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

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	ARLINGTON MILL RESERVOIR	Lake Area (ha):	129.50
Town:	SALEM	Maximum depth (m):	11.9
County:	Rockingham	Mean depth (m):	2.9
River Basin:	Merrimack	Volume (m^3):	3810000
Latitude:	42°49'01" N	Relative depth:	0.9
Longitude:	71°12'14" W	Shore configuration:	3.62
Elevation (ft):	160	Areal water load (m/yr):	21.17
Shore length (m):	14600	Flushing rate (yr^{-1}):	7.20
Watershed area (ha):	5698.0	P retention coeff.:	0.47
% watershed ponded:	5.7	Lake type:	artificial

BIOLOGICAL:		11 February 1999	8 September 1998
DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 85%	TABELLARIA 65%
	#2	SYNURA 12%	COELOSPHAERIUM 20%
	#3		
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (μg/L)			6.37
DOM. ZOOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	NAUPLIUS LARVA 44%
	#2		VORTICELLA 28%
	#3		CALANOID COPEPOD 13%
ROTIFERS/LITER		21	3
MICROCRUSTACEA/LITER		<1	64
ZOOPLANKTON ABUNDANCE (#/L)		21	97
VASCULAR PLANT ABUNDANCE			Scattered
SECCHI DISK TRANSPARENCY (m)			2.3
BOTTOM DISSOLVED OXYGEN (mg/L)		14.6	0.3
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	7.4
Hypolimnion volume (m^3) :	35600
Anoxic volume (m^3) :	157900

CHEMICAL:

Lake: ARLINGTON MILL RESERVOIR
Town: SALEM

	11 February 1999		8 September 1998		
DEPTH (m)	1.0	3.0	2.0	8.0	10.0
pH (units)	6.6	6.6	7.0	6.7	6.6
A.N.C. (Alkalinity)	8.7	8.8	12.5	22.6	24.7
NITRATE NITROGEN	0.19	0.20	< 0.05		0.05
TOTAL KJELDAHL NITROGEN	0.30	0.40	0.30	0.70	1.00
TOTAL PHOSPHORUS	0.008	0.009	<0.001	0.006	0.017
CONDUCTIVITY (µmhos/cm)	161.9	168.4	141.8	149.2	150.7
APPARENT COLOR (cpu)	27	28	32	140	145
MAGNESIUM			1.28		
CALCIUM			7.2		
SODIUM			17.3		
POTASSIUM			1.65		
CHLORIDE	38	40	30		27
SULFATE	9	9	6		1
TN : TP	61	67			62
CALCITE SATURATION INDEX			2.3		

