

# BAY OF BENGAL PROGRAMME DEVELOPMENT OF SMALL-SCALE FISHERIES



INVENTORY OF KATTUMARAMS AND THEIR FISHING GEAR IN ANDHRAN PRADESH AND TAMILNADU

BOBP/WP/2

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INVENTORY OF KATTUMARAMS AND THEIR FISHING GEAR IN ANDHRA PRADESH AND TAMIL NADU BOBP/WP/2

by T. R. Menon

Executing Agency:

Food and Agriculture Organisation of the United Nations

Funding Agency:

Swedish International Development Authority

Development of Small-Scale Fisheries in the Bay of Bengal Madras, India, October 1980

## PREFACE

During the second half of 1979 and the first quarter of 1980 a survey was carried out in some fishing villages of Andhra Pradesh and Tamil Nadu, to obtain information on the types of kattumarams used on the East Coast of India, the kinds of fishing gear used with the kattumaram, the methods of operation, catches and costs. This working paper presents the results of the survey. The text and the photographs give a brief summary of kattumaram types and their economic importance. A comprehensive pictorial record of the kattumaram types is also available.

For those requiring more detailed data on materiats, construction, fishing gear, operations and costs, a comprehensive record of the information obtained during the survey is to be found in the appendices.

The survey was carried out by Mr. T. R. Menon, Chief Instructor (Craft and Gear), Central Institute of Fisheries, Nautical and Engineering Training (CIFNET), Cochin. He was deputed to the Bay of Bengal Programme during July-September 1979 and in March 1980.

The Bay of Bengal Programme and FAO express their gratitude to the Government of India, Ministry of Agriculture, and to the Director of CIFNET for making Mr. Menons services available to carry out the work.

The views expressed in the paper are those of the author and do not represent the official views of the Government of India, CIFNET or the FAO.

The survey and the preparation of this paper were undertaken as part of a project designed to improve the kattumaram, prepared by the Bay of Bengal Programme for the Development of Small-Scale Fisheries (referred to in brief as the Bay of Bengal Programme). The programme is funded by the Swedish International Development Authority (SIDA) and executed by the Food and Agriculture Organisation of the United Nations (FAO). Its main aims are to develop and demonstrate technologies to improve the conditions of small-scale fishermen and the supplies of fish from the small-scale sector in five countries that border the Bay of Bengal Bangladesh, India, Malaysia, Sri Lapka and Thailand.

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## I INTRODUCTION

The bulk of marine food fish on the East Coast of India is landed by traditional craft. Of these craft, the "kattumaram" is the most widely used type. The kattumarams are used from Puri (Orissa) in the north to Kanyakumari (Tamil Nadu) in the south. On this stretch of coast there are over 40,000 units as against only 15,000 units of other types of traditional craft. In terms of employment, the estimated 40,000 operational kattumaram units directly engage same 120,000 fishermen with 500,000 direct dependents.

The entire east coast of India is surf beaten. Kattumarams are built of shaped logs lashed together, propelled by oar, paddle, pole and sail. They represent an effective solution to the problems of producing a tow-cost fishing platform capable of negotiating moderate surf and landing on beaches without suffering permanent damage. They are constructed of local materials using simple tools. There are various types, developed over the centuries to suit local requirements; some types can be adapted in size, sail rig and equipment according to the needs of the moment. They are, however, limited in carrying capacity and offer no shelter to the fishermen or protection for the catch. Productivity is low. For the foreseeable future, however, beach landing craft based in local fishing villages will continue to produce the greater proportion of the marine food fish catch of the east coast.

It is desirable to improve the earnings and conditions of work of the individual fisherman. One possible way of achieving this outcome is by technical development of the fishing craft and gear, and this is part of the task undertaken by the Bay of Bengal Programme. Among the lines of investigation being pursued is the possibility of developing improved kattumarams. First, however, it is necessary for those engaged in this activity to have available an account of what existing kattumarams are like, how they are used and what they are capable of doing; also of the operational and environmental factors governing the selection of design, materials of construction and methods of use of both craft and gear.

This report summarises the results of a study of the different types of kattumarams in use in several fishing villages of Andhra Pradesh and Tamil Nadu.

## 2 PRINCIPAL CHARACTERISTICS

2.1 *Types of kattumaram:* All kattumarams are made up of solid logs lashed together. The entire flotation is derived from the buoyancy of these logs. There are two basic types in use, the raft type and the boat type. The former is widely used on the Coromande} Coast of Tamil Nadu. The latter is used in Andhra Pradesh. Boat kattumarams are also used in the Palk Bay region of Tamil Nadu but they differ in shape and construction from the ones used in Aridhra Pradesh. The different types and sizes have various local names which may also depend on the method of fishing. A glossary of these terms is provided in Appendix 11.

2.2 *Size:* Kattumarams range in length from 5 to 10 metres. The overall dimensions of the craft depend on the size of Logs available and the number of logs utilised. Generally the size of the kattumaram depends on the fishing method employed and the amount of gear carried. Very often, the money available *for* craft and gear decides the size of the craft and the fishing method employed.

2.3 *Materials:* Wood for kattumarams should be (ight and with a low rate of water absorption; weight not only affects the carrying capacity but also handling on the beach. The preferred species is *Me/ia Dubia,* which is found in Sri Lanka. However, on account of import restrictions, other species like *Albizzia Stipulata* and *Bombax malabaricum* have had to be used. These have densities of from 23 to 26 lb/ft<sup>3</sup> (368-415 kg/m<sup>3</sup>).

Masts, paddles and other accessories are usually made from bamboo or casuarina. Secondhand plastic sheeting or sacking is sometimes substituted for sailcloth.

2.4 *Fishing gear and methods:* The most widely used fishing gear is the gilinet. Other fishing methods like boat seining, scoop netting and *line* fishing are used to a lesser extent. Cotton nets have nearly aU been replaced by synthetic nets (PA nylon multifilament). The nets vary in yarn size, mesh size and length according to the species sought and season.

Given below are data on the kattumaram gill nets most commonly used. The data is only indicative as the design and size may vary from area to area and often from fisherman to fisherman. More detailed information on the nets inspected during the survey is given in Appendix 9.

#### KATTUMARAM GLL NETS

Material	Twine Size R Tex	Mesh size	Length (meshes)	Depth (meshes)	Cost Rs.	Length of kattumaram	Catches
PA Nylon	227(210d 9)	145 mm	7500	100	7000	8.5 m	Pomfret, seer, shark, catfish
PA NyLon	101 (210d 4)	30 mm	3500	300	2500	7.0 m	Sardine, ribbon fish, silver belly, small mackerel
PA Nylon	76(210d 3)	45 mm	14000	100	2500	7.5 m	Prawns, sardine, ribbon fish, Indian mackerel
PA Nylon	303(210d 12)	100mm	4000	50	2200	7.0 m	Seer, horse mackerel, pomfrets
PA Nylon	1138(210d45)	150mm	200	20	1000	6.5 m	Perches. rays

2.5 *Operations:* The majority of kattumarams are used only for day fishing due to limitations in carrying capacity and exposure and the fact that these craft are non-motorised and rely on sail for their propulsion. However, a few kattumarams in Tamil Nadu venture out for longer periods to catch flying fish in season. Sometimes, unexpected strong offshore winds blow the kattumarams out to sea.

2.6 *Economics:* The quantity of gear carried is largely limited by capita) costs, though in a few places it is also limited by other factors – such as damage to nets from trawlers and cargo vessels. The size and carrying capacity of the craft in any case severely Umit the amount of gear and other supplies and equipment, and therefore constitutes one of the important constraints on productivity—and thereby on the availability of capital for better craft and gear.

Estimation of costs and earnings is complicated by the fact that in some cases the kattumaram has no permanent identity: the fisherman selects from a stock of shaped logs those that best suit his present purpose and constructs a larger or smaller craft accordingly. Some of the togs at any time will be put out on the beach, under shade, to dry. As individual logs deteriorate, they will be trimmed and eventually replaced. The "life" of a log or of a kattumaram is not easy to ascertain. It is therefore more appropriate in these cases to think in terms of incomes and expenditures of typical individuals rather than in terms of life-costs and earnings of vessel types.

Construction of complete new kattumarams is also undertaken. The following figures will be useful as a guide to the level of costs that will have to be attained for new or improved designs if they are to be readily acceptable. Fuller details of materials, first costs and maintenance costs of kattumarams inspected durktg the survey are given in Appendix 8.

	Andhra Pradesh Boat Type	Tamil Nadu Raft Type	Tamil Nadu Boat Type
Length	6.50 m	8.5 m	6.8 m
Breadth (maximum)	1.25m	1.8m	1.Om
Number of logs	4	5	5
Timber cost (Rs.)	2,500	2,500	1,500
Labour (Rs)	500	500	150
Sail and accessories (Rs)	700	1,000	400
Total cost (Rs)	3,700	4,000	2,050

## 3 BOAT KATTUMARAMS OF ANDHRA PRADESH (See illustrations opposite; and Appendices 2A to 20, 7. 8 and 9)

3.1 *General:* Known locally as teppams, these craft range in length from 5 to 8 m. Irrespective of the size, they are constructed in a similar fashion with very little change in shape from place to place. When assembled, these craft take up a boat form with a rockered bottom (that is, with a pronounced line of sheer to make manhandling of the craft easier), sharp stem, and narrow stern with maximum beam amidships.

3.2 Construction.' The craft is designed to split into two longitudinal halves. Each half is made up of two logs shaped and pegged together with a fifth centre log if necessary to attain the desired beam width. A wash strake is sewn to the edge of the outboard log and held in shape by wooden struts. The stem pieces are also pegged to each half. While assembling the two halves by lashings, two crosspieces are provided at the stem and stern.

3.3 *Accessories:* Kattumarams are rowed while crossing the surf. Paddles or oars are used depending on the size of the craft. Steering is by means of a steering oar.

