

# Esquimalt Lagoon Stewardship Initiative 2019 Annual Update



## Introduction

The Esquimalt Lagoon Stewardship Initiative (ELSI), supported by the Capital Regional District (CRD), is a coalition of community and environmental groups, institutions, governments and First Nations working together to protect, enhance and restore Esquimalt Lagoon and Coburg Peninsula. After forming in 2001, ELSI developed a Stewardship Plan for Esquimalt Lagoon that provides the framework for a coordinated approach to environmental management of the area. The consensus-based steering committee is responsible for guiding the implementation of this plan. The initiative creates opportunities for collaboration on environmental projects and outreach activities, and provides a forum for exchange and sharing of information. A part-time ELSI coordinator, funded through the CRD, initiates and manages projects and outreach, seeks funding and coordinates the initiative.

In 2019, ELSI provided input to Colwood's Climate Change Workshop series; toured Pacific Landing with the developers to view a new trout spawning channel constructed there; and partnered with Department of Fisheries and Oceans to establish a European green crab monitoring program in the lagoon. Volunteers participated in broom pulls, a beach cleanup, and continued fish monitoring programs in the creeks that enter the lagoon. ELSI members attended community events with the outreach display and interactive watershed model.

## Vision

To protect, enhance and restore the health of Esquimalt Lagoon for future generations of people, plants and animals.

## Goals

- Promote and support lagoon stewardship and education
- Prevent further loss or destruction of habitat and wildlife
- Reduce contaminant inputs to the lagoon
- Promote environmentally protective recreation use in the lagoon area
- Promote environmentally protective land use

*Pictured above: Piles of Scotch broom and Himalayan blackberry were removed by volunteers during spring and fall broom pulls. These invasive non-native plants provide poor habitat, and displace native dune vegetation that once covered the Coburg Peninsula.*

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# Highlights

## Water Quality

CRD staff collect water quality data annually from Colwood, Bee and Selleck creeks and a selection of stormwater flows that discharge into Esquimalt Lagoon. In 2019, staff assessed eight stormwater discharges in the lagoon. Results showed low bacterial counts (10 to 200 E.coli /100 mL) in four of the discharges and elevated bacterial counts (greater than 200 E.coli /100 mL) in four of the discharges however, no high public health concern ratings were assigned. Moderate public health concern ratings were assigned for Lagoon Brook, Colwood Creek and south end discharges 932 and 933. Remaining discharges were assigned low ratings. Additionally in 2019, CRD staff intensively monitored a number of water quality parameters in Bee and Selleck creeks. This data will be available in summer of 2020.

Results from extensive marine sampling in 2018 in Esquimalt Lagoon were analyzed in 2019, and showed several parameters that exceeded water quality guidelines. These included bacteria and dissolved oxygen at the south end, temperature at the mouth of Colwood Creek, and cadmium in various places including outside the lagoon.

In 2020, staff will continue to monitor discharges into the lagoon and conduct source investigations in areas with elevated bacteria counts.

## Land & Water Use

ELSI provided input to Colwood's new Urban Forest Bylaw in 2019. One of the ELSI committee members was selected to sit on the Waterfront Coastal Processes committee, established in late fall and set to start work in early 2020. This committee's purpose is to provide a better understanding of coastal processes and make recommendations to Colwood Council to inform decision-making, while preserving and enhancing Colwood's coastline over the short, medium and long term.

## Stewardship and Outreach Events

ELSI members attended several events in the community including Mother's Day Paint-In at Royal Roads University, Migratory Bird Day at Elk/Beaver Lake Park, Canada Day at Fort Rodd Hill and Eats & Beats at the Beach on Coburg Peninsula. The interactive watershed model of the lagoon was brought to most of these events. ELSI volunteers also participated in two broom pulls and a beach clean-up on Coburg Peninsula.

