

TROPHIC CLASSIFICATION OF N.H. LAKES AND PONDS

NAME Mascoma Lake TOWN Enfield CO Grafton RIVER Connecticut
 Station # 1

I. POTENTIAL FOR NUTRIENT ENRICHMENT

A. NATURAL PHYSICAL FACTORS

- | | |
|---|---|
| 1. Area (ha) <u>451.20</u> | 10. <u>Watershed area</u>
Volume <u>10</u> |
| 2. Max. depth (m) <u>20.7</u> | 11. Bottom slope <u>0.9</u> |
| 3. Mean depth (m) <u>9.0</u> | 12. Shore config. <u>2.01</u> |
| 4. Elevation (ft) <u>751</u> | 13. Flushing rate <u>4.6</u> |
| 5. Shore length (m) <u>15,100</u> | 14. Water renewal time <u>0.2</u> |
| 6. Volume (m ³) <u>39,464,500</u> | 15. Drainage density <u>-</u> |
| 7. Volume/shore length <u>2,615</u> | 16. % Watershed ponded <u>2.2</u> |
| 8. % Stratification <u>40</u> | 17. Phos. retent. coeff. R <u>0.39</u> |
| 9. Watershed area (ha) <u>39,678.6</u> | |

B. CULTURAL FACTORS

- | | |
|--|---|
| 1. % Shore developed <u>45% (1963)</u> | 5. Estimate of non-point Tot-P loading: |
| 2. Number nearshore homes _____ | a. Land Use _____ |
| 3. # nearshore homes/mile shore _____ | b. Precipitation _____ |
| 4. Volume lake/# nearshore homes _____ | c. Subsurface disposal _____ |
| | d. Other _____ |

II. INDICATORS OF TROPHIC CONDITION (mg/l unless indicated otherwise)

A. Winter Data:

Date February 4, 1976 Weather Overcast-light snow fall 20°F

Depth(m)	1.0	
Alkalinity	13.0	
PO ₄ -P	0.003	
Total-P	0.027	
NO ₂ +NO ₃ -N	0.38	
Kjeld-N	0.30	
Total-N	0.68	
Tot-N/Tot-P	25	
NO ₂ +NO ₃ -N/PO ₄ -P	127	

