing, sunbathing, kayaking, and paddle-boarding.

Since 2009, Wells National Estuarine Research Reserve (Wells Reserve) and volunteers have monitored the river with support from DEP's Volunteer River Monitoring Program. DEP's Maine Healthy Beaches (MHB) and volunteers also monitor the beach water quality. Both the river and the Duck Brook tributary are listed as impaired for *E. coli* bacteria, and Gooch's Beach has had 111 beach advisory days, four rainfall advisory days, and four beach closures days since 2003. Maine DEP has conducted biological monitoring on the river since 1995. Currently, the river meets aquatic life standards, but in some years it does not meet its Class B standards.

### PROJECT DESCRIPTION:

The purpose of the project was to develop a watershed-based management plan for the Kennebunk River to guide water quality restoration efforts over the next 10 years. The project conducted water quality monitoring, targeted watershed and stream corridor surveys, stormwater outfall surveys, and municipal ordinance review. The project was guided by an active steering committee and technical advisory committee. Public outreach and engagement included an online public meeting, online storymap and survey, several press releases and presentations to town boards.

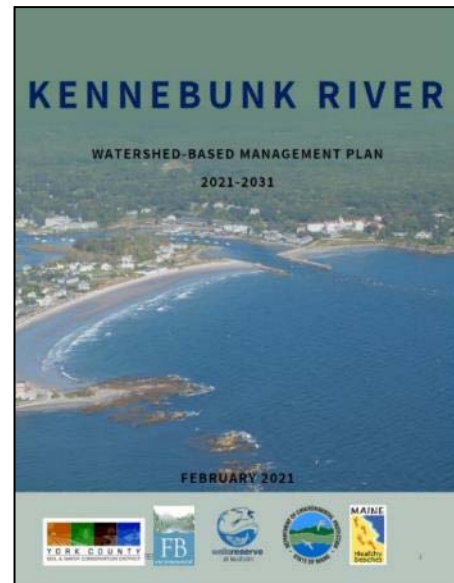


**PROJECT OUTCOMES:**

- The *Kennebunk River Watershed-based Management Plan* was completed. The plan established water quality goals, objectives and actions needed to restore the river's water quality.
- The project succeeded in engaging the watershed community, even amidst the COVID-19 pandemic. Wells Reserve developed a project storymap that clearly conveyed the river's water quality problems and watershed issues and included a link to a survey designed to collect input about watershed action strategies. The 137 responses were summarized and used to develop the WBP's action plan. Three public input sessions were held via Zoom to gather input and ideas from each community (Lyman, Arundel, and the Kennebunks).
- Multiple field surveys and water quality monitoring were completed as part of the project. A stream corridor assessment was conducted by foot in three tributaries and by canoe or kayak in two sections of the mainstem. A NPS pollution survey identified 36 sites in focused portions of the watershed. Seventy-eight outfalls were identified and mapped from the mouth of the Kennebunk River to the head of tide, with five sampled for E. coli bacteria during dry weather. Water quality monitoring continued to identify areas of water quality concerns and bracket hotspots.
- The project strengthened the connection between towns and stakeholders within the large and diverse Kennebunk River watershed, with the goal of improving the water quality of the river and all its uses.



Photographs of the Kennebunk River and tributaries from surveying and sampling.

**PROJECT PARTNERS:**

Arundel Conservation Trust  
 Carlisle Equestrian Academy  
 FB Environmental  
 Kennebunkport Conservation Trust  
 Kennebunk Sewer District  
 KKW Water District  
 Mousam Kennebunk Rivers Alliance

Town of Arundel  
 Town of Lyman  
 Town of Kennebunk  
 Town of Kennebunkport  
 USDA Natural Resources Conservation Service  
 Wells Reserve

**CONTACT INFORMATION:**

Mindee Goodrum, York County SWCD - (207) 432-3516, [mgoodrum@yorkswcd.org](mailto:mgoodrum@yorkswcd.org)  
 Kristin Feindel, Maine DEP - (207) 215-3461, [Kristin.B.Feindel@maine.gov](mailto:Kristin.B.Feindel@maine.gov)

## North Pond Watershed Protection Plan, Phase I

### #20180003

Waterbody Name:	North Pond
Location:	Smithfield, Rome and Mercer - Kennebec and Somerset Counties
Waterbody Status:	NPS Priority Watershed, Most at Risk
Project Grantee:	7 Lakes Alliance
Project Duration:	January 2018–August 2020
319 Grant Amount:	\$80,406
Local Match:	\$162,334



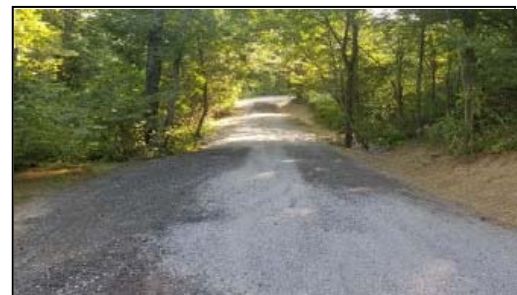
### PROBLEM:

North Pond is the second lake in the seven-lake Belgrade Chain of lakes, receiving inflow from East Pond via Serpentine Stream in Smithfield Village. The North Pond watershed covers 22 square miles (15.7 North Pond and 6.3 Serpentine Stream) in the towns of Mercer, Smithfield, and Rome. The surface area of North Pond covers approximately 2,531 acres, has a perimeter of 9.5 miles, and a maximum depth of 20 feet. North Pond is used extensively for swimming, fishing, and boating, and is accessible via a public boat launch on the north end of the lake. The shallow water provides excellent habitat for warm-water fish and supports 14 fish species including small and largemouth bass, white perch, and chain pickerel. The Serpentine watershed includes a large area of freshwater wetlands of statewide significance between East and North Ponds. The lake is also home to 45 adult loons.

Water quality data has been collected in North Pond since 1970. Based on these historic data, the potential for nuisance algal blooms and internal loading is moderate. However, total phosphorus has been increasing slightly over the past 10 years, and the lake experienced cyanobacteria blooms in 2018-2020. Agricultural land use was historically a significant contributor to nutrient loading. Currently, land uses associated with roads, and residential and commercial development are the greater threat to the pond. Locally-funded watershed surveys in 2014 and 2016 identified 158 NPS sites in the watershed.

### PROJECT DESCRIPTION:

The primary purpose of this project was to significantly reduce the pollutant load to North Pond by addressing soil erosion and stormwater runoff that delivers excess sediments and nutrients to the lake. This was accomplished through targeted implementation of BMPs at high priority NPS sites identified in the 2016 watershed survey. In addition to pollutant reductions, the project increased awareness about the need for lake protection by utilizing targeted outreach strategies such as direct landowner contact, annual buffer workshops, meetings with watershed partners, newsletter articles, and press releases.



Merrow Road was a chronic source of sediment to the lake. Over 2500 feet of road was rebuilt with ditching, bluestone gravel, geotextile and four enlarged culverts.

**PROJECT OUTCOMES:**

- BMPs were installed at five high priority sites located on state, town, and private roads as well as at Pine Tree Camp. Additional BMPs were installed at 28 residential properties. Total BMP installations exceeded project targets with 89 BMPs installed (34 BMPs planned).
- Pollutant loading to North Pond was reduced by an estimated 57.6 tons of sediment, 49.0 pounds of phosphorus and 98.1 pounds of nitrogen per year (Region 5 Method).
- Two road maintenance workshops were held (85 participants). Additional outreach efforts included two “Buff Enough” workshops (50 participants), two annual meeting presentations (110 participants), and one algae bloom meeting (90 participants).
- Local match for the project totaled \$162,334, nearly doubling the project goal of \$85,979.



The 7 Lakes YCC installed 15 BMPs at Pine Tree Camp, including rain gardens, bluestone gravel parking areas, Erosion Control Mix on paths, cabin dripline trenches and dry wells, infiltration steps, and riprap.

