

NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION

LAKE TROPHIC DATA

MORPHOMETRIC:

LAKE _____	Mascoma Lake - North	LAKE AREA (HA) _____	451.18
TOWN _____	Enfield	MAXIMUM DEPTH (M) _____	20.7
COUNTY _____	Grafton	MEAN DEPTH (M) _____	9.0
RIVER BASIN _____	Connecticut	VOLUME (M ³) _____	39,464,500
LATITUDE _____	43 ° 38'N	MUD SURFACE AREA (HA) _____	
LONGITUDE _____	72 ° 09'W	RELATIVE DEPTH _____	0.9
ELEVATION (FT) _____	751	SHORE CONFIGURATION _____	2.01
SHORE LENGTH (M) _____	15,100	AREAL WATER LOAD (M/YR) _____	
WATERSHED AREA (HA) _____	39,627	FLUSHING RATE (YR ⁻¹) _____	4.6
% WATERSHED PONDED _____	2.2%	PHOSPHORUS RETENTION COEFF. _____	0.39

BIOLOGICAL:

DATE	12 FEB 1986	20 AUG 1985
DOM. PHYTOPLANKTON (% total) ¹	Asterionella (75%)	Anabaena (90%)
²		
NUMBER OF ALGAL GENERA	7	8
SPECIES DIVERSITY		1.10
CHLOROPHYLL <u>a</u> (µg/L)		9.55
DOM. ZOOPLANKTON (% total) ¹	sparse - no dominant	Kellicottia (30%)
²		Polyarthra (15%)
ROTIFERS/LITER	6	118
MICROCRUSTACEA/LITER	11	30
TOTAL ZOOPLANK. CNTS (cells/L)	17	150
VASCULAR PLANT ABUNDANCE		Scattered
DOMINANT VASCULAR PLANTS ¹		Scirpus
²		Eleocharis
³		
SECCHI DISK TRANSPARENCY (M)		2.7
BOTTOM DISS. OXYGEN (mg/L)	6.4	0.1
SEDIMENT: % ORGANIC MATTER		

LAKE TYPE:

A natural pond raised by damming.

SUMMER THERMAL STRATIFICATION: YES x NO _____ WEAK _____

IF YES, VOLUME OF HYPOLIMNION _____ 0 (m³) THERMOCLINE DEPTH 6.4 (m)

CHEMICAL: (mg/L unless indicated otherwise) LAKE: Mascoma Lake - North

	WINTER		SUMMER		
DATE	12 FEB 1986		20 AUG 1985		
DEPTH (M)	3.0	6.0	3.0	7.0	9.0
pH (UNITS)	6.5	6.6	7.6	6.7	6.7
ALKALINITY (I. P.)	6.3	7.2	9.5	9.9	15.6
ALKALINITY (F.E.P.)	7.9	8.9	11.0	11.3	16.8
NITRITE+NITRATE NITROGEN			< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN			0.40		0.58
TOTAL PHOSPHORUS	0.012	0.011	0.010	0.015	0.040
SPEC. CONDUCT. (μ Mhos/cm)	50.2	51.8	51.2	52.5	64.7
APPARENT COLOR (UNITS)	30	30	20	25	~ 65
TRUE COLOR (440 nm)(UNITS)	43	35	NR	NR	NR
MAGNESIUM			0.78		
CALCIUM			3.8		
SODIUM			3		
POTASSIUM			0.6		
CHLORIDE			4		4
TN : TP			40		14
INORG-N : INORG-P					
[Mg+Ca] : [Na+K]			1.27		
CALCITE SATURATION INDEX			2.1		

* = NOT DEFENSIBLE

NR = NO RESULT

TROPHIC CLASSIFICATION: 1985

CLASSIFICATION POINTS:

D.O.	S.D.	PLANT ABUND.	TOTAL CHL a PTS.	TROPHIC CLASS.
6	2	1	10	Meso.

