# Annual Report
# 2016 Aquatic Management Program
# Foster's Pond
**Andover, MA**


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Submitted on: February 10, 2017

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## Introduction

Aquatic vegetation and water quality monitoring along with nuisance algae management efforts were the focus of this year's program at Foster's Pond. The only treatments required this year were for microscopic algae growth observed during the growing season. It was one year after a whole-pond Sonar Herbicide Treatment Program was performed in 2015 to control invasive fanwort (*Cabomba caroliniana*) and that treatment continued to be very effective. The purpose of the 2016 survey and monitoring effort was to document the level of carryover control that was achieved along with general water quality and algae monitoring. The 2016 survey and monitoring work was performed by SŌLitude Lake Management under contract with the Foster's Pond Corporation.

All work performed at Foster's Pond in 2016 was conducted in accordance with the Order of Conditions (OOC) issued by the Andover Conservation Commission (DEP #090-535) and the License to Apply Chemicals issued by the MA DEP – Office of Watershed Management (#16106).

A chronology of this past year's management and brief description of events follows:

## 2016 Program Chronology

- DEP License to Apply Chemicals Issued ..... 5/4/16
- Collection of algae samples (Round #1) ..... 7/13/16
- Collection of algae samples (Round #2) ..... 7/21/16
- Algaecide application ..... 7/21/16
- Collection of algae samples (Round #3) ..... 8/24/16
- Late-Season Vegetation Survey ..... 8/26/16
- Follow-up algaecide application ..... 9/1/16
- Collection of water quality samples ..... 9/1/16
- Collection of algae samples (Round#4) ..... 9/8/16

## Algae Management

Over the years, Foster's Pond has periodically exhibited nuisance algae blooms and corresponding poor water clarity. Due to commonly elevated phosphorus concentrations, blooms are often comprised of cyanobacteria (blue-green algae). Given the potential for algae toxins associated with cyanobacteria, the Foster's Pond Corporation closely monitors water clarity and requests sampling and algaecide treatments as needed.

In 2016, based upon visual observation of microscopic algal blooms, multiple rounds of algae samples were collected and analyzed by Northeast Laboratories in Berlin, CT. These samples, along with visual cues and Secchi disk readings guided the decision-making process regarding algae treatments. The results of the Secchi disk measurements and algal sampling are provided below:

**Table 1: Secchi Disk Readings**

| Date | Secchi Disk Depth (ft) | | | | |
|---|---|---|---|---|---|
| | Mill Reservoir | Dug Pond | Main Basin | Outlet Cove | Azalea Drive |
| 7/21/16 | - | - | 3.5 | - | - |
| 8/23/16 | 7.5 | 11.8 | 3.7 | 5.5* | 9.0* |
| 8/26/16 | 8.0 | 12.6 | 3.5 | 4.9* | - |
| 9/8/16 | 7.5 | 10.7 | 4.2 | 5.0* | 7.3 |

* Denotes to pond bottom

**Table 2: Main Pond Algae Count Data**

| Algal Division | Description | Measurement | Main Pond | | | |
|---|---|---|---|---|---|---|
| | | | 7/13 | 7/21 | 8/24 | 9/8 |
| **Cyanophytes** | cyanobacteria or bluegreens | cells/ml | 3,170 | 5,170 | 20,700 | 310 |
| | | % of total Natural Units | 2 | 36 | 63 | 8 |
| **Chlorophytes** | greens | Natural Units/ml | 10,672 | 570 | 1,216 | 55 |
| **Other** | diatoms, golden euglena, ect. | Natural Units/ml | 1,010 | 370 | 54 | 78 |
| **TOTAL** | | Natural Units/ml | 11,938 | 1,634 | 3,390 | 145 |

**Table 3: Other Sampling Location Algae Count Data**

| Algal Division | Description | Measurement | Dug Pond | Outlet Cove | | Mill Reservoir | | Azalea Cove | Channel |
|---|---|---|---|---|---|---|---|---|---|
| | | | 7/13 | 7/21 | 9/8 | 8/24 | 9/8 | 9/8 | 9/8 |
| **Cyanophytes** | cyanobacteria or bluegreens | cells/ml | 610 | 2,090 | 110 | 58,000 | 0 | 340 | 990 |
| | | % of total Natural Units | 28 | 37 | 7 | 100 | 0 | 24 | 9 |
| **Chlorophytes** | greens | Natural Units/ml | 72 | 0 | 29 | 0 | 10 | 20 | 25 |
| **Other** | diatoms, golden euglena, etc. | Natural Units/ml | 112 | 240 | 79 | 0 | 63 | 58 | 43 |
| **TOTAL** | | Natural Units/ml | 454 | 384 | 116 | 2,900 | 73 | 103 | 86 |

Following observations of declining water clarity in the main basin samples were collected from the main basin and Dug Pond on July 13th. Results showed a relatively low level of cyanobacteria and dominance by green algae, predominately *Staurastrum*, however the poor water clarity and water coloration prompted a decision to move ahead with an algaecide treatment. Additional samples were taken on the day of treatment to see if conditions had changed since the initial sampling. Those results showed a slight increase in cyanobacteria and a significant reduction on the predominance of green algae. A sample was also collected from the Outlet Cove at this time, which showed the low presence of cyanobacteria and low counts overall.

While conditions improved only slightly following treatment, a perceived worsening of conditions prompted another round of sample collection on August 24th. Samples were collected from the Main Basin and Mill Reservoir, which was exhibiting visible algae colonies in the water as well as floating clumps. Results in the Main Basin showed the highest cyanobacteria counts of the season, just over 20,000 cells/ml and dominated by *Gomphosphaeria* and *Pseudanabaena*. Surprisingly, Mill Reservoir showed a cyanobacteria count of 58,000 cells/ml dominated by *Anabaena* and *Chroococcus*. Due to these results, treatment was scheduled.

A final round of samples was collected on September 8th in the Main Basin, Outlet Cove, Mill Reservoir and the Channel. All counts were relatively low and clarity had improved slightly in the Main Basin.

Except for the surprisingly high counts in Mill Reservoir in August, cyanobacteria levels were generally lower than those associated with algaecide treatments in 2013 & 2015. Co-dominance with green algae and other taxa likely compounded the effects of this year's blooms on water clarity. Drought conditions and warm temperatures likely had an effect on conditions as well.

### *Algaecide Applications:*

Two half-pond copper sulfate treatments were conducted in 2016. Prior to all applications, notification of the treatment was submitted to the Town, e-mail notifications were provided to shoreline property owners and area residents on the FPC's e-mail list, notice was posted on the FPC's website, and posters warning

of the temporary water-use restrictions to be imposed following treatment were posted along the shoreline of the pond.

