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Agricultural  
Experiment  
Station  
New Haven, CT



*Bulletin*

*February 2009*

# Invasive Aquatic Plants

## Lake Candlewood Lake Zoar

### Monitoring Report

2008

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Roslyn Reeps

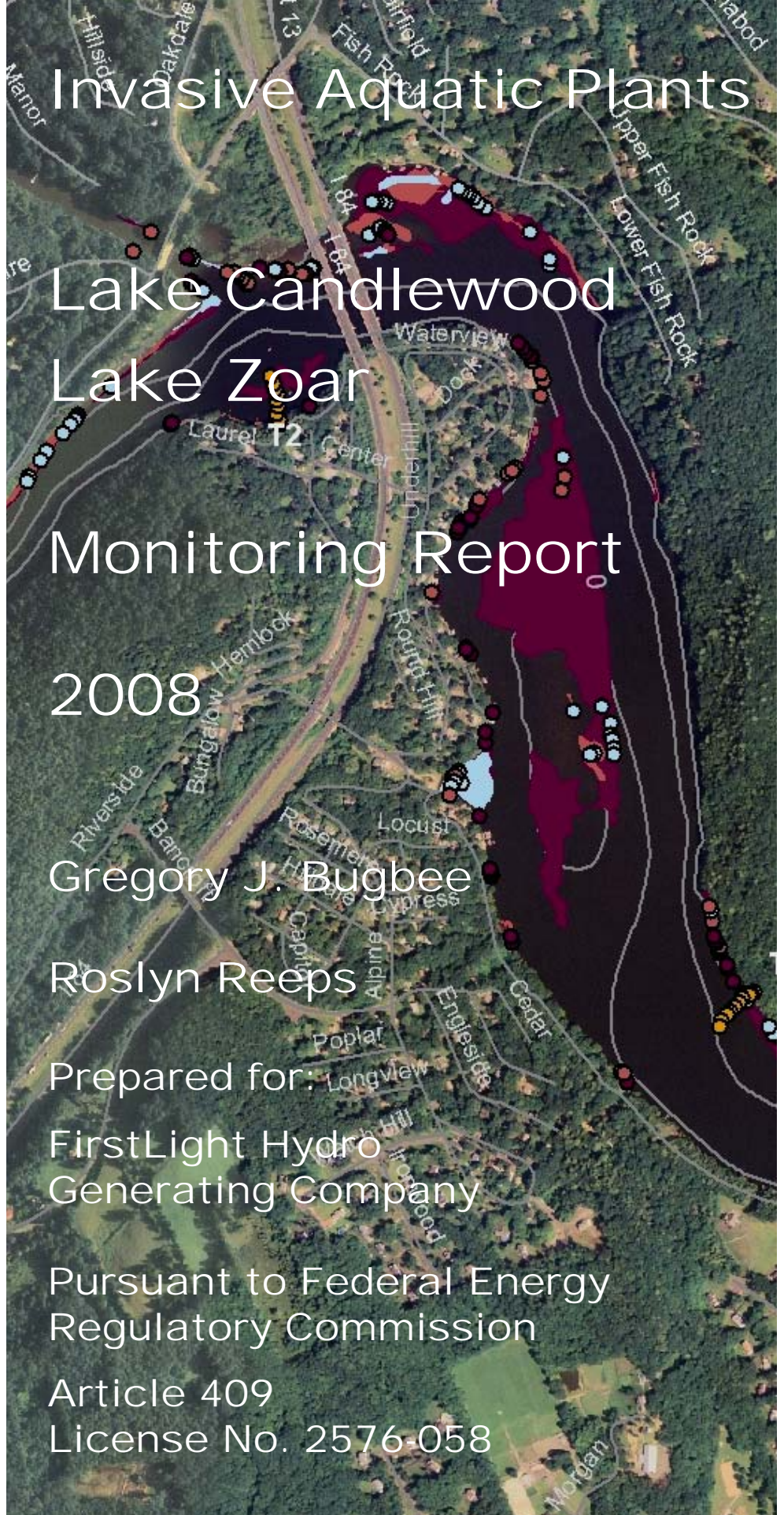
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Article 409

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## Introduction

Lakes Candlewood and Zoar are impoundments managed by FirstLight Power Resources Services, LLC for hydroelectric generation. In addition to providing electricity, these water bodies are among the State's premier recreational lakes. Candlewood is the state's largest lake (5086 acres) and Zoar is the sixth largest (919 acres) (CT DEP, 2009). Invasive species represent severe ecological and economic threats (Wilcove et al. 1998, Pimintel et al. 2000). Because invasive species are not native, they have few natural enemies. Their dramatic growth rates 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). Currently, invasive aquatic plants are found in approximately two-thirds of Connecticut's lakes and ponds (CAES IAPP, 2009). This report represents the second year of the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) surveillance of Lakes Candlewood and Zoar. Background information on these lakes was detailed in the CAES IAPP 2007 report (Bugbee et al. 2008). It is suggested readers not familiar with previous work on these lakes refer to this reference.

CAES IAPP studies from 2005 - 2007 found lakes Candlewood and Zoar had similar plant communities with 16 and 18 species respectively (Bugbee et al. 2008). Ten of the plant species occurred in both lakes. Species richness (number of species in a lake) is one indicator of the overall health of a plant community. Capers et al. (2007) suggest lakes with high native species richness, combined with high density, may provide resistance to colonization by invasive species. When the native species density is low, this effect diminishes. Lakes Candlewood and Zoar fell in the middle for species richness when compared to other Connecticut lakes and ponds (CAES IAPP, 2009). Three aquatic plant species in Candlewood were invasive: *Myriophyllum spicatum* (Eurasian water milfoil), *Najas minor* (Minor naiad) and *Potamogeton crispus* (curly leaf pondweed). Lake Zoar contained the same three invasive species with the addition of a small area of a fourth: *Marsilea quadrifolia* (European water clover). *M. spicatum* covered the largest area in both lakes in 2007 followed by *N. minor* and *P. crispus*. *P. crispus* may be underestimated because it dies back during our summer survey period. Native plant resistance will limit further spread of invasive plants, as well as areas of unoccupied habitat, nutrients and management practices. *M. spicatum* is managed in Lake Candlewood by drawdown and FirstLight Hydro Generating Company, Nuisance Plant Monitoring Report 2008● Page 4



occasional hand-harvesting (Tarsi, 2006) while in Lake Zoar *M. spicatum* is controlled solely by mechanical removal.

The following report fulfills the Federal Energy Regulatory Commission (FERC) Article 409 requirement for annual invasive aquatic plant monitoring for Lakes Candlewood and Zoar (Northeast Generating Company, 2005). This report includes modifications based on FERC review of the CAES IAPP 2007 monitoring report (FERC, 2008). The modifications include greater year-to-year consistency, data on mean stand size and determination of the total area of each lake covered by each invasive plant.

### **Objectives:**

Survey and map the invasive aquatic plants in Lakes Candlewood and Zoar to fulfill the FERC nuisance plant monitoring requirement in Article 409. Follow CAES IAPP lake survey protocol with the addition of georeferenced points or polygons for all invasive plant locations.

### **Materials and Methods:**

We conducted surveys according to established methods (CAES IAPP, 2009) from motorized boats, from late June through September. We moved slowly through the littoral zone, recording invasive plants with a Trimble® global positioning system (GPS; accuracy <1 meters). If plants were in distinct patches, they were circumnavigated forming a polygon (Selsky et al. 2006). These areas are called a “patch” in this report. We recorded patches less than one square meter using a “point” feature and assigned the point an area of 0.0002 acres (1m<sup>2</sup>). For final area, abundance, data analysis, etc. all points were considered patches. We then measured depth within these areas by rake handle, drop line or digital depth finder. To positively identify plants, we obtained samples from water less than three meters deep by hand or with a long-handled rake. In deeper water, we obtained plants with a grapple attached to a rope. When field identification was questionable, we brought samples back to the lab for review using the taxonomy of Crow and Hellquist (2000a, 2000b). In 2005, CAES IAPP obtained polygons around the Eurasian milfoil, in the New Milford arm of Lake Candlewood while the remainder of the lake was completed in 2006. We obtained polygons for the entire lake again in 2007 to fulfill the Federal Energy Regulatory Commission (FERC) requirement for annual invasive aquatic plant monitoring

(Bugbee et al. 2008). The 2005-2006 and 2007 data is compared with information in this report. Polygons are located with latitude and longitude coordinates (see appendix) that are the calculated center (centroid). Because polygons are irregular and sometimes cover long distances, the centroid is sometimes located outside the patch. After the field season, we post-processed and imported the GPS data obtained by Trimble® GPS into ArcGIS® 9.2 (ESRI, Redlands, CA), where it was further geo-corrected. We calculated the areas of the patches with the XTools Pro tool and overlaid the data on 2006 United States Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP) Connecticut aerial photos in order to show invasive species locations in relation to actual shoreline conditions.

We collected quantitative abundance information on invasive aquatic plants by using our established transect protocol (CAES IAPP, 2009). We positioned transects perpendicular to the shoreline and recorded the abundance of each species found within a 2 m<sup>2</sup> area at 0, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m from the shore (a total of 10 points on each transect unless impaired by rocks, land etc.). A minimum of one transect (10 sampling points) was established for every 100 acres of surface area for Lake Candlewood in 2005 (105 transects) and Lake Zoar in 2007 (10 transects). We positioned these transects using a random-representative method to account for all bottom types and plant conditions. In 2008, we reduced the transect number to 10 in Lake Candlewood to keep the workload within the scope of this study. We did not use a random-representative method but rather chose transects that included at least one occurrence of each native and invasive plant species found by CAES IAPP in 2005. We felt this would give the best year-to-year information on changes in native/invasive plant populations particularly when added to our annual survey of Lake Candlewood for invasive species. Lake Candlewood transects, T2, T22, T25, T52, T57, T58, T62, T74, T86, and T105, from the CAES IAPP 2005 survey (Bugbee et al. 2008), were chosen and renamed T1 - T10 respectively (See Lake Candlewood Maps 1- 9 in this report.) We must stress that these transects do not represent the overall conditions of Lake Candlewood as the frequency of native species will be over-estimated (see Table 1, 2005 frequency of occurrence in parenthesis). We ranked abundance of each species on a scale of 1–5 (1 = rare, a single stem; 2 = uncommon, few stems; 3 = common; 4 = abundant; 5 = extremely abundant or dominant). The Lake Candlewood invasive aquatic plant survey occurred from July 18 - August 20, the transect data was obtained from September 4 – 12 (appendix A). Lake Zoar was surveyed for invasive plant from August 20

Table 1. Comparison of frequency of occurrence of native and invasive plants on ten reference transects and total area of invasive species in Candlewood Lake.

Scientific Name	Common Name	Abbrev.	Frequency of Occurrence (percent **)		Area (acres)		
			2005	2008	2005/2006	2007	2008
<i>Callitriche sp.</i>	Water starwort	CalSp	1.0	0.0	ND***	ND	ND
<i>Ceratophyllum demersum</i>	Coontail	CerDem	3.1	33.3	ND	ND	ND
<i>Elatine sp.</i>	Waterwort	ElaSp	0.0	1.0	ND	ND	ND
<i>Elodea nuttallii</i>	Waterweed	EloNut	4.2	0.0	ND	ND	ND
<i>Lemna minor</i>	Duckweed	LemMin	2.1	6.3	ND	ND	ND
<i>Myriophyllum spicatum*</i>	Eurasian watermilfoil	MyrSpi	51.0	79.2	275	221	451
<i>Najas flexilis</i>	Nodding waternymph	NajFle	7.3	1.0	ND	ND	ND
<i>Najas minor*</i>	Brittle waternymph	NajMin	12.5	6.3	ND	11.8	10.5
<i>Nymphaea odorata</i>	White water lily	NymOdo	1.0	1.0	ND	ND	ND
<i>Potamogeton bicupulatus</i>	Snailseed pondweed	PotBic	0.0	1.0	ND	ND	ND
<i>Potamogeton crispus*</i>	Curly leaf pondweed	PotCri	13.5	1.0	ND	0.1	0.1
<i>Potamogeton foliosus</i>	Leafy pondweed	PotFol	3.1	0.0	ND	ND	ND
<i>Potamogeton gramineus</i>	Variable leaf pondweed	PotGra	2.1	0.0	ND	ND	ND
<i>Potamogeton pusillus</i>	Small Pondweed	PotPus	3.1	1.0	ND	ND	ND
<i>Potamogeton perfoliatus</i>	Clasping leaf pondweed	PotPer	1.0	2.1	ND	ND	ND
<i>Spirodela polyrhiza</i>	Great duckweed	SpiPol	1.0	0.0	ND	ND	ND
<i>Stuckinia pectinatus</i>	Sago pondweed	StuPec	6.3	1.0	ND	ND	ND
<i>Vallisneria americana</i>	Eel grass	ValAme	2.1	2.1	ND	ND	ND
<i>Zannichellia palustris</i>	Horned pondweed	ZanPal	11.5	3.1	ND	ND	ND

\*Invasive plant

\*\* Percent occurrence on 96 points in 10 transects

\*\*\*Not determined

- October 8 and transects were quantified on August 20 and 21. A total of 18 “on-water” days were needed for Lake Candlewood and 26 days were necessary for Lake Zoar.

Using a YSI® 58 meter (YSI Inc., Yellow Springs, Ohio), we measured water temperature and dissolved oxygen at a depth of 0.5 m and at 1 m intervals to the bottom of the deepest areas of each lake as determined by CT Department of Environmental Protection lake bathymetry maps (CT DEP, 2009). Samples were taken from Lake Candlewood on September 4 and Lake Zoar on September 19. We took water samples from 0.5 m below the surface and near the bottom. Using a Secchi disk, we measured transparency. 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 0.16N H<sub>2</sub>SO<sub>4</sub> to a pH 4.5 end point (expressed as mg/l CaCO<sub>3</sub>). Finally, we analyzed total phosphorus by the ascorbic acid method with potassium persulfate digestion (American Public Health Association, 1995).



Table 2. Comparisons of invasive plant patch number and size between 2007 and 2008 in Candlewood Lake.

Scientific Name	Common Name	Number*	Patch Size (acres)						
			2007			2008			
			(min)	(max)	(mean)	(min)	(max)	(mean)	
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	489	0.0002	24.9	0.45	469	0.0002	28.1	0.96
<i>Najas minor</i>	Brittle waternymph	31	0.0003	4.99	0.38	26	0.0006	5.46	0.40
<i>Potamogeton crispus</i>	Curly leaf pondweed	1	0.07	0.07	0.07	5	0.0002	0.10	0.03

\*Total number of patches of each species in lake.

Table 3. Comparison of invasive patch abundance between 2007 and 2008 in Candlewood Lake.

Scientific Name	Common Name	Patch Abundance (1=sparse - 5=dense)					
		2007			2008		
		(min)	(max)	(mean)	(min)	(max)	(mean)
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	1	5	2.9	1	5	3.0
<i>Najas minor</i>	Brittle waternymph	1	4	2.1	2	4	1.5
<i>Potamogeton crispus</i>	Curly leaf pondweed	2	2	2.0	1	1	1.0

## Results and Discussion

### Lake Candlewood

We found the same three invasive species in 2008 as in 2005 and 2007: *Myriophyllum spicatum*, *Najas minor* and *Potamogeton crispus*. *Myriophyllum spicatum* occurred far more frequently on the ten reference transects and covered considerably more area than any other plant in Lake Candlewood (Table 1). Its frequency of occurrence, on the transects, increased from 51% in 2005 to 79.2% in 2008 and its coverage increased from 275 acres (5.4% of the lake) in 2005/2006 and 221 acres (4.3%) in 2007 to 451 acres (8.9%) in 2008. *Najas minor* on transects declined from 12.5% in 2005 to 6.3% in 2008 while *Potamogeton crispus* declined from 13.5% in 2005 to 1.0% in 2008. The coverage of these species remained nearly the same, from 2007 to 2008, with *N. minor* covering 11.8 acres (0.23% of the lake) in 2007 and 10.5 acres (0.21%) in 2008. *P. crispus* covered 0.1 acres (0.002%) in both years. Species richness of the native plant community, as found on the reference transects, was reduced from 17 in 2005 to 13 in 2008. Native species not found on transects were *Callitriche sp.*, *Elodea nuttallii*, *Potamogeton foliosus*, *Potamogeton gramineus*, and *Spirodela polyrhiza*. Found on transects in 2008 but not in 2005 was *Potamogeton bicupulatus*. Discrepancies in species richness can be the result of natural variability and management factors such as drawdown or imperfections in survey technique. There were differences between 2007 and 2008 in the number and size of invasive plant patches (Table

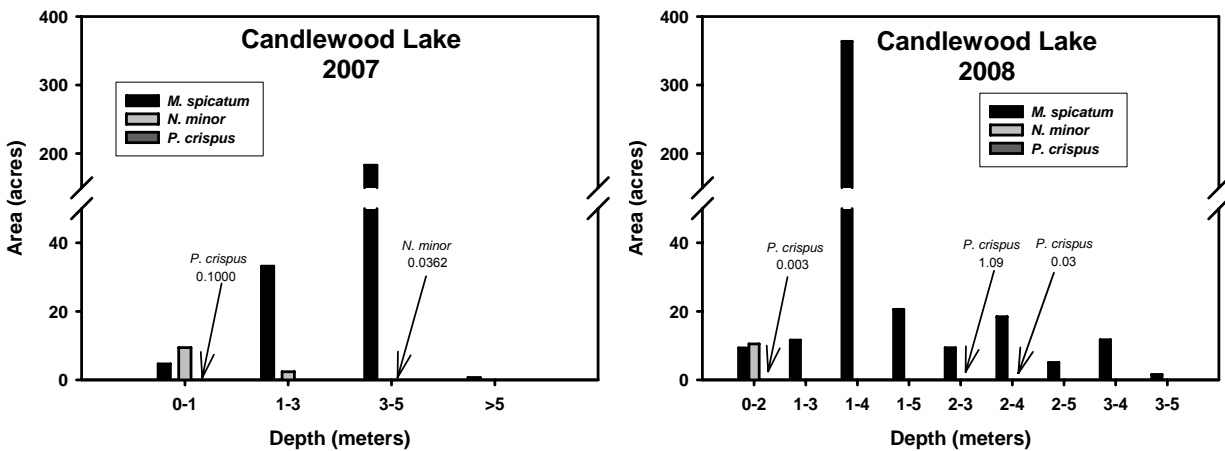


Figure 1. Depth preferences of invasive plants in Lake Candlewood in 2007 and 2008.

2) as well as their mean abundance (Table 3). We found more patches of milfoil in 2007 compared to 2008 (489 vs. 469), however, the mean patch size in 2007 was only 0.45 acres compared to 0.96 acres in 2008. This suggests the coalescence of patches was greater than the number of new patches. Maximum patch size showed a modest increase from 24.9 acres in 2007 to 28.1 acres in 2008. Minimum patch size of *M. spicatum* did not change as the 0.0002 areas equal the smallest area recorded for a single plant (a point). Mean patch number for *Najas minor* decreased from 31 in 2007 to 26 in 2008 while its mean patch size increased slightly from 0.38 to 0.40 acres. In 2008, *P. crispus* was found in five sites compared to only one site in 2007. The 2008 patches of *P. crispus* tended to be smaller than in 2007 (0.03 vs. 0.07 acres). The mean, minimum and maximum abundance of all three invasive species changed little from 2007 to 2008 (Table 3).

We found the depth preferences of invasive species changed from 2007 to 2008 (Figure 1). Because the milfoil often occurred with no clear demarcations from shallow to deep water in 2008, the depth categories had to be expanded from four to nine. This makes comparing the years less precise, but it was necessary to accurately reflect actual lake conditions. In 2007 we found the greatest area of *M. spicatum* (182 acres, 82.6% of the total) in 3-5 meters of water, while in 2008 this shifted to 375 acres (83.0%) in 1-4 meters of water. Changes in drawdown practices from 2007 to 2008 are the likely cause of these differences and will be discussed later in this report.



Figure 2. Typical line of *M. spicatum* in found at a 3 - 5 meters depth in 2007 (left) compared to a more general patch found at a depth of 1 - 4 meters in 2008 (right).

In 2007, distinct lines of *M. spicatum* followed the three-meter depth contour and rapidly decreased at a depth of five-meters (Figure 2, left), while in 2008 the milfoil encroached in the shallower depths (Figure 2, right). Water clarity and the associated light restriction at depths of greater than 5 meters is the likely cause for *M. spicatum* to be absent at greater depths. Water clarity as measured with a Secchi disk ranged between 2 and 3 meters throughout the summer (Table 7 and data that is not shown). *N. minor* and *P. crispus* generally were found at depths of less than 2 meters in both years. The restriction of *N. minor* to shallow water is likely because it rarely grows more than 1 m in height and becomes light-limited at deeper depths. Also, it is an annual that reproduces from seed each year that may prefer the shallower, quiescent coves. *P. crispus* senesces in the summer months (Catling and Dobson, 1985), thus a considerable amount of this plant may no have been observed during our summer surveys.

Changes in milfoil coverage, patch number, size and abundance are likely related to differences in drawdown practices and weather conditions during the drawdown. Effective drawdowns must expose the plant roots to drying or freezing conditions for a sufficient length of time. The exact length of time is poorly understood. In 2007, the winter drawdown was approximately nine feet and the bottom was exposed for a relatively long period from mid-January to mid February (Figure 3) (Marsicano, 2009). Weather conditions must have been favorable as this apparently caused the near elimination of *M. spicatum* at the 0 – 3



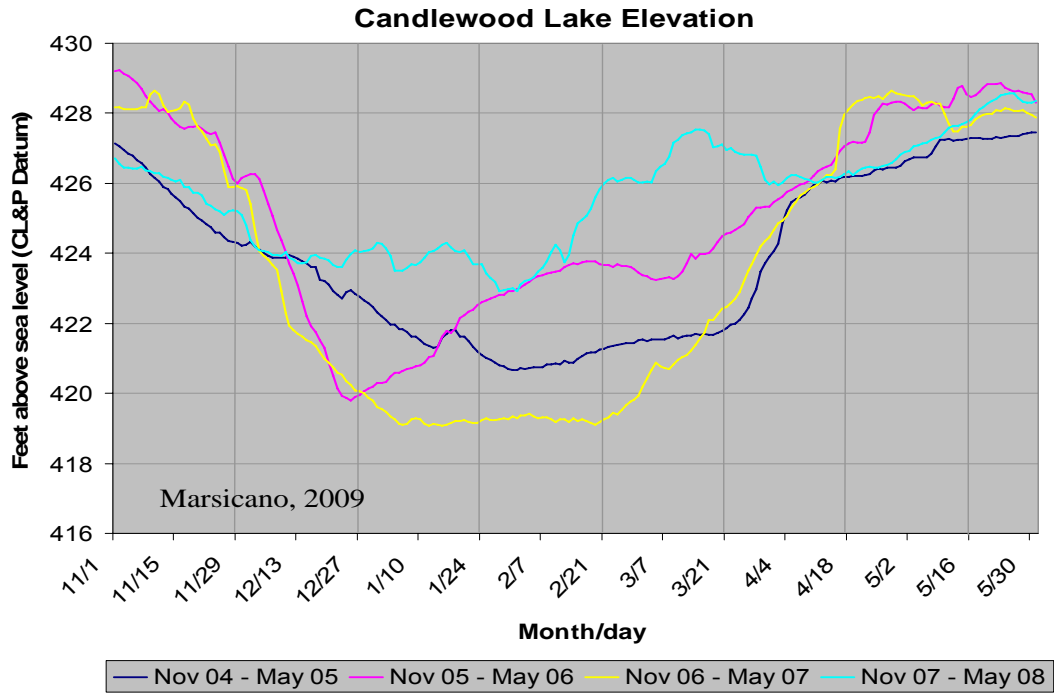


Figure 3. Depth and duration of drawdown from 2004 -2008 in Lake Candlewood.

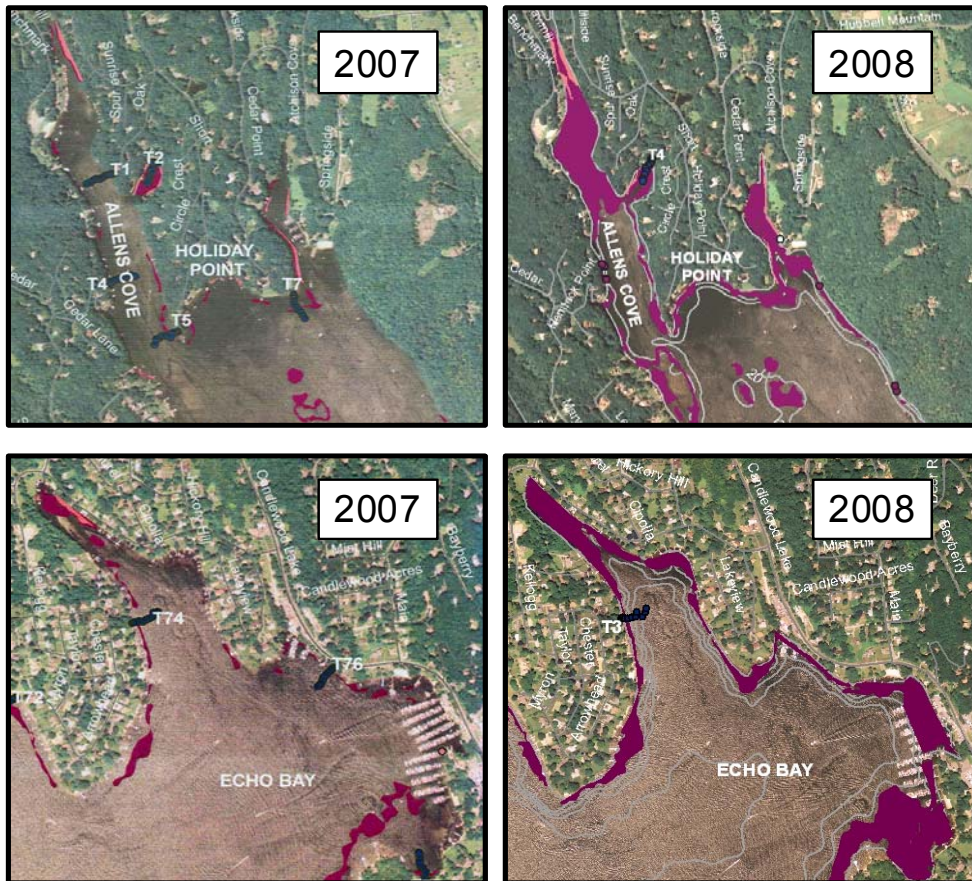
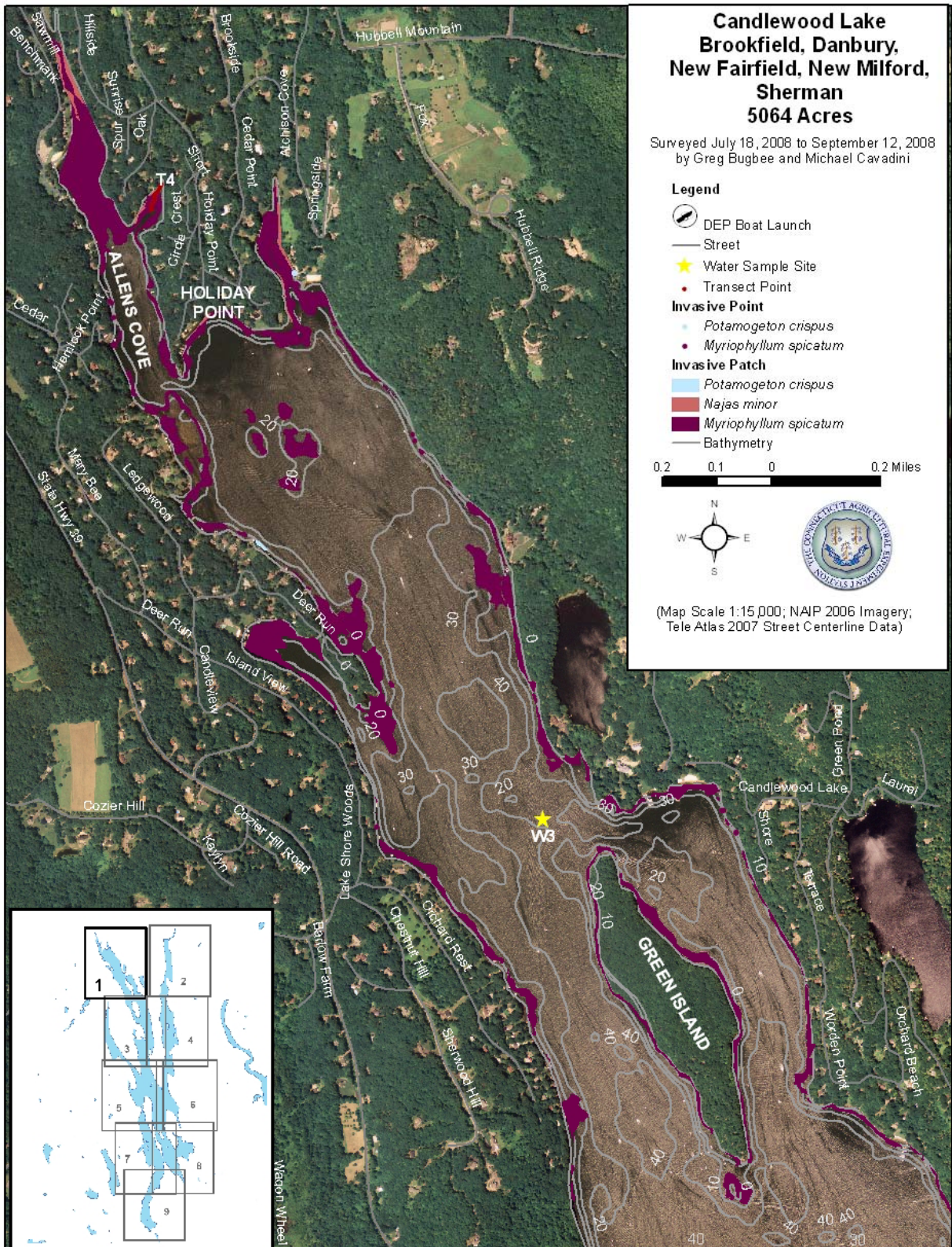


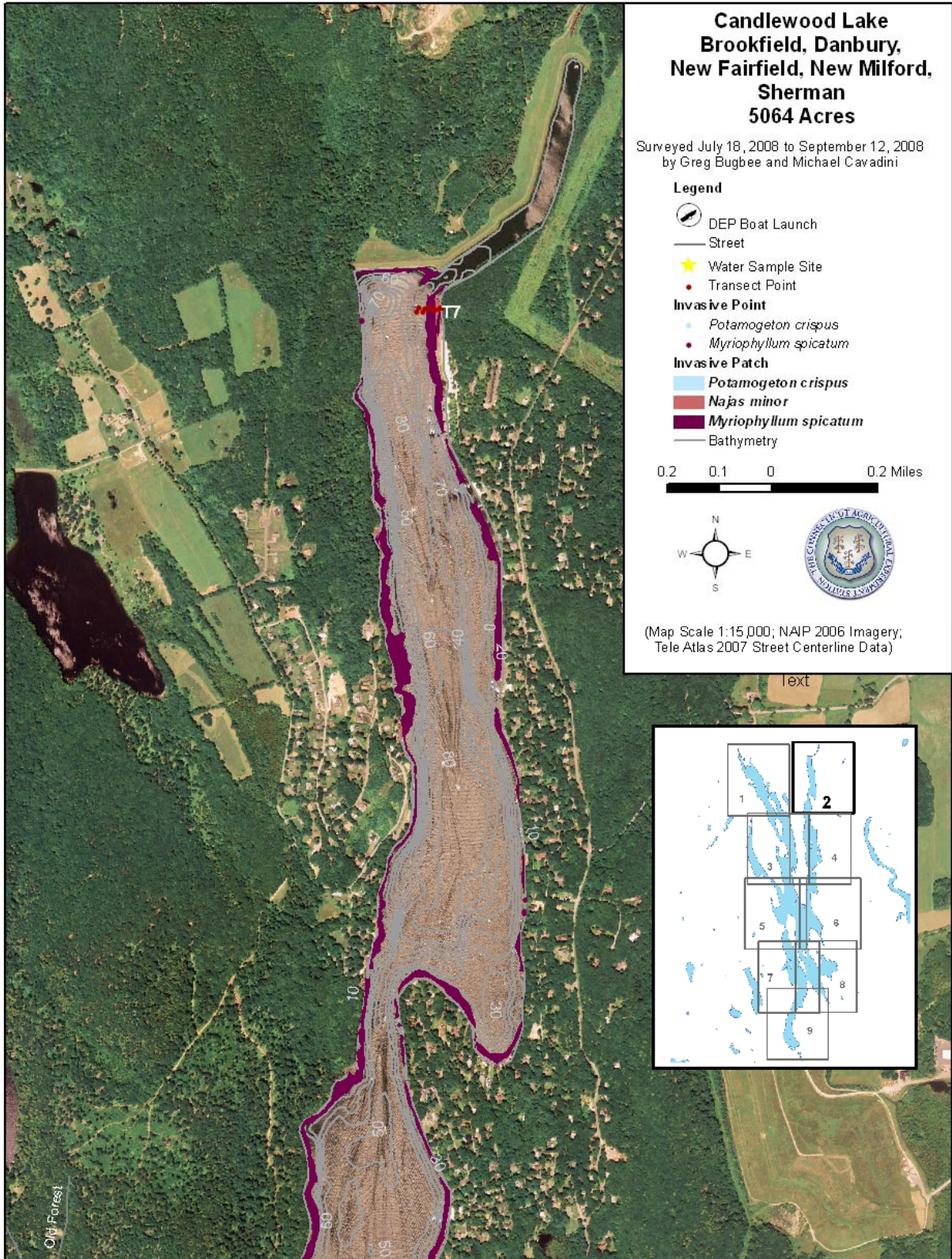
Figure 4 (top) and Figure 5 (bottom). Comparisons of *Myriophyllum spicatum* (purple patches) in Allen's Cove and Echo Bay between 2007 and 2008.

meter depths. In 2008, a shallower drawdown of 3 feet started in mid-December and lasted until mid-February. This shallower drawdown was not effective in preventing large-scale reinfestation of *M. spicatum* into the shallower depths. Some of the drawdown differences could result from unfavorable weather conditions as well. Locations of the three invasive plant species are shown on Lake Candlewood maps 1-9. Some of the largest areas of *M. spicatum* occurred in the shoal area south of Holiday Point (map 1), the southeast side of Deer Island (map 3), in Shelter Harbor (map 3), Echo Bay (Lake Candlewood, map 8), Lattins Cove (map 8), and southern Danbury Bay (map 9). We found *N. minor* mainly in the shallow areas of Allen's Cove (map 1), Shelter Harbor (map 3), and Lattins Cove (map 8). Close-up 2007 and 2008 comparisons of Allen's Cove (Figure 4) and Echo Bay (Figure 5) clearly illustrate the expansion in shallow areas that accounts for much of the increase of *M. spicatum*.



