A large centreboard is provided amidships and a smaller one is provided at the stern. The aft centreboard is held in the slot by a wedge and is quickly released when it strikes the bottom during beachianding.

Mast, sails, balance board and an anchor form the rest of the accessories.

# Boat Kattumarams of Andhra Pradesh



One half of an Andhra Pradesh boat kattumaram. Note the wash strake.



 ${\rm Sail}\ {\rm rig}.$  Note the centreboard forward and the wedged centreboard aft.



An assembled Andhra Pradesh boat kattumaram, known locally as a "teppam".

## 4 RAFT KATTUMARAMS or TAMIL NADU (See illustrations opposite,' and Appendices 3A to 3F, 4, 5, 7, 8 and 9)

4.1 *General:* These craft range in length from 3 to 9 metres. They are all essentially *raft*-shaped. An intriguing feature of these units is their flexibility; being built up of individually shaped log pieces, they can virtually be transformed into bigger or smaller units overnight. It is not possible to speak of a distinct kattumaram since owners generally own several sets of logs and can therefore create different units as fishing requirements dictate.

Locally, kattumarams are classified as either big or small (periamaram, chinnamaram). The number of logs used to make up a unit depend on their size and the dimensions of the raft desired for a particular fishing method. Line fishing for example can be done from a smaller kattumaram than gillnetting. The minimum number of logs used is three and the maximum nine. The most common unit however is a five-log kattumaram.

4.2 *Construction:* Each log is individually shaped with a definite fore and aft curvature in the vertical plane. The bigger logs are placed inboard and the smaller logs placed outboard and the whole assembly lashed together. While all the logs meet at the stem, the stern ends in a series of steps. The bow is formed of several shaped prow pieces which are lashed to the logs forward. When assembled, the kattumaram resembles a surf board with the prow upturned to provide lift when encountering waves.

4.3 *Accessories:* These craft are paddled or rowed through the surf zone; punting poles are also frequently used. Steering is by means of a broad-bladed steering oar.

Mast, sails, balance board and an anchor form the rest of the accessories.

In larger kattumarams where oars are used, a rowing sail is provided on one side of the craft. This is usually a bamboo pole positioned to give a convenient pivot point for the oar and is held in place by wooden supports and lashing to the logs. Another less common feature is the provision of a bamboo crosspiece at the stern lashed to the logs. Food containers and other personal effects are tied to this crosspiece.

Some kattumarams tie a bamboo pole of 150 to 200 mm diameter on the leeward side to provide extra buoyancy when the craft heels under sail.



Sail rig. Note the leeboard attached to the mast.





Note the shape of the prow piece at right-upturned to provide the needed lift when the lcettumaram encounters waves.

The most common Tamil Nadu raft kattumaram is a five-log kattumaram (below).

## 5 BOAT KATTUMARAMS OF TAMIL NADU

(See illustrations opposite,' and Appendices 6A to 6C, 7, 8 and 9)

5.1 *General.*' These craft range from 6 to 8 metres in length. They are quite different from the Andhra Pradesh boat types. They are similar to the raft kattumarams except that the outboard logs are placed higher to form a structure with a roughly U-shaped cross-section; a rudimentary boat.

5.2 *Construction.*' Up to five logs are used to make up the unit depending on the log sizes available. Unlike a raft kattumaram all the logs are of the same size and there is no separate prow piece. The logs are lashed together forward and aft to two cross pieces that hold the logs in the desired conformation. The craft is slightly wider aft than at the forward end.

5.3 *Accessories.*' Split bamboo poles are used for paddling and steering the craft. Two centreboards are used, one forward and one aft. Mast, sails and an anchor are the other accessories.

## 6 **PROPULSION**

(See illustrations opposite; and Appendices 2A, 3A, 3F, 4, 6A, 6C, 7, 10)

Kattumarams are propelled through the surf by paddle and punting pole. Oars are used at sea in some instances. Steering is also by oar.

Very small raft kattumarams sometimes use a square sail, otherwise all kattumarams use the lateen sailing rig as their principal means of propulsion. Kolamarams may hoist sails on two masts, otherwise all kattumarams are single-masted. The principal advantage of the lateen rig is the large area of sail that can be set on a short, unstayed (or lightly stayed) mast.

A major inconvenience compared to other sailing rigs is the comparatively unhandy performance windward. In the raft kattumaram, for example, the sail is usually furled, the simple shrouds loosed and the mast shifted from one side of the hull to the other as the kattumaram passes or is paddled through the eye of the wind.

With a constant wind system of ihe monsoon or trade wind type which provides a comparatively stable wind direction parallel to or at no more than 45 degrees to the general direction of the coastline, this is not such a great disadvantage and it is usually under these conditions that the rig has developed as a means of propulsion. Larger craft have traditionally followed the monsoon systems and their seasonal changes to avoid the need for periods of beating into head winds.

6.2 Sails and spars: Sails are traditionally made of cotton which is tanned with a preservative to increase the woking life. At present, with the advent of synthetic materials for packing a wide variety of industrial and agricultural goods, the fishermen have adopted and modifed certain of these materials for use as sail cloth. Among the most common is a fairly loosely woven polyethene sacking material used in industrial bags which are opened up and sewn up into sail panels. Also widespread is the use of heavy black plastic sheeting which is cut to shape and sewn up into a one piece sail. Both materials have the initial advantage of cheapness and availability but both also have disadvantages. The woven sacking material is of course more permeable than tight woven cotton and is thus less efficient as a sail cloth, while the black



Sail rig. Note the vertical yard.



Assembled kattumaram. Note horns forward and aft to facilitate the lashing of logs.

plastic, although impermeable, is easily torn and requires frequent repair. It would appear that fishermen attach prime importance to low first cost; the reduced efficiency, increased labour of fabrication and repair are regarded as acceptable inconveniences.

The sail yard and boom are fabricated of bamboo of 6-8 cm  $(2\frac{1}{2}-3)$  in diameter, frequently with extension pieces of smaller diameter inserted in the ends of the larger bamboo. Wooden reinforcement pieces are frequently lashed to the yard at this point and also to reduce chafe. The mast itself is a simple pole which can vary in length according to the size of the sail set, about 2 m (6' 6") being a common size with diameter of around 60 mm  $(2\frac{1}{2})$ . The raft kattumaram is fitted with a leeboard.

6.3 *Sail Rigs:* The boat kattumarams of southern Tamil Nadu have a large sail area in relation to boat size. The stump mast is very short, canted strongly to the windward side and held in place by short shrouds from the mid point of the mast to the port and starboard horns of the forward crosspiece. There is also a supplementary shrcud carried to the after lashing. The long yard has a tack lashing to the windward side of the forward crosspiece and is hoisted by a halliard which passes through a hole in the head of the mast. Both this halliard and the aft shroud are carried well aft and attached to the aft crosspiece. The sail is triangular, loose footed and the clew is boomed out with a bamboo pole. This pole is used off the wind, jammed between the centre and side log and with a fork at the outer end which is forced against the main-sheet close to the clew of the sail. The mast foot is positioned in a hollowed-out block which can move across the boat according to which is the leeward side.

The Tamil Nadu boat kattumarams do not use a hiking board but the crew lean out windward to balance the boat. These craft tend to capsize more easily than the raft kattumaram.

The boat kattumaram of Andhra Pradesh usually carries a smaller sail than the equivalent size of raft kattumaram. The mast is centrally stepped just aft of the forward lashing and raked forward with shrouds set up to the port and starboard sides of the crosspiece of the forward lashing. An additional shroud is taken aft on the windward side and the heel of the yard and boom end are lashed to the windward and leeward sides of the forward crosspiece.

6.4 *Sailing:* The methods of setting, shortening and striking sail and of manoeuvring under sail, are described fully in Appendix 10.

## 7 EARNINGS

The arrangements for sharing the earnings from kattumarams vary from region to region and even village to village; they also vary according to the type of fishing gear in use at the time. Some kattumarams are owned by working fishermen, others by entrepreneurs who remain on shore. The entrepreneur may be the sole customer for the catch. The craft and the gear may be owned by different persons. Many of the fishermen own neither craft nor gear, and are employees of the owners, remunerated as a rule by some agreed share of the proceeds of the catch. The terms of the agreement may depend upon whether there is competing alternative local employment, for example, on board mechanized fishing vessels.

It is therefore not possible to give an accurate and complete account of how the proceeds from the sale of fish catch are shared in the kattumaram fisheries. The information gathered during the survey is available at the BOBP.





