

Field Report

SITE: Whitmore Lake, Washtenaw County, MI

DATE OF INQUIRY: 29 September 2010

FIELD PERSONNEL: G. Douglas Pullman, Aquest Corp and Jeff Krcmarik, Washtenaw County

METEOROLOGICAL CONDITIONS: Mostly Sunny, 59°F water temp., Breezy, 5-10 mph

PURPOSE OF INQUIRY: To evaluate status of the submersed flora of Whitmore Lake.

SPECIFIC WORK ELEMENTS: Visual observations of submersed flora from the boat with underwater video and plant samplers.

General Observations

The water clarity was good at the time of the investigation, but was not as good as what is considered to be normal for Whitmore Lake. Blue green algae blooms have been observed in most other SE Michigan Lakes during the past 6 weeks and Whitmore Lake has been similarly afflicted. The large plant community, including the charoid algae, was considered to be remarkably uniform over most of the lake with the exception of some very dense milfoil patches that are located in Tiers 4 and 5 (off shore) along the eastern part of the lake. A pondweed, that appeared to be a pondweed hybrid, was co-dominant with milfoil and was found nearly uniformly distributed throughout nearly all of the plant productive parts of the lake. Eurasian/hybrid milfoil was observed growing at extreme nuisance levels in scattered patches ranging up to 1 acre in size in the central parts of the lake.

Specific Findings

Milfoil: Eurasian watermilfoil (*Myriophyllum spicatum* L.) or a milfoil hybrid was found in large nuisance patches in the central parts of the lake where it was found prior to the successful herbicide applications made earlier in the year. It is no longer realistic to expect that milfoil control efforts will produce relief that will last more than 6 weeks to several months. The patches that were observed in Whitmore Lake were smaller and more scattered than those observed in 2009 and earlier in the year; however, significant efforts will be required in for control in 2011.

Pondweeds: There are four common and native Michigan pondweed species that are known to freely hybridize and 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 small leaf pondweed that more closely resembles variable pondweed (*Potamogeton gramineus* L) was found in moderate densities throughout the lake. Typically this pondweed is observed to be senescing at this time of year, but the variable pondweed in Whitmore Lake appeared to be actively growing. Another pondweed hybrid that closely resembles broad leaf pondweed (*Potamogeton amplifolius* Tuckerman) has been a perennial nuisance in Whitmore Lake and was discovered at nuisance levels earlier this year. It was observed at only moderate levels at the time of this investigation. Both of these invasive pondweed genotypes are believed to be present at extreme nuisance levels in 2011.

Charoid Algae: Starry stonewort (*Nitellopsis obtusa* (Desv.) J.Groves) was one of the dominant forms of vegetation in the lake from 2007 until the time of this survey. Nuisance levels were controlled with algaecides earlier in the year. It appeared to be in a significant state of decline at the time of this

investigation. Similar growth patterns have been observed in other lakes prior to 2009 when starry stonewort seemed to decline during the hot summer months. However, starry stonewort continued to grow aggressively in most Michigan lakes during the hot, mid summer of 2009 and 2010. Despite the observed decline in September, it is believed that starry stonewort will be a nuisance in 2011.

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. It can also increase water clarity by covering exposed sediments, thereby preventing re-suspension of sediments and increases in turbidity associated with bottom foraging fish and wind. 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 weedy form of Chara (*Chara* sp.) was found growing fairly dense in many areas of the lake and appeared to be robust in areas where starry stonewort had been controlled. The emergence of this weedy form of chara is a disturbing finding that has been observed in 2009 in numerous other lakes. This plant needs to be closely monitored and may require control in 2010.

Water lilies (*Nymphaea* sp.) and Spadderdock (*Nuphar* sp.): Waterlily populations were healthy and do not represent a nuisance.

Water Celery (*Vallisneria americana*): Celery is a species of nuisance concern in Whitmore Lake. This plant is very difficult to control and can become a nuisance fairly quickly. It is a “late season plant” and typically does not begin to grow or become conspicuously present until late July or August. Celery was present in Whitmore Lake at the time of this investigation, and was very conspicuous growing in a broad strip of vegetation that occupied the drop off areas of the lake. Celery growth was unusually common in most Michigan lakes in 2010, but is expected to return to the lake in 2011 and may constitute a nuisance.

INDICATIONS AND RECOMMENDATIONS:

The 2010 herbicide applications appear to have been extremely successful. However, weed regrowth was significant and nuisance conditions were quite evident at the time of this survey. The ski course was particularly encumbered by weedy plant growth dominated by milfoil.

It will be recommended that two large scale herbicide applications will be needed to control nuisance plant conditions in the lake in 2011. The scale of both treatments will be similar to the first treatment of 2010. Off shore treatments shall focus on the control of milfoil while the nearshore treatments and ski course area treatments shall focus on milfoil and nuisance hybrid pondweeds. Several algaecide applications shall be required throughout the year to control problem starry stonewort growth in 2011 which is expected to return to levels observed in 2009.