Freshwater Prawn Farming Trials in Bangladesh

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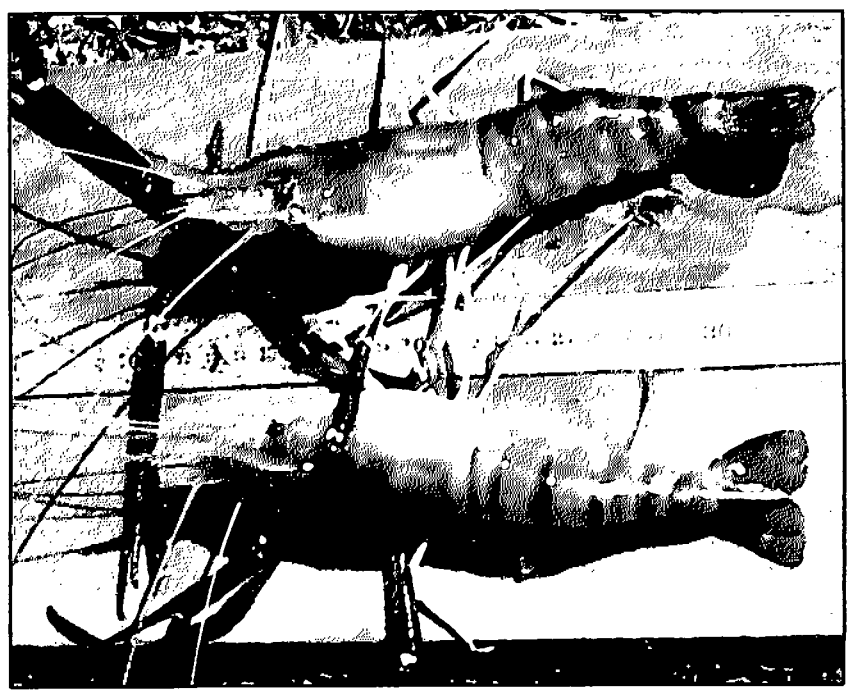
The giant freshwater prawn *Macrobrachium rosenbergii* is widely distributed around the Indo-Pacific and farmed to some extent in a number of countries, especially Thailand, Malaysia and Vietnam.

In this article, A.K. Yousuf Haroon of the Chandpur Riverine Station of the Bangladesh Fisheries Research Institute describes recent work by the station to improve traditional, low-yielding farming methods of the prawns in southern Bangladesh.

Macrobrachium rosenbergii is traditionally grown in carp ponds in rural areas of Chandpur and Noakhali where the postlarvae can be collected from the wild in July and August. Yields of prawn are not known but assumed to be low because there is minimal management.



Macrobrachium rosenbergii *from pond culture in Bangladesh.*

Pond Trials

In 1986-87, growth trials of *M. rosenbergii* were conducted by the Fisheries Research Institute at its Riverine Station in Chandpur, using a low-cost supplementary feed of 1:1 fish meal and mustard oil cake, which was changed to 1:1 rice bran and mustard oil cake after three months. Ponds were fertilized with cow manure at 750 kg/ha. Survival rates ranged from 32 to 58% in ponds stocked at 8,000-18,000 postlarvae/ha. Yields were 172-215 kg/ha.

In the next (1987-88) season, other feed ingredients such as ground cattle viscera and wheat bran were included in the diet and ponds fertilized with urea (40 kg/ha) and TSP (10 kg/ha) fortnightly. Yields after seven months were much improved, 660-793 kg/ha, in ponds stocked at 15,000/ha.

For the 1988-89 season, ponds were stocked at 10,000, 15,000 and 20,000 prawns/ha using the most successful feed ingredients from the previous season — fishmeal (30%), mustard oil cake (30%), rice bran (20%) and wheat bran (20%) — and fertilized as before. After six months, survival was 47-58% and yields were 370, 542 and 790 kg/ha, respectively.

It is evident that there is scope for this semi-intensive form of prawn culture in southern Bangladesh.

Integrated Farming

Farming of *M. rosenbergii* with finfish in ricefields is an age-old practice in the southeastern regions of Bangladesh. In this method, tidal water carrying the

postlarvae and juveniles of prawns and fish is trapped in the ricefields of low-lying depressions. The tidal cycle provides the energy for water exchange and gives some extra aquatic yield (*M. rosenbergii* is the target species) in addition to rice.

At present, screening of gates, use of sluices and selective stocking of freshwater prawns are gaining popularity. There is no accurate estimate of prawn yields from this farming practice. Yield varies according to the level of management, environmental and regional conditions and also tenure of culture period. The only available estimate is the combined yield of freshwater prawns and fish of 83 to 130 kg/ha per five months of culture period.

