

A Comparative Study of the Fishery at Minneriya wewa and Parakrama Samudra

S.M.S.K. Samarathunga, T.V.Sundarabarathy and S. Nathanael

*Department of Biological Sciences, Faculty of Applied Sciences,
Rajarata University of Sri Lanka, Mihintale*

Fish play a vital role for the Sri Lankan population by meeting basic nutritional and livelihood needs. Reservoirs in the dry zone offer vast potential to enhance food security and employment opportunities. This research focused in comparing the fishery as well as some important physico-chemical water parameters at Minneriya wewa and Parakrama Samudra in the Polonnaruwa district. Both are shallow ancient irrigation reservoirs with a mean depth of about 5 m and an area of 2551 and 2662 ha respectively, at full supply. Data were collected for a period of four months by direct observations on fish catches at landing sites and by using a pre-tested structured questionnaire. Length and weight measurements of tilapia species in the catches were made during each visit. Canonical Correspondence Analysis (CCA) and one way ANOVA were used to analyze the data.

Tilapia species viz. *Oreochromis mossambicus* (15%, 5%) and *O. niloticus* (75%, 40%), were present in Minneriya wewa and Parakrama Samudra respectively. *O. niloticus* was dominant in both reservoirs. Indigenous species include *Puntius sarana* (0%, 5%), *P. dorsalis* (0%, 4%), *P. chola* (1%, 2%), *Etiopius suratensis* (4%, 2%), *Channa striata* (5%, 5%) and *Anguilla* sp. (0%, 7%) in the catches at Minneriya wewa and Parakrama Samudra respectively. The results reveal that the Cyprinid species *Cyprinus carpio* (30%) largely contributes to fish production in Parakrama Samudra.

Monthly fish yields differed significantly ($p < 0.05$) in the two reservoirs. Although illegal fishing methods prevail in both reservoirs, it was practiced at a higher level in Parakrama Samudra. *O. mossambicus* in Minneriya wewa and Parakrama Samudra showed isometric and allometric growth respectively. *O. niloticus* in Minneriya wewa showed allometric growth and it was isometric in Parakrama Samudra. There was a significant difference ($p > 0.05$) in the condition factor (k) for *O. mossambicus* and *O. niloticus* in both reservoirs. There was no significant difference ($p < 0.05$) in the water temperature, electrical conductivity and Biochemical oxygen Demand (BOD) among these two reservoirs except for turbidity and dissolved oxygen. Different types of retail traders, cycle and motor bike vendors, slab holders, box carriers and wholesale dealers (lorry vendors) were involved in fish marketing. Of the traders, 85% from Minneriya wewa and 90% from Parakrama Samudra bought their consignment of fish from specific fishermen and operated on push cycles.

Illegal fishing is the major problem which leads to decline of fish yields in both these reservoirs. As there are no functional Fisheries cooperative societies involved in management, it is recommended to establish well organized fisheries societies, in order to uplift the present status of fisheries in the Minneriya wewa and Parakrama Samudra.