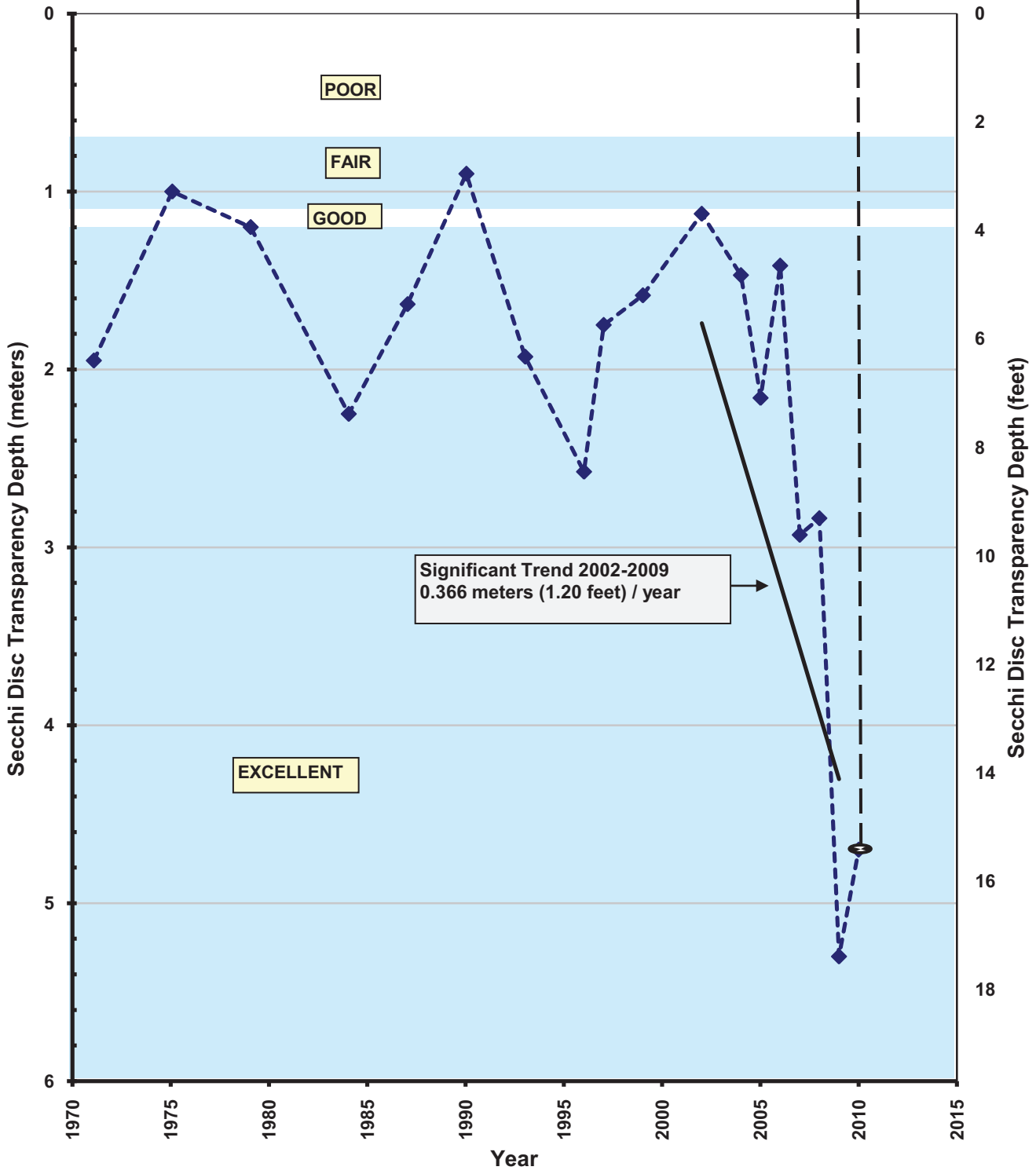
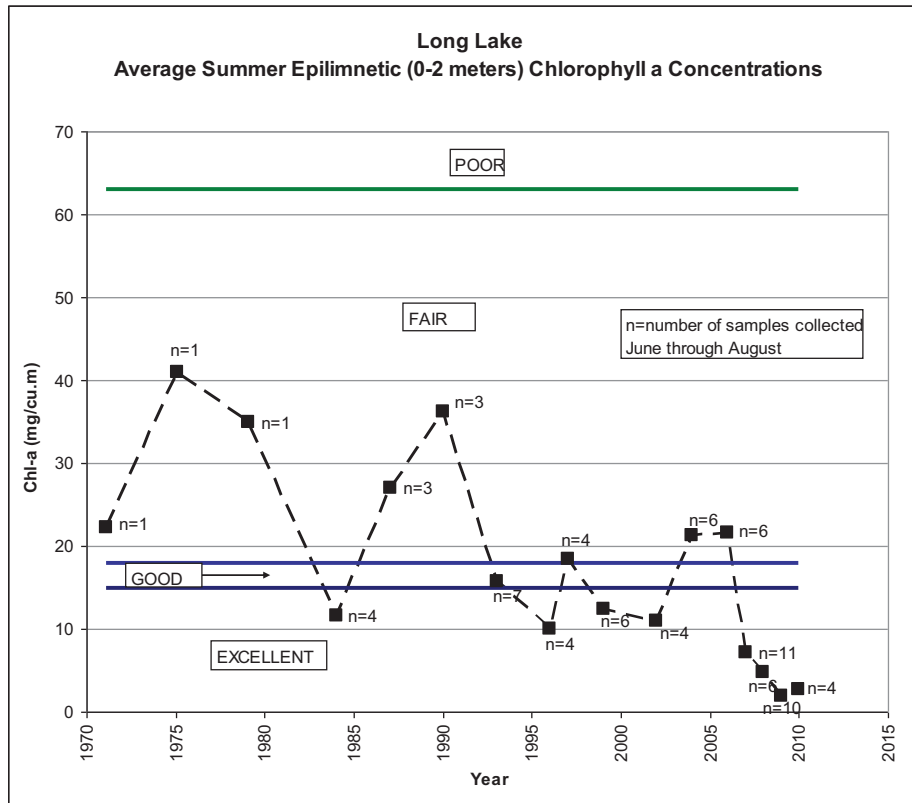
