Monitoring Report

Invasive Aquatic Plants

Candlewood Lake
Squantz Pond

2020

Prepared for
The Candlewood Lake Authority

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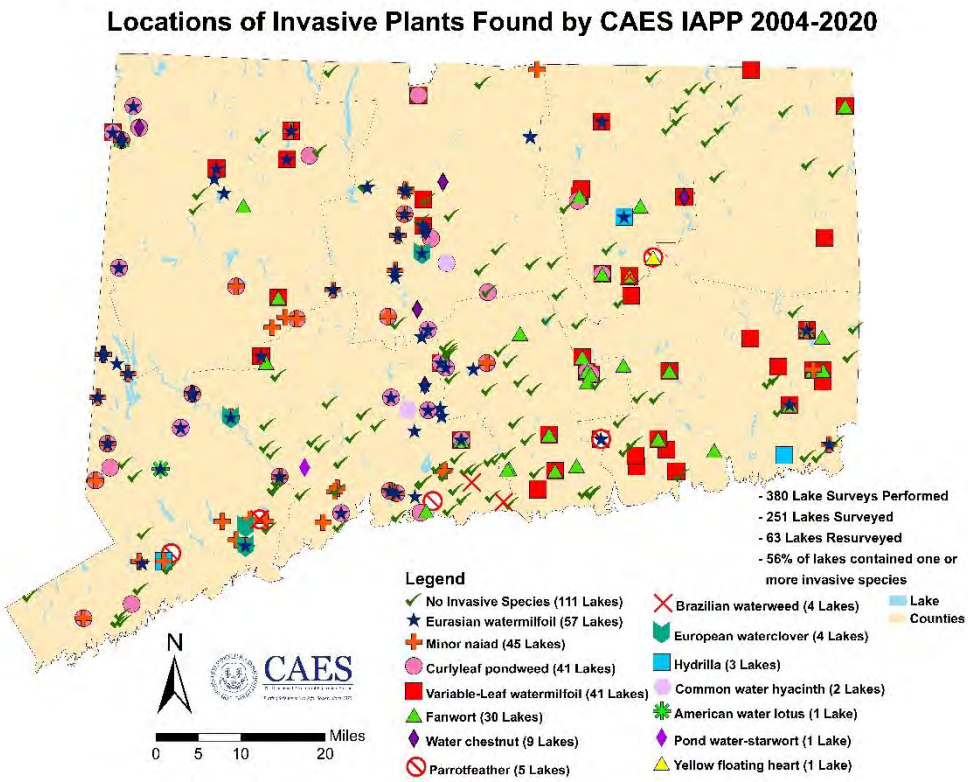

Figure 1. Locations of invasive aquatic plants found by CAES IAPP from 2004 to 2020.

Introduction

In 2005 the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) performed its first aquatic plant survey of Candlewood Lake, and since 2008 the surveys have been performed each year. Annual surveys of Squantz Pond by CAES IAPP began in 2015. The goal is to protect the waterbodies from invasive plant species through detailed monitoring and well-informed management. Both lakes provide great benefits to the local and state economy by providing a vibrant aquatic ecosystem that promotes exceptional recreation activities, high-value real estate, and business opportunities for large marinas. Associated endeavors bolster local businesses and provide tax revenues. In addition, these impoundments are source of Connecticut's largest supply of renewable energy via hydroelectric facilities owned and operated by FirstLight Power Resources. Invasive aquatic plants have become established in Candlewood Lake and Squantz Pond. Being non-native, they have few natural enemies to limit their growth (Wilcove et al. 1998, Pimentel et al. 2000). They degrade native aquatic ecosystems

(Barrett 1989, Les and Mehrhoff 1999), discourage recreation, and reduce real estate values (Connecticut Aquatic Nuisance Species Working Group 2006, Fishman et al. 1998). Once invasive plants are established, long-term and costly management programs are often necessary.

Statewide surveys by CAES IAPP have found 13 invasive aquatic plant species inhabiting nearly 60 percent of Connecticut's lakes and ponds (Figure 1) (CAES IAPP 2020). In Candlewood Lake and Squantz Pond, Eurasian watermilfoil (*Myriophyllum spicatum*) has been the most common invasive plant and creates the greatest nuisance. This plant has been present in Candlewood Lake since at least the early 1980's (Siver et al. 1986), when it likely became established in Squantz Pond as well. The plant communities in both waterbodies are similar because they are attached via a culvert under Route 39, are subjected to similar winter water drawdown levels, and have comparable water chemistries (Bugbee and Stebbins 2018). A total of 24 plant species occur in the waterbodies with Eurasian watermilfoil, minor naiad (*Najas minor*), and curlyleaf pondweed (*Potamogeton crispus*) being invasive. Eurasian watermilfoil typically covers the largest area followed by minor naiad and curlyleaf pondweed. Curlyleaf pondweed may be underestimated prior to the commencement of spring 2012 surveys, because it naturally died back before the summer-only surveys (Catling and Dobson 1985). Prior to 2015, invasive aquatic plant management in Candlewood Lake and Squantz Pond was accomplished primarily by winter drawdown (Bugbee and Stebbins 2018, Tarsi 2006). Deep winter drawdowns with early onset and long exposure times have proven most effective. In 2008 and 2010, milfoil weevils (*Euhrychiopsis lecontei*) were introduced into Candlewood Lake to control Eurasian watermilfoil without success.

In 2015, 3868 12 - 15-inch grass carp (*Ctenopharyngodon idella*) were introduced into Candlewood Lake, and 5035 more were introduced in 2017. In 2017, 585 grass carp were also stocked in Squantz Pond. Because Candlewood Lake and Squantz Pond are connected via the culvert under Route 39, grass carp can move freely between the waterbodies. As expected, the efficacy of the grass carp in Candlewood Lake remained minimal through 2019, likely because of their small size (Bugbee and Stebbins 2020). As they grow, however, their plant consumption

increases, and their feeding activities should become more noticeable. Based on a 15 fish per vegetated acre desired stocking rate determined by the Connecticut Department of Energy and Environmental Protection (DEEP) and over 500 acres of watermilfoil in Candlewood Lake, approximately 7500 grass carp are necessary. The grass carp introduced in 2017 brought the total in Candlewood Lake to 8903, and barring mortality or offsite movement, vegetation control should be noticeable.

The following report describes the 14th year of CAES IAPP monitoring and mapping of invasive aquatic plants in Candlewood Lake and the seventh year in Squantz Pond.

Objectives

- Survey and map invasive aquatic plants in Candlewood Lake and Squantz Pond in 2020 using methods consistent with past CAES IAPP methodology.
- Document yearly changes in the plant community and relate to management activities.
- Provide the data necessary to manage invasive aquatic vegetation, enhance native species, provide overall protection of the waterbodies, and enhance The Candlewood Lake Authority's mission.

Materials and Methods

Our 2020 aquatic vegetation surveys utilized methods established by CAES IAPP. These methods have provided a consistent record throughout the years. We recorded locations of all invasive plants with Trimble GeoXT® or R1® global positioning systems (GPS) with sub-meter accuracy. Since 2014 we have used Lowrance® HDS 5 and Hook 5 sonar systems to determine patches near the bottom and to eliminate the need for most time-consuming grapple tosses. We circumnavigate the plant patches to form georeferenced polygons. Patches covering less than one square meter were recorded as a point and assigned an area of 0.0002 acres (1 m^2). We measured depth with a rake, drop line, or digital depth finder, and sediment type was estimated. Plant samples were obtained in shallow water with a rake and with a grapple in deeper water. We measured plant abundance using a visual scale of 1 to 5 (1 = single stem; 2 = few stems; 3 = common; 4 = abundant; 5 = extremely abundant and present at the surface). In Candlewood Lake we recorded each area where Eurasian watermilfoil was flowering at the surface

Table 1. List of aquatic plants considered invasive in Connecticut according to Connecticut General Statutes (Sec. 22a-381d).

#	Scientific Name	Common Name	Dispersal
1	*Butomus umbellatus*	Flowering rush	Water Gardening
2	*Cabomba caroliniana*	Fanwort	Aquariums, Boats/Trailers, Bait
3	*Callitriche stagnalis*	Pond water-starwort	Water Gardening
4	*Egeria densa*	Brazilian water-weed, Anacharis, Egeria	Aquariums, Boats/Trailers, Bait
5	*Eichhornia crassipes**	Common water hyacinth	Water Gardening
6	*Hydrilla verticillata*	Hydrilla	Aquariums, Boats/Trailers, Bait
7	*Iris pseudocorus*	Yellow iris, Yellow flag iris	Nursery Stock, Water Gardening
8	*Lythrum salicaria*	Purple loosestrife	Nursery Stock, Water Gardening
9	*Marsilia quadrifolia*	European waterclover, Water shamrock	Water Gardening, Boats/Trailers
10	*Myosotis scorpioides*	Forget-me-not, Water scorpion-grass	Water Gardening
11	*Myriophyllum aquaticum*	Parrotfeather	Aquariums, Boats/Trailers
12	*Myriophyllum heterophyllum*	Variable-leaf watermilfoil	Aquariums, Boats/Trailers
13	*Myriophyllum spicatum*	Eurasian watermilfoil	Aquariums, Boats/Trailers
14	*Najas minor*	Brittle water-nymph, Minor naiad	Boats/Trailers
15	*Nelumbo lutea*	American water lotus	Water Gardening
16	*Nymphoides peltata*	Yellow floating heart	Water Gardening
17	*Pistia stratiotes**	Water lettuce, Tropical duckweed	Water Gardening
18	*Potamogeton crispus*	Curlyleaf pondweed, Crispy-leaved pondweed	Boats/Trailers
19	*Rorippa microphylla*	Onerow yellowcress	Water Gardening
20	*Rorippa nasturtium-aquaticum*	Watercress	Water Gardening
21	*Salvinia molesta*	Giant salvinia	Water Gardening
22	*Trapa natans*	Water chestnut	Water Gardening, Boats/Trailers

*Plants that are not banned

with a polygon or point feature. We only considered invasive plant species listed in Connecticut Statute Sec 22.-33d (Table 1) or discovered in the state after the statute was put forth. When field identifications of plants were questionable, we brought samples back to the lab for review using the taxonomy of Crow and Hellquist (2000*a*, 2000*b*). If we were still unsure of the plant species, we personally met with Dr. Barre Hellquist and reviewed the plants with him. A specimen of each plant species was cataloged in the CAES IAPP aquatic plant herbarium for future refence (https://portal.ct.gov/CAES/Invasive-Aquatic-Plant-Program/Herbarium/Herbarium-by-Species). We generally use common plant names in this report when referring to plant species; scientific names are listed in the frequency of occurrence tables. We post-processed the GPS data in Pathfinder® 5.85 (Trimble Navigation Limited, Sunnyvale, CA) and then imported it into ArcGIS® 10.8.1(ESRI, Redlands, CA) where it was geo-corrected. Data were then overlaid onto United States Department of Agriculture National Agriculture Imagery Program aerial imagery with 1 m resolution.

We collected occurrence and abundance plant information from ten transects in Candlewood Lake and five transects in Squantz Pond. Transect points were positioned 0.5, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m perpendicular from the shore. In Candlewood Lake, these transects were a subset of the 105 laid out in 2005 and contained at least one occurrence of each native and invasive plant species in that year (Bugbee et al. 2007). In Squantz Pond, we decreased the number of transects from the 14 laid out in 2011 to five (CAES IAPP 2020).

Significant differences in the frequency of occurrence of plant species between years along transects were determined using analysis of variance (ANOVA) followed by Tukey's post-hoc test ($p < 0.05$). Significant differences in species richness per transect point were determined by ± one standard error of the mean (SEM). We surveyed Candlewood Lake for curlyleaf pondweed on June 23rd and 26th in 2020. This was the seventh consecutive year we performed the spring curlyleaf pondweed surveys to provide more thorough documentation of this plant prior to its summer senescence. The Candlewood Lake transect data were obtained on September 8th, 11th, 14th, and 17th, and the water samples were obtained on September 8th. We surveyed Squantz Pond for curlyleaf pondweed on June 23rd and for all invasive plants on August 18th and September 4th. The Squantz Pond transect data were obtained on August 18th and water data were obtained on September 4th. We used a Secchi disk to measure transparency. Because water clarity can affect our ability to see vegetation, we performed Secchi measurements most days we performed surveillance. We used an YSI® 58 meter (YSI Inc. Yellow Springs, Ohio) to measure water temperature and dissolved oxygen. Measurements occurred in the same deep areas of each waterbody as previous surveys at 0.5 m and at 1 m depth intervals until 0.5 meters from the bottom. We collected water samples from 0.5 m below the surface and 0.5 m from the bottom. Water temperature and dissolved oxygen were measured 0.5 m beneath the surface and at 1 m intervals to the bottom. Water samples (250 mL) for pH, alkalinity, conductivity, and total phosphorus testing were obtained from 0.5 m beneath the surface and 0.5 m above the bottom. All samples were stored at 38°C 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

Table 2. Yearly frequency of occurrence of aquatic plants on transects in Candlewood Lake.

Common Name	Scientific Name	Frequency of Occurrence (percent*)													
		2005	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bur-Reed	*Sparganium* species	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Clasping-Leaf pondweed	*Potamogeton perfoliatus*	1.0	2.1	1.0	0.0	0.0	2.1	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Common duckweed	*Lemna minor*	2.1	6.3	1.0	4.1	7.2	4.1	0.0	3.0	0.0	0.0	1.0	3.1	1.0	1.0
Coontail	*Ceratophyllum demersum*	3.1	33.3	11.3	22.7	29.9	22.7	21.7	22.0	27.0	34.0	39.0	24.7	24.7	15.6
Curlyleaf pondweed	***Potamogeton crispus***	**13.5**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Eelgrass	*Vallisneria americana*	2.1	2.1	4.1	4.1	3.1	4.0	4.1	6.0	4.0	3.0	5.0	2.1	1.0	0.0
Eurasian watermilfoil	***Myriophyllum spicatum***	**51.0**	**79.2**	**64.9**	**70.1**	**78.4**	**79.4**	**42.3**	**76.0**	**68.0**	**77.0**	**57.0**	**75.3**	**68.0**	**79.2**
Great duckweed	*Spirodela polyrhiza*	1.0	0.0	0.0	1.0	5.2	0.0	0.0	0.0	1.0	0.0	0.0	2.1	1.0	0.0
Horned pondweed	*Zannichellia palistris*	11.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leafy pondweed	*Potamogeton foliosus*	3.1	0.0	0.0	0.0	2.1	1.0	5.2	1.0	0.0	0.0	0.0	2.1	0.0	0.0
Minor naiad	***Najas minor***	**12.5**	**6.3**	**8.2**	**11.3**	**15.5**	**12.4**	**19.6**	**24.0**	**16.0**	**10.0**	**10.0**	**0.0**	**2.1**	**3.1**
Sago pondweed	*Stuckenia pectinata*	6.3	1.0	0.0	4.1	0.0	3.1	2.1	2.0	1.0	11.0	0.0	0.0	0.0	0.0
Slender naiad	*Najas flexilis*	7.3	1.0	1.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Small pondweed	*Potamogeton pusillus*	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Snailseed pondweed	*Potamogeton bicupulatus*	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spikerush	*Eleocharis* species	0.0	0.0	3.1	1.0	1.0	3.1	0.0	1.0	3.0	3.0	3.0	4.1	13.4	4.2
Variable pondweed	*Potamogeton gramineus*	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water starwort	*Callitriche* species	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Watermeal	*Wolffia* species	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waterwort	*Elatine* species	0.0	1.0	3.1	2.1	0.0	4.1	0.0	1.0	2.0	1.0	0.0	0.0	4.1	3.1
Western waterweed	*Elodea nuttallii*	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White water lily	*Nymphaea odorata*	1.0	1.0	0.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	2.1	2.1
Total Invasive Species Richness		**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**
Total Native Species Richness		14	11	7	8	8	10	5	9	8	6	5	7	8	5
Total Species Richness		17	14	9	10	10	12	7	11	10	8	7	8	10	7

Invasive Species in Bold

*Percent occurrence on 97 points in 10 transects

Shaded columns indicate deep drawdown years

digestion with potassium persulfate (APHA, 1995). Phosphorus was quantified using a Milton Roy Spectronic 20D® spectrometer with a light path of 2 cm and a wavelength of 880 nm. Total Nitrogen was determined with a O-I Analytical 1080® Total Organic Carbon Analyzer.

Grass carp feed from the top of aquatic vegetation downward (Pipalova 2006). Their effects, therefore, are first noticed by a reduction in surface vegetation. We mapped the locations of Eurasian watermilfoil patches that reached the surface (abundance = 5) within patches of lesser abundance (abundance < 5) with separate point features. When combined with patches with an abundance of five, these data are expected to give quantitative year to year comparisons of the efficacy of the grass carp. In Candlewood Lake, the location (via GPS) and approximate number of grass carp were recorded when observed in 2018, 2019, and 2020.

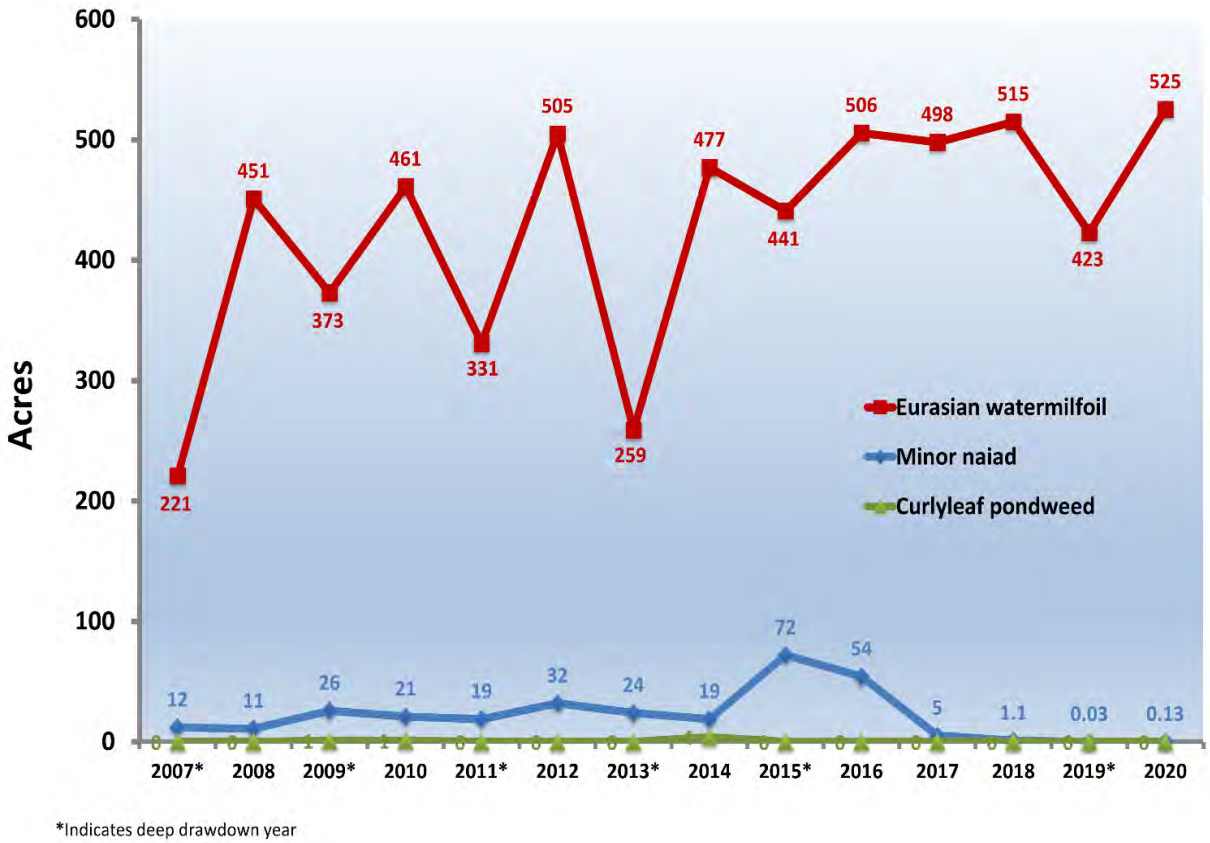

Figure 2. Yearly changes in in the acreage of invasive aquatic plants in Candlewood Lake (*indicates deep drawdown year).

Results and Discussion

Candlewood Lake

Our 2020 invasive aquatic plant survey of Candlewood Lake found seven plant species comprised of five natives and two invasives (Table 2). Because these surveys are designed to monitor the invasive species and native species are only recorded on the reference transects, additional native species may be present elsewhere. The number unreported, however, is likely small based on the surveyor's observations. The invasive species found in 2020 were Eurasian watermilfoil and minor naiad. Curlyleaf pondweed has not been found since a trace was reported in 2017. The last substantial population of curlyleaf pondweed was four acres found in 2014. Eurasian watermilfoil continued to be the most prevalent invasive aquatic plant

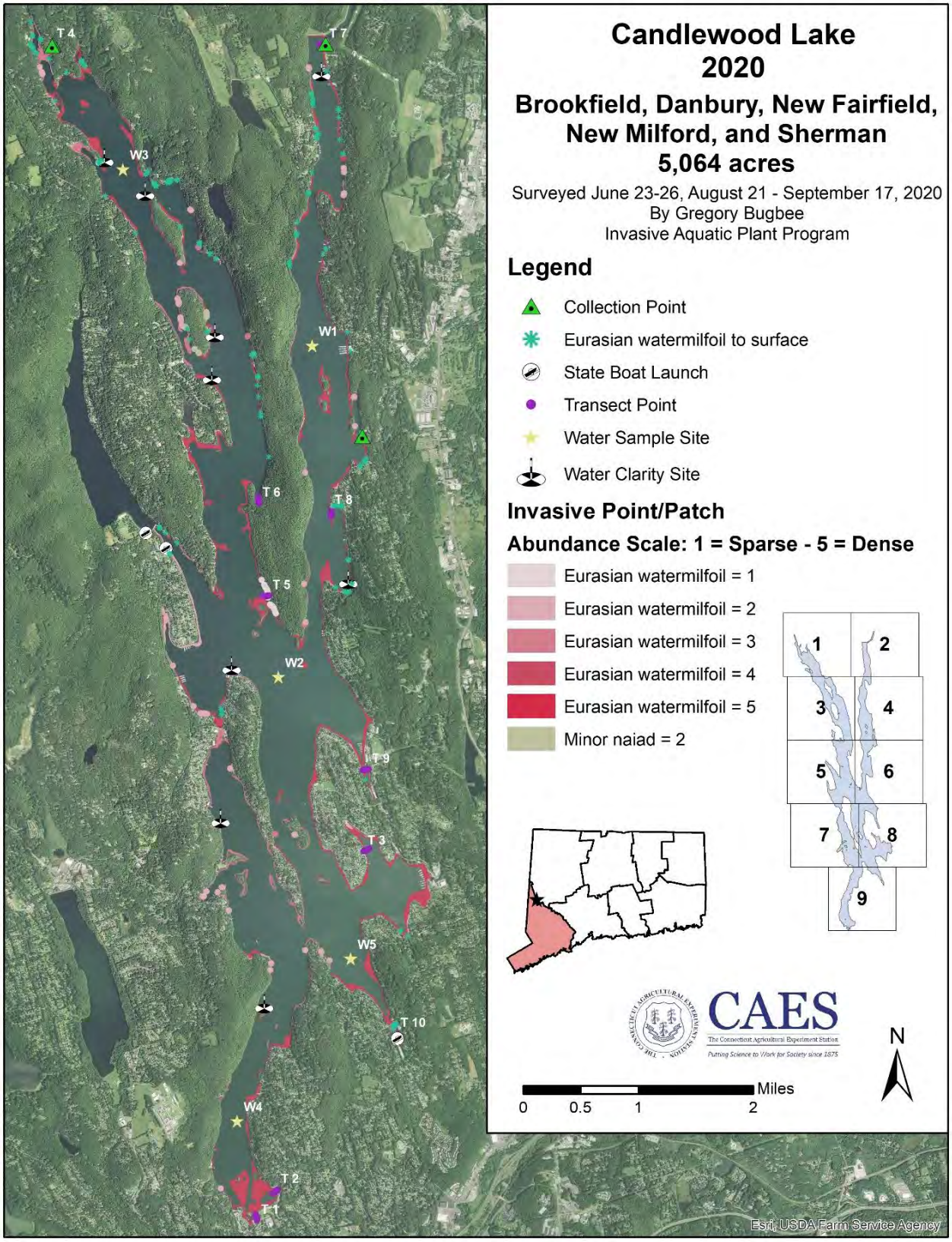

Figure 3. Locations of Candlewood Lake's invasive aquatic plant patches and points, transects, and water test sites in 2020 (see appendix the nine close-up maps shown in the legend).

Table 3. Yearly comparisons of the number and size of invasive species patches in Candlewood Lake.

	Patch Size (acres)											
	Eurasian watermilfoil				Minor naiad				Curlyleaf pondweed			
Year	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
2020	521	0.0002	73.6	1.0	14	0.0002	0.1256	0.0092	0	0	0	0
2019	361	0.0002	41.2	1.2	1	0.0002	0.0322	0.0322	0	0	0	0
2018	456	0.0002	83.5	1.1	3	0.0002	0.5352	0.3815	0	0	0	0
2017	686	0.0002	52.5	0.7	9	0.0002	2.5	0.6	4	0.0002	0.0002	0.0002
2016	526	0.0002	67.4	1.0	77	0.0002	6.5	0.7	36	0.0002	0.4	0.03
2015	413	0.0002	21.3	1.1	125	0.0002	12.3	0.6	1	0.04	0.04	0.04
2014	485	0.0002	46.5	1.0	137	0.0002	1.9	0.1	41	0.0002	3.4	0.1
2013	432	0.0002	14.9	0.6	79	0.0002	2.7	0.3	0	0	0	0
2012	637	0.0002	29.8	0.8	83	0.0002	4.0	0.4	0	0	0	0
2011	485	0.0002	13.5	0.7	46	0.0002	4.4	0.4	1	0.0002	0.0002	0.0002
2010	324	0.0002	35.6	1.6	47	0.0170	6.6	0.4	1	1.0	1.0	1.0
2009	489	0.0002	39.6	0.8	50	0.0002	7.9	0.5	1	0.7	0.7	0.7
2008	469	0.0002	28.1	1.0	26	0.0006	5.5	0.4	5	0.0002	0.1	0.0
2007	489	0.0002	24.9	0.4	31	0.0003	5.0	0.4	1	0.1	0.1	0.1

*Shaded rows indicate deep drawdown years

Table 4. Yearly comparisons of the abundance of invasive species in Candlewood Lake.

	Patch Abundance (1 = sparse - 5 = dense)								
	Eurasian watermilfoil			Minor naiad			Curlyleaf pondweed		
Year	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
2020	1	5	2.9	2	2	2.0	0	0	0.0
2019	1	5	1.9	2	2	2.0	0	0	0.0
2018	1	5	3.1	2	2	2.0	0	0	0.0
2017	1	5	2.8	2	3	2.3	1	1	1.0
2016	2	5	3.0	2	4	2.3	1	5	3.0
2015	1	5	3.2	1	4	3.2	2	2	2.0
2014	1	5	3.1	1	4	2.1	1	5	2.9
2013	1	5	2.4	1	4	2.4	0	0	0.0
2012	1	5	3.1	2	5	2.6	0	0	0.0
2011	1	5	2.3	1	4	2.1	2	2	2.0
2010	1	5	3.3	2	3	2.1	1	1	1.0
2009	1	5	2.1	1	4	1.9	1	1	1.0
2008	1	5	3.0	2	4	1.5	1	1	1.0
2007	1	5	2.9	1	4	2.1	2	2	2.0

*Shaded rows indicate deep drawdown years

covering 525 acres in 2020 (Figure 2). This represents the highest acreage of Eurasian watermilfoil found to date and compares to the 477 – 515 acres found in the previous shallow drawdown years. Minor naiad covered only 0.13 acres in 2020 which reflects a continuation of the substantial decrease from the 72 acre high in 2015. This plant tends to occur in shallow protected coves where drawdown efficacy and grass carp herbivory are likely greatest. The Candlewood Lake map (Figure 3) shows the locations and extents on the invasive aquatic plant species in 2020. For close-up views of individual portions of the lake refer to the subset maps found in the appendix of this report.

There were 521 patches of Eurasian watermilfoil in 2020 (Table 3). The largest patch was 76 acres running from Pocono Point, northward along Echo Bay and Brookfield Bay, ending at the Candlewood Lake Club (Figure 3, Map 6 and 8 in Appendix). This is among the largest patches each year. The mean abundance of Eurasian watermilfoil patches in Candlewood Lake was 2.9 in 2020, which was similar to all shallow drawdown years (range 2.8 – 3.3) (Table 4). We found 14 minor naiad patches in 2020. This represents a slight reversal of the major decrease begun in 2017 where minor naiad patches reached a low of one in 2019. Mean minor naiad patch size, however, reached an all-time low of 0.01 acres in 2020. Mean patch abundance of minor naiad was 2.0 in 2020 which is the same as in 2018 - 2019 and slightly less than found from 2010 – 2017 (range 2.1 - 3.2) (Table 4). Minor naiad is likely less

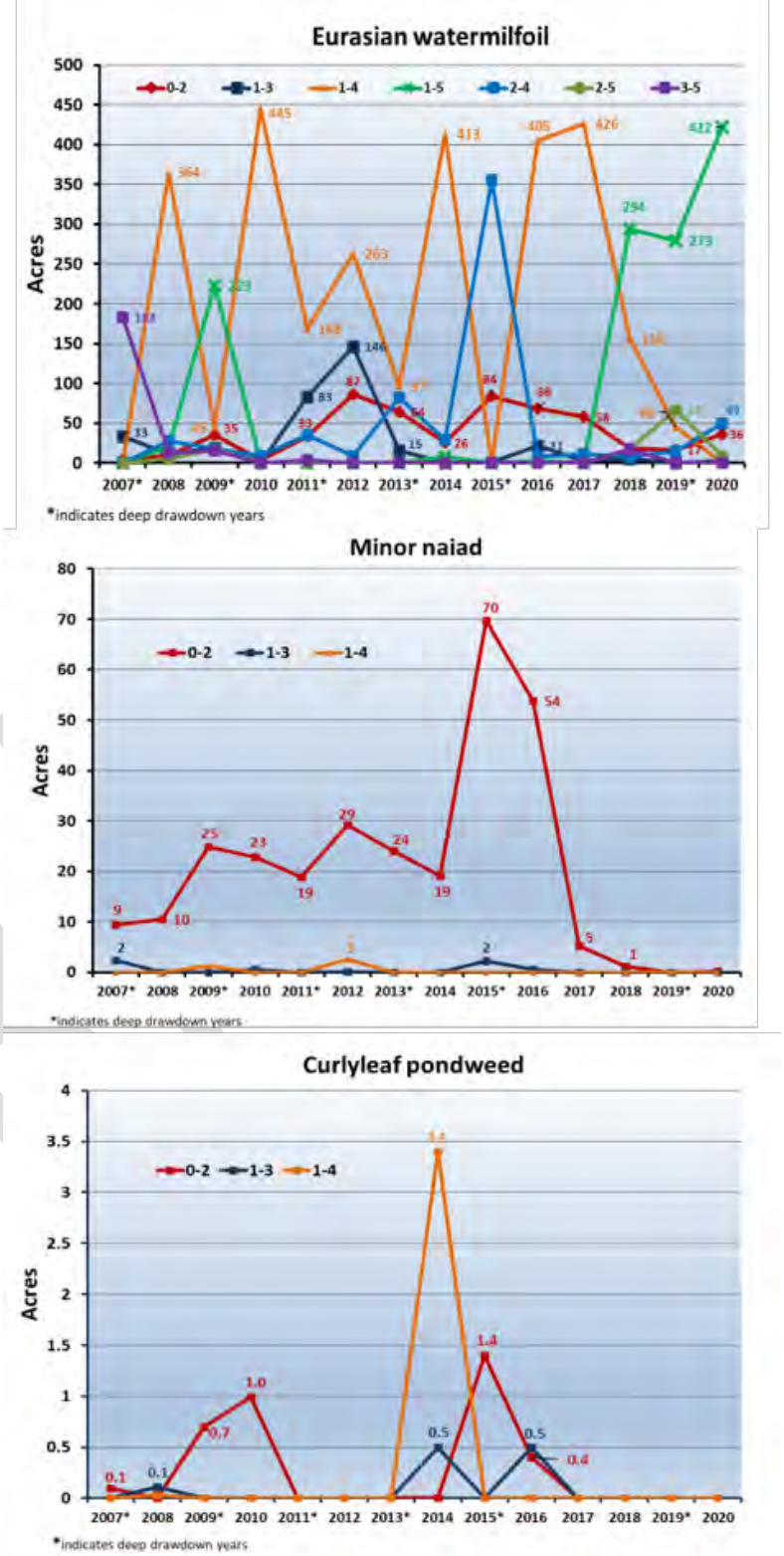

Figure 4. Depth preferences (meters) of invasive aquatic plants in Candlewood Lake 2007 - 2020.

