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# 5. *BECHE-DE-MER* INDUSTRY AND EXPORT

## PRESENT STATUS OF THE *BECHE-DE-MER* INDUSTRY IN THE PALK BAY AND THE GULF OF MANNAR

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ABSTRACT

A survey was conducted to study the present status of the *beche-de-mer* from Adirampatnam to Cape Comorin. At present processing of holothurians is carried out from Rameswaram to Sethubhavachatram in Palk Bay and from Pamban to Tuticorin in the Gulf of Mannar. In the Palk Bay, Rameswaram and Thirupalakudi are the most important centres and in the Gulf of Mannar, Kilakarai, Periapatnam and Tuticorin are important centres. Mostly *Holothuria (Metriatyla) scabra* is processed. Very small quantities of *Holothuria (Theelothuria) spinifera* and *Bohadschia marmorata* are also processed. The exploitation is more on the Palk Bay than in the Gulf of Mannar. In most of the places there are indications of overfishing. At present the resource remains untapped from a vast stretch in the Gulf of Mannar from Kilakarai to Tuticorin. The present-day catch and effort from various processing centres are presented.

### INTRODUCTION

The *beche-de-mer* industry has been introduced in the Gulf of Mannar and Palk Bay by the Chinese nearly 2000 years ago. Industry changed little during its long history towards modernisation. On the other hand due to carelessness and averciousness of the local people the industry further deteriorated. Hornell (1917) made a survey of the industry and studied its revival. He took up the invesigations when the industry was a low ebb. James (1973) surveyed the Gulf of Mannar and Palk Bay and presented a picture of the industry then existing. He also made observations on the status of the industry in other communications (James, 1986, 1987, 1988 a, b). Production of *Holothuria scabra* has been estimated to be about 100 - 150 tonnes per annum from the Palk Bay and the Gulf of Mannar on the Sri Lankan Coast (Anon., 1984). However such estimates are lacking on the Indian side.

In order to make a detailed study of the present status of *beche-de-mer* along the Gulf of Mannar and Palk Bay, a survey was conducted from Adirampatnam down to Cape Comorin covering a distance of roughly 300 kilometres. As far as possible all the proccessing centres have been visited. On the day of visit the catch and effort was noted and enquiries were made about all the details of *beche-de-mer* industry. Total length and weight of the fresh specimens were also noted. At all the centres about 50 numbers of *beche-de-mer* samples were measured at random to find out the average size and the percentage of samples above 75 mm in length. The details of all the information collected during the survey is presented in Table 1 and 2.

There are more processing centres along the Palk Bay than the Gulf of Mannar (Tables 1 and 2). The Palk Bay is shallow and more productive so far as sea-cucumbers are concerned. Beyond Mallipatnam in the north no sea-cucumbers are ccollected and processed. At Adirampatnam there is no industry at all. South of Tuticorin no industry exists. It is of interest to note that 20 years back no industry existed at Tuticorin also.

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TABLE 1. *Details of sea-cucumber fishing in the Palk Bay*

