

Cephalopod fishery off Thoothukudi coast, Tamil Nadu

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Abstract

In Thoothukudi district of Tamil Nadu, cephalopod resources are principally exploited by single day trawlers followed by hook and line. During 2012-18, nearly 54% of cephalopods landed were caught by mechanised trawl net; 32% by outboard crafts operating hook and line, 8% by gill net and rest by other gears. From 2012-18, the cephalopod landing showed a fluctuating trend and major cephalopod species landed by trawl net were *Sepia pharaonis*, *S. prabahari*, *Sepioteuthis lessoniana*, *Uroteuthis (P) singhalensis* and *U. (P) duvaucelii*. In hook and line, *S. pharaonis* was the dominant species followed by *S. lessoniana* and *Octopus cyanea*.

Keywords: Cephalopod resources, trawl, Thoothukudi

Introduction

Cephalopods are the second major seafood export item from India and its demand in export trade is consistent. Nearly 40% of the global cephalopod catches are taken by squid jigging followed by trawling (25%) and the rest by other gears. In India, cephalopods are mainly exploited by single day and multi-day mechanised trawlers. In 2017, estimated all India cephalopod landings were 0.220 million t in which Gujarat (24.6%) followed by Tamil Nadu (23.6%), Kerala (22.7%) and by other maritime states contributed. In Tamil Nadu, Thoothukudi is a major centre for cephalopod landings with estimated average annual landings of 3462 tonnes during the 2012-18 period. The fishery trends are captured in the short note given below.

Craft and gears

In Thoothukudi district cephalopod resources are principally exploited by single day trawlers followed by hook and line and gill nets. Of the 27 fish landing centres of Thoothukudi district, only at Thoothukudi fishing harbour and Vembar fish landing centre, mechanised single day trawlers are operated for cephalopod fishery.

In rest of the centres, the fishery is carried out by motorised and traditional boats.

At Thoothukudi Fisheries Harbour nearly 150 to 200 trawlers are operated daily for cephalopod fishing. Wooden and steel trawlers in three sizes, small (35-40 feet), medium (40-50 feet) and large (up to 80 feet) based at Thoothukudi fishing harbour are operated. In Vembar around 20 numbers of small sized trawlers are engaged in fishing. During the peak cephalopod fishing season from June to September, around 50 small and medium size wooden trawlers off Thoothukudi Fisheries Harbour and 20 boats from Vembar are regularly engaged in cephalopod fishing. Subsequently, the number of boats engaged chiefly for cephalopod fishery is limited, but sizeable quantities of cephalopods are landed along with other fishery resources. The fishing activity takes place between 0500 and 1700 hours each day of fishing.

Hook and line are operated from motorised boats in some fishing villages of Thoothukudi district namely, Kalavasal, Mottaikopuram, Veerapandiappattinam, Amalinagar, Kombuthurai, Vemabar, Periyasampuram, Punnakayal and Vembar. It takes place throughout the

year and is locally called as “*Kanavai Thoondil*”. Fishers are generally using small size squids mainly needle squid, *Uroteuthis (Photololigo) singhalensis* as a bait. Other squids such as *Uroteuthis (Photololigo) duvaucelii* and *Sepioteuthis lessoniana* are used when needle squid is not available. For hook and line fishing, fishermen usually set out from shore in *Vallam* or FRP boats. Fishing activity is carried out at the distance between 12 and 20 km from shore and at the depth of 13 to 25 m. Cephalopod fishery by hook and line is done directly from *vallam* where the crew size is restricted between 6 and 9 persons. The fishing is also carried out in small groups of 12-18 persons is carrying a thermocol raft and moving to the fishing grounds in the FRP boat. After reaching the fishing ground, the crew members individually fish from their thermocol rafts. The fishing duration may vary according to the prevailing season. For cephalopod fishery, the fishers are using fish aggregating devices (FADs) to catch the cephalopod. In Thoothukudi region fishermen are mainly using twigs of plants such as *Tephrosea purpurea* (*Kozhinji* in Tamil) and *Prosopis juliflora* (*odai maram/ velikathan* in Tamil) as FADs due to its profusion in the shore region. The fishing is carried out for about 5-7 hours. After accomplish the fishing activity, fishers may reach the landing centre between 12:00 and 13:00 hrs during peak fishing season; but during lean season they will return back between 15:00 and 16:00 hrs. The peak fishing season of hook and line fishery for cephalopods is during the months of August and September.

Catch and species composition

During 2012-18, nearly 54% of cephalopods were landed by mechanised trawl net; 32% by outboard crafts operating hook and line, 8% by gill net and 6% is contributed by other gears. From 2012-18, the cephalopod landing showed a fluctuating trend with peak production during 2018. The average annual landing of cephalopod was 3462 t during this period. In 2012, the estimated landings were 3244 t which dwindled to nearly half (1903 t) in 2013. During 2014 and 2015, landings recovered (4160 t and 4327 t respectively) after which again it plummeted to 2452 t in 2016. In 2017 there was a gradual increase in the landings (3742 t) and in 2018 it reached to 4403 tonnes (Fig.1). The Catch per Unit Effort (CPUE) of cephalopod for trawl net and hook and line was 5.9 kg/hour and 15 kg/unit respectively. The major cephalopod species landed by trawl net were *Sepia pharaonis*, *S. prabahari*, *Sepioteuthis lessoniana*, *Uroteuthis (P) singhalensis* and *U.(P) duvaucelii* (Fig.2). Other species like *Amphioctopus membranaceus*, *A. neglectus* and *Octopus cyanea* were also represented in the landings in stray numbers. In hook and line, *S. pharaonis* was the dominant species followed by *S. lessoniana* and *O. cyanea* (Fig.3). Price range of the various cephalopod species vary based on the landing quantity and season. When there is a glut in landings, the prices dip considerably and prices are high during lean season as indicated in Table 1.

