

## TRADITIONAL FISHING METHODS OF LAKSHADWEEP

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### ABSTRACT

Economy of the Lakshadweep islanders depends mainly on coconut farming and fishing. About 30-40% of the population are full time fishermen. Some of the fishing methods practised by the islanders are still traditional, Tuna forms the main established fishery of the island. Pole and line fishing is the most effective fishing method for surface tuna shoals. Most of the traditional fishing operations prevailing in the islands are unique and conducted during neap tides only.

### INTRODUCTION

Lakshadweep islets with a total area of 32 sq. km. are situated at the extreme of aseismic Laccadive Chagos Ridge and consist of a number of atolls, submerged reefs and coral banks along the west coast of India off the Kerala coast (between 8° to 12° 31'N and 71° to 74° E) All the islands have shallow saucer-shaped lagoons on their western side, encircled by coral reefs and storm beaches on their eastern side. Among the 36 coral atolls, only ten are inhabited. As per 1971 census, the total population of the island is 31,810. Coconut farming and fishing are the main stay of islanders. The earlier documents relating to the history and culture of the islands including the fishery operations are that of Alcock (1902), Hornell (1910), Ayyangar (1922), Ellis (1924), Burton (1940), Mathew and Ramachandran (1956), Jones & Kumaran (1959; 80) and Vergees (1974). Lakshadweep encompasses about 65,000 sq. miles of fishing ground and the principle tuna fishery (skipjack) of India exists in Lakshadweep only (Dwivedi, 1972). The per capita fish availability in Lakshadweep is higher than the rest of the Union territories and States of India (72.29 kg in 1981).

Tuna is the main established fishery in Lakshadweep forming 70% of the total landings in 1983. The catch composition of tuna is Skipjack (*Katsuwonu pelamis*), Yellowfin (*Thunnus albacures*), little thunny (*Euthynnus affinis*), Frigate tuna (*Auxis thazard*), Dog teeth tuna (*Gymnosarda unicolor*), long tail tuna (*Thunnus tongel*) etc. The fishing season of skipjack extends from October to May with peak from December to March. In the beginning of the season, shoals are first sited in the southern part of the island then move to the northern side. The tuna fishing is done normally within the 10 miles radius off the islands.

Apart from the tuna, the fishermen of the island earn their livelihood by collection of corals and shells, holothurians and small fishes in the lagoon water. The coral collection is commonly done by men folk whereas shells are collected by women folk in the shallower region. The collections of shells and corals are kept buried in the intertidal zone for a week and washed with water before they are transported to mainland, mainly Calicut and Mangalore, for marketing. There are about 73 species of corals belonging to 29 genera in Lakshadweep water (Pillai, 1969). Many economic varieties of shells such as *Lambis truncate* (Humphery), *Lambis lambis* (Linne), *Lambis chiragra* (Linne), *Ravitriona caputserpensis* (Linne), *Monetaria monita* (Linne), *Cypraea tigris* (Linne), *Cypris rufa* (Linne) etc. occur in the island water.

The shallow water of high clarity around the islands facilitate healthy growth of holothurians. The dominant species found in Lakshadweep are *Holothuria scabra* and *Thelonia ananas* (Large size) which are considered best for beche-de-mer production.

## METHODS

*Shark fishing*: It is an age old traditional method of fishing still existing in Lakshadweep. When the shoal is sighted particularly near the floating objects, freshly caught fishes (eg. tuna) are cut into pieces and dipped near the boat. Blood spreads in water and the shoal tends to aggregate near these areas. The highly skilled fisherman keeps his hand near the caudal fin of the juveniles and with a sudden movement of his hand, throws the fish on board. The cpue (catch per unit effort) is 40 to 50 Nos, comprising mostly of juveniles only.

### *Wounding gears*

*'Chilla'* : This is a special type of multipronged spear made of coconut 'chilla' (215-250 cm long and 3-4 cm diameter) and fitted with arecanut spikes at equal intervals around one end of the pole (Fig. 1a). The gear is operated at sun-set during low tide period from the shore line where fishes congregate and are darted (Fig. 1b). The fishes commonly caught are *Thalassosteus appendiculatus*, *Abbnnes hians*; *Strongylura strongylus* etc.

*Iron spikes* : Two iron spikes fitted at the end of a coconut pole (200-300 long and 3 cm dia) is used as the gear operated in the inshore areas. The operation is done at night with the aid of a bright fire (a broom of dried coconut leaves is used). The fishes usually caught are *Upeneus* sp. *Parupeneus* sp. & *Cally don* sp. etc.

