

Production performance of *Macrobrachium rosenbergii* in culture based fisheries in perennial reservoirs

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At present, there is a considerable commercial demand for freshwater prawn (*Macrobrachium rosenbergii*) both in the local and export markets. As such, the culture of *M. rosenbergii* is becoming popular in Sri Lanka owing to its profitability and less disease incidences. Until 2008, major constraint to the development of freshwater prawn farming in Sri Lanka was the insufficient supply of post larvae. However since 2008, the freshwater prawn hatchery of National Aquaculture Development Authority of Sri Lanka (NAQDA), established in Kahandamodara under the technical assistance from FAO, has been producing adequate freshwater prawn post larvae. As a result, NAQDA has taken steps to increase *M. rosenbergii* yields in different aquaculture facilities including culture-based fisheries (CBF) in perennial reservoirs. In this analysis, an attempt was made to investigate the production performance of *M. rosenbergii* in CBF in inland perennial reservoirs with a view to determining the most appropriate CBF system for freshwater prawns. During 2008-2012 periods, NAQDA has stocked 42.58×10^6 post larvae (PL) of *M. rosenbergii* in 30 major reservoirs, 59 medium reservoirs and 229 minor reservoirs. The stocking densities used were 25 to 300 PL per ha in major reservoir, 50 to 900 PL per ha in medium-sized reservoir and 50 to 3500 PL per ha for minor perennial reservoir. However, during the first island-wide CBF trial, there was no significant harvest of *M. rosenbergii*. Based on the results of first trial, stocking was repeated in the reservoirs, which gave higher yields. Accordingly, mean annual stocking densities in the three categories of reservoirs (major reservoirs, medium reservoirs, minor reservoirs) during 2008-2012 period were as 118 PL per ha, 289 PL per ha and 810 PL per ha in major, medium-sized and minor perennial reservoirs, respectively. Mean annual yield in the preceding years was the lowest in major reservoirs (1.34 kg ha^{-1}) and the highest in minor perennial reservoirs (4.1 kg ha^{-1}). The cumulative stocking densities during 2008-2012 also increased from 222 PL per ha in major reservoirs to 2062 PL per ha in minor perennial reservoirs. Cumulative *M. rosenbergii* yield ranged from 3.37 kg ha^{-1} in major reservoirs to 41.29 kg ha^{-1} in minor perennial reservoirs. When the trends in the development of CBF using *M. rosenbergii* are considered, it is evident that CBF yields and fisheries income have significantly increased from 2008-2009 period to 2011-2012 period in the three categories of reservoirs. Contribution of *M. rosenbergii* yield to total fish yield was 1.6% in major reservoirs and in medium reservoirs. The highest proportion was recorded as 3.0% in minor reservoirs. Due to high market value of *M. rosenbergii*, these landings made a significant contribution to fishers' income.

Keywords: *Macrobrachium rosenbergii*, culture-based fisheries, reservoirs, stocking densities.