Cason & Associates, LLC

Professional Resources for Management of Lakes, Ponds, Rivers and Wetlands

MEMORANDUM

TO: Chute Lake Protection and Rehabilitation District

DATE: December 2, 2009

SUBJECT: **Results of the recent survey for exotic species on Chute Pond, Oconto County**

Recent Management Activities

In the summer of 2007 Northern Environmental technologies, Inc. surveyed Chute Pond and found both Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*). Neither of these species had been documented in Chute Pond prior to 2007. On May 15, 2008, Cason & Associates staff surveyed Chute Pond to map the distribution of exotics. Results of this survey indicated that nearly 53 acres of curly-leaf pondweed and approximately nine acres of Eurasian watermilfoil were growing in the lake at the time of the survey.

On May 22, 2008 the full distribution of curly-leaf pondweed was treated on Chute Pond with Aquathol K® (liquid endothall). A month later, on June 18, Eurasian watermilfoil was treated with Navigate® (granular 2,4-D). These were the first treatments of their kind on Chute Pond.

On May 15, 2009, 10.5 acres of Eurasian watermilfoil were mapped in Chute Pond. Most of these locations were found outside of the previously treated areas from 2008. Cason & Associates, LLC staff treated these areas on June 9, 2009 with Navigate® (granular 2,4-D) at a rate of 150 lbs/acre. At the time of treatment additional locations of milfoil were found. Again these areas were outside previously treated or mapped locations. In total, an additional 20.6 acres of milfoil were identified. On June 25, 2009, these newly discovered areas were treated in the same manner as the previous treatment. Treatments for curly-leaf pondweed were suspended due to the increased urgency in milfoil management as well as budgetary considerations.

During the 2009 season, weed harvesting took place on Chute Pond, but only in a limited fashion. Maps of the known milfoil distribution were provided to the harvester operators with the understanding that they were not to operate within or adjacent to the areas indicated.

A post-treatment survey of Chute Pond was conducted on October 13, 2009 to assess the effectiveness of the treatments. This survey was also used to document additional areas in need of treatment. This survey utilized the point-intercept map provided by the Wisconsin DNR. At each location the presence or absence of exotic species, namely Eurasian watermilfoil, was determined using surface observations and rake tows. Areas of milfoil identified between sample points were also noted and used to delineate larger beds of milfoil where appropriate.

Survey Results

The locations of Eurasian watermilfoil on Chute Pond in May and June 2009 are shown in **Figure 1**. The locations of milfoil have been drawn on the point-intercept map to facilitate locating and treating these areas in the future. The locations of milfoil in **Figure 1** represent a total of 31.1 acres.

Figure 2 shows the results of the October 2009 survey of Chute Pond. There were a total of 109.4 acres of milfoil mapped during this survey. The density of milfoil in the areas indicated varied from sparse to very dense. In previously treated areas, either no milfoil or sparse milfoil was found. In some newly identified areas, milfoil was dense enough to interfere with navigation.

Clearly, Eurasian watermilfoil is quickly colonizing Chute Pond. In many ways the lake has ideal conditions for the growth and spread of milfoil. It is a shallow, fertile waterbody which encourages both plant and algae growth. High recreational use and lake-wide harvesting efforts promote milfoil growth which can spread quickly through fragmentation. And numerous non-navigable areas (shallow, rocky or stump-laden) provide refuge for milfoil growth away from the effects of treatments. In addition, as a flow-through system, chemicals applied during a treatment can be diluted by inflowing water. The full extent of dilution and its impact is difficult to determine. However, the use of granular products has been shown to minimize the impact of dilution. If possible, the level of the dam of Chute Pond should be raised for 24 hours or more as an additional measure to reduce the effects of dilution.

With nearly 110 acres of milfoil, the question remains as to the best management option at this time. It would be wise for the District to consult the current management plan for options. Several options are available for managing Eurasian watermilfoil in lakes. However, given the wide-spread distribution in Chute Pond, only a few options are practical enough for this situation.

The first milfoil management option to consider is the continued use of selective herbicides. Applied on a large-scale, it is likely a treatment of this type would have improved results over the previous treatment. Navigate® (2,4-D) treatments are widely used throughout the State to manage milfoil in lakes. When applied at labeled rates, the use of 2,4-D has shown to be an effective control agent for Eurasian watermilfoil while minimizing the impact to native species. Also, the product used is labeled by the EPA and privately manufactured specifically for the control of milfoil and other aquatic plant species. There are other factors to consider with chemical treatments; namely the cost of

a large-scale treatment. The cost to treat 110 acres of milfoil with Navigate® at a rate of 100 lbs/acre would be approximately $54,200.

Another option to consider is a drawdown of Chute Pond. Drawdowns for control of exotic species have been more heavily promoted by the DNR in recent years. Drawdown projects in the past three years have had mixed results. The benefits of an effective drawdown can include reductions in both exotic and native plant densities, as well as the compaction and decomposition of organic sediments. The most effective drawdowns have taken place during the growing season. Winter drawdowns have also been used. However, the effectiveness of a winter drawdown is more dependant upon weather and snowfall amounts. Other considerations of a drawdown include costs, the social and recreational impact of a drawdown, and the status of the lake's fishery before, during and after a drawdown and the feasibility of a drawdown. The cost of the drawdown itself would be minimal since the dam is not a hydroelectric facility and compensation for loss of profits is not an issue. There would be costs associated with the permitting process and likely outreach efforts. Before serious consideration, it should be determined whether or not the dam on Chute Pond can be opened sufficiently to allow the lake to drop to an effective level. Dropping the level greater than five feet should have a significant impact to the plant community. The river channel and pools of water that remain during a drawdown can act as a refuge for fish and unfortunately for exotic species as well. Further investigation will be needed before a permit could be submitted. The District should also be aware that the permitting process can take months. It is unlikely a drawdown would be permitted for 2010. Cason & Associates, LLC staff have had experience assisting other lake organizations in similar drawdown projects and would be more than willing to assist the District in this manner.