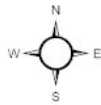


**Candlewood Lake  
Brookfield, Danbury,  
New Fairfield, New Milford,  
Sherman  
5064 Acres**

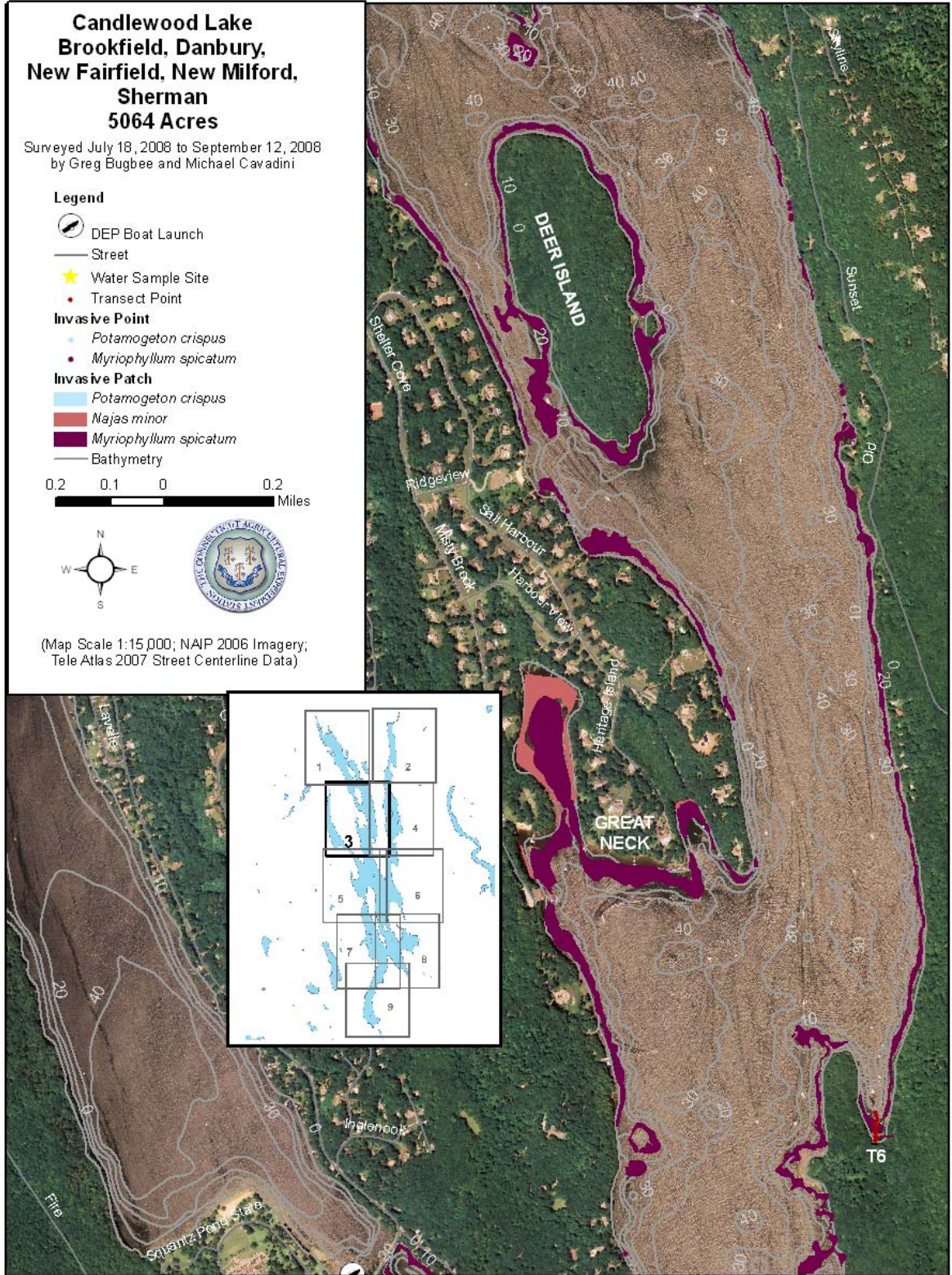
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**Legend**

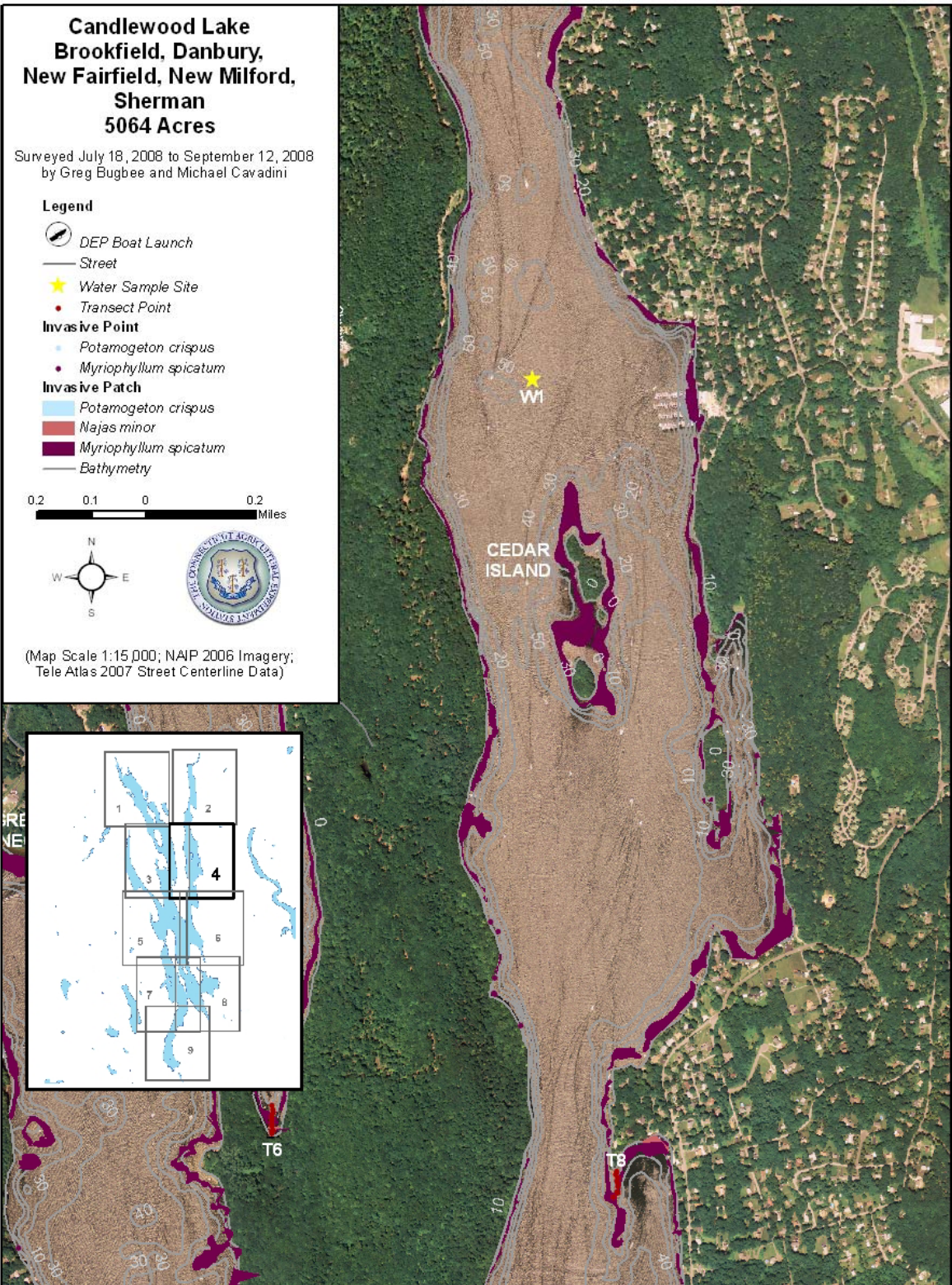
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-  Street
-  Water Sample Site
-  Transect Point
- Invasive Point**
  -  *Potamogeton crispus*
  -  *Myriophyllum spicatum*
- Invasive Patch**
  -  *Potamogeton crispus*
  -  *Najas minor*
  -  *Myriophyllum spicatum*
-  Bathymetry



(Map Scale 1:15,000; NAIP 2006 Imagery;  
Tele Atlas 2007 Street Centerline Data)









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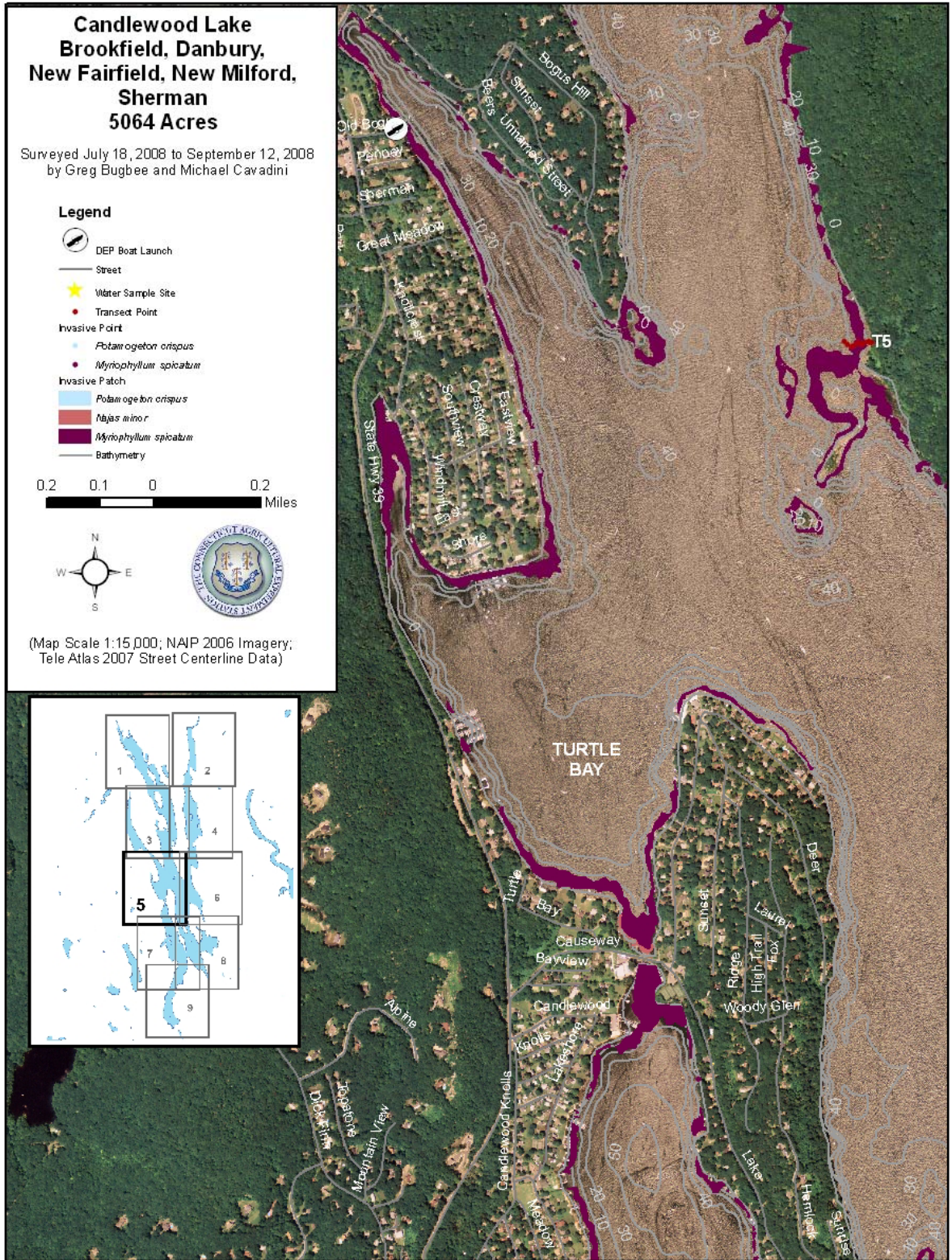
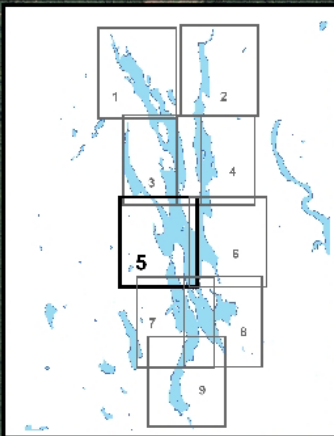
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0.2 0.1 0 0.2 Miles



(Map Scale 1:15,000; NAIP 2006 Imagery;  
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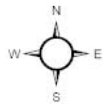
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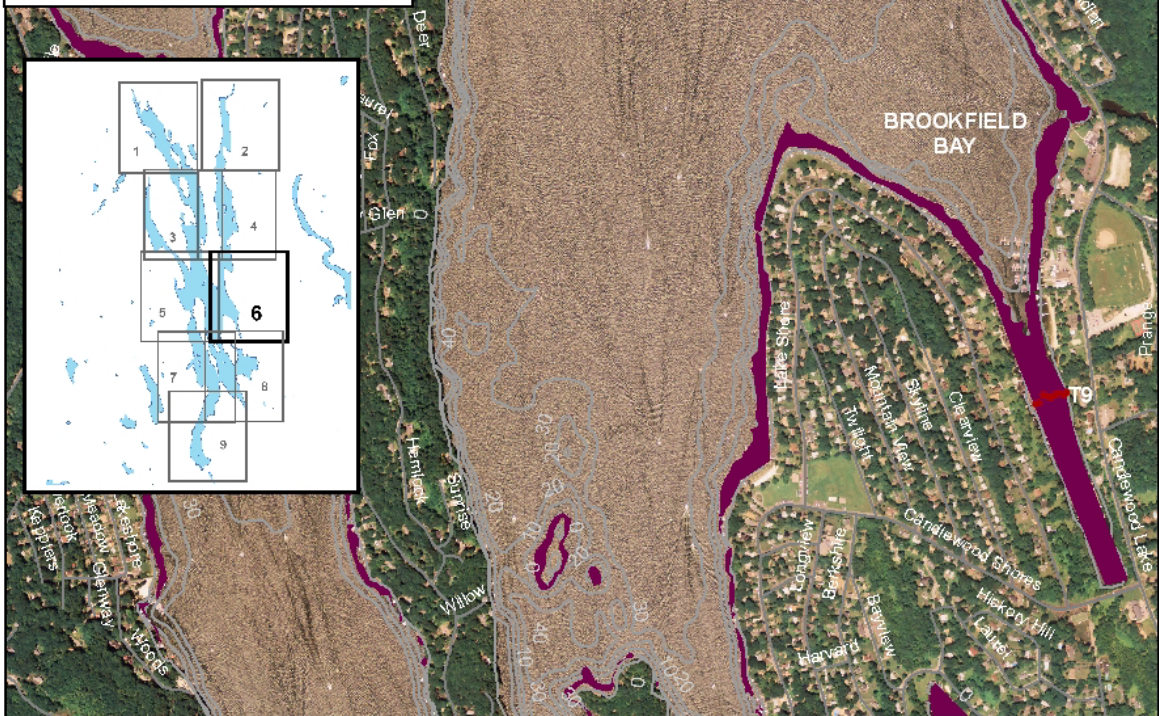
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





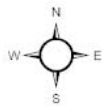
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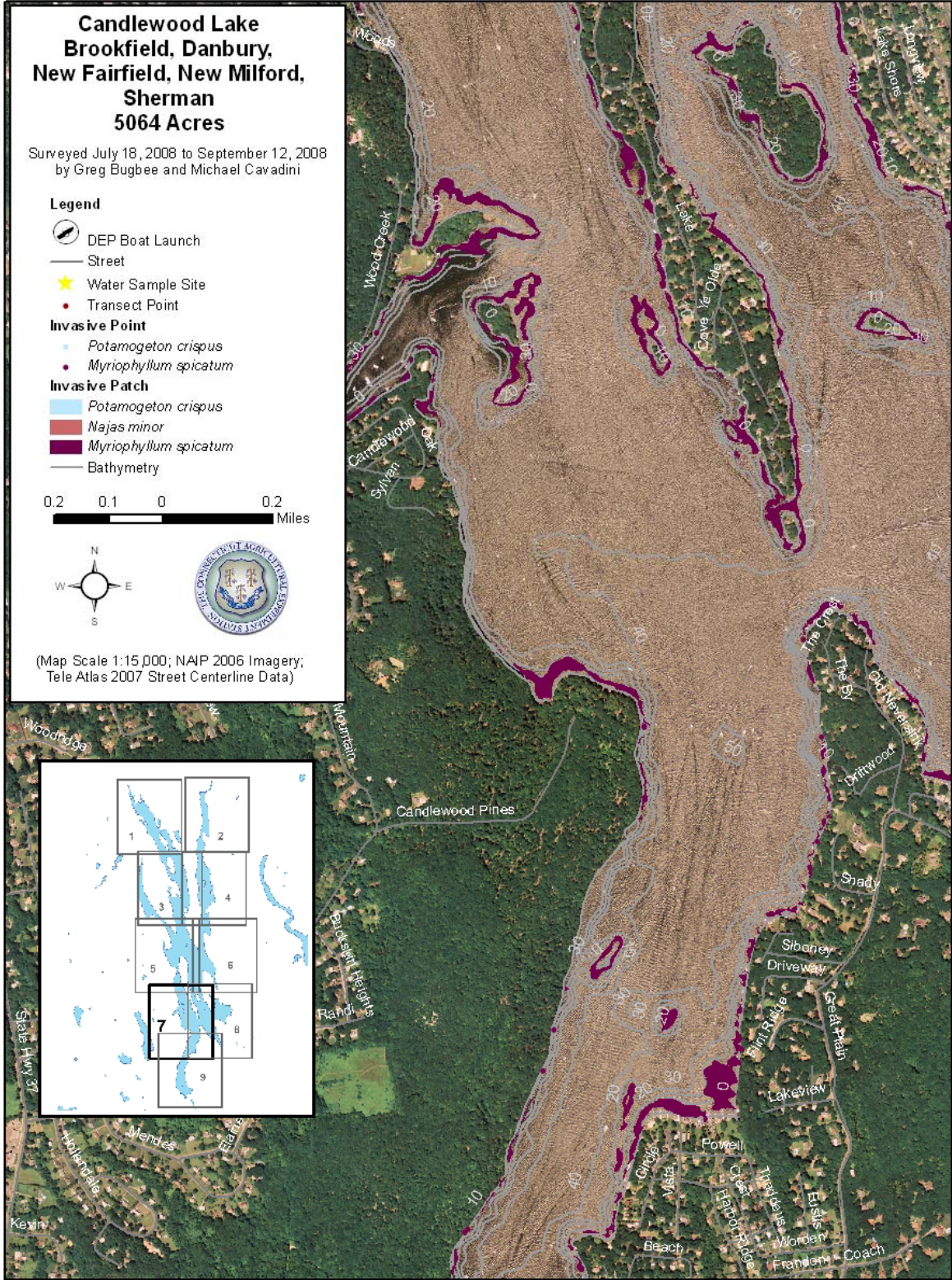
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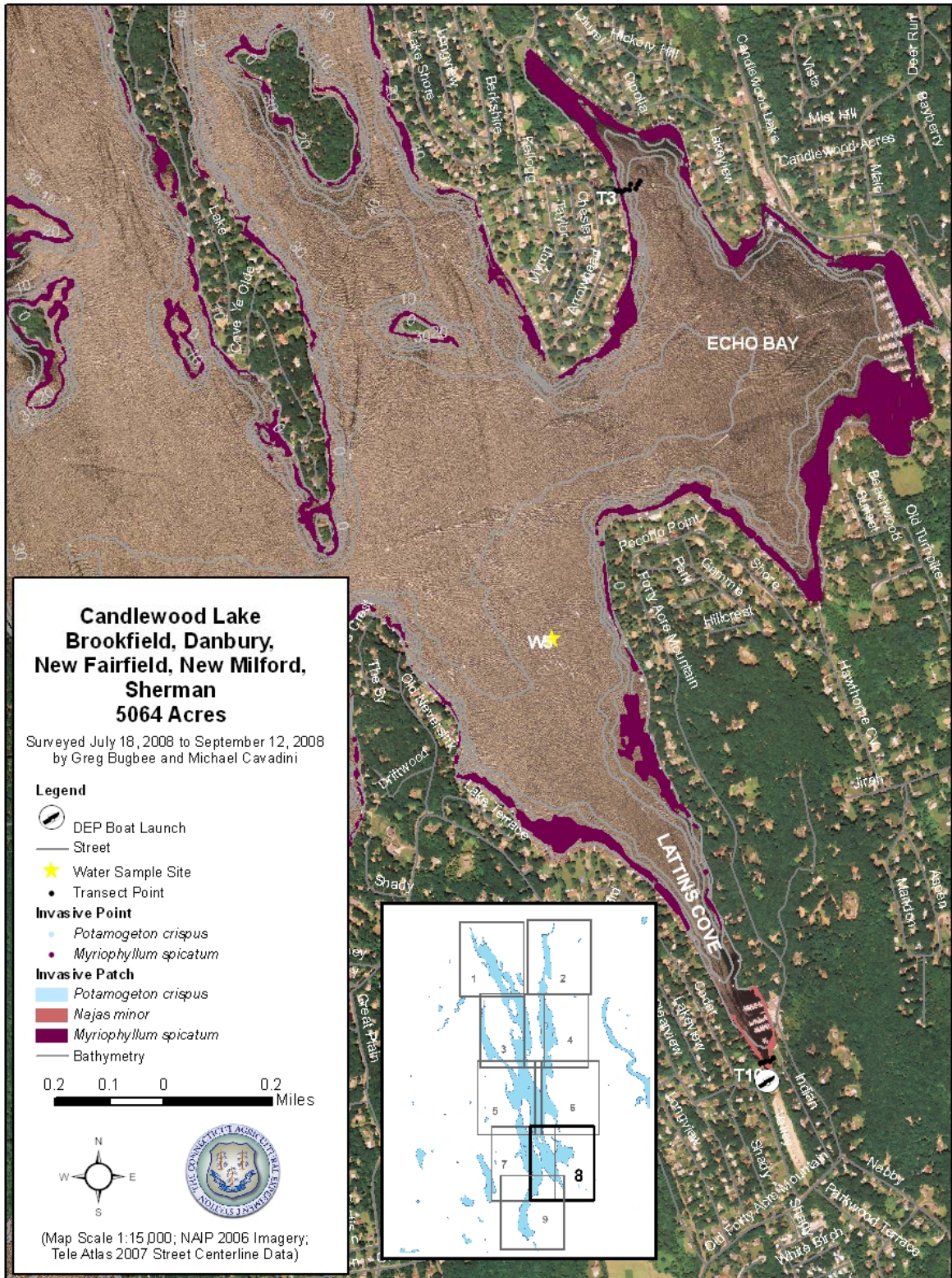
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 Tele Atlas 2007 Street Centerline Data)









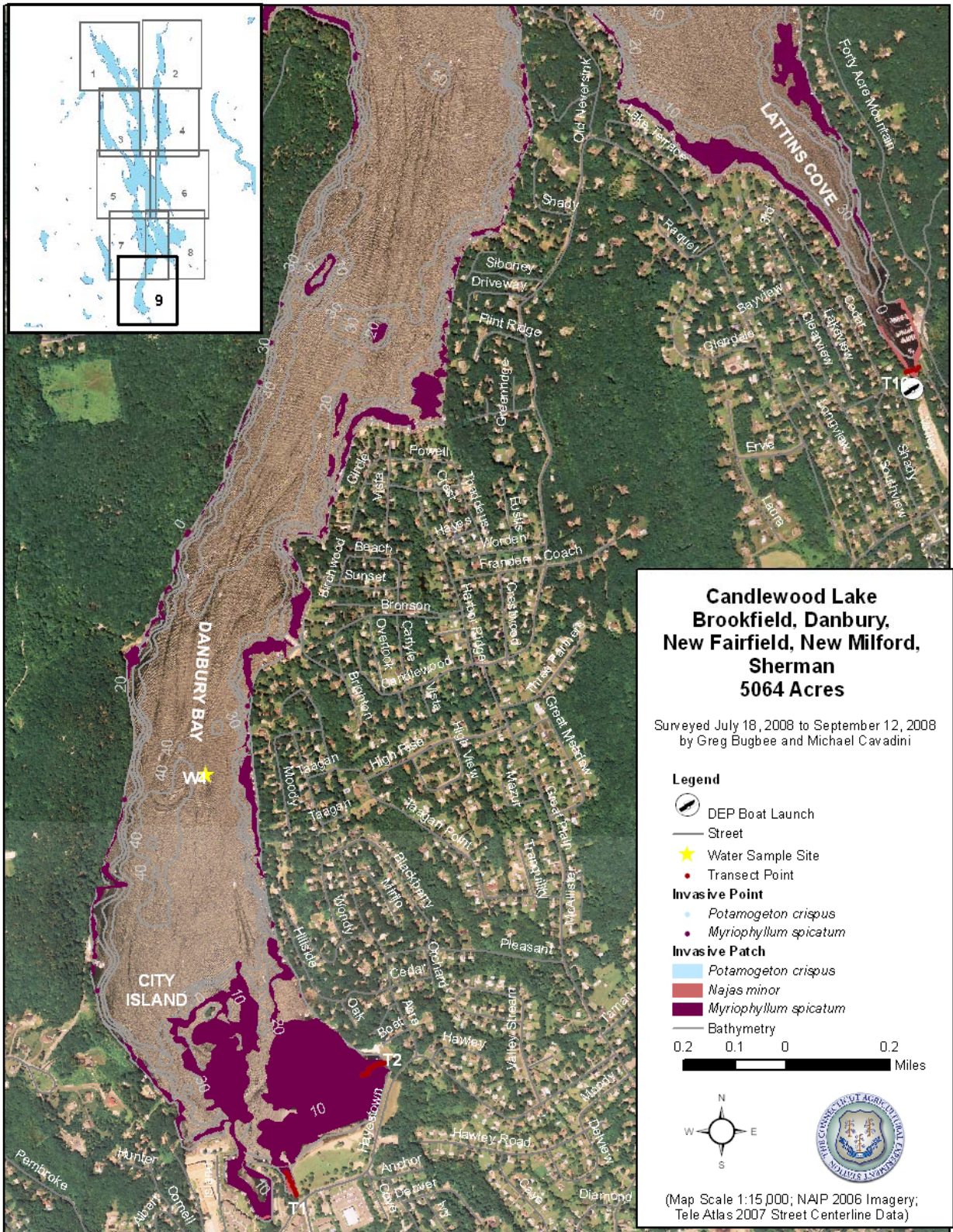


Table 4. Comparison of frequency of occurrence of invasive plants on transects and the total area of invasive plants in Lake Zoar.

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

\*Invasive plant

\*\* Percent occurrence on 100 points in 10 transects

\*\*\*Not determined

## Lake Zoar

The 2008 CAES IAPP survey of Lake Zoar re-confirmed the presence of the four invasive plant species we found in 2007; *Myriophyllum spicatum*, *Marsilea quadrifolia*, *Najas minor* and *Potamogeton crispus*. The most prevalent invasive aquatic plant was *M. spicatum*: covering 70.2 acres (Table 4) or 7.6 percent of the lake's surface area. This is up slightly from the 62.6 acres (6.8%) found in 2007. *M. spicatum* occurred in 37 percent of the transect points in 2008 compared to 35 percent in 2007. By contrast, the most prevalent native species, *Vallisneria americana*, occurred at only 6 percent of the transect point locations in 2008 compared to 8 percent in 2007. Although *M. spicatum* could be found in most sections of the lake, it was most prevalent in the northern end and just south of the Route 84 Bridge (Lake Zoar maps 1 and 2). *Najas minor* covered 12.8 acres (1.4% of the lake) in 2008, which is a decrease from 32.5 acres (3.5%) in 2007. *N. minor* occupied 18 percent of the transect points in 2008 which was identical to 2007. It was most prevalent north of transect three (T3, Lake Zoar map 1) and just southeast of the Route 84 bridge. The coverage of *P. crispus* in 2008 was only 4.3 acres (0.5%) compared to 20.8 acres (2.3%) in 2007. This reduction was not reflected in the frequency of occurrence on the transects, which increased from 6 percent in 2007 to 10 percent in 2008. The most extensive areas of *P. crispus* were located in two coves just north of transect three (T3, map

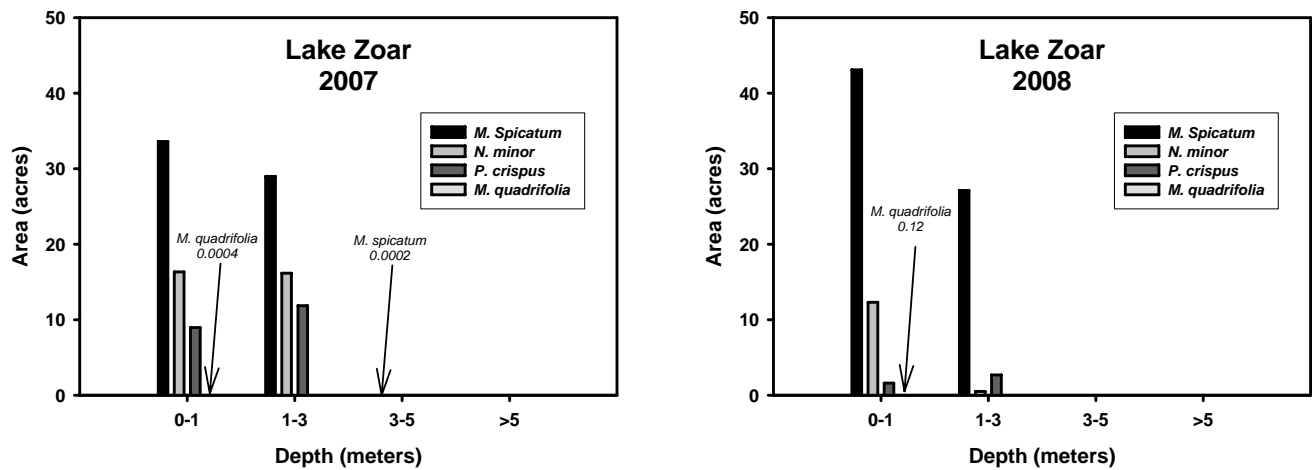


Figure 5. Depth preferences of invasive plants in Lake Zoar in 2007 and 2008.

1). *M. quadrifolia* was found in only one shallow cove, on the northwest side of the lake (Lake Zoar, map 1). More effort was exerted in mapping this plant in 2008 as the surveyors left the boat and walked through the mucky shallows to obtain its area. The area increased from less than 0.1 acres in 2007 to 0.2 acres in 2008 probably because of this more thorough survey. *M. quadrifolia* did not occur at any transect points.

The depth preference of *M. spicatum* changed little between 2007 and 2008. In 2008, we found 45 acres in 0-1 meters of water and the remainder (25.2 acres) in 1-3 meters of water (Figure 5). *N. minor* was often found in the same areas as *M. spicatum* particularly at depths of 1-3 meters. In 2008, 12.3 acres (96.1 %) of the *N. minor* occurred at a depth of 0-1 meters and only 0.5 acres (3.9%) occurring at a depth of 1-3 meters. This compares to 2007 when 16.3 acres (50.3 %) occurred at a depth of 0-1 meters and 16.1 acres (49.7 %) occurring at a depth of 1-3 meters. The reduction of *N. minor* at 1-3 meter depth in 2008 accounts for most of its decrease and could be related to greater water flow. We found *P. crispus* preferred both the 0-1 and 1-3 meter depths in 2007 and 2008 although the acreage in 2008 was much-reduced. We found *M. quadrifolia* exclusively in water 0-1 meters deep in both years and 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.

We found more patches of *M. spicatum* in 2008 compared to 2007 (309 vs. 252), however, the mean patch size declined slightly from 0.23 to 0.25 acres (Table 5). Maximum patch size of *M. spicatum* declined in 2008 to 19.8 acres from 26.5 acres in 2007. Minimum patch size



Table 5. Comparisons of invasive patch number and size (includes points) between 2007 and 2008 in Lake Zoar.

Scientific Name	Common Name	Number*	Patch Size (acres)						
			2007			2008			
			(min)	(max)	(mean)	Number	(min)	(max)	(mean)
<i>Marsilea quadrifolia</i>	European waterclover	2	0.0002	0.0002	0.0002	14	0.0002	0.05	0.01
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	252	0.0002	26.5	0.25	309	0.0002	19.8	0.23
<i>Najas minor</i>	Brittle waternymph	103	0.0002	11.4	0.32	130	0.0002	4.2	0.99
<i>Potamogeton crispus</i>	Curly leaf pondweed	49	0.0002	9.4	0.42	211	0.0002	1.40	0.02

\*Total number of points and patches of each species in lake.

Table 6. Comparisons of the abundance of invasive species between 2007 and 2008 in Lake Zoar.

Scientific Name	Common Name	Patch Abundance (1=sparse - 5=dense)					
		2007			2008		
		(min)	(max)	(mean)	(min)	(max)	(mean)
<i>Marsilea quadrifolia</i>	European waterclover	3	4	3.5	2	4	3.1
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	1	4	1.8	1	4	2.3
<i>Najas minor</i>	Brittle waternymph	1	5	3.5	1	4	2.1
<i>Potamogeton crispus</i>	Curly leaf pondweed	1	4	1.8	1	4	1.9

of *M. spicatum* did not change as the 0.0002 areas equal the smallest area recorded for a single plant (a point). Mean patch number for *Najas minor* increased in 2008 to 130 from 103 in 2007. The coverage of *Najas minor* increased from 0.32 acres in 2007 to 0.99 acres in 2008. The number of *P. crispus* patches increased dramatically from 49 in 2007 to 211 in 2008, however, the patches were much smaller with a mean acreage of 0.42 in 2007 versus 0.2 acres in 2008. *Marsilea quadrifolia* patch number and size increased because of a more thorough survey as discussed previously in this report. The mean, minimum and maximum abundance of all invasive species changed little from 2007 to 2008 with the exception of *N. minor* that dropped from a mean abundance of 3.5 in 2007 to 2.1 in 2008 (Table 6).

Changes in the abundance of native plants were not dramatic from 2007 to 2008. Figure 6 shows the percent of transect points where the abundance of the native plants, *Ceratophyllum demersum*, *Elodea nuttallii*, *Najas flexilis* and *Vallisneria americana*, declined, increased or stayed the same in 2008 compared to 2007. At least 78 percent of the transect points had no change in species abundance. Increases and decreases in abundance were similar in all species except for *Elodea nuttallii* where 16 percent of the transect points had declines compared to only 6 percent with increases. Even this change in abundance can be considered minimal given natural variability in plant ecosystems from year to year.

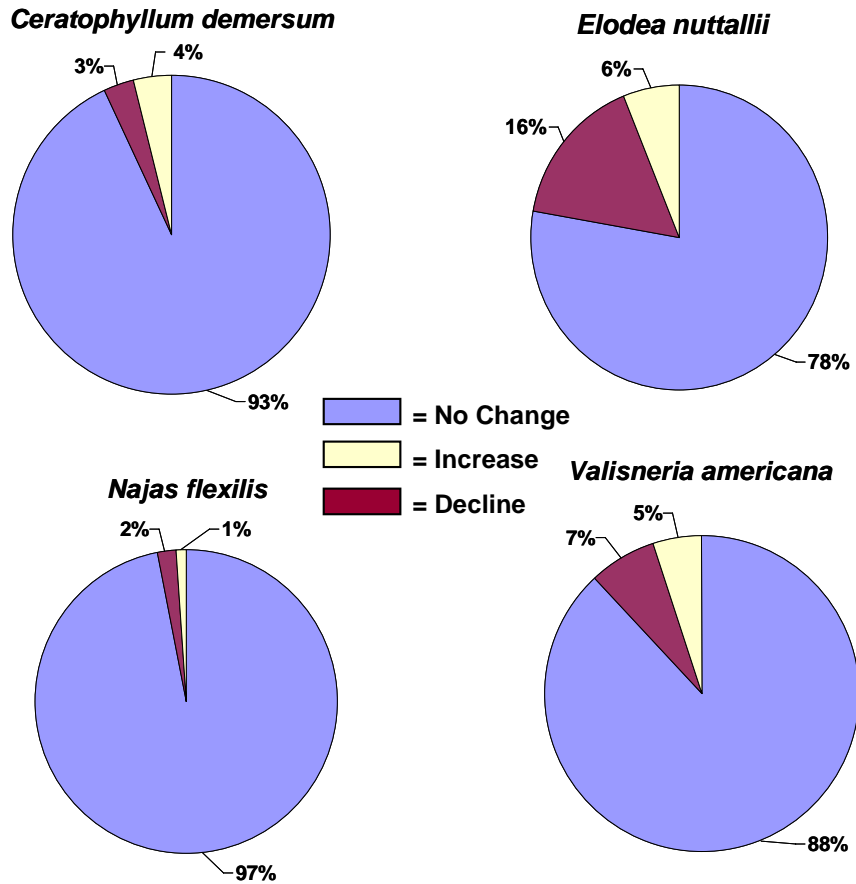


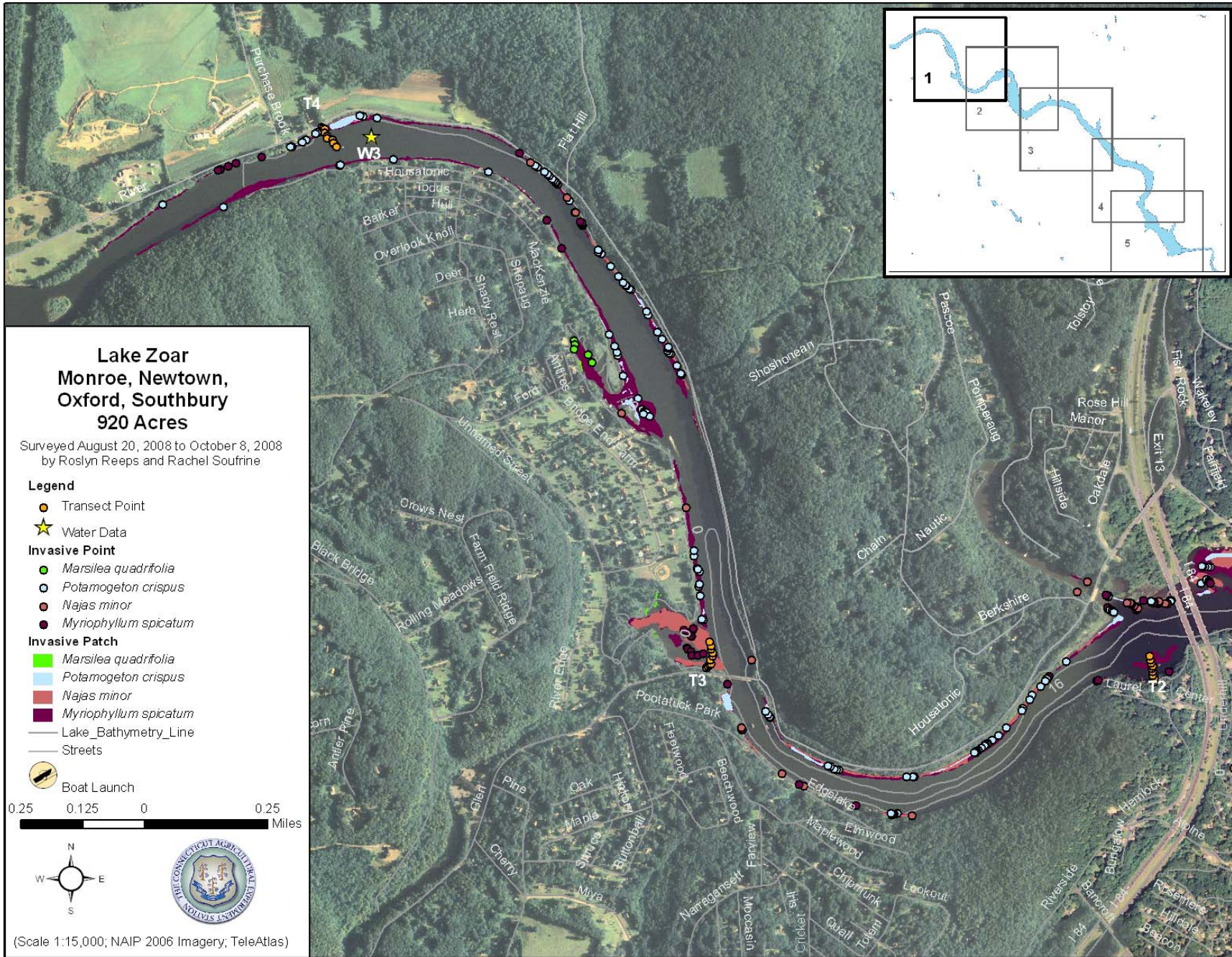
Figure 6. Changes in the abundance of four native species on transect points in Lake Zoar from 2007 to 2008.

