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THE FISHING GEARS USED IN THE EXPLOITATION OF MARINE AND BRACKISH WATER FISHERY RESOURCES ALONG TAMILNADU COAST*

The fishery resources of the marine and brackish waters along the Tamilnadu coast have been traditionally exploited by a number of types of indigenous gears. With the gradual increase of the mechanised boats of which 90% comprised of trawlers numbering about 3,000 (CMFRI Spl. Publn. No. 37, 1987). Tamilnadu and the Union Territory of Pondichery together contributed an average of 2.5 lakh tonnes of fishes during the Both inshore and offshore period 1985-'89. waters of the extent 16,058 km² and 7,197 km² respectively upto 40 fathoms are being exploited at present in addition to the regular fishing in the brackish water areas using a variety of fishing With three geographical divisions viz., Coromandal coast (Chengalpet, Madras, South Arcot and Tanjore districts and the Union Territory of Pondichery including Karaikal), Palk Bay region (Pudukottai and Ramnad Districts) and Gulf of Mannar region (Tirunelveli and south east coast of Kanyakumari districts) having the coast lengths of 350 km, 590 km and 60 km respectively possesses 16% of the Exclusive Economic Zone of the Indian waters.

In 430 fishing villages studied along the coast, comprising a maximum of 21 and 19% in Chengalpet and Ramnad districts respectively traditional fishing with indigenous gears, is the principal occupation of the fishermen population throughout the year employing chiefly the catamarans which constitute nearly 73% of the total indigenous craft. Moreover by landing the mechanised catch in six centres along the coast, Tamilnadu contributes a substantial share of 17% in the marine fish production of India.

A number of indigenous fishing gears have been modified in recent years along the Tamilnadu coast with changes in the net material to facilitate getting better catches. During the last three decades, the synthetic materials, nylon and high density polypropylene (HDP) are increasingly being used for the fabrication of different kinds of nets.

There are no published records on the classification and specifications of the large number of gears operated along the coast. Hence the present account listing the indigenous gear with their prevalent local names in Tamil in the respective geographical divisions along the coast will be of use to those interested in the fishing industry.

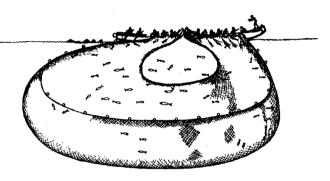


Fig. 1. Encircling net (Kola Valai)

The indigenous gears are broadly classified under major heads based on their mode of operation such as bag net, inshore dragnet, encircling net, gill net etc. and the different nets operated at present are listed in addition to the traps and hooks and line which are dealt with Besides, the gears operated in separately. brackish water fishing have also been listed. Additional information collected on the specification of nets like material, dimensions of mesh size, approximate cost of net, mode of operation, important species caught etc. are also being given. The list has been made complete with the inclusion of most of the common brackish water fishing gears in addition to the main nets operated by the mechanised vessels along the Tamilnadu coast.

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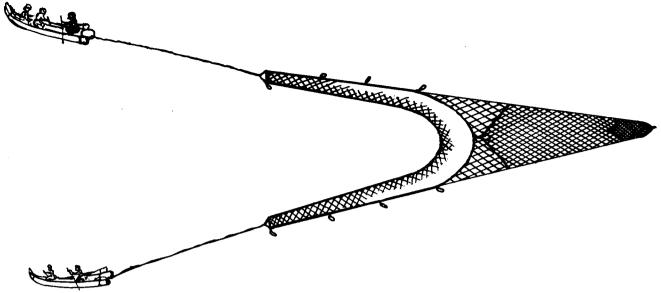


Fig. 2. Bag net (Thoori valai)

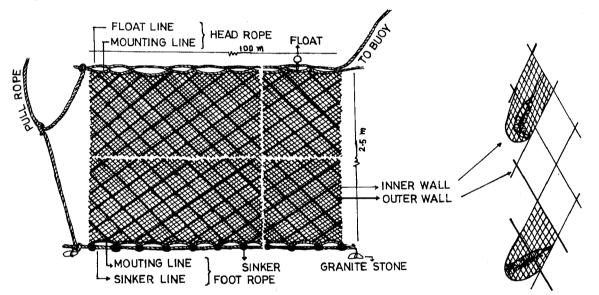


Fig. 3. Trammel net (FAO net or Mani valai)

