

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: BALCH POND	Lake Area (ha): 284.91
Town: WAKEFIELD	Maximum depth (m): 14.1
County: Carroll	Mean depth (m): 2.9
River Basin: Saco	Volume (m ³): 6866000
Latitude: 43°37'01" N	Relative depth: 0.8
Longitude: 70°59'05" W	Shore configuration: 4.34
Elevation (ft): 557	Areal water load (m/yr): 6.39
Shore length (m): 23500	Flushing rate (yr ⁻¹): 2.20
Watershed area (ha): 2583.6	P retention coeff.: 0.62
% watershed ponded: 4.0	Lake type: natural w/dam

BIOLOGICAL:

10 March 2003

4 September 2002

DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 85%	CERATIUM 40%
	#2	COELOSPHAERIUM 6%	CHRYSOSPHAERELLA 35%
	#3		MALLOMONAS 15%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			4.91
DOM. ZOOPLANKTON (% TOTAL)	#1	KERATELLA 38%	NAUPLIUS LARVA 41%
	#2	CALANOID COPEPOD 31%	KERATELLA 15%
	#3		KELICOTTIA 12%
ROTIFERS/LITER		16	109
MICROCRUSTACEA/LITER		13	109
ZOOPLANKTON ABUNDANCE (#/L)		29	241
VASCULAR PLANT ABUNDANCE			Very abundant
SECCHI DISK TRANSPARENCY (m)			6.5
BOTTOM DISSOLVED OXYGEN (mg/L)		4.8	0.0
BACTERIA (E. coli, #/100 ml)	#1		1
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 7.0
Hypolimnion volume (m³): 59500
Anoxic volume (m³): 348500

CHEMICAL:

Lake: BALCH POND

Town: WAKEFIELD

	10 March 2003		4 September 2002		
DEPTH (m)	4.0	8.0	2.0	5.0	10.0
pH (units)	6.2	6.2	6.3	6.4	6.1
A.N.C. (Alkalinity)	11.2	10.3	8.9	9.5	16.6
NITRATE NITROGEN	0.06	0.07	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.40	0.40	0.10	0.20	0.50
TOTAL PHOSPHORUS	0.012	0.014	0.006	0.007	0.022
CONDUCTIVITY (μ mhos/cm)	72.7	78.5	64.1	66.0	70.7
APPARENT COLOR (cpu)	27	28	20	20	90
MAGNESIUM			0.71		
CALCIUM			4.2		
SODIUM			6.4		
POTASSIUM			0.52		
CHLORIDE	10	11	9		8
SULFATE	3	4	3		2
TN : TP	38	34	17		23
CALCITE SATURATION INDEX			3.4		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2002

