

Matthew Watkins

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Research Profile

My M.Sc. research is focused on the effects of forest disturbance on water quality in 30 watersheds located within the Boreal Shield ecozone. In particular, examining how these watersheds are chemically responding (i.e., estimating dissolved organic carbon fluxes from spot samples and discharge measurements) to recent insect infestation, wildfire and harvesting events in order to evaluate downstream implications on clean drinking water at the landscape scale.

Education

M.Sc. Candidate – Environmental & Life Sciences

Sept. 2020 – Exp. 2022

Trent University, Peterborough, ON

B.Sc. – Physical Geography

May 2018

Simon Fraser University, Burnaby, B.C.

Experience

Trent University

Sept. 2020 – Present

Graduate Teaching Assistant

Trent University

May 2020 – Aug. 2020

Research Assistant

- Analysed ice, streamflow and climate data to examine if peak flows for numerous watersheds east of Lake Superior were changing temporally
- Created seasonal climate (temperature and precipitation) summaries via random point generation for each watershed

Simon Fraser University

Nov. 2019 – Apr. 2020

Open Education Research Assistant

- Refined 14 module resources for an introductory course in Physical Geography that have been used successfully for three semesters
- Worked in co-operation with the Teaching and Learning Centre to research and compile engaging and impactful open-source multimedia resources
- Utilised Microsoft Word, Google Drive and Zotero to edit, script and organize media, materials, definitions and references into an online-textbook platform

Douglas College

Aug. 2019 – Nov. 2019

Volcanology Research Assistant

- Performed water quality sampling for pH, temperature and dissolved solids at two hot springs
- Analysed lab data and created a foundational time-series dataset to track water geochemistry

Douglas College

Apr. 2019 – Jul. 2019

Insect Ecology Research Assistant

- Conducted multiple ground surveys for a habitat assessment project involving at-risk beetle species
- Identified salt marsh plant species associated with beetle habitat and completed quadrat sampling
- My work on *Omus audouini* was included and presented at the CSEE, ESC, & AES 2019 Joint Meeting
- Assisted Dr. McGregor with microscope-based beetle identification in weekly lab sessions

City of Surrey

May 2016 – Dec. 2018

Engineering Labourer

- Inspected odour control units and monitored a network of 50 sanitary, drainage and water stations
- Operated five-ton trucks in an unsupervised environment
- Trained new student hires and led group fieldwork for two years
- Interacted with the public on a daily basis and helped resolve complaints

Additional Skills

- Surface water hydrology study design, implementation and monitoring in remote areas
- Hydrological data collection, processing and analyses – R; HOBO U20L; rating curve development (ongoing); mass flux estimation (future)

Licenses and Certifications

First Aid Level 1; RPAL/PAL; Swift Water Awareness Level 1; Ontario G License; ICBC Defensive Driving; Blood-borne Pathogen Safety

Membership**Professional Geoscientists of Ontario**

Dec. 2020 – Present

*Geoscientist-in-Training***Extracurricular****SFU Ban the Bottle**

Nov. 2019 – Apr. 2020

Member

- An initiative supported by the Pacific Water Research Centre that aims to stop the sale of plastic water bottles on campus

Nature Work Parties

Feb. 2019 – Sept. 2020

Volunteer

- Enhanced and maintained Surrey parks by removing invasive plants species, planting native trees and cleaning up waste