

Unearthing the Fossilised Bivalve fishery in Kulasekarapattinam: A Unique livelihood in Thoothukudi District

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Kulasekarapattinam, a coastal fishing village of Thoothukudi District, Tamil Nadu, has around 200 fishing families, with around 80 motorised crafts, actively engaged in marine fishing operations. While gill nets (Bottom set gill net and Trammel net) are the principal gear used in traditional fisheries here, the village is also known for a unique activity of the exploitation of fossilised bivalve shells by skin diving from the seabed, making it an important regional fishery of both livelihood and commercial significance.

Craft and gear

Around 25 Fiber Reinforced Plastic (FRP) boats are involved in the fossilised bivalve shell fishery. These boats typically measure 8 to 10 m in length and are powered by 10 hp outboard engines. The gear and tools used in the exploitation process are simple yet efficient: normal diving masks are used by the divers for underwater visibility. An empty tin oil container, is modified into a box for manually digging and loosening the buried shells on the seabed. A locally fabricated net bag called "Katcha Valai" is used for collecting and storing the fossilised shells during the dive. This gear setup enables efficient and sustainable shell extraction from the seabed without heavy mechanisation.

The boats venture out by 5.00 am into the southeast direction from the village, covering a distance of 3 to 5 nautical miles where at 3 to 5 meters depths in the shallow subtidal zones, fossilised bivalve shells are found. Each boat carries 7 to 10 individuals, including 3–4 divers and boat-based helpers. The method is fully manual and labour-intensive. Divers, equipped with mirror masks, dive into the water and identify the areas rich in fossilized clams. Breath-hold diving is practiced, with each dive lasting 50 seconds to 2 minutes, depending on their skill level. After each dive, they surface to breathe and quickly return to continue exploitation. Using the steel box, they dig the

seabed to collect fossilized. Shells which are transferred into the Katcha Valai, which can hold approximately 15 kg of shells. Once it is filled, the divers signal the boat crew, who then haul the bags aboard using ropes. This process is repeated over 2–3 hours per trip, typically yielding around 5–10t of shells per boat per day during the peak season, and 2–3t during the lean season. The boats return to shore by 10:30 am, and the harvested shells are transported from shore to land using net baskets.

This fishery operates year-round, except on Sundays and during rough sea conditions. The fossilised bivalve fishery has shown ups and downs from 2012 to 2024. The catch started at 6,518t in 2012 and reached a high of 7,991t in 2015. After that, it dropped to 6,127t in 2017 and further down to 5,366 tonnes in 2020. A strong recovery began in 2021 with 7,210.48t, followed by a sharp increase in 2022 to 12,894t, almost double the previous year. Although the catch slightly dropped to 9,557t in 2023, the highest catch was recorded in 2024, reaching 13,081t. The fossilised shell deposits are composed of a diverse range of species, including *Cardita* sp., *Brachidontes* sp., *Dentalium* sp., *Chlamys* sp., and other species. In addition, smaller gastropods such as *Cerithidium*, *Umbonium*, and small cowries are frequently collected. Which are segregated post-harvest and sold to the shellcraft industry.

Once the bivalve shells land, they are cleaned using sieving nets to remove sand and unwanted debris. Cleaned shells are sorted, and small gastropods are separated for ornamental and craft use. The market value of fossilised bivalves varies depending on demand and availability with 10 kg of shell fetching ₹20–₹25. The daily earnings per boat range between ₹3,000 to ₹25,000, and the average income is around ₹12,500 per boat per day. The shells are primarily sold to retailers and middlemen. The bulk of

the collected material is transported to Namakkal, Tamil Nadu, a major hub for poultry feed production. The shells are crushed and used in poultry feed formulation as a rich source of calcium. Additionally they are also supplied to lime factories for industrial use.

This fishery thus plays a vital role in supporting the coastal economy of Kulasekarapattinam. It provides year-round employment and the steady market demand from the poultry sector ensures sustained revenue for local fisherfolk, particularly during periods when fish catches are low.

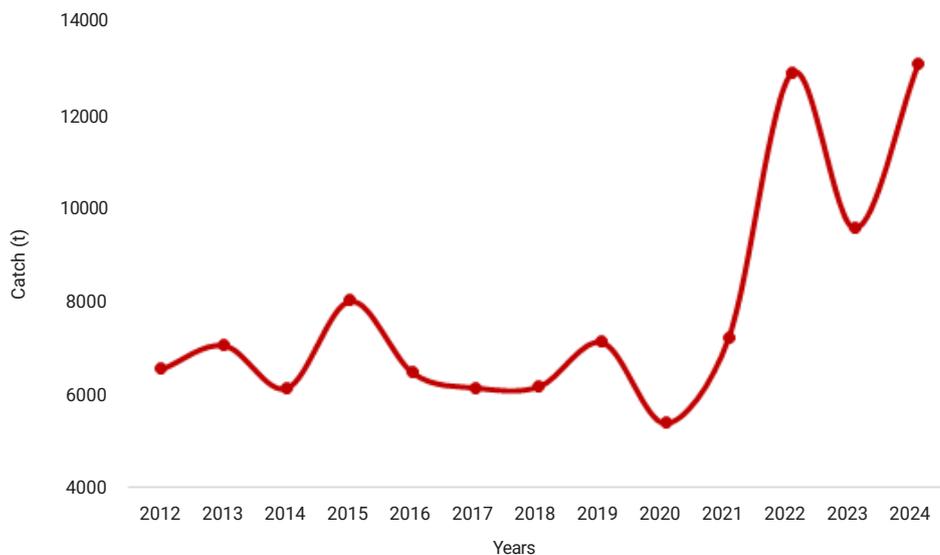


Fig. 1. Landing trends of fossilised bivalves from Kulasekarapattinam, Thoothukudi



Boat with exploited shells



Dumping the exploited shells on the shore



Sieving the collected shells to remove the sand particles