Bottom: Depth 20.0m D.O. 4.7 % Sat. 34

% Organic matter sediment 20.8

Dom. Phytopl. 1. very sparse-no dominants

2. _____

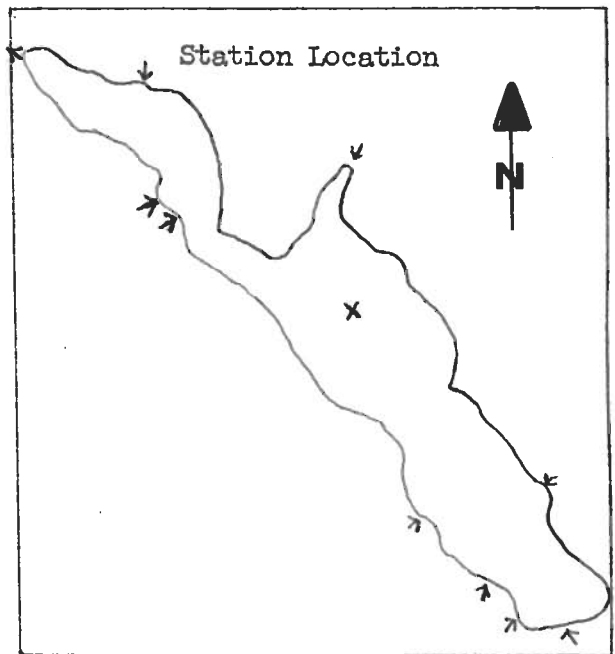
Dom. Zoopl. 1. Cyclopoid copepod - 60%

2. _____

B. Summer Data:

Date July 19, 1976 Weather Partly cloudy - windy

	Depth (m)	Mid-ep	Mid-therm	Mid-hyp
pH (units)		3.5	6.0	14.0
Alkalinity		7.3	6.9	6.3
PO ₄ -P		11.0	10.0	9.5
Total-P		<0.001	<0.001	0.002
NO ₂ +NO ₃ -N		0.020	0.020	0.022
Kjeld-N		0.06	0.06	0.22
Total Residue		0.30	0.31	0.30
Color (units)		50	-	-
Turb. (NTU)		35	35	40
Spec. Conduct. (μMhos/cm)		0.9	0.9	2.5
Tot. Org. Carbon		50.0	49.1	48.3
Chloride		6	-	-
Mg		5.1	4.8	4.3
Ca		0.73	-	-
Na		3.9	-	-
K		3.1	-	-
[Mg+Ca] / [Na+K]		0.4	-	-
Tot-N/Tot-P		1.32	-	-
NO ₂ +NO ₃ -N/PO ₄ -P		18	19	24
		-	-	110



Bottom: Depth 20.0m D.O. 0.2 % Sat. 2
 Epilimnetic alkalinity decrease 2.0
 PO₄-P ratio: epi/hyp <0.5
 Total-P ratio: epi/hyp 0.9
 Secchi disk transparency (M) 2.5
 % organic Matter sediment -

Vascular Plants Sparse
 Dom. Vasc. Plants: 1. Sedge (Cyperaceae)
 2. _____
 3. _____
 Ash-Free Dry Weight 1.2
 Chlorophyll a 6.13 (mg/m³)
 Tot. Zoopl. Cnts. 151 (cells/liter)
 Dom. Phytopl. 1. Tabellaria - 90%
 2. _____
 Dom. Zoopl. 1. Nauplius larva - 30%
 2. Polyarthra - 25%

TROPHIC CLASSIFICATION 1976 _____ :

	D.O.	S.D.	Vasc. Plants	Chl a	Total	Class.
Classification Points:	6	2	0	1	9	Meso.

COMMENTS:

TROPHIC CLASSIFICATION OF N.H. LAKES AND PONDS

NAME Mascoma Lake TOWN Enfield CO Grafton RIVER BASIN Connecticut
 Station # 2

I. POTENTIAL FOR NUTRIENT ENRICHMENT

A. NATURAL PHYSICAL FACTORS

- | | |
|---|--|
| 1. Area (ha) <u>451.20</u> | 10. Watershed area
Volume <u>10</u> |
| 2. Max. depth (m) <u>20.7</u> | 11. Bottom slope <u>0.9</u> |
| 3. Mean depth (m) <u>9.0</u> | 12. Shore config. <u>2.01</u> |
| 4. Elevation (ft) <u>751</u> | 13. Flushing rate <u>4.6</u> |
| 5. Shore length (m) <u>15,100</u> | 14. Water renewal time <u>0.2</u> |
| 6. Volume (m ³) <u>39,464,500</u> | 15. Drainage density <u>-</u> |
| 7. Volume/shore length <u>2,615</u> | 16. % Watershed ponded <u>2.2</u> |
| 8. % Stratification <u>40</u> | 17. Phos. retent. coeff. R <u>0.39</u> |
| 9. Watershed area (ha) <u>39,678.6</u> | |

B. CULTURAL FACTORS

- | | |
|--|---|
| 1. % Shore developed _____ | 5. Estimate of non-point Tot-P loading: |
| 2. Number nearshore homes _____ | a. Land Use _____ |
| 3. # nearshore homes/mile shore _____ | b. Precipitation _____ |
| 4. Volume lake/# nearshore homes _____ | c. Subsurface disposal _____ |
| | d. Other _____ |

II. INDICATORS OF TROPHIC CONDITION (mg/l unless indicated otherwise)

A. Winter Data:

Date February 4, 1976 Weather Overcast-light snow 21°F

Depth(m)	1.0	
Alkalinity	12.0	
PO ₄ -P	0.002	
Total-P	0.025	
NO ₂ +NO ₃ -N	0.29	
Kjeld-N	0.20	
Total-N	0.49	
Tot-N/Tot-P	20	
NO ₂ +NO ₃ -N/PO ₄ -P	145	

