

**Foster's Pond Annual Report
2021 Aquatic Management Program
Andover, MA**

Prepared for: Foster's Pond Corporation
c/o Stephen Cotton, President
19 Pomeroy Road
Andover, MA 01810

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Introduction

Invasive aquatic vegetation control, cyanobacteria bloom management and monitoring were the focus of this year's lake management efforts at Foster's Pond. This year's treatments included spot-treatments of fanwort (*Cabomba caroliniana*), and two copper algaecide treatments for cyanobacteria management. This season marked six years since a whole-pond Sonar (fluridone) herbicide treatment program was conducted (2015) to control invasive fanwort, and some areas of regrowth were targeted for treatment with Sonar again this season. The purpose of the 2021 survey was to document the level of control from this year's treatments, track the biodiversity of aquatic vegetation, and assess water quality. Again, this season, hydro-raking was conducted in some areas of private shoreline to remove nuisance aquatic vegetation and accumulated organic matter. The treatments, survey, and monitoring described in this report were performed by SÖLitude Lake Management under contract with the Foster's Pond Corporation. Hydro-raking, which was also performed by SÖLitude Lake Management, was coordinated by the Foster's Pond Corporation (FPC) but contracted by individual homeowners.

All work performed at Foster's Pond this season was conducted in accordance with the current Order of Conditions (OOC) issued by the Andover Conservation Commission (DEP #090-535) and the MA DEP – Office of Watershed Management issued License to Apply Chemicals (#WM04-0000454).

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

2021 Program Chronology

- MA DEP License to Apply Chemicals issued05/01/21
- Pre-treatment inspection05/20/21
- Initial Sonar treatment06/03/21
- Hydro-raking of shoreline areas commenced07/09/21
- Sonar booster treatment07/15/21
- Algaecide Treatment07/22/21
- Hydro-raking completed08/04/21
- Late-season vegetation survey08/09/21
- Collection of water quality samples08/09/21
- Algaecide Treatment08/31/21



Hydro-raking

Private shoreline hydro-raking services were provided for various residents of Foster's Pond to remove nuisance aquatic vegetation as well as accumulated organic matter. Approximately fifty-seven (57) hours of hydro-raking services were provided between July 9th and August 4th. All removed material was placed on the respective residents' shoreline. Pursuant to the OOC, property owners were responsible for proper upland disposal.

This was the fifth consecutive year when hydro-raking operations were scheduled for the spring/summer, rather than in the fall. It is anticipated that spring/summer hydro-raking will continue to be the preferred option moving forward, depending on water levels.

Algae Monitoring

Nuisance algae blooms and corresponding poor water clarity have exhibited themselves periodically through the years at Foster's Pond. The blooms are commonly dominated by cyanobacteria, or blue-green algae, due to elevated phosphorus concentrations within the various basins. The Foster's Pond Corporation diligently monitors water clarity, with FPC volunteers conducting multiple rounds of Secchi disk readings in different basins. In past years, the FPC brought water samples to the Andover Water Treatment Plant for informal analysis. This season, when water clarity dropped noticeably and FPC volunteers noted the appearance of shoreline scums, the FPC submitted water samples to Northeast Laboratories, and requested formally reported laboratory analyses to guide their decision to proceed with algae management or not. Samples taken from two basins - the Main Pond and the Outlet Cove - on July 15 indicated 21,000 cyanobacteria cells/ml and 19,000 cells/ml, respectively. While these counts were well below the 70,000 cells/ml at which the Massachusetts Department of Public Health recommends that people have no contact with the water, continued hot weather was forecast, increasing the likelihood of an explosive algae bloom, and the FPC, in consultation with Solitude, ordered a treatment. Laboratory analysis of water samples drawn following this treatment indicated that concentrations had fallen to 1200 cells/ml in the Main Pond and 1400 cells/ml in the Outlet Cove. However, following a stretch of more extremely hot weather, samples collected on August 18 again indicated elevated algae counts (27,000 cells/ml in the Main Pond), and blue-green scum, along with declining water clarity, was observed there and in the Outlet Cove. Accordingly, the FPC ordered a second treatment. The NE Laboratories analytical reports are attached.

Algaecide Treatment

The two algaecide treatments this summer, based on visual observations and laboratory analysis, were conducted on July 22nd and August 31st. On both occasions, half of the pond (60 acres) was treated with copper sulfate. The treatment area consisted of the Main Pond, the Channel and Outlet Cove. Copper sulfate was applied at a rate of 0.6 pounds per acre foot which equates to 0.625 ppm of active copper. A total of 150 pounds of copper sulfate was applied.

Fanwort Herbicide Treatment

Based on 2021 survey data, fanwort growth within Mill Reservoir was targeted for treatment with Sonar (fluridone) herbicide in 2021. This area totaled 6.14 acres. Other areas of growth were designated for diver hand-pulling. Given the relative isolation of Mill Reservoir the liquid, Sonar Genesis, formulation of fluridone was utilized. No fanwort was detected in the treatment area during the fall vegetation survey.

On May 20th, a SÖLitude biologist conducted the cursory, pre-treatment survey to assess the fanwort growth stage for timing of the initial Sonar application. At this time, fanwort plants were just beginning to grow within the water column, as well as other native species. Based on prior years' Sonar treatment programs at Foster's Pond, it is imperative to apply the herbicide early to allow the plants to "grow into" the fluridone concentration within the water. This treatment



approach allows for lower concentrations of Sonar to be used as there is less plant biomass to impact. Following the pre-treatment survey, the initial treatment was scheduled for June 3rd.

All treatment dates for the Sonar treatment applications were coordinated with the FPC. Notification of treatment was submitted to the Conservation Commission, email notifications of the treatment areas and water-use restrictions were provided to shoreline property owners and local residents on the FPC's email list, notice was posted on the FPC's website, and warning posters were posted by the FP along the shoreline at key access points of the pond prior to treatment. The initial treatment was completed on June 3rd, with a follow-up booster treatment completed on July 15th; both treatments were applied to the same predetermined 6.14 acres by SŌLitude's licensed aquatic applicators in accordance with conditions of the DEP License to Apply Chemicals, the Sonar Genesis herbicide label, the OOC, and the program and protocol approved by the Conservation Commission. The herbicide was applied via a low pressure, calibrated pump and submersed hose. The predetermined treatment area was preloaded into a GPS unit which was used for navigation during the treatment to ensure even application of the herbicide within the area.

Although a 2nd booster application was planned, cursory surveys following the July 15th treatment showed no active fanwort growth in Mill Reservoir, thus it was determined that this final follow-up treatment was not required.

The total amount of Sonar Genesis applied to the Pond through the course of the two treatments was 7 gallons. The target in-water concentration in the treatment area was 5 to 10 ppb. On June 15th (approximately 2 weeks after the initial application), a water sample was drawn from the treatment area. That sample was analyzed for the presence of fluridone and yielded a result of 6.8 ppb. The laboratory report is attached.

A map of the Sonar treatment areas is attached.

Spiny Naiad Management

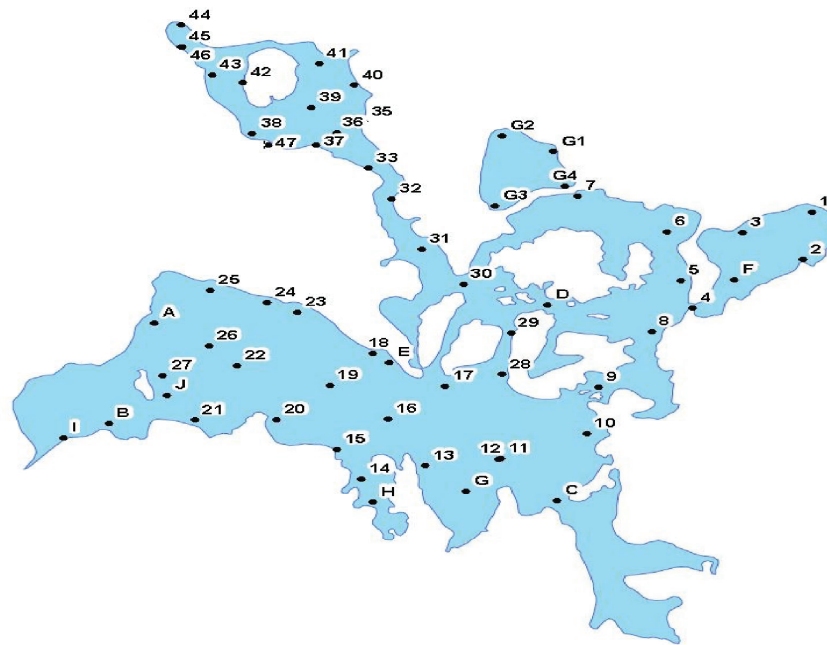
Spiny naiad growth has been observed in various areas of Foster's Pond over the last few seasons. In anticipation of this again in 2021, the FPC sought approval from the Conservation Commission for a treatment, with the precise locations determined based on pre-treatment observations. No significant growth of spiny naiad was observed this year and therefore no treatments were required.

Annual Late-Season Vegetation Survey

On August 9th, a SŌLitude biologist conducted the annual aquatic vegetation survey of Foster's Pond, including the Main Pond, Outlet Cove, Azalea Drive, Mill Reservoir, the channels connecting these basins, and Dug Pond. This annual survey documents the aquatic plant composition and distribution utilizing consistent survey methodology, transects and data points established at the time of the first survey in 2004. Supplementary survey points have been added into the survey based on client recommendation and request: ten data points including G1-G4 in Dug Pond in 2008, A-E in 2016, and F-J in 2018. A total of 61 data points were surveyed. A map illustrating the transect and data point locations follows; the raw data collected is attached.



Figure 1. Aquatic plant survey data point locations



Overall, the basins supported similar levels of vegetation to those observed over the last few years, with regard to total percent cover, biomass, and species richness (Table 2). White and yellow waterlilies, fanwort, and slender naiad were the dominant species within the lake. Other plant species in the lake are fairly sporadic across the basins – most notably humped bladderwort (*Utricularia gibba*), purple bladderwort (*Utricularia purpurea*), common bladderwort (*Utricularia vulgaris*), and spiny naiad (*Najas minor*).

Table 2. Aquatic vegetation analysis 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
2017 ²	67.6	17.7	2.2	1.8
2018 ²	59.3	11.7	2.0	1.4
2019 ²	41.5	1.5	1.8	3.0
2020 ²	49.6	2.1	3.1	2.8
2021 ²	35.5	4.6	3.1	2.4

¹Whole-lake Sonar (fluridone) treatment performed.

²Excludes additional points A-J, compares to 2016 data points



Percent fanwort cover increased slightly from 2.1% in 2020 to 4.6% in 2021 comparing only the 2016 point locations. The additional points A-J should not be used for past comparison, but rather documentation for future efforts. However, the frequency of fanwort documentation across all points generally remained the same regardless of the point additions – < 5.0% frequency. Of the 2021 A-J points, two supported fanwort growth, points B & C. Spiny naiad was only documented at point H.

Notably, the fanwort infestation in Dug Pond (G1-G4) was present at three of the four sites (G1, G2, & G3) within that basin.

