



Making a difference...together

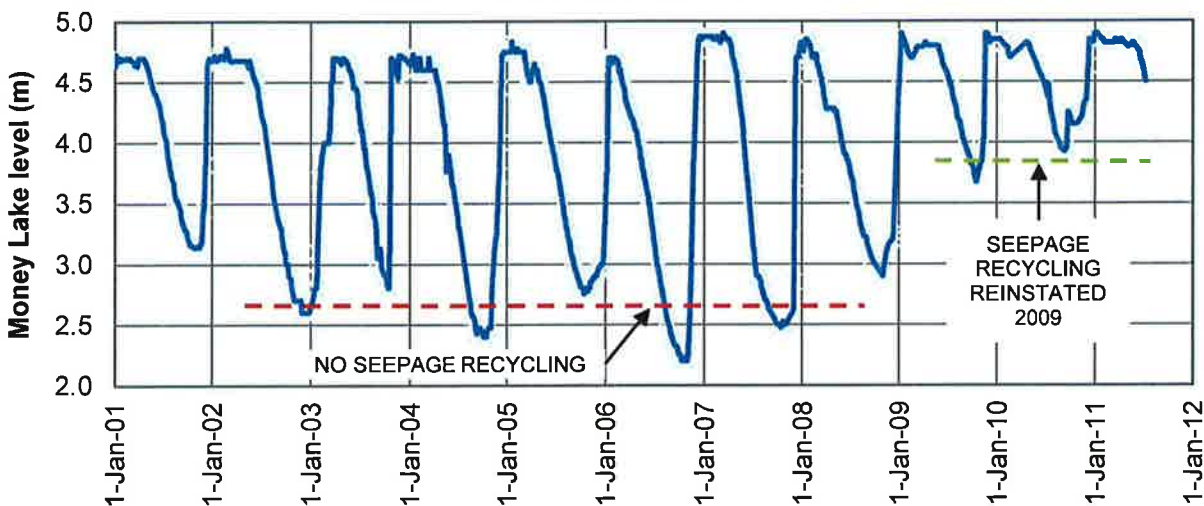
**LYALL HARBOUR / BOOT COVE WATER LOCAL SERVICE  
ANNUAL REPORT  
27 AUGUST 2011**

**Operations**

The Lyall Harbour / Boot Cove water system has operated reliably in the past year, although peak summer water demands continue to stress the treatment plant. The plant must treat water to meet peak instantaneous demands, as there is currently no balancing storage tank between the treatment plant and customer connections to attenuate daily fluctuations in usage. In summer, when water demand is highest and algae blooms are common in Money Lake, the filters in the water treatment plant must operate at high flow rates and remove large amounts of organic matter, requiring frequent backwashing (cleaning).

In 2009, the recirculation of seepage water to Money Lake was reinstated, greatly increasing the retention of water through the summer months (Figure 1). The patterns of seepage in the vicinity of the dam have changed significantly over the past two years, and with advice from a consulting engineer staff are routinely monitoring the locations, quantities and appearance of the seepage. As required by provincial legislation, the 2011 capital plan includes a Dam Safety Review by a qualified consultant. Although the dam continues to operate safely, a program of capital upgrades will likely be necessary in the next few years to ensure the dam remains safe to operate in the medium to long term.

**Figure 1. Money Lake Levels 2001-2011**



Significant operations activities in the past year include:

- Repair of several distribution system leaks
- Maintenance of filter systems, including purchase of a new carbon filter timer
- Increased frequency of water testing
- New procedure for weekly inspection of the Money Lake dam

