

ISSN 0254-380 X



भारत अनुप
ICAR

समुद्री मात्स्यकी सूचना सेवा

MARINE FISHERIES INFORMATION SERVICE

No. 143

JUNE, JULY, AUGUST 1996



तकनीकी एवं TECHNICAL AND
विस्तार अंकावली EXTENSION SERIES
केन्द्रीय समुद्री मात्स्यकी CENTRAL MARINE FISHERIES
अनुसंधान संस्थान RESEARCH INSTITUTE
कोचिन, भारत COCHIN, INDIA

भारतीय कृषि अनुसंधान परिषद
INDIAN COUNCIL OF AGRICULTURAL RESEARCH

LARGE SCALE EXPLOITATION OF SACRED CHANK *XANCUS PYRUM* USING MODIFIED TRAWL NET ALONG RAMESWARAM COAST, TAMIL NADU

A.P. Lipton, P. Thillairajan, M. Bose, J.R. Ramalingam and K. Jayabalan
Mandapam Regional Centre of CMFRI, Mandapam Camp - 623 520

Introduction

The sacred chank, *Xancus pyrum* is a gregarious, large gastropod and its habitat forms distinct chank bed. Hornell as early as 1922 described the chank beds in depths of 10 to 20 metres in the Gulf of Mannar and are considered as the most important ones in the country although there are other chank beds along the Gulf of Kutch and the southwest coast of India. The chank bed in the Gujarat coast is found on or above the coral reefs. The fine sand of silky texture with loosely lying small corals, other 'paar' detritus and filamentous green algae support the chanks in the chank beds in Tamil Nadu coast. The chanks are either hand picked from shore area or collected by diving in selected chank beds during certain seasons. They also form by-catches in bottom set gill nets and trawl nets. Along the south Kerala coast, directed exploitation using long lines from December to March is in vogue (Appukuttan *et al.*, 1980. *Mar. Fish. Infor. Serv.*, T & E Ser., No. 24: 10-24.

In Tamil Nadu until recently, the chank fishing at selected centres along the Ramanathapuram coast was the monopoly of the government of Tamil Nadu. Due to the liberalisation of rules, presently specific exploitation is taking place in traditional as well as new chank bed areas. This report highlights the specific exploitation for chanks along the Rameswaram coast and the probable impact of such fishing.

Area and method of specific exploitation

The nets used for the specific exploitation of chanks are colloquially called as "Chanku madi". It is a modified shrimp trawl net to suit the purpose. The grounds off Rameswaram coast from Neduntivu to the adjacent places of Thalaimannar off Sri Lanka coast in a north to south direction at a depth ranging from 12 to 16 m are trawled. The location showing the area of chank fishing is given in Fig. 1.

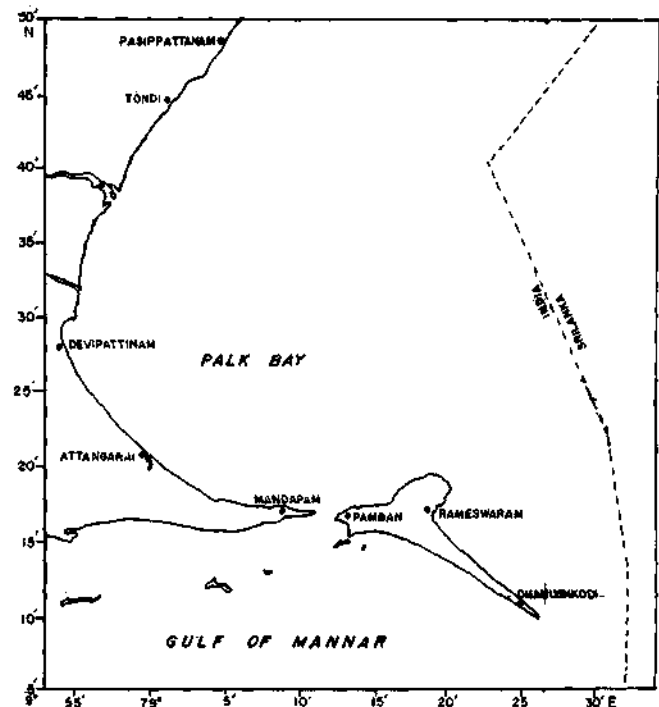


Fig. 1. Areas off Rameswaram in Tamil Nadu where "Chanku madi" is operated for exploitation of chanks.

Details of "Chanku madi" and its operation

In the shrimp trawl net, 110-115 sinkers are attached while in the "Chanku madi" there are 300-350 sinkers per net which totally weigh about 60 to 70 kg. The cod end mesh size in the shrimp trawl is usually 25 mm whereas it is 40 mm in the chank net. The increased mesh size is to clear the mud and other debris which normally clog the small meshes. The trawling speed for "Chanku madi" is kept half (2.5 km/hr) that of the fish trawling speed. Against two hauls each of four hours duration per trip for the shrimp trawl "Chanku madi" is hauled for every half an hour and 10 to 12 such hauls are made per trip. The cost of a "Chanku madi" is Rs. 8,000/- while it would cost Rs. 7,000/- only for a shrimp trawl.