Bottom: Depth 9.75m D.O. 7.2 % Sat. 52

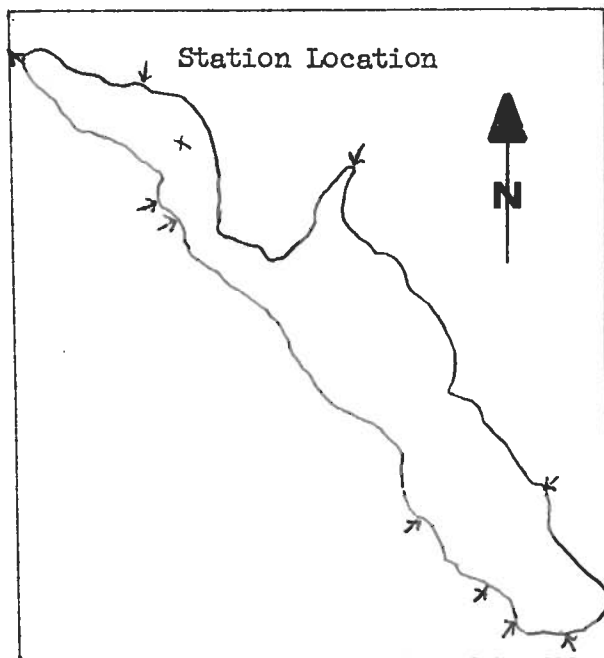
% Organic matter sediment 15.4

- Dom. Phytopl. 1. _____
 2. _____
 Dom. Zoopl. 1. _____
 2. _____

B. Summer Data:

Date July 19, 1979 Weather Clear-windy

	Mid-ep	Mid-therm	Mid-hyp
Depth (m)	4.0	6.0	8.5
pH (units)	7.2	6.5	6.2
Alkalinity	9.5	9.0	8.0
PO ₄ -P	<0.001	0.003	0.003
Total-P	0.021	0.018	0.024
NO ₂ +NO ₃ -N	0.14	0.08	0.25
Kjeld-N	0.29	0.29	0.23
Total Residue	51	-	-
Color (units)	30	35	40
Turb. (NTU)	1.1	0.9	3.6
Spec. Conduct. (μMhos/cm)	50.4	49.0	45.5
Tot. Org. Carbon	5	-	-
Chloride	5.3	4.4	3.6
Mg	0.73	-	-
Ca	3.8	-	-
Na	3.0	-	-
K	0.4	-	-
[Mg+Ca] / [Na+K]	1.33	-	-
Tot-N/Tot-P	21	21	20
NO ₂ +NO ₃ -N/PO ₄ -P	-	27	83



Bottom: Depth 9.5 m D.O. 0.0 % Sat. 0

Epilimnetic alkalinity decrease 2.5

PO₄-P ratio: epi/hyp 0.3

Total-P ratio: epi/hyp 0.9

Secchi disk transparency (M) 3.0

% organic Matter sediment -

Vascular Plants

- Dom. Vasc. Plants: 1. _____
 2. _____
 3. _____

Ash-Free Dry Weight 1.8

Chlorophyll a 6.31 (mg/m³)

Tot. Zoopl. Cnts. 182 (cells/liter)

