

LAKE: NARROWS P (UPPER) (VLMP CWD)
 TOWN: WINTHROP
 COUNTY: KENNEBEC

MIDAS: 98
 TRUE BASIN: 1
 SAMPLE STATION: 1

WHOLE LAKE INFORMATION

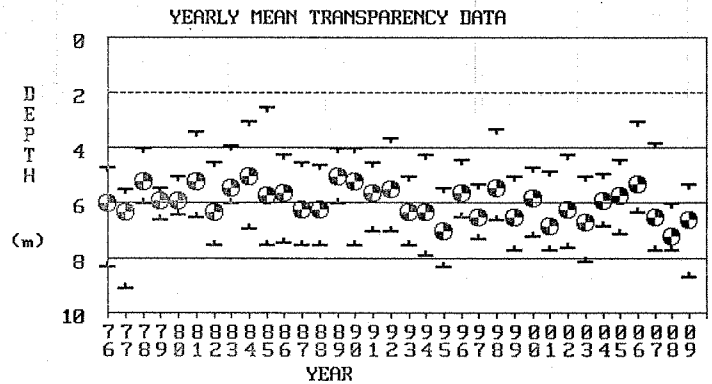
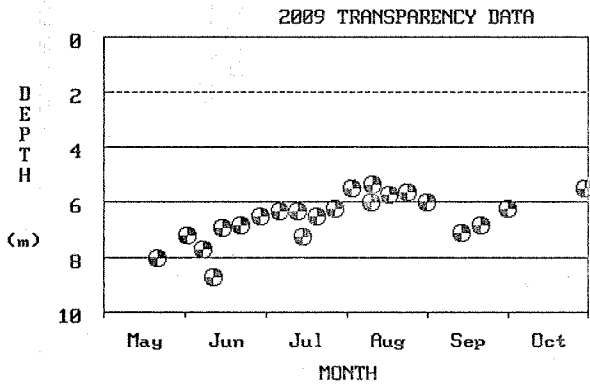
MAX. DEPTH: 16 m. (54 ft.)
 MEAN DEPTH: 8 m. (25 ft.)
 DELORME ATLAS #: 12
 USGS QUAD: WINTHROP
 IFW REGION B: Belgrade Lakes (Augusta)
 IFW FISH. MANAGMENT: Warmwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 90.0 ha. (222.4 a.)
 FLUSHING RATE: 1.50 flushes/yr.
 VOLUME: 6106409.0 cu. m. (4953 ac.-ft.)
 DIRECT DRAINAGE AREA: 10.30 sq. km. (3.98 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. NARROWS P (UPPER) 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 visible at bottom of lake (or one reading used in calculation was visible)].

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
1976	-	-	-	-	9	-	-	-	4.7	6.0	8.3	6	1.5	3.4	7.3	40	-	39	43
1977	-	-	-	-	5	-	-	-	5.5	6.3	9.1	3	5.6	5.6	5.6	-	-	-	-
1978	-	-	-	-	17	-	-	-	4.0	5.2	6.0	4	1.2	1.5	2.0	-	-	-	-
1979	-	7.00	-	-	-	-	16	12	5.4	5.9	6.6	5	2.5	4.3	10.3	-	47	40	49
1980	-	-	-	-	-	-	11	9	5.0	5.9	6.4	4	1.9	2.5	3.2	-	-	-	-
1981	-	-	-	-	12	-	14	12	3.4	5.2	6.5	5	2.3	3.7	6.6	-	-	46	-
1982	-	-	-	-	9	-	33	13	4.5	6.3	7.5	7	2.2	3.0	5.4	-	-	37	-
1983	-	-	-	-	10	-	-	-	3.9	5.4	6.0	5	2.3	3.3	5.8	-	-	44	-
1984	-	-	-	-	-	-	-	-	3.0	5.0	6.9	5	-	-	-	-	-	48	-
1985	-	7.17	-	78	-	-	19	13	2.5	5.7	7.5	7	2.2	4.2	8.3	-	49	42	48
1986	-	7.22	-	-	8	9	-	-	4.2	5.6	7.4	6	1.8	1.8	1.8	-	-	43	-
1987	-	7.20	15.8	-	-	-	13	10	4.5	6.2	7.5	6	1.7	2.9	3.7	-	42	37	39
1988	-	6.99	15.3	-	10	-	-	-	4.6	6.2	7.5	6	-	-	-	-	-	37	-
1989	-	-	-	-	-	-	-	-	4.0	5.0	6.0	4	-	-	-	-	-	-	-
1990	30	6.99	17.1	-	-	-	-	-	4.0	5.2	7.5	7	-	-	-	-	-	46	-

