



Mousam Lake Watershed Protection Project

Scroll down to learn more about our work to protect
Mousam Lake

York County Soil and Watershed Conservation District

April 13, 2022

About the Watershed:

A watershed is an area of land within which all streams and rainfall have a common outlet that they drain into. This systematic flow of water creates potential for erosion; plant growth, which includes invasive plants; as well as sediment and excess nutrient runoff. The presence of these risk factors determine the need to protect and monitor the quality of the watershed as a whole in order for the continued use and reliance upon it to be sustainable and safe.

Mousam Lake Watershed covers an area of 25 square miles within the towns of Acton and Shapleigh, Maine. The watershed includes Mousam Lake, Goose Pond, Loon Pond, the tributaries of Pump Box Brook and Heath Brook in addition to other unnamed streams that flow into Mousam Lake.



Map of the Mousam Lake Watershed

Land Use & Resources

The shoreline of Mousam Lake is heavily developed; with over 950 seasonal and year-round residences around the lake. Land use purposes of the watershed cater to a variety of needs of the local community. Surrounding features of the lake include commercial boat marinas, gas stations, stores, restaurants, a public access beach and boat launch, and the Acton Fairgrounds.



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Pr...

2 km  Powered by Esri

Environmental Resources

Two square miles of freshwater wetlands exist within the watershed and serve as Inland Waterfowl and Wading Bird Habitat (IWWH). This includes Goose Pond Preserve, a town-owned 105 acre parcel that is listed as a "Focus Area of Statewide Ecological Significance".

Inland Waterfowl and Wading Bird Habitat

Wetlands

The watershed contains multiple town-owned conservation lands, and a large conservation easement managed by the Three Rivers Land trust

Conserved Lands

Mousam Lake itself serves as a warm and cold-water fishery, managed by the Maine Department of Inland Fisheries and Wildlife

Heath Brook, and the smaller Hubbard's Cove tributary and upper reaches of Pump Box Brook are designated Wild Brook Trout habitat.

A large deer wintering area surrounds the headwaters of Pump Box Brook as well.

Deer Wintering Habitat

Management Plan

Overview of Water Quality

Mousam Lake currently meets state water quality standards. It is no longer considered impaired since mitigation activities were put in place to address past issues with declining water transparency and elevated phosphorous levels.

Mousam Lake Protection Plan(2017)

Current Concerns

Although the lake is currently meeting water quality standards it is still included on the Maine Department of Environmental Protection's (DEP) watchlist due to its recent past impairment. It is also listed on Maine's Non-Point Source Pollution (NPS) Priority Watershed List and considered "most at risk from new development". Further information regarding Maine DEP and watershed watchlist can be found [here](#).

The Maine DEP identified Mousam Lake as being particularly sensitive to eutrophication and internal phosphorous loading based on the current water quality and watershed land use. This potential makes reducing external phosphorus inputs to the lake a critical concern. Phosphorus is found commonly in fertilizers, manure, and organic wastes in sewage. Soil and bank erosion can be large

contributors to the transportation phosphorus from adjacent lands into streams and other waterbodies.

A survey conducted by YCSWCD in partnership with the [Acton-Shapleigh Youth Conservation Corps \(ASYCC\)](#) identified 115 sites within the watershed needing water quality improvement and found that 65% of the shoreline of Mousam Lake had inadequate buffers. A septic system model was used to determine phosphorous loading estimates from survey findings. Based on the septic system model, residential septic systems within the watershed account for 53.5% of the total external phosphorus load into the lake. In an updated watershed survey from 2017, 189 erosion sites were identified; 42 of which designated as high impact. Of the 189 that were found: 59% were located on residential properties, 30% were associated with roads, and 7% on boat or beach access sites. These findings emphasize the need for reduction in phosphorus loading within the watershed.

Learn More: Phosphorus Loading

Stormwater runoff can contain phosphorus as well as other nutrients, pollutants, and sediments that could impair the water quality of Mousam Lake. Watch the video below for more information about stormwater runoff and what you can do to prevent these pollutants from entering Mousam Lake. Video courtesy of the Landry Family.



Stormwater Runoff: A threat to water quality in Maine lakes

Mousam Lake Protection Project

The protection plan for Mousam Lake and surrounding watersheds will improve water quality to help maintain water quality standards by continuing to reduce pollutant loads to Mousam Lake. The project aims to raise awareness of the need for continual protection of the lake and watershed as a whole by enabling community members to engage in conservation efforts through education and outreach activities.