- Dom. Phytopl. 1. Tabellaria - 90%
 2. _____

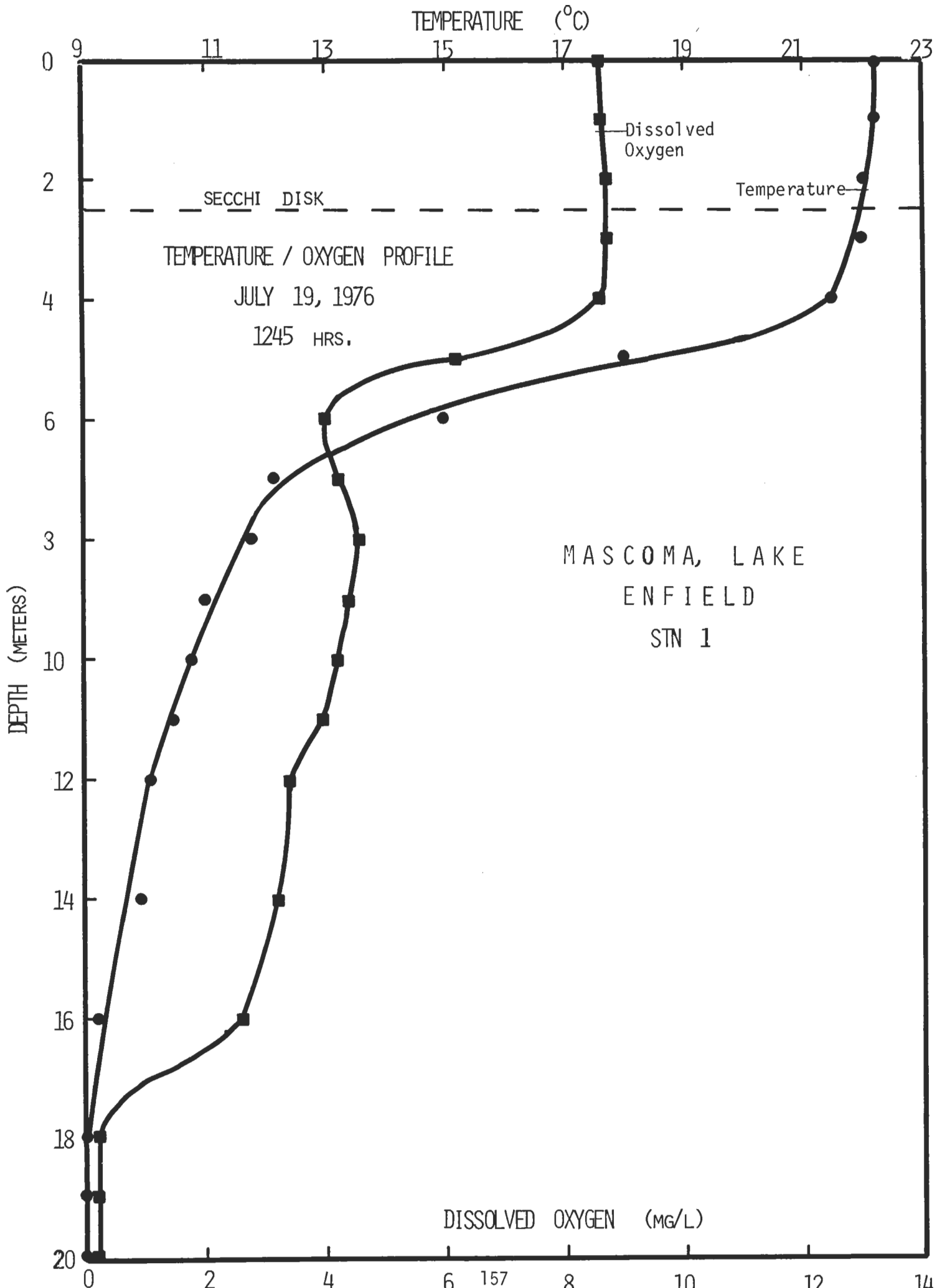
- Dom. Zoopl. 1. Nauplius larva, Polyarthra,
 2. and Kellicottia - 20%

TROPHIC CLASSIFICATION 1976 : Vasc. D.O. S.D. Plants Chl a Total Class.

