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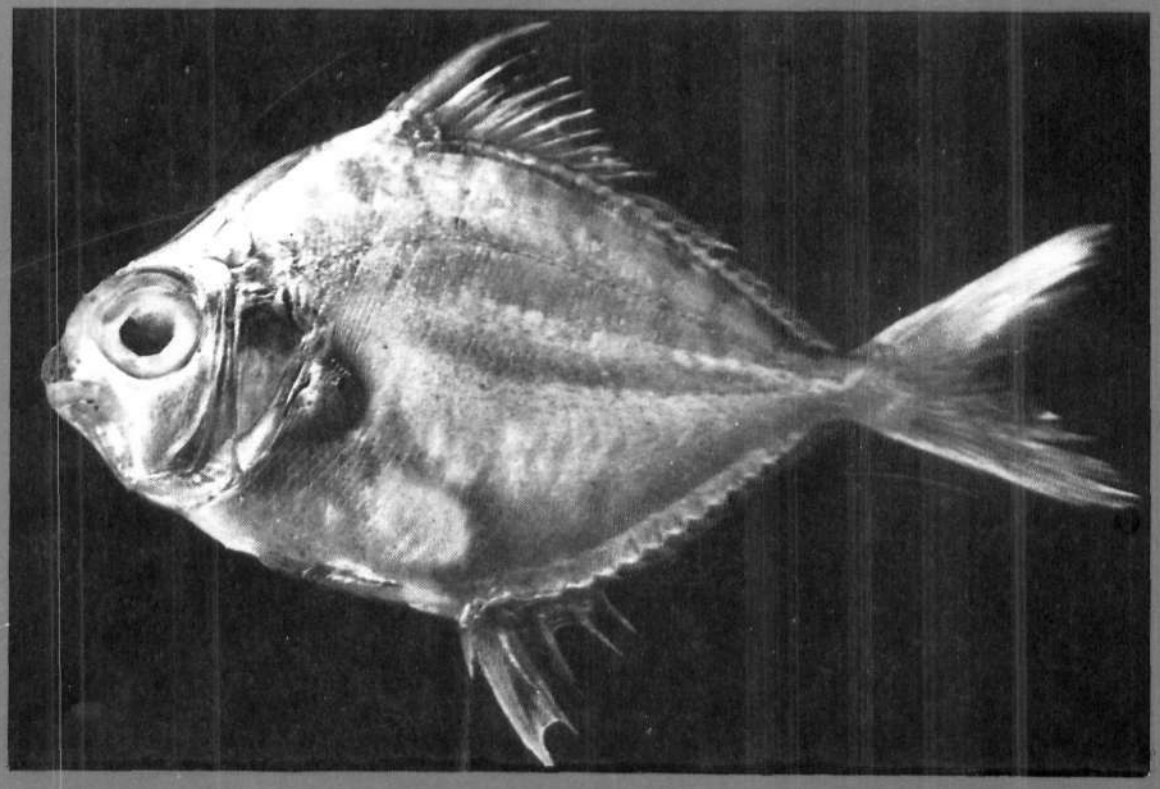

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THE PRESENT STATUS OF SMALL-SCALE TRADITIONAL FISHERY AT TUTICORIN

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Introduction

This is the second study on the small-scale traditional fishery at Tuticorin and covers the period from 1986 to 1990. The first account on the development of small-scale traditional fishery at Tuticorin by Bennet and Arumugham (*Mar. Fish. Infor. Serv., T & E Ser.*, No. **99**: 1989) covered the period from 1979 to 1985. Significant developments in the craft and gear have taken place since 1986. Present study highlights all the recent developments in the small-scale traditional fishery at Tuticorin. The data are presented in the way understandable for the common man and are presented in the manner useful to the business community and entrepreneurs. This account highlights the fishery since the introduction of machine propelled boats (motorised units) and consequent changes in gross fish landings.

Annual production

The trends or production experienced in the fishery are given in the table (Table 1). During the five years from 1986 to 1990, annual average fish catch by traditional fishermen came to 4,798.9 tonnes. Of this, the catch by motorised units came to 2,774.5 tonnes and by non-motorised units 2,024.4 tonnes. Fish landings by motorised units varied from 880.3 tonnes in 1986 to 4,202.1 tonnes in 1989. On the other hand, fish catch by non-motorised units was high during 1986 with 4,623.0 tonnes and gradually came down to 515.2 tonnes during 1990. As in the previous years the sardine gill net was the important gear in the traditional fishery and contributed over 68.3% in the annual catch by the traditional fishery. Next important gear was the long line. Average annual catch-per-unit was uniformly higher for the motorised units than for the non-motorised units. However, catch per unit was fairly high for the shore seine which was operated by non-motorised boats.

