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

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	MASSASECUM, LAKE	Lake Area (ha):	162.69
Town:	BRADFORD	Maximum depth (m):	15.2
County:	Merrimack	Mean depth (m):	3.9
River Basin:	Merrimack	Volume (m^3):	6420000
Latitude:	43°15' N	Relative depth:	1.1
Longitude:	71°55' W	Shore configuration:	1.42
Elevation (ft):	631	Areal water load (m/yr):	7.58
Shore length (m):	6400	Flushing rate (yr^{-1}):	1.90
Watershed area (ha):	2446.0	P retention coeff.:	0.59
% watershed ponded:	0.0	Lake type:	natural

BIOLOGICAL:	3 March 1988	23 July 1987
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 80%	DINOBRYON 60%
#2		CHRYSOSPHAERELLA 20%
#3		TABELLARIA 15%
PHYTOPLANKTON ABUNDANCE (cells/mL)		945.0
CHLOROPHYLL-A (µg/L)		4.05
DOM. ZOOPLANKTON (% TOTAL) #1	SYNCHAETA 50%	KELLICOTTIA 23%
#2		KERATELLA 23%
#3		NAUPLII LARVAE 17%
ROTIFERS/LITER	20	74
MICROCRUSTACEA/LITER	2	37
ZOOPLANKTON ABUNDANCE (#/L)	26	111
VASCULAR PLANT ABUNDANCE		Common
SECCHI DISK TRANSPARENCY (m)		5.9
BOTTOM DISSOLVED OXYGEN (mg/L)	9.0	0.8
BACTERIA (fecal col., #/100 ml) #1		< 10
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 4.6
Hypolimnion volume (m^3): 368500

CHEMICAL:

Lake: MASSASECUM, LAKE
Town: BRADFORD

	3 March 1988		23 July 1987		
DEPTH (m)	4.0	8.0	2.0	7.0	13.0
pH (units)	6.0	6.0	6.6	6.0	5.9
A.N.C. (Alkalinity)	4.1	4.1	2.7	3.2	3.2
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.22	0.22	0.17	0.25	0.42
TOTAL PHOSPHORUS	0.003	0.002	0.007	0.012	0.012
CONDUCTIVITY (μ mhos/cm)	40.7	42.7	35.2	33.6	36.5
APPARENT COLOR (cpu)	13	14	14	31	26
MAGNESIUM			0.32		
CALCIUM			2.1		
SODIUM			3.5		
POTASSIUM			0.50		
CHLORIDE	5	5	5		4
SULFATE	5	5	5		5
TN : TP	73	110	24		35
CALCITE SATURATION INDEX			3.9		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1987

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	1	2	0	7	Meso.

COMMENTS:

1. This lake was previously surveyed and classified in 1978. There was no change in trophic state.
2. Green algae (55%) and diatoms (20%) were the dominant families in the whole-water phytoplankton community. Tiny green flagellates were the dominant genera (55%).

Plant comments (cont. from plant sheet):

