DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	GUMPAS POND	Lake Area (ha):	36.42
Town:	PELHAM	Maximum depth (m):	6.8
County:	Hillsborough	Mean depth (m):	2.1
River Basin:	Merrimack	Volume (m^3):	762000
Latitude:	42°43'51" N	Relative depth:	1.0
Longitude:	71°21'45" W	Shore configuration:	2.01
Elevation (ft):	201	Areal water load (m/yr):	1.93
Shore length (m):	4300	Flushing rate (yr^{-1}):	0.90
Watershed area (ha):	155.4	P retention coeff.:	0.82
% watershed ponded:	0.3	Lake type:	natural w/dam

BIOLOGICAL:		15 February 1995	1 September 1994
DOM. PHYTOPLANKTON (% TOTAL)	#1	NO PHYTOPLANKTON	COELOSPHAERIUM 80%
	#2	SAMPLES COLLECTED	CERATIUM 10%
	#3		
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			2.01
DOM. ZOOPLANKTON (% TOTAL)	#1	NO ZOOPLANKTON	VORTICELLA 36%
	#2	SAMPLES COLLECTED	NAUPLIUS LARVA 18%
	#3		KELLICOTTIA 14%
ROTIFERS/LITER			22
MICROCRUSTACEA/LITER			33
ZOOPLANKTON ABUNDANCE (#/L)			92
VASCULAR PLANT ABUNDANCE			Abundant
SECCHI DISK TRANSPARENCY (m)			5.4
BOTTOM DISSOLVED OXYGEN (mg/L)		13.0	0.0
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 5.0
Hypolimnion volume (m^3) : None
Anoxic volume (m^3) : 18500

CHEMICAL:

Lake: GUMPAS POND
Town: PELHAM

	15 February 1995		1 September 1994		
DEPTH (m)	2.5	4.5	2.5	5.5	6.5
pH (units)	6.3	6.2	7.0	6.5	6.4
A.N.C. (Alkalinity)	7.1	7.5	7.0	10.8	13.2
NITRATE NITROGEN	0.08	0.08	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.24	0.27	0.39	0.40	0.35
TOTAL PHOSPHORUS	0.009	0.013	0.011	0.018	0.028
CONDUCTIVITY (μmhos/cm)	114.6	110.9	109.3	126.0	127.9
APPARENT COLOR (cpu)	23	24	17	30	38
MAGNESIUM			1.08		
CALCIUM			5.6		
SODIUM			11.9		
POTASSIUM			1.34		
CHLORIDE	23	23	22		24
SULFATE	10	10	8		8
TN : TP	36	27	35		13
CALCITE SATURATION INDEX			3.7		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1994

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	1	5	0	6	Meso.

COMMENTS:

1. Also spelled Gumpus Pond.

2. Gumpas Pond was previously surveyed and classified in 1978. There was no change in trophic classification and ~~little change in trophic classification and~~ little change in water quality between the two years. A deeper depth was sampled in 1994, revealing a thermal stratification and bottom dissolved oxygen depletion that was not observed at a shallower, unstratified depth in 1978.