*Harpooning of rays* : The harpoon is made of a coconut pole (318 cm length & 2-4 cm dia) fitted with a straight iron rod bent in the shape of a hook



Fig. 1. Wounding gear. a) The 'chilla' multipronged spear used in inshore fishing. b) "Chilla" being operated. c) A typical harpoon "chattuli" with the eye for attaching coir ropes. d) The canoe set with all the accessories for ray hunting. e) The leader fisherman "Jammathi" aiming at ray. f) Shaving of the ray caught. g) The wooden model used as artificial bait.

“Chattuli” (length 47 cm) at one end (Fig. 1c). To the other end is connected a small piece of coir rope. The “Chattuli” is provided with an eye-splice and is connected to a long coir rope, kept inside the craft. In general, ray fishing operation is onboard the indigenous craft “odum” and it is a kind of sport cum commercial fishing (Fig. 1d). Harpooning of rays in India exists in Lakshadweep only.

The fishing season commences from June-August with a peak in south-west monsoon period. Starting early in the morning, 8-10 active fishermen participate in the operation and return by the same evening. When the ray is spotted, all canoes in the vicinity converge towards it. The leader fisherman ‘Jammathi’ darts the harpoon at the ray (Fig. 1e). As soon as the harpoon pierces the ray, the ‘jammathi’ pulls the coconut pole with a help of the smaller rope and detaches it from the ‘Chattuli’. The long coir rope inside the craft is held by the crew and the craft is then automatically dragged by the ray in its struggle to escape. When the ray gets totally exhausted, it is dragged near the canoe and loaded by cutting into pieces.

When two or more parties harpoon a ray, the sharing system is very interesting (Fig. 1f). The first person to harpoon the ray ie ‘Munnukar’ has a reserved right to cut the ray first. His party cuts the right wing and the adjacent part for themselves. The second party ‘Bikkar’ cuts and presents the left wing to the first party. The portion adjacent to the left wing goes to second party. The heart ‘Fumma’ small intestine ‘Kudal’, large lobe of liver ‘Balia karala’ to the first party only and the small lobe of liver ‘cheriyakarale’ and large intestine for the second party. The remaining portion is equally divided and shared by both the parties (right side of ray to the first party and left side to the second party).

#### *Harpooning for other fishes*

A unique method of catching fishes, though not used often by fishermen constitutes the tying of a small life-size wooden model (Fig. 1g) of a fish (eq. *Cypselurus* sp.) at the end of a rope or nylon monofilament (200-250 cm long). The rope is connected to a pole (150-200 cm length & 4 cm dia) of bamboo or coconut. With the help of the pole, the fish model is moved in water. Other fishes get attracted towards it and are then harpooned and captured. The fishes caught commonly are *Acanthocybium splendri*; *Istiophorus platypterus* and *Tetrapturus audax* etc.

**Line fishing :** The monofilament (0.4-1 mm dia) of various lengths with a single baited hook (No. 6-12) is operated in the lagoon and storm beaches. A small piece of lead weight or stone is used as a sinker. The operation is very common in the ray fishing season. The fishes caught mainly are *Epinephelus* sp. *Lutianus* sp. and *Acanthurus* sp. etc. For inshore and high sea fishing from stationary craft. Cotton line of 20|60|3 tied to about 2000-3000 cm monofilament with baited (tunahead or octopus) hooks (No. 4-6) attached with lead

weight or stone are used, for catching *Lutianus* sp. *Epinephelus* sp. tunas and sharks.

*Drift long line 'Bayy'*: The gear consists of cotton line (20/130/3) ranging 5000-10000 cm in length 300-500 cm steel wire with baited hooks of 1-3 (flesh of ray, turtle and the tuna heads are used as bait). The fishes (Fig. 2a) caught are sharks and bigger varieties of tunas.

*Highsea trolling*: A single baited (tuna head or coloured feather of birds) hook (No. 1-4) attached to the monofilament (eg. 2 mm dia) is operated by 4-5 fishermen for mainly seer fishes and tunas (2-6 lines are operated at a time). Trolling is carried out throughout the year but the peak season is from July to March. In winter (Dec.-Feb.) the catches are mostly contributed by seer fishes only (*Acanthocybium solandri*).



Fig. 2. Line Fishing a) An yellow fin tuna caught in the drift long line "Bayy".  
b) A dive bait net, c) A pablo boat with the live bait tank.

*Pole & line (inshore)*: Single baited hook (No. 10-12) with 400-600 cm nylon monofilament attached to a bamboo pole of 250-400 cm length is operated throughout the year with a peak in the monsoon season. The fishes caught are *Stothojulis* sp., *Epinephelus* sp., *Acanthurus* sp. etc.

