

Sacandaga Lake

Location

Pond Number: 050314
Watershed: Upper Hudson River
County: Hamilton
Topographic Quadrangle: Lake Pleasant

Sample Site

Latitude: 43° 29.296'
Longitude: 74° 24.378'

Morphometry

Surface Area: 1620 Ac.
Mean Depth: 28 Ft.
Maximum Depth: 73 Ft.
Volume: 34,195 Ac./Ft.
Watershed Area: 12,784 Ac.
Hydraulic Retention Time: 0.5 Yr.
Shoreline Length: 13.2 Mi.
Elevation: 1,726 Ft.
Water Quality Classification: AA
Trophic State: Mesotrophic



Temperature and Dissolved Oxygen

Sacandaga Lake had a minimum DO of 0.2 mg/L (September 2000), with a minimum temperature of 5.5°C and a maximum temperature of 24.4°C. In general, the lowest DO values occurred during the months of August through September.

pH

Figure 184 presents the seasonal mean pH trend in Sacandaga Lake, while Table 145 presents descriptive statistics for pH in Sacandaga Lake. The pH in Sacandaga Lake exhibited an increasing trend from 1996 to 2002 with generally stable values from 1999 to 2003. The pH in Sacandaga Lake was slightly higher than the county average, though this difference was not statistically significant.

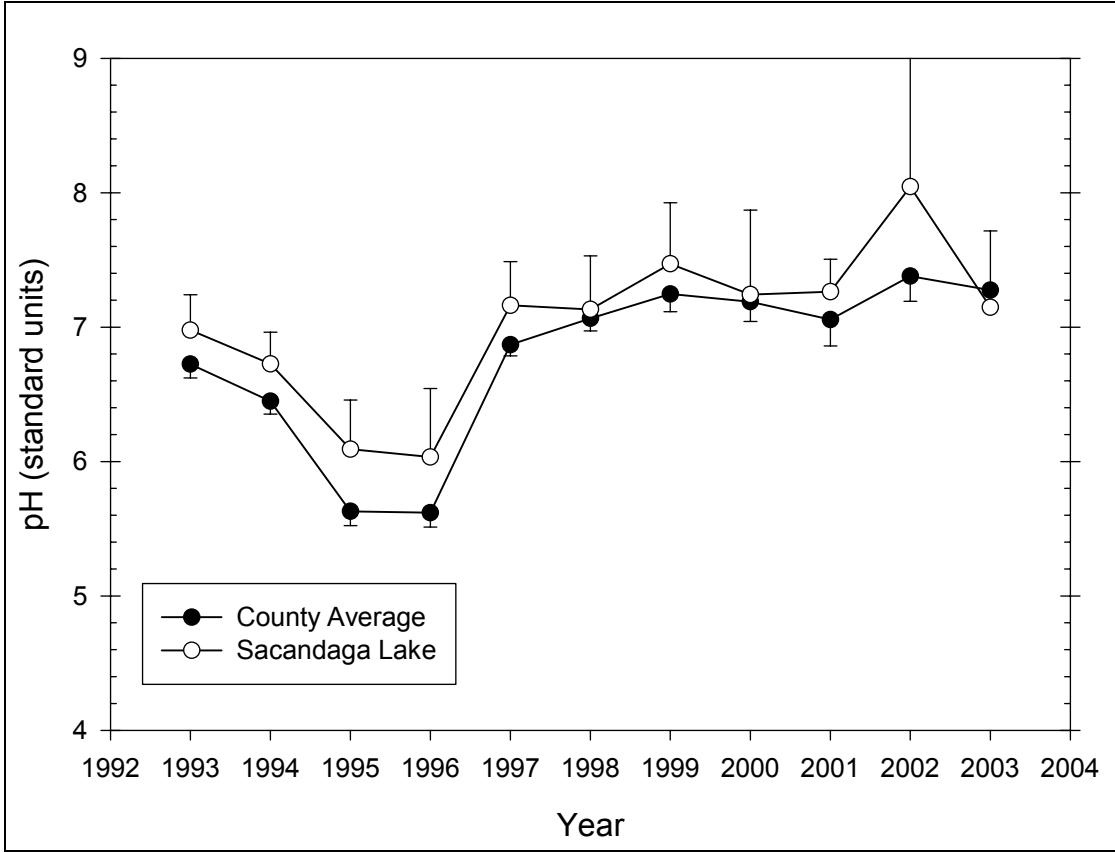


Figure 184 Seasonal mean pH trend in Sacandaga Lake

Table 145 – Descriptive Statistics for pH in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	6.978	0.212	0.0947	0.263
1994	6	0	6.727	0.225	0.0917	0.236
1995	6	0	6.092	0.348	0.142	0.365
1996	6	0	6.033	0.486	0.198	0.510
1997	6	0	7.162	0.311	0.127	0.327
1998	5	0	7.132	0.322	0.144	0.399
1999	5	0	7.470	0.366	0.164	0.454
2000	6	0	7.242	0.600	0.245	0.629
2001	5	0	7.264	0.195	0.0870	0.242
2002	4	0	8.045	0.801	0.400	1.274
2003	5	0	7.148	0.458	0.205	0.569
Year	Range	Max	Min	Median	25%	75%
1993	0.540	7.330	6.790	6.920	6.835	7.082
1994	0.600	6.970	6.370	6.715	6.640	6.950
1995	1.030	6.530	5.500	6.170	5.930	6.250
1996	1.220	6.850	5.630	5.905	5.650	6.260
1997	0.810	7.460	6.650	7.245	6.950	7.420
1998	0.830	7.490	6.660	7.150	6.923	7.385
1999	0.880	7.870	6.990	7.570	7.148	7.758
2000	1.450	8.120	6.670	7.045	6.730	7.840
2001	0.540	7.540	7.000	7.280	7.150	7.360

2002	1.800	9.080	7.280	7.910	7.425	8.665
2003	1.160	7.890	6.730	6.940	6.865	7.425
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	1.521	2.481	0.259	0.309	34.890	243.642
1994	-0.549	-0.137	0.183	0.630	40.360	271.741
1995	-0.866	1.404	0.233	0.357	36.550	223.257
1996	1.003	0.214	0.279	0.154	36.200	219.588
1997	-0.958	-0.0366	0.190	0.595	42.970	308.222
1998	-0.635	0.0101	0.152	0.740	35.660	254.741
1999	-0.422	-1.869	0.208	0.562	37.350	279.540
2000	0.771	-1.365	0.273	0.174	43.450	316.448
2001	0.136	1.303	0.227	0.467	36.320	263.980
2002	0.730	-0.999	0.223	0.547	32.180	260.812
2003	1.363	1.606	0.275	0.238	35.740	256.310

Alkalinity

Figure 185 presents the seasonal mean alkalinity trend in Sacandaga Lake, while Table 146 presents descriptive statistics for alkalinity in Sacandaga Lake. The alkalinity in Sacandaga Lake was variable from year to year and did not exhibit any discernible trend. The alkalinity in Sacandaga Lake was slightly higher than the county average, though this difference was not statistically significant.

