

Seventh Lake

Location

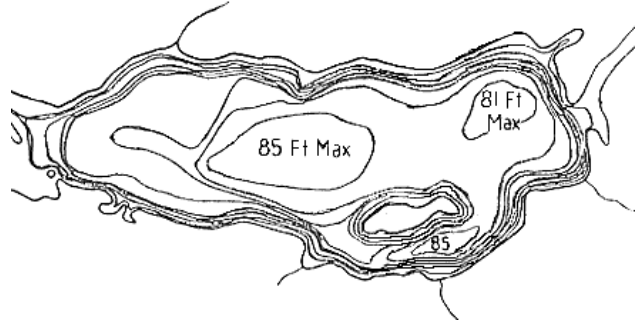
Pond Number: 040878B
Watershed: Black River
County: Hamilton
Topographic Quadrangle: Old Forge/West Canada
Lakes

Sample Site

Latitude: 43o 44.381'
Longitude: 74o 44.262'

Morphometry

Surface Area: 851 Ac.
Mean Depth: 40 Ft.
Maximum Depth: 87 Ft.
Volume: 34,195 Ac./Ft.
Watershed Area: 8,642 Ac.
Hydraulic Retention Time: .76 Yr.
Shoreline Length: 11.2 Mi.
Elevation: 1,788 Ft.
Water Quality Classification: A(T)
Trophic State: Mesotrophic



Temperature and Dissolved Oxygen

Limekiln Lake had a minimum DO of 4.1 mg/L (September 2002), with a minimum temperature of 4.5°C and a maximum temperature of 24.1°C.

pH

Figure 194 presents the seasonal mean pH trend in Seventh Lake, while Table 153 presents descriptive statistics for pH in Seventh Lake. The pH in Seventh Lake exhibited an increasing trend from 1995 to 2000 with stable values from 2000 to 2003. The pH in Seventh Lake was similar to the county average.

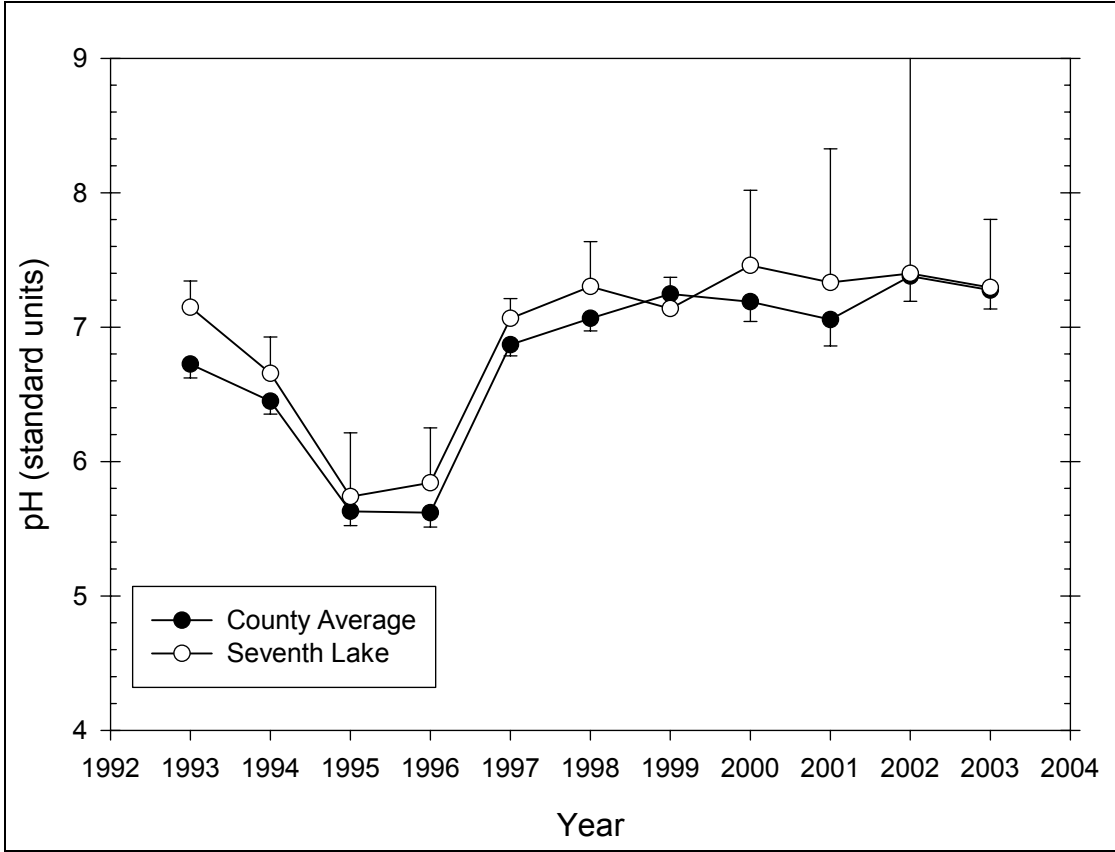


Figure 194 Seasonal mean pH trend in Seventh Lake

Table 153 – Descriptive Statistics for pH in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	7.148	0.158	0.0707	0.196
1994	6	0	6.657	0.256	0.105	0.269
1995	6	0	5.740	0.452	0.184	0.474
1996	6	0	5.842	0.390	0.159	0.410
1997	6	0	7.065	0.140	0.0573	0.147
1998	6	0	7.302	0.319	0.130	0.334
1999	5	0	7.138	0.187	0.0836	0.232
2000	6	0	7.460	0.532	0.217	0.558
2001	4	0	7.332	0.625	0.312	0.994
2002	4	0	7.400	1.046	0.523	1.665
2003	4	0	7.295	0.319	0.160	0.508
Year	Range	Max	Min	Median	25%	75%
1993	0.390	7.290	6.900	7.150	7.065	7.282
1994	0.690	6.920	6.230	6.675	6.540	6.900
1995	1.100	6.210	5.110	5.810	5.330	6.170
1996	0.960	6.400	5.440	5.710	5.560	6.230
1997	0.360	7.270	6.910	7.065	6.920	7.160
1998	0.870	7.840	6.970	7.225	7.090	7.460
1999	0.420	7.330	6.910	7.210	6.955	7.285
2000	1.480	8.140	6.660	7.470	7.140	7.880
2001	1.520	8.060	6.540	7.365	6.915	7.750

2002	2.140	8.260	6.120	7.610	6.545	8.255
2003	0.750	7.720	6.970	7.245	7.065	7.525
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	-1.068	1.009	0.230	0.452	35.740	255.569
1994	-0.824	0.488	0.162	0.718	39.940	266.196
1995	-0.413	-1.694	0.179	0.650	34.440	198.705
1996	0.662	-1.560	0.232	0.363	35.050	205.513
1997	0.293	-1.079	0.182	0.633	42.390	299.584
1998	0.992	0.539	0.226	0.395	43.810	320.394
1999	-0.437	-2.681	0.250	0.350	35.690	254.895
2000	-0.309	-0.434	0.118	0.763	44.760	335.325
2001	-0.305	1.269	0.223	0.549	29.330	216.233
2002	-0.539	-2.973	0.292	0.256	29.600	222.325
2003	0.820	0.662	0.206	0.612	29.180	213.174

Alkalinity

Figure 195 presents the seasonal mean alkalinity trend in Seventh Lake, while Table 154 presents descriptive statistics for alkalinity in Seventh Lake. The alkalinity in Seventh Lake exhibited no discernible trend. The alkalinity in Seventh Lake was slightly higher than the county average, though this difference was not statistically significant.

