

**ANNUAL VEGETATION MONITORING REPORT**  
**2005 Aquatic Plant Surveys of**  
**Lake St. Catherine, Lily Pond and Little Lake**

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## INTRODUCTION

A whole-lake application of Sonar AS herbicide was made to the Lake St. Catherine system during the 2004 season to control the non-native and highly invasive Eurasian watermilfoil weed. That treatment was the first phase of a five-year integrated management program designed and implemented by Aquatic Control Technology, Inc. for the Lake St. Catherine Association (LSCA).

The 1,088-acre Lake St. Catherine system is located on the border of Poultney and Wells in western Vermont and consists of three named waterbodies; Lily Pond (22 acres), Lake St. Catherine or Main Lake (904 acres), and Little Lake (162 acres). Eurasian watermilfoil has been established in the system for well over a decade. Mechanical harvesting was the principal milfoil control strategy employed on the lake prior to the 2004 Sonar treatment.

Conditions of the Aquatic Nuisance Control Permit #2001-C008 issued by the Vermont Department of Environmental Conservation (DEC) required a multiple-year commitment to monitoring and continued management of milfoil regrowth. Pesticide minimization was one requirement of permit approval. This necessitated multiple inspections of the Lake St. Catherine system during the 2005 season to direct management efforts and document the recovery of the aquatic plant community one-year after treatment.

Observations from Aquatic Control's late spring and early summer inspections are provided, followed by a more comprehensive accounting of the late summer comprehensive transect/data point survey. The late summer survey replicated surveys that were performed on the lake in August 2001 prior to treatment and in September 2004 during the year of treatment. Comparisons of all three data sets are provided along with a general discussion of the observed plant community. Specific recommendations for continued milfoil management during the 2006 season and beyond are also provided.

## LATE SPRING AND EARLY SUMMER INSPECTIONS

Two early season inspections were performed to document the extent of milfoil regrowth and to help guide diver hand-pulling and benthic barrier installation efforts planned for the 2005 season. Both surveys were conducted by Gerald Smith, Aquatic Control's President and Principal Biologist, who was present and served as the supervisory applicator for all of the Sonar applications in 2004.

The surveys consisted of a tour of the entire littoral zone in all three lake basins. Gerald Smith piloted an Airboat in a "zig-zag" pattern from shore to deepest extent of plant growth. Gerald Smith's elevated seat and use of polarized sunglasses enabled him to spot milfoil growth into water depths of 10 feet. Observations were confirmed using an Aqua-Vu underwater camera system and use of a throw-rake to collect plant specimens. Locations of all milfoil sightings were recorded using a hand-held GPS unit.

### May 27, 2005 Inspection

Jim Canders, LSCA President, accompanied Gerald Smith and Jack Fitzgerald of Aquatic Control on this inspection. Calm water and Secchi disk water clarity readings of 12.0 and 13.8 feet in northern and southern ends of the lake produced favorable visibility for the survey.

Scattered milfoil was found along the northern wetland edge and the southeast corner of Lily Pond. No milfoil growth was observed in the Lake St. Catherine or Little Lake. The milfoil growing in Lily Pond was mostly found in water depths between 1-3 feet, along the emergent wetland edge and underneath the waterlily canopy.

Due to the widely scattered milfoil growth, shallow water depths and density of the native plant community, hand-pulling from canoes or small row boats was the recommended management approach.

Native plant diversity and distribution appeared to be quite favorable in Lily Pond and Little Lake, which was consistent with the pre-treatment and year of treatment observations. Dominant species in both areas included *Nuphar luteum*, *Nymphaea odorata*, *Brasenia schreberi*, *Potamogeton robbinsii*, *Potamogeton amplifolius*, *Potamogeton crispus*, *Chara sp.* and several adjacent emergent species. Some early growth of *Utricularia sp.* was seen in Little Lake. Lake St. Catherine was dominated by *Chara sp.* and *Potamogeton robbinsii*, sparse growth of *Potamogeton amplifolius*, *Potamogeton crispus* and filamentous green algae were also encountered.

The distribution and density of *Potamogeton crispus* was worthy of mention. It was frequently encountered in Lily Pond and there was fairly extensive cover seen in Little Lake. Only widely scattered *Potamogeton crispus* was seen in Lake St. Catherine. While *Potamogeton crispus* was seen during pre-treatment surveys, it was considerably more evident this year. *Potamogeton crispus* is highly susceptible to Sonar and was undoubtedly well controlled during the year of treatment. Turions remain viable for several years, which enables *Potamogeton crispus* to rapidly recolonize.



GPS locations of milfoil sightings on 5/27/05

**July 7, 2005 Inspection**

Gerald Smith and Jack Fitzgerald of Aquatic Control were accompanied by Jim Canders, LSCA President, Shaun Hyde, SePRO Northeast Technical Specialist, and Susan Jary, VT DEC. Visibility was good with Secchi disk water clarity ranging from 13.7 to 16 feet in the northern and southern ends of the main lake.

Conditions in all three lake basins were quite similar to the May 27<sup>th</sup> inspection. Scattered milfoil plants were still found along the northern, eastern and southeastern shores of Lily Pond despite the hand-pulling efforts that had already occurred. Most of the milfoil was still found in water depths of 3 feet or less and continued hand-pulling from a canoe or row boat was recommended. Only one milfoil plant was found on the northeast shoreline of Lake St. Catherine (North Bay). Milfoil was found regrowing in the northeast corner of Little Lake. Similar to Lily Pond, it was confined to areas within 300-500 feet of the adjacent wetland and was understory growth to fairly heavy surface cover of waterlilies. Hand-pulling was recommended for this area.

Native plant recolonization was favorable in all three lake basins. Greater diversity and cover of *Potamogeton* species was the most obvious change. Additional species seen included *Potamogeton epihydrus*, *Potamogeton zosteriformis* and *Zosterella dubia*.



GPS locations of milfoil sightings on 7/7/05



## LATE SUMMER COMPREHENSIVE TRANSECT/DATA POINT SURVEY

The late season survey was intended to provide the most meaningful comparison between pre-treatment and post-treatment conditions on Lake St. Catherine. The objectives were to accurately locate and quantify the extent of milfoil regrowth, while thoroughly documenting the native plant community. Aquatic Control replicated the comprehensive transect and data point survey methodology that was used at the lake in 2001 and in 2004 during the year of treatment.

### Survey Methods

The year-after-treatment vegetation survey was performed using the same methods and approach that were used during the 2001 pre-treatment survey and the 2004 year-of-treatment survey. The year-after-treatment survey was completed on September 15<sup>th</sup> and 16<sup>th</sup>, 2005. Marc Bellaud, Aquatic Control Senior Biologist, conducted the survey with assistance from a staff biologist.

All three major lake basins were systematically toured by boat. Transect and data point locations established in 2001, were relocated using a Differential GPS system equipped with sub-meter accuracy. This enabled the practically the same locations to be examined during both surveys (Figure 1). The following information was recorded at each data point: aquatic plants present in decreasing order of abundance, percent total plant cover, plant biomass and percent milfoil cover. Water depths that were recorded during the pre-treatment survey were checked using a high-resolution depth finder. In most cases, the water depth at the data point was within 1 foot of what was recorded during the pre-treatment inspection. The plant community was assessed through visual inspection, use of a long-handled rake and throw-rake, and with an Aqua-Vu underwater camera system. Plants were identified to genus and species level when possible. Plant cover was given a percentage rank based on the areal coverage of plants within an approximate 400 square foot area assessed at each data point. Generally, in areas with 100% cover, bottom sediments could not be seen through the vegetation. Percentages less than 100% indicated the amount of bottom area covered by plant growth. The percentage of Eurasian watermilfoil was also recorded at each data point. In addition to cover percentage, a plant biomass index was assigned at each data point to document the amount of plant growth vertically through the water column. Plant biomass was estimated on a scale of 0-4, as follows:

- 0 No biomass; plants generally absent
- 1 Low biomass; plants growing only as a low layer on the sediment
- 2 Moderate biomass; plants protruding well into the water column but generally not reaching the water surface
- 3 High biomass; plants filling enough of the water column and/or covering enough of the water surface to be considered a possible recreational nuisance or habitat impairment
- 4 Extremely high biomass; water column filled and/or surface completely covered, obvious nuisance conditions and habitat impairment severe

Field data recorded at each transect and data point location is provided in the Table 1 - Field Survey Data found in the Appendix.

