

We Energies
2008 Annual Report - Nuisance Plant Control Survey
Chalk Hill Reservoir
FERC Project #2394

Background and Methods

We Energies' Environmental department staff, Mr. Mike Grisar and Mr. John Hrobar, conducted a survey from a boat of the entire shoreline at the Chalk Hill Reservoir project on August 2, 2008. All waters and appropriate wetlands accessible from the boat were evaluated. Those species targeted for the survey included purple loosestrife (*Lythrum salicaria*) and Eurasian water milfoil (*Myriophyllum spicatum*). The visual meander survey included areas of shallow water adjacent to the shorelines. Shallow water was surveyed to a point where the water depth and clarity excluded visibility conducive to observing submerged vegetation. On average, this depth was at approximately 7-feet.

For each stand of Eurasian water milfoil encountered during the 2008 surveys, the stand location and perimeter were compared and verified with the 2007 monitoring data using a Trimble Geo XH GPS unit. Where the stand size was negligible, a single point in the center of the stand was located with the GPS. When significant changes in the stand perimeter were observed, these changes were marked with the GPS and reflected in the attached map. Changes in stand density were updated and are shown in Table 1. New stands not previously observed were mapped and recorded.

Various data were collected at each stand including stand/mat density and mat thickness (when present). The stand size was subsequently calculated from the collected GPS boundaries. A percent cover scale from 1-5 (sparse – dense) was used to accurately and consistently estimate stand densities:

<u>Estimated Density Rating</u>	<u>% Cover</u>
1 (sparse)	0 - 5%
2 (moderately sparse)	>5 - 25%
3 (moderate)	>25 - 75%
4 (moderately dense)	>75 - 95%
5 (dense)	>95%

Results and Discussion

A single purple loosestrife plant was observed along the shores of the Chalk Hill Reservoir project area. It was observed at the same location as a single plant that was removed in 2003. This location occurs on a small island immediately south (downstream) of Miscauno Island. The entire plant observed in 2008 was removed include the flowering heads, stems, and as much of the root system as possible.

Forty-two stands of Eurasian water milfoil were observed at the Chalk Hill Reservoir project area in 2008 (Table 1), an increase of 4 stands from 2007. While there were 6 new stands documented, 6 previously identified stands were not present in 2008. The identified stands are distributed throughout the project area and range in size from <0.01-acre up to 32.86-acres.

Table 1. 2008 Chalk Hills Reservoir Eurasian Water Milfoil Stand Data.

Stand #	Stand/Mat Density ¹	Mat Thickness	Stand Size (acres) ²
1	2	none	1.50
2	1	none	3.82
3	4	none	0.13
4	1	none	0.05
5	1	none	32.86 (-18.93)
6	3	none	5.59
7	4	none	0.11
8	3	none	7.55
9	4 (+1)	none	0.46
10	4 (+1)	none	0.38
11	3	none	6.80 (-1.04)
12	1	none	0.46 (+0.45)
13	1	none	0.01
14	1	none	0.90
15	Not Present		
16	Not Present		
17	1	none	0.01
18	1	none	0.01
19	2	none	0.11
20	2 (-1)	none	4.19 (-1.89)
21	1 (+1)	none	1.71
22	2	none	0.46
23	1	none	13.85
24	1	none	1.09
25	1	none	18.59
26	1	none	3.20
27	1	none	2.80
28	1	none	9.28
29	3	none	0.43
30	1	none	0.21
31	2 (+1)	none	0.23 (+0.17)
32	3 (+2)	none	0.10 (+0.09)
33	1	none	0.04
34	3	none	16.02 (+14.24)
35	1	none	0.01
36	Not Present		
37	Not Present		
38	Not Present		
39	Not Present		
40	1	none	0.29
41	3	none	3.82
42	2	none	0.13
43	1	none	0.25
44	1	none	0.01
45	1	none	0.01

1 – change in density rating from 2006 to 2007

2 – change in stand size from 2006 to 2007

Eurasian water milfoil is present in approximately 138-acres in the Chalk Hill Reservoir project area, which has been stable since 2006. Cumulatively, the average stand size is 3.27-acres and has an average density rating of 1.69 per stand. In 2007, the average stand size was 3.67-acres and had an average density rating of 1.71 per stand. The decrease in average stand size is attributable to the 6 newly identified stands having an average size of 0.75-acre.

Out of the 42 observed stands, 4 have a high density (>75% cover), stands #3, 7, 9, & 10. Stand 3 is located within stand #2 (a low density stand) in the southern portion of the reservoir. The other three occur between the west shoreline and the northwest end of a string of islands occurring south of the boat launch. Cumulatively, these stands cover less than 0.01% (1.08-acres) of the total area observed to have Eurasian water milfoil present.

The majority of the stands have very low densities (<25% cover) of Eurasian water milfoil with single stems growing sporadically among a lot of native species. The most common native species included northern water milfoil (*Myriophyllum sibiricum*), two-leaf water milfoil (*Myriophyllum heterophyllum*), a variety of pondweeds (*Potamogeton* sp.), common waterweed (*Elodea canadensis*), bladderwort (*Utricularia* sp.), coon's tail (*Ceratophyllum demersum*), water celery (*Vallisneria americana*), yellow pond lilies (*Nuphar* sp.), and white pond lily (*Nymphaea odorata*). 28 of the 42 stands have low densities and account for greater than 70% (96.09-acres) of the total area observed to have Eurasian water milfoil present. This decreased from 78% observed in 2007, and is largely attributable to an increase in the size of stand #34 and decrease in stand #5.

Conclusions

In conclusion, there was an increase in the number Eurasian water milfoil stands observed in the Chalk Hill project area. While the number of stands increased, these newly observed stands were relatively small and observed at low densities. This increase in the number of stands was a similar trend observed in the other project area monitored in 2008.

The region continues to experience a drought (over 2 years) resulting in lower flows and improved water clarity. Drought conditions have led to slower current in the impoundments. Less current and better light penetration appears to have promoted the establishment of the new stands. Additionally, better clarity also allowed for clearer visibility of Eurasian water milfoil. Improved visibility was also due to the lack of large and dense algae beds that has been noted in previous years. Cooler temperatures likely led to less algae and improved visibility. This was particularly apparent along the west shoreline south of the boat launch, where more defined mapping was possible for stands #34 & #40, for example.

Annual fluctuations in the extent and density of Eurasian water milfoil may be due, in part, to the presence of an indigenous weevil population occurring in the system. See the attached discussion regarding the Eurasian water milfoil management plan and the summary report prepared by EnviroScience for further information about milfoil management activities.