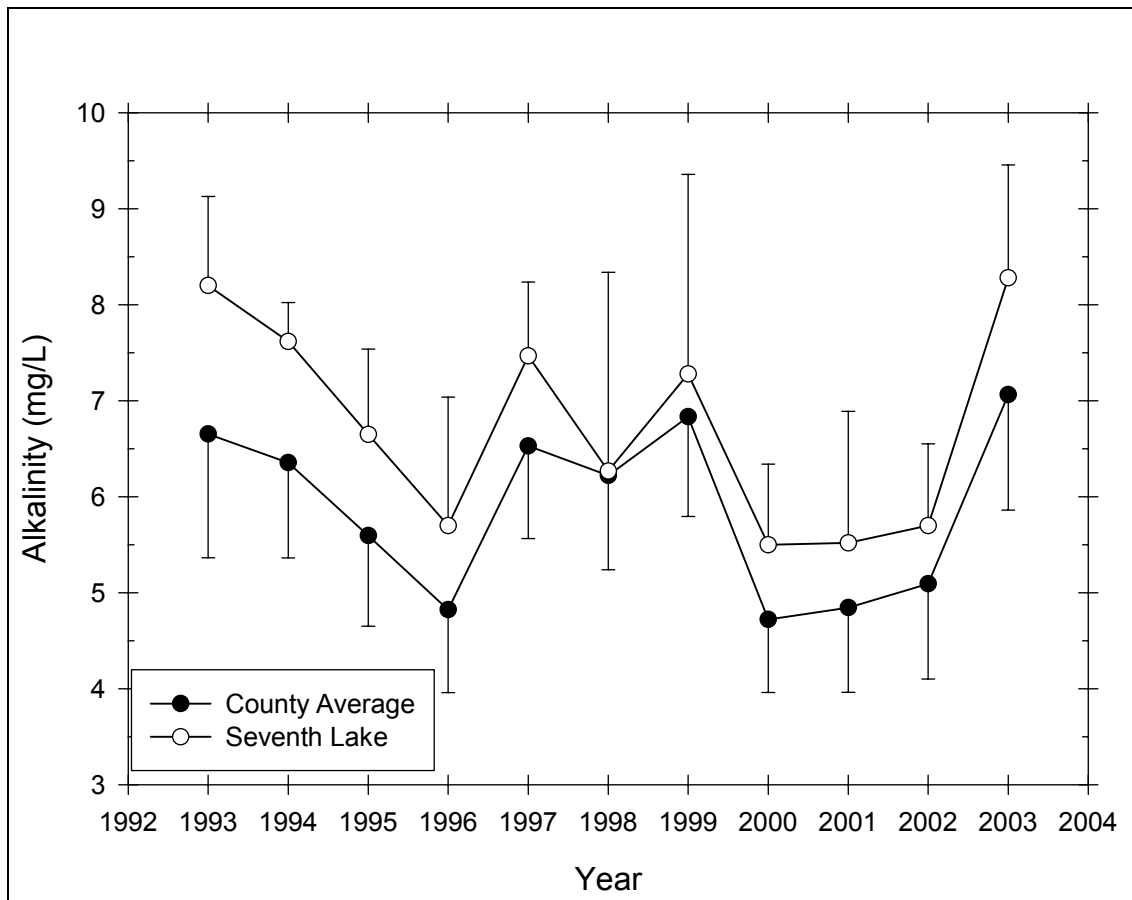


Figure 195 Seasonal mean alkalinity trend in Seventh Lake

Table 154 – Descriptive Statistics for Alkalinity in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	7.148	0.158	0.0707	0.196
1994	6	0	6.657	0.256	0.105	0.269
1995	6	0	5.740	0.452	0.184	0.474
1996	6	0	5.842	0.390	0.159	0.410
1997	6	0	7.065	0.140	0.0573	0.147
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2001	4	0	7.332	0.625	0.312	0.994
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2003	4	0	7.295	0.319	0.160	0.508
Year	Range	Max	Min	Median	25%	75%
1993	0.390	7.290	6.900	7.150	7.065	7.282
1994	0.690	6.920	6.230	6.675	6.540	6.900
1995	1.100	6.210	5.110	5.810	5.330	6.170
1996	0.960	6.400	5.440	5.710	5.560	6.230
1997	0.360	7.270	6.910	7.065	6.920	7.160
1998	0.870	7.840	6.970	7.225	7.090	7.460
1999	0.420	7.330	6.910	7.210	6.955	7.285
2000	1.480	8.140	6.660	7.470	7.140	7.880
2001	1.520	8.060	6.540	7.365	6.915	7.750
2002	2.140	8.260	6.120	7.610	6.545	8.255
2003	0.750	7.720	6.970	7.245	7.065	7.525
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1995	-0.413	-1.694	0.179	0.650	34.440	198.705
1996	0.662	-1.560	0.232	0.363	35.050	205.513
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2002	-0.539	-2.973	0.292	0.256	29.600	222.325
2003	0.820	0.662	0.206	0.612	29.180	213.174

Total Phosphorus

Figure 196 presents the seasonal mean total phosphorus trend in Seventh Lake, while Table 155 presents descriptive statistics for total phosphorus in Seventh Lake. The total phosphorus in Seventh Lake exhibited an increasing trend from 1994 to 2000 and a decreasing trend from 2000 to 2003. The total phosphorus in Seventh Lake was generally slightly lower than the county average, though this difference was not statistically significant.

