


Soil & Water Conservation Society of Metro Halifax (SWCSMH)

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To: **Chair, Harry McInroy, and members, Harbour East Community Council (HECC), Halifax Regional Municipality (HRM)**
From: S. M. Mandaville Post-Grad Dip., Professional Lake Manage.
Chairman and Scientific Director
Date: May 23, 2005
Subject: **Case 00731: Russell Lake West Development Agreement- Public hearing to be held on May 25, 2005**

Based on our extensive chemical and biological monitoring together with our TP/Cha predictive modelling, we suggest that HRM set a firm enforceable management objective for mean inlake deep station total phosphorus (TP) value for Russell Lake as follows and these values should be achieved prior to allowing any new development:

[I] Russell Lake:-- Maximum allowable deep station TP (total phosphorus) should be fifteen (15) micrograms/litre with a preferred value not to exceed twelve (12) µg/l

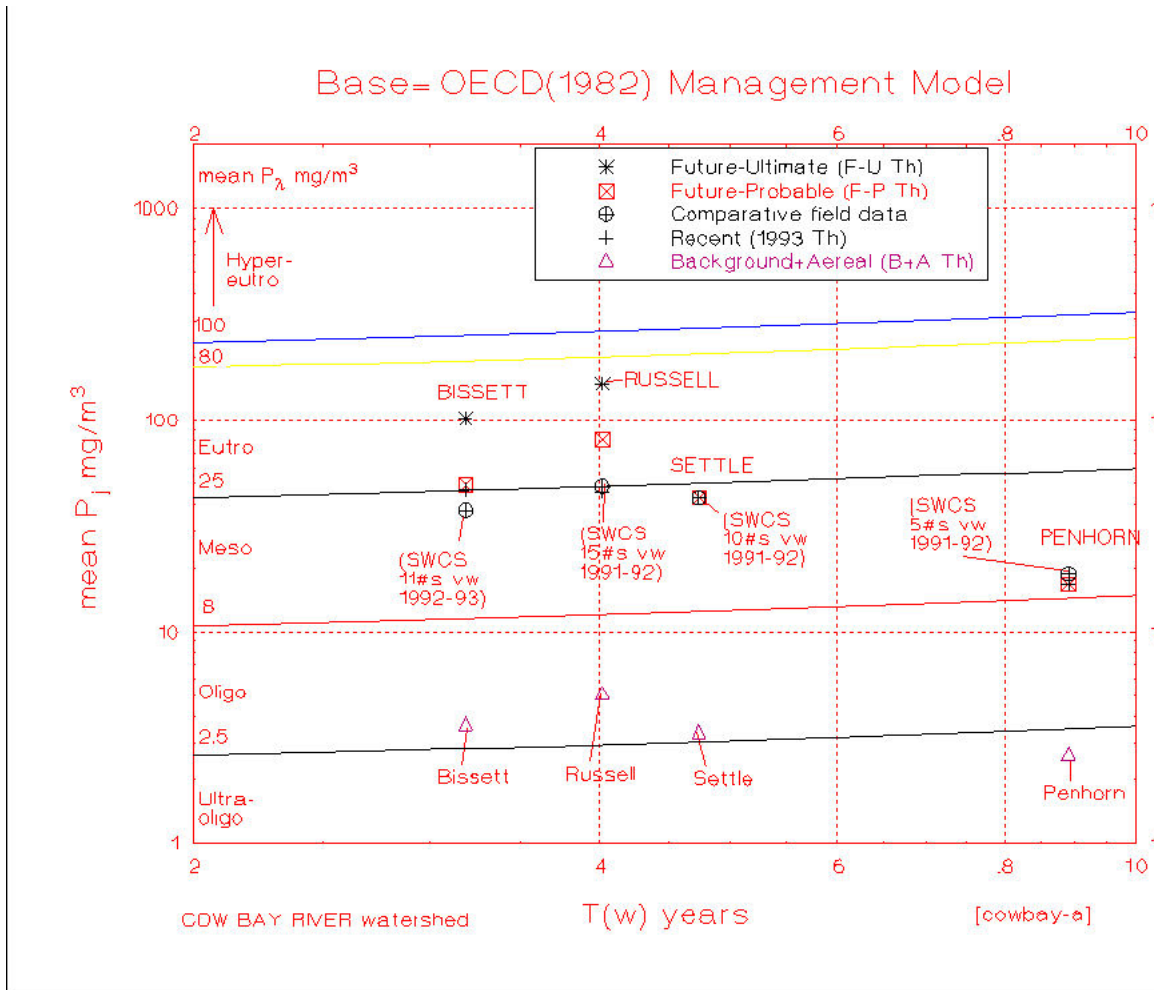
 (These values may be too high in comparison with the 'natural background value' based on the CCME policy [see our enclosed model for Russell Lake on page-2], but this may be a reasonable compromise for the present time).

[II] The Canadian Council of Ministers of the Environment (CCME, 2004) framework for phosphorus:--

- (i) "phosphorus concentrations should not exceed predefined 'trigger ranges'; and
- (ii) phosphorus concentrations should not increase more than 50% over the baseline (reference) levels. The trigger ranges are based on the range of phosphorus concentrations in water that define the reference trophic status for a site."

[III] Our Predictive model which was submitted to the Harbour East Community Council (HECC) in January 2005 and to the Regional Council in February 2005:--

Note: There have been no proven cases of efficient and sustainable removal of phosphorus in stormwater anywhere in HRM to date!



[IV] Independent scientific evaluation of insitu treatment devices referred to in the HRM staff report; the removal efficiency of inevitable post-development urban pollutants is quite low as follows:--

(cf. Herr, J.L., and Harper, H.H. Removal of Gross Pollutants From Stormwater Runoff Using Liquid/Solid Separation Structures. Environmental Research & Design, Inc., Orlando, FL. 14p.):

Comparison of Estimated Removal Efficiencies			
Structure	Removal Efficiencies %		
	Litter	Debris	Sediments
<u>Vortechs System</u>	?(10-50)	?(10-50)	60-80
<u>Stormceptor</u>	?(10-50)	?(10-50)	60-80
<u>CDS</u>	98	98	?(10-50)
<u>Baffle Box</u>	?(10-50)	?(10-50)	60-80

Estimated Net Mass Reduction in Stormwater Constituents Achieved Based on 70% TSS Removal:--

Parameter	Estimated Annual Mass Load Reduction (%)
Total N	30
Total P	25
TSS	70
BOD	20
Cadmium	15
Chromium	18
Copper	15
Lead	38
Nickel	15
Zinc	33