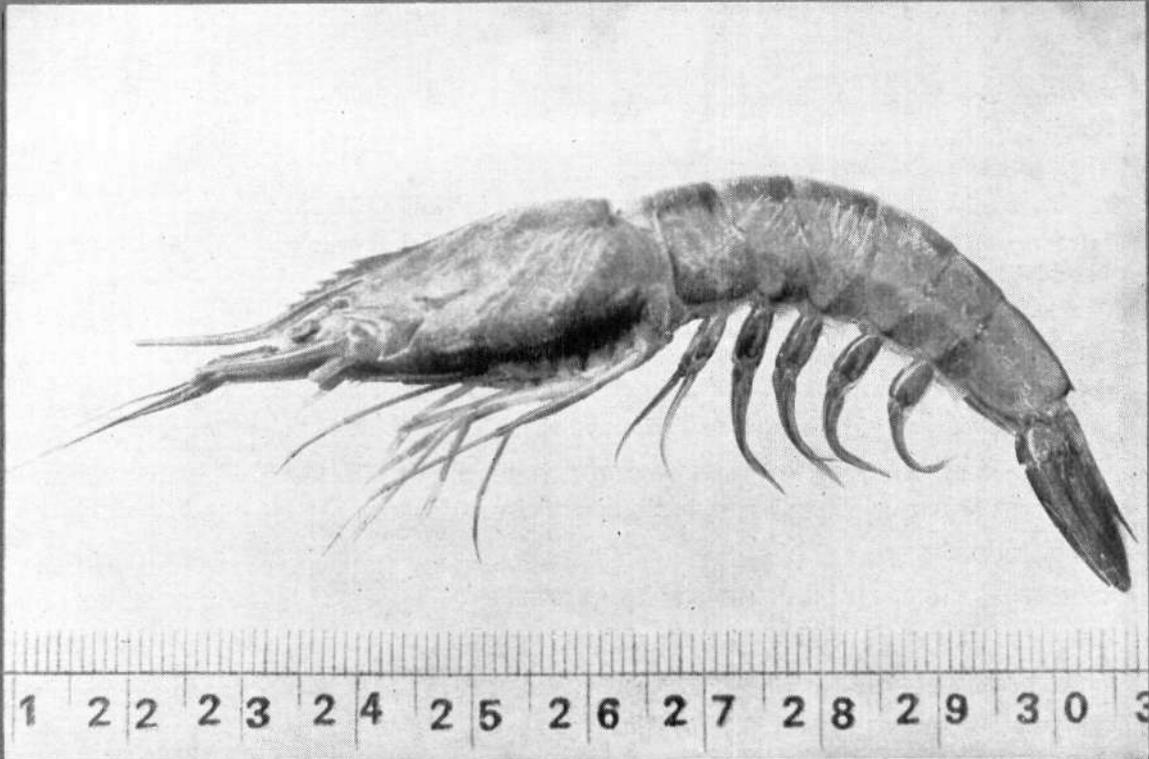




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केन्द्रीय समुद्री मात्स्यकी अनुसंधान संस्थान कोचिन, भारत CENTRAL MARINE FISHERIES RESEARCH INSTITUTE COCHIN, INDIA

भारतीय कृषि अनुसंधान परिषद
INDIAN COUNCIL OF AGRICULTURAL RESEARCH

ON THE SCOPE FOR MARINE FISHERIES RESEARCH AND DEVELOPMENT IN THE ANDAMAN AND NICOBAR ISLANDS

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The author had an opportunity to visit the Andaman and Nicobar Islands from March 1 to 8, 1989 and again from September 22 to 24, 1989. During these visits, extensive field observations have been made in and around Port Blair, Ross Island, Aberdeen Bay, Phoenix Bay, Junglighat, areas around Chatham Island, Viper Island, Chiriyatapu, Corbin's cove, Chippighat, the National Marine Park at Wandoor, Red Skin Island and other islands in the National Marine Park area, Mayabunder,



Fig. 1. Traditional fishing crafts at Mayabunder.

Rangat and the Car Nicobar Island for an on-the-spot study of marine fisheries development and for examining the possibilities of further research and identification of suitable sites for sea farming. Visits were also made to the fish markets, fish landing centres, boat building yard and cold storages.

The CMFRI made an appraisal of the marine fisheries resources of Andaman and Nicobar Islands (*CMFRI Spl. Publ., No. 39, 1987*). The potential for marine fisheries resources in the EEZ around the Andaman and Nicobar Islands has been estimated to be in the range of 50,000 to 160,000 t, of which the tunas

may account for about 100,000 t. However, the present rate of exploitation of marine fisheries resources is so meagre that it contributes to an annual production of 11,210 t (1988).