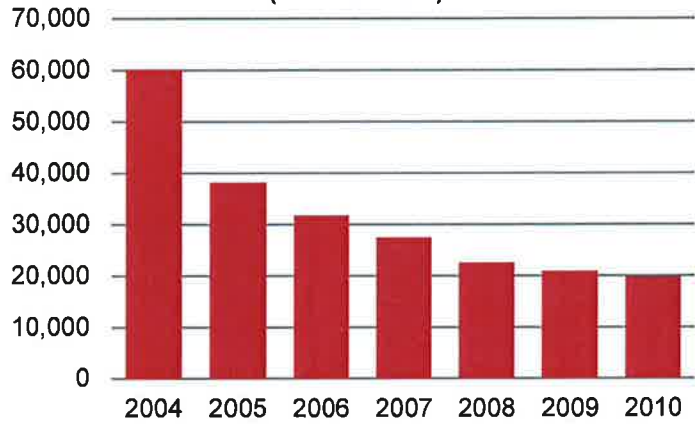
**Water Supply and Demand**

A total of 19,766 cubic metres (m<sup>3</sup>) was drawn from Money Lake in 2010; a decrease of 5% over the previous year. Since 2004, water production has decreased by roughly two thirds, reflecting improved management of distribution system losses and customer awareness and effort to conserve Saturna

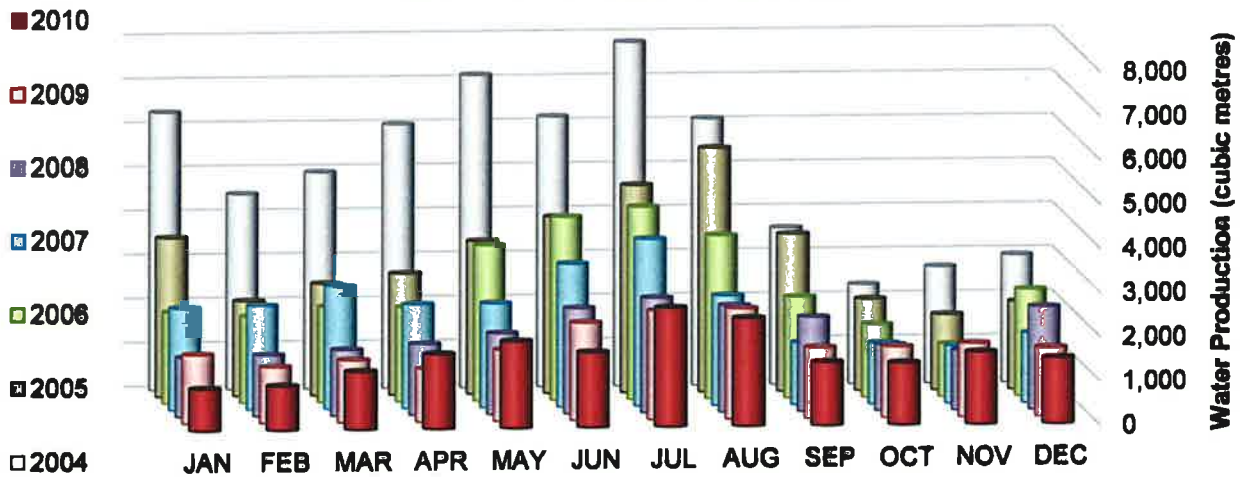
Island's precious water resources. Annual water production since 2005 is shown in Figure 2. Water use has decreased in every month of the year, with the greatest reductions occurring in the summer months (Figure 3). From this data it is evident that the water savings include reductions in leakage losses, household use by full-time residents and businesses, and seasonal use by full-time and part-time residents.

Customer water meters have enabled staff to determine 2010 metered water usage to be 16,945 m<sup>3</sup>. The difference between production and total consumption, called non-revenue water, of 2,821 m<sup>3</sup> equates to 14% of the total amount of treated water produced.

**Figure 2. Total Water Production (cubic metres)**



**Figure 3. Water Production by Month**



Non-revenue water is attributed primarily to system leaks, fire fighting and system flushing (filters and distribution system) activities. Figure 4 shows production, metered use and non-revenue water for the four quarterly billing periods in 2010.

**Water Quality**

Typical Lyll Harbour-Boot Cove water quality characteristics include:

- Treated water is bacteriologically safe to drink
- Treated water turbidity (cloudiness) can be greater than the *Guidelines for Canadian Drinking Water Quality* (GCDWQ) limit of 1 NTU
- Total organic carbon is moderate (typically 3-5 milligrams per litre (mg/L)). This can cause disinfection by-products such as THMs to be high
- Total trihalomethanes (THMs) occasionally exceed the GCDWQ limit of 100 mg/L
- Metals are typically below limits but iron can be elevated in the source water
- The raw source water is quite coloured
- The water source is subject to algal blooms which can affect taste and odour and clog home filtration devices