*Pole and line for tuna (high sea operation)*

The pole and line fishing is an important traditional art of fishing in which the fishermen of Lakshadweep have attained much skill. It is found to be the most effective fishing method for surface tuna shoals.

*Operational aspects :*

a) *Live bait collection* : Live bait is commonly collected in the early hours of the day from the lagoon. Bait fish are lured by the pastes of crabs or fishes "Philimus" and collected by small meshed nets "Nelamehi dohu" (Fig. 2b). The live bait collected is stored in the live bait tank (made of perforated wood or tin) which is fitted over the hull of the boat (Fig. 2c). or if in surplus, the live bait tank is kept in the lagoon. Live bait commonly found in lagoons of Lakshadweep are *Spratelloides japonicus*, *S. delicatulus*, *Apogon sangiensis*, *A. bandanensis*, *Lapidozoys tapenosoma* etc. Live bait is used for chumming of the tuna.

b) *Pole and line operation* : A straight, strong, light and flexible bamboo pole (200-500 cm length; 4 cm dia at the base and 1.5 cm at the tip of the pole) is attached to a line of same length of pole. About 2/3 of line is made of polyethylene or nylon twine 1.6 mm dia which is attached to the narrow end of the pole by clove hitches and 1/3 of line is monofilament of 1 mm dia connected to the above line by an eye splice. A locally made barbless hook (spoon bait) of iron, coated with lead is attached to the line. The operation starts early in the morning. On sighting the shoal, the boat moves towards it. The shoal can be made out by dark patches at the sea surface and by congregation of sea birds. When near the shoal, the live bait is thrown overboard and the water is splashed by hand. The fishermen with rod and line cast their spoon bait in the middle of the shoal. As soon as the spoon is gorged by the tuna, with a gentle jerk applied to the rod the fish is swung onboard. The pole and line catch comprises mostly juveniles only. The catch/hr. is directly related to the chumming magnitude of the tuna. About 90% of catch is by *Katsuwonus pelamis* only.

*Falling gear :*

1. *Covering net* : Known locally as 'Moodvale', is a conical piece of webbing made of cotton twine 20|2|3. The length varies with mesh sizes 25-30 mm. The foot rope is made of synthetic twine attached with another shaped lead weights at equal intervals. The operation is in the rocky shallow areas of storm beaches and lagoons (Fig. 3a). Small rocks are covered by these nets and rock is shaken well. Fishes inside the crevices come out and get entangled in the net. *Acanthurus triostegus*, *A. lineatus*, *Ctenochactus strigosus*, *Paracanthurus hepatus* etc. forms the major catch.