Craft and gear

Motorised as well as non-motorised Tuticorin type boats and *Catamarans* brought in from Kanyakumari, operated a heterogenous assembly of gears. Details of craft and gear employed in the fishery are given in the earlier report (Bennet and Arumugham, 1989). Gradually many of the crafts got fitted with motor propellants and their number increased year after year. Consequently a reduction in non-motorised crafts was noticed. 'Disco net', a specialised gear for catching prawns was introduced during 1987 at Tuticorin and was operated mainly by motorised boats. Hilsa net ('Podi valai') was operated by non-motorised 'Catamaran' units mainly to catch *Hilsa toli*. Data collected during the annual census about the fishing crafts employed in the traditional fishery is given below.

Year	Tuticorin type boat		Catamaran		Total
	Motorised	Non-motorised	Motorised	Non-motorised	
1986	90	439	00	13	542
1987	200	340	00	17	557
1988	335	215	00	27	577
1989	444	118	00	26	588
1990	476	91	25	21	613

Gear-wise landings

1. *Sardine gill net* ('Chala valai')

By far, the important gear in the traditional fishery was the sardine gill net. Annual average landings came to 1,585.3 tonnes by non-motorised crafts and 1,691.2 tonnes by motorised crafts. Of the total fish landings, 68.3% was caught by sardine gill nets. Good fishery by sardine gill nets was recorded during the October-December period. *Sardinella gibbosa* ranked foremost in the catch followed by *S. albella* in the non-motorised units and *S. sirm* in the motorised units. Other important fish groups in the gear were *Thrissocles* spp. *Caranx* spp. and *Leiognathus* spp. It is observed that a gradual reduction in the total catch by non-motorised units was observed from 1986 to 1990 due to the

TABLE 1. *Gear-wise effort, catch (tonnes) and catch per unit effort (kg) annual average catch (tonnes) for the period 1986-'90*

Gear	Effort, catch & C/E	Motorised units					Annual average (tonnes)	Non-motorised units					Annual average (tonnes)
		1986	1987	1988	1989	1990		1986	1987	1988	1989	1990	
Chala valai	E	0.0	12703.0	20102.0	24803.0	29922.0	17506.0	51115.0	35419.0	15132.0	5467.0	4066.0	22240.0
	C	0.0	1185.9	1664.8	3017.6	2587.7	1691.2	3816.7	2908.7	685.1	287.0	229.1	1585.3
	C/E	0.0	93.4	82.8	121.7	86.5	76.9	74.7	82.1	45.3	52.5	56.3	62.2
Paru valai	E	859.0	141.0	468.0	286.0	648.0	480.0	510.0	24.0	0.0	0.0	52.0	117.0
	C	67.2	16.6	76.9	29.3	100.9	58.2	37.8	0.9	0.0	0.0	7.9	9.3
	C/E	78.2	118.0	164.2	102.3	155.8	123.7	74.1	40.0	0.0	0.0	151.0	53.0
Podi valai	E	1627.0	1630.0	1800.0	3351.0	3288.0	2339.0	614.0	0.0	0.0	0.0	0.0	123.0
	C	88.3	161.0	155.0	495.4	310.2	242.0	31.1	0.0	0.0	0.0	0.0	6.2
	C/E	54.2	98.8	86.1	147.8	94.4	96.3	50.6	0.0	0.0	0.0	0.0	10.0
Hand line	E	2856.0	650.0	444.0	442.0	970.0	1072.0	3754.0	3836.0	1015.0	1186.0	907.0	2140.0
	C	191.3	64.4	12.9	39.6	71.7	76.0	222.6	181.3	28.9	47.9	59.4	108.0
	C/E	67.0	99.0	29.2	89.5	74.0	71.7	59.3	47.0	28.5	40.4	64.5	47.9
Long line	E	6718.0	5643.0	3738.0	2834.0	3063.0	4399.0	1483.0	790.0	1236.0	509.0	238.0	851.0
	C	509.0	634.2	306.9	197.5	420.1	413.5	74.6	32.6	58.0	37.7	19.9	44.6
	C/E	75.8	112.4	82.1	69.7	137.1	95.4	50.3	41.2	46.9	74.4	83.6	59.2
Troll line	E	517.0	902.0	339.0	1496.0	660.0	783.0	223.0	0.0	0.0	0.0	0.0	45.0
	C	24.5	42.3	20.1	76.7	58.6	44.4	6.5	0.0	0.0	0.0	0.0	1.3
	C/E	47.5	46.9	59.3	51.3	88.8	58.8	29.1	0.0	0.0	0.0	0.0	5.8
Sinki valai	E	0.0	689.0	1528.0	1375.0	620.0	842.0	1775.0	872.0	0.0	0.0	338.0	597.0
	C	0.0	68.3	87.0	83.9	32.4	54.3	96.1	72.5	0.0	0.0	6.3	35.0
	C/E	0.0	99.1	57.0	61.0	52.3	53.9	54.1	83.1	0.0	0.0	18.7	31.2
Thirukkai	E	0.0	1108.0	1928.0	1940.0	1457.0	1287.0	2551.0	998.0	0.0	130.0	0.0	736.0
valai	C	0.0	163.6	215.3	246.5	197.4	164.6	288.2	185.0	0.0	5.6	0.0	95.8
	C/E	0.0	147.6	111.7	127.0	135.5	104.4	113.0	185.4	0.0	4.3	0.0	68.3
Hand line	E	0.0	0.0	.0.0	0.0	1162.0	232.0	0.0	0.0	0.0	0.0	656.0	131.0
(*catamaran*)	C	0.0	0.0	0.0	0.0	25.3	5.1	0.0	0.0	0.0	0.0	7.4	1.5
	C/E	0.0	0.0	0.0	0.0	21.8	4.4	0.0	0.0	0.0	0.0	11.2	2.2
Disco net	E	0.0	2102.0	1314.0	702.0	2203.0	1264.0	—	—	—	—	—	—
(prawn net)	C	0.0	41.7	25.4	15.6	34.6	23.5	—	—	—	—	—	—
	C/E	0.0	19.8	19.3	22.3	15.7	15.4	—	—	—	—	—	—
Other gears	E	0.0	0.0	0.0	0.0	189.0	38.0	—	—	—	—	—	—
(*Mural valai*)	C	0.0	0.0	0.0	0.0	8.7	1.7	—	—	—	—	—	—
	C/E	0.0	0.0	0.0	0.0	46.0	9.2	—	—	—	—	—	—
Shore seine	E	—	—	—	—	—	—	191.0	103.0	154.0	102.0	179.0	146.0
	C	—	—	—	—	—	—	49.4	16.5	29.4	104.5	126.7	65.3
	C/E	—	—	—	—	—	—	258.8	160.2	190.6	1024.3	707.5	468.3
Thallu madi	E	—	—	—	—	—	—	0.0	1045.0	2637.0	3814.0	2466.0	1992.0
	C	—	—	—	—	—	—	0.0	29.4	42.0	97.9	47.5	43.4
	C/E	—	—	—	—	—	—	0.0	28.1	15.9	25.7	19.3	17.8
Podi valai	E	—	—	—	—	—	—	0.0	0.0	1902.0	2171.0	292.0	873.0
(*catamaran*)	C	—	—	—	—	—	—	0.0	0.0	82.7	49.9	11.0	28.7
	C/E	—	—	—	—	—	—	0.0	0.0	43.5	23.0	37.9	20.9
Annual total catch (tonne)		880.3	2378.0	2564.3	4202.1	3847.6	2774.5	4623.0	3426.9	926.1	630.5	515.2	2024.4