APPENDIX 24 : GENERAL ARRANGEMENT-ANDHRA PRADESH FOUR-LOG BOAT KATTUMARAM



## APPENDIX-2B. TYPICAL ANDHRA PRADESH FIVE-LOG BOAT KATTUMARAM



APPENDIX 2C BOAT KATTUMARAM, ANDHRA PRADESH TYPICAL DIMENSIONS OF PRINCIPAL COMPONENTS









APPENDIX 3B: TYPICAL LARGE RAFT KATTUMARAM - DETAILS OF STRUCTURE













a 3-LOG raft kattumaram



APPENDIX 3E RAFT KATTUMAR AM : LASHING SEQUENCE





APPENDIX 3F RAFT KATTUMARAM FITTINGS



## APPENDIX:4, RAFT KATTUMARAMS, OARS AND PADDLES







APPENDIX-5 WOODEN ANCHOR USED WITH KATTUMARAMS







APPENDIX 6C:TAMIL NADU BOAT KATTUMARAM DETAILS OF CONSTRUCTION



HORN ATTACHMENT TO THE LOGS ENDS



APPENDIX 7 : SAIL PLANS OF KATTUMARAMS

# DATA ON KATFUMARAMS INSPECTED DURING SURVEY

# Raft Kattumaram, Marina, Madras

Region/Area	Tamil Nadu – Marina, Madras			
Basic Craft and Types of Timber Used	Raft kattumaram _ Albyzzia Stipulata (Local name: Albissi)			
Number and Size of Craft and Number of Logs per Craft	4 crafts (2 large and 2 small)			
	<ul> <li>Large craft: 7.0 mx1.5 m—5 logs</li> <li>6.5 m x 1.4 m – 6 logs</li> </ul>			
	<ul> <li>Small craft: 5.0 m x 1.0 m —4 logs</li> <li>4.5 m x 0.90 m —4 logs</li> </ul>			
Cost of Craft	—Large: Rs. 2,200 and Rs. 2,000 (estimated) _ Small: Rs. 1,200 and Rs. 1,000 (estimated)			
Cost of Accessories	<ul><li>Large: Rs. 500 each (estimated)</li><li>Small: Rs. 400 each (estimated)</li></ul>			
Repair and Replacement Costs	<ul> <li>Large: Rs. 800 to Rs. 1,000 for both (estimated)</li> <li>Small: Rs. 200 to Rs. 600 for both (estimated)</li> </ul>			
Sail Particulars _ Rig and Cost	Lateen rig			
(See Appendix 7)	<ul> <li>Large: Y618L600B620Lu 100 (cm) Rs.250</li> <li>Small: Y425 L410 B 425 Lu 90 (cm) Rs. 175 (almost similar size for large and similar size for small)</li> </ul>			
Fishing Gear	Bag net (Local name: MadaValai)			
_ particulars	29 m square sides on bag mouth end Body length - 30 m Material - Cotton			
_ cost	Rs. 5,000 (reported)			
<ul> <li>cost of lure ropes, etc.</li> </ul>	Rs. 100 (reported)			
<ul> <li>cost of anchor ropes and anchor</li> </ul>	Rs. 200 (reported)			
<ul> <li>maintenance costs</li> </ul>	Rs. 600 to Rs. 1,200 (annual) reported			
Fishing Season	May to August			
Fishes Caught	Mainly black pomfrets. Other fishes like carangs, mackerels, horse mackerel, seer fish, carangids, milk fish, etc. are also caught.			
Crew	3+3+2 2 10 persons (3 on each large craft; 2 on each small craft)			
Distance to Fishing Ground	5 to 15 miles; 25 to 50 m depth (near rockybottom)			
Time to Reach	2 to 3 hours (depending on wind)			
Time to Return	2 to 3 hours (depending on wind)			
Fishing Time	4 to 6 hours (depending on catch and number of lure ropes)			

Maximum Catch	Rs. 1,500 (reported)
Minimum Catch	Rs. 50 (reported)
Average Catch	Rs. 150 to Rs. 200 (reported)
Surf Crossing	Manual pushing, rowing, paddling and use of punting poles.
Finance	Loan from fishermen's cooperative society.

# Raft Kattumaram, Marina, Madras

Region/Area	Tamil Nadu – Marina, Madras
Basic Craft and Timber used	Raft Kattumaram – Albyzzia Stipulata (local name: Albissi)
Number and Size of Craft and Number of Logs per Craft	2 crafts, one large and one small
	<ul> <li>Large: 6.20 mx1.20 m—5 logs</li> <li>Small: 4.5 m x 0.90 m 4 logs</li> </ul>
Cost of Craft	Large: Rs. 2,500 (estimated) Small: Rs. 1,500 (estimated)
Cost of Accessories	<ul><li>Large: Rs. 500 (estimated)</li><li>Small: Rs. 200 (estimated)</li></ul>
Sail Particulars— Rig and Cost (See Appendix 7)	—Large: Y550L530B560Lu90 (cm) Rs.200 _ Small: Y 375 L 349 B 370 Lu 66 (cm) Rs. 100
Fishing Gear	Boat seine (Bag Net) (Local Name: Thuri valai)
_ particulars	Head rope =61 m Body length=16 m Material cotton
_ cost	Rs. 1,100 (reported)
maintenance cost	Rs. 150 to Rs. 250 per year (reported)
Season	Operated all round the year. August to December is reported to be the good season.
Fishes Caught	All varieties of fishes are being caught: prawns, sharks, rays etc.
Crew	3r2=5 persons (3 on each large craft, 2 on each small craft)
Distance to the fishing Ground	3 to 10 miles; 10 to 30 m depth
Time to Reach	to 2 hours depending on wind
Time to Return	1 to 2 hours depending on wind
Fishing Time	3 to 4 hours depending on catch
Maximum Catch	Rs. 800 to Rs. 1,000 (reported)
Minimum Catch	Rs. 20 (reported)
Average Catch	Rs. 50 to Rs. 100 per day during good season (reported)
Surf Crossing	Manual pushing, rowing, paddling and using punting poles
Finance	Own savings and personal loans.

#### Raft Kattumaram, Marina, Madras

Region/Area Tamil Nadu - Marina, Madras Basic Craft and Timber Used Raft kattumaram - Albyzzia stipulata (Local name: Albissi) Size of Craft and Number of Logs per Craft 8.5 mx1.80m-5 logs Cost of Craft Rs. 3,000 (estimated) Cost of Accessories Rs. 650 (estimated) Repair and Replacement Costs Rs. 100 to Rs. 500, assuming the craft is newly constructed. No major repair and replacement costs for at least 2 to 3 years. Sail Particulars- Rig and Cost Lateen rig (See Appendix 7) Y 720 L 680 B 700 Lu 150 (cm) Rs. 300 Fishing Gear Gill net (Pomfret net-surface). Local name: Vavval Valai Head rope =550 m particulars 14.5 mm mesh; nylon 210/3/3; 80 meshes deep Rs. 7,000 (estimated) cost maintenance cost Rs. 200 to Rs. 300 per month depending on use. \_ Life 4 to 5 years (reported) Mainly black pomfrets. Other fishes like seer fish, **Fishes Caught** polynemus, carangids, tuna, sharks, rays, etc. are also caught. Crew 3 or 4 persons **Distance to Fishing Grounds** 5 to 15 miles; 10 to 50 m depth; Time to Reach 1 to 2 hours depending on wind Time to Return 1 to 2 hours depending on wind 4 to 5 hours depending on catch **Fishing Time** Maximum Catch Rs. 1,200 during good season (Rs. 2,000 per day has been reported) Minimum Catch **Rs.20** Average Catch Rs. 50 to Rs. 80 during fishing season Surf Crossing Manual pushing, paddling, rowing, use of punting poles. Two owners, partnership; savings and loans from Finance fishermen's cooperative society.

## Raft Kattumaram, Pondicherry

#### Region/Area

Basic Craft and Timber Used Size of Craft and Number of Logs per Craft Cost of Craft Cost of Accessories Repair and Replacement Costs

Sail Particulars – Rig and Cost (See Appendix 7)

Fishing Gear

particulars

- \_ cost
- maintenance cost
- \_ life
- Season

Fishes caught

#### Crew

Distance to Fishing Grounds Time to Reach Time to Return Fishing Time Maximum Catch Minimum Catch Average Catch Surf Crossing

Finance

Pondicherry (Union Territory) Raft kattumaram - Albyzzia stipulata 7.0 m x 1.80 m - 6 logs Rs. 2,500 (estimated) Rs. 500 (estimated) Rs. 500 to Rs. 1,500 per year assuming the craft to be more than 3 years old Lateen rig Y 700 L 670 B 710 Lu 1.3 (cm) Rs. 280 Gill net (sardine net). Local name: Kavala Valai Head rope=400m 30 mm mesh; nylon 210/2/2; 300 meshes deep Rs. 2,500 (estimated) Rs. 150 to Rs. 200 per month depending on use. 2 to 3 years (reported) Can be used all round the year. June to December reported to be good season. Mainly sardine. Other fishes like ribbon fish, small mackerel, silver bellies, etc. are also being caught. 3 or 4 persons 5to15miles;10to40mdepth 1 1/20 3 hours depending on wind 1 to 3 hours depending on wind 3 to 4 hours depending on shoals. Rs. 1,500 during good season (reported) Rs. 50 (reported) Rs. 100 to Rs. 150 during season (reported) Manual pushing, rowing, paddling, use of punting poles. Bank loans; loans from fishermen's cooperative society.

# Raft Kattumaram, Nagapattinam

Region/Area	Tamil Nadu – Nagapattinam
Basic Craft and Timber Used	Raft kattumaram – Melia stipulata (Local name: Malavembu). Timber purchased through auction from Customs.
Size of Craft and Number of Logs	
per Craft	7.5 mx 1.6 m—5 logs
Cost of Craft	Rs. 2,400 (as reported)
Cost of Accessories	Rs. 500 (as reported)
Repair and Replacement Costs	Rs. 400 to Rs. 1,000 per year (as reported)
Sail Particulars – Rig and Costs	Lateen rig
(See Appendix 7)	Y 7.0 L 6,7B7.1 Lu 1.5 (m) Rs. 250
Fishing Gear	Gill net (vertical and horizontal combination net)
<ul> <li>particulars</li> </ul>	Head rope =328 m Horizontal: 115 mm mesh; nylon 210/7/3; 65 meshes deep
	Vertical: upper==110 mm mesh; nylon multi- filament 0.25 mm; 47 meshes deep. lower= 125mm mesh; nylon 210/2/3; 31 meshes deep
_ cost	Rs. 4,000 (estimated and reported)
<ul> <li>maintenance cost</li> </ul>	Rs. 150 to Rs. 200 (reported)
_ life	3 to 4 years (reported)
Season	Used all the year round. September to April for prawns and fishes. During other periods for fishes only.
Fishes Caught	Prawns, mackerel, seer fish, carangids, pomfrets, lactarius, chorenemus, etc.
Crew	3 or 4 persons
Distance to Fishing Grounds	3to15miles;10to3omdepth
Time to Reach	1 to 3 hours depending on wind
Time to Return	1 to 3 hours depending on wind
Fishing Time	3 to 4 hours depending on catch
Maximum Catch	Rs. 1,000 (reported)
Minimum Catch	Rs. 100 during season (as reported)
Average Catch	Rs. 150 to Rs. 200 (during season)
Surf Crossing	Mcnual pushing, paddling, rowing and use of punting poles.
Finance	Own savings
# Raft Kattumaram, Nagapattinam

