



# **Forest Lake Improvement Committee**

## **2013 Lake Management Summary**

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### Water Quality Monitoring

Year	TP (mg/L)	TSS (mg/L)	SECCHI (feet)	COND (mS/cm)	TSI	LC Ranking
1985	0.144	18.6	2.10	N/A	N/A	N/A
2000	0.087	15.6	2.48	0.8450	68.7	60/86
2003	0.167	16.8	2.23	1.0776	78.0	113/130
2004	0.105	10.6	3.35	0.9767	71.0	113/161
2005	0.147	14.0	2.37	1.5816	76.1	130/162
2006	0.142	15.3	2.84	1.2298	75.3	130/162
2010	0.102	12.0	2.49	1.0390	70.0	116/165
2011	0.082	14.0	3.27	0.9120	68.0	95/171
2012	0.154	13.5	2.04	1.2450	76.8	139/171
<b>2013</b>	<b>0.061</b>	<b>13.6</b>	<b>2.35</b>	<b>1.79</b>	<b>63.4</b>	<b>N/A</b>
Lake County Median	0.066	8.6	2.95	0.8320	N/A	N/A
Forest Lake Avg '85-'12	0.126	14.4	2.57	1.1133	73.0	N/A

TP - Total Phosphorous, TSS - Total Suspended Solids, COND - conductivity, TSI - Trophic State Index

After two of the best years on record in 2010 and 2011, and a disastrous 2012 season caused by a curlyleaf pondweed outbreak, 2013 was THE BEST year in Forest Lake's recorded history. Following an early spring chemical treatment of curlyleaf pondweed, the lowest average total phosphorus (TP) level was recorded. Also, late-season increases in TP were not observed, which, combined with cooler than average temperatures, resulted in not a single blue-green algae bloom. 2013 was the first year Forest Lake's average TP level was below the county average.

### Curlyleaf Pond Weed Management

Curlyleaf pond weed (CLPW) dominated Forest Lake in 2012. CLPW begins its growing cycle under the winter ice, so the mild winters of 2011-2012 and 2012-13 allowed the curlyleaf population to explode in the spring of 2012 and 2013.

Because of its unique growth characteristics, CLPW is an invasive species that can essentially takeover the entire lake. It's tolerant to low-light and low-temperature, which enables it to out-complete native plants early in the season and spread into deeper water more easily. It reproduces through buds called turions, which a mature plant produces by the dozens. This unique reproductive method allows its population to grow exponentially. It also dies off in mid to late summer and provides nutrients for late summer algae blooms.

In the spring of 2013, the FLIC implemented a treatment program to selectively target the early-growing CLPW. The lake was treated with fluridone at a whole-lake concentration of 6ppm, which was held for 60 days. The results were excellent; the population of CLPW was essentially

eradicated and increased total phosphorus (TP) levels were not observed in the late summer. This suggests that the historical late-season spikes in TP were at least partially due to the lake's population of CLPW.

The FLIC will continue to monitor the CLPW population and take actions to eliminate it from Forest Lake. Because turions can lay dormant for years, subsequent fluridone treatments may be necessary over the next few years. Also, due to late ice-out and heavy spring precipitation, it is not always possible to treat the CLPW before native plants begin to grow. So the fluridone treatment may affect the native plant population. To counteract this, the FLIC will implement a program to reintroduce native plants to the lake over the next few years.

### **Inlet Testing Program and Watershed Analysis**

In an effort to obtain more information about the quality of the water entering Forest Lake, the FLIC implemented a second generation of water testing on the three main inlets in 2012. But low precipitation and low inlet flow did not allow sufficient sampling for a thorough analysis. Data collection was better in 2013, and will help the FLIC identify the source of undesirable phosphorus, chloride and sediment entering the lake.

The Lake Department of Lake County Environmental Health and Safety (LCEHS) was contracted to provide our first bathymetric map since 1995. The map was completed in 2013 and will aid the FLIC in determining what areas of the lake are accumulating sediment.

### **The State of the Aerators**

Based on the observations of the previous few years, the aerators in the main lake continued to remain off in 2013. The refurbished lagoon aerator was operated most of the summer with positive results. The resulting water movement significantly reduced the presence of blue-green algae while not disturbing the lake bottom. The FLIC will continue to monitor the conditions of the lagoon and address issues as they arise.

### **Shoreline Management and Rehabilitation Projects**

The condition of our shorelines is the only area of lake management that is completely dependent on the actions of Forest Lake residents. For that reason, the FLIC is highly involved in the promotion of proper shoreline rehabilitation and management. In an effort to lead by example, the FLIC/FLCA rehabilitated Central beach in 2013 and plans to restore the remaining lakefront beaches over the next few years.

As for private shorelines, lakefront residents continue to make an excellent effort in restoring their own shorelines. With the continued collaboration of the FLIC and concerned shoreline owners, shoreline erosion and its negative effects on the lake can be effectively eliminated in the coming years.

### **Fishery Management**

The lake was stocked with 540 1.5 lb channel catfish in 2013. The FLIC will continue to work with representatives of the DNR and Lake County Lake Management to establish a stocking plan that most effectively meets the needs of the Forest Lake anglers.