



ONTARIO COUNTY *Planning Department*

Darlys McDonough, Interim Director

INTEROFFICE MEMORANDUM

TO: MEMBERS, ONTARIO COUNTY BOARD OF SUPERVISORS
FROM: BETSY LANDRE, SENIOR PLANNER
SUBJECT: 2012 REPORT - HONEOYE LAKE AQUATIC VEGETATION MANAGEMENT PROGRAM (AVMP)
DATE: OCTOBER 15, 2012
CC: JOHN GARVEY; DARLYS MCDONOUGH; MEMBERS, HONEOYE VALLEY ASSOCIATION; MEMBERS, WATER RESOURCES COUNCIL

Overview - Honeoye Lake is shallow and nutrient-enriched, resulting in excessive aquatic plant growth that impairs recreational uses (like swimming and boating) during the summer months. Ontario County operates a mechanical harvesting program in partnership with the Towns of Canadice and Richmond with two primary goals:

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

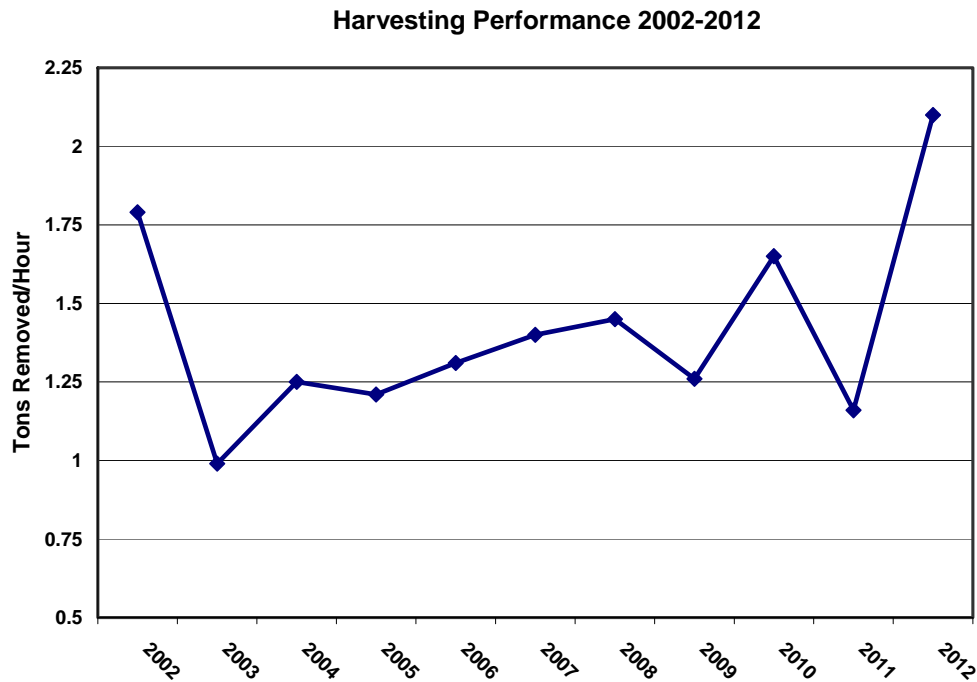
Mechanical harvesting is consistent with the Honeoye Lake Macrophyte Management Plan (Final, April 30, 2008) available at: <http://www.co.ontario.ny.us/DocumentCenter/View/1308>.

2012 Operations Summary: Improved Efficiency - The harvester operated from July 2 through September 13, 2012, one day shy of 11 weeks. On June 18, Alpha Boats delivered a highly anticipated new harvester and conveyor to the NYS Boat Launch on East Lake Road. Returning seasonal operators Randy DePew and John Miller were trained on the larger equipment by Alpha Boats staff. The new harvester was purchased through a cooperative arrangement with the Towns of Canadice and Richmond whereby the towns are reimbursing the County for a portion of the purchase price on a pro-rated basis over a seven year schedule.