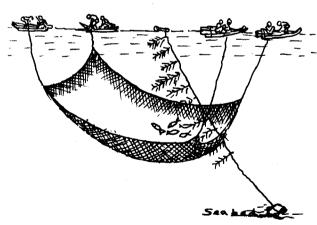


Fig. 4. Mada valai

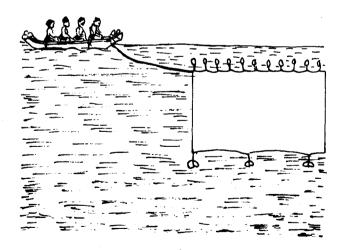


Fig. 5. Drift gillnet (Vala valai)

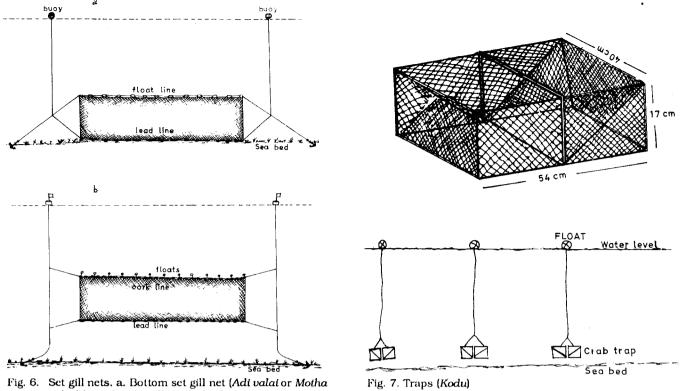


Fig. 6. Set gill nets. a. Bottom set gill net (Adi valai or Motha valai) b. Midwater gill net (Eda thanni valai)

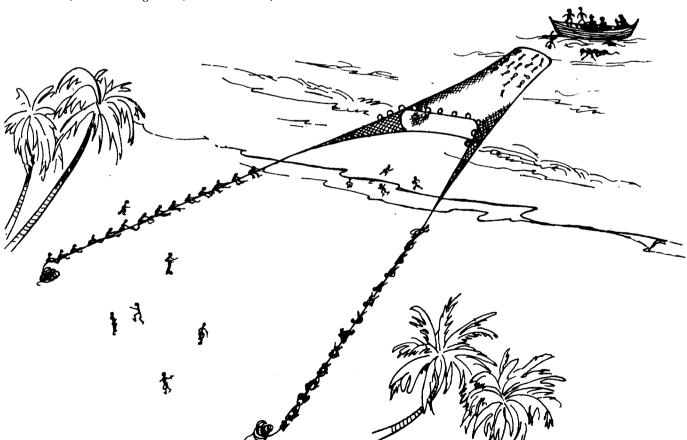


Fig. 8. Inshore drag net (Kara valai)

