

Emerging Culture Based Fisheries of *Macrobrachium rosenbergii* (De Man, 1879) in Puthumurippu Medium Perennial Reservoir, Kilinochchi District, Sri Lanka

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Culture based fisheries in perennial reservoirs have become a promising and profitable way to achieve self-sufficiency in the food sector and also to develop the livelihood of rural people in Sri Lanka. *M. rosenbergii*, a giant freshwater prawn, is a high priced product and has a high demand in both domestic and export markets. It has great potential for rural aquaculture, generating both considerable employment and income. Culture based fisheries of *M. rosenbergii* in reservoirs is environmentally sustainable as it is done under extensive conditions. A study was conducted to measure the recapture rate, growth of *M. rosenbergii* and economic impact of the stocking program. For this purpose, a stocking program of *M. rosenbergii* was initiated at Puthumurippu medium perennial reservoir (377 ha at full supply level) on 27th June 2016 with the stocking of post larvae (PL₁₅) 100000. Return of *M. rosenbergii* was particularly high, with a recapture rate of 2.48% within the one year study period. Mean weight of male *M. rosenbergii* was 389.04±5.9 g with a range of 230 – 540 g and the mean weight of female was 181. ±4.8 g with a range of 105–245 g. Relationship between the weight and the stocking period was analysed using Minitab 17 statistical software by regression analysis. The relationship between the weight and stocking time of male *M. rosenbergii* could be expressed as $W = -9.5 + 36.54 T$ ($R^2=47.11\%$), while the same for females could be expressed as $W = 74.1 + 9.97 T$ ($R^2=24.6\%$). Accordingly, the male *M. rosenbergii* was estimated to grow to 282.82 g in 8 months with an average growth rate of 36.54 g per month and female *M. rosenbergii* was estimated to grow up to 153.86 g in 8 months with an average growth rate of 9.97 g per month. The low R^2 values observed for the model indicate that in addition to stocking period, other factors such as feed and space availability and the reservoir environment affect the growth of newly introduced species. Number of fishers and type of gear were the strongest factors determining total catch from the reservoir. The total yield was 814.4 kg per year with a value of Rs. 921 127 per year, contributing 62.6 % of the total catch by weight and 90.3 % of the total income from fisheries of the reservoir. Further, the introduction of *M. rosenbergii* increased the income of fishers by 2.6 times or more during the study period and enabled them to engage in fisheries actively. Hence, this study shows that the *M. rosenbergii* stocking program is a successful venture in fisheries development in Puthumurippu reservoir. Further studies investigating on the factors affecting the growth of the *M. rosenbergii* and the yield of the reservoir over time need to be done to better utilise the reservoir and to provide socio-economic benefits to poor fisher folks within the carrying capacity of the reservoir.

Keywords: Culture based fisheries, *Macrobrachium rosenbergii*, Puthumurippu medium perennial reservoir, PL stocking, recapture