FISHING CHIMES

On the first Mud Crab fattening farm in Dakshina Kannada, Karnataka

Pratibha Rohit and C Muthiah
Mangalore Regional Centre of CMFRI
Mangalore

Culture practices along the Karnataka coastal zone are restricted to only shrimp farming. Apart from shrimp, the potential candidate species suitable for farming along this part of the coastal area is the mud crab (*Scylla tranquebarica*). It offers good scope for pond culture as has been witnessed in the neighbouring Kerala coast in the recent years. However, in the absence of hatchery production of crab seed at present, the culture is wholly dependent on wild collection of seed and this is a limiting factor in the development of mud crab culture.

Mud crabs (*Scylla tranquebarica*) locally known as 'Kall dendji' are caught in appreciable quantities along the Dakshina Kannada coast. They are obtained from the estuaries, creeks, adjoining marshy areas and paddy fields throughout the year. But their fishery at present is not an organised one and the supply, mainly for the export, is very meagre. Realising the popular demand among the fish farmers of the area through the periodical 'fishermen-scientists' meet conducted by the Research Centre of Central Marine Fisheries Research Institute, Mangalore, the Brackishwater Fish Farmers Development Agency, Brahmavara took the initiative of demonstrating mud crab farming in a farm owned by an entrepreneur and the results are outlined here.

Pond Location and Construction

A preliminary survey of the estuaries and creeks of Dakshina Kannada was conducted and a small unutilised water body belonging to a progressive shrimp farmer at Coondapur (about 100 km north of Mangalore) was selected to demonstrate the viability of crab fattening in this region. The water body is situated adjacent to a creek with a waterspread area of 800 m^2 and it is almost at the same level of the creek. Mud bunds of 3 m height and 1 m width were constructed around the pond and a sluice gate was fixed on the side facing the creek. Water exchange takes place during every tide and the pond can be completely drained out during the neap tide. A double layered old fishing net is also fixed lining the inner side of the bund to prevent boring and escape of the stocked crabs from the pond (Fig. 1).

Pond Preparation

The extensive type of culture system was adopted for the demonstration. Fishes and shrimps were allowed to enter the pond and grow along with the stocked mud crabs. Pond preparation consisted of clearing the pond bottom and removal of stones and non-degradable materials. Some shrubs within the pond were left as such to provide shade and shelter to the crabs. A few dome-shaped tiles were placed in the pond to provide extra shelter to the 'soft' crabs. The water pH during the culture period (240 days) ranged from 7.9 to 8.4 and salinity from 8 to 32 ppt. No fertiliser was used in the pond.

Stocking

Recently moulted crabs, popularly known as 'water'/'soft' crabs, were stocked in the pond for fattening. As hatchery production of crab seeds has not yet been developed, crab farming has to depend on 'water' crab collections from the wild. The soft crabs are not accepted by the exporters and so they are sold in the local market. 'Water crabs' (weights ranging from 200 to 600g) were purchased from the local fish merchants and stocked at the rate of one crab per m^2. The cost of 'water' crabs ranged from Rs. 50 to 55 per kg. Stocking was almost a continuous process on a daily basis with single crab just weighing 200 g to a few numbers weighing a kg depending on the availability. The monthly stocking details during the demonstration period is given in Table 1.

Table 1 Details of *S. tranquebarica* seed stocked during the demonstration

Month & year	Qty. (kg)	Rs./kg	Total cost
July'96	71.00	50.00	3550.00
August'96	194.00	50.00	9700.00
October'96	73.00	50.00	3650.00
December'96	91.50	55.00	5032.50
Jan.-Feb.'97	71.00	55.00	3905.00
Total	**500.50**		**25837.50**

Generally, the seed was stocked during evening hours when the water temperature was not very high. The seed was directly released into the pond without prior acclimatisation.

Feeding

The crabs were fed once every day during noon with fresh fish waste consisting of heads, fins and entrails. These were procured free of charge from the fish market and a daily ration of 5-6 kg was strewn into the pond. As the food provided was fresh and in wet condition, it immediately sank to the bottom and the crabs fed on them easily.