Mechanical harvesting of *M. spicatum* may have influenced our findings for both native and invasive plants. Mechanical harvesting was able to effectively shorten aquatic plants in Lake Zoar, but seemed to be unable to operate in less than four feet of water where the invasive plants, especially *N. minor*, were most prevalent. In addition, increased water velocity, caused by dam releases and natural flow, forced plants to lie flat on the sediment where they were sometimes difficult to see from the surface. Surveyors also reported algal blooms in Lake Zoar, which affected their ability to locate invasive aquatic plants. Lake Zoar had some very shallow areas that were inaccessible by boat where invasive aquatic plants may have occurred.

Documentation of the effectiveness of the harvesting program could help in future decisions on where and when to utilize this invasive plant management technique. Officials from Lake



Zoar supplied us with GPS data on the “weed cutter paths” but this data was not usable at the time of this writing.



**Lake Zoar  
Monroe, Newtown,  
Oxford, Southbury  
920 Acres**

Surveyed August 20, 2008 to October 8, 2008  
by Roslyn Reeps and Rachel Soufrine

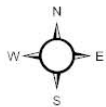
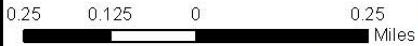
**Legend**

- Transect Point
- ★ Water Data
- Invasive Point**
- *Marsilea quadrifolia*
- *Potamogeton crispus*
- *Najas minor*
- *Myriophyllum spicatum*

**Invasive Patch**

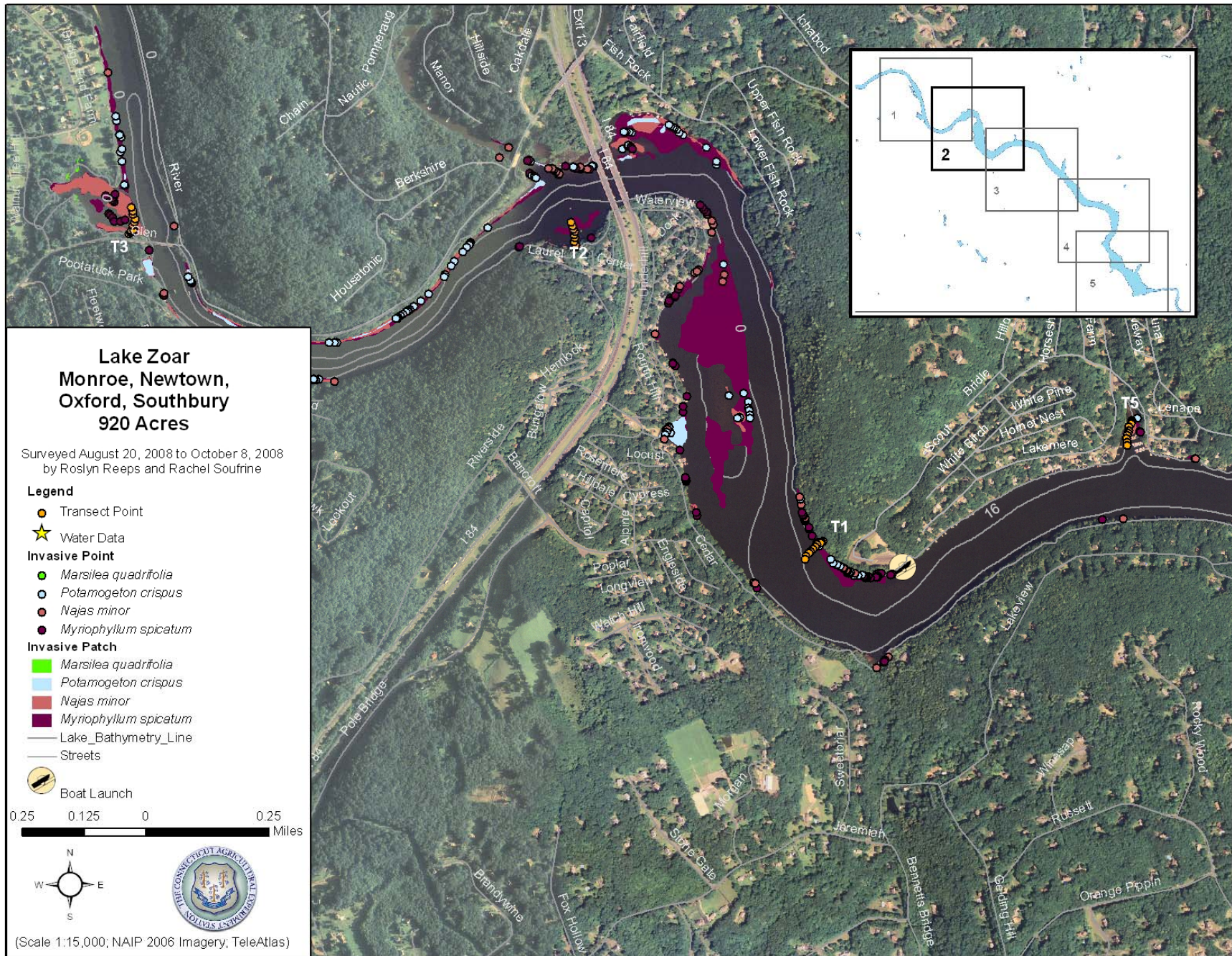
- *Marsilea quadrifolia*
- *Potamogeton crispus*
- *Najas minor*
- *Myriophyllum spicatum*
- Lake\_Bathymetry\_Line
- Streets

- ☛ Boat Launch

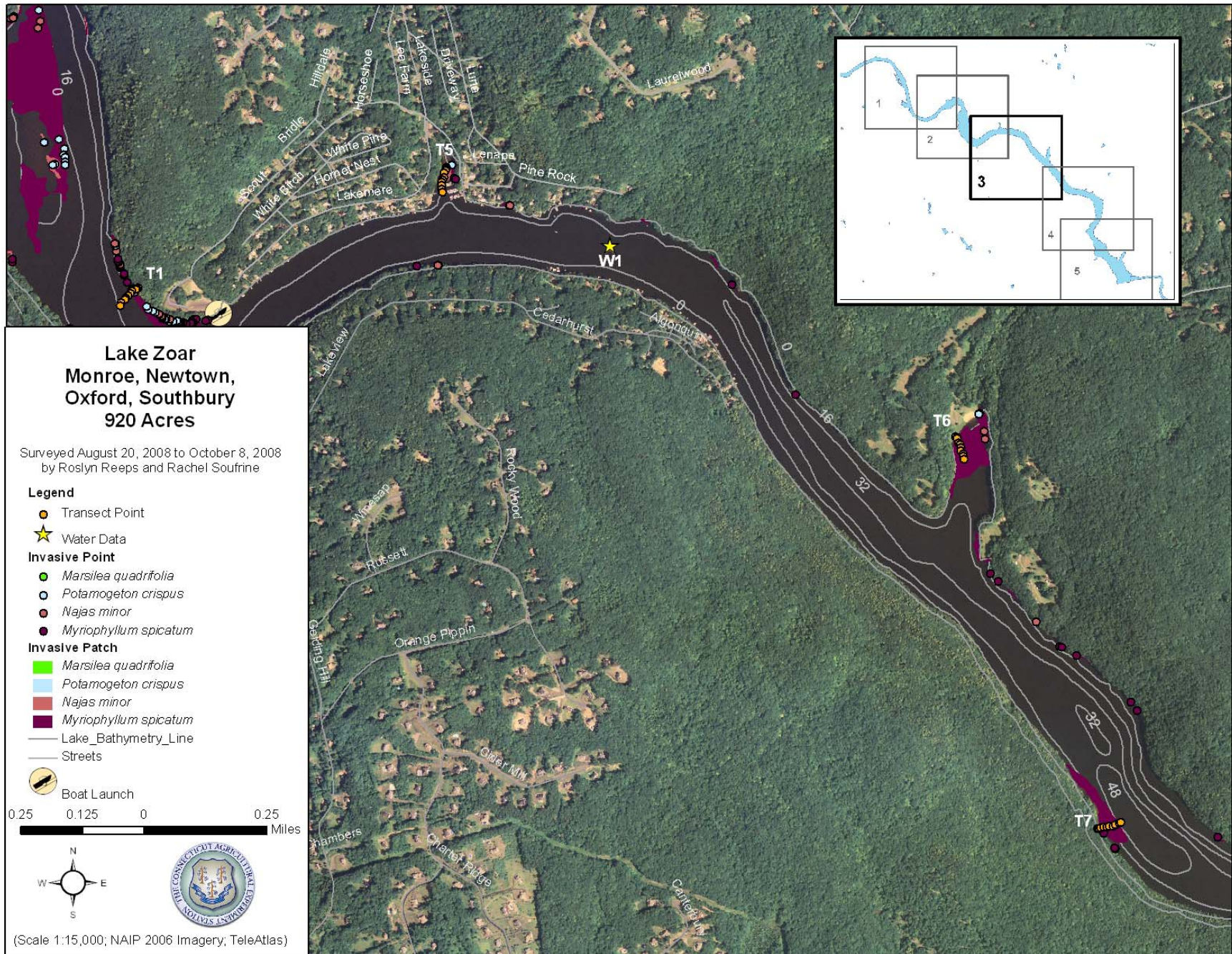


(Scale 1:15,000; NAIP 2006 Imagery; TeleAtlas)

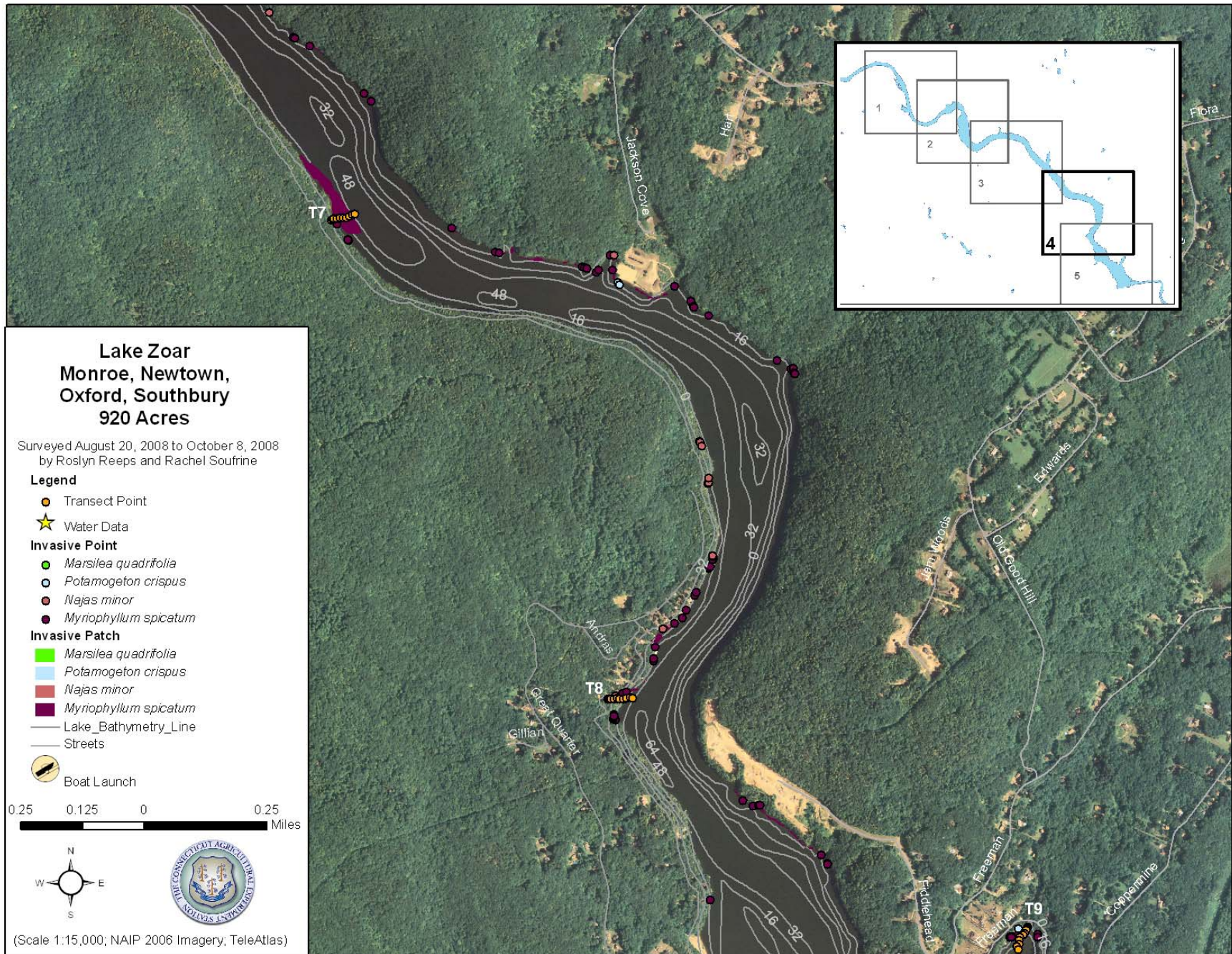




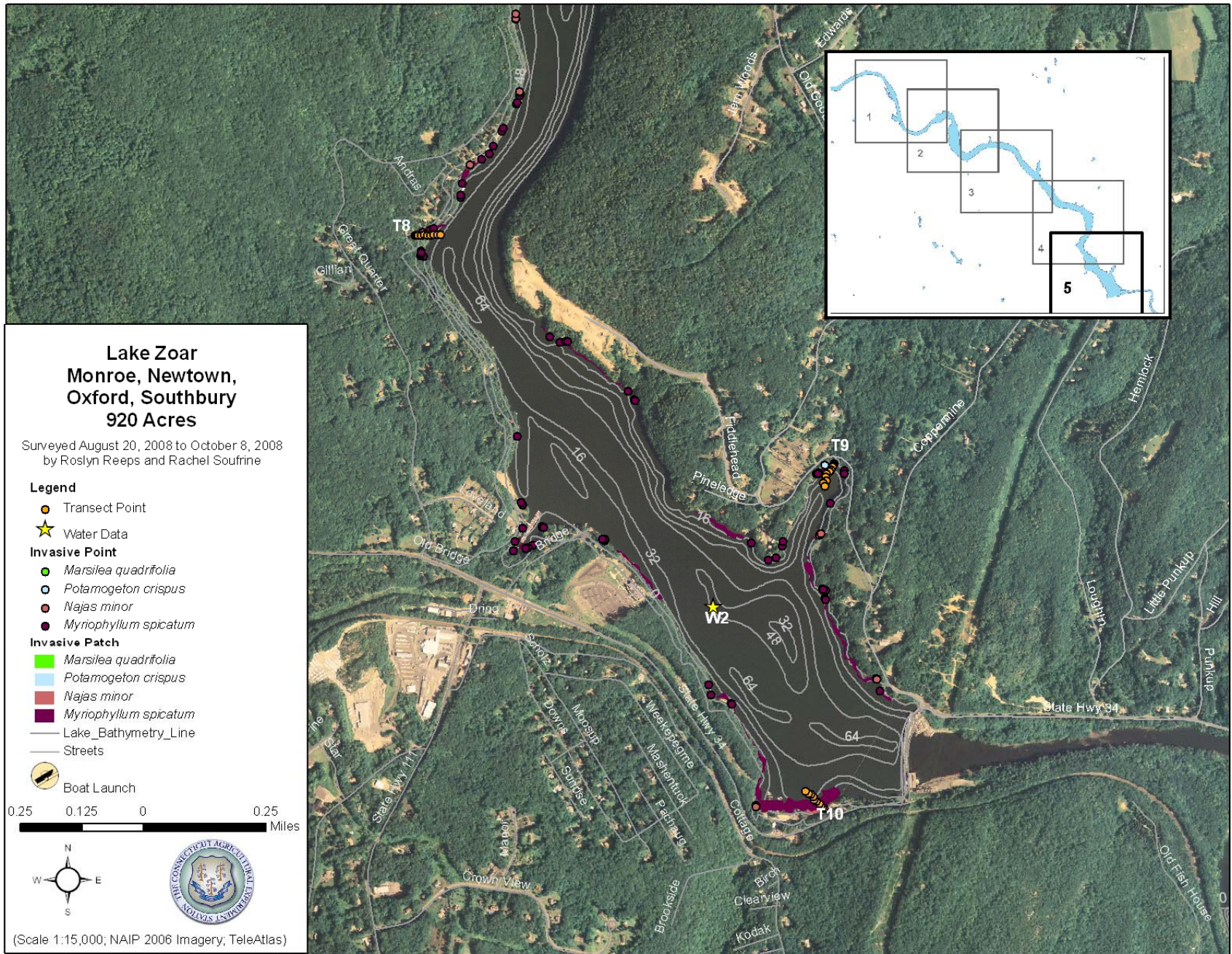














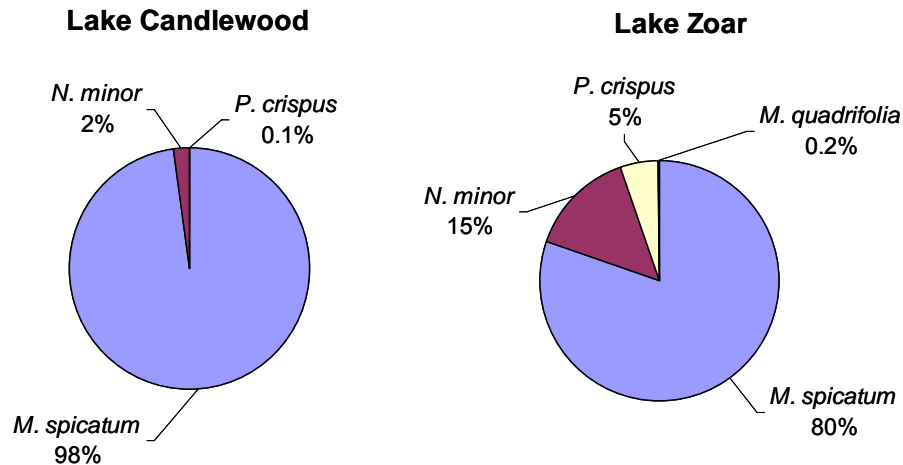


Figure 7. Make-up of invasive plant populations in Lakes Candlewood and Zoar in 2008.

### Comparison of Native and Invasive Plant Communities

The number of plant species found (species richness) in Lakes Candlewood and Zoar are quite similar. Our surveys from 2005 – 2008 have documented 19 species in Lake Candlewood (Table 1) and 18 species in Lake Zoar (Table 4). These species richness values are average for CT lakes and ponds, which range from a low of 2 species to a high of 28 (Capers et al. 2007). Species richness and density of native species (loosely related to frequency), are an indicator of the overall health of a plant community. Lakes with high native species richness combined with high density may provide resistance to colonization by invasive species (Capers et al., 2007). We found the invasive species *Myriophyllum spicatum* and *Najas minor* the most frequently occurring species in both lakes. A small population of the invasive *Marsilea quadrifolia* was located in Lake Zoar. The make-up of the invasive species population differs between the two lakes (Figure 7). In Candlewood Lake 98 percent of the total invasive species area is composed of *M. spicatum* while in Lake Zoar this drops to 80 percent. *N. minor* makes up only 2 percent of the acreage of invasive plants in Lake Candlewood compared to 15 percent in Lake Zoar. This is probably caused by the draw-downs in Lake Candlewood controlling some of the *N. minor*, however, *N. minor* spreads seeds that are somewhat drawdown resistant (Siver et al. 1986). *Potamogeton crispus* occurs in both lakes but its make-up was probably not completely accounted for as it senesced during our survey period.



Table 7. Water chemistry in Lakes Candlewood and Zoar in 2008.

Lake	Site	Date	Latitude	Longitude	Depth (m)	Transparency Secchi(m)	Conductivity uS/L	pH	Alkalinity CaCO <sub>3</sub> (mg/L)	Total P (ug/L)
Candlewood	W1	9/4/2008	41.53393	-73.44444	0.5	2.5	132	7.6	53.3	< 2
					12.0		144	6.3	59.3	21.0
	W2	9/4/2008	41.49314	-73.44727	0.5	2.3	127	7.8	48.0	8.0
					9.00		128	6.6	53.3	28.0
	W3	9/4/2008	41.5533	-73.47377	0.5	2.3	143	7.4	49.5	< 2
					9.00		163	6.8	59.3	22.0
	W4	9/4/2008	41.43564	-73.45605	0.50	2	141	8.0	43.3	2.0
					10.0		162	6.9	55.5	88.0
	W5	9/4/2008	41.45838	-73.43743	0.5	2.1	145	7.3	46.5	2.0
					11.0		169	6.9	57.0	79.0
Zoar	W1	9/19/2008	41.42969	-73.22094	0.5	1.9	187	7.6	69.0	12.0
					8.0		184	7.3	66.0	11.0
	W2	9/19/2008	41.38765	-73.17906	0.5	2	181	7.7	69.8	11.0
					15.0		183	7.4	67.5	20.0
	W3	9/19/2008	41.45286	-73.27981	0.5	2.5	194	7.7	72.0	9.0
					3.0		195	7.6	73.5	20.0

Historical data from 1979 -1982 (CT DEP, 1983) show 13 plant species present in Lake Candlewood, however, only *Ceratophyllum demersum*, *Elatine sp.*(found in 2008), *Myriophyllum spicatum*, *Najas flexiliis*, *Potamogeton gramineus*, and *Vallisneria americana* are found today. Plant species found by the CT DEP (1983) study but not found in this study were *Myriophyllum brasiliense* (parrot feather, species now called *aquaticum*), *Myriophyllum exalbesens* (northern water-milfoil, possibly misidentified, species now called *sibiricum*), *Potamogeton robbinsii* (Robins pondweed), and *Potamogeton richardsonii* (Richardson's pondweed).

## Comparisons of Water Chemistry

Water chemistry can affect the type and abundance of plant species in lakes. For instance, *M. spicatum*, *P. crispus* and *N. minor* are most common in water bodies in western Connecticut that have moderate to high alkalinity (CAES IAPP, 2009, Capers et al. 2005). Less is known about the water chemistry preferences of *M. quadrifolia*, as it has been found in only a few water bodies statewide. Because water chemistry changes during the year and our samples came from only one day, our results (Table 7) may not be representative of conditions at other times. The transparency of Lake Candlewood on 9/4/2009 ranged from 2 -2.5 meters with a mean of 2.2 meters. We tested the same locations on August 16, 2007 and obtained a range from 2.8 to 3.3 meters with a mean of 3.1 meters. Lake Zoar's transparency was similar to Candlewood's in 2008 with a range from 1.9 to 2.5 meters and a mean of 2.1 meters. Transparency in Connecticut's lakes ranges from 0.4 to 10 meters with

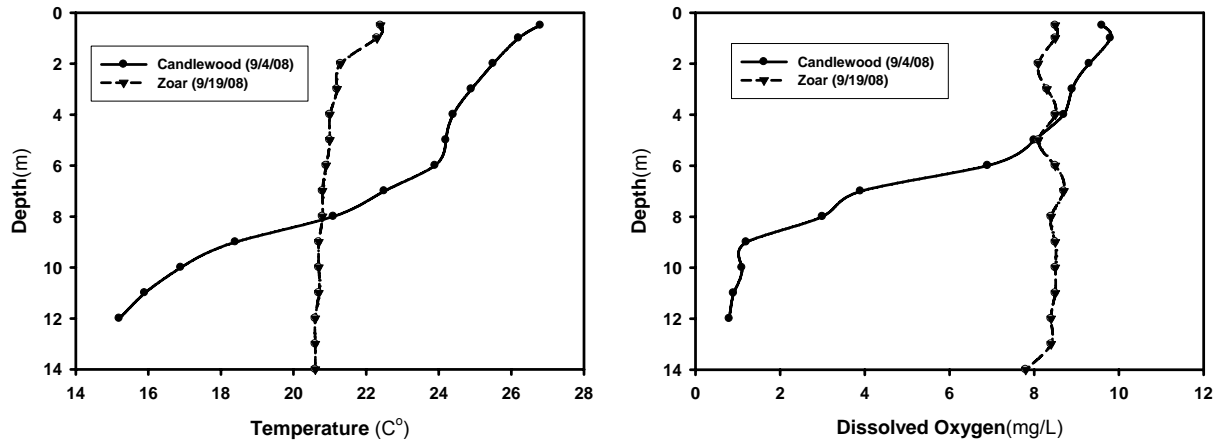


Figure 8. Water temperature and dissolved oxygen profiles of Lake Candlewood (site W1) and Lake Zoar (site W2).

a mean of 2.4 meters (CAES IAPP, 2009). The mean conductivity of the Lake Candlewood at the surface was 138  $\mu\text{s}/\text{cm}$  compared 153  $\mu\text{s}/\text{cm}$  at the bottom. Lake Zoar had slightly higher conductivities of 187  $\mu\text{s}/\text{cm}$  at both the surface and the bottom. Conductivity is an indicator of overall dissolved ions that can come from natural sources, man-made nutrients (fertilizers, septic systems etc.), aerial deposition and road salt. There was little difference in conductivity between surface and bottom samples. In the early 1990's the conductivity of Lake Candlewood ranged between 176 and 187  $\mu\text{s}/\text{cm}$  (Canavan and Siver, 1995) indicating that little change had occurred. Differences between surface and bottom water in Lake Candlewood result from the stratification shown in the temperature and dissolved oxygen profiles (Figure 8). Lake Zoar exhibited no stratification probably due to mixing caused by the rapid flow rate we observed.

The surface water pH of both lakes was slightly alkaline ( $\text{pH} < 7$  acidic,  $\text{pH} > 7$  alkaline) falling within a narrow range of 7.3 to 8.0. The stratified bottom water in Lake Candlewood was more acidic ranging from 6.3 to 6.9. A higher pH in the surface is often caused by mid-day removal of carbonic acid by actively photosynthesizing algae (Wetzel, 2001). Alkalinity is generally considered a better indicator than pH for determining the potential for a lake to acidify because it is a measure of the water's buffering capacity. The lower the alkalinity, the more susceptible water is to acidification. Lake Candlewood had lower alkalinity (mean surface = 48.1  $\text{mg}/\text{L}$   $\text{CaCO}_3$ , mean bottom = 56.9) than Lake Zoar (mean surface = 70.3  $\text{mg}/\text{L}$   $\text{CaCO}_3$ , mean bottom = 69.0). The small difference in the surface and bottom water in



Zoar is likely because of the lack of stratification caused by mixing. Alkalinities in Connecticut lakes range from near 0 to greater than 100 mg/L CaCO<sub>3</sub> (CAES IAPP, 2009, Canavan and Siver, 1995, Frink and Norvell, 1984). The alkalinities found in Candlewood, and Zoar would be considered in the medium to medium-high portion of this range and capable of supporting healthy populations of *M. spicatum* and *P. crispus*.

A prime 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 less dependent on P from the water column as they obtain a majority of their nutrients from the hydrosol (Bristow and Whitcombe, 1971). Lakes with P levels between 0 and 10  $\mu\text{g/L}$  are considered nutrient-poor or oligotrophic. When P concentrations reach 15-25  $\mu\text{g/L}$  lakes are classified as moderately fertile or mesotrophic, and when P levels reach 30-50  $\mu\text{g/L}$ , they are deemed fertile or eutrophic (Frink and Norvell, 1984). P concentrations in Lake Candlewood and Zoar were both depth-dependent. The P concentration in Lake Candlewood's surface water was extremely low, ranging from <2 (detection limit) to 8  $\mu\text{g/L}$  with a mean of <2  $\mu\text{g/L}$ . Bottom P in Candlewood was considerably higher, ranging from 21 – 88  $\mu\text{g/L}$  with a mean of 48  $\mu\text{g/L}$ . This partitioning of P between the epilimnion (surface) and hypolimnion (bottom) is common in the summer as anoxic conditions near the bottom (Figure 8) release P from the sediment (Norvell, 1974). The water soluble P has difficulty mixing upwards because of temperature related differences (Figure 8) and higher water density. Lake Zoar's surface water had a considerably higher P concentration than Candlewood, ranging from 9 - 12  $\mu\text{g/L}$  with a mean of 11  $\mu\text{g/L}$ . The bottom water P in Lake Zoar was also higher than the surface water (11 – 20  $\mu\text{g/L}$ , mean of 17  $\mu\text{g/L}$ ). A possible reason for P being higher in Zoar's bottom water is, even though the water is well mixed, P is to adhering to clay that suspends near the bottom because of turbulence.

## Conclusions:

Lakes Candlewood and Zoar have similar plant communities with 19 and 18 total plant species respectively. Invasive species dominate the plant communities in both lakes. *Myriophyllum spicatum* represents 98 percent of the coverage of all invasive species in Lake Candlewood and 80 percent of the invasive coverage in Lake Zoar. *Najas minor* covers the next greatest area in both lakes followed by *Potamogeton crispus*. A small population of *Marselia quadrifolia* occurs only in Lake Zoar. *Myriophyllum spicatum* coverage, in Lake Candlewood, increased from 221 acres in 2007 to 451 acres in 2008. An effective deep drawdown during the winter of 2007 and an ineffective shallow drawdown in 2008 is the likely reason. This report, combined with efforts of The Lake Candlewood Authority and others is providing better documentation of the current drawdown regime and its effects on the plant community. Because no large-scale invasive plant control, such as a drawdown is used in Lake Zoar, the plant community did not vary greatly from 2007 to 2008. Harvesting of *M. spicatum* in Lake Zoar is the current control measure but is limited to select locations.

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Ms. Rachel Soufrine, Invasive Aquatic Plant Program, CAES

Mr. Robert Stira, FirstLight Hydro Generating Company, New Milford, CT

Mr. Brian Wood, FirstLight Hydro Generating Company, New Milford, CT



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# Appendix

## 2008 CAES IAPP On-Lake Time for Lakes Candlewood and Zoar

<b>Candlewood</b> (Lead surveyor)	<b>Zoar</b> (Lead surveyor)
6/24/2008(Bugbee)	8/20/2008(Reeps)
7/18/2008(Bugbee)	8/21/2008(Reeps)
7/25/2008(Bugbee)	9/16/2008(Reeps)
7/26/2008(Bugbee)	9/15/2008(Reeps)
7/28/2008(Bugbee)	9/3/2008(Reeps)
7/31/2008(Bugbee)	9/8/2008(Reeps)
8/8/2008 (Bugbee)	8/25/2008(Reeps)
8/9/2008(Bugbee)	8/26/2008(Reeps)
8/13/2008(Bugbee)	8/27/2008(Reeps)
8/14/2008(Bugbee)	8/28/2008(Reeps)
8/15/2008(Bugbee)	9/2/2008(Reeps)
8/16/2008(Bugbee)	9/4/2008(Reeps)
8/18/2008(Bugbee)	9/8/2008(Reeps)
8/19/2008(Bugbee)	9/9/2008(Reeps)
8/20/2008(Bugbee)	9/10/2008(Reeps)
9/4/2008(Bugbee)	9/15/2008(Soufrine)
9/5/2008(Bugbee)	9/16/2008(Soufrine)
9/12/2008(Bugbee)	9/17/2008(Soufrine)
	9/19/2008(Bugbee)
	9/22/2008(Bugbee)
	9/24/2008(Bugbee)
	9/29/2008(Reeps)
	10/2/2008(Reeps)
	10/6/2008(Reeps)
	10/7/2008(Reeps)
	10/8/2008(Reeps)
<b>18 days</b>	<b>26 days</b>



# 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 Zoar found during the 2008 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) and *Marsilea quadrifolia* (European water shamrock). 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 2008. 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 Roslyn Reeps, 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 2003 with TerraSync 2.40 and WAAS enabled. Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations. Therefore, the average accuracy of the data is less than 1m.

**Process** Data was obtained in the field using a Trimble GeoXT 2003 with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations and then imported into ESRI ArcMap 9.2 for display and analysis.

## Metadata

### Transects

**Abstract** Quantitative abundance information on native and invasive aquatic plants were obtained by using the CAES IAPP transect method. We positioned transects perpendicular to the shoreline and recorded GPS location and the abundance of each plant species found within a 2 m<sup>2</sup> 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 Lake 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. Lake Candlewood 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 Lake Candlewood 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 and Zoar during 2008. This data will also be available to compare with future aquatic plant survey data.

#### Access

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

#### Use

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

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

**Credit** Gregory J. Bugbee and Roslyn Reeps, 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 2003 with TerraSync 2.40 and WAAS enabled. Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations. Therefore, the average accuracy of the data is less than 1m.

**Process** Data was obtained in the field using a Trimble GeoXT 2003 with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations and then imported into ESRI ArcMap 9.2 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 and Zoar. Five sample locations were chosen in Lake Candlewood and three locations in Lake 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 ( $\mu\text{s}/\text{ms}$ ), pH, alkalinity (expressed as mg/L  $\text{CaCO}_3$ ) and phosphorous ( $\mu\text{g}/\text{L}$ ).

**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 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

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periment 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 Roslyn Reeps, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

**Report  
Accuracy**

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<sub>3</sub> per liter (titrant was 0.08 mol/L H<sub>2</sub>SO<sub>4</sub> 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<sub>2</sub>SO<sub>4</sub>, 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 2003 with TerraSync 2.40 and WAAS enabled. Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference 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 2003 with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations and then imported into ESRI ArcMap 9.2 for display and analysis.