**PROJECT PARTNERS:**

Kennebec County SWCD  
 Maine Department of Transportation  
 North Pond Association  
 Pine Tree Camp  
 Town of Mercer  
 Town of Rome  
 Town of Smithfield

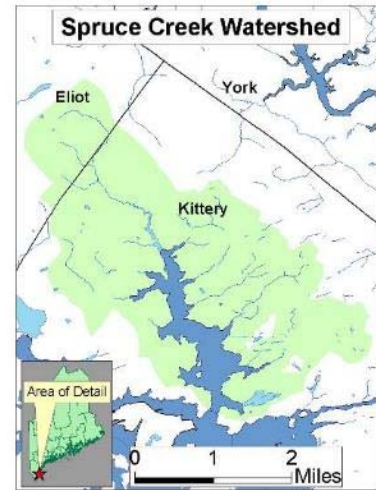
**CONTACT INFORMATION:**

Greg Beane, Maine DEP – (207) 299-4703, [greg.e.beane@maine.gov](mailto:greg.e.beane@maine.gov)  
 Charlie Baeder, 7 Lakes Alliance – (207) 458-1334 [charlie.baeder@7lakesalliance.org](mailto:charlie.baeder@7lakesalliance.org)

## Spruce Creek Watershed Improvement Project - Phase V

### #20180005

Waterbody Name:	Spruce Creek
Location:	Kittery and Eliot - York County
Waterbody Status:	NPS Priority Watershed, Impaired
Project Grantee:	Town of Kittery
Project Duration:	January 1, 2018–December 31, 2020
319 Grant Amount:	\$36,543
Local Match:	\$61,940



### PROBLEM:

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

Spruce Creek is impaired due to bacterial contamination, low dissolved oxygen, toxic contamination, and a compromised ability to support aquatic life. Although a portion of Spruce Creek was open to shellfish harvesting in the past, the flats have been closed since 2005 due to poor water quality and high fecal coliform concentrations. A survey completed in 2007 (#2005R-01) identified 197 NPS sites. Four phases of projects (#2008RR01, #2010RT07, #2013RT06, and #2015RT06) installed BMPs at 24 sites, hosted 11 septic and residential socials, resulted in over 80 residential pledges to install watershed-friendly practices, developed a septic system ordinance and database, held tours for the public to visit and learn about BMPs, and removed an overboard discharge and a stormdrain system bacteria source.

### PROJECT DESCRIPTION:

The purpose of this project was to reduce bacteria levels and improve water quality in Spruce Creek by installing BMPs at NPS agricultural sites and educating residents in hotspot neighborhoods of the impacts of pet waste on water quality. Riparian buffers were installed and improved at two agricultural sites. Due to COVID-19, in-person outreach was unable to be conducted. However, brochures were sent to landowners about managing pet waste, pet waste signs were installed, and an online storymap was created to allow the public to take a virtual tour of the BMPs installed, learn about water quality monitoring, and view all outreach materials.



A riparian buffer was improved with the addition of 32 plants to treat runoff from a farm's defined animal pen.

**PROJECT OUTCOMES:**

- This project addressed nutrient and bacterial NPS at two agricultural sites by installing riparian buffers. Over 40 volunteers helped plant 632 native plants along 450' of shoreline at two NPS sites.
- A total of nine “No Poop Fairy” signs (below) were installed in five critical public areas to encourage residents to clean up after their pets, and to educate them on the impacts of bacteria from pet waste. A pet waste brochure was sent to 614 residences in two targeted neighborhoods in the watershed with historically high bacteria counts and was also posted on the Town website.
- An interactive [Story Map](#) was created and posted to the town website for the public to obtain information, data, and photos of BMPs in a user-friendly manner.
- Three years of water quality monitoring and reporting were completed.
- Annual pollutant loading to Spruce Creek was reduced by an estimated 9.1 pounds of nitrogen, 0.9 pounds of phosphorus and 0.4 tons of sediment per year (STEPL Method).



Six hundred native plants and shrub species were planted along a 450' section of the creek at Rustlewood Farm creating a riparian buffer.

**PROJECT PARTNERS:**

Spruce Creek Association  
Kittery Trading Post  
Kittery Land Trust

**CONTACT INFORMATION:**

Jessa Kellogg, Town of Kittery - (207) 475-1321, [jkellogg@kitteryme.org](mailto:jkellogg@kitteryme.org)  
Laura Diemer, FB Environmental - (207) 221-6699, [laurad@fbenvironmental.com](mailto:laurad@fbenvironmental.com)  
Addie Halligan, Maine DEP - (207) 441-9057, [addie.halligan@maine.gov](mailto:addie.halligan@maine.gov)



## Trout Brook Watershed Restoration Project–Phase III

### #20190002

Waterbody Name: Trout Brook

Location: South Portland and Cape Elizabeth - Cumberland County

Waterbody Status: Urban Impaired Stream (Kimball and Trout)

Project Sponsor: Town of Cape Elizabeth

Project Duration: January 2019–December 2020

319 Grant Amount: \$45,072

Local Match: \$30,636



### PROBLEM:

Trout Brook is approximately 2.5 miles long, originates in Cape Elizabeth and includes Kimball Brook and several unnamed tributaries. Its 2.4 square mile watershed transitions from woodland headwaters through agricultural lands, wetlands, the Trout Brook Nature Preserve, and dense residential developments before flowing into Portland Harbor. The stream supports a brook trout fishery, likely due to its abundant cold water springs. However, neither Trout Brook nor Kimball Brook meet Class C standards for habitat or aquatic life. The Trout Brook TMDL study was completed in 2007, and the Trout Brook Watershed-based Plan (#2010PT20) was completed in December 2012. A Phase I 319 grant project (#2013RT08) helped fund the installation of BMPs at three priority NPS sites and form the Trout Brook Youth Conservation Corps, which planted 12 residential buffers along nearly 600 feet of stream. A Phase II 319 grant project (#2014RT08) installed five BMPs, including a manure storage facility for an equestrian center, two stormwater treatment BMPs, and two new culverts at Down Home Farms.

### PROJECT DESCRIPTION:

The primary purpose of the Trout Brook Phase III project was to reduce nutrient loading from agricultural land uses in the upper watershed and educate landowners about rain gardens and Yardscaping. Three projects were planned for Down Home Farm (livestock exclusion fencing, a manure storage facility, and an outlet control structure).

Project outreach included a YardScaping workshop and plans for a rain garden workshop and factsheet. Due to COVID-19 restrictions, the Yardscaping workshop was changed to a virtual event (12 participants), and the rain garden installation was postponed until volunteers could participate.



Manure storage shed and heavy use area constructed at Down Home Farm. NRCS provided input on project design.

**PROJECT OUTCOMES:**

- Three priority projects were completed at Down Home Farm to help improve stream habitat and water quality. Livestock exclusion fencing was installed along 720 feet of stream. With design assistance from NRCS, a manure storage shed and heavy use area were installed for the farm's 16 pigs. A new outlet control structure was designed and installed for the farm's instream irrigation pond. One branch of Trout Brook is now free flowing, thereby improving downstream oxygen levels and aquatic organism passage.
- Engineering designs and planting plans were completed for a rain garden at South Portland's Brown Elementary School. The school plans to move forward with the project and involve students in the installation after COVID-19 restrictions are lifted.
- An estimated 17.22 tons of sediment and 29.64 pounds of phosphorus are being kept out of Trout Brook each year from the activities completed under this grant (Region 5 Method).



A new outlet control structure was installed for the farm's instream irrigation pond, which allows one branch of Trout Brook to freely flow downstream to improve stream oxygen and habitat.

**CUMBERLAND COUNTY SOIL & WATER CONSERVATION DISTRICT**

### Healthy Lawn Care Made Simple Workshop

Grow a beautiful lawn without weed and bug killers and with less fertilizer.

**Tuesday, April 7 | 5:50-8:00 pm**

Online webinar

**FREE**

Please contact Ali at [alclift@cumberlandswcd.org](mailto:alclift@cumberlandswcd.org) for information on how to attend.

Cumberland County Soil & Water Conservation District | [www.cumberlandswcd.org](http://www.cumberlandswcd.org) | (207) 892-4700

**PROJECT PARTNERS**

Brown Elementary School  
 City of South Portland  
 Cumberland County SWCD  
 Down Home Farm  
 USDA Natural Resources Conservation Service  
 South Portland Land Trust

**CONTACT INFORMATION:**

Heather Huntt, Cumberland County SWCD, (207) 892-4700, [hhuntt@cumberlandswcd.org](mailto:hhuntt@cumberlandswcd.org)  
 Wendy Garland, Maine DEP, (207) 615-2451, [wendy.garland@maine.gov](mailto:wendy.garland@maine.gov)

## Appendix A. NPS Grant Projects Closed in 2020

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Completion Date
Abrams Pond Protection Project Phase I	20190003	Hancock County SWCD	79,418	53,773	Dec. 2020
Adams-Knickerbocker Lake Protection Project, Phase II	20190009	Boothbay Water District	44,510	52,175	Dec. 2020
Cochnewagon Lake Restoration Project, Phase III:	20180001	Cobbossee Watershed District	175,000	213,024	Dec. 2020
Great Pond Watershed-based Plan Development	20180007	7 Lakes Alliance	18,622	39,645	Dec. 2020
Highland Lake Watershed Management Plan Project	20180008	Cumberland County SWCD	16,540	25,917	March 2020
Hogan - Whitney Ponds Protection Project Phase I	20190005	Oxford County SWCD	50,100	44,489	Dec. 2020
Kennebunk River Watershed Plan Development Project	20180006	York County SWCD	41,600	41,666	Dec. 2020
North Pond NPS Watershed Protection Project, Phase I	20180003	7 Lakes Alliance	80,406	85,979	Aug. 2020
Spruce Creek Restoration Project, Phase V	20180005	Town of Kittery	36,543	61,940	Dec. 2020
Trout Brook Restoration Project Phase III	20190002	Cumberland County SWCD	45,072	30,636	Dec. 2020