The treatments were performed on July 21st and September 1st by SOLitude's licensed aquatic applicators. The treatment was conducted in accordance with conditions of the DEP License to Apply Chemicals and the copper sulfate product label instructions. Treatment was limited to areas where algal densities were problematic including:

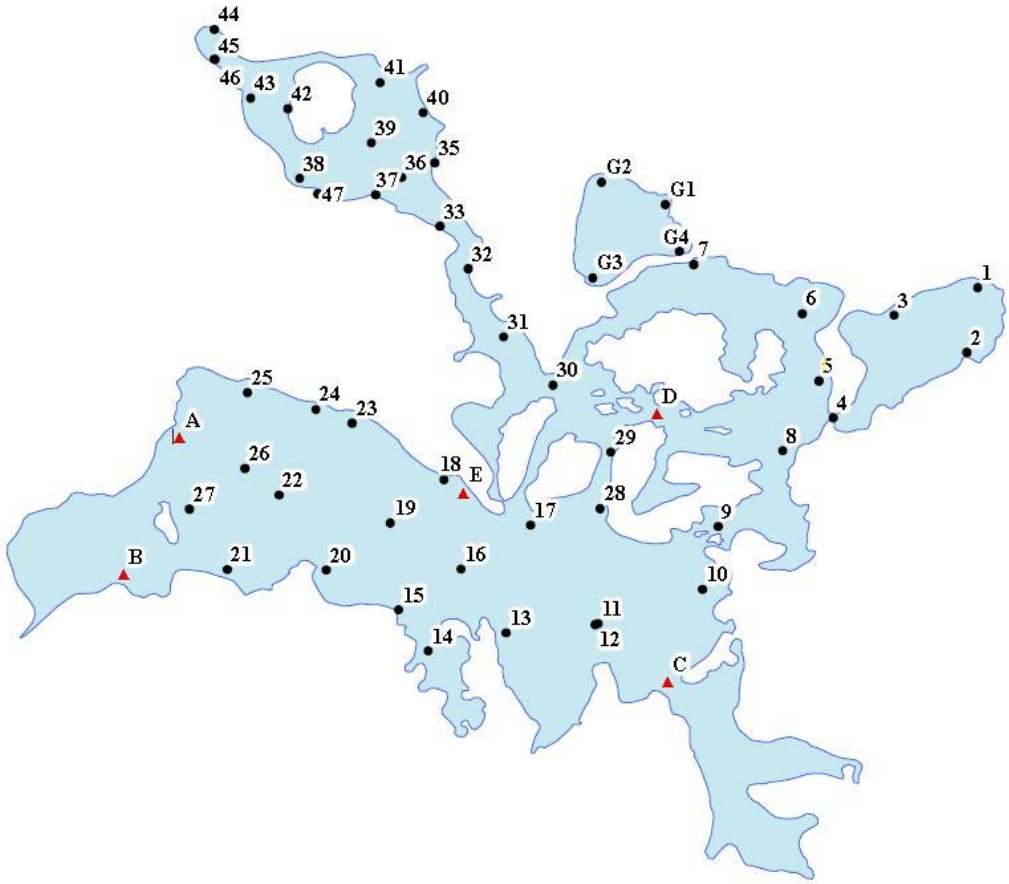
- Main Pond – 35-40 acres, entire shoreline, no-treatment occurred in the deepest portion in the center of the basin or in the shallow cove areas located along the southern shoreline
- Mill Reservoir (2nd TREATMENT ONLY) – 8 acres, entire basin
- Outlet Cove and Channel – 15 acres, no treatment within 250 feet of the outlet

The maximum total acreage treated was 60 acres or half of the reported surface area of Foster's Pond. In addition to the no-treatment areas described above, no treatment occurred in the Dug Pond basin or in the wetland area located between Mill Reservoir and the Main Pond/Channel. The dose of copper sulfate applied was calculated on the upper five feet of the water column, which resulted in 300 acre-feet of water. A dose of 0.3 ppm or 240 pounds of copper sulfate was applied. Copper sulfate was dissolved in 50 gallon mixing tanks on board a conventional boat and was applied using a calibrated venturi educator system and a surface spray using fan-pattern nozzles. GPS was used on the spray boat to ensure an even application of the diluted copper sulfate solution throughout the designated treatment areas. Each treatment was completed in approximately three hours.

## Yearly Survey

A survey of Fosters Pond was conducted on August 26th to document aquatic plant composition and distribution following the 2015 whole-pond Sonar Herbicide Treatment Program. The survey methodology used was consistent with surveys performed periodically since 2004, utilizing established transects and data points. In total, 50 data points were surveyed. A map depicting transect and data point location follows; the data collected is attached to this report.

***Figure 1: Aquatic Plant Data Point Locations***




The overall vegetation cover in the pond returned to pre-treatment levels this year with the Percent Total Plant Cover and Biomass Index rebounding after declines last year, although the dominant species was filamentous algae, which is likely skewing the Percent Cover higher than just the vegetation. The Percent Fanwort Cover again was desirably low in the year immediately following the fluridone treatment.

***Table 1: Aquatic Vegetation Data Summary***

| Year | Estimated % Total Plant Cover | Estimated % Fanwort Cover | Biomass Index | Species Richness Index |
|---|---|---|---|---|
| 2004 | 78.9 | 54.5 | 2.9 | 3.6 |
| 2005[1] | 25.5 | 0.1 | 1.4 | 1.7 |
| 2008 | 15.9 | 0.9 | 1.6 | 1.7 |
| 2009 | 34.2 | 6.1 | 1.6 | 5.5 |
| 2011[1] | 19.0 | 0 | 1.2 | 1.4 |
| 2012 | 21.2 | 0.1 | 1.3 | 1.6 |
| 2014 | 53.6 | 10.9 | 2.4 | 2.7 |
| 2015[1] | 41.7 | 0 | 1.6 | 0.8 |
| 2016 | 70.3 | 0.2 | 2.4 | 1.3 |

[1]Whole-lake Sonar (fluridone) treatment performed

Aside from filamentous algae, vegetation in Foster's Pond was sparse following treatment and what remained was dominated by white and yellow waterlilies (*Nymphaea & Nuphar*), which, albeit thinned, remained abundant in most of the shallow cove/wetland areas. Spiny naiad (*Najas minor*), another invasive species, dominated vegetation along portions of the shoreline and channel. Cover of ribbonleaf pondweed (*Potamogeton epihydrus*), coontail (*Ceratophyllum demersum*), bladderwort (*Utricularia spp.*), and stonewort (*Nitella sp.*) was also common, but where encountered growth was generally low-density and scattered. Benthic filamentous algae growth was the most frequently observed aquatic species observed, at more than 75% of the Data Points. Three data points supported trace densities of fanwort; one individual plant stem was recorded at Points #8, 40, and 45. Additional growth was observed by residents in the southeastern, shallow cove areas.

Benthic filamentous algae was prolific in many shallow areas of the pond this year, possibly resulting from the severe drought conditions. The most severe area was observed in the channel leading to the outlet cove where surface cover of algae mats was at times close to 50%. Filamentous algae prospers in shallow water and uses nutrients that build up at the sediment water interface and while not uncommon, can certainly be problematic from a recreational standpoint and may cause localized adverse effects on water quality.

A map depicting the locations of the two invasive species in the pond, fanwort and spiny naiad is included in the attachments. Spiny naiad was most problematic in the channel to the outlet again, again likely due the shallow water depths in this area. While likely exacerbated by climatic conditions, the extent of spiny naiad was significantly increased since its observance in 2009 and 2010 when it was treated with the diquat herbicide. While not known to be exceptionally aggressive, spiny naiad growth should be monitored closely and herbicide treatment considered to halt its spread in 2017.

