DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	HERMIT LAKE	**Lake Area (ha):**	71.26
Town:	SANBORNTON	**Maximum Depth (m):**	15.2
County:	BELKNAP	**Mean Depth (m):**	2.5
River Basin:	MERRIMACK	**Volume (m^3):**	1756000
Latitude:	43°43'33" N	**Relative depth:**	1.6
Longititude:	71°71'36" W	**Shore Configuration:**	2.91
Elevation (ft) :	624	**Areal water load (m/yr):**	10.35
Shore length (m):	8700	**Flushing Rate (yr^{-1}):**	4.2
% Watershed Ponded:	0.6	**P retention coeff.:**	0.58
Watershed Area (ha)	1504.6	**Lake Type**	natural w/dam

BIOLOGICAL:		**04-Mar-04**	**23-Jun-03**
DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 70%	DINOBRYON 60%
	#2	MALLOMONAS 25%	MALLOMONAS 15%
	#3		CHRYSOSPHAERELLA 8%
CHLOROPHYLL-A (ug/L)			8.75
DOM. ZOOPLANKTON (% TOTAL)	#1	ciliate spp. 58%	KERATELLA 28%
	#2	KELLICOTTIA 10%	KELLICOTTIA 20%
	#3	KERATELLA 10%	ciliate spp. 14%
ROTIFERS/LITER		48	101
MICROCRUSTACEA/LITER		13	24
ZOOPLANKTON ABUNDANCE (#/L)		151	148
VASCULAR PLANT ABUNDANCE			Abundant
SECCHI DISK TRANSPARENCY (m)			4.2
BOTTOM DISSOLVED OXYGEN (mg/L)		1	0.2
BACTERIA (E. coli, #/100ml)	#1		2
	#2		<1
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	3.5
Hypolimnion volume (m^3):	281000
Anoxic Volume (m^3):	56000

CHEMICAL:

Lake: HERMIT LAKE
Town: SANBORNTON

	04-Mar-04		23-Jun-03		
DEPTH (M)	5.0	10.0	1.0	5.0	12.0
pH (units)	5.9	5.7	6.4	6.4	6.0
A.N.C. (Alkalinity)	5.0	6.3	4.1	4.4	8.7
NITRATE NITROGEN	0.07	< 0.05	< 0.05		< 0.05
TOTAL KJELDHAL NITROGEN	0.40	0.50	0.30	0.50	0.70
TOTAL PHOSPHORUS	0.007	0.009	0.009	0.042	0.027
CONDUCTIVITY (umhos/cm)	182.0	208.0	182.7	185.4	234.0
APPARENT COLOR (CPU)	21	28	25	25	70
MAGNESIUM			1.06		
CALCIUM			4.0		
SODIUM			25.1		
POTASSIUM			0.68		
CHLORIDE	42	48	46		59
SULFATE	6	7	6		6
TN : TP	67	58	36		27
CALCITE SATURATION INDEX					

