

LAKE: BALCH & STUMP PONDS (VLMP 31)
 TOWN: NEWFIELD
 COUNTY: YORK

MIDAS: 3898
 TRUE BASIN: 1
 SAMPLE STATION: 1

WHOLE LAKE INFORMATION

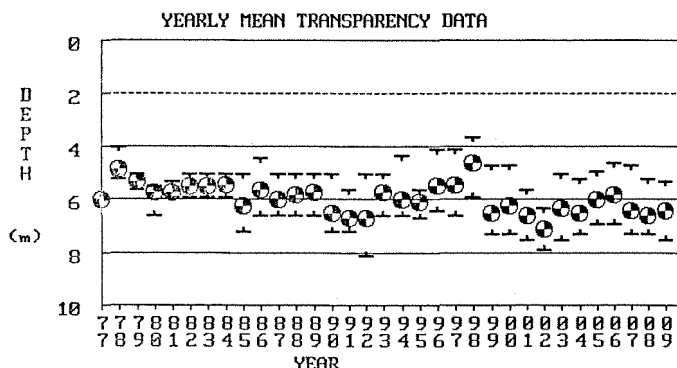
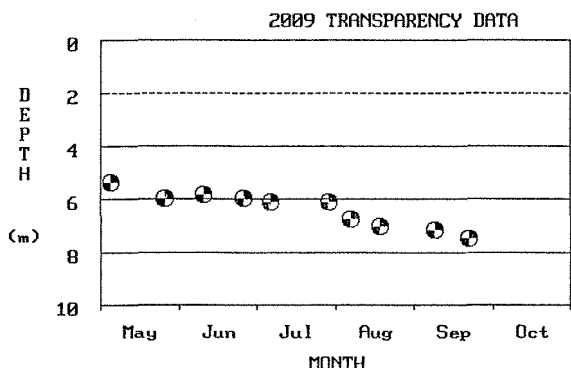
MAX. DEPTH: 13 m. (44 ft.)
 MEAN DEPTH: 4 m. (12 ft.)
 DELORME ATLAS #: 02
 USGS QUAD: GREAT EAST LAKE
 IFW REGION A: Sebago Lake (Gray)
 IFW FISH. MANACMENT: Warmwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 210.0 ha. (518.9 a.)
 FLUSHING RATE: 2.68 flushes/yr.
 VOLUME: 8114012.3 cu. m. (6582 ac.-ft.)
 DIRECT DRAINAGE AREA: 14.25 sq. km. (5.50 sq. mi.)

PLEASE NOTE THE FOLLOWING: The SAMPLE STATION # refers to the location sampled. The term TRUE BASIN is used to define areas within a lake that are separated by shallow reefs or shoals and therefore function as separate lakes. There are approximately 50 lakes in the state that have more than 1 True Basin. True Basin Characteristics are now being included in the first section of these reports to enable users of the Phosphorous Loading Methodology to better evaluate the data. If there is no data for a particular True Basin, True Basin Characteristics must be obtained from the DEP. BALCH & STUMP PONDS has 1 True Basin(s).

SECCHI DISK TRANSPARENCY GRAPHS:



Note: 2009 graphs may indicate multiple readings taken on a given day.

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

[* indicates that Secchi disk was visable at bottom of lake (or one reading used in calculation was visable)].