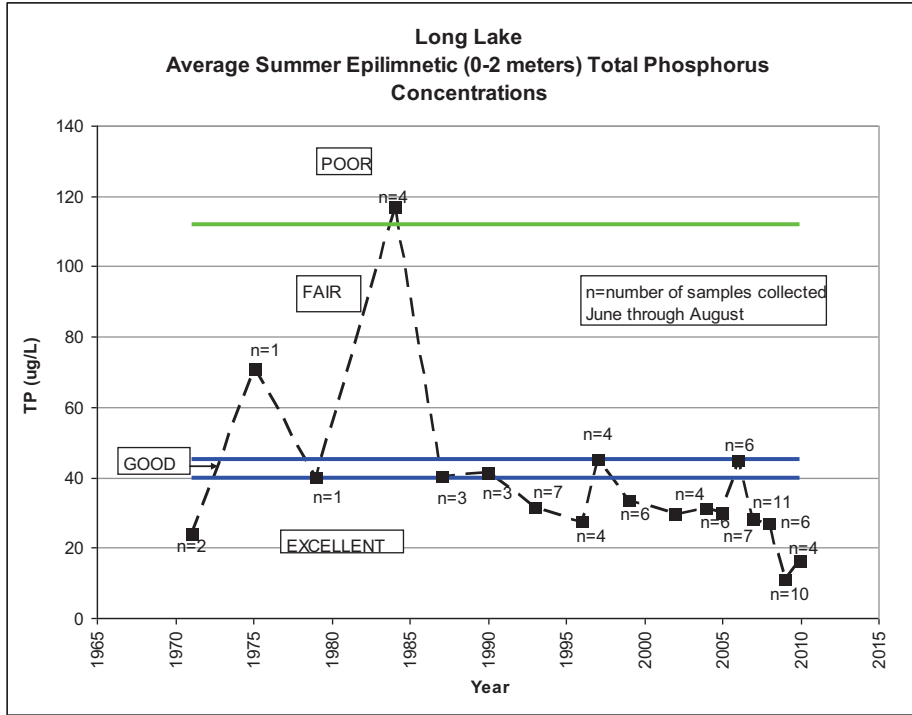


