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WORKSHOP ON

MUSSEL FARMING

25 - 27 SEPTEMBER, 1980
MADRAS

CENTRE OF ADVANCED STUDIES IN MARICULTURE

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

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TECHNICAL SESSION IV PRODUCTION AND ECONOMICS	CMFRI-CAS/MF/ 80/BP -14

MUSSEL PRODUCTION AND ECONOMICS AT KOVALAM (TAMILNADU)

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Kovalam, a fishing village 35 km south of Madras was selected for open-sea mussel farming experiments in 1976. Based on the early results and noting its potentialities an Operational Research Project involving the local fishermen was started in this village in 1978.

The green mussel, Perna viridis, is sparsely distributed in the Coromandal Coast. There is a well established mussel resource at Ennore, 20 km north of Madras. The mussels are found attached to the concrete pillars of the dredging pier constructed into the sea near the mouth of the Ennore river. There is also a mussel bed in the river about one kilometre from the mouth near the Railway bridge. Here the mussels are found attached to dead oyster shells imbedded in the mud. In Madras city itself there is a small settlement of mussels in the rocks dumped in the sea off the outer

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harbour wall. Farther south in Pondicherry and Cuddalore there are small settlements on the pier structures. At Cuddalore the harbour wall at the mouth of the river has a mussel settlement.

At Kovalam, there were no mussels till 1976. Spat and parent stock was first introduced here by the Central Marine Fisheries Research Institute, when the open-sea mussel culture programme was started. They got quickly acclimatised to the new environment and spat fall was noticed the same year. Spat settled in both the submerged rocks and the patches of partially exposed rocks in the intertidal region of Kovalam bay. But still the natural beds have not developed to any sizeable proportion to support a fishery.

At present there is a small retail outlet for mussels in Madras city and in Pondicherry. Mussels of 75 to 80 mm size are collected by a few fishermen and sold in these markets for a period of about three months from July till the onset of the North east monsoon in October.

A market survey conducted recently in Madras has shown that mussels are sold in six markets all over Madras by 8 people. Each person brings to the market 1 bag weighing about 45 kgs (1500 nos) at a time. Except in Purasawalkam market where it is sold every day during these three months, in the other markets it is sold only on sundays. In Purasawalkam and Jambazar market the intake on sundays is 2 bags. Thus on Sundays about 300 kgs of mussels are consumed in the city and on other days of the week at Purasawalkam a total of 270 kgs is consumed,

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totalling 630 kgs per week or about 2½ tons in a month. An estimated 5 to 7 tonnes of mussels are consumed in Madras and the entire stock is brought from Ennore.

This is purely a family avocation and one member of the family collects the mussels at Ennore in the early hours of the morning and it is brought to the Madras market by the womenfolk, along with crabs in the fish van which plies regularly between Ennore and Madras. They reach the markets by about 9 AM and by 11 AM the commodity is sold and they return back to the village in the same van. In most of the markets it is sold at Rs 5/- per hundred (3 kilos). Only in Thousand lights and Jambazar markets the rate varies from Rs. 5/- to Rs. 8/-. On an average a woman earns Rs 45/- per day by selling mussels. Deducting collection, transport and handling charges, it could be safely assumed that a ton of mussels costs Rs. 1,500/-. Therefore the total value of mussels sold at Madras will be in the order of Rs. 7,500 to 10,000/- per season. Mussels are sold in the fresh condition with shells. No cleaning is done. The buyers are mostly people from Kerala and in Thousand lights area it includes some Chinese.

As already mentioned the natural resource at Ennore is small and it cannot possibly supply more than 7 tons in a year. Experiments were therefore started at Kovalam to culture mussels and to demonstrate its economic viability. Culture experiments on mussels were tried by the following system:

1. The floating raft system for rope culture.
2. Pole culture
3. Submerged raft with rope culture.

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In all these systems, mussels grew well and attained marketable size in about five months time. The rafts were anchored in the open sea in the 8 metre depth area while pole culture was tried in 4 metres depth area. The rough sea conditions of the east coast, however, did not permit the floating raft and the poles to be kept at sea continuously. This necessiated an innovation of a submerged raft and this has withstood the rough sea conditions. It is seen from our experiments that any one of these methods could be selected to suit local conditions along the Indian coast.

The comparative cost and economics of the three systems are given in Table 1.

At present only 5 to 7 tons of mussels from the natural bed at Ennore is being marketed in Madras city for 3 months in a year. This could be increased by adopting any one of the culture methods described above. It would be seen from the tables that the non-recurring expense on anchor and anchor chains in the raft culture method accounts for nearly 50% of the total cost and in the pole culture the poles have to be replaced once in 5 years time. The yields from these systems are very encouraging and by judicious use of space and material a good profit margin can be obtained. It will not be out of place to mention here that these figures are arrived at from the data collected during preliminary experimental ventures. The expenses could be reduced and profit margin could be increased by adopting suitable managerial principles when large scale production is planned.

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TABLE 1. Comparative Economics of Mussel culture

Expenditure heads	Floating raft	Submerged raft	Pole culture
Area (m^2)	25	81	100
Capacity(rope/pole/unit)	50	100	100
1. Non-recurring expenditure (Rs)			
a. Anchor (2 Nos)	880.00	880.00	-
b. Anchor/chain(2Nos)	1500.00	1500.00	-
c. Chain for float	-	720.00	-
d. Pile driving	-	-	3000.00
2. Recurring expenditure(Rs) (Once in 2 or 5 years)			
a. Casuarinapoles	350.00	-	-
b. Bamboo poles (2 yrs)			
c. Teak poles (5 yrs)	-	300.00	6000.00
3. Recurring expenditure(Rs) (every year)			
a. Floats	750.00	1620.00	-
b. Shackle	48.00	48.00	-
c. Swivel	-	92.00	-
d. Nylon ropes	250.00	250.00	-
e. Coir ropes	250.00	500.00	500.00
f. Cost of mussel bags & stitching	200.00	400.00	400.00
g. Cost of paint	100.00	100.00	100.00
Total (Rs)	4328.00	6560.00	10000.00
4. Estimated production in one harvest (kgs)	3000	6000	12000
5. Estimated value(Rs)	4500.00	9000.00	18000.00