

SUSTAINABILITY SCHOLARS PROGRAM

Fall 2020

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region.

Note: Projects must be completed remotely during the COVID-19 pandemic.

- Visit the [Sustainability Scholars Program website](#) to learn [how the program works](#) and to [apply](#).
- Be sure to review the [application guide](#) to confirm your eligibility before applying.

Applications close at midnight on Sunday September 20, 2020.

Project Title: Review of Fish-Friendly and Climate-Resilient flood control infrastructure solutions

Sustainability Goal or Operations Plan objective

This project falls under the Sustainable Cities and Communities and Climate Action topic area.

The specific goal area/sustainability objective is to better inform flood infrastructure owners on the Lower Fraser as to which technologies would be best used to replace aging flood control infrastructure with climate resilient and fish (or salmon) friendly infrastructure.

Project Overview

At the beginning of one of the most important and prolific salmon rivers in the world (the Fraser River between Richmond and Hope), over 1,500 kilometers of crucial habitat are inaccessible to salmon due to over 150 aging floodgates, pumpstations, and dikes many of which are already in poor and failing condition. These structures require thoughtful and careful planning and upgrading to prepare communities for climate change impacts such as flooding and sea level rise with very limited funding to do so. At the same time, increased risk of flooding and loss of salmon is already having significant impacts on the economy, ecology, and society in the Lower Mainland and BC in general. First Nations along the Lower Fraser, and even further upstream of the Fraser are also disproportionately experiencing systemically racist cumulative impacts leaving them vulnerable to loss of food security, socio-economic development opportunities, cultural practices and cultural sites of significance. Plus, many of these communities' reserve lands fall predominantly in at-risk flood plain areas.

As it stands there is little collective understanding of the effectiveness of many technologies and nature-based solutions available around the world to ensure that flood control structures are well adapted to

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climate change, affordable and sustainable in the long term, while also providing upstream and downstream passage for salmon (and their associated habitats) that are a keystone species in the Lower Fraser River and beyond. In addition, flood infrastructure often lies on the fringes of jurisdictional responsibility and in many cases locally we would like to better understand how other governments around the world navigate flood control from a governance, regulatory, and jurisdictional perspective. The intersection of these overlapping needs requires a holistic and expedited understanding of the effectiveness of fish friendly and climate friendly solutions that are available to help inform infrastructure owners and regulators about how best to proceed in replacing these pieces of old infrastructure.

You can find more information about the Resilient Waters project here: www.resilientwaters.ca

Purpose of the Project

A review of existing literature and expert interviews to summarize available fish and climate friendly flood infrastructure solutions from a technical and jurisdictional / governance perspective. The product would ultimately inform the work of Resilient Waters, we would use it to inform the design and construction of new flood control infrastructure, and help to inform governments and regulators who would fund and guide the deployment of this infrastructure at a more systemic level.

Scope of Work:

- Become familiar with Resilient Waters and work to date, including the work of Watershed Watch Salmon Society's Connected Waters Campaign
- Work directly with Resilient Waters project manager and other team members (including Watershed Watch Salmon Society and our consultants) to guide and inform work
- Locate, organize, review, and summarize relevant and available literature on fish friendly and climate friendly flood infrastructure within reason
- Identify and interview 5 to 7 subject matter experts from around the world that would help to inform this review. The scholar would be able to draw upon a significant amount of literature already gathered as well as subject matter experts already identified and connected to our work within our team, locally, and around the world.

Deliverables

The Scholar will deliver a final report and a final presentation to Resilient Waters network and distribution list of partners and allies. The report should include:

- A summary of existing information about technological and nature-based fish and climate friendly solutions
- Case studies on 2 to 3 governance structures / jurisdictional analysis that have allowed for fish and climate friendly flood control solutions
- Recommendations for further research and analysis.
- A comprehensive report summarizing the above
- At least one presentation to our network (likely via webinar given COVID restrictions) including First Nations, local governments, infrastructure owners (e.g, port authority, diking authorities, ministry of Transportation, etc.) and government agencies at regional, provincial and federal levels (DFO, FLNRORD, Emergency Management BC, MOE, Metro Vancouver, FVRD, etc.), and academics locally and internationally.

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Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between October 19, 2020 and March 12, 2021
- The Scholar is to complete approximately 12 hours per week, on their own schedule.

Required/preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Familiarity with literature review research methodologies
- Familiarity with fish / salmon lifecycle, regulation, and conservation efforts an asset
- Familiarity with flood infrastructure and climate change impacts as they relate to increased flood-risk an asset
- Ability to work independently
- Project management and organizational skills
- Comfortable interacting with other scientists to obtain information and advice
- Interest in multidisciplinary problem solving an asset

Applications close **midnight Sunday September 20, 2020.**

Apply here: <http://sustain.ubc.ca/scholarsapply>

Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions

Useful Resources

Below are some links to useful resources to help you with your resume and cover letter (there are many more online). Some of these resources also provide information on preparing for your interview.

Resume workshop for prospective Sustainability Scholars: <https://www.eventbrite.ca/e/resume-workshop-for-prospective-sustainability-scholars-tickets-117422877989>

<https://students.ubc.ca/career/career-resources/resumes-cover-letters-curricula-vitae>

<https://www.grad.ubc.ca/current-students/graduate-pathways-success>

<https://www.grad.ubc.ca/cover-letter-cv-resume-templates-ubc-career-services>