

# TROCHUS AND TURBO FISHERY IN ANDAMANS

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## Introduction

The sea around Andaman and Nicobar Islands is a rich ground for a variety of commercially important molluscs. Among the sea shells, trochus or top shell and turbo or turban shells occupy a unique position for their utility and abundance. As early as in 1929, the trochus fishery was organised at Andaman Islands and a consolidated scientific report was published in 1938 on the shell fisheries of these Islands during 1930-35 period dealing with the history of Andaman shell fisheries, fishing methods, the important beds of top and turban shells and the scientific work done on these shells. The local Government after realising the importance of this fishery, started giving the fishing grounds on lease to merchants for fishing and collected royalty from them.

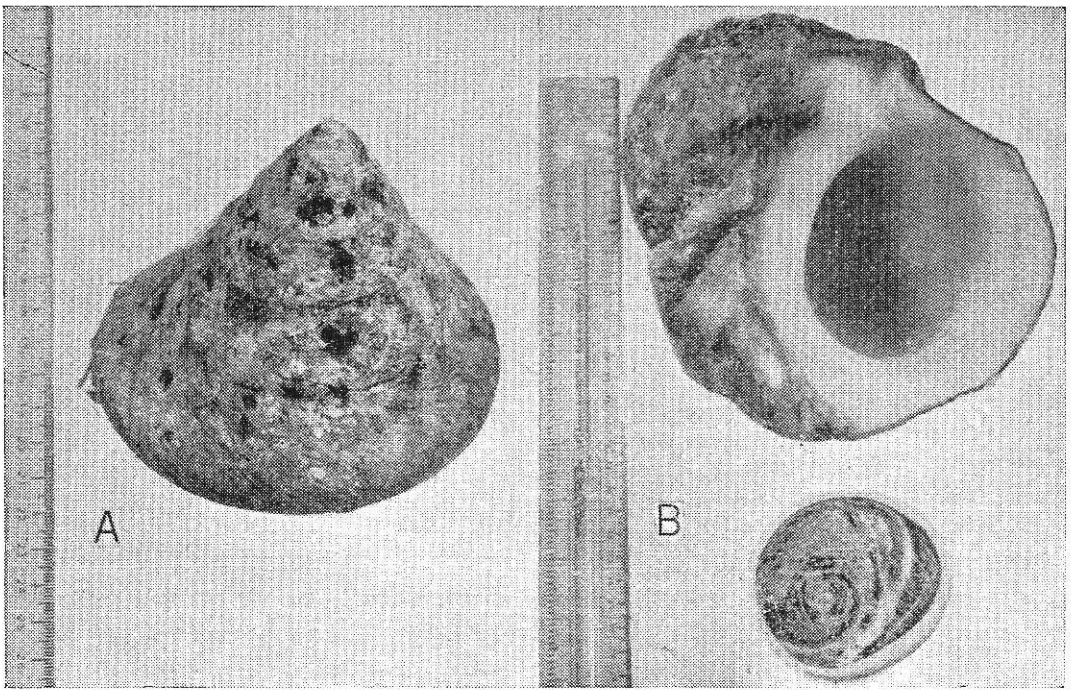
## Previous work

Amirthalingam (1932) and Setna (1933) have reported the details of the Andaman

shell fisheries and Rao (1936, 1937, 1939) has dealt in detail the taxonomy, fishery, feeding habits, behaviour, breeding behaviour and parasites of trochus from Andamans. Panikker (1938) has briefly reviewed the research works done on the trochus from the Andaman waters. Recently Menon (1976) and Chatterjee (1976) have described the commercial importance and the possibilities of developing shell handicrafts in Andaman Islands.

## Description

*Trochus niloticus* is the common top shell of commercial importance (Fig. A), exploited in large quantities in and around Andaman and Nicobar Islands. The shell is conical or pagoda-like, white with many reddish brown longitudinal bands. The mother-of-pearl underlines the shell surface. The shell attains a size of 8 cm to 12 cm and the period of life is about 10 years. Sexual maturity is reached when the shell attains 6-7 cm diameter. The brilliant lustre of mother of



pearl is more in 8.5 – 10.0 cm sized shells. The growth rate studies on this shell showed that the female shells grow faster, growth rate vary inversely with the size of shells and growth in diameter is closely related with growth along the whorl of the shell. This species is a continuous breeder, spawns during or immediately after warm season (Rao, 1936). This species is widely distributed from Ceylon, Mergui, Andaman and Nicobar Islands to Samoa, Queensland, Western Australia, New Caledonia, Philippines, Fiji to Japan.

*Turbo marmoratus* is the turban shell exploited from these Islands (Fig. B). This is popularly known as 'green snail'. The shell is thick, massive with a wide aperture. The

outer surface is dark and mottled with brown and white. Pearly layer is visible when the outer coating of the shell is removed. A large and solid operculum is present. Shells ranging from 8–18 cm are being exploited. This is found in Andaman and Nicobar Islands and Japan.

#### Fishing zone

Nine important fishing zones, their port and latitude are given below :

1. Cape Price to Mayabunder, between  $11^{\circ} 56.5'$  and  $13^{\circ} 34.5'N$ . Port-Maya-bunder.
2. Cape Price to Austen Straight, between Lat  $12^{\circ} 54'$  and  $13^{\circ} 34.5'N$ . Port – Mayabunder.