### Survey Findings

Overall, the results of the year-after-treatment survey compared favorably with pre-treatment conditions in the lake. The findings also validated observations made during the May 27<sup>th</sup> and July 7<sup>th</sup> inspections. A statistical summary of percent cover and plant biomass indices recorded at each data point shows that lake has responded well in the year-after-treatment.

**Table 2 – Percent Cover and Plant Biomass**

<u>LILY POND</u>	<u>2001</u>	<u>2004</u>	<u>2005</u>
Total Number of Data Points	24	24	24
Average Percent Cover	90.30%	80.00%	98.33%
Average Viable Milfoil Cover (percentage of total plant cover)	10.20%	0.00%	1.99%
Average Dead Milfoil Cover (percentage of total plant cover)		0.80%	
Total Milfoil Cover (percent of milfoil cover only)	9.21%	6.40%	1.96%
Average Plant Biomass Index	3.1	2.5	3.3
<u>LAKE ST. CATHERINE</u>			
Total Number of Data Points	129	129	129
Average Percent Cover	65.90%	45.90%	51.20%
Average Viable Milfoil Cover (percentage of total plant cover)	64.80%	0.00%	0.70%
Average Dead Milfoil Cover (percentage of total plant cover)		35.50%	
Total Milfoil Cover (percent of milfoil cover only)	42.70%	16.29%	0.36%
Average Plant Biomass Index	1.9	1.5	1.6
<u>LITTLE LAKE</u>			
Total Number of Data Points	43	43	43
Average Percent Cover	72.40%	65.70%	77.60%
Average Viable Milfoil Cover (percentage of total plant cover)	21.20%	0.00%	0.26%
Average Dead Milfoil Cover (percentage of total plant cover)		0.60%	
Total Milfoil Cover (percent of milfoil cover only)	15.35%	0.39%	0.20%
Average Plant Biomass Index	2.3	2.1	2.4

Total plant cover returned to pre-treatment densities in Lily Pond and Little Lake. Plant cover remained nearly 15% lower in Lake St. Catherine, but nearly 43% of the pre-treatment plant cover was comprised of milfoil cover. This suggests that there significant recolonization of native plants, where milfoil is only accounts for less than 1% of the total plant cover. Plant biomass rebounded similarly in all three waterbodies.

Figure 2 depicts the dominant vegetation assemblages that were encountered during the late season survey. The best graphical way to present the aquatic plant assemblages in the Lake St. Catherine system was based on the percent of plant cover. Three different plant assemblages, high density (>70% cover), medium density (40-70% cover) and low density (10-40% cover), were used to depict the plant cover in the lakes. The predominant species were similar in all three major lake basins. In fact, *Potamogeton robbinsii* was the predominant plant in all three of the submersed plant assemblages. A greater number of species were encountered in Lily Pond and Little Lake than in Lake St. Catherine. A more detailed description of the aquatic plant community is provided in the following sections.

#### Species Encountered

A total of 28 species were observed in the Lake St. Catherine system during the pre-treatment inspection (Appendix - Table 3). Twenty-five of these species were submersed or floating-leafed species that were encountered at one or more of the data point locations. The three exclusively emergent/shoreline species were left out of calculations of percent occurrence and species richness. Twenty-four of the 25 submersed and floating-leafed species were encountered during the late season survey. The only species not seen in 2005 was *Megalodonta beckii*. This plant was only found at 5 data

point locations, 2 in Lake St. Catherine and 3 in Little Lake, during the pre-treatment survey.

A complete table of percent table of frequency of occurrence data is provided in Table 4 in the Appendix. For discussion purposes, frequency of occurrence data was separated by basin. These numbers represent the percentage of data points that each species was encountered at.

Lily Pond showed the greatest evidence of recolonization by native species. Filamentous green algae was much more prevalent this summer than was observed during the year-of-treatment. Reasons for this are not clear, as the overall plant cover and biomass was slightly higher than what was recorded during the pre-treatment inspection. Otherwise, the recolonization of the native plant community was very favorable.

Some of the more notable changes included the reduced frequency of *Myriophyllum spicatum* and increased frequency of *Potamogeton amplifolius*. *Lemna minor* was observed in Lily Pond, but was not encountered at any of the data points. This may have been attributable to the dense filamentous algae cover. This may have also limited the ability to see *Utricularia vulgaris* and *Vallisneria americana*.

Macrophyte Species	LILY POND		
	2001 pre	2004 YOT	2005 YAT
<i>Chlorophyta</i>	0.0%	29.2%	95.8%
<i>Potamogeton robbinsii</i>	95.8%	91.7%	95.8%
<i>Potamogeton amplifolius</i>	33.3%	100.0%	91.7%
<i>Potamogeton zosteriformis</i>	58.3%	8.3%	62.5%
<i>Ceratophyllum demersum</i>	70.8%	4.2%	50.0%
<i>Zosterella (Heteranthera) dubia</i>	4.2%	0.0%	37.5%
<i>Myriophyllum spicatum</i>	79.2%	8.3%	33.3%
<i>Nymphaea odorata</i>	62.5%	16.7%	29.2%
<i>Nuphar variegatum</i>	16.7%	16.7%	16.7%
<i>Elodea Canadensis</i>	29.2%	0.0%	8.3%
<i>Potamogeton gramineus</i>	16.7%	0.0%	8.3%
<i>Potamogeton illinoensis</i>	0.0%	4.2%	8.3%
<i>Potamogeton crispus</i>	4.2%	4.2%	4.2%
<i>Potamogeton epihydrus</i>	0.0%	12.5%	4.2%
<i>Brasenia schreberi</i>	4.2%	4.2%	0.0%
<i>Isoetes sp.</i>	0.0%	4.2%	0.0%
<i>Lemna minor</i>	45.8%	8.3%	0.0%
<i>Najas flexilis</i>	4.2%	0.0%	0.0%
<i>Utricularia vulgaris</i>	29.2%	37.5%	0.0%
<i>Valisneria Americana</i>	33.3%	45.8%	0.0%





Lake St. Catherine (main lake) supported the least species diversity of all three basins prior to treatment and this remained consistent. *Potamogeton robbinsii* appears to have spread considerably. It showed the least impact in the year-of-treatment. Reductions in the frequency of *Vallisneria americana* and *Elodea canadensis* were the most notable. There did appear to be a significant increase in the amount of *Nitella sp.* and *Chara sp.* cover. These species were showing increased cover in the year of treatment and appear to be recolonizing areas that supported dense stands of milfoil prior to treatment.