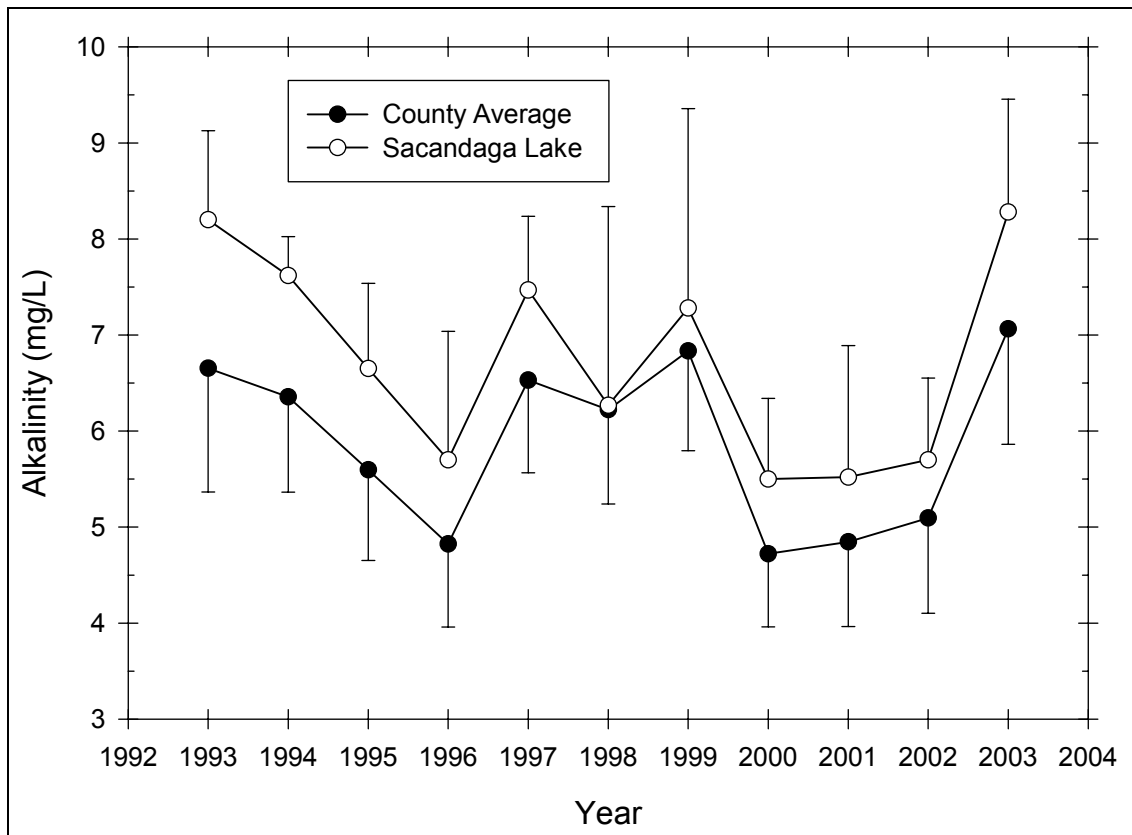


Figure 185 Seasonal mean alkalinity trend in Sacandaga Lake

Table 146 – Descriptive Statistics for Alkalinity in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	6.978	0.212	0.0947	0.263
1994	6	0	6.727	0.225	0.0917	0.236
1995	6	0	6.092	0.348	0.142	0.365
1996	6	0	6.033	0.486	0.198	0.510
1997	6	0	7.162	0.311	0.127	0.327
1998	5	0	7.132	0.322	0.144	0.399
1999	5	0	7.470	0.366	0.164	0.454
2000	6	0	7.242	0.600	0.245	0.629
2001	5	0	7.264	0.195	0.0870	0.242
2002	4	0	8.045	0.801	0.400	1.274
2003	5	0	7.148	0.458	0.205	0.569
Year	Range	Max	Min	Median	25%	75%
1993	0.540	7.330	6.790	6.920	6.835	7.082
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1995	1.030	6.530	5.500	6.170	5.930	6.250
1996	1.220	6.850	5.630	5.905	5.650	6.260
1997	0.810	7.460	6.650	7.245	6.950	7.420
1998	0.830	7.490	6.660	7.150	6.923	7.385
1999	0.880	7.870	6.990	7.570	7.148	7.758
2000	1.450	8.120	6.670	7.045	6.730	7.840
2001	0.540	7.540	7.000	7.280	7.150	7.360
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2003	1.160	7.890	6.730	6.940	6.865	7.425
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	1.521	2.481	0.259	0.309	34.890	243.642
1994	-0.549	-0.137	0.183	0.630	40.360	271.741
1995	-0.866	1.404	0.233	0.357	36.550	223.257
1996	1.003	0.214	0.279	0.154	36.200	219.588
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1998	-0.635	0.0101	0.152	0.740	35.660	254.741
1999	-0.422	-1.869	0.208	0.562	37.350	279.540
2000	0.771	-1.365	0.273	0.174	43.450	316.448
2001	0.136	1.303	0.227	0.467	36.320	263.980
2002	0.730	-0.999	0.223	0.547	32.180	260.812
2003	1.363	1.606	0.275	0.238	35.740	256.310

Total Phosphorus

Figure 186 presents the seasonal mean total phosphorus trend in Sacandaga Lake, while Table 147 presents descriptive statistics for total phosphorus in Sacandaga Lake. The total phosphorus in Sacandaga Lake exhibited a decreasing trend from 1993 to 2003, disregarding the high value for Sacandaga Lake in 2000 due to an outlying data point. The total phosphorus in Sacandaga Lake was similar to the county average.

