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Staffordville Reservoir

Stafford Springs, CT

Diagnostic Feasibility Study

2019

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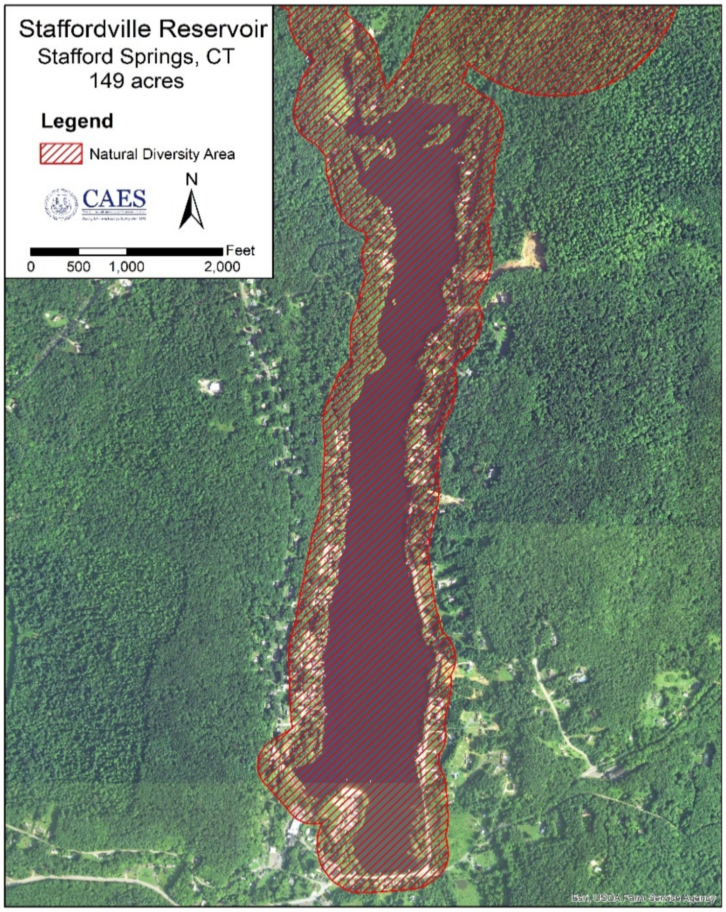

Figure 1. Staffordville Reservoir (state listed species areas in red crosshatch).

Introduction

Staffordville Reservoir is a 149-acre waterbody located in Stafford Springs, CT. The east, south, and southwest shorelines contain numerous single-family residences while the northern and northwest shorelines are primarily wooded. Located on a peninsula in the southwest corner of the lake are Staffordville School and a town beach. Studies on the lake are limited with the first performed by the Connecticut Board of Fisheries and Game in the mid-1950's (State Board of Fisheries and Game, 1959). This work stated the lake was an artificial impoundment with an area of 165 acres formed by the construction of a stone and masonry dam across Furnace Brook. The average depth was 3 m (10 ft) with a maximum depth of 5 m (16 ft), and the substrate consisted of sand, coarse rubble, boulders, and mud. Aquatic vegetation was classified as "scarce in all areas." An update on Staffordville Reservoir and its watershed was reported by the Connecticut Environmental Review Team (2006). This report gave detailed information on lake management, watershed characteristics, planning considerations, wildlife, state listed species, and archeology. Although no lake studies were performed, pre-published work on Staffordville Reservoir by the newly formed Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) was mentioned. This will be discussed later in this report.

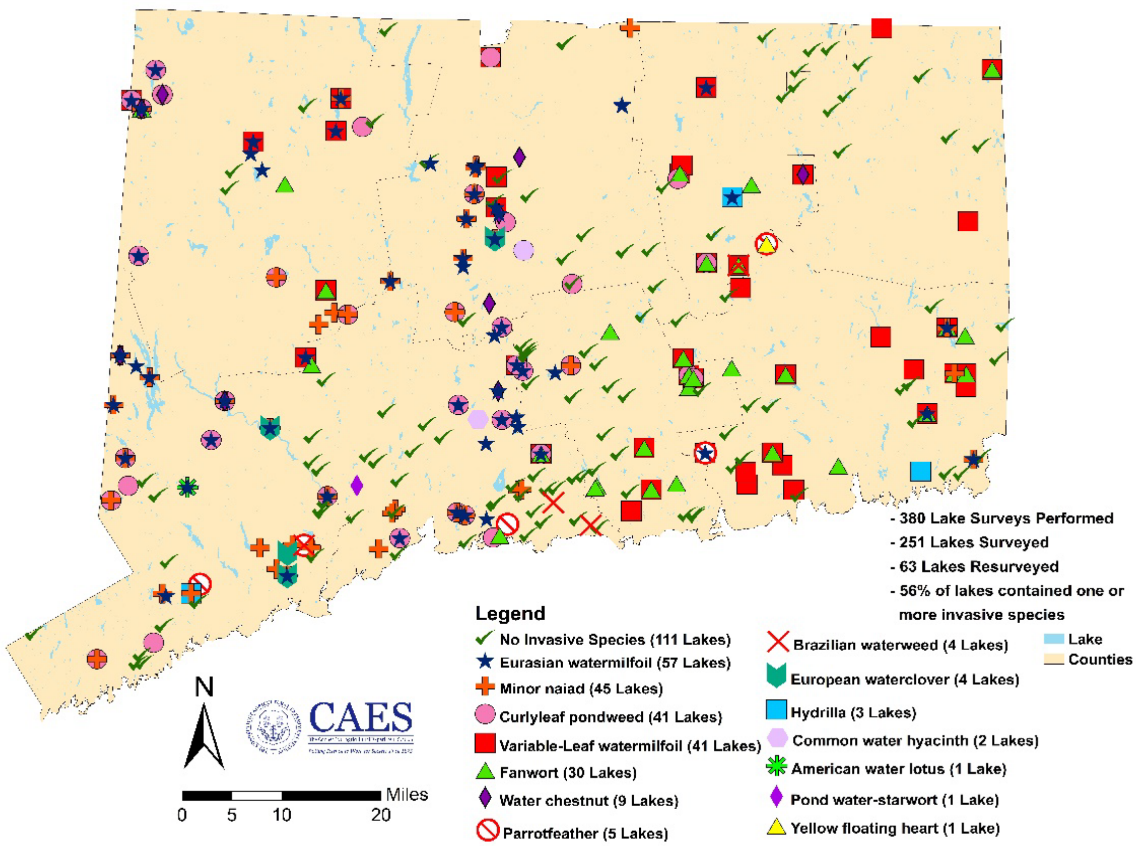

Figure 2. Locations of invasive aquatic plants in Connecticut lakes by CAES IAPP.

CAES IAPP (2020) has performed detailed aquatic vegetation surveys of 251 waterbodies (Figure 2). Surveys of Staffordville Reservoir were conducted in 2005, 2012, and 2019. These surveys found that contrary to the scarcity of plants found in the 1950's, a diverse array of largely non-nuisance native plant species was present (Figure 3). Brazilian waterweed (*Egeria densa*) was the only invasive (non-native) species observed and is known to occur in only four other Connecticut waterbodies (Figure 2). It is a common aquarium plant and its introduction facilitated by careless or uniformed release of aquarium contents. Public Act 04-203 banned Brazilian waterweed from sale in 2004; however, it still is occasionally found in pet stores (June-Wells et al., 2012). Connecticut is experiencing a rapid spread in invasive species. Of greatest concern is extensive infestation of a genetically distinct strain of hydrilla (*Hydrilla verticillata*) in the Connecticut River that could be moved to Staffordville Reservoir.

Objectives

Review past information on the aquatic vegetation in Staffordville Reservoir with specific reference to the three CAES IAPP surveys. Review the potential aquatic plant management options and their feasibility.

Figure 3. Abundant plants in the northern section of Staffordville Reservoir.

Materials and Methods

CAES IAPP Aquatic Plant Surveys and Mapping

We surveyed Staffordville Reservoir for aquatic vegetation in mid to late summer in 2005, 2012, and 2019. Surveys were conducted from a small boat traveling over areas shallow enough to support aquatic plants. Plant species were recorded based on visual observation or collections with a long-handled rake or grapple and identified using the taxonomy of Crow and Hellquist (2000a, 2000b). Quantitative information on abundance was obtained from fifteen 80 m transects positioned perpendicular to the shoreline. These were set out in 2005 with a Garmin GPS and refined in 2012 using a Trimble® GPS with sub-meter accuracy. Transect locations represented the variety of habitat types occurring in all portions of the lake. Sampling locations were established along each transect at points 0, 5, 10, 20, 30, 40, 50, 60, 70, and 80 m from the shore. Abundances of species present at each point were 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). Significant differences in the frequency of occurrence of plant species between years along transects were determined using analysis of variance (ANOVA) followed by Tukey's post-hoc test ($p < 0.05$). Significant differences in species richness per transect point were determined by ± one standard error of the mean (SEM). One specimen of each species collected in the reservoir was dried and mounted in the CAES aquatic plant herbarium, and digitized mounts can be viewed online (portal.ct.gov/caes-iapp).

Figure 4. CAES IAPP biologist testing water for transparency.

Water Sampling

Water was sampled from Staffordville Reservoir during each survey at the same site located in a deep portion of the lake (Figure 4). Water temperature and dissolved oxygen were measured at a depth of 0.5 m (1.5 ft) and at 1 m (3 ft) intervals thereafter until 0.5 m (1.5 ft) above the bottom. We obtained water samples at 0.5 m (1.5 ft) below the surface and above the bottom. Sample size was 250-mL, and all samples were stored at 3°C (37°F) until analyzed for pH, alkalinity, conductivity, and total phosphorus. A Fisher AR20 meter was used to determine pH and conductivity. Alkalinity (expressed as mg/L $CaCO_3$) was quantified by titration with 0.016 N H_2SO_4 to an end point of pH 4.5. We determined total phosphorus using the ascorbic acid method preceded by digestion with potassium persulfate (APHA, 1995). Phosphorus was quantified using a Milton Roy Spectronic 20D spectrometer with a light path of 2 cm and a wavelength of 880 nm. Water was tested for temperature and dissolved oxygen using an YSI 58 meter. Transparency (water clarity) was measured by lowering a six-inch diameter black and white Secchi disk into the water and determining to what depth it could be viewed.

