Monitoring Report

Invasive Aquatic Plants

Candlewood Lake
Lake Lillinonah
Lake Zoar

2011

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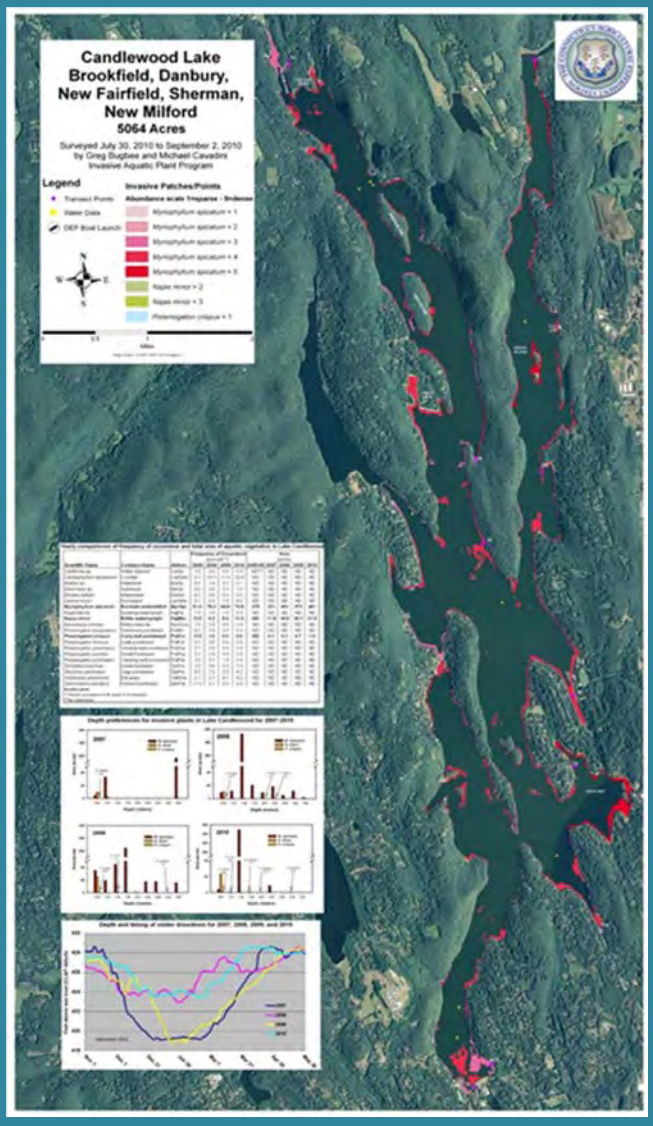

March 29, 2012

The Connecticut Agricultural Experiment Station was founded in 1875. It is chartered by the General Assembly to make scientific inquiries and conduct experiments regarding plants and their pests, insects, soil and water, and to perform analyses for state agencies. Station laboratories are in New Haven and Windsor, and research farms in Hamden and Griswold.

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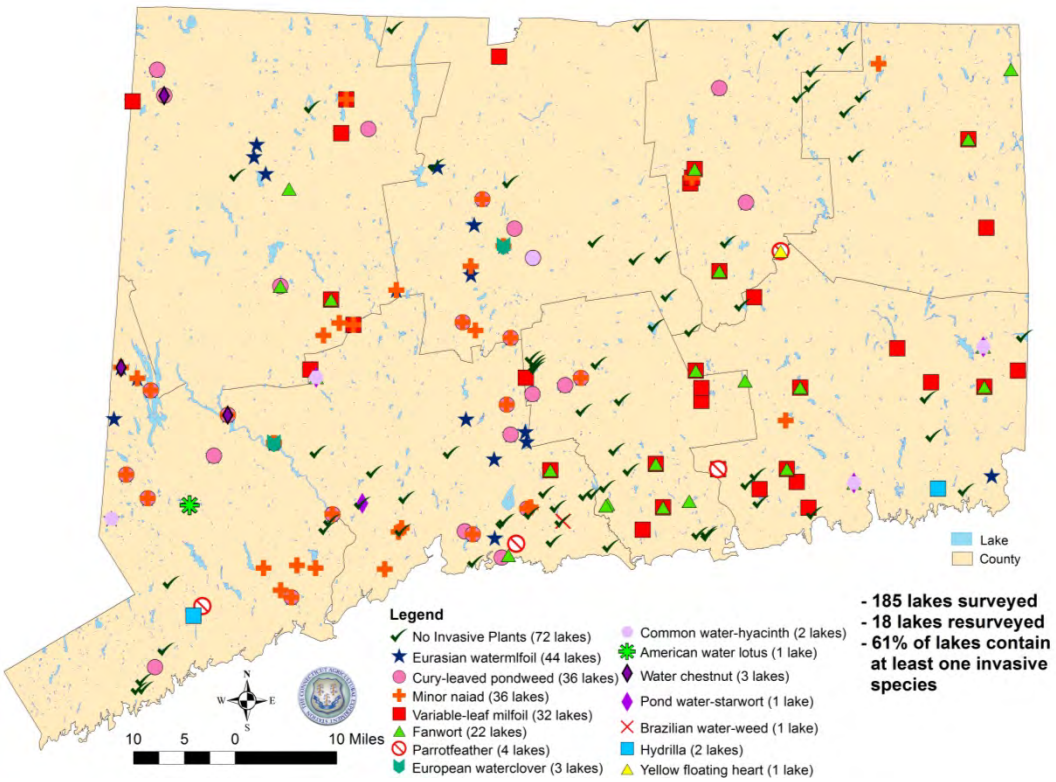


Figure 1. Locations of invasive aquatic plants found by CAES IAPP from 2004 – 2011.

Introduction

Invasive aquatic plants represent a severe threat to lakes. Because they have few natural enemies to limit their growth (Wilcove et al. 1998, Pimintel et al. 2000), they can clog water intakes, decrease recreational opportunities, reduce local real estate values and alter native plant communities (Connecticut Aquatic Nuisance Species Working Group, 2006, Fishman et al. 1998). Lakes Candlewood, Lillinonah and Zoar are among the largest freshwater impoundments in Connecticut and are managed by FirstLight Power Resources, Inc. to generate hydroelectric power. Invasive species not only represent a threat to each lakes ecological and recreational value, but also the production of "green" energy via disruptions to the hydroelectric power plants. Fourteen invasive aquatic plant species are found in approximately two-thirds of Connecticut's lakes and ponds (Figure 1) (CAES IAPP, 2011). Eurasian watermilfoil (*Myriophyllum spicatum*) is an invasive plant that has been present in Candlewood Lake since at least the early 1980's (Siver et al. 1986) when it probably entered Lakes Lillinonah and Zoar as well.

Previous Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) studies found Lakes Candlewood, Lillinonah and Zoar have similar plant communities (Bugbee, 2011, Bugbee and Balfour, 2010, Bugbee and Reeps, 2009, Bugbee et al. 2008). Fifteen to 18 plant species occur in these lakes. The four invasive species are *Marsilea quadrifolia* (European waterclover), *Myriophyllum spicatum* (Eurasian watermilfoil), *Najas minor* (minor naiad), and *Potamogeton crispus* (curly leaf pondweed). *Marsilea quadrifolia* only occurs in Lake Zoar. *M. spicatum* covers the largest area in the lakes followed by *N. minor* and *P. crispus*. *P. crispus* may be underestimated because it dies back prior to the summer surveys (Catling and Dobson, 1985). Winter drawdown and occasional harvesting are used to manage *M. spicatum* in Candlewood Lake (Tarsi, 2006). In 2008 and 2010, milfoil weevils (*Euhrychiopsis lecontei*) were introduced into Candlewood Lake, to test their ability to survive, multiply and control *M. spicatum.* The status of the weevils is currently being monitored by Western Connecticut State University and CAES. Efforts to control *M. spicatum* in Lakes Lillinonah and Zoar are mainly via harvesting and herbicide applications. Fluctuating water levels in Lake Lillinonah and Lake Zoar, associated with power generating discharges and weather events, may also act as a passive control.

The Federal Energy Regulatory Commission (FERC) Article 409 requires FirstLight Power Resources, Inc. to provide annual invasive aquatic plant monitoring of Lakes Candlewood, Lillinonah and Zoar (Northeast Generating Company, 2005). The following report represents the fifth year of CAES IAPP surveillance and mapping of invasive aquatic plants for FirstLight Power Resources, Inc.

Objectives:

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

Figure 2. Surveyor mapping invasive plants in Candlewood Lake.

Materials and Methods:

We conducted aquatic vegetation surveys from July through early October using established methods (CAES IAPP, 2011). Because of late season high water levels in Candlewood Lake , we occasionally employed an underwater camera system (Deep Blue®, Ocean Systems Inc. Everret, WA) to confirm questionable plant locations. We recorded locations of all invasive plants with Trimble GeoXT® or ProXT® global positioning systems (GPS) with sub-meter accuracy. Plants occurring in patches were circumnavigated to form a polygon. Patches covering less than one square meter were recorded as a point and assigned an area of 0.0002 acres (1 m^2). We measured depth with a rake handle, drop line or digital depth finder and sediment type was estimated. Plant samples were obtained in shallow water with a rake and in deeper water with a grapple. We measured plant abundance visually using a scale of 1 – 5 (1 = single stem; 2 = few stems; 3 = common; 4 = abundant; 5 = extremely abundant). When field identification was questionable, we brought samples were back to the lab for review using the taxonomy of Crow and Hellquist (2000*a*, 2000*b*). We post-processed the GPS data in Pathfinder 5.10 (© Trimble Navigation Limited, Sunnyvale, CA) and then imported it into ArcGIS® 10.0 (ESRI, Redlands, CA), where it was geo-corrected. Data were then overlaid onto 2010 United States Department of Agriculture - National Agricultural Inventory Program (NAIP) aerial imagery with 1 meter resolution.

We collected occurrence and abundance plant information from ten transects per lake with points positioned 0, 5, 10, 20, 30, 40, 50, 60, 70 and 80 meters from shore. In Candlewood Lake, these transects were a subset of the 105 we laid out in 2005 (Bugbee et al. 2008) and contained at least one occurrence of each native and invasive plant species. In Lake Zoar, previously established transects were used, but not all species in the earlier surveys were present. In Lake Lillinonah, we decreased the number of transects from the 16 we surveyed in 2009 to 10. We chose transects that represented the greatest species richness and ranked abundance as described above. Significant differences in frequency of occurrence of plant species between years along transects ($p < 0.05$) were determined analysis of variance (ANOVA) followed by Tukey's post-hoc test. Significant differences in species richness per transect point were determined by ± one standard error of the mean.

The Candlewood Lake plant survey occurred from August 2 – October 3 and the transect data were obtained on August 25 and September 13 (see Appendix, page 49). We surveyed Lake Lillinonah from August 1 – 17 and we obtained transect data from August 2 – 17. Lake Zoar transect data was obtained on August 25 and September 12. Tropical storm Irene struck Connecticut on August 26 causing severe flooding and delayed the finishing of our work on Lakes Candlewood and Zoar. Detailed information regarding our "on-lake" time is located in the Appendix (page 52).

We obtained water samples from Candlewood Lake on September 13, Lake Lillinonah on August 10, 11 and 17 and Lake Zoar on August 25 and September 12. The samples were obtained later than in past years because of delays caused by Tropical Storm Irene. We used a Secchi disk to measure transparency and a YSI® 58 meter (YSI Inc., Yellow Springs, Ohio) to measure water temperature and dissolved oxygen. Measurements occurred in deep areas of each lake at a depth of 0.5 m and 1 m intervals thereafter until we reached the bottom. We collected water samples from 0.5 m below the surface and 0.5 m from the bottom. Samples were store in sterile 250 ml plastic Nalgene® containers at 3°C until they were analyzed for pH, alkalinity, conductivity and total phosphorus. We measured conductivity and pH with a Fisher-Accumet® XL20 meter (Fisher Scientific International Inc., Hampton, NH) and quantified alkalinity by titration with 0.16 N H_2SO_4 to a pH 4.5 end point. Finally, we analyzed total phosphorus via spectroscopy using the ascorbic acid method with potassium persulfate digestion (American Public Health Association, 1995).

Table 1. The frequency of occurrence and area covered of aquatic plants in Candlewood Lake.

Scientific Name	Common Name	Frequency of Occurrence (percent *)					Area (acres)				
		2005	2008	2009	2010	2011	2007	2008	2009	2010	2011
Callitriche sp.	Water starwort	1.0	0.0	0.0	0.0	0.0	ND**	ND	ND	ND	ND
Ceratophyllum demersum	Coontail	3.1	33.3	11.3	22.7	29.9	ND	ND	ND	ND	ND
Elatine sp.	Waterwort	0.0	1.0	3.1	2.1	0.0	ND	ND	ND	ND	ND
Eleocharis sp.	Spikerush	0.0	0.0	3.1	1.0	1.0	ND	ND	ND	ND	ND
Elodea nuttallii	Waterweed	4.2	0.0	0.0	0.0	0.0	ND	ND	ND	ND	ND
Lemna minor	Duckweed	2.1	6.3	1.0	4.1	7.2	ND	ND	ND	ND	ND
Myriophyllum spicatum	**Eurasian watermilfoil**	**51.0**	**79.2**	**64.9**	**70.1**	**78.4**	**221**	**451**	**373**	**461**	**331**
Najas flexilis	Nodding waternymph	7.3	1.0	1.0	0.0	2.0	ND	ND	ND	ND	ND
Najas minor	**Brittle waternymph**	**12.5**	**6.3**	**8.2**	**11.3**	**15.5**	**12**	**11**	**26**	**21**	**19**
Nymphaea odorata	White water lily	1.0	1.0	0.0	1.0	1.0	ND	ND	ND	ND	ND
Potamogeton bicupulatus	Snailseed pondweed	0.0	1.0	0.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton crispus	**Curly leaf pondweed**	**13.5**	**1.0**	**0.0**	**0.0**	**0.0**	**<1**	**<1**	**1**	**1**	**<1**
Potamogeton foliosus	Leafy pondweed	3.1	0.0	0.0	0.0	2.1	ND	ND	ND	ND	ND
Potamogeton gramineus	Variable leaf pondweed	2.1	0.0	0.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton pusillus	Small Pondweed	3.1	1.0	0.0	0.0	0.0	ND	ND	ND	ND	ND
Potamogeton perfoliatus	pondweed	1.0	2.1	1.0	0.0	0.0	ND	ND	ND	ND	ND
Spirodela polyrhiza	Great duckweed	1.0	0.0	0.0	1.0	5.2	ND	ND	ND	ND	ND
Stuckenia pectinata	Sago pondweed	6.3	1.0	0.0	4.1	0.0	ND	ND	ND	ND	ND
Vallisneria americana	Eel grass	2.1	2.1	4.1	4.1	3.1	ND	ND	ND	ND	ND
Zannichellia palustrus	Horned pondweed	11.5	3.1	0.0	0.0	0.0	ND	ND	ND	ND	ND

Invasive plant

* Percent occurrence on 97 points in 10 transects

**Not determined

Results and Discussion

Candlewood Lake

We found three invasive plant species; *Myriophyllum spicatum*, *Najas minor* and *Potamogeton crispus* in Candlewood Lake in 2011 (Table 1, Maps 1 – 9). These are the same species we found in previous years and *M. spicatum* continued to be the most prevalent. *M. spicatum's* yearly coverage appears inversely related to the depth and duration of the winter drawdown. The coverage of *M. spicatum* was 333 acres in 2011(deep drawdown), 461 acres in 2010 (shallow drawdown), 373 acres in 2009 (deep drawdown), 451 acres in 2008 (shallow drawdown) and 221 in 2007 (deep drawdown).There were 485 patches of *M. spicatum* in 2011 compared to 324 in 2010, 489 in 2009, 469 in 2008 and 489 in 2007 (Table 2). We found the mean patch size of *M. spicatum* was 0.7 acres in 2011, compared to 1.6, 0.8, 1.0 and 0.5 in 2010, 2009, 2008 and 2007 respectively.

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

	Patch Size (acres)											
	Myriophyllum spicatum				*Najas minor*				*Potamogeton crispus*			
Year	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
2011	485	0.0002	13.5	0.7	46	0.0002	4.4	0.4	1	0.0002	0.0002	0.0002
2010	324	0.0002	35.6	1.6	47	0.0170	6.6	0.4	1	1.00	1.00	1.00
2009	489	0.0002	39.6	0.8	50	0.0002	7.9	0.5	1	0.67	0.67	0.67
2008	469	0.0002	28.1	1.0	26	0.0006	5.5	0.4	5	0.0002	0.10	0.03
2007	489	0.0002	24.9	0.4	31	0.0003	5.0	0.4	1	0.07	0.07	0.07

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

	Patch Abundance (1 = sparse - 5 = dense)								
	Myriophyllum spicatum			*Najas minor*			*Potamogeton crispus*		
Year	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
2011	1	5	1.8	1	4	2.1	2	2	2.0
2010	1	5	3.3	2	3	2.1	1	1	1.0
2009	1	5	2.1	1	4	1.9	1	1	1.0
2008	1	5	3.0	2	4	1.5	1	1	1.0
2007	1	5	2.9	1	4	2.1	2	2	2.0

Unlike previous years, when the largest patches were between 30 and 40 acres in Danbury Cove or Echo Bay, the largest patches in 2011 were just over 13 acres in size. These patches were located near Great Neck, southwest of Great Mountain and in Brookfield Bay (Map 8). The minimum patch size of *M. spicatum* in 2011 (Table 2) was 0.0002 acres which is equal to one square meter and typically assigned to solitary or small groups of plants. Average abundance of *M. spicatum* patches decreased from 3.3 in 2010 to 1.8 in 2011 (Table 3). This was the greatest yearly decrease we have observed to date (Table 3). Our five consecutive years of Candlewood Lake surveys clearly show that after a deep drawdown *M. spicatum* patch area, size and abundance decreases while patch number increases. This is due to the large number of small patches that occur in the drawn down areas. Changes in milfoil coverage, patch number, size and abundance are likely related to differences in drawdown practices and corresponding weather conditions during the period when the sediment is exposed (Marsicano, 2009). For instance, near record snowfall during the 2011 drawdown had an insulating effect on the exposed milfoil. The topic of Candlewood Lake's drawdown is covered in more detail in the following section.

We found 19 acres of *N. minor* in 2011 compared to 21 in 2010, 26 in 2009,11 in 2008 and 12 in 2007 (Table 1). 2011 was the second straight declining year for *N. minor* acreage

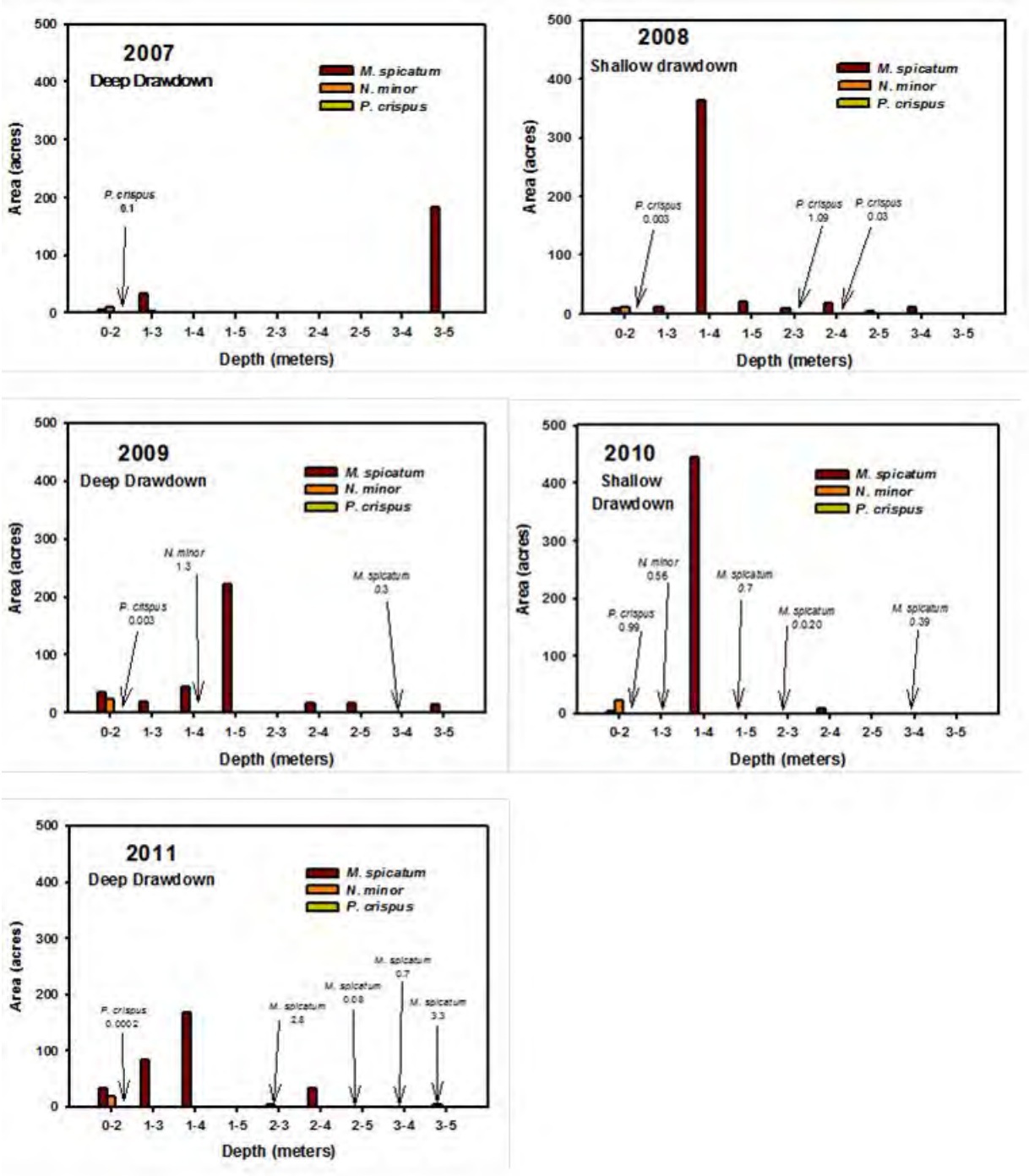


Figure 3. Yearly comparisons of depth preferences of invasive plants in Candlewood Lake.

after a large increase in 2009. The number of *N. minor* patches remained constant from 2009 – 2011 (50, 47, 46 respectively) after a large increase from 2007 and 2008 (31 and 26 respectively). The minimum patch size of *N. minor* in 2011 was 0.0002 acres while the largest, located in Great Neck, was 4.4 acres (Map 2). *N. minor* patches averaged 0.4 acres in 2011 which is similar to previous years (Table 2). In 2011, the mean patch abundance of

Figure 4. Difference in *M. spicatum* abundance and water levels from 2010 (left) to 2011 (right).

N. minor was 2.1. This is identical to 2010 and little changed from previous years. *N. minor* appears to be less affected by drawdown depth etc. than *M. spicatum* probably because it is an annual plant that propagates from drawdown resistant seeds. We found *P. crispus* in only one location in 2011 and the area was populated by only a few plants (Map 7). This follows the low abundance levels we observed in all previous surveys.

Depth preferences of invasive species in Candlewood Lake changes from year to year due to drawdowns, summer water levels and natural variation in plant communities. In 2011, continuous areas of *M. spicatum* were spread over various depths (Figure 3); 1-4 meters of water (168 acres, 50.5% of the total), 1-3 meters (83 acres, 24.9% of the total), 0-2 meters (33.2 acres, 10% of the total) and 2-4 meters (32.3 acres. 9.9% of the total). This pattern is typical of the deep drawdown years. In the shallow drawdown year of 2010, *M. spicatum* patches expanded and coalesced in 1-4 meters of water (445 acres, 96.5% of the total). Unlike 2010, when *M. spicatum* patches were dense and often spread out on the surface and flowered, the patches were less dense and rarely reached the surface in 2011. It appears the suppression effect of the deep drawdown and possibly higher water levels were the cause (Figure 4). Water clarity and associated light restriction at depths of more than five meters is the likely cause for *M. spicatum* to be absent at greater depths. *N. minor* and *P. crispus* generally were found at depths of 0-1 meters in all years. The restriction of *N. minor* to shallow water is probably because it rarely grows more than 1 m in height and it becomes light-limited at deeper depths. Moreover, *N. minor* is an annual that reproduces from seeds that seem to prefer the shallower, quiescent coves. *P. crispu*s senesces in the summer (Catling and Dobson, 1985), thus a considerable amount is not observable during our

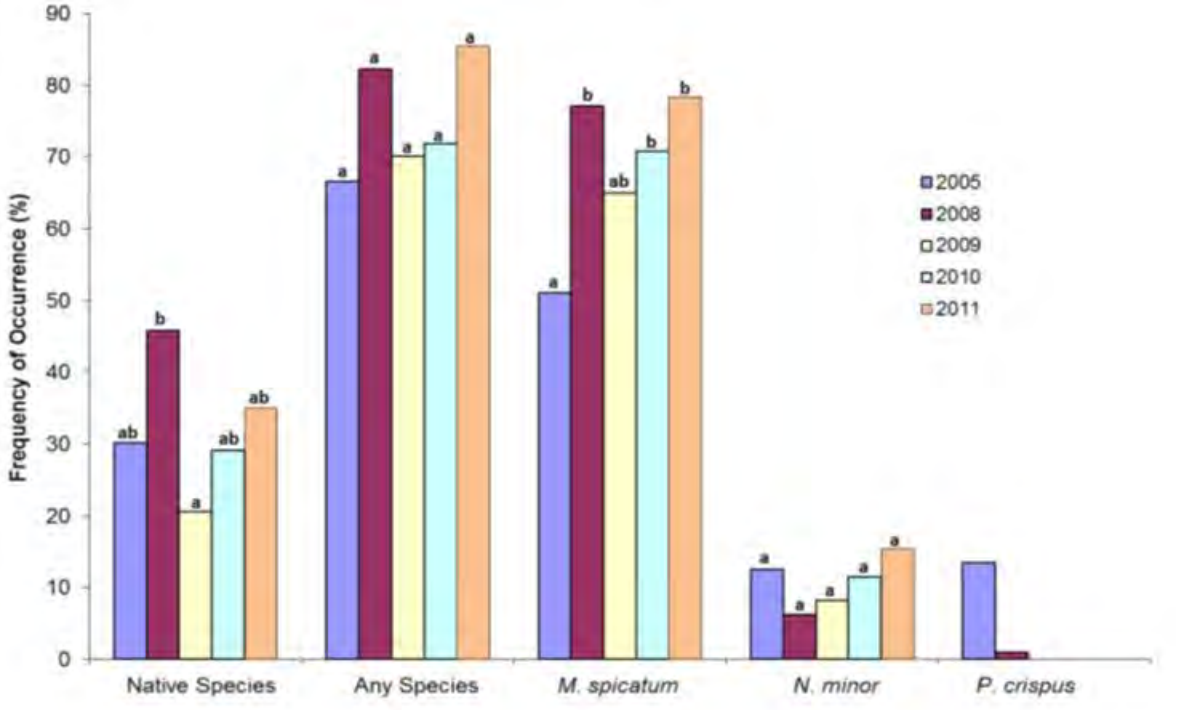


Figure 5. Yearly frequency of occurrence of aquatic vegetation on transects in Candlewood Lake. Bars with the same letter within a species are not statistically different.

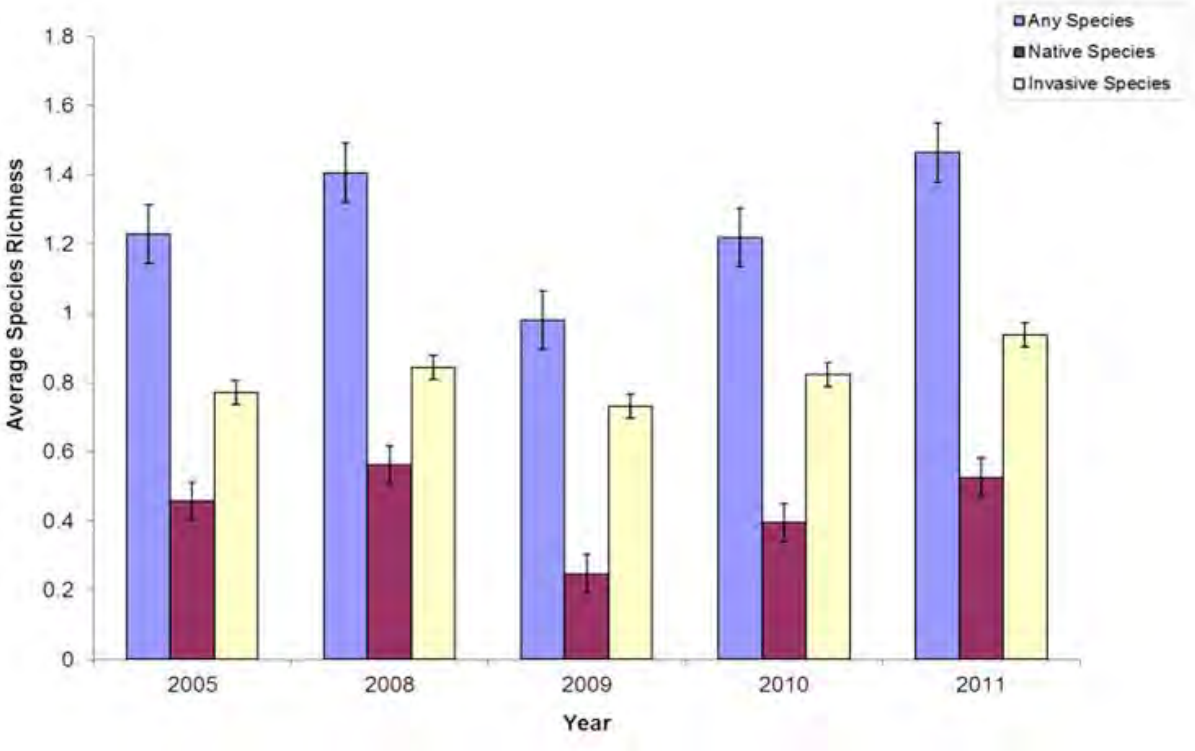


Figure 6. Yearly comparisons of average number of plant species per transect in Candlewood Lake. Error bars equal +/- one standard error of the mean.

surveys. The frequency of occurrence of *M. spicatum* on transects (Figure 5) was 78.4% in 2011, which was not statistically different than found in 2010, 2009 and 2008 but statistically greater ($p < 0.05$) than the 51.0% found in 2005. The frequency of occurrence of *N. minor* on transects in 2011 was 15.5% with no statistical differences among the previous years. We did not find *P. crispus* on transects in 2011. The average invasive species richness (number of plant species) per transect point was slightly greater in 2011 than 2010 (Figure 6). This reversed the previous trend of shallow drawdown years having less invasive species richness per point than the deep drawdown years.

Robust populations of native species may decrease the invasibility of non-native species (Capers et al., 2007). Native species richness found on the reference transects were eight in 2011, eight in 2010, seven in 2009, 11 in 2008, and 14 in 2005 (Table 1). Eleocharis sp. was the only plant species found in 2011 that was not present in 2005. However, *Callitriche sp.*, *Elodea nuttallii*, *Potamogeton gramineus*, *Potamogeton pusillus, Potamogeton perfoliatus, Stuckinia pectinatus,* and *Zannichellia palustris* were present in 2005 but not in 2011. *Stuckinia pectinatus* and *Elatine sp.* were present on transects in 2010 but not in 2011. *Najas flexilis* and *Potamogeton foliosus* reappeared on transects after not being found since 2009 and 2005 respectively. We found *Eleocharis sp.* for the first time on Candlewood transects in 2009, and it was found again in 2010 and 2011. The decline in number of species found on transects from 14 in 2005 to eight in recent years could be due to natural variability, drawdown (Figure 7), competition from invasive species or changes in summer water levels (see appendix page 51).

Biodiversity is often considered optimal when both the species richness and the frequency of occurrence are high. The frequency of occurrence of any species (native + invasive) on a transect point (Figure 5) has ranged between 67% and 86% from 2005 - 2011 but these differences are not statistically significant ($p > 0.05$). The frequency of occurrence of native species in 2011 was 35.1% which was not statistically different than in previous years. The average native species richness per transect point in 2011 was 0.5 (Figure 6). This is only statistically different from 2009 when the native species richness was only 0.2. In 2011, the average invasive species richness per transect point was 0.9 which is showing an upward trend from 0.7 in 2009 and 0.8 in 2010 (statistically different ± 1 SEM). These data suggest that species richness for both native and invasive species has increased slightly since 2009.

Table 4. Yearly comparison of the coverage of invasive aquatic plants in Candlewood Lake's littoral zone (0-5m).

Scientific Name	Common Name	Year	Area (%)
Myriophyllum spicatum	Eurasian watermilfoil	2011	40.9
		2010	56.9
		2009	46.0
		2008	55.7
		2007	27.3
Najas minor	Brittle waternymph	2011	2.3
		2010	2.6
		2009	3.2
		2008	1.3
		2007	1.5
Potamogeton crispus	Curly leaf pondweed	2011	0.00002
		2010	0.12
		2009	0.09
		2008	0.01
		2007	0.01

Littoral zone coverage by aquatic vegetation is sometimes used to infer whether optimum habitat is available for fish and other aquatic organisms. From 20% to 40% vegetative coverage is stated as optimal in Connecticut lakes (Jacobs and O'Donnell, 2002). This range does not take into account whether the vegetation inhabits the entire water column, as is often the case with *M. spicatum,* or whether it hugs the bottom as is common with many native plants. We used a depth of five meters (15 feet) as the littoral zone limit in Candlewood Lake because it best corresponds to our field observations. Candlewood Lake has a littoral zone of 810 acres or 16 percent of the total lake area (Bugbee, 2011). In 2011, *M. spicatum* occupied 41% of the littoral zone (Table 4). This compares to the previous deep drawdown years of 2009 and 2007 when it covered 46% and 27% respectively and the shallow drawdown years of 2008 and 2010 when it covered 56-57%. The littoral zone coverage of *N. minor* in 2011 was 2.3% which is down slightly from the 2.6% found in 2010, and 3.2% in 2009 but greater than the 1.3% in 2008 and 1.5% in 2007. *P. crispus* changed little during our surveys covering less than 0.1 % of the littoral zone. Our surveys found that in years such as 2007, when apparently the most effective deep drawdown to date reduced milfoil coverage to 27.3%, the optimal 20-40% littoral zone coverage was satisfied by *M. spicatum* alone. When combined with the area of the other native and invasive species, the upper end or over of the optimal range is achieved.

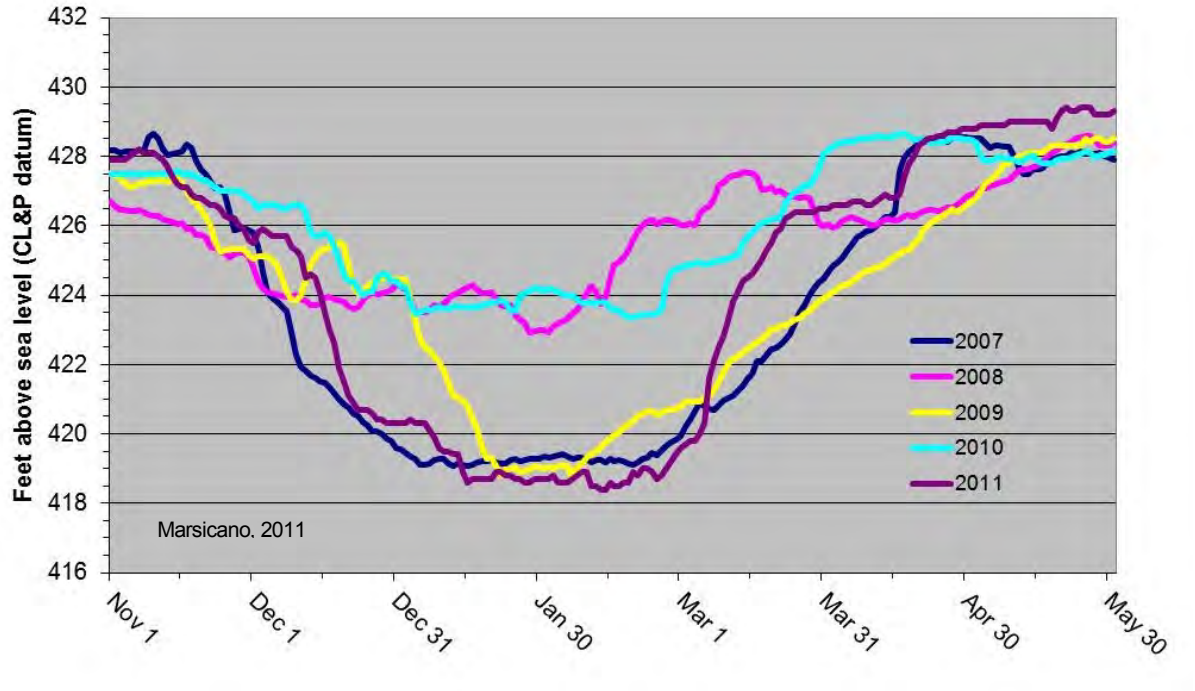


Figure 7. Candlewood Lake's drawdown depths and duration from 2007 to 2011.

Candlewood Lake's Drawdown:

Winter drawdown is currently suppressing the growth of *M. spicatum* in Candlewood Lake. The degree of suppression is influenced by drawdown depth, duration and weather. We now have five consecutive years of data that encompasses three deep drawdowns in 2007, 2009 and 2011 and two shallow drawdowns in 2008 and 2010. Deep drawdowns resulted in *M. spicatum* coverage of 221, 373 and 331 acres while shallow drawdowns resulted in coverage of 451 and 461 acres. Our abundance ratings typically are 3-5 in shallow drawdown years and 1-2 in deep drawdown years. Though a considerable amount of *M. spicatum* remains after a deep drawdown the most abundant areas are at a depth of 3-5 meters where the plants are not exposed by drawdown. Fortunately at least 1 meter of water usually remains above these plants and recreation is not usually restricted. Fisherman often find these "weed lines" desirable for pursuing bass. At depths of 1-3 meters the deep drawdowns do not offer complete control. The remaining *M. spicatum* is likely influenced by damage from freezing, dehydration, abrasive wave action, mechanical removal by ice etc.

