Fall 2016

Water Quality in and around Glen Helen Nature Preserve Fall 2016

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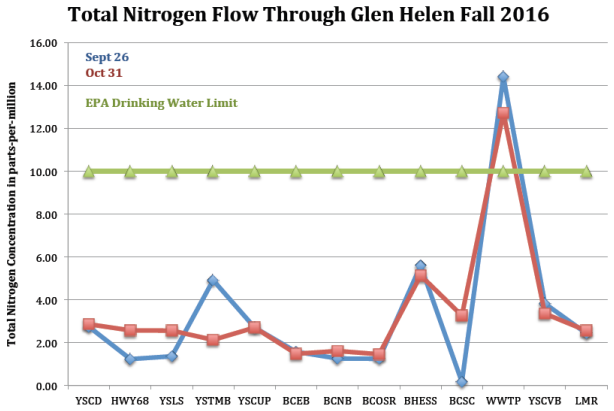
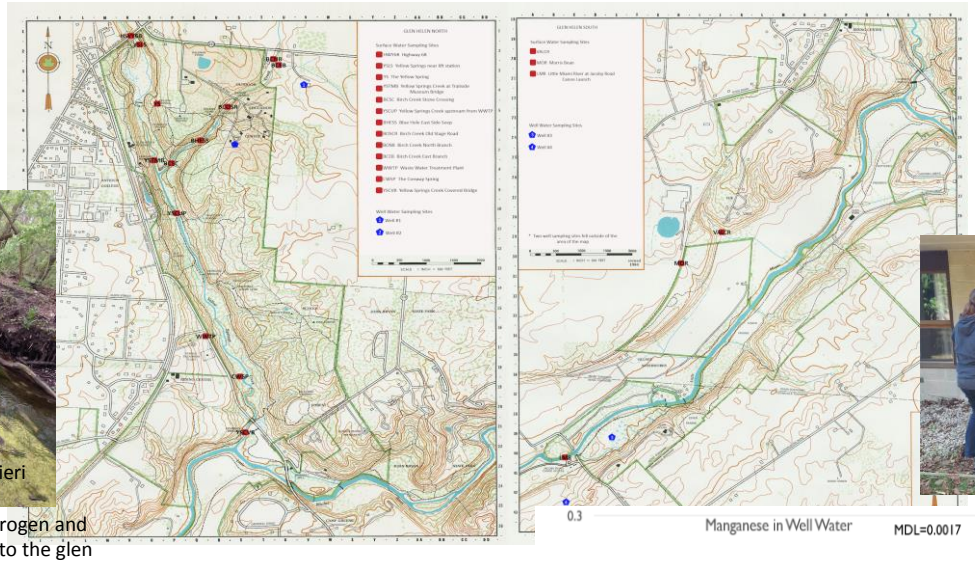
Nitrate

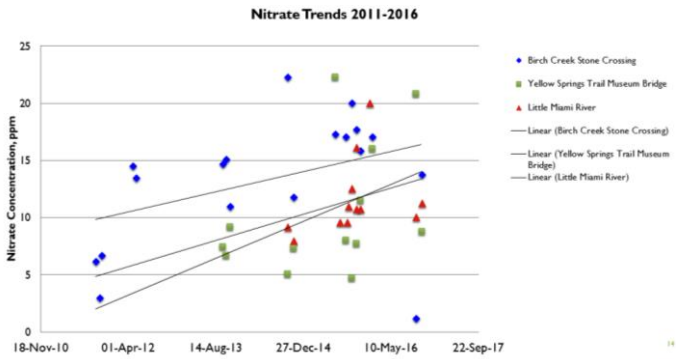
Nitrate in Birch Creek increases as it flows through the glen. A high nitrate seep (BHESS) found upstream of Birch Creek Stone Crossing (BCSC) and the WWTP add significant nitrogen to Yellow Springs Creek as it flows through the glen. BCNB is Birch Creek North Branch and BCEB is Birch Creek East Branch; both are north of Glen Helen and State Route 343. YSCD is Yellow Springs Creek near Ellis Park.



Algae bloom from nitrogen and phosphorus runoff into the glen

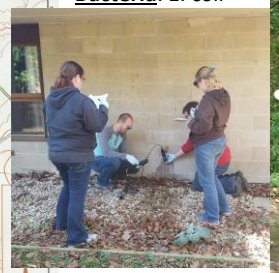


Increased levels of nitrate can lead to excessive algae growth, creating unsafe conditions for humans and "dead zones" where most aquatic life cannot live. Nitrate levels within the Glen Helen Nature Preserve and in the Little Miami River show steadily increasing trends for the last five years.



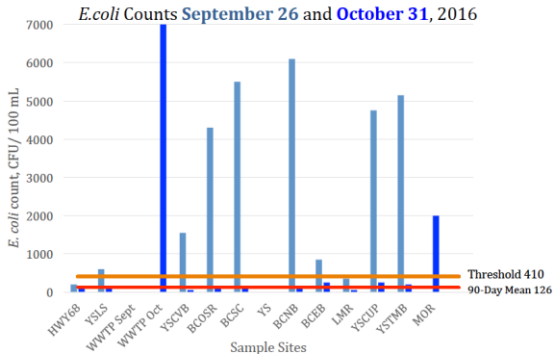
Analytes Measured

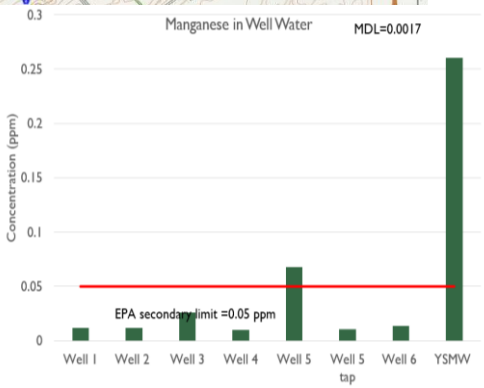
Anions: Fluoride, Chloride, Sulfate, Bromide, Phosphate, Nitrite, Nitrate
Metals: Aluminum, Arsenic, Cadmium, Chromium, Copper, Iron, Manganese, Nickel, Lead, Strontium, Zinc
Water Quality: Dissolved Oxygen, Temperature, Conductivity, pH, Ammonia/Ammonium
Bacteria: *E. coli*



Escherichia Coli (*E. coli*)

E. coli come from animal and human feces. High levels of *E. coli* can cause illness through ingestion. WWTP discontinues chlorine disinfection of effluent on October 31. Ohio EPA recreational limits are 90-day geometric mean and statistical threshold not to be exceeded in >10% of samples during a 90-day period.





Metals in Well Water Sampled Nov 14

Metals found in well samples include; aluminum, arsenic, iron, and manganese. Arsenic levels in one area well was slightly higher than the EPA limit for drinking water of 10 parts-per-billion. Manganese surpassed the EPA secondary limit of 50 parts-per-billion (0.05 parts-per-million) in two wells including a significantly higher concentration in the Yellow Spring Municipal well (YSMW).
(Well locations are approximate)

Morris Bean Wastewater Pond Outflow

Surface water runoff coming from the Morris Bean foundry property into Glen Helen contained concentrations of aluminum at higher rates than samples collected from any other sites in the area but below EPA drinking standard. Previous years have found little to no outflow from the wastewater pond located on their property (NPDES 1IN00095001) due to numerous sinkholes that drain directly to the local groundwater despite the installation of a cement ditch.

MOR sample site along Little Miami Scenic Trail south of Yellow Springs