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MEMORANDUM

TO: **Wheeler Lake Association**

DATE: **February 12, 2015**

SUBJECT: **Results of the October 13, 2014 Eurasian watermilfoil survey on Wheeler Lake**

A survey was conducted on Wheeler Lake on October 13, 2014 to assess the abundance and distribution of Eurasian watermilfoil. Surface observations were used to determine the locations, and rake-tows were used to verify their identification. GPS coordinates were recorded around beds to accurately map them and to determine their size using ArcMap mapping software.

Recent Management Activities

The first invasive species mapping survey on Wheeler Lake was conducted on May 3, 2006. This survey found 1.5 acres of Eurasian watermilfoil (*Myriophyllum spicatum*) growing near the boat landing. The first herbicide treatment took place later that fall. Eurasian watermilfoil (EWM) was treated with Navigate® (granular 2,4-D). From 2006 through 2012, annual surveys and treatments continued. Although generally sparse, milfoil remained in Wheeler Lake. In 2013, there was an increase in the abundance of Eurasian watermilfoil. A total of 2.57 acres were treated in the spring and a total of 2.8 acres were found to have Eurasian watermilfoil during the fall survey of 2013.

Hybrid watermilfoil (HWM), a cross between EWM and northern watermilfoil (*Myriophyllum sibiricum*), has become more widespread throughout Wisconsin. Like EWM, HWM can grow to nuisance levels and cause similar impacts the environment and recreation. In a number of cases, HWM can be as challenging (if not more) to manage as EWM. Because of its increased prevalence in the State and the difficulties in managing HWM, in May of 2013 three milfoil samples were collected from Wheeler Lake for DNA analysis. Samples were sent to Grand Valley State University to be analyzed. All three samples came back as true Eurasian watermilfoil.

The most recent treatment took place on May 30, 2014. The treatment targeted 2.8 acres of Eurasian watermilfoil, using a total of 1,008 lbs of Navigate® at a rate of 3 parts per million (ppm) (42.6 lbs/ac-ft).

Survey Results

The October 2014 survey found five beds of EWM that covered a total area of 0.9 acre (**Figure 1**). Three of the beds were highly scattered and two were dense. In addition,

there were ten locations that had individual plants or small groups of plants. The majority of the EWM was found in the southern bay, a location where EWM has been most problematic in the past. There was one 0.1 acre bed of highly scattered EWM found along the north shore of the largest island (Bed E). During the survey it was also noted that northern watermilfoil was more abundant than EWM in most areas.

Eurasian Watermilfoil Management Options

Wheeler Lake, like many lakes in Wisconsin, has had a low frequency of occurrence of EWM in recent years. At one time, a larger population of EWM existed. Through careful monitoring and annual treatments, the population of EWM has been reduced to the current distribution; a small acreage of plants at below nuisance levels. Moving forward there are three options to consider in the future management of Eurasian watermilfoil in Wheeler Lake.

Chemical treatment

Traditionally, annual chemical treatments have been the tool of choice for managing EWM in Wheeler Lake. In the spring of 2015, a chemical treatment could again be utilized. The five discreet EWM beds could again be targeted using Navigate®. The application rate for EWM ranges from 2.0 to 4.0 ppm. For small, isolated beds, the maximum labeled rate of 4.0 ppm (56.8 lbs/acre-ft) is recommended. The higher concentration requires less contact time to be effective.

Chemical treatments can provide seasonal relief from EWM, but may not provide long-term control at these small scales. Often these beds are found in the same locations from year to year. These treatments also serve to prevent or slow the further spread of EWM throughout the lake. While this approach rarely leads to eradication, these treatments can serve as a means to prevent wide-spread expansion of EWM. **Table 1** provides a breakdown of estimated treatment costs for 2015.

Table 1. Treatment cost estimate for Wheeler Lake, 2015.

Bed	Acreage	Depth (ft)	Acre-ft	Rate	lbs	Cost/lb	Cost
A	0.3	7	2.1	56.8	119	$4.12	$491
B	0.3	9.5	2.9	56.8	165	$4.12	$679
C	0.1	8.5	0.9	56.8	51	$4.12	$211
D	0.1	11	1.1	56.8	62	$4.12	$257
E	0.1	5	0.5	56.8	28	$4.12	$117
	0.9		1.1		426		$1,755

