

*Macrobrachium rosenbergii*  
from a trial pond.



A local species of  
*Macrobrachium*.

# PRAWN CULTURE IN GHANA

## A *Macrobrachium rosenbergii* Trial\*

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The world annual production of prawns and shrimps is currently about 1.8 million t, of which 120,000 t are contributed by aquaculture. Projections indicate that over 2 million t will be required to satisfy the world market by the year 1990. Prawn production from capture fisheries is close to its maximum sustainable yield, and as such, the projected shortfall of over 200,000 t will have to be made up for by culture. This implies that the aquaculture production must increase threefold in the near future.

The high demand for prawns and shrimps makes their culture a lucrative business. It is thus not surprising that interest in aquaculture has been growing in Ghana. Ghana has been increasing its shrimp exports each year since 1984, when it entered the export market (Fig. 1). The entire production comes from capture fisheries along the coast and in the streams and rivers of southern Ghana.

In the marine environment, two shrimp species are most commonly caught, *Penaeus notialis* and *Parapenaeopsis atlantica*. In freshwaters the fishery is based on a number of prawn species, *Macrobrachium felicinum*, *M. raridens*, *M. macrobrachium* and *M. vollehovenni*.

It is on this last species, *M. vollehovenni* that most local research on prawn culture has concentrated. *M. vollehovenni* is considered to have the greatest

potential for cultivation among local pond adapted species, based on the large size obtainable (up to 16.7 cm) and the number of eggs per female (7,000 to 38,000). Another advantage this species offers is that it can complete its life cycle in purely freshwater habitats.

At present, prawns are grown in a few ponds and dams around Accra without any true attempt at management. Difficulties in transport, feeding and harvest stem from a lack of knowledge on the biology of the species. Research on the species is being conducted by staff of the Volta Basin Research Project and the Institute of Aquatic Biology, Council for Scientific and Industrial Research. The pace of work is slow due to lack of funds and resources.

Research on *Macrobrachium rosenbergii* has progressed rapidly and sufficient data have been collected for its use as a culture organism on a commercial scale. In 1983, a Swedish firm, Aquamat,

entered into pilot projects on *M. rosenbergii*. The firm wanted fish farmers to try out the species under local conditions and supplied juveniles to encourage participation.

The following account reports the results of a 3.5-month grow-out trial on *M. rosenbergii* in a farm pond with water at temperatures of 30-33°C. The pond had an area of 15 m<sup>2</sup>, mean water depth of 0.8 m and maximum depth of 1.3 m. It was fenced with 1.3 cm mesh wire fencing.

The pond was stocked with 250 post-larval juveniles flown in from Sweden and seeded in the pond. As the pond had been filled and manured some weeks before stocking, no food was supplied to the prawns for the first two weeks. After this, the prawns were fed corn waste and wheat bran. No animal protein was added to the diet.

Growth was monitored by netting, but this proved futile. At the end of the trial period, the pond was harvested by pumping it dry and hand-picking the prawns from the pond bottom. The results of the trial are presented in Fig. 2. The graph shows that 70% of the prawns had achieved lengths of over 13 cm (rostrum to telson) and wet weight of over 35 g. This compares favorably with the growth rates achieved in other parts of the world. It can be seen that culture of *M. rosenbergii* is viable in Ghana.

The problem that prevents further development of this species is that fish farmers lack foreign exchange to purchase juveniles. A possible solution is to find start-up capital and repay the initial investment from export of prawns. The other alternative to prawn farming, i.e., starting an intensive study of local species, is also hampered by lack of hard currency for basic equipment. We are trying to reduce this problem by using local materials as much as possible.

Thus, prawn culture in Ghana follows two approaches: the immediate culture of exotic species on one hand, and on the other, the study of the biology of local species for the long term.

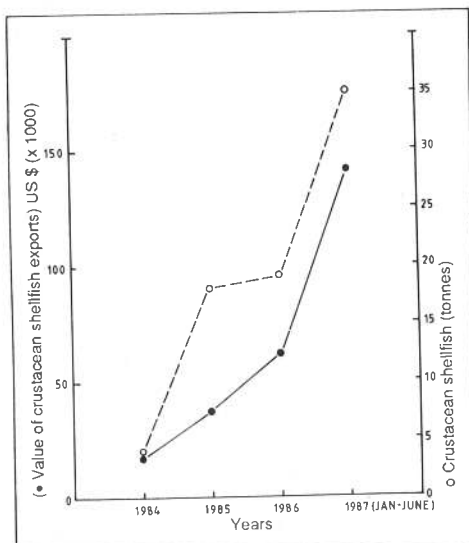


Fig. 1. Exports of crustacean shellfish from Ghana.

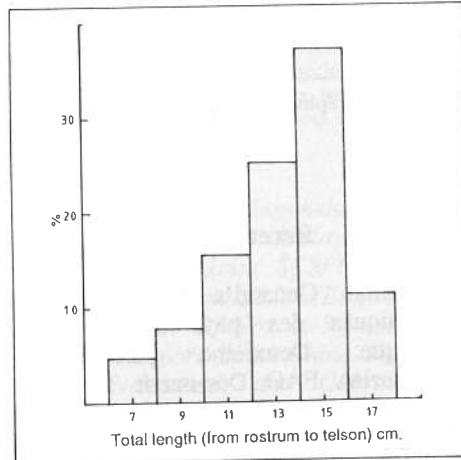


Fig. 2. Size of *Macrobrachium rosenbergii*, 3.5 months after stocking as postlarvae.

\*This paper was prepared in honor of the late Dr. S.K. Prah of the Institute of Aquatic Biology, Council for Scientific and Industrial Research.