GROWTH AND REPRODUCTION OF *Oreochromis shiranus* STOCKED AT DIFFERENT DENSITIES AT BUNDA COLLEGE OF AGRICULTURE IN MALAWI

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Abstract

Oreochromis shiranus were cultured for 70 days in 6 m^3 concrete tanks (1.5 x 2.0 x 1 m). Triplicated treatments included *O. shiranus* stocked at 5 fish/m^2 (50,000/ha) and 10 fish/m^2 (100,000/ha). Fish were fed daily, six days per week with formulated feeds of 30% crude protein. At the onset of the experiment, feed was applied at 5 % body weight, and gradually reduced to 3% as fish gained weight. Fish were measured (weight and length) at two weeks intervals for adjustment of feeding. All tanks were filled with Bunda College Dam water.

The average final body weight with high stocking density was greater than in low density though not significantly different. Average body weight was significantly affected by sex but not by stocking density. Sex had stronger effect on mean body weight ($P<0.05$) with males growing faster than females. Consequently, males had higher final mean weight than females for both low density and high density. Females from high density significantly differed with low-density females in terms of body weight. Male length was greater than females in low density and in high density. On the other hand, females had higher final condition factor indices for high density, but were however not significantly different from females for low density. The growth rate performance in low density female was accompanied by high negative growth depression in the period between 42-56 days when males recorded higher mean weight gain per day. The mean biomass with high density almost doubled that of low density.

Average number of young produced in the two treatments stocked with 5 fish/m^2 and 10fish /m^2 were equivalent to 3 recruits/female, 6 recruits/female and 24.2 recruits/female for low density while high density recorded 0.0, 0.57 and 3.3 recruits/female for day 42, 56, and 70, respectively. There were no significant differences in mean recruitment number per female for day 42. However, significantly different mean recruitment number per female ($P<0.05$) were obtained on day 56 and 70 with low density recording higher number of recruits per female. The average GSI was significantly higher in female fish for both treatments. At high density mean GSI% was higher but not statistically different from low density. Water temperature, pH and dissolved oxygen were not significantly different between treatments and within treatments over the experiment period. The results suggest reduction of excessive reproduction in *O. shiranus* with increased stocking density.