

BABY CLAM (*KATELYSIA OPIMA*) FISHERY IN ASHTAMUDI BACKWATERS

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ABSTRACT

Katelysia opima known as baby clam is exploited from Ashtamudi Backwaters in large quantities. A study during 1982-83 showed that the annual landing is 5436.5 tonnes of this clam with a size range of 20-60 mm. 95% of the catch is utilized for export as frozen clam meat. A brief account on fishing method, fishery and utilization is given.

INTRODUCTION

SEVERAL species of clams found in the estuaries and backwaters of India contribute to sustenance fishery in the coastal areas. The baby clam *Katelysia opima* is third in abundance after Black clam *Villorita* spp. and Great clam *Meretrix* spp. It is known to occur in Kakinada Bay, Adayar Estuary, Vellar Estuary and Kundugal point in the east coast, Lalbalevi Creek in Ratnagiri and Tarkarli Creek near Malwan in Maharashtra in the west coast (Alagar-swami and Narasimham, 1973). The fishery for this species in Ashtamudi Backwaters near Quilon in the southwest coast of India is reported here for the first time.

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FISHING AREA

Ashtamudi is the second largest backwater system of Kerala, located between Lat. 8°45'-9°28'N and Long. 76°28'-77°17'E with a total extent of 32 sq. km area spread over Karunagappally and Quilon Taluks of Quilon

District (Fig. 1). It remains connected with the Arabian Sea throughout the year. About fifteen hectares of area near the bar mouth surrounded by Neendakara and Dalavapuram villages in the north, Saktthikulangara village in the south, Chavara Thekkumbhagom in the east and Saktthikulangara Barmouth in the west (Fig. 1) is the clam fishing area. During March 1982 to February 1983 the salinity of the backwater in the clam bed varied from 10.8‰ to 33.88‰, temperature from 27°C to 35°C, dissolved oxygen from 3.2 ml/L to 5.06 ml/L and pH from 6.5 to 8.5. The depth of the fishing area ranges 1-3 m and the bottom was either muddy or a mixture of loose sand, gravel and broken shells.

FISHING METHODS

The clams (Pl. I A) are exploited either by the traditional method of hand-picking or by hand-operated dredges. Both men and women of the surrounding villages are engaged in hand-picking and fishing activity begins in the early morning, depending on the tide. From waist-deep water fishermen remove the sand either with their feet or by a metal piece, pick out the buried clams and collect them in net bags tied around their waist. A person collects approximately 40-50 kg of clams within 3 to 4 hours daily.

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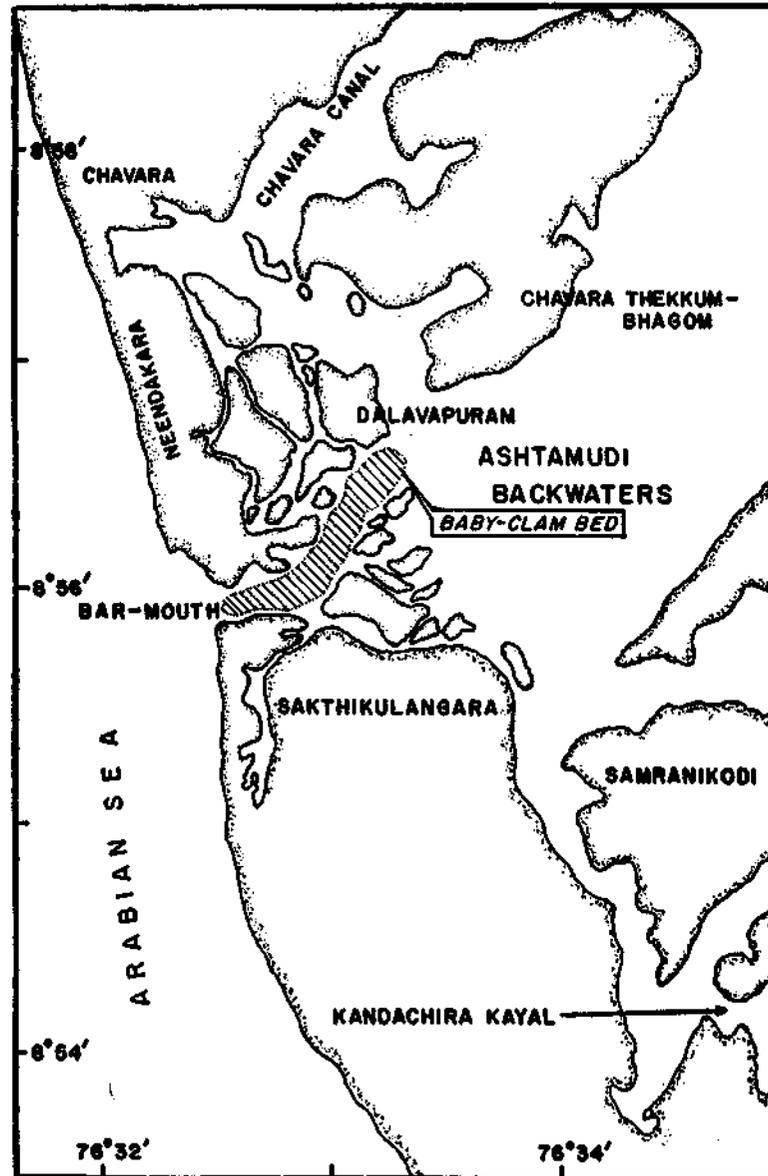