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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.	SECCHI DISK (m.)		CHLOROPHYLL A(ppb)			TROPHIC STATE INDICES					
	(SPU)		(mg/l)	(uS	CORE	GRAB	GRAB	GRAB	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	C	G	SEC	CHL
1991	-	6.94	16.4	-	10	-	-	-	4.5	5.6	7.0	6	3.4	5.1	6.3	43	-	43	53
1992	-	7.04	16.4	-	-	-	-	-	3.6	5.5	7.0	7	2.9	4.5	5.6	-	-	43	50
1993	-	6.95	17.2	-	6	-	-	-	5.0	6.3	7.5	7	1.9	2.0	2.0	-	-	37	-
1994	13	6.93	16.3	-	8	-	-	-	4.2	6.3	7.9	7	3.5	4.7	8.0	37	-	37	51
1995	-	-	-	-	-	-	-	-	5.4	7.0	8.3	7	-	-	-	-	-	32	-
1996	-	-	-	-	-	-	-	-	4.4	5.6	6.5	7	-	-	-	-	-	43	-
1997	-	6.89	18.0	-	8	-	-	-	5.3	6.5	7.3	6	2.1	2.6	3.6	38	-	35	37
1998	-	6.80	17.5	-	9	-	-	-	3.3	5.4	6.6	6	6.1	10.9	15.4	-	-	44	-
1999	-	-	-	-	9	-	-	-	5.0	6.5	7.7	6	4.4	4.4	4.4	-	-	35	-
2000	-	6.89	13.9	-	10	-	-	-	4.7	5.8	7.2	7	3.3	4.1	4.6	41	-	41	48
2001	-	7.00	14.5	-	8	-	22	-	4.8	6.8	7.7	6	6.3	6.3	6.3	-	-	33	-
2002	12	6.93	15.4	120	10	-	16	12	4.2	6.2	7.6	7	1.9	4.2	6.6	41	47	37	48
2003	15	7.09	18.7	-	-	-	25	19	5.0	6.7	8.1	6	2.5	4.7	7.2	-	59	34	51
2004	-	-	-	-	-	-	-	-	4.9	5.9	6.8	7	-	-	-	-	-	40	-
2005	-	-	-	-	-	-	-	-	4.4	5.7	7.1	5	-	-	-	-	-	42	-
2006	24	6.89	19.2	96	-	-	23	16	3.0	5.3	6.3	5	4.0	5.3	7.0	-	54	45	55
2007	-	-	-	-	-	-	-	-	3.8	6.5	7.7	6	-	-	-	-	-	35	-
2008	-	-	-	-	-	-	-	-	6.0	7.2	7.7	6	-	-	-	-	-	30	-
2009	-	-	20.0	-	-	-	9	7	5.3	6.6	8.7	6	1.3	2.5	3.8	-	34	34	35
SUMMARY:	19	6.98	16.8	98	9	9	18	12	2.5	6.0	9.1	34	1.2	4.1	15.4	40	47	39	47

LATE SUMMER TEMPERATURE / DISSOLVED OXYGEN PROFILES:

