

Youth Conservation Corps

Final Report 2013



Thompson Lake Environmental Association

Prepared by: Justin St. John, Coordinator/Crew Chief

2013 Staff

Crew Members

Moriah Lee	Norway
Aaron Tremblay	Waterford
Drew McLaren	Bridgton

Coordinator/Crew Chief

Justin St. John	Harrison
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2013 Staff Biographies

Coordinator/Crew Chief

Justin St. John:

Justin just completed his second year in charge of the program and his sixth year with the YCC. Justin will be returning to the University of Maine at Orono for his senior year as he looks to complete his accounting degree. Justin likes to fill his free time with laughter, whether it is with his friends or just his favorite TV show, The Office.

Crew

Moriah Lee:

Moriah recently graduated from Oxford Hill Comprehensive High School and will be studying Music at the University of Maine at Orono this fall. Moriah brings great energy to the crew as you can hardly ever find her without a smile on her face. Outside of work, you can be sure to find her playing frisbee with her friends.

Aaron Tremblay:

Aaron graduated from Oxford Hills Comprehensive High School back in June. This fall he will attend Central Maine Community College as he looks to complete his general education requirements before enrolling in a full time degree program in hopes to become a Game Warden. When not preventing soil erosion with his fellow YCC'ers you can find Aaron on the beach or with a fishing pole in hand.

Drew McLaren:

Drew returned to the crew this year after a spending some time in St. Louis, Missouri last year. This fall, he will return to seminary as he works toward his goal to become a pastor. Drew is an avid outdoor enthusiast who particularly enjoys hiking, canoeing, tennis, and basketball.

YCC Steering Committee:

Tom Ray
Tony Caggiano
Jean Hankins
Marcia Pottle
Dan Porter
Stan Tetenman

Summary of 2013 Completed Jobs:

Town	Jobs Completed
Oxford	7
Otisfield	7
Poland	2
Casco	0
Total:	16

Summary of Completed Jobs Since Inception:

Town	Jobs Completed
Oxford	85
Otisfield	103
Poland	42
Casco	9
Total:	239

Watershed Information

Thompson Lake is one of the most pristine water bodies in Southwestern Maine. The water and its surrounding riparian area provide extensive fish and wildlife habitat, outstanding opportunities for swimming, boating, and fishing, and aesthetic character that is highly valued by the public. The lake also provides economic benefits for landowners, businesses, and the towns in the watershed.

The lake has a surface area of 4225 acres. Compared to other Maine lakes, the water quality of Thompson is substantially above average. Transparency readings often exceed 35 feet. The average transparency for Maine lakes is approximately 17 feet. The water in Thompson is clear because the growth of algae is in balance with the lake ecosystem. Because the growth of algae is in natural balance in the lake, moderately high levels of dissolved oxygen are maintained in the water throughout the year. This allows the lake to support a healthy coldwater fishery that includes trout and salmon. Thompson Lake is one of the relatively few lakes in the area that support both cold and warm water fisheries.

Although present water quality is very good, there are indications that Thompson Lake could decline in the relatively near future. During the past decade water clarity and phosphorus levels have on occasion varied dramatically. Severe and chronic erosion problems have been documented throughout the watershed, resulting in the sedimentation of tributaries and the deposition of silt, sediment, and phosphorus in the lake. The temperature and oxygen levels have also become a recent area of concern due to having such rainy summer months.

Thompson Lake has been rated “Most at Risk for Development” by the Maine Department of Environmental Protection (DEP). This classification is based on the watershed’s high sensitivity to small increases in phosphorus and also to rapid property development. Although most of the waterfront lots have already been developed, there continues to be development of lots in the second and third tiers.

In 2001, the Thompson Lake Environmental Association received a major Section 319(H) Grant under the Federal Clean Water Act. Parts of those funds were to develop a Youth Conservation Corps (YCC) that was focused on providing erosion control solutions on private properties around the lake. The YCC provides the design and a significant portion of the labor to implement the projects, and the landowners pay for the materials, a small portion of the labor, and agree to maintain the project for five years.

