

Core Area

Liquid Waste Management Plan

Capital Regional District | 2013 Annual Programs Report



View of the Inner Harbour.

The Capital Regional District (CRD), on behalf of the core area participants: Esquimalt Nation, Songhees First Nation, Colwood, Esquimalt, Langford, Oak Bay, Saanich, Victoria and View Royal manages wastewater and stormwater according to strategies and activities outlined in the Core Area Liquid Waste Management Plan (LWMP), a 25-year plan, under the Environmental Management Act, which was approved by the British Columbia Minister of Environment on March 26, 2003.

Look for these icons throughout the document for section headings in the seven program areas:



Monitoring & Evaluation



Outreach & Education



Key Initiatives & Accomplishments



Looking Ahead

Many LWMP activities have regulatory reporting requirements and commitments to inform and educate stakeholders. The seven programs are:

- 1. Wastewater and marine environment monitoring;**
- 2. Harbours environmental action;**
- 3. Stormwater quality;**
- 4. Source control;**
- 5. Inflow & infiltration management;**
- 6. Trucked liquid waste management; and**
- 7. Onsite systems management.**

This overview document provides a summary of 2013 activities, 2014/2015 directions and describes the general scope and integration of the services provided in the LWMP.

Wastewater & Marine Environment Monitoring

For almost 100 years, the Macaulay and Clover points outfalls have discharged Core Area wastewater into the waters of Juan de Fuca Strait. The outfalls were lengthened in 1971 (Macaulay) and 1981 (Clover) and they now discharge fine-screened (6 mm) wastewater at distances of at least 1,100 metres off-shore and depths of at least 60 metres.

The two outfalls are regulated by the BC Ministry of Environment (MOE) through permits that specify wastewater quality and flow volume limits, and through marine monitoring commitments made in the Core Area LWMP. The outfalls are also subject to wastewater quality monitoring requirements under federal regulations.

Outfall monitoring is part of the Core Area Wastewater and Marine Environment Program (WMEP) with the following objectives:

- To monitor and assess wastewater quality and quantity.
- To provide compliance monitoring results to regulatory agencies.
- To monitor and assess the potential effects of the wastewater discharges to the marine environment.
- To monitor and assess the potential effects of the wastewater discharges to human health.
- To provide information to the CRD Regional Source Control Program.
- To provide information to wastewater managers regarding treatment plant and outfall diffuser performance.
- To provide scientific assessment to the general public regarding the use of the marine environment for the disposal of wastewater.

Regular WMEP monitoring was established in the late 1980s and modified a number of times since then, with the latest program review and changes occurring in 2011. The 2011 review was undertaken in collaboration with BC MOE staff to address gaps identified in previous reviews and in light of the provincial direction for regional wastewater treatment.

The current monitoring program is a five-year monitoring cycle, with 2013 representing the third year. A comprehensive assessment report will be completed for the entire five year monitoring cycle once it is complete.



Monitoring & Evaluation

The 2013 WMEP sampling program included wastewater, surface water and water column monitoring.

Wastewater Monitoring

The 2013 wastewater monitoring program consisted of: provincial and federal regulatory compliance monitoring, a comprehensive assessment of wastewater contaminants, and wastewater toxicity testing. 2013 results are consistent with previous years. Wastewater from both outfalls meets the regulatory requirements of their MOE permits.

Wastewater quality, however, did not meet federal regulatory limits. Therefore, the CRD applied for an authorization to temporarily exceed federal regulatory limits until further treatment can be installed in the Core Area. Based on the magnitude of the exceedences, the temporary authorization specifies a deadline of December 31, 2020 for further treatment to be in place and effluent limits met.

Wastewater toxicity test results for 2013 were also similar to previous years. Results indicated that undiluted wastewater was toxic to fish and invertebrates within the initial dilution zone (IDZ), an area that extends 100 metres around the end of each outfall. Based on minimum initial dilution factors at the edge of the IDZs, toxicity was not predicted beyond 100 metres from the outfalls. Installation of further treatment will reduce effluent toxicity.



Staff sampling seafloor sediment off Clover Point.

Surface Water & Water Column Monitoring

The majority of surface water results were below human health protection guidelines. Guidelines were only exceeded in the summer at the edges of the IDZs of both outfalls and during the winter at Clover Point. Overall, these results indicate that potential for exposure to wastewater during recreational activities at the ocean surface was low.

The deeper water column sampling results confirm the wastewater plumes were trapped at depth. The bacterial levels at depth routinely exceeded human health protection at the edges of the IDZs indicating a higher risk below the surface of the ocean, for example if someone was SCUBA diving around the outfalls. These results are typical due to the intended design of the outfall diffusers and the high concentrations of bacteria being discharged. A few metals exceeded guidelines however, this is based on just a few samples and should be interpreted with caution. Overall, human health risk and potential for aquatic toxicity were low.

In 2013, an additional research investigation was started with Ocean Networks Canada to assess dissolved oxygen in relation to seafloor organism health around Macaulay Point.

Key Initiatives & Accomplishments

- Met 2013 reporting requirements
- Developed research collaborations



Looking Ahead

In 2014/2015, the WMEP plans to:

- continue with routine regulatory (wastewater) and marine assessment (water column and surface water) monitoring.
- undertake seafloor monitoring (sediment chemistry, seafloor community assessment for toxicity and bioaccumulation) around the Macaulay Point outfall.
- complete an integrated assessment of the 2012 seafloor invertebrate, sediment chemistry and toxicity datasets.
- continue with the ongoing additional investigation with Ocean Networks Canada.
- review the need for other additional investigations.



Songhees walkway along the Inner Harbour.

Harbours Environmental Action

The Harbours Environmental Action Program (HEAP) coordinates environmental protection and improvement efforts in Victoria and Esquimalt Harbours, Portage Inlet, the Gorge Waterway and Esquimalt Lagoon.