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2003

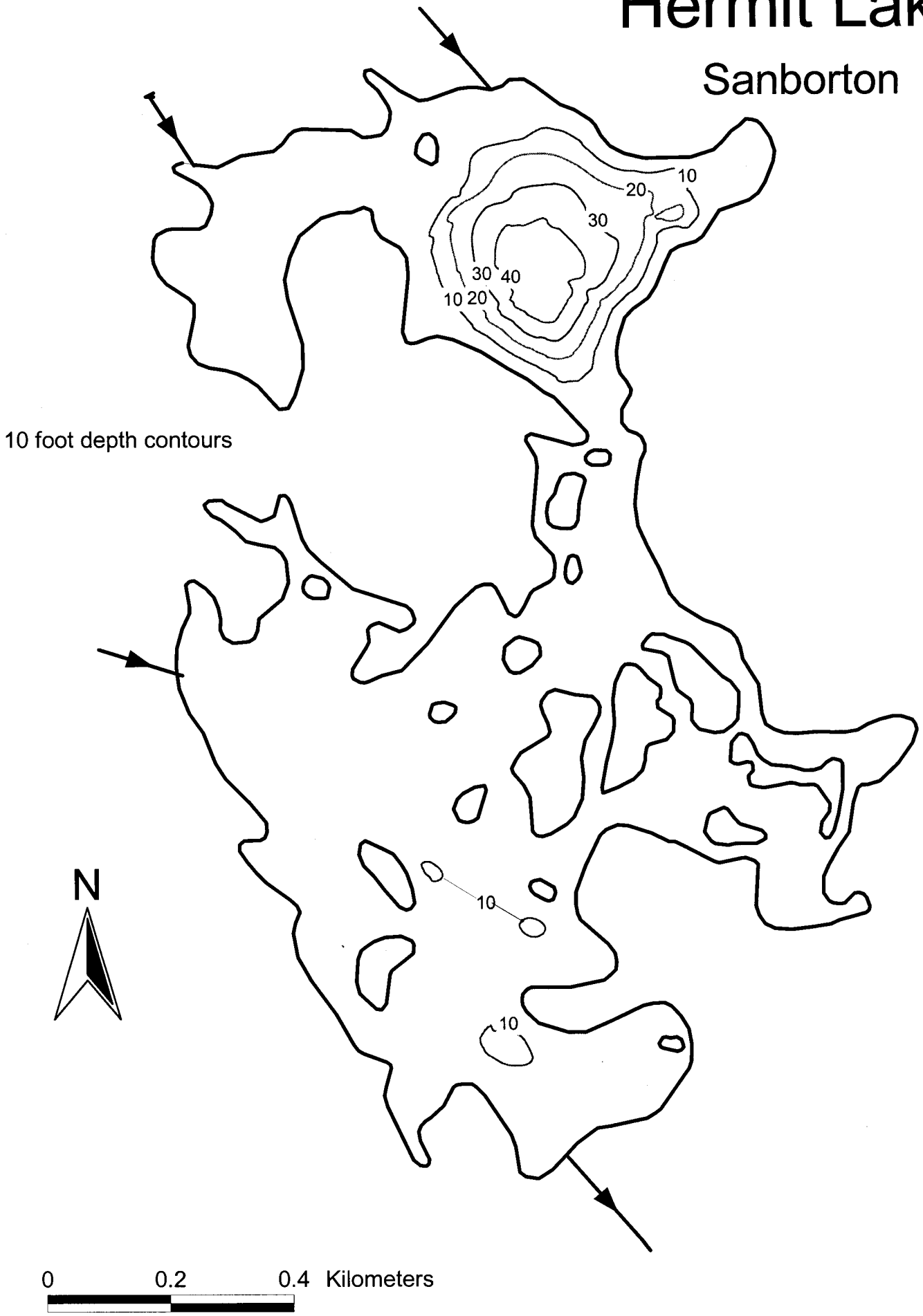
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
5	2	5	2	14	EUTRO

COMMENTS:

1. Formerly two ponds: shallower Bog Pond at the southern (dam) end and deeper Plummer Pond at the northern end. Ponds were combined by the raised water level from the construction of the dam.
2. 10 horsepower limit for motor boats.
3. Sandy, unimproved launch site with adequate parking.
4. Previously surveyed in 1980 and a participant in VLAP beginning in 1990 (but skipped 1995-2001 so no statistical trend analysis). The trophic class changed from mesotrophic in 1980 to eutrophic in 2003, primarily because of a change in the classification system. The trophic data was similar between the two dates. The VLAP data shows fluctuating but stable trends in trophic characteristics.
5. Moderately developed shoreline.
6. Elevated sodium, chloride and conductivity values suggest road salt runoff. The 5 and 12 meter phosphorus values in the summer were elevated.
7. The winter bottom dissolved oxygen reading was low (1 mg/L).

