

Samples of Major Projects Conducted by Learners in the BSc Environmental Science Program in past years:

Landfill Site Remediation Plan

The project conducted soil and water sampling for metals and hydrocarbons at the site of an abandoned landfill as part of a remediation plan for the site. The results showed high levels of metal contamination above CCME and BCCSR Residential/Parkland and Industrial/Commercial criteria throughout the site. Various options for the remediation were reviewed, and a recommendation was made that the most appropriate was to excavate the material for disposal elsewhere and rehabilitate the site as a wetland. The recommendations were followed, and the site was rehabilitated. A later project designed a 5-year monitoring protocol for the wetland after its construction, and future projects will continue the monitoring and develop the site as an education and training location for similar projects.

Pollution Reduction Framework for a Major Corporation

The project team developed a pollution reduction framework for a major corporation. The project outlined steps to reduce the corporation's environmental impact, while allowing the corporation to benefit financially through reduction of the amount of landfilled material. In developing this framework, a waste audit was completed, along with an assessment of the current recycling system, packaging and purchasing practices. Options for increased recycling and composting of waste materials were developed.

Developing a Mobility Options Program for a Major Employer

The team worked with a major employer to examine transportation options for employees aimed at reducing greenhouse gas and other emissions and traffic congestion. A Mobility Options Program (MOPs) was developed to improve employee transportation options.

Sooke River Watershed Assessment

The objective of the project was to determine the current state of the lower reaches of Sooke River and De Mamiel Creek. Background research, sampling, and the formation of a GIS database were used to assess potential linkages between non-point source pollution from the Sooke River and the health of the shellfish industry.

Development of a Recreation Plan for the Coburg Peninsula and the Esquimalt Lagoon

This project developed a recreation plan for the Coburg Peninsula that sought to lessen human impacts on the flora and fauna (including terrestrial and aquatic species) found on the spit and in Esquimalt Lagoon, while maintaining an enjoyable and rewarding recreational experience for human visitors to the area.

Monitoring the Restoration of Douglas Creek

The project developed a monitoring protocol for restoration efforts at Douglas Creek. The team established monitoring sites and conducted benchmark surveys of benthic

macroinvertebrate populations, fecal coliform counts, and hydrometric attributes. The team produced a database to allow the entry of indicator population and hydrometric data from different protocols. The project also worked with local community groups to develop long-term monitoring procedures to facilitate the tracking of important trends as watershed restoration efforts progress. A separate major project focused on improving storm water management for the Douglas Creek watershed.

Provincial Integrated Roadside Vegetation Management Requirements

The team developed a series of guidelines and recommendations to facilitate the development of improved roadside vegetation management plans. The plans integrated highway safety and function with aesthetic and ecological considerations. The team worked with highway contractors to implement the plan.

Development of an Environmental Management System for RRU

The project helped create a computer based Environmental Management System framework using ISOsoft 14001 software. An ISO 14001 Tier 1 Manual was created, and training and awareness activities were implemented to ensure successful certification to the ISO 14001 standard.

Annual Variation of Invasive Plant Species Cover within Ecological Monitoring and Assessment Network (EMAN) Sites

This ongoing project conducts invasive plant species monitoring and multidisciplinary long-term ecological studies for an Ecological Monitoring and Assessment Network (EMAN) location at RRU. The study focused on the Coastal Douglas Fir Biogeoclimactic Zone, and contributed to Canada-wide research on ecosystem dynamics.

Air Chemistry Background Analysis at RRU

An ongoing air chemistry project uses the RRU meteorological station to monitor and test precipitation and particulate matter to provide air quality data for the Georgia Basin Ecosystem Initiative. The project seeks to determine the source of the low pH precipitation values found on Vancouver Island, compare the RRU meteorological station data with other stations found in the CRD, and improve the current method, AP-42, of estimating backyard burning emissions in British Columbia. The RRU meteorological station is equipped to measure particulate matter, precipitation, temperature, humidity, wind speed and wind direction.