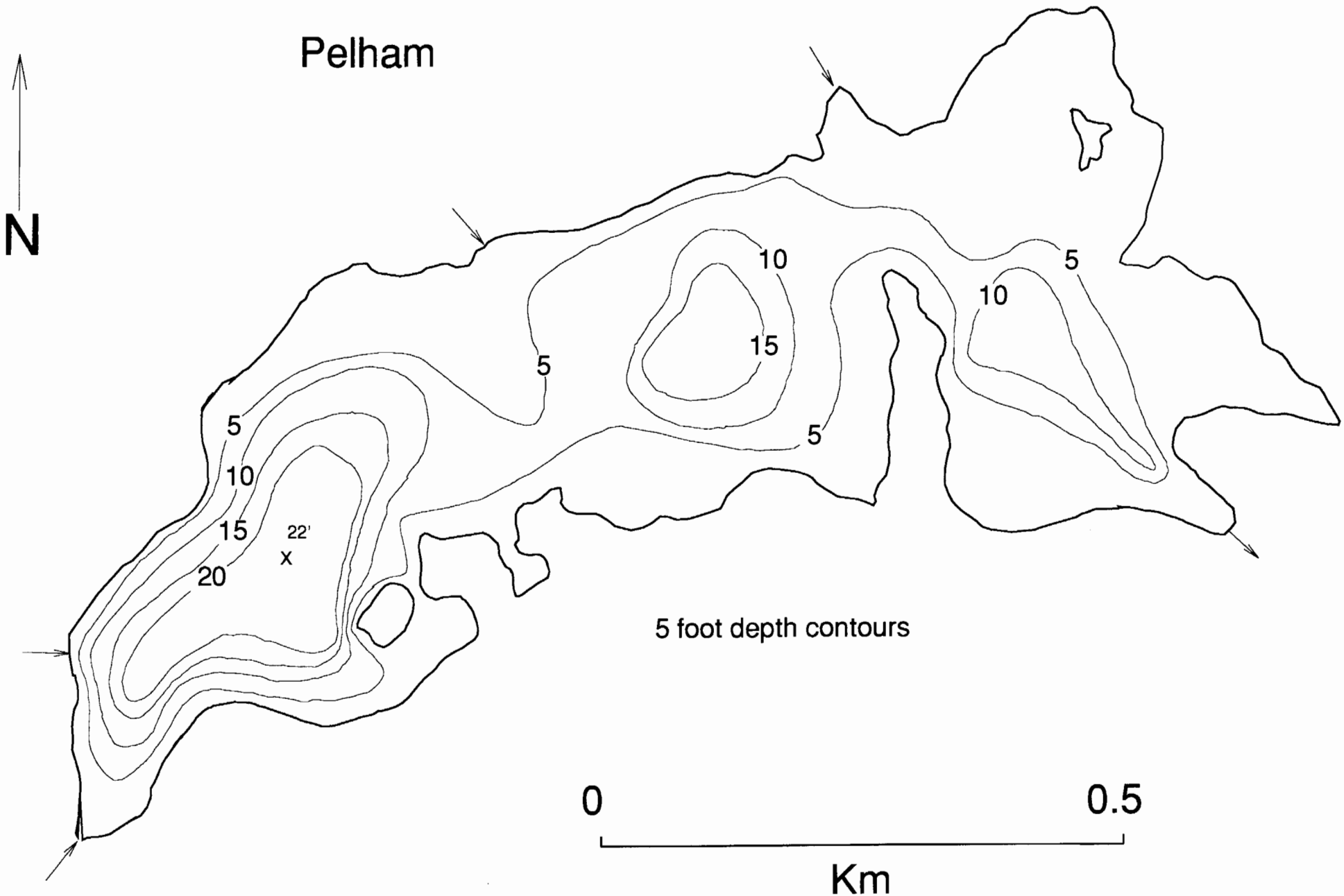
3. No public access; boat was launched over private land.

4. Water level was 1 1/2 to 2 feet below full lake level.

5. Sodium and chloride levels suggest salt runoff into the pond.

Gumpas Pond

Pelham



FIELD DATA SHEET

LAKE: GUMPAS POND
DATE: 09/01/94

TOWN: PELHAM
WEATHER: MOSTLY OVERCAST; THREATEN RAIN

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	22.0	8.5	96 %
	1.0	21.0	8.5	94 %
	2.0	21.0	8.5	94 %
	3.0	20.5	8.6	93 %
	4.0	19.8	7.8	83 %
	5.0	15.5	1.6	16 %
	6.0	12.0	0.0	0 %
	6.5	11.0	0.0	0 %

