WATER & WETLAND

LAKE, POND & WETLAND MANAGEMENT

June 30, 2022

Sudbury Conservation Commission
Attention: Ms. Lori Capone
275 Old Lancaster Road
Sudbury, MA 01776

Dear Ms. Capone and Conservation Commission Members,

Water & Wetland, LLC will be taking over management of the Hop Brook Ponds water chestnut control program, starting this year. This includes a continuation of the Clearcast (Imazamox) treatments, and affiliated surveys, water quality analysis, and reporting at Carding Millpond, Stearns Millpond, and Grist Millpond. Water & Wetland is a small firm, with a large amount of water chestnut control experience. Last year we completed water chestnut control projects using identical methodology to that of the Hop Brook Ponds, under contracts with Norwood Conservation Commission, Canton Conservation Commission, Town of Norfolk, and more. I will be the dedicated project manager and will be on-site for both of the water chestnut treatments. My business partner, Joe Onorato will be coordinating access and the needed crane services for launch and demobilization at two of the ponds.

We have completed the required pre-treatment monitoring and I've included our "field notes," from these surveys, as well as the affiliated maps. Information discussing the surveys, water quality analysis, and treatments will all be included within the year-end report submitted to the Commission by December 1st. DEP signs have been made and will be placed at each pond prior to the first treatment, as well as neon signs noting the treatment and any affiliated water-use restrictions.

Special Condition number 2, within section 2 of the Order of Conditions reads that "Each year, prior to commencement of vegetation control, or other related site work other than monitoring, the applicant shall providence a plan to the Conservation Commission showing expected treatment areas. Based on up to date site conditions, the applicant shall also include a letter addressing potential impacts on non-target native vegetation, water quality, fish, invertebrate, and aquatic life that could result from that years' work." We are sending this information over to fulfill this condition. As part of the 2022 work, we do not anticipate negative impacts on non-target native vegetation, water quality, fish, invertebrate, and/or aquatic life. Instead, we anticipate an improvement in the overall ecosystem, as water chestnut limits biodiversity of native plant species, and dense water chestnut, like that observed within the Hop Brook Ponds, can limit oxygen exchange, thus lowering

dissolved oxygen. By controlling the water chestnut in the three ponds, we anticipate increased open-water habitat for fish and wildlife, improved oxygen transfer, and additional sunlight to allow for native plants to recolonize. The foliar spray will follow all best management practices, including pairing the herbicide with the approved surfactant, which acts as a sticking agent and helps the herbicide penetrate the target water chestnut plants. Additionally, the treatment will be performed using low-volume application methodology and will be conducted on a day without rain or high winds. These best management practices help limit any overspray. The concentrations of herbicide actually going into the water are so low that they will not impact any beneficial native submerged species such as thin-leaf pondweed, ribbon-leaf pondweed, etc. Scattered duckweed mixed in with water chestnut may be minimally impacted for a short duration, however this will rebound quickly. Duckweed, while native, also creates dense cover which limits biodiversity and oxygen exchange. All attempts will be made to limit any non-target impacts to duckweed at the surface of the ponds.

We welcome any questions and look forward to working with the Sudbury Conservation Commission for many years to come, alongside Hop Brook Protection Association, to improve the health of these beautiful ponds, but controlling invasive water chestnut.

Sincerely,

Colin Gosselin
Co-Owner
c: 508-259-3153
o: 888-4WETLAN(D)
colin@waterandwetland.com
www.waterandwetland.com

enclosures: Pre-Treatment Field Notes and Maps, Water & Wetland Staff Bios

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

BIOLOGIST:
COLIN GOSSELIN
C: (508) 259-3153
COLIN@WATERANDWETLAND.COM

CALL/TEXT WITH ANY QUESTIONS!

FIELD NOTES SUMMARY

Customer: Hop Brook Protection Association
Waterbody: Carding Millpond
Site Location: Sudbury, MA
Date: 6/14/22, 10:15 AM

Observations / Notes: On June 14th, Senior Environmental Scientist, James Lacasse, and Field Assistant, Grace Adams, completed a sight visit to Carding Millpond. The visit consisted of performing a survey, and collecting water quality data. Conditions during the visit were warm and sunny.

