Amos Lake

Preston, CT

Aquatic Vegetation Survey

Water Chemistry

Aquatic Plant Management Options

2023

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OAIS

Office of Aquatic Invasive Species

Connecticut Agricultural Experiment Station

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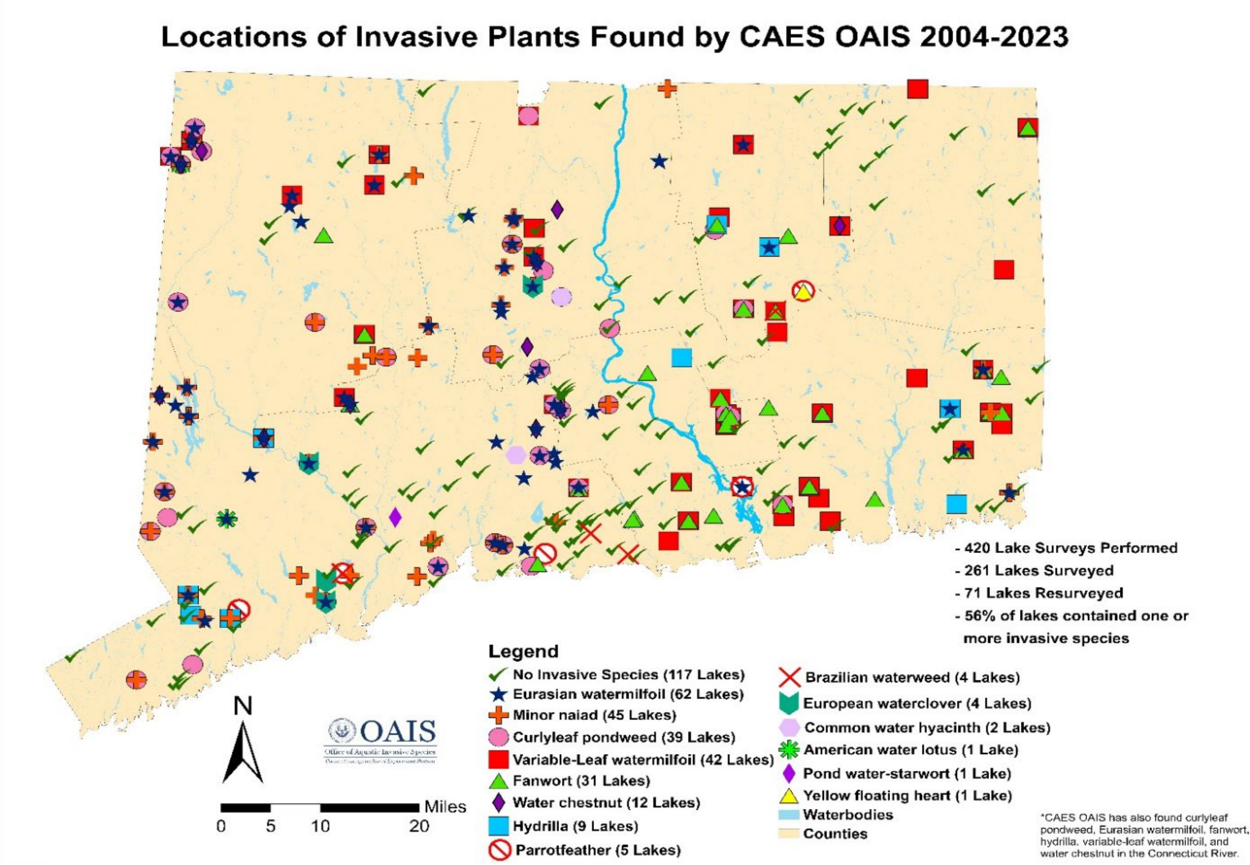

Figure 1. Locations of invasive aquatic plant species found by CAES OAIS from 2004 - 2023.

Introduction:

Since 2004, the Connecticut Agricultural Experiment Station Office of Aquatic Invasive Species (CAES OAIS; formerly the Invasive Aquatic Plant Program) has completed over 400 surveys of aquatic vegetation and water chemistry in Connecticut's lakes, ponds, and rivers. A total of 261 waterbodies have been mapped with many, such as Amos Lake, receiving multiple resurveys to monitor change (CAES OAIS, 2024). Of these lakes and ponds, 56% contain one or more invasive, non-native plant species capable of causing rapid deterioration of aquatic ecosystems and recreational value. The presence of invasive species is related to water chemistry, public boat launches, random events, and climate change (Rahel and Olden, 2008). CAES OAIS provides an online database where stakeholders can view digitized vegetation maps, detailed transect data, temperature and dissolved oxygen profiles, and water test results for clarity, pH, alkalinity, conductivity, total phosphorus, and total nitrogen (portal.ct.gov/caes-oais). This information allows citizens, government officials, and scientists to view past conditions, compare them with current conditions, and make educated management decisions.

Amos Lake is a 112-acre waterbody located in Preston, CT. A public, state-managed boat ramp is located along the middle of the western shoreline. In the off-season (the Sunday after Labor Day to June 15), there is an 8 MPH speed limit and no water-skiing allowed between 11:00 a.m. and 6:00 p.m.. A campground with lake access is located at the southern end of the lake, while various homes are scattered around much of the remaining shoreline. It has a maximum depth of approximately 45 feet and an average depth of about 20 feet. In 2023, CAES OAIS performed the fifth aquatic vegetation survey of Amos Lake and updated the CAES OAIS database. Previous surveys occurred in 2006, 2013, 2018, and 2022. Amos Lake contains a diverse aquatic plant community comprising numerous native species and two invasive (Eurasian watermilfoil and variable watermilfoil). Much of the lake is too deep for plants to grow; however, most of the area at depths less than 10 feet contains dense vegetation. Herbicide treatments for variable watermilfoil occurred in 2021 and 2022. The post treatment survey in 2022 did not observe the plant.

Objectives:

- Perform a fifth survey of Amos Lake for aquatic vegetation and quantify water chemistry. Amos Lake was previously surveyed by CAES OAIS in 2006, 2013, 2018, and 2022.
- Compare with previous surveys and add vegetation maps and water chemistry information to the CAES OAIS website.
- Update aquatic plant management options.
- Provide a report to the Amos Lake Association.

Materials and Methods:

Aquatic Plant Surveys and Mapping:

Figure 2. Performing visual aquatic plant survey.

Amos Lake was surveyed for aquatic vegetation on August 14 and 17, 2023. The survey utilized methods established by CAES OAIS. Surveys were conducted from 16 and 18-foot motorized boats traveling over areas that supported aquatic plants (Figure 2). Plant species were recorded based on visual observation or collections with a long-handled rake or grapple. Lowrance® Hook 5 and HDS 5 sonar systems, with ground truth grapple tosses, were used to identify vegetated areas in deep water. Quantitative information on plant abundance was obtained by resurveying 12 transects that were initially positioned perpendicular to the shoreline in 2006. Transect locations represented the variety of habitats in the lake. Transects were located using a Trimble® R1 GNSS global positioning system with sub-meter accuracy. Sampling data points were taken along each transect at points 0, 5, 10, 20, 30, 40, 50, 60, 70, and 80 m from the shore. We measured depth with a rake handle, drop line, or digital depth finder, and sediment type was estimated. Abundances of species present at each point were ranked on a scale of 1 – 5 (1 = very sparse, 2 = sparse, 3 = moderately abundant, 4 = abundant, 5 = very abundant). When field identifications of plants were questionable, samples were brought back to the lab for review using the taxonomy of Crow and Hellquist (2023). One specimen of each species collected was dried and mounted in the CAES OAIS aquatic plant herbarium. Digitized mounts can be viewed online (portal.ct.gov/caes-oais).

Plant species are referred to by common name in the text of this report. Scientific names can be found in Table 2. We post-processed the GPS data in Pathfinder® 5.85 (Trimble Navigation Limited, Sunnyvale, CA) and then imported it into ArcGIS® Pro 3.2.1 (ESRI Inc., Redlands, CA). Data were then overlaid onto recent high-resolution aerial imagery for the continental United States made available by the USDA Farm Services Agency.

Figure 3. Checking water clarity with Secchi disk.

Water Analysis:

Water was analyzed from a deep part of the lake (approximately 33 feet) in the same place as our previous surveys. Water temperature and dissolved oxygen were measured 1.5 feet beneath the surface and at 3-foot intervals to the bottom. Water was tested for temperature and dissolved oxygen using a YSI 58® meter. Water clarity was measured by lowering a six-inch diameter black and white Secchi disk into the water and determining to what depth it could be viewed (Figure 3).

Water samples for pH, alkalinity, conductivity, total phosphorus, and total nitrogen testing were obtained from 1.5 feet beneath the surface and 1.5 feet above the bottom. The samples were stored at 38˚F until testing. A Fisher AR20® meter was used to determine pH and conductivity, and alkalinity (expressed as mg/L $CaCO_3$) was quantified by titration with 0.016 N H_2SO_4 to an end point of pH 4.5. We determined total phosphorus using the ascorbic acid method preceded by digestion with potassium persulfate (APHA, 1995). Phosphorus was quantified using a Milton Roy Spectronic 20D® spectrophotometer with a light path of 2 cm and a wavelength of 880 nm. Total Nitrogen was determined with an O-I Analytical 080® Total Organic Carbon Analyzer.

Table 1. Species richness in Amos Lake during survey years.

	2006	2013	2018	2022	2023
Number of Total Species	21	26	21	21	27
Number of Native Species	19	24	19	19	25
Number of Invasive/Non-Native Species	2	2	2	2	2

Table 2. Frequency of occurrence (FOQ) of aquatic plants on transects in Amos Lake during CAES OAIS vegetation surveys.

