



## PHD IN ECOLOGY

### Impact of forest harvesting on the functioning and health of lakes in the Abitibi region

**Context and problematic:** The boreal forest is the largest forest biome in the world. It is characterized by large areas of land covered by trees in constant interaction with diverse aquatic environments. These aquatic habitats, such as boreal lakes, are therefore largely dependent on the boreal forest for their functioning. Consequently, anthropic disturbances such as forest harvesting can strongly influence the functioning and health of these lakes, especially by causing an additional supply of nutrients and organic matter. However, the consequences of forest harvesting on the functioning and resilience of aquatic food webs are still largely unknown. For example, these new additions can either promote biological growth via nutrients or decrease it due to reduced light penetration into the water. In addition, total cutting, which is the silvicultural method with the greatest potential impact on aquatic ecosystems, is the most widely used in Quebec and Canada. To achieve sustainable forest ecosystem management, it will therefore be important in the future to account for the impact of forest harvesting on the structure, functioning and health of aquatic ecosystems.

**Project description:** The objective of this PhD project is to determine the impact of forest harvesting on the functioning and health of lake ecosystems in the boreal forest. Several lakes in northern Abitibi will be sampled before and after logging to assess the consequences on the lake physico-chemistry and on the structure, functioning and health of the aquatic food webs. The entire food web will be studied, from bacteria to fish, phytoplankton, zooplankton and macroinvertebrates, using techniques such as stable isotopes and fatty acids.

#### Required profile:

- **Education:** Master's degree (or equivalent) in ecology, biology or environmental sciences with a particular interest in aquatic environments and/or the forest ecosystem.
- **Requirement:** Be motivated and determined to contribute to the improvement of ecosystem management and preservation. Enjoy working outdoors in a natural environment and as part of a team. Driver's license.
- **Skills:** Leadership, autonomy, dynamism, organizational skills, determination, curiosity
- **Assets:** Have followed courses in statistics, knowing how to swim, first aid training.
- **Equity, Diversity, Inclusion:** Priority will be given to applications from under-represented groups (Indigenous peoples, women, visible and ethnic minorities, LGBTQ+).

**Start date:** Spring 2021

**Location:** The student will be based at the Forest Research Institute (IRF) on the campus of the Université du Québec en Abitibi-Témiscamingue (UQAT, <https://www.uqat.ca/en/>) in Amos. The IRF is a team of researchers with expertise in the study of the boreal forest that is unique in Canada. The Amos campus offers a quality environment to students, close to nature, offering many cultural activities and a high quality of life thanks to its numerous outdoor activities. Our research team is young, dynamic and multicultural. Although UQAT is a French-speaking university, we know the importance of a bilingual environment to succeed in research and any student who can express himself/herself in English is welcome in our program. The student will be a member of the Groupe de Recherche en Écologie de la MRC-Abitibi (GREMA), the Chair in Sustainable Forest Management (<http://chaireafd.uqat.ca/>) and of strategic groups of excellence in Canada: the Groupe de Recherche Inter-universitaire en Limnologie ([https://oraprdnt.uqtr.quebec.ca/pls/public/gscw031?owa\\_no\\_site=843&owa\\_no\\_fiche=91](https://oraprdnt.uqtr.quebec.ca/pls/public/gscw031?owa_no_site=843&owa_no_fiche=91)) and the Centre d'Étude de la Forêt (<http://www.cef-cfr.ca/index.php?n=Actualit%e9.Accueil?userlang=en>). The student will work closely with our partners

(MRC-Abitibi, forestry companies, MFFP). The campus is equipped with all the equipment necessary for the success of the project (zodiac, multi-parameter probe, spectro-fluorometer, microscopes, nets, etc.). The project will include a significant portion of remote field work to sample lakes in the middle of the Abitibi boreal forest, as well as laboratory analyses and scientific paper writing. The student will also make an international internship with our collaborators in Sweden.

**Financial support:** Grant of \$21,000 per year for 3 years.

**Supervision:** Miguel Montoro Girona ([https://www.researchgate.net/profile/Miguel\\_Montoro\\_Girona](https://www.researchgate.net/profile/Miguel_Montoro_Girona)) and Guillaume Grosbois ([https://www.researchgate.net/profile/Guillaume\\_Grosbois](https://www.researchgate.net/profile/Guillaume_Grosbois)).

**To apply:** Send your CV, cover letter, transcripts and the contact details of two references to the attention of Guillaume Grosbois ([guillaume.grosbois@uqat.ca](mailto:guillaume.grosbois@uqat.ca)) and Miguel Montoro Girona ([miguel.montoro@uqat.ca](mailto:miguel.montoro@uqat.ca)).

We look forward to receiving your application and share a great professional adventure in the boreal forest with you!

**Application deadline:** Feb, 10th 2021

**Further information:**

- City of Amos <https://amos.quebec/>
- MRC-Abitibi <https://mrcabitibi.qc.ca/>
- Parc National d'Aiguebelle and Parc National Opémican [https://www.sepaq.com/pq/aig/index.dot?language\\_id=1](https://www.sepaq.com/pq/aig/index.dot?language_id=1)  
<https://www.sepaq.com/pq/ope/>
- Tourism Abitibi-Témiscamingue : <https://www.abitibi-temiscamingue-tourism.org>



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### Study in the heart of Québec's great outdoors

Set in a region where wilderness, lakes, and forest stimulate creativity and foster talent, UQAT is different by nature.

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### A world of high-calibre research

Research activities at UQAT are producing remarkable results in a range of scientific fields. According to the 2020 independent firm RESEARCH Infosource Inc., UQAT is

second in Canada for per-faculty research intensity in the undergraduate category (full-service universities, excluding universities with medical schools).  
With 22,000 lakes and endless miles of boreal forest, Abitibi-Témiscamingue is a dynamic place full of creative people, new ideas, and bold projects. [See what our students have to say!](#)

second in Canada for per-faculty research intensity in the undergraduate category (full-service universities, excluding universities with medical schools).

With \$10.5 million in research per year and state-of-the-art laboratories, UQAT is an exceptional environment for graduate students. Many of our students have achieved excellence in their chosen fields and many of our professors have been recognized for the quality of their research and their innovative spirit. [Find out more](#)

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One visit is enough to know that UQAT is a first-class institution. The Student for a Day program is the best way to learn more about UQAT, visit the campus that interests you, and meet professors and students.

We'll tailor the visit to your needs and interests!

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