



Making a difference...together

**LYALL HARBOUR/BOOT COVE WATER LOCAL SERVICE COMMITTEE
2008 OPERATIONS REPORT
23 AUGUST 2008**

The following information is provided for the Lyall Harbour/Boot Cove water utility, Saturna Island.

WATER SUPPLY SYSTEM

The utility obtains its water from Money Lake. All water is treated through multimedia filtration followed by carbon filtration. Secondary disinfection for the system is done at the end of the filtration process, to leave a chlorine residual in the water distribution system to inhibit further growth of bacteria. The production through the treatment works is metered and recorded weekly as is the level in the reservoir. The data permits limited comparison of performance of the system from year to year.

WATER SOURCE

All water for the utility is drawn from Money Lake. The reservoir today was created when the dam was raised in 1979. The dam was constructed over the original Money Lake #1 dam. Harris Road was relocated as part of the project and the road bed now forms a part of the west abutment and dam base. A culvert type spillway, installed through a portion of the dam as part of the 1979 work, was removed and replaced with a surface mounted structure made of concrete. The dam was constructed with a downstream filter blanket to capture seepage. Various works were installed to capture the seepage water, at the dam face, and in fact the seepage water was used for the community in the early days of the system. A second location at the upper treatment building just downstream from the reservoir, also gathers and returns seepage water.

Water is stored in Money Lake under several water licences issued by the Province of BC. Money Family projects is licenced to store 10 acre feet (12.34 cubic decametres). Capital Regional District (CRD) has licences to store water for Lyall Harbour as follows:

Licence 54808	23.5 acre feet
Licence 61500	23.5 acre feet
Licence 122422	<u>3.5 acre feet</u>
Total	50.5 acre feet

To facilitate the construction, maintenance and improvements of the dam, the reservoir, spillway and downstream infrastructure, the Money family provided to the CRD a registered right of way over their lands. The right of way, registered on title of the lands, permits the facility to be operated, constructed, renewed, maintained or expanded by CRD in perpetuity.

DAM REMEDIATION WORKS

Owing to low water levels in Money Lake over the past few years, considerable effort was made by the committee and CRD to understand and address the problem. The following work has been completed, resulting in a more or less normal year for lake levels this summer:

1. Increased storage in the lake. CRD was granted a new licence to store an additional 3.5 acre feet in the lake subject to raising the level of overflow from the lake and increasing the freeboard to the top of the dam.
2. Excavation of the dam's core at the west abutment and constructing a cut-off trench for control of seepage.

3. Replacement of the recycle system located downstream of the main dam to facilitate maximum recycle of water collected.

There are a number of drainage works at the dam site which also need to be addressed. As there are other capital works planned for the area, these upgrade works scheduled for this fall may be postponed and be completed at a time equipment and contractors are on site.

Expenditures for items 1 and 2, completed in the fall of 2007, amounted to \$27,078 against a project budget of \$34,200. The costs were associated with geotechnical consultant's evaluation, design and construction supervision, construction costs for excavation and placement of materials, removal and cleanup of fallen trees on the lakeshore and staff time to retain and manage consultants and contractors.

Item 3 was completed by CRD staff in the spring of 2008 predominantly through the annual operating and maintenance budget. Lake levels were declining and considerable water flow was bypassing the recycle location. A new higher capacity pump was purchased, mechanical and electrical work to install the pump completed and 230 metres of new larger diameter water main installed to maximize return of seepage water to the lake. Most of the cost of this work was funded by drawing funds from the annual repair and maintenance budget. As these costs were not budgeted for, other maintenance and improvement projects planned for the water system have been delayed or deferred. As there were insufficient funds to complete the electrical upgrade from the operating budget, approximately \$3,000 in funds were drawn from the capital project.

RESERVOIR LEVELS

A plot of reservoir levels for the past several years is attached for information. The drawdown curve for 2008, with level points indicated as blue triangles, shows a fairly steep drawdown in the period leading up to mid March 2008. This period is somewhat steeper than anticipated and might suggest that the repairs to the dam core had limited success in reducing leakage. If this is the case, leakage may be continuing at the west abutment, but if so is unlikely to be repairable. It may also indicate that leakage is occurring at other locations within the dam core. Note that as of middle March, lake level decline was halted by the installation of the new recycle system. The drawdown curve for the summer period generally reflects summer usage and this curve to date has followed very closely the year 2005 which was considered to be normal. Residents should note however that the fall of 2005 was particularly dry, with very limited recharge of the lake occurring until well into December. For this reason, the current lake status should not be taken as a reason to waste water.

