



Water-Data Report 2011

471124095132901 Local number Piezometer by Spring 1 nr Hubbard, MN

Clearwater County, MN

LOCATION.--Lat 47°11'23.8", long 95°13'29.4" referenced to North American Datum of 1983, Clearwater County, MN, Hydrologic Unit 07010101.

WATER-QUALITY RECORDS

REMARKS.--This site is part of the Sentinel Lakes project, a joint project with the Minnesota DNR and PCA to examine potential linkages between climate change, lake morphology, and fish habitat in the form of temperature and dissolved oxygen distributions. Sampling of physical, chemical, and biological parameters and subsequent data analysis effort will be used to calibrate bio-physical lake models that will be used to forecast future water quality conditions in deep lakes with cold-water fish populations.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 1 of 2

[N, nitrogen; P, phosphorus; mg/L, milligrams per liter; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than]

| Date | Sample start time | Medium name | Dissolved oxygen, water, unfiltered, mg/L (00300) | pH, water, unfiltered, field, standard units (00400) | Specific conductance, water, unfiltered, µS/cm at 25 °C (00095) | Temperature, water, °C (00010) | Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623) | Ammonia, water, filtered, mg/L as N (00608) | Nitrate plus nitrite, water, filtered, mg/L as N (00631) | Nitrite, water, filtered, mg/L as N (00613) |
|------------|-------------------|-------------|---|--|---|--------------------------------|---|---|--|---|
| 06-01-2011 | 1230 | Groundwater | 1.6 | 7.3 | 617 | 10.8 | 1.5 | 1.31 | < .02 | .004 |

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 2 of 2

[N, nitrogen; P, phosphorus; mg/L, milligrams per liter; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than]

| Date | Sample start time | Orthophosphate, water, filtered, mg/L as P (00671) | Phosphorus, water, filtered, mg/L as P (00666) | Deuterium/Protium ratio, water, unfiltered, per mil (82082) | Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil (82085) |
|------------|-------------------|--|--|---|---|
| 06-01-2011 | 1230 | 1.00 | 1.06 | -79.20 | -10.47 |