

## Summer 2024 Internship Opportunity

# Restoration of a Native Saltmarsh Ecosystem in Esquimalt Gorge Park

### Organization

Gorge Waterway Action Society (GWAS)

### Project Background & Overview

The Gorge Waterway and its shoreline have experienced degradation, pollution, and significant adaptation since settlers first arrived and displaced the Songhees and Esquimalt Nations from their traditional territory. Since the introduction of invasive species and the engineering of the shoreline, critical native ecosystems like the saltmarsh have been damaged. The Gorge Waterway Action Society (GWAS), along with its project partners, aims to restore the saltmarsh habitat for the benefit of native, brackish tolerant species, migratory birds, salmon and other native fish, and community members including the Songhees and Esquimalt Nations.

Ecological restoration is a key strategy of climate mitigation, and restoring wetlands and riverine areas can improve water quality by capturing pollutants and sediment from land degradation. Restoration of coastal ecosystems can also help communities adapt to climate hazards such as sea level rise, storm surges and associated flooding.

The degraded saltmarsh site has experienced engineered shores, invasive species, erosion, excessive sedimentation, all contributing to the loss of habitat viability for culturally significant and keystone species such as the Coho salmon. Residential development and industrial activities along the Gorge Waterway are contributors to the overarching sustainability problem of ecosystem degradation.

### Project Description

Degradation of the Gorge by settlers has left residents and wildlife vulnerable to climate impacts like flooding, and contributed to the release of stored carbon. The goals of the project are to increase the resilience of our urban environment against such impacts, and to mitigate further climate change by sequestering carbon, a significant store of which lies in the sediments of saltmarshes and in seagrasses. Saltmarshes are also rare and critical habitats for migratory birds and native plant species, the latter of which can buffer coastal communities against storm waves and decrease air temperatures. The broader project objectives include increasing the volume and diversity of native species in the saltmarsh, empowering the community to address climate change, and enhancing ecosystem services such as storm impact buffering and carbon sequestration.

We are seeking a Sustainability Scholar to work as a Gorge Waterway Environmental Stewardship Researcher, bringing their unique interests and background to contribute to the research, design, and dissemination of information related to the stewardship and ecological restoration of the Gorge Waterway. The specific research question allows for flexibility, and we welcome individuals with diverse skill sets and academic backgrounds. From those interested in hands-on ecological restoration to those eager to delve into the Traditional stewardship practices of the Songhees and Esquimalt Nations along the Gorge.

The Scholar will collaborate with the Gorge Waterway Action Society (GWAS), which is actively involved in restoring the rare saltmarsh habitat within Esquimalt Gorge Park and rehabilitating salmon habitat in Gorge Creek. For a biology/restoration-focused scholar, this entails conducting research, expanding project scopes, and implementing new practices. Simultaneously, GWAS conducts place-based nature education through the Gorge Waterway Nature House, aiming to provide the community with engaging content related to conservation and environmental stewardship. A social science or Indigenous Studies-focused scholar can contribute by researching and enhancing educational content.

The project's overarching goal is to support Gorge Waterway stewardship through action, education, or a combination of both. Scholars will conduct relevant research and formulate project plans, such as Restoration Project Plans or Nature Interpretive Content tied to their projects. While the work primarily involves independent efforts, scholars will have scheduled check-ins with GWAS staff supervisors and support from the GWAS summer staff team. Each scholar is accountable for producing a final project report, sharing their findings, and ensuring the project's long-term impact.

## **Project Scope**

Key activities of the saltmarsh restoration project will include:

- Consult with project partners, including the Songhees and Esquimalt First Nations, and the Township of Esquimalt. Consult with stakeholders including: local environmental nonprofits, university researchers specializing in watershed restoration, and community residents.
- Conduct biophysical inventory of the site pre-restoration and post-restoration, including invasive species that returned and native seeding and planting that failed.
- Contribute to a design plan on the ecological restoration of the saltmarsh project site.
- Develop adaptive management strategies through ongoing monitoring of the original ecological restoration plan and proposed activities.
- Produce a restoration project report, which would ideally be freely accessible to coastal communities, Indigenous land stewards, researchers and restoration practitioners.

## **Deliverables**

Scholars will be asked to create and share a restoration project report, which would ideally be freely accessible to coastal communities, Indigenous land stewards, researchers and restoration practitioners around the world. The report will guide the ongoing monitoring of the saltmarsh

restoration site, future adaptive management techniques, and as a training document for future GWAS interns who will monitor and ensure the continued resilience of the ecosystem.

## **Time Commitment**

Optimal dates for the saltmarsh restoration project to run are as follows:

1. May 1, 2024- June 10, 2024: Conduct a bio-physical inventory of the site, pre-restoration, and use this data collected to produce a Restoration Design Plan, written in collaboration with GWAS and World Fisheries Trust (project partner).
2. June 11, 2024-August 1, 2024: Conduct the proposed restoration work (invasive species removal, planting native species, reshaping shoreline etc.).
3. August 2-August 15, 2024: Write final project report.

## **Required/Preferred Skills and Background**

- Excellent research and writing skills
- Familiarity with research methodologies and survey techniques
- Strong analytical skills
- Ability to work independently
- Deadline oriented
- Project management and organizational skills
- Familiarity with WordPress, or other website content tools

## **Additional Information**

The UVic Sustainability Scholar will have the support of GWAS staff of experienced professionals in the environmental nonprofit sector throughout the duration of their work term, as well as the support of seasonal Biology and Restoration interns. Interns are a motivated team of youth (mostly post-secondary students) interested in learning more principles and techniques related to ecosystem restoration projects like the saltmarsh. Examples of techniques include water quality assessment, bio-physical inventory, selecting and planting native species to satisfy a restoration design plan, and more.

## **Additional Project Requirements**

GWAS has restoration equipment and personal protective gear for conducting the restoration activities. Beyond a computer and internet connection for research, developing a restoration plan and writing the project report, the Scholar will not need to provide additional materials. Work will be conducted in Esquimalt Gorge Park, which has public transportation (bus) access as needed.

### **UVic Sustainability Scholars Program**

All current UVic graduate students are invited to apply for an impactful sustainability research project. Sustainability Scholars Program internships are designed and mentored by partner organizations and paid at a rate of \$30.87 per hour (after deductions) for 250 hours from May 1 to Aug 15. Explore details on our [website](#) and review eligibility criteria before applying and [contact us](#) with any questions.

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