

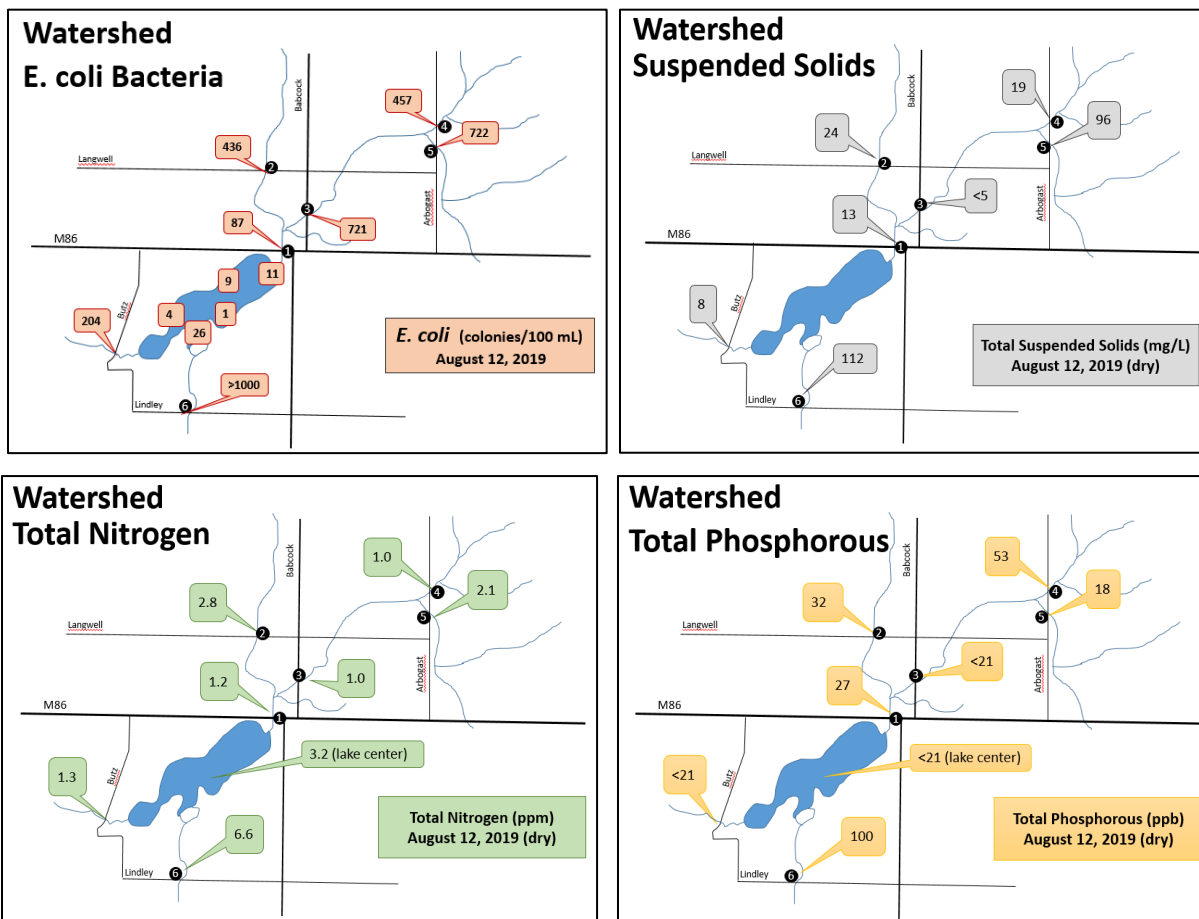
Matteson Lake 2019 Water Quality Summary

Last year, we sampled Matteson Lake and its surrounding watershed on August 12, 2019. The weather was dry that day (and in the preceding days) so the data we collected represents a late summer snapshot of water quality in the lake and the surrounding area.

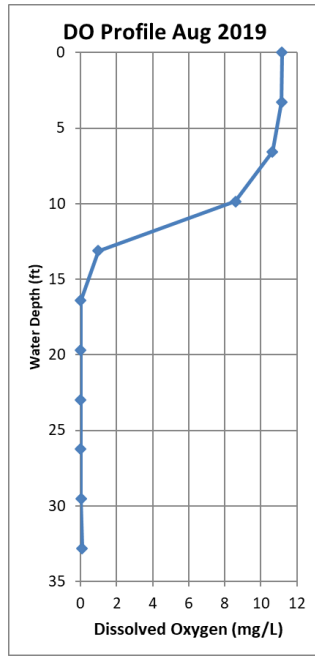
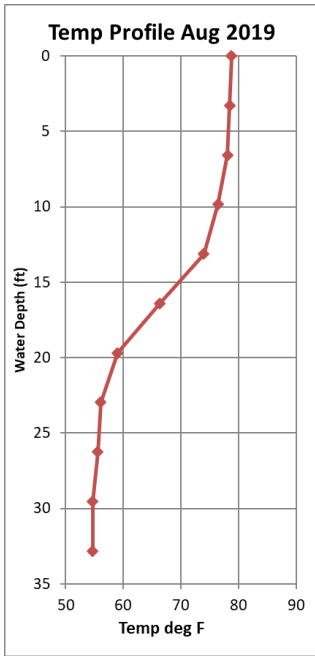
Watershed samples showed higher levels of **Phosphorous (P)**, and ***E. coli* bacteria**, and **Total Suspended Solids (TSS)** than those we observed in the lake. In contrast, **Nitrogen (N)** concentrations in the lake were higher than all but one of the watershed sample sites.

