

PHYTOPLANKTON SPECIES EVENNESS ALONG A GRADIENT OF CONNECTED PONDS AT THE UNIVERSITY OF EMBU

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Abstract

Phytoplankton form an important part of food webs in aquatic ecosystems. Their abundance is influenced by physical and chemical water properties. The water reservoirs at the University of Embu have proven an important ecosystem worth studying and conserving. In addition to phytoplankton communities, birds, fish, frogs are routinely observed. Recent studies from these water ponds record localized spatial and temporal variations in phytoplankton species richness and evenness. This study sought to establish phytoplankton species evenness with special focus on *Microcystis aeruginosa* (Cyanophyta), *Chlorella saccharophilla* (Chlorophyta), and *Diatoma tenuis* (Bacillariophyta) along a gradient of three interconnected ponds at the University of Embu. The study also aimed to correlate the abundance of the aforementioned phytoplankton species to water temperature, pH and conductivity. Data were collected once every week over four weeks in the month of February 2018. Measurements of physicochemical variables i.e., temperature, pH, and conductivity were done using standard procedures *in situ*. Phytoplankton species were identified by morphological features using different guides in literature. Counting was carried out on the inverted microscope (Nikon) under the uttermol's sedimentation chamber. ANOVA was performed on each species to establish differences among dams and time of sampling. Correlation analysis was done between species abundance and the different physical water parameters. The three phytoplankton species were sampled in the three dams and at all sampling times. Dams varied significantly for *M. aeruginosa* and *C. saccharophilla*. There were no correlations of species abundance to any of the three physical water parameters. Both *M. aeruginosa* and *C. saccharophilla* population counts decreased down the dam gradient of the interconnected dams. The report document discusses these novel results from an ecosystem management and conservation perspective.