Note : E = Effort, C = Total catch in tonnes, C/E = Catch per unit in kg.

reduced number of units engaged in the fishery. Combined total for the sardine gill net units was high during 1987 with 4,094.6 tonnes. Well over 82.3% of the fish caught by sardine gill nets was formed by the lesser sardines.

2. *Drift net* ('Paru valai')

Large quality fish like seer fish, tuna, carangids, perches, *Chorinemus*, barracuda and sharks were caught by 'Paru valai', a drift net with larger mesh size. Catch composition shows differences between motorised and non-motorised units mainly because of the distance and area where these units were operated. Motorised units fished in deeper waters and wider areas landed 21.5% tuna followed by *Lethrinus* and seer fish. On the other hand, 26.4% of the catch by non-motorised units consisted of barracuda. Next in importance were carangids and sharks. Of the total fish caught by traditional fishery, about 1.4% was contributed by 'Paru valai' units.

3. *Drift net* ('Podi valai')

Smaller meshed drift net units were operated mainly for tuna, barracuda, carangids, seer fish and *Chirocentrus*. On an average 242.0 tonnes of fish were landed by *'Podi valai'* units. Mostly these nets were operated by the motorised units because they went to deeper waters for fishing. Fish catch by non-motorised units using the 'Podi valai' were scanty and restricted to the 1986 fishery. Tuna formed 25.7% of the catch followed by barracuda 11.2% and seer fish 11.1%. Good landings were reported during 1989. Many quality fish were landed by 'Podi valai' units. During the period 2,339, 'Podi valai' units were operated every year by the traditioal fishermen. 'Podi valai' units contributed 5.1% of the total fish caught by traditional fishery.

4. *Hand line* ('Thoondil')

Regular fishing by hand line units was carried out and landed an annual average of 184.0 tonnes of fish. On an average, 3,212 hand line units were operated per year. Both motorised and non-motorised boats operated this gear. Good fish catch was reported during 1986. *Nemipterus* spp. ranked first in importance in the hand line catch forming 39.3% in the landings by non-motorised units and 22.5% in the motorised unit landings. Other important fish groups included *Lethrinus*, *Belone* and *Serranus*. Hand line units were operated for pelagic as well as demersal fish groups.

