

Holothuria (Theelothuria) spinifera Théel, 1886

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IDENTIFICATION

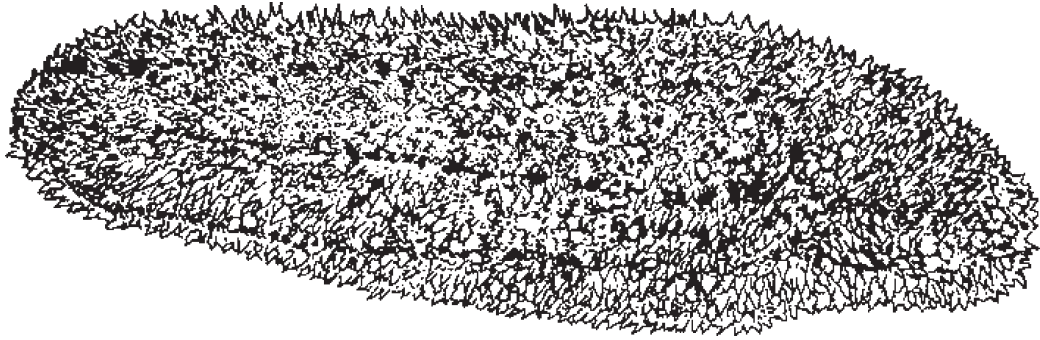
Order	: Holothuriida
Family	: Holothuriidae
Common/FAO Name (English)	: Brown sand fish



Local names: Samudra kakdi (**Marathi**); Kadal atta (**Malayalam**); Raja attai or Cheeni attai (**Tamil**); Samudra kakudi (**Oriya**); Samudrik sasha (**Bengali**)

MORPHOLOGICAL DESCRIPTION

The body is cylindrical with both ends rounded. Mouth is surrounded by a collar of papillae. It has 20 peltate tentacles. Anus is surrounded by five distinct cylindrical papillae. Colour is uniform brown with sharp projections all over the body. Lower side is lighter in colour.



PROFILE

GEOGRAPHICAL DISTRIBUTION

Sea cucumbers are distributed all over the world, particularly in tropical regions. It is reported to occur in China, north Australia, Persian Gulf, Philippines, Red Sea and Sri Lanka. Sea cucumbers are distributed in Lakshadweep, Andaman and Nicobar Island, Gulf of Kutch, Gulf of Mannar and Palk Bay in India.

HABITAT AND BIOLOGY

It is a highly burrowing species, found on clean sand and in slightly deeper waters. In India, it has a peak gametogenic activity during September and October, followed by a prolonged spawning period from November to March. It is gonochoristic and each individual has only one gonad. Spawning and fertilization are external and some exhibit brooding. During its life cycle, embryos develop into planktotrophic larvae (auricularia) and then into doliolaria (barrel-shaped stage), which later metamorphoses into juveniles. Most (78.1 %) of the sediment ingested is medium sand, followed by fine sand (18.9 %) and very less organic matter (1.5 %).

STATUS OF THE STOCK

Increase in demand and inadequate fishery management measures has led to the overexploitation of holothurian resources along Indian waters. Reduction in catch per unit effort and mean size over the years further supports its overexploitation status. Consequently in 2003, the Ministry of Environment and Forest, Government of India, imposed a total ban on both fishery and trade by listing this species under Schedule I of the Wild Life Protection Act of 1972. Moreover, declaring a part of Gulf of Mannar as a biosphere reserve has attributed to the protection of its stocks. A reliable long term estimate is not available on the exploited as well as on the potential stocks. As a result, IUCN listed this species as Data Deficient. It has already been declared as Endangered in China and included in the Chinese Red List.

NEED

Ban imposed on sea cucumber trade has caused a major impact on the economic status of poor fishermen along the south-east coast of India. Formulation of suitable conservation strategies for overexploited stocks and judicious management of resources will help to improve India's foreign trade and uplift the economic status of poor fishermen communities along Gulf of Mannar and Palk Bay.

STRATEGIES

Assessing the current status of the natural stocks along east coast will enable us to formulate strategies for curbing further depletion and enhancement of resources in the forthcoming years. Restoration by releasing hatchery produced juveniles to their natural habitat is an effective way to replenish the natural stocks. The technology for captive breeding, larval and juvenile rearing developed and standardized by CMFRI, Kochi will be of immense help in designing conservation measures through stock enhancement. By upgrading the existing larval and juvenile rearing techniques, cost effective mass production of juveniles can be carried out in an effective way. This will help in evolving strategies for conservation and sustainable fishery and export, ultimately improving the foreign exchange and the economic status of poor fishermen communities along Gulf of Mannar and Palk Bay.

ISSUES

In India, sea cucumber fishery is not organized; hence management measures cannot be effectively implemented. Poaching and illegal trade of both raw and dried sea cucumbers to neighbouring countries is an enforcement issue which needs to be addressed. Despite the awareness about ban and punishment, fishermen are illegally involving in these practices for their livelihood. With prohibition on fishery and trade in force, representations from fishermen welfare associations have been made to authorities, highlighting the negative impacts of ban on the livelihood of poor coastal fishing communities, urging the need for lifting the ban.

FUTURE PROSPECTS

As a preliminary effort to manage the fishery and trade, the Government in 2006 commissioned the Zoological Survey of India to undertake studies on population status. The surveys reported no recovery in the population size. The effectiveness of the current ban on the population is yet to be determined. However, it is understood that the ban would be lifted on a species-specific basis in a phased manner once the population attains the desired level. It will help in resolving the present social conflicts prevailing among the fishermen. Implementation of effective and sustainable management methods, involving various stakeholders from the fishermen to the exporters, will have to be made. The management measures are likely to include the restoration of overexploited holothurian stocks in the protected areas, thereby reducing the pressure on wild stocks. Training fishermen on sea cucumber aquaculture practices is required to meet the market demand and continuous stock assessment has to be performed.

SUGGESTED READING

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