The shallow and cove areas support the majority of white and yellow waterlilies. Other species encountered, including but not limited to pondweeds (*Potamogeton* spp.), coontail (*Ceratophyllum demersum*), Spikerush (*Eleocharis* spp.); other bladderwort species had generally low-density scattered growth.

A list of the aquatic plant species observed in 2021 with historical comparison of presence and absence is as follows:



Table 3. Aquatic species list (2005-2021)

Type	Macrophyte Species	Common Name	2005	2008	2009	2011	2012	2014	2015	2016	2017	2018	2019	2020	2021
Submersed	<i>Bidens beckii</i>	Water marigold			X										
	<i>Cabomba caroliniana</i>	Fanwort	X	X	X		X	X		X	X	X	X	X	X
	<i>Callitriche</i> sp.	Water starwort			X					X		X		X	
	<i>Ceratophyllum demersum</i>	Coontail	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Chara</i> sp.	Muskgrass			X	X						X	X	X	X
	Chlorophyta	Filamentous algae	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Egeria densa</i>	Brazilian elodea	X	X	X										
	<i>Elodea canadensis</i>	Common waterweed			X							X			
	<i>Hypericum boreale</i>	Northern St. John's wort			X										
	<i>Isoetes</i> sp.	Quillwort	X	X	X	X	X								
	<i>Ludwigia palustris</i>	Water purslane			X	X	X								
	Musci/Fontinalis	Water moss	X	X	X		X	X	X		X	X			X*
	<i>Myriophyllum humile</i>	Low watermilfoil	X	X	X	X		X			X	X	X		X
	<i>Najas flexilis</i>	Slender naiad	X	X	X		X	X						X	X
	<i>Najas guadalupensis</i>	Southern naiad										X		X	
	<i>Najas minor</i>	Spiny naiad			X			X		X	X	X	X	X	X
	<i>Nitella</i> sp.	Stonewort	X	X	X	X	X	X	X	X	X				X
	<i>Potamogeton amplifolius</i>	Large-leaf pondweed										X	X		
	<i>Potamogeton epihydrus</i>	Ribbon-leaf pondweed		X	X	X	X	X	X	X	X	X	X	X	X
	<i>Potamogeton gramineus</i>	Variable-leaf pondweed			X		X				X	X			
<i>Potamogeton natans</i>	Floating leaf pondweed		X	X			X			X		X	X	X	
<i>Potamogeton pusillus</i>	Thin-leaf Pondweed						X		X		X	X	X	X	
<i>Potamogeton robbinsii</i>	Robbins' Pondweed								X	X		X		X	
<i>Sagittaria</i> sp.	Arrowhead		X	X		X									
<i>Schoenoplectus subterminalis</i>	Grassy bulrush										X	X			
<i>Utricularia</i> spp.	Bladderwort	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Vallisneria americana</i>	Tapegrass			X						X					
Floating	<i>Brasenia schreberi</i>	Watershield		X	X		X	X	X		X		X	X	X
	<i>Lemna minor</i>	Lesser duckweed			X										
	<i>Nuphar variegata</i>	Yellow waterlily	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Nymphaea odorata</i>	White waterlily	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Nymphoides cordata</i>	Floating heart										X			
	<i>Spirodela polyrhiza</i>	Big duckweed			X										
Emergent	<i>Decodon verticillatus</i>	Water willow	X	X	X	X	X		X*	X*	X*	X*	X*	X*	X*
	<i>Eleocharis</i> sp.	Spikerush			X									X	X
	<i>Eriocaulon</i> sp.	Pipewort	X	X											
	<i>Lythrum salicaria</i>	Purple loosestrife	X	X	X	X	X	X	X*	X*	X*	X*	X*	X*	X*
	<i>Peltandra virginica</i>	Arrow arum			X							X*	X*		
	<i>Pontederia cordata</i>	Pickerelweed	X	X	X	X	X				X*	X*	X*	X*	X*
	<i>Scirpus</i> sp.	Rushes	X	X								X*	X*	X*	X*
	<i>Sparganium</i> sp.	Burreed		X	X	X	X	X	X*	X*	X*	X*	X*	X*	X*
<i>Typha</i> sp.	Cattail	X	X	X	X	X		X*	X*	X*	X*	X*	X*	X*	



Water Quality Monitoring

Water quality sampling was performed at Foster's Pond in 2021 consistent with prior year's efforts and locations, in addition to Azalea Drive that was added in 2017. Surface grab water samples were collected from five locations, shown on the map below, on August 9th. Laboratory analysis was performed for the following parameters: pH, alkalinity, total phosphorus, turbidity, true and apparent color, fecal and total coliform.

Figure 2. Water quality sample locations

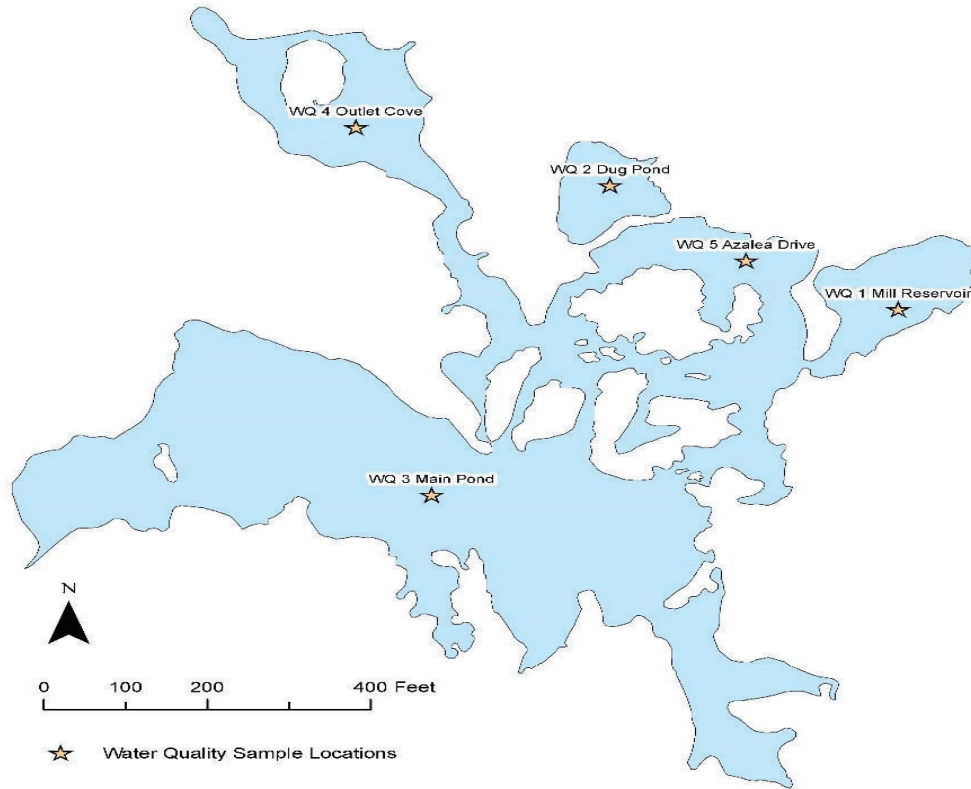


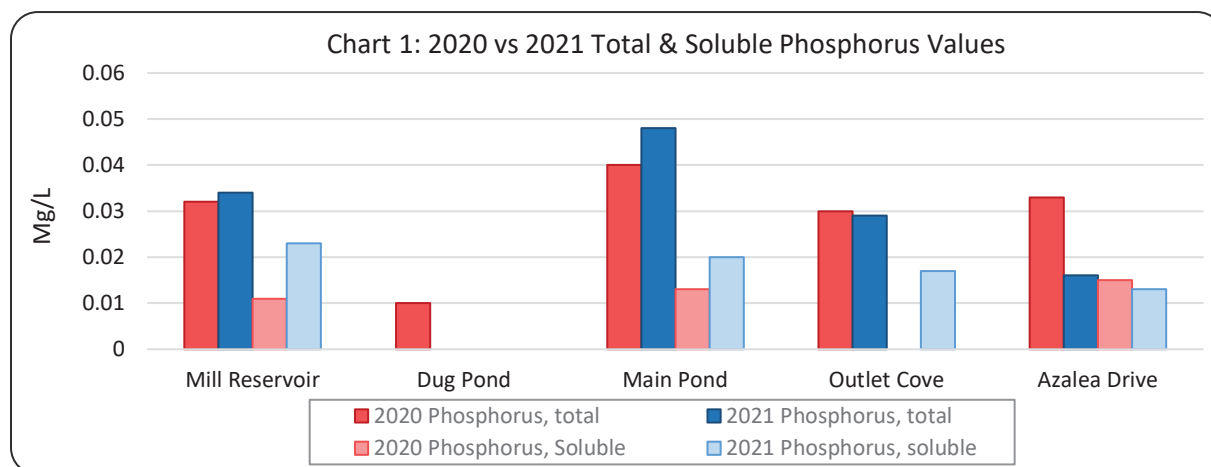


Table 4. Water quality results

Parameter	Units	Desirable Thresholds	Mill Reservoir (WQ1)	Dug Pond (WQ2)	Main Pond (WQ3)	Outlet Cove (WQ4)	Azalea Drive (WQ5)
pH	S.U.	6.0-8.0	7.4	7.1	7.1	7.2	7.0
Alkalinity, total	mg/L CaCO ₃	<50	29.9	12.3	22.4	23.8	21.0
Phosphorus, total	mg/L	0.030	0.034	ND	0.048	0.029	0.016
Phosphorus, soluble	Mg/L	0.020	0.023	ND	0.020	0.017	0.013
True Color	Pt-Co		72	12	54	58	42
Apparent Color	Pt-Co		75	15	70	74	50
Total Kjeldahl Nitrogen	Mg/L	<1.00	0.523	ND	0.656	ND	0.434
Fecal Coliform	col/100mL		17.12	56.53	18.69	39.31	4.13
Total Coliform	MPN/100mL		24.62	29.92	7.41	9.79	9.6

In general, the water quality results were similar to those reported in 2020, with only limited variability. The pH values of all locations were close to neutral and within normal ranges for northeast freshwater systems. If the pH is between 5.0-9.0, adverse impacts to fish and other aquatic biota are generally not observed. Alkalinity values varied between locations, as some values were slightly lower than desirable, but all are characteristic for waterbodies in the region and similar to historical values. Total phosphorus levels in the Mill Reservoir and Main Pond, were elevated at the time of the sampling (≥ 0.03 mg/L), whereas Dug Pond and Azalea Drive fell within the desirable threshold; The Outlet Cove value was just below the suggested threshold at 0.029 mg/L. True color is a measure of filtered water, whereas apparent color is the measure of the raw water. Color results were similar to prior years, with dissolved material and suspended particles both likely contributing to the relative clarity of the basins.