Gear	used	in	sea	
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Type of	Ve	rnacular nam	e	Di	mensions		Mate-	Appro-	No. of	Mode of operation	Species	Remarks
gear	Coroman- dal coast	Palk Bay coast	Gulf of Mannar coast	Length (m)	Breadth or Height (m		rial and colour	ximate cost of	boat/	•	caught	
1		2			3		4	5	6	7	8	9
I. INDIGE	NOUS GEAR											
A. Bag net	Mada valai or Kambi valai or Olai valai	Mada valai or Kambi valai or Olai valai	Mada valai or Kambi valai or Olai valai		13-15 m	6.25cm near the mouth	-		4 catamarans and 14 men	Rectangular mouthed bag net with a thick foot rope having two ends and two hauling lines attached to the two loops provi- ded. The net is operated with the help of fish lures locally called kambi which consists of a string	Pomfrets, Mullets,	Season of fishing, January to June
										of coconut leaves attached to a rope moored in the sea and kept in position with wooden buoys and sinkers. Fish shoals attracte by the shade provided by the kan crowd around it and the fisherme by clearly manoeuvring, drag the net under the kambi and entangle the shoals. Each net carries more than one dozen kambi for operation. (Fig. 4).	eđ nbi en	
	Eda valai	Eda valai	Eda valai	17-20 m	13-15 m	••	,,	20,000	"	Four catamarans boats encircle the shoal and operate the net. No kambi is used during the fishing operations	"	January to September
	Thuri valai or Chenna kunni valai or Vella valai	Madi valai or karimadi valai or Thallu valai	Madi valai or Illuppu valai	Length of bag, wing and rope are 13 m, 23- 25 m and 30-36 m respective		1.25- 2.5 cm	Cotton /Nylon (Brown)	•	marans and 6-8 men	A primitive type of bag net where the mouth is kept stretched by two catamarans sailing in a parallel course at an appropriate distance apart. The net is first shot across the current. The catamarans then turn about, row parallel to each other along with the current and net is draged along the bottom. (Fig. 2)	Catfish, rays, ribbon fishes, prawns, silver bellies, croakers etc	January to April
	Eru valai	_	_	A small meshed conical bag net with variable diameter		2.5 cm	Cotton (white)	2,000	l cata- maran and 4 men	Shot from catamaran but not dragged. The mouth of the bag always faces the shore. The net is designed to be operated at a higher level than the bottom unlike the Thuri valai and is fitted with a number of floats which help to keep it near the surface.	Prawns, shoaling fishes	April to June. Operated only at Nettu- kuppam near Madras

	1		2		3		4	5	6	7	8	9
В.	Inshore drag net or Shore seine	Periya valai or Thallu valai	valai or	Karaimadi valai or Thallu valai or Marukku valai		0.65- 1.5 cm	Hemp or coir (Brown or black		l boat and 10-15 men	The net consists of two parts viz., a wide funnel shaped madi valai with 2 wings and a rectangular cod-end, madi. The mouth of the bag and the wings are provided with head and foot ropes. Floats are attached to the head ropes at regular intervals. The net is shot near the surf beaten shore from a special boat called Padagu and by rowing round in a circle, a shoal is covered and trapped. Afterwards the net is dragged towards the shore (Fig. 8)	sardines, carangids, mackerel, Thryssa, Seer fishes, ribbon fishes, mullets etc.	without frame or
		_	_	Vidu valai	Head rope — 38.5 m, foot rope 33.25 m	2.5 cm	Nylon/ Cotton (Blue/ white)	3,000	1Padagu 4-5 men	Operation same as above	Carangids, mullets, sciaenids etc.	"
C.	Encir- cling net	Kola valai	Kola valai	Kola valai	Length of — bag 4 cm, wing 15 m	1.0 cm	Nylon (white)	5,000	2 catamarans and 6 men		fishes en ope ats ne ope	Season May to J
D.	Gill nets	,										
	1. Drift gill nets	Vala valai	Vala valai	Vala valai	50-60 m 7-10 m	3-5 cm	-	2,500- 5,000	l cata- maran and 4 men	The net is provided with floats and sinkers as conventional drif- nets. The depth of the net is ad- justed so as not to exceed 13 m. Most suitable for pelagic species (Fig. 5C)	carangids, Thryssa,	out the year exc October Decemb

