

APPENDIX A

Nutrient Database for 1998-99 Year of Monthly Sampling

Results of 1998-99 Year of Monthly Nutrient Sampling:
Total Phosphorus (mg/L; MDL = 0.005)

Sample I.D.	Sampling Station	Sampling Date											
		10/07/98	11/03/98	12/02/98	01/07/99	02/09/99	03/11/99	04/05/99	05/11/99	06/23/99	07/16/99	08/17/99	09/15/99
MD14	Cosgrove Intake (E)	na	0.005	0.00902	0.00834	na	0.0100	0.0061	0.0087	0.005	0.005	0.005	0.005
MD15	Cosgrove Intake (M)	na	na	na	na	na	na	na	0.0096	0.0093	0.0055	0.005	0.005
MD16	Cosgrove Intake (H)	na	0.0061	0.00629	0.00751	na	0.0079	0.0067	0.0068	0.0067	0.005	0.005	0.0069
MD25	Basin North (E)	0.0078	0.006	0.0058	0.00701	0.010	0.0065	0.0059	0.0058	0.0056	0.005	0.005	0.005
MD61	Basin North (M)	0.0081	na	na	na	na	na	na	0.0071	0.0103	0.005	0.005	0.005
MD62	Basin North (H)	0.0085	0.0061	0.00564	na	0.010	0.0120	0.0081	0.0061	0.0072	0.005	0.005	0.005
MD26	Basin South (E)	0.005	0.0066	0.00564	0.00668	na	0.0108	0.0074	0.0065	0.0050	0.005	0.005	0.005
MD63	Basin South (M)	b*	na	na	na	na	na	na	0.0058	0.0070	0.0097	0.005	0.005
MD64	Basin South (H)	a*	0.0068	0.00596	na	na	0.0101	0.0092	0.0076	0.0081	0.0074	0.005	0.005
MD27	Thomas Basin (E)	0.0066	0.0071	0.00596	na	na	0.0178	0.0098	0.0088	0.005	0.005	0.005	0.005
MD65	Thomas Basin (M)	na	na	na	na	na	na	na	na	0.0060	0.0092	0.005	0.005
MD66	Thomas Basin (H)	0.0178	0.0095	0.0103	na	na	0.0218	0.0137	0.0064	0.0082	0.0051	0.005	0.005

- Notes: (1) Values in *italic* indicate <MDL (MDL reported as 0.01 mg/L for samples collected 02/09/99)
(2) Letters in **bold** with asterisk indicate anomalous (elevated) values excluded from database (a* = 0.252, b* = 0.0319)
(3) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion, H = hypolimnion/bottom

Results of 1998-99 Year of Monthly Nutrient Sampling:
Alkalinity (mg/L as CaCO₃)

Sample I.D.	Sampling Station	Sampling Date											
		10/07/98	11/03/98	12/02/98	01/07/99	02/09/99	03/11/99	04/05/99	05/11/99	06/23/99	07/16/99	08/17/99	09/15/99
MD14	Cosgrove Intake (E)	na	6.3	5.65	5.27	na	4.25	5.25	5.59	6.64	6.33	5.42	5.08
MD15	Cosgrove Intake (M)	na	na	na	na	na	na	na	5.27	5.55	4.89	3.88	4.14
MD16	Cosgrove Intake (H)	na	6.63	5.63	5.24	na	5.04	5.17	5.29	4.94	4.60	4.02	4.36
MD25	Basin North (E)	5.84	5.96	5.73	5.33	5.46	4.77	5.10	5.24	6.17	6.07	4.90	4.60
MD61	Basin North (M)	4.36	na	na	na	na	na	na	5.47	4.57	4.70	3.86	4.38
MD62	Basin North (H)	8.67	5.14	5.19	na	5.25	4.72	4.74	5.18	5.67	5.78	5.20	4.50
MD26	Basin South (E)	10.2	5.53	5.38	4.81	na	4.42	4.67	5.57	6.08	6.16	5.16	5.32
MD63	Basin South (M)	4.62	na	na	na	na	na	na	5.13	4.41	4.72	4.16	4.26
MD64	Basin South (H)	4.62	5.29	4.81	na	na	4.86	5.05	5.32	5.39	5.64	5.54	5.26
MD27	Thomas Basin (E)	3.22	3.93	3.32	na	na	4.48	5.78	4.92	6.09	6.57	5.54	5.66
MD65	Thomas Basin (M)	na	na	na	na	na	na	na	na	4.18	3.73	8.36	5.14
MD66	Thomas Basin (H)	1.59	4.8	4.43	na	na	4.55	5.53	3.84	3.48	3.66	6.94	4.14

Note: (1) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion, H = hypolimnion/bottom

Results of 1998-99 Year of Monthly Nutrient Sampling:
Silica/SiO₂ (mg/L)

Sample I.D.	Sampling Station	Sampling Date											
		10/07/98	11/03/98	12/02/98	01/07/99	02/09/99	03/11/99	04/05/99	05/11/99	06/23/99	07/16/99	08/17/99	09/15/99
MD14	Cosgrove Intake (E)	na	2.16	2.67	2.23	na	2.37	2.24	2.47	1.60	1.34	1.38	1.26
MD15	Cosgrove Intake (M)	na	na	na	na	na	na	na	2.45	1.83	1.52	1.37	1.37
MD16	Cosgrove Intake (H)	na	2.16	2.44	2.29	na	2.24	2.15	2.68	1.95	1.78	1.87	1.58
MD25	Basin North (E)	2.00	2.15	2.30	2.25	2.33	2.26	2.25	2.45	1.59	1.41	1.39	1.29
MD61	Basin North (M)	2.15	na	na	na	na	na	na	2.54	1.68	1.54	1.45	1.41
MD62	Basin North (H)	3.92	2.14	2.35	na	2.36	2.58	2.29	2.74	2.94	3.00	3.11	3.42
MD26	Basin South (E)	2.06	2.20	2.34	2.29	na	2.63	2.79	2.5	1.60	1.46	1.38	1.34
MD63	Basin South (M)	2.03	na	na	na	na	na	na	2.64	1.69	1.67	1.40	1.48
MD64	Basin South (H)	3.74	2.23	2.46	na	na	2.60	2.75	2.75	2.98	2.93	3.17	3.17
MD27	Thomas Basin (E)	1.76	1.78	2.05	na	na	5.00	3.77	2.06	1.48	1.53	1.43	1.43
MD65	Thomas Basin (M)	na	na	na	na	na	na	na	na	1.33	1.29	1.34	1.52
MD66	Thomas Basin (H)	1.65	2.90	3.06	na	na	4.76	3.14	1.7	1.35	1.26	1.31	1.44

Note: (1) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion, H = hypolimnion/bottom

Results of 1998-99 Year of Monthly Nutrient Sampling:
Ammonia/NH3 (mg/L; MDL = 0.005)

Sample I.D.	Sampling Station	Sampling Date											
		10/07/98	11/03/98	12/02/98	01/07/99	02/09/99	03/11/99	04/05/99	05/11/99	06/23/99	07/16/99	08/17/99	09/15/99
MD14	Cosgrove Intake (E)	na	0.0096	0.0076	0.00608	na	0.0079	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD15	Cosgrove Intake (M)	na	na	na	na	na	na	na	<i>0.005</i>	0.0058	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD16	Cosgrove Intake (H)	na	0.0084	0.0077	0.00622	na	0.0091	<i>0.005</i>	0.0091	<i>0.005</i>	<i>0.005</i>	0.0141	<i>0.005</i>
MD25	Basin North (E)	0.0096	0.0087	0.0087	0.00622	0.0059	0.0076	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD61	Basin North (M)	0.0133	na	na	na	na	na	na	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD62	Basin North (H)	0.0078	0.0081	0.0116	na	0.0074	0.0135	<i>0.005</i>	0.0147	0.0295	0.0337	0.0314	<i>0.005</i>
MD26	Basin South (E)	0.0083	0.0087	0.0076	0.00665	na	0.0093	<i>0.005</i>	<i>0.005</i>	0.0061	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD63	Basin South (M)	<i>0.005</i>	na	na	na	na	na	na	0.0070	0.0086	0.0054	0.0055	0.0096
MD64	Basin South (H)	0.0064	0.0103	0.0093	na	na	0.0076	0.0053	0.0139	0.0262	0.0302	0.0358	<i>0.005</i>
MD27	Thomas Basin (E)	0.0153	0.0111	<i>0.005</i>	na	na	0.0062	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD65	Thomas Basin (M)	na	na	na	na	na	na	na	na	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD66	Thomas Basin (H)	0.0106	0.0103	0.0061	na	na	0.0060	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	0.0097

Notes: (1) Values in *italix* indicate <MDL

(2) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion, H = hypolimnion/bottom

Results of 1998-99 Year of Monthly Nutrient Sampling:
Nitrate/NO3 (mg/L; MDL = 0.005)

Sample I.D.	Sampling Station	Sampling Date											
		10/07/98	11/03/98	12/02/98	01/07/99	02/09/99	03/11/99	04/05/99	05/11/99	06/23/99	07/16/99	08/17/99	09/15/99
MD14	Cosgrove Intake (E)	na	0.0736	0.0776	0.0768	na	0.0905	0.0902	0.0898	0.0132	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD15	Cosgrove Intake (M)	na	na	na	na	na	na	na	0.0887	0.0345	0.0190	<i>0.005</i>	<i>0.005</i>
MD16	Cosgrove Intake (H)	na	0.0722	0.0778	0.0782	na	0.0919	0.0887	0.1010	0.0486	0.0441	0.0339	0.0080
MD25	Basin North (E)	0.0395	0.0722	0.0768	0.0776	0.0811	0.0746	0.0920	0.0896	0.0129	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD61	Basin North (M)	0.0565	na	na	na	na	na	na	0.0929	0.0293	0.0224	0.0139	<i>0.005</i>
MD62	Basin North (H)	0.187	0.0729	0.0834	na	0.0772	0.1060	0.0938	0.1060	0.1170	0.1070	0.1180	0.1730
MD26	Basin South (E)	0.0449	0.0753	0.0718	0.0904	na	0.1070	0.0456	0.0914	0.0135	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD63	Basin South (M)	0.0473	na	na	na	na	na	na	0.0996	0.0268	0.0230	0.0113	0.0116
MD64	Basin South (H)	0.173	0.0743	0.0742	na	na	0.1070	0.1150	0.1110	0.1130	0.1110	0.1090	0.1620
MD27	Thomas Basin (E)	0.0263	0.0277	0.0368	na	na	0.1770	0.1500	0.0477	0.0124	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>
MD65	Thomas Basin (M)	na	na	na	na	na	na	na	na	0.0056	<i>0.005</i>	0.0061	0.0105
MD66	Thomas Basin (H)	0.0257	0.0467	0.0547	na	na	0.1700	0.1350	0.0198	<i>0.005</i>	<i>0.005</i>	0.0053	0.0141

Notes: (1) Values in *italix* indicate <MDL

(2) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion, H = hypolimnion/bottom

Results of 1998-99 Year of Monthly Nutrient Sampling:
Total Kjeldahl-Nitrogen/TKN (mg/L; MDL = 0.6)

Sample I.D.	Sampling Station	Sampling Date											
		10/07/98	11/03/98	12/02/98	01/07/99	02/09/99	03/11/99	04/05/99	05/11/99	06/23/99	07/16/99	08/17/99	09/15/99
MD14	Cosgrove Intake (E)	na	<i>0.6</i>	1.48	<i>0.6</i>	na	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	0.683	<i>0.6</i>	0.75
MD15	Cosgrove Intake (M)	na	na	na	na	na	na	na	<i>0.6</i>	<i>0.6</i>	1.13	<i>0.6</i>	<i>0.6</i>
MD16	Cosgrove Intake (H)	na	<i>0.6</i>	1.8	missing?	na	<i>0.6</i>	<i>0.6</i>	0.6	<i>0.6</i>	0.882	<i>0.6</i>	<i>0.6</i>
MD25	Basin North (E)	0.694	<i>0.6</i>	1.27	<i>0.6</i>	0.627	<i>0.6</i>	<i>0.6</i>	0.6	<i>0.6</i>	0.893	<i>0.6</i>	<i>0.6</i>
MD61	Basin North (M)	0.663	na	na	na	na	na	na	0.6	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD62	Basin North (H)	0.868	<i>0.6</i>	1.41	na	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	0.6	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD26	Basin South (E)	<i>0.6</i>	<i>0.6</i>	1.9	<i>0.6</i>	na	<i>0.6</i>	<i>0.6</i>	0.6	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD63	Basin South (M)	<i>0.6</i>	na	na	na	na	na	na	0.6	0.742	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD64	Basin South (H)	0.681	<i>0.6</i>	1.8	na	na	<i>0.6</i>	<i>0.6</i>	0.6	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD27	Thomas Basin (E)	<i>0.6</i>	0.686	1.84	na	na	0.664	<i>0.6</i>	0.6	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD65	Thomas Basin (M)	na	na	na	na	na	na	na	na	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>
MD66	Thomas Basin (H)	0.952	<i>0.6</i>	1.12	na	na	<i>0.6</i>	<i>0.6</i>	0.625	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>

- Notes: (1) Values in *italix* indicate <MDL
(2) Values in **bold** are <MDL and were labeled invalid due to exceedance of holding time
(3) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion, H = hypolimnion/bottom

Compilation of 1998-99 Year of Study Field Duplicate Samples (values in italix indicate <MDL)

	Location Id	Sample Date	ALK (mg/L)	NH3F (mg/L)	NO3F (mg/L)	SIO2 (ug/L)	TKN (mg/L)	TP (mg/L)
1	FDUP	01-Oct-98	9.56	0.0163	0.0324	8850	0.640	0.0211
	MD46	01-Oct-98	9.45	0.0110	0.0323	8780	0.600	0.0160
2	MD30	05-Oct-98	1.62	0.0242	0.0230	1990	0.987	0.0438
	FDUP	05-Oct-98	3.22	0.0246	0.0231	2000	0.613	0.0054
3	MD28	02-Nov-98	2.50	0.0059	0.0065	1190	0.600	0.0050
	FDUP	02-Nov-98	2.31	0.0057	0.0067	1170	0.600	0.0063
4	MD54	04-Nov-98	6.95	0.0050	0.0248	10400	0.600	0.0243
	FDUP	04-Nov-98	7.35	0.0050	0.0252	10300	0.600	0.0230
5	MD27	03-Nov-98	3.93	0.0111	0.0277	1780	0.686	0.0071
	FDUP	03-Nov-98	2.26	0.0066	0.0272	1750	0.935	0.0082
6	MD66	02-Dec-98	4.43	0.0061	0.0547	3060	1.120	0.0103
	FDUP	02-Dec-98	3.72	0.0050	0.0541	3060	1.690	0.0158
7	MD31	09-Dec-98	2.61	0.0050	0.0111	1270	0.998	0.0050
	FDUP	09-Dec-98	2.70	0.0050	0.0111	1280	0.945	0.0355
8	MD52	10-Dec-98	4.45	0.0100	0.0123	6520	0.600	0.0263
	FDUP	10-Dec-98	4.46	0.0104	0.0119	6520	0.962	0.0205
9	MD28	04-Jan-99	2.26	0.0080	0.0172	1340	0.600	0.0054
	FDUP	04-Jan-99	2.95	0.0080	0.0166	1340	0.600	0.0050
10	MD56	12-Jan-99	4.21	0.0050	0.0507	9810	0.600	0.0141
	FDUP	12-Jan-99	5.45	0.0050	0.0505	9790	0.600	0.0153
11	MD25	07-Jan-99	5.33	0.0062	0.0776	2250	0.600	0.0070
	FDUP	07-Jan-99	5.02	0.0062	0.0771	2030	0.600	0.0080
12	MD52	02-Feb-99	2.23	0.0200	0.0210	8930	0.600	0.0132
	FDUP	02-Feb-99	2.13	0.0202	0.0208	9030	0.600	0.0141
13	MD25	09-Feb-99	5.46	0.0059	0.0811	2330	0.627	<0.01
	FDUP	09-Feb-99	5.32	0.0069	0.8870	2320	0.666	<0.1
14	MD58	08-Mar-99	2.27	0.0057	0.0209	1560	0.600	0.0090
	FDUP	08-Mar-99	2.62	0.0093	0.0212	1510	0.600	0.0092
15	MD27	11-Mar-99	4.48	0.0062	0.1770	5000	0.664	0.0178
	FDUP	11-Mar-99	4.25	0.0056	0.0991	5320	0.832	0.0205
16	MD27	05-Apr-99	5.78	0.0050	0.1500	3770	0.600	0.0098
	FDUP	05-Apr-99	5.44	0.0050	0.1520	3710	0.600	0.0165
17	MD47	07-Apr-99	0.11	0.0050	0.0050	6510	0.600	0.0072
	FDUP	07-Apr-99	0.24	0.0050	0.0050	6490	0.600	0.0091
18	MD34	09-Apr-99	2.66	0.0050	0.0139	1280	0.600	0.0050
	FDUP	09-Apr-99	2.36	0.0050	0.0147	1280	0.686	0.0079
19	MD40	10-May-99	2.34	0.0050	0.0050	1940	0.600	0.0080
	FDUP	10-May-99	3.04	0.0050	0.0050	1940	0.600	0.0087
20	MD27	11-May-99	4.92	0.0050	0.0477	2060	0.600	0.0088
	FDUP*	11-May-99	5.09	0.0050	0.0477	2210	0.600	0.0076
21	MD55	13-May-99	6.90	0.0050	0.0051	7340	0.600	0.0153
	FDUP*	13-May-99	7.13	0.0050	0.0050	7680	0.600	0.0178
22	MD40	14-Jun-99	2.79	0.0050	0.0050	1140	0.600	0.0050
	FDUP	14-Jun-99	3.06	0.0050	0.0050	1120	0.600	0.0072
23	MD55	16-Jun-99	10.90	0.0050	0.0799	8900	0.600	0.0173
	FDUP	16-Jun-99	10.50	0.0050	0.0778	9050	0.953	0.0179
24	MD25	23-Jun-99	6.17	0.0050	0.0129	1590	0.600	0.0056
	FDUP	23-Jun-99	6.17	0.0050	0.0123	1570	0.600	0.0050
25	MD26	16-Jul-99	6.16	0.0050	0.0050	1460	0.600	0.0050
	FDUP	16-Jul-99	5.70	0.0050	0.0050	1450	0.739	0.0055
26	MD40	19-Jul-99	2.93	0.0050	0.0118	978	0.600	0.0050
	FDUP	19-Jul-99	3.03	0.0050	0.0097	994	0.600	0.0055
27	MD51	21-Jul-99	8.83	0.0050	0.0398	3600	0.600	0.0177
	FDUP	21-Jul-99	9.33	0.0050	0.0426	3590	0.600	0.0260
28	MD42	12-Aug-99	3.28	0.0207	0.0050	1330	0.600	0.0050
	FDUP	12-Aug-99	3.30	0.0348	0.0070	1650	0.600	0.0074
29	MD62	17-Aug-99	5.20	0.0314	0.1180	3110	0.600	0.0050
	FDUP	17-Aug-99	4.66	0.0287	0.1200	3030	0.600	0.0050
30	MD49	19-Aug-99	2.77	0.0050	0.0762	13900	0.600	0.0105
	FDUP	19-Aug-99	5.28	0.0050	0.0798	13900	0.600	0.0096
31	MD27	15-Sep-99	5.66	0.0050	0.0050	1430	0.600	0.0050
	FDUP	15-Sep-99	5.30	0.0050	0.0050	1450	0.600	0.0111
32	MD46	21-Sep-99	3.54	0.0050	0.0159	9050	0.705	0.0521
	FDUP	21-Sep-99	3.54	0.0050	0.0154	8710	0.600	0.0252
33	MD40	23-Sep-99	2.76	0.0078	0.0050	1160	0.600	0.0073
	FDUP	23-Sep-99	2.76	0.0075	0.0050	1180	0.600	0.0056

* Results for field duplicates collected on May 11th and 13th appeared to be switched in lab report from MWRA (although not able to confirm this apparent error with Diane Rossi, the data shown here are reversed from those reported)