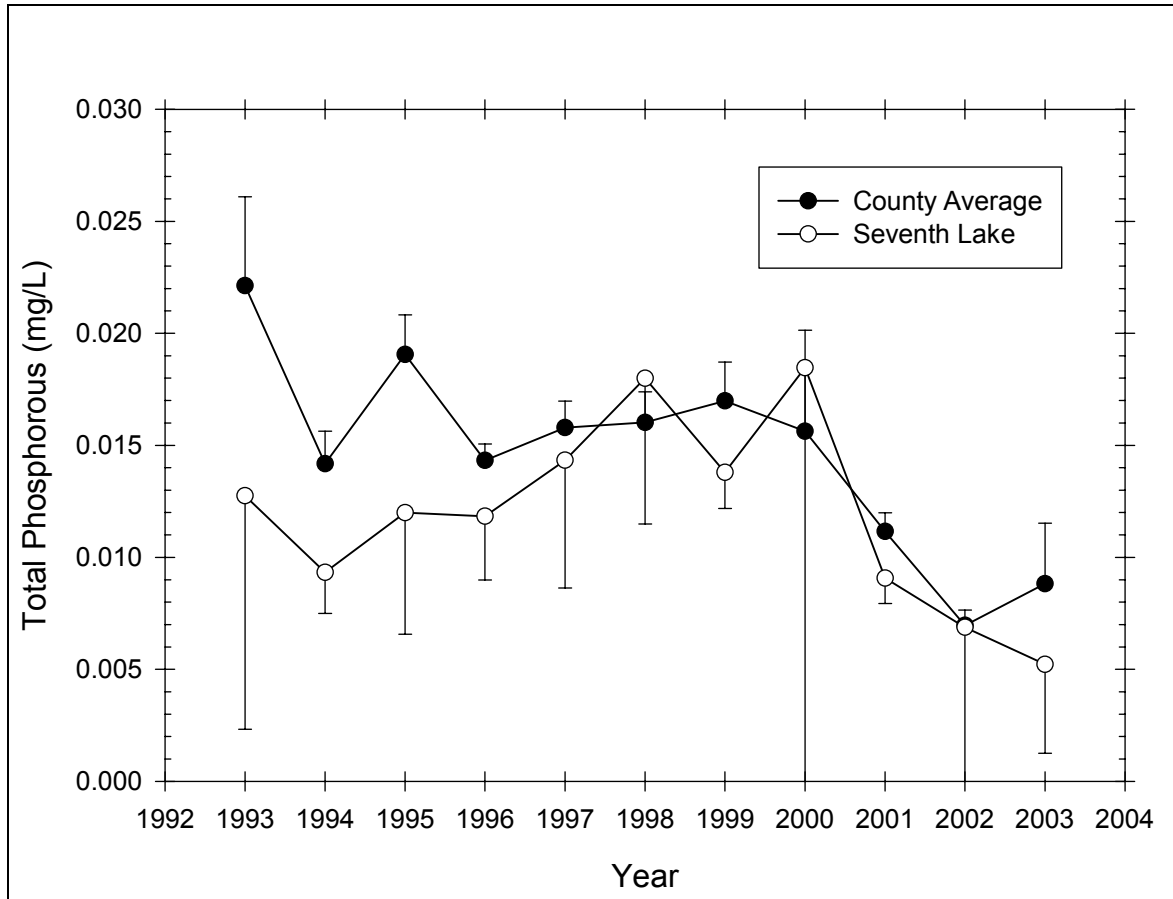


Figure 196 Seasonal mean total phosphorus in Seventh Lake

Table 155 – Descriptive Statistics for Total Phosphorus in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	2	0.0128	0.00655	0.00328	0.0104
1994	6	0	0.00933	0.00175	0.000715	0.00184
1995	6	0	0.0120	0.00518	0.00211	0.00543
1996	6	0	0.0118	0.00271	0.00111	0.00285
1997	6	0	0.0143	0.00543	0.00222	0.00570
1998	6	1	0.0180	0.00524	0.00235	0.00651
1999	6	1	0.0138	0.00130	0.000583	0.00162
2000	6	0	0.0185	0.0252	0.0103	0.0264
2001	6	2	0.00907	0.000714	0.000357	0.00114
2002	6	2	0.00687	0.00449	0.00225	0.00715
2003	6	2	0.00522	0.00249	0.00125	0.00397
Year	Range	Max	Min	Median	25%	75%
1993	0.0140	0.0170	0.00300	0.0155	0.00900	0.0165
1994	0.00400	0.0120	0.00800	0.00850	0.00800	0.0110
1995	0.0130	0.0200	0.00700	0.0110	0.00800	0.0150
1996	0.00700	0.0160	0.00900	0.0110	0.01000	0.0140
1997	0.0160	0.0230	0.00700	0.0135	0.0120	0.0170
1998	0.0130	0.0230	0.01000	0.0190	0.0145	0.0222
1999	0.00300	0.0150	0.0120	0.0140	0.0128	0.0150
2000	0.0678	0.0688	0.001000	0.01000	0.00500	0.0160

2001	0.00160	0.00970	0.00810	0.00925	0.00855	0.00960
2002	0.00990	0.0117	0.00180	0.00700	0.00320	0.0106
2003	0.00550	0.00850	0.00300	0.00470	0.00330	0.00715
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	-1.907	3.694	0.384	0.039	0.0510	0.000779
1994	0.919	-1.205	0.277	0.161	0.0560	0.000538
1995	0.636	-1.055	0.280	0.149	0.0720	0.000998
1996	0.712	-0.955	0.250	0.270	0.0710	0.000877
1997	0.470	0.719	0.167	0.700	0.0860	0.00138
1998	-0.953	0.255	0.177	0.686	0.0900	0.00173
1999	-0.541	-1.488	0.221	0.494	0.0690	0.000959
2000	2.228	5.170	0.372	0.009	0.111	0.00522
2001	-1.113	0.501	0.224	0.544	0.0363	0.000331
2002	-0.103	-3.098	0.213	0.588	0.0275	0.000250
2003	0.861	-0.850	0.243	0.464	0.0209	0.000128

Nitrate

Figure 197 presents the seasonal mean nitrate trend in Seventh Lake, while Table 156 presents descriptive statistics for nitrate in Seventh Lake. The nitrate in Seventh Lake exhibited a decreasing trend from 1994 to 2003. The nitrate in Seventh Lake was higher than the county average, though this difference may not be statistically significant for all years.

