

Graduate Positions to Study the Physiology and Control of Sea Lamprey in the Departments of Biology, Wilfrid Laurier University & Biological Sciences, University of Manitoba.

Lampreys are ancient, jawless fishes that diverged from the main vertebrate lineage over 400 million years ago. All lampreys begin life as filter-feeding larvae before they undergo metamorphosis into juvenile lampreys that have a sucker-like oral disc. Some species, such as the sea lamprey, are parasitic and feed on the blood of fishes. The invasion of the Great Lakes by sea lamprey in the early 20th century contributed to the collapse of many important fisheries. Populations are now controlled using chemicals called lampricides and dams that block their migration. We are hiring at least four students (2 MSc, 2 PhD) to learn more about sea lamprey physiology and to improve methods of sea lamprey control in the Great Lakes.

Graduate projects may focus on: **(i)** the effects of warming temperatures due to climate change on the physiology of sea lamprey and the effectiveness of lampricides; **(ii)** how native, non-parasitic lamprey species respond to changing environments and lampricides; **(iii)** how metabolism, gill structure and function change during the sea lamprey life cycle as they move between freshwater and seawater environments.

In partnership with collaborators at the University of Manitoba, students will perform field collections of larval lampreys throughout Ontario and Eastern Canada and conduct their studies in Laurier's fully equipped biology labs and aquatic facilities. PhD positions to conduct genetic analyses will be hosted at the University of Manitoba. Methods and skills to be learned will be project dependent and may include molecular biology (e.g. mRNA expression, protein quantification), immunohistochemistry to study tissue structure and function, biochemical assays of energy stores, metabolites, and stress hormones in different organs and tissues (e.g. gills, muscle, liver), and respirometry to measure whole animal metabolic rate.

Qualifications: Interested students should have training in the biological sciences or a related discipline, preferably with research experience obtained by completing an MSc thesis, B.Sc. undergraduate research project, or volunteer work. A minimum B average is required for admittance to either MSc or PhD programs.

Preferred Starting date: September 2024, with some flexibility on start date.

Financial support: The minimum level of financial support will be \$ 25,630/year for M.Sc. Students & \$ 29,500/year for Ph.D. students including a full teaching assistantship & university scholarship.

Applications: Interested applicants should contact either:

- Dr. Michael Wilkie, Dept. Biology, Wilfrid Laurier University. Email: mwilkie@wlu.ca
- Dr. Ken Jeffries, Dept. Biological Sci., University of Manitoba. Email: Ken.Jeffries@umanitoba.ca
- Dr. Brittney Borowiec, Dept. Biology, University of Waterloo. Email: bborowiec@uwaterloo.ca

Please briefly describe your training, why you wish to pursue graduate studies, and provide a copy of your university transcript (unofficial transcript is acceptable), plus an up-to-date *curriculum vitae* (CV). Review of applications will begin immediately.

We seek to further build a diverse, inclusive and supportive team of researchers and trainees at WLU and the University of Manitoba, and encourage all qualified individuals to apply. We especially welcome applications from qualified members of equity-deserving groups including women, Indigenous persons, and members of other historically-excluded and under-represented groups including, but not limited to, racialized, LGBTQIA2S+, and/or disabled students. To learn more about equity and inclusive programming at both institutions please refer to <https://www.wlu.ca/about/discover-laurier/equity-diversity-and-inclusion/index.html> and <https://umanitoba.ca/career-services/equity-resources>.