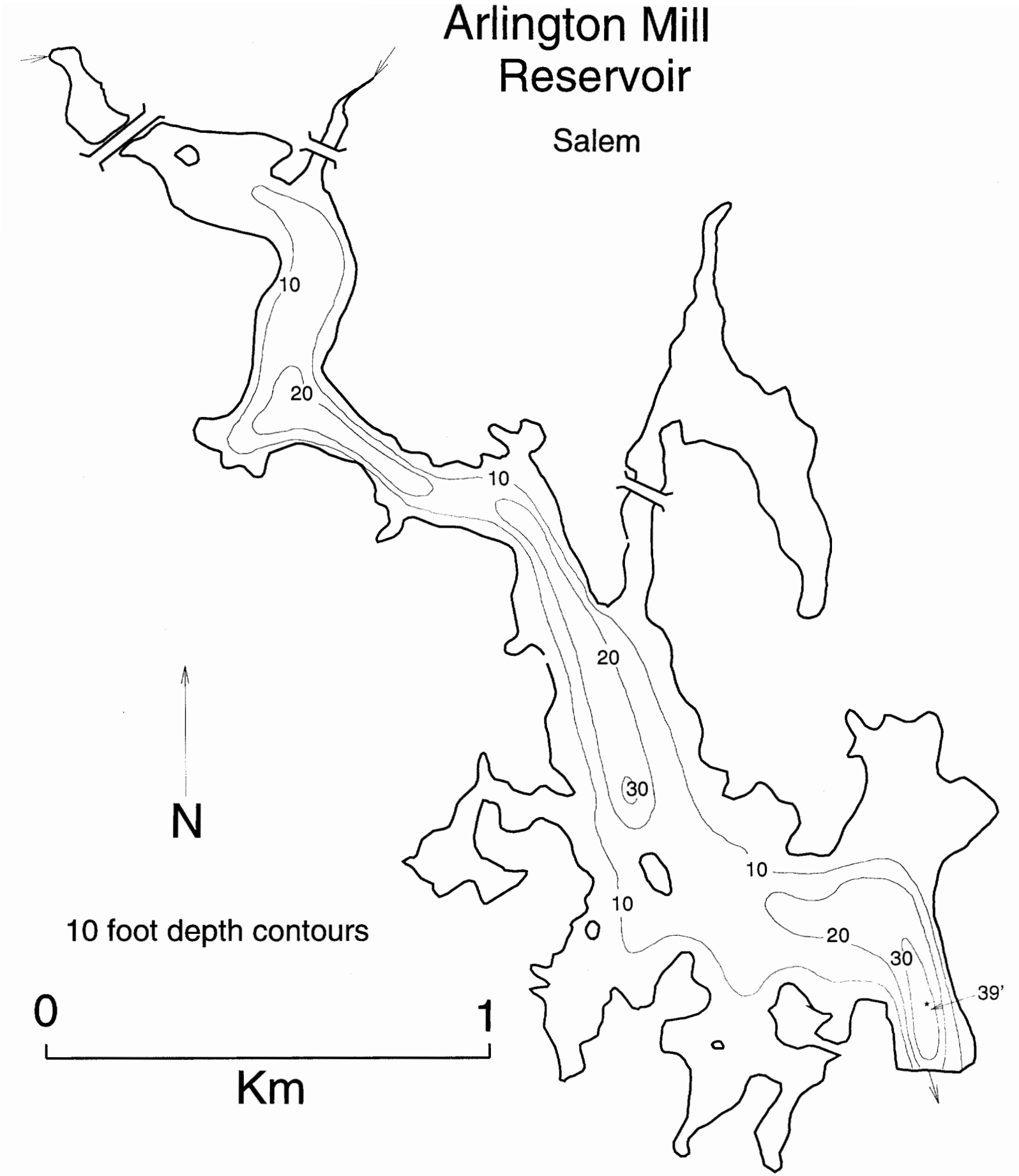
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1998

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	3	1	1	9	Meso.

COMMENTS:

1. This pond is a back-up water supply source for the Town of Salem.
2. The pond was previously surveyed in 1976 and 1984. No significant changes in water quality occurred over this time period, although it appears that macrophyte growth declined over the period. The pond has been in the borderline mesotrophic/eutrophic class during the 22 year period.
3. Somewhat elevated sodium, chloride and conductivity values suggest salt runoff from roadways.


Arlington Mill
Reservoir
Salem
10
20
10
20
30
10
10
20
30
39'
N
10 foot depth contours
0
1
Km