Native Species	2006	2013	2018	2022	2023
Arrowhead (*Sagittaria* species)	4%	1%	8%	3%	7%
Berchtold's pondweed (*Potamogeton berchtoldii*)	—[a]	—	—	3%	3%
Bur-reed (*Sparganium* species)	—	—	—	1%	0%
Common bladderwort (*Utricularia vulgaris*)	3%	3%	8%	—	1%
Coontail (*Ceratophyllum demersum*)	1%	—	—	1%	1%
Eelgrass (*Vallisneria americana*)	5%	4%	9%	10%	4%
Floating-leaf pondweed (*Potamogeton natans*)	—	—	—	—	5%
Golden hedge-hyssop (*Gratiola aurea*)	—	0%	0%	—	0%
Great duckweed (*Spirodela polyrhiza*)	—	—	—	2%	—
Humped bladderwort (*Utricularia gibba*)	1%	3%	13%	—	0%
Large-leaf pondweed (*Potamogeton amplifolius*)	—	—	20%	9%	0%
Leafy pondweed (*Potamogeton foliosus*)	0%	0%	—	—	—
Little floating heart (*Nymphoides cordata*)	—	1%	—	0%	—
Pickerelweed (*Pontederia cordata*)	—	0%	3%	1%	1%
Primrose-willow (*Ludwigia* species)	—	1%	—	—	—
Purple bladderwort (*Utricularia purpurea*)	3%	2%	8%	—	0%
Quillwort (*Isoetes* species)	1%	0%	—	—	—
Ribbon-leaf pondweed (*Potamogeton epihydrus*)	0%	—	—	—	0%
Robbins' pondweed (*Potamogeton robbinsii*)	37%	47%	53%	49%	47%
Slender naiad (*Najas flexilis*)	1%	0%	—	2%	0%
Slender watermilfoil (*Myriophyllum tenellum*)	3%	1%	0%	2%	0%
Small pondweed (*Potamogeton pusillus*)	—	—	0%	—	0%
Snailseed pondweed (*Potamogeton bicupulatus*)	1%	0%	3%	—	—
Spikerush (*Eleocharis* species)	—	3%	0%	0%	0%
Spotted pondweed (*Potamogeton pulcher*)	4%	7%	2%	8%	6%
Swamp loosestrife (*Decodon verticillatus*)	2%	0%	1%	3%	2%
Variable pondweed (*Potamogeton gramineus*)	2%	1%	2%	3%	2%
Watershield (*Brasenia schreberi*)	2%	5%	5%	0%	0%
Water smartweed (*Polygonum amphibium*)	—	—	—	—	1%
Water starwort (*Callitriche* species)	—	0%	—	—	—
Waterwort (*Elatine* species)	—	0%	—	—	—
White water lily (*Nymphaea odorata*)	12%	18%	33%	31%	26%
Yellow water lily (*Nuphar variegata*)	0%	4%	9%	10%	8%

Non-Native Species	2006	2013	2018	2022	2023
Mudmat (*Glossostigma cleistanthum*)	4%	2%	3%	3%	2%

Invasive Species	2006	2013	2018	2022	2023
Eurasian watermilfoil (*Myriophyllum spicatum*)	—	—	—	0%	—
Northern hydrilla (*Hydrilla verticillata* ssp. *lithuanica*)	—	—	—	—	0%
Variable-leaf watermilfoil (*Myriophyllum heterophyllum*)	1%	1%	21%	—	—

[a] "—" = Species not found in Amos Lake; 0% indicates found in the waterbody but not on any transect points

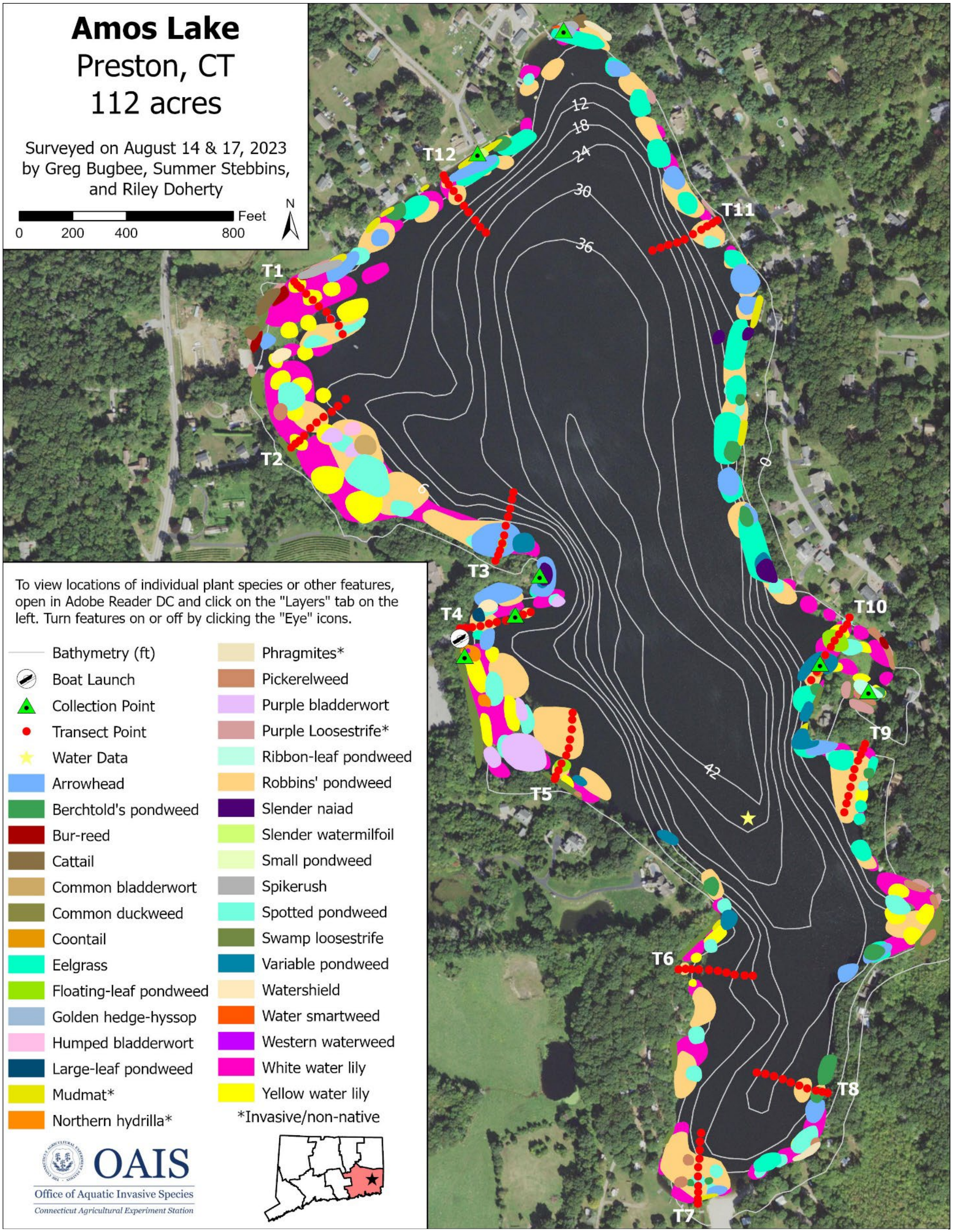

Figure 4. Map of aquatic vegetation documented in Amos Lake in 2023.

Results and Discussion:

General Aquatic Plant Surveys and Transects:

In 2023, CAES OAIS documented a diverse aquatic plant community in Amos Lake that included 25 native species and two invasive/non-native species (Table 1). Much of the lake is too deep for plants to grow; however, most of the area at depths less than 10 feet contained dense vegetation (Figure 4).

Mudmat, a non-native species indigenous to New Zealand and Australia (Crow and Hellquist, 2023), has been documented in Amos Lake since 2006. Mudmat is not considered an invasive species, because it has not exhibited harmful characteristics in Connecticut and is so tiny it does not risk being a nuisance. Unfortunately, northern hydrilla was found near the boat ramp growing with the water lilies in 2023 (Figures 4 & 5). CAES OAIS surveyors hand pulled what they could find. The first introduction of northern hydrilla to North America was documented in the Connecticut River. It was first discovered in the river in 2016, however it had already spread throughout the entire lower river (south of Agawam, MA) and had likely been there for several years. It is highly likely the population in Amos Lake came directly from the Connecticut River via motorboat movement.

Figure 5. Herbarium mount of northern hydrilla found in Amos Lake on August 14, 2023.

In 2022, CAES OAIS surveyors hand pulled Eurasian watermilfoil, which was found for the first time in a single location. Fortunately, the invasive species was not found during the 2023 survey. Likewise, invasive variable-leaf watermilfoil has not been found since the 2018 vegetation survey, likely due to the ProcellaCOR® treatments in 2021 and 2022. Phragmites and purple loosestrife, two invasive wetland species, were observed. Because they are not true aquatic plants, they are not included in our aquatic plant analysis.

Figure 6. Water lilies and pondweeds mixed with a filamentous alga (*Lyngbia* species).

Waterlilies and other emersed vegetation were common along the shoreline as well as eelgrass, Robbins' pondweed, and spotted pondweed. Detailed information on all the native plants is beyond the scope of this report but is available at USDA "About PLANTS" (https://plants.usda.gov/about_plants.html). In 2022, many of the vegetated areas were covered with lyngbya, a filamentous alga (Figure 6). CAES OAIS surveyors observed less lyngbya in 2023 than in 2022.

