

Green Lake Water Quality Update

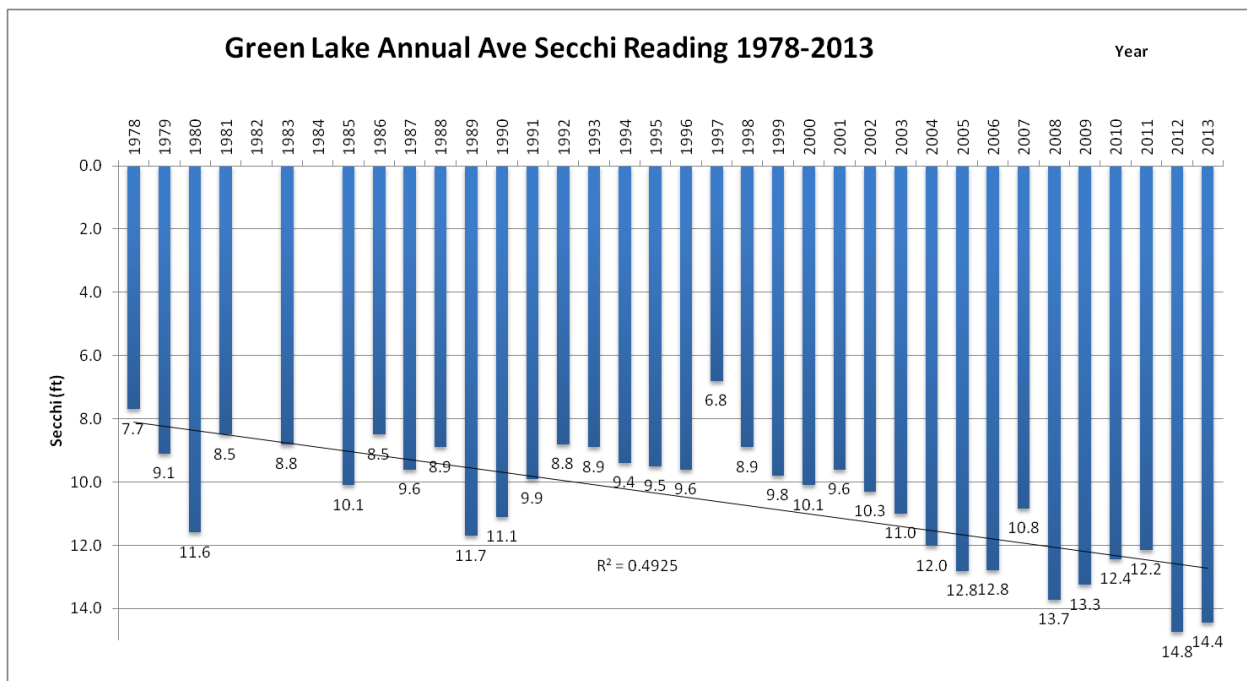


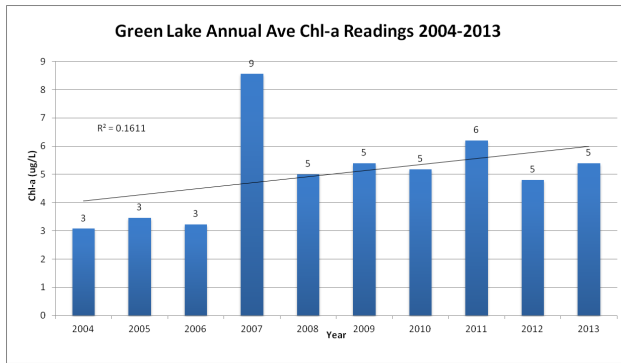
The Middle Fork Crow River Watershed District and its volunteers measured water quality on Green Lake approximately ten times in 2013. The District has collected chemistry data on Green Lake since 2007, and Secchi disk depth (clarity) has been measured since 1978. Green Lake water quality continues to exceed nearly every parameter when compared to averages within our ecoregion.

Secchi disk measurements over time can give a general indication of problems in a lake by estimating the water clarity, or turbidity. Turbidity is suspended materials such as algae, silt, and organic matter in the water.