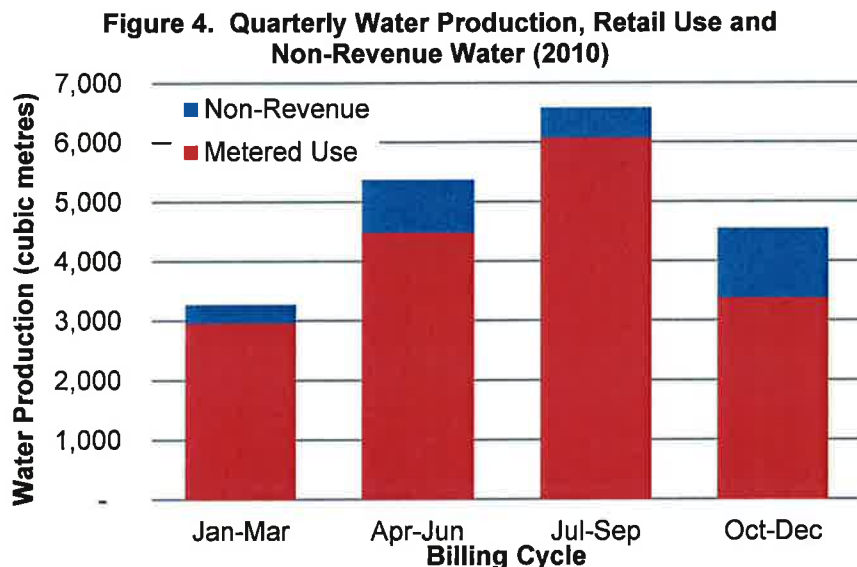
By year end, Water Quality Division staff will be posting water quality data from this this drinking water system on the CRD website.

**System Upgrade Project**

In 2008, a \$1,279,200 Canada – British Columbia Municipal Rural Infrastructure Fund grant was awarded to the CRD to complete water treatment and distribution system upgrades, and to install customer water meters for the Lyll Harbour / Boot Cove water service. Grantable works must be completed by March 31, 2012.

The installation of the water meters was completed in 2009. In 2010 it became apparent based on actual construction costs on Salt Spring Island that the original proposal to construct a new treatment plant base on a dissolved air flotation (DAF) process would not be feasible for Lyll Harbour / Boot Cove, and the CRD engaged water treatment specialists Kerr Wood Leidal Associates (KWL) to recommend alternatives that would meet the project objectives within budget. KWL recommended upgrading the existing water treatment plant to include a two stage filtration process for removal of suspended solids and organics that can operate at line pressure, similar to the existing system.

KWL also recommended to proceed with the original plan to install an elevated tank to attenuate peak hourly flow variations and provide emergency storage of treated water. The tank will be located in an existing statutory right of way southwest of the Saturna Rec Centre, utilizing existing pipelines and communication cables between the tank and water treatment plant sites.



The design and construction management consultant, Genivar, has been re-engaged to complete detail design and prepare tender documents for materials supply and construction. The plan remains to complete construction of the upgrades by March 31, 2012, within the original project budget.