Recently, the Fisheries Research Institute initiated integrated rice and prawn farming. In the first year, 1987-88, three stocking densities, 7,500, 15,000 and 22,000 prawns/ha were tried at normal rates of fertilization (without supplemental feed) as recommended for rice farming to find out the optimum stocking density. In the second year, 1988-89, the best stocking density obtained in the first year was used at different rates of extra inorganic fertilizers (also without supplemental feed) to find out their effect on prawn and rice yields. In both years, two crops of rice were grown, one after the other. Prawns were stocked 20 days after transplanting the first crop. The prawns were kept in the refuge canal while the second crop of rice was transplanted. The prawns were harvested before harvesting the second crop of rice.

Yields of *M. rosenbergii* in the first year were 160, 230 and 390 kg/ha, respectively, after the six-month growing period. The stocking density of 7,500/ha seemed best in terms of the size of the harvested prawns. In the second year, the yield of prawns ranged from 220 to 260 kg/ha in an eight-month growing period, of which 80-90% were above 30 g weight. Use of extra fertilizers did not help to increase the production of prawns significantly.

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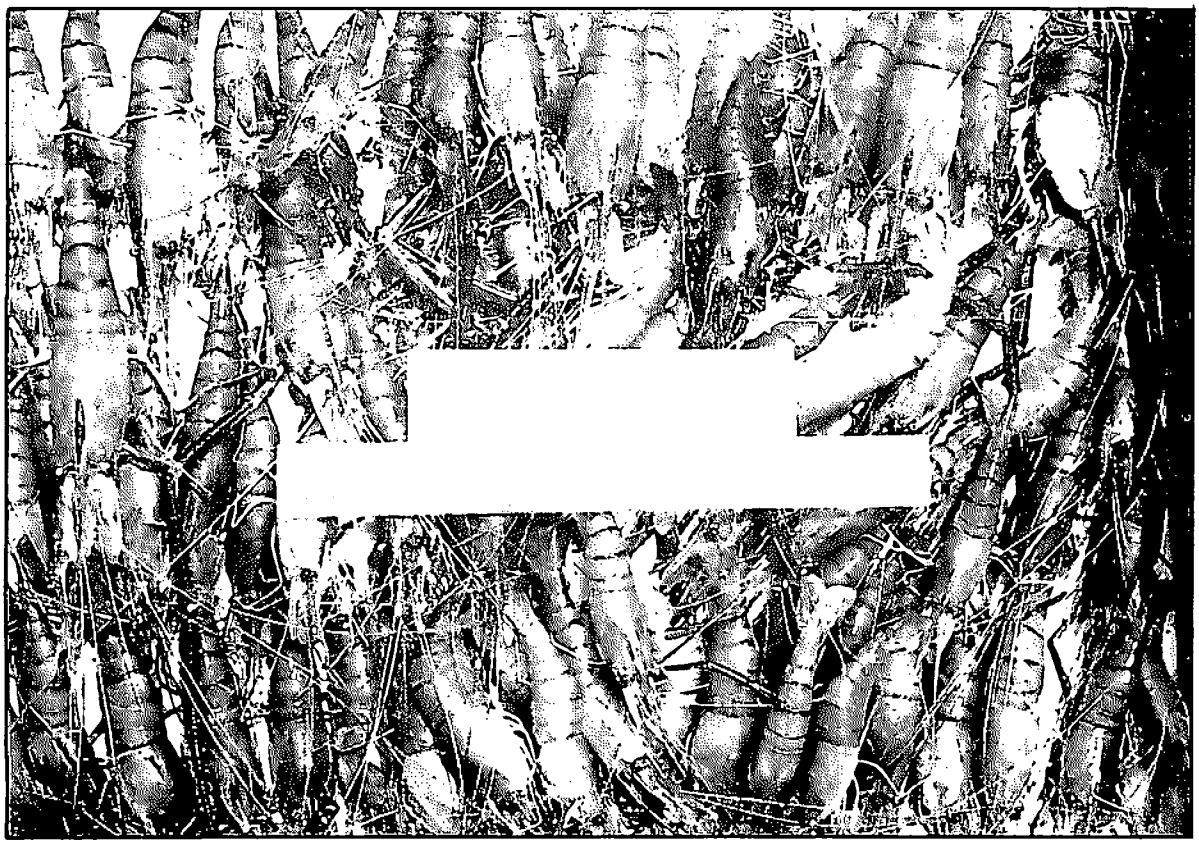
The limiting factors to either pond or ricefield farming of these prawns are the availability of postlarvae and water exchange facilities. At present, only one private hatchery at Cox's Bazaar is supplying *M. rosenbergii* in limited numbers. Farmers are entirely dependent on the postlarvae harvested from the wild. For pond culture, water exchange would remain a limiting factor except in the southeastern and southwestern areas. So freshwater prawn farming, be it pond or integrated farming, would best be practised in the southeastern and southwestern areas where there is tidal water exchange and postlarvae are naturally available.



A Macrobrachium rosenbergii *harvest from experimental rice-shrimp culture.*