COMMENTS:

NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION

LAKE TROPHIC DATA

MORPHOMETRIC:

LAKE _____	Mascoma Lake - South	LAKE AREA (HA) _____	451.18
TOWN _____	Enfield	MAXIMUM DEPTH (M) _____	20.7
COUNTY _____	Grafton	MEAN DEPTH (M) _____	9.0
RIVER BASIN _____	Connecticut	VOLUME (M ³) _____	39,464,500
LATITUDE _____	43 ° 38'N	MUD SURFACE AREA (HA) _____	
LONGITUDE _____	72 ° 09'W	RELATIVE DEPTH _____	0.9
ELEVATION (FT) _____	751	SHORE CONFIGURATION _____	2.01
SHORE LENGTH (M) _____	15,100	AREAL WATER LOAD (M/YR) _____	
WATERSHED AREA (HA) _____	39,627	FLUSHING RATE (YR ⁻¹) _____	4.6
% WATERSHED PONDED _____	2.2%	PHOSPHORUS RETENTION COEFF. _____	0.39

BIOLOGICAL:

DATE	12 FEB 1986	20 AUG 1985
DOM. PHYTOPLANKTON (% total) ¹	Asterionella (95%)	Anabaena (90%)
²		
NUMBER OF ALGAL GENERA	5	7
SPECIES DIVERSITY		0.53
CHLOROPHYLL a (µg/L)		8.90
DOM. ZOOPLANKTON (% total) ¹	no dominants	Polyarthra (25%)
²		Kellicottia - (25%)
ROTIFERS/LITER	11	133
MICROCRUSTACEA/LITER	15	22
TOTAL ZOOPLANK. CNTS (cells/L)	28	155
VASCULAR PLANT ABUNDANCE		Scattered
DOMINANT VASCULAR PLANTS ¹		Scirpus
²		Nitella (algae)
³		
SECCHI DISK TRANSPARENCY (M)		2.7
BOTTOM DISS. OXYGEN (mg/L)	2.0	~ 0.1
SEDIMENT: % ORGANIC MATTER		

LAKE TYPE:

A natural pond raised by damming.

SUMMER THERMAL STRATIFICATION: YES NO WEAK

IF YES, VOLUME OF HYPOLIMNION 10,023,500 (m³) THERMOCLINE DEPTH 6.0 (m)

CHEMICAL: (mg/L unless indicated otherwise) LAKE: Mascoma Lake - South

DATE	WINTER		SUMMER		
	12 FEB 1986		20 AUG 1985		
DEPTH (M)	7.0	13.0	3.0	7.0	15.0
pH (UNITS)	6.6	6.6	7.6	6.7	6.4
ALKALINITY (I. P.)	6.8	7.5	9.5	9.2	8.2
ALKALINITY (F.E.P.)	8.5	9.0	11.1	10.9	9.8
NITRITE+NITRATE NITROGEN			< 0.05		0.17
TOTAL KJELDAHL NITROGEN			0.35		0.38
TOTAL PHOSPHORUS	0.013	0.010	0.014	0.010	0.019
SPEC. CONDUCT. (μ Mhos/cm)	52.3	51.6	52.9	51.6	50.1
APPARENT COLOR (UNITS)	35	30	20	25	50
TRUE COLOR (440 nm)(UNITS)	38	32	NR	NR	NR
MAGNESIUM			0.79		
CALCIUM			3.8		
SODIUM			3		
POTASSIUM			0.7		
CHLORIDE			5		4
TN : TP			25		20
INORG-N : INORG-P					
[Mg+Ca] : [Na+K]			1.24		
CALCITE SATURATION INDEX			2.1		

* = NOT DEFENSIBLE

NR = NO RESULT

TROPHIC CLASSIFICATION: 1985

CLASSIFICATION POINTS:	D.O.	S.D.	PLANT ABUND.	CHL a	TOTAL PTS.	TROPHIC CLASS.
	6	2	1	1	10	Meso.

