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**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE  
MEETING OF WEDNESDAY, 24 MAY 2006**

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**SUBJECT**      **CRD HARBOURS ENVIRONMENTAL ACTION PROGRAM – 2005 ANNUAL REPORT**

**PURPOSE**

To present the 2005 achievements of the Capital Regional District's (CRD) Harbours Environmental Action program towards meeting the commitments under the Core Area Liquid Waste Management Plan (LWMP) and the harbours environmental management strategy (EMS).

**BACKGROUND**

In the LWMP, the CRD commits to coordinate harbours environmental protection and improvement efforts in Victoria and Esquimalt harbours, Portage Inlet, the Gorge Waterway and Esquimalt Lagoon, as well as to work cooperatively with other harbour groups to achieve the goals of the harbours EMS. These commitments are implemented through facilitating the Esquimalt Lagoon Stewardship Initiative (ELSI), and the Gorge Waterway Initiative (GWI), participating in the Victoria and Esquimalt Harbours Environmental Action program (VEHEAP) and area-based initiatives lead by other agencies, and carrying out special projects. These activities are focused on working with the community and stakeholders to achieve common goals and improve the environmental quality of the harbours and their watersheds.

**2005 Accomplishments**

The 2005 annual report on the harbours environmental action program includes an introduction, background information, accomplishments for ELSI, GWI, participation in VEHEAP and area-based initiatives led by other agencies, and special projects.

Esquimalt Lagoon Stewardship Initiative

- coordinated the ELSI, an 18-member, multi-stakeholder group working to protect and improve the health of Esquimalt Lagoon
- installed two interpretive signs, which provide information about the formation of Coburg Peninsula and the importance of the dune grass habitat, the dual tidal delta and clam beds at the lagoon entrance
- obtained funding for and designed two additional interpretive signs for Coburg Peninsula that will provide information about eelgrass meadows and the marine life that depend on them, the Esquimalt Lagoon watershed and watershed impacts to the lagoon
- worked with the City of Colwood to develop draft interim management guidelines for Coburg Peninsula
- coordinated and conducted public consultation to obtain input into the development of interim management guidelines for Coburg Peninsula
- facilitated meetings between the Esquimalt and Songhees First Nations and the City of Colwood to discuss the interim guidelines, required consultation with First Nations and future opportunities to work together
- conducted ecological assessment, pedestrian routing and traffic calming study for Coburg Peninsula

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- completed baseline beach profile monitoring, vegetation inventory and ecosystem mapping along Coburg Peninsula
- participated in fish salvage as part of the Pacific Centre Family Services Bee Creek Restoration project to remove a dam that was barring fish passage and restore an 80-metre section of the creek and completed the first year of fish monitoring in Bee and Colwood creeks

Gorge Waterway Initiative

- coordinated the GWI, a 24-member, community-driven, collaborative stewardship initiative for Portage Inlet and the Gorge Waterway and facilitated the development of a common vision and goals, terms of reference and governance structure
- worked with the GWI partners to develop a communications strategy and a stewardship strategy for the Gorge Waterway
- established a part-time position to coordinate the implementation of the GWI stewardship strategy, provide administrative support, obtain funding and manage projects

Victoria and Esquimalt Harbours Environmental Action Program Committees

- obtained a total of \$15,000 funding from Fisheries and Oceans Canada (DFO) towards the establishment of the GWI and a project to inventory and map the estuarine ecosystems in the harbours
- agreed to host a Victoria and Esquimalt harbours conference that will encourage the sharing of information between all groups working in the harbours and highlight the innovative projects and activities that are occurring around the harbours and their watersheds

Esquimalt and Victoria Harbour Initiatives

- provided input to Department of National Defence (DND) as members of the DND Esquimalt Harbour Steering committee and the DND Esquimalt Harbour Environmental Advisory committee

Special Projects

*Shoreline Restoration and Sewer Pipeline Upgrade Project*

- established a partnership between CRD, the Land Conservancy (TLC) and the City of Victoria to restore 60 metres of shoreline on two adjacent properties along the Gorge Waterway in conjunction with a sewer upgrade project
- hosted a restoration design workshop with a multi-disciplined project team (project engineers, marine ecologists, DFO habitat biologists, geotechnical and contaminated sites specialists) to determine the final shoreline restoration design
- completed an environmental assessment and obtained necessary environmental approvals and permits to complete the pipeline crossing and shoreline restoration
- restored 60 metres of shoreline in partnership with the City of Victoria and TLC, which involved the removal of a seawall and concrete piping housing, regrading the shoreline, creation of terraced clam bed, fringe marsh habitat and replanted native vegetation in the riparian and upland areas
- completed bioengineering (use of live vegetation to stabilize steep slopes) and replanting on the Gorge Hospital side of the waterway following the installation of the new pipeline

*Harbours Atlas Project*

- completed a project to inventory and map the estuarine vegetation and ecosystems in Portage Inlet, Gorge Waterway, Esquimalt Harbour and Esquimalt Lagoon; it is expected that this layer will be available for display on the Harbours Atlas in spring 2006

- offered two training sessions for the Harbours Atlas
- promoted the Harbours Atlas to community and government representatives

### **ALTERNATIVES**

Not applicable.