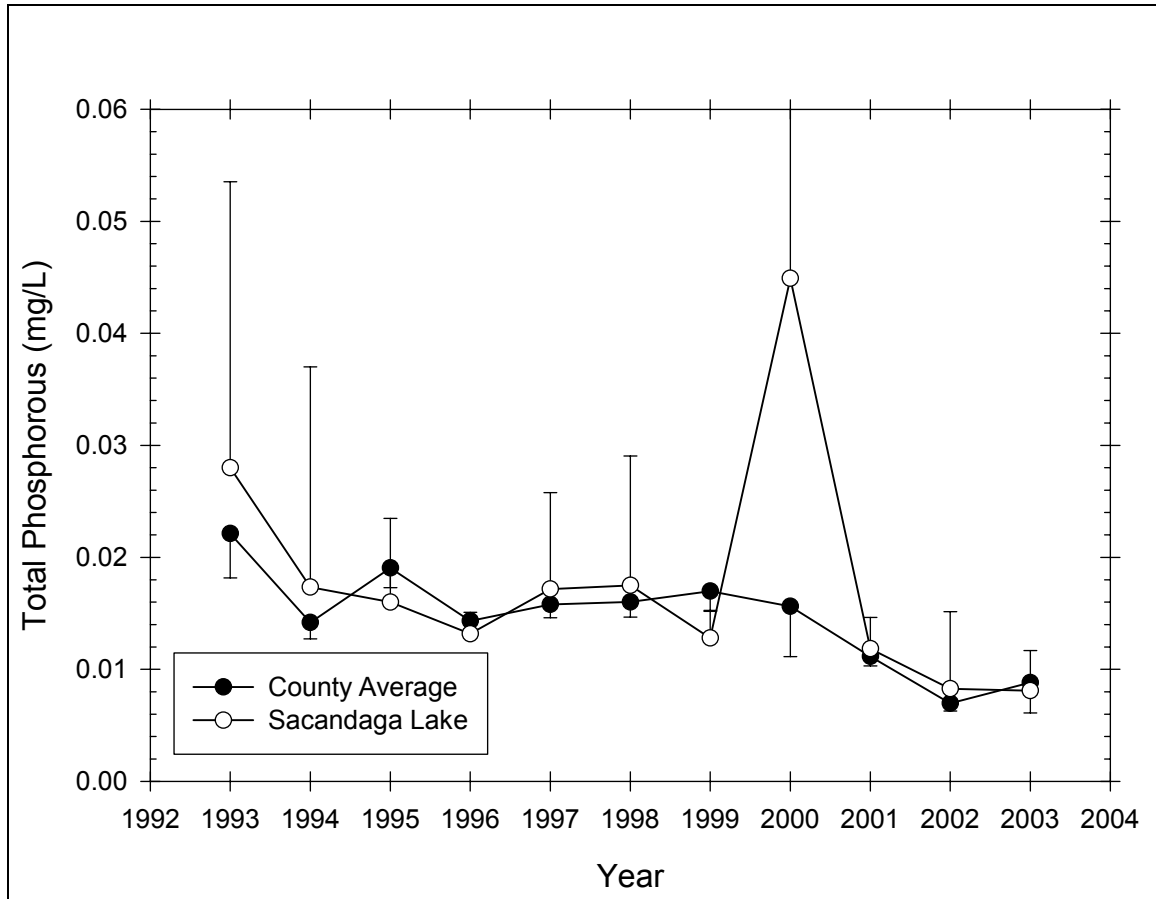


Figure 186 Seasonal mean total phosphorus trend in Sacandaga Lake (2000 contains an outlier of 0.221)

Table 147 – Descriptive Statistics for Total Phosphorus in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	0.0280	0.0206	0.00919	0.0255
1994	6	0	0.0173	0.0187	0.00765	0.0197
1995	6	0	0.0160	0.00713	0.00291	0.00748
1996	6	0	0.0132	0.00183	0.000749	0.00193
1997	6	0	0.0172	0.00821	0.00335	0.00861
1998	6	0	0.0175	0.0110	0.00449	0.0115
1999	6	1	0.0128	0.00192	0.000860	0.00239
2000	6	0	0.0449	0.0864	0.0353	0.0907
2001	6	1	0.0118	0.00225	0.00101	0.00280
2002	6	2	0.00827	0.00432	0.00216	0.00688
2003	6	1	0.00810	0.00289	0.00129	0.00359
Year	Range	Max	Min	Median	25%	75%
1993	0.0530	0.0630	0.01000	0.0240	0.0153	0.0353
1994	0.0500	0.0550	0.00500	0.01000	0.00900	0.0150
1995	0.0210	0.0290	0.00800	0.0140	0.0130	0.0180
1996	0.00500	0.0160	0.0110	0.0130	0.0120	0.0140
1997	0.0220	0.0320	0.01000	0.0160	0.01000	0.0190
1998	0.0250	0.0340	0.00900	0.0115	0.01000	0.0290
1999	0.00500	0.0150	0.01000	0.0130	0.0115	0.0143
2000	0.220	0.221	0.001000	0.0122	0.00800	0.0150

2001	0.00560	0.0140	0.00840	0.0130	0.0102	0.0133
2002	0.00960	0.0137	0.00410	0.00765	0.00485	0.0117
2003	0.00770	0.0110	0.00330	0.00880	0.00690	0.00972
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	1.710	3.348	0.339	0.062	0.140	0.00561
1994	2.287	5.378	0.383	0.006	0.104	0.00356
1995	1.367	2.643	0.277	0.159	0.0960	0.00179
1996	0.513	-0.621	0.238	0.333	0.0790	0.00106
1997	1.358	2.048	0.245	0.295	0.103	0.00211
1998	1.021	-1.348	0.358	0.016	0.105	0.00244
1999	-0.590	-0.0219	0.141	0.746	0.0640	0.000834
2000	2.431	5.930	0.469	<0.001	0.269	0.0494
2001	-1.046	0.108	0.297	0.159	0.0592	0.000721
2002	0.583	-1.798	0.232	0.511	0.0331	0.000330
2003	-1.454	2.840	0.300	0.149	0.0405	0.000361

Nitrate

Figure 187 presents the seasonal mean nitrate trend in Sacandaga Lake, while Table 148 presents descriptive statistics for nitrate in Sacandaga Lake. The nitrate in Sacandaga Lake exhibited a decreasing trend from 1997 to 2002. The nitrate in Sacandaga Lake was slightly lower than the county average, though this difference was not statistically significant.