A list of the plants observed in 2016 with historical comparison of plant presence and absence follows:

***Table 2: Aquatic Species List (2005-2016)***

| Type | Macrophyte Species | Common Name | '05 | '08 | '09 | '11 | '12 | '14 | '15 | '16 |
|---|---|---|---|---|---|---|---|---|---|---|
| Submersed | *Bidens beckii* | Water marigold | | | X | | | | | |
| | *Cabomba caroliniana* | Fanwort | X | X | X | | X | X | | X |
| | *Callitriche palustris* | Water starwort | | | X | | | | | X |
| | *Ceratophyllum demersum* | Coontail | X | X | X | X | X | X | X | X |
| | *Chara vulgaris* | Musk grass | | | X | X | | | | |
| | *Chlorophyta* | Filamentous algae | X | X | X | X | X | X | X | X |
| | *Egeria densa* | Brazilian elodea | X | X | X | | | | | |
| | *Elodea canadensis* | Common waterweed | | | X | | | | | |
| | *Hypericum boreale* | Northern St. John's wort | | | X | | | | | |
| | *Isoetes* | Quillwort | X | X | X | X | X | | | |
| | *Ludwigia palustris* | Water purslane | | | X | X | X | | | |
| | *Musci* | Water moss | X | X | X | | X | X | X | |
| | *Myriophyllum humile.* | Lowly Milfoil | X | X | X | X | | X | | |
| | *Najas flexilis* | Bushy pondweed | X | X | X | | X | X | | |
| | *Najas minor* | Spiny naiad | | | X | | | X | | X |
| | *Nitella sp.* | Stonewort | X | X | X | X | X | X | X | X |
| | *Potamogeton amplifolius* | Largeleaf pondweed | | | | | | | | |
| | *Potamogeton epihydrus* | Ribbonleaf pondweed | | X | X | X | X | X | X | X |
| | *Potamogeton gramineus* | Variable-leaf pondweed | | | X | | X | | | |
| | *Potamogeton natans* | Floating leaf pondweed | | X | X | | | X | | |
| | *Potamogeton perfoliatus* | Clasping-leaf pondweed | | | | | | | | |
| | *Potamogeton pusillus* | Thin-leaf Pondweed | | | | | | X | | X |
| | *Potamogeton robinsii* | Robbins Pondweed | | | | | | | | X |
| | *Sagittaria sp.* | Arrowhead | | X | X | | X | | | |
| | *Utricularia* | Bladderwort | X | X | X | X | X | X | X | X |
| | *Valliseria americana* | Wild celery | | | X | | | | | |
| Floating Leaf | *Brasenia schreberi* | Watershield | | X | X | | X | X | X | |
| | *Lemna minor* | Lesser duckweed | | | X | | | | | |
| | *Nuphar variegatum* | Yellow waterlily | X | X | X | X | X | X | X | X |
| | *Nymphaea odorata* | White waterlily | X | X | X | X | X | X | X | X |
| | *Spirodela polyrhiza* | Big duckweed | | | X | | | | | |
| Emergent | *Decodon verticillatus* | Water willow | X | X | X | X | X | | X* | X* |
| | *Eleocharis sp.* | Spikerush | | | X | | | | | |
| | *Eriocaulon sp* | Pipewort | X | X | | | | | | |
| | *Lythrum salicaria* | Purple loosestrife | X | X | X | X | X | X | X* | X* |
| | *Peltandra viginica* | Arrow arum | | | X | | | | | |
| | *Pontederia cordata* | Pickerelweed | X | X | X | X | X | | | |
| | *Scirpus sp.* | Rushes | X | X | | | | | | |
| | *Sparganium sp.* | Burreed | | X | X | X | X | X | X* | X* |
| | *Typha sp.* | Cattail | X | X | X | X | X | | X* | X* |

***** *Observed in the pond, but not at Data Point locations* *Species highlighted in RED are considered invasive species.*

### *Water Quality Monitoring*

Consistent with efforts in prior years, water quality sampling was performed throughout Foster's Pond in 2016. Surface grab water samples were collected from four locations as shown below on September 1st.

Laboratory analysis of the samples was performed for the following parameters: pH, Alkalinity, Total Phosphorus, Turbidity, True Color, and Apparent Color.

***Figure 2: Water Quality Sample Locations***

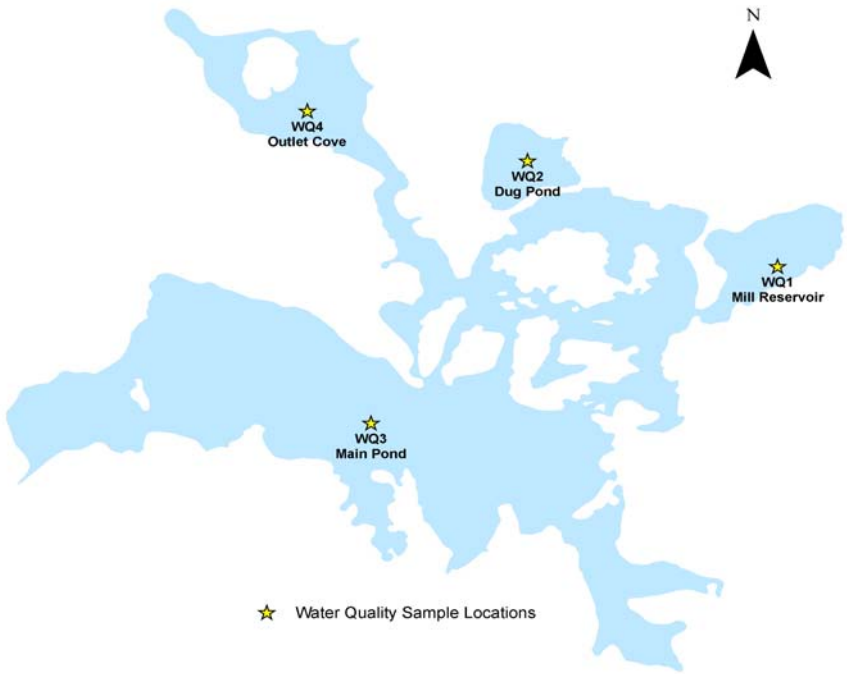



***Table 3: Water Quality Results***

| Parameter | Units | Desirable Thresholds | Mill Reservoir (WQ1) | Dug Pond (WQ2) | Main Pond (WQ3) | Outlet Cove (WQ4) |
|---|---|---|---|---|---|---|
| pH | S.U. | 5.5 – 8.5 | 7.3 | 6.9 | 7.5 | 7.0 |
| Alkalinity | mg/L CaC03 | > 20 | 28 | 14 | 25 | 12 |
| Phosphorus | mg/L | < 0.03 | 0.016 | ND | 0.036 | 0.012 |
| Turbidity | NTU | < 5 | 2.8 | 1.5 | 9.4 | 1.7 |
| True Color | Pt-Co | < 100 | 20 | 10 | 30 | 20 |
| Apparent Color | Pt-Co | <100 | 40 | 20 | 60 | 30 |
| Fecal Coliform | Colonies/ 100mL | < 200 | 30 | <10 | <10 | <10 |

The water quality results were similar to results reported in prior years. The pH values were close to neutral at all the sample locations and are within normal ranges for freshwater systems in the Northeast. Adverse impacts to fish and other aquatic organisms are generally not observed if the pH is above 5.0 and below 9.0. Alkalinity values varied some between locations within the low end of the desirable range, but are

typical for values observed in the region. Total phosphorus values were elevated in the Main Pond, but within desirable thresholds at the other stations. Typically, phosphorus concentrations above 0.02 mg/L can support algal blooms. Turbidity values were below 3 NTU this sampling round, except in the Main Pond which was elevated at 9.4 NTU. This could be attributable to the microscopic algae bloom that was being treated on the day of sample collection. Apparent color is a measure of the raw water, while true color is a measure of filtered water. Values were similar to prior years and suggested that both suspended particles (e.g. algae, suspended sediment) and dissolved material (e.g. tannins) imparted color to the water.

Coliform bacteria can be understood as a series of concentric circles: the outermost ring of total coliform bacteria encompasses all forms; the next ring is fecal coliform which is a sub-group of total coliform and is composed of many strains of bacteria commonly found in the intestines and feces of people and animals; the innermost ring is that of *E.* coli which is a specific strain of fecal coliform linked to causing illness in humans. Measuring fecal coliform allows for an indicator to the presence of human or animal waste inputs. Acceptable values for "swimmable waters" for fecal coliform bacteria is less than 200 organisms per 100 mL. The single detectable fecal coliform result of 30 CFU from Mill Reservoir was well below the established threshold.

