



# Minnesota Pollution Control Agency

520 Lafayette Road  
St. Paul, MN 55155-4194

# Upper Hatch Lake, Itasca County

National Lake Assessment Project (NLAP)

Sample Date: August 14, 2007

**Minnesota Lake ID:** 31-0770

**Area:** 16 acres

**Watershed Area:** 20,542 acres

**Ecoregion:** Northern Lakes and Forests (NLF)

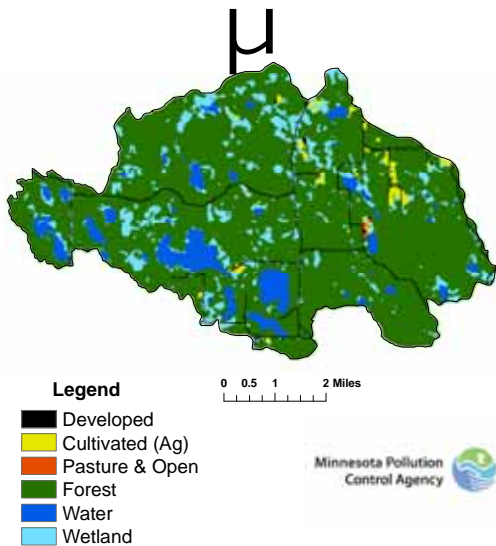
**NLAP ID:** 0190

**Maximum Depth:** 26 ft

**Mean Depth:** 16 ft



Upper Hatch Land Use



Land Use	Upper Hatch Land Use %	NLF Typical Land Use %
Developed	2	0 – 7
Cultivated (Ag)	1	<1
Pasture & Open	0	0 – 6
Forest	79	54 – 81
Water & Wetland	18	14 – 31
Feedlots (#)	0	

Minnesota 2000 Level 1 Landsat Landcover Classification.img

University of Minnesota Remote & Geospatial Analysis Lab

Upper Hatch 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.

Parameter	Upper Hatch	NCHF
Number of reference lakes	1	32
Total Phosphorus ( $\mu\text{g/L}$ )	16	14 – 27
Chlorophyll mean ( $\mu\text{g/L}$ )	5	4 – 10
Secchi Disk (feet)	8.2	8 - 15
(meters)	2.5	2.4 – 4.6
Total Kjeldahl Nitrogen (mg/L)	0.7	0.4 – 0.75
Alkalinity (mg/L)		40 – 140
Color (Pt-Co U)	11	10 – 35
pH (SU)	7.2	7.2 – 8.3
Chloride (mg/L)	0.2	0.6 – 1.2
Total Suspended Solids (mg/L)		<1 – 2
Total Suspended Inorganic Solids (mg/L)		<1 – 2
Conductivity ( $\mu\text{mhos/cm}$ )	71	50 – 250
TN:TP ratio	42:1	25:1 - 35:1
Microcystin( $\mu\text{g/L}$ )	Near Shore	<10 Low Risk
WHO risk Category*	Index Site	10-20 Moderate Risk
	<0.15	20- 200 High Risk

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

$\mu\text{g/L}$  = micrograms per liter  
 mg/L = milligrams per liter

$\mu\text{mhos/cm}$  = micromhos per centimeter

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

Mixing Status: thermally stratified (dimictic)

Temperature and Dissolved Oxygen Profile for Upper Hatch Lake. August 14, 2007.  
 Temp (C) and DO (mg/L)

