DIVERSITY AND UTILIZATION OF FRESHWATER PRAWNS (*MACROBRACHIUM*) IN RIVER CAUVERY IN TAMIL NADU

P. Mariappan[1], P. Balamurugan and Chellam Balasundaram[2]

Crustacean Aquaculture and Behaviour Unit, Department of Animal Science, Bharathidasan University, Tiruchirapalli, Tamil Nadu 620024, India
Email: [1] pmaris@excite.com; [2] bal213@rediffmail.com

River Cauvery, one of the perennial rivers of southern India, originates in Talakaveri, Brahmagiri Hills (12°25'N & 75°34'E) of the Western Ghats, in Coorg District of Karnataka and flows eastwards through Tamil Nadu into Bay of Bengal Sea. It runs a distance of 1171km with many contributories and tributaries. The major reservoir of river Cauvery in Tamil Nadu is Mettur Dam, where from water is usually released for irrigation from July to January. Due to minimum water flow from March to June the river bed between the river Anicut to the tail end zone gradually dries up leading to mass mortality of *Macrobrachium* species (Mariappan & Balasundaram, 1999).

In this study, the freshwater prawn distribution in river Cauvery was studied from Mettur, Jedarpalayam, Grand Anicut and Lower Anicut, and Muthupettai in river Koraiyaru, a tributary of Cauvery. Among these, Lower Anicut is the main collection center for juveniles of *Macrobrachium malcolmsonii*, where the Tamil Nadu State Fisheries Department has the sole authority for the collection and sale of prawn seeds during monsoon. Farmers from the entire state come here to purchase juveniles for prawn farming from October to January.

Thc second largest freshwater prawn *M. malcolmsonii* is widely distributed in all major rivers of India. Indeed even in 1970s before the advent of *M. rosenbergii* as a candidate species for aquaculture, *M. malcolmsonii* culture was attempted by the Central Inland Fisheries Research Institute for ranching in canals and streams of Andhra Pradesh (Rajyalakshmi, 2000). However, till now their fishery is supported through capture in the wild rather than culture. This scenario is changing fast with the culture of freshwater prawns gaining momentum due to socio-economic and environmental constraints for marine prawn culture (Anonymous, 2000). Fish farmers in and around Tanjore and Nagapattinum districts concentrate on the culture of freshwater prawns such as *M. rosenbergii* and *M. malcolmsonii*. The small-sized species such as *M. nobilii, M. scabriculum, M. rude* and *M. lamarrei* are hand picked in the wild by fisher women for sale in local markets at Rs. 75-100 per kilogram (Mariappan, 2000). In the field, the berried females along with males and juveniles are also collected and sold. An average female *M. malcolmsonii* bears 3,500 to 64,000 eggs per clutch (Mathavan, *et al.*, 1986) and the entire clutch simply goes waste when thrown away with the peeled exoskeleton. Since 85% of the crustaceans incubate the eggs (Pandian, 1993), such indiscriminate exploitation of females in the wild, especially in the breeding season, will adversely affect the recruitment potential in the wild. It is observed that 50% to 90% of the collected females of *M. malcolmsonii* and *M. nobilii* are berried (authors, unpublished data). Further, a large number of berried *M. malcolmsonii* females are collected every year during the breeding season from May to September from the wild and are sold to the hatcheries. It is pertinent to note that marine crab belongs to the family Portunidae, among them *Portunus pelagicus, P. sanguinolentus* and *Charybdis feriata* are captured in shore waters along with penaeid prawns during summer. The carapace width of 130-140mm berried crabs can yield an average of 20-25g of eggs. The total number of berried crabs captured during the season may possibly have several kilograms of eggs. The richest nutrient source for the developing embryo of the marine crabs are simply discarded by the consumers (Radhakrishnan, 2000). The over exploitation of the brooders from the wild stock will ultimately affect the future of aquaculture. Hence to maintain the present wild population, the brooder collection during the season should be strictly restricted. A similar depletion of berried *M. rosenbergii* wild stock has already been reported (Hien *et al.*, 1998) wherein the berried giant freshwater prawn used to be collected from the wild about 15 years ago to obtain larvae for stocking in ponds. Due to gradual decline in the stock in the wild, hatcheries now resort to intra-breeding; in the long run the larval survival was reduced to 5-35% whereas eggs obtained from the wild stock had 70% survival. In the wild population, females of *M. rosenbergii* mature at the size of 20-40g whereas females from hatchery broodstock mature at 7-10g. The quality of such precociously mature females result in poor egg and larval quality. For the above reason broodstock collected from the wild are required for an effective hatchery operation which are quite expensive (Wilder *et al.*, 2000). In this context we report the diversity of *Macrobrachium* in five sites along the course of Cauvery River.