**Appendix B. Active NPS Grant Projects**

<b>Project Title</b>	<b>Project ID#</b>	<b>Grantee</b>	<b>Grant Amount</b>	<b>Non-Federal Match</b>	<b>Planned Completion Date</b>
Bauneg Beg Lake Protection Project Phase I	20200005	York County SWCD	52,601	41,013	Dec. 2021
Black Brook Watershed Management Plan Project	20190017	Cumberland County SWCD	17,862	21,604	Dec. 2022
Capehart Brook Restoration Project, Phase III	20180010	City of Bangor	125,000	85,000	Dec. 2021
China Lake Watershed-Based Plan Development	20190013	Kennebec County SWCD	27,590	38,575	Dec. 2021
Cobbossee Lake Protection Project, Phase II	20180011	Cobbossee Watershed District	90,410	60,634	Dec. 2021
Concord Gully Watershed Restoration Project, Phase II	20180004	Town of Freeport	90,677	90,675	Dec. 2021
Cross Lake Watershed-based Management Plan	20190011	County of Aroostook	17,419	30,482	Dec. 2021
Forest Lake Protection Project Phase III	20200002	Cumberland County SWCD	86,381	78,947	Dec. 2021
Georges Pond Protection Phase I	20190015	Georges Pond Association	45,960	33,106	Dec. 2022
Goodall Brook Restoration Project Phase II	20200004	City of Sanford	79,174	91,017	Dec. 2022
Goosefare Brook Restoration Project Phase II	20190008	Town of Old Orchard Beach	111,145	78,434	Dec. 2021
Goosefare Brook Restoration Project Phase III	20200008	City of Saco	69,028	49,258	Dec. 2022
Highland Lake Watershed Protection Project Phase IV	20200010	Cumberland County SWCD	102,318	71,117	Dec. 2022
Lake Penesseewassee Protection Project Phase I	20200009	Oxford County SWCD	77,282	57,678	Dec. 2022
Mare Brook Watershed-based Plan Development	20190012	Town of Brunswick	32,181	27,762	Dec. 2021
Meduxnekeag River Restoration project Phase II	20200001	Southern Aroostook SWCD	33,591	23,537	Dec. 2022

<b>Project Title</b>	<b>Project ID#</b>	<b>Grantee</b>	<b>Grant Amount</b>	<b>Non-Federal Match</b>	<b>Planned Completion Date</b>
Mousam Lake Protection Project Phase I	20190010	York County SWCD	94,981	76,597	Dec. 2021
North Pond Protection Project Phase II	20200003	7 Lakes Alliance	118,758	112,505	Dec. 2022
Ogunquit River Restoration Project Phase III	20180012	Town of Ogunquit	59,990	40,619	Dec. 2021
Parker Pond Protection Project Phase II	20190006	30 Mile River Watershed Association	178,132	74,151	Dec. 2021
Phillips Brook Restoration Project Phase I	20190007	Town of Scarborough	115,623	81,330	Dec. 2021
Salmon Lake McGrath Pond Protection Project Phase I	20190001	7 Lakes Alliance	64,095	54,935	Dec. 2021
Thatcher Brook Restoration Project Phase II	20190004	City of Biddeford	127,200	84,800	Dec. 2021
Unity Pond (Lake Winnecook) Watershed-Based Management Plan Update	20200006	Waldo County SWCD	45,508	18,156	Dec. 2022
Wilson Pond Watershed-based Plan Update Project	20190016	Cobbossee Watershed District	22,692	8,289	Dec. 2022

## X. NPS Program Five-year Objectives, Actions, and Annual Milestones

This section provides the five-year objectives, actions, and milestones for Maine’s NPS program for the years 2020 through 2024. Tables 10 and 17 focuses on DEP’s NPS Program administration and its watershed approach to improve and protect water quality. Tables 11 to 16 list objectives for Maine’s statewide approach to address six major NPS pollution categories: developed areas, agriculture, transportation, forestry, subsurface wastewater disposal, and hydrologic and habitat modification.

Table 10. Watershed Approach				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
1. <u>Prioritization List</u> : Identify NPS Priority Watersheds and evaluate NPS priority lists biennially or more frequently as new information becomes available.	<ul style="list-style-type: none"> <li>Evaluate NPS priority watersheds lists and criteria biennially or more frequently as needed. Announce public opportunity to submit requests and support for waterbodies to be added to the priority lists.</li> <li>Update priority lists and decision tree as needed- add or remove individual waterbodies as new information becomes available.</li> <li>Notify towns, planning commissions, shellfish committees, and other stakeholders about new or removed NPS priority watersheds.</li> <li>Develop map and post on DEP webpage. Share with partners, including DEP Land Bureau.</li> </ul>	Amanda Pratt, DEP	1. Updated NPS priority watershed list and map.	X ✓		X		X	Completed updates to the NPS priority watersheds lists and criteria in 2020. Seven lakes, 15 streams and three marine waters were added and seven waters were removed. A new Fish Hatchery criteria was developed for lakes that serve as a water source to state or federal fish hatcheries.				
2. <u>Prioritization Criteria</u> : Identify additional prioritization criteria & waters for addition to the NPS Priority Watersheds list and/or for targeted outreach.	<ul style="list-style-type: none"> <li>Develop Most Vulnerable Lakes list and associated criteria (considering factors including climate change, sediment chemistry, lake morphometry, anoxia potential, and land use).</li> <li>Develop and document methods to evaluate waters particularly impacted or threatened by agriculture, forestry and other NPS sources.</li> </ul>	Amanda Pratt, DEP	2. Most Vulnerable Lakes list developed.		X				DEP Lakes Unit is developing models to be considered for Most Vulnerable Lakes List, which will be completed in 2021.				

Table 10. Watershed Approach				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs					
	•													
3. <u>Assessment:</u> Conduct water quality monitoring to support future NPS watershed planning and project development.	<ul style="list-style-type: none"> <li>Evaluate data collected by DEP, LSM, and other partners.</li> <li>Coordinate with local partners to conduct supplemental water quality monitoring, biological monitoring, and bracket sampling.</li> <li>Consult with partners and use Stream Stressor Guidance document to evaluate and identify primary stressors.</li> </ul>	Jeff Dennis, DEP	3. Supplemental monitoring conducted in at least three watersheds/yr.	3 6	3	3	3	3	3	Conducted monitoring in Biddeford Pool, Card Brook, Dickey Brook, Kennebunk River, Mare Brook, and Trout Brook. Data will be used to develop or update watershed-based plans.				
4. <u>Assessment:</u> Develop State agency and partner capacity to use Microbial Source Tracking to identify and track bacteria sources in streams and marine waters.	<ul style="list-style-type: none"> <li>Reach out to Maine and regional labs and compile list of ones with MST analysis capabilities.</li> <li>Consult with regional experts to create protocol needed to store and transport samples for future MST analysis.</li> <li>Assess existing DEP lab equipment and explore procurement of equipment needed to filter and freeze samples.</li> <li>Use above protocol to store/transport DEP and partner water samples. Use resulting MST data to investigate and address bacteria sources.</li> </ul>	Meagan Sims, DEP  <i>Partners: DMR</i>	4. MST storage and transport SOP developed in 2020 and used by DEP starting in 2021.	X	X					DEP used EPA multipurpose grant funds to purchase ultralow temperature freezer suitable for storing MST samples. Reviewed DMR protocols for MST storage. SOP to be developed in 2021 in coordination with other DEP programs.				
5. <u>Assessment:</u> Streamline and facilitate watershed survey data collection, sharing and analysis through expanded use of mobile apps.	<ul style="list-style-type: none"> <li>Explore, promote, and transition to using Survey123 or other mobile data collection tools during watershed surveys.</li> </ul>	Amanda Pratt, DEP	5. At least one survey in 2020, two surveys in 2021 and 50% of watershed surveys use mobile data collection tools by 2022.	1 6	2	X	X	X		DEP assisted with six watershed surveys in 2020. All six used Survey123 to collect survey data.				