Algae sampling data was presented earlier in this report, but in summary, both cyanobacteria and other taxa contributed to poor water clarity in the Main Basin this year. Compared to other years where algaecide treatments were required, water clarity was similarly poor but cyanobacteria levels were lower in general.

Current guidelines established by the Massachusetts Department of Public Health (MA DPH), recommend water contact advisories be issued based on any one of three criteria, 1) cyanobacteria counts of 70,000 cells/ml or greater, 2) Microcystin (toxin) levels exceeding 20 ppb, or 3) visible cyanobacteria "scums". Additionally, MA DEP has issued policy restricting treatments with copper based algaecides once the cyanobacteria counts have exceeded 70,000 cells/ml. These elements make it critical to monitor and manage algae blooms in a timely fashion.

## Conclusions and Recommendations

As we have seen in years following Sonar treatments, native aquatic vegetation has rebounded fairly quickly and a more diverse vegetative composition was observed. Most of the more desirable native plants are annual plants which reproduce each year from seed, so recovery is possible as long as seeds exist in the pond sediment. Waterlilies and other floating leaf species that were impacted by treatment recovered and a healthy distribution were recorded in the shallow wetland areas.

Given the trophic state of Foster's Pond and the presence of invasive, non-native aquatic vegetation, specifically fanwort, it is likely that Foster's Pond will continue to suffer from problematic aquatic weed growth in the future. Well-timed management efforts to date have successfully help curb fanwort spread while maintaining a diverse native plant assemblage, future management work will be required to maintain gains from earlier management efforts. We recommend that the Foster's Pond Corporation continue monitoring vegetation in the lake annually to assess fanwort re-growth and watch for other unwanted plant introductions.

Recently, spiny naiad is growing in density and distribution throughout portions of the pond. This is a late germinating species, typically in late July/August. It spreads via seed production, so well-timed spot-treatments utilizing contact herbicides in August can provide effective management, especially after multiple years of treatment reducing the seed bank.

With the registration of Clipper (flumioxazin) by the Massachusetts Department of Agricultural Resources in 2013, two herbicides are now currently available to manage fanwort infestations. Clipper has proven effective in spot-treating fanwort growth in Massachusetts lakes and ponds; unfortunately, the Department of Environmental Protection limits treatment to less than 25% of the total waterbody's acreage in one year and a treated area may not be retreated for 3 years. Since Clipper is a contact herbicide, re-growth can be expected in the year after treatment and at least several years of consecutive treatment followed by periodic re-treatment are usually required to manage the infestation. Given the current restrictions on the use of Clipper and the past success of whole-lake treatments with fluridone, addressing the re-growth using spot-treatments is not likely to provide a substantial benefit to Foster's Pond. We should however continue to evaluate new technologies as they become available or re-visit options should regulatory restrictions change.

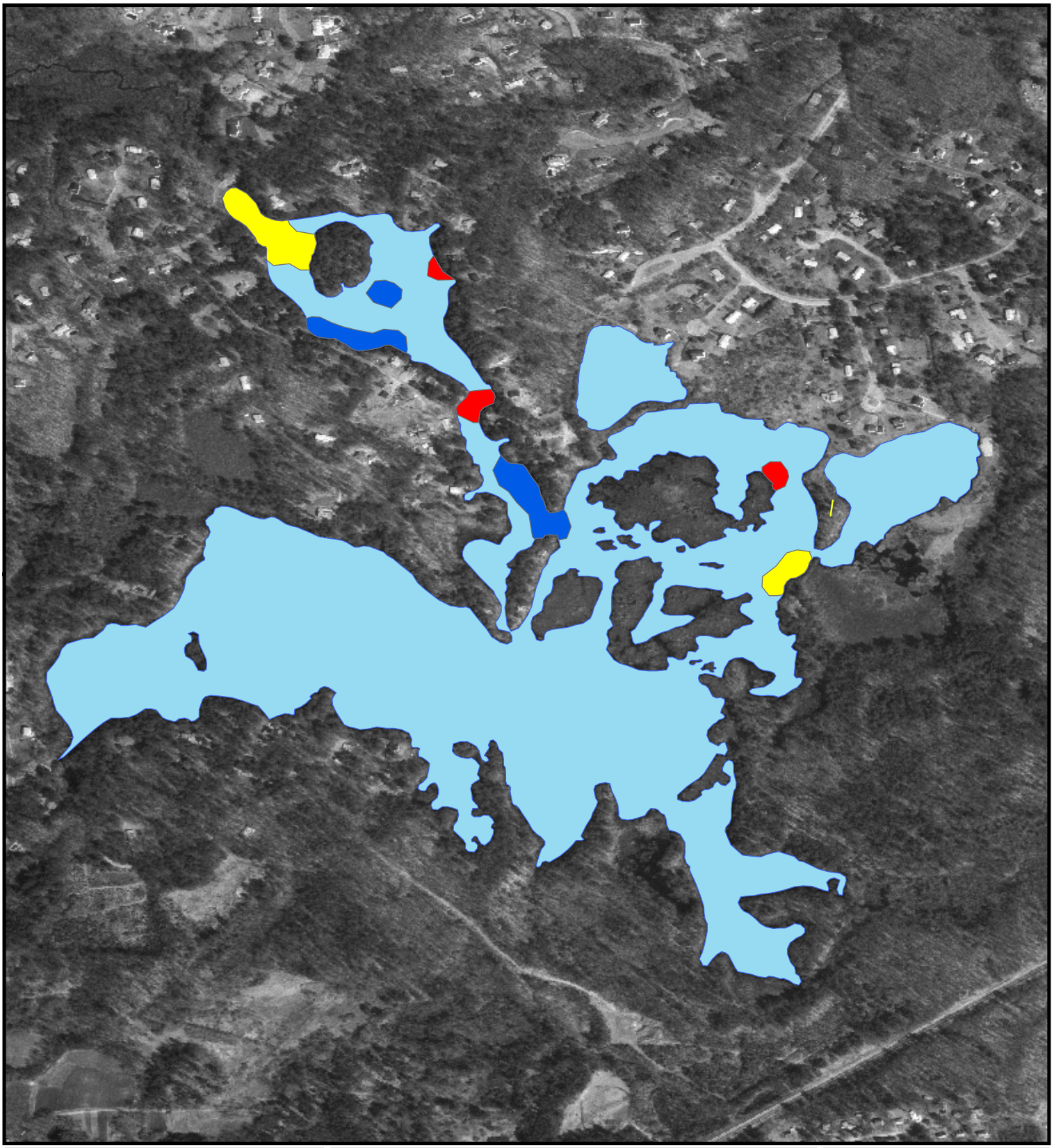
Overall, the algaecide treatments performed in 2016 appear to have provided periodic control of microscopic algae throughout the entire waterbody. Monitoring of algal composition and densities throughout the summer allows for timely treatment with copper-based algaecides. Managing the nutrients in the pond, specifically phosphorus, will likely limit algal growth. These strategies can prevent excessive algae growth and potential closures from government agencies.