Chart 1 below compares the 2020 and 2021 total and soluble phosphorus results. Total and soluble phosphorus in 2021 was higher in both Mill Reservoir and the Main Pond. In the Outlet Cove, total phosphorus was slightly lower this year, but soluble phosphorus levels were higher. In Azalea Drive, phosphorus levels were lower this year, especially total phosphorus. Phosphorus levels in Dug Pond remain low. For total phosphorus, levels over 0.3 mg/l are high enough to support nuisance algae blooms and the ideally the concentration would be < 0.2 mg/l. For soluble phosphorus, since it can be directly utilized by algae, concentration < 0.2 mg/l are desirable, and less than 0.01 mg/l would be ideal. The higher phosphorus levels in the Main Basin and the higher soluble phosphorus levels in the Outlet Cove were evidenced by high cyanobacteria levels in these areas of the pond this year.





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. All basins fell below concerning thresholds.

Conclusions and Recommendations

The native vegetation in Foster's Pond has reached a relatively stable state since the last whole pond treatment with fluridone in 2015. Based on the history of conditions and management at Foster's Pond, as well as the presence of invasive aquatic species, specifically fanwort, it is likely that problematic aquatic plant growth will continue in the future. Future, timely management will be required to maintain control of non-native species, fanwort and spiny naiad. It is highly recommended that the Foster's Pond Corporation continue annual monitoring efforts to assess fanwort distribution and watch for potential pioneer infestations of other invasive species as many other invasive species are in nearby waterbodies.

Fanwort control: We continue to recommend a balanced approach to managing fanwort: attempting with non-chemical controls where economically and logistically feasible and targeting with spot treatments specific infestations that are too large or too dense to be effectively controlled by other means. Eradicating small infestations, as they emerge and are identified, is the best way to minimize the need for whole-lake treatments. Based on the infestations we observed in this season's vegetation survey on August 9, we recommend Sonar herbicide treatment of fanwort in the northerly reach of the Channel, the Outlet Cove, and the Azalea Drive basin in 2022. Fanwort growth was prevalent in these areas and likely too widespread and dense for non-chemical methods. However, we note that subsequent to our survey, divers spent several days hand-pulling fanwort in the Channel and the Outlet Cove (as well as Dug Pond). Therefore, it would be prudent to survey the Channel and the Outlet Cove again in early summer, once fanwort has emerged from the bottom, to determine whether the infestations were sufficiently reduced to diminish the need for treatment.

We are also recommending management of the other areas of fanwort growth via hand-pulling in the locations shown on the attached map. We understand that the FPC has found it increasingly difficult to engage divers, and that this may not be a feasible option in 2022.

The Foster's Pond Corporation's experienced limited success, at best, in 2018-2020 with small benthic barriers (see the alternatives analysis below), and determined that there was no suitable location to deploy them in 2021. We therefore are not recommending their use in 2022.

Fanwort alternatives analysis: The Massachusetts Department of Conservation and Recreation (MA DCR) has provided guidance that considers alternative methods of controlling fanwort. MA DCR reviewed eradication and control options, including hand harvesting, suction harvesting, benthic barriers, water level drawdown, and herbicides. The Foster's Pond Corporation has varying degrees of experience with all of these methods, most recently experimenting with the use of hand harvesting, suction harvesting, and benthic barriers. The Corporation's experience to date is consistent with the MA DCR alternatives analysis.

The Corporation has long used winter drawdowns, primarily to protect the Foster's Pond Dam from overtopping in potential spring-time flood events but secondarily to control nuisance vegetation. Due to the physical limitations of the 160-year-old dam, the Pond can only be lowered about 18



inches below the lip of the spillway. As a consequence, only the shallowest coves are exposed to freezing temperatures over the winter. While nuisance vegetation appears to be controlled in these coves, the geographic reach of the drawdown, as a weed management technique, is limited and is anticipated to continue to be. Moreover, with climate change, milder winters result in shorter and less severe intervals of freezing, which may render drawdowns a less effective control technique.

In 2019, the Corporation experimented for the first time with both diver-assisted suction harvesting (DASH) and hand harvesting by divers. DASH proved to be impractical in the conditions presented by Foster's Pond. There are no launch points to accommodate the large craft typically used for the necessary equipment. Even a small, jury-rigged raft proved difficult to maneuver into position through the Pond's shallow channels. Moreover, as predicted by the MA DCR analysis, the Pond's thick and silty sediments instantly turned the water opaque, blinding the diver and making it impossible to see the target plants. The operation also resulted in a great deal of fragmentation, which could not be effectively controlled as the fragments interspersed with non-target vegetation. The 2019 DASH experiment was terminated, and divers were instead deployed to engage in hand-pulling.

Hand-pulling yielded mixed results in 2019 but proved more effective in 2020, perhaps due to the deployment of more experienced divers, greater selectivity in the target areas, and scheduling repetitive dives in the same areas on successive days. Diver hand-pulling was utilized again in 2021, but mostly after we had conducted our annual vegetation survey, so the results could not be evaluated by the survey. A less systematic observation by the FPC concluded that divers had markedly reduced the concentration of fanwort in the areas they targeted (Dug Pond, the Channel, and a portion of the Outlet Cove), but left behind significant numbers of plants. Moreover, the work proceeded more slowly than anticipated, and the divers exhausted their budget before clearing all the targeted areas. Hand-pulling, like DASH, increases the turbidity of the water, making it challenging for the diver to distinguish between target and non-target plants; diving in the same area on a later date allows sediments to settle, revealing plants that were missed on the first dive. Additionally, if fanwort is interspersed with lilies, the delicate fanwort stems entwine around the sturdier lily stems, making it impossible for divers to remove the fanwort rootballs or stems without extensive fragmentation. The Foster's Pond Corporation's experience has been consistent with the MA DCR alternatives analysis, which indicated that areas of more than a few hundred square feet, with more than 10 fanwort stems per 100 square feet, are not susceptible to effective control through hand-pulling.

Based on the MA DCR analysis, the Foster's Pond Corporation has determined not to attempt the use of large benthic barriers. Large barriers require significant time and effort to install, relocate and remove over the course of a season and have additional, negative impacts to other aquatic species present within the immediate area. The use of large barriers is not permitted under the current OOC.

The Foster's Pond Corporation has experimented over the course of three years with smaller scale benthic barriers, which are authorized by the OOC. During the 2018 season, the FPC and SÖLitude coordinated the use of nine (9), small scale (5' x 5') benthic barriers within Foster's Pond on individual and/or small areas of fanwort growth that were observed later in the season outside of any treatment areas. The barriers proved difficult for the volunteers to install, as fanwort was detected in locations that were too deep and heavily silted for the volunteers to stand. The installation caused some fragmentation. The barriers were likewise difficult to remove, clean, and store in the fall. The results of this experiment could not conclusively be evaluated in 2019, as the barriers had been emplaced in areas that were treated in 2019 with Sonar (based on the 2018 vegetation survey) before fanwort emerged anywhere in the Pond. However, because it was



evident when the barriers were positioned that they did not completely cover the infested areas, it was obvious that fanwort control would be unsatisfactory.

In 2019 and 2020, an effort was made to continue experimenting with the small barriers. It was time-consuming and difficult to locate suitable locations at which to deploy the barriers. The infestation needed to (1) be accessible from the shoreline, so that the barrier could be assembled on dry ground; (2) consist of just one or two plants that could be completely covered by the barrier; (3) be growing in water shallow enough for a volunteer to stand while carefully guiding the barrier into position; and (4) not be interspersed with lilies or other plants which would interfere with proper placement. Only two such locations were identified in 2019, and one in 2020. The barriers were successful at all sites but eliminated only a very small number of plants. Diving would likely have been quicker and as effective.

With respect to chemical alternatives, only two herbicides are currently approved for use in Massachusetts to manage fanwort infestations. Fluridone and Clipper (flumioxazin) are both registered by the Massachusetts Department of Agricultural Resources and authorized by the current OOC for Foster's Pond. Clipper has proven effective in spot-treating fanwort growth in Massachusetts lakes and ponds; however, 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, regrowth can be expected in the year after treatment. Experience in other jurisdictions indicates that at least several years of consecutive treatment followed by periodic re-treatment are usually required to manage an infestation with Clipper. Given the current restrictions on the use of Clipper in Massachusetts and the past success of treatments with fluridone in Foster's Pond, addressing the re-growth using Clipper is not likely to provide a substantial benefit to Foster's Pond. We will continue to evaluate new technologies as they become available or re-visit options should regulatory restrictions change.

In the meantime, spot-treatment with granular or liquid Sonar remains the best alternative for controlling regrowth in 2022 and beyond. Based on this year's and past experience in Foster's Pond, it is anticipated that, if necessary, treating a limited number of acres in 2022 will minimize the need for a whole-lake treatment in the immediate future. This allows less herbicide to be used at any one given time and provides a more financially feasible approach for the FPC.

Spiny naiad control: Spiny naiad is a late germinating species which spreads via seed production. Plants typically emerge in mid to late July from seeds dropped by plants in the previous year or two. A mid-July survey is necessary to assess growth and determine the extent requiring a spot-treatment. Multiple years of successful treatment can effectively reduce the viable seed bank. Very little spiny naiad was observed in Foster's Pond in 2021. This hopefully is a result of continued management, however we cannot rule out other environmental conditions and so it will be important to remain vigilant and see if the trend continues.

As with past years, we again recommend that in 2022 the FPC conduct a survey focusing on the presence of spiny naiad and, to the extent treatable infestations are observed, proceed with a spot-treatment of those areas with diquat. Timely application would require securing Conservation Commission approval, and a DEP license, in advance for this contingency, as was done since 2017 (whether treatment ends up being necessary or not).

Spiny naiad alternatives analysis: According to NOAA's Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS), use of aquatic herbicides is the most effective method of controlling spiny naiad growth, especially as it relates to the infestation within Foster's Pond. Diquat and fluridone herbicides are two of the recommended aquatic herbicides that provide control of spiny naiad and are also included in the current OOC for Foster's Pond. Mechanical



removal of spiny naiad is also possible (but not recommended), using a mechanical harvester or hydro-rake. However, spiny naiad is an incredibly brittle plant which spreads via fragmentation and thus mechanical removal may provide short-term relief but would likely increase the infestation within the pond overall. Benthic barriers are also a viable option, but as mentioned previously in regard to fanwort control, these are time consuming to manage while having non-target impacts. However, a smaller scale option may be more feasible within isolated areas of growth. The FPC and SŌLitude will continue to assess the feasibility each year of utilizing smaller barriers where appropriate for spiny naiad growth and do so accordingly, if possible. To date, no spiny naiad growth has been applicable for this approach.

Algae control: Continued algal composition and density monitoring through the summer months is recommended as it allows for appropriately timed algaecide treatment(s) when necessary.

Based on the Watershed-Based Plan developed by Geosyntec for the FPC, we understand that overall phosphorus remains an extensive challenge within the surrounding watershed. To better understand the phosphorus loading, we recommend conducting in-pond sediment sampling to be analyzed for available phosphorus. By gaining this information, and utilizing the Watershed-Based Plan, we can develop the most effective in-water nutrient management plan to correlate with the watershed plan.

Based on the in-lake sediment phosphorus analysis, SŌLitude can work with the FPC to align nutrient management techniques with their goals. Management of phosphorus within the pond, among other nutrients, will likely limit algal growth. Using various management techniques together can prevent excessive algae growth, potential health hazards and associated waterbody closures from state agencies.

