NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION

LAKE TROPHIC DATA

MORPHOMETRIC:

LAKE	Wash Pond	LAKE AREA (HA)	61.07
TOWN	Hampstead	MAXIMUM DEPTH (M)	9.4
COUNTY	Rockingham	MEAN DEPTH (M)	4.5
RIVER BASIN	Merrimack	VOLUME (M^3)	2770500
LATITUDE	42° 53' N	MUD SURFACE AREA (HA)	61.13
LONGITUDE	71° 11' W	RELATIVE DEPTH	1.1
ELEVATION (FT)	228	SHORE CONFIGURATION	.92
SHORE LENGTH (M)	2600	AREAL WATER LOAD (M/YR)	4.31
WATERSHED AREA (HA)	553.7	FLUSHING RATE (YR^{-1})	0.9
% WATERSHED PONDED	0	PHOSPHORUS RETENTION COEFF.	0.68

BIOLOGICAL: DATE	4 MAR 1985	23 AUG 1984
DOM. PHYTOPLANKTON (% total) 1	Dinobryon (50%)	Ceratium (85%)
2	Asterionella (45%)	
NUMBER OF ALGAL GENERA	5	11
SPECIES DIVERSITY	1.26	0.85
CHLOROPHYLL a (µg/L)		5.56
DOM. ZOOPLANKTON (% total) 1	Nauplii larvae (45%)	Polyarthra (40%)
2	Calanoid copepod (30%)	Kellicottia (20%)
ROTIFERS/LITER	4	215
MICROCRUSTACEA/LITER	37	58
TOTAL ZOOPLANK. CNTS (cells/L)	41	281
VASCULAR PLANT ABUNDANCE		Sparse
DOMINANT VASCULAR PLANTS 1		Potamogeton
2		
3		
SECCHI DISK TRANSPARENCY (M)		4.0
BOTTOM DISS. OXYGEN (mg/L)	11.3	0.2
SEDIMENT: % ORGANIC MATTER		

LAKE TYPE: A natural pond raised by damming.

SUMMER THERMAL STRATIFICATION: YES X NO ____ WEAK ____

IF YES, VOLUME OF HYPOLIMNION 131,000 (m^3) THERMOCLINE DEPTH 6.0 (m)

CHEMICAL: (mg/L unless indicated otherwise) LAKE: Wash Pond

	WINTER		SUMMER		
DATE	4 MAR 1985		23 AUG 1984		
DEPTH (M)	3.0	6.0	2.5	6.0	8.5
pH (UNITS)	6.9	6.9	7.1	6.7	6.6
ALKALINITY (I. P.)	11.0	11.2	10.5	10.9	15.1
ALKALINITY (F.E.P.)	12.4	12.7	12.2	12.6	16.8
NITRITE+NITRATE NITROGEN					
TOTAL KJELDAHL NITROGEN					
TOTAL PHOSPHORUS	0.011	0.010	.013	.018	.038
SPEC. CONDUCT. (µMhos/cm)	122.0	126.6	118.9	118.5	122.3
APPARENT COLOR (UNITS)	10	10	20	20	35
TRUE COLOR (440 nm)(UNITS)	11	13	10	14	17
MAGNESIUM			1.6		
CALCIUM			7.0		
SODIUM			11		
POTASSIUM			1.2		
CHLORIDE			21		21
TN : TP					
INORG-N : INORG-P					
[Mg+Ca] : [Na+K]			.70		
CALCITE SATURATION INDEX			2.3		