There were 25 native species observed in 2023, the most documented by CAES OAIS in Amos Lake since 2006 (Table 1). Native species found in all five surveys (2006, 2013, 2018, 2022, and 2023) include arrowhead, eelgrass, Robbins' pondweed, slender watermilfoil, spotted pondweed, swamp loosestrife, variable pondweed, watershield, white water lily, and yellow water lily (Table 2). Native species documented for the first time in Amos Lake by CAES OAIS include common duckweed, floating-leaf pondweed, water smartweed, and western waterweed. A small amount of western waterweed was found by the boat ramp growing with the northern hydrilla. Western waterweed and northern hydrilla look very similar to each other. The defining characteristic is that western waterweed has 3 leaves per whorl while northern hydrilla has 5 or more leaves per whorl. They commonly grow together in the Connecticut River, so it is possible western waterweed was introduced to Amos Lake with the hydrilla. Snailseed pondweed is the only native

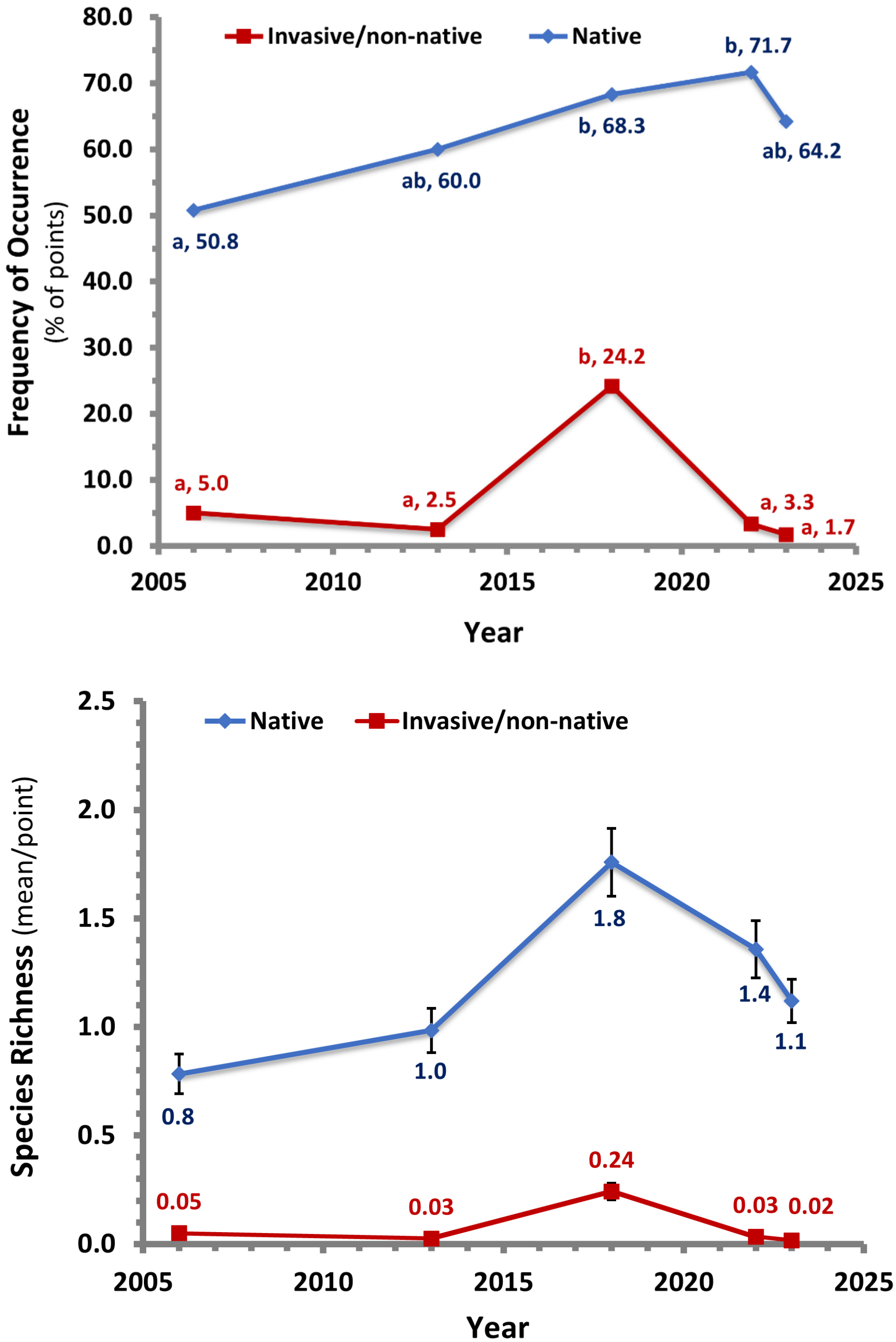

Figure 7. Frequency of occurrence (top) and species richness (bottom) of native and invasive aquatic plants on transects in Amos Lake in 2006, 2013, 2018, 2022, and 2023.

species that has not been found since 2018, or before the ProcellaCOR® treatments. Many coves had a heavy abundance of emergent vegetation such as white and yellow water lily. The CAES OAIS website contains digitized survey maps where individual plant layers can be viewed separately (portal.ct.gov/caes-oais).

Comparisons of our frequency of occurrence (FOQ) transect data from each survey year found a consistent increase in occurrence of native species from 2006 to 2022 and then a slight decrease from 2022 to 2023. However, the difference in frequency of occurrence from 2006 (50.8%) to 2023 (64.2%) is still statistically significant. From 2018 to 2022 there was a significant decrease in the frequency of occurrence of invasive species, due to the ProcellaCOR treatments. From 2022 to 2023, there was a slight decrease from 3.3% to 1.7% in frequency of occurrence of invasive species (Figure 6, top). Consistent with our previous surveys, Robbins' pondweed was the most frequently found native species with an FOQ of 47% (Table 2). Other commonly found plants were white water lily (26%), yellow water lily (8%), and arrowhead (7%). There were a couple notable differences in native species from 2022 to 2023, including the decrease in the FOQ of eelgrass from 10% to 4% and the decrease in the FOQ of large-leaf

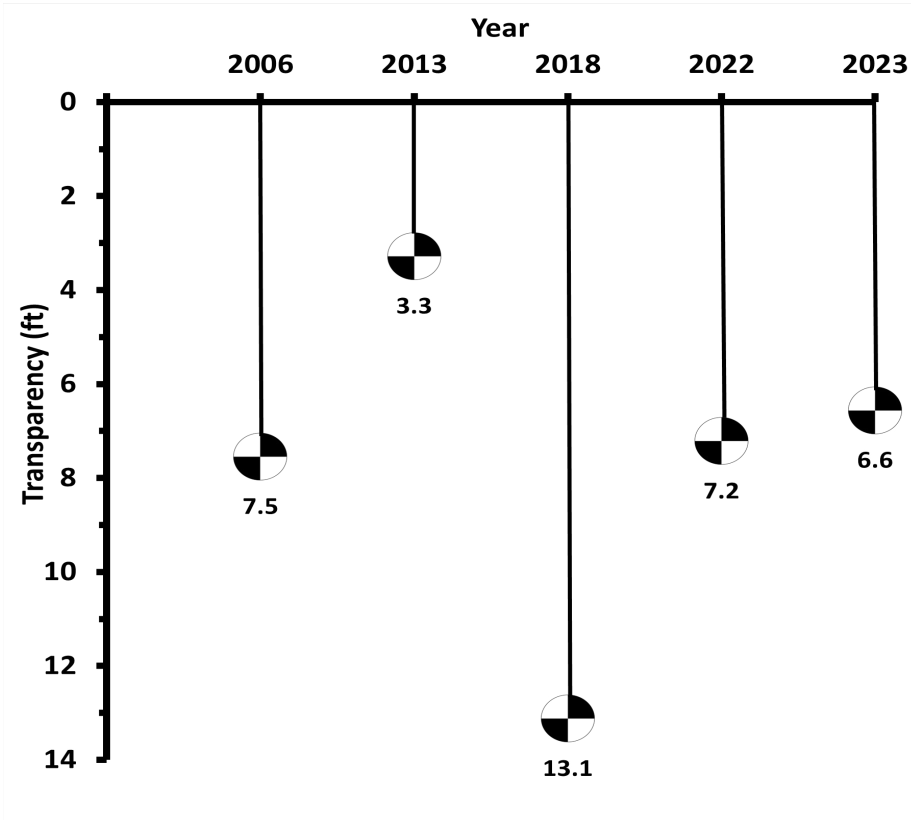

Figure 8. Transparency was measured with a Secchi disk in Amos Lake during CAES OAIS surveys.