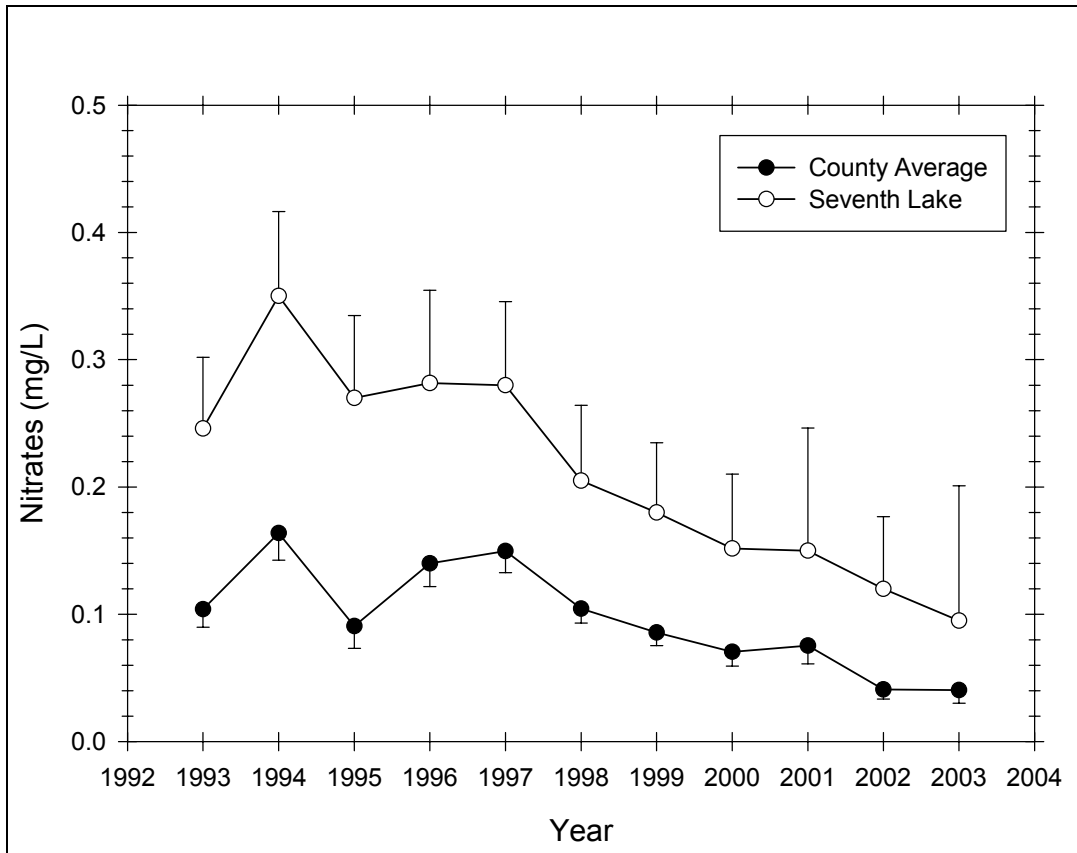


Figure 197 Seasonal mean nitrate trend in Seventh Lake

Table 156 – Descriptive Statistics for Nitrate in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	0.246	0.0451	0.0201	0.0559
1994	6	0	0.350	0.0632	0.0258	0.0664
1995	6	0	0.270	0.0616	0.0252	0.0647
1996	6	0	0.282	0.0694	0.0283	0.0728
1997	6	0	0.280	0.0626	0.0256	0.0657
1998	6	0	0.205	0.0565	0.0231	0.0593
1999	6	1	0.180	0.0442	0.0197	0.0548
2000	6	0	0.152	0.0556	0.0227	0.0584
2001	6	2	0.150	0.0606	0.0303	0.0964
2002	6	2	0.120	0.0356	0.0178	0.0566
2003	6	2	0.0950	0.0666	0.0333	0.106
Year	Range	Max	Min	Median	25%	75%
1993	0.110	0.290	0.180	0.270	0.210	0.275
1994	0.140	0.430	0.290	0.330	0.300	0.420
1995	0.170	0.360	0.190	0.260	0.230	0.320
1996	0.190	0.410	0.220	0.270	0.230	0.290
1997	0.170	0.380	0.210	0.255	0.250	0.330
1998	0.130	0.270	0.140	0.200	0.150	0.270
1999	0.120	0.240	0.120	0.190	0.150	0.203
2000	0.140	0.240	0.1000	0.130	0.110	0.200
2001	0.130	0.240	0.110	0.125	0.115	0.185
2002	0.0800	0.170	0.0900	0.110	0.0950	0.145
2003	0.150	0.190	0.0400	0.0750	0.0500	0.140
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	-0.876	-0.768	0.303	0.141	1.230	0.311
1994	0.462	-2.293	0.285	0.133	2.100	0.755
1995	0.346	-0.649	0.167	0.701	1.620	0.456
1996	1.535	2.616	0.286	0.132	1.690	0.500
1997	0.880	-0.235	0.292	0.114	1.680	0.490
1998	0.175	-1.933	0.208	0.495	1.230	0.268
1999	-0.0290	0.580	0.210	0.548	0.900	0.170
2000	0.995	-0.635	0.318	0.058	0.910	0.154
2001	1.892	3.642	0.379	0.045	0.600	0.101
2002	1.331	1.500	0.250	0.432	0.480	0.0614
2003	1.463	2.120	0.280	0.303	0.380	0.0494

Chlorophyll a

Figure 198 presents the seasonal mean chlorophyll *a* trend in Seventh Lake, while Table 157 presents descriptive statistics for chlorophyll *a* in Seventh Lake. The chlorophyll *a* in Seventh Lake exhibited a general increasing trend from 1997 to 2003, except for a peak in 1998 that may be the result of an outlying data point. The chlorophyll *a* in Seventh Lake was significantly lower than the county average, though this difference may not be statistically significant for some years.