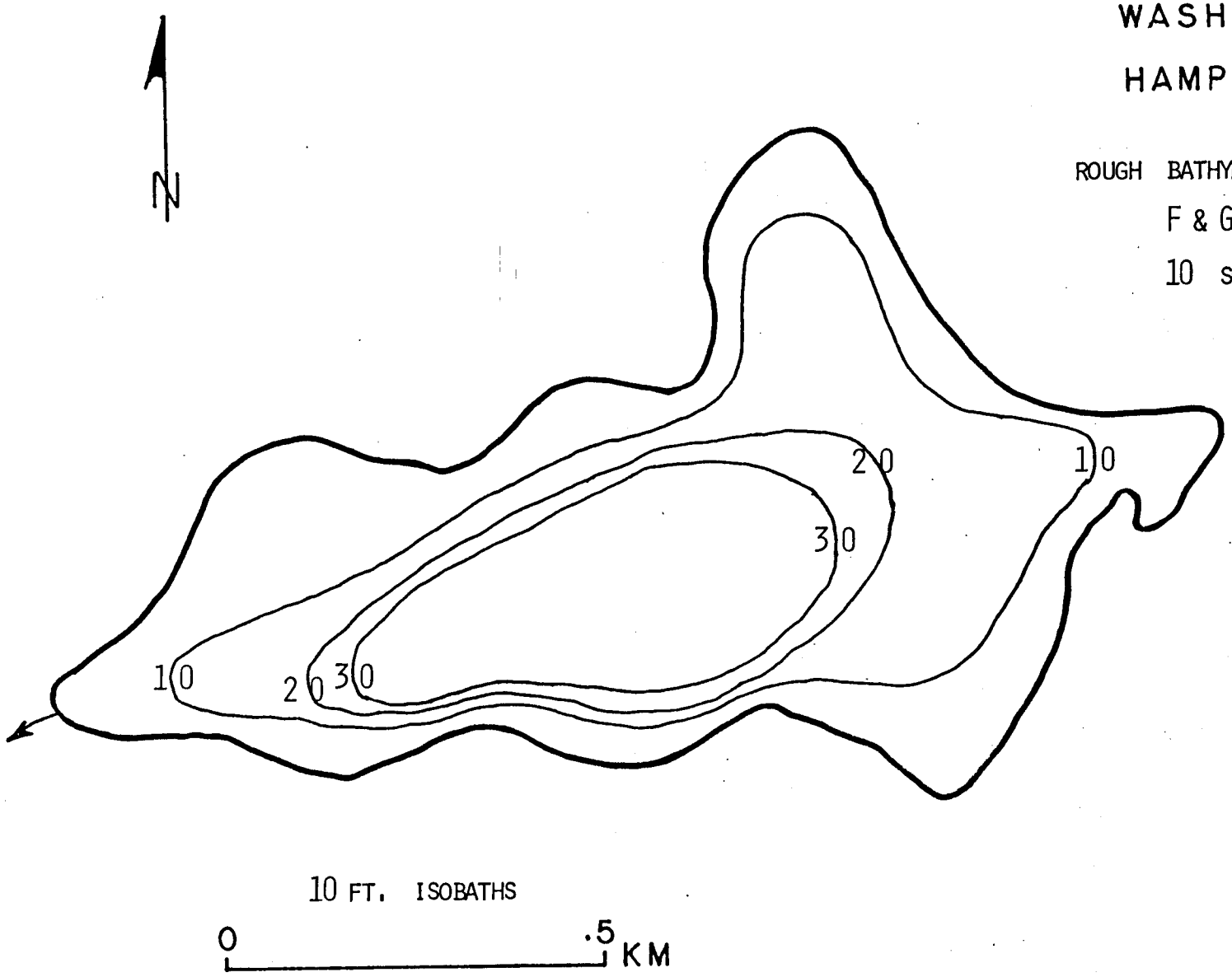
* = NOT DEFENSIBLE NR = NO RESULT

TROPHIC CLASSIFICATION: 1984

	D.O.	S.D.	PLANT ABUND.	CHL a	TOTAL PTS.	TROPHIC CLASS.
CLASSIFICATION POINTS:	6	1	0	1	8	MESO.

COMMENTS:

1. Also called Sunset Lake.
2. This pond was previously surveyed in 1976; there was no change in the trophic points since then. Plants were not re-surveyed in 1984.
3. The shoreline was very developed.
4. During the summer, an *Oscillatoria* bloom was observed in the mid-hypolimnion sample (8.5 meters); *Ceratium* was abundant along the thermocline.


