

## Effect of species combination for seasonal reservoir fish production in Monaragala District in Sri Lanka

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Sri Lanka has the highest density of freshwater reservoirs available for any island in the world. The total number of reservoirs in Sri Lanka is not accurately known. Reservoirs can be categorized as perennial and seasonal. Seasonal tanks are those which always completely run dry annually. Total number of seasonal tanks in Sri Lanka amounts to nearly 10,000, which are located in the dry zone of the country. Recent estimates suggest that nearly 7,000 seasonal tanks are operational. Some of these are used for developing culture based fisheries. These tanks are relatively small and they facilitate total harvest and predator control. Due to its drying and filling nature, seasonal tanks are biologically productive. Stocking of fingerling of Chinese, Indian major carps and common carp in these reservoirs has resulted in high yields.

In this analysis, 64 seasonal tanks in Monaragala district with stocking and harvesting data in 2003, 2005 and 2006 were analyzed. Different stocking densities and species combinations were used. Percentage values of stocking and harvesting data were used for analysis. Data were analyzed by one way ANOVA, correlations, linear regressions and multiple regressions.

Results revealed that most suitable stocking densities for successful aquaculture in seasonal tanks was around 1,500 fingerlings per hectare. Good species combinations helped complete utilization of natural food and higher production was obtained by using Chinese and Indian major carp in the correct combinations. Tilapia reduced growth of other species. Feeding behaviour and habitat occupation of fish are very important factors affecting culture based fisheries yields in seasonal tanks. Literature reveals that stocking of indigenous *Labeo dussumieri* fingerlings do not produce a high yield due to low survival and small size at harvesting. However, *L. dussumieri* is naturally recruited from Manic Ganga into seasonal tanks and grow up to 750 g to 1 kg within 6-8 months. Their contribution to the total harvest ranges from 58% to 65% in seasonal tanks of the Katharagama area. The good quality fingerlings of *L. dussumieri* are suitable for culture based fisheries in seasonal tank. In addition, it was found that the presence of Common carp increased the growth rate of bighead carp and tilapia significantly.

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