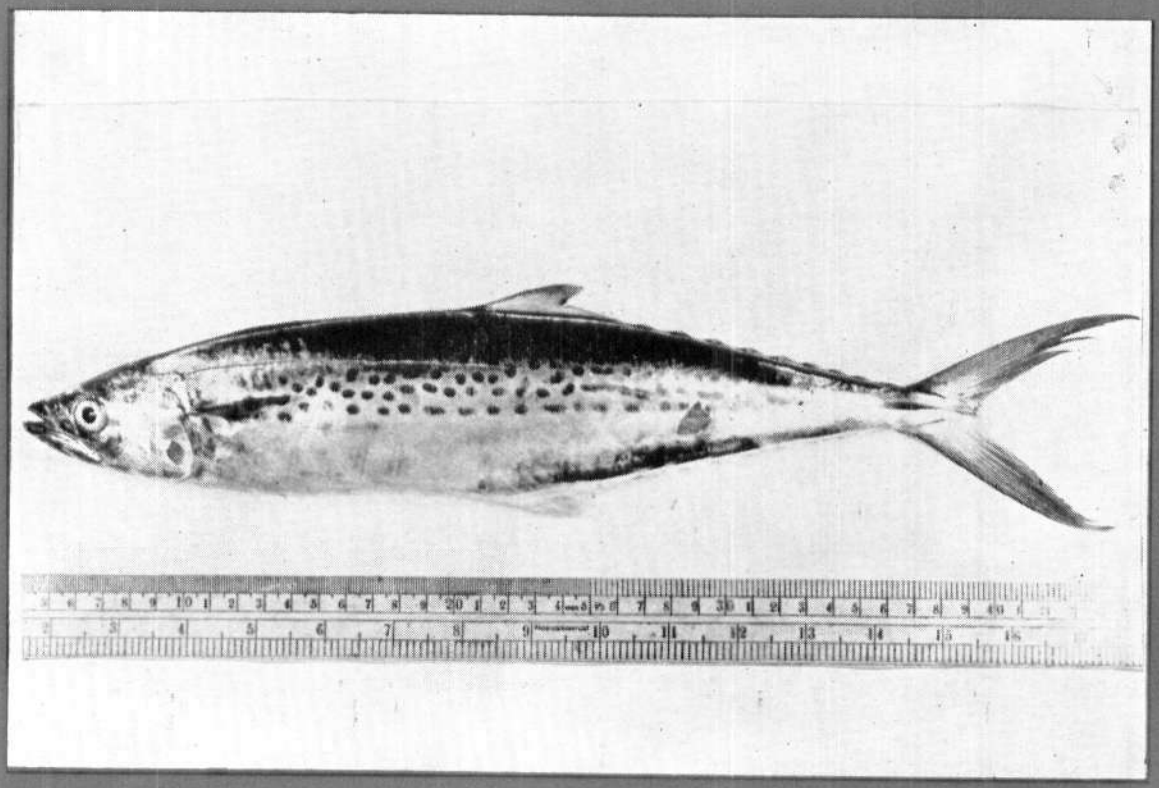
MARINE FISHERIES INFORMATION SERVICE



No. 81
MARCH 1988

Technical and Extension Series

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
COCHIN, INDIA

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

POTENTIALITIES OF MUTTUKADU MARICULTURE FARM FOR GREEN MUSSEL CULTURE*

Experimental pole culture and culture trials using nylon bags were attempted for green mussel *Perna viridis* at Muttukadu Mariculture Farm of CMFRI (Lat. 12°48′ N; Long. 80°15′ E), located near Madras.

Pole culture experiment

Seventy five teak wood poles, each measuring 3.5 m in height were used for the experiment. Each pole was driven to a depth of 0.5 m in the mud, leaving 3.0 m height above substratum. They were arranged at the northern end of the farm, where the depth ranged from 1.5 to 2.0 m, depending on the tides. On an average, 4.02 kg of seed of *P. viridis*, ranging in length from 15.0 to 53.0 mm (26.6 mm in mean length and 2.05 g in mean weight), were collected from Ennore and were packed in 2 m long cotton bags (Fig. 1). A single bag was tied around each pole, and care was taken to keep the bag well below the low water mark. With the disintegration of the cotton bags in a fortnight's time, the seed gained attachment to poles by byssus threads (Fig. 2).

