The Connecticut Agricultural Experiment Station
New Haven, CT

Invasive Aquatic Plants

Lake Candlewood
Lake Lillinonah
Lake Zoar

2010

Monitoring Report

Gregory J. Bugbee

Invasive Aquatic Plant Program

Department of Environmental Sciences

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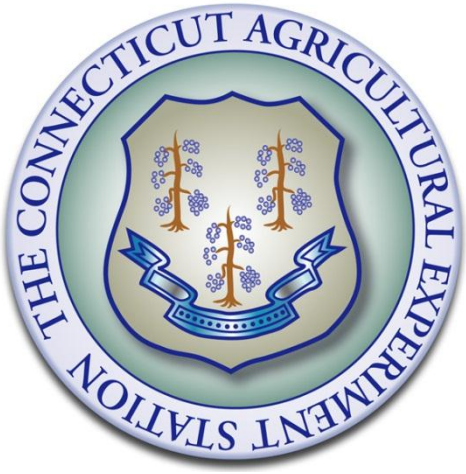

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Introduction

Lakes Candlewood, Lillinonah and Zoar are large freshwater impoundments in western Connecticut. Not only do these lakes have tremendous ecological and recreational value, but they also produce “green” energy via down-flow hydroelectric power plants. Invasive aquatic plants represent a severe threat to these and other lakes because they are not native and have few natural enemies to limit their growth (Wilcove et al. 1998, Pimintel et al. 2000). In addition, they can clog water intakes, decrease recreational opportunities, reduce local real estate values and alter native plant communities (Connecticut Aquatic Nuisance Species Working Group, 2006, Fishman et al. 1998). Thirteen invasive aquatic plant species are found in approximately two-thirds of Connecticut’s lakes and ponds (Bugbee and Balfour, 2010, CAES IAPP, 2010). In Lake Candlewood, invasive aquatic plants have been present since at least the early 1980’s (Siver et al. 1986) when they probably entered Lakes Lillinonah and Zoar as well.

Previous Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) studies found Lakes Candlewood, Lillinonah and Zoar have similar plant communities (Bugbee and Balfour, 2010, Bugbee and Reeps, 2009, Bugbee et al. 2008). Fifteen to 18 plant species occur in these lakes with four being invasive species; *Myriophyllum spicatum* (Eurasian watermilfoil)*, Najas minor* (minor naiad), *Potamogeton crispus* (curly leaf pondweed) and *Marsilea quadrifolia* (European waterclover). *Marsilea quadrifolia* only occurs in Lake Zoar. *M. spicatum* covers the largest area in the lakes followed by *N. minor* and *P. crispus*. *P. crispus* may be underestimated because it dies back prior to the summer surveys (Catling and Dobson, 1985). Winter drawdown and occasional harvesting is used in an attempt to manage *M. spicatum* in Candlewood Lake (Tarsi, 2006). In 2008 and 2010, milfoil weevils (*Euhrychiopsis lecontei*) were introduced into select locations in Candlewood Lake, to test their ability to survive, multiply and begin to control *M.*

spicatum. Data is currently being collected by WCSU and CAES. Attempts to control *M. spicatum* in Lakes Lillinonah and Zoar are mainly by harvesting and localized herbicide applications. Fluctuating water levels in Lake Lillinonah and Lake Zoar, associated with power generating discharges and weather events, may also act as a passive control.

The Federal Energy Regulatory Commission (FERC) Article 409 requires annual invasive aquatic plant monitoring for Lakes Candlewood, Lillinonah and Zoar (Northeast Generating Company, 2005). The following report represents the fourth year of CAES IAPP surveillance and mapping of the three lakes.

Objectives:

Survey and map invasive aquatic plants in Lakes Candlewood, Lillinonah and Zoar to fulfill the FERC nuisance plant monitoring requirement in Article 409. Provide scientific information to assist in the management of invasive aquatic vegetation, enhancement of native species and overall protection of the water bodies.

Materials and Methods:

Using established methods (CAES IAPP, 2010), we conducted aquatic vegetation surveys from July through early September. We recorded locations of all invasive plants with Trimble GeoXT® or ProXT® global positioning systems (GPS) with sub-meter accuracy. Plants occurring in distinct patches were circumnavigated in order to form a polygon. Patches less than one square meter were recorded as a point and assigned an area of 0.0002 acres (1 m^2). Depth was measured by rake handle, drop line or digital depth finder and sediment type was noted. Plant samples were obtained in shallow water with a rake and in deeper water with a grapple. Plant abundance was recorded using a scale of 1 – 5 (1 = single stem; 2 = few stems; 3 = common; 4 = abundant; 5 = extremely abundant). When field identification was questionable, samples were brought back to the lab for review using the taxonomy of Crow and Hellquist (2000*a*, 2000*b*). After the fieldwork, we post-processed and imported the GPS data into ArcGIS® 9.3.1 (ESRI, Redlands, CA), where it was further geo-corrected. Data were then overlaid onto 2010 United States Department of Agriculture - National Agricultural Inventory Program (NAIP) aerial imagery with 1 meter resolution.

We collected occurrence and abundance information on invasive and native aquatic plants from ten transects per lake with points positioned 0, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m from shore. In Candlewood Lake, these transects were a subset of the 105 we laid out in 2005 (Bugbee et al. 2008) and contained at least one occurrence of each native and invasive plant species. For data analysis of the 2005 transects, we reduced the 105 transects to the same 10 used in the following years. In Lake Zoar, previously established transects were used but not all species found in the earlier surveys were present. In Lake Lillinonah, we decreased the number of transects from the 16 we surveyed in 2009 to 10 in order to make the data comparable to the other lakes. We chose transects that represented the greatest species richness. We ranked abundance as on a scale of 1 – 5 as described above. Significant differences ($p \leq 0.05$) in frequency of occurrence of plant species along transects were determined using Pearson's Chi-square analysis (Madsen, 1999). Significant differences in species richness per transect point were determined by ± one standard error of the mean.

The Candlewood Lake plant survey occurred from July 30th – August 26th and the transect data were obtained on September 2nd (see Appendix, page 49). We surveyed Lake Zoar from July 30th – August 24th and we obtained transect data from July 21th – August 12th. Transect data from Lake Lillinonah were obtained on August 16th and 17th. Detailed information regarding our "on-lake" time is located in the Appendix (page 49).

We measured water temperature and dissolved oxygen, in deep areas of each lake, at a depth of 0.5 m and 1 m intervals thereafter. We used an YSI® 58 meter (YSI Inc., Yellow Springs, Ohio). Water samples were taken from Candlewood Lake on August 31th, from Lake Lillinonah on August 17th and from Lake Zoar on August 12th. Using a Secchi disk, we measured transparency. We collected water samples from 0.5 m below the surface and 0.5 m from the bottom. We stored water samples at 3 degrees Celsius until they were analyzed for pH, alkalinity, conductivity and total phosphorus. We measured conductivity and pH with a Fisher-Accumet® AR20 meter (Fisher Scientific International Inc., Hampton, NH) and quantified alkalinity by titration with 0.16 N H_2SO_4 to a pH 4.5 end point. Finally, we analyzed total phosphorus with spectroscopy using the ascorbic acid method with potassium persulfate digestion (American Public Health Association, 1995).

Table 1. Aquatic plants in Candlewood Lake. Frequency of occurrence and total area covered.

Scientific Name	Common Name	Abbrev.	Frequency of Occurrence (percent **)				Area (acres)				
			2005	2008	2009	2010	2005-06	2007	2008	2009	2010
Callitriche sp.	Water starwort	CalSp	1.0	0.0	0.0	0.0	ND***	ND	ND	ND	ND
Ceratophyllum demersum	Coontail	CerDem	3.1	33.3	11.3	22.9	ND	ND	ND	ND	ND
Elatine sp.	Waterwort	ElaSp	0.0	1.0	3.1	2.1	ND	ND	ND	ND	ND
Eleocharis sp.	Spikerush	EleSp	0.0	0.0	3.1	1.0	ND	ND	ND	ND	ND
Elodea nuttallii	Waterweed	EloNut	4.2	0.0	0.0	0.0	ND	ND	ND	ND	ND
Lemna minor	Duckweed	LemMin	2.1	6.3	1.0	4.2	ND	ND	ND	ND	ND
Myriophyllum spicatum	**Eurasian watermilfoil**	**MyrSpi**	**51.0**	**79.2**	**64.9**	**70.8**	**275**	**221**	**451**	**373**	**461**
Najas flexilis	Nodding waternymph	NajFle	7.3	1.0	1.0	0.0	ND	ND	ND	ND	ND
Najas minor	**Brittle waternymph**	**NajMin**	**12.5**	**6.3**	**8.2**	**11.5**	**ND**	**11.8**	**10.5**	**26.1**	**21.0**
Nymphaea odorata	White water lily	NymOdo	1.0	1.0	0.0	1.0	ND	ND	ND	ND	ND
Potamogeton bicupulatus	Snailseed pondweed	PotBic	0.0	1.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton crispus	**Curly leaf pondweed**	**PotCri**	**13.5**	**1.0**	**0.0**	**0.0**	**ND**	**0.1**	**0.1**	**0.7**	**1.0**
Potamogeton foliosus	Leafy pondweed	PotFol	3.1	0.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton gramineus	Variable leaf pondweed	PotGra	2.1	0.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton pusillus	Small Pondweed	PotPus	3.1	1.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton perfoliatus	Clasping leaf pondweed	PotPer	1.0	2.1	1.0	0.0	ND	ND	ND	ND	ND
Spirodela polyrhiza	Great duckweed	SpiPol	1.0	0.0	0.0	1.0	ND	ND	ND	ND	ND
Stuckinia pectinatus	Sago pondweed	StuPec	6.3	1.0	0.0	4.2	ND	ND	ND	ND	ND
Vallisneria americana	Eel grass	ValAme	2.1	2.1	4.1	4.2	ND	ND	ND	ND	ND
Zannichellia palustrus	Horned pondweed	ZanPal	11.5	3.1	0.0	0.0	ND	ND	ND	ND	ND

Invasive plant

** Percent occurrence on 96 points in 10 transects

***Not determined

Results and Discussion

Candlewood Lake

In 2010, Candlewood Lake contained the invasive species; *Myriophyllum spicatum*, *Najas minor* and *Potamogeton crispus* (Table 1, Maps 1 – 9). These invasive species are the same as found in previous years. *M. spicatum* continued to be the most prevalent invasive species covering 461 acres (Table 1). This coverage was greater than found in any of our previous surveys and compares to 373 acres in 2009, 451 in 2008 and 221 in 2007. There were 324 patches of *M. spicatum* in 2010 (Table 2) which is considerably less than found in our 2007, 2008 and 2009 surveys (489, 469, and 489 respectively). The larger acreage and fewer patches in 2010 were probably because patches from 2009 had coalesced. The largest patch of *M. spicatum* in 2010 occurred in Echo Bay (Map 8) and was 35.6 acres. In 2009, the largest patch was 39.6 acres in Danbury Cove (Map 9) but this patch was split in two, in 2010, apparently by some form of harvesting of the Danbury town beach. We observed localized harvesting in other areas of the lake but cannot accurately estimate the reduction in milfoil coverage caused by this practice. The minimum patch size

Table 2. Yearly comparisons of the number and size of invasive species patches in Candlewood Lake.

		Patch Size (acres)											
		Myriophyllum spicatum				*Najas minor*				*Potamogeton crispus*			
		Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
Year	2007	489	0.0002	24.9	0.45	31	0.0003	4.99	0.38	1	0.07	0.07	0.07
	2008	469	0.0002	28.1	0.96	26	0.0006	5.46	0.40	5	0.0002	0.1	0.03
	2009	489	0.0002	39.6	0.76	50	0.0002	7.90	0.52	1	0.67	0.67	0.67
	2010	324	0.0002	35.6	1.57	47	0.017	6.60	0.44	1	1.00	1.00	1.00

Table 3. Yearly comparisons of the abundance of invasive plants in Candlewood Lake.

		Patch Abundance (1 = sparse - 5 = dense)								
		Myriophyllum spicatum			*Najas minor*			*Potamogeton crispus*		
		(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
Year	2007	1	5	2.9	1	4	2.1	2	2	2.0
	2008	1	5	3.0	2	4	1.5	1	1	1.0
	2009	1	5	2.1	1	4	1.9	1	1	1.0
	2010	1	5	3.3	2	3	2.1	1	1	1.0

of *M. spicatum* in 2010 was 0.0002 acres which is equal to one square meter and typically assigned to solitary plants. The average patch size in 2010 was 1.57 acres nearly double that found in previous years. Average abundance of *M. spicatum* patches increased from 2.1 in 2009, to 3.3 in 2010 (Table 3) and was the greatest we have observed to date.

We found 21.0 acres of *N. minor* in 2010, a decline from 26.1 acres in 2009 (Table 1). This was the first yearly decline we have observed. The decrease in area and abundance of *N. minor* may be caused by *M. spicatum* invading areas of *N. minor* or by low summer water levels. *N. minor* was most prevalent in Allen's Cove (Map 1), the coves east of Holiday Point (Map 1), west of Great Neck (Map 3) and in Lattin's Cove (Map 8). In 2010, the frequency of occurrence of *N. minor* on transects was 11.5%, compared to 8.2%, 6.3% and 12.5% in 2009, 2008 and 2005 respectively (Table 1). *N. minor* data were too sparse along transects for us to statistically compare. In 2010, there were a total of 47 patches of *N. minor*, which is similar to 2009 and almost double that observed in 2008 (Table 2). Shelter Harbor (near Great Neck, Map 3) contained the largest patch of *N. minor* (6.6 acres). This is the same area that had the largest patch in 2009 but the coverage was only 5.3 acres. *N. minor* patches averaged 0.44 acres in 2010 compared to 0.52 acres (2009), 0.40 acres (2008) and 0.38 acres (2007). In 2010, the mean patch abundance of *N. minor* increased to 2.1 from 1.9 in 2009 and 1.5 in 2008 (Table 3). This increase may not indicate a long term trend as the 2010 data was identical to 2007.

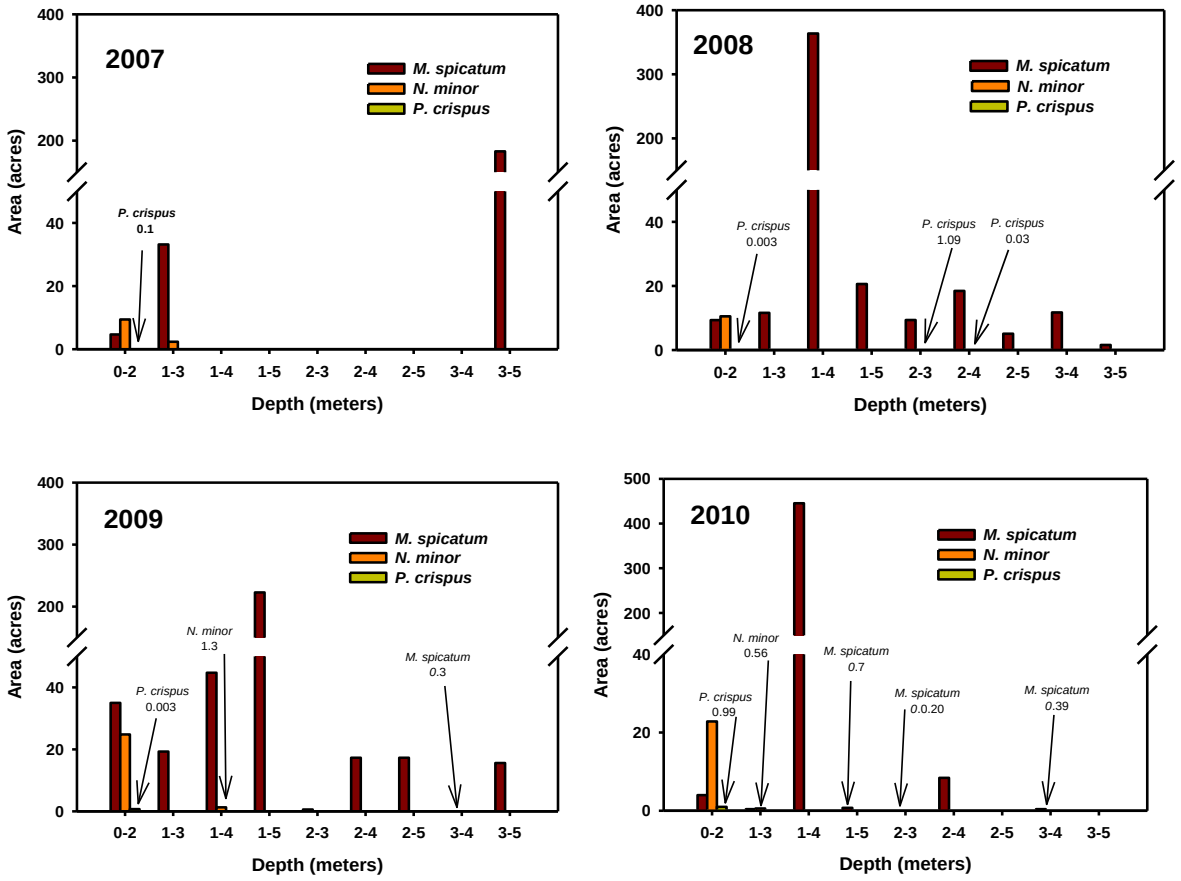


Figure 1. Yearly comparisons of depth preferences of invasive plants in Candlewood Lake.

P. crispus acreage continued an increasing trend with 1.0 acres found in 2010 compared to 0.7 acres in 2009, and 0.1 acres in 2008 and 2007 (Table 1). The single patch of *P. crispus* found at Great Neck in 2010 was very sparse having an abundance rating of one (Map 3). This follows the low abundance levels observed in 2007, 2008 and 2009 and is probably related to the low vigor this plant naturally exhibits in the summertime. Unconfirmed reports indicated considerable more *P. crispus* was found in the spring, particularly in the area of Holiday Point (Map 1).

Depth preferences of the invasive species have changed from year to year probably due to drawdowns, summer water levels and natural variation in plant communities (Figure 1). In 2010, the greatest area of *M. spicatum* occurred in 1-4 meters of water (445 acres, 96.5% of the total) while in 2009 it was found in 1-5 meters of water (222 acres, 59.5% of total). Low water levels due to dry conditions in the summer of 2010 may be the reason for the difference. The greatest area of *M. spicatum* in 2010 occurred at a depth similar to 2008 (1-

Figure 2. *M. spicatum* reaching the surface on the west side of Lattin's Cove. This was typical of heavily infested areas in 2010.

4 meters, 375 acres, 83.0% of total). Notably, both these years had shallow drawdowns. In 2007, the greatest coverage of *M. spicatum* was in 3-5 meters of water (182 acres, 82.6% of the total). This likely relates to an effective deep drawdown the previous winter.

In 2010, *M. spicatum* was very abundant at all depths where it occurred and often spread out on the surface and flowered (Figure 2). Water clarity and the associated light restriction at depths of more than five meters is the likely cause for *M. spicatum* to be absent at greater depths. *N. minor* and *P. crispus* generally were found at depths of less than three meters in all years. The restriction of *N. minor* to shallow water is likely because it rarely grows more than 1 m in height and it becomes light-limited at deeper depths. Moreover, *N. minor* is an annual that reproduces from seeds that seem to prefer the shallower, quiescent coves. *P. crispus* senesces in the summer months (Catling and Dobson, 1985), thus a considerable amount is not observable during our surveys.

Changes in milfoil coverage, patch number, size and abundance are likely related to differences in drawdown practices and corresponding weather conditions during the period when the sediment is exposed (Marsicano, 2009). The shallower drawdowns apparently allow rapid reinfestation of *M. spicatum* into shallower depths. In 2007 and 2009, the winter drawdown was approximately nine feet; however, the time the lake was maintained at the

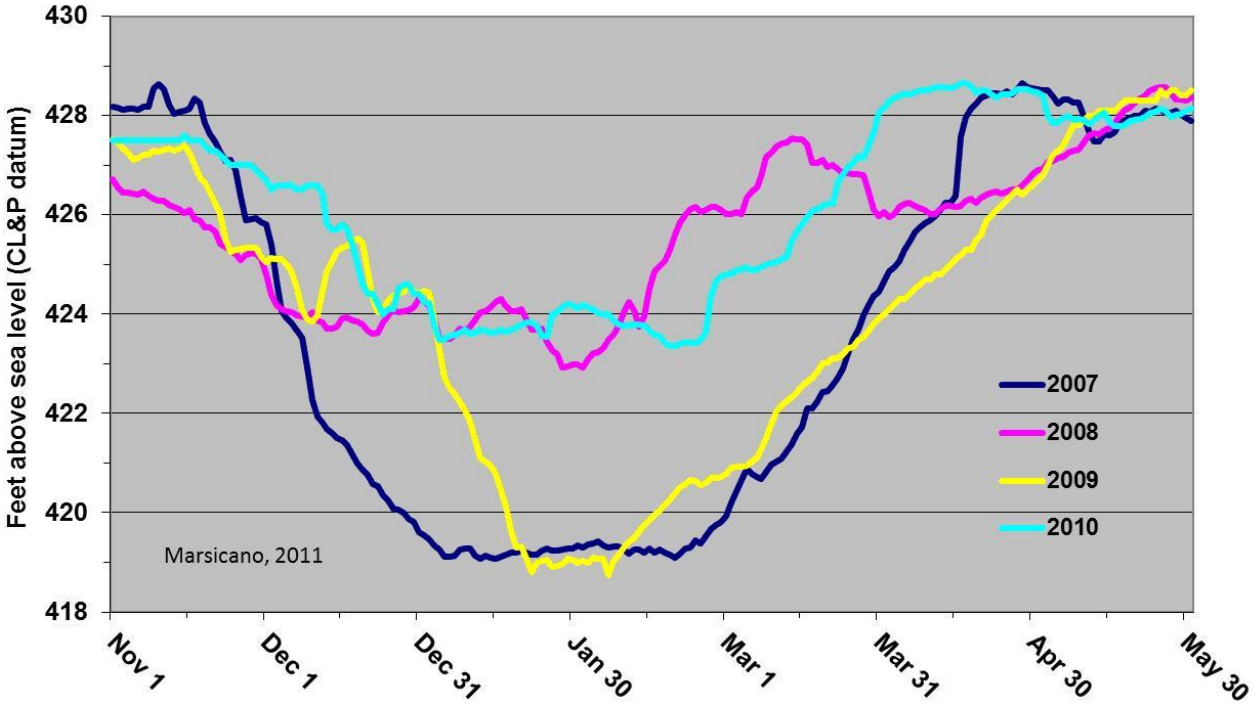


Figure 3. Depth and timing of winter drawdown in 2007, 2008, 2009, and 2010.

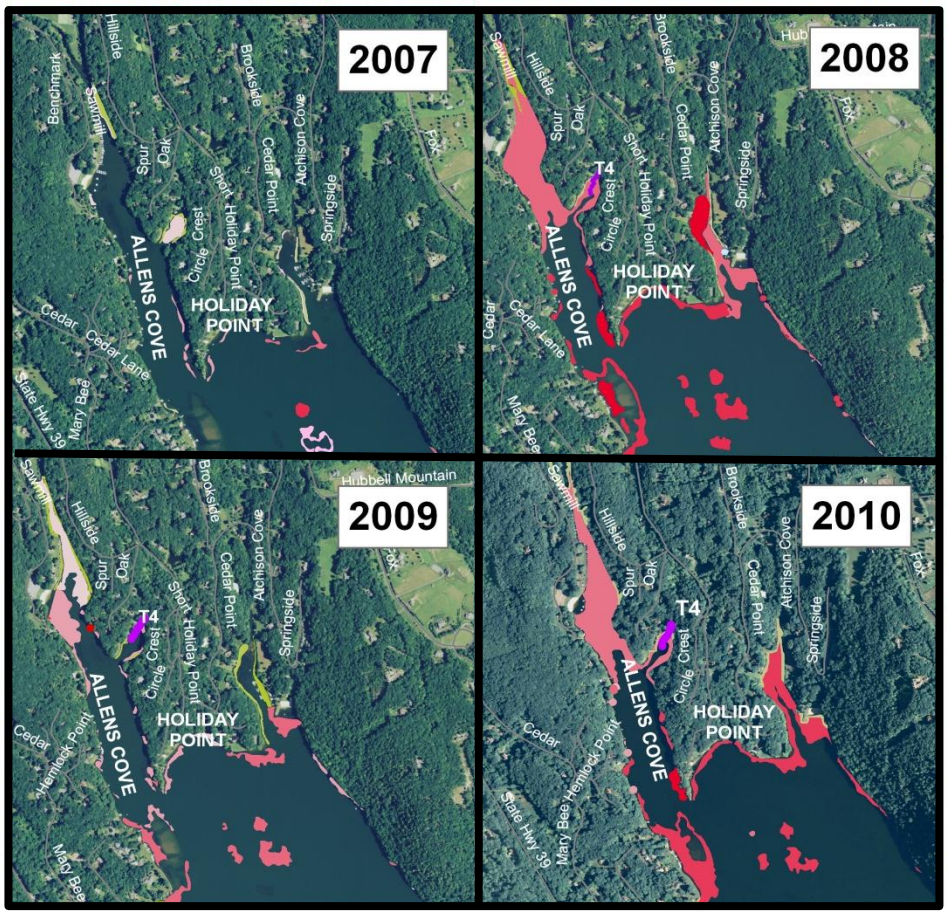


Figure 4. Comparison of *M. spicatum* coverage in Allen's Cove 2007-2010.

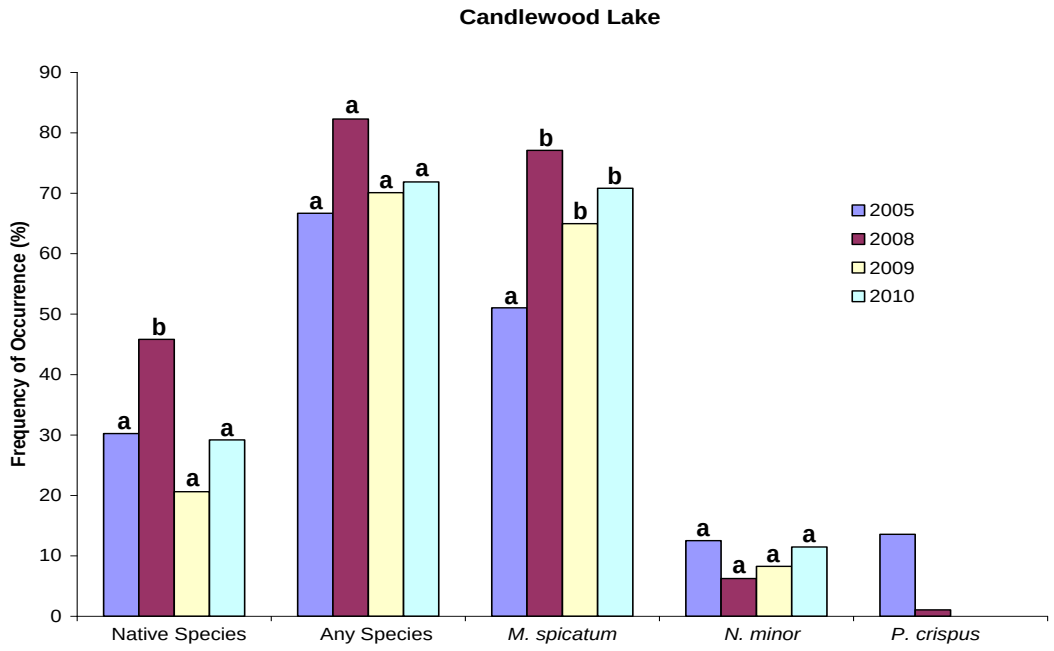


Figure 5. Yearly frequency of occurrence of aquatic vegetation on transects in Candlewood Lake. Bars with the same letter within a species are not statistically different.

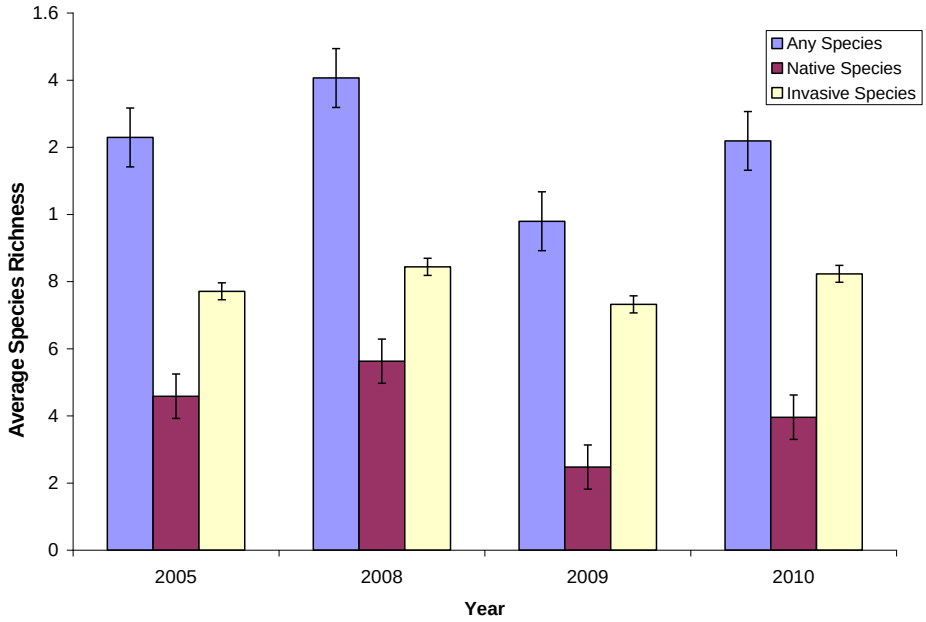


Figure 6. Yearly comparisons of the average number of plant species per transect point in Candlewood Lake. Error bars equal +/- one standard error of the mean.

the lowest depth was only about four weeks in 2009 compared to eight weeks in 2007 (Figure 3). The shorter drawdown time increases the chances for less than optimal conditions for controlling vegetation and may explain the differences in plant coverage, abundance etc. Close-up comparisons of *M. spicatum* in Allen's Cove (Figure 4) illustrate the year to year expansion and contraction of the plant in response to drawdown level and exposure time.

The frequency of occurrence of *M. spicatum* on transects (Figure 5) was 70.8% in 2010 compared to 65.0% in 2009 and 77.1% in 2008 (no statistical differences, $p > 0.05$) but greater than the 51.0% found in 2005 ($p = 0.02$). *N. minor* occurred with nearly the same frequency in 2010 as in all our previous survey years. We did not find *P. crispus* on transects in 2010 but it was documented in other parts of the lake. The average invasive species richness (number of plant species) per transect point (Figure 6) was significantly greater in the shallow drawdown years of 2010 and 2008 (± 1 SEM) than in the deep drawdown years of 2005 and 2009.

Robust populations of native species may decrease the invasibility of non-native species (Capers et al., 2007). Native species richness found on the reference transects, were eight in 2010, seven in 2009, 11 in 2008, and 14 in 2005 (Table 1). Plant species not found in 2010 that were present in 2005 were *Callitriche sp.*, *Elodea nuttallii*, *Najas flexilis, Potamogeton foliosus*, *Potamogeton gramineus*, *Potamogeton pusillus, Potamogeton perfoliatus,* and *Zannichellia palustris*. We found *Eleocharis sp.* for the first time on Candlewood transects in 2009, and it was found again in 2010. The decline in recent years of species richness could be due to natural variability, management factors such as drawdown, competition from invasive species or low summer water levels in 2010 (see appendix page 48).

Biodiversity is often considered optimal when both the species richness and the frequency of occurrence are high. The frequency of occurrence of any species on a transect point was 71.9% in 2010 (Figure 5), nearly the same as in 2009 (70.1%) and not significantly different ($p = 0.786$) than in the other years. The frequency of occurrence of native species on transect points was 29.2% in 2010, similar to 2009 (20.6%, $p = 0.17$) and 2005 (30.2%, $p = 0.87$) but significantly less than 2008 (45.8%, $p = 0.02$). The average native species richness per transect point in 2010 was 0.4 (Figure 6). Although this was not statistically different (± 1 SEM) than in 2009 (0.3) or 2005 (0.5) it was significantly smaller than in 2008 (0.6).

Table 4. Yearly comparisons of the coverage of invasive aquatic plants in Candlewood Lake's littoral zone.

Scientific Name	Common Name	Year	Area (%)
Myriophyllum spicatum	Eurasian watermilfoil	2007	27.28
		2008	55.68
		2009	46.05
		2010	56.91
Najas minor	Brittle waternymph	2007	1.46
		2008	1.30
		2009	3.22
		2010	2.59
Potamogeton crispus	Curly leaf pondweed	2007	0.01
		2008	0.01
		2009	0.09
		2010	0.12

These data suggest a trend towards replacement of native species with invasive species on transects and therefore probably throughout the lake.

The littoral zone is the area where depth does not limit plant growth. The percentage of this zone covered by aquatic vegetation is sometimes used to infer whether optimum habitat is available for fish and other aquatic organisms. From 20 to 40 percent vegetative coverage of the littoral zone is stated as optimal in Connecticut lakes (Jacobs and O'Donnell, 2002). This range does not take into account whether the vegetation inhabits the entire water column, as is often the case with *M. spicatum,* or whether it hugs the bottom as is common with many native plants. We used a depth of five meters (15 feet) as the littoral zone limit in Candlewood Lake because it corresponds to our field observations. The littoral zone of Candlewood Lake is 810 acres or 16 percent of the total lake area[1]. In 2010, *M. spicatum* occupied 56.9% of the littoral zone compared to 46.1% in 2009, 55.7% in 2008 and 27.3% in 2007 (Table 4). The area of the littoral zone containing *N. minor* in 2010 was 2.6% compared to 3.2% in 2009 and 1.3% and 1.5% in 2008 and 2007 respectively. *P. crispus* changed little during our surveys covering less than 0.1 % of the littoral zone. Our surveys found that in years such as 2007, when a relatively effective deep drawdown reduced milfoil coverage to 27.3%, the optimal 20-40% littoral zone coverage is satisfied by *M. spicatum* alone. When combined with the area of the other native and invasive species the upper end or over of the optimal range is achieved.

[1] This differs from the littoral zone of 1,079 acres and 21.3% reported in our 2009 report because of a discrepancy in bathymetry interpretation.

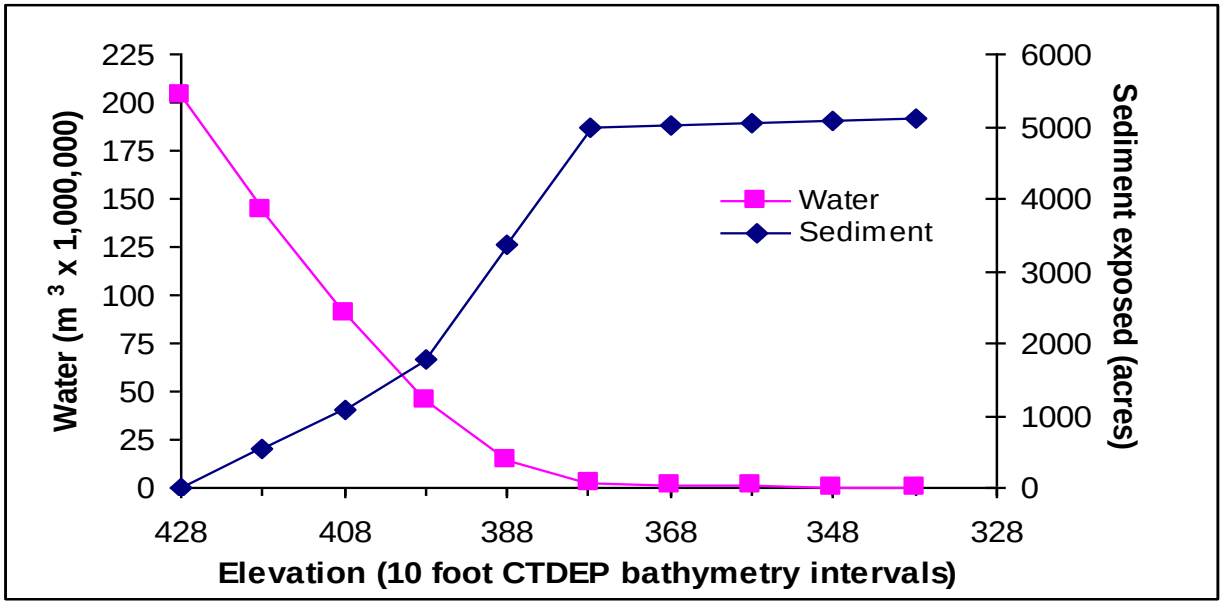
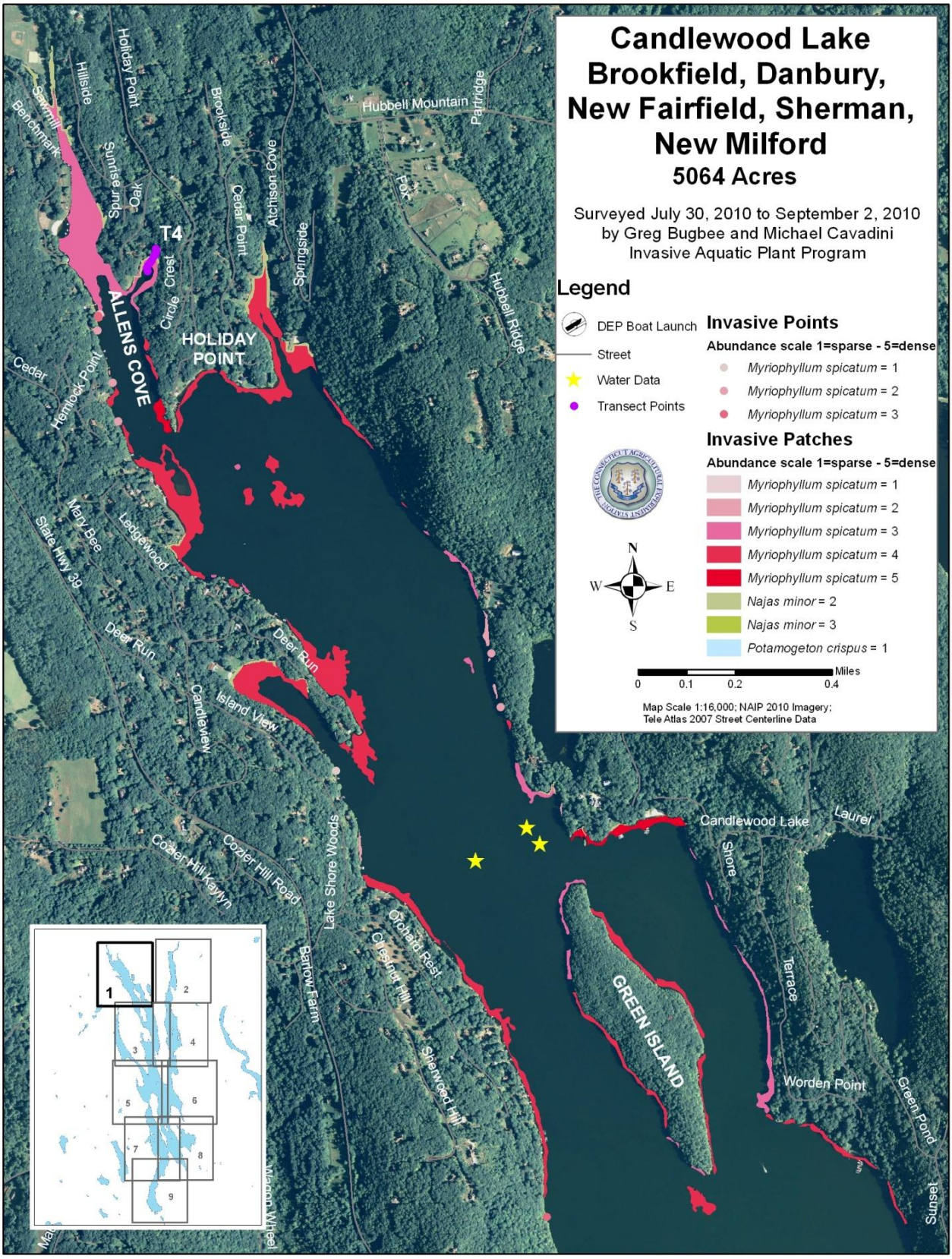


Figure 7. Amount of water remaining and area of sediment exposed versus drawdown depth in Candlewood Lake.

Lake Candlewood's Drawdown:

Using ArcGIS and CT DEP bathymetry data we were able to calculate the effects of drawdown depth on the area of sediment exposed and amount of water lost from Candlewood Lake. This information could help in making decisions on the drawdown depth that is most beneficial for control of invasive aquatic plants and whether the use of certain drawdown depths will be too risky for the lake to refill by spring. We hypothesized that after a certain depth the lake bottom would flatten out and only a small additional drawdown depth would be needed to expose a relatively large area of sediment. This could allow considerably more *M. spicatum* control with little extra effort to refill the lake. Because *M. spicatum* occurs in Candlewood Lake to a depth of 15 feet, the "flattening out" would have to occur prior to the 413 elevation (Figure 7) for any benefit to be attained. Unfortunately, this is not the case in Candlewood Lake. In fact, it isn't until Candlewood Lake reaches a depth of approximately 30 feet (398 elevation) that the linear relationship between drawdown depth and water loss/sediment exposed flattens. Until the drawdown is near 30 feet, approximately 50,000,000 m^3 of water is lost and 500 acres of sediment is exposed for every 10 feet of drawdown. Therefore, although a deeper drawdown (not allowed under current FERC agreement) could be beneficial in reducing *M. spicatum,* little benefits would be gained regarding decreased water needs for refilling the lake or additional sediment exposed per foot of drawdown.


Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Invasive Patches
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
N
W
E
S
0 0.1 0.2 0.4 Miles
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
T4
ALLENS COVE
HOLIDAY POINT
GREEN ISLAND
Hubbell Mountain
Partridge
Hubbell Ridge
Springside
Atchison Cove
Cedar Point
Brookside
Holiday Point
Hillside
Sawmill
Benchmark
Sunrise Knls
Oak
Crest
Circle
Cedar
Hemlock Point
Mary Bee
Ledgewood
State Hwy 39
Deer Run
Deer Run
Island View
Candleview
Cozier Hill Kaylyn
Cozier Hill Road
Lake Shore Woods
Orchard Rest
Chestnut Hill
Barrow Farm
Sherwood Hill
Candlewood Lake
Laurel
Shore
Terrace
Worden Point
Green Pond
Sunset
Mason Wheel
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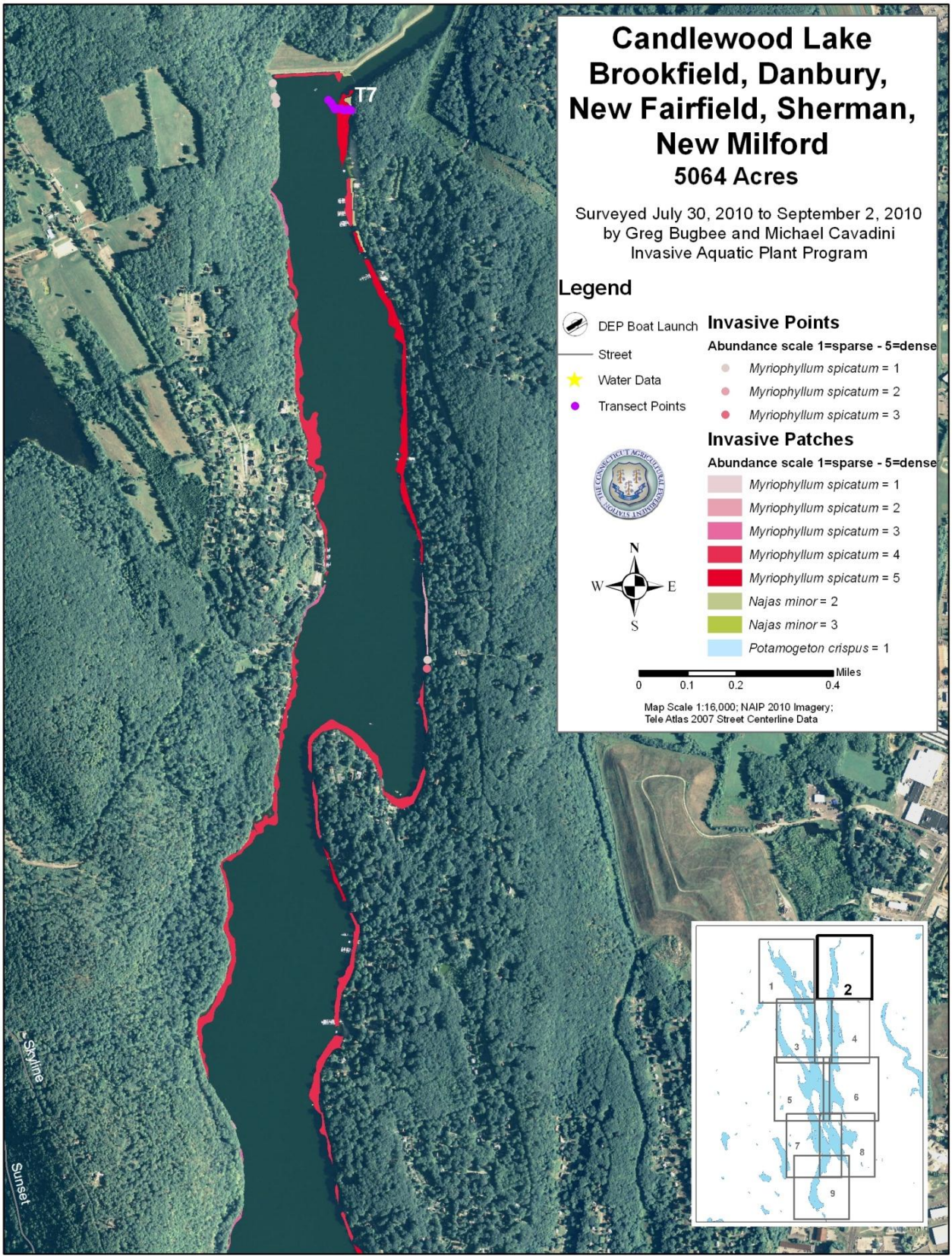
T7
Skyline
Sunset
Candlewood Lake
Brookfield, Danbury,
New Fairfield, Sherman,
New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Invasive Patches
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
N
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Miles
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0.1
0.2
0.4
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
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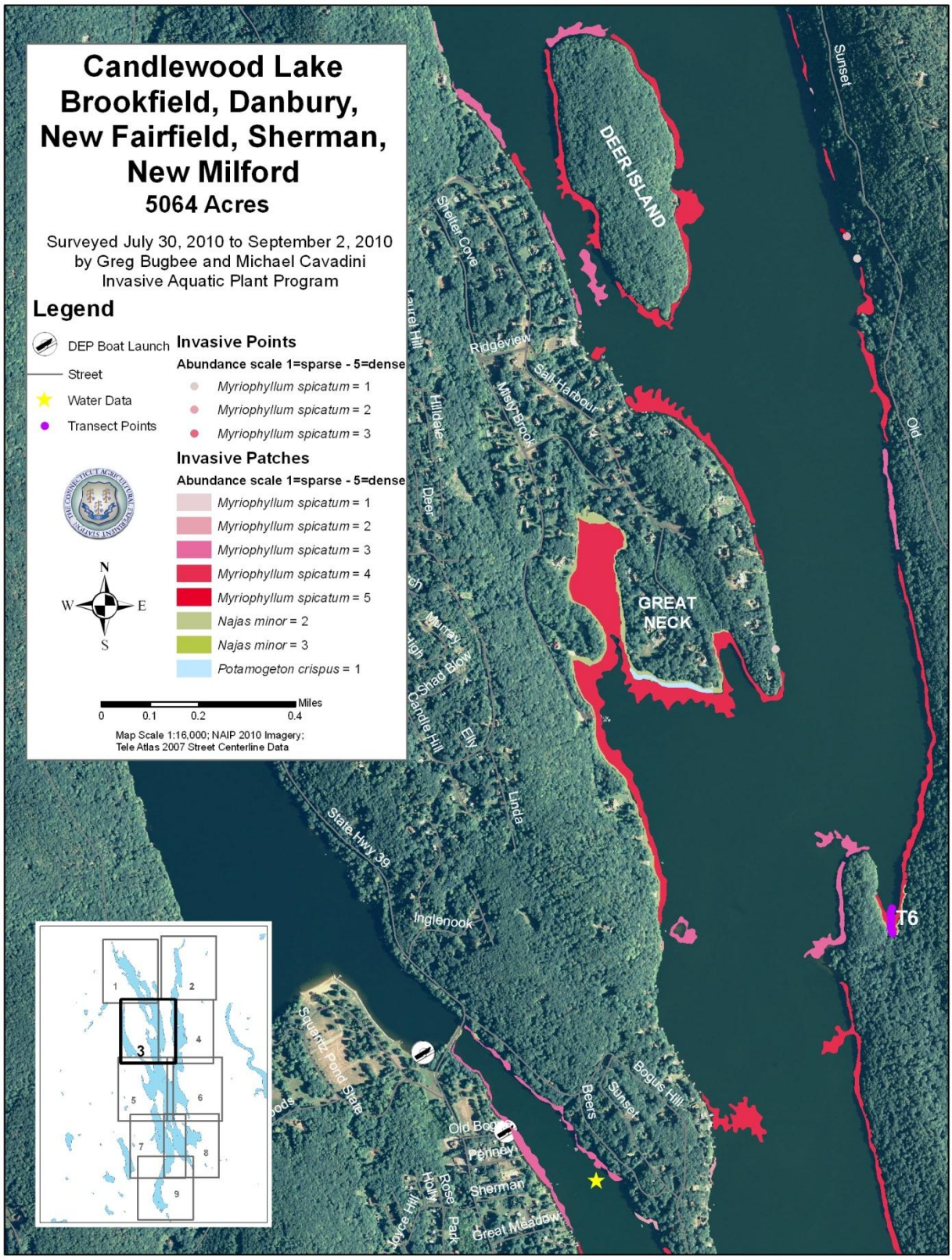
Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
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Myriophyllum spicatum = 3
Invasive Patches
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Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
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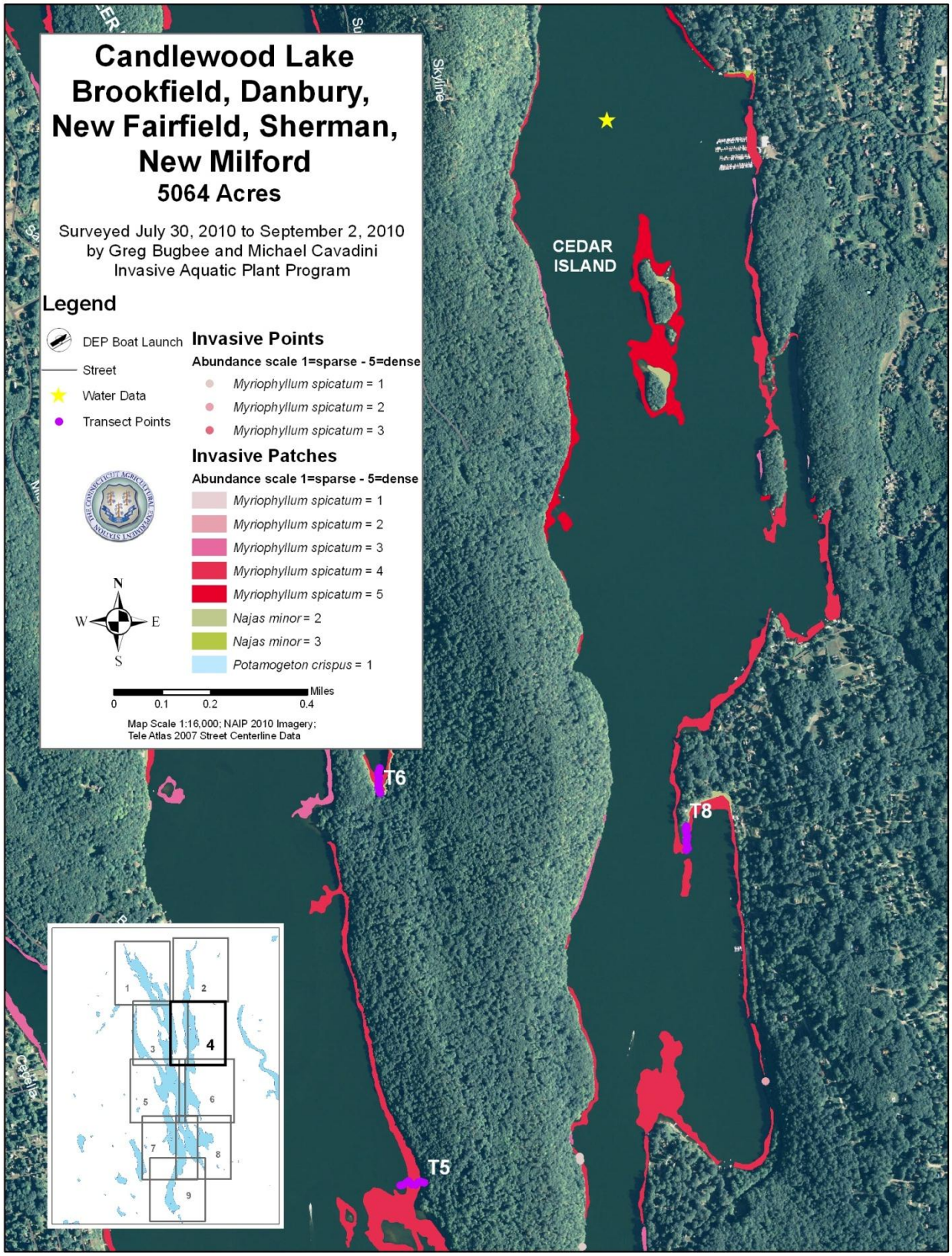
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
DEER ISLAND
GREAT NECK
T6
Shelter Cove
Laurel Hill
Ridgeview
Salt Harbour
Misty Brook
Hildale
Deer
Murray
Shad Blow
Candle Hill
Elly
Linda
State Hwy 39
Inglenook
Squantz Pond State
Old Bog
Perlney
Holly
Rose
Park
Sherman
Great Meadow
Beers
Sunset
Bogus Hill
Sunset
Old


Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Invasive Patches
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
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Miles
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Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
CEDAR ISLAND
Skyline
T6
T8
T5
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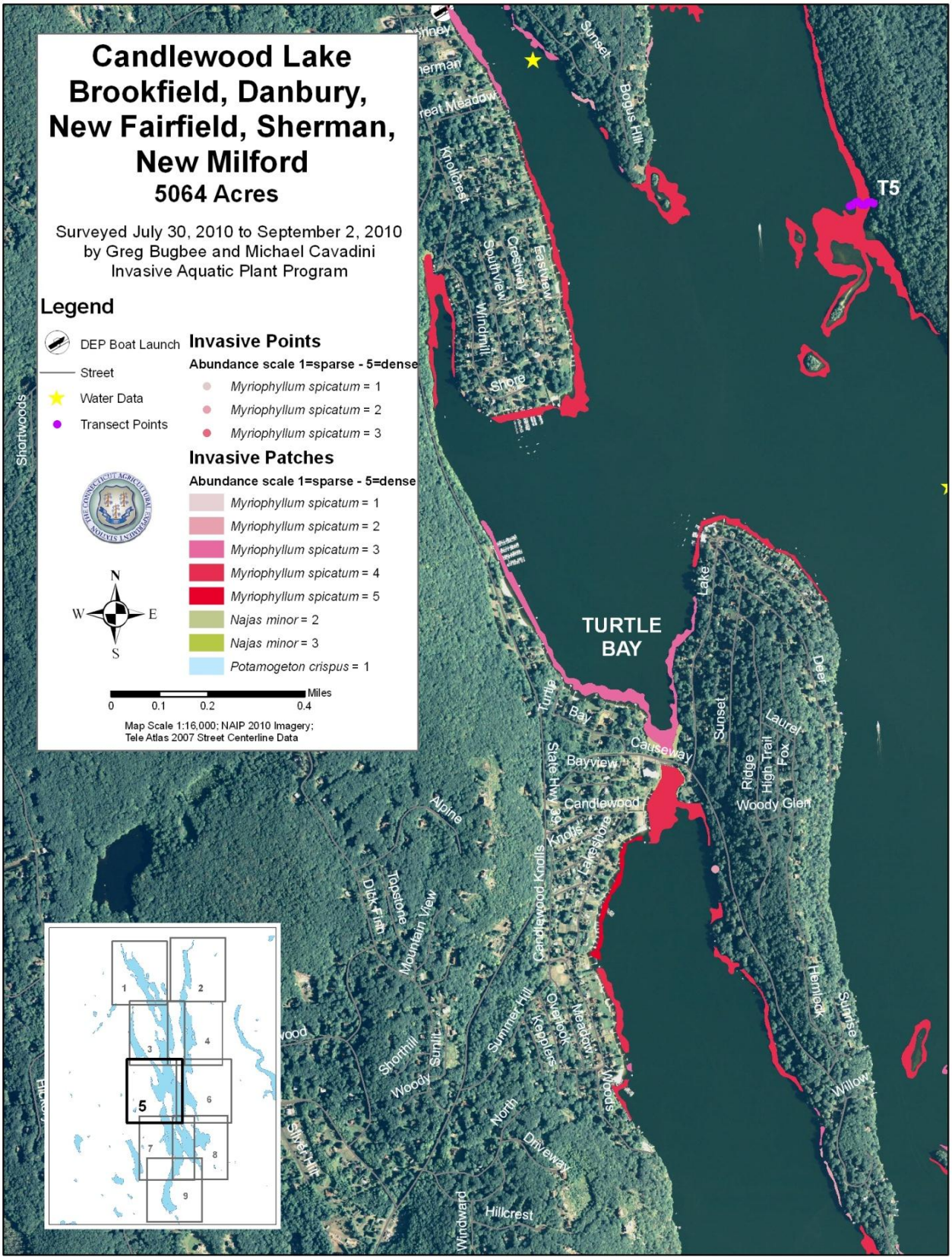
Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Invasive Patches
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Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
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Miles
0 0.1 0.2 0.4
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
T5
TURTLE BAY
Sunset
Bogus Hill
Knollcrest
Great Meadow
Crestway
Eastview
Southview
Windmill
Shore
Shortwoods
Lake
Deer
Laurel
Fox
Ridge
High Trail
Woody Glen
Causeway
Bayview
Turtle Bay
State Hwy 39
Candlewood Knolls
Lakeshore
Alpine
Dick Finch
Topstone
Mountain View
Summerhill
Overlook
Keepsies
Meadow
Woods
Shorthill
Sunlit
Woody
North
Driveway
Windward
Hillcrest
Hemlock
Sunrise
Willow
1
2
3
4
5
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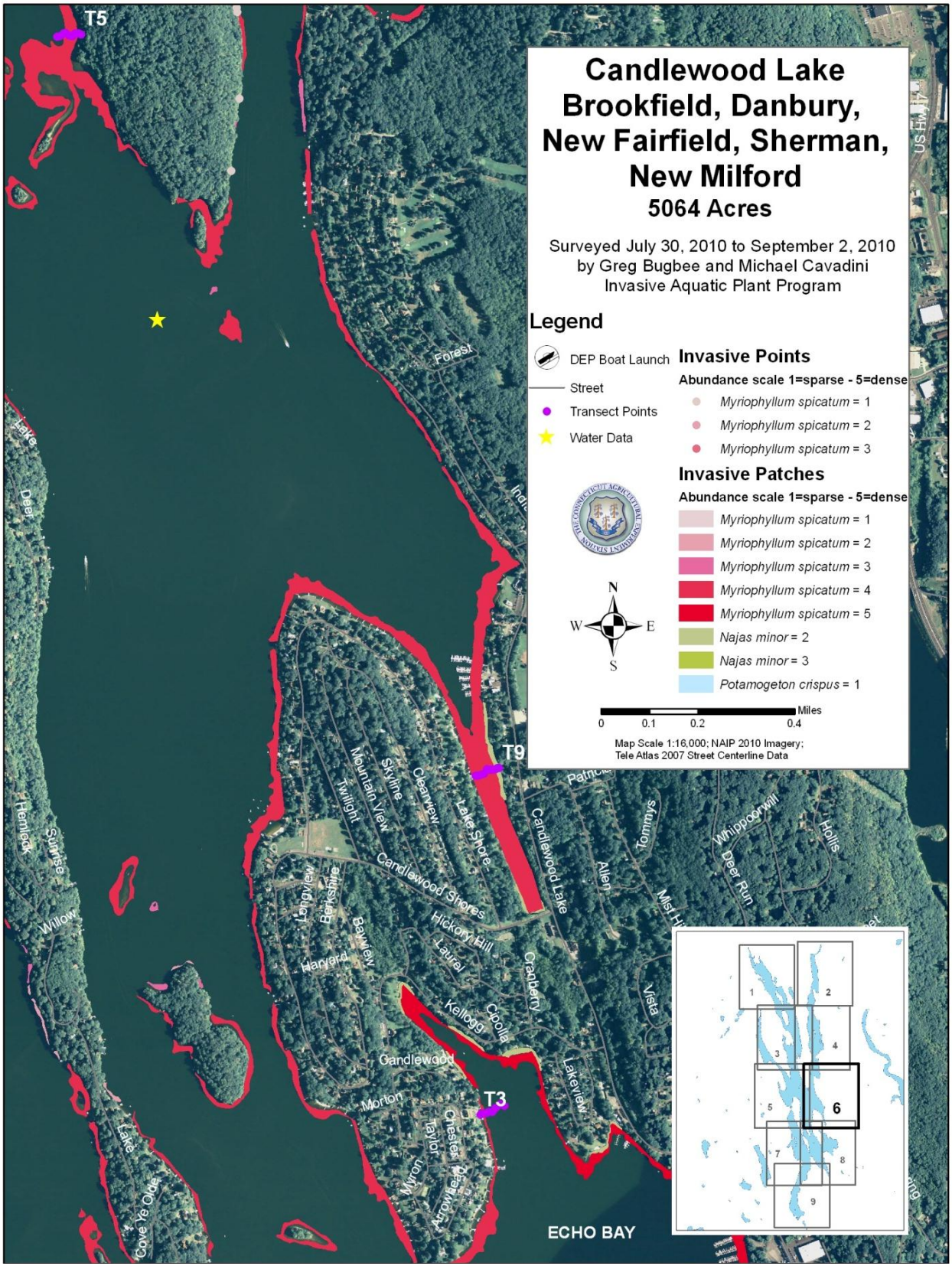
Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Transect Points
Water Data
Invasive Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 2
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Myriophyllum spicatum = 3
Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
N
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E
S
0 0.1 0.2 0.4 Miles
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
T5
T9
T3
Forest
Deer
Hemlock
Sunrise
Willow
Mountain View
Twilight
Skyline
Clearview
Lake Shore
Candlewood Shores
Longview
Berkshire
Bayview
Harvard
Hickory Hill
Laurel
Kellogg
Cipolla
Cranberry
Candlewood Lake
Allen
Tommys
Whippoorwill
Deer Run
Hollis
Vista
Lakeview
Candlewood
Morton
Taylor
Chester
Myron
Arrowhead
Cove Ye Olde
ECHO BAY
1
2
3
4
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6
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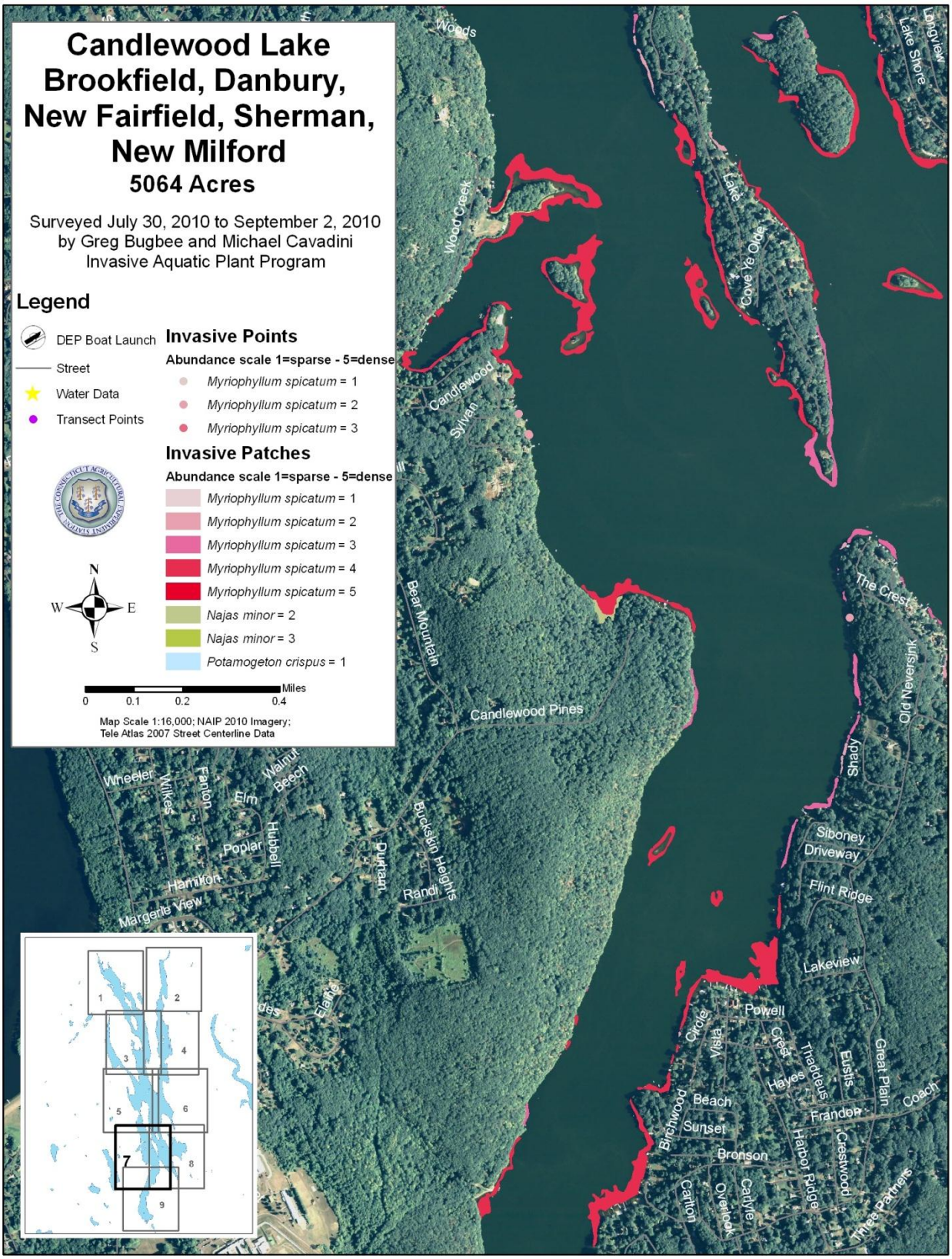
Candlewood Lake
Brookfield, Danbury,
New Fairfield, Sherman,
New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Invasive Patches
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Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
N
W
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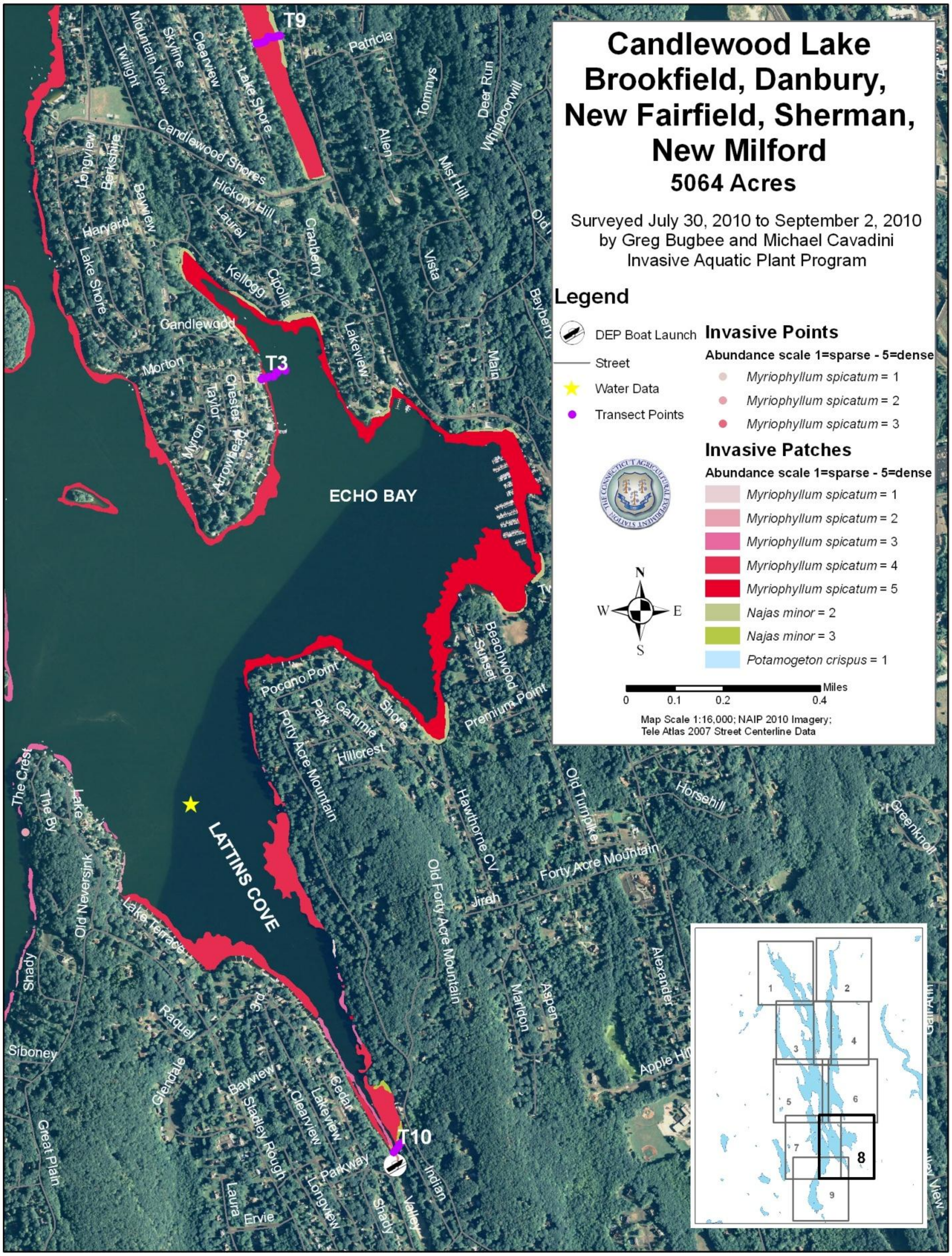
0 0.1 0.2 0.4 Miles
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
Woods
Longview
Lake Shore
Wood Creek
Lake
Cove Ye Olde
Candlewood
Sylvan
Bear Mountain
The Crest
Old Newtown
Candlewood Pines
Shady
Wheeler
Wilkes
Fanton
Elm
Walnut
Beech
Poplar
Hubbell
Hamilton
Margerite View
Durham
Buckskin Heights
Randi
Siboney
Driveway
Flint Ridge
Lakeview
Powell
Circle
Vista
Crest
Thaddeus
Hayes
Eustis
Great Plain
Coach
Frandor
Birchwood
Beach
Sunset
Bronson
Harbor Ridge
Crestwood
Three Partners
Carlton
Overlook
Carlyle


Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Street
Water Data
Transect Points
Invasive Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
N
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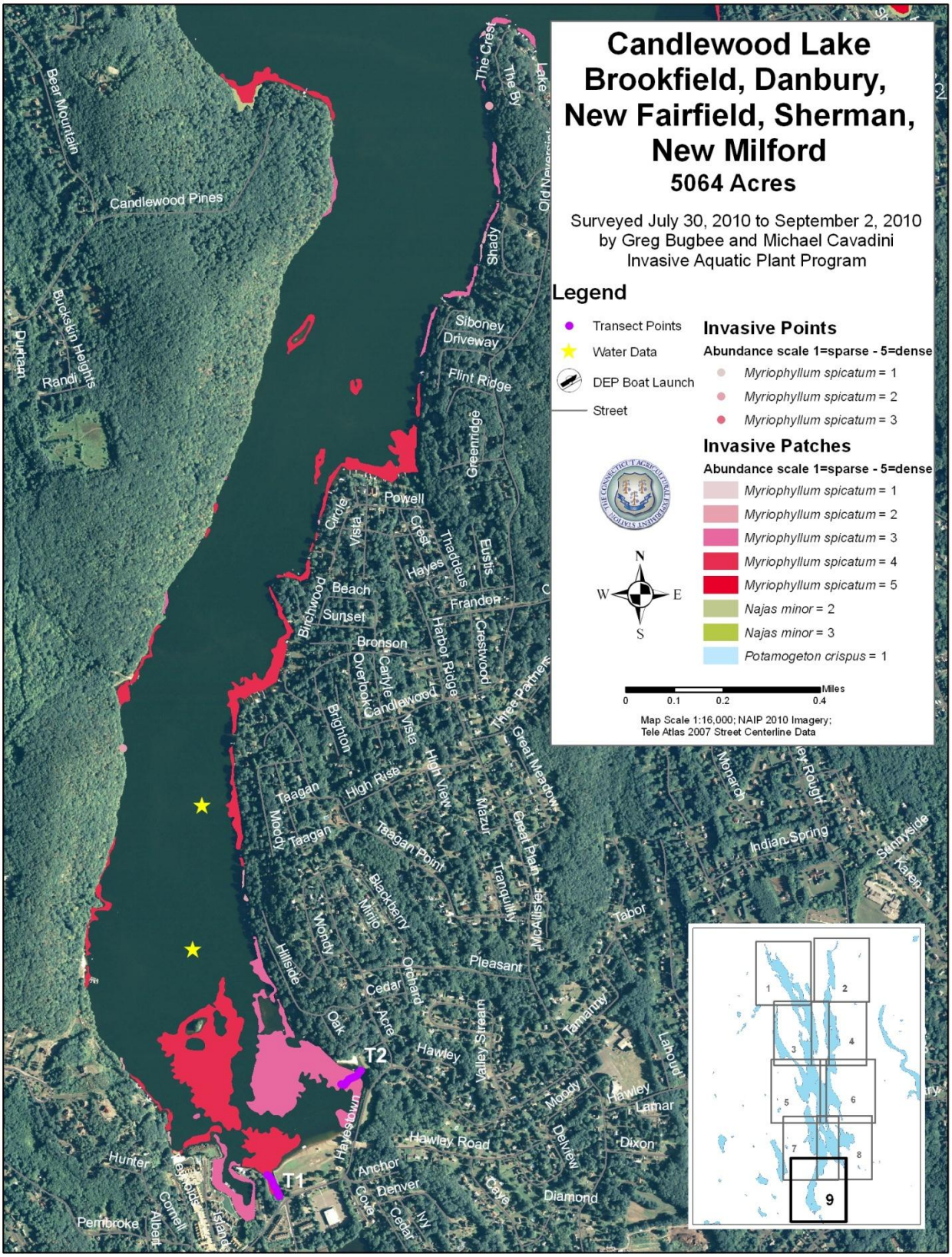
Miles
0 0.1 0.2 0.4
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
ECHO BAY
LATTINS COVE
T9
T3
T10
1 2 3 4 5 6 7 8 9


Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 Acres
Surveyed July 30, 2010 to September 2, 2010
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
Transect Points
Water Data
DEP Boat Launch
Street
Invasive Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 1
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Myriophyllum spicatum = 3
Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 2
Najas minor = 3
Potamogeton crispus = 1
N
W
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0 0.1 0.2 0.4 Miles
Map Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data
T1
T2
Bear Mountain
Candlewood Pines
Buckskin Heights
Durham
Randi
The Crest
The By
Lake
Old Navesink
Shady
Siboney
Driveway
Flint Ridge
Greenridge
Powell
Circle
Vista
Crest
Thaddeus
Eustis
Hayes
Beach
Sunset
Birchwood
Frander
Bronson
Overlook
Carlyle
Candlewood
Vista
Harbor Ridge
Crestwood
Three Pamers
Great Meadow
Brighton
Taagan
High Rise
High View
Mazur
Moody
Taagan Point
Blackberry
Mirrio
Windy
Hillside
Tranquility
McAllister
Pleasant
Cedar
Orchard
Oak
Acre
Hawley
Valley Stream
Tamarack
Tabor
Monarch
Ivy Rough
Indian Spring
Sunnyside
Karen
Lahoud
Moody
Hawley
Lamar
Dixon
Delview
Hawley Road
Hayestown
Anchor
Denver
Cove
Cedar
Ivy
Cave
Diamond
Hunter
Cornell
Albert
Pembroke
Island
1
2
3
4
5
6
7
8
9

Table 5. Yearly comparisons of frequency of occurrence and total area of aquatic vegetation in Lake Lillinonah.

Scientific Name	Common Name	Abbrev.	Frequency of Occurrence (percent**)			Area (acres)	
			2007	2009	2010	2007	2009
Callitiche sp.	Water starwort	CalSp.	1.0	0.0	0.00	ND***	ND
Ceratophyllum demersum	Coontail	CerDem	0.0	1.0	3.03	ND	ND
Elatine sp.	Waterwort	ElaSp	0.0	0.0	2.02	ND	ND
Eleocharis sp.	Spikerush	EleSp	2.0	4.0	4.04	ND	ND
Elodea nuttallii	Waterweed	EloNut	0.0	0.0	0.00	ND	ND
Eriocaulon aquaticum	Sevenangel pipewort	EriAqu	0.0	1.0	2.02	ND	ND
Isoetes species	Quillwort	IsoSp	0.0	0.0	0.00	ND	ND
Gratiola aurea	Golden hedge-hyssop	GraAur	0.0	0.6	0.00	ND	ND
Lemna minor	Duckweed	LemMin	0.0	1.0	0.00	ND	ND
Myriophyllum spicatum	**Eurasian watermilfoil**	**MyrSpi**	**16.0**	**15.0**	**25.25**	**21.3**	**18.8**
Najas minor	**Brittle waternymph**	**NajMin**	**14.0**	**6.0**	**5.05**	**7.6**	**0.7**
Potamogeton bicupulatus	Snailseed pondweed	PotBic	0.0	3.0	0.00	ND	ND
Potamogeton crispus	**Curly leaf pondweed**	**PotCri**	**3.0**	**0.0**	**1.01**	**0.1**	**0.0002**
Potamogeton foliosus	Leafy pondweed	PotFol	0.0	0.0	4.04	ND	ND
Potamogeton illinoensis	Illinois pondweed	PotIll	2.0	2.0	0.00	ND	ND
Potamogeton pusillus	Small Pondweed	PotPus	0.0	0.0	1.01	ND	ND
Sagittaria sp.	Arrowhead	SagSp.	0.0	0.0	1.01	ND	ND
Sparganium sp.	Bur reed	SpaSp	0.0	0.0	0.00	ND	ND
Stuckinia pectinatus	Sago pondweed	StuPec	0.0	0.0	0.00	ND	ND
Zannichellia palustrus	Horned pondweed	ZanPal	1.0	0.0	4.00	ND	ND
Zosterella dubia	Water stargrass	ZosDub	4.0	0.0	0.00	ND	ND

Invasive plant

** Percent occurrence on 99 points in 10 transects

*** Not Determined

Lake Lillinonah

After conducting a whole lake and transect survey of Lake Lillinonah in 2009, we obtained only transect data in 2010 (Table 5 and Figure 10). Three invasive species were found along transects: *Myriophyllum spicatum, Najas minor,* and *Potamogeton crispus*. We found a frequency of occurrence of *M. spicatum* of 25.3% in 2010 which was not statistically different ($p>0.05$) than the 15 -16% we found in 2007 and 2009. *N. minor* occurred with nearly the same frequency in 2010 and 2009 (5.1 and 6.0%) but was significantly less than the 14% found in 2007 ($p=0.032$). *P. crispus* continued to be found only about one percent of the transect points. The average species richness of invasive species per transect point (Figure 8) was 0.31 in 2010, compared to 0.21 in 2009 and 0.33 in 2007, but these changes were not statistically different ($p>0.05$).

Eight native plant species occurred on Lake Lillinonah's transects in 2010 compared to seven in 2009 and five in 2007 (Table 5). The native aquatic plant population showed substantial yearly changes with only *Eleocharis sp.* being found in all three years. The most

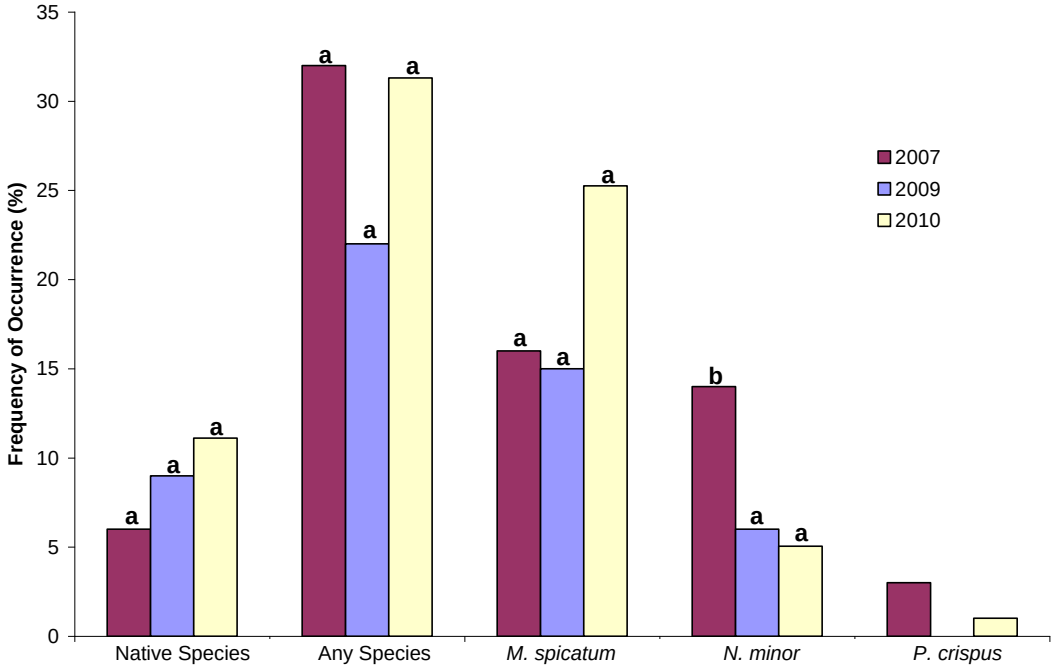


Figure 8. Yearly comparisons of frequency of occurrence of aquatic vegetation on transects in Lake Lillinonah. Bars with the same letter within a species are not statistically different.