The YCC is now in its 12th year. Funds from the Section 319(H) federal grant were utilized through 2012. TLEA has recently applied for yet another 319(H) grant for the 2014 calendar year. The continuation of the YCC program relies completely on

grants from the towns bordering the lake and private foundations as well as contributions from individuals.

Problem

As the land surrounding Thompson Lake is developed, the quality of the water is jeopardized. Deforestation on the shoreline has left exposed and unstable soil, allowing runoff to carry it into the lake. Because water is no longer able to filter through a wooded buffer, it is easier for pollutants to be carried directly into the lake. The construction of homes has also had a significant impact on the quality of the lake. Soil recently excavated is subject to transportation into the lake every time it rains. Nutrients found in the soil are carried into the lake at high levels, greatly increasing the risk of algal blooms. To maintain the high quality of water in Thompson Lake, the YCC will stabilize shoreline areas and eroding sites throughout the watershed to keep both sediment and excess nutrients out of the lake.

Phosphorus

Nutrients are essential to life not only for land plants and animals but for aquatic life as well. Phosphorus is one of these necessary nutrients, but too much of it is detrimental to the survival of aquatic organisms. Aquatic life in many areas is becoming increasingly more exposed to phosphorus, and its devastating effects are harmful not only to the environment, but also to land values and recreational uses on and around lakes. The damage is extremely difficult and very expensive to fix. The costs to restore it are enormous when compared to costs of prevention.

Phosphorus enters the lake primarily through runoff and sediment. Normally, as phosphorus travels with runoff towards a water source, it encounters many natural buffer zones such as a forest, which filters the nutrients before ever reaching the water source. The nutrients in the runoff are deposited into the soil and are used by the native plant growth. However, with the increase of construction around lakes, many more impervious surfaces have come into existence. These surfaces allow water flows to become concentrated and scour more channels, collect more nutrients, and exit the land into lakes, rivers, and streams. A decrease in forested areas and an increase in bare lawns, tarred roads and impervious surfaces have allowed nutrient-rich sediment to easily access the water.

Once in the lake, phosphorus and other nutrients act as fertilizers to plants especially algae. The more phosphorus algae receive the more they use and the faster they grow. The algae can very quickly destroy a lake by reducing levels of dissolved oxygen and blocking sunlight to plants. Water quality goes down, as well as property values along the lake.

Goals

The goals of the 2013 season were as follows:

- Complete as many erosion control projects as possible
- Educate landowners about potential hazards to the lake
- Correct high-impact problems immediately
- Prevent future problems within the watershed
- Provide on-going training on water quality and erosion control methods for crew members

The crew was very successful in accomplishing these goals throughout the summer. Solutions to many of the high-impact problems included the installation of razor bars and open-top box culverts on gravel roads and driveways to divert water into vegetative buffers. This slows the flow of water into the lake and also helps to filter out sediments and absorb excess nutrients. Perhaps the crews' largest achievement was successfully installing a retaining wall in Oxford to prevent further erosion of some thirty-six feet of shore frontage saving countless yards of phosphorus laden sediment from entering the lake. The crew also worked with stone for shoreline rip-rapping, and constructing catch basins. Shoreline rip-rap helps to dampen the wave impact and prevents shoreline erosion and undercutting, while rip-rap used for ditching projects further slows the flow of the water and allows sediment to filter and settle. Catch basins are used to help retain sediment in steams and ditches from making its way into the lake. The crew also completed many buffer plantings, the majority of which were native juniper shrubs which should create a large erosion control "carpet" over on landowners' property of the next few years. Buffer plantings establish a stabilized banking, and absorb water and sediment as a barrier before reaching the lake. These modes of control were necessary for stabilization as well as keeping pollutants and sediment out of the lake. All completed projects are summarized in this report.

Summer Synopsis

The crew completed 16 erosion control projects for landowners throughout the watershed, all of which are summarized in the following pages of this report.