| YEAR | MEAN COLOR (SPU) | MEAN pH | MEAN ALK (mg/l) | MEAN COND. (uS /cm) | TOTAL PHOS. MEANS (ppb) | | | | SECCHI DISK (m.) | | | | CHLOROPHYLL A(ppb) | | | TROPIC STATE INDICES | | | |
|------|------------------|---------|-----------------|---------------------|-------------------------|------|------|------|------------------|------|------|---|--------------------|------|------|----------------------|---|-----|-----|
| | | | | | EPI | SURF | BOT. | PRO. | MIN. | MEAN | MAX. | N | MIN. | MEAN | MAX. | C | G | SEC | CHL |
| 1977 | - | - | - | - | 6 | - | - | - | 6.0 | 6.0 | 6.0 | 1 | - | - | - | - | - | - | - |
| 1978 | - | - | - | - | - | 7 | - | - | 4.0 | 4.8 | 5.2 | 5 | - | - | - | - | - | 50 | - |
| 1979 | - | - | - | - | - | - | - | - | 5.0 | 5.3 | 5.6 | 5 | - | - | - | - | - | 45 | - |
| 1980 | 20 | 6.30 | 7.0 | 42 | 7 | - | - | - | 5.5 | 5.7 | 6.6 | 5 | 2.6 | 2.6 | 2.6 | - | - | 42 | - |
| 1981 | - | - | - | - | - | - | - | - | 5.3 | 5.7 | 5.9 | 5 | - | - | - | - | - | 42 | - |
| 1982 | - | - | - | - | - | - | - | - | 5.0 | 5.5 | 5.9 | 6 | - | - | - | - | - | 43 | - |
| 1983 | 23 | 7.00 | 10.0 | - | 10 | - | 14 | - | 5.0 | 5.5 | 5.9 | 6 | 2.3 | 2.3 | 2.3 | - | - | 43 | - |
| 1984 | - | - | - | - | - | - | - | - | 5.0 | 5.4 | 5.9 | 5 | - | - | - | - | - | 44 | - |
| 1985 | - | - | - | - | - | - | - | - | 5.0 | 6.2 | 7.2 | 5 | - | - | - | - | - | 37 | - |
| 1986 | 17 | 6.80 | 10.0 | 38 | 9 | - | 20 | - | 4.4 | 5.6 | 6.6 | 5 | - | - | - | - | - | 43 | - |
| 1987 | - | - | - | - | - | - | - | - | 5.0 | 6.0 | 6.6 | 4 | - | - | - | - | - | - | - |
| 1988 | - | - | - | - | - | - | - | - | 5.0 | 5.8 | 6.6 | 6 | - | - | - | - | - | 41 | - |
| 1989 | - | - | - | - | - | - | - | - | 5.0 | 5.7 | 6.6 | 4 | - | - | - | - | - | - | - |
| 1990 | - | - | - | - | - | - | - | - | 5.0 | 6.5 | 7.2 | 4 | - | - | - | - | - | - | - |
| 1991 | 15 | 7.03 | 10.5 | 42 | 7 | - | - | - | 5.6 | 6.7 | 7.2 | 5 | 2.1 | 2.1 | 2.1 | - | - | 34 | - |

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MIDAS: 3898
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SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