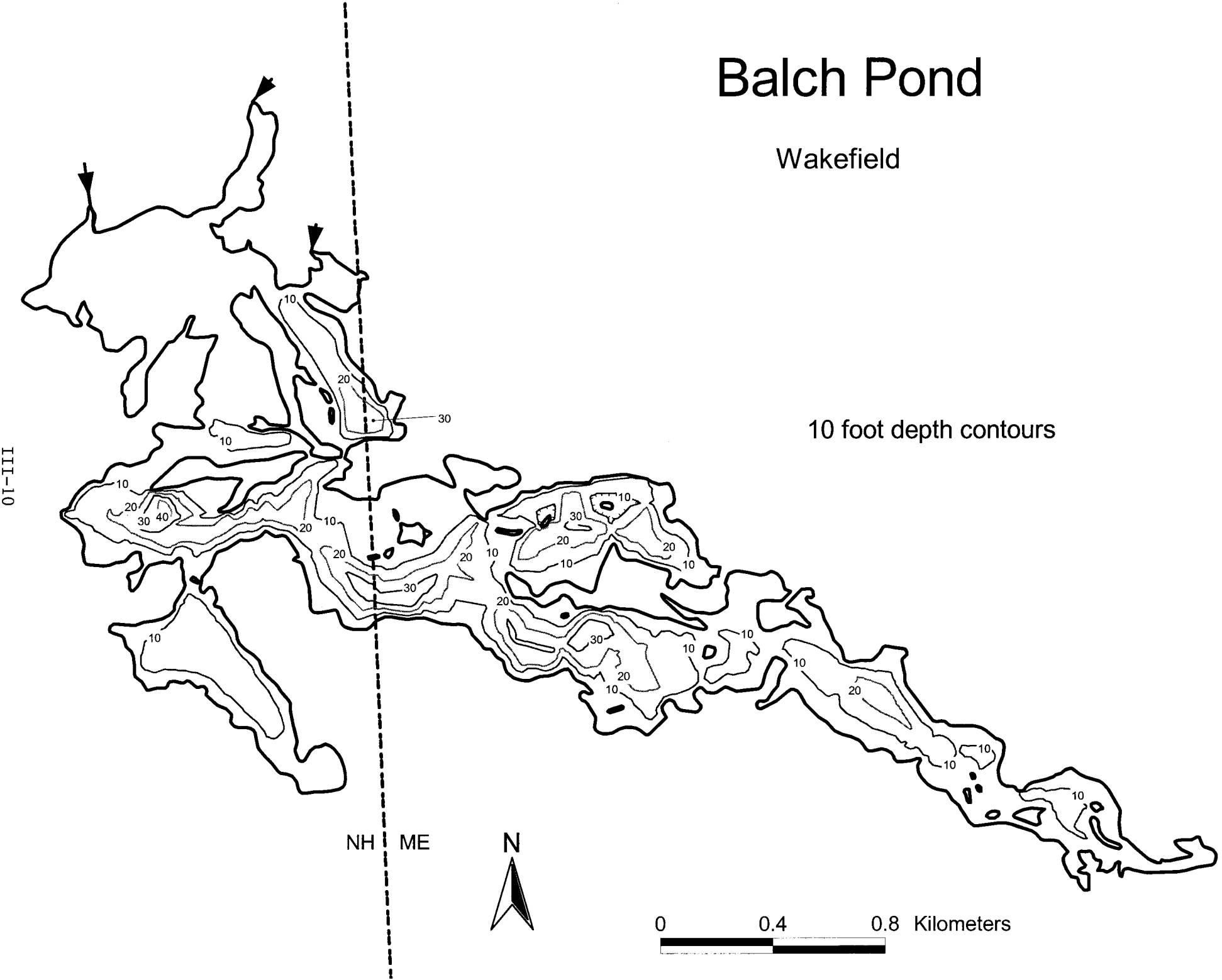
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	1	6	1	12	Meso.

COMMENTS:

1. The northern part of the pond is also known as Stump Pond. The "Official List of Public Waters in NH" document refers to the entire NH portion of the waterbody as Stump Pond, with the Balch Pond name applying only to the Maine portion. The "Official List" document also lists the acreage as 352 acres, which is likely the NH portion only. The acreage in this report, and used for calculating flushing rate, volume, etc., is 704 acres and is from the 1964 State Planning Report No. 4.
2. Previously surveyed in 1982 and rated as mesotrophic in both years. The major change in trophic data was in the subjectively-evaluated rooted plant growth: it went from 'scattered' in 1982 to 'very abundant' in 2002. The exotic species of milfoil was not present in 1982.
3. Balch Pond was treated with the herbicide diquat in 2003 to help temporarily control the growth of exotic milfoil.
4. The boat was launched at Dick's Marina.

Balch Pond

Wakefield



FIELD DATA SHEET

LAKE: BALCH POND
DATE: 09/04/2002

TOWN: WAKEFIELD
WEATHER: Sunny, warm, light breeze

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	22.7	9.2	106 %
1.0	22.2	9.1	105 %
2.0	22.1	8.9	102 %
3.0	22.0	8.7	99 %
4.0	21.9	8.2	94 %
5.0	21.5	7.4	84 %
6.0	18.9	1.4	15 %
7.0	15.6	0.0	0 %
8.0	12.6	0.0	0 %
9.0	10.7	0.0	0 %
10.0	9.2	0.0	0 %
11.0	8.4	0.0	0 %
12.0	8.0	0.0	0 %
12.5	8.0	0.0	0 %

