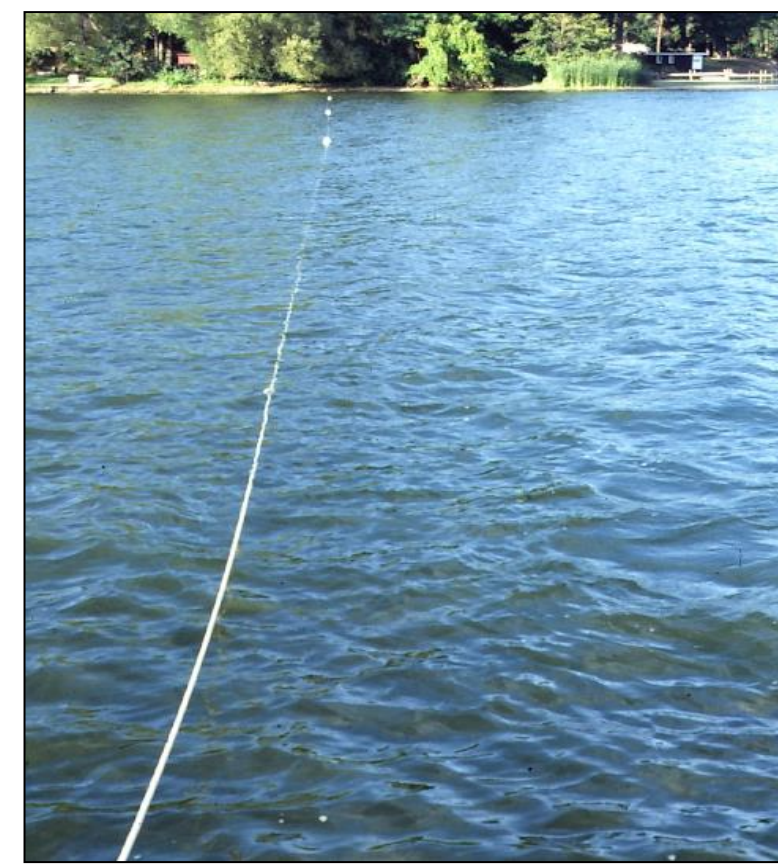
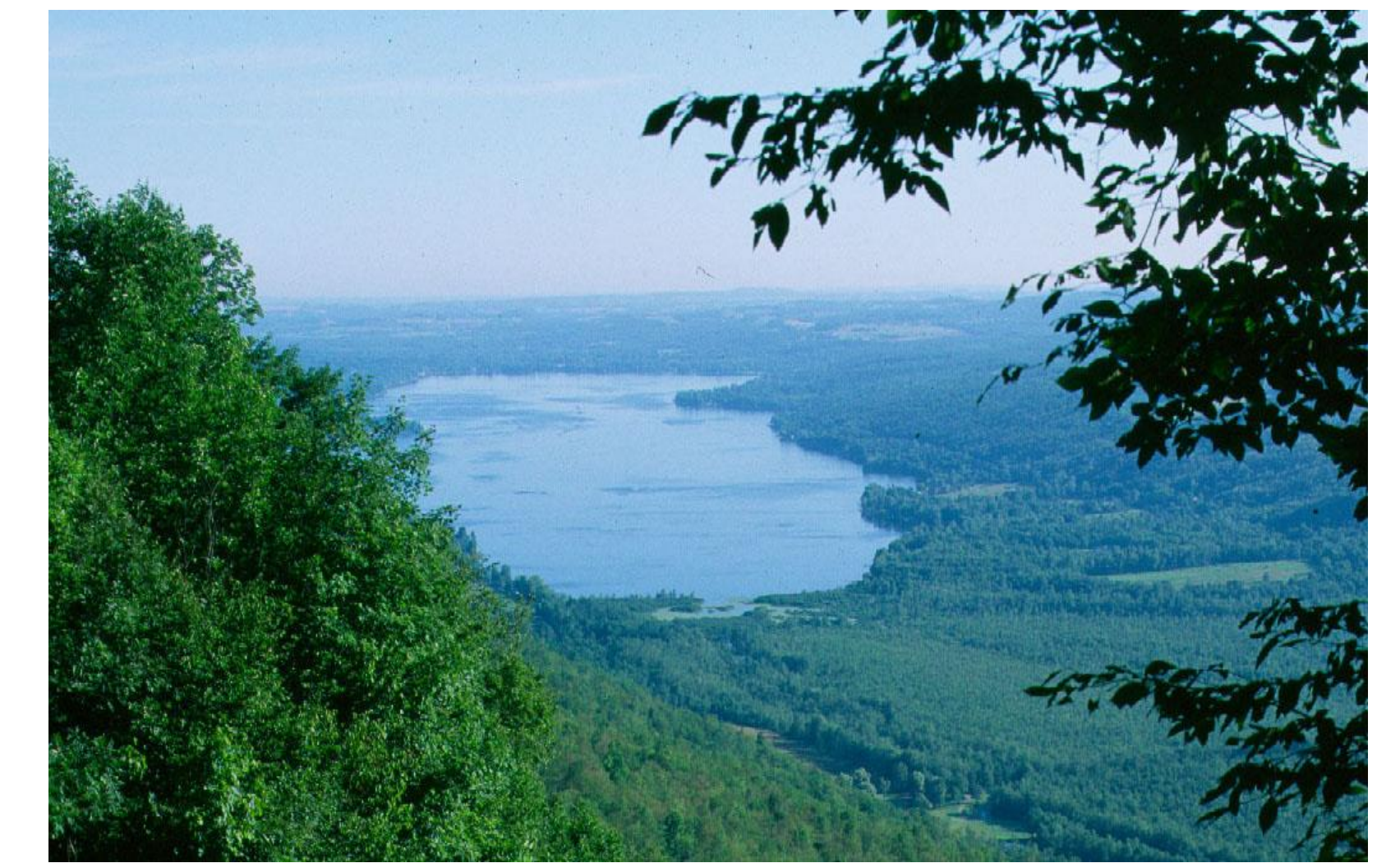