Fig. 1. Ashtamudi Backwaters showing 'baby clam' bed and important landing centres.

In deeper areas two persons go in dugout canoes, dive in turn to depths ranging from 2 to 3 m and collect the clams. Few fishermen use scoop net made of semi-circular iron frame and a nylon net of 30 mm mesh size for collection. As the demand for clams increased the local fishermen started operating hand

dredges, which has reduced much of the physical effort and also increased the catch substantially. The hand dredge consists of a rectangular iron frame with several iron spikes of 4-6 mm size on the base of the frame, pointed downwards. Bamboo, teakwood and casuarina poles or GI pipe of 4-5 m length are

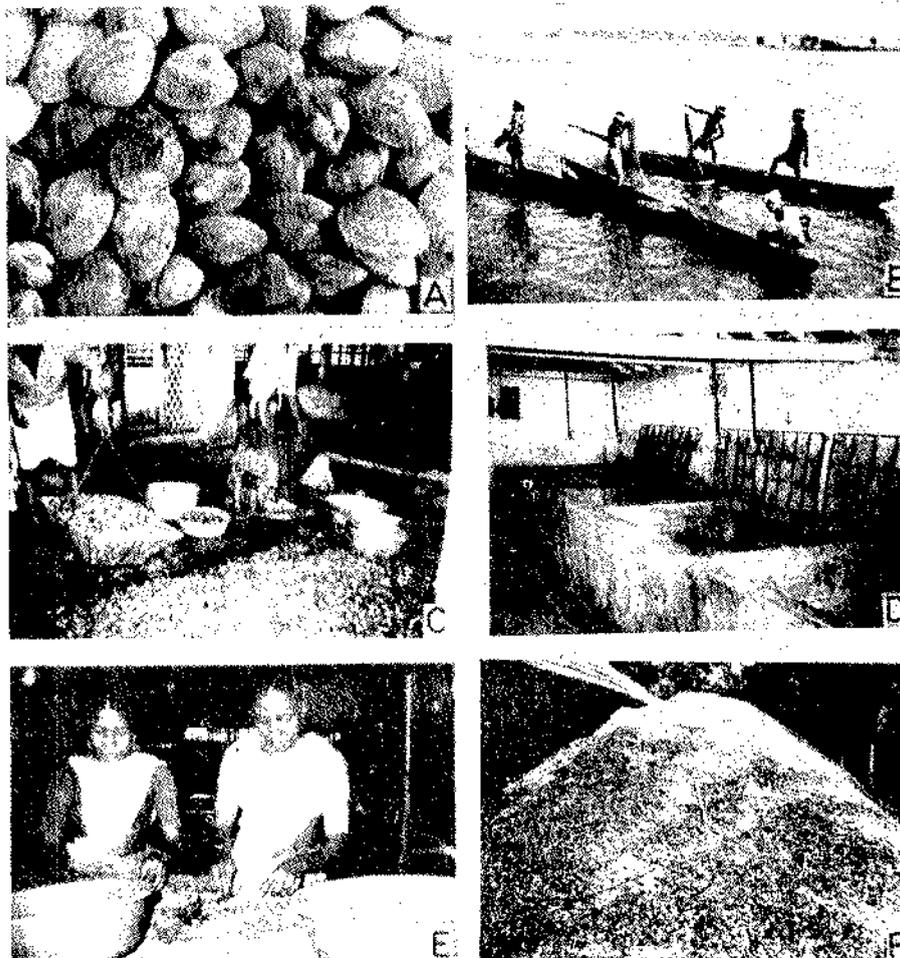


PLATE I. A. *Katevnia ovata*, B. Clam pickers operating the hand dredge from dugout canoes, C. Clams brought to the processing sheds, D. Clam purification tanks with metal false bottom kept above, E. Grading of boiled clam meat and F. Heap of discarded clam shells.

