

Job Description – Clean Leadership 2019 Program

Summary of the Program

The Clean Leadership program (formerly Nova Scotia Youth Conservation Corps or Youth Corps) was established in 1989 to provide Nova Scotian youth with training and employment opportunities in the environmental field. This program engages community partners across the province to hire students to carry out work in the summer months that fosters environmental stewardship. The Clean Leadership program provides Nova Scotian youth with green sector work experience, an enhanced appreciation of the environment and their community, and develops skills for life-long learning (including team-building and leadership skills, increased knowledge for future employment and/or education ventures, program evaluation techniques, and the ability to give back to their community and their environment.

Job Title - Student Researcher

Wage - \$14.50/hr

Summary of Position

The community partner for this Summer Student Intern position through the Clean Leadership program will be SeaTree Organic Charcoal, reporting to Dr. Stephanie MacQuarrie. In this position, you will be mainly responsible for generation of biochar from various sources including fisheries waste, characterization and applications of this charcoal. The successful candidate needs to be currently enrolled in a science program at the University level, possess strong team work abilities, excellent time management skills, be highly reliable and safety conscious.

Community Partner

SeaTree Organic Charcoal is a natural, sustainable Cape Breton owned & operated company. SeaTree partners with Canadian based companies that use sustainable biomass, which produces 'char' as a by-product. We conduct a rigid Quality Assurance process to guarantee that our charcoal is 100% organic and free of harmful chemicals or chemical additives.

Currently up to 20 % of concrete is held together by a paste made from a mixture of Portland Cement and water that paste binds gravel, rock, and sand (aggregates) together to give a malleable, easy to use concrete mixture when wet, and a strong, water resistant product when dry. Portland cement is made by heating caustic limestone with clay in an energy intensive mill at very high temperatures. This firing process uses high quantities of fuel. The process of generating Portland cement is unsustainable and exposure to many of its ingredients is potentially dangerous. Since Portland cement is a main ingredient that gives concrete its ideal physical characteristics, it cannot be completely replaced, but certain additives can be used to reduce the amount of cement used. Recent studies have shown that reusable natural by-products like charcoal made from biomass can be implemented in concrete manufacturing by replacing up to 10% of cement to produce a lightweight, more feasible, product with uniform porosity and high comprehensive strength. This projects focus' on identifying local waste biomass sources (crab bodies) for conversion to biochar and testing of applicability, stability, strength and durability of the resulting concrete with addition of various concentrations and types of biochars.

Duties and Responsibilities

Responsibilities for this position include but are not limited to:

- Literature search and analysis,
- Report generation,
- Lab bench work,
- Extraction, drying, pyrolysis, analytical analysis of materials generated,
- Presentations of research methods and results.

Requirements/Qualifications

These are the qualifications that are necessary for someone to be considered for the position.

- Must be a Canadian citizen or legally entitled to work in Canada;
- Must be between the ages of 15 and 30;
- Must be a full-time student and intending to return to school in fall 2019;
- Is not a member of immediate family of community partner;
- Have an aptitude for safe work practices and the ability to multi-task in a busy work environment;
- Be able to work productively as part of a team while responding to feedback;
- Demonstrated interest in future employment in the environmental or 'green' sector is considered an asset;
- Enrolled in a post-secondary science program.