Macrophyte Species	MAIN LAKE		
	2001 pre	2004 YOT	2005 YAT
<i>Potamogeton robbinsii</i>	31.0%	65.1%	82.2%
<i>Nitella sp.</i>	0.8%	1.6%	36.4%
<i>Potamogeton zosteriformis</i>	24.0%	2.3%	31.0%
<i>Chara sp.</i>	0.8%	15.5%	25.6%
<i>Potamogeton amplifolius</i>	28.7%	14.7%	25.6%
<i>Chlorophyta</i>	0.0%	43.4%	14.7%
<i>Myriophyllum spicatum</i>	98.4%	0.0%	14.7%
<i>Najas flexilis</i>	19.4%	0.0%	12.4%
<i>Potamogeton crispus</i>	1.6%	0.0%	9.3%
<i>Ceratophyllum demersum</i>	10.9%	10.9%	6.2%
<i>Potamogeton epihydrus</i>	2.3%	3.1%	5.4%
<i>Zosterella (Heteranthera) dubia</i>	0.0%	0.8%	4.7%
<i>Potamogeton gramineus</i>	17.8%	0.0%	4.7%
<i>Nymphaea odorata</i>	3.1%	1.6%	2.3%
<i>Brasenia schreberi</i>	0.0%	0.8%	0.8%
<i>Isoetes sp.</i>	2.3%	8.5%	0.8%
<i>Potamogeton illinoensis</i>	6.2%	0.8%	0.8%
<i>Utricularia vulgaris</i>	0.8%	0.8%	0.8%
<i>Valisneria Americana</i>	14.0%	3.1%	0.8%
<i>Eleocharis sp.</i>	0.0%	0.0%	0.0%
<i>Elodea Canadensis</i>	27.9%	0.0%	0.0%
<i>Lemna minor</i>	1.6%	0.0%	0.0%
<i>Megalodonta beckii</i>	1.6%	0.0%	0.0%

Little Lake showed changes similar to what was seen in the other two basins. *Potamogeton robbinsii*, *Potamogeton amplifolius*, *Brasenia schreberi* and *Nymphaea odorata* were flourishing. Noteworthy reductions were seen in the frequency of *Potamogeton gramineus*, *Vallisneria americana*, *Potamogeton zosteriformis*, *Ceratophyllum demersum*, *Elodea canadensis* and *Najas flexilis*.

The overall plant cover and biomass in seen in Little Lake was equal to pre-treatment values, but the species diversity was lower.

Macrophyte Species	LITTLE LAKE		
	2001 pre	2004 YOT	2005 YAT
<i>Potamogeton robbinsii</i>	88.4%	100.0%	100.0%
<i>Potamogeton amplifolius</i>	44.2%	72.1%	69.8%
<i>Brasenia schreberi</i>	14.0%	30.2%	30.2%
<i>Nymphaea odorata</i>	30.2%	9.3%	25.6%
<i>Chlorophyta</i>	7.0%	20.9%	20.9%
<i>Myriophyllum spicatum</i>	88.4%	0.0%	16.3%
<i>Potamogeton epihydrus</i>	0.0%	11.6%	14.0%
<i>Nuphar variegatum</i>	9.3%	14.0%	11.6%
<i>Potamogeton gramineus</i>	41.9%	4.7%	9.3%
<i>Nitella sp.</i>	0.0%	0.0%	7.0%
<i>Utricularia vulgaris</i>	16.3%	18.6%	7.0%
<i>Valisneria Americana</i>	72.1%	25.6%	7.0%
<i>Eleocharis sp.</i>	4.7%	4.7%	4.7%
<i>Zosterella (Heteranthera) dubia</i>	2.3%	2.3%	4.7%
<i>Isoetes sp.</i>	0.0%	0.0%	4.7%
<i>Potamogeton zosteriformis</i>	23.3%	2.3%	4.7%
<i>Ceratophyllum demersum</i>	20.9%	0.0%	2.3%
<i>Utricularia gibba</i>	7.0%	0.0%	2.3%
<i>Chara sp.</i>	7.0%	4.7%	0.0%
<i>Elodea Canadensis</i>	46.5%	4.7%	0.0%
<i>Lemna minor</i>	0.0%	0.0%	0.0%
<i>Megalodonta beckii</i>	7.0%	0.0%	0.0%
<i>Najas flexilis</i>	39.5%	0.0%	0.0%

Species richness or the average number of species encountered at each data point was calculated for each of the three major basins. These results accurately summarize the frequency of occurrence data. Species richness in Lily Pond and Lake St. Catherine were approaching pre-treatment densities in the year-after-treatment. Little Lake, on the other hand, had not recovered much from what was observed during the year-of-treatment. This appears to be mostly attributable to the reduction of *Vallisneria Americana*, *Elodea canadensis*, *Najas flexilis*, *Ceratophyllum demersum* and *Potamogeton zosteriformis*. All of these species were found at low densities in the year-after-treatment in select areas of the Lake St. Catherine system, but their overall distribution and density was reduced.

SPECIES RICHNESS			
Basin	Pre-Treatment Aug. 2001	Year of Treatment Sept. 2004	Year After Treatment Sept. 2005
Lily Pond	5.67	3.58	5.17
Lake St. Catherine	2.96	2.39	2.85
Little Lake	5.62	3.23	3.30

Eurasian Watermilfoil Cover

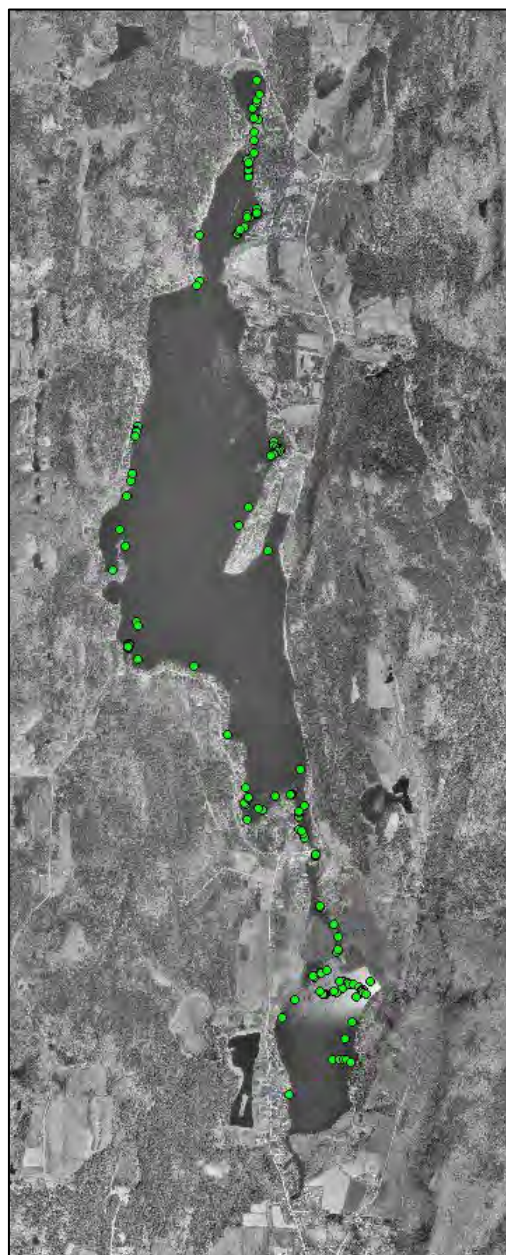
Despite hand-pulling efforts during the summer months, milfoil continued to regrow throughout Lily Pond and the northeastern corner Little Lake. Milfoil cover and density in these areas was similar to what was observed during the July 7<sup>th</sup> inspection.

<b>MILFOIL COVER</b>			
<b>Basin</b>	<b>Pre-Treatment Aug. 2001</b>	<b>Year of Treatment Sept. 2004</b>	<b>Year After Treatment Sept. 2005</b>
Lily Pond	9.21%	6.40%	1.96%
Lake St. Catherine	42.70%	16.29%	0.36%
Little Lake	15.35%	0.39%	0.20%

The major difference noticed during the late summer inspection was the presence of milfoil in the main basin of Lake St. Catherine. Several dozen milfoil plants were encountered along the shorelines of the main lake. The majority of encountered were single plants. Occasionally, 5-10 single stem plants would be encountered within an area less than one-quarter of an acre. Milfoil was found at 19 of the 129 data points (15%) in the main lake. For the most part the milfoil density was estimated to be well below 500 plants per acre and it was certainly at levels that should be manageable through and effective diver hand-pulling program.