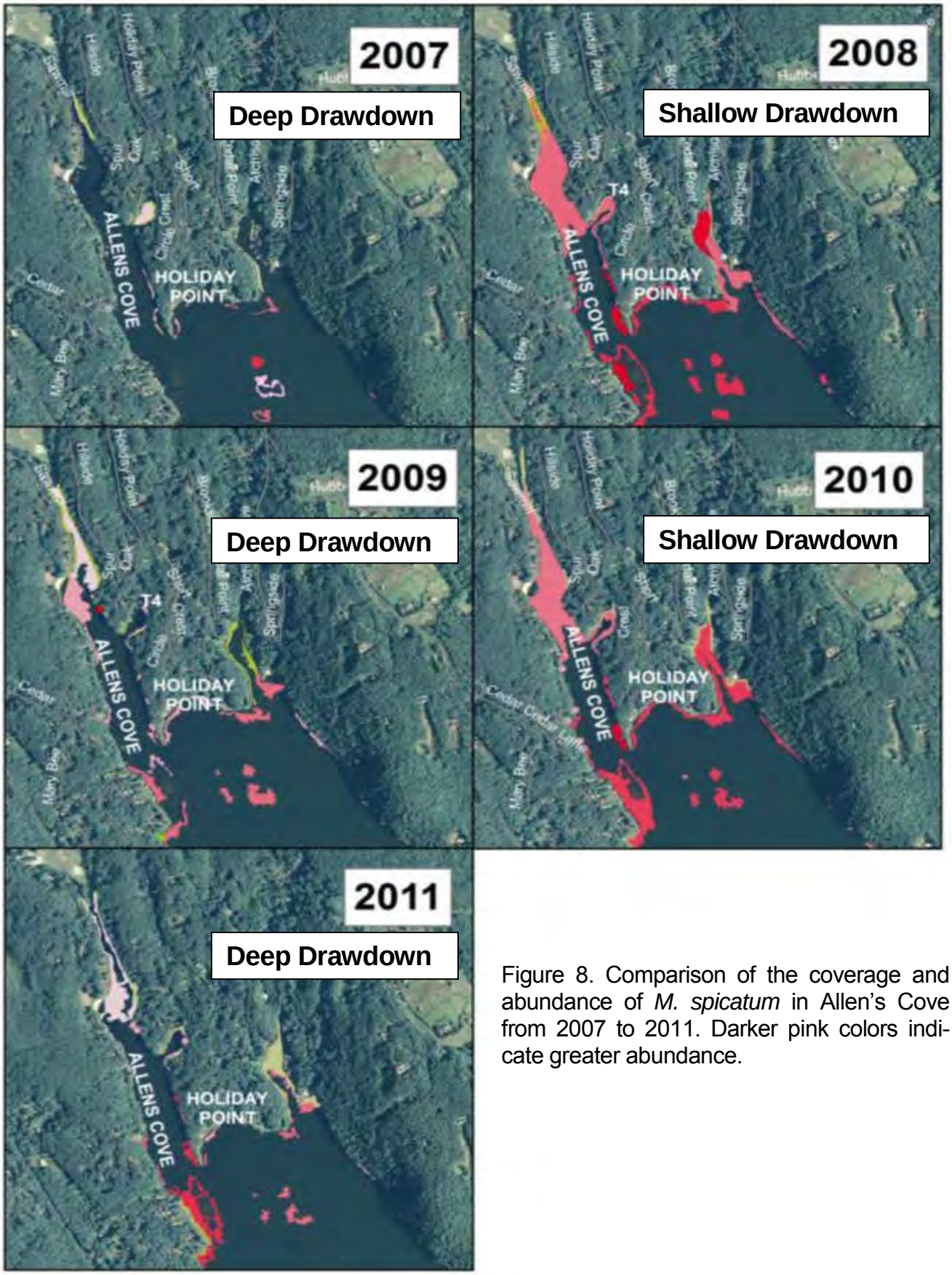


Figure 8. Comparison of the coverage and abundance of *M. spicatum* in Allen's Cove from 2007 to 2011. Darker pink colors indicate greater abundance.

Figure 9. Abundant *M. spicatum* in water 0-1 m deep.

A problem with the current drawdown protocol is that it has little carryover in the 1-3 meter depths because of rapid regrowth. This causes considerable displeasure by lake users whose recreation is negatively impacted the season following a shallow drawdown. Some areas of dense *M. spicatum,* in depths of 0-1 meters, are not controlled even though they are exposed to the winter drawdown each year (Figure 9). They are usually in protected small coves where groundwater discharges, organic matter and sediment accumulation, and drifting snow may limit desiccation and freezing. It can't be ruled out; however, that these areas are simply prone to an accumulation of "float in" milfoil fragments that take hold early and become established milfoil beds during our summer survey. It is also possible that drawdown resistant *M. spicatum* varieties could be developing via natural selection. We have many examples of this when the same herbicide is used year after year but little information on if the same happens because of yearly drawdowns. We suggest more research in these areas. Reinfestation of *M. spicatum* in shallower depths may be related to the extent of the drawdown. In 2007, 2009 and 2011 the winter drawdown was approximately nine feet; however, the time the lake was maintained at the lowest depth was eight weeks in 2007 and 2011and only about four weeks in 2009 (Figure 7). *M. spicatum*

control was best in 2007 (221 acres) and worst in 2009 (371 acres). *M. spicatum* control in 2011 (333 acres) was intermediate possibly because of near record snowfall that acted as an insulator. Shorter drawdown times increase the chances for less than optimal conditions for controlling vegetation and may explain the differences in plant coverage, abundance etc. Close-up comparisons of *M. spicatum* in Allen's Cove (Figure 8) illustrate the year to year expansion and contraction of the plant in response to drawdown level and exposure time.

Improvements in the winter drawdown that address the rapid regrowth issue are needed. Three possibilities are evident; 1) better management of the water level during the deep drawdown to maximize desiccation and freezing, 2) more frequent deep drawdowns 3) deeper deep drawdown. Any changes to the current protocol will require stakeholder input and may not be allowed under the current FERC requirement.

Managing water level to optimize control

The longer and deeper Candlewood Lake is drawn down each winter the greater the chances of conditions lethal to invasive plants. Our surveys found the least coverage of *M. spicatum* was 221 acres after the 2007 deep drawdown. This drawdown was relatively long and encompassed most of January and February (Figure 7). In 2009, the deep drawdown lasted only half as long (mid–January to mid-February) and the *M. spicatum* coverage increased to 373 acres. Because winter weather is never uniform year to year, comparing control between two years based on exposure time alone is prone to inaccuracies. Nevertheless, the effectiveness of winter drawdowns could be improved if weather is considered in deciding when to empty or fill Candlewood Lake. Lowering the lake for as long as possible will assure the best possible control. Unfortunately, the regrowth problem in the year following a deep drawdown is apparently not affected by the deep drawdown success (451 acres in 2008 vs. 461 in 2010).

More frequent deep drawdowns

Lake users upset over the nuisance levels of *M. spicatum* in the shallow drawdown years often suggest yearly or more frequent deep drawdowns are the answer. Resistance to more frequent deep drawdowns usually comes from fisheries and aquatic biologist who worry about harm to the ecosystem. Because we are not experts in fisheries or non-plant

Table 5. The depth preferences of native and invasive aquatic plants in Candlewood Lake as found by CAES IAPP surveys, 2005 – 2011.

Native Species

Depth(m)	*Callitriche sp.*	*C. demersum*	*N. flexilis*	*N. odorata*	*P. foliosus*	*P. gracillima*	*P. perfoliatus*	*Spirodella sp.*	*S. pectinata*	*V. americana*	*Z. palustris*
0 to 1	X	X		X	X	X	X	X	X	X	X
1 to 3		X	X						X	X	
3 to 5	X	X			X						
>5											

Invasive Species

Depth(m)	*N. minor*	*M. spicatum*	*P. crispus*
0 to 1	X	X	X
1 to 3	X	X	
3 to 5	X	X	X
>5			

aquatic organisms, we leave comments on these subjects to others. We can say that more frequent deep drawdowns will probably do nothing to control milfoil in water greater than 3 meters and that this milfoil alone will satisfy the often cited 20 - 40% optimal littoral zone plant coverage. Unfortunately, with exception of a few sparse native species, the only plants that occur at depths of 3-5 meters are invasive and the vast majority is *M. spicatum.* Most native species currently occur in the 0-1 meter depth range that is exposed by drawdown every year. Most likely these plants are somewhat drawdown tolerant.

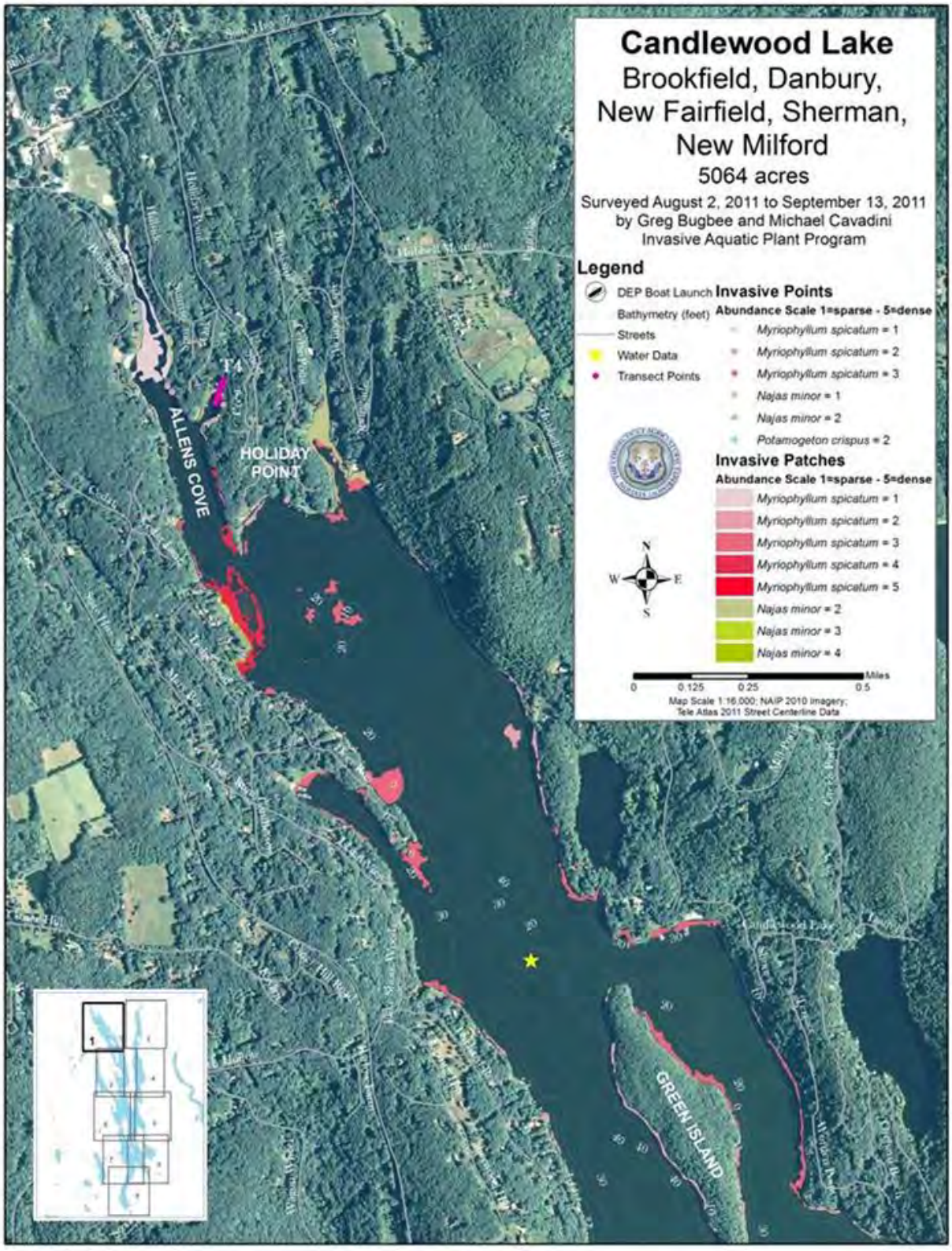
Deeper deep drawdowns

Lowering Candlewood Lake five meters instead of three meters would expose all milfoil and decrease the reservoir of plant fragments that cause some of the regrowth in shallow drawdown years. In addition, desiccation and freezing in the 0-3 meter depth range may be improved because of the greater distance from the zone of saturated sediment and the likelihood these areas will be exposed for longer periods. Unfortunately, drawdowns greater than three meters are currently not allowed under the FERC operating requirement with FirstLight Power Resources. Changes to the FERC requirement, however, are possible if the proposed changes are technically feasible and are supported by stakeholders. Concerns regarding a deeper drawdown include: the inability to fill the lake by spring, adverse effects on fish and other aquatic organisms, reductions in plant biodiversity, and the redistribution of nutrient rich sediments by erosion to deeper portions of the lake.

From an aquatic plant perspective, a deeper drawdown is optimal. It should have negligible adverse effect on native species because no major populations of native species

inhabit the 3-5 meter depth. Potential changes in plant diversity (i.e. number of species plus abundance) can be discerned from our surveys from 2005 - 2011. Our transect and polygon information found 10 native species inhabit the 0-1m depth, four are present in the1-3 m depth, and three are in the 3-5 m depth (Table 5). One plant found at a depth of 3-5 meters is *C. demersum* which does not form roots and therefore drifts and falls to the bottom throughout the lake. Moreover, the 10 native species inhabiting the 0-1 meter depth are already exposed to yearly winter drawdowns and we presume they must have some resistance to the practice. Thus, a deeper drawdown would expose minimal additional native vegetation. If native vegetation was to be harmed, more than is done by current three meter drawdown, it would likely be due to longer exposure time or increased sediment drying because the plants are further from the zone of saturation.

Our 2010 report detailed the effect of drawdowns to various depths on the water needed to refill Candlewood Lake. We hypothesized that after a certain depth the lake bottom would flatten out and only a small additional drawdown depth would be needed to expose a relatively large area of sediment. Unfortunately, this is not the case and it isn't until a drawdown depth of approximately 30 feet that the linear relationship between drawdown depth and water loss/sediment exposed flattened. Therefore, although a deeper drawdown could be beneficial in reducing *M. spicatum,* little benefits would be gained regarding decreased water needs for refilling the lake or additional sediment exposed per foot of drawdown. Whether the refill issue precludes any further discussion of a deeper drawdown requires information on recharge rate from the watershed and "pump up".


Candlewood Lake
Brookfield, Danbury,
New Fairfield, Sherman,
New Milford
5064 acres
Surveyed August 2, 2011 to September 13, 2011
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Bathymetry (feet)
Streets
Water Data
Transect Points
Invasive Points
Abundance Scale 1=sparse - 5=dense
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Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Najas minor = 1
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Potamogeton crispus = 2
Invasive Patches
Abundance Scale 1=sparse - 5=dense
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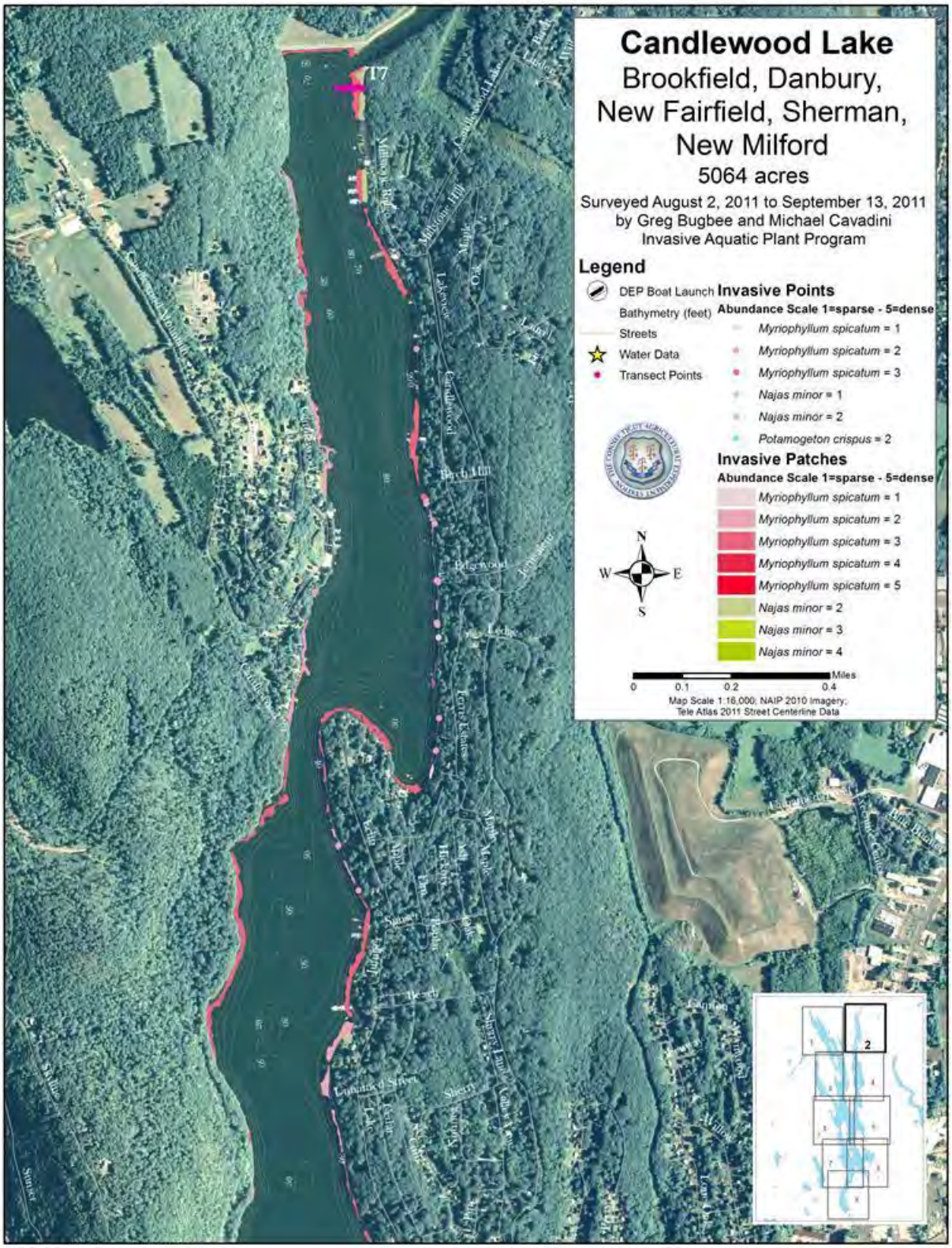
Candlewood Lake
Brookfield, Danbury,
New Fairfield, Sherman,
New Milford
5064 acres
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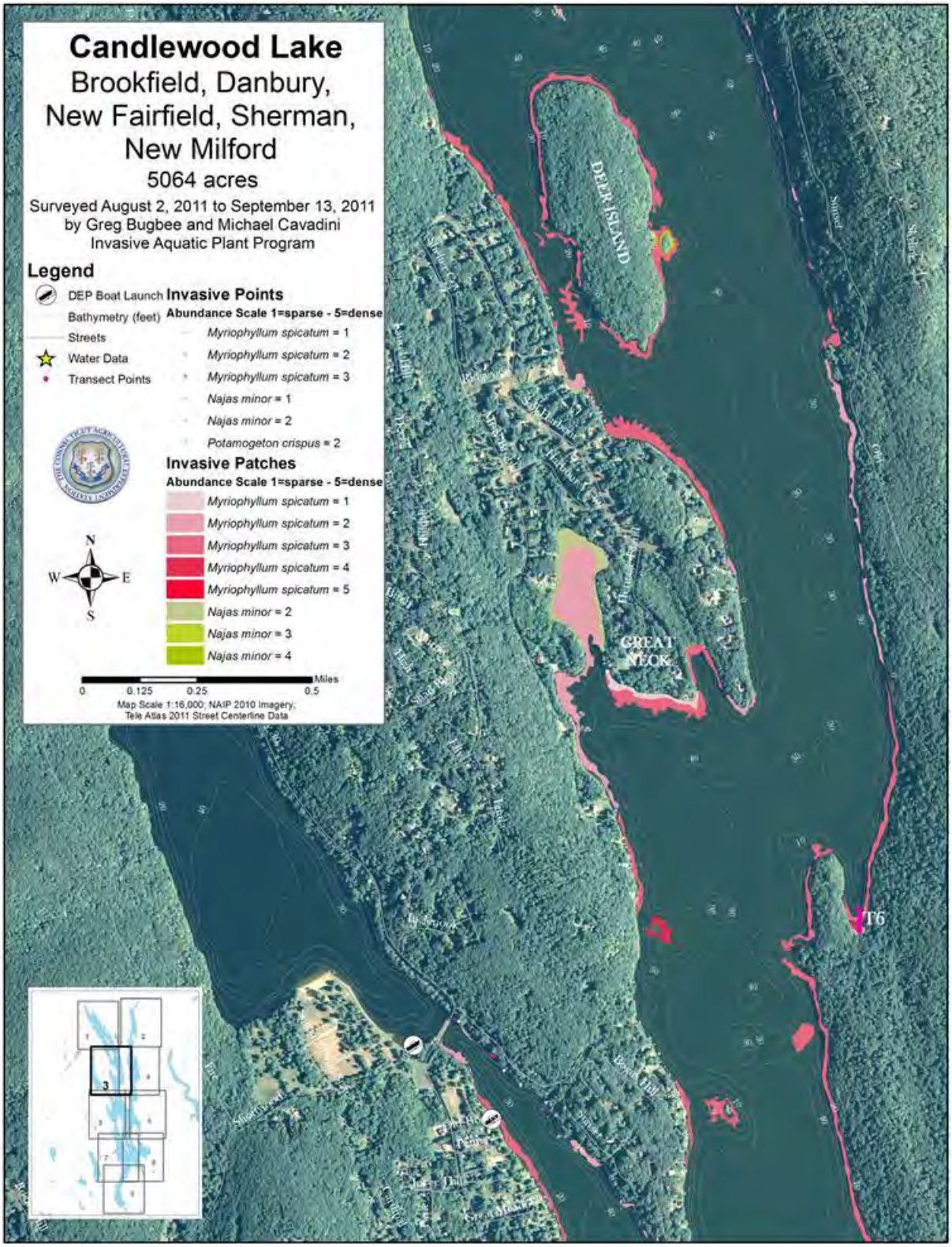
Candlewood Lake
Brookfield, Danbury,
New Fairfield, Sherman,
New Milford
5064 acres
Surveyed August 2, 2011 to September 13, 2011
by Greg Bugbee and Michael Cavadini
Invasive Aquatic Plant Program
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DEER ISLAND
GREAT NECK
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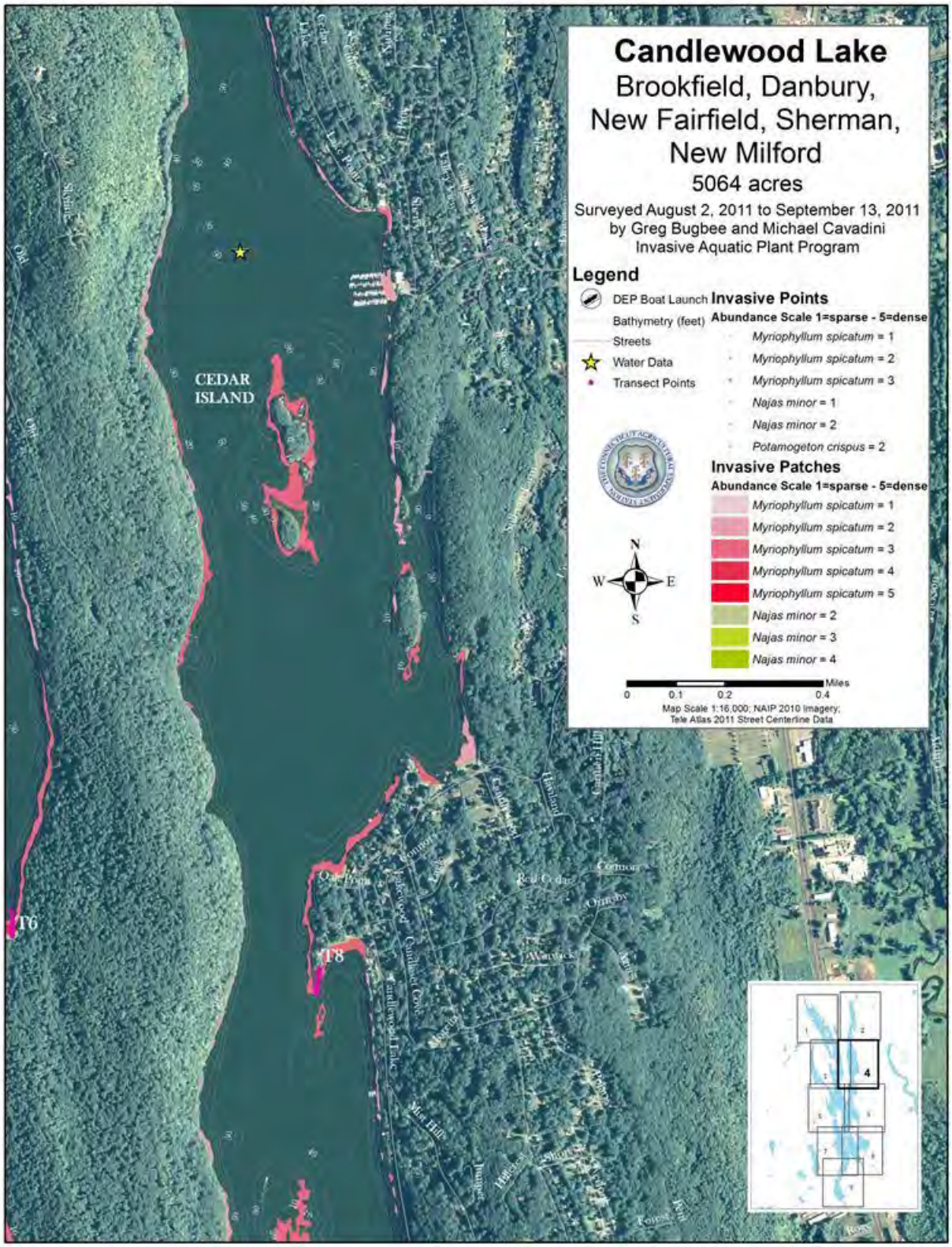
Candlewood Lake
Brookfield, Danbury,
New Fairfield, Sherman,
New Milford
5064 acres
Surveyed August 2, 2011 to September 13, 2011
by Greg Bugbee and Michael Cavadini
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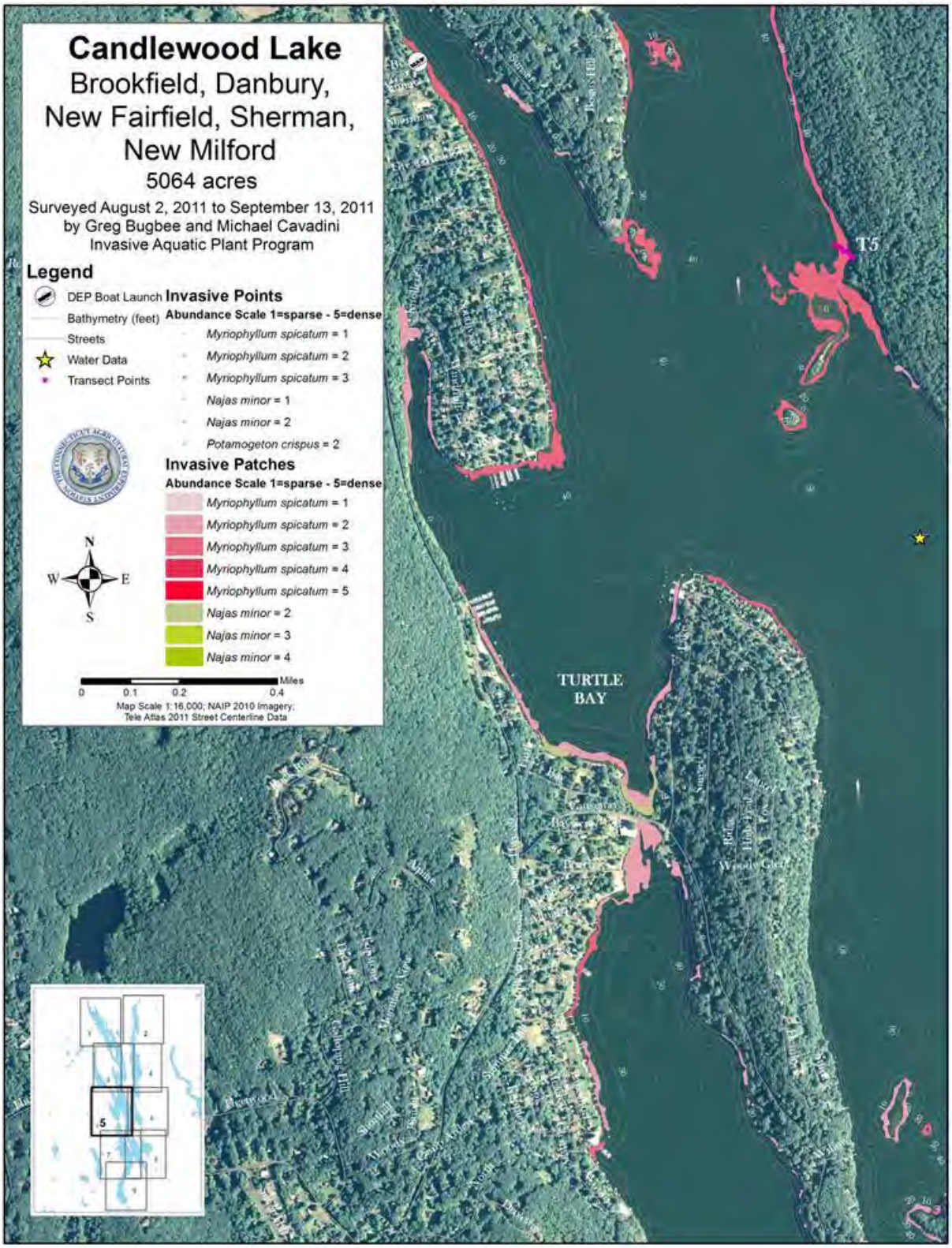
Candlewood Lake
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New Fairfield, Sherman,
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5064 acres
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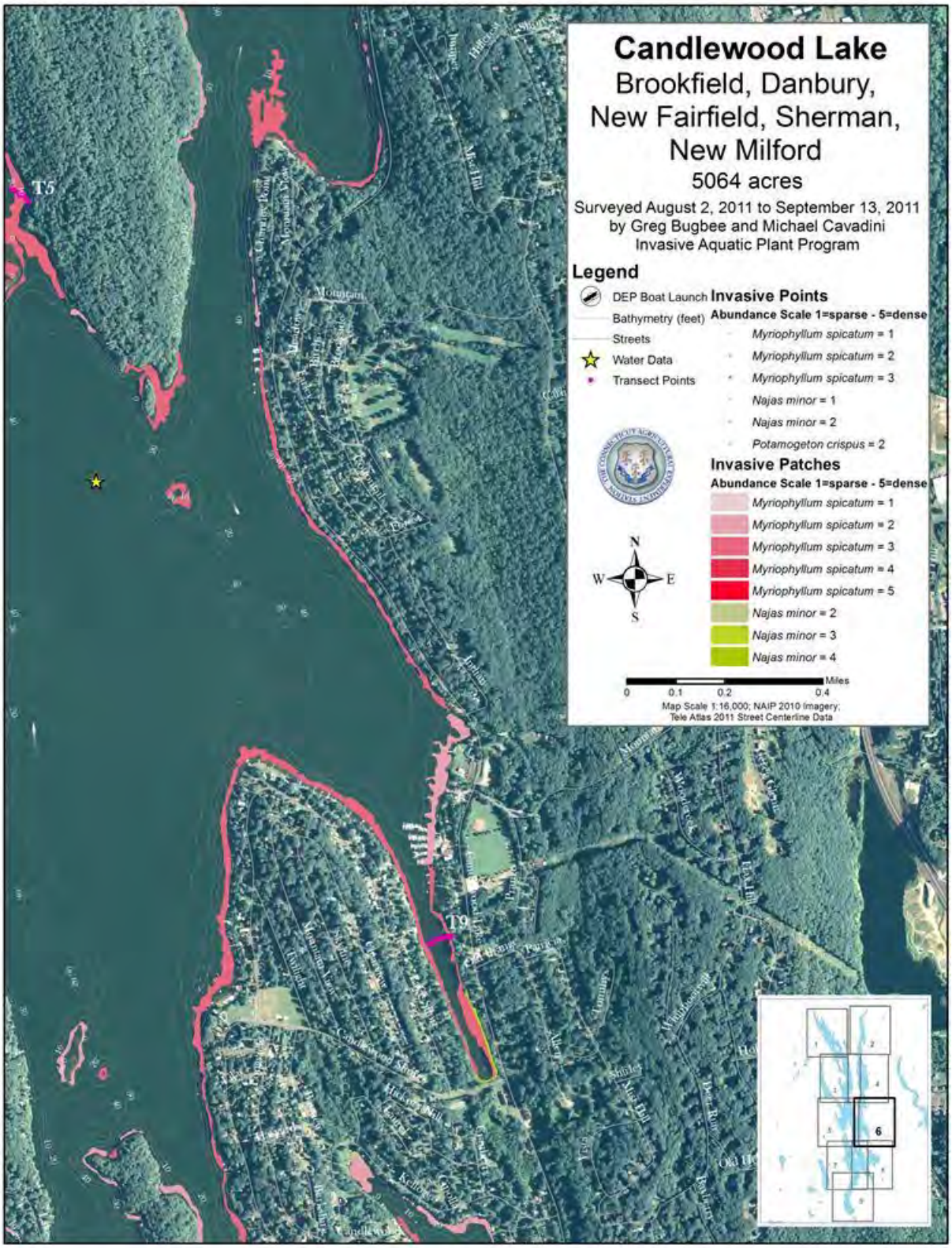
Candlewood Lake
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New Fairfield, Sherman,
New Milford
5064 acres
Surveyed August 2, 2011 to September 13, 2011
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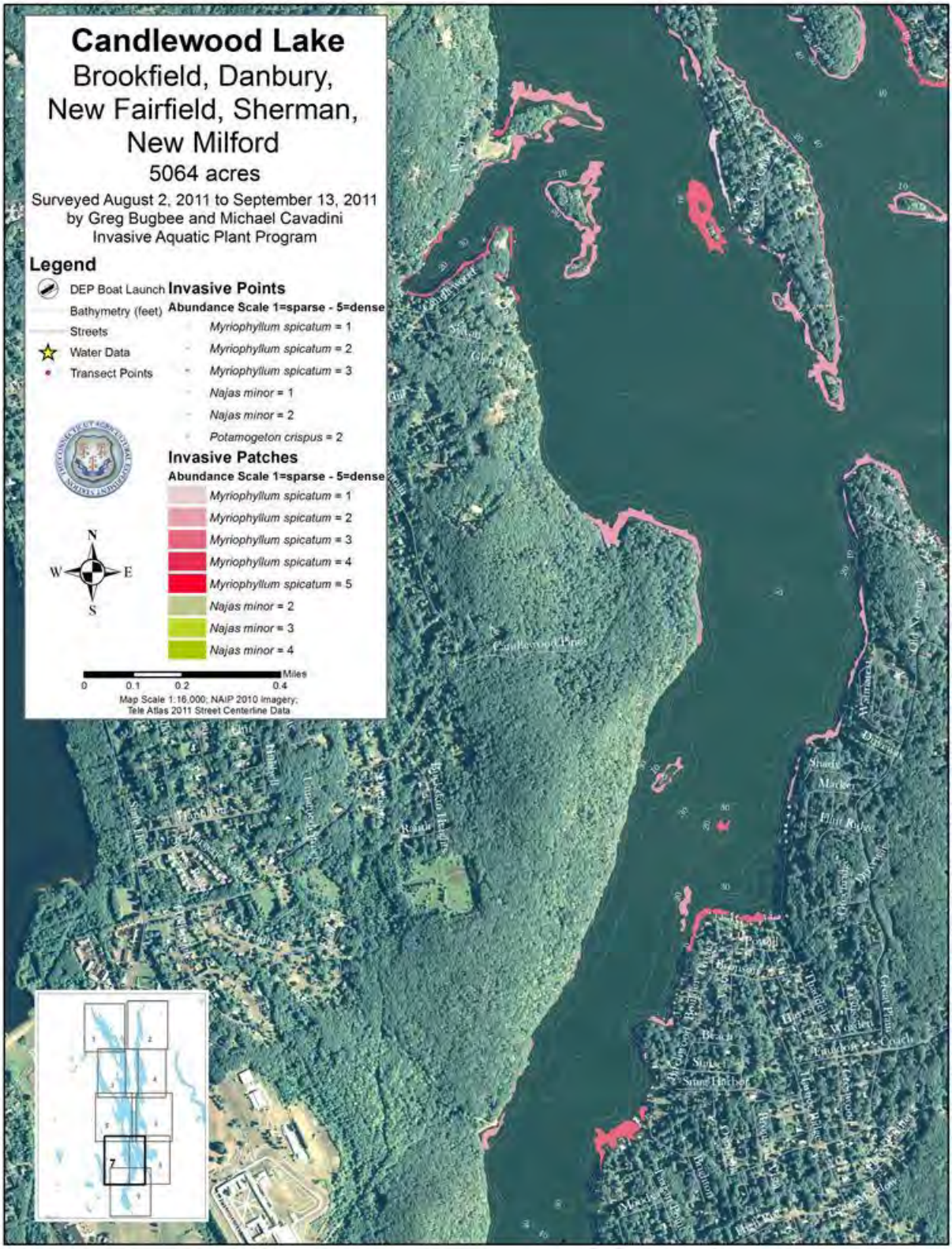
Candlewood Lake
Brookfield, Danbury,
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New Milford
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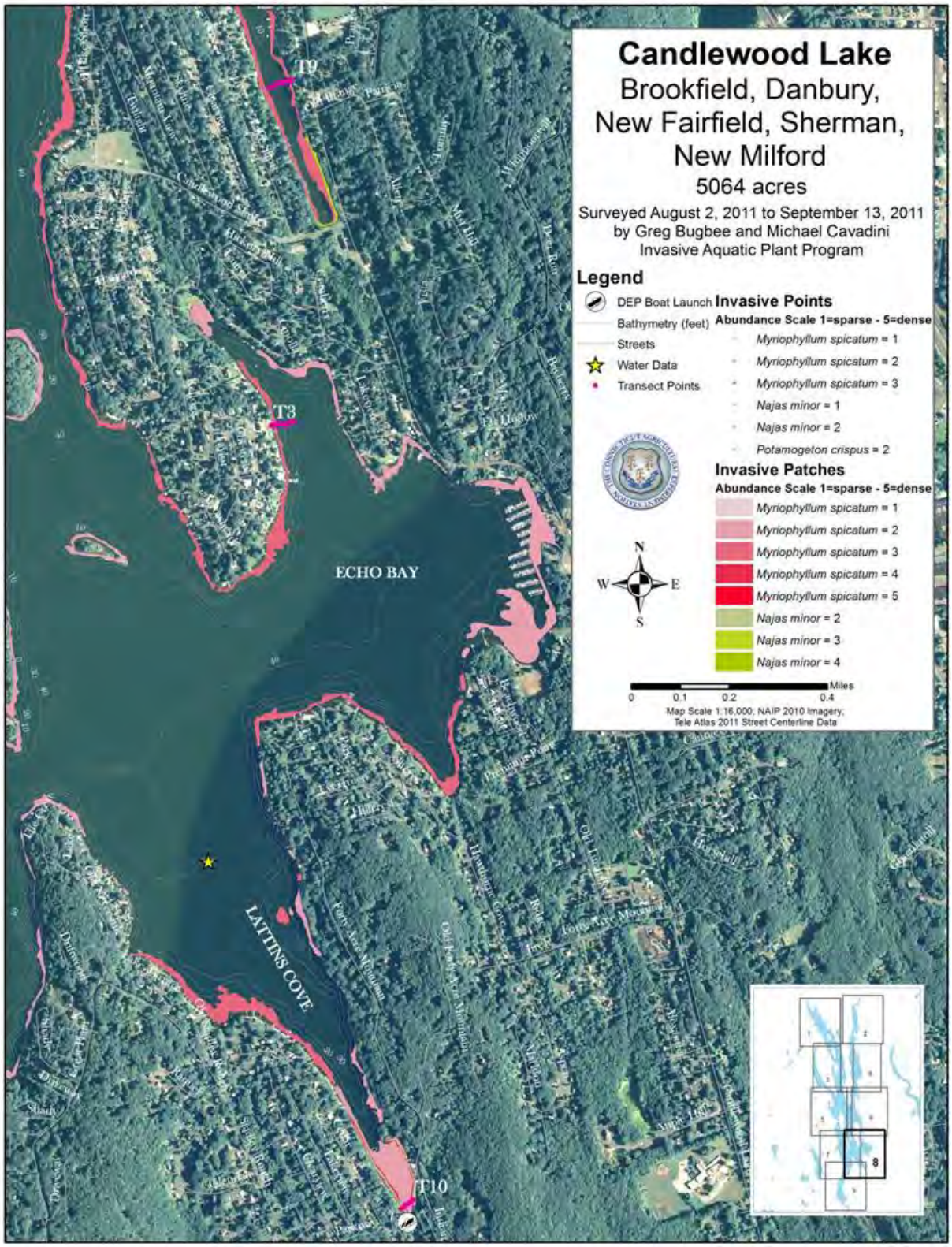
Candlewood Lake
Brookfield, Danbury,
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5064 acres
Surveyed August 2, 2011 to September 13, 2011
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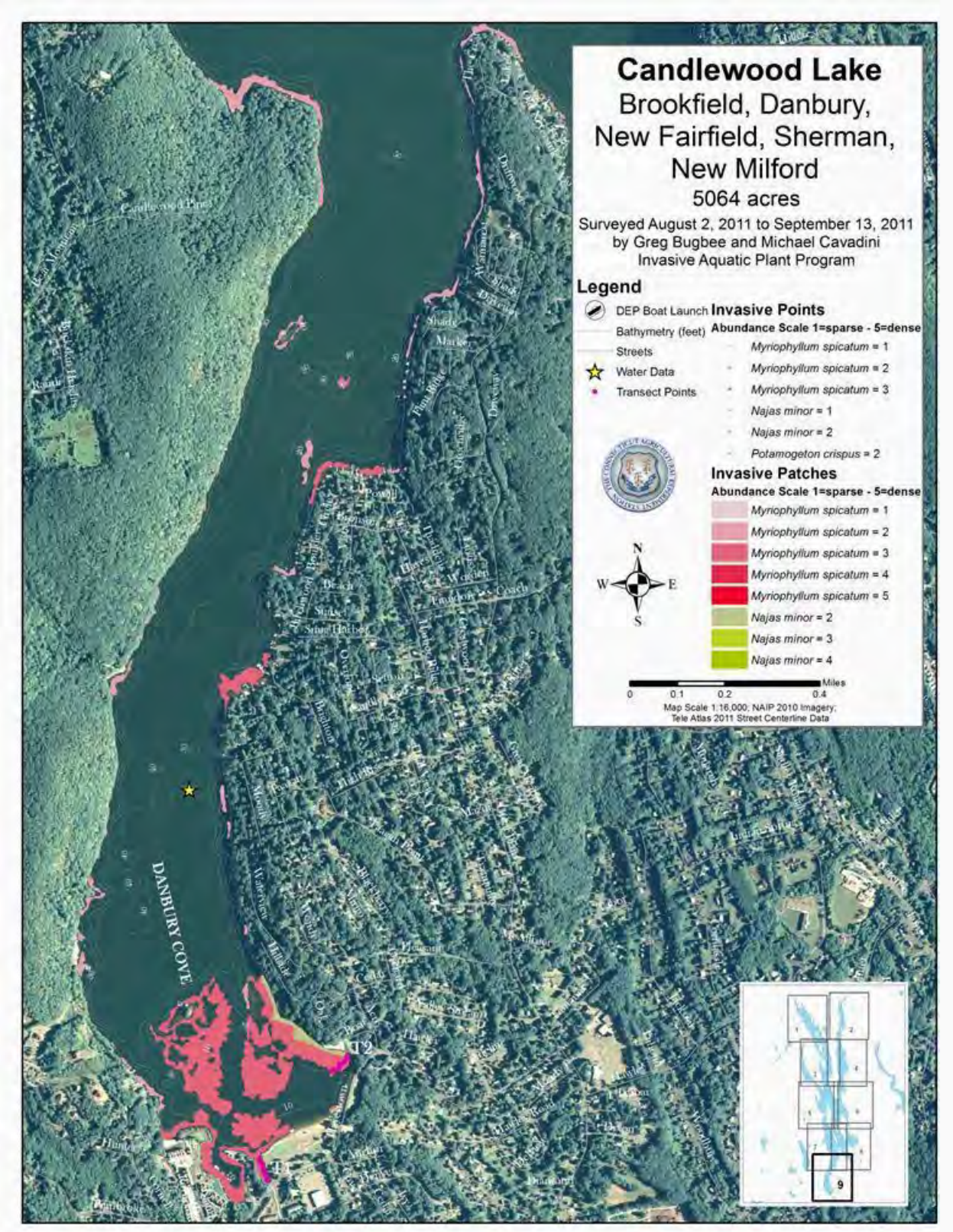
Candlewood Lake
Brookfield, Danbury, New Fairfield, Sherman, New Milford
5064 acres
Surveyed August 2, 2011 to September 13, 2011
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Table 6. Yearly comparisons of frequency of occurrence and total area of aquatic vegetation in Lake Lillinonah.