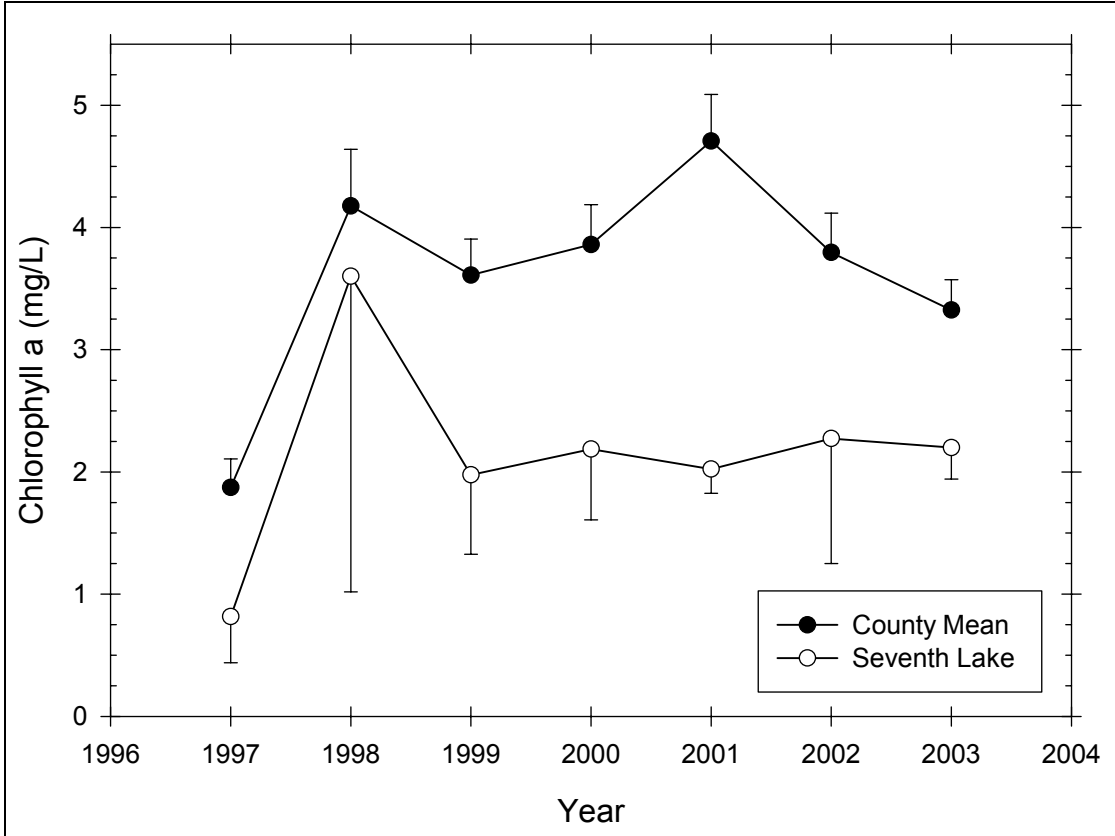


Figure 198 Seasonal mean chlorophyll a trend in Seventh Lake

Table 157 – Descriptive Statistics for Chlorophyll a in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1997	6	0	0.817	0.359	0.147	0.377
1998	6	0	3.602	2.461	1.005	2.582
1999	6	1	1.976	0.522	0.234	0.649
2000	6	1	2.186	0.465	0.208	0.577
2001	6	2	2.023	0.124	0.0621	0.198
2002	6	2	2.273	0.643	0.321	1.023
2003	6	2	2.200	0.162	0.0811	0.258
Year	Range	Max	Min	Median	25%	75%
1997	0.850	1.260	0.410	0.775	0.470	1.210
1998	5.440	6.480	1.040	3.530	1.090	5.940
1999	1.400	2.850	1.450	1.880	1.698	2.152
2000	1.180	2.970	1.790	2.040	1.888	2.400
2001	0.280	2.190	1.910	1.995	1.930	2.115
2002	1.240	2.900	1.660	2.265	1.720	2.825
2003	0.390	2.370	1.980	2.225	2.095	2.305
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1997	0.249	-1.849	0.197	0.560	4.900	4.646
1998	0.0643	-2.659	0.218	0.439	21.610	108.111
1999	1.501	3.111	0.343	0.055	9.880	20.614
2000	1.651	2.924	0.279	0.220	10.930	24.757
2001	1.009	0.160	0.220	0.560	8.090	16.408

2002	0.0169	-5.560	0.278	0.310	9.090	21.896
2003	-0.885	1.788	0.275	0.325	8.800	19.439

Transparency

Figure 199 presents the seasonal mean transparency trend in Seventh Lake, while Table 158 presents descriptive statistics for transparency in Seventh Lake. The transparency in Seventh Lake was variable from year to year but may exhibit a slight decrease over time. The transparency in Seventh Lake was slightly higher than the county average, though this difference was not statistically significant.

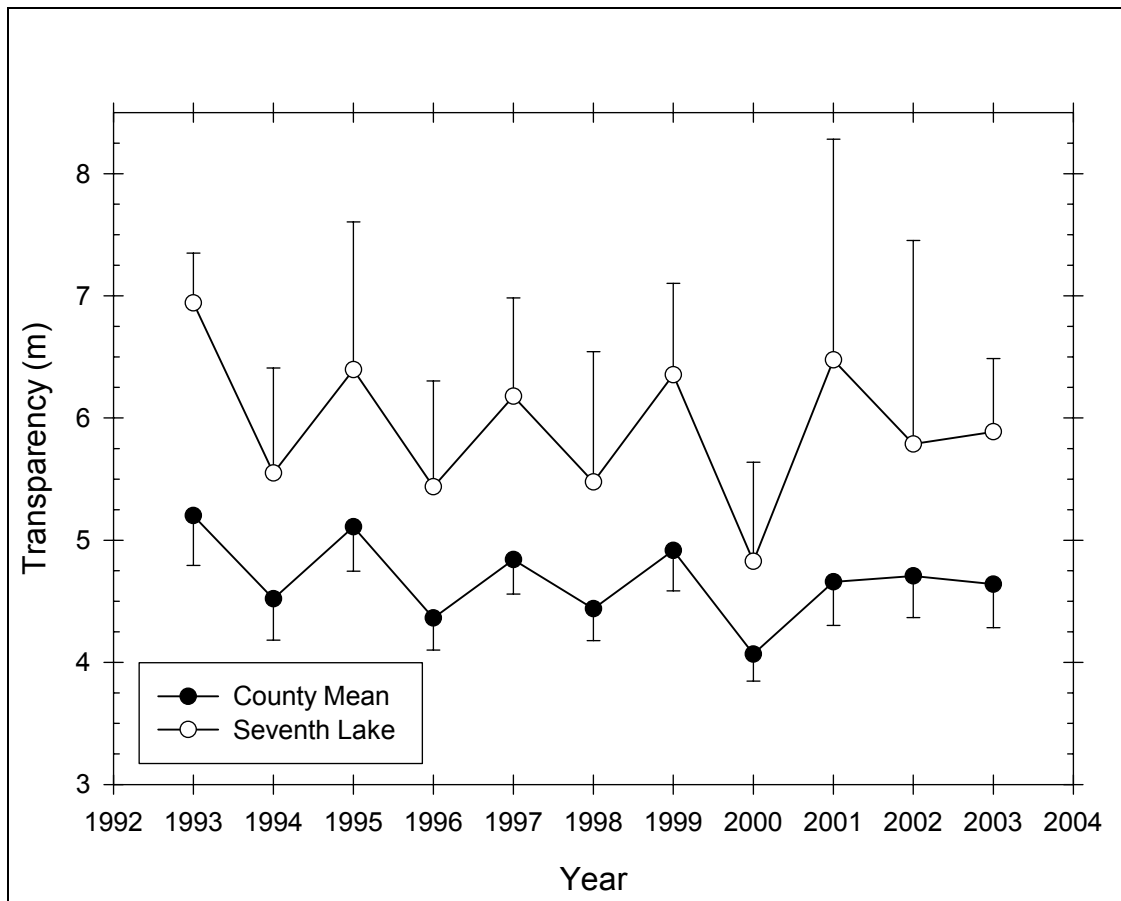


Figure 199 Seasonal mean transparency trend in Seventh Lake

Table 158 – Descriptive Statistics for Transparency in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	6.942	0.406	0.182	0.505
1994	6	0	5.550	0.860	0.351	0.902
1995	6	0	6.395	1.211	0.494	1.270
1996	6	0	5.437	0.867	0.354	0.910
1997	6	0	6.178	0.804	0.328	0.844
1998	6	0	5.475	1.068	0.436	1.120
1999	5	0	6.354	0.749	0.335	0.930
2000	6	0	4.827	0.811	0.331	0.851