HEAP works with community groups, municipal partners, First Nations and other agencies to achieve the following LWMP goals:

- 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 various environmental projects and through collaborative, multi-stakeholder harbour initiatives, such as the Esquimalt Lagoon Stewardship Initiative (ELSI), the Gorge Waterway Initiative (GWI) and the Victoria and Esquimalt Harbours Environmental Action program.

Monitoring & Evaluation

Water Quality Objectives for the Harbours

Staff are working in partnership with MOE, to establish water quality objectives specific to the five unique harbours in the CRD's core area.

Building on 2012 sampling results, staff collected water quality data at 28 marine water sampling locations. In 2013, staff conducted water quality sampling in Colquitz, Colwood, Millstream and Cecelia Creeks and at several high-rated stormwater discharges entering Victoria Harbour. The intent of the sampling is to capture the first flush during the high flows and gain an accurate picture of high- and low- flow contaminant inputs to the harbours. Staff also monitored benthic invertebrate communities in the creeks.

Flow Monitoring

Flow monitoring supports the development and monitoring of provincial WQO. Since 2012, the CRD has been monitoring water quality and flow in Colquitz, Colwood, and Cecelia creeks and flow in Hospital Creek. In late 2013, discharge rating curves were developed for these 4 creeks and annual runoff patterns determined.

These data have been provided to municipalities and First Nations and can be used to monitor long-term changes to creek hydrology as our climate changes.

Outreach & Education

Harbours Survey

Staff conducted an on-line survey during the summer to quantify how the public uses the harbours, what they value, what they have concerns about and their visions for the future of the harbours. More than 740 people filled out the survey and provided their input on the harbours.

Website Review and Update

The CRD website underwent a major overhaul in 2013. All the harbours and watershed content was updated and new interactive websites were created for ELSI: www.elsi.ca and GWI: www.gorgewaterway.ca.

Community Events

Every year, staff and volunteers attend community events and celebrations, sponsor free public talks and participate in a variety of outreach and education events

Restoration Activities

Staff coordinate and support volunteer efforts at several habitat restoration projects around the harbours including: annual broom pull and shoreline clean up at Coburg Peninsula, fish monitoring for the creeks that enter Esquimalt Lagoon, riparian enhancement along Bee Creek, dune restoration and monitoring at Coburg Peninsula, and shoreline restoration at Point Ellice on the Gorge Waterway. Hundreds of volunteer hours have contributed to much habitat restoration in the harbours.

Key Initiatives & Accomplishments

In 2013, major accomplishments of the CRD Harbours Environmental Action Program include:

- Completed first year of hydrometric monitoring for Hospital, Cecelia, Colwood and Colquitz Creeks and developed discharge rating curves for each creek.
- Completed sampling for harbours and creek water quality objectives, compiled and provided data to MOE for interpretation.
- Conducted harbours survey and initiated data analysis.
- Updated and redesigned harbours and initiative websites.



Point Ellice bridge.



Looking Ahead

In 2014/2015, HEAP plans to:

- complete the development of draft Water Quality Objectives for the harbours and conduct public consultation.
- continue hydrometric monitoring in priority creeks.
- analyse and report on the harbour survey results.

Stormwater Quality

The Stormwater Quality Program (SQP) plans, promotes and coordinates the management of stormwater quality in consultation with the municipalities, Department of National Defence and First Nations.



Monitoring & Evaluation

Stormwater Discharge Evaluations

The core area stormwater discharge survey covers the coastline between the Colwood-Metchosin border in the west and the Saanich-Central Saanich border in the east, including the major harbours.

Public Health: Fecal Coliforms

CRD staff collect water samples from selected stormwater discharges for measurement of fecal coliform bacteria levels.

There are approximately 650 stormwater discharges along the core area shoreline. The SQP visits priority discharges at least twice a year and aims to sample all discharges within a five-year cycle. The CRD analyzed 150 stormwater discharges for fecal coliform concentrations in 2013 with samples collected once during the winter and once during the summer to represent seasonal differences. Thirty-three stormwater discharges were rated high in 2013 and 117 were rated low or moderate.

The number of high-rated discharges decreased sharply after the program was initiated in 1993, but started increasing again in 2002. By 2011, the number of high-rated discharges reached 43. The increasing trend prompted staff to refocus efforts on finding the sources of contamination to reduce or eliminate them.

Joint efforts between participants and CRD staff have proven successful; in 2013, the number of high-rated discharges decreased to 33. Municipal efforts included relining sewer and stormwater pipes and separating combined sewer/stormwater manholes. Efforts to identify contamination were successful as fecal coliform levels in many discharges previously rated high are now reduced.

Environment: Chemical Contaminants

The CRD also rates stormwater discharges for environmental concern based on the level of metals and organic contaminants measured in sediment collected within the stormwater collection system (i.e., pipes, manholes, ditches and creeks) relative to the CRD Marine Sediment Quality Guidelines for protection of aquatic life.

In 2013, the CRD collected 35 sediment samples within 30 stormwater discharge catchment areas. Eight of the discharges were assigned a low contaminant rating, ten discharges were rated moderate, and eight discharges were rated high.

