

## GREEN MUSSEL, *PERNA VIRIDIS* (L.) CULTURE TRAINING FOR SMALL SCALE FISHERMEN AT PARANGIPETTAI, INDIA

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### ABSTRACT

TMMP researchers organized experimental raft culture for poor fishermen. Locally collected seeds, between 15 and 30 mm in length were attached to nylon and coir ropes, about 0.5 to 1.0 kg of seeds per m rope. The mussels grew at a monthly rate of 13-15 mm (length) and 6.5-8.4 g (weight). They were harvested after 4 months at the end of July 1994. The profit was 4 times the investment, encouraging the fishermen to start their own raft cultures.

### INTRODUCTION

Two species, *Perna viridis* and *P. indica* are commonly found in the Indian coastal waters. However, utilization of mussels as food is very limited and generally confined to the coastal villages, even if many attempts have been made to promote consumption in the form of canned mussel meat (Muraleedharan *et al.* 1979), pickled mussel (Muraleedharan *et al.* 1982), and dried mussel (Unnikrishnan Nair *et al.* 1983). Mussels are exploited by the fishermen in coastal regions as a supplementary diet for prawns in culture. The average annual production of mussel from natural beds is about 3,100 tonnes (Alagarwami & Meiyappan, 1989), of which 95 % of the catch is from the west coast of India.

Prawn farmers of Tamil Nadu need mussel meat for their cultures. But the supply of green mussels is uncertain so the farmers have tried other bivalves (clams) as supplementary feed. They concluded that green mussels appear to be the best supplementary feed, and it is less expensive. By the culture of green mussel over-exploitation of mussel populations can be avoided in nature, and the fishermen wish to have this resource as a regular source of income.

Green mussel culture is well established in India and harvestable stocks are produced in 5-8 months. However, these culture techniques are mostly practiced on a large scale. In the villages, fisherfolk can only afford it on a small scale.

Five fishermen families, each comprising 6-8 members, were chosen for this venture. The idea is to rationally utilize the excess man-hours available after normal fishing, thereby enabling fishermen to get ad-

ditional income. The TMMP team has paid special attention to the fishermen who live on or below the poverty line.

### MATERIALS AND METHODS

A small raft (3 x 4 m) was constructed of 8 cm casuarina poles tied together with coir and 1 cm nylon rope. The raft was attached to casuarina poles positioned about 20 m from the edge of the intertidal zone at 1.5 m water depth off the Marine Biological Station.

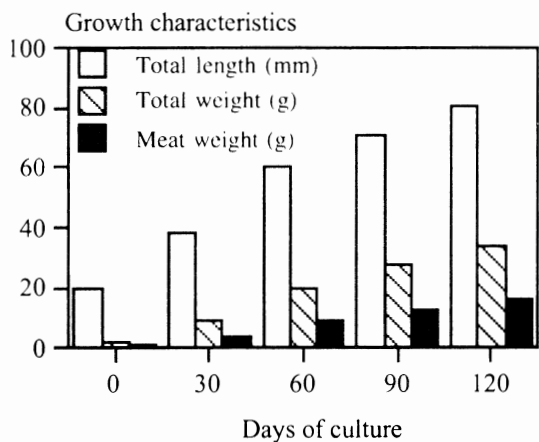
The *P. viridis* seeds were collected by hand during low tide from intertidal and subtidal beds in the Vellar estuary. Care was taken to minimize damage to the byssal threads. Before transplantation, the seeds were cleaned with filtered estuarine water to remove adhering mud and debris. About 20 mm size seeds, 500 to 1000 g per m, were arranged around the rope on a cotton cloth, 20 cm wide and 100 cm long, and subsequently covered with the cloth. Hand stitching was made at intervals, and at the ends. The coir and nylon ropes were tied to the raft at 1 m intervals. Totally, 15 ropes were suspended from the raft. The seeded mussels get attached to the ropes within 2-3 days and the cloth cover disintegrates in the estuarine water in about 10 days. Construction of the raft, seed collection, and seed transplantations were done by the trainees guided by the TMMP team. Length, total weight, and the meat weight were recorded at monthly intervals after random sampling. At the end of four months (April-July) the cultured mussels were harvested by the trainees and the production estimated.

## RESULTS

### Growth and yield

The growth is shown in Fig. 1. The growth rate peaked during the second month of culture. On an average, the monthly length increments were 18.6 cm, 21.2 cm, 11.6 cm and 9.0 cm; the total weight increments 6.82, 11.6, 8.1 and 6.0 g; the meat weight increments 3.5 g, 5.2 g, 4.1 g, and 2.6 g for first, second, third and fourth months respectively.

The mussels on each rope were weighed separately and the total production calculated. Each rope carried 8-10 kg mussels, giving a total yield of about 150 kg. The mussels were cooked and about 21 kg meat obtained. It was sold at Rs. 20 per kg.



**Figure 1.** Increment in growth characteristics of *P. viridis* during the culture period.

### Economics

The total cost of materials for the construction of raft, and the seeding rope, and the sales income is given in Table 1.

**Table 1.** The budget for the experimental culture of *P. viridis*

Expenditure		
Materials used	Quantity used	Value Rs.
Casuarina poles		
4 m poles	4	40.00
2 m poles	4	20.00
Coconut coir rope	8 m	5.00
Nylon rope	20 m	35.00
Total Expenditure		100.00
Income		
sale of meat		420.00
sale of shells		50.00
Total income		470.00

The net profit was Rs. 370. However, the casuarina poles were in good condition and could be reused for the subsequent cultures.

## CONCLUSION

The State Government has banned bivalve exploitation since 1979, but the ban has been difficult to enforce. To overcome this problem, and make the fishermen aware of the demerits of over-exploitation, some fishermen were trained in the culture of the mussel, *P. viridis*, utilizing the productive Vellar estuarine system. Only 15 ropes were used for the demonstration, and a profit of Rs. 370 was obtained. A raft can carry 30 ropes and the profit be doubled. Four rafts with a harvest schedule of one raft per month could give an additional income of Rs. 700 per month. This has really drawn the attention of the fisherman. Planning is underway to train more people and to encourage them to address conservation of living natural resources, and make an income at the same time.

## REFERENCES

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