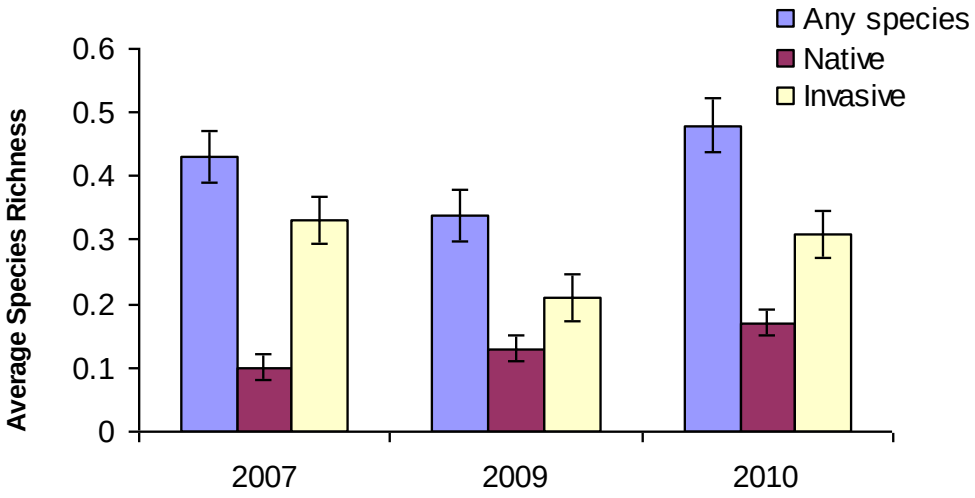


Figure 9.Yearly comparisons of average number of species per point in Lake Lillinonah. Error bars equal +/- standard error of the mean.

frequently found native species in 2010, were *Eleocharis sp., Potamogeton foliosus,* and *Zannichellia palustrus* but even these were found on only 4% of the transect points. Native plants found for the first time in 2010 were *Elatine sp.*, *Potamogeton foliosus*, *Potamogeton*

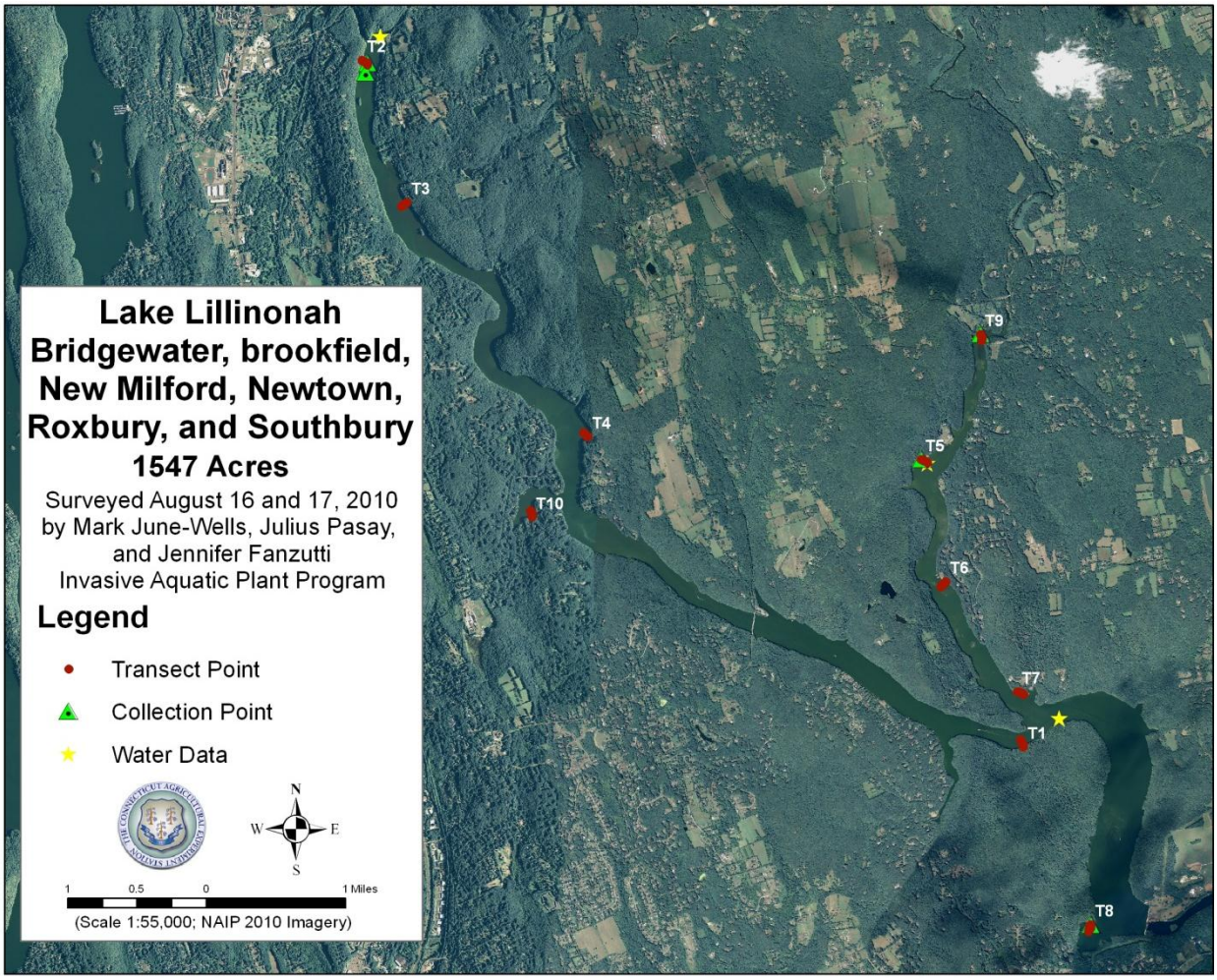


Figure 10.Locations of transects, plant collection points and water sampling sites in Lake Lillinonah.

pusillus and *Sagitaria sp*. Plants not found in 2010 that were present in 2009 were *Gratiola aurea, Lemna minor, Potamogeton bicupulatus*, and *Potamogeton illinoensis.* The small yearly increases in frequency of occurrence of native species (Figure 8) were not statistically significant ($p>0.05$). The average native species richness per transect point was 0.17 in 2010 compared to 0.13 in 2009 and 0.10 in 2007 (Figure 9). These changes were not statistically different ($p>0.05$). Similarly, the average number of all species (invasive plus native) per transect point were not significantly different in 2010 from any year. Plant populations in Lake Lillinonah appear considerably more stable than in Lake Candlewood probably because winter drawdown is being used to control invasive species. Notably, the water level in late July 2009 fell to nearly four feet below normal (see appendix page 48) and this seemed to have little effect on plant populations.

Table 6. Yearly comparisons of frequency of occurrence and total area of aquatic vegetation in Lake Zoar.

Scientific Name	Common Name	Abbrev.	Frequency of Occurrence (percent **)				Area (acres)		
			2007	2008	2009	2010	2007	2008	2010
Ceratophyllum demersum	Coontail	CerDem	3.0	4.0	23.0	15.0	ND***	ND	ND
Elodea nuttallii	Waterweed	EloNut	6.0	7.0	7.0	23.0	ND	ND	ND
Isoetes species	Quillwort	IsoSp	0.0	0.0	0.0	0.0	ND	ND	ND
Marsilea quadrifolia	**European waterclover**	**MarQua**	**0.0**	**0.0**	**0.0**	**0.0**	**<0.1**	**0.2**	**0.3**
Myriophyllum spicatum	**Eurasian watermilfoil**	**MyrSpi**	**35.0**	**37.0**	**33.0**	**49.0**	**62.6**	**70.2**	**85.0**
Najas flexilis	Nodding waternymph	NajFle	2.0	1.0	4.0	2.0	ND	ND	ND
Najas minor	**Brittle waternymph**	**NajMin**	**18.0**	**18.0**	**16.0**	**24.0**	**32.5**	**12.8**	**12.6**
Potamogeton crispus	**Curly leaf pondweed**	**PotCri**	**6.0**	**10.0**	**7.0**	**7.0**	**20.8**	**4.3**	**12.6**
Potamogeton epihyrdus	Ribbon leaf pondweed	PotEpi	0.0	0.0	2.0	0.0	ND	ND	ND
Potamogeton foliosus	Leafy pondweed	PotFol	2.0	0.0	0.0	4.0	ND	ND	ND
Potamogeton natans	Floating leaf pondweed	PotNat	0.0	0.0	0.0	0.0	ND	ND	ND
Potamogeton nodosus	Long leaf pondweed	PotNod	0.0	0.0	0.0	0.0	ND	ND	ND
Potamogeton praelongus	White stem pondweed	PotPra	0.0	0.0	1.0	1.0	ND	ND	ND
Potamogeton perfoliatus	Clasping leaf pondweed	PotPer	0.0	0.0	0.0	0.0	ND	ND	ND
Potamogeton pusillus	Small Pondweed	PotPus	0.0	0.0	0.0	0.0	ND	ND	ND
Potamogeton zosteriformis	Flatstem pondweed	PotZos	0.0	0.0	0.0	3.0	ND	ND	ND
Sagittaria species	Arrowhead	SagSp	0.0	0.0	0.0	0.0	ND	ND	ND
Stuckinia pectinatus	Sago pondweed	StuPec	3.0	0.0	0.0	0.0	ND	ND	ND
Vallisneria americana	Eel grass	ValAme	8.0	6.0	15.0	6.0	ND	ND	ND
Zosterella dubia	Water stargrass	ZosDub	1.0	1.0	0.0	0.0	ND	ND	ND

Invasive plant

** Percent occurrence on 100 points in 10 transects

*** Not Determined

Lake Zoar

The CAES IAPP 2010 survey of Lake Zoar reconfirmed the presence of four invasive plant species: *Myriophyllum spicatum, Najas minor, Potamogeton crispus,* and *Marsilea quadrifolia. M. spicatum* appears to be steadily increasing in area with 85 acres found in our 2010 survey compared to 70.2 acres in 2008 and 62.6 acres in 2007 (Table 6, Maps 1-5). The coverage of *N. minor* remained nearly the same in 2010 as in 2008 (12.6 vs.12.8 acres) but was considerably less than the 32.5 acres we found in 2007. *P. crispus* covered 12.6 acres in 2010 a nearly threefold increase over 2008. Our yearly transect data showed an increase in the frequency of occurrence of *M. spicatum* from 35% in 2007 and 33% in 2009 to 49% in 2010. Although *N. minor* increased its frequency on transects points to 24% in 2010 from 16%–18% in our previous surveys, the increase was not statistically different ($p>0.05$). The occurrence of *P. crispus* on transects ranged between 6% and 10% percent throughout the years with no significant changes. *M. quadrifolia* was not found along any transects.

Table 7. Yearly comparisons of invasive patch number and size in Lake Zoar.

		Patch Size (acres)															
		Myriophyllum spicatum				*Najas minor*				*Potamogeton crispus*				*Marsilea quadrifolia*			
		Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
Year	2007	252	0.0002	26.51	0.248	103	0.0002	11.35	0.315	49	0.0002	9.4	0.425	2	0.0002	0.0002	0.0002
	2008	309	0.0002	19.83	0.227	130	0.0002	4.25	0.099	211	0.0002	1.37	0.02	23	0.0002	0.048	0.014
	2010	399	0.0002	24.43	0.213	141	0.0002	4.05	0.09	116	0.0002	4.19	0.109	44	0.0002	0.087	0.006

Table 8. Yearly comparisons of invasive patch abundance in Lake Zoar.

		Patch Abundance (1 = sparse - 5 = dense)											
		Myriophyllum spicatum			*Najas minor*			*Potamogeton crispus*			*Marsilea quadrifolia*		
		(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
Year	2007	1	4	1.75	1	5	3.5	1	4	2.2	3	4	3.5
	2008	1	4	1.7	1	4	2.1	1	4	1.9	2	4	3.1
	2010	1	5	2.0	1	5	2.4	1	4	2.1	2	5	4.0

There were more patches of *M. spicatum* in 2010 (399) than in 2008 (309) and 2007 (252) (Table 7). The mean patch size of *M. spicatum* decreased slightly to 0.21 acres in 2010 from 0.23 acres in 2008 and 0.25 acres in 2007. Mean patch abundance of *M. spicatum* increased from 1.7 in 2007 and 2008 to 2.0 in 2010 (Table 8). The number of *N. minor* patches showed an increasing trend from 103 in 2007 and 130 in 2008 to 141 in 2010; however, the 2010 mean patch size of 0.1 acres was unchanged from 2008 and was considerably smaller than the 0.3 acres in 2007. Mean patch abundance of *N. minor* increased slightly to 2.4 in 2010 from 2.1 in 2008 but remained well below the 3.5 observed in 2007. The average patch size of *P. crispus* increased from 0.02 in 2008 to 0.11 in 2010; however, the number of patches decreased from 211 to 116. *P. crispus* patch size, number and abundance has remained nearly the same throughout the survey years but this may be misleading as *P. crispus* is not normally abundant during the summer months. *M. quadrifolia* has spread southward to a second cove in the northwest portion of the lake and has steadily increased in area from less than 0.1 acres in 2007 to 0.2 acres in 2008 and 0.3 acres in 2010 (Table 6).

In 2010, we found 37.5 acres at the 0-1 meter depth, 35.0 acres at a depth of 1-3 meters, 3.3 acres at depth of 3-5 meters and 1.6 acres at depths of greater than five meters (Figure 11). We found more *M. spicatum* growing at a depth of 1-3 meters in 2010 compared to previous years and found M. *spicatum* growing at depths of greater than three meters for the first time. The trend toward finding *M. spicatum* at deeper depths may be because of low water levels in July of 2009 (see appendix, page 48) that allowed *M. spicatum*

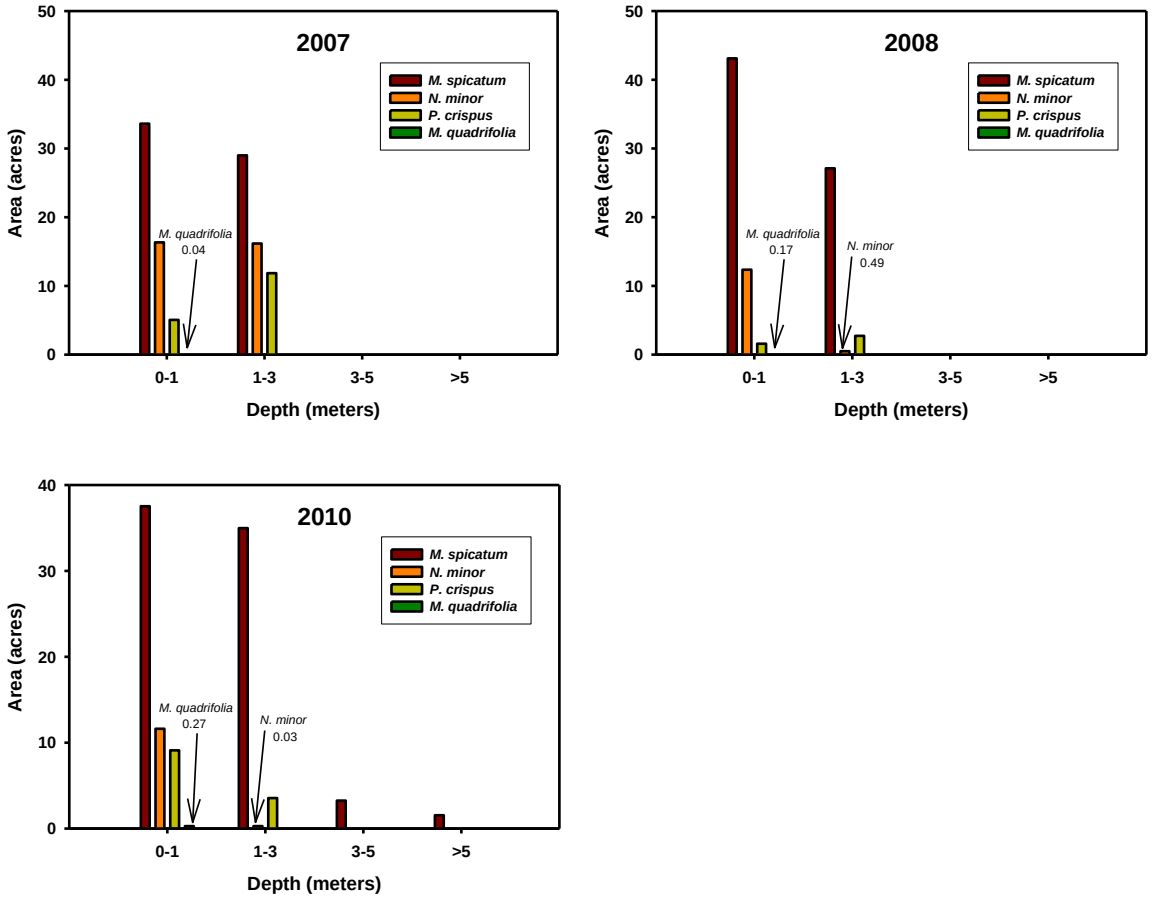


Figure 11. Yearly comparisons of the depth preferences of invasive plants in Lake Zoar.

establish at deeper depths. Notably this pattern did not occur in Lake Lillinonah and *N. minor* and *P. crispus* did not show similar migration to deeper depths. We found *M. quadrifolia* exclusively in water 0-1 meters deep in all years. Sometimes this plant took on wetland characteristics by growing out of the water in wet sediment. This could result from fluctuating water levels in Lake Zoar.

Seven native plant species were found on Lake Zoar's transects in 2010 (Table 6). Among the most common were *Elodea nuttallii* (23%), *Ceratophyllum demersum* (15%) and *Vallisneria americana* (6%). We found these plants along with *Najas flexilis* (2%) in all our previous surveys. Plants found in 2010 that were present in at least one of our previous survey years included; *Potamogeton foliosus* and *Potamogeton praelongus* while *Potamogeton zosteriformis* was found for the first time. Native species not found in 2010 that were

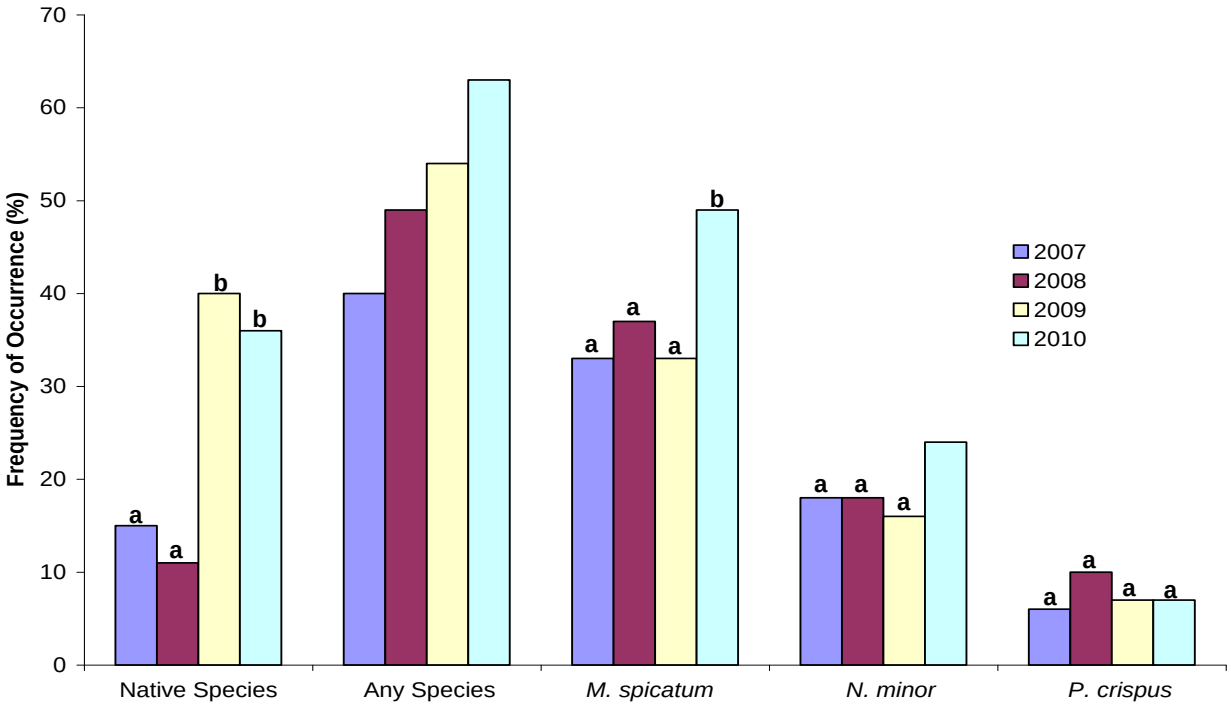


Figure 12. Yearly comparisons of frequency of occurrence of native and invasive plants on transects in Lake Zoar. Bars with similar letters within species are not statistically different.

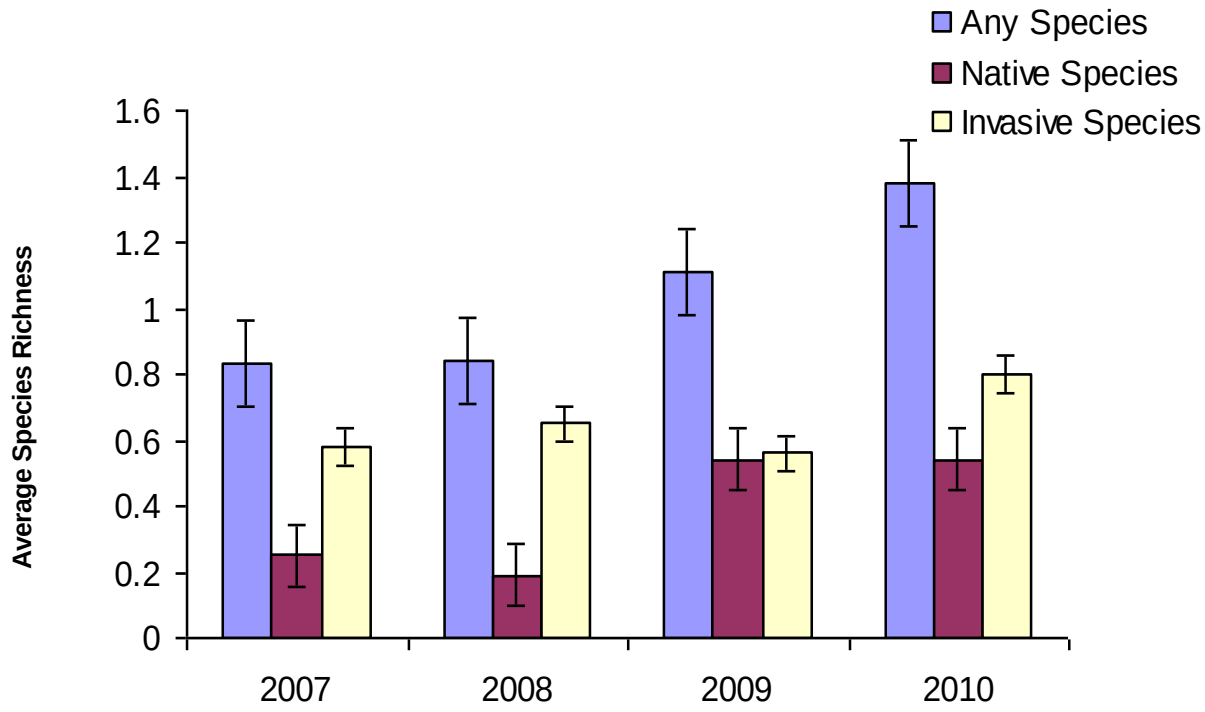


Figure 13. Yearly comparison of the average number of species per transect point in Lake Zoar. Error bars equal +/- standard error of the mean.

Table 9. Yearly comparisons of the coverage of Lake Zoar's littoral zone with invasive aquatic plants.

Scientific Name	Common Name	Year	Area (%)
Myriophyllum spicatum	Eurasian watermilfoil	2007	16.7
		2008	18.7
		2010	22.7
Najas minor	Brittle waternymph	2007	8.7
		2008	3.4
		2010	3.4
Potamogeton crispus	Curly leaf pondweed	2007	5.6
		2008	1.1
		2010	3.4
Marsilea quadrifolia	European waterclover	2007	0.0
		2008	0.1
		2010	0.1

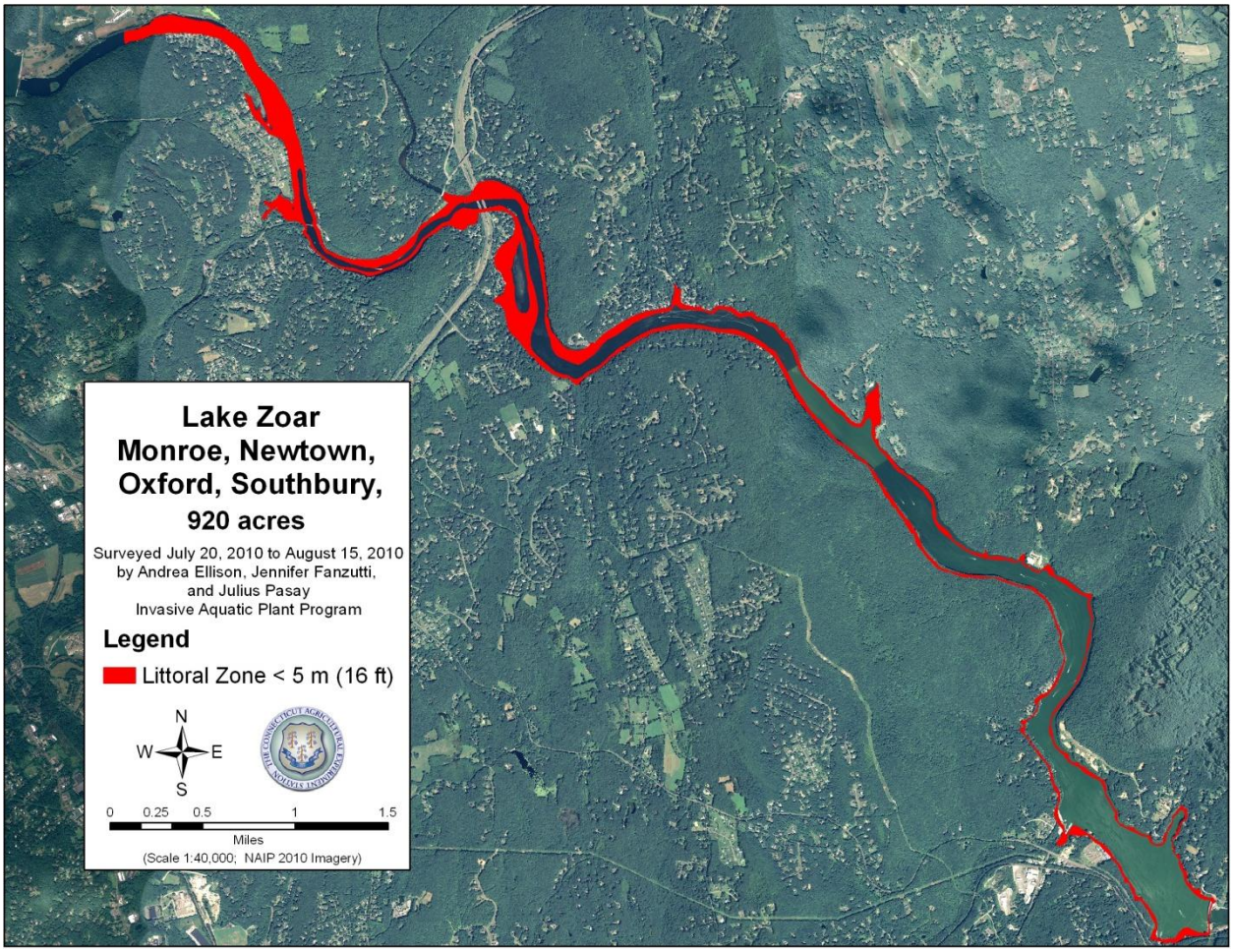
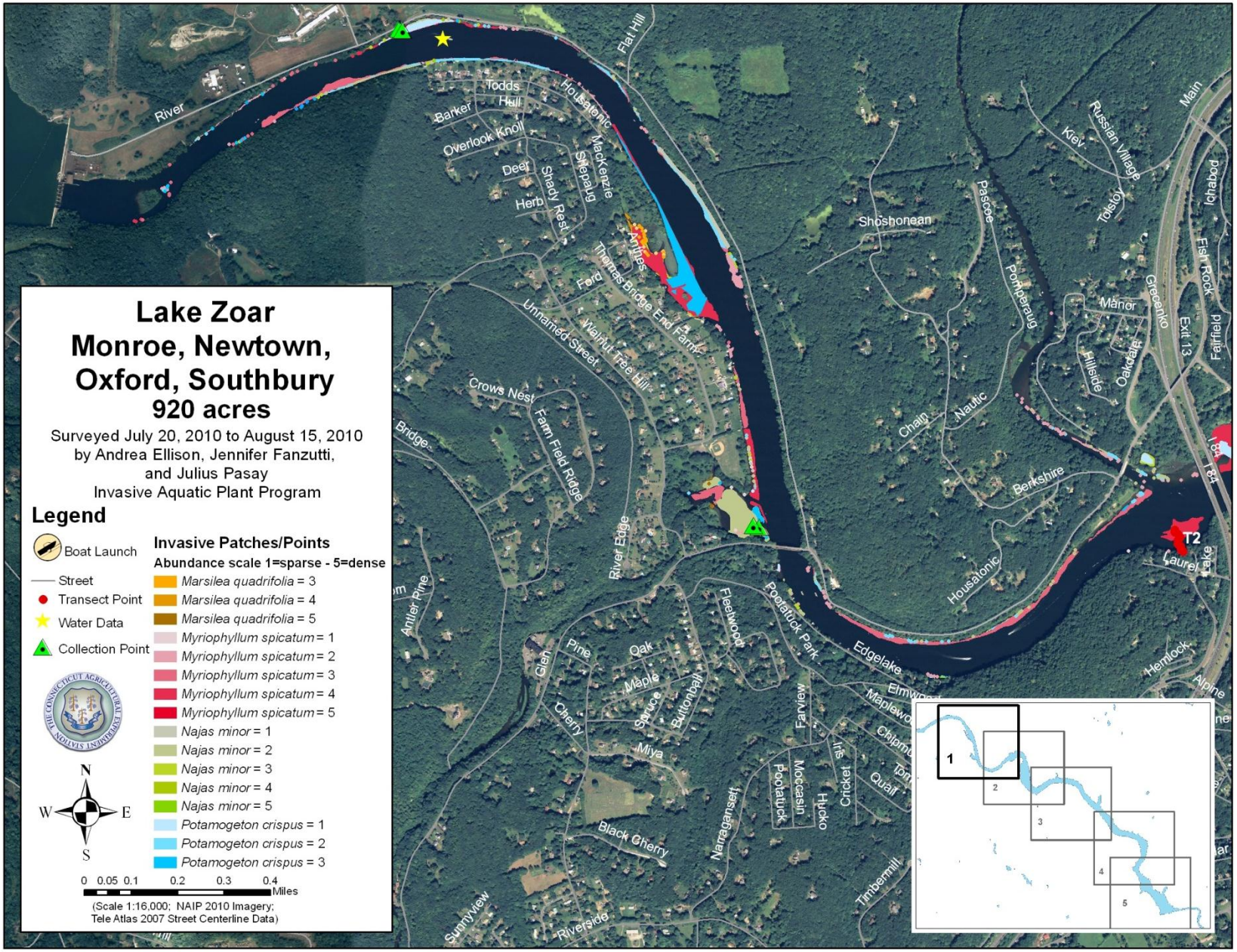


Figure 14. Littoral zone in Lake Zoar.

present in one or more of our previous surveys were *Potamogeton epihydrus*, *Stuckinia pectinatus* and *Zosterella dubia*. Other native species found in our 2007 whole lake survey but not found on a transect point are probably still in the lake.

A statistically significant increase ($p \leq 0.05$) in the frequency of occurrence of native species on transects (Figure 12) occurred in 2010 (36%) when compared to 2007 (15%) and 2008 (11%). The average native species richness per transect point in 2010 was the same as 2009 (0.5, ± 1 SEM) but significantly greater that in 2007 (0.3) and 2008 (0.2). The frequency of occurrence of any species (native or invasive) found along transects has grown steadily during our survey years; 2007 (40%), 2008 (49%), 2009 (54%) and 2010 (63%), as has the average species richness of these plants per transect point; 2007 (0.8), 2008 (0.8), 2009 (1.1) and 2010 (1.4). These results suggest that total vegetative cover in Lake Zoar is increasing.

Lake Zoar's littoral zone is 376 acres or 41 percent of the total lake area (Figure 14). In 2010, *M. spicatum* increased its littoral zone coverage to 22.7% from 18.7% in 2008 and 16.7% in 2007 (Table 9). The area of littoral zone containing *N. minor* was the same in 2010 as it was in 2008 (3.4%) but considerably less than 2007 (8.7%). *P. crispus* recovered from a littoral zone coverage low of 1.1% found in 2008 to 3.4% in 2010 but this coverage is still less than the 5.6% we reported in 2007. *M. quadrifolia* coverage remains small and has changed little during our survey years. As with Lake Candlewood, invasive plant coverage alone in Lake Zoar will meet the 20-40% littoral zone coverage goal considered optimal for lakes. Whereas winter drawdown likely plays the critical role in the plant communities in Lake Candlewood, low summer water levels and turbulence during flood events are likely to influence the more riverine environment of Lake Zoar. This make makes predicting future trends difficult.


Lake Zoar
Monroe, Newtown,
Oxford, Southbury
920 acres
Surveyed July 20, 2010 to August 15, 2010
by Andrea Ellison, Jennifer Fanzutti,
and Julius Pasay
Invasive Aquatic Plant Program
Legend
Boat Launch
Street
Transect Point
Water Data
Collection Point
Invasive Patches/Points
Abundance scale 1=sparse - 5=dense
Marsilea quadrifolia = 3
Marsilea quadrifolia = 4
Marsilea quadrifolia = 5
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Myriophyllum spicatum = 4
Myriophyllum spicatum = 5
Najas minor = 1
Najas minor = 2
Najas minor = 3
Najas minor = 4
Najas minor = 5
Potamogeton crispus = 1
Potamogeton crispus = 2
Potamogeton crispus = 3
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Miles
(Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data)
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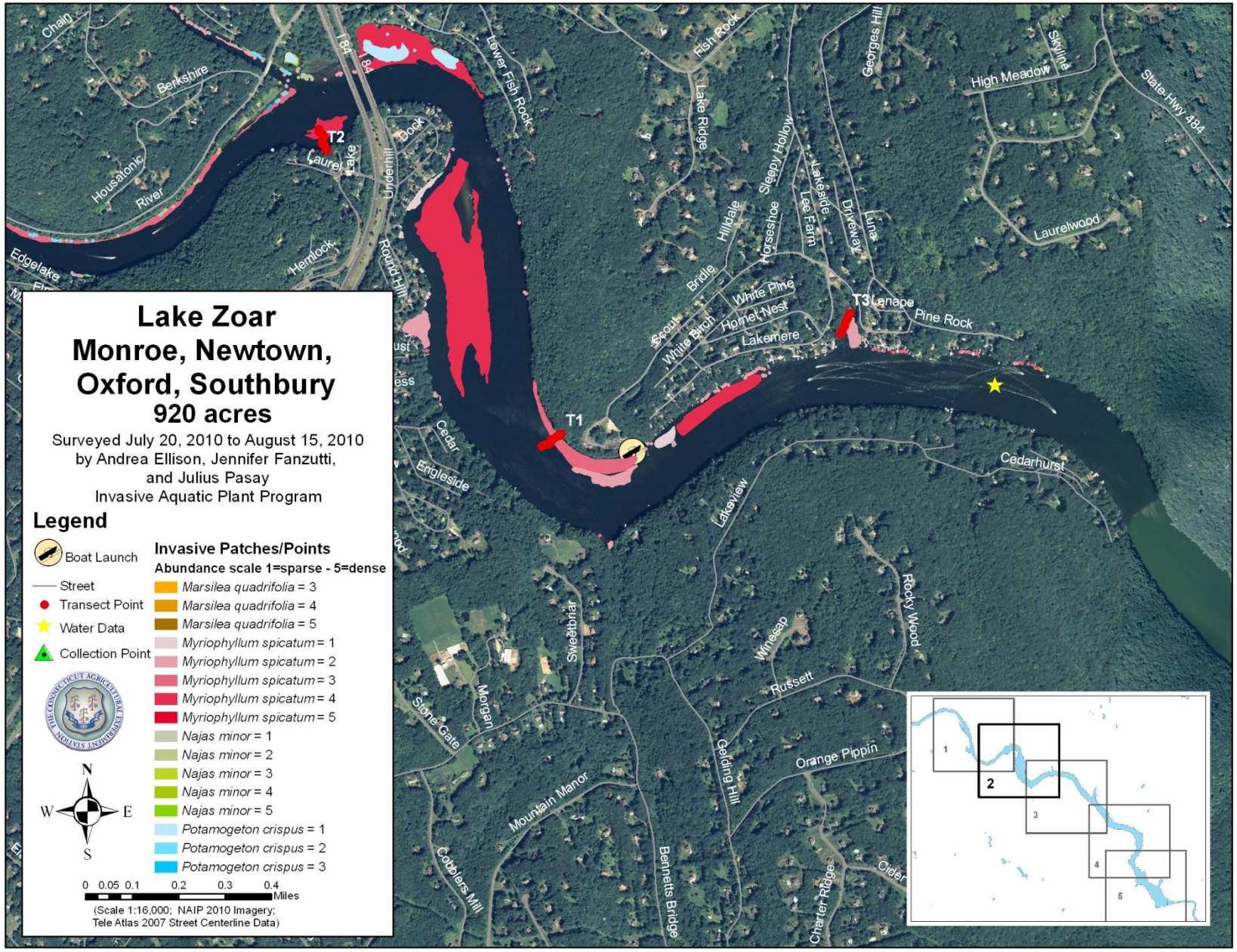
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Miles
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Tele Atlas 2007 Street Centerline Data)
T1
T2
T3
Chain
Berkshire
Housatonic River
Laurel Lake
Underhill
Dock
Lower Fish Rock
Fish Rock
Lake Ridge
Georges Hill
Skyline
High Meadow
State Hwy 484
Sleepy Hollow
Lakeside
Lee Farm
Driveway
Luna
Laurelwood
Hilldale
Horseshoe
Bridle
White Pine
Hornet Nest
Lakemere
Scout
White Birch
Lenape
Pine Rock
Edgelake
Hemlock
Round Hill
Cedar
Engleside
Lakeview
Cedarhurst
Sweetbriar
Morgan
Stone Gate
Winesap
Rocky Wood
Russett
Orange Pippin
Gelding Hill
Mountain Manor
Cobblers Mill
Bennetts Bridge
Charter Ridge
Cider
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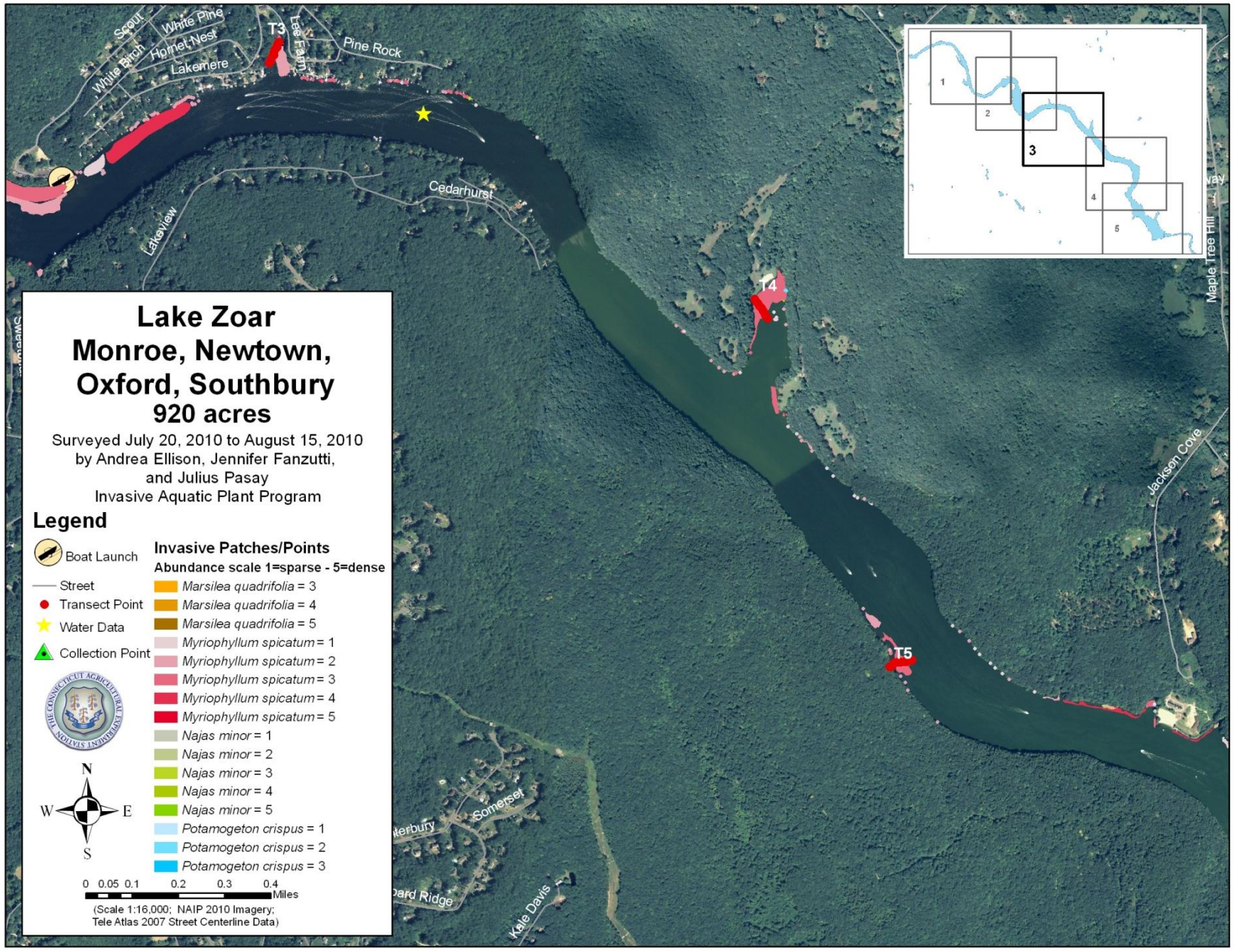
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Miles
(Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data)
T3
T4
T5
Scour
White Pine
White Birch
Hornet Nest
Lakemere
Lee Farm
Pine Rock
Cedarhurst
Lakeview
Maple Tree Hill
Jackson Cove
Somerset
Kate Davis
1
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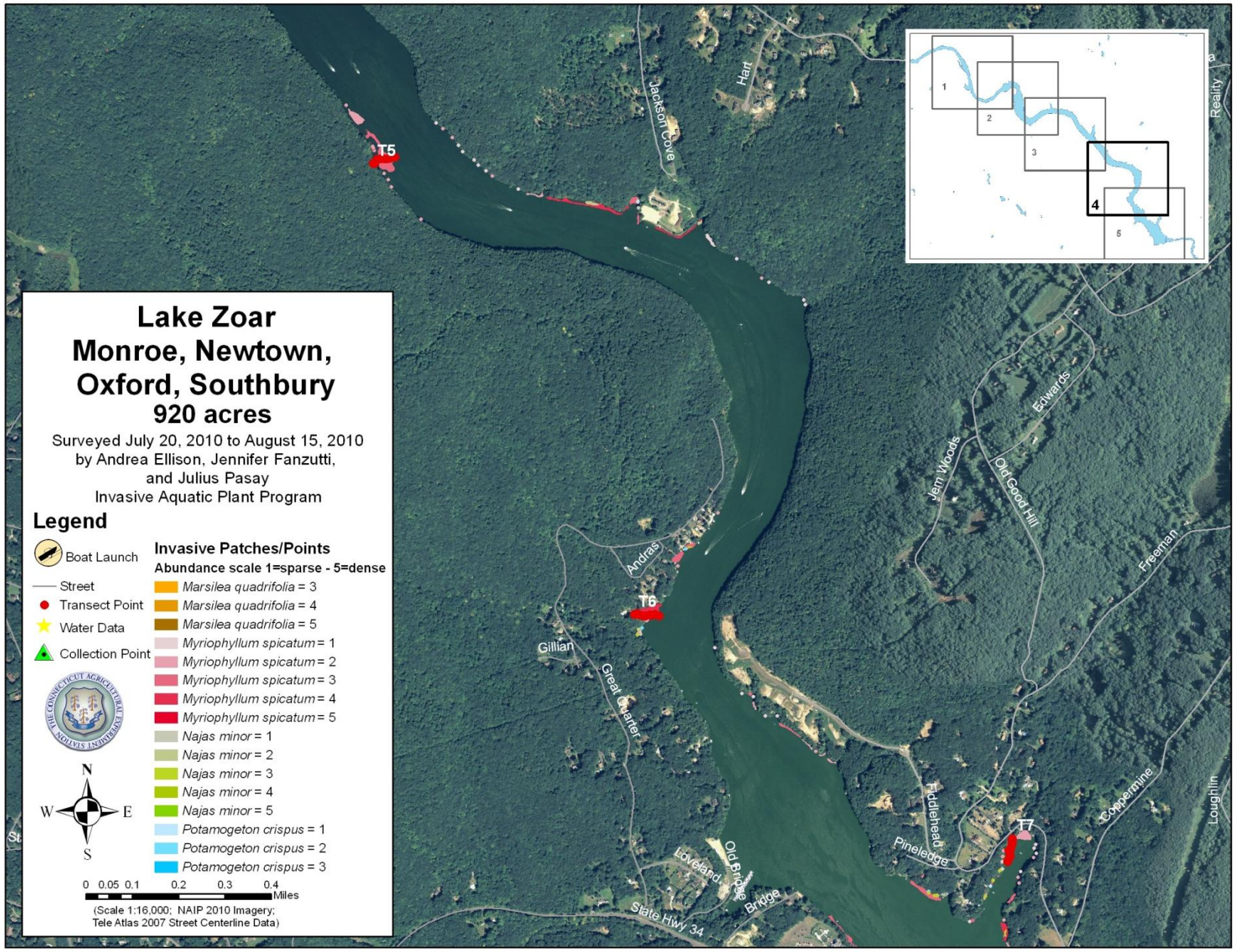
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Miles
(Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data)
T5
T6
T7
Jackson Cove
Hart
Realty
Edwards
Jem Woods
Old Good Hill
Freeman
Andras
Gillian
Great Quarter
Fiddlehead
Pineledge
Coppermine
Loughlin
Loveland
Old Bridge
Bridge
State Hiwy 34
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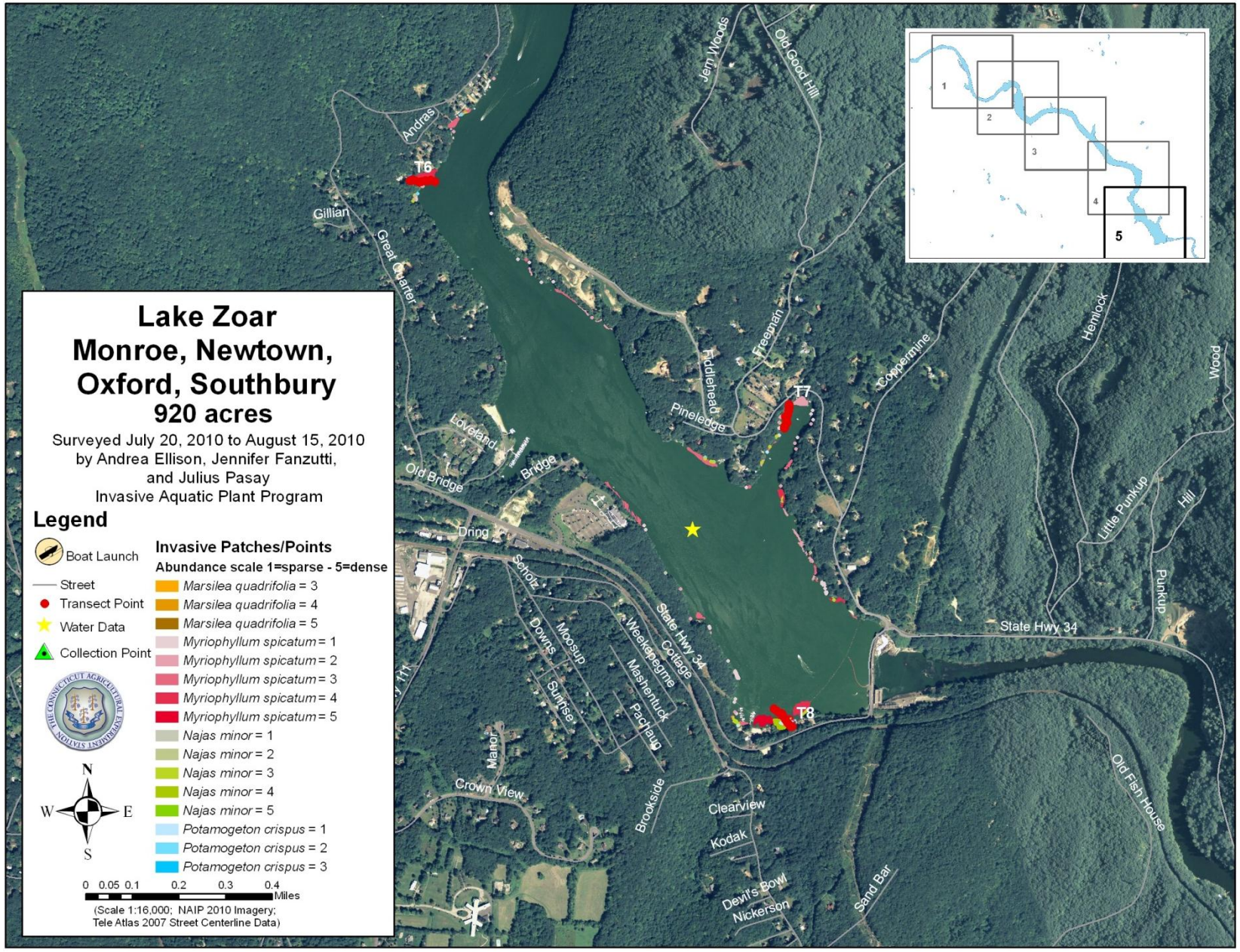
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W
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0 0.05 0.1 0.2 0.3 0.4
Miles
(Scale 1:16,000; NAIP 2010 Imagery;
Tele Atlas 2007 Street Centerline Data)
T6
T7
T8
Andras
Gillian
Great Quarter
Jem Woods
Old Good Hill
Freeman
Fiddlehead
Pineledge
Coppermine
Hemlock
Loveland
Old Bridge
Bridge
Dring
Schoolhouse
Downs
Moosup
Sunrise
Weekeepeemee
Cottage
Mashentuck
Packlaug
State Hwy 34
Little Punkup
Punkup
Hill
Manor
Crown View
Brookside
Clearview
Kodak
Devil's Bowl
Nickerson
Sand Bar
Old Fish House

Table 10. Water chemistry of Lakes Candlewood, Lillinonah and Zoar.