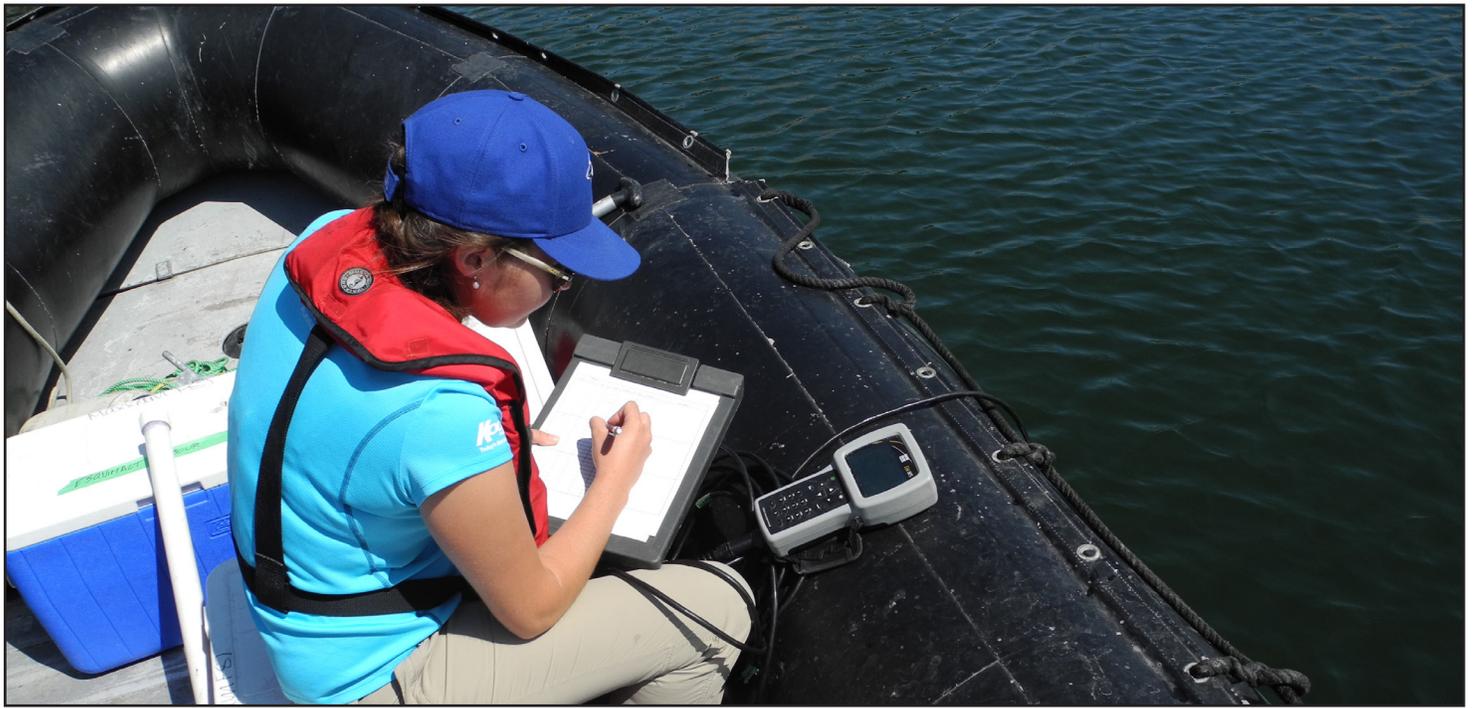
Sources of chemical contaminants in stormwater sediment can be complex to find and eliminate as sediment is not always available at upstream investigation sites, and the levels fluctuate with rainfall and as lines are cleaned out. Many non-point sources from roadways, parking lots or transient point sources (e.g., spills) and can persist for a long time.

Nearshore Marine Monitoring

Staff began annual surface water fecal coliform sampling of Esquimalt Lagoon, Esquimalt and Victoria harbours in 1993, with biannual surface grab samples

Initial findings in 2011 and 2012 indicate that in all areas, the parameters of concern are dissolved oxygen, total zinc, enterococci and fecal coliforms; in Esquimalt Lagoon nitrate is also of concern. Staff are working with MOE to develop water quality objectives for these parameters to monitor and manage these water bodies over time.

Based on the results from 2011 and 2012, staff conducted additional sampling in 2013 to provide information on land-based sources of the parameters of concern observed in the marine environment. Staff intensively sampled five stormwater discharges and two creeks entering the harbours during the summer and fall flush of 2013. This data has been shared with MOE and is still being summarized.



Water quality monitoring.

Major Watercourse Monitoring

In 2013, staff assessed the health of 12 creeks (Bee, Bowker, Cecelia, Colquitz, Colwood, Craigflower, Douglas, Goldstream River, Hospital, Millstream, Noble and Selleck creeks) by measuring water quality at the mouth in the dry and wet seasons and completed more comprehensive assessments of creek health in Cecelia and Millstream creeks. In Cecelia and Millstream, staff conducted additional water quality sampling and assessment of the health of invertebrate animals living in the creek sediment.

The water quality parameters of most concern in 2013, as in previous years, were fecal coliforms, turbidity and phosphorus. This is consistent with what is seen throughout the region wherever there is increased human presence and agriculture. The fecal coliform shellfish harvesting guideline and draft Vancouver Island phosphorus objective were exceeded in all CRD creeks due to human and animal presence in these watersheds. Excluding these exceedences, nine of the 12 creeks sampled exceeded one or more of the remaining BC WQG in 2013.

In general, water quality was good in Craigflower, Colquitz and Goldstream, moderate in Bee, Colwood, Millstream and Selleck and poor in Bowker, Cecelia, Douglas, Hospital and Noble creeks.

Outreach & Education

In mid-2013, the program received a \$75,000 grant from the Royal Bank of Canada's Blue Water Program. The grant is being used to develop educational material for public, school programs and businesses about watershed protection.



Stormwater Quality continued



Key Initiatives & Accomplishments

Bowker Creek Initiative

The Bowker Creek Initiative (funded by Oak Bay, Saanich and Victoria) has been active for 9 years. Significant projects in 2013 that involved the BCI were the planning for the restoration of a section of the creek as part of the Oak Bay High School construction, support of the Royal Jubilee Hospital's 2013-2030 Master Campus Plan, working with Hillside Centre (the largest impervious surface in the watershed) on design of rain gardens, Riparian Garden at Monteith, mitigation of invasive flora species and several outreach activities.

Natural Areas Atlas

The Natural Areas Atlas is a comprehensive, web-based information tool about natural areas in the CRD and is available at: <http://crdatlas.ca>. It is meant for use by anyone interested or involved in land use planning or stewardship in the region.

Bowker Creek pennant printing volunteers.



