

LAKE: GREAT P (VLMP 11 )  
 TOWN: BELGRADE  
 COUNTY: KENNEBEC

MIDAS: 5274  
 TRUE BASIN: 1  
 SAMPLE STATION: 1

WHOLE LAKE INFORMATION

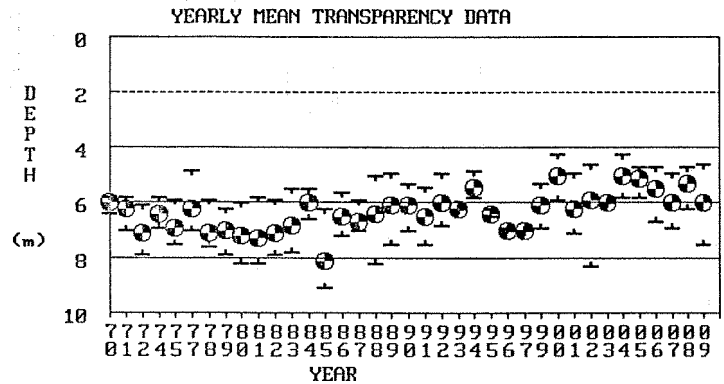
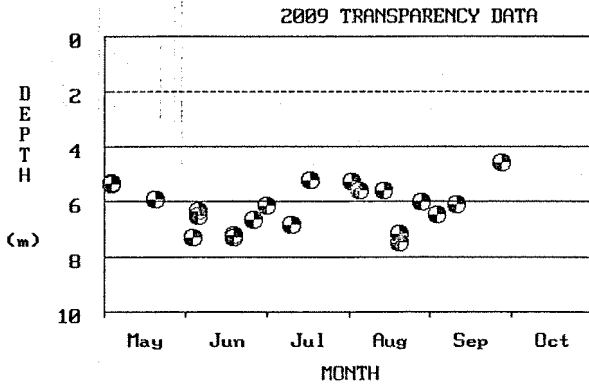
MAX. DEPTH: 21 m. (69 ft.)  
 MEAN DEPTH: 6 m. (21 ft.)  
 DELORME ATLAS #: 12  
 USGS QUAD: BELGRADE  
 IFW REGION B: Belgrade Lakes (Augusta)  
 IFW FISH. MANAGMENT: Warmwater & Coldwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 3313.0 ha. (8186.3 a.)  
 FLUSHING RATE: 0.43 flushes/yr.  
 VOLUME: 240649445.0 cu. m. (195214 ac.-ft.)  
 DIRECT DRAINAGE AREA: 82.76 sq. km. (31.95 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. GREAT P 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	MEAN	MEAN	MEAN	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A (ppb)			TROPHIC STATE INDICES			
	COLOR	pH	ALK	COND.	EPI	SURF	HOT.	PRO.	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	C	G	SEC	CHL
	(SPU)		(mg/l)	(uS /cm)	CORE	GRAB	GRAB	GRAB											
1970	-	-	-	-	-	-	-	-	5.8	6.0	6.4	3	-	-	-	-	-	-	-
1971	-	-	-	-	-	-	-	-	5.8	6.2	7.0	3	-	-	-	-	-	-	-
1972	-	-	-	-	-	-	5	-	6.1	7.1	7.9	3	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	5.8	6.4	6.9	3	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	5.9	6.9	7.5	4	-	-	-	-	-	-	-
1977	-	-	-	-	7	9	-	-	4.8	6.2	7.0	5	2.9	2.9	2.9	-	-	37	-
1978	-	-	-	-	-	-	-	-	5.9	7.1	7.6	5	-	-	-	-	-	31	-
1979	-	-	-	-	-	-	-	-	6.2	7.0	7.9	5	-	-	-	-	-	32	-
1980	15	-	9.0	38	11	-	100	-	6.0	7.2	8.2	5	3.5	3.5	3.5	-	-	30	-
1981	-	-	-	-	-	-	-	-	5.8	7.3	8.2	6	-	-	-	-	-	30	-
1982	-	7.10	-	-	-	-	-	-	5.9	7.1	7.9	6	-	-	-	-	-	31	-
1983	15	6.95	9.0	-	9	-	10	-	5.5	6.8	7.8	5	3.0	3.0	3.0	-	-	33	-
1984	-	-	-	-	-	-	-	-	5.5	6.0	6.6	4	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-	6.2	8.1	9.1	6	-	-	-	-	-	25	-
1986	13	6.60	10.0	33	8	-	19	-	5.6	6.5	7.2	6	-	-	-	-	-	35	-