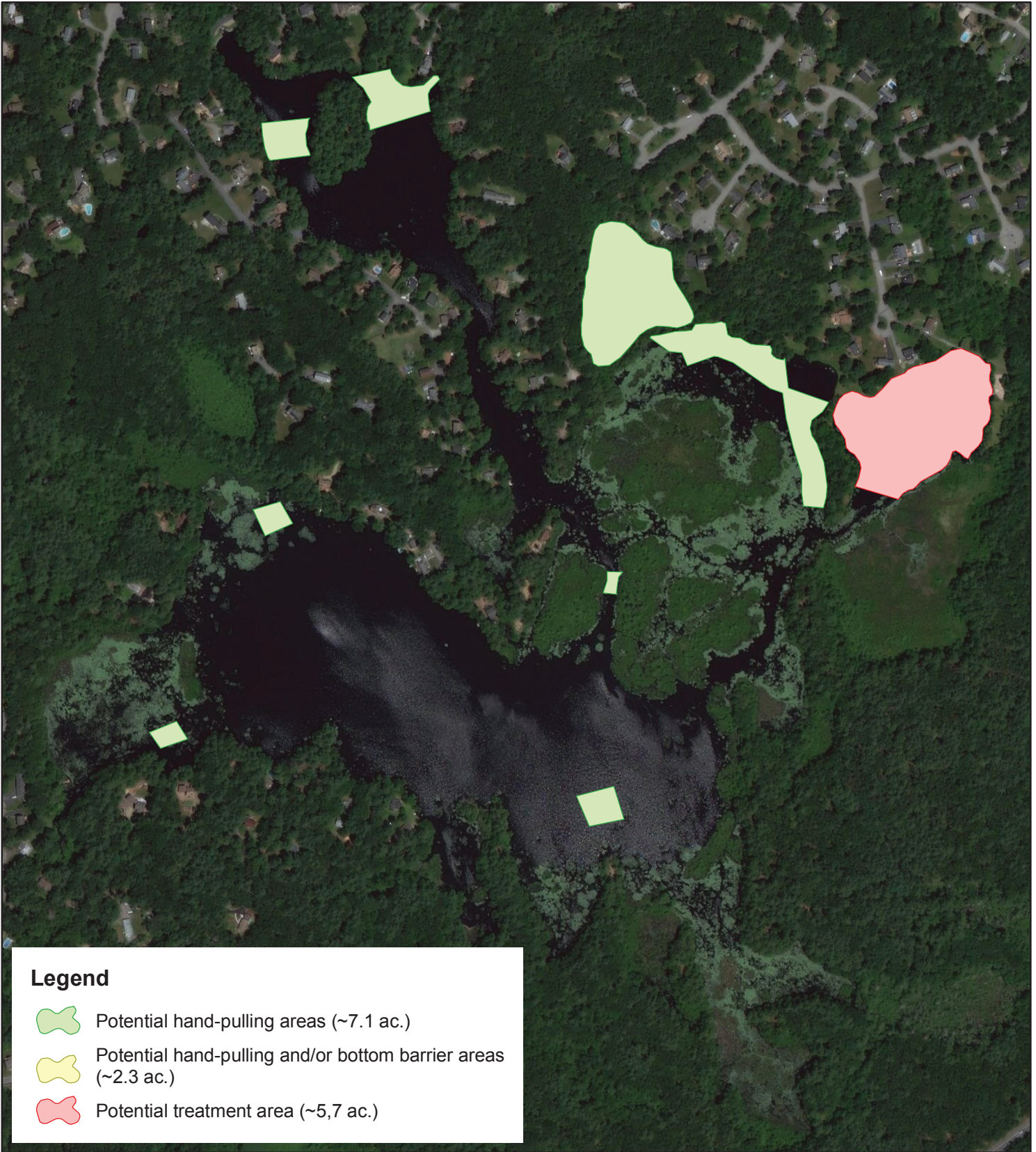
Copper-based algaecides effectively manage an active algae bloom; however, an algaecide treatment is merely controlling the symptom of excessive nutrients present within Foster's Pond. Low-dose aluminum treatments have proven to be effective in reduction of nutrients, specifically phosphorus, while limiting the need for conducting copper-algaecide treatments. Ultimately, by reducing the phosphorus readily available for uptake by algae, the frequency and severity of algal blooms is also reduced. Annual, low-dose alum treatments have been found to have cumulative effects on reducing iron-bound phosphorus released from sediments during anoxic times. Prior to any alum treatment implementation, a detailed plan would need to be established. Higher dose alum treatments are also available as an option for Foster's Pond; however, we recommend conducting more in-lake phosphorus sampling before proceeding with any alum treatments.

SeClear is another available product that combines algaecidal properties with a phosphorus reducing agent. SeClear will not reduce the available phosphorus levels as significantly as alum would, but it could be a viable alternative to conducting copper sulfate treatments. A SeClear treatment would carry a cost in between that of traditional copper sulfate treatments and a low-dose alum treatment, while potentially reducing phosphorus levels enough to minimize the potential for subsequent blooms later in the season.






Attachments

- 2021 Sonar Treatment Area Map
- Fanwort and Spiny Naiad Distribution Map (August 2021)
- Potential 2022 Fanwort Management Areas Map
- Aquatic Plant Survey Field Data Table
- Water Quality Laboratory Reports
- SePRO FasTest Laboratory Report
- NE Laboratories Algae Count Reports



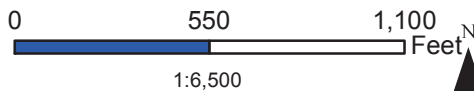
Legend

-  Potential hand-pulling areas (~7.1 ac.)
-  Potential hand-pulling and/or bottom barrier areas (~2.3 ac.)
-  Potential treatment area (~5,7 ac.)

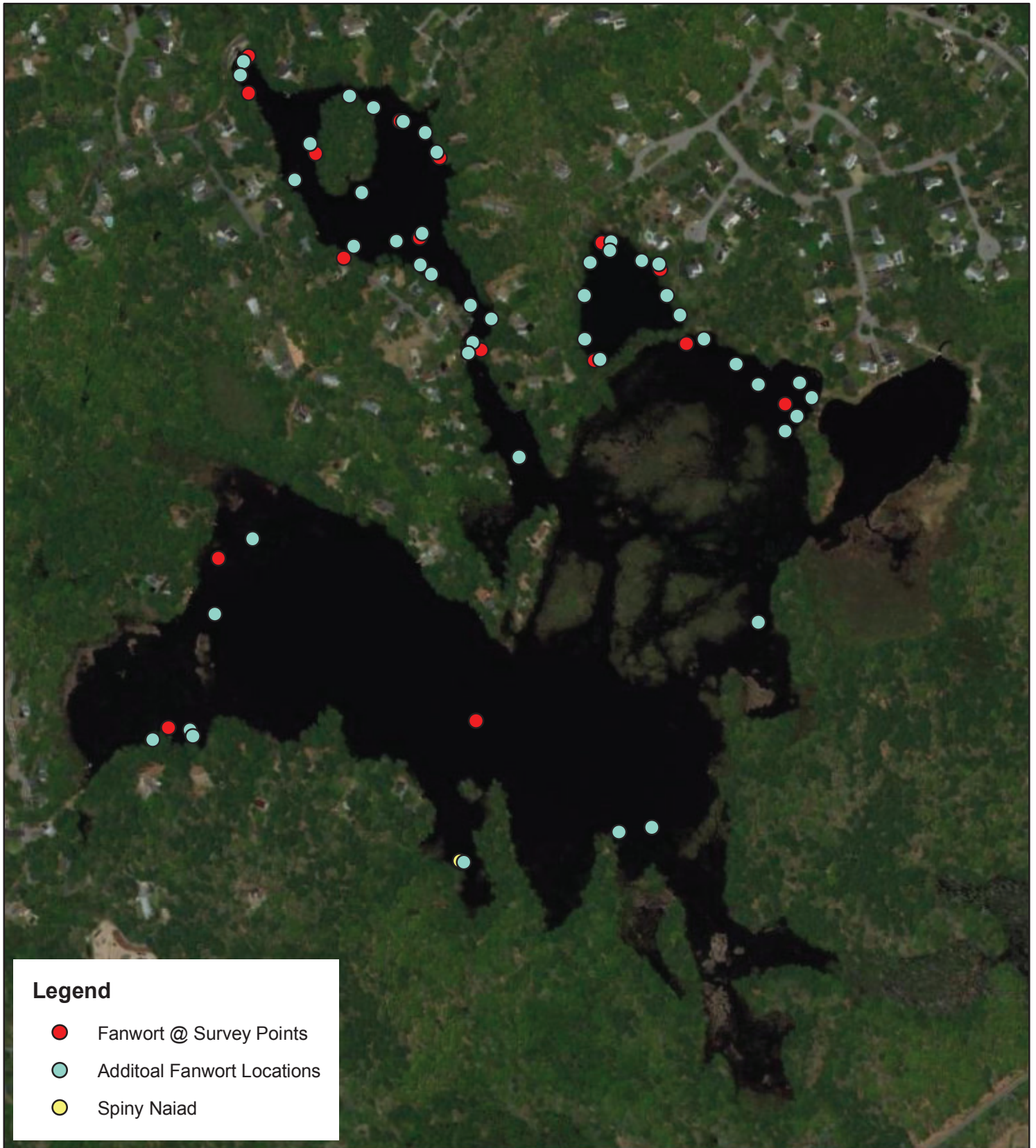
Foster's Pond
Andover, MA
Essex County
42.6060° N, 71.1382° W



Foster's Pond



Map Date: 12/28/20
Prepared by: KS
Office: SHREWSBURY, MA



Legend

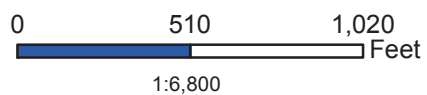
- Fanwort @ Survey Points
- Additoal Fanwort Locations
- Spiny Naiad