Upon arrival, a survey was conducted using visual observation paired with a standard throw-rake and ArcGIS Field Maps and external GPS. Throughout the pond, both native and invasive species were observed, ranging from trace to dense densities. The native species noted were moderate densities of thin leaf pondweed, dense densities of duckweed and watermeal along the entire shoreline and scatted in the middle of the pond, dense densities of coontail. There were also moderate to dense densities of elodea observed. As for the invasive species, there were dense densities of curly leaf pondweed throughout the water column, as well as surfacing, and flowering. Some of the curly leaf also had epiphytic algae covering it, which is an indication that the plant is decaying. Curly leaf pondweed is a colder water invasive species which is already starting to die off naturally. The water chestnut was present in dense densities in the southwestern section of the pond, as well as around the island, with filamentous algae mixed in around it. The rest of the water chestnut was in moderate densities throughout the entire pond, with some sparse densities.

While on-site, basic water quality was collected using calibrated meters. The pH was 7.2, which is within standard range for fresh waters and considered neutral. The water temperature was consistent with other similar waterbodies we manage in the area, and the dissolved oxygen was sufficient to support fish and wildlife. The water clarity was also assessed, and deemed as above average, as visibility was to the bottom of the pond. The Secchi reading was 5ft 1 in. All other required water samples were collected from the pond and were preserved and transported to Alpha Labs for analysis. Results will be provided within the year-end report. If immediate attention is needed in regards to any of the water quality results, we will make you aware of this immediately upon receipt of the results.

As planned, two water chestnut treatments will be scheduled during the 2022 season, prior to the plants

setting seed. The treatment will include the use of Clearcast (imazamox).

We will notify HBPA and Conservation in advance of the treatment and will be closely monitoring weather. Please contact us with any questions or concerns.

Depth	Temperature (℃)	Dissolved Oxygen (mg/L)
Surface	24.2	9.57
1 Foot	24.1	9.53
2 Feet	23.2	7.62
3 Feet	22.2	7.41
4 Feet	22.0	6.04
Bottom	21.3	5.96

Secchi disk depth (feet)	5ft 1in

Photos





Water & Wetland, LLC
Upton, MA
(888) 4WETLAN(D)
www.waterandwetland.com

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

Carding Mill Pond
Invasive Species Distribution
Sudbury, MA

Survey Date
6/14/2022

Map Date
6/14/2022

N

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

BIOLOGIST:
COLIN GOSSELIN
C: (508) 259-3153
COLIN@WATERANDWETLAND.COM

CALL/TEXT WITH ANY QUESTIONS!

FIELD NOTES SUMMARY

Customer: Hop Brook Protection Association
Waterbody: Grist Millpond
Site Location: Sudbury, MA
Date: 6/14/22, 11:00 AM

Observations / Notes: On June 14th, Senior Environmental Scientist, James Lacasse, and Field Assistant, Grace Adams, completed a site visit to Grist Millpond. The visit consisted of performing a survey, and collecting water quality data/samples. Conditions during the visit were warm and sunny.

Upon arrival, a survey was conducted using visual observation paired with a standard throw-rake and ArcGIS Field Maps and external GPS. Since the waterbody was so heavily populated with water chestnut, a motor was not able to make it through, therefore the 12' jon boat was rowed throughout the pond. The pond was roughly 90-100 percent covered with water chestnut, as well as watermeal, and algae. Several rake tosses also revealed elodea, a native species, that was under all of the surfaced water chestnut. Lastly, moderate to dense curly lead pondweed (invasive) was documented throughout the majority of the pond, as shown in the attached map.