LAKE: GREAT P (VLMP 11 )  
 TOWN: BELGRADE  
 COUNTY: KENNEBEC

MIDAS: 5274  
 \*TRUE BASIN: 1  
 \*SAMPLE STATION: 1

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

YEAR	MEAN	MEAN	MEAN	MEAN	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A(ppb)			TROPIC STATE INDICES			
	COLOR (SPU)	pH	ALK (mg/l)	COND. (uS /cm)	EPI CORE	SURF GRAB	BOT. GRAB	PRO. GRAB	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	EPI	PHOS C G	SEC	CHL
1987	-	-	-	-	-	-	-	-	5.9	6.7	7.0	6	-	-	-	-	-	34	-
1988	-	-	-	-	-	-	-	-	5.0	6.4	8.2	6	-	-	-	-	-	36	-
1989	-	-	-	-	-	-	-	-	4.9	6.1	7.5	5	-	-	-	-	-	38	-
1990	-	-	-	-	-	-	-	-	5.3	6.1	7.0	4	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	5.4	6.5	7.5	5	-	-	-	-	-	35	-
1992	10	-	-	-	-	-	12	11	4.9	6.0	6.8	3	-	-	-	-	-	-	-
1993	-	-	-	-	6	-	21	15	6.2	6.2	6.2	1	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	4.8	5.4	5.8	3	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	6.2	6.4	6.5	1	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	6.9	7.0	7.0	2	-	-	-	-	-	-	-
1997	12	7.29	13.0	47	8	-	-	-	7.0	7.0	7.0	1	2.7	2.7	2.7	-	-	-	-
1999	-	-	-	-	-	-	-	-	5.3	6.1	6.9	5	-	-	-	-	-	38	-
2000	-	-	-	-	11	-	-	-	4.2	5.0	5.9	4	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	4.9	6.2	7.1	2	-	-	-	-	-	-	-
2002	13	-	9.5	50	8	-	10	-	4.6	5.9	8.3	5	3.7	5.2	7.4	-	-	40	-
2003	8	-	11.5	49	10	-	26	-	6.0	6.0	6.0	1	4.9	4.9	4.9	-	-	-	-
2004	13	7.12	12.5	53	10	-	31	-	4.2	5.0	5.8	2	9.5	9.5	9.5	-	-	-	-
2005	18	7.26	8.5	50	9	10	10	-	4.7	5.1	5.8	4	7.6	7.7	7.8	-	-	-	-
2006	-	-	-	-	-	-	-	-	4.7	5.5	6.7	4	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	4.9	6.0	6.9	3	-	-	-	-	-	-	-
2008	21	7.10	8.4	47	9	-	18	-	4.7	5.3	6.2	5	5.2	6.2	7.1	-	-	45	-
2009	-	-	-	-	9	-	14	17	4.6	6.0	7.5	5	2.5	4.0	5.6	39	-	39	47
SUMMARY:	14	7.00	10.2	46	9	10	23	14	4.2	6.3	9.1	37	2.5	5.0	9.5	39	-	35	47



## WATER QUALITY SUMMARY

### GREAT POND, Belgrade

Midas: 5274, Basin: Primary, Southeast Hoyt Island (01)

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

Water quality monitoring data for Great Pond has been collected since 1970. During this period, 8 years of basic chemical information was collected, in addition to Secchi Disk Transparencies (SDT). In summary, the water quality of Great Pond is considered to be above average, based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Great Pond is low-moderate. Non-nuisance Gleotrichia blooms occur fairly regularly.

Water Quality Measures: Great Pond is a non-colored lake (average color 12 SPU) with an average SDT of 6.5m (21.5 ft). The range of water column TP for Great Pond is 6 - 11 parts per billion (ppb) with an average of 9 ppb, while Chla ranges from 2.7 - 7.4 ppb with an average of 3.7 ppb. Recent dissolved oxygen (DO) profiles show moderate DO depletion in deep areas of the lake. However, the profile on 8/20/03 had water less than 2 ppm as shallow as 30 feet. The potential for TP to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate and deep water TP levels in the 20+ ppb range have been found on two occasions since 1990. Oxygen levels below 5 parts per million stress certain cold water fish, and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species.