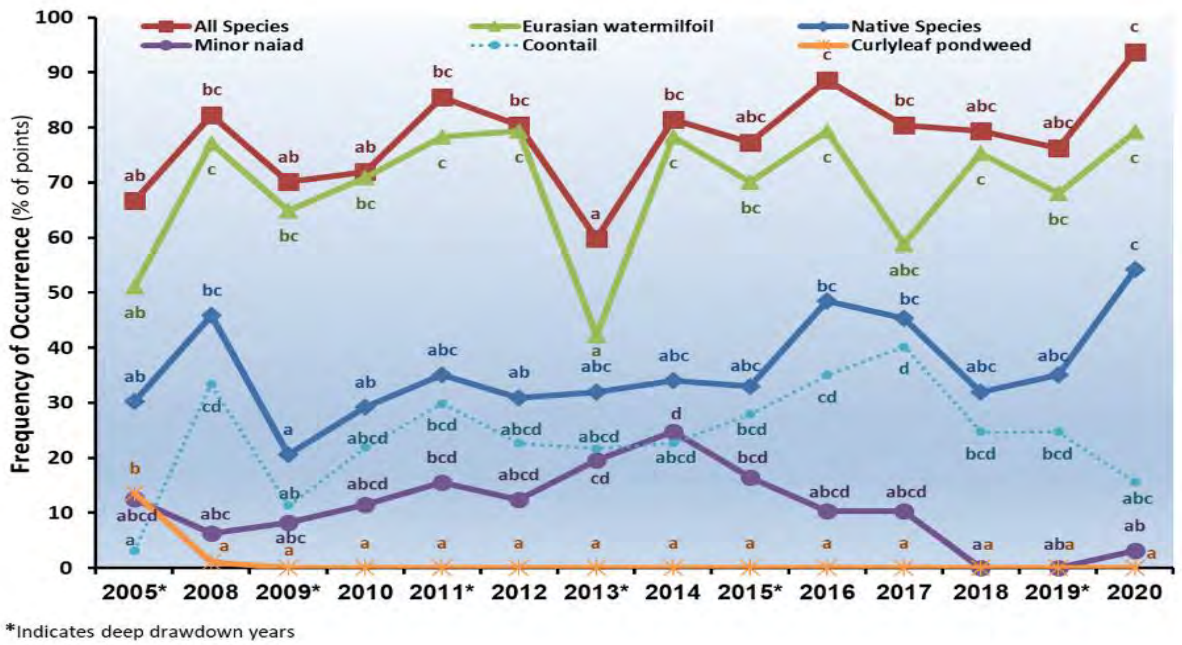

Figure 5. Yearly frequency of occurrence of aquatic vegetation on transects in Candlewood Lake. Points with the same letter within a species are not statistically different.

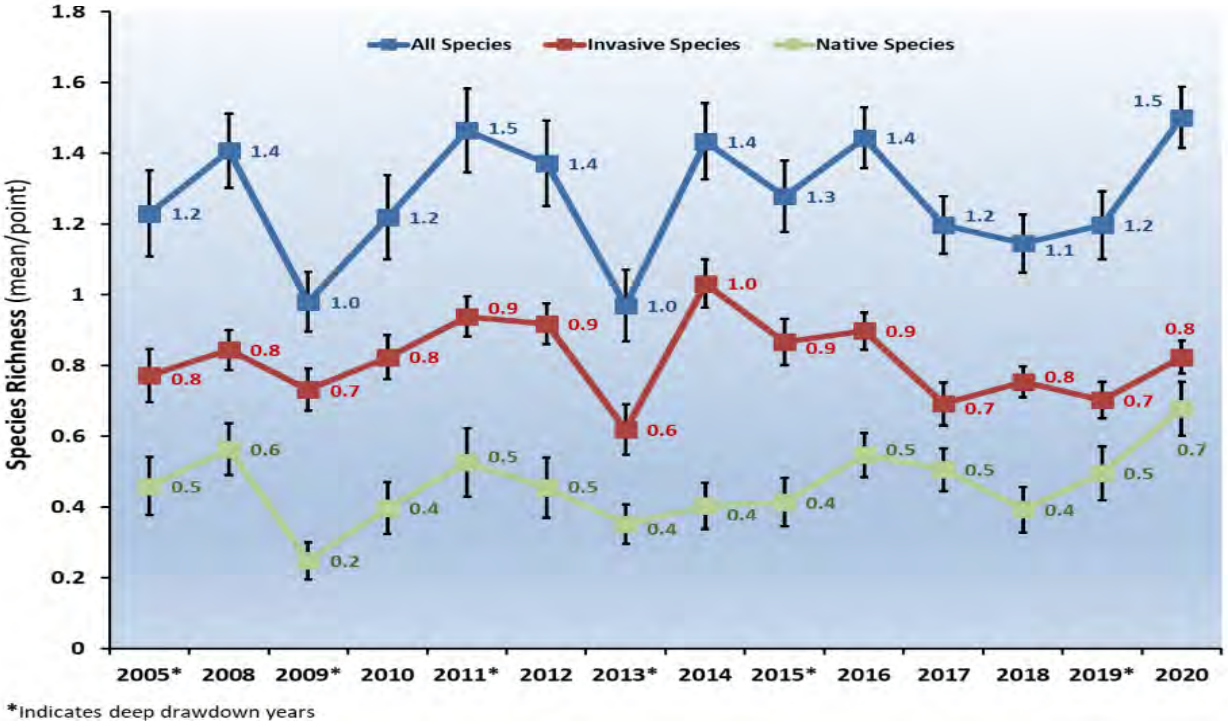

Figure 6. Yearly comparisons of average number of plant species per transect point in Candlewood Lake. Error bars equal +/- one standard error of the mean (SEM).

affected by drawdown than Eurasian watermilfoil because it propagates from potentially drawdown resistant seeds.

Drawdowns, fluctuating water levels, natural variation, and grass carp feeding may change the depth preferences of invasive species from year to year. In 2020, we found most Eurasian watermilfoil at the 1 - 5 m depth (Figure 4). Except for 2009, little Eurasian water-milfoil was found at depths greater than 4 m. Improvements in water clarity and increased light transmission is likely the cause (Figure 18). As in past years, minor naiad was limited to depths from 0 - 2 m.

The frequency of occurrence (FO) of Eurasian watermilfoil on transects was 79% in 2020 (Figure 5). Although among the highest of all years, 2020 was only statistically ($p \leq 0.05$) greater than 2005 and 2013. Yearly variability caused by the winter drawdowns will decrease the sensitivity of this measure when looking for the effects of grass carp. In addition, FO only determines if a species is present or absent and therefore will be a lagging indicator of grass carp efficacy. The FO of minor naiad increased from near zero in 2018 and 2019 to 3% in 2020 which although small reverses the decline started in 2015. Given that the first grass carp introduction occurred in 2015 and minor naiad had not seemed sensitive to the previous drawdown regimes, grass carp could be a factor in its decline. Curlyleaf pondweed disappeared from transects in 2009 and has not been found since. Declines in both minor naiad and curlyleaf pondweed could be related to a preference by grass carp to the ubiquitous Eurasian watermilfoil. Coontail is a plant thought to be least preferred by grass carp particularly in nearby Ball Pond (June-Wells et al. 2017). An increase in this plant on transects from 2014 – 2017, although not statistically significant, yielded concern that Eurasian watermilfoil was being replaced with coontail which could become a similar nuisance. Our 2020 survey showed a continuation of the reversal in this trend started in 2018. The mean invasive species richness (number of plant species) per transect point was 0.8% in 2020. Unlike 2017 and 2018, 2020 this was no longer statically lower than 2016 – 2018 but still lower than the all-time high of 1.0 found in 2014 (Figure 6). Native species richness per transect point in 2020 remained lower that invasive species richness at 0.7%.

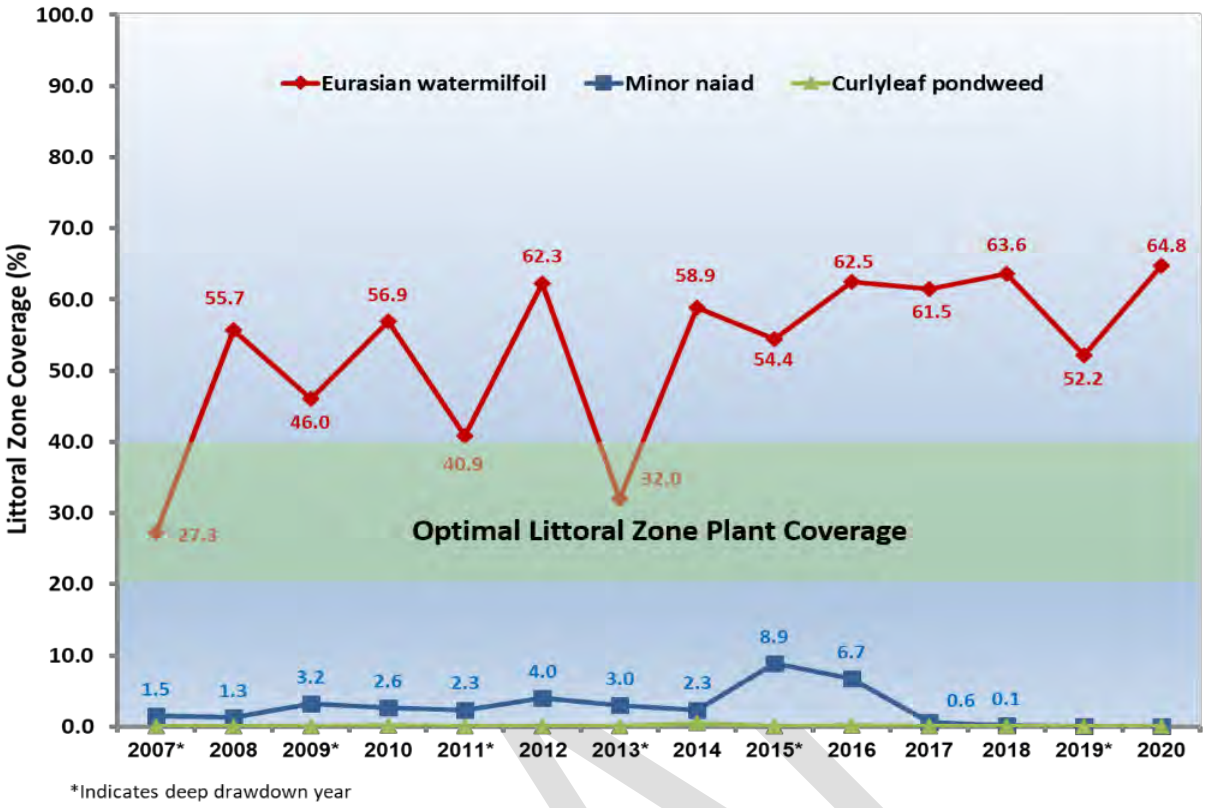

Figure 7. Yearly comparison of the coverage of invasive aquatic plants in Candlewood Lake's littoral zone (0-5m).

A healthy aquatic plant ecosystem generally has diverse and abundant native species. Native plant coverage may decrease the establishment and spread of invasive species (Capers et al. 2007). Overall native species richness on transects decreased from eight in 2019 to five in 2020 which is considerably lower than the all-time high of 14 found in 2005 (Table 2). We found no new native species in 2020. Present in 2019 but not in 2020 were bur-reed and great duckweed. Many species that were present in 2005 have not been found in recent years, including water starwort, waterweed, slender naiad, variable pondweed, clasping-leaf pondweed, small pondweed, sago pondweed, and horned pondweed. It is possible these plants have suffered because of the drawdowns and grass carp. It is also possible the plants may be in the lake and no longer on transects, but none have been observed by the surveyor. Clasping-leaf pondweed and sago pondweed are particularly notable as they were present on transects and commonly viewed in other parts of the lake in most years until 2016 and 2017,

respectively. This may be a result of grass carp herbivory. Some species-rich Connecticut lakes contain over 30 native plant species (CAES IAPP 2020) and for a large lake like Candlewood to have so few is unusual. This is probably because of Candlewood Lake being relatively young, winter drawdowns, and possibly grass carp.

Many fish and other aquatic organisms need aquatic vegetation for habitat, food production and spawning. Optimal littoral zone coverage ranges from 20% to 40% in Connecticut lakes (Jacobs and O'Donnell 2002). We used a depth of 5 m (16 feet) as the littoral zone limit in Candlewood Lake because it corresponds to the maximum depth where plants have been found. Candlewood Lake has a littoral zone of 810 acres or 16% of the total lake area (Bugbee 2011). Eurasian watermilfoil occupied 65% of the littoral zone in 2020 which was similar to the other shallow drawdown years since 2015 which ranged from 62% - 64%. Minor naiad covered <0.1% of the littoral zone and curlyleaf pondweed was not present. The total coverage of Candlewood Lake's littoral zone cannot be inferred by adding the acreage of various species as they often occur together. Eurasian watermilfoil alone, however, has continued to exceed the optimal littoral zone coverage since the deep drawdown year of 2013.

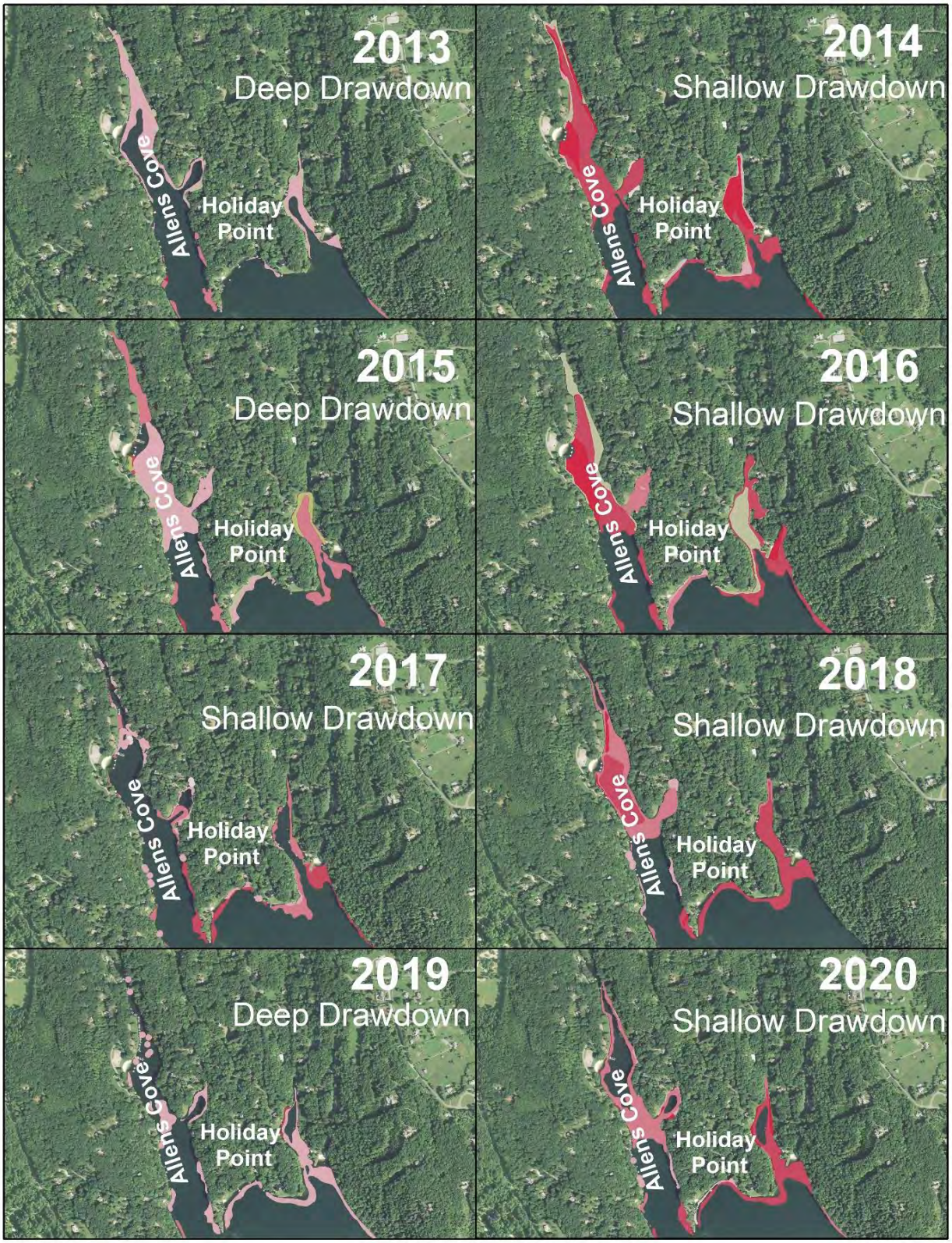

Figure 8. The extent and abundance of Eurasian watermilfoil (pink=sparse – red=dense) and minor naiad (light green =sparse – dark green=dense) in Allen's Cove from 2013 - 2019.

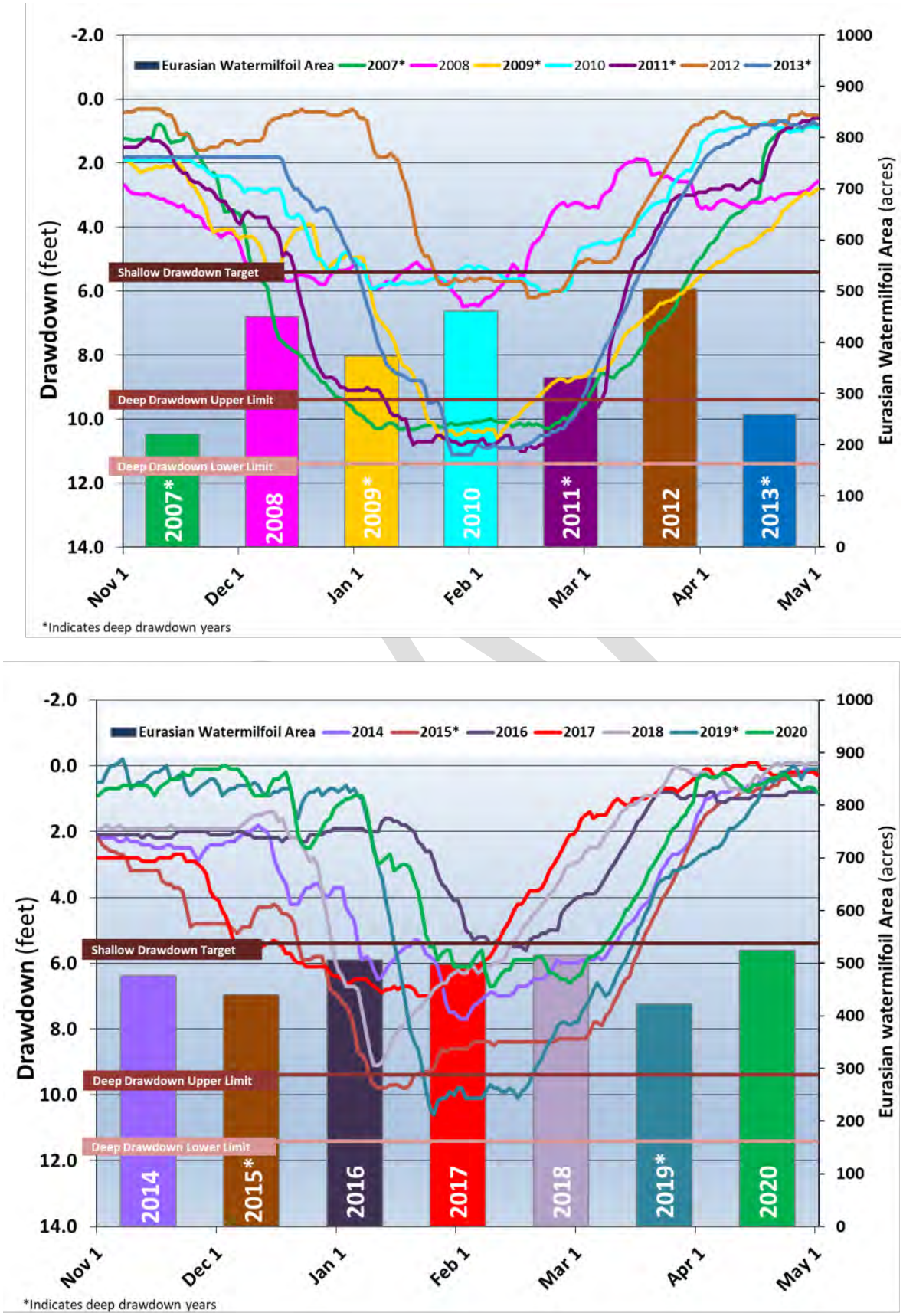

Figure 9. Candlewood Lake's drawdown depths and duration and Eurasian watermilfoil coverage from 2007 – 2020. *Indicates deep drawdown years.

2020 Drawdown

Candlewood Lake's winter drawdowns are performed by FirstLight Power Resources to control nuisance aquatic vegetation and protect shoreline structures from ice damage. Typically, deep drawdowns of about 11 feet occur in odd numbered years and shallow drawdowns of approximately six feet occur in even numbered years (Figure 9). This schedule was disrupted in 2017 when a shallow drawdown occurred and in 2018 when the deep drawdown target depth was nearly met for a short period. Thus the 2018 drawdown could be considered a hybrid between deep and shallow. The winter drawdown of 2019 featured the first true deep drawdown in four years and a typical shallow drawdown resumed in 2020. Candlewood Lake's 2020 drawdown began in mid-December 2019 and by late December the level had dropped about two feet. By mid-January, the lakes level rose to within one foot of full and gradually decline to near its shallow drawdown target level of just under six feet. This level remained until early March when the lake was refilled to its normal full level by early April. Since 2007 Candlewood Lake's shallow drawdowns have varied in timing and duration; however, except for the "hybrid" deeper drawdown of 2018, all shallow drawdowns reach near the target level.

Eurasian watermilfoil coverage ranged in deep drawdown years from 221 acres in 2007 to 441 acres in 2015. In shallow drawdown years it ranged from 451 acres in 2008 to 525 acres in 2020. These differences in the coverage are shown in Allen's Cove (Figure 8). Rapid regrowth in the shallow drawdown years is typical throughout Candlewood Lake and has become reasonably predictable (Bugbee and Stebbins 2018).

Table 5. Yearly comparisons of the frequency of occurrence of native and invasive plants on transects in Squantz Pond.

Common Name	Scientific Name	Frequency of Occurrence (percent*)						
		2011	2015	2016	2017	2018	2019	2020
Bur-Reed	*Sparganium* species	1	0	0	8	0	0	0
Coontail	*Ceratophyllum demersum*	8	0	4	8	6	0	0
Curlyleaf pondweed	***Potamogeton crispus***	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Eurasian watermilfoil	***Myriophyllum spicatum***	**8**	**62**	**78**	**68**	**54**	**0**	**2**
Leafy pondweed	*Potamogeton foliosus*	0	0	2	0	0	0	18
Minor naiad	***Najas minor***	**22**	**40**	**22**	**30**	**2**	**0**	**0**
Pickerelweed	*Pontederia cordata*	0	4	0	0	0	0	18
Primrose-Willow	*Ludwigia* species	0	0	0	2	0	0	0
Slender naiad	*Najas flexilis*	14	12	4	0	0	0	0
Small pondweed	*Potamogeton pusillus*	0	4	0	0	0	0	0
Snailseed pondweed	*Potamogeton bicupulatus*	9	20	12	14	0	0	0
Spikerush	*Eleocharis* species	3	6	2	2	4	0	4
Waterwort	*Elatine* species	3	8	8	8	4	4	24
Western waterweed	*Elodea nuttallii*	2	0	4	2	0	0	0
Total Invasive Species Richness		**2**	**2**	**2**	**2**	**2**	**0**	**1**
Total Native Species Richness		7	6	7	7	3	1	4
Total Species Richness		9	8	9	9	5	1	5

Invasive Species in Bold
Shaded columns are deep drawdown years
*Percent occurrence on 50 points in 5 transects

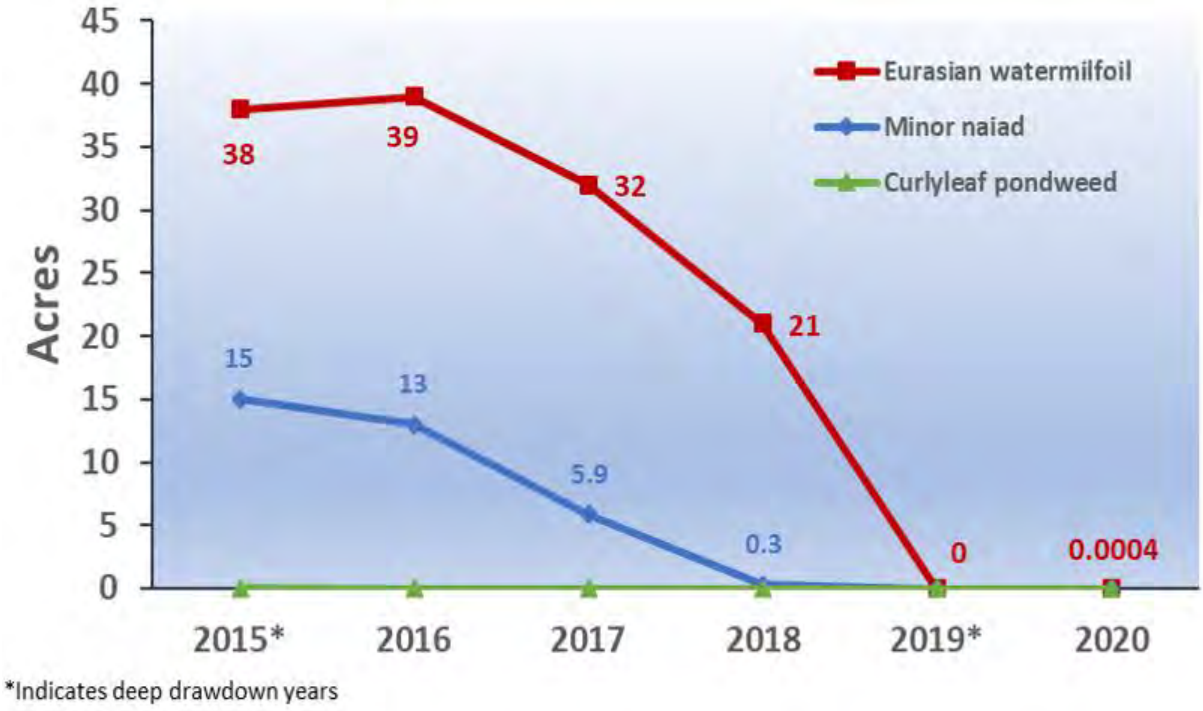

Figure 10. Yearly changes in in the acreage of invasive aquatic plants in Squantz Pond from 2015 – 2020.

Table 6. Yearly comparisons of the number and size of invasive patches in Squantz Pond.

	Eurasian watermilfoil				Minor naiad				Curlyleaf pondweed			
Year	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
2020	2	0.0002	0.0002	0.0002	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0	0
2018	47	0.0002	3.5	0.4	3	0.0002	0.2	0.1	0	0	0	0
2017	39	0.0002	5.5	0.8	16	0.0002	1.4	0.4	0	0	0	0
2016	100	0.0002	11.9	0.4	20	0.0589	2.0	0.6	3	0.0002	0.0002	0.0002
2015	46	0.0002	10.2	0.8	13	0.2	4.1	1.2	1	0.004	0.004	0.004
Shaded rows indicate deep drawdown years												

Table 7. Yearly comparisons of the abundance of invasive plants in patches in Squantz Pond.

Patch Abundance (1 = sparse - 5 = dense)									
	Eurasian watermilfoil			Minor naiad			Curlyleaf pondweed		
Year	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
2020	1	1	1.0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2018	1	4	2.6	2	2	2.0	0	0	0
2017	1	5	2.6	2	3	2.1	0	0	0
2016	1	5	2.7	1	5	2.9	1	2	1.7
2015	1	4	2.6	2	5	3.5	3	3	3.0
Shaded rows indicate deep drawdown years									

Squantz Pond

Our 2020 survey of Squantz Pond confirmed the presence of the invasive species Eurasian watermilfoil, along with the native species leafy pondweed, pickerelweed, spikerush, and waterwort (Table 5). These plants all occurred in areas that were extremely shallow which likely restricted feeding by grass carp. Compared to 2019 when only waterwort was observed, 2020 represented a slight increase the aquatic plant species present. Eurasian watermilfoil coverage has shown a marked decline since the 39 acres found in 2016. In 2020, we mapped only 0.0004 acres (Figure 10). Minor naiad coverage has also shown a steady decline since the 13 acres found in 2016. Only 0.3 acres in was found in 2018 and none as recorded in 2019 and 2020. Curlyleaf pondweed coverage was negligible in Squantz Pond prior to 2016 and has not been found since. Our 2020 survey of Squantz Pond continues show an apparent unnatural decline aquatic plants that seem best explained by the grass carp herbivory. For close-up views of portions of the lake refer to the subset maps found in the appendix of this report.

We found 2 points of Eurasian watermilfoil in our 2020 survey that totaled 0.0004 acres (Table 6). These points were located just east of the state boat launch, in a very rocky, shallow area. This represented an extremely minor increase from the none that was found in 2019 but

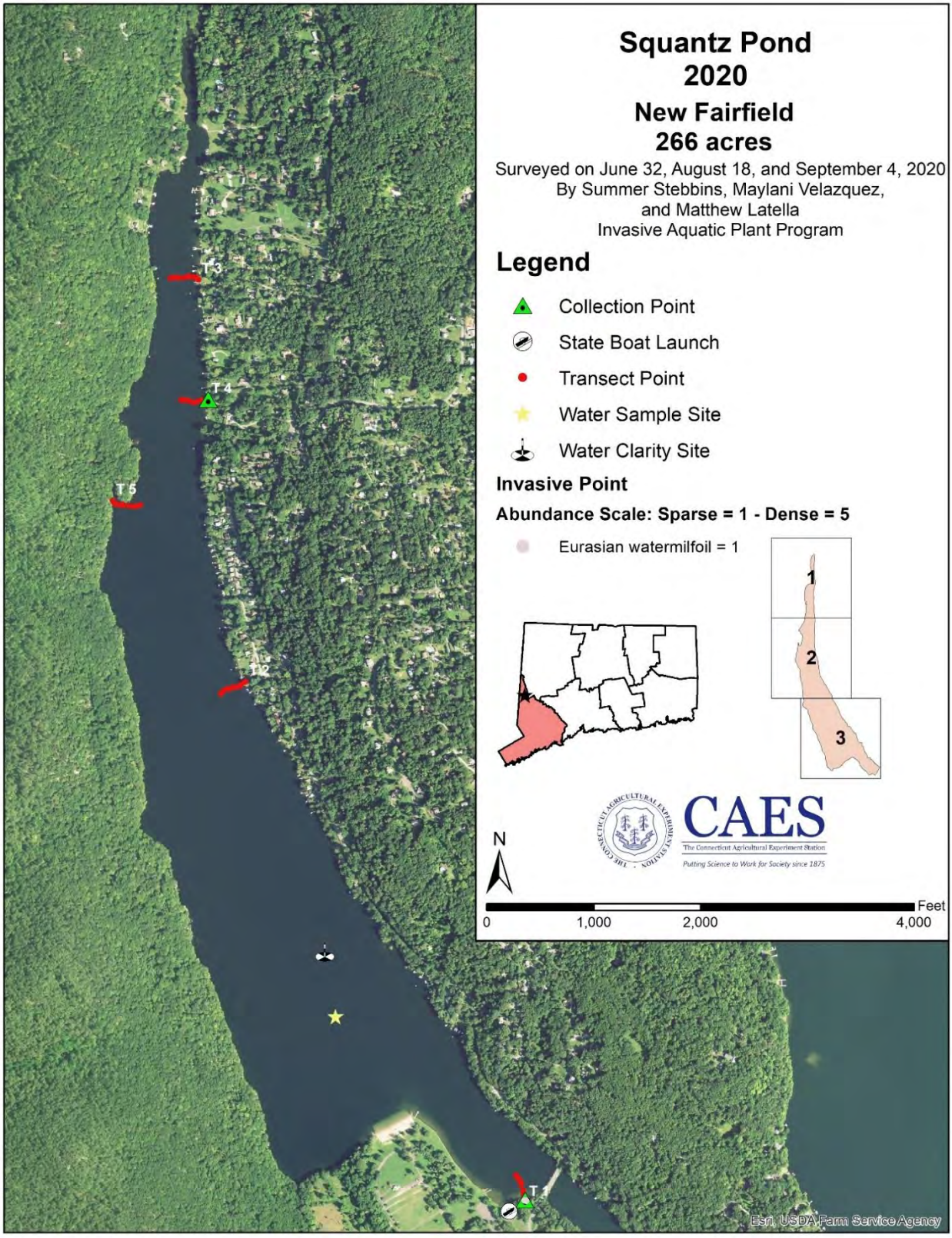

Figure 11. Locations of Squantz Pond's invasive aquatic plant patches and points, transects, and water test sites in 2018 (See appendix the three close-up maps shown in the legend).

