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Kimirei, I. A.

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I. A. Kimirei, Masumbuko. Semba, C. Mwakosya, Yunus D. Mgaya, Shigalla B. Mahongo

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Abstract

Lake Victoria is known for its explosive speciation and recent time hybridization, which is highly mediated by deterioration of water quality. This chapter summarizes the knowledge on change of water quality and environment of southern part of Lake Victoria, Tanzania. It analyses rainfall, air temperature and water quality data spanning 30 years (1985 to 2015). It also investigates changes in physical-chemical data sampled during and after the Lake Victoria Environmental Management Project I (LVEMP I). The chapter reviews some of the significant water quality changes that have occurred for the past 50 years. The results indicate no significant changes in annual rainfall variability. Nevertheless, trends of air temperature showed no clear patterns for Mwanza and Musoma, but trends of minimum and maximum air temperature in Bukoba increased significantly at annual rates of 0.19 °C and 0.14 °C, respectively. Water level in Lake Victoria has also declined significantly at an annual rate of about 5.5 cm from 1965 to 2004. These findings suggest that lake levels are determined by evapotranspiration rather than rainfall. It was also found that anthropogenic stressors are more important in explaining nutrients loading while thermal stratification explains hypoxia and reduction in water mixing. It is concluded that the current blooms of harmful algae and excess biomass in Lake Victoria will continue unabated unless nutrient loading, anoxia and high rates of denitrification are curbed. Appropriate measures to improve land use management should therefore be taken, while deliberate dumping of industrial, municipal and agricultural wastes into the lake should be controlled.

Keywords

Lake Victoria; Environment; Water quality; Water level; Limnology