## **Water Level Data**

**(courtesy of FirstLight Power Resources, Hartford, CT)**



### Water surface elevation in Candlewood Lake 2007 (NGVD in feet)

Day	July				August				September			
	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.
1	425.8	425.8	425.8	425.7	426.5	426.5	426.6	426.3	425.5	425.5	425.5	425.4
2	425.8	425.9	425.9	425.8	426.2	426.3	426.3	426.0	425.5	425.5	425.5	425.4
3	425.9	425.9	426.0	425.9	426.0	426.0	426.1	425.9	425.5	425.5	425.5	425.4
4	426.0	426.0	426.2	425.9	425.9	425.9	425.9	425.9	425.4	425.4	425.5	425.4
5	426.2	426.2	426.3	426.1	425.9	425.9	425.9	425.9	425.4	425.4	425.5	425.4
6	426.4	426.3	426.7	426.3	425.9	425.9	425.9	425.8	425.4	425.4	425.5	425.4
7	426.4	426.4	426.5	426.4	425.8	425.8	425.9	425.8	425.4	425.4	425.4	425.4
8	426.5	426.5	426.5	426.4	425.7	425.8	425.9	425.5	425.4	425.4	425.4	425.4
9	426.5	426.5	426.5	426.4	425.5	425.5	425.6	425.5	425.4	425.4	425.4	425.4
10	426.3	426.4	426.4	426.2	425.6	425.7	425.7	425.5	425.4	425.4	425.4	425.4
11	426.2	426.2	426.3	426.2	425.8	425.8	425.8	425.7	425.4	425.4	425.4	425.3
12	426.2	426.3	426.3	426.2	425.8	425.8	425.8	425.7	425.4	425.4	425.4	425.4
13	426.3	426.3	426.3	426.2	425.8	425.8	425.8	425.7	425.4	425.4	425.4	425.4
14	426.4	426.4	426.4	426.3	425.8	425.8	425.8	425.8	425.4	425.4	425.5	425.4
15	426.4	426.4	426.5	426.4	425.8	425.8	425.8	425.8	425.4	425.4	425.5	425.4
16	426.4	426.4	426.5	426.4	425.8	425.8	425.8	425.7	425.4	425.4	425.5	425.4
17	426.4	426.4	426.5	426.3	425.7	425.7	425.7	425.7	425.4	425.4	425.4	425.4
18	426.4	426.4	426.4	426.3	425.7	425.7	425.7	425.7	425.4	425.4	425.4	425.3
19	426.4	426.4	426.4	426.3	425.7	425.7	425.7	425.7	425.4	425.4	425.4	425.3
20	426.4	426.4	426.4	426.4	425.7	425.7	425.7	425.6	425.4	425.4	425.4	425.3
21	426.4	426.4	426.4	426.4	425.7	425.7	425.8	425.6	425.3	425.3	425.4	425.3
22	426.4	426.4	426.4	426.4	425.7	425.7	425.8	425.7	425.3	425.3	425.4	425.3
23	426.5	426.5	426.6	426.4	425.7	425.7	425.8	425.7	425.3	425.3	425.4	425.3
24	426.6	426.6	426.6	426.5	425.7	425.7	425.8	425.7	425.3	425.3	425.4	425.3
25	426.6	426.6	426.6	426.5	425.7	425.7	425.7	425.7	425.3	425.3	425.3	425.3
26	426.5	426.5	426.6	426.5	425.7	425.7	425.7	425.6	425.3	425.3	425.3	425.3
27	426.5	426.5	426.6	426.5	425.6	425.6	425.7	425.5	425.3	425.3	425.3	425.3
28	426.5	426.5	426.6	426.5	425.6	425.6	425.6	425.5	425.3	425.3	425.3	425.3
29	426.5	426.5	426.6	426.4	425.5	425.5	425.6	425.5	425.3	425.3	425.3	425.2
30	426.6	426.6	426.7	426.6	425.5	425.5	425.6	425.5	425.3	425.3	425.3	425.2
31	426.6	426.6	426.6	426.1	425.5	425.5	425.5	425.5				

**Water surface elevations in Lake Zoar at Stevenson Dam 2007 (NGVD in feet).**

Day	July, 2007				August, 2007				September, 2007			
	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.
1	100.6	100.6	101.1	100.3	100.5	100.4	101.1	100.1	100.3	100.3	100.7	100.0
2	100.5	100.5	100.9	100.2	100.7	100.7	101.2	100.3	100.2	100.2	100.6	99.9
3	100.5	100.4	101.1	100.2	100.6	100.5	101.2	100.1	100.3	100.1	101.1	99.8
4	100.6	100.6	101.0	100.3	100.7	100.7	101.3	100.3	100.6	100.6	101.0	100.3
5	100.7	100.7	101.1	100.3	100.5	100.5	100.8	100.2	100.5	100.5	101.0	100.3
6	100.8	100.9	101.1	99.9	100.1	100.1	100.6	99.9	100.6	100.5	101.0	100.3
7	100.6	100.7	101.1	100.1	100.2	100.1	100.7	99.8	100.6	100.6	101.0	100.3
8	100.4	100.5	100.8	100.0	100.4	100.3	101.1	100.1	100.7	100.7	101.1	100.4
9	100.3	100.2	100.9	99.8	100.6	100.4	101.4	100.1	100.6	100.6	101.1	100.4
10	100.6	100.5	101.2	100.1	100.9	100.8	101.4	100.4	100.7	100.8	101.3	100.3
11	100.5	100.5	100.8	100.0	101.0	101.0	101.4	100.8	100.5	100.5	100.6	100.3
12	100.2	100.2	100.7	99.9	101.0	101.0	101.4	100.8	100.4	100.3	100.6	100.1
13	100.3	100.2	100.9	99.8	100.8	100.8	101.1	100.3	100.4	100.4	100.7	100.1
14	100.4	100.4	100.7	100.1	100.4	100.4	100.7	99.9	100.2	100.2	100.5	99.9
15	100.2	100.2	100.6	99.9	100.2	100.0	100.9	99.7	100.2	100.1	100.7	99.9
16	100.2	100.2	100.7	99.9	100.5	100.4	101.3	100.1	100.2	100.2	100.6	99.9
17	100.3	100.2	101.0	99.9	100.6	100.7	101.0	99.8	100.3	100.2	100.7	99.9
18	100.5	100.5	100.9	100.1	100.4	100.4	100.8	100.1	100.3	100.3	100.6	100.0
19	100.6	100.4	101.3	100.1	100.3	100.3	100.8	100.0	100.2	100.2	100.7	99.9
20	101.0	101.0	101.3	100.3	100.6	100.4	101.3	100.1	100.2	100.2	100.6	99.9
21	100.8	100.8	101.2	100.3	100.9	100.8	101.3	100.6	100.3	100.3	100.8	99.9
22	100.6	100.6	100.9	100.1	100.9	100.9	101.3	100.6	100.3	100.3	100.7	100.1
23	100.5	100.4	101.0	100.1	100.8	100.8	101.2	100.6	100.3	100.3	100.7	100.0
24	100.7	100.6	101.3	100.4	100.5	100.6	100.8	100.1	100.1	100.1	100.5	99.9
25	100.7	100.7	101.0	100.3	100.4	100.2	101.1	99.9	100.0	100.0	100.4	99.8
26	100.6	100.6	101.2	100.2	100.6	100.6	101.0	100.3	100.1	99.9	100.7	99.7
27	100.7	100.7	101.2	100.4	100.5	100.5	100.9	100.2	100.2	100.2	100.7	100.1
28	100.7	100.7	101.2	100.5	100.4	100.4	100.8	100.1	100.2	100.2	100.6	100.0
29	100.9	100.9	101.4	100.6	100.5	100.3	101.3	100.0	100.2	100.1	100.6	99.9
30	100.9	100.9	101.2	100.4	100.6	100.6	101.0	100.4	100.2	100.2	100.7	100.0
31	100.6	100.6	100.9	100.2	100.4	100.4	100.8	100.2				

## **Invasive Aquatic Plant Location Data**



Appendix. Candlewood Lake invasive plant location data (1 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
1	MyrSpi		Patch	8/8/2008	11:05:16am	41.50010	-73.46387	1-5	3	0.1964
2	MyrSpi		Patch	8/8/2008	11:15:00am	41.50622	-73.46728	1-5	4	4.5753
3	NajMin		Patch	8/8/2008	11:46:10am	41.50907	-73.46965	0.6-1	2	0.1499
4	MyrSpi		Patch	8/8/2008	12:00:05pm	41.51015	-73.46923	1-5	4	0.8958
5	MyrSpi		Patch	8/8/2008	12:09:55pm	41.50849	-73.46650	0.6-1	2	0.0194
6	MyrSpi		Patch	8/8/2008	12:12:08pm	41.50805	-73.46632	1-4	3	0.1380
7	MyrSpi		Patch	8/8/2008	12:16:27pm	41.50700	-73.46521	1-5	4	0.4278
8	MyrSpi		Patch	8/8/2008	12:19:34pm	41.50663	-73.46458	3.1-4	3	0.0570
9	MyrSpi		Patch	8/8/2008	12:21:21pm	41.50641	-73.46400	1.1-2	2	0.0065
10	MyrSpi		Patch	8/8/2008	12:28:57pm	41.50491	-73.46261	1.1-2	1	0.0026
11	MyrSpi		Patch	8/8/2008	12:31:13pm	41.50423	-73.46218	1-5	4	0.1125
12	MyrSpi		Patch	8/8/2008	12:36:11pm	41.50314	-73.46153	3.1-4	4	0.0270
13	MyrSpi		Patch	8/8/2008	12:37:44pm	41.50235	-73.45979	1-5	4	2.9017
14	MyrSpi		Patch	8/8/2008	12:53:31pm	41.50662	-73.46052	1-5	4	0.0249
15	MyrSpi		Patch	8/8/2008	01:01:20pm	41.50825	-73.46034	1-5	4	0.4214
16	MyrSpi		Patch	8/8/2008	01:09:29pm	41.51306	-73.46196	3.1-4	4	0.5972
17	MyrSpi		Patch	8/8/2008	01:11:41pm	41.51379	-73.46162	1-4	4	0.9914
18	MyrSpi		Patch	8/8/2008	01:17:18pm	41.51777	-73.46377	1-4	4	4.1166
19	MyrSpi		Patch	8/8/2008	01:32:22pm	41.52140	-73.46509	1-4	4	2.8005
20	NajMin		Patch	8/8/2008	01:40:23pm	41.52115	-73.46592	0.6-1	3	0.2534
21	PotCri		Patch	8/8/2008	01:44:49pm	41.52217	-73.46491	0.6-1	2	0.0020
22	NajMin	With MyrSpi A=1	Patch	8/8/2008	01:46:08pm	41.52486	-73.46533	0.6-1	2	5.4604
23	MyrSpi		Patch	8/8/2008	02:04:22pm	41.52426	-73.46513	1.1-2	2	6.2365
24	MyrSpi	A=5N	Patch	8/8/2008	02:11:49pm	41.52106	-73.46210	1-4	4	5.7696
25	MyrSpi	dense, weevilexpt	Patch	8/8/2008	02:23:36pm	41.52247	-73.46021	1-4	5	1.2138
26	NajMin		Patch	8/8/2008	02:27:49pm	41.52281	-73.46036	0.6-1	2	0.1259
27	MyrSpi		Patch	8/8/2008	02:30:26pm	41.52193	-73.45942	2-4	2	0.1456
28	MyrSpi		Patch	8/8/2008	02:32:45pm	41.52091	-73.45846	1-4	3	0.4173
29	MyrSpi		Patch	8/9/2008	11:52:18am	41.52123	-73.45778	2-4	4	0.0749
30	MyrSpi		Patch	8/9/2008	12:01:30pm	41.52534	-73.45878	1-4	4	0.2488
31	MyrSpi		Patch	8/9/2008	12:24:43pm	41.52763	-73.46007	1-4	3	1.0682
32	MyrSpi	D=5patchN	Patch	8/9/2008	12:32:42pm	41.52965	-73.46297	1-4	3	2.5041
33	MyrSpi		Patch	8/9/2008	12:40:51pm	41.52999	-73.46413	3.1-4	3	0.0004
34	MyrSpi		Patch	8/9/2008	12:44:04pm	41.53107	-73.46551	1.1-2	1	0.0628
35	MyrSpi		Patch	8/9/2008	12:53:37pm	41.53115	-73.46515	1-4	3	0.5639
36	MyrSpi		Patch	8/9/2008	12:56:56pm	41.53471	-73.46718	2-4	3	1.2838
37	MyrSpi		Patch	8/9/2008	01:08:16pm	41.53820	-73.46989	1-4	3	1.0749
38	MyrSpi		Patch	8/9/2008	01:14:31pm	41.53911	-73.47112	2-4	4	0.0423
39	MyrSpi		Patch	8/9/2008	01:16:11pm	41.54041	-73.47167	2-4	3	0.3033
40	MyrSpi		Patch	8/9/2008	01:20:55pm	41.54251	-73.47253	3.1-4	4	0.0031
41	MyrSpi		Patch	8/9/2008	01:22:28pm	41.54276	-73.47256	2-4	3	0.1153
42	MyrSpi		Patch	8/9/2008	01:24:18pm	41.54340	-73.47257	2-4	3	0.0656
43	MyrSpi		Patch	8/9/2008	01:26:28pm	41.54498	-73.47253	2-4	4	1.4487
44	MyrSpi		Patch	8/9/2008	01:31:46pm	41.54655	-73.47352	3.1-4	2	0.0194
45	MyrSpi	A=4S	Patch	8/9/2008	01:33:40pm	41.54810	-73.47434	1-4	3	1.1521

Appendix. Candlewood Lake invasive plant location data (2 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
46	MyrSpi		Patch	8/9/2008	01:40:16pm	41.54889	-73.47503	2-4	3	0.0285
47	MyrSpi		Patch	8/9/2008	01:42:39pm	41.55115	-73.47760	1-4	4	2.4575
48	MyrSpi		Patch	8/9/2008	01:56:10pm	41.55343	-73.48008	2.1-3	3	0.0018
49	MyrSpi		Patch	8/9/2008	01:56:57pm	41.55380	-73.48008	2.1-3	2	0.0148
50	MyrSpi		Patch	8/9/2008	01:59:58pm	41.55696	-73.48233	1-4	4	0.6669
51	MyrSpi	Sparse NajMin shore	Patch	8/9/2008	02:05:41pm	41.55825	-73.48385	1-4	5	4.2648
52	MyrSpi		Patch	8/9/2008	02:19:30pm	41.55675	-73.48110	3.1-4	4	0.0145
53	MyrSpi		Patch	8/9/2008	02:20:29pm	41.55601	-73.47989	1-4	5	2.7185
54	MyrSpi		Patch	8/9/2008	02:28:34pm	41.55705	-73.47953	3.1-4	4	0.0752
55	MyrSpi		Patch	8/9/2008	02:38:36pm	41.55863	-73.48162	1-4	5	2.2750
56	MyrSpi		Patch	8/9/2008	02:48:34pm	41.55848	-73.48067	2-4	4	3.6860
57	MyrSpi		Patch	8/9/2008	03:00:24pm	41.55978	-73.48268	2.1-3	2	0.0211
58	MyrSpi		Patch	8/9/2008	03:01:42pm	41.56016	-73.48315	2.1-3	2	0.0868
59	PotCri		Patch	8/9/2008	03:06:00pm	41.56097	-73.48450	2.1-3	3	0.1090
60	MyrSpi		Patch	8/9/2008	03:07:15pm	41.56129	-73.48518	3.1-4	3	0.0871
61	MyrSpi		Patch	8/9/2008	03:08:26pm	41.56149	-73.48636	1-4	4	0.4918
62	MyrSpi		Patch	8/9/2008	03:10:51pm	41.56270	-73.48685	1-4	4	1.4564
63	MyrSpi		Patch	8/9/2008	03:17:36pm	41.56323	-73.48725	1.1-2	4	0.1958
64	MyrSpi		Patch	8/9/2008	03:19:00pm	41.56411	-73.48785	2.1-3	5	1.0918
65	MyrSpi		Patch	8/9/2008	03:22:52pm	41.56475	-73.48783	1-4	4	1.1941
66	MyrSpi		Patch	8/9/2008	03:29:40pm	41.56550	-73.48942	1-4	4	0.2488
67	MyrSpi		Patch	8/9/2008	03:32:48pm	41.56673	-73.48999	1-4	4	0.1751
68	MyrSpi		Patch	8/9/2008	03:35:18pm	41.56708	-73.48992	3.1-4	2	0.0137
69	MyrSpi		Patch	8/9/2008	03:40:38pm	41.56886	-73.49052	2-4	5	0.0767
70	MyrSpi		Patch	7/18/2008	11:50:38am	41.45329	-73.43709	1-3	4	5.9292
71	MyrSpi		Patch	7/18/2008	12:12:20pm	41.45538	-73.44075	1-3	3	0.1435
72	MyrSpi		Patch	7/18/2008	12:17:41pm	41.45643	-73.44094	1-3	2	0.0665
73	MyrSpi		Patch	7/18/2008	12:22:47pm	41.45680	-73.44139	1-3	3	0.1683
74	MyrSpi		Patch	7/18/2008	12:27:43pm	41.45758	-73.44239	1-3	3	0.0078
75	MyrSpi		Patch	7/18/2008	12:29:54pm	41.45857	-73.44291	1-3	4	0.3101
76	MyrSpi		Patch	7/18/2008	12:37:01pm	41.45899	-73.44436	3-5	5	0.5184
77	MyrSpi		Patch	7/18/2008	12:45:52pm	41.45731	-73.44480	1-5	3	0.1612
78	MyrSpi		Patch	7/18/2008	12:49:48pm	41.45701	-73.44472	1-3	2	0.0125
79	MyrSpi		Patch	7/18/2008	12:54:46pm	41.45482	-73.44427	2-4	3	0.3548
80	MyrSpi		Patch	7/18/2008	01:04:49pm	41.45315	-73.44447	2-4	3	0.1224
81	MyrSpi		Patch	7/18/2008	01:10:32pm	41.45217	-73.44479	1-3	1	0.1286
82	MyrSpi		Patch	7/18/2008	01:14:00pm	41.45281	-73.44464	1-3	2	0.0070
83	MyrSpi		Patch	7/18/2008	01:18:08pm	41.45166	-73.44497	1-3	2	0.0304
84	MyrSpi	A=5 in some spots	Patch	7/18/2008	01:20:10pm	41.45096	-73.44582	2-4	3	0.3120
85	MyrSpi		Patch	7/18/2008	01:30:44pm	41.45044	-73.44656	1-3	1	0.0187
86	MyrSpi		Patch	7/18/2008	01:32:23pm	41.44999	-73.44683	1-4	2	0.1830
87	MyrSpi		Patch	7/18/2008	01:36:20pm	41.44919	-73.44707	1-4	2	0.1032
88	MyrSpi		Patch	7/18/2008	01:44:13pm	41.44820	-73.44724	2-4	3	0.1417
89	MyrSpi		Patch	7/18/2008	01:48:16pm	41.44862	-73.44715	1-3	1	0.0063
90	MyrSpi	Spots A=5	Patch	7/18/2008	01:50:01pm	41.44651	-73.44779	1-5	3	3.0273

Appendix. Candlewood Lake invasive plant location data (3 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance
91	MyrSpi	A=5 in some spots	Patch	7/18/2008	02:02:01pm	41.44552	-73.44981	1-5	4
92	MyrSpi		Patch	7/18/2008	02:15:14pm	41.44585	-73.45112	2-5	4
93	MyrSpi		Patch	7/25/2008	10:35:01am	41.44812	-73.44972	3-5	3
94	MyrSpi		Patch	7/25/2008	10:41:45am	41.44436	-73.45143	3-5	3
95	MyrSpi		Patch	7/25/2008	10:47:42am	41.44400	-73.45121	3-5	2
96	MyrSpi	Some A=5	Patch	7/25/2008	10:50:12am	41.44365	-73.45127	3-5	4
97	MyrSpi		Patch	7/25/2008	10:53:05am	41.44336	-73.45143	1-3	
98	MyrSpi		Patch	7/25/2008	11:07:00am	41.44284	-73.45158	3-5	1
99	MyrSpi	Some A=5	Patch	7/25/2008	11:10:35am	41.44248	-73.45173	1-4	4
100	MyrSpi		Patch	7/25/2008	11:16:18am	41.44244	-73.45242	1-3	1
101	MyrSpi		Patch	7/25/2008	11:18:28am	41.44219	-73.45315	3-5	1
102	MyrSpi		Patch	7/25/2008	11:21:43am	41.44201	-73.45310	1-4	2
103	MyrSpi		Patch	7/25/2008	11:24:37am	41.44167	-73.45280	1-4	1
104	MyrSpi		Patch	7/25/2008	11:26:56am	41.44149	-73.45275	2-4	5
105	MyrSpi	A=1-5	Patch	7/25/2008	11:29:06am	41.44024	-73.45263	1-5	3
106	MyrSpi		Patch	7/25/2008	11:42:11am	41.43933	-73.45300	1-4	3
107	NajMin	With MyrSpi A=3	Patch	7/25/2008	11:45:35am	41.43896	-73.45306	0-1	3
108	MyrSpi		Patch	7/25/2008	11:47:29am	41.43895	-73.45405	1-5	3
109	MyrSpi		Patch	7/25/2008	12:09:27pm	41.43724	-73.45454	1-3	1
110	MyrSpi	Some A=5	Patch	7/25/2008	12:17:42pm	41.43505	-73.45439	1-5	3
111	MyrSpi		Patch	7/25/2008	12:26:39pm	41.43619	-73.45476	1-4	2
112	MyrSpi		Patch	7/25/2008	12:31:52pm	41.43301	-73.45401	1-4	2
113	MyrSpi		Patch	7/25/2008	12:38:07pm	41.43140	-73.45351	1-4	1
114	MyrSpi	Some A=5	Patch	7/25/2008	12:41:14pm	41.42993	-73.45330	1-4	4
115	MyrSpi		Patch	7/25/2008	12:50:31pm	41.42942	-73.45244	1-3	2
116	MyrSpi	Some A=6	Patch	7/25/2008	12:52:59pm	41.42686	-73.45185	1-4	4
117	MyrSpi		Patch	7/25/2008	01:17:20pm	41.42893	-73.45500	1-4	4
118	MyrSpi		Patch	7/25/2008	01:52:15pm	41.42839	-73.45570	1-4	3
119	MyrSpi		Patch	7/25/2008	02:00:07pm	41.42693	-73.45525	1-4	3
120	MyrSpi		Patch	7/25/2008	02:09:05pm	41.42812	-73.45690	1-4	3
121	MyrSpi		Patch	7/25/2008	02:12:33pm	41.42408	-73.45431	1-4	3
122	MyrSpi		Patch	7/25/2008	02:25:44pm	41.42427	-73.45283	1-3	4
123	NajMin		Patch	7/25/2008	02:28:07pm	41.42410	-73.45274	0.6-1	3
124	NajMin		Patch	7/25/2008	02:33:10pm	41.42318	-73.45368	1-4	3
125	MyrSpi	Some A=5	Patch	7/26/2008	10:56:33am	41.42641	-73.45728	1-4	3
126	MyrSpi		Patch	7/26/2008	11:08:42am	41.42747	-73.45838	1-4	4
127	MyrSpi	A=4 Patch within	Patch	7/26/2008	11:12:51am	41.42785	-73.45879	1-4	2
128	MyrSpi		Patch	7/26/2008	11:19:18am	41.43012	-73.46020	1-4	4
129	MyrSpi		Patch	7/26/2008	11:22:00am	41.43157	-73.46008	1-4	4
130	MyrSpi		Patch	7/26/2008	11:29:42am	41.43270	-73.45950	1-4	3
131	MyrSpi	Patchy A=4	Patch	7/26/2008	11:33:29am	41.43388	-73.45944	1-4	3
132	MyrSpi	A=5 within	Patch	7/26/2008	11:43:19am	41.43886	-73.45882	1-4	3
133	MyrSpi		Patch	7/26/2008	11:47:13am	41.43924	-73.45839	1-4	5
134	MyrSpi	A=5 patches on ends	Patch	7/26/2008	11:49:22am	41.44004	-73.45790	1-4	3
135	MyrSpi		Patch	7/26/2008	11:54:30am	41.44083	-73.45752	1-4	4



Appendix. Candlewood Lake invasive plant location data (4 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
136	MyrSpi	A=5 on ends	Patch	7/26/2008	11:55:47am	41.44163	-73.45720	1-4	3	0.1574
137	MyrSpi		Patch	7/26/2008	12:01:32pm	41.44272	-73.45651	3.1-4	2	0.0007
138	MyrSpi	under trees	Patch	7/26/2008	12:02:33pm	41.44322	-73.45604	2.1-3	2	0.0659
139	MyrSpi		Patch	7/26/2008	12:05:59pm	41.44373	-73.45556	2.1-3	4	0.0422
140	MyrSpi		Patch	7/26/2008	12:08:30pm	41.44460	-73.45524	2.1-3	3	0.1507
141	MyrSpi	A=5, South	Patch	7/26/2008	12:12:16pm	41.44567	-73.45469	2.1-3	3	0.0710
142	MyrSpi		Patch	7/26/2008	12:26:50pm	41.44889	-73.45334	3.1-4	2	0.0233
143	MyrSpi	A=5 in Patches	Patch	7/26/2008	01:14:36pm	41.44969	-73.45195	2-5	4	0.8228
144	MyrSpi		Patch	7/26/2008	01:25:26pm	41.45360	-73.45073	2.1-3	3	0.0446
145	MyrSpi		Patch	7/26/2008	01:27:16pm	41.45430	-73.45065	1-4	4	0.2509
146	MyrSpi		Patch	7/26/2008	01:32:34pm	41.45548	-73.45081	2.1-3	3	0.0287
147	MyrSpi	A=1 Inner 5 Outer	Patch	7/26/2008	01:36:14pm	41.45651	-73.45085	2-4	4	0.1299
148	MyrSpi		Patch	7/26/2008	01:38:34pm	41.45718	-73.45336	1-4	4	2.5345
149	NajMin		Patch	7/26/2008	01:53:59pm	41.45661	-73.45403	1.1-2	2	0.0342
150	MyrSpi		Patch	7/26/2008	01:55:52pm	41.45671	-73.45416	1.1-2	2	0.2396
151	MyrSpi		Patch	7/26/2008	02:02:04pm	41.45786	-73.45578	3.1-4	2	0.0085
152	MyrSpi		Patch	7/26/2008	02:10:05pm	41.46392	-73.45798	2.1-3	2	0.0275
153	MyrSpi	A=1 South	Patch	7/26/2008	02:12:15pm	41.46437	-73.45845	1-4	3	0.4253
154	MyrSpi		Patch	7/26/2008	02:18:32pm	41.46509	-73.45822	1-4	3	0.0462
155	MyrSpi		Patch	7/26/2008	02:20:38pm	41.46584	-73.45837	1-4	3	0.1670
156	MyrSpi		Patch	7/26/2008	02:24:32pm	41.46556	-73.45899	1-4	2	0.0366
157	MyrSpi		Patch	7/26/2008	02:28:18pm	41.46512	-73.45920	1-4	3	0.1186
158	MyrSpi		Patch	7/26/2008	02:32:17pm	41.46450	-73.46038	1-4	2	0.1073
159	MyrSpi		Patch	7/26/2008	02:36:15pm	41.46400	-73.46119	1-4	3	0.0140
160	MyrSpi		Patch	7/26/2008	02:41:19pm	41.46400	-73.46135	1-4	2	0.2784
161	MyrSpi		Patch	7/26/2008	02:50:32pm	41.46437	-73.46204	2.1-3	1	0.0932
162	MyrSpi		Patch	7/26/2008	02:53:00pm	41.46464	-73.46172	3.1-4	1	0.0257
163	MyrSpi		Patch	7/26/2008	02:54:43pm	41.46496	-73.46155	1-4	2	0.0270
164	MyrSpi		Patch	7/26/2008	02:57:53pm	41.46553	-73.46103	1-4	3	0.3216
165	MyrSpi		Patch	7/26/2008	03:12:28pm	41.46668	-73.46003	3.1-4	1	0.0681
166	MyrSpi		Patch	7/26/2008	03:16:00pm	41.46792	-73.45839	1-4	4	0.5211
167	MyrSpi		Patch	7/26/2008	03:22:21pm	41.46874	-73.45643	1-4	4	1.7118
168	MyrSpi		Patch	7/26/2008	03:34:11pm	41.46969	-73.45708	1-4	4	2.4199
169	MyrSpi		Patch	7/28/2008	03:24:39pm	41.46724	-73.45513	1-4	4	1.7052
170	MyrSpi		Patch	7/28/2008	03:56:39pm	41.46552	-73.45555	2-5	4	1.7817
171	MyrSpi		Patch	7/28/2008	04:10:16pm	41.46624	-73.45499	1-4	3	0.1061
172	MyrSpi		Patch	7/28/2008	04:29:00pm	41.46874	-73.45896	1-4	3	0.0463
173	MyrSpi		Patch	7/28/2008	04:36:19pm	41.47557	-73.46140	1-4	4	0.1087
174	MyrSpi		Patch	7/28/2008	04:40:49pm	41.47502	-73.46100	1-4	2	0.0729
175	MyrSpi		Patch	7/28/2008	04:43:41pm	41.47762	-73.46129	1-4	4	1.9332
176	MyrSpi		Patch	7/28/2008	04:56:08pm	41.48032	-73.46204	1-4	4	0.7535
177	MyrSpi		Patch	7/28/2008	05:05:23pm	41.48116	-73.46190	1-4	4	0.0214
178	MyrSpi	handpulling	Patch	7/28/2008	05:09:28pm	41.48129	-73.46190	1-4	2	0.0186
179	MyrSpi		Patch	7/28/2008	05:11:08pm	41.48247	-73.46121	1-4	4	0.7166
180	MyrSpi	Boat cutting pic	Patch	7/28/2008	05:19:48pm	41.48412	-73.45933	1-4	4	5.2298

Appendix. Candlewood Lake invasive plant location data (5 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
181	MyrSpi		Patch	7/28/2008	05:32:59pm	41.48321	-73.45786	1-4	3	0.1895
182	MyrSpi		Patch	7/28/2008	05:38:23pm	41.48097	-73.45753	1-4	4	0.4702
183	MyrSpi		Patch	7/28/2008	05:41:16pm	41.47949	-73.45712	1-4	4	0.5701
184	MyrSpi		Patch	7/28/2008	05:45:19pm	41.47919	-73.45644	3.1-4	3	0.0114
185	MyrSpi		Patch	7/28/2008	05:46:26pm	41.47878	-73.45593	1-4	3	0.1656
186	MyrSpi		Patch	7/28/2008	05:48:50pm	41.47818	-73.45551	1-4	4	0.0341
187	MyrSpi		Patch	7/28/2008	05:49:33pm	41.47783	-73.45548	1-4	3	0.1254
188	MyrSpi	A=1north	Patch	7/28/2008	05:51:22pm	41.47652	-73.45497	1-4	4	0.8515
189	MyrSpi		Patch	7/28/2008	06:00:35pm	41.47491	-73.45335	1-4	3	0.0472
190	MyrSpi		Patch	7/28/2008	06:02:32pm	41.47444	-73.45322	1-4	3	0.0534
191	MyrSpi	A=4 patch north	Patch	7/28/2008	06:04:15pm	41.47281	-73.45268	1-4	2	0.1918
192	MyrSpi		Patch	7/28/2008	06:07:27pm	41.47102	-73.45148	1-4	4	1.0014
193	MyrSpi		Patch	7/28/2008	06:12:48pm	41.47035	-73.45091	1-4	4	0.2701
194	MyrSpi		Patch	7/28/2008	06:15:44pm	41.46970	-73.45065	1-4	4	0.1901
195	MyrSpi		Patch	7/28/2008	06:18:10pm	41.46823	-73.45024	1-4	4	0.5084
196	MyrSpi	Patch 4 N	Patch	7/28/2008	06:22:42pm	41.46623	-73.44930	1-4	2	0.6849
197	MyrSpi		Patch	7/28/2008	06:39:25pm	41.46371	-73.44732	1-4	4	1.0534
198	MyrSpi		Patch	7/28/2008	06:45:39pm	41.46240	-73.44629	1-4	4	0.3644
199	MyrSpi		Patch	7/31/2008	11:09:25am	41.46639	-73.45066	2-5	4	1.8687
200	MyrSpi		Patch	7/31/2008	12:02:08pm	41.46215	-73.44565	1-4	3	2.6354
201	MyrSpi		Patch	7/31/2008	12:17:15pm	41.46312	-73.44745	4.1-5	3	0.0554
202	MyrSpi		Patch	7/31/2008	12:23:08pm	41.46809	-73.44727	1-4	3	1.1607
203	MyrSpi		Patch	7/31/2008	12:34:46pm	41.47010	-73.44910	3.1-4	2	0.0663
204	MyrSpi		Patch	7/31/2008	12:36:59pm	41.47074	-73.44998	3.1-4	3	0.1809
205	MyrSpi		Patch	7/31/2008	12:53:59pm	41.49130	-73.45426	1-4	3	0.3430
206	MyrSpi		Patch	7/31/2008	12:59:05pm	41.49239	-73.45688	1-4	4	0.9743
207	MyrSpi		Patch	7/31/2008	01:30:27pm	41.48892	-73.45901	1-4	3	1.2666
208	MyrSpi	A=5NWcove	Patch	7/31/2008	01:42:34pm	41.48718	-73.46124	0.5-4	3	6.4290
209	NajMin		Patch	7/31/2008	01:59:36pm	41.48594	-73.45979	0.6-1	3	0.2967
210	MyrSpi		Patch	7/31/2008	02:07:47pm	41.49115	-73.46603	1-4	4	0.2144
211	MyrSpi		Patch	7/31/2008	02:15:53pm	41.49221	-73.46661	3.1-4	3	0.1094
212	MyrSpi	Some A=5	Patch	7/31/2008	02:19:40pm	41.49864	-73.46877	0.5-4	4	5.1354
213	MyrSpi		Patch	7/31/2008	02:38:19pm	41.49643	-73.46436	2.1-3	4	4.3193
214	MyrSpi		Patch	8/13/2008	10:59:27am	41.49351	-73.44544	2-4	3	1.4919
215	MyrSpi		Patch	8/13/2008	11:08:32am	41.49463	-73.44611	2-4	3	0.4013
216	MyrSpi		Patch	8/13/2008	11:11:56am	41.49650	-73.44626	1-4	4	3.0507
217	MyrSpi		Patch	8/13/2008	11:31:09am	41.49870	-73.44945	2-4	3	0.3851
218	MyrSpi		Patch	8/13/2008	11:34:28am	41.50366	-73.45312	1-4	4	14.3485
219	MyrSpi		Patch	8/13/2008	12:20:09pm	41.49745	-73.45389	2-4	3	0.9837
220	MyrSpi		Patch	8/13/2008	12:25:51pm	41.50114	-73.45458	1-5	4	1.2043
221	MyrSpi		Patch	8/13/2008	12:36:03pm	41.51366	-73.45594	1-4	4	2.1719
222	MyrSpi	tough to see	Patch	8/13/2008	12:49:06pm	41.51654	-73.45562	1-4	3	1.2504
223	MyrSpi		Patch	8/13/2008	12:58:41pm	41.51455	-73.45381	0.5-2	2	0.2339
224	MyrSpi		Patch	8/13/2008	01:01:40pm	41.51435	-73.45357	2-4	4	0.1183
225	MyrSpi		Patch	8/13/2008	01:02:55pm	41.51416	-73.45337	1.1-2	5	0.1251

Appendix. Candlewood Lake invasive plant location data (6 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
226	MyrSpi		Patch	8/13/2008	01:06:13pm	41.51395	-73.45316	0-0.5	2	0.0654
227	NajMin		Patch	8/13/2008	01:08:24pm	41.51401	-73.45339	1.1-2	4	0.0772
228	MyrSpi		Patch	8/13/2008	01:10:29pm	41.51506	-73.45299	1-4	3	0.3657
229	MyrSpi		Patch	8/13/2008	01:13:15pm	41.51443	-73.45326	2.1-3	3	0.0114
230	MyrSpi		Patch	8/13/2008	01:14:39pm	41.51936	-73.45232	1-4	4	2.6499
231	MyrSpi		Patch	8/13/2008	01:27:08pm	41.52665	-73.45351	1-4	3	1.8096
232	MyrSpi		Patch	8/13/2008	01:35:08pm	41.52977	-73.45384	1-4	5	0.2939
233	MyrSpi		Patch	8/13/2008	01:36:30pm	41.53115	-73.45454	1-4	4	1.4290
234	MyrSpi		Patch	8/13/2008	01:47:35pm	41.53273	-73.45462	2.1-3	5	0.3283
235	MyrSpi		Patch	8/13/2008	01:53:49pm	41.53319	-73.45475	2-4	5	0.0453
236	MyrSpi		Patch	8/13/2008	01:55:06pm	41.53347	-73.45477	2-4	4	0.0129
237	MyrSpi		Patch	8/13/2008	01:59:05pm	41.53468	-73.45542	2.1-3	3	0.0155
238	MyrSpi		Patch	8/13/2008	01:59:40pm	41.53498	-73.45563	2.1-3	3	0.0330
239	MyrSpi	A=5center	Patch	8/13/2008	02:01:45pm	41.53687	-73.45616	1-4	4	0.2675
240	MyrSpi		Patch	8/13/2008	02:08:24pm	41.53905	-73.45687	2.1-3	2	0.0069
241	MyrSpi		Patch	8/13/2008	02:09:39pm	41.53968	-73.45716	1-4	4	0.2297
242	MyrSpi		Patch	8/13/2008	02:12:42pm	41.54086	-73.45762	1-4	4	0.1983
243	MyrSpi		Patch	8/13/2008	02:15:50pm	41.54283	-73.45863	1-4	4	0.3105
244	MyrSpi		Patch	8/13/2008	02:19:51pm	41.54394	-73.45959	1-4	3	0.0989
245	MyrSpi		Patch	8/13/2008	02:22:11pm	41.54472	-73.46151	1-4	4	0.8062
246	MyrSpi	Variable	Patch	8/14/2008	12:33:10pm	41.54786	-73.46417	1-4	4	2.0261
247	MyrSpi		Patch	8/14/2008	12:53:21pm	41.55324	-73.46685	3.1-4	4	0.0477
248	MyrSpi		Patch	8/14/2008	12:59:55pm	41.55389	-73.46718	3.1-4	2	0.0234
249	MyrSpi	Variable A	Patch	8/14/2008	01:00:57pm	41.55412	-73.46834	1-4	4	1.1645
250	MyrSpi	Variable A	Patch	8/14/2008	01:10:19pm	41.55370	-73.47094	1-4	4	0.6046
251	MyrSpi		Patch	8/14/2008	01:17:41pm	41.55456	-73.47211	1-4	2	0.1164
252	MyrSpi	Variable A	Patch	8/14/2008	01:21:29pm	41.55496	-73.47257	1-4	4	0.4017
253	MyrSpi	A=1shallow	Patch	8/14/2008	01:25:33pm	41.55532	-73.47364	1-4	4	1.1822
254	MyrSpi		Patch	8/14/2008	01:31:28pm	41.55670	-73.47412	2-4	4	0.0608
255	MyrSpi	A=1shallow	Patch	8/14/2008	01:32:35pm	41.55790	-73.47466	1-4	4	0.7470
256	MyrSpi	A=1shallow	Patch	8/14/2008	01:37:39pm	41.55967	-73.47516	1-4	5	0.7037
257	MyrSpi	Border should meet A=5	Patch	8/14/2008	01:40:08pm	41.56015	-73.47596	3.1-4	4	2.5325
258	MyrSpi	A=1shallow, SomeA=5	Patch	8/14/2008	01:48:55pm	41.56163	-73.47604	1-4	4	0.7294
259	MyrSpi		Patch	8/14/2008	01:54:59pm	41.56247	-73.47706	2.1-3	1	0.0067
260	MyrSpi		Patch	8/14/2008	01:56:59pm	41.56283	-73.47751	2.1-3	2	0.0537
261	MyrSpi		Patch	8/14/2008	02:00:25pm	41.56363	-73.47844	2.1-3	3	0.0684
262	MyrSpi		Patch	8/14/2008	02:06:02pm	41.56525	-73.47954	1.1-2	2	0.0262
263	MyrSpi	A=1shallow	Patch	8/14/2008	02:07:39pm	41.56623	-73.48084	1-4	3	0.6817
264	MyrSpi		Patch	8/14/2008	02:12:01pm	41.56607	-73.48087	3.1-4	4	0.0533
265	MyrSpi	A=1shallow, Variable	Patch	8/14/2008	02:14:22pm	41.56816	-73.48320	1-4	3	4.1573
266	NajMin		Patch	8/14/2008	02:37:23pm	41.56988	-73.48383	0.6-1	2	0.3723
267	MyrSpi		Patch	8/14/2008	02:45:30pm	41.56963	-73.48431	0.5-2	5	1.9744
268	NajMin		Patch	8/14/2008	02:51:50pm	41.56798	-73.48365	0.6-1	2	0.1716
269	MyrSpi	A=1shallow, A=5E	Patch	8/14/2008	02:57:09pm	41.56688	-73.48537	1-4	4	2.6030
270	NajMin		Patch	8/14/2008	03:11:13pm	41.56731	-73.48669	0.6-1	2	0.0992



