



THE UNIVERSITY OF BRITISH COLUMBIA



January 12, 2021

## **Doctoral Candidate advertisement: *Cost-benefit analysis of managed retreat scenarios***

### **Project description**

The University of Waterloo's Geography and Environmental Management Department is offering a full-time opportunity for a doctoral candidate in cost-benefit analysis of managed retreat scenarios to support *Living with Water*, a Pacific Institute for Climate Solutions (PICS) \$1M research partnership, led by the University of British Columbia. *Living with Water* brings together an interdisciplinary group of researchers with decision-makers from multiple municipalities and First Nations communities in the South Coast of British Columbia. The project will study the impact of sea level rise on this region, and develop solutions across local and regional scales to help coastal communities successfully plan and adapt to uncertain futures. The project will develop effective tools and frameworks to support solutions across shared ecosystems and shorelines, including frameworks for collaboration, integrated policies, design guidelines, and coordinated governance arrangements.

The doctoral student will be advised by Prof. Brent Doberstein (<https://bit.ly/3bkH4IB>), and will receive interdisciplinary training in climate change adaptation, hazard risk reduction, cost benefit analysis/full-cost accounting, and managed retreat. The student will pursue the application of cost benefit analysis for managed retreat scenarios related to long-term adaptation planning for urban coastal communities vulnerable to climate change impacts. Four years of funding for this position will come from a combination of Research Assistantship and Teaching Assistantship support, which collectively will meet or exceed the University of Waterloo's "Guaranteed Minimum Funding for Doctoral Students" requirement: <https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/current-students/minimum-funding>. The preferred start date is Fall 2021.

### **Project Context for Doctoral Research**

From the Project Proposal: As an alternative to maintaining 'hard' defenses (hold-the-line) to protect land from increasing sea levels, managed retreat purposefully allows coastlines and communities to recede further inland. This can assist the landward migration of intertidal habitat, which both mitigates coastal habitat fragmentation as well as providing natural protection from storm surges and erosion. In parallel with other project components, we will use case study sites to undertake an extended cost-benefit analysis (CBA) of conceptual managed realignment scenarios, which will be compared to conventional hold-the-line options. Using a full-cost accounting framework, the CBA will analyze long-term impacts of the various adaptation strategies by assessing implementation costs, buyouts and relocation costs, economic impacts as well as impacts to social welfare, ecosystem services, and carbon emissions/storage. The doctoral research will facilitate analysis of cost effective adaptation solutions, and analysis of trade-offs between holding-the-line approaches vs retreat approaches that could guide the implementation of long term and sustainable adaptation goals.

### **Research responsibilities**

The successful candidate will be expected to:

- Review the managed retreat literature to identify previous examples of cost benefit analysis for managed retreat implemented as part of recent coastal or riverine flood adaptation in developed countries.

- Contribute to the development of research protocols and methodologies for cost benefit analysis of managed retreat, using the concepts of full cost accounting and lifecycle assessment.
- Conduct one or more case study analyses of managed retreat scenarios for locations in the Lower Mainland facing significant sea level rise threats (i.e. coastal inundation, landward habitat loss, community flooding, infrastructure damage, etc).
- Carry out interviews, focus group sessions and/or workshops with the policy-practice community to communicate findings and solicit feedback from coastal adaptation practitioners and solution-seekers.
- Present research ideas and findings in academic fora, and local and regional workshops/conferences.
- Contribute to the development of peer reviewed publications, white papers and technical reports.
- Provide general support for Project Component B1: “Defining critical infrastructure, nature-based solutions and managed retreat in the B.C coastal context”

### **Eligibility criteria:**

The ideal candidate is someone who:

- Holds a degree at the Master’s level in a relevant field (e.g., Geography, Planning, Landscape Architecture, Urban Studies, Economics)
- Has a background in, and experience with cost benefit analysis, ecological economics, full cost accounting, and/or lifecycle assessment.
- Has a good working knowledge of climate change adaptation, disaster risk reduction, and managed retreat.
- Has knowledge about coastal communities in Canada including issues associated with sea level rise, coastal vulnerability, and marine-related social and economic activities, particularly in Canada
- Has experience and interests in research collaborations with municipalities, First Nations, and professionals concerning the development of adaptation strategies;
- Works well both independently and as part of an interdisciplinary team
- Has strong time management, organizational, and project management skills, and
- Is able to communicate effectively with researchers in various disciplines and with non-academic members of governments, communities, and the private sector

### **Deadline for submission of application:**

Candidates should submit their application including all supporting documentation by **February 28, 2021**. Applicants are strongly advised to be in email touch with Prof Doberstein prior to submitting an application, both to answer any questions you might have and to clarify whether your background is likely to be competitive.

### **Application Procedures**

Candidates must apply through the Ontario Universities’ Application Centre (OUAC).

<https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/future-students/applying-graduate-school/applying>

Your application package must include:

1. Statement of interest describing your suitability for the position as well as relevant background and skills
2. Curriculum Vitae
3. Official transcripts of all course work completed at the post-secondary level
4. Three letters of references (one reference should be your Master’s thesis advisor)
5. One or more examples of your past writing (e.g. published papers, term papers, a link to your Master’s thesis, etc)

**Further information:**

Applicants requiring further information should contact Prof. Brent Doberstein ([bdoberst@uwaterloo.ca](mailto:bdoberst@uwaterloo.ca))



**Background:**

- <https://www.uvic.ca/news/topics/2020+living-with-water-pics+media-release>
- <https://globalnews.ca/news/6102304/sea-level-rise-metro-vancouver/>
- <https://www.sciencedirect.com/science/article/pii/S0301479719314719?via%3Dihub>
- [https://www.nature.com/articles/nclimate3252?WT.feed\\_name=subjects\\_climate-change-adaptation](https://www.nature.com/articles/nclimate3252?WT.feed_name=subjects_climate-change-adaptation)