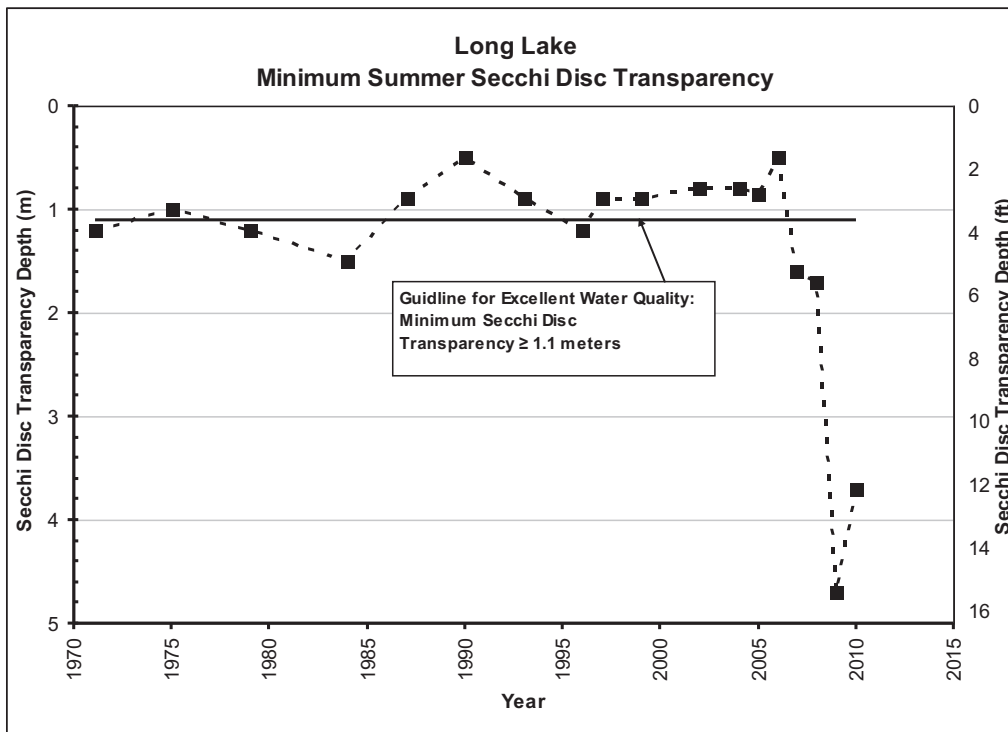
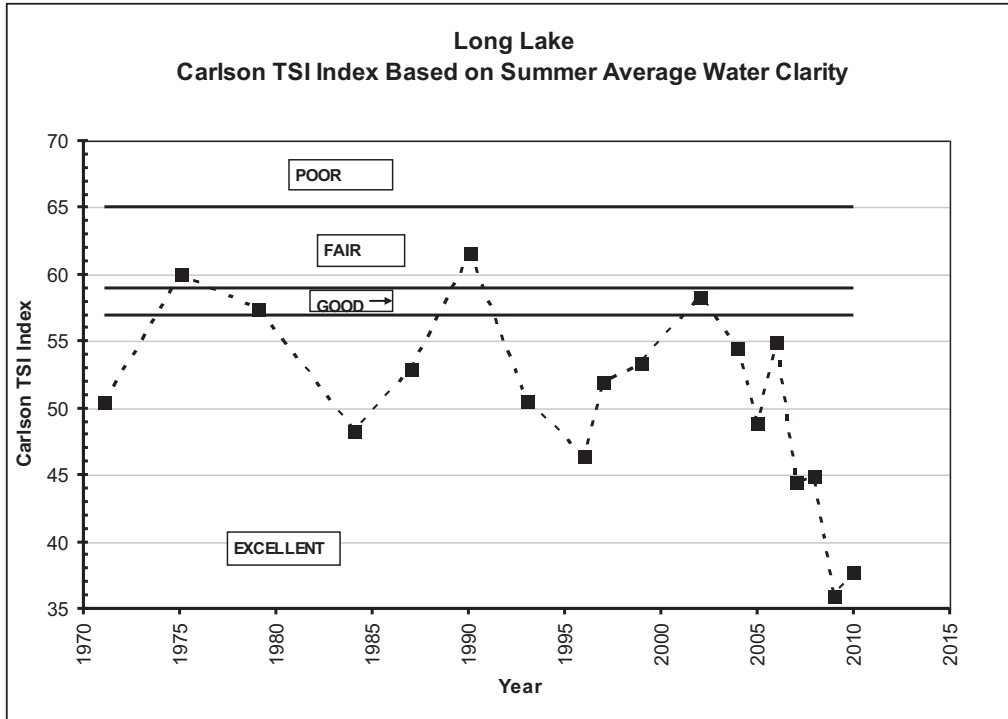
Long Lake