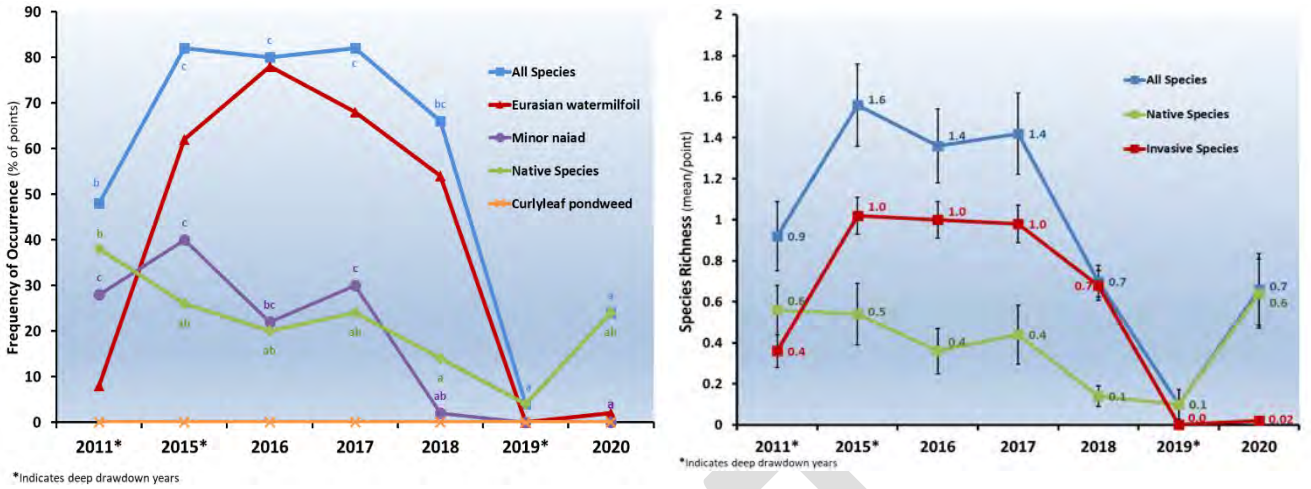

Figure 12. Yearly comparison of the frequency of occurrence of native and invasive species (left) and species richness (right) on transects in Squantz Pond from 2011 to 2020. Points with the same letter are not significantly different. Error bars +/- one standard error of the mean.

a decrease from the 39 – 100 patches or points found from 2015 -2018. The mean patch abundance of Eurasian watermilfoil in 2020 was 1.0 which illustrates the extremely sparse population (Table 7). Substantial declines in the abundance of Eurasian watermilfoil are evident starting in 2019 with prior years having values from 2.6 – 2.7. The last observations of minor naiad and curlyleaf pondweed were in 2018 and 2016. The drastic reduction in both invasive and native vegetation in 2019 has not been observed during our previous surveys and the presence of grass carp is the only apparent difference. This will be discussed further in the "Grass Carp" section of this report.

The 2020 frequency of occurrence (FO) of Eurasian watermilfoil, minor naiad and curlyleaf pondweed in Squantz Pond remained at or near zero while a non-statistically significant increase in native species (leafy pondweed, pickerelweed, spikerush, and waterwort) from 4% in 2019 to 24% was found in 2020 (Figure 12, left). Species richness on transects followed a pattern similar to FO (Figure 12, right) but the increase in native species from a mean per point of 0.1 in 2019 to 0.6 in 2020 was statistically significant (+/- 1 SEM). Although the native species richness was similar to 2011 and 2015, the levels are currently very low. This is likely because in 2011 and 2015 native species were inhibited by Eurasian watermilfoil. Prior to 2019

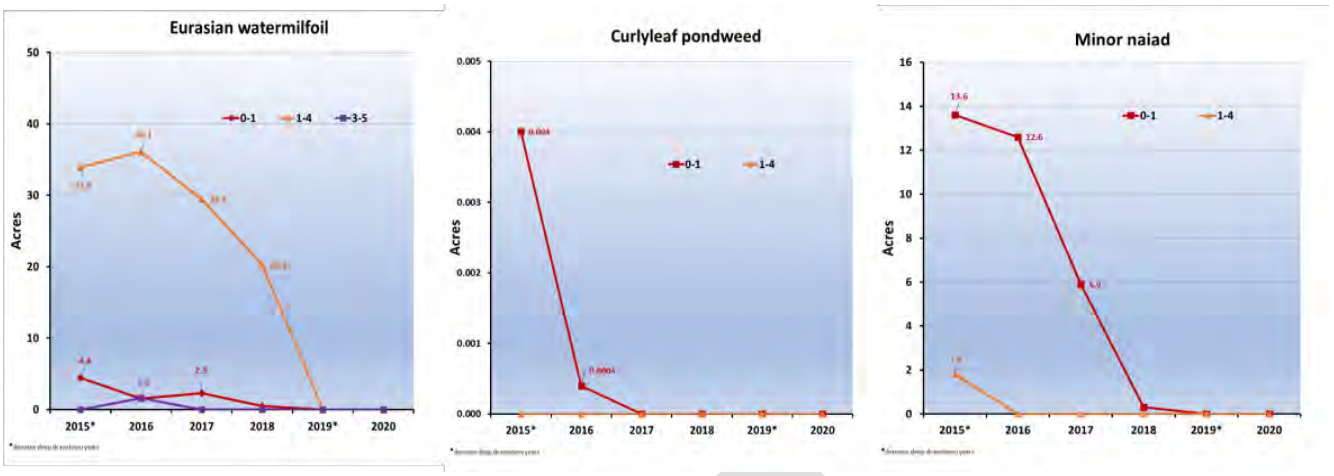

Figure 13. Depth preferences (meters) of invasive plants in Squantz Pond from 2015 - 2020.

most Eurasian watermilfoil in Squantz Pond resided at a depth of 1 – 4 m while minor naiad and curlyleaf pondweed grew at the 0 – 1 m depth (Figure 13). Negligible Eurasian watermilfoil was found at a depth of less than 0.2 m in 2020 which may have restricted grass carp feeding. Neither minor naiad nor curlyleaf pondweed has been found at any depth since 2018.

Squantz Pond has a littoral zone of 111 acres or 42% of its total area. Since 2019, invasive and native plants have been nearly nonexistent (Figure 14) resulting in the littoral zone plant coverage falling well below optimum (Jacobs and O'Donnell 2002).

Grass Carp

In 2015, 3868 12 - 15-inch grass carp were introduced into Candlewood Lake. In 2017, 5035 additional grass carp were introduced into Candlewood Lake and 585 were stocked in Squantz Pond. Because Candlewood Lake and Squantz Pond are

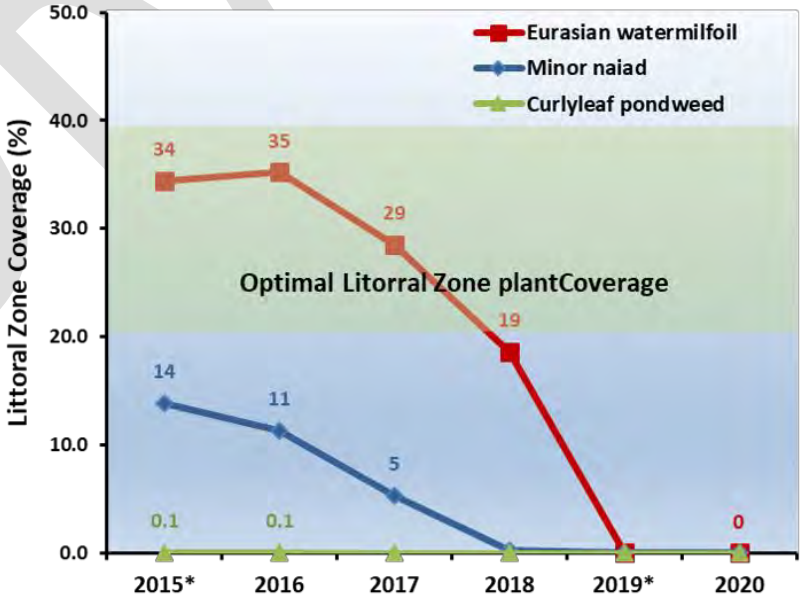

Figure 14. Littoral Zone Coverage of invasive plants from 2015 - 2020.

Figure 15. Surface Eurasian watermilfoil in 2020 (left). Possible "holes" in Eurasian watermilfoil patches caused by grass carp feeding (right).

connected via the conduit under Route 39, grass carp can move freely between the waterbodies. Grass carp tend to graze on the terminal shoots of vegetation, and vegetation control would likely be first noticed by a reduction in the plants reaching the surface and flowering (Pipalova 2006). Since 2012, we have recorded the points and patches where surface watermilfoil has occurred in Candlewood Lake (Figure 15). A reduction in surface flowering points may be the first indication of the grass carp effect.

The shallow drawdown years of 2012, 2014, 2016, 2018, and 2020 showed the highest acreage of surface patches and points with 110, 22, 31, 34, and 4 acres respectively (Figure 16). The deep drawdown years of 2013, 2015, and 2019 featured only 0.4, 0.4,

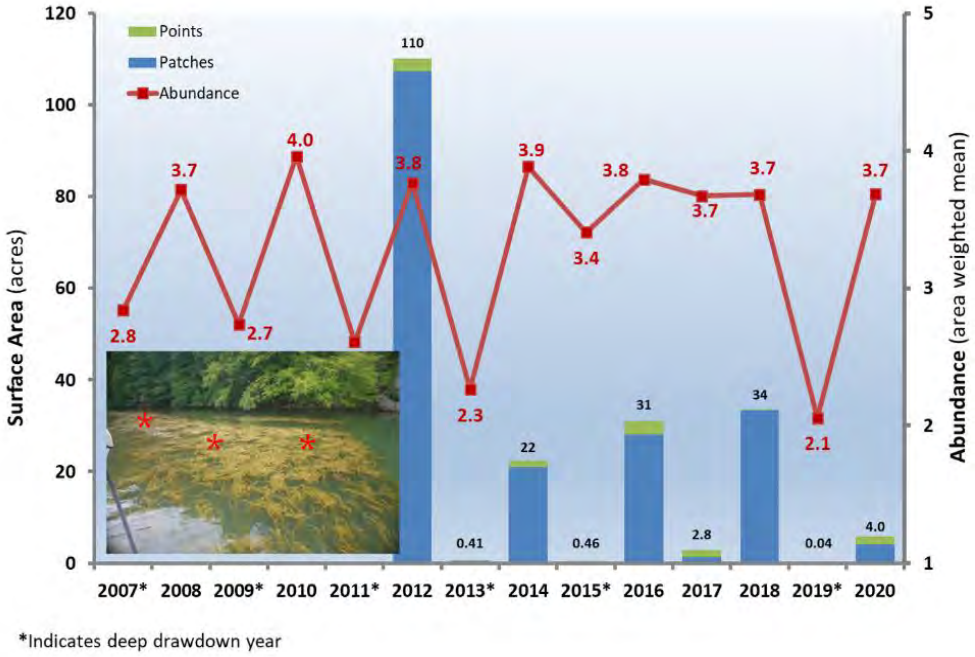

Figure 16. Acreage of surface Eurasian watermilfoil from 2012–2020 and area weighted abundance from 2007-2020 in Candlewood Lake.

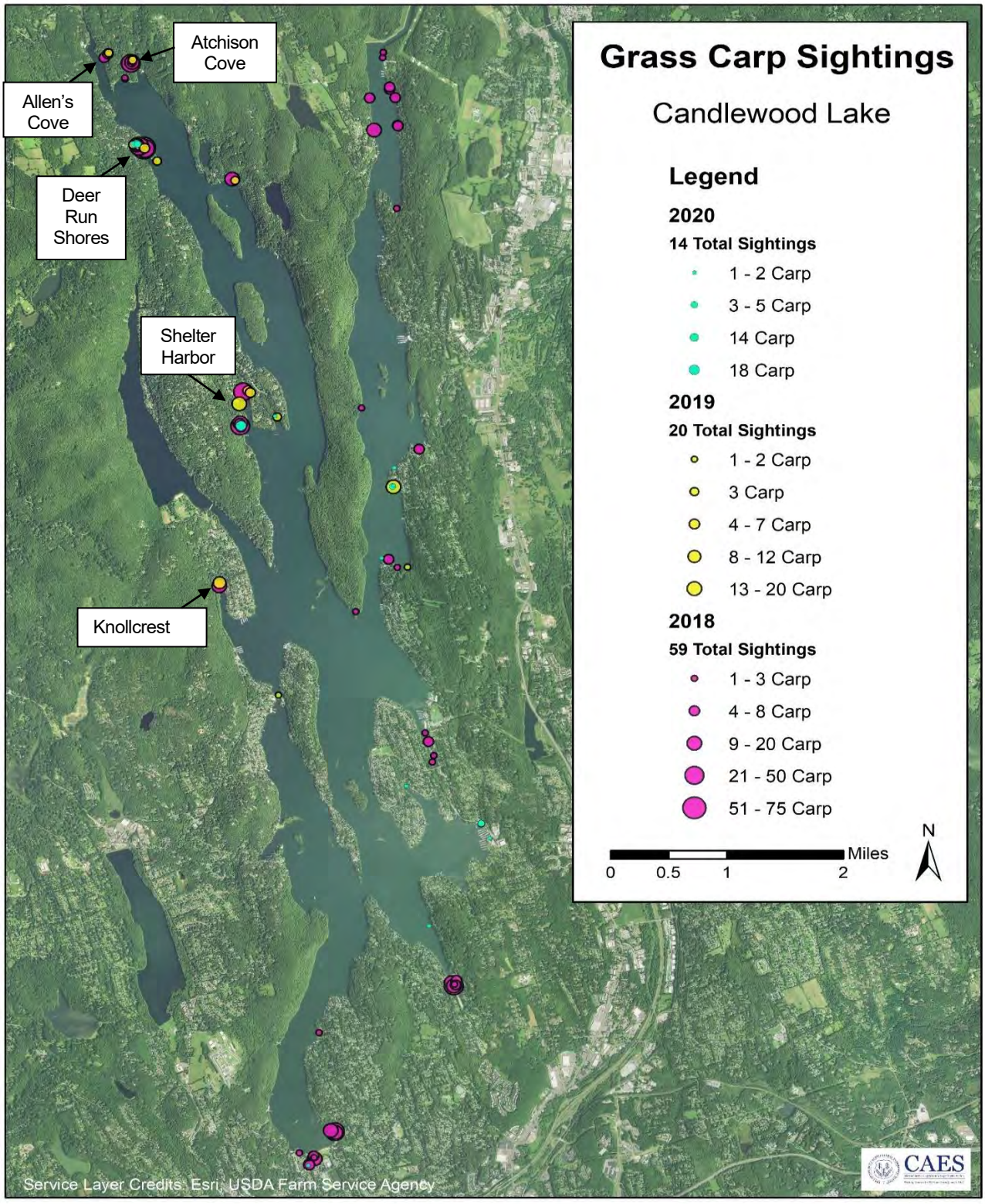

Figure 17. Locations of grass carp sightings and approximate numbers in 2018, 2019, and 2020.

and 0.04 acres, respectively. The 2020 season had the lowest acreage of surface patches and points for any shallow drawdown year. Attributing this to grass carp efficacy is plausible.

We routinely see individual or schools of grass carp during our survey and record the location and approximate number of fish. Generally, grass carp were seen in coves 1 - 2 m deep when boat traffic was minimal. Certain coves seemed preferred. Coves such as the eastern section of Allen's, Atchison, Deer Run Shores, Shelter Harbor, and Knollcrest almost always contained viewable grass carp (Figure 17). In 2020 we recorded 14 sightings in schools up to about 18 fish. Thirteen of the sightings occurred during the short June curlyleaf pondweed survey while only one sighting was recorded during the longer summer survey. In 2019 we recorded 20 sightings with schools containing up to 20 fish while in 2018 we had 59 sightings with schools as large as 75 fish. Whether this downward trend is an indication of a decrease in the number of grass carp in Candlewood Lake cannot be determined but is noteworthy. Our surveys suggest grass carp may be having the greatest effects in coves and less along the main body of the lake. We observed atypical "holes" in vegetation in Allen's Cove and Atchison Cove (Figure 15, right) that could be grass carp feeding sites. Our overall area weighted abundance of Eurasian watermilfoil in Candlewood Lake measurement (Figure 16) when related to winter drawdown protocol could be an indication of grass carp efficacy in the main body of the lake. The 2020 value of 3.7 is nearly identical to the shallow drawdown years since 2015 and therefore indicates minimal change has occurred.

The near elimination of aquatic vegetation in Squantz Pond is both interesting and a concern. Because the connection to Candlewood Lake under the Route 39 causeway offers no barriers to migration of the fish between waterbodies, Squantz Pond could be accumulating grass carp from Candlewood Lake. This could be a result of the quieter conditions in the pond. It would be expected that as vegetation becomes scare in Squantz Pond the grass carp will have to move back into Candlewood Lake. Currently it appears that Squantz Pond may be

experiencing a condition like nearby Waubeeka and Taunton Lakes where grass carp may have reduced vegetation to less than optimal levels.

Table 8. Water chemistry of Candlewood Lake and Squantz Pond in 2020.

Lake	Site	Date	Latitude	Longitude	Depth (m)	Transparency Secchi (m)	Conductivity (µs/cm)	pH	Alkalinity (mg/L $CaCO_3$)	Total P (µg/L)	Total N (µg/L)
Candlewood	W1	9/4/2020	41.53361	-73.44462	0.5	3.5	196.0	7.5	66.8	11.0	181.0
					13.0		212.0	7.0	76.5	5.6	252.0
	W2	9/8/2020	41.49199	-73.44984	0.5	4.7	199.0	7.4	63.8	16.4	166.0
					12.0		211.0	7.1	75.8	175.8	432.0
	W3	9/4/2020	41.55557	-73.47649	0.5	2.1	199.0	7.5	63.0	16.4	169.0
					13.0		213.0	6.9	81.0	353.9	852.0
	W4	9/8/2020	41.43614	-73.45614	0.5	4.4	200.0	7.5	74.3	7.8	133.0
					11.0		212.0	7.7	66.8	193.3	602.0
	W5	9/8/2020	41.45666	-73.43738	0.5	4.5	195.0	7.7	65.3	17.2	161.0
					11.0		203.0	7.6	68.3	183.5	286.0
Squantz	W1	9/4/2020	41.51491	-73.47819	0.5	2.5	130.0	7.5	37.5	14.9	184.0
					13.0		137.0	6.8	60.0	54.2	852.0

Water Chemistry

Water chemistry affects the occurrence of invasive plants in lakes. CAES IAPP has found 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 watermilfoil (June-Wells et al. 2013). Candlewood Lake and Squantz Pond fall into the former category. Zebra mussels also prefer water with higher alkalinities and conductivities. Water chemistry may be altered when nutrients are utilized by plants, and nutrients not used by plants may promote harmful algal blooms. At the conclusion of each waterbody's survey, we perform water testing on each lake. Because these water tests are performed only once a

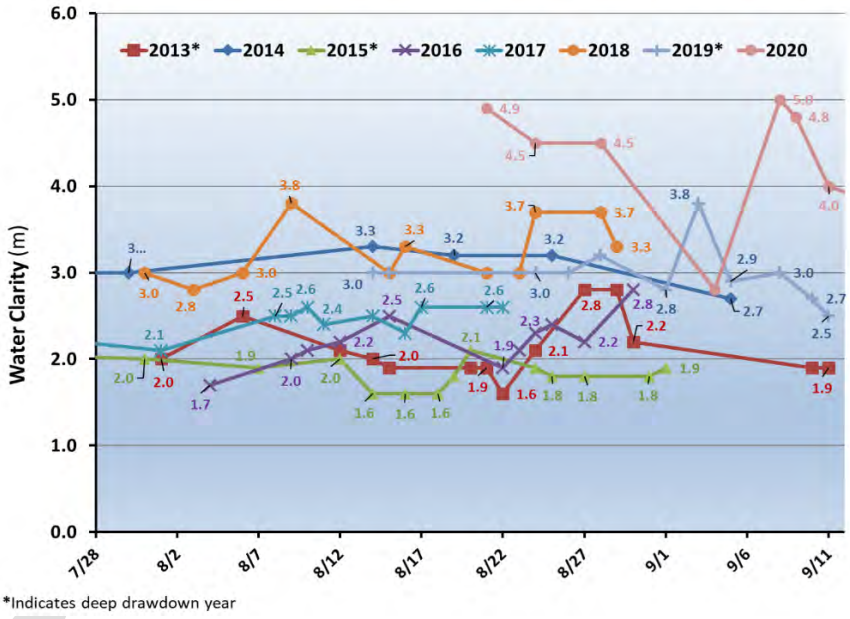

Figure 18. Water transparency in Candlewood Lake during our 2013-2020 CAES IAPP surveys.

year, they may not be indicative of conditions at other times. In Candlewood Lake we obtain water clarity measurements most days we are surveying and thus can show changes over the course of our surveys (Figure 18). During 2020 water clarity varied between 2.8 and 5.0 with only one reading below 4 m. This represented the clearest water we have recorded to date. Squantz Pond had a water clarity of 2.5 m during our water sampling on September 4th (Table 8). Water clarities in Connecticut's lakes ranged from 0.3 - 10 m with an average of 2.3 m (CAES IAPP 2020). Thus, the water clarities of Candlewood Lake and Squantz Pond are near Connecticut's average.

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.). In 2020 the conductivities of Candlewood Lake ranged from 195 - 212 µS/cm with the highest levels in the bottom water (Table 8). This is higher than in the early 1990's when the lake's conductivity ranged from 176 - 184 µS/cm (Canavan and Siver 1995). Squantz Pond's 2020 conductivity was 130 µS/cm at the surface and 137 µS/cm at the bottom. A trend toward increasing conductivity from the head waters at Squantz Pond through Candlewood Lake is evident.

The pH of Candlewood Lake ranged from 6.9 – 7.7 in 2020 with the levels generally slightly higher near the surface (Table 8). Higher surface water pH is consistent with removal of carbon dioxide by algae and aquatic plants during the daytime particularly in bright sun. The pH of Squantz Pond in 2020 was 7.5 at the surface and 6.8 near the bottom. Alkalinities in Connecticut's lakes range from near 0 to over 170 mg/L $CaCO_3$ (CAES IAPP 2020, Canavan and Siver 1995, Frink and Norvell 1984). In 2020, Candlewood Lake's surface water alkalinity ranged from 63 - 74 mg/L and bottom water alkalinity ranged from bottom water ranged from 67 – 81 mg/L while Squantz Pond's alkalinity was 38 mg/L at the surface and 60 mg/L near the bottom. As with conductivity, alkalinity tended to increase downstream throughout the lake system.

A key parameter used to categorize a lake's trophic state is the concentration of phosphorus (P) in the water column. High levels of P can lead to nuisance or toxic algal blooms (Frink

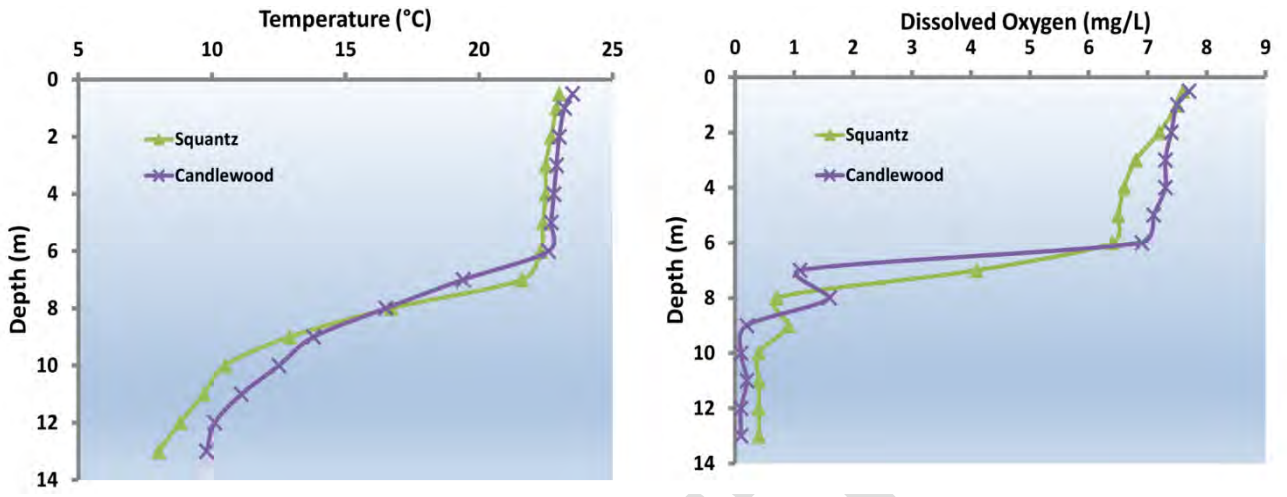

Figure 19. Temperature and dissolved oxygen profiles in lakes Candlewood and Squantz Pond in 2020.

and Norvell 1984, Wetzel 2001). 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 over 50 µg/L are categorized as extremely fertile of hypereutrophic. The P concentration in Candlewood Lake ranged from 8 - 17 µg/L at the surface. Near the bottom P varied widely from 6 - 354 µg/L (Table 8). This partitioning of P between the surface and bottom water is common in the summer as anoxic conditions release P from the sediment (Norvell 1974) and temperature stratification prevents vertical mixing. Localized mixing events can cause wide variations from place to place. Squantz Pond had a surface P of 15 µg/L and a bottom P of 54 µg/L in 2020. 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).

We measured total nitrogen (TN) in the water samples for the first time in 2020. Nitrogen is the most limiting nutrient in terrestrial plants. Although nitrogen is likely less limiting to the growth of aquatic plants and algae, it may play a role in a lake's productivity. Frink and Norvell (1984) found TN in Connecticut Lakes ranged from 193 - 1830 µg/L and averaged 554 µg/L. Candlewood Lake's surface water TN ranged from 133 - 181 µg/L and bottom TN water ranged from 252 – 852 µg/L. Squantz Pond's surface water TN was 184 µg/L and bottom TN water

was 852 µg/L. TN in both lakes followed the same pattern as total phosphorus with the nutrient showing accumulation in the bottom water.

Water temperature and dissolved oxygen (DO) profiles were similar in Candlewood Lake and Squantz Pond. Surface temperatures of near 24 °C occurred to a depth of approximately 6 m and then rapidly declined to near 13 °C near the bottom (Figure 19, left). DO profiles also were similar between the lakes with a highly aerobic surface DO's of near 8 mg/L. At about 6 m DO rapidly declined the anoxic state of near zero near the bottom (Figure 19, right).

Conclusions/Executive Summary

CAES IAPP monitoring since 2005 has provided a consistent assessment on the plant communities to enhance aquatic plant management. Decades of deep and shallow winter drawdowns have been the primary method of plant management. Since 2015, these have been supplemented with grass carp introductions. Because Candlewood Lake and Squantz Pond are attached via a deep-water culvert, drawdowns effect both waterbodies in the same manner while grass carp migration could create differences. Typically, the deep and shallow drawdowns are alternated yearly; however, from 2016 – 2020 only 2019 had a deep drawdown. Eurasian watermilfoil acreage increases after most shallow drawdowns and decreases after deep drawdowns. The shallow drawdown performed in 2020 resulted in an increase in Eurasian watermilfoil coverage in Candlewood Lake to an all-time high of 525 acres. Some of this may be caused by expansion of the beds into deeper water facilitated by increased clarity. In Squantz Pond Eurasian watermilfoil acreage dropped from a high of 39 acres in 2016 to zero acres in 2019 and 2020. The acreage of minor naiad and curlyleaf pondweed was at or near zero in both lakes and continues the trend begun in 2020 continuing the trend begun in 2018. Our transect data continues to show a low level of native species richness compared to the start of our monitoring. Reductions since the grass carp introductions may be related to the fish, particularly in Squantz Pond. Our results suggest that some of the grass carp introduced into Candlewood Lake may have migrated into Squantz Pond and accentuated the paucity of aquatic plant reduction. Reduction in aquatic plant biomass in Candlewood Lake still seems better related to the winter drawdown than grass

carp, however, some atypical unvegetated “holes” in Eurasian watermilfoil patches in certain coves may be indicative of grass carp herbivory. Reductions in surveyor grass carp sightings 59 in 2018 to 12 in 2020 could be a sign of a reduced population.

