

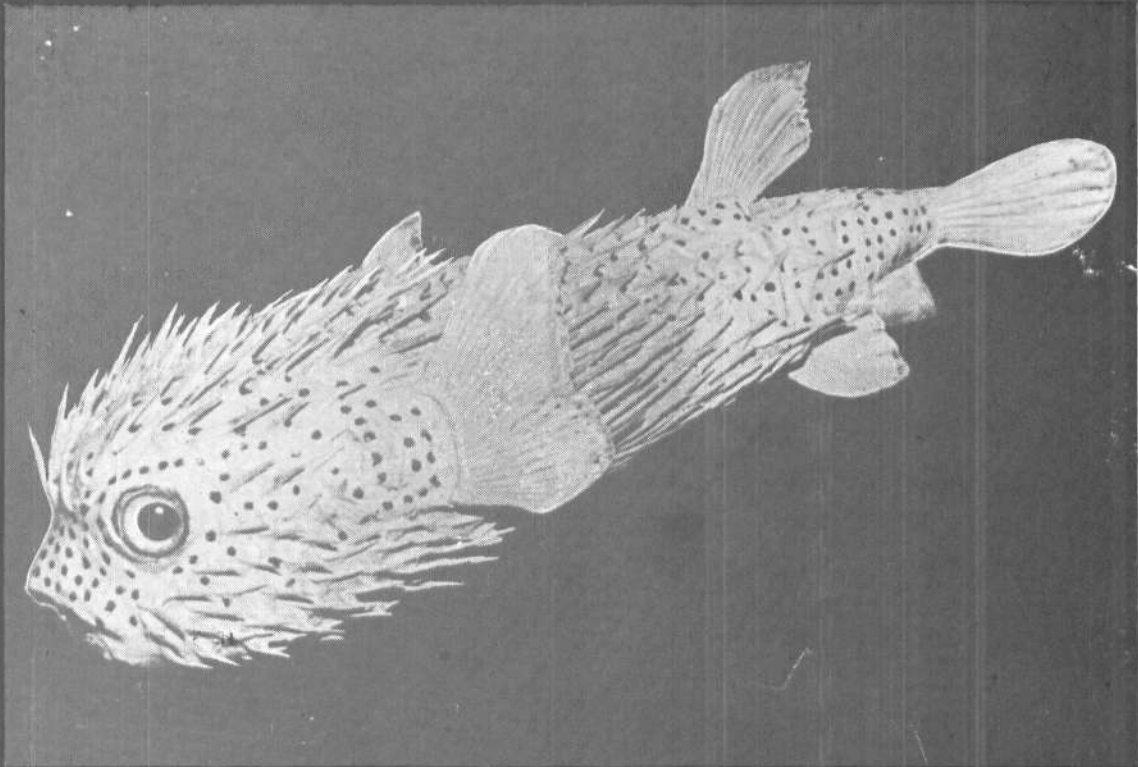


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समुद्री मात्स्यिकी सूचना सेवा MARINE FISHERIES INFORMATION SERVICE

No. 142

APRIL, MAY 1996



तकनीकी एवं विस्तार अंकावली TECHNICAL AND EXTENSION SERIES

केन्द्रीय समुद्री मात्स्यिकी अनुसंधान संस्थान कोचिन, भारत CENTRAL MARINE FISHERIES RESEARCH INSTITUTE COCHIN, INDIA

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INDIAN COUNCIL OF AGRICULTURAL RESEARCH

COLEROON ESTUARY, TAMIL NADU - A POTENTIAL AREA FOR EDIBLE OYSTER AND GREEN MUSSEL CULTURE

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Coleroon estuary is located in the northern part of Nagai Quaid-e-Millath District of Tamil Nadu. The estuary receives copious supply of freshwater during the northeast monsoon months of October-December and also during June-September period, when water is released from the River Cauvery for irrigation purposes. Though the estuary has perennial connection with the sea, the width of the mouth varies with flooding and dry periods. It is connected to the River Vellar on the northern side by the Buckingham Canal and in this region a network of canals are formed which harbour rich mangrove vegetation. There is tidal influence in the estuary upto a distance of 12 km from the river mouth. Depth of the estuary near the mouth is more than 5 m which enables both mechanised and non-mechanised fishing vessels enter the estuary and harbour at Pazhayar Fishing Harbour.