Table 10. Watershed Approach				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
6. <u>Planning</u> : Incorporate climate change and resilience planning into watershed-based planning.	<ul style="list-style-type: none"> <li>Review existing information (e.g., Hazard Mitigation Plans), assess stream culverts during watershed assessments and incorporate in WBPs.</li> <li>Use available planning tools and resources to identify other potential climate impacts to consider during WBP projects (e.g., sea level rise, vulnerable septic systems, marsh migration, coldwater refugia) and incorporate into WBPs.</li> <li>Incorporate information on climate change impacts into watershed survey training.</li> </ul>	Greg Beane, DEP	6. Review tools and incorporate into pilot WBP planning project by 2021. All new WBPs include section on climate change by 2022.		X	X	X	X	WBP Planning Request for Applications included requirement to consider climate change impacts in funded projects. Stream culvert assessment to be piloted in 2021.				
7. <u>Restoration Planning</u> : Approve nine-element watershed-based plans (new or updates) that guide local actions to restore impaired waters.	<ul style="list-style-type: none"> <li>Provide decision makers with 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.</li> </ul>	Wendy Garland, DEP	7. Ten nine-element WBPs approved.	2 3	2	2	2	2	Nine-element plans approved for Great Pond, Kennebunk River and Highland Lake (protection focus).				
8. <u>Protection Planning</u> : Approve alternative WBPs (new or updates) that guide protection of unimpaired waters.	<ul style="list-style-type: none"> <li>Working with partners, provide technical assistance for the development of lake watershed-based protection plans. Coordinate to secure EPA approval of alternative WBPs.</li> </ul>	Amanda Pratt, DEP	8. 15 alternative WBPs approved.	3 7	3	3	3	3	Six alternative plans approved including: Lake Anasagunticook, Long Pond (Parsonsfield), Penneseewassee Lake, Sebago Lake/Crooked River, Square Pond, Torsey Pond and Watchic Lake.				



Table 10. Watershed Approach				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
9. <u>Planning</u> : Promote and support watershed assessment and planning for threatened streams.	<ul style="list-style-type: none"> <li>Assess water quality data and watershed conditions to identify stressors for Falmouth’s threatened streams. Develop protection strategy for each stream that identify BMPs and actions for addressing existing and future likely stressors.</li> <li>Promote/pursue development of similar protection strategies with other communities with threatened streams.</li> </ul>	Kristin Feindel, DEP	9. Stream Protection Strategy developed for Falmouth streams by 2020.	X ✓					DEP provided Falmouth with report summarizing conditions, current and potential stressors and management strategies for Falmouth’s six streams. Falmouth will use the report to pursue local actions tailored to each stream.				
10. <u>Planning</u> : Promote collaboration and planning for projects that maintain open shellfish harvesting areas or restore closed shellfish harvesting areas, reduce coastal beach advisories, and mitigate other NPS impacts to coastal waters.	<ul style="list-style-type: none"> <li>Convene coastal work group and conduct annual meetings to share information and identify and collaborate on shared priorities.</li> <li>DEP, DMR, Maine Coastal Program, and MPAP will collaborate to support shared priorities through the NOAA-funded Coastal Community Grants program. DEP and DMR will review proposals and provide technical support to selected projects.</li> </ul>	Addie Halligan, DEP  <i>Partners: MCP, DMR, MPAP</i>	10. CCG grant program funds at least one planning project per year in DEP NPS Priority Watersheds	1 1	1	1	1	1	CCG program awarded funding to the Town of Waldoboro for the <i>Septic System Vulnerability Assessment Guidance Document Development and Case Study</i> . The project will help implement actions in Medomak River WBP related to septic system impacts to water quality.  DEP reached out to past work group members and made plans to reconvene in spring 2021.				
11. <u>Protection</u> : Focus NPS program on watershed protection priorities and highlight the	<ul style="list-style-type: none"> <li>Work proactively with partners to protect lakes on DEP’s Watch List and Most Vulnerable Lakes list (see #2 above) with the goal of keeping off the impaired list.</li> </ul>	Amanda Pratt, DEP	11. Summary of work on protection priorities incorporated		X	X	X	X	No activity in 2020; to be completed in 2021.				

Table 10. Watershed Approach				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
value of these protection efforts.	<ul style="list-style-type: none"> <li>Report to EPA annually on Maine’s protection efforts including work on Most Vulnerable Lakes.</li> </ul>		into NPS Annual Report.										
12. <u>Restoration</u> : Fully or partially restore four NPS impaired waterbodies and submit to EPA as NPS Success Stories.	<ul style="list-style-type: none"> <li>Provide technical support and funding through Section 319 grant program to support implementation of WBPs for waters with high potential to be restored.</li> <li>Collect targeted water quality and biological information to determine if water classification standards have been met.</li> <li>Prepare NPS Success Stories that document the restorations.</li> </ul>	Wendy Garland, DEP	12. Four NPS success stories approved for partially or fully restored waterbodies.		1		2	1	No activity in 2020. Planned to begin in 2021 in advance of the spring 2022 Integrated Report release.				
13. <u>Substantial Improvement</u> : Demonstrate substantial improvement in water quality and/or ecological condition in two NPS impaired waterbodies.	<ul style="list-style-type: none"> <li>Provide technical support and funding through NPS Section 319 grant program to support implementation of WBPs for impaired waters.</li> <li>Collect targeted water quality and biological information to determine the effectiveness of implementation efforts and guide WBP modifications.</li> <li>Evaluate data to determine if water classification standards have been met or if there has been substantial incremental improvement.</li> <li>Prepare NPS Success Stories that document the substantial improvement in water quality and/or ecological condition.</li> </ul>	Wendy Garland, DEP	13. Two NPS success stories approved that show progress toward achieving water quality goals (Type 2) or ecological restoration (Type 3).		1		1		Drafted Type 2 Success Stories for Annabessacook Lake and Sebasticook Lake. To be finalized in 2021.				
14. <u>Restoration/Protection</u> : Promote local efforts to maintain	<ul style="list-style-type: none"> <li>DMR meets with coastal towns, local shellfish committees, and other partners to encourage local action (Fisherman’s Forum, shellfish committees, or town meetings).</li> </ul>	Addie Halligan, DEP	14. Medomak River case study and bacteria		X				No activity in 2020; to be completed in 2021.				

Table 10. Watershed Approach				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
open shellfish harvesting areas or restore closed shellfish harvesting areas.	<ul style="list-style-type: none"> <li>DEP creates Medomak River case study and guidance for investigating and addressing bacteria sources. Materials incorporated into electronic version of Maine Shellfish Handbook.</li> </ul>		investigation/mitigation guidance created.										

Table 11. Developed Areas				Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs					
1. Require and promote the use of effective erosion and sediment control BMPs during soil disturbance activities.	<ul style="list-style-type: none"> <li>Update Chapter 305 of the Natural Resource Protection Act to improve erosion and sediment control standards for soil disturbance, instream work and other sections, as needed.</li> <li>Update ESC BMP Manual to reflect current approaches. Create in a format that can be easily accessed in the field.</li> </ul>	Mark Stebbins, DEP	1. NRPA rule-making completed in 2021 and ESC BMP Manual updated in 2022.		X	X								Given COVID-19 related disruptions, staffing shortages, and new Maine’s Climate Action Plan, DEP’s Land Bureau will be reevaluating program and rulemaking priorities and timeline.
2. Implementation and update of Chapter 1000 Shoreland Zoning to strengthen water quality protection at the local level.	<ul style="list-style-type: none"> <li>Work with municipalities with older shoreland zoning ordinances to implement most recent standards.</li> <li>Review and update Chapter 1000 for areas of possible clarification and improvement, including ESC, buffer standards, contractor certification requirements.</li> </ul>	Colin Clark, DEP	2. Shoreland Zoning rule-making completed	X										Anticipate requesting adjustments to objectives and milestones in 2021 to align with Climate Action Plan strategies and priorities.

Table 11. Developed Areas Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
3. Update Chapter 500 Stormwater Rules to reduce water quality impacts from new or redevelopment projects.	<ul style="list-style-type: none"> <li>Initiate stakeholder process to review Chapter 500 for areas for possible clarification and improvement, including natural hydrology and LID/green infrastructure, recertification, and chloride.</li> <li>Develop draft rules and release for public comment with adoption by 2022.</li> </ul>	Mark Stebbins, DEP	3. Stakeholder process completed in 2021 and Revised rules adopted in 2022.		X	X			See #1 above.	
4. Regularly update the Maine Stormwater BMP manual to reflect the current best management practices.	<ul style="list-style-type: none"> <li>Evaluate proposals for new or modified BMPs for approval under Chapter 500 Stormwater Rules.</li> <li>Conduct annual review and regularly update the Maine Stormwater BMP manual to reflect current science and guidance.</li> </ul>	Dave Waddell, DEP	4. List of new approved BMPs.	X ✓	X	X	X	X	Reviewed and approved ACO Stormbrixx for underground storage. Worked with Kraken Filter, a cartridge filter, to move closer to approval as a proprietary BMP to meet Chapter 500 Standards.	
5. Evaluate stormwater and ESC BMPs and develop guidance about climate change resiliency and adaptation planning.	<ul style="list-style-type: none"> <li>Review stormwater and ESC BMPs for climate resiliency and adaption considerations, including storm sizing and modifications needed for areas with rising groundwater and sea level.</li> <li>Create appendix for Stormwater Manual that includes design considerations and available tools.</li> </ul>	Mark Stebbins, DEP	5. Appendix created for Stormwater Manual.		X				See #1 above.	
6. Provide guidance to State and local regulators, developers, and other partners about BMP selection to target	<ul style="list-style-type: none"> <li>Review stormwater BMPs for nitrogen removal efficiencies and identify additional BMPs to consider adding to the manual.</li> <li>Develop a crosswalk to highlight BMPs most appropriate and inappropriate for different waterbodies and stressors (e.g., no infiltration for small streams with high commercial</li> </ul>	Jeff Dennis, DEP	6. Crosswalk table completed in 2020. Training provided to DEP Land Bureau on	X	X				No progress to report in 2020; to be carried out in 2021.	