Appendix. Candlewood Lake invasive plant location data (7 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
271	MyrSpi	A=1shallow, 3center	Patch	8/14/2008	03:18:03pm	41.56622	-73.48809	1-4	5	0.8907
272	MyrSpi		Patch	8/14/2008	03:20:49pm	41.56689	-73.48820	2.1-3	2	0.0244
273	MyrSpi	A=1shallow	Patch	8/14/2008	03:22:08pm	41.56774	-73.48855	1-4	5	0.2756
274	MyrSpi	A=1shallow	Patch	8/14/2008	03:24:13pm	41.56906	-73.48900	1-4	3	0.4173
275	MyrSpi	Variable A=1 center, A=5 shore patches	Patch	8/14/2008	03:28:49pm	41.57145	-73.49091	0.5-4	3	14.3075
276	NajMin		Patch	8/14/2008	03:55:51pm	41.57057	-73.48897	0.6-1	2	0.1738
277	NajMin	SomeA=5	Patch	8/14/2008	04:01:31pm	41.57419	-73.49210	0.6-1	4	0.5789
278	NajMin	SomeA=5	Patch	8/14/2008	04:09:16pm	41.57411	-73.49177	0.6-1	4	0.4583
279	MyrSpi		Patch	8/14/2008	04:25:20pm	41.56476	-73.48363	3.1-4	4	0.4681
280	MyrSpi		Patch	8/14/2008	04:29:11pm	41.56380	-73.48306	3.1-4	4	1.6599
281	MyrSpi		Patch	8/14/2008	04:35:45pm	41.56271	-73.48342	3.1-4	4	0.5777
282	MyrSpi		Patch	8/14/2008	04:40:20pm	41.56385	-73.48459	3.1-4	4	0.4586
283	MyrSpi		Patch	8/14/2008	04:43:09pm	41.56462	-73.48491	3.1-4	4	0.2586
284	MyrSpi	A=1shallow	Patch	8/14/2008	04:50:36pm	41.54863	-73.47032	1-4	4	2.1611
285	MyrSpi	A=1shallow, Some A=5	Patch	8/14/2008	05:03:19pm	41.54891	-73.46804	1-4	4	3.8587
286	MyrSpi	A=1shallow	Patch	8/14/2008	05:18:26pm	41.54371	-73.46644	1-4	3	0.1342
287	MyrSpi	A=1shallow	Patch	8/14/2008	05:22:06pm	41.54288	-73.46636	1-4	4	1.1172
288	MyrSpi	A=1shallow	Patch	8/14/2008	05:27:57pm	41.53903	-73.46712	1-4	4	1.1357
289	MyrSpi	A=1shallow, Some A=5	Patch	8/14/2008	05:32:52pm	41.53610	-73.46294	1-4	4	7.1991
290	MyrSpi	A=1shallow, A=5 south	Patch	8/14/2008	05:54:29pm	41.53579	-73.46641	1-4	4	1.6238
291	MyrSpi		Patch	8/14/2008	06:01:33pm	41.53372	-73.46550	3.1-4	4	3.2295
292	MyrSpi		Patch	8/15/2008	10:37:51am	41.49958	-73.44530	2.1-3	2	0.0095
293	MyrSpi	A=1Shallow	Patch	8/15/2008	10:40:06am	41.50208	-73.44504	1-4	4	0.3822
294	MyrSpi		Patch	8/15/2008	10:44:50am	41.50322	-73.44555	2.1-3	3	0.0445
295	MyrSpi		Patch	8/15/2008	10:46:30am	41.50352	-73.44566	2.1-3	3	0.0551
296	MyrSpi	A=1Shallow	Patch	8/15/2008	10:48:21am	41.50473	-73.44503	1-4	4	0.8754
297	MyrSpi	A=1Shallow	Patch	8/15/2008	10:56:17am	41.50757	-73.44551	1-4	3	0.4650
298	MyrSpi	A=1Shallow	Patch	8/15/2008	11:01:25am	41.50947	-73.44585	1-4	3	0.1038
299	MyrSpi	A=1Shallow, Variable	Patch	8/15/2008	11:04:36am	41.51155	-73.44504	1-4	3	0.4091
300	MyrSpi	A=1Shallow	Patch	8/15/2008	11:12:43am	41.51314	-73.44441	1-4	3	0.0530
301	MyrSpi		Patch	8/15/2008	11:20:49am	41.51841	-73.44547	2.1-3	3	0.0884
302	MyrSpi	A=1Shallow, poor sat	Patch	8/15/2008	11:59:07am	41.52211	-73.44642	1-4	1	1.4150
303	MyrSpi	A=1Shallow	Patch	8/15/2008	12:08:28pm	41.52090	-73.44651	1-4	3	0.2815
304	MyrSpi	A=1Shallow, A=4South	Patch	8/15/2008	12:19:04pm	41.52444	-73.44597	1-4	4	1.4465
305	MyrSpi	A=1Shallow	Patch	8/15/2008	12:26:32pm	41.52735	-73.44638	1-4	4	0.1838
306	MyrSpi	A=1Shallow	Patch	8/15/2008	12:29:31pm	41.53062	-73.44768	1-4	4	1.2379
307	MyrSpi	A=1Shallow	Patch	8/15/2008	12:45:43pm	41.53500	-73.44747	1-4	4	0.4091
308	MyrSpi		Patch	8/15/2008	12:54:00pm	41.53818	-73.44695	2.1-3	3	0.2848
309	MyrSpi	A=1Shallow, ManyA=5within	Patch	8/15/2008	01:00:43pm	41.54726	-73.44697	1-4	4	6.4056
310	MyrSpi	A=1Shallow, A=5within	Patch	8/15/2008	01:28:53pm	41.56153	-73.44450	1-4	4	8.4116
311	NajMin		Patch	8/15/2008	02:02:24pm	41.55984	-73.44413	0.6-1	2	0.0715
312	NajMin		Patch	8/15/2008	02:04:46pm	41.56085	-73.44428	0.6-1	3	0.0084
313	NajMin		Patch	8/15/2008	02:06:44pm	41.56125	-73.44437	0.6-1	2	0.0062
314	NajMin		Patch	8/15/2008	02:09:11pm	41.56268	-73.44474	0.6-1	2	0.0195
315	NajMin		Patch	8/15/2008	02:11:18pm	41.56528	-73.44507	0.6-1	2	0.0487

Appendix. Candlewood Lake invasive plant location data (8 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
316	MyrSpi		Patch	8/15/2008	02:15:42pm	41.57171	-73.44575	3.1-4	2	0.0600
317	MyrSpi		Patch	8/15/2008	02:22:04pm	41.57230	-73.44586	3.1-4	1	0.0003
318	MyrSpi	A=1Shallow, A=5East	Patch	8/15/2008	02:23:04pm	41.57247	-73.44407	1-4	4	0.8520
319	MyrSpi	A=1Shallow, A=5North	Patch	8/15/2008	02:26:54pm	41.57032	-73.44301	1-4	4	3.0400
320	NajMin		Patch	8/15/2008	02:38:40pm	41.57127	-73.44295	0.6-1	3	0.2698
321	NajMin	Choked by milfoil	Patch	8/16/2008	01:07:17pm	41.44790	-73.42998	0.6-1	2	1.2068
322	MyrSpi	A=1Shallow	Patch	8/16/2008	01:31:51pm	41.45135	-73.43312	1-4	3	0.8411
323	MyrSpi	A=1Shallow	Patch	8/16/2008	01:38:29pm	41.45126	-73.43170	1-4	3	0.2868
324	MyrSpi	A=1Shallow	Patch	8/16/2008	01:49:48pm	41.45340	-73.43231	1-4	3	0.0473
325	MyrSpi	A=1Shallow	Patch	8/16/2008	01:55:14pm	41.45540	-73.43415	1-4	4	5.0157
326	MyrSpi		Patch	8/16/2008	02:15:46pm	41.45746	-73.43428	2.1-3	2	0.0222
327	MyrSpi		Patch	8/16/2008	02:16:56pm	41.45775	-73.43457	2.1-3	3	0.1942
328	MyrSpi		Patch	8/16/2008	02:20:25pm	41.45949	-73.43546	3.1-4	2	0.4224
329	MyrSpi		Patch	8/16/2008	02:27:58pm	41.46089	-73.43575	3.1-4	3	0.0187
330	MyrSpi	A=1Shallow	Patch	8/18/2008	11:47:22am	41.46191	-73.43264	1-4	4	2.8502
331	MyrSpi		Patch	8/18/2008	11:56:58am	41.46127	-73.43588	3.1-4	3	0.0580
332	MyrSpi		Patch	8/18/2008	12:08:47pm	41.46428	-73.42496	1-3	5	4.0932
333	MyrSpi	A=1Shallow	Patch	8/18/2008	12:17:30pm	41.46347	-73.42710	1-4	4	14.4628
334	MyrSpi		Patch	8/18/2008	01:06:39pm	41.46685	-73.42420	0.6-1	5	0.1262
335	MyrSpi	Variable	Patch	8/18/2008	01:18:47pm	41.46787	-73.42550	1-4	4	5.1036
336	MyrSpi	A=1Shallow	Patch	8/18/2008	01:31:32pm	41.46898	-73.43028	1-4	4	2.4030
337	MyrSpi	A=1Shallow	Patch	8/18/2008	01:47:30pm	41.47058	-73.43276	1-4	3	0.4111
338	MyrSpi	A=1Shallow	Patch	8/18/2008	01:52:28pm	41.47175	-73.43362	1-4	4	1.3164
339	MyrSpi	A=1Shallow, NajMin cove NE, Sago W	Patch	8/18/2008	01:57:42pm	41.47051	-73.43622	1-4	1	9.4933
340	MyrSpi	A=1Shallow	Patch	8/18/2008	02:33:47pm	41.46644	-73.43824	1-4	3	0.8265
341	MyrSpi		Patch	8/18/2008	02:37:16pm	41.46706	-73.43849	3.1-4	3	0.0222
342	MyrSpi	A=1Shallow	Patch	8/18/2008	02:38:20pm	41.46813	-73.43948	1-4	3	0.9579
343	MyrSpi		Patch	8/18/2008	02:46:59pm	41.46837	-73.43958	2.1-3	3	0.2251
344	MyrSpi	A=1Shallow, Sago	Patch	8/18/2008	02:49:30pm	41.47010	-73.44091	1-4	3	0.3081
345	MyrSpi	A=1Shallow	Patch	8/19/2008	12:10:18pm	41.47195	-73.44298	1-4	3	1.3117
346	MyrSpi		Patch	8/19/2008	12:18:15pm	41.47348	-73.44344	2.1-3	2	0.0163
347	MyrSpi	A=1Shallow	Patch	8/19/2008	12:20:09pm	41.47525	-73.44414	1-4	3	0.8185
348	MyrSpi		Patch	8/19/2008	12:29:33pm	41.47747	-73.44466	2.1-3	4	0.0527
349	MyrSpi	A=1Shallow	Patch	8/19/2008	12:31:05pm	41.48015	-73.44371	1-4	4	4.7641
350	MyrSpi	A=1Shallow, A=5 SEcove	Patch	8/19/2008	12:47:11pm	41.48107	-73.43642	1-4	4	16.9521
351	MyrSpi	A=1Shallow	Patch	8/19/2008	01:26:28pm	41.48480	-73.43535	1-4	4	3.7424
352	MyrSpi	A=1Shallow, A=5South	Patch	8/19/2008	01:36:32pm	41.48816	-73.43583	1-4	4	3.0765
353	MyrSpi	A=1Shallow	Patch	8/19/2008	01:50:37pm	41.49416	-73.44113	1-4	4	1.7344
354	MyrSpi	A=1Shallow	Patch	8/19/2008	02:01:59pm	41.49794	-73.44240	1-4	4	0.7126
355	MyrSpi	A=1Shallow	Patch	8/19/2008	02:08:32pm	41.49969	-73.44261	1-4	4	0.1264
356	MyrSpi		Patch	8/19/2008	02:11:30pm	41.50056	-73.44273	3.1-4	2	0.0428
357	MyrSpi		Patch	8/19/2008	02:13:14pm	41.50083	-73.44271	2.1-3	1	0.0191
358	MyrSpi	A=1Shallow, A=5Center	Patch	8/19/2008	02:14:33pm	41.50178	-73.44282	1-4	4	0.3108
359	MyrSpi	A=1Shallow, A=5CenterN	Patch	8/19/2008	02:18:24pm	41.50479	-73.44183	1-4	4	8.7091
360	MyrSpi	A=1Shallow, A=5Center	Patch	8/19/2008	02:33:08pm	41.50318	-73.43804	1-4	4	0.5799

Appendix. Candlewood Lake invasive plant location data (9 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
361	MyrSpi		Patch	8/19/2008	02:36:11pm	41.50429	-73.43767	2.1-3	4	0.1142
362	MyrSpi		Patch	8/19/2008	02:38:16pm	41.50561	-73.43801	2.1-3	2	0.0197
363	MyrSpi		Patch	8/19/2008	02:39:12pm	41.50591	-73.43810	2.1-3	3	0.0283
364	MyrSpi	A=1Shallow, A=5South	Patch	8/19/2008	02:40:22pm	41.50752	-73.43857	1-4	4	0.9111
365	MyrSpi		Patch	8/19/2008	02:48:12pm	41.50890	-73.43940	2.1-3	2	0.0297
366	MyrSpi		Patch	8/19/2008	02:49:59pm	41.51002	-73.43892	2.1-3	4	0.0317
367	MyrSpi		Patch	8/19/2008	02:50:45pm	41.51051	-73.43905	2.1-3	4	0.1334
368	MyrSpi		Patch	8/19/2008	02:52:19pm	41.51112	-73.43909	2.1-3	3	0.0093
369	MyrSpi	A=1Shallow	Patch	8/19/2008	02:53:38pm	41.51222	-73.43924	1-4	4	0.4144
370	MyrSpi	A=1Shallow, A=5NE	Patch	8/19/2008	02:57:55pm	41.51269	-73.44080	1-4	4	2.8747
371	NajMin		Patch	8/19/2008	03:08:50pm	41.51374	-73.43991	0.6-1	2	0.2367
372	MyrSpi		Patch	8/20/2008	11:27:23am	41.51386	-73.44154	3.1-4	4	0.1198
373	MyrSpi	A=1Shallow	Patch	8/20/2008	11:29:03am	41.51473	-73.44166	1-4	4	0.4077
374	MyrSpi	A=1Shallow	Patch	8/20/2008	11:33:11am	41.51601	-73.44102	1-4	4	0.6685
375	MyrSpi	A=1Shallow, A=5Within	Patch	8/20/2008	11:37:43am	41.51701	-73.43948	1-4	4	1.4984
376	MyrSpi	A=1Shallow	Patch	8/20/2008	11:46:19am	41.51852	-73.43835	1-4	4	0.6348
377	MyrSpi		Patch	8/20/2008	11:49:29am	41.51943	-73.43791	2.1-3	3	0.0040
378	MyrSpi	A=1Shallow	Patch	8/20/2008	11:50:05am	41.51945	-73.43604	1-4	4	3.1598
379	MyrSpi	A=1Shallow, A=5 In Cove	Patch	8/20/2008	12:02:53pm	41.52179	-73.43572	0.5-4	4	0.5563
380	NajMin		Patch	8/20/2008	12:09:53pm	41.52230	-73.43558	0.6-1	2	0.0347
381	MyrSpi		Patch	8/20/2008	12:12:33pm	41.52221	-73.43612	2.1-3	5	0.0326
382	MyrSpi	A=1Shallow	Patch	8/20/2008	12:14:27pm	41.52273	-73.43621	1-4	4	0.0304
383	MyrSpi		Patch	8/20/2008	12:16:18pm	41.52323	-73.43641	2.1-3	3	0.0075
384	MyrSpi		Patch	8/20/2008	12:17:17pm	41.52365	-73.43648	2.1-3	3	0.0236
385	MyrSpi		Patch	8/20/2008	12:19:21pm	41.52400	-73.43641	2.1-3	2	0.0155
386	MyrSpi	A=1Shallow	Patch	8/20/2008	12:22:58pm	41.52751	-73.43724	1-4	3	0.1084
387	MyrSpi	A=1Shallow	Patch	8/20/2008	12:27:19pm	41.52690	-73.43782	1-4	3	0.0791
388	MyrSpi	A=1Shallow	Patch	8/20/2008	12:29:07pm	41.52635	-73.43782	1-4	4	0.0269
389	MyrSpi	A=1Shallow	Patch	8/20/2008	12:31:26pm	41.52598	-73.43778	1-4	5	0.0740
390	MyrSpi	A=2Shallow, A=5Center	Patch	8/20/2008	12:35:25pm	41.52784	-73.43846	1-4	4	2.7087
391	MyrSpi		Patch	8/20/2008	12:47:49pm	41.53118	-73.43874	2-4	4	0.0349
392	MyrSpi	A=5North	Patch	8/20/2008	12:49:04pm	41.53192	-73.43866	2-4	4	0.2389
393	MyrSpi	A=1Shallow, A=5South	Patch	8/20/2008	12:51:49pm	41.53277	-73.43852	1-4	4	0.1680
394	MyrSpi	A=1Shallow	Patch	8/20/2008	12:54:45pm	41.53356	-73.43882	1-4	4	1.1030
395	MyrSpi	A=1Shallow	Patch	8/20/2008	01:04:14pm	41.53555	-73.43988	1-4	4	0.8013
396	MyrSpi	A=1Shallow	Patch	8/20/2008	01:12:38pm	41.53718	-73.44197	1-4	4	0.2597
397	MyrSpi		Patch	8/20/2008	01:15:36pm	41.53876	-73.44284	2-4	4	0.2468
398	MyrSpi		Patch	8/20/2008	01:18:50pm	41.54028	-73.44326	2-4	4	0.1121
399	MyrSpi		Patch	8/20/2008	01:21:08pm	41.54106	-73.44357	2-4	4	0.1216
400	MyrSpi	A=1Shallow	Patch	8/20/2008	01:22:27pm	41.54284	-73.44357	1-4	4	1.4634
401	NajMin		Patch	8/20/2008	01:30:25pm	41.54342	-73.44295	0.6-1	3	0.0369
402	MyrSpi	A=1Shallow	Patch	8/20/2008	01:32:10pm	41.54564	-73.44269	1-4	4	1.5450
403	MyrSpi		Patch	8/20/2008	01:44:48pm	41.54894	-73.44336	2-4	4	0.5512
404	MyrSpi	A=1Shallow	Patch	8/20/2008	01:49:29pm	41.55103	-73.44398	1-4	3	0.1820
405	MyrSpi		Patch	8/20/2008	01:52:17pm	41.55169	-73.44408	2.1-3	2	0.0224



Appendix. Candlewood Lake invasive plant location data (10 of 12).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
406	MyrSpi	A=1Shallow	Patch	8/20/2008	01:54:04pm	41.55261	-73.44248	1-4	4	1.5945
407	MyrSpi		Patch	8/20/2008	02:00:43pm	41.55210	-73.44421	2-4	3	0.1185
408	MyrSpi	A=1Shallow	Patch	8/20/2008	02:03:45pm	41.55104	-73.44047	1-4	4	0.8993
409	MyrSpi		Patch	8/20/2008	02:10:21pm	41.55246	-73.43960	3.1-4	2	0.0075
410	MyrSpi		Patch	8/20/2008	02:11:20pm	41.55279	-73.43953	3.1-4	2	0.0017
411	MyrSpi		Patch	8/20/2008	02:12:41pm	41.55378	-73.43973	2-4	3	0.3051
412	MyrSpi		Patch	8/20/2008	02:19:15pm	41.55590	-73.43959	2-4	3	0.2145
413	PotCri		Patch	8/20/2008	02:22:19pm	41.55699	-73.43968	2-4	2	0.0298
414	MyrSpi	A=1Shallow	Patch	8/20/2008	02:24:53pm	41.55937	-73.44026	1-4	3	0.8027
415	NajMin		Patch	8/20/2008	02:31:59pm	41.56053	-73.44040	0.6-1	4	0.0046
416	MyrSpi	A=1Shallow	Patch	8/20/2008	02:33:57pm	41.56379	-73.44081	1-4	4	2.6200
417	MyrSpi	A=1Shallow	Patch	8/20/2008	02:43:14pm	41.56717	-73.44220	1-4	3	0.4168
418	MyrSpi	A=4Shallow	Patch	8/20/2008	03:00:00pm	41.52792	-73.44255	1-4	4	9.6234
419	MyrSpi		Patch	8/20/2008	03:23:07pm	41.52401	-73.43837	3.1-4	4	0.1660
420	MyrSpi		Patch	8/20/2008	03:25:05pm	41.52279	-73.43801	2.1-3	4	0.0302
421	MyrSpi		Patch	8/20/2008	03:25:46pm	41.52276	-73.43826	2-4	3	0.0253
422	MyrSpi	A=1Shallow	Patch	8/20/2008	03:26:40pm	41.52207	-73.43765	1-4	4	1.1239
423	MyrSpi		Patch	8/20/2008	03:32:55pm	41.52385	-73.43736	3.1-4	3	0.0407
424	MyrSpi	A=1Shallow	Patch	8/20/2008	03:34:32pm	41.52494	-73.43797	1-4	4	0.2801
425	MyrSpi		Patch	8/20/2008	03:59:17pm	41.47686	-73.44957	2-4	4	1.4681
426	MyrSpi		Patch	8/20/2008	04:06:15pm	41.47634	-73.44829	2-4	3	0.2622
427	MyrSpi		Patch	8/20/2008	04:08:48pm	41.47401	-73.44846	2-4	3	0.5860
428	MyrSpi		Patch	8/20/2008	04:12:01pm	41.47461	-73.44724	3.1-4	3	0.0536
429	MyrSpi		Patch	8/20/2008	04:14:00pm	41.47401	-73.44645	2-4	3	0.0237
430	MyrSpi		Patch	8/20/2008	04:15:39pm	41.47292	-73.44582	2.1-3	3	0.0807
431	MyrSpi		Patch	8/20/2008	04:20:46pm	41.47310	-73.44784	2.1-3	3	1.0901
432	MyrSpi		Patch	8/20/2008	04:37:37pm	41.47165	-73.44480	2-4	2	0.9292
433	MyrSpi		Patch	8/20/2008	04:44:41pm	41.47077	-73.44612	2-4	2	0.1962
434	MyrSpi		Patch	8/20/2008	04:46:27pm	41.47140	-73.44666	2.1-3	2	0.0444
435	MyrSpi		Patch	8/20/2008	04:49:25pm	41.46655	-73.44215	2-4	3	1.0775
1	MyrSpi		Point	8/8/2008	12:25:21pm	41.50522	-73.46293	2.1-3	1	0.0002
2	MyrSpi		Point	8/8/2008	12:26:16pm	41.50515	-73.46274	3.1-4	3	0.0002
3	MyrSpi		Point	8/8/2008	12:27:21pm	41.50508	-73.46257	2.1-3	2	0.0002
4	MyrSpi		Point	8/8/2008	12:55:06pm	41.50684	-73.46044	3.1-4	3	0.0002
5	MyrSpi		Point	8/8/2008	01:06:56pm	41.51077	-73.46232	3.1-4	3	0.0002
6	MyrSpi		Point	8/9/2008	01:54:41pm	41.55303	-73.48003	2.1-3	2	0.0002
7	MyrSpi		Point	8/9/2008	02:18:36pm	41.55703	-73.48136	4.1-5	2	0.0002
8	MyrSpi		Point	8/9/2008	03:37:11pm	41.56739	-73.49009	3.1-4	2	0.0002
9	MyrSpi		Point	8/9/2008	03:38:01pm	41.56778	-73.49019	3.1-4	2	0.0002
10	MyrSpi		Point	8/9/2008	03:38:36pm	41.56785	-73.49027	3.1-4	2	0.0002
11	MyrSpi		Point	7/18/2008	12:43:41pm	41.45822	-73.44506	2.1-3	1	0.0002
12	MyrSpi		Point	7/18/2008	12:53:21pm	41.45564	-73.44439	1-3	2	0.0002
13	MyrSpi		Point	7/18/2008	01:15:56pm	41.45286	-73.44450	2.1-3	2	0.0002
14	MyrSpi		Point	7/25/2008	12:07:31pm	41.43756	-73.45450	3.1-4	2	0.0002
15	MyrSpi		Point	7/26/2008	11:17:51am	41.42951	-73.46005	1-3	1	0.0002

Appendix. Candlewood Lake invasive plant location data (11 of 12).

FID	Invasive Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
16	MyrSpi	Point	7/26/2008	11:39:11am	41.43488	-73.45907	1.1-2	2	0.0002
17	MyrSpi	Point	7/26/2008	11:59:32am	41.44238	-73.45684	2.1-3	2	0.0002
18	MyrSpi	Point	7/26/2008	12:00:29pm	41.44247	-73.45674	2.1-3	3	0.0002
19	MyrSpi	Point	7/26/2008	12:23:20pm	41.44669	-73.45413	3.1-4	2	0.0002
20	MyrSpi	Point	7/26/2008	12:25:19pm	41.44780	-73.45374	3.1-4	2	0.0002
21	MyrSpi	Point	7/26/2008	01:34:39pm	41.45583	-73.45066	3.1-4	2	0.0002
22	MyrSpi	Point	7/26/2008	01:35:23pm	41.45588	-73.45066	3.1-4	2	0.0002
23	MyrSpi	Point	7/26/2008	03:10:24pm	41.46627	-73.46023	3.1-4	2	0.0002
24	MyrSpi	Point	7/28/2008	05:36:09pm	41.48222	-73.45755	3.1-4	2	0.0002
25	MyrSpi	Point	8/13/2008	11:25:05am	41.49746	-73.44804	2.1-3	2	0.0002
26	MyrSpi	Point	8/13/2008	11:25:31am	41.49745	-73.44806	2.1-3	2	0.0002
27	MyrSpi	Point	8/13/2008	11:26:20am	41.49744	-73.44815	3.1-4	3	0.0002
28	MyrSpi	Point	8/13/2008	11:27:58am	41.49773	-73.44834	3-5	2	0.0002
29	MyrSpi	Point	8/13/2008	11:29:12am	41.49765	-73.44835	3.1-4	2	0.0002
30	MyrSpi	Point	8/13/2008	11:30:03am	41.49804	-73.44862	3.1-4	1	0.0002
31	MyrSpi	Point	8/13/2008	11:30:45am	41.49830	-73.44875	2.1-3	2	0.0002
32	MyrSpi	Point	8/13/2008	01:56:12pm	41.53397	-73.45489	2.1-3	3	0.0002
33	MyrSpi	Point	8/13/2008	01:56:50pm	41.53384	-73.45482	3.1-4	4	0.0002
34	MyrSpi	Point	8/13/2008	01:57:20pm	41.53382	-73.45481	3.1-4	3	0.0002
35	MyrSpi	Point	8/13/2008	01:57:41pm	41.53377	-73.45482	3.1-4	4	0.0002
36	MyrSpi	Point	8/13/2008	02:05:57pm	41.53844	-73.45671	2.1-3	2	0.0002
37	MyrSpi	Point	8/13/2008	02:06:23pm	41.53851	-73.45671	0.6-1	2	0.0002
38	MyrSpi	Point	8/13/2008	02:07:07pm	41.53871	-73.45676	1.1-2	2	0.0002
39	MyrSpi	Point	8/13/2008	02:07:50pm	41.53886	-73.45680	2.1-3	2	0.0002
40	MyrSpi	Point	8/14/2008	12:56:31pm	41.55295	-73.46647	3.1-4	1	0.0002
41	MyrSpi	Point	8/14/2008	12:57:03pm	41.55292	-73.46648	2.1-3	1	0.0002
42	MyrSpi	Point	8/14/2008	12:58:58pm	41.55357	-73.46698	2.1-3	1	0.0002
43	MyrSpi	Point	8/14/2008	12:59:14pm	41.55358	-73.46704	3.1-4	1	0.0002
44	MyrSpi	Point	8/14/2008	02:02:49pm	41.56397	-73.47872	2.1-3	1	0.0002
45	MyrSpi	Point	8/14/2008	02:03:18pm	41.56414	-73.47879	2.1-3	1	0.0002
46	MyrSpi	Point	8/14/2008	02:13:52pm	41.56724	-73.48177	2.1-3	1	0.0002
47	PotCri	Point	8/14/2008	02:36:38pm	41.56867	-73.48332	0.6-1	2	0.0002
48	PotCri	Point	8/14/2008	02:37:00pm	41.56868	-73.48332	0.6-1	2	0.0002
49	MyrSpi	Point	8/15/2008	10:36:07am	41.49894	-73.44541	1.1-2	2	0.0002
50	MyrSpi	Point	8/15/2008	11:16:47am	41.51677	-73.44465	2.1-3	1	0.0002
51	MyrSpi	Point	8/15/2008	11:18:44am	41.51760	-73.44559	3.1-4	2	0.0002
52	MyrSpi	Point	8/15/2008	11:19:20am	41.51763	-73.44563	2.1-3	1	0.0002
53	MyrSpi	Point	8/15/2008	11:20:17am	41.51802	-73.44557	2.1-3	2	0.0002
54	MyrSpi	Point	8/15/2008	11:23:56am	41.51924	-73.44548	2.1-3	3	0.0002
55	MyrSpi	Point	8/15/2008	11:43:26am	41.51952	-73.44576	2.1-3	2	0.0002
56	MyrSpi	Point	8/15/2008	12:52:58pm	41.53718	-73.44731	3.1-4	1	0.0002
57	MyrSpi	Point	8/15/2008	02:14:34pm	41.57115	-73.44570	3.1-4	1	0.0002
58	MyrSpi	Point	8/15/2008	02:14:58pm	41.57112	-73.44571	3.1-4	1	0.0002
59	MyrSpi	Point	8/16/2008	01:44:26pm	41.45220	-73.43194	3.1-4	3	0.0002
60	MyrSpi	Point	8/16/2008	02:30:16pm	41.46090	-73.43566	1.1-2	1	0.0002

Appendix. Candlewood Lake invasive plant location data (12 of 12).

<b>FID</b>	<b>Invasive Notes</b>	<b>Type</b>	<b>Date</b>	<b>Time</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Depth (m)</b>	<b>Abundance</b>	<b>Acres</b>
61	MyrSpi	Point	8/19/2008	02:53:06pm	41.51131	-73.43903	1.1-2	1	0.0002
62	MyrSpi	Point	8/20/2008	12:18:56pm	41.52396	-73.43641	2.1-3	1	0.0002
63	MyrSpi	Point	8/20/2008	02:17:36pm	41.55478	-73.43954	3.1-4	1	0.0002
64	MyrSpi	Point	8/20/2008	02:17:56pm	41.55484	-73.43954	3.1-4	1	0.0002
65	MyrSpi	Point	8/20/2008	02:18:41pm	41.55518	-73.43951	2.1-3	1	0.0002

Appendix. Lake Zoar invasive plant location data (1 – 15).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
1	MyrSpi		Patch	9/16/2008	01:05:11pm	41.38970	-73.18346	1.1-2	2	0.0055
2	MyrSpi		Patch	9/16/2008	01:14:50pm	41.38952	-73.18602	1.1-2	2	0.0069
3	MyrSpi		Patch	9/16/2008	01:19:12pm	41.38939	-73.18624	1.1-2	2	0.0137
4	MyrSpi		Patch	9/16/2008	01:21:36pm	41.38940	-73.18654	1.1-2	2	0.1217
5	MyrSpi		Patch	9/16/2008	01:29:00pm	41.38962	-73.18670	2.1-3	2	0.0233
6	MyrSpi		Patch	9/16/2008	02:08:26pm	41.39856	-73.19048	1.1-2	2	0.1484
7	MyrSpi		Patch	9/16/2008	02:18:01pm	41.39879	-73.18986	2.1-3	2	0.0625
8	MyrSpi		Patch	9/16/2008	02:26:17pm	41.40032	-73.18889	2.1-3	2	0.1388
9	MyrSpi		Patch	9/16/2008	02:29:50pm	41.40026	-73.18913	0.6-1	2	0.0061
10	MyrSpi		Patch	9/16/2008	02:32:31pm	41.40066	-73.18852	1.1-2	2	0.0631
11	NajMin		Patch	9/16/2008	02:34:49pm	41.40070	-73.18847	1.1-2	2	0.0141
12	MyrSpi		Patch	9/15/2008	11:16:19am	41.38991	-73.17861	1.1-2	2	0.4329
13	MyrSpi		Patch	9/15/2008	11:31:18am	41.38952	-73.17770	1.1-2	2	0.0365
14	MyrSpi		Patch	9/15/2008	12:15:57pm	41.39171	-73.17462	1.1-2	3	0.2211
15	PotCri	with CerDem, MyrSpi, NajMin, ZosDub, EloNut	Patch	9/3/2008	01:52:34pm	41.44716	-73.26853	0-0.5	3	0.0413
16	PotCri	with ValAme, ZosDub, NajMin, EloNut	Patch	9/3/2008	01:56:27pm	41.44737	-73.26876	0.6-1	3	0.0161
17	PotCri	with ValAme, MyrSpi, ZosDub, EloNut, NajMin	Patch	9/3/2008	02:00:46pm	41.44794	-73.26926	0.6-1	2	0.0107
18	PotCri	with MyrSpi, EloNut, NajMin, CerDem	Patch	9/3/2008	02:04:30pm	41.44808	-73.26930	0-0.5	3	0.0821
19	MyrSpi	with ValAme	Patch	9/3/2008	02:30:10pm	41.45003	-73.27140	2.1-3	2	0.0356
20	PotCri	with MyrSpi, ValAme	Patch	9/3/2008	02:41:26pm	41.45043	-73.27168	1.1-2	3	0.0094
21	NajMin	with ValAme	Patch	9/3/2008	02:43:41pm	41.45053	-73.27171	0-0.5	4	0.0112
22	MyrSpi	with NajMin, PotPer, PotNod	Patch	9/3/2008	02:47:57pm	41.45065	-73.27185	0.6-1	2	0.0146
23	MyrSpi	with NajMin, ValAme	Patch	9/3/2008	03:07:09pm	41.45159	-73.27281	1.1-2	2	0.4069
24	NajMin	with MyrSpi, PotCri, ValAme	Patch	9/3/2008	03:28:21pm	41.45163	-73.27273	0.6-1	3	0.0433
25	MyrSpi	with NajMin, PotCri, ValAme, ZosDub	Patch	9/3/2008	03:41:53pm	41.45317	-73.27974	1.1-2	4	1.9153
26	MyrSpi		Patch	9/8/2008	01:44:22pm	41.41227	-73.19688	1.1-2	1	0.0090
27	MyrSpi		Patch	9/8/2008	01:48:11pm	41.41164	-73.19502	1.1-2	2	0.0210
28	MyrSpi		Patch	9/8/2008	01:49:47pm	41.41173	-73.19468	1.1-2	2	0.0426
29	MyrSpi		Patch	9/8/2008	01:51:37pm	41.41147	-73.19379	1.1-2	2	0.1099
30	MyrSpi	with ValAme, PotFol	Patch	9/8/2008	01:56:20pm	41.41138	-73.19259	0.6-1	1	0.0143
31	MyrSpi		Patch	9/8/2008	02:04:11pm	41.41131	-73.19212	1.1-2	1	0.0184
32	MyrSpi	with PotFol, ZosDub	Patch	9/8/2008	02:10:30pm	41.41152	-73.19074	0.6-1	2	0.0356
33	MyrSpi		Patch	9/8/2008	02:16:45pm	41.41096	-73.19069	1.1-2	2	0.0377
34	NajMin	with ValAme, CerDem	Patch	8/25/2008	09:45:40am	41.42948	-73.24026	0.6-1	3	0.0072
35	NajMin	with ValAme, MyrSpi, StuPec	Patch	8/25/2008	10:02:14am	41.43607	-73.24149	0.6-1	3	0.0501
36	MyrSpi	with ValAme, NajMin, StuPec	Patch	8/25/2008	10:08:30am	41.43605	-73.24150	0.6-1	2	0.0678
37	NajMin	with NymOdo, ValAme, CerDem, MyrSpi	Patch	8/25/2008	10:17:08am	41.43933	-73.24314	1.1-2	3	0.2907
38	MyrSpi	with PotCri, NajMin, CerDem, EloNut, ValAme	Patch	8/25/2008	10:25:44am	41.44022	-73.24564	0.6-1	1	6.4950
39	PotCri	with MyrSpi, ValAme	Patch	8/25/2008	11:09:06am	41.43957	-73.24373	0.6-1	2	0.0247
40	NajMin	with ValAme, ZosDub, MyrSpi, PotCri, CerDem, EloCan	Patch	8/25/2008	11:13:33am	41.44055	-73.24598	0.6-1	2	1.4339
41	PotCri	with ValAme, MyrSpi	Patch	8/25/2008	11:52:21am	41.44048	-73.24574	1.1-2	2	0.1055
42	PotCri	with MyrSpi, ValAme	Patch	8/25/2008	11:55:35am	41.44071	-73.24658	1.1-2	2	0.3456
43	PotCri	with MyrSpi, ValAme	Patch	8/25/2008	01:40:12pm	41.44039	-73.24738	1.1-2	1	0.0134
44	NajMin	with PotCri, MyrSpi, EloCan	Patch	8/25/2008	01:42:44pm	41.43999	-73.24715	0-0.5	2	0.7001
45	MyrSpi	with PotCri, ZosDub, NajMin	Patch	8/25/2008	01:52:39pm	41.43967	-73.24681	0.6-1	2	0.2889



