

## Guffin Bay

### SLELO-PRISM Water Chestnut (*Trapa natans*) Follow-Up Monitoring

June 5, 2013



**Figure 1:** Panoramic view of Guffin Bay inlet, photo by Mike McHale

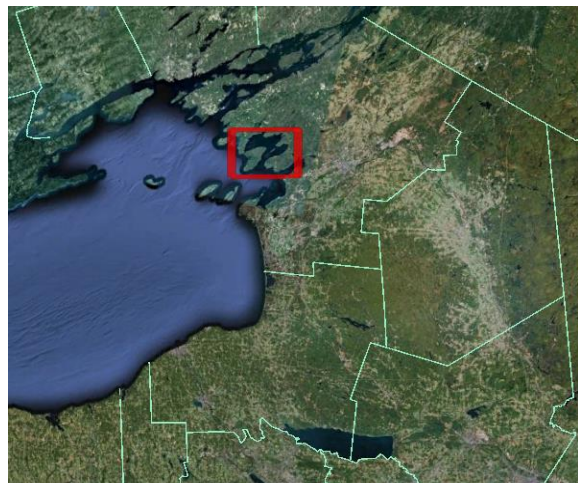
*Report prepared by Mike McHale and Logan West, 6/6/2013*

#### **Introduction**

Guffin Bay is one of four bays, including Three Mile Bay, Sawmill Bay, and Long Bay that make up the larger system known as Chaumont Bay (Figure 2). It is located on the northeastern shore of Lake Ontario (Figure 3), west of the village of Chaumont and east of Point Peninsula in western Jefferson County, New York. This large, sheltered bay is a popular fishing, sailing and vacationing destination, and much of the shoreline is developed with camps, cottages and several marinas<sup>1</sup>.



**Figure 2:** Map of Guffin Bay within the Larger Chaumont Bay.



**Figure 3:** Location of Chaumont Bay in relation to Lake Ontario.

<sup>1</sup> From 2012 SLELO-PRISM Guffin Bay report

During the 2012 SLELO-PRISM survey of Highly Probable Areas (HPA's) within Chaumont Bay, an early detection of Water Chestnut (*Trapa natans*) occurred in the inlet of Guffin Bay. This early detection called for a more detailed assessment of the population. The assessment determined that a Level-1 rapid response was necessary. Level -1 rapid response is defined as a small to medium scale infestation that can be effectively controlled through the utilization of local volunteers and seasonal employees. On July 10, 2012, a rapid response team of seven people using four canoes spent two hours removing three cubic yards of water chestnut.

### **Background on Water Chestnut**

Water chestnut is native to southern Europe and Asia and was first introduced to North America in 1874 and it first established itself in the Charles River in Massachusetts in 1879. Water chestnut can now be found in Connecticut, Delaware, Maine, Maryland, New Jersey, New Hampshire, New York, Pennsylvania, Virginia and Vermont<sup>2</sup>.

This fast-growing perennial aquatic invasive species can form large floating mats that shade out native species and compete with them for resources. Water chestnut can also hinder navigation, impact swimming areas, reduce dissolved oxygen levels during decomposition and encourages sedimentation by restricting silt movement<sup>3</sup>.

The positioning of Guffin Bay makes it susceptible to having invasive plant seeds and plant debris collect on its shores and establish themselves via wind -blown currents. Seeds can float or be carried to a new site and establish a new population. Other possible dispersal mechanisms for Water Chestnut and other invasive species include boat/trailer contamination and waterfowl transfer.

### **2013 Survey Methods and Objectives**

A follow up survey targeting Water Chestnut was conducted by SLELO-PRISM seasonal employees Logan West and Mike McHale on June 5th, 2013. A canoe and a hand held Garmin GPS was utilized for a visual inspection of emergent and floating aquatic vegetation. A weighted rake was used to gather samples of submerged vegetation. Notes were taken on the characteristics of the water body and vegetation.

The survey route was close to shore staying near shallow waters (Figure 4). GPS points were taken at every water chestnut sighting. The waypoints were taken when the plant and observer were perpendicular to shore.

Rake tosses were performed at the mouth of the inlet and deep in the channel for comparison purposes.

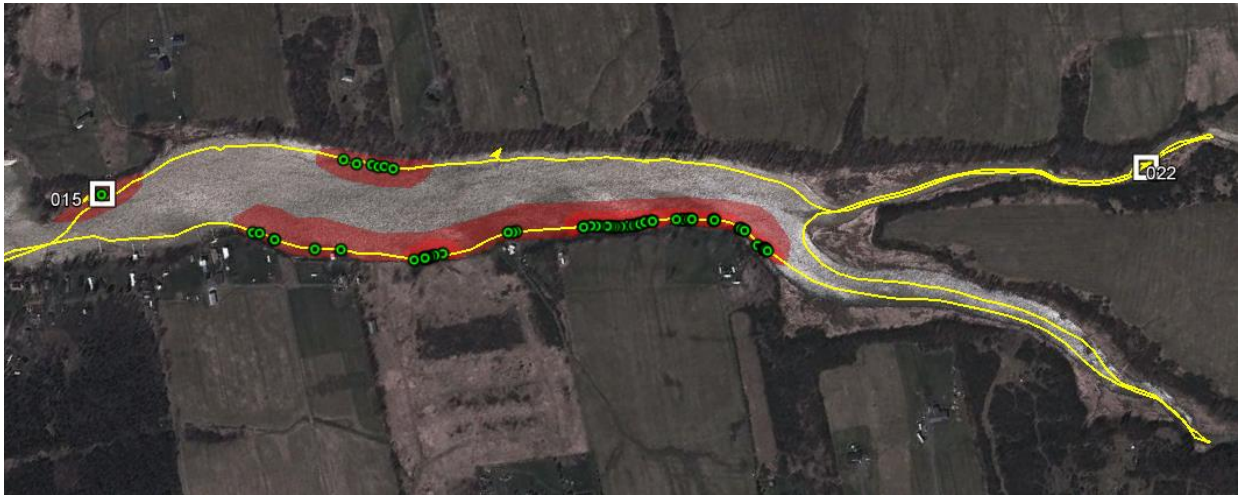
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<sup>2</sup> Resource: Indiana Department of Natural Resources; [http://www.in.gov/dnr/files/WATER\\_CHESTNUT.pdf](http://www.in.gov/dnr/files/WATER_CHESTNUT.pdf)

