AQUA-WEED CONTROL INC.
● Aquatic Plant Control ● Product Sales ● Water Quality Testing
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Water Quality Summary – Horseshoe Lake
Summer 2022

Parameter	Site 1	Site 2	Site3	Target Range	Status
Dissolved Oxygen	8.86	9.04	8.82	4.0-12.0 ppm	Normal
Conductivity	658	654	659	100-2000 µs/cm	Normal
Total Dissolved Solids	428	422	431	0-1,000 ppm	Normal
Phosphorous	53	54	84	15-100 ppb	Normal
Nitrogen	<1	<1	<1	0-50 ppm	Normal
E. Coli	16	24	16	<300 CFU/100 mL	Normal
Chlorophyll α	2.7	4.6	3.4	1-56 mg/m3	Normal
Secchi Disk	58	57	60	6-144 inches	Normal
Water Temperature	78.1	78.5	78.8	NA	NA
Salinity	.32	.32	.32	0-0.5 ppt	Normal

● CRITICAL ● CAUTION ● NORMAL

Discussion

These results show that water body is normal in all aspects according to the findings from the tests. It allows safe use of the water for recreational purposes. It has the proper characteristics to support healthy conditions for aquatic plants and animals.

Chlorophyll α: A measurement of projected biomass and photosynthesis rate of algae and plants within the waterbody. This measurement helps determine the trophic state of the waterbody. There are four trophic states: Oligotrophic (< 2.6 mg/m3, very inactive), Mesotrophic (2.6-20 mg/m3, moderately active), Eutrophic (20-56 mg/m3, very active) and Hyper Eutrophic (> 56 mg/m3, extremely active). Many lakes and ponds in urbanized areas are Mesotrophic to Eutrophic, meaning there is continuous production of algae and plants due to constant to excessive nutrient loading.

Total Dissolved Solids: The measurement of the combined content of all inorganic and organic substances contained in a waterbody. The principle constituents are usually the cations calcium, magnesium, sodium and potassium and the anions carbonate, bicarbonate, chloride, sulfate and, particularly in groundwater nitrate, pure water will contain no dissolved solids. Storm water run-off is the primary source of dissolved solids. Drinking water must have reading below 500 ppm. Reading of up to 1,000 ppm are generally considered safe for plants and other aquatic organisms.

Dissolved Oxygen: Measures the number of microscopic bubbles of oxygen gas in the water column. Just like animals on land, animals underwater require oxygen to breath. Warmer water tends to hold less oxygen, so this measurement becomes very important during summer months. Reading below 4 ppm can be fatal. An ideal reading for a waterbody is around 8 ppm, this allows for a healthy ecosystem to exist.

Phosphate and Nitrate: Essential nutrients for all aquatic life. A lack or excess of these components can lead to a change in the trophic state of a waterbody. Phosphate readings between 1-3 ppb are needed to maintain normal aquatic life. Nitrate levels over 50 ppm are polluted waters and unsafe for consumption. When the levels of Nitrates and Phosphates are exceeded excess growth and algal blooms are more prone to occur.

Conductivity: Is the numeric representation of the water's ability to allow electrical flow to pass through. The salinity and TDS are related back to conductivity. The ions in the water are what contributes to the conductivity value. This is important to monitor to make sure there is not any large amounts of ions flowing into the waterbody that could upset the aquatic life. The normal parameters are quite large and change from waterbody to waterbody. If the reading is between 100-2000 µs/cm that is acceptable, and the readings need to stay consistent.

E. Coli: Are a form of bacteria that live in the intestines and fecal matter of warm-blooded organisms. Although the E. coli may not be the agent of disease, high levels of this bacteria indicate the presence of disease-carrying organisms. Per EGLE, a single reading over 300 CFU/100 ml or sustained readings over 130 CFU/100ml for 30 days is considered unsafe for swimming.

Secchi Disk: Is a simple tool that is used to determine the water clarity. This is accomplished by lowering the Secchi disk into the water until it disappears from sight and then is raised back until it reappears, and the distance is averaged to determine the amount of water that can be seen through. This creates an absolute determination of the water clarity.

Salinity: The average salinity of ocean water is 35 ppt. To be classified as freshwater the salinity must be below 0.5 ppt

Water samples were taken on 7/7/22. Water tests were completed on 7/12/22. This report describes conditions at the time the samples were taken. The quality of the water was tested only to the parameters listed above.

Compiled and Certified by: _____ Date: 7/20/2022

Water Quality Specialist and Environmental Biologist

Site Locations