 1	2		-	3		4	5	6	7	8	9
Kanni valai	Kanni valai	Kanni valai	60-80 m	5 m	7.5- 10 cm	Nylon (white)	5,000	l catam aran and 4 men	Operation details same as above i	Seer fishes, pomfrets, rays etc.	••
Ara valai or Pannu valai or Thadachi valai	Pannu valai	Pannu valai	50-60 m	5 m	2.5 cm		4,000- 5,000	l cata- maran and 2-3 men	Operated as Vala valai	Lesser sar- sardines, carangids, mackerels, <i>Thryssa</i> , cephalopods etc.	Through- out the year except monsoon
Mani valai or FAO net or Trammel net	Iral valai or Disco valai	Dance valai or Disco valai or Thallu valai	80-100 n	12.5-3 m	Inner wall 2-3.5cm Outer two wall: 13.5 cm	(white or yellow)	4,000- 6,000	l cata- maran and 2-3 men	A three-walled net designed for setting at the bottom. It has a fine net of smaller meshes hung loosely between vertical walls of coarser net of much larger meshes so that fish passing through the outer wall carry sompart of the finer net through the wall of the outer side and are entangled in the pocket thus formed. Gilling of larger fishes in the outer walls has also been noticed. (Fig. 3)	Mainly oper- ated for prawns but also catch fishes and cephalopods e	"
Kavala valai	Choodai valai	Choodai valai	50-60 m	3 m	2.5 cm	Nylon (green/ Yellow)	,	l cata- maran and 2-3 men	Operated as Vala valai (surface drift net)	Sardines	
Thattakavala valai	· 	<u>-</u>	50-60 m	3 m	4.0 cm	••	**		"	**	**
Iraga valai	Iraga valai	Iraga valai	80 m	4 m	2.5 cm	Nylon (red/ white)	5,000- 6,000	,,	,,	Sharks, seer fishes, carangids, prawns etc.	"
****	Sippi valai	Sippi valai	80-100 m	5m	2.5 cm	Nylon (white)	6,000	**	"	**	
		Nachu valai	Head rope 78-90 m, foot rope 75-90 m	2.25 m	8.5 cm, 5 cm, 4.5 cm	,,	6,000	,,	waters along the coast	Scomberoides spp., carangids, mullets, half-beaks, barracudas, catfish etc.	,,
Kuzhi valai	Kuzhi valai	_	25 m	4 m	3-4 cm	"	2,500			Mullets, barracudas	**

-	1	2			3		4	5	6	7	8	9
	<u> </u>	Koi valai	<u> </u>	50-60 m	5 m	3.0 cm	Nylon (white)	3,000- 4,000	1 cata- maran and 2-3 men	waters along the coast	Pomfrets, barracudas	Through- out the year except monsoon
	_	Mural valai	_	50-60 m	5 m	2.5 cm	Nylon (white)	3,000- 4,000	,,		Half-beaks, full beaks	,,
	_	Kalinga valai	_	70-80 m	6 m	6.5 cm	,,	5,000- 6,000	. **	,,	**	11
	· <u>-</u>	Sengani valai		50-70 m	5 m	4.5 cm	,,	3,500- 4,000	**	,,	Psammoper waigiensis and other perches	ca ,,
	_	Kumla valai	_	**	4 m	5.5 cm	11	3,000- 4,000	,,	**	Mackerels	**
	_	Theraga valai	_	40-50 m	3 m	1.0 cm	11	2,500- 3,000	,,	n	Allenata forskali	**
		Seriya valai		,,	3 m	3.0 cm	,,	••	,,	••	Mullets	**
	Vaval valai	Vaval valai		60-70 m	4 m	3.0 cm	**	4,000- 5,000	,,	,,	Pomfrets and other fishes	***
22		Oozhi valai	_	50-60 m	4 m	2.5 cm	••	2,500- 3,000	**	•	Barracudas	s ,,
	-	-	Kannika valai	40-50 m	2 m	5.5 cm	Nylon (white/ red)	2,000- 3,000	,,	••	Lethrinus spp., Mojarras a Catfish	nd
	-	Maya valai	Maya valai	50-60 m	4 m	5.5 cm	Nylon (white)	3,000- 3,500	,,	11	Seerfish, Mackerel, Halfbeaks, etc.	**
	_	Paru valai	Paru valai	"	,,	14- 18.5 cm	,, 1	3,000			Seerfishes, Barracuda sharks etc.	s,
	_	Podi valai	Podi valai	,,	11	5-7 cm	,,	3,500	,,	,	Thryssa sp Silver belli and Cephalopo	es
	2. Set gill net a. Midwater gillnet Eda thanni valai	Kurukku katti valai	Kurukku katti valai	40-50 m	3 m	3-4 cm	Nylon (white red)	3,000 / 4,000		Operated as vala valat in the mid water column. Sufficient floats are attached to the net to maintain the stretch. (Fig. 6b)	Prawns, Crabs and other fishes	,,

