CHEMICAL AND PHYSICAL PARAMETERS INFLUENCING THE DOMINANCE OF THE CHRYSOPHYTE ALGAE AND THE LACK OF BLUE GREEN ALGAL BLOOMS IN FOREST LAKE, CT

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ABSTRACT

Many lakes in the Northeast experience blue-green algal (Cyanophyceae) blooms (Wetzel, 1983). Forest Lake, located in New Fairfield, Connecticut does not experience these blooms. It is dominated year round by the Chrysophyceae, which are considered more beneficial than the Cyanophyceae. The purpose of this study is to identify the parameters responsible for the lack of blue-green algal blooms and the dominance of the chrysophyte algae in this lake. The lake was sampled over a one year period. Measurements were made of pH, conductivity, temperature, total phosphorus, dissolved silica, and visibility. Natural phytoplankton concentrations were determined monthly and compared to the lake data. The growth rates of four unialgal cultures were determined by in situ dialysis bag experiments. The cultures were also grown in the laboratory under various ranges of pH and nutrient concentrations to determine optimum growth conditions. The study indicated that the low pH of the lake effectively inhibited blue-green algal growth and that the combination of the low pH and low conductivity enhanced the growth of chrysophyte populations.