

**Harbour East Community Council**  
**October 4, 2012**

**TO:** Chair and Members of Harbour East Community Council



**SUBMITTED BY:** \_\_\_\_\_  
Peter Stickings, Acting Director, Planning and Infrastructure, 490-7129

**DATE:** July 24, 2012

**SUBJECT:** Russell Lake

### **INFORMATION REPORT**

#### **ORIGIN**

June, 2012: Harbour East Community Council

MOVED by Deputy Mayor Karsten, seconded by Councillor McCluskey that, while the Dartmouth Lakes Advisory Board continues working on recommended policy alternatives to enhance the preservation of water quality, staff prepare a report of immediate options to remediate the high phosphorus levels of Russell Lake.

## **BACKGROUND**

Earlier in 2012, at the direction of the Harbour East Community Council, the Dartmouth Lakes Advisory Board commenced a project to review policy in the Dartmouth Municipal Planning Strategy related to water quality. That project is expected to be completed by end of calendar year 2012. In June, HECC requested that staff identify measures and outside policy change, which can remedy the lake.

Following the June motion, the following and last two sampling sessions have demonstrated a lowering of total phosphorus levels compared to 2011 observations. The past two samples have been within the Dartmouth Municipal Planning Strategy policy guidelines.

As overviewed in the 1994 Watershed Management Plan for Russell Lake, lake water quality has a history of being problematic. In 1994, the former City of Dartmouth worked with the Dartmouth Lakes Advisory Board to develop a plan to help restore the quality of the lake. The 1994 recommendations were summarized as:

1. Minimize the availability of contaminants
2. Minimize the increase in the volume or flow of storm water runoff
3. Intercept contaminants

The plan can be viewed at:

<http://www.halifax.ca/environment/documents/RussellLakeWatershedManagementPlan.pdf>

Much of the work informed future secondary planning strategies and development agreement requirements. This work informed the adoption of riparian buffers, environmental/erosion control measures, and wetland protection. This policy was environmentally progressive. However, as the completion of development immediately around Russell Lake finalizes, and the appearance and health of the lake has started showing signs of problems again, the question of remediation and protection arises.

In 1994, despite improvements from the 1970's and 1980's, when an upstream piggery was closed, the Russell Lake was one of the most eutrophic lakes in HRM.

Attachment One overviews the historical levels at Russell Lake.

## **Development within the Russell Lake Watershed**

The majority of the lands within the Russell Lake Watershed are either developed or currently being developed as follows:

1. Russell Lake West is approximately 80% complete with the final phase now under construction (subdivision is subject to a development agreement);
2. The lands of Portland Estates adjacent Russell Lake are already developed (subdivision is subject to a development agreement);

3. The lands off of Greenvillage Lane are developed except for a limited amount of commercial land near Portland Street (lands are subject to a development agreement);
4. Lands between Norman Newman and Portland Street are already developed with a mix of small and large scale commercial development under the current zoning; and
5. A small portion of the Penhorn Mall site is within the watershed and is now being redeveloped under existing zoning, except for a small portion at the rear of the site.

The only lands within the watershed which are undeveloped are located to the south of Russell Lake and these lands are zoned Comprehensive Development District. The Dartmouth MPS requires that any development on these lands shall comply with specific development agreement policies designed to protect both Russell and Morris Lakes.

Development within the watershed is administered by municipal staff through the Dartmouth Land Use By-Law and the approved development agreements. As part of the development process, Engineering Technicians do audit inspections during the construction stage of subdivision development that include the takeover of municipal infrastructure. In general, they would be out to the site approximately once a day.

## **DISCUSSION**

The 2012 Water Sampling Results provided the following results related to Total Phosphorus:

<b>June</b>		<b>August</b>	
In-lake:	0.010 mg/L	In-lake:	0.014 mg/L
South Inlet:	0.080 mg/L	South Inlet:	0.039 mg/L
North Inlet:	0.015 mg/L	North Inlet:	0.002 mg/L
Outlet:	0.005 mg/L	Outlet:	0.011 mg/L

These two most recent results demonstrate values below the MPS threshold.

