

Changes Among Traditional Fishing Gears in Kerala

V. Balan

(Central Marine Fisheries Research Institute, Cochin-18*)

With the advent of synthetic fibres in the fishing industry in India, despite the fishermen's conservative attitude to modernization, many changes in the fabrication of most of the time-honoured fishing nets have gradually come into existence.

BOAT SEINES

In many fishing villages of Kerala where the giant boat-seine "Mathikolli vala" was used since 1895 largely for the capture of the oil sardine (in the inshore waters), the nylon-made boat-seine "Pattenkolli" has recently (since about 1965) been introduced. As a result, the former cotton-yarn seine has become obsolete from the coast of Kerala. In earlier years five or six fishing units had to join together to make one Mathikollivala (vide Hornell, 1987; Nair, 1960), but now each fishing unit independently owns a Pattenkolli vala (at times a half). The introduction of this nylon net has brought about a considerable improvement in the economic conditions of the fishermen in Kerala state.

It has also been found that the cotton-made boat-seine "Noolu vala" (also called "Thattum vala") is not so

efficient as the nylon Pattenkolli in the capture of most of the pelagic or meso-pelagic species; hence, it is also not in common use nowadays.

The boat-seine "Vatta vala" and the one boat boat-seines "Thangu vala" and "Nona vala" of the South Kerala (Cochin and Alleppey districts) region used principally for the capture of the different species of sardines have not undergone much changes all these years except that the cotton yarn has been replaced by nylon webbing. Thus along the south Kerala coast, we find relatively less transformation in regard to the magnitude and diversity of the various indigenous boat seines employed for the different coastal fisheries.

CAST NETS

With the increased use of the efficient boat-seines all along Kerala, the "Kettum Vala" (a stringless, large-meshed cast net) which was extensively used along the Malabar coast for fishing mainly the big-sized oil sardine has gone out of use in recent years.

* Present address: *Research Centre of Central Marine Fisheries Research Institute, Calicut-5.*

The stringed nylon small-meshed (16.0-23.0 mm mesh length) cast nets called "Neychu Vala" and "Pachi Vala" are used on a small scale nowadays for the fishery of sardines and other small fishes (and prawns) in the nearshore waters; they are even less common in the fishing villages where there is a large number of boat-seines in operation.

GILL NETS

The operations of sardine gill net (Mathichala vala) are also now restricted. The gill net is used only when the sardine shoals (comprised of adult fish) are thin and remain scattered at the sea bottom. In recent years, in most of the fishing villages of Kerala both the old cotton-made sardine gill nets and mackerel gill nets have been replaced by bigger nylon gill nets provided with aluminium floats.

It is of interest to mention here that these changes or modifications in regard to the various fishing gears though applicable in the case of general fisheries, are concerned mainly with the oil sardine fishery off the Malabar coast (Table 1).

DRIFT NETS

The thick and large-meshed hemp drift net called "Sraavu Vala" (mesh diagonally 325 mm) used early in the present century for the capture of giant sharks and other elasmobranchs had gone out of use about forty years back. The big-meshed hempen "Thirandi vala" (Rayfish drift net) commonly operated all along Kerala coast till recently, is only rarely used now.

The hempen driftnet "Ozhukku vala" (mesh diagonally 85-120 mm.) of the West coast employed for the fishery

of big-sized seer fish, tunas, pomfrets, sharks, rays, catfishes, sciaenids, sailfish etc. have also been replaced in recent years by larger-sized nylon-made drift nets which have caused a marked increase in the catches of these fishes.

At the central Malabar region, a small-sized white nylon drift net (mesh 100-145 mm) has been successfully used during dusk hours for the fishery of sub-surface and surface schools of pomfrets exclusively (mostly the white ones), since the last five years.

SHORE SEINES

The design and shape of the small-sized cotton beach seines operated for small miscellaneous fishes and prawns along Tanur, Madappalli and other North Malabar regions are being retained as such without much of change all these years.

HARPOONS AND LINES

The practice of fishing large-sized elasmobranchs, sciaenids, billfishes and dolphins with harpoons on board canoes though very common in the old days, is not quite popular now. The old practice of fishing of big-sized seerfish, barracuda, belonids etc. by whiffing line has also been, of late, dropped to a great extent in many villages.

It may be worth recalling here the conservative nature of the fishermen along the south Kerala coast, all these years.

It would be of interest here to trace the factors which led to the abandoning of the former boat-seine Mathikolli vala from Malabar. They are outlined below.