Table 1. Size range (Dorsal Mantle Length in mm) of cephalopods in the fishery and their price range.

Species	Trawl net	Hook and line	Price range (₹)
<i>S. pharaonis</i>	60 - 410 (236)	90 - 430 (240)	350 - 450
<i>S. prabahari</i>	40 - 175 (102)	-	180 - 220
<i>S. prashadi</i>	45 - 167 (87)	-	100 - 150
<i>S. lessoniana</i>	50 - 400 (177)	110 - 390 (220)	300 - 400
<i>U.(P) duvaucelii</i>	50 - 320 (148)	-	250 - 300
<i>U. (P) singhalensis</i>	32 - 315 (130)	-	150 - 250
<i>O. cyanea</i>	70 - 262 (160)	50 - 240 (144)	80 -150
<i>A. membranaceus</i>	25 - 200 (83)	-	80 - 150
<i>A. neglectus</i>	30 - 122 (71)	-	80 - 150

Mean dorsal mantle length is given in parenthesis

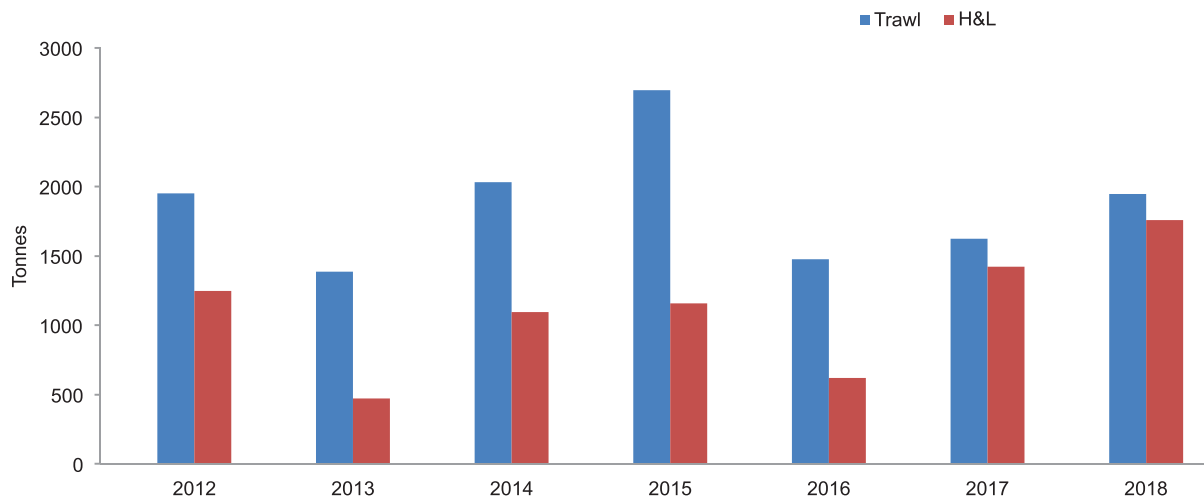


Fig.1 Annual cephalopod landings by trawlers and Hook and Line

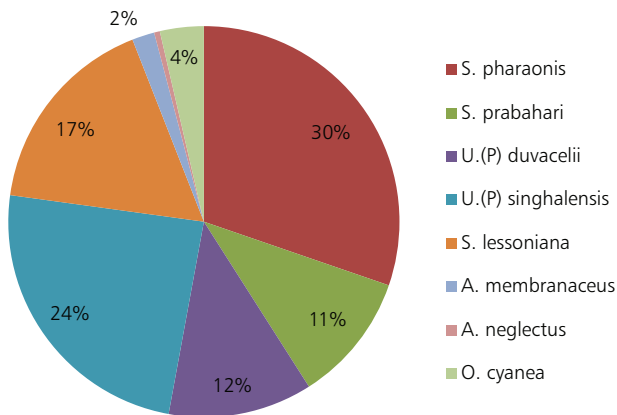


Fig.2. Cephalopod species composition in Trawl net

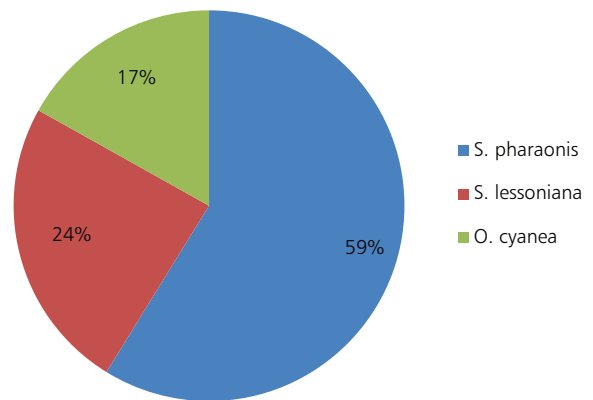


Fig.3. Cephalopod species composition in Hook and Line