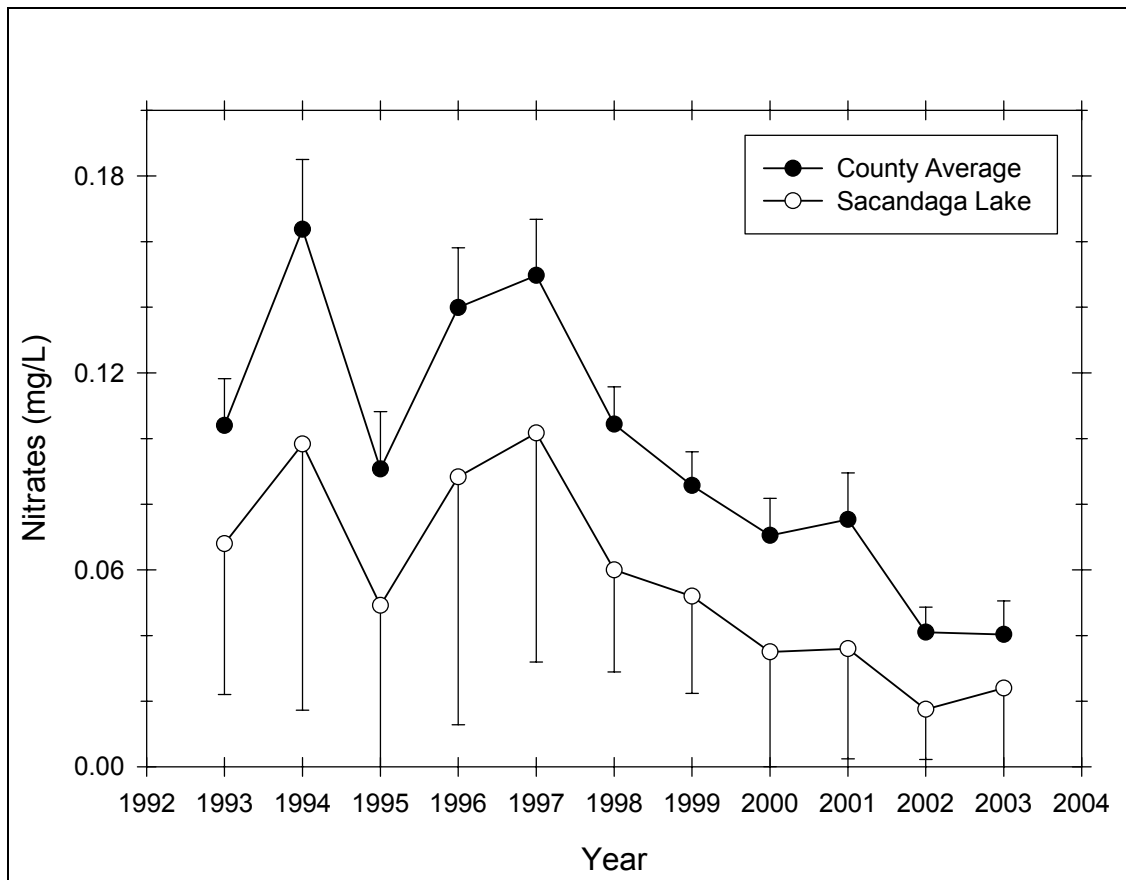


Figure 187 Seasonal mean nitrate trend in Sacandaga Lake

Table 148 – Descriptive Statistics for Nitrate in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	1	0.0680	0.0370	0.0166	0.0460
1994	6	0	0.0983	0.0773	0.0316	0.0811
1995	6	0	0.0492	0.0749	0.0306	0.0786
1996	6	0	0.0883	0.0719	0.0294	0.0755
1997	6	0	0.102	0.0665	0.0271	0.0697
1998	6	0	0.0600	0.0297	0.0121	0.0311
1999	6	1	0.0520	0.0239	0.0107	0.0296
2000	6	0	0.0350	0.0333	0.0136	0.0350
2001	6	1	0.0360	0.0270	0.0121	0.0335
2002	6	2	0.0175	0.00957	0.00479	0.0152
2003	6	1	0.0240	0.0251	0.0112	0.0312
Year	Range	Max	Min	Median	25%	75%
1993	0.0900	0.130	0.0400	0.0600	0.0400	0.0850
1994	0.170	0.200	0.0300	0.0700	0.0300	0.190
1995	0.160	0.160	0.000	0.00250	0.000	0.130
1996	0.180	0.200	0.0200	0.0650	0.0300	0.150
1997	0.160	0.190	0.0300	0.0850	0.0500	0.170
1998	0.0900	0.110	0.0200	0.0550	0.0500	0.0700
1999	0.0600	0.0900	0.0300	0.0400	0.0375	0.0675
2000	0.0900	0.1000	0.01000	0.0200	0.0200	0.0400
2001	0.0600	0.0700	0.01000	0.0200	0.0175	0.0625
2002	0.0200	0.0300	0.01000	0.0150	0.01000	0.0250
2003	0.0600	0.0600	0.000	0.01000	0.00750	0.0450
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	1.593	2.662	0.278	0.224	0.340	0.0286
1994	0.727	-1.874	0.260	0.224	0.590	0.0879
1995	1.035	-1.460	0.389	0.005	0.295	0.0425
1996	0.848	-0.882	0.213	0.470	0.530	0.0727
1997	0.440	-1.972	0.235	0.349	0.610	0.0841
1998	0.690	1.741	0.201	0.534	0.360	0.0260
1999	1.264	1.099	0.292	0.174	0.260	0.0158
2000	2.020	4.200	0.340	0.029	0.210	0.0129
2001	0.578	-2.708	0.323	0.096	0.180	0.00940
2002	0.855	-1.289	0.283	0.289	0.0700	0.00150
2003	0.828	-1.217	0.312	0.117	0.120	0.00540

Chlorophyll *a*

Figure 188 presents the seasonal mean chlorophyll *a* trend in Sacandaga Lake, while Table 149 presents descriptive statistics for chlorophyll *a* in Sacandaga Lake. The chlorophyll *a* in Sacandaga Lake exhibited an increasing trend from 1997 to 2001 and a decreasing trend from 2001 to 2003. The chlorophyll *a* in Sacandaga Lake was generally slightly lower than the county average, though this difference was not statistically significant.