Region/Area	Tamil Nadu – Nagapattinam
Basic Craft and Timber Used	Raft kattumaram – Albyzzia stipulata (local name: Albissi)
Size of Craft and Number of Logs per Craft	8.5 m x 2.5 m —7 logs (Kolamaram)
Cost of the Craft	Rs. 3,750 (as reported)
Cost of Accessories	Rs. 700 (as reported)
Repair and Replacement Costs	As. 1,000 to Rs. 1,500 per year (reported)
Sail Particulars— Rig and Costs (See Appendix 7)	Lateen rig
	Y7.2 L 7.1 B 7.0 Lu 1.5 (m) Rs. 300 Y 6.7 L 6.5 B 6.7 Lu 1.4 (m) As. 275
Fishing Gear	No fishing gear for this fishing method. Only a scoop net for collecting the fish which have been attracted towards the lure.
particulars	In recent times, a small nylon gill net is being used to catch the fish in conjunction with the luring method. Head rope =-30 to 40 m; 30 mm mesh; 300 meshes deep; costing Rs. 250 (approximately) A few handlines are also operated by fishermen.
_ cost of lure	Rs. 15 to Rs. 30 (recurring)
Fishing Season	May, June, July, August
Fishes Caught	Flying fish. Coryphaena and sharks are caught on handlines.
Crew	6 or 7 persons
Distance to Fishing Ground	30 to 50 miles. Sometimes even up to 60 miles.
Time to Reach	12 to 15 hours depending on wind. During un- favourable winds, the craft will drift long distances.
Time to Return	12 to 15 hours depending on wind. During un- favourable winds, the craft will drift long distances.
Fishing Time	12 hours or more depending on shoals.
Maximum Catch	Rs. 2,000 to Rs. 4,000 per voyage of 3-4 days.
Minimum Catch	Rs. 200 (as reported)
Average Catch	Rs. 200 to Rs. 500 per voyage (as reported)
Surf Crossing	Manual pushing, paddling, rowing, use of punting poles
Finance	Own savings and loans from fishermen's coopera- tive society.

#### Boat Kattumaram, Visakhapatnam

Region/Area Andhra Pradesh, Visakhapatnam Boat kattumaram — Albyzzia stipulata Basic Craft and Timber Used (Royya wood) Size of Craft and Number of Logs 9.15 mx1.40m-4logs per Craft Cost of Craft Rs. 3,500 (estimated) Cost of Accessories Rs. 700 Repair and Replacement Costs Rs. 500 to Rs. 1,000 per year (reported) Sail Particulars- Rig and Costs Lateen rig (See Appendix 7) V 720 L 670 B 720 Lu 250 (cm) Rs. 350 Gill net. Local name: Chinna Kavala/nadippi valai. **Fishing Gear** 20 mm mesh; cotton 40 count; 3 ply; 600 meshes particulars deep. head rope= 300 m Rs. 2,000 (reported) cost maintenance cost Rs. 50 to Rs. 100 per month (reported) \_ life 3 to 4 years Used almost all round the year whenever sardine Season shoals appear. Mainly sardines. Other fishes like ribbon fish, **Fishes Caught** small mackerels, prawns, etc. are also caught. Crew 4 or 5 persons 5to15miles;10to4omdepth Distance to Fishing Ground Time to Reach 1 to 2 hours depending on wind Time to Return 1 to 2 hours depending on wind 2 to 3 hours depending on catch. **Fishing Time** Rs. 1,200 (as reported) Maximum Catch Rs. 50 to Rs. 60 (reported) Minimum Catch Rs. 50 to Rs. 100 (reported) Average Catch Manual pushing, rowing, paddling. Punting poles Surf Crossing used only rarely. Loans from fishermen's cooperative society. Finance

#### Boat Kattumaram, Visakhapatnam

Region/Area Basic Craft and Timber Used Size of Craft and Number of Logs per Craft Cost of Craft Cost of Accessories Repair and Replacement Cost

Sail Particulars – Rig and Costs (See Appendix 7)

Fishing Gear

particulars

\_ cost

maintenance cost
 life
 Season
 Fishes Caught

Crew Distance to Fishing Ground Time to Reach Time to Return Fishing Time Maximum Catch Minimum Catch Average Catch Surf Crossing

Finance

Andhra Pradesh \_ Visakhapatnam Boat kattumaram – Albyzzia stipulata (Local name: Royya wood or Reyyekara in Telugu) 7.5 m x 1.25 m --- 4 logs Rs. 2,200 (reported) Rs. 500 (reported) As. 200 to Rs. 600 per year (reported) Lateen rig V 650 L 520 B 670 Lu 200 (cm) As. 250 Gill net (Prawn gill net). Local name: killia valai head rope=270m 55mm mesh; nylon 210/1/3; 80 meshes deep Rs. 2,200 (estimated and reported) Rs. 100 to Rs. 150 (reported) 2 to 3 years September to February (as reported) Prawns. Otherfisheslikesmailseerfish, mackerels, chirocentrus, trichiurus, cat fish, etc. are also being caught. Sharks and rays are being caught by entangling. 3 to 4 persons 50 to 20 miles; 10 to 50 m depth 1 to 3 hours depending on wind 1 to 3 hours depending on wind 3 to 4 hours depending on catch. Rs. 2,000 (reported) As. 50 (reported) Rs. 100 to As. 500 in a good season for about 6 months

Manual pushing, rowing, paddling. Punting poles used very rarely.

Loans from national banks.

#### Boat Kattumaram, Bimblipattinam

Region/Area Andhra Pradesh \_ Bimlipattinam Basic Craft and Timber Used Boat kattumaram - Samania samans (Local name: Nidra Ganneru) Size of Craft and Number of Logs per Craft 3.80mx90cms—4 logs Rs. 500 Cost of the Craft As. 100 Cost of Accessories Rs. 100 to As. 150 per year Repair and Replacement Costs Normally without sail. Sometimes a small sail is Sail Particulars— Rig and Costs hoisted. Lateen rig made of nylon bag, cloth-(See Appendix 7) stitched. V 280 L 201 B 250 Lu 90 Rs. 60 Handlines, hooks and lines Fishing Gear approximately 50 hooks; Nos. 5, 6 and 7 particulars Rs. 60 to Rs. 80 (including cost of lines) \_ cost Only replacement of broken lines and of Nil. maintenance cost damaged or lost hooks. About Rs. 50 to 80 will be spent in a year. \_ life Season All the year round Seer fish, tuna, cat fish, small shark, sciaenidaes. **Fishes Caught** One man Crew In inshore waters Distance to Fishing Ground Time to Reach Time to Return 4 to 6 hours **Fishing Time** Maximum Catch Rs. 50 to As. 100 per day. As. 5 and on some days nil Minimum Catch Rs.2toRs.3 Average Catch Manual pushing and paddling. Surf crossing Surf Crossing attempted only if surf is moderate. Own savings and individual loans. Finance

## Boat Kattumaram, Kakinada

Region/Area	Andhra Pradesh – Kakinada
Basic Craft and Timber Used	Boat kattumaram
Size of Craft and Number of Logs per Craft	4.80 m x 1 .20 m - 5 logs
Cost of Craft	Rs. 800
Cost of Accessories	Rs. 150
Repair and Replacement Costs	Rs. 150 to Rs. 200 per year assuming the craft is more than 4 to 5 years old.
Sail Particulars— Rig and Cost (See Appendix 7)	Lateen rig
	Y301 L287 B 300 Lu 150 (cm) Rs. 120 (approximately)
Fishing Gear	Line fishing (hooks and lines)
<ul> <li>particulars</li> </ul>	500 lines; 7 hooks.
_ cost	Rs. 150 (including cost of lines)
maintenance cost	Nil. Only cost of replacement when the hooks or lines are lost, amounting to approximately As. 100 per year. (Rs. 200 to Rs. 300 will have to be spent every year on buying hooks).
_ life	Not applicable, as the hooks and lines are changed as and when they are broken.
Season	All the year round
Fishes Caught	Seer fish, cat fish, sharks, sciaenidaes, polynemus, lates calcarifer, katla.
Crew	Usually 2 persons—sometimes only 1 person
Distance to Fishing Ground	1 to 6 or 7 miles in all directions from base. 2 to 30 m depth rocky, bottoms.
Time to Reach	1 to 2 or 3 hours
Time to Return	1 to 3 hours
Fishing Time	2 to 3 hours
Maximum Catch	Rs. 200 to Rs. 300
Minimum Catch	Rs.10
Average Catch	Rs. 10 to Rs. 20
Surf Crossing	Manual pushing, rowing and paddling
Finance	Bank loans and own savings.

#### Boat Kattumaram, Kakinada

Region/Area Basic Craft and Type of Timber

Size of Craft and Number of Logs

Cost of the Craft Cost of Accessories Repair and Replacement Costs Sail Particulars – Rig and Cost (See Appendix 7)

Fishing Gear

particulars

cost
maintenance cost
life
Season

**Fishes Caught** 

### Crew

Distance to the Fishing Ground Time to Reach Time to Return Fishing Time Maximum Catch Minimum Catch Average Catch Surf Crossing Finance Andhra Pradesh \_ Kakinada Boat kattumaram \_ samania samans Local name: Nidra ganneru (Telugu) 2Craft: 5.70mx1.20m—5logs 5.50mx1.25m-5 logs Rs. 1,200 each (estimated) Rs. 300 each (estimated) Rs. 200 to Rs. 400 (reported) Lateen sail Y 382 L 351 B 380 Lu 150 (cm) Rs. 150 Y 374 L 320 B 350 Lu 146 (cm) Rs. 150 Boat seine. Local name: Iraga valai Head rope=60m Body length=14 m Material =cotton Rs. 1,100 (reported) Rs. 150 to Rs. 200 per year (reported) 3 to 4 years (reported) Used all round the year. September to April reported to be good season. All varieties of fish. Pomfrets, seer fish, carangs, horse mackerel, leognathids, jew fish, silver bellies, prawns, etc. 2+2=4 persons (2 on each craft). 3 to 10 miles; 10 to 30 m depth 1 to 2 hours depending on the wind 1 to 2 hours depending on the wind 2 to 3 hours Rs. 500 (reported) Rs. 20 (reported) Rs. 20 to Rs. 50 Manual pushing, rowing and paddling

Bank loans and own savings.

