



Monitoring Directs Management at Blue Lake, Mason County

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Monitoring Objectives

1. Determine State of Lake
2. Determine Quality Trends
3. Identify Lake Type
4. Direct Management Options

Determine State of Lake

CLMP Data from 1980's

Secchi Disk – average 15 to 20 feet

Total Phosphorus – average 8 to 12 ppb

Other Data

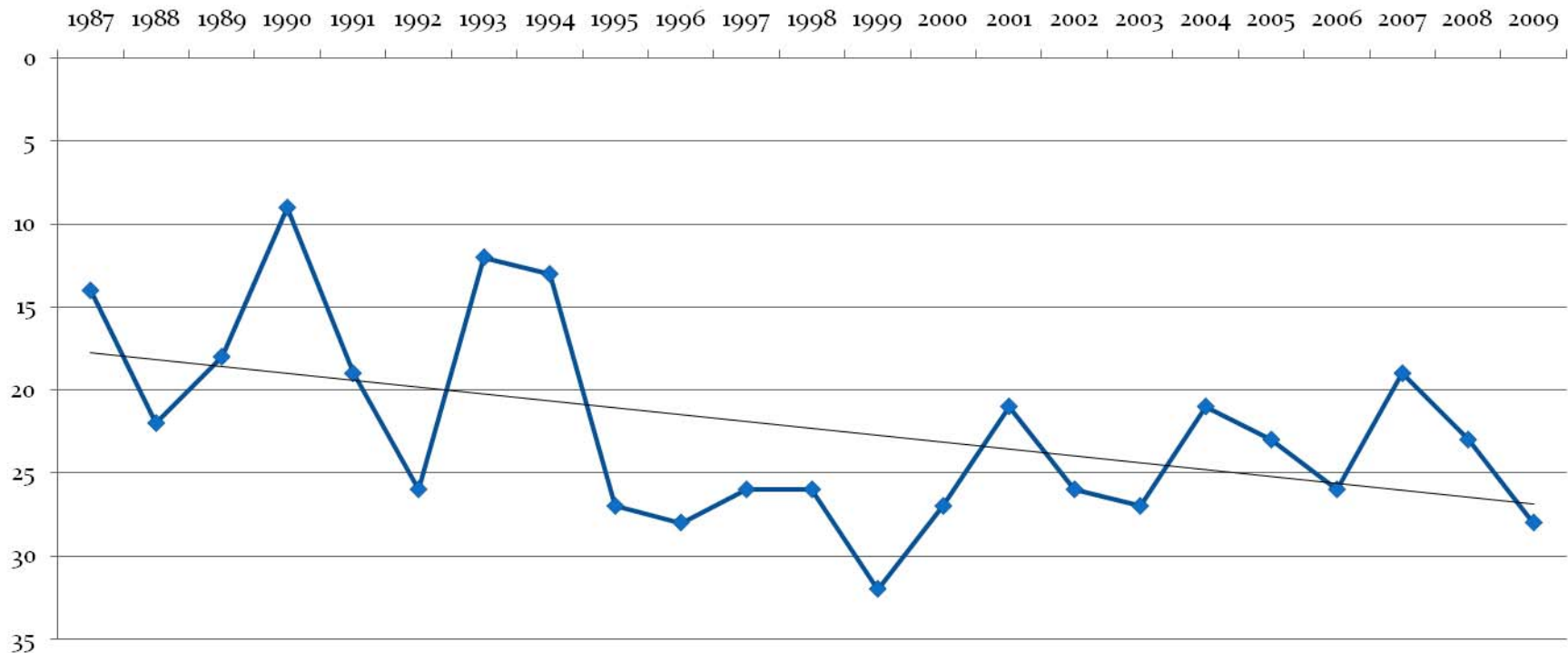
Bottom Dissolved Oxygen – 0 ppm

Aquatic Plants - minimal

Blue Lake is Oligo/Mesotrophic

Determining Quality Trends

CLMP Secchi Disk Data



Other Data – aquatic rooted plants and filamentous algae are increasing.

Quality Trend at this time is unknown

Identify Lake Type



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

National Water and Climate Center

A Procedure to Estimate the Response of Aquatic Systems to Changes in Phosphorus and Nitrogen Inputs






System N—Stratified deep lake

	Increased loading	Decreased loading
Phosphorus	Sensitive	Insensitive
Nitrogen	Insensitive	Insensitive

System functioning: These lakes can be oligotrophic, mesotrophic, eutrophic, or hypereutrophic. The hypolimnetic P transfer is less than that in system M lakes. Because of this, external loads from surface water inputs are relatively more important. Because the hypolimnion becomes anoxic during part of the year, internal P loading occurs. This released P is not available to algae until it reaches the photic zone, often during turnover.

Management considerations: P loading needs to be reduced to prevent further eutrophication in these lakes. The response to load reductions depends on the relation between internal load and external load and the history of sediment P loading.

Monitoring and further analysis: Monitor TP through the year, particularly during turnover events. Estimates of surface water P loading rates are useful.



Direct Management Options

1. Purchased critical lands in watershed
2. Education materials to homeowners
3. Discourage the use of fertilizers
4. Association pays for septic pumping
5. Promote native shorelines
6. Work with Road Commission to reduce stormwater runoff
7. Provide equipment for limited control of aquatic plants

Questions?