Table 11. Developed Areas Lead Agency: Maine DEP				Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	
specific localized resource concerns.	development, nitrogen removal BMPs for coastal watersheds). <ul style="list-style-type: none"> <li>Incorporate crosswalk into BMP manual and share with partners for use in WBPs and project reviews.</li> </ul>		using crosswalk for project reviews in 2021.						
7. Provide training and certification to encourage proper use of ESC BMPs by contractors and other installers.	<ul style="list-style-type: none"> <li>Conduct Basic and Advanced Sediment Control training workshops.</li> <li>Administer the ESC Certification Program and maintain or increase the number of people certified to 2,500 (2,374 in 2019).</li> </ul>	John Maclaine, DEP	7. At least 500 people trained and at least 2,500 people with program certification/yr.	500 trained/yr 2,500 certified/yr 348 2,540					Trained 348 and certified 2,540 individuals, despite the reduced trainings due to COVID-19 (only 9 of 28 planned trainings held). See Section IV.B. for more details.
8. Develop additional trainings and supplemental training materials to enhance contractor and installer understanding and ability to properly install BMPs.	<ul style="list-style-type: none"> <li>Develop additional online trainings and approve/add third-party trainings to facilitate recertification process.</li> <li>Create and post short instructional, demonstration videos about BMPs and NPS-related issues (e.g., silt fence installation).</li> </ul>	John Maclaine, DEP	8. One additional course added per year and three videos created in 2020 and 2023.	1 10 3 0	1	1	3	1	In response to COVID-19 needs, developed nine new hour-long training models. Developed new 8-hour online certification course. Partnering with Maine DOT Creative Office to create BMP demonstration videos.
9. Provide municipalities with NPS training, technical support, and resources to prompt and improve water resource protection.	<ul style="list-style-type: none"> <li>Develop training and certification program for municipal officials and inspectors.</li> <li>Certify municipal officials and inspectors to review BMPs for proper use and installation.</li> </ul>	John Maclaine, DEP	9. Certification program developed in 2020. At least 20 municipal officials certified/year beginning in 2021.	X ✓	20	20	20	20	Training materials developed for in-person training events and new online courses aimed at municipal officials.

Table 11. Developed Areas Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs	
10. Encourage municipalities to consider water resources in local planning decisions.	<ul style="list-style-type: none"> <li>• Provide information to municipalities starting to develop or update Comprehensive Plans.</li> <li>• Review draft Comp Plans for consistency and completeness and provide feedback about ways to strengthen local efforts to protect and restore water quality.</li> </ul>	Jeff Dennis, DEP	10. DEP feedback provided on at least four comp plans/year.	4 9	4	4	4	4	Completed reviews of 9 plans: Caratunk, Gray, Katahdin, Kennebunk, Kingsbury Plantation, Ludlow, Oakland, Thomaston, and Turner.	

Table 12. Statewide Approach - Agriculture Lead Agency: Maine DACF					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
1. Monitor agricultural operations to ensure compliance with the requirement to implement approved nutrient management plans (NMP).	<ul style="list-style-type: none"> <li>Evaluate agricultural operations (AOs) to determine if they need to develop and implement an approved NMP.</li> <li>Track existing AOs with an approved NMP to ensure that their NMP is up-to-date.</li> <li>Provide guidance for initial development of an NMP or for facilitating updates as needed.</li> <li>Continue to identify AOs that need an NMP and help AOs comply with the obligation to operate according to an NMP.</li> <li>Publicize updates to the Nutrient Management Rules, including stream exclusion requirement.</li> <li>Coordinate with NRCS and DEP Shoreland Zoning to align programs regarding stream exclusion.</li> </ul>	Mark Hedrich, DACF	1. 90% of NMPs that are due for renewal are updated within six months of expiration.	90 <b>56</b>	90	90	90	90	338 active NMPs and 23 needed renewal (30% updated, 26% variances and/or in process, and 44% still to be updated).  17 new farm NMPs developed covering 1192 acres and 595 animal units -15 were CNMPs. 17 NMP updates completed covering 8186 acres and 5797 animal units – 15 were CNMPs. 2 Compost Management Plans updated, 2 new CMPs developed, 4 CMPs pending completion. Guidance document developed to clarify intent of stream exclusion rule in NM Rule update.	
2. Coordinate training and certification program for Nutrient Management Planning Specialists.	<ul style="list-style-type: none"> <li>Provide certification and recertification training opportunities for certified planners.</li> <li>Update test and training manual to reflect updated nutrient management rules.</li> </ul>	Mark Hedrich, DACF	2. NMP test updated in 2021 and NMP training manual updated by 2024.	✓	X			X	Both nutrient management planner exams updated. 19 recertification credits available through 7 venues. 39 attendees received total of 96 credits. On-line credits available. COVID-19 inhibited other trainings. Three training sessions recorded for future use.	
3. Monitor livestock agricultural operations to ensure compliance	<ul style="list-style-type: none"> <li>Evaluate new or expanded agricultural operations (AOs) to determine their requirement for obtaining a LOP.</li> </ul>	Mark Hedrich, DACF	3. 75% of farms needing LOPs are developed	75 <b>63</b>	75	75	75	75	17 active LOPs. Of the 5 farms needing LOPs, 63% were developed within 9 months of expiration (1 new farm	

Table 12. Statewide Approach - Agriculture Lead Agency: Maine DACF				Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	
with requirement to operate according to a Livestock Operations Permit (LOP).	<ul style="list-style-type: none"> <li>Continue to identify AOs that need a LOP and help AOs comply with the obligation to operate according to a LOP.</li> <li>Evaluate farms to determine if they are considered a Concentrated Animal Feeding Operation (CAFO) as defined by state or federal regulations.</li> <li>Initiate steps for appropriate permitting of these entities as needed.</li> <li>Conduct annual inspections of CAFOs to determine compliance with terms of the LOP.</li> </ul>		within nine months.						permitted, 2 farms received provisional LOPs, and 2 farms in process). 2 farms need follow-up as potential CAFOs. One CAFO under NOV for infractions. Most CAFO inspections not held due to COVID-19.
4. Provide agricultural operations with up to date information on BMPs.	<ul style="list-style-type: none"> <li>Update the Manual for Best Management Practices for Maine Agriculture.</li> </ul>	Mark Hedrich, DACF	4. Completed update of BMP manual.				X		Two sections of BMP Manual updated. Planned for completion by 2023.
5. Implement the Agricultural Compliance Program to resolve water quality-related complaints (30 visits conducted in 2018).	<ul style="list-style-type: none"> <li>Investigate complaints concerning farm operations that involve threats to human or animal health and safety, and to the environment.</li> <li>Prescribe new or modified site-specific BMPs where needed to resolve the issue, particularly water-quality-related matters.</li> <li>Complete site visit reports to document complaints received and resolutions. Provide reports to DEP semiannually.</li> <li>DEP prepares annual summary of water quality complaints received, investigated and resolved and shares with DMR, DEP, NRCS, NMRB.</li> </ul>	Matt Randall, DACF	5. 25% of sites with water quality issues are resolved within 30 days, 50% resolved within 90 days and 75% resolved within 180 days.	X ✓	X	X	X	X	Investigated and provided technical assistance to respond to 22 various water quality complaints. Of the five sites that required action, 100% were in significant compliance within 30 days. One of the sites completed additional work within 180 days to ensure future compliance.