The estuary has large edible oyster population and also some green mussel beds. To study their distribution, biomass and the environmental conditions of the estuary a preliminary survey was undertaken on 13th and 14th September 1995. Information was also collected to find out the suitability of the area for culture of edible oyster and green mussel.

Five stations were sampled in the area covering from Mahendrapalli in the west to the estuary mouth in the east and Kodiampalayam in the north to the Buckingham Canal in the south (Fig. 1). Details of hydrological parameters, density of the oyster and green mussel populations and their resources are given in Table 1. Among the oysters *Crassostrea madrasensis* (Preston) was the only species found in the area and among mussels green mussel *Perna viridis* (Linnaeus) was the only

TABLE 1. Environmental parameters and distribution of edible oyster and green mussel resources in the Coleroon estuary

Station No.	Location	Depth (m)	Nature of bottom	Salinity (ppm)	Surface temp. °C	Dissolved oxygen (ml/l)	pH	Planktonic organisms	Edible oyster resource			Green mussel resource				
									density/sq.m	area (ha.)	Quantity	density/sq.m	area (ha.)	Quantity		
									No.	Wt.(kg)	(t)	No.	Wt.(kg)	(t)		
1.	Mahendrapalli	0.5	Hard muddy	15.00	30.5	3.83	7.8	Copepods, nauplii, bivalve & gastropod veligers, fish eggs, <i>Peridinium</i> , <i>Nitzschia</i> , <i>Pleurosigma</i> , <i>Coscinodiscus</i> & <i>Rhizosolenia</i>	506	12.37	3.2	395.8	Nil			
2.	Kottaimedu	0.5	Sandy muddy	16.00	30.1	3.38	7.8	Copepods, Lucifer, nauplii, bivalve & gastropod veligers, <i>Peridinium</i> , <i>Tintinnids</i> , <i>Triceratium</i> , <i>Coscinodiscus</i> & <i>Rhizosolenia</i>	15	0.42	4.0	16.8	Nil			
3.	Northern Canal	0.5	Hard muddy	20.00	30.0	3.20	8.0	Copepods, nauplii, bivalve & gastropod veligers, Cypris larvae, <i>Peridinium</i> , <i>Tintinnopsis</i> & <i>Rhizosolenia</i>	290	23.50	6.0	1,382.8	Nil			
4.	Kodiampalayam	0.75	Hard muddy	20.00	30.0	3.40	7.8	Copepods, nauplii, bivalve veligers, fish eggs, <i>Coscinodiscus</i> & <i>Pleurosigma</i>	230	5.05	2.0	101.0	38	0.11	2.0	2.1
5.	Buckingham Canal (Pazhayar)	0.75	Hard muddy	25.00	32.00	4.66	8.0	Copepods, nauplius, Cypris larvae, bivalve, veligers, <i>Navicula</i> , <i>Peridinium</i> , <i>Triceratium</i> , <i>Rhizosolenia</i> , <i>Tintinnopsis</i> , <i>Pleurosigma</i> & <i>Nitzschia</i>	286	18.17	10.0	1,816.0	29	0.07	10.0	70.0

TABLE 2. Biological data on the edible oyster and green mussel populations of the Coleroon estuary