Scientific Name	Common Name	Frequency of Occurrence (percent*)				Area (acres)		
		2007	2009	2010	2011	2007	2009	2011
Callitiche sp.	Water starwort	1	0	0	0	ND**	ND	ND
Ceratophyllum demersum	Coontail	0	1	3	5	ND	ND	ND
Elatine sp.	Waterwort	0	0	2	1	ND	ND	ND
Eleocharis sp.	Spikerush	2	4	4	4	ND	ND	ND
Elodea nuttallii	Waterweed	0	0	0	0	ND	ND	ND
Eriocaulon aquaticum	Sevenangel pipewort	0	1	2	3	ND	ND	ND
Isoetes species	Quillwort	0	0	0	0	ND	ND	ND
Gratiola aurea	Golden hedge-hyssop	0	1	0	0	ND	ND	ND
Lemna minor	Duckweed	0	1	0	0	ND	ND	ND
Myriophyllum spicatum	**Eurasian watermilfoil**	**16**	**15**	**25**	**12**	**21**	**19**	**36**
Najas minor	**Brittle waternymph**	**14**	**6**	**5**	**12**	**8**	**1**	**11**
Potamogeton bicupulatus	Snailseed pondweed	0	3	0	0	ND	ND	ND
Potamogeton crispus	**Curly leaf pondweed**	**3**	**0**	**1**	**5**	**0.1**	**0.0002**	**0.001**
Potamogeton foliosus	Leafy pondweed	0	0	4	4	ND	ND	ND
Potamogeton illinoensis	Illinois pondweed	2	2	0	0	ND	ND	ND
Potamogeton nodosus	Longleaf pondweed	0	0	0	1	ND	ND	ND
Potamogeton pusillus	Small pondweed	0	0	1	0	ND	ND	ND
Sagittaria sp.	Arrowhead	0	0	1	0	ND	ND	ND
Sparganium sp.	Bur reed	0	0	0	0	ND	ND	ND
Stuckenia pectinata	Sago pondweed	0	0	0	1	ND	ND	ND
Trapa natans	**Water chestnut**	**0**	**0**	**0**	**0**	**0.00**	**0.00**	**0.001**
Zannichellia palustrus	Horned pondweed	1	0	4	1	ND	ND	ND
Zosterella dubia	Water stargrass	4	0	0	0	ND	ND	ND

Invasive plant

* Percent occurrence on 100 points in 10 transects

** Not Determined

Lake Lillinonah

Our 2011 survey of Lake Lillinonah confirmed the presence of four invasive plant species: *Myriophyllum spicatum, Najas minor, Potamogeton crispus,* and a new introduction *Trapa natans. M. spicatum* area appears to be increasing with 36 acres in 2011, 20 acres in 2009 and 21 acres in 2007 (Table 6, Maps 1-5). The coverage of *N. minor* increased to 11 acres in 2011 from 0.7 acres in 2009 and 7.6 acres in 2007. *P. crispus* remains relatively low with 0.001 acres in 2011 compared to 0.0002 acres in 2009 and 0.1 acres in 2007. Our yearly transect data showed a decrease in the frequency of occurrence of *M. spicatum* from 25% in 2010 to 12% in 2011(Table 6). *N. minor* showed an increase in its frequency on transects points from 6% in 2009 and 5% in 2010 to 12% in 2011 but this was still less than

Table 7. Yearly comparison of the number of invasive patches ant their size in Lake Lillinonah.

	Patch Size (acres)															
	Myriophyllum spicatum				*Najas minor*				*Potamogeton crispus*				*Trapa natans*			
Year	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
2011	109	0.0002	4.8	0.3	83	0.0002	1.6	0.13	6	0.0002	0.0002	0.0002	5	0.0002	0.0002	0.0002
2009	131	0.0002	2.3	0.1	5	0.0400	0.3	0.14	1	0.0002	0.0002	0.0002	0	0	0	0
2007	249	0.0002	1.6	0.1	95	0.0002	1.5	0.08	10	0.0002	0.0002	0.0002	0	0	0	0

Table 8. Yearly comparison of the abundance of plants in patches in Lake Lillinonah.

	Patch Abundance (1 = sparse - 5 = dense)											
	Myriophyllum spicatum			*Najas minor*			*Potamogeton crispus*			*Trapa natans*		
Year	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
2011	1	5	2.4	1	5	2.9	1	3	2.0	2	3	2.6
2009	1	4	2.1	2	3	2.6	1	1	1.0	0	0	0
2007	1	4	1.9	1	5	3.6	1	4	2.7	0	0	0

the 14% found in 2007. The occurrence of *P. crispus* on transects ranged between 0% and 5% per cent throughout the years with no significant changes ($p>0.05$). *T. natans* was not found along any transects. There were less patches of *M. spicatum* in 2011 (109) than in 2009 (131) and 2007 (249) (Table 7). The mean patch size of *M. spicatum* increased slightly to 0.3 acres in 2011 from 0.1 acres in 2009 and 2007. The maximum patch size increased to 4.8 acres in 2011 from 2.3 acres in 2009 and 1.6 acres in 2007. Mean patch abundance of *M. spicatum* has steadily increased from 1.9 in 2007 to 2.1 in 2008 and now 2.4 in 2011 (Table 8). The number of *N. minor* patches has fluctuated from 95 in 2007, 5 in 2009 to 83 in 2011; however, the mean patch size of 0.1 acres has not changed. Mean patch abundance of *N. minor* increased slightly from 2.6 in 2009 to 2.9 in 2011 but remained below the 3.6 we observed in 2007. The average patch size of *P. crispus* has remained at 0.0002 acres for all survey years and represents small patches containing only a few plants. The number of *P. crispus* patches increased from one in 2009 to six in 2011 but is still lower than the 10 recorded in 2007. *P. crispus* patch size, number and abundance has remained nearly the same throughout the survey years. This may be misleading as *P. crispus* is not normally abundant during the summer months; however, we did a preliminary survey of Lake Lillinonah in May and *P. crispus* was not found. *T. natans* was found in very small patches in the northern portion of the lake near the Housatonic River entrance (Map 1). As far as we know, this is a new introduction and hand removal is suggested in 2012 to limit spread. Eight native plant species occurred on Lake Lillinonah's transects in 2011, unchanged from 2010, compared

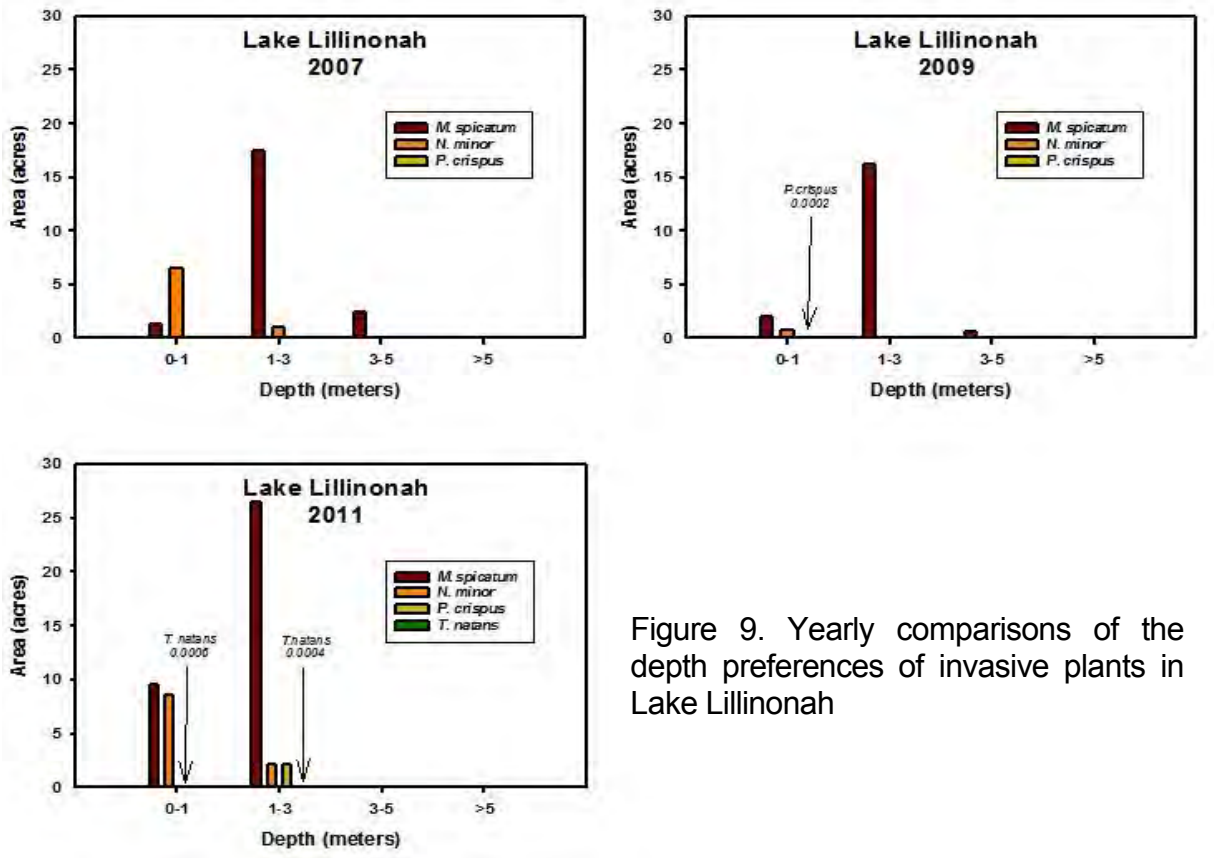


Figure 9. Yearly comparisons of the depth preferences of invasive plants in Lake Lillinonah

to seven in 2009 and five in 2007 (Table 6). The native aquatic plant population showed substantial yearly changes with only *Eleocharis sp.* being found in all four years. The most frequently found native species in 2011, were *Ceratophyllum demersum* (5%), *Eleocharis* sp. (4%), and *Potamogeton foliosus* (4%). Native plants found for the first time in 2011 were *Potamogeton nodosus* and *Stuckenia pectinata.* Plants not found in 2011 that were present in 2010 were *Potamogeton pusillus* and *Sagittaria* sp

The depth preference for *M. spicatum* has changed minimally from 2007 to 2011 (Figure 9) with most being located in 1-3 meters of water. *N. minor* was not found in the 1-3 meter depth in 2009 which may reflect its overall decline or exposure by fluctuating water levels. *P. crispus* occurred in less than one meter of water but to its depth preference could not be quantified because of the small sample size. None of the frequency of occurrence statistics show a significance difference ($p>0.05$) (Figure 10). The average native species richness per transect point was 0.20 in 2011 compared to 0.17 in 2010, 0.13 in 2009, and 0.10 in 2007 (Figure 11). Although the trend is upward, none of the years are statistically

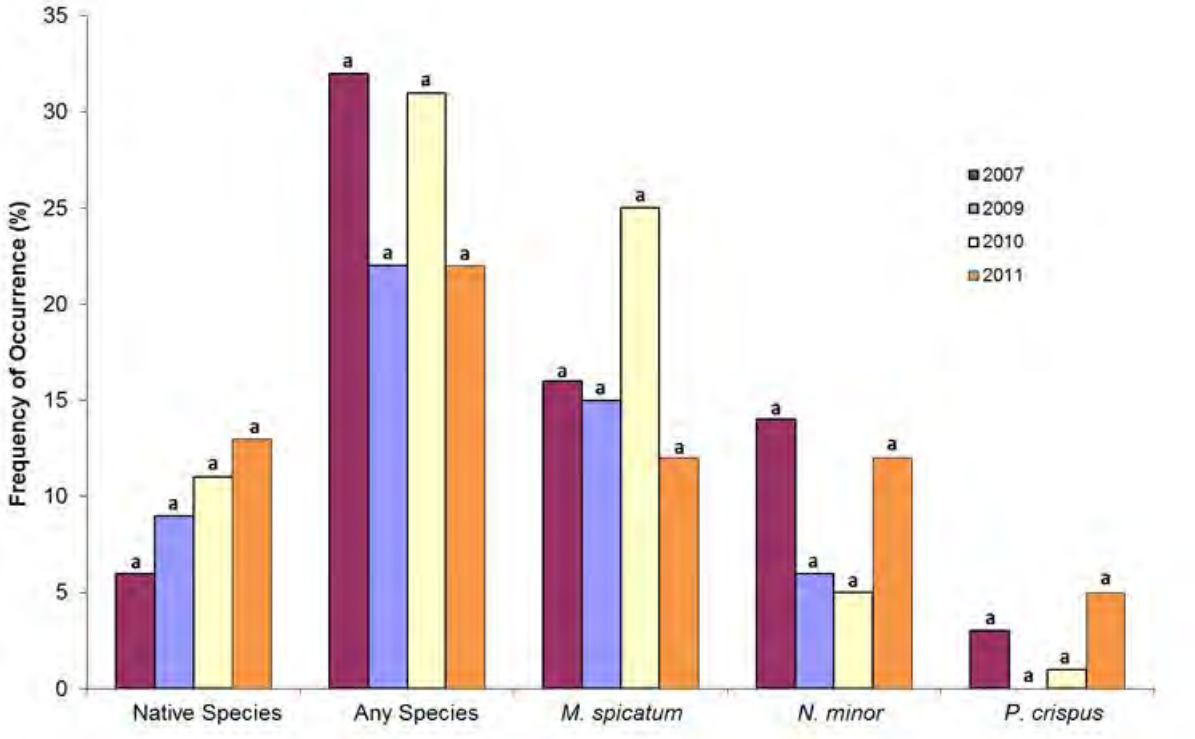


Figure 10. Yearly comparisons of the frequency of native and invasive plants on transects in Lake Lillinonah. Bars with the same letter are not significantly different.

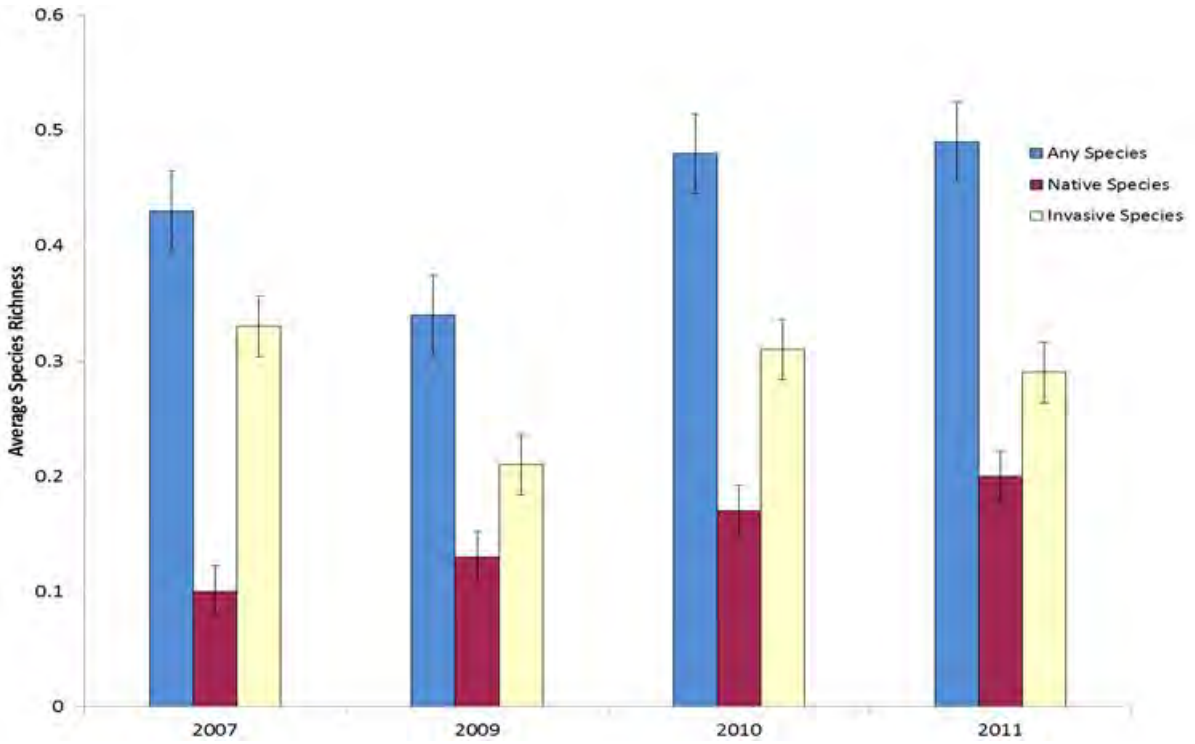


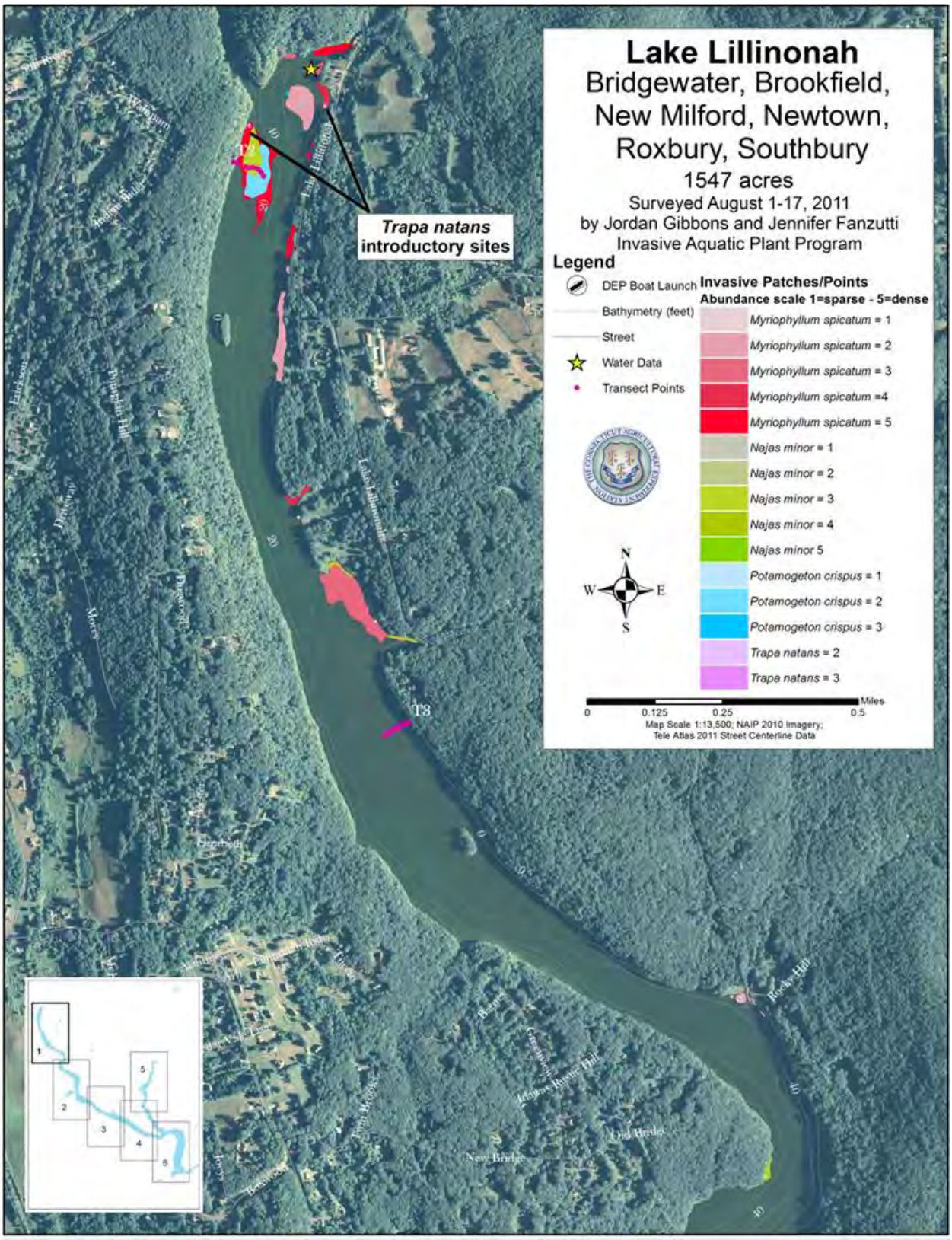
Figure 11. Yearly comparisons of the average number of species per transect point in Lake Lillinonah. Error bars equal +/- one standard error of the mean.

Table 9. Yearly comparison of the coverage of invasive plant in Lake Lillinonah's littoral zone.

Scientific Name	Common Name	Year	Area (%)
Myriophyllum spicatum	Eurasian watermilfoil	2011 2009 2007	7.5 3.9 4.5
Najas minor	Brittle waternymph	2011 2009 2007	2.3 0.1 1.6
Potamogeton crispus	Curly leaf pondweed	2011 2009 2007	<0.1 <0.1 <0.1
Trapa natans	Water chestnut	2011 2009 2007	<0.1 0 0

different ($p>0.05$). Similarly, the average number of any species (invasive + native) per transect point were not significantly different in 2011 and 2010. Plant populations in Lake Lillinonah appear considerably more stable than in Lake Candlewood.

Lake Lillinonah's littoral zone is 478 acres or 31 percent of the total lake area. *M. spicatum* increased its littoral zone coverage from 4.5% in 2007 and 3.9% in 2009 to 7.5% in 2011 (Table 9). The area of littoral zone containing *N. minor* also increased from 1.6% in 2007 and 0.1% in 2009 to 2.3% in 2011. *P. crispus* coverage remained the same throughout the survey years comprising less than 0.1% of the littoral zone. The new infestation of *T. natans* covered less than 0.1% of the littoral zone, but this plant can expand rapidly and will need vigilant hand removal to prevent its spread. Unlike Lake Candlewood, Lake Lillinonah's invasive plant coverage alone does not meet the 20-40% littoral zone coverage goal considered optimal for lakes. Whereas winter drawdown likely plays the critical role in the plant communities in Lake Candlewood, low summer water levels and turbulence during flood events are likely to influence the more riverine environment of Lake Lillinonah. This makes predicting future trends difficult.


Lake Lillinonah
Bridgewater, Brookfield, New Milford, Newtown, Roxbury, Southbury
1547 acres
Surveyed August 1-17, 2011
by Jordan Gibbons and Jennifer Fanzutti
Invasive Aquatic Plant Program
Trapa natans introductory sites
Legend
DEP Boat Launch
Bathymetry (feet)
Street
Water Data
Transect Points
Invasive Patches/Points
Abundance scale 1=sparse - 5=dense
Myriophyllum spicatum = 1
Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Myriophyllum spicatum =4
Myriophyllum spicatum = 5
Najas minor = 1
Najas minor = 2
Najas minor = 3
Najas minor = 4
Najas minor 5
Potamogeton crispus = 1
Potamogeton crispus = 2
Potamogeton crispus = 3
Trapa natans = 2
Trapa natans = 3
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0.125
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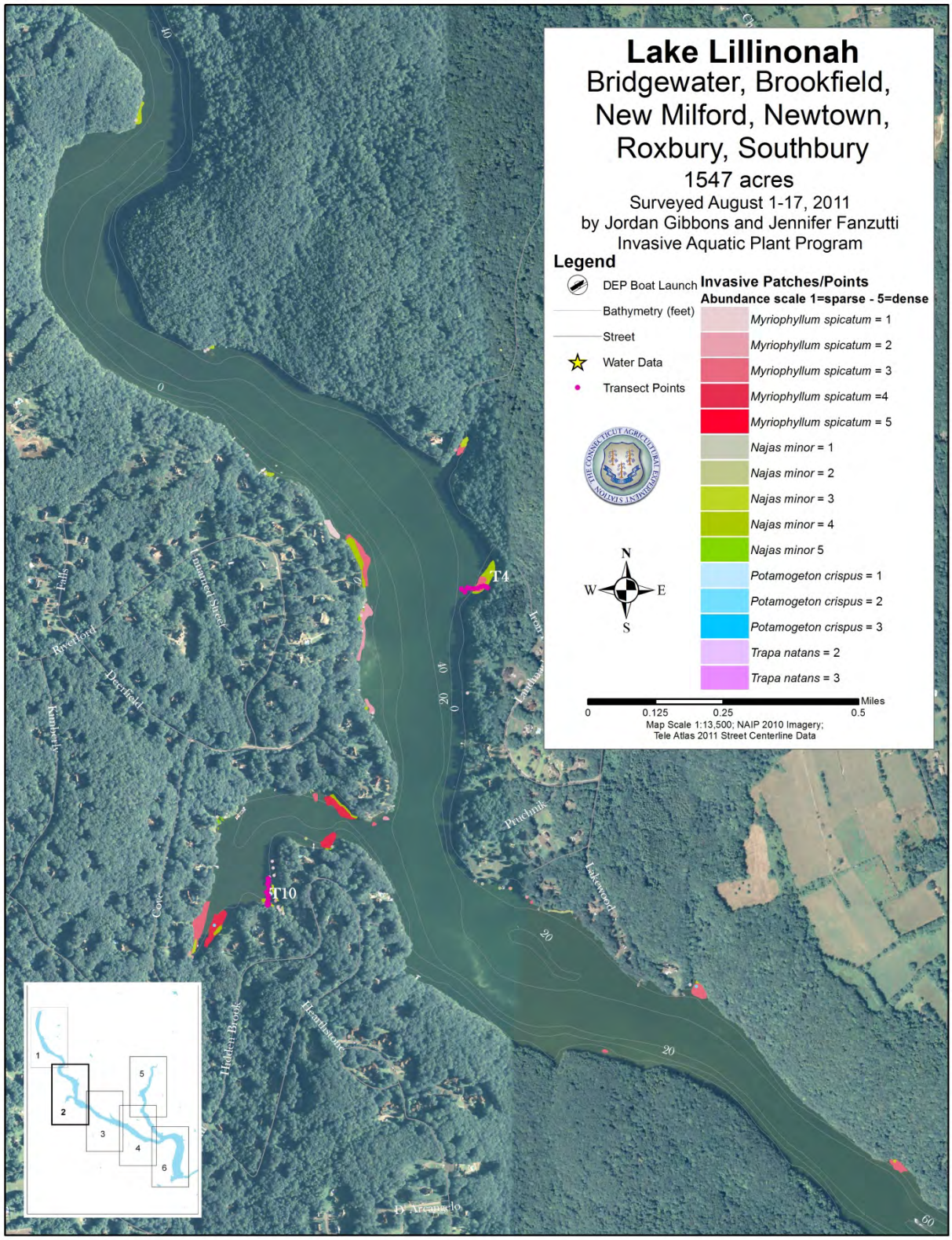
0.5
Miles
Map Scale 1:13,500; NAIP 2010 Imagery;
Tele Atlas 2011 Street Centerline Data
T1
T2
T3
Lake Lillinonah
Pootatuck River
Still River
Rocky Hill
New Bridge
Old Bridge


Lake Lillinonah
Bridgewater, Brookfield, New Milford, Newtown, Roxbury, Southbury
1547 acres
Surveyed August 1-17, 2011
by Jordan Gibbons and Jennifer Fanzutti
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Bathymetry (feet)
Street
Water Data
Transect Points
Invasive Patches/Points
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Myriophyllum spicatum = 5
Najas minor = 1
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Potamogeton crispus = 1
Potamogeton crispus = 2
Potamogeton crispus = 3
Trapa natans = 2
Trapa natans = 3
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Miles
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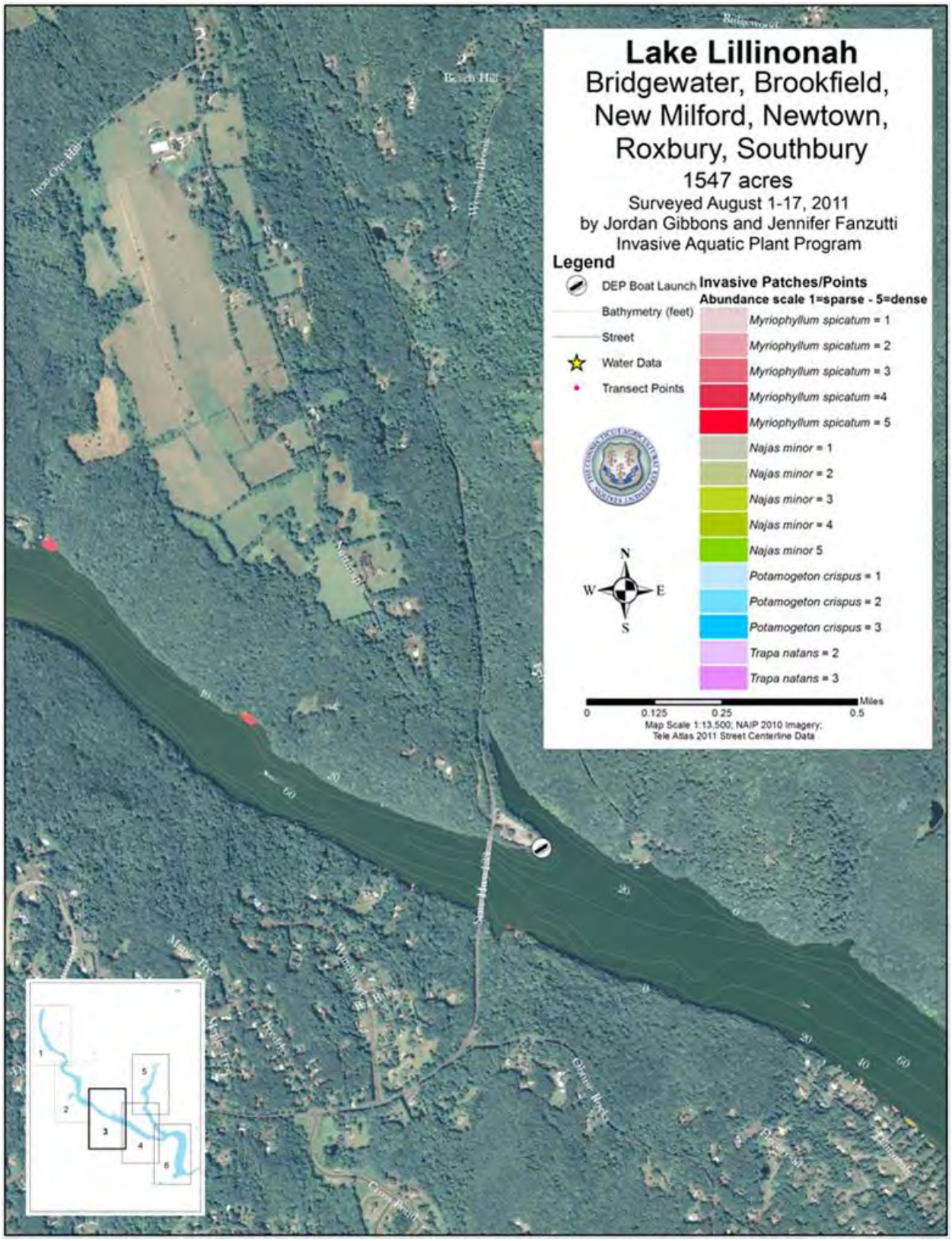
0.125
0.25
0.5
Map Scale 1:13,500; NAIP 2010 Imagery;
Tele Atlas 2011 Street Centerline Data
T4
T10
Falls
Briarbrook
Deerfield
Kimberly
Cove
Hidden Brook
Hearthstone
Pinehill
Lakewood
D'Arcangelo
1
2
3
4
5
6