Table 12. Statewide Approach - Agriculture Lead Agency: Maine DACF					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
6. Promote the use of BMPs with horse farms and other small hobby farms.	<ul style="list-style-type: none"> <li>• Convene at least one meeting with DACF, Cooperative Extension, SWCDs, NRCS, DEP and other stakeholders to develop an outreach strategy for hobby farms.</li> <li>• Implement at least one identified strategy.</li> </ul>	Wendy Garland, DEP	6. Stakeholder meeting held in 2020. At least one stakeholder-recommended outreach strategy pursued by 2022.	X ✓		X			Two stakeholder meetings held in 2020. Decision to focus outreach on horse owners in Southern Maine. Survey questions drafted for distribution in 2021. Distribution of “Small Farm Livestock NPS Mgt.” brochure initiated.	
7. Collaborate with NRCS and EPA in the NWQI program to make progress restoring impaired waters with agricultural NPS sources.	<ul style="list-style-type: none"> <li>• Evaluate water quality information for Oliver Brook and Meduxnekeag River NWQI.</li> <li>• Provide information to NRCS for project close-out of the Unity Pond, Halfmoon Stream &amp; Sandy Stream subwatersheds, and Nickerson Lake - Meduxnekeag River subwatershed projects.</li> <li>• Support development of NRCS Watershed Assessments for Readiness Phase of Sheepscot River and Cross Lake NWQI projects.</li> <li>• Conduct monitoring before NWQI implementation in new NWQI watersheds.</li> </ul>	Wendy Garland, DEP	7. Oliver Brook water quality summary prepared (post implementation) in 2020. Monitoring plan developed for one Readiness Phase watershed in 2020 and water quality monitoring conducted in 2021.	X ✓	X				Oliver Brook biomonitoring results from 2019 received and showed no waterbody improvement to date. Reporting submitted to EPA in fall 2020. To be monitored again in 2024 per DEP basin rotation schedule.  DEP and Midcoast Conservancy conducted bacteria and DO monitoring in Sheepscot NWQI watershed. DEP monitored Dickey Brook as part of Cross Lake NWQI.	
8. Coordinate and communicate with DACF, SWCDs, NRCS, and industry	<ul style="list-style-type: none"> <li>• Attend NRCS State Technical Committee meetings.</li> <li>• Participate in SWCD local working group meetings and Natural Resource Assessments to</li> </ul>	Jeff Dennis, DEP	8. Attend at least five local working group meetings/year	X ✓	X	X	X	X	DEP participated in State Technical Committee meeting and attended six local working group meetings in 2020. Met	

Table 12. Statewide Approach - Agriculture Lead Agency: Maine DACF					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
groups (e.g., Maine Potato Board) on water quality priorities.	share DEP priorities and opportunities for NRCS program support. <ul style="list-style-type: none"> <li>Reach out to the various industry boards and councils to raise awareness of water quality issues related to their industry including nonattainment watersheds.</li> </ul>		in a variety of regions in the state and meet with at least one industry group/year.						with Maine Potato Board and McCain Foods about Aroostook County streams.	
9. Increase field crop agriculture’s use of soil health practices to reduce soil erosion, improve water quality, and offset carbon emissions.	<ul style="list-style-type: none"> <li>Reach out to various stakeholders at the state and local level and explore ways to address agriculturally derived water quality impairment issues.</li> </ul>	Tom Gordon, DACF	9. Meeting held between DEP, DACF and NRCS to discuss agriculture and water quality impacts.	X					Did not hold interagency meeting in 2020. However, Maine Climate Council and DEP/DACF discussions underway and DACF drafted Soil Health white paper that includes recommended actions to increase the use of soil health practices. NRCS approved 90% cost-sharing for soil health practice BMPs in Aroostook County for FFY21 under its EQIP program.	

Table 13. Statewide Approach - Transportation Lead Agency: MaineDOT					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
1. Continue using Erosion and Sedimentation Control BMPs on applicable MaineDOT projects.	<ul style="list-style-type: none"> <li>Continue to implement and enforce MaineDOT Standard Specification 656.</li> <li>Continue ongoing ESC training for MaineDOT staff and contractors.</li> <li>Annual Stormwater MOA report submitted to MDEP summarizing MaineDOT activities as required by the Stormwater MOA between DEP and MaineDOT.</li> </ul>	Kerem Gungor, MaineDOT	1. At least 25 contractors trained/year and 100 DOT employees trained/year	25 contractors & 100 employees trained/yr <b>62 employees trained</b>					MaineDOT continues to implement “Standard Specification 656: Erosion and Sedimentation Control” for all projects contracted out or performed by the agency. MaineDOT staff assisted with 9 full day trainings organized by NPSTRC between 1/1/2020-3/11/2020 (262 participants). MaineDOT’s in-person ESC training plan was disrupted by the COVID-19 pandemic. MaineDOT provided an online ESC training on 12/4/20 (62 employees). On 2/1/21, MaineDOT submitted the annual stormwater MOA report to Maine DEP Land Division.	
2. Provide training and technical assistance to promote use of BMPs on town and county roads.	<ul style="list-style-type: none"> <li>MLRC will provide training to towns through Maine Local Roads Center (MLRC).</li> <li>NPSTC will promote DEP Erosion and Sediment Control certification for Public Works staff.</li> </ul>	John Maclaime, DEP  Peter Coughlin, MDOT	2. DEP will certify at least five DPW employees through the NPSTC per year.	5 <b>6</b>	5	5	5	5	Six Municipal employees were certified in 2020. Met with each MS4 working group at least once in 2020 to discuss training opportunities for municipal staff and encourage communication regarding training needs.	
3. Promote chloride salt reduction BMPs to protect water quality while	<ul style="list-style-type: none"> <li>Continue MLRC training and BMP Task Force to promote snow and ice control BMPs to municipal Public Works.</li> </ul>	Peter Coughlin, MaineDOT	3. At least 30 workshops held/year, covering 4	30 <b>10</b>	30	30	30	30	MLRC training efforts were hampered by the onset of COVID-19 pandemic in March. Delivered 10 training sessions in	

Table 13. Statewide Approach - Transportation Lead Agency: MaineDOT					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
maintaining safe roads for travelling public.	<ul style="list-style-type: none"> <li>MaineDOT will continue to investigate new products, technologies, or efficiencies to reduce the use of chlorides.</li> </ul>		different subjects for 150 different towns.						13 towns since 1/1/2020. The trainings had a total of 121 participants.	
4. Identify chloride impacted or threatened streams and consider/promote salt reduction strategies in these areas.	<ul style="list-style-type: none"> <li>DEP will identify high priority watersheds for salt reduction efforts and share with MaineDOT &amp; towns. Provide chloride fact sheet to towns &amp; provide technical assistance and/or training.</li> <li>Identify DEP priority area to implement alternative practices (e.g., catch basin to deliver chloride to stream instead of infiltration).</li> </ul>	Jeff Dennis, DEP	4. Chloride-impacted and threatened streams list developed.	X ✓					DEP developed list of 13 streams threatened (5) and impacted (8) by chloride. Fact sheet created and shared with DEP Land Bureau and towns with listed streams.	
5. Explore stakeholder interest, possible program funding options, and feasibility of Green Snow Pro type program.	<ul style="list-style-type: none"> <li>Meet with MS4 communities, MaineDOT, SWCDs, Long Creek Watershed Management District and other stakeholders to discuss Green Snow Pro program level of interest and any next steps.</li> <li>If support and funding exists, propose legislation to limit liability for certified snow removal contractors.</li> </ul>	Don Witherill, DEP	5. Limited liability legislation drafted (if supported).	X					Met with MS4 communities and NH DES to discuss Green Snow Pro and other approaches. Met with Sustainable Winter Management (SWiM) program that has documented chloride reductions. Long Creek Watershed Management District is setting up a 3-year pilot program with SWiM that can be adopted elsewhere and help support future legislation.  Limited liability legislation approach was tabled for 2020 and will be pursued in the 2023 legislative session.	

Table 13. Statewide Approach - Transportation Lead Agency: MaineDOT					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
6. Promote reduction in the number of outdoor sand/salt piles.	<ul style="list-style-type: none"> <li>MaineDOT will eliminate its remaining 13 outdoor sand/salt piles by 2024.</li> <li>MLRC will provide technical assistance to towns regarding town salt storage facilities.</li> </ul>	Kerem Gungor, MaineDOT	6. Maine DOT removes two sand/salt piles per year.	2 0	2	2	2	2	Number of the outdoor sand/salt piles remained unchanged in 2020. (Note # piles corrected from 10 to 13.)	
7. Address NPS problems identified by DEP on State roads through MaineDOT maintenance program and construction projects.	<ul style="list-style-type: none"> <li>Annually, DEP will provide MaineDOT and Maine Turnpike Authority (MTA) with a GIS layer of priority watersheds and list of State road watershed survey sites.</li> <li>MDOT, MTA and DEP will meet annually to review DEP needs (above) and MaineDOT’s six-year plan to identify shared priorities and possible NPS projects that can be completed through MaineDOT and MTA maintenance or construction projects.</li> </ul>	Kerem Gungor, MaineDOT	7. MaineDOT completes at least one NPS project/year.	1 2	1	1	1	1	DEP provided MaineDOT a list of 37 potential NPS sites. MaineDOT regional staff reviewed and prioritized sites to be addressed during the future work plans. MaineDOT addressed 2 sites in the Anasagunticook watershed. Developed solution for Rte. 153 site in Province Lake watershed and MaineDOT will supply materials.	
8. Provide technical assistance and training to prevent & mitigate NPS impacts from camp roads.	<ul style="list-style-type: none"> <li>NPSTRC and partners will host workshops and online resources to promote gravel road BMPs.</li> <li>Promote the development of informal or formal road associations to coordinate road maintenance and improvement.</li> </ul>	John Maclaime, DEP	8. At least two NPSTC-approved workshops held per year.	2 1	2	2	2	2	Due to COVID-19, only conducted 1 workshop in 2020. Presented at the 2020 Maine Alliance of Road Association’s annual conference to an in-person and online audience.	
9. Promote bluestone gravel for use on camp roads and driveways where available.	<ul style="list-style-type: none"> <li>Compile a list of providers and post on NPSTC website and in Gravel Road Maintenance Manual.</li> </ul>	John Maclaime, DEP	9. List of bluestone suppliers compiled and posted online.	X					Only two gravel pits found to supply bluestone. Used GIS to identify active quarries in areas with similar bedrock formations. Will follow up with these 11 quarries to determine if a comparable product is available.	