## Fish Monitoring

ELSI volunteers continued regular monthly sampling at four sites on Bee Creek between May and October 2019. More cutthroat trout were caught in the live traps than in 2018, in all 68 were trapped, measured and released. Three sites furthest upstream were dropped after August, following very poor trapping results in the open fields of the upper stream channel area. New sites were established further downstream, where there is more tree canopy and less disturbance by dogs. Volunteers post their findings on their website: <https://beecreek.ca/>.

Fish populations in Colwood Creek are now monitored by researchers at Royal Roads University. Results from spring and fall trapping showed consistent cutthroat trout and coho salmon populations (range of 68 - 71 of each species in both seasons), as well as small numbers of sculpin.



*Invasive European green crabs were found in the lagoon in 2019. These crabs are not always green, and are distinguished from native crab species by the five distinctive spines on each side of the carapace (back shell). They can reach 10cm in size, and are often found in small estuaries and tidal lagoons like Esquimalt Lagoon.*





*After consulting with ELSI prior to the green crab monitoring program, DFO staff decided to use small prawn traps rather than the usual Fukui traps, to minimize the possibility of birds or other wildlife becoming entangled.*

## European Green Crab Monitoring

The European green crab (*Carcinus maenas*) is one of the 10 most unwanted invasive species worldwide. This voracious predator feeds on a variety of marine life, outcompetes native species for food and can devastate eelgrass meadows by digging in the sediments for prey items. This species has been on the west coast of Vancouver Island since 2006 and there is now a well-established population in Sooke Basin. Department of Fisheries and Oceans (DFO) is developing an early detection monitoring program as part of the Aquatic Invasive Species Action Plan, focused on select areas in the Salish Sea. Esquimalt Lagoon was identified as an area likely to support green crab as it has many of the habitat features that it thrives in, and plenty of prey species to feed on.

DFO staff held a training workshop for ELSI volunteers in April. Every month from then to October a series of live traps were set at specific sites around the lagoon, then picked up the following day. All species in the traps were identified and counted, and all crabs were measured. One green crab was captured in Esquimalt Lagoon in April, after which DFO initiated an eradication program. Ninety traps were set

around the lagoon in an intense effort to trap and remove them. One more green crab was captured. Both crabs were removed and sampled for DNA testing to determine the source population; results are expected in early 2020. Following that, traps were set by DFO staff and volunteers on a monthly basis at six sites around the lagoon. No additional crabs were found, and the program will continue in 2020.

Green crabs were also found on Salt Spring Island (4), Witty's Lagoon (6) and Port Renfrew (45). These results were disappointing although not unexpected.

*Many native crabs are green, but only the European green crabs have 5 spines on each side of the shell. If you think you see a European green crab, take a photo but leave the crab where you found it. Email photos and location details to DFO at [aispacific@dfo-mgo.gc.ca](mailto:aispacific@dfo-mgo.gc.ca)*



# Esquimalt Lagoon Stewardship Initiative

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## ELSI Partners

### Committee Members

- Canadian Wildlife Service
- Capital Regional District
- City of Colwood
- City of Langford
- Parks Canada
- Royal Roads University
- Victoria Natural History Society
- Local residents

### Advisory Members

- Esquimalt Nation
- Songhees Nation
- BC Ministry of Environment & Climate Change Strategy
- Department of National Defence
- Environment and Climate Change Canada
- Fisheries and Oceans Canada

*Pictured above: The cedar mural by Songhees master carver Butch Dick, the interpretive sign designed by Esquimalt Nation artist Darlene Gait and a sign depicting post-colonial history of the lagoon area are now installed on Royal Roads University's boat house. These artworks were commissioned by ELSI in 2009.*



## Focus for 2020

In 2020, ELSI will focus on:

- Reviewing and providing comments on development proposals in the lagoon area.
- Participating in the European green crab monitoring program with DFO.
- Working with Colwood and the Canadian Wildlife Service to incorporate interpretive signage at the lagoon.
- Providing input to habitat inventory, bird and fish surveys being initiated by CRD Harbours Program.
- Working with our partners to improve water quality in the lagoon and investigating nutrient sources entering the lagoon and its tributary creeks.
- Promoting activities that engage the community in stewardship of the Esquimalt Lagoon watershed.

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