

Age, growth and mortality of *Chrysichthyes nigrodigitatus* (Lacépède, 1803) from Lake Akata, Benue State, Nigeria

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ABSTRACT

Age, growth, mortality and exploitation rate of *C. nigrodigitatus* from Lake Akata were determined over a period of 12 months (May 2012-April 2013) using the fisheries dependent method. Estimation of age and growth were obtained using Bhattacharya's length frequency distribution assortment method with determination of the von Bertalanffy growth parameters. Length frequency distribution generated three age groups: 1+ years (mean \pm SD standard length: 9.32 \pm 6.9cm), 2+ years (25.01 \pm 5.25cm) and 3+ years (34.9 \pm 3.56cm). The mean standard length (cm) and weight (g) of *C. nigrodigitatus* were 20.66 \pm 0.30cm and 211.7 \pm 6.4g, respectively. *C. nigrodigitatus* (K=1.62 \pm 0.01) was in good condition with males (1.50 \pm 0.02) and females (1.73 \pm 0.02) differing significantly in condition while seasonal values were not different: dry season (1.61 \pm 0.02) and wet season (1.62 \pm 0.02). The growth pattern in both sexes of *C. nigrodigitatus* was isometric (Log W= 2.9569*LogL - 1.7515). The predictive von Bertalanffy growth parameter was Lt = 37.28 [1- exp (-0.530 (t -0.85)]. The growth performance index (Φ^1) was 2.87 and total mortality (Z) as estimated from FISAT II using Hoenig's Model I was 1.432/year. Instantaneous fishing mortality (F) was 0.379/year while instantaneous natural mortality was 1.053 /year with an exploitation rate of 0.266 suggesting that exploitation is not excessive.

Key words: Condition, length frequency, mortality, exploitation rate, season