APPENDIX B

Nutrient Database for Quarterly Sampling through December 2002

Results of Quarterly Nutrient Sampling through December 2002:
UV254 (Absorbance/cm)

Sample I.D.	Sampling Station	Sampling Date											
		05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	0.060	0.068	0.046	0.045	0.059	0.054	0.040	0.038	0.038	0.048	0.032	0.033
MD61	Basin North (M)	0.067	0.064	0.055	0.045	0.066	0.079	0.050	0.039	0.040	0.062	0.032	0.033
MD62	Basin North (H)	0.067	0.061	na	0.045	0.063	0.069	0.058	0.038	0.039	0.043	0.039	0.032
MD26	Basin South (E)	0.074	0.068	0.046	0.046	0.085	0.057	0.039	0.035	0.040	0.049	0.031	0.038
MD63	Basin South (M)	0.074	0.061	0.049	0.047	0.089	0.063	0.042	0.036	0.040	0.055	0.032	0.039
MD64	Basin South (H)	0.073	0.063	na	0.047	0.091	0.069	0.058	0.036	0.044	0.047	0.038	0.040
MD27	Thomas Basin (E)	0.136	0.069	na	na	0.121	0.068	0.026	0.031	0.140	0.050	0.028	0.102
MD65	Thomas Basin (M)	0.147	0.068	na	na	0.135	0.073	0.026	0.031	0.146	0.031	0.031	0.106
MD66	Thomas Basin (H)	0.150	0.097	0.084	na	0.141	0.042	0.027	0.033	0.131	0.028	0.065	0.103

Note: (1) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Results of Quarterly Nutrient Sampling through December 2002:
Total Phosphorus (mg/L; MDL = 0.005)

Sample I.D.	Sampling Station	Sampling Date												
		12/21/99	05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	0.006	0.013	0.006	0.006	0.009	0.011	0.011	0.005	0.012	0.006	<i>0.005</i>	0.008	<i>0.005</i>
MD61	Basin North (M)	0.006	0.010	0.008	0.011	0.009	0.017	0.013	0.007	0.008	0.007	0.010	0.007	0.006
MD62	Basin North (H)	0.006	0.009	0.007	0.010	0.010	0.012	0.014	0.008	0.007	0.006	0.007	0.008	0.006
MD26	Basin South (E)	0.005	0.012	0.007	<i>0.005</i>	0.010	0.016	0.010	0.006	0.007	0.008	<i>0.005</i>	0.007	0.017
MD63	Basin South (M)	0.007	0.011	0.008	0.007	0.010	0.015	0.022	0.008	0.006	0.007	0.007	0.005	<i>0.005</i>
MD64	Basin South (H)	0.006	0.010	0.007	0.009	Note (2)	0.015	0.037	0.010	0.010	0.007	0.007	0.009	0.009
MD27	Thomas Basin (E)	0.007	0.020	0.009	0.006	na	0.023	0.012	0.006	0.007	0.015	0.005	0.008	0.011
MD65	Thomas Basin (M)	0.008	0.015	0.008	0.007	na	0.022	0.014	0.007	0.010	0.013	0.006	0.009	0.015
MD66	Thomas Basin (H)	0.007	0.013	0.012	0.012	na	0.020	0.013	0.007	0.009	0.011	0.005	0.012	0.015

Notes: (1) Values show in italix are <MDL
(2) Anomalous total phosphorus concentration of 237 ug/L omitted
(3) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Results of Quarterly Nutrient Sampling through December 2002:
Ammonia (mg/L; MDL = 0.005)

Sample I.D.	Sampling Station	Sampling Date												
		12/21/99	05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	0.007	<i>0.005</i>	0.012	0.009	0.010	0.005	<i>0.005</i>	<i>0.005</i>	0.007	0.011	<i>0.005</i>	0.005	0.005
MD61	Basin North (M)	0.012	0.011	0.028	0.015	0.009	0.006	0.036	0.011	0.007	0.014	<i>0.005</i>	0.005	0.007
MD62	Basin North (H)	0.010	0.013	0.019	0.015	0.010	0.007	0.032	0.009	0.007	0.014	0.041	0.008	0.006
MD26	Basin South (E)	0.007	0.011	0.014	0.012	0.009	0.008	<i>0.005</i>	0.007	0.006	0.011	<i>0.005</i>	0.006	0.006
MD63	Basin South (M)	0.009	0.008	0.026	0.019	0.010	0.007	0.023	0.010	<i>0.005</i>	0.011	0.013	0.006	0.007
MD64	Basin South (H)	0.008	0.014	0.022	0.020	0.009	0.012	0.033	0.011	<i>0.005</i>	0.014	0.044	0.014	0.007
MD27	Thomas Basin (E)	0.006	<i>0.005</i>	0.006	0.018	na	<i>0.005</i>	<i>0.005</i>	0.008	<i>0.005</i>	0.006	<i>0.005</i>	0.006	0.011
MD65	Thomas Basin (M)	0.006	0.007	0.011	0.018	na	0.005	0.016	0.009	<i>0.005</i>	0.014	<i>0.005</i>	0.006	0.012
MD66	Thomas Basin (H)	0.006	0.011	0.021	0.021	na	0.007	0.009	0.010	<i>0.005</i>	0.014	<i>0.005</i>	0.006	0.012

Notes: (1) Values show in italix are <MDL
(2) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Results of Quarterly Nutrient Sampling through December 2002:
Nitrate (mg/L; MDL = 0.005)

Sample I.D.	Sampling Station	Sampling Date												
		12/21/99	05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	0.050	0.113	0.031	0.048	0.065	0.124	0.023	0.030	0.074	0.047	<i>0.005</i>	0.025	0.046
MD61	Basin North (M)	0.049	0.120	0.071	0.134	0.065	0.138	0.080	0.117	0.073	0.055	0.028	0.029	0.046
MD62	Basin North (H)	0.049	0.123	0.142	0.156	0.065	0.133	0.171	0.190	0.071	0.054	0.074	0.097	0.048
MD26	Basin South (E)	0.050	0.123	0.037	0.050	0.063	0.172	0.026	0.029	0.065	0.050	<i>0.005</i>	0.029	0.053
MD63	Basin South (M)	0.049	0.124	0.062	0.092	0.063	0.184	0.059	0.086	0.064	0.054	0.024	0.028	0.058
MD64	Basin South (H)	0.049	0.129	0.137	0.141	0.062	0.192	0.172	0.224	0.065	0.057	0.071	0.087	0.056
MD27	Thomas Basin (E)	0.038	0.146	0.044	0.051	na	0.201	0.027	0.027	0.038	0.086	<i>0.005</i>	0.020	0.130
MD65	Thomas Basin (M)	0.039	0.168	0.048	0.049	na	0.205	0.142	0.028	0.039	0.100	0.009	0.022	0.141
MD66	Thomas Basin (H)	0.038	0.176	0.064	0.068	na	0.236	0.064	0.027	0.042	0.100	0.010	0.030	0.134

Notes: (1) Values show in italix are <MDL
(2) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Results of Quarterly Nutrient Sampling through December 2002:
Silica (mg/L)

Sample I.D.	Sampling Station	Sampling Date												
		12/21/99	05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	1.82	2.64	1.15	1.77	1.9	3.02	0.82	1.52	1.95	1.59	0.59	1.10	1.28
MD61	Basin North (M)	1.84	2.89	1.98	3.13	1.88	3.31	2.26	2.66	1.92	1.73	0.77	1.19	1.28
MD62	Basin North (H)	1.84	2.92	3.17	3.55	1.86	3.24	3.47	3.39	1.91	1.78	2.10	2.48	1.27
MD26	Basin South (E)	1.94	2.91	1.18	1.78	2.04	3.84	0.88	1.54	1.86	1.66	0.56	1.17	1.55
MD63	Basin South (M)	1.95	2.87	1.91	2.55	1.98	4.03	1.85	2.22	1.89	1.68	0.95	1.18	1.62
MD64	Basin South (H)	1.96	3.08	3.09	3.43	1.94	4.13	3.43	3.62	1.89	1.85	2.12	2.42	1.64
MD27	Thomas Basin (E)	2.06	3.58	1.26	1.97	na	4.98	1.13	1.59	1.74	3.51	0.62	1.31	4.23
MD65	Thomas Basin (M)	2.10	3.73	1.34	1.97	na	4.94	1.47	1.59	1.79	3.46	0.88	1.41	4.13
MD66	Thomas Basin (H)	2.07	4.11	2.56	3.88	na	4.99	1.52	1.60	2.00	3.51	0.92	2.44	4.18

Note: (1) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Results of Quarterly Nutrient Sampling through December 2002:
Alkalinity (mg/L as CaCO₂)

Sample I.D.	Sampling Station	Sampling Date												
		12/21/99	05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	4.66	4.94	5.80	5.48	5.18	4.94	5.88	4.30	4.88	5.44	5.60	4.82	4.62
MD61	Basin North (M)	4.68	4.74	4.80	5.70	5.32	4.86	5.10	5.00	4.92	4.66	5.12	4.86	4.58
MD62	Basin North (H)	4.80	4.80	5.10	5.56	5.10	4.92	4.98	4.76	4.86	4.72	5.44	5.14	4.70
MD26	Basin South (E)	4.70	4.84	5.68	5.44	4.84	4.90	5.96	5.10	4.66	5.32	5.60	4.88	4.76
MD63	Basin South (M)	4.82	4.76	5.16	5.36	4.82	4.72	5.14	4.72	4.58	4.78	4.84	5.36	4.50
MD64	Basin South (H)	4.68	4.88	5.12	5.60	4.98	4.80	5.06	5.96	4.66	4.92	5.90	5.18	4.48
MD27	Thomas Basin (E)	3.52	7.34	6.02	4.68	na	5.62	6.52	3.56	3.84	7.00	6.04	3.44	4.68
MD65	Thomas Basin (M)	3.54	6.58	5.74	4.16	na	5.70	6.50	3.16	3.72	6.40	4.28	3.78	4.40
MD66	Thomas Basin (H)	3.82	5.34	5.02	7.62	na	5.14	4.60	3.08	4.32	5.36	4.08	5.54	4.40

Note: (1) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Results of Quarterly Nutrient Sampling through December 2002:

TKN (mg/L; MDL for most quarterly samples decreased to 0.2 mg/L from 0.6 mg/L)

Sample I.D.	Sampling Station	Sampling Date												
		12/21/99	05/10/00	08/01/00	10/26/00	12/21/00	04/26/01	07/24/01	10/17/01	12/18/01	05/09/02	07/22/02	10/22/02	12/17/02
MD25	Basin North (E)	<i>0.600</i>	0.714	0.356	0.392	0.795	0.339	0.274	1.150	0.913	<i>0.200</i>	0.582	0.473	<i>0.200</i>
MD61	Basin North (M)	<i>0.600</i>	0.240	0.476	0.697	0.398	0.294	0.325	0.602	1.160	0.263	0.473	0.739	1.070
MD62	Basin North (H)	<i>0.600</i>	<i>0.200</i>	0.442	0.664	0.462	0.274	0.227	0.484	0.837	0.246	0.493	0.652	0.227
MD26	Basin South (E)	<i>0.600</i>	<i>0.200</i>	0.342	0.672	0.468	0.244	0.297	0.482	0.888	0.249	0.661	0.549	<i>0.200</i>
MD63	Basin South (M)	<i>0.600</i>	<i>0.200</i>	0.665	0.602	0.395	0.227	0.241	0.487	0.899	0.358	0.568	0.666	0.220
MD64	Basin South (H)	<i>0.600</i>	<i>0.200</i>	0.902	0.594	0.414	0.767	<i>0.200</i>	0.518	1.120	0.308	0.622	1.030	0.216
MD27	Thomas Basin (E)	0.230	<i>0.200</i>	0.412	0.728	na	0.294	0.339	0.616	2.180	0.562	0.49	0.638	0.241
MD65	Thomas Basin (M)	0.280	<i>0.200</i>	0.498	0.454	na	0.969	0.356	0.597	0.837	0.364	0.442	0.680	0.423
MD66	Thomas Basin (H)	0.288	0.571	0.420	0.538	na	0.409	<i>0.200</i>	0.370	1.290	0.420	0.524	0.851	<i>0.200</i>

Notes: (1) Values show in italix are <MDL

(2) Water column locations indicated as follows: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom

Compilation of Quarterly Field Duplicate Samples through Dec. 2002 (values in italix indicate <MDL)

	Location Id	Sample Date	ALK (mg/L)	NH3F (mg/L)	NO3F (mg/L)	SIO2 (ug/L)	TKN (mg/L)	TP (mg/L)	UV254 (A/cm)
1	MD27	21-Dec-99	3.52	0.0056	0.0377	2060	0.230	0.007	na
	FDUP	21-Dec-99	3.68	0.0050	0.0377	2040	0.244	0.007	na
2	MD27	10-May-00	7.34	0.0050	0.1460	3580	0.200	0.020	1.362
	FDUP	10-May-00	7.38	0.0050	0.1440	3590	0.398	0.017	1.396
3	MD40	17-May-00	2.22	0.0050	0.0120	2760	0.546	0.011	0.662
	FDUP	17-May-00	2.36	0.0050	0.0125	2740	0.885	0.011	0.683
4	MD64	1-Aug-00	5.12	0.0221	0.1370	3090	0.902	0.007	0.632
	FDUP	1-Aug-00	5.02	0.0210	0.1260	3080	0.493	0.008	0.653
5	MD41	9-Aug-00	2.90	0.0094	0.0050	855	0.454	0.005	0.414
	FDUP	9-Aug-00	3.04	0.0076	0.0050	863	0.655	0.005	0.419
6	MD40	24-Oct-00	3.32	0.0143	0.0129	1570	0.823	0.007	0.385
	FDUP	24-Oct-00	3.38	0.0149	0.0130	1590	0.672	0.008	0.366
7	MD26	21-Dec-00	4.84	0.0086	0.0626	2040	0.468	0.010	0.046
	FDUP	21-Dec-00	5.04	0.0074	0.0657	1850	0.588	0.005	0.046
8	MD28	4-Jan-01	2.80	0.0070	0.0171	1280	0.582	0.012	0.022
	FDUP	4-Jan-01	3.00	0.0071	0.0168	1290	1.400	0.009	0.021
9	MD28	24-Apr-01	2.72	0.0050	0.0234	1730	1.000	0.010	0.021
	FDUP	24-Apr-01	2.60	0.0050	0.0234	1730	0.478	0.010	0.021
10	MD27	26-Apr-01	5.62	0.0050	0.2010	4980	0.294	0.023	0.121
	FDUP	26-Apr-01	5.66	0.0050	0.1990	4880	0.322	0.023	0.121
11	MD27	24-Jul-01	6.52	0.0050	0.0266	1130	0.339	0.012	0.068
	FDUP	24-Jul-01	6.28	0.0050	0.0263	1120	0.423	0.012	na
12	MD40	25-Jul-01	2.86	0.0050	0.0050	1100	0.378	0.009	0.034
	FDUP	25-Jul-01	2.80	0.0050	0.0050	1120	0.200	0.010	na
13	MD27	17-Oct-01	3.56	0.0081	0.0274	1590	0.616	0.006	0.026
	FDUP	17-Oct-01	3.26	0.0086	0.0272	1620	0.403	0.012	0.026
14	MD40	16-Oct-01	3.08	0.0050	0.0050	1260	0.580	0.005	0.025
	FDUP	16-Oct-01	2.48	0.0050	0.0050	1250	0.644	0.006	0.025
15	MD66	18-Dec-01	4.32	0.0050	0.0420	2000	1.290	0.009	0.033
	FDUP	18-Dec-01	4.34	0.0050	0.0416	1970	0.697	0.011	0.033
16	MD40	19-Dec-01	3.24	0.0050	0.0147	1440	0.661	0.008	0.027
	FDUP	19-Dec-01	2.94	0.0050	0.0147	1470	0.697	0.008	0.028
17	MD40	30-Apr-02	3.04	0.0062	0.0050	1690	0.652	0.007	0.039
	FDUP	30-Apr-02	3.08	0.0126	0.0050	1680	na	na	0.038
18	MD26	9-May-02	5.32	0.0112	0.0499	1660	0.249	0.008	0.040
	FDUP	9-May-02	5.78	0.0156	0.0490	1650	0.302	0.010	0.043
19	MD25	22-Jul-02	5.60	0.0050	0.0050	585	0.582	0.005	0.048
	FDUP	22-Jul-02	5.62	0.0050	0.0050	579	0.465	0.005	0.048
20	MD30	17-Jul-02	2.82	0.0154	0.0095	1430	0.484	0.006	0.019
	FDUP	17-Jul-02	2.92	0.0149	0.3080	1430	0.370	0.005	0.019
21	MD27	22-Oct-02	3.44	0.0063	0.0197	1310	0.638	0.008	0.028
	FDUP	22-Oct-02	3.34	0.0081	0.0195	1310	0.599	0.010	0.028
22	MD40	17-Oct-02	3.46	0.0115	0.0050	843	0.428	0.008	0.028
	FDUP	17-Oct-02	3.52	0.0127	0.0050	882	0.683	0.005	0.027
23	MD27	17-Dec-02	4.68	0.0113	0.1300	4230	0.241	0.011	0.102
	FDUP	17-Dec-02	4.60	0.0130	0.1360	4070	0.767	0.019	0.102
24	MD40	18-Dec-02	3.36	0.0092	0.0137	1130	0.970	0.006	0.041
	FDUP	18-Dec-02	3.30	0.0096	0.0158	1140	0.731	0.074	0.041

APPENDIX C

**Database from Historical Consultant Studies
(Tighe & Bond, 1988 and CDM, 1995),**

**Compilation of DCR/DWSP Measurements of
Secchi Transparency from 1988 to 1995,**

and

Annotated Bibliography of Historical Documents

Tighe & Bond Report, Volumes 1 and 2 (1988)

Color and Turbidity at Station 3410 (East of Route 12 Bridge)

(surface grab samples)

Sampling Station: 3410	Sampling Date (Volume 1)								Sampling Date (Volume 2)							
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/19/87	06/15/87	07/21/87	08/25/87	09/21/87	10/20/87	03/30/88	04/19/88
Color (Pt-Co Units)	15	70	15	15	15	15	40	25	25	20	20	15	5	5	20	10
Turbidity (NTUs)	0.39	0.90	0.23	0.22	0.90	0.37	3.20	1.50	0.25	0.40	0.12	0.26	0.20	0.24	0.60	0.34

Alkalinity

(surface grab samples; results reported in mg/L as CaCO₃)

Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)							
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/19/87	06/15/87	07/21/87	08/25/87	09/21/87	10/20/87	03/30/88	04/19/88
Station 3409 (Cosgrove)	6.0	6.0	5.0	7.0	6.5	6.0	6.0	4.0	6.0	6.0	4.0	5.0	4.0	6.0	6.0	4.0
Station 3410 (E.of Rt.12)	7.0	7.0	6.0	7.0	5.0	5.5	4.0	5.0	6.0	6.0	4.0	6.0	6.0	6.0	5.0	4.0

Tighe & Bond Report, Volumes 1 and 2 (1988)

Ammonia

(surface grab or epilimnetic composite samples; results reported in mg/L; MDL = 0.01)

Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)														
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/07/87	05/19/87	06/02/87	06/15/87	07/06/87	07/21/87	08/11/87	08/25/87	09/08/87	09/21/87	10/05/87	10/20/87	12/07/87	03/30/88	04/19/88
Station 3409 (Cosgrove)	0.15	0.03	0.03	0.02	0.04	0.02	0.07	0.04	na	0.04	na	0.09	na	0.03	na	0.04	na	0.05	na	0.03	na	0.01	0.15
Station 3410 (E.of Rt.12)	0.06	0.03	0.02	0.03	0.07	0.04	0.07	0.03	na	0.04	na	0.08	na	0.05	na	0.04	na	0.06	na	0.03	na	0.01	0.09
Station 3412 (Basin South)	na	na	na	na	na	na	na	0.06	0.05	0.05	0.06	0.10	0.09	0.04	0.09	0.03	0.04	0.10	0.08	0.07	0.04	0.01	na
Station 3417 (Basin North)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.03	0.01	na