While on-site, basic water quality was collected using calibrated meters. The pH was 7.3, which is within standard range for fresh waters and considered neutral. The water temperature was consistent with other similar waterbodies we manage in the area, and the dissolved oxygen was sufficient to support fish and wildlife. The water clarity was difficult to asses, due to the large amount of vegetation on the surface; however, from the area the Secchi disk reading was collected, we received a reading of 3ft 10in before it was lost within the pondweeds. All other required pre-treatment samples were collected and transported to Alpha Labs for analysis. The results will be included within the year-end report. If immediate attention is needed in regards to any of the water quality results, this will be brought to your attention immediately upon receipt of the results.

As planned, treatments for water chestnut control will be scheduled. The airboat will be able to navigate through the dense water chestnut. An initial treatment will be conducted to crease boat laned, followed by a second treatment roughly two-three weeks later.

We will notify you in advance of the treatment and will coordinate all logistics in advance, including closely monitoring weather. Please contact us with any questions or concerns.

Depth	Temperature (℃)	Dissolved Oxygen (mg/L)
Surface	24.67	8.24
1 Foot	23.9	8.42
2 Feet	23.82	8.39

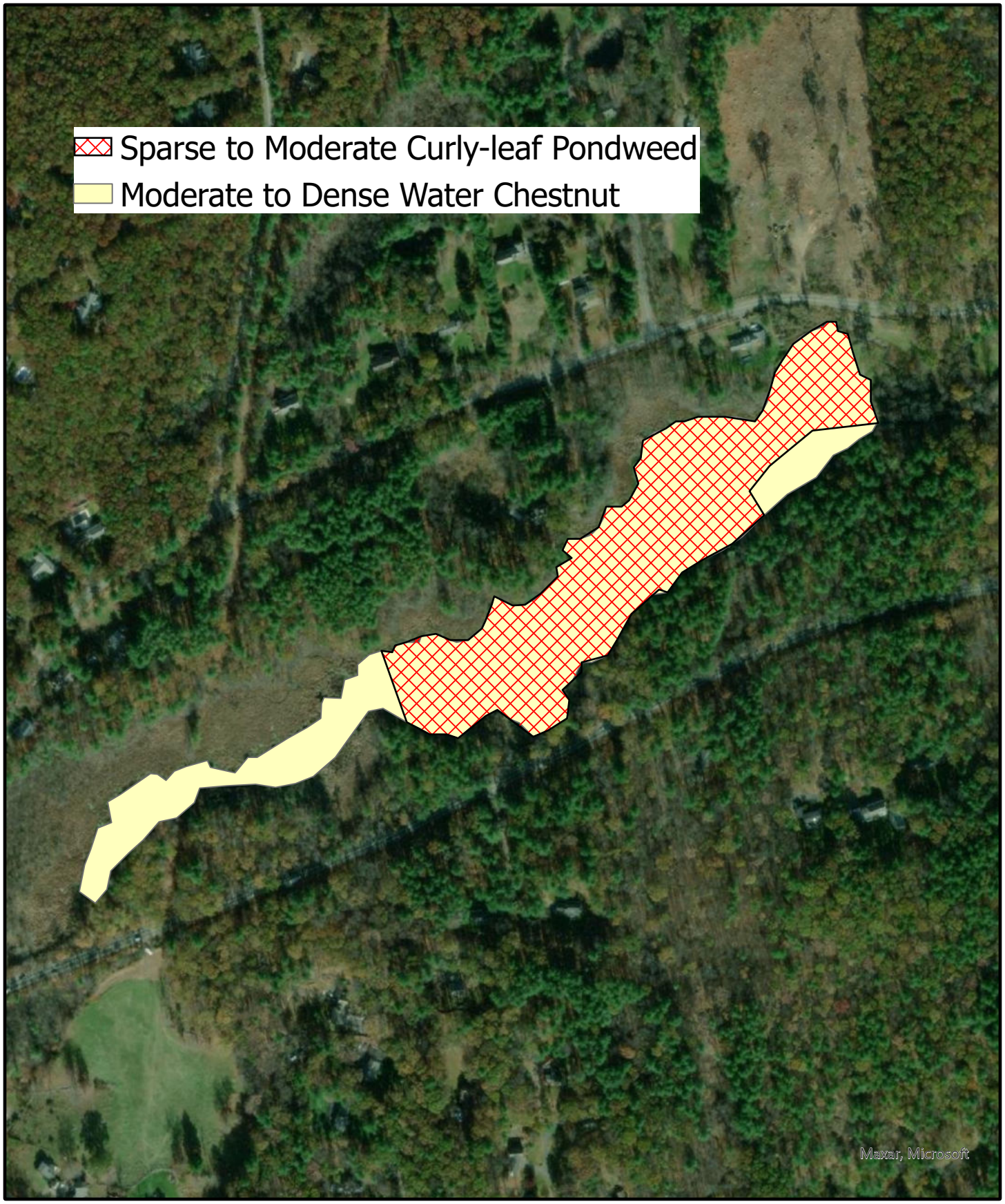
Secchi disk depth (feet)	3ft 10in

Photos






Water & Wetland, LLC
Upton, MA
(888) 4WETLAN(D)
www.waterandwetland.com



WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

Grist Mill Pond
Invasive Species Distribution
Sudbury, MA

Survey Date
6/14/2022

Map Date
6/14/2022

N

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

BIOLOGIST:
COLIN GOSSELIN
C: (508) 259-3153
COLIN@WATERANDWETLAND.COM

CALL/TEXT WITH ANY QUESTIONS!

FIELD NOTES SUMMARY

Customer: Hop Brook Protection Association
Waterbody: Stearns Millpond
Site Location: Sudbury, MA
Date: 6/14/22, 8:15 AM

Observations / Notes: On June 14th, Senior Environmental Scientist, James Lacasse, and Field Assistant, Grace Adams, completed a site visit to Stearns Millpond. The visit consisted of performing the pre-management survey, and collecting water quality data. Conditions during the visit were warm and sunny.