While copper-based algaecides manage the symptoms of excessive nutrients within the system, low-dose aluminum treatments have proven effective in reducing available nutrients and the frequency of copper-based algaecide treatments. Based on the available research, phosphorus availability is the limiting nutrient to microscopic algae growth. By reducing the nutrient source for algae growth, reductions in the severity and frequency of potentially toxic microscopic algae blooms can be gained. Low-dose alum treatments entail injecting aluminum sulfate subsurface into the water from the specially designed treatment vessel. Upon mixing with the water, a floc is created which is heavier than water. As the floc passes through the water column, phosphorus chemically binds with the aluminum ions and is rendered biologically unavailable for microscopic algae growth. Based upon our experience, low-dose, annual alum treatments have a cumulative effect on iron-bound phosphorus that is released from the pond sediments during periods of anoxia. A low-dose alum treatment of the Main Basin would cost approximately $6,500. More details of the specific work plan would need to be determined prior to implementation. While higher dose alum treatments have been discussed in the past, such approaches would require significantly more cost and require more substantial evaluation and therefore are not recommended at this time.

SeClear is another available product that combines algaecidal properties with a phosphorus reducing agent. While SeClear will not reduce phosphorus levels as significantly as alum, it could be an attractive alternative to copper sulfate treatments. The cost would be mid-range between traditional copper sulfate treatments and low-dose alum treatment (~$4,000) and would potentially provide enough phosphorus reduction to reduce the likelihood of recurring blooms later in the summer.

**Attachments**

- Map of Spiny Naiad and Fanwort
- Aquatic plant survey field data table
- Water quality laboratory reports
- Algae count data



## Fosters Pond

Andover, MA

Invasive Plant Distribution

| FIGURE: | SURVEY DATE: | MAP DATE: |
|---|---|---|
| 1 | 8/26/16 | 2/2017 |

## Legend

- Fanwort & Spiny Naiad
- Fanwort
- Spiny Naiad

N

0 180 360 720 1,080 1,440 1,800 Feet

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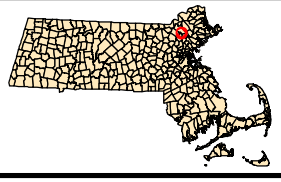

# Aquatic Plant Survey Legend

| Abbreviation | *Latin Name* | Common Name |
|---|---|---|
| **Cc** | *Cabomba caroliniana* | Fanwort |
| **Mu** | *Musci sp.* | Water moss |
| **Pe** | *Potamogeton epihydrus* | Ribbon-leaf pondweed |
| **Pp** | *Potamogeton pusillus* | Thin-leaf pondweed |
| **Pr** | *Potamogeton robinsii* | Robbins pondweed |
| **U** | *Utricularia sp.* | Bladderwort |
| **Cd** | *Ceratophyllum demersum* | Coontail |
| **Nm** | *Najas minor* | Spiny naiad |
| **Ca** | *Caltriche palustris* | Water starwort |
| **Ni** | *Nitella sp.* | Stonewort |
| **Fa** | *Chlorophyta* | Filamentous algae |
| **Nu** | *Nuphar variagata* | Yellow waterlily |
| **B** | *Brasenia schreberi* | Watershield |
| **Ny** | *Nymphaea odorata* | White waterlily |
| **Sp** | *Sparganium sp.* | Burreed |
| **Ch** | *Chara vulgaris* | Musk grass |
| **Nf** | *Najas flexillis* | Bushy naiad |

X = Present
D = Dominant

Rows highlighted in YELLOW, denote inaccessible data points due to water depth. Growth was visually estimated if possible.

%FOC = Frequency of Occurrence (as percentage)

Foster's Pond - Aquatic Plant Survey Data Table

survey date: 8/26/16

| Data Point | Water Depth (ft.) | Cc | Mu | Pe | Pp | Pr | U | Cd | Nm | Ca | Ni | Fa | Nu | B | Ny | Sp | Ch | Nf | % Total Plant Cover | %Fanwort Cover | Biomass index | Species Richness index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | | | | | | | | | | D | | | | | | | | 10 | - | 1 | 1 |
| 2 | 11 | | | | | | | | | | | D | | | X | | | | 50 | - | 4 | 1 |
| 3 | 4 | | | | | | | | | | | D | | | | | X | | 25 | - | 1 | 1 |
| 4 | 2 | | | | | | | | | | | X | | | | | D | | 100 | - | 3 | 1 |
| 5 | 2 | | | | | | | | | | | X | | | | | D | | 75 | - | 3 | 1 |
| 6 | 11 | | | | | | | | | | | | | | | | D | | 100 | - | 2 | 1 |
| 7 | 4 | | | | | D | X | | | | | | | | | | X | | 40 | - | 2 | 3 |
| 8 | 2 | X | | | | | | | | | | D | | | | | X | | 70 | 1 | 3 | 2 |
| 9 | 2 | | | | | | | | | | | D | | | | | | | 20 | - | 1 | 0 |
| 10 | 4 | | | | | | | | | | | | | | D | | | | 10 | - | 4 | 1 |
| 11 | 5 | | | | | | | | | | | X | | | D | | | | 100 | - | 4 | 1 |
| 12 | 7 | | | | | | | | | | | X | | | D | | | | 100 | - | 4 | 1 |
| 13 | 7 | | | | | | | | | | | D | | | X | | | | 100 | - | 3 | 1 |
| 14 | 2 | | | | | | | | | | | D | X | | | | | | 100 | - | 4 | 1 |
| 15 | 7 | | | | | | | | | | | D | | | | | | | 100 | - | 3 | 0 |
| 16 | 9 | | | | | | | | | | | D | | | | | | | 50 | - | 1 | 0 |
| 17 | 6 | | | | | | | | | | | D | | | | | | | 100 | - | 2 | 0 |
| 18 | 6 | | | D | | | | | | | | X | | | | | X | | 65 | - | 2 | 2 |
| 19 | 10 | | | | | | | | | | | | | | | | | | 0 | - | 0 | 0 |
| 20 | 8 | | | | | | | | | | | D | X | | X | | | | 100 | - | 2 | 2 |
| 21 | 4 | | | | | | | | | | | D | | | | | | | 100 | - | 2 | 0 |
| 22 | 9 | | | | | | | | | | | D | | | | | | | 20 | - | 1 | 0 |
| 23 | 7 | | | | | | | | | | | | | | | | | | 0 | - | 0 | 0 |
| 24 | 5 | | | | | | | | | | | D | | | | | | | 100 | - | 4 | 0 |
| 25 | 4 | | | | | | | | | | | D | | | | | | | 100 | - | 4 | 0 |
| 26 | 7 | | | | | | | | | | | | | | | | | | 0 | - | 0 | 0 |
| 27 | 4 | | | | | | | | | | | D | | | | | | | 20 | - | 1 | 0 |
| 28 | 3 | | | | | | | | | | | D | | | | | | | 100 | - | 3 | 0 |
| 29 | 3 | | | | | | | | | | | D | | | D | | | | 100 | - | 4 | 1 |
| 30 | 3 | | | | | | | | D | | | | | | | | | | 85 | - | 3 | 1 |
| 31 | 2 | | | | | | | | X | | | X | | | X | | D | | 100 | - | 3 | 3 |
| 32 | 2 | X | | | | | | | | | X | D | | | | | | | 100 | 1 | 4 | 2 |
| 33 | 4 | | | | | | X | | | | | D | | | | | X | | 100 | - | 1 | 2 |
| 34 | 3 | | | | | | X | | | | | D | | | | | X | | 100 | - | 1 | 2 |
| 35 | 3 | | | | | | X | | | | | D | | | | | X | | 100 | - | 2 | 2 |
| 36 | 4 | | | X | X | | | | | | | D | | | | | | | 100 | - | 3 | 2 |
| 37 | 2 | | | X | | | | | X | X | | D | | | | | X | | 100 | - | 4 | 4 |
| 38 | 6 | | | | | | | | X | | | D | | | | | | | 95 | - | 2 | 1 |
| 39 | 6 | | | | X | | | | D | | | X | | | | | | | 100 | - | 3 | 2 |
| 40 | 6 | X | | | | | | | | | | D | | | X | | | | 95 | 1 | 1 | 2 |
| 41 | 3 | | | | | | | | | | | X | | | X | | D | | 100 | - | 2 | 2 |
| 42 | 5 | X | | | X | | X | | | X | | D | | | | | | | 91 | 1 | 2 | 4 |
| 43 | 7 | X | | | | | | | X | X | | D | | | | | | | 80 | 5 | 2 | 3 |
| 44 | 3 | X | | | | | D | | | X | | X | | | | | | | 25 | 1 | 1 | 3 |
| 45 | 6 | X | | | | | D | | | X | | X | | | | | | | 40 | 1 | 2 | 3 |
| G1 | 5 | | | | | | | | | | | | | | | | D | | 20 | - | 2 | 1 |
| G2 | 6 | | | D | | | | | | | | | | | X | | | | 15 | - | 3 | 2 |
| G3 | 5 | | | | | | | | | | | | | | | | D | | 10 | - | 1 | 1 |
| G4 | 5 | | | | | | | | | | | | | | D | | | | 15 | - | 4 | 1 |
| A | | | | | | | | | | | | | | | | | D | | 100 | - | 4 | 1 |
| B | | | | | | | | | | | | D | | | | | X | | 100 | - | 4 | 1 |
| C | | | | | | | | | | | | X | D | | X | | | | 100 | - | 4 | 2 |
| D | | | | | | | | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | D | | | | | | | 100 | - | 0 | 0 |
| | #X | 7 | 0 | 2 | 3 | 0 | 5 | 0 | 4 | 5 | 1 | 10 | 2 | 0 | 7 | 0 | | 0 | | | | |
| | #D | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 2 | 0 | 1 | 27 | 0 | 0 | 5 | 0 | | 0 | | | | |
| | total # | 7 | 0 | 4 | 3 | 1 | 7 | 0 | 6 | 5 | 2 | 37 | 2 | 0 | 12 | 0 | | 0 | | | | |
| | % FOC | 14.3% | 0.0% | 8.2% | 6.1% | 2.0% | 14.3% | 0.0% | 12.2% | ##### | 4.1% | 75.5% | 4.1% | 0.0% | 24.5% | 0.0% | | 0.0% | | | | |
| | | | | | | | | | | | | | | | | | | | 70.3 | 0.2 | 2.4 | 1.3 |