We have collected six species of *Macrobrachium* from five selected sites, *viz*., Mettur, Jedarpalayam, Grand Anicut, Muthupettai and Lower Anicut (Fig. l). Of the five sites, Lower Anicut holds a maximum of six *Macrobrachium* species such as *M. malcolmsonii, M. rude, M. nobilii, M. lamarrei, M. scabriculum* and *M. australe*. Grand Anicut has five species -- *M. malcolmsonii, M. aemulum, M. nobilii, M. lamarrei,* and *M. scabriculum*. In Muthupettai four species, *M. malcolmsonii, M. nobilii, M. lamarrei,* and *M. scabriculum* have been collected. The remaining sites Mettur and Jedarpalayam equally share the

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distribution of three species such as *M. malcolmsonii, M. nobilii*, and *M. lamarrei*. Species richness in Lower Anicut region is due to the suitability of the habitat with ready access to estuary and thus is populated by migrant freshwater species from upstream regions to lower saline areas. Such migration was reported in some freshwater species like *M. malcolmsonii* (Kewalramani, 1973) and *M. australiense* (Lee & Fielder, 1979).

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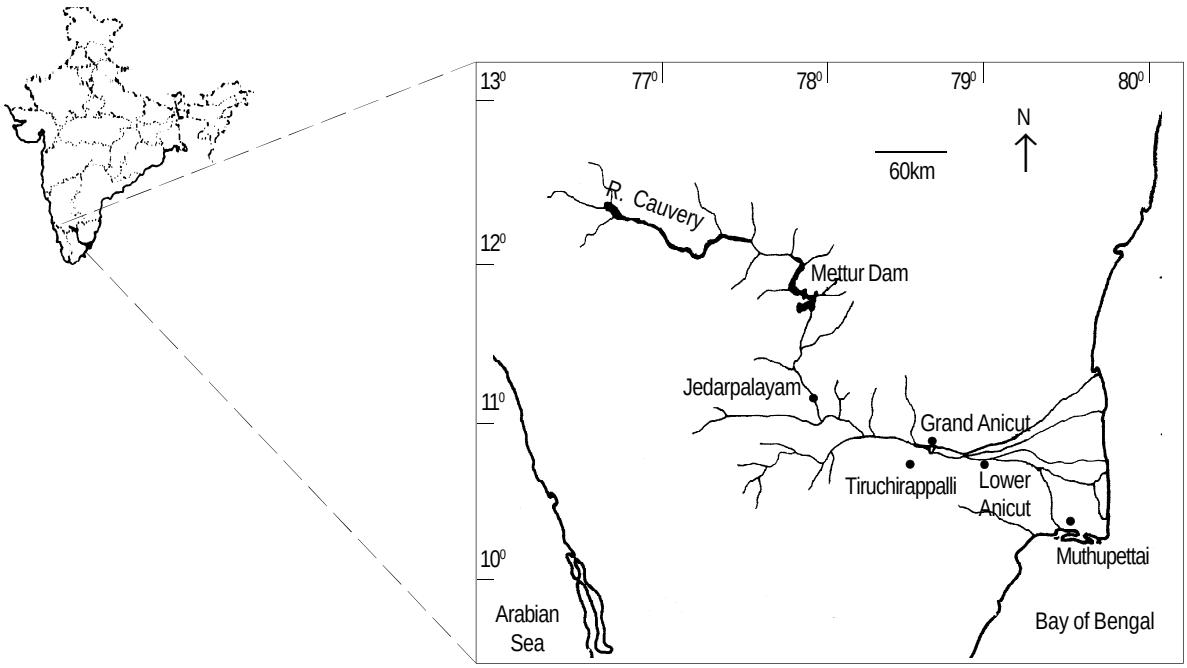

Figure 1. Map showing the study sites of River Cauvery