

August 29, 2005

Ms. Joey Glushko
Department of Planning & Community Development
Town Offices, 730 Mass. Ave.
Arlington, MA 02476

Re: Project Completion Report – Spy Pond (2005)

Dear Ms. Glushko:

This report summarizes our 2005 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 August 16th.

Introduction:

For over 30 years Spy Pond has suffered from excessive vegetation and algae growth. The presence of the exotic aquatic plant Eurasian watermilfoil and nuisance coontail, coupled with the pond's urban setting have created a myriad of management challenges. Since 1999, Aquatic Control Technology, Inc. has been working with the town of Arlington in an effort to manage both vegetation and in-lake nutrients at Spy Pond so that it may continue to serve the surrounding community of Arlington as a place for recreation and preservation of quality fish and wildlife habitat.

To date, Aquatic Control has performed three separate series of treatments at Spy Pond. In 2001 a Sonar treatment was conducted to help control both Eurasian watermilfoil and coontail which had come to inundate much of the pond's littoral zone, creating unsightly surface mats and altering the pond's ecology.. The 2001 Sonar treatment was highly successful giving Spy Pond over three years of nuisance plant control. In 2004, Aquatic Control performed an Alum treatment on Spy Pond to effectively reduce the amount of available nutrients in the waterbody, thereby increasing water clarity and reducing the frequency and intensity of problematic algae blooms. To date, the Alum treatment has proven successful and the water clarity levels reportedly remain substantially higher than they were prior to treatment. Most recently, Aquatic Control performed a second Sonar treatment program. This most recent treatment is the subject of this report, and the findings that follow pertain directly to the 2005 treatment as well as any accompanying work done to insure success of the project.

Treatment Program Overview:

A vegetation survey of Spy Pond was conducted by Aquatic Control Technology on July 9th, 2004. This survey indicated that approximately 40% of the southern basin, the shallow stretch of the pond between the two basins, and the easternmost cove area of the northern basin were infested with increasingly problematic levels of Eurasian watermilfoil and to a lesser degree coontail. The pre-treatment inspection that was performed on May 13th, 2005 confirmed the findings of the 2004 vegetation survey.

The 2005 Aquatic Management Program to control the nuisance weed Eurasian watermilfoil (*M. spicatum*) and coontail (*C. demersum*) included the following tasks:

- Filed for License to Apply Chemicals with MA DEP..... 4/27/05
- Performed Pre-Treatment Inspection 5/13/05
- Performed Initial Sonar Treatment 6/10/05
- Performed Inspection and Gathered Water Samples for FasTEST Analyses.... 6/21/05
- Performed Inspection and Gathered Water Samples for FasTEST Analyses..... 7/6/05
- Performed Second (Booster) Sonar Treatment..... 7/13/05
- Performed Inspection and Gathered Water Samples for FasTEST Analyses..... 8/3/05
- Performed Final Post-Treatment Inspection..... 8/13/05

Two separate applications of liquid, Sonar AS herbicide were applied to Spy Pond during late spring and summer of 2005. The initial treatment was performed on June 10th with one additional, "booster" application on July 13th. The target dose for the fluridone concentration was 8-10 ppb. Through the use of FasTEST monitoring of post-treatment fluridone concentrations, the "booster" application was scheduled when the fluridone level had declined to a projected level of about 6 ppb.

As in 2001, the timing of the initial treatment was scheduled for late spring, allowing ample time for establishment of a thermocline in order to hold the Sonar in the upper (epilimnetic) layer of the lake. Although this year's treatment occurred three weeks later than it had in 2001, the treatment proved very successful. As early as July 13th, the time of the first "booster" application, much of the milfoil had already fallen from the water column and begun to die. Sonar treatments that begin in late spring, still show good success with milfoil because the plant is continuing its growth and remains susceptible to the herbicide throughout the duration of the treatment. Rainfall is typically less at this point of the year and chemical loss to outflow is less. Less rainfall and loss of Sonar downstream was seen in this year's treatment program versus the considerable outflow that followed the initial Sonar treatment in 2001.