2007 MUNICIPAL RURAL INFRASTRUCTURE PROGRAM GRANT

On 23 February, 2008 the Honourable Gary Lunn, Member of Parliament and Honourable Murray Coell, Provincial Member of Legislative Assembly, attended Saturna Island with Susan DeGryp, Regional Director for Southern Gulf Islands to announce the award of an infrastructure grant in the amount of \$852,800 to the Lyall Harbour Boot Cove water local service area. The project was the only CRD submission chosen for funding from the Municipal Rural Infrastructure Program.

The Province of BC offered the one-year program for infrastructure grant funding for 2007. In consultation with the committee, CRD submitted a grant application on behalf of the Lyall Harbour/Boot Cove water system. To provide the best opportunity for consideration, the project was designed to address as many of the technical requirements of the grant evaluation process as possible. The primary purpose for the grant funds is to improve the performance of the water treatment plant. Surface water impoundments such as Money Lake #1 pose a number of common problems for water quality. The prolific growth of normal organic matter (NOM), primarily various algae species, is common in Money Lake throughout the year. As water levels drop, the level of NOM increases, the water becomes cloudy and turbid and more difficult to treat. Although the water plant removes a large volume of the NOM through its combined filtering system, the flows through the plant often exceed the capacity of the filters, allowing the material to flow through and into the distribution system to become an excellent food source for bacteria. A new threat to water quality, blue green algae, has plagued St. Mary Lake on Salt Spring Island for the past few years. This species of algae can produce a toxin which has been identified as a health risk as it is retained by the body over the years. Conventional filtration is not considered effective to remove the algae, nor the toxin.

The water treatment system proposed for Lyll Harbour/Boot Cove will have a number of separate components assembled into a treatment train. The components include a coagulation and settlement process to remove most of the algae and NOM, a filter system as existing to polish the water, an ultraviolet disinfection unit to ensure deactivation of bacteria, virus, Giardia and Cryptosporidium, with chlorine added for continuing protection in the system. Although chemicals are still a part of the treatment system, the volume of chlorine added will be much reduced as there is little NOM in the finished water to oxidize the chlorine.

The federal government, in evaluating grant applications, puts considerable weight on how the project addresses the environment and how the community values its water resource. A water conservation strategy is a mandatory component of a successful project. Metering of all properties, to demonstrate management of water losses is the fundamental component of this strategy. Each meter will also be installed with integral check valves to prevent household water from back feeding into the domestic system during low pressure events such as a fire or line break and will have a valve which can be operated by the homeowner to isolate their service. The federal evaluation also requires all projects to be environmentally sensitive, both in construction and operation. The inclusion in the project of a water reclamation strategy for backwash water is an example of how the project addresses this issue. At the present time, chlorinated water from the filters is wasted directly to the environment. This issue will need to be considered regardless of whether or not the project proceeds.

The committee has elected to obtain support for the borrowing of one-third of the program costs by way of a petition. The committee will host an open house at the conclusion of this AGM and will be providing further handout information to residents to address questions. If the petition process is unsuccessful, the committee would then need to decide to seek approval of the electorate by an alternate means, or abandon the project. If the latter, the province would be notified the community does not wish to take advantage of the program.

WATER CONSUMPTION/ DISTRIBUTION SYSTEM LOSSES

The CRD operator has noted ongoing water use trends through the summer which would seem to correspond to a leak or excessive usage on one or more services. As the losses abruptly start and stop, it is likely the property owners turn on the service when they visit the island and off again when they leave. CRD distributed a newsletter to all residents respecting water conservation this year, with some die tablets to test for leaking toilets. Hopefully these tips provided some benefit to users. Further such newsletters will come out in future.

ELECTRONIC READING WATER METERS

The regional director announced this year a program to upgrade water meters from conventional manual reading dials to new electronic radio read units. Under the program, funded by federal gas tax reserve funds, Lyll Harbour/Boot Cove water will receive electronic read meter devices which will be installed as part of the meter installation. The meters permit more rapid and accurate reading of information and allows for data download to the CRD financial system if billing is desired in future.

