

stewardship initiative 2011 Annual Report



To protect, enhance and restore the health of Esquimalt Lagoon for future generations of people, plants and animals. Founded 2001

Our 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 uses in the lagoon area
- Promote environmentally protective land uses

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Background

The Esquimalt Lagoon Stewardship Initiative (ELSI) is a broad coalition of community and environmental groups, institutions, government and First Nations working together to protect, enhance and restore the Esquimalt Lagoon and Coburg Peninsula.

After its founding in 2001, ELSI developed a Stewardship Plan for Esquimalt Lagoon which provides the framework for a coordinated approach to environmental management. ELSI creates opportunities for collaboration on environmental projects and outreach activities, and provides a forum for exchange and sharing of information.

ELSI is led by a consensus-based steering committee responsible for guiding the implementation of the Esquimalt Lagoon Stewardship Plan. ELSI is chaired by the Capital Regional District (CRD) Harbours and Watersheds Coordinator. A part-time assistant coordinator, funded through the CRD, initiates and manages projects, seeks funding and coordinates ELSI.

ELSI volunteers pulling broom at the Esquimalt Lagoon.

2011 Accomplishments

ELSI focused on ongoing projects, completion of multi-year projects and participating in the two-year review of the CRD Harbours Environmental Action Plan. ELSI members voiced their strong support for the continuation of CRD coordination of harbours environmental protection and improvement initiatives in the area, and appreciation of CRD support for community engagement.

Through volunteer and staff time, 2011 accomplishments included:

- Continuation of Dune Habitat monitoring in partnership with Camosun College
- Continuation of the historical and First Nations interpretive sign and mural project
- Volunteer participation in a broom pull, beached bird surveys, coastal water bird surveys, fish monitoring and the Canada Day celebrations at Fort Rodd Hill National Historic Park and Historic Sites
- Continuation of water quality and microalgae monitoring in the lagoon with the CRD Stormwater, Harbours and Watersheds Program (SHWP) and the University of Victoria

ELSI Committee

- Canadian Wildlife
 Service
- Capital Regional District
- City of Colwood
- City of Langford
- Esquimalt Lagoon Enhancement Association
- Habitat Acquisition
 Trust
- Local residents
- Parks Canada
- Royal Roads
 University
- SeaChange Marine
 Conservation Society
- Victoria Natural History Society

Advisory Members

- BC Ministry of Environment
- Capital Regional
 District Parks
- Department of National Defence
- Environment Canada
- Esquimalt Nation
- Fisheries and Oceans Canada
- Songhees Nation



The above map indicates the water sampling sites at Esquimalt Lagoon which are part of a partnership with the Province to develop Water Quality Objectives for the core area harbours of the CRD.

Water Quality Monitoring Program

Parallel to the long-term water quality monitoring delivered by CRD SHWP, a major new initiative of the CRD Harbour Environmental Action Program is the development of Water Quality Objectives specific to each core area harbour of the CRD, dependent on use, including Esquimalt Lagoon. Five marine sampling sites at Esquimalt Lagoon were established in strategic areas along the shore. These sites were sampled for contaminant levels during a high-flow period in fall 2011. Results indicated no concerns for metal contamination. However, elevated nitrate levels were found around the mouth of the creeks, with bird feces as a possible source.



The same five sites will be sampled during low-flow periods in summer 2012, along with upstream sampling in fall of 2012, to find possible sources of any contaminants. When results from both seasons have been analyzed, ELSI and the communities within the watershed will play an important role in the public consultation process for developing the water quality objectives for Esquimalt Lagoon.

Water Quality Research

Research at the University of Victoria (UVic) investigating the dynamics of microalgal blooms and nutrients in Esquimalt Lagoon continued in 2011. The findings emerging from this study are five-fold: 1) micro-algal blooms occur in the spring and late summer or fall, but these blooms are dominated by different types of microalgae; 2) Spring blooms are dominated by diatoms that are sustained by the high concentrations of nitrate, ammonium, phosphate and silicic acid that build up in the lagoon during the winter; 3) Average concentrations of these nutrients in the winter are guite similar to those in the Juan de Fuca Strait, despite the fact that streams feeding Esquimalt Lagoon can be guite enriched in nutrients (based on work by the CRD); 4) Late summer and fall blooms are dominated by red tide species. These flagellated micro-algae flourish when nutrients are substantially depleted, so they are probably taking advantage of short nutrient pulses from streams and supplementing their diets with more complex forms of nutrients that are recycled within the lagoon—they may even be consuming other microbes; 5) Some degree of oxygen depletion occurred near the sediments during August and September of both 2009 and 2010, possibly because bacteria were thriving on organic matter produced by the long-duration red tides, but also because tidal ranges are narrow at this time, reducing flushing rates in the lagoon.