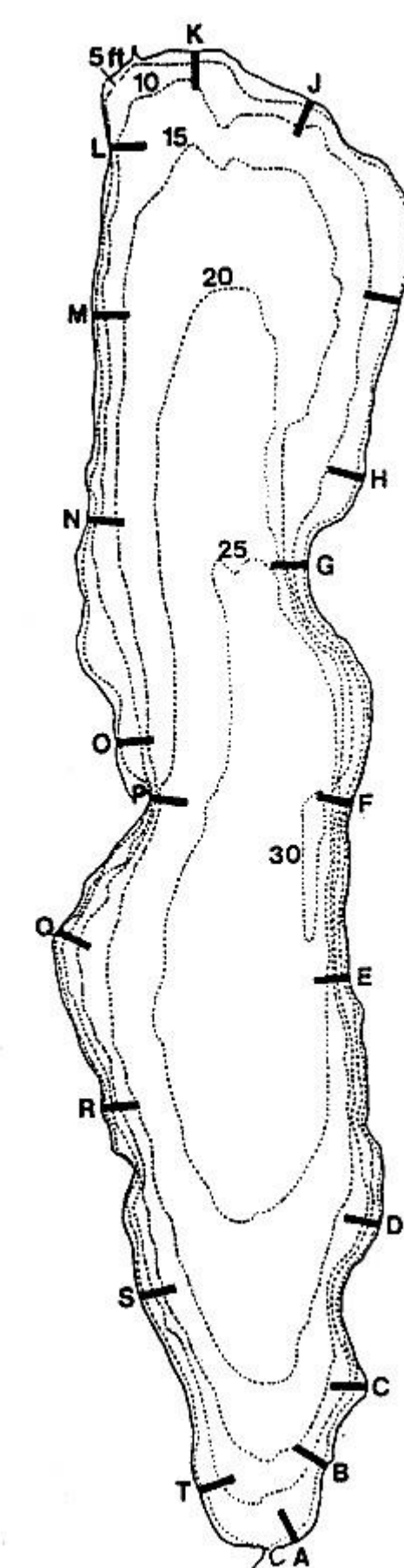