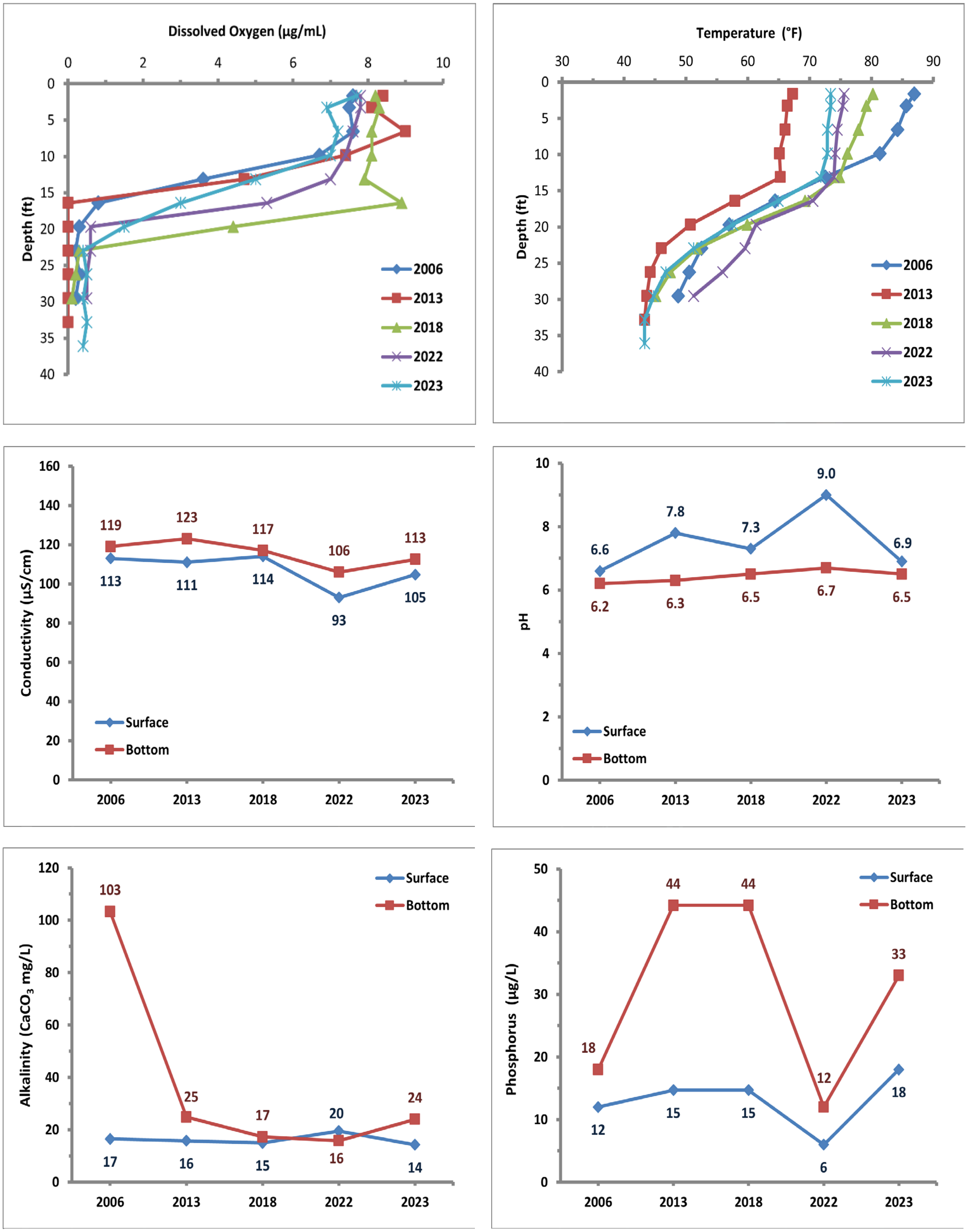

Figure 9. Water chemistry data for Amos Lake in 2006, 2013, 2018, 2022, and 2023.

pondweed from 9% to 0%. Species richness refers to the average number of species per transect point. A higher species richness indicates more species found. From 2018 to 2023, there has been a statistically significant decrease in the overall species richness of native species (Figure 6, bottom).

Water Chemistry:

CAES OAIS has found that the occurrence of invasive plants in lakes can be attributed to specific water chemistries (June-Wells et al., 2013). For instance, lakes with higher alkalinities and conductivities are more likely to support Eurasian watermilfoil, minor naiad, and curlyleaf pondweed while lakes with lower values support fanwort and variable-leaf watermilfoil. Water clarity in Connecticut's lakes ranges from 1-33 feet with an average of 7 feet (CAES OAIS, 2024). Amos Lake had a water clarity of 6.6 ft in 2023 compared to 7.2 ft in 2022, 13 ft in 2018, 3.3 ft in 2013, and 7.5 ft in 2006 (Figure 8). Differences among years may be attributed to natural variation and decaying plants from the 2021 and 2022 herbicide treatments that can increase tannins and promote algae.

In all survey years, the summer thermocline began at a depth of around 12 feet. Dissolved oxygen responded similarly, with highly oxygenated water above the thermocline and a rapid depletion to nearly 0 mg/L below. Amos Lake's surface pH returned to a near neutral 6.9 in 2023 from 9.0 in 2022. The 2022 measurement could be related to a daytime reduction in carbonic acid associated with photosynthesizing algae/cyanobacteria promoted by plant decay. Bottom water pH ranged from 6.2 - 6.7 throughout the years which is considered stable. Amos Lake's surface alkalinity has also remained stable from 2006 – 2023 falling within a narrow range of 14 – 20 mg/L $CaCO_3$. This is relatively low for Connecticut lakes which can range as high as >170 mg/L $CaCO_3$ (CAES IAPP, 2023). Low alkalinity waterbodies are more prone to pH change due to outside influences such as watershed activities and acid rain. Conductivity is an indicator of dissolved ions that come from natural and man-made sources (mineral weathering, organic matter decomposition, fertilizers, septic systems, road salts, etc.). Connecticut waterbodies have conductivities that range from 50 -250 µS/cm. Amos Lake's conductivity of 105 µS/cm at the surface and 113 µS/cm at the bottom in 2023 is similar to previous measurements. Amos Lake's low alkalinity and conductivity suggests it is most suitable for variable-leaf watermilfoil and less so for Eurasian watermilfoil. This could be why the Eurasian watermilfoil found in 2022 did not spread further.

A key parameter used to categorize a lake's trophic state is phosphorus (P) in the water column. High levels of P can lead to nuisance or toxic algal blooms (Frink and Norvell 1984, Wetzel 2001). Rooted macrophytes are less dependent on P from the water column as they obtain most of their nutrients from the hydrosoil (Bristow and Whitcombe 1971). Lakes with P levels from 0 - 10 µg/L are considered nutrient-poor or oligotrophic. When P concentrations reach 15 - 25 µg/L, lakes are classified as moderately fertile or mesotrophic and when P reaches 30 - 50 µg/L they are considered fertile or eutrophic (Frink and Norvell, 1984). Lakes with P concentrations >50 µg/L are categorized as extremely fertile or hypereutrophic. Amos Lake's P concentration in 2023 was 18 µg/L at surface and 23 µg/L near the bottom. The lower measurements in 2022 suggest an oligotrophic condition removal of P by vegetation and algae particularly in dry years such as 2022 can skew data (Figure 9). We tested total nitrogen (TN) for the first time in 2022 and found 625 µg/L the surface and 691 µg/L near the bottom. Due to malfunctioning equipment, the 2023 TN measurements are pending. Although nitrogen is likely less limiting to the growth of aquatic plants and algae compared to terrestrial plants, it may play a role in lake productivity. Frink and Norvell (1984) found TN in Connecticut lakes ranged from 193 - 1830 µg/L and averaged 554 µg/L.

Aquatic Vegetation Management Options:

Nuisance aquatic vegetation in Amos Lake has been actively managed by The Pond and Lake Connection since 2021. On August 31, 2021, a total of four acres of Amos Lake was treated with ProcellaCOR EC for variable-leaf watermilfoil, and on

Figure 10. Area treated with the herbicide ProcellaCOR in 2021 (green) and 2022 (red).

June 27, 2022, 9.5 acres of Amos Lake was treated with ProcellaCOR EC (Figure 10). No treatments occurred in 2023 (Figure 10). Variable-leaf watermilfoil was effectively controlled, and the plant has not been found since. The finding of northern hydrilla in Amos Lake complicates any future weed control plans. Yearly surveys for the plant are suggested. If sparse hydrilla is found hand harvesting is suggested. CAES OAIS has agreed to train Amos Lake Association members in hydrilla identification and hand pulling techniques. The U.S. Army Corps of Engineers with support from CAES OAIS is conducting research to determine the best herbicide for controlling northern hydrilla in the Connecticut River in 2024. These results will help determine what products may be best for Amos Lake. The reappearance of either watermilfoil or another invasive/nuisance plant may require review of the best management practices for the particular species.

Conclusions:

In 2023, there were 27 aquatic plant species documented in Amos Lake, the most in all survey years. Northern hydrilla was the only invasive species found in the lake. It was found near the boat ramp and was likely introduced through motorboat movement from the Connecticut River to Amos Lake. Mudmat, a non-native species was found in all survey years. There were 25 native species found in the 2023 survey, white water lily, Robbins' pondweed, and yellow water lily being the most abundant. Common duckweed, floating-leaf pondweed, water smartweed, and western waterweed were documented in Amos Lake for the first time. Lyngbya, a filamentous alga, was less abundant in 2023 than in 2022. Aquatic plant monitoring should continue to ensure a resurgence of variable-leaf watermilfoil is avoided and northern hydrilla is either hand harvested is in low abundance or controlled using best management practices if a larger infestation is observed.