Lake	Site	Date	Latitude	Longitude	Sample Depth (m)	Transperency Secchi (m)	Conductivity (uS/cm)	pH	Alkalinity $CaCO_3$ (mg/L)	Total P (ug/L)
Candlewood	W1	8/31/2010	41.53410	-73.44455	0.5	2.4	219	7.9	80	12
					13.0		259	6.9	95	13
	W2	8/31/2010	41.49375	-73.44836	0.5	2.5	214	8.1	79	15
					12.0		249	6.8	90	27
	W3	8/31/2010	41.55299	-73.47544	0.5	2.1	210	7.8	75	15
					10.0		224	6.8	84	13
	W4	8/31/2010	41.43555	-73.45569	0.5	2.6	214	8.2	74	20
					10.0		223	6.8	78	27
	W5	8/31/2010	41.45745	-73.43793	0.5	2.5	211	8.2	74	19
					11.0		221	6.8	80	19
Lillinonah	W1	8/17/2010	41.46965	-73.30807	0.5	1.5	251	8.1	90	16
					14.0		314	7.2	105	15
	W2	8/17/2010	41.54108	-73.40312	0.5	1.5	293	8.1	105	67
					2.0		331	7.7	105	11
	W3	8/17/2010	41.49645	-73.32666	0.5	1.3	250	8.2	83	21
					6.0		350	7.8	83	24
Zoar	W1	8/12/2010	41.42980	-73.22213	0.5	0.9	255	8.0	89	24
					8.0		291	6.6	97	18
	W2	8/12/2010	41.38769	-73.17897	0.5	0.9	262	8.3	88	26
					14.0		298	6.6	102	30
	W3	8/12/2010	41.45284	-73.27984	0.5	1.9	315	6.3	95	15
					3.0		307	6.6	101	442

Comparisons of Water Chemistry

Water chemistry affects the type and abundance of plant species in lakes. For example, *M. spicatum*, *P. crispus*, *and N. minor* are more common where moderate to high alkalinity conditions are present (CAES IAPP, 2010). Since water chemistry changes throughout the year and our data is only from one date, our results (Table 10) may not be representative of conditions at other times. We found the average transparency of Candlewood Lake was 2.4 meters in 2010 which is clearer than the average transparencies of 1.4 m in Lillinonah Lake and 1.2 m in Lake Zoar. Transparencies in Connecticut's lakes range from 0.3 to 10.2 m with an average of 2.3 m (CAES IAPP, 2010).

Conductivity is an indicator of the dissolved ions which can come from natural and man-made sources (fertilizers, septic systems, road salts etc.). The conductivity of Candlewood Lake ranged from 210 - 259 µS/cm with little difference between surface and deep water. In the early 1990's, the conductivity of Candlewood Lake ranged from 176-184 µS/cm (Canavan and Silver, 1995) suggesting that an increasing trend. The conductivities of Lake Lillinonah (250-350 µS/cm) and Lake Zoar (255-315 µS/cm) were similar with the highest levels tending to be in deep water. Compared to the statewide conductivity range of 19-375

with an average 121 (CAES IAPP, 2010), all three lakes would be classified as above average.

Surface water pH fluctuates widely because of midday removal of carbon dioxide by active, photosynthesizing algae (Wetzel, 2001). The surface water pH of Lake Candlewood averaged 8.0 and Lake Lillinonah averaged 8.1. The bottom water of Lake Candlewood was considerably more acidic with an average pH of 6.8 while Lake Lillinonah was less acidic averaging 7.6. Lake Zoar's surface water fell within a broader range of 6.3-8.3 while its bottom water had a pH of 6.6.

The alkalinity of a lake is generally considered to be a better indicator than pH for determining a lake's susceptibility to acidification. Lake Candlewood had a lower average alkalinity (81 mg/L $CaCO_3$) than Lake Lillinonah (96 mg/L) and Lake Zoar (95 mg/L). Surface waters generally had higher alkalinities than the bottom waters. Alkalinities in Connecticut's lakes range from near 0 mg/L $CaCO_3$ to greater than 172 mg/L $CaCO_3$ with an average of 30 mg/L (CAES IAPP, 2010). All three lakes, therefore, are considered quite alkaline. With the recent discovery of zebra mussels (*Dreissena polymorpha)* in Lakes Lillinonah and Zoar, it is of consequence that alkalinity is thought to be a key indicator of lake susceptibility. Lakes with alkalinities below a critical threshold are not likely to support the invasive mollusks. Hincks and Mackie (1997) suggest an alkalinity of 65 mg/L $CaCO_3$ will support vibrant zebra mussel populations and therefore the alkalinities in Lakes Candlewood, Lillinonah and Zoar are more than adequate.

A primary indicator of a lake's ability to support algae and a key indicator of a lake's trophic state is phosphorus (P) (Frink and Norvell, 1984, Wetzel, 2001). Rooted macrophytes are considered to be less dependent on P from the water column as they obtain a majority of their nutrients from the sediment (Bristow and Whitcombe, 1971). Lakes with P levels between 0 and 10 µg/L are considered to be nutrient-poor or oligotrophic while those with P concentrations of 15-25 µg/L are classified as moderately fertile or mesotrophic and lakes with P levels above 50 µg/L are characterized as fertile or eutrophic (Frink and Norvell, 1984). In Connecticut, P concentrations range from 1– 334 µg/L with an average of 32 µg/L (CAES IAPP, 2010). Summer P concentrations in lakes can be highly depth-dependent as anoxic conditions near the bottom release P from the sediment (Norvell,

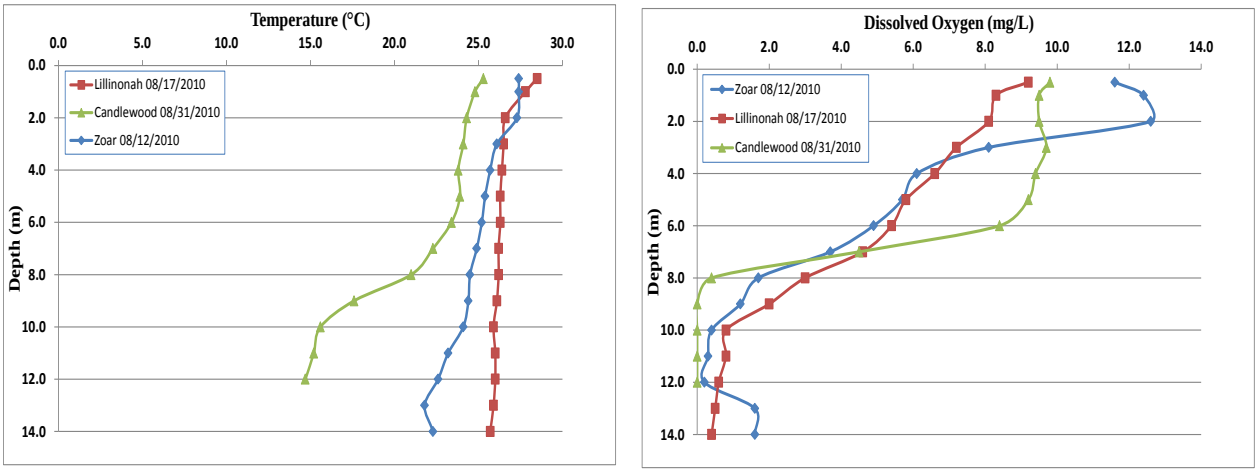

Figure 15. Temperature and dissolved oxygen profiles in Lakes Candlewood, Lillinonah, and Zoar.

1974) or P adheres to clay suspended near the bottom because of turbulence. Storm events or release of bottom water to generate electricity can cause mixing that limits this process. The P concentration in Candlewood Lake's surface water ranged from 12-20 µg/L and bottom water ranged from 13-27 µg/L suggesting little depth differences on the date of sampling. Similarly, the P concentration in Lake Lillinonah seemed little effected by depth. The surface water ranged from 13-67 µg/L and bottom water ranged from 11-24 µg/L. In Lake Zoar the P concentrations in site one and two were similar in the surface (24-26 µg/L) and bottom water (18-30 µg/L) while site three's surface P was 15 µg/L and bottom P jumped to 442 µg/L. Possible reasons for this dramatic increase in P are described above.

Midsummer temperature and dissolved oxygen profiles are a good indication of the extent of surface to bottom mixing (Figure 15). Candlewood Lake showed a rapid temperature decline starting at about 6 meters while the temperature declines in Lake's Lillinonah and Zoar were much less pronounced. Highly oxygenated surface water began to become less oxygenated at a depth of about five meters in Lake Candlewood and two meters in Lakes Lillinonah and Zoar. In all three lakes water near the bottom was anoxic and therefore conditions were suitable the release of phosphorus from the sediment into the water column. The lack of consistency in the declines of temperature with dissolved oxygen in Lakes Lillinonah and Zoar is unusual and not easily explained.

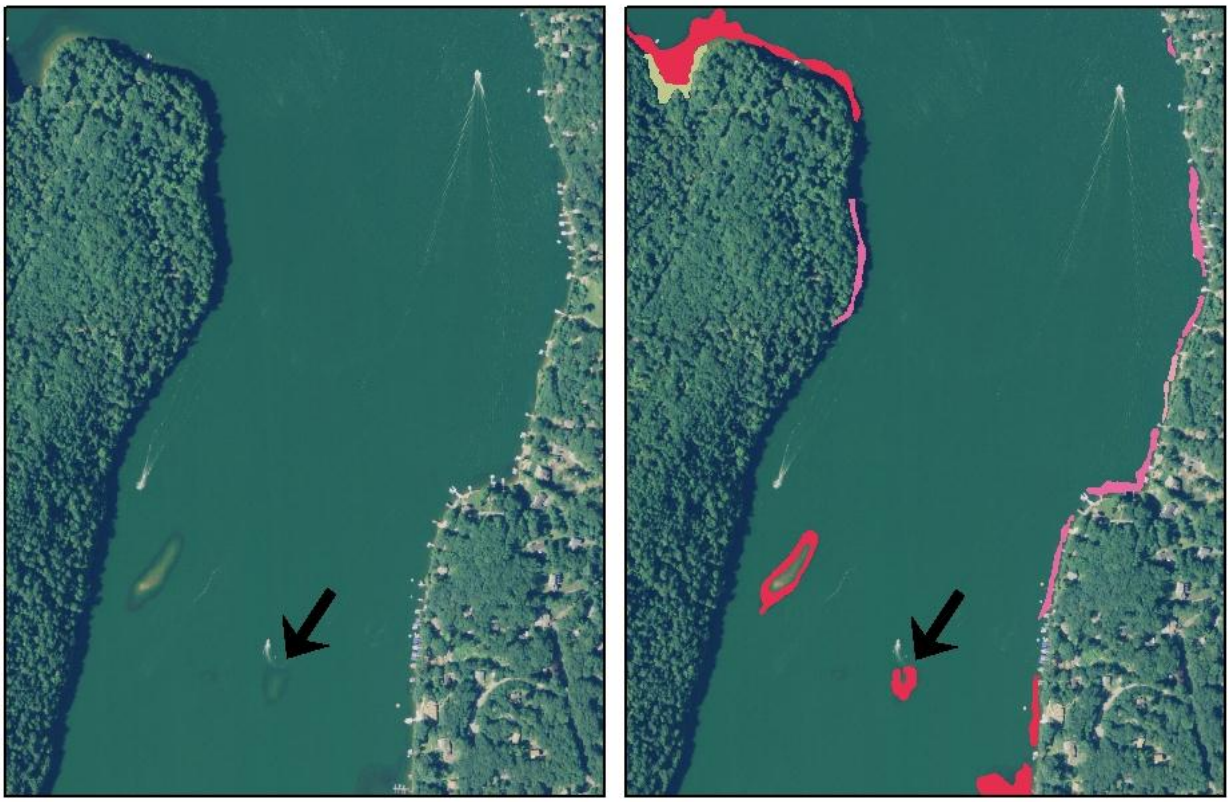

Figure 16. Remote sensing imagery suggested area (left) was *M. spicatum*. This was confirmed by our field survey and an invasive polygon was added to map (right).

Utilization of Remote Sensing (USDA NAIP four band imagery)

In our 2009 report, we showed that USDA National Agricultural Imagery Program (NAIP) aerial imagery showed promise in locating patches of *M. spicatum* in Candlewood Lake (Bugbee and Balfour, 2010). We found the full color image provided the greatest detail when locating plants. We successfully identified 356 acres of milfoil using the NAIP imagery compared to 451 acres located by our on-lake survey. In many areas the full color imagery corresponded well with the areas of mapped plants. Where hillsides and trees shadow the shoreline, however, the patches of *M. spicatum* were not detectable. Close examination of the 2009 NAIP imagery suggested that a few patches of *M. spicatum* were present that may have been missed by our previous surveys. These patches were in central portions of the lake that were presumed to be too deep to support plant growth. Closer examination of the bathymetry showed these were shallow areas and possibly the NAIP imagery was showing associated milfoil beds. We did a field survey of these sites in 2010 and found two sites in

the southwest arm (Figure 16) did contain *M. spicatum* while a suspected site in the northwest arm could not be confirmed. These results bolstered our previous year's conclusions that simple visual band aerial imagery can supplement in the surveillance of certain invasive aquatic plants.

Conclusions:

The aquatic plant communities of Lakes Candlewood, Lillinonah and Zoar continue to be dominated by invasive species, particularly *M. spicatum*. Candlewood Lake had 461 acres of *M. spicatum* in 2010. This represented the most we have found since starting our yearly surveys in 2005. The acreage of *N. minor* in Candlewood Lake is not showing the same increase possibly because of competition from *M. spicatum* and low water levels related to the dry 2010 summer. The amount of milfoil in Candlewood Lake is inversely related to the depth and duration of the previous winter's drawdown. These yearly reports can improve future drawdown strategies for Candlewood Lake particularly in regards to yearly versus biyearly deep drawdowns and drawdown timing. Similarly, Lake Zoar is showing an increasing coverage of *M. spicatum* and a nearly stable coverage of *N. minor.* A replacement of native species with invasive species is likely occurring in Candlewood Lake while in Lakes Lillinonah and Zoar the coverage of native species are either stable or increasing. In Lake Candlewood and Lake Zoar, invasive plant coverage alone will meet the 20-40% littoral zone coverage goal considered optimal for lakes. Although a deeper drawdown could be beneficial in reducing *M. spicatum,* little benefits would be gained regarding decreased water needs for refilling the lake or additional sediment exposed per foot of drawdown. Remote sensing, using NAIP imagery, allowed us to located several areas of *M. spicatum* not found by field surveys alone.

Acknowledgments

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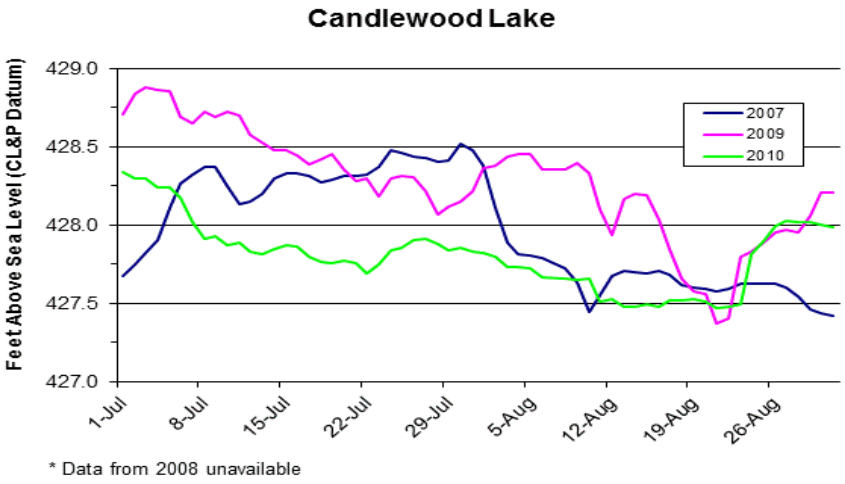
Appendix

Surface Elevations



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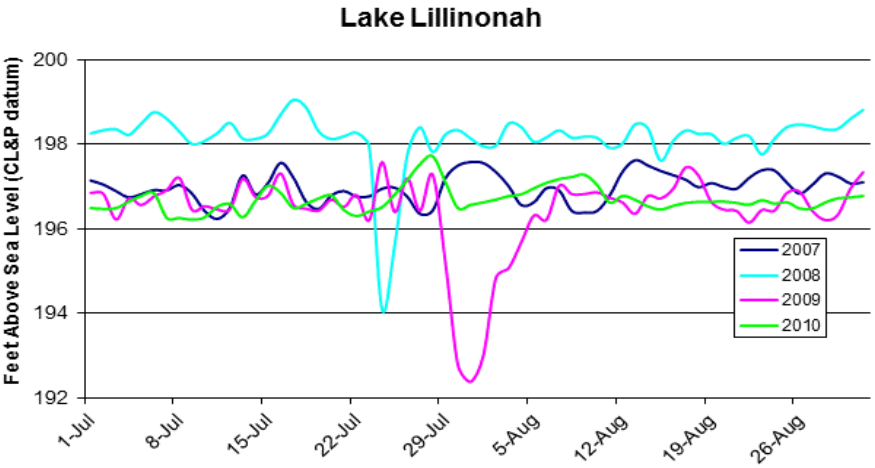
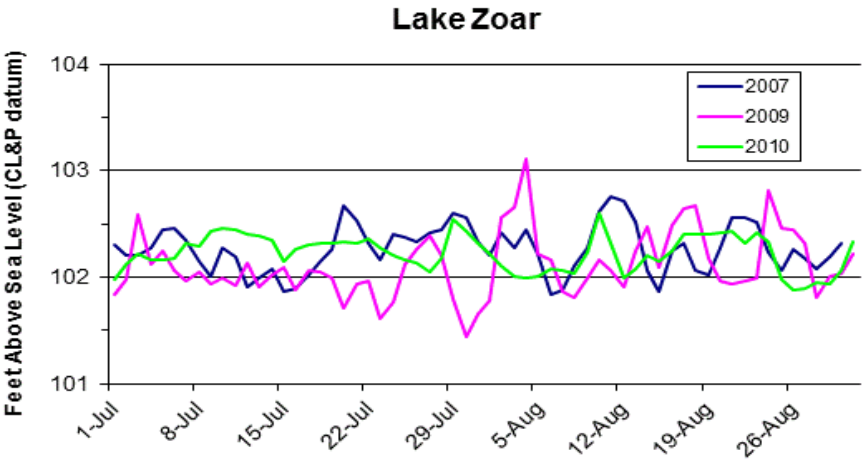




* 2008 data unavailable

2010 CAES IAPP On-Lake Time for Lakes Candlewood, Zoar, and Lillinonah

Candlewood (Lead surveyor)	**Zoar** (Lead surveyor)	**Lillinonah** (Lead surveyor)
7/30/2010 (Bugbee)	7/21/2010 (Pasay)	8/16/2010 (Pasay)
8/8/2010 (Bugbee)	7/27/2010 (Pasay)	8/17/2010 (Pasay)
8/9/2010 (Bugbee)	7/28/2010 (Pasay)	
8/10/2010 (Bugbee)	7/29/2010 (Pasay)	
8/11/2010 (Bugbee)	7/30/2010 (Pasay)	
8/12/2010 (Bugbee)	8/2/2010 (Pasay)	
8/13/2010 (Bugbee)	8/3/2010 (Pasay)	
8/17/2010 (Bugbee)	8/5/2010 (Pasay)	
8/18/2010 (Bugbee)	8/9/2010 (Pasay)	
8/20/2010 (Bugbee)	8/10/2010 (Pasay)	
8/24/2010 (Bugbee)	8/11/2010 (Pasay)	
8/25/2010 (Bugbee)	8/12/2010 (Pasay)	
8/26/2010 (Bugbee)		
8/30/2010 (Bugbee)		
8/31/2010 (Bugbee)		
9/2/2010 (Bugbee)		
15 days	**11 days**	**2 days**

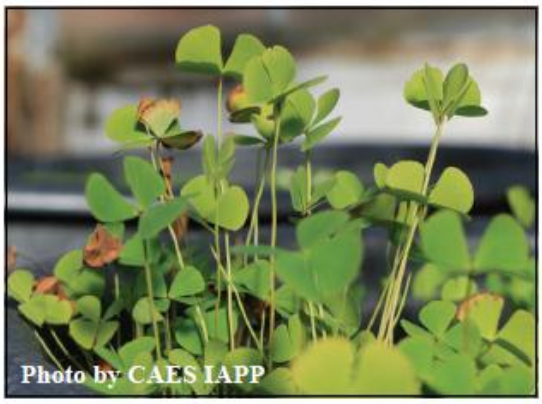
Invasive Plant Descriptions

Marsilea quadrifolia

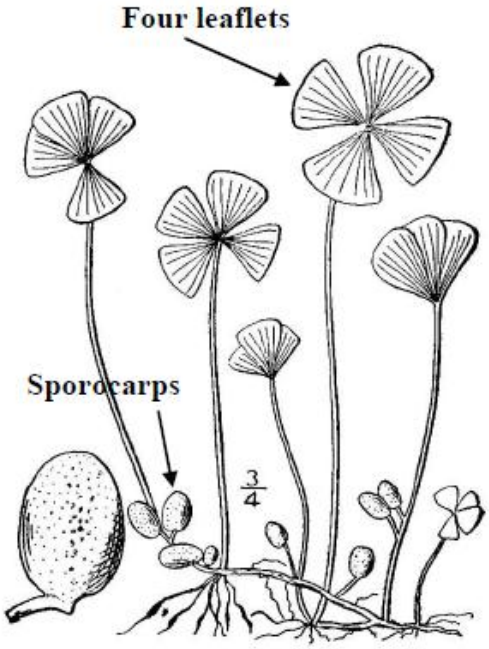
Common names:
European waterclover
Water shamrock

Origin:
Europe

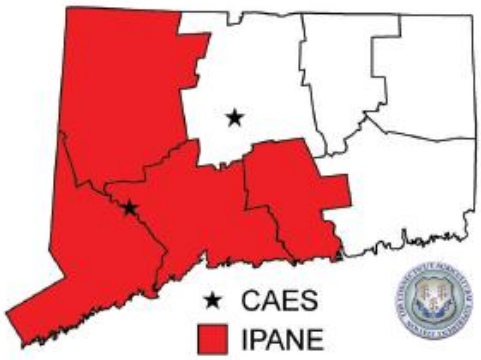
Key features:
Floating leaf plant
Stems: Smooth petioles 2-12 inches (5-30 cm)
Leaves: Comprised of 4 fan-shaped leaflets (similar to a four-leaf clover)
Fruits/Seeds: 2 or 3 dark brown sporocarps 0.2 inches × 0.2 inches (4-5.5 mm × 3-4 mm)
Reproduction: Cloning and sporocarps



Easily confused species:
None



Britton, N.L., and A. Brown. 1913



Myriophyllum spicatum

Common name:
Eurasian watermilfoil

Origin:
Europe and Asia

Key features:
Plants are submersed
Stems: Stem diameter below the inflorescence is greater with reddish stem tips
Leaves: Leaves are rectangular with ≥ 12 pairs of leaflets per leaf and are dissected giving a feathery appearance, arranged in a whorl, whorls are 1 inch (2.5 cm) apart
Flowers: Small pinkish male flowers that occur on reddish spikes, female flowers lack petals and sepals and have 4 lobed pistil
Fruits/Seeds: Fruit are round 0.08-0.12 inches (2-3 mm) and contain 4 seeds
Reproduction: Fragmentation and seeds

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

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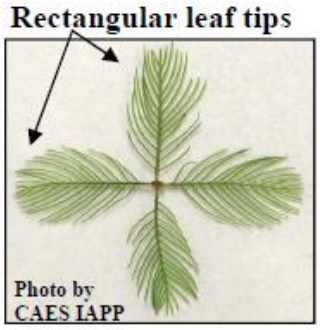
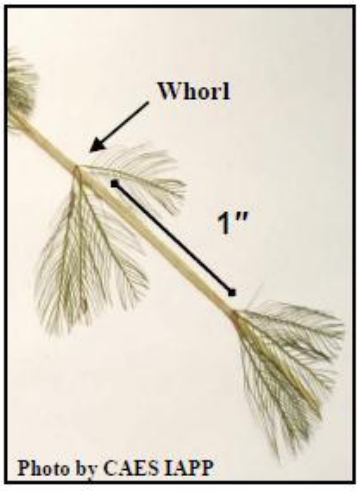
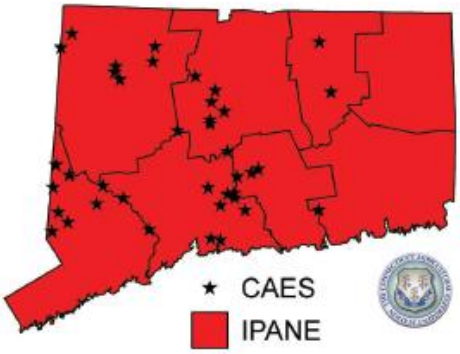






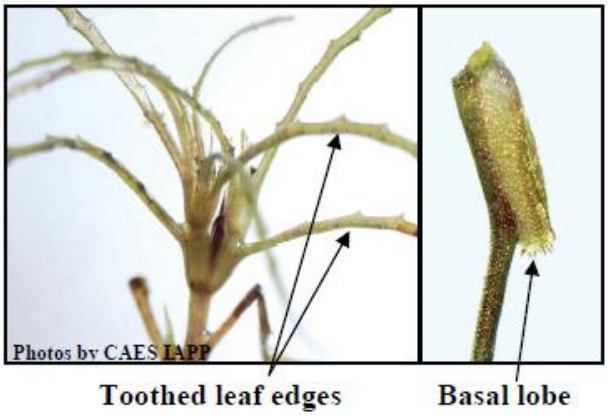
Najas minor

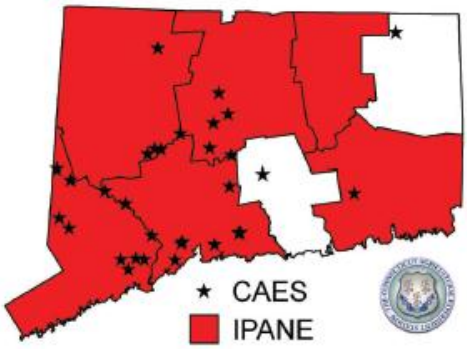
Common names:
Minor naiad
Brittle waternymph
Spiny leaf naiad
Eutrophic waternymph

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.





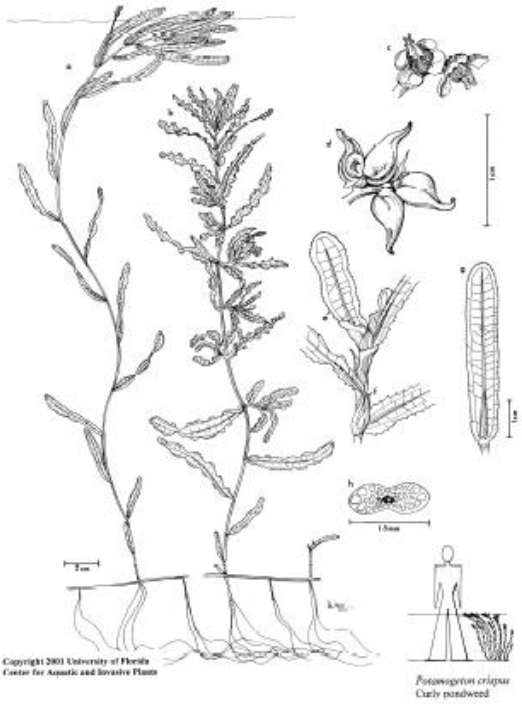
Potamogeton crispus

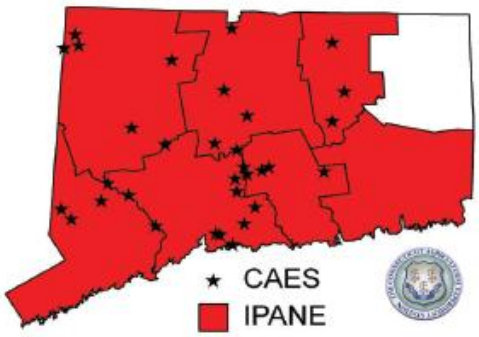
Common names:
Curly leaf pondweed
Crispy-leaved pondweed
Crisped pondweed

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 Lakes Candlewood and Lillinonah found during the 2010 aquatic plant survey. The invasive aquatic plants found during the survey were *Potamogeton crispus* (curly leaf pondweed), *Najas minor* (minor water naiad), *Myriophyllum spicatum* (Eurasian water milfoil). Survey boats with Trimble GPS units traveled along the outside of each invasive patch to obtain the polygons. In the event that 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 dominant).

Purpose To document and assess the invasive aquatic plant infestation on lakes Candlewood and Zoar during 2010. 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 Jordan Gibbons, 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 a Trimble ProXT® with TerraSync 2.40(WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 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 a Trimble ProXT® with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from local base stations and then imported into ESRI ArcMap 9.3.1 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 m² area at 0, 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 each lake. Transects were positioned using a random-representative method to account for all bottom types and plant conditions in Lakes Lillinonah and Zoar. In Lake Candlewood, the random-representative method was not used. Instead, 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 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 dominant). Depth was measured at each transect point.

Purpose To document and assess the native and invasive aquatic plant community in Lakes Candlewood Lillinonah and Zoar during 2010. 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.

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Credit Gregory J. Bugbee and Jordan Gibbons, 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 a Trimble ProXT® with TerraSync 2.40(WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 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 a Trimble ProXT® with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from local base stations and then imported into ESRI ArcMap 9.3.1 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 Lakes Candlewood, Lillinonah and Zoar. Five sample locations were chosen in Candlewood Lake and three locations in Lakes Lillinonah and Zoar. 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 a 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 $CaCO_3$) and phosphorous (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 Lakes Candlewood, Lillinonah and Zoar 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 Jordan Gibbons, 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 Waste Water, 1995).

GPS Accuracy

Positions were acquired by using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40(WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 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 a Trimble ProXT® with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from local base stations and then imported into ESRI ArcMap 9.3.1 for display and analysis.

Invasive Aquatic Plant Location Data

Appendix Lake Candlewood invasive plant location data (1 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
0	MyrSpi		Patch	7/30/2010	01:03:53pm	41.44871	-73.43102	1-3	3	1.0318
1	MyrSpi	has patches w/ abundance = 5	Patch	7/30/2010	01:18:39pm	41.44817	-73.43073	0-2	4	0.8617
2	NajMin		Patch	7/30/2010	01:30:08pm	41.44707	-73.42978	0-1	3	0.0999
3	MyrSpi	has patches w/ abundance = 5	Patch	7/30/2010	01:33:26pm	41.44836	-73.43011	0-2	4	2.9982
4	NajMin		Patch	7/30/2010	01:47:57pm	41.44755	-73.42956	0-1	3	0.2297
5	NajMin		Patch	7/30/2010	01:56:16pm	41.44902	-73.43022	0-1	3	0.2180
6	MyrSpi		Patch	7/30/2010	02:04:18pm	41.44989	-73.43097	1-3	4	0.5826
7	MyrSpi		Patch	7/30/2010	02:09:40pm	41.45054	-73.43128	1-4	3	0.1444
8	MyrSpi		Patch	7/30/2010	02:24:09pm	41.45107	-73.43150	1-3	5	0.0278
9	MyrSpi		Patch	7/30/2010	02:25:56pm	41.45155	-73.43184	1-4	3	0.2188
10	MyrSpi		Patch	7/30/2010	02:29:22pm	41.45201	-73.43184	1-3	4	0.0198
11	MyrSpi		Patch	7/30/2010	02:30:29pm	41.45228	-73.43197	1-3	3	0.0554
12	MyrSpi		Patch	7/30/2010	02:33:12pm	41.45257	-73.43209	1-3	3	0.0089
13	MyrSpi		Patch	7/30/2010	02:34:43pm	41.45315	-73.43221	1-3	1	0.1002
14	MyrSpi		Patch	7/30/2010	02:37:40pm	41.45556	-73.43413	1-4	4	5.7815
15	MyrSpi		Patch	7/30/2010	02:53:06pm	41.45768	-73.43455	1-4	4	0.3120
16	MyrSpi		Patch	7/30/2010	02:56:34pm	41.45849	-73.43506	1-4	3	0.0278
17	MyrSpi		Patch	7/30/2010	02:58:13pm	41.45959	-73.43550	1-4	4	0.2759
18	MyrSpi	Found By Remote Sensing	Patch	8/31/2010	02:04:50pm	41.49461	-73.44614	2-4	3	0.1046
19	MyrSpi		Patch	8/31/2010	02:35:19pm	41.50108	-73.45456	2-4	4	1.1405
20	MyrSpi		Patch	8/31/2010	02:48:29pm	41.51381	-73.46165	1-4	3	0.8851
21	MyrSpi	Difficult To See, used grapple and remote sensing	Patch	8/31/2010	03:06:49pm	41.53343	-73.46552	2-4	3	1.4463
22	MyrSpi	Difficult To See	Patch	8/31/2010	03:53:13pm	41.55888	-73.47576	2-4	3	0.1532
23	MyrSpi	Found By Remote Sensing	Patch	8/31/2010	04:48:52pm	41.44813	-73.44972	2-4	4	0.3681
24	MyrSpi	has patches w/ abundance = 5 w/ NajMin except along east coast	Patch	8/24/2010	12:51:04pm	41.52209	-73.46390	1-4	4	27.8400
25	MyrSpi		Patch	8/24/2010	02:03:24pm	41.51345	-73.46251	2-3	2	0.0580
26	MyrSpi		Patch	8/24/2010	02:09:38pm	41.50827	-73.45940	1-4	4	3.0073
27	MyrSpi		Patch	8/24/2010	02:26:15pm	41.50673	-73.46045	1-4	2	0.1802
28	MyrSpi		Patch	8/24/2010	02:39:22pm	41.51411	-73.45579	1-4	3	1.9759
29	MyrSpi		Patch	8/24/2010	02:51:45pm	41.51656	-73.45548	1-4	3	1.2239
30	MyrSpi	30% abudance = 5, found w/ NajMin	Patch	8/24/2010	03:00:31pm	41.51822	-73.45263	1-4	4	4.6614
31	MyrSpi	20% abundance = 5	Patch	8/24/2010	03:24:47pm	41.52689	-73.45358	1-4	3	1.1607
32	MyrSpi	20% abundance = 5	Patch	8/24/2010	03:31:40pm	41.53029	-73.45419	1-4	4	1.6504
33	MyrSpi	20% abundance = 5	Patch	8/24/2010	03:40:41pm	41.53281	-73.45465	1-4	4	0.7758
34	MyrSpi		Patch	8/24/2010	03:48:26pm	41.53487	-73.45557	1-4	5	0.0549
35	MyrSpi	20% abundance = 5	Patch	8/24/2010	03:51:14pm	41.53690	-73.45616	1-4	4	0.2309
36	MyrSpi		Patch	8/24/2010	03:54:21pm	41.53849	-73.45672	2-3	2	0.0063
37	MyrSpi		Patch	8/24/2010	03:55:52pm	41.53907	-73.45687	1-4	2	0.0315
38	MyrSpi	20% abundance = 5	Patch	8/24/2010	03:56:53pm	41.53971	-73.45714	1-4	4	0.1614
39	MyrSpi	20% abundance = 5	Patch	8/24/2010	03:59:23pm	41.54082	-73.45758	1-4	4	0.1749
40	MyrSpi	20% abundance = 5	Patch	8/24/2010	04:04:24pm	41.54284	-73.45862	1-4	4	0.2865
41	MyrSpi	20% abundance = 5	Patch	8/24/2010	04:08:38pm	41.54455	-73.46097	1-4	4	0.8326
42	MyrSpi	20% abundance = 5	Patch	8/24/2010	04:18:05pm	41.54524	-73.46288	1-4	4	0.1061
43	MyrSpi		Patch	8/24/2010	04:20:11pm	41.54539	-73.46368	1-4	4	0.0609
44	MyrSpi	20% abundance = 5	Patch	8/24/2010	04:21:13pm	41.54733	-73.46391	1-4	3	1.7678
45	MyrSpi		Patch	8/24/2010	04:34:02pm	41.55132	-73.46568	1-4	3	0.1503
46	MyrSpi		Patch	8/24/2010	04:37:57pm	41.55213	-73.46613	1-4	3	0.0938
47	MyrSpi		Patch	8/24/2010	04:42:08pm	41.55323	-73.46680	1-4	3	0.0521

