

Influence of Fishing Pressure and Water Level Fluctuations on the Reproductive Biology Traits of *Oreochromis niloticus* (Linnaeus 1758) in Irrigation Reservoirs of Sri Lanka

K.V. SANDUN N. BANDARA and UPALI S. AMARASINGHE*

Department of Zoology and Environment Management, University of Kelaniya, Kelaniya, Sri Lanka

Abstract

The reproductive biological characteristics of *Oreochromis niloticus* (Linnaeus 1758) were investigated in relation to fishing pressure and water level fluctuation in 10 irrigation reservoirs of Sri Lanka. It was found that matured larger sized male fish made larger and deeper nests. The negative relationship between gonado-somatic index (GSI) and size of maturity (L_m) of female indicates that more energy is utilised for gonadal growth of early matured fish. There were negative relationships of fishing intensity (FI) with egg diameter, L_m , GSI, and condition factor of *O. niloticus*, showing that heavy fishing pressure in the reservoir fisheries favoured r-selected life strategies. Based on daily water level data of reservoirs, an index to express water availability for a sufficient period, making it possible for the fish to construct nests, termed as water level fluctuation index (WLFI) was calculated. Nest density during peak spawning period was positively related to WLFI. Hence, it was concluded that two anthropogenic factors, FI and reservoir water level fluctuations, influenced reproductive biology attributes of reservoir populations of *O. niloticus*, which highlighted the necessity for coordination between fisheries and irrigation authorities for augmenting fish yields.

Keywords: altricial-precocial dichotomy, exotic cichlids, nesting behaviour, parental investment, reproductive effort

*Corresponding author. E-mail: zoousa@kln.ac.lk