Foster's Pond

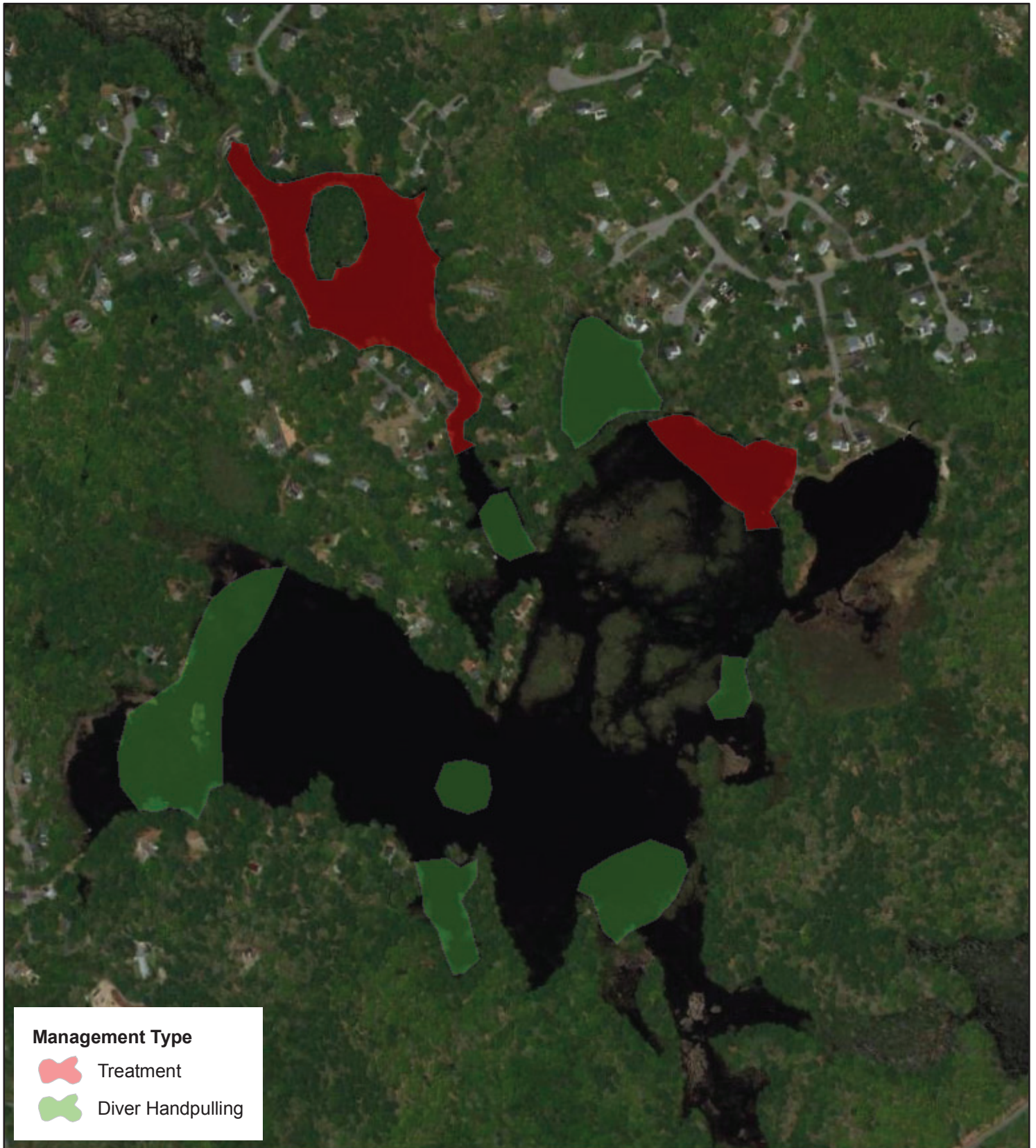
Andover, MA
Essex County
42.6060° N, 71.1382° W





Foster's Pond



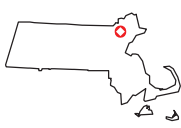
Map Date: 10/25/21
Prepared by: DM
Office: SHREWSBURY, MA



Management Type


-  Treatment
-  Diver Handpulling

Foster's Pond
Andover, MA
Essex County
42.6060° N, 71.1382° W




Foster's Pond

0 560 1,120 Feet



1:7,045



Map Date: 10/30/21
Prepared by: DM
Office: SHREWSBURY, MA

Data Point	Depth (ft)	BSCH	NVAR	NODO	CCAR	CDEM	CH/NITE	FALG	PNAT	UJURP	UVUL	UGIB	NFLEX	UTRI	PEPI	PPUS	ELEO	PPUS	PPUS	PPUS	MHUM	SPAR	NMIN	% Total Plant Cover	% Fanwort Cover	Biomass index	Species Richness index
1	10																							0	0	0	0
2	2.5	X	X				D	X																10	0	4	4
3	14.5								X															0	0	0	0
4	2.5	X	X				D	X																30	0	4	4
5	1	X	D				X																	95	0	4	3
6	10.9			nearby																				0	0	0	1
7	6.5	X	D	X			X																	85	20	4	5
8	5.3	X	D				X																	55	0	4	3
9	2.6		D																					30	0	4	1
10	4.4	X	D																					45	0	4	2
11	9.5		D																					0	0	0	0
12	8.1																							0	0	0	0
13	4.7	X	D																					15	0	4	1
14	2.5	X	D																					65	0	4	2
15	6.2	D																						10	0	4	1
16	8.5	X	D	D																				0	7	3	1
17	3.5	X	D																					30	0	4	2
18	5.7	X	D									X												15	0	4	4
19	12.1		D																					0	0	0	0
20	5.8	X	D																					20	0	4	2
21	3.7	X	D																					40	0	4	2
22	9.4																							0	0	0	0
23	6.1		D																					10	0	4	1
24	3.8		D																					0	0	0	0
25	2.5	D																						85	0	4	1
26	8		D																					0	0	0	0
27	5.2		D																					25	0	4	1
28	3.3	D													X									50	0	4	3
29	3.1	D																						25	0	4	2
30	3.2	X	D																					30	0	4	2
31	2.5	X	D							X														65	0	4	4
32	2.9	X	D																					15	10	4	3
33	4.9	X	D				X			X	D	X	X											60	0	4	7
34	4.2	X	X								D	D	X											40	0	4	3
35	3.6	X	X								D	D	X											25	0	4	3
36	3.7	X	X						X		X	X	X											80	10	4	4
37	3.6	D												X	X									90	10	4	4
38	6.4	D											X	X										45	0	4	3
39	6.1		D																					0	0	0	0
40	4.2	X	X											D										25	10	4	3
41	3.2	D					X							X										75	10	4	3
42	4.2	X	X											D										70	15	4	6
43	7.5	X	X											X										0	0	0	0
44	3.1	X	X									D		X										50	10	4	4
45	5.8	X	X											D										45	10	4	3
46	6.5	X	X											D										20	0	4	2
47	3	X	D										X	X										95	20	4	5
G1	5.2	X	D						X	X	X	X	X	X	X	X								95	50	4	7
G2	5.6	D	D						X	X	X	X	X	X	X	X								80	30	4	5
G3	9	X	X						D	D	D	D	D	D	D	D								35	0	3	3
G4	6	X	X				X		D	D	D	D	D	D	D	D								30	25	4	4
A	2.5	X	D																					85	0	4	2
B	3.3	D	X																					75	10	4	3
C	3	X	D																					85	30	4	3
D	2.5	X	D																					85	0	4	2
E	5.2	D																						10	0	4	1
F	12.5	X	D																					0	0	0	0
G	3.5	X	D																					75	0	4	2
H	4.5	X	D																					50	10	4	3
I	2	X	D																					75	0	4	4
J	3.4	X	X																					45	0	4	2
61	5.22																						39.26	4.67	3.18	2.39	

BSCH	Watershield
CCAR	Fanwort
CDEM	Coontail
CH/NITE	Macro algae
FALG	Filamentous algae
Mhum	Low watermilfoil
NMIN	Spiny naiad
NFLEX	Slender Naiad
ELEO	Spikerush
PEPI	Ribbonleaf pondweed
PNAT	Floatingleaf pondweed
PPUS	Thinleaf pondweed
PROB	Robbins pondweed
UGIB	Humped Bladderwort
UJURP	Flat-leaved Bladderwort
UVUL	Purple Bladderwort
NODO	Common Bladderwort
NVAR	White waterlily
	Yellow waterlily

#X	3	19	17	12	1	5	1	0	4	5	2	6	7	3	1	1	1	3	1	1	1	1	39.26	4.67	3.18	2.39													
#D	0	3	29	3	0	1	0	0	2	2	2	0	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0												
total #	3	22	46	15	1	6	1	0	6	7	2	9	12	3	1	1	1	3	1	1	1	1	4.9%	36.1%	75.4%	24.6%	1.6%	9.8%	1.6%	9.8%	###	3.3%	14.8%	19.7%	4.9%	1.6%	1.6%	1.6%	1.6%
% FOC	4.9%	36.1%	75.4%	24.6%	1.6%	9.8%	1.6%	0.0%	9.8%	###	3.3%	14.8%	19.7%	4.9%	1.6%	1.6%	1.6%	4.9%	1.6%	1.6%	1.6%	1.6%	4.9%	36.1%	75.4%	24.6%	1.6%	9.8%	1.6%	9.8%	###	3.3%	14.8%	19.7%	4.9%	1.6%	1.6%	1.6%	1.6%



ANALYTICAL REPORT

Lab Number:	L2142527
Client:	Solitude Lake Management, LLC 590 Lake Street Shrewsbury, MA 01545
ATTN:	Amanda Mahaney
Phone:	(508) 865-1000
Project Name:	FOSTERS POND
Project Number:	Not Specified
Report Date:	08/16/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2142527-01	MAIN POND	WATER	ANDOVER, MA	08/09/21 10:15	08/09/21
L2142527-02	OUTLET CAVE	WATER	ANDOVER, MA	08/09/21 12:15	08/09/21
L2142527-03	AZALEA DRIVE	WATER	ANDOVER, MA	08/09/21 11:45	08/09/21
L2142527-04	DUG POND	WATER	ANDOVER, MA	08/09/21 11:30	08/09/21
L2142527-05	MILL RESERVOIR	WATER	ANDOVER, MA	08/09/21 12:00	08/09/21



Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Case Narrative (continued)

Sample Receipt

The samples were received at the laboratory above the required temperature range. The samples were delivered directly from the sampling site but were not on ice.

E. Coli (MPN)

L2142527-03 and -05: The E. Coli result is greater than Fecal Coliform result. It should be noted that the analyses were performed from different containers.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Caitlin Walukevich

Title: Technical Director/Representative

Date: 08/16/21

INORGANICS & MISCELLANEOUS

Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

SAMPLE RESULTS

Lab ID: L2142527-01
Client ID: MAIN POND
Sample Location: ANDOVER, MA

Date Collected: 08/09/21 10:15
Date Received: 08/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	18.69		MPN/100ml	1	NA	1	-	08/09/21 15:47	121,9223B	SH
E. Coli (MPN)	7.45		MPN/100ml	1	NA	1	-	08/09/21 16:23	121,9223B	SH
General Chemistry - Westborough Lab										
Color, True	54		A.P.C.U.	10	--	2	-	08/09/21 21:43	121,2120B	AS
Color, Apparent	70		A.P.C.U.	25	--	5	-	08/09/21 20:53	121,2120B	AS
Alkalinity, Total	22.4		mg CaCO3/L	2.00	NA	1	-	08/10/21 11:43	121,2320B	JB
pH (H)	7.1		SU	-	NA	1	-	08/09/21 22:42	1,9040C	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	08/12/21 18:00	08/13/21 20:39	121,4500NH3-BH	AT
Nitrogen, Total Kjeldahl	0.656		mg/l	0.300	--	1	08/13/21 04:01	08/13/21 21:15	121,4500NH3-H	AT
Phosphorus, Total	0.048		mg/l	0.010	--	1	08/12/21 08:30	08/12/21 12:45	121,4500P-E	JT
Phosphorus, Soluble	0.020		mg/l	0.010	--	1	08/11/21 05:00	08/11/21 09:13	121,4500P-E	JT



