Some Aspects Of Water Quality Characteristics In Small Shallow Tropical Man-made Reservoirs In Kenya

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Abstract

The water quality in eight small reservoirs (0.065-0.249 km2) in both the rugged escarpment landscape above the rift valley floor and the stepped plateau above them were studied between 1998 and 2000. Water transparency was measured using a 20cm Secchi visibility disk. Total dissolved solids (TDS) and electrical conductivity (specific conductance) with temperature compensation at 25oC were recorded in situ from a portable Jenway probe model 4075. Water pH, dissolved oxygen (DO), percentage oxygen saturation (POS) were recorded on site from a portable WTW probe model ProfiLine Oxi 197/197-S. The overall range of mean water pH was 7.0 – 8.4 while the overall range of mean TDS was 29-82 mg/l. The TDS was slightly higher in the plateau reservoirs. The overall range of specific conductance was 37-101 μS/cm. The range of TDS and specific conductance in the reservoirs was quite low compared to other reservoirs in Kenya. The mean range of dissolved oxygen and percentage oxygen saturation was 2.0-7.2 mg/l, 23.4.2-33.6%, respectively. The level of dissolved oxygen was quite low in most reservoirs with dry season hypolimnial oxygen deficits in some sites and higher dissolved oxygen content in the more transparent reservoirs. The summary results showed a clear difference in water quality between the plateau and escarpment reservoirs in the study area. The water quality in the reservoirs was found to be suitable for domestic and livestock utilization. However, additional water quality parameters are required to confirm this conclusion. The reservoirs were found to possess a good potential for multipurpose development.