LONG LAKE
SUMMER AVERAGE WATER CLARITY
Valley Branch Watershed District

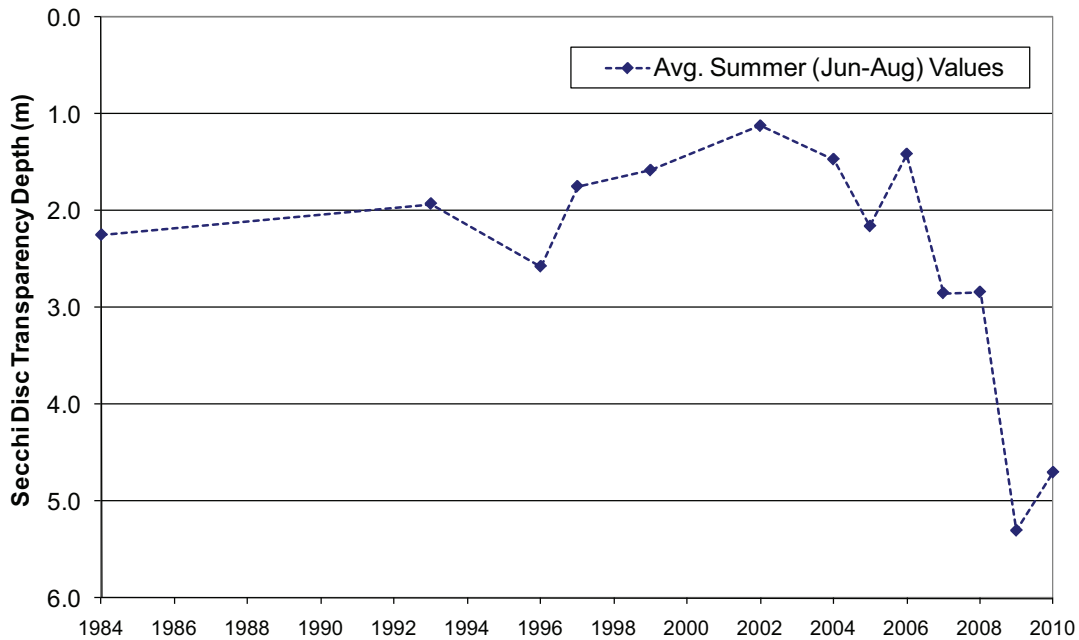


**LONG LAKE
HISTORIC WATER QUALITY DATA
Valley Branch Watershed District**



**LONG LAKE
HISTORIC WATER QUALITY DATA
Valley Branch Watershed District**

**Long Lake
Secchi Disc Transparency Depths**



**Mann-Kendall/Sen's Slope Trend Test
(Test Period – 2002 to 2010)**

Confidence Level	Test Statistic = 20	
	Test	Significance
99%	20 < 21	Not Significant
95%	20 > 17	Significant (Increasing)
90%	20 > 15	Significant (Increasing)
80%	20 > 12	Significant (Increasing)
Sen's Slope		0.483 meters/year