Project Name: FOSTERS POND

Lab Number: L2142527

Project Number: Not Specified

Report Date: 08/16/21

SAMPLE RESULTS

Lab ID: L2142527-02
 Client ID: OUTLET CAVE
 Sample Location: ANDOVER, MA

Date Collected: 08/09/21 12:15
 Date Received: 08/09/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	39.31		MPN/100ml	1	NA	1	-	08/09/21 15:47	121,9223B	SH
E. Coli (MPN)	9.79		MPN/100ml	1	NA	1	-	08/09/21 16:23	121,9223B	SH
General Chemistry - Westborough Lab										
Color, True	58		A.P.C.U.	10	--	2	-	08/09/21 21:43	121,2120B	AS
Color, Apparent	74		A.P.C.U.	10	--	2	-	08/09/21 20:53	121,2120B	AS
Alkalinity, Total	23.8		mg CaCO3/L	2.00	NA	1	-	08/10/21 11:43	121,2320B	JB
pH (H)	7.2		SU	-	NA	1	-	08/09/21 22:42	1,9040C	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	08/12/21 18:00	08/13/21 20:40	121,4500NH3-BH	AT
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	--	1	08/13/21 04:01	08/13/21 21:16	121,4500NH3-H	AT
Phosphorus, Total	0.029		mg/l	0.010	--	1	08/12/21 08:30	08/12/21 12:45	121,4500P-E	JT
Phosphorus, Soluble	0.017		mg/l	0.010	--	1	08/11/21 05:00	08/11/21 09:13	121,4500P-E	JT



Project Name: FOSTERS POND

Lab Number: L2142527

Project Number: Not Specified

Report Date: 08/16/21

SAMPLE RESULTS

Lab ID: L2142527-03

Date Collected: 08/09/21 11:45

Client ID: AZALEA DRIVE

Date Received: 08/09/21

Sample Location: ANDOVER, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	4.13		MPN/100ml	1	NA	1	-	08/09/21 15:47	121,9223B	SH
E. Coli (MPN)	9.6		MPN/100ml	1	NA	1	-	08/09/21 16:23	121,9223B	SH
General Chemistry - Westborough Lab										
Color, True	42		A.P.C.U.	10	--	2	-	08/09/21 21:43	121,2120B	AS
Color, Apparent	50		A.P.C.U.	10	--	2	-	08/09/21 20:53	121,2120B	AS
Alkalinity, Total	21.0		mg CaCO3/L	2.00	NA	1	-	08/10/21 11:43	121,2320B	JB
pH (H)	7.0		SU	-	NA	1	-	08/09/21 22:42	1,9040C	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	08/12/21 18:00	08/13/21 20:41	121,4500NH3-BH	AT
Nitrogen, Total Kjeldahl	0.434		mg/l	0.300	--	1	08/13/21 04:01	08/13/21 21:17	121,4500NH3-H	AT
Phosphorus, Total	0.016		mg/l	0.010	--	1	08/12/21 08:30	08/12/21 12:46	121,4500P-E	JT
Phosphorus, Soluble	0.013		mg/l	0.010	--	1	08/11/21 05:00	08/11/21 09:14	121,4500P-E	JT



Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

SAMPLE RESULTS

Lab ID: L2142527-04
Client ID: DUG POND
Sample Location: ANDOVER, MA

Date Collected: 08/09/21 11:30
Date Received: 08/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	56.53		MPN/100ml	1	NA	1	-	08/09/21 15:47	121,9223B	SH
E. Coli (MPN)	29.92		MPN/100ml	1	NA	1	-	08/09/21 16:23	121,9223B	SH
General Chemistry - Westborough Lab										
Color, True	12		A.P.C.U.	5.0	--	1	-	08/09/21 21:43	121,2120B	AS
Color, Apparent	15		A.P.C.U.	5.0	--	1	-	08/09/21 20:53	121,2120B	AS
Alkalinity, Total	12.3		mg CaCO3/L	2.00	NA	1	-	08/10/21 11:43	121,2320B	JB
pH (H)	7.1		SU	-	NA	1	-	08/09/21 22:42	1,9040C	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	08/12/21 18:00	08/13/21 20:42	121,4500NH3-BH	AT
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	--	1	08/13/21 04:01	08/13/21 21:21	121,4500NH3-H	AT
Phosphorus, Total	ND		mg/l	0.010	--	1	08/12/21 08:30	08/12/21 12:46	121,4500P-E	JT
Phosphorus, Soluble	ND		mg/l	0.010	--	1	08/11/21 05:00	08/11/21 09:14	121,4500P-E	JT



Project Name: FOSTERS POND

Lab Number: L2142527

Project Number: Not Specified

Report Date: 08/16/21

SAMPLE RESULTS

Lab ID: L2142527-05
 Client ID: MILL RESERVOIR
 Sample Location: ANDOVER, MA

Date Collected: 08/09/21 12:00
 Date Received: 08/09/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	17.12		MPN/100ml	1	NA	1	-	08/09/21 15:47	121,9223B	SH
E. Coli (MPN)	24.62		MPN/100ml	1	NA	1	-	08/09/21 16:23	121,9223B	SH
General Chemistry - Westborough Lab										
Color, True	72		A.P.C.U.	10	--	2	-	08/09/21 21:43	121,2120B	AS
Color, Apparent	75		A.P.C.U.	25	--	5	-	08/09/21 20:53	121,2120B	AS
Alkalinity, Total	29.9		mg CaCO3/L	2.00	NA	1	-	08/10/21 11:43	121,2320B	JB
pH (H)	7.4		SU	-	NA	1	-	08/09/21 22:42	1,9040C	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	08/12/21 18:00	08/13/21 20:47	121,4500NH3-BH	AT
Nitrogen, Total Kjeldahl	0.523		mg/l	0.300	--	1	08/13/21 04:01	08/13/21 21:22	121,4500NH3-H	AT
Phosphorus, Total	0.034		mg/l	0.010	--	1	08/12/21 08:30	08/12/21 12:47	121,4500P-E	JT
Phosphorus, Soluble	0.023		mg/l	0.010	--	1	08/11/21 05:00	08/11/21 09:16	121,4500P-E	JT



Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-05 Batch: WG1533078-1									
Coliform, Fecal (MPN)	<1	MPN/100ml	1	NA	1	-	08/09/21 15:47	121,9223B	SH
Microbiological Analysis - Westborough Lab for sample(s): 01-05 Batch: WG1533079-1									
E. Coli (MPN)	<1	MPN/100ml	1	NA	1	-	08/09/21 16:23	121,9223B	SH
General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1533354-1									
Alkalinity, Total	ND	mg CaCO3/L	2.00	NA	1	-	08/10/21 11:43	121,2320B	JB
General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1533688-1									
Phosphorus, Soluble	ND	mg/l	0.010	--	1	08/11/21 05:00	08/11/21 09:08	121,4500P-E	JT
General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1534172-1									
Phosphorus, Total	ND	mg/l	0.010	--	1	08/12/21 08:30	08/12/21 12:33	121,4500P-E	JT
General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1534513-1									
Nitrogen, Ammonia	ND	mg/l	0.075	--	1	08/12/21 18:00	08/13/21 20:23	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1534607-1									
Nitrogen, Total Kjeldahl	ND	mg/l	0.300	--	1	08/13/21 04:01	08/13/21 21:09	121,4500NH3-H	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Parameter	LCS		LCS D		%Recovery		RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual	Limits	Qual			
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1533178-1									
pH	100	-	-	-	99-101	-	-	-	5
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1533354-2									
Alkalinity, Total	103	-	-	-	90-110	-	-	-	10
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1533688-2									
Phosphorus, Soluble	106	-	-	-	80-120	-	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1534172-2									
Phosphorus, Total	104	-	-	-	80-120	-	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1534513-2									
Nitrogen, Ammonia	106	-	-	-	80-120	-	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1534607-2									
Nitrogen, Total Kjeldahl	102	-	-	-	78-122	-	-	-	-



Matrix Spike Analysis
Batch Quality Control

Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1533354-4 QC Sample: L2142457-02 Client ID: MS Sample										
Alkalinity, Total	231	100	329	98	-	-	-	86-116	-	10
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1533688-4 QC Sample: L2142527-01 Client ID: MAIN POND										
Phosphorus, Soluble	0.020	0.5	0.472	90	-	-	-	75-125	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1534172-4 QC Sample: L2142527-01 Client ID: MAIN POND										
Phosphorus, Total	0.048	0.5	0.567	104	-	-	-	75-125	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1534513-4 QC Sample: L2142527-04 Client ID: DUG POND										
Nitrogen, Ammonia	ND	4	3.70	92	-	-	-	80-120	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1534607-4 QC Sample: L2142023-02 Client ID: MS Sample										
Nitrogen, Total Kjeldahl	0.909	8	8.72	98	-	-	-	77-111	-	24



Lab Duplicate Analysis *Batch Quality Control*

Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1533153-1	QC Sample: L2142477-01	Client ID: DUP	Sample	
Color, Apparent	ND	ND	A.P.C.U.	NC		
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1533154-1	QC Sample: L2142527-05	Client ID: MILL	RESERVOIR	
Color, True	72	70	A.P.C.U.	3		
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1533178-2	QC Sample: L2141639-01	Client ID: DUP	Sample	
pH	7.9	7.9	SU	0		5
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1533354-3	QC Sample: L2142457-02	Client ID: DUP	Sample	
Alkalinity, Total	231	228	mg CaCO3/L	1		10
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1533688-3	QC Sample: L2142527-02	Client ID: OUTLET	CAVE	
Phosphorus, Soluble	0.017	0.018	mg/l	6		20
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1534172-3	QC Sample: L2142527-01	Client ID: MAIN	POND	
Phosphorus, Total	0.048	0.052	mg/l	8		20
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1534513-3	QC Sample: L2142527-04	Client ID: DUG	POND	
Nitrogen, Ammonia	ND	0.086	mg/l	NC		20
General Chemistry - Westborough Lab	Associated sample(s): 01-05	QC Batch ID: WG1534607-3	QC Sample: L2142023-02	Client ID: DUP	Sample	
Nitrogen, Total Kjeldahl	0.909	1.08	mg/l	17		24



Serial_No:08162111:48

Project Name: FOSTERS POND

Lab Number: L2142527

Project Number: Not Specified

Report Date: 08/16/21

Sample Receipt and Container Information

YES

Were project specific reporting limits specified?

Cooler Information
Cooler A Custody Seal Absent

Table with columns: Container ID, Container Information, Cooler, Initial pH, Final pH, Temp deg C, Pres, Seal, Frozen Date/Time, Analysis(*). Rows include container IDs L2142527-01A through L2142527-03C with corresponding analysis results like E-COLI-QT(.33), F-COLI-QT(.33), ALK-T-2320(14), etc.