Upon arrival, a survey was conducted using visual observation paired with a standard throw-rake paired with ArcGIS Field Maps and external GPS. Throughout the pond, both native and invasive species were observed, ranging from trace to dense densities. The native species noted were moderate to dense densities of thin leaf pondweed, dense densities of duckweed and watermeal along the entire shoreline and scatted in the middle of the pond, dense densities of coontail, which can sometimes be mistaken for milfoil. This has 100% been documented as native coontail and not invasive milfoil. There were also sparse densities of elodea observed. As for the invasive species, there were dense densities of curly leaf pondweed throughout the water column, as well as surfacing, and flowering. Some of the curly leaf also had epiphytic algae covering it, which is an indication that the plant is decaying. Curly leaf pondweed is a colder water invasive species that typically starts to die off naturally around this time of year. There were also scattered patches of water chestnut in trace to moderate (primarily trace to sparse densities), with floating seeds, a majority was surfaced, but some was growing throughout the water column. The most dense area was the eastern portion of the pond, and as you travel to the west, it becomes more scattered. Along the shoreline there were scattered patches of invasive phragmites.

While on-site, basic water quality was collected using calibrated meters. The pH was 7.0, which is within standard range for fresh waters and considered neutral. The water temperature was consistent with other similar waterbodies we manage in the area, and the dissolved oxygen was sufficient to support fish and wildlife. The water clarity was also assessed, and deemed as above average, as visibility was to the bottom of the pond, although the pond is fairly shallow throughout.

Additionally, to comply with the pre-treatment requirements within the Order of Conditions, water

samples were collected and transported to Alpha Labs, where they will be analyzed for all other required parameters. Results will be included within the year-end summary report. If any of the water quality comes back as immediately concerning, this will be brought to the attention of HBPA and the Town immediately upon receipt of the results.

The water chestnut will be managed during the 2022 season, as planned. This includes an initial treatment, and one follow-up treatment to target missed areas due to boat lanes, splashing, etc. We will notify you prior to the treatment date, and will closely monitor weather in advance. Coordination with the crane company will also be conducted in advance.