used as the handle of the dredge. The handle is tied or riveted to the iron frame firmly and a conical bag net of 1 - 1.5 m length is attached to this to which the dredged clams are collected. The mesh size of the bag is 30 mm and hence only bigger sized clams are retained in it. Two long nylon ropes are tied to the corners of the free base of the iron frame and another long rope to the cod end of the bag net (Fig. 2). The dredge is operated in areas of 3-4 m depth ;

Regular catch data was collected from landing centres by bimonthly observations on landings and by enquiry with the fishermen and agents who collect clam meat for export. The total clams exploited for the above period was estimated at 5436.5 t with a monthly average at 453.04 t. The maximum landing was observed in November, 1982 with 604.5 t and minimum in April 1982 with 258.75 t. A close examination of the data shows that

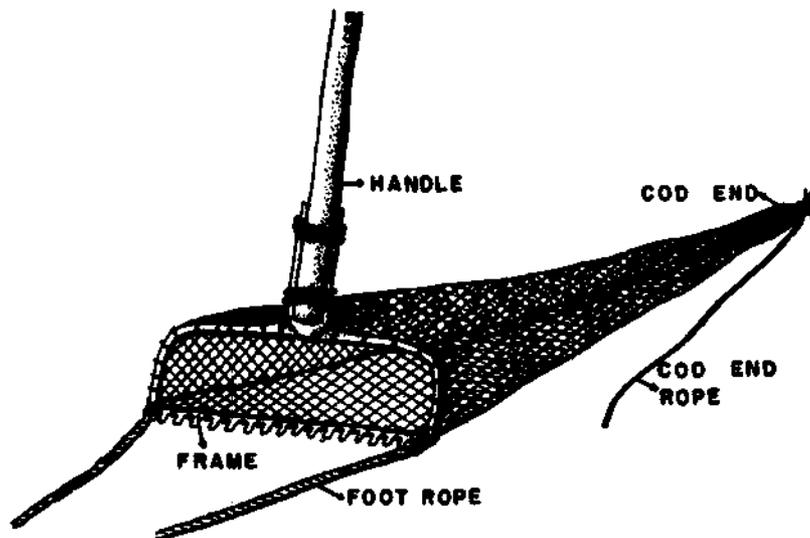


Fig. 2. Diagrammatic sketch of hand dredge used for clam exploitation.

first the dredge is driven to the bottom and the base of the dredge is pulled with the help of long ropes to a distance of 3-4 m. The spikes of the frame act as plough and clams are collected in the bag net. The bag net is slightly lifted occasionally to clear the mud and sand when the bag is fully loaded with clams, it is emptied into the canoe by lifting the dredge (Pl. I B). This process is repeated several times and a single unit usually collect 200-300 kg of clams within 2 to 3 hours every day.

FISHERY

Details of 'baby clam' fishery from March 1982 to February 1983 is presented in Table I.

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from March to May 1982 the catch per month was only 285 t, much below the monthly average for the year. During this period only 20 independent clam pickers and an average 40 canoes were in operation per day for 25 fishing days per month. The catch per day for a diver was 50 kg and catch per canoe was 250 kg. As the export demand for meat increased during the later period of observation as evidenced by the gradual increase in catch, there was increased effort for clam exploitation. From June 1982 onwards the average number of independent divers per day increased to 30 and the number of canoes operated to 70. This accounted for the increase in production all through these months. The total quantity

TABLE 1. *Size composition, average wet meat weight and monthly average catch of Katelaysia opima from March, 1982 to February, 1983 from Ashtamudi Backwaters*

Months	Size composition									Meat wt. percentage	Monthly average catch in kg
	20-24 mm	25-29 mm	30-34 mm	35-39 mm	40-44 mm	45-49 mm	50-54 mm	55-59 mm			
March 1982	..	—	—	2	32	65	1	—	—	17.40	303750
April	..	—	—	—	1	16	63	19	1	28.24	258750
May	..	—	—	13	1	23	48	15	—	17.80	292500
June	..	—	9.1	9.7	12.6	33.7	34.3	0.5	—	16.12	494000
July	..	—	1	14	9	14	51	11	—	13.27	494000
August	..	1.1	14.6	32.6	7.3	3.9	24.1	15.6	0.5	13.46	475000
September	..	—	—	24	27	18	29	2	—	15.82	361000
October	..	—	—	—	—	—	—	—	—	—	456000
November	..	2	11	19	48	20	—	—	—	15.29	604500
December	..	—	—	—	—	—	—	—	—	—	581150
January 1983	..	1	—	20	30	39	10	—	—	23.62	581150
February	..	3	21	16	29	29	2	—	—	16.27	534750
Annual percentage		0.7	6.5	15.9	18.4	25.2	26.6	6.6	0.2		

of boiled clam meat collected for export during one year period was estimated at 543.6 t (10% of landed weight). The weight of shells would be around 3261.5 t.