| YEAR | MEAN | MEAN | MEAN | MEAN | TOTAL PHOS. MEANS (ppb) | | | | SECCHI DISK (m.) | | | | CHLOROPHYLL A(ppb) | | | TROPHIC STATE INDICES | | | |
|----------|-------|------|--------|-------|-------------------------|------|------|------|------------------|------|------|----|--------------------|------|------|-----------------------|---|-----|-----|
| | COLOR | pH | ALK | COND. | EPI | SURF | BOT. | PRO. | MIN. | MEAN | MAX. | N | MIN. | MEAN | MAX. | EPI PHOS | | SEC | CHL |
| | (SPU) | | (mg/l) | (uS | /cm) | CORE | GRAB | GRAB | GRAB | | | | | | | | | | |
| 1992 | - | - | - | - | - | - | - | - | 5.0 | 6.7 | 8.1 | 5 | - | - | - | - | - | 34 | - |
| 1993 | - | - | - | - | - | - | - | - | 5.0 | 5.7 | 6.6 | 6 | - | - | - | - | - | 42 | - |
| 1994 | 10 | - | 11.0 | - | 27 | - | - | - | 4.3 | 6.0 | 6.6 | 5 | 7.2 | 7.2 | 7.2 | - | - | 39 | - |
| 1995 | - | - | - | - | - | - | - | - | 5.6 | 6.1 | 6.7 | 5 | - | - | - | - | - | 38 | - |
| 1996 | 27 | - | - | - | - | - | - | - | 4.1 | 5.5 | 6.4 | 5 | - | - | - | - | - | 43 | - |
| 1997 | - | - | - | - | - | - | - | - | 4.1 | 5.4 | 6.6 | 6 | - | - | - | - | - | 44 | - |
| 1998 | 21 | - | 11.0 | 45 | 10 | - | 13 | - | 3.6 | 4.6 | 5.9 | 6 | 7.5 | 7.5 | 7.5 | - | - | 53 | - |
| 1999 | - | - | - | - | - | - | - | - | 4.7 | 6.5 | 7.3 | 5 | - | - | - | - | - | 35 | - |
| 2000 | - | - | - | - | - | - | - | - | 4.7 | 6.2 | 7.3 | 6 | - | - | - | - | - | 37 | - |
| 2001 | - | - | - | - | - | - | - | - | 5.6 | 6.6 | 7.5 | 5 | - | - | - | - | - | 34 | - |
| 2002 | - | - | - | - | - | - | - | - | 6.3 | 7.1 | 7.9 | 5 | - | - | - | - | - | 31 | - |
| 2003 | 15 | - | 11.0 | 62 | 6 | - | 14 | - | 5.0 | 6.3 | 7.5 | 5 | 2.9 | 2.9 | 2.9 | - | - | 37 | - |
| 2004 | - | - | - | - | - | - | - | - | 5.2 | 6.5 | 7.3 | 5 | - | - | - | - | - | 35 | - |
| 2005 | - | - | - | - | - | - | - | - | 4.9 | 6.0 | 6.9 | 5 | - | - | - | - | - | 39 | - |
| 2006 | - | - | - | - | - | - | - | - | 4.6 | 5.8 | 6.9 | 5 | - | - | - | - | - | 41 | - |
| 2007 | 18 | 7.13 | 9.0 | 52 | 17 | - | - | - | 4.7 | 6.4 | 7.3 | 5 | 3.1 | 3.1 | 3.1 | - | - | 36 | - |
| 2008 | - | - | - | - | - | - | - | - | 5.2 | 6.6 | 7.3 | 5 | - | - | - | - | - | 34 | - |
| 2009 | - | - | - | - | - | - | - | - | 5.3 | 6.4 | 7.5 | 5 | - | - | - | - | - | 36 | - |
| SUMMARY: | 18 | 6.73 | 9.9 | 47 | 11 | 7 | 15 | - | 3.6 | 6.0 | 8.1 | 33 | 2.1 | 4.0 | 7.5 | - | - | 40 | - |

LATE SUMMER TEMPERATURE / DISSOLVED OXYGEN PROFILES:

