



ONTARIO COUNTY Planning Department

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HONEOYE LAKE AQUATIC VEGETATION MANAGEMENT PROGRAM 2013 ACTIVITY REPORT

Overview

Honeoye Lake is a shallow (16 feet mean depth), nutrient-enriched lake with abundant rooted aquatic plants (macrophytes) that impair recreational uses like swimming and boating during the summer months. This plant community includes invasive species like Eurasian water milfoil and curly leaf pondweed. For more than 25 years, Ontario County has operated a mechanical harvesting program during the summer months in cooperation with the Towns of Richmond and Canadice with cost-sharing from New York State through the Finger Lakes – Lake Ontario Watershed Protection Alliance (FLOWPA). This program has two primary goals:

- To enhance recreational access and opportunities during the peak season.
- To remove plant biomass and associated nutrients from the lake ecosystem.

Mechanical harvesting is a practice consistent with the Honeoye Lake Macrophyte Management Plan (Final, April 30, 2008) available at: <http://www.co.ontario.ny.us/DocumentCenter/View/1308>.

2013 Operations Summary

The harvester operated from July 2 through September 12, 2013, two days shy of 11 weeks. Longtime operator Randy DePew was joined by new operator Robert Corey. Operations typically ran Monday through Thursday, excepting holidays. Staging and off-loading areas were the New York State Boat Launch on East Lake Road and California Ranch Point, mid-lake on the west shore. New York State Boat Launch staff and users and California Ranch neighbors generously accommodated the harvesting equipment during the season.

Volunteers from the Honeoye Lake Watershed Task Force provided a motor boat, driver and fuel for bi-monthly perimeter lake inspections to monitor plant communities, fragments, algae blooms, water clarity and general conditions. A Lowrance fishfinder with SONAR was used to observe macrophyte distribution and height, in addition to visual inspection. Information from these scouting trips helped to direct operations.

Dr. Nelson Hairston (Cornell University Dept. of Ecology and Evolutionary Biology) participated in one excursion at the invitation of a local resident. He observed the lake conditions, shoreline development and general character of the watershed. Through informal discussion with the Honeoye Lake Watershed Task Force, he offered that he could not suggest one practice or management approach that would dramatically change the level of nutrients in the lake or alleviate the water quality problems. Dr. Hairston's visit to Honeoye Lake confirmed the complexity of the dynamic lake ecosystem and challenge of finding solutions that can have a positive, tangible impact on water quality for lake users.

Mechanical and Weather Related Down Time

One hour of operating time was lost due to poor weather conditions. Thirty-six hours of down time occurred in early August when the front conveyor idler shaft on the harvester broke and required welding. No longer under the manufacturer's warranty, the part was taken to a local metal fabricator and repaired.

Training and Staff Development Exchange with Cayuga County

Ontario County initiated an exchange with another Finger Lakes aquatic vegetation harvesting program located in Cayuga County. Cayuga County has operated a mechanical harvesting program since the mid-1980s in several water bodies, including Owasco Lake. In 2012, Ontario County purchased a new larger harvester, the Alpha Boats FX-11. Cayuga County has used the FX-11 for over a decade. Cayuga County staff spent two full days on Honeoye Lake working with Ontario County's operators, and Ontario County operators traveled to Owasco Lake for one full day. Through this partnership, ideas and tips for strategic harvester handling and equipment maintenance were shared. Our new operator received training from a veteran FX-11 operator. Ontario County staff reported learning a great deal of practical information from this opportunity.

Managing Plant Fragments

One common complaint about mechanical harvesting of aquatic vegetation is that it creates floating plant fragments that may wash up on shore and create a nuisance for property owners. Some areas of shoreline receive proportionately more fragments, based on prevailing wind direction. Harvesters are not 100 percent efficient in capturing the cut vegetation. Other sources of fragments include boat propeller chop and other recreational activities (water skiing, wake boarding, angling and pulling anchors; natural breakage from wave action or plant die-off; and even hand-pulling of plants left in the lake or at lake's edge. (There was a major incident of the latter in 2012 when water skiers removed many eel grass plants but left them in the lake.)

Ontario County staff worked last season to identify ways to minimize fragments left behind, including some equipment and driver modifications. An operating recommendation from the Cayuga County staff in 2013 included operating the harvester in smaller areas referred to as "cells", and using the harvester to skim fragments within a cell before moving on to the next. This method allows capture of fragments before wind or wave action disperses them. It does, however, require more manipulation of the harvester in a small area and therefore there is more potential for agitation of bottom sediments, especially in shallow areas.