The fishery is supported by clam of 20-60 mm length with the dominance of 30-49 mm group in all the months. The wet meat weight varied from 13.27% to 28.24% and the maximum was observed during April-May and December-January period. Spawning activity commences by December and lasts till February. Young ones were plenty in the clam beds from January to March.

The exporters collect the clam meat through local agents, who collect the live clams directly from the fishermen and do purification, boiling, meat extraction and grading. The cost of clams varies from Rs. 0.20-0.40 per kg and the meat price ranges from Rs. 3.50-7.00

per kg depending on the demand. The grades 300-500/kg and 500-700/kg always fetch the highest price. When there is good demand for meat, a clam picker could easily earn between Rs. 30-40 daily and two persons going in a canoe using and dredge earn around Rs. 90 a day. One tonne of shells fetch Rs. 150 and this is an additional income for the agents.

UTILIZATION

Till the middle of 1981, clams were collected from Ashtamudi Backwaters mainly for local consumption. The meat was marketed into nearby coastal villages around Quilon and the shells were used for preparing shell lime. By the end of 1981, export of clam meat commenced and the exploitation increased. The sucking of meat is done in 10-15 sheds located at Sakthikulangara, Dalavapuram and South

Chavara. The collected clams are brought to these sheds (Pl. I C), washed twice after sorting and are transferred to purification tanks. Cement tanks $1.5 \times 1.5 \times 1$ m size with wire meshed false bottom are used as purification tanks (Pl. I D). Clams are kept in the tanks for 10-12 hours in well water and water is changed twice or thrice before they bulk of the meat is being sent to Japan. The details of export of frozen clam meat are given in Table 2. Out of the total catch only 5% of the live clam is utilized locally and the rest is exported. The clam shells (Pl. I F) are taken to Tamil Nadu in lorry loads for the calcium carbide industry and a small portion is utilized locally for lime production.

TABLE 2. *Export of frozen clam meat from India during 1981-'83*

Countries			1981	1982	1983	Total
Japan	Q	..	15,600	3,95,696	5,93,754	10,05,050
	V	..	1,11,340	84,42,325	73,60,026	1,59,13,691
U.A.E.	Q	..	—	1,643	—	1,643
	V	..	—	32,743	—	32,743
U.S.A.	Q	..	—	91	2,446	2,537
	V	..	—	3,500	1,17,517	1,21,017
Fed. Rep. of Germany	Q	..	—	—	12,422	12,422
	V	..	—	—	1,30,228	1,30,228
Total	Q	..	15,600	3,97,430	6,08,622	10,21,652
	V	..	1,11,340	84,78,568	76,07,771	1,61,97,679

Q — Quantity in kg.

V — Value in rupees.

Source : Statistics of marine products exports 1983, MPEDA.

are taken out for shucking. Shucking of meat is made easy by keeping the clams in boiled water kept in metal bins of 50-75 litres capacity for 10-15 minutes. The shucked meat is graded according to the number of clams per kg weight (Pl. I E). The standard clam meat grades are 300-500, 500-700, 700-1000, 1000-1500 and 1500 and above. The graded meat is washed twice in chilled water, drained for 5 minutes, weighed in 2.2 kg, quick frozen for 3 hours and stored at -20°C . On thawing the weight of the meat comes around 2.1 kg. Each frozen slab is packed in individual cartons for export. Three freezing plants in Sakthikulangara and two plants at Cochin were collecting the clam meat from Ashtamudi Backwaters for export. Frozen 'baby clams' from India are known as 'Asari' in Japan and

PRESENT STATUS AND PROSPECTS

Rasalam and Sebastian (1976) have given the details of lime shell fishery of Vembanad Lake and pointed out the prospects of shellfish industry in Kerala. The limeshell fishing rights and issue of licences are regulated by the State Department of Mining and Geology which administers the Kerala Minor Mineral Concession Rules 1967 and the rules made thereunder. Though there is a well established licensing system for the black clam *Villorita* spp. in the Vembanad Lake, the clam beds of Ashtamudi are not yet leased out for exploitation. At present the Department of Mining and Geology supervises and levies the sale of shells collected from this area. Though there is no indication of over exploitation of clams at present, the increase in demand may lead

to depletion of clam resources. It is desirable to prohibit removal of juvenile clams and fishing during spawning period. This will give chances for replenishment of the stock. As the demand for meat is increasing day by day, regulations of fishing by licensing system is quite necessary and strict hygienic measures have to be taken to keep up the quality of meat exported. Like the case of shrimp, the clam meat export is increasing. Culture of this clam would offer the best scope for increased production.

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