Wayne County Soil & Water Conservation District

AQUATIC VEGETATION CONTROL (AVC) PROGRAM

2014

Acknowledgment

The success of this program depends greatly on numerous groups and individuals. The Wayne County Soil & Water Conservation District would like to thank the following for their support:

Wayne County Board of Supervisors
Town of Sodus
Town of Huron
Town of Wolcott
Wayne County SWCD Board of Directors
Finger Lakes – Lake Ontario Watershed Protection Alliance
The Department of Interior, Fish & Wildlife Service
The numerous private landowners that provided access for equipment

Introduction

Mechanical harvesting has proven to be a short-term, effective and environmentally safe means by which to control excessive aquatic plant growth. It is also one of the few options to completely remove the nutrients, which are bound in plants, from a waterbody. This is in addition to the extensive watershed projects being done to provide nutrient control. The Wayne County Soil & Water Conservation District has administered an Aquatic Vegetation Control (AVC) program in Wayne County's Lake Ontario embayments since 1988.

Preparation for each season begins in May while harvesting operations are performed, on average, from early June to mid-September, and continues through a planned period of maintenance into November. The AVC program employs four to five crew members for four, 10-hour work days a week to operate three (3) harvesters. Annual startup and end dates are dependent on seasonal growth variations that are reliant on numerous environmental factors as well as access for the equipment to the waterbody. Final determination of when and where the harvesting operation will begin is made based on observations by District staff and is described in the *Aquatic Plant Mechanical Harvesting Policy* (see attached at end of report). A member of the District technical staff has day to day responsibility for the coordination and implementation of the program and seasonal crew are hired to operate the harvesters and the associated equipment.

The pattern of operation for harvesting aquatic plants varies per situations, conditions, and locations. The most common pattern is to harvest from docks-end outward to a point in which the 'weeds' become less dense and mechanical harvesting efficiency lessens. The annual goal of the program is to capture and remove 500 harvester loads of nuisance aquatic plant material from all five bays serviced over the length of the season. The mechanical harvesting component is evaluated by comparing time spent on respective activities to the amount or tonnage removed and assistance provided to the public. The District will continue to share results and lessons learned with adjacent County efforts, and adapt management policy and practices where recommended.

The AVC 2014 Program saw the retirement of the No. 1 harvester and the addition and dedication of the new No. 4 harvester. The Dedication Ceremony was held on June 30th at the Sodus Point, NY Coast Guard Station and was attended by water quality partners from across the county and NYS elected officials.

Results and Discussion

Harvesting operations for the 2014 season were carried out for 53 days between June and October. The final removal amounts for each bay are as follows; Sodus Bay – 797 loads, East Bay – 15 loads, Port Bay – 36 loads, Maxwell Bay – 9 loads, Blind Sodus Bay – 6 loads. Total amount removed from the five (5) embayments was 863 loads. **The general rule in previous years has been that one (1) harvester load is equal to two (2) tons of wet plant material.**

