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MARINE LIVING RESOURCES OF THE UNION TERRITORY OF LAKSHADWEEP —

An Indicative Survey With Suggestions For Development

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8. CRUSTACEAN RESOURCES OF THE LAKSHADWEEP ISLANDS

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INTRODUCTION

Information on the crustacean resources of Lakshadweep is limited to only a few faunistic reports on crabs, prawns, lobsters and stomatopods (Alcock, 1895, 1896, 1998, 1899, 1900; Borradaile, 1903a, 1903b, 1903c, 1903d, 1906a, 1906b; Sankarankutty, 1961; Thomas 1970a, 1970b, Meiyappan and Kathirvel, 1978; Pillai *et al*, 1984 and Shanbhogue, 1986). A total of 132 species of brachyuran crabs mostly belonging to Calappidae, Majidae, Parthenopidae, Portunidae, Xanthidae, Ocypodidae and Grapsidae, 4 species of palinurid lobsters, 2 species of scyllarid lobsters, 5 species of penaeid prawns and 7 species of stomatopods have been recorded so far from these islands.

The present account deals with the crustacean fishery potential of Lakshadweep based on the survey conducted in 15 islands, namely, Minicoy, Kalpeni, Suheli Par, Pitti, Kavaratti, Androth, Bangaram, Agatti, Parali, Amini, Kadmat, Kiltan, Bitra and Chetlat extending from latitude 8'17'N to '1141' N and longitude 72'10'E to '73'41'E during January to March 1987. During the present investigation attempts were made to collect data on the availability, fishing season, fishing gear employed, abundance, habitat and utilisation of commercially important groups of crustaceans from all the 15 islands.

METHOD OF SURVEY

For qualitative and quantitative studies of the various crustacean groups, sampling was made at stations in different ecological zones of the islands. In each zone transects of 10x10 m were surveyed in detail for the abundance of different groups of crustaceans. The number of transects sampled varied depending on the extent of different zones. A minimum of 4 transects were sampled in each zone. Data were collected by operating velon screen drag net, scoop net, cast net, shore seine, grab and dredge wherever possible. Hand picking was found to be more effective than many of these methods. Visual counting was also adopted for estimating the number of animals present in

the exposed intertidal zones. The availability and population density of different groups in the lagoons was studied by diving and observing the population in their natural habitats since other methods were not found to be effective in these areas.

OBSERVATIONS

Penaeid prawns, sergestids, caridean prawns, crabs, lobsters, hermit crabs and stomatopods form the chief constituents of the crustacean fauna associated with these islands. As one could expect on account of the great dissimilarities in habitat, the crustaceans that have colonised these islands evince considerable differences in quality as well as quantity as compared to the crustaceans inhabiting the coastal areas of the mainland. Table 1 gives a list of penaeid prawns, sergestids, lobsters, brachyuran crabs and stomatopods recorded during this survey.

TABLE 1: *List of penaeid prawns, sergestids, lobsters, brachyuran crabs and stomatopods collected from the Lakshadweep Islands*

PENAEID PRAWNS

Metapenaeopsis borradailei (De Man)
Penaeus latisulcatus Kishinouye
Trachypenaeopsis minicoyensis Thomas

SERGISTIDS

Sergestes armatus Kroyer
Acetes sp.

LOBSTERS

Panulirus homarus (Linnaeus)
Panulirus penicillatus (Olivier)
Panulirus versicolor (Latreille)

CRABS

FAMILY : DYNOMENIDAE
Dynomene pilumnoides Alcock

FAMILY : DORIPPIDAE
Ethusa indica Alcock

FAMILY : CALAPPIDAE
Calppa calappa (Linnaeus)
Calappa hepatica (Linnaeus)
Matuta banksi Leach

FAMILY : MAJIDAE

Huenia brevifrons Ward
Huenia proteus De Haan
Hyasfenus diacanthus (De Haan)
Hyastenus elongatus Ortmann
Mecippa philyra (Herbst)
Menaethius araneus De Haan
Schizophrys aspera (H. Milne-Edwards)
Tylocarcinus styax (Herbst)

FAMILY : LEUCOSIIDAE
Nucia speciosa Dana

FAMILY : PARTHENOPIDAE

Actaeomorpha erosa Miers

FAMILY : PORTUNIDAE

Charybdis erythrodactyla (Lamarck)
Charybdis obtusifrons Leene
Portunus emarginatus Stephenson & Cambell
Portunus granulatus (H. Milne-Edwards)
Portunus orbicularis Crosnier
Portunus orbitosinus Rathbium
Portunus petreus (Alcock)
Tualamita admete (Herbst)
Thalamita picta Stimpson
Thalamita pilumnoides Borradaile
Thalamita poissoni (Audouin & Savigny)