61 Louisa Viens Drive
Dayville, CT 06241
Fax: 860-774-2689
Phone: 860-774-6814
Toll-Free: 800-334-0103

# ANALYTICAL DATA REPORT

prepared for:

Solitude Lake Management
590 Lake Street
Shrewsbury, MA 01545
Ann Marie Meringolo

## Report Number: E609132
## Project: Foster's Pond

Received Date: 09/01/2016
Report Date: 09/06/2016

David Dickinson
Technical Director

CT DPH #PH-0465 EPA #CT00008 KY EEC #90151 MA DEP #M-CT008 MD #349
ME DHHS #CT0050 NH ELAP #2020 NY ELAP #11549 PA DEP #68-04413 RI DOH #LAO00346 TN #04903
VA #460279 VT DOH #VT11549

101-0000005189 10

61 Louisa Viens Drive
Dayville, CT 06241
Fax: 860-774-2689
Phone: 860-774-6814
Toll-Free: 800-334-0103

Report No: E609132
Client: Solitude Lake Management
Project: Foster's Pond

## CASE NARRATIVE / METHOD CONFORMANCE SUMMARY

The results presented in this report relate only to the samples received.

This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included, along with a copy of the chain of custody and any subcontracted analyses reports, if applicable, for the sample(s) in this report. Subcontractor results are identified by 'SUB' next to the analysis.

Microbac Laboratories, Inc. received four samples from Solitude Lake Management on 09/01/2016. The samples were analyzed for the following list of analyses in accordance with MA DEP regulations unless otherwise indicated:

Alkalinity, Total by SM2320B in DW/WW
SM2320B
Fecal Coliforms (MF) by SM-9222D
SM 9222D[SM 9222D], UNKWN
Turbidity by SM2130B in DW
2130B
Apparent and True Color
2120B
Phosphorus, Total as P by 365.1 in DW/WW
365.1[365.1]
pH by SM 4500-H+B
4500H-B

**Non-Conformances:**

**Work Order:**

None

**Sample:**

None

**Analysis:**

None

# Microbac Laboratories, Inc.
# Analytical Data Report

Report No: E609132
Date Received: 09/01/2016 17:00

Customer: Solitude Lake Management
Project: Foster's Pond

| Parameter | Result | DL | Units | Completed | By | Dilution |
|---|---|---|---|---|---|---|
| **(1) Main Rd** | | | | | | |
| **Date Collected: 09/01/2016 10:00** **Matrix: Aqueous** | | | | | | |
| Color by SM2120B | 60 | | Color Units | 09/01/2016 21:14 | AKS | |
| True Color | 30 | | Color Units | 09/01/2016 21:11 | AKS | |
| Alkalinity by SM2320B | 25 | 1.0 | mg/L | 09/02/2016 15:32 | AKS | |
| Phosphorus as P by 365.1 | 0.036 | 0.010 | mg/L | 09/02/2016 11:20 | CLW | |
| Turbidity by SM2130B | 9.4 | 0.10 | NTU | 09/01/2016 21:14 | AKS | |
| pH by SM 4500-H+B | 7.5 | | pH Units | 09/01/2016 21:12 | AKS | |
| Coliforms, Fecal (MF) by SM-9222D | <10 | | col/100ml | 09/01/2016 17:52 | AM | 10 |
| Coliforms, Fecal (MF) Start Time | 17:52 | | Hours | 09/01/2016 17:52 | AM | |
| Coliforms, Fecal (MF) Stop Time | 16:40 | | Hours | 09/02/2016 16:40 | AM | |
| **(2) Mill Reservoir** | | | | | | |
| **Date Collected: 09/01/2016 10:00** **Matrix: Aqueous** | | | | | | |
| Color by SM2120B | 40 | | Color Units | 09/01/2016 21:14 | AKS | |
| True Color | 20 | | Color Units | 09/01/2016 21:11 | AKS | |
| Alkalinity by SM2320B | 28 | 1.0 | mg/L | 09/02/2016 15:32 | AKS | |
| Phosphorus as P by 365.1 | 0.016 | 0.010 | mg/L | 09/02/2016 11:21 | CLW | |
| Turbidity by SM2130B | 2.8 | 0.10 | NTU | 09/01/2016 21:14 | AKS | |
| pH by SM 4500-H+B | 7.3 | | pH Units | 09/01/2016 21:12 | AKS | |
| Coliforms, Fecal (MF) by SM-9222D | 30 | | col/100ml | 09/01/2016 17:52 | AM | 10 |
| Coliforms, Fecal (MF) Start Time | 17:52 | | Hours | 09/01/2016 17:52 | AM | |
| Coliforms, Fecal (MF) Stop Time | 16:40 | | Hours | 09/02/2016 16:40 | AM | |
| **(3) Outlet Cove** | | | | | | |
| **Date Collected: 09/01/2016 10:00** **Matrix: Aqueous** | | | | | | |
| Color by SM2120B | 30 | | Color Units | 09/01/2016 21:14 | AKS | |
| True Color | 20 | | Color Units | 09/01/2016 21:11 | AKS | |
| Alkalinity by SM2320B | 12 | 1.0 | mg/L | 09/02/2016 15:32 | AKS | |
| Phosphorus as P by 365.1 | 0.012 | 0.010 | mg/L | 09/02/2016 11:22 | CLW | |
| Turbidity by SM2130B | 1.7 | 0.10 | NTU | 09/01/2016 21:14 | AKS | |
| pH by SM 4500-H+B | 7.0 | | pH Units | 09/01/2016 21:12 | AKS | |
| Coliforms, Fecal (MF) by SM-9222D | <10 | | col/100ml | 09/01/2016 17:52 | AM | 10 |
| Coliforms, Fecal (MF) Start Time | 17:52 | | Hours | 09/01/2016 17:52 | AM | |
| Coliforms, Fecal (MF) Stop Time | 16:40 | | Hours | 09/02/2016 16:40 | AM | |