5. *Long line* ('Ayiramkal thoondil')

This is one of the popular and specialized gear at Tuticorin, operated along the extensive areas over and beyond the deep water rocky 'paars'. Large sized pelagic and demersal fishes are caught by this gear. This gear was operated during the period by motorised as well as non-motorised boats. On an average, 458.1 tonnes of fish were caught by this gear forming 9.5% of the total fish caught. Larger perches, sharks and carangids formed the major portion of the catch. Large *Lethrinus* spp. formed 31.1% in the motorised boat catch and in non-motorised boats, *Lethrinus* spp. formed 29.8%. Good landings by motorised long line units were reported during 1987 and during 1986 by non-motorised units. Every year, on an average 5,250 long line units were operated at Tuticorin.

6. *Troll line* ('Odukayiru')

This gear was operated for seer fish, tuna, sharks and some other good quality fish at Tuticorin. Number of this gear operated by motorised units ranged from 339 in 1988 to 1,496 in 1989. On the other hand, 223 units were operated in 1986 by the non-motorised boats. After 1986 this unit was not operated by the non-motorised boats. Total annual fish landings during the period came to 45.7 tonnes forming 0.9% in the total fish caught. Seer fish formed the important species in the catch followed by tuna, sharks and carangids.

7. *Lobster net* ('Sinki valai')

Operated mainly for lobsters that live near the coral reefs, this gear caught crabs and bottom dwelling fishes more than it caught the lobsters. During the period, annual average landings came to 54.3 tonnes by motorised units and 35.0 tonnes by non-motorised units. Motorised units started operating this net from 1987. Lobsters and crabs were caught in small quantities by non-motorised units. Good proportion of the catch composed of lethrinids, catfish, carangids, rays and other perches. Lobster net contributed 1.8% in the total fish catch by traditional units.

8. *Bottom set net* ('Thirukkai valai')

Rays, sharks and skates were caught in large numbers by this net. Every year on an average, 260.4 tonnes of larger fish were caught by this unit and formed 5.4% of the total fish caught during the period. In recent years this gear was increasingly operated by the motorised units.

TABLE 2. *Catch composition of important groups of fish (tonnes) during the years* (1986-1990 in 'Chala valai'

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sardinella albella	A	0.0	118.8	158.0	262.2	364.1	180.6	10.7	3
	B	381.2	404.2	69.1	30.6	38.0	184.6	11.6	2
Sardinella dayi	A	0.0	79.2	105.8	174.8	210.1	114.0	6.7	4
	B	254.2	269.5	46.2	20.6	22.1	122.5	7.7	5
Sardinella gibbosa	A	0.0	734.6	885.9	1669.3	1231.0	904.2	53.5	1
	B	1896.1	1282.5	337.4	131.6	86.0	746.7	47.1	1
Sardinella sirm	A	0.0	112.8	245.4	506.7	173.2	207.6	12.3	2
	B	429.0	366.1	59.0	44.3	24.7	184.6	11.6	3
Sardinella clupeoides	A	0.0	4.5	8.2	91.4	46.1	30.0	1.8	7
	B	81.3	23.9	4.2	5.3	2.4	23.4	1.5	8
Sardinella longiceps	A	0.0	2.0	0.0	3.6	2.5	1.6	0.1	17
	B	12.5	1.2	0.0	0.0	0.0	2.7	0.2	14
Pellona	A	0.0	4.6	9.2	14.4	31.3	11.9	0.7	11
	B	38.2	8.7	3.6	2.9	2.5	11.1	0.7	11
Kowala kowal	A	0.0	0.6	4.5	5.6	34.3	9.0	0.5	14
	B	0.0	13.3	1.3	0.9	3.6	3.8	0.2	15
Stolephorus	A	0.0	0.0	1.8	12.5	44.6	11.8	0.6	12
	B	3.8	84.4	1.4	0.3	3.2	18.6	1.2	10
Thrissocles	A	0.0	62.4	86.0	102.4	237.1	97.6	5.8	5
	B	458.6	327.0	60.0	22.3	24.4	178.5	11.3	4
Leiognathus	A	0.0	17.5	23.8	27.6	46.9	23.2	1.4	8
	B	47.4	43.0	15.0	4.9	5.2	23.1	1.4	9
Carangids	A	0.0	4.3	29.7	32.3	38.3	20.9	1.2	9
	B	98.1	28.2	13.4	4.6	4.6	29.8	1.9	7
Sphyraena	A	0.0	9.2	13.0	16.5	10.2	9.8	0.6	13
	B	18.2	9.1	13.8	2.9	0.8	9.0	0.6	12
Therapon	A	0.0	1.9	6.8	25.5	42.1	15.3	0.9	10
	B	16.1	3.5	3.3	3.7	3.8	6.1	0.4	13
Seer fish	A	0.0	0.0	0.2	0.0	4.5	0.9	0.1	18
	B	3.9	0.0	0.6	0.5	0.3	1.1	0.1	16
Sillago	A	0.0	6.8	7.6	1.5	10.3	5.2	0.3	15
	B	0.0	3.1	3.8	0.8	0.8	1.7	0.1	18
Chirocentrus	A	0.0	0.0	0.9	13.5	2.9	3.5	0.2	16
	B	0.0	2.7	0.8	1.4	0.4	1.1	0.1	17
Miscellaneous	A	0.0	26.7	78.0	57.8	58.2	44.1	2.6	6
	B	78.1	38.3	52.2	9.4	6.3	36.9	2.3	6
Total	A	Nil	1185.9	1664.8	3017.6	2587.7	1691.2	—	—
	B	3816.7	2908.7	685.1	287.0	229.1	1585.3	—	—