It was evident by the end of the summer that milfoil regrowth in portions of Lily Pond and Little Lake was beyond levels that could be effectively hand-pulled. Spot-treatment of these two areas with Renovate 3 (Triclopyr) herbicide is being proposed for the 2006 season.

Aquatic Control recently assisted LSCA with filing permit applications for treatment of 22 acres in Lily Pond and up to 15 acres in the northeast corner of Little Lake with Renovate during the 2006 season. These two areas of the lake support fairly abundant cover of native plants including several floating-leafed species that will greatly complicate hand-pulling efforts. It is expected that Renovate can provide effective and highly selective control of milfoil in these areas. Milfoil control should be realized in approximately 3-4 weeks. Treating these two areas with scattered to common milfoil regrowth will allow diver hand-pulling efforts to be focused on the sparse or widely scattered milfoil regrowth found in Lake St. Catherine and other portions of Little Lake.



GPS locations of milfoil sightings on 9/15 & 9/16/05

## SUMMARY

Monitoring of the aquatic plant community in the Lake St. Catherine system was performed in 2005 representing the year-after-treatment conditions following the whole-lake Sonar treatment performed in 2004. Aquatic Control surveyed the lake on three separate occasions to document the amount and distribution of milfoil regrowth and to record quantitative and qualitative observations of the native plant community.

The primary objective of the late spring (5/27/05) and early summer (7/7/05) inspections was to locate milfoil regrowth and help guide non-chemical milfoil control strategies planned for the 2005 season. The only milfoil found during the late spring inspection was along the wetland margins of Lily Pond. Considering the shallow water depths and dense cover of native plants, hand-pulling from canoes or small row boats was the recommended management strategy. During the early July inspection, milfoil was still present at similar levels in Lily Pond. In addition, milfoil regrowth was still found in the northeast corner of Little Lake. Hand-pulling was still recommended for both locations considering the scattered distribution of milfoil and the abundance of native species. Only a single milfoil plant was found along the northeast shoreline of Lake St. Catherine. Native plant recovery appeared to be progressing positively during both early season inspections.

Milfoil regrowth was observed in the Lake St. Catherine's main basin during the late summer, comprehensive survey (9/15 and 9/16/05). Most of the growth was low density, individual plants. Milfoil distribution was well below 500 plants per acre in the main lake. Somewhat higher density milfoil growth continued to be found in Lily Pond and the northeast corner of Little Lake. The native plant community was showing excellent year-after-treatment recovery during the late summer survey. Twenty-four of the 25 previously documented submersed and floating-leafed species were found in the lake. All three basins also supported total plant cover and biomass values that were similar to the pre-treatment survey. Only trace amounts of milfoil are reflected in the year-after-treatment values, suggesting that the native plant distribution and density exceeds the pre-treatment conditions, particularly in the main lake. Frequency of occurrence and species richness values also show good recovery of the native plant community. Species that showed the greatest impact following Sonar treatment were *Vallisneria americana*, *Elodea canadensis*, and *Ceratophyllum demersum* and. All of these species were found in the lake at reduced levels. Additional recovery of these species is anticipated based on results reported from other whole-lake Sonar treatments performed in the northeast.

Overall, excellent milfoil control was maintained throughout the year-after-treatment, with less than 2% milfoil cover found in each of the three major lake basins. Milfoil regrowth was persistent adjacent to wetland areas in Lily Pond and Little Lake despite diver hand-pulling efforts employed during the 2005 season. Hand-pulling at these sites was complicated by the shallow water depths, flocculent bottom sediments and density of native plants. Spot-treatment of these two areas is recommended and planned for the 2006 season, pending DEC permit approval. Treating these two locations will effectively control 30 acres of the highest density milfoil regrowth seen in the lake to date. This will enable resources allocated for diver hand-pulling and benthic barrier installations to be focused on the Main Lake and other sections of Little Lake where milfoil densities are lower and should be more responsive to these non-chemical techniques. Late spring inspections should be performed to further guide non-chemical control strategies.



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TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
<u>LILY POND</u>									
1	49	25	4	Pr, Fa, Pa, Ny	100	0	3.5		
1	50	100	6	Pr, Pa, Fa, Pz, Ms	100	0	3.5		
1	51	midpoint	6	Pr, Pa, Fa, Cd, Ms	100	2	3.0		
1	52	150	6	Pr, Pa, Fa, Ny, Pz, Cd	100	0	3.5		
1	53	30	4	Ny, Pr, Nu, Fa, Pa	80	0	3.5		
2	55	25	5	Pr, Pa, Fa	80	0	2.5		
2	58	150	7	Pr, Fa, Pa, Cd, Ec, Pi, Zd	100	0	3.5		
2	56	180	7	Pr, Pa, Fa, Pg, Pz, Cd	100	0	3.0		
2	57	60	7	Pr, Pa, Fa, Ny, Nu, Pz	100	0	3.5		
2	54	40	7	Pr, Pa, Fa, Cd	100	0	3.5		
3	59	25	4	Pr, Fa, Pa, Zd, Pz	100	0	3.5		
3	60	120	7	Pr, Pa, Fa, Pz, Pi, Cd	100	0	3.0		
3	61	midpoint	7	Pr, Pa, Fa, Cd, Pz	100	0	3.0		
3	62	15	4	Pr, Ny, Pa, Zd, Ms, Cd	100	5	3.5		
4	63	20	4	Pr, Fa, Pz, Zd, Ny, Ms	100	5	3.5		
4	64	100	6.5	Pr, Pa, Fa, Cd, Pz	100	0	2.5		
4	65	100	6	Pr, Fa, Pa, Pz	100	5	2.5		
4	66	30	3.5	Pr, Zd, Pa, Fa, Ms, Cd	100	5	3.5		
6	67	20	2	Pr, Pa, Fa, Nu, Zd, Ms	100	0	4.0		
5	68	50	3	Pr, Zd, Pd, Pz, Fa	100	0	3.0		
5	69	60	3.5	Pr, Pa, Fa, Pz, Pg	100	0	3.0		
5	70	15	4	Pr, Pa, Fa, Zd, Pz, Cd, Ec	100	0	3.5		
6	71	10	1.5	Pa, Ms, Nu, Pz, Ny, Zd, Pe, Fa, Cd	100	20	3.5		
7	48	midpoint	4.5	Pr, Pa, Fa, Pz, Ms	100	5	3.5		
				<b>Averages</b>	<b>98.33</b>	<b>1.96</b>	<b>3.3</b>	[24 data points]	

TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
<u>LAKE ST. CATHERINE</u>									
7	47	30	2.5	Pe, Fa, Cd, Uv, Ms	80	2	3.0		
8	44	50	4	Pr, Fa, Pa	90	0	2.0		
8	45	midpoint	3.5	Pa, Pr, Fa	60	0	2.0		
8	46	25	3.5	Pr, Pa, Pe, Fa	90	0	2.5	large patch of Pe b/t points	
9	41	15	5	Ni, Zd, Pr	25	0	1.0		
9	42	150	11	Pr, Pa	80	0	2.0		
9	43	40	6.5	Pr, Fa	80	0	2.0		
10	37	35	8	Pr, Pe, Pa, Pz	100	0	2.5		
10	38	40	5	Pr, Pa, Pz	90	0	2.0		
10	39	150	9	Pr, Pa, Pz, Ms	90	1	2.0		
10	40	220	12	Pr, Ni, Pe	80	0	2.0		
11	34	20	3	Pr, Pa, Fa, Pe (B, Ny, Dv)	90	0	2.5		
11	35	100	8	Pr, Pz, Pa, Ms	90	1	2.5		
11	36	30	6.5	Pr, Pz, Pa, Fa	90	0	2.5		
12	31	25	7.5	Pr, Ni	15	0	1.0		
12	32	25	3	Pr, Pa, Fa, Ny	90	0	2.5		
12	33	75	7	Pr	90	0	2.0		
13	28	35	4	Pr, Zd, Pa, Pc	70	0	2.0		
13	29	120	10	Pr	30	0	2.0		
13	30	25	10	Pr	20	0	1.0		
14	25	20	6	branches - no plants	0	0	0.0		
14	26	30	3.5	Pr, Zd, Pc, Pi (Ny, Po)	75	0	2.0		
14	27	60	8	Pr, Ni, Zd, Pa	70	0	2.0		
15	22	75	7.5	Pr, Ni	10	0	1.0		
15	23	50	5.5	Pr, Pz, Pa, Ms	70	5	2.5	Pz tall	
15	24	125	12	Ni, Pr	10	0	1.0		
16A	20	100	8.5	Pr	60	0	1.5		
16B	21	70	9	Fa, Pr	15	0	1.0		
17A	17A	25	6.5	Pr, Pz, Fa	20	0	1.0		
17	98	80	8	Pr, Pz, Pa	70	0	2.0		
18	72	15	10	Pr	10	0	1.0		
18	73	30	8	Pr, Pc	60	0	2.0		
19	74	25	8.5	Pr, Ni	80	0	1.5		
19	75	25	10	-	0	0	0.0	steep slope	

TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
20	76	20	6.5	Nf, Pr	35	0	1.5		
20	77	125	7	Pr	20	0	1.0		
21	78	40	6	Ni	20	0	1.0		
21	79	80	12	Pr, Ni	60	0	1.5		
21	80	15	8	Pr, Fa	30	0	1.0		
22	81	30	6	Nf, Pr, Ms	60	10	2.0		
22	82	30	7	Ni, Pg, Pr	30	0	1.0		
23	83	25	3	Ni, Pz, Pr, Ms	60	0	2.0		
23	84	120	6	Pr, Pz, Nf, Ms	80	5	2.0		
23	85	200	8	Pr, Ni, Pz, Nf	60	0	2.0		
23	86	40	8	Ni	20	0	1.0		
24	87	40	5	Ni	10	0	1.0	bottom barrier by dock	
24	88	25	4	Ni	20	0	1.0		
24	90/91	100	8.5	Ni, Pc	50	0	1.0		
25	92	70	5	Ni, Pr	20	0	1.0		
25	93	15	3.5	Ni, Pr, I	20	0	1.0		
25	94	20	9.5	Pr, Fa	10	0	1.0		
26	95	50	7	Ni, Na, Pr	50	0	1.0		
26	96	100	7.5	Ni, I	20	0	1.0		
26	97	175	13	Ni, Ca, Nf, Pr	80	0	1.5		
27	100	20	7	Pr, Zd, Ca, Pc, Ms	70	0	2.0		
27	101	150	8.5	Ca, Pr, Pg, Cd	80	0	2.0		
27	102	20	4	Pr, Pa, Ny, Pz, Pc, Nf	80	0	2.5		
27	103	70	8	Pr	60	0	1.5		
27	104	225	8	Ni, Ca, Nf, Ms	40	1	1.5		
28	127	30	5.5	Pr, Pz	50	0	1.5		
28	128	40	4	Pr, B, Ny, Pa, Pz	90	0	2.5		
28	129	midpoint	7	Pr, Pa, Pz, Fa	75	0	2.0		
29	105	30	8.5	Pr, Pa, Nf, Ms	60	1	2.5		
29	106	30	6	Pr, Ni	30	0	1.0		
29	107	30	11.5	Ni, Ca, Pr	80	0	1.5		
30	108	25	4	Ni, Nf	20	0	1.0		
30	109	100	12	Ni	5	0	1.0		
30	110	50	10.5	Ni, Pr	10	0	1.0		
30	111	150	11	Ca, Nf, Ni	80	0	2.0		
31	124	25	6	Pr, Ni, Pa, Pz	60	0	2.0		
31	125	midpoint	10	Ca, Pr, Pc, Ni, Ms	50	1	2.0		



TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
31	126	30	5	Pr	90	0	2.0		
32	112	30	5	Ni, Pr, Pg	50	0	1.0		
32	113	125	12	Ca, Pr, Pc, Nf	80	0	2.0		
32	114	15	7	Ni, Pr	25	0	1.0		
33	120	50	5	Nf, Pr, Ca, Ni	70	0	1.5		
33	121	125	13	Ca	80	0	1.0		
33	122	30	10	Pr, Ni	30	0	1.5		
33	123	120	13	Ni, Ca, Cd	80	0	1.5		
34	115	40	5	Pr, Pa, Nf, Zd	90	0	2.0		
34	116	150	9.5	Pr, Ni, Fa, Pa	80	0	2.0		
34	117	250	13	Pr	30	0	1.5		
34	118	30	7	Pz, Ni, Ca, Pr	75	0	2.0		
34	119	150	10	Ca, Pz, Pr	50	0	1.5		
35	134	50	10.5	Pr, Nf	25	0	1.0		
35	135	125	8.5	Ca, Fa	10	0	1.0		
36	130	50	7.5	Ni, Fa, Pz, Pr	35	0	1.5		
36	131	250	13	Ni, Ca, Pz	30	0	1.5		
36	132	25	4	Ni	10	0	1.0		
36	133	300	13	Ca	30	0	1.0		
37	136	100	10	Pr, Ca	40	0	2.0		
37	137	25	5.5	Pr, Pa, Pz (Ny)	70	0	2.0		
37	138	15	7.5	-	0	0	0.0		
38	139	10	6	-	0	0	0.0	rock	
38	140	120	7	Nf, Ca, Pr	15	0	1.0		
38	141	200	8	Ca, Pr	40	0	1.0		
38	142	300	8.5	Fa, Ca	5	0	1.0		
39	166	50	5.5	Pr, Pc, Pa, Pz, Ni, Cd	90	0	2.0		
40	143	100	6	Pr, Pa, Ca	70	0	2.0		
40	144	100	12	Pr, Ca, Pz, Ms	40	1	1.5		
40	145	20	5	Pr, Pz, Ni	25	0	1.0		
41	168	50	7	Pr, Ca, Pg	40	0	2.0		
42	146	10	6.5	Ni, Pr	25	0	1.0		
42	147	35	7.5	Pr, Pz	60	0	2.0		
43	148	35	6.5	Pr, Pz	90	0	2.0		
43	149	100	13	Pr, Ca	30	0	1.5		
43	150	30	5.5	Ni, Pr	10	0	1.0		
44	151	20	7	Ni, Pr	20	0	1.0		

TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
44	152	175	13	Pr, Ni	10	0	1.0		
44	153	75	6.5	Pr, Pa, Pz, Nf, Pc, Ms	85	5	2.5		
45	154	20	6	Ca, Pr, I	15	0	1.0		
45	155	25	5	Ca, Pr, Pz	70	0	1.5		
46	156	60	4.5	Ni, Pz, Pg, Pr	40	0	1.5		
46	157	200	12	Ca	70	0	1.0		
46	158	35	6.5	Ca, Pr, Pz, Ms	50	1	2.0		
46	159	175	8	Pr, Pz	30	0	2.0		
47	160	100	7	Pr	5	0	1.0		
47	161	25	5	Pr, Pa, Pz, Ms	75	5	2.0		
47	162	125	12	Ca, Pr, Cd	60	0	1.5		
47	169	150	7.5	Pr, Ca, Pz, Msf	60	1	2.0		
48	163	45	5	Pr, Ca, Pz, Pg, Ms	70	5	2.0		
48	164	midpoint	13	Pr, Ca, Cd	70	0	1.5		
48	165	40	4	Pr, Pa, Cd, Pc, Pz	90	0	2.0		
49	170	25	3.5	Pr, Pa, Pz, Cd	90	0	2.0		
49	171	midpoint	9	Pr, Pa, Pz	100	0	2.0		
49	172	15	3.5	Pr, Pa, Pe, Pz, Ca, Ms	90	1	2.5		
50	173	20	2.5	Pr, Pz, Fa, Ms	50	1	1.5		
50	174	midpoint	6.5	Pr, Pa, Fa	50	0	1.5		
50	175	20	4.5	Pr, Pa, Pz, Pc, Pe	90	0	2.5		
				<b>Averages</b>	<b>51.20</b>	<b>0.36</b>	<b>1.6</b>	[129 data points]	

TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
<u>LITTLE LAKE</u>									
51	176	midpoint	7	Pr, Fa, Ni, Pa	60	0	2.0		
52	177	20	4	Pr, Pa, B, Zd, Ny, Ms (Po, Sp, T)	100	1	3.0		
52	178	midpoint	5.5	Pr, Fa	50	0	1.5		
52	179	30	3.5	B, Ny, Nu, Pa, Pr, Zd (Po, T)	100	0	4.0		
53	180	20	4	Ny, B, Pr, Pa, Pe, Uv (Po)	100	0	4.0		
53	181	midpoint	6	Pr	30	0	1.0		
53	182	20	4	B, Ny, Nu, Pr, Pa, Eo (Eo)	100	0	4.0		
54	183	25	5	Pr, Pa, Nu, Ny, B	100	0	3.0		
54	184	40	4.5	Pr, Pa	60	0	2.0		
54	185	midpoint	5	Pr, Pa, Nu, Ny, B	100	0	3.5		
54	186	100	5	Pr, Pa, Ny, Fa, Uv	100	0	3.5		
55	187	100	5	Pr, Ny, B, Pa, Fa, Uv	100	0	4.0		
55	188	150	4.5	Pr, Eo	90	0	3.0		
55	189	250	5	Pr, Pa, Pe, Ms	90	2	2.5		
55	190	75	4	Pr, B, Ny, Nu, Pa, Ug, Ni	100	0	3.5		
56	191	30	3.5	Pr, Pa, Pz, Ms	90	2	2.5		
56	192	400	5.5	Pr, Pg, Pa	80	0	2.5		
56	193	500	5.5	Pr, Pa	80	0	2.5		
56	194	50	5	Pr, Pa, Pe, Ny, Ms	100	2	3.0		
57	195	75	6	Pr, Pa, Cd, Ms	100	1	2.5		
57	196	500	5.5	Pr, Pa	100	0	2.0		
57	197	600	5	Pr, Pg, Fa	30	0	1.5		
57	198	120	4	Pr, B, Pa, Ni, Pg, Ms	100	1	3.5		
58	199	40	3.5	Pr, Pa, Pe (B, Po)	90	0	3.0		
58	200	700	5	Pr, Pa	80	0	2.5		
58	201	600	5	Pr, Pa	100	0	2.5	90% Pr	
58	202	60	6.5	Pr, Pa	100	0	2.0	90% Pr	
59	203	35	4	Pr, Pa	80	0	2.0		
59	204	700	5	Pr, Pa	90	0	2.0		
59	205	500	5.5	Pr, Pa	90	0	2.0		
59	206	125	5	Pr, Pa, Ms	90	1	2.0		

TABLE 1 - FIELD DATA TABLE

AQUATIC PLANT SURVEY 9/15/05 and 9/16/05

Transect	Data Point & GPS ID	Distance From Shore (ft.)	Water Depth (ft.)	Dominant Vegetation	% Total Plant Cover	% Milfoil (Ms) Cover	Biomass Index		
60	207	100	4	Fa, Pr	30	0	1.0		
60	208	500	5	Pr, Pg	90	0	2.5		
60	209	450	5.5	Pr	80	0	2.0		
60	210	75	6	Pr, Pa	90	0	2.0		
61	211	75	4.5	Pr, Pa	80	0	2.5		
61	212	800	5	Pr, Fa	25	0	1.0		
61	213	300	5	Pr, Fa	30	0	1.5		
61	214	40	5	Pr, Pe, Fa, B	60	0	2.0		
62	215	50	4.5	Pr, B, Pe	40	0	2.0		
62	216	700	4	Pr	10	0	1.0		
62	217	120	4	Pr, B	20	0	1.5		
62	218	30	3	B, Ny, Pr, Pa, Pz	100	0	3.5		
				<b>Averages</b>	<b>77.6</b>	<b>0.2</b>	<b>2.4</b>	[43 data points]	



**TABLE 3 - PLANTS ENCOUNTERED DURING AUGUST 2001, SEPTEMBER 2004 & SEPTEMBER 2005 SURVEYS**

<u>Macrophyte Species</u>	<u>Common Name</u>	<u>Abbreviation</u>	<u>Type</u>	<u>Year-After-Treatment Distribution</u>
<i>Brasenia schreberi</i>	Watershield	B	floating-leafed	scattered
<i>Ceratophyllum demersum</i>	Coontail	Cd	submersed	sparse
<i>Chara sp.</i>	Muskgrass	Ca	submersed	common in all three basins
<i>Chlorophyta</i>	Filamentous green algae	Fa		common/abundant - Lily Pond
<i>Decodon verticillatus</i>	Water-willow	Dv	emergent	shoreline growth - Lily Pond and Little Pond
<i>Eleocharis sp.</i>	Spikerush	Eo	submersed	sparse
<i>Elodea canadensis</i>	Waterweed	Ec	submersed	scattered – Lily Pond and Little Lake
<i>Zosterella (Heteranthera) dubia</i>	Water stargrass	Zd	submersed	scattered - Little Pond and main lake
<i>Isoetes sp.</i>	Quillwort	I	submersed	sparse
<i>Lemna minor</i>	Duckweed	L	floating	sparse - Lily Pond
<i>Megalodonta beckii</i>	Water marigold	Mb	submersed	None encountered
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Ms	submersed	scattered in all three basins
<i>Najas flexilis</i>	Naiad	Nf	submersed	sparse
<i>Nitella sp.</i>	Stonewort	Ni	submersed	scattered
<i>Nuphar variegatum</i>	Yellow waterlily	Nu	floating-leafed	common/abundant - Lily Pond and Little Pond
<i>Nymphaea odorata</i>	White waterlily	Ny	floating-leafed	common/abundant - Lily Pond and Little Pond
<i>Polygonum sp.</i>	Water smartweed	Po	floating-leafed	shoreline growth - Lily Pond and Little Pond
<i>Potamogeton amplifolius</i>	Large-leaf	Pa	submersed	common
<i>Potamogeton crispus</i>	Curly-leaf pondweed	Pc	submersed	common – early season in Little Lake
<i>Potamogeton epihydrus</i>	Ribbon-leaf pondweed	Pe	submersed	scattered
<i>Potamogeton gramineus</i>	Variable pondweed	Pg	submersed	scattered
<i>Potamogeton illinoensis</i>	Illinois pondweed	Pi	submersed	sparse
<i>Potamogeton robbinsii</i>	Pondweed	Pr	submersed	common/abundant - most common plant
<i>Potamogeton zosteriformis</i>	Flat-stem pondweed	Pz	submersed	scattered
<i>Typha sp.</i>	Cattail	T	emergent	shoreline growth - Lily Pond and Little Pond
<i>Utricularia gibba</i>	Creeping bladderwort	Ug	submersed	sparse – Little Lake
<i>Utricularia vulgaris</i>	Common bladderwort	Uv	submersed	common - Lily Pond and Little Pond
<i>Valisneria americana</i>	Wild celery/Tapegrass	Va	submersed	scattered