We will notify you prior to our next scheduled visit. Please contact us with any questions or concerns.

Depth	Temperature (℃)	Dissolved Oxygen (mg/L)
Surface	24.78	8.97
1 Foot	23.0	4.3
2 Feet	23.0	3.2

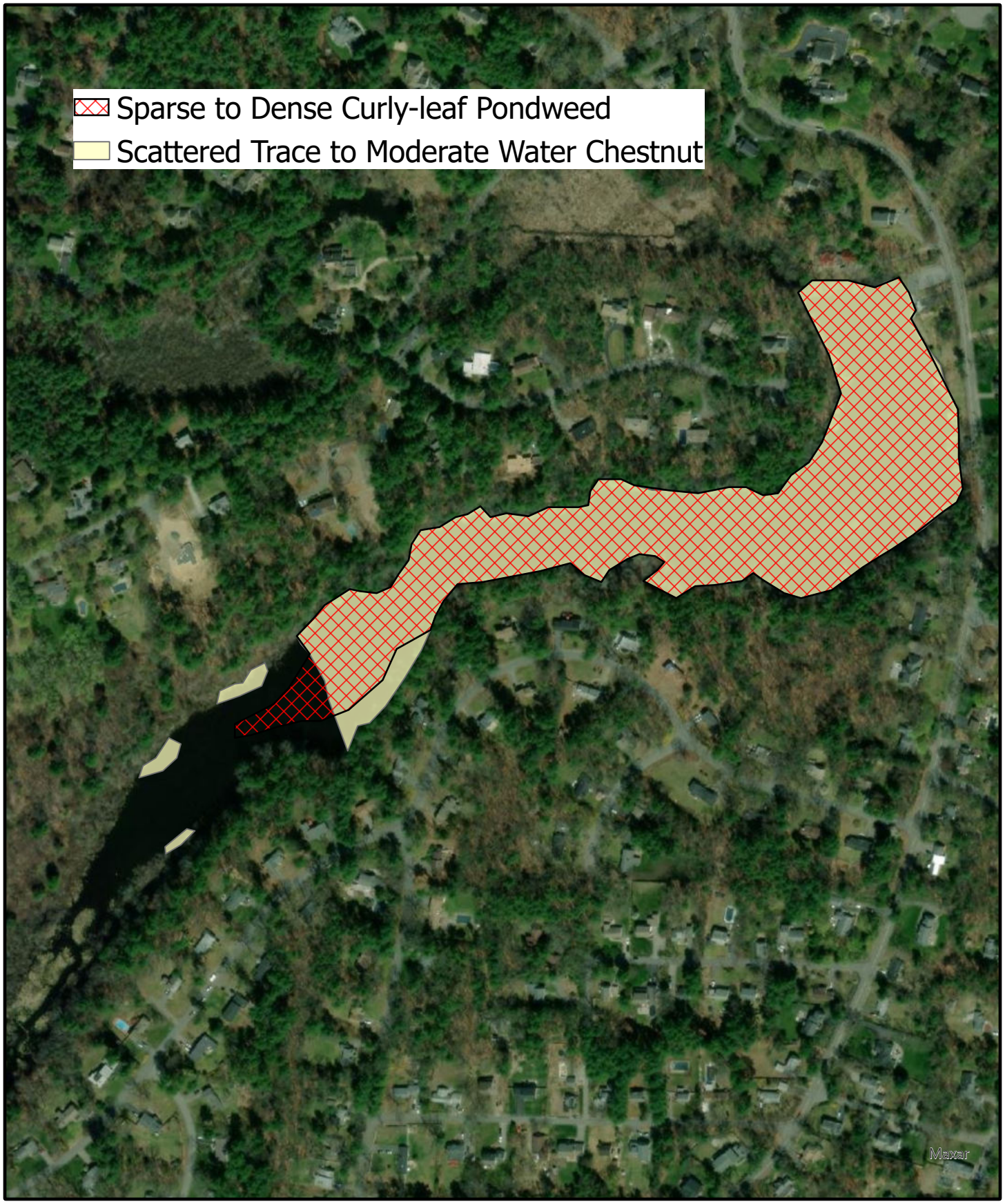
Secchi disk depth (feet)	Bottom

Photos





Water & Wetland, LLC
Upton, MA
(888) 4WETLAN(D)
www.waterandwetland.com



WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

Stearns Mill Pond
Invasive Species Distribution
Sudbury, MA

Survey Date
6/14/2022

Map Date
6/14/2022

N

COLIN GOSSELIN

DIRECTOR OF OPERATIONS/ AQUATIC BIOLOGIST

PERSONAL PROFILE

Colin has been working in the aquatic / invasive species field since 2006. He is a licensed aquatics applicator in MA, RI, and CT. As Director of Operations for Water & Wetland, Colin oversees and is on site for all projects.

SCIENTIFIC FOCUS

- **Invasive Species ID**
- **Invasive Species Management Plans**
- **Water Quality Programs**
- **GIS/GPS Mapping**
- **Invasive Species Control**
- **Phragmites Management**
- **Fountains & Aeration Installation, Service and Design**

CONTACT INFORMATION

Mobile: (508) 259-3153
Office: (888) 493-8526
Email: Colin@waterandwetland.com
Office Address: 115 South St.
Upton, MA 01568

www.waterandwetland.com

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

CAREER SUMMARY

Director of Operations / Aquatic Biologist

WATER & WETLAND, LLC | JUNE 2020 - PRESENT

- Oversees and project manages all projects, including: aquatic & upland surveys, invasive species control treatments, water quality programs, permitting and more
- Maintains equipment such as: airboats, other treatment boats, pumping systems, backpack sprayers, UTV's
- Project design / alternatives analysis
- Effectively communicates project progress / development with customers, regulatory agencies, etc.

Project Manager / Aquatic Biologist

SOLITUDE LAKE MANAGEMENT | 2006 - JUNE 2020

- Biological surveys and aquatic vegetation mapping
- Reporting and Invasive Species Management Plans
- Water quality monitoring
- Invasive species treatments and other management
- Directing crew and project coordination