WASH POND
HAMPSTEAD
ROUGH BATHYMETRIC CHART
F & G - 1938
10 SOUNDINGS
N
10
20
30
10
20
30
10
10 FT. ISOBATHS
0
.5
KM

FIELD DATA SHEET

WATER BODY Wash Pond TOWN Hampstead BY WSPCC

DATE COLLECTED 23 August 1984 WEATHER Overcast, scattered showers

STATION	DEPTH (M)	TEMP. (°C)	*DISSOLVED OXYGEN	OXYGEN: % SATURATION			
Deep Spot	0.0	23.6	7.9	92%			
	1.0	23.5	7.9				
	2.0	23.4	7.9				
	3.0	23.2	7.9				
	4.0	22.8	7.4				
	5.0	22.0	6.9				
	6.0	17.8	4.0				
	7.0	14.4	0.3				
	8.0	12.5	0.2				
	9.0	12.1	0.2	2%			

SECCHI DISK (M) 4.0

BOTTOM DEPTH (M) 10.3

TIME 1015

COMMENTS:

* Dissolved oxygen values in mg/L

TROPHIC CLASSIFICATION OF N.H. LAKES AND PONDS

NAME Wash Pond TOWN Hampstead CO Rockingham RIVER BASIN Merrimack

I. POTENTIAL FOR NUTRIENT ENRICHMENT

A. NATURAL PHYSICAL FACTORS

1. Area (ha) 61.07
2. Max. depth (m) 10.1
3. Mean depth (m) 4.5
4. Elevation (ft) 228
5. Shore length (m) 2,600
6. Volume (m^3) 2,770,000
7. Volume/shore length 1,065
8. % Stratification 18
9. Watershed area (ha) 553.7
10. Watershed area / Volume 2
11. Bottom slope 1.1
12. Shore config. 0.92
13. Flushing rate 0.9
14. Water renewal time 1.1
15. Drainage density -
16. % Watershed ponded 0
17. Phos. retent. coeff. R 0.68

B. CULTURAL FACTORS

1. % Shore developed 95% (1963)
2. Number nearshore homes
3. # nearshore homes/mile shore
4. Volume lake/# nearshore homes
5. Estimate of non-point Tot-P loading:
   a. Land Use
   b. Precipitation
   c. Subsurface disposal
   d. Other

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

A. Winter Data:

Date February 25, 1976 Weather Partly cloudy - mild - no wind

Depth(m)	1.0	
Alkalinity	13.0	
PO_4-P	0.001	
Total-P	0.005	
NO_2+NO_3-N	0.23	
Kjeld-N	0.27	
Total-N	0.50	
Tot-N/Tot-P	100	
NO_2+NO_3-N/PO_4-P	230	

Bottom: Depth 9.2 m D.O. 9.3 % Sat. 72

% Organic matter sediment 25.9

Dom. Phytopl. 1. Asterionella - 90%
2.

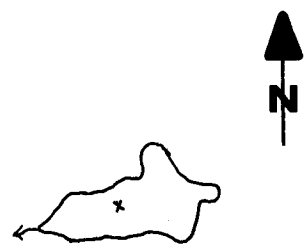
Dom. Zoopl. 1. Nauplius larva - 45%
2. Calanoid copepod - 30%

B. Summer Data:

Date July 22, 1976 Weather 20% cloud cover; warm - light breeze

	Mid-ep	Mid-therm	Mid-hyp
Depth (m)	1.8	5.4	7.9
pH (units)	7.2	6.6	6.4
Alkalinity	15.0	13.5	17.0
PO_4-P	0.002	0.002	0.002
Total-P	0.009	0.009	0.010
NO_2+NO_3-N	0.05	0.05	0.03
Kjeld-N	0.32	0.32	0.21
Total Residue	35	-	-
Color (units)	25	25	30
Turb. (NTU)	0.8	1.1	0.9
Spec. Conduct. (μMhos/cm)	107.1	106.9	103.7
Tot. Org. Carbon	4	-	-
Chloride	18.0	20.5	16.9
Mg	1.4	-	-
Ca	4.5	-	-
Na	10.3	-	-
K	0.9	-	-
[Mg+Ca] / [Na+K]	0.53		
Tot-N/Tot-P	41	41	24
NO_2+NO_3-N/PO_4-P	25	25	15

Station Location



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

Epilimnetic alkalinity decrease -2.0

PO_4-P ratio: epi/hyp 1.0

Total-P ratio: epi/hyp 0.9

Secchi disk transparency (M) 3.9

% organic Matter sediment 25.3

Vascular Plants Sparse

Dom. Vasc. Plants: 1. Potamogeton
2.
3.

