

# Lake Taneycomo

Taney County

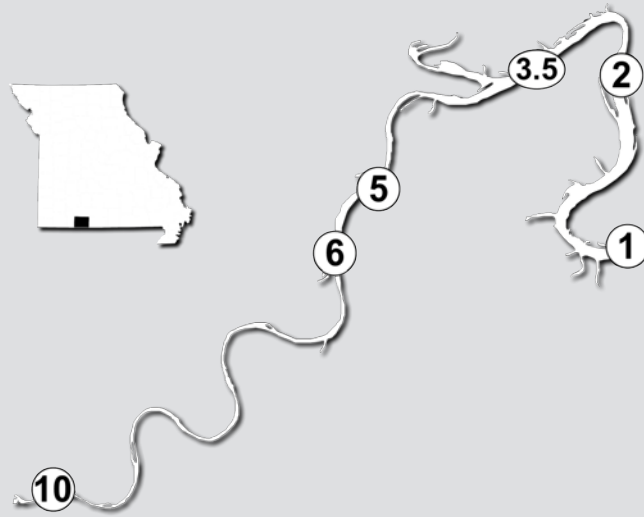
SITES AND SUMMARY

Six sites were monitored at Lake Taneycomo in 2007, all in the main channel.

2007 marked the return of a pair of sites to LMVP monitoring. Sites 5 and 6 have not been monitored since 2003, and the data seem to indicate that conditions at those sites remains good following improvements made at facilities discharging to both Lake Taneycomo and Table Rock Lake.

While Sites 1 and 2 were sampled only twice in 2006, they were both monitored multiple times during the 2007 sampling season.

The long term data indicate a trend of decreasing phosphorus concentrations at sites throughout Lake Taneycomo. This has not yet led to a reduction of algae (measured as chlorophyll), but the algae may be more limited by time than nutrients in



Lake Taneycomo, as the lake flushes very quickly.

Nitrogen concentrations in Lake Taneycomo are high relative to phosphorus concentrations. The mean N:P ratio was no lower than 64 in 2007 at any site, and was as high as 137 below the Branson treatment plant.

2006 DATA

Parameter		1	2	3.5	5	6	10
# of samples		6	5	7	7	7	6
Secchi (inches)	Mean	99	117	109	147*	135	**
	Minimum	76	77	54	89	72	**
	Maximum	124	169	219	246	222	**
Phosphorus (µg/L)	Mean	8	8	12	7	8	10
	Minimum	6	5	9	5	4	6
	Maximum	10	12	16	11	13	19
Nitrogen (µg/L)	Mean	770	700	770	960	880	880
	Minimum	570	480	490	830	710	790
	Maximum	910	820	1030	1240	1030	940
Chlorophyll (µg/L)	Mean	2.0	1.0	2.3	0.8	0.9	1.3
	Minimum	0.7	0.6	0.9	0.8	0.2	0.7
	Maximum	3.8	1.1	8.6	6.5	8.2	3.0
Suspended Sediments (mg/L)	Mean						0.3
	Minimum						0.1
	Maximum						1.4

\* 2 Secchi values missing (only 5 total values in 2007), \*\* Secchi touched bottom