Camosun College ecology students conducting the monitoring of the dune habitat restoration plots.

Stewardship and Outreach Events

ELSI volunteers organized a broom pull on Coburg Peninsula, participated in shoreline clean-ups and Canada Day celebrations at Fort Rodd Hill National Historic Site. Regular on-going beached bird surveys and coastal water bird surveys were also undertaken in partnership with Canada Wildlife Services (CWS).

Fish Monitoring

Since 2004, ELSI volunteers have conducted a Community Fish Monitoring Program in the creeks that flow into Esquimalt Lagoon. The goal is to determine what types of fish use the creeks during different seasons and any changes in this pattern over time. Monitoring has confirmed that there are resident populations of cutthroat trout throughout Bee Creek and Colwood Creek, and coho salmon fry are regularly found in Colwood Creek.



Pilot Dune Habitat Restoration Project

In 2007, ELSI initiated a Dune Habitat Restoration Pilot project to restore native dune habitat by establishing and monitoring demonstration restoration plots, realigning benches with beach access points and promoting stewardship and awareness of dune habitat. In 2011, Camosun students started semi-annual evaluations of the restoration plots, in the spring and fall.

Since the fall of 2007, David Blundon, a professor in the Camosun College Biology Department, has brought over 250 ecology students to the ELSI Dune Habitat Restoration plots to monitor the sites. The goal of this monitoring is to establish a quantitative knowledge base to help determine if restoration of the dune habitat can be achieved strictly by keeping people and dogs off the dune habitat or if supplemental planting of native plants is also necessary. Thus far, results are encouraging and show that the planted native species, silver burweed and dunegrass, are now the dominant cover. However, trampling remains a strong factor in deterring plant growth. In 2011, Professor Blundon presented the monitoring results at a biodiversity conference in Ecuador.

Thank you!

Many thanks go to the dedicated volunteer members of ELSI and the community who gave many hours of their time to help accomplish the major projects undertaken in 2011.



Image from the new interpretive sign at the Esquimalt Lagoon will welcome visitors to the traditional territory of the Esquimalt and Songhees Nations.

Honouring the Peoples' History

ELSI continued working with Esquimalt Nation, Songhees Nation, City of Colwood and other ELSI partners to recognize and honour the history of the lagoon area. Darlene Gait, an Esquimalt Nations artist, completed the interpretive sign—a painting depicting 11 individuals whose bone fragments and artifacts were found near the site where it will be installed in 2012. The interpretive sign speaks to the relationship the Lekwungen people, ancestors of the Songhees and Esquimalt Nations, had with the sea, land and spirits, and of Esquimalt Lagoon as a significant place in their culture.

The colonial history has also been illustrated on a second interpretive panel, with help from ELSI partners, community members and Cindy Moyer, a local artist. This interpretive sign will be dedicated in memory of Dale Mumford, a longtime member of ELSI, dedicated staff member at Fort Rodd Hill National Park and Historic Sites and local historian.

For more information, contact:

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What's Next?

In 2012, ELSI will focus on:

• working with Songhees and Esquimalt Nations, and the City of Colwood to install and bless the interpretive signs and cedar mural with a dedication ceremony.

• working with our partners to improve water quality in the lagoon and investigating nutrient sources entering the lagoon and its tributary creeks. • working with the Ministry of Environment and CRD SHWP to establish water quality objectives for Esquimalt Lagoon as part of the Harbours Environmental Action Program.

• conducting flow monitoring of Colwood Creek.

• providing input to the Liquid Waste Management Plan Harbour Review Working Group to develop a 5-year work plan for Esquimalt Lagoon and other harbours.

 promoting activities that engage the community in stewardship of the Esquimalt Lagoon watershed.