	1		2			3		4	5	6	7	8	9
	b. Botto	m set gill net											
		Adí valaí	Kallukatti valai	Kallukatti valai	50-60 m	4 m	3-4 cm		4,000- 5,000	l cata- maran and 2-3 men	The net is set at the sea bottom with the help of sinkers attached (Fig. 6a)	Lobsters, crabs and other fishes	Through out the year except monsoon
			Kala valai	_	40-50 m	4 m	12-15 cn	n ,,	3,000- 4,000	**	"	Threadfins and other fishes	,,
		Nandu valai	Nandu valai	Nandu valai	100-150 m	2 m	3-4 cm	,,	3,500- 4,000	**	The net is made up of 3-4 pieces which are detachable but without sinkers	Crabs and fishes	,,
		Singiral valai	Pantha valai	Singiral valai	60-70 m	3 m	4-7 cm	Nylon (white/ blue)	,,	,,	The net is set at the bottom with the help of sinkers	Lobsters and fishes	**
. 23		Thirukka valai	Thirukka valai	Thirukka valai	"	,,	8-10 cm	,,	••	,,	The net is set at the sea bottom with the help of sinkers attached. The buoyancy provided by the floats is sufficient only to maintain the vertical stretch	Exclusively rays	,,
			Katta valai or Paru valai		80-100m	5 m	7.5- 15.5 cm	Nylon (yellow /red)		••	•	Carangids, seerfishes Lethrinus spp. etc.	,,
		Motha valai	_	-	50-60 m	4 m	15 cm	Nylon	4,000- 5,000	1 cata- maran and 3-4 men		Seerfishes, carangids, tunas, sharks and large perches	,,
		Iriga valai	Iriga valai	Iriga valai	,,	**	**	**	**	,,	n	Prawns, carangids, seerfish etc.	**
]	E. Hooks a	nd Line											
	1. Hand	line											
		Kai thoondil	Kai thoondil	Kai thoondil	_		_	_	200- 300		to the sea. Usually practiced on rocky banks covered with seaweeds or among coral and	Sharks, perches, seer fish, pomfrets, catfish etc.	,,

	1		2			3	-	4	5	6	7	8	9
	ii. Long	lines Thura thoondil or Ayiramkal	Thura thoondil or Ayiramkal	Thura thoondil or Ayiramkal	_	_			-,	maran 3-4 men		Sharks, perches, catfishes, etc.	Through out the year except monsoon
		thoondil	thoondil	thoondil			Α.				Hook No. 5 and 6		
	iii. Troll	ing lines —	_	Odu kayaru		_	_		1,000- 1,500		The length of the main line is about 1,000 m to which are attached numerous hooks at regular intervals. Hook No. 1 and 2	Seer fishes, tunas, carangids, sharks etc.	*1
	F. Traps		•						ь.				
	a. One o	entrance trap —	Koodu	Koodu	37.5 cm	42.5 cm (Width of funnel 15 cm)		Cane	300	l cata- maran 2 men	Usually the traps are set in relatively shallow waters near to the shore at a distance of 100-500 m. Some traps have a bottom of netting over their whole area, while others have only net base in the pocket area	Lobsters, crabs, Lates sp. and other perches	,,
24											(Fig. 7)		
	b. Two	entrance Trap	•										
	v.	_	,,	,,	62.5 cm	43.8 cm (Width of funnel 15 cm)	2 cm	**	500	••• •	,,	**	,,
	II. MODER	en gear											
	a. Traw 1. Fish									_	- Aller marks	Elasmo-	
		Meen valai	Meen madi	Meen madi	32-40 m	5 m	Wing 8-10cm, belly 5-7 cm, cod end 2-3 cm	ethelii or pol propy			r This net is operated by mecha- r nised boats for conventional trawl fishing in varying depths along the coastal waters for ground fish resources. This is essentially bag type consisting of three parts viz., wings, belly and cod end with varying mesh sizes. During trawling opera- tions, the mouth of the net is kept open by a pair otter boards attached to the wings of the net on either side.	branchs, ribbonfish, croakers, prawns, silver bellie cephalopod threadfin breams, lizard fishes carangids,	es, ls, es,