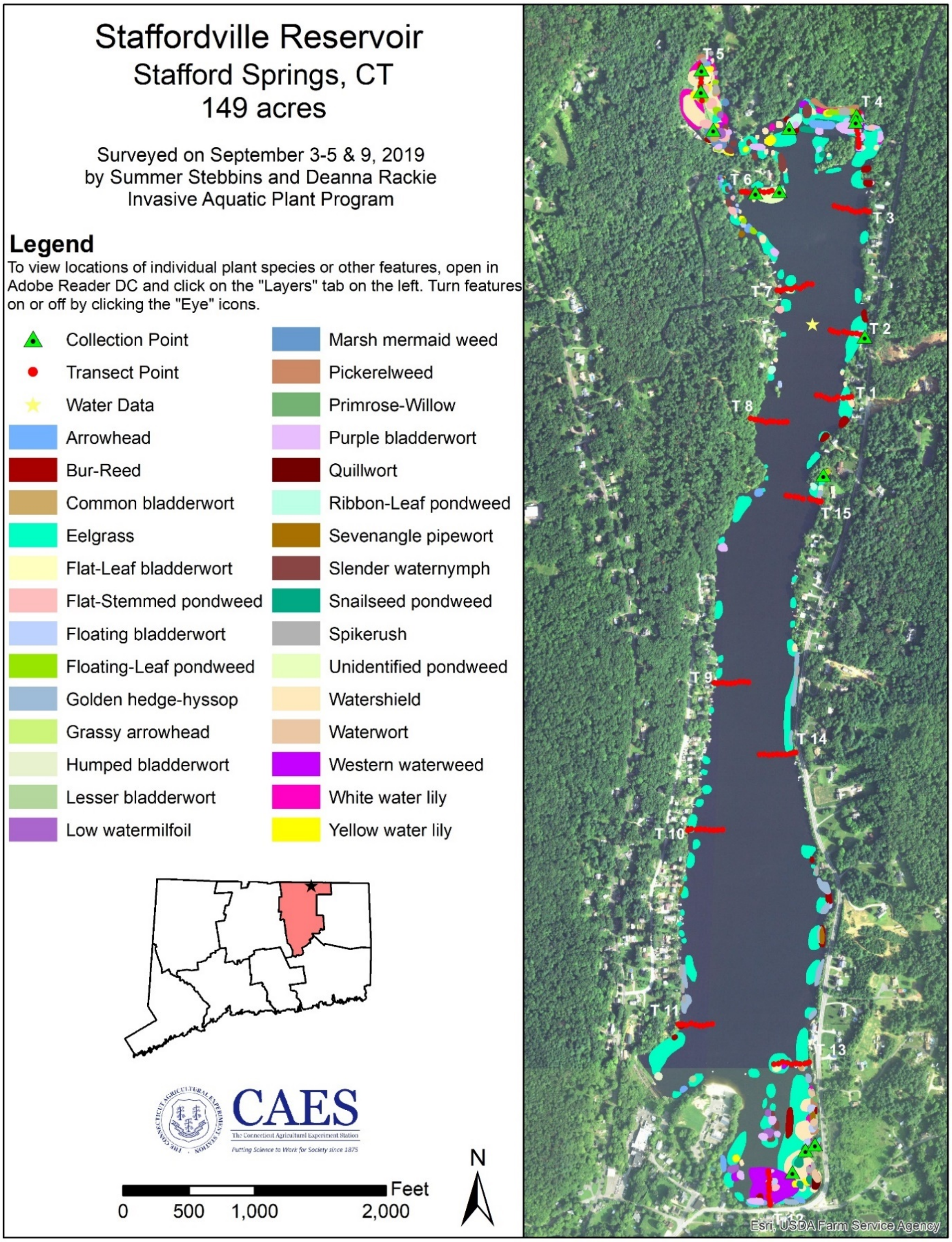

Figure 5. Aquatic plant survey of Staffordville Reservoir 2019.

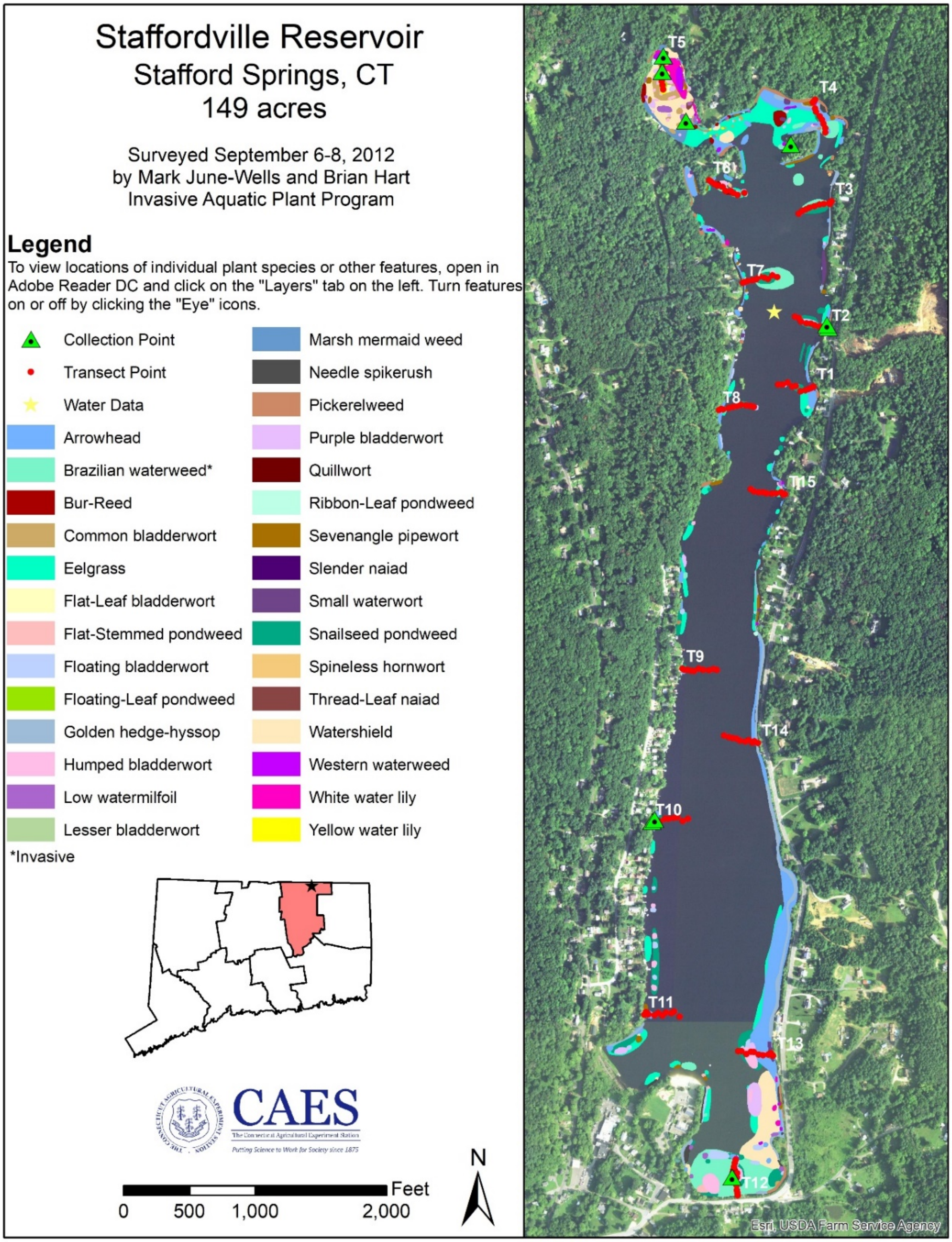

Figure 6. Aquatic plant survey of Staffordville Reservoir 2012.

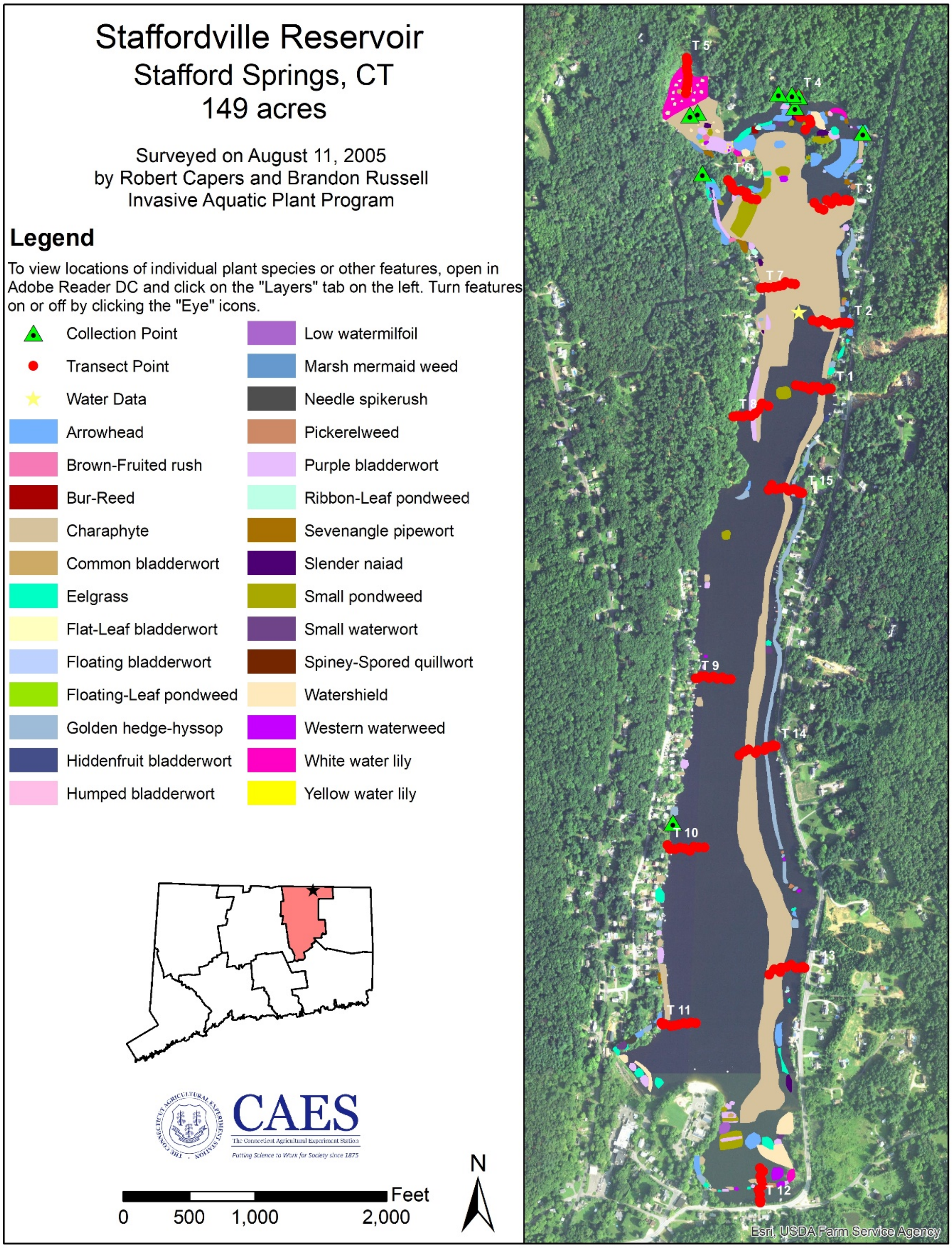

Figure 7. Aquatic plant survey of Staffordville Reservoir in 2005.

Results and Discussion

Aquatic Plant Surveys

CAES IAPP surveys found a relatively high level of biodiversity of plant species in all years; however, the abundance of any one species often changed substantially amongst surveys (Table 1). In the 2005, 2012, and 2019 surveys a total of 27, 29, and 29 plant species were observed respectively (Figures 5, 6, 7). Not all were on transect points accounting for the slightly reduced number of total species shown in Table 1 (25, 25, and 28 respectively).

Table 1. Aquatic plants on transects in Staffordville Reservoir.

