

**STATUS OF THE FISHERY OF BATHALAGODA
RESERVOIR, SRI LANKA**

BY
W.D.G.S.C. WELLALA (B.Sc.)
DEPARTMENT OF ZOOLOGY
UNIVERSITY OF KELANIYA
KELANIYA
SRI LANKA.

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Abstract

The status of the fishery of Bathalagoda reservoir, a small-scale perennial reservoir in the Northwestern province of Sri Lanka was investigated using recently developed stock assessment methodologies. Catch and effort data of all species, species composition and length frequency data of commercially important fish species were collected over a period of 11 months, from October 2002 to August 2003.

Catch and effort data were analysed to estimate mean annual fish yields (kg ha^{-1}) and total fishing intensity (boat-days ha^{-1}). Population dynamics of the commercially important fish species was investigated using FiSAT software package.

The monthly catch in the Bathalagoda reservoir is greatly influenced by fishing effort. The estimated annual fish yield in the reservoir is 77.3 kg ha^{-1} . The reservoir area remained at full supply level in a considerable period. As a result, fish yield and fishing intensity were not underestimated when the reservoir area at full supply level was used for computation.

Oreochromis niloticus was the mainstay of the commercial fishery of Bathalagoda reservoir, which accounted for about 75.9% by weight of the total catch. Small sized indigenous cyprinid species such as *Amblypharyngodon melettinus*, *Esomus danrica thermoicos*, *Puntius chola*, *Puntius dorsalis*, and *Puntius filamentosus* also occurred in high abundance in the reservoir. However, they form only a minor proportion to the catch (15.7%). The contribution of the Asian cichlid fish species,

Etroplus suratensis to the fishery was also very low (3.3%). Fifteen other species formed 5.1% of the landings.

When the growth parameters asymptotic length ($L_{\infty} = 32.2$ cm TL) and growth constant ($K = 1.0 \text{ yr}^{-1}$) of *Oreochromis niloticus* were compared with the several other cultured stocks they are close to the extreme of r- selected life strategy in the r-and K continuum.

The K and the natural mortality (M) values of most of the minor cyprinid species were $> 1 \text{ yr}^{-1}$ and $> 2 \text{ yr}^{-1}$ respectively. High K and M values of most the fish indicate that they have high production per biomass (P/B) ratios.

The relative yield-per-recruit (Y'/R) analysis incorporating probabilities of capture indicate that *Oreochromis niloticus* stock in Bathalagoda reservoir is overexploited while the other stocks remain underexploited. Measures to reduce the exploitation rate by maintaining the present length at first capture ($L_c = 17.4$ cm TL) of *Oreochromis niloticus* was suggested. Any measures to increase the yields of *Etroplus suratensis* would adversely affect the *Oreochromis niloticus* stock. Yields of minor cyprinids could be increased by decreasing length at first capture and increasing exploitation rate. The introduction of an additional fishery for minor cyprinid is proposed as a measure to increase the total catch in the Bathalagoda reservoir. Necessity of formulating management strategies both for the existing fishery for *Oreochromis niloticus* and unexploited minor cyprinid species was discussed.