| Date | Place | Mode of collection | Depth (m) | No. of units | Total nos. of of sea-cucumber observed | Total wt (kg) | Species | Rate per specimen | No. of persons per unit | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 16.6.87 | Rameswaram | Diving | 4.5 | 60 | 91 | 27.300 | *H. scabra*<br>*H. spinifera* | Rs. 3/-<br>Rs. 0.50/- | 12 | *Beche-de-mer*<br>above 3" - 67%<br>below 3" - 33% |
| 16.6.87 | Mandapam | Trawl | 3-6 | 100 | 4 | 1.600 | *H. scabra* | Rs. 5/- | - | - |
| 17.6.87 | Devipattinam | Diving | 2-3 | 1 | - | - | *H. scabra* | Rs. 3/- | - | Above 3" - 67%<br>below 3" - 33% |
| " | Tirupalakudi | Diving | 2-6 | 50 | 3280 | 453.000 | *H. scabra* | Rs. 0.50-6.00 | 8-10 | Below 3" - 71%<br>Above 3" - 29%<br>1" - 12-15/kg<br>3" - 90-110/kg<br>4" - 150-170/kg |
| " | Mullimunai | Diving &<br>Thalluvalai | 2-6 | 20(12)<br>4 | 101<br>18 | 30.000<br>9.000 | *H. scabra*<br>*H. spinifera* | Rs. 0.50-3.00/-<br>Rs. 0.50/- | - | Below 3" - 65%, Above 3"-35%<br>Av. length - 183 mm<br>Av. weight - 215 g |
| " | Karangadu | Diving | 2-5 | 20(3) | - | - | *H. scabra* | Rs. 3.00/- | - | - |
| 18-6-87 | Thondi | Thalluvalai | - | - | - | - | *H. scabra* | Rs. 1.50-4.00/- | - | Below 3" - Rs. 45/kg<br>Above 3" - Rs. 15-170/kg |
| " | Pasipattinam | Thalluvalai<br>& Diving | - | 1 | 10-50 nos<br>1 or 2 nos | - | *H. scabra*<br>*H. spinifera* | Rs. 5.00/- | - | - |
| " | Pudupattinam | Diving &<br>Thalluvalai | - | 3 | 40-100 | - | - | Rs. 4.00/- | 5-7<br>2-4 | Above 3" - Rs. 170/- |
| " | Kottaipattinam | Diving &<br>Trawl | - | 100-150<br>1 or 2 | - | - | *H. scabra* | Rs. 4.00/- | - | - |
| " | Ammapattinam | Thalluvalai | - | 10-50 | - | - | *H. scabra* | - | - | - |
| 18.6.87 | Kattumavadi | Thalluvalai | - | - | 50-100 nos | - | *H. scabra* | Rs. 0.50/-<br>to 4.00<br>Average length in fresh condition is 280 mm. | - | 3"- Rs. 100-150/kg<br>4"- Rs. 200/kg<br>Below 3"-Rs. 40-50/kg<br>Below 3" - 21%<br>Above 3" - 79% |
| 19.6.87 | Sethubava-chatram | Diving &<br>Thalluvalai | - | 8(2-3) | 750 | 225.000 | *H. scabra* | Rs. 5.00/- | 18-20<br>large boat<br>4-7<br>small boat | Below 3" - 32%<br>Above 3" - 68%<br>Av. length - 205 mm<br>Av. wt - 134 g. |
| " | Mallipattinam | Thalluvalai | - | - | 1-2 nos | - | *H. scabra* | Rs. 1-2.00/- | 4-5 | 6" - Rs. 140/kg<br>5" - Rs. 80/kg<br>3" - Rs. 40/kg |

## REMARKS

As a result of intensive fishing there are signs of over exploitation at many centres particularly along the Palk Bay. *Beche-de-mer* below 3" (75 mm) accounted more than 70% at some of the centres. The industry is not organised properly and the role of middlemen exploiting the divers was noticed. Often the divers take advance from the processors and are obliged to hand-over the material to the brokers or middlemen who advanced money. The processing is done under most unhygenic conditions. The sea-cucumbers are boiled in rusted oil tins which allows very little stirring during boiling. However, it is gratifying to note that in some of the centres sea-cucumbers are boiled in large aluminium vessels (Pl. I A). This is often resorted to when material is limited. It is best to have saucer shaped cast iron pans for boiling the sea-cucumbers since it allows equal distribution of heat and also facilitates better stirring during boiling. The practice of drying them on sand still continues at some of the centres. One recent innovation in the industry is the introduction of aluminium plates as 'flippers' (Pl. I B) for the divers. Since rubber flippers are costly, divers have taken to the aluminium plates. While these flippers no doubt give the divers greater mobility and manoeuvrability under water it gives them greater chance to pick up more material including smaller forms in a short time. With the advent of mechanised fishing small quantities of sea-cucumbers are caught in trawlers and in some places like Mandapam, material from trawlers alone sustain the fishery. In recent years *'Thaluvalai'* has been introduced mostly for prawns living among algae. Small quantities of sea-cucumbers are also caught in this gear accidentally.

One of the major problems during processing of *Holothuria scabra* is the thorough removal of white chalky deposits over the cured product. Often due to imperfect boiling, decomposition of outer layer and cleaning of the material, the white matter sticks to the product grading poor quality of the material. In order to overcome this problem, Sachithananthan *et al.* (1975) deviced a de-scummer in Sri Lanka for this purpose. The use of the de-scummer remains to be tested in India.

TABLE 2. *Details of sea-cucumber fishing in the Gulf of Mannar*

| Date | Place | Mode of collection | Depth (m) | No. of units | Total nos. of sea-cucumbers observed | Total weight (Kg) | Species involved | Rate per specimen | No. of persons per unit | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 4.12.87 | Chinnapalam | Thalluvalai | - | 50(10) | 4 | 0.800 | *H. scabra* | Rs. 1.00 | 2 | Av. length-200 mm<br>Av. wt - 258 g |
| " | Mandapam | Trawl | - | 18 | 65 | 16.250 | *H. scabra* | Rs. 1.00-6.00 | - | Av. length-178 mm<br>Av.wt - 246 g |
| 5.12.87 | Seeniappadarga | Thalluvalai | - | - | No holothurian landing on that day | | | - | - | - |
| " | Periapattinam | Diving | - | 50 (12) | 66 | 22.000 | *H. scabra*<br>*H. spinifera* | Rs. 4.00<br>Rs. 0.50 | 10-12 | Av. length - 210 mm<br>Av. wt. - 320 g |
| " | Kilakarai | Diving | 2-5 | 25(4) | 261 | 98.000 | *H. scabra* 47.5%<br>*H. spinifera* 39.5%<br>*B. marmorata* 13.0% | Rs. 3.00<br>Rs. 0.50<br>Rs. 2.50 | 10-12 | Av. length - 223 mm<br>Av.wt. - 372 g<br>(*H. scabra*) |
| " | Tuticorin | Diving & Thalluvalai | 2-5 | 30 | 397 | 120.000 | *H. scabra* | Rs. 8.50<br>Rs. 10.00 | 5 | Above 3" - Rs. 100/kg |

