RELATION BETWEEN STREAM STAGE AND DISCHARGE ON MAJOR TRIBUTARIES THAT ENTER LAKE ERIE

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RESUMO: In order to manage contaminants entering the Great Lakes it is necessary to first quantify hydrologic fluxes into the Lakes. The research presented here focused on developing a correlation between stream stage and discharge at several major ungaged tributaries that enter Lake Erie within Erie County, NY. The region of study is mainly localizared in the city of Buffalo over many locations inside the city that we could indentify creeds or relevant water bodies that drain into the Lake Erie. Buffalo is part of the state of New York and is located on the eastern shore of Lake Erie, at the head of the Niagara River. The extension of each component of the hydrological cycle in a region is evaluated according to a number of factors, that includes the amount of water received from precipitation, inflow and outflow in rivers and aquifers (this factor is particularly important in transnational water bodies) and the amount lost through evaporation and evapotranspiration, that also includes human activities greatly affect the individual components of the hydrological cycle, through actions such as contamination of water bodies and abstraction from ground and surface waters, so to accomplish this project weekly measurements of stream discharge and stage were collected during the summer of 2015. Rating curves were developed to determine the relationship between stream stage and discharge. These rating curves showed good characteristics at 18 Mile, Muddy, and Delaware Creek, however the remaining curves did not achieve good results. Using these results, correlations between discharge and precipitation were evaluated. Field results showed variability in hydrograph recession after precipitation events ranging from 24 hours and no longer than 60 hours. Historical hydrographs can be useful to predict spatial and temporal variability in hydrologic fluxes into Lake Erie after storm events. These result also help identify locations where addition monitoring may be installed to support Erie County's beach monitoring network. Currently area beaches are closed due the presence of the bacteria E. Coli that has highest presence just after storm events because rainwater runoff transports bacteria into the lake. Results presented here will help predict when these storm discharges enter the lake after rain events and how long they last.

PALAVRAS-CHAVE: HYDROLOGIC FLUXES, LAKE ERIE, BACTERIA E. COLI.