2001	4	0	6.475	1.808	0.904	2.877
2002	4	0	5.787	1.665	0.832	2.649
2003	4	0	5.888	0.599	0.300	0.953
Year	Range	Max	Min	Median	25%	75%
1993	1.060	7.580	6.520	6.970	6.632	7.123
1994	2.200	6.500	4.300	5.600	4.900	6.400
1995	3.380	8.050	4.670	6.550	5.400	7.150
1996	2.400	6.750	4.350	5.585	4.600	5.750
1997	2.280	7.390	5.110	6.125	5.750	6.570
1998	3.010	7.110	4.100	5.375	4.870	6.020
1999	1.910	7.600	5.690	6.200	5.833	6.700
2000	2.300	6.300	4.000	4.650	4.360	5.000
2001	4.000	9.100	5.100	5.850	5.300	7.650
2002	3.750	8.200	4.450	5.250	4.725	6.850
2003	1.180	6.500	5.320	5.865	5.375	6.400
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	1.021	1.296	0.273	0.248	34.710	241.618
1994	-0.351	-1.173	0.172	0.681	33.300	188.510
1995	-0.194	-0.493	0.201	0.535	38.370	252.704
1996	0.202	-0.227	0.196	0.565	32.620	181.106
1997	0.286	-0.291	0.203	0.526	37.070	232.264
1998	0.388	-0.283	0.205	0.514	32.850	185.552
1999	1.519	2.549	0.276	0.236	31.770	204.111
2000	1.383	2.258	0.249	0.277	28.960	143.070
2001	1.640	2.707	0.310	0.191	25.900	177.510
2002	1.610	2.769	0.319	0.166	23.150	142.292
2003	0.0665	-5.290	0.277	0.313	23.550	139.727

TSI

Figure 200 presents the Carlson trophic state index trend in Seventh Lake. Transparency TSI was generally in the upper oligotrophic range, while chlorophyll *a* TSI was generally in the mesotrophic range. Total phosphorus TSI increased from upper oligotrophic in 1993 to upper mesotrophic in 2000, followed by a return and decreasing values in the oligotrophic range in 2001 to 2003.

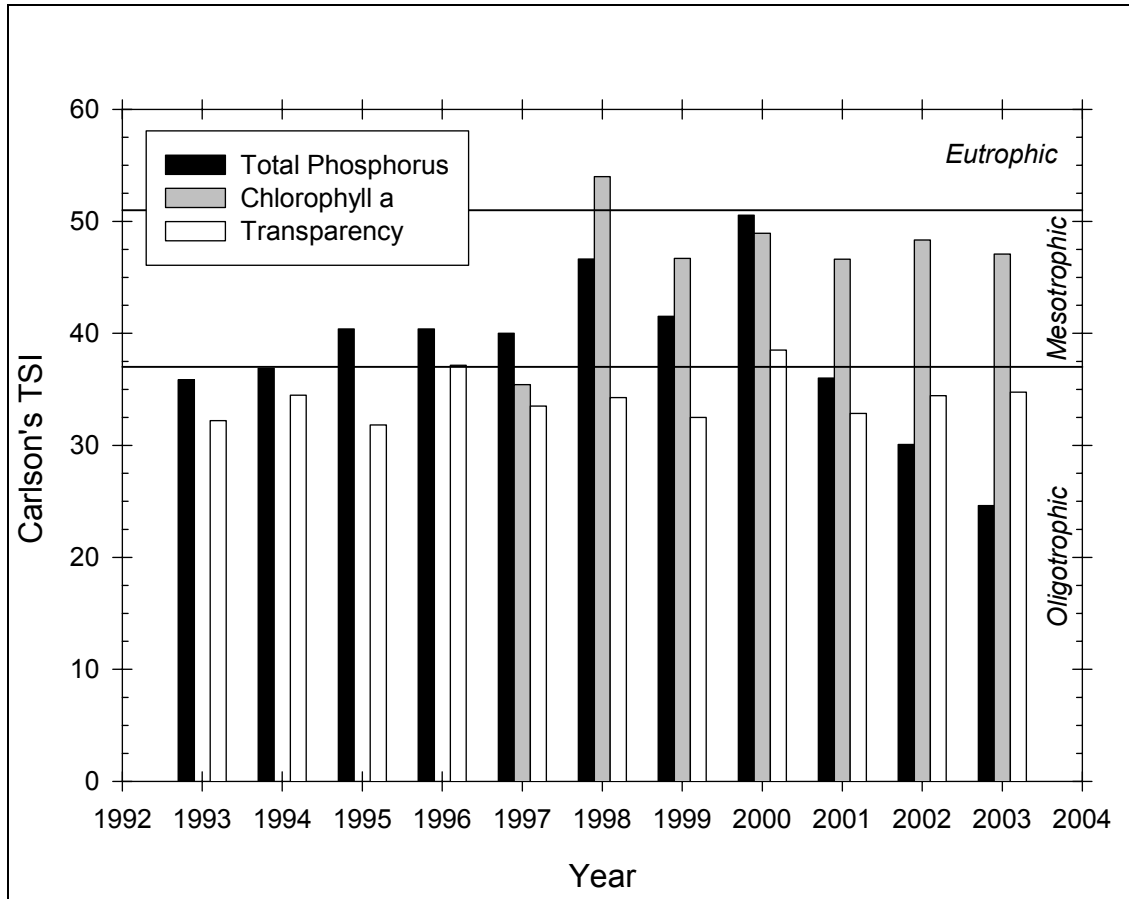


Figure 200 Carlson TSI trend in Seventh Lake

Aluminum

Figure 201 presents the seasonal mean aluminum trend in Seventh Lake, while Table 159 presents descriptive statistics for aluminum in Seventh Lake. The aluminum in Seventh Lake exhibited no discernible trend. The aluminum in Seventh Lake was similar to the county average, except in 2002 and 2003, when it was slightly higher than the county average, though any difference was not statistically significant.