Nitrate plus Nitrite

(surface grab or epilimnetic samples; results reported in mg/L; MDL = 0.04)

Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)														
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/07/87	05/19/87	06/02/87	06/15/87	07/06/87	07/21/87	08/11/87	08/25/87	09/08/87	09/21/87	10/05/87	10/20/87	12/07/87	03/30/88	04/19/88
Station 3409 (Cosgrove)	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.18	na	0.19	na	0.15	na	0.11	na	0.05	na	0.04	na	0.07	na	0.07	0.09
Station 3410 (E.of Rt.12)	0.14	0.04	0.04	0.04	0.04	0.04	0.20	0.21	na	0.19	na	0.19	na	0.12	na	0.05	na	0.04	na	0.05	na	0.10	0.09
Station 3412 (Basin South)	na	na	na	na	na	na	na	0.20	0.19	0.19	0.17	0.16	0.14	0.11	0.08	0.10	0.05	0.04	0.08	0.08	0.10	0.11	na
Station 3417 (Basin North)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.09	0.08	na

Notes: (1) Values in *italic* indicate <MDL

(2) Values in shaded portion of table were reported in Tighe & Bond "Wachusett Reservoir Pollution Investigation" Quarterly Rpt. dated August 1988 (for program Dec.'87 - Mar.'88)

Tighe & Bond Report, Volumes 1 and 2 (1988)

Total Phosphorus

(surface grab or epilimnetic composite samples; results reported in mg/L)

Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)															
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/07/87	05/19/87	06/02/87	06/15/87	07/06/87	07/21/87	08/11/87	08/25/87	09/08/87	09/21/87	10/05/87	10/20/87	12/07/87	03/30/88	04/19/88	
Station 3409 (Cosgrove)	0.010	0.015	0.010	0.007	0.033	0.024	0.051	0.011	na	0.009	na	0.014	na	0.012	na	0.020	na	0.019	na	0.018	na	0.016	0.023	
Station 3410 (E.of Rt.12)	0.008	0.011	0.010	0.010	0.035	0.023	0.040	0.013	na	0.010	na	0.017	na	0.010	na	0.016	na	0.021	na	0.017	na	0.019	0.019	
Station 3412 (Basin South)	na	na	na	na	na	na	na	0.014	0.006	0.009	0.013	0.015	0.012	0.012	0.014	0.020	0.010	0.017	0.027	0.017	0.022	0.016	na	
Station 3417 (Basin North)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.016	0.021	na

Chlorophyll A

(surface grab or epilimnetic composite samples; results reported in mg/cu.m)

Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)														
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/07/87	05/19/87	06/02/87	06/15/87	07/06/87	07/21/87	08/11/87	08/25/87	09/08/87	09/21/87	10/05/87	10/20/87	12/07/87	03/30/88	04/19/88
Station 3412 (Basin South)	3.20	9.60	2.10	0.70	3.70	2.30	na	1.20	0.31	1.68	2.13	1.97	2.27	2.42	2.80	1.90	1.40	2.20	5.70	2.30	1.31	5.40	3.25
Station 3417 (Basin North)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.42	5.32	na

Note: Values in shaded portion of table were reported in Tighe & Bond "Wachusett Reservoir Pollution Investigation" Quarterly Rpt. dated August 1988 (for program Dec.'87 - Mar.'88)

Tighe & Bond Report, Volumes 1 and 2 (1988)

Total Phytoplankton

(from 10-foot vertical haul with 80 micron net; densities reported in ASUs/ml)

Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)							
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/19/87	06/15/87	07/21/87	08/25/87	09/21/87	10/20/87	12/07/87	03/30/88
Station 3409 (Cosgrove)	831.2	186.0	3.6	4.7	31.3	102.9	11.8	1.9	71.9	2126.9	13.9	21.5	46.5	90.8	na	1132.7
Station 3410 (E.of Rt.12)	10.1	37.4	43.6	1.1	na	69.3	na	3.0	49.8	585.4	na	65.5	3.2	83.8	na	74.2
Station 3412 (Basin South)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	553.9	577.0
Station 3417 (Basin North)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	412.1	237.3

Secchi Transparency

(measurements reported in feet)

Measurements Reported in Test																	
Sampling Location	Sampling Date (Volume 1)								Sampling Date (Volume 2)								
	05/21/86	06/18/86	07/16/86	08/14/86	09/17/86	10/09/86	03/31/87	04/22/87	05/19/87	06/15/87	07/21/87	08/25/87	09/21/87	10/20/87	12/07/87	03/30/88	04/19/88
Station 3409 (Cosgrove)	na	na	23.0	24.2	20.8	23.4	na	13.0	16.1	14.0	18.5	20.9	15.3	0.8	na	19.5	15.9
Station 3410 (E.of Rt.12)	na	na	24.2	21.2	30.3	24.6	na	12.2	14.1	9.5	15.6	21.1	20.0	1.3	na	8.7	14.2
Station 3412 (Basin South)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	16.6	14.5	na
Station 3417 (Basin North)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	17.1	15.5	na

Note: Values in shaded portion of table were reported in Tighe & Bond "Wachusett Reservoir Pollution Investigation" Quarterly Rpt. dated August 1988 (for program Dec.'87 - Mar.'88)

CDM Report (1995)**Selected Results for Ammonia (ug/L; MDL = 10)**

Station	Sampling Date								
	04/19/94	05/03/94	06/07/94	07/06/94	08/02/94	09/07/94	10/03/94	11/01/94	12/05/94
T. Basin (E)	20	68	65	<i>10</i>	<i>10</i>	19	50	<i>10</i>	88
T. Basin (M)	63	95	401	<i>10</i>	29	19	35	<i>10</i>	32
T. Basin (H)	20	15	108	<i>10</i>	29	19	40	38	27
3410 (E)	30	15	94	214	<i>10</i>	19	20	<i>10</i>	32
3410 (M)	29	15	312	48	<i>10</i>	19	30	<i>10</i>	32
3410 (H)	20	15	152	<i>10</i>	49	19	50	<i>10</i>	47
3412 (E)	20	24	63	394	12	<i>10</i>	30	<i>10</i>	57
3412 (M)	<i>10</i>	15	45	<i>10</i>	29	19	30	<i>10</i>	37
3412 (H)	29	15	81	110	49	<i>10</i>	50	<i>10</i>	27
3417 (E)	20	68	205	<i>10</i>	32	<i>10</i>	20	<i>10</i>	37
3417 (M)	20	<i>10</i>	125	<i>10</i>	19	28	20	33	271
3417 (H)	29	24	597	17	99	<i>10</i>	20	<i>10</i>	27
3409 (E)	13	15	579	<i>10</i>	12	28	<i>10</i>	43	37
3409 (M)	<i>10</i>	15	36	<i>10</i>	29	<i>10</i>	<i>10</i>	<i>10</i>	37
3409 (H)	<i>10</i>	15	303	17	49	28	<i>10</i>	<i>10</i>	47

- Notes:
- (1) Values in italix indicate <MDL
 - (2) Water column locations indicated as follow: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom
 - (3) Duplicate samples are included in the table as the average of both measurements
(values <MDL are counted as half the detection limit)

CDM Report (1995)

Selected Results for Chlorophyll-A (mg/cu M; MDL = 0.1)

Station	Sampling Date								
	04/19/94	05/03/94	06/07/94	07/06/94	08/02/94	09/07/94	10/03/94	11/01/94	12/05/94
T. Basin (E)	<i>0.10</i>	<i>0.10</i>	3.20	3.20	1.60	2.40	0.41	4.68	20.55
T. Basin (M)	0.40	1.60	0.80	1.60	1.60	2.00	10.09	0.78	25.20
3410 (E)	0.43	1.60	0.80	2.40	1.60	2.40	4.57	1.51	10.13
3410 (M)	<i>0.10</i>	0.80	0.80	4.81	1.60	2.40	3.03	2.28	10.78
3412 (E)	0.80	1.60	<i>0.10</i>	1.60	<i>0.10</i>	2.40	3.09	0.76	17.80
3412 (M)	2.40	2.40	2.40	4.81	5.61	4.01	1.51	3.12	11.90
3417 (E)	4.01	1.60	2.40	1.60	3.20	1.60	4.51	<i>0.10</i>	27.10
3417 (M)	1.60	0.80	1.60	1.60	6.41	2.20	1.53	<i>0.10</i>	14.30
3409 (E)	1.20	2.40	4.81	3.20	3.20	2.40	0.77	3.81	6.10
3409 (M)	2.40	1.60	0.80	0.80	4.01	0.80	3.12	3.06	5.21

- Notes:
- (1) Values in italix indicate <MDL
 - (2) Water column locations indicated as follow: E = epilimnion/surface, M = metalimnion/middle
 - (3) Duplicate samples are included in the table as the average of both measurements
(values <MDL are counted as half the detection limit)

CDM Report (1995)**Selected Results for Nitrate (ug/L; MDL = 30)**

Station	Sampling Date								
	04/19/94	05/03/94	06/07/94	07/06/94	08/02/94	09/07/94	10/03/94	11/01/94	12/05/94
T. Basin (E)	159	208	132	75	<i>30</i>	<i>30</i>	<i>30</i>	178	96
T. Basin (M)	149	219	169	40	<i>30</i>	<i>30</i>	<i>30</i>	<i>30</i>	132
T. Basin (H)	168	219	148	40	<i>30</i>	<i>30</i>	<i>30</i>	<i>30</i>	142
3410 (E)	178	208	143	66	51	<i>30</i>	<i>30</i>	<i>30</i>	50
3410 (M)	207	208	158	66	32	<i>30</i>	<i>30</i>	<i>30</i>	<i>30</i>
3410 (H)	197	208	169	na	116	59	56	54	70
3412 (E)	168	197	126	66	42	<i>30</i>	<i>30</i>	<i>30</i>	39
3412 (M)	168	208	126	83	42	39	61	126	39
3412 (H)	159	185	169	179	<i>30</i>	185	170	167	50
3417 (E)	110	152	116	66	<i>30</i>	<i>30</i>	<i>30</i>	43	39
3417 (M)	120	185	126	144	51	59	121	156	<i>30</i>
3417 (H)	120	174	158	171	163	185	<i>30</i>	208	<i>30</i>
3409 (E)	115	163	116	62	<i>30</i>	<i>30</i>	<i>30</i>	<i>30</i>	50
3409 (M)	101	152	116	118	79	<i>30</i>	<i>30</i>	<i>30</i>	50
3409 (H)	101	152	148	144	116	59	<i>30</i>	40	60

- Notes:
- (1) Values in italix indicate <MDL
 - (2) Water column locations indicated as follow: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom
 - (3) Duplicate samples are included in the table as the average of both measurements
(values <MDL are counted as half the detection limit)

CDM Report (1995)**Selected Results for Total Phosphorus (ug/L; MDL = 1)**

Station	Sampling Date								
	04/19/94	05/03/94	06/07/94	07/06/94	08/02/94	09/07/94	10/03/94	11/01/94	12/05/94
T. Basin (E)	8	7	10	3	2	5	3	3	7
T. Basin (M)	8	8	11	3	5	3	4	4	8
T. Basin (H)	9	8	35	4	4	10	2	3	8
3410 (E)	6	6	6	5	1	4	4	3	3
3410 (M)	6	5	4	6	2	4	3	3	5
3410 (H)	6	6	38	4	3	3	3	10	4
3412 (E)	5	4	3	5	1	4	3	2	2
3412 (M)	5	5	7	5	3	5	3	3	5
3412 (H)	5	4	3	3	2	3	2	3	3
3417 (E)	5	6	3	2	na	5	5	6	3
3417 (M)	3	5	3	4	3	3	3	3	4
3417 (H)	4	2	5	5	2	5	4	3	2
3409 (E)	4	5	6	3	1	3	3	2	4
3409 (M)	4	3	5	5	2	2	2	4	3
3409 (H)	3	4	4	5	4	3	6	3	1

- Notes:
- (1) Values in italix indicate <MDL
 - (2) Water column locations indicated as follow: E = epilimnion/surface, M = metalimnion/middle, H = hypolimnion/bottom
 - (3) Duplicate samples are included in the table as the average of both measurements
(values <MDL are counted as half the detection limit)

CDM Report (1995)**Total Phytoplankton**

(densities reported as ASUs/ml; sampling and analysis conducted by DCR/DWSP except as indicated)

Station	Sampling Date							
	04/19/94	05/03/94	06/07/94	07/06/94	08/02/94	09/07/94	11/01/94	12/05/94
3412 (composites, 0 to 2 m)	155.3	141.1	524.3	277.3	103.5	190.3	679.8	179.6
3412 (grabs at 8, 10, or 18 m)	na	na	na	93.6	510.3	195.7	320.1	226.5
				MWRA analysis				

CDM Report (1995)
Compilation of Field Duplicate Samples

	SAMPLE ID	SAMPLE NAME	AMMONIA (mg/L)	NITRATE (mg/L)	TOTAL PHOS. (mg/L)	CHLORO. A (mg/cu.m)
1	3409-4-2	3409-CO-[4/19/94]	0.02	0.12	na	0.80
	3409-4-2D	3409-CO-[4/19/94]D	<0.01	0.11	na	1.60
2	3409-4-6	3409-CO-[7/6/94]	<0.01	0.057	0.003	na
	3409-4-6D	3409-1-[7/6/94]D	<0.01	0.066	0.003	na
3	3409-4-8	3409-CO-[8/2/94]	<0.01	<0.03	0 (?)	na
	3409-4-8D	3409-1-[8/2/94]D	0.019	0.032	0.001	na
4	3409-4-12	3409-CO-[11/1/94]	0.08	<0.03	0.002	6.85
	3409-4-12D	3409-CO-[11/1/94]D	<0.01	<0.03	0.002	0.77
5	3409-5-9	3409-8-[11/1/94]	<0.01	<0.03	0.003	3.03
	3409-5-9D	3409-8-[11/1/94]D	<0.01	<0.03	0.004	3.08
6	3409-6-9	3409-14-[11/1/94]	<0.01	<0.03	0.003	na
	3409-6-9D	3409-14-[11/1/94]D	<0.01	0.064	0.003	na
7	3410-1-4	3410-CO-[4/19/94]	0.054	0.188	na	0.80
	3410-1-4D	3410-CO-[4/19/94]D	<0.01	0.168	na	<0.1
8	3410-1-7	3410-CO-[6/7/94]	0.143	0.137	0.008	na
	3410-1-7D	3410-CO-[6/7/94]D	0.045	0.148	0.004	na
9	3410-1-12	3410-CO-[10/3/94]	0.02	<0.03	0.004	6.07
	3410-1-12D	3410-CO-[10/3/94]D	0.02	<0.03	0.004	3.06
10	3410-1-15	3410-CO-[12/5/94]	0.037	0.05	0.002	12.10
	3410-1-15D	3410-CO-[12/5/94]D	0.027	0.05	0.003	8.16
11	3410-2-9	3410-8-[10/3/94]	0.03	<0.03	0.002	1.52
	3410-2-9D	3410-8-[10/3/94]D	0.03	<0.03	0.003	4.53
12	3410-2-12	3410-8-[12/5/94]	0.027	<0.03	0.006	13.40
	3410-2-12D	3410-8-[12/5/94]D	0.037	0.039	0.003	8.16
13	3410-3-9	3410-14-[10/3/94]	0.07	0.051	0.003	na
	3410-3-9D	3410-14-[10/3/94]D	0.03	0.061	0.003	na
14	3410-3-12	3410-14-[12/5/94]	0.047	0.07	na	na
	3410-3-12D	3410-14-[12/5/94]D	0.047	0.07	na	na
15	3412-3-4	3412-CO-[7/6/94]	0.783	0.066	0.005	na
	3412-3-4D	3412-1-[7/6/94]D	<0.01	0.066	0.004	na
16	3412-3-6	3412-CO-[8/2/94]	<0.01	0.042	0.001	na
	3412-3-6D	3412-1-[8/2/94]D	0.019	0.042	0.001	na
17	3417-1-5	3417-CO-[8/2/94]	0.059	<0.03	na	na
	3417-1-5D	3417-CO-[8/2/94]D	<0.01	<0.03	na	na
18	3417-2-6	3417-10-[9/7/94]	na	na	na	1.60
	3417-2-6D	3417-10-[9/7/94]D	na	na	na	2.80
19	3417-3-6	3417-20-[9/7/94]	<0.01	0.185	0.005	na
	3417-3-6D	3417-20-[9/7/94]D	<0.01	0.185	0.004	na
20	TB1-3	TB-CO-[6/7/94]	0.125	0.126	0.010	na
	TB1-3D	TB-1-[6/7/94]D	<0.01	0.137	0.010	na
21	TB1-8	TB-CO-[10/3/94]	0.03	<0.03	0.003	<0.1
	TB1-8D	TB-CO-[10/3/94]D	0.07	0.041	0.003	0.77
22	TB1-10	TB-CO-[11/1/94]	<0.01	<0.03	0.002	0.77
	TB1-10D	TB-CO-[11/1/94]D	<0.01	0.341	0.003	8.60
23	TB1-12	TB-CO-[12/5/95]	0.037	0.101	0.008	28.00
	TB1-12D	TB-CO-[12/5/94]D	0.139	0.091	0.006	13.10
24	TB2-7	TB-6-[10/3/94]	0.03	<0.03	0.004	17.20
	TB2-7D	TB-6-[10/3/94]D	0.04	<0.03	0.003	2.97
25	TB2-9	TB-4-[11/1/94]	<0.01	<0.03	0.006	0.78
	TB2-9D	TB-4-[11/1/94]D	<0.01	<0.03	0.002	0.77
26	TB2-11	TB-6-[12/5/94]	0.037	0.142	0.008	23.70
	TB2-11D	TB-6-[12/5/94]D	0.027	0.121	0.008	26.70
27	TB3-7	TB-9-[10/3/94]	0.04	0.041	0.001	na
	TB3-7D	TB-9-[10/3/94]D	0.04	<0.03	0.003	na
28	TB3-9	TB-8-[11/1/94]	0.042	<0.03	0.003	na
	TB3-9D	TB-8-[11/1/94]D	0.033	<0.03	0.003	na
29	TB3-11	TB-9-[12/5/94]	0.027	0.142	0.008	na
	TB3-11D	TB-9-[12/5/94]D	0.027	0.142	0.008	na

Historical DCR/DWSP (formerly MDC/DWM) Records of Secchi Transparency in Wachusett Reservoir from 1988 to 1995 (measurements in feet)

		Measurement Date									
	Station	6/8/88	7/7/88	7/18/88	8/2/88	8/16/88	8/31/88	9/12/88	9/26/88	11/9/88	11/30/88
1	3409	na	21.6	19.5	21.3	na	15.5	na	na	19.0	19.2
9	3417	15.1	22.3	20.5	19.5	na	16.2	18.9	21.8	21.5	20.7
8	3412	13.1	20.0	23.0	24.5	16.1	24.7	17.0	21.8	20.8	22.5
8	3410	12.7	20.0	20.8	23.8	17.9	22.0	20.1	22.0	19.0	17.7

	Station	4/12/89	4/25/89	5/9/89	5/23/89	6/5/89	6/19/89	7/12/89	7/24/89	8/7/89	8/22/89	9/5/89	9/11/89	9/27/89	10/10/89	10/24/89	11/14/89
1	3409	16.5	20.5	14.2	na	11.4	9.6	14.0	20.5	19.3	15.0	14.0	16.9	na	23.0	21.6	na
9	3417	18.2	19.5	16.2	15.7	12.5	7.3	15.1	19.2	16.8	15.5	14.8	17.0	16.0	25.0	26.0	na
8	3412	16.4	15.8	13.7	15.2	11.7	7.2	14.1	15.1	15.7	17.0	14.0	16.6	18.0	29.0	20.0	15.0
9	3410	12.4	13.3	11.0	13.2	8.4	7.6	12.9	16.3	13.5	10.0	13.0	16.0	16.0	21.5	15.0	15.5

	Station	4/9/90	4/23/90	5/8/90	5/23/90	6/6/90	6/20/90	7/2/90	7/17/90	8/1/90	8/14/90	8/27/90	9/11/90	9/25/90	10/26/90
1	3409	na	13.8	18.8	20.3	13.3	14.5	16.9	14.6	16.0	14.5	19.5	19.7	15.5	23.0
9	3417	12.8	14.3	20.3	17.7	14.2	15.8	13.8	15.5	17.2	16.5	24.4	na	18.0	20.5
9	3412	14.1	12.8	15.4	17.6	14.7	14.3	14.2	16.8	18.5	17.0	24.3	19.4	20.0	19.8
0	3410	11.0	11.0	13.7	12.1	10.0	16.8	13.4	17.2	16.5	17.0	19.6	18.3	19.5	18.0

	Station	5/30/91	8/21/91	10/9/91
1	3409	14.2	16.2	13.0
9	3417	13.4	11.0	na
9	3412	15.3	15.6	na
1	3410	na	12.8	17.3

Notes: (1) Secchi data not reported in Annual Reports from 1989, 1990, and 1991; some data missing in Annual Report from 1988
(2) No Secchi measurements recorded in 1996 or 1997; Secchi measurements were resumed in 1998 and continue to the present

	Station	7/28/92	8/21/92	9/16/92	10/28/92	11/19/92
1	3409	na	17.0	22.1	26.0	24.7
9	3417	na	16.0	22.2	na	24.6
9	3412	17.5	14.8	20.7	23.5	21.7
2	3410	14.4	14.0	18.3	27.0	20.6

	Station	4/29/93	6/24/93	7/15/93	8/26/93	9/23/93	11/15/93
1	3409	20.0	15.8	na	18.8	23.6	22.6
9	3417	na	15.0	17.3	19.8	26.8	21.8
9	3412	na	14.6	18.2	18.9	26.8	21.8
3	3410	na	14.6	18.8	21.8	24.8	19.7

	Station	4/19/94	5/3/94	6/7/94	7/6/94	8/2/94	9/7/94	10/4/94	11/1/94	12/6/94
1	3409	na	19.3	18.4	20.8	22.9	23.3	20.7	18.0	24.2
9	3417	20.9	21.8	22.4	20.4	24.3	23.5	21.9	19.8	21.3
9	3412	na	19.4	20.3	19.5	25.3	28.8	20.2	18.8	22.0
4	3410	na	18.9	18.8	15.8	23.4	24.6	20.1	20.5	25.5

	Station	4/20/95	5/18/95	6/22/95	7/12/95
1	3409	22.4	19.1	21.5	23.8
9	3417	21.5	19.7	19.5	22.8
9	3412	14.7	20.4	na	22.4
5	3410	20.3	19.3	19.6	22.0

Annotated Bibliography of Historical Documents

CDM, 1989 (January). Wachusett Reservoir Taste and Odor Study. Final Report.

