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STOMATOPODS AS A POTENTIAL RESOURCE

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ABSTRACT

The stomatopods are consumed by people as food in some countries like the Philippines and Japan in the Indo-Pacific region. In the south west coast of India stomatopods are landed in fairly large quantities by the shrimp trawlers. The catch mainly constitutes a single species, namely, *Oratosquilla nepa*. It forms nearly 10 to 20% of the catch in a shrimp trawler. At present they are used only as manure. The present price value of stomatopods caught by a single shrimp trawler in a day varies from Rs. 5 to Rs. 50 depending on the catch. The flesh content in stomatopods is little but it could be consumed as food or could very well be converted into fish meal. There is considerable scope for the development of this potential resource.

INTRODUCTION

CONSIDERING the magnitude of the quantities landed along the entire coastline of India by the indigenous craft and the mechanised trawlers the stomatopods are an important group of crustaceans, although they are not fully utilised in the country. They are used for human consumption in certain places in the Indo-Pacific but in India they are not used as food. In the south west coast of India the stomatopods are known by different names like "Panni Pulu" in Neendakara; "Chelli" in Alleppey and Cochin; "Pushu" in Calicut and Cannanore and "Puchee" or "Puccha" in Mangalore. The stomatopods form a minor percentage in the commercial catches of the indigenous craft. With the initiation of large scale trawling operations in the south west coast of India in recent years, stomatopods are being caught in quantities and form a good percentage of the catches particularly in certain months. These animals are either thrown back to sea or sold cheaply in certain localities to be used as manure. With the increasing demand for food from all sources it is hoped that this neglected group would in due course be properly utilised as human food, poultry feed or manure. The present contribution is an attempt to understand the nature of the resource.

SPECIES OF ECONOMIC IMPORTANCE

Oratosquilla nepa (Latreille) is an important species in India due to its magnitude of catch. It is widely distributed and is reported from Arabian Sea, Bay of Bengal, Singapore, Philippines and Hong-Kong. It grows to about 14 cm in length. *Harpisquilla raphidea* (Fabricius) is a common species which grows to a large size of about 25 cm in length and is known from Bombay, East Coast of India, Singapore, Borneo and Japan. *Oratosquilla holoschista* (Kemp) occurs in South west coast of India, Ceylon, east coast of India, Java and Philippines and it grows to about 9 cm. *Oratosquilla woodmasoni* (Kemp) reaches to a length of about 12 cm and it is known from Persian Gulf, Arabian Sea, Bay of Bengal, Australia, Java and Japan. Nair (1941) reported that *Oratosquilla holoschista*, *O. nepa*, *Harpisquilla raphidea* and *Oratosquilla woodmasoni* are sold along with prawns and crabs in the markets at Madras.

The edible mantis-shrimp *Oratosquilla oratoria* (de Haan) which is consumed as food in Japan grows to about 15 cm in length and is known from Hawaiian Islands, Singapore, Philippines, China

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and Japan (Kubo *et al.*, 1959). Roxas and Estampador (1930) have observed that *Oratosquilla nepa*, *O. oratoria* and *Harpisquilla raphidea* are sold in Manila markets in Philippines. Tweedie (1934) reported that in fish markets of Singapore, stomatopods are sold for food. According to Kemp (1913) *Harpisquilla raphidea* are sold in the market at Akyab, Burma.

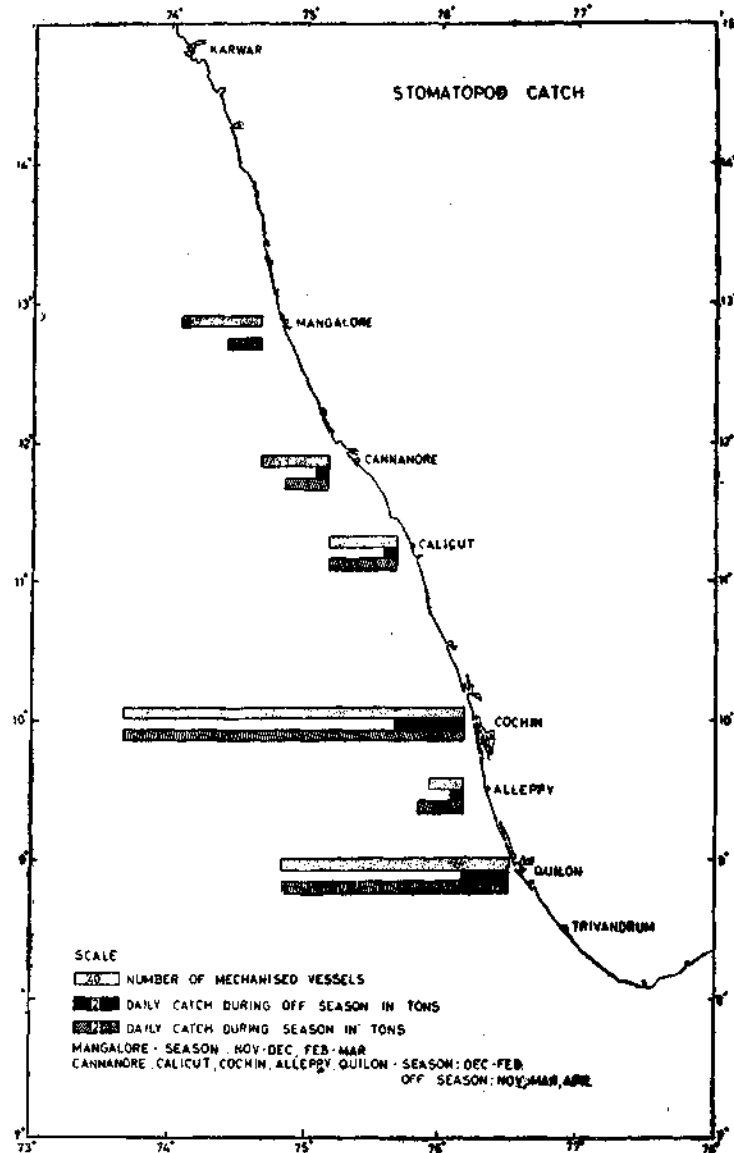


FIG. 1. Stomatopod landings by mechanised vessels along the south western coast of India.