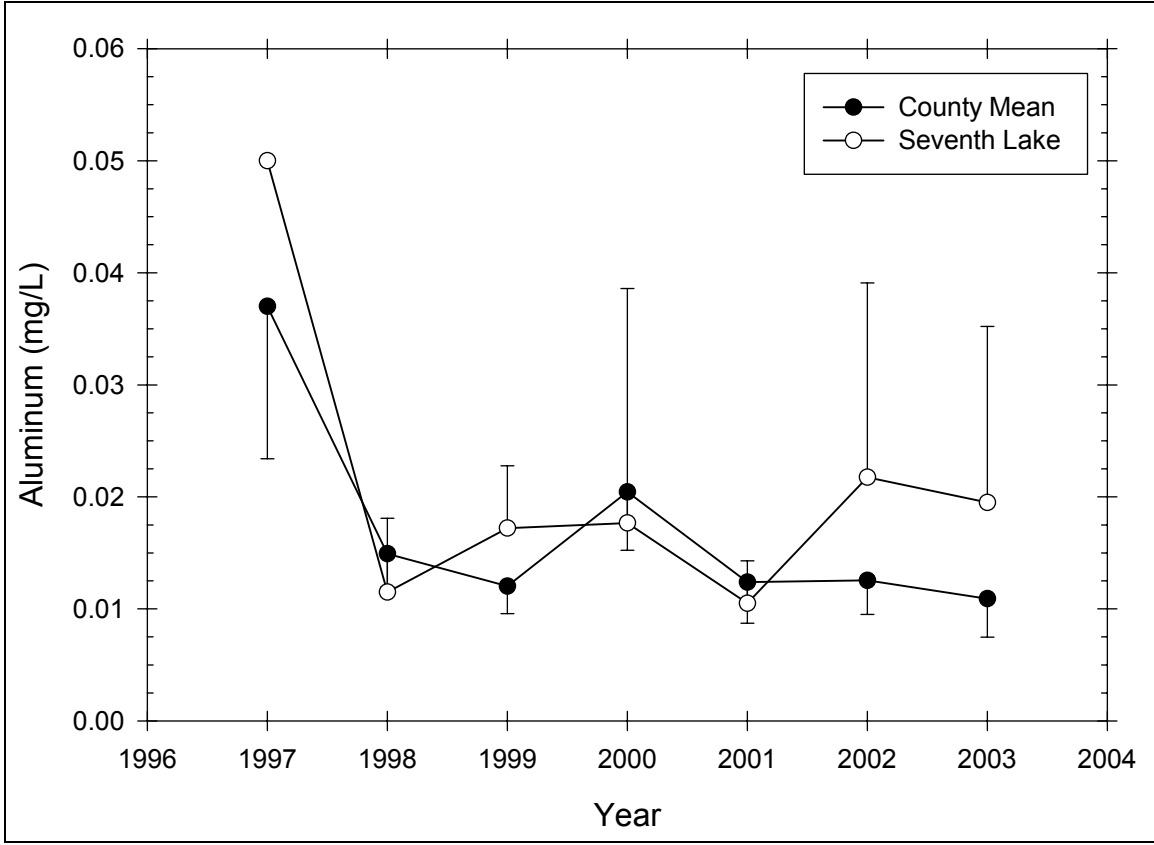


Figure 201 Seasonal mean aluminum trend in Seventh Lake

Table 159 – Descriptive Statistics for Aluminum in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1997	6	5	0.0500	--	--	--
1998	6	0	0.0115	0.00628	0.00257	0.00660
1999	6	1	0.0172	0.00449	0.00201	0.00558
2000	6	0	0.0177	0.0199	0.00814	0.0209
2001	6	2	0.0105	0.00238	0.00119	0.00379
2002	6	2	0.0218	0.0109	0.00545	0.0174
2003	6	2	0.0195	0.00988	0.00494	0.0157
Year	Range	Max	Min	Median	25%	75%
1997	0.000	0.0500	0.0500	0.0500	0.0500	0.0500
1998	0.0140	0.0160	0.00200	0.0150	0.00500	0.0160
1999	0.0110	0.0220	0.0110	0.0170	0.0140	0.0212
2000	0.0510	0.0570	0.00600	0.00800	0.00700	0.0200
2001	0.00500	0.0120	0.00700	0.0115	0.00900	0.0120
2002	0.0230	0.0310	0.00800	0.0240	0.0130	0.0305
2003	0.0230	0.0320	0.00900	0.0185	0.0120	0.0270
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1997	--	--	--	--	0.0500	0.00250
1998	-1.044	-1.292	0.378	0.008	0.0690	0.000991
1999	-0.383	-1.137	0.201	0.592	0.0860	0.00156
2000	2.127	4.551	0.353	0.019	0.106	0.00386
2001	-1.779	3.135	0.333	0.127	0.0420	0.000458

2002	-0.668	-2.210	0.275	0.322	0.0870	0.00225
2003	0.497	-0.564	0.176	0.692	0.0780	0.00181

Calcium

Figure 202 presents the seasonal mean calcium trend in Seventh Lake, while Table 160 presents descriptive statistics for calcium in Seventh Lake. The calcium in Seventh Lake exhibited no discernible trend. The calcium in Seventh Lake was slightly higher than the county average, though this difference was not statistically significant in most years.