Appendix. Lake Zoar invasive plant location data (2 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
46	NajMin withh EloCan, MyrSpi, PotCri	Patch	8/25/2008	02:02:40pm	41.43965	-73.24711	1.1-2	3	0.1240
47	PotCri with MyrSpi, EloCan, CerDem, NajMin	Patch	8/25/2008	02:06:32pm	41.43961	-73.24721	1.1-2	2	0.0930
48	PotCri with CerDem, NajMin, MyrSpi, PotBic	Patch	8/26/2008	09:54:14am	41.43939	-73.24956	0-0.5	2	0.0439
49	NajMin with pb, CerDem, PotCri, EloNut, MyrSpi	Patch	8/26/2008	10:02:36am	41.43940	-73.24967	0-0.5	3	0.0336
50	PotCri with EloNut, NajMin, MyrSpi, PotBic	Patch	8/26/2008	10:16:34am	41.43933	-73.25028	0.6-1	2	0.1057
51	NajMin with PotCri	Patch	8/26/2008	10:27:34am	41.43932	-73.25031	0.6-1	4	0.0090
52	MyrSpi with PotCri	Patch	8/26/2008	10:29:06am	41.43938	-73.25055	0.6-1	3	0.0058
53	MyrSpi with NajMin, EloNut, PotNat	Patch	8/26/2008	10:36:45am	41.44001	-73.25210	0.6-1	3	0.0697
54	PotCri wit myrSpi, NajMin, PotBic, EloNut, ValAme	Patch	8/26/2008	11:00:10am	41.43876	-73.25071	0.6-1	3	0.1931
55	MyrSpi with ValAme, CerDem, PotCri, PotBic, najMin, EloNut	Patch	8/26/2008	11:07:36am	41.43829	-73.25135	1.1-2	3	0.5635
56	NajMin with MyrSpi, PotCri, EloNut, CalAme, CerDem	Patch	8/26/2008	11:21:51am	41.43841	-73.25125	0-0.5	4	0.2360
57	NajMin with Sagsp., ZosDub, ValAme, PotCri, MyrSpi, EloNut, PotBic	Patch	8/26/2008	11:33:14am	41.43518	-73.25723	0.6-1	4	2.0396
58	MyrSpi with NajMin	Patch	8/27/2008	10:37:18am	41.43738	-73.25286	1.1-2	2	0.0306
59	MyrSpi with PotCri, NajMin, ValAme, NajFle, EloNut, ZosDub, CerDem, PotPer	Patch	8/27/2008	10:46:55am	41.43492	-73.25841	1.1-2	2	3.6194
60	PotCri with NajMin, ZosDub, MyrSpi	Patch	8/27/2008	01:38:58pm	41.43611	-73.25432	0.6-1	1	0.0306
61	PotCri with NajMin, MyrSpi, EloNut, ZosDub	Patch	8/27/2008	01:51:16pm	41.43451	-73.25701	0.6-1	2	0.1447
62	PotCri with NajMin, MyrSpi, ValAme, ZosDub, CerDem	Patch	8/27/2008	02:15:06pm	41.43472	-73.26267	1.1-2	3	0.2373
63	MyrSpi with StuPec, NajMin, PotCri, ValAme, ZosDub	Patch	8/28/2008	08:49:52am	41.43595	-73.26415	1.1-2	3	0.2068
64	NajMin with StuPec, EloNut, MyrSpi, PotCri, ZosDub	Patch	8/28/2008	08:59:40am	41.43610	-73.26423	0.6-1	3	0.0816
65	PotCri with NajMin, MyrSpi	Patch	8/28/2008	09:11:59am	41.43598	-73.26424	0.6-1	3	0.0018
66	PotCri with MyrSpi, NajMin, ZosDub, ValAme	Patch	8/28/2008	09:14:03am	41.43618	-73.26428	0.6-1	2	0.0352
67	NajMin with MyrSpi, ValAme, CerDem	Patch	8/28/2008	09:32:29am	41.44444	-73.26705	0-0.5	4	0.0354
68	MyrSpi with NajMin, ValAme, ZosDub, CerDem	Patch	8/28/2008	09:40:14am	41.44454	-73.26711	1.1-2	3	0.0994
69	MyrSpi with MyrSpi, ValAme, CerDem, PotCri, ZosDub	Patch	8/28/2008	09:50:17am	41.44696	-73.26858	0.6-1	4	1.6819
70	NajMin with MyrSpi, EloNut, CerDem, PotNod, ValAme, PotCri, StuPec,	Patch	9/2/2008	10:56:59am	41.44785	-73.26927	0-0.5	3	1.1015
71	NajMin with MyrSpi	Patch	9/2/2008	01:43:20pm	41.43176	-73.22740	0.6-1	3	0.4202
72	MyrSpi with NajMin, PotCri, ValAme, ZosDub	Patch	9/2/2008	01:48:09pm	41.43184	-73.22731	0.6-1	1	0.3189
73	NajMin with MyrSpi	Patch	9/2/2008	01:57:22pm	41.43170	-73.22707	0.6-1	3	0.0187
74	MyrSpi	Patch	9/2/2008	02:06:27pm	41.43091	-73.22513	1.1-2	3	0.0242
75	MyrSpi with ValAme, PotFol	Patch	9/2/2008	02:16:20pm	41.43079	-73.22204	1.1-2	3	0.0126
76	MyrSpi	Patch	9/2/2008	02:21:29pm	41.43042	-73.21961	1.1-2	2	0.0371
77	MyrSpi with ValAme	Patch	9/2/2008	02:27:09pm	41.42923	-73.21686	2.1-3	2	0.0666
78	NajMin with PotCri, MyrSpi, ValAme, EloNut, StuPec, ZosDub	Patch	9/4/2008	09:53:16am	41.45340	-73.28044	0.6-1	3	0.3001
79	PotCri with MyrSpi, NajMin, ValAme, CerDem, ZosDub	Patch	9/4/2008	10:06:30am	41.45327	-73.28089	1.1-2	2	0.5308
80	NajMin with ValAme, MyrSpi, CerDem, PotCri, PotNod, NajFle, ZosDub	Patch	9/4/2008	10:34:20am	41.45290	-73.28205	0.6-1	3	0.0708
81	PotCri with MyrSpi, EloNut, CerDem, StuPec, ZosDub	Patch	9/4/2008	10:46:31am	41.45259	-73.28275	0.6-1	3	0.0115
82	MyrSpi with ValAme	Patch	9/4/2008	10:52:59am	41.45239	-73.28330	0.6-1	2	0.0078
83	MyrSpi	Patch	9/4/2008	11:08:04am	41.45168	-73.28620	1.1-2	2	0.0526
84	MyrSpi with PotNod, ValAme, StuPec, PotPer, ZosDub, PotCri	Patch	9/4/2008	11:13:47am	41.45038	-73.28869	1.1-2	2	0.4598
85	MyrSpi	Patch	9/4/2008	01:19:32pm	41.42841	-73.21601	1.1-2	1	0.0107
86	MyrSpi swim area in way, thick algaeae, ValAme	Patch	9/4/2008	01:40:48pm	41.42374	-73.20679	1.1-2	3	4.2872
87	NajMin with MyrSpi	Patch	9/8/2008	12:07:50pm	41.42423	-73.20629	0.6-1	2	0.0042
88	MyrSpi	Patch	9/8/2008	12:14:40pm	41.42090	-73.20655	1.1-2	4	0.2471
89	MyrSpi with NajMin, ValAme	Patch	9/8/2008	12:20:36pm	41.42050	-73.20613	1.1-2	4	0.0375
90	NajMin with MyrSpi	Patch	9/8/2008	12:22:56pm	41.42056	-73.20601	0-0.5	2	0.0097

Appendix. Lake Zoar invasive plant location data (3 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
91	MyrSpi	Patch	9/8/2008	12:27:17pm	41.41952	-73.20516	1.1-2	3	0.0511
92	MyrSpi	Patch	9/8/2008	12:36:06pm	41.41760	-73.20234	1.1-2	2	0.0296
93	MyrSpi with ValAme, PotcCri	Patch	9/9/2008	09:06:42am	41.41076	-73.19054	1.1-2	2	0.0278
94	MyrSpi with StuPec, ValAme	Patch	9/9/2008	09:15:24am	41.41044	-73.18923	0.6-1	2	0.1454
95	MyrSpi	Patch	9/9/2008	10:08:22am	41.39576	-73.18576	1.1-2	2	0.0192
96	MyrSpi	Patch	9/9/2008	10:28:45am	41.39531	-73.18475	1.1-2	1	0.0049
97	MyrSpi	Patch	9/10/2008	11:45:49am	41.39491	-73.18415	1.1-2	3	0.1698
98	MyrSpi	Patch	9/10/2008	11:55:42am	41.39422	-73.18299	1.1-2	1	0.0425
99	MyrSpi	Patch	9/10/2008	12:01:21pm	41.39410	-73.18266	2.1-3	3	0.0066
100	MyrSpi	Patch	9/10/2008	01:30:19pm	41.39039	-73.17965	1.1-2	2	0.0302
101	MyrSpi	Patch	9/15/2008	02:12:34pm	41.39149	-73.17397	1.1-2	2	0.0071
102	MyrSpi	Patch	9/15/2008	02:24:14pm	41.38980	-73.17499	1.1-2	3	0.1045
103	MyrSpi 3 plants	Patch	9/15/2008	02:34:13pm	41.38911	-73.17537	1.1-2	1	0.0140
104	MyrSpi	Patch	9/15/2008	02:36:59pm	41.38872	-73.17532	2.1-3	4	0.2888
105	MyrSpi	Patch	9/15/2008	02:44:31pm	41.38816	-73.17491	2.1-3	2	0.0065
106	MyrSpi	Patch	9/16/2008	09:09:53am	41.38634	-73.17377	2.1-3	2	0.6432
107	MyrSpi	Patch	9/16/2008	09:40:14am	41.38498	-73.17227	1.1-2	2	0.0770
108	MyrSpi ValVme along edge 1, Potsp see speciman	Patch	9/16/2008	09:50:43am	41.38188	-73.17577	1.1-2	3	2.5777
109	NajMin	Patch	9/16/2008	10:28:26am	41.38161	-73.17508	0.6-1	2	0.1143
110	MyrSpi	Patch	9/16/2008	10:50:06am	41.38305	-73.17711	2.1-3	2	0.1926
111	MyrSpi	Patch	9/16/2008	10:56:42am	41.38357	-73.17747	2.1-3	2	0.0234
112	MyrSpi	Patch	9/16/2008	10:59:51am	41.38400	-73.17782	2.1-3	2	0.0436
113	MyrSpi	Patch	9/16/2008	11:19:33am	41.38454	-73.17822	1.1-2	2	0.0156
114	MyrSpi	Patch	9/16/2008	11:24:44am	41.38495	-73.17861	1.1-2	2	0.1450
115	MyrSpi ValAme	Patch	9/16/2008	11:39:13am	41.38855	-73.18185	2.1-3	2	0.4162
116	MyrSpi CerDem, ValAme, Potsp, EloNut	Patch	9/17/2008	11:20:42am	41.41315	-73.20162	1.1-2	3	2.7384
117	NajMin ValAme	Patch	9/17/2008	02:14:10pm	41.42515	-73.23676	0.6-1	2	0.0302
118	NajMin ValAme	Patch	9/22/2008	12:25:03pm	41.42504	-73.23767	0.6-1	2	0.0078
119	NajMin CerDem	Patch	9/22/2008	12:43:27pm	41.42701	-73.24193	0.6-1	2	0.0079
120	NajMin	Patch	9/22/2008	12:54:21pm	41.42783	-73.24297	0.6-1	2	0.0046
121	NajMin	Patch	9/22/2008	01:09:43pm	41.42935	-73.24440	0.6-1	2	0.0658
122	MyrSpi CerDem, Potsp, NajMin	Patch	9/22/2008	01:14:43pm	41.42934	-73.24439	0.6-1	2	0.0782
123	PotCri ValAme, CerDem, Potssp, NajmMin, Elosp, za	Patch	9/22/2008	01:30:56pm	41.43155	-73.24520	1.1-2	3	1.3715
124	NajMin	Patch	9/22/2008	02:01:54pm	41.43165	-73.24546	0-0.5	2	0.1091
125	MyrSpi	Patch	9/22/2008	02:09:02pm	41.43256	-73.24478	1.1-2	2	0.0035
126	MyrSpi	Patch	9/22/2008	02:21:32pm	41.43441	-73.24592	1.1-2	2	0.0883
127	NajMin	Patch	9/22/2008	02:54:24pm	41.43590	-73.24507	0.6-1	1	0.0003
128	MyrSpi	Patch	9/22/2008	03:06:28pm	41.43672	-73.24401	1.1-2	2	0.1634
129	NajMin	Patch	9/22/2008	03:14:12pm	41.43691	-73.24394	1.1-2	2	0.0315
130	MyrSpi NajMin, EloNut, ZosDub	Patch	9/24/2008	10:08:52am	41.43780	-73.24382	0.6-1	2	0.1151
131	NajMin CerDem, ValAme	Patch	9/24/2008	10:43:23am	41.43730	-73.24847	1.1-2	2	0.0245
132	NajMin ValAme, cerDem	Patch	9/24/2008	10:49:03am	41.43704	-73.24900	1.1-2	2	0.0046
133	MyrSpi ValAme, ZosDub	Patch	9/24/2008	10:54:44am	41.43765	-73.24907	1.1-2	2	0.9578
134	NajMin	Patch	9/24/2008	11:07:01am	41.43699	-73.24959	0.6-1	2	0.0084
135	NajMin	Patch	9/24/2008	11:12:56am	41.43709	-73.25011	0-0.5	2	0.0112

Appendix. Lake Zoar invasive plant location data (4 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
136	NajMin	Patch	9/24/2008	11:16:21am	41.43711	-73.25033	0.6-1	2	0.0022
137	NajMin	Patch	9/24/2008	11:20:02am	41.43702	-73.25110	0.6-1	2	0.0075
138	MyrSpi ValAme, NajMin	Patch	9/24/2008	11:21:32am	41.43708	-73.25106	0.6-1	2	0.0063
139	NajMin ValAme	Patch	9/24/2008	11:27:02am	41.43696	-73.25136	0.6-1	2	0.0162
140	NajMin	Patch	9/24/2008	11:40:31am	41.43300	-73.25841	0-0.5	2	0.0077
141	NajMin	Patch	9/24/2008	11:42:48am	41.43303	-73.25916	0.6-1	2	0.1536
142	MyrSpi PotNat, ValAme, ZosDub, NajMin	Patch	9/24/2008	11:52:23am	41.43305	-73.25919	1.1-2	2	0.1954
143	MyrSpi ValAme, PotNat	Patch	9/24/2008	12:19:00pm	41.43392	-73.26302	0.6-1	2	0.0104
144	NajMin ValAme, MyrSpi, ZosDub	Patch	9/24/2008	12:25:41pm	41.43506	-73.26487	0.6-1	2	0.0806
145	MyrSpi PotNat, ZosDub, NajMin, ValAme	Patch	9/24/2008	12:31:27pm	41.43511	-73.26491	1.1-2	3	0.0693
146	MyrSpi ValAme, ZosDub	Patch	9/24/2008	12:40:43pm	41.43565	-73.26529	0.6-1	2	0.0136
147	NajMin ZosDub, ValAme	Patch	9/24/2008	12:42:56pm	41.43563	-73.26527	0.6-1	2	0.0186
148	MyrSpi EloNut, PotNat, ValAme, ZosDub, Elisp	Patch	9/24/2008	12:44:54pm	41.43632	-73.26580	0.6-1	3	0.2915
149	NajMin CerDem	Patch	9/24/2008	01:00:31pm	41.43631	-73.26581	0.6-1	2	0.3667
150	PotCri few plants	Patch	9/24/2008	01:12:30pm	41.43632	-73.26580	0.6-1	2	0.3355
151	MyrSpi PotCri, EloNut, ZosDub, ValAme	Patch	9/24/2008	01:31:26pm	41.43794	-73.26656	0.6-1	2	1.1206
152	NajMin PotCri here as well abundance of 2	Patch	9/24/2008	01:37:56pm	41.43827	-73.26749	0.6-1	2	4.2453
153	MarQua with Elasp., PotCri, PotPul	Patch	9/24/2008	01:57:45pm	41.43918	-73.26861	0-0.5	4	0.0320
154	MarQua CerDem, Spasp., PonCor, MyrSpi, Elatine, Eleocharisp.	Patch	9/24/2008	02:07:01pm	41.43898	-73.26898	0-0.5	4	0.0306
155	MarQua PonCor, EloNut, CerDem, Typha	Patch	9/24/2008	02:23:05pm	41.43945	-73.26842	0-0.5	3	0.0083
156	MarQua Ludwigiasp., PonCor, CerDem, MyrSpi, Elasp.	Patch	9/24/2008	02:27:24pm	41.43943	-73.26860	0-0.5	3	0.0239
157	MyrSpi CerDem, EloNut, PotCri	Patch	9/24/2008	02:37:14pm	41.43874	-73.26860	0.6-1	2	1.2625
158	MarQua Elasp., Ludwigiasp., MyrSpi	Patch	9/24/2008	02:49:45pm	41.43838	-73.26863	0-0.5	2	0.0063
159	MarQua Ludwigiasp., Sagssp., Juncussp.,	Patch	9/24/2008	02:54:57pm	41.43827	-73.26856	0-0.5	3	0.0069
160	MarQua Ludwigiasp., Sagssp., Sparganiumsp.	Patch	9/24/2008	03:04:01pm	41.43828	-73.26868	0-0.5	3	0.0077
161	MarQua with Lud-SagittariaSp.	Patch	9/24/2008	03:10:37pm	41.43820	-73.26869	0-0.5	2	0.0011
162	MyrSpi ValAme, StuPuc	Patch	9/24/2008	03:21:50pm	41.43747	-73.26744	0.6-1	2	0.2313
163	MyrSpi	Patch	9/24/2008	03:37:48pm	41.43838	-73.26758	0.6-1	2	0.0024
164	MyrSpi	Patch	9/24/2008	03:38:34pm	41.43815	-73.26781	0.6-1	2	0.3063
165	MyrSpi	Patch	9/24/2008	03:42:29pm	41.43836	-73.26748	0.6-1	2	0.0633
166	MyrSpi	Patch	9/29/2008	01:33:20pm	41.42942	-73.24445	0.6-1	2	0.0296
167	MyrSpi with CerDem, ValAme, EloNut, Sagssp.	Patch	9/29/2008	01:43:40pm	41.43157	-73.24518	1.1-2	3	1.2498
168	PotCri with MyrSpi, CerDem, ElNut	Patch	9/29/2008	01:56:03pm	41.43162	-73.24555	0.6-1	2	0.0076
169	MyrSpi with CerDem	Patch	9/29/2008	02:19:15pm	41.43436	-73.24592	0.6-1	3	0.0523
170	MyrSpi wth CerDem, EloNut, ValAme	Patch	10/2/2008	11:17:34am	41.43588	-73.24477	1.1-2	2	0.4656
171	NajMin with PotCri, EloNut, CerDem, PotBic	Patch	10/6/2008	10:05:53am	41.43197	-73.24273	0.6-1	2	0.4420
172	NajMin with MyrSpi, EloNut	Patch	10/6/2008	10:17:43am	41.43284	-73.24319	0.6-1	2	0.0244
173	MyrSpi with EloNut, PotCri, NajMin, ZosDub, CerDem, ValAme, PotBic	Patch	10/6/2008	10:54:39am	41.44063	-73.26715	0.6-1	4	1.7173
174	PotCri with MyrSpi, CerDem, ValAme, EloNut, NajFle	Patch	10/6/2008	11:18:54am	41.43893	-73.26675	0.6-1	1	0.0422
175	MyrSpi into cove shallow with MyrAqu, ValAme, PotCri, NajMin, ZosDub, EloNut	Patch	10/6/2008	12:25:21pm	41.44581	-73.27015	0.6-1	4	6.2756
176	PotCri with MyrSpi	Patch	10/6/2008	01:24:50pm	41.44495	-73.26960	0-0.5	3	0.2557
177	MarQua with MyrSpi	Patch	10/6/2008	01:39:06pm	41.44614	-73.27159	0.6-1	3	0.0484
178	PotCri with MyrSpi, EloNut	Patch	10/7/2008	10:09:13am	41.44539	-73.26990	0-0.5	1	0.0227
179	PotCri with MyrSpi, EloNut, PotPer	Patch	10/7/2008	10:29:57am	41.44541	-73.26966	0.6-1	2	0.0181
180	PotCri with MyrSpi, PotPer, ValAme, CerDem, EloNut	Patch	10/7/2008	10:43:16am	41.44575	-73.26979	0.6-1	2	0.0265

Appendix. Lake Zoar invasive plant location data (5 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
181	PotCri withh MyrSpi, EloNut, CerDem	Patch	10/7/2008	10:46:49am	41.44610	-73.26996	0.6-1	3	0.0680
182	PotCri with MyrSpi, EloNut	Patch	10/7/2008	10:53:51am	41.44649	-73.27013	1.1-2	1	0.0000
183	PotCri with MyrSpi, EloNut, ValAme	Patch	10/7/2008	10:56:42am	41.44653	-73.27022	0.6-1	2	0.0116
184	PotCri with MyrSpi, EloNut	Patch	10/7/2008	11:02:24am	41.44733	-73.27069	0-0.5	2	0.0334
185	MyrSpi	Patch	10/7/2008	11:20:10am	41.45066	-73.27319	1.1-2	2	0.0095
186	MyrSpi	Patch	10/7/2008	11:23:38am	41.45118	-73.27379	1.1-2	2	0.0738
187	MyrSpi with ValAme, CerDem	Patch	10/7/2008	11:31:22am	41.45176	-73.27494	1.1-2	3	0.0806
188	MyrSpi with ValAme, CerDem, EloNut, PotIII, ZosDub	Patch	10/7/2008	11:37:29am	41.45148	-73.28269	1.1-2	4	2.3327
189	MyrSpi with StuPec, PotPer, ValAme	Patch	10/7/2008	02:10:26pm	41.44954	-73.28848	1.1-2	2	0.1243
190	MyrSpi with ValAme, CerDem	Patch	10/8/2008	11:38:18am	41.42782	-73.23880	0.6-1	4	2.5372
191	MyrSpi with ValAme, CerDem, PotCri	Patch	10/8/2008	12:04:52pm	41.43377	-73.24345	0.6-1	4	19.8304
1	MyrSpi	Point	9/16/2008	01:02:04pm	41.38957	-73.18331	1.1-2	2	0.0002
2	MyrSpi	Point	9/16/2008	01:03:11pm	41.38961	-73.18334	1.1-2	1	0.0002
3	MyrSpi	Point	9/16/2008	01:03:57pm	41.38962	-73.18341	1.1-2	1	0.0002
4	MyrSpi	Point	9/16/2008	01:10:28pm	41.38997	-73.18579	1.1-2	1	0.0002
5	MyrSpi	Point	9/16/2008	01:12:10pm	41.38995	-73.18574	1.1-2	1	0.0002
6	MyrSpi	Point	9/16/2008	01:18:08pm	41.38941	-73.18615	1.1-2	2	0.0002
7	MyrSpi	Point	9/16/2008	01:20:26pm	41.38936	-73.18633	1.1-2	1	0.0002
8	MyrSpi	Point	9/16/2008	01:21:04pm	41.38932	-73.18641	1.1-2	1	0.0002
9	MyrSpi	Point	9/16/2008	01:24:38pm	41.38926	-73.18693	0.6-1	3	0.0002
10	MyrSpi	Point	9/16/2008	01:27:45pm	41.38954	-73.18685	2.1-3	1	0.0002
11	MyrSpi	Point	9/16/2008	01:32:52pm	41.38993	-73.18654	1.1-2	1	0.0002
12	MyrSpi	Point	9/16/2008	01:39:09pm	41.39060	-73.18656	0.6-1	1	0.0002
13	MyrSpi	Point	9/16/2008	01:41:37pm	41.39069	-73.18663	1.1-2	2	0.0002
14	MyrSpi	Point	9/16/2008	01:46:28pm	41.39261	-73.18679	1.1-2	1	0.0002
15	MyrSpi	Point	9/16/2008	01:58:56pm	41.39791	-73.19051	1.1-2	1	0.0002
16	MyrSpi	Point	9/16/2008	02:00:28pm	41.39794	-73.19061	1.1-2	2	0.0002
17	MyrSpi	Point	9/16/2008	02:02:56pm	41.39797	-73.19059	1.1-2	2	0.0002
18	MyrSpi	Point	9/16/2008	02:05:07pm	41.39806	-73.19059	0.6-1	2	0.0002
19	MyrSpi	Point	9/16/2008	02:05:46pm	41.39802	-73.19058	0.6-1	1	0.0002
20	NajMin	Point	9/16/2008	02:13:19pm	41.39863	-73.19053	1.1-2	2	0.0002
21	MyrSpi	Point	9/16/2008	02:15:18pm	41.39869	-73.19026	2.1-3	2	0.0002
22	MyrSpi	Point	9/16/2008	02:16:39pm	41.39873	-73.19011	1.1-2	2	0.0002
23	MyrSpi	Point	9/16/2008	02:22:21pm	41.39965	-73.18905	1.1-2	1	0.0002
24	MyrSpi	Point	9/16/2008	02:23:26pm	41.39973	-73.18904	1.1-2	1	0.0002
25	MyrSpi	Point	9/16/2008	02:25:31pm	41.40006	-73.18898	1.1-2	2	0.0002
26	NajMin	Point	9/16/2008	02:37:12pm	41.40062	-73.18868	0.6-1	3	0.0002
27	MyrSpi	Point	9/16/2008	02:39:43pm	41.40077	-73.18824	1.1-2	1	0.0002
28	MyrSpi	Point	9/16/2008	02:42:39pm	41.40094	-73.18794	1.1-2	1	0.0002
29	MyrSpi	Point	9/15/2008	11:34:31am	41.38952	-73.1776	0.6-1	1	0.0002
30	MyrSpi	Point	9/15/2008	11:41:16am	41.38902	-73.17692	2.1-3	1	0.0002
31	MyrSpi	Point	9/15/2008	11:51:21am	41.38908	-73.17661	1.1-2	1	0.0002
32	MyrSpi	Point	9/15/2008	11:55:36am	41.38943	-73.17638	1.1-2	1	0.0002
33	MyrSpi	Point	9/15/2008	12:02:21pm	41.38957	-73.17635	1.1-2	1	0.0002
34	MyrSpi	Point	9/15/2008	12:08:36pm	41.3916	-73.175	1.1-2	1	0.0002



Appendix. Lake Zoar invasive plant location data (6 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
35	MyrSpi	Point	9/15/2008	12:10:06pm	41.39159	-73.17496	1.1-2	1	0.0002
36	MyrSpi	Point	9/15/2008	12:12:26pm	41.39156	-73.17506	1.1-2	1	0.0002
37	MyrSpi	Point	9/15/2008	12:13:26pm	41.39156	-73.175	1.1-2	1	0.0002
38	PotCri	Point	9/15/2008	12:23:46pm	41.39182	-73.17472	0.6-1	1	0.0002
39	PotCri with MyrSpi, CerDem, EloNut, ZosDub	Point	9/3/2008	01:51:26pm	41.44716	-73.26862	0.6-1	1	0.0002
40	PotCri with MyrSpi, CerDem, ZosDub, NajMin, EloNut	Point	9/3/2008	01:58:31pm	41.44766	-73.26899	0.6-1	3	0.0002
41	PotCri with MyrSpi, CerDem, NajMin, EloNut	Point	9/3/2008	01:59:26pm	41.44778	-73.26904	0-0.5	2	0.0002
42	PotCri with MyrSpi, NajMin	Point	9/3/2008	02:11:58pm	41.44842	-73.26966	0.6-1	1	0.0002
43	PotCri with MyrSpi, NajMin	Point	9/3/2008	02:12:35pm	41.44843	-73.26971	1.1-2	1	0.0002
44	PotCri with MyrSpi, NajMin	Point	9/3/2008	02:13:31pm	41.44853	-73.26984	1.1-2	1	0.0002
45	PotCri with MyrSpi, NajMin	Point	9/3/2008	02:14:00pm	41.44856	-73.26986	1.1-2	1	0.0002
46	PotCri with MyrSpi, EloNut, NajMin	Point	9/3/2008	02:14:47pm	41.44863	-73.26996	1.1-2	2	0.0002
47	PotCri with ValAme, MyrSpi, EloNut	Point	9/3/2008	02:16:45pm	41.44881	-73.27014	0.6-1	3	0.0002
48	PotCri with ValAme, MyrSpi, NajMin	Point	9/3/2008	02:18:24pm	41.44911	-73.27046	0.6-1	3	0.0002
49	PotCri with ValAme, MyrSpi, NajMin, EloNut	Point	9/3/2008	02:20:42pm	41.44946	-73.27082	0-0.5	2	0.0002
50	PotCri with MyrSpi, NjaMin, ValAme	Point	9/3/2008	02:22:05pm	41.44952	-73.27093	0.6-1	2	0.0002
51	PotCri with MyrSpi, ValAme, NajMin	Point	9/3/2008	02:22:52pm	41.44958	-73.27095	0.6-1	2	0.0002
52	PotCri with NajMin	Point	9/3/2008	02:33:55pm	41.45027	-73.27156	1.1-2	3	0.0002
53	NajMin with PotCri, rocks in way	Point	9/3/2008	02:34:26pm	41.45029	-73.27154	0.6-1	4	0.0002
54	MyrSpi with PotCri	Point	9/3/2008	02:35:26pm	41.45033	-73.27159	2.1-3	2	0.0002
55	PotCri with ValAme	Point	9/3/2008	02:36:07pm	41.45035	-73.27162	1.1-2	3	0.0002
56	NajMin	Point	9/3/2008	02:36:37pm	41.45036	-73.27159	0-0.5	1	0.0002
57	PotCri with MyrSpi	Point	9/3/2008	02:38:59pm	41.45039	-73.27164	2.1-3	1	0.0002
58	MyrSpi with PotCri, ValAme	Point	9/3/2008	02:39:28pm	41.45039	-73.27165	2.1-3	1	0.0002
59	PotCri with MyrSpi	Point	9/3/2008	02:49:56pm	41.45066	-73.27186	0.6-1	3	0.0002
60	NajMin with StuPec	Point	9/3/2008	02:50:19pm	41.45067	-73.27184	0-0.5	4	0.0002
61	NajMin with PotCri, ValAme, ZosDub	Point	9/3/2008	03:18:23pm	41.45101	-73.27208	0-0.5	3	0.0002
62	PotCri with NajMin, ValAme, ZosDub	Point	9/3/2008	03:18:50pm	41.45101	-73.27208	0-0.5	2	0.0002
63	NajMin with ValAme, PotNod, ZosDub	Point	9/3/2008	03:20:04pm	41.4511	-73.27216	0-0.5	3	0.0002
64	NajMin with ValAme, CerDem, PotNod, MyrSpi	Point	9/3/2008	03:22:19pm	41.45149	-73.27254	0-0.5	3	0.0002
65	PotCri with NajMin, MyrSpi, ValAme	Point	9/3/2008	03:31:49pm	41.45155	-73.27261	0.6-1	2	0.0002
66	PotCri with ValAme, MyrSpi, NajMin	Point	9/3/2008	03:32:28pm	41.45157	-73.27262	0.6-1	2	0.0002
67	PotCri with ValAme, MyrSpi, NajMin	Point	9/3/2008	03:33:29pm	41.4516	-73.27268	0.6-1	2	0.0002
68	PotCri with ValAme, MyrSpi	Point	9/3/2008	03:34:07pm	41.45165	-73.27276	0.6-1	2	0.0002
69	PotCri with PotNod	Point	9/3/2008	03:34:43pm	41.45174	-73.27287	0.6-1	2	0.0002
70	PotCri with MyrSpi, ValAme	Point	9/3/2008	03:35:18pm	41.4518	-73.27292	0-0.5	4	0.0002
71	PotCri with MyrSpi, ValAme, PotNod	Point	9/3/2008	03:36:15pm	41.45185	-73.27306	1.1-2	2	0.0002
72	NajMin with ValAme, MyrSpi	Point	9/3/2008	03:37:28pm	41.45198	-73.27333	1.1-2	1	0.0002
73	PotCri with ValAme, ZosDub	Point	9/3/2008	03:38:14pm	41.45199	-73.27332	0.6-1	2	0.0002
74	PotCri with ValAme, myrSpi	Point	9/3/2008	03:39:09pm	41.45204	-73.27342	0-0.5	2	0.0002
75	NajMin with ValAme, MyrSpi	Point	9/3/2008	03:39:59pm	41.45214	-73.27359	0-0.5	2	0.0002
76	MyrSpi with ZosDud	Point	9/3/2008	03:41:26pm	41.45239	-73.27404	1.1-2	2	0.0002
77	MyrSpi	Point	9/8/2008	01:47:26pm	41.41169	-73.19531	1.1-2	1	0.0002
78	MyrSpi	Point	9/8/2008	01:47:56pm	41.41166	-73.19517	1.1-2	1	0.0002
79	MyrSpi	Point	9/8/2008	02:05:43pm	41.41127	-73.19192	1.1-2	1	0.0002

Appendix. Lake Zoar invasive plant location data (7 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
80	MyrSpi	Point	9/8/2008	02:06:05pm	41.41123	-73.19181	1.1-2	1	0.0002
81	MyrSpi	Point	9/8/2008	02:06:24pm	41.41121	-73.19175	1.1-2	1	0.0002
82	MyrSpi	Point	9/8/2008	02:07:06pm	41.41109	-73.19135	1.1-2	1	0.0002
83	MyrSpi	Point	9/8/2008	02:07:25pm	41.41116	-73.19128	1.1-2	1	0.0002
84	MyrSpi trees in way of patch	Point	9/8/2008	02:08:51pm	41.41162	-73.19083	1.1-2	2	0.0002
85	NajMin with PotFol	Point	9/8/2008	02:14:14pm	41.4116	-73.19068	0-0.5	1	0.0002
86	MyrSpi with ZosDub	Point	9/8/2008	02:16:00pm	41.41118	-73.19072	1.1-2	1	0.0002
87	MyrSpi with ValAme	Point	8/21/2008	01:49:01pm	41.42743	-73.2373	0-0.5	2	0.0002
88	MyrSpi	Point	8/21/2008	01:50:06pm	41.42745	-73.23723	0-0.5	2	0.0002
89	MyrSpi with ValAme	Point	8/21/2008	01:50:43pm	41.42745	-73.23714	0-0.5	3	0.0002
90	MyrSpi with ValAme	Point	8/21/2008	01:52:13pm	41.42736	-73.23724	0-0.5	2	0.0002
91	MyrSpi with ValAme	Point	8/21/2008	01:52:40pm	41.42734	-73.23728	0-0.5	1	0.0002
92	MyrSpi	Point	8/21/2008	01:53:23pm	41.42735	-73.23735	0-0.5	1	0.0002
93	MyrSpi with ValAme	Point	8/21/2008	01:54:40pm	41.42733	-73.23753	0-0.5	1	0.0002
94	MyrSpi with ValAme	Point	8/21/2008	01:55:23pm	41.42736	-73.23765	0-0.5	3	0.0002
95	PotCri with ValAme, MyrSpi	Point	8/21/2008	01:56:01pm	41.42734	-73.23773	0.6-1	1	0.0002
96	MyrSpi with ValAme, PotCri	Point	8/21/2008	01:56:50pm	41.42733	-73.23774	0.6-1	1	0.0002
97	MyrSpi with ValAme	Point	8/21/2008	01:57:49pm	41.42737	-73.23774	0.6-1	2	0.0002
98	MyrSpi with ValAme	Point	8/21/2008	01:58:13pm	41.42738	-73.23776	0.6-1	2	0.0002
99	MyrSpi with ValAme	Point	8/21/2008	01:58:32pm	41.42739	-73.23779	0.6-1	1	0.0002
100	MyrSpi with ValAme	Point	8/21/2008	01:59:18pm	41.42736	-73.23783	0.6-1	1	0.0002
101	PotCri with ValAme, MyrSpi	Point	8/21/2008	02:10:27pm	41.42741	-73.2379	0-0.5	1	0.0002
102	PotCri with ValAme, MyrSpi	Point	8/21/2008	02:11:33pm	41.42739	-73.23804	0.6-1	1	0.0002
103	PotCri with ValAme, MyrSpi	Point	8/21/2008	02:12:43pm	41.42739	-73.2382	0.6-1	1	0.0002
104	NajMin with ValAme, MyrSpi	Point	8/21/2008	02:15:27pm	41.42746	-73.23816	0-0.5	1	0.0002
105	PotCri with ValAme	Point	8/21/2008	02:16:16pm	41.42745	-73.23833	1.1-2	2	0.0002
106	PotCri wih ValAme	Point	8/21/2008	02:17:19pm	41.42747	-73.23834	0.6-1	1	0.0002
107	PotCri with ValAme, MyrSpi	Point	8/21/2008	02:17:38pm	41.42749	-73.23833	0.6-1	2	0.0002
108	PotCri wiith ValAme, MyrSpi	Point	8/21/2008	02:18:33pm	41.42752	-73.23842	1.1-2	1	0.0002
109	PotCri with ValAme	Point	8/21/2008	02:19:11pm	41.42749	-73.23839	1.1-2	2	0.0002
110	PotCri with ValAme	Point	8/21/2008	02:19:38pm	41.42746	-73.23839	1.1-2	1	0.0002
111	PotCri with ValAme	Point	8/21/2008	02:20:19pm	41.42747	-73.23846	1.1-2	2	0.0002
112	PotCri with ValAme	Point	8/21/2008	02:20:49pm	41.42751	-73.2385	1.1-2	1	0.0002
113	NajMin with ValAme	Point	8/21/2008	02:21:09pm	41.42753	-73.23851	1.1-2	1	0.0002
114	NajMin with ValAme	Point	8/21/2008	02:21:45pm	41.42759	-73.2386	1.1-2	2	0.0002
115	NajMin with ValAme, CerDem, MyrSpi	Point	8/21/2008	02:22:18pm	41.42761	-73.2386	0.6-1	2	0.0002
116	PotCri with ValAme, MyrSpi	Point	8/21/2008	02:23:30pm	41.42765	-73.23875	1.1-2	2	0.0002
117	PotCri with ValAme	Point	8/21/2008	02:24:07pm	41.42771	-73.23885	1.1-2	3	0.0002
118	PotCri with MyrSpi, ValAme	Point	8/21/2008	02:24:49pm	41.42774	-73.23901	1.1-2	2	0.0002
119	PotCri with ValAme	Point	8/21/2008	02:25:54pm	41.42785	-73.23909	1.1-2	2	0.0002
120	PotCri with ValAme	Point	8/21/2008	02:28:27pm	41.42825	-73.23957	0.6-1	1	0.0002
121	MyrSpi with ValAme	Point	8/21/2008	02:29:28pm	41.42832	-73.23964	1.1-2	1	0.0002
122	MyrSpi with ValAme	Point	8/21/2008	02:30:20pm	41.42835	-73.23959	0.6-1	1	0.0002
123	MyrSpi with ValAme	Point	8/21/2008	02:31:55pm	41.42835	-73.23965	1.1-2	1	0.0002
124	MyrSpi with ValAme	Point	8/21/2008	02:32:52pm	41.42855	-73.23985	1.1-2	2	0.0002