COMMENTS:

FIELD DATA SHEET

WATER BODY Mascoma Lake TOWN Enfield BY WSPCC
 DATE COLLECTED 20 August 1985 WEATHER Mostly sunny; moderate breeze

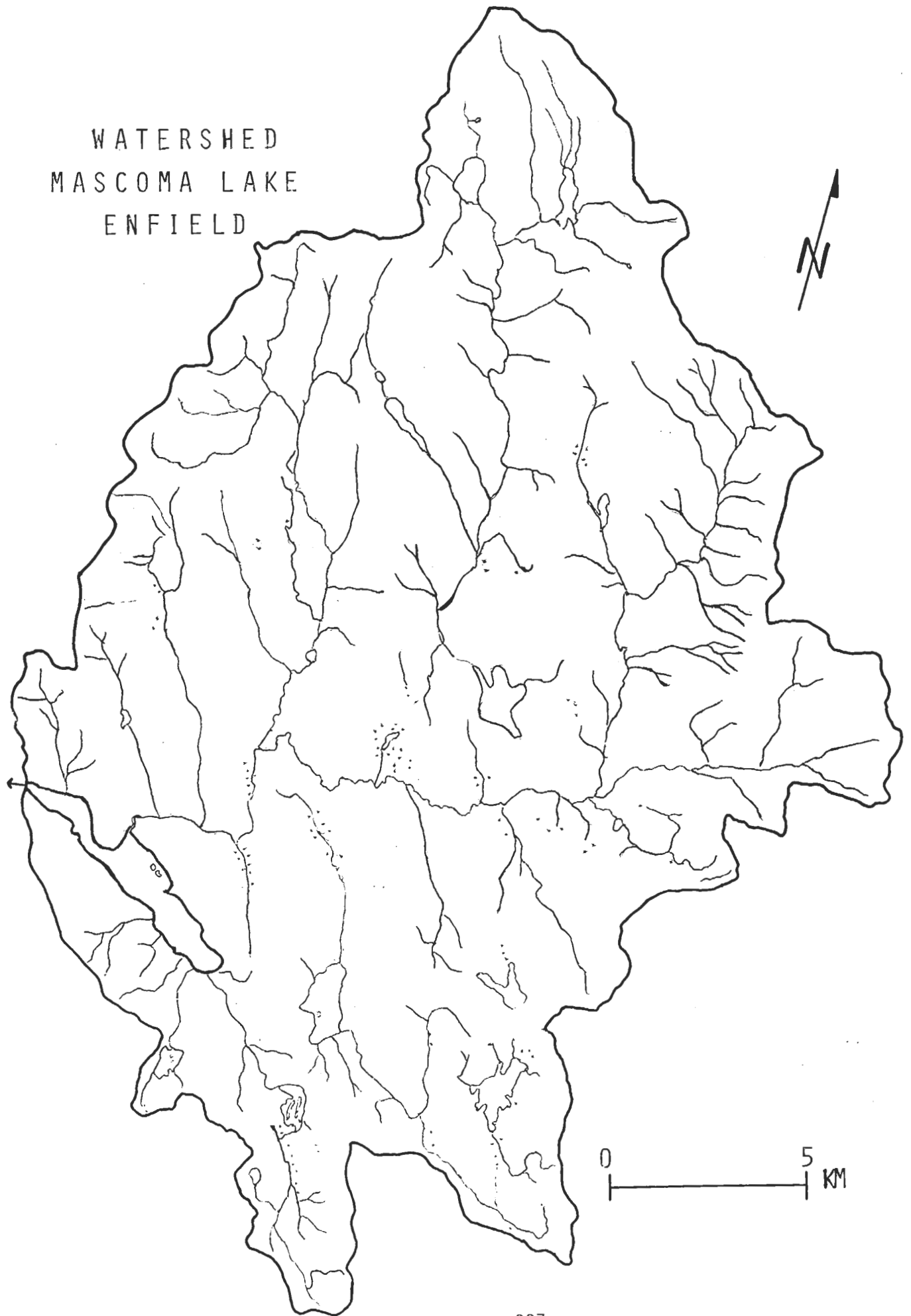
STATION	DEPTH (M)	TEMP. (°C)	*DISSOLVED OXYGEN	OXYGEN: % SATURATION			
DEEP SPOT North of bridge	0.1	22.5	8.8	102%			
	1.0	22.4	8.8	102%			
	2.0	22.2	8.9	103%			
	3.0	22.2	8.8	102%			
	4.0	22.2	8.7	101%			
	5.0	22.2	8.5	99%			
	6.0	21.0	5.2	60%			
	7.0	17.0	0.1	1%			
	8.0	14.9	0.1	1%			
	9.0	13.1	0.1	1%			
	9.5	12.5	0.1	1%			

SECCHI DISK (M) 2.7
 BOTTOM DEPTH (M) 9.7
 TIME 1200 hrs.

