

to coastal inshore water to complete the cycle.

15.19.2. PRAWN AND SHRIMP CULTURE IN INDIA

Once in its infancy (a decade ago), the culture of prawns and shrimps, is now an established practice, both as semi-intensive and intensive practice. The potential for culture is great. They can be cultivated in impoundments (Bhasabadha or bheries of W.Bengal), freshwater ponds, river estuaries and backwaters, paddy fields (West Bengal and Kerala) as well as in salt pans. Integrated culture as paddy-cum-prawn culture and composite farming [alongwith freshwater major carps or with brackishwater fish (milk fish *Chanos Chanos*, pearl spot *Etroplus suratensis* and mullets *Mugil cephalus*] have become popular.

A total of 1.5 million hectares of suitable estuaries and backwaters are actually available for culture.

Prawns and shrimps are most suitable for culture because of their high growth rate (marketable size in 3 to 6 months) high

tolerance to operational stress, omnivorous feeding habit (variety of food eaten) and high market demand (domestic and foreign). The only hinderance of seed collection is being removed by the introduction of induced breeding technique. *M. rosenbergii* and *P. monodon* are the two most suitable species of prawn for culture in freshwater and brackishwater respectively.¹

I. *M. rosenbergii*: Culture of freshwater prawn

Seeds (juveniles) (fig.15.3) are collected, by means of scoop nets or traps made of a bunch of bushes, from the river estuary during both the low tide and the high tide. The seeds are then transported in open plastic containers (5' x 4'). Seeds may also be obtained from hatcheries where gravid females and berried females are induced to breed and to spawn, respectively. The rearing is best at about 28° C. The feed includes a variety of items such as periphyton, lab lab, egg, custard, fish flesh, worms, a mixture of rice bran and oil cake, in equal parts, and