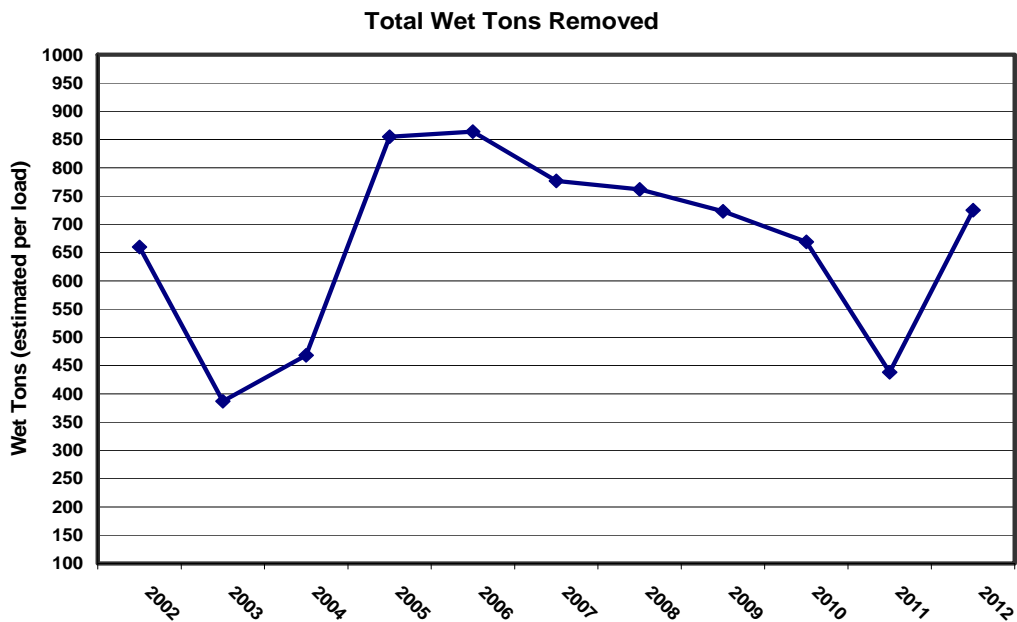
The new harvester has a wider cutting area (11 feet) and deeper cutting depth of 6'9" compared to the old machines. The boat can carry very large wet loads (over 10,000 lbs.), minimizing travel time to off-loading sites. Actual load size was dictated by the capacity of the dump truck used to transport vegetation to composting sites. We were fortunate to have available a large dump truck with an estimated capacity of five wet tons/dump truck load.

The new equipment helped improve harvesting efficiency, as seen in the tables below. There was a **60% increase in the amount of vegetation harvested and removed from the lake compared to last year** (725 tons in 2012 and 438 tons in 2011). Because 2011 was wrought with mechanical difficulties, it is useful to look at the **rate of harvesting** (measured by wet tons removed per hours of effort) **over several years**. In 2012, the average rate of removal was 2.09 tons per hour, **the most efficient harvesting rate in the past 10 years**.

The chart below shows harvesting efficiency as measured by the tons of wet vegetation removed per hour of effort.



The chart below shows the total tonnage of vegetation removed from Honeoye Lake per year. In 2005, the AVMP began using two harvesters until mechanical problems with equipment resulted in only one machine operable in 2011. This was followed by the purchase and operation of the single, larger harvester in 2012.



Other factors that may affect harvesting efficiency include weather related or equipment down time; travel time for operations (distance to off-loading sites); and the rate of plant growth, which can vary year to year. Plant growth was observed to be greater, though uneven, compared to recent years. Very dense plant growth was observed at the southern end of the Lake. Sparse plant growth was observed at the north end (area of Sandy Bottom Beach) until late summer near Honeoye Lake Park (a.k.a. Times Union Tract).

Minimal Down Time - Only two hours of operating time were lost due to poor weather. Fourteen hours of down time resulted when a hydraulic cylinder cracked on the conveyor. Manufacturer's defects were found to be the cause as determined by Alpha Boats, who serviced the harvester on site. At the end of the season, an oil leak was discovered and Alpha Boats took the harvester back to its Weedsport shop to replace and test all hoses.

Staging Operations - Through a cooperative relationship with NY State Parks, the County continued to operate the harvester from the NYS Boat Launch. However, an ongoing redesign of the boat launch meant that the harvester could not off-load vegetation at this site until the construction project was completed in mid-August. This situation did hinder efficiency. We acknowledge the extra lengths regional NYS Parks staff went to address our needs when it was determined extra dredging was required to accommodate the harvester's draft. While waiting for the project to be completed at the State Boat Launch, the harvester off-loaded vegetation at the California Ranch property on the west side of the lake, with permission of the landowner. We acknowledge the neighbors at California Ranch for their cooperation with this arrangement.