Marine fishing at present is confined to the artisanal fisheries limited to the very narrow belt of the coastal areas which can be reached by the indigenous fishing crafts operating the traditional fishing gears. Because of the topography of the islands and the abrupt depths from the coastline, shore based fishing activities have great limitations. Since the bottom topography is also uneven and rocky, areas suitable for demersal fishing are also very limited. It is obvious therefore that the rich fisheries wealth around these islands have to be exploited by suitable craft and gear specially oriented for the pelagic fisheries resources. This would

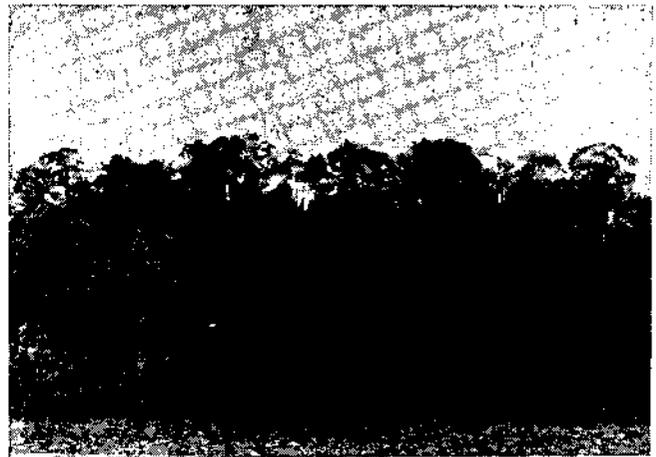


Fig. 2. Coastal vegetation including mangroves at Port Blair

require large scale investment and development of infra-structural facilities for operating medium sized and large vessels adopting different fishing methods. Simultaneous arrangements have also to be made for handling the catches, processing them and marketing on the islands as well as transportation to the mainland and for export.

During the field visits to different places it was observed that at different places along the coastline, the fishes captured included sardines, mackerel, ribbon fishes, carangids, half-beaks, needle fish, barracuda, *Ilisha*, *Lactarius*, silver bellies, perches, goat fishes, sciaenids, cat fish, *Scatophagus*, sharks and skates. The limited catches of prawns are represented by *Penaeus merguensis*, *P. monodon* and *P. semisulcatus*. A variety of marine ornamental fishes were noticed in certain locations especially where the corals have a luxuriant growth.

From the marine fisheries research angle, it may be mentioned that the CMFRI has conducted extensive studies in the islands from the year 1962. The Institute, in the beginning, carried out surveys of fish landings and collected catch statistics, species composition and studied biology and population structure of important species like lesser sardines, anchovies, mackerel and some perches. The fish fauna of the islands was documented. In later years, benthic ecology of some areas with special reference to polychaetes and sea cucumbers was studied. Observations were made on the hydrography and plankton of the waters around Port Blair. In 1978, two teams of scientists from the Institute visited the islands and made extensive surveys to assess the mariculture potential of the islands covering both the



Fig. 3. *Rhynchobatus djiddensis* (caught in gill net) with dorsal fins removed.

Andaman and Nicobar groups of islands. Preliminary experiments to culture the sea cucumbers in the Aberdeen Bay were also conducted.

With the establishment of the Central Agricultural Research Institute (CARI) at Port Blair, the fisheries research work was transferred to this Institute from CMFRI in the year 1979. The Fisheries Division of CARI, Port Blair conducted research work on assessment of fisheries resources of the area, brackishwater

fish culture, mariculture, fresh water fish culture and made some observations on sea turtles. However, in view of the limited personnel and lack of infrastructure, the Institute is not in a position to enlarge its research activities in many areas which are needed to be developed.



Fig. 4. Sharkfins removed for drying.

After examining the various facilities and the possibilities of research work in thrust areas, it was felt that high priority may be given for establishing a mollusc-fish hatchery for breeding and large scale seed production with the eventual programme for sea farming of molluscs and finfish. In view of the existence of endemic populations of the black lip pearl oyster *Pinctada margaritifera* it would be advantageous to concentrate work on the breeding and seed production of this



Fig. 5. Belonids and lutjanids caught from coastal waters in traditional fishing gears.

species with ultimate objective of farming the oyster and production of pearls. Other species of molluscs, including oysters and mussels, could be dealt with later.