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Appendix

Invasive Plant Descriptions

Hydrilla verticillata

Common name:
Hydrilla

Origin:
Asia

Key features:
Plants are submersed

Stems: Slender, branched and up to 25 feet (7.5 m) long

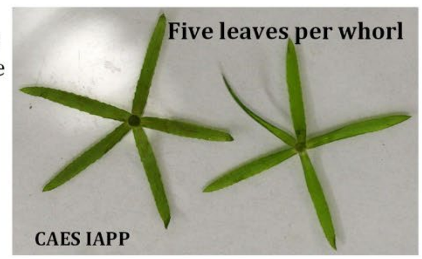
Leaves: Whorled leaves approx. 0.7 inches (1.5 cm) long, whorls often have 5 leaves (range 4-8); leaf margins are visibly toothed

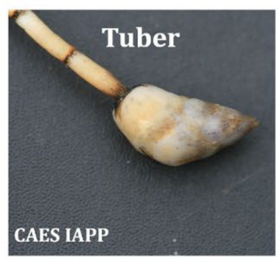
Flowers: Female flowers have three translucent petals that have reddish streaks; male flowers have three petals and can be white to red in color

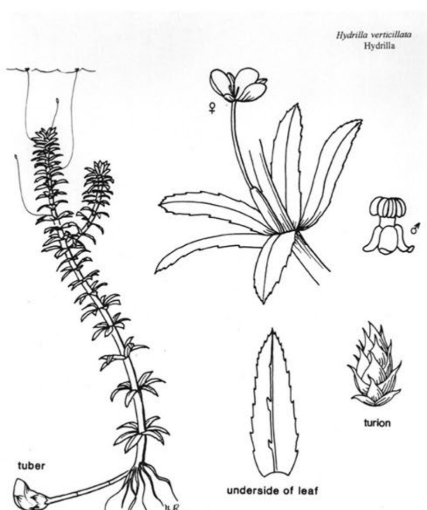
Fruits/Seeds: Small tubers (key feature) can be found in the sediment, turions form along the stem

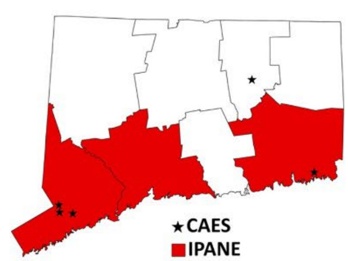
Reproduction: Fragmentation, turions, tubers and seeds

Easily confused species:
Waterweeds (Native): *Elodea nuttallii* and *Elodea canadensis*
Brazilian waterweed: *Egeria densa*









Myriophyllum heterophyllum

Common names:
Variable-leaf watermilfoil
Variable watermilfoil
Two-leaf watermilfoil

Origin:
Southern United States

Key features:
Plants are submersed

Stems: Dark brown stems extend to the water's surface and spread to form large mats

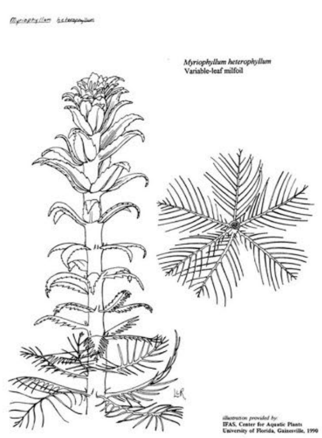
Leaves: Triangular with ≤ 11 pairs of leaflets. Leaves are dissected and whorled (4-6 leaves/whorl) resulting in a feathery appearance with leaf whorls < 1 inch apart giving it a ropy appearance

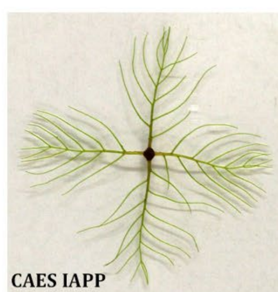
Flowers: Inflorescence spike 2-14 inches (5-35 cm) long extend beyond the water's surface with flowers in whorls of four with reddish petals

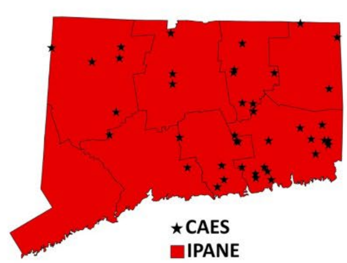
Fruits/Seeds: Fruits are almost round, with a rough surface

Reproduction: Fragmentation and seeds

Easily confused species:
Eurasian watermilfoil: *Myriophyllum spicatum*
Low watermilfoil: *Myriophyllum humile*







Connecticut's Invasive Aquatic Plant, Clam, and Mussel Identification Guide - Page 21

Myriophyllum spicatum

Common name:
Eurasian watermilfoil

Origin:
Europe and Asia

Key features:
Plants are submersed

Stems: Stem diameter below the inflorescence is greater with reddish stem tips

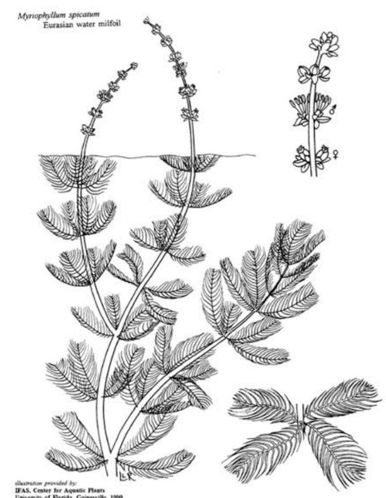
Leaves: Leaves are rectangular with ≥ 12 pairs of leaflets per leaf and are dissected giving a feathery appearance, arranged in a whorl, whorls are 1 inch (2.5 cm) apart

Flowers: Small pinkish male flowers that occur on reddish spikes, female flowers lack petals and sepals and have 4 lobed pistil

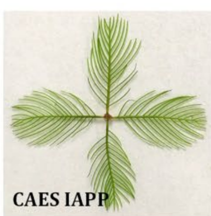
Fruits/Seeds: Fruit are round 0.08-0.12 inches (2-3 mm) and contain 4 seeds

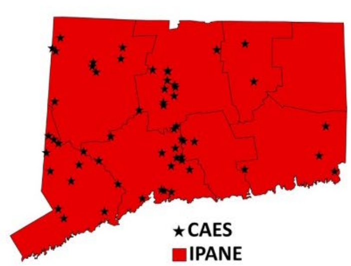
Reproduction: Fragmentation and seeds

Easily confused species:
Variable-leaf watermilfoil: *Myriophyllum heterophyllum*
Low watermilfoil: *Myriophyllum humile*
Northern watermilfoil: *Myriophyllum sibiricum*
Whorled watermilfoil: *Myriophyllum verticillatum*