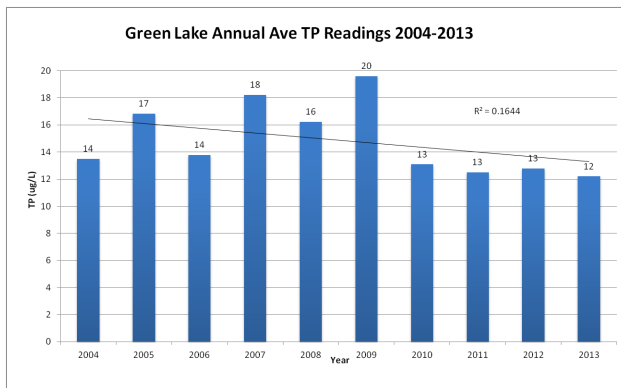


A secchi disk is a weighted circular metal disk, 8 inches in diameter, attached to a rope marked for measurement. The disk is black and white or all white in color. To collect a secchi disk measurement, the disk is lowered into the water column until it disappears. The secchi depth is measured by recording the depth at which the disk reappears. Deeper secchi disk readings (larger numbers) indicate clearer water.

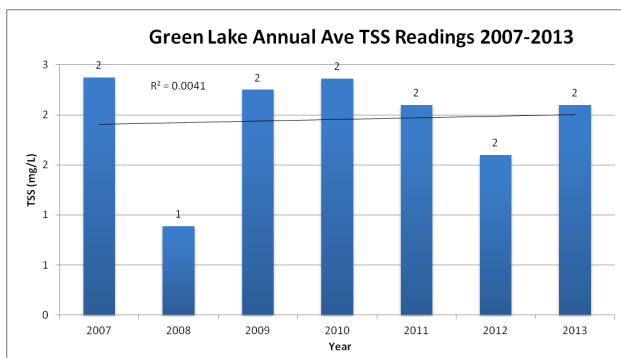




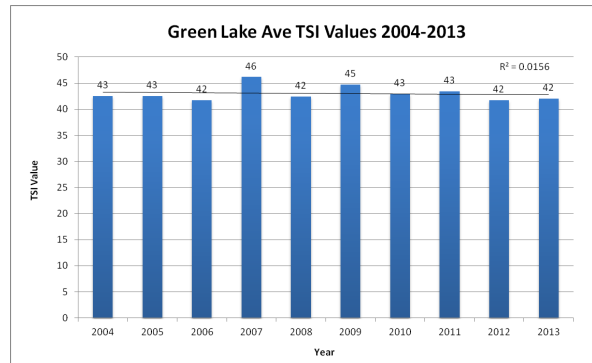
Chlorophyll-a is a plant pigment and helps determine a lake's biological productivity. While plant and algae growth is healthy to a degree, overproduction can harm the lake. Chlorophyll-a levels in Green Lake have seen a slight increase. The ecoregion average for Chlorophyll-a ranges between 5 and 22 µg/L.



Phosphorus, a key element necessary for plant and algae growth, is determined via chemical analysis. In 2013, Green Lake Total Phosphorus (TP) concentrations were far lower than the ecoregion average (23-50 µg/L). Green Lake also met its non-degradation goal of <18 µg/L Total Phosphorus in 2013.



Total Suspended Solids, The material suspended in the water can be both organic (plankton, sewage) and inorganic (silt, clay). By measuring total suspended solids, the effects of runoff on a water body can be determined. Total Suspended Solids have been generally stable and on the lower end of the ecoregion average of between 2-6 mg/L.



Trophic State Index is a method that can be used to determine the overall health of a lake. The trophic state indicates the overall productivity, or plant and algae growth, occurring in a lake. The TSI uses algal biomass as its basis and is determined by using three productivity parameters: total phosphorus, chlorophyll-a, and secchi disk. Trophic state values between 40 and 50 indicate mesotrophy (normal biological production for the area) and values between 50 and 70 indicate eutrophy (increased likelihood of algal blooms/scums and aquatic plant problems).

District Measures to Improve Water Quality

To date, the District has helped implement fifteen water quality projects around the Green Lake. These projects reduce Total Phosphorus by 134 pounds/year and reduce Total Sediment entering the lake by 100.76 tons/year. There are numerous ways you can help improve Green Lake. Implement a raingarden or shoreline erosion restoration project using native plants, clean up leaves and debris around stormdrains, clean up pet wastes, and repair leaking engines. Using phosphorus free fertilizers and keeping grass clippings out of the street will also help prevent the degradation of Green Lake.

Finally, please remember to apply for a District permit for construction projects disturbing land greater than 400 square feet within 100 feet of the Ordinary High Water Mark, or projects disturbing greater than 800 square feet within 300 feet of the Ordinary High Water Mark. Stormwater infrastructure around the lake provides a pathway for polluted runoff to harm water quality, and erosion control BMPs such as storm inlet protection, filter logs and inlet protection devices help reduce sediment and nutrient impacts on the lake.