Looking Ahead

In 2014/2015, the Stormwater Quality Program plans to:

- continue to investigate contaminant sources in the catchment areas of high-rated stormwater discharges.
- work with Ministry of Environment and the CRD Harbours program to complete the water quality objectives for the harbours.
- work with the Onsite Wastewater Management Program to determine if onsite septic systems have an impact on watercourse and marine areas.
- continue annual monitoring in priority streams each year to collect higher quality data on stream health.
- produce educational material for public, school programs and businesses about watershed protection with a \$75,000 grant from the Royal Bank of Canada's Blue Water Program.



Source control inspector checking monitoring device.

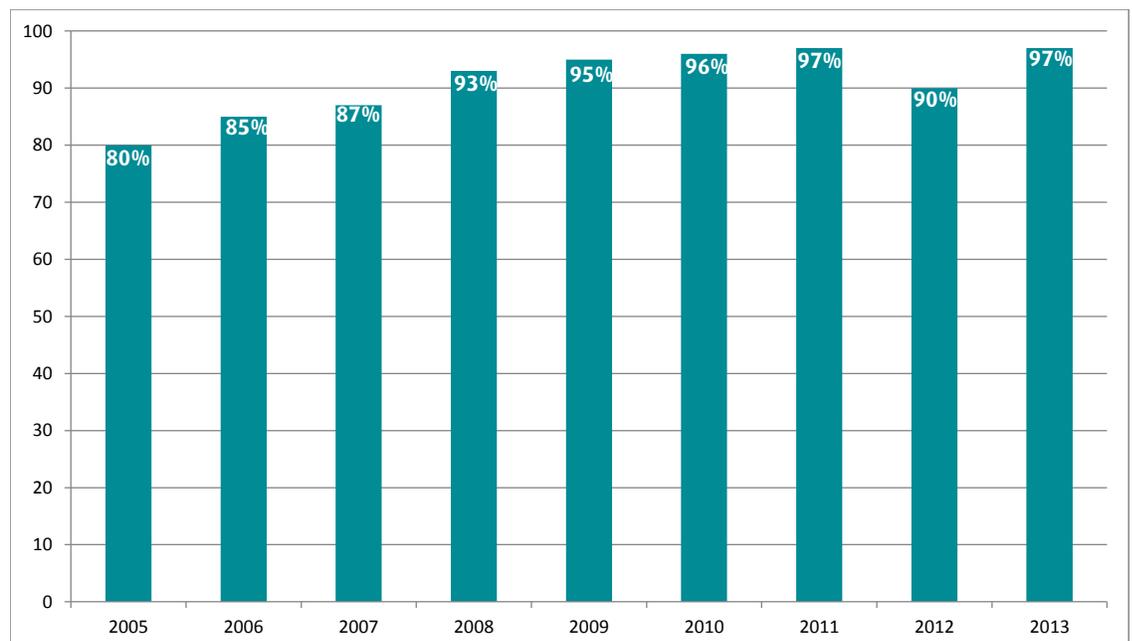
Source Control

The Regional Source Control Program (RSCP) protects Core Area sewage collection and treatment facilities, public health and safety, and the marine receiving environment by reducing the amount of contaminants that industries, businesses, institutions and households discharge into the district’s sanitary sewer systems.

The CRD adopted a Sewer Use Bylaw (Bylaw No. 2922) in 1994 to regulate sanitary sewer discharges. The RSCP meets or exceeds Canadian best practices for source control and the CRD is a nationally recognized leader in this field. The source control program continues to play an important role in achieving wastewater contaminant reductions and protecting sewage collection and treatment facilities throughout the region.

The RSCP has been very successful with efforts to share information and coordinate inspections internally (with Cross Connection Control and Demand Management programs), with regulatory partners (Vancouver Island Health Authority and municipal inspectors) and other CRD divisions.

Percentage of Regulated Businesses with Proper Waste Treatment Installed





Source control staff working with Saanich Peninsula Treatment Plant staff.



Monitoring & Evaluation

The RSCP has 11 Codes of Practice, with a varying inspection frequency for each sector based on both associated effluent risks and sector size. In 2013, a total of 1,254 inspections were conducted at fermentation, recreation, dental, carpet cleaning, photographic imaging and food services operations. This number includes repeat site visits to facilities that were not found to be compliant on first visit. Overall, full compliance rates for COP, permitted industrial facilities and facilities operating under authorizations remained high in 2013.

Priority metals (those presenting the greatest concern regarding aquatic toxicity), including cadmium, chromium, copper, lead, mercury, manganese, nickel and zinc, exhibited significant decreases ranging from 1% to 19% per year. Organic compounds, including hydrocarbons, showed significant decreases in loads, ranging from 2% to 16% per year in core area effluent. A significant decrease of 6% per year was also observed for total oil and grease at core area outfalls.

Two key 2013 performance measures were:

- The percentage of regulated businesses with proper waste treatment installed in 2013 was 97%.
- Ninety-five percent of priority contaminants showed no increase in loads to the core area environment based on a recent trend assessment for 1990-2011 core area wastewater data.



