

**Soil & Water Conservation Society of Metro Halifax (SWCSMH)**

310-4 Lakefront Road, Dartmouth, NS, Canada B2Y 3C4  
Email: limnes@chebucto.ns.ca Tel: (902) 463-7777  
Master Homepage: <http://lakes.chebucto.org>

---

**Ref.:** hecc\_predictivemodelling.doc (Total: 12 pages)

**To:** **Chair and Members, Harbour East Community Council (HECC), HRM**

**From:** S. M. Mandaville Post-Grad Dip., Professional Lake Manage.  
Chairman and Scientific Director

**Date:** January 10, 2006

**Subject:** **Lake Management- Predictive modelling with focus on phosphorus, an aspect ignored although the science was known for two whole decades (the international OECD final report in 1982 is a prime basis of the year-2004 CCME's Phosphorus policy)**

---

***VOX POPULI VOX DEI!***

This communication is also written in an informal manner for reasons that will be obvious when you read and digest in detail. Please recall that all the URLs of our web pages are case-sensitive though our major web pages, with a host of scientific dissertations, are easily accessible from our Master Homepage (just by clicking on the links arranged by topics).

..... **with salutations to NSEL** (NSEL is the acronym per the Nova Scotia Dept. of Environment & Labour). They are Cc'd this.

**Table of Contents**

**1. Predictive modelling for a multitude of parameters but focus here on the basic phosphorus modelling ..... 2**

**1.1. I first brought up the need to develop LCC's based on Phosphorus during a public hearing held by the former Dartmouth City Council on August 10, 1993:..... 4**

**1.2. Dr. Tony Blouin's very contradictory emails in December 2005 were extremely frustrating: ..... 5**

**1.3. Regarding the domain of the Dartmouth Lakes Advisory Board (DLAB), I found one of the emails Tony had sent me re BISSETT LAKE in year-2002: ..... 5**

**1.4. Detailed concerns of HRM's senior environmental engineer, Renee Roberge PEng; the emails inserted below are re MORRIS, RUSSELL, and SETTLE Lakes, also within the domain of the Dartmouth Lakes Advisory Board (DLAB):-..... 6**

**2. Notwithstanding some deplorable ungratefulness at Regional Council (I have the videos), several of your hired consultants have freely utilized portions of my personal as well as my team's scientific research and I have legal proofs! ..... 9**

**3. Multiple reasons for this communication ..... 12**

---

---

## **1. Predictive modelling for a multitude of parameters but focus here on the basic phosphorus modelling**

There are several predictive models available widely in international limnological literature, and one can literally model for almost any parameter prior to development; post development is too late!

Basic common sense dictates that the modelling have to be carried out either by regulatory staff, if they have the scientific competence and experience, or via consultants who are eminently qualified in limnology and lake management.

This is nothing out of the ordinary. LCC's based on phosphorus have indeed been developed as 'regulatory tools' since around the mid-1980s in Ontario, and in/around mid-1990s in Kings County right here in Nova Scotia. In each case, they were developed by staff with varying levels of assistance from research scientists.

I myself was consulted on aspects of them by various parties; and even our NSEL asked me to carry out an independent assessment of the Kings County methodology several years ago during the tenure of the Hon. Robbie Harrison!

But the task should not be left to consultants working for the proponents (even if they can prove they are genuine limnologists) because of potential conflicts-of-interest! If the `proponents' desire to carry out independent modelling to challenge a regulatory value, then it is their prerogative.

Once HRM's bureaucrats develop an LCC (Lake Carrying Capacity) for ex., for Phosphorus, then it should be discussed in a publicly advertised meeting and not confined to your political appointees.

For some extremely annoying reason, Dr. Tony Blouin sent you all emails that Dartmouth Lakes Advisory Board (DLAB) was the right body for an independent evaluation. More info on this is in the last section-3 here.