Comparing concentrations at the lake inlet (M-86 bridge) to the outlet (Butz Road dam), **TSS** and **P** concentrations were higher coming into the lake than going out of it. This is normal for phosphorous but unusual for TSS. **N** levels were about the same at the inlet and outlet.

It is interesting that **TSS, N, P,** and ***E. coli*** concentrations at the lake inlet were lower than most of the upstream watershed sampling sites. This suggests that under dry conditions, the wetlands north of the M-86 bridge are filtering some nutrients and trapping some sediments before they enter Matteson Lake. The 'ecosystem services' that these wetlands provide are beneficial to the quality of water entering the lake, even though that water is not perfect.

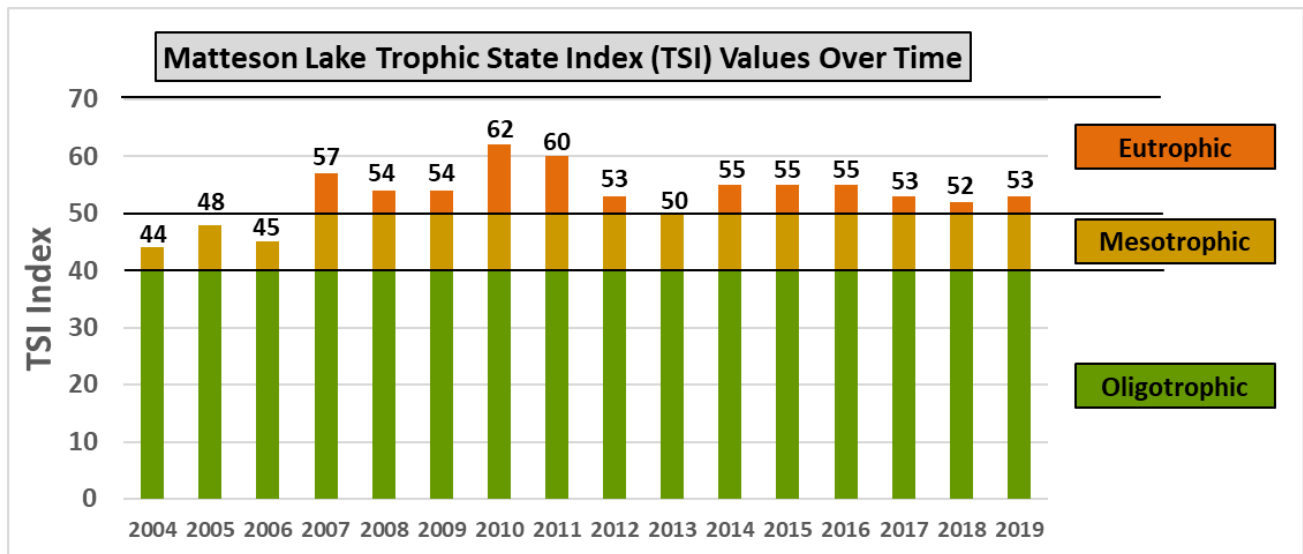


***E. coli* sampling** at the inlet, outlet, and five locations within the lake found bacteria values that were at or below those seen in prior years. All were safe for swimming. Swimming in the river is not recommended at any time, however, because of the high bacteria counts there!



Lake Stratification. During the summer months, Matteson Lake separates into a warm layer of water floating on top of a colder bottom layer. The levels of oxygen dissolved in the lake water behave similarly, with an oxygen-rich layer at the surface and an anoxic layer at the bottom. In August, 2019, the temperature transition occurred around 15 feet below the surface, and the oxygen depletion zone began at about 12 feet. Beneath this depth, there is not enough oxygen in the water for fish to survive, despite its colder temperature.

The **Trophic State Index (TSI)** combines three water quality variables (phosphorous concentration, green algae abundance, and water clarity) into a single score that we can track over time. The TSI score for 2019 was 53, essentially the same as last year. This indicates that Matteson Lake remains *eutrophic*, with excess nutrients that can lead to algae blooms and cloudy water. When plants and algae die, their decomposition robs the water of oxygen that fish need to live. This is not good for water quality in our lake.



The long-term goal of the Water Quality Committee is to return Matteson Lake to mesotrophic conditions and to keep it there. Over the past six years, we appear to be experiencing stable, but eutrophic conditions. More needs to be done, however, to improve the lake water clarity and to ensure that we maintain a healthy ecosystem to support diverse aquatic plant and animal life in our lake.