Lake Lillinonah
Bridgewater, Brookfield,
New Milford, Newtown,
Roxbury, Southbury
1547 acres
Surveyed August 1-17, 2011
by Jordan Gibbons and Jennifer Fanzutti
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Bathymetry (feet)
Street
Water Data
Transect Points
Invasive Patches/Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 3
Myriophyllum spicatum =4
Myriophyllum spicatum = 5
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Najas minor = 2
Najas minor = 3
Najas minor = 4
Najas minor 5
Potamogeton crispus = 1
Potamogeton crispus = 2
Potamogeton crispus = 3
Trapa natans = 2
Trapa natans = 3
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W
E
S
0
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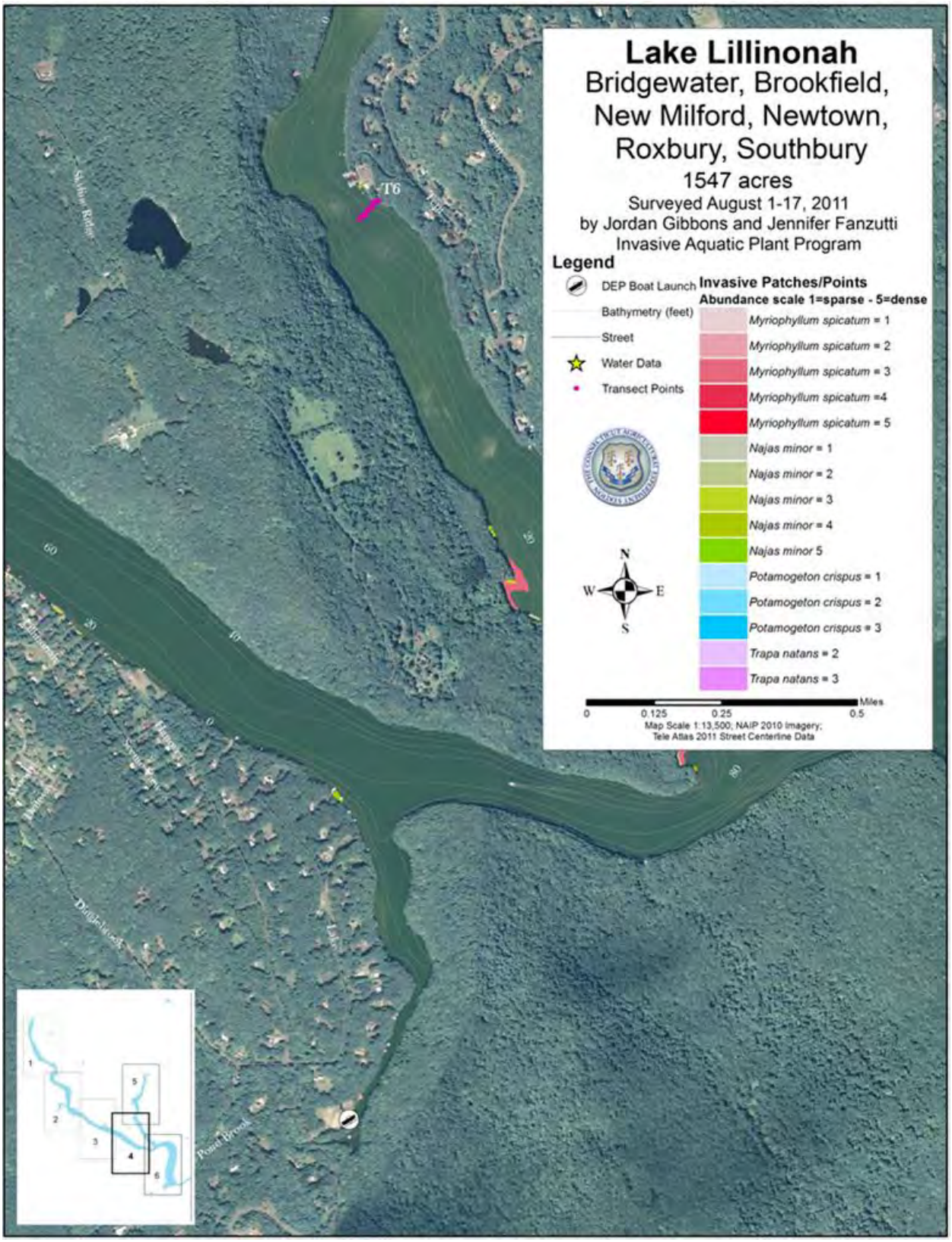
0.5
Miles
Map Scale 1:13,500; NAIP 2010 Imagery;
Tele Atlas 2011 Street Centerline Data


Lake Lillinonah
Bridgewater, Brookfield, New Milford, Newtown, Roxbury, Southbury
1547 acres
Surveyed August 1-17, 2011
by Jordan Gibbons and Jennifer Fanzutti
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Bathymetry (feet)
Street
Water Data
Transect Points
Invasive Patches/Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 3
Myriophyllum spicatum =4
Myriophyllum spicatum = 5
Najas minor = 1
Najas minor = 2
Najas minor = 3
Najas minor = 4
Najas minor 5
Potamogeton crispus = 1
Potamogeton crispus = 2
Potamogeton crispus = 3
Trapa natans = 2
Trapa natans = 3
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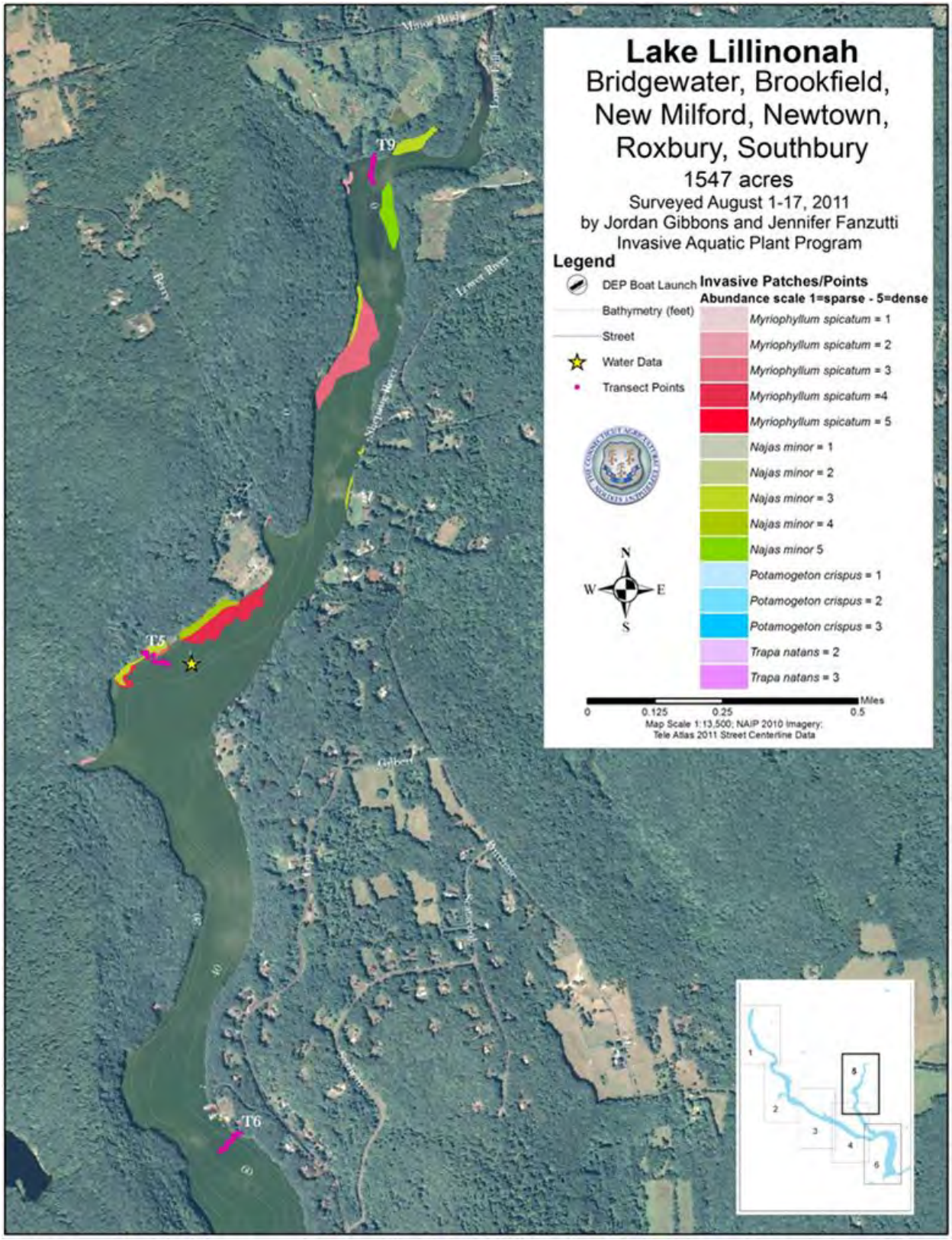
S
0
0.125
0.25
0.5
Miles
Map Scale 1:13,500; NAIP 2010 Imagery;
Tele Atlas 2011 Street Centerline Data
T6
Pond Brook


Lake Lillinonah
Bridgewater, Brookfield, New Milford, Newtown, Roxbury, Southbury
1547 acres
Surveyed August 1-17, 2011
by Jordan Gibbons and Jennifer Fanzutti
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Bathymetry (feet)
Street
Water Data
Transect Points
Invasive Patches/Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 2
Myriophyllum spicatum = 3
Myriophyllum spicatum =4
Myriophyllum spicatum = 5
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Najas minor = 2
Najas minor = 3
Najas minor = 4
Najas minor 5
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Potamogeton crispus = 2
Potamogeton crispus = 3
Trapa natans = 2
Trapa natans = 3
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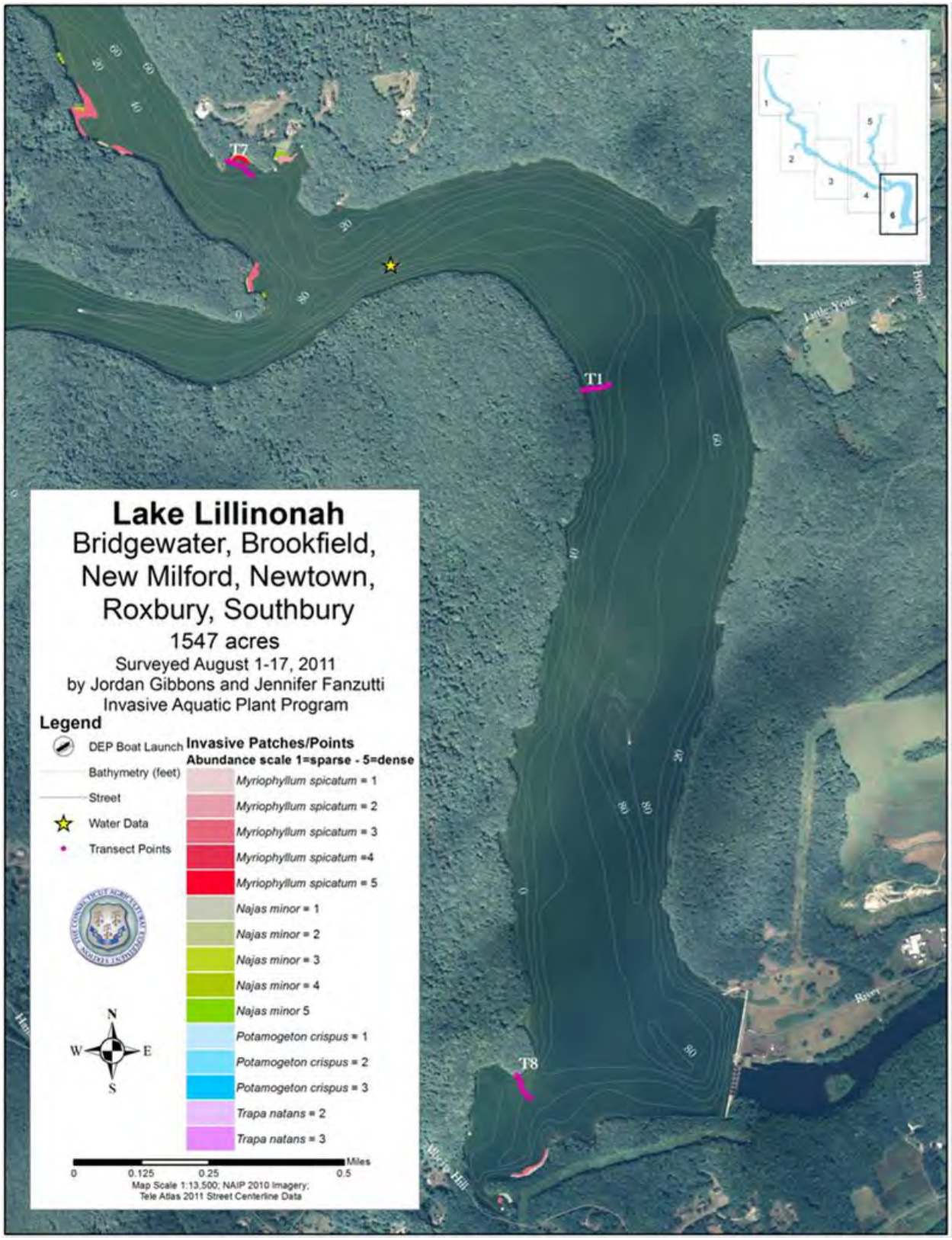
Miles
Map Scale 1:13,500; NAIP 2010 Imagery;
Tele Atlas 2011 Street Centerline Data
T9
T5
T6
Lower Rock
Gilbert
1
2
3
4
5
6


Lake Lillinonah
Bridgewater, Brookfield,
New Milford, Newtown,
Roxbury, Southbury
1547 acres
Surveyed August 1-17, 2011
by Jordan Gibbons and Jennifer Fanzutti
Invasive Aquatic Plant Program
Legend
DEP Boat Launch
Bathymetry (feet)
Street
Water Data
Transect Points
Invasive Patches/Points
Abundance scale 1=sparse - 5=dense
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Myriophyllum spicatum = 5
Najas minor = 1
Najas minor = 2
Najas minor = 3
Najas minor = 4
Najas minor 5
Potamogeton crispus = 1
Potamogeton crispus = 2
Potamogeton crispus = 3
Trapa natans = 2
Trapa natans = 3
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Miles
Map Scale 1:13,500; NAIP 2010 Imagery;
Tele Atlas 2011 Street Centerline Data
T1
T7
T8
Little York
Brook

Table 10. Yearly comparisons of the frequency of occurrence and total area of aquatic vegetation in Lake Zoar.

Scientific Name	Common Name	Frequency of Occurrence (percent *)					Area (acres)		
		2007	2008	2009	2010	2011	2007	2008	2010
Ceratophyllum demersum	Coontail	3	4	23	15	7	ND**	ND	ND
Elodea nuttallii	Waterweed	6	7	7	23	0	ND	ND	ND
Isoetes species	Quillwort	0	0	0	0	0	ND	ND	ND
Ludwigia species	Primrose-willow	0	0	0	0	1	ND	ND	ND
Marsilea quadrifolia	**European waterclover**	**0**	**0**	**0**	**0**	**0**	**<0.1**	**0.2**	**0.3**
Myriophyllum spicatum	**Eurasian watermilfoil**	**35**	**37**	**33**	**49**	**18**	**63**	**70**	**85**
Najas flexilis	Nodding waternymph	2	1	4	2	2	ND	ND	ND
Najas minor	**Brittle waternymph**	**18**	**18**	**16**	**24**	**8**	**33**	**13**	**13**
Peltandra virginica	Green arrow arum	0	0	0	0	1	ND	ND	ND
Potamogeton crispus	**Curly leaf pondweed**	**6**	**10**	**7**	**7**	**1**	**21**	**4**	**13**
Potamogeton epihyrdus	Ribbon leaf pondweed	0	0	2	0	0	ND	ND	ND
Potamogeton foliosus	Leafy pondweed	2	0	0	4	1	ND	ND	ND
Potamogeton natans	Floating leaf pondweed	0	0	0	0	0	ND	ND	ND
Potamogeton nodosus	Long leaf pondweed	0	0	0	0	0	ND	ND	ND
Potamogeton praelongus	White stem pondweed	0	0	1	1	0	ND	ND	ND
Potamogeton perfoliatus	Clasping leaf pondweed	0	0	0	0	0	ND	ND	ND
Potamogeton pusillus	Small Pondweed	0	0	0	0	0	ND	ND	ND
Potamogeton zosteriformis	Flatstem pondweed	0	0	0	3	2	ND	ND	ND
Sagittaria species	Arrowhead	0	0	0	0	0	ND	ND	ND
Stuckenia pectinata	Sago pondweed	3	0	0	0	0	ND	ND	ND
Vallisneria americana	Eel grass	8	6	15	6	9	ND	ND	ND
Zosterella dubia	Water stargrass	1	1	0	0	0	ND	ND	ND

Invasive plant

* Percent occurrence on 100 points in 10 transects

** Not Determined

Lake Zoar

Conforming to the FERC approved alternate year cycle of whole lake then transect only surveys for Lake's Lillinonah and Zoar, only transect data were obtained from Lake Zoar in 2011. We found three invasive species and seven native species on the transects. The same invasive species were found as in previous years: *Myriophyllum spicatum, Najas minor,* and *Potamogeton crispus. Marsilea quadrifolia* was noticed in the lake, but as in past years it was not present on any transect. Seven native plant species were found on Lake Zoar's transects in 2011 which is unchanged from 2010 (Table 10). Among the most common were *Ceratophyllum demersum* (7%) and *Vallisneria americana* (9%). The most common native plant found in 2010 was *Elodea nuttallii* (23%), Surprisingly, this plant we did not find this plant on the transects in 2011. Other native species found in prior years but not in

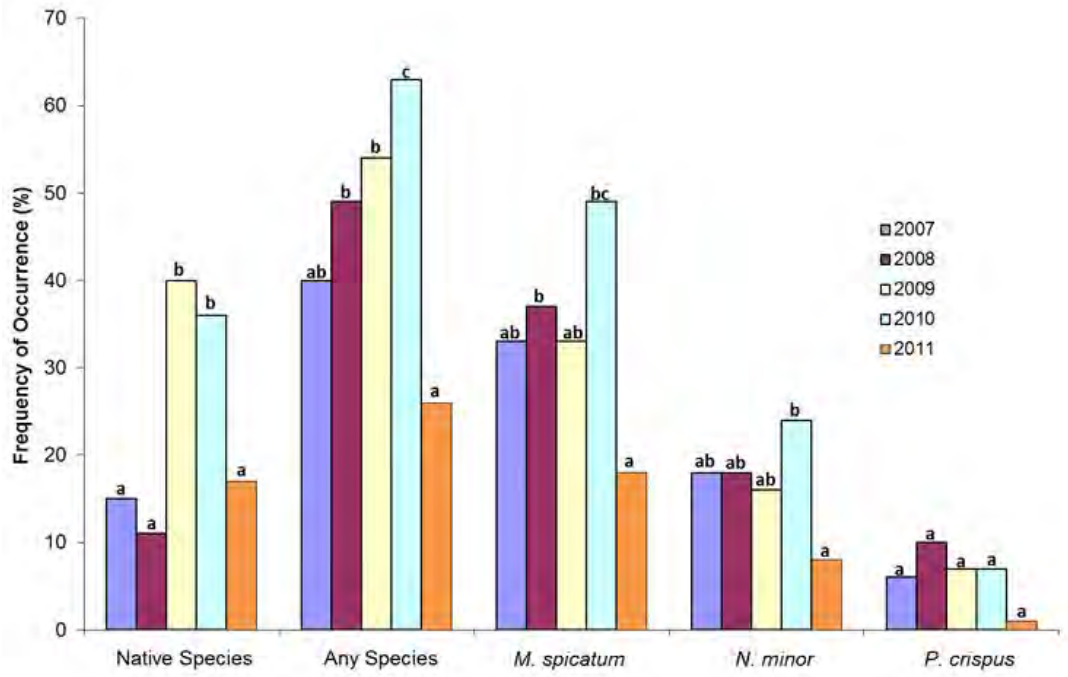

Figure 12. Yearly comparison of average frequency of occurrence of aquatic plants on transects in Lake Zoar. Bars with the same letter within a species are not statistically different.

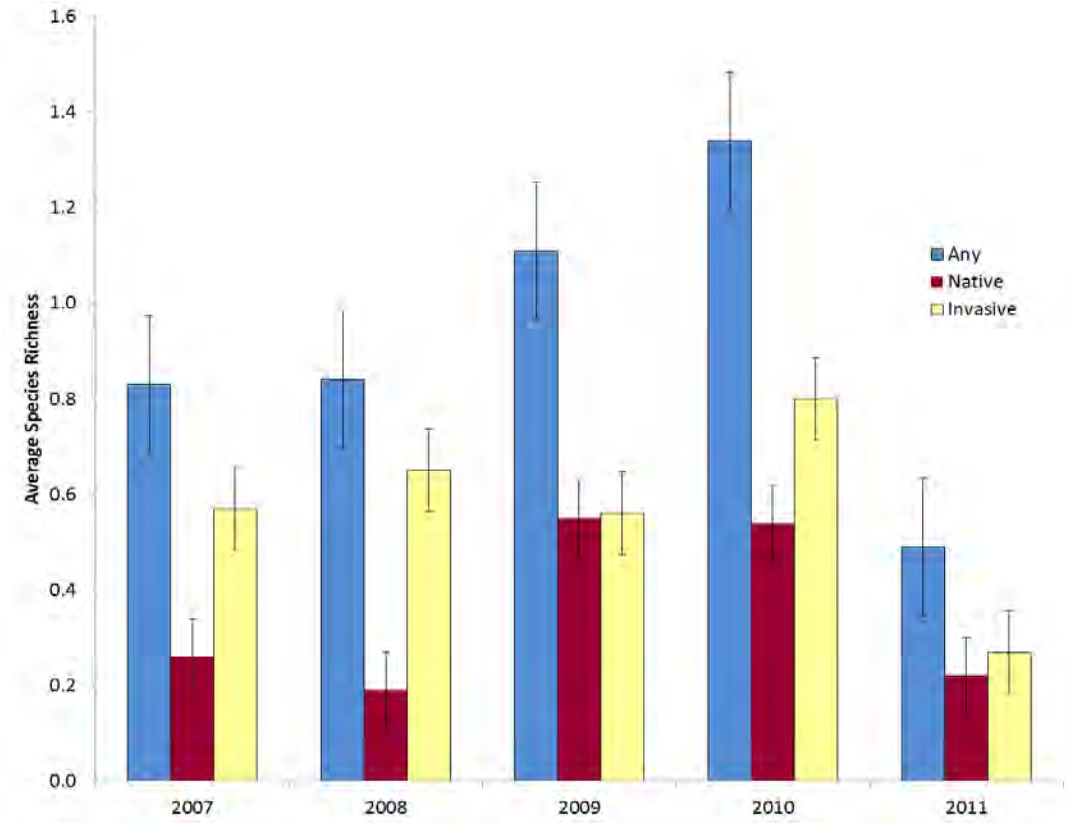

Figure 13. Yearly comparisons of acreage number of species per transect point in Lake Zoar. Error bars equal +/- one standard error of the mean.

2011 were *Potamogeton epihydrus, Potamogeton praelongus, Potamogeton zosteriformis* and *Stuckenia pectinata.* Native plants new to transects in 2011 were *Ludwigia* and *Sagittaria* species*.* Both species inhabit shorelines and are often out of the water in wet soil. They are often only reachable by our surveyors if the water level is high and this may account for their discovery.

The frequencies of occurrence of *M. spicatum* and *N. minor* were significantly less ($p \leq 0.05$) in 2011 compared to 2010 (Figure 12). *M. spicatum* decreased from 49% to 18% while *N. minor* decreased from 24% to 8%. *P. crispus* also showed a substantial decrease, but the small sample size limited its statistical significance. A statistically significant decrease ($p \leq 0.05$), in the frequency of occurrence of native species, occurred on transects in 2011 (17%) compared to 2010 (36%) and 2009 (40%). The 2011 frequency of occurrence of native species, however, returned to levels found in 2007 and 2008. A similar relationship occurred with the average native species richness per transect point (Figure 13). The frequency of occurrence of any species (native or invasive) also significantly decreased ($p \leq 0.05$) to 26% in 2011 compared to 63%, 54%, and 49% in 2010, 2009 and 2008 respectively. These levels were similar to those found in 2007. The average species richness of these plants per transect point; 2007 (0.8), 2008 (0.8), 2009 (1.1) and 2010 (1.4) followed a similar trend. These results show that Lake Zoar's total vegetative cover declined in 2011 thus reversing the increasing trend of previous years (Bugbee, 2011). Whereas winter drawdown likely plays the critical role in the plant communities in Lake Candlewood, fluctuating water levels and turbulence during flood events are likely to influence the more riverine environment of Lake Zoar. The extreme flooding after Tropical Storm Irene (Appendix, page 51) could further reduce aquatic plant populations in 2012.

Table 11. Water chemistry of Lakes Candlewood, Lillinonah and Zoar, 2011.

Lake	Site	Date	Latitude	Longitude	Sample Depth (m)	Transperency Secchi (m)	Conductivity (uS/cm)	pH	Alkalinity $CaCO_3$ (mg/L)	Total P (ug/L)
Candlewood	W1	9/13/2011	41.53421	-73.44454	0.5	2.5	106	7.8	45	14
					13.0		122	6.6	68	144
	W2	9/13/2011	41.49389	-73.44877	0.5	2.8	102	7.7	45	13
					12.0		122	6.6	68	156
	W3	9/13/2011	41.55300	-73.47519	0.5	2.1	93	7.8	45	16
					10.0		114	6.6	68	78
	W4	9/13/2011	41.43572	-73.45582	0.5	3.1	90	7.2	38	14
					10.0		108	6.3	68	105
	W5	9/13/2011	41.45732	-73.43767	0.5	3.2	113	7.7	45	10
					11.0		131	6.6	60	112
Lillinonah	W1	8/15/2011	41.49662	-73.32592	0.5	1.0	294	8.0	98	16
					16.0		336	7.6	105	32
	W2	8/17/2011	41.46971	-73.30818	0.5	1.5	301	8.1	101	31
					2.0		335	7.8	112	43
	W3	8/15/2011	41.54119	-73.40298	0.5	0.8	213	8.5	74	25
					6.0		216	8.0	73	26
Zoar	W1	8/25/2011	41.42975	-73.21995	0.5	1.5	301	7.3	90	38
					9.0		299	7.1	90	47
	W2	8/25/2011	41.38775	-73.17898	0.5	2.0	292	7.7	90	25
					15.5		296	7.1	90	281
	W3	9/12/2011	41.45279	-73.27956	0.5	1.1	114	7.4	60	37
					3.0		115	7.5	60	349

Comparisons of Water Chemistry

Water transparency and chemistry affect the type and abundance of plant species in lakes. For example, aquatic plants cannot exist at depths where light cannot penetrate and most plants have water chemistry preferences. The transparency of Candlewood Lake in 2011 averaged 2.7 meters compared to 1.1 meters in Lake Lillinonah Lake and 1.5 meters in Lake Zoar (Table 11). Transparencies in Connecticut's lakes ranged from 0.3 to 10.2 meters with an average of 2.3 meters (CAES IAPP, 2011). Thus Candlewood Lake's water transparency ranks slightly clearer than average while Lake's Lillinonah and Zoar are slightly less. Invasive plant species have water chemistry preferences that dictate where they will occur. Current CAES IAPP research has found that *M. spicatum*, *P. crispus*, *and N. minor* are more common in lakes with higher conductivities and alkalinities while *M. heterophyllum* (variable milfoil) and *Cabomba caroliniana* (fanwort) are present when these factors are low (CAES IAPP, 2011, Capers et al. 2005). Conductivity is an indicator of the dissolved ions which can come from natural and man-made nutrients sources (fertilizers, septic systems, road salts etc.). The conductivity of Candlewood Lake ranged from 90 - 131 µS/cm with little difference between surface and deep water samples (Table 11). In the early 1990's, the conductivity of Candlewood Lake ranged from 176 - 184 µS/cm (Canavan and Silver, 1995) suggesting a decreasing trend may be occurring. The conductivity of Lake Lillinonah ranged

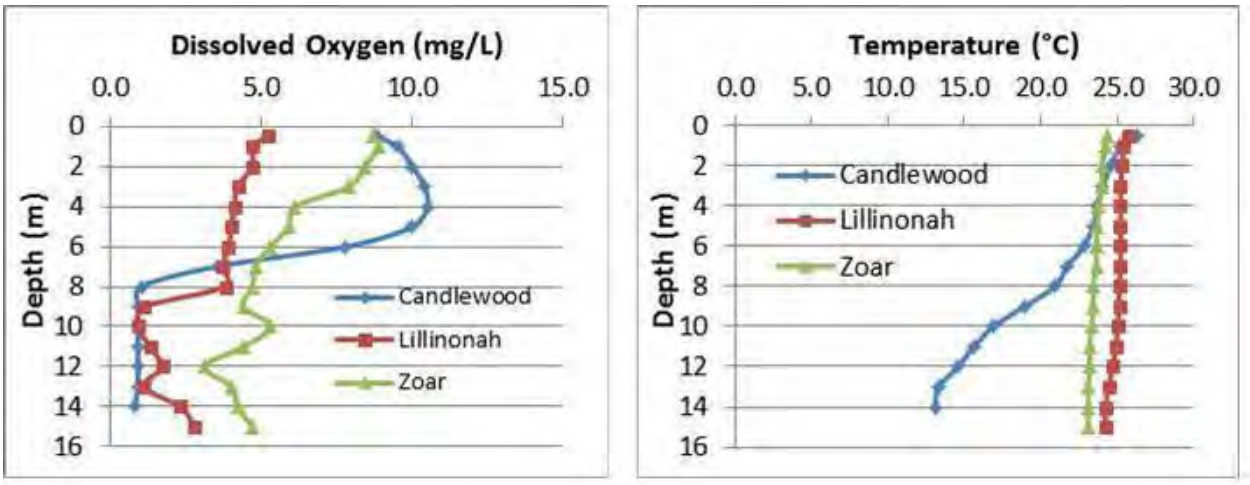

Figure 14. Dissolved oxygen and temperature profiles in Lake's Candlewood, Lillinonah and Zoar.

from 213 - 336 µS/cm while Lake Zoar ranged from 114 - 301 µS/cm. Lake Zoar's large conductivity range can most likely be attributed to samples W1 and W2 being taken before the Tropical Storm Irene and sample W3 being taken after. Since water chemistry changes throughout the year and our data is from a limited time frame, our results (Table 9) may not be representative of conditions at other times.

The surface water pH of both Candlewood Lake and Lake Lillinonah were slightly alkaline and fell in a range of 7.2 to 8.0 (Table 11). The bottom water of Candlewood Lake was slightly more acidic. Lake Zoar's surface water pH fell in a range of 7.3 to 7.7 while its bottom water ranged from 7.1 to 7.5. Surface water pH fluctuates widely because of midday removal of carbon dioxide by active, photosynthesizing algae (Wetzel, 2001). Alkalinity is considered a better indicator than pH for determining a lake's susceptibility to acidification or basification because alkalinity is the measure of a lake's buffering capacity. Candlewood Lake had an average alkalinity (55 mg/L $CaCO_3$) and was considerably lower than Lake Lillinonah (94 mg/L $CaCO_3$) and Lake Zoar (80 mg/L $CaCO_3$). Surface water generally had higher alkalinities than the bottom water. Alkalinities in Connecticut's lakes range from near 0 to greater than 172 mg/L $CaCO_3$ (CAES IAPP, 2011, Canavan and Silver, 1995, Frink and Norvell, 1984).

A primary indicator of a lake's ability to support algae and a key indicator of a lake's trophic state is phosphorus (P) (Frink and Norvell, 1984, Wetzel, 2001). Rooted macrophytes are considered to be less dependent on P from the water column as they obtain a

majority of their nutrients from the hydrosoil (Bristow and Whitcombe, 1971). Lakes with P levels from 0-10 µg/L are considered to be nutrient-poor or oligotrophic. When P concentrations reach 15-25 µg/L, lakes are classified as moderately fertile or mesotrophic. P levels at 30-50 µg/L characterize lakes as fertile or eutrophic (Frink and Norvell, 1984). P concentrations in all three lakes were depth-dependent. The P concentration in Candlewood Lake's surface and bottom water ranged from 10-16 µg/L and 105-156 µg/L respectively (Table 11). This partitioning of P between the epilimnion (surface) and hypolimnion (bottom) is common in the summer as anoxic conditions near the bottom (Figure 14) release P from the sediment (Norvell, 1974). The P concentration in Lake Lillinonah's surface waters ranged from 16-31 µg/L and from 26-43 µg/L in its bottom water while the P concentration in Lake Zoar's surface water ranged from 25-38 µg/L and from 47-349 µg/L in its bottom waters. A possible reason for depth-dependent P concentrations in Lake Zoar (even with the mixing mentioned above in mind) is that P is adhering to sediment suspended near the bottom.

Summer dissolved oxygen and temperature profiles of the lakes (Figure 14) showed little depth related stratification in Lakes Lillinonah and Zoar probably due to the more riverine characteristics of the water bodies. Candlewood Lake, however, showed substantial declines in both dissolved oxygen and temperature at the 5-6 m depth which is typical for most deep lakes in Connecticut. Interestingly, the water tests showed the intense winds and rainfall from Tropical Storm Irene did not cause complete mixing of Candlewood Lake.

Conclusions:

Aquatic plant communities in Lakes Candlewood, Lillinonah and Zoar continue to be dominated by invasive species, particularly *M. spicatum*. In Candlewood Lake the coverage of *M. spicatum* declined to 333 acres in 2011 from 461 acres in 2010 due to the deep winter drawdown. The acreage of *N. minor* in Candlewood Lake is remaining relatively constant from year to year probably because it is usually limited to water less than one meter and grows from seeds that are relatively drawdown resistant. The amount of *M. spicatum* in Candlewood Lake is inversely related to the depth and duration of the previous winter's drawdown. Of the various drawdown options available to improve the control of *M. spicatum* in Candlewood Lake the most promising appears to be a deeper drawdown; however, this is not allowable under the current FERC requirement and other issues may limit its feasibility.

Our 2011 survey of Lake Lillinonah confirmed the presence of four invasive plant species: *Myriophyllum spicatum, Najas minor, Potamogeton crispus,* and a new introduction *Trapa natans. M. spicatum* and *N. minor* increased in area in 2011 while *P. crispus* remained the same. *Trapa natans* was located in one small patch near the mouth of the Housatonic River. This plant will need persistent hand removal to prevent in from rapidly spreading. Lake Zoar's total vegetative coverage of both invasive and native plants significantly declined in 2011, reversing the increasing trend of previous years.

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Julius Pasay, Invasive Aquatic Plant Program, CAES
Roslyn Reeps, Invasive Aquatic Plant Program, CAES
Mieke Schuyler, Invasive Aquatic Plant Program, CAES
Robert Stira, FirstLight Hydro Generating Company, New Milford, CT
Brian Wood, FirstLight Hydro Generating Company, New Milford, CT

References:

American Public Health Association. 1995. Standard methods for the examination of water and wastewater. 19th ed. American Public Health Association, 1015 Fifteenth St., NW Washington, DC 2005. 4:108-116.

Bristow, J.M. and M. Whitcombe. 1971. The role of roots in the nutrition of aquatic vascular plants. Amer. J. Bot. 58:8-13.

Bugbee, G.J. 2011. Invasive aquatic plants in Lakes Candlewood and Zoar 2010. Conn. Agric. Exp. Sta. Bull. Retrieved December 21, 2011. http://www.ct.gov/caes/lib/caes/invasive_aquatic_plant_program/pdf_reports/firstlightbulletinfinal2011_3_31.pdf.

Bugbee, G.J. and M. Balfour. 2010. Invasive aquatic plants in Lakes Candlewood and Zoar 2009. Conn. Agric. Exp. Sta. Bull. Retrieved March 31, 2011. http://www.ct.gov/caes/lib/caes/invasive_aquatic_plant_program/pdf_reports/firstlightbulletin2009_final_4_1_2010.pdf.

Bugbee, G.J. and R. Reeps. 2009. Invasive aquatic plants in Lakes Candlewood and Zoar 2008. Conn. Agric. Exp. Sta. Bull. Retrieved March 31, 2011. http://www.ct.gov/caes/lib/caes/invasive_aquatic_plant_program/pdf_reports/firstlightbulletin2008_042709.pdf.

Bugbee, G.J., R. Selsky, and M. Marko. 2008. Invasive aquatic plants in Lakes Candlewood, Lillinonah and Zoar 2007. Conn. Agric. Exp. Sta. Bull. 1017.

CAES IAPP. 2010. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP). Retrieved February 3, 2010. http://www.ct.gov/caes/iapp.

Canavan IV, R.W. and P.A. Siver. 1995. Connecticut Lakes: A study of the chemical and physical properties of fifty-six Connecticut Lakes. Connecticut College Arboretum. New London, CT.

Capers, R.S., R. Selsky, G.J. Bugbee and J.C. White. 2007. Aquatic plant community invisibility and scale-dependent patterns in native and invasive species richness. Ecology. 88(12):3135-3143.

Catling, P.M., and I. Dobson. 1985. The biology of Canadian weeds. *Potamogeton crispus L.* Canadian Journal of Plant Science 65:655-668.

Connecticut Aquatic Nuisance Species Working Group. 2006. Connecticut aquatic nuisance species management plan. Retrieved December 17, 2007. http://www.ctiwr.uconn.edu/ProjANS/SubmittedMaterial2005/Material200601/ANS%20Plan%20Final%20Draft121905.pdf

Connecticut Department of Environmental Protection. 2009. GIS Data - Hydrography. Retrieved February 14, 2009. http://www.ct.gov/dep/cwp/view.asp?a=2698&q=322898.

Crow, G.E., and Hellquist, C.B. 2000a. Aquatic and Wetland Plants of Northeastern North America. Vol. 1. Pteridophytes, Gymnosperms and Angiosperms: Dicotyledons. University of Wisconsin Press, Madison.

Crow, G.E., and Hellquist, C.B. 2000b. Aquatic and Wetland Plants of Northeastern North America. Vol. 2. Angiosperms: Monocotyledons. University of Wisconsin Press, Madison.

Frink, C.R. and W.A. Norvell. 1984. Chemical and physical properties of Connecticut lakes. Conn. Agric. Exp. Sta. Bull. 817.

Fishman, K.J., R.L. Leonard and F.A. Shah. 1998. Economic evaluation of Connecticut lakes with alternative water quality levels. Connecticut Department of Environmental Protection. 79 Elm St. Hartford CT

Hincks, S.S. and G.L. Mackie. 1997. Effects of pH, calcium, alkalinity, hardness, andchlorophyll on the survival, growth, and reproductive success of zebra mussel(*Dreissena ploymorpha*) in Ontario lakes. Can. J. Fish. Aquat. Sci. 54: 2049–2057

Jacobs, R.P and E.B. O'Donnell. 2002. A fisheries guide to lakes and ponds of Connecticut. Including the Connecticut River and its coves. CT DEP Bull. 35.

Marsicano, L.J. 2009. Insights into Eurasian watermilfoil management by deep drawdown. Candlewood Lake Authority. New Milford, CT. 13 pp.

Northeast Generating Company. 2005. Nuisance plant monitoring plan. Lake Candlewood, and Lakes Lillinonah and Zoar. FERC License Article 409.

Norvell, W.A. 1974. Insolubilization of inorganic phosphorus by anoxic lake sediment. Soil Sci. Soc. Amer. Proc. 38:441-445.

Pimentel, D., L. Lach, R. Zuniga and D. Morrison. 2000. Environmental and economic costs of nonindigenous species in the United States. Bioscience 53:53-65.

Siver, P.A., A.M. Coleman, G.A. Benson and J.T. Simpson. 1986. The effects of winter drawdown on macrophytes in Lake Candlewood, Connecticut. Lake and Reservoir Management. 2:69-73.

