

Fisheries in perennial reservoirs of Sri Lanka: Strategies for management

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Abstract

The inland capture fishery in Sri Lanka is essentially based on the multitude of perennial reservoirs in the country. It was developed after the introduction of the exotic cichlid species, *Oreochromis mossambicus* into Sri Lankan freshwaters in 1952. *O. niloticus* introduced in 1975 is also well-established in the reservoirs of the island. These two cichlid species, which form over 90% of total landings in the perennial reservoirs of Sri Lanka, are sources of high quality, affordable sources of animal protein for rural communities. The other unique characteristics of the reservoir fishery of Sri Lanka include, (a) the use of non-mechanized fibreglass canoes, approximately 6 m in length manned by two persons; and (b) the exclusive use of gillnets as the fishing gear (6-20 net pieces per craft), range of mesh size of which is from 7.5 cm to 12.7 cm, and each net piece being of a standard length and height of 60 m and 1.5 m, respectively. Small sized cyprinids are also abundant in Sri Lankan reservoirs. They can be differentially exploited using small-mesh (15-52 mm stretched mesh size) gillnets without catching juvenile cichlids because juvenile *O. mossambicus* and *O. niloticus* are only found in shallow (<1.5 m in depth), littoral areas of reservoirs and their adult counterparts, which are targeted by the fisheries, are found in deeper waters. These small cyprinid species (i.e., *Amblypharyngodon melettinus*, *Puntius chola*, *P. dorsalis* and *P. filamentosus*) can be utilized to make fishmeal or dried fish.

Resource-based approaches such as length-based fish stock assessment methodologies have been employed to determine the optimal fishing strategies in the perennial reservoirs of Sri Lanka. Empirical models have also been developed to estimate potential fish production based on catchment land-use characteristics, which can be quantified by GIS methodologies. However, these resource-oriented approaches are inadequate for effective management of fisheries in perennial reservoirs of Sri Lanka. For this purpose, it is imperative that fishing communities be made active partners in decision-making process. A co-management procedure in which the centralized fisheries administration authority and fishing community share the responsibilities of making decisions for fishery resource management should be introduced for effective management of the reservoir fishery of Sri Lanka.