DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	WINNIPESAUKEE, BROADS	Lake Area (ha):	18043.40
Town:	GILFORD	Maximum depth (m):	54.9
County:	Belknap	Mean depth (m):	13.1
River Basin:	Merrimack	Volume (m^3):	2375841000
Latitude:	43°35'56" N	Relative depth:	0.4
Longitude:	71°19'23" W	Shore configuration:	8.11
Elevation (ft):	504	Areal water load (m/yr):	2.63
Shore length (m):	386200	Flushing rate (yr^{-1}):	0.20
Watershed area (ha):	87128.8	P retention coeff.:	---
% watershed ponded:	4.2	Lake type:	natural

BIOLOGICAL:		10 September 2001
DOM. PHYTOPLANKTON (% TOTAL) #1		CHRYSOSPHAERELLA 20%
#2		DINOBRYON 20%
#3		RHIZOSOLENIA 20%
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		2.16
DOM. ZOOPLANKTON (% TOTAL) #1		KERATELLA 35%
#2		CILIATE SPP 14%
#3		COLLOTHECA 13%
ROTIFERS/LITER		75
MICROCRUSTACEA/LITER		16
ZOOPLANKTON ABUNDANCE (#/L)		112
VASCULAR PLANT ABUNDANCE		
SECCHI DISK TRANSPARENCY (m)		9.8
BOTTOM DISSOLVED OXYGEN (mg/L)		6.7
BACTERIA (E. coli, #/100 ml) #1		< 1
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 12.0
Hypolimnion volume (m^3) :
Anoxic volume (m^3) : None

CHEMICAL:

Lake: WINNIPESAUKEE, BROADS
Town: GILFORD

			10 September 2001		
DEPTH (m)			5.0	12.0	38.0
pH (units)			7.1	6.9	6.5
A.N.C. (Alkalinity)			6.4	6.6	6.2
NITRATE NITROGEN			< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN			0.30	0.20	0.20
TOTAL PHOSPHORUS			<0.005	0.005	0.005
CONDUCTIVITY (µmhos/cm)			65.3	65.3	65.2
APPARENT COLOR (cpu)			8	8	8
MAGNESIUM			0.60		
CALCIUM			3.4		
SODIUM			6.9		
POTASSIUM			0.67		
CHLORIDE			11		11
SULFATE			4		4
TN : TP					40
CALCITE SATURATION INDEX			2.9		

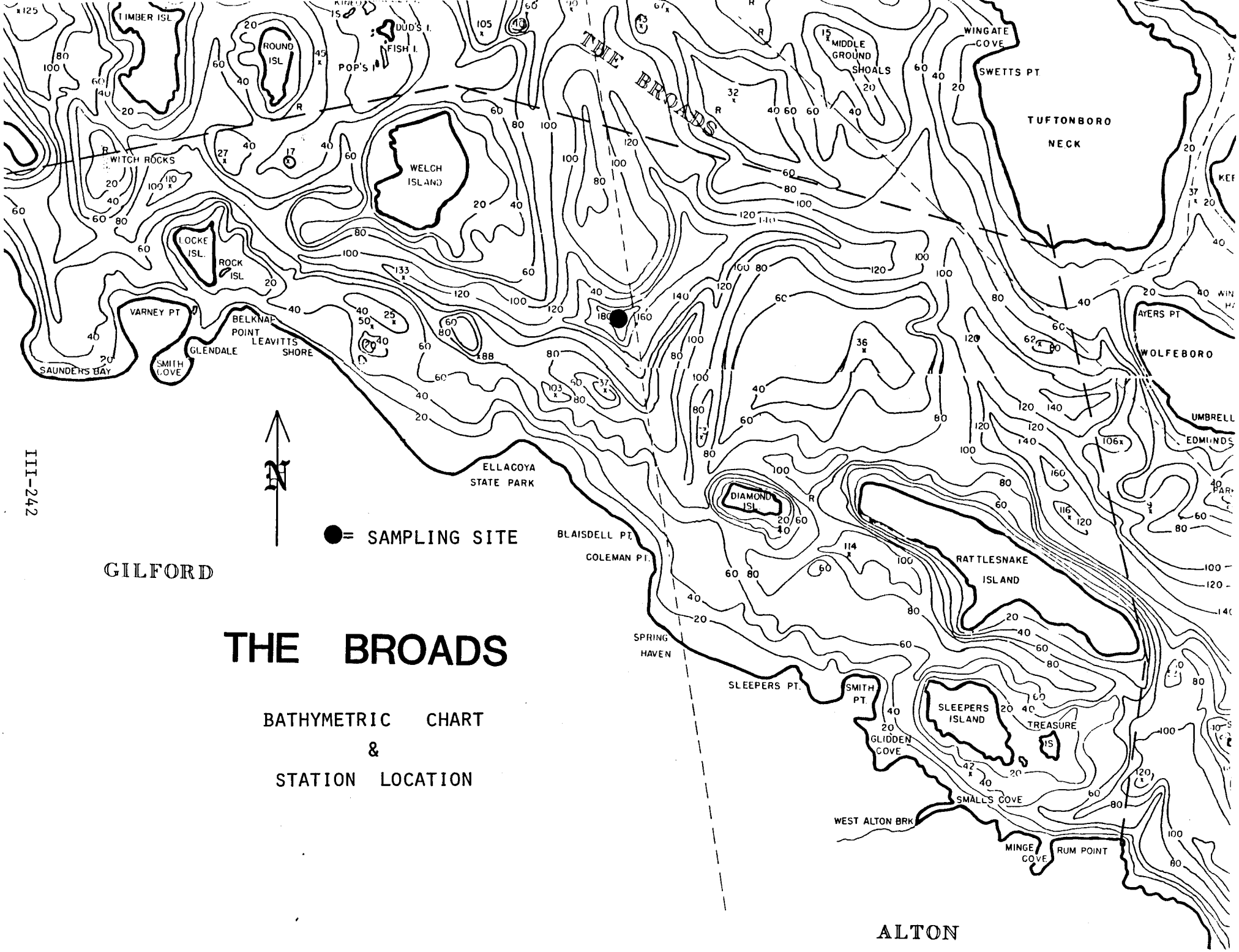
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2001

