

2009 Southeast Anderson Lake Aquatic Plant Management

**Prepared for
Nine Mile Creek Watershed District**

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Executive Summary

A whole lake herbicide treatment of Southeast Anderson Lake was completed in the spring of 2009. The 2009 post-treatment plant surveys showed a significant reduction in curlyleaf pondweed (CLP) frequency and biomass relative to the pre-herbicide treatment survey. The April 2009 (pre-treatment) survey showed that CLP was present at 42 percent of the points sampled in Southeast Anderson Lake. Although there was an overall reduction in CLP frequency and biomass throughout the 2009 growing season, CLP frequency did increase between June and August, suggesting that additional CLP plants had likely grown from turions (seeds). CLP plants can produce up to 900 turions (seeds) annually and growth of plants from these turions can increase CLP plant coverage by nearly two orders of magnitude between spring and fall. Therefore, subsequent herbicide treatments will be needed to control CLP and suppress the production of turions.

A total of 21 native plant species were documented throughout the 2009 growing season in Southeast Anderson Lake. In June and August, native vegetation was dominated by coontail and Canada waterweed. Species richness increased significantly between the April/June surveys and the August survey. Based on Floristic Quality Index (FQI), the quality of the Southeast Anderson Lake plant community was slightly higher in August relative to April and June; this was partially due to the presence of more species in August.

Water quality measures improved in 2009 relative to water quality measures documented between 1971 and 2001. Secchi disc water transparency depths did not meet the Nine Mile Creek Watershed District (NMCWD) goal or the state standard in 1988, 1991, and 2000, and were just above the state standard in 1971, 1996, and 2001. The 2009 summer average Secchi disc water transparency depth increased substantially relative to historic measurements. Historically, chlorophyll *a* concentrations have not met the state standard and did not meet the NMCWD goal in 1988. The 2009 summer average chlorophyll *a* concentration decreased substantially relative to previous years, and the current summer average concentration (12.3 ug/L) is well below the state standard (≤ 20 ug/L). The 2009 summer average total phosphorus concentration is similar to the concentrations observed in 1991, 1996, and 2001; all of which were on the lower end (around 50 ug/L) of the historic range and meet both the NMCWD goal and the and state standard.

Currently, an alum treatment is planned for the spring of 2013. However, if water quality continues to improve and CLP continues to decline, it is possible that an alum treatment may not be necessary.

Continued herbicide treatment and plant and water quality monitoring will provide information to assess whether an alum treatment will be necessary in the future.