**The proper venue for any worthwhile discussions is at your Harbour East Community Council (HECC) since you councillors are citizens' representatives. You could even hold informal round table (intellectual) sessions if you so desire; do not be ruled by bureaucrats who are non-elected!**

**Advisory Board members are not elected either! And none of them ever specialized in applied limnology anyway; even if any future members are specialized, that still is not consulting the public.**

**I would still state so even if my scientific team (whose research you all have been utilizing liberally via staff and consultants) was appointed to the DLAB!**

***VOX POPULI VOX DEI!***

Per the NS Environment Act, all lakes and rivers in the Province are owned by Her Majesty the Queen in the Right of the Province of Nova Scotia (or something like that); i.e., all people own the lakes and rivers whether one lives there or not; even local property owners do not own the lakes!

Five (5) minutes are indeed sufficient as long as no councillor interrupts as had transpired on numerous occasions at the old meetings of Dartmouth City Council.

---

**1.1. I first brought up the need to develop LCC's based on Phosphorus during a public hearing held by the former Dartmouth City Council on August 10, 1993:**

I brought it up on August 10, 1993 at the public hearing on the Portland West development. I recall a Mayor Gloria McCluskey then!

But staff, specifically Roger Wells MCIP (now with HRM), got all confused and thought it was Erosion & Sediment control stuff; no other staff member present inclusive of Planning Director, Valerie Spencer MCIP, and senior engineer, Ed Purdy PEng, seemed to grasp either, alas!

I gave the Dartmouth City Council a huge dossier as reference and there was no political garbage in that dossier, but actual case histories from Ontario inclusive of the actual models from Prof. Dr. Pete Dillon, then of the Ontario Ministry of Environment, and from the international 14-country peer-consensus OECD!

## **1.2. Dr. Tony Blouin's very contradictory emails in December 2005 were extremely frustrating:**

That is totally infuriating especially since Tony had sent me a whopping thirty five (35) emails ever since he first started with HRM in May of 1996 asking for a lot of info as well as requesting 'donations'.

If the advisory boards are so smart and pragmatic in the limnological domain, why did Dr. Blouin even approach me?

His first email to me was in June of 1996 where he asked me to 'donate' to him the predictive model that I did for the Woodens River Watershed; I did send him an original version of that model though it has undergone some significant upgrading now.

---

## **1.3. Regarding the domain of the Dartmouth Lakes Advisory Board (DLAB), I found one of the emails Tony had sent me re BISSETT LAKE in year-2002:**

"Date: Wed, 04 Sep 2002 10:30:30 -0300  
From: Tony Blouin <blouint@region.halifax.ns.ca>  
To: Mandaville  
Subject: Bisset Lake

Shalom - we have received an enquiry from a resident about the state of Bisset Lake in Dartmouth. Apparently this resident has noted increasing amounts of "plant" growth, presumably emergent macrophytes, in the lake this summer. Are you aware of any changes in this lake or the surrounding watershed that could account for this? Is the lake in fact any different this year from historical conditions? It may just be the recent hot weather promoting growth in a shallow lake?

---

**Thanks for any advice you have on this, as I am not personally familiar with the conditions in Bisset.**

**Tony"**

To do scientific justice to the aforesaid email alone took me a whopping 2-4 hours since I had to look up certain data, literature, etc., especially since Bissett Lake is a very shallow and swampy and it makes it that more complicated.

Sure, I approached Tony many times but that was to liaise with him since he is allegedly in charge of water quality for HRM. The thirty five (35) emails referred to above have not much to do with my approaching of Tony though we did have several very friendly discussions inclusive of at my apartment in year-2004!