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
0	0	0	0	0	Oligo.

COMMENTS:

1. Previously surveyed in 1979, 1984 and 1990.
2. No plant survey was conducted in 2001. Plant abundance for trophic classification is from the 1990 survey.
3. No winter samples were collected. The lake never froze solid during the winter.
4. No depth soundings were conducted. The thermocline depth is from the 2001 survey but all volume, depth and flushing rate values are based on the 1974 EPA report.



THE BROADS

BATHYMETRIC CHART
&
STATION LOCATION

FIELD DATA SHEET

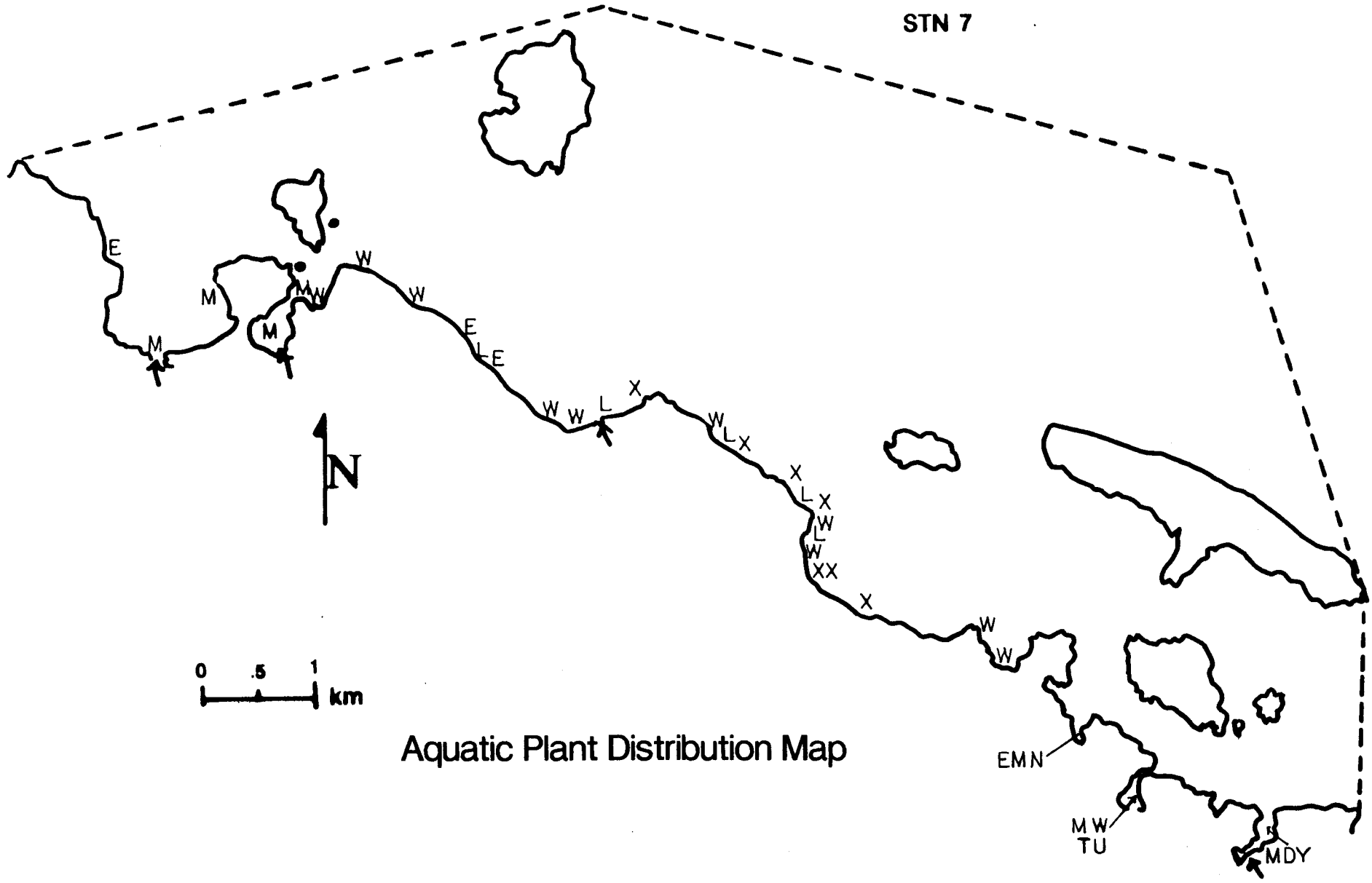
LAKE: WINNIPESAUKEE, BROADS TOWN: GILFORD
DATE: 09/10/2001 WEATHER: Sunny, warm & light breeze

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	22.1	8.5	98 %
	2.0	21.9	8.5	97 %
	4.0	21.6	8.4	95 %
	6.0	21.4	8.5	96 %
	8.0	21.2	8.5	96 %
	9.0	21.2	8.4	94 %
	10.0	21.1	8.5	95 %
	11.0	20.9	8.5	95 %
	12.0	18.7	8.3	89 %
	13.0	15.8	8.3	83 %
	14.0	15.1	8.1	81 %
	16.0	14.3	7.8	76 %
	18.0	13.4	7.8	74 %
	20.0	13.0	7.7	73 %
	25.0	12.0	7.7	71 %
	30.0	11.7	7.4	68 %