- Patterned after a typical diagnostic/feasibility study, this report summarizes data on basin morphometry, watershed characteristics, and hydrologic and nutrient budgets, and outlines in-reservoir treatment options for control of phytoplankton; data presented on nutrients originated from Tighe & Bond 1987-88 sampling program (cited below, CDM presents some data that apparently were documented in an interim Tighe & Bond report, but omitted in the final report).

CDM and FTN Associates, Ltd. 1994 (February). Wachusett Reservoir Water Treatment Plan EIR/Conceptual Design. Task 2: Final Summary of Existing Water Quality.

- In the context of the Surface Water Treatment Rule (SWTR) and its filtration avoidance criteria, this report evaluates existing data on hydrodynamics, coliform bacteria, and “nutrients/algal populations”; movement of Quabbin transfer erroneously considered an “underflow”; data presented on nutrients originated from Tighe & Bond sampling programs (cited below) and MDC samples from Cosgrove and tributaries sent to private lab; plankton data from Tighe & Bond sampling programs (cited below) and MDC 1989 sampling program.

CDM and FTN Associates, Ltd. 1994 (May). Wachusett Reservoir Water Treatment Plan EIR/ Conceptual Design. Task 2: Wachusett Reservoir Modeling Protocol.

- This report presents order of magnitude estimates, model evaluation and rationale for selection of the two-dimensional CE-QUAL-W2 model, model calibration and confirmation procedures, and projected scenarios to be simulated; Quabbin transfer erroneously assumed to move as a hypolimnetic “underflow”; data used for model calibration from Tighe & Bond 1987-88 sampling program (cited below) and data from 1990 and 1992 generated by MDC and MWRA (this CDM report refers to a Tighe & Bond report dated May 1989 now apparently missing from MDC archives).

CDM, 1995 (July). Wachusett Reservoir Water Treatment Plan EIR/Conceptual Design. Task 2.3: Wachusett Reservoir Draft Modeling Report.

- This report reviews the development of CE-QUAL-W2 two-dimensional numeric model and the results of initial simulations; movement of Quabbin transfer through Wachusett is correctly recognized as a metalimnetic “interflow” in Section 6.4.4; simulations of water quality in Wachusett lacking the annual transfers from Quabbin are presented in Section 8.5 with “minimal impact” the dubious conclusion.

CDM, 1995 (August). Wachusett Reservoir Water Treatment Plan EIR/Conceptual Design. Task 2 Water Quality Studies: Final Data Report February 1994 - January 1995. Volume I: Report and Volume II: Appendices A-C.

- This report presents the results of a sampling program conducted by CDM from February 1994 to January 1995 as well as data generated during the same period by MDC and MWRA; the CDM program consisted of the following four components: (1) baseline monitoring (tributary and reservoir stations), (2) storm event sampling (in and around Thomas Basin), (3) turnover monitoring (at a location out from Cosgrove), and (4) gull load monitoring (in the “Boylston Roost” area); the report documents measurement and analysis of hydrographic parameters (temperature, dissolved oxygen, etc.), nutrients, plankton, and pathogens.

CDM, 1995 (August). Wachusett Reservoir Water Treatment Plan EIR/Conceptual Design. Wachusett Reservoir Water Quality: Interim Assessment.

- This report reviews the findings of water quality studies conducted in 1994-95 (cited above) primarily in the context of filtration avoidance; major topics discussed include hydrodynamic function based on modeling, fecal coliform bacteria, pathogens, and nutrients/algae; report elaborates on water quality “improvement scenarios,” non-filtration criteria, and suggested modifications to existing monitoring programs.

CDM, 1996 (August). Wachusett Reservoir Water Treatment Plan EIR/Conceptual Design. Understanding Algal Dynamics in Wachusett Reservoir to Manage Taste and Odor.

- This report focuses on phytoplankton data sets compiled by MDC and MWRA during the period from 1991 to 1995 from sampling conducted at Cosgrove Intake; major seasonal patterns in phytoplankton succession and abundance are presented and discussed; the duration of ice cover is identified as a key factor leading to one or the other of two general annual patterns: (1) average or reduced periods of ice cover (about 11 weeks or less) are linked to vigorous diatom blooms and peak total densities in spring followed by reduced densities the remainder of the year and (2) extended periods of ice cover (13 to 14 weeks) are linked to spring blooms of *Synura* and relatively high total densities in summer; the report also includes a review of hydrodynamic and nutrient data (from CDM reports cited above), an analysis of MWRA odor data (1987 to 1995) and copper sulfate treatments (1986 to 1995), an evaluation of alternative techniques for controlling phytoplankton, and recommendations for future monitoring and research.

Hoehn, R.C. and B.C. Parker. 1992 (July). Technical Memorandum. Review of Wachusett Reservoir Algae Data (Subtask 1.2.1). Prepared for CH2M Hill.

- This report (the available copy is marked draft) reviews MDC and MWRA data on plankton densities, water column profiles, and nutrient concentrations from analyses conducted during the period 1987 to 1991 in relation to taste and odor episodes and potential filter-clogging problems; data evaluated was generated mostly from Cosgrove, but included nutrient measurements from the main basin conducted by Tighe & Bond (April 1987 - March 1988, cited below); the report also includes a review of the copper sulfate application program and provides recommendations.

Massachusetts Water Resources Authority (MWRA). Records of plankton observations compiled by Mary Bezek and other staff from June 9, 1987 through July 1, 1999 (contained in 18 notebooks which are stored at the MWRA facility in Southborough, MA where the microscopic examinations were conducted).

- These records document analyses of water samples from numerous locations in the MWRA distribution system serving Greater Boston as well as Wachusett Reservoir. Most data about the reservoir come from samples collected approximately weekly off the catwalk at the rear of Cosgrove Intake (referred to as Shaft A in the notebooks), but a few data originate from sampling locations in the main basin and at multiple depths. MWRA and DWSP sampling efforts at Cosgrove Intake and other reservoir locations were contemporaneous during this time period, but were conducted independently. However, both agencies used similar sampling procedures and analysis methods. The data generated by MWRA are consistent with the results of DWSP plankton analyses as presented in Section 5.0 and summarized in Table 11 of this report. Noteworthy among the MWRA plankton records are observations of episodic chrysophyte blooms throughout the north basin of the reservoir including the following: (1) *Chrysosphaerella* peaking at a depth of 8 meters on August 22, 1990, (2) *Uroglenopsis* throughout the epilimnion on October 9, 1991 with a maximum density of 893 ASUs/ml, and (3) *Dinobryon* reaching densities of 1,200 to 2,800 ASUs/ml at depths of 9 to 10 meters on September 12, 1995.

Metropolitan District Commission, Division of Watershed Management (now known as Department of Conservation and Recreation, Division of Water Supply Protection). Water Quality Reports: 1988 through 2002. Wachusett Reservoir and Watershed.

- These annual reports document and evaluate all measurements and water quality data generated about the reservoir and watershed during the year including nutrients, plankton, and hydrographic parameters (temperature, dissolved oxygen, etc.); the 1988 annual report was the first one produced by the MDC and this initial report also contained data on Quabbin Reservoir, Ware River, and their watersheds, whereas separate reports were generated subsequently for these components of the MDC system.

Parker, B.C. and M.H. Beaty. 1998. Ecology of Taste and Odor Compound Producing Algae in Wachusett Reservoir, Clinton, MA (draft manuscript of article intended for journal publication dated June 18, 1998).

- This unpublished article reviews MWRA and MDC plankton data from 1996 and 1997 as part of a presentation on the physiology, ecology, and taste and odor producing potential of seven phytoplankton taxa occurring in Wachusett Reservoir and associated with “consumer realized taste and odor episodes.”

Tighe & Bond, Inc. 1985 (December). Water Quality Monitoring at Quabbin, Wachusett & Northfield Reservoirs & the Ware River Intake. Final Report.

June, 1984 - July, 1985. Tighe & Bond, Inc. Consulting Engineers. Easthampton, Massachusetts.

- This report presents the results of a sampling program conducted by Tighe & Bond from June 1984 through July 1985 that focused primarily on Quabbin Reservoir with minimal data on the other water bodies identified in the title; most of the document consists of data sheets cataloging the results of analyses of water, sediment, and biological samples.

Tighe & Bond, Inc. 1988 (August). Wachusett Reservoir Pollution Investigation. Quarterly Report. December 1987 - March 1988.

- This document tabulates data generated on Wachusett tributaries and reservoir basin (some of the data included in this report are not integrated into the final report produced in November 1988, see below).

Tighe & Bond, Inc. 1988 (November). Water Quality Monitoring at Quabbin, Wachusett & Northfield Reservoirs & the Ware & Swift Rivers, Final Report Volume 1 (May 1986 - April 1987) and Volume 2 (May 1987 - April 1988).

Tighe & Bond, Inc. Consulting Engineers. Easthampton, Massachusetts.

- This report presents the results of a sampling program conducted by Tighe & Bond from May 1986 through April 1988 with water, sediment, and biological data generated extensively for both Wachusett and Quabbin Reservoirs; drawbacks of this program are that nutrient measurements were limited to surface grab samples (or epilimnetic composites) and that data on Secchi transparency and chlorophyll-A concentrations accompanying plankton data are contradictory and appear unreliable; CDM (1989, cited above) presents some data that apparently were documented in an interim Tighe & Bond report, but omitted in this final report.

APPENDIX D

Phytoplankton Database for 1998-99 Year of Monthly Sampling

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:
7-Oct-98

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (surface grabs @ 0.3 m; tube sampler not yet acquired)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	10.15	/ 246.32	11.37	/ 219.89	8.28	/ 301.95	9.49	/ 263.45
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	/		/		/		/	
<i>Cyclotella</i>	/		0.4	/ 88	/		/	
<i>Fragilaria</i>	/		/		/		/	
<i>Melosira</i>	/		/		/		/	
<i>Navicula</i>	/		/		/		/	
<i>Rhizosolenia</i>	/		/		/		/	
<i>Synedra</i>	/		/		/		/	
<i>Tabellaria</i>	/		/		/		/	
Chlorophyta (green algae)								
<i>Actinastrum</i>	/		/		/		/	
<i>Arthrodesmus</i>	/		/		/		/	
<i>Closterium</i>	/		/		/		/	
<i>Coelastrum</i>	/		/		/		/	
<i>Crucigenia</i>	/		/		/		/	
<i>Desmidium</i>	/		/		/		/	
<i>Elakatothrix</i>	/		/		/		/	
<i>Eudorina</i>	/		/		/		/	
<i>Gloeocystis</i>	/		/		/		/	
<i>Mougeotia</i>	/		/		/		/	
<i>Pediastrum</i>	/		/		/		/	
<i>Scenedesmus</i>	/		/		/		/	
<i>Schroederia</i>	/		/		/		/	
<i>Staurastrum</i>	/		/		/		/	
<i>Sphaerocystis</i>	/		/		/		/	
<i>Spirogyra</i>	/		/		/		/	
<i>Spondylosium</i>	/		/		/		/	
<i>Zygnema</i>	/		/		/		/	
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>	/		/		/		/	
<i>Dinobryon</i>	/		/		/		/	
<i>Mallomonas</i>	/		/		/		/	
<i>Synura</i>	/		/		/		/	
Cyanophyta (blue-green algae)								
<i>Anabaena</i>	0.4	/ 99	0.2	/ 44	/		/	
<i>Aphanocapsa</i>	0.5	/ 123	0.2	/ 44	0.2	/ 60	/	
<i>Chroococcus</i>	0.3	/ 74	0.2	/ 44	/		/	
<i>Coelosphaerium</i>	/		/		/		/	
<i>Merismopedia</i>	/		/		/		/	
<i>Microcystis</i>	11.0	/ 2,710	13.8	/ 3,035	5.6	/ 1,691	0.6	/ 158
<i>Oscillatoria</i>	/		/		/		/	
<i>Rhabdoderma</i>	/		/		/		/	
Pyrrhophyta (dinoflagellates)								
<i>Ceratium</i>	/		/		/		/	
<i>Peridinium</i>	/		/		/		/	
Unidentified								
flagellates	/		/		/		/	
testate rhizopods	/		/		/		/	
unicellular/resting stages	/		/		/		/	
Totals =	12.2	/ 3,005	14.8	/ 3,254	5.8	/ 1,751	0.6	/ 158

SEGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:
3-Nov-98

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 7 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	13.39	/ 186.72	16.35	/ 152.92	17.60	/ 142.06	17.02	/ 146.90
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	0.1	/ 19		/ 0		/ 0		/ 0
<i>Cyclotella</i>	0.3	/ 56	0.1	/ 15		/ 0		/ 0
<i>Fragilaria</i>		/ 0		/ 0		/ 0		/ 0
<i>Melosira</i>		/ 0		/ 0		/ 0		/ 0
<i>Navicula</i>		/ 0		/ 0		/ 0		/ 0
<i>Rhizosolenia</i>		/ 0		/ 0		/ 0		/ 0
<i>Synedra</i>		/ 0		/ 0		/ 0		/ 0
<i>Tabellaria</i>		/ 0		/ 0		/ 0		/ 0
Chlorophyta (green algae)								
<i>Actinastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Arthrodesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Closterium</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Crucigenia</i>		/ 0		/ 0		/ 0		/ 0
<i>Desmidium</i>		/ 0		/ 0		/ 0		/ 0
<i>Elakatothrix</i>		/ 0		/ 0		/ 0		/ 0
<i>Eudorina</i>		/ 0		/ 0		/ 0		/ 0
<i>Gloeocystis</i>		/ 0	0.2	/ 31		/ 0	0.2	/ 29
<i>Mougeotia</i>		/ 0		/ 0		/ 0		/ 0
<i>Pediastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Scenedesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Schroederia</i>		/ 0		/ 0		/ 0		/ 0
<i>Staurastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Sphaerocystis</i>		/ 0		/ 0		/ 0		/ 0
<i>Spirogyra</i>		/ 0		/ 0		/ 0		/ 0
<i>Spondylosium</i>		/ 0		/ 0		/ 0		/ 0
<i>Zygnema</i>		/ 0		/ 0		/ 0		/ 0
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>		/ 0		/ 0		/ 0		/ 0
<i>Dinobryon</i>		/ 0		/ 0		/ 0		/ 0
<i>Mallomonas</i>		/ 0		/ 0		/ 0		/ 0
<i>Synura</i>		/ 0		/ 0		/ 0		/ 0
Cyanophyta (blue-green algae)								
<i>Anabaena</i>		/ 0		/ 0		/ 0		/ 0
<i>Aphanocapsa</i>		/ 0		/ 0		/ 0		/ 0
<i>Chroococcus</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelosphaerium</i>		/ 0		/ 0		/ 0		/ 0
<i>Merismopedia</i>		/ 0		/ 0		/ 0		/ 0
<i>Microcystis</i>	2.4	/ 448	3.8	/ 581	1.8	/ 256	0.3	/ 44
<i>Oscillatoria</i>		/ 0		/ 0		/ 0		/ 0
<i>Rhabdoderma</i>		/ 0		/ 0		/ 0		/ 0
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>		/ 0		/ 0		/ 0		/ 0
<i>Peridinium</i>		/ 0		/ 0		/ 0		/ 0
Unidentified								
flagellates	0.2	/ 37		/ 0		/ 0	0.2	/ 29
testate rhizopods		/ 0	0.1	/ 15	1.0	/ 142		/ 0
unicellular/resting stages		/ 0		/ 0		/ 0	0.2	/ 29
Totals =	3.0	/ 560	4.2	/ 642	2.8	/ 398	0.9	/ 132

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:
2-Dec-98

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 7 m)											
	Cosgrove/3409			Basin North/3417			Basin South/3412			Thomas Basin		
	19.92	/	125.51	23.69	/	105.54	24.62	/	101.55	27.42	/	91.18
	Raw Count	/	ASUs/ml	Raw Count	/	ASUs/ml	Raw Count	/	ASUs/ml	Raw Count	/	ASUs/ml
Bacillariophyceae (diatoms)												
<i>Asterionella</i>	0.7	/	88		/	0		/	0	0.2	/	18
<i>Cyclotella</i>		/	0	0.4	/	42	0.4	/	41		/	0
<i>Fragilaria</i>		/	0		/	0		/	0		/	0
<i>Melosira</i>		/	0		/	0		/	0		/	0
<i>Navicula</i>	0.1	/	13		/	0		/	0		/	0
<i>Rhizosolenia</i>		/	0		/	0		/	0		/	0
<i>Synedra</i>		/	0		/	0		/	0		/	0
<i>Tabellaria</i>		/	0	1.0	/	106		/	0		/	0
Chlorophyta (green algae)												
<i>Actinastrum</i>		/	0		/	0		/	0		/	0
<i>Arthrodesmus</i>		/	0		/	0		/	0		/	0
<i>Closterium</i>		/	0		/	0		/	0		/	0
<i>Coelastrum</i>		/	0		/	0		/	0		/	0
<i>Crucigenia</i>		/	0		/	0		/	0		/	0
<i>Desmidium</i>		/	0		/	0		/	0		/	0
<i>Elakatothrix</i>		/	0		/	0		/	0		/	0
<i>Eudorina</i>		/	0		/	0		/	0		/	0
<i>Gloeocystis</i>		/	0		/	0	0.1	/	10		/	0
<i>Mougeotia</i>		/	0		/	0		/	0		/	0
<i>Pediastrum</i>		/	0		/	0		/	0		/	0
<i>Scenedesmus</i>		/	0		/	0		/	0		/	0
<i>Schroederia</i>		/	0		/	0		/	0		/	0
<i>Staurastrum</i>		/	0		/	0		/	0		/	0
<i>Sphaerocystis</i>		/	0		/	0		/	0		/	0
<i>Spirogyra</i>		/	0		/	0		/	0		/	0
<i>Spondylosium</i>		/	0		/	0		/	0		/	0
<i>Zygnema</i>		/	0		/	0		/	0		/	0
Chrysophyta (yellow-green algae, excluding diatoms)												
<i>Chrysosphaerella</i>		/	0		/	0		/	0		/	0
<i>Dinobryon</i>		/	0		/	0		/	0	0.1	/	9
<i>Mallomonas</i>		/	0		/	0	0.1	/	10		/	0
<i>Synura</i>		/	0		/	0		/	0		/	0
Cyanophyta (blue-green algae)												
<i>Anabaena</i>		/	0		/	0		/	0		/	0
<i>Aphanocapsa</i>		/	0		/	0		/	0		/	0
<i>Chroococcus</i>		/	0		/	0		/	0		/	0
<i>Coelosphaerium</i>		/	0		/	0		/	0		/	0
<i>Merismopedia</i>		/	0		/	0		/	0		/	0
<i>Microcystis</i>	1.4	/	176	6.5	/	686	0.8	/	81	0.3	/	27
<i>Oscillatoria</i>		/	0	0.2	/	21		/	0		/	0
<i>Rhabdoderma</i>		/	0		/	0		/	0		/	0
Pyrrophyta (dinoflagellates)												
<i>Ceratium</i>		/	0		/	0		/	0		/	0
<i>Peridinium</i>		/	0		/	0		/	0	0.2	/	18
Unidentified												
flagellates		/	0		/	0		/	0		/	0
testate rhizopods		/	0		/	0		/	0		/	0
unicellular/resting stages		/	0		/	0		/	0		/	0
Totals =	2.2	/	276	8.1	/	855	1.4	/	142	0.8	/	73