Common Name*	Scientific Name	FOQ (%/transect point) 2005	2012	2019
Arrowhead	*Sagittaria* species	14.7	15.3	13.3
Brazilian waterweed	***Egeria densa***	**0**	**12.0**	**0**
Bur-Reed	*Sparganium* species	2.0	9.3	6.7
Canadian waterweed	*Elodea canadensis*	10.0	0	0
Common bladderwort	*Utricularia macrorhiza*	0.7	1.3	2.7
Eelgrass	*Vallisneria americana*	1.3	10.7	18.7
Flat-Leaf bladderwort	*Utricularia intermedia*	0	3.3	2.7
Flat-Stemmed pondweed	*Potamogeton zosteriformis*	0	0	3.3
Floating bladderwort	*Utricularia radiata*	7.3	20.0	18.0
Floating-Leaf pondweed	*Potamogeton natans*	3.3	6.7	2.7
Golden hedge-hyssop	*Gratiola aurea*	2.7	4.0	7.3
Hiddenfruit bladderwort	*Utricularia geminiscapa*	13.3	0	0
Humped bladderwort	*Utricularia gibba*	8.7	13.3	11.3
Lesser bladderwort	*Utricularia minor*	0	3.3	0.7
Low watermilfoil	*Myriophyllum humile*	0	0.7	0.7
Marsh mermaid weed	*Proserpinaca palustris*	0.7	2.7	0.7
Pickerelweed	*Pontederia cordata*	1.3	6.0	0.7
Pondweed	*Potamogeton* species	0	0	11.3
Primrose-Willow	*Ludwigia* species	0	0	2.7
Purple bladderwort	*Utricularia purpurea*	14.7	4.7	5.3
Quillwort	*Isoetes* species	0	2.7	3.3
Ribbon-Leaf pondweed	*Potamogeton epihydrus*	0.7	0	2.0
Sevenangle pipewort	*Eriocaulon aquaticum*	3.3	2.7	4.0
Slender naiad	*Najas flexilis*	7.3	1.3	0
Small pondweed	*Potamogeton pusillus*	31.3	0	0
Snailseed pondweed	*Potamogeton bicupulatus*	3.3	34.0	6.7
Spikerush	*Eleocharis* species	11.3	9.3	9.3
Thread-Leaf naiad	*Najas gracillima*	1.3	0	6.7
Watershield	*Brasenia schreberi*	6.7	6.0	8.0
Waterwort	*Elatine* species	1.3	2.7	3.3
Western waterweed	*Elodea nuttallii*	0	2.0	14.0
White water lily	*Nymphaea odorata*	2.0	4.7	4.7
Yellow water lily	*Nuphar variegata*	4.7	3.3	4.0
Total Species Richness	33	25	25	28
Native Species Richness	32	25	24	28
Invasive Species Richness	1	0	1	0

*Invasive species in bold

Shoreline vegetation included arrowhead, bur-reed, golden hedge-hyssop, pickerelweed, pipewort, spikerush, and waterwort. These plants were sparse and generally not a nuisance. Benefits include protection of the shoreline from erosion and valuable wildlife habitat. Optimal littoral zone plant coverage ranges from 20% to 40% in Connecticut lakes (Jacobs and O'Donnell 2002). Emergent vegetation such as white and yellow water lily and watershield were common in the shallow northern and southern portions of the reservoir as were submersed plants such as eelgrass, pondweeds and waterweeds. A noticeable shift in the plant composition occurred in many parts of the reservoir from charophyte (an algae that much looks like a plant) in 2005 to eelgrass in 2019. Eelgrass can become a nuisance, but more often it is a valuable habitat for fish and other aquatic organisms. In 2012, Brazilian waterweed was found in the lake (Figure 8). This is an invasive plant CAES IAPP has found in only four other lakes in Connecticut (Figure 2), and the potential for this plant to spread to other waterbodies warrants concern. In 2014 and 2015, as part of a study on control of Brazilian waterweed in Fence Rock Lake, Guilford, CT, CAES IAPP set up a grid pattern in the southern portion of Staffordville Reservoir where the plant's presence or absence was monitored (Figure 9). The intent was to use Staffordville Reservoir as an untreated control to compare with Fence Rock Lake that received an herbicide treatment (Bugbee et al., 2020). A marked decline occurred in Staffordville Reservoir in 2015 that was attributed to the lowering of the water level during the previous winter. This negated the value of the grid patterns and they

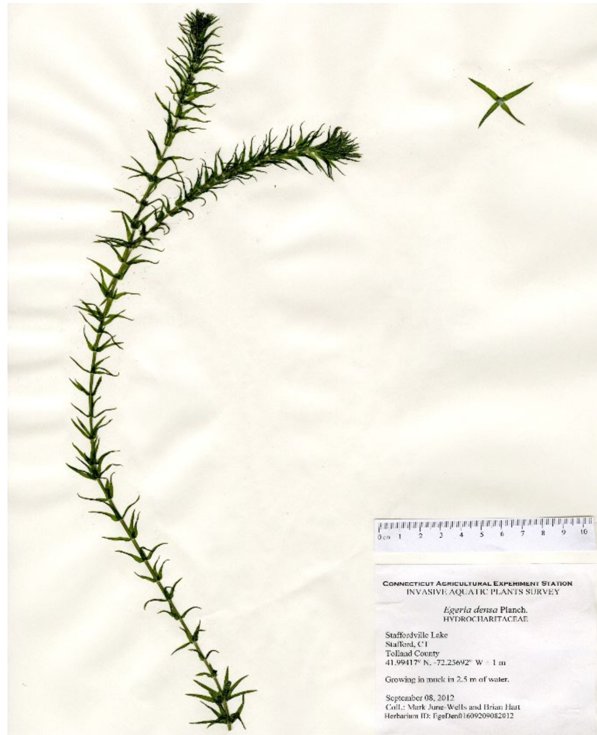

Figure 8. CAES IAPP herbarium mount of Brazilian waterweed taken from Staffordville Reservoir in 2012.

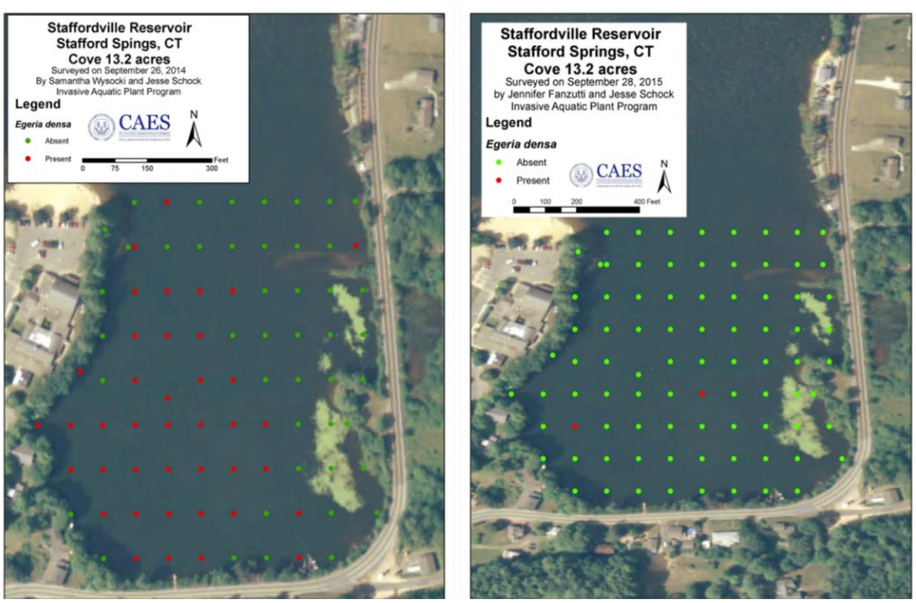

Figure 9. Presence or absence of Brazilian waterweed on grid pattern in 2014 and 2015.

were abandoned. When CAES IAPP performed the next full survey of Staffordville Reservoir in 2019, no Brazilian waterweed was found. A similar decline in Brazilian waterweed occurred in Moodus Reservoir (CAES IAPP, 2018), suggesting the plant is not particularly hardy in Connecticut.

Aquatic Plant Survey on Transects

The CAES IAPP transects laid out in 2005 provide the best available quantitative data on changes in the aquatic plant community as the 150 georeferenced points can be revisited to nearly the exact position during each survey. In 2005, 2012, and 2019, we found Staffordville Reservoir had a total species richness (number of species) of 25, 25, and 28, respectively (table 1). The only invasive found was Brazilian waterweed and this occurred only in 2012. This places Staffordville among the most species rich lakes CAES IAPP has surveyed. Native species richness on transects showed no significant change overtime (± 1 SEM) while native species frequency of occurrence significantly declined (Tukey HSD, $p > 0.05$) from 67.3 percent in 2005 to 52.0 percent in 2019 (Figure 10). Brazilian waterweed represented the only invasive species and was found only in 2012 on 12% of the transect points.

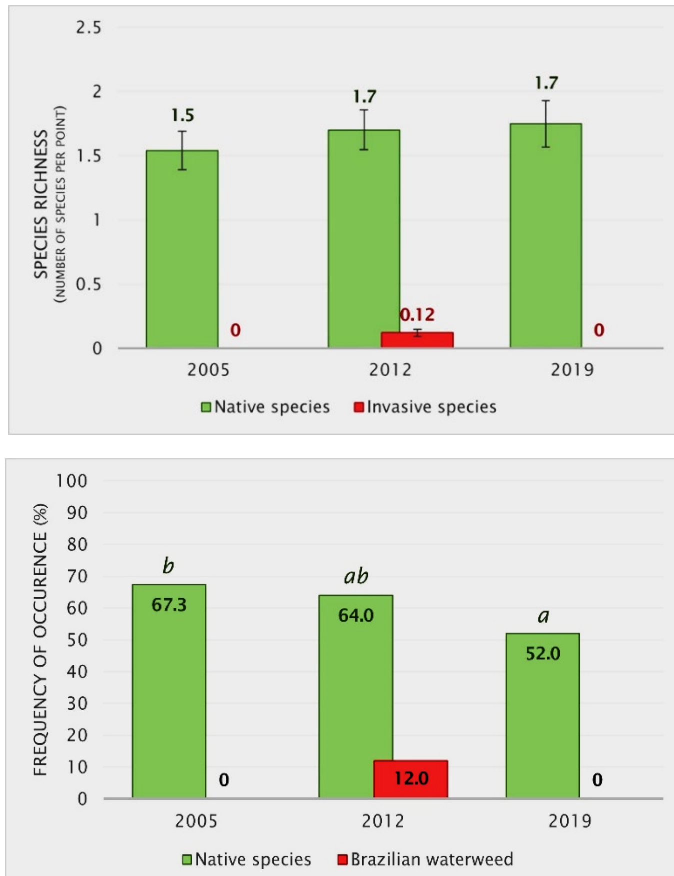

Figure 10. Species richness and frequency of occurrence and in Staffordville Reservoir over time.

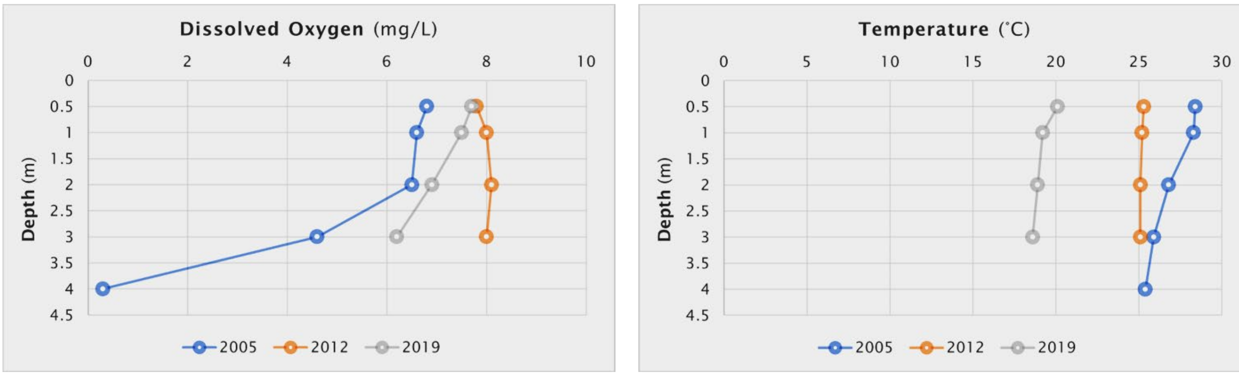

Figure 11. Dissolved oxygen and temperature profiles in Staffordville Reservoir over time.

The most common plants found on the transects in all years were arrowhead, floating bladderwort, humped bladderwort, purple bladderwort, and spikerush. Snailseed pondweed showed a marked frequency of occurrence fluctuation from 3.3 percent in 2005 to 34 percent in 2012 and 6.7 percent in 2019. Native eelgrass steadily increased from 1.3 percent in 2005 to 10.7 percent in 2012 to the most frequently occurring plant in 2019 with 18.7 percent. When native frequency of occurrence and species richness is high, as is the case for Staffordville Reservoir, the native plant community may provide resistance to invasion from non-native plant species (Capers et al., 2007).