1	-	2			3	·	4	5	6	7	8	9
	imp trawl Eral madi	Era madi	Era madi	30-34 m	5 m	Wing 7-8 cm, belly 5-6 cm, cod- end 2 cm		6,000- 8,000	••		Prawns pre- dominates in shrimp trawl catche	
o. Gill net												
1. Drift	t gill net											
2. Set g	Gill net or Gill net valai	Gill net or Pachi valai	Gill net or Pachi valai or Paru val or Podi vala		4-8 m	7-13 cm	Nylon (blue)	10,000-20,000	4 crew	The net operated by Pablo type mechanised boats consists of usually 9-12 pieces plied together and is attached with sinkers and floats for maintaining. The boats usually leaves their base in the afternoon hours and reach the fishing ground by 20.00 hrs. Setting and hauling time range from 1 to 2 hours whereas soaking time usually range between 3 to 4 hours and land their catches in the next day between 06.00-09.00 hrs.	Sharks, tunas, seerfishes, billfishes, pomfrets, catfishes, carangids, mackerel, perches etc.	Through out the year exc monsoo
· • • • • • • • • • • • • • • • • • • •	Thirukka valai	Thirukka valai	Thirukka valai	800 m	10-15 m	30 cm	,,		**	Operation same as above but exclusively menat to catch the rays	Rays	,,

FISHING GEAR OPERATED ALONG TAMILNADU COAST

Gears used in Brackish waters

Type of gear	Vernacular name	Length (m)	Breadth (m)	Size of mesh (cm)	Material and colour of net	Approxi- mate cost of the net	Crew/ boat required	Mode of epotation	Species caught	Remarks
1	2	3	4	5	6	7	8	9	10	11
A. Fixed or	Kattu valai	15-30 m (Length variable)	Cod end 1-2 cm		Nylon/ cotton (white)			Two lines of nets are hung from parallel series of stakes. The first series projects a foot above the surface of water at high tide while the stakes of the second series are 0.6-1 m longer. A coarse meshed net tied to the first row of stakes lies submerged like a screen and second net is hung from the upper edges of the longer series of stakes. The lower edge of the latter is looped up and tied to the same stakes a little above the water level by a longitudinal pocket like enclosures between the two rows of stakes. Fish encountering the submerged net try to escape by leaping out of the water and are entangled in the curtain of net behind leading to the pocket like enclosures.	crabs, mullets, silver bellies, lates sp. etc.	Most common net used in the brackis water areas. The ne is set during the lot tide in the evening hours and hauled i the early morning. Operated throughouthe year.
	Kol valai	13 m	l m	3-5 cm	Hemp (brown)	2,000	1 catama- ran and 2-3 men	The net is set in the mouth of a channel leading from the backwater to the sea and is tied to the poles driven into the sand. During the high tide, when there is sea water influx, most of the fish groups which show a tendency to swim against the current of water are entangled.	Mullets, Lates sp. etc.	Operated throughouthe year
B. Small drag nets	Konda valai	30-40 m	2-3 m	1-2 cm	n Nylon/ cotton (white/ blue)	·	4 men	Long and broad strips of net are joined at the sides, the upper and lower margins being connected and distended with spreader sticks. The lower margin of the net is dragged along the bottom of the shallow backwater sas to dislodge fishes that burrow in the soft mud. Several units of this net mabe linked together and set in the form of a crescent facing the shore. In this method of collective fishing, the net is not dragged but fishes are driven into	e	

