

**ASSESSMENT AND LONG-RANGE MANAGEMENT PLANNING  
FOR LAKE SOMERSET, HILLSDALE COUNTY, MICHIGAN**

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**Project Costs:** \$18,000

**Project Completion:** Spring 2006

Kieser & Associates (K&A) was contracted by the Lake Association to assess water quality management needs for this 191-acre lake in Hillsdale, Co., Michigan. Years of monitoring data had been collected, yet no detailed limnological or watershed management assessment had been completed to specifically define issues and options for future protection and management of this resource. K&A designed and is currently implementing an integrated scientific and engineering analysis of the lake. These efforts include:

- Aquatic plant survey in Spring 2005 and compilation of past aquatic vegetation treatment methods and results
- Water quality monitoring over four seasons including in-lake monitoring and both wet and dry monitoring of lake inflows/outflows
- Sediment sampling
- Watershed delineation and assessment of runoff contributions from various land covers in the watershed
- Locate, describe and quantify (via monitoring and modeling) pollutant loads from all drainage areas to the lake (for phosphorus and solids)
- Identification of specific stormwater pollutant sources (pipes, ditches) and estimation of contributing loads
- Reconnaissance for shoreline erosion and septic system issues
- Survey of farming operations within the defined watershed
- Establish self-monitoring program for LSPOA
- Hydraulic mass balance (inflows and outflows) along with digitizing available bathymetry to integrate with K&A hydraulic data
- Preliminary engineering review of existing proposal(s) for inlet treatment structures
- Compile lake improvement/protection options in a Final Report/Plan

These efforts will be completed by the Spring of 2006. The primary goal will be to develop a hydraulic and nutrient mass balance for the lake in order to identify those internal and external conditions that most influence water quality conditions. Based on mass balance information, approaches will be developed to most cost-effectively address manageable issues. Such approaches are typically not afforded by traditional lake monitoring efforts.