FISHING EFFICIENCY AND OPERATIONAL ADVANTAGES:

1. Introduction of synthetic fibres (nylon) in net making industry on a large scale.
2. The handling of the cotton seine during fishing operations is more tiresome and hence results in reduction of number of hauls. Adhesion of particles of mud, water and fish mucus is more extensive to this heavy net which renders it heavier and vulnerable to rotting caused by marine bacteria.
3. Cotton Mathikolli vala is difficult to clean and takes longer time for drying mainly because of higher degree of water absorption. Whereas, nylon Pattenkolli is easy to handle and clean, absorbs less water and dries quickly; it would need less post-fishing care compared to the former.
4. Mathikolli fabricated by joint investment of 5 or 6 fishing units was used exclusively for oil sardine fishery all along the Malabar region. Now each nylon Pattenkolli, though 4 or 5 times costlier than the former, is in most cases, independently owned. Pattenkolli, a "multi-purpose" seine which was originally employed for catching the oil sardine, came to be extensively used for the fisheries of white sardine, the rainbow and the "fimbriate" sardines, engraulids, mackerel, catfishes,

Decapterus russelli, *Megalaspis*, Jewfishes, pomfrets, silverbellies, Malabar sole, prawns, etc. which aggregate as dense schools.

5. The extent of damage due to dolphin bites is greater to cotton-made Mathikolli than to the nylon seine; hence, loss of catch is larger from the cod-end region of the former while brailing up a heavy live haul.
6. Compared to Mathikollivala, the nylon Pattenkolli has got higher resistance to rot, greater tensile strength and durability when subjected to frequent fishing of dense shoals; the latter can withstand the stress of about 4 tonnes of the sardines in one haul.
7. The light green or blue colour of the present-day nylon seine blends well with the marine environment during day time. The slow moving compact fish shoals are easily caught in it.

From the foregoing observations, it may be deduced that the modernization of the fishing gears has made a striking impact by dispelling the conservative nature of the artisanal fishermen of Kerala and effected improvements of the fishery yields and their economic conditions.

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TABLE 1. Indigenons fishing nets of Kerala coast with special reference to the Oil Sardine fishery.

Sl. No.	Local names (m)	Length (m)	Width (m)	Average mesh size in mm. (knot to knot diagonally when stretched)	Remarks
<i>Boat-Seines :</i>					
1.	Mathikolli	50.0	56.0	17.0-18.0	Cotton yarn; knotted netting, now almost rare. Full-sized coir wings and coir platform.
2.	Nylon pattenkolli (new)	42.5	47.0	17.0	Made of nylon; knotted webbing. Coir platform much reduced (1½m.). Coir or Nylon wings full sized (15.5m). Costs about Rs. 8000/- Platform width 20.60 mm.
3.	Pattenkolli (Old type)	Slightly smaller than Nylon Pattenkolli		17.0	Cotton yarn. Coir platform much reduced. Full-sized coir wings.
4.	Thattum vala (Nooluvala)	22.5	39.5	14.0	Cotton yarn netting formerly used mainly for oil sardine. Wings and Platform full-sized.
5.	Paithu vala (Old type) same as Arakolli of North Malabar.	12.0 15.0	14.0 20.0	15.0	Cotton yarn. Size of wings and platform same as Nylon Paithu vala.

6.	Paithu vaia (Nylon) almost same as Vatta vaia of S. Kerala.	10.5 15.0	12.0 18.0	15.0	Nylon webbing. Platform and Coir wings small-sized.
7.	Nethal Vala	19.75	23.0	10.0	Cotton Yarn; relatively small platform and coir wings.
8.	Ayilakolli vaia	40.00	60.0	41.0	Cotton yarn; cod end meshes made of thick hemp twine in some cases to resist dolphin bites. Used mainly for mack- erel and sardines, formerly; now replaced by nylon pattenkolli.
9.	Edakkan vaia	14.85	36.0	16.0	Thick cotton yarn netting. Full-sized coir wings and platform. Mainly operated to catch catfishes, pomfrets, ribbon fishes and ray fishes.
10.	Thalayan Vaia (Old Noolu vaia or old Vakku vaia)	Same as Noolu vaia given under (4)	—	—	Cotton yarn. Used for catch- ing mainly ribbon fishes, cat fishes and rays. Old Noolu vaia or Vakku vaia converted.
11.	Vakku vaia (Etta vaia)	12.56	25.0	30.0	Made of thick hemp twine. Full-sized coir wings and platform. Head rope carries two giant cylindrical floats. It is the heaviest among boat-seines.

Gill Nets:

1.	Mathichala vaia (Nylon)	21.0	6.5	27.0	Measurements of each piece given. 6 such pieces laced together during/fishing. Used mainly for gilling sardines.
2.	Ayilachala vaia (Nylon)	32.0 (1 piece)	9.7 (depth)	54.0	4 to 8 such pieces laced together. Used for fishing big-sized mackerel.
3.	Ayilachala vaia Medium meshed (cotton)	35.0 (1 piece)	12.30 (depth)	47.0	8 such pieces laced together. Made of cotton, used for catching big sized sardine also.