SES Seminar Series

Guest Speaker: Dr. Susan Glasauer

(University of Guelph, SES)

"500 years of environmental change in the Hudson Bay Lowlands"

In this talk, I'll discuss the results of an environmental monitoring program in the Hudson Bay Lowlands that we began four years ago, in collaboration with Webequie First Nation and the Simon Jacob Memorial Education Centre in Webequie.

The Winisk River in northern Ontario traverses the Hudson Bay Lowlands (HBL), a vast wetland complex, before terminating in Hudson Bay. It drains an area of 67,300 km2 and is home to remote communities that depend on natural resources, especially wild foods. The Winisk is a particularly important source of organic carbon (OC) to Hudson Bay, yet the impacts of climate change on carbon cycling in this region are poorly understood. Further environmental change in the HBL can be expected from the proposed large scale extraction of chromite and other mineral deposits in the "Ring of Fire".

The goal of our study was to assess temporal patterns of organic and inorganic markers in advance of development and future climate change, together with Webequie First Nation. WFN is located about 30 km west of the Ring of Fire on Eastwood Island in the Winisk River. We collected sediment cores from riverine marshes along the Winisk, at the major inlets and outlets of WFN territory, and we investigated several biogeochemical parameters related to the cycling of carbon and other elements. Core sections were analyzed for: organic C and N; lignin compounds using CuO digestion coupled to GC-MS; stable isotopes (C13/C12; N15/N14) to identify sources of organic matter inputs; and transition metals. Sedimentation rates were determined using Pb210 and Cs137 dating techniques and indicated that the cores represent around 500 years of deposition. The geochemical analyses show that the rates of organic matter decomposition on land and the accumulation of organic matter and metals in the marsh sediments have increased markedly over the last several decades. This summer, we will return to Webequie for a field course with high school students to help expand their environmental monitoring skills and to continue our assessment of change in WFN territory.

January 31, 2019- 12:00pm-1:00pm
Alexander Hall Rm 265

All are welcome to attend!

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