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

13-Jan-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 7 m except CI to 14 m)					
	Cosgrove/3409		Basin North/3417		Basin South/3412	
	24.00	/ 104.17	35.42	/ 70.59	18.07	/ 138.36
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)						
<i>Asterionella</i>	0.8	/ 83	1.3	/ 92	1.2	/ 166
<i>Cyclotella</i>	0.4	/ 42	0.5	/ 35		/ 0
<i>Fragilaria</i>		/ 0		/ 0		/ 0
<i>Melosira</i>		/ 0		/ 0		/ 0
<i>Navicula</i>		/ 0		/ 0		/ 0
<i>Rhizosolenia</i>		/ 0		/ 0		/ 0
<i>Synedra</i>	0.2	/ 21	0.1	/ 7	0.1	/ 14
<i>Tabellaria</i>		/ 0	0.1	/ 7		/ 0
Chlorophyta (green algae)						
<i>Actinastrum</i>		/ 0		/ 0		/ 0
<i>Arthrodesmus</i>		/ 0		/ 0		/ 0
<i>Closterium</i>		/ 0		/ 0		/ 0
<i>Coelastrum</i>		/ 0		/ 0		/ 0
<i>Crucigenia</i>		/ 0		/ 0		/ 0
<i>Desmidium</i>		/ 0		/ 0		/ 0
<i>Elakatothrix</i>		/ 0		/ 0		/ 0
<i>Eudorina</i>		/ 0		/ 0		/ 0
<i>Gloeocystis</i>	0.1	/ 10		/ 0		/ 0
<i>Mougeotia</i>		/ 0		/ 0		/ 0
<i>Pediastrum</i>		/ 0		/ 0		/ 0
<i>Scenedesmus</i>		/ 0		/ 0	0.1	/ 14
<i>Schroederia</i>		/ 0		/ 0		/ 0
<i>Staurastrum</i>		/ 0		/ 0		/ 0
<i>Sphaerocystis</i>		/ 0		/ 0		/ 0
<i>Spirogyra</i>		/ 0		/ 0		/ 0
<i>Spondylosium</i>		/ 0		/ 0		/ 0
<i>Zygnema</i>		/ 0		/ 0		/ 0
Chrysophyta (yellow-green algae, excluding diatoms)						
<i>Chrysosphaerella</i>		/ 0		/ 0		/ 0
<i>Dinobryon</i>		/ 0		/ 0		/ 0
<i>Mallomonas</i>		/ 0		/ 0		/ 0
<i>Synura</i>		/ 0		/ 0		/ 0
Cyanophyta (blue-green algae)						
<i>Anabaena</i>		/ 0		/ 0		/ 0
<i>Aphanocapsa</i>		/ 0		/ 0		/ 0
<i>Chroococcus</i>		/ 0		/ 0		/ 0
<i>Coelosphaerium</i>		/ 0		/ 0		/ 0
<i>Merismopedia</i>		/ 0		/ 0		/ 0
<i>Microcystis</i>	0.7	/ 73	0.3	/ 21	0.4	/ 55
<i>Oscillatoria</i>		/ 0		/ 0		/ 0
<i>Rhabdoderma</i>		/ 0		/ 0		/ 0
Pyrrhophyta (dinoflagellates)						
<i>Ceratium</i>		/ 0		/ 0		/ 0
<i>Peridinium</i>		/ 0		/ 0		/ 0
Unidentified						
flagellates		/ 0		/ 0		/ 0
testate rhizopods	0.1	/ 10		/ 0		/ 0
unicellular/resting stages		/ 0		/ 0		/ 0
Totals =	2.3	/ 240	2.3	/ 162	1.8	/ 249

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

9-Feb-99

Conc./Enum. Factors =

Phytoplankton Taxa

		Sample Location (integrated to 7 m)					
		Cosgrove/3409		Basin North/3417		Basin South/3412	
		/		11.36 / 220.09		/	
		Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)							
<i>Asterionella</i>	N	/		2.2	/ 484	N	/
<i>Cyclotella</i>	O	/		0.2	/ 44	O	/
<i>Fragilaria</i>		/		/	0	/	
<i>Melosira</i>	S	/		/	0	S	/
<i>Navicula</i>	A	/		/	0	A	/
<i>Rhizosolenia</i>	M	/		/	0	M	/
<i>Synedra</i>	P	/		0.1	/ 22	P	/
<i>Tabellaria</i>	L	/		/	0	L	/
	E					E	
Chlorophyta (green algae)							
<i>Actinastrum</i>		/		/	0	/	
<i>Arthrodesmus</i>		/		/	0	/	
<i>Closterium</i>		/		/	0	/	
<i>Coelastrum</i>		/		/	0	/	
<i>Crucigenia</i>		/		/	0	/	
<i>Desmidium</i>		/		/	0	/	
<i>Elakatothrix</i>		/		/	0	/	
<i>Eudorina</i>		/		/	0	/	
<i>Gloeocystis</i>		/		/	0	/	
<i>Mougeotia</i>		/		/	0	/	
<i>Pediastrum</i>		/		/	0	/	
<i>Scenedesmus</i>		/		/	0	/	
<i>Schroederia</i>		/		/	0	/	
<i>Staurastrum</i>		/		/	0	/	
<i>Sphaerocystis</i>		/		/	0	/	
<i>Spirogyra</i>		/		/	0	/	
<i>Spondylosium</i>		/		/	0	/	
<i>Zygnema</i>		/		/	0	/	
Chrysophyta (yellow-green algae, excluding diatoms)							
<i>Chrysosphaerella</i>		/		/	0	/	
<i>Dinobryon</i>		/		/	0	/	
<i>Mallomonas</i>		/		/	0	/	
<i>Synura</i>		/		/	0	/	
Cyanophyta (blue-green algae)							
<i>Anabaena</i>		/		/	0	/	
<i>Aphanocapsa</i>		/		/	0	/	
<i>Chroococcus</i>		/		/	0	/	
<i>Coelosphaerium</i>		/		/	0	/	
<i>Merismopedia</i>		/		/	0	/	
<i>Microcystis</i>		/		0.4	/ 88	/	
<i>Oscillatoria</i>		/		/	0	/	
<i>Rhabdoderma</i>		/		/	0	/	
Pyrrhophyta (dinoflagellates)							
<i>Ceratium</i>		/		/	0	/	
<i>Peridinium</i>		/		/	0	/	
Unidentified							
flagellates		/		/	0	/	
testate rhizopods		/		/	0	/	
unicellular/resting stages		/		/	0	/	
Totals =		0.0	/ 0	2.9	/ 638	0.0	/ 0

SEGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

11-Mar-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 7 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	28.96	/ 86.33	23.56	/ 106.12	20.10	/ 124.39	22.73	/ 109.99
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	3.3	/ 285	2.6	/ 276	2.1	/ 261	0.4	/ 44
<i>Cyclotella</i>	0.4	/ 35	0.4	/ 42	0.1	/ 12	0.1	/ 11
<i>Fragilaria</i>	/	0	/	0	/	0	/	0
<i>Melosira</i>	/	0	/	0	/	0	/	0
<i>Navicula</i>	/	0	/	0	0.2	/ 25	0.6	/ 66
<i>Rhizosolenia</i>	/	0	/	0	/	0	/	0
<i>Synedra</i>	/	0	/	0	0.1	/ 12	0.3	/ 33
<i>Tabellaria</i>	0.6	/ 52	0.1	/ 11	/	0	0.3	/ 33
Chlorophyta (green algae)								
<i>Actinastrum</i>	/	0	/	0	/	0	/	0
<i>Arthrodesmus</i>	/	0	/	0	/	0	/	0
<i>Closterium</i>	/	0	/	0	/	0	/	0
<i>Coelastrum</i>	/	0	/	0	/	0	/	0
<i>Crucigenia</i>	/	0	/	0	/	0	/	0
<i>Desmidium</i>	/	0	/	0	/	0	/	0
<i>Elakatothrix</i>	/	0	/	0	/	0	/	0
<i>Eudorina</i>	/	0	/	0	/	0	/	0
<i>Gloeocystis</i>	/	0	/	0	/	0	/	0
<i>Mougeotia</i>	/	0	/	0	/	0	/	0
<i>Pediastrum</i>	/	0	/	0	/	0	/	0
<i>Scenedesmus</i>	/	0	0.2	/ 21	/	0	/	0
<i>Schroederia</i>	/	0	/	0	/	0	/	0
<i>Staurastrum</i>	/	0	/	0	/	0	/	0
<i>Sphaerocystis</i>	/	0	/	0	/	0	/	0
<i>Spirogyra</i>	/	0	/	0	/	0	/	0
<i>Spondylosium</i>	/	0	/	0	/	0	/	0
<i>Zygnema</i>	/	0	/	0	/	0	/	0
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>	/	0	/	0	/	0	/	0
<i>Dinobryon</i>	0.4	/ 35	/	0	0.2	/ 25	0.1	/ 11
<i>Mallomonas</i>	/	0	/	0	/	0	0.2	/ 22
<i>Synura</i>	/	0	/	0	/	0	/	0
Cyanophyta (blue-green algae)								
<i>Anabaena</i>	/	0	/	0	/	0	/	0
<i>Aphanocapsa</i>	/	0	/	0	/	0	/	0
<i>Chroococcus</i>	/	0	/	0	/	0	/	0
<i>Coelosphaerium</i>	0.2	/ 17	/	0	/	0	/	0
<i>Merismopedia</i>	/	0	/	0	/	0	/	0
<i>Microcystis</i>	0.4	/ 35	0.7	/ 74	0.1	/ 12	0.1	/ 11
<i>Oscillatoria</i>	/	0	/	0	/	0	/	0
<i>Rhabdoderma</i>	/	0	/	0	/	0	/	0
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>	/	0	/	0	/	0	/	0
<i>Peridinium</i>	/	0	/	0	/	0	/	0
Unidentified								
flagellates	/	0	0.1	/ 11	/	0	/	0
testate rhizopods	/	0	/	0	/	0	/	0
unicellular/resting stages	/	0	/	0	0.2	/ 25	/	0
Totals =	5.3	/ 458	4.1	/ 435	3.0	/ 373	2.1	/ 231

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

5-Apr-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 8 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	8.65	/ 289.04	11.03	/ 226.67	23.77	/ 105.18	12.91	/ 193.66
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	1.5	/ 434	3.2	/ 725	4.4	/ 463	1.6	/ 310
<i>Cyclotella</i>	0.3	/ 87		/ 0	0.4	/ 42		/ 0
<i>Fragilaria</i>		/ 0		/ 0		/ 0		/ 0
<i>Melosira</i>		/ 0		/ 0		/ 0		/ 0
<i>Navicula</i>		/ 0	0.1	/ 23		/ 0		/ 0
<i>Rhizosolenia</i>		/ 0		/ 0		/ 0		/ 0
<i>Synedra</i>		/ 0	0.2	/ 45	0.1	/ 11		/ 0
<i>Tabellaria</i>	0.2	/ 58		/ 0	0.1	/ 11		/ 0
Chlorophyta (green algae)								
<i>Actinastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Arthrodesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Closterium</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Crucigenia</i>		/ 0		/ 0		/ 0		/ 0
<i>Desmidium</i>		/ 0		/ 0		/ 0		/ 0
<i>Elakatothrix</i>		/ 0		/ 0		/ 0		/ 0
<i>Eudorina</i>		/ 0		/ 0		/ 0		/ 0
<i>Gloeocystis</i>	0.1	/ 29		/ 0	0.1	/ 11		/ 0
<i>Mougeotia</i>		/ 0		/ 0		/ 0		/ 0
<i>Pediastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Scenedesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Schroederia</i>		/ 0		/ 0		/ 0		/ 0
<i>Staurastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Sphaerocystis</i>		/ 0		/ 0		/ 0		/ 0
<i>Spirogyra</i>		/ 0		/ 0		/ 0		/ 0
<i>Spondylosium</i>		/ 0		/ 0		/ 0		/ 0
<i>Zygnema</i>		/ 0		/ 0		/ 0		/ 0
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>		/ 0		/ 0		/ 0		/ 0
<i>Dinobryon</i>		/ 0		/ 0	0.1	/ 11	0.1	/ 19
<i>Mallomonas</i>		/ 0		/ 0		/ 0		/ 0
<i>Synura</i>		/ 0		/ 0		/ 0		/ 0
Cyanophyta (blue-green algae)								
<i>Anabaena</i>		/ 0		/ 0		/ 0		/ 0
<i>Aphanocapsa</i>		/ 0		/ 0		/ 0		/ 0
<i>Chroococcus</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelosphaerium</i>		/ 0		/ 0		/ 0		/ 0
<i>Merismopedia</i>		/ 0		/ 0		/ 0		/ 0
<i>Microcystis</i>	0.5	/ 145	0.2	/ 45	0.3	/ 32	0.1	/ 19
<i>Oscillatoria</i>		/ 0		/ 0		/ 0		/ 0
<i>Rhabdoderma</i>		/ 0		/ 0		/ 0		/ 0
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>		/ 0		/ 0		/ 0		/ 0
<i>Peridinium</i>		/ 0		/ 0		/ 0		/ 0
Unidentified								
flagellates		/ 0		/ 0		/ 0		/ 0
testate rhizopods	0.2	/ 58		/ 0		/ 0	0.2	/ 39
unicellular/resting stages		/ 0	0.1	/ 23	0.1	/ 11		/ 0
Totals =	2.8	/ 809	3.8	/ 861	5.6	/ 589	2.0	/ 387

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

11-May-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 8 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	7.72	/ 323.86	9.25	/ 270.29	7.89	/ 316.88	8.79	/ 284.43
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	1.9	/ 615	2.2	/ 595	1.7	/ 539	0.6	/ 171
<i>Cyclotella</i>		/ 0		/ 0	0.1	/ 32		/ 0
<i>Fragilaria</i>		/ 0		/ 0		/ 0		/ 0
<i>Melosira</i>		/ 0		/ 0		/ 0		/ 0
<i>Navicula</i>		/ 0		/ 0		/ 0		/ 0
<i>Surirella</i>		/ 0	0.2	/ 54		/ 0		/ 0
<i>Synedra</i>	0.1	/ 32	0.2	/ 54	0.3	/ 95	0.1	/ 28
<i>Tabellaria</i>	0.8	/ 259		/ 0	1.0	/ 317	0.5	/ 142
Chlorophyta (green algae)								
<i>Actinastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Arthrodesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Closterium</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Crucigenia</i>		/ 0		/ 0		/ 0		/ 0
<i>Desmidium</i>		/ 0		/ 0		/ 0		/ 0
<i>Elakatothrix</i>		/ 0		/ 0		/ 0		/ 0
<i>Eudorina</i>		/ 0		/ 0		/ 0		/ 0
<i>Gloeocystis</i>	0.3	/ 97		/ 0		/ 0		/ 0
<i>Mougeotia</i>		/ 0		/ 0		/ 0		/ 0
<i>Pediastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Scenedesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Schroederia</i>		/ 0		/ 0		/ 0		/ 0
<i>Staurastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Sphaerocystis</i>		/ 0		/ 0		/ 0		/ 0
<i>Spirogyra</i>		/ 0		/ 0		/ 0		/ 0
<i>Spondylosium</i>		/ 0		/ 0		/ 0		/ 0
<i>Zygnema</i>		/ 0		/ 0		/ 0		/ 0
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>		/ 0		/ 0		/ 0		/ 0
<i>Dinobryon</i>	1.0	/ 324	0.2	/ 54		/ 0		/ 0
<i>Mallomonas</i>		/ 0		/ 0		/ 0		/ 0
<i>Synura</i>		/ 0		/ 0		/ 0		/ 0
Cyanophyta (blue-green algae)								
<i>Anabaena</i>		/ 0		/ 0		/ 0		/ 0
<i>Aphanocapsa</i>		/ 0		/ 0		/ 0		/ 0
<i>Chroococcus</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelosphaerium</i>		/ 0		/ 0		/ 0		/ 0
<i>Merismopedia</i>		/ 0		/ 0		/ 0		/ 0
<i>Microcystis</i>	0.1	/ 32	0.5	/ 135	0.3	/ 95	0.2	/ 57
<i>Oscillatoria</i>		/ 0		/ 0		/ 0		/ 0
<i>Rhabdoderma</i>		/ 0		/ 0		/ 0		/ 0
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>		/ 0		/ 0		/ 0		/ 0
<i>Peridinium</i>		/ 0		/ 0		/ 0		/ 0
Unidentified								
flagellates		/ 0		/ 0		/ 0	0.1	/ 28
testate rhizopods		/ 0		/ 0		/ 0		/ 0
unicellular/resting stages		/ 0		/ 0		/ 0	0.1	/ 28
Totals =	4.2	/ 1,360	3.3	/ 892	3.4	/ 1,077	1.6	/ 455