FAMILY : XANTHIDAE

Actaea cavipes (Dana)
Actaeodes hlisutissimus (Rupell)
Atergatis subdentats De Haan
Atergatopsis singnatus (Adams & White
Carpilius convexus (Forskal)
Carpilius maculatus (Linnaeus)
Chlorodella cytherea (Dana)
Cymo andreossyi (Audouin)
Cymome lanodactylus De Haan
Daira perlata (Herbst)
Demania intermedia (Guinot)
Domecia glabra Alock
Eriphia sebana sebana (Shaw & Nodder)

Etisus laevimaus Randall
Euxanthus exsculptus (Herbst)
Glabropilumnus dispar (Dana)
Globopilumnus globosus (Dana)
Hetropilumnes integra Miers
Lachnopodus subacutus (Stimpson)
Leptodius sanguineus (H. Milne-Edwards)
Liomera bella (Dana)
Liomera caeleta (Odhner)
Liomera cinctimana (White)
Liomera margarita A. Milne-Edwards)
Liomera mentculosa H. (Milne. Edwards)
Liomera rugate H. (Milne-Edwards)
Liomera stimpsoni (A. Milne-Edwards)
Maldivia triunguiculata (Borradaile)
Ozius tuberculosus (H. Milne-Edwards)
Paracaea rufopunctata (H. Milne-Edwards)
Phymodius unguletus (H. Miline-Edawards)
Pilodius pilumnoides White
Pilodius pugil Dana
Pilumnus longicornis Hilgendrof
Pilumnus orbitosyinis Rathbun
Pilumnus vespertilio (Fabricius)
Platypodia anaglypta (Heller)
Pseudozius caystrus (Admas & White)
Quadrellia boopsis Alcock
Tetralia glaberrima (Herbst)
Trapezia cymodoce (Herbst)
Trapezia ferruginea Latreille
Trapezia guttata Ruppell
Xanthias lamarcki (H. Milne-Edwards)
Zozymodes cavipes (Dena)
Zozymus aeneus (Linnaeus)

FAMILY : OCYPODIDAE

Ocypoee ceratophthalmus (Pallas)
Ocypode cordimana Desmarest

FAMILY : GRAPSIDAE

Geograpsus crinipes (Dana)
Geograpsus grayi (Dana)
Grapsus tenuicrustatus (Herbst)

STOMATOPODS

Gonodactylus chiragara (Fabricius)
Gonodactylus falcatus (Forskal)
Gonodactylus platysoma Wood-Mason
Gonodactylus smithi Poccok

Penaeid prawns and sergestids

During the present survey, no penaeid prawn could be collected on the leeward reefs and windward reefs of the islands. They were observed only in the lagoons and could be collected by cast nets, shore seines and dredge. Five species of prawns were recorded. *Penaeus latisulcatus* was represented by five specimens collected from Chetlat, Kiltan and Suhelipar. The size range of this species was 45-110 mm in total length. A total of 8 specimens of *Metapenaeopsis borradailei* was collected from Kavaratti, Suheli par, Agatti and Chetlat. *Trachypenaeopsis minicoyensis* was encountered only at Agatti and that too only two specimens. The sergestid shrimp, *Sergestes armatus*, was recorded from Agatti and Bitra. This is the first record of the species from the Indo-pacific region. Two specimens of *Acetes* sp were also collected from Chetlat.

Earlier records of penaeid prawns include numerous specimens of *P. latisulcatus P. canaliculatus, Trachypenaeus curvirostris, Trachypenaeopsis, minicoyensis* and *M. borradailei* from minicoy. The present study shows that *P. latisulcatus, T. minicoyensis* and *M. borradailei* are widely distributed in the Lakshadweep Sea.

At present there is no commercial exploitation of prawns around these islands. However, it is learnt from the migrant fishermen that *P. latisulcatus* is caught in small numbers in ihe drag net operations from the lagoon of Suheli Par during monsoon months. It is evident from the meagre representation of penaeids in the present collections and the other available information that there is no scope of developing a fishery based on penaeid prawns in these islands.

Caridean prawns

The coral reefs of the islands are very rich in caridean prawn fauna. The species belong-

ing to Atyidae, Alpheidae, Palaemonidae, Hippolytidae and Processidae abound these islands in association with dead and living corals. At some stations each Kilogram of coral rock contained as many as 20-30caridean prawns. However, all these species are very small and hence it is not possible to develop any fishery based on these prawns.

