

February 10, 2009

Mendon Conservation Commission
20 Main Street, Town Offices
Mendon, MA 01756

Re: Year-End Summary and Recommendations for the Aquatic Management Program at Nipmuc Pond, Mendon (2008)

Dear Commissioners:

Please accept this as our Year-End Report for the 2008 Aquatic Management Program at Nipmuc Pond. As in the past, a License to Apply Chemicals permit was filed with MA DEP's Office of Watershed Management and a site specific permit for the treatment of Nipmuc Pond was issued prior to treatment on April 16, 2008.

Prior to treatment, the pond was surveyed/inspected for the types and general distribution of aquatic vegetation. Patchy milfoil was again found only in the cove situated between Rt. 16 and Nipmuc Drive. This observation increases our confidence that yearly treatment may be helping to halt further spread of this species. This cove was chemically treated with the Reward (Diquat) herbicide on June 11th. Early detection and management are the best approach to preventing widespread growths of aquatic invasive plants and avoiding costly management programs, as is the case in several neighboring and/or nearby communities to Mendon.

In addition to treatment of milfoil, we also chemically treated several other coves and shoreline areas around the pond, targeting nuisance pondweeds. While these plants are native to MA, in some cases they do proliferate and create nuisance conditions in "high use" areas of the pond for swimming, fishing and other recreational pursuits. At Nipmuc Pond, chemical treatment is fortunately limited to a relatively small percentage of the overall pond area, thanks to its relatively good water depth, predominantly sand/rocky bottom and also in-part to preventative on-going management.

Prior to the June 11th treatment, a written notice of the treatment was placed in the local newspaper and printed signs warning of the temporary water use restrictions were posted around the effected areas of the pond by the Conservation Commission. All treatments were conducted by our state-licensed applicators in accordance with the chemical's label directions. As in most prior treatments performed at Nipmuc Pond, I was again on-hand to oversee and perform this past year's treatment from our Airboat. At no time during this management program, did we observe or receive reports of any fish mortality or other adverse effects of treatment on wildlife or other organisms.

Just prior to the herbicide/algaecide treatment on June 11th, a water sample was collected from the pond and tested for a number of common water quality parameters. The sample was collected approximately one foot below the water's surface and was delivered to a DEP certified environmental laboratory for analysis. Bear in mind that a single water sample analysis provides only a "snapshot" of water quality at that point in time and more frequent testing is needed to observe meaningful average values or trends in the data. Water clarity was again very good at the time of the survey, with a Secchi Disk clarity reading of 14 feet. For comparison purposes, at State accredited bathing beaches, a minimum clarity reading of 4 feet is required.

Water Quality Results 6/11/2008

Parameter	2008 Results	2006 Results	2005 Results	2004 Results	Units
pH	7.00	6.8	7.4	7.0	S.U.
Alkalinity	11	11	<20	13.0	mg/l
Turbidity	0.65	0.37	0.5	0.64	NTU
Total Kjeldal Nitrogen	N/A*	<1	<1	0.47	mg/l
Nitrate Nitrogen	N/A*	0.46	<0.5	0.43	mg/l
Phosphorus	0.01	<0.010	<0.010	<0.010	mg/l
True Color	2	10	7	2	Pt-Co
Apparent Color	7	2	10	10	Pt-Co
Total Coliform Bacteria	N/A*	<100	50	<50	Org/100ml
Fecal Coliform Bacteria	N/A*	<10	<10	<10	Org/100ml
E. Coli	10	<10	<10	<10	Org/100ml

N/A* parameter not tested in 2008

pH - The pH scale measures the acidity of the water and runs from 0 to 14, where zero is extremely acid, 7 is neutral, and 14 is the most basic. The value at Nipmuc Pond was 7.0 S.U. (neutral) which is within the typical and desirable range of 5.5 to 8.0 for most Massachusetts lakes. pH may vary throughout a season due to changes in alkalinity, as well as fluctuations in biological production.

Alkalinity - Alkalinity is a measure of the buffering capacity of a waterbody against acid additions such as acid rain and pollution, which can be detrimental to wildlife populations. Total alkalinity measures the presence of carbonates, bicarbonates and hydroxides. Values below 20 mg/l are a signal that the pond may be susceptible to fluctuations in pH. Ponds in this region typically have lower alkalinity due to the local geology and soils.

Turbidity - Turbidity is a measure of amount of suspended material in the water. Values can range from less than one to thousands of units, but generally are found to be less than 5 NTU in most waterbodies. As in the past, the turbidity value (0.65 NTU) at Nipmuc Pond was desirably low.

Phosphorus - Phosphorus is generally considered to be the limiting nutrient for plant and algae growth, with total concentrations of 0.03 mg/l or more being sufficient to stimulate algae blooms or excessive plant growth. Total phosphorus includes both particulate and dissolved species of phosphorus. The sample collected at Nipmuc Pond was again below this threshold. This low phosphorus level is highly desirable.

Color – “Apparent” color is the color of the unfiltered water that is caused by suspended and dissolved matter. “True” color is the color of the pond water after filtration and is due to dissolved constituents only, like tannic and humic acids. The sample continued to show a very low amount of color.

E. coli Bacteria – *E. coli* is one of the many naturally occurring bacteria found within the intestine of healthy humans and animals. The presence of high levels of *E. coli* in pond and/or lake water is indicative of recent sewage or animal waste contamination. The Massachusetts Department of Public Health has standards for the presence of *E. coli* in “swimable waters”. The current standard for freshwater is no single sample shall exceed 235 colonies per 100 ml. The value of *E. coli* in Nipmuc Pond (10 orgs/100ml) indicates that the *E. coli* levels were well below the aforementioned safe swimming threshold at the time the sample was collected and analyzed.

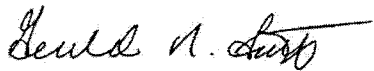
Recommendations for 2009

The annual program "spot" herbicide treatment program guided by annual inspections of the pond's vegetation continues to be very successful in managing nuisance plant and algae growth in Nipmuc Pond. The pond inspections alone are worth the cost of the management program to insure that invasive/exotic aquatic plants do not get a foot-hold in Nipmuc Pond. We recommend continuing with a similar program in 2009. The water quality testing continues to be helpful in providing insights into the water chemistry and overall condition of the pond. We recommend continuing with some level of testing on an annual basis.

We appreciate our continued relationship with the Town and look forward to working with you next year. If you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,

Aquatic Control Technology, Inc.

A handwritten signature in black ink, appearing to read "Gerald N. Smith". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Gerald N. Smith
President/Aquatic Biologist