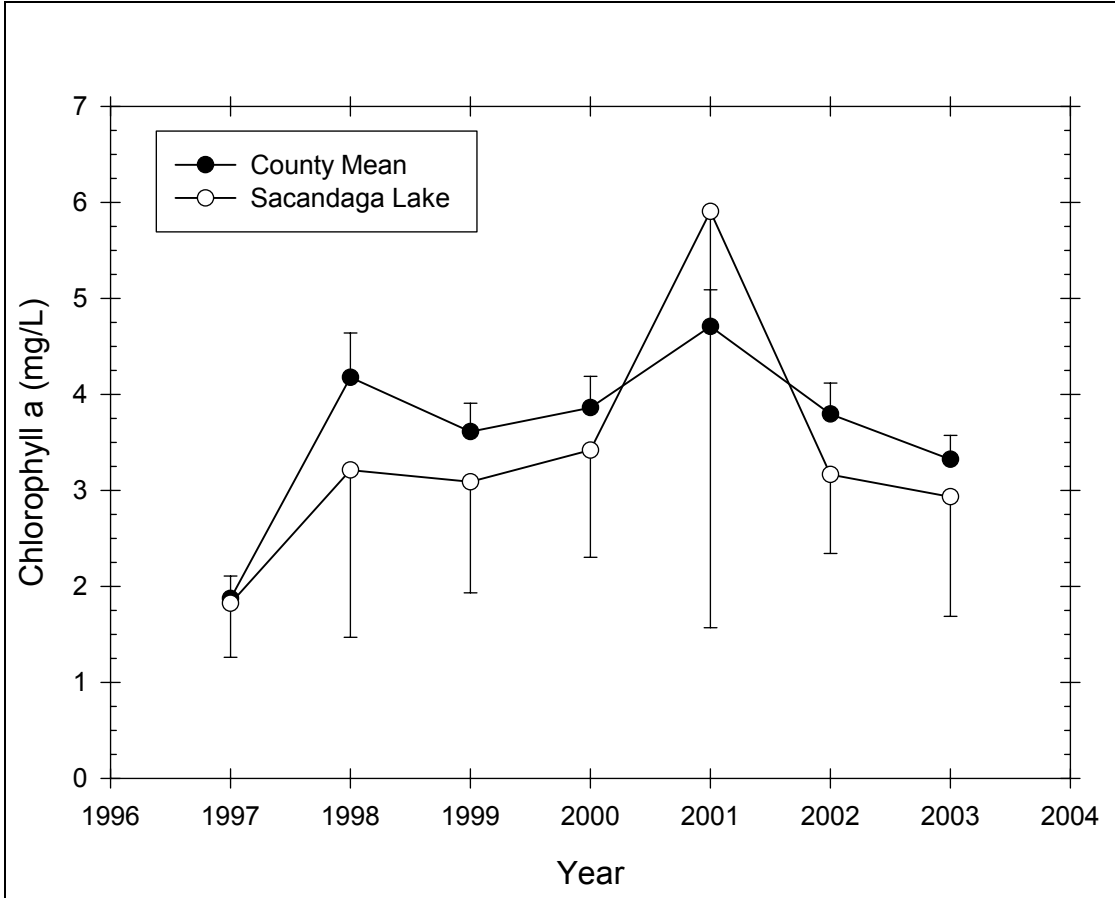


Figure 188 Seasonal mean chlorophyll a trend in Sacandaga Lake

Table 149 – Descriptive Statistics for Chlorophyll a in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1997	6	0	1.823	0.535	0.218	0.562
1998	6	0	3.212	1.660	0.678	1.742
1999	6	1	3.090	0.932	0.417	1.157
2000	6	0	3.418	1.063	0.434	1.115
2001	6	1	5.906	3.493	1.562	4.338
2002	6	2	3.165	0.517	0.258	0.822
2003	6	2	2.932	0.783	0.392	1.246
Year	Range	Max	Min	Median	25%	75%
1997	1.330	2.450	1.120	1.845	1.320	2.360
1998	4.220	5.150	0.930	2.905	2.260	5.120
1999	2.380	4.560	2.180	2.830	2.427	3.667
2000	2.830	5.200	2.370	3.305	2.470	3.860
2001	7.150	10.240	3.090	3.870	3.158	9.423
2002	1.190	3.610	2.420	3.315	2.850	3.480
2003	1.650	3.690	2.040	3.000	2.280	3.585
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1997	-0.146	-1.591	0.175	0.666	10.940	21.379
1998	0.0895	-1.144	0.208	0.496	19.270	75.664
1999	1.150	1.094	0.210	0.551	15.450	51.212

2000	0.912	0.439	0.172	0.680	20.510	75.755
2001	0.631	-2.973	0.320	0.097	29.530	223.218
2002	-1.536	2.821	0.338	0.115	12.660	40.869
2003	-0.253	-3.910	0.258	0.398	11.730	36.239

Transparency

Figure 189 presents the seasonal mean transparency trend in Sacandaga Lake, while Table 150 presents descriptive statistics for transparency in Sacandaga Lake. The transparency in Sacandaga Lake did not exhibit any discernible trend. The transparency in Sacandaga Lake was generally slightly lower than the county average, though this difference was not statistically significant.

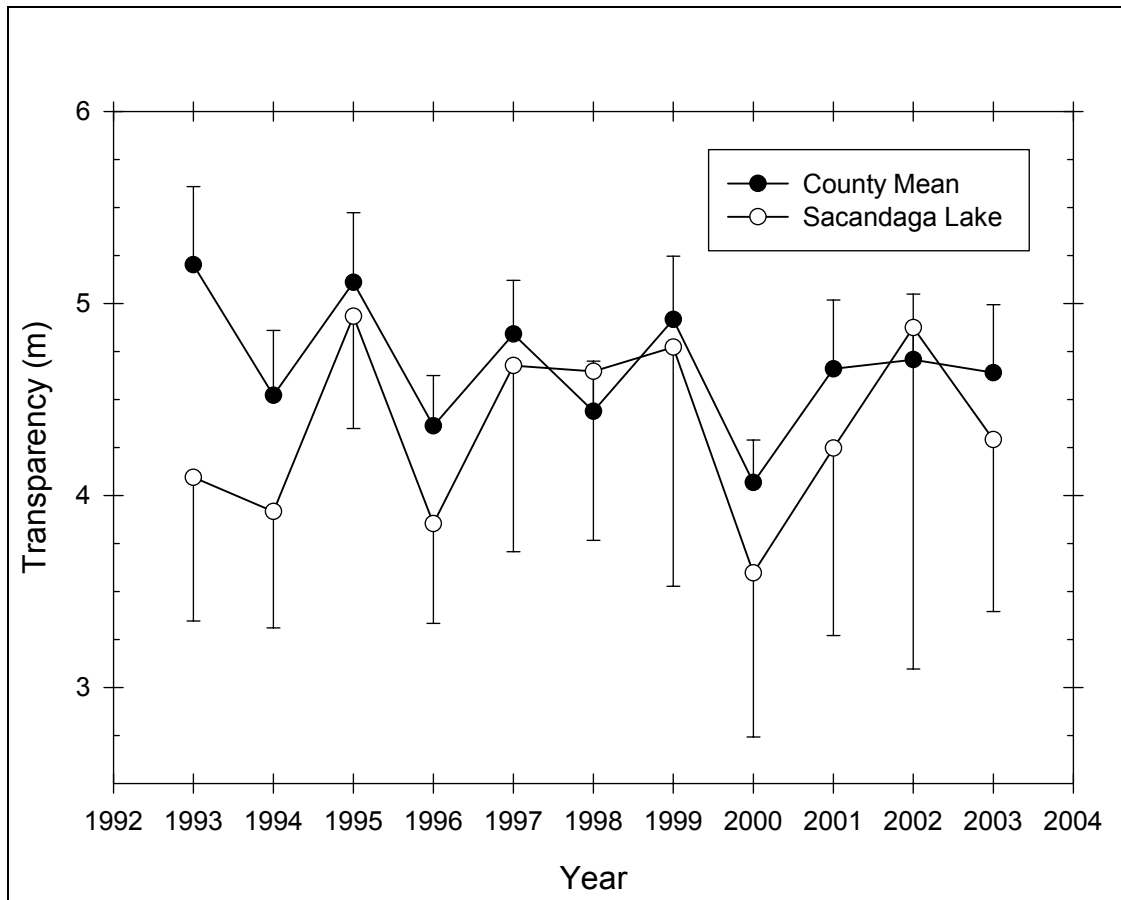


Figure 189 Seasonal mean transparency in Sacandaga Lake

Table 150 – Descriptive Statistics for Transparency in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1993	6	2	4.095	0.470	0.235	0.748
1994	6	0	3.917	0.578	0.236	0.606
1995	6	0	4.933	0.557	0.228	0.585
1996	6	0	3.853	0.495	0.202	0.519
1997	6	0	4.677	0.924	0.377	0.969
1998	6	0	4.647	0.839	0.342	0.880

