DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	WINNIPESAUKEE, ALTON BAY	Lake Area (ha):	18043.40
Town:	ALTON	Maximum depth (m):	54.9
County:	Belknap	Mean depth (m):	13.1
River Basin:	Merrimack	Volume (m^3):	2375841000
Latitude:	43°30'55" N	Relative depth:	0.4
Longitude:	71°15'35" 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:		14 August 2001
DOM. PHYTOPLANKTON (% TOTAL) #1		CHRYSOSPHAERELLA 55%
#2		ASTERIONELLA 15%
#3		DINOBRYON 15%
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		1.07
DOM. ZOOPLANKTON (% TOTAL) #1		KERATELLA 39%
#2		COLLOTHECA 15%
#3		NAUPLIUS LARVA 12%
ROTIFERS/LITER		75
MICROCRUSTACEA/LITER		20
ZOOPLANKTON ABUNDANCE (#/L)		109
VASCULAR PLANT ABUNDANCE		
SECCHI DISK TRANSPARENCY (m)		11.0
BOTTOM DISSOLVED OXYGEN (mg/L)		8.4
BACTERIA (E. coli, #/100 ml) #1		
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 11.3
Hypolimnion volume (m^3) :
Anoxic volume (m^3) : None

CHEMICAL:

Lake: WINNIPESAUKEE, ALTON BAY
Town: ALTON

			14 August 2001		
DEPTH (m)			4.0	12.0	30.0
pH (units)			7.1	6.8	6.5
A.N.C. (Alkalinity)			5.3	5.2	6.0
NITRATE NITROGEN			0.06		0.07
TOTAL KJELDAHL NITROGEN			0.20	0.20	0.20
TOTAL PHOSPHORUS			0.006	0.007	0.006
CONDUCTIVITY (µmhos/cm)			66.0	65.1	65.5
APPARENT COLOR (cpu)			9	7	7
MAGNESIUM			0.61		
CALCIUM			3.4		
SODIUM			6.8		
POTASSIUM			0.75		
CHLORIDE			11		11
SULFATE			4		4
TN : TP			43		45
CALCITE SATURATION INDEX			2.9		

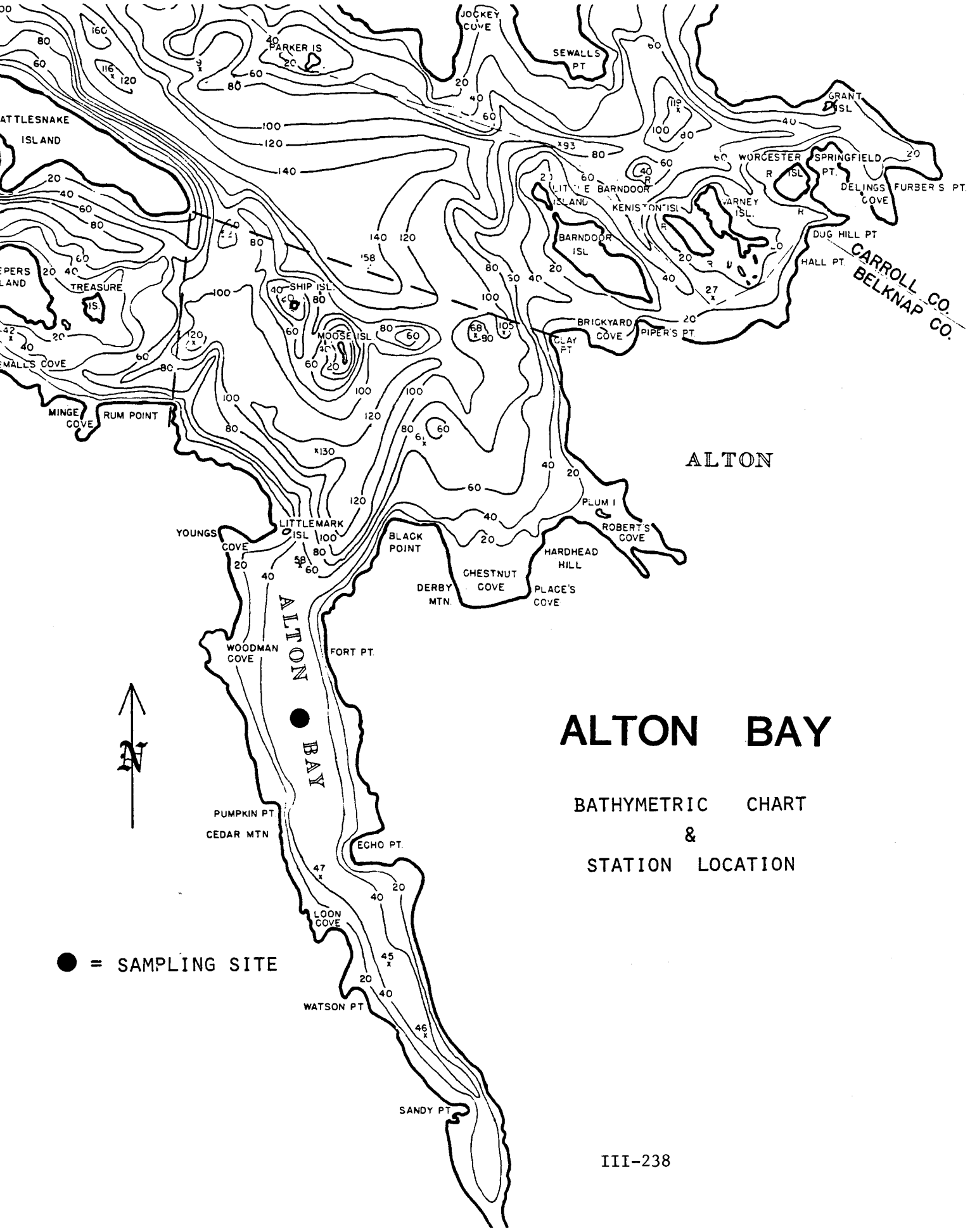
All results in mg/L unless indicated otherwise

