

Great Pond Watershed-Based Plan Development

#20180007

Waterbody Name: Great Pond

Location: Belgrade, Rome, Mercer, and Smithfield -
Kennebec and Somerset Counties

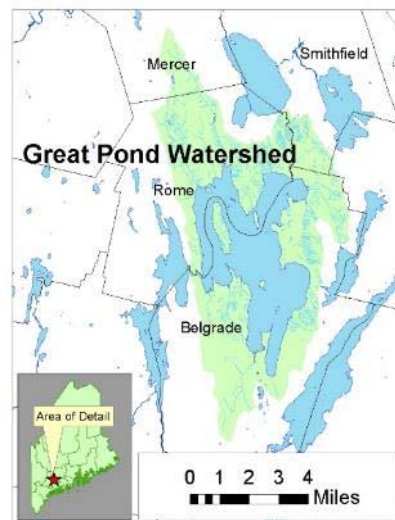
Waterbody Status: Impaired, NPS Priority Watershed,
Most at Risk

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:

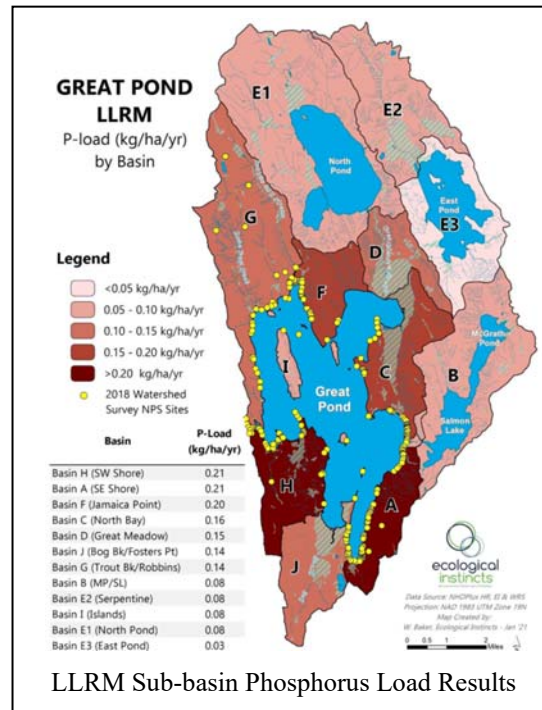
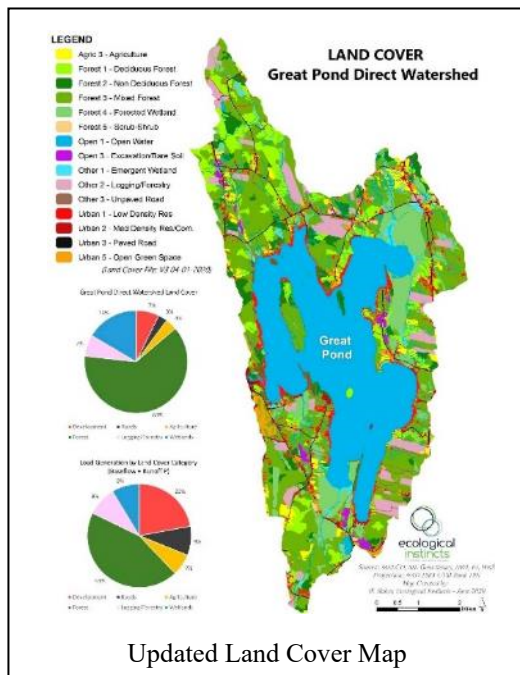
The purpose of the Great Pond Watershed-Based Management Plan (WBMP) Project was to develop a comprehensive WBMP for Great Pond that included EPA's nine minimum elements for watershed-based plans and well-developed implementation strategies that will effectively restore the water quality of Great Pond 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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Suggested Citation:

Maine Department of Environmental Protection (2021) "Nonpoint Source Management Program 2020 Annual Report." Augusta: MDEP.