Lake Conditions - A hot, dry summer witnessed abundant algae growth in Honeoye Lake this year. Algae blooms are typical on Honeoye Lake in late summer but, this year, persistent blooms were observed throughout the harvesting season, with a two-week window of improvement during July 11 - 26. Many lake residents were concerned about the possibility of toxic blue green algae on the lake. No testing indicated toxicity, but NYS DEC included a notice for Honeoye Lake on its blue green algae bloom alert web page (<http://www.dec.ny.gov/chemical/83310.html>). At one time during the summer, twenty-five New York State water bodies had active blue green algae notices, indicating the widespread impact of the hot and dry weather. Sandy Bottom Beach closed for swimming as a precaution. To our knowledge, there were no negative human health impacts from blue green algae on Honeoye Lake this year. Blue green algae are naturally present in lakes and not all species are toxic. When algae growth is abundant, and where water circulation is poor, there is potential for toxic concentrations great enough to have adverse impacts on people and their pets with direct contact. The aesthetic impacts of widespread algae, as well as the worry it caused local residents, were significant. The algae growth also impeded harvesting operations by diminishing water clarity. Operators rely on being able to see the weed beds to direct operations. In addition, lake depth was often difficult to determine and operators relied on their lake knowledge from their years of experience.

Dominant Species - The dominant plant in Honeoye Lake in 2012 was Eel Grass. Very dense beds were noted especially at the southern end of the lake. The only locations where Eel Grass was not the dominant plant were California Ranch and Francis Tract, where a more diverse plant community with Eurasian Milfoil, Elodea, and Large-leafed Pondweed were abundant. Also, between Trident Marine and Burns Point, a large, dense bed of Coontail was observed.

Increasing Eel Grass dominance has been noted on Honeoye Lake in recent years, as well as in other shallow water bodies managed for aquatic vegetation, like Sodus Bay in Wayne County. The harvesting of Eel Grass is challenging because it can leave behind a significant amount of floating fragments, a common complaint from local residents. Eel Grass grows a single stem, and is light, smooth, and slippery. It can fold over as the harvester pushes water and is not as easily captured on the boat's conveyor. The structure of more leafy plant species, like Milfoil, allows individual plants to become entangled during harvesting and more easily captured.

Assessing Performance for Continuous Improvement - Given the significant investment by the county and towns in new equipment, as well as keen interest expressed by local lake organizations and residents, we took time to assess harvester performance and the prevalence of Eel Grass fragments and floating plants. The program manager rode the harvester during operations and we used a volunteer's boat to observe the harvester in action from all sides. We identified some operating issues to clarify with the manufacturer, who was responsive to our inquiry and provided advice. We consulted with Wayne County's harvesting staff to share notes. A set of recommendations came out of this process:

Operating Recommendations

- Harvest at slow speed (1 to 1.5 mph); this is SLOW.
- Minimize turns; maximize straight driving.
- During transport, move in straight lines up and down the middle of the lake (well offshore) to minimize disturbance of sediments along shoreline.
- Manually maintain tension on the cutting bar clips which hold the cutting blades together; install additional clips for better tension.
- Regularly remove vegetation buildup on the machine, especially in front of the conveyor and near bearings on the cutting arm where the moving conveyor belt can grab pieces and push them back into the lake. Clean out plant matter caught under the conveyor belt.
- Where numerous floating fragments are observed, drive the harvester through a second time to skim up fragments.
- Cut in depths of 6' or more. Minimize cutting in depths below 6'.
- Install a depth finder with sonar and GPS on the harvester to provide an underwater picture of the plant community and to continuously monitor boat speed and lake depth.
- Working with volunteers, conduct regular reconnaissance investigations of lake conditions by small boat to help plan efficient harvesting operations, targeting harvesting when and where needed most, and to foster communication between the lake management groups, residents, and AVMP staff.