### Boat Kattumaram. Srikakulam

Region/Area Basic Craft and Timber Used

Size of Craft and Number of Logs per Craft Cost of Craft Cost of Accessories Repair and Replacement Costs

Sail Particulars— Rig and Cost (See Appendix 7)

Fishing Gear

-particulars

cost
 maintenance cost
 Season
 Fishes Caught

Distance to Fishing Ground Time to Reach Time to Return Fishing Time Maximum Catch

Minimum Catch Average Catch Crew Surf Crossing Finance Andhra Pradesh \_ Srikakulam Boat kattumaram. Samania samans. Local name: Nidra ganneru (Telugu) 5.20 m x 1.25 m --- 5 logs Rs. 900 (estimated) Rs. 150 (estimated) Rs. 150 to Rs. 300 assuming the craft to be more than three years old. Lateen rig Y380 L320 B370 Lu 150 (cm) Rs. 150 Gill net (Prawn gill net) head rope=60m 55 mm mesh; nylon 210/1/3; 46 meshes deep Rs. 1,200 (estimated) Rs. 50 to Rs. 100 per month (reported) Effective use from September to February (reported) Mainly prawns. Sardines, small mackerels, ribbon fish, etc. are also being caught. 5 to 15 miles; 10 to 25 m depth 1 to 2 hours depending on the wind 1 to 2 hours depending on the wind 3 to 4 hours depending on the catch Rs. 1,000 (reported). A catch of Rs. 1,500 has also been reported. Rs. 50 (reported) Rs. 100 to Rs. 200 during season (reported) 2 persons Manual pushing, rowing and paddling. Bank loans

#### Boat Kattumaram, Kadiapattinam

Region/Area Basic Craft and Type of Timber

Size of Craft and Number of Logs per Craft Cost of Craft Cost of Accessories Repairs and Replacement Costs Sail Particulars Rig and Cost (See Appendix 7)

Fishing Gear

particulars

- \_ cost
- maintenance cost
- \_ life
- Season

**Fishes Caught** 

Crew Distance to Fishing Ground Time to Reach Time to Return Fishing Time Maximum Catch Minimum Catch Average Catch Surf Crossing Finance Tamil Nadu – Kadiapattinam Boat kattumaram—Albyzzia stipulata; Local name: sillai 6.5mx90cm-4logs Rs. 1,430+Rs. 25 (horns)=Rs. 1,455 Rs.180 Rs. 100 per year (reported) Lateen rig Y 750 L 650 B 610 (cm) Rs. 200 Gill net (prawn gill net). Local name: Ral vala head rope=100m 50 mm mesh; nylon 210/1/2; 120 meshes deep Rs. 1,000 (reported) Rs. 50 to Rs. 60 per month (reported) 2 to 3 years (reported) Reportedly June, July, August for prawns; November and December for lobsters. Mainly prawns. Lobsters and other fishes like jew fish and sciaenidaes are also caught. 2 persons 10to20 mdepth;5to10miles. 1 to 3 hours depending on the wind 1 to 3 hours depending on the wind

3 to 4 hours

Rs. 800 (reported)

Rs. 20 (reported)

Rs. 20 to Rs. 50 during a season of three months.

Manual pushing and paddling

Savings and personal loans

#### Boat Kattumaram, Kadiapattinam

Region/Area Basic Craft and Timber Used

Size of Craft Fnd Number of Logs per Craft Cost of Craft Cost of Accessories Repairs and Replacement Costs

Sail Particulars – Rig and Cost (See Appendix 7)

Fishing Gear \_ particulars

cost
 maintenance cost
 life
 Season
 Area of operation

Fishes Caught Crew Distance to Fishing Ground Time to Reach Time to Return Fishing Time Maximum Catch Minimum Catch Average Catch Surf Crossing Finance Tamil Nadu – Kadiapattinam Boat Katturnaram \_ bombax malabaricum Local name: lavu. 6.2 mx 95 cm-4 logs Rs. 600 (reported) Rs. 180 (reported) Very little. (About Rs. 100 per year at a rough estimate as the life of the craft will be only two to three years at the most.) Lateen rig Y 700 L 630 B 550 (cm) Rs. 180 Gill net (vali valai) Head rope =38.5 m 100mm mesh; nylon 210/4/3; 100 meshes deep Rs. 800 (reported) Rs. 50 to Rs. 60 per month (reported) 2 to 3 years (reported) Mainly during June to September. Popular in Muttom and Kadiapattinam areas in Kanyakumari district of Tamil Nadu. Perches, seer fish, pomirets, cat fish

2 persons 5 to 10 miles; 10to 20 m depth 2 to 3 hours depending on the wind (reported) 2 to 3 hours depending on the wind (reported) 3 to 4 hours Rs. 500 (reported) Rs. 20 (reported) Rs. 10 to 20 during season Paddling, manual pushing

Savings and personal loans.



### DATA ON FISHING GEARS OF KATTUMARAMS



Name of Gear Type of Gear Fishing Area Main Species Caught Fishing conditions Craft \_ length Voddi Valai (Wall Net), Naduppi Valai Gilinet Andhra Pradesh Sardines,smallmackerel, ribbon fish,silver bellies Surface gillnet Boat Kattumaram **7to9m** 

[42]

propulsion Sail Crew 4 to 5 persons depending on size of craft Netting \_ material cotton (cot) type of knot English knot and reef knot \_ preservation Preserved in red soil decoction once in a month. \_ colour The above preservation gives a brown colour. 40 count; 4 ply (20 count, 3 ply) \_ twine size 20mm(18 mmand40mm) \_ stretched mesh upper edge 2,700 meshes \_ lower edge 2,700 meshes 800 meshes (600 to 900) \_ depth \_ selvedge 65 mm st: 6 meshes hanging ratio E=0.93 (0.89 to 0.94) Number of nets 6 nets of 50 m each Head rope: length/diameter/material 300 m; 3 mm; cotton 306 m; 4 mm; cotton. Foot rope: length/diameter/material Floats: number per net 330 Wood; irregular; 300mm x 70 x 100mm \_ material/shape/size Sinkers: number per net 330 - material and weight Stone: 500 gms (approximately)





Name of Gear Type of Gear Fishing Area Main Species Caught Fishing conditions

Craft \_ length Kilia Vala Gillnet Andhra Pradesh Mainly prawns. Ribbon fish,sardines,etc. are also caught when used on surface. Off bottom gillnet. Also used as surface gillnet. Boat Kattumaram 7to9mlong

[44]

propulsion Sail Crew 3 to 4 persons, sometimes 5 also Nylon (PA) Netting \_ material type of knot Single and double English knot preservation Nil twine size R 75tex/210d 3 (R 50tex/210d 2) stretched mesh 55 mm (40 to 60 mm) 600 +600+600 meshes (in three pieces known upper edge as patties) 600+600+ 600 meshes (in three pieces known loweredge as patties) The three patties together are known as "One Gudhi'. \_ depth 80 meshes (46 to 80) \_ selvedge Nil - hanging ratio E=0.45 (0.44 to 0.48) Number of nets 18 nets of 15 m each Head rope: length/material/diameter 270m;3mm;PE. Foot rope: length/diameter/material 275 rn; 5 mm; cotton/jute. 19 when used in bottom Floats: number per net 29 when used on the surface material/shape/diameter/thickness PL; circular; 60 15 mm. Sinkers: number per net 22 when used in bottom 19 when used on the surface Cement (circular in shape) \_ material/weight 750 gms approximately.



Ratta Va/al

Name of Gear Type of Gear Fishing Area Main Species Caught Fishing conditions Ratta valai Gillnet (encircling gilinet) Tamil Naduandthe Union Territoryof Pondicherry Sardines, small mackerel Used on the surface and below the surface as encircling gillnet.

