

## ECOLOGY OF COMMERCIALY IMPORTANT HOLOTHURIANS OF INDIA

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### ABSTRACT

A knowledge of the ecology of holothurians is important for proper exploitation of the resource. Species like *Holothuria (Metriatyla) scabra*, *Holothuria (Thelothuria) spinifera* are distributed on sandy beds with algae in shallow waters. Species of *Actinopyga* live among coral reefs, while species like *Holothuria (Microthela) nobilis*, *Bohadschia argus*, *Stichopus chloronotus* occur in the lagoons. Details on the concentrations of holothurians in different zones are described in detail.

### INTRODUCTION

Although there are about 200 species of holothurians belonging to more than sixty genera in the seas around India, only about 75 species occur from the shallow waters. Of these only a dozen species are commercially important. All holothurians are benthic in habit with a very few pelagic species. The commercially important holothurians are found from the intertidal region to a depth of 20 m depth. The habitats of the holothurians are diverse and vary from sand, coral and mud. Very little information is available on the ecology of commercially important holothurians. James (1982) gave a general account on ecology of intertidal holothurians from the Indian region.

### HABITAT

#### *Sandy area*

*Holothuria (Metriatyla) scabra* and *Holothuria (Thelothuria) spinifera* live chiefly in sand. The former species is distributed from the intertidal region to a depth of 20 m. During the low tide specimens which live buried inside the sand, come out and they lie in the half buried condition. When they are buried the posterior end of the body is always kept on the

surface of sand. Small specimens are very rarely encountered. On a particular occasion at Port Blair nearly 500 juveniles were collected from the intertidal region. They were seen lying freely on the bottom during low tide. At some places 2-10 specimens were found in an area of 5 sq.m. Specimens kept in the Aquarium tanks lie either freely on the bottom or in the half buried condition. In the Gulf of Mannar and Palk Bay specimens of 300-350 mm are found to be distributed in 5-10 m depth of water.

*Holothuria (Thelothuria) spinifera* though occupies the same habitat like the previous species, occurs in slightly deeper water. This species is never encountered in the intertidal region. This species is much more rarer than the previous one. More number of this species are landed in the Gulf of Mannar than the Palk Bay, because of the greater depth of operation. The distribution in the sandy substratum depends on the size of the sand particles and the content of organic matter.

#### *Coral area*

Species of the genus *Actinopyga* are essentially coral dwelling forms. They live in the intertidal region on the coral reef. Clark (1971) mentioned some of the coral dwelling echinoderms. *Actinopyga mauritiana* is a surf loving species being found very near the low water mark. In some of the islands in the Lakshadweep,

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*Actinopyga* spp. occur in moderately large numbers on the reef flats. Another potential species for *beche-de-mer* *Holothuria pyxis* occurs on the reef flats in Andaman Islands. This species always live under stones. The long and narrow anterior end is kept out and is seen in constant movement. It is impossible to pull the holothurians without damage. On lifting the stones, it is found to have a bulged posterior end and a very long narrow anterior end. *Actinopyga mauritiana* lies fully exposed near the low water mark. It often attaches itself to the rocks by tubefeet arranged in four bands on the ventral side. Often on lifting the specimens small pieces of coral stones and such other objects are found attached to the ventral side. In *A. echinites* the dorsal body wall is wrinkled with sand settling in the depressions. Often it is found attached at the base of big rocks by curving its body. Species of *Bohadschia* also live on the coral flats. *Bohadschia vitiensis* lives on the reef flats and lies exposed during the low tide. A thin coating of fine mud is found on to the body.

#### Mud flats

Muddy flats are by far the best habitats suitable for sea-cucumbers as they are detritus feeders live on the organic matter present in the mud. *Holothuria (Metriatyla) scabra* is characteristic of muddy flats. During the low tide a number of them can be seen in half buried condition. When they are buried the posterior end of the body is always kept outside. Small forms (50-90 mm in length) are also seen to be lying freely on the muddy grounds during low tides. At some places there are 2-10 specimens distributed in an area of 5 sq.m. Species living in muddy flats are also found on sandy habitat.

#### Lagoon

The lagoons especially in the Lakshadweep offer excellent habitats for the holothurians. Here the waters are calm with very little disturbance. The most prized holothurian for *beche-de-mer* *Holothuria (Microthele) nobilis* is characteristic of the lagoons. There are two colour forms in this species the white variety is usually found in deeper waters between 3 to 20 m. It is most abundant on clean sand in reef passages and near turtle-grass. The black variety is typically found in shallow waters at about 3 m depth on clean sand bottoms where there is living coral and free movement of water. *Bohadschia argus* is a very common species found in the lagoons of Lakshadweep. They lie freely exposed. Often a few small pieces of shell and some sand grains stick to the surface of the holothurian. Another important species from the lagoons of the Lakshadweep is *Stichopus chloronotus*. It was found to be extremely abundant in the lagoon of Kiltan Island. It lies out in the open without making any attempt to conceal its body under corals. *Holothuria (Halodeima) atra* is one of the most common holothurians around Indian seas. It is always found fully exposed in the shallow waters on sandy bottoms during the low tide where water remains as a pool. This species is never encountered under stones. Specimens measuring from 110 to 230 mm in size were found in lagoon with sand coated on them. Specimens collected on the outer side of the reef are found to have the alga *Halimeda* inside the alimentary canal. The suspended matter like mud and sand in the water settle on the surface of the body as a fine coating. Often there are paired rows of round spots free from the sand or mud. This is due to the presence of two rows of dorsal papillae.

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