Copyright 1991 Univ. of Florida Center for Aquatic and Invasive Plants





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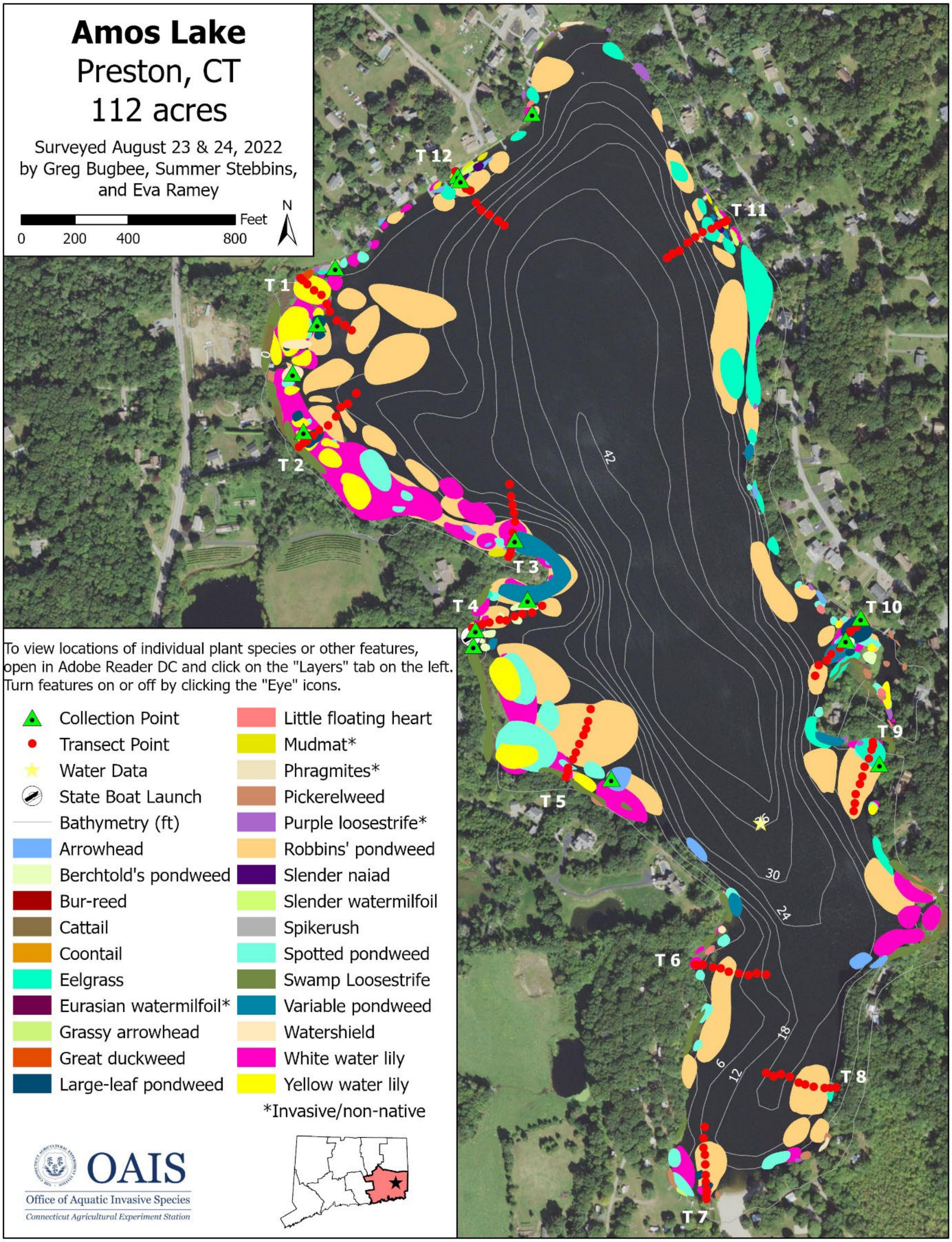
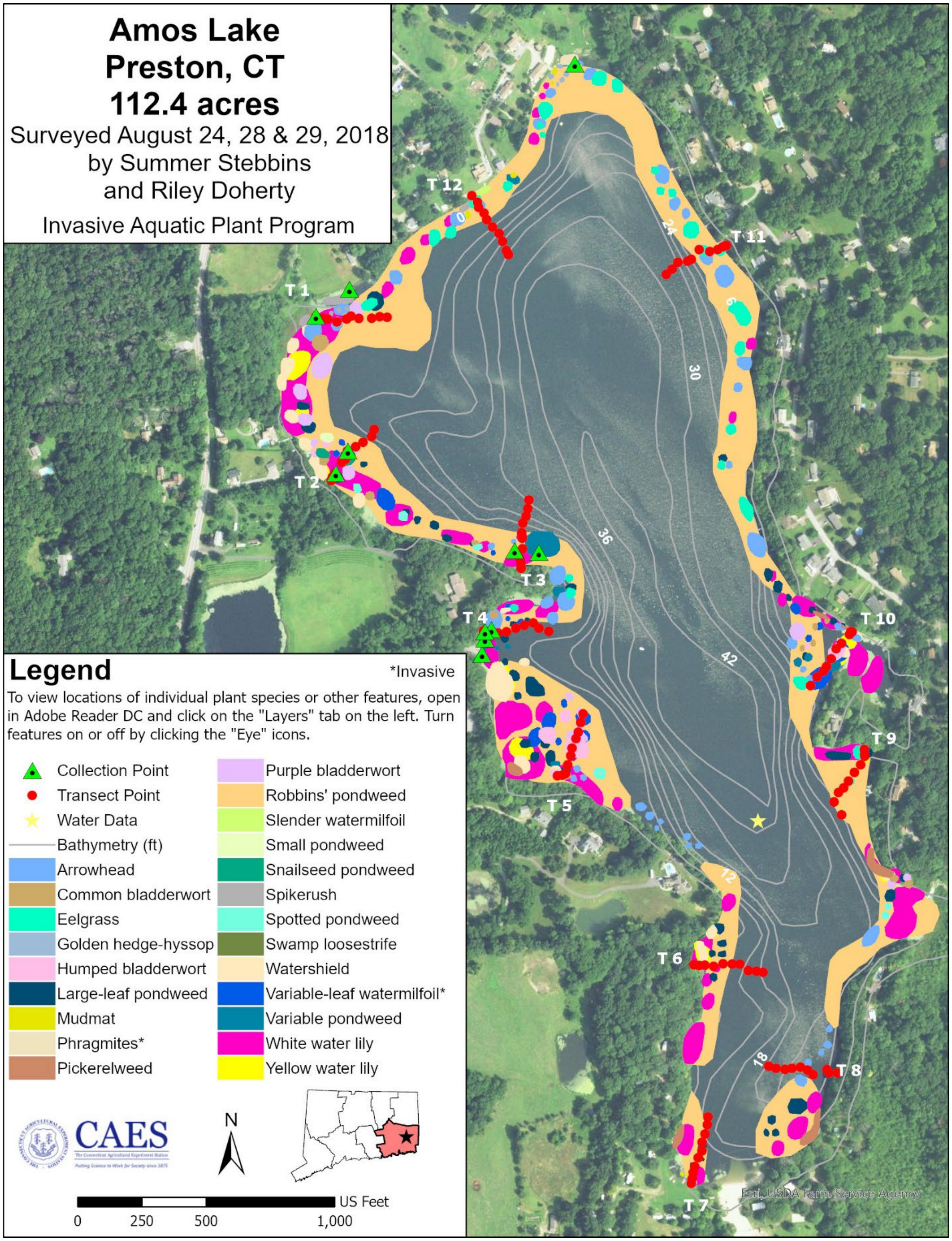
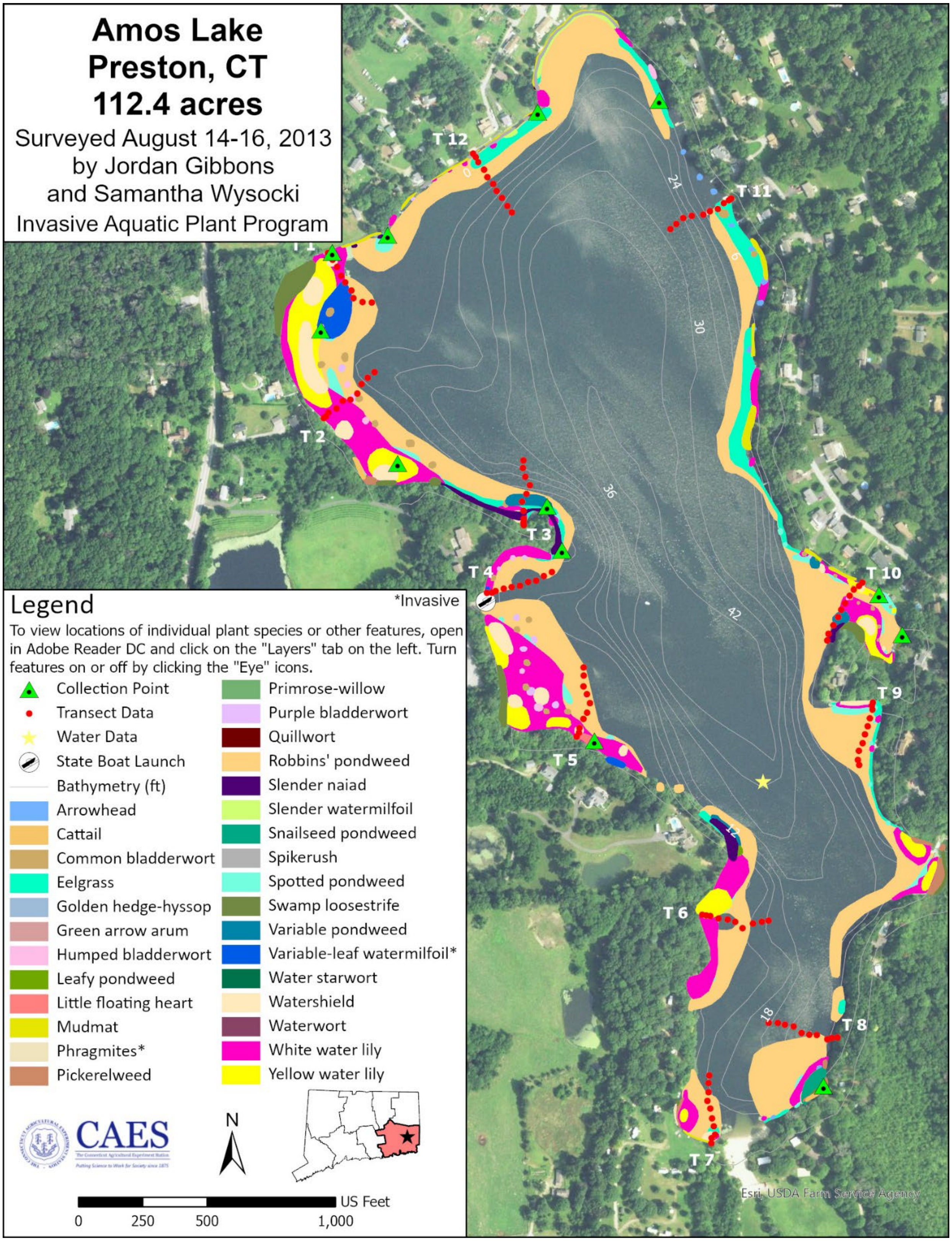
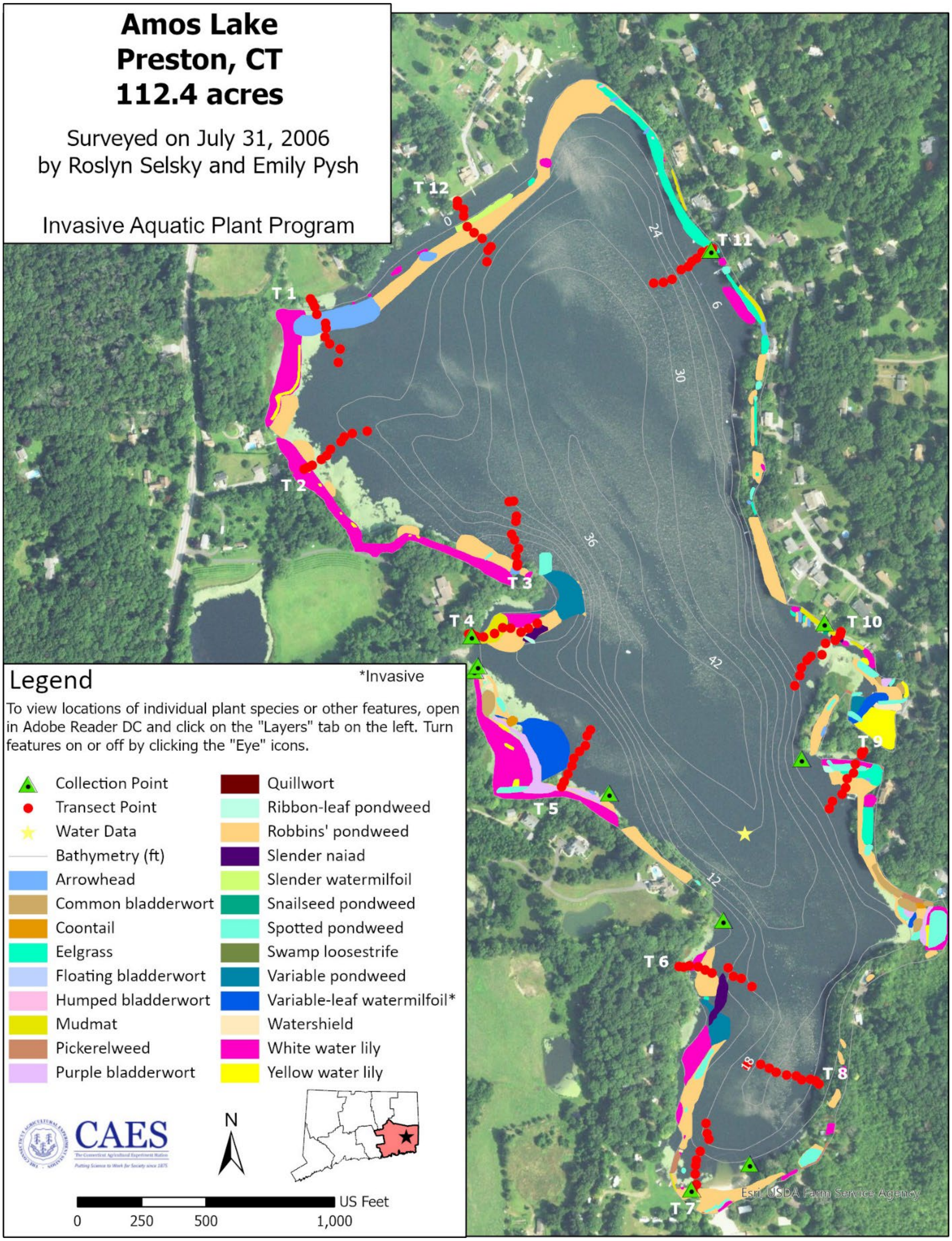
Previous Years Aquatic Plant Survey Maps