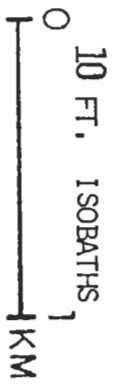
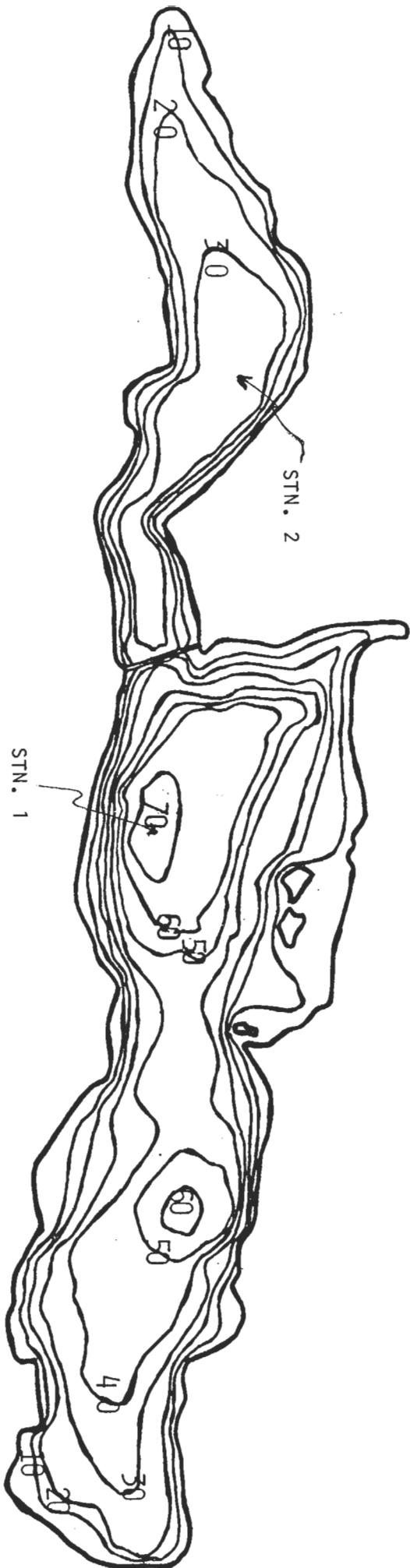
Classification Points:

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COMMENTS:

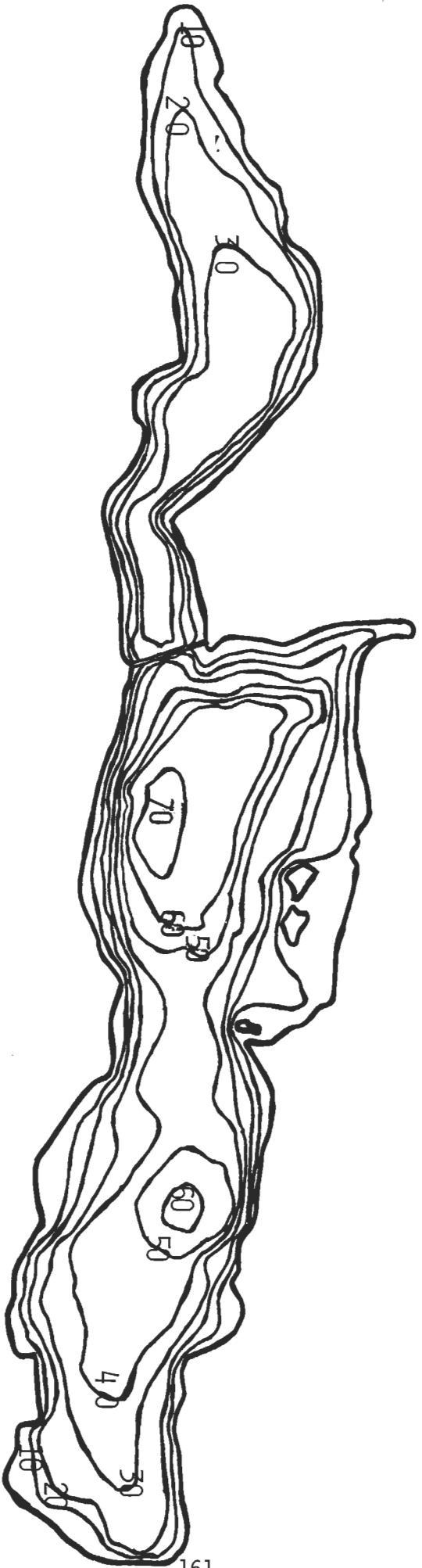
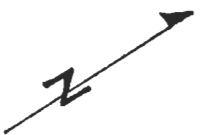


