

Soil & Water Conservation Society of Metro Halifax (SWCSMH)

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To: **East Community Council, HRM**
From: S. M. Mandaville Post-Grad Dip., Professional Lake Manage.
Chairman and Scientific Director
Date: December 06, 2012
Subject: **Proper determination of trophic status –and- indicator lakes of Nova Scotia**

(1) “Trophy of a lake refers to the rate at which organic matter is supplied by or to the lake per unit time.”



Trophy, then, is an expression of the combined effects of organic matter to the lake. As developed originally and as largely used today, the trophic concept (e.g., TP, Cha, SD, and TN) refers to the pelagic-zone-planktonic portion of the lake ecosystem. The littoral flora and its often dominating supply of autochthonous organic matter to the system, was, and usually still is, ignored (*cf.* Bob Wetzel, a world renown stalwart in limnology and a Scientific Director of our group [deceased not long ago]. See our web page honouring his achievements,

<http://lakes.chebucto.org/PEOPLE/wetzel.html>).

Photo below is from Bissett Lake, Cole Harbour



(2) Note: Data below is primarily from the published papers/monitoring by Environment Canada excepting for the fecal coliforms.

Table 1 Reference lake types used as indicator thresholds for anthropogenic stressors of urban lakes

	Type 1 Beaverskin Lake thin till	Type 2 Bluehill Pond South thick till	Type 3 Pebblelogitch dystrophic
pH.....	5.40	6.92	4.30
conductivity (µsiemens).....	24.00	35.00	34.00
colour (Hazen units).....	5.00	22.00	87.00
alkalinity (µeq/l).....	2.00	5.60	25.50
total phosphorus (mg/l).....	0.003	0.004	0.013
total nitrogen (mg/l).....	0.23	0.23	0.32
sodium (mg/l).....	2.59	2.90	2.80
chloride (mg/l).....	4.24	4.90	3.90
sulphate (mg/l).....	1.92	3.20	2.20
calcium (mg/l).....	0.33	2.80	0.39
magnesium (mg/l).....	0.34	0.50	0.37
potassium (mg/l).....	0.23	0.60	0.27
turbidity (JTUs).....	0.30	0.30	0.63
chlorophyll- <i>a</i> (mg/m ³).....	1.38	1.20	1.80
DOC (mg/l).....	2.00	2.00	11.90
fecal coliform (count/100ml)	18.00	18.00	18.00

cf. Mandell, P.R. 1994. The Effects of Land Use Changes on Water Quality of Urban Lakes in the Halifax/Dartmouth Region. Dalhousie University. 170p. (supplied to us by one of our founding members, Prof. Dr. Gordon Ogden III Jr. of Dalhousie University, now deceased.).