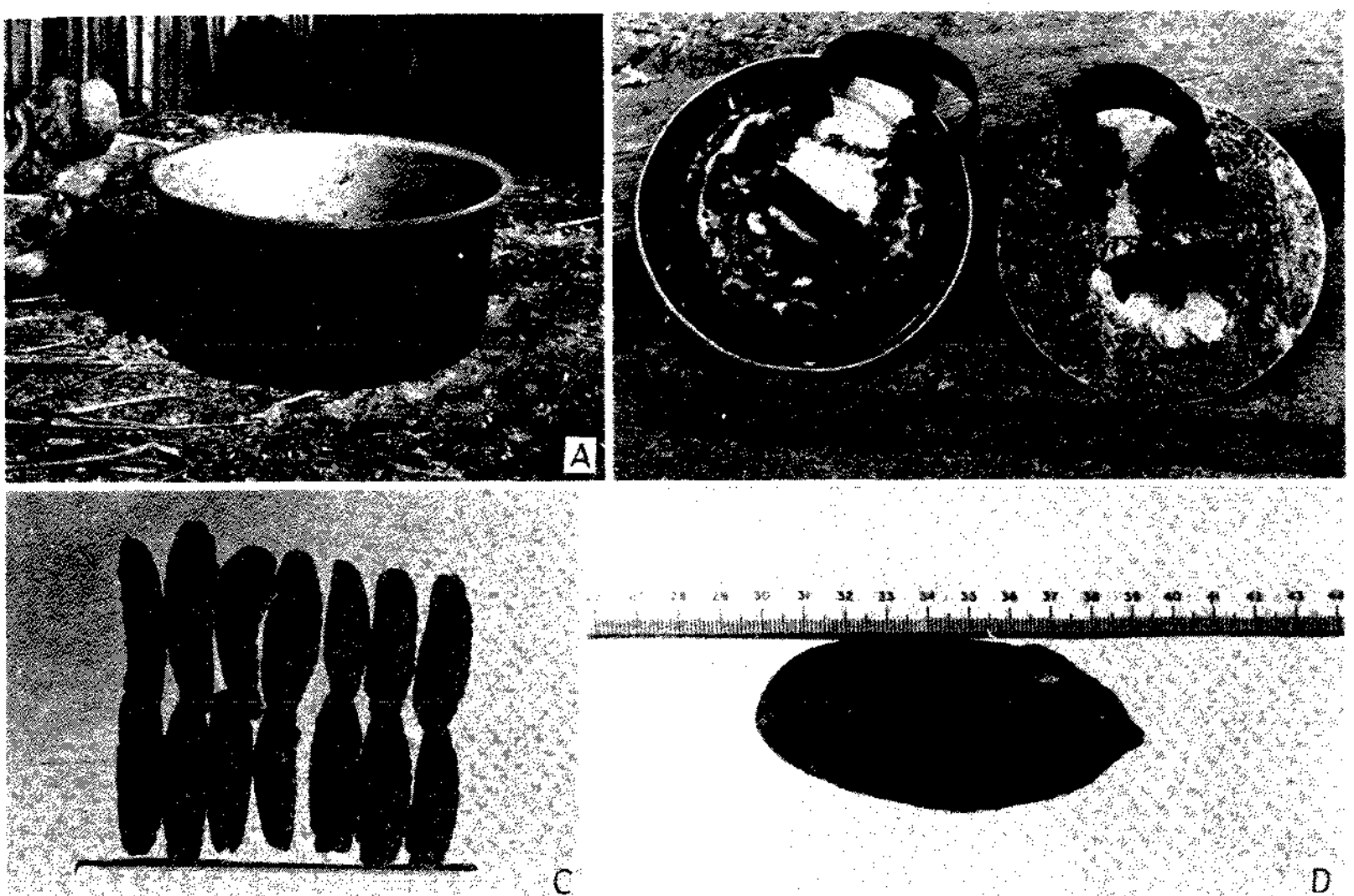


Plate I A. Aluminium vessel used instead of iron drum, B. Aluminium plates used as 'flippers', C. Processed *Actinopyga echinites* and D. Processed *Actinopyga miliaris*.