Prior to the initial application only, the water level in the pond was lowered 3 to 6 inches to help reduce outflow and contain the chemical. Also, the shoreline was posted with signs that warned of all water-use restrictions. Both treatments were performed from an 18' Panther Airboat. During each application, Sonar was diluted on-board with lake water in a 100 gal tank. The chemical was then subsurface injected with a calibrated pump and boom spraying system. This spray apparatus and calibrated, chemical metering system, further insures that the chemical is evenly distributed and dispensed according to pre-treatment calculations.

FasTEST analysis of water samples, collected post-treatment at Spy Pond, were conducted three times throughout the course of the treatment program to insure that herbicide levels remained at acceptable levels for the duration of the desired 45-60 day contact time. All FasTEST samples were sent to the manufacturer, so accurate analysis of the Sonar concentrations could be conducted. The utilization of the FasTEST helps us to determine the appropriate timing and dosing for any subsequent "booster" applications that may have to be performed. During each sampling round at Spy Pond, three surface samples were collected, one from each of the three pre-determined sampling stations, as follows – Station 1 (mid-pond, north of the island), Station 2 (northeast cove, near the apartment/condominium buildings) and Station 3, (mid-pond, south of the island). Two sets of FasTESTs were taken prior to the "booster" application. The first FasTEST analyses was taken eleven days post-treatment on June 21st. The first round of sampling showed that the target concentration of chemical was accurately achieved and sustained at 10.9 ppb, 7.8ppb, and 9.0ppb, respectively. A second round of FasTESTs were taken more than three weeks post-treatment, on July 6th, and showed that Sonar concentrations had dropped to around 6ppb. In response to the drop in herbicide concentrations, a "booster" application was scheduled for, and performed on July 16th, in order to raise the concentration back up to the 8-10ppb range. Concentrations of Sonar were restored in the pond, with the second application and remained at

effective levels until early August. By the August 3rd sampling round, Sonar levels in the lake had again returned to around 6ppb. Overall the target range of 6-10ppb was held in Spy Pond for about 50 days.

The milfoil at Spy Pond was very responsive to the Sonar treatments and in an inspection of the pond on August 18th, it was estimated that the level of milfoil control was greater than 99%. The coontail, although of only secondary importance, was also very responsive to the treatment

The post-treatment plant survey on August 18th revealed that excellent control of milfoil and coontail had been attained throughout the lake. 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 15th, 2005. Reduction in bottom coverage of milfoil post-treatment (i.e. stem density) was also believed to be greater than 99%. Actually, no milfoil was observed during the post treatment inspection. It was also noted that there was an approximate 90% reduction of coontail observed during the post treatment inspection. In fact, the only remaining coontail was observed as in the cove area of the north basin and appeared to be very sickly, displaying chlorosis in the extremities of the plant, a very common symptom resulting from exposure to Sonar.

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 people using the pond or on the resident fish or wildlife populations. We believe that the Sonar treatment performed at Spy Pond achieved its intended goal of milfoil and coontail control.

Future Management Recommendations:

It is important to continue with the aquatic management program at Spy Pond in order to maintain open water conditions and improve water clarity. As mentioned in 2001, a successful management program is not accomplished by treating a waterbody once, then allowing the plants to totally re-colonize before treating the waterbody again. Instead, the waterbody should be continually monitored for regrowth 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 minimum budget of \$7,500 for the continuation of the aquatic management program in the 2006 season. A portion (about \$1,500 -\$2,000) of this budget would cover the cost for two inspections/plant surveys to be performed over the course of the spring and summer to document plant re-growth, and up to \$5,500 for any spot-treatments of milfoil or coontail that may be required in order to maintain the pond.

As always, we have enjoyed working with Town of Arlington on this project and look forward to being involved in the continued effort to manage Spy Pond. We feel this year's management program was a great success and we look forward to working with you in the years to come in whatever capacity necessary. 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

Michael Lennon
Biologist