Species	Length range (mm)	Average length (mm)	Average weight (g)	Stage of maturity	Sex ratio (%)		Condition Index (%)
					M	F	
<i>C. madrasensis</i>							
Station 1	35.0 - 73.0	55.6	24.44	Ripe and spent	72	28	8.76
2	40.0 - 68.0	53.6	26.69	Spent and ripe	87	13	7.60
3	50.0 - 141.0	83.1	81.10	Ripe and spent	47	53	5.84
4	35.0 - 75.0	54.1	21.95	Spent and ripe	75	25	8.43
5	57.0 - 95.0	78.1	63.50	Spent and ripe	61	39	5.61
<i>P. viridis</i>							
Station 4	7.0 - 37.0	18.1	2.79	Details could not be collected due to smaller size of the specimens examined			
5	7.0 - 42.0	21.2	2.41				

species. Biological data on *C. madrasensis* and *P. viridis* collected at different stations are given in Table 2.

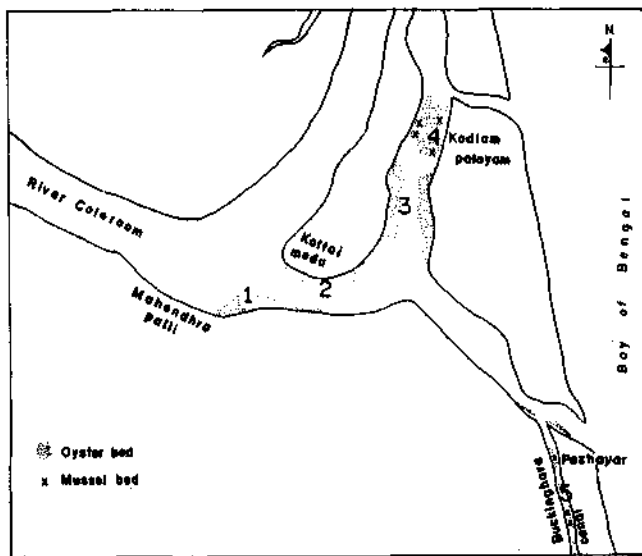


Fig. 1. Distribution of edible oyster and green mussel beds in the Coleroon estuary.

The above data indicate the availability of the edible oyster resource in the area. At present there is no exploitation of this resource. Therefore, there is need for initiating steps to exploit the natural resource judiciously and also for proper utilization. Simultaneously the area can be used for initiating edible oyster and green mussel culture for the following reasons:

The existing rich population of edible oyster is expected to yield substantial quantity of seed, which will be of immense use while establishing culture farms.

Fishing boat movements in the estuary are restricted to the eastern side upto the fishing

harbour. Therefore, there will not be clash of interests between the traditional fishermen and the farmers taking up the bivalve culture. The area near Mahendrapalli is suitable for adopting rack and ren and bottom culture methods for edible oyster and pole and bag method for green mussel.

The estuary has perennial connection with the sea. This helps in keeping the estuarine water properly flushed and mixed. Flow into and from the adjoining mangrove forests makes the area rich in food materials as evidenced by the luxuriant growth of oyster population in the estuary.

Though the green mussel population is not rich the area appears to be suitable for mussel culture also. Availability of seed though in small numbers, is an indication that if suitable seed collectors are provided, there is scope for collecting the seed to initiate the green mussel culture in the estuary. Also seed can be obtained from the nearby Cuddalore Harbour. Since the techniques for green mussel and edible oyster culture are comparable, both the species can be farmed simultaneously so as to optimise the yield.

There is a good network of fishermen co-operatives in the area. This can be advantageously used by entrusting the bivalve culture work to these organisations. Initially inputs and technologies have to be provided by the governmental and semigovernmental organisations and also marketing tie-ups are to be worked out. This can help the fishermen to venture into bivalve culture in this area.

In spite of its vast potential bivalve culture is a new activity which is yet to take firm footing in India. Active support of government and semigovernment organisations in a big way is necessary for propagating the technologies on

commercial scale. Fishermen have to be involved at all stages of the execution of the farming activities and this can help in educating them about the high potentiality of the bivalve culture.