

WIU CENTENNIAL HONORS COLLEGE
Thomas E. Helm Undergraduate Research Day 2022

Abstract

Poster

Major Biology

Faculty Mentor: Victoria Livingston

Monitoring Nitrates and Phosphates in a Managed Pond

Kaitlyn Mathews

The health of an aquatic environment relies on many parameters, two of those being the levels of nitrogen and the levels of phosphorus, measured by nitrates and phosphates, in the water. High levels of these materials can cause problems such as eutrophication to occur in water, creating an unhealthy aquatic environment. This research was performed using water from a property near Colchester, IL that was formerly agricultural land, but over the last 15 years has been restored into a natural environment with native species. The water body consists of a wetland controlled by the property owner, a creek, and a pond. The property owner is interested in maintaining a healthy aquatic environment, so the results of this project can demonstrate how the nitrate and phosphate levels change over time and can suggest whether or not the aquatic environment is healthy. Water samples were collected at different points in the year from June 2021 to February 2022, and water sample results from 2019 were also used for comparisons. A LaMotte SMART3 Colorimeter was used to determine the nitrate and phosphate levels in each water sample. Both the nitrate and phosphate levels decreased from June 2021 to February 2022. Nitrates ranged from 0.62 ppm down to below detectable levels, and phosphates ranged from 1.8 ppm down to 0.01 ppm. These results suggest that the nitrate and phosphate levels are acting in a normal way.