[46]

#### Craft

- \_ length
- propulsion
   Crew
- Netting \_ material
- type of knot
- preservation
- \_ colour
- \_ twine size
- \_ stretched mesh
- \_ upper edge
- lower edge
- \_ depth
- \_ selvedge
- hanging ratio
- Number of nets

Head rope: length/material/diameter Foot rope: length/material/diameter

## Floats: number per net

material/shape/diameter/thickness

Sinkers: number per net

\_ material/weight

Two raft kattumarams (one small and one big) 6 m, 7 m sail/rowing 2+3 persons Nylon (PA) single and double English knot Nil White R 100 tex/210d 4; (R 75tex/210 d 3 also used) 60 mm (50 to 65 mm) 1,000 meshes 1,000 meshes 250 meshes (200 to 300) No selvedge \_ staping methods for mounting E=0.49 (0.45 to 0.55) 5 nets of 32.0 m length 160 m; PE; 3 mm (4mm) 163m; PE; 3 mm (4 mm) 653 PL; circular; 80 x 15mm About 80

Stone; 250 gms (approximately)

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Ara Valai
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[48]

\_ length propulsion Crew Netting \_ material type of knot preservation \_ colour -twine size \_ stretched mesh \_ upper edge lower edge \_ depth \_ selvedge hanging ratio Number of Nets Head rope: length/diameter/material Foot rope: length/diameter/material Floats: number per net material/shape/diameter/thickness

6to8m sail 2 to 4 persons depending on size of craft Nylon (PA) single and 1½English knot Nil White R 50 tex/210 d 2 50 mm (40-55) 700 meshes 700 meshes 100 meshes (60-200) Nil E =050 (0.40 to 0.80) 20 nets of 17.6 m 352 m,4mm;PE 359 m, 5 mm (5-6 mm); jute/cotton 256 small floats 65 big floats PL; circular; Big floats: 55 mm diameter; 50 mm thickness Small floats: 55 mm diameter; 15 mm thickenss 65

Sinkers S number of nets \_ material/weight

Stone; 500 gms (approximately)





Name of Gear Type of Gear Fishing Area Main Species Caught

Fishing conditions Craft Mulla Valai Gilinet South west coast of Tamil Nadu Mainly catfish. Sharks, seer fish, and polynemus are other species caught. Used as surface gilinet Boat kattumaram

[50]

\_ length propulsion Crew Netting: Material \_ type of knot preservation \_ colour \_ twine size \_ stretched mesh \_ upper edge lower edge \_ depth \_ selvedge hanging ratio Number of Nets Head rope; length/diameter/material Foot rope: length/diameter/material Floats; number per net \_ material/shape/diameter/thickness Sinkers: number per net

5 to 6 m Sail Jute 1 or 2 persons Double or single English knot Tamarind bark tanning once a month Light brown 2 mm to 2.5 mm diameter 120 mm 400 meshes 400 meshes 60 meshes (40-60) Top half mesh doubled E=0.42 (0.40 to 0.50) 2 nets of 20m 40m;3mm;cotton 40.8; 6 mm; jute 41 PL; circular; 150 x 50 mm 20 Stone; 250 gms (approximately)

\_ material/weight





Name ofGear Type of Gear Fishing Area Main Species Caught Fishing conditions

Pachu Valai (Kala valai) Gilinet Tamil Nadu. Restricted to Tanjore district. Perches, chorephaena, lates calcarifer. Bottom set gillnet. The gear is left in the fishing ground for one to two days. Raft kattumaram

Craft

\_ length 7 to 8 m propulsion Sail 2 to 3 persons depending on size of craft. Crew Netting-material Nylon (PA) Double English knot -type of knot \_ preservation Nil White \_ colour twine size R 1135tex/210d45; (R 910 tex/210 d 36) \_ stretched mesh 160 mm (120-180 mm) \_ upper edge 300 meshes lower edge 300 meshes \_ depth 14 meshes (14-16) \_ selvedge Top half mesh doubled - hanging ratio E=0.42. Number of nets 5 nets of 20 m Head rope: length/diameter/material 100 m; 9 mm; PE 102 m; 10 mm; jute/cotton Foot rope: length/diameter/material Floats: number per net 52 \_ material/size Polystyrene; irregular waste pieces Sinkers: number per net Nil. Only three wooden anchors weighted with stones are used. Approximate weight of each anchor 20 to 25 kgs.





Name of Gear Type of Gear Fishing Area Main Species Caught Vali Valai Gillnet South west coast of Tamil Nadu Perches, cat fish, seer fish, pomfrets

[54]

Fishing conditions Craft length \_ propulsion Crew Netting-material \_ type of knot preservation \_ colour twine size stretched mesh \_ upper edge lower edge \_ depth \_ selvedge hanging ratio Number of nets Head rope: length/diameter/material Foot rope: length/diameter/material Floats: number of nets material/size Sinkers: number per net

\_ material/weight

Used as off-bottom and mid-water gillnet Boat Kattumaram of Tamil Nadu 6-7m Sail 2 persons Nylon (PA) Single and double English knot Nil white R 300 tex/210d 12 100mm (100-1 20) 200 meshes 200 meshes 100 meshes (100-120) Nil E=0.75 (0.65 to 0.75) 8 nets of 15 m each 120 m; 3 mm; PE/cotton 122.4 m; 4mm; cotton 40 wooden floats plus 20 marking floats when used in mid-water Wooden; irregular 150 Stone; 250 gms approximately

#### Vertical Combination Gillnet





Main Species Caught Fishing conditions Craft \_ length \_ propulsion Crew Netting \_ material type of knot -preservation \_ colour -twine size: upper lower Streteched mesh \_ upper edge \_ lower edge -depth: upper lower Selvedge hanging ratio Number of nets Head rope: length/diameter/material Foot rope: length/diameter/materLl Floats: number per net \_ material/shape/diameter/thickness Sinkers: number per net \_ material/weight

Prawns, carangids, chorenemus, lactarius, pornfrets, seer fish Bottom gillnet (used on surface also) Raft kattumaram 7 to 8 m Sail 2 to 3 persons depending on size of craft Nylon (PA) Single and double English knot Nil White PA Monofilament 0.25 mm PA Multifilament R 50 tex/210 d 2 Upper and lower 55 mm 1,000 meshes 1,000 meshes 100 meshes (60-100) 100 meshes (60-100) Upper top mesh doubled Upper and lower E=0.36 (0.38) 5 nets of 20.0 m 100 m; 3 mm diameter; PE 102 m; 4mm; jute/cotton 101 PL; circular; 50 x 20 mm 101 Cement; circular; 100 x 20 mm 500 gms (approximate) in weight.



Vertical and Horizontal Combination Gillnet

Name of Gear: Type of Gear Fishing Area Main Species Caught

Vertical and Horizontal Combination Gillnet Gilinet Tamil Nadu. Popular in Tanjore district A variety of species. Prawn, carangids, small seer fish, pomfrets, chorenemus, mackerel.

Fishing conditions	Used as bottom gillnet. Used off bottom also.
Craft	Raft kattumaram
_ length	7to8m
propulsion	Sail
Crew	3 to 4 persons depending on size of craft
Netting _ material	PA (Nylon Multifilament and Monofilarnent)
<ul> <li>type of knot</li> </ul>	single and double English knot
preservation	Nil
_ colour	Multifilament – white Monofilament – light blue
twine size	Multifilament:
	One half: R 530 tex/210 d 21
	Other half: R 159 tex/210 d 6
	(bottom) Manafilament: (tan), 0.25 mm
	And holf 115 mm
- stretched mesh	Other half: Top (monofilament) 110 mm Bottom (multifilament) 125 mm
upper edge	One half: 330 meshes
	Other half: 290 meshes
<ul> <li>hanging ratio</li> </ul>	One half: Multifilament: E=0.54
	Other haif: (Top) Monofilament: E=0.64 (Bottom) Multifilament: E=0.57
Number of nets	16 nets (8 nets of multifilament) 20.5 m (8 nets
	of mono top; multifilament bottom) 20.5 m.
Head rope: length/diameter/material	328 m; 5 mm; PE
Foot rope; length/diameter/material	335 m; 6 mm; Cotton/Jute
Floats: number per net	80
<ul> <li>material/shape/diameter/thickness</li> </ul>	PVC; circular 80 x 20 mm
Sinkers: number per net	40
<ul> <li>material/weight</li> </ul>	Cement; circular; 125 x 20 mm
	150 gms (approximate) in weight.



Vala Valai (Chirocentrus Net)

Name of Gear Type of Gear Fishing Area Main Species Caught

Vala Valai (chirocentrus net) Gillnet (combination mesh gillnet) All around Tamil Nadu Mainly chirocentrus. Mackerel, sardines and ribbon fish are also caught.

Craft \_ length 7 to 8 m propulsion Sail Crew 3 to 4 persons depending on size of craft Nylon (PA) Netting \_ material type of knot Single and double English knot Nil preservation White \_ colour For A R 50 tex/21 0 d 2 twine size For B R 50 tex/210 d 2 For C R 75 tex/210 d 2 A=50 mm; B =40 mm; C=50 mm \_ stretched mesh A =400 meshes; B=460 meshes; C =400 \_ upper edge meshes A-400 meshes; B =460 meshes; C=400 \_ lower edge meshes A=100 meshes; B=125 meshes; C=100 \_ depth meshes Top half mesh doubled \_ selvedge hanging ratio A=E 0.72; B=E 0.81; C=E 0.77 Number of nets 10 nets of 14.5m; 4 nets of 15.0 m; and 10 nets of 15.5 m. Head rope: length/diameter/material 360 m; 4 mm; PE 367 m; 6mm (8-10); cotton/jute. Foot rope: length/diameter/material Floats: number per net 90 \_ material/shape/diameter/thickness PL; circular; 100 x 30 mm Sinkers: 90 Cement sinkers; circular; 80 x 25 mm material/weight 500 gms approximately in weight.

