Mahoney Lake, Site 1

Putnam County
Latitude: 40.4997 Longitude: -93.0244

2009 DATA

Date	4/24	X	6/9	7/7	X	8/5	X	9/16	Mean
Secchi (inches)	6		7	8		10		11	8
TP (µg/L)	140		238	171		101		86	138
TN (µg/L)	1840		1670	1440		1380		1200	1489
CHL (µg/L)	88.9		79.4	66.2		36.1		44.8	59.7
ISS (mg/L)	7.3		8.1	1.6		5.0		5.7	4.9

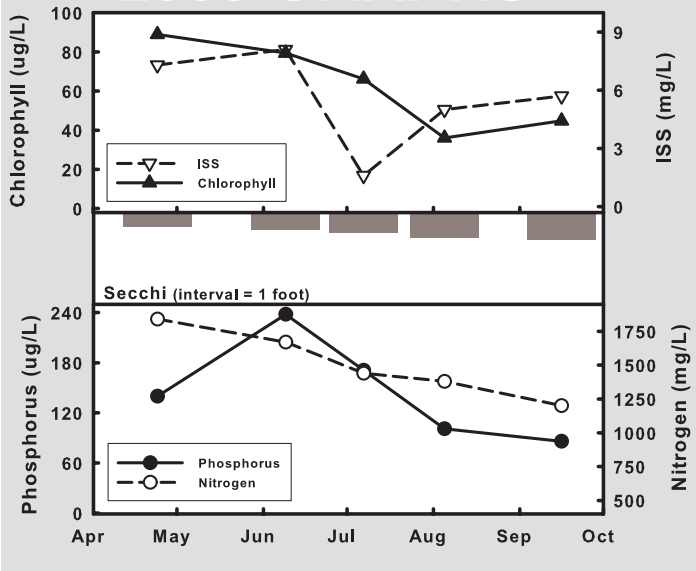
Mahoney Lake sampling sites

Mahoney Lake (A.K.A. Unionville City Lake) was sampled 5 times in 2009 at two sites. Water quality is very similar at both sites.

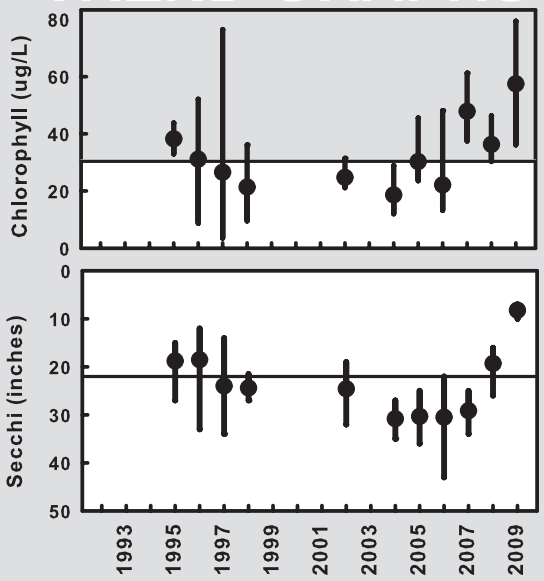
Water clarity was low in 2009, never exceeding one foot during the season. Exceptionally high concentrations of both nutrients fueled algae growth (measured as chlorophyll concentration) that remained high for the entire sampling season. The high concentration of phosphorus relative to nitrogen (N:P ratio of 7.0) on June 9 indicates possible nitrogen limitation. While lakes are generally phosphorus limited, nitrogen limitation can occur in certain lakes at certain times.

Mahoney Lake's highest measured chlorophyll concentrations to date occurred in 2009, marking the third consecutive year of above average algal biomass. While the LMVP data show Mahoney Lake's long-term chlorophyll value does not yet exceed nutrient criteria requirements, the last three individual years have. Mahoney Lake appears on the 2010 proposed 303d (impaired waters) list for excess chlorophyll and phosphorus. Water clarity at Mahoney Lake was the poorest measured via LMVP sampling to date, due more to an increase in algae than suspended sediments (graph not shown).