Table 14. Statewide Approach – Forestry				Lead Agency: Maine Forest Service					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
1. Increase overall effective BMP application on harvests from 76% to 85% or greater. Effective BMPs include all appropriately applied BMP practices, effective planning, and avoiding waterbody crossings.	<ul style="list-style-type: none"> <li>Offer BMP training programs, with partners including the Maine Sustainable Forestry Initiative, Certified Logging Professional, Qualified Logging professional program, and Northeast Master logger.</li> <li>Deliver existing or develop new and topic specific trainings as needed to address problem areas when identified by monitoring, compliance inspections and industry consultation.</li> <li>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.</li> </ul> Apply northeast regional forestry BMP monitoring protocol on a biennial basis to assess use & effectiveness of forestry BMPs.	Tom Gilbert, MFS	1. Maine Forestry BMPs Use and Effectiveness report documents effective BMP application on 85% of sites inspected	85 <b>78</b>		85		85	The biennial Maine Forestry BMP Use and Effectiveness report for the 2018-19 BMP monitoring seasons includes data from 148 sites and was released in the spring of 2020. It is reported that 78% of sites monitored had effective BMP application.				
2. Maintain the Forest Ranger-approved water quality inspections of timber harvest sites at over 90%.	<ul style="list-style-type: none"> <li>Forest rangers will continue routine inspections of timber harvests for environmental compliance.</li> </ul> MFS field foresters will continue to provide technical assistance to prevent problems from occurring and quickly fix problems encountered during inspections.	Tom Gilbert, MFS	2. Over 90% of sites exhibit environmental compliance during timber harvest inspections.	90 <b>97</b>	90	90	90	90	MFS Rangers conducted 4325 water quality related inspections. Of those, 109 required on site mitigation measures or other regulatory intervention.				
3. Ensure agencies and staff responsible for protecting Maine’s water resources	<ul style="list-style-type: none"> <li>MFS will work with Land Use Planning Commission (LUPC) and DEP to clarify each agencies’ responsibility for permitting and enforcement of NRPA stream crossing and Chop and Drop activities.</li> </ul>	Tom Gilbert, MFS	3. Interagency meeting held in 2020 and joint timber harvest NRPA (stream	X	X				NPS Training Center developing online workshop about stream crossing permitting and installation in coordination with				

Table 14. Statewide Approach – Forestry				Lead Agency: Maine Forest Service					Schedule Planned (X #) Actual (✓ #)				
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	2020 Accomplishments and Outputs				
from potential degradation have a clear understanding of each’s roles and responsibilities including enforcement procedures.	<ul style="list-style-type: none"> <li>MFS will work with LUPC and MDEP to develop and deliver timber harvest NRPA (stream crossing) training to agency staff, municipalities and the industry.</li> <li>MFS will incorporate NRPA (stream crossing) education in their Certified Logger Program (CLP), Master Logger Program (MLP), and BMP monitoring program.</li> </ul>		crossing) training event held in 2021.						MFS, DEP, ACOE, and other agencies.				
4. By 2024, improve consistency for the regulated community by increasing the number of critical mass municipalities that have adopted statewide standards for timber harvesting in shoreland areas to 252 (adoption by 224 towns in 2019).	<ul style="list-style-type: none"> <li>DEP will support adoption of SWS by inviting MFS to participate in Shoreland Zoning trainings.</li> <li>DEP will support adoption of SWS by providing draft municipal Shoreland Zoning ordinances to MFS before issuing approvals and incorporating information about SWS adoption process in Shoreland Zoning training. MFS will proactively approach towns, provide technical assistance with ordinance updates, and review draft ordinances to help align with SWS.</li> </ul>	Tom Gilbert, MFS	4. By December 2024, 27 new municipalities adopt statewide timber harvesting standards or DEP adopts ordinances for them.	6 9	6	5	5	5	Nine new towns adopted statewide standards for timber harvesting in 2020, bringing the total number of critical mass towns to 243.				

Table 15. Statewide Approach – Subsurface Wastewater Disposal Lead Agency: Maine DHHS, Environmental Health					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
1. Ensure municipalities properly implement Subsurface Wastewater Disposal (SSWD) rules to protect public health and water quality.	<ul style="list-style-type: none"> <li>Provide technical assistance and training to towns on the appropriate implementation of the subsurface rules.</li> <li>Assist in the training and licensing of Local Plumbing Inspectors. Develop resource for CEOs showing photos with a range of site conditions.</li> </ul>	Brent Lawson, DHHS	1. 200 visits to towns per year. Photo guide developed for CEOs in 2021.	38	X				200 visits/yr	Training was provided at 4 scheduled town training sessions; 7 others were cancelled because of COVID. Only approximately 38 town visits were completed because of COVID.
2. Consider adjacent water resources when reviewing variance requests for Onsite Sewage Disposal System (OSDS).	<ul style="list-style-type: none"> <li>Review advanced treatment systems and identify treatment efficiencies for phosphorus and nitrogen.</li> <li>Review variance requests for OSDS in shoreland zones and require that systems next to lakes install systems that remove phosphorus, and systems next to coastal waters remove nitrogen.</li> </ul>	Brent Lawson, DHHS	2. List of advanced systems with phosphorus and nitrogen removal efficiency.				X			Milestone planned for 2023. No activity in 2020.
3. Improve the State’s Voluntary OSDS Inspection Program and oversee expansion to all shoreland zones.	<ul style="list-style-type: none"> <li>Update inspection program rules with requirements for inspectors to receive national certification, take a standard test, submit inspection forms, etc.</li> <li>Evaluate the current inspection program and needs before expanding statewide. Develop Legislative report as directed by LD543.</li> <li>Adjust inspection program in preparation for transition to OSDS Inspection Program expansion to all shoreland zones.</li> </ul>	David Braley, DHHS	3. Report submitted to Legislature and revised rules adopted in 2020.	X						Legislative report entitled, ‘Resolve, To Facilitate the Protection of Public Health Through Increased Subsurface Wastewater Inspections’, submitted to legislature in January 2020.  New SSWW rules drafted and waiting for AG review and approval.



Table 15. Statewide Approach – Subsurface Wastewater Disposal Lead Agency: Maine DHHS, Environmental Health					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
4. Conduct public outreach about new requirements in shoreland zone.	<ul style="list-style-type: none"> <li>Conduct training for real estate professionals and incorporate information about new legislation re: property transfer inspections.</li> </ul>	John Maclaine, DEP	4. One realtor workshop conducted per year.	1 0	1	1	1	1	No realtor workshops held in 2020.	
5. Develop criteria for inspecting OSDS that are at risk for short-circuiting and impacting water resources.	<ul style="list-style-type: none"> <li>DEP and DACF will develop guidance on identifying OSDS at high-risk of short-circuiting due to age, soils, and proximity to water.</li> <li>Dave Rocque (DACF) will develop optional advanced inspection standards/methodology.</li> <li>DEP and DACF will evaluate/refine through pilot program that uses methods on several types of systems.</li> </ul>	Amanda Pratt, DEP  <i>Partners: Dave Rocque, DACF</i>	5. Guidance document developed in 2020. Draft advanced inspection standards developed by 2020 and tested by 2022.	X		X			Drafted guidance document in coordination with DACF staff. Due to COVID-19, advanced inspection standards, field testing and refinement of inspection methodology expected to occur in 2021.	
6. Review OSDS threats to water quality as part of watershed-based planning process.	<ul style="list-style-type: none"> <li>DEP will promote guidance with partners and incorporate into watershed planning projects.</li> </ul>	Wendy Garland, DEP	6. Septic system threat evaluated in all watershed-based management plans starting in 2021.	✓	X	X	X	X	DEP’s March 2020 Request for Applications for watershed-based planning grants included a new provision that requires projects to evaluate septic system threat. In 2020, DEP conducted GIS analysis to identify high-risk systems for four watershed plans (Great Pond, Long Pond, Medomak River and Cross Lake).	