Visual shoreline inspections during scouting trips in 2013 showed fewer fragments at shore with the exception of certain trouble spots. Operators made an attempt to visit certain properties to remove fragments on shore, with participation and permission of the property owners.

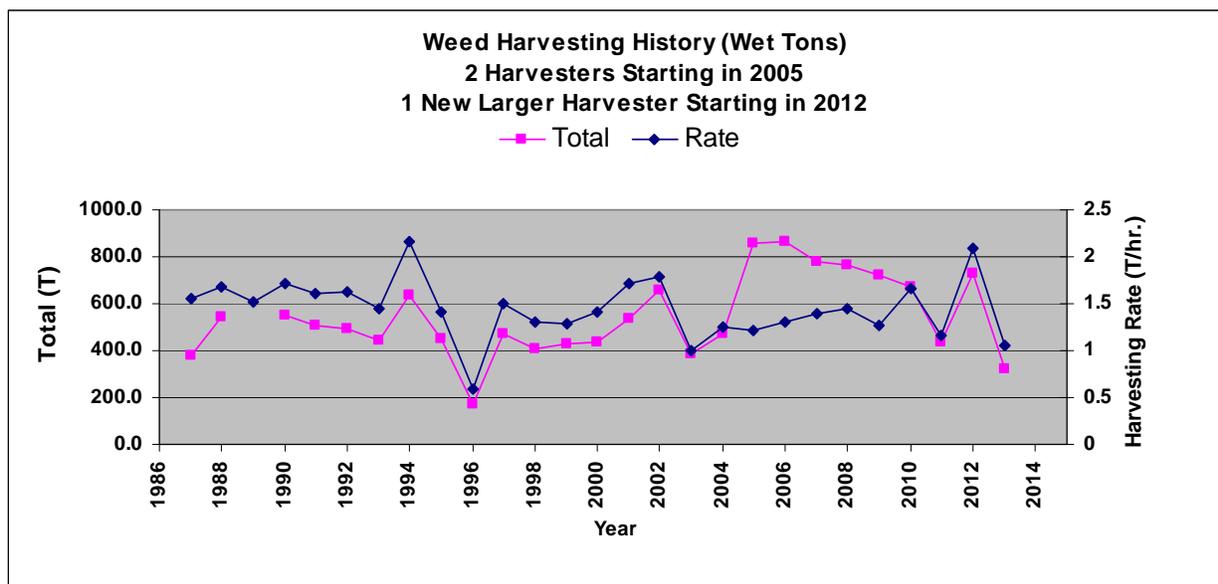
It is difficult to determine what proportion of floating fragments results from harvesting. During an August 2013 inspection of the lake, staff took notice of many floaters in Honeoye Lake and assumed the harvester was a contributor. The same phenomenon was observed in Canandaigua Lake later that day, yet Canandaigua Lake does not have a harvesting program.

Discussion this year between staff, volunteers and some community members, including elected officials, focused on developing a shoreline fragment pickup program. The debate about the source of fragments will persist as long as the many variables continue to change and interact. It may be useful to develop a program to pick up fragments for off-site composting and/or encourage proper management of fragments that wash up on shore, regardless of the source(s). Issues to assess are mechanical access to shoreline, property owner permission and participation, liability, and cost. On Chautauqua Lake, a fragment pickup program complements a long-term mechanical harvesting program that enjoys broad support. Other mechanisms to reduce fragments can be considered by the community, including reducing boat speed and enforcement of a clearly delineated near-shore no wake zone, as was implemented recently on Conesus Lake. These strategies have the added benefit of reducing shoreline erosion which can negatively affect water clarity.

Harvesting Performance

Sixty-four loads of vegetation were removed from Honeoye Lake during the 2013 season, or an estimated 320 wet tons (see chart below). This represents a 56% reduction compared to the prior season (when 725 wet tons were removed in 2012). The 2013 season was one of the lighter harvesting years in the history of the program. The average amount of wet tons removed for all years (1986-2013) is 542.

The chart below also shows the harvesting rate, which is defined as the estimated wet tons of vegetation harvested per hour. The overall 2013 rate was 1.06 wet tons removed/hour. This capture rate is a reflection of the relatively low growth of vegetation in the lake in 2013. Operators observed relatively sparse and uneven macrophyte growth overall. Harvesting operations in the northern half of the lake (north of California Ranch Point) were less efficient than operations in the southern half of the lake, where vegetation was more uniform. However, large, localized areas of dense vegetation were observed in the northern half of the lake, such as a large bed of coontail found north of Trident Marine on the east side.