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.


ALTON BAY
BATHYMETRIC CHART
&
STATION LOCATION
● = SAMPLING SITE
N
ALTON
ALTON BAY
JOCKEY COVE
SEWALLS PT
PARKER IS
GRANT ISL
WORCESTER ISL
SPRINGFIELD PT.
DELINGS COVE
FURBER'S PT.
LITTLE BARNDOOR ISLAND
KENISTON ISL
BARNEY ISL.
BARNDOOR ISL
DUG HILL PT
HALL PT.
CARROLL CO.
BELKNAP CO.
ATTLESNAKE ISLAND
TREASURE IS.
SHIP ISL.
MOOSE ISL
BRICKYARD COVE
PIPER'S PT.
CLAY PT
MINGE COVE
RUM POINT
PLUM I
ROBERTS COVE
YOUNGS COVE
LITTLEMARK ISL
BLACK POINT
HARDHEAD HILL
CHESTNUT COVE
DERBY MTN.
PLACE'S COVE
WOODMAN COVE
FORT PT.
PUMPKIN PT
CEDAR MTN
ECHO PT.
LOON COVE
WATSON PT
SANDY PT

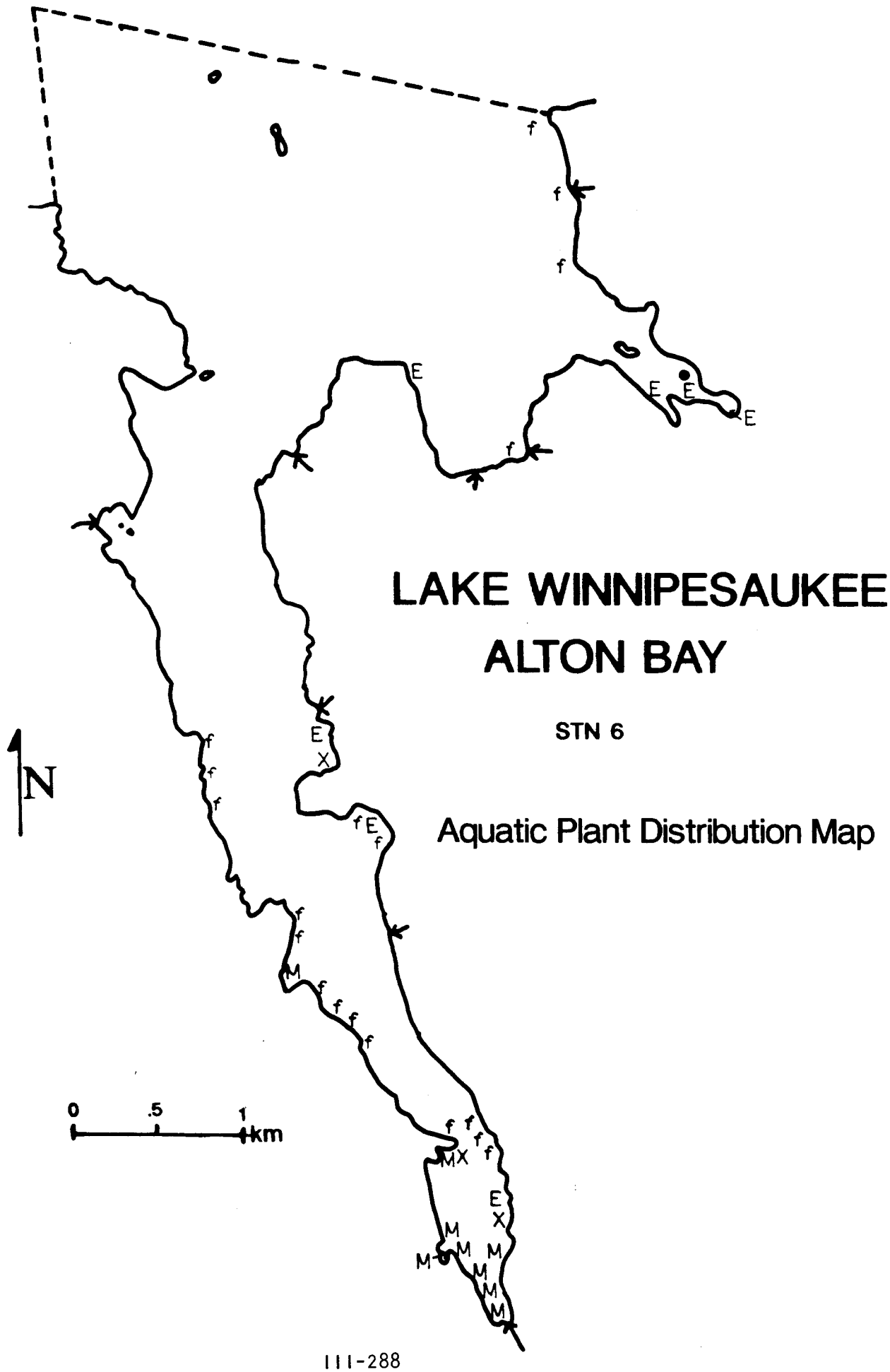
FIELD DATA SHEET

LAKE: WINNIPESAUKEE, ALTON BAY TOWN: ALTON
DATE: 08/08/2001 WEATHER: Sunny, warm & breezy

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	26.0	8.4	103 %
	2.0	25.5	8.4	103 %
	4.0	25.4	8.4	102 %
	6.0	25.2	8.4	102 %
	8.0	23.6	8.8	104 %
	10.0	21.1	9.2	103 %
	11.0	18.8	9.5	102 %
	12.0	15.7	9.4	95 %
	13.0	14.2	9.6	94 %
	14.0	13.3	9.6	91 %
	15.0	12.9	9.4	89 %