COMMENTS: 1. Slight chop to water surface.

* Dissolved oxygen values in mg/L

WATERSHED
MASCOMA LAKE
ENFIELD



FIELD DATA SHEET

WATER BODY Mascoma Lake - South

TOWN Enfield

By WSPCC

DATE COLLECTED 20 August 1985

WEATHER Mostly sunny & breezy

STATION	DEPTH (M)	TEMP. (°C)	*DISSOLVED OXYGEN	OXYGEN: % SATURATION			
DEEP SPOT	0.1	23.0	8.7	103%			
	1.0	23.0	8.7	103%			
	2.0	22.9	8.6	100%			
	3.0	22.6	8.5	99%			
	4.0	22.6	8.4	98%			
	5.0	22.2	8.2	96%			
	6.0	19.5	5.1	56%			
	7.0	16.5	2.1	22%			
	8.0	14.4	1.1	11%			
	9.0	12.8	1.1	11%			
	10.0	11.5	0.9	8%			
	11.0	11.0	0.8	7%			
	12.0	10.8	0.7	6%			
	13.0	10.5	0.5	5%			
	14.0	10.1	0.4	4%			
	15.0	9.9	0.3	3%			
16.0	9.7	0.2	2%				

SECCHI DISK (M) 2.7

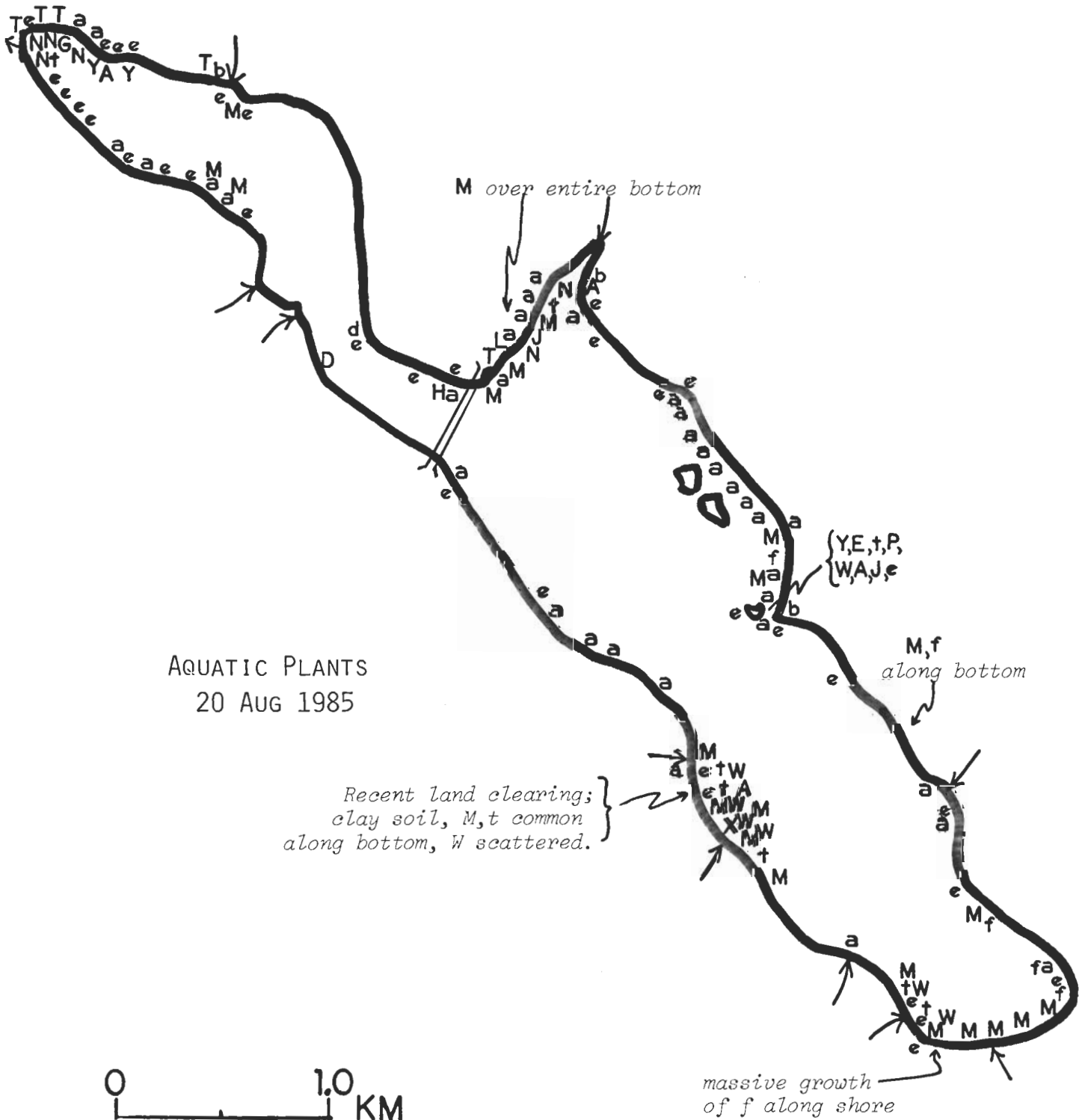
BOTTOM DEPTH (M) 20.4

TIME 1310 hrs.

COMMENTS: 1. Slight chop to water surface.
 2. Temperature/dissolved oxygen cable only 16 meters long; unable to measure to bottom D.O.; essentially zero.

MASCOMA LAKE

ENFIELD



AQUATIC PLANT SURVEY

LAKE Mascoma Lake TOWN Enfield DATE 20 AUG 85 BY WSPCC

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
a	<i>Scirpus americanus</i>	Three-square	Scattered
e	<i>Fleocharis</i>	Spike rush	Scattered
M	<i>Nitella</i>	Muskgrass, stonewort	Common
