

Integrating, modelling, and translating the ecosystem services implications of land use on the Bay of Fundy coast
ResNet Post-doctoral Fellow (L1-PDF1)

Start date: negotiable, ideally September 2021 or as soon as possible thereafter

Salary: \$50,000 per annum + benefits

Duration: 2 years

Location: Dalhousie University, Halifax, Canada, with remote work as needed during COVID

Supervisors: Dr. Kate Sherren (Dalhousie) and Jeremy Lundholm (TransCoastal Adaptations/CBWES)

Description

This is an exciting opportunity for a highly motivated and integratively minded quantitative geographer or interdisciplinary scientist to join a rich and diverse applied research network, NSERC ResNet (<http://nsercresnet.ca>). ResNet's mission is to "support Canada's capacity to monitor, model, and manage its working landscapes and seascapes (and all the ecosystem services they provide) for the long-term shared health, prosperity and resilience for all Canadians through community-engaged research". The network includes leading universities across Canada, as well as Indigenous, government and industry partners, and has linkages to international networks such as FutureEarth, PECS, The Natural Capital Project and the Resilience Alliance.

The Bay of Fundy is one of six ResNet landscape case studies being used to explore the ecosystem service tradeoffs of land use decision-making in production landscapes. We focus in this landscape on the future of agricultural dykelands and tidal wetlands in the face of climate change. The primary research team is currently involved in explorations of services in dykelands and wetlands such as pollination, carbon sequestration, wave attenuation, salt-water intrusion, food provision and cultural services.

This PDF will sit at the centre of the Bay of Fundy landscape team and be a primary liaison with the three overarching ResNet themes (governance, modelling and monitoring) and synthesis teams. The PDF will receive primary data and research findings from the larger team, and will integrate and translate those findings into a shared modelling space, with a range of other spatial datasets, to explore the tradeoffs involved (and for whom) in decisions such as dyke reinforcement, dyke removal/realignment and/or salt marsh restoration. The end points of the landscape-scale models will not be as important as the process of building them: they will be used for conversation and collaborative learning rather than as legacy deliverables. To that end, the PDF will engage with landscape partners (e.g., NS Dept of Agriculture, AAFC, CBWES, Confederacy of Mainland Mi'kmaq) on land use scenarios; project-level partners (e.g. Statistics Canada, Apex RMS, Alces) on techniques of modelling and ecosystem accounting; and the other five ResNet landscapes as appropriate on shared ES issues. The PDF will also be expected to provide some project administrative support to the Bay of Fundy landscape case study co-leads (the co-supervisors) and play a lead role in liaison around the ResNet-level dashboards and data portals.

The position will be based at Dalhousie University's School for Resource and Environmental Studies and be co-supervised by Dr. Kate Sherren and Dr. Jeremy Lundholm who is affiliated with CBWES Inc, TransCoastal Adaptations: Centre for Nature-based Solutions (transcoastaladaptations.com) and the Biology Department of nearby Saint Mary's University. ResNet launched in late 2019 and has developed a strong community, and offers significant networking, professional development and mobility opportunities, as well as many opportunities for publication of research contributions as lead and co-author.

The successful candidate must have an integrative mindset and strong quantitative skills, able to perform data aggregation, synthesize primary research findings already published and underway, and build and work with landscape scenario models with the support of modelling and monitoring activities coordinated by other elements and partners of ResNet. The PDF must have strong analytical abilities; strong written and oral communication abilities in English; skill in data visualization and communication; an independent but collaborative work style; and competence communicating across difference (culture, discipline, etc). There will be scope for a motivated and self-driven PDF to transition from mentored research to an independent research agenda.

ResNet aspires to equity of opportunity, diversity that is representative of our larger community, and a culture of inclusion. We welcome applications from people identifying as members of groups who would contribute to these aims yet may have been underserved by the academy. This includes but is not limited to Indigenous people, visible minorities, ethnic minorities, persons living with disabilities, those with minority sexual orientations and gender identities, and first-in-family scholars. It would help us to do better on the above aspirations if you share any experiences and identities you think we need to know as we make our decisions.

Ideal qualifications

- PhD in quantitative geography or similar, with strong programming experience (e.g., R, Python)
- Spatial analysis/GIS experience
- Understanding of ecosystem services concepts and modelling approaches
- Track record of technical and scholarly excellence as demonstrated through publications and potentially other outputs such as models/apps
- Strong oral, written, interpersonal and visual communication skills
- Strong data management and organizational skills
- Experience with university research grant and funding administration is desirable
- Knowledge of the Bay of Fundy context, or similar settings of agricultural drainage, coastal wetlands, or nature-based coastal adaptation will be considered an asset

Main duties

1. Review research on ecosystem service provision in agricultural dykelands and tidal wetlands (including ResNet-developed)
2. Collect and manage spatial data for the Bay of Fundy region in collaboration in line with protocols of the larger project data portal
3. Liaise with other elements of the ResNet project and partnership to achieve goals
4. Develop models to explore trade-offs of land use management decisions on the Bay of Fundy coast across space, between service subcategory, and by beneficiary
5. Develop innovative ways to communicate the results of those models for a range of audiences (e.g., storymaps)
6. Take initiative in the planning and writing up of research, as well as co-authoring where appropriate
7. Mentor junior researchers within the ResNet, landscape and supervisor teams
8. Attend ResNet and other relevant meetings, workshops, and conferences
9. Assist with the management of the Bay of Fundy landscape network and associated administrative tasks (finance, reporting)
10. Other duties commensurate with the grade of the post as directed by supervisor(s)

How to apply

Interested candidates should email kate.sherren@dal.ca (subject: **L1PDF1 application**) with a single PDF containing (in order):

- A max 2-page cover letter describing your experiential and research background, interests and qualifications as aligned with the content above
- Contact information for at least 2 references
- A full curriculum vitae, and
- One or two sample publications

Pre-submission enquiries are welcome where potential applicants have specific questions.

Open until filled. Review of applications will begin on July 1, 2021, with the applications received by **midnight June 30, Atlantic time**. Later applications will be considered if a suitable candidate is not found among those in hand by the time listed above.

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