FIELD NOTES SUMMARY

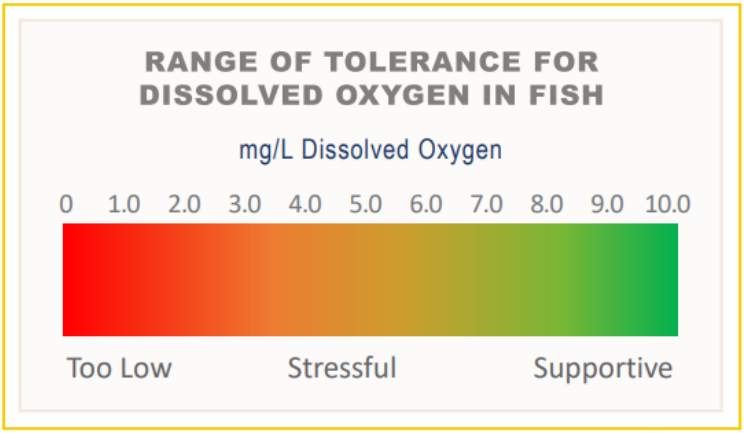
Customer: Queen Lake Association
Pond Name: Queen Lake
Site Location: Phillipston, MA
Date: 6/4/24

On 6/4/24, Aquatic Biologist, Grace Adams, and Aquatic Field Assistant, Harley Westgate, made a visit to Queen Lake. The following services were completed during the visit:

Upon arrival to the site, a survey was conducted using visual observation paired with a standard throw-rake and handheld GPS/ArcGIS Field Maps, as applicable. Plants documented during the survey are documented in the table below. (*) denotes an invasive species. Invasive species are non-native to the ecosystem and are likely to cause economic harm, environmental harm, or harm to human health.

Species Identified	
Common Name	**Latin Name**
Common Waterweed/Elodea	*Elodea canadensis*
Benthic Algae	
Ribbon Leaf Pondweed	*Potamogeton epihydrus*
Bladderwort	*Utricularia*
Filamentous Algae	
Watershield	*Brasenia schreberi*
Tape Grass	*Vallisneria americana*
Yellow Waterlilies	*Nuphar variegata*
Fanwort*	*Cabomba caroliniana*
Bushy Pondweed	*Najas flexilis*

While on-site, dissolved oxygen (DO) and temperature readings were collected using a calibrated YSI meter with optical sensor. Dissolved oxygen is the amount of oxygen in water that is available to aquatic organisms. DO is necessary to support fish spawning, growth, and activity. Tolerance varies by species, but the figure below provides a general range of fish tolerance (Source: epa.gov). Dissolved oxygen can be affected by



many outside factors, such as: temperature, time of day, and pollution. Dissolved oxygen levels are typically lowest early in the morning. Healthy water should generally have concentrations of about 6.5-8+ mg/L.

Results from the visit are included in the table below:

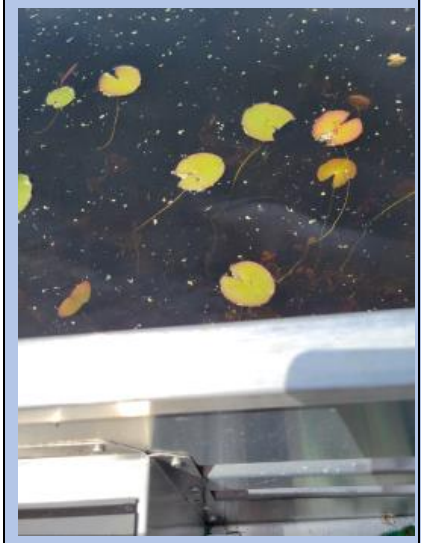
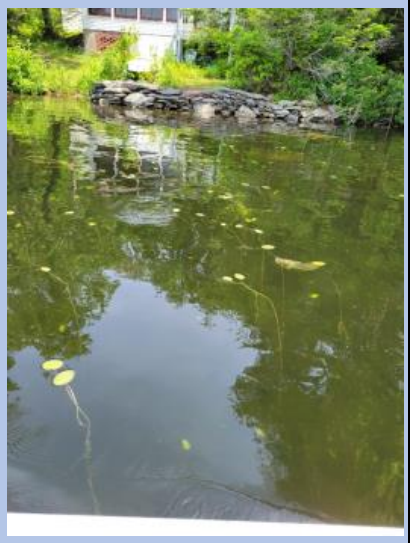
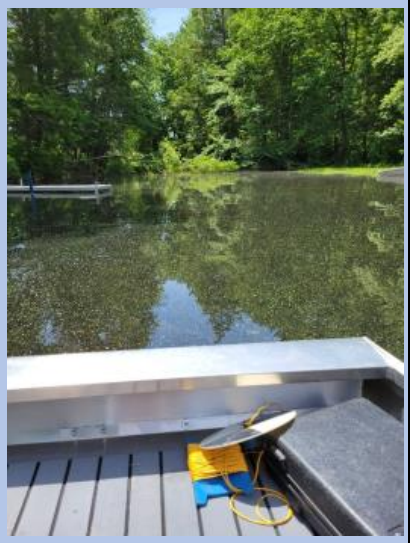
Temperature & Dissolved Oxygen	
Surface Temp (°C)	Surface DO (mg/L)
24.1	9.2

A Secchi disk is a disk with alternating black and white quadrants. It is lowered into the water of a lake until it can no longer be seen by the observer. This depth of disappearance, called the Secchi depth, is a measure of the transparency of the water.

Secchi Disk Clarity	
Secchi Disk Depth (Feet)	10'9" - to the bottom

Additional Notes from the Biologist
Overall, Queen Lake is looking fantastic. As shown on the attached invasive species map, fanwort was the only invasive species found. It was only found in the eastern cove. The fanwort was only documented at sparse densities and appears to be in the early stages of growth. Waterlilies were documented at moderate densities in the southern cove. Bladderwort was the most dominant species within the lake. This is a native species that does have the ability to reach nuisance densities if given the right conditions; however, at this time it was only documented on the bottom at healthy/beneficial densities. Scattered waterlilies were documented along the surface. Benthic algae coated much of the bottom of the pond (along with the bladderwort noted above) and only minimal floating algae mats were documented, well below densities which would warrant an algae treatment. Aside from these species, the two most prominent species were ribbon-leaf pondweed and bushy pondweed, both native species. These were documented at beneficial densities. As we've come to expect at Queen Lake, the water clarity was excellent without any signs of microscopic algae blooms. Pollen was documented along the surface, especially in wind-blown shoreline areas. This is not to be confused for microscopic algae. Based on the survey, we do not recommend treatment at this time. Given the presence of fanwort in the eastern cove and the fact that the native species have reached nuisance densities on rare occasions, our recommendation at this time would be to have a second survey conducted in July or even early August. Please let us know if you'd like to get this scheduled. The cost would be similar to the cost of this initial survey.

As always, we will notify you prior to any upcoming visits, as applicable. Please feel free to reach out to us directly with any questions.

Photo 1	Photo 2	Photo 3
		
Photo 4	**Photo 5**	**Photo 6**
		

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

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Queen Lake
Invasive Species Map
Phillipston, MA

Survey Date
6/4/2024
Map Date
6/7/2024

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