

Hakai Coastal Initiative Postdoctoral Fellowship in the Biodiversity Change



Photo: View from Quadra Centre for Coastal Dialogue, where working group meetings will take place.
Credit: M. Whalen.

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Applications are invited for a two-year postdoctoral fellowship (PDF) to study biodiversity change and to compare diversity change across methods, scales and levels of biological organization.

Overview: Most scientists agree that the biosphere is experiencing a biodiversity crisis – loss of diversity, biotic homogenization and reorganization of trophic structure of ecological systems from local to global scales. Recent estimates indicate 1-million species are threatened with extinction (IPBES 2019). However, one of the most intense controversies in ecological science in recent years has been about whether data from biodiversity observation programs actually show biodiversity loss! When measured on small plots (0.01 – 1ha) biodiversity data do not convincingly show a net decline in the number of species in many places on the planet; many sites appear to show gains and losses of species. This finding has spurred serious criticism, controversy and debate over how we observe and compare biodiversity measurements. Given the growing emphasis on biodiversity monitoring, assessment and conservation in national and international policies, more effective methods are needed for guiding investment in biodiversity monitoring, and for effectively synthesizing existing observations. This project aims to develop new standards to quantify biodiversity change and assess the causes of change. In collaboration with researchers at Hakai, UBC, University of Victoria, and a working group of biodiversity scientists, this postdoctoral fellow will lead data syntheses of existing biodiversity monitoring data, and also develop guidelines and approaches to use when planning future syntheses and monitoring. At a time when institutes and governments are providing substantial

funding for biodiversity monitoring, it is essential that we develop robust methods for establish the status and trends for the diversity of life on Earth.

Project goals: The research problems to be tackled by the postdoc and working group, are:

- 1) How is biodiversity changing across scales of life (genetic, population, species, traits, etc)?
- 2) How can we most effectively combine established methods and emerging technologies to robustly detect and attribute biodiversity change?
- 3) Can we offer guidelines and a model for biodiversity observation in a time of global change?

Postdoctoral Responsibilities: The postdoc will be responsible for the following objectives, within the context of the overall project as described above:

- A. To work with Hakai scientists on existing biodiversity estimates to combine datasets across taxa, methods and scales to obtain a deeper understanding of biodiversity, as well as the uncertainties associated with biodiversity estimates. Hakai research staff have cleaned and prepared datasets, and the postdoc will analyze these using state of the art statistical approaches. Critical to this project is the ability to consider uncertainties in biodiversity observation, and how to consider these in data syntheses across taxonomic groups, scales and methods.
- B. To apply, and develop if needed, robust methods for detection and attribution of biodiversity change.
- C. To participate in a working group of scientists engaged in biodiversity monitoring, synthesis and biodiversity change assessment to produce new research on biodiversity change using new methods and data (objectives 1 and 2).

Requirements:

- Strong understanding of biodiversity science, biodiversity estimation and related theory.
- Demonstrated high-level skills in statistical analysis, simulation and visualization of large datasets.
- Some familiarity with biodiversity policy and conservation, such as IPBES, GeoBon, and CBD.
- Willingness to work collaboratively with group of scientists with diverse experiences in biodiversity observation and assessment of change.
- Capacity to lead projects with collaborators, excellent communication skills, and demonstrated ability to finish projects on time.

Additional details: Hakai is a research organization based in British Columbia with substantial biodiversity observations collected by experts in fish, invertebrates, microbes, seaweeds and other taxa. The PDF will have the opportunity to visit field stations occasionally, though this project is entirely focused on analysis and synthesis of data that has already been collected. The position will be based at UBC in Vancouver.

This is a limited term, two-year PDF position paid at a rate of \$55,000 CAD per year plus Mandatory Employment Related Benefits with an opportunity for renewal given satisfactory performance and funding availability. A research budget is also available. We seek a candidate who has completed a PhD within the last five years and who shows evidence of strong quantitative skills, biodiversity science and current topics relating to detecting and attributing biodiversity change.

To apply, please send a cover letter, CV and two research publications to Dr. Mary O'Connor by email (oconnor@zoology.ubc.ca). Your cover letter should address your motivation to excel in this project, and the skills and experience you can bring to the work. Review of applications will begin on March 10th and we hope to fill the position for a start date of June 1 2020, but this is somewhat flexible.