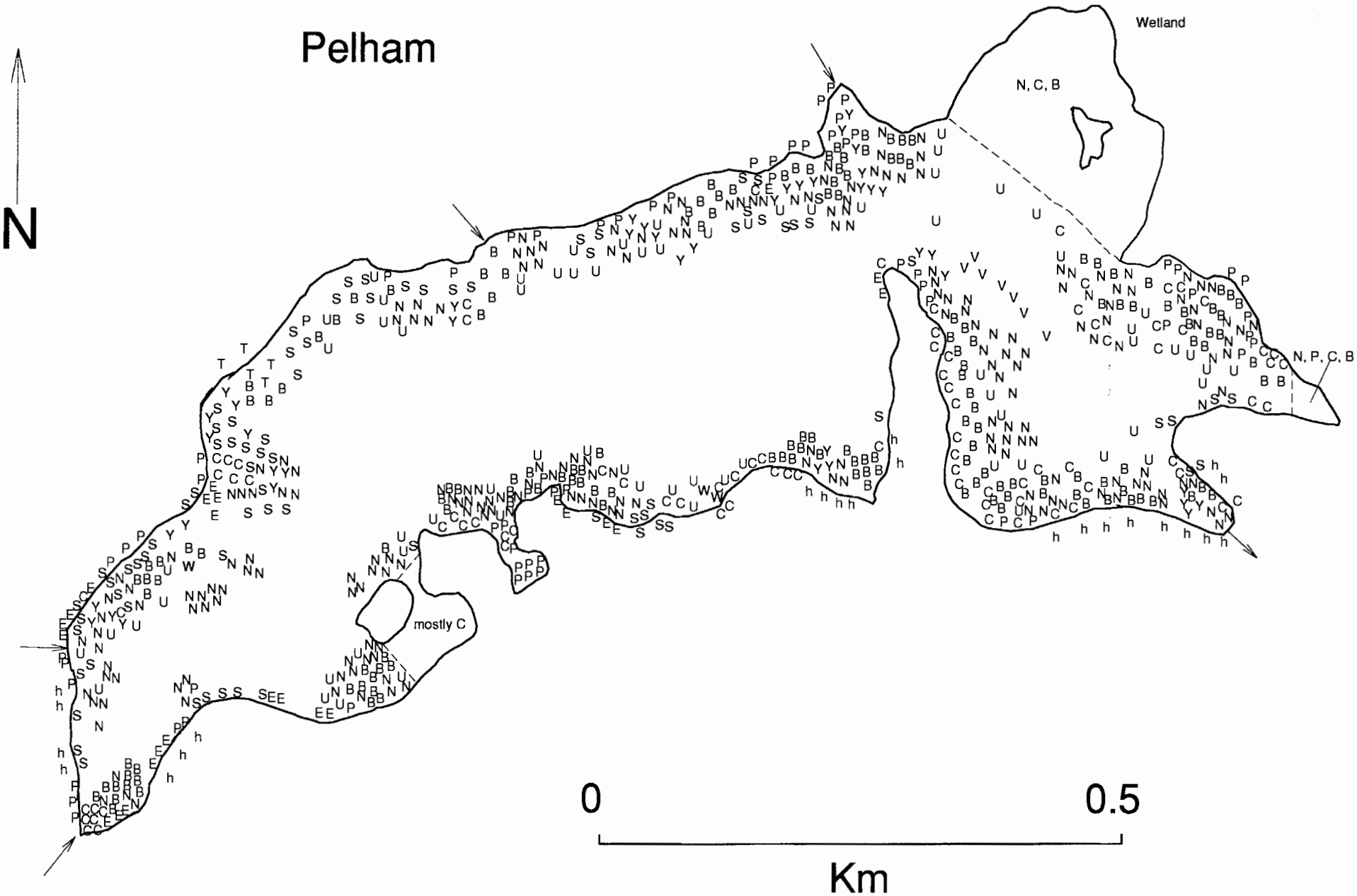
SECCHI DISK (m): 5.4
BOTTOM DEPTH (m): 6.8
TIME: 1230

COMMENTS:

*Dissolved oxygen values are in mg/L

Gumpas Pond

Pelham



AQUATIC PLANT SURVEY

LAKE: GUMPAS POND TOWN: PELHAM DATE: 09/01/94

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
N	Nymphaea	White water lily	Abundant
P	Pontederia cordata	Pickerelweed	Scattered
E	Eriocaulon septangulare	Pipewort	Sparse
C	Cyperaceae	non-flowering sedge	Abundant
U	Utricularia	Bladderwort	Abundant
S	Sparganium	Bur reed	Common
Y	Nuphar	Yellow water lily	Scattered
B	Brasenia schreberi	Water shield	Abundant
T	Typha	Cattail	Sparse
V	Vallisneria americana	Tape grass	Sparse
h	Gratiola	Hedge hyssop	Scattered
W	Potamogeton	Pondweed	Scattered

OVERALL ABUNDANCE: Abundant

GENERAL OBSERVATIONS:

1. Bladderwort was observed along the bottom of the entire shoreline and in other areas where the bottom was visible.

2. Many of the coves had dense plant growth and were unnavigable by boat.