Ash-Free Dry Weight <1.0

Chlorophyll a 4.98 (mg/m^3)

Tot. Zoopl. Cnts. 669 (cells/liter)

Dom. Phytopl. 1. Ceratium - 45%
2. Dinobryon - 25%

Dom. Zoopl. 1. Vorticella (on Anabaena)(55%)
2. Nauplius larva - 15%

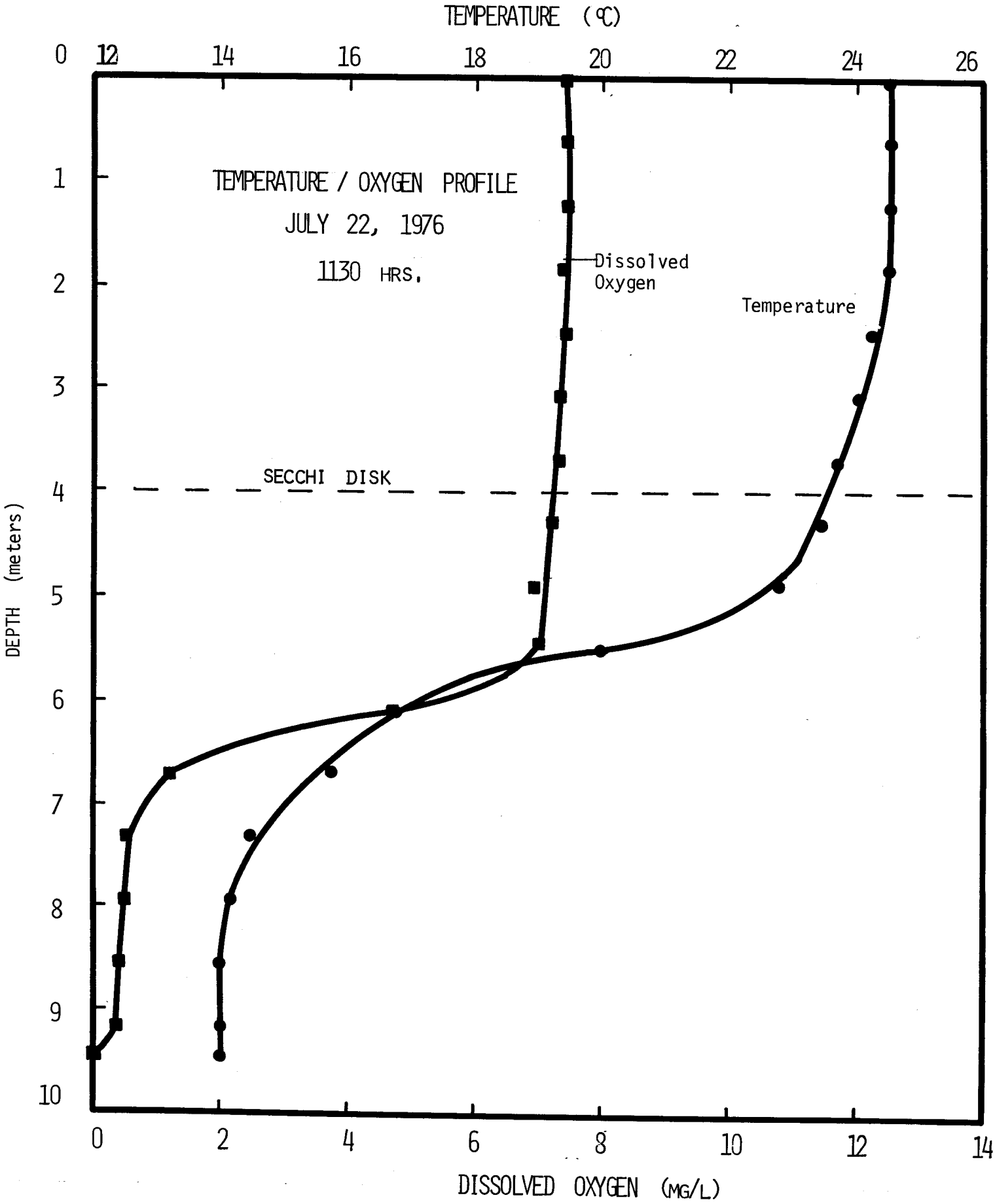
TROPHIC CLASSIFICATION 1976 :