### **FINANCIAL IMPLICATIONS**

Program funded under existing core budgets and through grants and project funding provided by external agencies.

### **SUMMARY/CONCLUSIONS**

During the period of January to December 2005, the Stormwater, Harbours and Watersheds program staff worked effectively with the community to protect and improve the harbours. Taking an integrated approach and working with the community and appropriate municipalities is making significant progress towards implementing the harbours' EMS and achieving VEHEAP's goals and helping to achieve CRD commitments identified in the LWMP.

Successful environmental management of the harbours requires the continued cooperation, coordination and commitment of many stakeholders and government agencies responsible for harbours' environmental management.

### **RECOMMENDATION**

That the Core Area Liquid Waste Management committee recommend that the report, entitled *CRD Harbours Environmental Action Program 2005 Annual Report*, be received for information.

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Laura Taylor, M.Sc.  
Manager, Scientific Programs

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Dwayne Kalynchuk, PEng  
General Manager, Environmental Services  
Concurrence

### **COMMENTS**

JW:bc  
Attachment: 1

## CRD HARBOURS ENVIRONMENTAL ACTION PROGRAM 2005 ANNUAL REPORT

### INTRODUCTION

In the Core Area Liquid Waste Management Plan (LWMP), the Capital Regional District (CRD) commits to coordinate harbours environmental protection and improvement efforts in Victoria and Esquimalt harbours, Portage Inlet, the Gorge Waterway and Esquimalt Lagoon and to work cooperatively with other harbour groups to achieve the following goals as defined in the harbours environmental management strategy (EMS):

- advocate environmental protection
- decrease contaminant inputs
- protect and enhance habitat quality
- set environmental quality objectives
- achieve environmentally protective land uses
- monitor environmental quality

These commitments are implemented through facilitating the Esquimalt Lagoon Stewardship Initiative (ELSI) and the Gorge Waterway Initiative (GWI), participating in the Victoria and Esquimalt Harbours Environmental Action program (VEHEAP) and other area-based initiatives lead by other agencies, and carrying out special projects.

The CRD's involvement in harbour initiatives is carried out under the CRD's Stormwater, Harbours and Watersheds program (SHWP). SHWP facilitates and provides administrative and logistical support for ELSI and GWI, chairs the VEHEAP Stewardship committee, participates in area-based initiatives led by other agencies and carries out special projects related to the harbour. SHWP's focus is to work with the community and stakeholders to achieve common goals and improve the environmental quality of the harbours and their watersheds.

VEHEAP is an initiative of the main regulatory and jurisdictional government agencies in the harbours working to protect and improve the environmental quality in Portage Inlet, Gorge Waterway, Victoria Harbour, Esquimalt Harbour and Esquimalt Lagoon. VEHEAP agencies are the CRD, the BC Ministry of Environment (MOE), the Department of National Defence (DND), Environment Canada (EC), Fisheries and Oceans Canada (DFO), Public Works and Government Services Canada (PWGSC) and Transport Canada (TC). VEHEAP was established in 1994 through a memorandum of understanding (MOU) that committed the partners to work in a cooperative and supportive fashion to improve the harbours environmental quality. In 2000, the VEHEAP partners committed to an EMS for the harbours.

In 2004, the implementation structure of VEHEAP was modified to better meet the needs of all partner agencies and to better address the needs of the community. This resulted in the following structure for the coordination of harbours environmental action:

- Four Area-based Initiatives: Esquimalt Harbour – DND coordination, Victoria Harbour – TC coordination, Esquimalt Lagoon – CRD facilitation, Gorge Waterway/Portage Inlet – CRD facilitation
- VEHEAP: made up of an Information Sharing committee (rotating chair) and a Stewardship committee (CRD chair)

The 2005 annual report on the harbours environmental action program includes an introduction, accomplishments for ELSI, GWI and SHWP's participation in VEHEAP and area-based initiatives led by other agencies, and special projects.

