

An account of bivalve fishery of Tamil Nadu and Puducherry

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Bivalve resources comprising of clams, cockles, oysters and mussels are distributed throughout the Indian coast including the estuaries and backwaters and are commercially exploited by the local fishers for their sustenance. Of the 652 species of marine bivalves reported from India, 88 species are endemic and are mainly exploited for their meat and shells. They are also used in the ornamental shell craft, pharmaceutical, lime and dye industries. The total average bivalve fishery of Tamil Nadu and Puducherry during 2016-2020 was estimated at 3713 tonnes (Fig. 1). The commercial fishery for clams, mussels and oysters (2016-2020) occurred mainly in the

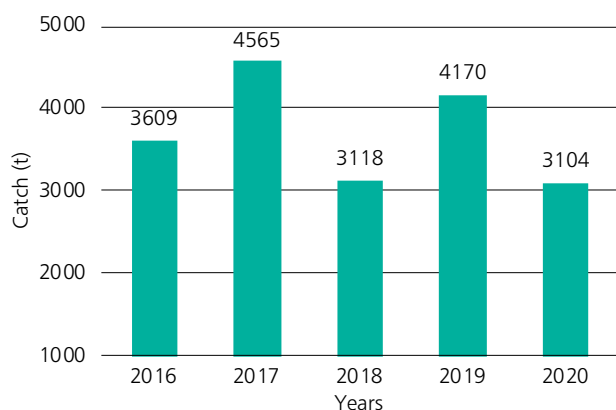


Fig.1. The production of bivalve resources of Tamil Nadu and Puducherry

Tuticorin, Ramanathapuram, Kanyakumari, Chennai, Thiruvallur and Kancheepuram districts of Tamil Nadu and Puducherry. The maximum catch (51 %) was from Athankarai estuary in Ramanathapuram district (Fig. 2). The species exploited from the various estuaries and backwaters are diverse (Fig. 3)

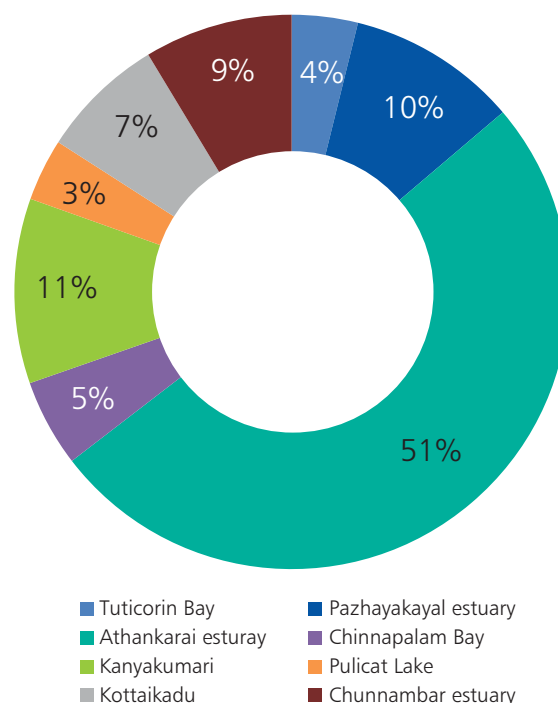
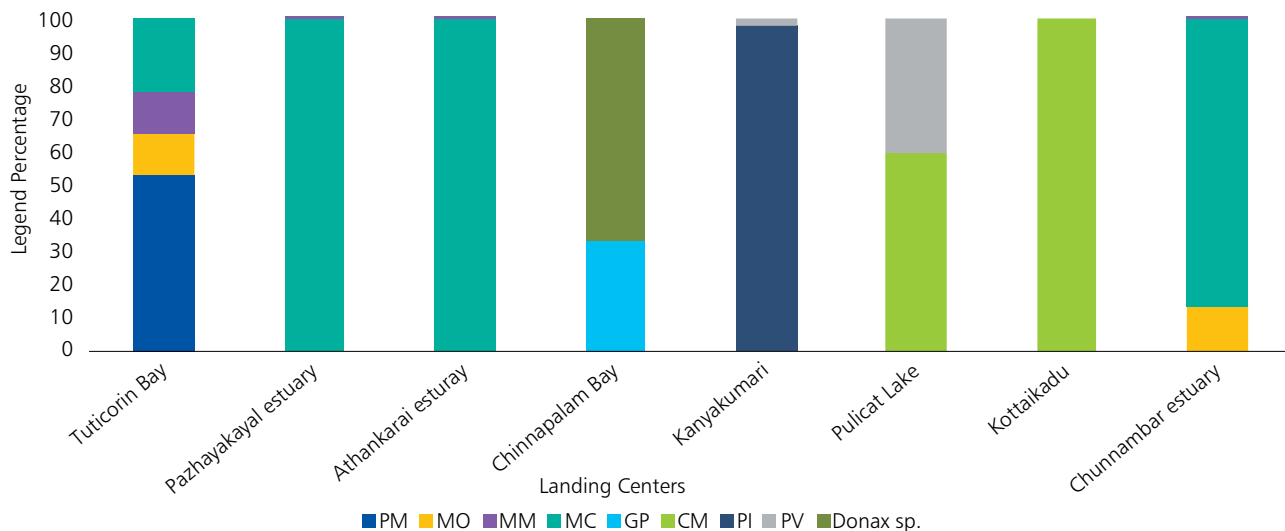