THIRTY YEARS OF CHANGE IN THE FALL STANDING CROP BIOMASS OF MACROPHYTE COMMUNITIES IN HONEOYE LAKE

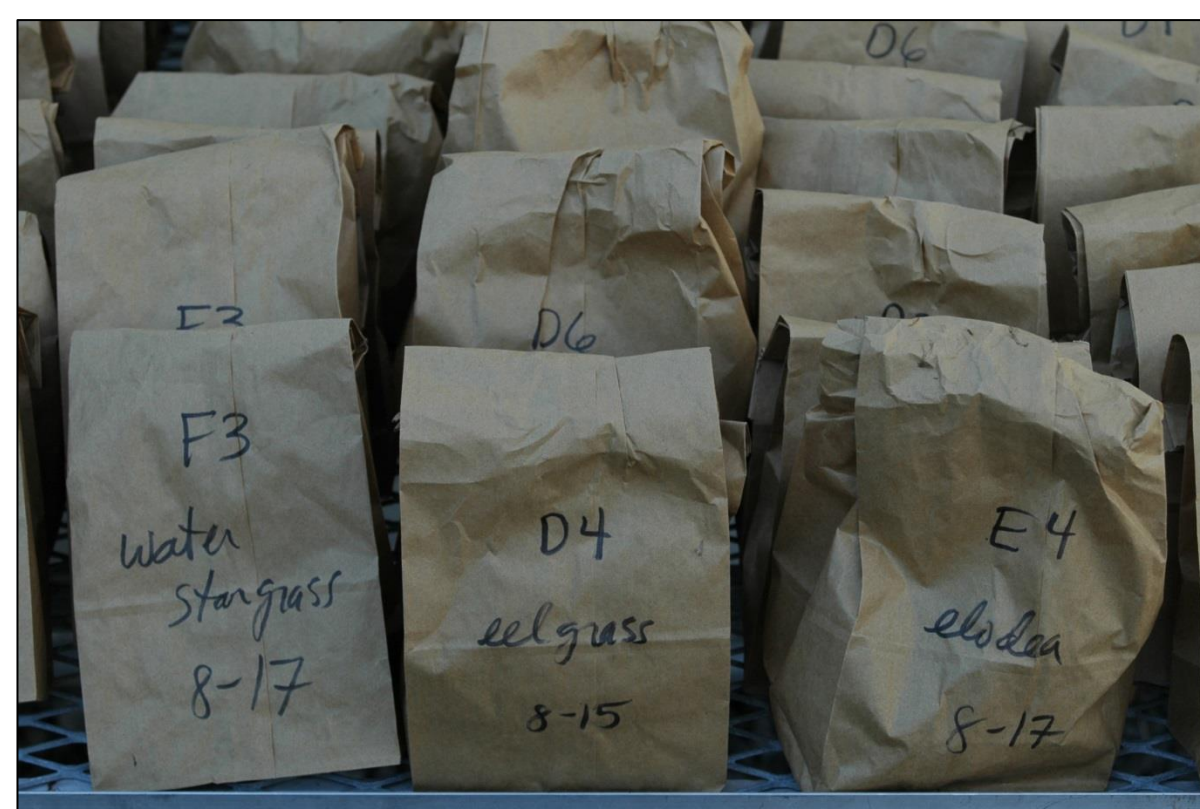
Bruce Gilman, John Foust, Jason Hanselman
 Department of Environmental Conservation and Horticulture
 Finger Lakes Community College