- GPS/GIS mapping
- Maintenance of equipment
- Permitting and regulatory compliance
- Communication of project progress with customers and regulatory agencies

ACADEMIC HISTORY

Plymouth State University - Plymouth, NH

B.S. IN ENVIRONMENTAL PLANNING, 2009

- Completed in May 2009
- Focus on sustainability in the environment, GIS mapping
- Senior year internship with Town Engineer, Danvers, MA with focus on sewer mapping, oversight of stormwater projects, culverts, etc.

PROFESSIONAL AFFILIATIONS

- NALMS - North American Lake Management Society
- NEAB - New England Association of Environmental Biologist
- NEAPMS - Northeast Aquatic Plant Management Society
- APMS - Aquatic Plant Management Society

JOE ONORATO

DIRECTOR OF BUSINESS DEVELOPMENT / AQUATIC SPECIALIST

PERSONAL PROFILE

As Director of Business Development for Water & Wetland, Joe specializes in working directly with customers on their specific project goals. He is involved with all of Water & Wetland's projects from start to finish.

FOCUS

- **Understanding Customer Goals**
- **Project Design / Alternatives Analysis**
- **Ensuring Proper Communication**
- **Coordination of Project with Operations**
- **Fountains & Aeration Systems**
- **Phragmites Management**
- **Ensuring Regulatory Compliance**

CONTACT INFORMATION

Mobile: (508) 250-6238
Office: (888) 493-8526
Email: Joe@waterandwetland.com
Office Address: 115 South St.
Upton, MA 01568

www.waterandwetland.com

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

CAREER SUMMARY

Director of Bus. Dev. / Aquatic Specialist

WATER & WETLAND, LLC | JUNE 2020 - PRESENT

- Focuses on client management and project design
- Coordinates project implementation and scheduling with Director of Operations
- Presents management options / alternatives analysis to Customers including: municipalities, homeowners associations, lake associations, golf course superintendents, property owners, land trusts, etc.
- Works with herbicide / algaecide manufacturers to properly dose projects
- Works with fountain and aeration manufacturers to properly size aeration systems and fountains for specific waterbodies