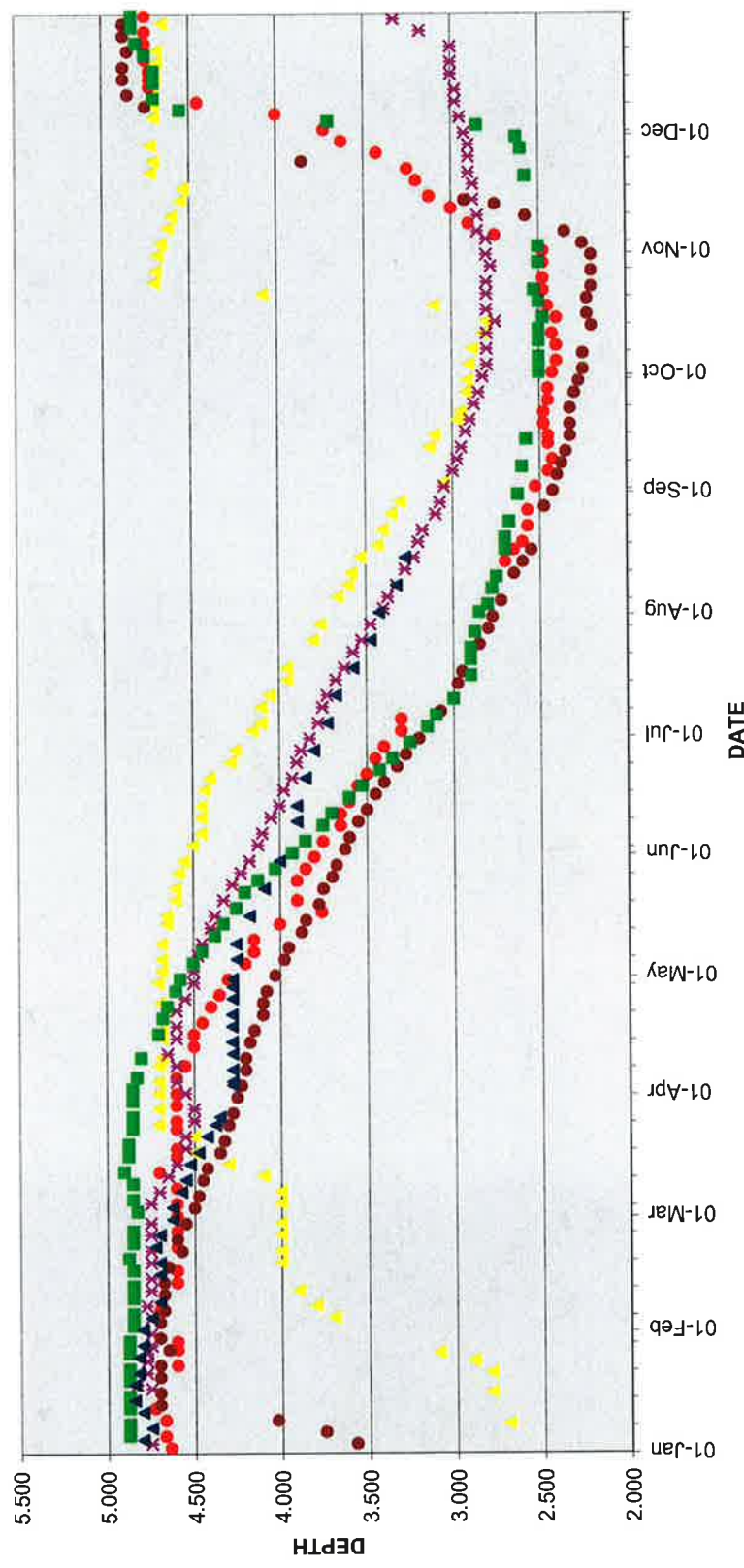
FINANCIAL STATEMENT

A financial statement for the local service for 2007 is attached for information. Revenue for the utility for 2007 amounted to \$143,643. A small deficit of \$1,670 was carried forward into 2007 from the 2006 year. Expenditures for 2007 amounted to \$94,625 however a further \$42,802 was transferred to the capital fund to finance the dam repair and upgrade works and the committee also transferred a further \$2,564 to the reserve fund. The utility at year-end ended up with a surplus carry forward to 2008 of \$1,982.