Appendix Lake Candlewood invasive plant location data (2 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
48	MyrSpi	20% Abundance = 4, found w/ NajMin in North Cove	Patch	8/24/2010	04:43:54pm	41.55399	-73.46928	1-4	5	1.8832
49	MyrSpi		Patch	8/25/2010	01:31:15pm	41.55181	-73.47180	1-4	3	0.5156
50	MyrSpi	20% abundance = 5	Patch	8/25/2010	01:40:01pm	41.54984	-73.46864	1-4	4	2.0018
51	MyrSpi	20% abundance = 5	Patch	8/25/2010	01:53:39pm	41.54572	-73.46624	1-4	4	0.7701
52	MyrSpi		Patch	8/25/2010	02:03:41pm	41.54282	-73.46638	1-4	4	0.9795
53	MyrSpi	20% abundance = 5	Patch	8/25/2010	02:18:40pm	41.54376	-73.46647	1-4	3	0.0872
54	MyrSpi	20% abundance = 5	Patch	8/25/2010	02:21:37pm	41.54463	-73.46751	1-4	3	0.0657
55	MyrSpi		Patch	8/25/2010	02:23:59pm	41.54712	-73.46957	1-4	4	1.3417
56	MyrSpi		Patch	8/25/2010	02:36:40pm	41.54990	-73.47171	2-4	3	0.2665
57	MyrSpi		Patch	8/25/2010	02:43:28pm	41.54074	-73.46624	1-4	3	1.4055
58	MyrSpi	20% abundance = 5	Patch	8/25/2010	02:49:18pm	41.53859	-73.46296	1-4	4	1.9836
59	MyrSpi	20% abundance = 5	Patch	8/25/2010	03:00:08pm	41.53426	-73.46224	1-4	4	4.1669
60	MyrSpi	10% abundance = 5	Patch	8/25/2010	03:23:55pm	41.53669	-73.46643	1-4	4	3.1801
61	MyrSpi	30% abundance = 5	Patch	8/25/2010	03:46:23pm	41.52536	-73.45883	1-4	4	0.1969
62	MyrSpi	20% abundance = 5	Patch	8/25/2010	03:49:13pm	41.52892	-73.46194	1-4	4	4.2028
63	MyrSpi		Patch	8/25/2010	04:05:47pm	41.53116	-73.46529	1-4	4	0.3355
64	MyrSpi		Patch	8/25/2010	04:09:51pm	41.53193	-73.46602	0-2	2	0.0298
65	MyrSpi		Patch	8/25/2010	04:12:43pm	41.53268	-73.46614	1-4	3	0.2682
66	MyrSpi		Patch	8/25/2010	04:16:10pm	41.53461	-73.46708	1-4	3	0.5262
67	MyrSpi		Patch	8/25/2010	04:21:10pm	41.53667	-73.46843	1-4	4	0.4757
68	MyrSpi		Patch	8/25/2010	04:24:23pm	41.53831	-73.47004	1-4	3	1.4333
69	MyrSpi		Patch	8/25/2010	04:30:17pm	41.54053	-73.47175	1-4	2	0.2231
70	MyrSpi	20% abundance = 5	Patch	8/25/2010	04:35:07pm	41.54866	-73.47551	1-4	4	4.9304
71	MyrSpi		Patch	8/25/2010	04:59:45pm	41.55332	-73.48004	2-4	2	0.1679
72	MyrSpi	30% abundance = 5, found w/ NajMin inner cove	Patch	8/26/2010	02:41:09pm	41.55819	-73.48383	1-4	4	4.3649
73	MyrSpi		Patch	8/26/2010	02:58:47pm	41.55675	-73.48107	1-4	2	0.0106
74	MyrSpi	10% abundance = 5	Patch	8/26/2010	03:00:51pm	41.55615	-73.48001	1-4	4	2.0127
75	MyrSpi	20% abundance = 5	Patch	8/26/2010	03:15:47pm	41.55849	-73.48119	1-4	4	5.3627
76	MyrSpi		Patch	8/26/2010	03:36:33pm	41.56027	-73.48341	1-4	2	0.0011
77	MyrSpi		Patch	8/26/2010	03:37:48pm	41.56105	-73.48468	1-4	3	0.0681
78	MyrSpi		Patch	8/26/2010	03:40:08pm	41.56123	-73.48517	1-4	4	0.1144
79	MyrSpi		Patch	8/26/2010	03:42:31pm	41.56143	-73.48595	1-4	3	0.0343
80	MyrSpi	10% abundance = 5, found w/ NajMin in west cove	Patch	8/26/2010	04:20:42pm	41.56356	-73.48738	1-4	4	6.0982
81	MyrSpi		Patch	8/26/2010	04:53:04pm	41.56479	-73.48367	3-4	4	0.3914
82	MyrSpi		Patch	8/26/2010	04:57:58pm	41.56384	-73.48314	2-4	4	1.2586
83	MyrSpi		Patch	8/26/2010	05:13:38pm	41.56383	-73.48460	2-4	4	0.3506
84	MyrSpi		Patch	8/26/2010	05:16:02pm	41.56470	-73.48505	2-4	3	0.0716
85	MyrSpi	20% abundance = 5	Patch	8/30/2010	12:34:59pm	41.56550	-73.48943	1-4	4	0.2599
86	MyrSpi	40% abundance = 5	Patch	8/30/2010	12:40:22pm	41.56674	-73.49003	1-4	4	0.2550
87	MyrSpi		Patch	8/30/2010	12:45:54pm	41.56750	-73.49017	0-2	2	0.0179
88	MyrSpi	Abundance variable in 0-1m found w/ NajMin	Patch	8/30/2010	12:53:33pm	41.57177	-73.49102	1-4	3	13.0600
89	MyrSpi		Patch	8/30/2010	01:48:52pm	41.56903	-73.48897	1-3	2	0.0064
90	MyrSpi	20% abundance = 5	Patch	8/30/2010	01:51:37pm	41.56832	-73.48871	1-4	4	0.1282
91	MyrSpi	20% abundance = 5	Patch	8/30/2010	01:53:02pm	41.56770	-73.48849	1-4	4	0.2074
92	MyrSpi		Patch	8/30/2010	01:56:11pm	41.56685	-73.48806	1-3	2	0.0007
93	MyrSpi	30% abundance = 4	Patch	8/30/2010	01:57:00pm	41.56621	-73.48806	1-4	5	0.7376
94	MyrSpi	20% abundance = 5	Patch	8/30/2010	02:03:06pm	41.56683	-73.48694	1-4	4	0.8825
95	MyrSpi	A=5Within20%,A_Variable0-1m=4,NAjMinCoves0-1mA=2	Patch	8/30/2010	02:11:47pm	41.56852	-73.48369	1-4	4	7.4679

Appendix Lake Candlewood invasive plant location data (3 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
96	MyrSpi	20% abundance = 5	Patch	8/30/2010	02:45:08pm	41.56616	-73.48075	1-4	4	0.5971
97	MyrSpi	40% abundance = 5	Patch	8/30/2010	02:56:18pm	41.56361	-73.47841	1-4	4	0.0293
98	MyrSpi		Patch	8/30/2010	02:58:22pm	41.56278	-73.47751	1-4	3	0.0388
99	MyrSpi	20% abundance = 5	Patch	8/30/2010	03:00:32pm	41.56168	-73.47606	1-4	3	0.5016
100	MyrSpi		Patch	8/30/2010	03:06:17pm	41.55986	-73.47510	1-4	2	0.3493
101	MyrSpi		Patch	8/30/2010	03:13:51pm	41.55900	-73.47497	2-4	2	0.0114
102	MyrSpi		Patch	8/30/2010	03:14:51pm	41.55808	-73.47473	1-4	2	0.0913
103	MyrSpi	20% abundance = 5	Patch	8/30/2010	03:20:05pm	41.55707	-73.47416	1-4	4	0.0774
104	MyrSpi	Abundance = 5 in cove, found with NajMin	Patch	8/30/2010	03:21:21pm	41.55521	-73.47327	1-4	3	0.9114
105	MyrSpi		Patch	8/30/2010	03:29:40pm	41.55457	-73.47206	1-4	2	0.0481
106	NajMin	w/FID_0 w/MyrSpi	Patch	8/24/2010	N/A	41.52216	-73.46410	0-1	2	6.6495
107	NajMin	w/FID6 w/MyrSpi	Patch	8/24/2010	N/A	41.51437	-73.45335	0-1	2	0.4813
108	NajMin	w/FID_24 w/MyrSpi	Patch	8/24/2010	N/A	41.55391	-73.47119	0-1	2	0.0481
109	NajMin	w/FID24 w/MyrSpi	Patch	8/24/2010	N/A	41.55403	-73.46987	0-1	2	0.0752
110	NajMin	w/FID48 w/MyrSpi	Patch	8/26/2010	N/A	41.55867	-73.48455	0-1	2	0.4135
111	NajMin	w/FID_48 w/MyrSpi	Patch	8/26/2010	N/A	41.55824	-73.48232	0-1	2	0.0813
112	NajMin	w/FID_56 w/MyrSpi	Patch	8/26/2010	N/A	41.56233	-73.48747	0-1	2	0.2094
113	NajMin	w/FID_64 w/MyrSpi	Patch	8/30/2010	N/A	41.57077	-73.48872	0-1	2	0.3013
114	NajMin	w/FID_64 w/MyrSpi	Patch	8/30/2010	N/A	41.57216	-73.49050	0-1	2	0.1906
115	NajMin	w/FID_64 w/MyrSpi	Patch	8/30/2010	N/A	41.57585	-73.49261	0-1	2	1.5275
116	NajMin	w/FID_71 w/MyrSpi	Patch	8/30/2010	N/A	41.57028	-73.48419	0-1	2	0.9560
117	NajMin	w/FID_71 w/MyrSpi	Patch	8/30/2010	N/A	41.56829	-73.48269	0-1	2	0.3238
118	NajMin	w/FID_80 w/MyrSpi	Patch	8/30/2010	N/A	41.55512	-73.47253	0-1	2	0.1123
119	MyrSpi	30% abundance = 5, found w/ NajMin in coves	Patch	8/17/2010	11:21:55am	41.48248	-73.43620	1-4	4	25.5600
120	MyrSpi	Abundance = 5 within	Patch	8/17/2010	12:29:56pm	41.49323	-73.44030	1-4	4	2.9981
121	MyrSpi	Abundance = 5 within	Patch	8/17/2010	12:47:59pm	41.49786	-73.44241	1-4	4	0.7955
122	MyrSpi	Abundance = 5 within, patchy	Patch	8/17/2010	12:51:30pm	41.50020	-73.44267	1-4	3	0.4551
123	MyrSpi		Patch	8/17/2010	12:55:15pm	41.50240	-73.44273	1-4	4	0.7081
124	MyrSpi	40% abundance = 5	Patch	8/17/2010	01:02:24pm	41.50496	-73.44197	1-4	4	8.4531
125	MyrSpi	Abundance = 5 within	Patch	8/17/2010	01:19:17pm	41.50319	-73.43818	1-4	4	1.0070
126	MyrSpi	Abundance = 5 within	Patch	8/17/2010	01:28:16pm	41.50647	-73.43826	1-4	4	0.3731
127	MyrSpi	Abundance = 5 within, found w/ NajMin in cove	Patch	8/17/2010	01:32:11pm	41.51245	-73.44028	1-4	4	4.3527
128	MyrSpi		Patch	8/17/2010	02:05:33pm	41.51138	-73.44114	2-4	4	0.7741
129	MyrSpi	Abundance = 5 within	Patch	8/17/2010	02:12:00pm	41.51710	-73.43962	1-4	4	3.0044
130	MyrSpi	Abundance = 4 within, found w/NajMin east of N&S islands	Patch	8/17/2010	02:29:26pm	41.52786	-73.44254	1-4	5	10.4700
131	MyrSpi		Patch	8/17/2010	03:02:35pm	41.52748	-73.43837	1-4	4	3.4940
132	MyrSpi		Patch	8/17/2010	03:06:55pm	41.52387	-73.43834	1-4	3	0.1870
133	MyrSpi		Patch	8/17/2010	03:10:06pm	41.52280	-73.43813	1-4	5	0.1131
134	MyrSpi	Abundance = 5 within	Patch	8/17/2010	03:13:34pm	41.52209	-73.43767	1-4	4	1.1198
135	MyrSpi		Patch	8/17/2010	03:20:39pm	41.52383	-73.43735	1-4	4	0.0505
136	MyrSpi		Patch	8/17/2010	03:22:55pm	41.52392	-73.43643	1-4	2	0.0575
137	MyrSpi		Patch	8/17/2010	03:25:28pm	41.52335	-73.43640	2-4	2	0.0080
138	MyrSpi		Patch	8/17/2010	03:27:16pm	41.52276	-73.43622	1-4	5	0.0500
139	MyrSpi		Patch	8/17/2010	03:29:39pm	41.52224	-73.43612	1-4	5	0.0282
140	MyrSpi	Abundance = 5 within	Patch	8/17/2010	03:30:56pm	41.52053	-73.43556	1-4	4	2.1778
141	MyrSpi	Abundance = 5 within	Patch	8/17/2010	03:44:08pm	41.51886	-73.43673	1-4	4	1.0864
142	MyrSpi		Patch	8/18/2010	11:49:20am	41.49956	-73.44530	2-3	3	0.0253
143	MyrSpi		Patch	8/18/2010	11:51:57am	41.49989	-73.44526	2-3	2	0.0061

Appendix Lake Candlewood invasive plant location data (4 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
144	MyrSpi		Patch	8/18/2010	11:55:18am	41.50207	-73.44504	1-4	4	0.4812
145	MyrSpi		Patch	8/18/2010	12:02:22pm	41.50317	-73.44549	1-4	4	0.0580
146	MyrSpi		Patch	8/18/2010	12:03:39pm	41.50352	-73.44564	1-4	3	0.0805
147	MyrSpi	Abundance = 5 within	Patch	8/18/2010	12:04:54pm	41.50566	-73.44510	1-4	4	1.4421
148	MyrSpi		Patch	8/18/2010	12:17:21pm	41.50946	-73.44584	1-4	4	0.0980
149	MyrSpi		Patch	8/18/2010	12:19:33pm	41.51130	-73.44513	1-4	3	0.5536
150	MyrSpi		Patch	8/18/2010	12:25:41pm	41.51316	-73.44441	1-4	3	0.0412
151	MyrSpi	Abundance = 5 within	Patch	8/18/2010	12:30:54pm	41.51839	-73.44545	1-4	4	0.1307
152	MyrSpi	Abundance = 5 within	Patch	8/18/2010	12:33:55pm	41.52041	-73.44614	1-4	4	0.0512
153	MyrSpi	40% abundance = 5 within	Patch	8/18/2010	12:35:59pm	41.52373	-73.44622	1-4	5	2.2056
154	MyrSpi		Patch	8/18/2010	12:48:32pm	41.52205	-73.44609	2-4	5	0.4788
155	MyrSpi		Patch	8/18/2010	12:55:35pm	41.52545	-73.43665	1-3	2	0.0019
156	MyrSpi	Abundance = 5 within	Patch	8/18/2010	12:58:59pm	41.52754	-73.43723	1-4	4	0.1500
157	MyrSpi		Patch	8/18/2010	01:03:23pm	41.52696	-73.43786	1-3	4	0.0186
158	MyrSpi		Patch	8/18/2010	01:05:01pm	41.52672	-73.43784	1-4	4	0.0356
159	MyrSpi		Patch	8/18/2010	01:06:27pm	41.52633	-73.43784	1-4	4	0.0450
160	MyrSpi		Patch	8/18/2010	01:23:57pm	41.53178	-73.43866	1-4	3	0.2724
161	MyrSpi	Abundance = 5 within	Patch	8/18/2010	01:27:20pm	41.53350	-73.43875	1-4	4	1.4291
162	MyrSpi	Abundance = 5 within, found w/ NajMin	Patch	8/18/2010	01:43:24pm	41.53535	-73.43912	1-4	4	0.4386
163	MyrSpi	40% abundance = 4 within	Patch	8/18/2010	01:52:41pm	41.53660	-73.44138	1-4	5	0.6705
164	MyrSpi	Abundance = 5 within	Patch	8/18/2010	02:00:36pm	41.53808	-73.44254	1-4	4	0.2321
165	MyrSpi	Abundance = 5 within	Patch	8/18/2010	02:03:03pm	41.53908	-73.44297	1-4	4	0.1162
166	MyrSpi	Abundance = 5 within	Patch	8/18/2010	02:05:09pm	41.54239	-73.44355	1-4	4	2.0182
167	MyrSpi	50% abundance = 5 within	Patch	8/18/2010	02:17:35pm	41.54568	-73.44266	1-4	4	1.5240
168	MyrSpi	30% Abundance = 4 within	Patch	8/18/2010	02:29:38pm	41.54852	-73.44313	1-4	5	0.3753
169	MyrSpi	Abundance = 5 within	Patch	8/18/2010	02:34:07pm	41.55055	-73.44391	1-4	4	0.4271
170	MyrSpi	40% abundance = 5 within	Patch	8/18/2010	02:38:30pm	41.55202	-73.44197	1-4	4	3.1504
171	MyrSpi	Abundance = 5 within	Patch	8/18/2010	02:53:12pm	41.55364	-73.43970	1-4	4	0.4212
172	MyrSpi		Patch	8/18/2010	03:00:30pm	41.55641	-73.43962	1-4	2	0.4695
173	MyrSpi	30% abundance = 4 less dense in south	Patch	8/18/2010	03:07:33pm	41.56300	-73.44077	1-4	5	4.4530
174	MyrSpi	found w/ NajMin	Patch	8/18/2010	03:30:36pm	41.56753	-73.44242	1-4	5	0.1971
175	MyrSpi	Abundance = 5 within, found w/ NajMin	Patch	8/18/2010	03:33:51pm	41.56870	-73.44281	1-4	4	0.6877
176	MyrSpi	found w/ NajMin	Patch	8/18/2010	03:39:18pm	41.57102	-73.44305	1-4	5	1.7316
177	MyrSpi	found w/ NajMin in the east	Patch	8/18/2010	03:46:18pm	41.57253	-73.44434	1-4	4	0.5651
178	MyrSpi		Patch	8/20/2010	01:00:46pm	41.56852	-73.44552	1-4	3	0.3923
179	MyrSpi		Patch	8/20/2010	01:06:11pm	41.56655	-73.44508	1-4	4	0.5378
180	MyrSpi	40% abundance = 5 within	Patch	8/20/2010	01:11:54pm	41.56195	-73.44431	1-4	4	4.4421
181	MyrSpi		Patch	8/20/2010	01:34:28pm	41.55762	-73.44358	1-4	4	0.0287
182	MyrSpi		Patch	8/20/2010	01:35:52pm	41.55674	-73.44405	1-4	3	0.2914
183	MyrSpi	30% abundance = 5 within	Patch	8/20/2010	01:40:31pm	41.54873	-73.44664	1-4	4	5.8197
184	MyrSpi		Patch	8/20/2010	02:14:40pm	41.54108	-73.44708	2-3	2	0.0374
185	MyrSpi		Patch	8/20/2010	02:16:29pm	41.54017	-73.44675	1-4	3	0.0635
186	MyrSpi		Patch	8/20/2010	02:19:10pm	41.53805	-73.44701	1-4	3	0.1671
187	MyrSpi		Patch	8/20/2010	02:23:18pm	41.53486	-73.44754	1-4	4	0.4124
188	MyrSpi		Patch	8/20/2010	02:29:53pm	41.53185	-73.44814	1-4	4	0.7803
189	MyrSpi		Patch	8/20/2010	02:37:34pm	41.52889	-73.44702	1-4	3	0.3429
190	MyrSpi		Patch	8/20/2010	02:42:44pm	41.52721	-73.44635	1-4	3	0.0742
191	MyrSpi	20% abundance = 5 within	Patch	8/20/2010	02:55:23pm	41.49635	-73.44626	1-4	4	3.0207

Appendix Lake Candlewood invasive plant location data (5 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
192	MyrSpi	20% abundance = 5 within	Patch	8/20/2010	03:08:22pm	41.49727	-73.44747	1-4	4	0.1122
193	MyrSpi	10% abundance = 5 within	Patch	8/20/2010	03:12:05pm	41.50270	-73.45278	1-4	4	16.9700
194	MyrSpi		Patch	8/20/2010	04:02:56pm	41.49739	-73.45388	1-4	4	1.0240
195	NajMin	w/FID_0 w/MyrSpi	Patch	8/17/2010	N/A	41.48092	-73.43489	0-1	2	1.0083
196	NajMin	w/FID_0 w/MyrSpi	Patch	8/17/2010	N/A	41.47631	-73.43300	0-1	2	0.1011
197	NajMin	w/FID_0 w/MyrSpi	Patch	8/17/2010	N/A	41.47659	-73.43370	0-1	2	0.1918
198	NajMin	w/FID_8 w/MyrSpi	Patch	8/17/2010	N/A	41.51372	-73.44008	0-1	2	0.4963
199	NajMin	w/FID_11 w/MyrSpi	Patch	8/17/2010	N/A	41.52920	-73.44212	0-1	2	0.2888
200	NajMin	w/FID_11 w/MyrSpi	Patch	8/17/2010	N/A	41.52645	-73.44230	0-1	2	0.5949
201	NajMin	w/FID_43 w/MyrSpi	Patch	8/18/2010	N/A	41.53552	-73.43901	0-1	3	0.2245
202	NajMin	w/FIS_55 w/MyrSpi	Patch	8/18/2010	N/A	41.56757	-73.44233	0-1	2	0.1358
203	NajMin	w/FID_56 w/MyrSpi	Patch	8/18/2010	N/A	41.56874	-73.44265	0-1	2	0.2720
204	NajMin	w/FID57 w/MyrSpi	Patch	8/18/2010	N/A	41.57177	-73.44285	0-1	2	0.1150
205	NajMin	w/FID58 w/MyrSpi	Patch	8/18/2010	N/A	41.57256	-73.44299	0-1	2	0.0703
206	MyrSpi		Patch	8/8/2010	02:27:11pm	41.45302	-73.43664	1-4	4	6.8159
207	MyrSpi		Patch	8/8/2010	02:58:29pm	41.45074	-73.43257	1-4	3	0.2619
208	MyrSpi		Patch	8/8/2010	03:05:15pm	41.45499	-73.44073	1-4	2	0.1336
209	MyrSpi		Patch	8/8/2010	03:08:22pm	41.45560	-73.44061	1-4	2	0.1135
210	MyrSpi		Patch	8/8/2010	03:12:09pm	41.45663	-73.44119	1-4	3	0.1284
211	MyrSpi		Patch	8/8/2010	03:17:41pm	41.45767	-73.44243	1-4	3	0.0585
212	MyrSpi		Patch	8/8/2010	03:20:19pm	41.45867	-73.44298	1-4	3	0.3263
213	MyrSpi		Patch	8/8/2010	03:25:50pm	41.45907	-73.44419	2-4	3	0.3428
214	MyrSpi		Patch	8/8/2010	03:29:06pm	41.45871	-73.44479	2-4	2	0.0605
215	MyrSpi		Patch	8/8/2010	03:31:23pm	41.45800	-73.44501	1-3	3	0.0106
216	MyrSpi		Patch	8/8/2010	03:34:05pm	41.45719	-73.44475	1-4	3	0.0615
217	MyrSpi		Patch	8/8/2010	03:40:24pm	41.45474	-73.44425	1-4	3	-0.5071
218	MyrSpi		Patch	8/8/2010	03:46:56pm	41.45337	-73.44428	1-4	3	0.1468
219	MyrSpi		Patch	8/8/2010	03:50:00pm	41.45294	-73.44454	1-4	3	0.0450
220	MyrSpi		Patch	8/8/2010	03:51:31pm	41.45262	-73.44467	1-4	2	0.0945
221	MyrSpi		Patch	8/8/2010	03:53:25pm	41.45218	-73.44479	1-4	2	0.0894
222	MyrSpi		Patch	8/8/2010	03:56:17pm	41.45110	-73.44549	1-4	3	0.5260
223	MyrSpi	Abundance = 5 within	Patch	8/8/2010	04:03:53pm	41.44980	-73.44686	1-4	3	0.3555
224	MyrSpi		Patch	8/8/2010	04:10:29pm	41.44768	-73.44724	1-4	4	0.2772
225	MyrSpi	Abundance = 5 within	Patch	8/8/2010	04:14:42pm	41.44590	-73.44853	1-4	4	4.7215
226	MyrSpi		Patch	8/8/2010	04:36:50pm	41.44406	-73.45115	1-4	2	0.0255
227	MyrSpi		Patch	8/8/2010	04:38:29pm	41.44362	-73.45125	0-2	4	0.0438
228	MyrSpi		Patch	8/8/2010	04:40:56pm	41.44331	-73.45143	1-3	4	0.0496
229	MyrSpi	Abundance = 5 within	Patch	8/8/2010	04:42:44pm	41.44250	-73.45195	1-4	4	0.5026
230	MyrSpi	Abundance = 5 within	Patch	8/8/2010	04:50:31pm	41.43957	-73.45340	1-4	4	4.1724
231	MyrSpi	Abundance = 5 within	Patch	8/8/2010	05:10:10pm	41.43550	-73.45439	1-4	4	1.5314
232	MyrSpi		Patch	8/8/2010	05:18:28pm	41.43386	-73.45410	1-4	4	0.0729
233	MyrSpi		Patch	8/8/2010	05:19:44pm	41.43337	-73.45404	1-3	2	0.0958
234	MyrSpi		Patch	8/8/2010	05:24:25pm	41.43276	-73.45393	2-3	2	0.0572
235	MyrSpi	Abundance = 4 within	Patch	8/8/2010	05:27:09pm	41.43016	-73.45330	1-4	3	1.6981
237	MyrSpi		Patch	8/9/2010	01:17:42pm	41.42793	-73.45532	1-4	4	15.9700
238	MyrSpi		Patch	8/9/2010	01:50:28pm	41.42623	-73.45582	2-4	3	0.0774
239	MyrSpi		Patch	8/9/2010	01:53:19pm	41.42561	-73.45557	1-4	4	0.7440
240	MyrSpi	Abundance variable, small shallow patches w/abundance = 5	Patch	8/9/2010	01:59:32pm	41.42417	-73.45436	1-4	3	3.0748

Appendix Lake Candlewood invasive plant location data (6 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
241	MyrSpi	Highly variable abundance	Patch	8/9/2010	02:37:12pm	41.42751	-73.45189	1-4	3	15.3400
242	MyrSpi		Patch	8/9/2010	03:08:04pm	41.42517	-73.45297	1-4	4	5.0564
243	MyrSpi		Patch	8/10/2010	11:09:38am	41.44969	-73.45193	1-4	4	0.7997
244	MyrSpi		Patch	8/10/2010	11:18:33am	41.44580	-73.45116	1-5	4	0.5290
245	MyrSpi		Patch	8/10/2010	11:37:49am	41.42658	-73.45742	1-4	4	0.5533
246	MyrSpi		Patch	8/10/2010	11:46:57am	41.42514	-73.45656	1-3	4	0.1042
247	NajMin		Patch	8/10/2010	11:48:40am	41.42513	-73.45660	0-2	2	0.0527
248	MyrSpi		Patch	8/10/2010	11:50:12am	41.42559	-73.45689	1-4	2	0.0666
249	MyrSpi		Patch	8/10/2010	11:53:56am	41.42780	-73.45877	1-3	2	0.0721
250	MyrSpi		Patch	8/10/2010	11:59:37am	41.43035	-73.46020	1-4	4	0.1915
251	MyrSpi		Patch	8/10/2010	12:04:44pm	41.43257	-73.45977	1-4	4	1.1195
252	MyrSpi	Abundance = 5 within	Patch	8/10/2010	12:21:22pm	41.43942	-73.45843	1-4	4	1.1671
253	MyrSpi		Patch	8/10/2010	12:31:11pm	41.44160	-73.45720	1-4	3	0.1645
254	MyrSpi		Patch	8/10/2010	12:34:43pm	41.44300	-73.45622	1-3	2	0.0089
255	MyrSpi		Patch	8/10/2010	12:36:23pm	41.44341	-73.45589	1-3	2	0.0103
256	MyrSpi		Patch	8/10/2010	12:38:19pm	41.44371	-73.45557	1-4	4	0.0656
257	MyrSpi		Patch	8/10/2010	12:39:52pm	41.44445	-73.45526	2-4	4	0.0871
258	MyrSpi		Patch	8/10/2010	12:41:28pm	41.44536	-73.45484	1-3	3	0.0173
259	MyrSpi		Patch	8/10/2010	12:49:29pm	41.45405	-73.45071	1-4	3	0.4658
260	MyrSpi	Abundance = 5 within, found w/ NajMin in cove	Patch	8/10/2010	12:56:21pm	41.45705	-73.45325	1-4	4	2.5498
261	MyrSpi	Handpulling here	Patch	8/10/2010	01:24:15pm	41.46307	-73.45801	1-4	2	0.0159
262	MyrSpi	Abundance = 5 within	Patch	8/10/2010	01:25:58pm	41.46419	-73.45823	1-4	4	0.8608
263	MyrSpi	Abundance = 5 within	Patch	8/10/2010	01:33:15pm	41.46464	-73.46058	1-4	4	1.3613
264	MyrSpi		Patch	8/10/2010	01:47:51pm	41.46628	-73.45535	1-4	4	5.1784
265	MyrSpi		Patch	8/10/2010	02:14:23pm	41.46499	-73.46155	1-3	1	0.0281
266	MyrSpi		Patch	8/10/2010	02:17:01pm	41.46535	-73.46129	1-4	5	0.0302
267	MyrSpi		Patch	8/10/2010	02:18:39pm	41.46561	-73.46092	1-4	4	0.1168
268	MyrSpi		Patch	8/10/2010	02:20:16pm	41.46595	-73.46058	1-4	2	0.0246
269	MyrSpi	Abundance = 5 within	Patch	8/10/2010	02:22:58pm	41.46907	-73.45704	1-4	4	6.1904
270	NajMin		Patch	8/10/2010	02:45:10pm	41.46879	-73.45719	0-1	2	0.2312
271	NajMin		Patch	8/10/2010	02:51:59pm	41.46888	-73.45846	0-2	2	0.1567
272	MyrSpi		Patch	8/10/2010	02:57:13pm	41.46622	-73.45060	1-4	4	1.9744
273	MyrSpi		Patch	8/10/2010	03:01:16pm	41.46715	-73.45108	2-4	4	0.1043
274	MyrSpi		Patch	8/11/2010	11:34:12am	41.46892	-73.45895	0-2	2	0.0390
275	MyrSpi	Abundance = 5 within	Patch	8/11/2010	11:43:06am	41.47546	-73.46121	1-4	4	0.5274
276	MyrSpi		Patch	8/11/2010	11:56:24am	41.47630	-73.46090	1-4	3	0.0924
277	MyrSpi	Abundance = 5 within	Patch	8/11/2010	12:00:00pm	41.47802	-73.46151	1-4	4	1.5476
278	MyrSpi	Abundance = 4 within	Patch	8/11/2010	12:08:26pm	41.48132	-73.46170	1-4	5	1.7856
279	MyrSpi	Abundance = 5 within, found w/ NajMin W&E	Patch	8/11/2010	12:24:40pm	41.48416	-73.45941	1-4	4	5.5902
280	MyrSpi	Abundance = 5 within	Patch	8/11/2010	12:51:33pm	41.48092	-73.45750	1-4	4	0.3753
281	MyrSpi		Patch	8/11/2010	12:56:21pm	41.48009	-73.45755	2-3	1	0.0068
282	MyrSpi	Abundance = 5 within	Patch	8/11/2010	12:57:18pm	41.47948	-73.45709	1-4	4	0.5434
283	MyrSpi		Patch	8/11/2010	01:00:36pm	41.47726	-73.45527	1-4	4	1.5036
284	MyrSpi		Patch	8/11/2010	01:10:52pm	41.47501	-73.45343	1-4	3	0.0439
285	MyrSpi		Patch	8/11/2010	01:12:53pm	41.47435	-73.45325	1-4	3	0.1236
286	MyrSpi		Patch	8/11/2010	01:15:43pm	41.47379	-73.45325	1-3	2	0.0549
287	MyrSpi		Patch	8/11/2010	01:17:45pm	41.47293	-73.45278	1-4	2	0.2854
288	MyrSpi		Patch	8/11/2010	01:22:18pm	41.47189	-73.45213	1-4	2	0.0570

Appendix Lake Candlewood invasive plant location data (7 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
289	MyrSpi	Abundance = 5 within	Patch	8/11/2010	01:24:19pm	41.47075	-73.45125	1-4	4	1.2995
290	MyrSpi		Patch	8/11/2010	01:31:11pm	41.46757	-73.44985	1-4	4	1.8229
291	MyrSpi		Patch	8/11/2010	01:46:40pm	41.46331	-73.44697	1-4	4	1.3372
292	MyrSpi	Abundance = 4 within	Patch	8/11/2010	02:04:07pm	41.46212	-73.44562	1-4	3	2.4871
293	MyrSpi		Patch	8/11/2010	02:18:56pm	41.46651	-73.44212	1-4	4	1.3156
294	MyrSpi	Abundance higher to the west	Patch	8/11/2010	02:30:17pm	41.47160	-73.44514	1-4	4	1.9637
295	MyrSpi	Abundance = 5 within	Patch	8/11/2010	02:40:32pm	41.47209	-73.44716	1-4	4	0.3951
296	MyrSpi		Patch	8/11/2010	02:43:56pm	41.47318	-73.44812	1-4	4	0.3579
297	MyrSpi		Patch	8/11/2010	02:48:20pm	41.47393	-73.44809	1-4	3	0.2387
298	MyrSpi		Patch	8/11/2010	02:50:51pm	41.47456	-73.44722	1-4	2	0.0868
299	MyrSpi		Patch	8/11/2010	02:53:49pm	41.47401	-73.44643	1-4	3	0.0738
300	MyrSpi		Patch	8/11/2010	02:56:35pm	41.47628	-73.44831	1-4	3	0.1527
301	MyrSpi		Patch	8/11/2010	02:58:53pm	41.47690	-73.44956	1-4	4	1.6984
302	MyrSpi		Patch	8/11/2010	03:11:24pm	41.49350	-73.44543	2-4	4	1.1374
303	MyrSpi		Patch	8/11/2010	03:18:57pm	41.49119	-73.45421	1-4	4	0.5143
304	MyrSpi		Patch	8/11/2010	03:38:36pm	41.47073	-73.44993	1-5	2	0.2076
305	MyrSpi	Abundance denser in the south	Patch	8/11/2010	03:41:42pm	41.46818	-73.44731	1-4	4	1.2794
306	MyrSpi	Abundance = 5 within, found w/ NajMin and StuPec	Patch	8/12/2010	12:52:18pm	41.46586	-73.42875	1-4	5	35.6000
307	MyrSpi	Abundance = 5 within, found w/ StuPec	Patch	8/12/2010	02:49:27pm	41.46825	-73.43838	1-4	4	8.8159
308	MyrSpi		Patch	8/12/2010	03:28:19pm	41.47507	-73.44410	1-4	4	0.8040
309	MyrSpi	Abundance = 5 within	Patch	8/12/2010	03:37:01pm	41.48002	-73.44381	1-4	4	5.3200
310	MyrSpi		Patch	8/13/2010	11:24:58am	41.49227	-73.45723	1-4	4	1.4948
311	MyrSpi	Abundance = 5 within, denser west, found w/ NajMin S Cove	Patch	8/13/2010	11:42:03am	41.48819	-73.46184	1-4	3	8.3628
312	MyrSpi	Abundance = 5 within, found w/ NajMin	Patch	8/13/2010	12:25:31pm	41.49877	-73.46883	1-4	4	3.7213
313	MyrSpi	found w/ NajMin	Patch	8/13/2010	12:48:25pm	41.49638	-73.46774	1-4	2	0.0229
314	MyrSpi		Patch	8/13/2010	12:58:16pm	41.49590	-73.46710	1-4	2	0.0251
315	MyrSpi	Abundance = 5 within	Patch	8/13/2010	12:59:29pm	41.49827	-73.46406	1-4	4	6.3997
316	MyrSpi	Abundance = 5 within, found w/ NajMin toward causeway	Patch	8/13/2010	01:27:24pm	41.50736	-73.46801	1-4	3	2.6178
317	MyrSpi	found w/ NajMin	Patch	8/13/2010	01:53:25pm	41.51024	-73.46930	1-4	3	0.4990
318	MyrSpi		Patch	8/13/2010	02:01:06pm	41.50889	-73.46730	1-4	3	0.5075
319	MyrSpi		Patch	8/13/2010	02:09:01pm	41.50806	-73.46623	1-4	3	0.1708
320	MyrSpi	Gaps from mechanical removal	Patch	8/13/2010	02:13:07pm	41.50693	-73.46500	1-4	3	0.7004
321	MyrSpi		Patch	8/13/2010	02:24:47pm	41.50520	-73.46303	1-4	2	0.2612
322	MyrSpi		Patch	8/13/2010	02:30:21pm	41.50423	-73.46220	1-4	4	0.1451
323	MyrSpi		Patch	8/13/2010	02:32:38pm	41.50314	-73.46152	1-4	3	0.0424
324	MyrSpi		Patch	8/13/2010	02:33:26pm	41.50238	-73.45979	1-4	4	3.2339
325	NajMin	w/FID_54_at0-1m w/MyrSpi	Patch	8/10/2010	12:56pm	41.45670	-73.45421	0-1	2	0.5646
326	NajMin	w/FID_73 w/MyrSpi	Patch	8/11/2010	N/A	41.48483	-73.45989	0-1	2	0.1055
327	NajMin	w/FID_73 w/MyrSpi	Patch	8/11/2010	N/A	41.48497	-73.45890	0-1	2	0.0791
328	NajMin	w/FID_73 w/MyrSpi	Patch	8/11/2010	N/A	41.48453	-73.45909	0-1	2	0.0447
329	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.47168	-73.43627	0-1	2	0.2231
330	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.47376	-73.43839	0-1	2	0.3717
331	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.47251	-73.43587	0-1	2	0.3327
332	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.47202	-73.43364	0-1	2	0.5502
333	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.46947	-73.43026	0-1	2	0.2921
334	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.46870	-73.42587	0-1	2	0.3446
335	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.46345	-73.42534	0-1	2	0.3043
336	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.46452	-73.42416	0-1	2	0.3281

Appendix Lake Candlewood invasive plant location data (8 of 8)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
337	NajMin	w/FID_100 w/MyrSpi	Patch	8/12/2010	N/A	41.45979	-73.42805	0-1	2	0.6313
338	NajMin	w/FID_105 w/MyrSpi	Patch	8/13/2010	N/A	41.48595	-73.45951	0-1	2	0.7200
339	NajMin	w/FID_106 w/MyrSpi	Patch	8/13/2010	N/A	41.50054	-73.46921	0-1	2	0.1326
340	NajMin	w/FID_107 w/MyrSpi	Patch	8/13/2010	N/A	41.49644	-73.46776	0-1	2	0.0173
341	NajMin	w/FID_110 w/MyrSpi	Patch	8/13/2010	N/A	41.51072	-73.47058	0-1	2	0.0481
342	NajMin	w/FID_111 w/MyrSpi	Patch	8/13/2010	N/A	41.51067	-73.46989	1-3	2	0.0561
343	PotCri	added after	Patch	11/29/2010	N/A	41.52130	-73.46231	0-2	1	0.9927
0	MyrSpi		Point	8/24/2010	03:46:46pm	41.53405	-73.45500	2-4	1	0.0002
1	MyrSpi		Point	8/24/2010	03:47:56pm	41.53472	-73.45542	2-4	2	0.0002
2	MyrSpi		Point	8/25/2010	03:42:01pm	41.52234	-73.45812	1-3	1	0.0002
3	MyrSpi		Point	8/25/2010	04:34:11pm	41.54234	-73.47251	2-3	3	0.0002
4	MyrSpi		Point	8/25/2010	05:05:11pm	41.55565	-73.48103	2-3	1	0.0002
5	MyrSpi		Point	8/30/2010	12:39:21pm	41.56604	-73.48981	2-3	2	0.0002
6	MyrSpi		Point	8/30/2010	12:44:16pm	41.56719	-73.49004	0-2	2	0.0002
7	MyrSpi		Point	8/30/2010	12:50:11pm	41.56876	-73.49066	0-2	2	0.0002
8	MyrSpi		Point	8/30/2010	12:51:46pm	41.56924	-73.49059	0-2	1	0.0002
9	MyrSpi		Point	8/30/2010	12:52:11pm	41.56920	-73.49064	0-2	3	0.0002
10	MyrSpi		Point	8/30/2010	12:52:41pm	41.56914	-73.49064	2-3	3	0.0002
11	MyrSpi		Point	8/30/2010	03:12:51pm	41.55919	-73.47490	0-2	2	0.0002
12	MyrSpi		Point	8/30/2010	03:17:01pm	41.55759	-73.47451	0-2	2	0.0002
13	MyrSpi		Point	8/17/2010	01:27:26pm	41.50531	-73.43794	2-3	2	0.0002
14	MyrSpi		Point	8/18/2010	11:47:26am	41.49817	-73.44548	2-3	1	0.0002
15	MyrSpi		Point	8/18/2010	11:54:06am	41.50031	-73.44519	2-3	1	0.0002
16	MyrSpi		Point	8/18/2010	12:01:01pm	41.50289	-73.44529	1-3	1	0.0002
17	MyrSpi		Point	8/18/2010	12:01:41pm	41.50302	-73.44532	1-3	1	0.0002
18	MyrSpi		Point	8/18/2010	02:58:48pm	41.55480	-73.43956	2-3	3	0.0002
19	MyrSpi		Point	8/18/2010	03:00:01pm	41.55506	-73.43956	2-3	1	0.0002
20	MyrSpi		Point	8/18/2010	03:53:48pm	41.57229	-73.44588	2-3	1	0.0002
21	MyrSpi		Point	8/18/2010	03:54:47pm	41.57183	-73.44574	2-3	1	0.0002
22	MyrSpi		Point	8/18/2010	03:55:19pm	41.57188	-73.44579	2-3	1	0.0002
23	MyrSpi		Point	8/18/2010	03:56:23pm	41.57166	-73.44574	2-3	1	0.0002
24	MyrSpi		Point	8/8/2010	03:38:21pm	41.45657	-73.44453	1-3	2	0.0002
25	MyrSpi		Point	8/10/2010	12:19:51pm	41.43724	-73.45886	2-3	2	0.0002
26	MyrSpi		Point	8/10/2010	01:15:26pm	41.46197	-73.45736	0-2	2	0.0002
27	MyrSpi		Point	8/10/2010	01:16:44pm	41.46196	-73.45734	1-3	2	0.0002
28	MyrSpi		Point	8/10/2010	01:18:55pm	41.46258	-73.45776	1-3	2	0.0002
29	MyrSpi		Point	8/11/2010	12:49:52pm	41.48224	-73.45758	2-3	2	0.0002