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

23-Jun-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 8 m except CI to 10 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	7.59	/ 329.40	8.60	/ 290.72	9.62	/ 259.89	6.93	/ 360.78
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	0.5	/ 165	0.1	/ 29	0.1	/ 26		/ 0
<i>Cyclotella</i>	0.5	/ 165		/ 0	0.2	/ 52		/ 0
<i>Fragilaria</i>		/ 0		/ 0		/ 0		/ 0
<i>Melosira</i>		/ 0		/ 0		/ 0		/ 0
<i>Navicula</i>		/ 0		/ 0		/ 0		/ 0
<i>Rhizosolenia</i>		/ 0	0.2	/ 58		/ 0		/ 0
<i>Synedra</i>		/ 0		/ 0		/ 0		/ 0
<i>Tabellaria</i>		/ 0		/ 0		/ 0		/ 0
Chlorophyta (green algae)								
<i>Actinastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Arthrodesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Closterium</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Crucigenia</i>		/ 0		/ 0		/ 0		/ 0
<i>Desmidium</i>		/ 0		/ 0		/ 0		/ 0
<i>Elakatothrix</i>		/ 0		/ 0		/ 0		/ 0
<i>Eudorina</i>		/ 0		/ 0		/ 0		/ 0
<i>Gloeocystis</i>		/ 0		/ 0		/ 0		/ 0
<i>Mougeotia</i>		/ 0		/ 0		/ 0		/ 0
<i>Pediastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Scenedesmus</i>		/ 0		/ 0		/ 0		/ 0
<i>Schroederia</i>		/ 0		/ 0		/ 0		/ 0
<i>Staurastrum</i>		/ 0		/ 0		/ 0		/ 0
<i>Sphaerocystis</i>		/ 0		/ 0		/ 0		/ 0
<i>Spirogyra</i>		/ 0		/ 0		/ 0		/ 0
<i>Spondylosium</i>		/ 0		/ 0		/ 0		/ 0
<i>Zygnema</i>		/ 0		/ 0		/ 0		/ 0
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>		/ 0	0.2	/ 58	0.1	/ 26		/ 0
<i>Dinobryon</i>	0.1	/ 33	0.1	/ 29		/ 0		/ 0
<i>Mallomonas</i>		/ 0		/ 0		/ 0		/ 0
<i>Synura</i>		/ 0		/ 0		/ 0		/ 0
Cyanophyta (blue-green algae)								
<i>Anabaena</i>		/ 0		/ 0		/ 0		/ 0
<i>Aphanocapsa</i>		/ 0		/ 0		/ 0		/ 0
<i>Chroococcus</i>		/ 0		/ 0		/ 0		/ 0
<i>Coelosphaerium</i>		/ 0		/ 0		/ 0		/ 0
<i>Merismopedia</i>		/ 0		/ 0		/ 0		/ 0
<i>Microcystis</i>	0.8	/ 264	1.1	/ 320	0.9	/ 234	0.1	/ 36
<i>Oscillatoria</i>		/ 0		/ 0		/ 0		/ 0
<i>Rhabdoderma</i>		/ 0		/ 0		/ 0		/ 0
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>		/ 0		/ 0		/ 0		/ 0
<i>Peridinium</i>		/ 0		/ 0		/ 0		/ 0
Unidentified								
flagellates	0.1	/ 33		/ 0		/ 0		/ 0
testate rhizopods		/ 0		/ 0		/ 0		/ 0
unicellular/resting stages		/ 0		/ 0		/ 0		/ 0
Totals =	2.0	/ 659	1.7	/ 494	1.3	/ 338	0.1	/ 36

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

16-Jul-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 8 m except CI to 15 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	7.39	/ 338.32	7.96	/ 314.09	7.12	/ 351.15	8.55	/ 292.42
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	0.1	/ 34	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Cyclotella</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	0.1	/ 29
<i>Fragilaria</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Melosira</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Navicula</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Rhizosolenia</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	0.2	/ 58
<i>Synedra</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Tabellaria</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
Chlorophyta (green algae)								
<i>Actinastrum</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Arthrodesmus</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Closterium</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Coelastrum</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Crucigenia</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Desmidium</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Elakatothrix</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Eudorina</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Gloeocystis</i>	0.1	/ 34	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Mougeotia</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Pediastrum</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Scenedesmus</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Schroederia</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Staurastrum</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Sphaerocystis</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Spirogyra</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Spondylosium</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Zygnema</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	0.1	/ 29
<i>Dinobryon</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Mallomonas</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Synura</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
Cyanophyta (blue-green algae)								
<i>Anabaena</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Aphanocapsa</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Chroococcus</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Coelosphaerium</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Merismopedia</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Microcystis</i>	2.5	/ 846	2.0	/ 628	4.1	/ 1,440	1.0	/ 292
<i>Oscillatoria</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Rhabdoderma</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
<i>Peridinium</i>	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
Unidentified								
flagellates	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
testate rhizopods	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0	/ 0
unicellular/resting stages	/ 0	/ 0	0.1	/ 31	/ 0	/ 0	/ 0	/ 0
Totals =	2.7	/ 913	2.1	/ 660	4.1	/ 1,440	1.4	/ 409

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:

17-Aug-99

Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 8 m except CI to 15 m)															
	Cosgrove/3409				Basin North/3417				Basin South/3412				Thomas Basin			
	7.77	/	321.77		9.10	/	274.74		7.98	/	313.31		7.47	/	334.70	
	Raw Count	/	ASUs/ml		Raw Count	/	ASUs/ml		Raw Count	/	ASUs/ml		Raw Count	/	ASUs/ml	
Bacillariophyceae (diatoms)																
<i>Asterionella</i>		/	0			/	0			/	0			/	0	
<i>Cyclotella</i>		/	0			/	0			/	0			/	0	
<i>Fragilaria</i>		/	0			/	0			/	0			/	0	
<i>Melosira</i>		/	0			/	0			/	0			/	0	
<i>Navicula</i>		/	0			/	0			/	0			/	0	
<i>Surirella</i>		/	0			/	0			/	0			/	0	
<i>Synedra</i>		/	0			/	0			/	0			/	0	
<i>Tabellaria</i>		/	0			/	0			/	0			/	0	
Chlorophyta (green algae)																
<i>Actinastrum</i>		/	0			/	0			/	0			/	0	
<i>Arthrodesmus</i>		/	0			/	0			/	0			/	0	
<i>Closterium</i>		/	0			/	0			/	0			/	0	
<i>Coelastrum</i>		/	0			/	0			/	0			/	0	
<i>Crucigenia</i>		/	0			/	0			/	0			/	0	
<i>Desmidium</i>		/	0			/	0			/	0			/	0	
<i>Elakatothrix</i>		/	0			/	0			/	0			/	0	
<i>Eudorina</i>		/	0			/	0			/	0			/	0	
<i>Gloeocystis</i>	0.1	/	32		0.1	/	27			/	0			/	0	
<i>Mougeotia</i>		/	0			/	0			/	0			/	0	
<i>Pediastrum</i>		/	0			/	0			/	0			/	0	
<i>Scenedesmus</i>		/	0			/	0			/	0			/	0	
<i>Schroederia</i>		/	0			/	0			/	0			/	0	
<i>Staurastrum</i>		/	0			/	0			/	0			/	0	
<i>Sphaerocystis</i>		/	0			/	0			/	0			/	0	
<i>Spirogyra</i>		/	0			/	0			/	0			/	0	
<i>Spondylosium</i>		/	0			/	0			/	0			/	0	
<i>Zygnema</i>		/	0			/	0			/	0			/	0	
Chrysophyta (yellow-green algae, excluding diatoms)																
<i>Chrysosphaerella</i>		/	0			/	0			/	0			/	0	
<i>Dinobryon</i>	0.1	/	32		0.1	/	27		0.1	/	31			/	0	
<i>Mallomonas</i>		/	0			/	0			/	0			/	0	
<i>Synura</i>		/	0			/	0			/	0			/	0	
Cyanophyta (blue-green algae)																
<i>Anabaena</i>		/	0			/	0			/	0			/	0	
<i>Aphanocapsa</i>	0.6	/	193		1.1	/	302		0.3	/	94			/	0	
<i>Chroococcus</i>		/	0			/	0			/	0			/	0	
<i>Coelosphaerium</i>		/	0			/	0			/	0			/	0	
<i>Merismopedia</i>		/	0			/	0			/	0			/	0	
<i>Microcystis</i>	0.5	/	161		0.6	/	165		1.7	/	533		1.2	/	402	
<i>Oscillatoria</i>		/	0			/	0			/	0			/	0	
<i>Rhabdoderma</i>		/	0			/	0			/	0			/	0	
Pyrrophyta (dinoflagellates)																
<i>Ceratium</i>		/	0			/	0			/	0			/	0	
<i>Peridinium</i>		/	0			/	0			/	0			/	0	
Unidentified																
flagellates		/	0		0.1	/	27			/	0			/	0	
testate rhizopods	0.1	/	32			/	0		0.1	/	31			/	0	
unicellular/resting stages		/	0			/	0			/	0			/	0	
Totals =	1.4	/	450		2.0	/	549		2.2	/	689		1.2	/	402	

SEDGEWICK-RAFTER CELL PHYTOPLANKTON COUNTS: WACHUSETT RESERVOIR

Sampling Date:
15-Sep-99

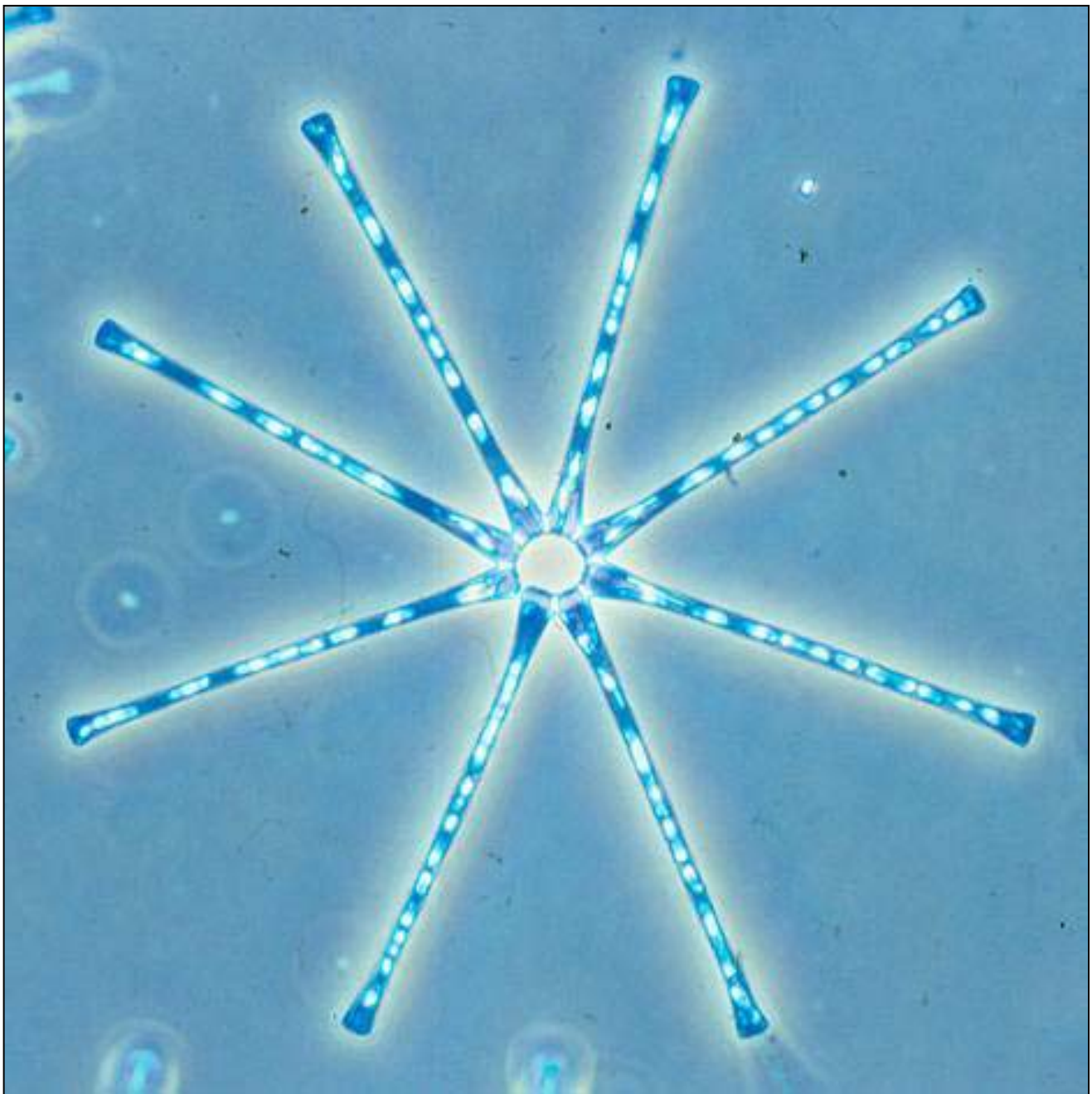
Conc./Enum. Factors =

Phytoplankton Taxa

	Sample Location (integrated to 8 m except CI to 15 m)							
	Cosgrove/3409		Basin North/3417		Basin South/3412		Thomas Basin	
	7.78	/ 321.36	8.14	/ 307.15	8.27	/ 302.32	9.47	/ 264.01
	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml	Raw Count	/ ASUs/ml
Bacillariophyceae (diatoms)								
<i>Asterionella</i>	0.1	/ 32	/ 0		/ 0		/ 0	
<i>Cyclotella</i>	/ 0		/ 0		/ 0		/ 0	
<i>Fragilaria</i>	/ 0		/ 0		/ 0		/ 0	
<i>Melosira</i>	/ 0		/ 0		/ 0		/ 0	
<i>Navicula</i>	/ 0		/ 0		/ 0		/ 0	
<i>Surirella</i>	/ 0		/ 0		/ 0		/ 0	
<i>Synedra</i>	/ 0		/ 0		/ 0		/ 0	
<i>Tabellaria</i>	/ 0		/ 0		/ 0		/ 0	
Chlorophyta (green algae)								
<i>Actinastrum</i>	/ 0		/ 0		/ 0		/ 0	
<i>Arthrodesmus</i>	0.3	/ 96	/ 0		/ 0		/ 0	
<i>Closterium</i>	/ 0		/ 0		/ 0		/ 0	
<i>Coelastrum</i>	/ 0		/ 0		/ 0		/ 0	
<i>Crucigenia</i>	/ 0		/ 0		/ 0		/ 0	
<i>Desmidium</i>	/ 0		/ 0		/ 0		/ 0	
<i>Elakatothrix</i>	/ 0		/ 0		/ 0		/ 0	
<i>Eudorina</i>	/ 0		/ 0		/ 0		/ 0	
<i>Gloeocystis</i>	/ 0		/ 0		/ 0		/ 0	
<i>Mougeotia</i>	/ 0		/ 0		/ 0		/ 0	
<i>Pediastrum</i>	/ 0		/ 0		/ 0		/ 0	
<i>Scenedesmus</i>	/ 0		/ 0		/ 0		/ 0	
<i>Schroederia</i>	/ 0		/ 0		/ 0		/ 0	
<i>Staurastrum</i>	/ 0		/ 0		/ 0		/ 0	
<i>Sphaerocystis</i>	/ 0		/ 0		/ 0		/ 0	
<i>Tetrastrum</i>	/ 0		0.1 / 31		/ 0		/ 0	
<i>Spondylosium</i>	/ 0		/ 0		/ 0		/ 0	
<i>Zygnema</i>	/ 0		/ 0		/ 0		/ 0	
Chrysophyta (yellow-green algae, excluding diatoms)								
<i>Chrysosphaerella</i>	/ 0		/ 0		/ 0		/ 0	
<i>Dinobryon</i>	/ 0		/ 0		/ 0		/ 0	
<i>Mallomonas</i>	/ 0		/ 0		/ 0		/ 0	
<i>Synura</i>	/ 0		/ 0		/ 0		/ 0	
Cyanophyta (blue-green algae)								
<i>Anabaena</i>	/ 0		/ 0		/ 0		/ 0	
<i>Aphanocapsa</i>	1.7	/ 546	/ 0		0.4 / 121		0.3 / 79	
<i>Chroococcus</i>	/ 0		/ 0		/ 0		/ 0	
<i>Coelosphaerium</i>	/ 0		/ 0		/ 0		/ 0	
<i>Merismopedia</i>	/ 0		/ 0		/ 0		/ 0	
<i>Microcystis</i>	0.5	/ 161	0.4 / 123		0.6 / 181		0.3 / 79	
<i>Oscillatoria</i>	/ 0		/ 0		/ 0		/ 0	
<i>Rhabdoderma</i>	/ 0		/ 0		/ 0		/ 0	
Pyrrophyta (dinoflagellates)								
<i>Ceratium</i>	/ 0		/ 0		/ 0		/ 0	
<i>Peridinium</i>	/ 0		/ 0		/ 0		/ 0	
Unidentified								
flagellates	/ 0		/ 0		/ 0		/ 0	
testate rhizopods	/ 0		/ 0		/ 0		/ 0	
unicellular/resting stages	/ 0		/ 0		/ 0		0.1 / 26	
Totals =	2.6	/ 836	0.5	/ 154	1.0	/ 302	0.7	/ 185

APPENDIX E

Photomicrographs of Wachusett Reservoir Phytoplankton

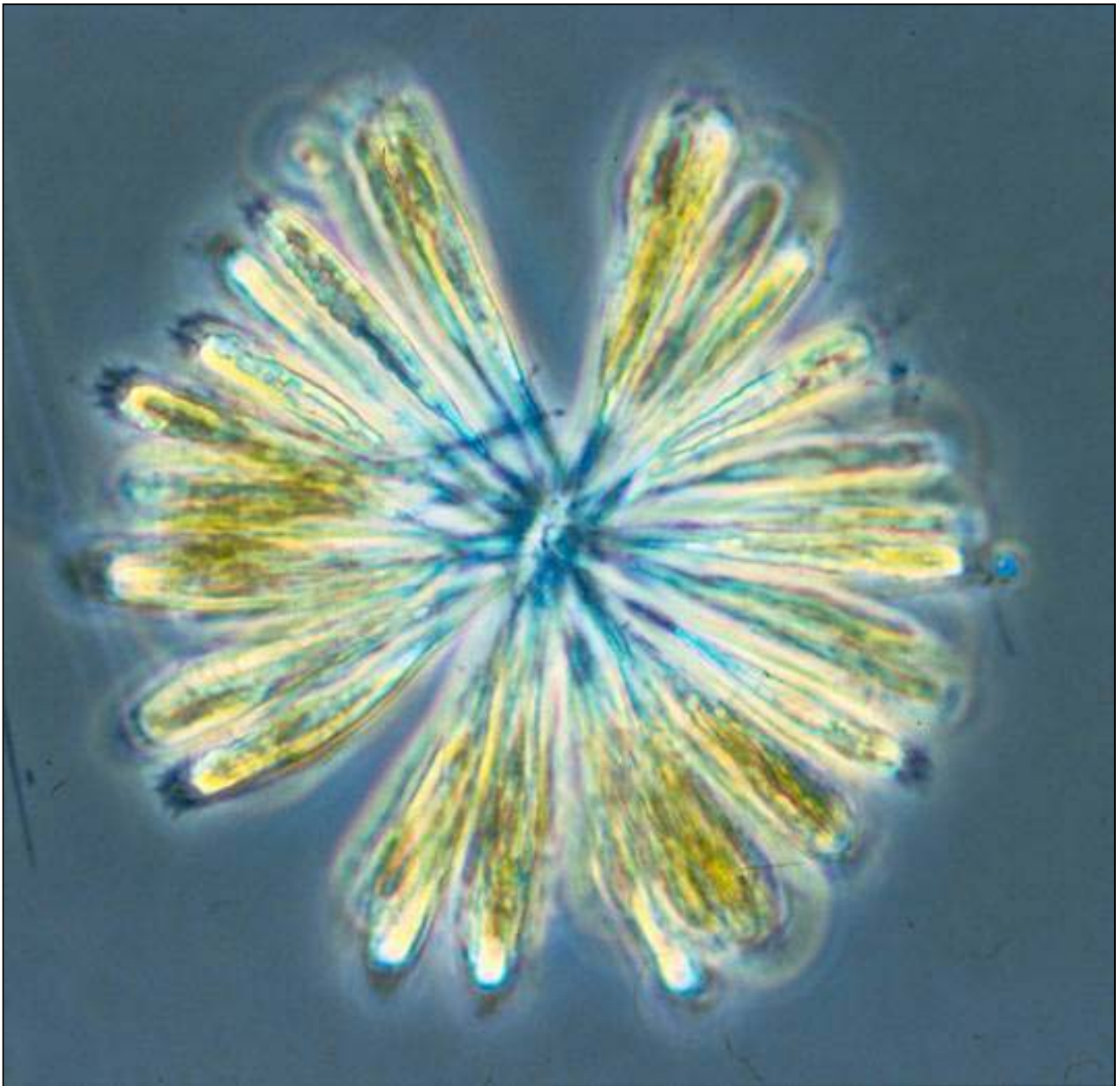


Asterionella formosa
(colonial diatom)