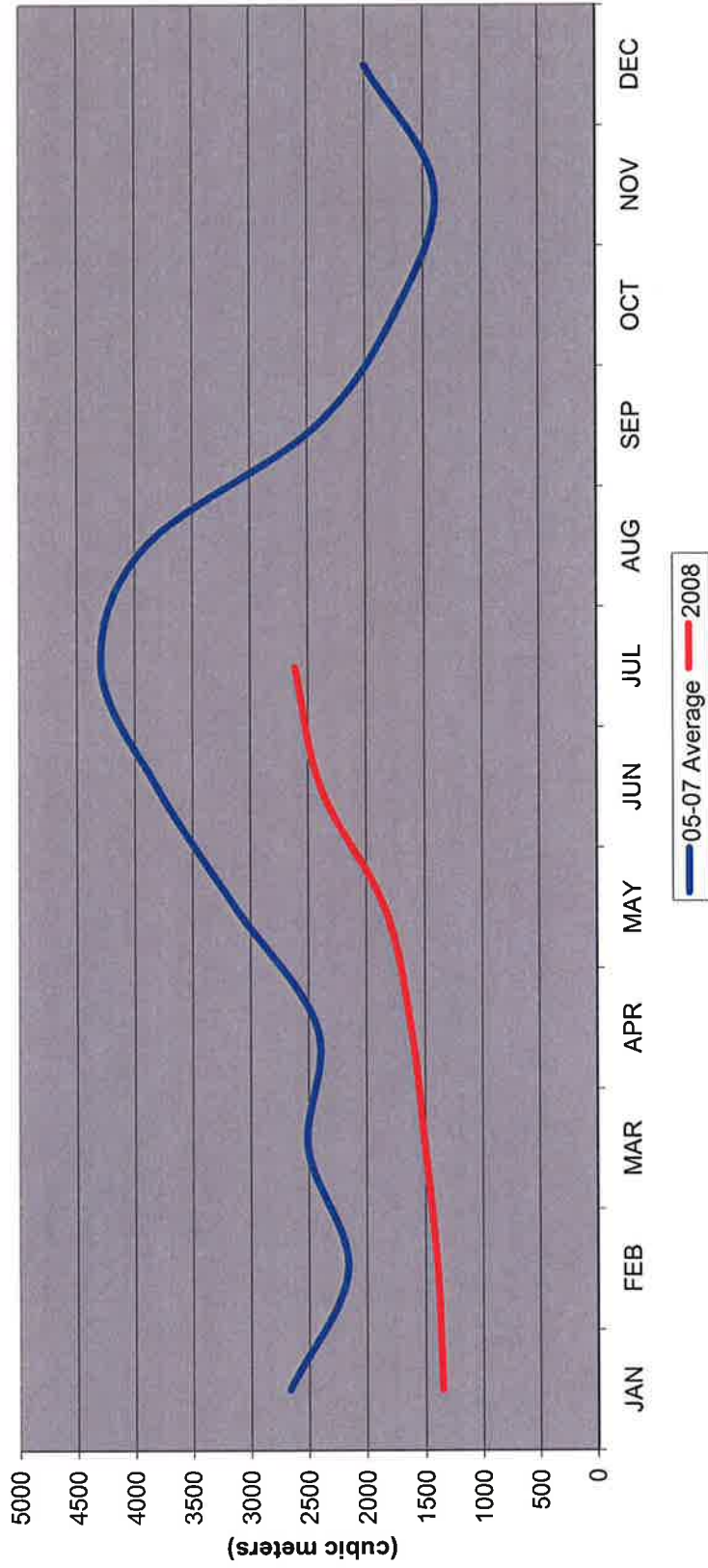
The committee agreed to maintain the parcel tax in 2008 at the increased rate set in 2007. The funds raised by the increase, totalling \$42,802 have been identified in the 2008 budget for transfer to the reserve fund.

GH:ls
Attachments: 3

LYALL HARBOUR BOOT COVE MONEY LAKE LEVELS



CRD ENVIRONMENTAL SERVICES - OPERATIONS DIVISION
LYALL HARBOUR/BOOT COVE WATER SYSTEM
SYSTEM CONSUMPTION



CAPITAL REGIONAL DISTRICT

WATER REVENUE FUND STATEMENT OF FINANCIAL ACTIVITIES (UNAUDITED) For the year ended December 31, 2007

	Lyall Harbour/ Boot Cove Water Service Area
REVENUES	
Transfers from government	\$ 90,450
Sale of services	47,450
Other revenue from own sources:	
Interest earnings	862
Other revenue	4,881
Grants in lieu of taxes	-
	<u>143,643</u>
EXPENDITURES	
General government services	4,340
Other	90,025
Other fiscal services	260
	<u>94,625</u>
NET REVENUES (EXPENDITURES)	
	49,018
Transfers to own funds:	
Water Capital Fund	42,802
Reserve Funds	2,564
Equipment Replacement Fund	-
	<u>45,366</u>
CHANGE IN FUND BALANCE	
Opening balance	(1,670)
CLOSING BALANCE	<u>\$ 1,982</u>