Finfishes like *Lates calcarifer* and species of *Epinephelus* and some important snappers could be studied with a view to breed and culture suitable species. This is being proposed in view of the availability of extensive



Fig. 6. Indian mackerel caught from coastal waters in traditional fishing gears.

areas in the bays and creeks which may be suitable for floating cage culture adjacent to some of the islands. In this context, it is essential that such areas may first be identified and all the hydrographical parameters studied round the year for assessing the suitability of different places. In this respect, Andaman and Nicobar islands appear to offer better possibilities for sea farming of finfishes and molluscs compared to the mainland which has only very limited scope. Although it is felt that at the moment prawn culture in coastal areas

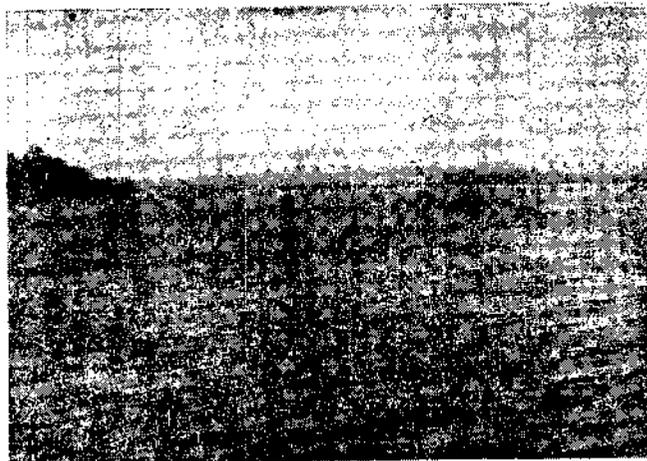


Fig. 7. The placid waters near Port Blair considered suitable for sea farming.

has limited scope, it would be desirable to study the biology of the banana prawn *Penaeus merguensis* in

detail with a view to propagate the same in long range development.

Thus, it is felt that there is great scope for developing sea farming in the coastal areas of Andaman and Nicobar islands for finfish and molluscs. For this purpose it is necessary to establish hatcheries for finfish and molluscs for large scale production of seed required for sea farming activities. In the long run, it would also be necessary to declare suitable areas as potential sea farming sites for development after due inspection of identified sites and examination of other implications. In this context also, encouragement to the Private Sea-food Industry appears necessary.

It was reported by the officials of the Department of Fisheries that the islands have fairly good resources of live-baits and that skipjack tuna is also available around the islands. The availability and abundance of live-bait were later confirmed by the scientists of CMFRI who visited the islands recently (April-May, 1989) and made special surveys in the marine park area. In order to assess the exact resources of live-bait and the possibility of utilising them for developing the pole and line fishery for skipjack in the islands, a detailed survey



Fig. 8. Mangroves and adjacent silted area in the vicinity of Port Blair.

needs to be undertaken covering all important areas in the Andaman and Nicobar groups of islands. From the capture fisheries point of view, this appears to be one of the urgent needs and this programme may also help in utilising the human resources available locally. Training may be extended to them in the special method of pole and line fishing practiced in Lakshadweep.

The development of marine fisheries of Andaman and Nicobar islands is basically linked with the development of offshore and oceanic fisheries in the EEZ around

the islands and also extending the coastal fishing activities. The coastal fishing activities can be promoted by introduction of intermediate crafts for small purse-seines, hooks and lines and long lines for pelagic fishes including sharks and tunas, trolling for seer and related fishes and traps for bottom dwelling fishes and lobsters. However, before large scale development of capture fisheries activities are planned, there is need for proper assessment of demand,



Fig. 9. Miscellaneous catch from country crafts consisting of carangids, perches, silver bellies, mackerel and ribbon fish.

supply and consumption of fish on the islands and the cost factor if surplus catches have to reach the mainland. The present method and intensity of collection of statistics need to be strengthened through appropriate training of the officials concerned to create a sound basis for collection of fisheries statistics which is a prerequisite for all developmental programmes. The fishermen population in the islands is very limited. They

are engaged only in small scale fishing activities. If the fishing activities have to be extended and local population involved in such activities, there is need for training the local people. Special mention may be made here of the present situation in the Car Nicobar Island where adequate human resource seems to be available for diverting to oceanic fishing by appropriate training.

While there is limited scope for bottom trawling in the region, ample opportunities exist for oceanic fishing for fishes like tunas (big eye, yellow fin and skipjack), marlins, seer fishes and large sharks. Examination of fish catches at a number of places on the islands and those from the confiscated vessels indicated that fish may be dying due to old age. This is a clear indication of under exploitation of the resources. Development of offshore and oceanic fisheries needs development of necessary infrastructural facilities on the islands for berthing, loading, unloading, repair, dry docking, bunkering and storage. In this context Junglee Ghat area at Port Blair seems to be ideal for the purpose. However, the technical feasibility should be examined.

The National Marine Park area harbours a number of varieties of corals, ornamental fishes, live-bait and other invertebrates. The population explosion of crown of thorns (star fish) reported recently needs careful monitoring and detailed study. Similarly, the potential of various marine ornamental fishes has to be assessed for rational exploitation in due course. Reports indicate that the exact status of the dugong in the little Andaman area is not known. However, it was reported by the scientists of Zoological Survey of India at Port Blair that dugongs do occur in some numbers in Ritchie Archipelago. Since this is an endangered animal, it would be necessary to take steps for its conservation.