

## Bioinformatics and Environmental Genomics

**Preferred Disciplines:** Biology, Bioinformatics (Postdoc Position)

**Project length:** 2 years, renewable for 3<sup>rd</sup> year

**Approx. start date:** February 1<sup>st</sup>, 2018

**Location:** McGill University, Montreal, QC

### Summary of Project:

The Postdoctoral Fellow will be involved in long-term and highly replicated laboratory and field experiments on the effect of multiple stressors on the structure and function of aquatic communities. The research will involve developing and implementing bioinformatic tools for analysing metabarcoding and metagenomics data sets and assessing biodiversity trends for broad taxonomic groups (bacterial, phytoplankton, zooplankton). The fellow will compare biodiversity estimates obtained from traditional sampling techniques with estimates based on refined metabarcoding approaches to describe the biodiversity of contaminated aquatic habitats and will characterize genomic responses to selection. The project involves the biodiversity group at McGill University and collaborators from the Biodiversity Institute of Ontario (BIO), University of Guelph, University of Quebec at Montreal and University of Montreal.

**Research Objectives/Sub-Objectives:** 1) Develop sensitive metabarcoding bioinformatics protocols to describing aquatic communities; 2) Investigate the impact of multiple stressors on complex aquatic communities; 3) Characterize genomic responses to selection.

**Methodology:** 1) Use high-throughput sequencing to develop metabarcoding and metagenomics protocols for describing aquatic communities in complex environmental samples; 2) Validate protocols; 3) Apply protocols on highly replicated field experiments.

### Expertise and Skills Needed:

Experience with next generation sequencing or very-large sequence data and related bioinformatics / computational / programming skills is required. Familiarity with one or more of the following would be an advantage: genomics, phylogenetic analyses, genome evolution / programming language (R/Unix/Python or Perl). Experience working with aquatic organisms would be an asset. The candidate should have a PhD in evolution / genetics / computational biology, a good publication record and the ability to work well in a collaborative research environment.

Applicants should send a curriculum vitae, short statements of research interests, and 3 representative publications to [melania.cristescu@mcgill.ca](mailto:melania.cristescu@mcgill.ca). The application deadline is December 30, 2017.

McGill University is strongly committed to diversity and equity within its community. McGill University is among Canada's leading research-intensive universities with students from over 140 countries. The university is located in Montreal, a cosmopolitan city with great cultural and linguistic diversity.