WATER QUALITY MONITORING TO RESTORE AND ENHANCE LAKE HERRICK

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Lake Allyn M. Herrick is about 1.5 km^2 and covers portions of the UGA's East campus, the Oconee Forest, residential and commercial landuse. Lake Herrick, a recreational site on the UGA's campus was closed in 2002 due to fecal contamination. Subsequent monitoring confirmed persistent contamination which led to permanent closure to swimming, boating and fishing. However, no studies have been done on the streams entering and leaving the lake. This study emphasizes on quantifying lake influent/effluent bacteria and nutrient loads. Two inflow tributaries and the outlet stream were monitored for discharge, fecal coliform, forms of nitrogen and phosphorus and other water quality parameters including dissolved oxygen, turbidity, pH and conductivity during base flow and storm conditions. The results indicated that urban runoff is the most severe contributor of nonpoint source pollution, and the leading cause of lake impairment. Preliminary results confirm high concentrations of E. Coli and Enterococci above the State's limit during baseflow and stormflow at the inflow streams compared to the outlet. This may suggest that the Lake acts as a retention pond. The total and soluble forms of nutrients are low at all sites (below 1-2 ppm) which explains that nutrients are not coming from runoff but rather from accumulated bed sediments in the Lake. The samples were also analyzed for microbial source tracking using human, ruminant and dog genetic markers. However, more source tracking data is needed to identify which markers are most prevalent at each site. Statistical analysis will be used to establish relationships between the nutrients data, the fecal contamination, and the gene-specific makers.

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