# Microbac Laboratories, Inc.
# Analytical Data Report

Report No: E609132
Date Received: 09/01/2016 17:00

Customer: Solitude Lake Management
Project: Foster's Pond

| Parameter | Result | DL | Units | Completed | By | Dilution |
|---|---|---|---|---|---|---|
| **(4) Dug Pond** | | | | | | |
| **Date Collected: 09/01/2016 10:00** **Matrix: Aqueous** | | | | | | |
| Color by SM2120B | 20 | | Color Units | 09/01/2016 21:14 | AKS | |
| True Color | 10 | | Color Units | 09/01/2016 21:11 | AKS | |
| Alkalinity by SM2320B | 14 | 1.0 | mg/L | 09/02/2016 15:32 | AKS | |
| Phosphorus as P by 365.1 | ND | 0.010 | mg/L | 09/02/2016 11:22 | CLW | |
| Turbidity by SM2130B | 1.5 | 0.10 | NTU | 09/01/2016 21:14 | AKS | |
| pH by SM 4500-H+B | 6.9 | | pH Units | 09/01/2016 21:12 | AKS | |
| Coliforms, Fecal (MF) by SM-9222D | <10 | | col/100ml | 09/01/2016 17:52 | AM | 10 |
| Coliforms, Fecal (MF) Start Time | 17:52 | | Hours | 09/01/2016 17:52 | AM | |
| Coliforms, Fecal (MF) Stop Time | 16:40 | | Hours | 09/02/2016 16:40 | AM | |

# ANALYTICAL REPORT



**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
**nmcgann@solitudelake.com**
**BArvidson@solitudelake.com**
**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **7/21/2016** | **Date Sampled:** | **7/13/2016** |
| **Laboratory ID#:** | **N166678-01** | **Date Received:** | **7/15/2016** |
| | | **Date Tested:** | **7/20/2106** |

**Sample Site: SURFACE WATER: FOSTERS POND, MAIN POND**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | 240 |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | 240 |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | 370 |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | 64 |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | 48 |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 10,400 |
| Tetraspora | |
| Westella | |
| Ulothrix | 160 |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
| | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | 260 | 64 |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | 800 | 80 |
| Hydrocoleum | | |
| Microcystis | 1,600 | 80 |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | 510 | 32 |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | 16 |
| Gonium | |
| Halteria | |
| Mallomonas* | 80 |
| Monas | |
| Peridinium* | 32 |
| Synura* | 32 |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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| | |

**TOTAL NATURAL UNIT COUNT: 1,900/ml**

**BLUE GREEN CELL COUNT: 3,200/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 7/15/2016**

**Approved by:**

**Laboratory Director**

**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
**nmcgann@solitudelake.com**
**BArvidson@solitudelake.com**
**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **7/21/2016** | **Date Sampled:** | **7/13/2016** |
| **Laboratory ID#:** | **N166678-02** | **Date Received:** | **7/15/2016** |
| | | **Date Tested:** | **7/20/2106** |

**Sample Site: SURFACE WATER: FOSTERS POND, DUG POND**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | 16 |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | 110 |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 16 |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | 24 |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | 8 |
| Staurastrum | 40 |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | 190 | 48 |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | 260 | 64 |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | 160 | 16 |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | 24 |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | 88 |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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| | |
| | |

**TOTAL NATURAL UNIT COUNT: 450/ml**

**BLUE GREEN CELL COUNT: 610/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 7/15/2016**

**Approved by:**

**Laboratory Director**

# ANALYTICAL REPORT



**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
**nmcgann@solitudelake.com**
**BArvidson@solitudelake.com**
**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **7/26/2016** | **Date Sampled:** | **7/21/2016** |
| **Laboratory ID#:** | **1666727-01** | **Date Received:** | **7/22/2016** |
| | | **Date Tested:** | **7/23/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, MAIN BASIN**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | 240 |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | 80 |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 510 |
| Tetraspora | |
| Westella | |
| Ulothrix | 80 |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | 2,400 | 240 |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | 190 | 48 |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | 380 | 196 |
| Hydrocoleum | | |
| Microcystis | 2,200 | 110 |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | 130 |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
| | |
| | |
| | |

**TOTAL NATURAL UNIT COUNT: 1,500/ml**

**BLUE GREEN CELL COUNT: 5,200/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 7/22/2016**

**Approved by:** Adam C. Drake

**Laboratory Director**

# ANALYTICAL REPORT



**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
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**BArvidson@solitudelake.com**
**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **7/26/2016** | **Date Sampled:** | **7/21/2016** |
| **Laboratory ID#:** | **1666727-02** | **Date Received:** | **7/22/2016** |
| | | **Date Tested:** | **7/23/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, OUTLET COVE**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | 64 |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | 72 |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 16 |
| Tabellaria* | 24 |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | | |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | 190 | 48 |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | | |
| Hydrocoleum | | |
| Microcystis | 1,900 | 96 |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | 56 |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | 8 |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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| | |

**TOTAL NATURAL UNIT COUNT: 400/ml**

**BLUE GREEN CELL COUNT: 2,100 /ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 7/22/2016**

**Approved by:**

**Laboratory Director**

# ANALYTICAL REPORT



**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

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**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **8/26/2016** | **Date Sampled:** | **8/24/2016** |
| **Laboratory ID#:** | **1667085-01** | **Date Received:** | **8/24/2016** |
| | | **Date Tested:** | **8/26/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND WQ 1**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | 46,000 | 1,800 |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | 12,000 | 1,100 |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | | |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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**TOTAL NATURAL UNIT COUNT: 2,900/ml**

**BLUE GREEN CELL COUNT: 58,000/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 8/24/2016**

**Approved by:** Adam C. Drake

**Laboratory Director**

# ANALYTICAL REPORT



**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

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**BArvidson@solitudelake.com**
**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **8/26/2016** | **Date Sampled:** | **8/24/2016** |
| **Laboratory ID#:** | **1667085-02** | **Date Received:** | **8/24/2016** |
| | | **Date Tested:** | **8/26/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND WQ 3**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 54 |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | 6 |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 1,200 |
| Tetraspora | |
| Westella | |
| Ulothrix | 10 |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
| | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | | |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | 18,000 | 2,000 |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | 2,700 | 120 |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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**TOTAL NATURAL UNIT COUNT: 3,400/ml**

**BLUE GREEN CELL COUNT: 21,000/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 8/24/2016**

**Approved by:** Adam C. Drake

**Laboratory Director**

# ANALYTICAL REPORT



**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
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| | | | |
|---|---|---|---|
| **Report Date:** | **9/21/2016** | **Date Sampled:** | **9/08/2016** |
| **Laboratory ID#:** | **N1667259-01** | **Date Received:** | **9/12/2016** |
| | | **Date Tested:** | **9/20/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, MAIN POND**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | 4 |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | 6 |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | 44 |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 10 |
| Tabellaria* | 8 |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 42 |
| Tetraspora | |
| Westella | |
| Ulothrix | 13 |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
| | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | 240 | 11 |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | | |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | | |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | 70 | 1 |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | 6 |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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| | |