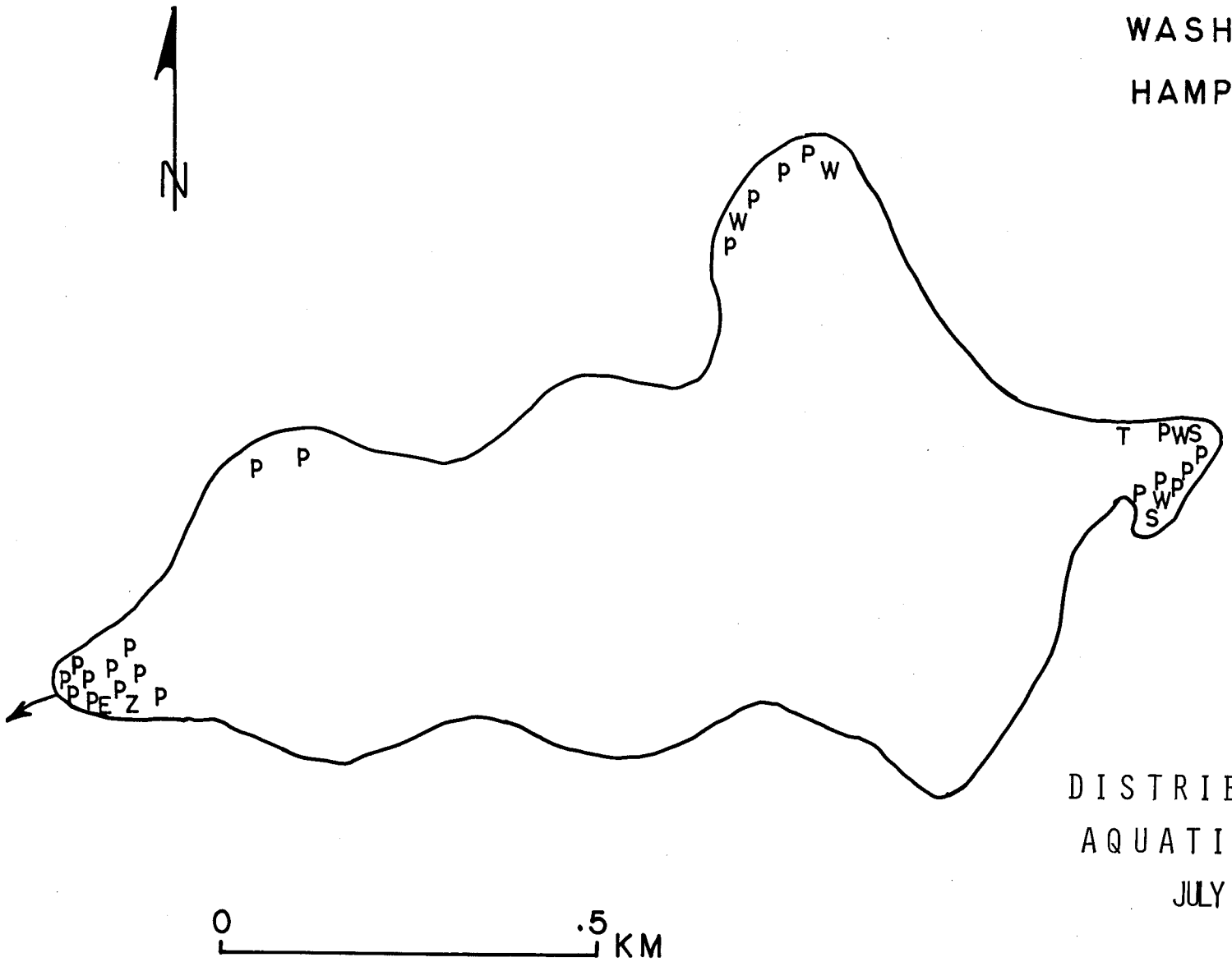
	D.O.	S.D.	Vasc. Plants	Chl a	Total	Class.
Classification Points:	6	1	0	1	8	Meso.

COMMENTS:

1. Lake extremely developed (99%); many areas with more than one row of camps.
2. Vascular plants sparse; may be due to hand removal since lake is so developed.
3. Some blue-greens present; nutrients from over-development may cause algal problems since very few vascular plants present to complete for the nutrients.
4. Much weekday use of the lake.