Outreach & Education

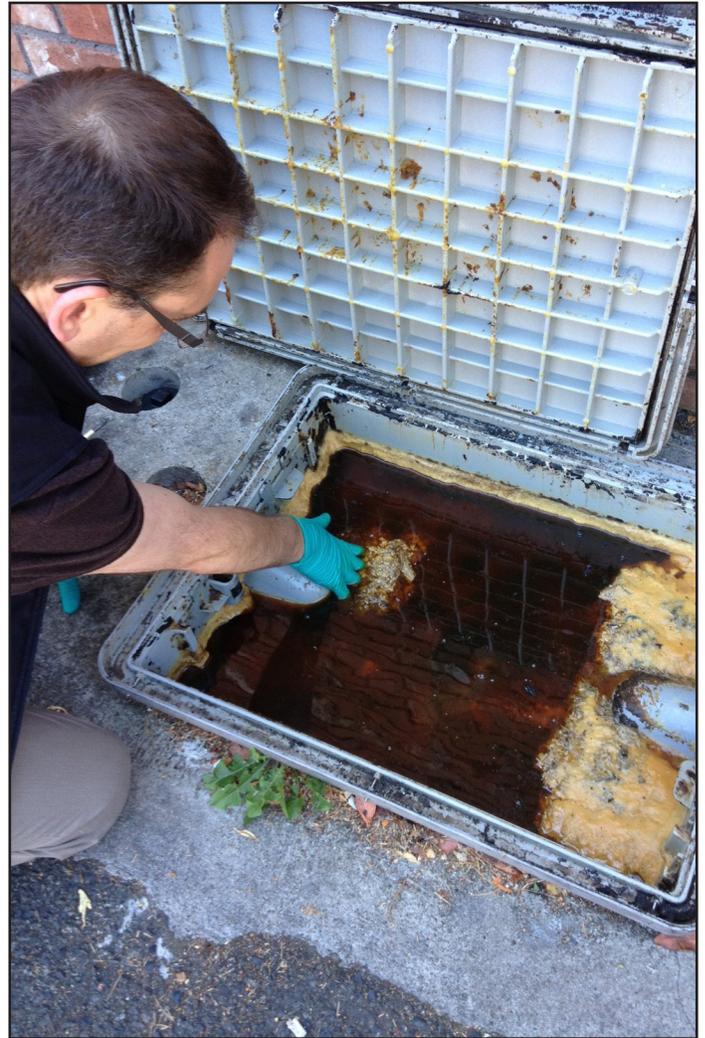
In 2013, outreach and education efforts focused on developing and delivering integrated messaging with other CRD programs, and included:

- A department-wide integrated environmental initiative “Green 365” focusing on two campaigns in 2013: Indoor and Outdoor Living.
- In support of Green 365 the “My Green High School Plan” challenge, four high schools from across the region submitted plans that demonstrated a commitment to environmental stewardship by reducing their school’s eco-footprint, raising student awareness and changing behaviour. All four high schools received funding to implement their green plans and approximately 4,000 students were reached.
- Point-of-sale outreach material was distributed at local businesses to promote proper waste medication disposal for residents.
- Two Medications Return Program education sessions were conducted for community health care staff and private home care clinicians.
- Two industry educational videos were released (food services operations and the automotive repair industry) and eight more videos were developed in 2013 and targeted for release in 2014.
- Staff participated in two training workshops for local educators and four youth and community engagement events.



Key Initiatives & Accomplishments

- Launch of the “Green 365” outreach initiative.
- 1,254 commercial and institutional inspections were conducted in 2013, (500 of which were coordinated inspections with other agencies).
- RSCP continued to integrate Demand Management Program water audits as an expanded inspection service and worked collaboratively with the CRD Integrated Water Services Department, delivering audits for a major recreation facility, a First Nations band office and a mixed-use office building/restaurant.
- Developed a new significant incident response procedure for Implementation in 2014 following a significant spill of fuel oil into the CRD’s Lang Cove pump station in 2013.
- Piloted a technology study to test the effectiveness of automatic grease removal devices in the food services sector.
- Medications returns within the region in 2013 increased by 33% over the amount collected in 2012.



Source control staff inspecting a grease trap.



Looking Ahead

In 2014/2015, the RSCP plans to:

- continue implementation of the RSCP five-year plan for 2011-2015.
- focus COP inspections, monitoring and sector investigations on the carpet cleaning, food services, automotive repair, photographic imaging and laboratory sectors.
- further develop the division’s “one window approach” to customer service for businesses.
- implement two pilot “Green 365” campaigns (Green 365 In the Kitchen and Green 365 Spring Cleaning).
- implement an Arts and Crafts environmental best management practices campaign.
- prepare a five-year review of the RSCP covering the period 2009–2013.



Manhole maintenance.

Inflow & Infiltration Management

The Core Area Inflow and Infiltration (I&I) Program works with municipalities and First Nations to reduce the amount of rainwater and ground water that enters the sanitary sewer system. Inflow is rainwater that enters the sanitary sewer system through improper physical connections and infiltration is groundwater that seeps into the sanitary sewer through cracks or loose joints in the sewer pipe and/or manholes. Sewer networks are complex and contain many connections between various ages of infrastructure. Some I&I is unavoidable and is taken into account during sewer and treatment plant design. Problems occur when I&I exceeds the infrastructure's capacity.

Excessive amounts of I&I can lead to:

- Overflows to the ocean and groundwater contamination that can affect the environment and create public health concerns.
- Sewage back-ups into houses and buildings that can destroy belongings and require extensive clean-up and remediation.
- Increased operation and maintenance costs to convey and treat sewage flows.
- Reduction in available capacity in sewer systems requiring premature upgrades.

The CRD has prepared an Inflow and Infiltration Management Plan. In the plan, each municipality is divided into appropriately-sized sewer catchments.

Catchments are monitored annually then classified into one of three phases based on performance: (1) routine data collection; (2) detailed investigation work; and (3) rehabilitation work.

Efforts began in 2013 to develop a strategy for addressing inflow and infiltration on private property I&I. This included collaboration with local governments and consultants and stakeholder engagement with real estate professionals, insurance, plumbers, and home inspectors.