The Belgrade Regional Conservation Alliance (BRCA) has completed watershed surveys in the Great Pond direct watershed (2000) and all of the subwatersheds upstream of Great Pond (1998-1999). The results of this project have been used to finalize a Watershed Management Plan for the entire Great Pond watershed (2001). These projects were accomplished using state funding obtained under DEP's Non-Point Source Program. Additional federal funding has been obtained under the same program to begin correcting erosion problems identified during the survey process.

The Belgrade Lakes Conservation Corps, operating under the 'umbrella' of BRCA, has been operating in the chain of Belgrade Lakes since 1996. The Corps employs high school age young adults to implement erosion controls that do not require heavy equipment (rip-rap, plunge pools, buffer plantings). Cost is shared between homeowners and supporters of the Corps.

The Belgrade Lakes Association, one of the oldest in the state and encompassing both Great and Long Ponds, has been extremely active in lake protection activities.

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

Filename: GRE52741, Revised: 3/04, By: rjb

LAKE: GREAT P (VLMP 11 )  
 TOWN: BELGRADE  
 COUNTY: KENNEBEC

MIDAS: 5274  
 TRUE BASIN: 1  
 SAMPLE STATION: 2

WHOLE LAKE INFORMATION

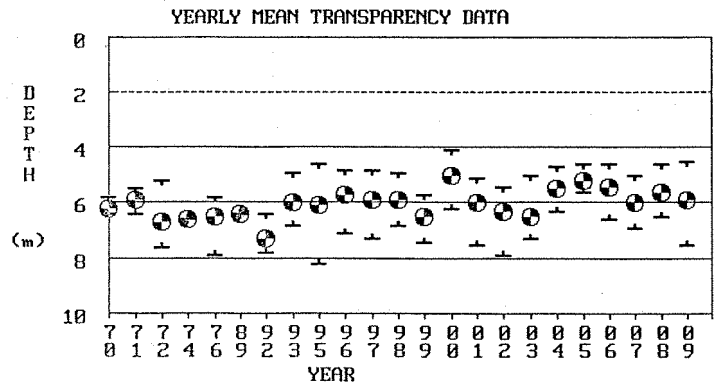
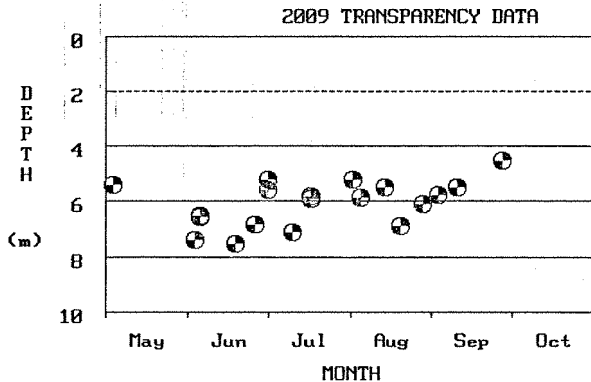
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 MEAN DEPTH: 6 m. (21 ft.)  
 DELORME ATLAS #: 12  
 USGS QUAD: BELGRADE  
 IFW REGION B: Belgrade Lakes (Augusta)  
 IFW FISH. MANAGMENT: Warmwater & Coldwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 3313.0 ha. (8186.3 a.)  
 FLUSHING RATE: 0.43 flushes/yr.  
 VOLUME: 240649445.0 cu. m. (195214 ac.-ft.)  
 DIRECT DRAINAGE AREA: 82.76 sq. km. (31.95 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. GREAT P 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	MEAN pH	MEAN ALK	MEAN COND.	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A(ppb)			TROPHIC STATE INDICES			
	(SPU)		(mg/l)	(uS /cm)	EPI	SURF	BOT.	PRO.	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	C	G	SEC	CHL
1970	-	-	-	-	-	-	-	-	5.8	6.2	6.4	3	-	-	-	-	-	-	-
1971	-	-	-	-	-	-	-	-	5.5	5.9	6.4	3	-	-	-	-	-	-	-
1972	-	-	-	-	-	3	5	-	5.2	6.7	7.6	3	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	6.6	6.6	6.6	1	-	-	-	-	-	-	-
1976	20	7.00	9.0	-	-	-	25	17	5.8	6.5	7.9	5	2.6	3.1	3.6	-	-	35	-
1989	-	-	-	-	-	-	-	-	6.4	6.4	6.4	1	-	-	-	-	-	-	-
1992	15	-	10.0	-	9	-	12	11	6.4	7.3	7.8	3	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	4.9	6.0	6.8	5	-	-	-	-	-	39	-
1995	17	-	10.4	-	10	-	19	-	4.6	6.1	8.2	5	-	-	-	-	-	38	-
1996	-	-	-	-	12	-	69	-	4.8	5.7	7.1	4	-	-	-	-	-	-	-
1997	-	-	-	-	10	-	30	18	4.8	5.9	7.3	5	-	-	-	41	-	40	-
1998	-	-	-	-	10	-	25	18	4.9	5.9	6.8	6	-	-	-	-	-	40	-
1999	12	-	10.0	50	10	-	53	16	5.7	6.5	7.4	5	4.2	4.2	4.2	-	-	35	-
2000	15	-	11.0	48	12	-	28	13	4.1	5.0	6.2	5	5.5	5.7	5.8	46	-	48	-
2001	-	-	-	-	10	-	18	-	5.1	6.0	7.5	5	-	-	-	-	-	39	-