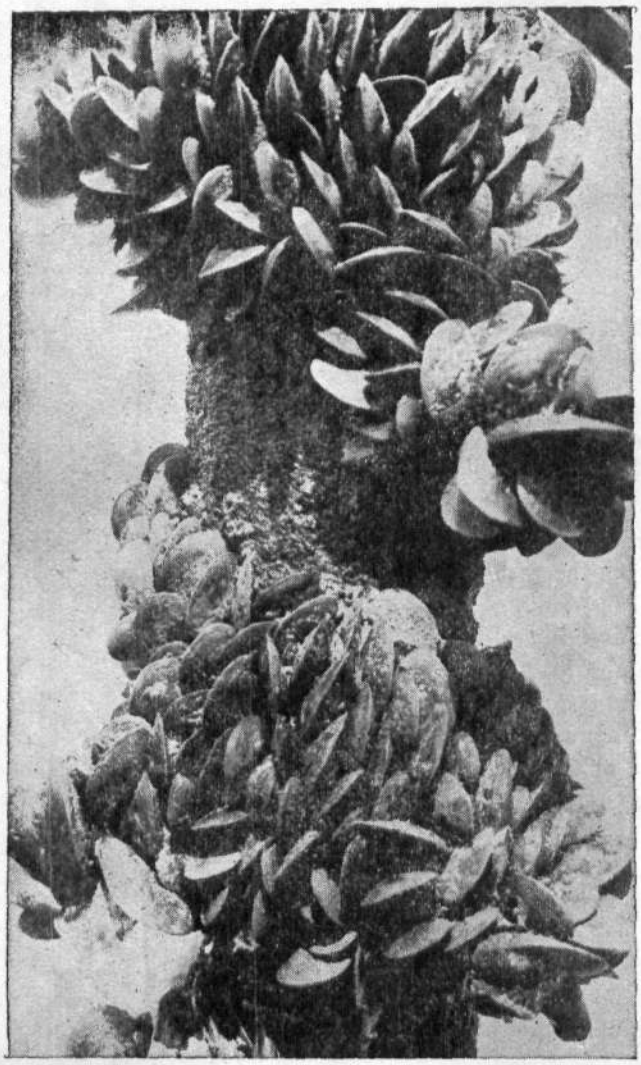


Fig. 1. Mussel attached to poles.

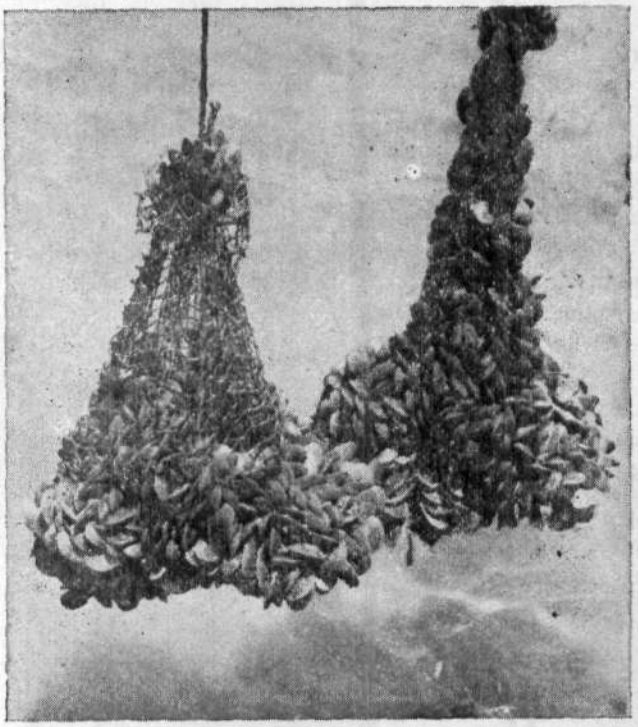


Fig. 2. Growth of mussel in bags.

Bag culture trials

In another experiment, 39 bags, each of 35 x 40 cm size, made of nylon webbings (15 mm mesh size), were seeded with an average of 3.2 kg of seed. They were suspended from a fixed woodencraft (5 x 5 m size), by nylon ropes of 1 m length. The water depth in the area was 1.5 to 2.0 m. The mussel stock was found to grow well, attaching themselves to one another (Fig. 3).

Seeding operations in both cases were done in August, 1986 and the harvest was carried out in

*Prepared by P. V. Sreenivasan, R. Thangavelu and P. Poovannan, Madras Research Centre of CMFRI, Madras.