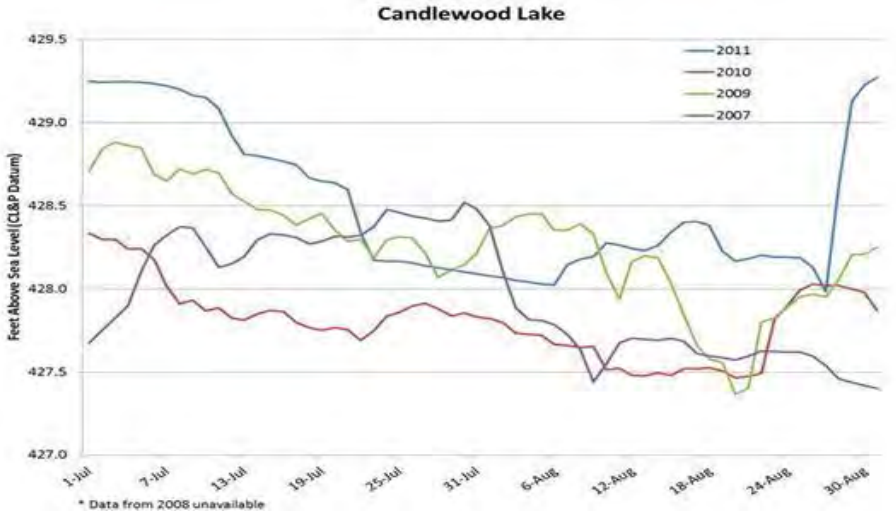
Tarsi, M. 2006. Eurasian watermilfoil on Lake Candlewood: Management considerations and possible alternatives to the deep drawdown.

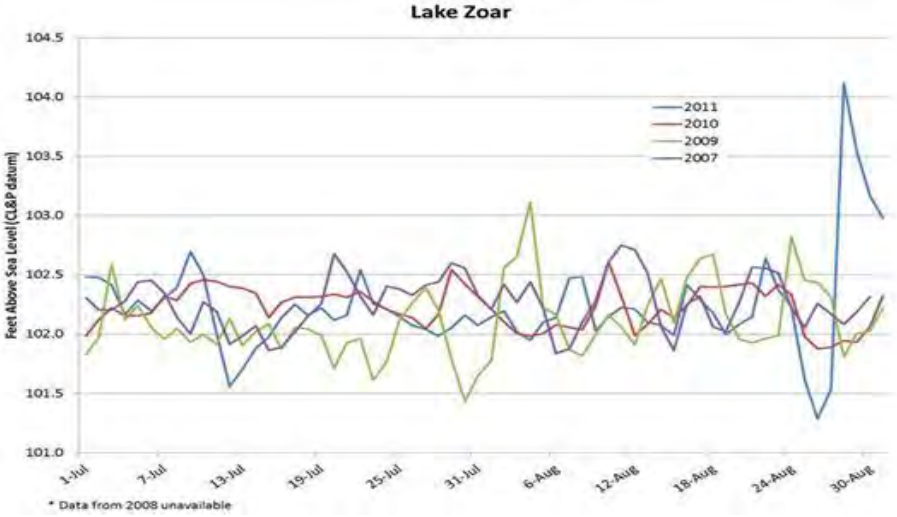
Wetzel, R.G. 2001. Limnology: Lake and River Ecosystems 3rd ed. Academic Press, San Diego, CA. http://www.academicpress.com.

Wilcove, D.S., D. Rothstien, J. Dubow, A. Phillips and E. Losos. 1998. Quantifying threats to imperiled species in the United States. BioScience 48:607-615.

Appendix

Surface Elevations 2011





2011 CAES IAPP On-Lake Time

Candlewood (Lead surveyor)	**Lillinonah** (Lead surveyor)	**Zoar** (Lead surveyor)
8/2/2011 (Bugbee)	8/1/2011 (Gibbons)	8/25/2011 (Gibbons)
8/4/2011 (Bugbee)	8/2/2011 (Gibbons)	9/12/2011 (Gibbons)
8/5/2011 (Bugbee)	8/4/2011 (Gibbons)	
8/8/2011 (Bugbee)	8/8/2011 (Gibbons)	
8/9/2011 (Bugbee)	8/9/2011 (Gibbons)	
8/10/2011 (Bugbee)	8/10/2011 (Gibbons)	
8/11/2011 (Bugbee)	8/11/2011 (Gibbons)	
8/13/2011 (Bugbee)	8/16/2011 (Gibbons)	
8/16/2011 (Bugbee)	8/17/2011 (Gibbons)	
8/17/2011 (Bugbee)		
8/18/2011 (Bugbee)		
8/19/2011 (Bugbee)		
8/22/2011 (Bugbee)		
8/23/2011 (Bugbee)		
8/25/2011 (Bugbee)		
8/26/2011 (Bugbee)		
8/30/2011 (Bugbee)		
9/2/2011 (Bugbee)		
9/9/2011 (Bugbee)		
9/12/2011 (Bugbee)		
9/13/2011 (Bugbee)		
10/5/2011 (Gibbons)		
10/11/2011 (Gibbons)		
23 days	**8 days**	**2 days**

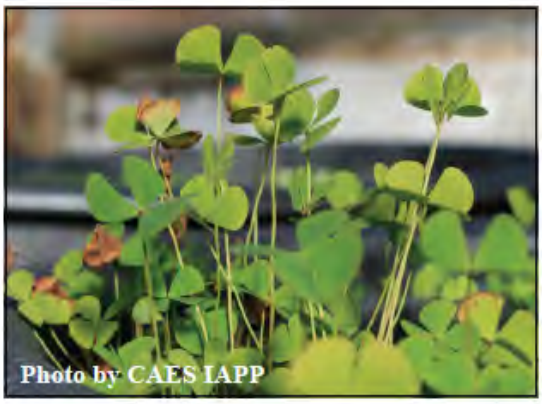
Invasive Plant Descriptions

Marsilea quadrifolia

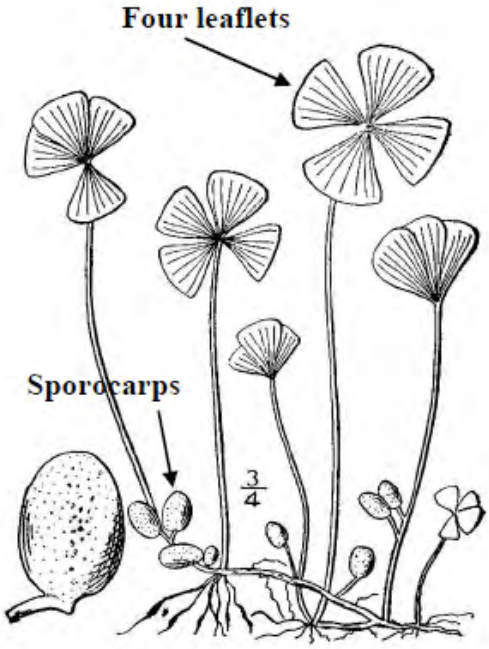
Common names:
European waterclover
Water shamrock

Origin:
Europe

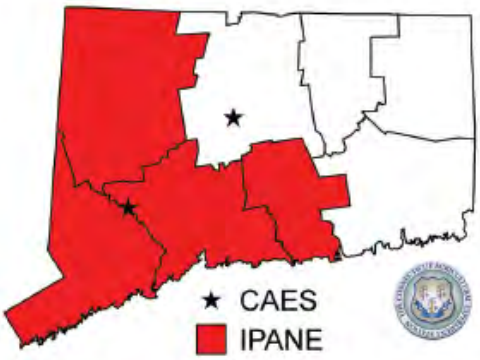
Key features:
Floating leaf plant
Stems: Smooth petioles 2-12 inches (5-30 cm)
Leaves: Comprised of 4 fan-shaped leaflets (similar to a four-leaf clover)
Fruits/Seeds: 2 or 3 dark brown sporocarps 0.2 inches × 0.2 inches (4-5.5 mm × 3-4 mm)
Reproduction: Cloning and sporocarps



Easily confused species:
None



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



Myriophyllum spicatum

Common name:
Eurasian watermilfoil

Origin:
Europe and Asia

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

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

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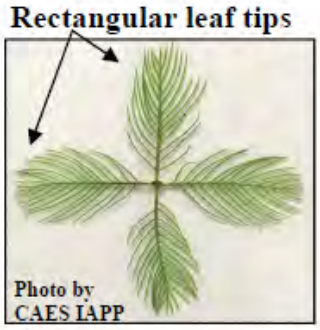
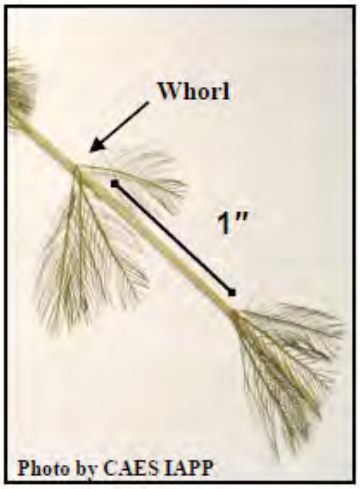
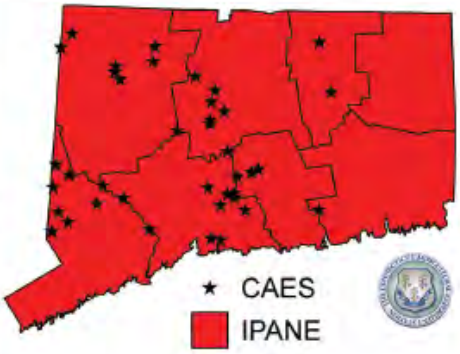






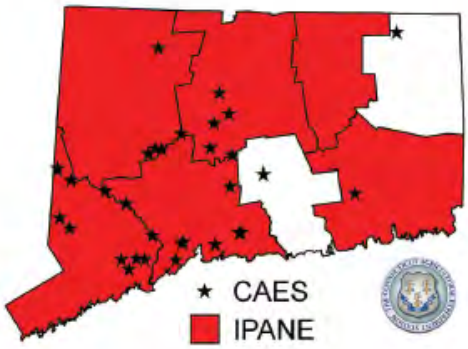
Najas minor

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

Origin:
Europe

Key features:
Plants are submersed
Stems: Branched stems can grow up to 4-8 inches (10-20 cm) long
Leaves: Opposite and lance shaped on branched stems with easily visible toothed leaf edges and leaves appear curled under, basal lobes of leaf are also serrated, 0.01-0.02 inches (0.3-0.5 mm)
Flowers: Monoecious (male and female flowers on same plant)
Fruits/Seeds: Fruits are purple-tinged and seeds measure 0.03-0.06 inches (1.5-3 mm)
Reproduction: Seeds and fragmentation

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



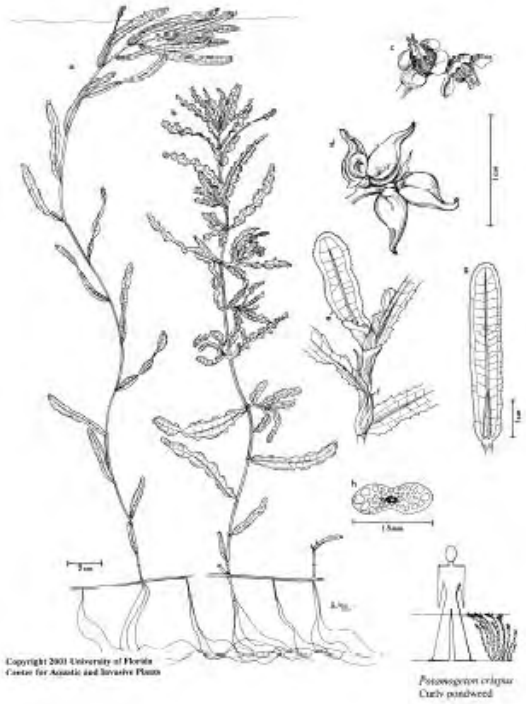
Potamogeton crispus

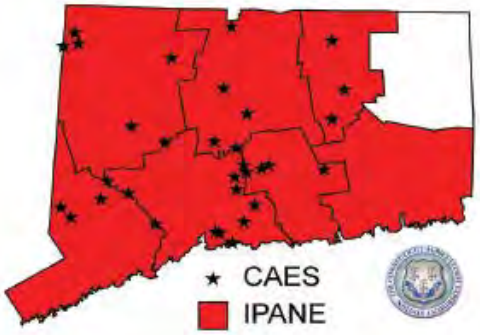
Common names:
Curly leaf pondweed
Crispy-leaved pondweed
Crisped pondweed

Origin:
Asia, Africa, and Europe

Key features:
Plants are submersed
Stems: Stems are flattened, can form dense stands in water up to 15 feet (5 m) deep
Leaves: Alternate leaves 0.3-1 inches (3-8 cm) wide with wavy edges (similar to lasagna) with a prominent mid-vein
Flowers: Brown and inconspicuous
Fruits/Seeds: Fruit is oval 0.1 inches (3 mm) long
Reproduction: Turions (right) and seeds

Easily confused species:
None





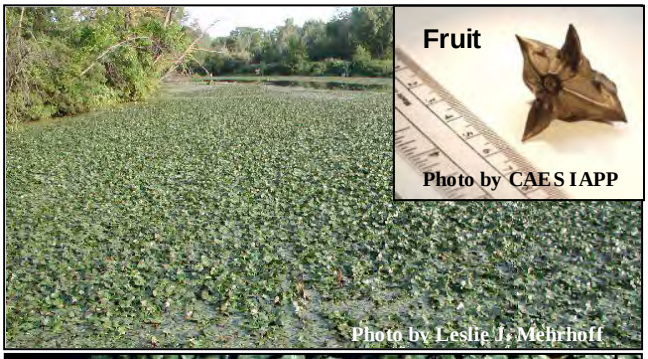
Trapa natans

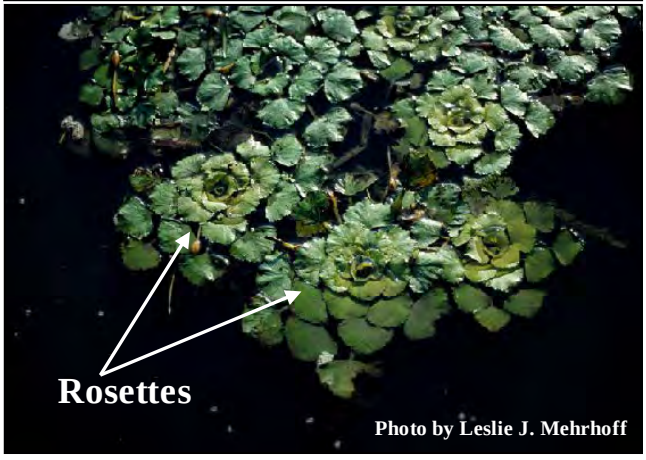
Common names:
Water chestnut
European water chestnut

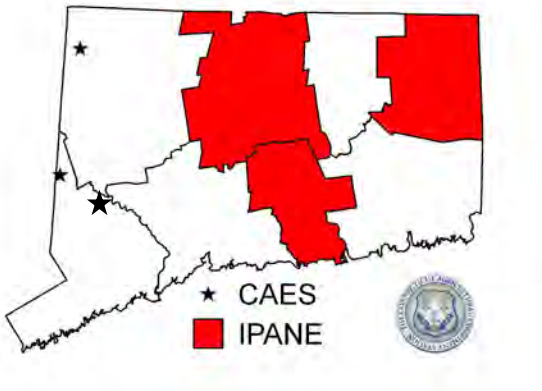
Origin:
Asia and Europe

Key features:
Plants are rooted to substrate and float
Stems: Stem is submersed, flaccid and can be up to 15 feet (5 m) long
Leaves: Leaves 0.8-0.16 inches (2-4 cm) long are triangular and toothed along the front edge with inflated petioles, leaves float in a rosette pattern
Flowers: Flowers are located in the center of the rosette and have four white petals
Fruits/Seeds: Fruit is hard and has four sharp spines
Reproduction: Seeds and fragmentation

Easily confused species:
None







Metadata

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

Metadata

Polygons and Points of Invasive Plants

Abstract This polygon and point data is of the invasive aquatic plant locations in Lakes Candlewood and Lillinonah found during the 2011 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), *Trapas natans* (water chestnut). 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 Lillinonah during 2011. This data will also be available to compare with future invasive aquatic plant survey data.

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

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

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

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

GPS Accuracy

Positions were acquired by using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40 or 5.02 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.10 with data from local base stations. Therefore, the average accuracy of the data is less than 1m.

Process

Position data was obtained in the field using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40 or 5.02 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.10 with data from local base stations and then imported into ESRI ArcMap 10 for display and analysis.

Metadata

Transects

Abstract Quantitative abundance information on native and invasive aquatic plants were obtained by using the CAES IAPP transect method. We positioned transects perpendicular to the shoreline and recorded GPS location and the abundance of each plant species found within a 2 m² area at 0, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m from the shore (a total of 10 samples on each transect unless impaired by rocks, land etc.). Ten transects were established for each lake. Transects were positioned using a random-representative method to account for all bottom types and plant conditions in Lakes Lillinonah and Zoar. In Lake Candlewood, the random-representative method was not used. Instead, transects were chosen that included at least one occurrence of each native and invasive plant species found by a more thorough set of transects done by CAES IAPP in 2005. Candlewood Lake transects, T2, T22, T25, T57, T52, T58, T62, T74, T86, and T105, from the CAES IAPP 2005 survey were chosen and renamed T1 - T10 respectively. These transects do not represent the overall conditions of Candlewood Lake as the frequency of native species will be over-estimated. We ranked abundance of each species, at each transect point, on a scale of 1–5 (1 = rare, a single stem; 2 = uncommon, few stems; 3 = common; 4 = abundant; 5 = extremely abundant or dominant). Depth was measured at each transect point.

Purpose To document and assess the native and invasive aquatic plant community in Lakes Candlewood Lillinonah and Zoar during 2011. 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 Jordan Gibbons, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Accuracy Report

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

GPS Accuracy

Positions were acquired by using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40 or 5.02 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.10 with data from local base stations. Therefore, the average accuracy of the data is less than 1m.

Process

Position data was obtained in the field using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40 or 5.02 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.10 with data from local base stations and then imported into ESRI ArcMap 10 for display and analysis.

Metadata

Water Testing

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

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

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

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

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

Accuracy Report

Secchi measurements were taken in the field with a Secchi disk with measurement markers (meters), using the same method each time. Dissolved oxygen and temperature were taken in the field with a YSI 58 meter (YSI Incorporated, Yellow Springs, Ohio, USA) that was calibrated every time it was used. Water samples were stored at 3˚ C until analyzed for pH, alkalinity, conductivity and total phosphorus. Conductivity and pH were measured with a Fisher-Accumet AR20 meter (Fisher Scientific International Incorporated, Hampton, New Hampshire, USA), which was calibrated each time it was used. Alkalinity was quantified by titration and expressed as milligrams of $CaCO_3$ per liter (titrant was 0.08 mol/L H_2SO_4 with an end point of pH 4.5). The total phosphorus analysis was conducted on samples that were acidified with three drops of concentrated H_2SO_4, and consisted of the ascorbic acid method and potassium persulfate digestion outlined by the American Public Health Association (Standard Methods of the Examination of Water and Waste Water, 1995).

GPS Accuracy

Positions were acquired by using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40 or 5.02 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.10 with data from local base stations. Therefore, the average accuracy of the data is less than 1m.

Process Description

Position data was obtained in the field using a Trimble GeoXT® or a Trimble ProXT® with TerraSync 2.40 or 5.02 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 5.10 with data from local base stations and then imported into ESRI ArcMap 10 for display and analysis.

Invasive Aquatic Plant Location Data

Appendix Lake Candlewood Invasive Plant Location Data (1 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
0	MyrSpi	Sparse in shallows	Patch	8/2/2011	12:34:50pm	41.46792	-73.43538	1-4	3	4.0014
1	MyrSpi	Found w/ NajMin	Patch	8/2/2011	01:16:06pm	41.47350	-73.43812	0-2	2	1.4520
2	MyrSpi		Patch	8/2/2011	01:33:57pm	41.47033	-73.43208	0-3	2	3.5934
3	MyrSpi	Some areas w/ abundance = 4 within	Patch	8/2/2011	02:20:19pm	41.46556	-73.42534	0-4	2	11.3938
4	MyrSpi		Patch	8/4/2011	11:08:35am	41.45059	-73.43132	1-3	2	0.8000
5	MyrSpi		Patch	8/4/2011	11:27:34am	41.45555	-73.43384	0-2	2	0.7631
6	MyrSpi		Patch	8/4/2011	11:42:18am	41.45571	-73.43473	2-3	3	0.4095
7	MyrSpi		Patch	8/4/2011	11:51:12am	41.45584	-73.43440	2-3	2	0.0596
8	MyrSpi		Patch	8/4/2011	11:53:11am	41.45687	-73.43408	0-2	3	0.0771
9	MyrSpi		Patch	8/4/2011	11:56:27am	41.45756	-73.43439	1-3	2	0.0771
10	MyrSpi		Patch	8/4/2011	12:01:08pm	41.45848	-73.43506	2-3	2	0.0093
11	MyrSpi		Patch	8/4/2011	12:03:16pm	41.45886	-73.43530	1-3	2	0.0146
12	MyrSpi		Patch	8/4/2011	12:06:24pm	41.45978	-73.43552	1-4	2	0.2797
13	MyrSpi	Some areas w/ abundance = 4 within	Patch	8/4/2011	12:11:52pm	41.46106	-73.43087	1-3	3	4.3838
14	MyrSpi		Patch	8/4/2011	12:51:24pm	41.46268	-73.42770	1-3	3	0.2037
15	MyrSpi		Patch	8/4/2011	12:53:46pm	41.46320	-73.42767	0-2	4	0.0118
16	MyrSpi		Patch	8/4/2011	12:55:47pm	41.46358	-73.42760	1-3	2	0.1397
17	MyrSpi		Patch	8/4/2011	01:00:54pm	41.46628	-73.43808	2-3	3	0.7295
18	MyrSpi		Patch	8/4/2011	01:08:19pm	41.46832	-73.43951	1-3	3	1.0705
19	MyrSpi		Patch	8/4/2011	01:23:09pm	41.48032	-73.44147	0-4	3	13.1467
20	MyrSpi		Patch	8/4/2011	02:26:55pm	41.47182	-73.44509	1-4	2	1.7810
21	MyrSpi		Patch	8/4/2011	02:43:50pm	41.47210	-73.44709	1-3	2	0.1596
22	MyrSpi		Patch	8/4/2011	02:50:30pm	41.47367	-73.44846	1-3	2	0.5601
23	MyrSpi		Patch	8/4/2011	02:55:52pm	41.47395	-73.44786	1-3	3	0.1226
24	MyrSpi		Patch	8/4/2011	02:59:02pm	41.47457	-73.44720	1-4	2	0.1486
25	MyrSpi		Patch	8/4/2011	03:01:35pm	41.47397	-73.44642	1-4	2	0.0424
26	MyrSpi		Point	8/4/2011	11:55:25am	41.45720	-73.43408	0-2	1	0.0002
27	MyrSpi		Point	8/4/2011	01:19:10pm	41.47002	-73.44033	2-3	1	0.0002
28	MyrSpi		Point	8/4/2011	01:20:25pm	41.47023	-73.44054	1-3	2	0.0002
29	MyrSpi		Point	8/4/2011	01:21:45pm	41.47029	-73.44077	0-1	1	0.0002
30	MyrSpi		Point	8/4/2011	01:22:40pm	41.47035	-73.44110	0-1	2	0.0002
31	MyrSpi		Point	8/4/2011	01:22:50pm	41.47033	-73.44111	1-3	2	0.0002
32	MyrSpi		Point	8/4/2011	02:40:45pm	41.47186	-73.44673	2-4	2	0.0002
33	MyrSpi		Patch	8/5/2011	10:44:16am	41.45292	-73.43648	0-4	3	5.6747
34	MyrSpi		Patch	8/5/2011	11:16:08am	41.45250	-73.43694	0-1	2	0.0267
35	MyrSpi		Patch	8/5/2011	11:23:27am	41.45657	-73.44111	1-3	2	0.1373

Appendix Lake Candlewood Invasive Plant Location Data (2 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
36	MyrSpi		Patch	8/5/2011	11:26:22am	41.45701	-73.44167	1-3	2	0.0407
37	MyrSpi		Patch	8/5/2011	11:32:02am	41.45765	-73.44244	1-3	2	0.0335
38	MyrSpi		Patch	8/5/2011	11:34:30am	41.45881	-73.44373	1-3	2	0.9481
39	MyrSpi		Patch	8/5/2011	11:55:31am	41.46653	-73.44219	1-4	2	1.1773
40	MyrSpi		Patch	8/5/2011	12:09:50pm	41.47634	-73.44830	2-4	3	0.2108
41	MyrSpi		Patch	8/5/2011	12:20:24pm	41.47689	-73.44951	2-4	2	1.3270
42	MyrSpi		Patch	8/5/2011	12:35:35pm	41.45800	-73.44501	1-3	2	0.0593
43	MyrSpi		Patch	8/5/2011	12:37:56pm	41.45714	-73.44471	1-3	2	0.1108
44	MyrSpi		Patch	8/5/2011	12:43:23pm	41.45395	-73.44434	1-4	2	0.6953
45	MyrSpi		Patch	8/5/2011	12:57:42pm	41.45096	-73.44569	1-4	2	0.5175
46	MyrSpi		Patch	8/5/2011	01:05:06pm	41.45020	-73.44672	1-3	2	0.0192
47	MyrSpi		Patch	8/5/2011	01:09:51pm	41.44935	-73.44702	2-4	2	0.1514
48	MyrSpi		Patch	8/5/2011	01:28:59pm	41.44562	-73.44783	0-2	2	0.0038
49	MyrSpi		Patch	8/5/2011	01:31:23pm	41.44550	-73.44849	0-2	3	0.4188
50	MyrSpi		Patch	8/5/2011	01:37:40pm	41.44536	-73.45044	1-3	3	0.7964
51	MyrSpi		Patch	8/5/2011	01:46:47pm	41.44583	-73.45115	2-4	2	0.6850
52	MyrSpi		Patch	8/5/2011	01:55:11pm	41.44337	-73.45141	1-3	2	0.0067
53	MyrSpi		Patch	8/5/2011	01:57:55pm	41.44242	-73.45199	0-2	2	0.2752
54	MyrSpi		Patch	8/5/2011	02:05:06pm	41.44140	-73.45266	2-4	2	0.0406
55	MyrSpi		Patch	8/5/2011	02:09:50pm	41.44077	-73.45221	1-3	2	0.0163
56	MyrSpi		Patch	8/5/2011	02:12:56pm	41.43973	-73.45275	1-3	3	0.1971
57	MyrSpi		Patch	8/5/2011	02:15:25pm	41.43901	-73.45384	0-4	3	1.9392
58	MyrSpi		Patch	8/5/2011	02:34:48pm	41.43546	-73.45444	2-4	2	0.3024
59	MyrSpi		Patch	8/5/2011	02:37:08pm	41.43454	-73.45420	1-4	2	0.1199
60	MyrSpi		Point	8/5/2011	01:08:00pm	41.44993	-73.44679	1-3	2	0.0002
61	MyrSpi		Point	8/5/2011	01:08:25pm	41.44995	-73.44681	2-4	2	0.0002
62	MyrSpi		Point	8/5/2011	01:14:05pm	41.44879	-73.44709	2-3	1	0.0002
63	MyrSpi		Point	8/5/2011	01:15:50pm	41.44825	-73.44721	2-4	1	0.0002
64	MyrSpi		Point	8/5/2011	01:16:30pm	41.44806	-73.44722	2-3	2	0.0002
65	MyrSpi		Point	8/5/2011	01:17:40pm	41.44777	-73.44719	3-4	2	0.0002
66	MyrSpi		Point	8/5/2011	01:22:10pm	41.44557	-73.44715	0-1	2	0.0002
67	MyrSpi		Point	8/5/2011	01:23:50pm	41.44555	-73.44744	0-1	2	0.0002
68	MyrSpi		Point	8/5/2011	01:24:30pm	41.44551	-73.44745	0-1	2	0.0002
69	MyrSpi		Point	8/5/2011	01:25:00pm	41.44550	-73.44752	0-1	2	0.0002
70	MyrSpi		Point	8/5/2011	01:26:10pm	41.44549	-73.44764	0-1	2	0.0002
71	MyrSpi		Point	8/5/2011	01:27:35pm	41.44549	-73.44777	0-1	2	0.0002

Appendix Lake Candlewood Invasive Plant Location Data (3 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
72	MyrSpi		Point	8/5/2011	01:29:55pm	41.44550	-73.44784	0-1	2	0.0002
73	MyrSpi		Point	8/5/2011	02:42:15pm	41.43136	-73.45350	1-3	3	0.0002
74	MyrSpi		Point	8/5/2011	02:42:35pm	41.43138	-73.45346	1-3	2	0.0002
75	MyrSpi		Point	8/5/2011	02:42:50pm	41.43142	-73.45347	1-3	2	0.0002
76	MyrSpi		Point	8/5/2011	02:43:05pm	41.43151	-73.45348	1-3	2	0.0002
77	MyrSpi		Point	8/5/2011	02:43:15pm	41.43154	-73.45349	1-3	2	0.0002
78	MyrSpi		Patch	8/8/2011	10:51:26am	41.46854	-73.45741	1-3	2	0.0137
79	MyrSpi		Patch	8/8/2011	10:53:30am	41.46814	-73.45827	0-3	2	0.8697
80	MyrSpi		Patch	8/8/2011	11:07:03am	41.46693	-73.45982	1-3	2	0.0804
81	MyrSpi		Patch	8/8/2011	11:12:40am	41.46549	-73.46108	0-3	3	0.3724
82	MyrSpi		Patch	8/8/2011	11:23:42am	41.46435	-73.46226	0-3	3	0.0674
83	MyrSpi		Patch	8/8/2011	11:31:04am	41.46489	-73.45972	1-3	3	1.0233
84	MyrSpi		Patch	8/8/2011	12:11:59pm	41.46625	-73.45535	1-4	2	4.0544
85	MyrSpi		Patch	8/8/2011	12:45:24pm	41.46871	-73.45682	1-3	2	0.4960
86	MyrSpi		Patch	8/8/2011	01:01:51pm	41.47236	-73.45255	2-4	2	0.0505
87	MyrSpi		Patch	8/8/2011	01:03:58pm	41.47270	-73.45265	2-4	2	0.0411
88	MyrSpi		Patch	8/8/2011	01:05:32pm	41.47347	-73.45307	2-4	2	0.0219
89	MyrSpi		Patch	8/8/2011	01:07:45pm	41.47390	-73.45328	2-4	2	0.0231
90	MyrSpi		Patch	8/8/2011	01:10:06pm	41.47443	-73.45324	2-4	2	0.0384
91	MyrSpi		Patch	8/8/2011	01:13:22pm	41.47504	-73.45350	2-4	2	0.0398
92	MyrSpi		Patch	8/8/2011	01:17:08pm	41.47597	-73.45433	2-5	2	0.0800
93	MyrSpi		Patch	8/8/2011	01:21:17pm	41.47651	-73.45505	2-4	2	0.0193
94	MyrSpi		Patch	8/8/2011	01:22:46pm	41.47712	-73.45533	2-4	2	0.0324
95	MyrSpi		Patch	8/8/2011	01:24:14pm	41.47827	-73.45566	2-4	2	0.3340
96	MyrSpi		Patch	8/8/2011	01:34:21pm	41.48093	-73.45740	1-3	2	0.1708
97	MyrSpi		Patch	8/8/2011	01:43:23pm	41.48382	-73.45816	1-3	2	0.4663
98	MyrSpi		Patch	8/8/2011	01:47:41pm	41.48424	-73.45971	0-3	2	4.1497
99	MyrSpi		Patch	8/8/2011	02:13:43pm	41.48289	-73.46118	1-3	2	0.2553
100	MyrSpi		Patch	8/8/2011	02:18:34pm	41.48115	-73.46182	0-3	3	1.1164
101	MyrSpi		Patch	8/8/2011	02:35:29pm	41.47764	-73.46136	1-3	2	1.0324
102	MyrSpi		Patch	8/8/2011	02:47:15pm	41.47567	-73.46133	0-2	3	0.3016
103	MyrSpi		Patch	8/8/2011	03:01:58pm	41.46879	-73.45859	0-2	3	0.2737
104	MyrSpi		Point	8/8/2011	10:50:30am	41.46863	-73.45746	0-1	2	0.0002
105	MyrSpi		Point	8/8/2011	11:10:45am	41.46615	-73.46041	2-3	2	0.0002
106	MyrSpi		Point	8/8/2011	11:12:00am	41.46605	-73.46056	0-1	2	0.0002
107	MyrSpi		Point	8/8/2011	01:16:10pm	41.47571	-73.45401	1-3	2	0.0002

Appendix Lake Candlewood Invasive Plant Location Data (4 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
108	MyrSpi		Point	8/8/2011	01:16:35pm	41.47569	-73.45410	2-3	2	0.0002
109	MyrSpi		Point	8/8/2011	02:53:35pm	41.47494	-73.46101	1-3	1	0.0002
110	PotCri		Point	8/8/2011	12:50:50pm	41.46907	-73.45668	0-1	2	
111	MyrSpi	Some areas w/ abundance = 3 within	Patch	8/9/2011	10:07:37am	41.46422	-73.44658	1-4	2	5.4245
112	MyrSpi		Patch	8/9/2011	11:01:26am	41.46502	-73.44760	2-4	2	0.0859
113	MyrSpi		Patch	8/9/2011	11:05:40am	41.46531	-73.44822	2-4	2	0.0657
114	MyrSpi		Patch	8/9/2011	11:09:22am	41.46554	-73.44881	2-4	2	0.0846
115	MyrSpi		Patch	8/9/2011	11:12:21am	41.46587	-73.44921	2-4	2	0.0330
116	MyrSpi		Patch	8/9/2011	11:13:19am	41.46790	-73.45011	1-4	1	0.8115
117	MyrSpi		Patch	8/9/2011	11:27:02am	41.46971	-73.45059	2-4	2	0.0370
118	MyrSpi	Some areas w/ abundance = 4 within	Patch	8/9/2011	11:31:20am	41.47097	-73.45122	1-4	2	0.6126
119	MyrSpi		Patch	8/9/2011	11:38:51am	41.47061	-73.45147	1-3	2	0.1996
120	MyrSpi		Patch	8/9/2011	11:44:26am	41.46956	-73.45659	1-4	2	3.1444
121	MyrSpi		Patch	8/9/2011	12:30:33pm	41.46444	-73.45853	1-3	2	0.1807
122	MyrSpi		Patch	8/9/2011	12:33:18pm	41.46387	-73.45800	1-3	3	0.1153
123	MyrSpi		Patch	8/9/2011	12:45:52pm	41.45702	-73.45308	1-4	2	2.8080
124	MyrSpi		Patch	8/9/2011	01:11:49pm	41.45419	-73.45068	2-4	2	0.3647
125	MyrSpi		Patch	8/9/2011	01:21:29pm	41.44969	-73.45192	2-4	2	0.6011
126	MyrSpi		Patch	8/9/2011	01:33:09pm	41.44549	-73.45475	2-4	2	0.0368
127	MyrSpi		Patch	8/9/2011	01:35:37pm	41.44438	-73.45528	2-4	2	0.0576
128	MyrSpi		Patch	8/9/2011	01:37:24pm	41.44374	-73.45555	2-4	2	0.0332
129	MyrSpi		Patch	8/9/2011	01:40:19pm	41.44164	-73.45718	2-4	2	0.1057
130	MyrSpi		Patch	8/9/2011	01:42:36pm	41.44088	-73.45751	2-4	2	0.0348
131	MyrSpi		Patch	8/9/2011	01:43:47pm	41.44040	-73.45780	2-4	2	0.0517
132	MyrSpi	Some areas w/ abundance = 4 within	Patch	8/9/2011	01:47:31pm	41.43904	-73.45873	1-4	2	0.5252
133	MyrSpi		Patch	8/9/2011	01:55:22pm	41.43436	-73.45920	2-4	2	0.0455
134	MyrSpi		Patch	8/9/2011	01:57:33pm	41.43367	-73.45947	2-4	2	0.0236
135	MyrSpi	Some areas w/ abundance = 3 within	Patch	8/9/2011	01:59:14pm	41.43247	-73.45975	1-4	2	0.5202
136	MyrSpi		Patch	8/9/2011	02:05:42pm	41.43122	-73.46019	1-4	2	0.1364
137	MyrSpi		Patch	8/9/2011	02:10:04pm	41.43036	-73.46014	1-4	2	0.3044
138	MyrSpi		Patch	8/9/2011	02:15:07pm	41.42791	-73.45883	2-4	2	0.0306
139	MyrSpi		Patch	8/9/2011	02:16:31pm	41.42736	-73.45831	1-4	2	0.0980
140	MyrSpi		Patch	8/9/2011	02:19:18pm	41.42647	-73.45726	1-4	2	0.5493
141	MyrSpi		Point	8/9/2011	10:59:55am	41.46512	-73.44747	0-1	2	0.0002
142	MyrSpi		Point	8/9/2011	11:00:15am	41.46508	-73.44748	0-1	2	0.0002
143	MyrSpi		Point	8/9/2011	11:00:25am	41.46507	-73.44748	0-1	2	0.0002