## CRD FACILITATED AREA-BASED INITIATIVES

### Esquimalt Lagoon Stewardship Initiative

The ELSI is a broad coalition of community and environmental groups, government agencies and First Nations working together to protect, enhance and restore Esquimalt Lagoon and Coburg Peninsula. This initiative creates opportunities for collaboration on environmental projects and outreach activities, and provides a forum for the exchange and sharing of information between partners. SHWP coordinates and provides support to ELSI. This involves chairing the ELSI Steering committee, managing projects, obtaining external funding and providing support to the Outreach and the Planning and Restoration subcommittees.

ELSI's vision is to protect, enhance and restore the health of Esquimalt Lagoon for future generations of people, plants and animals. This will be accomplished through the following 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 land uses within the lagoon watershed
- promote restoration of degraded areas

The ELSI partners have developed a coordinated restoration and stewardship plan for Esquimalt Lagoon. The plan outlines specific actions designed to achieve ELSI's goals and provides a framework for a coordinated approach to environmental management. In 2005, the ELSI partners worked together on creating interpretive signs at the lagoon, developing interim management guidelines for Coburg Peninsula and implementing community-driven water quality monitoring and fish monitoring programs.

#### Interpretive Signage

A long-term project of the ELSI partners has been the establishment of eight interpretive panels at four kiosks located on Coburg Peninsula. These signs will provide a permanent and accessible outreach resource to reach the widest audience of visitors to the lagoon. In July 2005, the third and fourth interpretive panels – which provide information about the formation of Coburg Peninsula, the importance of dune grass habitats, the rare dual tidal delta and clam beds at the lagoon entrance – were installed.

Funding was obtained for design of the fifth and sixth panels, which provide information about the eelgrass meadows and associated marine life that depend on them, the Esquimalt Lagoon watershed and the impact of activities occurring in the watershed on the lagoon. These signs will be completed and installed in spring of 2006.

#### Interim Management Guidelines for Coburg Peninsula

ELSI was approached by the City of Colwood to assist in the development of management guidelines for Coburg Peninsula, the sand and gravel spit that encloses Esquimalt Lagoon. ELSI organized and conducted consultation with the public to obtain their input on the vision and management of the area. Input from over 700 respondents was received. ELSI also facilitated a meeting between the Esquimalt and Songhees First Nations and the City of Colwood to discuss opportunities and interests in the area.

In addition to facilitating consultation with the public and the ELSI partner agencies, ELSI conducted additional studies and projects that provided information required for the development of the interim management guidelines. The first study was to conduct an ecological assessment of pedestrian routing and traffic calming measures for Coburg Peninsula that would minimize impacts and maximize restoration potential for sensitive salt marsh and dune habitats and address pedestrian, cyclist and wildlife safety concerns. Recommendations from the report, entitled *Coburg Peninsula Ecological Assessment*

*Pedestrian Routing and Traffic Calming Measures*, were assessed and incorporated into the interim management guidelines as appropriate.

A second project to inventory the vegetation, map the ecosystem units and establish baseline beach profile transects along Coburg Peninsula was completed throughout the summer and fall of 2005. The purpose of this study was to establish and conduct baseline beach profile transects to record the distribution and change of habitat and biological features. The beach profile transect will be monitored seasonally for the next few years to determine whether there is a trend of net loss, gain or steady state of sediment on the beach.

The Planning and Restoration subcommittee of ELSI worked with planning staff from the City of Colwood to develop draft interim management guidelines for Coburg Peninsula based on input and information received through consultation with the public, First Nations and ELSI partners and the additional studies. ELSI is currently awaiting a decision from Colwood to release the draft guidelines for public review.

### Water Quality Monitoring Program

ELSI has established a long-term community contaminant monitoring program in Esquimalt Lagoon. The aim of this program is to monitor the long-term health of Esquimalt Lagoon and its associated wildlife habitat by observing water quality parameters and events leading up to and following turnover events (periods of inversion where the water becomes anoxic). In 2005, the third year of water quality monitoring was completed. Analysis of the first two years of data show some seasonal trends and indicate that water quality parameters change significantly during roll-over events. Continued data collection for a longer period is required to determine long-term trends.

### Fish Monitoring Program

ELSI and community volunteers have been conducting a volunteer fish monitoring program in Colwood and Bee creeks for the past year to determine the types of fish that are using the creeks and to assess the restoration potential for the creeks. The fish monitoring has confirmed that there are resident populations of cutthroat trout throughout Bee Creek and in the lower reaches of Colwood Creek.