Amos Lake
Preston, CT
112 acres
Surveyed August 23 & 24, 2022
by Greg Bugbee, Summer Stebbins,
and Eva Ramey
Feet
0 200 400 800
N
T 1
T 2
T 3
T 4
T 5
T 6
T 7
T 8
T 9
T 10
T 11
T 12
42
30
24
18
12
6
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.
Collection Point
Transect Point
Water Data
State Boat Launch
Bathymetry (ft)
Arrowhead
Berchtold's pondweed
Bur-reed
Cattail
Coontail
Eelgrass
Eurasian watermilfoil*
Grassy arrowhead
Great duckweed
Large-leaf pondweed
Little floating heart
Mudmat*
Phragmites*
Pickerelweed
Purple loosestrife*
Robbins' pondweed
Slender naiad
Slender watermilfoil
Spikerush
Spotted pondweed
Swamp Loosestrife
Variable pondweed
Watershield
White water lily
Yellow water lily
*Invasive/non-native
OAIS
Office of Aquatic Invasive Species
Connecticut Agricultural Experiment Station


Amos Lake
Preston, CT
112.4 acres
Surveyed August 24, 28 & 29, 2018
by Summer Stebbins
and Riley Doherty
Invasive Aquatic Plant Program
Legend
*Invasive
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.
Collection Point
Transect Point
Water Data
Bathymetry (ft)
Arrowhead
Common bladderwort
Eelgrass
Golden hedge-hyssop
Humped bladderwort
Large-leaf pondweed
Mudmat
Phragmites*
Pickerelweed
Purple bladderwort
Robbins' pondweed
Slender watermilfoil
Small pondweed
Snailseed pondweed
Spikerush
Spotted pondweed
Swamp loosestrife
Watershield
Variable-leaf watermilfoil*
Variable pondweed
White water lily
Yellow water lily
CAES
N
US Feet
0 250 500 1,000
T 1
T 2
T 3
T 4
T 5
T 6
T 7
T 8
T 9
T 10
T 11
T 12
Esri, USDA Farm Service Agency



Amos Lake
Preston, CT
112.4 acres
Surveyed August 14-16, 2013
by Jordan Gibbons
and Samantha Wysocki
Invasive Aquatic Plant Program
Legend
*Invasive
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.
Collection Point
Transect Data
Water Data
State Boat Launch
Bathymetry (ft)
Arrowhead
Cattail
Common bladderwort
Eelgrass
Golden hedge-hyssop
Green arrow arum
Humped bladderwort
Leafy pondweed
Little floating heart
Mudmat
Phragmites*
Pickerelweed
Primrose-willow
Purple bladderwort
Quillwort
Robbins' pondweed
Slender naiad
Slender watermilfoil
Snailseed pondweed
Spikerush
Spotted pondweed
Swamp loosestrife
Variable pondweed
Variable-leaf watermilfoil*
Water starwort
Watershield
Waterwort
White water lily
Yellow water lily
CAES
N
US Feet
0
250
500
1,000
T 1
T 2
T 3
T 4
T 5
T 6
T 7
T 8
T 9
T 10
T 11
T 12
24
30
36
42
18
Esri, USDA Farm Service Agency



Amos Lake
Preston, CT
112.4 acres
Surveyed on July 31, 2006
by Roslyn Selsky and Emily Pysh
Invasive Aquatic Plant Program
T 1
T 2
T 3
T 4
T 5
T 6
T 7
T 8
T 9
T 10
T 11
T 12
0
6
12
18
24
30
36
42
Esri, USDA Farm Service Agency
Legend
*Invasive
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.
Collection Point
Transect Point
Water Data
Bathymetry (ft)
Arrowhead
Common bladderwort
Coontail
Eelgrass
Floating bladderwort
Humped bladderwort
Mudmat
Pickerelweed
Purple bladderwort
Quillwort
Ribbon-leaf pondweed
Robbins' pondweed
Slender naiad
Slender watermilfoil
Snailseed pondweed
Spotted pondweed
Swamp loosestrife
Variable pondweed
Variable-leaf watermilfoil*
Watershield
White water lily
Yellow water lily
CAES
N
US Feet
0
250
500
1,000

Transect Data

Appendix Amos Lake Transect Data (1 of 3)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	CerDem	DecVer	GloCle	NupVar	NymOdo	PolAmp	PonCor	PotBer	PotGra	PotNat	PotPul	PotRob	SagSp	UtrVul	ValAme
1	1	0.5	Greg Bugbee	41.52034	-71.98038	8/14/2023	0.2	Muck	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0
1	2	5	Greg Bugbee	41.52030	-71.98034	8/14/2023	1.0	Muck	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0
1	3	10	Greg Bugbee	41.52027	-71.98029	8/14/2023	1.2	Muck	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0
1	4	20	Greg Bugbee	41.52021	-71.98022	8/14/2023	1.3	Muck	0	0	0	3	5	0	0	0	0	0	0	0	0	0	0
1	5	30	Greg Bugbee	41.52015	-71.98013	8/14/2023	1.4	Muck	0	0	0	2	3	2	0	0	0	0	0	2	0	0	0
1	6	40	Greg Bugbee	41.52008	-71.98005	8/14/2023	1.4	Organic	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
1	7	50	Greg Bugbee	41.52002	-71.97995	8/14/2023	1.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	8	60	Greg Bugbee	41.51995	-71.97989	8/14/2023	1.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
1	9	70	Greg Bugbee	41.51988	-71.97978	8/14/2023	1.8	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
1	10	80	Greg Bugbee	41.51979	-71.97973	8/14/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
2	1	0.5	Greg Bugbee	41.51864	-71.98044	8/14/2023	0.2	Muck	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2	5	Greg Bugbee	41.51868	-71.98039	8/14/2023	1.1	Muck	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0
2	3	10	Greg Bugbee	41.51871	-71.98033	8/14/2023	1.8	Muck	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0
2	4	20	Greg Bugbee	41.51876	-71.98027	8/14/2023	1.8	Muck	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
2	5	30	Greg Bugbee	41.51883	-71.98018	8/14/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
2	6	40	Greg Bugbee	41.51889	-71.98009	8/14/2023	2.5	Organic	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
2	7	50	Greg Bugbee	41.51895	-71.98000	8/14/2023	3.0	Organic	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
2	8	60	Greg Bugbee	41.51900	-71.97989	8/14/2023	6.0	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	9	70	Greg Bugbee	41.51906	-71.97980	8/14/2023	6.3	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	10	80	Greg Bugbee	41.51913	-71.97969	8/14/2023	7.0	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	0.5	Greg Bugbee	41.51746	-71.97767	8/14/2023	0.1	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2	5	Greg Bugbee	41.51752	-71.97763	8/14/2023	0.8	Sand	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0
3	3	10	Greg Bugbee	41.51757	-71.97761	8/14/2023	1.4	Sand	0	0	0	0	2	0	0	0	0	0	0	2	2	0	0
3	4	20	Greg Bugbee	41.51764	-71.97758	8/14/2023	2.2	Silt	0	0	0	0	3	0	0	0	0	2	0	2	2	0	0
3	5	30	Greg Bugbee	41.51772	-71.97755	8/14/2023	3.8	Organic	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0
3	6	40	Greg Bugbee	41.51782	-71.97753	8/14/2023	3.0	Organic	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0
3	7	50	Greg Bugbee	41.51791	-71.97749	8/14/2023	3.8	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	8	60	Greg Bugbee	41.51799	-71.97746	8/14/2023	7.0	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	9	70	Greg Bugbee	41.51808	-71.97744	8/14/2023	7.6	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	10	80	Greg Bugbee	41.51816	-71.97742	8/14/2023	8.3	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	0.5	Greg Bugbee	41.51677	-71.97816	8/14/2023	0.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	5	Greg Bugbee	41.51677	-71.97809	8/14/2023	1.0	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	3	10	Greg Bugbee	41.51678	-71.97800	8/14/2023	1.6	Organic	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0
4	4	20	Greg Bugbee	41.51679	-71.97788	8/14/2023	2.6	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
4	5	30	Greg Bugbee	41.51681	-71.97777	8/14/2023	2.7	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
4	6	40	Greg Bugbee	41.51683	-71.97766	8/14/2023	2.9	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
4	7	50	Greg Bugbee	41.51684	-71.97753	8/14/2023	3.2	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	8	60	Greg Bugbee	41.51688	-71.97742	8/14/2023	3.3	Organic	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
4	9	70	Greg Bugbee	41.51690	-71.97730	8/14/2023	3.3	Organic	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4	10	80	Greg Bugbee	41.51693	-71.97720	8/14/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
5	1	0.5	Greg Bugbee	41.51521	-71.97689	8/14/2023	0.2	Gravel	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2	5	Greg Bugbee	41.51524	-71.97687	8/14/2023	1.0	Gravel	0	0	0	0	3	0	0	0	0	0	0	2	0	0	0
5	3	10	Greg Bugbee	41.51530	-71.97683	8/14/2023	1.0	Organic	0	0	0	0	4	0	0	0	0	2	0	2	0	0	0
5	4	20	Greg Bugbee	41.51537	-71.97679	8/14/2023	1.9	Organic	0	0	0	2	0	0	0	0	0	2	3	3	0	0	0
5	5	30	Greg Bugbee	41.51545	-71.97673	8/14/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
5	6	40	Greg Bugbee	41.51553	-71.97669	8/14/2023	2.2	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
5	7	50	Greg Bugbee	41.51562	-71.97667	8/14/2023	2.4	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
5	8	60	Greg Bugbee	41.51572	-71.97665	8/14/2023	2.4	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
5	9	70	Greg Bugbee	41.51582	-71.97664	8/14/2023	2.8	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
5	10	80	Greg Bugbee	41.51589	-71.97664	8/14/2023	2.8	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0