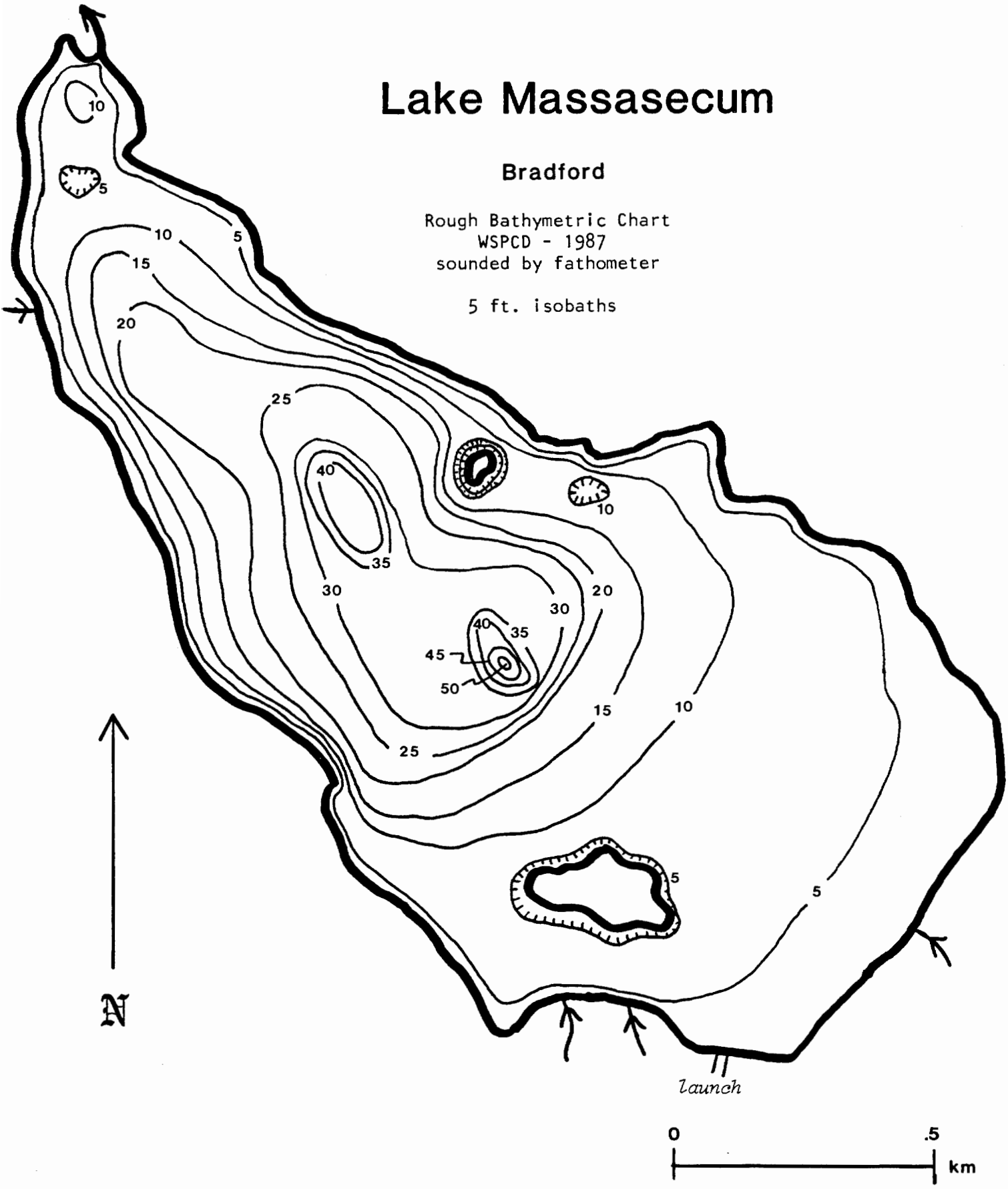
4. *Sclerolepsis* was common, particularly at the southern end. This plant is found from Florida to Massachusetts, but rarely north of Massachusetts. It is not known to be in any other New Hampshire lake, but has been in Massasecum for many years.
5. Freshwater clams were common in the sandy area at the southeast end of the lake. Sponges were also observed.

Lake Massasecum

Bradford

Rough Bathymetric Chart
WSPCD - 1987
sounded by fathometer

5 ft. isobaths



FIELD DATA SHEET

LAKE: MASSASECUM, LAKE
DATE: 07/23/87

TOWN: BRADFORD
WEATHER: MOSTLY SUNNY, BREEZY

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	26.0	8.3	101 %
	1.0	25.4	8.4	100 %
	2.0	24.7	8.4	98 %
	3.0	24.3	8.3	97 %
	4.0	23.1	7.9	89 %
	5.0	19.8	6.7	72 %
	6.0	17.0	4.1	42 %
	7.0	15.3	2.8	27 %
	8.0	12.8	2.3	21 %
	9.0	11.6	1.8	16 %
	10.0	11.1	1.8	16 %
	11.0	10.0	1.8	9 %
	12.0	9.2	1.3	11 %
	13.0	9.0	1.0	9 %
	14.0	8.8	0.9	7 %
	14.5	8.8	0.8	7 %