Harvesting

The stocked crabs were harvested after a period of 25-45 days when most of them had developed a firm outer covering. The harvests were timed during the low tide, 2-4 days after the new moon. Fishes and shrimps that had entered the pond during the tidal influx were also hand picked and marketed. After the pond water was almost drained off, the

Fig.1 A view of the crab demonstration farm

Fig.2. Ring net used for harvesting crab

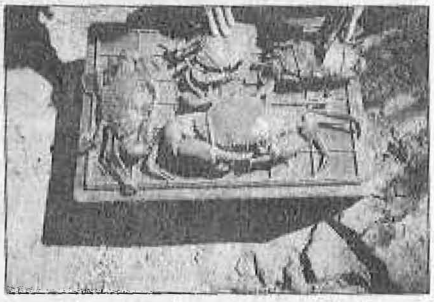

Fig.3 Harvested crab with their chelipeds tied

Fig. 4 Largest crab (2.2 kg) harvest from the pond

Fig.5 Harvested crab kept in cardboard boxes for transport

crabs were scooped using small ring nets (Fig.2). The chelipeds of the harvested crabs were immediately tied using twine and thoroughly washed to clear the adhering slush and mud. Crabs with hard cuticle, especially near the base of the third walking legs and weighing more than 550 g were selected and kept aside in a cool place for marketing. The undersized and soft crabs were released back into the pond to be harvested later. The average individual weight of the crabs harvested during the demonstration period was 1.2 kg and the largest crab harvested weighed 2.2 kg (Fig.3). The period and quantities harvested during the demonstration period are given in Table.2

Marketing

The harvested crabs were exported live.

Table 2. Details of the crab (*Scylla tranquebarica*) and other crustaceans and fishes harvested from the demonstration farm

Date	Species	Quantity	Rs./kg	Total Income
7.8.96	*S. tanquebarica*	33.50	200.00	6700.00
	S. serrata	21.00	12.00	252.00
19.9.96	*S. tanquebarica*	46.15	210.00	9691.50
	S. tranquebarica	77.15	200.00	15430.00
1.12.96	*P. monodon*	5.00	275.00	1375.00
	P. indicus	1.50	100.00	150.00
	Fishes ●	10.00		
	S. tranquebarica	91.50	200.00	18300.00
14.1.97	*P. monodon*	4.60	300.00	1380.00
	P. indicus	2.70	120.00	324.00
	Fishes ●	15.00	5.00	75.00
11.2.97	*S. tranquebarica*	26.00*	200.00	15000.00
Total	*S. tranquebarica*	349.30		70321.50
	S. serrata	21.00		252.00
	Prawns	13.80		3229.00
	Fishes	25.00		125.00
Grand Total				**73927.50**

● Fishes include mullets, *Chanos, Tilapia, Gerrus, Therapon* and *Elops*.
* Several crabs were poached the previous day resulting in low catch.

Table 3. Details of expenditure incurred and income generated during the crab fattening demonstration programme

I. Initial Investment	i) Cost of land (800m2)	Rs. 10,000.00
	ii) Bund construction and sluice gate	Rs. 16,288.00
Total		**Rs. 26,288.00**
II. Annual Fixed Cost	i) Lease value for the land @ 10% of the cost)	Rs. 1,000.00
	ii) Depreciation (20% of initial investment excluding land)	Rs. 3,257.60
	iii) Interest (20% of initial investment)	Rs. 5,257.60
Total		**Rs. 9,515.20**
III. Operating Cost	i) Cost of stocking material	Rs. 25,837.50
	ii) Cost of feed transportation	Rs. 500.00
	iii) Labour charges	Rs. 2000.00
Total		**Rs. 28,337.50**
IV. Total Cost (**II** + **III**)		Rs. 37,852.70
V. Gross Income (6 crops)		Rs. 73,927.50
VI. Net Profit (**V-VI**)		Rs. 36,074.80
VII. Profit %		Rs. 95.30