Conclusions and Recommendations

The aggressive nature of Eurasian watermilfoil was displayed in Chute Pond in the past two years. Within a single growing season in 2009, the distribution of milfoil in the lake increased dramatically. Although progress has been made in the treated areas of Chute Pond, the newly discovered locations pose additional threats to the lake.

Going forward, it is recommended that the District continue to sponsor annual surveys to stay proactive in the management of Eurasian watermilfoil in Chute Pond. With the wide-spread distribution of milfoil in the lake, it is recommended that the point-intercept survey methodology continue to be employed to locate and map milfoil in Chute Pond. If funds are available, it is also recommended that all known milfoil be treated again in 2010. If the full distribution of milfoil cannot be treated, a prioritized list of locations can be developed to effectively treat the areas of highest need. Keep in mind if a drawdown is considered or pursued, it will mean waiting a year during which time milfoil will likely spread further if left untreated. Management of curly-leaf pondweed should be put on hold until such time as the milfoil is under control and funds are available to address the curly-leaf pondweed situation further.

Figure 1. Eurasian watermilfoil (*Myriophyllum spicatum*) identified in spring 2009 in Chute Pond, Oconto County, WI.

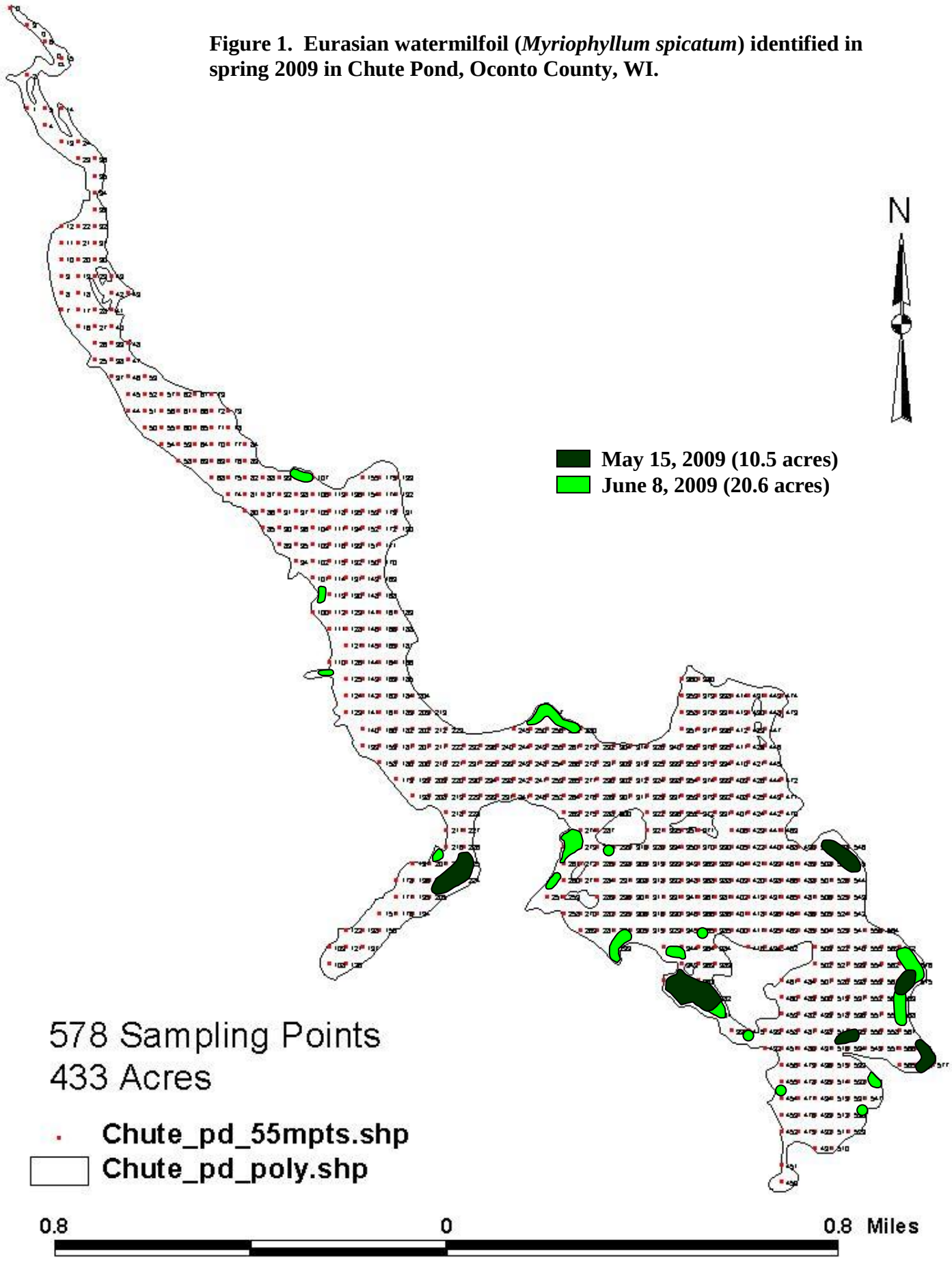

Figure 2. Eurasian watermilfoil (*Myriophyllum spicatum*) identified on October 13, 2009 in Chute Pond, Oconto County, WI.