It is urgently needed to extend the fishery to other centres to avoid over exploitation at particular centres. For example between Kilakarai and Tuticorin extending over 100 km, no collection of sea-cucumbers is made. The resource is available since the same nature of bottom and hydrographical conditions exist between the two points. South of Tuticorin some populations are encountered upto Overi, but again no collection and processing is done. The industry which mainly depended on *Holothuria scabra* and also *Holothuria spinifera* which was once rated very high in value has not much demand today for the latter species. At some of the centres like Kilakarai *Bohadschia marmorata* is processed. Because of the high price offered (large size *beche-de-mer* is sold Rs. 600 per kg), the processors are evincing interest even in *Holothuria atra*. This is a welcome change for the industry since it relieves the fishing pressure on a single species which was processed 20 years ago. *Holothuria atra* is processed in Philippiness and Thailand (Trininad - Roa, 1987; Wainiya, 1988).

## New Resources from the Gulf of Mannar and Palk Bay

Although the Indian *beche-de-mer* industry is very old, all these years only *Holothuria scabra* was processed and to a very minor extent *H. spinifera*. At Kilakarai some species of *Bohadschia marmorata* were collected and processed in a small way.

The species of *Actinopyga* though reported from Sri Lanka were never recorded from the Gulf of Mannar on the Indian side. Only in 1989 a few specimens of *Actinopyga echinites* (Pl. I C) locally known as Paar attai due to its habit of attaching to the parrs, were collected. Regular fishery for this species started. It is fished from Vedalai, Kilakarai Periapatnam and Pamban. Annualy about 25 tonnes are fished. Kilakarai is the major centre followed by Periapattinam, Vedalai and Pamban. Only stray specimens could be collected from Tuticorin. This species is collected at a depth of 3 to 7 metres. The sea-cucumbers ranged in length from 110-265 mm and weight in fresh condition ranged from 140-430 g. The price of each specimen varied from Rs. 1.50 to 3.50. The processed product is sold at the rate of Rs. 120 to 150 per kg.

Another species of *Actinopyga* namely *A. miliaris* (Pl. I D) known locally as Pal attai was exploited in large scale from Tuticorin from January 1992. The specimens are collected from a depth of 20-30 metres. During the first three months a total of 90,000 specimens were collected for processing. The length varied from 150-350 mm and the weight varied in fresh condition from 150-1150 g. Fresh species were sold at Rs. 3.00 to 4.50 and the processed material costs Rs. 100.00 to 150.00. In each kilogram 15-20 specimens depending on the size is weighed. During January-March '92, material worth of Rs. 5 lakhs is collected from Tuticorin alone.

Processors started exploiting *Holothuria atra* locally known as Kuchi attai from January, chielfly from Vedalai and also small quantities from Kilakarai. The length varies from 130-310 mm and the weight in fresh condition varies from 50-210 g. This species yield a very low quality *beche-de-mer*. One kg of processed material costs Rs. 50.00 only.

Hornell (1917) when he made the survey of the industry he mentions Tirupalakudi as the most important centre for processing of holothurians. Even today Tirupalakudi remains as the best centre for sea-cucumbers, other important centres on the Palk Bay side are Devipattinam and Rameswaram. In Rameswaram in addition to the material collected by the divers the holothurians coming in the trawlers are also used in processing. Earlier not much information was available on the resources from Mandapam. Now Kilakarai and Periapattinam have emerged as most important centres on the Gulf of Mannar side. In Kilakarai nearly 40% of the material collected belongs to *H. spinifera*. This is due to the fact that collections are made in a little deeper waters where *H. spinifera* is available. At Kilakarai 13% of the specimens collected belong to *Bohadschia marmorata* which is again a deeper water species.

Regarding the price there are a lot of variations for the same species depending on the centre where it is collected. Specimens collected

by Thalluvalai generally fetch lower price since most of them are a little damaged, specimens of *Holothuria scabra* collected by Thalluvalai varied from Rs. 1 to 4, whereas those collected by diving cost Rs. 3.50 to 10. Generally specimens collected at Tuticorin are a little more costly due to the stiff competition at the auction site. A single large specimen may even fetch as much as Rs. 15/- at Tuticorin whereas at smaller places like Kattumavadi the same specimen will not cost more than Rs. 5/-. *Holothuria spinifera* which was once considered as a high quality species now does not command much price. In fact the buyers at the time of purchase first remove *H. spinifera* specimens and only at the end for each specimen Rs. 0.50 is paid. At Kilakarai single specimen of *B. marmorata* costs Rs. 2.50 because of the large size.

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