mainly to Singapore. Marketing was done through the agents who collected the harvested crabs from the farm site and sent them to the exporting agencies. The agents were informed about the harvest a few days in advance and the produce was given to the highest bidder. The price of cultured crabs in Dakshina Kannada ranged between Rs. 200 and 210 per kg. The agent came to the site on the appointed day with containers and vehicle for live transportation of the crabs. The cleaned and pre-weighed crabs with their chelipeds firmly tied were packed in cardboard boxes with holes and were transported by train to Chennai from where they were air lifted to Singapore.

The initial investment including the cost of land and pond construction was Rs. 26,288. The annual fixed cost and the operating cost together amounted to Rs. 37,852.70. During the demonstration period of 10 months (June'96 to March'97), six harvests were made. The total yield from these harvests was 349 kg of crabs, 10.45 kg of shrimps and 25 kg of fishes. The gross income earned from the sale of the crustaceans and fishes was Rs. 73,927.50/-. The net profit earned by the farmer was Rs. 36,074.80 and the profit was 95.3% over investment which is indicative of high profitability.

Conclusion

This first demonstration of crab (*Scylla tranquebarica*) fattening along the Dakshina Kannada coast has proved to be profitable. Moreover, crab culture has the following advantages over the existing shrimp farming along this coast: i) it was less capital intensive, ii) less labour intensive, iii) does not require costly imported feed, iv) profitable even when carried out in small water bodies, v) short culture period and vi) crab remains alive for several days out of water.

Recommendations

This demonstration happens to be the first instance of crab farming along the Dakshina Kannada coast. Though done on a very small scale by the Research Centre of Central Marine Fisheries Research Institute, Mangalore, the results have proved that crab culture is equally profitable and can be taken up by the coastal fisherfolk having small salt water inundated areas by suitably impounding them. Non-availability of hatchery produced crab seed is a limiting factor but, if carried out in an extensive manner with low stocking rate, as demonstrated, the seed available naturally from the wild can meet the requirements of a sizeable number of crab farmers in the area.

Farewell to Final Year B.Fsc candidates at CIFE, Mumbai, "Tikka Samaroh" Ceremony: 28.6.97

The Central Institute of Fisheries Education has adopted a remarkably distinctive system of bidding farewell to the final year students of B.Fsc leaving the Institute on completion of the course. For the first time, farewell was made in a traditional way by affixing "Tikka" (Tilak) to each of the students by Mrs. Abidi, who also offered sweets to each of them. "Rangoli of India" with a lamp placed in each of the states was the highlight of the Ceremony depicting the national character of the institute.

Dr. N.K. Thakur, Joint Director, CIFE, welcomed the students and the dignitories. Ms. Kavita Gupta and Padmashri Dr. N. Balakrishnan Nair addressed the out going candidates, exorting them to make the best use of the knowledge they acquired at the institute for national benefit.

A trainee being applied "Tikka" by Mrs. Abidi

"Rangoli of India" at the "Tikka Samaroh"

Padmasri Dr. N. Balakrishnan Nair speaking on the ocassion of "Tikka Samaroh"

Ms. Kavita Gupta, IAS speaking on the occassion of "Tikka Samaroh"

Team of M.Ps visited coastal Aqua Centres in A.P

A House committee of M.Ps headed by Dr. Venugopalachari, Union Minister of state for Agriculture, visited several coastal Aquacentres in Andhra Pradesh in the first week of July 1997 to verify the impact of coastal aquaculture on environment. After their visit, the Minister is reported to have said that coastal aquaculture would not cause harm to the environment. He also expressed that Aquaculture helps socio-economic development of the area.

The committee earlier visited Tamilnadu and later covered other c tal states.

It was pointed out that the committee also gathered views of the voluntary organisations, government officials and others. The committee was expected to submit its report to the Parliament by 20 July, 1997.