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Lake Erie Water Assessment Study

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Lake Erie Water Assessment Study

College of Sciences and Health Professions

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Faculty Advisor: Fasong Yuan, Ph.D.

Abstract

Lake Erie's water chemistry is ever-changing and depends primarily on the waters that comprise its 58,800 sq. km drainage basin. Large rivers, such as, the Detroit, Maumee, and Cuyahoga are fed by smaller tributary streams from the surrounding watershed, this amount of inflow accounts for over 90% of the water in Lake Erie. With such a large volume of the lake water coming from rivers that collect surface run-off, it is likely to assume that hypertrophication occurs more rapidly at river mouths, therefore, these spots would not provide an accurate depiction of the lake chemistry. Instead, 2 locations further off shore (3+ miles) and 1 location near shore (river mouth) were used to gather data. Tests using an ion chromatograph unit (ICS-1500), liquid water isotope analyzer (Picarro L2120-i), and a discrete multi chemistry analyzer (AQ-2) were taken to obtain chemical and isotopic analysis for the different lake samples. The relationship between the Cleveland site compared to the other 2 sites is unique by their differences. The Cleveland data is in concert with most river data collected along the Cuyahoga while the other 2 sites are similar to Lake Erie data.