TABLE 4 - COMPLETE FREQUENCY OF OCCURRENCE BY SPECIES AND LAKE BASIN

Macrophyte Species	Common Name	Lily Pond			Main Lake			Little Lake			Total		
		2001 pre	2004 YOT	2005 YAT	2001 pre	2004 YOT	2005 YAT	2001 pre	2004 YOT	2005 YAT	2001 pre	2004 YOT	2005 YAT
<i>Brasenia schreberi</i>	Watershield	4.17%	4.17%	0.00%	0.00%	0.78%	0.78%	13.95%	30.23%	30.23%	3.57%	7.65%	7.14%
<i>Ceratophyllum demersum</i>	Coontail	70.83%	4.17%	50.00%	10.85%	10.85%	6.20%	20.93%	0.00%	2.33%	20.41%	7.65%	10.71%
<i>Chara</i> sp.	Muskgrass	0.00%	0.00%	0.00%	0.78%	15.50%	25.58%	6.98%	4.65%	0.00%	2.04%	11.22%	16.84%
<i>Chlorophyta</i>	Filamentous green algae	0.00%	29.17%	95.83%	0.00%	43.41%	14.73%	6.98%	20.93%	20.93%	1.53%	36.73%	26.02%
<i>Eleocharis</i> sp.	Spikerush	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.65%	4.65%	4.65%	1.02%	1.02%	1.02%
<i>Elodea canadensis</i>	Waterweed	29.17%	0.00%	8.33%	27.91%	0.00%	0.00%	46.51%	4.65%	0.00%	32.14%	1.02%	1.02%
<i>Zosterella (Heteranthera) dubia</i>	Water stargrass	4.17%	0.00%	37.50%	0.00%	0.78%	4.65%	2.33%	2.33%	4.65%	1.02%	1.02%	8.67%
<i>Isoetes</i> sp.	Quillwort	0.00%	4.17%	0.00%	2.33%	8.53%	0.78%	0.00%	0.00%	4.65%	1.53%	6.12%	1.53%
<i>Lemna minor</i>	Duckweed	45.83%	8.33%	0.00%	1.55%	0.00%	0.00%	0.00%	0.00%	0.00%	6.63%	1.02%	0.00%
<i>Megalodonta beckii</i>	Water marigold	0.00%	0.00%	0.00%	1.55%	0.00%	0.00%	6.98%	0.00%	0.00%	2.55%	0.00%	0.00%
<i>Myriophyllum spicatum</i> - viable	Eurasian watermilfoil	79.17%	8.33%	33.33%	98.45%	0.00%	14.73%	88.37%	0.00%	16.28%	93.88%	1.02%	17.35%
<i>Myriophyllum spicatum</i> - dead	Eurasian watermilfoil	0.00%	0.00%	0.00%	0.00%	64.34%	0.00%	0.00%	11.63%	0.00%	0.00%	44.90%	0.00%
<i>Najas flexilis</i>	Naiad	4.17%	0.00%	0.00%	19.38%	0.00%	12.40%	39.53%	0.00%	0.00%	21.94%	0.00%	8.16%
<i>Nitella</i> sp.	Stonewort	0.00%	0.00%	0.00%	0.78%	1.55%	36.43%	0.00%	0.00%	6.98%	0.51%	1.02%	25.51%
<i>Nuphar variegatum</i>	Yellow waterlily	16.67%	16.67%	16.67%	0.78%	0.00%	0.00%	9.30%	13.95%	11.63%	4.59%	5.10%	4.59%
<i>Nymphaea odorata</i>	White waterlily	62.50%	16.67%	29.17%	3.10%	1.55%	2.33%	30.23%	9.30%	25.58%	16.33%	5.10%	10.71%
<i>Potamogeton amplifolius</i>	Large-leaf	33.33%	100.00%	91.67%	28.68%	14.73%	25.58%	44.19%	72.09%	69.77%	32.65%	37.76%	43.37%
<i>Potamogeton crispus</i>	Curly-leaf pondweed	4.17%	4.17%	4.17%	1.55%	0.00%	9.30%	0.00%	0.00%	0.00%	1.53%	0.51%	6.63%
<i>Potamogeton epihydrus</i>	Ribbon-leaf pondweed	0.00%	12.50%	4.17%	2.33%	3.10%	5.43%	0.00%	11.63%	13.95%	1.53%	6.12%	7.14%
<i>Potamogeton gramineus</i>	Variable pondweed	16.67%	0.00%	8.33%	17.83%	0.00%	4.65%	41.86%	4.65%	9.30%	22.96%	1.02%	6.12%
<i>Potamogeton illinoensis</i>	Illinois pondweed	0.00%	4.17%	8.33%	6.20%	0.78%	0.78%	0.00%	0.00%	0.00%	4.08%	1.02%	1.53%
<i>Potamogeton robbinsii</i>	Pondweed	95.83%	91.67%	95.83%	31.01%	65.12%	82.17%	88.37%	100.00%	100.00%	51.53%	76.02%	87.76%
<i>Potamogeton zosteriformis</i>	Flat-stem pondweed	58.33%	8.33%	62.50%	24.03%	2.33%	31.01%	23.26%	2.33%	4.65%	28.06%	3.06%	29.08%
<i>Utricularia gibba</i>	Creeping bladderwort	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.98%	0.00%	2.33%	1.53%	0.00%	0.51%
<i>Utricularia vulgaris</i>	Common bladderwort	29.17%	37.50%	0.00%	0.78%	0.78%	0.78%	16.28%	18.60%	6.98%	7.65%	9.18%	2.04%
<i>Valisneria americana</i>	Wild celery/Tapegrass	33.33%	45.83%	0.00%	13.95%	3.10%	0.78%	72.09%	25.58%	6.98%	29.08%	13.27%	2.04%



FIGURE 1

Transect & Data Point  
Locations for  
Vegetation Survey

LEGEND:

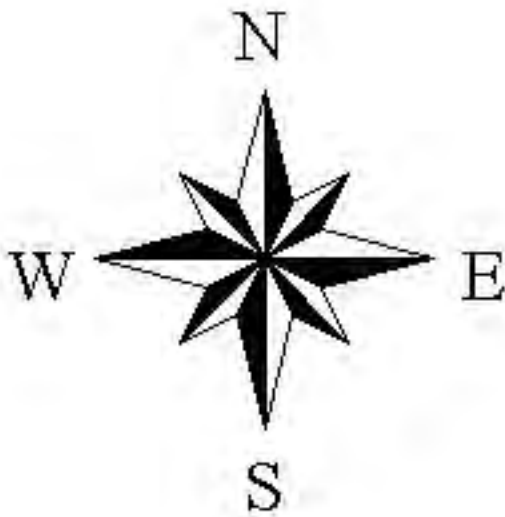
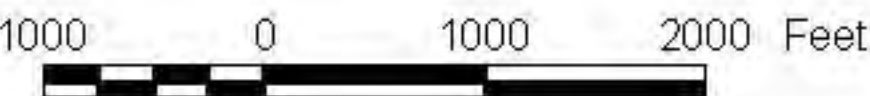
● Data Point locations recorded with GPS unit during ACT/ReMetrix 2001 Survey. Sampling replicated during ACT 2005 vegetation survey, data points relocated using DGPS unit with sub-meter accuracy