Note : A = Catch by motorised units, B = Catch by non-motorised units.

TABLE 3. *Catch composition of important groups of fish (tonnes) during the years* 1986-1990 *in* 'Paru valai' (*drift net*)

Fish groups		1986	1987	1988	1989.0	1990	Average	%	Rank
Sharks	A	4.4	2.3	6.0	10.6	9.5	6.6	11.3	4
	B	1.1	0.0	0.0	0.0	4.4	1.1	11.8	3
Skates	A	0.0	0.0	0.0	2.7	0.0	0.5	0.9	13
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Tuna	A	5.8	4.7	38.6	0.0	13.3	12.5	21.5	1
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Seer fish	A	10.8	2.8	4.8	1.6	14.9	6.9	12.0	3
	B	2.8	0.0	0.0	0.0	1.4	0.8	9.0	5
Carangids	A	10.0	2.2	3.9	1.6	7.7	4.9	8.4	6
	B	7.9	0.0	0.0	0.0	0.0	1.6	17.0	2
Chorinemus	A	1.4	0.0	0.6	0.0	0.5	0.5	0.9	14
	B	0.4	0.9	0.0	0.0	0.0	0.3	2.8	10
Cat fish	A	2.7	0.0	0.2	0.0	0.0	0.6	0.9	15
	B	1.4	0.0	0.0	0.0	0.0	0.3	3.0	9
Lethrinids	A	11.3	0.8	4.5	4.3	17.1	7.6	13.0	2
	B	4.3	0.0	0.0	0.0	0.0	0.9	9.2	4
Serranus	A	7.2	1.5	5.4	0.5	0.0	2.9	5.0	7
	B	2.3	0.0	0.0	0.0	0.0	0.4	4.9	8
Lutjanus	A	4.4	1.1	0.0	0.0	4.3	2.0	3.4	9
	B	3.4	0.0	0.0	0.0	0.0	0.7	7.3	6
Diagramma	A	0.9	0.0	0.0	0.0	0.0	0.2	0.3	17
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Sphyraena	A	4.6	0.5	1.9	0.9	4.5	2.5	4.3	8
	B	12.3	0.0	0.0	0.0	0.0	2.4	26.4	1
Istiophorus	A	0.3	0.0	9.0	1.9	21.1	6.5	11.1	5
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Rachycentron	A	1.5	0.2	0.6	1.4	3.8	1.5	2.6	10
	B	0.4	0.0	0.0	0.0	0.0	0.1	0.9	12
Lates calcarifer	A	1.9	0.5	1.0	0.0	2.9	1.2	2.2	11
	B	0.9	0.0	0.0	0.0	0.0	0.2	1.9	11
Polynemus	A	0.0	0.0	0.0	3.8	1.4	1.0	1.8	12
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Other perchlike	A	0.0	0.0	0.4	0.0	0.9	0.3	0.4	16
fishes	B	0.6	0.0	0.0	0.0	2.1	0.5	5.8	7
Total	A	67.2	16.6	76.9	29.3	100.9	58.2	—	—
	B	37.8	0.9	Nil	Nil	7.9	9.3	—	—

Note : A = Catch by motorised units, B = Catch by non-motorised units.

9. *Other units*

Several other gear were employed in the Tuticorin fishery during the period. They landed small quantities of fish. When taken together, the aggregate catch contributed fairly good percentage in the total fish caught. Among motorised units, hand lines ('Catamaran' units) contributed annually 5.1 tonnes of fish, 'Disco net' landed 23.5 tonnes of which prawns were important with 7.5 tonnes and 'Mural valai' which was operated during 1990 landed good quantity of belonids. Non-motorised units operated 'Karai valai' (Shore seine) 'Thallu madi' (Prawn net), Hand line (Cephalopod net) and 'Podi valai' (Hilsa net). These units together contributed annually 138.9 tonnes of fish forming 6.8% in the total annual catch by non-motorised units. *Leiognathus* spp. and carangids were important in the shore seines. Good quantities of prawns and *Sillago sihama* were landed by 'Thallu madi 'units. By the Hilsa net good quantities of *Hilsa toli* and sciaenids were landed.