	20.0	11.8	9.3	85 %
	25.0	10.9	9.3	84 %
	30.0	9.4	9.3	81 %
	38.0	7.4	8.5	70 %

SECCHI DISK (m): 11.0 COMMENTS:
BOTTOM DEPTH (m): 38.5
TIME: 1118

*Dissolved oxygen values are in mg/L


LAKE WINNIPESAUKEE
ALTON BAY
STN 6
Aquatic Plant Distribution Map
N
0
.5
1
km

AQUATIC PLANT SURVEY

LAKE: WINNIPESAUKEE, ALTON BAY TOWN: ALTON DATE: 07/30/90

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
W	Potamogeton	Pondweed	Sparse
N	Nymphaea	White water lily	Sparse
Y	Nuphar	Yellow water lily	Sparse
f			Scattered
X		Bottom growth	Sparse
M	Myriophyllum heterophyllum	Water milfoil	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
S	Sparganium	Bur reed	Sparse

OVERALL ABUNDANCE: Sparse

GENERAL OBSERVATIONS:

1. Milfoil was locally abundant at the southern tip of Alton Bay, including near the town beach and in the Marina south of the bridge.
2. Much of the shoreline in the lower section of Alton Bay (south of Echo Point) had filamentous algae along the bottom and attached to rock jetties and restraining walls.
3. Numerous ducks were observed.