Transects recorded during ACT/ReMetrix 2001 Survey using DGPS unit

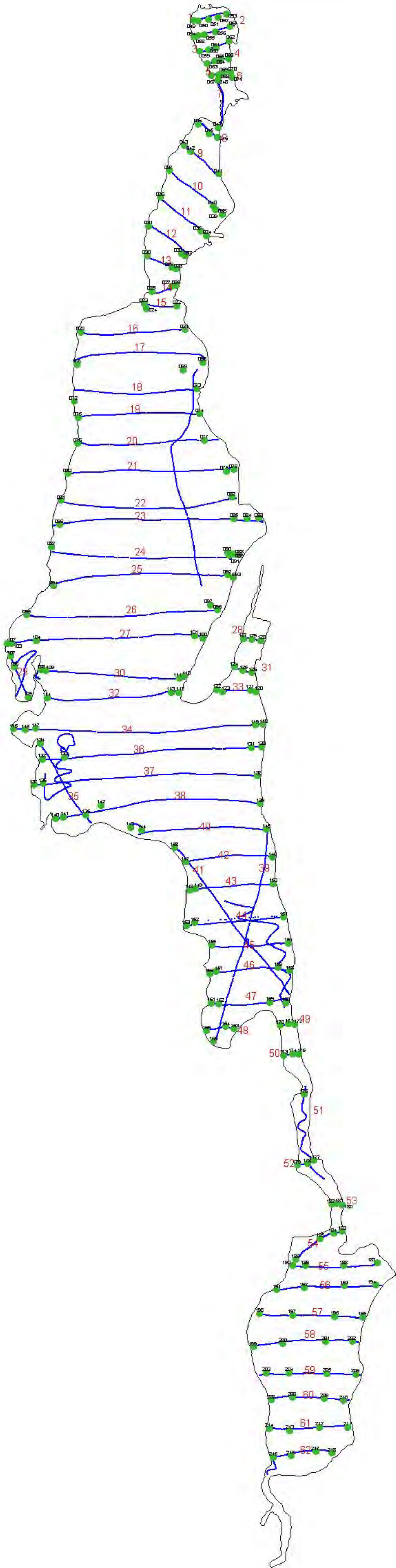
□ Lake outline

Base maps provided by  
ReMetrix LLC

SCALE:



11 John Road  
Sutton, MA 01590  
508-865-1000 phone  
508-865-1220 fax  
info@aquaticcontroltech.com





LAKE ST. CATHERINE  
Poultney & Wells, VT

FIGURE 2

Dominant Aquatic  
Vegetation Assemblages

Survey Date: 9/15 & 9/16/05

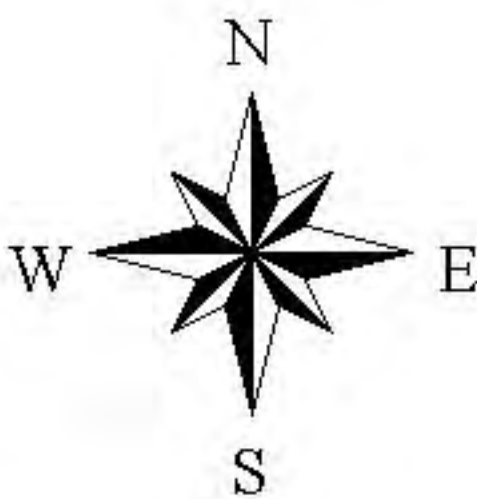
LEGEND:

- High density (>70% cover)  
mixed species - robbins  
pondweed, largeleaf pondweed,  
flat-stem pondweed, eurasian  
watermilfoil, stonewort, coontail,  
& muskgrass (w/other scattered  
natives)
- Medium density (40-70% cover)  
mixed species - robbins  
pondweed, stonewort, largeleaf  
pondweed, muskgrass, flat-stem  
pondweed, naiad, & filamentous  
algae (w/ other scattered  
natives)
- Low density (10-40% cover)  
mixed species - robbins  
pondweed, stonewort,  
muskgrass, flat-stem  
pondweed, naiad, & filamentous  
algae(w/other scattered natives)
- Floating-leafed waterlily beds
- Emergent wetlands in standing  
water

Base maps provided by  
ReMetrix LLC

SCALE:

200 0 200 400 600 Feet



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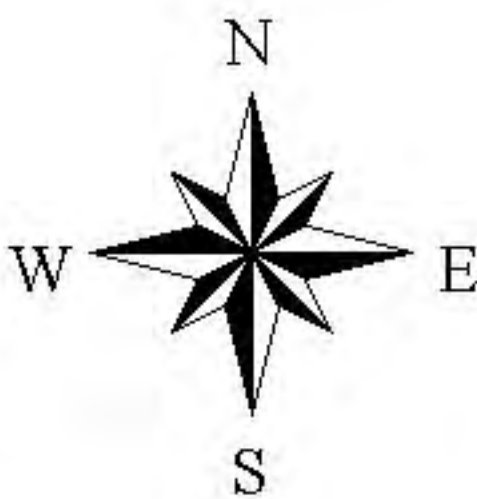


LAKE ST. CATHERINE  
Poultney & Wells, VT

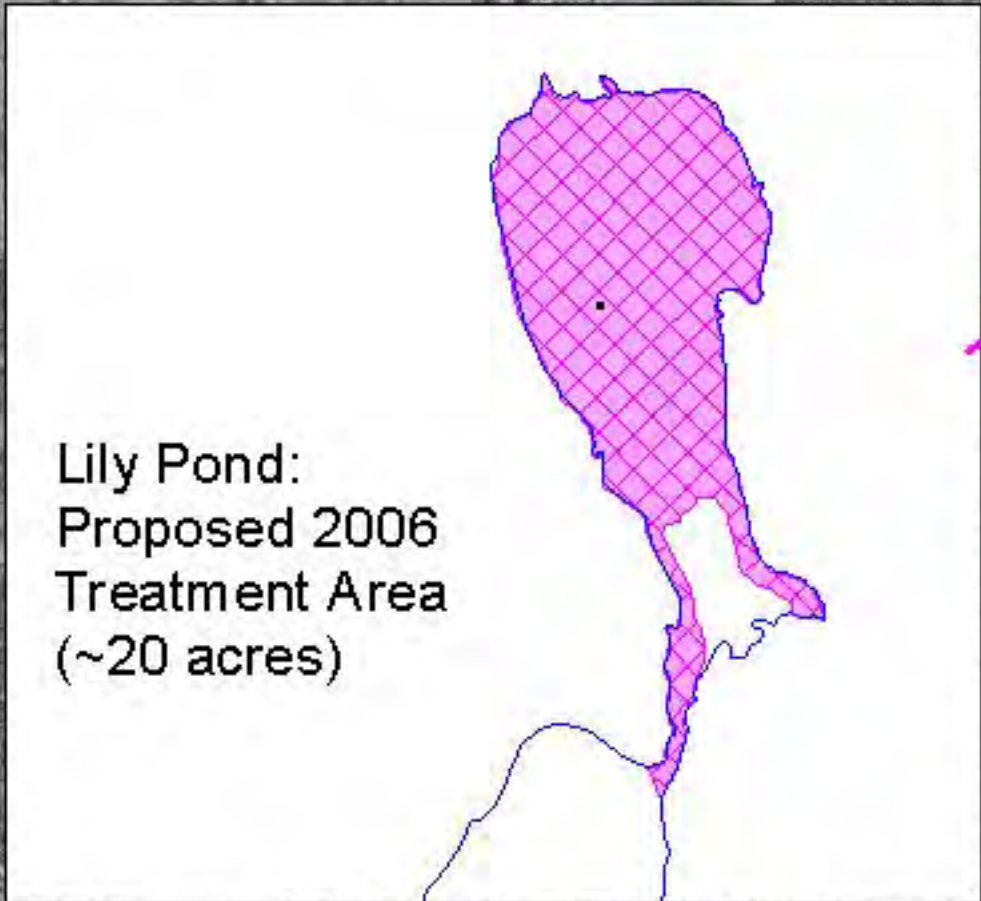
FIGURE 3  
MILFOIL DISTRIBUTION and  
2006 TREATMENT AREAS  
Survey Date: 9/15 & 9/16/05

- LEGEND:
- ★ GPS marked locations  
of Eurasian watermilfoil  
during 9/15/05 and  
9/16/05 survey

Base maps provided by  
ReMetrix LLC



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Lily Pond:  
Proposed 2006  
Treatment Area  
(~20 acres)



Little Lake:  
Proposed 2006  
Treatment Area  
(~10 acres)