*Values in parentheses indicate holding time in days



Serial_No:08162111:48

Project Name: FOSTERS POND

Lab Number: L2142527

Project Number: Not Specified

Report Date: 08/16/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2142527-03D	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		F-COLI-QT(.33)
L2142527-03E	Plastic 250ml unpreserved/No Headspace	A	NA		23.5	Y	Absent		ALK-T-2320(14)
L2142527-03F	Plastic 250ml unpreserved	A	7	7	23.5	Y	Absent		SPHOS-4500(28)
L2142527-03G	Amber 500ml unpreserved	A	7	7	23.5	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2142527-03H	Plastic 60ml unpreserved	A	7	7	23.5	Y	Absent		PH-9040(1)
L2142527-03I	Plastic 950ml H2SO4 preserved	A	<2	<2	23.5	Y	Absent		TKN-4500(28),TPHOS-4500(28),NH3-4500(28)
L2142527-03X	Plastic 250ml H2SO4 preserved Filtrates	A	NA		23.5	Y	Absent		SPHOS-4500(28)
L2142527-04A	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		E-COLI-QT(.33)
L2142527-04B	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		E-COLI-QT(.33)
L2142527-04C	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		F-COLI-QT(.33)
L2142527-04D	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		F-COLI-QT(.33)
L2142527-04E	Plastic 250ml unpreserved/No Headspace	A	NA		23.5	Y	Absent		ALK-T-2320(14)
L2142527-04F	Plastic 250ml unpreserved	A	7	7	23.5	Y	Absent		SPHOS-4500(28)
L2142527-04G	Amber 500ml unpreserved	A	7	7	23.5	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2142527-04H	Plastic 60ml unpreserved	A	7	7	23.5	Y	Absent		PH-9040(1)
L2142527-04I	Plastic 950ml H2SO4 preserved	A	<2	<2	23.5	Y	Absent		TKN-4500(28),TPHOS-4500(28),NH3-4500(28)
L2142527-04X	Plastic 250ml H2SO4 preserved Filtrates	A	NA		23.5	Y	Absent		SPHOS-4500(28)
L2142527-05A	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		E-COLI-QT(.33)
L2142527-05B	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		E-COLI-QT(.33)
L2142527-05C	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		F-COLI-QT(.33)
L2142527-05D	Bacteria Cup Na2S2O3 preserved	A	NA		23.5	Y	Absent		F-COLI-QT(.33)
L2142527-05E	Plastic 250ml unpreserved/No Headspace	A	NA		23.5	Y	Absent		ALK-T-2320(14)
L2142527-05F	Plastic 250ml unpreserved	A	7	7	23.5	Y	Absent		SPHOS-4500(28)
L2142527-05G	Amber 500ml unpreserved	A	7	7	23.5	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2142527-05H	Plastic 60ml unpreserved	A	7	7	23.5	Y	Absent		PH-9040(1)
L2142527-05I	Plastic 950ml H2SO4 preserved	A	<2	<2	23.5	Y	Absent		TKN-4500(28),TPHOS-4500(28),NH3-4500(28)
L2142527-05X	Plastic 250ml H2SO4 preserved Filtrates	A	NA		23.5	Y	Absent		SPHOS-4500(28)

*Values in parentheses indicate holding time in days



Project Name: FOSTERS POND
Project Number: Not Specified

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report



Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
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Data Qualifiers

the identification is based on a mass spectral library search.

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: FOSTERS POND
Project Number: Not Specified

Lab Number: L2142527
Report Date: 08/16/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY PAGE _____ OF _____
 ALPHA Job #: 62142527

Date Rec'd In Lab: 8/9/21
 Report Information - Data Deliverables

ALPHA Lab ID (Lab Use Only)

Billings Information
 Same as Client info PO #:

Project Information
 Project Name: Fosters Pond
 Project Location: Andover MA

Client Information
 Client: Solitude Lake Mgmt
 Address: 590 Lake St
Shrewsbury MA
 Phone: _____
 Email: amahaney@solitudelake.com

Regulatory Requirements & Project Information Requirements
 Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

Turn-Around Time
 Standard RUSH (only confirmed if pre-approved!)
 Date Due: _____

Additional Project Information:

ANALYSIS
 VOC: 8260 624 524.2
 SVOC: ABN PAH
 METALS: MCP 13 MCP 14 RCP 15
 METALS: RCRAS RCRAB RCP 13
 EPH: Ranges & Targets Ranges Only
 VPH: Ranges & Targets Ranges Only
 TPH: Quant Only Fingerprint
 ALKALINITY: Fingerprnt

Sample ID

Collection Date Time
 8/9 10:15am SW AW
 8/9 12:15 pm SW AW
 8/9 11:45 am SW AW
 8/9 11:30am SW AW
 8/9 12:00pm SW AW

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Time	Sample Matrix	Sampler Initials	VOC	SVOC	METALS	METALS	EPH	VPH	TPH	ALKALINITY	Other	TOTAL # BOTTLES
42527 01	Main Pond	8/9	10:15am	SW	AW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
02	Butt-Cave	8/9	12:15 pm	SW	AW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
03	Azalea Drive	8/9	11:45 am	SW	AW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
04	Dug Pond	8/9	11:30am	SW	AW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
05	MIL ROVERAR	8/9	12:00pm	SW	AW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1

Container Type
 Preservative
 Date/Time
 Relinquished By: Amanda Mdray 8/9 1:58pm
 Received By: Sue DAK AA 8/9/21 13:55

Container Type
 Preservative
 Date/Time
 Relinquished By: _____
 Received By: _____



16013 Watson Seed Farm Road, Whitakers, NC 27891

Chain of Custody: COC9963 **LABORATORY REPORT**

Customer Company Customer Contact

Company Name SOLitude Lake Management	Contact Person: Kara Sliwoski
Address: 1320 Brookwood Drive, Ste. H Little Rock, AR 72202	E-mail Address: ksliwoski@solitudelake.com
	Phone: 508.885.0101

Waterbody Information

Waterbody:	Fosters Pond - MA
Waterbody size:	120
Depth Average:	4.5

Sample ID	Sample Location	Test	Method	Results	Sampling Date / Time
CTM28075-1	Micc Res. 001	Sonar/fluridone (ug/L)	FAST 10	6.8	06/15/2021

ANALYSIS STATEMENTS:

SAMPLE RECEIPT /HOLDING TIMES: All samples arrived in an acceptable condition and were analyzed within prescribed holding times in accordance with the SRTC Laboratory Sample Receipt Policy unless otherwise noted in the report.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis and any qualifiers will be noted in the report.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: No significant observations were made unless noted in the report.

MEASUREMENT UNCERTAINTY: Uncertainty of measurement has been determined and is available upon request.

Laboratory Information

Date / Time Received: 06/17/21 11:15 AM

Date Results Sent: Friday, June 18, 2021

accordance with the applicable certifications as noted. All soil samples are reported on a dry weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the exclusive use of SRTC Laboratory and its client. This report shall not be reproduced, except in full, without written permission from SRTC Laboratory. The Chain of Custody is included and is an essential component of this report.

This entire report was reviewed and approved for release.

A handwritten signature in blue ink, consisting of a stylized 'J' followed by a series of horizontal strokes.

Reviewed By: Laboratory Supervisor

CONFIDENTIALITY NOTICE: This electronic transmission (including any files attached hereto) may contain information that is privileged, confidential and protected from disclosure. The information is intended only for the use of the individual or entity named above and is subject to any confidentiality agreements with such party. If the reader of this message is not the intended recipient or any employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any disclosure, dissemination, copying, distribution, or the taking of any action in reliance on the contents of this confidential information is strictly prohibited. If you have received this communication in error, please destroy it immediately and notify the sender by telephone. Thank you



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810

Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	7/19/2021	Date Sampled:	7/15/2021
Laboratory ID#:	N2184706 - 01	Date Received:	7/16/2021
		Date Tested:	7/19/2021

Sample Site: SURFACE WATER FOSTERS POND - MAIN POND

Cyanophyta: Unicellular & Colonial Forms		Filamentous Nitrogen Fixers	
Anabaena	7400	Anabaenopsis	
Aphanocapsa		Aphanizomenon	7300
Aphanothece		Calothrix/Rivularia	
Chroococcus		Chrysochlorium	
Coelosphaerium	4200	Cuspidothrix	2300
Dactylococcopsis		Cylindrospermium	
Gomphosphaeria		Dolichospermium	
Merismopedia		Gloeotrichia	
Microcystis		Hapalosiphon	
Snowella		Nodularia	
Synechococcus/Related		Nostoc	
Woronichinia		Raphidiopsis	
Other Coccoid Blue Greens		Sytonema	
Filamentous Non-Nitrogen Fixers		Sphaerospermopsis	
		Tolypothrix	
Arthrospira		Other Filamentous Bluegreens (L)	
Limonothrix		Other Filamentous Bluegreens (S)	
Lyngbya			
Limnoraphis		Coelosphaerium	
Microseira/Plectonema			
Oscillatoria			
Phormidium			
Planktolyngbya			
Planktothrix			
Pseudanabaena/Kromvophonon			
Spirulina			

Total Cell Count: 21,000 / ml

Approved by: 

Alan C. Johnson,
Laboratory Director

Northeast Laboratories, Inc. 129 Mill Street Berlin, CT 06037 www.nelabsct.com

Telephone: 860-828-9787 Toll Free (In State) 800-826-0105 (Out of State) 800-654-1230 Fax: 860-829-1050
CT Cert. #PH-0404 EPA Cert. #CT-024 FDA Reg. #086650488 CT CSL #0000624



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810

Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	7/19/2021	Date Sampled:	7/15/2021
Laboratory ID#:	N2184706 - 02	Date Received:	7/16/2021
		Date Tested:	7/19/2021

Sample Site: SURFACE WATER FOSTERS POND - MILL RESERVOIR

Cyanophyta:			
Unicellular & Colonial Forms			Filamentous Nitrogen Fixers
Anabaena	840		Anabaenopsis
Aphanocapsa			Aphanizomenon
Aphanothece			Calothrix/Rivularia
Chroococcus			Chrysochlorium
Coelosphaerium			Cuspidothrix
Dactylococcopsis			Cylindrospermium
Gomphosphaeria			Dolichospermium
Merismopedia			Gloeotrichia
Microcystis			Hapalosiphon
Snowella			Nodularia
Synechococcus/Related			Nostoc
Woronichinia			Raphidiopsis
Other Coccoid Blue Greens			Sytonema
Filamentous Non-Nitrogen Fixers			Sphaerospermopsis
			Tolypothrix
Arthrospira			Other Filamentous Bluegreens (L)
Limonothrix			Other Filamentous Bluegreens (S)
Lyngbya			
Limnoraphis			Coelosphaerium
Microseira/Plectonema			
Oscillatoria			
Phormidium			
Planktolyngbya			
Planktothrix			
Pseudanabaena/Kromvophon	1500		
Spirulina			

Total Cell Count: 2300 / ml

Approved by: 
Alan C. Johnson,
Laboratory Director



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810

Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	7/19/2021	Date Sampled:	7/15/2021
Laboratory ID#:	N2184706 - 03	Date Received:	7/16/2021
		Date Tested:	7/19/2021