Water Chemistry

The transparency in Staffordville Reservoir was showed a decline from 3.2 meters (10.5 feet) in 2005 to 2.0 meters (6.6 feet) in 2019. When comparing transparency between 1935 and 1980, Frink and Norvell (1984) found a considerable decline over time. Our findings over the 14 years may reflect this or natural variability not accounted for by the small number of observations. As transparency is reduced, a decline in plant species in deeper parts of the lake may occur due to light limitation. Temperature profiles in Staffordville Reservoir (Figure 11, right) ranged between 18 and 28°C (64 and 82°F). Little change occurred with depth each year indicating minimal temperature stratification that is common in deeper lakes. Surface dissolved oxygen remained high in all years (Figure 11, left) and only showed a substantial decline near the bottom in 2005. Low oxygen levels near the bottom can release phosphorus from the sediment and enrich the lake and promote algal blooms.

Table 2. Water chemistry in Staffordville Reservoir over time.

Date	Latitude	Longitude	Transparency (m)	Depth (m)	Alkalinity ($CaCO_3$ mg/L)	pH	Conductivity (µs/cm)	Phosphorus (ppb)
8/11/2005	42.01228	-72.25539	3.2	0.5	9.0	6.0	77.0	19.0
				4.0	10.5	6.0	80.0	52.0
9/8/2012	42.01224	-72.25559	2.3	0.5	12.0	6.4	53.0	8.7
				3.5	11.3	6.3	53.0	11.2
9/9/2019	42.01215	-72.25551	2.0	0.5	8.3	6.6	86.0	8.0
				3.0	8.3	6.6	71.0	18.0

The alkalinity, pH and conductivity for Connecticut lakes average near 22 mg/L $CaCO_3$, 7.0 and 95 µs/cm respectively (CAES IAPP 2020). Alkalinity in Staffordville Reservoir ranged between 8.3 and 12.0 mg/L $CaCO_3$ with the lowest levels in 2019. This suggests the alkalinity of the lake has changed little since 2005. The pH of the surface water fell within a narrow range of 6.5 and 6.8 while the bottom water ranged between 6.0 and 6.6. The conductivities of Staffordville Reservoir were similar at both depths in 2005 and 2019, ranging between 71 and 86 µ*s*/cm. In 2012 the conductivities lowered to 53 µ*s*/cm at both depths. Changes in conductivities can be influenced by differences in rainfall or inputs of salt such as that used in road deicing.

Phosphorus concentrations are a key indicator of the eutrophication state of lakes. High levels of P can lead to nuisance or toxic algal blooms. Lakes with P levels from 0 - 10 µg/L are considered nutrient-poor or oligotrophic. When P concentrations reach 15 - 25 µg/L, lakes are classified as moderately fertile or mesotrophic and when P reaches 30 - 50 µg/L they are considered fertile or eutrophic (Frink and Norvell 1984). Lakes with P concentrations over 50 µg/L are categorized as extremely fertile of hypereutrophic. The P concentration Staffordville Reservoir's surface water ranged from 8 - 19 µg/L with the highest present in 2005 and the lowest found in 2019 (Table 2). Bottom water had higher concentrations of P which ranged from 11 to 52 µg/L. As with the surface water, the highest concentration occurred in 2005. This partitioning of P between the surface and bottom water is common in the

Figure 12. CAES IAPP tests benthic barriers in Lake Beseck, Middlefield CT.

summer as anoxic conditions release P from the sediment (Frink, 1969). Compared to deeper lakes where water stratifies markedly each summer, the shallow nature of the reservoir likely keeps this phenomenon to a minimum. The decreasing trend in P enrichment from 2005 to 2019 is encouraging, but its validity could be questioned because of the small number of test dates.

Aquatic Vegetation Management Options

Staffordville Reservoir currently contains a highly diverse community of mainly desirable native aquatic plants. The vegetation should provide many benefits including habitat for fish and other aquatic organisms, removal of nutrients, and protection of the shoreline from erosion. Recreational activities such as fishing, boating, and swimming as well as real estate values do not appear to be adversely affected. Still vigilance is needed as lakes with desirable native vegetation can rapidly worsen when invasive species are introduced, or eutrophication increases through improper watershed management. When deciding on management options, care must be taken not to degrade the native plant community and provide a niche for more troublesome non-native invasive species (Capers et al., 2007). In addition, the presence of state listed species will result in greater regulatory scrutiny of the proposed strategies (Figure 1).

Figure 13. Dry dredging (left) and wet dredging (right)

The first line of defense against the introduction and spread of invasive species is prevention. Education, control of boats being launched into the lake, and frequent surveys to detect new introductions are important. Watershed protection with an emphasis on reducing nutrient inputs can also be beneficial. Small pioneer infestations are far easier to eliminate than large established infestations. Introductions from the Staffordville School is a concern as plants such as Brazilian waterweed and other non-native aquatics are often used in educational aquariums or biology classes. Well-meaning but ill-informed release can occur when the plants are no longer needed. If small populations of nuisance species appear in the reservoir, localized management is suggested. This includes hand or mechanical removal or the installation of benthic barriers (Figure 12). CAES IAPP has tested these barriers and found that they can be effective when placed for as little as one month.

Controlling aquatic weeds in large lakes with extensive areas of desirable native vegetation requires techniques that target the nuisance vegetation. Options include deepening the lake by dredging, water level drawdown, harvesting, biological controls, bottom barriers and herbicides (Cooke et al., 2005). Apart from water level drawdown costs can be high and often prohibitive. Dredging removes nutrients in the sediment. This deepens the water body and restricts aquatic plants through decrease fertility in the substrate and reduced available light. Dredging offers the promise of returning the water body to conditions like those at its inception and can be an excellent long-term solution when combine with practices that minimize erosion and nutrient inputs. Unfortunately, it is impractical for most lakes. Dry dredging requires draining all or part of the lake and excavating the overburden (Figure 13, left). Because Staffordville Reservoir has a dam that allows the lake to be lowered, dry dredging would be an option for the areas that are exposed. If the material in the lake bottom is sand, gravel, or other marketable material, the cost of dredging can be significantly offset by its sale. Wet dredging removes sediment while the lake is fully or partially filled (Figure 13, right). Usually, the dredge spoils are stored in nearby drying beds, and this requires suitable land. Both types of dredging are disruptive to lake ecology. Dry dredging is particularly so because the lake may be without water for years. The permitting process for dredging through the CTDEEP, the United States Army Corp of Engineers and the town is lengthy, expensive and often unsuccessful. Partial dredging or removal of sediment to an insufficient depth often yields disappointing results. Approximately 60 acres of 960-acre Bantam Lake in Litchfield, CT, were dredged from 1982 to 1990. About 370,000 cubic yards of sediment were removed at a cost of 1.7 million dollars (Baystate Environmental Consultants, Inc., 1992). Although some weed control was achieved, many areas of weeds remained in undredged areas and locations that were not dredged sufficiently deep.

Figure 14. Monitoring sediment temperature and moisture during a deep winter drawdown of Lake Beseck, CT in 2019.

Water level drawdown can be effective and inexpensive means for managing nuisance aquatic vegetation (Figure 14). Weed control by winter drawdown can be affected by weather. Deep drawdowns are possible in Staffordville Reservoir because the dam has a submersed outlet that allows the water level to lowered at least seven feet (Town of Stafford, 2014). Often deep winter drawdowns are used when weed

 

Figure 15. Cut and capture harvesting machine in Lake Zoar, CT (left). Hydroraking machine in Lake Quonnipaug, Guilford, CT (right).

problems become acute while shallow drawdowns are utilized when weed issues are less severe and protection of shoreline structures from ice are desired. Some weeds, like milfoil, have root systems and other plant parts that can survive substantial drying (Standifer and Madsen, 1997), and best results occur if the bottom sediment can freeze. CAES has been monitoring the yearly drawdowns in Candlewood Lake and has observed rapid regrowth of vegetation in drawn down areas (Bugbee and Stebbins, 2019). This is likely because root systems were not exposed to temperatures less than -5 °C (23 °F) for many days (Lonergan et al., 2014) which rarely occurs. Deep drawdowns could negatively affect the populations of fish and other aquatic organisms and therefore are typically not done very year.

Harvesting or mechanical removal has the benefit of providing immediate control, but problems include rapid regrowth, finding suitable disposal sites and spreading of weeds by fragmentation (Cooke et al., 2005). Weeds like milfoil (Madsen, et al, 1991) and fanwort spread by the rooting of broken pieces and harvesting can distribute fragments throughout a lake. These weeds also have strong root systems that will cause regrowth. Usually, harvesting needs to be done each year. Harvesting techniques include hand removal, sometimes with divers, machine cutting and capture (Figure 15 left), hydroraking (Figure 15 right), and suction harvesting.

Aquatic herbicides can be effective in controlling unwanted aquatic vegetation (Figure 16). Their use requires permits from the CTDEEP. Some of the most widely used aquatic herbicides in Connecticut are fluridone (Sonar™, Avast™), diquat (Reward™), 2,4-D (Navigate™, AquaKlean™), Glyphosate (Rodeo™), Florpyrauxifen-benzyl (ProcellaCOR), Flumioxazin (Clipper™), Imazamox (Clearcast™), Imazapyr (Habitat™) and Triclopyr (Renovate™). Products such as Florpyrauxifen-benzyl, Fluridone, 2,4-D, glyphosate, imazamox and triclopyr are translocated throughout the plant, causing dieback of the roots and shoots resulting in longer term control. Diquat and flumioxazin destroys only foliage, and regrowth from the roots is likely. Fluridone requires many weeks of contact time and therefore is not well suited where rapid dilution is likely. Glyphosate is sprayed directly on plants and is effective only on weeds like water lily and watershield that have large areas of foliage above the surface. Herbicide treatments often cause damage to non-target organisms, are controversial among stakeholders, and can be cost prohibitive. Staffordville Reservoir is in a state listed species area (Figure 1) and treatments would need clearance from the CTDEEP Natural Diversity via an additional permit. Specifics on the use of aquatic herbicides in Connecticut are found in the

Figure 16. Application of ProcellaCOR to Bashan Lake, East Haddam, CT to control variable watermilfoil.

Figure 17. Introduction of sterile grass carp into Candlewood Lake to control Eurasian watermilfoil.

CTDEEP (2005) publication entitled "Nuisance Aquatic Vegetation Management: A Guidebook."

Although efforts are underway to find biological controls for nuisance aquatic vegetation, breakthroughs have been limited. CAES IAPP has worked with officials from the United States Department of Agriculture to find new plant pathogens and insects that control nuisance aquatic plants with little success. Plant-eating fish, called grass carp *(Ctenopharyngodon idella)*, can effectively reduce the populations of certain aquatic weeds (Figure 17). Often it is an "all or nothing" procedure where if not enough fish are introduced, effects are minimal, and if to many are introduced both nuisance and desirable vegetation are eliminated. The introduction of grass carp into Connecticut lakes requires approval by the CTDEEP. In Connecticut, only sterile grass carp (triploid) are permitted. They are usually 10-12 inches in length when introduced (Figure 17) and can grow to over 30 inches. All lake inlets and outlets must be screened to prevent movement of the fish. These screens must be CTDEEP approved and cannot interfere with the flow of water or the integrity of the dam. The screen must be kept free of debris to prevent flooding. Written approval by all lakefront landowners may be necessary.

