Abstract

I measured physico-chemical properties and phytoplankton in the small, shallow tropical reservoir of Oyun (Offa, Nigeria) between January 2002 and December 2003. I identified 25 phytoplankton genera in three sampling stations. Bacillariophyceae dominated (75.3%), followed by Chlorophyceae (12.2%), Cyanobacteria (11.1%) and Desmidiaceae (0.73%). The high amount of nutrients (e.g. nitrate, phosphate, sulphate and silica) explain phytoplankton heterogeneity (p<0.05). Phytoplankton was abundant during the rainy season, but the transition period had the richest assemblage and abundance. Fluctuations in phytoplankton density were a result of seasonal changes in concentration of nutrients, grazing pressure and reservoir hydrology. The reservoir is eutrophic with excellent water quality and a diverse phytoplankton assemblage: fish production would be high. These conditions resulted from strategies such as watershed best management practices (BMPs) to control eutrophication and sedimentation, and priorities for water usage established through legislation. Additional measures are recommended to prevent oligotrophy, hypereutrophy, excessive phytoplankton bloom, toxic cyanobacteria, and run-off of organic waste and salts. Rev. Biol. Trop. 57 (4): 1009-1025. Epub 2009 December 01.

Keywords

Freshwater reservoir, hydrology, phytoplankton assemblage, nutrients, water quality