Published: 07 January 2011

Small tropical reservoirs and fish cage culture: a pilot study conducted in Machakos district, Kenya

Mary N. Kaggwa, David M. Liti & Michael Schagerl

Aquaculture International **19**, 839–853(2011) | Cite this article

Abstract

The findings of this study provide useful insights into the key aspects of fish cage farming to be considered during setting and overall management of multi-purpose water resources so as to maximise their aquacultural potential. The study was conducted in Machakos District, Kenya, to characterise limnochemistry and algal composition of three small man-made reservoirs Ngeki, Ngei and Kavovi, used for cage culture of Nile tilapia (*Oreochromis niloticus*). In Ngeki, the open water was compared with areas in between the cages and significant differences in dissolved oxygen were found. For N, P and chlorophyll-*a*, no differences were noticed. In all the reservoirs, temporal variations were noticed for all parameters except NO_3N and NH_4N. Peak concentrations of nutrients occurred during the rainy season with lower values in the dry season (below detectable limits for SRP). All reservoirs were classified as hyper-eutrophic with a strong positive correlation between chlorophyll-*a* and TP. Algal abundances changed with season. Chlorophyta dominated at the start of the rainy season, while cyanobacteria prevailed at the onset of thermal stratification. Diatoms prevailed in the dry season but were notably absent in the rainy season. It was concluded that all the reservoirs are suitable for cage culture of Nile tilapia, but this should be undertaken with caution considering critical periods when anoxic conditions may occur.