

LITTORAL ZONE SURVEY
CEDAR LAKE
MANITOWOC COUNTY, WISCONSIN

September 26, 2007

Existing data

Two aquatic plant surveys conducted by Northern Environmental in July and August, 2005 showed no signs of invasive species with the most common species during each survey being muskgrass (*Chara sp.*). It was noted that wild celery (*Vallisneria Americana*) was of some concern because of the dense growth pattern and being easily uprooted. This species was the second most common during the August survey.

A separate survey was completed by the Wisconsin Department of Natural Resources (WDNR) that same year that reportedly found Eurasian water-milfoil (*Myriophyllum spicatum*) and Curly-leaf pondweed (*Potamogeton crispus*) at one sample point each. A quick review of WDNR data shows that EWM was identified in Cedar Lake in 1993. However, no herbarium records exist of this plant species for Cedar Lake.

Littoral Zone Survey

On August 30, 2007 a drive around littoral zone survey was completed to check for any changes or spread of wild celery and the presence or absence of EWM and Curly-leaf pondweed. For this, the entire lake shoreline was traveled while sample rake tosses were done at select intervals for plant identification. Visual reconnaissance was done between sample points for any areas of EWM and Curly-leaf. Areas of purported EWM and Curly-leaf pondweed infestation sites were sampled extensively with a denser rake tosses. Specifically, each point was sampled with seven rake tosses approximately 50 – 100 feet away from the center point. Mapping of the wild celery bed in Cedar Bay was completed to check for any difference from the 2005 surveys.

Results

The 2007 survey identified 15 aquatic plant and algal species (Table 1) while finding no aquatic invasive species. Wild celery (*Vallisneria americana*) was the most abundant species.

The littoral zone survey failed to identify any plants of Eurasian water-milfoil. There are no herbarium records of EWM in Cedar Lake. At the same time, the WDNR claims to have found it as early as 1993 and as recently as their 2005 aquatic plant survey. These data fail to line up, and it is likely that northern water-milfoil (*Myriophyllum sibiricum*), a milfoil native to Wisconsin and commonly found in Cedar Lake, was misidentified as EWM on both occasions. If EWM was present the plant would have spread significantly around the lake due to the high boating traffic and aquatic plant harvesting on Cedar Lake.

The same can be said for Curly-leaf pondweed. There were no plants identified during the 2007 survey and it is highly likely that a native pondweed similar in appearance was mistaken for the invasive Curly-leaf pondweed. Again, if there was any infestation on this invasive it would have been spread beyond its single sample point location in 2005.

Because of the easily uprooting nature of wild celery in the lake, the bed in Cedar Bay was also mapped and compared to previous survey data. It was found to have no significant change in size since 2005. Distribution of this plant is comparable to existing survey data. Historically, the WDNR does not issue permits for the chemical treatment of this species.

Recommendations

Upon comparison, there has been no discernible size difference in the wild celery bed in Cedar Bay between this survey and the 2005 aquatic plant surveys. In accordance, although wild celery does easily uproot on Cedar Lake, it is recommended that no new action be taken (i.e. chemical treatments). Wild celery is a native plant commonly found in Wisconsin waters that is beneficial to both fish and numerous forms of wildlife. The uprooting nature on this lake appears to be seasonal in nature. The shallow water and high boat traffic aid in the uprooting of this plant. It is therefore recommended that harvesting be continued to remove problem mats of this species that break free.

Since EWM and curly-leaf pondweed were not found, it is recommended that current management practices (harvesting) be continued to manage any nuisance plant growth. However, with the presence of EWM and curly-leaf pondweed in nearby lakes, care should be taken to prevent the spread into Cedar Lake.

Table 1: Species observed during the 2007 littoral zone survey of Cedar Lake, Manitowoc County, Wisconsin.

Submergent Species	
Elodea	<i>Elodea Canadensis</i>
Water marigold	<i>Megalodonta beckii</i>
Northern water-milfoil	<i>Myriophyllum sibiricum</i>
Bushy pondweed	<i>Najas flexilis</i>
Large-leaf pondweed	<i>Potamogeton amplifolious</i>
Illinois pondweed	<i>Potamogeton illinoensis</i>
Floating-leaf pondweed	<i>Potamogeton natans</i>
White-stem pondweed	<i>Potamogeton praelongis</i>
Fern pondweed	<i>Potamogeton robbinsii</i>
Flat-stem pondweed	<i>Potamogeton zosteriformis</i>
Sago pondweed	<i>Stuckenia pectinata</i>
Wild celery	<i>Vallisneria americana</i>
Floating-leaf Species	
White water-lily	<i>Nymphaea odorata</i>
Emergent Species	
Hardstem bulrush	<i>Schoenoplectus acutus</i>
Algal Species	
Muskgrass	<i>Chara sp.</i>