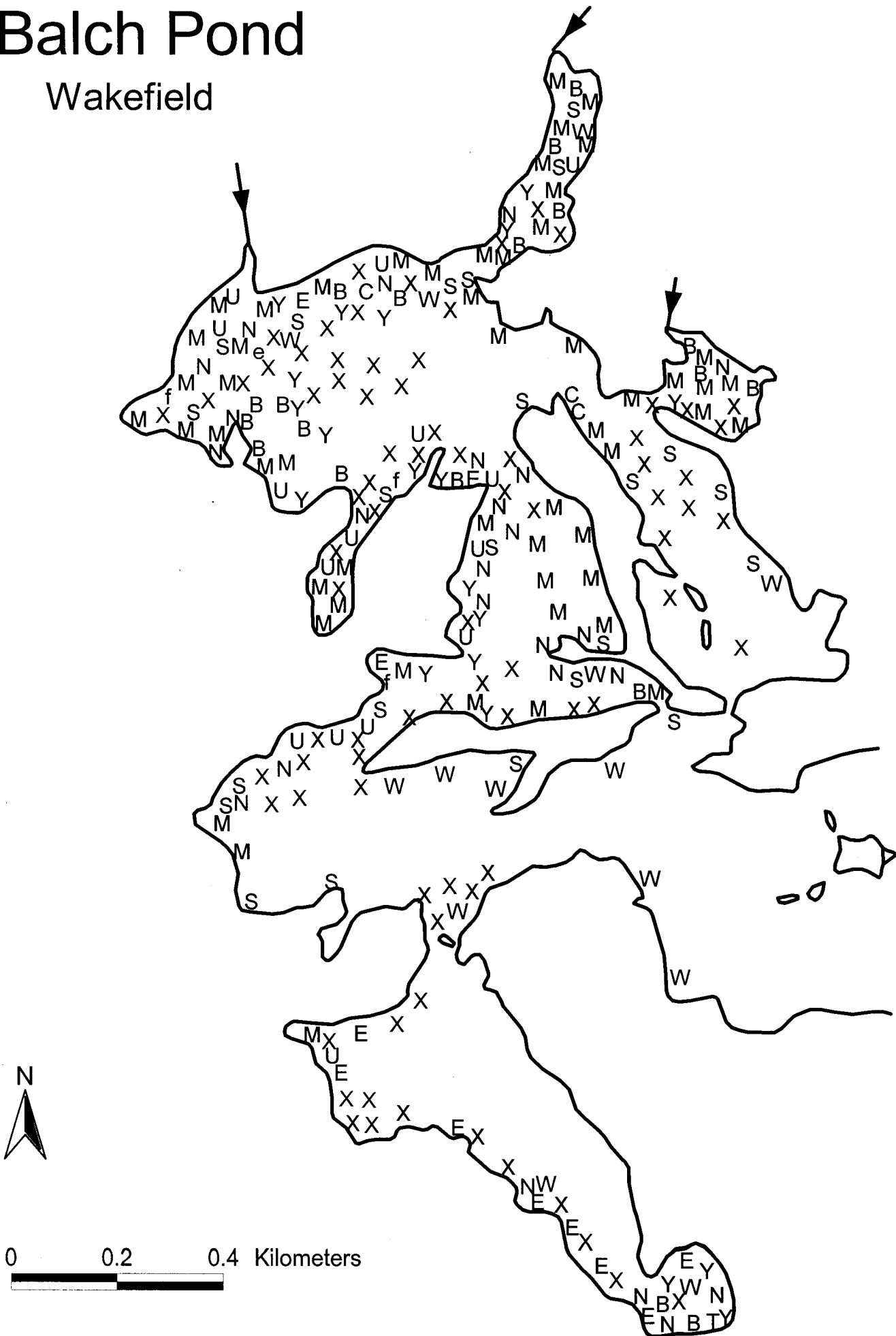
SECCHI DISK (m): 6.5
BOTTOM DEPTH (m): 13.2
TIME: 1430

COMMENTS:

*Dissolved oxygen values are in mg/L

Balch Pond

Wakefield



AQUATIC PLANT SURVEY

LAKE: BALCH POND

TOWN: WAKEFIELD

DATE: 09/04/2002

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
M	Myriophyllum heterophyllum	Water milfoil	Common
B	Brasenia schreberi	Water shield	Sparse
Y	Nuphar	Yellow water lily	Sparse
N	Nymphaea	White water lily	Scattered
S	Sparganium	Bur reed	Scattered
U	Utricularia	Bladderwort	Sparse
X		Sterile thread-like leaf	Very abundant
C	Cyperaceae	Non-flowering sedge	Sparse
W	Potamogeton	Pondweed	Sparse
T	Typha	Cattail	Sparse
f		Filamentous algae	Scattered
E	Eriocaulon septangulare	Pipewort	Sparse
e	Elodea nuttallii	Waterweed	Sparse

OVERALL ABUNDANCE: Very abundant

GENERAL OBSERVATIONS:

1. Plants were rated "very abundant" in 2002, in contrast to the 1982 survey where they were rated "scattered". No milfoil was observed in 1982 and no sterile thread-like leaf growth was listed. Plants were abundant in the northern coves in both years.
2. Different species of milfoil were present. *M. heterophyllum* (the exotic species) was the dominant species present in the northern coves, but some native milfoil species were present in other areas.
3. Sponges and bryozoans (*Pectinatella*) were observed.