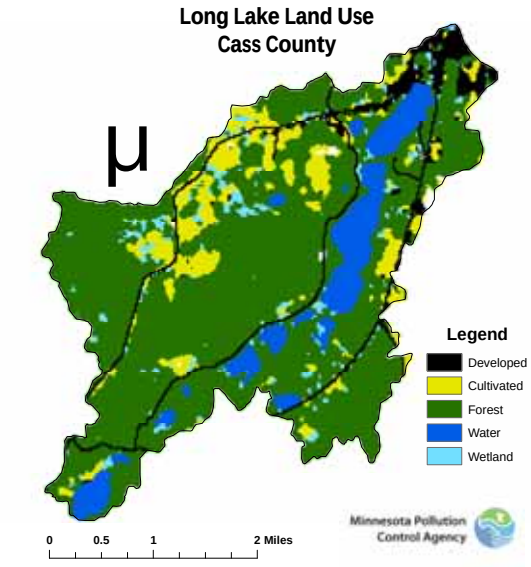
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194

Long Lake, Cass County

National Lake Assessment Project (NLAP)
Sample Date: July 10, 2007

Minnesota Lake ID: 11-0480
Area: 260 acres
Watershed Area: 4,334 acres
Ecoregion: Northern Lakes and Forests (NLF)

NLAP ID: 0942
Maximum Depth: 80 ft
Mean Depth: 40 ft



Minnesota 2000 Level 1 Landsat Landcover Classification.img
University of Minnesota Remote & Geospatial Analysis Lab

Land Use	Long Lake Land Use %	NLF Typical Land Use %
Developed	7	0 – 7
Cultivated (Ag)	11	<1
Pasture & Open	0	0 – 6
Forest	68	54 – 87
Water & Wetland	14	14 – 31
Feedlots (#)	0	

Long Lake 2007 as compared to typical range for NLF ecoregion reference lakes. Single NLAP visit based on U.S. Environmental Protection Agency protocol as compared to typical range for summer-means. Data from Minnesota Department of Health (MDH) laboratory.

Parameter	Long Lake	NLF
Number of reference lakes	1	32
Total Phosphorus (µg/L)	11	14 – 27
Chlorophyll-a (µg/L)		4 – 10
Secchi Disk (feet) (meters)	12 4	8 -15 2.4 – 4.6
Total Kjeldahl Nitrogen (mg/L)	0.4	0.4 – 0.75
Alkalinity (mg/L)	120	40 – 140
Color (Pt-Co U)	5	10 – 35
pH (SU)	8.3	7.2 – 8.3
Chloride (mg/L)	1.3	0.6 – 1.2
Total Suspended Solids (mg/L)	1.2	<1 – 2
Total Suspended Inorganic Solids (mg/L)	0	<1 - 2
Conductivity (umhos/cm)	233	50 – 250
TN:TP ratio	36:1	25:1 - 35:1
Microcystin(µg/L) WHO risk Category*	Near Shore <0.15	Index Site <0.15	<10 Low Risk 10-20 Moderate Risk 20- 200 High Risk

** Guidelines for safe recreational water environments (World Health Organization, 2003)*

µg/L = micrograms per liter
mg/L = milligrams per liter
umhos/cm = micromhos per centimeter

Pt-Co-U = Platinum Cobalt Units
SU = Standard Units

Mixing Status: thermally stratified (dimictic)

Temperature and Dissolved Oxygen Profile for Long Lake (Cass Co.). July 10, 2007. Temp. (C) and DO (mg/L)