Notes:

1. Points shown in the graph are the summer average (June-August) Secchi disc transparency depths. Only years with a calculated summer average based on at least 4 measured values are plotted. At least 5 data points were required to complete the trend test.

Aquatic Vegetation Summary

Lake: Long Lake

AV Surveys

Date 6/15/10
Points Sampled 163

Summary for All Points

Maximum Depth of Growth (m) 8.2
% Basin Area Vegetated 57%
% Basin with Surface Vegetation (plants within 0.25 m of surface) 25%
% Littoral Volume Vegetated (estimated) 77%

Summary for Points $\leq 4.6m$

Points Sampled 95
Vegetated Points 94
% Vegetated 99%
Avg # Submersed Taxa / Point 1.3
 Σ RF - Submersed Taxa 0.932
Avg # Submersed Natives / Point 1.4
Invasive Taxa 2
 Σ RF - Invasive Taxa 0.765
Non-vascular Taxa 0
Avg # Sensitive Taxa / Point 0.0
 Σ RF - Sensitive Taxa (Nichols, 2000) 0.000
% Points w/ Floating Taxa 3%
% Points w/ Emergent Taxa 5%

Diversity

Survey Species Richness 15
Annual Species Richness 15
Simpson Diversity $[1 - \sum(RF^2)]$ 0.48
AMCI (Nichols et al., 2000) 21