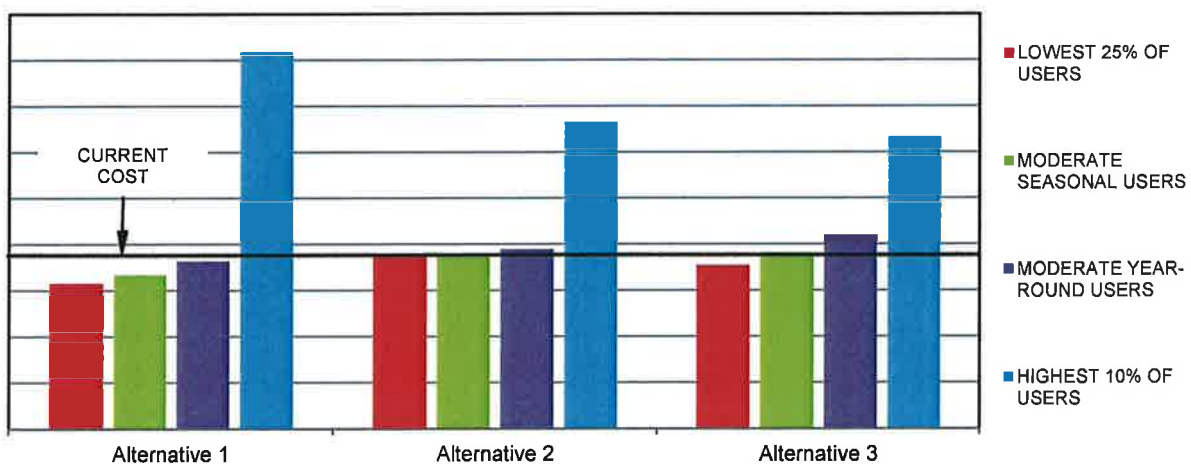
**Planning for a Water Usage Charge**

At the 2010 Annual General Meeting, staff presented preliminary information about how the customer water meters may be used to recover part of the cost of water service to Lyall Harbour / Boot Cove based on water use. Based on public input at that meeting, and subsequent discussions with the Committee, staff are developing alternatives for the Committee to consider in the 2012 budget process. For residential customers, these alternatives will generally be as follows:

1. A structure typically used by CRD water services on Salt Spring Island that holds costs approximately constant for most users, may result in a modest decrease in cost for very low water users, and sharply increases the cost for very high water users (typically the top 3-5% of users). This alternative provides a strong water conservation incentive, but also poses a moderate risk of a revenue shortfall.
2. A structure that retains existing taxes and fees to cover operating and debt costs, and adds a new usage charge for high consumption only that is used to build capital reserves. Customers with average or lower usage per quarterly billing cycle would avoid usage charges, and the customers that use the most water pay the highest costs. This alternative provides a moderate conservation incentive to customers who use more water than average, and poses no risk of a revenue shortfall.
3. A hybrid structure that may yield modest savings for very low users, holds the cost approximately neutral for most users and increases the cost to very high users less severely than Alternative 1. This structure poses a small risk of a revenue shortfall but provides a conservation incentive to all users.

The impact of these three alternatives on annual cost of service is illustrated in Figure 5. A new rate category may need to be established for non-residential customers (e.g. a uniform consumption charge) in order to avoid unduly charging premiums for higher overall usage per account than a typical residential account. Consumption charges would likely be phased into full effect over three years, to enable customers to adapt to the changes and to minimize unanticipated changes in revenue.

**Figure 5. Hypothetical Impacts of Rate Structures on Annual Cost**



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Attached is a copy of the *Statement of Financial Activities (Unaudited)* as prepared by CRD Finance and Corporate Services for the year 2010. The statement provides an overview of the revenues and expenditures for the year.

*Revenue* includes parcel taxes (*transfers from government*) and user fees (*sale of services*), and small amounts for interest on savings and miscellaneous revenue such as late payment charges (*other revenue*). In 2010, *other revenue* included \$12,178 in connection charges for new water services.

