

Abstract Submitted
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Understanding Abiotic Triggers For Cyanobacteria Blooms in Lakes Using a Long Term In-situ Monitoring Research Station ANNE WILKINSON, MIKI HONDZO, CHRISTINE SALOMON, SHAHRAM MISSAGHI, MICHELE GUALA, University of Minnesota — Harmful Algal Blooms (HAB) are ubiquitous ecological and public health hazards. HAB are made up of potentially toxic freshwater cyanobacteria. The occurrences of toxic HAB are unpredictable and highly spatially/temporary variable in freshwater ecosystems. To study the abiotic triggers for toxic HAB, a research station has been deployed in a eutrophic lake from June-October 2016. This station provides hourly water quality profiles and meteorological (every 5 minutes) monitoring with real time access. Water quality monitoring is performed by an autonomously traversed sonde that provides chemical, physical and biological measurements; including phycocyanin, a light-absorbing pigment distinct to cyanobacteria. The research station is a sentinel for HAB accumulation, prompting focused HAB analysis, including: phytoplankton and toxin composition/concentration, and turbulent kinetic energy dissipation rates. We will discuss how mixing conditions, temperature stratification, light intensity, surface wind magnitude and energy dissipation mediate a)HAB formation/composition b)toxicity and c)cyanobacteria stratification. The results will help illuminate abiotic processes that trigger HAB accumulation/toxicity, which can direct timely toxic HAB prediction and prevention efforts.

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