

A STUDY ON CATCH PER UNIT EFFORT AND THE EFFECT OF WATER LEVEL FLUCTUATIONS ON THE FISHERY OF BATALAGODA TANK

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Assessment of catch per unit effort is crucial in fisheries studies in order to regulate the fishing effort by means of controlling the number of fishermen, fishing craft and gear used. Effect of reservoir water level fluctuations on both the fish catch and the reproduction of fish is also an important factor in fisheries studies since the inland fishery of the country is based on irrigation and hydropower reservoirs in which water level fluctuations are frequent.

Present study was conducted to assess the catch per unit effort (CPUE) and the effect of water level fluctuations on the fishery of Batalagoda tank, a small irrigation reservoir in the intermediate zone of Sri Lanka. The number of boats, number of fishermen and the catch per boat per day by weight with the catch composition was recorded 3-4 times a month at two landing sites during a six-month period from April to September 2001. Gonosomatic index of the females of *Amblypharyngodon melettinus*, *Esomus thermoicos* and *Etroplus suratensis* was calculated and the effect of water level fluctuations on the catch and spawning of fishes was also studied.

CPUE for the three different types of gear, in terms of catch per boat per day varied considerably. Cast net (mesh 1.5 cm) showed the highest CPUE of 21.05 kg boat⁻¹ day⁻¹, which was mainly consisted of minor cyprinids: *Amblypharyngodon melettinus* and *Esomus thermoicos*. CPUE, in the case of gill net (mesh >7.7cm) fishery and cast net (mesh >6.5 cm) fishery was 4.8 and 2.8 kg boat⁻¹ day⁻¹ respectively. Significantly high value of CPUE for the 1.5 cm meshed cast net suggests the potential of minor cyprinids to be exploited as a human food. The low value of CPUE of gill net (mesh >7.7cm) catch of Batalagoda tank could be due to the extremely high fishing pressure due to the higher number of fishermen (from minimum 5 to maximum 60).

Due to the prevailed dry weather, water level of the reservoir fell during the study period. The gill net catch showed an increase with the decreasing water level of the reservoir. Maximum catch per boat per day (9 kg) was recorded in July when the water level was very low at 88.8 cm. However, with further decrease in water level the gill net catch also decreased. Water level fluctuations did not affect the spawning of *Amblypharyngodon melettinus* and *Esomus thermoicos*. The observation of the gonads of dissected fish revealed that females of *A. melettinus*, *E. thermoicos* and *E. suratensis* contained eggs of different sizes in their ovaries. During the study period *A. melettinus* spawned twice in June and August and *E. thermoicos* spawned in August.

Results suggest that the number of fishermen and boats operated in the Batalagoda tank should be regulated in order to maximize the CPUE and specially to prevent overexploitation. In addition, appropriate methods should be developed to catch minor cyprinids.