Funding

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Acknowledgments

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Brian Hart, Invasive Aquatic Plant Program, CAES

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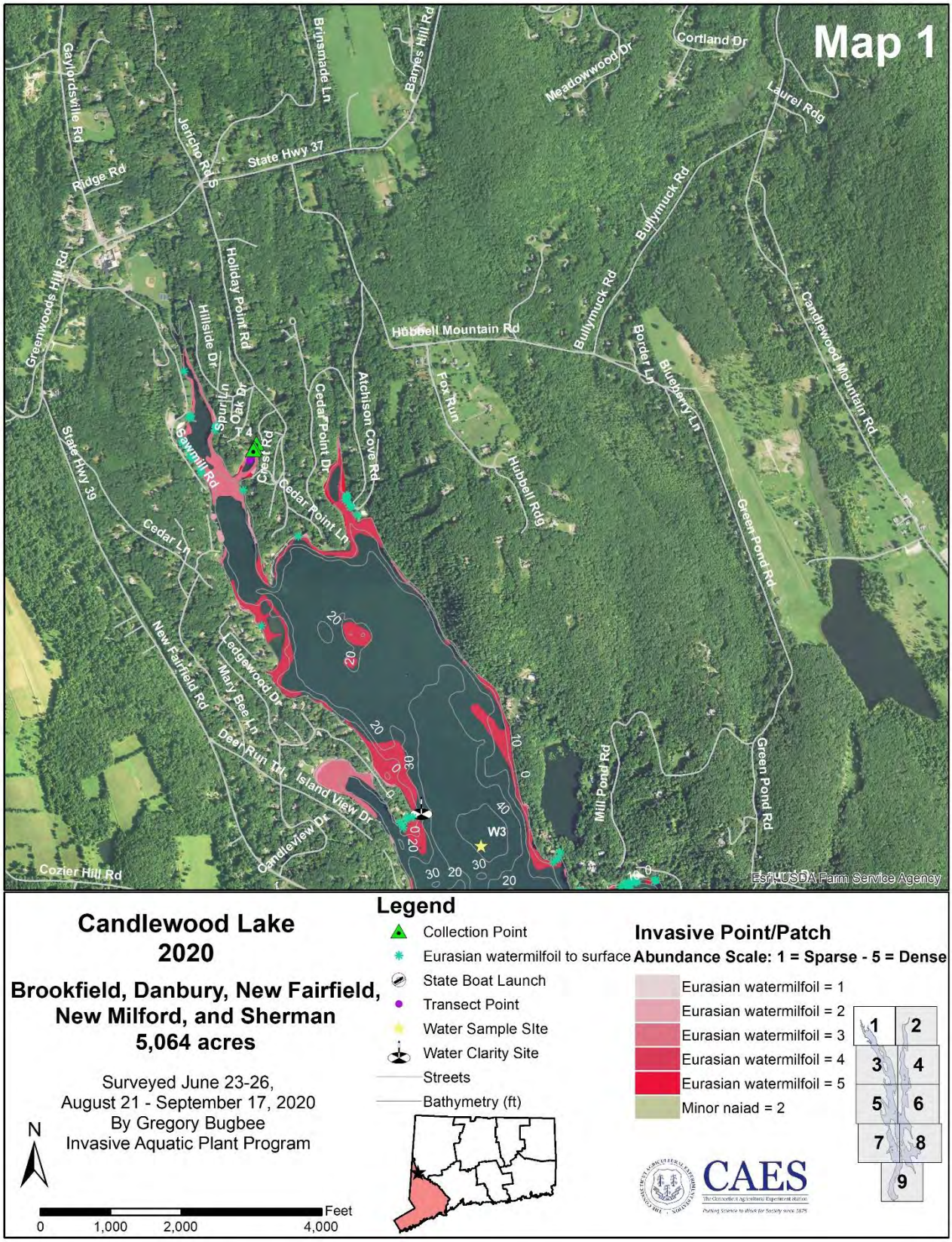
Appendix

Subset Maps

Candlewood Lake


Map 1
Candlewood Lake
2020
Brookfield, Danbury, New Fairfield, New Milford, and Sherman
5,064 acres
Surveyed June 23-26,
August 21 - September 17, 2020
By Gregory Bugbee
Invasive Aquatic Plant Program
N
0
1,000
2,000
4,000
Feet
Legend
Collection Point
Eurasian watermilfoil to surface
State Boat Launch
Transect Point
Water Sample SIte
Water Clarity Site
Streets
Bathymetry (ft)
Invasive Point/Patch
Abundance Scale: 1 = Sparse - 5 = Dense
Eurasian watermilfoil = 1
Eurasian watermilfoil = 2
Eurasian watermilfoil = 3
Eurasian watermilfoil = 4
Eurasian watermilfoil = 5
Minor naiad = 2
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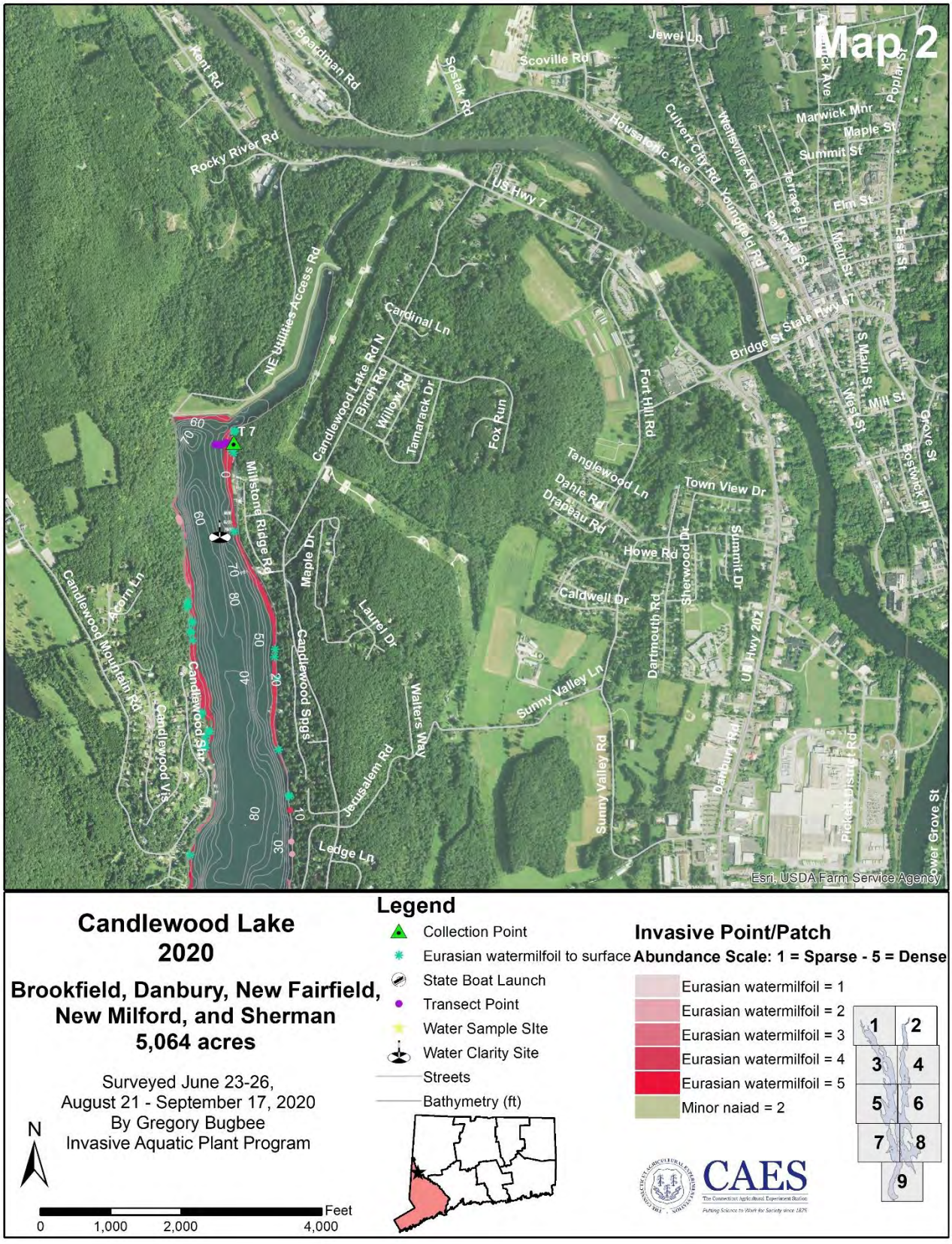
CAES
Esri, USDA Farm Service Agency
Gaylordsville Rd
Brinsmade Ln
Barnes Hill Rd
Meadowwood Dr
Cortland Dr
Laurel Rdg
Jericho Rd
State Hwy 37
Ridge Rd
Bullymuck Rd
Greenwoods Hill Rd
Holiday Point Rd
Hillside Dr
Hubbell Mountain Rd
Border Ln
Blueberry Ln
Candlewood Mountain Rd
Oak Dr
Sprunt Ln
T4
Fox Run
Atchison Cove Rd
Cedar Point Dr
Sawmill Rd
Cedar Point Ln
Hubbell Rdg
State Hwy 39
Cedar Ln
Green Pond Rd
New Fairfield Rd
Ledgewood Dr
Mary Bee Ln
Deer Run Trl
Island View Dr
Candleview Dr
Mill Pond Rd
W3
Cozier Hill Rd


Map 2
Kent Rd
Boardman Rd
Spstak Rd
Scoville Rd
Jewel Ln
Rocky River Rd
Housatonic Ave
Culvert City Rd
Youngfield Rd
Wellsville Ave
Marwick Manr
Maple St
Summit St
Elm St
Terrace Pl
Railroad St
Main St
East St
US Hwy 7
NE Utilities Access Rd
Cardinal Ln
Candlewood Lake Rd N
Birch Rd
Willow Rd
Tamarack Dr
Fox Run
Bridge St
State Hwy 37
S Main St
West St
Mill St
Grove St
Bostwick Pl
Fort Hill Rd
Tanglewood Ln
Dahle Rd
Drapeau Rd
Town View Dr
Howe Rd
Sherwood Rd
Summit Dr
Caldwell Dr
Dartmouth Rd
US Hwy 202
Sunny Valley Ln
Sunny Valley Rd
Danbury Rd
Pickett District Rd
Lower Grove St
T 7
Millstone Ridge Rd
Maple Dr
Laurel Dr
Candlewood Spgs
Walters Way
Jerusalem Rd
Ledge Ln
Acorn Ln
Candlewood Mountain Rd
Candlewood Shr
Candlewood Vis
Esri, USDA Farm Service Agency
Candlewood Lake
2020
Brookfield, Danbury, New Fairfield,
New Milford, and Sherman
5,064 acres
Surveyed June 23-26,
August 21 - September 17, 2020
By Gregory Bugbee
Invasive Aquatic Plant Program
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Legend
Collection Point
Eurasian watermilfoil to surface
State Boat Launch
Transect Point
Water Sample SIte
Water Clarity Site
Streets
Bathymetry (ft)
Invasive Point/Patch
Abundance Scale: 1 = Sparse - 5 = Dense
Eurasian watermilfoil = 1
Eurasian watermilfoil = 2
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Eurasian watermilfoil = 5
Minor naiad = 2
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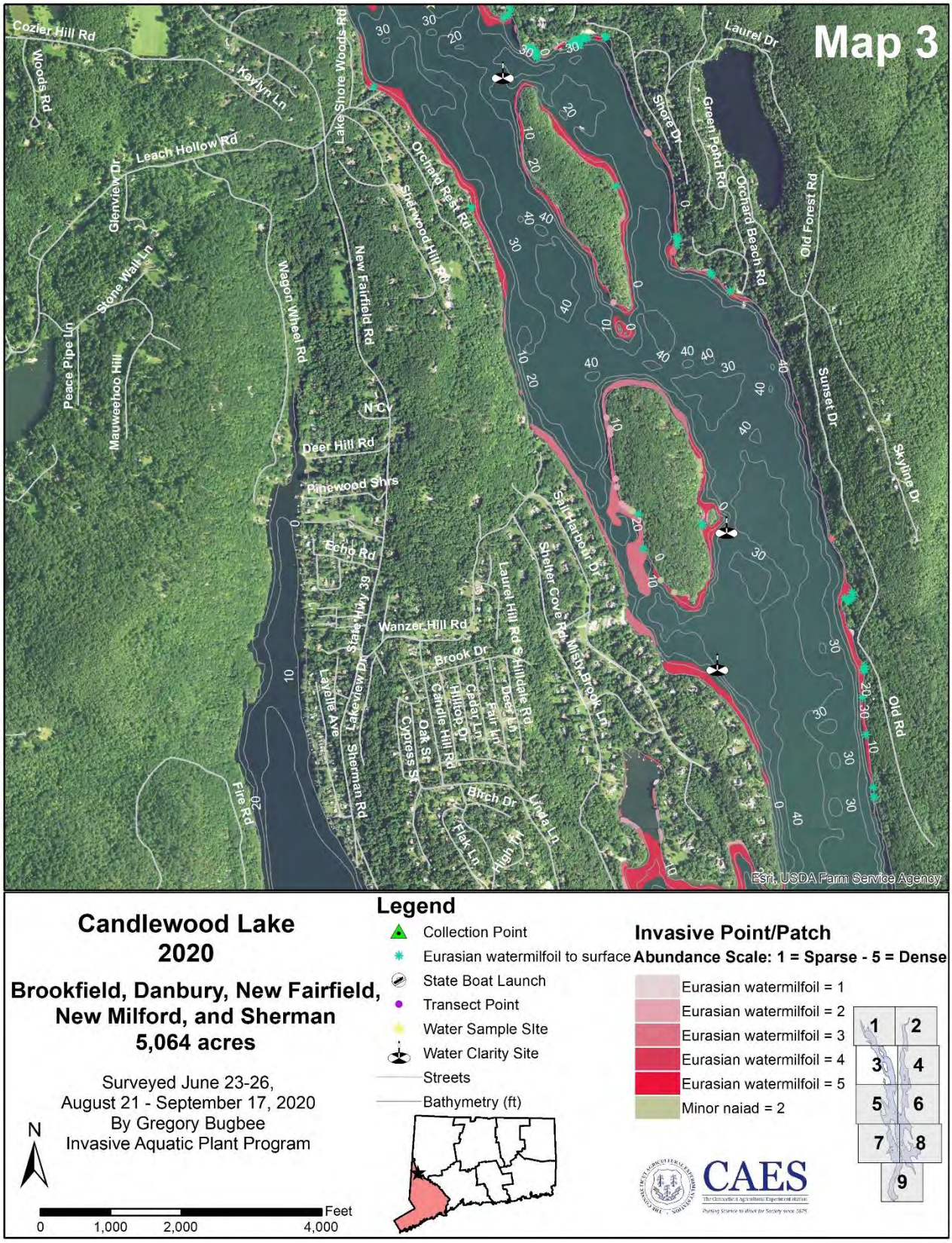
CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875



Candlewood Lake 2020

Brookfield, Danbury, New Fairfield, New Milford, and Sherman
5,064 acres

Surveyed June 23-26,
August 21 - September 17, 2020
By Gregory Bugbee
Invasive Aquatic Plant Program

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Legend

- Collection Point
- Eurasian watermilfoil to surface
- State Boat Launch
- Transect Point
- Water Sample SIte
- Water Clarity Site
- Streets
- Bathymetry (ft)

Invasive Point/Patch

Abundance Scale: 1 = Sparse - 5 = Dense

- Eurasian watermilfoil = 1
- Eurasian watermilfoil = 2
- Eurasian watermilfoil = 3
- Eurasian watermilfoil = 4
- Eurasian watermilfoil = 5
- Minor naiad = 2

CAES
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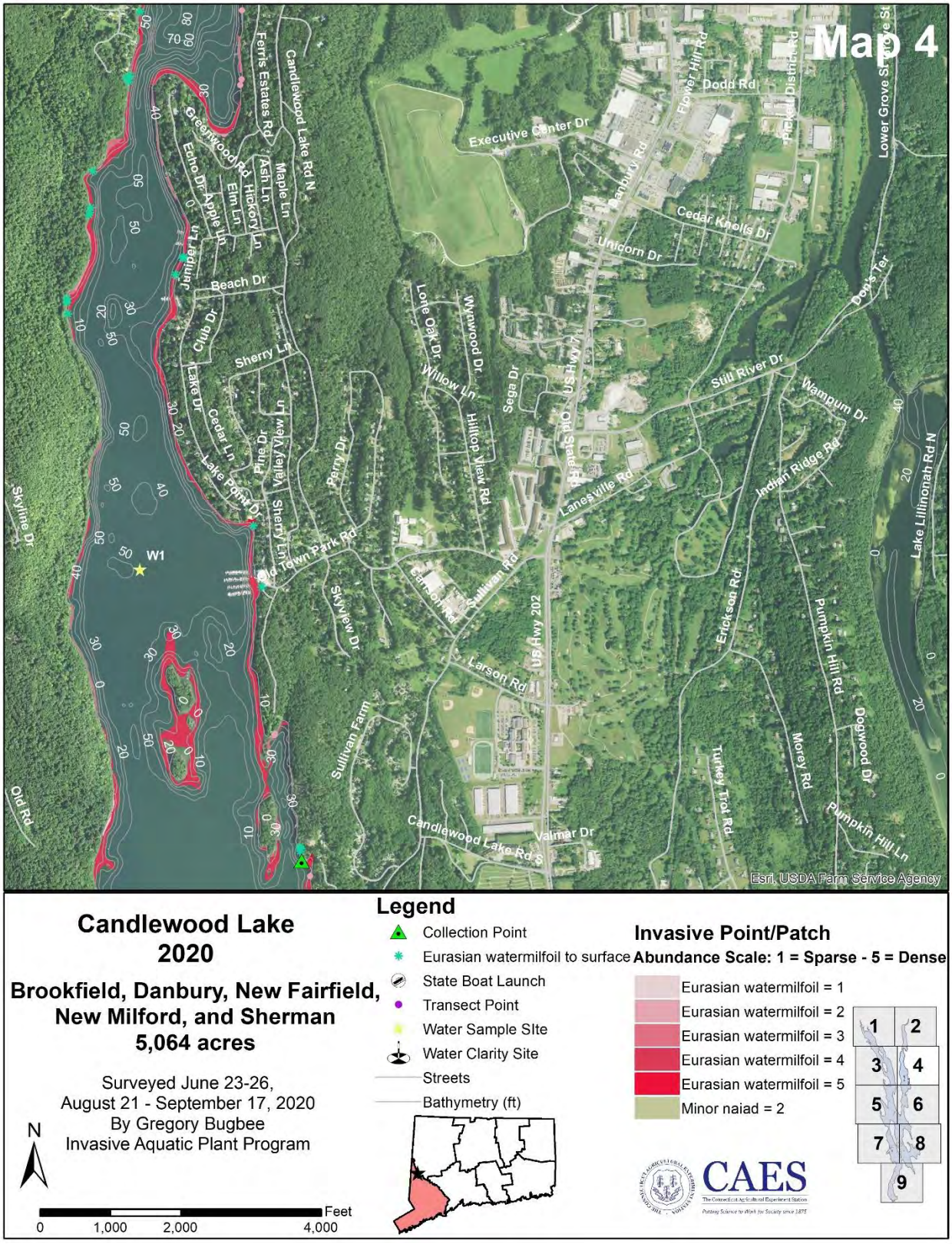
Putting Science to Work for Society since 1875


Map 4
Candlewood Lake
2020
Brookfield, Danbury, New Fairfield,
New Milford, and Sherman
5,064 acres
Surveyed June 23-26,
August 21 - September 17, 2020
By Gregory Bugbee
Invasive Aquatic Plant Program
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Eurasian watermilfoil to surface
State Boat Launch
Transect Point
Water Sample SIte
Water Clarity Site
Streets
Bathymetry (ft)
Invasive Point/Patch
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Minor naiad = 2
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CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875
Esri, USDA Farm Service Agency
W1
Executive Center Dr
Dodd Rd
Flower Hill Rd
Pickett District Rd
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Candlewood Lake Rd N
Ferris Estates Rd
Greenwood Rd
Echo Dr
Ash Ln
Hickory Ln
Elm Ln
Apple Ln
Maple Ln
Junior Ln
Legion Ln
Beach Dr
Club Dr
Sherry Ln
Lake Dr
Cedar Ln
Pine Dr
Valley View Ln
Lake Point Dr
Sherry Ln
Skyline Dr
Old Rd
Perry Dr
Old Town Park Rd
Skyview Dr
Sullivan Farm
Lone Oak Dr
Willow Ln
Wynwood Dr
Hilltop View Rd
Sega Dr
Old State Rd
US Hwy 7
Lanesville Rd
Sullivan Rd
Carmon Rd
US Hwy 202
Larson Rd
Candlewood Lake Rd S
Valmar Dr
Turkey Trot Rd
Morey Rd
Erickson Rd
Pumpkin Hill Rd
Dogwood Dr
Pumpkin Hill Ln
Indian Ridge Rd
Wampum Dr
Still River Dr
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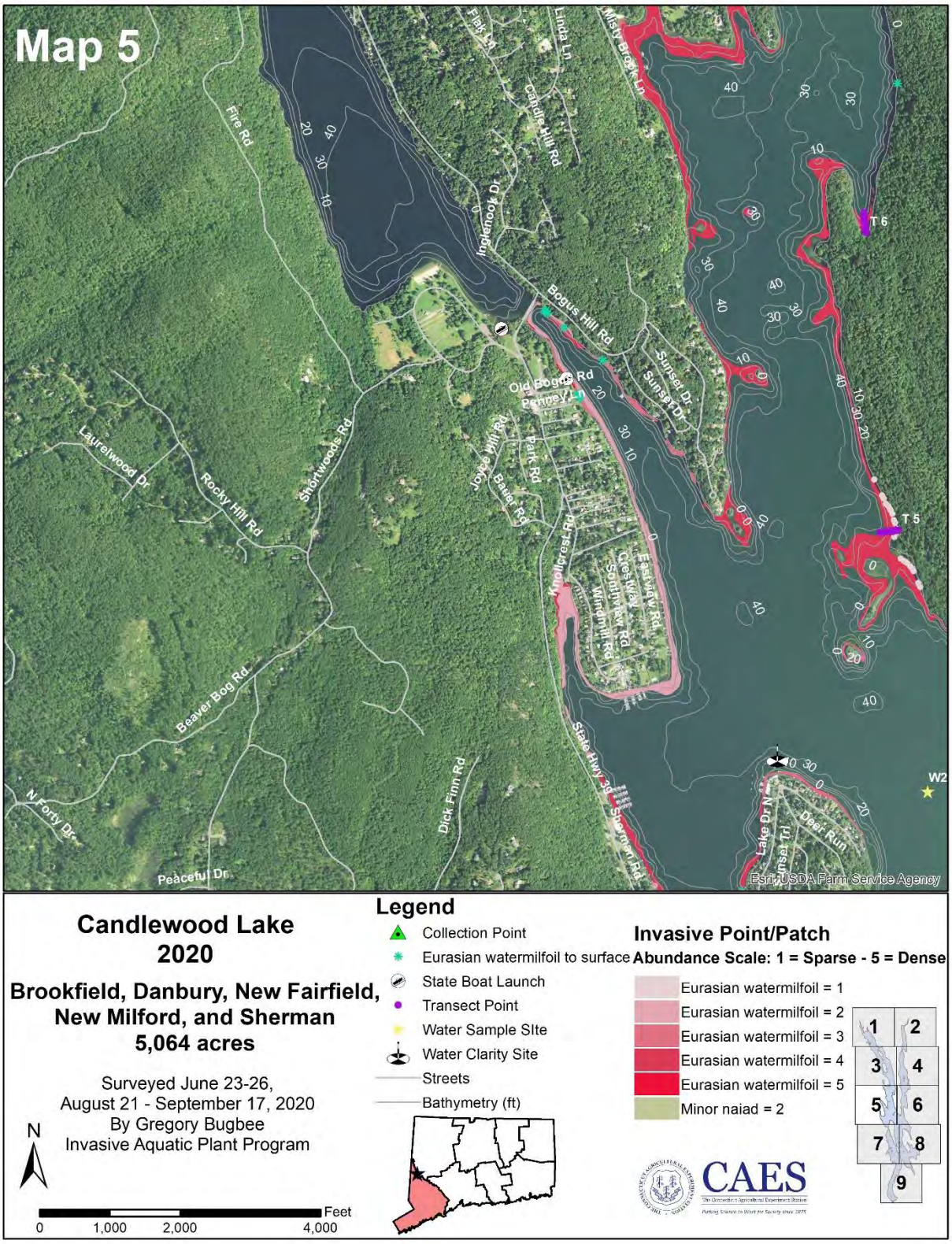
Lake Lillinonah Rd N
Cedar Knolls Dr
Unicorn Dr
Lanbury Rd


Map 5
Fire Rd
Flick Ln
Linda Ln
Misty Brook Ln
Candle Hill Rd
Ingrehook Dr
Bogus Hill Rd
Old Bogus Rd
Pennell Ln
Sunset Dr
Sunset Dr
Laurelwood Dr
Rocky Hill Rd
Shortwoods Rd
Joyce Hill Rd
Park Rd
Beaver Rd
Knollcrest Rd
Eastway Rd
CresWay
Southview Rd
Windmill Rd
Beaver Bog Rd
N Forty Dr
Peaceful Dr
Dick Finn Rd
State Hwy 39
Sherman Rd
Lake Dr N
Deer Run
T 6
T 5
W2
Esri, USDA Farm Service Agency
Candlewood Lake
2020
Brookfield, Danbury, New Fairfield,
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5,064 acres
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Bathymetry (ft)
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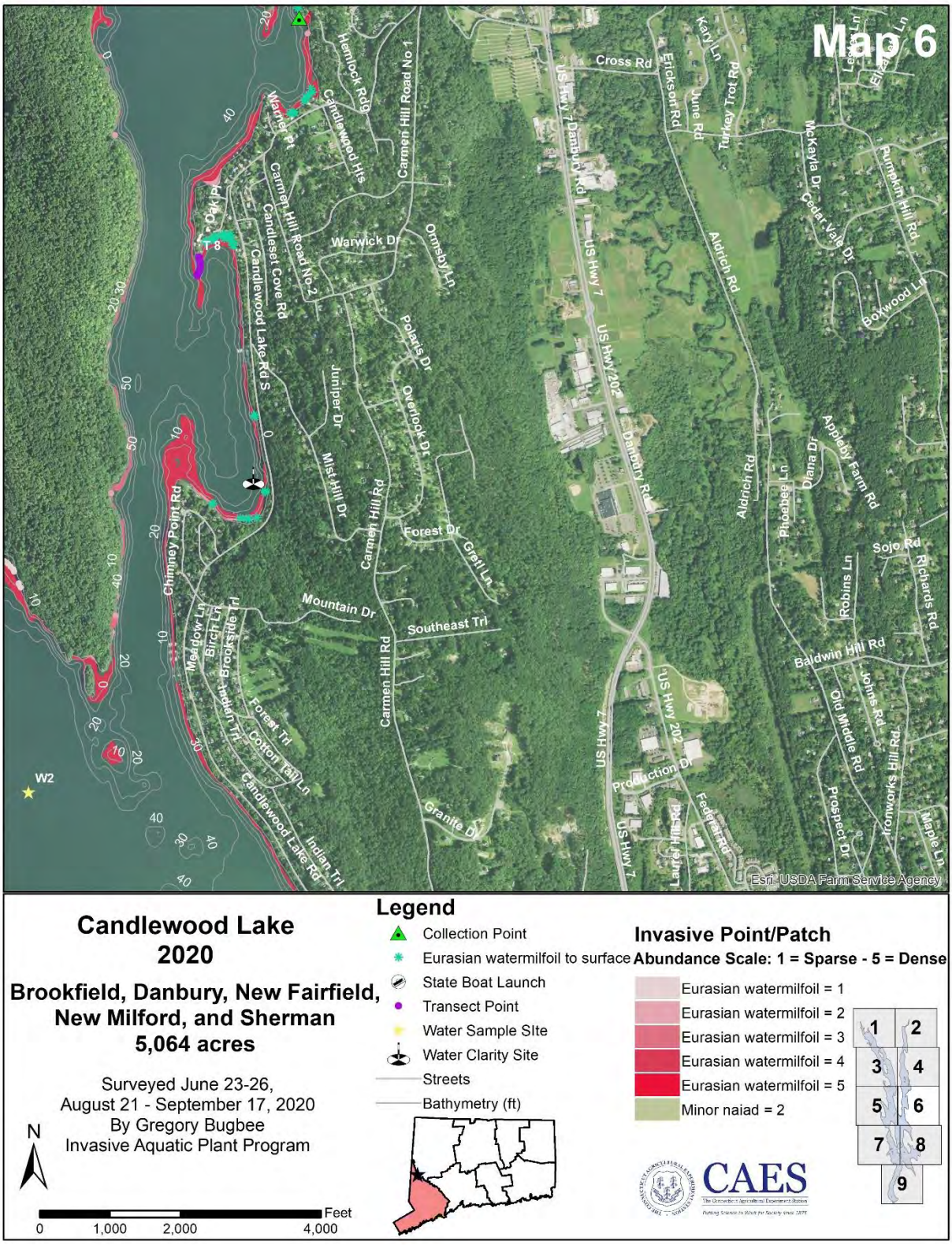
Map 6
Cross Rd
Erickson Rd
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Cedar Vale Dr
Pumpkin Hill Rd
Boxwood Ln
Aldrich Rd
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US Hwy 7
US Hwy 202
Danbury Rd
Hemlock Rd
Candlewood Hts
Carmen Hill Road No 1
Warwick Dr
Ormsby Ln
Warren Pl
Carmen Hill Road No 2
Candleset Cove Rd
Candlewood Lake Rd S
Polaris Dr
Juniper Dr
Overlook Dr
Mist Hill Dr
Carmen Hill Rd
Forest Dr
Great Ln
Chimney Point Rd
Mountain Dr
Southeast Trl
Meadow Ln
Birch Ln
Brookside Trl
Indian Trl
Forest Trl
Cotton Tail Ln
Candlewood Lake Rd
Granite Dr
Carmen Hill Rd
Phoebee Ln
Diana Dr
Appleby Farm Rd
Sojo Rd
Robbins Ln
Richards Rd
Baldwin Hill Rd
Johns Rd
Old Middle Rd
Prospect Dr
Maple Ln
Production Dr
Federal Rd
Lanes Hill Rd
Ironworks Rd
W2
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Esri, USDA Farm Service Agency
Candlewood Lake
2020
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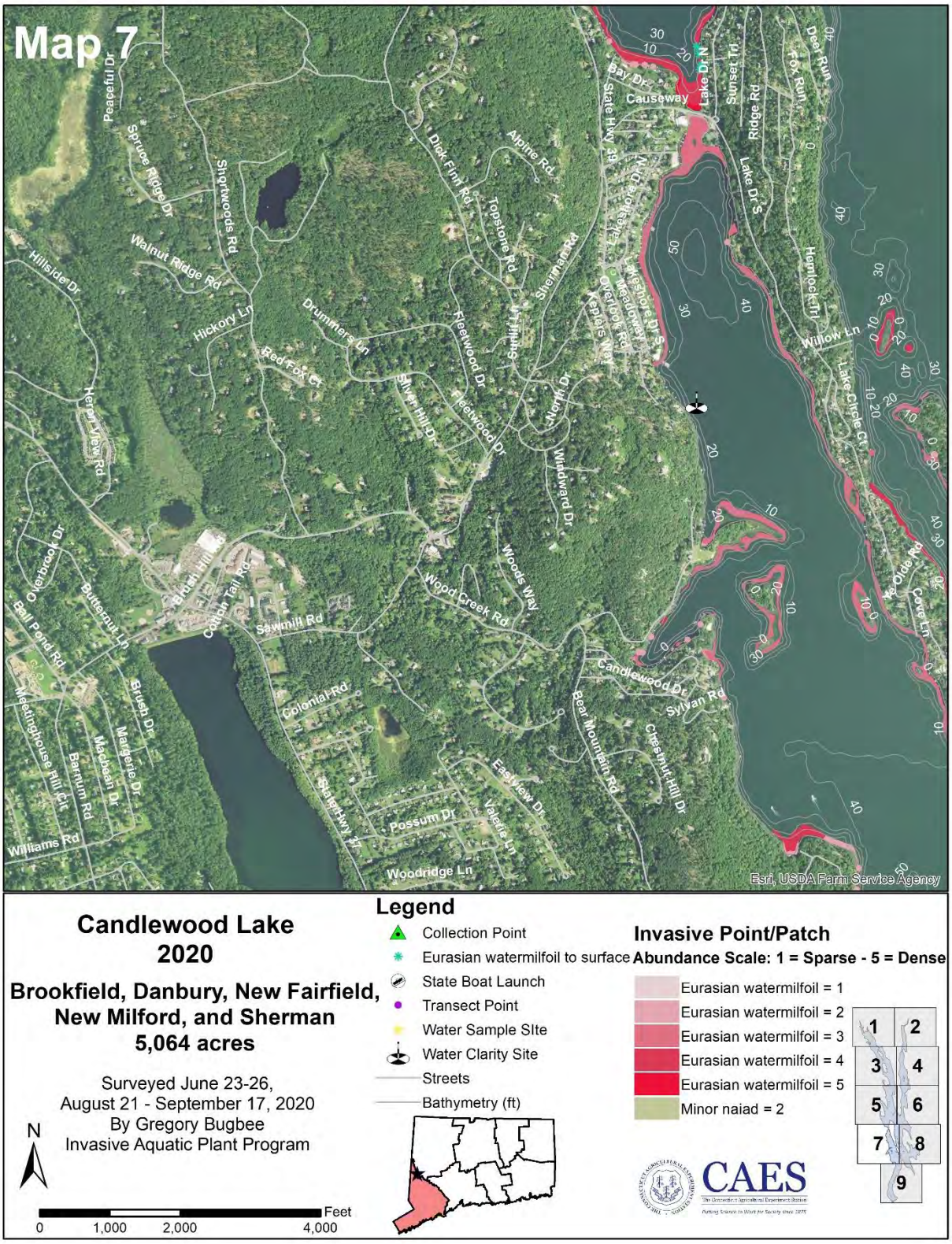
Map 7
Peaceful Dr
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Drummers Ln
Red Fox Ct
Heron View Rd
Overbrook Dr
Bell Pond Rd
Butternut Ln
Birch Hill Rd
Condor Trail Rd
Sawmill Rd
Meetinghouse Hill Cir
Barnum Rd
Brush Dr
Margerie Dr
Machaan Dr
Williams Rd
Colonial Rd
Diak Finn Rd
Alpine Rd
Topstone Rd
Sherman Rd
Fleetwood Dr
Silver Hill Dr
Northill Dr
Windward Dr
Woods Way
Wood Creek Rd
Skiff Hwy 37
Possum Dr
Woodridge Ln
Eastview Dr
Valerie Ln
Bear Mountain Rd
Chestnut Hill Dr
Candlewood Dr
Sylvan Rd
Bay Dr
Causeway
State Hwy 39
Lake Dr N
Sunset Trl
Ridge Rd
Deer Run
Fox Run
Lake Dr S
Meadowview Dr
Overlook Rd
Keplers Way
Hemlock Trl
Willow Ln
Lake Circle Ct
Pine Orchard Rd
Cove Ln
Esri, USDA Farm Service Agency
Candlewood Lake
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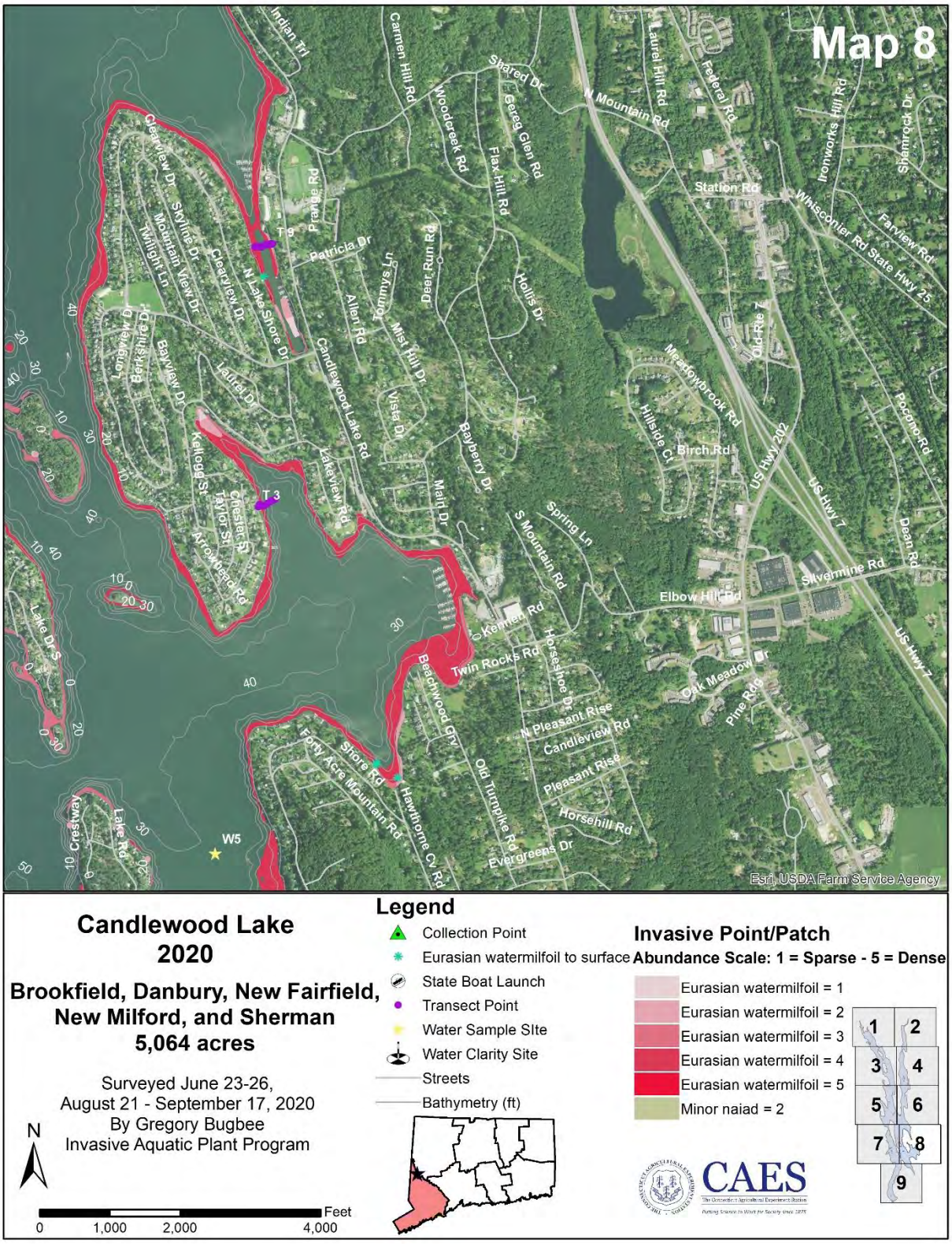
Map 8
Candlewood Lake
2020
Brookfield, Danbury, New Fairfield, New Milford, and Sherman
5,064 acres
Surveyed June 23-26,
August 21 - September 17, 2020
By Gregory Bugbee
Invasive Aquatic Plant Program
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Collection Point
Eurasian watermilfoil to surface
State Boat Launch
Transect Point
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Water Clarity Site
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Eurasian watermilfoil = 5
Minor naiad = 2
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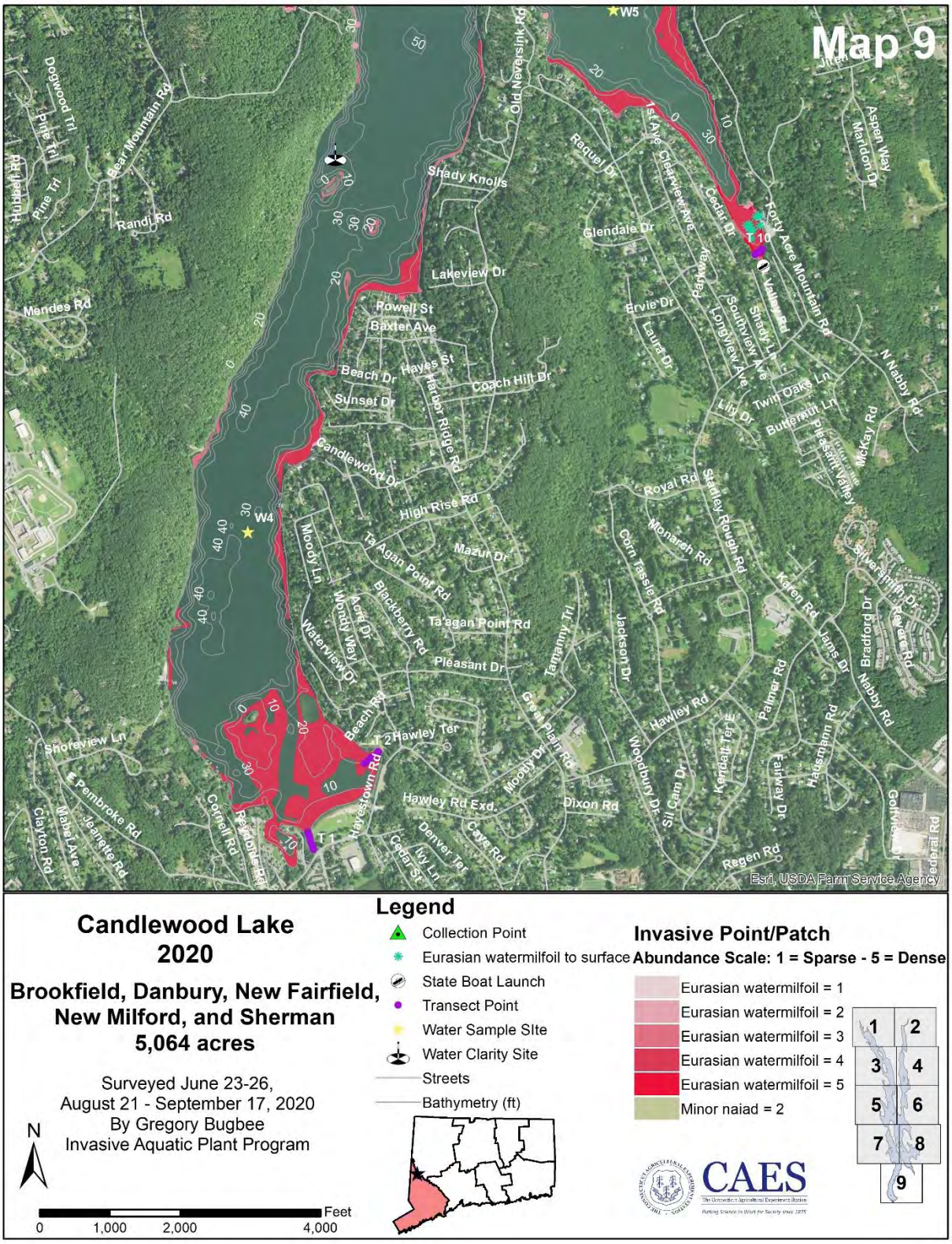
CAES
Esri, USDA Farm Service Agency


