

December 17, 2001

Mr. Kevin O'Brien
Department of Planning & Community Development
Town Offices, 730 Mass. Ave.
Arlington, MA 02476

Re: Project Completion Report – Spy Pond (2001)

Dear Kevin:

This report summarizes our 2001 program to control non-native Eurasian watermilfoil (*Myriophyllum spicatum*) and invasive coontail (*Ceratophyllum demersum*) at Spy Pond utilizing chemical treatment with Sonar (fluridone) herbicide. The report also presents and discusses our observations during a final, post-treatment plant survey that was performed on September 17th.

Treatment Program Overview:

Spy Pond has suffered from excessive vegetation and algae growth for the past 25 years or more. A vegetation survey of Spy Pond was conducted by Aquatic Control Technology on November 24th, 1999. This survey indicated that the majority of the southern basin, the shallow stretch of the pond between the two basins, and shoreline areas of the northern basin were infested with problematic levels of Eurasian watermilfoil and coontail. The pre-treatment inspection that was performed on May 8th, 2001 confirmed the findings of the 1999 vegetation survey.

The 2001 Aquatic Management Program to control the nuisance weed Eurasian watermilfoil (*M. spicatum*) and coontail (*C. demersum*) included the following tasks:

- Performed Pre-Treatment Inspection 5/8/01
- Performed Initial Sonar Treatment..... 5/18/01
- Performed Inspection and Gathered Water Samples for FasTEST Analyses..... 5/25/01
- Performed Second Sonar Treatment 6/6/01
- Performed Inspection and Gathered Water Samples for FasTEST Analyses..... 6/14/01
- Performed Inspection and Gathered Water Samples for FasTEST Analyses..... 6/21/01
- Performed Inspection and Gathered Water Samples for FasTEST Analyses..... 7/3/01
- Performed Reward/K-Tea Treatment for Coontail 7/12/01
- Performed Inspection 7/23/01
- Performed Final Post-Treatment Inspection 9/17/01

Two separate applications of liquid, Sonar AS herbicide were applied to Spy Pond during late spring and summer of 2001. The initial treatment was performed on May 18th with one additional, "bump-up" application on June 6th. The target dose for the fluridone concentration was 8-12 ppb. Through the use of FasTEST monitoring of post-treatment fluridone concentrations, the "bump-up" application was scheduled when the fluridone level had declined to a projected level of about 6 ppb.

The timing of the initial treatment was set after waiting long enough for establishment of a thermocline, in order to hold the Sonar in the upper (epilimnetic) layer of the lake. Treatment in early May runs a greater risk of substantial loss of Sonar to outflow, in view of the higher rainfall

amounts typically experienced during the month of May, although early May in 2001 was exceptionally dry. Since the beginning of May was considerably dry, we would have preferred to perform the initial Sonar treatment at that time. However, due to a delay in issuing the Order of Conditions and lowering the water level in the pond, the initial treatment was unable to be performed until May 18th. This did not effect the overall success of controlling the milfoil, but it did effect the success of controlling the coontail. FasTEST analyses taken one week post-treatment on May 25th, showed that the initial treatment with Sonar was slightly lower than the target concentration of 8.0-12.0 ppb with an average of 7.7 ppb throughout the epilimnetic (surface) layer of the pond. Moderate rainfall towards the end of May acted to dilute the Sonar concentration and prompted the need for a “bump-up” treatment on June 6th.

Four rounds of water samples were taken for FasTEST analyses over the course of the summer. The attached graph shows fluridone concentrations plotted over time during the treatment period, along with the dates of application and dates and amounts of rainfall. Rainfall data was obtained from the National Climate Data Center; Boston/Logan International Weather Station.

The milfoil at Spy Pond was very responsive to the Sonar treatments and in an inspection of the pond on July 3rd, it was estimated that the level of milfoil control was greater than 99%. However, the coontail was not as responsive to the Sonar treatment as was the milfoil. This is most likely due to the fact that the initial Sonar treatment was performed a little later than it should have been performed. The density of coontail had decreased somewhat after the Sonar treatments, but it was still problematic in certain areas. A third treatment was performed on July 12th, which focused on the reduction of coontail over approximately 25 acres of “high use” and “developed” shoreline areas. This treatment was performed with a combination of Reward (diquat) herbicide and K-Tea algaecide. The treatment was very effective and a marked decrease of coontail was noted during an inspection on July 23rd.

The post-treatment plant survey on September 17th revealed that excellent control of milfoil and coontail had been attained throughout the lake. Excellent “before and after treatment” photographs of the pond are attached for your review. Based upon our inspection, we believe that milfoil biomass (i.e. measured as the weight/unit area or height of milfoil in the water column) was reduced by >99% as compared to conditions observed in the pre-treatment survey on May 8, 2001. Reduction in bottom coverage of milfoil post-treatment (i.e. stem density) was believed to be greater than 95% and may have also approached >99%. Actually, no milfoil was observed during the post treatment inspection. It was also noted that there was an approximate 80%-90% reduction of coontail observed during the post treatment inspection compared to the abundance of coontail noted prior to the Reward/K-Tea treatment. Remaining coontail was observed as small patches widely scattered around the shoreline.

At no time during the course of our inspections or treatment of the lake did we directly observe or receive reports of any fish mortality or other ill effects of treatment on wildlife or other organisms. We believe that the combination of the Sonar treatment and Reward/K-tea treatment performed at Spy Pond achieved its intended goal of milfoil and coontail control.

Future Management Recommendations:

We feel that it is imperative to continue with the aquatic management program at Spy Pond in order to maintain open water conditions and improve water clarity. A successful management program is not accomplished by treating a waterbody once then allowing the plants to re-colonize before treating the waterbody again. Instead, the waterbody should be carefully monitored annually after the initial year of treatment and routine “spot-treatments” should be performed

when and if required. This is the most efficient and cost-effective approach to maintain desired conditions in Spy Pond.

We recommend a budget of at least \$15,000 for the continuation of the aquatic management program in the 2002 season. This cost would cover a detailed inspection to be performed in mid-summer to document the regrowth, if any, of the Eurasian watermilfoil, monitoring, and any spot-treatments of coontail that may be required in order to maintain open water conditions in the high-use areas of the pond.

It has been an enjoyable experience working with the Town of Arlington on this project. We feel this year's management program was a great success and we look forward to working with you in the years to come. Upon review of this report, we suggest you forward a copy to the Conservation Commission along with the Spy Pond Association.

Sincerely,

AQUATIC CONTROL TECHNOLOGY, INC.

Gerald N. Smith
President/ Aquatic Biologist

Kevin Clancy
Biologist