# Lake Taneycomo

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RELATIVE RANK

## Relative rank graphs

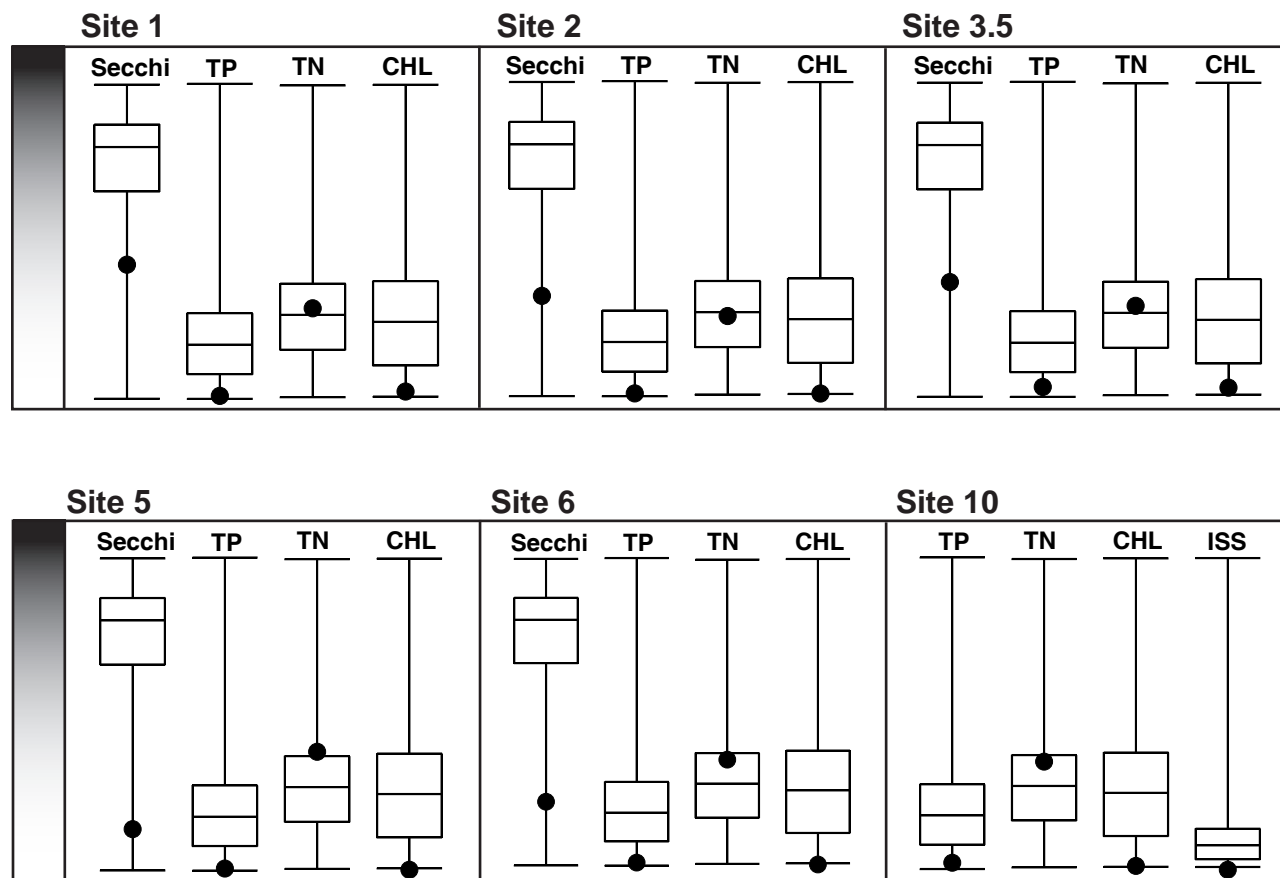
from Lake Taneycomo show that 2007 mean water clarity value was higher than found in more than 75% of Missouri lakes.

Mean phosphorus concentrations varied little across the lake, and were lower than found in more than 75% of Missouri lakes at all sites.

2007 mean nitrogen concentrations were above the median Missouri lake value at all sites except Site 2. Site 5 nitrogen concentrations were higher than found in 75% of Missouri lakes.

2007 mean chlorophyll concentrations were low, with all sites below 3 µg/L. Planktonic algae were most abundant at Site 3.5, where the maximum concentration of chlorophyll was only 8.6 µg/L, and the mean was only 2.3 µg/L.

ISS concentrations were measured at Site 10, and were lower than found in nearly any Missouri lake. The maximum ISS concentration at Site 10 in 2007 was 1.4, lower than the average found in most Missouri lakes.



See page 11 for help interpreting the Relative Rank Graphs

# Lake Taneycomo

Taney County

TANEYCOMO TRENDS  
See page 10 for help interpreting trend graphs

Lake Taneycomo sites 1 and 2 have been monitored continuously since 1992. The graphs on the following pages show long term trends. Only data from the “summer” period of May 15 through September 15 are used.

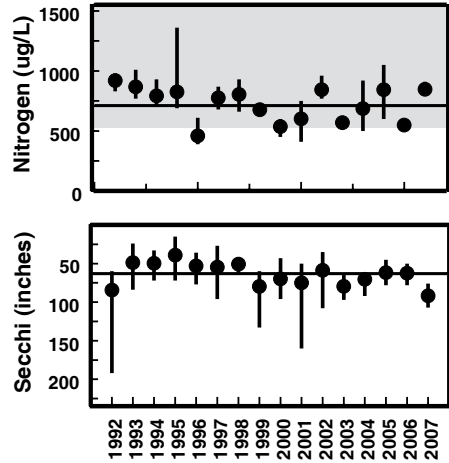
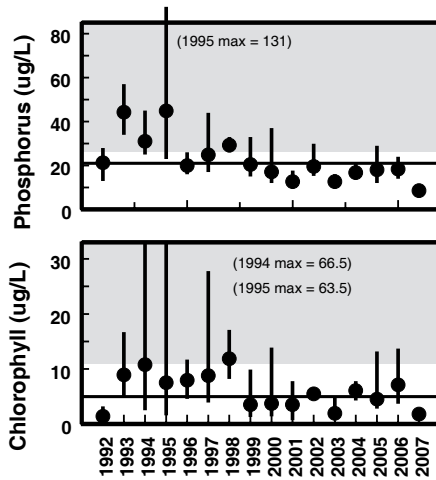
These sites are similar, with the dam having slightly more chlorophyll. Phosphorus concentrations at both sites have been decreasing since 1992. Nitrogen concentrations, however, have not decreased and have perhaps become more variable with time.

