



Vale **LIVING WITH LAKES CENTRE** **CENTRE POUR LA VITALITÉ DES LACS** Vale

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GRADUATE RESEARCH ON FOOD WEBS OF ACID-RECOVERING LAKES **Cooperative Freshwater Ecology Unit, Laurentian University**

The Boreal Shield Ecozone (BSE) contains a diversity of lakes that support culturally and economically valuable fisheries. Community structure of these lakes broadly reflects post-glaciation dispersal, landscape position and limnological conditions but can be altered by various anthropogenic stressors. The community structure can in turn influence how energy and nutrients flow through the food web, and ultimately, support fish production.

During the mid-20th century acid deposition damaged aquatic ecosystems over a vast area of northeastern Ontario and many lakes lost some or all of their resident fish populations. Emissions reductions have since allowed most of the affected lakes to return to a chemically habitable state (i.e., pH > 6), but full biological recovery is lagging as many of the acid-sensitive species that were extirpated cannot easily re-colonize. Acid-recovering lakes therefore typically contain fewer species than unimpacted lakes of similar size. Our objective is to determine how food web structure and function may be altered under these conditions of lower biological diversity. Stable isotope metrics will be used to characterize and compare food webs of lake trout lakes of varying community complexity. These will include acid-recovering lakes representing a range in species richness as well as reference (unimpacted) lakes of similar size. Results will be used to inform and guide ongoing restoration efforts in this region.

I am seeking a motivated student to conduct graduate research on this project at the MSc level. Applicants should have strong quantitative, organizational, and writing skills, and be willing to develop and undertake a field-intensive program in a challenging environment. Knowledge in limnology, fish biology, and restoration ecology, and experience with fish sampling, database management and statistical analyses are definite assets.

Students will be based at the Cooperative Freshwater Ecology Unit (CFEU), housed in the Vale Living with Lakes Centre (<http://www.livingwithlakes.ca>) at Laurentian University. Students will work with a multidisciplinary team of researchers from academia, the Ontario Ministry of Natural Resources and Forestry (MNRF) and the

Ontario Ministry of Environment, Conservation and Parks (MECP), and will have access to extensive, long-term databases for fish communities and water quality.

Salary will be at current NSERC rates, with opportunities to supplement through graduate teaching assistantships and scholarships. Starting dates are negotiable from January 2024 onwards.

Please forward a CV, a statement of research interests and qualifications, copies of transcripts, and names of three references to: **Dr. Tom Johnston**, Cooperative Freshwater Ecology Unit, Vale Living with Lakes Centre, Laurentian University, Sudbury, ON, Canada. tjohnston@laurentian.ca