Appendix Lake Candlewood Invasive Plant Location Data (5 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
144	MyrSpi		Point	8/9/2011	11:30:15am	41.47009	-73.45071	0-1	2	0.0002
145	MyrSpi		Point	8/9/2011	11:30:20am	41.47011	-73.45072	0-1	2	0.0002
146	MyrSpi		Point	8/9/2011	11:30:40am	41.47016	-73.45077	0-1	1	0.0002
147	MyrSpi		Point	8/9/2011	12:44:55pm	41.45791	-73.45587	2-3	1	0.0002
148	MyrSpi		Point	8/9/2011	12:59:55pm	41.45645	-73.45427	0-1	2	0.0002
149	MyrSpi		Point	8/9/2011	01:00:20pm	41.45648	-73.45430	0-1	2	0.0002
150	MyrSpi		Point	8/9/2011	01:00:35pm	41.45650	-73.45426	0-1	1	0.0002
151	MyrSpi		Point	8/9/2011	01:01:15pm	41.45656	-73.45404	0-1	2	0.0002
152	MyrSpi		Point	8/9/2011	01:01:25pm	41.45655	-73.45400	0-1	2	0.0002
153	MyrSpi		Point	8/9/2011	01:01:35pm	41.45652	-73.45395	0-1	2	0.0002
154	MyrSpi		Point	8/9/2011	01:01:55pm	41.45649	-73.45393	0-1	1	0.0002
155	MyrSpi		Point	8/9/2011	01:02:50pm	41.45653	-73.45390	0-1	2	0.0002
156	MyrSpi		Point	8/9/2011	01:03:15pm	41.45656	-73.45389	0-1	2	0.0002
157	MyrSpi		Point	8/9/2011	01:04:00pm	41.45660	-73.45394	0-1	2	0.0002
158	MyrSpi		Point	8/9/2011	01:04:20pm	41.45661	-73.45389	0-1	2	0.0002
159	MyrSpi		Point	8/9/2011	01:08:35pm	41.45549	-73.45080	2-3	2	0.0002
160	MyrSpi		Point	8/9/2011	01:31:00pm	41.44614	-73.45444	3-4	1	0.0002
161	MyrSpi		Point	8/9/2011	01:32:25pm	41.44583	-73.45461	3-4	2	0.0002
162	MyrSpi		Point	8/9/2011	01:32:45pm	41.44581	-73.45462	3-4	2	0.0002
163	NajMin		Patch	8/9/2011	12:59:26pm	41.45648	-73.45433	0-1	2	0.0004
164	NajMin		Point	8/9/2011	11:24:55am	41.46874	-73.45000	0-1	2	0.0002
165	NajMin		Point	8/9/2011	11:25:35am	41.46878	-73.45001	0-1	2	0.0002
166	NajMin		Point	8/9/2011	01:02:10pm	41.45648	-73.45392	0-1	2	0.0002
167	NajMin		Point	8/9/2011	01:02:40pm	41.45652	-73.45392	0-1	2	0.0002
168	NajMin		Point	8/9/2011	01:03:25pm	41.45657	-73.45390	0-1	2	0.0002
169	NajMin		Point	8/9/2011	01:04:10pm	41.45661	-73.45392	0-1	1	0.0002
170	NajMin		Point	8/9/2011	01:04:30pm	41.45661	-73.45387	0-1	2	0.0002
171	MyrSpi		Patch	8/10/2011	11:02:14am	41.42781	-73.45521	1-4	3	12.1713
172	MyrSpi		Patch	8/10/2011	12:34:51pm	41.42946	-73.45343	2-4	2	0.2660
173	MyrSpi	Found w/ NajMin	Patch	8/10/2011	12:40:09pm	41.42771	-73.45209	1-4	3	12.3704
174	MyrSpi	Found w/ NajMin	Patch	8/10/2011	01:44:34pm	41.42609	-73.44975	0-2	3	0.1906
175	MyrSpi		Patch	8/10/2011	01:50:35pm	41.42673	-73.44937	0-2	2	0.0151
176	MyrSpi	Little found at depth = 5 m	Patch	8/10/2011	01:54:22pm	41.42488	-73.45377	0-4	3	9.0506
177	MyrSpi		Point	8/10/2011	10:40:10am	41.42914	-73.45583	0-1	1	0.0002
178	MyrSpi		Patch	8/11/2011	09:55:18am	41.49178	-73.45521	1-4	3	1.0543
179	MyrSpi		Patch	8/11/2011	10:09:06am	41.49189	-73.45839	1-4	2	0.4025

Appendix Lake Candlewood Invasive Plant Location Data (6 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
180	MyrSpi		Patch	8/11/2011	10:19:47am	41.48898	-73.45901	1-4	2	0.7461
181	MyrSpi	Found w/ NajMin	Patch	8/11/2011	10:30:42am	41.48765	-73.46200	0-4	2	5.1745
182	MyrSpi		Patch	8/11/2011	11:28:18am	41.49228	-73.46676	1-3	3	0.0726
183	MyrSpi		Patch	8/11/2011	11:32:00am	41.49884	-73.46901	0-3	2	2.4202
184	MyrSpi		Patch	8/11/2011	11:55:25am	41.49904	-73.46826	0-2	2	0.1661
185	MyrSpi		Patch	8/11/2011	12:02:22pm	41.49841	-73.46811	0-2	2	0.0603
186	MyrSpi		Patch	8/11/2011	12:05:32pm	41.49725	-73.46806	0-3	2	0.4409
187	MyrSpi		Patch	8/11/2011	12:14:12pm	41.50021	-73.46503	1-4	3	6.7250
188	MyrSpi		Patch	8/11/2011	01:08:57pm	41.50833	-73.46893	0-2	3	0.2664
189	MyrSpi		Patch	8/11/2011	01:13:00pm	41.50937	-73.46961	0-2	2	0.0308
190	MyrSpi		Patch	8/11/2011	01:15:29pm	41.50989	-73.47025	0-2	2	0.4624
191	MyrSpi		Patch	8/11/2011	01:22:19pm	41.51100	-73.47033	0-2	3	0.0074
192	MyrSpi		Patch	8/11/2011	01:25:03pm	41.51057	-73.46981	0-2	2	0.1031
193	MyrSpi		Patch	8/11/2011	01:28:12pm	41.51020	-73.46905	0-1	2	0.0078
194	MyrSpi		Patch	8/11/2011	01:29:30pm	41.50986	-73.46870	0-2	4	0.0679
195	MyrSpi		Patch	8/11/2011	01:33:10pm	41.50895	-73.46749	1-3	1	0.0345
196	MyrSpi		Patch	8/11/2011	01:35:10pm	41.50856	-73.46642	0-2	2	0.0099
197	MyrSpi		Patch	8/11/2011	01:44:21pm	41.50678	-73.46478	1-4	2	0.5460
198	MyrSpi		Patch	8/11/2011	01:50:23pm	41.50689	-73.46516	2-4	2	0.0426
199	MyrSpi		Patch	8/11/2011	01:52:44pm	41.50517	-73.46296	2-4	2	0.1225
200	MyrSpi		Patch	8/11/2011	01:56:14pm	41.50425	-73.46219	2-4	2	0.0478
201	MyrSpi		Patch	8/11/2011	01:58:42pm	41.50311	-73.46146	2-4	2	0.0152
202	MyrSpi		Patch	8/11/2011	01:59:54pm	41.50240	-73.45985	2-4	3	2.5709
203	MyrSpi		Patch	8/11/2011	02:25:33pm	41.50816	-73.45904	2-4	3	1.2048
204	MyrSpi		Patch	8/11/2011	02:40:50pm	41.50127	-73.45457	2-4	3	0.6822
205	MyrSpi		Patch	8/11/2011	02:52:43pm	41.50299	-73.45285	1-4	3	13.5189
206	MyrSpi		Patch	8/11/2011	02:15:43pm	41.50798	-73.46051	2-4	3	0.8336
207	MyrSpi		Point	8/11/2011	01:24:20pm	41.51093	-73.47011	0-1	1	0.0002
208	MyrSpi		Point	8/11/2011	01:31:40pm	41.50938	-73.46819	2-3	1	0.0002
209	MyrSpi		Point	8/11/2011	01:36:45pm	41.50839	-73.46641	0-1	1	0.0002
210	MyrSpi		Point	8/11/2011	01:38:10pm	41.50812	-73.46619	0-1	3	0.0002
211	MyrSpi		Point	8/11/2011	01:42:10pm	41.50799	-73.46600	0-1	2	0.0002
212	MyrSpi		Patch	8/13/2011	11:21:49am	41.49867	-73.44934	1-4	2	0.3060
213	MyrSpi		Patch	8/13/2011	11:28:42am	41.49660	-73.44628	1-4	3	2.9303
214	MyrSpi		Patch	8/13/2011	11:49:53am	41.49959	-73.44528	1-3	2	0.0138
215	MyrSpi		Patch	8/13/2011	11:52:32am	41.50136	-73.44504	2-4	2	0.0187

Appendix Lake Candlewood Invasive Plant Location Data (7 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
216	MyrSpi		Patch	8/13/2011	11:54:21am	41.50229	-73.44505	2-4	2	0.3036
217	MyrSpi		Patch	8/13/2011	11:57:53am	41.50320	-73.44549	2-4	2	0.0463
218	MyrSpi		Patch	8/13/2011	12:00:02pm	41.50495	-73.44493	1-4	2	0.8052
219	MyrSpi		Patch	8/13/2011	12:09:59pm	41.50776	-73.44558	2-4	2	0.2959
220	MyrSpi		Patch	8/13/2011	12:14:23pm	41.50947	-73.44582	2-4	2	0.0984
221	MyrSpi		Patch	8/13/2011	12:18:11pm	41.51070	-73.44536	2-4	2	0.0500
222	MyrSpi		Patch	8/13/2011	12:20:15pm	41.51140	-73.44507	2-4	2	0.1372
223	MyrSpi		Patch	8/13/2011	12:22:58pm	41.51248	-73.44465	2-4	2	0.0666
224	MyrSpi		Patch	8/13/2011	12:25:12pm	41.51319	-73.44441	2-4	2	0.0174
225	MyrSpi		Patch	8/13/2011	12:30:30pm	41.51832	-73.44547	2-4	2	0.0966
226	MyrSpi		Patch	8/13/2011	12:34:02pm	41.51953	-73.44576	2-4	2	0.0174
227	MyrSpi		Patch	8/13/2011	12:35:43pm	41.52033	-73.44608	2-4	2	0.0403
228	MyrSpi		Patch	8/13/2011	12:37:43pm	41.52075	-73.44641	2-4	3	0.0736
229	MyrSpi		Patch	8/13/2011	12:40:49pm	41.52413	-73.44612	1-4	3	1.6738
230	MyrSpi		Patch	8/13/2011	01:19:37pm	41.52785	-73.44248	1-4	3	7.6514
231	MyrSpi		Patch	8/13/2011	02:02:28pm	41.52741	-73.44643	2-4	2	0.1618
232	MyrSpi		Patch	8/13/2011	02:11:55pm	41.52896	-73.44703	1-4	3	0.3837
233	MyrSpi	Some areas w/ abundance = 4 within	Patch	8/13/2011	02:17:04pm	41.53276	-73.44800	1-4	2	1.1798
234	MyrSpi		Patch	8/13/2011	02:29:23pm	41.53624	-73.44730	2-4	2	0.0449
235	MyrSpi		Patch	8/13/2011	02:31:56pm	41.53778	-73.44718	2-4	2	0.0302
236	MyrSpi		Patch	8/13/2011	02:33:32pm	41.53858	-73.44672	2-4	2	0.1083
237	MyrSpi		Patch	8/13/2011	02:37:04pm	41.54036	-73.44681	2-4	3	0.0509
238	MyrSpi		Patch	8/13/2011	02:40:14pm	41.54577	-73.44767	1-4	3	2.4700
239	MyrSpi		Patch	8/13/2011	02:55:07pm	41.55041	-73.44596	1-4	3	1.0555
240	MyrSpi		Patch	8/13/2011	03:05:53pm	41.55405	-73.44502	1-4	2	0.8992
241	MyrSpi		Point	8/13/2011	12:17:20pm	41.51011	-73.44570	2-3	1	0.0002
242	MyrSpi		Point	8/13/2011	12:40:10pm	41.52127	-73.44680	1-3	1	0.0002
243	MyrSpi	Found w/ NajMin	Patch	8/16/2011	12:13:56pm	41.47885	-73.43418	0-2	3	3.0862
244	MyrSpi		Patch	8/16/2011	12:54:49pm	41.48510	-73.43507	1-3	2	4.0833
245	MyrSpi	Some areas w/ abundance = 2 within	Patch	8/16/2011	01:21:06pm	41.49232	-73.43935	1-4	3	4.3004
246	MyrSpi		Patch	8/16/2011	02:07:15pm	41.49910	-73.44252	1-3	2	0.3103
247	MyrSpi		Patch	8/16/2011	02:15:36pm	41.50069	-73.44274	2-4	2	0.0572
248	MyrSpi		Patch	8/16/2011	02:31:29pm	41.50457	-73.44204	1-3	3	3.7900
249	MyrSpi		Patch	8/17/2011	12:27:07pm	41.49745	-73.45390	2-4	3	0.9162
250	MyrSpi		Patch	8/17/2011	12:45:42pm	41.49349	-73.44546	2-4	3	0.8716
251	MyrSpi		Patch	8/17/2011	01:01:48pm	41.50322	-73.43826	1-3	3	0.8029

Appendix Lake Candlewood Invasive Plant Location Data (8 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
252	MyrSpi		Patch	8/17/2011	01:12:43pm	41.50585	-73.43809	1-3	2	0.0430
253	MyrSpi		Patch	8/17/2011	01:14:31pm	41.50637	-73.43818	1-3	2	0.0473
254	MyrSpi		Patch	8/17/2011	01:17:13pm	41.50681	-73.43831	1-3	3	0.0668
255	MyrSpi		Patch	8/17/2011	01:19:12pm	41.50743	-73.43866	1-3	2	0.0332
256	MyrSpi		Patch	8/17/2011	01:23:04pm	41.50859	-73.43880	1-3	2	0.0525
257	MyrSpi		Patch	8/17/2011	01:25:38pm	41.50934	-73.43885	1-3	2	0.1905
258	MyrSpi		Patch	8/17/2011	01:31:38pm	41.51052	-73.43902	1-3	2	0.0648
259	MyrSpi		Patch	8/17/2011	01:34:23pm	41.51111	-73.43904	1-3	2	0.0471
260	MyrSpi		Patch	8/17/2011	01:36:26pm	41.51156	-73.43914	1-3	2	0.0305
261	MyrSpi		Patch	8/17/2011	01:39:00pm	41.51248	-73.43923	1-3	2	0.1312
262	MyrSpi	Found w/ NajMin	Patch	8/17/2011	01:46:22pm	41.51507	-73.44043	1-4	3	4.6791
263	MyrSpi		Patch	8/17/2011	02:26:47pm	41.51139	-73.44115	2-4	3	0.4551
264	MyrSpi		Patch	8/17/2011	02:46:41pm	41.50597	-73.44179	2-4	3	1.0603
265	MyrSpi		Point	8/17/2011	01:21:50pm	41.50808	-73.43861	0-1	1	0.0002
266	MyrSpi	Found w/ NajMin	Patch	8/18/2011	12:38:29pm	41.51875	-73.43707	1-3	3	0.5163
267	MyrSpi	Found w/ NajMin	Patch	8/18/2011	01:02:12pm	41.51861	-73.43629	0-2	2	0.0119
268	MyrSpi		Patch	8/18/2011	01:04:46pm	41.51881	-73.43621	1-3	2	0.0295
269	MyrSpi	Found w/ NajMin	Patch	8/18/2011	01:05:56pm	41.51961	-73.43545	1-3	2	1.2164
270	MyrSpi	Found w/ NajMin	Patch	8/18/2011	01:17:47pm	41.52198	-73.43568	1-3	3	0.3415
271	MyrSpi		Patch	8/18/2011	01:33:39pm	41.52217	-73.43762	1-4	3	0.6092
272	MyrSpi		Patch	8/18/2011	01:45:52pm	41.52384	-73.43737	1-3	3	0.0156
273	MyrSpi		Patch	8/18/2011	01:48:25pm	41.52487	-73.43794	2-4	3	0.2109
274	MyrSpi		Patch	8/18/2011	01:53:23pm	41.52382	-73.43833	2-4	2	0.1308
275	MyrSpi		Patch	8/18/2011	01:59:24pm	41.52280	-73.43616	0-2	3	0.0357
276	MyrSpi		Patch	8/18/2011	02:02:54pm	41.52395	-73.43643	1-3	2	0.0279
277	MyrSpi		Patch	8/18/2011	02:11:53pm	41.52772	-73.43704	1-3	2	0.0339
278	MyrSpi		Patch	8/18/2011	02:19:18pm	41.52673	-73.43783	1-3	2	0.0097
279	MyrSpi		Patch	8/18/2011	02:22:10pm	41.52655	-73.43819	2-4	2	0.8719
280	MyrSpi		Patch	8/18/2011	02:36:34pm	41.52858	-73.43846	2-4	2	0.3359
281	MyrSpi		Patch	8/18/2011	02:42:52pm	41.53055	-73.43881	2-4	2	0.2997
282	MyrSpi		Patch	8/18/2011	02:47:05pm	41.53173	-73.43861	2-4	2	0.0330
283	MyrSpi		Patch	8/18/2011	02:48:22pm	41.53224	-73.43864	2-4	2	0.0408
284	MyrSpi		Patch	8/18/2011	02:51:28pm	41.53321	-73.43868	1-4	2	0.7589
285	MyrSpi	Some found 0-1 m w/ abundance = 2	Patch	8/18/2011	03:10:49pm	41.53528	-73.43880	1-4	3	0.2547
286	MyrSpi		Patch	8/18/2011	03:21:26pm	41.53602	-73.44069	1-4	2	0.4592
287	MyrSpi		Point	8/18/2011	02:15:30pm	41.52767	-73.43721	1-3	2	0.0002

Appendix Lake Candlewood Invasive Plant Location Data (9 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
288	MyrSpi		Point	8/18/2011	02:17:10pm	41.52753	-73.43730	1-3	2	0.0002
289	MyrSpi		Point	8/18/2011	03:08:40pm	41.53445	-73.43884	2-3	2	0.0002
290	MyrSpi		Patch	8/19/2011	10:49:45am	41.53734	-73.44208	2-4	3	0.1342
291	MyrSpi		Patch	8/19/2011	10:53:12am	41.53860	-73.44276	2-4	3	0.1682
292	MyrSpi		Patch	8/19/2011	10:58:43am	41.53962	-73.44312	2-4	2	0.0165
293	MyrSpi		Patch	8/19/2011	11:00:00am	41.54063	-73.44338	2-4	2	0.2188
294	MyrSpi		Patch	8/19/2011	11:06:37am	41.54193	-73.44384	1-4	2	0.4220
295	MyrSpi	Found w/ NajMin	Patch	8/19/2011	11:13:34am	41.54329	-73.44331	1-4	2	0.7645
296	MyrSpi		Patch	8/19/2011	11:22:00am	41.54557	-73.44266	1-4	3	1.4345
297	MyrSpi		Patch	8/19/2011	11:42:33am	41.54822	-73.44298	1-4	2	0.1172
298	MyrSpi		Patch	8/19/2011	11:51:08am	41.54937	-73.44360	2-4	2	0.0635
299	MyrSpi		Patch	8/19/2011	11:54:28am	41.55009	-73.44386	2-4	3	0.0487
300	MyrSpi		Patch	8/19/2011	11:55:53am	41.55114	-73.44399	2-4	3	0.1014
301	MyrSpi		Patch	8/19/2011	11:58:47am	41.55192	-73.44414	1-3	3	0.0876
302	MyrSpi		Patch	8/19/2011	12:02:49pm	41.55258	-73.44250	1-4	3	1.1474
303	MyrSpi		Patch	8/19/2011	12:20:14pm	41.55077	-73.44064	1-4	3	0.3553
304	MyrSpi		Patch	8/19/2011	12:29:43pm	41.55122	-73.43978	1-3	1	0.0946
305	MyrSpi		Patch	8/19/2011	12:57:45pm	41.55323	-73.43958	2-4	1	0.0029
306	MyrSpi		Patch	8/19/2011	12:59:09pm	41.55386	-73.43974	2-4	3	0.0538
307	MyrSpi		Patch	8/19/2011	01:03:24pm	41.55441	-73.43968	2-4	2	0.0034
308	MyrSpi		Patch	8/19/2011	01:09:54pm	41.55615	-73.43962	2-4	2	0.0467
309	MyrSpi		Patch	8/19/2011	01:14:18pm	41.55750	-73.43974	2-4	2	0.0077
310	MyrSpi		Patch	8/19/2011	01:16:34pm	41.55801	-73.43980	2-4	2	0.0089
311	MyrSpi		Patch	8/19/2011	01:18:00pm	41.55868	-73.43984	1-4	2	0.0871
312	MyrSpi		Patch	8/19/2011	01:27:24pm	41.56107	-73.44053	1-4	3	1.0686
313	MyrSpi		Patch	8/19/2011	01:39:27pm	41.56261	-73.44047	2-4	2	0.0295
314	MyrSpi		Patch	8/19/2011	01:46:29pm	41.56636	-73.44166	1-4	3	1.1492
315	MyrSpi	Found w/ NajMin	Patch	8/19/2011	01:57:12pm	41.56858	-73.44280	1-4	3	0.4245
316	MyrSpi	Found w/ NajMin	Patch	8/19/2011	02:05:07pm	41.57133	-73.44296	1-4	3	0.8781
317	MyrSpi	Found w/ NajMin	Patch	8/19/2011	02:12:40pm	41.57252	-73.44430	1-4	3	0.5450
318	MyrSpi		Patch	8/19/2011	02:24:50pm	41.56850	-73.44551	2-4	2	0.2492
319	MyrSpi		Patch	8/19/2011	02:29:42pm	41.56647	-73.44508	1-4	3	0.4975
320	MyrSpi		Patch	8/19/2011	02:35:32pm	41.56488	-73.44491	1-4	3	0.4519
321	MyrSpi		Patch	8/19/2011	02:40:37pm	41.56391	-73.44488	1-4	2	0.1265
322	MyrSpi	Found w/ NajMin	Patch	8/19/2011	02:52:33pm	41.56080	-73.44419	1-4	2	1.0266
323	MyrSpi		Patch	8/19/2011	12:17:18pm	41.55172	-73.44138	1-3	2	0.0096

Appendix Lake Candlewood Invasive Plant Location Data (10 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
324	MyrSpi		Point	8/19/2011	11:46:20am	41.54768	-73.44261	2-3	2	0.0002
325	MyrSpi		Point	8/19/2011	11:52:55am	41.54899	-73.44342	2-3	2	0.0002
326	MyrSpi		Point	8/19/2011	12:53:40pm	41.55184	-73.43961	3-4	2	0.0002
327	MyrSpi		Point	8/19/2011	12:56:25pm	41.55281	-73.43949	3-4	2	0.0002
328	MyrSpi		Point	8/19/2011	01:06:45pm	41.55519	-73.43955	3-4	1	0.0002
329	MyrSpi		Point	8/19/2011	01:08:15pm	41.55556	-73.43959	3-4	2	0.0002
330	MyrSpi		Point	8/19/2011	01:08:45pm	41.55560	-73.43960	3-4	2	0.0002
331	MyrSpi		Point	8/19/2011	01:09:00pm	41.55563	-73.43960	3-4	2	0.0002
332	MyrSpi		Point	8/19/2011	01:12:50pm	41.55689	-73.43963	2-5	2	0.0002
333	MyrSpi		Point	8/19/2011	01:13:10pm	41.55684	-73.43957	3-4	2	0.0002
334	MyrSpi		Point	8/19/2011	01:22:15pm	41.55856	-73.43972	0-1	2	0.0002
335	MyrSpi		Point	8/19/2011	01:24:00pm	41.55915	-73.44006	1-3	2	0.0002
336	MyrSpi		Point	8/19/2011	01:25:05pm	41.55926	-73.44008	1-3	2	0.0002
337	MyrSpi		Point	8/19/2011	01:26:00pm	41.55936	-73.44017	1-3	3	0.0002
338	MyrSpi		Point	8/19/2011	01:42:10pm	41.56374	-73.44050	1-3	2	0.0002
339	MyrSpi		Point	8/19/2011	03:09:25pm	41.55652	-73.44439	1-3	2	0.0002
340	MyrSpi		Point	8/19/2011	03:09:45pm	41.55650	-73.44443	1-3	2	0.0002
341	NajMin		Patch	8/19/2011	01:37:21pm	41.56054	-73.44043	0-1	4	0.0081
342	MyrSpi		Patch	8/22/2011	11:31:06am	41.52242	-73.46009	1-3	3	1.0252
343	MyrSpi	Found w/ NajMin	Patch	8/22/2011	11:43:16am	41.52104	-73.46185	1-3	3	3.4548
344	MyrSpi	Found w/ NajMin	Patch	8/22/2011	12:35:27pm	41.52243	-73.46417	0-1	3	0.0111
345	MyrSpi	Found w/ NajMin	Patch	8/22/2011	12:36:50pm	41.52339	-73.46521	1-3	2	13.3609
346	MyrSpi		Patch	8/22/2011	01:11:52pm	41.51580	-73.46283	1-3	3	1.1384
347	MyrSpi		Patch	8/22/2011	01:38:00pm	41.51421	-73.45567	2-4	3	1.2092
348	MyrSpi		Patch	8/22/2011	01:49:32pm	41.51640	-73.45500	2-3	3	0.4087
349	MyrSpi		Patch	8/22/2011	01:54:54pm	41.51723	-73.45254	1-4	3	2.8633
350	MyrSpi	Found w/ NajMin	Patch	8/22/2011	02:09:39pm	41.51402	-73.45340	0-2	4	0.2644
351	MyrSpi		Patch	8/22/2011	02:17:39pm	41.52366	-73.45285	1-4	2	0.6111
352	MyrSpi		Patch	8/22/2011	02:24:27pm	41.52573	-73.45336	2-4	2	0.1396
353	MyrSpi		Patch	8/22/2011	02:27:27pm	41.52954	-73.45404	1-4	2	2.1010
354	MyrSpi		Patch	8/22/2011	02:43:28pm	41.53193	-73.45479	0-2	5	0.0028
355	MyrSpi		Patch	8/22/2011	02:45:27pm	41.53272	-73.45465	1-4	3	0.6438
356	MyrSpi		Patch	8/22/2011	02:52:46pm	41.53489	-73.45558	2-4	3	0.0544
357	MyrSpi		Patch	8/22/2011	02:57:13pm	41.53666	-73.45605	2-3	2	0.0320
358	MyrSpi		Patch	8/22/2011	02:58:09pm	41.53715	-73.45630	2-3	2	0.0981
359	MyrSpi		Patch	8/22/2011	03:01:09pm	41.53909	-73.45691	2-3	2	0.0233

Appendix Lake Candlewood Invasive Plant Location Data (11 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
360	MyrSpi		Patch	8/22/2011	03:02:27pm	41.53977	-73.45717	1-3	2	0.0984
361	MyrSpi		Patch	8/22/2011	03:05:25pm	41.54069	-73.45754	1-4	2	0.0831
362	MyrSpi		Patch	8/22/2011	03:07:57pm	41.54129	-73.45779	1-3	2	0.0123
363	MyrSpi		Patch	8/22/2011	03:10:01pm	41.54237	-73.45830	1-4	2	0.0829
364	MyrSpi		Patch	8/22/2011	03:14:11pm	41.54330	-73.45893	1-4	2	0.1225
365	MyrSpi		Patch	8/22/2011	03:18:02pm	41.54413	-73.46003	1-4	2	0.1080
366	MyrSpi		Patch	8/22/2011	03:24:28pm	41.54460	-73.46115	1-4	2	0.1331
367	MyrSpi		Patch	8/22/2011	03:28:22pm	41.54519	-73.46261	1-4	2	0.1884
368	MyrSpi		Point	8/22/2011	01:21:34pm	41.51648	-73.46314	0-1	2	0.0002
369	MyrSpi		Point	8/22/2011	01:22:35pm	41.51613	-73.46302	0-1	1	0.0002
370	MyrSpi		Point	8/22/2011	01:23:06pm	41.51619	-73.46302	0-1	1	0.0002
371	MyrSpi		Point	8/22/2011	01:24:40pm	41.51569	-73.46292	0-1	2	0.0002
372	MyrSpi		Point	8/22/2011	01:25:07pm	41.51563	-73.46287	0-1	2	0.0002
373	MyrSpi		Point	8/22/2011	01:25:36pm	41.51554	-73.46283	0-1	2	0.0002
374	MyrSpi		Point	8/22/2011	01:26:40pm	41.51504	-73.46264	0-1	2	0.0002
375	MyrSpi		Point	8/22/2011	01:27:03pm	41.51488	-73.46265	0-1	1	0.0002
376	MyrSpi		Point	8/22/2011	01:27:18pm	41.51483	-73.46270	0-1	2	0.0002
377	MyrSpi		Point	8/22/2011	01:27:44pm	41.51476	-73.46268	0-1	2	0.0002
378	MyrSpi		Point	8/22/2011	02:56:29pm	41.53635	-73.45597	1-3	2	0.0002
379	MyrSpi		Patch	8/23/2011	11:48:36am	41.52100	-73.45829	2-4	2	0.4921
380	MyrSpi		Patch	8/23/2011	11:59:29am	41.52528	-73.45877	1-4	2	0.2445
381	MyrSpi		Patch	8/23/2011	12:03:26pm	41.52891	-73.46192	1-4	3	4.1224
382	MyrSpi		Patch	8/23/2011	12:29:19pm	41.53088	-73.46482	2-4	3	0.0581
383	MyrSpi		Patch	8/23/2011	12:54:17pm	41.53062	-73.46466	1-4	3	0.0151
384	MyrSpi	Found w/ NajMin	Patch	8/23/2011	12:55:33pm	41.53128	-73.46551	1-4	2	0.7435
385	MyrSpi		Patch	8/23/2011	01:05:16pm	41.53243	-73.46605	2-4	3	0.1403
386	MyrSpi		Patch	8/23/2011	01:09:22pm	41.53300	-73.46629	2-4	3	0.0561
387	MyrSpi		Patch	8/23/2011	01:12:38pm	41.53564	-73.46775	2-4	3	1.2136
388	MyrSpi		Patch	8/23/2011	01:22:18pm	41.53827	-73.47002	1-4	3	1.3904
389	MyrSpi		Patch	8/23/2011	01:31:23pm	41.53938	-73.46586	1-4	3	3.0178
390	MyrSpi		Patch	8/23/2011	01:54:35pm	41.53750	-73.46227	2-4	3	0.9895
391	MyrSpi		Patch	8/23/2011	02:01:41pm	41.53617	-73.46236	2-4	3	0.0627
392	MyrSpi	Found w/ NajMin	Patch	8/23/2011	02:02:32pm	41.53530	-73.46182	1-4	3	1.4740
393	MyrSpi		Patch	8/23/2011	02:16:55pm	41.53253	-73.46286	2-4	3	1.4875
394	MyrSpi		Patch	8/23/2011	02:29:50pm	41.53478	-73.46534	2-4	3	0.3574
395	MyrSpi		Patch	8/23/2011	02:40:39pm	41.53341	-73.46554	2-4	3	1.5383

Appendix Lake Candlewood Invasive Plant Location Data (12 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
396	MyrSpi		Patch	8/23/2011	02:55:04pm	41.53564	-73.46694	2-4	3	0.1346
397	MyrSpi		Patch	8/23/2011	03:08:51pm	41.53578	-73.46623	2-4	3	0.4225
398	MyrSpi		Point	8/23/2011	12:26:17pm	41.53009	-73.46433	2-3	2	0.0002
399	MyrSpi		Point	8/23/2011	12:27:26pm	41.53035	-73.46448	1-3	2	0.0002
400	MyrSpi		Point	8/23/2011	12:28:27pm	41.53054	-73.46468	1-3	2	0.0002
401	MyrSpi		Point	8/23/2011	01:03:28pm	41.53204	-73.46608	0-1	2	0.0002
402	MyrSpi		Point	8/23/2011	01:11:32pm	41.53349	-73.46650	0-1	2	0.0002
403	MyrSpi	Found w/ NajMin	Patch	8/26/2011	11:49:53am	41.57259	-73.49157	1-3	1	5.3722
404	MyrSpi		Patch	8/26/2011	12:43:35pm	41.56946	-73.49078	1-3	2	0.0228
405	MyrSpi		Patch	8/26/2011	12:45:43pm	41.56919	-73.49065	0-2	2	0.0119
406	MyrSpi		Patch	8/26/2011	12:50:18pm	41.56663	-73.49009	1-3	3	0.1803
407	MyrSpi		Patch	8/26/2011	12:53:10pm	41.56539	-73.48939	1-3	3	0.1398
408	MyrSpi	Found w/ NajMin	Patch	8/26/2011	12:57:01pm	41.56390	-73.48745	1-3	4	4.3826
409	MyrSpi		Patch	8/26/2011	01:40:57pm	41.56143	-73.48627	1-3	3	0.1754
410	MyrSpi		Patch	8/26/2011	01:45:37pm	41.56117	-73.48507	1-3	3	0.0348
411	MyrSpi		Patch	8/26/2011	01:48:25pm	41.56100	-73.48471	2-3	3	0.0109
412	MyrSpi		Patch	8/26/2011	01:52:01pm	41.55851	-73.48128	1-3	3	2.5722
413	MyrSpi		Patch	8/26/2011	02:11:55pm	41.55610	-73.48005	1-3	3	1.4661
414	MyrSpi		Patch	8/26/2011	02:27:18pm	41.55823	-73.48234	0-2	3	0.1573
415	MyrSpi		Patch	8/26/2011	02:33:06pm	41.55870	-73.48340	0-2	2	0.0133
416	MyrSpi	Found w/ NajMin	Patch	8/26/2011	02:34:16pm	41.55866	-73.48459	0-2	3	0.5725
417	MyrSpi		Patch	8/26/2011	02:48:31pm	41.55727	-73.48304	1-3	3	0.3027
418	MyrSpi		Patch	8/26/2011	03:02:39pm	41.55205	-73.47891	1-3	3	0.5764
419	MyrSpi		Patch	8/26/2011	03:08:41pm	41.55033	-73.47663	1-3	2	0.2195
420	MyrSpi		Patch	8/26/2011	03:16:13pm	41.54731	-73.47411	1-3	2	0.1616
421	MyrSpi		Patch	8/26/2011	03:26:35pm	41.54025	-73.47163	1-3	3	0.1009
422	MyrSpi		Point	8/26/2011	02:23:21pm	41.55675	-73.48106	2-3	2	0.0002
423	MyrSpi		Point	8/26/2011	03:14:57pm	41.54807	-73.47450	0-1	2	0.0002
424	MyrSpi		Point	8/26/2011	03:15:06pm	41.54810	-73.47451	0-2	2	0.0002
425	MyrSpi		Patch	8/30/2011	11:25:07am	41.54537	-73.46360	2-3	3	0.0351
426	MyrSpi		Patch	8/30/2011	11:31:01am	41.54766	-73.46400	2-4	3	1.3088
427	MyrSpi		Patch	8/30/2011	11:50:46am	41.55128	-73.46567	2-4	2	0.0693
428	MyrSpi		Patch	8/30/2011	11:56:33am	41.55317	-73.46673	2-3	2	0.0074
429	MyrSpi		Patch	8/30/2011	12:00:17pm	41.55418	-73.46831	0-3	3	0.6575
430	MyrSpi		Patch	8/30/2011	12:12:41pm	41.55393	-73.46979	1-3	3	0.3121
431	MyrSpi	Some areas w/ abundance = 2 within	Patch	8/30/2011	12:18:06pm	41.55378	-73.47116	1-3	3	0.2620

Appendix Lake Candlewood Invasive Plant Location Data (13 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
432	MyrSpi		Patch	8/30/2011	12:53:16pm	41.54995	-73.46877	2-4	3	1.8850
433	MyrSpi		Patch	8/30/2011	01:08:14pm	41.54794	-73.46648	1-3	3	0.0852
434	MyrSpi		Patch	8/30/2011	01:12:21pm	41.54601	-73.46631	1-3	2	0.5941
435	MyrSpi		Patch	8/30/2011	01:27:27pm	41.54381	-73.46587	2-3	2	0.0512
436	MyrSpi	Poor Visability	Patch	8/30/2011	01:39:34pm	41.54286	-73.46624	2-3	2	0.1806
437	MyrSpi		Patch	8/30/2011	01:43:37pm	41.54374	-73.46644	1-3	2	0.0918
438	MyrSpi		Patch	8/30/2011	01:47:10pm	41.54460	-73.46743	1-3	2	0.0612
439	MyrSpi		Patch	8/30/2011	01:56:34pm	41.54718	-73.46961	1-3	2	1.0600
440	MyrSpi		Patch	8/30/2011	02:04:26pm	41.55000	-73.47170	1-3	2	0.2127
441	MyrSpi	Poor Visability	Patch	8/30/2011	02:10:30pm	41.55195	-73.47194	2-4	2	0.0772
442	MyrSpi		Patch	9/2/2011	12:51:28pm	41.55459	-73.47204	2-3	2	0.0342
443	MyrSpi		Patch	9/2/2011	12:55:23pm	41.55527	-73.47332	2-3	3	0.7297
444	MyrSpi		Patch	9/2/2011	01:08:13pm	41.55710	-73.47419	1-3	3	0.0839
445	MyrSpi		Patch	9/2/2011	01:12:11pm	41.55806	-73.47472	1-3	2	0.1875
446	MyrSpi		Patch	9/2/2011	01:16:19pm	41.55883	-73.47493	1-3	2	0.0477
447	MyrSpi		Patch	9/2/2011	01:17:26pm	41.55916	-73.47495	1-3	2	0.0778
448	MyrSpi		Patch	9/2/2011	01:19:01pm	41.55988	-73.47510	1-3	2	0.2859
449	MyrSpi		Patch	9/2/2011	01:25:32pm	41.56154	-73.47588	1-3	2	0.2878
450	MyrSpi		Patch	9/2/2011	01:40:42pm	41.56621	-73.48080	1-3	2	0.0332
451	MyrSpi		Patch	9/2/2011	01:43:07pm	41.56559	-73.48006	1-3	2	0.1198
452	MyrSpi	Found w/ NajMin	Patch	9/2/2011	01:49:55pm	41.56916	-73.48372	1-3	3	4.2094
453	MyrSpi		Patch	9/2/2011	02:26:59pm	41.56697	-73.48353	1-3	3	0.4125
454	MyrSpi		Patch	9/2/2011	02:39:52pm	41.56697	-73.48703	1-3	2	0.3057
455	MyrSpi		Patch	9/2/2011	02:46:11pm	41.56597	-73.48734	1-3	3	0.1167
456	MyrSpi		Patch	9/2/2011	02:48:44pm	41.56622	-73.48805	1-3	4	0.5797
457	MyrSpi		Patch	9/2/2011	02:57:06pm	41.56751	-73.48836	1-3	3	0.0684
458	MyrSpi		Patch	9/2/2011	02:59:19pm	41.56790	-73.48854	1-3	4	0.0425
459	MyrSpi		Patch	9/2/2011	03:00:59pm	41.56829	-73.48869	1-3	4	0.0889
460	MyrSpi	Found w/ NajMin	Patch	9/2/2011	03:07:39pm	41.56987	-73.48890	0-2	2	0.2616
461	MyrSpi	Found w/ NajMin	Patch	9/2/2011	03:13:40pm	41.57065	-73.48883	0-2	2	0.3865
462	MyrSpi		Patch	9/2/2011	03:28:50pm	41.57072	-73.49026	0-2	2	0.0095
463	MyrSpi		Patch	9/9/2011	11:51:51am	41.56465	-73.48507	2-4	3	0.0427
464	MyrSpi		Patch	9/9/2011	11:54:32am	41.56473	-73.48370	2-4	3	0.3109
465	MyrSpi		Patch	9/9/2011	12:08:03pm	41.56385	-73.48315	2-4	3	0.8889
466	MyrSpi		Patch	9/9/2011	12:14:50pm	41.56386	-73.48461	2-4	3	0.2507
467	MyrSpi	Found with camera	Patch	9/9/2011	01:17:20pm	41.56012	-73.47604	3-4	2	0.6803