Hermit Lake

Sanborton



FIELD DATA SHEET

LAKE: HERMIT LAKE **TOWN:** SANBORNTON

DATE: 6/23/03 **WEATHER:** Sunny & warm; light breeze

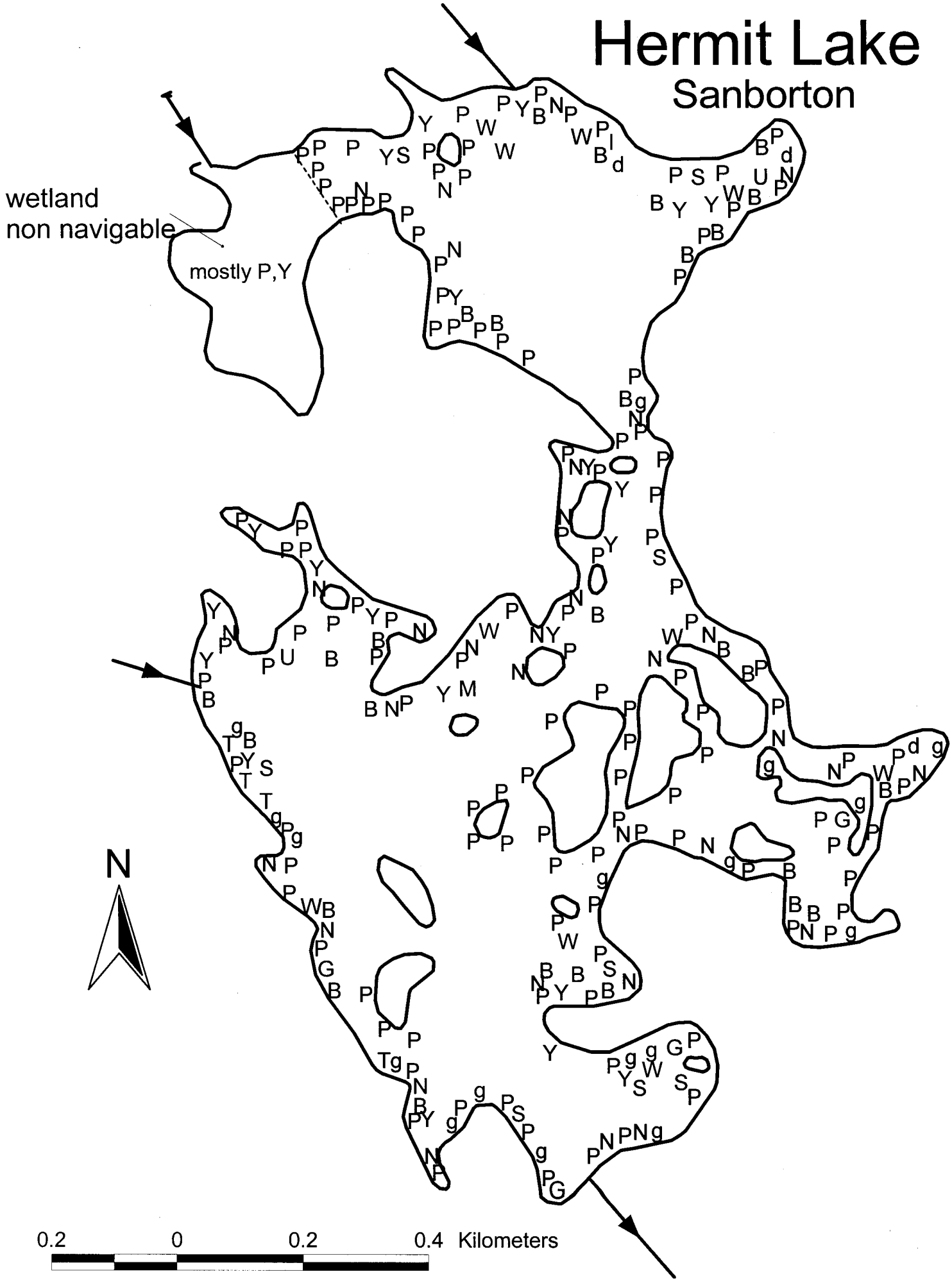
	DEPTH (M)	TEMP (°C)	DISSOLVED OXYGEN (mg/L)	PERCENT SATURATED
	0.1	23.5	9.1	106.8
	1.0	22.2	9.2	105.2
	2.0	20.6	9.5	105.8
	3.0	17.4	10.8	113.0
	4.0	12.4	13.5	126.2
	5.0	9.1	13.1	113.5
	6.0	7.3	8.6	71.4
	7.0	6.6	6.1	49.7
	8.0	5.8	5.4	42.9
	9.0	5.4	3.5	27.8
	10.0	5.1	1.7	13.4
	11.0	5.1	0.7	5.6
	12.0	5.1	0.1	0.9
	13.0	5.1	0.1	0.9
	14.0	5.2	0.1	1.0
	14.5	5.5	0.2	1.2

SECCHI DEPTH (m) : 4.2

BOTTOM DEPTH (m) : 15.0

TIME: 1230

COMMENTS:


Hermit Lake
Sanborton
wetland
non navigable
mostly P,Y
N
0.2
0
0.2
0.4 Kilometers

AQUATIC PLANT SURVEY

LAKE: HERMIT LAKE **TOWN:** SANBORNTON **DATE:** 6/23/03

KEY	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
P	Pontederia cordata	Pickerelweed	Abundant
I	Iris versicolor	Blue flag	Sparse
N	Nymphaea	White water lily	Common/Abund
Y	Nuphar	Yellow water lily	Common
W	Potamogeton	Pondweed	Common
B	Brasenia schreberi	Water shield	Common
g	Myrica gale	Sweet gale	Scattered
d	Dulichium arundinaceum	Three-way sedge	Scattered
S	Sparganium	Bur reed	Scattered
U	Utricularia	Bladderwort	Sparse
T	Typha	Cattail	Sparse
G	Gramineae	Grass family	Sparse
M	Myriophyllum	Native milfoil	Sparse
		OVERALL ABUNDANCE :	Abundant

GENERAL OBSERVATIONS :

1. The northern cove was a non-navigable wetland consisting mostly of pickerelweed and yellow water lily.