

## POSTER PRESENTATION

### MARRYING GIS AND DIATOM ANALYSES: RECONSTRUCTING THE HISTORY OF WATER QUALITY OF THE WABASH RIVER

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The Wabash River is a large meandering stream that stretches for over 471 miles from Ohio through Indiana, where it ultimately joins the Ohio River. The majority of Wabash River tributaries drain agricultural landscapes. Ramifications of this agricultural drainage are such that the Wabash River Valley comprises some of the highest nutrient yields in the US, which contribute to excessive algal bloom nutrient exports into the Gulf of Mexico. This study uses diatom assemblages and GIS techniques to analyze the water quality of the Wabash River both currently and historically. Each spring the Wabash River floods into nearby lakes. Using GIS techniques, such as Image Classification, and Landsat Imagery provides evidence of which lakes are affected by its floodwaters and need to be cored for further analysis using an HTH corer. Coring affected lakes provides a historic diatom record. Additionally, collecting weekly live samples from the Wabash River provides high-resolution data for water quality analysis. Each modern and historic sample will be analyzed for up to 300 diatom valves using a Leica DM2500 research-grade microscope at 100x magnification. Identifying the diatoms to species level allows for a deeper understanding of the water quality through nutrient load preferences from specific species. These trends ultimately give a macroscopic picture of the Wabash River's impact on hypoxia in the Gulf of Mexico.