Appendix. Lake Zoar invasive plant location data (1 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
0	MarQua		Patch	8/11/2010	11:09:12am	41.44725545	-73.27201584	0-0.5	4	0.01178
1	MarQua		Patch	8/11/2010	11:13:10am	41.44735843	-73.27216586	0-0.5	4	0.04059
2	MarQua		Patch	8/11/2010	11:15:43am	41.44706299	-73.27202574	0-0.5	4	0.08705
3	MarQua		Patch	8/11/2010	11:23:51am	41.44687096	-73.27202862	0-0.5	4	0.0177
4	MarQua		Patch	8/11/2010	11:29:07am	41.44662651	-73.27187001	0-0.5	4	0.04616
5	MarQua		Patch	8/11/2010	11:33:43am	41.44628056	-73.27162631	0-0.5	3	0.00582
6	MarQua		Patch	8/11/2010	11:36:29am	41.44607187	-73.27156531	0-0.5	3	0.00602
7	MyrSpi		Patch	7/28/2010	12:20:50pm	41.38653648	-73.17391309	1.1-2	2	0.03086
8	MyrSpi		Patch	7/28/2010	12:24:02pm	41.38664205	-73.17391316	1.1-2	4	0.0033
9	MyrSpi		Patch	7/28/2010	12:26:22pm	41.38681232	-73.17410342	1.1-2	2	0.06845
10	MyrSpi		Patch	7/28/2010	12:29:11pm	41.38694393	-73.17414177	1.1-2	3	0.01241
11	MyrSpi		Patch	7/28/2010	12:29:56pm	41.38721754	-73.1743982	1.1-2	2	0.09816
12	MyrSpi		Patch	7/28/2010	12:38:41pm	41.38613581	-73.17386687	1.1-2	3	0.01562
13	MyrSpi		Patch	7/28/2010	12:47:15pm	41.38551939	-73.17297359	1.1-2	4	0.13701
14	MyrSpi		Patch	7/28/2010	01:00:51pm	41.38500086	-73.17229655	2.1-3	3	0.02432
15	MyrSpi		Patch	7/28/2010	01:11:51pm	41.38206686	-73.17451469	5-7	4	0.55612
16	NajMin		Patch	7/28/2010	01:25:00pm	41.38199336	-73.17432064	3.1-4	3	0.07782
17	MyrSpi		Patch	7/28/2010	01:31:29pm	41.38174649	-73.1756022	5-7	5	0.99132
18	NajMin		Patch	7/28/2010	02:05:35pm	41.38166895	-73.17526842	5.1-6	4	0.46327
19	MyrSpi		Patch	7/28/2010	02:15:19pm	41.38171256	-73.17706493	2.1-3	3	0.20481
20	NajMin		Patch	7/28/2010	02:21:12pm	41.38170556	-73.17715537	2.1-3	3	0.13552
21	MyrSpi		Patch	7/29/2010	09:15:19am	41.38317155	-73.17714284	2.1-3	1	0.13354
22	MyrSpi		Patch	7/29/2010	09:28:32am	41.38448292	-73.17821448	2.1-3	2	0.00872
23	MyrSpi		Patch	7/29/2010	09:33:34am	41.38500298	-73.17868048	2.1-3	3	0.11482
24	MyrSpi		Patch	7/29/2010	09:54:51am	41.38821141	-73.18149946	3.1-4	3	0.23248
25	MyrSpi		Patch	7/29/2010	10:08:57am	41.38896717	-73.18234545	2.1-3	3	0.09596
26	MyrSpi		Patch	7/29/2010	10:50:59am	41.39813208	-73.19054199	2.1-3	3	0.00454
27	MyrSpi		Patch	7/29/2010	10:57:02am	41.39867631	-73.1901865	3.1-4	4	0.4874
28	NajMin		Patch	7/29/2010	11:06:53am	41.39859045	-73.19055292	2.1-3	3	0.08482
29	MyrSpi		Patch	7/29/2010	11:17:26am	41.40034143	-73.18896208	2.1-3	3	0.20583
30	MyrSpi		Patch	7/29/2010	11:20:27am	41.40069582	-73.1884673	2.1-3	3	0.12498
31	NajMin		Patch	7/29/2010	11:24:13am	41.40065973	-73.18850871	2.1-3	3	0.03029
32	MyrSpi		Patch	7/29/2010	12:40:21pm	41.41280164	-73.20130274	3.1-4	3	0.92542
33	MyrSpi		Patch	7/29/2010	12:48:24pm	41.4140232	-73.20242474	2.1-3	2	0.35464
34	MyrSpi		Patch	7/29/2010	01:45:42pm	41.42475935	-73.23716729	2.1-3	2	0.10808
35	MyrSpi		Patch	7/29/2010	02:01:32pm	41.42922218	-73.24426925	2.1-3	2	0.04878
36	MyrSpi		Patch	7/29/2010	02:09:32pm	41.43089837	-73.24488261	2.1-3	3	0.03441
37	NajMin		Patch	8/9/2010	09:32:22am	41.44470251	-73.26954279	0-0.5	3	1.47239
38	NajMin		Patch	8/9/2010	09:58:28am	41.44601727	-73.27102274	0.6-1	3	2.24534
39	MyrSpi		Patch	8/9/2010	10:09:38am	41.44314039	-73.26782314	1.1-2	2	0.11216
40	NajMin		Patch	8/9/2010	10:11:26am	41.44294378	-73.26783992	0-0.5	2	0.00244

Appendix. Lake Zoar invasive plant location data (2 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
41	MyrSpi		Patch	8/9/2010	10:12:38am	41.44157637	-73.26736449	1.1-2	3	0.66883
42	NajMin		Patch	8/9/2010	10:21:59am	41.44250671	-73.26768449	0-0.5	2	0.00295
43	MyrSpi		Patch	8/9/2010	10:25:50am	41.43965283	-73.26689908	1.1-2	4	1.1159
44	NajMin		Patch	8/9/2010	10:38:56am	41.43897258	-73.26678211	1.1-2	2	0.04008
45	PotCri		Patch	8/9/2010	10:40:05am	41.43893519	-73.2667864	0.6-1	2	0.02195
46	NajMin		Patch	8/9/2010	10:52:26am	41.43904775	-73.26857451	0-0.5	2	0.40431
47	MarQua		Patch	8/9/2010	10:55:42am	41.43889252	-73.26894752	0-0.5	5	0.00853
48	MarQua		Patch	8/9/2010	10:56:36am	41.43901281	-73.26895951	0-0.5	5	0.00466
49	MarQua		Patch	8/9/2010	10:57:55am	41.43906741	-73.26888134	0-0.5	5	0.00318
50	MarQua		Patch	8/9/2010	10:58:45am	41.43916598	-73.26866134	0-0.5	5	0.02103
51	MarQua		Patch	8/9/2010	11:00:21am	41.43929999	-73.26856093	0-0.5	5	0.0079
52	MarQua		Patch	8/9/2010	11:01:25am	41.43909247	-73.2686785	0-0.5	5	0.0018
53	MyrSpi		Patch	8/9/2010	11:10:57am	41.43870935	-73.26863248	0-0.5	3	0.85792
54	MarQua		Patch	8/9/2010	11:19:51am	41.43839389	-73.26862761	0-0.5	5	0.00622
55	MyrSpi		Patch	8/9/2010	11:31:40am	41.43746531	-73.26749233	0.6-1	3	0.08735
56	NajMin		Patch	8/9/2010	11:34:20am	41.43803438	-73.26733266	0.6-1	2	4.05062
57	MyrSpi		Patch	8/9/2010	11:40:25am	41.43823401	-73.26661381	0.6-1	4	0.21423
58	PotCri		Patch	8/9/2010	11:41:54am	41.4380904	-73.26665163	0-0.5	3	0.29407
59	MyrSpi		Patch	8/9/2010	12:19:10pm	41.43641909	-73.26575934	1.1-2	4	0.05451
60	NajMin		Patch	8/9/2010	12:21:04pm	41.43604889	-73.26556151	0.6-1	2	0.01384
61	NajMin		Patch	8/9/2010	12:34:02pm	41.43304629	-73.25919094	0.6-1	5	0.04769
62	PotCri		Patch	8/9/2010	12:36:11pm	41.43306201	-73.25922196	0.6-1	2	0.07611
63	MyrSpi		Patch	8/9/2010	12:56:13pm	41.43770913	-73.24904435	3.1-4	4	1.60047
64	MyrSpi		Patch	8/9/2010	01:19:01pm	41.43672751	-73.24402164	0.6-1	2	0.10563
65	MyrSpi	ariable due to dredgin	Patch	8/10/2010	10:10:53am	41.43319334	-73.24350349	0.6-1	4	24.42735
66	MyrSpi		Patch	8/10/2010	10:59:22am	41.4356559	-73.24509171	0.6-1	1	0.81522
67	MyrSpi		Patch	8/10/2010	11:08:38am	41.43438149	-73.24592515	0-0.5	1	0.09583
68	MyrSpi		Patch	8/10/2010	11:21:21am	41.43222014	-73.24491176	0-0.5	1	0.03355
69	MyrSpi		Patch	8/10/2010	11:43:22am	41.43148709	-73.24516021	1.1-2	2	1.74207
70	NajMin		Patch	8/2/2010	09:24:26am	41.43687512	-73.25361476	0.6-1	3	0.02658
71	NajMin		Patch	8/2/2010	09:30:47am	41.43637549	-73.25413158	0.6-1	2	0.09451
72	NajMin		Patch	8/2/2010	09:37:14am	41.43576385	-73.25474803	0.6-1	2	0.03681
73	NajMin		Patch	8/2/2010	09:45:27am	41.43467916	-73.25663543	0.6-1	2	0.1301
74	PotCri		Patch	8/2/2010	09:51:45am	41.43465758	-73.25663975	0.6-1	2	0.13521
75	NajMin		Patch	8/2/2010	10:09:25am	41.43432595	-73.26105339	0.6-1	2	0.12013
76	PotCri		Patch	8/2/2010	10:22:27am	41.43465729	-73.26234651	0.6-1	1	0.30104
77	NajMin		Patch	8/2/2010	10:27:18am	41.43475412	-73.2625714	0.6-1	2	0.15666
78	MyrSpi		Patch	8/2/2010	10:52:25am	41.43609133	-73.26423353	0.6-1	3	0.13664
79	PotCri		Patch	8/2/2010	10:57:16am	41.43598076	-73.26419152	0.6-1	2	0.16443
80	NajMin		Patch	8/2/2010	11:00:53am	41.43599856	-73.26418506	0.6-1	2	0.06214
81	MyrSpi		Patch	8/2/2010	11:36:12am	41.44460158	-73.26714173	0.6-1	2	0.04084

Appendix. Lake Zoar invasive plant location data (3 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
82	MyrSpi		Patch	8/2/2010	11:42:48am	41.4457197	-73.26772551	0.6-1	2	0.74454
83	NajMin		Patch	8/2/2010	11:48:30am	41.44603854	-73.26776997	0.6-1	3	0.12421
84	MyrSpi		Patch	8/2/2010	12:43:09pm	41.44781348	-73.26924948	0.6-1	3	1.6215
85	PotCri		Patch	8/2/2010	01:01:32pm	41.44780787	-73.26921957	0.6-1	2	1.56558
86	NajMin		Patch	8/2/2010	01:15:36pm	41.44795454	-73.26928205	0-0.5	1	1.18085
87	MyrSpi		Patch	8/2/2010	01:36:35pm	41.45054059	-73.27177892	0.6-1	1	0.04495
88	PotCri		Patch	8/2/2010	01:40:26pm	41.45055422	-73.27176684	0.6-1	2	0.05898
89	MyrSpi		Patch	8/2/2010	01:46:28pm	41.45158893	-73.27276541	0.6-1	3	0.34989
90	PotCri		Patch	8/2/2010	01:56:28pm	41.4516757	-73.27286745	0.6-1	2	0.24199
91	MyrSpi		Patch	8/2/2010	02:06:32pm	41.45281286	-73.27498396	0.6-1	3	0.10122
92	MyrSpi		Patch	8/3/2010	10:38:41am	41.45319725	-73.28050545	1.1-2	4	1.67208
93	PotCri		Patch	8/3/2010	11:06:59am	41.45322387	-73.28087636	1.1-2	1	1.14451
94	NajMin		Patch	8/3/2010	11:21:22am	41.45340564	-73.28070765	1.1-2	2	0.11174
95	NajMin		Patch	8/3/2010	11:34:03am	41.45253561	-73.2829653	1.1-2	3	0.00344
96	MyrSpi		Patch	8/3/2010	11:46:53am	41.45059831	-73.28830026	2.1-3	2	0.28286
97	PotCri		Patch	8/3/2010	12:42:33pm	41.44964467	-73.29006319	1.1-2	2	0.01617
98	MyrSpi		Patch	8/3/2010	12:59:02pm	41.44811564	-73.29133001	2.1-3	2	0.12751
99	PotCri		Patch	8/3/2010	01:03:07pm	41.4481849	-73.29122761	2.1-3	3	0.0447
100	MyrSpi		Patch	8/3/2010	01:24:38pm	41.45118989	-73.28444601	1.1-2	3	1.98818
101	PotCri		Patch	8/3/2010	01:54:14pm	41.45162415	-73.28273753	1.1-2	2	0.51054
102	NajMin		Patch	8/3/2010	02:18:21pm	41.45170658	-73.28240752	0.6-1	2	0.36223
103	MyrSpi		Patch	8/5/2010	09:47:01am	41.45211552	-73.27766396	0.6-1	3	0.90284
104	PotCri		Patch	8/5/2010	10:37:03am	41.45214151	-73.2779805	0.6-1	2	0.77219
105	MyrSpi		Patch	8/5/2010	10:55:48am	41.45089402	-73.27345093	0.6-1	2	0.18524
106	MyrSpi		Patch	8/5/2010	11:08:56am	41.44579767	-73.27022491	2.1-3	4	7.53086
107	PotCri		Patch	8/5/2010	12:20:58pm	41.44591759	-73.26998132	0.6-1	3	4.19022
108	MyrSpi		Patch	7/21/2010	10:42:53am	41.4280762	-73.2348942	0.6-1	1	0.71973
109	MyrSpi		Patch	7/21/2010	10:53:00am	41.42918241	-73.23280629	0.6-1	4	3.77596
110	MyrSpi		Patch	7/21/2010	11:38:53am	41.43207932	-73.22722483	0-0.5	3	0.08433
111	NajMin		Patch	7/21/2010	11:46:12am	41.43175465	-73.22724331	0-0.5	2	0.1132
112	MyrSpi		Patch	7/21/2010	11:54:09am	41.4314022	-73.22719136	0.6-1	2	1.0783
113	MyrSpi		Patch	7/21/2010	01:15:28pm	41.43042574	-73.21968945	2.1-3	3	0.02888
114	NajMin		Patch	7/21/2010	01:59:21pm	41.42422864	-73.20625196	0-0.5	3	0.17893
115	MyrSpi		Patch	7/21/2010	02:05:35pm	41.42404004	-73.20684532	0-0.5	3	2.61236
116	MyrSpi		Patch	7/27/2010	10:41:21am	41.42092299	-73.20656326	0.6-1	3	0.37133
117	MyrSpi		Patch	7/27/2010	10:43:55am	41.42045382	-73.20614864	0.6-1	3	0.02474
118	MyrSpi		Patch	7/27/2010	10:47:42am	41.41950205	-73.20513376	0.6-1	2	0.05644
119	MyrSpi		Patch	7/27/2010	10:56:40am	41.41768343	-73.20254392	0.6-1	1	0.02248
120	MyrSpi		Patch	7/27/2010	11:13:03am	41.41164549	-73.19490612	0-0.5	2	0.10149
121	MyrSpi		Patch	7/27/2010	11:17:16am	41.41132028	-73.19268282	1.1-2	4	0.65819
122	NajMin		Patch	7/27/2010	11:33:01am	41.41137391	-73.1926152	0.6-1	2	0.11224

Appendix. Lake Zoar invasive plant location data (4 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
123	MyrSpi		Patch	7/27/2010	11:41:20am	41.41146614	-73.19083282	0-0.5	3	0.17024
124	NajMin		Patch	7/27/2010	11:47:03am	41.41148814	-73.19069941	0.6-1	2	0.02188
125	MyrSpi		Patch	7/27/2010	12:20:42pm	41.41090094	-73.19068111	0-0.5	3	0.06027
126	MyrSpi		Patch	7/27/2010	12:25:14pm	41.41053126	-73.1889871	0-0.5	4	0.23557
127	NajMin		Patch	7/27/2010	12:37:06pm	41.41079519	-73.18812571	0.6-1	2	0.04232
128	MyrSpi		Patch	7/27/2010	12:41:02pm	41.41025035	-73.18768987	0.6-1	1	0.13736
129	MyrSpi		Patch	7/27/2010	01:13:46pm	41.39572456	-73.18576012	0-0.5	2	0.04737
130	MyrSpi		Patch	7/27/2010	01:16:49pm	41.39498131	-73.18430895	1.1-2	3	0.13331
131	MyrSpi		Patch	7/27/2010	01:21:20pm	41.39460083	-73.18360497	1.1-2	2	0.05335
132	MyrSpi		Patch	7/27/2010	01:24:24pm	41.39420535	-73.18290963	1.1-2	2	0.03155
133	MyrSpi		Patch	7/27/2010	01:27:14pm	41.39399635	-73.18255317	1.1-2	2	0.04509
134	MyrSpi		Patch	7/27/2010	01:36:23pm	41.3899195	-73.1785854	2.1-3	3	0.39169
135	MyrSpi		Patch	7/27/2010	01:56:52pm	41.3898061	-73.17613095	0.6-1	2	0.04614
136	MyrSpi		Patch	7/27/2010	01:58:59pm	41.3902991	-73.17576937	0.6-1	3	0.05019
137	MyrSpi		Patch	7/27/2010	02:08:58pm	41.3917016	-73.17453108	1.1-2	2	0.3234
138	MyrSpi		Patch	7/27/2010	02:14:57pm	41.38974157	-73.17503058	0.6-1	3	0.09719
139	MyrSpi		Patch	7/27/2010	02:18:30pm	41.38873805	-73.17531404	1.1-2	4	0.23717
140	NajMin		Patch	7/27/2010	02:21:01pm	41.3886619	-73.17528987	1.1-2	3	0.03589
141	MyrSpi		Patch	7/27/2010	02:24:24pm	41.38823871	-73.1751431	0.6-1	2	0.04735
142	MyrSpi		Patch	7/27/2010	02:28:09pm	41.38701324	-73.17424915	0.6-1	2	0.08396
143	MyrSpi		Patch	7/27/2010	02:30:34pm	41.3865333	-73.17393062	1.1-2	3	0.06182
144	MyrSpi		Patch	7/30/2010	09:17:39am	41.42768106	-73.23833193	1.1-2	3	4.37743
145	MyrSpi		Patch	7/30/2010	09:47:57am	41.42686669	-73.23729658	1.1-2	2	1.8227
146	MyrSpi		Patch	7/30/2010	10:11:17am	41.43583341	-73.24142709	0.6-1	1	0.02691
147	MyrSpi		Patch	7/30/2010	10:19:09am	41.44012622	-73.24578698	1.1-2	4	9.66796
148	PotCri		Patch	7/30/2010	11:13:22am	41.44007574	-73.24658959	1.1-2	1	1.76536
149	PotCri		Patch	7/30/2010	11:50:19am	41.43988611	-73.2441294	0.6-1	1	0.9171
150	NajMin		Patch	7/30/2010	11:56:48am	41.44014279	-73.24430737	0.6-1	1	0.08818
151	MyrSpi		Patch	7/30/2010	12:34:09pm	41.43927314	-73.24992142	0-0.5	2	0.08891
152	NajMin		Patch	7/30/2010	12:51:25pm	41.43979506	-73.2502846	0-0.5	2	0.00732
153	MyrSpi		Patch	7/30/2010	01:02:37pm	41.4394281	-73.25068708	0-0.5	1	0.0488
154	MyrSpi		Patch	7/30/2010	01:09:03pm	41.44014615	-73.25264017	0.6-1	2	0.37156
155	NajMin		Patch	7/30/2010	01:17:25pm	41.44004588	-73.25216907	0-0.5	2	0.06511
156	PotCri		Patch	7/30/2010	02:01:13pm	41.43901333	-73.25074472	0-0.5	2	0.02357
157	MyrSpi		Patch	7/30/2010	02:07:28pm	41.43834638	-73.25128365	0.6-1	3	0.80266
158	PotCri		Patch	7/30/2010	02:19:07pm	41.43836229	-73.25140915	0-0.5	3	0.04951
159	MyrSpi		Patch	7/30/2010	02:24:03pm	41.43493651	-73.25783998	0-0.5	3	3.2471
160	NajMin		Patch			41.43985754	-73.25051563	0-0.5	3	0.43966
161	PotCri		Patch			41.43987727	-73.25054545	0-0.5	1	0.27356
162	NajMin		Patch			41.43643561	-73.26577058	1.1-2	2	0.0391
163	PotCri		Patch			41.43641789	-73.26577359	1.1-2	1	0.06041

Appendix. Lake Zoar invasive plant location data (5 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
0	MarQua		Point	8/11/2010	11:01:41am	41.44671	-73.27165	0-0.5	3	0.0002
1	MarQua		Point	8/11/2010	11:04:31am	41.44698	-73.27177	0-0.5	2	0.0002
2	MarQua		Point	8/11/2010	11:06:16am	41.44709	-73.27186	0-0.5	2	0.0002
3	MarQua		Point	8/11/2010	11:39:06am	41.44659	-73.27150	0-0.5	3	0.0002
4	MarQua		Point	8/11/2010	11:39:21am	41.44656	-73.27155	0-0.5	3	0.0002
5	MarQua		Point	8/11/2010	11:39:51am	41.44650	-73.27149	0-0.5	3	0.0002
6	MarQua		Point	8/11/2010	11:40:21am	41.44655	-73.27144	0-0.5	3	0.0002
7	MarQua		Point	8/11/2010	11:40:46am	41.44657	-73.27137	0-0.5	3	0.0002
8	MarQua		Point	8/11/2010	11:40:56am	41.44662	-73.27138	0-0.5	3	0.0002
9	MarQua		Point	8/11/2010	11:41:06am	41.44666	-73.27141	0-0.5	3	0.0002
10	MarQua		Point	8/11/2010	11:41:26am	41.44676	-73.27145	0-0.5	3	0.0002
11	MarQua		Point	8/11/2010	11:41:36am	41.44680	-73.27147	0-0.5	3	0.0002
12	MarQua		Point	8/11/2010	11:42:36am	41.44690	-73.27140	0-0.5	2	0.0002
13	MarQua		Point	8/11/2010	11:43:01am	41.44690	-73.27152	0-0.5	3	0.0002
14	MarQua		Point	8/11/2010	11:44:01am	41.44698	-73.27155	0-0.5	3	0.0002
15	MarQua		Point	8/11/2010	11:45:21am	41.44703	-73.27165	0-0.5	3	0.0002
16	MarQua		Point	8/11/2010	11:45:36am	41.44707	-73.27167	0-0.5	3	0.0002
17	MarQua		Point	8/11/2010	11:47:51am	41.44640	-73.27147	0-0.5	2	0.0002
18	MarQua		Point	8/11/2010	11:48:16am	41.44624	-73.27141	0-0.5	2	0.0002
19	MarQua		Point	8/11/2010	11:48:26am	41.44620	-73.27134	0-0.5	3	0.0002
20	MarQua		Point	8/11/2010	11:48:41am	41.44614	-73.27130	0-0.5	3	0.0002
21	MarQua		Point	8/11/2010	11:49:36am	41.44620	-73.27096	0-0.5	2	0.0002
22	MarQua		Point	8/11/2010	11:52:21am	41.44628	-73.27066	0-0.5	2	0.0002
23	MarQua		Point	8/11/2010	11:53:06am	41.44624	-73.27064	0-0.5	3	0.0002
24	MarQua		Point	8/11/2010	11:53:31am	41.44620	-73.27064	0-0.5	3	0.0002
25	MarQua		Point	8/11/2010	11:54:01am	41.44616	-73.27063	0-0.5	2	0.0002
26	MarQua		Point	8/11/2010	11:54:31am	41.44609	-73.27063	0-0.5	3	0.0002
27	NajMin		Point	7/28/2010	12:34:44pm	41.38699	-73.17412	0.6-1	2	0.0002
28	MyrSpi		Point	7/28/2010	12:41:32pm	41.38606	-73.17364	1.1-2	1	0.0002
29	MyrSpi		Point	7/28/2010	12:41:44pm	41.38602	-73.17364	1.1-2	1	0.0002
30	MyrSpi		Point	7/28/2010	12:41:59pm	41.38599	-73.17360	1.1-2	1	0.0002
31	MyrSpi		Point	7/28/2010	12:42:18pm	41.38604	-73.17356	0.6-1	1	0.0002
32	MyrSpi		Point	7/28/2010	12:42:49pm	41.38598	-73.17352	1.1-2	1	0.0002
33	MyrSpi		Point	7/28/2010	12:43:03pm	41.38587	-73.17351	1.1-2	1	0.0002
34	MyrSpi		Point	7/28/2010	12:43:20pm	41.38571	-73.17347	0.6-1	1	0.0002
35	MyrSpi		Point	7/28/2010	12:43:58pm	41.38577	-73.17349	0.6-1	1	0.0002
36	MyrSpi		Point	7/28/2010	12:44:09pm	41.38576	-73.17344	1.1-2	1	0.0002
37	MyrSpi		Point	7/28/2010	12:44:21pm	41.38575	-73.17343	0.6-1	1	0.0002
38	NajMin		Point	7/28/2010	12:57:14pm	41.38552	-73.17314	1.1-2	3	0.0002
39	PotCri		Point	7/28/2010	02:10:02pm	41.38170	-73.17485	4.1-5	1	0.0002
40	PotCri		Point	7/28/2010	02:10:07pm	41.38170	-73.17491	4.1-5	1	0.0002

Appendix. Lake Zoar invasive plant location data (6 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
41	PotCri		Point	7/28/2010	02:10:20pm	41.38172	-73.17503	4.1-5	1	0.0002
42	PotCri		Point	7/28/2010	02:10:32pm	41.38170	-73.17511	5.1-6	2	0.0002
43	PotCri		Point	7/28/2010	02:10:36pm	41.38173	-73.17516	4.1-5	1	0.0002
44	PotCri		Point	7/28/2010	02:10:41pm	41.38171	-73.17522	4.1-5	1	0.0002
45	PotCri		Point	7/28/2010	02:10:46pm	41.38165	-73.17525	5.1-6	1	0.0002
46	PotCri		Point	7/28/2010	02:10:52pm	41.38168	-73.17532	4.1-5	1	0.0002
47	PotCri		Point	7/28/2010	02:25:30pm	41.38158	-73.17707	0-0.5	1	0.0002
48	MyrSpi		Point	7/28/2010	02:26:22pm	41.38196	-73.17715	2.1-3	1	0.0002
49	MyrSpi		Point	7/28/2010	02:26:36pm	41.38200	-73.17721	3.1-4	2	0.0002
50	MyrSpi		Point	7/28/2010	02:27:19pm	41.38231	-73.17723	4.1-5	1	0.0002
51	MyrSpi		Point	7/28/2010	02:27:36pm	41.38242	-73.17719	5.1-6	1	0.0002
52	MyrSpi		Point	7/29/2010	09:19:51am	41.38360	-73.17751	1.1-2	1	0.0002
53	MyrSpi		Point	7/29/2010	09:29:17am	41.38463	-73.17826	2.1-3	1	0.0002
54	MyrSpi		Point	7/29/2010	09:29:31am	41.38467	-73.17829	2.1-3	1	0.0002
55	MyrSpi		Point	7/29/2010	09:32:52am	41.38492	-73.17907	1.1-2	2	0.0002
56	MyrSpi		Point	7/29/2010	09:40:56am	41.38584	-73.17948	1.1-2	2	0.0002
57	NajMin		Point	7/29/2010	09:47:41am	41.38633	-73.18011	1.1-2	1	0.0002
58	MyrSpi		Point	7/29/2010	09:53:32am	41.38768	-73.18095	2.1-3	1	0.0002
59	MyrSpi		Point	7/29/2010	09:54:17am	41.38781	-73.18101	1.1-2	1	0.0002
60	NajMin		Point	7/29/2010	10:46:59am	41.39794	-73.19051	1.1-2	1	0.0002
61	NajMin		Point	7/29/2010	10:47:28am	41.39797	-73.19052	2.1-3	2	0.0002
62	MyrSpi		Point	7/29/2010	10:47:41am	41.39797	-73.19052	2.1-3	1	0.0002
63	NajMin		Point	7/29/2010	10:48:15am	41.39796	-73.19058	1.1-2	1	0.0002
64	NajMin		Point	7/29/2010	10:48:33am	41.39795	-73.19057	2.1-3	1	0.0002
65	MyrSpi		Point	7/29/2010	10:48:48am	41.39796	-73.19061	1.1-2	2	0.0002
66	NajMin		Point	7/29/2010	10:49:25am	41.39791	-73.19065	2.1-3	3	0.0002
67	NajMin		Point	7/29/2010	10:54:17am	41.39808	-73.19059	2.1-3	3	0.0002
68	NajMin		Point	7/29/2010	10:54:37am	41.39807	-73.19058	2.1-3	2	0.0002
69	PotCri		Point	7/29/2010	10:55:00am	41.39813	-73.19046	1.1-2	2	0.0002
70	MyrSpi		Point	7/29/2010	10:55:57am	41.39836	-73.19026	2.1-3	2	0.0002
71	MyrSpi		Point	7/29/2010	10:56:24am	41.39837	-73.19024	1.1-2	2	0.0002
72	MyrSpi		Point	7/29/2010	10:56:45am	41.39841	-73.19026	2.1-3	2	0.0002
73	PotCri		Point	7/29/2010	11:09:24am	41.39865	-73.19079	2.1-3	4	0.0002
74	PotCri		Point	7/29/2010	11:10:07am	41.39867	-73.19072	2.1-3	3	0.0002
75	MyrSpi		Point	7/29/2010	11:14:32am	41.40007	-73.18897	2.1-3	2	0.0002
76	PotCri		Point	7/29/2010	11:20:42am	41.40061	-73.18866	2.1-3	2	0.0002
77	MyrSpi		Point	7/29/2010	11:30:53am	41.40174	-73.18732	2.1-3	2	0.0002
78	MyrSpi		Point	7/29/2010	12:29:49pm	41.41086	-73.19972	2.1-3	2	0.0002
79	MyrSpi		Point	7/29/2010	12:36:51pm	41.41186	-73.20096	2.1-3	2	0.0002
80	MyrSpi		Point	7/29/2010	12:38:44pm	41.41209	-73.20107	2.1-3	2	0.0002
81	MyrSpi		Point	7/29/2010	12:40:00pm	41.41228	-73.20126	2.1-3	2	0.0002

Appendix. Lake Zoar invasive plant location data (7 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
82	MyrSpi		Point	7/29/2010	12:46:34pm	41.41301	-73.20168	2.1-3	2	0.0002
83	MyrSpi		Point	7/29/2010	12:46:41pm	41.41304	-73.20169	2.1-3	3	0.0002
84	MyrSpi		Point	7/29/2010	12:46:53pm	41.41309	-73.20171	2.1-3	2	0.0002
85	MyrSpi		Point	7/29/2010	12:47:04pm	41.41312	-73.20173	2.1-3	2	0.0002
86	MyrSpi		Point	7/29/2010	12:47:53pm	41.41344	-73.20196	1.1-2	3	0.0002
87	MyrSpi		Point	7/29/2010	12:52:24pm	41.41441	-73.20285	2.1-3	2	0.0002
88	MyrSpi		Point	7/29/2010	01:48:15pm	41.42504	-73.23760	2.1-3	3	0.0002
89	NajMin		Point	7/29/2010	02:04:38pm	41.42937	-73.24449	1.1-2	2	0.0002
90	MyrSpi		Point	7/29/2010	02:04:52pm	41.42938	-73.24440	1.1-2	2	0.0002
91	MyrSpi		Point	7/29/2010	02:05:18pm	41.42945	-73.24450	1.1-2	2	0.0002
92	MyrSpi		Point	7/21/2010	10:23:56am	41.42790	-73.23566	0.6-1	2	0.0002
93	MyrSpi		Point	7/21/2010	10:25:09am	41.42790	-73.23549	0.6-1	2	0.0002
94	MyrSpi		Point	7/21/2010	10:29:20am	41.42774	-73.23573	0.6-1	2	0.0002
95	MyrSpi		Point	7/21/2010	10:48:49am	41.42796	-73.23456	1.1-2	2	0.0002
96	MyrSpi		Point	7/21/2010	10:49:41am	41.42790	-73.23453	0.6-1	2	0.0002
97	PotCri		Point	7/21/2010	10:49:52am	41.42796	-73.23462	0.6-1	2	0.0002
98	MyrSpi		Point	7/21/2010	10:50:29am	41.42796	-73.23457	0.6-1	2	0.0002
99	MyrSpi		Point	7/21/2010	10:51:12am	41.42787	-73.23459	0.6-1	2	0.0002
100	MyrSpi		Point	7/21/2010	10:58:30am	41.42926	-73.23342	0.6-1	2	0.0002
101	MyrSpi		Point	7/21/2010	10:58:41am	41.42928	-73.23340	0.6-1	2	0.0002
102	MyrSpi		Point	7/21/2010	10:58:56am	41.42930	-73.23337	0.6-1	2	0.0002
103	MyrSpi		Point	7/21/2010	10:59:26am	41.42935	-73.23324	0.6-1	2	0.0002
104	MyrSpi		Point	7/21/2010	10:59:38am	41.42942	-73.23317	0.6-1	2	0.0002
105	MyrSpi		Point	7/21/2010	10:59:49am	41.42947	-73.23314	0.6-1	2	0.0002
106	MyrSpi		Point	7/21/2010	11:00:28am	41.42954	-73.23287	0.6-1	2	0.0002
107	MyrSpi		Point	7/21/2010	11:00:47am	41.42956	-73.23283	0.6-1	2	0.0002
108	MyrSpi		Point	7/21/2010	11:00:57am	41.42958	-73.23271	0.6-1	2	0.0002
109	MyrSpi		Point	7/21/2010	11:01:19am	41.42970	-73.23256	0.6-1	2	0.0002
110	MyrSpi		Point	7/21/2010	11:01:31am	41.42972	-73.23249	0.6-1	2	0.0002
111	MyrSpi		Point	7/21/2010	11:01:41am	41.42977	-73.23242	0.6-1	2	0.0002
112	MyrSpi		Point	7/21/2010	11:01:52am	41.42976	-73.23232	0.6-1	2	0.0002
113	MyrSpi		Point	7/21/2010	11:03:09am	41.42998	-73.23163	0.6-1	2	0.0002
114	MyrSpi		Point	7/21/2010	11:03:19am	41.43004	-73.23156	0.6-1	2	0.0002
115	MyrSpi		Point	7/21/2010	11:03:26am	41.43007	-73.23151	0.6-1	2	0.0002
116	MyrSpi		Point	7/21/2010	11:03:36am	41.43009	-73.23145	0.6-1	2	0.0002
117	MyrSpi		Point	7/21/2010	11:03:49am	41.43012	-73.23139	0.6-1	2	0.0002
118	MyrSpi		Point	7/21/2010	11:04:01am	41.43015	-73.23131	0.6-1	2	0.0002
119	MyrSpi		Point	7/21/2010	11:04:12am	41.43020	-73.23120	0.6-1	2	0.0002
120	MyrSpi		Point	7/21/2010	11:04:18am	41.43022	-73.23118	0.6-1	2	0.0002
121	MyrSpi		Point	7/21/2010	11:04:25am	41.43026	-73.23112	0.6-1	2	0.0002
122	MyrSpi		Point	7/21/2010	11:04:33am	41.43028	-73.23105	0.6-1	2	0.0002

Appendix. Lake Zoar invasive plant location data (8 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
123	MyrSpi		Point	7/21/2010	11:04:40am	41.43029	-73.23099	0.6-1	2	0.0002
124	MyrSpi		Point	7/21/2010	11:04:50am	41.43027	-73.23091	0.6-1	2	0.0002
125	MyrSpi		Point	7/21/2010	11:04:58am	41.43025	-73.23082	0.6-1	2	0.0002
126	MyrSpi		Point	7/21/2010	11:05:27am	41.43015	-73.23061	0.6-1	2	0.0002
127	MyrSpi		Point	7/21/2010	11:05:42am	41.43008	-73.23089	0.6-1	2	0.0002
128	MyrSpi		Point	7/21/2010	11:07:14am	41.43004	-73.23087	0.6-1	2	0.0002
129	MyrSpi		Point	7/21/2010	11:07:23am	41.43006	-73.23077	0.6-1	2	0.0002
130	PotCri		Point	7/21/2010	11:37:08am	41.43206	-73.22730	0-0.5	1	0.0002
131	MyrSpi		Point	7/21/2010	12:59:28pm	41.43090	-73.22631	0-0.5	3	0.0002
132	MyrSpi		Point	7/21/2010	12:59:47pm	41.43090	-73.22620	0-0.5	3	0.0002
133	MyrSpi		Point	7/21/2010	01:00:08pm	41.43087	-73.22608	0-0.5	3	0.0002
134	MyrSpi		Point	7/21/2010	01:00:40pm	41.43084	-73.22586	0-0.5	3	0.0002
135	MyrSpi		Point	7/21/2010	01:01:05pm	41.43083	-73.22556	0-0.5	4	0.0002
136	MyrSpi		Point	7/21/2010	01:01:18pm	41.43080	-73.22547	0-0.5	3	0.0002
137	MyrSpi		Point	7/21/2010	01:02:03pm	41.43083	-73.22519	0-0.5	3	0.0002
138	MyrSpi		Point	7/21/2010	01:02:34pm	41.43083	-73.22511	0-0.5	3	0.0002
139	MyrSpi		Point	7/21/2010	01:02:58pm	41.43085	-73.22503	0-0.5	3	0.0002
140	MyrSpi		Point	7/21/2010	01:03:19pm	41.43081	-73.22497	1.1-2	3	0.0002
141	MyrSpi		Point	7/21/2010	01:07:41pm	41.43083	-73.22270	1.1-2	3	0.0002
142	MyrSpi		Point	7/21/2010	01:08:02pm	41.43082	-73.22262	1.1-2	2	0.0002
143	MyrSpi		Point	7/21/2010	01:08:26pm	41.43083	-73.22246	1.1-2	3	0.0002
144	MyrSpi		Point	7/21/2010	01:08:42pm	41.43083	-73.22237	1.1-2	2	0.0002
145	MyrSpi		Point	7/21/2010	01:08:54pm	41.43082	-73.22231	1.1-2	3	0.0002
146	MyrSpi		Point	7/21/2010	01:09:12pm	41.43079	-73.22222	1.1-2	3	0.0002
147	PotCri		Point	7/21/2010	01:09:27pm	41.43076	-73.22215	1.1-2	1	0.0002
148	MyrSpi		Point	7/21/2010	01:09:52pm	41.43078	-73.22203	1.1-2	3	0.0002
149	MyrSpi		Point	7/21/2010	01:10:09pm	41.43076	-73.22196	1.1-2	3	0.0002
150	MyrSpi		Point	7/21/2010	01:13:25pm	41.43048	-73.22044	2.1-3	2	0.0002
151	MyrSpi		Point	7/21/2010	01:13:41pm	41.43048	-73.22032	3.1-4	2	0.0002
152	MyrSpi		Point	7/21/2010	01:13:56pm	41.43050	-73.22023	3.1-4	3	0.0002
153	MyrSpi		Point	7/21/2010	01:14:12pm	41.43047	-73.22012	3.1-4	3	0.0002
154	MyrSpi		Point	7/21/2010	01:14:46pm	41.43046	-73.21987	2.1-3	3	0.0002
155	MyrSpi		Point	7/21/2010	01:16:11pm	41.43034	-73.21956	2.1-3	3	0.0002
156	MyrSpi		Point	7/21/2010	01:16:37pm	41.43034	-73.21943	2.1-3	3	0.0002
157	NajMin		Point	7/21/2010	01:17:00pm	41.43029	-73.21934	1.1-2	3	0.0002
158	MyrSpi		Point	7/21/2010	01:18:43pm	41.43008	-73.21907	1.1-2	1	0.0002
159	MyrSpi		Point	7/21/2010	01:22:37pm	41.42907	-73.21651	1.1-2	1	0.0002
160	MyrSpi		Point	7/21/2010	01:35:41pm	41.42322	-73.21068	1.1-2	2	0.0002
161	MyrSpi		Point	7/21/2010	01:36:09pm	41.42304	-73.21041	1.1-2	3	0.0002
162	MyrSpi		Point	7/21/2010	01:36:26pm	41.42303	-73.21037	1.1-2	1	0.0002
163	MyrSpi		Point	7/21/2010	01:40:22pm	41.42214	-73.20922	1.1-2	2	0.0002

Appendix. Lake Zoar invasive plant location data (9 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
164	MyrSpi		Point	7/21/2010	01:41:08pm	41.42190	-73.20890	1.1-2	2	0.0002
165	MyrSpi		Point	7/21/2010	01:41:30pm	41.42180	-73.20869	2.1-3	2	0.0002
166	MyrSpi		Point	7/21/2010	01:42:14pm	41.42172	-73.20828	2.1-3	2	0.0002
167	MyrSpi		Point	7/21/2010	01:42:30pm	41.42174	-73.20818	1.1-2	3	0.0002
168	MyrSpi		Point	7/21/2010	01:42:43pm	41.42177	-73.20802	1.1-2	1	0.0002
169	MyrSpi		Point	7/21/2010	01:44:13pm	41.42239	-73.20759	1.1-2	3	0.0002
170	PotCri		Point	7/21/2010	02:04:02pm	41.42433	-73.20615	0-0.5	2	0.0002
171	PotCri		Point	7/21/2010	02:04:15pm	41.42431	-73.20611	0-0.5	2	0.0002
172	MyrSpi		Point	7/21/2010	02:20:56pm	41.42365	-73.20662	0-0.5	1	0.0002
173	MyrSpi		Point	7/21/2010	02:21:41pm	41.42375	-73.20622	0-0.5	2	0.0002
174	MyrSpi		Point	7/21/2010	02:22:21pm	41.42349	-73.20651	1.1-2	1	0.0002
175	MyrSpi		Point	7/21/2010	02:22:55pm	41.42326	-73.20612	1.1-2	2	0.0002
176	MyrSpi		Point	7/21/2010	02:24:25pm	41.42343	-73.20651	1.1-2	1	0.0002
177	MyrSpi		Point	7/21/2010	02:24:44pm	41.42342	-73.20659	1.1-2	1	0.0002
178	MyrSpi		Point	7/27/2010	10:46:30am	41.42008	-73.20602	0.6-1	1	0.0002
179	MyrSpi		Point	7/27/2010	10:47:04am	41.41985	-73.20565	0.6-1	1	0.0002
180	MyrSpi		Point	7/27/2010	10:47:22am	41.41976	-73.20551	0.6-1	2	0.0002
181	MyrSpi		Point	7/27/2010	10:50:23am	41.41964	-73.20545	0.6-1	2	0.0002
182	MyrSpi		Point	7/27/2010	10:51:14am	41.41932	-73.20502	0.6-1	2	0.0002
183	MyrSpi		Point	7/27/2010	10:52:25am	41.41878	-73.20439	0.6-1	1	0.0002
184	MyrSpi		Point	7/27/2010	10:52:53am	41.41855	-73.20413	0.6-1	1	0.0002
185	MyrSpi		Point	7/27/2010	10:54:27am	41.41793	-73.20323	0.6-1	1	0.0002
186	MyrSpi		Point	7/27/2010	10:54:40am	41.41787	-73.20310	0.6-1	1	0.0002
187	MyrSpi		Point	7/27/2010	10:54:58am	41.41782	-73.20282	0.6-1	2	0.0002
188	MyrSpi		Point	7/27/2010	11:05:35am	41.41387	-73.19912	0.6-1	1	0.0002
189	MyrSpi		Point	7/27/2010	11:06:01am	41.41370	-73.19882	0.6-1	2	0.0002
190	MyrSpi		Point	7/27/2010	11:06:39am	41.41341	-73.19843	0-0.5	2	0.0002
191	MyrSpi		Point	7/27/2010	11:07:10am	41.41317	-73.19818	0.6-1	1	0.0002
192	MyrSpi		Point	7/27/2010	11:07:36am	41.41298	-73.19800	0.6-1	1	0.0002
193	MyrSpi		Point	7/27/2010	11:08:21am	41.41271	-73.19753	0-0.5	1	0.0002
194	MyrSpi		Point	7/27/2010	11:08:39am	41.41256	-73.19734	0-0.5	1	0.0002
195	MyrSpi		Point	7/27/2010	11:09:09am	41.41238	-73.19703	0-0.5	1	0.0002
196	MyrSpi		Point	7/27/2010	11:09:35am	41.41222	-73.19676	0.6-1	2	0.0002
197	MyrSpi		Point	7/27/2010	11:11:00am	41.41182	-73.19569	0-0.5	1	0.0002
198	PotCri		Point	7/27/2010	11:51:19am	41.41145	-73.19071	0.6-1	1	0.0002
199	NajMin		Point	7/27/2010	12:18:34pm	41.41124	-73.19068	0.6-1	1	0.0002
200	MyrSpi		Point	7/27/2010	12:45:11pm	41.40967	-73.18660	0.6-1	1	0.0002
201	MyrSpi		Point	7/27/2010	12:46:51pm	41.40908	-73.18556	0.6-1	2	0.0002
202	MyrSpi		Point	7/27/2010	12:47:18pm	41.40895	-73.18525	0.6-1	1	0.0002
203	MyrSpi		Point	7/27/2010	12:49:29pm	41.40839	-73.18379	0.6-1	1	0.0002
204	MyrSpi		Point	7/27/2010	12:49:50pm	41.40826	-73.18374	0-0.5	1	0.0002