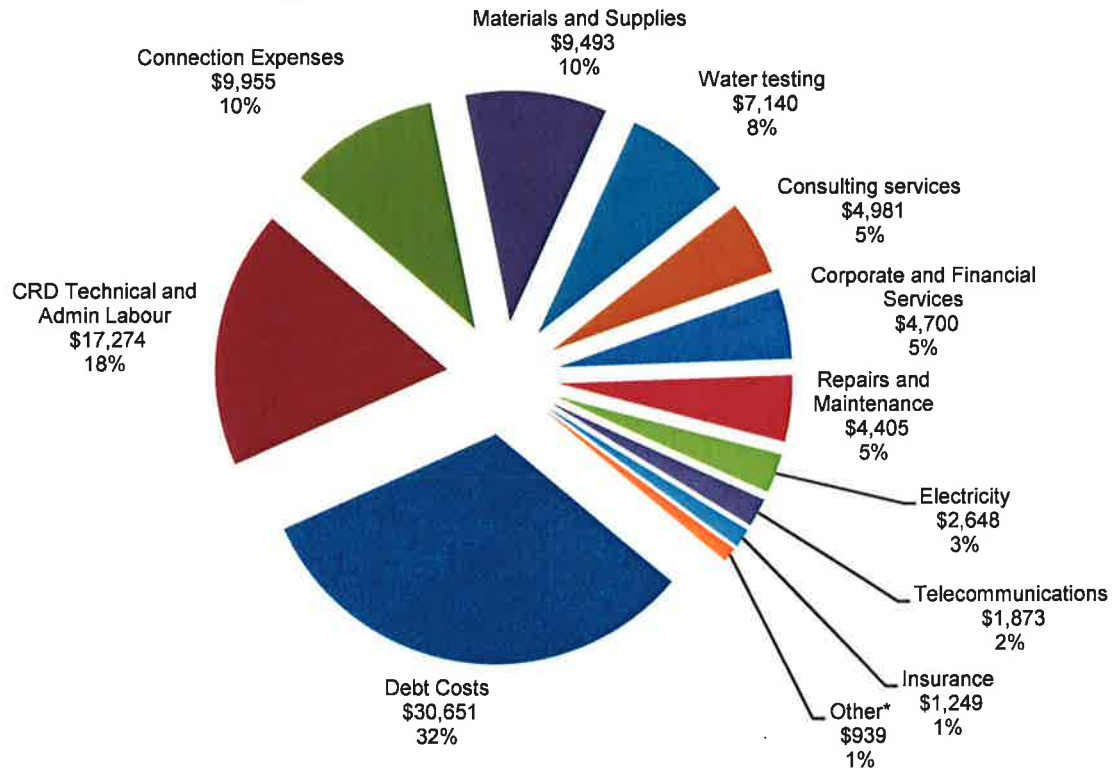
*Expenditure* includes all costs of providing the service. *General government services* include budget preparation, financial management, loan administration, utility billing, and risk management services. *Other financial services* include administration costs for loans. *Other* includes all other costs to administer and operate the water system, and the principal and interest payments on borrowing to finance capital projects. A breakdown of actual 2010 expenditure for the Lyll Harbour / Boot Cove Water Service is shown in Figure 5.

The difference between *revenue* and *expenditure* is reported as *net revenue (expenditure)*. Any transfers to or from capital or reserve accounts for the service (*transfers to own funds, or transfers from own funds*) are deducted and the *net change in fund balance* is added to any surplus or deficit carry forward from the prior year (*opening balance*), yielding a *closing balance* (surplus or deficit) that is carried forward to the following year. Regional District services are not permitted to plan to carry forward a deficit, so a deficit in a given year usually requires a tax or fee increase in the following year to recover costs and prevent a subsequent deficit.

The Lyll Harbour/Boot Cove 2010 revenue of \$155,531 and expenditure of \$161,935 yielded a net expenditure of \$6,404. There were no transfers to or from capital or reserve accounts, so the change was applied to the surplus opening balance of \$39,524 yielding a net surplus of \$33,120 carried forward to 2011.

The Lyll Harbour / Boot Cove Water Service held \$44,215 in capital reserves at December 31, 2010.

**Figure 6. 2010 Actual Expense \$161,935**



\*Includes travel expenses, meeting expenses, printing, postage, advertising, permits and licenses

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Senior Manager, Infrastructure Engineering

CS/TT:ls  
Attachment: 1

J.A. (Jack) Hull, MBA, PEng  
General Manager, Integrated Water Services  
Concurrence

## CAPITAL REGIONAL DISTRICT

### WATER REVENUE FUND Statement of Financial Activities (Unaudited) For the Year Ended December 31, 2010

		Lyll Harbour/ Boot Cove Water Service Area
<b>Revenue</b>		
Transfers from government	\$	90,984
Sale of services		51,431
Other revenue from own sources:		
Other licenses and permits		-
Interest earnings		618
Other revenue		12,498
Grants in lieu of taxes		-
		<b>155,531</b>
<b>Expenditure</b>		
General government services		4,700
Other		153,445
Other fiscal services		3,790
		<b>161,935</b>
<b>Net revenue (expenditure)</b>		<b>(6,404)</b>
Transfers to own funds:		
Water Capital Fund		-
Reserve Funds		-
Equipment Replacement Fund		-
Transfers from own funds:		
Reserve Funds		-
<b>Change in fund balance</b>		<b>(6,404)</b>
Opening balance		39,524
<b>Closing balance</b>	<b>\$</b>	<b>33,120</b>