The gray box in the phosphorus, nitro-

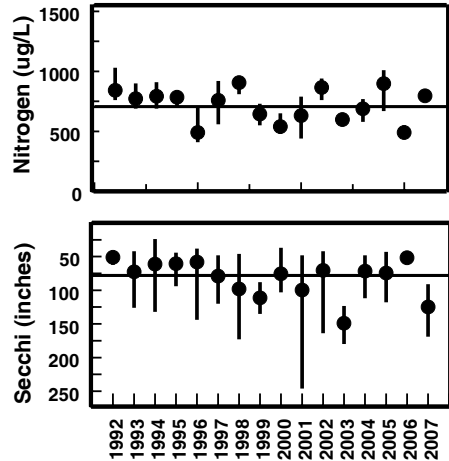
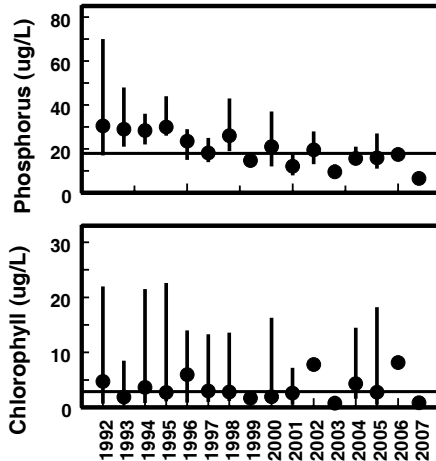
gen and chlorophyll graphs shows the proposed nutrient criteria values for Lake Taneycomo at the dam. While the lake meets criteria for both phosphorus and chlorophyll, its nitrogen concentrations are in excess of proposed values.

Lake Taneycomo has a very short residence time that was not taken into consideration when setting its nutrient criteria. Criteria for this lake will require some fine tuning.

## Site 1



## Site 2



Site 3.5 is just below Bull Creek. Like many other Taneycomo sites, Site 3.5 had its lowest mean phosphorus concentration observed to date in 2007. Nitrogen concentrations were well above the long-term mean, however, resulting in a higher than average ratio of nitrogen to phosphorus in 2007.

The 2007 mean chlorophyll concentration was lower than the long-term mean for this site. The reduced algal biomass led to clearer water than usual.

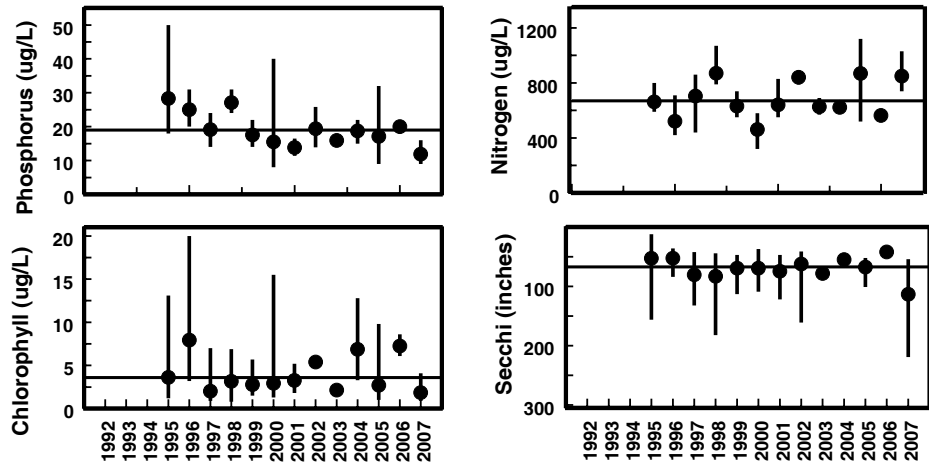
The mean 2007 Secchi transparency value was the highest recorded for Site 3.5, and the maximum Secchi was over 200 inches.