Fig.2. Catch composition of bivalves from different locations of Tamil Nadu and Puducherry

The Tuticorin Bay supports bivalve resources predominantly consisting of 6 species (*Paphia malabarica*, *Marcia opima*, *Meretrix casta*, *Meretrix meretrix*, *Gafrarium pectinatum* and *Crassostrea madrasensis*) of which *M. meretrix* population has considerably declined. Clams are exploited during the low tide period from shallow areas of the soft muddy substratum by digging the substratum using a sharp metallic plate and hand-picking. The annual average clam exploitation is 135 tonnes with a CPUE of 40 kg/person/day. The local clam catch shows a sharp increase since 2019, because of selective demand from



PM–*Paphia malabarica*, MO–*Marcia opima*, MM–*Meretrix meretrix*, MC–*Meretrix casta*, GP–*Gafarium pectinatum*, CM–*Crassostrea madrasensis*, PI–*Perna indica*, PV–*Perna viridis*.

Fig.3. The catch composition of bivalve resources from different locations of Tamil Nadu and Puducherry

Kerala market fishers due to its higher market value after regular hand-picking. Among the several species of clams, they retain *P. malabarica* and *M. casta* species and release the rest of the live clams in the Bay.

Pazhayakayal Estuary

Pazhayakayal Estuary located 15 km away from Tuticorin receives the freshwater influx during southwest and northeast monsoon from Thamirabharani River. The estuary having a muddy substratum has bivalve resource mainly consisting of edible oyster *Crassostrea madrasensis* and the clam, *M. casta*. Fishers using motorized FRP boats conduct clam collection by hand-picking in shallow areas during the low tide period. Fishers are target *M. casta* for trade due to lack of market demand for *C. madrasensis*. The estimated annual average clam catch in this estuary is 367 tonnes with an average CPUE of 100 kg/person/day. In both Tuticorin Bay and Pazhayakayal Estuary, the clam exploitation is carried out throughout the year except during unfavourable environmental conditions. In Tuticorin District, until 2016, the exploited clam species of *P. malabarica*, *M. opima*, *M. casta*, *M. meretrix* and *G. pectinatum* were sold at the rate of ₹5/kg to lime industry, poultry feed industry and as live feed for lobsters reared under cage farming. Since 2019, this trend has changed with fishers exploiting only *M. casta* and *P. malabarica* which is sold in Kerala markets and fetches ₹5 and ₹25 per Kg respectively for fishers. In Tuticorin District, the income of the fishers from clam exploitation ranged

from ₹300-1000/person/day with an average income of ₹500/person.

