

# ASSESSING TOXICITY AND CONTAMINATION LEVELS IN LAKE HERRICK

Sarah Hensey

---

AFFILIATION: UGA Warnell School of Forestry and Natural Resources

REFERENCE: *Proceedings of the 2017 Georgia Water Resources Conference*, held April 19-20, 2007, at the University of Georgia

---

Located on the UGA campus, Lake Herrick serves as a valuable recreational and institutional resource. In recent years, use of the lake by the public has been restricted due to declining water quality. High nutrient levels in storm water runoff have been linked to seasonal toxic algal blooms. This study aimed to monitor these seasonal algal blooms and assess the present levels of contamination and toxicity in Lake Herrick in comparison to previously collected data. Weekly water parameters of temperature, dissolved oxygen, and pH were recorded and water samples were screened microscopically for potentially toxic cyanobacterial species. Fecal coliform were assessed from the water samples using petrifilm E. coli/coliform count plates to evaluate contamination levels. In addition, toxicity was assessed through chronic and acute reproduction and survival tests of *Ceriodaphnia dubia*. We anticipated the presence of a toxic algal bloom in the warmer months of August through October but there was no persistent bloom due to a lack of rainfall events. We recorded a small-scale bloom of *Aphanizomenon* cyanobacteria, of which most forms are toxic, during October of 2016. A frozen water sample from an *Anabaena planctonica* bloom (157,000 cells/mL) during a similar time in 2015 resulted in significant reductions in *Ceriodaphnia dubia* reproduction and survival in both acute and chronic tests ( $p < 0.05$ ). Our current results suggest that Lake Herrick is continuing to experience infrequent seasonal algal blooms resulting in harmful levels of toxicity. The water quality data from this study can help guide future remediation plans, such as our newly funded project to install floating wetlands in Lake Herrick to aid in improving inflow dynamics.

*Program reference: 1.4.09*