Setup	$545
Labor	$100
Materials	$1,755
Total	$2,400

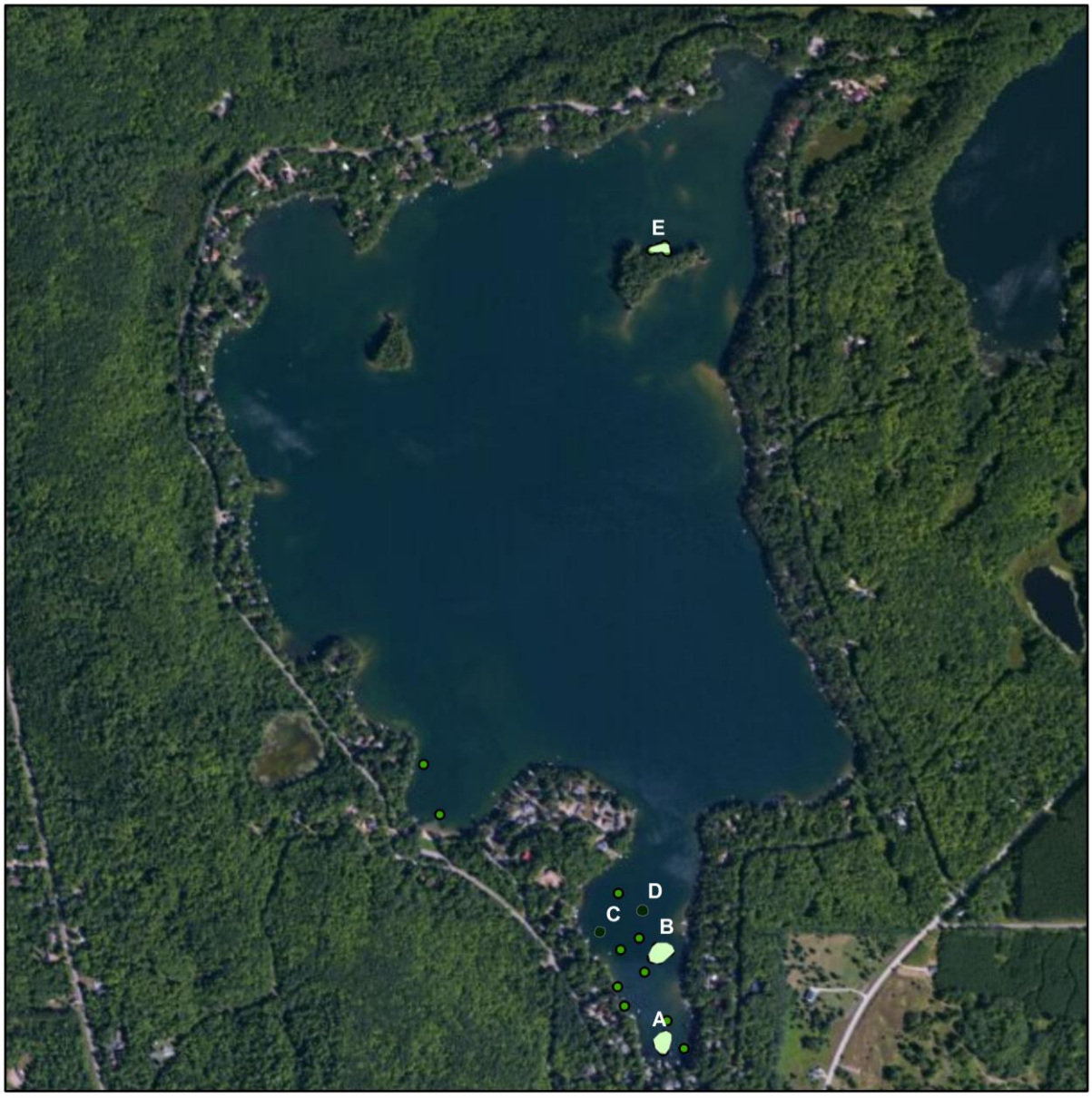
Manual removal
Manually removing EWM plants can be an effective method at eliminating newly found single plants or small isolated beds. This can be done through a variety of approaches, however, the most appropriate approaches for the current situation are hand-pulling or diver-assisted suction harvesting (DASH). Hand-pulling is much easier to perform in shallow water while DASH operations are used in deeper water. The DASH method employs a pump with a large hose mounted on a boat. The diver pulls the plants from the lake bed by hand and feeds them into the hose. The plant matter is pumped onto the boat where it is screened out. Currently there are only a few companies in Wisconsin that offer DASH. To find out more about this option, Association should contact the local DNR office.

If manual is utilized, it is important that lake residents and users know the difference between native northern watermilfoil and Eurasian watermilfoil and remove only Eurasian watermilfoil found around the lake. It would be wise to start by monitoring previous treatment locations to remove any surviving EWM. It is important to remove the entire plant (including fragments) and roots in order to keep it from spreading. This can be a great way to keep new infestations from becoming established.

No Management
The third option in managing EWM in Wheeler Lake is to wait to see how the milfoil behaves. Recent DNR research has suggested that in some lakes where EWM is introduced, it does not reach high enough levels to cause ecological or recreational harm. In these situations, the milfoil remains at low occurrences and behaves like a native plant. However, this is not something that can be accurately predicted. If left unmanaged, EWM may or may not reach nuisance levels. If it did not, annual monitoring would still be needed to keep track of this species. However, if EWM increased significantly in the lake, it would likely mean returning to a more aggressive management approach, namely chemical treatments, which, on a larger scale, would also be more costly to conduct.

Monitoring Recommendation
It is recommended that the Association continue sponsoring annual surveys to stay proactive in the management of Eurasian watermilfoil in Wheeler Lake. Locating and treating new EWM locations early is the best way to reduce the spread throughout the lake. The fall of the year is the ideal time to perform these surveys as milfoil is full grown and native plants have started to die back due to colder water temperatures. The cost for these surveys is $650.

Figure 1. Distribution of Eurasian watermilfoil in Wheeler Lake, Oconto County, WI during the October 13, 2014 survey.



Wheeler Lake EWM 10/13/14

Dense EWM

Highly scattered EWM

Individual plants/small groups of plants

N
W
E
S

0 0.25 0.5 1 Kilometers

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