TABLE 4. *Catch composition of important groups of fish (tonnes) during the years 1986-1990 in 'Paru valai' (drift net)*

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sharks	A	0.5	2.3	3.0	17.0	2.6	5.1	2.1	13
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Tuna	A	9.9	12.2	27.8	247.5	12.9	62.1	25.7	1
	B	8.7	0.0	0.0	0.0	0.0	1.8	27.9	1
Seer fish	A	13.3	34.8	7.0	45.2	34.6	27.0	11.1	3
	B	2.9	0.0	0.0	0.0	0.0	0.6	9.3	5
Carangids	A	10.0	21.6	15.6	38.0	18.9	20.8	8.6	4
	B	7.4	0.0	0.0	0.0	0.0	1.5	23.8	2
Chortnemus	A	0.0	3.1	4.6	4.1	8.7	4.1	1.7	14
	B	0.2	0.0	0.0	0.0	0.0	0.1	0.6	14
Mackerel	A	7.4	3.1	3.3	12.4	10.6	7.4	3.0	8
	B	0.7	0.0	0.0	0.0	0.0	0.1	2.3	8
Cat fish	A	0.0	2.1	4.0	2.7	0.4	1.8	0.8	17
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Lethrinus	A	7.1	16.3	14.0	22.6	32.5	18.5	7.6	6
	B	0.7	0.0	0.0	0.0	0.0	0.1	2.3	9
Serranus	A	4.0	2.6	2.3	7.5	17.6	6.8	2.8	10
	B	0.5	0.0	0.0	0.0	0.0	0.1	1.6	11
Lutjanus	A	2.8	5.5	5.3	0.2	12.9	5.3	2.2	12
	B	0.8	0.0	0.0	0.0	0.0	0.2	2.6	7
Nemipterus	A	0.0	0.0	0.0	0.0	3.4	0.7	0.3	22
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Scolopsis	A	0.0	0.0	0.0	0.0	6.5	1.3	0.6	21
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Diagramma	A	0.3	0.1	4.5	2.7	13.0	4.1	1.7	15
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00
Sphyraena	A	10.9	25.3	12.1	45.2	42.2	27.1	11.2	2
	B	3.2	0.0	0.0	0.0	0.0	0.6	10.3	3
Istiophorus	A	0.0	0.0	6.5	23.5	5.8	7.2	3.0	9
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Hilsa toli	A	2.6	5.1	12.5	3.0	15.1	7.7	3.2	7
	B	0.6	0.0	0.0	0.0	0.0	0.1	1.9	10
Chirocentrus	A	15.9	20.2	13.1	19.2	35.9	20.9	8.6	5
	B	3.2	0.0	0.0	0.0	0.0	0.6	10.3	4
Sciaenids	A	0.0	1.8	4.3	0.5	3.0	1.9	0.8	18
	B	0.3	0.0	0.0	0.0	0.0	0.1	1.0	13
Lactarius	A	2.8	2.1	1.8	0.0	1.5	1.6	0.7	19
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Sillago sihama	A	0.0	0.0	9.0	0.0	0.0	1.8	0.7	20
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Rachycentron	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	0.4	0.0	0.0	0.0	0.0	0.1	1.3	12
Other perchlike	A	0.0	1.9	2.1	3.1	24.6	6.3	2.6	11
fishes	B	1.5	0.0	0.0	0.0	0.0	0.3	4.8	6
Miscellaneous	A	0.8	0.9	2.2	1.0	7.5	2.5	1.0	16
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Total	A	88.3	161.0	155.0	495.4	310.2	242.0	—	—
	B	31.1	Nil	Nil	Nil	Nil	6.2	—	—

Note : A = Catch by motorised units, B = Catch by non-motorised units.

Fig. 1. Tuticorin type boat; principal craft.

Fig. 2. Catch of *Sardinella sirm*; ready for disposal.