Appendix Amos Lake Transect Data (2 of 3)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	CerDem	DecVer	GloCle	NupVar	NymOdo	PolAmp	PonCor	PotBer	PotGra	PotNat	PotPul	PotRob	SagSp	UtrVul	ValAme
6	1	0.5	Greg Bugbee	41.51325	-71.97522	8/14/2023	0.3	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	2	5	Greg Bugbee	41.51325	-71.97513	8/14/2023	1.0	Organic	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0
6	3	10	Greg Bugbee	41.51325	-71.97505	8/14/2023	1.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	4	20	Greg Bugbee	41.51325	-71.97494	8/14/2023	1.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	5	30	Greg Bugbee	41.51324	-71.97480	8/14/2023	1.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	6	40	Greg Bugbee	41.51323	-71.97468	8/14/2023	2.4	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	7	50	Greg Bugbee	41.51321	-71.97457	8/14/2023	4.7	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	8	60	Greg Bugbee	41.51319	-71.97446	8/14/2023	6.0	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	9	70	Greg Bugbee	41.51318	-71.97432	8/14/2023	7.0	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	10	80	Greg Bugbee	41.51318	-71.97421	8/14/2023	7.6	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	0.5	Greg Bugbee	41.51084	-71.97499	8/17/2023	0.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	2	5	Greg Bugbee	41.51089	-71.97499	8/17/2023	0.6	Sand	0	0	2	0	0	0	0	0	0	0	0	3	2	0	2
7	3	10	Greg Bugbee	41.51096	-71.97498	8/17/2023	1.0	Muck	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0
7	4	20	Greg Bugbee	41.51103	-71.97498	8/17/2023	1.3	Muck	0	0	0	0	2	0	0	0	0	0	2	3	0	0	0
7	5	30	Greg Bugbee	41.51112	-71.97498	8/17/2023	1.6	Muck	0	0	0	0	2	0	0	0	0	0	2	3	0	0	0
7	6	40	Greg Bugbee	41.51122	-71.97498	8/17/2023	1.6	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
7	7	50	Greg Bugbee	41.51131	-71.97496	8/17/2023	2.2	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
7	8	60	Greg Bugbee	41.51139	-71.97496	8/17/2023	4.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	9	70	Greg Bugbee	41.51148	-71.97495	8/17/2023	4.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	10	80	Greg Bugbee	41.51157	-71.97493	8/17/2023	5.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	0.5	Greg Bugbee	41.51197	-71.97320	8/17/2023	1.0	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2	5	Greg Bugbee	41.51198	-71.97328	8/17/2023	1.9	Gravel	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
8	3	10	Greg Bugbee	41.51199	-71.97336	8/17/2023	3.0	Organic	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0
8	4	20	Greg Bugbee	41.51202	-71.97348	8/17/2023	3.0	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
8	5	30	Greg Bugbee	41.51205	-71.97359	8/17/2023	3.0	Organic	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
8	6	40	Greg Bugbee	41.51208	-71.97371	8/17/2023	4.2	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	7	50	Greg Bugbee	41.51211	-71.97381	8/17/2023	4.2	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	60	Greg Bugbee	41.51214	-71.97393	8/17/2023	6.2	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	9	70	Greg Bugbee	41.51217	-71.97405	8/17/2023	6.4	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	10	80	Greg Bugbee	41.51218	-71.97417	8/17/2023	6.4	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	1	0.5	Greg Bugbee	41.51554	-71.97265	8/17/2023	0.4	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9	2	5	Greg Bugbee	41.51549	-71.97267	8/17/2023	1.2	Muck	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
9	3	10	Greg Bugbee	41.51543	-71.97271	8/17/2023	1.2	Muck	0	0	0	0	3	0	0	0	0	0	0	2	0	0	2
9	4	20	Greg Bugbee	41.51537	-71.97275	8/17/2023	1.6	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
9	5	30	Greg Bugbee	41.51529	-71.97280	8/17/2023	1.8	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
9	6	40	Greg Bugbee	41.51520	-71.97282	8/17/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
9	7	50	Greg Bugbee	41.51510	-71.97285	8/17/2023	2.2	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
9	8	60	Greg Bugbee	41.51501	-71.97288	8/17/2023	2.2	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
9	9	70	Greg Bugbee	41.51494	-71.97291	8/17/2023	2.2	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
9	10	80	Greg Bugbee	41.51484	-71.97294	8/17/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
10	1	0.5	Greg Bugbee	41.51684	-71.97285	8/17/2023	0.5	Muck	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0
10	2	5	Greg Bugbee	41.51677	-71.97288	8/17/2023	1.6	Muck	0	0	0	0	3	0	0	0	0	0	2	2	0	2	0
10	3	10	Greg Bugbee	41.51672	-71.97294	8/17/2023	2.0	Muck	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
10	4	20	Greg Bugbee	41.51667	-71.97299	8/17/2023	2.2	Muck	0	0	0	2	2	0	0	0	0	2	0	0	0	0	0
10	5	30	Greg Bugbee	41.51661	-71.97305	8/17/2023	1.5	Muck	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0
10	6	40	Greg Bugbee	41.51654	-71.97310	8/17/2023	1.4	Muck	0	0	0	0	4	0	0	0	0	2	1	0	0	0	0
10	7	50	Greg Bugbee	41.51646	-71.97318	8/17/2023	1.5	Gravel	0	0	0	0	2	0	0	0	3	0	1	0	0	0	0
10	8	60	Greg Bugbee	41.51638	-71.97325	8/17/2023	1.3	Gravel	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
10	9	70	Greg Bugbee	41.51629	-71.97330	8/17/2023	1.0	Muck	1	0	0	0	3	0	0	0	0	0	0	2	0	0	0
10	10	80	Greg Bugbee	41.51620	-71.97338	8/17/2023	3.5	Muck	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0

Appendix Amos Lake Transect Data (3 of 3)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	CerDem	DecVer	GloCle	NupVar	NymOdo	PolAmp	PonCor	PotBer	PotGra	PotNat	PotPul	PotRob	SagSp	UtrVul	ValAme
11	1	0.5	Greg Bugbee	41.52093	-71.97460	8/17/2023	0.1	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	2	5	Greg Bugbee	41.52090	-71.97467	8/17/2023	1	Muck	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2
11	3	10	Greg Bugbee	41.52087	-71.97474	8/17/2023	1.4	Muck	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
11	4	20	Greg Bugbee	41.52083	-71.97482	8/17/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1
11	5	30	Greg Bugbee	41.52079	-71.97494	8/17/2023	2.0	Organic	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
11	6	40	Greg Bugbee	41.52074	-71.97505	8/17/2023	4.7	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	7	50	Greg Bugbee	41.52070	-71.97515	8/17/2023	7.0	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	8	60	Greg Bugbee	41.52068	-71.97527	8/17/2023	7.5	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	9	70	Greg Bugbee	41.52065	-71.97538	8/17/2023	9.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	10	80	Greg Bugbee	41.52062	-71.97549	8/17/2023	9.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	0.5	Greg Bugbee	41.52141	-71.97833	8/17/2023	0.2	Sand	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
12	2	5	Greg Bugbee	41.52137	-71.97830	8/17/2023	1.5	Organic	0	0	0	0	4	0	0	0	0	0	0	2	0	0	0
12	3	10	Greg Bugbee	41.52132	-71.97826	8/17/2023	1.8	Organic	0	0	0	0	2	0	0	0	0	0	0	3	0	0	0
12	4	20	Greg Bugbee	41.52125	-71.97820	8/17/2023	2.1	Organic	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0
12	5	30	Greg Bugbee	41.52118	-71.97813	8/17/2023	2.3	Organic	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0
12	6	40	Greg Bugbee	41.52110	-71.97806	8/17/2023	7.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	7	50	Greg Bugbee	41.52103	-71.97799	8/17/2023	10.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	8	60	Greg Bugbee	41.52095	-71.97790	8/17/2023	12.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	9	70	Greg Bugbee	41.52088	-71.97784	8/17/2023	12.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	10	80	Greg Bugbee	41.52082	-71.97776	8/17/2023	12.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0