Conclusions

The shallow nature of Staffordville Reservoir makes it prime habitat for aquatic vegetation. Change has occurred since the 1950's when plant growth was classified as "scarce in all areas" to its 2005 - 2019 condition where vegetation was diverse and abundant. The only invasive species, Brazilian waterweed, was observed by CAES IAPP in 2012, 2014, and 2015 but none was found in 2019. This may be explained by its likely because of its marginal hardiness in Connecticut. Apart from the areas of water lilies and native submersed vegetation in the shallow north and south ends of the Reservoir, vegetation usually does not reach nuisance levels. Fish and other aquatic organisms are likely favored by the lakes current vegetative state. Still, vigilance is needed as this condition could worsen if invasive species are introduced. Occasional winter drawdowns have likely reduced overall vegetation, yet not to the extent that aquatic habitats have been negatively affected. Connecticut is experiencing a rapid spread in invasive species. Of greatest concern is extensive infestation of a genetically distinct strain of hydrilla (*Hydrilla verticillata*) in the Connecticut River that could be moved to Staffordville Reservoir. Routine surveys for this plant and others as well as educating and monitoring boaters that enter the lake can help preclude a large-scale future problem. Citizen lake watchers or hired lake professionals could help accomplish this activity. Staffordville Reservoir is fortunate to have the capability to perform up to a seven-foot winter drawdown if necessary. When performed with discretion, management of nuisance vegetation and protection of shoreline structures should be attainable at little cost. Management techniques such as harvesting, bottom barriers, dredging, triploid grass carp and herbicides are other alternatives, but each has additional disadvantages compared to drawdown.

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Appendix

Invasive Plant Descriptions

Egeria densa

Common names:
Brazilian waterweed
Brazilian elodea
South American waterweed

Origin:
South America

Key features:
Plants are submersed

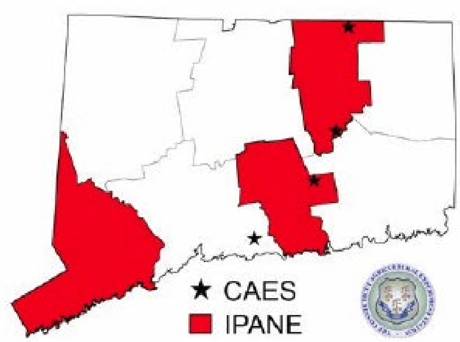
Stems: Plant stems green, soft and typically 1-2 ft (0.3-0.6 m) long

Leaves: Leaves entire 0.4-1.2 inches (1-3 cm) long by 0.2 in (5 mm) wide, leaves toothed (need magnification), leaves are whorled with typically 4 leaves per whorl

Flowers: Small white flowers with three petals, only staminate (male) flowers found in the US

Reproduction: Fragmentation

Easily confused species:
Waterweeds (Native): *Elodea nuttallii* and *E. canadensis*
Hydrilla: *Hydrilla verticillata*