The ELSI fish monitoring volunteers worked with the Pacific Centre Family Services Association to salvage the fish from the middle reach of Bee Creek in preparation for a major restoration project, which restored over 80 metres of creek habitat and removed an old dam which had been a barrier to fish passage. Over 150 cutthroat trout were salvaged by volunteers and staff for DFO and BCMOE and released into another reach.

### **Gorge Waterway Initiative**

The GWI is a collaborative, community-driven group of organizations dedicated to the protection and enhancement of the natural and cultural features of the Gorge Waterway, Portage Inlet and surrounding watersheds.

Its vision is a healthy environment in perpetuity for all life in the Gorge Waterway, Portage Inlet and their watersheds and communities for the enjoyment and well-being of present and future generations. The following goals were developed to achieve the vision:

- provide and promote education, stewardship and awareness programs and encourage responsible land and water uses
- serve as a hub for information sharing and act as a point of contact for waterway issues
- encourage and advocate for the protection, restoration and enhancement of the waterway and its watersheds

In January 2005, organizations with an interest in the Gorge Waterway and adjacent watersheds began to meet to discuss their mutual interests and agreed to establish the GWI. Over the first year, the 24 member agencies of the GWI worked together to create a common vision and goals for the Gorge Waterway, Portage Inlet and their watersheds, establish their terms of reference and define their governance structure. The GWI partners developed display materials, established a communications strategy for the initiative and developed an action-oriented stewardship strategy for the waterway that would facilitate the achievement of GWI's vision and goals.

**VEHEAP****VEHEAP Stewardship Committee**

The purpose of the VEHEAP Stewardship committee is to develop and coordinate agency programs and activities around shared priorities that promote environmental stewardship of the harbours and their watersheds. The members of the Stewardship committee are EC, DFO, MOE and the CRD.

The Stewardship committee meets quarterly in a forum to promote conservation and ecological values in the harbours, collaborate on environmental projects, facilitate agency support for area-based initiatives and facilitate access to environmental information and tools for the harbours. The CRD chairs and coordinates this committee. The focus of this committee in 2005 was to obtain support for the area-based initiatives in Esquimalt Lagoon, Portage Inlet and the Gorge Waterway (\$10,000 from DFO) and support the mapping of estuaries in the harbours (\$5,000 from DFO).

**Information Sharing Committee**

The purpose of the VEHEAP Information Sharing committee is to advance the goals of the VEHEAP MOU and the implementation of the EMS by providing a forum for VEHEAP member agencies to share information, discuss area-based initiatives and collaborate on appropriate projects and studies. The members of this committee are the signatories to the MOU and the EMS. This committee meets twice yearly to share information about the activities of the area-based initiatives and the individual member agencies. The chair of the committee rotates among the member agencies. SHWP participates on this committee and provides regular updates for the ELSI, the Gorge Waterway Initiative, the VEHEAP Stewardship committee and other CRD harbour-related activities. In 2005, the VEHEAP Information Sharing committee agreed to host a conference specifically focused on the harbours to be held in June 2008. The partners have worked together to define the conference objectives and have begun planning and organizing the event.

**CRD PARTICIPATION IN OTHER AREA-BASED INITIATIVES****Esquimalt Harbour**

DND acquired administration and control of the Esquimalt Harbour seabed in the spring of 2005. As part of this transfer and as per its VEHEAP commitments, DND has created a Steering committee consisting of representatives from organizations with an interest in Esquimalt Harbour and an Environmental Advisory committee to provide advice and a forum for collaboration on environmental programs. The CRD participates on both the Steering committee and the Environmental Advisory committee for Esquimalt Harbour.

**Victoria Harbour**

TC agreed to lead environmental management/planning for the areas over which it has administration and control (Victoria Harbour seabed from Selkirk Trestle to Ogden Point); however, it has not initiated a multi-stakeholder, area-based initiative in Victoria Harbour to date.

The CRD holds a seat on the board of the Greater Victoria Harbour Authority. This seat is filled by a member of the public.

## **SPECIAL PROJECTS**

### **Selkirk Shoreline Restoration and Sewer Crossing**

In partnership with the Land Conservancy (TLC) and the City of Victoria, the CRD completed a project that restored 60 metres of shoreline along the Gorge Waterway during a major upgrade to the Gorge sewer trunk infrastructure. TLC and the City of Victoria had an agreement to conduct a pilot shoreline restoration project on the waterfront property at 508 Selkirk Avenue while the CRD was conducting a major upgrade to the gorge trunk sewer on the adjacent property at 512 Selkirk Avenue. The three agencies agreed to work together to restore the shoreline for both properties while protecting the integrity and design requirements of the replacement pipeline.