Floristic Quality

Survey Mean C 3.8
Survey FQI 13.7
Annual Mean C 4.4
Annual FQI 15.8

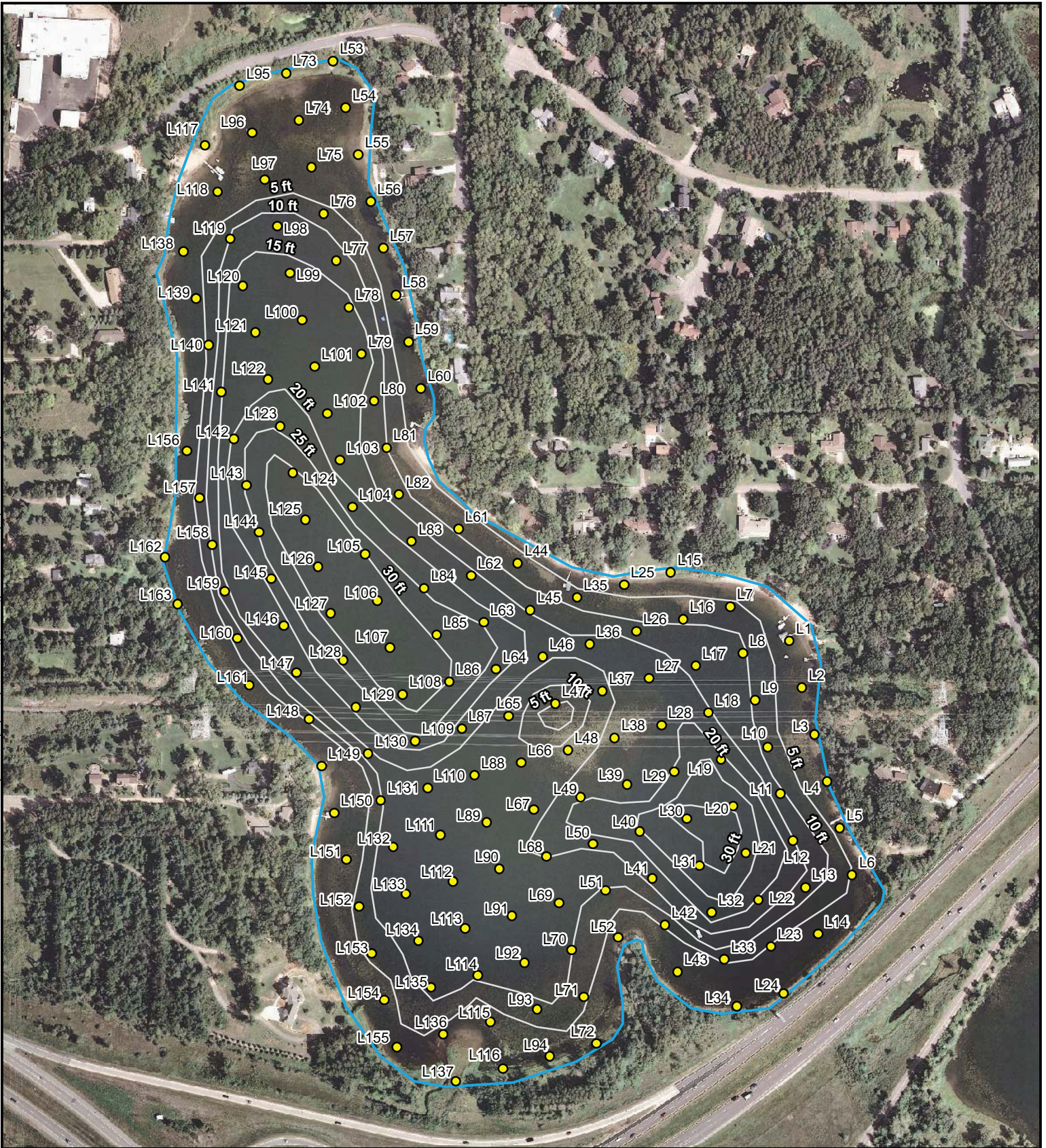
Lake: Long Lake

Date 6/15/10

Frequency of Occurrence $\leq 4.6m$

<i>Myriophyllum spicatum</i> *	Eurasian water milfoil	99
<i>Zosterella dubia</i>	Water stargrass	13
<i>Potamogeton crispus</i>	Curlyleaf pondweed	7
<i>Lemna minor</i>	Small duckweed	3
<i>Lemna trisulca</i>	Star duckweed	3
<i>Najas flexilis</i>	Bushy pondweed	3
<i>Schoenoplectus acutus</i>	Hardstem bulrush	3
<i>Typha</i> spp.	Cattail	2
<i>Phalaris arundinacea</i>	Reed Canary Grass	2
<i>Myriophyllum sibiricum</i>	Northern watermilfoil	1
<i>Spirodella polyrhiza</i>	Great duckweed	1
<i>Salix</i> spp.	Willow	1
<i>Eleocharis acicularis</i>	Needle spikerush	0
<i>Potamogeton</i> spp.	Narrow leaf pondweed	0
<i>Sparganium eurycarpum</i>	Common bur-reed	0

* *M. spicatum* with somewhat sparse leaflet pairs (10 to 15), possibly hybridized with *M. sibiricum*



- Macrophyte Point Intercept Locations
- 🌊 Long Lake Shoreline
- 📏 Depth Contours (5ft)