Transect Data

Appendix Staffordville Reservoir Transect Data 2005 (1 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloCan	EriAqu	GraAur	NajFle	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotPus	ProPal	SagSpp	SpaSpp	UtrGem	UtrGib	UtrPur	UtrRad	UtrMac	ValAme
1	0	0	Robert Capers	42.01069	-72.25451	8/12/2005	0.4	Sand	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
1	2	5	Robert Capers	42.01069	-72.25459	8/12/2005	0.8	Sand	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	10	Robert Capers	42.01067	-72.25464	8/12/2005	1.5	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
1	4	20	Robert Capers	42.01065	-72.25475	8/12/2005	2.0	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0	0
1	5	30	Robert Capers	42.01072	-72.25487	8/12/2005	2.1	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
1	6	40	Robert Capers	42.01073	-72.25501	8/12/2005	2.6	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0
1	7	50	Robert Capers	42.01068	-72.25510	8/12/2005	3.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	8	60	Robert Capers	42.01073	-72.25524	8/12/2005	3.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	9	70	Robert Capers	42.01074	-72.25534	8/12/2005	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	10	80	Robert Capers	42.01076	-72.25548	8/12/2005	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	0	Robert Capers	42.01205	-72.25398	8/12/2005	0.3	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0
2	2	5	Robert Capers	42.01206	-72.25405	8/12/2005	0.5	Sand	0	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0
2	3	10	Robert Capers	42.01205	-72.25412	8/12/2005	1.0	Sand	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0
2	4	20	Robert Capers	42.01206	-72.25424	8/12/2005	2.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	5	30	Robert Capers	42.01204	-72.25436	8/12/2005	2.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	6	40	Robert Capers	42.01201	-72.25450	8/12/2005	3.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
2	7	50	Robert Capers	42.01207	-72.25460	8/12/2005	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0
2	8	60	Robert Capers	42.01211	-72.25473	8/12/2005	3.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0
2	9	70	Robert Capers	42.01207	-72.25484	8/12/2005	3.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0
2	10	80	Robert Capers	42.01211	-72.25501	8/12/2005	3.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	0	Robert Capers	42.01459	-72.25396	8/12/2005	0.4	Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0
3	2	5	Robert Capers	42.01461	-72.25405	8/12/2005	2.0	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	10	Robert Capers	42.01460	-72.25407	8/12/2005	2.5	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
3	4	20	Robert Capers	42.01458	-72.25424	8/12/2005	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
3	5	30	Robert Capers	42.01466	-72.25433	8/12/2005	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0
3	6	40	Robert Capers	42.01453	-72.25446	8/12/2005	3.6	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0
3	7	50	Robert Capers	42.01460	-72.25459	8/12/2005	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
3	8	60	Robert Capers	42.01441	-72.25468	8/12/2005	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	9	70	Robert Capers	42.01444	-72.25480	8/12/2005	3.7	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0
3	10	80	Robert Capers	42.01455	-72.25494	8/12/2005	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
4	1	0	Robert Capers	42.01679	-72.25538	8/12/2005	0.3	Silt	0	0	0	2	2	0	2	0	0	0	0	0	0	0	2	0	4	0	4	0	2	0	0	0
4	2	5	Robert Capers	42.01675	-72.25540	8/12/2005	0.3	Silt	0	0	3	0	2	0	3	0	0	0	0	0	0	0	3	0	4	0	3	0	0	0	0	0
4	3	10	Robert Capers	42.01669	-72.25540	8/12/2005	0.3	Silt	0	0	3	0	0	0	2	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0
4	4	20	Robert Capers	42.01662	-72.25548	8/12/2005	0.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	5	30	Robert Capers	42.01652	-72.25547	8/12/2005	0.5	Silt	0	0	4	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	4
4	6	40	Robert Capers	42.01643	-72.25541	8/12/2005	1.1	Silt	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
4	7	50	Robert Capers	42.01633	-72.25531	8/12/2005	1.6	Silt	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	8	60	Robert Capers	42.01628	-72.25506	8/12/2005	1.8	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
4	9	70	Robert Capers	42.01621	-72.25503	8/12/2005	1.9	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
4	10	80	Robert Capers	42.01608	-72.25517	8/12/2005	2.0	Silt	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2005 (2 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloCan	EriAqu	GraAur	NajFle	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotPus	ProPal	SagSpp	SpaSpp	UtrGem	UtrGib	UtrPur	UtrRad	UtrMac	ValAme
5	1	0	Robert Capers	42.01758	-72.25849	8/12/2005	0.3	Gravel	3	0	4	0	2	0	0	4	0	0	0	4	0	1	3	0	2	0	3	3	4	0	0	0
5	2	5	Robert Capers	42.01753	-72.25849	8/12/2005	0.3	Silt	2	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0	0	0	2	0	0	0	0	0
5	3	10	Robert Capers	42.01749	-72.25846	8/12/2005	0.3	Silt	3	0	0	0	0	0	4	2	0	3	0	0	2	3	3	0	0	0	2	0	3	0	0	3
5	4	20	Robert Capers	42.01739	-72.25849	8/12/2005	0.4	Silt	4	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	4	3	0	2	0	0	0
5	5	30	Robert Capers	42.01732	-72.25848	8/12/2005	0.8	Silt	4	0	0	0	0	0	0	0	2	2	0	0	0	0	3	0	0	0	3	0	0	0	0	0
5	6	40	Robert Capers	42.01721	-72.25845	8/12/2005	0.7	Silt	4	0	0	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0
5	7	50	Robert Capers	42.01711	-72.25846	8/12/2005	0.6	Silt	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	8	60	Robert Capers	42.01703	-72.25848	8/12/2005	0.6	Silt	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	9	70	Robert Capers	42.01694	-72.25851	8/12/2005	0.6	Silt	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	10	80	Robert Capers	42.01685	-72.25851	8/12/2005	1.0	Silt	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
6	1	0	Robert Capers	42.01503	-72.25735	8/12/2005	0.3	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
6	2	5	Robert Capers	42.01500	-72.25732	8/12/2005	2.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	3	10	Robert Capers	42.01496	-72.25726	8/12/2005	2.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0
6	4	20	Robert Capers	42.01487	-72.25723	8/12/2005	2.8	Silt	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	0	0	0	2	2	0	0	0	0
6	5	30	Robert Capers	42.01481	-72.25714	8/12/2005	2.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
6	6	40	Robert Capers	42.01481	-72.25698	8/12/2005	2.8	Silt	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	3	3	0	0	0	0
6	7	50	Robert Capers	42.01477	-72.25683	8/12/2005	2.8	Silt	0	0	3	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
6	8	60	Robert Capers	42.01468	-72.25683	8/12/2005	3.1	Silt	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
6	9	70	Robert Capers	42.01464	-72.25669	8/12/2005	3.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0
6	10	80	Robert Capers	42.01462	-72.25655	8/12/2005	3.2	Silt	0	0	4	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0
7	1	0	Robert Capers	42.01279	-72.25646	8/12/2005	0.5	Sand	0	0	4	0	2	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0
7	2	5	Robert Capers	42.01279	-72.25639	8/12/2005	1.6	Sand	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
7	3	10	Robert Capers	42.01280	-72.25633	8/12/2005	2.0	Sand	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
7	4	20	Robert Capers	42.01279	-72.25623	8/12/2005	2.3	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0
7	5	30	Robert Capers	42.01281	-72.25608	8/12/2005	2.7	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3	0	0
7	6	40	Robert Capers	42.01283	-72.25593	8/12/2005	3.0	Sand	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	7	50	Robert Capers	42.01284	-72.25583	8/12/2005	3.9	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
7	8	60	Robert Capers	42.01291	-72.25576	8/12/2005	3.8	Sand	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
7	9	70	Robert Capers	42.01288	-72.25559	8/12/2005	3.9	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7	10	80	Robert Capers	42.01287	-72.25549	8/12/2005	3.9	Sand	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8	1	0	Robert Capers	42.01012	-72.25723	8/12/2005	0.3	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2	5	Robert Capers	42.01013	-72.25716	8/12/2005	1.2	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	3	10	Robert Capers	42.01013	-72.25709	8/12/2005	2.8	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
8	4	20	Robert Capers	42.01012	-72.25697	8/12/2005	3.5	Sand	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0
8	5	30	Robert Capers	42.01015	-72.25685	8/12/2005	3.8	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
8	6	40	Robert Capers	42.01013	-72.25673	8/12/2005	3.9	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0
8	7	50	Robert Capers	42.01018	-72.25663	8/12/2005	3.9	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8	8	60	Robert Capers	42.01026	-72.25653	8/12/2005	4.0	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8	9	70	Robert Capers	42.01039	-72.25643	8/12/2005	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8	10	80	Robert Capers	42.01033	-72.25626	8/12/2005	4.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2005 (3 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloCan	EriAqu	GraAur	NajFle	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotPus	ProPal	SagSpp	SpaSpp	UtrGem	UtrGib	UtrPur	UtrRad	UtrMac	ValAme
9	1	0	Robert Capers	42.00469	-72.25833	8/12/2005	0.4	Gravel	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
9	2	5	Robert Capers	42.00469	-72.25826	8/12/2005	2.0	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
9	3	10	Robert Capers	42.00473	-72.25818	8/12/2005	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
9	4	20	Robert Capers	42.00473	-72.25807	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9	5	30	Robert Capers	42.00469	-72.25796	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	6	40	Robert Capers	42.00472	-72.25784	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	7	50	Robert Capers	42.00468	-72.25773	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	8	60	Robert Capers	42.00470	-72.25759	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	9	70	Robert Capers	42.00466	-72.25749	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	10	80	Robert Capers	42.00466	-72.25735	8/12/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	0	Robert Capers	42.00122	-72.25915	8/15/2005	0.3	Sand	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	2	5	Robert Capers	42.00115	-72.25907	8/15/2005	0.9	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	3	10	Robert Capers	42.00115	-72.25909	8/15/2005	1.4	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0
10	4	20	Robert Capers	42.00114	-72.25894	8/15/2005	2.1	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	5	30	Robert Capers	42.00117	-72.25880	8/15/2005	3.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
10	6	40	Robert Capers	42.00115	-72.25866	8/15/2005	4.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	7	50	Robert Capers	42.00110	-72.25852	8/15/2005	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	8	60	Robert Capers	42.00118	-72.25841	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9	70	Robert Capers	42.00117	-72.25828	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	10	80	Robert Capers	42.00117	-72.25812	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	0	Robert Capers	41.99753	-72.25935	38579	0.3	Gravel	0	3	3	0	2	2	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0
11	2	5	Robert Capers	41.99749	-72.25931	38579	0.5	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	3	10	Robert Capers	41.99751	-72.25926	38579	1.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	4	20	Robert Capers	41.99746	-72.25908	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	5	30	Robert Capers	41.99748	-72.25898	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	6	40	Robert Capers	41.99749	-72.25886	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	7	50	Robert Capers	41.99752	-72.25873	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	8	60	Robert Capers	41.99751	-72.25862	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	9	70	Robert Capers	41.99753	-72.25851	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	10	80	Robert Capers	41.99752	-72.25839	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	0	Robert Capers	41.99378	-72.25661	38579	0.4	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	2	5	Robert Capers	41.99382	-72.25660	38579	1.0	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
12	3	10	Robert Capers	41.99384	-72.25663	38579	1.5	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	3	0	0
12	4	20	Robert Capers	41.99395	-72.25661	38579	3.0		0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
12	5	30	Robert Capers	41.99405	-72.25666	38579	3.0		0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
12	6	40	Robert Capers	41.99414	-72.25654	38579	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0
12	7	50	Robert Capers	41.99424	-72.25657	38579	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
12	8	60	Robert Capers	41.99433	-72.25661	38579	2.8	Silt	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
12	9	70	Robert Capers	41.99443	-72.25652	38579	2.8	Silt	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0	2	0	0	0
12	10	80	Robert Capers	41.99450	-72.25661	38579	2.5	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2005 (4 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloCan	EriAqu	GraAur	NajFle	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotPus	ProPal	SagSpp	SpaSpp	UtrGem	UtrGib	UtrPur	UtrRad	UtrMac	ValAme
13	1	0	Robert Capers	41.99865	-72.25533	38579	0.3	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
13	2	5	Robert Capers	41.99868	-72.25538	38579	1.3	Silt	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	3	10	Robert Capers	41.99865	-72.25547	38579	1.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
13	4	20	Robert Capers	41.99866	-72.25557	38579	2.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	3	0	0
13	5	30	Robert Capers	41.99872	-72.25571	38579	2.5	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
13	6	40	Robert Capers	41.99867	-72.25584	38579	3.8	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
13	7	50	Robert Capers	41.99866	-72.25599	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	8	60	Robert Capers	41.99857	-72.25601	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
13	9	70	Robert Capers	41.99863	-72.25619	38579	0.0		0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
13	10	80	Robert Capers	41.99852	-72.25632	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
14	1	0	Robert Capers	42.00327	-72.25611	38579	0.3	Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
14	2	5	Robert Capers	42.00329	-72.25618	38579	2.0	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	3	10	Robert Capers	42.00325	-72.25624	38579	2.7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
14	4	20	Robert Capers	42.00325	-72.25637	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	5	30	Robert Capers	42.00318	-72.25642	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	6	40	Robert Capers	42.00318	-72.25661	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	7	50	Robert Capers	42.00313	-72.25667	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	8	60	Robert Capers	42.00320	-72.25687	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	9	70	Robert Capers	42.00316	-72.25698	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	10	80	Robert Capers	42.00308	-72.25712	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	1	0	Robert Capers	42.00852	-72.25532	38579	0.3	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
15	2	5	Robert Capers	42.00853	-72.25540	38579	1.8	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	3	10	Robert Capers	42.00856	-72.25543	38579	2.3	Silt	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	20	Robert Capers	42.00860	-72.25556	38579	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
15	5	30	Robert Capers	42.00857	-72.25570	38579	3.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0
15	6	40	Robert Capers	42.00864	-72.25581	38579	3.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
15	7	50	Robert Capers	42.00862	-72.25592	38579	4.1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
15	8	60	Robert Capers	42.00860	-72.25606	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
15	9	70	Robert Capers	42.00870	-72.25617	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	10	80	Robert Capers	42.00859	-72.25626	38579	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2012 (1 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	EgeDen	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	MyrHum	NajFle	NupVar	NymOdo	PonCor	PotBic	PotNat	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
1	1	0.5	Mark June-Wells	42.01067	-72.25451	9/7/2012	0.5	Sand	0	0	1	3	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0
1	2	5	Mark June-Wells	42.01064	-72.25457	9/7/2012	0.7	Sand	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
1	3	10	Mark June-Wells	42.01062	-72.25464	9/7/2012	1.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
1	4	20	Mark June-Wells	42.01059	-72.25474	9/7/2012	1.7	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	1	0
1	5	30	Mark June-Wells	42.01058	-72.25486	9/7/2012	2.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
1	6	40	Mark June-Wells	42.01068	-72.25500	9/7/2012	2.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0
1	7	50	Mark June-Wells	42.01067	-72.25510	9/7/2012	2.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
1	8	60	Mark June-Wells	42.01076	-72.25523	9/7/2012	3.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1	9	70	Mark June-Wells	42.01072	-72.25537	9/7/2012	3.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
1	10	80	Mark June-Wells	42.01072	-72.25549	9/7/2012	3.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	0.5	Mark June-Wells	42.01189	-72.25409	9/7/2012	0.2	Gravel	0	0	0	2	0	0	2	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	1	1
2	2	5	Mark June-Wells	42.01195	-72.25412	9/7/2012	0.5	Gravel	0	0	0	0	0	2	0	0	0	0	0	0	3	2	0	1	0	0	0	0	0	0	2	3	2
2	3	10	Mark June-Wells	42.01192	-72.25422	9/7/2012	1.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
2	4	20	Mark June-Wells	42.01192	-72.25433	9/7/2012	1.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
2	5	30	Mark June-Wells	42.01196	-72.25446	9/7/2012	2.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0
2	6	40	Mark June-Wells	42.01198	-72.25457	9/7/2012	2.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
2	7	50	Mark June-Wells	42.01199	-72.25469	9/7/2012	2.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0
2	8	60	Mark June-Wells	42.01203	-72.25484	9/7/2012	2.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2	9	70	Mark June-Wells	42.01210	-72.25490	9/7/2012	3.2	Muck	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2	10	80	Mark June-Wells	42.01214	-72.25501	9/7/2012	3.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	0.5	Mark June-Wells	42.01454	-72.25397	9/7/2012	0.8	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
3	2	5	Mark June-Wells	42.01449	-72.25401	9/7/2012	2.6	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	10	Mark June-Wells	42.01451	-72.25403	9/7/2012	2.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	4	20	Mark June-Wells	42.01449	-72.25419	9/7/2012	3.0	Muck	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
3	5	30	Mark June-Wells	42.01447	-72.25431	9/7/2012	3.0	Muck	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
3	6	40	Mark June-Wells	42.01444	-72.25444	9/7/2012	3.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
3	7	50	Mark June-Wells	42.01441	-72.25459	9/7/2012	3.0	Muck	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
3	8	60	Mark June-Wells	42.01437	-72.25469	9/7/2012	3.0	Muck	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	9	70	Mark June-Wells	42.01434	-72.25479	9/7/2012	3.1	Muck	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
3	10	80	Mark June-Wells	42.01428	-72.25489	9/7/2012	3.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	0.5	Mark June-Wells	42.01667	-72.25441	9/7/2012	0.1	Muck	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	4	0	1	0	0	2	0	0	0
4	2	5	Mark June-Wells	42.01663	-72.25444	9/7/2012	0.3	Muck	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	1	3	0	0	0	1	0	0	0	0
4	3	10	Mark June-Wells	42.01660	-72.25448	9/7/2012	0.5	Muck	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
4	4	20	Mark June-Wells	42.01648	-72.25441	9/7/2012	0.7	Muck	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	4
4	5	30	Mark June-Wells	42.01641	-72.25439	9/7/2012	1.1	Muck	0	1	0	3	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	3
4	6	40	Mark June-Wells	42.01631	-72.25428	9/7/2012	0.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4	7	50	Mark June-Wells	42.01624	-72.25422	9/7/2012	1.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	3
4	8	60	Mark June-Wells	42.01616	-72.25418	9/7/2012	1.1	Muck	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
4	9	70	Mark June-Wells	42.01607	-72.25413	9/7/2012	1.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
4	10	80	Mark June-Wells	42.01598	-72.25413	9/7/2012	1.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2012 (2 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	EgeDen	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	MyrHum	NajFle	NupVar	NymOdo	PonCor	PotBic	PotNat	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
5	1	0.5	Mark June-Wells	42.01762	-72.25864	9/6/2012	0.5	Muck	2	0	0	3	0	0	0	0	0	0	2	3	0	0	2	0	0	4	0	2	0	0	0	0	0
5	2	5	Mark June-Wells	42.01758	-72.25866	9/6/2012	0.5	Muck	2	0	0	0	0	0	0	0	0	0	1	3	0	0	3	0	0	3	0	3	0	0	0	0	1
5	3	10	Mark June-Wells	42.01752	-72.25866	9/6/2012	1.0	Muck	0	0	0	3	0	0	0	0	0	0	0	3	0	1	3	0	0	1	0	0	0	0	0	0	0
5	4	20	Mark June-Wells	42.01744	-72.25868	9/6/2012	1.0	Muck	2	0	0	2	0	0	0	0	0	0	1	3	0	2	1	0	0	3	0	0	0	0	0	0	0
5	5	30	Mark June-Wells	42.01734	-72.25869	9/6/2012	0.5	Muck	3	0	0	0	0	0	0	0	0	0	2	3	0	0	3	0	0	0	1	2	0	0	1	0	0
5	6	40	Mark June-Wells	42.01726	-72.25869	9/6/2012	1.0	Muck	4	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	2	1	0	0
5	7	50	Mark June-Wells	42.01717	-72.25871	9/6/2012	1.0	Muck	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	2	0	0	0	0	0
5	8	60	Mark June-Wells	42.01707	-72.25871	9/6/2012	1.0	Muck	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	2	0	0	0
5	9	70	Mark June-Wells	42.01699	-72.25868	9/6/2012	1.3	Muck	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	1	0	0	0
5	10	80	Mark June-Wells	42.01689	-72.25867	9/6/2012	1.5	Muck	4	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3	2	0	0	0	0	0
6	1	0.5	Mark June-Wells	42.01499	-72.25740	9/6/2012	0.7	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	2	5	Mark June-Wells	42.01496	-72.25734	9/6/2012	2.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	3	10	Mark June-Wells	42.01492	-72.25724	9/6/2012	2.7	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0
6	4	20	Mark June-Wells	42.01488	-72.25715	9/6/2012	2.6	Muck	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0
6	5	30	Mark June-Wells	42.01485	-72.25701	9/6/2012	2.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0
6	6	40	Mark June-Wells	42.01477	-72.25693	9/6/2012	2.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
6	7	50	Mark June-Wells	42.01477	-72.25679	9/6/2012	2.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
6	8	60	Mark June-Wells	42.01472	-72.25671	9/6/2012	2.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
6	9	70	Mark June-Wells	42.01468	-72.25660	9/6/2012	2.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0
6	10	80	Mark June-Wells	42.01472	-72.25641	9/6/2012	2.9	Muck	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7	1	0.5	Mark June-Wells	42.01285	-72.25647	9/6/2012	0.5	Bedrock	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	2	5	Mark June-Wells	42.01286	-72.25642	9/6/2012	0.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	3	10	Mark June-Wells	42.01288	-72.25633	9/6/2012	1.8	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	4	20	Mark June-Wells	42.01290	-72.25620	9/6/2012	2.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
7	5	30	Mark June-Wells	42.01291	-72.25609	9/6/2012	2.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
7	6	40	Mark June-Wells	42.01298	-72.25599	9/6/2012	2.7	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
7	7	50	Mark June-Wells	42.01295	-72.25586	9/6/2012	3.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
7	8	60	Mark June-Wells	42.01292	-72.25576	9/6/2012	3.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
7	9	70	Mark June-Wells	42.01300	-72.25564	9/6/2012	3.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
7	10	80	Mark June-Wells	42.01296	-72.25550	9/6/2012	3.7	Muck	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	0.5	Mark June-Wells	42.01019	-72.25716	9/6/2012	0.5	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2	5	Mark June-Wells	42.01021	-72.25709	9/6/2012	1.2	Gravel	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	3	10	Mark June-Wells	42.01021	-72.25703	9/6/2012	3.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8	4	20	Mark June-Wells	42.01023	-72.25688	9/6/2012	3.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	5	30	Mark June-Wells	42.01026	-72.25676	9/6/2012	3.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	6	40	Mark June-Wells	42.01027	-72.25665	9/6/2012	3.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8	7	50	Mark June-Wells	42.01030	-72.25653	9/6/2012	3.7	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	60	Mark June-Wells	42.01028	-72.25639	9/6/2012	3.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8	9	70	Mark June-Wells	42.01028	-72.25627	9/6/2012	3.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	10	80	Mark June-Wells	42.01026	-72.25617	9/6/2012	3.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Appendix Staffordville Reservoir Transect Data 2012 (3 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	EgeDen	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	MyrHum	NajFle	NupVar	NymOdo	PonCor	PotBic	PotNat	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
9	1	0.5	Mark June-Wells	42.00480	-72.25822	9/6/2012	2.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0
9	2	5	Mark June-Wells	42.00477	-72.25816	9/6/2012	3.4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	3	10	Mark June-Wells	42.00477	-72.25807	9/6/2012	4.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	4	20	Mark June-Wells	42.00475	-72.25798	9/6/2012	4.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	5	30	Mark June-Wells	42.00474	-72.25790	9/6/2012	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	6	40	Mark June-Wells	42.00479	-72.25776	9/6/2012	4.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	7	50	Mark June-Wells	42.00477	-72.25763	9/6/2012	4.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	8	60	Mark June-Wells	42.00476	-72.25748	9/6/2012	4.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	9	70	Mark June-Wells	42.00479	-72.25734	9/6/2012	4.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	10	80	Mark June-Wells	42.00477	-72.25725	9/6/2012	4.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	0.5	Mark June-Wells	42.00160	-72.25911	9/6/2012	0.8	Sand	0	0	3	3	0	0	2	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0
10	2	5	Mark June-Wells	42.00163	-72.25906	9/6/2012	1.4	Sand	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3
10	3	10	Mark June-Wells	42.00158	-72.25899	9/6/2012	2.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
10	4	20	Mark June-Wells	42.00161	-72.25887	9/6/2012	3.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
10	5	30	Mark June-Wells	42.00166	-72.25873	9/6/2012	4.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	6	40	Mark June-Wells	42.00166	-72.25863	9/6/2012	4.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	7	50	Mark June-Wells	42.00168	-72.25848	9/6/2012	4.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	8	60	Mark June-Wells	42.00170	-72.25839	41158	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9	70	Mark June-Wells	42.00161	-72.25823	41158	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	10	80	Mark June-Wells	42.00166	-72.25808	41158	4.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	1	Mark June-Wells	41.99757	-72.25934	41160	0.5	Bedrock	0	0	0	0	0	2	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	2	0
11	2	5	Mark June-Wells	41.99763	-72.25929	41160	1.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
11	3	10	Mark June-Wells	41.99758	-72.25923	41160	1.2	Muck	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11	4	20	Mark June-Wells	41.99756	-72.25906	41160	4.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	5	30	Mark June-Wells	41.99761	-72.25895	41160	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	6	40	Mark June-Wells	41.99755	-72.25883	41160	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	7	50	Mark June-Wells	41.99762	-72.25873	41160	4.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	8	60	Mark June-Wells	41.99760	-72.25858	41160	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	9	70	Mark June-Wells	41.99763	-72.25851	41160	4.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	10	80	Mark June-Wells	41.99753	-72.25835	41160	4.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	1	Mark June-Wells	41.99379	-72.25676	41160	0.5	Sand	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
12	2	5	Mark June-Wells	41.99384	-72.25676	41160	1.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0
12	3	10	Mark June-Wells	41.99390	-72.25678	41160	2.4	Muck	0	3	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	4	3	0	0	0	0	0	0
12	4	20	Mark June-Wells	41.99400	-72.25678	41160	2.5	Muck	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	0	0
12	5	30	Mark June-Wells	41.99409	-72.25688	41160	2.6	Muck	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3	0
12	6	40	Mark June-Wells	41.99416	-72.25677	41160	2.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	1	0
12	7	50	Mark June-Wells	41.99426	-72.25677	41160	2.5	Muck	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	4	0	0	0	0	4	0
12	8	60	Mark June-Wells	41.99438	-72.25686	41160	2.5	Muck	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	2	0	0	0	0	0	0
12	9	70	Mark June-Wells	41.99446	-72.25683	41160	2.3	Muck	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	2	0
12	10	80	Mark June-Wells	41.99454	-72.25681	41160	2.2	Muck	0	3	0	0	1	0	0	0	0	0	0	0	0	3	0	1	1	0	4	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2012 (4 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	EgeDen	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	MyrHum	NajFle	NupVar	NymOdo	PonCor	PotBic	PotNat	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
13	1	1	Mark June-Wells	41.99670	-72.25574	41160	0.1	Gravel	0	0	2	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	2	5	Mark June-Wells	41.99676	-72.25580	41160	0.5	Gravel	0	0	0	3	0	0	2	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
13	3	10	Mark June-Wells	41.99673	-72.25587	41160	0.8	Muck	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	4	20	Mark June-Wells	41.99672	-72.25602	41160	1.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0
13	5	30	Mark June-Wells	41.99673	-72.25614	41160	1.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0	0	0	0	0
13	6	40	Mark June-Wells	41.99678	-72.25628	41160	2.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	7	50	Mark June-Wells	41.99679	-72.25636	41160	2.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
13	8	60	Mark June-Wells	41.99674	-72.25649	41160	2.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
13	9	70	Mark June-Wells	41.99680	-72.25663	41160	2.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
13	10	80	Mark June-Wells	41.99680	-72.25672	41160	2.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
14	1	1	Mark June-Wells	42.00324	-72.25612	41159	0.5	Gravel	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
14	2	5	Mark June-Wells	42.00327	-72.25621	41159	2.4	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	3	10	Mark June-Wells	42.00324	-72.25627	41159	3.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14	4	20	Mark June-Wells	42.00330	-72.25637	41159	4.0	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	5	30	Mark June-Wells	42.00327	-72.25646	41159	4.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	6	40	Mark June-Wells	42.00329	-72.25661	41159	4.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	7	50	Mark June-Wells	42.00333	-72.25672	41159	4.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	8	60	Mark June-Wells	42.00334	-72.25682	41159	4.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	9	70	Mark June-Wells	42.00336	-72.25692	41159	4.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	10	80	Mark June-Wells	42.00340	-72.25706	41159	4.4	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	1	1	Mark June-Wells	42.00843	-72.25531	41159	0.2	Gravel	0	0	1	3	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
15	2	5	Mark June-Wells	42.00842	-72.25538	41159	1.0	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
15	3	10	Mark June-Wells	42.00847	-72.25543	41159	2.1	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	20	Mark June-Wells	42.00845	-72.25555	41159	3.2	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	5	30	Mark June-Wells	42.00844	-72.25568	41159	3.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
15	6	40	Mark June-Wells	42.00845	-72.25583	41159	3.5	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	7	50	Mark June-Wells	42.00847	-72.25592	41159	3.6	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	8	60	Mark June-Wells	42.00847	-72.25605	41159	3.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	9	70	Mark June-Wells	42.00849	-72.25618	41159	3.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	10	80	Mark June-Wells	42.00853	-72.25627	41159	3.9	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2019 (1 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	LudSpp	MyrHum	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotSpp	PotZos	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
1	1	0.5	Summer Stebbins	42.01063	-72.25444	9/9/2019	0.1	Sand	0	2	2	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	2	5	Summer Stebbins	42.01062	-72.25449	9/9/2019	0.6	Muck	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
1	3	10	Summer Stebbins	42.01062	-72.25454	9/9/2019	0.8	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	4
1	4	20	Summer Stebbins	42.01060	-72.25467	9/9/2019	1.3	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
1	5	30	Summer Stebbins	42.01062	-72.25482	9/9/2019	1.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1	6	40	Summer Stebbins	42.01057	-72.25491	9/9/2019	2.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
1	7	50	Summer Stebbins	42.01058	-72.25505	9/9/2019	2.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	8	60	Summer Stebbins	42.01062	-72.25516	9/9/2019	2.7	Silt	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0
1	9	70	Summer Stebbins	42.01065	-72.25529	9/9/2019	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	10	80	Summer Stebbins	42.01067	-72.25541	9/9/2019	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	0.5	Summer Stebbins	42.01188	-72.25406	9/9/2019	0.2	Gravel	0	2	3	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	2	0	0	0	0	0	2	0
2	2	5	Summer Stebbins	42.01191	-72.25409	9/9/2019	0.4	Gravel	0	0	0	0	2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	2	2
2	3	10	Summer Stebbins	42.01192	-72.25417	9/9/2019	0.8	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	4
2	4	20	Summer Stebbins	42.01195	-72.25429	9/9/2019	1.8	Organic	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	4
2	5	30	Summer Stebbins	42.01195	-72.25440	9/9/2019	2.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2	6	40	Summer Stebbins	42.01196	-72.25453	9/9/2019	2.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	7	50	Summer Stebbins	42.01198	-72.25463	9/9/2019	2.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	8	60	Summer Stebbins	42.01197	-72.25480	9/9/2019	2.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	9	70	Summer Stebbins	42.01199	-72.25492	9/9/2019	2.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	10	80	Summer Stebbins	42.01202	-72.25501	9/9/2019	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	0.5	Summer Stebbins	42.01449	-72.25392	9/4/2019	0.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
3	2	5	Summer Stebbins	42.01450	-72.25398	9/4/2019	0.8	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	10	Summer Stebbins	42.01452	-72.25404	9/4/2019	2.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	4	20	Summer Stebbins	42.01449	-72.25417	9/4/2019	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	5	30	Summer Stebbins	42.01448	-72.25430	9/4/2019	3.4	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	6	40	Summer Stebbins	42.01451	-72.25441	9/4/2019	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	7	50	Summer Stebbins	42.01456	-72.25452	9/4/2019	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	8	60	Summer Stebbins	42.01456	-72.25464	9/4/2019	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	9	70	Summer Stebbins	42.01458	-72.25477	9/4/2019	3.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	10	80	Summer Stebbins	42.01461	-72.25488	9/4/2019	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	0.5	Summer Stebbins	42.01655	-72.25418	9/4/2019	0.1	Organic	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0
4	2	5	Summer Stebbins	42.01650	-72.25426	9/4/2019	0.2	Organic	3	0	2	0	0	0	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0	0	0	0	2	0	2	2
4	3	10	Summer Stebbins	42.01648	-72.25430	9/4/2019	0.3	Muck	0	0	0	2	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	2	2
4	4	20	Summer Stebbins	42.01637	-72.25429	9/4/2019	0.6	Muck	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	2	2	2
4	5	30	Summer Stebbins	42.01629	-72.25426	9/4/2019	0.6	Muck	0	0	0	2	2	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	3
4	6	40	Summer Stebbins	42.01619	-72.25424	9/4/2019	0.7	Muck	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
4	7	50	Summer Stebbins	42.01610	-72.25421	9/4/2019	0.7	Muck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4	8	60	Summer Stebbins	42.01601	-72.25420	9/4/2019	1.0	Muck	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	4
4	9	70	Summer Stebbins	42.01593	-72.25420	9/4/2019	1.1	Muck	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	10	80	Summer Stebbins	42.01584	-72.25420	9/4/2019	1.3	Muck	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	4