Cell length = 90 microns

Wachusett Reservoir

Basin North
(Station 3417)
May 10, 2000

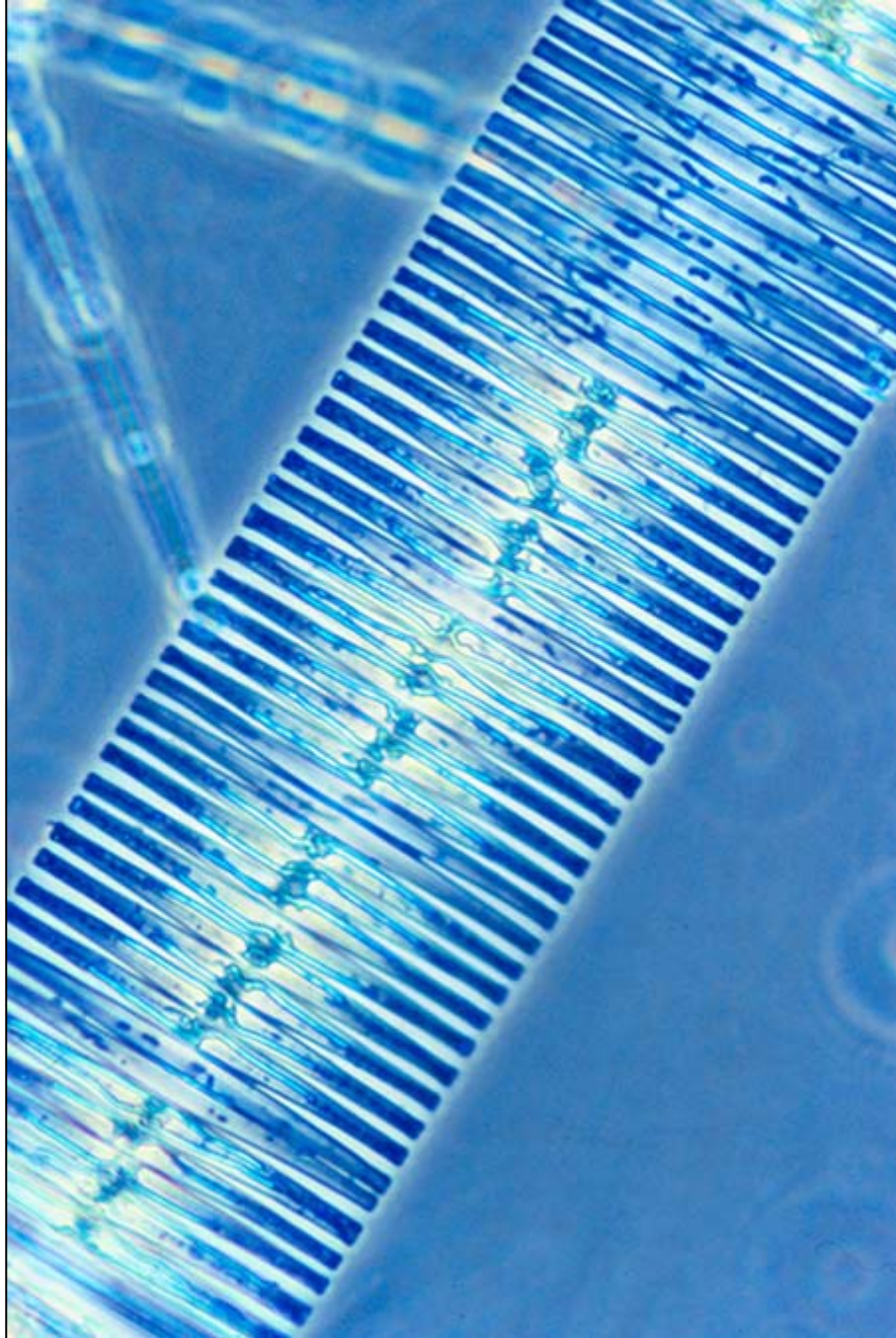


Synura adamsii
(colonial chrysophyte)

Diameter of colony = 95 microns

Wachusett Reservoir

Basin North
(Station 3417)
April 26, 2001

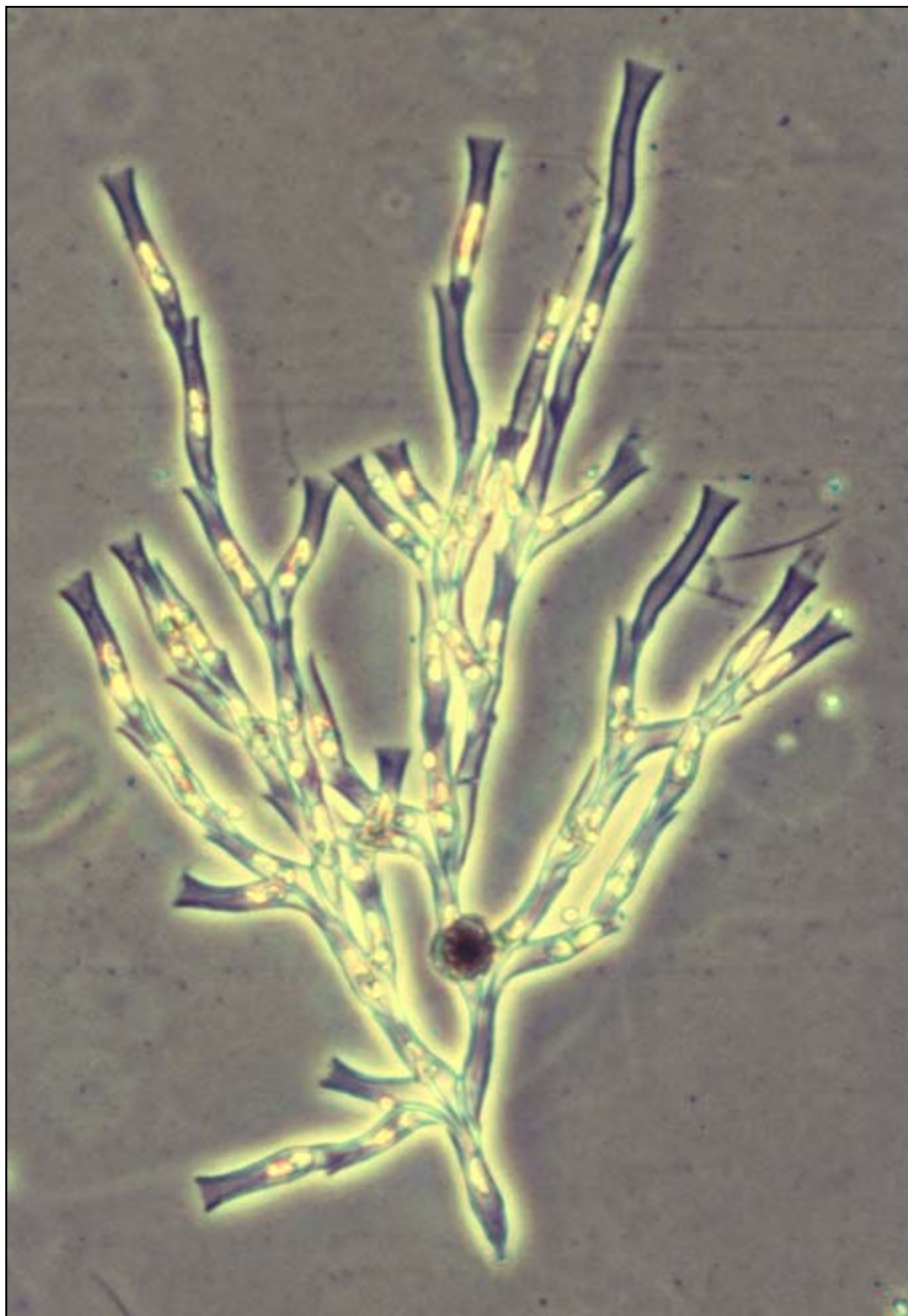


Fragilaria crotonensis
(chain-forming diatom)

Cell length = 90 microns

Wachusett Reservoir

Basin North
(Station 3417)
May 10, 2000

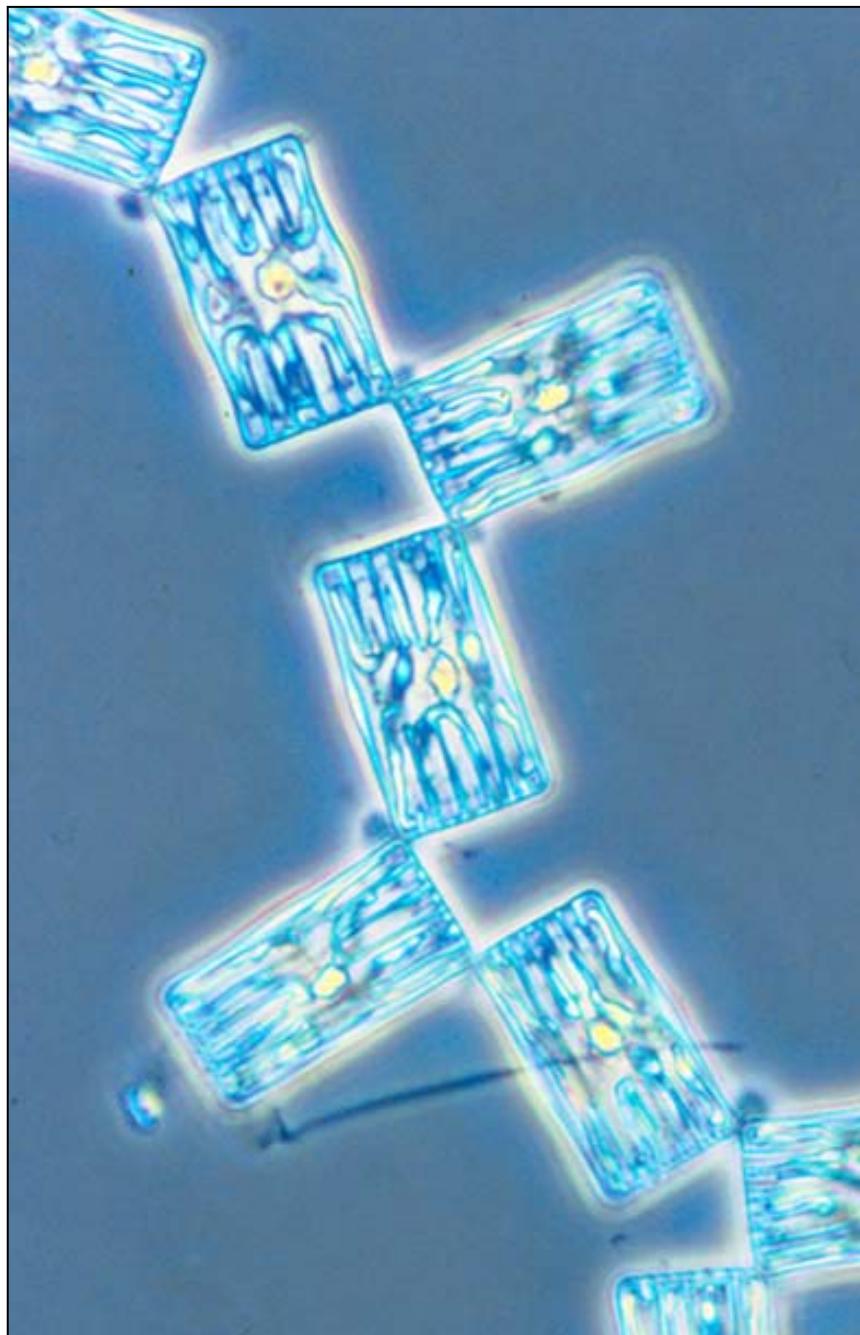


Dinobryon cylindricum
(colonial chrysophyte)

Length of vase-shaped shell (lorica) = 30 microns

Wachusett Reservoir

Basin North
(Station 3417)
May 10, 2000



Tabellaria flocculosa
(chain-forming diatom)

Cell length = 28 microns

Wachusett Reservoir

Basin North
(Station 3417)
April 26, 2001



Closterium kuetzingii
(desmid)

Cell length = 375 microns

Wachusett Reservoir

Basin North
(Station 3417)
May 10, 2000



Rhizosolenia eriensis
(diatom)

Cell width = 17 microns

Wachusett Reservoir

Basin North
(Station 3417)
July 15, 1999

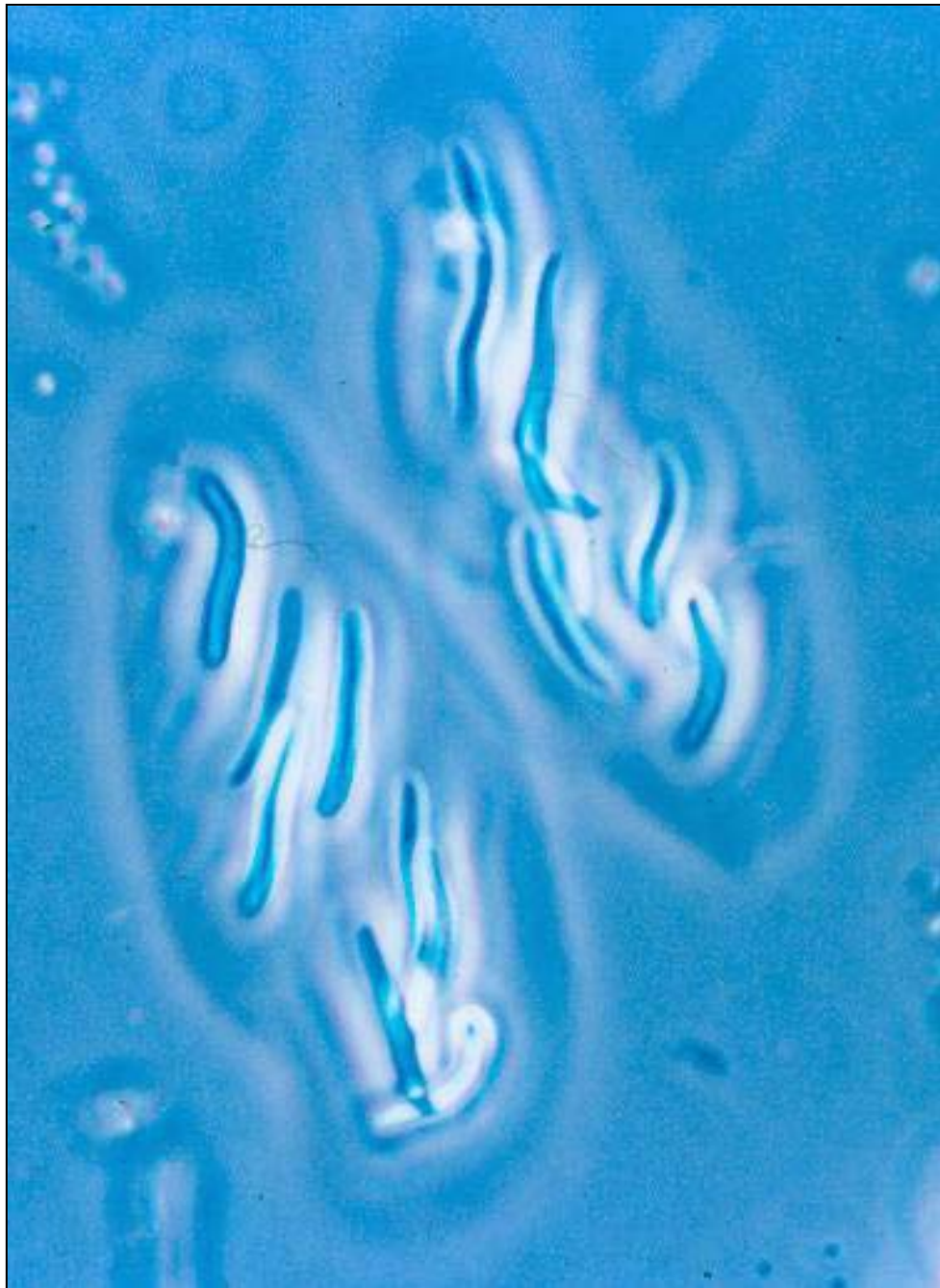


Nephrocytium agardhianum
(colonial chlorophyte)

Colony length = 67 microns

Wachusett Reservoir

Basin North
(Station 3417)
October 26, 2000



Rhabdoderma lineare
(colonial cyanophyte)

Cell length = 17 to 22 microns

Wachusett Reservoir

Basin North
(Station 3417)
July 15, 1999



Hyalotheca dissiliens
(filament-forming desmid)

Cell length = 9 microns

Wachusett Reservoir

Basin North
(Station 3417)
May 10, 2000

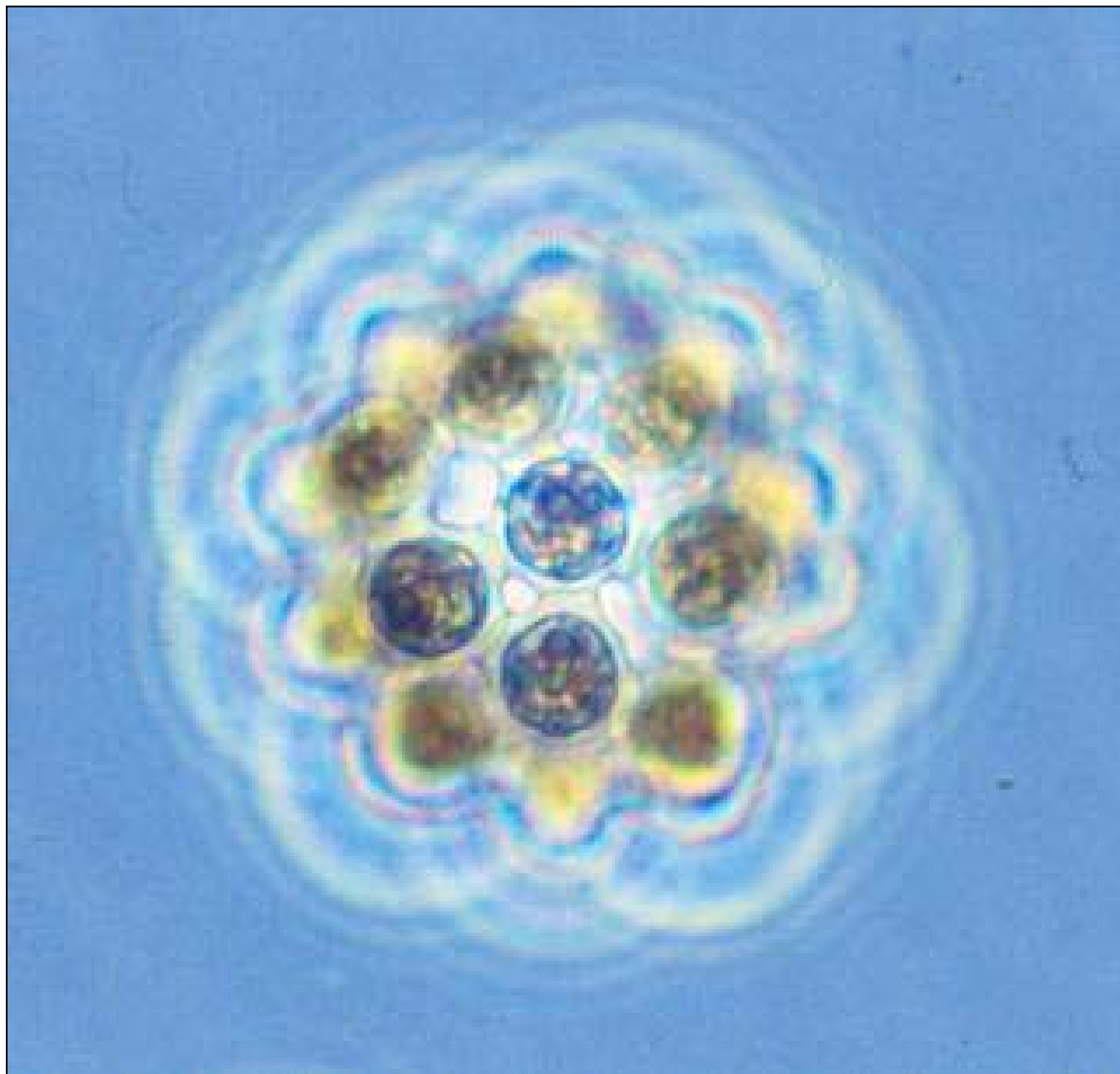


Quadrigula closteriodes
(colonial chlorophyte)