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	1	2	3	4	5	6	7	8	9	10	11
							`		the area enclosed by the net by dragging and splashing above the water by a scare-line which consists of strips of palm leaves attached to a cord. The crescent shaped arrangement of net closes into a circular enclosure and by joining the two ends of the net fishes inside are enclosed.		
0		Bodi valai	240 m	4-5 m	5-6 cm	Nylon	6,000	2 plank- built boats and 20 men	The net made up of two pieces is operated in the same manner as the shore seine and dragged to the shore with the help of more than 15 men. Commonly operated in the Pulicat Lake	Prawns and other fishes	Throughout the year
C	. Gill Ne	ts Kalla valai	60-80 m	1 m	7.5 cm	Nylon/ cotton (white/ yellow)	4,000	l canoe 4-6 men	Usually operated in the very shallow waters during the early hours of the day. Both ends of the nets are free and hence the net is slack and swayed by the current. Fishes are entangled by gilling. In Ennore backwaters near Madras, the net is also used as a stake net. The ends of net tied to two poles are not kept tightly stretched and fish are driven towards the net with a scare-line.	Threadfins, mullets etc.	Throughout the year
		Koduva valai	12 m	4 m	12.5- 13.75cm	Nylon/ cotton (white/ yellow)	3,000	5 boats 20-40 men	the Konda valai. 50 units are emp- loyed in collective fishing, arranged	Lates sp., Etroplus and other perches	••
D	Pouch	Ara valaí	40-50 m	5 m	3 cm	Nylon/ cotton (white/ blue)	2,000	1 catama- ran and 2-3 men	provided with floats and sinkers as in drift nets. The net is operated at a maximum depth of 10 m. Generally operated in night during new moon	Prawns, mullets, Gerres spp., crabs and small percoid fishes.	"
υ.	trap	Iruga valai or Eanthu valai	Circum- ference of mouth 30-40 m		5 cm	Nylon/ cotton (white/ yellow)	4,000		A portion of the mouth of the net is kept floating on the surface while the opposite portion is fixed near to the bottom. After some time the lower edge is lifted from the bottom and brought into contact with the elevated head rope, enclosing the fish inside.	Mullets	Other 'pouch traps' used are Sinna iriga valai, Kal valai and Thattuvalai operated throughout the year

	1	2	3 4	5	6	7	8	9	10	11
		Siru valai	Circum- ference of mouth 25 m	2.5 cm	Nylon/ cotton (white)	3,000	l catama- ran 2-3 men	Wide mouthed net with a shallow pouch and a small bag-like cod end attached to the middle of the hinder end. 30-40 wooden floats are attached attached to the head-rope, but without sinkers. The net is set tying to two poles driven into the bed of the estuary Two persons keep the ground rope at the bottom while others by splashing and dragging a scare-line drive the fish towards the mouth of the net.		Throughout the year
E-	Hoop n	et .								
E.	Hoop II	Tookku valai	Diameter of ring 5 m	7.5 cm	Nylon/ cotton (yellow)	300- 400	l catama- ran and 3 men	Shallow conical bag suspended from an iron ring. The bait is tied across the mouth. The net is lowered to the bottom of the water and taken after an interval of few hours.	Crabs and other fishes	Throughout the year
F	Cast no	et								
	Just AN	Veechu valai or Vishiru valai	Circum- ference of mouth and height of cone variable	1. 25 cm	Nylon/cotton (white)	600	1 boat 2-3 men	Conical net with 20 radial chords attached to the lower circular margin of the net with beads of iron or lead as weights to sink the net. Operated in the same manner similar to other cast nets.	Prawns and other fishes	Eral valai, Sama valai, Thoni valai, and Mani valai are different names for cast nets, which differ only in the size of mesh. Cast nets are also being operated along the coasta waters.
G.	Hooks									
	and Lines	Tamani kayan	Length of line 200-300 m. Thickness 0.6 cm. Snoods 45 cm attached to every 2 m length.	1	Poly- ethylene and nylon		l catama ran and 2-3 men	Line is kept in buoyancy with light wooden floats. The two ends are fixed to two bamboo poles driven into the bottom. Prawns are used as bait	Perches, catfish etc.	_

Note: In addition to the above, a primitive method of fishing prawns and small fishes in shallow brackish waters is by searching and catching by hand locally called 'Kayil pidithal' is prevalent in some areas along the Tamilnadu coast. Fishing in the night time with the help of torch light is common especially in the Pulicat estuarine regions. Locally called sudu, the implement consists of a funnel shaped basket with an opening at the narrowend. Fishes blinded by the light are trapped by placing the basket over them and collected either by hand or spearing.