

**Water Quality Monitoring Program,
Mount Kemble Lake , 2006**

The water quality program at Mount Kemble
lake monitors the following parameters:

<u>Nutrients:</u>	<u>Chemical Properties:</u>	<u>Physical Properties:</u>
Total Phosphorus	Conductivity	pH
Ammonia Nitrogen	Suspended Solids	Temperature
Nitrate Nitrogen	Turbidity	Dissolved Oxygen
Nitrite Nitrogen		Visibility (Secchi Depth)

Samples were collected three times during the season at two different stations. The samples were either sent to a certified laboratory for analysis, or measured directly in the field. Nutrients are a food source for all plants in a water body, from the smallest (microscopic algae) to the largest (vascular plants). Generally, phosphorus dictates algal growth whereas nitrogen compounds dictate vascular growth (although there are exceptions). Conductivity is a measure of the water's ability to carry a charge, and hence is related to ion concentrations. High conductivity is often associated with high levels of materials dissolved in the water. pH measures the acidity of water and is a function of hydrogen ion densities. Temperature and dissolved oxygen profiles are collected with a YSI meter to measure potential anoxia (lack of oxygen) in the bottom-most layers. Anoxia occurs when surface water heats up during the summer to the point where oxygen is unable to circulate naturally throughout the water column. If this occurs, nutrients begin to leak out from bottom sediments. Fish kills may also result. Visibility, as measured with a secchi disk, is a basic proxy for overall water quality. Generally, the higher the visibility, the better the quality of the water. Turbidity, a measure of the amount of light absorbed by water, is a function of material both suspended and/or dissolved in the water. Turbidity that exceeds 25 nephelometric turbidity units (NTU) may be detrimental in lake systems. Light is necessary in aquatic systems because it provides the energy required for photosynthesis. This metabolic process carried out by vascular plants, Protists and blue-green algae produces the simple sugars stored in the algal biomass that is the energy base for the lake. When turbidity impedes light penetration, photosynthesis is inhibited, as is the corresponding productivity of higher organisms. Dissolved oxygen is also released into the water as a byproduct of photosynthesis. In reduced light conditions these organisms continue to respire and an oxygen deficit may be realized.