---

**1.4. Detailed concerns of HRM's senior environmental engineer, Renee Roberge PEng; the emails inserted below are re MORRIS, RUSSELL, and SETTLE Lakes, also within the domain of the Dartmouth Lakes Advisory Board (DLAB):-**

Renee used to report to John Sheppard PEng, and she resigned about a year or so back. Only relevant parts of her emails are included below and they needed considerable amount of discussions by phone and in person to do justice:-

"Date: Fri, 02 Jul 1999 18:08:44 -0300  
From: "Renee Roberge" <robergr@region.halifax.ns.ca>  
To: limnos  
**Subject: Morris and Russell Lakes**

Shalom,

I have two questions for you. First, I should mention for your information that HRM has initiated a Master Planning Exercise with respect to development of the Morris and Russell Lakes areas. One goal is to protect the quality of the water and several policies were approved by Council to achieve that. The policies were mainly based on the report conducted by Griffiths Muecke Associates and Gordon Ratcliffe Landscape Architects in May of 1998.

I am unsure about certain issues and would like to have your opinion on these two points:

My questions:

1) sampling is recommended into the lakes (mainly Morris Lake at this time) to establish background data before development proceeds. The developers would have to follow severe erosion and sediment control methods but still periodic monitoring is recommended in order to set a critical threshold level.

Are you planning any monitoring of the lakes as part of your regular program?

2) The consultant also recommends methods that would maximize phosphorus removal. One idea that was talked about was to use wetlands. It seems now they will use the existing wetlands, i.e., direct stormwater to these wetlands.

I have some concerns with this and would like to have your views on this

idea.

Nothing has been decided yet and I am looking for your opinion on these issues because I know you have a lot of experience in that field and you are quite knowledgeable of the study area.

Thank you.

Renée  
490-6941"

---

"Date: Fri, 02 Oct 1998 09:14:24 -0300  
From: Renee Roberge <robergr@REGION.HALIFAX.NS.CA>  
To: blouint@REGION.HALIFAX.NS.CA  
Cc: "S.M. Mandaville"  
**Subject: Settle Lake**

Tony,

A concern has been raised with the amount of vegetation that has grown in Settle Lake, Dartmouth. I sent a message to Shalom Mandaville yesterday asking him for input on how this concern could be addressed.

Shalom forwarded to me really interesting information and he suggested that you could be involved in the discussions.

I think the best way would be for us to meet, if you are interested. I could explain what the situation is and we could discuss what could be done according to your knowledge and experience with lakes.

I believe that it is not the first time that a concern about vegetation in or along a lake is raised and it will not be the last time.

Lake Management- Predictive modelling with focus on phosphorus, an aspect ignored although the science was known for two whole decades (the international OECD final report in 1982 is a prime basis of the year-2004 CCME's Phosphorus policy)

Could you let me know if you would have time to meet with us. You can pick the time and location.

(Shalom mentioned that you may have several reports that the Soil & Water Conservation Society of Metro Halifax prepared, could I borrow your copies?)

Thank you.

Renée  
6941"

---

---

## **2. Notwithstanding some deplorable ungratefulness at Regional Council (I have the videos), several of your hired consultants have freely utilized portions of my personal as well as my team's scientific research and I have legal proofs!**

The HRM together with its consultants have utilized around a whopping \$400,000 to \$500,000 (in 2004 dollars) of not only my scientific team but also of my personal research over the years and I have legal proofs of all that though it takes me years to be aware of the happenings.

Our total scientific research to date in today's dollars is upgraded to 1.3 million dollars based on professional *per diem* rates. See the somewhat illustrative letter I sent His Worship on October 05, 2004 ([http://lakes.chebucto.org/HRM/CORRESPONDENCE/2004/mayor2004\\_10\\_3.PDF](http://lakes.chebucto.org/HRM/CORRESPONDENCE/2004/mayor2004_10_3.PDF)).

One recent example is of CWRS, Dalhousie in the modelling they carried out for Annapolis Basin developers on Papermill and Kearney lakes in year 2004 (I only found that out from HRM's website). But CWRS did approach me for advice several times during years 2004 and 2005 though I did not know the reasons, and I don't mind this

particular case (see the two not-so-old emails from them that I inserted below as `proofs').

Other consultants have also utilized our combined research, sometimes severely plagiarizing, alas! His worship, among many other senior bureaucrats at HRM and at NSEL, is indeed aware.

