**Flow regimes of Natural Versus Regulated Rivers across Canada:**

Project Proposal and Preliminary Results

\*Fraser McLaughlin, McGill University

(Fraser.McLaughlin@mail.mcgill.ca)

**Abstract**

A river’s flow regime determines channel form and habitat availability. Some rivers regulated by dams are subject to drastically altered flows while others remain largely unchanged. In order to gauge the effects of river regulation on riverine habitats, we must quantify how regulation has altered flow parameters known to impact ecosystems. Since pre-dam discharge data does not exist for the vast majority of the regulated rivers in the NSERC HydroNet dataset, regional flow analyses must be performed in order to estimate the baseline hydrographs of the altered systems (using surrounding watersheds as reference systems) and selecting flow indices that describe the discrepancy between current flow and hypothetical unregulated flow. In systems that appear to be highly altered, the regulated rivers and unregulated references will be compared using field measurements to determine differential impacts of flow on channel form. Preliminary results include hydrographs of altered and reference systems in Quebec and selected flow indices that stand out and are geomorphologically or ecologically relevant. This project is important to the cumulative HydroNet effort since it contextualizes observed ecological differences across the country, enables educated research decisions by other researchers, and empowers dam operators to make informed operational decisions.