## WATER QUALITY SUMMARY

### **GREAT POND, Belgrade**

Midas: 5274, Basin: Secondary, Northwest Hoyt Island (02)

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

Water quality monitoring data for Great Pond has been collected since 1970. During this period, 12 years of basic chemical information was collected, in addition to Secchi Disk Transparencies (SDT). In summary, the water quality of Great Pond is considered to be about average, based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Great Pond is low-moderate. Non-nuisance Gleotrichia blooms occur fairly regularly.

Water Quality Measures: Great Pond Basin 2 is a non-colored lake (average color 15 SPU) with an average SDT of 4.4m (14.4 ft). The range of water column TP for Great Pond is 9 - 12 parts per billion (ppb) with an average of 10 ppb, while Chla ranges from 2.6 – 5.8 ppb with an average of 4.4 ppb. Recent dissolved oxygen (DO) profiles show moderate-high DO depletion in deep areas of the lake. In August of 2003, water below 30 ft was less than 2 ppm. The potential for TP to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate, but there is some evidence that deep water TP readings have been in the 20+ range in several years. Oxygen levels below 5 parts per million stress certain cold water fish, and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species.

The Belgrade Regional Conservation Alliance (BRCA) has completed watershed surveys in the Great Pond direct watershed (2000) and all of the subwatersheds upstream of Great Pond (1998-1999). The results of this project are being used to finalize a Watershed Management Plan for the entire Great Pond watershed (2001). These projects were accomplished using state funding obtained under DEP's Non-Point Source Program. Additional federal funding has been obtained under the same program to begin correcting erosion problems identified during the survey process.

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Filename: GRE52742, Revised: 3/04 , By: rjb

LAKE: GREAT P (VLMP 11 )  
 TOWN: BELGRADE  
 COUNTY: KENNEBEC

MIDAS: 5274  
 TRUE BASIN: 1  
 SAMPLE STATION: 3

WHOLE LAKE INFORMATION

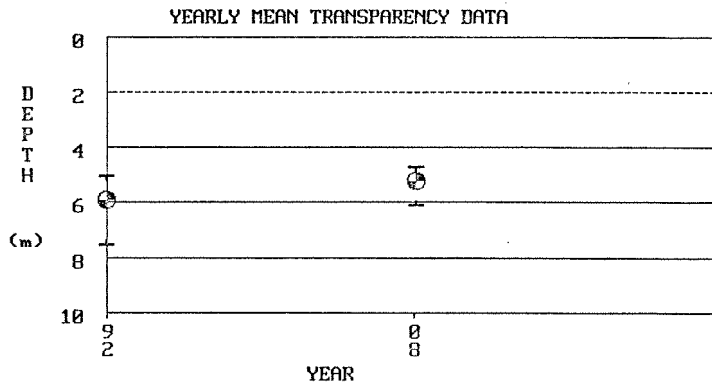
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**SECCHI DISK TRANSPARENCY GRAPH:**



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1992	-	-	-	-	-	-	-	-	5.0	5.9	7.5	5	-	-	-	-	-	40	-
2008	-	-	-	-	-	-	-	-	4.7	5.2	6.1	3	-	-	-	-	-	-	-
SUMMARY:	-	-	-	-	-	-	-	-	4.7	5.6	7.5	2	-	-	-	-	-	40	-