<sup>3</sup> Resource: SLELO-PRISM; <http://www.sleloinvasives.org/about-invasives/target-species/water-chestnut/>  
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## Observations

During the course of the 2013 survey, Water Chestnut plants were found on the north and south shoreline in the inlet of Guffin Bay (Figure 4). The plants were predominantly young with leaf cluster (rosettes) with diameters measuring from three to five inches (Figure 5). The majority of plants were found close to shore and in greater quantity on the southern shoreline than on the northern shoreline.



**Figure 4:** Survey route (yellow), water chestnut sighting (green), and rake tosses (white Squares) for Guffin Bay inlet



**Figure 5:** Photo of juvenal water chestnut taken at Guffin Bay

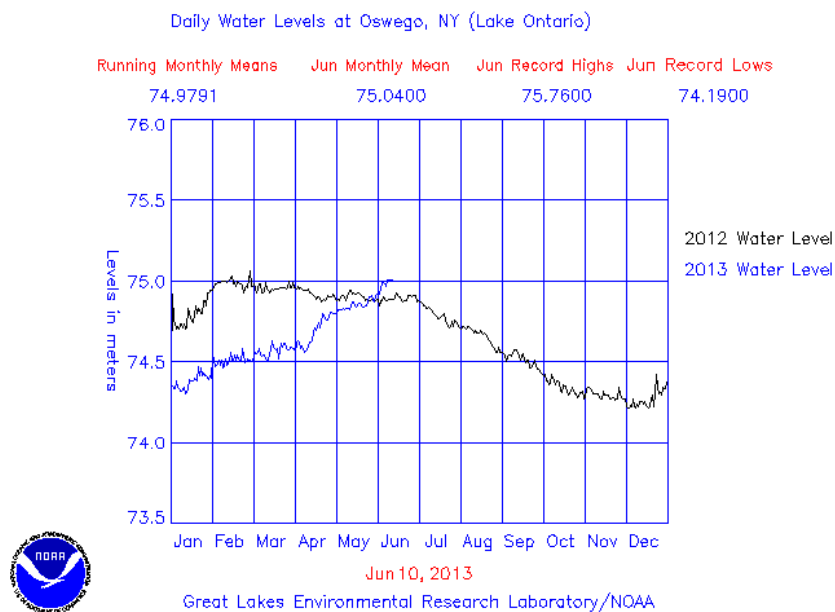
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There were a total of 80 individual water chestnut plants visually observed in Guffin Bay. On the northern shoreline, 13 plants were observed in one extended cluster and one individual was found closer to the mouth of the channel (point 015); on the southern shoreline, there were 66 individual plants observed with the bulk of them forming at the eastern end of the channel just before the southern stream inlet. Water Chestnut plants were found throughout the length of the southern shoreline.

**Discussion**

A comparison of the 2013 to the 2012 surveys was made. In 2012 the Water Chestnut population was distributed more on the northern shore and deeper into the center of the channel. In the 2013 survey the distribution is predominantly on the shoreline and in greater concentrations on the southern shore.

Several factors may influence plant distribution. The initial survey in the 2012 field season was done on July 5, one month later than the 2013 survey. The Water Chestnut in the 2013 season was in a younger stage of development than the 2012 survey. It can be assumed that not all the water chestnut that is going to develop for the 2013 field season has reached the surface yet. This is compounded by varying water levels. Water levels on average were lower in 2012, whereas in 2013 average water levels have been higher and are still increasing (Figure 6). These water levels might influence the timing of Water Chestnut to reach the surface.



**Figure 6:** Lake Ontario Water levels 2012 through 2013

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It is important to contain the water chestnut from expanding and establishing itself further within this inlet of Guffin Bay. Further establishment of this invasive species would threaten the larger Guffin Bay as well as the entire Chaumont Bay system with water chestnut contamination. Additionally, preventing further expansion to the east, where the two stream inlets are located, is important as well. These two stream inlets are highly productive areas and provide both breeding areas for fish and safe zones for juvenile fish to grow and develop. Submerged and floating aquatic vegetation found in the stream outlets include but is not limited to: Yellow Pond Lily, Curly-leaf Pondweed, Eurasian Water Milfoil and Eel Grass. Emergent vegetations found around the shore line includes but not limited to: cattail, rush, and sparse patches of Yellow Iris.

**Recommendation:**

Continual Water Chestnut management is recommended at this site. The SLELO-PRISM outreach coordinator in cooperation with partners from NY Sea Grant will engage in a strategy to train local residents and local organizations for follow up treatments. In the event that a local citizen volunteer group cannot be organized, a rapid response will again be initiated by SLELO seasonal employees.

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