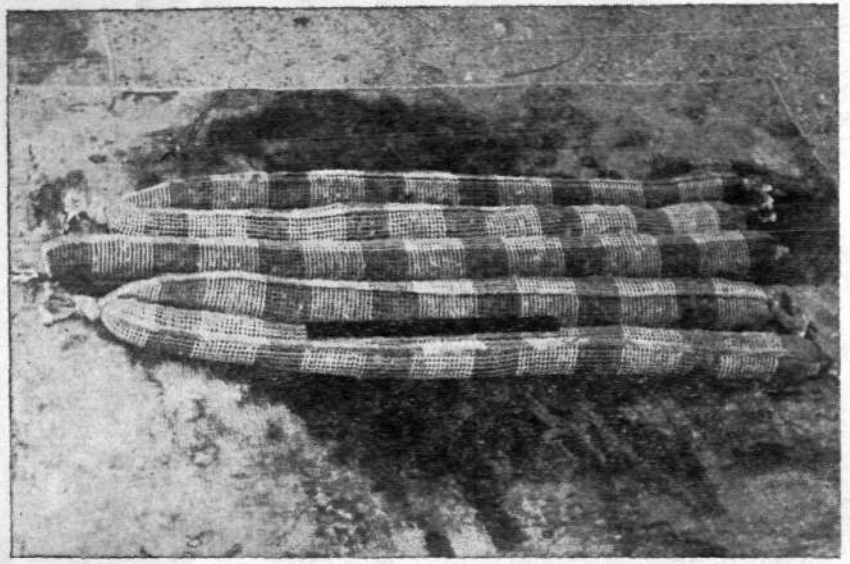


Fig. 3. Mussel seed packed in cotton bags (4.02 kg in 2 m length bag).

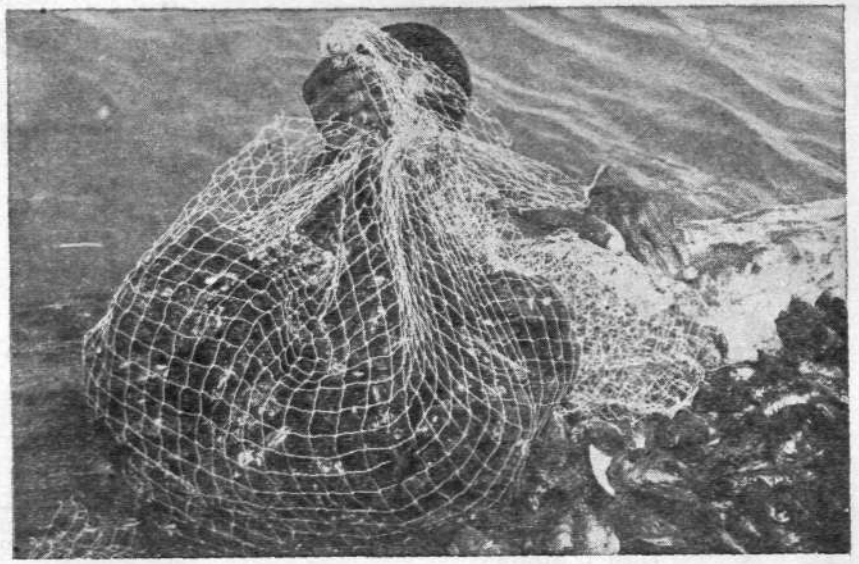


Fig. 4. Loading of mussel into the canoe.

Fig. 5. Unloading of mussel from the canoe.

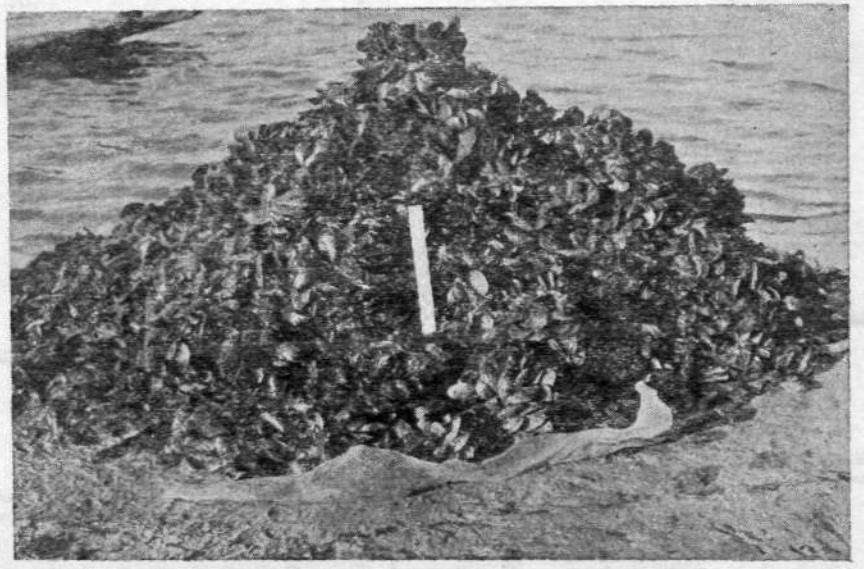


Fig. 6. Harvested mussel from poles (about 1 tonne).

February. During this period, the salinity in the culture site ranged from 17.59‰ (in November) to 40.51‰ (in September) and was around 30‰ in most of the months. Surface temperature varied from 23.8 to 33.8 °C, while dissolved oxygen ranged from 2.98 to 6.66 ml/l. Details regarding the quantity of mussel harvested, net increase in weight and average quantity obtained/unit are given in Table 1 and the process of harvest is shown in Figs. 4 to 6.

