**Abstract**

**Poster session**

Long-term variation in food sources and fish trophic position in a natural and regulated river of northern Ontario

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A river’s flow and temperature regime are key drivers structuring its food webs. The operation of hydro-electric dams can result in flow modifications, which may significantly alter downstream food webs by modifying food availability and species interactions. Weather conditions such as precipitation and temperature can also influence the quantity and quality of prey available within rivers. In years with low flow and high temperatures, quantity and quality of prey sources may decrease relative to that within a regulated river with a minimum flow requirement and have bioenergetic consequences for fish through influences on prey consumption. Few studies have examined spatial, temporal or longitudinal trends in consumer trophic position within regulated rivers (or within an appropriate reference river).

We address this lack of knowledge on long-term food web variability using data from an unaltered river in Sault Saint Marie, Ontario, and a regulated river in Wawa, Ontario collected over a ten year (2003-2012) period. Stable carbon (δ13C) and nitrogen (δ15N) isotopes were measured from taxa collected from multiple trophic levels to evaluate fish resource use and trophic position, respectively, at spatial, temporal, and longitudinal scales relative to isotopic variation in basal resources (benthic invertebrates). Consumer trophic position, which is the outcome of species interactions (predation, competition) and assimilated resource use, was evaluated relative to annual minimum, mean, and maximum annual flow within each river. Comparisons of these factors within natural and regulated river will provide insights on the influence of natural and anthropogenic factors affecting food web structure and function.