

The spatio-temporal characteristics of water transparency and temperature in shallow reservoirs in Kenya

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Abstract:

Water transparency and temperature in eight small reservoirs, ranging from 0.065–0.249 km², in a rugged escarpment landscape and stepped plateau in the Eastern Rift Valley of Kenya were investigated between 1998 and 2000. Water transparency and temperature were measured with a 20-cm Secchi disk and a portable Jenway probe, respectively. The water transparency ranged from 0.02–0.8 m, which was low, but still similar to some larger reservoirs in the country (such as Masinga Dam). Reservoirs in the rugged escarpment had more water transparency than those in the high altitude plateau. The mean temperature ranged from 15–21°C. The reservoirs were either hypertrophic or oligo-mesotrophic, and mostly polytrophic, based on their water transparency in accordance with the trophic status classification of the Organization for Economic Cooperation and Development. Most of the reservoirs experienced short-lived stratification during the transition from the dry to rainy seasons. The results did not illustrate large spatio-temporal variability in water transparency or temperature, mainly because of physiographic and ecohydrological uniformity. All the reservoirs were considered to be in a poor state of domestic water quality, based on their water transparency.