

Water Quality Parameters Measured on YSI EcoNet Site

Temp – Water temperature measured in degrees Centigrade (°C) – The freezing point of water is 0°C while the boiling point of water is 100 °C. Water temperatures below 21°C can lead to hypothermia in the case of full body immersion. Generally water temperatures should not exceed 29.4°C during the summer months or aquatic life may be impaired.

SpCond – Specific conductance measured in microsiemens per centimeter ($\mu\text{S}/\text{cm}$) – Specific conductance is a measure of how well water can conduct an electrical current and reflects the content of charged (or ionic) materials in the water. Since most solids dissolved in the rivers are ionic, specific conductance is really a measure of the amount of dissolved solids in the water. When specific conductance increases it means the water is receiving more dissolved materials from storm runoff (such as road salt in the winter months) or from underlying aquifers. Since rainwater contains no dissolved solids, the specific conductance of the rivers will usually decrease after precipitation events with the extent of the drop related to the amount of precipitation. In the Great Miami River Watershed specific conductance often increases during periods of time without any runoff, because a greater percentage of the flow in rivers and streams comes from groundwater which tends to have more dissolved solids than surface water.

pHmV – pH measured in millivolts – Measures the voltage produced between the electrodes in the pH sensor. This voltage is proportional to the pH of the water solution.

pH – pH measured in standard units (S.U.) – pH is a measure of the acidity or basicity of a water solution. Solutions with a pH less than 7 are said to be acidic while solutions with a pH greater than 7 are said to be alkaline. Most natural waters in the Great Miami River Watershed area are slightly alkaline due to the nature of the rock and soil minerals that are present in the watershed.

Battery – Battery Voltage measured in volts (V) – Battery voltage supplied to the YSI 6-series sonde is monitored to ensure sufficient power supply for measurements.

Chlorophyll – Chlorophyll concentration measured in micrograms per liter ($\mu\text{g}/\text{L}$) – Chlorophyll is a green pigment found in plants and algae which allows the organism to obtain energy from light. It's presence in water is an indicator for algae. Too much algae in rivers and streams can harm aquatic life, because when the algae dies it consumes dissolved oxygen needed by aquatic life to survive.

Turbidity – Turbidity measured in nephelometric turbidity units (NTU) – Turbidity is a measure of cloudiness due to the presence of suspended particles in the water column. Turbidity increases when the amount of suspended material in the water column increases due to storm runoff events and algal blooms.

ODO% - Dissolved Oxygen expressed as a percent of air-saturation – Dissolved Oxygen expressed as a percent of saturation is the amount of oxygen dissolved in water compared to

the maximum amount that could be present in the water under air-saturated conditions. Since aquatic plants and algae produce oxygen, it is common to see values of ODO% well over 100% and dissolved oxygen saturation levels in the 80 - 120% range are considered to be excellent for aquatic life.

ODO Conc – Dissolved Oxygen concentration measured in milligrams per liter (mg/L) – Dissolved oxygen is the amount of gaseous oxygen dissolved in the water. Oxygen gets into water by diffusion from the surrounding air, by aeration from water movement, and as a waste product of photosynthesis by aquatic plants and algae. Generally, dissolved oxygen levels should remain above 5.0 mg/L to support aquatic life.

BGA PC Conc – Bluegreen algae concentration measured in cells per milliliter (cells/mL) – Bluegreen algae also known as cyanobacteria is a type of bacteria that obtains energy from light. Too much bluegreen algae in water is not good for aquatic life, because the algae consumes oxygen needed by aquatic plants and animals when it dies.