	35.0	11.4	7.3	67 %
	40.0	10.9	7.3	66 %
	45.0	10.5	7.0	63 %
	49.0	10.2	6.7	60 %

SECCHI DISK (m): 9.8 COMMENTS:
BOTTOM DEPTH (m): 49.5
TIME: 1225

*Dissolved oxygen values are in mg/L

LAKE WINNIPESAUKEE
THE BROADS



Aquatic Plant Distribution Map

AQUATIC PLANT SURVEY

LAKE: WINNIPESAUKEE, BROADS TOWN: GILFORD DATE: 07/24/90

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
P	Pontederia cordata	Pickerelweed	Sparse
W	Potamogeton	Pondweed	Sparse
N	Nymphaea	White water lily	Sparse
Y	Nuphar	Yellow water lily	Sparse
X		Bottom growth	Scattered
M	Myriophyllum heterophyllum	Water milfoil	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
S	Sparganium	Bur reed	Sparse
T	Typha	Cattail	Sparse
U	Utricularia	Bladderwort	Sparse
D	Decodon verticillatus	Swamp loosestrife	Sparse
B	Brasenia schreberi	Water shield	Sparse
L		Sterile thread-like leaf	Sparse

OVERALL ABUNDANCE: Sparse

GENERAL OBSERVATIONS:

1. Dense stands of milfoil were growing in Smith Cove and Mt. View marina (at the inlet to Saunders Bay). Milfoil was also locally abundant in Minge and Smalls Coves.