Map 9
Candlewood Lake
2020
Brookfield, Danbury, New Fairfield, New Milford, and Sherman
5,064 acres
Surveyed June 23-26,
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Invasive Aquatic Plant Program
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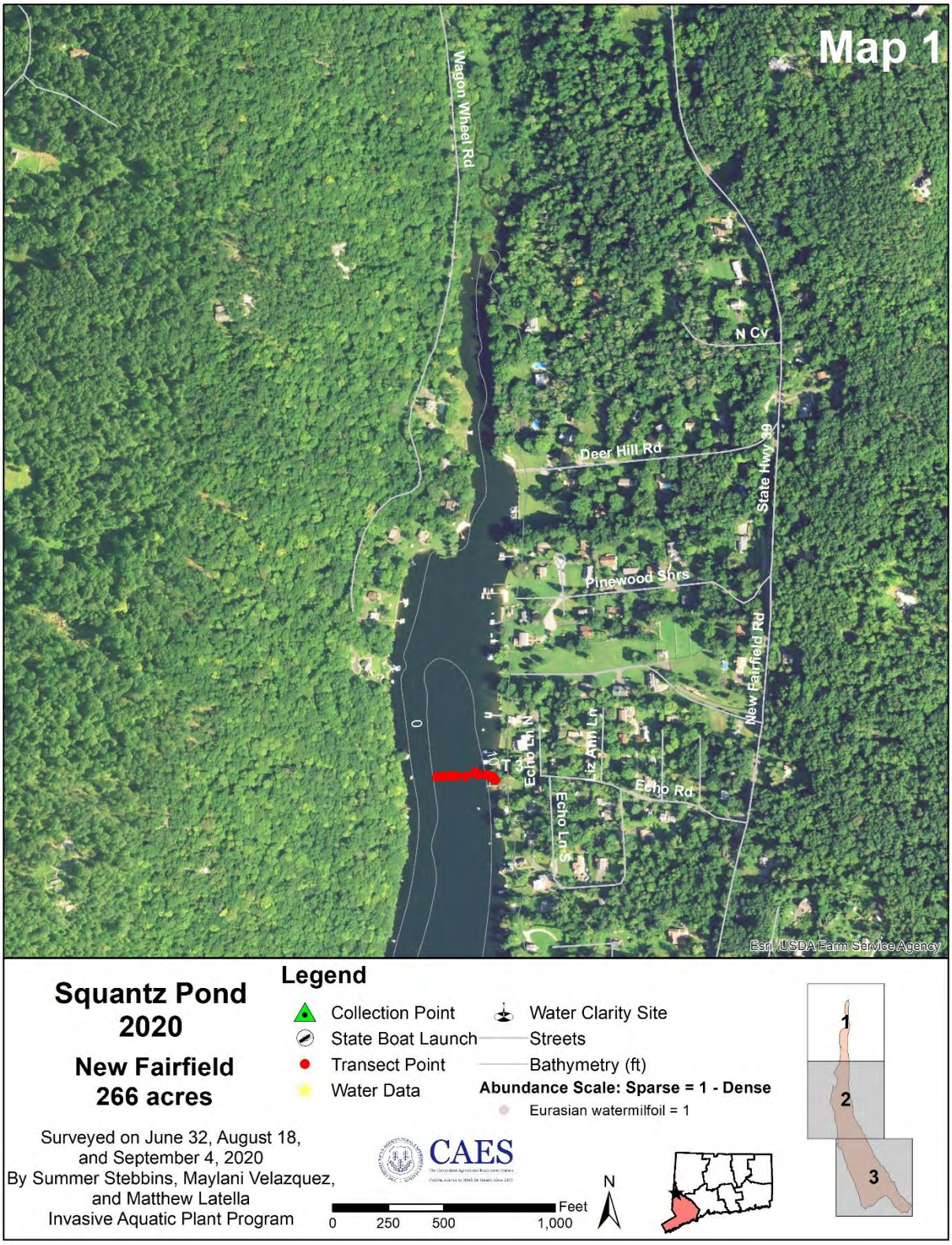
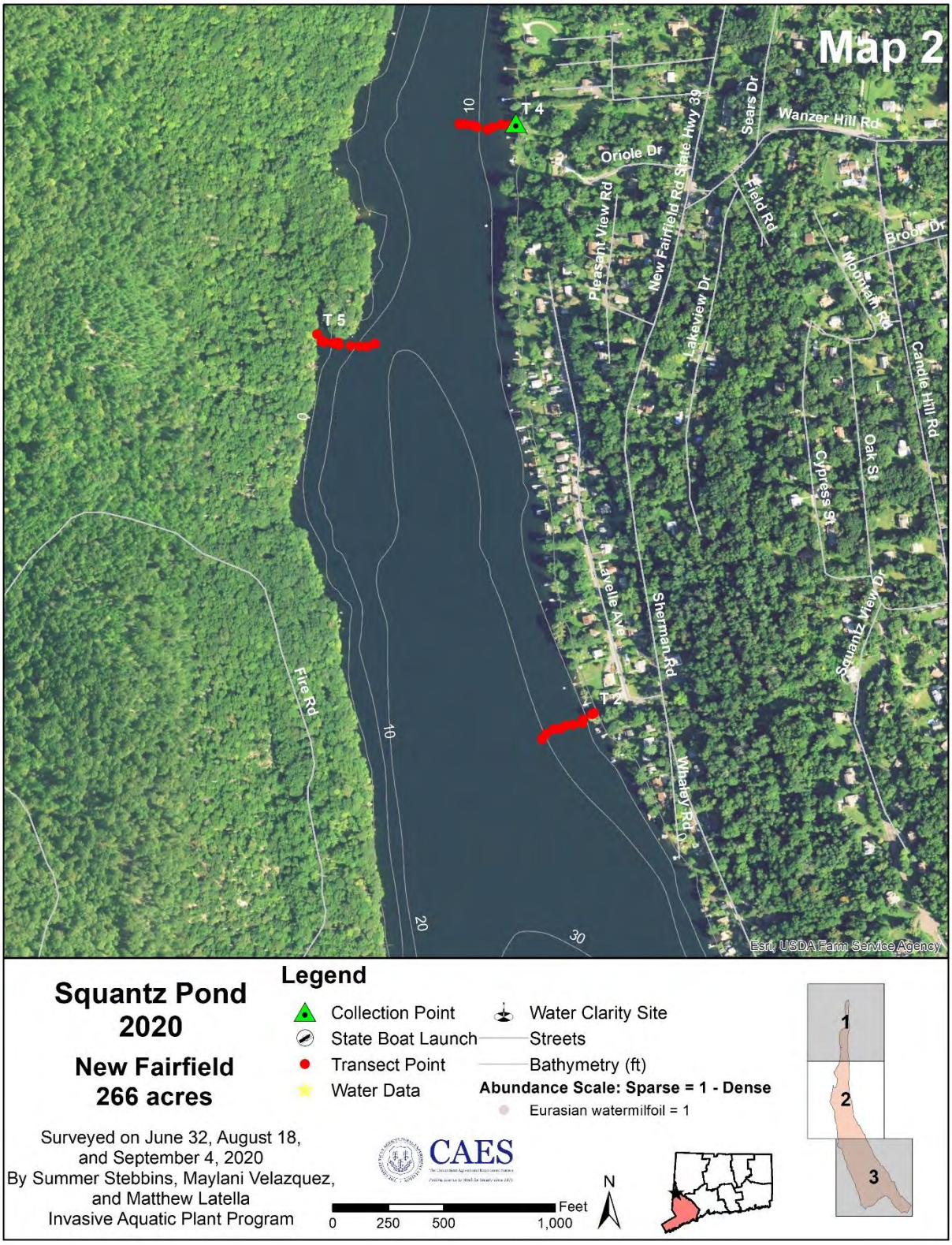
CAES
Esri, USDA Farm Service Agency

Subset Maps

Squantz Pond


Map 1
Wagon Wheel Rd
N Cv
Deer Hill Rd
State Hwy 39
Pinewood Shrs
New Fairfield Rd
Echo Ln N
Liz Ann Ln
Echo Rd
Echo Ln S
Esri, USDA Farm Service Agency
Squantz Pond
2020
New Fairfield
266 acres
Surveyed on June 32, August 18,
and September 4, 2020
By Summer Stebbins, Maylani Velazquez,
and Matthew Latella
Invasive Aquatic Plant Program
Legend
Collection Point
State Boat Launch
Transect Point
Water Data
Water Clarity Site
Streets
Bathymetry (ft)
Abundance Scale: Sparse = 1 - Dense
Eurasian watermilfoil = 1
CAES
N
Feet
0 250 500 1,000
1
2
3


Map 2
T 4
T 5
10
0
10
20
30
Oriole Dr
Sears Dr
Wanzer Hill Rd
New Fairfield Rd State Hwy 39
Pleasant View Rd
Field Rd
Brook Dr
Lakeview Dr
Monteith Rd
Candle Hill Rd
Cypress St
Oak St
Squantz View Dr
Lavelle Ave
Sherman Rd
Whaley Rd
Fire Rd
Esri, USDA Farm Service Agency
Squantz Pond
2020
New Fairfield
266 acres
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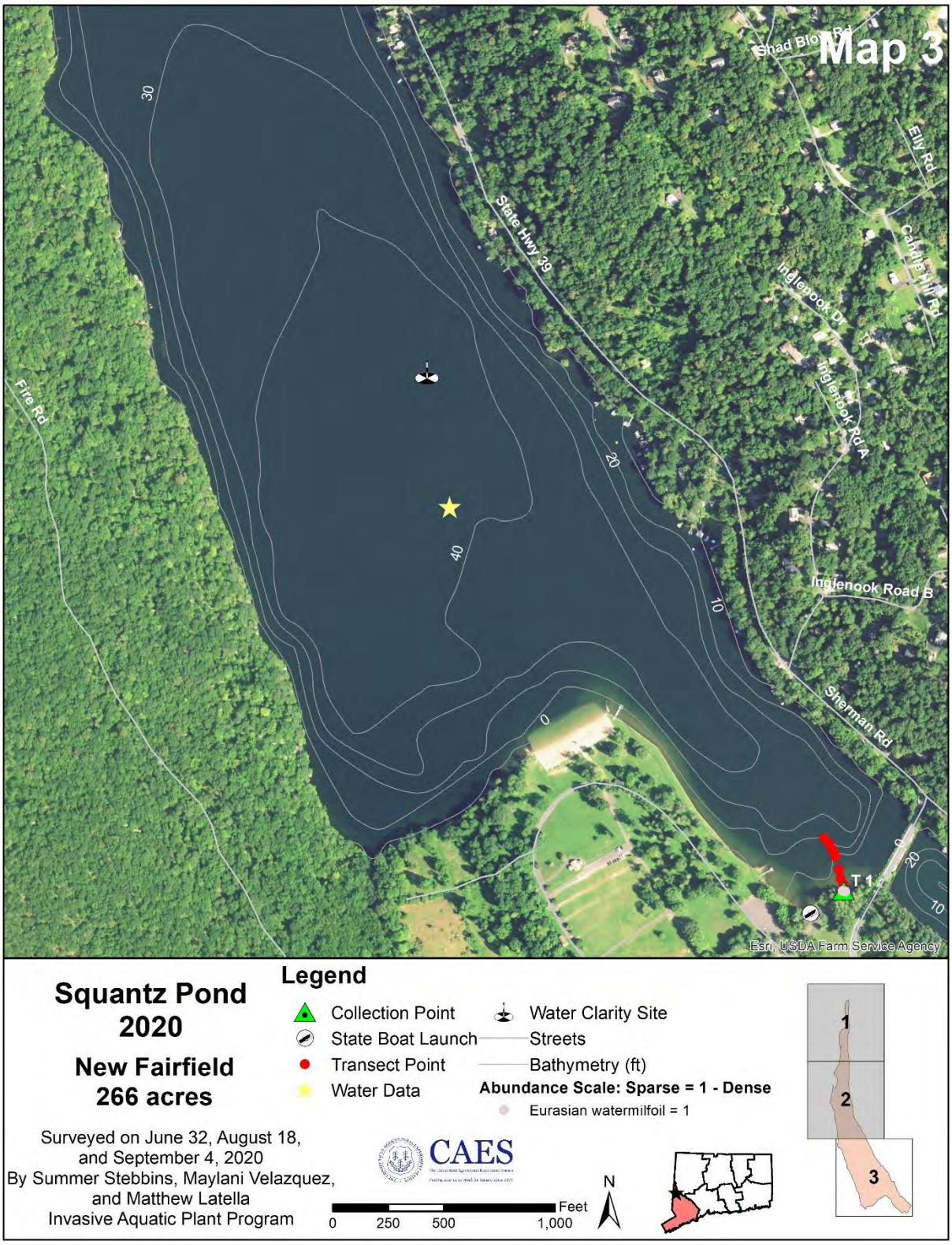
Bathymetry (ft)
Abundance Scale: Sparse = 1 - Dense
Eurasian watermilfoil = 1
CAES
N
Feet
0
250
500
1,000
1
2
3


Map 3
Shad Blow Rd
Elly Rd
State Hwy 39
Carlisle Hill Rd
Inglenook Dr
Inglenook Rd A
Fire Rd
Inglenook Road B
Sherman Rd
30
20
40
10
0
T 1
Esri, USDA Farm Service Agency
Squantz Pond
2020
New Fairfield
266 acres
Surveyed on June 32, August 18,
and September 4, 2020
By Summer Stebbins, Maylani Velazquez,
and Matthew Latella
Invasive Aquatic Plant Program
Legend
Collection Point
State Boat Launch
Transect Point
Water Data
Water Clarity Site
Streets
Bathymetry (ft)
Abundance Scale: Sparse = 1 - Dense
Eurasian watermilfoil = 1
CAES
N
Feet
0 250 500 1,000
1
2
3

Invasive Plant Descriptions

Myriophyllum spicatum


Photo by CAES IAPP

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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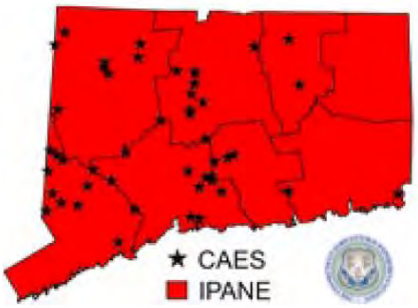
Center forAquatic and Invasive Plants

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


Photo by
CAES IAPP


Photo by CAES IAPP


Photo by
CAES IAPP



Najas minor

Common names:
Minor naiad
Brittle waternymph
Spiny leaf naiad
Eutrophic waternymph

Origin:
Europe

Key features:
Plants are submersed

Stems: Branched stems can grow up to 4-8 inches (10-20 cm) long

Leaves: Opposite and lance shaped on branched stems with easily visible toothed leaf edges and leaves appear curled under, basal lobes of leaf are also serrated, 0.01-0.02 inches (0.3-0.5 mm)

Flowers: Monoecious (male and female flowers on same plant)

Fruits/Seeds: Fruits are purple-tinged and seeds measure 0.03-0.06 inches (1.5-3 mm)

Reproduction: Seeds and fragmentation

Easily confused species:
Other naiads (native): *Najas* spp.

Potamogeton crispus

Common names:
Curly leaf pondweed
Crispy-leaved pondweed
Crisped pondweed

Origin:
Asia, Africa, and Europe

Key features:
Plants are submersed

Stems: Stems are flattened, can form dense stands in water up to 15 feet (5 m) deep

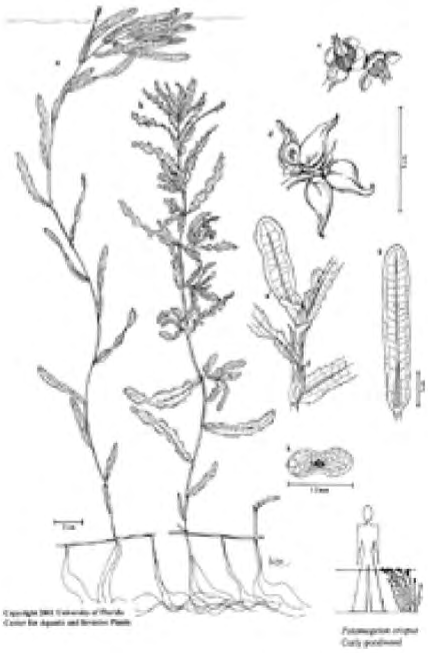
Leaves: Alternate leaves 0.3-1 inches (3-8 cm) wide with wavy edges (similar to lasagna) with a prominent mid-vein

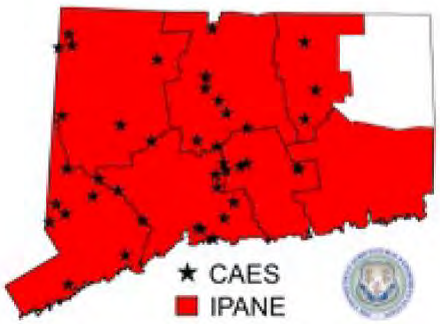
Flowers: Brown and inconspicuous

Fruits/Seeds: Fruit is oval 0.1 inches (3 mm) long

Reproduction: Turions (right) and seeds

Easily confused species:
None





Metadata

Metadata is data about data. This metadata gives background information on the content, quality, condition, legal liability, and other appropriate characteristics of the data.

Metadata

Polygons and Points of Invasive Plants

Abstract This polygon and point data is of the invasive aquatic plant locations in Candlewood Lake and Squantz Pond found during the 2020 aquatic plant surveys. The invasive aquatic plants found during the survey were *Najas minor* (minor naiad) and Myriophyllum *spicatum* (Eurasian watermilfoil). Survey boats with Trimble GPS units traveled along the outside of each invasive patch to obtain the polygons. If invasive aquatic plants species co-occurred, two separate polygons would be made, or the occurrence would be noted in the notes field. If plants covered an area of less than 1 meter in diameter a point feature was recorded. Depth was at three different locations in patches and the average depth range was assigned. For points, one depth measurement was recorded. Abundance of each species in the patch or point was ranked on a scale of 1-5 (1 = rare, a single stem; 2 = uncommon, few stems; 3 = common; 4 = abundant; 5 = extremely abundant or present at the surface).

Purpose To document and assess the invasive aquatic plant infestation on Candlewood Lake and Squantz Pond during 2020. This data will also be available to compare with future invasive aquatic plant survey data.

Access Constraints This data is public access data and can be freely distributed. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) should be clearly cited as the author in any published works. The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not intended to be used as such. The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system at the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Use Constraints No restrictions or legal prerequisites for using the data. The data is suitable for use at appropriate scale and is not intended for maps printed at scales greater or more detailed than 1:24,000 scale (1 inch = 2,000 feet). Although this data set has been used by the State of Connecticut, The Connecticut Agricultural Experiment Station, no warranty, expressed or implied, is made by the State of Connecticut, Connecticut Agricultural Experiment Station as to the accuracy of the data and or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the State of Connecticut, Connecticut Agricultural Experiment Station in the

use of these data or related materials. The user assumes the entire risk related to the use of these data. Once the data is distributed to the user, modifications made to the data by the user should be noted in the metadata. When printing this data on a map or using it in a software application, analysis, or report, please acknowledge the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) as the source for this information.

Credit Gregory J. Bugbee and Summer E. Stebbins, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Accuracy Report All aquatic plants noted in this feature were confirmed in the lab using a dichotomous key and, when possible, molecular techniques. Collection specimens of each plant can be found at The Connecticut Agricultural Experiment Station herbarium. Abundance determinations were made by the surveyor based on the abundance guidelines listed in the abstract of this metadata.

GPS Accuracy Positions were acquired by using a Trimble GeoXT® or Trimble R1 GNSS® with TerraSync 5.86(WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.85 with data from local base stations. Therefore, the average accuracy of the data is less than 1m.

Process Position data was obtained in the field using a Trimble GeoXT® or Trimble R1 GNSS® with TerraSync 5.86 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.85 with data from local base stations and then imported into ESRI ArcMap 10.8.1 for display and analysis.

Metadata

Transects

Abstract Quantitative abundance information on native and invasive aquatic plants were obtained by using the CAES IAPP transect method. We positioned transects perpendicular to the shoreline and recorded GPS location and the abundance of each plant species found within a 2 m^2 area at 0.5, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m from the shore (a total of 10 samples on each transect unless impaired by rocks, land etc.). Ten transects were established for Candlewood Lake and five transects were established for Squantz Pond. In Candlewood Lake, transects were chosen that included at least one occurrence of each native and invasive plant species found by a more thorough set of transects done by CAES IAPP in 2005. Candlewood Lake transects T2, T22, T25, T57, T52, T58, T62, T74, T86, and T105 from the CAES IAPP 2005 survey were chosen and renamed T1 - T10, respectively. These transects do not represent the overall conditions of Candlewood Lake as the frequency of native species will be over-estimated. We used the same method when selecting transects on Squantz Pond by selecting 5 of the 14 transects established in 2011. Squantz Pond transects, T1, T11, T9, T8, and T5 were chosen and renamed T1 – T5 respectively. We ranked abundance of each species, at each transect point, on a scale of 1–5 (1 = rare, a single stem; 2 = uncommon, few stems; 3 = common; 4 = abundant; 5 = extremely abundant or present at the surface). Depth was measured at each transect point.

Purpose To document and assess the native and invasive aquatic plant community in Candlewood Lake and Squantz Pond during 2020. This data will also be available to compare with future aquatic plant survey data.

Access Constraints This data is public access data and can be freely distributed. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) should be clearly cited as the author in any published works. The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not intended to be used as such. The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system at the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Use Constraints No restrictions or legal prerequisites for using the data. The data is suitable for use at appropriate scale and is not intended for maps printed at scales greater or more

detailed than 1:24,000 scale (1 inch = 2,000 feet). Although this data set has been used by the State of Connecticut, The Connecticut Agricultural Experiment Station, no warranty, expressed or implied, is made by the State of Connecticut, Connecticut Agricultural Experiment Station as to the accuracy of the data and or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the State of Connecticut, Connecticut Agricultural Experiment Station in the use of these data or related materials. The user assumes the entire risk related to the use of these data. Once the data is distributed to the user, modifications made to the data by the user should be noted in the metadata. When printing this data on a map or using it in a software application, analysis, or report, please acknowledge the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) as the source for this information.

Credit Gregory J. Bugbee and Summer E. Stebbins, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Accuracy Report All aquatic plants noted in this feature were confirmed in the lab using a dichotomous key and, when possible, molecular techniques. Abundance determinations were made by the surveyor based on the abundance guidelines listed in the abstract of this metadata.

GPS Accuracy Positions were acquired by using a Trimble GeoXT® or Trimble R1 GNSS® with TerraSync 5.86 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.85 with data from local base stations. Therefore, the average accuracy of the data is less than 1m.

Process Position data was obtained in the field using a Trimble GeoXT® or Trimble R1 GNSS® with TerraSync 5.86 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.85 with data from local base stations and then imported into ESRI ArcMap 10.8.1 for display and analysis.