Appendix Lake Candlewood Invasive Plant Location Data (14 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
468	MyrSpi		Patch	9/12/2011	12:31:00pm	41.44842	-73.43045	1-3	2	4.5911
469	MyrSpi	Found w/ NajMin	Patch	9/12/2011	12:48:27pm	41.44824	-73.43083	0-1	4	0.7923
470	MyrSpi	Found w/ NajMin	Patch	9/12/2011	01:08:25pm	41.44832	-73.42981	0-1	4	0.6458
471	MyrSpi	Found with camera	Patch	9/12/2011	01:47:25pm	41.44822	-73.44969	2-4	3	0.2480
472	MyrSpi		Patch	10/5/2011	02:45:46pm	41.51054	-73.45565	1-3	3	1.1873
473	MyrSpi		Patch	10/11/2011	12:25:45pm	41.46632	-73.45065	3-5	3	3.3172
474	MyrSpi		Patch	10/11/2011	02:16:18pm	41.51386	-73.46166	1-3	4	0.9545
475	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:28:23pm	41.51381	-73.44017	0-1	2	0.1374
476	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:30:21pm	41.51580	-73.44034	0-1	2	0.1786
477	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:32:13pm	41.51844	-73.43666	0-1	2	0.0459
478	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:33:12pm	41.51854	-73.43710	0-1	2	0.0476
479	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:38:06pm	41.52236	-73.43548	0-1	2	0.0933
480	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:40:26pm	41.53529	-73.43873	0-1	2	0.1927
481	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:42:16pm	41.54329	-73.44299	0-1	2	0.1707
482	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:44:08pm	41.56855	-73.44261	0-1	2	0.4315
483	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:46:22pm	41.57128	-73.44274	0-1	2	0.6818
484	MyrSpi	Found w/ NajMin	Patch	11/10/2011	01:49:23pm	41.55979	-73.44420	0-1	2	0.1079
485	MyrSpi	Found w/ NajMin	Patch	11/10/2011	10:52:46am	41.52279	-73.46066	0-1	2	0.0177
486	MyrSpi	Found w/ NajMin	Patch	11/10/2011	10:53:22am	41.52284	-73.45992	0-1	2	0.0170
487	MyrSpi	Found w/ NajMin	Patch	11/10/2011	10:52:57am	41.52262	-73.45978	0-1	2	0.0107
488	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:04:11am	41.52136	-73.46226	0-1	1	1.6226
489	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:10:33am	41.52511	-73.46519	0-1	2	4.3659
490	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:22:51am	41.53563	-73.46162	0-1	2	0.2989
491	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:24:22am	41.53567	-73.46213	0-1	2	0.0870
492	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:28:17am	41.57570	-73.49293	0-1	2	0.0844
493	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:29:03am	41.57595	-73.49242	0-1	2	0.0911
494	MyrSpi	Found w/ NajMin	Patch	11/10/2011	11:31:26am	41.57228	-73.49060	0-1	2	0.3529
495	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:39:15am	41.47395	-73.43835	0-1	2	0.1809
496	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:25:25am	41.42600	-73.44976	0-1	2	0.0944
497	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:29:10am	41.48610	-73.45963	0-1	2	0.9699
498	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:30:54am	41.48749	-73.46305	0-1	2	0.5195
499	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:31:42am	41.42852	-73.45138	0-1	2	1.6488
500	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:24:57pm	41.47737	-73.43335	0-1	3	0.6442
501	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:28:52pm	41.51381	-73.44017	0-1	2	0.1374
502	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:30:42pm	41.51580	-73.44034	0-1	2	0.1786
503	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:32:51pm	41.51844	-73.43666	0-1	2	0.0459

Appendix Lake Candlewood Invasive Plant Location Data (15 of 15)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
504	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:33:21pm	41.51854	-73.43710	0-1	2	0.0476
505	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:34:45pm	41.51861	-73.43629	0-1	2	0.0285
506	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:36:36pm	41.51907	-73.43549	0-1	2	0.1710
507	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:38:39pm	41.52236	-73.43548	0-1	2	0.0933
508	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:42:24pm	41.54329	-73.44299	0-1	2	0.1707
509	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:44:37pm	41.56855	-73.44261	0-1	2	0.4315
510	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:46:56pm	41.57128	-73.44274	0-1	2	0.6818
511	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:48:55pm	41.57255	-73.44296	0-1	2	0.0358
512	NajMin	Found w/ MyrSpi	Patch	11/10/2011	01:49:45pm	41.55979	-73.44420	0-1	2	0.1079
513	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:58:36am	41.52136	-73.46225	0-1	2	1.5955
514	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:05:07am	41.52243	-73.46414	0-1	2	0.0228
515	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:11:27am	41.52511	-73.46519	0-1	2	4.3635
516	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:14:36am	41.51387	-73.45332	0-1	2	0.1733
517	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:17:45am	41.53127	-73.46579	0-1	2	0.3422
518	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:23:10am	41.53563	-73.46162	0-1	3	0.2989
519	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:25:42am	41.53567	-73.46213	0-1	3	0.0870
520	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:28:52am	41.57570	-73.49293	0-1	2	0.0844
521	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:29:27am	41.57595	-73.49242	0-1	2	0.0911
522	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:31:59am	41.57228	-73.49060	0-1	2	0.3529
523	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:36:26am	41.56238	-73.48752	0-1	3	0.0953
524	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:46:12am	41.56357	-73.48772	0-1	3	0.3822
525	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:47:38am	41.55868	-73.48476	0-1	2	0.1518
526	NajMin	Found w/ MyrSpi	Patch	11/10/2011	11:48:12am	41.55893	-73.48363	0-1	2	0.0195
527	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:10:15am	41.56940	-73.48390	0-1	2	3.3703
528	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:10:42am	41.56993	-73.48877	0-1	2	0.1367
529	NajMin	Found w/ MyrSpi	Patch	11/10/2011	10:13:38am	41.57067	-73.48882	0-1	2	0.2991
530	NajMin	Found w/ MyrSpi	Patch	11/10/2011	09:49:32am	41.44797	-73.43064	0-1	2	0.4806
531	NajMin	Found w/ MyrSpi	Patch	11/10/2011	09:49:50am	41.44816	-73.42971	0-1	2	0.4113

Appendix Lake Lillinonah Invasive Plant Location Data (1 of 6)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
0	MyrSpi		Patch	8/1/2011	10:50:51am	41.46207	-73.32333	0-1	2	0.0008
1	MyrSpi		Patch	8/1/2011	11:49:43am	41.47260	-73.33481	3-5	3	0.0035
2	MyrSpi		Point	8/1/2011	10:18:47am	41.45894	-73.32492	0-1	1	0.0002
3	MyrSpi		Point	8/1/2011	10:47:11am	41.46126	-73.32367	1-3	2	0.0002
4	MyrSpi		Point	8/1/2011	10:48:31am	41.46143	-73.32355	1-3	1	0.0002
5	MyrSpi		Point	8/1/2011	10:54:05am	41.46214	-73.32336	1-3	1	0.0002
6	MyrSpi		Point	8/1/2011	10:54:58am	41.46223	-73.32327	1-3	2	0.0002
7	MyrSpi		Point	8/1/2011	11:17:18am	41.46801	-73.32529	0-1	1	0.0002
8	NajMin	Found w/ MyrSpi	Patch	8/1/2011	10:22:38am	41.46002	-73.32455	0-1	3	0.0467
9	NajMin		Patch	8/1/2011	11:13:40am	41.46807	-73.32543	0-1	4	0.1183
10	NajMin		Patch	8/1/2011	11:53:14am	41.47241	-73.33470	1-3	2	0.0372
11	NajMin	Found w/ MyrSpi	Patch	8/1/2011	12:06:44pm	41.47302	-73.33544	1-3	3	0.1038
12	NajMin		Point	8/1/2011	11:07:44am	41.46764	-73.32500	0-1	1	0.0002
13	NajMin		Point	8/1/2011	11:45:39am	41.47265	-73.33500	1-3	2	0.0002
14	NajMin		Point	8/1/2011	11:58:08am	41.47278	-73.33523	0-1	2	0.0002
15	MyrSpi		Patch	8/2/2011	09:23:01am	41.47336	-73.33599	1-3	2	0.0454
16	MyrSpi		Patch	8/2/2011	10:05:09am	41.47820	-73.34981	1-3	3	0.0266
17	MyrSpi		Patch	8/2/2011	10:41:41am	41.48674	-73.36961	1-3	3	0.0393
18	MyrSpi		Patch	8/2/2011	11:26:26am	41.49232	-73.37951	1-3	4	0.3398
19	MyrSpi		Point	8/2/2011	09:34:19am	41.47416	-73.33720	1-3	3	0.0002
20	MyrSpi		Point	8/2/2011	11:53:21am	41.49176	-73.38150	1-3	1	0.0002
21	MyrSpi		Point	8/2/2011	11:54:05am	41.49158	-73.38148	1-3	1	0.0002
22	MyrSpi		Point	8/2/2011	11:55:30am	41.49138	-73.38144	0-1	1	0.0002
23	MyrSpi		Point	8/2/2011	12:00:48pm	41.49133	-73.38160	1-3	1	0.0002
24	MyrSpi		Point	8/2/2011	12:10:51pm	41.49091	-73.38157	1-3	1	0.0002
25	MyrSpi		Point	8/2/2011	12:12:25pm	41.49070	-73.38138	1-3	2	0.0002
26	MyrSpi		Point	8/2/2011	12:13:36pm	41.49054	-73.38129	1-3	1	0.0002
27	MyrSpi		Point	8/2/2011	12:22:17pm	41.49036	-73.38110	0-1	1	0.0002
28	MyrSpi		Point	8/2/2011	12:23:38pm	41.49045	-73.38122	0-1	1	0.0002
29	MyrSpi		Point	8/2/2011	12:23:58pm	41.49052	-73.38128	0-1	1	0.0002
30	NajMin		Patch	8/2/2011	11:11:37am	41.49210	-73.37952	0-1	5	0.0251
31	NajMin		Patch	8/2/2011	11:58:14am	41.49141	-73.38142	0-1	2	0.0062
32	NajMin		Patch	8/2/2011	12:03:59pm	41.49092	-73.38143	0-1	3	0.0728
33	NajMin		Patch	8/2/2011	12:14:09pm	41.49047	-73.38113	0-1	2	0.0405
34	NajMin		Patch	8/2/2011	01:53:38pm	41.49059	-73.38153	0-1	3	0.0245
35	NajMin		Point	8/2/2011	11:09:59am	41.49215	-73.37937	0-1	1	0.0002

Appendix Lake Lillinonah Invasive Plant Location Data (2 of 6)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
36	NajMin		Point	8/2/2011	11:47:19am	41.49237	-73.38031	0-1	2	0.0002
37	NajMin		Point	8/2/2011	02:08:18pm	41.49071	-73.38182	0-1	4	0.0002
38	NajMin		Point	8/2/2011	02:08:37pm	41.49071	-73.38179	0-1	5	0.0002
39	NajMin		Point	8/2/2011	02:08:53pm	41.49069	-73.38181	0-1	4	0.0002
40	PotCri		Point	8/2/2011	12:11:06pm	41.49089	-73.38154	1-3	1	0.0002
41	MyrSpi		Patch	8/4/2011	10:08:11am	41.48918	-73.38432	0-1	2	0.0126
42	MyrSpi		Patch	8/4/2011	10:30:16am	41.49000	-73.38351	1-3	4	0.7209
43	MyrSpi		Patch	8/4/2011	11:00:25am	41.49004	-73.38407	1-3	3	0.7836
44	MyrSpi		Patch	8/4/2011	12:50:18pm	41.49349	-73.37998	1-3	3	0.0764
45	MyrSpi	Found w/ NajMin	Patch	8/4/2011	12:56:20pm	41.49322	-73.37915	1-3	4	0.6323
46	MyrSpi		Patch	8/4/2011	01:05:48pm	41.49278	-73.37789	1-3	3	0.0322
47	MyrSpi		Patch	8/4/2011	01:29:09pm	41.49293	-73.37747	1-3	2	0.0452
48	MyrSpi		Patch	8/4/2011	01:37:36pm	41.49592	-73.37807	1-3	2	0.1485
49	MyrSpi		Patch	8/4/2011	01:58:33pm	41.49806	-73.37830	1-3	2	0.5784
50	MyrSpi		Point	8/4/2011	10:15:50am	41.48925	-73.38444	0-1	2	0.0002
51	MyrSpi		Point	8/4/2011	10:16:21am	41.48928	-73.38442	0-1	2	0.0002
52	MyrSpi		Point	8/4/2011	11:24:07am	41.49294	-73.38348	0-1	1	0.0002
53	MyrSpi		Point	8/4/2011	01:35:01pm	41.49575	-73.37796	1-3	1	0.0002
54	MyrSpi		Point	8/4/2011	02:15:04pm	41.49847	-73.37838	0-1	2	0.0002
55	MyrSpi		Point	8/4/2011	02:15:25pm	41.49841	-73.37840	0-1	2	0.0002
56	MyrSpi		Point	8/4/2011	02:16:03pm	41.49836	-73.37841	0-1	1	0.0002
57	NajMin		Patch	8/4/2011	10:47:17am	41.48990	-73.38342	0-1	4	0.0854
58	NajMin		Patch	8/4/2011	11:11:12am	41.48945	-73.38426	0-1	3	0.0819
59	NajMin		Patch	8/4/2011	11:18:14am	41.49263	-73.38343	0-1	4	0.0063
60	NajMin		Patch	8/4/2011	11:30:17am	41.49287	-73.38340	0-1	5	0.0479
61	NajMin		Patch	8/4/2011	11:49:18am	41.49302	-73.38286	0-1	2	0.0072
62	NajMin		Patch	8/4/2011	12:45:00pm	41.49366	-73.38009	0-1	2	0.0098
63	NajMin		Patch	8/4/2011	02:09:51pm	41.49838	-73.37842	0-1	5	0.0687
64	NajMin		Point	8/4/2011	10:15:20am	41.48922	-73.38443	0-1	2	0.0002
65	NajMin		Point	8/4/2011	10:16:59am	41.48921	-73.38439	0-1	2	0.0002
66	NajMin		Point	8/4/2011	01:42:33pm	41.49588	-73.37819	0-1	3	0.0002
67	NajMin		Point	8/4/2011	01:42:53pm	41.49588	-73.37819	0-1	3	0.0002
68	NajMin		Point	8/4/2011	02:06:43pm	41.49877	-73.37826	0-1	1	0.0002
69	NajMin		Point	8/4/2011	02:07:38pm	41.49869	-73.37831	0-1	1	0.0002
70	PotCri		Point	8/4/2011	10:54:33am	41.49003	-73.38355	1-3	2	0.0002
71	MyrSpi		Patch	8/8/2011	09:29:46am	41.49993	-73.37845	1-3	3	0.9372

Appendix Lake Lillinonah Invasive Plant Location Data (3 of 6)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
72	MyrSpi	Found slightly beyond 1 m	Patch	8/8/2011	11:41:39am	41.53846	-73.40491	0-1	5	4.8383
73	MyrSpi		Patch	8/8/2011	12:39:43pm	41.54151	-73.40374	1-3	3	0.1219
74	MyrSpi		Patch	8/8/2011	12:49:31pm	41.54171	-73.40221	1-3	5	0.5871
75	MyrSpi		Patch	8/8/2011	01:11:20pm	41.54118	-73.40274	1-3	3	0.1635
76	MyrSpi		Patch	8/8/2011	01:21:13pm	41.54047	-73.40251	1-3	4	0.3600
77	MyrSpi		Patch	8/8/2011	01:32:44pm	41.53883	-73.40303	0-1	5	0.0584
78	MyrSpi		Patch	8/8/2011	01:38:59pm	41.53652	-73.40367	0-1	5	0.3430
79	MyrSpi		Patch	8/8/2011	01:46:33pm	41.53579	-73.40376	0-1	2	0.0459
80	MyrSpi		Patch	8/8/2011	01:58:34pm	41.53387	-73.40400	1-3	2	1.3246
81	MyrSpi		Point	8/8/2011	10:08:29am	41.50214	-73.38185	0-1	1	0.0002
82	MyrSpi		Point	8/8/2011	10:14:08am	41.50263	-73.38249	1-3	1	0.0002
83	MyrSpi		Point	8/8/2011	10:43:51am	41.51158	-73.38656	0-1	1	0.0002
84	MyrSpi		Point	8/8/2011	01:05:30pm	41.54201	-73.40134	1-3	2	0.0002
85	MyrSpi		Point	8/8/2011	01:07:00pm	41.54181	-73.40149	0-1	4	0.0002
86	MyrSpi		Point	8/8/2011	01:07:25pm	41.54178	-73.40148	1-3	4	0.0002
87	MyrSpi		Point	8/8/2011	01:31:16pm	41.53913	-73.40292	1-3	5	0.0002
88	NajMin	Found slightly beyond 1 m	Patch	8/8/2011	09:37:53am	41.49994	-73.37858	1-3	4	0.5019
89	NajMin	Found w/ MyrSpi	Patch	8/8/2011	09:56:39am	41.50067	-73.37947	1-3	4	0.2848
90	NajMin		Patch	8/8/2011	10:11:07am	41.50213	-73.38173	1-3	3	0.0802
91	NajMin	Found slightly beyond 1 m	Patch	8/8/2011	10:38:53am	41.51172	-73.38643	0-1	3	0.1932
92	NajMin		Patch	8/8/2011	01:02:34pm	41.54190	-73.40144	1-3	1	0.0440
93	NajMin		Point	8/8/2011	12:59:46pm	41.54193	-73.40166	0-1	3	0.0002
94	NajMin		Point	8/8/2011	01:00:20pm	41.54191	-73.40169	0-1	3	0.0002
95	TraNat		Point	8/8/2011	01:17:55pm	41.54019	-73.40248	1-3	2	0.0002
96	TraNat		Point	8/8/2011	01:18:38pm	41.54017	-73.40248	1-3	2	0.0002
97	MyrSpi		Patch	8/9/2011	09:52:38am	41.52971	-73.40337	1-3	4	0.3011
98	MyrSpi	Found w/ NajMin	Patch	8/9/2011	10:26:11am	41.52696	-73.40140	1-3	3	4.1572
99	MyrSpi		Patch	8/9/2011	11:50:26am	41.51635	-73.38742	1-3	2	0.1800
100	MyrSpi		Patch	8/9/2011	01:03:21pm	41.50288	-73.37486	1-3	3	0.1931
101	MyrSpi		Patch	8/9/2011	01:26:44pm	41.49923	-73.37416	1-3	3	0.2605
102	MyrSpi		Point	8/9/2011	10:07:59am	41.52915	-73.40331	1-3	1	0.0002
103	MyrSpi		Point	8/9/2011	11:40:00am	41.51638	-73.38776	1-3	1	0.0002
104	MyrSpi		Point	8/9/2011	12:43:07pm	41.50546	-73.38393	0-1	1	0.0002
105	MyrSpi		Point	8/9/2011	12:43:36pm	41.50540	-73.38403	0-1	1	0.0002
106	MyrSpi		Point	8/9/2011	01:00:23pm	41.50281	-73.37509	0-1	2	0.0002
107	MyrSpi		Point	8/9/2011	02:00:30pm	41.49630	-73.37460	0-1	1	0.0002

Appendix Lake Lillinonah Invasive Plant Location Data (4 of 6)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
108	MyrSpi		Point	8/9/2011	02:17:40pm	41.49107	-73.37303	0-1	2	0.0002
109	MyrSpi		Point	8/9/2011	02:19:18pm	41.49085	-73.37243	0-1	2	0.0002
110	MyrSpi	Found w/ NajMin	Point	8/9/2011	02:22:06pm	41.49071	-73.37226	0-1	3	0.0002
111	NajMin	Found w/ NajMin	Patch	8/9/2011	11:44:07am	41.51646	-73.38718	0-1	4	0.0647
112	NajMin	Found w/ MyrSpi	Patch	8/9/2011	11:56:11am	41.51593	-73.38666	0-1	3	0.0203
113	NajMin		Patch	8/9/2011	12:44:44pm	41.50551	-73.38380	0-1	3	0.0329
114	NajMin		Patch	8/9/2011	01:08:39pm	41.50302	-73.37477	0-1	3	0.1156
115	NajMin	Found slightly beyond 1 m	Patch	8/9/2011	01:22:37pm	41.49937	-73.37400	1-3	4	0.7056
116	NajMin		Patch	8/9/2011	02:30:28pm	41.49047	-73.37119	0-1	2	0.1096
117	NajMin		Point	8/9/2011	10:58:40am	41.52638	-73.40055	0-1	2	0.0002
118	NajMin		Point	8/9/2011	02:11:07pm	41.49119	-73.37402	0-1	1	0.0002
119	NajMin		Point	8/9/2011	02:15:12pm	41.49108	-73.37340	0-1	2	0.0002
120	NajMin		Point	8/9/2011	02:17:29pm	41.49108	-73.37301	0-1	3	0.0002
121	MyrSpi		Patch	8/10/2011	09:48:37am	41.54022	-73.40331	1-3	2	1.7787
122	MyrSpi		Patch	8/10/2011	01:17:10pm	41.48835	-73.36628	1-3	3	0.3676
123	MyrSpi		Patch	8/10/2011	01:29:01pm	41.48372	-73.35915	1-3	3	0.2787
124	MyrSpi	Found w/ NajMin	Patch	8/10/2011	02:41:02pm	41.46935	-73.31311	1-3	3	0.4108
125	MyrSpi		Point	8/10/2011	01:07:28pm	41.48853	-73.36659	1-3	1	0.0002
126	NajMin		Patch	8/10/2011	11:18:45am	41.53883	-73.40504	0-1	3	1.2530
127	NajMin		Patch	8/10/2011	01:13:08pm	41.48854	-73.36631	1-3	3	0.0617
128	NajMin		Point	8/10/2011	01:35:22pm	41.48385	-73.35927	0-1	3	0.0002
129	NajMin		Point	8/10/2011	02:32:08pm	41.46890	-73.31270	0-1	4	0.0002
130	NajMin		Point	8/10/2011	02:32:19pm	41.46885	-73.31267	0-1	4	0.0002
131	PotCri		Patch	8/10/2011	09:54:42am	41.54051	-73.40382	1-3	3	0.0302
132	PotCri		Patch	8/10/2011	11:09:35am	41.53838	-73.40484	1-3	2	2.1659
133	PotCri		Point	8/10/2011	09:41:17am	41.54019	-73.40331	1-3	2	0.0002
134	PotCri		Point	8/10/2011	01:11:52pm	41.48849	-73.36637	1-3	2	0.0002
135	TraNat		Point	8/10/2011	11:23:05am	41.53963	-73.40516	0-1	3	0.0002
136	TraNat		Point	8/10/2011	11:23:17am	41.53963	-73.40518	0-1	3	0.0002
137	TraNat		Point	8/10/2011	11:23:54am	41.53966	-73.40517	0-1	3	0.0002
138	MyrSpi		Patch	8/11/2011	09:35:46am	41.47276	-73.31779	1-3	3	0.1728
139	MyrSpi		Patch	8/11/2011	09:57:43am	41.47380	-73.31914	1-3	3	1.0049
140	MyrSpi		Patch	8/11/2011	10:54:14am	41.48741	-73.32708	0-1	2	0.0420
141	MyrSpi		Patch	8/11/2011	11:08:17am	41.49398	-73.32960	1-3	2	0.1275
142	MyrSpi		Patch	8/11/2011	11:29:03am	41.49625	-73.32827	0-1	4	0.6497
143	MyrSpi		Patch	8/11/2011	11:49:00am	41.49697	-73.32710	0-1	3	0.4194

Appendix Lake Lillinonah Invasive Plant Location Data (5 of 6)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
144	MyrSpi	Found w/ NajMin	Patch	8/11/2011	01:50:02pm	41.49783	-73.32482	1-3	4	4.0389
145	MyrSpi		Point	8/11/2011	09:23:34am	41.47266	-73.31775		2	0.0002
146	MyrSpi		Point	8/11/2011	02:14:41pm	41.50046	-73.32317	0-1	4	0.0002
147	MyrSpi		Point	8/11/2011	02:15:04pm	41.50047	-73.32317	0-1	4	0.0002
148	NajMin		Patch	8/11/2011	09:30:06am	41.47268	-73.31778	1-3	2	0.0262
149	NajMin		Patch	8/11/2011	09:41:54am	41.47290	-73.31847	1-3	2	0.0742
150	NajMin	Found slightly beyond 1 m	Patch	8/11/2011	10:13:51am	41.47385	-73.31931	0-1	3	0.0698
151	NajMin		Patch	8/11/2011	11:57:06am	41.49664	-73.32780	0-1	3	0.7488
152	NajMin		Point	8/11/2011	10:22:52am	41.47531	-73.32006	0-1	3	0.0002
153	NajMin		Point	8/11/2011	10:23:04am	41.47526	-73.32004	0-1	3	0.0002
154	NajMin		Point	8/11/2011	10:23:18am	41.47518	-73.31998	0-1	3	0.0002
155	NajMin		Point	8/11/2011	10:23:27am	41.47509	-73.31992	0-1	3	0.0002
156	NajMin		Point	8/11/2011	02:14:53pm	41.50047	-73.32316	0-1	4	0.0002
157	MyrSpi		Patch	8/16/2011	09:43:08am	41.50500	-73.32027	1-3	3	4.7437
158	MyrSpi	Found w/ NajMin	Patch	8/16/2011	10:42:10am	41.51060	-73.31812	0-1	3	1.0213
159	MyrSpi	Found w/ NajMin	Patch	8/16/2011	11:44:28am	41.50864	-73.31897	0-1	4	1.5560
160	MyrSpi		Point	8/16/2011	12:53:55pm	41.50277	-73.31977	1-3	2	0.0002
161	MyrSpi		Point	8/16/2011	01:47:01pm	41.48471	-73.32499	0-1	1	0.0002
162	MyrSpi		Point	8/16/2011	01:49:44pm	41.48470	-73.32506	1-3	2	0.0002
163	MyrSpi		Point	8/16/2011	01:50:17pm	41.48466	-73.32504	1-3	4	0.0002
164	MyrSpi		Point	8/16/2011	01:50:58pm	41.48467	-73.32504	1-3	4	0.0002
165	NajMin		Patch	8/16/2011	09:55:48am	41.50603	-73.32009	0-1	3	0.4744
166	NajMin	Found w/ MyrSpi	Patch	8/16/2011	10:19:01am	41.50954	-73.32043	0-1	5	0.1969
167	NajMin		Patch	8/16/2011	01:05:26pm	41.50121	-73.32036	1-3	3	0.1610
168	NajMin		Point	8/16/2011	12:48:04pm	41.50565	-73.31856	1-3	2	0.0002
169	NajMin		Point	8/16/2011	12:57:59pm	41.50228	-73.31998	1-3	3	0.0002
170	NajMin		Point	8/16/2011	12:58:12pm	41.50231	-73.31988	1-3	3	0.0002
171	NajMin		Point	8/16/2011	12:58:33pm	41.50237	-73.31986	1-3	3	0.0002
172	NajMin		Point	8/16/2011	01:47:15pm	41.48473	-73.32499	0-1	2	0.0002
173	NajMin		Point	8/16/2011	01:47:31pm	41.48474	-73.32498	0-1	1	0.0002
174	NajMin		Point	8/16/2011	01:52:37pm	41.48439	-73.32476	0-1	4	0.0002
175	NajMin		Point	8/16/2011	01:53:20pm	41.48439	-73.32477	0-1	3	0.0002
176	MyrSpi	Found w/ NajMin	Patch	8/17/2011	09:51:45am	41.47253	-73.31358	1-3	5	0.3026
177	MyrSpi		Patch	8/17/2011	10:20:59am	41.47254	-73.31195	1-3	2	0.2404
178	MyrSpi	Found w/ NajMin	Patch	8/17/2011	12:54:28pm	41.44553	-73.30295	1-3	3	0.4442
179	MyrSpi	Found w/ NajMin	Patch	8/17/2011	01:05:26pm	41.44473	-73.30382	0-1	4	0.1130

Appendix Lake Lillinonah Invasive Plant Location Data (6 of 6)

FID	Invasive Plant Name	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Area (acres)
180	MyrSpi		Point	8/17/2011	10:17:50am	41.47254	-73.31231	0-1	1	0.0002
181	MyrSpi		Point	8/17/2011	01:13:49pm	41.44441	-73.30398	1-3	1	0.0002
182	MyrSpi		Point	8/17/2011	01:14:50pm	41.44460	-73.30408	1-3	3	0.0002
183	MyrSpi		Point	8/17/2011	01:15:32pm	41.44466	-73.30409	1-3	3	0.0002
184	MyrSpi		Point	8/17/2011	01:16:14pm	41.44466	-73.30404	1-3	3	0.0002
185	MyrSpi		Point	8/17/2011	01:23:58pm	41.44642	-73.30517	1-3	1	0.0002
186	NajMin		Patch	8/17/2011	10:11:46am	41.47263	-73.31213	0-1	5	0.1717
187	MyrSpi	Found w/ NajMin	Patch	11/16/2011	03:53:21pm	41.46002	-73.32455	0-1	2	0.0467
188	MyrSpi	Found w/ NajMin	Patch	11/16/2011	03:54:32pm	41.47304	-73.33542	0-1	2	0.0467
189	MyrSpi	Found w/ NajMin	Patch	11/16/2011	03:38:10pm	41.50067	-73.37947	1-3	1	0.2848
190	MyrSpi	Found w/ NajMin	Patch	11/16/2011	03:43:42pm	41.51646	-73.38718	0-1	2	0.0647
191	MyrSpi	Found w/ NajMin	Patch	11/16/2011	03:44:05pm	41.51593	-73.38666	0-1	2	0.0203
192	MyrSpi	Found w/ NajMin	Patch	11/16/2011	03:24:01pm	41.50954	-73.32043	0-1	2	0.1969
193	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:57:47pm	41.49326	-73.37902	0-1	4	0.1585
194	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:42:54pm	41.52781	-73.40188	0-1	3	0.1600
195	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:43:12pm	41.52591	-73.39955	0-1	3	0.1460
196	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:46:16pm	41.46914	-73.31328	0-1	2	0.0605
197	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:51:58pm	41.49783	-73.32539	0-1	4	1.0875
198	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:26:14pm	41.51060	-73.31812	0-1	3	1.0213
199	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:27:55pm	41.50864	-73.31897	0-1	5	1.5560
200	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:32:25pm	41.47257	-73.31359	1-3	2	0.1128
201	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:36:36pm	41.44550	-73.30292	0-1	1	0.2003
202	NajMin	Found w/ MyrSpi	Patch	11/16/2011	03:37:21pm	41.44473	-73.30382	0-1	1	0.1130

Transect Data

Appendix Lake Candlewood Transect Data (1 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	EleSpp	LemMin	MyrSpi	NajFle	NajMin	NymOdo	PotFol	SpiPol	ValAme
1	1	.5	Jordan Gibbons	41.42379	-73.45249	9/13/2011	0.50	Muck		2	0	2	3	0	0	0	0	2	0
1	2	5.0	Jordan Gibbons	41.42383	-73.45249	9/13/2011	0.50	Muck		3	0	2	4	0	0	0	0	2	0
1	3	10.0	Jordan Gibbons	41.42387	-73.45252	9/13/2011	0.75	Muck		5	0	2	5	0	0	0	0	2	0
1	4	20.0	Jordan Gibbons	41.42396	-73.45259	9/13/2011	1.00	Muck		4	0	2	5	0	0	0	0	2	0
1	5	30.0	Jordan Gibbons	41.42403	-73.45262	9/13/2011	1.00	Muck		2	0	2	5	0	0	0	0	2	0
1	6	40.0	Jordan Gibbons	41.42412	-73.45267	9/13/2011	1.20	Muck		2	0	0	4	0	0	0	0	0	0
1	7	50.0	Jordan Gibbons	41.42421	-73.45272	9/13/2011	2.20	Muck		2	0	0	4	0	2	0	0	0	0
1	8	60.0	Jordan Gibbons	41.42431	-73.45271	9/13/2011	2.20	Muck		3	0	0	3	0	2	0	0	0	0
1	9	70.0	Jordan Gibbons	41.42436	-73.45282	9/13/2011	1.90	Muck		2	0	0	4	0	0	0	0	0	0
1	10	80.0	Jordan Gibbons	41.42448	-73.45284	9/13/2011	1.40	Muck		2	0	0	4	2	2	0	0	0	0
2	1	.5	Jordan Gibbons	41.42766	-73.44929	9/13/2011	0.50	Gravel		0	0	0	4	0	0	0	0	0	0
2	2	5.0	Jordan Gibbons	41.42762	-73.44931	9/13/2011	0.75	Gravel		2	0	0	5	0	0	0	0	0	0
2	3	10.0	Jordan Gibbons	41.42759	-73.44934	9/13/2011	1.00	Gravel		2	0	0	5	0	0	0	0	0	0
2	4	20.0	Jordan Gibbons	41.42749	-73.44939	9/13/2011	3.30	Muck		2	0	0	3	0	0	0	0	0	0
2	5	30.0	Jordan Gibbons	41.42741	-73.44948	9/13/2011	3.60	Muck		1	0	0	3	0	0	0	0	0	0
2	6	40.0	Jordan Gibbons	41.42738	-73.44962	9/13/2011	3.10	Muck		0	0	0	3	0	0	0	0	0	0
2	7	50.0	Jordan Gibbons	41.42730	-73.44962	9/13/2011	2.50	Muck		2	0	0	5	0	0	0	0	0	0
2	8	60.0	Jordan Gibbons	41.42721	-73.44971	9/13/2011	1.60	Muck		0	0	0	2	0	0	0	0	0	0
2	9	70.0	Jordan Gibbons	41.42720	-73.44987	9/13/2011	1.20	Sand		2	0	0	3	0	0	0	0	0	0
2	10	80.0	Jordan Gibbons	41.42715	-73.44995	9/13/2011	3.30	Muck		1	0	0	3	0	0	0	0	0	0
3	1	.5	Jordan Gibbons	41.47026	-73.43534	9/13/2011	0.50	Sand		0	0	0	2	0	0	0	0	0	0
3	2	5.0	Jordan Gibbons	41.47027	-73.43529	9/13/2011	0.50	Sand		0	0	0	2	0	0	0	0	0	0
3	3	10.0	Jordan Gibbons	41.47026	-73.43522	9/13/2011	1.40	Muck		0	0	0	5	0	2	0	0	0	0
3	4	20.0	Jordan Gibbons	41.47029	-73.43514	9/13/2011	2.10	Sand		0	0	0	0	0	0	0	0	0	0
3	5	30.0	Jordan Gibbons	41.47031	-73.43502	9/13/2011	7.00	Muck		0	0	0	0	0	0	0	0	0	0
3	6	40.0	Jordan Gibbons	41.47031	-73.43489	9/13/2011	9.00	Muck		0	0	0	0	0	0	0	0	0	0
3	7	50.0	Jordan Gibbons	41.47026	-73.43474	9/13/2011	9.30	Muck		0	0	0	0	0	0	0	0	0	0
3	8	60.0	Jordan Gibbons	41.47037	-73.43464	9/13/2011	9.40	Muck		0	0	0	0	0	0	0	0	0	0
3	9	70.0	Jordan Gibbons	41.47037	-73.43451	9/13/2011	9.50	Muck		0	0	0	0	0	0	0	0	0	0
3	10	80.0	Jordan Gibbons	41.47036	-73.43443	9/13/2011	9.50	Muck		0	0	0	0	0	0	0	0	0	0
4	1	2.0	Greg Bugbee	41.57124	-73.48832	8/25/2011	0.80	Muck		2	0	0	2	0	0	0	0	0	0
4	2	5.0	Greg Bugbee	41.57118	-73.48833	8/25/2011	0.80	Muck		0	0	0	2	0	0	0	0	0	0
4	3	10.0	Greg Bugbee	41.57115	-73.48836	8/25/2011	1.50	Muck		0	0	0	2	0	0	0	0	0	0
4	4	20.0	Greg Bugbee	41.57105	-73.48842	8/25/2011	1.00	Muck		0	0	0	2	0	0	0	0	0	0
4	5	30.0	Greg Bugbee	41.57099	-73.48847	8/25/2011	1.90	Muck		0	0	0	2	0	0	2	0	0	0
4	6	40.0	Greg Bugbee	41.57090	-73.48850	8/25/2011	2.20	Muck		2	0	0	2	0	0	0	0	0	0
4	7	50.0	Greg Bugbee	41.57082	-73.48854	8/25/2011	2.30	Muck		2	0	0	3	0	0	0	0	0	0
4	8	60.0	Greg Bugbee	41.57068	-73.48850	8/25/2011	2.90	Muck		4	0	0	0	0	0	0	0	0	0
4	9	70.0	Greg Bugbee	41.57065	-73.48860	8/25/2011	4.40	Muck		3	0	0	2	0	0	0	0	0	0
4	10	80.0	Greg Bugbee	41.57052	-73.48864	8/25/2011	4.40	Muck		1	0	0	0	0	0	0	0	0	0
5	1	.5	Jordan Gibbons	41.50215	-73.45147	9/13/2011	0.50	Sand		0	0	0	2	0	0	0	0	0	0
5	2	5.0	Jordan Gibbons	41.50216	-73.45151	9/13/2011	0.50	Sand		0	0	0	0	0	3	0	0	0	0
5	3	10.0	Jordan Gibbons	41.50219	-73.45157	9/13/2011	1.00	Sand		0	0	0	3	0	3	0	0	0	0