DEPTH	SAMPLE DATE															
	09/09/05		08/03/06		09/05/06		08/22/07		08/20/08		09/26/08		08/10/09		09/30/09	
	m	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C
0.0	23.9	8.4	26.7	7.8	20.4	8.2	22.3	8.2	22.6	8.3	18.0	8.5	24.4	7.9	18.1	9.0
1.0	23.9	8.5	26.7	7.8	20.4	8.2	22.1	8.2	22.6	8.3	18.0	8.4	23.6	7.9	18.0	9.1
2.0	23.2	8.5	26.8	7.8	20.3	8.2	22.1	8.2	22.4	8.3	18.1	8.4	23.3	7.9	17.9	9.1
3.0	23.2	8.5	24.4	8.4	20.2	8.2	22.0	8.1	22.2	8.2	18.1	8.4	22.8	7.6	17.8	8.9
4.0	22.8	8.5	23.1	7.6	20.2	8.2	21.9	8.1	22.1	8.1	18.0	8.3	20.4	5.8	17.7	8.9
5.0	20.6	9.4	18.1	6.1	19.7	6.5	18.8	7.8	20.1	6.4	18.0	8.3	18.1	4.7	17.6	8.8
6.0	14.8	6.2	14.0	3.0	15.9	0.6	14.4	7.1	15.3	6.1	16.5	6.2	15.5	4.0	16.2	5.8
7.0	11.9	4.5	12.3	3.0	12.6	1.1	10.2	5.1	12.1	6.0	13.5	4.3	12.9	4.3	14.4	2.5
8.0	10.3	4.0	10.8	3.8	10.6	1.8	8.5	5.0	10.3	5.7	10.4	3.7	10.6	5.2	11.2	2.8
9.0	9.9	2.8	10.1	3.9	9.7	1.3	7.6	4.7	7.5	4.7	7.8	2.7	8.5	5.7	8.8	3.3
10.0	9.3	2.2	9.3	3.6	9.3	1.2	6.6	4.1	6.7	4.5	6.7	2.0	7.6	5.0	8.0	2.6
11.0	8.9	1.1	9.0	2.7	8.9	0.8	6.3	3.7	6.2	3.7	6.2	1.5	7.1	4.7	7.3	1.7
12.0	8.8	0.8	8.8	2.4	8.8	0.6	6.1	3.7	5.8	3.0	6.0	1.3	6.9	4.5	7.1	1.5
13.0	8.8	0.4	8.7	2.1	8.7	0.6	6.0	3.6	5.7	2.8	5.9	1.0	6.8	4.2	7.1	1.5
14.0	8.8	0.4	8.6	2.1	8.6	0.6	6.0	3.0	5.6	2.6	5.8	0.8	6.7	3.6	6.9	1.3
15.0	8.5	0.4	8.5	1.5	8.5	0.6	5.9	2.8	5.5	2.4	5.7	0.4	6.7	3.4	6.9	0.9
16.0	8.3	0.4	8.5	1.0	8.4	0.6	5.9	2.4	5.5	2.2	5.7	0.3	6.6	3.0	6.8	0.4
17.0	8.3	0.4	8.4	0.8	8.4	0.6	5.8	1.4	5.4	1.6	5.6	0.2	6.6	2.6	6.8	0.2
18.0	-	-	8.4	0.8	8.3	0.6	5.8	0.3	5.4	1.1	5.6	0.2	6.5	2.1	6.7	0.2

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WHOLE LAKE INFORMATION

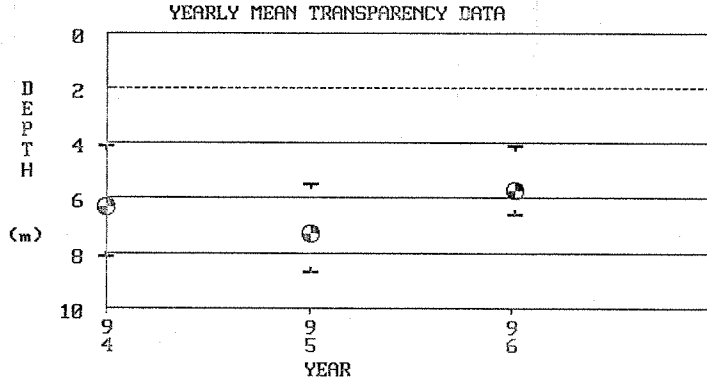
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 IFW REGION B: Belgrade Lakes (Augusta)
 IFW FISH. MANAGMENT: Warmwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 90.0 ha. (222.4 a.)
 FLUSHING RATE: 1.50 flushes/yr.
 VOLUME: 6106409.0 cu. m. (4953 ac.-ft.)
 DIRECT DRAINAGE AREA: 10.30 sq. km. (3.98 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. NARROWS P (UPPER) has 1 True Basin(s).

