

UNIVERSITY OF REGINA
Department of Biology
SEMINAR NOTICE

All students, faculty, staff, and visitors are welcome!

Speaker: Dr. Linda Campbell
Department of Environmental Science
Saint Mary's University

Date: Friday, September 16, 2022

Time: 2:30 p.m.

Place: CL 130



Invasive Chain pickerel & species at risk: What is going on in the Maritimes?



Chain pickerel (*Esox niger*) and smallmouth bass (*Micropterus dolomieu*) were introduced to a few Nova Scotia lakes in the 1940's for recreational fishing. Since then, the number of waterbodies throughout the Maritimes Provinces with those species have increased significantly, including those containing COSEWIC-listed vulnerable species. Chain pickerel and smallmouth bass are prolific predators which can impact native species and food web structures in a short time. While anecdotal information and stomach content analyses have indicated that native species (e.g., amphibians, small fish, large invertebrates) are rapidly declining in impacted watersheds, there has been no quantitative food web analyses to date to support those observations. Stable isotopes of nitrogen ($d^{15}N$) and carbon ($d^{13}C$) are a long-established tool to quantitatively assess food web connections and model dietary shifts within lakes. Mercury analyses provide information on food web connectivity since mercury consistently biomagnifies in food chains. We sampled fish and invertebrates from over 15 lakes across Nova Scotia plus a lake in New Brunswick. In addition, we have collected unpublished datasets for several lakes. Two lakes in this dataset, Lake Utopia NB and Blackett Lake NS, have been sampled at least twice, providing an opportunity to include temporal and spatial comparisons. Our stable isotope data confirm that chain pickerel and smallmouth bass are integrated into food webs and are profoundly altering food web dynamics. This is cause for concern for several Species at Risk, including yellow lampmussel (*Lampsilis cariosa*), small-bodied Lake Utopia rainbow smelt (*Osmerus mordax*), as well as other vulnerable species including cyprinids, white perch (*Morone americana*) and brook trout (*Salvelinus fontinalis*). Furthermore, there are implications for contaminant transfer in food webs which may impact mercury advisories for the public across Nova Scotia and New Brunswick.