Appendix. Lake Zoar invasive plant location data (8 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
125	MyrSpi with ValAme	Point	8/21/2008	02:33:42pm	41.42874	-73.23996	1.1-2	1	0.0002
126	MyrSpi with ValAme	Point	8/21/2008	02:34:07pm	41.42879	-73.23996	1.1-2	1	0.0002
127	MyrSpi with ValAme	Point	8/21/2008	02:35:15pm	41.42897	-73.24011	1.1-2	1	0.0002
128	MyrSpi with ValAme	Point	8/21/2008	02:35:42pm	41.42903	-73.24013	1.1-2	2	0.0002
129	NajMin with ValAme	Point	8/21/2008	02:36:01pm	41.42907	-73.24011	0.6-1	3	0.0002
130	MyrSpi with ValAme	Point	8/21/2008	02:37:10pm	41.42913	-73.24018	0.6-1	1	0.0002
131	MyrSpi with ValAme	Point	8/21/2008	02:38:20pm	41.42916	-73.2402	1.1-2	1	0.0002
132	MyrSpi with ValAme, CerDem	Point	8/21/2008	02:38:50pm	41.42923	-73.24022	0.6-1	2	0.0002
133	NajMin with ValAme, CerDem	Point	8/25/2008	09:43:36am	41.42945	-73.24028	0.6-1	3	0.0002
134	NajMin with ValAme	Point	8/25/2008	09:47:12am	41.42965	-73.24031	0.6-1	2	0.0002
135	PotCri with ValAme	Point	8/25/2008	09:47:38am	41.42962	-73.24031	0.6-1	1	0.0002
136	PotCri with NajMin, ValAme	Point	8/25/2008	09:48:42am	41.42968	-73.24032	0.6-1	2	0.0002
137	NajMin with PotCri, ValAme	Point	8/25/2008	09:49:01am	41.42968	-73.24033	0.6-1	2	0.0002
138	PotCri with MyrSpi, ValAme	Point	8/25/2008	11:05:32am	41.43945	-73.24366	1.1-2	3	0.0002
139	PotCri with MyrSpi, ValAme	Point	8/25/2008	11:07:57am	41.43954	-73.24367	0.6-1	2	0.0002
140	PotCri with MyrSpi	Point	8/25/2008	11:11:44am	41.43994	-73.24406	0.6-1	2	0.0002
141	PotCri with MyrSpi	Point	8/25/2008	11:35:11am	41.4403	-73.24496	1.1-2	2	0.0002
142	PotCri with MyrSpi	Point	8/25/2008	11:36:03am	41.44037	-73.24511	1.1-2	2	0.0002
143	PotCri with NajMin, ValAme, MyrSpi	Point	8/25/2008	11:36:48am	41.44046	-73.24522	1.1-2	1	0.0002
144	PotCri with MyrSpi, ValAme	Point	8/25/2008	11:49:14am	41.44052	-73.2453	0.6-1	1	0.0002
145	PotCri with MyrSpi	Point	8/25/2008	11:50:11am	41.44053	-73.24537	1.1-2	1	0.0002
146	PotCri with MyrSpi	Point	8/25/2008	11:50:45am	41.44055	-73.24546	1.1-2	1	0.0002
147	PotCri with ValAme, MyrSpi	Point	8/25/2008	11:51:22am	41.44059	-73.24552	1.1-2	1	0.0002
148	PotCri	Point	8/25/2008	12:09:21pm	41.43988	-73.24733	0-0.5	4	0.0002
149	PotCri with EloCan, MyrSpi	Point	8/25/2008	01:37:05pm	41.44036	-73.24697	1.1-2	1	0.0002
150	PotCri with MyrSpi, EloCan, CerDem	Point	8/25/2008	01:38:04pm	41.44038	-73.24706	1.1-2	1	0.0002
151	PotCri with MyrSpi	Point	8/25/2008	01:38:46pm	41.44038	-73.24719	1.1-2	1	0.0002
152	PotCri with MyrSpi, EloCan, CerDem	Point	8/25/2008	01:39:17pm	41.44037	-73.24727	1.1-2	1	0.0002
153	PotCri with EloCan, MyrSpi, DerDem	Point	8/25/2008	01:39:41pm	41.44038	-73.2473	1.1-2	1	0.0002
154	MyrSpi with NajMin	Point	8/25/2008	01:50:20pm	41.43997	-73.24712	0-0.5	2	0.0002
155	PotCri with NajMin	Point	8/25/2008	01:50:39pm	41.44	-73.2471	0-0.5	1	0.0002
156	PotCri with NajMin	Point	8/25/2008	01:51:07pm	41.43996	-73.24702	0-0.5	2	0.0002
157	MyrSpi with NajMin	Point	8/25/2008	01:51:32pm	41.43994	-73.24701	0-0.5	1	0.0002
158	MyrSpi	Point	8/25/2008	01:51:57pm	41.43989	-73.24696	0-0.5	1	0.0002
159	PotCri	Point	8/25/2008	02:12:04pm	41.43938	-73.24846	0-0.5	3	0.0002
160	MyrSpi with PotCri	Point	8/25/2008	02:12:59pm	41.43939	-73.24853	0-0.5	1	0.0002
161	PotCri with MyrSpi	Point	8/25/2008	02:13:16pm	41.43937	-73.24851	0-0.5	2	0.0002
162	MyrSpi	Point	8/25/2008	02:14:35pm	41.43929	-73.24863	0.6-1	1	0.0002
163	NajMin	Point	8/25/2008	02:15:19pm	41.43929	-73.24871	0.6-1	2	0.0002
164	MyrSpi	Point	8/26/2008	09:47:16am	41.43929	-73.24898	0-0.5	1	0.0002
165	PotCri	Point	8/26/2008	09:47:39am	41.43931	-73.24896	0-0.5	3	0.0002
166	NajMin	Point	8/26/2008	09:48:12am	41.43936	-73.24897	0-0.5	2	0.0002
167	NajMin	Point	8/26/2008	09:48:58am	41.43932	-73.24915	0-0.5	2	0.0002
168	MyrSpi with EloNut	Point	8/26/2008	09:49:12am	41.43931	-73.24918	0-0.5	1	0.0002
169	MyrSpi with PotBic	Point	8/26/2008	09:50:00am	41.43932	-73.24927	0-0.5	1	0.0002

Appendix. Lake Zoar invasive plant location data (9 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
170	PotCri with PotBic	Point	8/26/2008	09:52:53am	41.43936	-73.24925	0-0.5	2	0.0002
171	MyrSpi with PotCri, NajMin, PotBic	Point	8/26/2008	10:02:07am	41.43937	-73.24957	0-0.5	1	0.0002
172	MyrSpi with CerDem	Point	8/26/2008	10:21:23am	41.43919	-73.24982	0.6-1	1	0.0002
173	MyrSpi	Point	8/26/2008	10:22:49am	41.43911	-73.24983	1.1-2	1	0.0002
174	NajMin	Point	8/26/2008	10:23:45am	41.43914	-73.24979	0.6-1	2	0.0002
175	NajMin with PotCri	Point	8/26/2008	10:24:31am	41.43921	-73.24994	0.6-1	2	0.0002
176	NajMin with PotCri, EloNut	Point	8/26/2008	10:25:04am	41.43925	-73.25003	0.6-1	2	0.0002
177	NajMin with PotBic, PotCri	Point	8/26/2008	10:25:40am	41.43928	-73.25006	0-0.5	2	0.0002
178	NajMin	Point	8/26/2008	10:26:09am	41.43931	-73.25008	0-0.5	2	0.0002
179	NajMin with PotCri	Point	8/26/2008	10:27:02am	41.4393	-73.25022	0-0.5	3	0.0002
180	NajMin with MyrSpi	Point	8/26/2008	10:31:36am	41.43951	-73.25095	0-0.5	2	0.0002
181	MyrSpi with NajMin	Point	8/26/2008	10:32:05am	41.4395	-73.25095	0-0.5	1	0.0002
182	PotCri with MyrSpi, CerDem, EloNut	Point	8/26/2008	10:32:51am	41.43949	-73.25094	0.6-1	2	0.0002
183	NajMin with EloNut	Point	8/26/2008	10:33:35am	41.43954	-73.251	0-0.5	4	0.0002
184	MyrSpi	Point	8/26/2008	10:34:12am	41.43953	-73.25105	0.6-1	1	0.0002
185	NajMin runs along MyrSpi, too shallow and wall in way	Point	8/26/2008	10:45:47am	41.43991	-73.25178	0-0.5	4	0.0002
186	NajMin	Point	8/26/2008	10:48:56am	41.43962	-73.25215	0-0.5	2	0.0002
187	PotCri with EloNut	Point	8/26/2008	10:52:40am	41.43914	-73.25097	0.6-1	2	0.0002
188	MyrSpi	Point	8/26/2008	10:53:06am	41.43916	-73.25096	1.1-2	1	0.0002
189	MyrSpi with PotVas	Point	8/26/2008	10:54:12am	41.4391	-73.25085	0.6-1	1	0.0002
190	PotCri with MyrSpi	Point	8/26/2008	10:54:37am	41.43909	-73.25087	0.6-1	3	0.0002
191	PotCri with NajMin	Point	8/26/2008	10:55:21am	41.43906	-73.25078	0-0.5	2	0.0002
192	NajMin with potCri	Point	8/26/2008	10:55:38am	41.43905	-73.25078	0-0.5	3	0.0002
193	PotCri	Point	8/26/2008	10:56:53am	41.43902	-73.25072	0-0.5	2	0.0002
194	PotCri with MyrSpi, ValAme	Point	8/27/2008	10:36:11am	41.43755	-73.25257	1.1-2	2	0.0002
195	PotCri with NajMin, NajFle, PotBic	Point	8/27/2008	10:42:57am	41.43711	-73.25325	0.6-1	3	0.0002
196	MyrSpi with najMin, MyrSpi, PotCri	Point	8/27/2008	10:43:29am	41.43712	-73.25324	0.6-1	2	0.0002
197	MyrSpi with NajMin, NajFle	Point	8/27/2008	10:44:54am	41.43706	-73.25329	0.6-1	1	0.0002
198	PotCri with NajMin	Point	8/27/2008	10:45:22am	41.43704	-73.25332	0.6-1	2	0.0002
199	PotCri with NajMin, PotBic	Point	8/27/2008	10:46:15am	41.43697	-73.25339	1.1-2	3	0.0002
200	PotCri with NajMin, MyrSpi	Point	8/27/2008	01:31:06pm	41.43683	-73.25356	1.1-2	3	0.0002
201	PotCri with NajMin	Point	8/27/2008	01:33:14pm	41.43656	-73.25389	0.6-1	4	0.0002
202	PotCri with NajMin, CerDem	Point	8/27/2008	01:34:41pm	41.43643	-73.254	1.1-2	1	0.0002
203	PotCri with NajMin, ZosDub	Point	8/27/2008	01:37:09pm	41.43617	-73.25425	1.1-2	2	0.0002
204	PotCri with NajMin	Point	8/27/2008	01:37:49pm	41.4361	-73.25428	1.1-2	2	0.0002
205	PotCri with NajMin	Point	8/27/2008	01:42:39pm	41.43561	-73.25489	0.6-1	1	0.0002
206	PotCri with NajMin, MyrSpi	Point	8/27/2008	01:44:02pm	41.43538	-73.25519	1.1-2	1	0.0002
207	PotCri with NajMin, MyrSpi	Point	8/27/2008	01:45:20pm	41.43523	-73.25544	0.6-1	2	0.0002
208	PotCri with NajMin, MyrSpi	Point	8/27/2008	01:46:08pm	41.43514	-73.25562	0.6-1	3	0.0002
209	PotCri with MyrSpi	Point	8/27/2008	01:46:28pm	41.43512	-73.25566	0.6-1	3	0.0002
210	PotCri with MyrSpi	Point	8/27/2008	01:46:53pm	41.4351	-73.2557	0.6-1	2	0.0002
211	PotCri with NajMin	Point	8/27/2008	01:47:21pm	41.43507	-73.25576	0-0.5	1	0.0002
212	PotCri with MyrSpi	Point	8/27/2008	01:47:54pm	41.435	-73.25586	0.6-1	2	0.0002
213	PotCri with NajMin, MyrSpi	Point	8/27/2008	01:49:01pm	41.43494	-73.25598	0.6-1	2	0.0002
214	PotCri with NajMin	Point	8/27/2008	01:49:40pm	41.4349	-73.25605	0.6-1	2	0.0002



Appendix. Lake Zoar invasive plant location data (10 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
215	PotCri with MyrSpi	Point	8/27/2008	01:50:17pm	41.43487	-73.25609	0.6-1	2	0.0002
216	PotCri with MyrSpi	Point	8/27/2008	01:50:46pm	41.43487	-73.25614	0.6-1	2	0.0002
217	PotCri with NajMin, MyrSpi	Point	8/27/2008	02:05:02pm	41.43414	-73.25847	1.1-2	1	0.0002
218	PotCri with MyrSpi	Point	8/27/2008	02:05:37pm	41.43414	-73.25854	1.1-2	1	0.0002
219	PotCri with MyrSpi	Point	8/27/2008	02:06:23pm	41.43414	-73.25877	1.1-2	1	0.0002
220	PotCri with NajMin, MyrSpi	Point	8/27/2008	02:11:14pm	41.43434	-73.26141	1.1-2	2	0.0002
221	PotCri with MyrSpi	Point	8/27/2008	02:11:50pm	41.43435	-73.2615	1.1-2	2	0.0002
222	PotCri with MyrSpi	Point	8/27/2008	02:12:31pm	41.43435	-73.26159	1.1-2	3	0.0002
223	PotCri with NajMin, MyrSpi, ValAme	Point	8/27/2008	02:13:12pm	41.43442	-73.26175	1.1-2	2	0.0002
224	PotCri with NajMin, MyrSpi, ValAme	Point	8/27/2008	02:13:55pm	41.43445	-73.26185	0.6-1	2	0.0002
225	PotCri with MyrSpi, ValAme	Point	8/28/2008	09:09:41am	41.43587	-73.26412	1.1-2	2	0.0002
226	PotCri with MyrSpi, ValAme, EloNut	Point	8/28/2008	09:10:29am	41.43589	-73.26414	1.1-2	2	0.0002
227	PotCri with MyrSpi, ValAme	Point	8/28/2008	09:11:08am	41.43594	-73.26419	1.1-2	1	0.0002
228	PotCri with NajMin, MyrSpi	Point	8/28/2008	09:13:19am	41.43605	-73.26429	1.1-2	2	0.0002
229	MyrSpi with NajMin, ValAme	Point	8/28/2008	09:20:48am	41.43754	-73.26485	0.6-1	1	0.0002
230	NajMin with NajMin, MyrSpi	Point	8/28/2008	09:21:13am	41.43755	-73.26485	0.6-1	1	0.0002
231	PotCri with NajMin, MyrSpi	Point	9/2/2008	11:52:36am	41.4459	-73.26764	0-0.5	1	0.0002
232	PotCri with NajMin, MyrSpi	Point	9/2/2008	11:53:34am	41.44596	-73.2677	0.6-1	2	0.0002
233	PotCri with MyrSpi, CerDem, ValAme	Point	9/2/2008	11:54:51am	41.44619	-73.26784	0.6-1	2	0.0002
234	PotCri with MyrSpi, ValAme, NajMin	Point	9/2/2008	11:56:40am	41.44653	-73.2681	0.6-1	2	0.0002
235	PotCri with MyrSpi, EloNut, ValAme	Point	9/2/2008	11:57:32am	41.44655	-73.26816	0.6-1	2	0.0002
236	PotCri with ValAme, MyrSpi, NajMin	Point	9/2/2008	11:58:21am	41.44661	-73.2682	0.6-1	2	0.0002
237	PotCri with MyrSpi, ValAme, PotPer	Point	9/2/2008	11:58:58am	41.44667	-73.26818	0.6-1	1	0.0002
238	PotCri with NajMin, MyrSpi, ValAme	Point	9/2/2008	11:59:55am	41.44673	-73.26819	0-0.5	3	0.0002
239	PotCri with NajMin, EloNut, MyrSpi, CerDem	Point	9/2/2008	12:01:29pm	41.44696	-73.26841	0-0.5	2	0.0002
240	PotCri with MyrSpi	Point	9/2/2008	01:54:56pm	41.43206	-73.22717	0-0.5	2	0.0002
241	MyrSpi with NajMin	Point	9/2/2008	01:59:21pm	41.43166	-73.22708	0.6-1	1	0.0002
242	MyrSpi with NajMin	Point	9/2/2008	01:59:51pm	41.43164	-73.22702	0-0.5	1	0.0002
243	MyrSpi docks in way with NajMin	Point	9/2/2008	02:09:13pm	41.43087	-73.2249	1.1-2	3	0.0002
244	NajMin with MyrSpi	Point	9/2/2008	02:10:01pm	41.43088	-73.22487	1.1-2	2	0.0002
245	PotCri with MyrSpi	Point	9/4/2008	09:50:41am	41.45341	-73.27961	1.1-2	2	0.0002
246	PotCri with MyrSpi, NajMin, CerDem	Point	9/4/2008	10:04:20am	41.45345	-73.28017	0.6-1	2	0.0002
247	PotCri with MyrSpi, ValAme, NajMin, CerDem	Point	9/4/2008	10:05:26am	41.45346	-73.28027	0.6-1	3	0.0002
248	PotCri with NajMin, MyrSpi, CerDem, ZosDub	Point	9/4/2008	10:42:14am	41.45297	-73.28191	0.6-1	2	0.0002
249	PotCri with NajMin, MyrSpi, ZosDub	Point	9/4/2008	10:43:03am	41.45293	-73.282	0.6-1	2	0.0002
250	PotCri with MyrSpi, CerDem	Point	9/4/2008	10:44:40am	41.45274	-73.28235	1.1-2	1	0.0002
251	PotCri with MyrSpi, ZosDub, PotNod	Point	9/4/2008	10:45:35am	41.45267	-73.28253	0.6-1	3	0.0002
252	PotCri with MyrSpi	Point	9/4/2008	10:50:23am	41.45253	-73.28292	1.1-2	4	0.0002
253	NajMin with ValAme, ZosDub	Point	9/4/2008	10:50:46am	41.45254	-73.28295	0.6-1	4	0.0002
254	PotCri with NajMin, ValAme, ZosDub	Point	9/4/2008	10:51:17am	41.45255	-73.28297	0.6-1	1	0.0002
255	MyrSpi with ValAme	Point	9/4/2008	10:56:29am	41.45223	-73.2841	1.1-2	1	0.0002
256	MyrSpi with ZosDub	Point	9/4/2008	11:03:30am	41.45204	-73.28508	1.1-2	4	0.0002
257	MyrSpi with ZosDub	Point	9/4/2008	11:05:02am	41.45197	-73.2854	0.6-1	2	0.0002
258	MyrSpi	Point	9/4/2008	11:06:37am	41.45187	-73.28569	0-0.5	1	0.0002
259	MyrSpi	Point	9/4/2008	11:07:19am	41.45184	-73.2858	0.6-1	2	0.0002

Appendix. Lake Zoar invasive plant location data (11 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
260	PotCri with NajMin, MyrSpi	Point	9/4/2008	11:36:31am	41.45083	-73.28795	0.6-1	2	0.0002
261	MyrSpi	Point	9/4/2008	01:18:16pm	41.42857	-73.21616	1.1-2	1	0.0002
262	MyrSpi	Point	9/4/2008	01:26:51pm	41.42533	-73.21367	1.1-2	1	0.0002
263	NajMin with MyrSpi, PotCri	Point	9/8/2008	12:04:06pm	41.42482	-73.20647	0-0.5	1	0.0002
264	PotCri with NajMin, MyrSpi	Point	9/8/2008	12:04:38pm	41.42479	-73.20648	0-0.5	1	0.0002
265	PotCri with MyrSpi	Point	9/8/2008	12:06:44pm	41.42428	-73.20627	0-0.5	2	0.0002
266	NajMin with MyrSpi	Point	9/8/2008	12:07:07pm	41.4243	-73.20626	0-0.5	1	0.0002
267	NajMin with MyrSpi	Point	9/8/2008	12:09:19pm	41.42407	-73.20623	0.6-1	1	0.0002
268	MyrSpi	Point	9/8/2008	12:25:20pm	41.4201	-73.20601	1.1-2	2	0.0002
269	MyrSpi	Point	9/8/2008	12:26:12pm	41.41987	-73.2057	1.1-2	2	0.0002
270	NajMin	Point	9/8/2008	12:32:00pm	41.4187	-73.2042	0-0.5	2	0.0002
271	MyrSpi	Point	9/8/2008	12:34:13pm	41.41797	-73.20327	1.1-2	1	0.0002
272	MyrSpi	Point	9/8/2008	12:34:32pm	41.41794	-73.2032	1.1-2	2	0.0002
273	MyrSpi	Point	9/8/2008	12:35:35pm	41.4177	-73.20261	1.1-2	2	0.0002
274	MyrSpi	Point	9/8/2008	12:40:45pm	41.41633	-73.20048	1.1-2	2	0.0002
275	MyrSpi	Point	9/8/2008	12:41:26pm	41.41609	-73.20022	1.1-2	2	0.0002
276	MyrSpi	Point	9/8/2008	12:47:37pm	41.41238	-73.19703	1.1-2	1	0.0002
277	PotCri with MyrSpi, Valame, StuPec	Point	9/9/2008	09:10:16am	41.4108	-73.19052	1.1-2	2	0.0002
278	PotCri withh MyrSpi	Point	9/9/2008	09:12:50am	41.41075	-73.19046	1.1-2	1	0.0002
279	MyrSpi	Point	9/9/2008	09:23:16am	41.4107	-73.18831	0.6-1	1	0.0002
280	MyrSpi	Point	9/9/2008	09:25:31am	41.41022	-73.18763	1.1-2	1	0.0002
281	MyrSpi	Point	9/9/2008	09:26:35am	41.41027	-73.18766	1.1-2	1	0.0002
282	MyrSpi	Point	9/9/2008	09:27:35am	41.41011	-73.18757	1.1-2	1	0.0002
283	MyrSpi	Point	9/9/2008	09:29:15am	41.41009	-73.18754	1.1-2	1	0.0002
284	MyrSpi	Point	9/9/2008	09:31:02am	41.40984	-73.18695	1.1-2	2	0.0002
285	MyrSpi	Point	9/9/2008	09:36:44am	41.40853	-73.18427	1.1-2	1	0.0002
286	MyrSpi	Point	9/9/2008	09:40:05am	41.40826	-73.18372	1.1-2	1	0.0002
287	MyrSpi	Point	9/9/2008	09:41:11am	41.40828	-73.18364	1.1-2	1	0.0002
288	MyrSpi	Point	9/9/2008	09:42:22am	41.40817	-73.1836	1.1-2	2	0.0002
289	MyrSpi	Point	9/9/2008	09:43:01am	41.40814	-73.18358	1.1-2	2	0.0002
290	MyrSpi	Point	9/9/2008	10:25:15am	41.39554	-73.18553	1.1-2	2	0.0002
291	MyrSpi	Point	9/9/2008	10:26:37am	41.39538	-73.18513	0.6-1	1	0.0002
292	MyrSpi	Point	9/9/2008	10:27:31am	41.39541	-73.18492	1.1-2	1	0.0002
293	MyrSpi	Point	9/9/2008	10:27:58am	41.39542	-73.18484	1.1-2	1	0.0002
294	MyrSpi	Point	9/10/2008	12:08:21pm	41.39397	-73.18244	1.1-2	2	0.0002
295	MyrSpi	Point	9/10/2008	12:13:11pm	41.39371	-73.1822	1.1-2	1	0.0002
296	MyrSpi	Point	9/10/2008	12:16:36pm	41.39369	-73.18219	1.1-2	1	0.0002
297	MyrSpi	Point	9/15/2008	02:09:43pm	41.39166	-73.17397	1.1-2	2	0.0002
298	MyrSpi	Point	9/15/2008	02:10:54pm	41.39158	-73.17394	1.1-2	1	0.0002
299	MyrSpi	Point	9/15/2008	02:21:34pm	41.39069	-73.17451	1.1-2	1	0.0002
300	NajMin	Point	9/15/2008	02:28:31pm	41.38976	-73.17491	0.6-1	2	0.0002
301	NajMin	Point	9/15/2008	02:30:53pm	41.38981	-73.17486	0.6-1	1	0.0002
302	MyrSpi	Point	9/16/2008	08:59:02am	41.38818	-73.17479	1.1-2	2	0.0002
303	MyrSpi	Point	9/16/2008	09:01:54am	41.38814	-73.17467	1.1-2	3	0.0002
304	MyrSpi	Point	9/16/2008	09:02:49am	41.38816	-73.17477	1.1-2	1	0.0002

Appendix. Lake Zoar invasive plant location data (12 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
305	MyrSpi	Point	9/16/2008	09:05:52am	41.38791	-73.17469	1.1-2	2	0.0002
306	MyrSpi	Point	9/16/2008	09:07:31am	41.38786	-73.17466	1.1-2	1	0.0002
307	NajMin	Point	9/16/2008	09:35:46am	41.38552	-73.17268	0-0.5	2	0.0002
308	NajMin	Point	9/16/2008	09:37:17am	41.38549	-73.17265	0.6-1	2	0.0002
309	MyrSpi	Point	9/16/2008	09:39:10am	41.38514	-73.17251	1.1-2	1	0.0002
310	NajMin	Point	9/16/2008	10:40:06am	41.38177	-73.17735	0.6-1	1	0.0002
311	NajMin	Point	9/16/2008	10:41:48am	41.38172	-73.17736	0-0.5	1	0.0002
312	MyrSpi	Point	9/16/2008	11:22:33am	41.38475	-73.17836	1.1-2	2	0.0002
313	MyrSpi	Point	9/16/2008	11:23:22am	41.38474	-73.17832	2.1-3	2	0.0002
314	MyrSpi	Point	9/16/2008	11:31:09am	41.385	-73.17914	1.1-2	1	0.0002
315	MyrSpi	Point	9/16/2008	11:32:31am	41.3853	-73.17924	1.1-2	2	0.0002
316	MyrSpi	Point	9/17/2008	09:42:53am	41.40116	-73.18777	2.1-3	1	0.0002
317	MyrSpi	Point	9/17/2008	09:58:05am	41.40161	-73.18744	1.1-2	1	0.0002
318	MyrSpi	Point	9/17/2008	10:00:23am	41.4017	-73.18739	1.1-2	2	0.0002
319	MyrSpi	Point	9/17/2008	10:04:59am	41.4024	-73.18689	1.1-2	1	0.0002
320	MyrSpi	Point	9/17/2008	10:07:00am	41.40246	-73.18685	1.1-2	2	0.0002
321	MyrSpi	Point	9/17/2008	10:08:58am	41.40267	-73.18673	1.1-2	2	0.0002
322	MyrSpi	Point	9/17/2008	10:09:24am	41.40266	-73.18677	0.6-1	2	0.0002
323	MyrSpi	Point	9/17/2008	10:10:50am	41.40275	-73.18675	1.1-2	1	0.0002
324	NajMin	Point	9/17/2008	10:12:28am	41.40277	-73.18676	0-0.5	1	0.0002
325	NajMin	Point	9/17/2008	10:19:20am	41.4049	-73.18694	0-0.5	2	0.0002
326	NajMin	Point	9/17/2008	10:21:39am	41.40493	-73.18693	0-0.5	1	0.0002
327	NajMin	Point	9/17/2008	10:23:17am	41.40506	-73.18693	0-0.5	1	0.0002
328	MyrSpi	Point	9/17/2008	10:26:44am	41.40613	-73.18729	0.6-1	1	0.0002
329	NajMin	Point	9/17/2008	10:27:35am	41.4061	-73.18726	0-0.5	1	0.0002
330	NajMin Valame	Point	9/17/2008	10:29:57am	41.406	-73.18719	0-0.5	1	0.0002
331	MyrSpi	Point	9/17/2008	11:12:51am	41.412	-73.20106	1.1-2	1	0.0002
332	MyrSpi	Point	9/17/2008	11:15:01am	41.41203	-73.20109	1.1-2	1	0.0002
333	MyrSpi	Point	9/17/2008	11:17:47am	41.41247	-73.20152	1.1-2	1	0.0002
334	NajMin	Point	9/17/2008	01:53:17pm	41.42909	-73.22767	0-0.5	2	0.0002
335	NajMin	Point	9/17/2008	01:54:11pm	41.42911	-73.2277	0-0.5	2	0.0002
336	MyrSpi	Point	9/17/2008	01:56:19pm	41.42908	-73.22851	0.6-1	1	0.0002
337	NajMin ValAme	Point	9/17/2008	02:24:01pm	41.42499	-73.23684	0-0.5	2	0.0002
338	MyrSpi	Point	9/22/2008	12:18:31pm	41.42489	-73.23695	0-0.5	2	0.0002
339	MyrSpi	Point	9/22/2008	12:19:15pm	41.42482	-73.23703	0.6-1	1	0.0002
340	MyrSpi CerDem, ValAme	Point	9/22/2008	12:20:00pm	41.42485	-73.23699	0.6-1	1	0.0002
341	NajMin	Point	9/22/2008	12:22:39pm	41.42467	-73.23729	0-0.5	1	0.0002
342	MyrSpi CerDem, NajMin	Point	9/22/2008	12:39:07pm	41.42701	-73.24198	0.6-1	1	0.0002
343	NajMin	Point	9/22/2008	12:48:17pm	41.42717	-73.24209	0.6-1	2	0.0002
344	NajMin CerDem	Point	9/22/2008	12:48:43pm	41.42715	-73.24206	0.6-1	2	0.0002
345	MyrSpi	Point	9/22/2008	01:06:17pm	41.42912	-73.24434	0.6-1	1	0.0002
346	NajMin	Point	9/22/2008	01:19:48pm	41.43012	-73.24478	0.6-1	2	0.0002
347	NajMin	Point	9/22/2008	01:20:19pm	41.43015	-73.24479	0.6-1	2	0.0002
348	NajMin	Point	9/22/2008	01:21:08pm	41.4302	-73.24479	0.6-1	2	0.0002
349	NajMin	Point	9/22/2008	01:21:30pm	41.43024	-73.2448	0.6-1	2	0.0002

Appendix. Lake Zoar invasive plant location data (13 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
350	PotCri	Point	9/22/2008	01:51:14pm	41.43161	-73.24554	0.6-1	2	0.0002
351	PotCri	Point	9/22/2008	01:52:26pm	41.43163	-73.24557	0.6-1	2	0.0002
352	PotCri	Point	9/22/2008	01:54:30pm	41.43159	-73.24557	0.6-1	2	0.0002
353	PotCri	Point	9/22/2008	02:00:49pm	41.43154	-73.24539	0.6-1	2	0.0002
354	MyrSpi	Point	9/22/2008	02:05:37pm	41.43217	-73.24492	2.1-3	1	0.0002
355	MyrSpi	Point	9/22/2008	02:06:59pm	41.43231	-73.24491	0.6-1	2	0.0002
356	MyrSpi	Point	9/22/2008	02:14:12pm	41.4335	-73.24524	0.6-1	2	0.0002
357	MyrSpi	Point	9/22/2008	02:16:06pm	41.43359	-73.24531	1.1-2	2	0.0002
358	NajMin	Point	9/22/2008	02:25:35pm	41.43445	-73.24602	0-0.5	1	0.0002
359	MyrSpi	Point	9/22/2008	02:32:05pm	41.43536	-73.24553	1.1-2	1	0.0002
360	MyrSpi	Point	9/22/2008	02:33:26pm	41.43551	-73.24543	0.6-1	2	0.0002
361	MyrSpi	Point	9/22/2008	02:34:49pm	41.43544	-73.24547	0.6-1	2	0.0002
362	MyrSpi	Point	9/22/2008	02:35:26pm	41.43543	-73.24544	0.6-1	2	0.0002
363	MyrSpi	Point	9/22/2008	02:42:15pm	41.43556	-73.24524	1.1-2	1	0.0002
364	MyrSpi	Point	9/22/2008	02:43:23pm	41.43555	-73.24528	0.6-1	2	0.0002
365	MyrSpi	Point	9/22/2008	02:43:47pm	41.43559	-73.24523	0.6-1	1	0.0002
366	MyrSpi	Point	9/22/2008	02:46:45pm	41.43577	-73.24511	1.1-2	1	0.0002
367	NajMin	Point	9/22/2008	02:56:40pm	41.43587	-73.24507	0.6-1	1	0.0002
368	NajMin	Point	9/22/2008	03:01:38pm	41.43627	-73.24448	0.6-1	1	0.0002
369	NajMin	Point	9/22/2008	03:02:35pm	41.43636	-73.24435	0-0.5	1	0.0002
370	NajMin	Point	9/22/2008	03:03:35pm	41.43631	-73.24438	0.6-1	1	0.0002
371	NajMin CerDem	Point	9/24/2008	10:04:31am	41.43746	-73.24383	0.6-1	1	0.0002
372	NajMin	Point	9/24/2008	10:14:24am	41.43769	-73.24376	0.6-1	2	0.0002
373	NajMin	Point	9/24/2008	10:16:59am	41.43778	-73.24382	0.6-1	1	0.0002
374	NajMin	Point	9/24/2008	10:19:37am	41.43798	-73.24402	0.6-1	1	0.0002
375	MyrSpi	Point	9/24/2008	10:20:43am	41.43805	-73.24402	0.6-1	1	0.0002
376	MyrSpi	Point	9/24/2008	10:22:50am	41.43805	-73.24405	0.6-1	2	0.0002
377	MyrSpi	Point	9/24/2008	10:23:40am	41.43812	-73.24413	0.6-1	1	0.0002
378	MyrSpi	Point	9/24/2008	10:24:22am	41.43819	-73.24421	0.6-1	1	0.0002
379	MyrSpi	Point	9/24/2008	10:25:22am	41.43826	-73.24443	0.6-1	1	0.0002
380	MyrSpi	Point	9/24/2008	10:45:28am	41.43727	-73.24855	0.6-1	1	0.0002
381	MyrSpi	Point	9/24/2008	11:23:49am	41.43699	-73.25137	0.6-1	2	0.0002
382	MyrSpi ValAme, NajMin	Point	9/24/2008	11:24:34am	41.43701	-73.25132	0.6-1	2	0.0002
383	NajMin	Point	9/24/2008	11:41:32am	41.43299	-73.25854	0.6-1	1	0.0002
384	PotCri	Point	9/24/2008	11:57:16am	41.43306	-73.25914	1.1-2	2	0.0002
385	PotCri	Point	9/24/2008	11:59:49am	41.43304	-73.25925	0.6-1	2	0.0002
386	PotCri	Point	9/24/2008	12:00:36pm	41.43305	-73.25932	0.6-1	1	0.0002
387	PotCri	Point	9/24/2008	12:01:07pm	41.43303	-73.25934	0.6-1	1	0.0002
388	PotCri	Point	9/24/2008	12:01:40pm	41.43307	-73.25937	1.1-2	2	0.0002
389	MyrSpi	Point	9/24/2008	12:05:28pm	41.43328	-73.26075	0.6-1	2	0.0002
390	NajMin	Point	9/24/2008	12:15:02pm	41.43384	-73.26278	0.6-1	2	0.0002
391	MyrSpi ValAme	Point	9/24/2008	12:16:44pm	41.4339	-73.26296	0.6-1	3	0.0002
392	NajMin	Point	9/24/2008	12:22:28pm	41.43421	-73.26364	0.6-1	2	0.0002
393	MyrSpi	Point	9/24/2008	12:37:14pm	41.43552	-73.26524	0-0.5	1	0.0002
394	NajMin	Point	9/24/2008	12:37:40pm	41.43551	-73.26521	0.6-1	1	0.0002



Appendix. Lake Zoar invasive plant location data (14 of 15).