3. Mayabunder to Long Island, between Lat 12° 24' and 12° 55'N.  
Port – Long Island.
4. Long Island to Shoal Bay, between Lat 12° 0.5' and 12° 18'N.  
Port – Long Island.
5. Shoal Bay to Chiriatapu, between Lat 11° 29' and 11° 56.4'N.  
Port – Port Blair.
6. Chiriatapu to Port Mouat, between Lat 11° 29' and 11° 38'N.  
Port – Port Mouat.
7. Ritchies Archipelago, Island and Islets, between Lat 10° 46.5' and 12° 19'N. Port – Port Blair.
8. Nicobar Central group, between Lat 7° 52' and 8° 35' N. Port–Nancowrie.
9. Nicobar Southern group, between Lat 6° 45' and 7° 31' N. Port–Nancowrie.

The Andaman and Nicobar administration have leased out all these nine zones for fishing every year. There are seven licensed shell collectors in the Island and each is permitted to raise up to 25 tonnes of shells a year.

#### Method of fishing

Both the species are exploited from shallow and deeper waters. The turbo shells are collected from a depth ranging from 6–13 fathom by skin diving. The divers in the

Island know the rich shell beds in the coastal area and collect the shell during low tide, especially from the mangroove area. These shells are always seen underneath the rocks, coral stones, in the crevices of rocks or burried in the mud. Divers reach the shell beds by means of dinghy called *Sampan* or *Bonga dongi* and they dive without any diving gears. In each *Bonga dongi* 10 adults will be engaged. Such a unit will be able to collect about 100 shells a day. The main fishing season begins by January and lasts till July. Most productive area for trochus and turbo are zone five and six but the larger sized shells are being collected mainly from zone eight and nine.

#### Statistics

A total of 400 tonnes of trochus and 105 tonnes of turbo was landed during 1976. A rough estimate of average shell landings of the Island is between 400–600 tonnes for trochus and 100–150 tonnes for turbo shells per year. The present market price of raw shells of turbo is Rs. 10,000/- per tonne and Rs. 4,000/- for trochus shell. A cleaned turbo shell may cost between Rs. 20/- and 50/- and trochus shell between Rs. 5/- and 15/-. The finished product viz. necklace, carved out of bits of turbo shell costs Rs. 35/- to 60/-; earrings Rs. 15/- to 25/-; finger rings Rs. 5/- to 10/-; wrist let Rs. 25/- to 30/-; buttons Rs. 7.50 per set; cufflinks Rs. 8/- to 15/- a pair; table lamp Rs. 18/- to 55/- and lockets Rs. 5/- to 15/-. The estimated profit of the industry is around 25%.

## Utilisation-processing

The raw shells brought by the divers are collected and dumped in godowns by the local shell merchants. The soft part of the shell is taken out either by boiling or by pit curing. Once the soft body parts are removed completely, the shell is cleaned, graded, packed in gunny bags and marketed. It is understood from the local merchants that there is 10-20% of the wormed shells in trochus and turbo collected from various fishing zones of the Island. The boring organisms are mainly polychaetes and bivalves. The percentage of damaged shells are more in large sized shells. Fouling organisms like, barnacles are also seen in trochus and turbo shells. Encrustation of calcareous algae is a common phenomenon. Damaged shells were found more in the trochus landings than in turbo.

Both these shells are most sought after for industrial purposes. Turbo shells are considered as costliest and is heavy and nearly rounded in shape. By cleaning and mechanical grinding of the shell, the internal pearly lustre is revealed. After cleaning and processing, these shells are highly attractive and versatile. Trochus shells also have the internal mother of pearl layer and by cleaning and polishing the outer layer, the pearly luster is revealed.

Japan and the Western countries have developed modern industrial techniques to process the trochus and turbo shells into

costume jewellery, buttons and a variety of curious articles. In Calcutta there are several handicrafts units and they manufacture number of shell articles. The process of manufacture of shell articles include curing in boiling water, the removal of the upper skin by mechanical abrasion, bleaching, cutting, shaping, fitting, engraving, enamelling and final finishing.

## Finished products

Pictures of saints, beautiful designs, names etc., can be embossed on these shells by means of photographic method. At Andamans there are few shell handicrafts emporia, where engraving of shell pieces into beautiful models, lockets, rings etc., are being done by expert artisans. The important articles made out of these shells are table lamp, pen stand, necklaces, ashtrays, ear rings, chain lockets, but bowls, cufflinks, fork, spoon and buttons.

The final products are sold widely in almost all the cities and tourist centres all over India. Of late some shell merchants of Calcutta and South India are exporting the finished products to different countries viz. France and U. S. A. The ornaments and *novelties* made out of these shells have good market in the U. S. A. In France, buttons made of shells are utilised for latest fashion designs. The market is fast improving and the need for popularising the industry is much essential.

## Conclusion

Apart from trochus and turbo shells, *Xancus* are also being caught in good numbers. Chank beds are located mainly near Kalapadu, Vandur and Rose Island. About 5,000 good chanks were being landed during 1976 in the Port Blair area. They range in size from 115-175 mm. Other important shells collected along with chanks are *Cassis cornuata* (Helmet shells), *Lambis lambis*, *L. chiragra* (five finger chanks or Scorpion shells) *Murex* sp., *Nautilus* sp., (pearly nautilus), *Conus* spp., (Cone shells) and *Cypraea* spp. (Cowries). All these shells provide a vast field for development of cottage industries in the Island.

There is excellent scope for developing the shell craft industry locally utilising modern machines for grinding and polishing the shells. By utilising the service of good artisans, trochus and turbo shells can be made into beautiful pieces of curious articles. The variety of other shells which are found abundant around the Island have a good demand in the internal market and can be exported to different foreign countries. An earnest attempt in this line will yield good result.

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