Graduate Student Opportunity in Fish Ecotoxicology

Project Description

An international team of ecotoxicologists, chemists, and engineers have come together to better understand the effects of pipeline oil spills in Canada's west coast rivers on Chinook salmon (*Oncorhynchus tshawytscha*). This ambitious research program involves simulating spills of diluted bitumen in outdoor experimental rivers at the Quesnel River Research Center in British Columbia. This study will answer whether residual oil trapped in salmon rearing habitats impairs the health and survival of Chinook embryos. Learn more about the project: https://qe3research.ca/roe-project/

Position Details

The successful candidate will enroll in a graduate program (MSc or PhD) in the Department of Biology or School of Environmental Studies at Queen's University in Kingston, Ontario, Canada. The student will be supervised at Queen's by Dr. Diane Orihel (Associate Professor at Queen's University and Director of QE3 Research Group), and co-supervised by Dr. Jason Raine (University of Northern British Columbia). The student will conduct their thesis research at the Quesnel River Research Center on the toxic effects of diluted bitumen on early life stage salmon.

Desired Qualifications

- University degree in Biology, Environmental Sciences, or related field
- BSc-Honors (for MSc Position) or research-based MSc (for PhD Position)
- Theoretical knowledge of fish biology and/or fish ecotoxicology
- Practical experience, or interest, in handling and sampling fish (or other aquatic vertebrates)
- Desire to do field research at a remote field station in British Columbia
- Team-oriented and committed to promoting equity, diversity, and inclusion

To apply, please email an application package to QE3recruitment@gmail.com (with the subject **"ROE24")** containing the following:

i) One-page cover letter explaining your interest in the project, how you meet the desired qualifications, and stating whether you are a Canadian citizen or permanent resident;

ii) University transcripts;

iii) A writing sample (e.g., thesis or published paper); and

iv) Contact information (name, position, affiliation, work email) for 3 references.

Application deadline is November 15, 2024, but early applications are encouraged.

Applications from Indigenous, Black, LGBQT+, and persons from other underrepresented groups are welcome.

Queen's University

QE3 Queen's Experimental Ecotoxicology for Environmental Policy

www.qe3research.ca

UNBC University of Northern British Columbia

Quesnel River Research Centre QRRC

MASTERS PROJECT OPPORTUNITY

Investigating Lake Biodiversity Using Environmental DNA (eDNA)

THE PROJECT

OUR LAKES OUR FUTURE
Te Mana o Te Wai, Te Mauri o Te Wai

We are seeking an enthusiastic and motivated student for a Masters project on using environmental DNA (eDNA) to study lake biodiversity. This project, a collaboration between Queen's University (Canada) and the Cawthron Institute (New Zealand), is part of Cawthron's *'Our Lakes, Our Future'* programme (https://ourlakesourfuture.co.nz/).

Lakes face increasing pressure from multiple stressors, but we lack methods to effectively identify and prioritize them for mitigation, often hindering restoration efforts. Our team aims to develop a world-leading approach for measuring lake health that includes cultural and ecological values.

We will create new tools, including robust eDNA methods, to assess biodiversity and food webs, producing an effective approach to evaluating lake health beyond traditional water quality metrics. ***The successful candidate will use eDNA to explore innovative methods to monitor biodiversity and changes in New Zealand lakes, informing and enhancing ecosystem health management***.

THE CANDIDATE

We are looking for a candidate with an interest in environmental DNA techniques and in technical sampling and laboratory approaches, as well as a passion for lakes and their aquatic communities. The ideal candidate would be proficient in R and comfortable carrying out laboratory work and analyses, as the project includes the development and application of molecular techniques and assays in the lab. The candidate might also be expected to participate in fieldwork, collecting water and sediment samples from lakes.

KEY REQUIREMENTS

- A strong background or interest in molecular biology, limnology, or aquatic ecology.
- Excellent analytical and problem-solving skills.
- Strong written and verbal communication abilities.
- Ability to work independently and as part of a collaborative team, with a commitment to fostering equity, diversity, and inclusion.
- Canadian citizen or permanent resident.

ACADEMIC PROGRAM

The successful candidate will apply to study at Queen's University (Kingston, Ontario). The candidate will enroll in the M.Sc. program in the Department of Biology or the M.E.S. program in the School of Environmental Studies under the supervision of Dr. Diane Orihel, director of the QE3 Research Group (https://qe3research.ca/). The successful student will spend 4-6 months in New Zealand working on thesis research at the Cawthron Institute (Nelson, South Island), under the supervision of Dr. Georgia Thomson-Laing.

PROJECT SKILLS

The student will hone the following skills through their academic program and thesis research:

- Molecular assay development
- Digital droplet PCR Metabarcoding
- Bioinformatics
- R analysis
- Fieldwork in lakes
- Sample analysis in molecular laboratory
- Communication skills

TO APPLY

Please email the following to QE3recruitment@gmail.com (with the subject "OLOF24") by **November 15, 2024:**

(i) Cover letter, stating your interest in the project, how you meet the key requirements, and confirming that you are a Canadian citizen and/or permanent resident of Canada.
(ii) Unofficial transcripts from your previous university degree(s).
(iii) One writing sample, e.g., first-authored scientific publication, Honours thesis, or academic essay.
(iv) Contact information (official work email address) for two academic or work references.

Applications from Indigenous, Black, LGBQT+, and persons from other underrepresented groups are welcome.

QE3 Queen's Experimental Ecotoxicology for Environmental Policy

Queen's University

CAWTHRON