

Rising trend in the fishery of the octopus *Cistopus indicus* (Orbigny, 1840) by trawlers at Mumbai

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The world landings of octopus increased substantially from 35,800 t in 1950 to 3,17,200 t in 2001 (Jereb *et al.*, 2005). Major species of octopus that contribute to the world fishery come under the genera *Octopus*, *Cistopus* and *Eledone*. As many as 200 species of Octopodidae are known to occur in the world Oceans (Worms, 1983) of which about 60 are reported from the Indian Ocean (Roper *et al.*, 1984).

Studies on the fishery of octopods from Indian waters are very few. Varghese (1981) reported the status of small-scale octopus fisheries from Lakshadweep. Kripa and Joseph (1994) and Kripa *et al.* (2000) described landings of octopus from Kochi waters while Sundaram and Sarang (2004) gave an account from Mumbai waters.

Thirty-eight commercially important species of octopus have been reported from the Indian seas (Silas *et al.*, 1985) but a targeted fishery for octopus is lacking. In India octopuses are caught incidentally as by-catch in shrimp trawlers. In recent years, the export possibility of octopods has paved a way for the emergence of octopus fishery in India. There seems to be not much information on the octopus landings from Indian waters especially from the north-west coast. The present paper deals with the increasing trend in landings of *Cistopus indicus* (Fig. 1) by trawlers in Mumbai waters. *C. indicus* is a benthic species commonly called as 'old women octopus', occurring up to 50 m depth. The species is distributed in the Indo-Pacific; mostly Indo-Malayan region, the Philippines, China, Bangladesh, India and Pakistan (Roper *et al.*, 1984).

Since Mumbai accounts for 60% of the total fish landings in Maharashtra (Annam and Sindhu, 2005), the catch statistics from Mumbai can be considered as representative for the state. The catch data was obtained from the commercial trawl landings at New Ferry Wharf, Sassoon docks and Versova in



Fig. 1. *Cistopus indicus* (Orbigny, 1840)

Mumbai from 2001 to 2006. There were no landings in the month of July due to the monsoon ban on trawling.

The estimated annual catch and catch rate of *C. indicus* by trawl for the period 2001-2006 from all the three centers combined, showed an increasing trend (Fig. 2). The month-wise average catch rate data for the period 2001-2006 from all the three centres indicated a major peak period of abundance during March-April and a minor peak in October (Fig. 3).

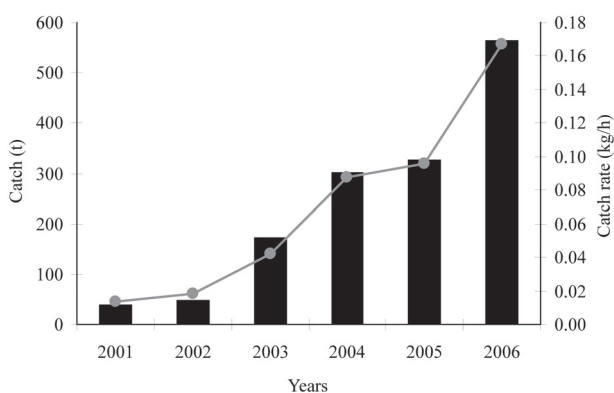


Fig. 2. Catch and catch rate of *Cistopus indicus* by trawlers at Mumbai

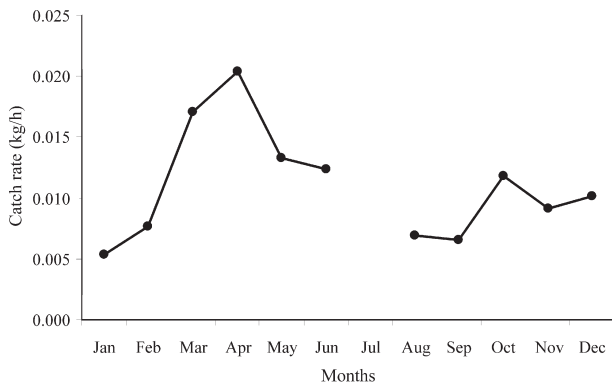


Fig. 3. Seasonal abundance of *C. indicus* by trawlers at Mumbai

The catch of *C. indicus* by trawlers at New Ferry Wharf ranged between 18.8 t (2001) to 324.5 t (2006). The percentage of this species in the cephalopod landings ranged between 0.3% (2001) to 6.3% (2006) with the catch rate ranging from 0.01 kg h⁻¹ (2001) to 0.18 kg h⁻¹ (2006). At Sassoon Docks, the catch ranged between 18.9 t (2001) to 199.2 t (2006). The percentage in cephalopod catch ranged between 0.2% (2001) to 2.7% (2006) with the catch rate ranging between 0.02 kg h⁻¹ (2001) to 0.20 kg h⁻¹ (2006). The landings at Versova ranged between 0.1 t (2001) to 39.9 t (2006) with percentage in cephalopod catch ranging between 0.01% (2001) to 13.1% (2006) and catch rate ranging from negligible in 2001 to 0.07 kg h⁻¹ in 2006.

From the above observations it is very clear that the *C. indicus* landings are on the rise, increasing many folds and contributing substantially to the fishery in Mumbai. The octopuses are taken to the processing unit within 4-6 h, where they are degutted and are mainly exported, Europe and Japan being the main markets. The price of *C. indicus* increased from Rs.13/kg in 2001 (Sundaram and Sarang, 2004) to Rs.70/kg in 2007 at the landing centre.

The dorsal mantle length of *C. indicus* in Mumbai waters during 2001-2006 ranged between 50-140 mm (in trawl catches) and from 15-40 mm (in dol catches). Sivasubramaniam (1991) reported the total length of this species as 600 mm from the Bay of Bengal and according to Roper *et al.* (1984) the maximum mantle length attained by this species is 180 mm. *C. indicus* is the dominant octopus species in Mumbai waters contributing about 95% towards the octopus fishery.

Earlier this resource was discarded at sea because of poor demand, but due to the increasing export market octopus attract good demand. As the demand is increasing, overexploitation due to increased fishing pressure is possible, which may ultimately lead to stock depletion. It is suggested that measures should be taken at this stage itself for rational exploitation of this important resource. Detailed studies on the distribution, population dynamics and biology of *C. indicus* are essential to evolve effective fishery management measures.