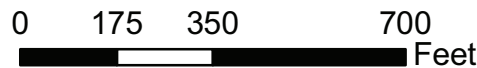
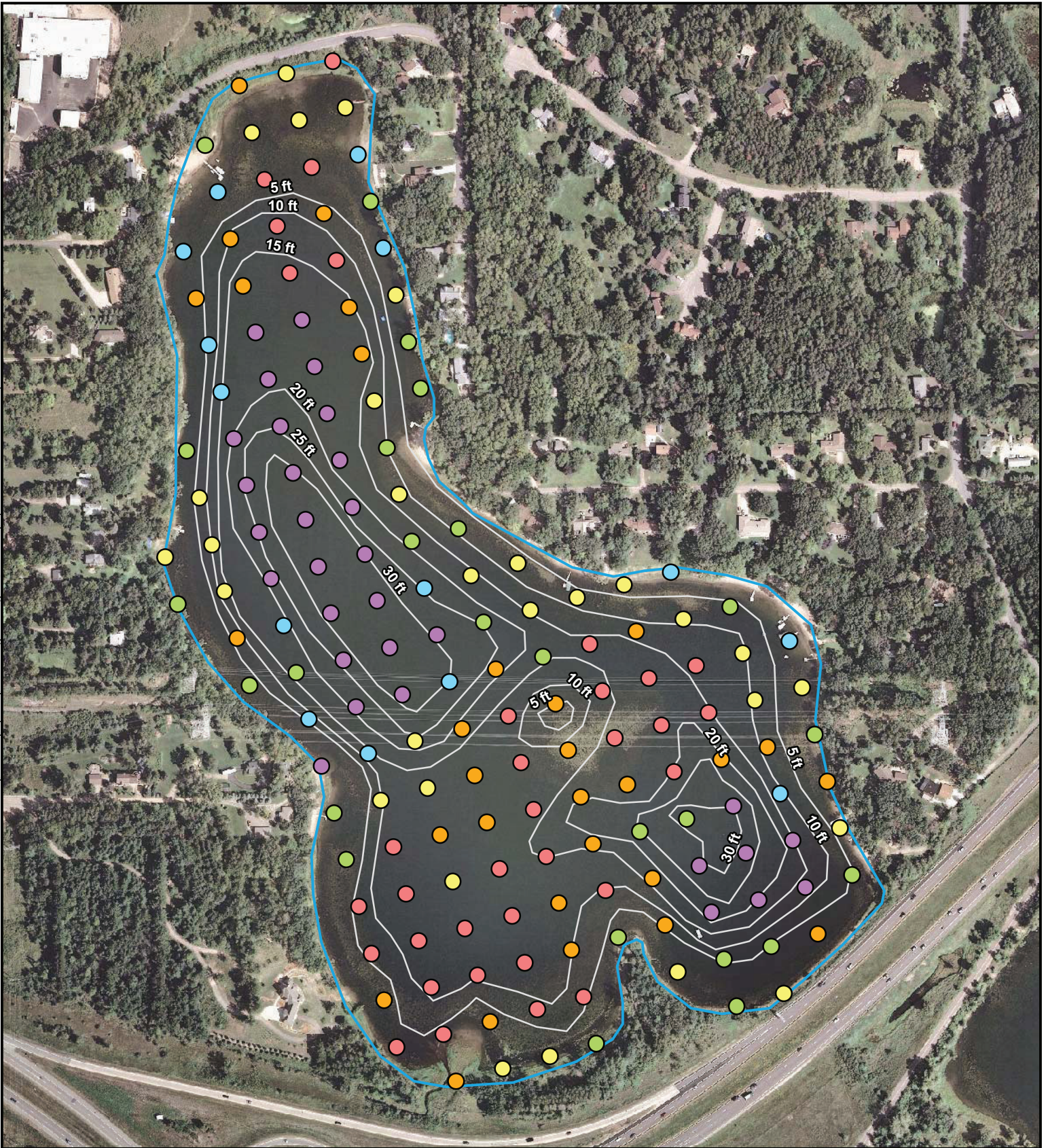


Figure - 1

Macrophyte Point Intercept
Survey Location IDs - 6/15/2010
Valley Branch Watershed District



Macrophyte Density
(6/15/2010)

- 0
- 1
- 2
- 3
- 4
- 5

Long Lake Shoreline
Depth Contours (5ft)



0 175 350 700 Feet

Figure - 2

Macrophyte Distribution and Density
Long Lake - 6/15/2010
Valley Branch Watershed District