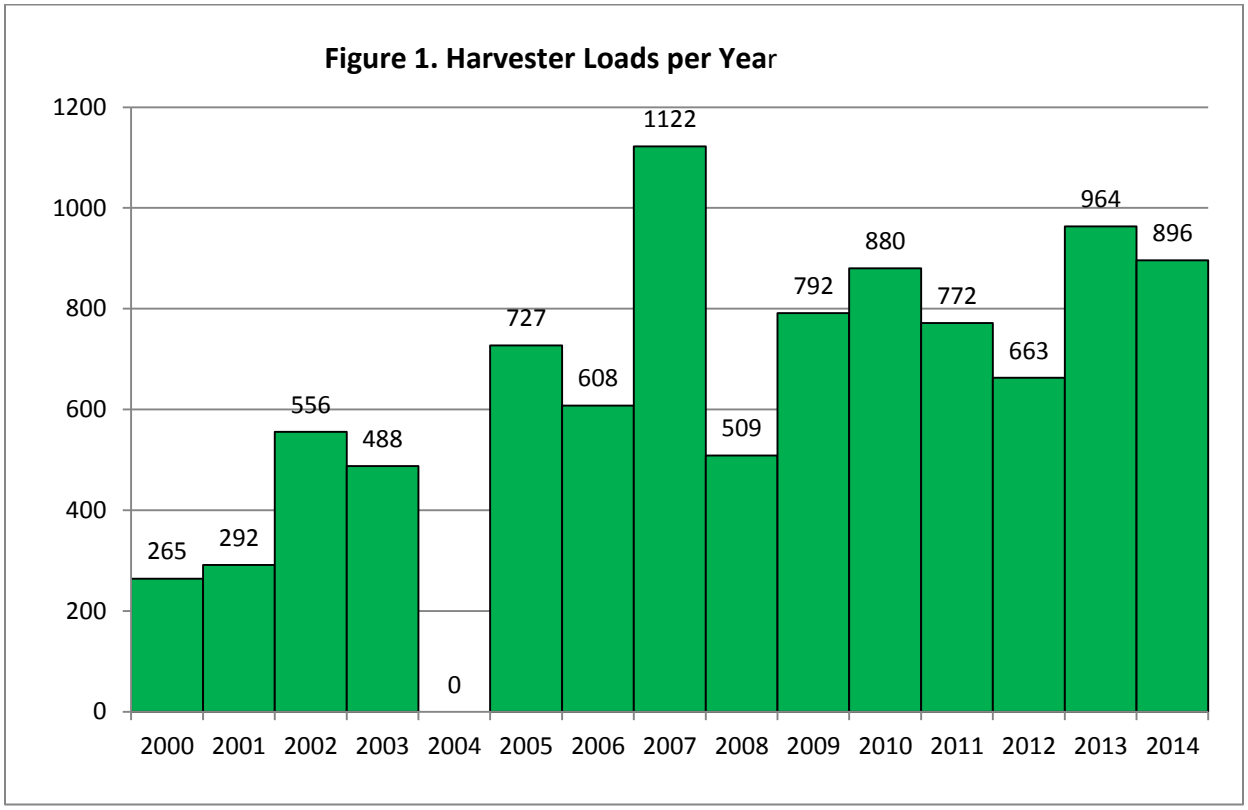
With the advancements in the equipment that SWCD deploys, it has come to attention that 2 tons may be a drastic under-estimation for the capacity of a single harvester. For this reason, this year's report will differ from previous years' in that amounts removed will be recorded in harvester loads. Previous years' amounts, for comparative reasons, have been converted to loads by dividing the tons removed in half.

Variations in the amount of vegetation removed and time spent between the 5 bays are due to the physical characteristics of each waterbody. Sodus Bay being the largest (3,150 acres and 20 miles of shoreline) will annually have the potential to grow more 'weeds.' Another important characteristic is the size of each bay's Littoral Zone; the portion of the water bodywhere adequate sunlight penetrates to promote photosynthetic activity in plants and is usually defined by a certain depth. In Wayne County's bays, the littoral depth is approximately 10-12 feet. The area of littoral zone of each bay is as follows: Sodus Bay – 1,575 acres (50%); Port Bay – 132 acres of 475 total acres (28%); East Bay – 174 acres of 189 total acres (92%); Blind Sodus Bay – 46 acres of 235 acres (21%); and Maxwell Bay – 7 acres (100%). With nutrients entering the bays from multiple sources and with adequate sunlight penetration to extended depths, aquatic plants have to ability to form expansive 'weed beds' within each bay.

Comparing 2013 and 2014, total operating time increased from 1907 hours in 2013 to 1510 hours in 2013. This is due to the 2014 program operating only 53 days compared to 76 days in 2013. In 2013, the operating season lasted 76 days while proceeding to October 11th. As stated above, the 2014 operating season was 53 days taking place from June 16th to September 18th. The operating season for 2014 was shorter due to more appropriation going toward the purchase of the No. 4 harvester.

Non-harvesting down time due to mechanical issues and repairs was significantly reduced this season. This was primarily due to the program having the most up to date equipment it has seen in a while. Maintenance issues were mostly related to the moving parts systems of the harvesters' cutting head (i.e. broken/bent knives, worn out tie-rod bearing). The operating crew and crew leader make a superb effort to return the harvesters to operation as soon as possible when mechanical issues arise.

The AVC program had a strong year, operating (3) mechanical aquatic vegetation harvesters. Figure 1 represents the annual removal totals since 2000. Wayne County SWCD has annual removal amounts since the programs beginning available upon request. Figure 1 outlines that the program was able to exceed the annual goal of 500 harvester loads in 2014 and harvested the third highest amount since the beginning of the program. Fluctuations from year to year are affected by numerous variables that are outlined in the *Aquatic Plant Mechanical Harvesting Policy* and discussed further in this report.