As part of this project, the CRD hosted a restoration design workshop with a multi-disciplined project team that included project engineers, marine ecologist, DFO habitat biologists, geotechnical and contaminated sites experts, bioengineering and restoration experts. This was done to ensure that the final project design was able to meet the multiple and varied ecological and engineering objectives of the project. SHWP staff completed an environmental assessment for the project and obtained all necessary environmental approvals and required permits to complete the pipeline crossing and shoreline restoration.

The shoreline restoration involved the removal of a seawall and concrete piping housing, regrading the shoreline, creation of a terraced clam bed and fringe marsh habitat, and replanted native vegetation in the riparian and upland areas. The steep slopes on the Gorge Hospital side of the project were stabilized with bioengineering techniques that use terraces and live vegetation to stabilize steep slopes; the terraces were then planted with native species. Volunteers from the neighbourhood and Esquimalt High School assisted with replanting the site and the fringe marsh.

The Selkirk shoreline restoration project was highly successful and represents the first attempt to replace a hardened shoreline with improved and more natural habitat in the harbours. Since its completion, the shoreline restoration site serves as a demonstration site to the region and highlights the importance of natural shoreline habitat. It also serves as a reminder that the process of hardening our shorelines can be reversed with creative thinking and a multi-disciplined approach to a major engineering project.

### **Harbours Atlas**

The Harbours Atlas is a web-based information and mapping tool that brings together environmental and land use information for Portage Inlet, Gorge Waterway, Victoria Harbour, Esquimalt Harbour and Esquimalt Lagoon and the watersheds that drain into them. Its goal is to promote and aid in well informed, responsible and sustainable land and water use decision making for the harbours and their watersheds. Similar to the CRD's Natural Areas Atlas, the Harbours Atlas is widely available, free of charge to harbour management agencies, community and environmental groups, educational institutions and the general public via the Internet at [harboursatlas.ca](http://harboursatlas.ca).

The atlas is based on a systematic inventory of the subtidal, intertidal and backshore features of the harbours. Users are able to retrieve ecological and geographic data from over 70 layers of spatial information, including harbour vegetation, marine fauna, substrates, sensitive shoreline habitats, seasonal bird use and density and underwater videos. Land-based information for the watersheds that drain to the harbour areas from the CRD's Natural Areas Atlas is also accessible from this site. SHWP staff continued to promote the Harbours Atlas at conferences, outreach events and displays throughout 2005



as a tool for managing the harbours and their watersheds. Two three-hour training sessions attended by 18 community members were offered in 2005.

In 2005, an inventory of the estuarine ecosystems in Gorge Waterway, Portage Inlet, Esquimalt Harbour and Esquimalt Lagoon was completed. The ecosystems were classified and mapped to determine the extent and distribution of estuarine systems in the harbour areas. A report, entitled *Urban Estuaries of the Capital Regional District*, summarizes the results of the inventory, classification and mapping. All sites were geo-referenced and a new estuaries layer was created. The new colour orthophotos and estuaries layer will be available on the Harbours Atlas in the spring of 2006. In 2005, the region obtained new high resolution colour air photos.

### CONCLUSION

Daily activities occurring within the watersheds in the region can degrade the quality of habitat and have an impact on the quality and quantity of stormwater reaching our freshwater and harbour environments. Dealing with these issues on a regional scale requires an integrated and collaborative watershed and harbour area-based approach that actively involves the public and many stakeholders.

SHWP has found that refocusing efforts to work with multi-stakeholder groups that are largely community driven and that include local residents is proving to be a more effective approach to watershed and harbour management. The new VEHEAP structure, particularly the establishment of community-driven, multi-stakeholder area-based initiatives is a more effective structure for the implementation and achievement of LWMP commitments and VEHEAP goals. This approach actively engages local residents, community and environmental organizations, local stakeholders and other government agencies. It better meets the needs of the community and the region and is a more effective method of dealing with harbour environmental issues. Continuing to build this type of community-based structure will help to achieve the CRD's LWMP commitments to harbours environmental action.

Through these partnerships, the CRD SHWP is effectively working with the community to achieve common watershed and harbour goals. Taking an integrated approach and working with the community and appropriate municipalities is making significant progress towards implementing the harbours' EMS and achieving VEHEAP's goals and helping to achieve CRD commitments identified in the LWMP. Successful environmental management of the harbours requires the cooperation, coordination and commitment of many stakeholders and government agencies responsible for harbours environmental management.