FIELD DATA SHEET

LAKE: ARLINGTON MILL RESERVOIR TOWN: SALEM
DATE: 09/08/1998 WEATHER: SUNNY & BREEZY

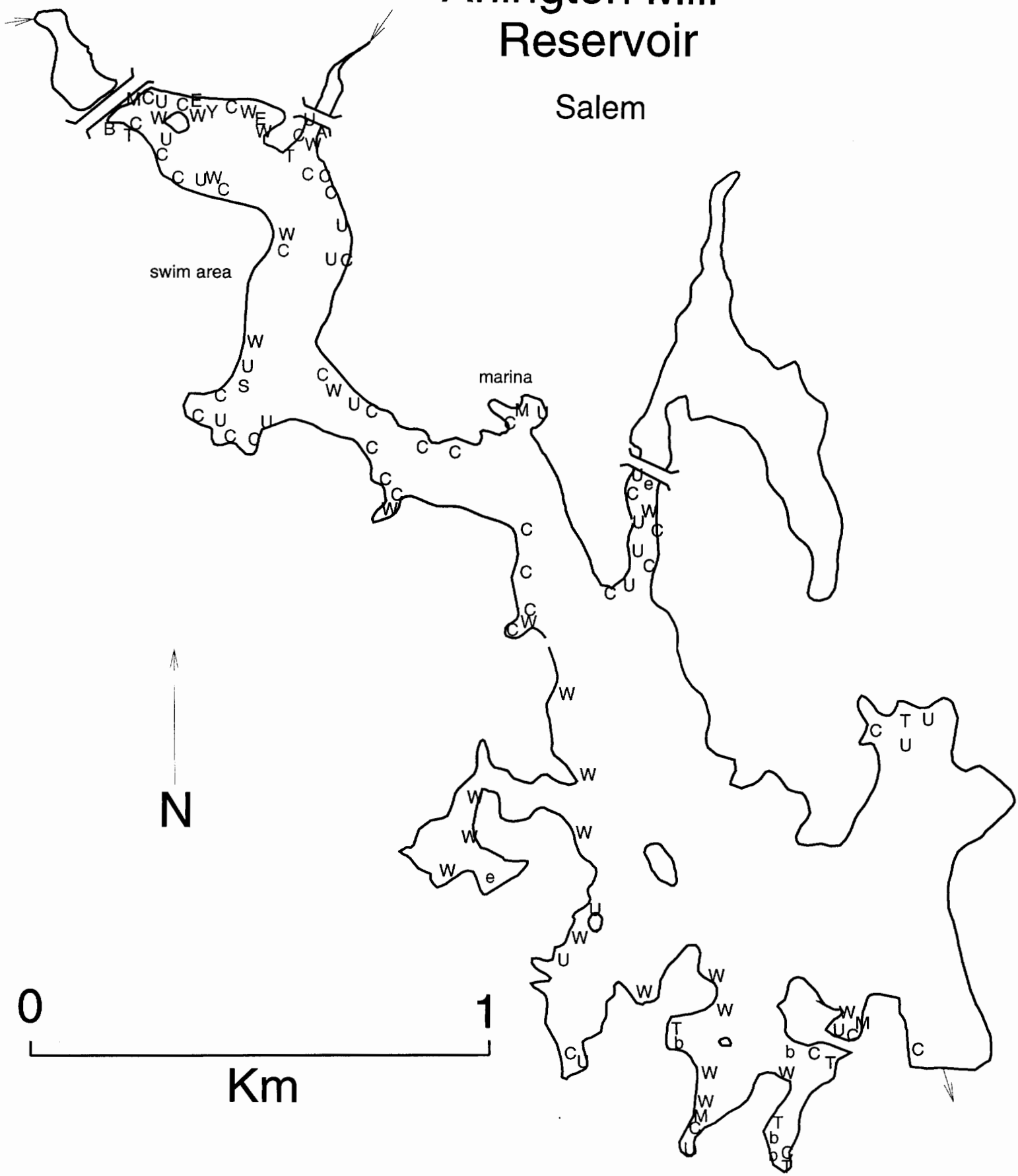
	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	23.4	7.2	84 %
	1.0	23.3	7.1	83 %
	2.0	23.3	7.1	83 %
	3.0	23.2	7.1	83 %
	4.0	23.2	7.0	82 %
	5.0	23.2	7.0	82 %
	6.0	23.1	6.3	73 %
	7.0	21.8	0.4	4 %
	8.0	18.5	0.2	2 %
	9.0	17.8	0.2	2 %
	10.0	16.9	0.2	2 %
	11.0	15.6	0.3	3 %

SECCHI DISK (m): 2.3 COMMENTS:
BOTTOM DEPTH (m): 11.9
TIME: 1100

*Dissolved oxygen values are in mg/L

Arlington Mill Reservoir

Salem



AQUATIC PLANT SURVEY

LAKE: ARLINGTON MILL RESERVOIR TOWN: SALEM DATE: 09/08/1998

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
e	Elodea nuttallii	Waterweed	Sparse
C	Cabomba caroliniana	Fanwort	Scattered
U	Utricularia	Bladderwort	Scattered
W	Potamogeton	Pondweed	Sparse
T	Typha	Cattail	Sparse
A	Sagittaria	Arrowhead	Sparse
S	Sparganium	Bur reed	Sparse
Y	Nuphar	Yellow water lily	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
M	Myriophyllum humile	Water milfoil	Sparse
B	Brasenia schreberi	Water shield	Sparse
b	Scirpus	Bulrush	Sparse

OVERALL ABUNDANCE: Scattered

GENERAL OBSERVATIONS:

1. The exotic plant fanwort was locally abundant at the northern (inlet) end of the pond – but scattered elsewhere.
2. Very little emergent plant growth – perhaps because of water level fluctuations. Submerged plants were scattered.
3. Overall, plants appeared to be less abundant than in previous surveys.