Appendix Lake Candlewood Transect Data (2 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	EleSpp	LemMin	MyrSpi	NajFle	NajMin	NymOdo	PotFol	SpiPol	ValAme
5	4	20.0	Jordan Gibbons	41.50230	-73.45167	9/13/2011	1.40	Sand		0	0	0	3	0	2	0	0	0	0
5	5	30.0	Jordan Gibbons	41.50235	-73.45172	9/13/2011	1.40	Sand		0	0	0	3	0	3	0	0	0	0
5	6	40.0	Jordan Gibbons	41.50233	-73.45186	9/13/2011	2.10	Sand		0	0	0	5	0	0	0	0	0	0
5	7	50.0	Jordan Gibbons	41.50243	-73.45194	9/13/2011	1.60	Sand		0	0	0	3	0	0	0	0	0	0
5	8	60.0	Jordan Gibbons	41.50248	-73.45205	9/13/2011	3.00	Sand		0	0	0	3	0	0	0	0	0	0
5	9	70.0	Jordan Gibbons	41.50249	-73.45212	9/13/2011	3.50	Sand		0	0	0	4	0	0	0	0	0	0
5	10	80.0	Jordan Gibbons	41.50256	-73.45221	9/13/2011	4.30	Sand		0	0	0	3	0	0	0	0	0	0
6	1	.5	Jordan Gibbons	41.51386	-73.45329	9/13/2011	0.50	Organic		0	0	0	2	0	0	0	0	0	0
6	2	5.0	Jordan Gibbons	41.51391	-73.45331	9/13/2011	1.00	Muck		0	0	0	5	0	0	0	0	0	0
6	3	10.0	Jordan Gibbons	41.51395	-73.45332	9/13/2011	1.10	Muck		0	0	0	5	0	0	0	0	0	0
6	4	20.0	Jordan Gibbons	41.51406	-73.45334	9/13/2011	0.80	Muck		0	0	0	5	0	0	0	0	0	0
6	5	30.0	Jordan Gibbons	41.51415	-73.45332	9/13/2011	1.80	Muck		0	0	0	5	0	0	0	0	0	0
6	6	40.0	Jordan Gibbons	41.51423	-73.45331	9/13/2011	2.30	Muck		0	0	0	4	0	0	0	0	0	0
6	7	50.0	Jordan Gibbons	41.51432	-73.45328	9/13/2011	2.40	Muck		0	0	0	3	0	0	0	0	0	0
6	8	60.0	Jordan Gibbons	41.51441	-73.45329	9/13/2011	3.00	Muck		0	0	0	2	0	0	0	0	0	0
6	9	70.0	Jordan Gibbons	41.51452	-73.45332	9/13/2011	4.70	Muck		0	0	0	0	0	0	0	0	0	0
6	10	80.0	Jordan Gibbons	41.51458	-73.45335	9/13/2011	5.50	Muck		0	0	0	0	0	0	0	0	0	0
7	1	1.0	Greg Bugbee	41.57145	-73.44270	9/13/2011	0.30	Rock		0	0	0	0	0	0	0	0	0	0
7	2	5.0	Greg Bugbee	41.57144	-73.44276	9/13/2011	1.50	Rock		0	0	0	2	0	0	0	0	0	0
7	3	10.0	Greg Bugbee	41.57145	-73.44283	9/13/2011	1.30	Gravel		0	0	0	4	0	2	0	0	0	0
7	4	20.0	Greg Bugbee	41.57145	-73.44297	9/13/2011	2.50	Gravel		0	0	0	4	0	0	0	0	0	0
7	5	30.0	Greg Bugbee	41.57140	-73.44309	9/13/2011	2.80	Muck		0	0	0	4	0	0	0	0	0	0
7	6	40.0	Greg Bugbee	41.57148	-73.44319	9/13/2011	4.00	Gravel		2	0	0	3	0	0	0	0	0	0
7	7	50.0	Greg Bugbee	41.57146	-73.44332	9/13/2011	5.50	Silt		0	0	0	0	0	0	0	0	0	0
7	8	60.0	Greg Bugbee	41.57141	-73.44341	9/13/2011	6.20	Silt		0	0	0	0	0	0	0	0	0	0
7	9	70.0	Greg Bugbee	41.57142	-73.44352	9/13/2011	6.20	Silt		0	0	0	0	0	0	0	0	0	0
7	10	80.0	Greg Bugbee	41.57146	-73.44369	9/13/2011	7.10	Silt		0	0	0	0	0	0	0	0	0	0
8	1	0.5	Greg Bugbee	41.51296	-73.44120	9/13/2011	0.50	Rock		0	0	0	0	0	0	0	0	0	0
8	2	5.0	Greg Bugbee	41.51293	-73.44117	9/13/2011	1.00	Gravel		0	0	0	0	0	2	0	2	0	0
8	3	10.0	Greg Bugbee	41.51287	-73.44121	9/13/2011	1.50	Gravel		0	0	0	2	0	0	0	0	0	0
8	4	20.0	Greg Bugbee	41.51278	-73.44121	9/13/2011	1.50	Rock		0	0	0	2	0	2	0	0	0	0
8	5	30.0	Greg Bugbee	41.51268	-73.44120	9/13/2011	1.70	Rock		0	0	0	3	0	0	0	0	0	0
8	6	40.0	Greg Bugbee	41.51258	-73.44123	9/13/2011	2.00	Rock		0	0	0	3	0	0	0	0	0	0
8	7	50.0	Greg Bugbee	41.51251	-73.44130	9/13/2011	2.00	Rock		0	0	0	3	0	0	0	0	0	0
8	8	60.0	Greg Bugbee	41.51242	-73.44125	9/13/2011	3.00	Rock		0	0	0	3	0	0	0	0	0	0
8	9	70.0	Greg Bugbee	41.51231	-73.44133	9/13/2011	3.00	Gravel		0	0	0	3	0	0	0	0	0	0
8	10	80.0	Greg Bugbee	41.51223	-73.44122	9/13/2011	4.80	Silt		0	0	0	0	0	0	0	0	0	0
9	1	.5	Jordan Gibbons	41.48051	-73.43461	9/13/2011	0.50	Muck		2	0	0	4	0	0	0	0	0	0
9	2	5.0	Jordan Gibbons	41.48051	-73.43467	9/13/2011	0.50	Muck		0	0	0	3	0	3	0	1	0	0
9	3	10.0	Jordan Gibbons	41.48046	-73.43471	9/13/2011	1.00	Muck		0	0	0	3	0	2	0	0	0	0
9	4	20.0	Jordan Gibbons	41.48046	-73.43483	9/13/2011	1.60	Muck		0	0	0	2	0	0	0	0	0	0
9	5	30.0	Jordan Gibbons	41.48043	-73.43498	9/13/2011	2.00	Muck		0	0	0	4	0	0	0	0	0	0
9	6	40.0	Jordan Gibbons	41.48041	-73.43509	9/13/2011	2.50	Muck		0	0	0	3	0	0	0	0	0	0

Appendix Lake Candlewood Transect Data (3 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	EleSpp	LemMin	MyrSpi	NajFle	NajMin	NymOdo	PotFol	SpiPol	ValAme
9	7	50.0	Jordan Gibbons	41.48041	-73.43520	9/13/2011	2.60	Muck		0	0	0	2	0	0	0	0	0	0
9	8	60.0	Jordan Gibbons	41.48032	-73.43530	9/13/2011	2.50	Muck		1	0	0	3	0	0	0	0	0	0
9	9	70.0	Jordan Gibbons	41.48029	-73.43539	9/13/2011	2.10	Muck		0	0	0	4	0	0	0	0	0	0
9	10	80.0	Jordan Gibbons	41.48027	-73.43552	9/13/2011	0.60	Muck		0	0	0	3	0	0	0	0	0	0
10	1	0.1	Greg Bugbee	41.44734	-73.42949	9/13/2011	0.30	Muck		2	0	2	4	0	0	0	0	0	0
10	2	5.0	Greg Bugbee	41.44730	-73.42953	9/13/2011	1.00	Muck	Filamentous Algae	0	0	0	2	0	0	0	0	0	0
10	3	10.0	Greg Bugbee	41.44727	-73.42960	9/13/2011	1.10	Muck	Filamentous Algae	0	0	0	2	0	0	0	0	0	0
10	4	20.0	Greg Bugbee	41.44723	-73.42967	9/13/2011	1.60	Muck	Filamentous Algae	0	0	0	2	0	0	0	0	0	2
10	5	30.0	Greg Bugbee	41.44718	-73.42982	9/13/2011	1.40	Muck		0	0	0	2	0	0	0	0	0	3
10	6	40.0	Greg Bugbee	41.44712	-73.42987	9/13/2011	0.80	Muck		2	0	0	3	0	2	0	0	0	0
10	7	50.0	Greg Bugbee	41.44706	-73.42997	9/13/2011	0.20	Muck		2	2	2	0	2	2	0	0	0	2

Appendix Lake Lillinonah Transect Data (1 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	ElaSpp	EleSpp	EriAqu	MyrSpi	NajMin	PotCri	PotFol	PotNod	StuPec	ZanPal
1	1	.5	Jordan Gibbons	41.46637	-73.30132	8/17/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0	0
1	2	5.0	Jordan Gibbons	41.46639	-73.30126	8/17/2011	3.10	Gravel		0	0	0	0	0	0	0	0	0	0	0
1	3	10.0	Jordan Gibbons	41.46640	-73.30117	8/17/2011	6.00	Gravel		0	0	0	0	0	0	0	0	0	0	0
1	4	20.0	Jordan Gibbons	41.46640	-73.30107	8/17/2011	9.70	Gravel		0	0	0	0	0	0	0	0	0	0	0
1	5	30.0	Jordan Gibbons	41.46645	-73.30094	8/17/2011	10.60	Sand		0	0	0	0	0	0	0	0	0	0	0
1	6	40.0	Jordan Gibbons	41.46643	-73.30085	8/17/2011	10.90	Sand		0	0	0	0	0	0	0	0	0	0	0
1	7	50.0	Jordan Gibbons	41.46642	-73.30074	8/17/2011	11.30	Sand		0	0	0	0	0	0	0	0	0	0	0
1	8	60.0	Jordan Gibbons	41.46646	-73.30061	8/17/2011	11.70	Sand		0	0	0	0	0	0	0	0	0	0	0
1	9	70.0	Jordan Gibbons	41.46649	-73.30049	8/17/2011	11.90	Sand		0	0	0	0	0	0	0	0	0	0	0
1	10	80.0	Jordan Gibbons	41.46655	-73.30036	8/17/2011	12.10	Sand		0	0	0	0	0	0	0	0	0	0	0
2	1	.5	Jennifer Fanzutti	41.53867	-73.40572	8/10/2011	1.00	Muck		0	0	0	0	0	0	0	0	0	0	0
2	2	5.0	Jennifer Fanzutti	41.53865	-73.40562	8/10/2011	1.60	Muck		0	0	0	0	0	0	0	0	0	0	0
2	3	10.0	Jennifer Fanzutti	41.53862	-73.40558	8/10/2011	1.70	Muck		0	0	0	0	0	0	0	0	0	0	0
2	4	20.0	Jennifer Fanzutti	41.53853	-73.40529	8/10/2011	0.80	Muck		0	0	0	0	3	0	0	0	0	0	0
2	5	30.0	Jennifer Fanzutti	41.53850	-73.40519	8/10/2011	0.70	Muck		2	0	0	0	4	2	0	0	0	0	0
2	6	40.0	Jennifer Fanzutti	41.53851	-73.40506	8/10/2011	0.80	Muck		0	0	0	0	4	2	3	0	0	3	0
2	7	50.0	Jennifer Fanzutti	41.53851	-73.40492	8/10/2011	0.80	Muck		3	0	0	0	4	2	4	2	2	0	0
2	8	60.0	Jennifer Fanzutti	41.53846	-73.40482	8/10/2011	0.80	Muck		2	0	0	0	2	2	3	0	0	0	0
2	9	70.0	Jennifer Fanzutti	41.53839	-73.40473	8/10/2011	0.50	Muck		2	0	0	0	4	0	2	0	0	0	0
2	10	80.0	Jennifer Fanzutti	41.53829	-73.40465	8/10/2011	1.00	Muck		2	0	0	0	4	0	3	0	0	0	0
3	1	.5	Jennifer Fanzutti	41.52367	-73.39932	8/10/2011	1.00	Bedrock		0	0	0	0	0	0	0	0	0	0	0
3	2	5.0	Jennifer Fanzutti	41.52363	-73.39937	8/10/2011	3.00	Muck		0	0	0	0	0	0	0	0	0	0	0
3	3	10.0	Jennifer Fanzutti	41.52362	-73.39944	8/10/2011	3.10	Muck		0	0	0	0	0	0	0	0	0	0	0
3	4	20.0	Jennifer Fanzutti	41.52363	-73.39957	8/10/2011	3.00	Muck		0	0	0	0	0	0	0	0	0	0	0
3	5	30.0	Jennifer Fanzutti	41.52354	-73.39964	8/10/2011	3.00	Muck		0	0	0	0	0	0	0	0	0	0	0
3	6	40.0	Jennifer Fanzutti	41.52351	-73.39977	8/10/2011	2.80	Muck		0	0	0	0	0	0	0	0	0	0	0
3	7	50.0	Jennifer Fanzutti	41.52347	-73.39987	8/10/2011	2.50	Muck		0	0	0	0	0	0	0	0	0	0	0
3	8	60.0	Jennifer Fanzutti	41.52341	-73.39999	8/10/2011	2.20	Muck		0	0	0	0	0	0	0	0	0	0	0
3	9	70.0	Jennifer Fanzutti	41.52337	-73.40008	8/10/2011	2.10	Muck		0	0	0	0	0	0	0	0	0	0	0
3	10	80.0	Jennifer Fanzutti	41.52330	-73.40017	8/10/2011	2.10	Muck		0	0	0	0	0	0	0	0	0	0	0
4	1	.5	Jennifer Fanzutti	41.49912	-73.37390	8/9/2011	0.20	Sand		0	0	0	0	0	0	0	0	0	0	0
4	2	5.0	Jennifer Fanzutti	41.49915	-73.37396	8/9/2011	0.50	Sand		0	0	0	0	0	1	0	0	0	0	0
4	3	10.0	Jennifer Fanzutti	41.49917	-73.37403	8/9/2011	0.00	Sand		0	0	0	0	0	5	0	2	0	0	2
4	4	20.0	Jennifer Fanzutti	41.49915	-73.37415	8/9/2011	0.90	Sand		0	0	0	0	1	5	0	2	0	0	0
4	5	30.0	Jennifer Fanzutti	41.49912	-73.37427	8/9/2011	1.00	Sand		0	0	0	0	3	2	0	0	0	0	0
4	6	40.0	Jennifer Fanzutti	41.49910	-73.37439	8/9/2011	2.00	Sand		0	0	0	0	4	0	0	0	0	0	0
4	7	50.0	Jennifer Fanzutti	41.49910	-73.37451	8/9/2011	2.70	Sand		0	0	0	0	4	0	0	0	0	0	0
4	8	60.0	Jennifer Fanzutti	41.49912	-73.37463	8/9/2011	3.40	Sand		0	0	0	0	0	0	0	0	0	0	0
4	9	70.0	Jennifer Fanzutti	41.49901	-73.37471	8/9/2011	3.40	Sand		0	0	0	0	0	0	0	0	0	0	0
4	10	80.0	Jennifer Fanzutti	41.49909	-73.37484	8/9/2011	4.20	Sand		0	0	0	0	0	0	0	0	0	0	0
5	1	.5	Jennifer Fanzutti	41.49689	-73.32762	8/11/2011	0.20	Gravel		0	2	3	3	0	0	0	0	0	0	0
5	2	5.0	Jennifer Fanzutti	41.49686	-73.32759	8/11/2011	0.30	Sand		0	0	3	3	0	0	0	0	0	0	0

Appendix Lake Lillinonah Transect Data (2 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	ElaSpp	EleSpp	EriAqu	MyrSpi	NajMin	PotCri	PotFol	PotNod	StuPec	ZanPal
5	3	10.0	Jennifer Fanzutti	41.49689	-73.32750	8/11/2011	0.50	Sand		0	0	3	3	0	0	0	0	0	0	0
5	4	20.0	Jennifer Fanzutti	41.49676	-73.32749	8/11/2011	0.60	Sand		0	0	0	0	0	2	0	0	0	0	0
5	5	30.0	Jennifer Fanzutti	41.49682	-73.32728	8/11/2011	1.70	Sand		0	0	0	0	0	2	0	0	0	0	0
5	6	40.0	Jennifer Fanzutti	41.49666	-73.32724	8/11/2011	3.60	Sand		0	0	0	0	0	0	0	0	0	0	0
5	7	50.0	Jennifer Fanzutti	41.49663	-73.32713	8/11/2011	3.40	Sand		0	0	0	0	0	0	0	0	0	0	0
5	8	60.0	Jennifer Fanzutti	41.49663	-73.32697	8/11/2011	3.30	Sand		0	0	0	0	0	0	0	0	0	0	0
5	9	70.0	Jennifer Fanzutti	41.49663	-73.32685	8/11/2011	3.60	Sand		0	0	0	0	0	0	0	0	0	0	0
5	10	80.0	Jennifer Fanzutti	41.49657	-73.32675	8/11/2011	4.30	Sand		0	0	0	0	0	0	0	0	0	0	0
6	1	.5	Jordan Gibbons	41.48403	-73.32409	8/16/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0	0
6	2	5.0	Jordan Gibbons	41.48400	-73.32412	8/16/2011	0.40	Gravel		0	0	0	0	0	0	0	0	0	0	0
6	3	10.0	Jordan Gibbons	41.48399	-73.32419	8/16/2011	2.60	Gravel		0	0	0	0	0	0	0	0	0	0	0
6	4	20.0	Jordan Gibbons	41.48397	-73.32430	8/16/2011	3.20	Gravel		0	0	0	0	0	0	0	0	0	0	0
6	5	30.0	Jordan Gibbons	41.48385	-73.32433	8/16/2011	8.20	Muck		0	0	0	0	0	0	0	0	0	0	0
6	6	40.0	Jordan Gibbons	41.48378	-73.32445	8/16/2011	11.80	Muck		0	0	0	0	0	0	0	0	0	0	0
6	7	50.0	Jordan Gibbons	41.48373	-73.32454	8/16/2011	13.00	Muck		0	0	0	0	0	0	0	0	0	0	0
6	8	60.0	Jordan Gibbons	41.48362	-73.32458	8/16/2011	13.80	Muck		0	0	0	0	0	0	0	0	0	0	0
6	9	70.0	Jordan Gibbons	41.48361	-73.32469	8/16/2011	13.80	Muck		0	0	0	0	0	0	0	0	0	0	0
6	10	80.0	Jordan Gibbons	41.48353	-73.32478	8/16/2011	14.50	Muck		0	0	0	0	0	0	0	0	0	0	0
7	1	.5	Jordan Gibbons	41.47246	-73.31403	8/17/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0	0
7	2	5.0	Jordan Gibbons	41.47247	-73.31399	8/17/2011	1.00	Gravel		0	0	0	0	0	0	0	0	0	0	0
7	3	10.0	Jordan Gibbons	41.47243	-73.31386	8/17/2011	2.90	Muck		0	0	0	0	3	0	0	0	0	0	0
7	4	20.0	Jordan Gibbons	41.47238	-73.31372	8/17/2011	3.70	Muck		0	0	0	0	0	0	0	0	0	0	0
7	5	30.0	Jordan Gibbons	41.47235	-73.31363	8/17/2011	4.30	Muck		0	0	0	0	0	0	0	0	0	0	0
7	6	40.0	Jordan Gibbons	41.47231	-73.31351	8/17/2011	5.30	Muck		0	0	0	0	0	0	0	0	0	0	0
7	7	50.0	Jordan Gibbons	41.47229	-73.31339	8/17/2011	5.50	Muck		0	0	0	0	0	0	0	0	0	0	0
7	8	60.0	Jordan Gibbons	41.47217	-73.31333	8/17/2011	6.60	Muck		0	0	0	0	0	0	0	0	0	0	0
7	9	70.0	Jordan Gibbons	41.47212	-73.31322	8/17/2011	7.00	Muck		0	0	0	0	0	0	0	0	0	0	0
7	10	80.0	Jordan Gibbons	41.47207	-73.31313	8/17/2011	7.30	Muck		0	0	0	0	0	0	0	0	0	0	0
8	1	.5	Jordan Gibbons	41.44800	-73.30350	8/17/2011	0.50	Sand		0	0	0	0	0	0	0	0	0	0	0
8	2	5.0	Jordan Gibbons	41.44795	-73.30349	8/17/2011	2.00	Sand		0	0	0	0	0	0	0	0	0	0	0
8	3	10.0	Jordan Gibbons	41.44792	-73.30345	8/17/2011	3.20	Sand		0	0	0	0	0	0	0	0	0	0	0
8	4	20.0	Jordan Gibbons	41.44785	-73.30335	8/17/2011	9.30	Sand		0	0	0	0	0	0	0	0	0	0	0
8	5	30.0	Jordan Gibbons	41.44775	-73.30336	8/17/2011	10.20	Sand		0	0	0	0	0	0	0	0	0	0	0
8	6	40.0	Jordan Gibbons	41.44767	-73.30333	8/17/2011	15.20	Sand		0	0	0	0	0	0	0	0	0	0	0
8	7	50.0	Jordan Gibbons	41.44757	-73.30329	8/17/2011	15.90	Sand		0	0	0	0	0	0	0	0	0	0	0
8	8	60.0	Jordan Gibbons	41.44752	-73.30318	8/17/2011	16.70	Sand		0	0	0	0	0	0	0	0	0	0	0
8	9	70.0	Jordan Gibbons	41.44744	-73.30310	8/17/2011	17.20	Sand		0	0	0	0	0	0	0	0	0	0	0
8	10	80.0	Jordan Gibbons	41.44738	-73.30301	8/17/2011	17.70	Sand		0	0	0	0	0	0	0	0	0	0	0
9	1	.5	Jordan Gibbons	41.51023	-73.31953	8/16/2011	0.50	Organic		0	0	0	0	0	0	0	0	0	0	0
9	2	5.0	Jordan Gibbons	41.51017	-73.31952	8/16/2011	1.50	Gravel		0	0	0	0	0	0	0	0	0	0	0
9	3	10.0	Jordan Gibbons	41.51015	-73.31956	8/16/2011	1.00	Gravel		0	0	0	0	0	0	0	0	0	0	0
9	4	20.0	Jordan Gibbons	41.51007	-73.31956	8/16/2011	1.60	Gravel		0	0	0	0	0	0	0	0	0	0	0

Appendix Lake Lillinonah Transect Data (3 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	ElaSpp	EleSpp	EriAqu	MyrSpi	NajMin	PotCri	PotFol	PotNod	StuPec	ZanPal
9	5	30.0	Jordan Gibbons	41.50997	-73.31957	8/16/2011	2.90	Muck		0	0	0	0	0	0	0	0	0	0	0
9	6	40.0	Jordan Gibbons	41.50989	-73.31962	8/16/2011	3.90	Muck		0	0	0	0	0	0	0	0	0	0	0
9	7	50.0	Jordan Gibbons	41.50977	-73.31960	8/16/2011	3.30	Muck		0	0	0	0	0	0	0	0	0	0	0
9	8	60.0	Jordan Gibbons	41.50972	-73.31969	8/16/2011	3.30	Muck		0	0	0	0	0	0	0	0	0	0	0
9	9	70.0	Jordan Gibbons	41.50961	-73.31961	8/16/2011	3.10	Muck		0	0	0	0	0	0	0	0	0	0	0
9	10	80.0	Jordan Gibbons	41.50953	-73.31956	8/16/2011	3.20	Muck		0	0	0	0	0	0	0	0	0	0	0
10	1	.5	Jordan Gibbons	41.49058	-73.38167	8/2/2011	0.50	Muck		0	0	3	0	0	0	0	0	0	0	0
10	2	5.0	Jordan Gibbons	41.49061	-73.38163	8/2/2011	0.75	Muck		0	0	0	0	0	0	0	0	0	0	0
10	3	10.0	Jordan Gibbons	41.49066	-73.38167	8/2/2011	1.25	Muck		0	0	0	0	0	0	0	0	0	0	0
10	4	20.0	Jordan Gibbons	41.49074	-73.38164	8/2/2011	1.40	Muck		0	0	0	0	0	2	0	0	0	0	0
10	5	30.0	Jordan Gibbons	41.49084	-73.38164	8/2/2011	2.30	Muck		0	0	0	0	0	0	0	0	0	0	0
10	6	40.0	Jordan Gibbons	41.49093	-73.38170	8/2/2011	2.80	Muck		0	0	0	0	0	0	0	0	0	0	0
10	7	50.0	Jordan Gibbons	41.49103	-73.38161	8/2/2011	2.10	Muck		0	0	0	0	0	3	0	1	0	0	0
10	8	60.0	Jordan Gibbons	41.49114	-73.38167	8/2/2011	2.10	Muck		0	0	0	0	0	0	0	0	0	0	0
10	9	70.0	Jordan Gibbons	41.49122	-73.38163	8/2/2011	1.80	Muck		0	0	0	0	0	0	0	0	0	0	0
10	10	80.0	Jordan Gibbons	41.49129	-73.38165	8/2/2011	2.00	Muck		0	0	0	0	0	0	0	0	0	0	0

Appendix Lake Zoar Transect Data (1 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	LudSpp	MyrSpi	NajFle	NajMin	PotCri	PotFol	SagSpp	ValAme	ZosDub
1	1	.5	Jordan Gibbons	41.42836	-73.23946	9/12/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0
1	2	5.0	Jordan Gibbons	41.42836	-73.23950	9/12/2011	0.50	Sand		0	0	0	0	0	0	0	0	0	0
1	3	10.0	Jordan Gibbons	41.42830	-73.23953	9/12/2011	0.50	Sand		0	0	3	0	2	0	0	0	2	0
1	4	20.0	Jordan Gibbons	41.42824	-73.23962	9/12/2011	1.70	Sand		0	0	0	0	0	0	0	0	0	0
1	5	30.0	Jordan Gibbons	41.42813	-73.23968	9/12/2011	2.30	Sand		0	0	0	0	0	0	0	0	0	0
1	6	40.0	Jordan Gibbons	41.42807	-73.23978	9/12/2011	3.20	Sand		0	0	0	0	0	0	0	0	0	0
1	7	50.0	Jordan Gibbons	41.42799	-73.23976	9/12/2011	3.30	Sand		0	0	0	0	0	0	0	0	0	0
1	8	60.0	Jordan Gibbons	41.42791	-73.23984	9/12/2011	3.70	Sand		0	0	0	0	0	0	0	0	0	0
1	9	70.0	Jordan Gibbons	41.42789	-73.23999	9/12/2011	4.20	Sand		0	0	0	0	0	0	0	0	0	0
1	10	80.0	Jordan Gibbons	41.42779	-73.24014	9/12/2011	4.60	Sand		0	0	0	0	0	0	0	0	0	0
2	1	.5	Jordan Gibbons	41.43691	-73.25135	9/12/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0
2	2	5.0	Jordan Gibbons	41.43697	-73.25134	9/12/2011	1.00	Gravel		0	0	0	0	3	0	0	0	4	0
2	3	10.0	Jordan Gibbons	41.43701	-73.25133	9/12/2011	1.70	Sand		0	0	0	0	0	0	0	0	4	0
2	4	20.0	Jordan Gibbons	41.43712	-73.25135	9/12/2011	5.00	Muck		0	0	0	0	0	0	0	0	0	0
2	5	30.0	Jordan Gibbons	41.43722	-73.25140	9/12/2011	5.20	Muck		0	0	0	0	0	0	0	0	0	0
2	6	40.0	Jordan Gibbons	41.43725	-73.25140	9/12/2011	5.30	Muck		0	0	0	0	0	0	0	0	0	0
2	7	50.0	Jordan Gibbons	41.43737	-73.25149	9/12/2011	6.00	Muck		0	0	0	0	0	0	0	0	0	0
2	8	60.0	Jordan Gibbons	41.43745	-73.25153	9/12/2011	6.30	Muck		0	0	0	0	0	0	0	0	0	0
2	9	70.0	Jordan Gibbons	41.43754	-73.25146	9/12/2011	6.20	Muck		0	0	0	0	0	0	0	0	0	0
2	10	80.0	Jordan Gibbons	41.43764	-73.25163	9/12/2011	6.10	Muck		0	0	0	0	0	0	0	0	0	0
3	1	.5	Jordan Gibbons	41.43732	-73.26668	9/12/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0
3	2	5.0	Jordan Gibbons	41.43735	-73.26664	9/12/2011	0.50	Muck		0	1	0	0	3	0	0	0	4	0
3	3	10.0	Jordan Gibbons	41.43739	-73.26662	9/12/2011	1.00	Muck		0	0	0	0	0	0	0	0	5	0
3	4	20.0	Jordan Gibbons	41.43750	-73.26663	9/12/2011	0.50	Muck		0	0	3	0	0	0	0	0	3	0
3	5	30.0	Jordan Gibbons	41.43759	-73.26658	9/12/2011	0.50	Muck		0	0	1	0	0	0	0	0	0	0
3	6	40.0	Jordan Gibbons	41.43767	-73.26656	9/12/2011	0.50	Muck		0	0	0	0	0	0	0	0	0	0
3	7	50.0	Jordan Gibbons	41.43775	-73.26651	9/12/2011	0.50	Muck		0	0	0	0	0	0	0	0	0	0
3	8	60.0	Jordan Gibbons	41.43784	-73.26649	9/12/2011	0.90	Muck		0	0	2	0	0	0	0	0	0	0
3	9	70.0	Jordan Gibbons	41.43794	-73.26648	9/12/2011	0.50	Muck		0	0	3	0	0	0	0	0	0	0
3	10	80.0	Jordan Gibbons	41.43805	-73.26650	9/12/2011	0.50	Muck		0	0	3	0	0	0	0	0	3	0
4	1	.5	Jordan Gibbons	41.45314	-73.28166	9/12/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0
4	2	5.0	Jordan Gibbons	41.45311	-73.28166	9/12/2011	1.20	Muck		3	0	3	0	0	0	0	0	0	0
4	3	10.0	Jordan Gibbons	41.45307	-73.28164	9/12/2011	2.00	Muck		3	0	5	0	0	0	0	0	0	0
4	4	20.0	Jordan Gibbons	41.45301	-73.28155	9/12/2011	2.50	Muck		5	0	3	0	0	0	0	0	0	0
4	5	30.0	Jordan Gibbons	41.45294	-73.28147	9/12/2011	3.90	Muck		0	0	0	0	0	0	0	0	0	0
4	6	40.0	Jordan Gibbons	41.45286	-73.28142	9/12/2011	4.00	Muck		0	0	0	0	0	0	0	0	0	0
4	7	50.0	Jordan Gibbons	41.45275	-73.28135	9/12/2011	4.20	Muck		0	0	0	0	0	0	0	0	0	0
4	8	60.0	Jordan Gibbons	41.45266	-73.28129	9/12/2011	4.10	Muck		0	0	0	0	0	0	0	0	0	0
4	9	70.0	Jordan Gibbons	41.45264	-73.28120	9/12/2011	4.00	Muck		0	0	0	0	0	0	0	0	0	0
4	10	80.0	Jordan Gibbons	41.45242	-73.28144	9/12/2011	3.60	Muck		0	0	0	0	0	0	0	0	0	0
5	1	.5	Jordan Gibbons	41.43201	-73.22750	9/12/2011	0.25	Muck		0	0	2	0	0	0	0	0	0	0
5	2	5.0	Jordan Gibbons	41.43196	-73.22747	9/12/2011	0.25	Muck		1	0	1	0	0	0	0	0	0	0

Appendix Lake Zoar Transect Data (2 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	LudSpp	MyrSpi	NajFle	NajMin	PotCri	PotFol	SagSpp	ValAme	ZosDub
5	3	10.0	Jordan Gibbons	41.43190	-73.22746	9/12/2011	0.50	Muck		2	0	0	0	0	0	0	0	0	0
5	4	20.0	Jordan Gibbons	41.43185	-73.22751	9/12/2011	0.50	Muck		2	0	2	0	0	0	0	0	2	0
5	5	30.0	Jordan Gibbons	41.43174	-73.22747	9/12/2011	0.75	Muck		0	0	2	0	0	0	0	0	0	0
5	6	40.0	Jordan Gibbons	41.43165	-73.22748	9/12/2011	0.75	Muck		0	0	2	0	0	0	0	0	0	0
5	7	50.0	Jordan Gibbons	41.43156	-73.22755	9/12/2011	0.80	Muck		0	0	0	0	0	0	0	0	0	0
5	8	60.0	Jordan Gibbons	41.43146	-73.22753	9/12/2011	1.00	Muck		0	0	0	0	0	0	0	0	0	0
5	9	70.0	Jordan Gibbons	41.43138	-73.22760	9/12/2011	1.20	Muck		0	0	1	0	0	0	0	0	0	0
5	10	80.0	Jordan Gibbons	41.43129	-73.22756	9/12/2011	2.30	Muck		0	0	0	0	0	0	0	0	0	0
6	1	.5	Jordan Gibbons	41.42421	-73.20728	8/25/2011	0.50	Sand		0	0	0	0	0	0	0	0	0	0
6	2	5.0	Jordan Gibbons	41.42420	-73.20723	8/25/2011	0.50	Sand		0	0	0	0	2	0	0	0	0	0
6	3	10.0	Jordan Gibbons	41.42418	-73.20714	8/25/2011	0.50	Muck		0	0	0	0	3	0	0	0	0	0
6	4	20.0	Jordan Gibbons	41.42409	-73.20707	8/25/2011	0.70	Muck		0	0	0	0	0	0	0	0	0	0
6	5	30.0	Jordan Gibbons	41.42407	-73.20697	8/25/2011	0.70	Organic		0	0	0	0	0	0	0	0	0	0
6	6	40.0	Jordan Gibbons	41.42406	-73.20681	8/25/2011	0.70	Organic		0	0	0	0	0	0	0	0	0	0
6	7	50.0	Jordan Gibbons	41.42398	-73.20674	8/25/2011	0.80	Organic		0	0	0	0	0	0	0	0	0	0
6	8	60.0	Jordan Gibbons	41.42401	-73.20657	8/25/2011	0.70	Organic		0	0	0	0	0	0	0	0	0	0
6	9	70.0	Jordan Gibbons	41.42400	-73.20646	8/25/2011	0.70	Organic		0	0	0	0	0	0	0	0	0	0
6	10	80.0	Jordan Gibbons	41.42400	-73.20635	8/25/2011	0.70	Organic		0	0	0	0	0	0	0	0	0	0
7	1	.5	Jordan Gibbons	41.41258	-73.20174	9/12/2011	0.50	Sand		0	0	0	0	0	0	0	0	0	0
7	2	5.0	Jordan Gibbons	41.41261	-73.20171	9/12/2011	0.50	Muck		0	0	0	0	0	0	0	0	0	0
7	3	10.0	Jordan Gibbons	41.41263	-73.20161	9/12/2011	1.00	Muck		0	0	0	0	0	0	0	0	0	0
7	4	20.0	Jordan Gibbons	41.41264	-73.20151	9/12/2011	1.40	Muck		0	0	0	0	0	0	0	0	0	0
7	5	30.0	Jordan Gibbons	41.41272	-73.20140	9/12/2011	1.40	Muck	Algae	0	0	0	0	0	0	0	0	0	0
7	6	40.0	Jordan Gibbons	41.41269	-73.20129	9/12/2011	1.60	Muck		0	0	0	0	0	0	0	0	0	0
7	7	50.0	Jordan Gibbons	41.41273	-73.20116	9/12/2011	1.70	Muck		0	0	0	0	0	0	0	0	0	0
7	8	60.0	Jordan Gibbons	41.41283	-73.20111	9/12/2011	1.80	Muck		0	0	0	0	0	0	0	0	0	0
7	9	70.0	Jordan Gibbons	41.41292	-73.20103	9/12/2011	2.10	Muck		0	0	0	0	0	0	1	0	0	0
7	10	80.0	Jordan Gibbons	41.41282	-73.20083	9/12/2011	2.90	Muck		0	0	0	0	0	0	0	0	0	0
8	1	.5	Jordan Gibbons	41.39849	-73.19076	9/12/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0
8	2	5.0	Jordan Gibbons	41.39850	-73.19072	9/12/2011	0.50	Muck		0	0	0	0	0	0	0	0	0	0
8	3	10.0	Jordan Gibbons	41.39854	-73.19067	9/12/2011	0.75	Muck		0	0	0	0	0	0	0	0	0	0
8	4	20.0	Jordan Gibbons	41.39855	-73.19054	9/12/2011	0.90	Muck		0	0	0	0	0	0	0	0	0	0
8	5	30.0	Jordan Gibbons	41.39853	-73.19042	9/12/2011	1.00	Muck		0	0	0	0	0	0	0	0	0	0
8	6	40.0	Jordan Gibbons	41.39851	-73.19027	9/12/2011	2.70	Muck		0	0	0	0	0	0	0	0	0	0
8	7	50.0	Jordan Gibbons	41.39860	-73.19019	9/12/2011	3.30	Muck		0	0	0	0	0	0	0	0	0	0
8	8	60.0	Jordan Gibbons	41.39858	-73.19004	9/12/2011	3.70	Muck		0	0	0	0	0	0	0	0	0	0
8	9	70.0	Jordan Gibbons	41.39849	-73.18993	9/12/2011	4.20	Muck		0	0	0	0	0	0	0	0	0	0
8	10	80.0	Jordan Gibbons	41.39847	-73.18980	9/12/2011	4.60	Muck		0	0	0	0	0	0	0	0	0	0
9	1	.5	Jordan Gibbons	41.39196	-73.17441	8/25/2011	0.50	Sand		0	0	0	0	0	0	0	2	0	0
9	2	5.0	Jordan Gibbons	41.39191	-73.17444	8/25/2011	1.00	Muck		0	0	0	0	0	0	0	0	0	0
9	3	10.0	Jordan Gibbons	41.39186	-73.17447	8/25/2011	0.50	Muck		0	0	0	0	0	0	0	0	0	0
9	4	20.0	Jordan Gibbons	41.39178	-73.17451	8/25/2011	0.25	Sand		0	0	0	0	0	0	0	0	0	0

Appendix Lake Zoar Transect Data (3 of 3)

Transect	Point	Distance From Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Notes	CerDem	LudSpp	MyrSpi	NajFle	NajMin	PotCri	PotFol	SagSpp	ValAme	ZosDub
9	5	30.0	Jordan Gibbons	41.39168	-73.17456	8/25/2011	0.50	Sand		0	0	0	0	0	0	0	0	0	0
9	6	40.0	Jordan Gibbons	41.39158	-73.17456	8/25/2011	2.70	Muck		0	0	0	0	0	0	0	0	0	0
9	7	50.0	Jordan Gibbons	41.39153	-73.17461	8/25/2011	3.30	Muck		0	0	0	0	0	0	0	0	0	0
9	8	60.0	Jordan Gibbons	41.39144	-73.17469	8/25/2011	3.70	Muck		0	0	0	0	0	0	0	0	0	0
9	9	70.0	Jordan Gibbons	41.39131	-73.17471	8/25/2011	4.50	Muck		0	0	0	0	0	0	0	0	0	0
9	10	80.0	Jordan Gibbons	41.39129	-73.17485	8/25/2011	5.20	Muck		0	0	0	0	0	0	0	0	0	0
10	1	.5	Jordan Gibbons	41.38157	-73.17478	8/25/2011	0.50	Gravel		0	0	0	0	0	0	0	0	0	0
10	2	5.0	Jordan Gibbons	41.38161	-73.17483	8/25/2011	0.50	Sand		0	0	0	0	0	0	0	0	0	0
10	3	10.0	Jordan Gibbons	41.38165	-73.17487	8/25/2011	0.75	Sand		0	0	3	2	3	1	0	0	0	2
10	4	20.0	Jordan Gibbons	41.38176	-73.17489	8/25/2011	0.50	Sand		0	0	4	2	4	0	0	0	1	1
10	5	30.0	Jordan Gibbons	41.38179	-73.17498	8/25/2011	1.10	Sand		3	0	3	0	2	0	0	0	0	0
10	6	40.0	Jordan Gibbons	41.38190	-73.17504	8/25/2011	2.60	Sand		0	0	0	0	0	0	0	0	0	0
10	7	50.0	Jordan Gibbons	41.38202	-73.17502	8/25/2011	3.40	Sand		0	0	0	0	0	0	0	0	0	0
10	8	60.0	Jordan Gibbons	41.38210	-73.17499	8/25/2011	3.90	Muck		0	0	0	0	0	0	0	0	0	0
10	9	70.0	Jordan Gibbons	41.38218	-73.17503	8/25/2011	4.40	Muck		0	0	0	0	0	0	0	0	0	0
10	10	80.0	Jordan Gibbons	41.38227	-73.17510	8/25/2011	4.70	Muck		0	0	0	0	0	0	0	0	0	0