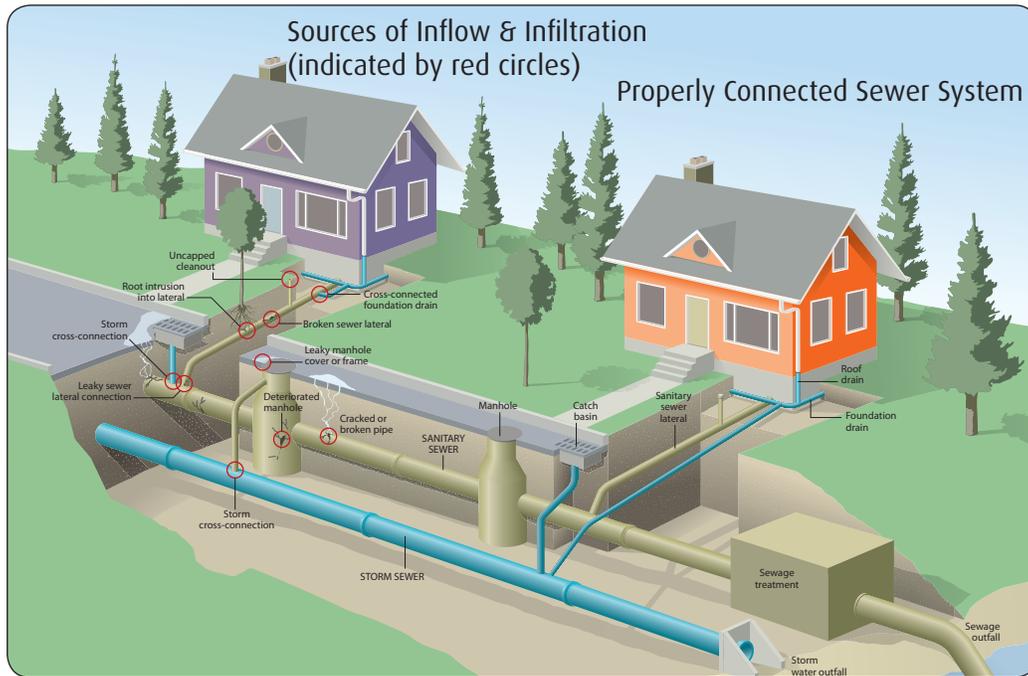
Monitoring & Evaluation

The CRD analyzed flow monitoring data from 86 locations in the Core Area. This included 28 locations that were monitored for the first time. This data was used to calculate standardized I&I rates for each catchment.



Outreach & Education

The I&I Program was represented at 19 public events as a part of the overall CRD Outreach program coordinated by CRD Environmental Partnerships.



Key Initiatives & Accomplishments

In 2013, the following efforts were undertaken to reduce I&I:

- City of Colwood programmed its pump stations to collect sewer flow data and performed visual inspections of manholes and cleanouts.
- Township of Esquimalt separated 14 combined manholes (those with stormwater and sanitary sewer in close proximity) which will eliminate the potential for I&I / overflows and upgraded or replaced 13 sewer manholes and 15 service connections.
- City of Langford repaired 71 sewer inspection chambers, performed video inspections on 7.3 km of sewer mains and expanded the sewer system with new mains and connections.
- District of Oak Bay separated 28 combined sewer laterals into separate sanitary and storm pipes. It also performed video inspections on 3.2 km of sewer and repaired sewer infrastructure.
- District of Saanich replaced over 2800 m of sanitary sewer mains and 217 sanitary sewer connections and did video inspection of 16 km of sanitary sewer pipes.
- City of Victoria monitored flows in 12 previously unmetered catchments targeted for I&I reduction. It

also relined 1 km of sewer, repaired 49 connections, and undertook video inspection of 36 km of sewer mains and 350 service connections.

- Town of View Royal upgraded the Stewart Pump Station and added a new flowmeter. It also carried out significant camera inspection work and inspected manholes.
- The CRD performed routine inspection and maintenance work on the CRD sewers and installed two new flow meters.



Looking Ahead

In 2014/2015, the Inflow and Infiltration Program plans to:

- continue with the implementation of the I&I Management Plan.
- update the regional approach for educating the public on private property I&I to promote the voluntary inspection and, if required, repair and maintenance of aging sewer connections.
- move forward with developing regional and municipal private property I&I programs.



Waste hauler collecting liquid waste for disposal.

Trucked Liquid Waste Management

The Trucked Liquid Waste (TLW) program coordinates the collection and disposal of non-domestic liquid wastes that cannot be legally discharged to sewer or stormwater systems and must be transported by truck to an offsite disposal facility. Examples of TLW include catchbasin, grease interceptor and oil/water separator wastes.

The program's objective is to ensure that TLW is handled and disposed of in an appropriate and responsible manner in order to protect public health and the environment.

The four goals of the program are:

1. Ensure appropriate disposal of TLW by generators
2. Ensure proper and affordable disposal services available for all TLW
3. Promote appropriate government services
4. Build public support for the TLW program



Monitoring & Evaluation

Staff annually review catchbasin waste quantities disposed of at local facilities. Overall quantities at known disposal facilities have declined in the last four years. However, the analysis of trends in this data is difficult due to the existence of out-of-region disposal facilities, inconsistent maintenance intervals and variable sediment accumulation.

Staff maintains TLW pages on the CRD website, which include information on proper management and disposal of wastes, catchbasin facts, technical reports and tools for waste haulers, as well as a service provider directory. The majority of web traffic was related to catchbasin maintenance and servicing, which is the focus of the TLW fall 2013 ad campaign series and indicated that outreach material successfully directed traffic and interest to these pages.



Outreach & Education

Staff coordinated a number of outreach initiatives in 2013 specifically targeting TLW waste generators and haulers. Outreach initiatives included:

- Implemented a fall ad series including advertisements regarding catch basin maintenance.
- Update and review of the TLW Service Provider Directory.
- Partnered with the Regional Source Control Program (RSCP) to distribute outreach material on catch basin maintenance to property owners and waste generators.