Table 16. Statewide Approach – Hydrologic and Habitat Modification Lead Agency: Maine DEP				Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024	
1. Adopt new standards for stream crossings (new, repair, and replacement) to improve aquatic organism passage and improve hydraulic capacity and resiliency to larger storms.	<ul style="list-style-type: none"> <li>Adopt draft standards for stream crossings under Section 305 to better align with Stream Smart principles.</li> </ul>	Mark Stebbins, DEP	1. Revised standards adopted by Legislature.	X					<p>Given COVID-19 related disruptions, staffing shortages, and new Maine’s Climate Action Plan, DEP’s Land Bureau will be reevaluating program and rulemaking priorities and timeline.</p> <p>Anticipate requesting adjustments to objectives and milestones in 2021 to align with Climate Action Plan strategies and priorities.</p>
2. Provide training to minimize impacts during culvert installation/ replacement and ensure long term stability and proper function.	<ul style="list-style-type: none"> <li>Develop curriculum and provide trainings on culvert installation/replacement.</li> </ul>	John Maclaine, DEP  <i>Partners:</i> <i>MaineDOT</i> <i>DIFW</i> <i>ACOE</i>	2. Curriculum developed in 2020 and one multi-agency workshop held/year starting in 2021.	X ✓	1	1	1	1	2-hour online training developed on stream smart road crossings, project design, and regulatory requirements. Presenters included Maine DEP, Army Corps of Engineers, Maine Audubon Stream Smart Program, and Maine DOT Bridge Maintenance Program Online training module developed for NPSTC on Stream Smart Road Crossings and basic stream crossing design.

Table 16. Statewide Approach – Hydrologic and Habitat Modification Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
3. Administer DEP stream culvert grant program (culvert bond program) that funds upgrades of municipal culverts.	<ul style="list-style-type: none"> <li>Projects selected and contracts implemented for two 2019 RFPs totaling \$5 million. Two RFPs released in 2020 and projects selected and contracts implemented for another \$5 million.</li> <li>Support partner efforts to secure additional program funding.</li> <li>Visit past culvert bond projects, document conditions, and compare to proposed designs.</li> </ul>	John Maclaine, DEP	3. 100 culverts upgraded through 2019 and 2020 RFPs.	25 <b>32</b>	25	25	25		Contracts implemented for 32 stream crossing replacements. In 2020, grants were awarded in a single round of \$5 Million through RFP in fall 2020. Over half of previously-funded projects have been visited. Provided support letters for culvert grant program proposals by The Nature Conservancy and Maine CoastWise program. See additional program highlights in Section IV.E.	
4. Promote use of living shorelines and similar approaches to address NPS problems, restore impacted habitat and maintain existing habitat values.	<ul style="list-style-type: none"> <li>Explore and develop policy to limit use of riprap on streambanks and lakeshores in NPS watershed projects.</li> <li>Evaluate living shorelines pilot projects. If appropriate, pursue revisions to Chapter 305 to accommodate living shoreline approaches in coastal and other shoreline areas.</li> </ul>	Wendy Garland, DEP	4. Shoreline riprap policy for NPS watershed projects developed in 2021.		X				Partners notified about plans to limit or restrict 319 grant funding for shoreline riprap projects. Approved project for Sebago Lake Protection Project Phase IV, which will include lake shoreline demonstration project using root wads and other nature-based solutions. See additional information on living shoreline projects in Section IV. F.	

Table 17. Statewide Approach – NPS Program Coordination Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
1. <u>Program Administration:</u> 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.	<ul style="list-style-type: none"> <li>• DEP employs appropriate programmatic and financial systems that ensure section 319 funds are used efficiently and consistent with fiscal and legal obligations (Section 319 program guidelines, EPA-DEP Performance Partnership Agreement).</li> <li>• In keeping with CWA Section 319(h)(8) and (11), provide EPA with sufficient information, annual reports, GRTS data and other information about Maine’s 319 program to determine whether the State’s previous year progress was satisfactory.</li> <li>• Conduct sub-recipient monitoring according to program standard operation procedures using DEP’s NPS Grant Administration Guidelines (2016). Complete and close out all active grant projects within the contract period.</li> </ul>	Wendy Garland, DEP	1. Maine’s NPS Program submits annual report to EPA and continues to achieve Satisfactory Progress Determination from EPA.	X ✓	X	X	X	X	Completed satisfactory progress interview/review with EPA for FFY 2019.  EPA issued a favorable determination May 29, 2020. The determination for FFY20 reporting period to be issued by summer 2021.	
2. <u>Program Administration:</u> Update the ME NPS Management Plan by 2024.	<ul style="list-style-type: none"> <li>• Consult with lead agencies and gather partner input to update the Maine NPS Management Program Plan for the next five-year cycle including milestones for 2025-2029.</li> </ul>	Wendy Garland, DEP	2. Maine NPS Management Program Plan approved by EPA 10/1/24.					X	No progress to report; planned for 2024.	
3. <u>Education &amp; Outreach:</u> Promote more effective awareness and behavior change methods and tools for DEP programs and NPS projects and partners.	<ul style="list-style-type: none"> <li>• Provide technical assistance and training opportunities in <u>social marketing</u> by hosting or participating in Maine workshops, seminars and conferences.</li> <li>• Provide technical assistance and training opportunities in how to effectively use <u>social media</u> and other electronic platforms.</li> </ul>	Kathy Hoppe, DEP	3. Host or help coordinate at least two social marketing and two social media workshops.	1 0	1	1	1		Not carried out in 2020 due to COVID-19.	

Table 17. Statewide Approach – NPS Program Coordination Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
4. <u>Partnerships:</u> Build and strengthen coordination and communication between Maine’s NPS Program’s lead agencies.	<ul style="list-style-type: none"> <li>• Convene meeting of NPS lead agencies and partners to review NPS Plan activities and determine need and frequency of future work group meetings.</li> <li>• Conduct regular outreach to lead agencies, request semiannual updates on NPS Plan action items and milestones, and provide annual updates to lead agencies.</li> <li>• Continue to work with other government agencies to address and improve areas of environmental concern and seize opportunities for further collaboration.</li> </ul>	Wendy Garland, DEP	5. Meeting of NPS Plan lead agencies and partners held in 2020. NPS Plan status update sent to lead agencies annually.	X ✓	X	X	X	X	DEP met individually with each lead agency in 2020. Maintained regular contact and prompted semi-annual program updates to plan milestones.	
5. <u>Partnerships:</u> Build and strengthen partnerships to promote collaboration and effective implementation of the Maine NPS Management Plan.	<ul style="list-style-type: none"> <li>• Conduct the annual Watershed Roundtable to bring together watershed professionals to share information, network and foster collaboration.</li> <li>• Improve upon and continue to coordinate the watershed managers’ listserve to efficiently promote sharing between partners.</li> </ul>	Marianne Senechal, DEP	6. Host annual Watershed Roundtable and explore options and migrate listserve to improved platform in 2020.	X ✓	X	X	X	X	Hosted virtual Watershed Roundtable with over 70 participants from municipalities, NGOs, SWCDs and other state agencies. 206 people are subscribed to watershed listserve. Explored alternative platforms and will wait for upcoming State listserve upgrade before migrating to new platform.	
6. <u>Funding:</u> Explore funding options to address NPS sources and program needs.	<ul style="list-style-type: none"> <li>• Explore funding options for addressing malfunctioning onsite disposal systems where there are likely water quality impacts (e.g., CWSRF, SCG, Section 319 to replace OSDS, connect to public sewer, or extend sewer lines).</li> </ul>	Wendy Garland, DEP	7. List of funding options developed.			X			No progress to report; to be pursued by 2022.	

Table 17. Statewide Approach – NPS Program Coordination Lead Agency: Maine DEP					Schedule Planned (X #) Actual (✓ #)					2020 Accomplishments and Outputs
Five-Year Objectives	Actions	Lead Contact	Milestones	2020	2021	2022	2023	2024		
	<ul style="list-style-type: none"> <li>Explore and pursue additional funding to support development of WBPs and watershed implementation projects.</li> <li>Explore, promote, and pursue FEMA hazard mitigation grants for installation of green infrastructure, stream/floodplain restoration, and culvert replacements.</li> <li>Share information with partners about funding opportunities through listserve and WBP planning and implementation projects.</li> </ul>									
7. <u>Funding:</u> Promote CWSRF programs, track funding for NPS projects and explore new program opportunities.	<ul style="list-style-type: none"> <li>Track CWSRF projects and funding awarded to NPS projects and summarize in the NPS Annual Report.</li> <li>Explore and promote ways for CWSRF to meet Maine’s NPS needs (e.g., salt reduction equipment, uncovered sand/salt piles. WBP development, brownfields, alum treatments, land protection). Review other State programs, meet with partners to explore needs and determine options and feasibility.</li> <li>Publicize CWSRF opportunities through the watershed listserve and roundtable.</li> </ul>	John True, DEP	8. Summary of CWSRF-funded NPS projects included in the annual NPS Program Report. One new NPS program area developed using CWSRF by 2023.	X ✓	X	X	X	X	CWSRF funding for NPS projects in 2020 totaled \$6.4 million. Projects described in Section IV.D.	



Bear Pond Watershed Survey



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