**TOTAL NATURAL UNIT COUNT: 90/ml**

**BLUE GREEN CELL COUNT: 310/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 9/15/2016**

**Approved by:** Alan C. Jackson

**Laboratory Director**

**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

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**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **9/21/2016** | **Date Sampled:** | **9/08/2016** |
| **Laboratory ID#:** | **N1667259-02** | **Date Received:** | **9/12/2016** |
| | | **Date Tested:** | **9/20/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, MILL RESERVOIR**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | 10 |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | 6 |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 39 |
| Tabellaria* | 8 |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | |
| Chorella | |
| Closterium | |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 10 |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | | |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | | |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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**TOTAL NATURAL UNIT COUNT: 47/ml**

**BLUE GREEN CELL COUNT: 0/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 9/15/2016**

**Approved by:**

**Laboratory Director**

**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
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|---|---|---|---|
| **Report Date:** | **9/21/2016** | **Date Sampled:** | **9/08/2016** |
| **Laboratory ID#:** | **N1667259-03** | **Date Received:** | **9/12/2016** |
| | | **Date Tested:** | **9/20/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, AZALEA COVE**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | 29 |
| Gyrosigma | |
| Gomphonema | |
| Melosira | |
| Meridion* | |
| Navicula | 10 |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 19 |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | 2 |
| Chorella | 2 |
| Closterium | 4 |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | 2 |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 10 |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | 170 | 23 |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | 170 | 2 |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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**TOTAL NATURAL UNIT COUNT: 103/ml**

**BLUE GREEN CELL COUNT: 340/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 9/15/2016**

**Approved by:**

**Laboratory Director**

**SOLitude Lake Management**
**590 Lake Street**
**Shrewsbury, MA 01545**

**EMAIL ADDRESS:**
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|---|---|---|---|
| **Report Date:** | **9/21/2016** | **Date Sampled:** | **9/08/2016** |
| **Laboratory ID#:** | **N1667259-04** | **Date Received:** | **9/12/2016** |
| | | **Date Tested:** | **9/20/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, OUTLET COVE**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | |
| Diatoma* | |
| Frustulia | |
| Fragilaria | 19 |
| Gyrosigma | |
| Gomphonema | 4 |
| Melosira | |
| Meridion* | |
| Navicula | 4 |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 29 |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | 4 |
| Chorella | 2 |
| Closterium | |
| Coelastrum | |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | 2 |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | 6 |
| Sphaerocystis | |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 15 |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | 110 | 8 |
| Clathrocystis* | | |
| Coelosphaerium* | | |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | | |
| Hydrocoleum | | |
| Microcystis | | |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | 2 |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | 2 |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | 19 |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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**TOTAL NATURAL UNIT COUNT: 116/ml**

**BLUE GREEN CELL COUNT: 110/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 9/15/2016**

**Approved by:**

**Laboratory Director**

**SOLitude Lake Management**
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**Shrewsbury, MA 01545**

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**DMeringolo@solitudelake.com**

| | | | |
|---|---|---|---|
| **Report Date:** | **9/21/2016** | **Date Sampled:** | **9/08/2016** |
| **Laboratory ID#:** | **N1667259-05** | **Date Received:** | **9/12/2016** |
| | | **Date Tested:** | **9/20/2016** |

**Sample Site: SURFACE WATER: FOSTERS POND, CHANNEL**

## MICROSCOPIC EXAMINATION == Natural Units Count & Blue/Green Cell Counts

| ORGANISM | #/ml |
|---|---|
| **Diatomaceae** | |
| Amphora | |
| Asterionella* | 4 |
| Amphiprora | |
| Cocinodiscus | |
| Cyclotella* | |
| Cymbella | 2 |
| Diatoma* | |
| Frustulia | |
| Fragilaria | |
| Gyrosigma | |
| Gomphonema | 2 |
| Melosira | |
| Meridion* | |
| Navicula | 4 |
| Nitzschia | |
| Pleurosigma | |
| Stephanodiscus | |
| Surirella | |
| Synedra | 6 |
| Tabellaria* | |
| | |
| | |
| | |
| **Rotifera** | |
| Anuraea | |
| Asplanchna | |
| Brachionus | |
| Conochilus | |
| Euchlanis | |
| Keratella | |
| Notholca | |
| Polyarthra | |
| Rotifer | |
| Synchaeta | |
| Kellicottia | |
| | |
| | |
| | |

| ORGANISM | #/ml |
|---|---|
| **Chlorophyceae** | |
| Actinastrum | |
| Arthrodesmus | |
| Ankistrodesmus | 2 |
| Chorella | 4 |
| Closterium | 4 |
| Coelastrum | 2 |
| Cosmarium | |
| Dictyosphaerium* | |
| Eudorina* | |
| Elakatothrix | |
| Gleocystis | |
| Micrasterias | |
| Mougeotia | |
| Pandorina* | |
| Pediastrum | |
| Protococcus | |
| Quadrigula | |
| Scenedesmus | 4 |
| Sphaerocystis | 4 |
| Sphaerozosma | |
| Spirogyra | |
| Staurastrum | 15 |
| Tetraspora | |
| Westella | |
| Ulothrix | |
| Volvox* | |
| Xanthidium | |
| Zygnema | |
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| ORGANISM | Cell #/ml | #/ml |
|---|---|---|
| **Cyanophyceae** | | |
| Anabaena* | | |
| Anabaenopsis | | |
| Aphanocapsa | | |
| Aphanizomenon* | | |
| Aphanothece | | |
| Aulosira | | |
| Arthrospira | | |
| Chroococcus | | |
| Clathrocystis* | | |
| Coelosphaerium* | 720 | 6 |
| Cylindrospermum | | |
| Cuspidothrix | | |
| Dactylococcopsis | | |
| Eucapsis | | |
| Gleocapsa | | |
| Galucocystis | | |
| Gloeothece | | |
| Gomphosphaeria | | |
| Hydrocoleum | | |
| Microcystis | 270 | 2 |
| Merismopedia | | |
| Nostoc | | |
| Nodularia | | |
| Oscillaria | | |
| Pseudanabaena | | |
| Spirulina | | |
| Rivularia* | | |
| Xenococcus | | |
| | | |
| | | |
| **Miscellaneous** | | |
| Acarina | | |
| Anguillula | | |
| Bosmina | | |
| Canthocamptus | | |
| Cyclops | | |
| Daphnia | | |
| Diaptomus | | |

| ORGANISM | #/ml |
|---|---|
| **Protozoa** | |
| Actinophrys | |
| Amoeba | |
| Arcella | |
| Bursaria* | |
| Ceratium | |
| Cercomonas | |
| Chilomonas | |
| Chlamydomonas | |
| Codonella | |
| Cryptomonas* | |
| Difflugia | |
| Dinobryon* | 23 |
| Euglena | |
| Glenodinium* | |
| Gonium | |
| Halteria | |
| Mallomonas* | |
| Monas | |
| Peridinium* | |
| Synura* | 2 |
| Trachelomonas | |
| Uroglenopsis* | |
| Vorticella | |
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| * Odor Producing | |
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**TOTAL NATURAL UNIT COUNT: 138/ml**

**BLUE GREEN CELL COUNT: 990/ml**

**Comments:** **Results are based on sample, as submitted to Northeast Laboratories, Inc. on: 9/15/2016**

**Approved by:**

**Laboratory Director**