Ral Valai (Prawn Net)

### E=0-57 (0.55 - 0.60)



\_ length propulsion Crew Netting \_ material type of knot \_ preservation \_ colour Twine size \_ stretched mesh \_ upper edge -lower edge \_ depth selvedge hanging ratio Number of nets Head rope: length/material/diameter Foot rope: length/material/diameter Floats: number per net \_ material/shape/size Sinkers: number per net

6 to 7 m Sail/rowing 2 to 3 persons depending on size of craft Nylon (PA) Single and double trawl knot. Nil White R 50 tex/210 d 2 (R 75 tex/210 d 3) 50 mm (50-60) 700 meshes 700 meshes 120 meshes (100-1 50) 100 mm st: mesh A 375 tex/210 d 12 3 meshes deep E 0.57 (0.55 to 0.60) 5 nets of 20 m 100 m; PE; 3 mm (cotton also used) 102 m; cotton; 0.5 mm. 34 Wood: irregular (long) ; 300 x 80 to 100mm 68

\_ material/weight

Stone; 500 gms (approximate)

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Akkini Valai
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Name of Gear Type of Gear Fishing Area

Main Species Caught Fishing conditions Akkini Valai Gilinet Tamil Nadu and Union Territory of Pondicherry Popular in Tanjore district and Pondicherry. Flying fish. Surface gillnet. This gear is used only in conjunction with the luring method of catching flying fish towards the close of the season. Kolamaram

Craft

\_ length -propulsion Crew Netting \_\_ material - type of knot preservation \_ colour twine size -stretched mesh \_ upper edge \_ lower edge \_ depth \_ selvedge hanging ratio Number of nets Head rope: length/diameter/material Foot rope: length/diameter/material Floats: number per net Material/shape/diameter/thickness Sinkers: number per net \_ material/weight

8 to 9 m long Sail 6 to 8 persons Nylon (PA) English knot Nil White R 50 tex (210 d 2) (R 75 tex/210 d 3) 30mm 900 meshes 900 meshes 100 meshes (200) Nil E=0.92 (0.85 to 0.92) 2 nets of 25m each 50 m; 2mm; PE 50 m; 2 mm; PE 70 PL Circular; 50 x 20 mm 30 laterite stone; 250 gms (approximate) Vavval Valai (Pomfret Net)



[66]

Crew Netting \_ material \_ type of knot \_ preservation

- colour
- twine size
- stretched mesh
- upper edge
- lower edge
- $\_$  depth
- selvedge
- hanging ratio

Number of nets

Head rope: length/diameter/material Foot rope: length/diameter/material Floats: number per net

material/shape/diameter/thickness
 Sinkers: number per net

material and weight

# **3 to 4 persons depending on size of craft** Nylon (PA)

Single and double Engish knot Nil White R 225tex/210d9 (R 150tex/210d6alsoused) 145mm (120-170) 400 meshes 400 meshes 80 meshes (80-100) Nil E= 0.47 (0.40 to 0.50) 20 nets of 27.5 m each 550 rn; 5 mm (4-6); PE. 560 m; 8 mm (8-10); jute/cotton 552 (276 double and 275 single; 1 single float in between 2 double floats). PL; circular; 100 x 50 mm 50 Kadapah stone; 500 gms approximately

Vajra Valai (Seer Fish Net)

E=0.50 (0.50 -0.60







Name of Gear Type of Gear **Fishing Area** Main Species Caught

Fishing conditions

Vajra Valai (seer fish net) Gillnet Popular all around Tamil Nadu Primarily meant for seer fish. Tuna, polynemus, horse mackerel, promfrets, etc. are also caught. Mainly used as a surface gillnet. Also used as mid-water gillnet.
Craft 7 to 8 m length Sail propulsion 3 to 4 persons depending on size of craft Crew Nylon (PA) Netting \_ material Single and double English knot type of knot Nil (sometimes washed in fresh water) preservation White \_ colour R 300 tex/210d 12 -twine size (R 380 tex/210 d 15), (R 445 tex/210 d 18). (R 530 tex/210d 21), (R 605tex/210d24) are also used. 100 mm (1 00-140) - stretched mesh 400 meshes upper edge 400 meshes lower edge 40 meshes (40-60) \_ depth Nil selvedge E=0.50 (0.50 to 0.60) - hanging ratio 10 nets of 20 m Number of nets 200m;6mm(5);PE Head rope: length/diameter/material Foot rope: length/diameter/material 204m;8mm(10);jute 91 plus 9 marking floats Floats: number per net \_ material/shape/diameter/thickness PL circular 55 x 50 mm, plus aluminium spherical, 150 mm diameter 45 Sinkers: number per net Laterite stone; 500 gms approximately. material/weight

Kavala Valai (Sardine Net)



Name of Gear Type of Gear Fishing Area Kavala Valai (sardine net) Gillnet Tamil Nadu. Popular all around the Tarnil Nadu coast.

[70]

Main Species Caught Fishing conditions Craft – length – propulsion Crew Netting – material – type of knot – preservation

- \_ colour
- \_ twine size
- stretched mesh
- upper edge
- \_ lower edge
- \_ depth
- \_ Selvedge
- hanging ratio

Number of nets

Head rope: length/diameter/material Foot rope: length/diameter/material

#### Floats: number per net

\_ material/shape/diem eter/thickness

Sinkers: number per net \_ material/weight

Sardines Operated as a surface gillnet Raft kattumaram 7mto8m(5to7logs) Sail 3 to 4 persons depending on siza of craft Nylon (PA) Single and double English knot Nil (washed in fresh water sometimes) White R IOOtex (210d4) R 150 tex/21 0 d 6 and R 50 tex/21 0 d 2 are also used. 30 mm (25 to 50 mm also used) 900 meshes 900 meshes 300 meshes (100 to 300) 65 mm st mesh-PA R 225 tex-3 meshes deep. E=0.68 (0.56 to 0.68) 20 nets of 18.3 m each 366 m;6mm (5-8 mm); PE 373.3 m; 8 mm (8-10 mm); jute/cotton. 157 plus 22 (one for every 7) PLcircular50x15 mm, plus aluminium spherica 150 mm diameter. 157 Laterite stone; 500 grns approximately.

Appendix 10

### SAILING OF KATFUMARAMS

(See illustrations on pages 5,7,9)

1. Sailing close hauled: On this point of sailing, the mast is angled well forward and with the head slightly windward by the adjustment of the two shrouds. The lashing on the heel of the yard is taken around the forward shroud and the yard heel is triced well up windward. At the same time the main sheet is hauled in and the after guy tightened to reduce the tendency of the yard to sag away leeward.

In this way the sail can be set quite flat and is an effective driving sail up to about 50 degrees from the wind. On this point of sailing, the leeboard is necessary to redLice the tendency of the raft to slide away leeward. The head of the board is lashed to the mast and the board held in place by water pressure as described above. According to the wind strength and degree of leeway the board can be raised or lowered and lashed in a new position as desired. When sailing close hauled, the kattumaram, as any other unballasted small sailing craft, will heel leeward and the crew sit outwindward using their weight to counterbalance the wind pressure. In stronger breezes a log is used as a "hiking board". One end of this log is forced under the after lashing with the other end outboard to windward. One crew member then sits on the log, moving further outboard on the log as the craft heels to increased wind pressure.

**2. Tacking:** To tack through the eye of the wind requires lowering the sail, shifting the mast **to the other side of the** craft and resetting the sail. As, in a wind of any strength, ground is often lost windward during this manoeuvre, close tacking to reach a position directly toward the wind is not usually attempted. Instead, the sail is taken down and the craft rowed or paddled.

The manoeuvre is accomplished as follows: the helmsman hauls in the main sheet and steers the craft in a curving track towards the eye of the wind. The boom to mast lashing and the yard heel rope are cast off, the main sheet and aft guy slackened and the yard swung to a horizontal position. A crew member grasps the boom and furls the sail around it up to the yard. Yard, sail and boom are supported on a shoulder and the loop holding the yard to the mast lifted off. The shrouds are released and the heel of the mast is lifted out of its positioning hole on the leeward side log. If the raft carries its way through the eye of the wind, the head of the mast is then dipped under the yard to the new windward side and the heel placed in the depression in the other (leeward) kombu. As the shrouds are set up windward, the crew member supporting the sail drops the yard grommett over the mast head and the sail is allowed to unfurl leeward. The same procedure is then followed as for setting the sail, as described above. If the raft does not carry her way through the wind, the mast, sail and yard are dropped on to the logs and the crew members paddle the craft through the wind to the new point of sailing, the mast and sail are set up as before, and the kattumaram takes off on the new tack.

3. Sailing off the wind: As the kattumaram bears awayfrom the wind the main sheet and guy are slacked off and the yard heel lashing released to allow the sail to swing forward progressively as the wind moves aft. The leeboard is not required as the wind moves aft of beam and it is unshipped. In order to bring the centre of effort as near as possible to the centre line of the craft, the shrouds are tightened to pull the head of the mastas far as possible towards what was the windward side, also moving the sail and its centre more towards the centre line. The effect of this movement reduces the couple between the centre of lateral resistance of the hull and the centre of effort of the sail, thus making for easier down wind steering, much as is done in a windsurfer where the mast is also centred well windward when sailing down wind.

4. Jibing: To jibe, the kattumaram is steered stern to wind and the main sheet is hauled in, bringing the boom aft until it is parallel to the hull. During this manoeuvre and as the pressure is taken off the sail, the forward shroud is taken across to the other side and set up and the boom lashing cast off. The yard tends to lift towards the vertical; and at the moment when the wind is directly astern and there is little weight of wind in the sail, the heel of the mast is unstepped, passed forward and, as the yard and boom swing across, it is repositioned on the new leeward side atthe same time asthe aftershroud is passed forward and brought backto the new windward side to be set up. The boom lashing is then fastened and the main sheet slackened out to the new running position. As can be seen, this manoeuvre requires quick timing and is not usually attempted in strong winds. The sail is instead dropped and the raft paddled around to the new heading before the sail is reset.

5. Sail reduction and operation in strong winds: The kattumarams do not usually go out in the heavier weather of the strongest monsoon periods. However, increasing wind strengths during the course of a day's fishing do require some means of reducing sail area. The sails do not have reef points as is common in European sailing craft, nor is it possible to reduce sail by dropping the peak as is commonly done with the spirt sail rig. Apart from the choice of the appropriate sized sail for the wind strength expected, there is a method of lowering the centre of effort and reducing the lateral plane of sail opposed to the wind.

The mast has three notches cut in it for attaching the shroud lashing, one at some 50 mm (2") from the head of the mast, one some 28 mm (11") lower and a third 20 mm (8") below that As the wind increases in strength, the shrouds and the grommett holding the yard in position are lowered from one notch to the next. The sail then takes a fuller form, the centre of effort is lowered and the vertical plane of sail exposed to the wind reduced. Provided the kattumaram is not required to sail close to the wind, the efficiency is not greatly impaired and the craft can continue to operate.