W	<i>Potamogeton</i>	Pondweed	Scattered
t	<i>Elodea</i>	Waterweed	Scattered
A	<i>Sagittaria</i>	Arrowhead	Sparse
b	<i>Scirpus cyperinus</i>	Bulrush	Sparse
Y	<i>Nuphar</i>	Yellow water lily	Sparse
E	<i>Eriocaulon septangulare</i>	Pipewort	Sparse
P	<i>Pontederia cordata</i>	Pickernelweed	Sparse
J	<i>Najas</i>	Bushy pondweed	Sparse
N	<i>Nymphaea</i>	White water lily	Sparse
L	<i>Lythrum salicaria</i>	Purple loosestrife	Sparse
T	<i>Typha</i>	Cattail	Sparse
H	<i>Equisetum</i>	Horsetail	Sparse
d	<i>Dulichium arundinaceum</i>	Three-way sedge	Sparse
D	<i>Decodon verticillatus</i>	Swamp loosestrife	Sparse
G	Gramineae	Grass family	Sparse
X		Unidentified bottom growth	Sparse
f	Chlorophyceae	filamentous green algae	Sparse

OVERALL ABUNDANCE Scattered

GENERAL OBSERVATIONS:

1. Because of the size of the lake and the choppy water surface, the bottom growth was not looked at in much detail. Much of the bottom was sandy clay with *Nitella* growth and sporadic patches of pondweeds and waterweed. Other parts of the shore was mostly rocky with little bottom growth.
2. Three-square and spike rush were in scattered patches around most of the shoreline. Because of the scale, they appear more abundant on the map than they really were. All other emergent plants were sparse.