Species composition and catch particulars in "Chanku madi"

As the operation of "Chanku madi" is a clandestine one, the catches obtained are immediately shifted to the chank godowns owned by the persons operating the "Chanku madi". However, it was possible to get information about the catch particulars and morphometric measurements of the chanks. The majority of the catch comprised of the chank *Xancus pyrum* followed by rays, star fishes and sea cucumbers. Table 1 indicates the catch composition of different species of fish and molluscs.

TABLE 1. Species composition observed in "Chanku madi"*

Species	Average catch (in kg)	%
<i>Xancus</i> (= <i>Turbinella</i>) <i>pyrum</i>	153	61.22
<i>Trygon</i> (= <i>Amphottistius</i>) <i>kuhlii</i>	41	16.33
Starfishes and other echinoderms	5	02.04
Holothuria	51	20.41

* Based on 10 hauls.

Morphometric measurements

Among the *Xancus pyrum* the variety *Xancus pyrum* var. *obtusa* (or 'Patti' in Tamil) is the dominant one comprising almost 100% of the population of chanks along the Tamil Nadu coast. The length and MSD-wise frequency of occurrence of the chanks are given in Table 2.

Estimation of total catch of chanks

During the off season for shrimps, the trawlers which operate for specific chank exploitation brought an estimated catch of 150 kg of chank/boat/day which amounted to an estimated monthly catch of 54,000 kg which is equivalent to about 1.5 lakh chanks.

TABLE 2. Length and MSD-wise distribution of *Xancus pyrum* var. *obtusa* caught in "Chanku madi"

Length Class (mm)	Percentage	MSD* Class (mm)	Percentage
91-100	22.6	41-50	07.5
101-110	30.2	51-60	35.9
111-120	11.3	61-70	20.7
121-130	07.6	71-80	13.2
131-140	03.8	81-90	11.3
141-150	07.6	91-100	05.7
151-160	07.5	101-110	03.8
161-170	05.6	111-120	-
171-180	01.9	121-130	01.9
181-190	-	131-140	-
191-200	-	141-150	-
201-210	-	151-160	-
211-220	01.9	161-170	-

*MSD = Maximum shell diameter.

Reasons for exploitation of chanks

There is an increased demand for chank shells over the years and the traditional diving could not cater to the demand. Depending on size, the polished chanks fetch a price ranging from Rs. 150 to 500. The recent price of shells at landing centre and polished product at shops

TABLE 3. Price structure of *Xancus pyrum* shells (1996)

Size as MSD (mm)	Price at landing centre (Rs.)	Price at private godown (Rs.)	Price of polished product (Rs.)
100 to 120	150 to 180	150 to 250	500.00
80 to 100	80 to 100	100 to 150	200.00
70 to 80	60 to 75	50 to 100	150 to 200
60 to 70	25 to 30	35 to 40	50 to 75
60 and below	5.00	10.00	20.00
Wormed	5.00	10.00	-

are given in Table 3. In addition, the dried operculum is sold at a price ranging from Rs. 280 to 450/- per kg. The dried operculum is in great demand and is exported for pharmaceutical purposes as well as for use as an ingredient in incense stick manufacturing industries. Increased profit fetched by the chank more than the shrimps is another reason for the exploitation of the chanks.

Adverse impact of "Chanku madi"

Operation of "Chanku madi" with more number of sinkers and frequent haulings destroys the bottom biota including the chank egg capsules in the chank beds.

In Rameswaram area six traditional chank beds ('Paars') adjacent to coral reefs are totally destroyed by the operation of "Chanku madi". The divers informed that the size of chanks available at present are smaller compared to those of previous years. As chanks are slow growing gastropods and the fecundity is low, the

dislodging of egg capsules by "Chanku madi" will result in the depletion of stocks.

The heavy sinkers of "Chanku madi" plough the bottom sediments 15 cm deep and all the soil biota in this layer are dislodged and damaged. This aspect requires special attention by the authorities as the food chain will be invariably altered/affected. Lured by the income from the sale of chanks and sea cucumbers, nowadays a "Chanku madi" is kept in every trawler in addition to other nets. Whenever trawling for shrimps/fish yields less catch, the "Chanku madi" is operated and rich hauls of shells and holothurians are taken. No doubt the operation of "Chanku madi" will result in the destruction of the bottom biota including chanks and would lead to environmental degradation.

Our sincere thanks are due to Dr. K.A. Narasimham, Head, Molluscan Fisheries Division, to have kindly gone through the manuscript and offered suggestions.