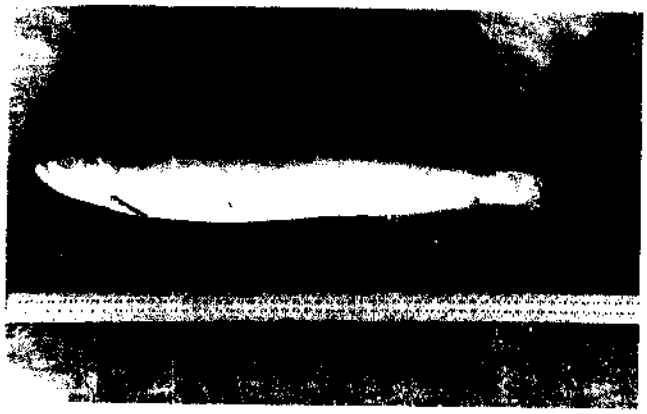

Fig. 3. *Chirocentrus dorab.*

Fig. 4. *Sphyraena jello.*

Fig. 5. *Eleutheronema tetradactylum.*

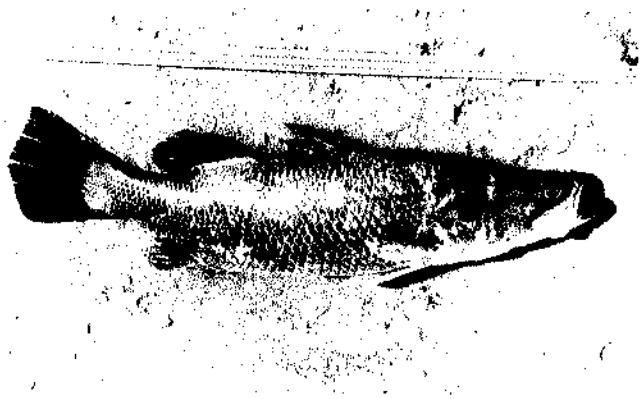

Fig. 6. *Lates calcarifer.*

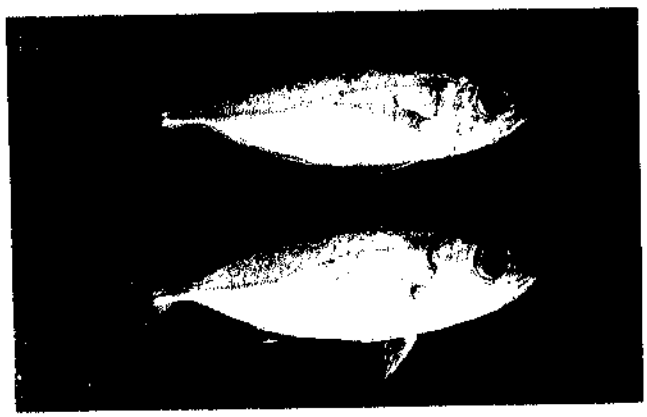

Fig. 7. *Selar crumenophthalmus*.

Fig. 8. *Chorinemus lysan*.

Fig. 9. *Rachycentron canadus*.

Fig. 10. *Psettodes erumei*.

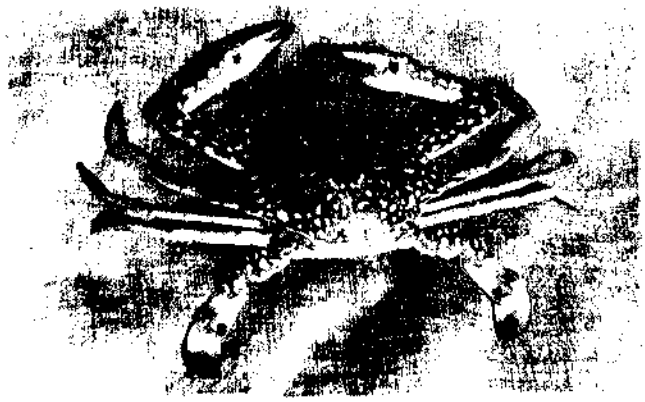

Fig. 11. *Neptunus pelagicus*.

TABLE 5. *Catch composition of important groups of fish (tonnes) during the years 1986-1990 in Hand line* ('Thoondil')

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sharks	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	12.5	0.0	0.0	0.0	0.0	2.5	2.3	9
Lethrinids	A	40.6	23.4	3.6	3.8	10.9	16.5	21.7	2
	B	25.1	36.1	6.7	8.6	12.5	17.8	16.5	2
Serranus	A	16.1	18.9	2.4	5.6	7.9	10.2	13.4	4
	B	15.5	15.1	3.1	8.8	7.7	10.0	9.3	4
Lutjanids	A	2.3	0.0	0.0	0.0	2.5	1.0	1.3	10
	B	6.8	2.1	1.1	0.3	1.7	2.4	2.2	10
Diagramma	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	4.3	0.0	0.3	0.0	0.0	0.9	0.9	12
Seer fish	A	19.2	1.7	0.0	3.4	2.2	5.3	7.0	5
	B	8.6	15.6	5.7	2.8	4.5	7.4	6.9	5
Carangids	A	12.7	6.0	0.9	0.0	0.0	3.9	5.2	7
	B	6.3	1.6	0.6	3.3	1.8	2.7	2.5	8
Nemipterus	A	47.1	3.8	1.7	11.9	21.0	17.1	22.5	1
	B	86.6	78.3	5.6	16.2	9.6	39.3	39.3	1
Scolopsis	A	0.0	0.0	2.1	2.6	5.5	2.0	2.7	9
	B	4.1	6.1	1.5	3.4	3.6	3.7	3.5	7
Balistids	A	8.2	0.0	1.3	0.0	13.2	4.5	5.9	6
	B	17.7	3.9	0.3	2.3	5.6	6.0	5.5	6
Belone	A	39.5	10.6	0.3	5.1	3.9	11.9	15.6	3
	B	30.3	19.7	3.1	2.0	11.9	13.4	12.4	3
Other perchlike	A	5.6	0.0	0.6	7.2	0.0	2.7	3.5	8
fishes	B	4.8	2.4	0.5	0.2	0.0	1.6	1.5	11
Cephalopods	A	0.0	0.0	0.0	0.0	4.2	0.8	1.1	11
	B	0.0	0.0	0.0	0.0	0.5	0.1	0.1	13
Miscellaneous	A	0.0	0.0	0.0	0.0	0.4	0.1	0.1	12
	B	0.0	0.4	0.4	0.0	0.0	0.2	0.1	14
Total	A	191.3	64.4	12.9	39.6	71.7	76.0	—	—
	B	222.6	181.3	28.9	47.9	59.4	108.0	—	—