FISHERY

There is no fishery exclusively for stomatopods and the catches are incidental along with prawns and fishes. In Bombay 'dol nets' land large quantities of stomatopods. In the shrimp trawl

catches of south west coast of India, stomatopods make their appearance in considerable quantities from November and continue to be caught in large quantities till April. The peak period of occurrence is from December to February. The catches are mainly constituted by a single species namely *Oratosquilla nepa*. The sizes of specimens caught range from 5 cm to 10 cm. The percentage composition of stomatopods in the general catch varies considerably from 10 to 50% during December to February.

In Neendakara region alone where more than 200 mechanised vessels operate the catch of stomatopods during the peak period exceeds more than 10 tons a day. During November, March and April nearly 2 tons are caught daily. In areas near Alleppey more than two tons of stomatopods are landed in a day during December to February and nearly half a ton during other months. In the Cochin region more than 15 tons of stomatopods are caught daily during peak periods and nearly three tons during other months. Along Calicut coast trawl nets catch daily more than 3 tons of stomatopods during December to February and nearly half a ton during November, March and April. In the Cannanore area the daily catch of 70 mechanised vessels during peak period is nearly two tons and during other months more than half a ton. At Mangalore, (Visweswariah *et al.*, 1966) reported a catch of nearly one to one and half tons of *Squilla* daily by 70 mechanised vessels during the two seasons November–December and February–March.

A modest estimate of stomatopods caught by trawl nets along the south west coast of India would be nearly 30 tons per day during December to February and nearly six tons during November, March and April.

As fishermen consider stomatopods as unsuitable for food, the general catch is sorted out at the sea and these mantis-shrimps are thrown back to sea. The remaining portion of the catch is brought to shore and sorted. It is noticed that when stomatopod percentage in the general catch is less, the fishermen are able to sort the whole catch at sea and bring only prawns and fishes to shore. Thus enormous quantity of stomatopods that are caught is thrown back to sea. It is a common sight to see heaps of stomatopods at the fish landing centers like Neendakara, Cochin, Calicut, Cannanore and Mangalore during the peak period. In Alleppey region and at Azhikode, stomatopod catches are sold to be used as manure. In these places the catch in a single trawler fetches from Rs. 5 to Rs. 50 depending on the catch.

DISCUSSION

The possibilities of better utilisation of these crustaceans which are caught in large quantities are to be examined properly. Generally the flesh content in stomatopods is poor but the larger species like *Harpisquilla raphidea* have comparatively better meat content and could be consumed as food. The conversion of the heavy catches of these animals along the south west coast of India into fish meal is a proposition worth investigating. Visweswariah (*et al.*, *loc. cit.*) have reported a process for the manufacture of poultry feed from *Squilla*. The process is simple and consists in dip-treatment of the material for 24 hr in a 10% brine solution containing 0.25% formaldehyde (2:1) followed by cooking, pressing, sun drying and finally pulverizing. They have also given cost estimates for commercial manufacture for 1 ton meal capacity a day. They found by preliminary feeding trials in the Government Poultry Development Farm, Mangalore, and a few piggery farms that the product is quite good as feeding material. They have rightly pointed out that as the process is simple, it can be profitably worked out by fishermen themselves.

The observations point out that the enormous catch of stomatopods caught in the south west coast of India could be properly utilised as human food, poultry feed or manure. Further investigations on these lines are called for. There is considerable scope for the development of this potential resource.

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REFERENCES

- KEMP, S. 1913. An account of the Crustacea Stomatopoda of the Indo-Pacific region based on the collection in the Indian Museum. *Mem. Indian Mus.*, 4(1) : 1-217, 10 text-figs. pls. 1-10.
- KUBO, I., S. HORI, M. KUMEMURA, M. NAGANAWA AND J. SOEDJONO 1959. A biological study on a Japanese edible mantis-shrimp *Squilla oratoria* de Haan. *J. Tokyo Univ. Fisheries*, 45(1): 1-25, text-figs. 1-16.
- NAIR, K. B. 1941. On the embryology of *Squilla*. *Proc. Indian Acad. Sci.*, 14B(6): 543-576, pls. 29-30, text-figs. 1-32.
- ROXAS, H. A. AND ESTAMPADOR, E. 1930. Stomatopoda of the Philippines. *Nat. appl. Sci. Manila*, 1: 93-131, pls. 1-6.
- TWEEDIE, M. W. F. 1934. Notes on Stomatopoda in the Raffles Museum. *Bull. Raffles Mus.*, 9: 33-41, pl. 1.
- VISWESWARIAH, K., V. S. VERNEKAR AND K. NALINI SHETTY 1966. Processing prawn head waste and *Squilla* as poultry feed. *Research and Industry*, 11(1): 5-8.