

PRELIMINARY OBSERVATIONS ON THE NURSERY MANAGEMENT  
OF POST LARVAE OF PENAEUS MONODON

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ABSTRACT

Post larvae of tiger prawn, *Penaeus monodon* of the size 10-12 mm were stocked at the rate of 10 lakhs/ha in a manured cement nursery pond which was initially fertilized with chemical manures. Water exchange was attended once in a week. Artificial feeding was given in the form of minced clam meat. After a month, the pond was harvested. The juveniles which have grown to 40-46 mm size were recovered. The percentage of survival from post larvae to juveniles was 85.45%.

INTRODUCTION

India has about 2 million hectares of brackish water areas suitable for fish and prawn culture. These areas are in the form of mud flats, mangrove forests, swamps and tidal marshes. At present only about 35,000 ha are under culture. Maritime states have realised the existing potential and the area is being converted into culture tanks to undertake fish and prawn culture.

In prawn culture, heavy stocking density of juveniles at 25,000 to 50,000 per hectare is used to get a moderate yield of marketable shrimps in 4-6 months. There is possibility of getting 2-3 crops of marketable shrimps from the same area. When the total available area is developed into cultivable brackish water ponds, several millions of juvenile prawns are required for stocking and hence the demand for juvenile prawns is immense.

In nature, along with spring tides, millions of post larvae of penaeid prawns (*P. monodon* & *P. indicus*) are washed to the shore. They get stranded in the low lying areas, which virtually get converted into nursery grounds for the post larvae where they grow to juveniles in about a month's time by feeding over the available benthic algae, organic debris etc. By the time the post larvae grow to juveniles, heavy loss due to cannibalism and predation by carnivores results in heavy mortality. There is need to conserve the penaeid post larvae available in nature. Therefore, in order to get maximum yield of juveniles from post larvae, the present experiment is carried out in a cement pond at the Brackish Water Fish Farm of C. I. F. E. at Kakinada.

#### MATERIAL AND METHODS

A cement pond with water spread area of 40 square metres was selected. It was filled with filtered brackish water to a depth of 1 meter. Liming was done initially at the rate of 200 kgs/ha. After a day, the pond was manured with Potassium nitrate and Potassium phosphate at the rate of 200 kg/ha and 20 kg/ha respectively. The manures mixed together were dissolved in a bucket of water and the solution was spread evenly throughout the pond surface. Within a couple of days, the colour of the water turned green suggesting the production of rich quantity of phytoplankton.

Post larvae of *Penaeus monodon* of the size 10-12 mm length weighing 12.0 mg to 12.5 mg which were collected from the low lying areas were stocked on 18-12-1980 at the rate of 100 number per square meter.

Artificial feeding in the form of minced clam meat at 100 grams per day was given during the entire culture period. Physico-chemical parameters of the water were observed once in a week around 0830 hrs. (Table ). 30% of the pond water was removed after a week and replenished with fresh filtered brackish water. Thus the water exchange was attended three times during the culture period. When the colour of the water faded from light green to almost colourless suggesting the lack of sufficient microplankton, the pond was again fertilized with Potassium nitrate and Potassium phosphate at the rate of 50 kg/ha. and 5 kg/ha respectively. The culture was continued for a month and final harvesting was done on 18-1-1981 and the juveniles were recovered.

#### RESULTS AND DISCUSSION

During the culture period the Physico-chemical parameters of the pond water were in the range of temperature 21°C-24 C, dissolved oxygen 5.2 ppm

-6.6 ppm. pH 8.0-8.4, alkalinity 200 ppm - 220 ppm, salinity 17 ppt - 18 ppt. Carbondioxide varied from 0 to 3 ppm during the culture period which is negligible.

10-12 mm post larvae of *Penaeus monodon* at the stocking density of 10 lakhs/ha have grown to 40-46 mm in a month. The average size at the time of final harvest was 43.5 mm and average weight was 681 mg. Out of 4000 post larvae stocked the recovery was 3418 juveniles. The survival from post larvae to juveniles was 85.45% which is comparable to the results achieved in the Japanese prawn farms as reported by Shigeno (1978).

TABLE : PHYSICO-CHEMICAL PARAMETERS

Date	Temperature (°C)		pH	D.O (ppm)	CO <sup>2</sup> (ppm)	Alkalinity (ppm)	Salinity (ppm)
	Air.	Water					
18-12-80	24.0	23.0	8.0	5.2	Nil	200	18.0
25-12-80	23.0	24.0	8.4	5.6	2.0	220	18.0
2-1-81	23.0	24.0	8.4	6.6	Nil	200	17.0
9-1-81	22.0	23.0	8.2	5.4	2.0	200	17.5
16-1-81	22.0	21.0	8.2	5.6	3.0	200	18.0

Fuginaga (1964) developed a technique of culturing diatoms by manuring the rearing tank with Potassium nitrate and Potassium phosphate daily (Bardach *et al*, 1972). But in the present experiment the manures were applied only twice during the entire culture period and kept up the diatom bloom which has yielded the desired results.

The present experiment shows that with the conservative usage of chemical fertilizers coupled with proper artificial feeding and water management, it is possible to get about 85% of tiger prawn juveniles by rearing post larvae. The requirement of Tiger prawn juveniles can be met to a great extent if millions of post larvae available in nature are collected and reared in a scientific manner.

## SOMALINGAM & MURTHY

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