Metadata

Water Testing

Abstract Water data is taken by The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) in order to document and analyze the water conditions of surveyed aquatic plants in Candlewood Lake and Squantz Pond. Five sample locations were chosen in Candlewood Lake and one location in Squantz Pond. At least one sample location is chosen in the deepest part of the lake and the other are spread out to account for diverse conditions. The depth (meters) and Secchi measurement (transparency; meters) are taken at each location, along with dissolved oxygen (mg/L) and temperature (◦C) at 0.5 meters from the surface and one-meter intervals to the bottom. Water samples are also taken at the sample location at 0.5-meter from the surface and near the water-body bottom. Water samples are assessed in the lab for conductivity (µs/cm), pH, alkalinity (expressed as mg/L $CaCO_3$), phosphorous (µg/L), and total Nitrogen (µg/L).

Purpose Water data was taken by The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) in order to document and analyze the water conditions in Candlewood Lake and Squantz Pond and correlate with surveyed aquatic plants.

Access Constraints This data is public access data and can be freely distributed. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) should be clearly cited as the author in any published works. The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not for use as such. The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system used by the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Use Constraints No restrictions or legal prerequisites for using the data. The data is suitable for use at appropriate scale and is not intended for maps printed at scales greater or more detailed than 1:24,000 scale (1 inch = 2,000 feet). Although this data set has been used by the State of Connecticut, The Connecticut Agricultural Experiment Station, no warranty, expressed or implied, is made by the State of Connecticut, Connecticut Agricultural Experiment Station as to the accuracy of the data and or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is

assumed by the State of Connecticut, Connecticut Agricultural Experiment Station in the use of these data or related materials. The user assumes the entire risk related to the use of these data. Once the data is distributed to the user, modifications made to the data by the user should be noted in the metadata. When printing this data on a map or using it in a software application, analysis, or report, please acknowledge the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) as the source for this information.

Credit Gregory J. Bugbee and Summer E. Stebbins, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Accuracy Report Secchi measurements were taken in the field with a Secchi disk with measurement markers (meters), using the same method each time. Dissolved oxygen and temperature were taken in the field with a YSI 58 meter (YSI Incorporated, Yellow Springs, Ohio, USA) that was calibrated every time it was used. Water samples were stored at 3˚ C until analyzed for pH, alkalinity, conductivity, and total phosphorus. Conductivity and pH were measured with a Fisher-Accumet AR20 meter (Fisher Scientific International Incorporated, Hampton, New Hampshire, USA), which was calibrated each time it was used. Alkalinity was quantified by titration and expressed as milligrams of $CaCO_3$ per liter (titrant was 0.08 mol/L H_2SO_4 with an end point of pH 4.5). The total phosphorus analysis was conducted on samples that were acidified with three drops of concentrated H_2SO_4 and consisted of the ascorbic acid method and potassium persulfate digestion outlined by the American Public Health Association (Standard Methods of the Examination of Water and Wastewater,1995). Phosphorus was quantified using a Milton Roy Spectronic 20D® spectrometer with a light path of 2 cm and a wavelength of 880 nm. Total Nitrogen was determined with an O-I Analytical, Model 1080 Total Organic Carbon Analyzer.

GPS Accuracy Positions were acquired by using a Trimble GeoXT® or Trimble R1 GNSS® with TerraSync 2.40 or 5.86 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.85 with data from local base stations. Therefore, the average accuracy of the data is less than 1m.

Process Description Position data was obtained in the field using a Trimble GeoXT® or Trimble R1 GNSS® with TerraSync 2.40 or 5.86 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.85 with data from local base stations and then imported into ESRI ArcMap 10.8.1for display and analysis.

Invasive Aquatic Plant Location Data

Candlewood Lake

Appendix Lake Candlewood Invasive Plant Location data (1 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
1	NajMin		Point	9/9/2020	41.52233	-73.43608	0-1	2	0.0002
2	NajMin		Point	9/9/2020	41.52232	-73.43609	0-1	2	0.0002
3	NajMin		Point	9/9/2020	41.52229	-73.43609	0-1	2	0.0002
4	NajMin		Patch	9/11/2020	41.57051	-73.48910	0-1	2	0.1256
5	NajMin		Point	9/17/2020	41.53576	-73.46587	0-1	2	0.0002
6	NajMin		Point	9/17/2020	41.53576	-73.46576	0-1	2	0.0002
7	NajMin		Point	9/17/2020	41.53308	-73.46429	0-1	2	0.0002
8	NajMin		Point	9/17/2020	41.53262	-73.46360	0-1	2	0.0002
9	NajMin		Point	9/17/2020	41.53261	-73.46358	0-1	2	0.0002
10	NajMin		Point	9/17/2020	41.53717	-73.46228	0-1	2	0.0002
11	NajMin		Point	9/17/2020	41.53742	-73.46232	0-1	2	0.0002
12	NajMin		Point	9/17/2020	41.53743	-73.46232	0-1	2	0.0002
13	NajMin		Point	9/17/2020	41.53752	-73.46230	0-1	2	0.0002
14	NajMin		Point	9/17/2020	41.53773	-73.46236	0-1	2	0.0002
15	MyrSpi		Patch	8/21/2020	41.42714	-73.45356	1-5	4	48.9526
16	MyrSpi		Patch	8/21/2020	41.42630	-73.45708	1-5	4	0.4953
17	MyrSpi		Patch	8/21/2020	41.42694	-73.45786	1-5	4	0.0451
18	MyrSpi		Patch	8/21/2020	41.42742	-73.45835	1-5	4	0.1102
19	MyrSpi		Patch	8/21/2020	41.42797	-73.45889	1-5	3	0.0883
20	MyrSpi		Patch	8/21/2020	41.43082	-73.46014	1-5	4	0.6316
21	MyrSpi		Patch	8/21/2020	41.43265	-73.45960	1-5	4	0.4888
22	MyrSpi		Patch	8/21/2020	41.43989	-73.45813	1-5	3	1.1977
23	MyrSpi		Patch	8/21/2020	41.44969	-73.45194	1-5	3	0.5849
24	MyrSpi		Patch	8/21/2020	41.45280	-73.43406	1-5	4	20.6840
25	MyrSpi		Patch	8/21/2020	41.45254	-73.43715	0-1	3	0.1388
26	MyrSpi		Patch	8/21/2020	41.45559	-73.44069	1-5	4	0.1148
27	MyrSpi		Patch	8/21/2020	41.45694	-73.44154	1-5	4	0.1509
28	MyrSpi		Patch	8/21/2020	41.45774	-73.44249	1-5	4	0.1029
29	MyrSpi		Patch	8/21/2020	41.45880	-73.44390	1-5	3	1.0932
30	MyrSpi		Patch	8/21/2020	41.45793	-73.44502	1-5	3	0.0411
31	MyrSpi		Patch	8/21/2020	41.45720	-73.44474	1-5	3	0.0876
32	MyrSpi		Patch	8/21/2020	41.45466	-73.44425	1-5	4	0.5310
33	MyrSpi		Patch	8/21/2020	41.45335	-73.44428	1-5	3	0.1264
34	MyrSpi		Patch	8/21/2020	41.45069	-73.44599	1-5	3	1.2362
35	MyrSpi		Patch	8/21/2020	41.44594	-73.44867	1-5	4	5.8798
36	MyrSpi		Patch	8/21/2020	41.44565	-73.44734	0-1	3	0.0897
37	MyrSpi		Patch	8/21/2020	41.44535	-73.44827	0-1	3	0.1465
38	MyrSpi		Patch	8/21/2020	41.44587	-73.45111	2-5	3	0.4001
39	MyrSpi		Patch	8/21/2020	41.43983	-73.45332	1-5	4	4.5595
40	MyrSpi		Patch	8/21/2020	41.44075	-73.45225	0-1	3	0.0335
41	MyrSpi		Patch	8/21/2020	41.43962	-73.45268	0-1	2	0.1080
42	MyrSpi		Patch	8/21/2020	41.43511	-73.45439	1-5	4	2.2355
43	MyrSpi		Point	8/21/2020	41.45642	-73.44089	2-3	2	0.0002
44	MyrSpi		Point	8/21/2020	41.45749	-73.44227	2-3	2	0.0002
45	MyrSpi		Point	8/21/2020	41.45753	-73.44230	2-3	2	0.0002
46	MyrSpi		Point	8/21/2020	41.45757	-73.44232	2-3	2	0.0002
47	MyrSpi		Point	8/21/2020	41.45771	-73.44495	1-3	2	0.0002
48	MyrSpi		Point	8/21/2020	41.42769	-73.45874	0-2	2	0.0002
49	MyrSpi		Patch	8/23/2020	41.47652	-73.43313	0-1	3	0.2761
50	MyrSpi		Patch	8/24/2020	41.46439	-73.45874	0-1	2	0.1589

Appendix Lake Candlewood Invasive Plant Location data (2 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
51	MyrSpi		Patch	8/24/2020	41.46587	-73.45837	1-5	3	0.0585
52	MyrSpi		Patch	8/24/2020	41.46588	-73.45882	1-5	2	0.0274
53	MyrSpi		Patch	8/24/2020	41.46471	-73.46013	1-5	3	0.0742
54	MyrSpi		Patch	8/24/2020	41.46450	-73.46045	1-5	2	0.0366
55	MyrSpi		Patch	8/24/2020	41.46406	-73.46222	1-4	3	0.2119
56	MyrSpi		Patch	8/24/2020	41.46413	-73.46247	0-1	2	0.0625
57	MyrSpi		Patch	8/24/2020	41.46562	-73.46091	2-5	4	0.1390
58	MyrSpi		Patch	8/24/2020	41.46592	-73.46061	2-4	2	0.0247
59	MyrSpi		Patch	8/24/2020	41.46692	-73.45977	2-5	4	0.1047
60	MyrSpi		Patch	8/24/2020	41.46907	-73.45706	1-5	3	5.3162
61	MyrSpi		Patch	8/24/2020	41.46625	-73.45537	1-5	3	3.7060
62	MyrSpi		Patch	8/24/2020	41.46861	-73.45887	0-1	2	0.0653
63	MyrSpi		Patch	8/24/2020	41.46891	-73.45834	0-1	2	0.0179
64	MyrSpi		Patch	8/24/2020	41.47499	-73.46099	2-4	2	0.0283
65	MyrSpi		Patch	8/24/2020	41.48197	-73.46040	1-5	3	9.6191
66	MyrSpi		Patch	8/24/2020	41.48510	-73.45925	0-1	2	0.3756
67	MyrSpi		Patch	8/24/2020	41.48304	-73.45782	2-3	3	0.0218
68	MyrSpi		Patch	8/24/2020	41.48090	-73.45749	1-5	3	0.3108
69	MyrSpi		Patch	8/24/2020	41.47446	-73.45361	1-5	3	4.9950
70	MyrSpi		Patch	8/24/2020	41.46669	-73.44942	1-5	3	1.5829
71	MyrSpi		Patch	8/24/2020	41.46624	-73.45062	1-5	3	2.0939
72	MyrSpi		Patch	8/24/2020	41.46654	-73.44212	2-5	4	1.2055
73	MyrSpi		Patch	8/24/2020	41.46272	-73.44624	2-5	3	4.5129
74	MyrSpi		Patch	8/24/2020	41.44810	-73.44973	2-5	3	0.3667
75	MyrSpi		Patch	8/24/2020	41.45412	-73.45060	2-5	3	0.2242
76	MyrSpi		Patch	8/24/2020	41.45723	-73.45383	1-5	4	2.2724
77	MyrSpi		Patch	8/24/2020	41.45690	-73.45156	1-5	2	0.9059
78	MyrSpi		Patch	8/24/2020	41.45668	-73.45418	0-1	2	0.3700
79	MyrSpi		Patch	8/24/2020	41.46421	-73.45825	1-5	3	0.8112
80	MyrSpi		Point	8/24/2020	41.45519	-73.45077	2-3	2	0.0002
81	MyrSpi		Point	8/24/2020	41.45600	-73.45067	2-3	2	0.0002
82	MyrSpi		Point	8/24/2020	41.46262	-73.45775	2-3	2	0.0002
83	MyrSpi		Point	8/24/2020	41.46549	-73.45900	2-3	2	0.0002
84	MyrSpi		Point	8/24/2020	41.46489	-73.45967	2-3	2	0.0002
85	MyrSpi		Point	8/24/2020	41.46438	-73.46219	2-3	2	0.0002
86	MyrSpi		Point	8/24/2020	41.46437	-73.46213	2-3	2	0.0002
87	MyrSpi		Point	8/24/2020	41.46437	-73.46208	2-3	2	0.0002
88	MyrSpi		Point	8/24/2020	41.46436	-73.46199	2-3	2	0.0002
89	MyrSpi		Point	8/24/2020	41.46498	-73.46153	0-1	2	0.0002
90	MyrSpi		Point	8/24/2020	41.48043	-73.45775	2-3	2	0.0002
91	MyrSpi		Patch	8/28/2020	41.48652	-73.43398	0-1	2	0.0987
92	MyrSpi		Patch	8/28/2020	41.48312	-73.43534	0-1	2	0.2349
93	MyrSpi		Patch	8/28/2020	41.48238	-73.43538	0-1	3	0.0171
94	MyrSpi		Patch	8/28/2020	41.48051	-73.43476	0-1	2	0.2710
95	MyrSpi		Patch	8/28/2020	41.47972	-73.43445	0-1	3	0.2246
96	MyrSpi		Patch	8/28/2020	41.47891	-73.43415	0-1	3	0.0060
97	MyrSpi		Patch	8/28/2020	41.47797	-73.43394	1-2	2	0.7143
98	MyrSpi		Patch	8/28/2020	41.47727	-73.43356	1-2	1	0.6033
99	MyrSpi		Patch	8/28/2020	41.47670	-73.43375	0-1	4	0.1636
100	MyrSpi		Patch	8/28/2020	41.47766	-73.43424	0-2	2	0.3545

Appendix Lake Candlewood Invasive Plant Location data (3 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
101	MyrSpi		Patch	8/28/2020	41.47831	-73.43467	0-2	5	0.0738
102	MyrSpi		Patch	8/28/2020	41.47878	-73.43491	0-2	4	0.1485
103	MyrSpi		Patch	8/28/2020	41.47930	-73.43517	0-2	4	0.0130
104	MyrSpi		Patch	8/28/2020	41.48019	-73.43572	0-2	4	0.1348
105	MyrSpi		Patch	8/28/2020	41.47968	-73.43539	0-1	5	0.1635
106	MyrSpi		Patch	8/28/2020	41.48250	-73.43683	0-1	3	0.3741
107	MyrSpi		Patch	8/28/2020	41.48342	-73.43761	0-1	2	0.3884
108	MyrSpi		Patch	8/28/2020	41.47195	-73.43656	0-1	2	0.0665
109	MyrSpi		Patch	8/28/2020	41.47246	-73.43722	0-1	4	0.3752
110	MyrSpi		Patch	8/28/2020	41.47284	-73.43784	0-1	5	0.0354
111	MyrSpi		Patch	8/28/2020	41.47314	-73.43832	0-1	3	0.1124
112	MyrSpi		Patch	8/28/2020	41.47347	-73.43849	0-1	4	0.1059
113	MyrSpi		Patch	8/28/2020	41.47390	-73.43841	0-1	2	0.2792
114	MyrSpi		Patch	8/28/2020	41.47219	-73.43531	0-1	3	0.0828
115	MyrSpi		Patch	8/28/2020	41.47204	-73.43505	0-1	2	0.0482
116	MyrSpi		Patch	8/28/2020	41.47330	-73.43783	1-3	2	0.9410
117	MyrSpi		Patch	8/28/2020	41.47376	-73.43827	1-3	1	0.2569
118	MyrSpi		Patch	8/28/2020	41.46989	-73.43008	0-1	3	0.0902
119	MyrSpi		Patch	8/28/2020	41.46872	-73.42552	0-1	3	0.1073
120	MyrSpi		Patch	8/28/2020	41.46851	-73.42514	0-1	3	0.0194
121	MyrSpi		Patch	8/28/2020	41.47310	-73.43697	0-1	3	0.6418
122	MyrSpi		Patch	8/28/2020	41.46699	-73.42415	0-1	3	0.0397
123	MyrSpi		Patch	8/28/2020	41.46678	-73.42403	0-1	4	0.1010
124	MyrSpi		Patch	8/28/2020	41.46664	-73.42390	0-1	5	0.0258
125	MyrSpi		Patch	8/28/2020	41.46680	-73.42431	0-1	3	0.0268
126	MyrSpi		Patch	8/28/2020	41.46517	-73.42446	0-1	3	1.2139
127	MyrSpi		Patch	8/28/2020	41.46338	-73.42545	0-1	3	0.2653
128	MyrSpi		Patch	8/28/2020	41.46085	-73.42785	0-1	2	1.1782
129	MyrSpi		Patch	8/28/2020	41.45949	-73.42839	0-1	3	0.3234
130	MyrSpi		Patch	8/28/2020	41.46008	-73.42914	0-1	2	0.0651
131	MyrSpi		Patch	8/28/2020	41.46903	-73.44814	1-5	4	2.3789
132	MyrSpi		Patch	8/28/2020	41.47170	-73.45031	1-5	3	0.0185
133	MyrSpi		Patch	8/28/2020	41.49003	-73.45313	1-5	3	0.0417
134	MyrSpi		Patch	8/28/2020	41.49196	-73.45601	1-5	3	1.6747
135	MyrSpi		Patch	8/28/2020	41.47247	-73.43387	1-5	4	73.5708
136	MyrSpi		Point	8/28/2020	41.47225	-73.45016	2-4	3	0.0002
137	MyrSpi		Patch	9/2/2020	41.49672	-73.46894	0-1	2	0.2266
138	MyrSpi		Patch	9/2/2020	41.49762	-73.46914	0-1	3	0.2394
139	MyrSpi		Patch	9/2/2020	41.49899	-73.46920	0-1	4	0.5057
140	MyrSpi		Patch	9/2/2020	41.50014	-73.46916	0-2	2	0.9388
141	MyrSpi		Patch	9/2/2020	41.49993	-73.46869	0-1	4	0.1160
142	MyrSpi		Patch	9/2/2020	41.49931	-73.46832	0-1	2	0.1971
143	MyrSpi		Patch	9/2/2020	41.49871	-73.46808	0-1	3	0.0735
144	MyrSpi		Patch	9/2/2020	41.49836	-73.46807	0-1	2	0.0466
145	MyrSpi		Patch	9/2/2020	41.49716	-73.46801	0-1	2	0.2892
146	MyrSpi		Patch	9/2/2020	41.50711	-73.46796	0-1	3	0.5291
147	MyrSpi		Patch	9/2/2020	41.50812	-73.46881	0-1	5	0.3213
148	MyrSpi		Patch	9/2/2020	41.50901	-73.46948	0-1	3	0.2434
149	MyrSpi		Patch	9/2/2020	41.50957	-73.46992	0-1	4	0.0860
150	MyrSpi		Patch	9/2/2020	41.50978	-73.47034	0-1	3	0.0401

Appendix Lake Candlewood Invasive Plant Location data (4 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
151	MyrSpi		Patch	9/2/2020	41.51007	-73.47070	0-1	5	0.1166
152	MyrSpi		Patch	9/2/2020	41.51099	-73.47033	0-1	5	0.0291
153	MyrSpi		Patch	9/2/2020	41.50990	-73.46896	1-5	4	1.0417
154	MyrSpi		Patch	9/2/2020	41.51013	-73.46903	0-1	2	0.3169
155	MyrSpi		Patch	9/2/2020	41.50754	-73.46575	1-5	3	1.3266
156	MyrSpi		Patch	9/2/2020	41.50890	-73.46738	0-1	2	0.0121
157	MyrSpi		Patch	9/2/2020	41.50866	-73.46680	0-1	3	0.0349
158	MyrSpi		Patch	9/2/2020	41.50810	-73.46618	0-1	3	0.0596
159	MyrSpi		Patch	9/2/2020	41.50524	-73.46316	1-5	3	0.4390
160	MyrSpi		Patch	9/2/2020	41.50418	-73.46219	1-5	3	0.1539
161	MyrSpi		Patch	9/2/2020	41.50254	-73.46000	1-5	4	3.3718
162	MyrSpi		Patch	9/2/2020	41.50819	-73.45983	1-5	4	3.7691
163	MyrSpi		Patch	9/2/2020	41.51077	-73.46232	1-5	3	0.0637
164	MyrSpi		Patch	9/2/2020	41.51990	-73.46294	1-5	4	20.7419
165	MyrSpi		Patch	9/2/2020	41.51943	-73.46513	0-1	2	0.1973
166	MyrSpi		Patch	9/2/2020	41.52110	-73.46597	0-1	2	0.2963
167	MyrSpi		Patch	9/2/2020	41.52179	-73.46612	0-1	3	0.2195
168	MyrSpi		Patch	9/2/2020	41.52307	-73.46517	0-1	3	0.3618
169	MyrSpi		Patch	9/2/2020	41.52360	-73.46584	0-1	2	0.3852
170	MyrSpi		Patch	9/2/2020	41.48836	-73.46181	1-5	4	10.2127
171	MyrSpi		Patch	9/2/2020	41.48636	-73.45909	0-1	3	0.1346
172	MyrSpi		Patch	9/2/2020	41.48602	-73.45990	0-2	5	0.8261
173	MyrSpi		Patch	9/2/2020	41.56135	-73.44441	0-1	2	0.0837
174	MyrSpi		Patch	9/2/2020	41.48744	-73.46317	0-1	2	0.1360
175	MyrSpi		Patch	9/2/2020	41.49428	-73.46815	1-5	2	0.5566
176	MyrSpi		Patch	9/2/2020	41.50051	-73.46631	1-5	2	16.1797
177	MyrSpi		Point	9/2/2020	41.48726	-73.46169	0-1	2	0.0002
178	MyrSpi		Point	9/2/2020	41.48732	-73.46212	0-1	2	0.0002
179	MyrSpi		Point	9/2/2020	41.48733	-73.46215	0-1	2	0.0002
180	MyrSpi		Point	9/2/2020	41.48733	-73.46261	0-1	2	0.0002
181	MyrSpi		Point	9/2/2020	41.48734	-73.46273	0-1	2	0.0002
182	MyrSpi		Point	9/2/2020	41.48734	-73.46277	0-1	2	0.0002
183	MyrSpi		Point	9/2/2020	41.48823	-73.46399	0-1	2	0.0002
184	MyrSpi		Point	9/2/2020	41.49330	-73.46746	1-3	2	0.0002
185	MyrSpi		Patch	9/3/2020	41.47698	-73.44952	1-5	4	1.5557
186	MyrSpi		Patch	9/3/2020	41.47633	-73.44829	1-5	4	0.2454
187	MyrSpi		Patch	9/3/2020	41.47450	-73.44745	2-4	3	0.1347
188	MyrSpi		Patch	9/3/2020	41.47367	-73.44830	1-5	3	1.0948
189	MyrSpi		Patch	9/3/2020	41.47208	-73.44714	1-5	3	0.4800
190	MyrSpi		Patch	9/3/2020	41.47165	-73.44534	1-5	3	1.9045
191	MyrSpi		Patch	9/3/2020	41.47402	-73.44648	1-5	3	0.0127
192	MyrSpi		Patch	9/3/2020	41.50398	-73.44157	1-5	4	12.5730
193	MyrSpi		Patch	9/3/2020	41.50368	-73.44103	0-1	2	0.2631
194	MyrSpi		Patch	9/3/2020	41.50304	-73.44016	0-1	2	0.0385
195	MyrSpi		Patch	9/3/2020	41.50274	-73.43976	0-1	3	0.0664
196	MyrSpi		Patch	9/3/2020	41.50269	-73.43903	0-1	2	0.2321
197	MyrSpi		Patch	9/3/2020	41.50290	-73.43803	0-1	3	0.1202
198	MyrSpi		Patch	9/3/2020	41.49734	-73.45379	1-5	3	0.6596
199	MyrSpi		Patch	9/3/2020	41.51456	-73.45947	3-5	4	0.2643
200	MyrSpi		Patch	9/3/2020	41.52396	-73.46632	0-1	3	0.0668

Appendix Lake Candlewood Invasive Plant Location data (5 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
201	MyrSpi		Patch	9/3/2020	41.52443	-73.46629	0-1	2	0.0535
202	MyrSpi		Patch	9/3/2020	41.52500	-73.46607	0-1	2	0.1732
203	MyrSpi		Patch	9/3/2020	41.52567	-73.46605	0-1	4	0.0882
204	MyrSpi		Patch	9/3/2020	41.52618	-73.46487	0-1	4	0.0842
205	MyrSpi		Patch	9/3/2020	41.52599	-73.46446	0-1	5	0.0678
206	MyrSpi		Patch	9/3/2020	41.52576	-73.46424	0-1	2	0.0407
207	MyrSpi		Patch	9/3/2020	41.52520	-73.46445	0-1	1	0.1058
208	MyrSpi		Patch	9/3/2020	41.52464	-73.46456	0-1	3	0.2089
209	MyrSpi		Patch	9/3/2020	41.52389	-73.46436	0-1	2	0.1771
210	MyrSpi		Patch	9/3/2020	41.52311	-73.46421	0-1	2	0.2474
211	MyrSpi		Patch	9/3/2020	41.52229	-73.46410	0-1	4	0.0931
212	MyrSpi		Patch	9/3/2020	41.52188	-73.46396	0-1	2	0.0699
213	MyrSpi		Patch	9/3/2020	41.52276	-73.46024	0-1	2	0.4065
214	MyrSpi		Patch	9/3/2020	41.50543	-73.45360	1-5	4	25.5423
215	MyrSpi		Patch	9/3/2020	41.49351	-73.44548	3-5	4	1.3091
216	MyrSpi		Patch	9/3/2020	41.49649	-73.44626	1-5	4	2.9767
217	MyrSpi		Patch	9/3/2020	41.49727	-73.44661	0-1	2	0.0919
218	MyrSpi		Point	9/3/2020	41.50416	-73.45276	0-1	1	0.0002
219	MyrSpi		Point	9/3/2020	41.50354	-73.45237	0-1	1	0.0002
220	MyrSpi		Point	9/3/2020	41.50343	-73.45225	0-1	1	0.0002
221	MyrSpi		Point	9/3/2020	41.50323	-73.45214	0-1	1	0.0002
222	MyrSpi		Point	9/3/2020	41.50314	-73.45202	0-1	1	0.0002
223	MyrSpi		Point	9/3/2020	41.50302	-73.45194	0-1	1	0.0002
224	MyrSpi		Point	9/3/2020	41.50296	-73.45188	0-1	1	0.0002
225	MyrSpi		Point	9/3/2020	41.50283	-73.45180	0-1	1	0.0002
226	MyrSpi		Point	9/3/2020	41.50259	-73.45173	0-1	1	0.0002
227	MyrSpi		Point	9/3/2020	41.50248	-73.45169	0-1	1	0.0002
228	MyrSpi		Point	9/3/2020	41.50226	-73.45160	0-1	1	0.0002
229	MyrSpi		Point	9/3/2020	41.50222	-73.45158	0-1	1	0.0002
230	MyrSpi		Point	9/3/2020	41.50210	-73.45160	0-1	1	0.0002
231	MyrSpi		Point	9/3/2020	41.50194	-73.45169	0-1	1	0.0002
232	MyrSpi		Point	9/3/2020	41.50108	-73.45134	0-1	1	0.0002
233	MyrSpi		Point	9/3/2020	41.50100	-73.45120	0-1	1	0.0002
234	MyrSpi		Point	9/3/2020	41.50096	-73.45110	0-1	1	0.0002
235	MyrSpi		Point	9/3/2020	41.50091	-73.45100	0-1	1	0.0002
236	MyrSpi		Point	9/3/2020	41.50079	-73.45086	0-1	1	0.0002
237	MyrSpi		Point	9/3/2020	41.50069	-73.45073	0-1	1	0.0002
238	MyrSpi		Point	9/3/2020	41.50060	-73.45068	0-1	1	0.0002
239	MyrSpi		Point	9/3/2020	41.50014	-73.45043	0-1	1	0.0002
240	MyrSpi		Point	9/3/2020	41.49998	-73.45037	0-1	1	0.0002
241	MyrSpi		Point	9/3/2020	41.47221	-73.44692	0-1	1	0.0002
242	MyrSpi		Point	9/3/2020	41.47219	-73.44687	0-1	2	0.0002
243	MyrSpi		Patch	9/8/2020	41.53390	-73.44783	2-4	4	0.8070
244	MyrSpi		Patch	9/8/2020	41.53173	-73.44816	2-4	3	0.2919
245	MyrSpi		Patch	9/8/2020	41.53058	-73.44785	2-4	3	0.1492
246	MyrSpi		Patch	9/8/2020	41.52906	-73.44706	2-4	3	0.3962
247	MyrSpi		Patch	9/8/2020	41.52721	-73.44635	2-4	4	0.0927
248	MyrSpi		Patch	9/8/2020	41.52609	-73.44601	2-4	4	0.1273
249	MyrSpi		Patch	9/8/2020	41.52786	-73.44246	1-5	4	10.7227
250	MyrSpi		Patch	9/8/2020	41.53528	-73.44050	1-5	4	10.9830

Appendix Lake Candlewood Invasive Plant Location data (6 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
251	MyrSpi		Patch	9/8/2020	41.52395	-73.43840	2-5	4	0.2599
252	MyrSpi		Patch	9/8/2020	41.52276	-73.43808	1-5	4	0.0956
253	MyrSpi		Patch	9/8/2020	41.52218	-73.43759	1-5	4	1.1525
254	MyrSpi		Patch	9/8/2020	41.52381	-73.43735	1-5	4	0.0740
255	MyrSpi		Patch	9/8/2020	41.52256	-73.43759	0-1	3	0.0414
256	MyrSpi		Patch	9/8/2020	41.52284	-73.43794	0-1	3	0.0153
257	MyrSpi		Patch	9/8/2020	41.53551	-73.43884	0-2	5	0.1773
258	MyrSpi		Patch	9/8/2020	41.54343	-73.44292	0-1	3	0.0576
259	MyrSpi		Patch	9/8/2020	41.54852	-73.44315	1-5	3	0.2163
260	MyrSpi		Patch	9/8/2020	41.55080	-73.44395	1-5	3	0.6138
261	MyrSpi		Patch	9/8/2020	41.55205	-73.44183	1-5	4	2.9040
262	MyrSpi		Patch	9/8/2020	41.55189	-73.44157	1-5	5	0.1837
263	MyrSpi		Patch	9/8/2020	41.55066	-73.44066	0-1	2	0.1644
264	MyrSpi		Patch	9/8/2020	41.55377	-73.43966	1-5	3	0.4292
265	MyrSpi		Patch	9/8/2020	41.55607	-73.43960	1-5	3	0.0225
266	MyrSpi		Patch	9/8/2020	41.55689	-73.43963	1-5	3	0.0460
267	MyrSpi		Patch	9/8/2020	41.55791	-73.43977	1-5	2	0.0184
268	MyrSpi		Patch	9/8/2020	41.56592	-73.44166	1-5	4	7.9165
269	MyrSpi		Patch	9/8/2020	41.57151	-73.44283	0-2	5	0.0816
270	MyrSpi		Patch	9/8/2020	41.57249	-73.44415	1-5	4	0.9793
271	MyrSpi		Patch	9/8/2020	41.57191	-73.44280	0-1	2	0.0660
272	MyrSpi		Patch	9/8/2020	41.57153	-73.44277	0-1	5	0.0220
273	MyrSpi		Patch	9/8/2020	41.57087	-73.44278	0-1	2	0.0385
274	MyrSpi		Patch	9/8/2020	41.57235	-73.44591	2-5	3	0.0203
275	MyrSpi		Patch	9/8/2020	41.56860	-73.44554	2-5	3	0.4559
276	MyrSpi		Patch	9/8/2020	41.56271	-73.44444	1-5	4	5.6631
277	MyrSpi		Patch	9/8/2020	41.56648	-73.44522	0-1	3	0.3496
278	MyrSpi		Patch	9/8/2020	41.56590	-73.44501	0-1	2	0.0552
279	MyrSpi		Patch	9/8/2020	41.56518	-73.44514	0-1	3	0.1115
280	MyrSpi		Patch	9/8/2020	41.56299	-73.44490	0-1	2	0.0322
281	MyrSpi		Patch	9/8/2020	41.56232	-73.44473	0-1	2	0.0111
282	MyrSpi		Patch	9/8/2020	41.56183	-73.44452	0-1	2	0.0273
283	MyrSpi		Patch	9/8/2020	41.56090	-73.44438	0-1	3	0.0108
284	MyrSpi		Patch	9/8/2020	41.55960	-73.44414	0-1	2	0.0250
285	MyrSpi		Patch	9/8/2020	41.55917	-73.44392	0-1	2	0.0168
286	MyrSpi		Patch	9/8/2020	41.55853	-73.44363	2-5	2	0.1572
287	MyrSpi		Patch	9/8/2020	41.55689	-73.44395	1-5	3	0.3609
288	MyrSpi		Patch	9/8/2020	41.55389	-73.44501	1-5	4	1.4949
289	MyrSpi		Patch	9/8/2020	41.55462	-73.44488	2-3	5	0.0589
290	MyrSpi		Patch	9/8/2020	41.55276	-73.44548	0-1	2	0.0426
291	MyrSpi		Patch	9/8/2020	41.55257	-73.44539	0-1	2	0.0033
292	MyrSpi		Patch	9/8/2020	41.54739	-73.44701	1-5	4	5.8590
293	MyrSpi		Patch	9/8/2020	41.54440	-73.44829	0-1	3	0.1479
294	MyrSpi		Patch	9/8/2020	41.54507	-73.44775	0-1	2	0.3352
295	MyrSpi		Patch	9/8/2020	41.54673	-73.44746	0-1	2	0.1294
296	MyrSpi		Patch	9/8/2020	41.54776	-73.44740	0-1	2	0.0941
297	MyrSpi		Patch	9/8/2020	41.54903	-73.44759	0-1	2	0.0304
298	MyrSpi		Patch	9/8/2020	41.54915	-73.44733	0-1	4	0.0300
299	MyrSpi		Patch	9/8/2020	41.54931	-73.44686	0-1	2	0.0132
300	MyrSpi		Patch	9/8/2020	41.55020	-73.44623	0-1	3	0.4180