---

Two representative emails that CWRS sent me are below, one in February 2004, and the other in January 2001, but most of the discussions have always been via the telephone:

From: "Richard Scott"  
To: "shalom M. Mandaville"  
Date: Thu, 26 Feb 2004 16:14:21 -0400  
Subject: Reference

Shalom,

I'm asking a favour because you are so much more organized than I.

I'm trying to find the reference that explains the derivation of the equation used to calculate mean ice-free P concentration. i.e  $P \text{ Input} \times (1 - \text{retention}) / 0.956 \times \text{water surface area} \times \text{areal water load}$ . I'm trying to understand why when all input information to both versions of the Dillon-Rigler model is the same, the predicted output P conc is different. The equations used in both versions to calculate P conc is different and 1 possible reason contributing to the difference. The Valley version simply divides the net P load (total - portion lost to sediments) / net runoff (total - lake evaporation). Other reasons include model output values for the amount of P and volume of water which are used in the calculation. But, if we were to assume both of these were identical, we'd still end up with different values, simply because the equations used to determine P conc are different.

Can you help? Thanks.  
Rick

---

Date: Thu, 18 Jan 2001 11:21:46 -0400  
From: Richard Scott <Richard.Scott@dal.ca>  
To: limnos@chebucto.ns.ca  
Subject: Viewing modelled watershed Information

Shalom,

It's been a while since we last spoke. I trust all is well with you. I'm sporting a few more gray hairs and move a little slower. But isn't that what happens to everyone as they grow older? I've shifted my focus these days to include new technologies associated with domestic on-site wastewater disposal. I'm involved with two studies looking at peat and tire chips. It's a new field for me, but interesting. I dabble in the lake stuff still, but the interest isn't there as it once used to be. The last real research was the phosphorus export study. Life goes on.

I have a problem. From time to time I browse your web page to see what's up and attempted to download and view one of the watershed data files. I was able to do this the last time I tried (probably years ago now). This time, however, I saved the file, unzipped it, then tried to open it in Excel. This time around, I was faced with options - a request for password or read only, for which I indicated read only. What I got when the file was opened in Excel was a written description of items associated with the model input/output variables - no numbers. However, when I viewed the file in Norton, numbers were there without the description.

What am I doing wrong? Could you help?  
Thanks.  
Rick

Not sure what accompanies this email in terms of return addresses.  
However, just in case, I can be reached at  
Richard.scott@dal.ca

---

---

### **3. Multiple reasons for this communication**

This is being sent for cumulative reasons.

I have received around twenty (20) or more extremely inquisitive emails from Dr. Scott Mawdsley MD FRCSC as well as from the Russell Lake Residents Association (RLRA) on this aspect alone. I rec'd emails on other water quality aspects as well. Generally, their questions were the same. I do realise Dr. Mawdsley is also a member of the RLRA but his concerns seem to be somewhat different.

As a professional courtesy, I had Cc'd a handful (by no means, all) of my detailed responses to HECC councillors, Andrew Younger, Gloria McCluskey, and Bill Karsten, each Cc'd recipient for a different reason. The last short email I received from McCluskey clearly stated, in capital letters, that she cannot understand any of it; atleast she is 100% honest.

But I am not as concerned with the aforesaid as I am with certain statements that Dr. Tony Blouin is making and rapidly contradicting himself almost instantly, alas! I was also forwarded what he sent you councillors.

I am quite aware that neither Tony Blouin nor any other bureaucrat at HRM, or at its previous municipal units, or even at the Nova Scotia Department of Environment & Labour (NSEL) has ever conducted predictive modelling; many of them already admitted so gracefully!

**Cc: His Worship, Peter Kelly MBA**

**Tony Blouin, Manager, Water quality, HRM; John Sheppard PEng**

**Paul Morgan, Senior Planner, HRM**

**David Briggins P.Geo, Manager, Water & Wastewater Branch, NSEL**