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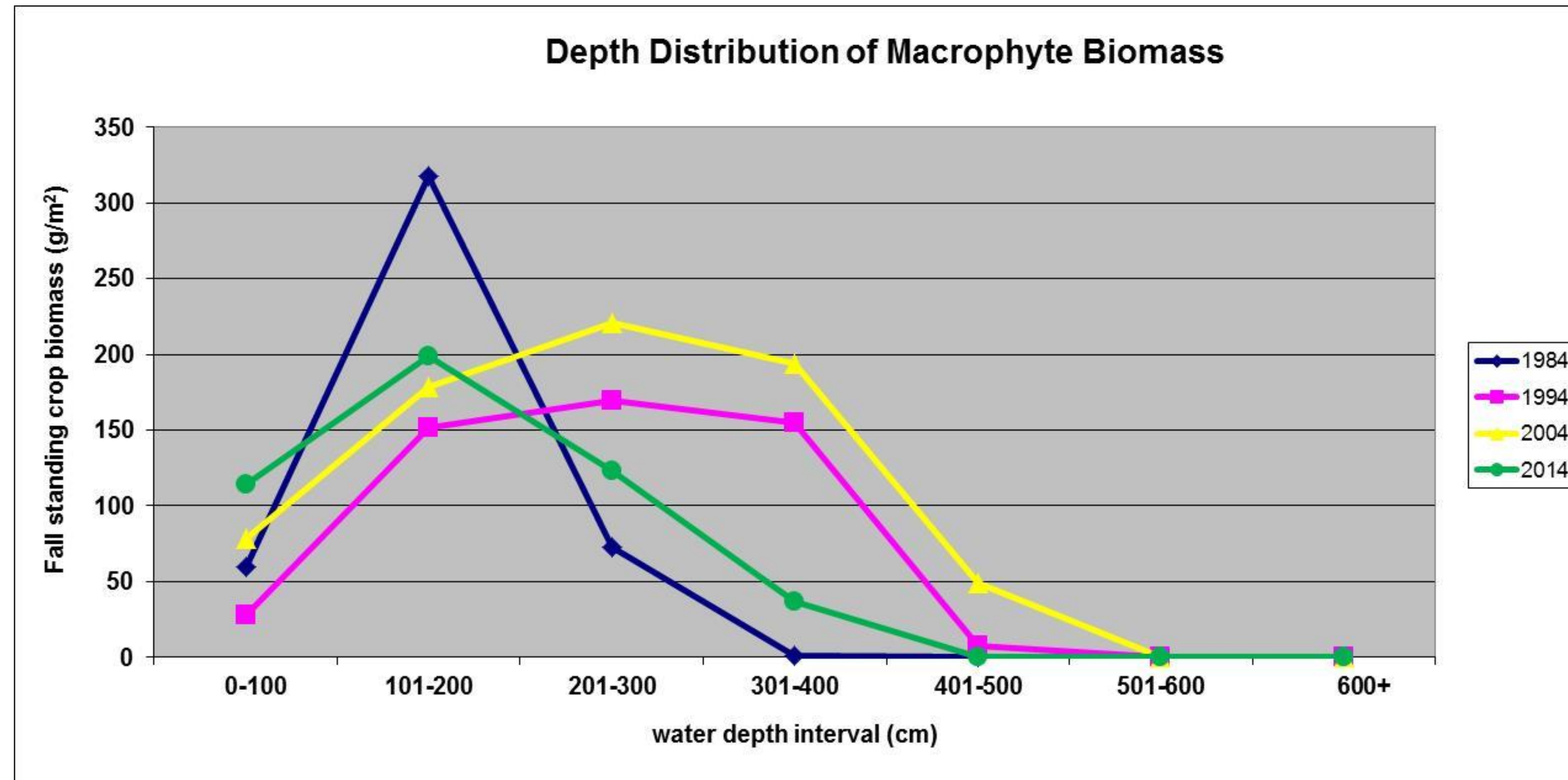
Aquatic macrophyte communities were sampled along 20 transects through use of SCUBA. Each transect began at the shoreline and extended perpendicularly towards the lake center.