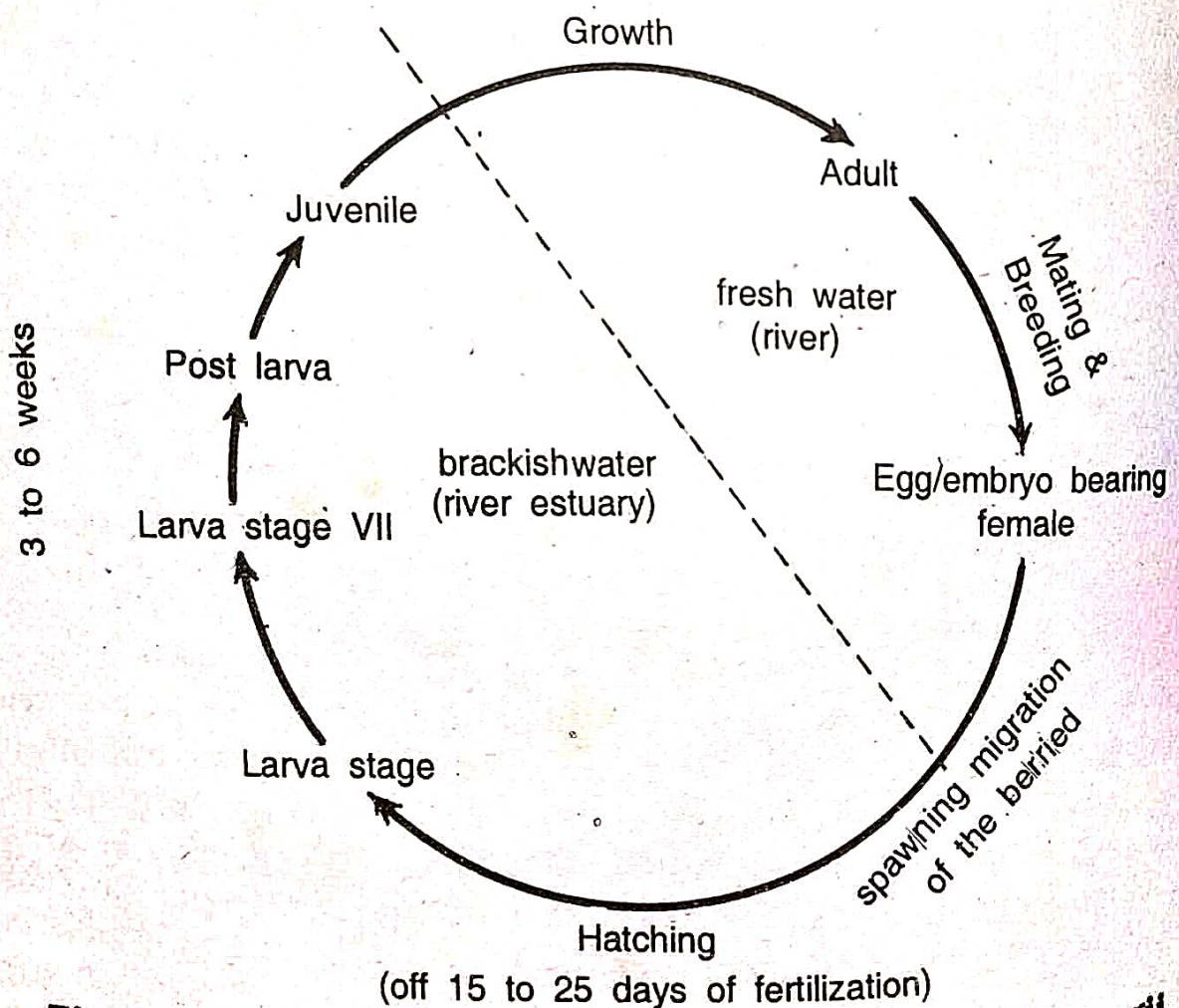


Fig. 15.2 Life cycle of Freshwater Prawn *m. rosenbergii*

1. Indian white shrimp *P. indicus* is the next most preferred species for culture.

Artemia/Moina. The last are produced by culture and the nauplii of these shrimps are very good food for the developing prawns. The stocking rate is usually 1 lakh per hectare. Lime, urea and superphosphates may also be used as fertilizers for the water. Marketable size is reached in six months. A production of 45 kg. to 75 kg per hectare is usually achieved.

Management involves maintenance of good water quality and correct feeding. Rearing and stocking need different treatments. Rearing is done in nurseries to allow the post larvae (1 cm. size) to grow to juveniles (2-3 cm size). For the nurseries, hapas, plastic pools, cement cisterns, fibre glass tanks etc. may be used. These are kept covered to avoid direct sunlight. Debris (unused feed, excreta and other matter) is continually siphoned off. Salinity is maintained at 4 to 5 ppt in the beginning and then is progressively increased to 14 ppt as larvae grow. The larvae are fed from the second day of the hatching on egg custard and live *Moina/Artemia*.

Prior to stocking, the post larvae are acclimatized to the freshwater by exposure to graded lowered salinities. The stocking of nurseries is done at the rate of about two to three thousand post-larvae per square meter. The post larvae are fed on live *Moina/Artemia*, clam meat and pieces of earthworm. Artificial feed (rice bran plus groundnut oil-cake) is also given thrice each day. Ponds in the size range of 0.1 to 0.2 hectare are good for prawn culture. Such ponds are managed in the same fashion as for carp culture with regard to liming, manuring and other routine measures. Stocking rate recommended is about 50000 juveniles /ha in monoculture but only 25000 juveniles / ha in polyculture with major carps (ICAR-CIFE Bulletin 10/91). When prawn culture is combined with carp culture, mrigal and common carp are excluded to prevent any competition with prawns. Supplementary feeding is desirable. A variety of items are used including items of plant origin (tapioca roots, oil cakes, broken rice) as well as of animal origin (trash fish, clam meat, shrimps (*Acetes* spp.))

Harvesting is carried out intermittently, catching the marketable-sized prawns (over 50 g). Yield, (in six months) is usually to the tune of 1000 kg/ha in monoculture and 500 kg/ha in polyculture.