Public Communication - The program manager attended the annual meeting of the Honeoye Valley Association prior to season startup and responded to questions from the public about the program. An ad hoc "advisory group" met twice, before the season started and at a mid-season "check point" in August. The advisory group was a small team from Ontario County Planning; FLCC's Muller Field Station; Honeoye Valley Association; Honeoye Lake Watershed Task Force; Ontario County SWCD; and the Towns of Canadice and Richmond. Perspectives on lake management issues relevant to the harvesting program were shared. Public communication and education needs and ideas for the integration of the AVMP more fully into the watershed management framework for Honeoye Lake were also discussed. There has been preliminary dialogue within Ontario County regarding moving the AVMP from the Planning Department to the Soil and Water Conservation District. These conversations will continue in the coming months.

Detailed statistics for individual program years (2002-2012) are provided below and will be included in the Archive Center of the Honeoye Lake AVMP web page on Ontario County's website at: <http://www.co.ontario.ny.us/Archive.aspx?AMID=82>.

2012: New, Single Larger Harvester and Larger Capacity Dump Truck

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
SANDY BOTTOM	0	0	0	0	0
CALIFORNIA RANCH	80	214	2.67	400	1.87
NY BOAT LAUNCH	65	132	2.03	325	2.46
TOTAL:	145 LOADS	346 HOURS	2.39 HR/LD	725 TONS	2.10 T/HR

2011: Single, Older Harvester

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
SANDY BOTTOM	0	0	0	0	0
CALIFORNIA RANCH	70	212	3.02	210	0.99
NY BOAT LAUNCH	76	166	2.18	228	1.38
TOTAL:	146 LOADS	378 HOURS	2.59 HR/LD	438 TONS	1.16 T/HR

2010: Two Harvesters and Increasing Mechanical Problems

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
SANDY BOTTOM	0	0	0	0	0
CALIFORNIA RANCH	110	179	1.63	330	1.84
NY BOAT LAUNCH	113	225	1.99	339	1.51
TOTAL:	223 LOADS	405 HOURS	1.81 HR/LD	669 TONS	1.65 T/HR

2009

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
SANDY BOTTOM	9	33	3.66	27	0.82
CALIFORNIA RANCH	99	280	2.82	297	1.06
NY BOAT LAUNCH	133	260	1.85	399	1.62
TOTAL:	241 LOADS	573 HOURS	2.38 HR/LD	723 TONS	1.26 T/HR

2008

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
CALIFORNIA RANCH	104	249	2.39	312	1.25
NY BOAT LAUNCH	150	278	1.85	450	1.62
TOTAL:	254 LOADS	527 HOURS	2.08 HR/LD	762 TONS	1.45 T/HR

2007

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
CALIFORNIA RANCH	155	323	2.08	465	1.44
NY BOAT LAUNCH	104	233	2.24	312	1.34
TOTAL:	259 LOADS	556 HOURS	2.15 HR/LD	777 TONS	1.40 T/HR

2006

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
CALIFORNIA RANCH	127	332	2.61	381	1.15
NY BOAT LAUNCH	161	329	2.04	483	1.47
TOTAL:	288 LOADS	661 HOURS	2.30 HR/LD	864 TONS	1.31 T/HR

2005: Two Harvesters Introduced

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
CALIFORNIA RANCH	187	498	2.67	561	1.13
NY BOAT LAUNCH	98	207	2.11	294	1.42
TOTAL:	285 LOADS	705 HOURS	2.47 HR/LD	855 TONS	1.21 T/HR

2004: Single Harvester

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
SANDY BOTTOM	8	28	3.50	24	0.86
CALIFORNIA RANCH	99	228	2.30	297	1.30
NY BOAT LAUNCH	49	118	2.41	147	1.25
TOTAL:	156 LOADS	374 HOURS	2.40 HR/LD	468 TONS	1.25 T/HR

2003

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
CALIFORNIA RANCH	111	344	3.11	333	0.97
NY BOAT LAUNCH	18	46	2.56	54	1.17
TOTAL:	129 LOADS	390 HOURS	3.02 HR/LD	387 TONS	0.99 T/HR

2002

	<i>LOADS</i>	<i>HOURS</i>	<i>HRS/LD</i>	<i>TONS</i>	<i>TNS/HR</i>
SANDY BOTTOM	68	99	1.46	204	2.06
CALIFORNIA RANCH	94	169	1.80	282	1.67
NY BOAT LAUNCH	58	100	1.72	174	1.74
TOTAL:	220 LOADS	368 HOURS	1.67 HR/LD	660 TONS	1.79 T/HR