The Athankarai Estuary is sandy and muddy with depth ranging from < 1 m in the upper stretches to 2 m or more in the lower part. The bivalve resource consists of a single clam species, *M. casta* and edible oyster beds. The fishers are exploiting *M. casta* on a seasonal basis from March to September. After September, when northeast monsoon commences, influx of Vaigai river water prevents clam exploitation from October to February. Nearly 150 people are engaged in the seasonal clam exploitation and during the northeast monsoon, goes for other artisanal fishing activities. Clam exploitation is done by handpicking and also by using a small hand net locally known as Kacha at depth of around 1.8m. In The annual average clam exploitation is 1,880 tonnes with the CPUE of 100 kg/person/day. The end collected shells are mainly used in the lime and poultry industry with meagre quantity used for edible purposes. Fishers are getting ₹5/kg of clam and each can earn ₹300-500/day.

The Chinnapalam Creek is located at Pamban in the Rameswaram Island has bivalve resources such as *Gafarium pectinatum* and *Donax sp.* which is exploited by the local fisherwomen. The clam collection by handpicking is done during the low tide. The estimated annual average clam production in Chinnapalam Creek is 188 tonnes with the CPUE of 20 kg/person/day and are mainly used in shell craft industries.

In Kanyakumari District, bivalve exploitation is carried out in Colachel, Kadapattinam, Kodimunai, Kurumpanai, Thengapattinam and Enayam. Mussels are the major resource the fishery is seasonal. Motorized FRP boats and non-motorized catamarans are employed from October to March to reach rocky areas one to two kilometres away from shore. Two fishermen are involved in the operation which includes a diver and a helper and actual fishing is done only for 2 hours a day. On reaching the spot, dives are made to collect the mussels with the aid of a chisel or knife which are stored in a bag net. The annual average catch from this region is around 400 tonnes with CPUE of 39 kg/person/day. Among the species Brown mussel, *Perna indica* dominated the fishery (98 %) followed by Green mussel *Perna viridis*. Each shell-on mussel fetches ₹3/- and a major portion of the catch is marketed in Kerala.

Pulicat Lake, second largest brackish water lake, lying partly in Tamil Nadu and Andhra Pradesh. In Tamil Nadu, this lake is located in Pulicat village of Thiruvallur District and it is connected with the Bay of Bengal. Pulicat Lake has a rich biodiversity of about 17 bivalve species. The most abundant species are *C. madrasensis* and *P. viridis*. Fishers in motorised FRP boat tap mussels and oysters by skin-diving which are transported to Kasimedu Fisheries Harbour, Chennai for retail sale. The fishery is demand driven and hence is not observed regularly. About 5-10 fishers are engaged in bivalve fishery and the estimated annual average catch of green mussel is 54 tonnes while edible oyster accounts for 80 tonnes.

Kottaikadu Buckingham Canal runs from Kakinada in the East Godavari of Andhra Pradesh via Tiruvallur, Chennai, Kancheepuram and finally to Viluppuram districts in Tamil Nadu which connects several natural backwaters. Around 25 fisherwomen in Kottaikadu are engaged hand picking of edible oyster based on demand. The annual average catch of *C. madrasensis* was estimated as 269 tonnes. The fisherwomen shuck the meat and discard the oyster shells in the water itself. Each fisherwomen can collect 2 to 3 kg oyster meat in a day which is sold to the local traders for ₹160-175/kg.

In Chunnambar Estuary, Puducherry clam species such as *M. casta* and *M. opima* are tapped by fisher folks from Nonankuppam, Ariyankuppam, Pooranankuppam and Pudhukuppam villages. Nearly 40-50 fisher folks are engaged in traditional hand-picking method. Using a scoop or bag net attached to a pole is also done to harvest the bivalves by fishermen operating from a canoe. The net is pushed into the mud to rake up the clams and lifted up. The female fishers harvest clams in the shallow area whereas, male fishers exploit clam from 2-3 feet depth and is carried out throughout the year. Harvested clams are sold in the local market at the rate of ₹20/kg. Total estimated annual average clam catch in Chunnambar Estuary is 320 tonnes with the CPUE of 25 kg/person/day. On an average the male fisher can earn around ₹450 and female fishers ₹300/day. There is a good demand for clam meat among locals as well as tourists.