

Soil & Water Conservation Society of Metro Halifax (SWCSMH)

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To: **Regional Planning staff, HRM**
From: S. M. Mandaville Post-Grad Dip., Professional Lake Manage.
Chairman and Scientific Director
Date: June 04, 2005
Subject: **Set up scientifically credible Lake Carrying Capacities (LCC)
prior to any further development with urgent focus on Morris,
Russell, Kearney, and Papermill Lakes (for submission at the
Dartmouth High School workshop on June 06, 2005)**

(All our URLs are case-sensitive)

Recommendation: Set up scientifically credible Lake Carrying Capacities (LCC) based on TP (total phosphorus) and/or Cha (Chlorophylla) prior to any further development with urgent focus on Morris, Russell, Kearney, and Papermill Lakes; no further major new developments should be allowed in the watersheds until the LCC's are mandated as well as achieved!

Rationale:

See our web page,
<http://lakes.chebucto.org/TPMODELS/NOTES/lakecap.html> for
the basic science.

We had made several written submissions to the municipalities commencing with the City of Dartmouth in 1993 and the Halifax County in 1995 (see our web page,
<http://lakes.chebucto.org/HRM/SUBMISSIONS/submissions.html>).

But the municipal units in the Halifax region have shied away from such leadership although there are numerous precedents, e.g., the Regional District of Muskoka in Ontario, and right in our beloved Province, in Kings County.

Examples of our focused recommendations:---

(1) Morris and Russell Lakes (see our submission to the Regional Council d/February 26, 2005 for the public hearing held on March 22, 2005):

Morris Lake: Eight (8) $\mu\text{g/l}$ (micrograms/litre) TP with a maximum cutoff value of ten (10) $\mu\text{g/l}$

Russell Lake: Fifteen (15) $\mu\text{g/l}$ (micrograms/litre) TP with a preferred value not to exceed twelve (12) $\mu\text{g/l}$

(2) Papermill and Kearney Lakes- preferred recommendation based on TP (total phosphorus) and other numerous typical urban pollutants (see our submission to the HRM Planning Department d/January 25, 2004):

Set a firm development objective of maximum yearly mean TP (total phosphorus) concentration of eight (8) $\mu\text{g/l}$ (micrograms/litre)!

Any compromise from the above will (may) imply that one is paying just the usual perpetual lip service as regards `water quality'!

(3) Epilogue:

Several lakes within our beloved HRM have `eutrophied' (or enriched) to different degrees ever since industrialization, i.e., since around 1840s though we suspect there may have been some minor enrichment during the time of the European settlers (1700s?), or even prior to that through the lifestyles of other homo sapiens(?)!

Several negative impacts may have resulted which may include increased weed growth in the littoral or shallow zones of lakes (especially of shallow lakes and numerous lakes in HRM are shallow based on `mean depths'); severe depletion in the bottom dissolved oxygen concentrations during the critical summer periods which could negatively impact the habitat of the salmonid species (e.g., speckled trout, landlocked salmon) as well as increase internal loading of not only phosphorus but other stressors from bottom sediments due to anoxia; change in the diversity/richness of resident taxa; increased algal blooms some of which could be toxic given the right environmental conditions; and other ecological impacts!

A 135-page extensive literature survey on Management of Phosphorus carried out by our Federal Environment Canada (2004) clearly narrates, **"It is stressed at this point that the CCME endorses a no degradation policy, and that these values therefore do not provide, and must not be used as pollute up to levels!"** (see our web page, <http://lakes.chebucto.org/DATA/PARAMETERS/TP/ccme.pdf>).