Appendix. Lake Zoar invasive plant location data (10 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
205	MyrSpi		Point	7/27/2010	01:10:00pm	41.39753	-73.18741	0.6-1	1	0.0002
206	MyrSpi		Point	7/27/2010	01:12:34pm	41.39610	-73.18628	0-0.5	1	0.0002
207	MyrSpi		Point	7/27/2010	01:12:59pm	41.39608	-73.18594	0-0.5	3	0.0002
208	MyrSpi		Point	7/27/2010	01:13:12pm	41.39601	-73.18581	0-0.5	1	0.0002
209	MyrSpi		Point	7/27/2010	01:15:46pm	41.39540	-73.18531	0.6-1	1	0.0002
210	MyrSpi		Point	7/27/2010	01:16:19pm	41.39540	-73.18482	0.6-1	1	0.0002
211	MyrSpi		Point	7/27/2010	01:24:09pm	41.39430	-73.18321	1.1-2	2	0.0002
212	PotCri		Point	7/27/2010	01:48:04pm	41.38995	-73.17850	1.1-2	2	0.0002
213	NajMin		Point	7/27/2010	01:48:25pm	41.38990	-73.17849	0.6-1	3	0.0002
214	NajMin		Point	7/27/2010	01:50:09pm	41.38981	-73.17813	0-0.5	2	0.0002
215	NajMin		Point	7/27/2010	01:50:30pm	41.38981	-73.17818	0.6-1	3	0.0002
216	NajMin		Point	7/27/2010	01:50:56pm	41.38982	-73.17826	0.6-1	3	0.0002
217	MyrSpi		Point	7/27/2010	01:54:18pm	41.38902	-73.17679	0-0.5	1	0.0002
218	MyrSpi		Point	7/27/2010	01:54:29pm	41.38904	-73.17666	0.6-1	3	0.0002
219	NajMin		Point	7/27/2010	01:57:54pm	41.38980	-73.17615	0-0.5	3	0.0002
220	PotCri		Point	7/27/2010	02:00:33pm	41.39012	-73.17593	0-0.5	1	0.0002
221	NajMin		Point	7/27/2010	02:01:44pm	41.39029	-73.17582	0-0.5	3	0.0002
222	MyrSpi		Point	7/27/2010	02:03:11pm	41.39064	-73.17545	0-0.5	2	0.0002
223	MyrSpi		Point	7/27/2010	02:03:26pm	41.39065	-73.17543	0-0.5	1	0.0002
224	NajMin		Point	7/27/2010	02:04:00pm	41.39061	-73.17554	0-0.5	3	0.0002
225	MyrSpi		Point	7/27/2010	02:05:20pm	41.39088	-73.17543	0-0.5	1	0.0002
226	NajMin		Point	7/27/2010	02:05:33pm	41.39104	-73.17542	0-0.5	3	0.0002
227	MyrSpi		Point	7/27/2010	02:05:50pm	41.39105	-73.17543	0-0.5	2	0.0002
228	MyrSpi		Point	7/27/2010	02:06:56pm	41.39122	-73.17539	0-0.5	2	0.0002
229	MyrSpi		Point	7/27/2010	02:07:43pm	41.39152	-73.17507	0-0.5	2	0.0002
230	MyrSpi		Point	7/27/2010	02:07:53pm	41.39152	-73.17507	0-0.5	3	0.0002
231	NajMin		Point	7/27/2010	02:08:33pm	41.39160	-73.17492	0.6-1	2	0.0002
232	MyrSpi		Point	7/27/2010	02:11:05pm	41.39143	-73.17406	0-0.5	1	0.0002
233	MyrSpi		Point	7/27/2010	02:11:22pm	41.39132	-73.17413	0-0.5	1	0.0002
234	MyrSpi		Point	7/27/2010	02:11:48pm	41.39115	-73.17403	0-0.5	1	0.0002
235	MyrSpi		Point	7/27/2010	02:12:13pm	41.39101	-73.17413	0-0.5	2	0.0002
236	MyrSpi		Point	7/27/2010	02:13:26pm	41.39059	-73.17467	0-0.5	1	0.0002
237	MyrSpi		Point	7/27/2010	02:13:49pm	41.39040	-73.17478	0-0.5	2	0.0002
238	MyrSpi		Point	7/27/2010	02:14:12pm	41.39022	-73.17474	0.6-1	2	0.0002
239	MyrSpi		Point	7/27/2010	02:18:17pm	41.38907	-73.17537	0.6-1	2	0.0002
240	MyrSpi		Point	7/27/2010	02:27:37pm	41.38730	-73.17448	0.6-1	2	0.0002
241	MyrSpi		Point	7/30/2010	09:42:45am	41.42704	-73.23632	1.1-2	2	0.0002
242	MyrSpi		Point	7/30/2010	09:43:17am	41.42693	-73.23644	1.1-2	2	0.0002
243	MyrSpi		Point	7/30/2010	09:43:36am	41.42692	-73.23674	1.1-2	2	0.0002
244	MyrSpi		Point	7/30/2010	09:44:02am	41.42678	-73.23714	1.1-2	2	0.0002
245	MyrSpi		Point	7/30/2010	09:44:18am	41.42680	-73.23741	1.1-2	2	0.0002

Appendix. Lake Zoar invasive plant location data (11 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
246	MyrSpi		Point	7/30/2010	09:44:57am	41.42671	-73.23756	1.1-2	2	0.0002
247	MyrSpi		Point	7/30/2010	09:45:09am	41.42665	-73.23749	1.1-2	2	0.0002
248	MyrSpi		Point	7/30/2010	10:03:01am	41.43256	-73.24073	1.1-2	2	0.0002
249	MyrSpi		Point	7/30/2010	10:04:11am	41.43262	-73.24079	1.1-2	2	0.0002
250	MyrSpi		Point	7/30/2010	10:06:19am	41.43339	-73.24076	1.1-2	2	0.0002
251	MyrSpi		Point	7/30/2010	10:08:57am	41.43479	-73.24103	1.1-2	2	0.0002
252	MyrSpi		Point	7/30/2010	10:13:29am	41.43611	-73.24154	0.6-1	2	0.0002
253	MyrSpi		Point	7/30/2010	10:13:47am	41.43627	-73.24157	0.6-1	2	0.0002
254	MyrSpi		Point	7/30/2010	10:14:16am	41.43649	-73.24168	0.6-1	2	0.0002
255	MyrSpi		Point	7/30/2010	10:14:53am	41.43675	-73.24191	0.6-1	2	0.0002
256	PotCri		Point	7/30/2010	11:06:42am	41.44014	-73.24542	1.1-2	2	0.0002
257	PotCri		Point	7/30/2010	11:27:40am	41.44065	-73.24655	1.1-2	2	0.0002
258	MyrSpi		Point	7/30/2010	12:27:47pm	41.43942	-73.24856	0-0.5	2	0.0002
259	MyrSpi		Point	7/30/2010	12:28:10pm	41.43941	-73.24847	0-0.5	2	0.0002
260	MyrSpi		Point	7/30/2010	12:28:52pm	41.43947	-73.24795	0-0.5	2	0.0002
261	MyrSpi		Point	7/30/2010	12:29:02pm	41.43946	-73.24788	0-0.5	2	0.0002
262	MyrSpi		Point	7/30/2010	12:31:10pm	41.43937	-73.24848	0-0.5	2	0.0002
263	MyrSpi		Point	7/30/2010	12:31:25pm	41.43937	-73.24864	0-0.5	2	0.0002
264	MyrSpi		Point	7/30/2010	12:32:46pm	41.43923	-73.24913	0-0.5	2	0.0002
265	MyrSpi		Point	7/30/2010	12:33:40pm	41.43921	-73.24967	0-0.5	2	0.0002
266	PotCri		Point	7/30/2010	12:36:27pm	41.43927	-73.24990	0-0.5	2	0.0002
267	PotCri		Point	7/30/2010	12:36:37pm	41.43931	-73.24995	0-0.5	2	0.0002
268	PotCri		Point	7/30/2010	12:36:46pm	41.43935	-73.25000	0-0.5	2	0.0002
269	PotCri		Point	7/30/2010	12:36:54pm	41.43937	-73.25004	0-0.5	2	0.0002
270	PotCri		Point	7/30/2010	12:37:05pm	41.43937	-73.25009	0-0.5	2	0.0002
271	NajMin		Point	7/30/2010	12:37:46pm	41.43928	-73.25024	0-0.5	2	0.0002
272	NajMin		Point	7/30/2010	12:38:07pm	41.43930	-73.25008	0-0.5	2	0.0002
273	NajMin		Point	7/30/2010	12:38:18pm	41.43934	-73.25000	0-0.5	2	0.0002
274	NajMin		Point	7/30/2010	12:38:30pm	41.43935	-73.24997	0-0.5	2	0.0002
275	NajMin		Point	7/30/2010	12:38:42pm	41.43934	-73.24989	0-0.5	2	0.0002
276	NajMin		Point	7/30/2010	12:38:53pm	41.43933	-73.24979	0-0.5	2	0.0002
277	NajMin		Point	7/30/2010	12:39:04pm	41.43929	-73.24971	0-0.5	2	0.0002
278	NajMin		Point	7/30/2010	12:39:12pm	41.43925	-73.24967	0-0.5	2	0.0002
279	MyrSpi		Point	7/30/2010	12:49:13pm	41.43947	-73.25028	0-0.5	2	0.0002
280	NajMin		Point	7/30/2010	12:49:21pm	41.43949	-73.25027	0-0.5	2	0.0002
281	MyrSpi		Point	7/30/2010	12:49:39pm	41.43954	-73.25026	0-0.5	2	0.0002
282	NajMin		Point	7/30/2010	12:50:23pm	41.43956	-73.25023	0-0.5	2	0.0002
283	MyrSpi		Point	7/30/2010	01:01:51pm	41.43917	-73.25067	0.6-1	2	0.0002
284	MyrSpi		Point	7/30/2010	01:02:06pm	41.43936	-73.25082	0.6-1	2	0.0002
285	PotCri		Point	7/30/2010	01:05:24pm	41.43946	-73.25075	0-0.5	2	0.0002
286	PotCri		Point	7/30/2010	01:06:06pm	41.43940	-73.25063	0-0.5	2	0.0002

Appendix. Lake Zoar invasive plant location data (12 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
287	PotCri		Point	7/30/2010	01:06:16pm	41.43943	-73.25070	0-0.5	2	0.0002
288	PotCri		Point	7/30/2010	01:06:30pm	41.43946	-73.25079	0-0.5	2	0.0002
289	NajMin		Point	7/30/2010	01:06:44pm	41.43949	-73.25087	0-0.5	2	0.0002
290	PotCri		Point	7/30/2010	01:06:53pm	41.43951	-73.25091	0-0.5	2	0.0002
291	NajMin		Point	7/30/2010	01:07:03pm	41.43953	-73.25094	0-0.5	2	0.0002
292	MyrSpi		Point	7/30/2010	01:08:45pm	41.43980	-73.25174	0-0.5	2	0.0002
293	PotCri		Point	7/30/2010	01:16:30pm	41.43985	-73.25171	0-0.5	2	0.0002
294	MyrSpi		Point	7/30/2010	01:16:40pm	41.43984	-73.25169	0-0.5	2	0.0002
295	PotCri		Point	7/30/2010	01:21:40pm	41.43989	-73.25180	0-0.5	2	0.0002
296	PotCri		Point	7/30/2010	01:22:06pm	41.43993	-73.25186	0-0.5	2	0.0002
297	PotCri		Point	7/30/2010	01:22:17pm	41.43997	-73.25193	0-0.5	2	0.0002
298	PotCri		Point	7/30/2010	01:22:27pm	41.44000	-73.25201	0-0.5	2	0.0002
299	PotCri		Point	7/30/2010	01:22:35pm	41.44002	-73.25208	0-0.5	2	0.0002
300	PotCri		Point	7/30/2010	01:22:43pm	41.44003	-73.25214	0-0.5	2	0.0002
301	NajMin		Point	7/30/2010	01:23:46pm	41.44025	-73.25286	0-0.5	2	0.0002
302	PotCri		Point	7/30/2010	01:25:33pm	41.44064	-73.25393	0-0.5	2	0.0002
303	MyrSpi		Point	7/30/2010	01:25:54pm	41.44066	-73.25398	0-0.5	2	0.0002
304	MyrSpi		Point	7/30/2010	01:26:04pm	41.44066	-73.25407	0-0.5	2	0.0002
305	MyrSpi		Point	7/30/2010	01:26:11pm	41.44064	-73.25412	0-0.5	2	0.0002
306	MyrSpi		Point	7/30/2010	01:26:41pm	41.44073	-73.25421	0-0.5	2	0.0002
307	MyrSpi		Point	7/30/2010	01:26:53pm	41.44078	-73.25426	0-0.5	2	0.0002
308	MyrSpi		Point	7/30/2010	01:27:03pm	41.44079	-73.25435	0-0.5	2	0.0002
309	PotCri		Point	7/30/2010	01:27:21pm	41.44084	-73.25447	0-0.5	2	0.0002
310	MyrSpi		Point	7/30/2010	01:27:29pm	41.44087	-73.25455	0-0.5	2	0.0002
311	MyrSpi		Point	7/30/2010	01:27:47pm	41.44094	-73.25467	0-0.5	2	0.0002
312	MyrSpi		Point	7/30/2010	01:28:01pm	41.44098	-73.25477	0-0.5	2	0.0002
313	MyrSpi		Point	7/30/2010	01:28:08pm	41.44098	-73.25485	0-0.5	2	0.0002
314	MyrSpi		Point	7/30/2010	01:28:48pm	41.44112	-73.25506	0-0.5	2	0.0002
315	MyrSpi		Point	7/30/2010	01:28:59pm	41.44119	-73.25509	0-0.5	2	0.0002
316	MyrSpi		Point	7/30/2010	01:29:27pm	41.44132	-73.25526	0-0.5	2	0.0002
317	MyrSpi		Point	7/30/2010	01:29:34pm	41.44136	-73.25530	0-0.5	2	0.0002
318	NajMin		Point	7/30/2010	01:29:48pm	41.44140	-73.25535	0-0.5	2	0.0002
319	MyrSpi		Point	7/30/2010	01:30:16pm	41.44142	-73.25549	0-0.5	2	0.0002
320	MyrSpi		Point	7/30/2010	01:30:30pm	41.44147	-73.25555	0-0.5	2	0.0002
321	MyrSpi		Point	7/30/2010	01:31:03pm	41.44162	-73.25575	0-0.5	2	0.0002
322	MyrSpi		Point	7/30/2010	01:31:16pm	41.44173	-73.25573	0-0.5	2	0.0002
323	MyrSpi		Point	7/30/2010	01:31:57pm	41.44185	-73.25595	0-0.5	2	0.0002
324	MyrSpi		Point	7/30/2010	01:36:40pm	41.44441	-73.25454	0-0.5	2	0.0002
325	NajMin		Point	7/30/2010	02:00:12pm	41.43912	-73.25101	0-0.5	2	0.0002
326	MyrSpi		Point	7/30/2010	02:00:59pm	41.43900	-73.25072	0-0.5	2	0.0002
327	MyrSpi		Point	7/30/2010	02:02:58pm	41.43873	-73.25087	0-0.5	2	0.0002

Appendix. Lake Zoar invasive plant location data (13 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
328	MyrSpi		Point	7/30/2010	02:03:29pm	41.43875	-73.25091	0-0.5	2	0.0002
329	PotCri		Point	7/30/2010	02:04:08pm	41.43881	-73.25082	0-0.5	2	0.0002
330	PotCri		Point	7/30/2010	02:04:21pm	41.43882	-73.25077	0-0.5	2	0.0002
331	PotCri		Point	7/30/2010	02:04:32pm	41.43879	-73.25072	0-0.5	2	0.0002
332	PotCri		Point	7/30/2010	02:17:06pm	41.43875	-73.25081	0-0.5	2	0.0002
333	PotCri		Point	7/30/2010	02:17:36pm	41.43858	-73.25104	0-0.5	2	0.0002
334	PotCri		Point	7/30/2010	02:17:59pm	41.43855	-73.25109	0-0.5	2	0.0002
335	PotCri		Point	7/30/2010	02:18:14pm	41.43853	-73.25112	0-0.5	2	0.0002
336	PotCri		Point	8/2/2010	09:20:01am	41.43703	-73.25349	0-0.5	2	0.0002
337	NajMin		Point	8/2/2010	09:20:26am	41.43703	-73.25350	0-0.5	2	0.0002
338	NajMin		Point	8/2/2010	09:23:48am	41.43691	-73.25354	0-0.5	2	0.0002
339	NajMin		Point	8/2/2010	09:36:04am	41.43604	-73.25441	0.6-1	2	0.0002
340	NajMin		Point	8/2/2010	09:36:27am	41.43596	-73.25450	0.6-1	2	0.0002
341	NajMin		Point	8/2/2010	09:43:00am	41.43522	-73.25541	0-0.5	2	0.0002
342	NajMin		Point	8/2/2010	09:43:31am	41.43512	-73.25570	0-0.5	2	0.0002
343	NajMin		Point	8/2/2010	09:43:47am	41.43507	-73.25578	0-0.5	2	0.0002
344	NajMin		Point	8/2/2010	09:44:04am	41.43500	-73.25588	0-0.5	2	0.0002
345	PotCri		Point	8/2/2010	09:44:13am	41.43496	-73.25594	0.6-1	2	0.0002
346	NajMin		Point	8/2/2010	09:56:58am	41.43430	-73.25770	0.6-1	2	0.0002
347	PotCri		Point	8/2/2010	09:58:30am	41.43416	-73.25872	0.6-1	2	0.0002
348	PotCri		Point	8/2/2010	09:59:06am	41.43414	-73.25901	0.6-1	2	0.0002
349	PotCri		Point	8/2/2010	10:00:02am	41.43414	-73.25965	0.6-1	2	0.0002
350	NajMin		Point	8/2/2010	10:00:19am	41.43415	-73.25984	0.6-1	2	0.0002
351	NajMin		Point	8/2/2010	10:00:39am	41.43415	-73.26004	0.6-1	2	0.0002
352	PotCri		Point	8/2/2010	10:00:48am	41.43414	-73.26012	0.6-1	2	0.0002
353	PotCri		Point	8/2/2010	10:01:05am	41.43414	-73.26027	0-0.5	2	0.0002
354	PotCri		Point	8/2/2010	10:01:13am	41.43415	-73.26032	0.6-1	2	0.0002
355	PotCri		Point	8/2/2010	10:01:21am	41.43418	-73.26039	0.6-1	2	0.0002
356	PotCri		Point	8/2/2010	10:03:09am	41.43430	-73.26106	0.6-1	2	0.0002
357	PotCri		Point	8/2/2010	10:04:15am	41.43434	-73.26117	0-0.5	2	0.0002
358	PotCri		Point	8/2/2010	10:06:13am	41.43429	-73.26122	0.6-1	2	0.0002
359	PotCri		Point	8/2/2010	10:06:48am	41.43433	-73.26134	0.6-1	2	0.0002
360	MyrSpi		Point	8/2/2010	10:49:50am	41.43519	-73.26364	0-0.5	2	0.0002
361	MyrSpi		Point	8/2/2010	10:49:58am	41.43523	-73.26368	0.6-1	2	0.0002
362	MyrSpi		Point	8/2/2010	10:50:13am	41.43528	-73.26371	0.6-1	2	0.0002
363	MyrSpi		Point	8/2/2010	10:50:21am	41.43526	-73.26370	0.6-1	2	0.0002
364	MyrSpi		Point	8/2/2010	10:50:48am	41.43532	-73.26378	0.6-1	2	0.0002
365	MyrSpi		Point	8/2/2010	10:51:14am	41.43548	-73.26386	0.6-1	2	0.0002
366	MyrSpi		Point	8/2/2010	10:51:21am	41.43554	-73.26387	0.6-1	2	0.0002
367	MyrSpi		Point	8/2/2010	10:51:36am	41.43565	-73.26391	0.6-1	2	0.0002
368	MyrSpi		Point	8/2/2010	10:51:44am	41.43569	-73.26394	0.6-1	2	0.0002

Appendix. Lake Zoar invasive plant location data (14 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
369	MyrSpi		Point	8/2/2010	11:09:59am	41.43633	-73.26457	0.6-1	2	0.0002
370	MyrSpi		Point	8/2/2010	11:10:06am	41.43643	-73.26456	0.6-1	2	0.0002
371	MyrSpi		Point	8/2/2010	11:10:19am	41.43640	-73.26457	0.6-1	2	0.0002
372	MyrSpi		Point	8/2/2010	11:10:27am	41.43639	-73.26460	0.6-1	2	0.0002
373	MyrSpi		Point	8/2/2010	11:28:06am	41.44372	-73.26673	0.6-1	2	0.0002
374	MyrSpi		Point	8/2/2010	11:30:43am	41.44377	-73.26677	0.6-1	2	0.0002
375	MyrSpi		Point	8/2/2010	11:38:58am	41.44487	-73.26722	0.6-1	2	0.0002
376	MyrSpi		Point	8/2/2010	11:40:11am	41.44549	-73.26745	1.1-2	2	0.0002
377	PotCri		Point	8/2/2010	11:41:38am	41.44602	-73.26771	0.6-1	2	0.0002
378	PotCri		Point	8/2/2010	11:41:57am	41.44612	-73.26783	0.6-1	2	0.0002
379	MyrSpi		Point	8/2/2010	01:34:06pm	41.44999	-73.27138	0.6-1	2	0.0002
380	MyrSpi		Point	8/2/2010	01:34:15pm	41.45007	-73.27147	0.6-1	2	0.0002
381	MyrSpi		Point	8/2/2010	01:34:26pm	41.45013	-73.27159	0.6-1	2	0.0002
382	NajMin		Point	8/2/2010	01:44:46pm	41.45054	-73.27175	0.6-1	1	0.0002
383	NajMin		Point	8/2/2010	01:45:15pm	41.45069	-73.27187	0.6-1	2	0.0002
384	NajMin		Point	8/2/2010	02:03:48pm	41.45165	-73.27274	0.6-1	2	0.0002
385	NajMin		Point	8/2/2010	02:04:02pm	41.45171	-73.27277	0-0.5	3	0.0002
386	NajMin		Point	8/2/2010	02:04:16pm	41.45170	-73.27280	0-0.5	1	0.0002
387	PotCri		Point	8/2/2010	02:14:14pm	41.45290	-73.27517	0.6-1	2	0.0002
388	MyrSpi		Point	8/2/2010	02:16:21pm	41.45317	-73.27677	0.6-1	2	0.0002
389	MyrSpi		Point	8/2/2010	02:17:24pm	41.45317	-73.27692	0.6-1	3	0.0002
390	MyrSpi		Point	8/2/2010	02:17:49pm	41.45317	-73.27695	0-0.5	2	0.0002
391	MyrSpi		Point	8/2/2010	02:18:10pm	41.45319	-73.27725	0.6-1	2	0.0002
392	MyrSpi		Point	8/2/2010	02:18:24pm	41.45321	-73.27734	0-0.5	2	0.0002
393	MyrSpi		Point	8/2/2010	02:18:36pm	41.45321	-73.27745	0.6-1	2	0.0002
394	PotCri		Point	8/3/2010	11:00:32am	41.45324	-73.27797	1.1-2	2	0.0002
395	PotCri		Point	8/3/2010	11:01:00am	41.45326	-73.27813	1.1-2	2	0.0002
396	NajMin		Point	8/3/2010	11:01:45am	41.45329	-73.27838	1.1-2	3	0.0002
397	PotCri		Point	8/3/2010	11:02:14am	41.45327	-73.27851	1.1-2	2	0.0002
398	NajMin		Point	8/3/2010	11:05:39am	41.45340	-73.27919	1.1-2	4	0.0002
399	PotCri		Point	8/3/2010	11:06:02am	41.45342	-73.27926	1.1-2	3	0.0002
400	NajMin		Point	8/3/2010	11:19:40am	41.45347	-73.27963	1.1-2	2	0.0002
401	NajMin		Point	8/3/2010	11:20:22am	41.45346	-73.27983	1.1-2	4	0.0002
402	NajMin		Point	8/3/2010	11:30:12am	41.45308	-73.28179	1.1-2	4	0.0002
403	NajMin		Point	8/3/2010	11:32:17am	41.45280	-73.28228	1.1-2	3	0.0002
404	NajMin		Point	8/3/2010	11:33:38am	41.45257	-73.28284	1.1-2	3	0.0002
405	MyrSpi		Point	8/3/2010	11:36:31am	41.45240	-73.28326	1.1-2	4	0.0002
406	MyrSpi		Point	8/3/2010	11:36:48am	41.45238	-73.28336	1.1-2	4	0.0002
407	MyrSpi		Point	8/3/2010	11:37:03am	41.45237	-73.28336	1.1-2	4	0.0002
408	MyrSpi		Point	8/3/2010	11:37:39am	41.45230	-73.28359	1.1-2	4	0.0002
409	MyrSpi		Point	8/3/2010	11:38:59am	41.45217	-73.28431	1.1-2	3	0.0002

Appendix. Lake Zoar invasive plant location data (15 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
410	MyrSpi		Point	8/3/2010	11:40:27am	41.45203	-73.28512	1.1-2	2	0.0002
411	MyrSpi		Point	8/3/2010	11:40:49am	41.45202	-73.28513	1.1-2	3	0.0002
412	MyrSpi		Point	8/3/2010	11:41:59am	41.45181	-73.28587	1.1-2	3	0.0002
413	MyrSpi		Point	8/3/2010	11:42:42am	41.45170	-73.28615	1.1-2	3	0.0002
414	MyrSpi		Point	8/3/2010	11:43:09am	41.45173	-73.28611	1.1-2	3	0.0002
415	MyrSpi		Point	8/3/2010	11:43:18am	41.45176	-73.28608	2.1-3	3	0.0002
416	MyrSpi		Point	8/3/2010	11:44:27am	41.45159	-73.28643	2.1-3	2	0.0002
417	MyrSpi		Point	8/3/2010	11:44:39am	41.45152	-73.28650	1.1-2	3	0.0002
418	MyrSpi		Point	8/3/2010	11:44:54am	41.45153	-73.28652	1.1-2	3	0.0002
419	MyrSpi		Point	8/3/2010	11:46:03am	41.45135	-73.28689	1.1-2	3	0.0002
420	PotCri		Point	8/3/2010	12:28:31pm	41.45109	-73.28732	1.1-2	3	0.0002
421	PotCri		Point	8/3/2010	12:29:46pm	41.45083	-73.28797	2.1-3	4	0.0002
422	PotCri		Point	8/3/2010	12:40:39pm	41.45001	-73.28938	2.1-3	3	0.0002
423	PotCri		Point	8/3/2010	12:41:30pm	41.44985	-73.28964	1.1-2	2	0.0002
424	PotCri		Point	8/3/2010	12:42:14pm	41.44972	-73.28996	1.1-2	2	0.0002
425	NajMin		Point	8/3/2010	12:43:43pm	41.44970	-73.28998	1.1-2	1	0.0002
426	MyrSpi		Point	8/3/2010	12:46:11pm	41.44887	-73.29114	1.1-2	3	0.0002
427	MyrSpi		Point	8/3/2010	12:53:39pm	41.44710	-73.29254	3.1-4	4	0.0002
428	MyrSpi		Point	8/3/2010	12:53:52pm	41.44711	-73.29261	2.1-3	4	0.0002
429	MyrSpi		Point	8/3/2010	12:55:14pm	41.44716	-73.29233	2.1-3	4	0.0002
430	MyrSpi		Point	8/3/2010	12:55:30pm	41.44715	-73.29227	2.1-3	3	0.0002
431	MyrSpi		Point	8/3/2010	12:57:59pm	41.44796	-73.29116	2.1-3	3	0.0002
432	MyrSpi		Point	8/3/2010	12:58:11pm	41.44791	-73.29116	2.1-3	3	0.0002
433	PotCri		Point	8/3/2010	01:01:08pm	41.44807	-73.29140	2.1-3	2	0.0002
434	PotCri		Point	8/3/2010	01:01:25pm	41.44805	-73.29134	2.1-3	3	0.0002
435	MyrSpi		Point	8/3/2010	01:02:15pm	41.44832	-73.29111	2.1-3	3	0.0002
436	MyrSpi		Point	8/3/2010	01:17:11pm	41.44952	-73.28870	2.1-3	2	0.0002
437	MyrSpi		Point	8/3/2010	01:17:38pm	41.44953	-73.28853	1.1-2	3	0.0002
438	PotCri		Point	8/3/2010	01:17:58pm	41.44957	-73.28839	1.1-2	3	0.0002
439	NajMin		Point	8/3/2010	01:18:11pm	41.44961	-73.28826	1.1-2	3	0.0002
440	PotCri		Point	8/3/2010	01:18:24pm	41.44964	-73.28819	1.1-2	3	0.0002
441	PotCri		Point	8/3/2010	01:18:43pm	41.44968	-73.28812	1.1-2	3	0.0002
442	MyrSpi		Point	8/3/2010	01:18:56pm	41.44968	-73.28810	2.1-3	3	0.0002
443	PotCri		Point	8/3/2010	01:19:17pm	41.44972	-73.28804	1.1-2	3	0.0002
444	MyrSpi		Point	8/3/2010	01:20:01pm	41.44979	-73.28791	2.1-3	3	0.0002
445	MyrSpi		Point	8/3/2010	01:20:24pm	41.44985	-73.28775	2.1-3	3	0.0002
446	MyrSpi		Point	8/3/2010	01:23:12pm	41.45024	-73.28681	1.1-2	2	0.0002
447	PotCri		Point	8/3/2010	01:49:18pm	41.45064	-73.28591	1.1-2	4	0.0002
448	PotCri		Point	8/3/2010	01:49:48pm	41.45069	-73.28572	1.1-2	4	0.0002
449	PotCri		Point	8/3/2010	01:49:57pm	41.45070	-73.28570	1.1-2	4	0.0002
450	PotCri		Point	8/3/2010	01:50:14pm	41.45073	-73.28567	1.1-2	4	0.0002

Appendix. Lake Zoar invasive plant location data (16 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
451	PotCri		Point	8/3/2010	01:50:45pm	41.45085	-73.28548	1.1-2	4	0.0002
452	NajMin		Point	8/3/2010	01:51:28pm	41.45097	-73.28516	1.1-2	3	0.0002
453	PotCri		Point	8/3/2010	01:52:12pm	41.45087	-73.28546	1.1-2	4	0.0002
454	PotCri		Point	8/3/2010	01:52:45pm	41.45096	-73.28516	1.1-2	4	0.0002
455	NajMin		Point	8/3/2010	01:53:01pm	41.45100	-73.28501	1.1-2	3	0.0002
456	NajMin		Point	8/3/2010	01:53:29pm	41.45108	-73.28489	1.1-2	3	0.0002
457	NajMin		Point	8/3/2010	02:15:35pm	41.45114	-73.28469	1.1-2	2	0.0002
458	NajMin		Point	8/5/2010	10:17:34am	41.45209	-73.28047	0-0.5	2	0.0002
459	NajMin		Point	8/5/2010	10:17:54am	41.45208	-73.28047	0-0.5	3	0.0002
460	NajMin		Point	8/5/2010	10:18:07am	41.45208	-73.28050	0-0.5	3	0.0002
461	NajMin		Point	8/5/2010	10:18:50am	41.45210	-73.28043	0-0.5	3	0.0002
462	NajMin		Point	8/5/2010	10:19:00am	41.45211	-73.28035	0-0.5	3	0.0002
463	NajMin		Point	8/5/2010	10:19:15am	41.45211	-73.28032	0-0.5	2	0.0002
464	NajMin		Point	8/5/2010	10:19:32am	41.45213	-73.28026	0-0.5	1	0.0002
465	NajMin		Point	8/5/2010	10:19:44am	41.45217	-73.28023	0-0.5	4	0.0002
466	NajMin		Point	8/5/2010	10:19:55am	41.45218	-73.28021	0-0.5	4	0.0002
467	MyrSpi		Point	8/5/2010	10:54:18am	41.45147	-73.27418	0.6-1	2	0.0002
468	MyrSpi		Point	8/9/2010	10:05:56am	41.44382	-73.26826	0-0.5	2	0.0002
469	MyrSpi		Point	8/9/2010	10:06:11am	41.44391	-73.26833	0-0.5	2	0.0002
470	NajMin		Point	8/9/2010	10:22:52am	41.44237	-73.26761	0-0.5	2	0.0002
471	NajMin		Point	8/9/2010	10:23:03am	41.44233	-73.26762	0-0.5	3	0.0002
472	NajMin		Point	8/9/2010	10:23:35am	41.44212	-73.26751	0-0.5	1	0.0002
473	NajMin		Point	8/9/2010	10:24:09am	41.44197	-73.26745	0-0.5	2	0.0002
474	NajMin		Point	8/9/2010	10:32:54am	41.44047	-73.26716	0-0.5	1	0.0002
475	PotCri		Point	8/9/2010	10:33:09am	41.44054	-73.26716	0-0.5	2	0.0002
476	NajMin		Point	8/9/2010	10:34:35am	41.44016	-73.26706	0-0.5	2	0.0002
477	NajMin		Point	8/9/2010	10:34:48am	41.44012	-73.26706	0-0.5	2	0.0002
478	NajMin		Point	8/9/2010	10:35:08am	41.44009	-73.26707	0-0.5	1	0.0002
479	NajMin		Point	8/9/2010	10:35:24am	41.44001	-73.26704	0-0.5	2	0.0002
480	NajMin		Point	8/9/2010	10:35:35am	41.43995	-73.26703	0-0.5	2	0.0002
481	NajMin		Point	8/9/2010	10:35:45am	41.43992	-73.26703	0-0.5	3	0.0002
482	NajMin		Point	8/9/2010	10:36:05am	41.43984	-73.26701	0-0.5	1	0.0002
483	PotCri		Point	8/9/2010	10:36:16am	41.43979	-73.26699	0-0.5	1	0.0002
484	NajMin		Point	8/9/2010	10:36:27am	41.43976	-73.26699	0-0.5	3	0.0002
485	PotCri		Point	8/9/2010	10:36:41am	41.43970	-73.26697	0-0.5	1	0.0002
486	NajMin		Point	8/9/2010	10:36:55am	41.43966	-73.26695	0-0.5	1	0.0002
487	MyrSpi		Point	8/9/2010	10:37:15am	41.43955	-73.26694	0-0.5	1	0.0002
488	NajMin		Point	8/9/2010	10:37:47am	41.43944	-73.26689	0-0.5	1	0.0002
489	NajMin		Point	8/9/2010	10:38:13am	41.43928	-73.26686	0-0.5	2	0.0002
490	NajMin		Point	8/9/2010	10:38:32am	41.43912	-73.26684	0-0.5	2	0.0002
491	PotCri		Point	8/9/2010	10:41:25am	41.43880	-73.26689	0-0.5	1	0.0002

Appendix. Lake Zoar invasive plant location data (17 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
492	MyrSpi		Point	8/9/2010	10:50:24am	41.43869	-73.26722	0-0.5	1	0.0002
493	MyrSpi		Point	8/9/2010	10:51:04am	41.43892	-73.26778	0-0.5	1	0.0002
494	PotCri		Point	8/9/2010	10:51:48am	41.43904	-73.26826	0-0.5	3	0.0002
495	MarQua		Point	8/9/2010	11:01:54am	41.43903	-73.26869	0-0.5	5	0.0002
496	PotCri		Point	8/9/2010	11:07:50am	41.43872	-73.26955	0-0.5	2	0.0002
497	MarQua		Point	8/9/2010	11:22:16am	41.43833	-73.26857	0-0.5	4	0.0002
498	MarQua		Point	8/9/2010	11:22:30am	41.43833	-73.26858	0-0.5	5	0.0002
499	MyrSpi		Point	8/9/2010	11:29:20am	41.43750	-73.26730	0-0.5	2	0.0002
500	MyrSpi		Point	8/9/2010	11:29:35am	41.43751	-73.26747	0-0.5	2	0.0002
501	MyrSpi		Point	8/9/2010	11:29:51am	41.43758	-73.26758	0-0.5	1	0.0002
502	MyrSpi		Point	8/9/2010	11:37:45am	41.43735	-73.26628	0-0.5	2	0.0002
503	PotCri		Point	8/9/2010	11:38:05am	41.43732	-73.26625	0-0.5	2	0.0002
504	NajMin		Point	8/9/2010	11:38:22am	41.43732	-73.26626	0.6-1	3	0.0002
505	NajMin		Point	8/9/2010	11:38:55am	41.43727	-73.26631	0-0.5	2	0.0002
506	PotCri		Point	8/9/2010	11:39:07am	41.43736	-73.26630	0.6-1	3	0.0002
507	MyrSpi		Point	8/9/2010	12:22:12pm	41.43561	-73.26525	0.6-1	2	0.0002
508	NajMin		Point	8/9/2010	12:22:44pm	41.43565	-73.26528	0-0.5	2	0.0002
509	NajMin		Point	8/9/2010	12:22:55pm	41.43571	-73.26532	0.6-1	3	0.0002
510	NajMin		Point	8/9/2010	12:23:04pm	41.43573	-73.26530	0.6-1	2	0.0002
511	MyrSpi		Point	8/9/2010	12:23:48pm	41.43528	-73.26498	0-0.5	2	0.0002
512	NajMin		Point	8/9/2010	12:24:07pm	41.43525	-73.26507	0-0.5	2	0.0002
513	NajMin		Point	8/9/2010	12:24:22pm	41.43525	-73.26503	0.6-1	3	0.0002
514	NajMin		Point	8/9/2010	12:24:59pm	41.43517	-73.26497	0.6-1	3	0.0002
515	NajMin		Point	8/9/2010	12:25:40pm	41.43508	-73.26490	0-0.5	2	0.0002
516	NajMin		Point	8/9/2010	12:25:52pm	41.43503	-73.26484	0.6-1	2	0.0002
517	NajMin		Point	8/9/2010	12:26:16pm	41.43497	-73.26476	0.6-1	2	0.0002
518	MyrSpi		Point	8/9/2010	12:39:04pm	41.43305	-73.25919	0-0.5	2	0.0002
519	MyrSpi		Point	8/9/2010	12:39:19pm	41.43306	-73.25932	0-0.5	2	0.0002
520	MyrSpi		Point	8/9/2010	12:39:33pm	41.43308	-73.25946	0.6-1	2	0.0002
521	MyrSpi		Point	8/9/2010	12:39:48pm	41.43313	-73.25958	0.6-1	2	0.0002
522	MyrSpi		Point	8/9/2010	12:52:21pm	41.43701	-73.25129	0.6-1	1	0.0002
523	MyrSpi		Point	8/9/2010	12:55:28pm	41.43701	-73.24963	0.6-1	2	0.0002
524	MyrSpi		Point	8/9/2010	01:02:43pm	41.43735	-73.24849	0.6-1	2	0.0002
525	MyrSpi		Point	8/9/2010	01:12:29pm	41.43828	-73.24437	0-0.5	2	0.0002
526	MyrSpi		Point	8/9/2010	01:17:51pm	41.43706	-73.24379	0-0.5	2	0.0002
527	MyrSpi		Point	8/10/2010	11:13:42am	41.43361	-73.24531	0.6-1	1	0.0002
528	MyrSpi		Point	8/10/2010	11:16:05am	41.43325	-73.24504	0-0.5	1	0.0002
529	MyrSpi		Point	8/10/2010	11:16:49am	41.43330	-73.24511	0-0.5	1	0.0002
530	MyrSpi		Point	8/10/2010	11:18:56am	41.43256	-73.24477	0-0.5	1	0.0002
531	MyrSpi		Point	8/10/2010	11:20:12am	41.43244	-73.24483	0.6-1	1	0.0002
532	MyrSpi		Point	8/9/2010	10:06:57am	41.44396	-73.268408	0.6-1	2	0.0002

Appendix. Lake Zoar invasive plant location data (18 of 18)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
533	MyrSpi		Point	8/9/2010	10:08:37am	41.443315	-73.267934	0-0.5	2	0.0002
534	MyrSpi		Point	8/9/2010	10:08:19am	41.44344	-73.267925	0.6-1	3	0.0002
535	NajMin		Point	8/3/2010	11:30:48am	41.453004	-73.281922	1.1-2	3	0.0002