Bus. Dev. Consultant / Aquatic Specialist

SOLITUDE LAKE MANAGEMENT | MAY 2016 - JUNE 2020

- Project design and pricing
- Offering best solution for full suite of lake management offerings, including: mechanical, manual and chemical options
- Design of water quality monitoring programs
- Conflict resolution
- Project coordination with Operations
- Growth of revenue YOY, including specific categories such as fountains & aeration, erosion control

ACADEMIC HISTORY

Roger Williams University - Bristol, RI

B.S. IN LEGAL STUDIES, 2004

- Completed in May 2004
- Magna Cum Laude - 3.68 GPA
- Focus on Legal Studies and Spanish with an additional concentration on Life Sciences

PROFESSIONAL SPEAKING ENGAGEMENTS

- "Pond Management Strategies for Homeowners Associations," Condo Associations Institute 2018
- "Mosquito Management in Ponds," Condo Associations Institute Connecticut 2018
- "Pond Management for the Golf Course Industry," New England Turfgrass Association 2019

JAMES LACASSE

SENIOR ENVIRONMENTAL SCIENSTIST/ PROJECT MANAGER

PERSONAL PROFILE

As a Senior Environmental Engineer/Project Manager for Water & Wetland, James specializes in completing projects from design through implementation. This includes everything from developing management plans, through permitting, to treatments, surveys, water quality, fountains / aeration, and reporting.

FOCUS

- **Invasive Species ID**
- **Invasive Species Management Plans**
- **Water Quality Programs**
- **GIS/GPS Mapping**
- **Invasive Species Control**
- **Phragmites Management**
- **Fountains & Aeration Installation, Service and Design**

CONTACT INFORMATION

Mobile: (774) 276-6098
Office: (888) 493-8526
Email: James@waterandwetland.com
Office Address: 115 South St.
Upton, MA 01568

www.waterandwetland.com

WATER & WETLAND
LAKE, POND & WETLAND MANAGEMENT

CAREER SUMMARY

Senior Environmental Scientist
WATER & WETLAND, LLC | MAY 2021 - PRESENT

- Oversees and manages projects, including: aquatic & upland surveys, invasive species control treatments, water quality programs, permitting and more
- Maintains equipment such as: airboats, other treatment boats, pumping systems, backpack sprayers, UTV's
- Project design / alternatives analysis
- Effectively communicates project progress / development with customers, regulatory agencies, etc.
- Prepares and files both Town and State permits
- Installs, maintains, and troubleshoots aeration systems and fountains

Environmental Scientist
SOLITUDE LAKE MANAGEMENT | MAY 2016 - JUNE 2020

- Biological surveys and aquatic vegetation mapping
- Reporting and Invasive Species Management Plans
- Water quality monitoring
- Invasive species treatments and other management
- Directing crew and project coordination
- GPS/GIS mapping
- Permitting and regulatory compliance
- Communication of project progress with customers and regulatory agencies

Field Chemist/Environmental Spec. II
TRIUMVIRATE ENVIRONMENTAL | 2015-2016

- Maintain Research Compliance, Chemical Inventory, Laboratory and Chemical Moves
- Site Remediation and Consulting
- Transportation of Hazardous Material, Emergency Response Planning
- Team Management and Task Management
- Licensing and Permitting: Air Emissions, Wastewater, Storm Water, Biosafety, Flammable Storage

Biologist Assistant/Field Associate
AQUATIC CONTROL TECHNOLOGY, INC. | 2012-2014

- Worked as a Summer intern, assisting with the management of waterbodies throughout New England.

ACADEMIC HISTORY

University of Rhode Island - Kingston, RI
B.S. IN ENVIRONMENTAL SCIENCE, 2015