Site 5 is located below the Branson wastewater treatment plant. Monitoring on this site began in 1992, though no data was collected from 2004 to 2006.

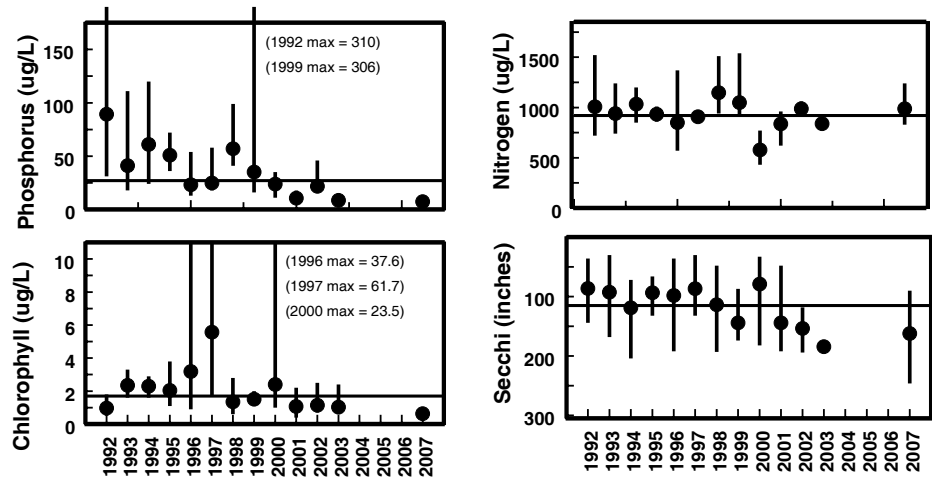
Phosphorus concentrations are an order of magnitude lower at this site compared to when sampling began. This is likely related to treatment plant upgrades at (primarily) Branson and (secondarily) in the James River basin.

Chlorophyll concentrations may be trending downward at this site as well, leading to increased water clarity as measured by Secchi. Nitrogen concentrations have remained relatively consistent throughout this site's involvement with the LMVP.

### Site 3.5



### Site 5



Lake Taneycomo Site 6 is located between the newly constructed Branson Landing and the wastewater treatment plant. This site was first monitored in 1992, though 2007 is the first year data has been collected here since 2003.

The trend of decreasing phosphorus concentrations is apparent here, as is the possible trend of decreasing chlorophyll concentrations.

Since 1999, the annual mean Secchi value has been greater than the long-term mean of 122 inches every year but one.

Site 10 is located near the boat ramp at the Shepard of the Hills hatchery, below Table Rock Dam. This site has been monitored since 1992 and has the most

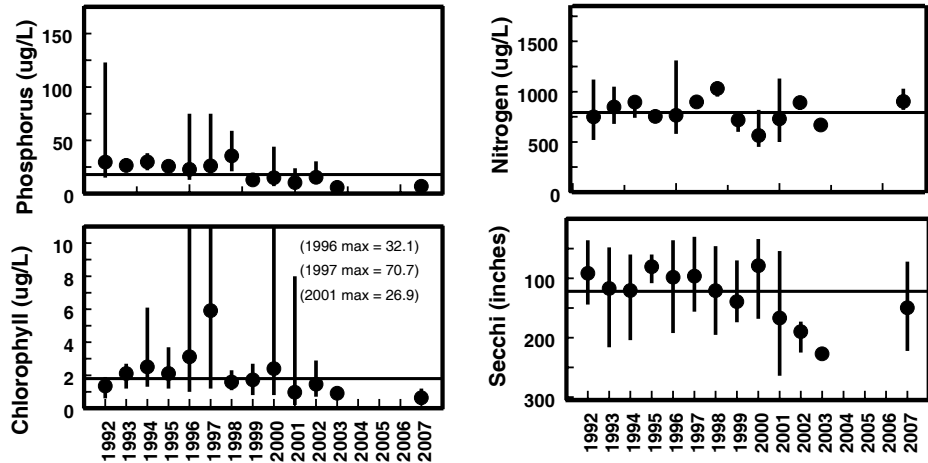
consistent data record of any Taneycomo site.

Phosphorus concentrations at Site 10 show marked decreases over time. Nitrogen concentrations however show no similar trend.

Secchi transparency values are not reported, as the disk hit the bottom on many occasions over the years. To report Secchi values would mean omitting those very clearest of measurements, skewing the dataset.

ISS concentrations have been recorded at Site 10 on several occasions. Sediment concentrations may be decreasing at this site, but more data are required for that determination.

**Site 6**



**Site 10**