Sample Site: SURFACE WATER FOSTERS POND - OUTLET COVE

Cyanophyta:			Filamentous Nitrogen Fixers	
Unicellular & Colonial Forms				
Anabaena	3900		Anabaenopsis	
Aphanocapsa			Aphanizomenon	7900
Aphanothece			Calothrix/Rivularia	
Chroococcus			Chrysosporxium	
Coelosphaerium	3700		Cuspidothrix	2300
Dactylococcopsis			Cylindrospermium	
Gomphosphaeria			Dolichospermium	
Merismpedia			Gloeotrichia	
Microcystis			Hapalosiphon	
Snowella			Nodularia	
Synechococcus/Related			Nostoc	
Woronichinia			Raphidiopsis	
Other Cocoid Blue Greens			Sytonema	
Filamentous Non-Nitrogen Fixers			Sphaerospermopsis	
			Tolypothrix	
Arthrospira			Other Filamentous Bluegreens (L)	
Limonothrix			Other Filamentous Bluegreens (S)	
Lyngbya				
Limnoraphis			Coelosphaerium	
Microseira/Plectonema				
Oscillatoria				
Phormidium				
Planktolyngbya				
Planktothrix				
Pseudanabaena/Kromvophon	1100			
Spirulina				

Total Cell Count: 19,000 / ml

Approved by: 
Alan C. Johnson,
Laboratory Director



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810

Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	7/19/2021	Date Sampled:	7/15/2021
Laboratory ID#:	N2184706 - 04	Date Received:	7/16/2021
		Date Tested:	7/19/2021
Sample Site: SURFACE WATER FOSTERS POND - MAIN POND (ID ONLY)			

Cyanophyta: Unicellular & Colonial Forms		Filamentous Nitrogen Fixers	
Anabaena	X	Anabaenopsis	
Aphanocapsa		Aphanizomenon	X
Aphanothece		Calothrix/Rivularia	
Chroococcus		Chrysochlorium	
Coelosphaerium	X	Cuspidothrix	X
Dactylococcopsis		Cylindrospermium	
Gomphosphaeria		Dolichospermium	
Merismopedia		Gloeotrichia	
Microcystis		Hapalosiphon	
Snowella		Nodularia	
Synechococcus/Related		Nostoc	
Woronichinia		Raphidiopsis	
Other Coccoid Blue Greens		Sytonema	
Filamentous Non-Nitrogen Fixers		Sphaerospermopsis	
		Tolypothrix	
Arthrospira		Other Filamentous Bluegreens (L)	
Limonothrix		Other Filamentous Bluegreens (S)	
Lyngbya			
Limnoraphis		Coelosphaerium	
Microseira/Plectonema			
Oscillatoria			
Phormidium			
Planktolyngbya			
Planktothrix			
Pseudanabaena/Kromvophon	X		
Spirulina			

Approved by: 

Alan C. Johnson
Laboratory Director

Northeast Laboratories, Inc. 129 Mill Street Berlin, CT 06037 www.nelabsct.com

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CT Cert. #PH-0404 EPA Cert. #CT-024 FDA Reg. #086650488 CT CSL #0000624



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810


Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	8/05/2021	Date Sampled:	8/02/2021
Laboratory ID#:	N2184885 - 01	Date Received:	8/03/2021
		Date Tested:	8/05/2021

Sample Site: SURFACE WATER FOSTERS POND - MAIN POND

Cyanophyta:				
Unicellular & Colonial Forms			Filamentous Nitrogen Fixers	
Anabaena			Anabaenopsis	
Aphanocapsa	670		Aphanizomenon	
Aphanothece			Calothrix/Rivularia	
Chroococcus			Chrysochlorium	
Coelosphaerium			Cuspidothrix	240
Dactylococcopsis			Cylindrospermium	
Gomphosphaeria			Dolichospermium	
Merismopedia			Gloeotrichia	
Microcystis			Hapalosiphon	
Snowella			Nodularia	
Synechococcus/Related			Nostoc	
Woronichinia			Raphidiopsis	
Other Coccoid Blue Greens			Sytonema	
Filamentous Non-Nitrogen Fixers			Sphaerospermopsis	
Arthrospira			Tolypothrix	
Limonothrix			Other Filamentous Bluegreens (L)	
Lyngbya			Other Filamentous Bluegreens (S)	
Limnoraphis				
Microseira/Plectonema			Coelosphaerium	
Oscillatoria				
Phormidium				
Planktolyngbya				
Planktothrix				
Pseudanabaena/Kromvophon	240			
Spirulina				

Total Cell Count: 1200/ ml

Approved by: 
Alan C. Johnson,
Laboratory Director



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810


Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	8/05/2021	Date Sampled:	8/02/2021
Laboratory ID#:	N2184885 - 02	Date Received:	8/03/2021
		Date Tested:	8/05/2021

Sample Site: SURFACE WATER FOSTERS POND - MILL RESERVOIR

Cyanophyta:		Filamentous Nitrogen Fixers	
Unicellular & Colonial Forms			
Anabaena		Anabaenopsis	
Aphanocapsa		Aphanizomenon	
Aphanothece		Calothrix/Rivularia	
Chroococcus		Chrysochlorium	
Coelosphaerium		Cuspidothrix	
Dactylococcopsis		Cylindrospermium	
Gomphosphaeria		Dolichospermium	
Merismopedia		Gloeotrichia	
Microcystis		Hapalosiphon	
Snowella		Nodularia	
Synechococcus/Related		Nostoc	
Woronichinia		Raphidiopsis	
Other Coccoid Blue Greens		Sytonema	
Filamentous Non-Nitrogen Fixers		Sphaerospermopsis	
		Tolypothrix	
Arthrospira		Other Filamentous Bluegreens (L)	
Limonothrix		Other Filamentous Bluegreens (S)	
Lyngbya			
Limnoraphis		Coelosphaerium	
Microseira/Plectonema			
Oscillatoria			
Phormidium			
Planktolyngbya			
Planktothrix			
Pseudanabaena/Kromvophon			
Spirulina			

Total Cell Count: ND / ml

Approved by: 
Alan C. Johnson,
Laboratory Director




Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810

Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	8/05/2021	Date Sampled:	8/02/2021
Laboratory ID#:	N2184885 - 03	Date Received:	8/03/2021
		Date Tested:	8/05/2021
Sample Site: SURFACE WATER FOSTERS POND - OUTLET COVE			

<u>Cyanophyta:</u>			<u>Filamentous Nitrogen Fixers</u>	
Unicellular & Colonial Forms				
Anabaena			Anabaenopsis	
Aphanocapsa	190		Aphanizomenon	
Aphanothece			Calothrix/Rivularia	
Chroococcus			Chrysochlorium	
Coelosphaerium			Cuspidothrix	820
Dactylococcopsis			Cylindrospermium	
Gomphosphaeria			Dolichospermium	
Merismopedia	150		Gloeotrichia	
Microcystis			Hapalosiphon	
Snowella	240		Nodularia	
Synechococcus/Related			Nostoc	
Woronichinia			Raphidiopsis	
Other Coccoid Blue Greens			Sytonema	
Filamentous Non-Nitrogen Fixers			Sphaerospermopsis	
			Tolypothrix	
Arthrospira			Other Filamentous Bluegreens (L)	
Limonothrix			Other Filamentous Bluegreens (S)	
Lyngbya				
Limnoraphis			Coelosphaerium	
Microseira/Plectonema				
Oscillatoria				
Phormidium				
Planktolyngbya				
Planktothrix				
Pseudanabaena/Kromvophon				
Spirulina				

Total Cell Count: 1400 / ml

Approved by: 
Alan C. Johnson,
Laboratory Director



SOLitude Lake Management

590 Lake Street
Shrewsbury, MA 01545

EMAIL ADDRESS: amahaney@solitudelake.com


Report Date:	8/27/2021	Date Sampled:	8/09/2021
Laboratory ID#:	N2185072-01	Date Received:	8/19/2021
		Date Tested:	8/26/2021

Sample Site: SURFACE WATER FOSTERS POND - ANDOVER, MA

Cyanophyta:	
Unicellular & Colonial Forms	
Anabaena	2000
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	120
Microcystis	
Snowella	240
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	
Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnographis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophonon	
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	12,000
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: 14,000/ ml

Approved by: 
Alan C. Johnson,
Laboratory Director



Fosters Pond Corp.
 Attn: David Adilman & Stephen E. Cotton
 Andover, MA 01810


Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	8/25/2021	Date Sampled:	8/18/2021
Laboratory ID#:	N2185101 - 01	Date Received:	8/20/2021
		Date Tested:	8/20/2021

Sample Site: SURFACE WATER FOSTERS POND - MAIN POND

Cyanophyta: Unicellular & Colonial Forms		Filamentous Nitrogen Fixers	
Anabaena		Anabaenopsis	
Aphanocapsa	380	Aphanizomenon	
Aphanothece		Calothrix/Rivularia	
Chroococcus	190	Chrysosporxium	
Coelosphaerium	3,300	Cuspidothrix	7,500
Dactylococcopsis		Cylindrospermium	
Gomphosphaeria		Dolichospermium	
Merismopedia	15,000	Gloeotrichia	
Microcystis		Hapalosiphon	
Snowella	67	Nodularia	
Synechococcus/Related		Nostoc	
Woronichinia		Raphidiopsis	
Other Coccoid Blue Greens		Sytonema	
Filamentous Non-Nitrogen Fixers		Sphaerospermopsis	
Arthrospira		Tolypothrix	
Limonothrix		Other Filamentous Bluegreens (L)	
Lyngbya		Other Filamentous Bluegreens (S)	
Limnorphis			
Microseira/Plectonema		Coelosphaerium	
Oscillatoria			
Phormidium			
Planktolyngbya			
Planktothrix			
Pseudanabaena/Kromvophoron	670		
Spirulina			

Total Cell Count: 27,000/ ml

Approved by: 
 Alan C. Johnson,
 Laboratory Director



Fosters Pond Corp.
Attn: David Adilman & Stephen E. Cotton
Andover, MA 01810


Email: dhydro2@gmail.com & scotton@fosterspond.org

Report Date:	8/25/2021	Date Sampled:	8/18/2021
Laboratory ID#:	N2185101 - 02	Date Received:	8/20/2021
		Date Tested:	8/20/2021

Sample Site: SURFACE WATER FOSTERS POND - OUTLET COVE

Cyanophyta: Unicellular & Colonial Forms		Filamentous Nitrogen Fixers	
Anabaena		Anabaenopsis	
Aphanocapsa		Aphanizomenon	
Aphanothece		Calothrix/Rivularia	
Chroococcus	58	Chrysochlorium	
Coelosphaerium	380	Cuspidothrix	720
Dactylococcopsis		Cylindrospermium	
Gomphosphaeria		Dolichospermium	
Merismopedia	5,100	Gloeotrichia	
Microcystis		Hapalosiphon	
Snowella	350	Nodularia	
Synechococcus/Related		Nostoc	
Woronichinia		Raphidiopsis	
Other Coccoid Blue Greens		Sytonema	
Filamentous Non-Nitrogen Fixers		Sphaerospermopsis	
Arthrospira		Tolypothrix	
Limonothrix		Other Filamentous Bluegreens (L)	
Lyngbya		Other Filamentous Bluegreens (S)	
Limnoraphis			
Microseira/Plectonema		Coelosphaerium	
Oscillatoria			
Phormidium			
Planktolyngbya			
Planktothrix			
Pseudanabaena/Kromvophon			
Spirulina			

Total Cell Count: 6,600 / ml

Approved by: 
Alan C. Johnson,
Laboratory Director