Plants were hand harvested within submerged quadrat frames from five sites of varying water depth along each transect, then sorted by species and air-dried in the college greenhouse.

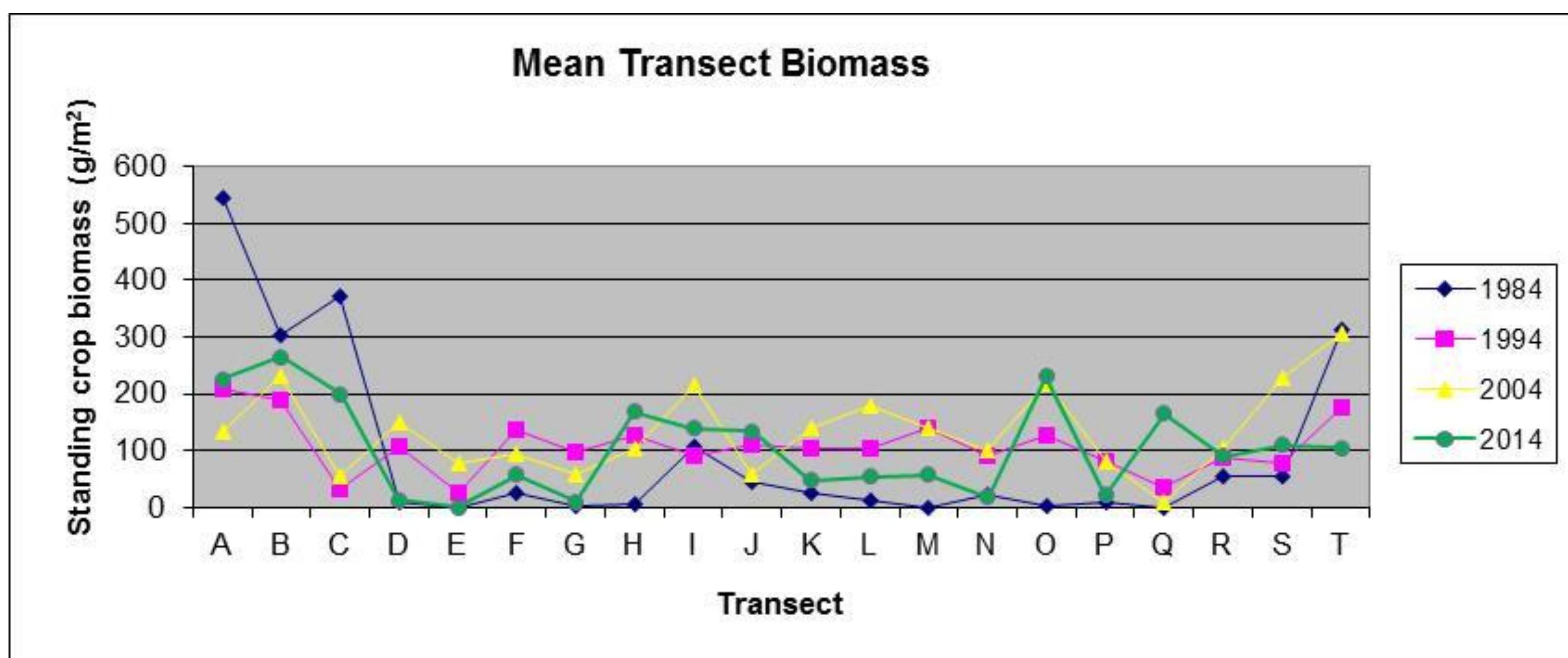


Individual sites were summarized by species composition, sample richness, overall diversity and standing crop biomass. Among the year 2014 samples, richness ranged from 1 to 13 species while dry weight biomass ranged from 0.06 g/m² to 516.56 g/m².