Appendix Lake Candlewood Invasive Plant Location data (7 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
301	MyrSpi		Patch	9/8/2020	41.54019	-73.44676	2-4	2	0.0566
302	MyrSpi		Patch	9/8/2020	41.53831	-73.44685	2-4	3	0.1142
303	MyrSpi		Patch	9/8/2020	41.53755	-73.44723	2-4	3	0.1421
304	MyrSpi		Patch	9/8/2020	41.53614	-73.44730	2-4	3	0.0194
305	MyrSpi		Point	9/8/2020	41.56857	-73.44561	0-2	2	0.0002
306	MyrSpi		Point	9/8/2020	41.56856	-73.44560	0-2	2	0.0002
307	MyrSpi		Point	9/8/2020	41.56851	-73.44557	0-2	2	0.0002
308	MyrSpi		Point	9/8/2020	41.56848	-73.44555	0-2	2	0.0002
309	MyrSpi		Point	9/8/2020	41.56842	-73.44553	0-2	2	0.0002
310	MyrSpi		Point	9/8/2020	41.52356	-73.43735	2-3	2	0.0002
311	MyrSpi		Point	9/8/2020	41.55256	-73.43960	2-3	2	0.0002
312	MyrSpi		Point	9/8/2020	41.55279	-73.43953	2-3	2	0.0002
313	MyrSpi		Point	9/8/2020	41.55547	-73.43955	2-3	2	0.0002
314	MyrSpi		Point	9/8/2020	41.55596	-73.43960	2-3	2	0.0002
315	MyrSpi		Point	9/8/2020	41.55719	-73.43966	2-3	4	0.0002
316	MyrSpi		Patch	9/9/2020	41.51436	-73.45340	1-5	4	0.7315
317	MyrSpi		Patch	9/9/2020	41.51417	-73.45369	0-1	3	0.0610
318	MyrSpi		Patch	9/9/2020	41.51395	-73.45338	0-1	5	0.2107
319	MyrSpi		Patch	9/9/2020	41.51511	-73.45297	1-5	4	0.0223
320	MyrSpi		Patch	9/9/2020	41.51546	-73.45294	1-4	3	0.0220
321	MyrSpi		Patch	9/9/2020	41.52909	-73.45399	1-5	4	3.3342
322	MyrSpi		Patch	9/9/2020	41.53111	-73.45433	0-1	1	0.0865
323	MyrSpi		Patch	9/9/2020	41.53272	-73.45474	1-5	4	1.1482
324	MyrSpi		Patch	9/9/2020	41.53246	-73.45440	0-1	2	0.0999
325	MyrSpi		Patch	9/9/2020	41.53417	-73.45506	2-4	3	0.0223
326	MyrSpi		Patch	9/9/2020	41.53491	-73.45560	2-4	4	0.0359
327	MyrSpi		Patch	9/9/2020	41.53656	-73.45601	2-4	4	0.0497
328	MyrSpi		Patch	9/9/2020	41.53903	-73.45689	2-4	4	0.0440
329	MyrSpi		Patch	9/9/2020	41.53965	-73.45716	2-4	4	0.0445
330	MyrSpi		Patch	9/9/2020	41.53985	-73.45717	2-4	4	0.0174
331	MyrSpi		Patch	9/9/2020	41.54004	-73.45729	2-4	4	0.0290
332	MyrSpi		Patch	9/9/2020	41.54060	-73.45751	2-4	4	0.0602
333	MyrSpi		Patch	9/9/2020	41.54128	-73.45782	2-4	3	0.0252
334	MyrSpi		Patch	9/9/2020	41.54254	-73.45848	2-4	3	0.1161
335	MyrSpi		Patch	9/9/2020	41.54326	-73.45889	2-4	3	0.0933
336	MyrSpi		Patch	9/9/2020	41.54462	-73.46132	1-5	4	1.2194
337	MyrSpi		Patch	9/9/2020	41.54517	-73.46203	0-1	2	0.1336
338	MyrSpi		Patch	9/9/2020	41.54648	-73.46378	1-5	4	1.3202
339	MyrSpi		Patch	9/9/2020	41.54949	-73.46432	1-5	4	0.3584
340	MyrSpi		Patch	9/9/2020	41.55136	-73.46572	1-5	3	0.1244
341	MyrSpi		Patch	9/9/2020	41.55194	-73.46606	1-5	3	0.0120
342	MyrSpi		Patch	9/9/2020	41.55233	-73.46624	1-5	3	0.0419
343	MyrSpi		Patch	9/9/2020	41.55328	-73.46684	1-5	3	0.1044
344	MyrSpi		Patch	9/9/2020	41.55365	-73.47111	1-5	4	0.5058
345	MyrSpi		Patch	9/9/2020	41.55423	-73.46766	1-3	5	0.2002
346	MyrSpi		Patch	9/9/2020	41.55392	-73.46972	1-3	5	0.0905
347	MyrSpi		Patch	9/9/2020	41.55394	-73.47124	0-1	2	0.1102
348	MyrSpi		Patch	9/9/2020	41.55457	-73.47211	1-5	3	0.0719
349	MyrSpi		Patch	9/9/2020	41.55525	-73.47243	0-1	3	0.0700
350	MyrSpi		Patch	9/9/2020	41.49821	-73.44550	2-5	2	0.0785

Appendix Lake Candlewood Invasive Plant Location data (8 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
351	MyrSpi		Patch	9/9/2020	41.49966	-73.44526	2-5	2	0.0482
352	MyrSpi		Patch	9/9/2020	41.50044	-73.44516	2-5	2	0.0592
353	MyrSpi		Patch	9/9/2020	41.50204	-73.44502	2-5	3	0.3779
354	MyrSpi		Patch	9/9/2020	41.50321	-73.44553	2-5	3	0.0866
355	MyrSpi		Patch	9/9/2020	41.50353	-73.44562	2-5	3	0.0567
356	MyrSpi		Patch	9/9/2020	41.50464	-73.44499	1-5	3	1.0882
357	MyrSpi		Patch	9/9/2020	41.50744	-73.44540	2-5	3	0.2203
358	MyrSpi		Patch	9/9/2020	41.50803	-73.44584	2-5	3	0.0226
359	MyrSpi		Patch	9/9/2020	41.50946	-73.44584	2-5	2	0.0684
360	MyrSpi		Patch	9/9/2020	41.51058	-73.44542	2-5	3	0.1199
361	MyrSpi		Patch	9/9/2020	41.51135	-73.44507	2-5	3	0.1300
362	MyrSpi		Patch	9/9/2020	41.51203	-73.44481	2-5	3	0.1410
363	MyrSpi		Patch	9/9/2020	41.51840	-73.44543	2-5	3	0.1158
364	MyrSpi		Patch	9/9/2020	41.52024	-73.44602	2-5	3	0.0387
365	MyrSpi		Patch	9/9/2020	41.52074	-73.44637	2-5	3	0.0572
366	MyrSpi		Patch	9/9/2020	41.52318	-73.44623	1-5	4	2.8684
367	MyrSpi		Patch	9/9/2020	41.52399	-73.44611	0-1	1	0.4262
368	MyrSpi		Patch	9/9/2020	41.52691	-73.43777	1-5	3	0.1186
369	MyrSpi		Patch	9/9/2020	41.52679	-73.43790	0-1	3	0.0436
370	MyrSpi		Patch	9/9/2020	41.52759	-73.43713	1-5	4	0.1226
371	MyrSpi		Patch	9/9/2020	41.52542	-73.43664	0-2	2	0.0723
372	MyrSpi		Patch	9/9/2020	41.52404	-73.43641	2-4	2	0.0162
373	MyrSpi		Patch	9/9/2020	41.52363	-73.43645	2-5	2	0.0149
374	MyrSpi		Patch	9/9/2020	41.52273	-73.43622	1-5	4	0.0471
375	MyrSpi		Patch	9/9/2020	41.52270	-73.43615	0-1	2	0.0046
376	MyrSpi		Patch	9/9/2020	41.52221	-73.43615	1-5	4	0.0376
377	MyrSpi		Patch	9/9/2020	41.52213	-73.43570	1-5	4	0.1633
378	MyrSpi		Patch	9/9/2020	41.52212	-73.43558	0-1	2	0.0036
379	MyrSpi		Patch	9/9/2020	41.52236	-73.43563	0-2	5	0.1639
380	MyrSpi		Patch	9/9/2020	41.51969	-73.43600	1-5	4	3.2415
381	MyrSpi		Patch	9/9/2020	41.51949	-73.43513	0-2	5	0.1722
382	MyrSpi		Patch	9/9/2020	41.51848	-73.43674	0-2	5	0.0737
383	MyrSpi		Patch	9/9/2020	41.51871	-73.43726	0-2	5	0.1649
384	MyrSpi		Patch	9/9/2020	41.51865	-73.43735	0-1	2	0.0265
385	MyrSpi		Patch	9/9/2020	41.51459	-73.44019	1-5	4	7.9012
386	MyrSpi		Patch	9/9/2020	41.51591	-73.44041	0-1	2	0.4727
387	MyrSpi		Patch	9/9/2020	41.51367	-73.44051	0-1	3	0.3451
388	MyrSpi		Patch	9/9/2020	41.51380	-73.43977	0-1	4	0.1787
389	MyrSpi		Patch	9/9/2020	41.51357	-73.43947	0-1	3	0.1792
390	MyrSpi		Patch	9/9/2020	41.50707	-73.43846	1-5	4	1.1099
391	MyrSpi		Patch	9/9/2020	41.50679	-73.43825	0-1	3	0.0295
392	MyrSpi		Point	9/9/2020	41.49854	-73.44552	2-4	3	0.0002
393	MyrSpi		Point	9/9/2020	41.49869	-73.44543	2-4	3	0.0002
394	MyrSpi		Point	9/9/2020	41.49881	-73.44542	2-4	3	0.0002
395	MyrSpi		Point	9/9/2020	41.49884	-73.44541	2-4	3	0.0002
396	MyrSpi		Point	9/9/2020	41.49891	-73.44539	2-4	2	0.0002
397	MyrSpi		Point	9/9/2020	41.50369	-73.44566	1-3	2	0.0002
398	MyrSpi		Point	9/9/2020	41.51767	-73.44562	3-5	2	0.0002
399	MyrSpi		Point	9/9/2020	41.52724	-73.43752	0-1	2	0.0002
400	MyrSpi		Point	9/9/2020	41.52724	-73.43754	0-1	2	0.0002

Appendix Lake Candlewood Invasive Plant Location data (9 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
401	MyrSpi		Point	9/9/2020	41.52720	-73.43756	0-1	2	0.0002
402	MyrSpi		Point	9/9/2020	41.52170	-73.43565	2-3	2	0.0002
403	MyrSpi		Point	9/9/2020	41.53474	-73.45543	2-4	3	0.0002
404	MyrSpi		Point	9/9/2020	41.54588	-73.46380	1-3	3	0.0002
405	MyrSpi		Point	9/9/2020	41.54594	-73.46377	1-3	3	0.0002
406	MyrSpi		Point	9/9/2020	41.55051	-73.46512	2-4	2	0.0002
407	MyrSpi		Point	9/9/2020	41.55057	-73.46520	2-4	2	0.0002
408	MyrSpi		Patch	9/11/2020	41.56997	-73.48872	0-1	5	0.0913
409	MyrSpi		Patch	9/11/2020	41.57015	-73.48848	0-1	2	0.0783
410	MyrSpi		Patch	9/11/2020	41.57093	-73.48838	0-1	2	0.0781
411	MyrSpi		Patch	9/11/2020	41.57096	-73.48866	0-1	5	0.0111
412	MyrSpi		Patch	9/11/2020	41.57050	-73.48909	0-1	2	0.1520
413	MyrSpi		Patch	9/11/2020	41.57021	-73.48919	1-3	5	0.0607
414	MyrSpi		Patch	9/11/2020	41.57074	-73.49033	0-1	2	0.0078
415	MyrSpi		Patch	9/11/2020	41.57218	-73.49052	0-2	2	0.0991
416	MyrSpi		Patch	9/11/2020	41.57260	-73.49075	0-1	3	0.0741
417	MyrSpi		Patch	9/11/2020	41.57300	-73.49104	0-1	3	0.0430
418	MyrSpi		Patch	9/11/2020	41.57335	-73.49123	0-1	3	0.0451
419	MyrSpi		Patch	9/11/2020	41.57370	-73.49144	0-1	2	0.0555
420	MyrSpi		Patch	9/11/2020	41.57279	-73.49172	0-1	5	0.0261
421	MyrSpi		Patch	9/11/2020	41.57250	-73.49176	0-1	5	0.0151
422	MyrSpi		Patch	9/11/2020	41.57205	-73.49196	0-1	5	0.0079
423	MyrSpi		Patch	9/11/2020	41.57161	-73.49225	0-1	5	0.0156
424	MyrSpi		Patch	9/11/2020	41.57041	-73.49149	0-1	5	0.0170
425	MyrSpi		Patch	9/11/2020	41.57029	-73.49130	0-1	5	0.0165
426	MyrSpi		Patch	9/11/2020	41.56995	-73.49109	0-1	5	0.0226
427	MyrSpi		Patch	9/11/2020	41.56795	-73.48860	1-5	2	0.3543
428	MyrSpi		Patch	9/11/2020	41.56621	-73.48805	1-5	4	0.8380
429	MyrSpi		Patch	9/11/2020	41.56646	-73.48792	0-1	2	0.0184
430	MyrSpi		Patch	9/11/2020	41.56611	-73.48776	0-1	3	0.0286
431	MyrSpi		Patch	9/11/2020	41.56810	-73.48382	1-5	4	7.1335
432	MyrSpi		Patch	9/11/2020	41.56673	-73.48721	0-1	1	0.3112
433	MyrSpi		Patch	9/11/2020	41.56760	-73.48589	0-1	2	0.2046
434	MyrSpi		Patch	9/11/2020	41.56865	-73.48340	0-2	5	0.0361
435	MyrSpi		Patch	9/11/2020	41.56991	-73.48384	0-1	5	0.3921
436	MyrSpi		Patch	9/11/2020	41.57110	-73.48407	0-1	3	0.2273
437	MyrSpi		Patch	9/11/2020	41.57055	-73.48419	0-1	4	0.0272
438	MyrSpi		Patch	9/11/2020	41.56959	-73.48461	0-1	5	0.2805
439	MyrSpi		Patch	9/11/2020	41.56872	-73.48408	0-1	3	0.0553
440	MyrSpi		Patch	9/11/2020	41.56825	-73.48373	0-1	5	0.0499
441	MyrSpi		Patch	9/11/2020	41.56788	-73.48365	0-1	3	0.0274
442	MyrSpi		Patch	9/11/2020	41.56379	-73.48307	3-5	4	2.2143
443	MyrSpi		Patch	9/11/2020	41.56272	-73.48337	3-5	4	0.5636
444	MyrSpi		Patch	9/11/2020	41.56597	-73.48055	2-4	3	0.4019
445	MyrSpi		Patch	9/11/2020	41.56354	-73.47834	2-5	4	0.1024
446	MyrSpi		Patch	9/11/2020	41.56272	-73.47745	2-5	4	0.0460
447	MyrSpi		Patch	9/11/2020	41.55861	-73.47502	1-5	4	7.8358
448	MyrSpi		Patch	9/11/2020	41.55720	-73.47420	0-1	2	0.0708
449	MyrSpi		Patch	9/11/2020	41.55579	-73.48115	1-5	2	0.0892
450	MyrSpi		Patch	9/11/2020	41.55810	-73.48367	1-5	3	5.3694

Appendix Lake Candlewood Invasive Plant Location data (10 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
451	MyrSpi		Patch	9/11/2020	41.55432	-73.46743	0-1	2	0.0800
452	MyrSpi		Patch	9/11/2020	41.55395	-73.46982	0-1	2	0.1427
453	MyrSpi		Patch	9/11/2020	41.55845	-73.48430	0-1	2	1.0306
454	MyrSpi		Patch	9/11/2020	41.55802	-73.48086	1-5	4	10.7384
455	MyrSpi		Patch	9/11/2020	41.56743	-73.48347	0-1	2	0.0060
456	MyrSpi		Patch	9/11/2020	41.55654	-73.48073	0-1	2	0.0156
457	MyrSpi		Patch	9/11/2020	41.55670	-73.48040	0-1	2	0.0723
458	MyrSpi		Patch	9/11/2020	41.55819	-73.48163	0-1	2	0.3150
459	MyrSpi		Patch	9/11/2020	41.56106	-73.48479	1-5	4	0.2862
460	MyrSpi		Patch	9/11/2020	41.56355	-73.48745	1-5	4	6.3748
461	MyrSpi		Patch	9/11/2020	41.44836	-73.43101	0-2	3	0.0446
462	MyrSpi		Patch	9/11/2020	41.56470	-73.48883	0-1	2	0.3506
463	MyrSpi		Patch	9/11/2020	41.56615	-73.48991	1-3	2	0.0232
464	MyrSpi		Patch	9/11/2020	41.56678	-73.49002	1-5	3	0.2552
465	MyrSpi		Patch	9/11/2020	41.56665	-73.49024	0-1	2	0.0322
466	MyrSpi		Patch	9/11/2020	41.56866	-73.49070	0-1	2	0.0090
467	MyrSpi		Patch	9/11/2020	41.57064	-73.49043	1-5	3	9.1911
468	MyrSpi		Point	9/11/2020	41.56746	-73.49013	1-3	2	0.0002
469	MyrSpi		Point	9/11/2020	41.56754	-73.49015	1-3	2	0.0002
470	MyrSpi		Point	9/11/2020	41.56770	-73.49024	0-2	2	0.0002
471	MyrSpi		Point	9/11/2020	41.56835	-73.49055	1-3	2	0.0002
472	MyrSpi		Patch	9/14/2020	41.52541	-73.45878	2-5	4	0.2698
473	MyrSpi		Patch	9/14/2020	41.52886	-73.46177	1-5	4	4.4010
474	MyrSpi		Patch	9/14/2020	41.53019	-73.46434	1-5	3	0.0218
475	MyrSpi		Patch	9/14/2020	41.53128	-73.46541	1-5	3	1.3668
476	MyrSpi		Patch	9/14/2020	41.44996	-73.43208	0-2	3	0.0665
477	MyrSpi		Patch	9/14/2020	41.44927	-73.43160	0-2	5	0.3083
478	MyrSpi		Patch	9/14/2020	41.44856	-73.43114	0-2	5	0.0289
479	MyrSpi		Patch	9/14/2020	41.44812	-73.43081	0-1	3	0.0878
480	MyrSpi		Patch	9/14/2020	41.44788	-73.43058	0-2	3	0.0837
481	MyrSpi		Patch	9/14/2020	41.44748	-73.43016	0-1	5	0.3257
482	MyrSpi		Patch	9/14/2020	41.44692	-73.42966	0-1	3	0.1365
483	MyrSpi		Patch	9/14/2020	41.44786	-73.42960	0-1	5	0.6653
484	MyrSpi		Patch	9/14/2020	41.44872	-73.42986	0-1	3	0.1830
485	MyrSpi		Patch	9/14/2020	41.44895	-73.43011	0-1	5	0.0978
486	MyrSpi		Patch	9/14/2020	41.44908	-73.43028	0-1	2	0.2131
487	MyrSpi		Patch	9/14/2020	41.44904	-73.43064	0-1	5	0.0357
488	MyrSpi		Patch	9/17/2020	41.54864	-73.46775	1-5	4	5.1943
489	MyrSpi		Patch	9/17/2020	41.54974	-73.46881	0-1	2	0.2935
490	MyrSpi		Patch	9/17/2020	41.54853	-73.46688	0-1	2	0.0642
491	MyrSpi		Patch	9/17/2020	41.54708	-73.46651	0-1	2	0.1771
492	MyrSpi		Patch	9/17/2020	41.53557	-73.46191	0-1	2	0.0871
493	MyrSpi		Patch	9/17/2020	41.54858	-73.47035	1-5	4	3.1244

Appendix Lake Candlewood Invasive Plant Location data (11 of 11)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
501	MyrSpi		Patch	9/17/2020	41.53485	-73.46231	1-5	4	5.9204
502	MyrSpi		Patch	9/17/2020	41.54613	-73.46831	0-1	2	0.0095
503	MyrSpi		Patch	9/17/2020	41.53246	-73.46291	0-1	2	0.0804
504	MyrSpi		Patch	9/17/2020	41.53264	-73.46239	0-1	2	0.0121
505	MyrSpi		Patch	9/17/2020	41.53556	-73.46215	0-1	2	0.1359
506	MyrSpi		Patch	9/17/2020	41.53495	-73.46217	0-1	2	0.0424
507	MyrSpi		Patch	9/17/2020	41.53789	-73.46252	0-1	2	0.0227
508	MyrSpi		Patch	9/17/2020	41.53812	-73.46269	0-1	2	0.0072
509	MyrSpi		Patch	9/17/2020	41.53670	-73.46871	1-5	3	3.4967
510	MyrSpi		Patch	9/17/2020	41.54036	-73.47167	2-4	3	0.0505
511	MyrSpi		Patch	9/17/2020	41.54091	-73.47190	2-4	3	0.0511
512	MyrSpi		Patch	9/17/2020	41.54172	-73.47224	2-4	3	0.0255
513	MyrSpi		Patch	9/17/2020	41.54323	-73.47255	2-4	3	0.2029
514	MyrSpi		Patch	9/17/2020	41.54930	-73.47594	1-5	4	7.7220
515	MyrSpi		Patch	9/17/2020	41.54782	-73.47437	0-1	2	0.0127
516	MyrSpi		Patch	9/17/2020	41.55053	-73.47700	0-1	2	0.1054
517	MyrSpi		Patch	9/17/2020	41.55170	-73.47836	0-1	2	0.0485
518	MyrSpi		Patch	9/17/2020	41.54833	-73.47480	0-1	2	0.1664
519	MyrSpi		Patch	9/17/2020	41.55218	-73.47959	0-1	2	0.0889
520	MyrSpi		Point	9/17/2020	41.54391	-73.46688	3-4	2	0.0002
521	MyrSpi		Point	9/17/2020	41.53941	-73.46719	0-1	2	0.0002
522	MyrSpi		Point	9/17/2020	41.53899	-73.46700	0-1	2	0.0002
523	MyrSpi		Point	9/17/2020	41.53887	-73.46698	0-1	2	0.0002
524	MyrSpi		Point	9/17/2020	41.53876	-73.46698	0-1	2	0.0002
525	MyrSpi		Point	9/17/2020	41.53703	-73.46669	0-1	2	0.0002
526	MyrSpi		Point	9/17/2020	41.53669	-73.46663	0-1	2	0.0002
527	MyrSpi		Point	9/17/2020	41.53670	-73.46660	0-1	2	0.0002
528	MyrSpi		Point	9/17/2020	41.53606	-73.46637	0-1	2	0.0002
529	MyrSpi		Point	9/17/2020	41.53598	-73.46626	0-1	2	0.0002
530	MyrSpi		Point	9/17/2020	41.53597	-73.46623	0-1	2	0.0002
531	MyrSpi		Point	9/17/2020	41.53595	-73.46620	0-1	2	0.0002
532	MyrSpi		Point	9/17/2020	41.53586	-73.46602	0-1	2	0.0002
533	MyrSpi		Point	9/17/2020	41.53584	-73.46597	0-1	2	0.0002
534	MyrSpi		Point	9/17/2020	41.53581	-73.46588	0-1	2	0.0002
535	MyrSpi		Patch	12/17/2020	41.54930	-73.47571	0-1	2	0.0834

Squantz Pond

Appendix Squantz Pond Invasive Plant Location data (1 of 1)

FID	Invasive Plant Name	Notes	Type	Date	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
1	MyrSpi		Point	8/18/2020	41.51022	-73.47168	0-1	1	0.0002
2	MyrSpi		Point	8/18/2020	41.51021	-73.47164	0-1	1	0.0002

Candlewood Lake Eurasian Watermilfoil Surface Location Data

Appendix Lake Candlewood Invasive Plant Location data (1 of 5)

FID	Surveyor	Invasive Plant Name	Type	Notes	Date	Latitude	Longitude	Area (acres)
1	Greg Bugbee	MyrSpi	Point	0-1	8/21/2020	41.57096	-73.48866	0.0111
2	Greg Bugbee	MyrSpi	Point	D=0-1	8/28/2020	41.47920	-73.43510	0.0002
3	Greg Bugbee	MyrSpi	Point	D=1.5	8/28/2020	41.45968	-73.42794	0.0002
4	Greg Bugbee	MyrSpi	Point	D=1.5	8/28/2020	41.46019	-73.42901	0.0002
5	Greg Bugbee	MyrSpi	Point	D=1.5	8/28/2020	41.46023	-73.42908	0.0002
6	Greg Bugbee	MyrSpi	Polygon	0-1	8/28/2020	41.57153	-73.44277	0.0220
7	Greg Bugbee	MyrSpi	Polygon	0-1	8/28/2020	41.44895	-73.43011	0.0978
8	Greg Bugbee	MyrSpi	Polygon	0-1	8/28/2020	41.44904	-73.43064	0.0357
9	Greg Bugbee	MyrSpi	Polygon	0-1	8/28/2020	41.52599	-73.46446	0.0678
10	Greg Bugbee	MyrSpi	Polygon	0-2	8/28/2020	41.47831	-73.43467	0.0738
11	Greg Bugbee	MyrSpi	Point	D=2.5	9/2/2020	41.48804	-73.45942	0.0002
12	Greg Bugbee	MyrSpi	Point	D=2.5	9/2/2020	41.48776	-73.45931	0.0002
13	Greg Bugbee	MyrSpi	Point	D=2.5	9/2/2020	41.48735	-73.45919	0.0002
14	Greg Bugbee	MyrSpi	Point	D=2.5	9/2/2020	41.48715	-73.45927	0.0002
15	Greg Bugbee	MyrSpi	Point	D=1.5	9/2/2020	41.50725	-73.46809	0.0002
16	Greg Bugbee	MyrSpi	Point	D=1	9/2/2020	41.50735	-73.46819	0.0002
17	Greg Bugbee	MyrSpi	Point	D=1	9/2/2020	41.50741	-73.46818	0.0002
18	Greg Bugbee	MyrSpi	Point	D=.5	9/2/2020	41.51065	-73.46989	0.0002
19	Greg Bugbee	MyrSpi	Point	D=1	9/2/2020	41.51062	-73.46997	0.0002
20	Greg Bugbee	MyrSpi	Point	D=0.5	9/2/2020	41.51053	-73.46979	0.0002
21	Greg Bugbee	MyrSpi	Point	D=0.5-2	9/2/2020	41.50998	-73.46895	0.0002
22	Greg Bugbee	MyrSpi	Point	D=0.5	9/2/2020	41.50873	-73.46692	0.0002
23	Greg Bugbee	MyrSpi	Polygon	0-1	9/2/2020	41.56991	-73.48384	0.3921
24	Greg Bugbee	MyrSpi	Polygon	0-2	9/2/2020	41.48602	-73.45990	0.8261
25	Greg Bugbee	MyrSpi	Point		9/3/2020	41.50331	-73.44041	0.0002
26	Greg Bugbee	MyrSpi	Point		9/3/2020	41.50330	-73.44037	0.0002
27	Greg Bugbee	MyrSpi	Point	D=1.5	9/3/2020	41.50276	-73.43895	0.0002
28	Greg Bugbee	MyrSpi	Point	D=1.	9/3/2020	41.50273	-73.43863	0.0002
29	Greg Bugbee	MyrSpi	Point	D=1.	9/3/2020	41.50272	-73.43848	0.0002
30	Greg Bugbee	MyrSpi	Point	D=.5	9/3/2020	41.50278	-73.43808	0.0002
31	Greg Bugbee	MyrSpi	Point	D=.5	9/3/2020	41.50377	-73.43768	0.0002
32	Greg Bugbee	MyrSpi	Point	D=.5	9/3/2020	41.50382	-73.43766	0.0002
33	Greg Bugbee	MyrSpi	Point	1-3	9/3/2020	41.55423	-73.46766	0.2002
34	Greg Bugbee	MyrSpi	Point	1-3	9/3/2020	41.55392	-73.46972	0.0905
35	Greg Bugbee	MyrSpi	Point	1-3	9/3/2020	41.57021	-73.48919	0.0607
36	Greg Bugbee	MyrSpi	Point	1-5	9/3/2020	41.55189	-73.44157	0.1837
37	Greg Bugbee	MyrSpi	Point	2-3	9/3/2020	41.55462	-73.44488	0.0589
38	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.57205	-73.49196	0.0079
39	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.57161	-73.49225	0.0156
40	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.47284	-73.43784	0.0354
41	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.50812	-73.46881	0.3213
42	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.51007	-73.47070	0.1166
43	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.51099	-73.47033	0.0291
44	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.51395	-73.45338	0.2107
45	Greg Bugbee	MyrSpi	Point	0-1	9/3/2020	41.56997	-73.48872	0.0913
46	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.56528	-73.44507	0.0002
47	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.56515	-73.44508	0.0002
48	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.56508	-73.44510	0.0002
49	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56454	-73.44482	0.0002
50	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56447	-73.44484	0.0002

Appendix Lake Candlewood Invasive Plant Location data (2 of 5)