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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
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1995	-	-	-	-	-	-	-	-	5.5	7.3	8.7	6	-	-	-	-	-	30	-
1996	-	-	-	-	-	-	-	-	4.1	5.7	6.6	7	-	-	-	-	-	42	-
SUMMARY:	-	-	-	-	-	-	-	-	4.1	6.4	8.7	3	-	-	-	-	-	36	-

WATER QUALITY SUMMARY

Upper Narrows Pond, Winthrop

Midas: 98, Basin: Primary 01

The Cobbossee Watershed District (CWD) in conjunction with the Maine Department of Environmental Protection (Maine DEP) and the Volunteer Lake Monitoring Program (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.

Water quality monitoring data for Upper Narrows Pond has been collected since 1976. During this period, 16 years of basic chemical information was collected in addition to 29 years of Secchi Disk Transparency (SDT) measures. In summary, the water quality of Upper Narrows Pond is considered to be somewhat above average based on measures of SDT, total phosphorus (TP), and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on Upper Narrows Pond is low to moderate.

Water Quality Measures: Upper Narrows Pond is a non-colored lake (average color 18 SPU) with an average SDT of 5.9 meters (19.4 feet). The range of upper water column TP for Upper Narrows Pond is 5 - 17 parts per billion (ppb) with an average of 9 ppb, while Chla ranges from 1.2 - 15.4 ppb with an average of 4.1 ppb. Recent dissolved oxygen (DO) profiles show moderate 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: Upper Narrows Pond serves as the water supply for the town of Winthrop and is actively managed and routinely monitored by the Cobbossee Watershed District and is on the state listing of Maine lakes in non-attainment of water quality standards due primarily to low dissolved oxygen levels.

Nutrient Management: An Upper Narrows Pond combined Phosphorus Control Action Plan (PCAP) and Total Maximum Daily (Annual Phosphorus) Load (TMDL) report was prepared by Maine DEP during 2002-04, under contract with CWD - with assistance from the Maine Association of Conservation Districts (MACD) project team. Following lake stakeholder and public reviews, this document was approved by US-Environmental Protection Agency (EPA) (New England) on January 10, 2005. This final report, along with the EPA-New England review summary and letter of approval, can be found on the Maine DEP webpage at: <http://www.maine.gov/dep/blwq/docmonitoring/tmdl2.htm>.

Further Information: See Maine DEP Lake Water Quality Monitoring Report for measured variable explanations. Additional lake information can be obtained by contacting CWD at 207-377-2234 or Maine DEP at 207-287-3901 or VLMP at 207-783-7733, or on the Internet at: <http://pearl.maine.edu> and/or <http://maine.gov/dep/blwq/lake.htm>.

Filename: narr0098, revised: 03/2005, by dbh

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MIDAS: 98
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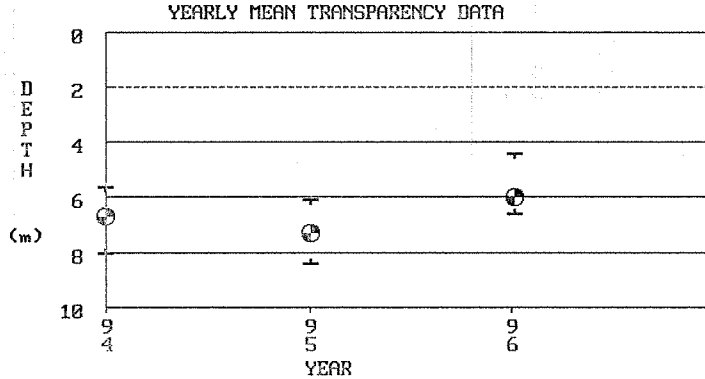
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1995	-	-	-	-	-	-	-	-	6.1	7.3	8.4	7	-	-	-	-	-	30	-
1996	-	-	-	-	-	-	-	-	4.4	6.0	6.6	7	-	-	-	-	-	39	-
SUMMARY:	-	-	-	-	-	-	-	-	4.4	6.7	8.4	3	-	-	-	-	-	34	-