1999	5	0	4.772	1.002	0.448	1.244
2000	6	0	3.597	0.814	0.332	0.854
2001	5	0	4.246	0.786	0.351	0.975
2002	4	0	4.875	1.118	0.559	1.778
2003	5	0	4.290	0.721	0.322	0.895
Year	Range	Max	Min	Median	25%	75%
1993	1.040	4.550	3.510	4.160	3.720	4.470
1994	1.300	4.500	3.200	3.950	3.500	4.400
1995	1.500	5.800	4.300	4.950	4.400	5.200
1996	1.290	4.300	3.010	3.980	3.570	4.280
1997	2.660	5.730	3.070	4.855	4.300	5.250
1998	2.300	5.850	3.550	4.585	4.000	5.310
1999	2.510	6.130	3.620	5.050	3.875	5.357
2000	1.730	4.730	3.000	3.150	3.000	4.550
2001	2.000	5.000	3.000	4.530	3.750	4.775
2002	2.400	6.000	3.600	4.950	3.950	5.800
2003	1.750	4.800	3.050	4.550	3.987	4.763
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1993	-0.544	-2.032	0.235	0.499	16.380	67.740
1994	-0.138	-2.798	0.299	0.097	23.500	93.710
1995	0.462	-0.360	0.164	0.711	29.600	147.580
1996	-1.098	0.604	0.188	0.605	23.120	90.314
1997	-1.069	1.471	0.181	0.640	28.060	135.494
1998	0.226	-0.722	0.179	0.648	27.880	133.068
1999	0.206	-1.036	0.209	0.554	23.860	117.875
2000	0.954	-1.752	0.354	0.018	21.580	80.925
2001	-1.207	1.146	0.241	0.394	21.230	92.611
2002	-0.219	-3.609	0.242	0.469	19.500	98.810
2003	-1.848	3.503	0.306	0.133	21.450	94.097

TSI

Figure 190 presents the Carlson trophic state index trend in Sacandaga Lake. Transparency TSI oscillated around the oligotrophic-mesotrophic boundary, while chlorophyll *a* TSI oscillated between the mesotrophic-eutrophic boundary and the eutrophic range. Total phosphorus TSI was mesotrophic except for during 2000, 2002, and 2003.

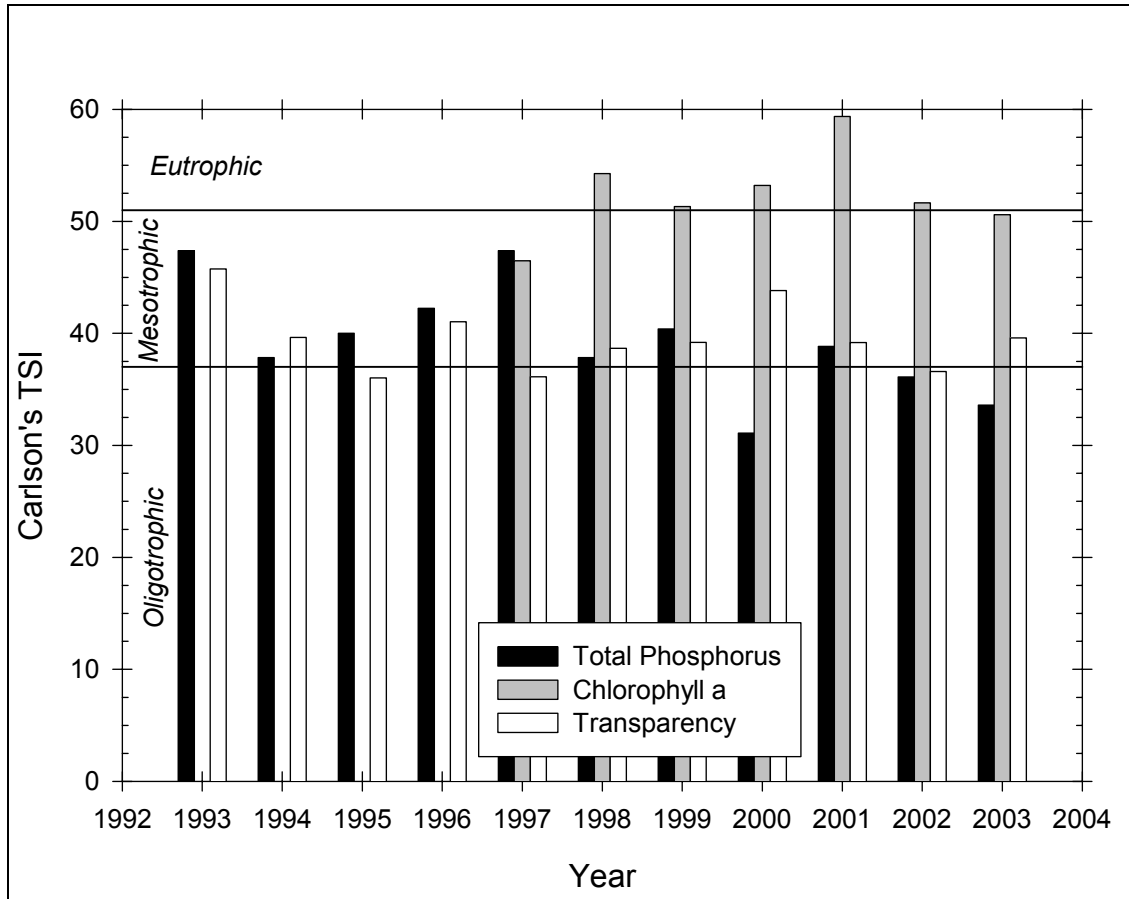


Figure 190 Carlson TSI trend in Sacandaga Lake

Aluminum

Figure 191 presents the seasonal mean aluminum trend in Sacandaga Lake, while Table 151 presents descriptive statistics for aluminum in Sacandaga Lake. The aluminum in Sacandaga Lake exhibited a slight decreasing trend from 1997 to 2000, with relatively low stable values from 2000 to 2003. The aluminum in Sacandaga Lake was lower than the county average, though this difference may not be statistically significant for all years.