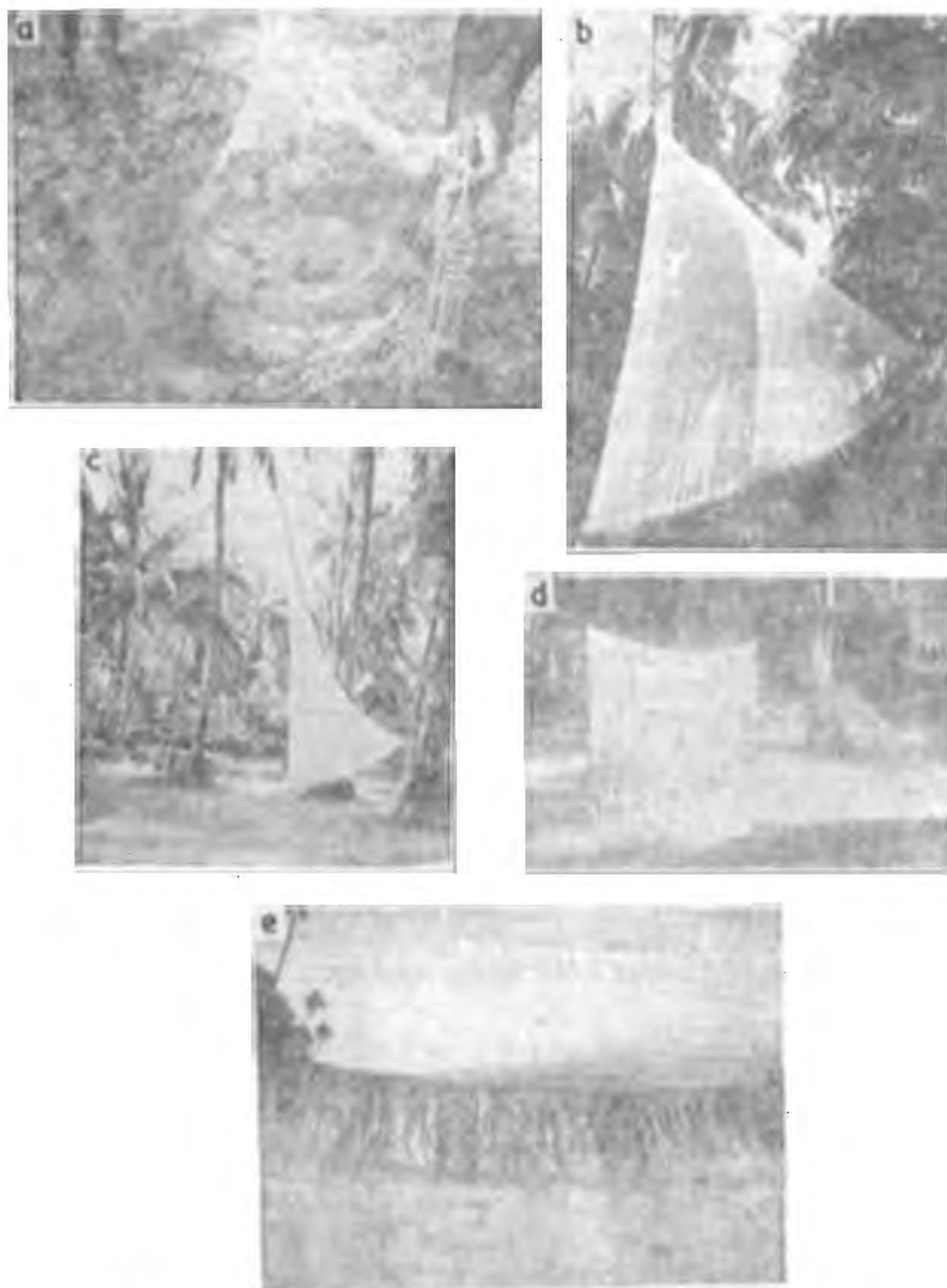


Fig. 3. Falling gear and gill nets. a) Covering net "Moodvala", b) A small size cast net. c) A big size cast net. d) A gill net. e) Frightening line. "Olavala" made of coconut leaves.

2. *Cast nets* : Locally known as "Veechu vala," the cast net used in Lakshadweep is devoid of a central line and pockets and are operated throughout the year. It varies widely in size, with the mesh size ranging from 25-80mm and the circumference made of synthetic twine of length ranging from 1400-2000 cm (Fig. 3 b & c). A number of locally made lead weights (20-25 gm) are attached to the foot rope at equal intervals. The fishes caught are *Upeneus* sp.

*Parupeneus* sp. *Acanthurus* sp., *Chorinemus tol*, *Caranx* sp. etc.

*Gill nets*. Simple gillnets made of cotton twine (20/2/3) or synthetic twine with mesh size 40-50 mm are operated in shallow water (Fig. 3d). Fishes are directed towards the nets by water splashing, making frightening sounds and by use of frightening lines. The frightening line 'Olavala' (Fig. 3e). is made of coconut leaves without veins, suspended over the coir rope. In shore seine operation, this line is attached to each end of the gill net and dragged towards the shore. Gill net operation without frightening line is in the early morning. The major catch comprises of *Upeneus* sp., *Mulloidichthys* sp; *Parupeneus* sp. etc.

Fishermen of Lakshadweep have the same social status as their counterpart agriculturists. About 30 to 40% of the population are full time fishermen. They possess innate knowledge and skills in their profession. They are also accomplished boat builders. In Minicoy, the handling and processing of fish is done by the women folk exclusively, unlike in other islands. The fishermen normally get only one holiday (Friday) in a week.

The income from fishing plays an important role in the overall economy of the island. The incentive for fishing is not given as currency but a greater share of the total production. The catch allocation differs slightly from island to island and also from season to season. Normally, in the trolling catch 2/3 goes to the boat owner and rest is shared among fishermen equally.

In the pole and line, 50% of the catch is given to boat owners and the balance is shared equally among fishermen. Each fisherman on an average earns Rs. 900-1000 per month during the peak fishing season for tuna. During other seasons, they earn about Rs. 300/- per month from part time fishing activities. From other ancillary occupation during off season, it is estimated that at least one member of each family earns; Rs. 250-350 per month. There is however, an urgent need to collect detailed data on performance of the gear and income derived by the fishermen of the islands.

Fishermen form the backbone of the fishing industry and the economy of the islands. Hence there is a necessity to lay stress on the welfare of this hard working community of the islands.



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