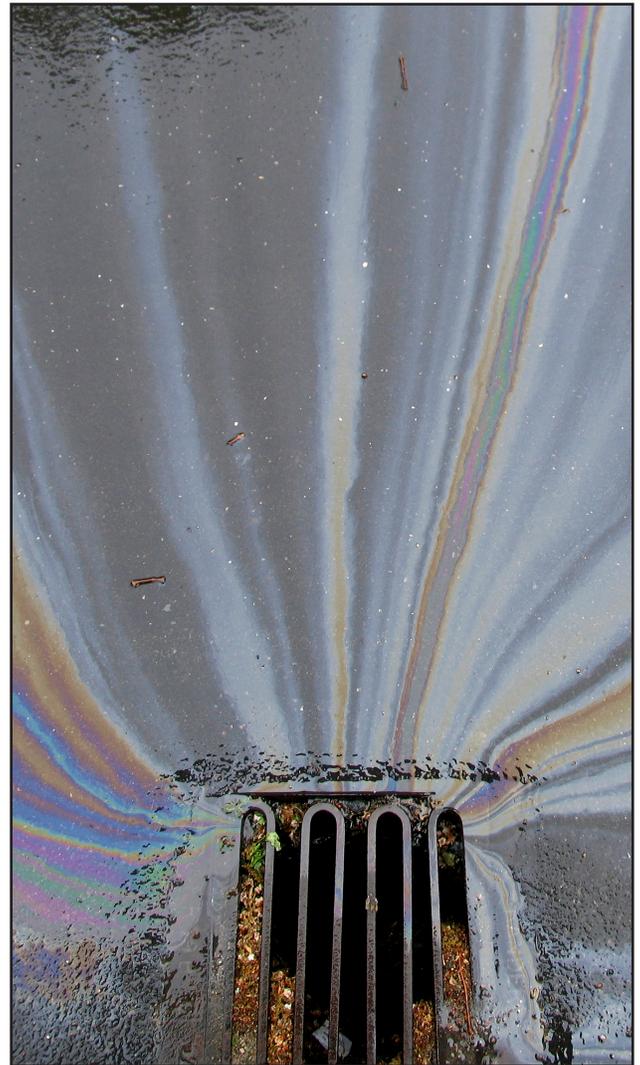


Key Initiatives & Accomplishments

A stakeholder meeting is held annually in partnership with the Onsite Systems Management Program to promote CRD outreach programs and as an opportunity for stakeholders to raise current or emerging issues regarding TLW to staff.

A presentation was given at the annual stakeholder meeting that summarized the purpose and goals for the program as well as planned outreach initiatives and studies. Staff placed an emphasis on linkages to other CRD programs such as the Onsite Systems Management Program, Stormwater Quality Program and the Hartland Controlled Waste Program, in order to provide a greater context for the industry.

Tours of private facilities are conducted to increase knowledge of TLW processing/disposal and to foster positive working relationships with the industry.



Catch basins collect contaminants from impervious surfaces.



Looking Ahead

In 2014/2015, the Trucked Liquid Waste Program plans to:

- develop a video or video series regarding catch basin maintenance.
- collaborate with Stormwater Quality Program to deliver outreach programs on catch basin maintenance and operation.
- consult and collaborate with TLW stakeholders through site visits, the annual fall meeting and the stakeholders group.



Onsite wastewater systems monitoring.

Onsite Systems Management

The Onsite Wastewater Management Program (OMP) is a pollution prevention program that aims to protect public health and safety, local surface and groundwater resources, and the environment. The program strives to reduce the number of malfunctioning onsite wastewater systems by promoting proper care and maintenance and regulating pump-out frequency.

This program is the first of its kind in British Columbia and the CRD is recognized as a leader in the field of septic management by other regional districts and municipalities.

The CRD continues to collaborate with other levels of government and regional districts and municipalities across the province on onsite management. Program staff meet regularly with Island Health, the Ministry of Environment and Ministry of Health. Many other local governments are using CRD tools and information on its success and challenges in the development of their own onsite wastewater management programs including the Columbia Shuswap Regional District on exchange of outreach materials, the Regional District of Nanaimo on program initiatives and the Regional District of Kitimat-Stikine on program outreach and development.



Monitoring & Evaluation

The program tracks 26,498 active onsite systems, 8,447 of which are regulated under Bylaw No. 3479 in the four participating municipalities of Colwood, Langford, Saanich and View Royal.



Outreach & Education

- The OMP continues to work together with the TLW and RSCP to deliver collaborative workshops to industry partners in order to streamline CRD messaging.
- The OMP engaged 7,800 residents and businesses through participation at seven consumer and stakeholder workshops and various community outreach events through the Septic Savvy program
- A workshop was delivered to financial lenders to inform on the risks associated with mortgages and onsite treatment systems.
- The CRD's Onsite web pages which include useful resources such as videos on the care and maintenance of septic systems, received over 5,600 views in 2013.



Key Initiatives & Accomplishments

The CRD provided support to Canada Mortgage and Housing Corporation (CMHC) by reviewing and providing input into development of a framework for management of onsite treatment systems. In addition, CRD staff participated on a BCWWA decentralized wastewater committee in order to garner support for onsite wastewater management programs in BC and build the CRD program regionally.

A proactive educational approach has improved compliance with the basic requirements of CRD Bylaw No. 3479. Less than 30% of residents pumped out their septic tank regularly prior to 2008 and now 82% of residents in the OMP database pump out their tank more often than once every five years.

The program began a study of industrial/commercial/institutional (ICI) properties using onsite wastewater treatment (scheduled for 2014 completion).



Cracked septic system pipe being removed.



Looking Ahead

In 2014/2015, the Onsite Wastewater Management Program plans to:

- develop a regional Onsite Wastewater best management program that consistently applies both regulation and education across the CRD.
- launch a *Be Septic Savvy* educational campaign with a focus on encouraging residents to maintain their privately owned onsite wastewater treatment system.
- develop incentives, such as a rebate on an inspection or installation of an effluent filter, to assist residents in repairing their onsite treatment system beyond basic maintenance.
- undertake a 5-year program review of commitments in LWMP in 2014.

Liquid Waste Management

In 3 Easy Steps

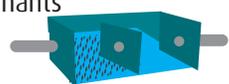


Step 1

Source control:

control:

Stops contaminants from entering drains and sewer pipes.