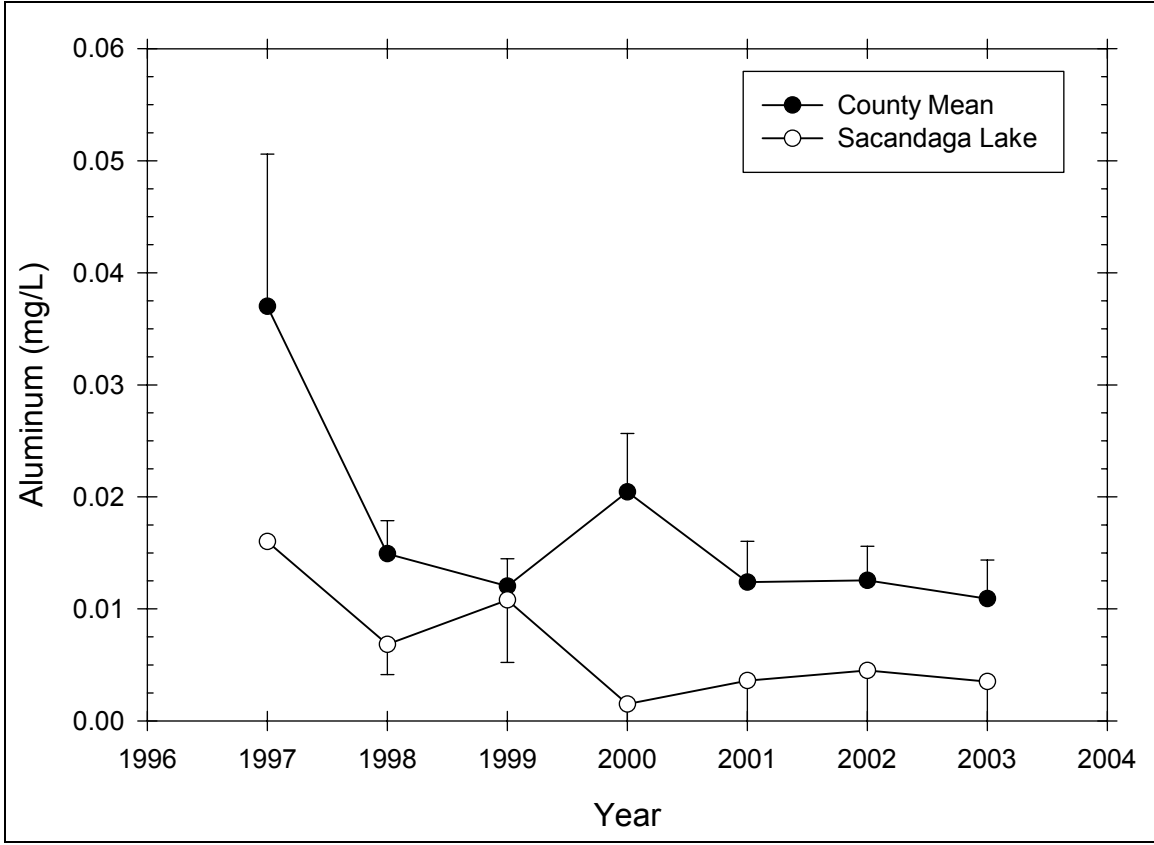


Figure 191 Seasonal mean aluminum trend in Sacandaga Lake

Table 151 – Descriptive Statistics for Aluminum in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1997	6	5	0.0160	--	--	--
1998	6	0	0.00683	0.00256	0.00105	0.00269
1999	6	1	0.0108	0.00449	0.00201	0.00558
2000	6	0	0.00150	0.00207	0.000847	0.00218
2001	6	1	0.00360	0.00344	0.00154	0.00427
2002	6	2	0.00450	0.00311	0.00155	0.00495
2003	6	2	0.00350	0.00436	0.00218	0.00694
Year	Range	Max	Min	Median	25%	75%
1997	0.000	0.0160	0.0160	0.0160	0.0160	0.0160
1998	0.00600	0.00900	0.00300	0.00750	0.00500	0.00900
1999	0.01000	0.0150	0.00500	0.0130	0.00650	0.0143
2000	0.00500	0.00500	0.000	0.000500	0.000	0.00300
2001	0.00800	0.00900	0.001000	0.00200	0.001000	0.00600
2002	0.00700	0.00800	0.001000	0.00450	0.00200	0.00700
2003	0.00900	0.00900	0.000	0.00250	0.000	0.00700
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1997	--	--	--	--	0.0160	0.000256
1998	-0.580	-1.480	0.301	0.095	0.0410	0.000313
1999	-0.608	-2.548	0.288	0.189	0.0540	0.000664
2000	1.211	0.200	0.265	0.204	0.00900	0.0000350
2001	1.243	0.547	0.279	0.221	0.0180	0.000112

2002	6.661E-016	-2.433	0.185	0.673	0.0180	0.000110
2003	0.676	-2.233	0.289	0.267	0.0140	0.000106

Calcium

Figure 192 presents the seasonal mean calcium trend in Sacandaga Lake, while Table 152 presents descriptive statistics for calcium in Sacandaga Lake. The calcium in Sacandaga Lake exhibited an increasing trend from 1997 to 2000 with relatively stable values from 2000 to 2003. The calcium in Sacandaga Lake was slightly higher than the county average, though this difference was not statistically significant.