While the 2013 harvesting biomass removal is light, this phenomenon also occurred in 1996, 2003 and 2011. Variations in macrophyte growth do occur year to year. Possible contributing factors to the low harvest in 2013 are:

- 1) A cooler, cloudier spring than normal may have delayed macrophyte growth.
- 2) A severe algae bloom blocked enough sunlight from reaching the macrophytes, resulting in less or inconsistent plant growth.
- 3) A lack of water clarity made it difficult for operators to see macrophytes and cut paths, reducing operator efficiency.
- 4) Implementation of a practice to pick up fragments by going over a harvested area to scoop, but not cut, vegetation, resulted in more time spent working in a given area.

Macrophytes and Algae Dynamics

Operators observed vigorous Eurasian watermilfoil in early July, when a *Gloetrichia echinata* algae bloom was present but not blocking sunlight penetration. By early August, during a much more pronounced algae bloom, operators noticed much of the milfoil harvested was brown and partially decayed. While this may have been caused by a reduction in sunlight needed for plant photosynthesis, there could be another dynamic in play. There may be a competitive interaction between algae and macrophytes where, if algal production is up, macrophyte production may drop as algae monopolizes more of the critical nutrients available for growth.

In 2012, an algae bloom affected Honeoye Lake for most of the harvesting season, but the harvesting output was relatively high, dominated by eelgrass. It is difficult to predict what the relative abundance of algae and macrophytes will be in 2014, as the interaction between them is not fully understood.

Historical accounts of seasonal algae blooms in Honeoye Lake date back to at least the 1940s. The persistent blooms of the last few years, combined with the increasing frequency and duration of harmful blue-green algal blooms documented across New York State and the northeastern United States, may be a sign of changing dynamics in shallow northeastern lakes in general. It does seem prudent to take a hard look at lake management strategies within the context of a global warming scenario or, at least, an environment where algal blooms are increasingly common and may be the more significant resource use impairment (compared to macrophytes) in any given summer.

Waterline Management

Honeoye Lake continues to serve as a drinking water source for some residents; however, public water is scheduled to be fully extended around the lake in 2015. Numerous waterlines now reach from shore into Honeoye Lake, and are vulnerable to the harvesting operations. The end of these water lines are marked with a buoy (or floating object) each season. A recommendation resulted from the exchange with the Cayuga County program on Owasco Lake, where waterlines are tucked under and do not extend beyond docks into the lake. They are protected, and do not interfere with harvesting. As public water service is completed around Honeoye Lake, there may be an opportunity to reduce the length of many water lines, which will be providing secondary service to homes served by public water.

Coordination with Honeoye Lake Watershed Management Plan and Task Force

Communication among various Honeoye Lake initiatives, including the Honeoye Lake AVMP, occurs under the umbrella of the Honeoye Lake Watershed Task Force. The Task Force brings together stakeholders and staff from local municipalities, agencies, non-profit organizations, academic institutions and property owner associations. Communication helps to clarify needs and identify common goals. It also helps to build synergy as partners work together to secure funding and implement projects. Volunteers can be an essential part of many projects.

Several recent projects coordinated under the Task Force address landowner educational needs; water quality assessment; reduction of nutrients entering the lake from watershed sources; monitoring boats for transport of invasive species at the public launch, and more. Collectively and individually, these projects help to implement the Honeoye Lake Watershed Management Plan. They also help to build community capacity as individuals, groups and institutions gain knowledge, skills and competencies that can help the community determine appropriate goals and attain measurable and lasting results.

For more information, see the follow web links below.

Honeoye Lake Watershed Task Force's Fall 2013 newsletter and the Honeoye Valley Association:
<http://www.hvaweb.org/News%20Items/HLWTF%20Newsletter%20%2011%20October%202013.pdf>.

Honeoye Lake Watershed Management Plan: <http://www.co.ontario.ny.us/DocumentCenter/View/1276>

Ontario County Honeoye Lake Aquatic Vegetation Management Program:
<http://www.co.ontario.ny.us/index.aspx?nid=452>

NYS Department of Environmental Conservation blue green algae bloom notices:
<http://www.dec.ny.gov/chemical/83310.html>

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