2009 GRAPHS



TREND GRAPHS



See pages 10-11 for help interpreting graphs

Mahoney Lake, Site 2

Putnam County
Latitude: 40.4956 Longitude: -93.0236

2009 DATA

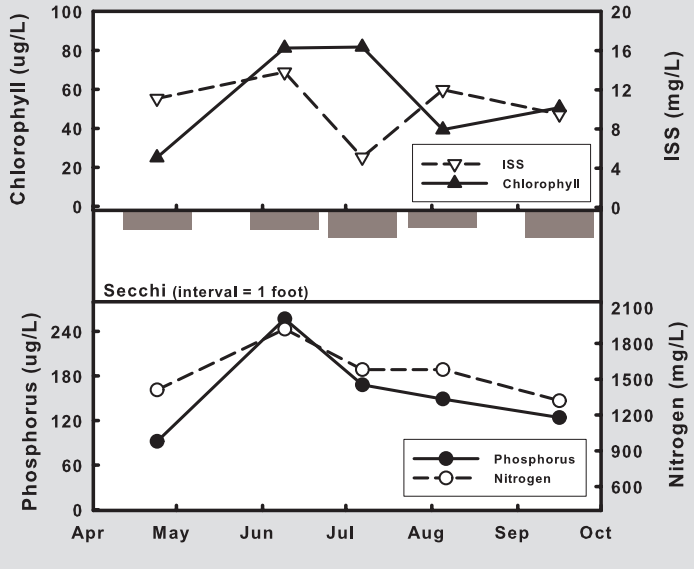
Date	4/24	X	6/9	7/7	X	8/5	X	9/16	Mean
Secchi (inches)	8		8	11		7		11	9
TP (µg/L)	92		257	168		149		124	149
TN (µg/L)	1410		1920	1580		1580		1320	1549
CHL (µg/L)	25.0		81.2	81.7		39.3		50.6	50.5
ISS (mg/L)	11.1		13.8	5.1		12.0		9.5	9.8

Water clarity at Site 2 was quite low in 2009, differing from Site 1 by just 1 inch. Nutrient concentrations at both sites were similar, with Site 2 having slightly more nitrogen and phosphorus. Chlorophyll concentrations at Site 2 were slightly lower than at the dam, likely due to shading from suspended sediments which were twice as abundant at Site 2 (9.8mg/L) than at the dam (4.9mg/L).

For the past 3 years, phosphorus values have exceeded the long-term mean for Site 2. While climate may play a significant part in the high values measured in recent years, we will watch this site closely for trends of increasing nutrients. While suspended sediment concentrations (ISS) may have inhibited algal growth on at least on sample date, chlorophyll concentrations in 2009 were still the highest recorded by the LMVP at this site to date. The 2009 geometric mean chlorophyll concentration (graph not shown) was double the long-term mean. Suspended sediment concentrations were greater in 2009 than the long-term mean and (like last year) among the highest to date.

Mahoney Lake sampling sites

2009 GRAPHS



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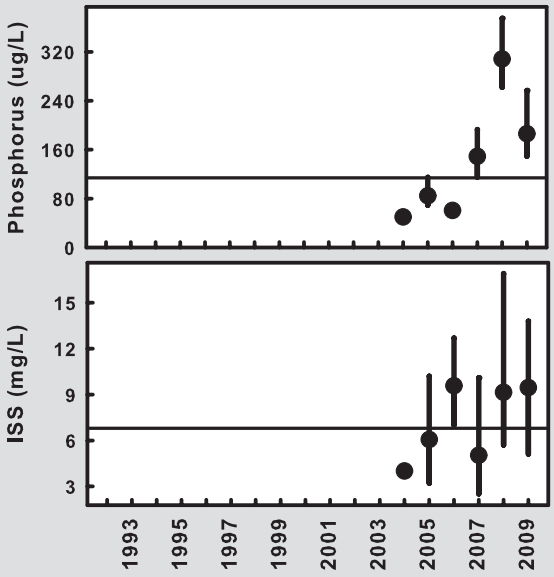

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