Appendix Staffordville Reservoir Transect Data 2019 (2 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	LudSpp	MyrHum	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotSpp	PotZos	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
5	1	0.5	Summer Stebbins	42.01757	-72.25861	9/5/2019	0.1	Muck	2	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5	2	5	Summer Stebbins	42.01752	-72.25861	9/5/2019	0.2	Muck	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5	3	10	Summer Stebbins	42.01748	-72.25861	9/5/2019	0.3	Muck	2	0	2	0	0	0	0	0	0	0	2	3	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0
5	4	20	Summer Stebbins	42.01737	-72.25857	9/5/2019	0.4	Muck	4	0	2	0	0	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0	0	3	1	0	0	0	0
5	5	30	Summer Stebbins	42.01729	-72.25860	9/5/2019	0.4	Muck	4	0	2	0	0	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	2	1	2	0	0	0	0	0
5	6	40	Summer Stebbins	42.01720	-72.25860	9/5/2019	0.4	Muck	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0
5	7	50	Summer Stebbins	42.01711	-72.25862	9/5/2019	0.4	Muck	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
5	8	60	Summer Stebbins	42.01702	-72.25862	9/5/2019	0.4	Muck	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	2	0	0	0	0
5	9	70	Summer Stebbins	42.01692	-72.25859	9/5/2019	0.4	Muck	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0
5	10	80	Summer Stebbins	42.01682	-72.25857	9/5/2019	0.4	Muck	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0
6	1	0.5	Summer Stebbins	42.01492	-72.25747	9/4/2019	0.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2	0
6	2	5	Summer Stebbins	42.01492	-72.25739	9/4/2019	1.7	Organic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	3	10	Summer Stebbins	42.01491	-72.25733	9/4/2019	2.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	4	20	Summer Stebbins	42.01489	-72.25720	9/4/2019	2.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
6	5	30	Summer Stebbins	42.01491	-72.25710	9/4/2019	2.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
6	6	40	Summer Stebbins	42.01493	-72.25698	9/4/2019	2.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	2	0
6	7	50	Summer Stebbins	42.01490	-72.25685	9/4/2019	2.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0
6	8	60	Summer Stebbins	42.01492	-72.25672	9/4/2019	2.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	2	0
6	9	70	Summer Stebbins	42.01494	-72.25663	9/4/2019	2.0	Silt	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0
6	10	80	Summer Stebbins	42.01493	-72.25643	9/4/2019	2.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	2	0	0	0	0	0	2
7	1	0.5	Summer Stebbins	42.01286	-72.25649	9/5/2019	0.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
7	2	5	Summer Stebbins	42.01285	-72.25643	9/5/2019	0.6	Silt	0	0	2	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0
7	3	10	Summer Stebbins	42.01286	-72.25634	9/5/2019	1.1	Silt	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	4	20	Summer Stebbins	42.01289	-72.25623	9/5/2019	1.5	Silt	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0
7	5	30	Summer Stebbins	42.01287	-72.25611	9/5/2019	1.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2	0	0	0	0	0	0
7	6	40	Summer Stebbins	42.01292	-72.25599	9/5/2019	2.2	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	7	50	Summer Stebbins	42.01289	-72.25586	9/5/2019	2.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	8	60	Summer Stebbins	42.01295	-72.25575	9/5/2019	2.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	9	70	Summer Stebbins	42.01299	-72.25565	9/5/2019	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	10	80	Summer Stebbins	42.01298	-72.25552	9/5/2019	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	0.5	Summer Stebbins	42.01019	-72.25727	9/5/2019	0.2	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8	2	5	Summer Stebbins	42.01016	-72.25715	9/5/2019	0.5	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8	3	10	Summer Stebbins	42.01016	-72.25707	9/5/2019	1.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	4	20	Summer Stebbins	42.01014	-72.25695	9/5/2019	3.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	5	30	Summer Stebbins	42.01010	-72.25682	9/5/2019	3.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	6	40	Summer Stebbins	42.01012	-72.25671	9/5/2019	3.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	7	50	Summer Stebbins	42.01012	-72.25661	9/5/2019	3.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	60	Summer Stebbins	42.01011	-72.25647	9/5/2019	3.4	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	9	70	Summer Stebbins	42.01011	-72.25635	9/5/2019	3.4	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	10	80	Summer Stebbins	42.01011	-72.25625	9/5/2019	3.4	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Staffordville Reservoir Transect Data 2019 (3 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	LudSpp	MyrHum	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotSpp	PotZos	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
9	1	0.5	Summer Stebbins	42.00467	-72.25832	9/5/2019	0.8	Sand	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9	2	5	Summer Stebbins	42.00466	-72.25827	9/5/2019	1.0	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	3	10	Summer Stebbins	42.00467	-72.25822	9/5/2019	2.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	4	20	Summer Stebbins	42.00468	-72.25808	9/5/2019	3.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	5	30	Summer Stebbins	42.00466	-72.25796	9/5/2019	3.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	6	40	Summer Stebbins	42.00466	-72.25785	9/5/2019	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	7	50	Summer Stebbins	42.00467	-72.25774	9/5/2019	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	8	60	Summer Stebbins	42.00469	-72.25761	9/5/2019	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	9	70	Summer Stebbins	42.00469	-72.25749	9/5/2019	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	10	80	Summer Stebbins	42.00468	-72.25736	9/5/2019	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	0.5	Summer Stebbins	42.00160	-72.25908	9/5/2019	0.1	Sand	0	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
10	2	5	Summer Stebbins	42.00162	-72.25902	9/5/2019	1.4	Sand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
10	3	10	Summer Stebbins	42.00163	-72.25899	9/5/2019	1.4	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
10	4	20	Summer Stebbins	42.00162	-72.25883	9/5/2019	2.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	5	30	Summer Stebbins	42.00162	-72.25873	9/5/2019	3.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	6	40	Summer Stebbins	42.00161	-72.25860	9/5/2019	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	7	50	Summer Stebbins	42.00160	-72.25847	9/5/2019	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	8	60	Summer Stebbins	42.00160	-72.25835	43713	3.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9	70	Summer Stebbins	42.00160	-72.25824	43713	3.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	10	80	Summer Stebbins	42.00161	-72.25811	43713	3.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	1	Summer Stebbins	41.99755	-72.25938	43713	0.1	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
11	2	5	Summer Stebbins	41.99755	-72.25933	43713	0.5	Gravel	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0
11	3	10	Summer Stebbins	41.99755	-72.25926	43713	0.5	Gravel	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0
11	4	20	Summer Stebbins	41.99754	-72.25915	43713	3.6	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	5	30	Summer Stebbins	41.99757	-72.25902	43713	3.9	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	6	40	Summer Stebbins	41.99754	-72.25889	43713	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	7	50	Summer Stebbins	41.99752	-72.25878	43713	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	8	60	Summer Stebbins	41.99752	-72.25868	43713	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	9	70	Summer Stebbins	41.99754	-72.25856	43713	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	10	80	Summer Stebbins	41.99756	-72.25843	43713	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	1	Summer Stebbins	41.99377	-72.25684	43717	0.1	Sand	0	0	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
12	2	5	Summer Stebbins	41.99381	-72.25684	43717	0.9	Silt	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
12	3	10	Summer Stebbins	41.99386	-72.25685	43717	2.2	Silt	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	4	20	Summer Stebbins	41.99395	-72.25688	43717	2.2	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	5	30	Summer Stebbins	41.99406	-72.25686	43717	2.2	Silt	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	6	40	Summer Stebbins	41.99414	-72.25687	43717	2.2	Silt	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
12	7	50	Summer Stebbins	41.99422	-72.25688	43717	2.2	Silt	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12	8	60	Summer Stebbins	41.99431	-72.25685	43717	1.9	Silt	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	9	70	Summer Stebbins	41.99441	-72.25687	43717	1.9	Silt	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	10	80	Summer Stebbins	41.99448	-72.25688	43717	1.9	Silt	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Appendix Staffordville Reservoir Transect Data 2019 (4 of 4)

