



Minnesota Pollution Control Agency

520 Lafayette Road
St. Paul, MN 55155-4194

Allen Lake, Mahnomen County

National Lake Assessment Project (NLAP)

Sample Date: August 7, 2007

Minnesota Lake ID: 44-0157

Area: 143 acres

Watershed Area: 21,138 acres

Ecoregion: North Central Hardwoods Forests (NCHF)

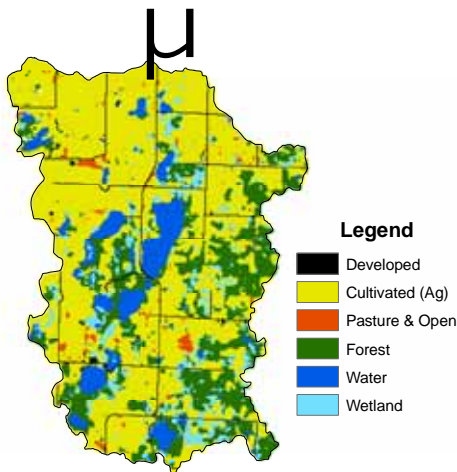
NLAP ID: 0211

Maximum Depth: 5 ft

Mean Depth: 3 ft



Allen Lake Land Use



| Land Use | Allen Lake Land Use % | NCHF Typical Land Use % |
|-----------------|-----------------------|-------------------------|
| Developed | 3 | 0-7 |
| Cultivated (Ag) | 60 | 22-50 |
| Pasture & Open | 1 | 11-25 |
| Forest | 20 | 6-25 |
| Water & Wetland | 16 | 14-30 |
| Feedlots (#) | 4 | |

0 0.5 1 2 Miles



Minnesota 2000 Level 1 Landsat Landcover
Classification.img

University of Minnesota Remote & Geospatial Analysis Lab

Allen Lake 2007 as compared to typical range for NCHF ecoregion reference lakes. Single NLAP visit based on U.S. Environmental Protection Agency protocol as compared to typical range for summer-means.

| Parameter | Allen Lake | NCHF | |
|---|------------|---------------------|-------------------|
| Number of reference lakes | 1 | 43 | |
| Total Phosphorus ($\mu\text{g/L}$) | 42 | 23 - 50 | |
| Chlorophyll-a ($\mu\text{g/L}$) | 9 | 5 - 22 | |
| Secchi Disk (feet) | 4.6 | 4.9 - 10.5 | |
| (meters) | 1.4 | (1.5 - 3.2) | |
| Total Kjeldahl Nitrogen (mg/L) | 1.3 | < 0.60 - 1.2 | |
| Alkalinity (mg/L) | | 75 - 150 | |
| Color (Pt-Co U) | 26 | 10 - 20 | |
| pH (SU) | 9.2 | 8.6 - 8.8 | |
| Chloride (mg/L) | 4 | 4 - 10 | |
| Total Suspended Solids (mg/L) | | 2 - 6 | |
| Total Suspended Inorganic Solids (mg/L) | | 1 - 2 | |
| Conductivity ($\mu\text{mhos/cm}$) | 327 | 300 - 400 | |
| TN:TP ratio | 32:1 | 25:1 - 35:1 | |
| Microcystin($\mu\text{g/L}$) | Near Shore | <10 Low Risk | |
| WHO risk Category* | Index Site | 10-20 Moderate Risk | |
| | 5 | 3.7 | 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: mixed with not temperature layer (polymictic)

**Temperature & Dissolved Oxygen Profile for
 Allen Lake August 7, 2007
 Temp. (C) and DO (mg/L)**

