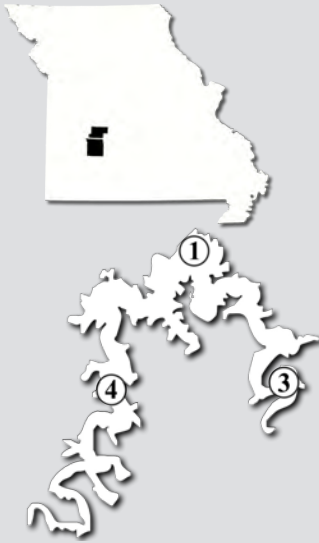


Pomme de Terre Lake, Site 1

Hickory County and Polk County

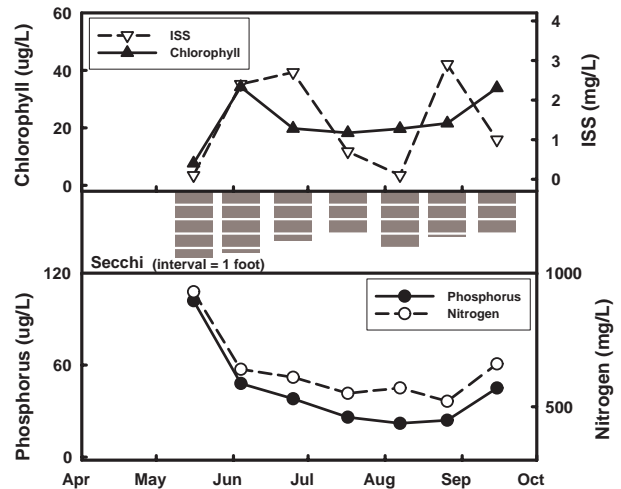
2008 DATA



Date	Secchi (inches)	TP (µg/L)	TN (µg/L)	CHL (µg/L)	ISS (mg/L)
5/16	56	102	930	7.7	0.1
6/4	52	48	640	34.3	2.4
6/25	42	38	610	19.8	2.7
7/17	36	26	550	18.3	0.7
8/7	48	22	570	19.7	0.1
8/26	39	24	520	21.6	2.9
9/15	36	45	660	33.9	1.0
Mean	44	38	629	20.2	0.7

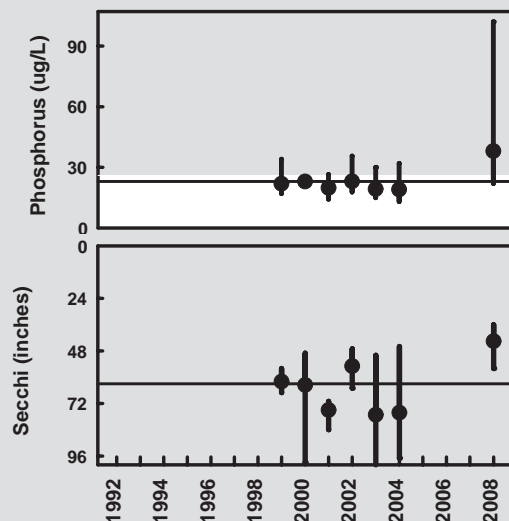
2008 SUMMARY

Nitrogen and phosphorus concentrations followed the same seasonal path, with maximum values in May. Having elevated nutrient levels during spring is fairly common for Missouri lakes, as this is when nutrient-rich inflows impact surface waters. Algal chlorophyll levels track the nutrients, with the exception of a low chlorophyll value on the first sampling date. Low algal chlorophyll early in the sample period is not unheard of, as light is often a limiting factor to algal growth (in many cases due to deep mixing prior to lake stratification).



TRENDS

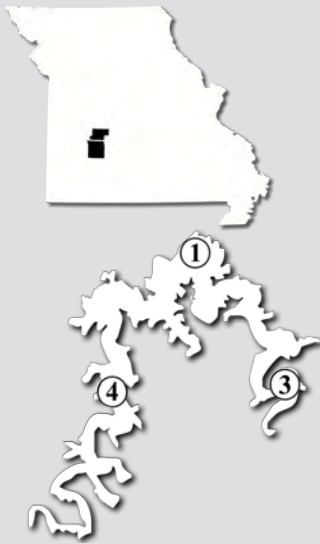
Water quality at the dam site on Pomme de Terre differed in 2008 compared to past summers. During the 1999-2004 period phosphorus averaged $\approx 23\mu\text{g/L}$, with minimal variability within individual years. In comparison, 2008 had a summertime geometric mean phosphorus value of $38\mu\text{g/L}$, with a maximum value that far exceeds any previously measured at this site. Secchi transparency values were low in 2008, with a summertime geometric mean value of 44 inches, about 20 inches off of the long-term average Secchi. The decreased clarity did not seem to be a result of more inorganic suspended solids, but reflects increased algae in 2008 (geometric mean chlorophyll in 2008 was $5\mu\text{g/L}$ higher than long-term average).