The most important factor that influenced plant density in 2014 was the seasonal Lake Ontario water level fluctuations. Historically water levels peak in June. This year, water levels were higher than the long-term average since April 2014. This limited aquatic plants growth in the early season like Curly-leaf pondweed (*Potamogeton crispus*) and Eurasian Milfoil (*Myriophyllum spicatum*). The particularly cold winter allowed a thick ice surface to form over all the bays. The longer the ice remains on the water surface into the spring, the less resources available to aquatic plants for growth. This year, the direct input of rain throughout the summer and the subsequent stream event contributions caused turbidity in the bays to increase. This prevented UV light from reaching plants further out in the littoral zone, thus limiting availability for photosynthesis. When water levels began to subside later in the season, plant biomass began to increase.

<u>Recommendations</u>

1. As with every season, 2014 brought about various obstacles and opportunities for improvement to the AVC Program. **For the 2013 season, the District Website (http://www.waynecountynysoilandwater.org) continued to post a schedule on the District calendar that was updated 2 to 3 weeks in advance of harvesting a certain area.** This provided the public a simple way to access information regarding the AVC program and other SWCD programs and initiatives. This drastically decreased the number of office phone calls regarding the program. The District will continue to use this tool along with the Water Quality Hotline to provide information to the public for the 2015 season.

2. **An issue that is apparent each year is the need for more and closer access sites for off-loading plant material.** A significant majority of the shoreline is privately owned and heavily developed. Access depends on permission from the land owner. With off-loading sites in closer in proximately the areas being harvested, production can be increased by greater than 50 percent. A situation that happened a number of times this year was that the access site would become too damp for the dump trucks to operate and harvesting would be halted. **This was most notable at Maxwell Bay at Camp Beechwood. The District is in the process of improving site for both the programs use and for the use of the public as a car-top watercraft launch.** More access sites available would allow the operators to move to a more useable site to continue harvesting. SWCD staff continually pursues access sites on both public and private lands in an effort to improve efficiency.

3. As previously mentioned, the occurrence of rain events were significant this season. Besides the affects already stated, **precipitation created difficult conditions for the traction of the dump trucks. The trucks would often lose traction and become stuck at both the conveyor sites and the weed disposal sites.** It would be beneficial to examine options for mediating this situation. The simplest solution may be the implementation of a wench unit on the dump trucks. Other options may include possible upgrades to the traction control system/rear-end differential or, in an extreme case, the purchase of trucks with 4X4 capabilities.

4. **The final recommendation is to continue the numerous effort of watershed education.** The District made valuable steps at providing the public with information on various watershed management initiatives throughout the County. The most important aspect of this effort is the realization that we, as a community, are responsible for protecting our watershed and the valuable natural resources within it.

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Aquatic Vegetation Mechanical Harvesting Policy

Criteria which determines when and where aquatic vegetation is to be harvested includes:

1.) **Climate**: Increased light, high water temperatures and low water levels associated with the harvesting season increase the likelihood of excessive plant growth. Harvesting operations will be delayed if environmental conditions jeopardize the safety of the crew members and equipment.
2.) **Funding**: Securing funds from multiple agencies and municipalities determines the duration of the harvesting season and prioritizes areas to be harvested.
3.) **Plant Species**: Although native plants have the potential to cause congestion of navigable water, the removal of invasive plant species is important to a healthy balanced ecosystem. Areas with excessive non-native plants will receive precedence.
4.) **No-Cut Areas**:
    a.) **Native Plants** – These areas have significant populations of beneficial or protected native plants. Native plants are encouraged to spread into areas where invasive plants have been removed. These areas are the most difficult to determine because of constantly changing climate and environmental conditions.
    b.) **Machinery Hazards** – These are areas of rocky structure, submerged cribs, ruins and shallow areas where harvesting equipment cannot operate due to potential damage to equipment. These areas include in between and around docks.
    c.) **Undeveloped Shoreline** – These are undeveloped areas where constant access is not needed.
    d.) **Sensitive Habitat** – These are important fish spawning and juvenile fish cover areas and sanctuaries for various turtle species indentified by the NYS DEC.

The SWCD staff will perform regular reconnaissance surveys in order to evaluate areas and determine when and to what extent mechanical harvesting is appropriate. Mechanical harvesting effectiveness is dependent on access location for the program's shoreline conveyors and dump trucks. The closer the access point, the more effective the harvesting operation can be.