## KATTUMARAM GLOSSARY

# Terms used by Kattumaram Fishermen for Craft Components, Accessories and Gear

1.	ALPHABETICAL			
	akkini valai	Gill net for flying fish used by Tamil Nadu raft kattumaram		
		(kolamaram) in conjunction with the luring method.		
	albyssi	Timber of albyzzia stipulata (Tamil Nadu).		
	ana maram	"Helper log". An additional log or bamboo pole about		
		20cm diameter and as long as the kombu (q.v.), lashed to the		
		leeward side of the raft kattumaram to counteract heeling		
		under sail, a sponson. See also thunna maram.		
	ara valai	Gill net for prawns (Tamil Nadu).		
	baditha	Timber of erythrina indica (Andhra Pradesh).		
	boddu balla	Centreboard of Andhra Pradesh boat kattumaram.		
	chala vala	Sardine net used from Tamil Nadu boat kattumaram.		
	ch inna maram	Small raft kattumaram, about 3 m long.		
	dannu kara	Supporting struts for wash strakes of Andhra Pradesh boat		
		kattumaram.		
	di risa na	albyzzia lebbeck (Andhra Pradesh), see also sirusinda.		
	eda valai	Name used in Pondicherry district for mada va/al (q.v.); also,		
		in remainder of Tamil Nadu: a small simplified type of mada		
		<i>va/al</i> used without lures.		
	elavu	Timber of bombax malabaricum (Tamil Nadu).		
	gada	Cloth from which sails are made.		
	gudhi	One complete unit of prawn gill net (Andhra Pradesh).		
	iragu valai	Type of boat seine, Andhra Pradesh, similar to thurivalai (q.v.)		
	irukka maram	A term used to distinguish the raft kattumarams used in		
		certain fisheries.		
	kachanthuram	Starboard side of Tamil Nadu boat kattumaram.		
	kadiyal	Horn-shaped wooden crosspieces, parts of structure of		
		Tamil Nadu boat kattumaram.		
	kambi	Lure used with mada valal (q.v.).		
	kathava	Oars of Andhra Pradesh boat kattumaram.		
	kattumaram	"Tied Logs". Generic term for seagoing craft of east coast of		
		India so constructed.		
	kattu thadu	Ropes used for lashing together the two halves of an Andhra		
	herede vedet	Cill not for optimize optimize (Termil Nodu)		
	Kavala valai kilia valai	Gill net lor calching sardines (Tamii Nadu).		
	Killa valai	Gill het used in Andria Pradesh for prawns.		
	Kola	Flying IISH (Tahini Nauu).		
	Kolamaram	"The leg on which the kembu (a.v.) rosts" In a reft kettur		
	котріпигиккаї	maram of seven or more logs the log next to the outermost		
	kombu	Extreme outboard logs of raft kattumaram		
	kondal thuram	Port side of Tamil Nadu boat kattumaram		
		Term used in Madras for Nerukku (q.v.) or palayan irukkai		
		$(a, v_i)$ See also velurukkai		
	mada valai	Conical shaped had net		
	mada valal madi	Cod-end of mada valal (q v )		
	magasri muka	Stem piece of Andhra Pradesh boat kattumaram		
	magasir muka	etem pleve of Analita i radoon boat natamaram.		

maipu karra malaivembu miliki	Main logs (centre logs) of Andhra Pradesh boat kattumaram. Timber of <i>melia stipulata.</i> Timber of <i>albyzzia mulucona</i> (Andhra Pradesh).
mulla valai nerukku	Gill net for cat fish. In a raft kattumaram (of more than four logs) the logs adjacent
	to the centre log(s). See also palavan irukkai, lairukkai, velalrukkai.
nidra ganneru	Timber of samania samans (Andhra Pradesh)
pachu valai	Gill net for Corophenae, Polynemus and other perch-like fishes.
pedda balla	Balancing board on which a man stands to counteract heeling of the craft under sail. Andhra Pradesh boat kattu- marams.
padidi u	Wash strakes of Andhra Pradesh boat kattumaram.
pakka mukkalu	Side logs of Andhra Pradesh boat kattumaram.
pa la ka	Steering oar of raft kattumaram.
palava	same aspalaka.
palavan irukkai	In raft kattumaram, log on which the steering oar rests, usually one of the nerukku (q.v.).
panam	80 prawns of average size, approximately 21/20 3 kg (Andhra Pradesh).
patty	One section of a gudhi of kllia valal (q.v.).
periamaram	Large raft kattumaram, about 9 m long.
punagam	Four panam (q.v.).
pundu	Leaves used as lure for flying fish (Tamil Nadu).
ral valai	Gill netfor prawn used by Tamil Nadu boat kattumaram.
ratta valai	Gill net for capturing small pelagic shoaling species by encirclement.
royya	Reyyei karara: Andhra Pradesh name for timber of albyzzia stip ulata.
silalu	Wooden pegs used to fasten together the logs of Andhra Pradesh boat kaltumaram.
silla	Timber of albyzzia stipulata, Tamil Nadu
sirisindu	Timber of a/byzzia lebbeck, Andhra Pradesh. See also dlrlsana
sumka n u	Primitive rudder of Andhra Pradesh boat kattumaram.
tella poliki	Timber of glvotia rottleriformis, Andhra Pradesh. See also tella ponugu.
tella ponugu	Same as <i>tel/a poliki</i> (q.v.).
thai irukkai	Centre and longest log of a raft kattumaram: "The mother or main log," also "the place to sit".
theppa	Andhra Pradesh name for kattumaram.
theppalu	same as <i>theppa</i> (q.v.)
tundil	hook and line
thundil maram	raft kattumaram, usually small, used for fishing by handline.
thunna maram	an additional log or a bamboo pole about 20 cm dia and as long as the kombu (q.v.) lashed to the leeward side of a raft kattumaram to counteract heeling under sail. A sponson. See also ana-maram.
thuri valai	boat seine _ used by 2-raft kattumarams.
vaira valai	gill net for seer fish
vala valai	gill net for chirocentrus
valai	net
vali valai	gill net used by Tamil Nadu boat kattumarams for seer fish.
	pomfrets etc.
vavval valai	aill net for pomfrets etc
valaerukai	Term used in Madras for <i>nerukku</i> (q.v.) or nalavan irukkai
	(q.v.). See also lairukkai.

venaka dima	transom piece of Andhra Pradesh boat kattumaram.
voddi valai	"wall net" cotton gill net used in Andhra Pradesh for catching sardines
vorra poliki	timber of storaulus urans (Andhra Bradash)
yena poliki	
	See also yerra ponugu.
yerra ponugu	Same as <i>yerra poliki</i>

## 2. BY SUBJECT

2.1 Boat kattumarams, Andhra Pradesh	
Boat kattumaram	theppa,theppalu
centre (main) logs	maipu karra
side loas	pakka mukalu
peas for fastening logs together	silalu
stem piece	magasri muka
transom	venaka dima
wash strakes	padidulu
supporting struts for wash strakes	dannu kara
ropes for lashing together two	
accessories of craft	kattu thadu
oars	kathava
rudder	sumkanu
centreboard	boddu balla
balancing board (to counteract	
heeling undersail)	padda balla
2.2 Raft kattumarams, Tamil Nadu	
log raft	kattumaram
small raft kattumaram about 3 m long	chinnamaram
small raft kattumaram used for handlining	thundil maram
raft kattumaram used in certain specialised	
fisheries	irukka maram
large raft kattumaram about 9 m long	peria maram
large raft kattumaram used in fisherv for	
flying fish	kolamaram
centre main log or logs	thai irukkai
outboard, shortest log	kombu
log adjacent to outermost log	
(if seven or more logs)	kombinirukkai
log adjacent to centre log	
(if more than four logs)	nerukku
log on which steering oar rests	
(usually one of the nerukku)	palavan irukkai: in Tamil. lairukkai
	or velarukai
an additional log or a bamboo pole lashed	
on lee side to give extra buoyancy to	
counteract heel under sail (sponson)	ana-maram, thunna-maram
steering oar	palava, palaka
sail cloth	qada
	5
2.3 Boat kattumarams, Tamil Nadu	
Craft of logs	kattumaram
port side of craft	kondal thuram
starboard side of craft	kachanthuram
horn-shaped wooden structural cross pieces	Kaonanniann
bow and stem	kadival

2.4 Fishing Gear 2.4.1 Andhra Pradesh: net valai bottom seine iraga valai sardine gill net prawn gill net section of prawn gill net one complete unit of prawn gill net gear 2.4.2 Tamil Nadu (Raft kattumaram fisheries) net conical shallow bag net cod end of conical shallow bag net lure used with above small conical bag net boat seine gill netfor pomfret gill net for seer fish gill net for corophenae, polynemus and other perch-like fish gill net for sardines gill net for chirocentrus gill net used to encircle small shoaling pelagic species gill net for prawns gill net for cat fish gill net for flying fish lure for flying fish made of leaves hook and line 2.4.3 Tamil Nadu boat kattumaram fisheries: net gill net for prawns gill net for sardines gill net for seer fish, pomfrets Other fish names and terms 2.5 flying fish (Tamil Nadu) measure of quantity of prawns (Andhra Pradesh) (about 21/20 3 kg) 2.6 Timber 2.6.1 Andhra Pradesh: Albyzzia Stipulata albyzzia mulucona albyzzia lebbeck givotia rotleriformis sterculus urens samania samans erythrina india 2.6.2 Tamil Nadu (raft kattumarams): alb yzzia stipu/ata melia stipulata 2.6.3 Tamil Nadu (boat kattumaram): albvzzia stipulata bombax malabaricum

voddi valai kilia valai patty (four to a net) gudhi valai mada valai; in Pondicherry, eda valai madi kambi eda valai thuri valai vavval valai vajra valai pachu valai kavala valai vala valai ratta valai ara valai mulla valai akkini valai pundu thundil valai rat valai chala valai vali valai kola pariam Four panams: punagam royya, reyyikarra miliki dirisana; sirisinda tella poliki; tella ponugu yerra poliki, yerra ponugu nidra ganneru baditha albyssi malaivembu sillai elavu

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