### **Update on Policy Review work with Dartmouth Lakes Advisory Board:**

The focus of the current work is the examination of implementation of recommendations of the 1994 Russell Lake Watershed Management Plan. Work, with recommendations, is expected to be completed prior to the end of calendar year 2012.

A related piece of work that is informing the Policy work and future decisions, with respect to Russell Lake, is a study of potential nutrient sources to Russell Lake. This work has been contracted to Dillon Consulting and is anticipated to be complete in November. This will give staff an independent and objective view of the potential impacts to Russell Lake, and best enable decision support to staff and elected officials with respect to municipal operations and policy recommendations.

An overview of potential remedial options is as follows:

Municipal Options:

To address water quality in Russell and Morris Lakes in the short term, the Municipality has limited options due to:

- i) the majority of the lands in the watershed are either developed or being developed; and
- ii) a significant portion of the lands are subject to a development agreement which Council cannot amend without the consent of the land owner(s)

The primary option to address water quality within any lake system would be through a change in policy and land use regulations. However, this option would take time and would only have a limited impact in the short term for the reasons listed above.

Despite the limits placed upon addressing water quality concerns, Staff has identified five options with varying degrees of impact as follows:

**1. Utility Options:**

Halifax Water is responsible for storm water infrastructure. Options such as increased Pollution Prevention programming, enforcement, and enhanced infrastructure would be the jurisdiction of the utility. It should be noted that the anticipated CCME Guidelines will result in infrastructure upgrades overtime which may positively impact the lake.

**2. Development Options:**

While better building/lot development practices and increased compliance to erosion and sedimentation control would be potential generalized options, the existing developer consistently demonstrates diligence and environmental compliance. Improvement of erosion and sedimentation control guidelines (generally being enhanced to respond to increased extreme weather events) is a current provincially led initiative. It is anticipated that these guidelines will result in improvements to development storm water management plans.

**3. Provincial Options:**

Introduction of an in-store restriction of phosphorus containing fertilizer would be a Provincial authority (similar to the Pesticide Legislation passed in 2010). Fertilizers act as a large source of nutrients to the lakes.

**4. Homeowner Options:**

Perhaps the most effective action is related to community stewardship. Ultimately, as Russell Lake continues post development, it is the actions of residents that most highly impact the lake. As articulated in the It all Drains into the Lake Brochure (<http://www.halifax.ca/environment/documents/Watershed3a.pdf>), several resident activities have impacts to the lake that can be diligently prevented.

**5. Other (outside municipal authority):**

While not within any current government mandate, potential costly items may include: Installation and operation of oxygenation/aeration system or nutrient inactivation (i.e. adding aluminum or calcium salts). It would be unprecedented for the municipality to entertain these costs.

With respect to lake water quality, there are three tenants: Policy, Infrastructure, and Stewardship. The Policy surrounding Russell Lake is progressive and is being reviewed to potential improvements. Storm water infrastructure is the responsibility of Halifax Water, and policy and CCME guidelines are going to improve that impact on the lakes. Stewardship is the area which appears to offer the most impact.

It would be expected that with decreased impact on the lake from siltation that the lake would be able to remedy itself, as it did between the 1980's and 1990's. But a critical effort is in shielding the lake from impacts from future development at the Penhorn and Greenvillage lands.

**BUDGET IMPLICATIONS**

There are no Budget Implications to the 2012/2013 Operating or Project Budget with respect to this report.

**FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN**

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Project and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Project and Operating reserves, as well as any relevant legislation.

**COMMUNITY ENGAGEMENT**

None

**ATTACHMENTS**

Attachment One: Graph of TP levels of Russell Lake

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A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/cc.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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# Total Phosphorus Results in Russell Lake, 2005-2012