Transect	Point	Distance from Shore (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Brasch	ElaSpp	EleSpp	EloNut	EriAqu	GraAur	IsoSpp	LudSpp	MyrHum	NajGra	NupVar	NymOdo	PonCor	PotBic	PotEpi	PotNat	PotSpp	PotZos	ProPal	SagSpp	SpaSpp	UtrGib	UtrInt	UtrMac	UtrMin	UtrPur	UtrRad	ValAme
13	1	1	Summer Stebbins	41.99675	-72.25572	43717	0.1	Muck	0	2	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
13	2	5	Summer Stebbins	41.99673	-72.25577	43717	0.4	Gravel	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
13	3	10	Summer Stebbins	41.99672	-72.25585	43717	0.6	Muck	0	0	3	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
13	4	20	Summer Stebbins	41.99671	-72.25598	43717	1.1	Muck	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	2	0	0	2	3
13	5	30	Summer Stebbins	41.99672	-72.25609	43717	1.3	Muck	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
13	6	40	Summer Stebbins	41.99670	-72.25622	43717	1.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	7	50	Summer Stebbins	41.99674	-72.25634	43717	1.8	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
13	8	60	Summer Stebbins	41.99676	-72.25647	43717	2.0	Silt	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
13	9	70	Summer Stebbins	41.99672	-72.25659	43717	2.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
13	10	80	Summer Stebbins	41.99671	-72.25672	43717	2.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	2
14	1	1	Summer Stebbins	42.00321	-72.25606	43717	0.1	Gravel	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
14	2	5	Summer Stebbins	42.00320	-72.25614	43717	1.8	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
14	3	10	Summer Stebbins	42.00319	-72.25621	43717	2.8	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	4	20	Summer Stebbins	42.00317	-72.25632	43717	3.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	5	30	Summer Stebbins	42.00317	-72.25644	43717	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	6	40	Summer Stebbins	42.00317	-72.25656	43717	4.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	7	50	Summer Stebbins	42.00317	-72.25668	43717	4.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	8	60	Summer Stebbins	42.00316	-72.25680	43717	4.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	9	70	Summer Stebbins	42.00318	-72.25694	43717	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	10	80	Summer Stebbins	42.00317	-72.25706	43717	4.1	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	1	1	Summer Stebbins	42.00845	-72.25531	43717	0.1	Gravel	0	2	2	0	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
15	2	5	Summer Stebbins	42.00844	-72.25536	43717	0.6	Gravel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
15	3	10	Summer Stebbins	42.00847	-72.25544	43717	2.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	20	Summer Stebbins	42.00849	-72.25556	43717	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	5	30	Summer Stebbins	42.00850	-72.25562	43717	3.0	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	6	40	Summer Stebbins	42.00850	-72.25581	43717	3.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	7	50	Summer Stebbins	42.00853	-72.25593	43717	3.3	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	8	60	Summer Stebbins	42.00855	-72.25603	43717	3.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	9	70	Summer Stebbins	42.00856	-72.25618	43717	3.5	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	10	80	Summer Stebbins	42.00857	-72.25627	43717	3.7	Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0