Transect Data

Appendix. Lake Candlewood transect data (1 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp_	EleSp_	LemMin	MyrSpi	NajMin	NymOdo	SpiPol	StuPec	ValAme
1	1	0.2	Greg Bugbee	41.42385	-73.45252	9/2/2010	0.10	Sand	sunny	South	Thick float in	0	0	0	0	0	0	0	0	0	0
1	2	5.0	Greg Bugbee	41.42390	-73.45254	9/2/2010	0.40	Sand	sunny	South	All probably float in	1	0	0	0	4	2	0	0	0	0
1	3	10.0	Greg Bugbee	41.42394	-73.45259	9/2/2010	1.00	Silt	sunny	South	Float in	3	0	0	0	3	0	0	0	0	0
1	4	20.0	Greg Bugbee	41.42403	-73.45260	9/2/2010	1.20	Sand	sunny	South		2	0	0	0	2	0	0	0	0	0
1	5	30.0	Greg Bugbee	41.42410	-73.45266	9/2/2010	1.50	Sand	sunny	South		3	0	0	0	3	0	0	0	0	0
1	6	40.0	Greg Bugbee	41.42418	-73.45273	9/2/2010	1.80	Sand	sunny	South		3	0	0	0	3	0	0	0	0	0
1	7	50.0	Greg Bugbee	41.42427	-73.45277	9/2/2010	1.80	Sand	sunny	South		4	0	0	0	3	0	0	0	0	0
1	8	60.0	Greg Bugbee	41.42433	-73.45281	9/2/2010	1.90	Sand	sunny	South		3	0	0	0	2	0	0	0	0	0
1	9	70.0	Greg Bugbee	41.42443	-73.45292	9/2/2010	2.00	Silt	sunny	South		3	0	0	0	2	0	0	0	0	0
1	10	80.0	Greg Bugbee	41.42449	-73.45300	9/2/2010	2.00	Silt	sunny	South		2	0	0	0	2	0	0	0	0	0
2	1	0.1	Greg Bugbee	41.42763	-73.44931	9/2/2010	0.10	Gravel	sunny	South	Thick MyrSpi float in	0	0	0	0	0	0	0	0	0	0
2	2	5.0	Greg Bugbee	41.42760	-73.44935	9/2/2010	1.60	Gravel	sunny	South		3	0	0	0	3	0	0	0	0	0
2	3	10.0	Greg Bugbee	41.42757	-73.44941	9/2/2010	2.10	Silt	sunny	South		3	0	0	0	2	0	0	0	0	0
2	4	20.0	Greg Bugbee	41.42748	-73.44947	9/2/2010	3.10	Silt	sunny	South		4	0	0	0	2	0	0	0	0	0
2	5	30.0	Greg Bugbee	41.42743	-73.44959	9/2/2010	3.00	Silt	sunny	South		0	0	0	0	3	0	0	0	0	0
2	6	40.0	Greg Bugbee	41.42741	-73.44971	9/2/2010	1.30	Rock	sunny	South		0	0	0	0	2	0	0	0	0	0
2	7	50.0	Greg Bugbee	41.42737	-73.44978	9/2/2010	1.30	Rock	sunny	South		0	0	0	0	2	0	0	0	0	0
2	8	60.0	Greg Bugbee	41.42730	-73.44988	9/2/2010	3.00	Sand	sunny	South		0	0	0	0	3	0	0	0	0	0
2	9	70.0	Greg Bugbee	41.42721	-73.44995	9/2/2010	3.00	Sand	sunny	South		0	0	0	0	4	0	0	0	0	0
2	10	80.0	Greg Bugbee	41.42722	-73.45009	9/2/2010	3.00	Silt	sunny	South		0	0	0	0	4	0	0	0	0	0
3	1	0.1	Greg Bugbee	41.47020	-73.43528	9/2/2010	0.10	Gravel	sunny	South		0	2	0	0	1	0	0	0	2	0
3	2	5.0	Greg Bugbee	41.47024	-73.43523	9/2/2010	0.90	Sand	sunny	South		0	0	0	0	2	2	0	0	4	0
3	3	10.0	Greg Bugbee	41.47023	-73.43516	9/2/2010	2.00	Sand	sunny	South		0	0	0	0	4	0	0	0	0	0
3	4	20.0	Greg Bugbee	41.47025	-73.43504	9/2/2010	5.00	Sand	sunny	South		0	0	0	0	0	0	0	0	0	0
3	5	30.0	Greg Bugbee	41.47028	-73.43495	9/2/2010	9.00	Sand	sunny	South		0	0	0	0	0	0	0	0	0	0
3	6	40.0	Greg Bugbee	41.47029	-73.43481	9/2/2010	9.50	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
3	7	50.0	Greg Bugbee	41.47041	-73.43470	9/2/2010	9.80	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
3	8	60.0	Greg Bugbee	41.47040	-73.43467	9/2/2010	9.80	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
3	9	70.0	Greg Bugbee	41.47051	-73.43450	9/2/2010	10.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
3	10	80.0	Greg Bugbee	41.47047	-73.43433	9/2/2010	10.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
4	1	0.1	Greg Bugbee	41.57121	-73.48837	9/2/2010	0.10	Muck	sunny	South		1	0	0	0	1	0	0	0	0	0
4	2	5.0	Greg Bugbee	41.57116	-73.48837	9/2/2010	0.50	Muck	sunny	West		0	0	0	0	2	0	0	0	0	0
4	3	10.0	Greg Bugbee	41.57111	-73.48837	9/2/2010	0.80	Muck	sunny	West		0	0	0	0	2	0	0	0	0	0
4	4	20.0	Greg Bugbee	41.57104	-73.48841	9/2/2010	1.00	Muck	sunny	West		0	0	0	0	2	0	2	0	0	0
4	5	30.0	Greg Bugbee	41.57099	-73.48845	9/2/2010	1.20	Muck	sunny	West		0	0	0	0	5	0	0	0	0	0
4	6	40.0	Greg Bugbee	41.57086	-73.48854	9/2/2010	1.90	Silt	sunny	West		0	0	0	0	3	0	0	0	0	0
4	7	50.0	Greg Bugbee	41.57079	-73.48861	9/2/2010	2.20	Silt	sunny	West		0	0	0	0	4	0	0	0	0	0
4	8	60.0	Greg Bugbee	41.57072	-73.48867	9/2/2010	3.00	Silt	sunny	West		0	0	0	0	3	0	0	0	0	0
4	9	70.0	Greg Bugbee	41.57064	-73.48871	9/2/2010	3.00	Silt	sunny	West		0	0	0	0	2	0	0	0	0	0
4	10	80.0	Greg Bugbee	41.57054	-73.48870	9/2/2010	3.20	Silt	sunny	West		0	0	0	0	0	0	0	0	0	0
5	1	0.1	Greg Bugbee	41.50219	-73.45150	9/2/2010	0.10	Sand	sunny	South		0	0	0	0	0	0	0	0	0	0
5	2	5.0	Greg Bugbee	41.50221	-73.45158	9/2/2010	0.80	Sand	sunny	South		0	0	0	0	2	0	0	0	1	0
5	3	10.0	Greg Bugbee	41.50222	-73.45162	9/2/2010	1.00	Sand	sunny	South		0	0	0	0	2	0	0	0	1	0
5	4	20.0	Greg Bugbee	41.50221	-73.45173	9/2/2010	1.80	Sand	sunny	South		0	0	0	0	4	0	0	0	0	0
5	5	30.0	Greg Bugbee	41.50213	-73.45184	9/2/2010	2.10	Sand	sunny	South		0	0	0	0	5	0	0	0	0	0
5	6	40.0	Greg Bugbee	41.50215	-73.45198	9/2/2010	2.90	Sand	sunny	South		0	0	0	0	4	0	0	0	0	0
5	7	50.0	Greg Bugbee	41.50224	-73.45212	9/2/2010	3.10	Sand	sunny	South		1	0	0	0	4	0	0	0	0	0
5	8	60.0	Greg Bugbee	41.50221	-73.45220	9/2/2010	4.00	Sand	sunny	South		0	0	0	0	0	0	0	0	0	0
5	9	70.0	Greg Bugbee	41.50213	-73.45234	9/2/2010	5.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
5	10	80.0	Greg Bugbee	41.50211	-73.45244	9/2/2010	5.20	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
6	1	0.0	Greg Bugbee	41.51386	-73.45337	9/2/2010	0.20	Muck	sunny	South		0	0	0	2	3	2	0	2	0	0
6	2	5.0	Greg Bugbee	41.51391	-73.45340	9/2/2010	0.40	Muck	sunny	South		0	0	0	0	3	2	0	0	0	0
6	3	10.0	Greg Bugbee	41.51396	-73.45342	9/2/2010	0.80	Muck	sunny	South		0	0	0	0	2	1	0	0	0	0
6	4	20.0	Greg Bugbee	41.51403	-73.45343	9/2/2010	1.30	Muck	sunny	South		0	0	0	0	3	0	0	0	0	0
6	5	30.0	Greg Bugbee	41.51411	-73.45344	9/2/2010	1.80	Muck	sunny	South		0	0	0	0	5	0	0	0	0	0
6	6	40.0	Greg Bugbee	41.51421	-73.45345	9/2/2010	1.90	Muck	sunny	South		0	0	0	0	5	0	0	0	0	0
6	7	50.0	Greg Bugbee	41.51429	-73.45342	9/2/2010	2.10	Muck	sunny	South		0	0	0	0	4	0	0	0	0	0
6	8	60.0	Greg Bugbee	41.51441	-73.45347	9/2/2010	3.20	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
6	9	70.0	Greg Bugbee	41.51449	-73.45346	9/2/2010	4.20	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
6	10	80.0	Greg Bugbee	41.51460	-73.45341	9/2/2010	5.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
7	1	0.0	Greg Bugbee	41.57148	-73.44276	9/2/2010	0.20	Sand	sunny	NW		0	0	0	0	0	0	0	0	0	0
7	2	5.0	Greg Bugbee	41.57152	-73.44285	9/2/2010	1.00	Gravel	sunny	NW		0	0	0	0	3	0	0	0	0	0
7	3	10.0	Greg Bugbee	41.57151	-73.44291	9/2/2010	1.50	Gravel	sunny	NW		0	0	0	0	3	0	0	0	0	0

Appendix. Lake Candlewood transect data (2 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp_	EleSp_	LemMin	MyrSpi	NajMin	NymOdo	SpiPol	StuPec	ValAme
7	4	20.0	Greg Bugbee	41.57149	-73.44303	9/2/2010	2.70	Muck	sunny	NW		0	0	0	0	5	0	0	0	0	0
7	5	30.0	Greg Bugbee	41.57154	-73.44313	9/2/2010	3.20	Muck	sunny	NW	Milfoil on edge	0	0	0	0	4	0	0	0	0	0
7	6	40.0	Greg Bugbee	41.57154	-73.44329	9/2/2010	4.10	Muck	sunny	NW		0	0	0	0	0	0	0	0	0	0
7	7	50.0	Greg Bugbee	41.57151	-73.44340	9/2/2010	5.00	Silt	sunny	NW		0	0	0	0	0	0	0	0	0	0
7	8	60.0	Greg Bugbee	41.57163	-73.44348	9/2/2010	6.00	Silt	sunny	SW		0	0	0	0	0	0	0	0	0	0
7	9	70.0	Greg Bugbee	41.57172	-73.44356	9/2/2010	9.00	Silt	sunny	SW		0	0	0	0	0	0	0	0	0	0
7	10	80.0	Greg Bugbee	41.57180	-73.44366	9/2/2010	12.00	Silt	sunny	SW		0	0	0	0	0	0	0	0	0	0
8	1	0.0	Greg Bugbee	41.51294	-73.44119	9/2/2010	0.20	Sand	sunny	SW		0	0	0	0	0	0	0	0	0	0
8	2	5.0	Greg Bugbee	41.51289	-73.44115	9/2/2010	1.00	Sand	sunny	South		0	0	0	0	2	0	0	0	0	0
8	3	10.0	Greg Bugbee	41.51282	-73.44119	9/2/2010	1.80	Sand	sunny	South		0	0	0	0	4	0	0	0	0	0
8	4	20.0	Greg Bugbee	41.51276	-73.44118	9/2/2010	1.90	Gravel	sunny	South		0	0	0	0	4	0	0	0	0	0
8	5	30.0	Greg Bugbee	41.51265	-73.44113	9/2/2010	1.90	Gravel	sunny	South		0	0	0	0	4	0	0	0	0	0
8	6	40.0	Greg Bugbee	41.51253	-73.44115	9/2/2010	3.00	Sand	sunny	South		0	0	0	0	4	0	0	0	0	0
8	7	50.0	Greg Bugbee	41.51248	-73.44118	9/2/2010	2.50	Gravel	sunny	South		0	0	0	0	4	0	0	0	0	0
8	8	60.0	Greg Bugbee	41.51239	-73.44115	9/2/2010	5.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
8	9	70.0	Greg Bugbee	41.51228	-73.44111	9/2/2010	6.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
8	10	80.0	Greg Bugbee	41.51222	-73.44117	9/2/2010	5.00	Silt	sunny	South		0	0	0	0	0	0	0	0	0	0
9	1	0.1	Greg Bugbee	41.48050	-73.43466	9/2/2010	0.10	Sand	sunny	South		1	2	3	0	2	2	0	0	0	0
9	2	5.0	Greg Bugbee	41.48050	-73.43472	9/2/2010	0.80	Sand	sunny	West		0	0	0	0	3	2	0	0	0	0
9	3	10.0	Greg Bugbee	41.48048	-73.43479	9/2/2010	1.00	Muck	sunny	South		0	0	0	0	3	0	0	0	0	0
9	4	20.0	Greg Bugbee	41.48045	-73.43490	9/2/2010	1.60	Muck	sunny	South		0	0	0	0	5	0	0	0	0	0
9	6	40.0	Greg Bugbee	41.48047	-73.43513	9/2/2010	2.00	Silt	sunny	South		0	0	0	0	4	0	0	0	0	0
9	5	30.0	Greg Bugbee	41.48045	-73.43500	9/2/2010	1.90	Silt	sunny	South		0	0	0	0	4	0	0	0	0	0
9	7	50.0	Greg Bugbee	41.48034	-73.43524	9/2/2010	2.00	Silt	sunny	South		0	0	0	0	3	0	0	0	0	0
9	8	60.0	Greg Bugbee	41.48030	-73.43534	9/2/2010	1.60	Silt	sunny	South		0	0	0	0	4	0	0	0	0	0
9	9	70.0	Greg Bugbee	41.48027	-73.43547	9/2/2010	1.50	Silt	sunny	South		0	0	0	0	5	0	0	0	0	0
9	10	80.0	Greg Bugbee	41.48026	-73.43559	9/2/2010	1.50	Sand	sunny	South		4	0	0	0	2	0	0	0	0	0
10	1	0.2	Greg Bugbee	41.44704	-73.42978	9/2/2010	0.10	Muck	sunny	South	Low water problem, some float in	3	0	0	1	3	2	0	0	0	2
10	2	5.0	Greg Bugbee	41.44710	-73.42975	9/2/2010	0.50	Muck	sunny	South		1	0	0	1	3	2	0	0	0	1
10	3	10.0	Greg Bugbee	41.44712	-73.42973	9/2/2010	0.80	Sand	sunny	South		0	0	0	0	0	0	0	0	0	4
10	4	20.0	Greg Bugbee	41.44718	-73.42963	9/2/2010	1.00	Sand	sunny	South		1	0	0	0	2	0	0	0	0	3
10	5	30.0	Greg Bugbee	41.44728	-73.42957	9/2/2010	0.50	Sand	sunny	South		3	0	0	0	3	2	0	0	0	0
10	6	40.0	Greg Bugbee	41.44733	-73.42950	9/2/2010	0.10	Muck	sunny	South		2	0	0	1	4	2	0	0	0	0

Appendix. Lake Zoar transect data (1 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EloNut	MyrSpi	NajFle	NajMin	PotCri	PotFol	PotPra	PotZos	UnID3	UnID2	ValAme
1	1	0.0	Greg Bugbee	41.42821	-73.23924	8/11/2010	0.50	Muck	sunny	East		2	2	0	0	0	0	0	0	0	0	0	0
1	2	5.0	Greg Bugbee	41.42819	-73.23931	8/11/2010	1.00	Muck	sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
1	3	10.0	Greg Bugbee	41.42814	-73.23932	8/11/2010	1.00	Muck	sunny	East		0	3	3	0	0	0	2	0	0	0	0	2
1	4	20.0	Greg Bugbee	41.42811	-73.23945	8/11/2010	1.50	Muck	sunny	East		0	3	4	0	0	0	0	0	0	0	0	2
1	5	30.0	Greg Bugbee	41.42804	-73.23956	8/11/2010	2.00	Muck	sunny	East		0	1	4	0	0	0	0	0	0	0	0	0
1	6	40.0	Greg Bugbee	41.42802	-73.23967	8/11/2010	3.00		sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
1	7	50.0	Greg Bugbee	41.42790	-73.23968	8/11/2010	4.00	Muck	sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
1	8	60.0	Greg Bugbee	41.42787	-73.23978	8/11/2010	4.50	Muck	sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
1	9	70.0	Greg Bugbee	41.42785	-73.23992	8/11/2010	5.00		p. sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
1	10	80.0	Greg Bugbee	41.42781	-73.24006	8/11/2010	5.00	Muck	p. sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
2	1	0.0	Greg Bugbee	41.43700	-73.24903	8/11/2010	0.00	Sand	sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
2	2	5.0	Greg Bugbee	41.43703	-73.24908	8/11/2010	1.00	Sand	sunny	West		0	1	1	0	0	0	0	0	0	0	0	0
2	3	10.0	Greg Bugbee	41.43707	-73.24910	8/11/2010	3.00	Sand	sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
2	4	20.0	Greg Bugbee	41.43716	-73.24913	8/11/2010	4.00		sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
2	5	30.0	Greg Bugbee	41.43722	-73.24924	8/11/2010	3.00		sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
2	6	40.0	Greg Bugbee	41.43733	-73.24923	8/11/2010	3.00		sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
2	7	50.0	Greg Bugbee	41.43743	-73.24915	8/11/2010	1.00		sunny	West		2	2	4	0	0	0	0	0	0	0	0	0
2	8	60.0	Greg Bugbee	41.43753	-73.24924	8/11/2010	2.00		sunny	West		0	2	4	0	0	0	0	0	0	0	0	0
2	9	70.0	Greg Bugbee	41.43759	-73.24937	8/11/2010	2.00		sunny	West		3	3	4	0	0	0	2	0	0	0	0	0
2	10	80.0	Greg Bugbee	41.43767	-73.24937	8/11/2010	2.00		sunny	West		0	3	4	0	0	0	0	0	0	0	0	0
3	1	0.0	Greg Bugbee	41.43732	-73.26660	8/10/2010	0.00	Gravel	p. sunny	West		0	0	0	0	0	0	0	0	0	0	0	0
3	2	5.0	Greg Bugbee	41.43737	-73.26660	8/10/2010	1.00	Muck	p. sunny	West		0	0	3	0	0	0	2	0	0	0	0	4
3	3	10.0	Greg Bugbee	41.43741	-73.26655	8/10/2010	1.00	Muck	p. sunny	West		0	3	0	0	0	0	0	0	0	0	0	3
3	4	20.0	Greg Bugbee	41.43753	-73.26660	8/10/2010	1.00	Muck	p. sunny	West		0	1	0	0	0	1	0	0	0	0	0	0
3	5	30.0	Greg Bugbee	41.43761	-73.26660	8/10/2010	1.00	Muck	p. sunny	West		0	1	0	0	0	0	0	1	0	0	0	0
3	6	40.0	Greg Bugbee	41.43768	-73.26677	8/10/2010	1.00	Muck	p. sunny	West		0	1	0	0	1	0	0	0	0	0	0	0
3	7	50.0	Greg Bugbee	41.43778	-73.26670	8/10/2010	1.00	Muck	p. sunny	West		0	2	0	0	2	1	0	0	0	0	0	0
3	8	60.0	Greg Bugbee	41.43786	-73.26670	8/10/2010	1.00	Muck	p. sunny	West		0	1	2	0	2	1	0	0	0	0	0	0
3	9	70.0	Greg Bugbee	41.43794	-73.26676	8/10/2010	1.00	Muck	p. sunny	West		0	1	1	0	1	1	0	0	0	0	0	0
3	10	80.0	Greg Bugbee	41.43806	-73.26670	8/10/2010	1.00	Muck	p. sunny	West		0	1	0	0	1	1	0	0	0	0	0	0
4	0	0.0	Greg Bugbee	41.45311	-73.28171	8/10/2010	0.50	Gravel	p. sunny	West		1	2	2	1	0	0	1	0	1	0	0	0
4	2	5.0	Greg Bugbee	41.45307	-73.28165	8/10/2010	0.00	Gravel	p. sunny	East		4	3	4	0	0	0	0	0	0	0	0	0
4	3	10.0	Greg Bugbee	41.45303	-73.28159	8/10/2010	0.00	Gravel	p. sunny	East		4	3	4	0	0	2	0	0	0	0	0	0
4	4	20.0	Greg Bugbee	41.45295	-73.28158	8/10/2010	0.00		p. sunny	East		0	0	0	0	0	1	0	0	0	0	0	1
4	5	30.0	Greg Bugbee	41.45289	-73.28150	8/10/2010	4.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
4	6	40.0	Greg Bugbee	41.45277	-73.28146	8/10/2010	5.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
4	7	50.0	Greg Bugbee	41.45268	-73.28133	8/10/2010	0.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
4	8	60.0	Greg Bugbee	41.45262	-73.28133	8/10/2010	4.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
4	9	70.0	Greg Bugbee	41.45252	-73.28135	8/10/2010	4.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
4	10	80.0	Greg Bugbee	41.45242	-73.28124	8/10/2010	4.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
5	1	0.0	Greg Bugbee	41.43202	-73.22728	8/11/2010	0.10	Muck	p. sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
5	2	5.0	Greg Bugbee	41.43197	-73.22731	8/11/2010	0.20	Muck	p. sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
5	3	10.0	Greg Bugbee	41.43195	-73.22735	8/11/2010	0.20	Muck	p. sunny	East		0	0	1	0	1	0	0	0	0	0	0	0
5	4	20.0	Greg Bugbee	41.43185	-73.22737	8/11/2010	1.00	Muck	p. sunny	East		0	0	0	0	3	0	0	0	0	0	0	0
5	5	30.0	Greg Bugbee	41.43178	-73.22744	8/11/2010	1.00	Muck	p. sunny	East		1	1	4	0	1	0	0	0	0	0	0	0
5	6	40.0	Greg Bugbee	41.43170	-73.22749	8/11/2010	0.00		p. sunny	East		2	0	5	0	0	0	0	0	0	0	0	0
5	7	50.0	Greg Bugbee	41.43161	-73.22750	8/11/2010	1.20	Muck	p. sunny	East		0	0	3	0	0	0	0	0	0	0	0	0
5	8	60.0	Greg Bugbee	41.43154	-73.22758	8/11/2010	1.30	Muck	p. sunny	East		0	0	2	0	0	0	0	0	0	0	0	0
5	9	70.0	Greg Bugbee	41.43143	-73.22761	8/11/2010	1.75	Muck	p. sunny	East		0	0	2	0	3	0	0	0	0	0	0	0
5	10	80.0	Greg Bugbee	41.43136	-73.22768	8/11/2010	2.00	Muck	p. sunny	East		0	0	2	0	2	0	0	0	0	0	0	0
6	1	0.0	Greg Bugbee	41.42406	-73.20743	8/11/2010	0.20	Gravel	p. sunny	East		0	1	0	0	1	0	0	0	0	0	0	0
6	2	5.0	Greg Bugbee	41.42402	-73.20740	8/11/2010	0.50	Muck	p. sunny	East		3	0	3	0	3	0	0	0	0	0	0	0
6	3	10.0	Greg Bugbee	41.42398	-73.20737	8/11/2010	1.00	Muck	p. sunny	East		0	1	3	0	0	0	0	0	1	0	0	0
6	4	20.0	Greg Bugbee	41.42392	-73.20729	8/11/2010	2.00	Muck	p. sunny	East		2	0	3	0	0	0	0	0	0	0	0	0
6	5	30.0	Greg Bugbee	41.42384	-73.20723	8/11/2010	2.00	Muck	p. sunny	East		3	0	3	0	0	0	0	0	0	0	0	0
6	6	40.0	Greg Bugbee	41.42378	-73.20714	8/11/2010	2.00		p. sunny	East		3	0	3	0	0	0	0	0	0	0	0	0
6	7	50.0	Greg Bugbee	41.42370	-73.20708	8/11/2010	2.20	Muck	p. sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
6	8	60.0	Greg Bugbee	41.42362	-73.20701	8/11/2010	2.30		p. sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
6	9	70.0	Greg Bugbee	41.42353	-73.20697	8/11/2010	2.60		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
6	10	80.0	Greg Bugbee	41.42346	-73.20689	8/11/2010	3.00		p. sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
7	1	0.0	Greg Bugbee	41.41259	-73.20172	8/11/2010	0.20	Sand	p. sunny	East		1	0	0	0	0	0	0	0	0	0	0	0
7	2	5.0	Greg Bugbee	41.41260	-73.20164	8/11/2010	0.50	Sand	p. sunny	East		0	0	1	0	0	0	0	0	0	0	0	0
7	3	10.0	Greg Bugbee	41.41265	-73.20163	8/11/2010	0.70	Muck	p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0

Appendix. Lake Zoar transect data (2 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EloNut	MyrSpi	NajFle	NajMin	PotCri	PotFol	PotPra	PotZos	UnID3	UnID2	ValAme
7	4	20.0	Greg Bugbee	41.41272	-73.20153	8/11/2010	1.00		p. sunny	East		0	0	2	0	0	0	0	0	0	0	0	0
7	5	30.0	Greg Bugbee	41.41273	-73.20141	8/11/2010	1.00		p. sunny	East		0	0	3	0	0	0	0	0	0	0	0	0
7	6	40.0	Greg Bugbee	41.41273	-73.20127	8/11/2010	0.00		p. sunny	East		0	0	3	0	0	0	0	0	0	0	0	0
7	7	50.0	Greg Bugbee	41.41275	-73.20114	8/11/2010	2.00		p. sunny	East		1	0	3	0	0	0	0	0	0	0	0	0
7	8	60.0	Greg Bugbee	41.41275	-73.20102	8/11/2010	1.20	Muck	p. sunny	East		2	0	2	0	0	0	0	0	0	0	0	0
7	9	70.0	Greg Bugbee	41.41279	-73.20087	8/11/2010	2.50	Muck	p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
7	10	80.0	Greg Bugbee	41.41279	-73.20081	8/11/2010	3.00		p. sunny	East		0	0	0	0	0	0	0	0	0	0	0	0
8	1	0.0	Greg Bugbee	41.39855	-73.19078	8/12/2010	0.50	Gravel	Cloudy	East		0	0	2	0	2	0	0	0	0	0	0	0
8	2	0.0	Greg Bugbee	41.39854	-73.19071	8/12/2010	0.30		Cloudy	East		0	0	2	0	2	0	0	0	0	0	0	2
8	3	10.0	Greg Bugbee	41.39858	-73.19067	8/12/2010	1.00		Cloudy	East		0	0	1	0	1	0	0	0	0	0	0	0
8	4	20.0	Greg Bugbee	41.39854	-73.19056	8/12/2010	1.00	Muck	Cloudy	East		0	0	2	0	1	0	0	0	0	0	0	0
8	5	30.0	Greg Bugbee	41.39850	-73.19040	8/12/2010	1.00	Muck	Cloudy	East		0	0	2	0	3	0	0	0	0	0	0	0
8	6	40.0	Greg Bugbee	41.39850	-73.19031	8/12/2010	3.00	Muck	Cloudy	East		0	0	3	0	2	0	0	0	0	0	0	0
8	7	50.0	Greg Bugbee	41.39854	-73.19013	8/12/2010	4.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
8	8	60.0	Greg Bugbee	41.39853	-73.19006	8/12/2010	4.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
8	9	70.0	Greg Bugbee	41.39855	-73.18992	8/12/2010	4.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
8	10	80.0	Greg Bugbee	41.39851	-73.18973	8/12/2010	5.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	1	0.0	Greg Bugbee	41.39160	-73.17503	8/12/2010	0.20	Sand	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	2	5.0	Greg Bugbee	41.39157	-73.17504	8/12/2010	0.75	Muck	Cloudy	East		0	0	1	0	2	0	0	0	0	0	0	0
9	2	10.0	Greg Bugbee	41.39149	-73.17503	8/12/2010	3.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	3	20.0	Greg Bugbee	41.39141	-73.17504	8/12/2010	3.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	4	30.0	Greg Bugbee	41.39129	-73.17508	8/12/2010	4.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	5	40.0	Greg Bugbee	41.39124	-73.17519	8/12/2010	5.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	6	50.0	Greg Bugbee	41.39114	-73.17513	8/12/2010	5.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	7	60.0	Greg Bugbee	41.39105	-73.17511	8/12/2010	6.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	8	70.0	Greg Bugbee	41.39094	-73.17521	8/12/2010	6.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
9	9	80.0	Greg Bugbee	41.39088	-73.17522	8/12/2010	6.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
10	1	0.0	Greg Bugbee	41.38156	-73.17484	8/12/2010	0.20	Sand	Cloudy	East		0	0	0	0	2	0	0	0	0	1	0	0
10	2	5.0	Greg Bugbee	41.38156	-73.17489	8/12/2010	0.30	Muck	Cloudy	East		0	0	0	0	2	0	0	0	0	1	0	0
10	3	10.0	Greg Bugbee	41.38160	-73.17495	8/12/2010	1.00	Muck	Cloudy	East		0	0	3	0	3	0	0	0	1	2	1	0
10	4	20.0	Greg Bugbee	41.38168	-73.17503	8/12/2010	1.00	Muck	Cloudy	East		0	0	5	1	0	0	0	0	0	0	0	0
10	5	30.0	Greg Bugbee	41.38177	-73.17511	8/12/2010	2.00	Muck	Cloudy	East		0	0	3	0	1	0	0	0	0	0	0	0
10	6	40.0	Greg Bugbee	41.38186	-73.17521	8/12/2010	2.50	Muck	Cloudy	East		0	0	0	0	1	0	0	0	0	0	0	0
10	7	50.0	Greg Bugbee	41.38197	-73.17526	8/12/2010	3.50	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
10	8	60.0	Greg Bugbee	41.38200	-73.17540	8/12/2010	3.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
10	9	70.0	Greg Bugbee	41.38206	-73.17550	8/12/2010	3.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0
10	10	80.0	Greg Bugbee	41.38212	-73.17560	8/12/2010	3.00	Muck	Cloudy	East		0	0	0	0	0	0	0	0	0	0	0	0

Appendix. Lake Lillinonah transect data (1 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp_	EleSp_	EriAqu	MyrSpi	NajMin	PotCri	PotFol	PotPus	SagSp_
1	1	0.5	Greg Bugbee	41.46668	-73.31310	8/16/2010	0.20	Gravel	Cloudy	NE	couldn't get all the way to shore	0	0	0	0	0	0	0	0	0	0
1	2	5.0	Greg Bugbee	41.46672	-73.31310	8/16/2010	4.60		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	3	10.0	Greg Bugbee	41.46686	-73.31317	8/16/2010	5.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	4	20.0	Greg Bugbee	41.46691	-73.31309	8/16/2010	9.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	5	30.0	Greg Bugbee	41.46701	-73.31313	8/16/2010	11.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	6	40.0	Greg Bugbee	41.46706	-73.31318	8/16/2010	12.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	7	50.0	Greg Bugbee	41.46715	-73.31330	8/16/2010	15.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	8	60.0	Greg Bugbee	41.46732	-73.31341	8/16/2010	0.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
1	9	80.0	Greg Bugbee	41.46745	-73.31346	8/16/2010	0.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
2	1	0.0	Greg Bugbee	41.53859	-73.40568	8/17/2010	1.50	Rock	P. Sunny	NE		0	0	0	0	1	0	0	0	0	0
2	2	5.0	Greg Bugbee	41.53854	-73.40569	8/17/2010	2.10	Rock	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
2	3	10.0	Greg Bugbee	41.53856	-73.40558	8/17/2010	2.00	Muck	P. Sunny	NE		0	0	0	0	3	0	0	0	0	0
2	4	20.0	Greg Bugbee	41.53850	-73.40550	8/17/2010	2.00	Muck	P. Sunny	NE		0	0	0	0	3	0	0	0	0	0
2	5	30.0	Greg Bugbee	41.53843	-73.40538	8/17/2010	2.00	Muck	P. Sunny	NE		0	0	0	0	4	0	0	0	0	0
2	6	40.0	Greg Bugbee	41.53838	-73.40528	8/17/2010	2.00	Muck	P. Sunny	NE		2	0	0	0	4	0	0	0	0	0
2	7	50.0	Greg Bugbee	41.53838	-73.40514	8/17/2010	1.50	Muck	P. Sunny	NE		0	0	0	0	4	0	0	0	0	0
2	8	60.0	Greg Bugbee	41.53835	-73.40504	8/17/2010	1.50	Muck	P. Sunny	NE		0	0	0	0	4	2	0	0	0	0
2	9	70.0	Greg Bugbee	41.53829	-73.40493	8/17/2010	1.00	Muck	P. Sunny	NE		3	0	0	0	3	0	3	0	0	0
2	10	80.0	Greg Bugbee	41.53810	-73.40496	8/17/2010	1.00	Muck	P. Sunny	NE		0	0	0	0	3	0	0	1	0	0
3	1	0.0	Greg Bugbee	41.52366	-73.39929	8/17/2010	0.50	Gravel	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	2	5.0	Greg Bugbee	41.52362	-73.39933	8/17/2010	2.70	Rock	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	3	10.0	Greg Bugbee	41.52359	-73.39940	8/17/2010	3.10	Gravel	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	4	20.0	Greg Bugbee	41.52356	-73.39947	8/17/2010	3.20	Gravel	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	5	30.0	Greg Bugbee	41.52349	-73.39959	8/17/2010	3.00	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	6	40.0	Greg Bugbee	41.52342	-73.39964	8/17/2010	3.00	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	7	50.0	Greg Bugbee	41.52336	-73.39977	8/17/2010	2.50		P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
3	8	60.0	Greg Bugbee	41.52336	-73.39987	8/17/2010	2.30	Muck	P. Sunny	NE		0	0	0	0	1	0	0	0	0	0
3	10	8.0	Greg Bugbee	41.52322	-73.40007	8/17/2010	2.10	Muck	P. Sunny	NE		0	0	0	0	1	0	0	0	0	0
3	9	70.0	Greg Bugbee	41.52325	-73.39992	8/17/2010	2.50	Muck	P. Sunny	NE		0	0	0	0	1	0	0	0	0	0
4	1	0.0	Greg Bugbee	41.49909	-73.37394	8/17/2010	0.20	Sand	P. Sunny	NE		0	0	0	0	0	1	0	1	0	0
4	2	5.0	Greg Bugbee	41.49913	-73.37396	8/17/2010	0.40	Sand	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
4	3	10.0	Greg Bugbee	41.49915	-73.37401	8/17/2010	1.00		P. Sunny	NE		0	0	0	0	3	3	0	0	0	0
4	4	20.0	Greg Bugbee	41.49920	-73.37413	8/17/2010	1.20	Sand	P. Sunny	NE		0	0	0	0	3	0	0	0	0	0
4	5	30.0	Greg Bugbee	41.49925	-73.37422	8/17/2010	1.50	Sand	P. Sunny	NE		0	0	0	0	2	2	0	0	0	0
4	6	40.0	Greg Bugbee	41.49933	-73.37429	8/17/2010	1.00	Sand	P. Sunny	NE		0	0	0	0	2	0	0	0	0	0
4	7	50.0	Greg Bugbee	41.49938	-73.37438	8/17/2010	1.00	Sand	P. Sunny	NE		0	0	0	0	2	0	0	0	0	0
4	8	60.0	Greg Bugbee	41.49947	-73.37440	8/17/2010	2.00	Sand	P. Sunny	NE		0	0	0	0	1	0	0	0	0	0
4	9	70.0	Greg Bugbee	41.49952	-73.37450	8/17/2010	3.50		P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
4	10	80.0	Greg Bugbee	41.49954	-73.37454	8/17/2010	4.00		P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
5	1	0.5	Greg Bugbee	41.49691	-73.32757	8/16/2010	0.20	Gravel	Cloudy	NE		0	1	3	3	0	1	0	0	0	0
5	2	5.0	Greg Bugbee	41.49691	-73.32749	8/16/2010	0.60	Gravel	Cloudy	NE		0	2	2	2	0	0	0	0	0	0
5	3	10.0	Greg Bugbee	41.49694	-73.32742	8/16/2010	1.50		Cloudy	NE		0	0	0	0	0	0	0	2	0	0
5	4	20.0	Greg Bugbee	41.49683	-73.32730	8/16/2010	1.00	Gravel	Cloudy	NE		0	0	0	0	0	0	0	0	0	0
5	5	30.0	Greg Bugbee	41.49680	-73.32723	8/16/2010	1.30		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
5	6	40.0	Greg Bugbee	41.49680	-73.32708	8/16/2010	1.50		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
5	7	50.0	Greg Bugbee	41.49674	-73.32702	8/16/2010	2.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
5	8	60.0	Greg Bugbee	41.49667	-73.32688	8/16/2010	2.30		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
5	9	70.0	Greg Bugbee	41.49660	-73.32669	8/16/2010	3.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
5	10	80.0	Greg Bugbee	41.49660	-73.32667	8/16/2010	2.00		Cloudy	NE		0	0	0	0	0	0	0	0	0	0
6	1	0.5	Greg Bugbee	41.48408	-73.32404	8/16/2010	0.30	Gravel	Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	2	5.0	Greg Bugbee	41.48400	-73.32407	8/16/2010	2.00	Sand	Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	3	10.0	Greg Bugbee	41.48397	-73.32412	8/16/2010	2.50	Sand	Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	4	20.0	Greg Bugbee	41.48391	-73.32412	8/16/2010	3.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	5	30.0	Greg Bugbee	41.48381	-73.32429	8/16/2010	7.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	6	40.0	Greg Bugbee	41.48377	-73.32440	8/16/2010	7.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	7	50.0	Greg Bugbee	41.48379	-73.32449	8/16/2010	10.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	8	60.0	Greg Bugbee	41.48371	-73.32456	8/16/2010	12.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	9	70.0	Greg Bugbee	41.48360	-73.32467	8/16/2010	12.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
6	10	80.0	Greg Bugbee	41.48350	-73.32471	8/16/2010	14.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
7	1	0.5	Greg Bugbee	41.47250	-73.31398	8/16/2010	0.20	Gravel	Cloudy	South		0	0	0	0	0	0	0	0	0	0
7	2	5.0	Greg Bugbee	41.47250	-73.31395	8/16/2010	1.00	Sand	Cloudy	South		0	0	0	0	1	0	0	0	0	0
7	3	10.0	Greg Bugbee	41.47247	-73.31387	8/16/2010	2.00	Sand	Cloudy	South		0	0	0	0	3	0	0	0	0	0
7	4	20.0	Greg Bugbee	41.47245	-73.31367	8/16/2010	3.00		Cloudy	South		1	0	0	0	1	0	0	0	0	0
7	5	30.0	Greg Bugbee	41.47241	-73.31361	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
7	6	40.0	Greg Bugbee	41.47239	-73.31348	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
7	7	50.0	Greg Bugbee	41.47239	-73.31339	8/16/2010	3.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0

Appendix. Lake Lillinonah transect data (2 of 2)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp_	EleSp_	EriAqu	MyrSpi	NajMin	PotCri	PotFol	PotPus	SagSp_
7	8	60.0	Greg Bugbee	41.47229	-73.31330	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
7	9	70.0	Greg Bugbee	41.47226	-73.31318	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
7	10	80.0	Greg Bugbee	41.47219	-73.31311	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	1	0.5	Greg Bugbee	41.44799	-73.30359	8/16/2010	0.20	Gravel	Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	2	5.0	Greg Bugbee	41.44795	-73.30358	8/16/2010	1.00	Gravel	Cloudy	South		0	0	0	0	1	0	0	2	2	0
8	3	0.0	Greg Bugbee	41.44794	-73.30369	8/16/2010	3.00	Sand	Cloudy	South		0	0	0	0	4	0	0	0	0	0
8	4	20.0	Greg Bugbee	41.44785	-73.30375	8/16/2010	5.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	5	30.0	Greg Bugbee	41.44773	-73.30357	8/16/2010	0.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	6	40.0	Greg Bugbee	41.44758	-73.30371	8/16/2010	0.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	7	50.0	Greg Bugbee	41.44758	-73.30360	8/16/2010	0.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	8	60.0	Greg Bugbee	41.44751	-73.30376	8/16/2010	0.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	9	70.0	Greg Bugbee	41.44741	-73.30383	8/16/2010	0.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
8	10	80.0	Greg Bugbee	41.44729	-73.30388	8/16/2010	0.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	0	0.5	Greg Bugbee	41.51017	-73.31942	8/16/2010	0.60		Cloudy	South		0	0	2	0	0	0	0	0	0	2
9	2	5.0	Greg Bugbee	41.51013	-73.31937	8/16/2010	0.50	Gravel	Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	3	10.0	Greg Bugbee	41.51009	-73.31940	8/16/2010	1.00		Cloudy	South		0	0	0	0	1	0	0	0	0	0
9	4	20.0	Greg Bugbee	41.50996	-73.31937	8/16/2010	3.50		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	5	30.0	Greg Bugbee	41.50988	-73.31931	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	6	40.0	Greg Bugbee	41.50983	-73.31925	8/16/2010	4.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	7	50.0	Greg Bugbee	41.50973	-73.31924	8/16/2010	3.00		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	8	60.0	Greg Bugbee	41.50963	-73.31925	8/16/2010	2.50		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	9	70.0	Greg Bugbee	41.50953	-73.31926	8/16/2010	1.50		Cloudy	South		0	0	0	0	0	0	0	0	0	0
9	10	80.0	Greg Bugbee	41.50949	-73.31928	8/16/2010	1.50		Cloudy	South		0	0	0	0	1	0	0	0	0	0
10	1	0.0	Greg Bugbee	41.49056	-73.38162	8/17/2010	0.10	Sand	P. Sunny	NE		0	0	2	0	0	0	0	0	0	0
10	2	5.0	Greg Bugbee	41.49060	-73.38157	8/17/2010	1.00	Sand	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	3	10.0	Greg Bugbee	41.49067	-73.38157	8/17/2010	1.00	Sand	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	4	20.0	Greg Bugbee	41.49074	-73.38157	8/17/2010	1.65	Gravel	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	5	30.0	Greg Bugbee	41.49081	-73.38156	8/17/2010	2.20	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	6	40.0	Greg Bugbee	41.49090	-73.38169	8/17/2010	2.70	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	7	50.0	Greg Bugbee	41.49099	-73.38170	8/17/2010	2.70	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	8	60.0	Greg Bugbee	41.49109	-73.38169	8/17/2010	2.50	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	9	70.0	Greg Bugbee	41.49118	-73.38168	8/17/2010	2.50	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0
10	10	80.0	Greg Bugbee	41.49128	-73.38178	8/17/2010	3.10	Muck	P. Sunny	NE		0	0	0	0	0	0	0	0	0	0