

Field Report

SITE: North Lake, Washtenaw County, MI

DATE OF INQUIRY: 26 June 2009

FIELD PERSONNEL: Dr. G. Douglas Pullman, Aquest Corp
Mr. Jeff Krcmarik, Washtenaw County
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METEOROLOGICAL CONDITIONS:

Mostly Sunny, 72°F air temp., Calm

PURPOSE OF INQUIRY:

To evaluate status of the submersed flora of North Lake.

SPECIFIC WORK ELEMENTS:

Visual observations of submersed flora from the boat.

OBSERVATIONS:

- **Milfoil:**
Eurasian watermilfoil (*Myriophyllum spicatum* L.) or a milfoil hybrid was found throughout much of the lake, and appears to be more common in deeper parts than in recent years. Densities do appear to have been slightly less than prior years even though the total cover has increased. Decreasing density is likely to be a result of persistent and consistent annual treatments and the spread and increasing cover of the lake bottom by starry stonewort. Starry stonewort is expected to have an increasing impact on the density and distributions of other plants in the lake as it continues to spread. The outcome of the herbicide application of 2,4-D and a combination of contact herbicides which include diquat dibromide (Reward) appeared to have met expectations. The milfoil plants were still visible, but the upper parts of the plant showed definitive signs of herbicide impact. However, the root crowns appeared to have remained viable in both the contact and systemic herbicide treatment areas and milfoil is likely to return to levels observed before the herbicide application sometime before ice forms on the lake. It is quite possible that it could return to nuisance conditions in mid-August, depending upon the weather.
- **Pondweeds:**
There are four common and native Michigan pondweed species that are known to freely hybridize. This has resulted in the development of pondweed populations that can be difficult to identify. Generally, the pondweeds observed in a lake will strongly resemble one of the parental pondweed types and plants are assigned the epithet of the parental genotype that most closely resembles the plants observed in the lake. However, the normal variation observed in pondweed hybrid populations can make it very difficult, or impossible to compare pondweed species data from year to year. It may be more useful to consider the pondweed genotypes in a lake from the perspective of leaf type or morphology rather than specific epithet. Leaf type variation is arguably a more important consideration from an ecosystem perspective because variations in leaf type may contribute to increased structural complexity.
A wide leaf pondweed that most closely resembles broad leaf pondweed (*Potamogeton amplifolius* Tuckerman) was many of the BOS's. There is a form of this plant that can be very invasive and weedy. This plant is probably a hybrid and it is unique because it will form dense carpets of leave in the late fall which is unlike any other of the broad or medium leaf native Michigan pondweeds. The presence of this plant in North Lake is reason for serious concern and bears continued monitoring. It could potentially become a nuisance in the lake, approaching the level of nuisance created by milfoil.
- **Charoid Algae:**
Starry stonewort (*Nitellopsis obtusa* (Desv.) J.Groves) appears to be spreading in the lake. The rate of increase in cover (number of BOS's) exceeded expectations. Starry stonewort is an enigma because it can

provide some benefits to the lake management program by excluding the noxious growth of milfoil and other invasive species in the deep waters of the lake without creating a similar nuisance. However, it can also be disaster for the stability and diversity of species and structure for the ecosystem because it is so invasive and aggressive. Like many other opportunistic invasive plant species, it is unusually susceptible to the impact of some aquatic herbicides and some algaecides. It is relatively easy and inexpensive to control.

A form of Chara (Chara sp.) was found growing at nuisance levels in as many areas of the lake as was starry stonewort. The emergence of this weedy form of chara is a disturbing finding that has been observed in 2009 in numerous other lakes. It was particularly common in areas where aquatic herbicides or algaecides had been used in 2008 and earlier in 2009. This plant needs to be closely monitored.

- Water lilies (*Nymphaea* sp.) and Spadderdock (*Nuphar* sp.). Waterlily populations appear to remained fairly constant.

INDICATIONS:

- The mixed milfoil genotypes and hybrids that appear to be present in North Lake may be unusually tolerant to aquatic herbicides; however, the observed impact of the 2009 herbicide suggest that the results of the treatment are expected to be excellent. Despite this expectation for an outstanding outcome of the 2009 herbicide application, milfoil is expected to re-grow near or after Labor Day. A late season herbicide application for the control of milfoil should be considered since it may provide benefits that extend into 2010. This treatment could implemented anytime from the last part of August until the last week of October. Treatment could be implemented with a combination of contact and systemic herbicides. Cost estimates need to be provided by the contract herbicide applicator.
- The proliferation of a weedy hybrid pondweed is a serious concern. The late fall flora should be surveyed for the presence of this particular hybrid when it forms low growing mats on the bottom of the lake.
- Starry stonewort is still expected to dominate the submersed lake flora at some future time. It will out-compete milfoil and any other species. It may still grow to nuisance levels along the shore of the lake and may require treatment next year. A combination of algaecides is required to achieve acceptable control. Sometimes, it is considered to be desirable to only remove the upper portions of starry stonewort with algaecide applications rather than removing all starry stonewort biomass from an afflicted area. This is done to prevent the incursion of milfoil to other highly undesirable and opportunistic plant into the denuded areas. These areas need to be observed to see if higher quality plants can cohabit an area where starry stonewort height is controlled, but where the plant is not eliminated.



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