WASH POND, HAMPSTEAD





DISTRIBUTION OF
AQUATIC PLANTS
JULY 22, 1976

AQUATIC PLANT SURVEY

LAKE Wash Pond TOWN Hampstead DATE July 22, 1976 BY WSPCC

No.	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
P	Pontederia	Pickerelweed	Sparse
P	Potamogeton	Pondweed	Common
W	Nymphaea	Water Lily	Sparse
S	Cyperaceae	Sedge	Sparse
T	Typha	Cattail	Sparse
E	Eriocaulon	Pipewort	Sparse
Z	Zygnema	Filamentous Algae	Sparse

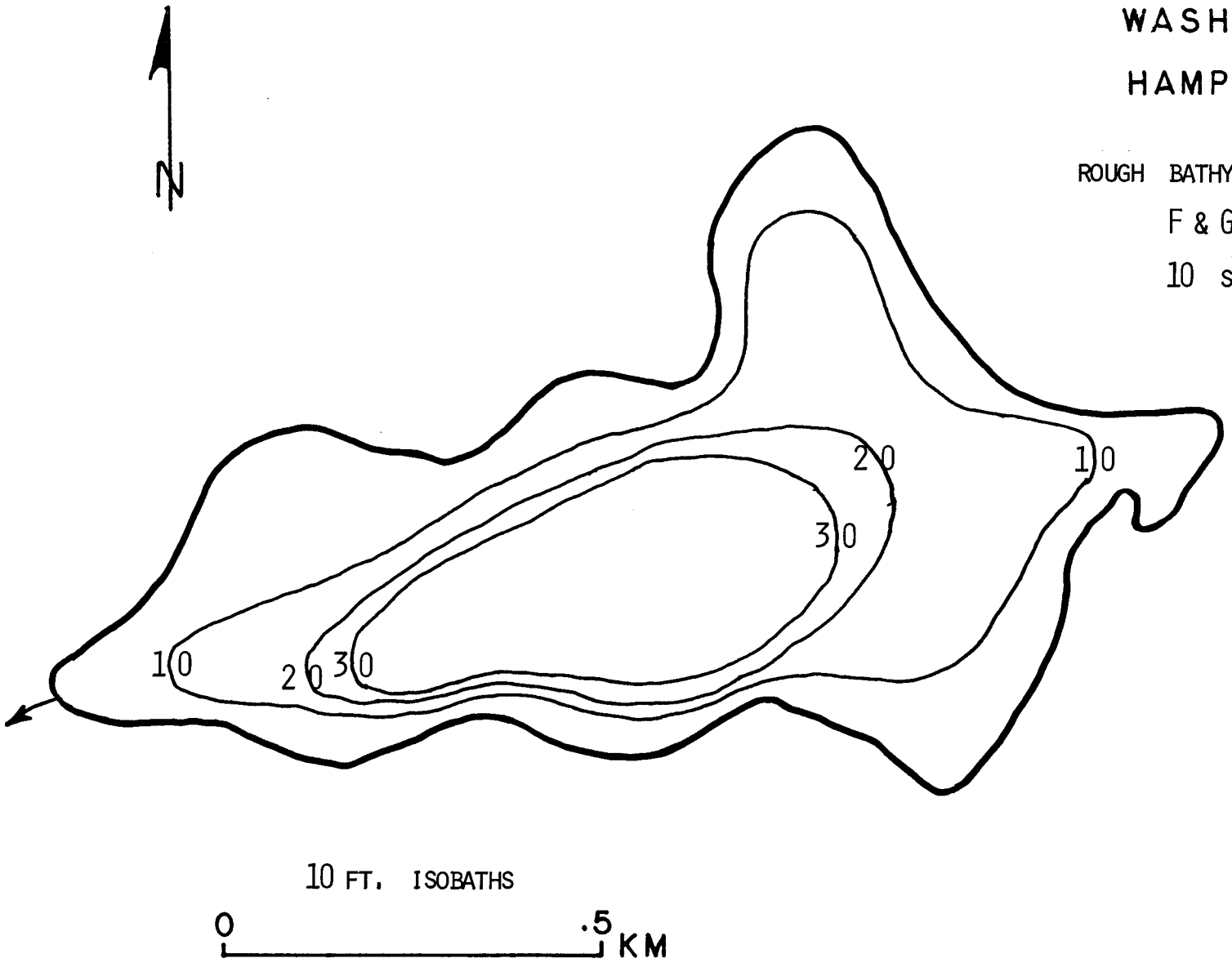
OVERALL ABUNDANCE Sparse

GENERAL OBSERVATIONS:

1. Wash Pond extremely developed (99%); many places with more than one row of camps.

2. Pondweeds were common-all other rooted aquatics were sparse-probably much of it hand removed.

3. Seems to be a great deal of weekday use.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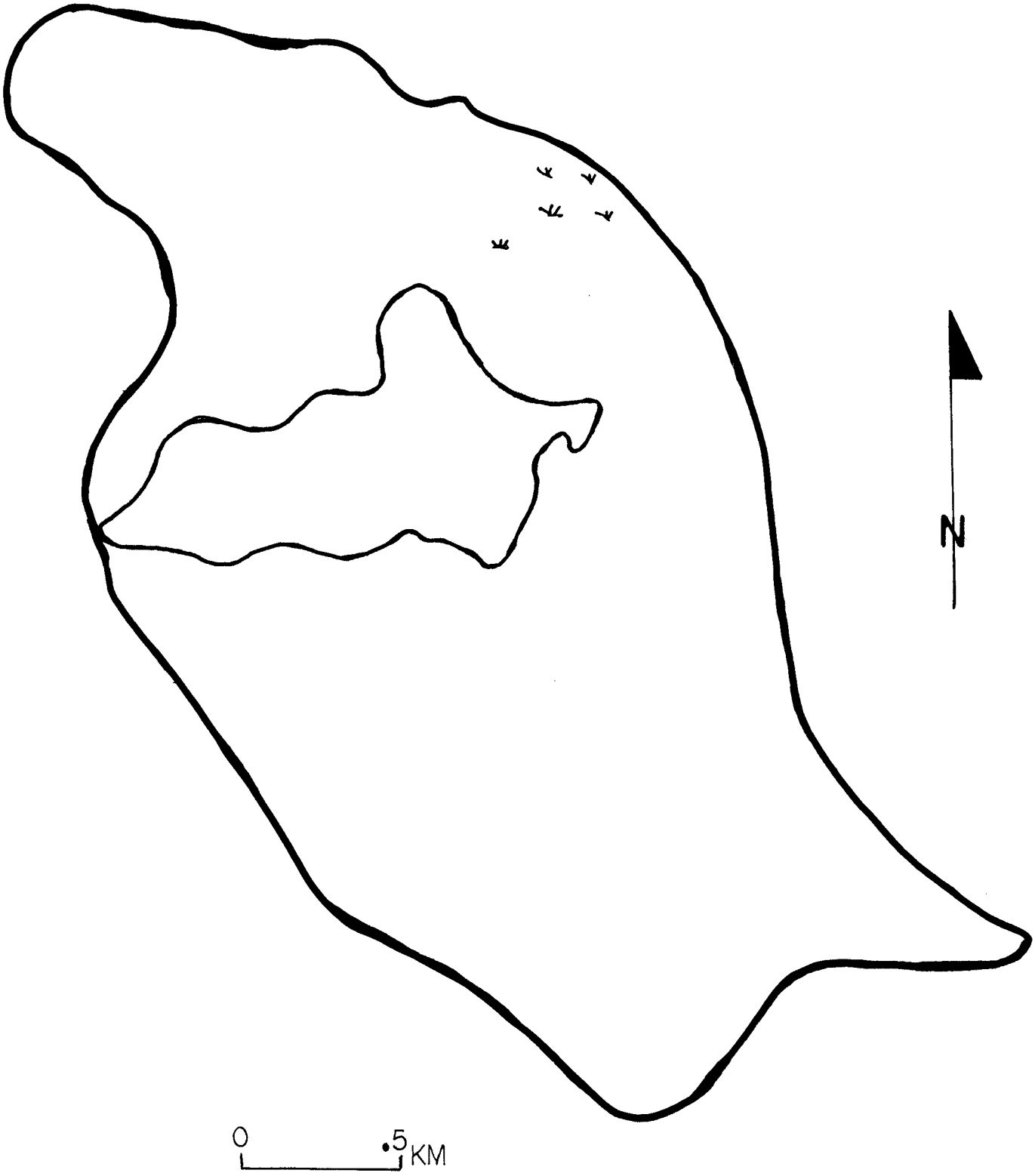
WATERSHED
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HAMPSTEAD