LAKE MASCOMA
ENFIELD



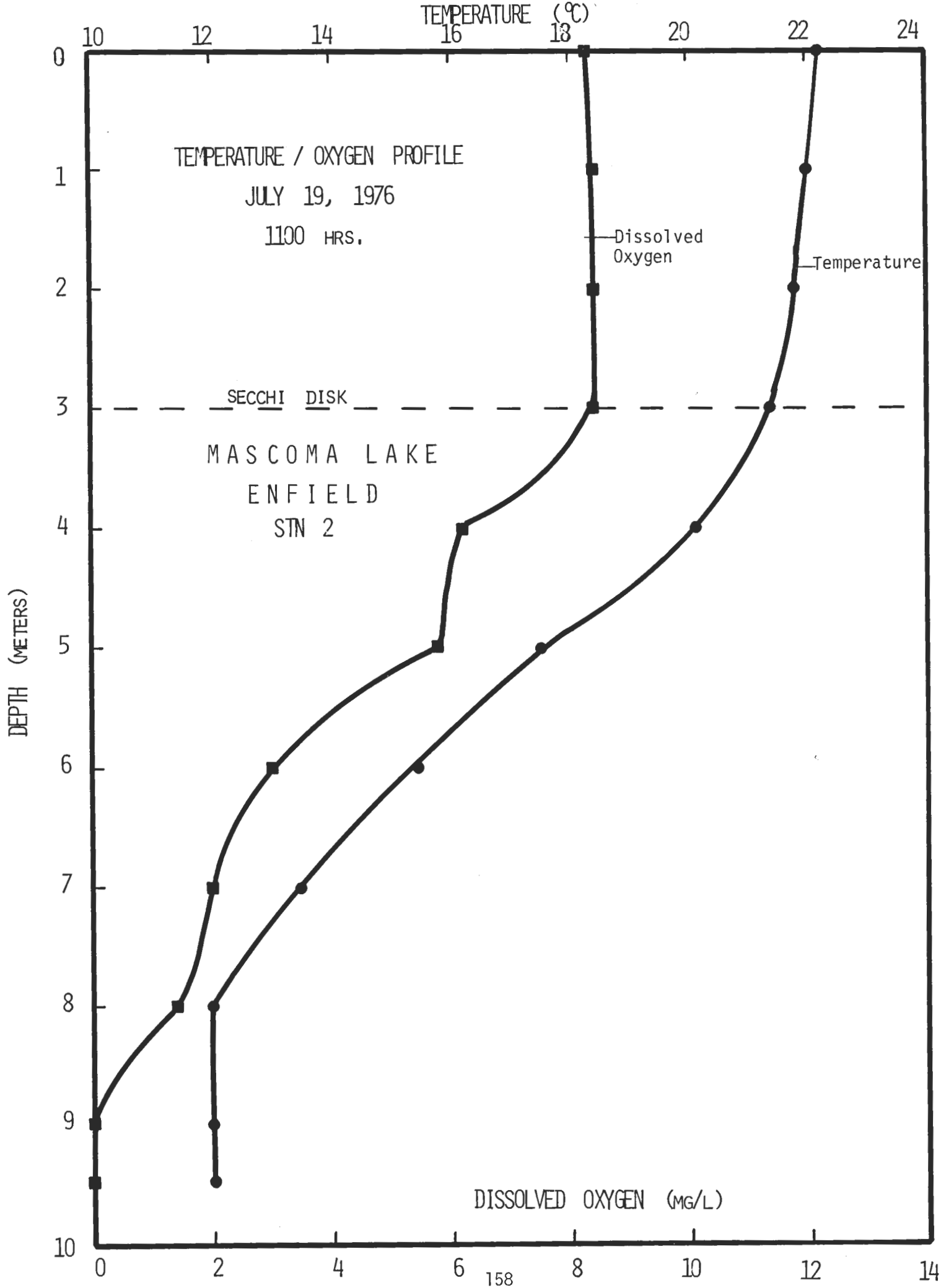
BATHYMETRIC CHART
U.S. CORPS. OF ENGINEERS - 1957