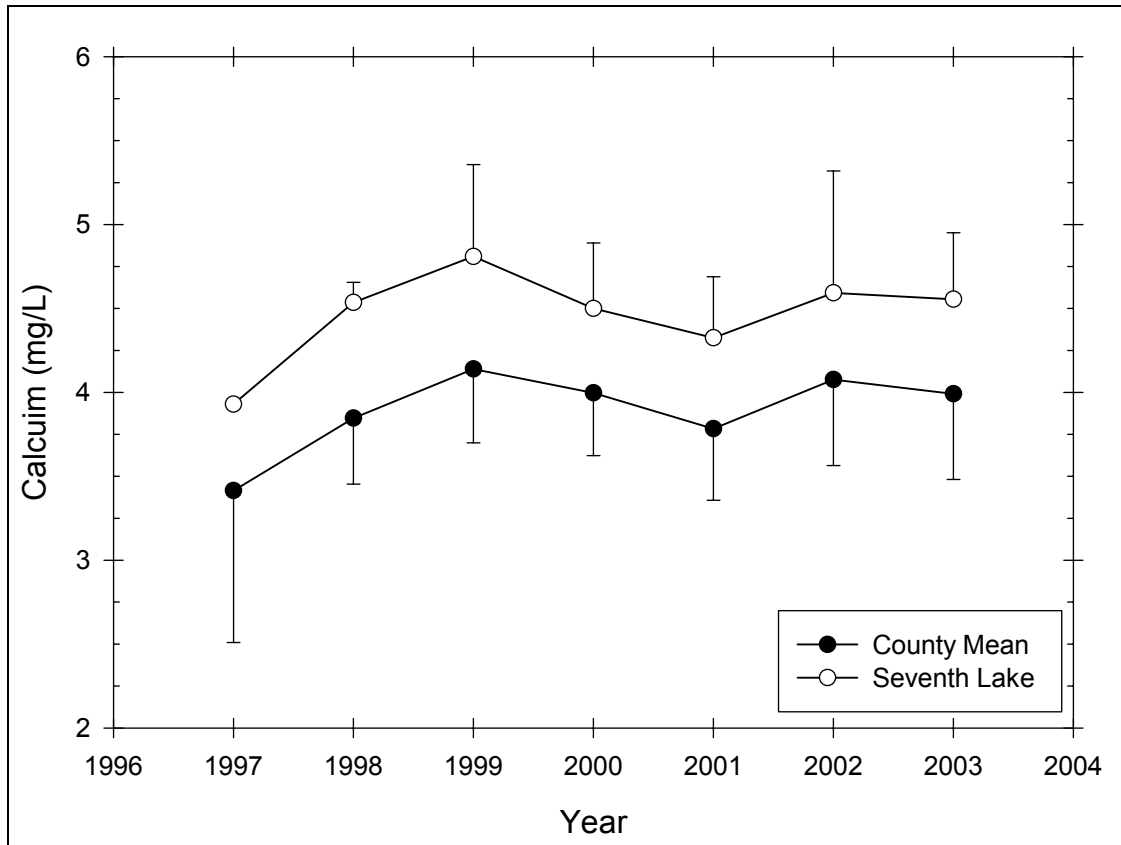


Figure 202 Seasonal mean calcium trend in Seventh Lake

Table 160 – Descriptive Statistics for Calcium in Seventh Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1997	6	5	3.930	--	--	--
1998	6	0	4.535	0.115	0.0468	0.120
1999	6	1	4.810	0.441	0.197	0.547
2000	6	0	4.500	0.371	0.151	0.389
2001	6	2	4.325	0.228	0.114	0.363
2002	6	2	4.592	0.457	0.229	0.728
2003	6	2	4.555	0.249	0.125	0.396
Year	Range	Max	Min	Median	25%	75%
1997	0.000	3.930	3.930	3.930	3.930	3.930
1998	0.300	4.670	4.370	4.545	4.440	4.640

1999	0.980	5.150	4.170	5.050	4.440	5.150
2000	1.010	5.090	4.080	4.435	4.250	4.710
2001	0.540	4.580	4.040	4.340	4.155	4.495
2002	1.000	5.050	4.050	4.635	4.220	4.965
2003	0.550	4.740	4.190	4.645	4.400	4.710
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1997	--	--	--	--	3.930	15.445
1998	-0.344	-1.083	0.184	0.626	27.210	123.463
1999	-0.933	-1.240	0.307	0.129	24.050	116.457
2000	0.677	-0.307	0.223	0.410	27.000	122.188
2001	-0.342	-0.165	0.155	0.710	17.300	74.979
2002	-0.338	-2.907	0.235	0.497	18.370	84.992
2003	-1.734	3.109	0.337	0.117	18.220	83.178

Calcite Saturation Index

Figure 203 presents the calcite saturation index trend in Seventh Lake. The CSI in Seventh Lake exhibited a slight decreasing trend from 1997 to 2003, within the low vulnerability to acid deposition rain throughout the period. The CSI in Seventh Lake was slightly lower than the county average, though this difference was not statistically significant.

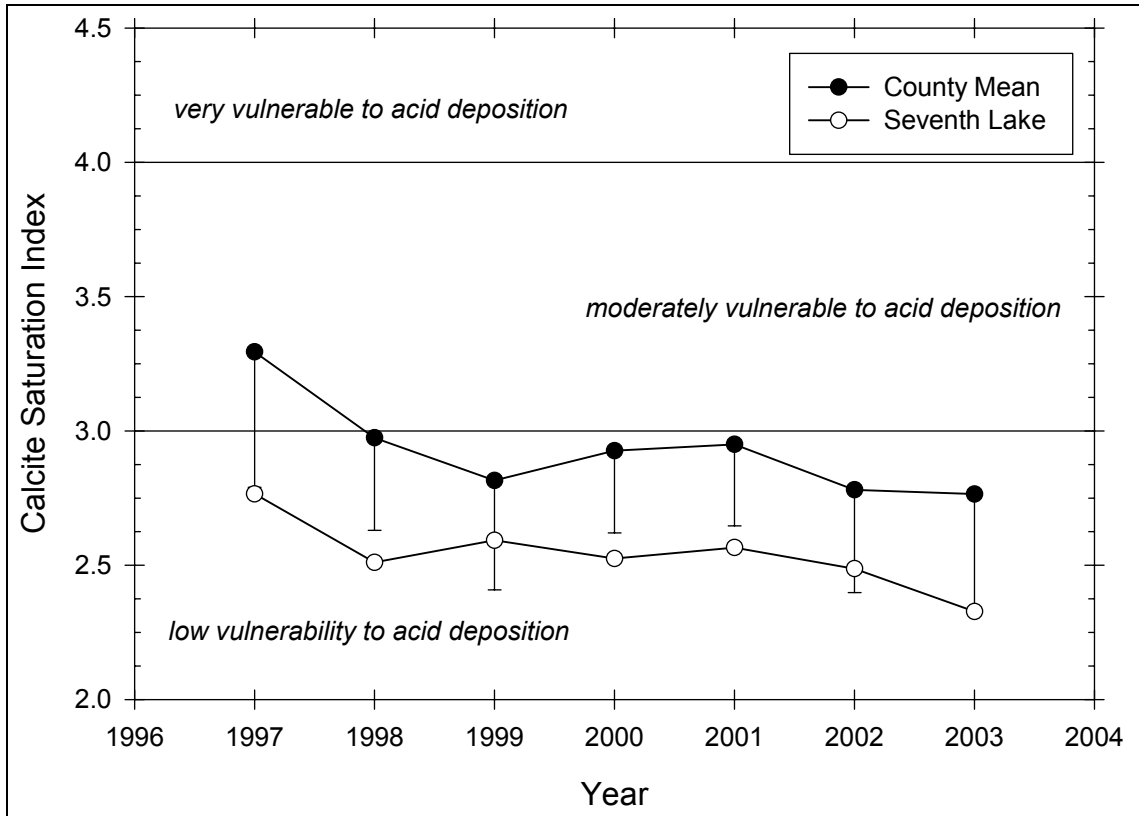


Figure 203 Seasonal mean CSI trend in Seventh Lake