CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
ERNAKULAM, COCHIN - 682 031, INDIA

R & D SERIES FOR MARINE FISHERY RESOURCES MANAGEMENT

18. SQUILLA (MANTIS SHRIMP) FISHERY OF KARNATAKA STATE

The stomatopod squilla, locally known as 'pucha' or 'puchi' (Malayalam: *Chelli*), are marine crustaceans, caught in varying quantities exclusively by shrimp trawlers operating up to 50 m depth all along the east and west coasts of India. Owing to the presence of large number of spines on the body and the low flesh content, it is not being eaten at present in our country. However, it is in considerable demand since it is a good raw material for converting into fishmeal, poultry feed and manure.

Magnitude of Fishery

Squilla contributes to an estimated 1.8% of the all-India marine fish landings of the country. The maximum production comes from Karnataka with an annual average of 9399 tonnes, forming around 36% of the all-India stomatopod catch (the average of 1981-82 to 1983-84).

Investigations on the Squilla resource have been carried out by Central Marine Fisheries Research Institute

*Prepared by K. K. Sukumaran, Scientist S2

at different centres. It is seen that maximum production is recorded in Karnataka. At Mangalore, it is estimated that 3172 tonnes of squilla were landed annually during 1981-82 to 1985-86, forming 10.8% of the marine fish catch at this centre Similarly, at Malpe Fisheries Harbour, 2280 tonnes were landed forming 12.0% of the annual average fish landings of this centre. At Karwar, the Squilla catch amounted to 401 tonnes during 1985-86.

The average annual catch rates per hour were 14.2 kg, 13.9 kg and 9.9 kg at Mangalore, Malpe Fisheries Harbour and Karwar, respectively. Even though the squilla are landed from November to May, peak catches are generally during January-February.

Although a number of species have been reported from Indian waters, the fishery along the Karnataka coast is exclusively supported by a single species, ie., *Oratosquilla nepa*.

Mode of Utilization

Squilla along with the 'trash' fish are a good raw material for fishmeal, poultry feed and manure. Since the landings of squilla are very heavy at Mangalore and Malpe Fisheries Harbour, a number of fishmeal plants have come up in the area in recent years for converting it into fishmeal and poultry feed.

Most of the squilla catches at Mangalore are taken to the fishmeal plant at Ullal, a nearby fishing village, where they are converted into fish meal/poultry feed. At Malpe, the catches are generally sun-dried in the harbour premises, and sold as manure. Part of the catches is also converted into fishmeal and poultry feed by the processing plants situated in the neighbourhood and the latter is sent to Andhra Pradesh and Tamil Nadu.

Even though the flesh content in squilla is relatively low, the protein content is high; and so the possibility of using it as food or converting it into food products is worth examining.

Feasibility studies have already been carried out by Central Institute of Fisheries Technology, Cochin, and Central Food Technological Research Institute, Mysore, for extracting 'chitosan', a highly valuable commercial product, from the exoskeleton of squilla. However, the commercial production of 'chitosan' is not attempted, probably because of the high cost involved in it. It is high time that investigations are taken up to evolve low-coast technologies for the same.

Market Price

In Karnataka, squilla in the raw form fetch a price any where between Rs 750 and Rs 1000 per tonne. When dried, they fetch Rs 2000 to Rs 3000 per tonne.

Stock Assessment

The population characteristics of *Oratosquilla nepa* has been investigated from the Karnataka coast during 1980-87. The estimates of the instantaneous total mortality coefficient (Z), the instantaneous natural mortality coefficient (M) and the instantaneous fishing mortality coefficient (F) are 0.94, 0.14 and 0.8 respectively. The age at recruitment (tr) and age at capture (tc) are 0.3 year and 0.67 year respectively. The exploitation rate is estimated at 0.52 in this species. The annual average stock and the average standing stock for this area are estimated at 6100 tonnes and 3965 tonnes, respectively, against an annual average yield of 3172 tonnes. The present fishing pressure is shown to be just enough to obtain maximum sustainable yields in this species and hence further addition of effort may not result in better yields.