SECCHI DISK (m): 5.9

BOTTOM DEPTH (m): 15.0

TIME: 1250

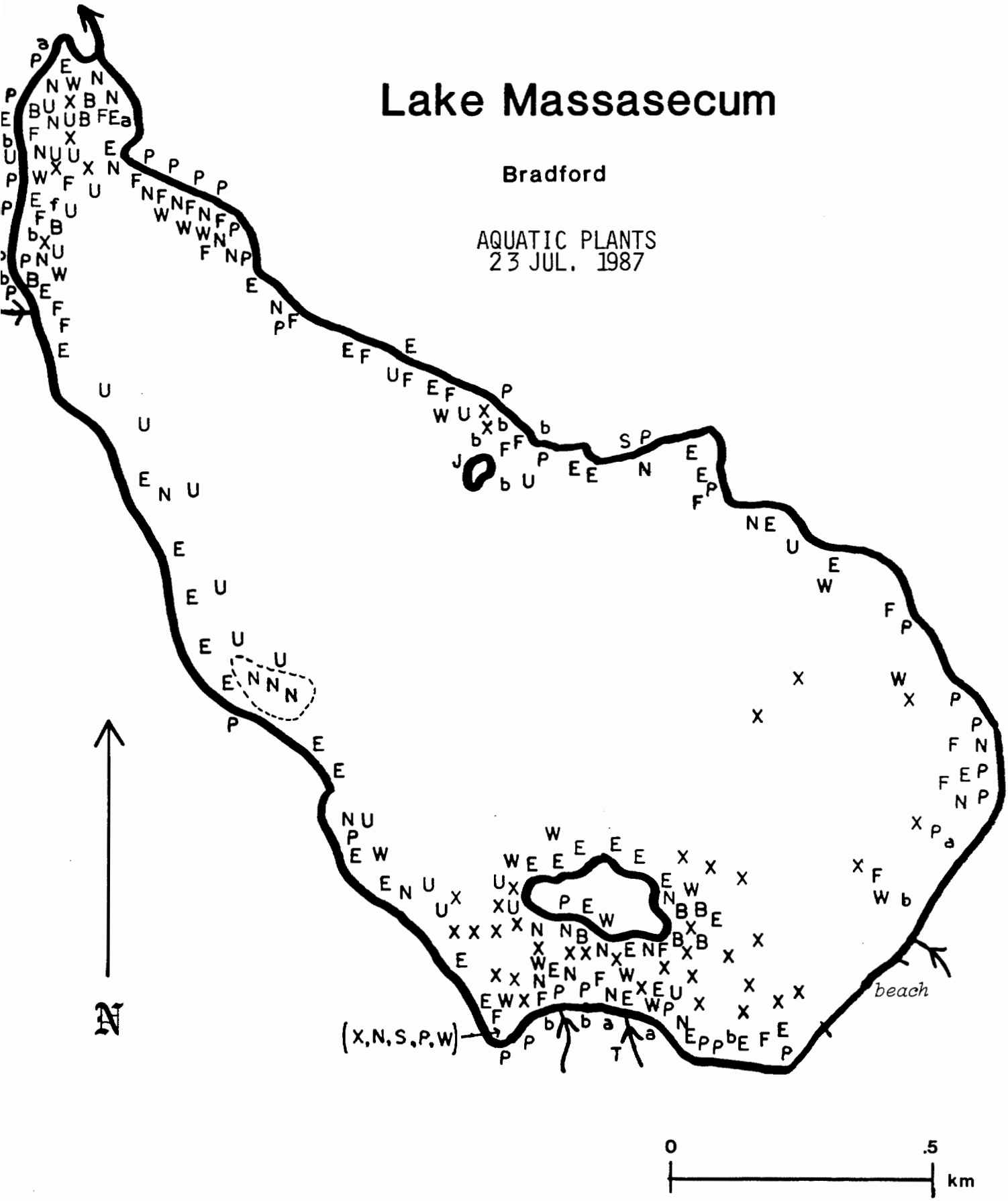
COMMENTS:

*Dissolved oxygen values are in mg/L

Lake Massasecum

Bradford

AQUATIC PLANTS
23 JUL. 1987



AQUATIC PLANT SURVEY

LAKE: MASSASECUM, LAKE TOWN: BRADFORD DATE: 07/23/87

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
E	Eriocaulon septangulare	Pipewort	Common
N	Nymphaea	White water lily	Common
B	Brasenia schreberi	Water shield	Common
U	Utricularia	Bladderwort	Common
X	Sclerolepsis uniflora		Common
a	Peltandra virginica	Arrow arum	Sparse
F	Nymphoides cordatum	Floating heart	Common
W	Potamogeton	Pondweed	Sparse
J	Juncus	Rush	Sparse
b	Scirpus	Bulrush	Scattered
f	Chlorophyceae	Filamentous green algae	Sparse
T	Typha	Cattail	Sparse
P	Pontederia cordata	Pickerelweed	Common

OVERALL ABUNDANCE: Common

GENERAL OBSERVATIONS:

1. Plants were abundant at the outlet and at the southern end between the island and shore.
2. Bottom growth was present nearly everywhere the bottom was visible. The overall rating of common was based on the emergent/floating vegetation.
3. Parts of the northeastern shoreline were too rocky to get in close to do a proper plant survey.
4. See trophic sheet for plant comments #4 & 5.