Cell length = 28 microns

Wachusett Reservoir

Basin North
(Station 3417)
July 15, 1999

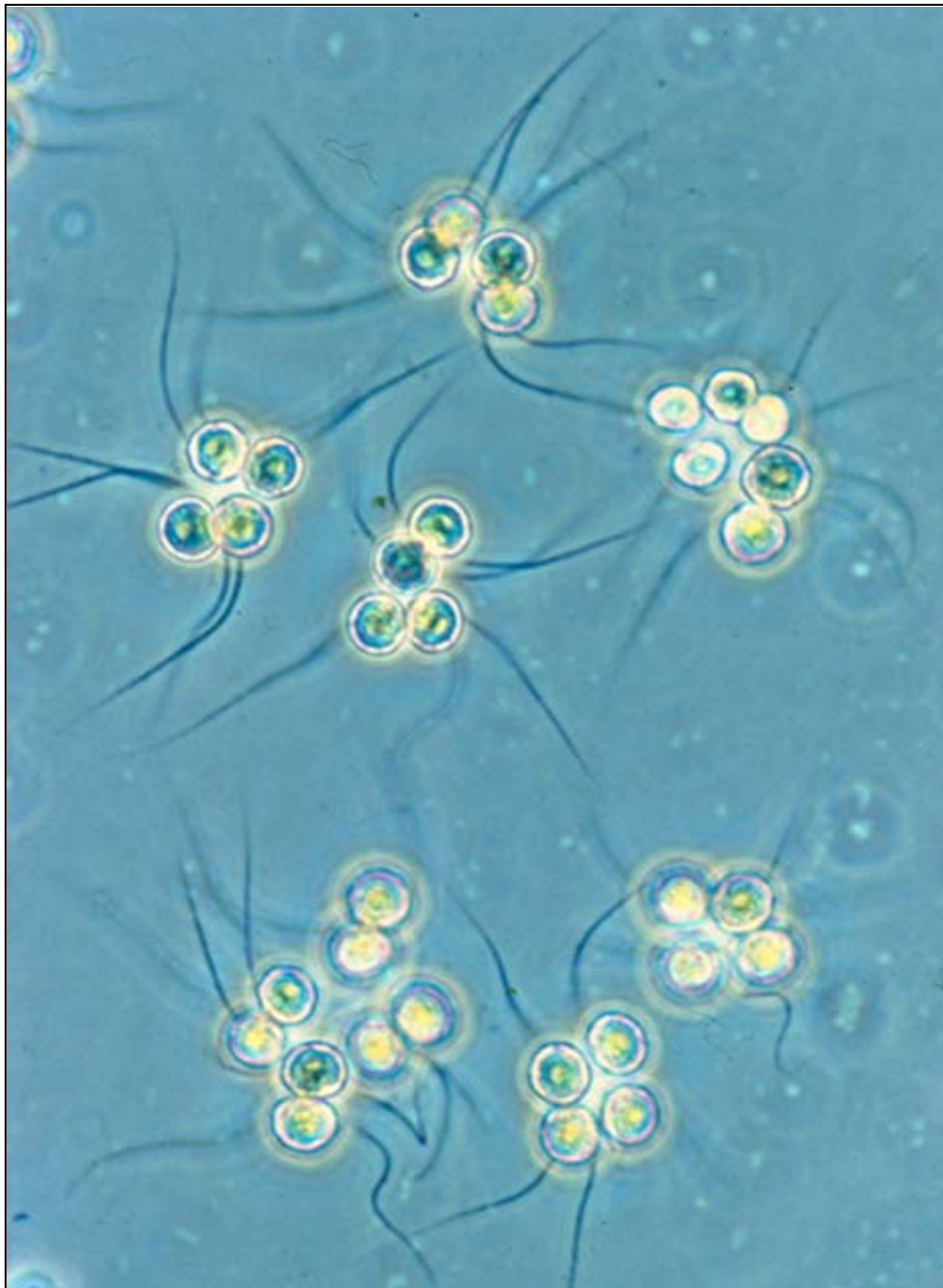


Coelastrum microporum
(colonial chlorophyte)

Colony diameter = 39 microns

Wachusett
Reservoir

Basin North
(Station 3417)
October 26, 2000

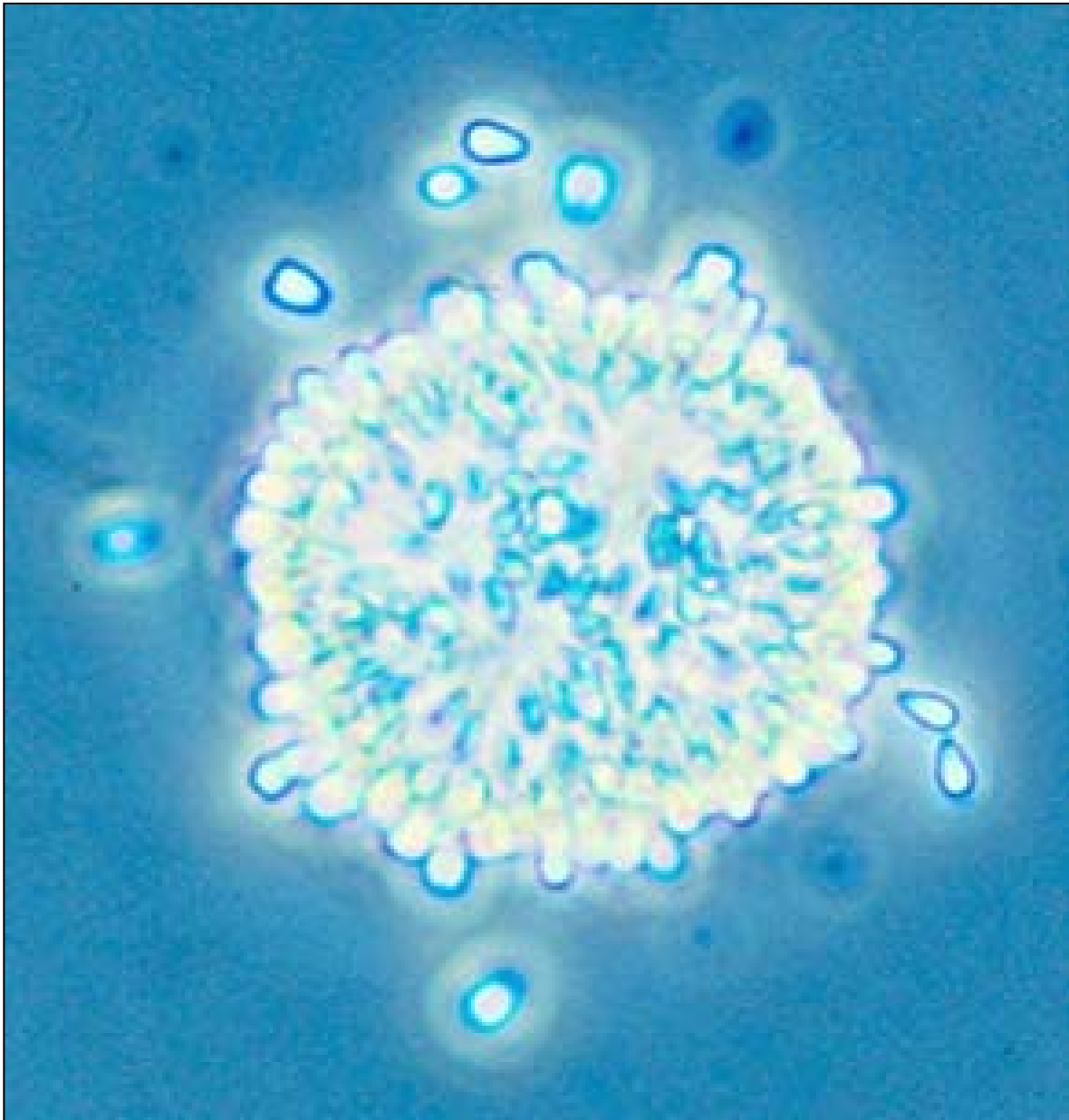


Micractinium pusillum
(colonial chlorophyte)

Cell diameter = 28 microns

Wachusett Reservoir

Basin North
(Station 3417)
October 26, 2000

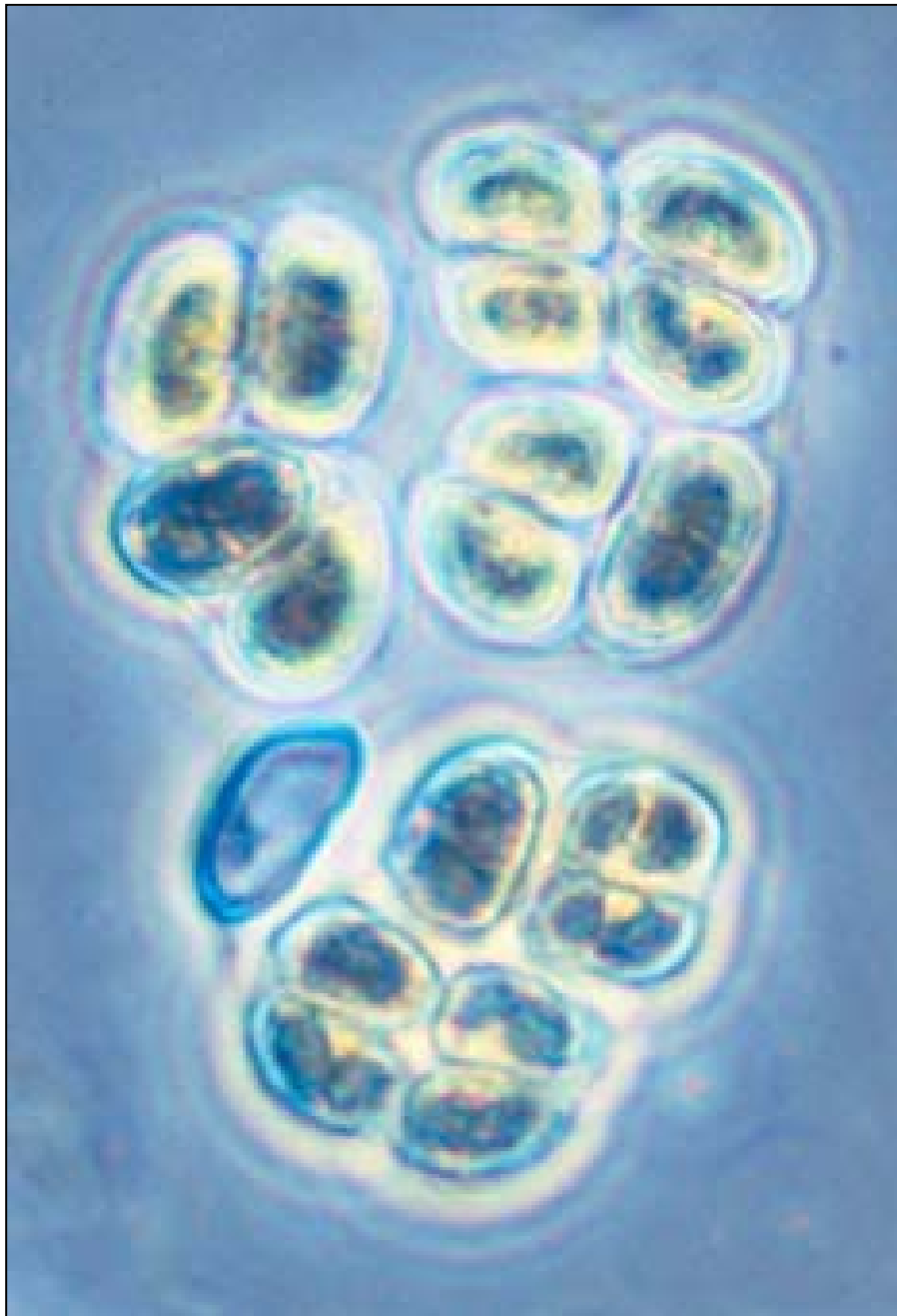


Coelosphaerium naegelianum
(colonial cyanophyte)

Colony diameter = 39 microns

Wachusett Reservoir

Basin North
(Station 3417)
October 26, 2000

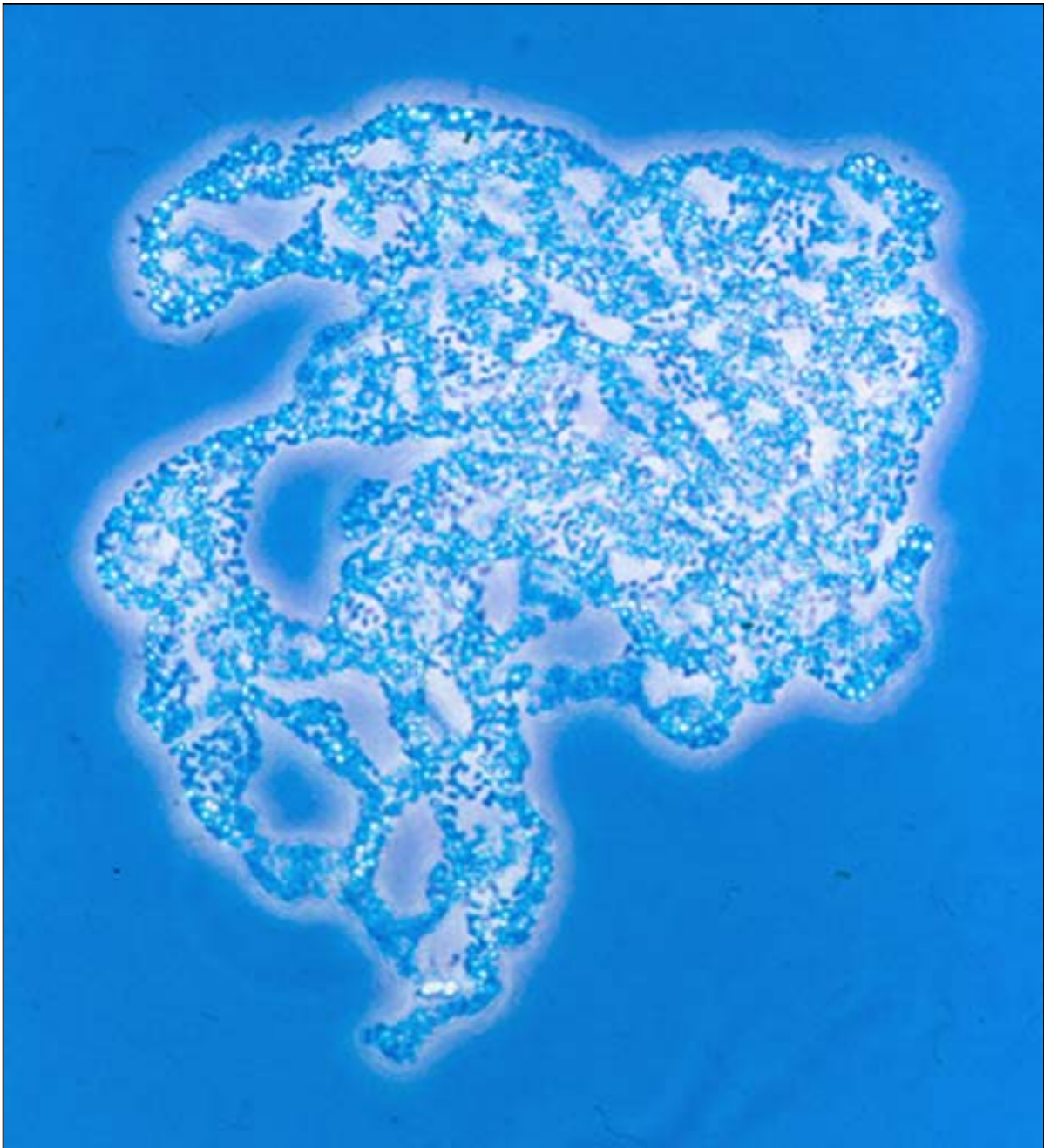


Crucigenia irregularis
(colonial chlorophyte)

Colony length = 56 microns

Wachusett Reservoir

Basin North
(Station 3417)
October 26, 2000

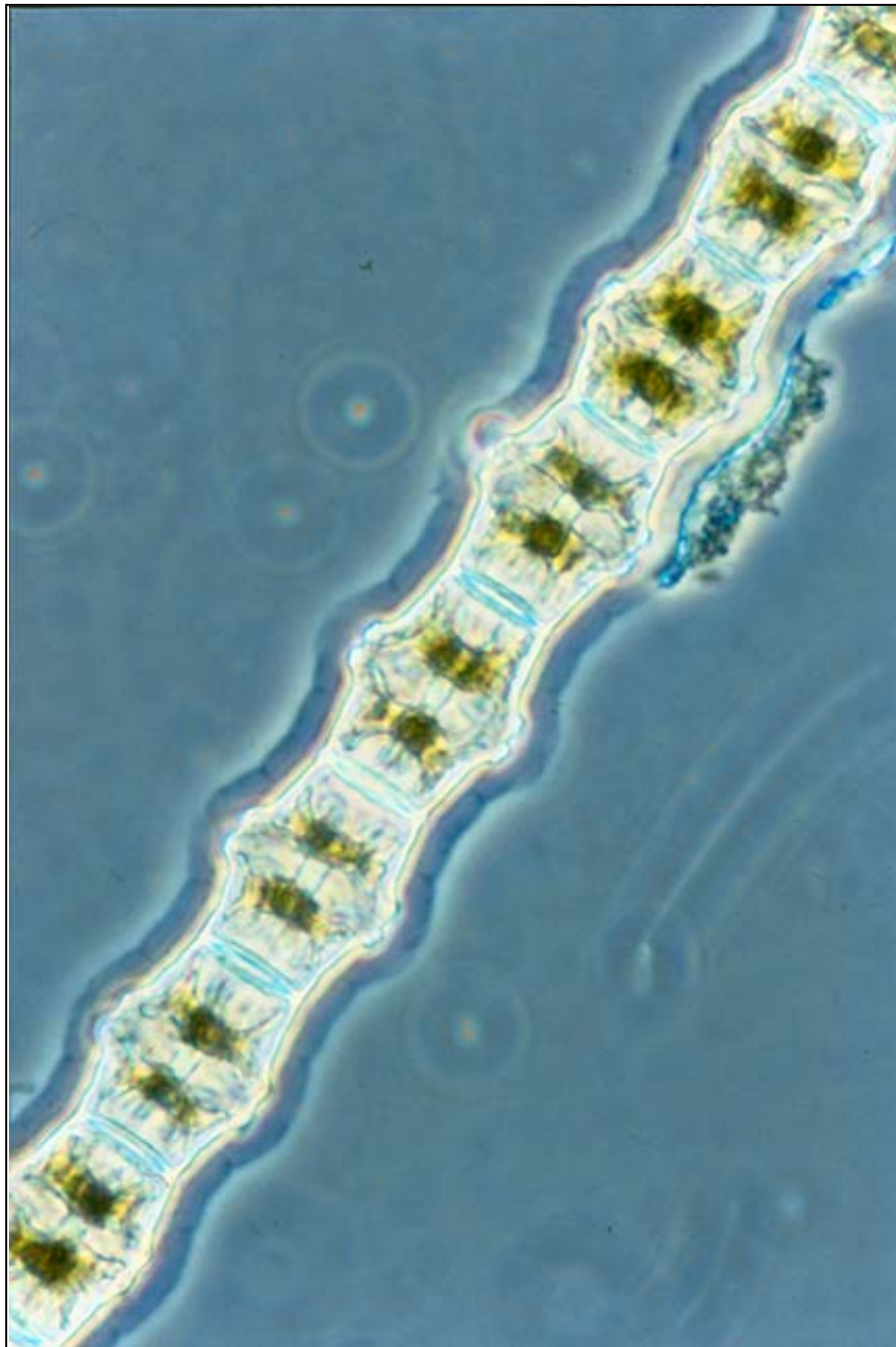


Microcystis aeruginosa
(colonial cyanophyte)

Colony length = 170 microns

Wachusett Reservoir

Basin North
(Station 3417)
June 23, 1999



Bambusina brebissonii
(filament-forming desmid)

Cell length = 28 microns

Wachusett Reservoir

Basin North
(Station 3417)
May 10, 2000



Ceratium hirundinella
(dinoflagellate)

Total length = 280 microns

Wachusett Reservoir

Basin North
(Station 3417)
July 15, 1999