Brachyuran crabs

A rich fauna of brachyuran crabs has been observed in all the islands. Although most of these species are small in size, a few of them are sufficiently large to be used as food. Particular interest in this regard is the large sized xanthid crabs like *Eriphia sebana, Aterigatis subdentatus* and *Liomera caelata*. Crabs of 30-60 mm in carapace width were observed in abundance in all the islands. Portunids were poorly represented in the reefs. All the portunids observed were from the lagoons. The commercial portunids such as *Scylla serrata, Portunus pelagicus, P. sanguinolentus* and *Charybdis cruciata* were not encountered in these islands. Although it is not possible to develop any commercial fishery, scope is there to develop a sustenance fishery on these crabs.

Among the shore crabs, the most abundant and widely distributed species is the ghost crab, *Ocypod ceratophthalmus*. This is found in all the islands surveyed in varying degrees of abundance. Nocturnal in habit, the ghost crab appears plentiful on the beaches during night. In fact, the beaches are littered with these crabs althrough the night. Its maximum abundance is recorded at Bangaram, where the average number per square metre works out to about 6 on the lagoon shore. Though this crab is believed to have some food value among the coastal fishermen of Tamilnadu no commercial importance is attached to it in any part of the islands.

Hermit crabs

Hermit crabs are in good abundance in the sandy beaches and intertidal regions of the reefs. Most of these hermit crabs scavenge on the beaches during night. They are rarely seen during day. They are a menace to the coconut processors, since they invade the processing yards along the beaches. In some of these islands the crabs are seen crawling on the roads in the heart of the islands. The different species display a variety of colours making them a good choice for aquarium purposes. Since their maintenance in aquarla poses very few problems when compared to the other marine animals, they could be popularised as aquarium animals.

Lobsters

A Limited populaion of spiny lobsters belonging to the family Palinuridae is found to exist around all the islands. They are not commercially fished by the islanders at present. However mainlanders inhabiting the islands fish them for food in Kiltan, Suheli Par and Minicoy in small numbers. Three species of lobsters, namely, *Panulirus versicolor. P. penicillatus*, and *P. homarus* were observed during the course of the survey. Of these *P. versicolor* is more abundant than the other species.

P. versicolor was collected from Kadmat, Kiltan, Chetlat, Agatti, Kalpeni, Bitra and Kavaratti while *P. penicillatus* was observed at Agatti, Kavaratti, Suheli Par Kalpeni and Androth. *P. homarus* was observed only at Minicoy. The size of lobsters ranged from 50-325 mm in total length (20-140 carapace length).

Earlier records of lobsters from Lakshadweep were from Minicoy, Kavaratti and Kiltan (Meiyappan and Kathirvel, 1978 and Pillai *et al.*, 1984). The present study reveals that *P. versicolor* and *P. penicillatus* are widely distributed in these islands.

In Kiltan one or two people collect *P. versicolor* during day time and use it as food and also for ornamental purpose after stuffing. Species like *P. penicillatus* are said to be fished occasionally from the ship wreckage in the leeward reef of Cheriya Kare island (Suheli Par) and the scyllarid lobster *Parribacus antarticus* from the coral crevices in the lagoon of Suheli Par.

Stomatopods

Stomatopods are found to be of common occurrence in the lagoons and coral reefs of Amini, Kadmat, Kiltan and Chetlat. They are mainly represented by *Gonodactylus Chiragara, G. platysoma, G. smithi* and *G. falcatus*. The size ranged from 16 mm to 73 mm.

Shanbhogue (1986) reported seven species of stomatopods from Minicoy, The species are *G. chiragara, G. falcatus, G. platysoma, G. smithi, Pseudosquilla ciliata, Hetreosquilla jonesi* and *Alima hyalina*. Only four of these species are observed in the present collections made from Amini, Kadamat, Kiltan and Chetlat. The present study extends the distributional range of the species of *Gonodactylus* to these islands.

CONCLUSIONS

It is seen from the present study that these islands do not possess any substantial resource of crustaceans which could be exploited in commercial scale. The small populations of shrimps encountered in the lagoons of the islands are very small in size and therefore can not be economically useful.. Though a few species of lobsters and penaeid prawns do occur in the region their numbers appear to be too limited to support a commercial fishery. Among crabs *Ocypode ceratophthalmus, Eriphia sabana, Atergigatis subdentata* and *Liomera caelata* might prove to be a potential resource to develop into sustenance fishery. Hermit crabs are of interest as ornamental animals in the aquaria.

The hard bottom and other environmental conditions prevailing in the lagoons do not appear to be congenial for the growth of prawns. Therefore, there is no scope for propagating prawn culture also in these waters.

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