| DEPTH | SAMPLE DATE | | | | | | | | | | | | | | | |
|-------|-------------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|
| | 09/25/80 | | 09/23/83 | | 09/24/86 | | 09/18/91 | | 08/22/94 | | 08/17/98 | | 08/26/03 | | 08/23/07 | |
| | m | °C | ppm | °C | ppm | °C | ppm | °C | ppm | °C | ppm | °C | ppm | °C | ppm | °C |
| 0.0 | 18.0 | 9.2 | 20.0 | 8.5 | 16.5 | 8.6 | 22.2 | 8.2 | 22.5 | 8.6 | 26.1 | 7.9 | 23.8 | 8.2 | 21.9 | 8.4 |
| 1.0 | - | - | 20.0 | 8.4 | 16.5 | 8.9 | 22.1 | 8.3 | 22.5 | 8.6 | 26.1 | 7.8 | 23.7 | 8.1 | 21.9 | 8.3 |
| 2.0 | 18.0 | 8.9 | 20.0 | 8.4 | 16.5 | 8.4 | 22.0 | 8.2 | 22.5 | 8.6 | 26.0 | 7.8 | 23.2 | 8.1 | 21.8 | 8.3 |
| 3.0 | - | - | 20.0 | 8.4 | 16.5 | 8.2 | 21.9 | 8.2 | 22.5 | 8.5 | 25.2 | 6.8 | 23.1 | 8.0 | 21.6 | 8.3 |
| 4.0 | 18.0 | 8.9 | 20.0 | 8.4 | 16.5 | 7.7 | 21.8 | 8.3 | 22.3 | 8.6 | 21.6 | 3.1 | 23.1 | 7.8 | 21.6 | 8.2 |
| 5.0 | - | - | 20.0 | 8.3 | 16.0 | 7.7 | 21.6 | 8.2 | 22.0 | 8.2 | 16.1 | 0.7 | 19.2 | 6.1 | 21.0 | 7.9 |
| 6.0 | 18.0 | 8.5 | 18.0 | 4.4 | 16.0 | 7.3 | 20.5 | 5.5 | 18.1 | 2.3 | 13.4 | 0.3 | 13.8 | 3.9 | 14.5 | 3.9 |
| 7.0 | 18.0 | 8.0 | 13.5 | 0.5 | 15.5 | 5.2 | 18.1 | 0.9 | 14.0 | 0.3 | 12.0 | 0.3 | 11.2 | 1.5 | 11.6 | 0.8 |
| 8.0 | 14.0 | 2.0 | 12.0 | 0.4 | 13.0 | 0.7 | 14.9 | 0.2 | 11.8 | 0.1 | 11.7 | 0.0 | 9.7 | 0.5 | 10.1 | 0.4 |
| 9.0 | - | - | 10.5 | 0.4 | 11.0 | 0.6 | - | - | 9.8 | 0.1 | 10.2 | 0.0 | 8.9 | 0.3 | 9.2 | 0.4 |
| 10.0 | - | - | 10.0 | 0.4 | 10.0 | 0.4 | - | - | 8.3 | 0.1 | 9.9 | 0.0 | 8.4 | 0.3 | 8.5 | 0.4 |
| 11.0 | - | - | 9.5 | 0.4 | - | - | - | - | 7.2 | 0.1 | - | - | - | - | 8.3 | 0.3 |
| 12.0 | - | - | - | - | - | - | - | - | 6.8 | 0.1 | - | - | - | - | - | - |
| 13.0 | - | - | - | - | - | - | - | - | 6.5 | 0.0 | - | - | - | - | - | - |

WATER QUALITY SUMMARY

BALCH and STUMP Ponds, Newfield (York County)

Midas: 3898, Station: 01 - Primary

Introduction: The Maine Department of Environmental Protection (Maine DEP) and the Volunteer Lake Monitoring Program (Maine VLMP) have collaborated in the collection of lake data to evaluate water quality, track algal blooms, and determine historical water quality trends. This dataset does not include bacteria, mercury, or nutrients other than total phosphorus (TP).

Water quality monitoring datasets for Balch and Stump Ponds have been collected since 1977. During this period, 8 years of basic chemical information was collected along with 30 continuous years of Secchi disk transparency (SDT) measures (1977-2006). In summary, the water quality of Balch and Stump Ponds is considered to be slightly above average, based on measures of SDT, total phosphorus and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on Balch and Stump Ponds is low.

Water quality measures: Balch and Stump Ponds are uncolored (average color 19 SPU) with an average SDT of 5.9 meters (19.4 feet). The range of upper water column TP for Balch and Stump Ponds is 6-10 parts per billion (ppb) with an average of 10 ppb, while Chla ranges from 2.1-7.5 ppb with an average of 4.1 ppb. Recent dissolved oxygen (DO) profiles show moderate to high DO depletion in deep areas of the lake. The potential for TP to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate to high.

Comments: The flushing rate is the amount of time required for the lake water to be renewed each year and is a function of the watershed size and lake volume. The average annual flushing rate is 2.7 for Balch and Stump Ponds.

Further information: See Maine DEP *Explanation of Lake Water Quality Monitoring Report* for measured variable explanations. Additional lake information can be obtained by contacting Maine DEP at 207-287-3901 or Maine VLMP at 207-783-7733, or on the Internet at <http://www.pearl.maine.edu> or <http://www.maine.gov/dep/blwq/lake.htm>,

Filename: **BALC3898**, Revised: 12/06, By: dbh