FID	Surveyor	Invasive Plant Name	Type	Notes	Date	Latitude	Longitude	Area (acres)
51	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56414	-73.44488	0.0002
52	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56409	-73.44491	0.0002
53	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56378	-73.44481	0.0002
54	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56097	-73.44429	0.0002
55	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56088	-73.44431	0.0002
56	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56023	-73.44386	0.0002
57	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56024	-73.44394	0.0002
58	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56002	-73.44409	0.0002
59	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55978	-73.44410	0.0002
60	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55961	-73.44411	0.0002
61	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55959	-73.44408	0.0002
62	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55540	-73.44484	0.0002
63	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55289	-73.44535	0.0002
64	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.55279	-73.44552	0.0002
65	Greg Bugbee	MyrSpi	Point	D=0-2	9/8/2020	41.55265	-73.44539	0.0002
66	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54358	-73.44848	0.0002
67	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54401	-73.44853	0.0002
68	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54416	-73.44851	0.0002
69	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.54742	-73.44741	0.0002
70	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.54914	-73.44724	0.0002
71	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.54753	-73.44736	0.0002
72	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54773	-73.44734	0.0002
73	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.53296	-73.43827	0.0002
74	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.53536	-73.43875	0.0002
75	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54514	-73.44290	0.0002
76	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54578	-73.44252	0.0002
77	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.54582	-73.44246	0.0002
78	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55772	-73.43971	0.0002
79	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.55775	-73.43973	0.0002
80	Greg Bugbee	MyrSpi	Point	D=2-3	9/8/2020	41.55954	-73.44029	0.0002
81	Greg Bugbee	MyrSpi	Point	D=2-3	9/8/2020	41.56230	-73.44044	0.0002
82	Greg Bugbee	MyrSpi	Point	D=2-3	9/8/2020	41.56317	-73.44054	0.0002
83	Greg Bugbee	MyrSpi	Point	D=1-2	9/8/2020	41.56346	-73.44052	0.0002
84	Greg Bugbee	MyrSpi	Point	D=2-3	9/8/2020	41.56806	-73.44269	0.0002
85	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.57111	-73.44277	0.0002
86	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.57119	-73.44283	0.0002
87	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.57133	-73.44282	0.0002
88	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.57139	-73.44279	0.0002
89	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.57199	-73.44270	0.0002
90	Greg Bugbee	MyrSpi	Point	D=0-1	9/8/2020	41.57195	-73.44274	0.0002
91	Greg Bugbee	MyrSpi	Point	0-1	9/8/2020	41.57279	-73.49172	0.0261
92	Greg Bugbee	MyrSpi	Point	0-1	9/8/2020	41.57250	-73.49176	0.0151
93	Greg Bugbee	MyrSpi	Point	0-1	9/8/2020	41.57041	-73.49149	0.0170
94	Greg Bugbee	MyrSpi	Point	0-1	9/8/2020	41.57029	-73.49130	0.0165
95	Greg Bugbee	MyrSpi	Point	0-1	9/8/2020	41.56995	-73.49109	0.0226
96	Greg Bugbee	MyrSpi	Polygon	0-2	9/8/2020	41.53551	-73.43884	0.1773
97	Greg Bugbee	MyrSpi	Polygon	0-2	9/8/2020	41.57151	-73.44283	0.0816
98	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52276	-73.43614	0.0002
99	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52282	-73.43619	0.0002
100	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.52267	-73.43617	0.0002

Appendix Lake Candlewood Invasive Plant Location data (3 of 5)

FID	Surveyor	Invasive Plant Name	Type	Notes	Date	Latitude	Longitude	Area (acres)
101	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52225	-73.43608	0.0002
102	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51954	-73.43546	0.0002
103	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51939	-73.43537	0.0002
104	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.51931	-73.43558	0.0002
105	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.51920	-73.43566	0.0002
106	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.51917	-73.43573	0.0002
107	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51905	-73.43582	0.0002
108	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51862	-73.43633	0.0002
109	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51859	-73.43635	0.0002
110	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51855	-73.43655	0.0002
111	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51350	-73.44089	0.0002
112	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51353	-73.44081	0.0002
113	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51360	-73.44055	0.0002
114	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51363	-73.44047	0.0002
115	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51366	-73.44039	0.0002
116	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51373	-73.44037	0.0002
117	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51377	-73.44006	0.0002
118	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51375	-73.43989	0.0002
119	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51378	-73.43986	0.0002
120	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51380	-73.43984	0.0002
121	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51365	-73.43988	0.0002
122	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51367	-73.43973	0.0002
123	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51377	-73.43963	0.0002
124	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51379	-73.43957	0.0002
125	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51357	-73.43951	0.0002
126	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51340	-73.43948	0.0002
127	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.51340	-73.43941	0.0002
128	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.50671	-73.43823	0.0002
129	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.50678	-73.43828	0.0002
130	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.51964	-73.45171	0.0002
131	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52467	-73.45313	0.0002
132	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52506	-73.45316	0.0002
133	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52711	-73.45355	0.0002
134	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52855	-73.45376	0.0002
135	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52962	-73.45371	0.0002
136	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52966	-73.45366	0.0002
137	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.52980	-73.45368	0.0002
138	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.53243	-73.45471	0.0002
139	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.53237	-73.45458	0.0002
140	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.53232	-73.45450	0.0002
141	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.53246	-73.45435	0.0002
142	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.53253	-73.45433	0.0002
143	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.53267	-73.45435	0.0002
144	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.54439	-73.46083	0.0002
145	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.54501	-73.46179	0.0002
146	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.54509	-73.46184	0.0002
147	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.54617	-73.46359	0.0002
148	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.54639	-73.46359	0.0002
149	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.54644	-73.46359	0.0002
150	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.54651	-73.46365	0.0002

Appendix Lake Candlewood Invasive Plant Location data (4 of 5)

FID	Surveyor	Invasive Plant Name	Type	Notes	Date	Latitude	Longitude	Area (acres)
151	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.55429	-73.46738	0.0002
152	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.55426	-73.46745	0.0002
153	Greg Bugbee	MyrSpi	Point	D=1-3	9/9/2020	41.55421	-73.46838	0.0002
154	Greg Bugbee	MyrSpi	Point	D=1-3	9/9/2020	41.55422	-73.46841	0.0002
155	Greg Bugbee	MyrSpi	Point	D=1-3	9/9/2020	41.55422	-73.46843	0.0002
156	Greg Bugbee	MyrSpi	Point	D=1-3	9/9/2020	41.55421	-73.46864	0.0002
157	Greg Bugbee	MyrSpi	Point	D=1-3	9/9/2020	41.55422	-73.46861	0.0002
158	Greg Bugbee	MyrSpi	Point	D=1-3	9/9/2020	41.55423	-73.46856	0.0002
159	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.55394	-73.46878	0.0002
160	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.55400	-73.46878	0.0002
161	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.55416	-73.46874	0.0002
162	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.55417	-73.46877	0.0002
163	Greg Bugbee	MyrSpi	Point	D=2-3	9/9/2020	41.55417	-73.46880	0.0002
164	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55414	-73.46899	0.0002
165	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55412	-73.46898	0.0002
166	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55398	-73.46921	0.0002
167	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55346	-73.47096	0.0002
168	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55354	-73.47099	0.0002
169	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55365	-73.47102	0.0002
170	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55372	-73.47109	0.0002
171	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55383	-73.47125	0.0002
172	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55385	-73.47138	0.0002
173	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55496	-73.47271	0.0002
174	Greg Bugbee	MyrSpi	Point	D=1-2	9/9/2020	41.55509	-73.47247	0.0002
175	Greg Bugbee	MyrSpi	Point	D=0-1	9/9/2020	41.55534	-73.47237	0.0002
176	Greg Bugbee	MyrSpi	Polygon	0-1	9/9/2020	41.46664	-73.42390	0.0258
177	Greg Bugbee	MyrSpi	Polygon	0-2	9/9/2020	41.52236	-73.43563	0.1639
178	Greg Bugbee	MyrSpi	Polygon	0-2	9/9/2020	41.51949	-73.43513	0.1722
179	Greg Bugbee	MyrSpi	Polygon	0-2	9/9/2020	41.51848	-73.43674	0.0737
180	Greg Bugbee	MyrSpi	Polygon	0-2	9/9/2020	41.51871	-73.43726	0.1649
181	Greg Bugbee	MyrSpi	Point	D=2	9/11/2020	41.56409	-73.48800	0.0002
182	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.56938	-73.48902	0.0002
183	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57173	-73.49052	0.0002
184	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57185	-73.49046	0.0002
185	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57189	-73.49044	0.0002
186	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57401	-73.49215	0.0002
187	Greg Bugbee	MyrSpi	Point	D=1-21	9/11/2020	41.57227	-73.49178	0.0002
188	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.57222	-73.49182	0.0002
189	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.57219	-73.49186	0.0002
190	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.57130	-73.49219	0.0002
191	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.57121	-73.49217	0.0002
192	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.57100	-73.49190	0.0002
193	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57070	-73.49179	0.0002
194	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57062	-73.49166	0.0002
195	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57018	-73.49124	0.0002
196	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.57007	-73.49119	0.0002
197	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.56760	-73.48613	0.0002
198	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.56845	-73.48306	0.0002
199	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.56879	-73.48339	0.0002
200	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.56877	-73.48345	0.0002

Appendix Lake Candlewood Invasive Plant Location data (5 of 5)

FID	Surveyor	Invasive Plant Name	Type	Notes	Date	Latitude	Longitude	Area (acres)
201	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.56897	-73.48359	0.0002
202	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.56916	-73.48362	0.0002
203	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.56911	-73.48364	0.0002
204	Greg Bugbee	MyrSpi	Point	D=0-1	9/11/2020	41.56922	-73.48364	0.0002
205	Greg Bugbee	MyrSpi	Point	D=2-3	9/11/2020	41.56905	-73.48369	0.0002
206	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.55646	-73.48072	0.0002
207	Greg Bugbee	MyrSpi	Point	D=2-3	9/11/2020	41.55626	-73.48054	0.0002
208	Greg Bugbee	MyrSpi	Point	D=2-3	9/11/2020	41.55666	-73.48005	0.0002
209	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.55668	-73.48030	0.0002
210	Greg Bugbee	MyrSpi	Point	D=1-2	9/11/2020	41.55656	-73.48039	0.0002
211	Greg Bugbee	MyrSpi	Point	0-1	9/11/2020	41.47968	-73.43539	0.1635
212	Greg Bugbee	MyrSpi	Polygon	0-1	9/11/2020	41.56959	-73.48461	0.2805
213	Greg Bugbee	MyrSpi	Polygon	0-1	9/11/2020	41.44748	-73.43016	0.3257
214	Greg Bugbee	MyrSpi	Polygon	0-2	9/11/2020	41.56865	-73.48340	0.0361
215	Greg Bugbee	MyrSpi	Point	D=2	9/14/2020	41.44777	-73.43012	0.0002
216	Greg Bugbee	MyrSpi	Point	D=2	9/14/2020	41.44807	-73.43018	0.0002
217	Greg Bugbee	MyrSpi	Point	D=2	9/14/2020	41.44808	-73.43012	0.0002
218	Greg Bugbee	MyrSpi	Point	D=2	9/14/2020	41.44809	-73.43006	0.0002
219	Greg Bugbee	MyrSpi	Point	D=1	9/14/2020	41.44827	-73.42968	0.0002
220	Greg Bugbee	MyrSpi	Point	D=2.5	9/14/2020	41.44827	-73.43037	0.0002
221	Greg Bugbee	MyrSpi	Point	D=2.5	9/14/2020	41.44832	-73.43021	0.0002
222	Greg Bugbee	MyrSpi	Point	D=2.5	9/14/2020	41.44861	-73.42989	0.0002
223	Greg Bugbee	MyrSpi	Point	D=1	9/14/2020	41.44864	-73.42975	0.0002
224	Greg Bugbee	MyrSpi	Point	D=1	9/14/2020	41.44866	-73.42974	0.0002
225	Greg Bugbee	MyrSpi	Polygon	0-1	9/14/2020	41.56825	-73.48373	0.0499
226	Greg Bugbee	MyrSpi	Polygon	0-1	9/14/2020	41.44786	-73.42960	0.6653
227	Greg Bugbee	MyrSpi	Polygon	0-2	9/14/2020	41.44927	-73.43160	0.3083
228	Greg Bugbee	MyrSpi	Polygon	0-2	9/14/2020	41.44856	-73.43114	0.0289
229	Greg Bugbee	MyrSpi	Point	D=1-2	9/17/2020	41.54758	-73.47431	0.0002
230	Greg Bugbee	MyrSpi	Point	D=2	9/17/2020	41.55225	-73.47943	0.0002
231	Greg Bugbee	MyrSpi	Point	D=1-2	9/17/2020	41.54845	-73.46678	0.0002
232	Greg Bugbee	MyrSpi	Point	D=1	9/17/2020	41.53564	-73.46549	0.0002
233	Greg Bugbee	MyrSpi	Point	D=1	9/17/2020	41.53429	-73.46522	0.0002
234	Greg Bugbee	MyrSpi	Point	D=1.5	9/17/2020	41.53521	-73.46213	0.0002
235	Greg Bugbee	MyrSpi	Point	D=1.5	9/17/2020	41.53531	-73.46218	0.0002

Transect Data

Candlewood Lake

Appendix Candlewood Lake Transect Data (1 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	CerDem	ElaSpp	EleSpp	LemMin	MyrSpi	NajMin	NymOdo	Typha
1	1	0.5	Summer Stebbins	41.42378	-73.45260	9/8/2020	0.1	Sand	0	0	0	0	3	0	0	0
1	2	5	Summer Stebbins	41.42383	-73.45262	9/8/2020	0.3	Sand	0	0	0	0	4	0	0	0
1	3	10	Summer Stebbins	41.42388	-73.45264	9/8/2020	0.5	Muck	0	0	0	0	4	0	0	0
1	4	20	Summer Stebbins	41.42396	-73.45267	9/8/2020	0.6	Muck	0	0	0	0	5	0	0	0
1	5	30	Summer Stebbins	41.42405	-73.45274	9/8/2020	1.5	Muck	0	0	0	0	3	0	0	0
1	6	40	Summer Stebbins	41.42414	-73.45277	9/8/2020	1.5	Muck	0	0	0	0	3	0	0	0
1	7	50	Summer Stebbins	41.42423	-73.45280	9/8/2020	1.8	Muck	0	0	0	0	3	0	0	0
1	8	60	Summer Stebbins	41.42433	-73.45282	9/8/2020	1.8	Muck	0	0	0	0	5	0	0	0
1	9	70	Summer Stebbins	41.42440	-73.45287	9/8/2020	1.8	Muck	0	0	0	0	5	0	0	0
1	10	80	Summer Stebbins	41.42446	-73.45291	9/8/2020	1.8	Muck	0	0	0	0	5	0	0	0
2	1	0.5	Summer Stebbins	41.42763	-73.44928	9/8/2020	0.1	Sand	0	0	0	0	0	0	0	0
2	2	5	Summer Stebbins	41.42758	-73.44930	9/8/2020	0.2	Muck	0	0	0	0	0	0	0	0
2	3	10	Summer Stebbins	41.42752	-73.44935	9/8/2020	1.2	Muck	0	0	0	0	3	0	0	0
2	4	30	Summer Stebbins	41.42746	-73.44944	9/8/2020	2.5	Muck	0	0	0	0	3	0	0	0
2	5	30	Summer Stebbins	41.42741	-73.44953	9/8/2020	2.5	Muck	0	0	0	0	3	0	0	0
2	6	40	Summer Stebbins	41.42738	-73.44966	9/8/2020	2.5	Muck	0	0	0	0	4	0	0	0
2	7	50	Summer Stebbins	41.42729	-73.44971	9/8/2020	2.5	Muck	0	0	0	0	3	0	0	0
2	8	60	Summer Stebbins	41.42725	-73.44980	9/8/2020	2.5	Muck	0	0	0	0	3	0	0	0
2	9	70	Summer Stebbins	41.42719	-73.44992	9/8/2020	2.8	Muck	0	0	0	0	3	0	0	0
2	10	80	Summer Stebbins	41.42715	-73.45000	9/8/2020	2.8	Muck	0	0	0	0	3	0	0	0
3	1	0.5	Greg Bugbee	41.47023	-73.43529	9/14/2020	0.1	Gravel	0	2	3	0	1	0	0	2
3	2	5	Greg Bugbee	41.47027	-73.43526	9/14/2020	1.2	Sand	0	0	0	0	2	0	0	2
3	3	10	Greg Bugbee	41.47031	-73.43523	9/14/2020	1.5	Sand	0	0	0	0	4	0	0	2
3	4	20	Greg Bugbee	41.47027	-73.43505	9/14/2020	6.5	Sand	0	0	0	0	0	0	0	2
3	5	30	Greg Bugbee	41.47028	-73.43494	9/14/2020	9.8	Sand	0	0	0	0	0	0	0	2
3	6	40	Greg Bugbee	41.47034	-73.43483	9/14/2020	11.8	Sand	0	0	0	0	0	0	0	2
3	7	30	Greg Bugbee	41.47039	-73.43472	9/14/2020	10.8	Sand	0	0	0	0	0	0	0	2
3	8	60	Greg Bugbee	41.47045	-73.43463	9/14/2020	12.0	Silt	0	0	0	0	0	0	0	2
3	9	70	Greg Bugbee	41.47047	-73.43452	9/14/2020	12.0	Silt	0	0	0	0	0	0	0	2
3	10	80	Greg Bugbee	41.47052	-73.43440	9/14/2020	11.0	Silt	0	0	0	0	0	0	0	2
4	1	0.5	Greg Bugbee	41.57123	-73.48835	9/11/2020	0.1	Muck	2	0	0	0	3	0	0	0
4	2	10	Greg Bugbee	41.57116	-73.48839	9/11/2020	0.4	Muck	2	0	0	0	2	0	0	0
4	3	10	Greg Bugbee	41.57114	-73.48839	9/11/2020	1.0	Muck	2	0	0	0	2	0	0	0
4	4	20	Greg Bugbee	41.57105	-73.48845	9/11/2020	1.5	Muck	2	0	0	0	2	0	2	0
4	5		Greg Bugbee	41.57098	-73.48851	9/11/2020	1.8	Muck	2	0	0	0	3	0	2	0
4	6	40	Greg Bugbee	41.57087	-73.48852	9/11/2020	1.9	Muck	2	0	0	0	3	0	0	0
4	7	50	Greg Bugbee	41.57080	-73.48857	9/11/2020	2.4	Muck	2	0	0	0	2	0	0	0
4	8	60	Greg Bugbee	41.57073	-73.48861	9/11/2020	2.8	Muck	0	0	0	0	0	0	0	0
4	9	70	Greg Bugbee	41.57064	-73.48862	9/11/2020	3.3	Muck	0	0	0	0	0	0	0	0
4	10	80	Greg Bugbee	41.57055	-73.48870	9/11/2020	3.5	Muck	0	0	0	0	0	0	0	0
5	1	0.5	Greg Bugbee	41.50220	-73.45150	9/17/2020	0.1	Sand	0	0	0	0	1	0	0	0
5	2	5	Greg Bugbee	41.50219	-73.45156	9/17/2020	0.8	Sand	0	0	0	0	2	0	0	0
5	3	10	Greg Bugbee	41.50221	-73.45163	9/17/2020	1.0	Sand	0	0	0	0	2	0	0	0
5	4	20	Greg Bugbee	41.50216	-73.45175	9/17/2020	1.8	Sand	0	0	0	0	4	2	0	0
5	5	30	Greg Bugbee	41.50216	-73.45185	9/17/2020	1.8	Sand	0	0	0	0	4	0	0	0
5	6	40	Greg Bugbee	41.50215	-73.45198	9/17/2020	2.3	Sand	0	0	0	0	4	0	0	0
5	7	50	Greg Bugbee	41.50215	-73.45209	9/17/2020	3.0	Sand	0	0	0	0	4	0	0	0
5	8	60	Greg Bugbee	41.50210	-73.45221	9/17/2020	5.0	Silt	0	0	0	0	3	0	0	0
5	9	70	Greg Bugbee	41.50212	-73.45236	9/17/2020	5.2	Silt	0	0	0	0	2	0	0	0
5	10	80	Greg Bugbee	41.50210	-73.45246	9/17/2020	5.5	Silt	0	0	0	0	1	0	0	0

Appendix Candlewood Lake Transect Data (2 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	CerDem	ElaSpp	EleSpp	LemMin	MyrSpi	NajMin	NymOdo	Typha
6	1	0.5	Greg Bugbee	41.51381	-73.45329	9/17/2020	0.1	Muck	2	0	0	2	2	0	0	0
6	2	5	Greg Bugbee	41.51391	-73.45337	9/17/2020	0.8	Muck	2	0	0	0	5	0	0	0
6	3	10	Greg Bugbee	41.51397	-73.45330	9/17/2020	1.0	Muck	0	0	0	0	4	0	0	0
6	4	20	Greg Bugbee	41.51406	-73.45333	9/17/2020	1.6	Muck	2	0	0	0	3	0	0	0
6	5	30	Greg Bugbee	41.51414	-73.45333	9/17/2020	1.8	Muck	2	0	0	0	3	0	0	0
6	6		Greg Bugbee	41.51423	-73.45337	9/17/2020	2.0	Sand	0	0	0	0	4	0	0	0
6	7	50	Greg Bugbee	41.51432	-73.45340	9/17/2020	2.3	Sand	0	0	0	0	4	0	0	0
6	8	60	Greg Bugbee	41.51440	-73.45339	9/17/2020	2.8	Sand	0	0	0	0	4	0	0	0
6	9	70	Greg Bugbee	41.51447	-73.45341	9/17/2020	4.6	Silt	4	0	0	0	0	0	0	0
6	10	80	Greg Bugbee	41.51458	-73.45340	9/17/2020	5.8	Silt	0	0	0	0	0	0	0	0
7	1	0.5	Greg Bugbee	41.57154	-73.44275	9/14/2020	0.1	Sand	0	2	2	0	2	0	0	2
7	2	5	Greg Bugbee	41.57151	-73.44283	9/14/2020	0.8	Sand	2	2	0	0	4	0	0	2
7	3	10	Greg Bugbee	41.57151	-73.44289	9/14/2020	1.5	Sand	2	0	0	0	4	0	0	2
7	4	20	Greg Bugbee	41.57151	-73.44298	9/14/2020	2.4	Sand	2	0	0	0	4	0	0	2
7	5	30	Greg Bugbee	41.57153	-73.44314	9/14/2020	2.8	Silt	0	0	0	0	4	0	0	2
7	6	40	Greg Bugbee	41.57150	-73.44321	9/14/2020	3.7	Silt	0	0	0	0	4	0	0	2
7	7	50	Greg Bugbee	41.57148	-73.44337	9/14/2020	5.0	Silt	0	0	0	0	3	0	0	2
7	8	60	Greg Bugbee	41.57143	-73.44346	9/14/2020	11.2	Silt	0	0	0	0	0	0	0	2
7	9	70	Greg Bugbee	41.57146	-73.44361	9/14/2020	12.1	Silt	0	0	0	0	0	0	0	2
7	10	80	Greg Bugbee	41.57145	-73.44371	9/14/2020	13.4	Silt	0	0	0	0	0	0	0	2
8	1	0.5	Greg Bugbee	41.51294	-73.44121	9/14/2020	0.2	Sand	0	0	2	0	0	0	0	2
8	2	5	Greg Bugbee	41.51291	-73.44121	9/14/2020	0.2	Sand	0	0	2	0	0	0	0	2
8	3	10	Greg Bugbee	41.51285	-73.44119	9/14/2020	1.2	Sand	0	0	0	0	3	2	0	2
8	4	20	Greg Bugbee	41.51278	-73.44116	9/14/2020	2.0	Sand	0	0	0	0	3	2	0	2
8	5	30	Greg Bugbee	41.51268	-73.44113	9/14/2020	3.0	Silt	0	0	0	0	4	0	0	2
8	6	40	Greg Bugbee	41.51259	-73.44113	9/14/2020	4.3	Silt	0	0	0	0	4	0	0	2
8	7	50	Greg Bugbee	41.51249	-73.44114	9/14/2020	5.8	Silt	0	0	0	0	0	0	0	2
8	8	60	Greg Bugbee	41.51240	-73.44118	9/14/2020	4.2	Silt	0	0	0	0	4	0	0	2
8	9	70	Greg Bugbee	41.51232	-73.44123	9/14/2020	4.2	Silt	0	0	0	0	4	0	0	2
8	10	80	Greg Bugbee	41.51222	-73.44129	9/14/2020	4.6	Silt	0	0	0	0	4	0	0	2
9	1	0.5	Greg Bugbee	41.48050	-73.43465	9/14/2020	0.1	Sand	0	0	0	0	2	0	0	2
9	2	5	Greg Bugbee	41.48048	-73.43471	9/14/2020	0.8	Sand	0	0	0	0	2	0	0	2
9	3	10	Greg Bugbee	41.48049	-73.43478	9/14/2020	1.4	Sand	0	0	0	0	3	0	0	2
9	4	20	Greg Bugbee	41.48046	-73.43489	9/14/2020	1.7	Sand	0	0	0	0	3	0	0	2
9	5	30	Greg Bugbee	41.48046	-73.43502	9/14/2020	2.1	Sand	0	0	0	0	1	0	0	2
9	6	40	Greg Bugbee	41.48041	-73.43513	9/14/2020	2.4	Sand	0	0	0	0	2	0	0	2
9	7	50	Greg Bugbee	41.48037	-73.43523	9/14/2020	2.4	Sand	0	0	0	0	2	0	0	2
9	8	60	Greg Bugbee	41.48039	-73.43537	9/14/2020	2.4	Sand	0	0	0	0	2	0	0	2
9	9	70	Greg Bugbee	41.48039	-73.43546	9/14/2020	2.0	Sand	0	0	0	0	4	0	0	2
9	10	80	Greg Bugbee	41.48037	-73.43558	9/14/2020	1.7	Sand	0	0	0	0	4	0	0	2
10	1	0.5	Greg Bugbee	41.44736	-73.42952	9/14/2020	0.2	Sand	0	0	0	0	5	0	0	0
10	2	5	Greg Bugbee	41.44734	-73.42959	9/14/2020	0.4	Muck	0	0	0	0	3	0	0	0
10	3	10	Greg Bugbee	41.44729	-73.42963	9/14/2020	1.0	Muck	0	0	0	0	3	0	0	0
10	4	20	Greg Bugbee	41.44725	-73.42970	9/14/2020	1.5	Sand	0	0	0	0	3	0	0	0
10	5	30	Greg Bugbee	41.44722	-73.42982	9/14/2020	1.5	Sand	0	0	0	0	3	0	0	0
10	6	40	Greg Bugbee	41.44715	-73.42992	9/14/2020	0.2	Muck	0	0	0	0	5	0	0	0

Squantz Pond

Appendix Squantz Pond Transect Data (1 of 1)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	ElaSpp	EleSpp	MyrSpi	PonCor	PotFol
1	1	0.5	Maylani Velazquez	41.51017	-73.47163	8/18/2020	0.2	Silt	2	0	0	0	0
1	2	5	Maylani Velazquez	41.51022	-73.47166	8/18/2020	0.2	Silt	2	0	2	1	2
1	3	10	Maylani Velazquez	41.51030	-73.47167	8/18/2020	0.2	Silt	2	0	0	1	2
1	4	20	Summer Stebbins	41.51037	-73.47171	8/18/2020	0.5	Silt	2	0	0	1	2
1	5	30	Summer Stebbins	41.51048	-73.47174	8/18/2020	1.2	Silt	2	0	0	1	2
1	6	40	Summer Stebbins	41.51064	-73.47180	8/18/2020	1.6	Silt	2	0	0	1	2
1	7	50	Summer Stebbins	41.51066	-73.47181	8/18/2020	2.4	Silt	2	0	0	1	2
1	8	60	Summer Stebbins	41.51072	-73.47184	8/18/2020	2.7	Silt	2	0	0	1	2
1	9	70	Summer Stebbins	41.51080	-73.47191	8/18/2020	4.2	Silt	2	0	0	1	2
1	10	80	Summer Stebbins	41.51087	-73.47199	8/18/2020	4.5	Silt	2	0	0	1	2
2	1	0.5	Summer Stebbins	41.52355	-73.48136	8/18/2020	0.2	Sand	0	0	0	0	0
2	2	5	Summer Stebbins	41.52353	-73.48139	8/18/2020	0.6	Sand	0	0	0	0	0
2	3	10	Summer Stebbins	41.52347	-73.48153	8/18/2020	1.2	Sand	0	0	0	0	0
2	4	20	Summer Stebbins	41.52342	-73.48155	8/18/2020	2.1	Sand	0	0	0	0	0
2	5	30	Summer Stebbins	41.52341	-73.48170	8/18/2020	2.3	Silt	0	0	0	0	0
2	6	40	Summer Stebbins	41.52339	-73.48183	8/18/2020	3.9	Silt	0	0	0	0	0
2	7	50	Summer Stebbins	41.52335	-73.48192	8/18/2020	4.5	Silt	0	0	0	0	0
2	8	60	Summer Stebbins	41.52335	-73.48203	8/18/2020	5.0	Silt	0	0	0	0	0
2	9	70	Summer Stebbins	41.52329	-73.48215	8/18/2020	5.3	Silt	0	0	0	0	0
2	10	80	Summer Stebbins	41.52322	-73.48221	8/18/2020	5.9	Silt	0	0	0	0	0
3	1	0.5	Summer Stebbins	41.53391	-73.48310	8/18/2020	0.1	Sand	0	0	0	0	0
3	2	5	Summer Stebbins	41.53396	-73.48316	8/18/2020	0.5	Sand	0	0	0	0	0
3	3	10	Summer Stebbins	41.53397	-73.48325	8/18/2020	1.0	Sand	0	0	0	0	0
3	4	20	Summer Stebbins	41.53398	-73.48339	8/18/2020	1.3	Sand	0	0	0	0	0
3	5	30	Summer Stebbins	41.53401	-73.48344	8/18/2020	1.6	Sand	0	0	0	0	0
3	6	40	Summer Stebbins	41.53396	-73.48359	8/18/2020	2.2	Sand	0	0	0	0	0
3	7	50	Summer Stebbins	41.53396	-73.48375	8/18/2020	2.3	Sand	0	0	0	0	0
3	8	60	Summer Stebbins	41.53396	-73.48385	8/18/2020	2.3	Sand	0	0	0	0	0
3	9	70	Summer Stebbins	41.53395	-73.48395	8/18/2020	2.3	Sand	0	0	0	0	0
3	10	80	Summer Stebbins	41.53395	-73.48407	8/18/2020	2.4	Sand	0	0	0	0	0
4	1	0.5	Maylani Velazquez	41.53083	-73.48273	8/18/2020	0.1	Sand	2	2	0	0	0
4	2	5	Maylani Velazquez	41.53080	-73.48277	8/18/2020	0.2	Sand	2	2	0	0	0
4	3	10	Summer Stebbins	41.53079	-73.48284	8/18/2020	0.8	Silt	0	0	0	0	0
4	4	20	Summer Stebbins	41.53080	-73.48297	8/18/2020	1.0	Silt	0	0	0	0	0
4	5	30	Summer Stebbins	41.53077	-73.48311	8/18/2020	1.5	Silt	0	0	0	0	0
4	6	40	Summer Stebbins	41.53074	-73.48320	8/18/2020	1.8	Silt	0	0	0	0	0
4	7	50	Summer Stebbins	41.53077	-73.48336	8/18/2020	2.1	Silt	0	0	0	0	0
4	8	60	Summer Stebbins	41.53079	-73.48344	8/18/2020	2.4	Silt	0	0	0	0	0
4	9	70	Summer Stebbins	41.53080	-73.48357	8/18/2020	2.8	Silt	0	0	0	0	0
4	10	80	Summer Stebbins	41.53081	-73.48366	8/18/2020	3.3	Silt	0	0	0	0	0
5	1	0.5	Summer Stebbins	41.52820	-73.48597	8/18/2020	1.0	Bedrock	0	0	0	0	0
5	2	5	Summer Stebbins	41.52811	-73.48589	8/18/2020	1.0	Bedrock	0	0	0	0	0
5	3	10	Summer Stebbins	41.52810	-73.48584	8/18/2020	1.9	Silt	0	0	0	0	0
5	4	20	Summer Stebbins	41.52809	-73.48570	8/18/2020	2.0	Silt	0	0	0	0	0
5	5	20	Summer Stebbins	41.52806	-73.48561	8/18/2020	2.0	Silt	0	0	0	0	0
5	6	30	Summer Stebbins	41.52809	-73.48562	8/18/2020	2.0	Silt	0	0	0	0	0
5	7	50	Summer Stebbins	41.52805	-73.48542	8/18/2020	2.8	Silt	0	0	0	0	0
5	8	60	Summer Stebbins	41.52805	-73.48527	8/18/2020	4.7	Silt	0	0	0	0	0
5	9	70	Summer Stebbins	41.52805	-73.48515	8/18/2020	5.0	Silt	0	0	0	0	0
5	10	80	Summer Stebbins	41.52808	-73.48502	8/18/2020	5.0	Silt	0	0	0	0	0

Notes