CASE STUDY: Water Column Clarifier on a Private KOA Pond.

OVERVIEW

This private KOA pond is an aerated 0.14-acre pond with a maximum depth of 12 feet and average depth of 9 feet located near Grafton, Wisconsin. The owners concerns were the lack of clarity, not being able to see their KOA, due to heavy planktonic conditions. A heavy bacterial management strategy was implemented to address the excessive nutrients in the waterbody rather than using herbicides/algaecides.

METHODS

Management began in 2017 applying MD pellets and Natures Blend (NB) bacteria. NB was applied at 7# per acre and MD pellets were applied at 50# per acre monthly from May – September. In 2018, nutrient sampling was taken to get a baseline for this waterbody. Based on the results, the same approach of heavy monthly applications of NB bacteria and MD pellets was implemented. After the 2018 season, we were not seeing the results/changes we hoped and to start the 2019 season nutrient sampling results confirmed that in general nutrient levels remained constant.

For 2019, we kept implementing the monthly MD pellets at 50# per acre per month, adding in a hypereutrophic rate of Water Column Clarifier (WCC) of 0.6gallons per acre foot per month. Additionally, monthly Seechi Disk readings were taken along with fall nutrient sampling to test our new approach.

RESULTS

After two consecutive seasons of the same bacterial regime (2017 – 2018), reactive Phosphorus and Ammonia Nitrogen concentrations dropped below lab detection limits, total Phosphorus and Nitrite+Nitrate increased and TKN decreased slightly.

After switching to the Water Column Clarifier for 2019, nutrient concentrations reduced below historic levels, reactive Phosphorus (58% reduction), total Phosphorus (27% reduction), Ammonia Nitrogen (42% reduction), Nitrite+Nitrate (96% reduction) and TKN (50% reduction).

	Nutrient Sampling				
Date	Reactive Phosphorus (ppm)	Total Phosphorus (ppm)	Ammonia Nitrogen (NH3) (ppm)	Nitrite plus Nitrate Nitrogen (NO2+NO3) (ppm)	Total Kjeldahl Nitrogen (TKN) (ppm)
5/7/18	0.069	0.040	0.069	1.600	1.700
5/10/19	<0.004	0.140	<0.040	1.800	1.300
8/27/19	0.029	0.029	0.040	0.057	0.850

Seechi Disk readings for the 2019 season increased by 3.5 inches or 26% percent.

Date	Seechi Disk Reading (in)
5/10/2019	13.5
6/4/2019	9.0
7/2/2019	11.0
7/30/2019	12.0
8/27/2019	17.0

SUMMARY

The new approach of Water Column Clarifier and MD pellets are helping to reduce Nitrogen and Phosphorus levels across the board along with increasing clarity. As an added testament, to date, no herbicides or algaecides have been used on this pond. Overall, the residents are extremely pleased with the outcome and can now see their KOA. In the future, we are continuing the Water Column Clarifier, MD pellets and monitoring.