

Fishery and biology of commercial penaeid shrimps

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Marine shrimps are fished all along the Indian coast and brought to different fish landing centres/harbours located in the maritime states. They are caught mainly by trawlers, either multiday or single day trawlers using trawl nets. The multiday trawling operations may extend from three days to more than a week. The voyage by single day trawlers is restricted to 6 to 7 hours. There are several commercially important shrimp species in India– *Penaeus indicus*, *Metapenaeus dobsoni*, *Metapenaeus monoceros*, *Metapenaeus affinis*, *Parapenaeopsis stylifera*, *Penaeus semisulcatus*, *Penaeus monodon*, *Solenocera choprai* etc. In each maritime state, the species composition varies and one or the other species may dominate the landings in quantity. Some of them are highly valued in the international markets whereas others are utilised for domestic consumption. Certain smaller species are also dried and consumed. In India the total peaneid shrimp landings during 2016 was 200116 t forming 45% of the crustacean and 12% of the total marine landings.

Diagnostic characters provide identity to each species and species having similar or certain identical characters are placed under same genus and family. Commercial shrimp species mostly belong to the family penaeidae, under the genera *Penaeus*, *Metapenaeus*, *Parapenaeopsis*, *Metapenaeopsis*, *Solenocera* and *Trachypenaeus*.

Almost all the marine shrimps have an estuarine phase in their life cycle, that is they spend a part of their life in the estuaries or backwaters. The adults breed offshore while post larvae and juveniles are estuarine. They have an offshore planktonic larval phase, estuarine benthic postlarval, juvenile phase and an inshore adult and spawning phase (Dall et al., 1990). Postlarvae move towards the coast and enters estuaries and mangrove swamps that serve as nursery grounds. An exception to this is found in *Parapenaeopsis stylifera* which spends its

entire life cycle in the sea. Some of the important estuaries in India are: Hoogly-Matlah in West Bengal, Mahanadi & Chilka Lake in Orissa, Godavari & Krishna in Andhra Pradesh, Vellar & Killai backwaters and Pulicat Lake in Tamil Nadu, Cochin backwaters & Vembanad Lake in Kerala; Narmada-Tapthi and Little Rann of Kutch in Gujarat

Size at maturity differs based on species and geographical area. Depending on the colour and size of the ovary, five maturity stages have been identified in penaeid shrimps – immature (IM), early maturing (EM), late maturing (LM), mature (M) and spent (SP). Females are usually larger in size compared to males. Females can be identified externally by the secondary sexual character thelycum and males by the petasma. They have high fecundity and are carnivorous. They have a life span of around 2 to 2.5 years, spawning throughout the year with peaks in spawning.

Further reading:

FAO species identification sheets. 1983. Fishing Area 51(Western Indian Ocean), 190 pp.

FAO species identification sheets for fishery purposes. 1998. The living marine resources of the western Central Pacific. Volume 2. Cephalopods, crustaceans, holothurians and sharks, 687 – 1396 pp.

E.V. Radhakrishnan, Josileen Jose and S.Lakshmi Pillai (eds). 2011. Handbook of Prawns. Central Marine Fisheries Research Institute, Kochi-18 125 pp.