Pre-treatment



Waste from Plumbing



Medications



Hazardous Waste



Fats, Oils and Grease



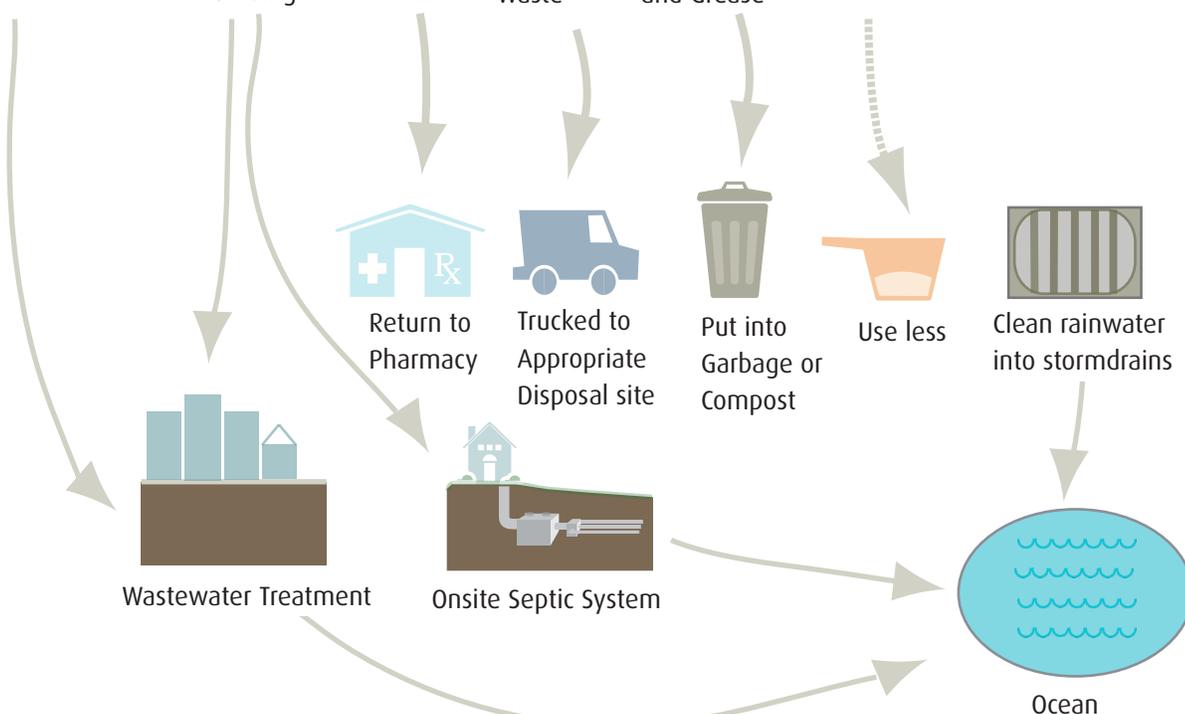
Detergents

Step 2

Proper

Disposal:

Ensures that pollutants are disposed of safely and in a way that protects the environment.



Step 3

Marine Monitoring & Sampling:

Assessing and addressing wastewater and stormwater quality and quantity are extremely important. Special emphasis is placed on outfalls and harbours to evaluate whether wastewater discharge affects ocean or human health.

The CRD monitors a range of water quality indicators and tests for over 200 substances, including:

- Wastewater flow
- Fecal coliform levels
- pH
- fats, oil and grease
- oxygen demand
- metals
- emerging chemicals
- organic compounds



University of Victoria students on a lagoon tour.

Programs Working Together

The programs within the LWMP deliver coordinated, comprehensive and effective conveyance, treatment and environmental management of liquid waste in the core area. Monitoring, assessment, planning, reporting, outreach and education on different levels are performed by all components of the plan.

Marine Monitoring, Harbours and Stormwater Quality staff work to assess effects of contaminants on the region's watercourses, nearshore, harbours and ocean environments. These programs work with other CRD programs, local, Federal and Provincial governments and the region's residents to reduce contaminant inputs.

Source Control and Marine Monitoring work together to reduce contamination entering the wastewater stream. Marine data informs staff about changes in contaminant loadings over time and allows targeted reduction strategies for contaminants that have the greatest potential for impacts on human health and the environment. Staff continually review and prioritize the wastewater chemicals that the CRD monitors and regulates. CRD wastewater monitoring continues to evolve as new chemicals of concern are identified.

Stormwater and Harbours staff are working towards watershed and receiving environment protection. Staff continue to work with the Ministry of Environment to develop specific water quality objectives for the region's harbours. The intensive sampling required for these objectives represents the first time that harbour water quality has been studied in detail across the harbours.

Onsite and Stormwater Quality staff work to link onsite treatment systems to environmental data. Staff can narrow in on contaminant sources using maintenance data to assess areas where onsite treatment may be reaching the end of service life. These two groups with input from Marine Monitoring are also exploring the use of new test parameters to track sources of contamination.

The "Green365" initiative, developed and launched in 2013, brings together complimentary environmental messages from multiple program areas under a single initiative. It is the department's first fully integrated initiative.

Source Control and Onsite staff exchange information and share messaging and efforts. The programs collaborated on a fermentation sector review to inspect wineries, cider operations and distilleries using septic systems.



Green 365 outreach display at a community event.

Programs Working Together

The Inflow and Infiltration and Stormwater Quality programs both deal with underground infrastructure. Leaking sewer infrastructure can cause contamination to enter stormdrain infrastructure as these pipes often run in the same excavation or manhole. Stormwater program outreach works to promote green infrastructure. Better conveyance of stormwater (less peak flows, slower release) reduces water infiltrating into the sanitary sewer system.

The Trucked Liquid Waste Program sits at the centre of a common issue: the proper disposal of wastes that do not belong in sewers or storm drains and that should not be illegally dumped to land. The work complements the efforts of the other programs by proactively working with businesses and haulers to divert materials to appropriate disposal sites rather than release into sewers or storm drains.

The CRD programs covered by this report all work collaboratively, both internally and with external partners, to meet the goals of the Liquid Waste Management Plan and protect the region's receiving environments (land and water) from contamination.

These programs are constantly working to be at the forefront of their fields and lead the way in developing innovative cost-effective solutions while meeting regulatory requirements and ensuring the protection of human health and the environment.

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