2022-2023 MES/MESc Speaker Series

Peatland Headwater Catchments as Sentinels for Mercury Cycling in a Rapidly Changing World

Date: Thursday, March 9, 2023   **Time:** 4:00-5:00 pm

Zoom Link: https://us06web.zoom.us/j/86377473019?pwd=aXkwZEpaLzZjV3p2SHdieVBNMkp1UT09

Or In person: A252-C (The Sandbox, in the Teaching Hub)

Presenter: Dr. Colin McCarter, Assistant Professor, Canada Research Chair in Climate and Environmental Change, Department of Geography and Department Biology & Chemistry

Clean water is fundamental to our way of life, underpinning many aspects of society. In northern Ontario, methylmercury is a contaminant of concern as it is a potent bioaccumulating neurotoxin. As such, methylmercury is responsible for a majority of fish consumption advisories and linked to adverse human health conditions. Understanding the production and transport of methylmercury from peatlands to aquatic ecosystems, where it is likely to bioaccumulate, is critical to managing our freshwater resources. However, climate change and cleaner air are altering mercury cycling and transport, but the direction and magnitude of these impacts are unknown. We will untangle how streamwater mercury has changed over time, while exploring how climate change and cleaner air driven shifts in ecohydrological and biogeochemical processes are likely to impact methylmercury export in an era of rapid change.

Dr. McCarter joined Nipissing University in July 2022 bringing with him, the new Mercury and Ecohydrology Research Laboratory.   His CRC research involves understanding how the cumulative impacts of unprecedented climate mediated (e.g., wildfire, drought, warming) and environmental (e.g., mining, urbanization, forestry) disturbances impact water quality. His research will also examine changes in key northern water quality indicators, such as mercury and heavy metals, before, during, and after disturbances. McCarter will use a process-based approach to understand how future disturbances may impact shared water resources.

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