Pomme de Terre Lake, Site 3

Hickory County and Polk County

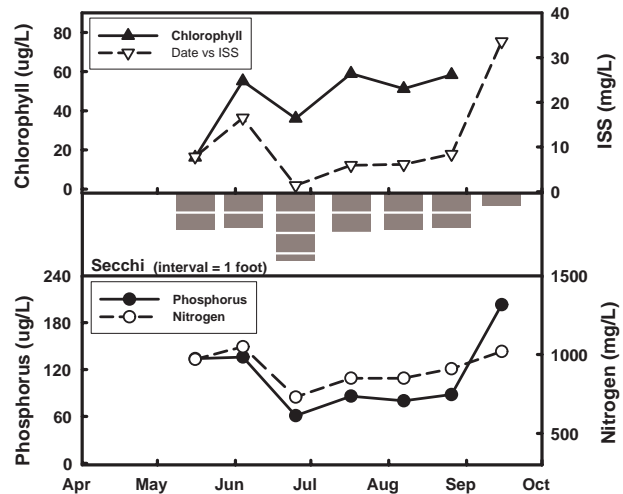
2008 DATA



Date	Secchi (inches)	TP (µg/L)	TN (µg/L)	CHL (µg/L)	ISS (mg/L)
5/16	22	134	970	16.2	7.8
6/4	21	136	1050	55.2	16.5
6/25	40	61	730	36.1	1.4
7/17	24	86	850	59.0	5.9
8/7	22	80	850	51.3	6.1
8/26	21	88	910	58.4	8.4
9/15	8	203	1020		33.6
Mean	21	105	905	42.3	7.8

2008 SUMMARY

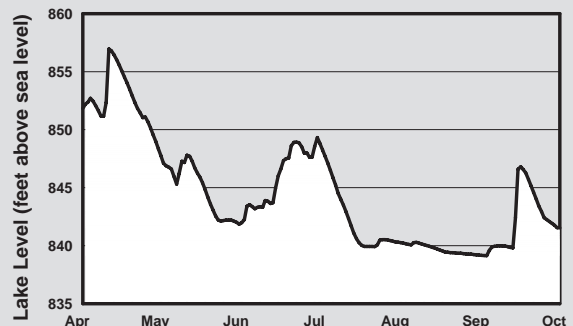
The nutrients displayed a seasonal pattern at Site 3 that was similar to that seen at Site 1. One difference is the magnitude of the end of the season increase in phosphorus. It was noted in the volunteer's field sheet from the last sample date that lake level had increased about 6 feet in a 24 hour period prior to this sample collection. High levels of inorganic suspended solids suggest a large amount of erosional input with the rise in lake level. Phosphorus is often bound to soil materials, so the increase in both parameters is to be expected.



TRENDS

Nutrient, chlorophyll, and suspended solids values are much higher at Site 3 relative to Site 1. This is to be expected given Site 3 is located on a tributary to the main lake. This site has very different hydrology regime relative to the dam and is closer to the watershed impacts that lead to higher nutrient levels.

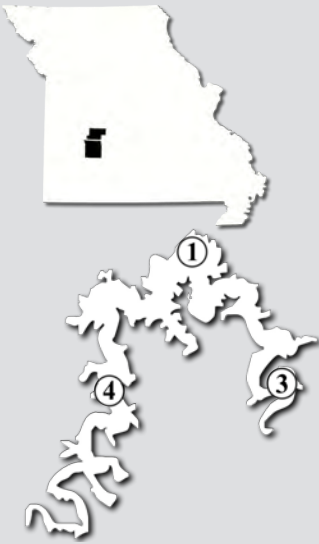
2008 Lake Levels



Pomme de Terre Lake, Site 4

Hickory County and Polk County

2008 DATA



Date	Secchi (inches)	TP (µg/L)	TN (µg/L)	CHL (µg/L)	ISS (mg/L)
5/16	45	100	890	18.3	2.2
6/4	45	41	640	42.4	4.8
6/25	38	56	670	31.7	2.4
7/17	38	42	620	38.3	2.1
8/7	25	37	690	36.2	1.8
8/26	32	33	580	29.2	2.9
9/15	15	56	720		7.3
Mean	32	49	681	31.6	3.0

2008 SUMMARY

The same general patterns of water quality seen at the dam and at Site 3 were observed at Site 4. Overall water quality at this site was very comparable to that at the dam, with slightly higher nutrients levels, algal chlorophyll and inorganic suspended solids. The end of the year increase observed at Site 3 was also observed at Site 4, though the level of inorganic suspended solids measured at Site 4 was considerably lower than that at Site 3.

Comparison of the two tributary sites is not straightforward as site locations relative to the inflowing river are different. Site 4 is somewhat farther down-lake from the inflowing river than Site 3. This translates to increased dilution of inputs and more sedimentation of inorganic suspended solids and nutrients. Site 4 has about half of the inorganic suspended solids and phosphorus concentrations of Site 3. Nitrogen and algal chlorophyll were also lower at Site 4, but by a smaller margin.

TRENDS