319 Grant Program

Past Work

Previous projects, largely funded through the US Environmental Protection Agency (EPA) under section 319 of the Clean Water Act, allowed YCSWCD, in partnership with other organizations, to address previous water quality issues in Mousam Lake. The installation of BMPs (Best Management Practices) and correction of various NPS sites that took place during past projects significantly improved water quality in Mousam Lake and the watershed as a whole and resulted in the lake being removed from impaired status.

Phase I: 2019-2021

In 2019, the York County Soil and Water Conservation District (YCSWCD) was awarded a grant to fund projects that would protect Mousam Lake and reduce the load of nonpoint source pollutants from entering the lake. YCSWCD also partnered with the [Mousam Lake Region Association](#) and the [Acton-Shapleigh Youth Conservation Corps](#). This project was funded, in part, by the US Environmental Protection Agency under Section 319 of the Clean Water Act. Funds were distributed by the Maine Department of Environmental Protection in partnership with the US EPA. An extension was requested and granted in 2020 to allow projects that were delayed due to the COVID 19 pandemic to wrap up in 2021.

Phase I Workplan

Phase I Final Report

Phase I Final Brochure

Phase II: 2021-2022

Phase II of the Mousam Lake Watershed Protection Project focuses on mitigating activities to reduce NPS pollution by targeting high priority sites where erosion and inadequate buffers have contributed to runoff into the lake.

In 2021, the York County Soil and Water Conservation District (YCSWCD) was awarded a second grant to fund projects that would protect Mousam Lake and reduce the load of nonpoint source pollutants from entering the lake. YCSWCD continued their partnership with the [Mousam Lake Region Association](#) and the [Acton-Shapleigh Youth Conservation Corps](#). This project was funded, in part, by the US Environmental Protection Agency under

Section 319 of the Clean Water Act. Funds were distributed by the Maine Department of Environmental Protection in partnership with the US EPA.

Planned projects under Phase II include work at 4 larger NPS sites, mainly concentrated around the Goose Pond Road area. It will also include 15 additional matching grants with site design, permitting assistance, and free installation offered by ASYCC. ASYCC will also offer a BMP workshop to provide landowners with the necessary information and considerations to allow them to decide and install stormwater and erosion control BMPs on their properties. **Check back soon for more information as projects are completed!**

Phase II Workplan

BMP Installation

The BMP installations include various methods of erosion control. This includes using different techniques to stabilize soils such as: planting vegetation to improve buffers, redirecting flow of water, and implementing infiltration and filtration systems to divert and slow water runoff. All of these practices help to prevent direct runoff and reduce pollutant loads into the waterbody. Click the link below for resources on how to install these practices on your own property.

BMP Factsheets & Guides

Before and after photos

Use the sliders below to see some of the improvements made under the Phase I and II grant projects.



Before (left) and after (right) installation of infiltration steps



Before (left) and after (right) installation of conservation mulch



Before (left) and after (right) installation of conservation mulch and roof dripline infiltration trench



Before (left) and after (right) installation of riprap to stabilize embankment and capture sediment



Before (left) and after (right) installation of stone check dams to capture sediment

Additional BMP Photos

Scroll through the photos below to see the results of Best Management Practices (BMPs) installed by the Acton-Shapleigh Youth Conservation Corps (ASYCC) crew along with a brief description of the BMP.



A winding path helps prevent stormwater from channeling and causing erosion. In addition, the crushed stone, mulch, and plants allow the stormwater to infiltrate into the ground.



These crushed stone infiltration trenches allow roof runoff and stormwater to infiltrate into the ground and filter out pollutants before the water enters Mousam Lake.



These infiltration steps are filled with crushed stone and lined with geotextile fabric to filter stormwater that flows down. The erosion control mulch and native plants to the side will help slow and filter additional water that bypasses the stairs.



This rain garden creates a depression to capture and filter stormwater and grow beautiful native plants.



Rubber razors divert water off of camp roads and gravel driveways into more stable and vegetated areas or a dry well.

Partners

YCSWCD coordinates with various organizations to work on the [Mousam Lake Watershed Protection Project](#).

[Acton Shapleigh Youth Conservation Corps \(ASYCC\)](#)

[The Mousam Lake Region Association \(MLRA\)](#)

[Towns of Acton & Shapleigh](#)

[Tattle Street Road Association](#)

[Three Rivers Land Trust](#)

Maine Department of Environmental Protection (MDEP)

US Environmental Protection Agency (EPA)

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