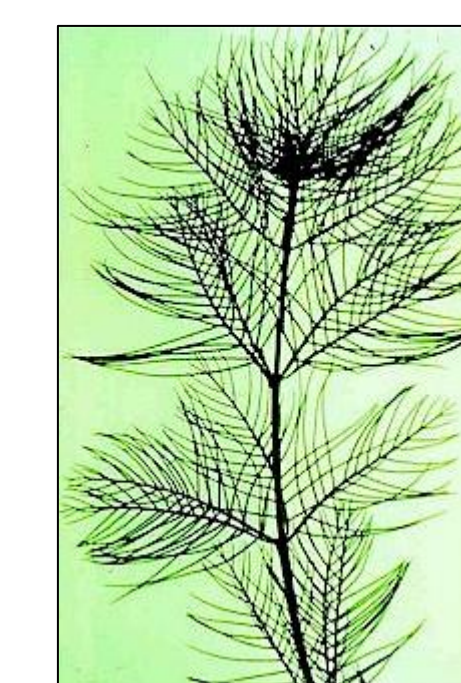


Each year, fall standing crop biomass is affected by water clarity, nutrient loading, growing season conditions and interspecific competition among vascular species as well as with littoral algae and periphyton. Variability produces dynamic responses in plant community structure and function.

In 2014, macrophyte community composition was dominated by native species including eelgrass (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), flat-stem pondweed (*Potamogeton zosteriformis*), water stargrass (*Heteranthera dubia*), small pondweed (*Potamogeton pusillus*), elodea (*Elodea canadensis*), star-leaved duckweed (*Lemna trisulca*), large-leaf pondweed (*Potamogeton amplifolius*) and clasping-leaf pondweed (*Potamogeton richardsonii*).



Similar investigations in 1984, 1994 and 2004 allow for thirty year trend analyses in macrophyte fall standing crop biomass. Flux in transect data is influenced by changing maximum depth of the littoral zone (1984: 4.30 m, 1994: 5.70 m, 2004: 5.35 m, 2014: 3.72 m) among other factors.



	1984	1994	2004	2014	mean
Eelgrass (<i>Vallisneria americana</i>)	44.2	12.7	15.0	30.7	25.7
Eurasian water milfoil (<i>Myriophyllum spicatum</i>) *	6.2	34.9	13.8	7.1	15.5
Coontail (<i>Ceratophyllum demersum</i>)	8.6	9.9	22.1	21.1	15.4
Water stargrass (<i>Heteranthera dubia</i>)	8.0	5.2	11.4	8.5	8.3
Elodea (<i>Elodea canadensis</i>)	6.5	7.3	10.0	4.8	7.1
Large-leaf pondweed (<i>Potamogeton amplifolius</i>)	7.3	7.0	10.1	3.7	7.0
Flat-stem pondweed (<i>Potamogeton zosteriformis</i>)	1.8	5.8	4.7	6.0	4.6
Star-leaved duckweed (<i>Lemna trisulca</i>)	3.8	3.4	3.5	3.5	3.6
Curly-leaf pondweed (<i>Potamogeton crispus</i>) *	3.0	4.1	0.7	3.9	2.9
Water marigold (<i>Bidens beckii</i>)	6.0	1.5	1.6	0.0	2.3
Small pondweed (<i>Potamogeton pusillus</i>)	0.0	0.9	1.3	4.2	1.6
Clasping-leaf pondweed (<i>Potamogeton richardsonii</i>)	0.6	0.6	0.4	2.4	1.0

* invasive species

TABLE 1 – Relative importance values (%) of submerged aquatic vegetation in Honeoye Lake, 1984-2014. Importance value calculated as mean of relative frequency and relative dominance (derived from standing crop biomass data).



Acknowledgments: Ontario County Planning Department, Town of Canadice, Town of Richmond, Ontario County Water Resources Council, Finger Lakes Community College and the Crusher 5000!