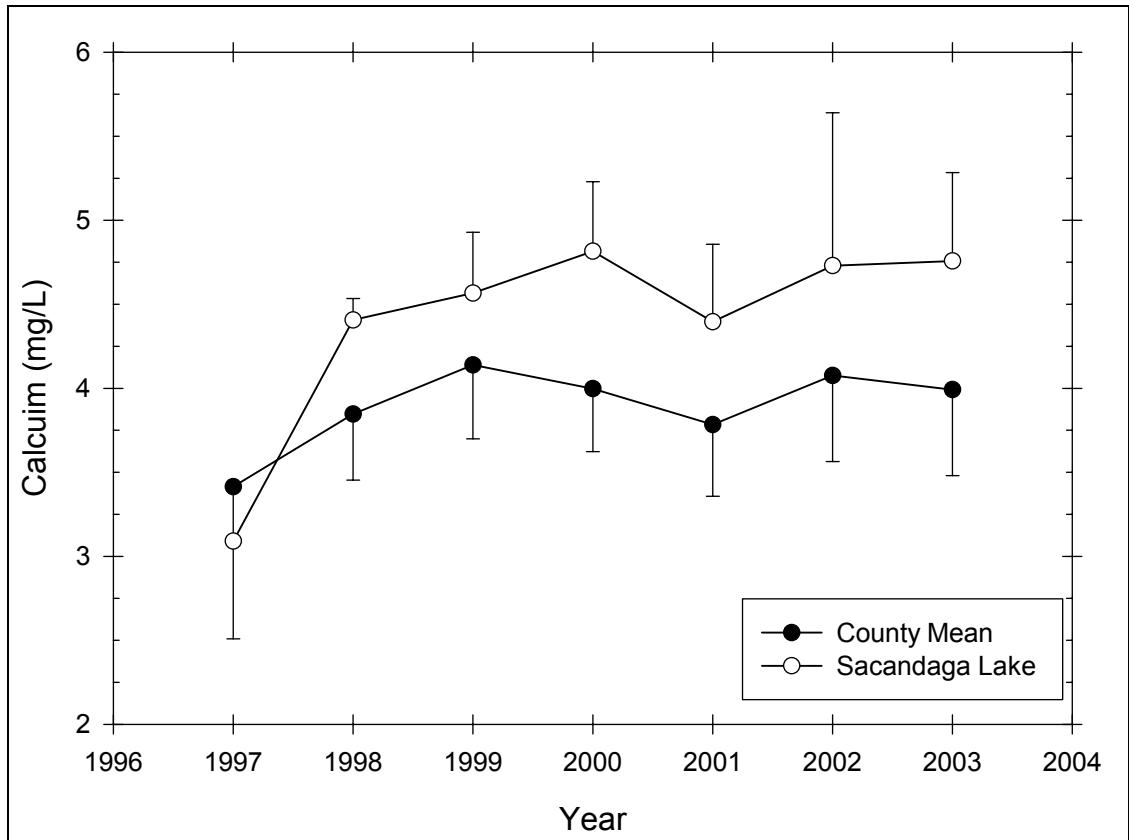


Figure 192 Seasonal mean calcium trend in Sacandaga Lake

Table 152 – Descriptive Statistics for Calcium in Sacandaga Lake

Year	Size	Missing	Mean	Std Dev	Std. Error	C.I. of Mean
1997	6	5	3.090	--	--	--
1998	6	0	4.407	0.121	0.0494	0.127
1999	6	1	4.566	0.292	0.131	0.363
2000	6	0	4.815	0.395	0.161	0.414
2001	6	1	4.396	0.371	0.166	0.461
2002	6	2	4.730	0.571	0.286	0.909
2003	6	2	4.757	0.331	0.166	0.527
Year	Range	Max	Min	Median	25%	75%
1997	0.000	3.090	3.090	3.090	3.090	3.090
1998	0.300	4.570	4.270	4.370	4.320	4.540

1999	0.620	4.810	4.190	4.750	4.280	4.780
2000	1.010	5.320	4.310	4.755	4.570	5.180
2001	1.010	4.870	3.860	4.440	4.167	4.623
2002	1.200	5.080	3.880	4.980	4.395	5.065
2003	0.740	5.010	4.270	4.875	4.570	4.945
Year	Skewness	Kurtosis	K-S Dist.	K-S Prob.	Sum	Sum of Squares
1997	--	--	--	--	3.090	9.548
1998	0.579	-1.575	0.286	0.132	26.440	116.586
1999	-0.678	-2.747	0.335	0.068	22.830	104.584
2000	0.103	-1.772	0.233	0.360	28.890	139.884
2001	-0.379	0.823	0.167	0.714	21.980	97.175
2002	-1.903	3.642	0.374	0.053	18.920	90.471
2003	-1.771	3.380	0.383	0.041	19.030	90.864

Calcite Saturation Index

Figure 193 presents the calcite saturation index trend in Sacandaga Lake. The CSI in Sacandaga Lake was low and stable for the period of record, within the low vulnerability to acid deposition range. The CSI in Sacandaga Lake was slightly lower than the county average, though this difference was not statistically significant.

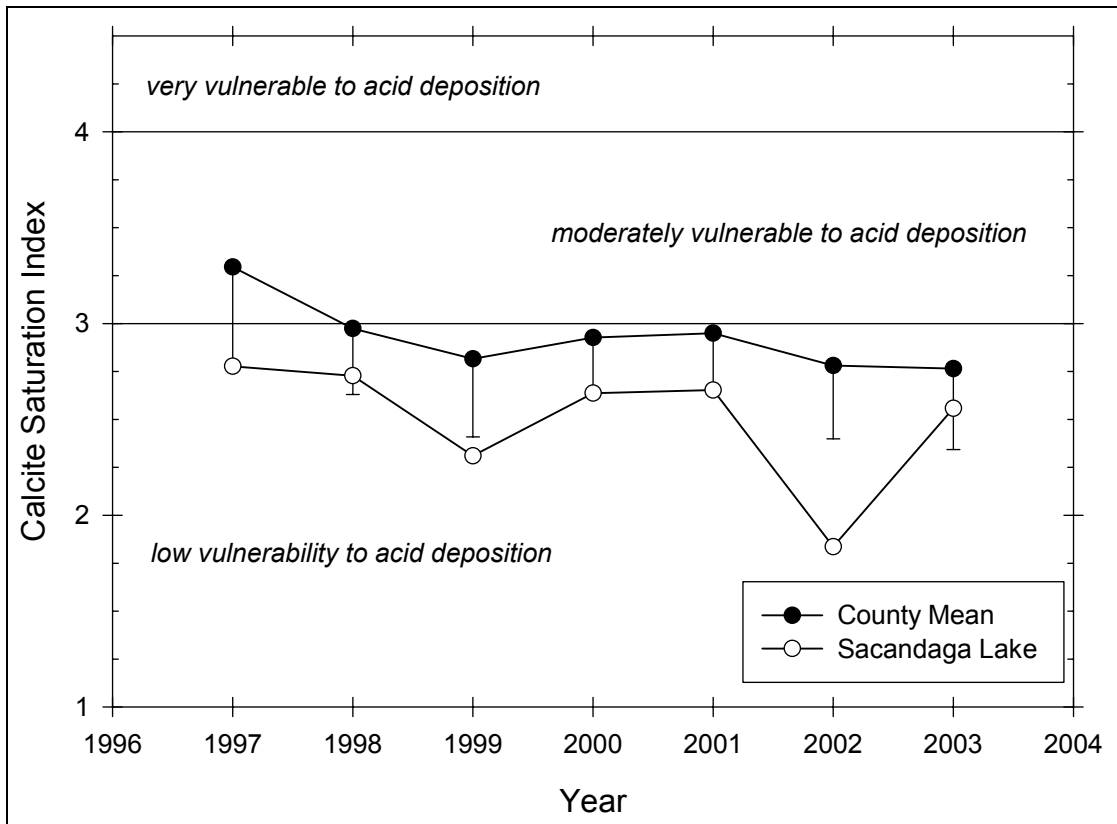


Figure 193 Seasonal mean CSI trend in Sacandaga Lake