LAKE MASCOMA
ENFIELD



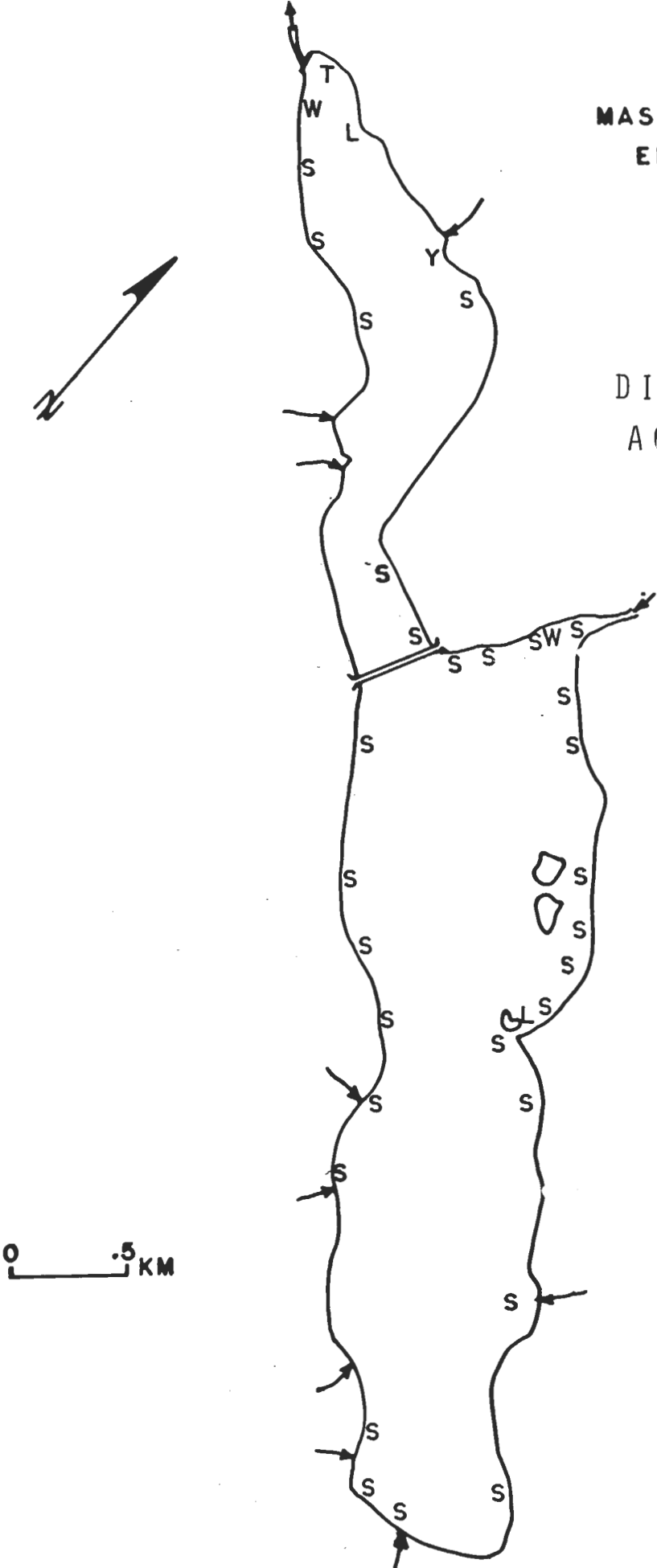
10 FT. ISOBATHS
1 KM

BATHYMETRIC CHART
U.S. CORPS. OF ENGINEERS - 1957



MASCOMA LAKE
ENFIELD

DISTRIBUTION OF
AQUATIC PLANTS
JULY 19, 1976



WATERSHED
MASCOMA LAKE
ENFIELD