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
395	MyrSpi	Point	9/24/2008	12:38:58pm	41.4355	-73.26521	1.1-2	1	0.0002
396	NajMin	Point	9/24/2008	12:39:40pm	41.43556	-73.26523	0.6-1	1	0.0002
397	MyrSpi	Point	9/24/2008	01:16:40pm	41.43684	-73.2658	0.6-1	2	0.0002
398	MyrSpi	Point	9/24/2008	03:28:18pm	41.43789	-73.26738	0-0.5	1	0.0002
399	MyrSpi	Point	9/24/2008	03:28:43pm	41.43784	-73.26734	0-0.5	1	0.0002
400	MyrSpi	Point	9/24/2008	03:29:17pm	41.43779	-73.26724	0-0.5	1	0.0002
401	MyrSpi	Point	9/24/2008	03:29:45pm	41.43767	-73.26718	0-0.5	1	0.0002
402	MyrSpi	Point	9/24/2008	03:31:05pm	41.43767	-73.26695	0-0.5	1	0.0002
403	MyrSpi	Point	9/24/2008	03:32:00pm	41.43772	-73.26675	0-0.5	1	0.0002
404	MyrSpi	Point	9/24/2008	03:34:15pm	41.43824	-73.26718	0-0.5	1	0.0002
405	MyrSpi	Point	9/24/2008	03:34:33pm	41.43828	-73.26724	0-0.5	1	0.0002
406	MyrSpi	Point	9/24/2008	03:35:01pm	41.43837	-73.26725	0-0.5	1	0.0002
407	MyrSpi	Point	9/24/2008	03:35:38pm	41.43845	-73.26715	0.6-1	1	0.0002
408	MyrSpi	Point	9/24/2008	03:36:17pm	41.43848	-73.26714	0.6-1	1	0.0002
409	MyrSpi	Point	9/24/2008	03:37:13pm	41.43843	-73.26752	0-0.5	1	0.0002
410	MyrSpi with ValAme	Point	9/29/2008	01:15:46pm	41.42485	-73.23699	0.6-1	1	0.0002
411	MyrSpi	Point	9/29/2008	01:32:24pm	41.42922	-73.24436	0.6-1	1	0.0002
412	MyrSpi with NajMin	Point	9/29/2008	01:37:12pm	41.43021	-73.24481	0.6-1	2	0.0002
413	NajMin with MyrSpi	Point	9/29/2008	01:37:33pm	41.43023	-73.24482	0.6-1	3	0.0002
414	MyrSpi	Point	9/29/2008	01:37:50pm	41.43024	-73.24482	0.6-1	2	0.0002
415	MyrSpi with ValAme	Point	9/29/2008	01:40:33pm	41.43103	-73.24503	0.6-1	3	0.0002
416	NajMin with EloNut, MyrSpi, CerDem	Point	9/29/2008	01:54:05pm	41.43172	-73.24544	0-0.5	2	0.0002
417	PotCri with MyrSpi, EloNut	Point	9/29/2008	01:55:03pm	41.4317	-73.24546	0.6-1	1	0.0002
418	NajMin with MyrSpi, EloNut	Point	9/29/2008	01:57:23pm	41.43166	-73.2455	0.6-1	2	0.0002
419	PotCri with MyrSpi, EloNut	Point	9/29/2008	01:59:00pm	41.43155	-73.24553	0.6-1	2	0.0002
420	PotCri with MyrSpi, EloNut	Point	9/29/2008	01:59:58pm	41.43149	-73.24561	0.6-1	2	0.0002
421	NajMin with CerDem, MyrSpi, NajMin, ZosDub, EloNut	Point	9/29/2008	02:04:08pm	41.43137	-73.24563	0.6-1	2	0.0002
422	MyrSpi	Point	9/29/2008	02:10:37pm	41.43261	-73.24478	0.6-1	1	0.0002
423	MyrSpi	Point	9/29/2008	02:16:27pm	41.43358	-73.24533	1.1-2	1	0.0002
424	MyrSpi	Point	9/29/2008	02:26:56pm	41.43543	-73.24547	1.1-2	3	0.0002
425	PotCri with NajMin, MyrSpi, EloCan	Point	10/6/2008	10:13:56am	41.432	-73.24271	1.1-2	1	0.0002
426	PotCri with MyrSpi, EloNut, NajMin	Point	10/6/2008	10:14:57am	41.43199	-73.24278	1.1-2	2	0.0002
427	PotCri with ValAme	Point	10/6/2008	10:16:51am	41.43265	-73.24312	0.6-1	3	0.0002
428	NajMin	Point	10/6/2008	10:26:46am	41.43602	-73.24339	0-0.5	2	0.0002
429	NajMin	Point	10/6/2008	10:28:12am	41.43622	-73.24332	0-0.5	2	0.0002
430	PotCri with MyrSpi, EloNut	Point	10/6/2008	10:29:21am	41.43653	-73.24336	0.6-1	1	0.0002
431	PotCri with MyrSpi	Point	10/6/2008	11:17:41am	41.43872	-73.26675	1.1-2	1	0.0002
432	PotCri with MyrSpi, EloNut	Point	10/6/2008	11:18:14am	41.43875	-73.2668	0.6-1	3	0.0002
433	PotCri with MyrSpi, EloNut	Point	10/6/2008	11:23:51am	41.43944	-73.26688	0-0.5	3	0.0002
434	PotCri with NajMin, MyrSpi	Point	10/6/2008	11:25:52am	41.43972	-73.26695	1.1-2	1	0.0002
435	PotCri with MyrSpi	Point	10/6/2008	11:27:22am	41.43979	-73.2669	1.1-2	2	0.0002
436	PotCri with MyrSpi	Point	10/6/2008	11:29:34am	41.44023	-73.26699	1.1-2	2	0.0002
437	PotCri with MyrSpi	Point	10/6/2008	11:30:18am	41.44014	-73.26692	1.1-2	1	0.0002
438	PotCri with MyrSpi	Point	10/6/2008	11:32:33am	41.44021	-73.26698	1.1-2	1	0.0002
439	PotCri with MyrSpi	Point	10/6/2008	11:34:16am	41.44061	-73.26711	1.1-2	1	0.0002

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

FID	Invasive	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
440	PotCri with MyrSpi	Point	10/6/2008	11:35:26am	41.44075	-73.26714	1.1-2	1	0.0002
441	NajMin with MyrSpi, EloNut	Point	10/6/2008	11:43:21am	41.44203	-73.26746	1.1-2	1	0.0002
442	NajMin with NajMin, MyrSpi	Point	10/6/2008	01:35:26pm	41.44477	-73.26997	0.6-1	3	0.0002
443	MarQua too shallow for patch	Point	10/6/2008	01:53:05pm	41.4469	-73.27187	0-0.5	4	0.0002
444	MarQua too shallow for patch	Point	10/6/2008	01:54:31pm	41.44679	-73.27181	0-0.5	4	0.0002
445	MarQua too shallow for patch	Point	10/6/2008	01:55:39pm	41.44664	-73.27187	0-0.5	3	0.0002
446	MarQua too shallow for patch	Point	10/6/2008	01:57:07pm	41.44648	-73.27131	0-0.5	3	0.0002
447	MarQua too shallow for patch	Point	10/6/2008	01:58:34pm	41.44625	-73.27114	0-0.5	3	0.0002
448	PotCri with MyrSpi	Point	10/7/2008	10:33:11am	41.4452	-73.26935	1.1-2	2	0.0002
449	PotCri with MyrSpi	Point	10/7/2008	10:34:44am	41.44489	-73.26919	0.6-1	1	0.0002
450	PotCri with MyrSpi	Point	10/7/2008	10:35:47am	41.44483	-73.26912	0.6-1	2	0.0002
451	PotCri with NajMin, MyrSpi	Point	10/7/2008	10:36:28am	41.4448	-73.26903	1.1-2	2	0.0002
452	PotCri with MyrSpi	Point	10/7/2008	10:37:24am	41.44468	-73.26889	1.1-2	1	0.0002
453	PotCri with MyrSpi	Point	10/7/2008	10:40:21am	41.44476	-73.26915	0.6-1	1	0.0002
454	PotCri with MyrSpi	Point	10/7/2008	10:46:13am	41.44586	-73.26995	0-0.5	1	0.0002
455	PotCri with MyrSpi, EloNut	Point	10/7/2008	10:54:24am	41.44647	-73.27015	0.6-1	3	0.0002
456	PotCri with MyrSpi, ValAme, EloNut	Point	10/7/2008	10:55:59am	41.44655	-73.27018	0.6-1	1	0.0002
457	PotCri with myrSpi, ValAme, EloNut	Point	10/7/2008	10:58:40am	41.44674	-73.27027	0.6-1	2	0.0002
458	PotCri with MyrSpi, EloNut	Point	10/7/2008	11:01:32am	41.44709	-73.27049	0.6-1	1	0.0002
459	MyrSpi with MyrSpi, EloNut	Point	10/7/2008	11:13:36am	41.44962	-73.27238	0.6-1	2	0.0002
460	MyrSpi	Point	10/7/2008	11:19:25am	41.45044	-73.27296	1.1-2	2	0.0002
461	PotCri with MyrSpi	Point	10/7/2008	01:30:30pm	41.45184	-73.27524	1.1-2	1	0.0002
462	PotCri with MyrSpi	Point	10/7/2008	01:41:51pm	41.45218	-73.27895	1.1-2	1	0.0002
463	PotCri with MyrSpi, EloNut	Point	10/7/2008	01:48:51pm	41.45201	-73.28104	0-0.5	2	0.0002
464	PotCri with MyrSpi, EloNut	Point	10/7/2008	01:49:20pm	41.45202	-73.28101	0-0.5	2	0.0002
465	PotCri with MyrSpi	Point	10/7/2008	02:05:25pm	41.45078	-73.28557	0.6-1	3	0.0002
466	MyrSpi	Point	10/8/2008	11:33:51am	41.42743	-73.23669	0-0.5	2	0.0002
467	MyrSpi	Point	10/8/2008	11:34:38am	41.42742	-73.23677	0-0.5	1	0.0002
468	PotCri with MyrSpi, EloNut	Point	10/8/2008	01:55:30pm	41.43273	-73.24255	0.6-1	3	0.0002
469	PotCri with MyrSpi	Point	10/8/2008	01:57:13pm	41.43247	-73.24235	0.6-1	3	0.0002
470	PotCri with MyrSpi, CerDem	Point	10/8/2008	01:58:29pm	41.43230	-73.24236	1.1-2	2	0.0002
471	PotCri with MyrSpi, CerDem	Point	10/8/2008	01:59:28pm	41.43223	#REF!	1.1-2	3	0.0002
472	PotCri with MyrSpi, CerDem	Point	10/8/2008	02:01:04pm	41.43207	-73.24231	1.1-2	3	0.0002
473	PotCri with MyrSpi	Point	10/8/2008	02:01:43pm	41.43199	-73.24231	1.1-2	2	0.0002

## Transect Data

## Appendix. Candlewood Lake transects (1 of 2).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth(m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp	LemMin	MyrSpi	NajMin	NymOdo	PotBic	PotCri	PotPer	PotPus	StuPec	Unidentif3	ValAme	ZanPal
1	1	1	Greg Bugbee	41.4238	-73.45253	9/4/2008	0.20	Sand	sunny	South	T105	2	0	0	2	0	0	0	0	0	0	0	0	0	0
1	2	0	Greg Bugbee	41.42384	-73.45252	9/4/2008	0.50	Sand	sunny	South	T105	3	0	0	2	0	0	0	0	0	0	0	0	0	0
1	3	10	Greg Bugbee	41.42389	-73.45256	9/4/2008	1.00	Sand	sunny	South		3	0	0	3	0	0	0	0	0	0	0	0	0	0
1	4	20	Greg Bugbee	41.42397	-73.45259	9/4/2008	1.50	Silt	sunny	South	T105	3	0	0	3	0	0	0	0	0	0	0	0	0	0
1	5	30	Greg Bugbee	41.42406	-73.45267	9/4/2008	1.50	Sand			T105	2	0	0	3	0	0	0	0	0	0	0	0	0	0
1	6	40	Greg Bugbee	41.42414	-73.4527	9/4/2008	1.60	Silt		South		3	0	0	3	0	0	0	0	0	0	0	0	0	0
1	7	50	Greg Bugbee	41.42421	-73.45277	9/4/2008	0.00	Silt	sunny	South	T105	3	0	0	3	0	0	0	0	0	0	0	0	0	0
1	8	60	Greg Bugbee	41.4243	-73.45279	9/4/2008	2.00	Silt	sunny	South		2	0	0	3	0	0	0	0	0	0	0	0	0	0
1	9	70	Greg Bugbee	41.42439	-73.45284	9/4/2008	1.80	Silt	sunny	South		2	0	0	2	0	0	0	0	0	0	0	0	0	0
1	10	80	Greg Bugbee	41.42445	-73.45293	9/4/2008	1.80	Silt	sunny	South		3	0	0	3	0	0	0	0	0	0	0	0	0	0
2	1	0	Greg Bugbee	41.42755	-73.44926	9/4/2008	0.20	Gravel	sunny	South	T86_MyrSpiFloatInDense_OtherwiseNothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2	1	Greg Bugbee	41.42755	-73.44932	9/4/2008	1.00	Sand	sunny	South		2	0	0	4	0	0	0	0	0	0	0	0	0	0
2	3	10	Greg Bugbee	41.42751	-73.44937	9/4/2008	2.50	Silt	sunny	South		3	0	0	2	0	0	0	0	0	0	0	0	0	0
2	4	20	Greg Bugbee	41.42751	-73.44949	9/4/2008	2.50	Sand	sunny	South	T86	3	0	0	0	0	0	0	0	0	0	0	0	0	0
2	5	30	Greg Bugbee	41.42748	-73.44959	9/4/2008	3.00	Silt	sunny	South	T86	3	0	0	2	0	0	0	0	0	0	0	0	0	0
2	6	40	Greg Bugbee	41.42743	-73.44971	9/4/2008	1.50	Gravel	sunny	South		0	0	0	2	0	0	0	0	0	0	0	0	0	0
2	7	50	Greg Bugbee	41.42738	-73.44985	9/4/2008	1.50	Gravel	sunny	Northwest	T86	0	0	0	2	0	0	0	0	0	0	0	0	0	0
2	8	60	Greg Bugbee	41.42727	-73.44988	9/4/2008	2.00	Gravel	sunny	Northwest	T86	0	0	0	3	0	0	0	0	0	0	0	0	0	0
2	9	70	Greg Bugbee	41.42723	-73.44999	9/4/2008	1.60	Sand	sunny	Northwest	T86	0	0	0	3	0	0	0	0	0	0	0	0	0	0
2	10	80	Greg Bugbee	41.42719	-73.45009	9/4/2008	3.00	Gravel	sunny	Northwest	T86	3	0	0	3	0	0	0	0	0	0	0	0	0	0
3	1	0	Greg Bugbee	41.47028	-73.43531	9/4/2008	0.20	Gravel	sunny	Northwest	T74_Nothing_NewConstruction_walEtc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2	5	Greg Bugbee	41.4703	-73.43523	9/4/2008	1.00	Sand	sunny	South	T74	0	0	0	2	2	0	0	0	0	0	2	0	0	0
3	3	10	Greg Bugbee	41.47028	-73.43518	9/4/2008	2.20	Sand	sunny	Northwest	T74	0	0	0	4	0	0	0	0	0	0	0	0	0	0
3	4	20	Greg Bugbee	41.47027	-73.43508	9/4/2008	3.00	Silt	sunny	Northwest	T74	0	0	0	3	0	0	0	0	0	0	0	0	0	0
3	5	30	Greg Bugbee	41.47031	-73.43496	9/4/2008	7.00	Silt	sunny	South	T74_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	6	40	Greg Bugbee	41.47032	-73.43481	9/4/2008	8.00	Silt	sunny	South	T74_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	7	50	Greg Bugbee	41.47046	-73.43478	9/4/2008	9.00	Silt	sunny	South	T74_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	8	60	Greg Bugbee	41.47034	-73.43459	9/4/2008	9.00	Silt	sunny	South	T74_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	9	70	Greg Bugbee	41.47046	-73.4345	9/4/2008	9.00	Silt	sunny	South	T74_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	10	80	Greg Bugbee	41.47057	-73.43444	9/4/2008	9.00	Silt	sunny	South	T74_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	1	Greg Bugbee	41.57116	-73.48834	9/4/2008	0.30	Peat	sunny	West	T2	3	0	0	2	0	0	0	0	0	0	0	0	0	0
4	2	5	Greg Bugbee	41.57112	-73.48838	9/4/2008	0.50	Peat	sunny	West	T2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4	3	10	Greg Bugbee	41.57106	-73.4884	9/4/2008	1.50	Gravel	sunny	West	T2	1	0	0	3	0	2	0	0	0	0	0	0	0	0
4	4	20	Greg Bugbee	41.57099	-73.48843	9/4/2008	1.20	Silt	sunny	West	T2	0	0	0	3	0	0	0	0	0	0	0	0	0	0
4	5	30	Greg Bugbee	41.57092	-73.48852	9/4/2008	2.00	Silt	sunny	West	T2	0	0	0	3	0	0	0	0	0	0	0	0	0	0
4	6	40	Greg Bugbee	41.57085	-73.48861	9/4/2008	2.20	Silt	sunny	West		0	0	0	3	0	0	0	0	0	0	0	0	0	0
4	7	50	Greg Bugbee	41.57076	-73.48857	9/4/2008	3.00	Silt	sunny	West	T2	0	0	0	3	0	0	0	0	0	0	0	0	0	0
4	8	60	Greg Bugbee	41.57066	-73.48865	9/4/2008	3.00	Silt	sunny	West	T2	0	0	0	5	0	0	0	0	0	0	0	0	0	0
4	9	70	Greg Bugbee	41.57054	-73.48871	9/4/2008	3.00	Silt	sunny	West	T2	0	0	0	5	0	0	0	0	0	0	0	0	0	0
4	10	80	Greg Bugbee	41.57045	-73.48869	9/4/2008	3.10	Silt	sunny	West		0	0	0	5	0	0	0	0	0	0	0	0	0	0
5	1	1	Greg Bugbee	41.50217	-73.45151	9/5/2008	0.10	Sand	sunny	South	T25_NothingBeach	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2	5	Greg Bugbee	41.50217	-73.45158	9/5/2008	1.00	Sand	sunny		T25	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5	3	10	Greg Bugbee	41.50221	-73.45163	9/5/2008	1.20	Sand	sunny	South		0	0	0	2	0	0	0	0	0	0	0	0	0	0
5	4	20	Greg Bugbee	41.50217	-73.45175	9/5/2008	1.50	Sand	sunny	South	T25	0	0	0	2	1	0	0	1	0	0	0	0	0	0
5	5	30	Greg Bugbee	41.50212	-73.45187	9/5/2008	2.80	Sand	sunny	South	T25	2	0	0	5	0	0	0	0	0	0	0	0	0	0
5	6	40	Greg Bugbee	41.50217	-73.45198	9/5/2008	0.00	Sand	sunny	South	T25	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5	7	50	Greg Bugbee	41.5021	-73.45214	9/5/2008	3.50	Sand	sunny	South		0	0	0	4	0	0	0	0	0	0	0	0	0	0
5	8	60	Greg Bugbee	41.50205	-73.45222	9/5/2008	3.80	Sand	sunny	South		2	0	0	3	0	0	0	0	0	0	0	0	0	0
5	9	70	Greg Bugbee	41.50212	-73.45236	9/5/2008	5.00	Sand	sunny	South	T25	1	0	0	2	0	0	0	0	0	0	0	0	0	0
5	10	80	Greg Bugbee	41.50221	-73.45249	9/5/2008	5.50	Sand	sunny	South	T25_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0



## Appendix. Candlewood Lake transects (2 of 2).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth(m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp	LemMin	MyrSpi	NajMin	NymOdo	PotBic	PotCri	PotPer	PotPus	StuPec	Unidentif3	ValAme	ZanPal
6	1	1	Greg Bugbee	41.51386	-73.45343	9/5/2008	0.20	Peat	sunny	South	T22	0	0	2	2	0	0	0	0	0	0	0	0	0	0
6	2	5	Greg Bugbee	41.51392	-73.45341	9/5/2008	0.60	Sand	sunny	South	T22	1	0	0	2	0	0	0	0	0	0	0	0	0	0
6	3	10	Greg Bugbee	41.51395	-73.45339	9/5/2008	1.20	Sand	sunny	South	T22	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6	4	20	Greg Bugbee	41.51405	-73.45344	9/5/2008	1.60	Sand	sunny	South	T22_DenseMSpicBetweenPoints	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	5	30	Greg Bugbee	41.51412	-73.45343	9/5/2008	1.60	Gravel	sunny	South	T22_SomeLargeRocks	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6	6	40	Greg Bugbee	41.51422	-73.45341	9/5/2008	2.50	Sand	sunny	South	T22	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6	7	0	Greg Bugbee	41.51431	-73.45342	9/5/2008	2.60	Sand	sunny	South	T22	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6	8	60	Greg Bugbee	41.5144	-73.45338	9/5/2008	2.80	Sand	sunny	South	T22	0	0	0	3	0	0	0	0	0	0	0	0	0	0
6	9	70	Greg Bugbee	41.5145	-73.45341	9/5/2008	4.30	Sand	sunny	South	T22	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6	10	80	Greg Bugbee	41.5146	-73.45345	9/5/2008	5.20	Gravel	sunny	South	T22_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	1	Greg Bugbee	41.57151	-73.44274	9/12/2008	0.20	Rock	Cloudy	South	T62_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	2	5	Greg Bugbee	41.57151	-73.44281	9/12/2008	1.00	Gravel	Cloudy	South	T62	1	0	0	2	1	0	0	0	0	0	0	0	0	0
7	3	10	Greg Bugbee	41.57148	-73.44285	9/12/2008	1.80	Gravel	Cloudy	South	T62	0	0	0	2	0	0	0	0	0	0	0	0	0	0
7	4	20	Greg Bugbee	41.57145	-73.44297	9/12/2008	2.50	Sand	Cloudy	South	T62	0	0	0	5	0	0	0	0	0	0	0	0	0	0
7	5	30	Greg Bugbee	41.57148	-73.4431	9/12/2008	3.20	Sand	Cloudy	South	T62	0	0	0	5	0	0	0	0	0	0	0	0	0	0
7	6	40	Greg Bugbee	41.57152	-73.4432	9/12/2008	4.00	Sand	Cloudy	South	T62	0	0	0	4	0	0	0	0	0	0	0	0	0	0
7	7	50	Greg Bugbee	41.57147	-73.44336	9/12/2008	5.00	Sand	Cloudy	South	T62	2	0	0	1	0	0	0	0	0	0	0	0	0	0
7	8	60	Greg Bugbee	41.57139	-73.44345	9/12/2008	5.60	Sand	Cloudy	South	T62_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	9	70	Greg Bugbee	41.57149	-73.44359	9/12/2008	6.80	Sand	Cloudy	South	T62_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	10	80	Greg Bugbee	41.57138	-73.44369	9/12/2008	7.00	Sand	Cloudy	South	T62_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	1	Greg Bugbee	41.51294	-73.44122	9/12/2008	0.30	Gravel	Cloudy	South	T57_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2	5	Greg Bugbee	41.5129	-73.44125	9/12/2008	0.50	Sand	Cloudy	South	T57	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8	3	10	Greg Bugbee	41.51285	-73.44127	9/12/2008	0.80	Sand	Cloudy	South	T57_UNKWN1Bagged	0	0	0	0	0	0	0	0	0	0	0	1	0	2
8	4	20	Greg Bugbee	41.51278	-73.44118	9/12/2008	1.00	Gravel	Cloudy	South	T57	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8	5	30	Greg Bugbee	41.51268	-73.44123	9/12/2008	1.00	Gravel	Cloudy	South	T57_Nothing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	6	40	Greg Bugbee	41.51262	-73.4412	9/12/2008	1.80	Sand	Cloudy	South	T57_TrickyTransectFollowingRocksToWest	0	0	0	4	0	0	0	0	0	0	0	0	0	0
8	7	50	Greg Bugbee	41.51252	-73.44119	9/12/2008	2.10	Sand	Cloudy	South	T57	0	0	0	4	0	0	0	0	0	0	0	0	0	0
8	8	60	Greg Bugbee	41.5124	-73.44122	9/12/2008	2.96	Sand	Cloudy	South	T57	0	0	0	4	0	0	0	0	0	0	0	0	0	0
8	9	70	Greg Bugbee	41.51237	-73.44121	9/12/2008	3.00	Gravel	Cloudy	South	T57	0	0	0	4	0	0	0	0	0	0	0	0	0	0
8	10	80	Greg Bugbee	41.51224	-73.44135	9/12/2008	3.00	Sand	Cloudy	South	T57	0	0	0	4	0	0	0	0	0	0	0	0	0	0
9	1	0	Greg Bugbee	41.48042	-73.43463	9/12/2008	0.20	Sand	Cloudy	South	T52	0	1	0	2	0	0	0	0	2	0	0	1	0	0
9	2	5	Greg Bugbee	41.4804	-73.43465	9/12/2008	0.80	Sand	Cloudy	South	T52	0	0	0	2	1	0	0	0	2	0	0	0	0	0
9	3	10	Greg Bugbee	41.48039	-73.4347	9/12/2008	1.00	Sand	Cloudy	South	T52	0	0	0	3	0	0	0	0	0	0	0	0	0	0
9	4	20	Greg Bugbee	41.4804	-73.43486	9/12/2008	1.80	Sand	Cloudy	South		1	0	0	4	0	0	0	0	0	0	0	0	0	0
9	5	30	Greg Bugbee	41.48037	-73.43497	9/12/2008	2.00	Sand	Cloudy	South		1	0	0	5	0	0	0	0	0	0	0	0	0	0
9	6	40	Greg Bugbee	41.48032	-73.43507	9/12/2008	2.20	Sand	Cloudy	South	T52	1	0	0	5	0	0	0	0	0	0	0	0	0	0
9	7	50	Greg Bugbee	41.48035	-73.43518	9/12/2008	2.50	Sand	Cloudy	South		0	0	0	4	0	0	0	0	0	0	0	0	0	0
9	8	60	Greg Bugbee	41.48036	-73.43532	9/12/2008	2.30	Sand	Cloudy	South		0	0	0	4	0	0	0	0	0	0	0	0	0	0
9	9	70	Greg Bugbee	41.48021	-73.43542	9/12/2008	1.80	Sand	Cloudy	South	T52	3	0	0	3	0	0	0	0	0	0	0	0	0	0
9	10	80	Greg Bugbee	41.48018	-73.43555	9/12/2008	1.25	Sand	Cloudy	South		2	0	0	3	0	0	0	0	0	0	0	0	0	0
10	1	1	Greg Bugbee	41.44711	-73.42995	9/12/2008	0.20	Sand	Cloudy	South	T58	0	0	1	2	2	0	0	0	0	0	0	0	0	0
10	2	5	Greg Bugbee	41.44713	-73.42991	9/12/2008	0.50	Sand	Cloudy	South	T58	2	0	1	4	0	0	0	0	0	0	0	0	0	0
10	3	10	Greg Bugbee	41.44714	-73.42984	9/12/2008	0.80	Sand	sunny	South	T58	2	0	1	4	0	0	0	0	0	0	0	0	2	0
10	4	20	Greg Bugbee	41.44718	-73.42974	9/12/2008	1.50	Sand	Cloudy	South	T58	2	0	0	2	0	0	0	0	0	0	0	0	2	0
10	5	30	Greg Bugbee	41.44718	-73.4296	9/12/2008	1.20	Sand	Cloudy	South	T58	2	0	0	2	0	0	0	0	0	0	0	0	0	0
10	6	40	Greg Bugbee	41.44724	-73.4295	9/12/2008	0.50	Sand	Cloudy	South	T58	0	0	1	5	0	0	0	0	0	0	0	0	0	0
10	7	43	Greg Bugbee	41.44726	-73.42947	9/12/2008	0.30	Sand	Cloudy	South	T58	0	0	1	2	2	0	1	0	0	0	0	0	0	1

Appendix. Lake Zoar transects (1 of 2).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth(m)	Substrate	Weather	Wind	Notes	CerDem	EloNut	MyrSpi	NajFle	NajMin	PotCri	ValAme
1	1	0	Roslyn Selsky	41.42838	-73.23942	8/20/2008	0.10	Rock	windy	Northwest		0	0	0	0	0	0	0
1	2	5	Roslyn Selsky	41.42836	-73.23948	8/20/2008	0.25	Sand				0	0	0	0	0	0	0
1	3	10		41.42834	-73.23952	8/20/2008	0.40	Sand				0	0	0	0	0	0	0
1	4	20		41.42829	-73.23966	8/20/2008	1.10	Sand				2	0	2	2	0	1	3
1	5	30		41.42823	-73.23972	8/20/2008	2.10	Sand				3	0	0	0	3	1	2
1	6	40		41.42815	-73.23982	8/20/2008	3.20	Sand				0	0	0	0	0	0	0
1	7	50		41.42808	-73.23991	8/20/2008	0.00					0	0	0	0	0	0	0
1	8	60		41.42804	-73.23995	8/20/2008	0.00					0	0	0	0	0	0	0
1	9	70	Roslyn Selsky	41.42796	-73.24009	8/20/2008	0.00					0	0	0	0	0	0	0
1	10	80		41.42786	-73.24011	8/20/2008	0.00					0	0	0	0	0	0	0
2	1	0	Roslyn Selsky	41.43699	-73.24914	8/20/2008	0.10	Sand	sunny	Northwest		0	0	0	0	0	0	0
2	2	5	Roslyn Selsky	41.43704	-73.24915	8/20/2008	1.10	Sand				0	0	0	0	0	0	0
2	3	10		41.43706	-73.24914	8/20/2008	1.30	Sand				0	0	0	0	0	0	0
2	4	20		41.43716	-73.24919	8/20/2008	0.00					0	0	0	0	0	0	0
2	5	30		41.43726	-73.24919	8/20/2008	0.00					0	0	0	0	0	0	0
2	6	40		41.43736	-73.24922	8/20/2008	2.40	Sand				0	0	0	0	0	0	0
2	7	50		41.43744	-73.24919	8/20/2008	1.90	Sand				0	0	3	0	0	2	0
2	8	60		41.43752	-73.24925	8/20/2008	1.80	Sand				0	0	3	0	0	2	0
2	9	70		41.43762	-73.24928	8/20/2008	1.80	Sand				0	0	3	0	0	3	0
2	10	80		41.43772	-73.24932	8/20/2008	1.90	Sand				0	0	3	0	0	3	0
3	1	0	Roslyn Selsky	41.43731	-73.26661	8/20/2008	0.10	Rock	sunny	Northeast		0	0	0	0	0	0	0
3	2	5		41.43735	-73.26655	8/20/2008	0.40	Gravel				0	0	0	0	0	0	0
3	3	10		41.43739	-73.2665	8/20/2008	0.80	Sand				0	3	0	0	2	0	3
3	4	20		41.43743	-73.26643	8/20/2008	0.60	Sand				0	4	0	0	0	0	2
3	5	30		41.43755	-73.26646	8/20/2008	0.30	Sand				0	3	0	0	2	0	3
3	6	40		41.43765	-73.26638	8/20/2008	0.40	Sand				0	2	2	0	0	0	3
3	7	50		41.43774	-73.26637	8/20/2008	0.40	Sand				0	2	2	0	2	1	0
3	8	60		41.43787	-73.26644	8/20/2008	1.70	Sand				0	3	0	0	2	2	0
3	9	70		41.43796	-73.26644	8/20/2008	0.80	Sand				0	3	2	0	3	3	0
3	10	80		41.43808	-73.26651	8/20/2008	0.70	Sand				0	0	3	0	2	3	0
4	1	0	Roslyn Selsky	41.45312	-73.28175	8/20/2008	0.90	Sand	sunny	Northeast		0	0	2	0	0	0	0
4	2	5		41.45309	-73.2817	8/20/2008	0.70	Sand				4	0	2	0	0	0	0
4	3	10		41.45306	-73.28165	8/20/2008	1.00	Sand				2	0	3	0	0	0	0
4	4	20		41.45295	-73.28164	8/20/2008	3.60	Sand				0	0	0	0	0	0	0
4	5	30		41.45287	-73.28156	8/20/2008	0.00					0	0	0	0	0	0	0
4	6	40		41.45279	-73.28156	8/20/2008	0.00					0	0	0	0	0	0	0
4	7	50		41.45275	-73.28132	8/20/2008	0.00					0	0	0	0	0	0	0
4	8	60		41.45262	-73.28123	8/20/2008	0.00					0	0	0	0	0	0	0
4	9	70		41.45266	-73.2813	8/20/2008	0.00					0	0	0	0	0	0	0
4	10	80		41.45255	-73.28119	8/20/2008	0.00					0	0	0	0	0	0	0
5	1	0	Roslyn Selsky	41.43199	-73.22737	8/21/2008	0.25	Sand	sunny	Northwest		0	0	0	0	3	0	0
5	2	5		41.43195	-73.22738	8/21/2008	0.30	Sand				0	0	0	0	3	0	0
5	3	10		41.4319	-73.22741	8/21/2008	0.30	Sand				0	0	0	0	3	0	0
5	4	20		41.43181	-73.22748	8/21/2008	0.90	Sand				0	0	2	0	3	0	0
5	5	30		41.43169	-73.22748	8/21/2008	0.60	Sand				0	0	2	0	0	0	0
5	6	40		41.43163	-73.22753	8/21/2008	0.60	Sand				0	0	2	0	0	0	0
5	7	50		41.43154	-73.22756	8/21/2008	1.00	Sand				0	0	0	0	3	0	0
5	8	60		41.43145	-73.22757	8/21/2008	1.25	Sand				0	0	1	0	4	0	0
5	9	70		41.43135	-73.22755	8/21/2008	2.40	Sand				0	0	0	0	0	0	0
5	10	80		41.43125	-73.22753	8/21/2008	2.90	Sand				0	0	0	0	0	0	0

Appendix. Lake Zoar transects (2 of 2).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth(m)	Substrate	Weather	Wind	Notes	CerDem	EloNut	MyrSpi	NajFle	NajMin	PotCri	ValAme
6	1	0	Roslyn Selsky	41.42413	-73.2074	8/21/2008	0.10	Sand	sunny	Northwest		0	0	0	0	0	0	0
6	2	5		41.42411	-73.20735	8/21/2008	0.30	Sand				0	0	3	0	3	0	0
6	3	10		41.42408	-73.20732	8/21/2008	0.70	Sand				0	0	4	0	1	0	0
6	4	20		41.42394	-73.20727	8/21/2008	1.70	Sand				0	0	2	0	0	0	0
6	5	30		41.4239	-73.20721	8/21/2008	1.70	Sand				0	0	2	0	0	0	0
6	6	40		41.4238	-73.20719	8/21/2008	1.70	Sand				0	0	3	0	0	0	0
6	7	50		41.42372	-73.20717	8/21/2008	2.20	Silt				0	0	3	0	0	0	0
6	8	60		41.42362	-73.2071	8/21/2008	2.50	Silt				0	0	3	0	0	0	0
6	9	70		41.42355	-73.20708	8/21/2008	2.60	Silt				0	0	0	0	0	0	0
6	10	80		41.42347	-73.20707	8/21/2008	2.80	Silt				0	0	0	0	0	0	0
7	1	0	Roslyn Selsky	41.4126	-73.20175	8/21/2008	0.10	Sand	sunny	Northwest		0	0	0	0	0	0	0
7	2	5		41.41261	-73.20169	8/21/2008	0.40	Sand				0	0	0	0	0	0	0
7	3	10		41.41263	-73.20164	8/21/2008	1.00	Sand				0	0	0	0	0	0	0
7	4	20		41.41265	-73.20152	8/21/2008	1.70	Silt				0	0	4	0	0	0	0
7	5	30		41.41265	-73.2014	8/21/2008	1.90	Silt				0	0	4	0	0	0	0
7	6	40		41.41266	-73.20129	8/21/2008	1.90	Silt				0	0	4	0	0	0	0
7	7	50		41.41267	-73.20116	8/21/2008	2.00	Silt				0	0	4	0	0	0	0
7	8	60		41.41271	-73.20105	8/21/2008	2.00	Silt				0	0	4	0	0	0	0
7	9	70		41.41277	-73.20092	8/21/2008	2.40	Silt				0	0	0	0	0	0	0
7	10	80		41.41279	-73.20083	8/21/2008	3.10	Silt				0	0	0	0	0	0	0
8	1	0	Roslyn Selsky	41.39853	-73.19082	8/21/2008	0.20	Sand	sunny	Northwest		0	0	0	0	0	0	0
8	2	5		41.39854	-73.19077	8/21/2008	0.25	Sand				0	0	0	0	4	0	0
8	3	10		41.39853	-73.19072	8/21/2008	0.70	Silt				0	0	3	0	0	0	0
8	4	20		41.39853	-73.19059	8/21/2008	1.00	Sand				0	0	2	0	0	0	0
8	5	30		41.39855	-73.19046	8/21/2008	1.10	Sand				0	0	1	0	0	0	0
8	6	40		41.39853	-73.19036	8/21/2008	1.60	Sand				0	0	2	0	0	0	0
8	7	50		41.39853	-73.19023	8/21/2008	3.40	Sand				0	0	0	0	0	0	0
8	8	60		41.39855	-73.1901	8/21/2008	0.00					0	0	0	0	0	0	0
8	9	70		41.39856	-73.18995	8/21/2008	0.00					0	0	0	0	0	0	0
8	10	80		41.39856	-73.18984	8/21/2008	0.00					0	0	0	0	0	0	0
9	1	0	Roslyn Selsky	41.39186	-73.17436	8/21/2008	0.10	Sand	sunny	Northwest		0	0	0	0	0	0	0
9	2	5		41.39182	-73.17439	8/21/2008	0.80	Sand				0	0	0	0	0	0	0
9	3	10		41.39176	-73.17441	8/21/2008	0.80	Sand				0	0	2	0	0	0	0
9	4	20		41.39169	-73.17447	8/21/2008	0.85	Sand				0	0	2	0	0	0	0
9	5	30		41.39163	-73.17453	8/21/2008	1.20	Sand				0	0	1	0	0	0	0
9	6	40		41.39156	-73.17464	8/21/2008	3.10	Sand				0	0	2	0	0	0	0
9	7	50		41.39146	-73.17467	8/21/2008	3.60	Sand				0	0	0	0	0	0	0
9	8	60		41.39136	-73.17467	8/21/2008	0.00					0	0	0	0	0	0	0
9	9	70		41.39129	-73.17478	8/21/2008	0.00					0	0	0	0	0	0	0
9	10	80		41.39121	-73.17471	8/21/2008	0.00					0	0	0	0	0	0	0
10	1	0	Roslyn Selsky	41.38169	-73.17469	8/21/2008	0.20	Rock	sunny	Northwest		0	0	0	0	0	0	0
10	2	5		41.38171	-73.17475	8/21/2008	0.40	Silt				0	0	0	0	5	0	0
10	3	10		41.38176	-73.1748	8/21/2008	0.70	Silt				0	0	0	0	5	0	0
10	4	20		41.38183	-73.17486	8/21/2008	0.60	Rock				0	0	0	0	0	0	0
10	5	30		41.38189	-73.17498	8/21/2008	2.60	Silt				0	0	5	0	0	0	0
10	6	40		41.38193	-73.17508	8/21/2008	3.20	Silt				0	0	0	0	0	0	0
10	7	50		41.38202	-73.17512	8/21/2008	0.00					0	0	0	0	0	0	0
10	8	60		41.3821	-73.17519	8/21/2008	0.00					0	0	0	0	0	0	0
10	9	70		41.38213	-73.1753	8/21/2008	0.00					0	0	0	0	0	0	0
10	10	80		41.38218	-73.17542	8/21/2008	0.00					0	0	0	0	0	0	0