Table 1. *Details regarding seeding and harvesting of the green mussel* Perna viridis, *at Muttukadu backwaters*

Particulars	Poles	Bags
Total units seeded	75	39
Seed used (kg)	4.02 /pole	3.2 /bag
Total quantity of seed used (kg)	301.5	121.9
Total units harvested	69	33
Total quantity harvested (kg)	963.9	595.0
Net increase (kg)	662.4	473.1
Average quantity of mussel/unit (kg)	13.96	18.05
Net increase/Unit (kg)	9.94	14.83
Maximum quantity harvested from a single unit (kg)	42.50	43.00

Growth of *P. viridis*, in length and weight, in the six months period is depicted in Figs. 7 and 8. There was an increase of 51.4 and 47.9 mm in length among mussel from poles and bags respectively, from a common mean seed size of 26.6 mm. Correspondingly, the increase in weight was from 2.05 to 40.55 g in the case of poles and to 34.47 g in bags.

Growth of *P. viridis*, was observed to be 45 mm in 5 months at Kakinada (Narasimham, 1980. *Bull. Cent. Mar. Fish. Res. Inst.*, **29**: 10–17) and 54 to 65 mm in 6 months at Calicut (Kuriakose, 1980. *Bull. Cent. Mar. Fish. Res. Inst.*, **29**: 33-38), when the mussel was grown on ropes in the sea. Earlier at Madras, an average growth of 12.8 to 13.0 mm per month was recorded for the same species in the rope culture at Kovalam Bay (Rangarajan and Narasimham, 1980. *Bull. Cent. Mar. Fish. Res. Inst.*, **29**: 39-41). Though grown in saltwater lagoon like Muttukadu backwaters,

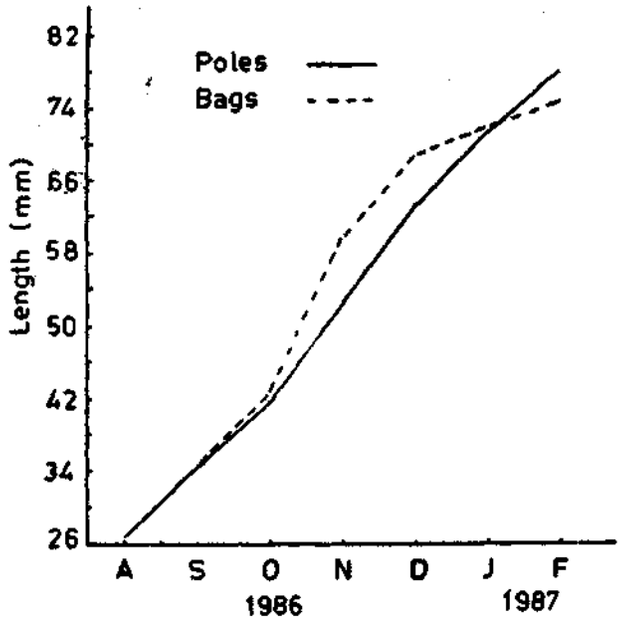


Fig. 7. Growth in length of *P. viridis* on poles and in bags (monthly mean values are given).

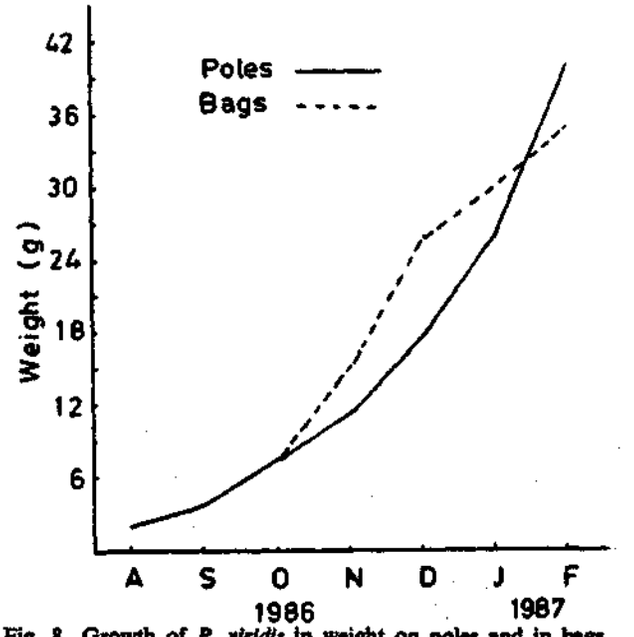


Fig. 8. Growth of *P. viridis* in weight on poles and in bags (monthly mean values are given).

growth of *P. viridis* was found to be comparable with that of the mussel at Kakinada and Calicut.

The present experiments are first of its kind indicating the feasibility of culturing the green mussel in saltwater lagoon, by adapting pole and bag culture methods. The mariculture farm at Muttukadu appears to be suitable for green mussel culture.