Note : A = Catch by motorised units, B = Catch by non-motorised units.

Species composition

Many species of quality fish, prawns, lobsters and crabs were recorded in the traditional fisheries at Tuticorin. Fish catch by motorised units composed of lesser sardines, perches, rays, *Thrissocles* and sharks in good quantities. On the other hand non-motorised units fished large quantities of lesser sardines, *Thrissocles*, carangids, rays and silverbellies. Much sought after pelagic fishes like seer fish, carangids, barracuda and tuna were caught by different gears by the traditional fishery. Perches as a group contributed greatly to demersal component in the catches.

Lesser sardines, as in previous years, contributed in a major way to the fishery. Average lesser sardine landings for the five years came to 2,699.1 tonnes forming 56.2% in the total fish landings. The months from September to December landed good quantities of lesser sardines by motorised units. The months from January to May saw good lesser sardine catch by non-motorised units. *Sardinella gibbosa* was the dominant lesser sardine species followed by *S. sirm*, *S. albella*, *S. dayi* and *S. clupeoides*. Lesser sardines were caught during all the months.

The group of perches forming important demersal fishes contributed over 511.4 tonnes in the traditional fisheries at Tuticorin. They together formed 10.6% in the total fish catch during the period. *Lethrinus nebulosus* was the important fish in the group. Other perches included *Serranus*, *Lutjanus*, *Diagramma*, *Lates* and *Pristipomoides*. *Lethrinus*, *Lates* and *Serranus* are in much demand for export. Perches in small quantities were available throughout the year and were caught over the rocky *paars* and sandy stretches adjoining the *paars*.

TABLE 6. *Catch composition of important groups of fish (tonnes) during the years 1986-1990 in Long line ('Ayiramkal thoondil')*

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sharks	A	48.0	61.7	15.5	10.9	62.6	39.7	9.6	4
	B	9.9	2.6	1.0	0.0	8.0	4.3	9.6	5
Rays	A	1.0	1.2	3.7	11.9	20.5	7.7	1.8	9
	B	0.0	0.0	1.5	0.0	0.0	0.3	0.7	11
Seer fish	A	15.0	19.8	6.9	6.4	7.5	11.1	2.7	6
	B	1.0	0.9	0.9	0.1	1.7	0.9	2.0	7
Cat fish	A	0.0	12.8	6.4	3.6	21.8	8.9	2.2	8
	B	0.7	0.0	1.9	1.4	1.5	1.1	2.5	6
Carangids	A	45.6	51.8	25.5	22.5	14.0	31.8	7.7	5
	B	3.3	1.3	5.3	16.6	0.0	5.3	11.9	4
Chorinemus	A	7.0	6.5	4.0	5.3	0.0	4.6	1.1	10
	B	1.2	1.5	1.4	0.2	0.0	0.9	1.9	8
Lethrinids	A	168.4	182.9	99.5	62.2	130.7	128.5	31.1	1
	B	25.3	10.8	19.5	7.2	3.4	13.3	29.8	1
Serranus	A	139.4	172.2	84.6	48.9	88.2	106.7	25.8	2
	B	16.6	9.2	17.1	7.6	4.0	10.9	24.5	2
Lutjanids	A	80.4	98.3	37.3	23.8	33.1	54.6	13.2	3
	B	15.6	6.3	5.2	4.1	1.3	6.5	14.6	3
Diagramma	A	0.0	5.3	3.9	1.0	8.9	3.8	0.9	11
	B	0.6	0.0	2.3	0.0	0.0	0.6	1.3	9
Lates calcarifer	A	0.0	0.0	0.8	0.1	13.1	2.8	0.7	12
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Polynemus	A	0.0	1.5	0.3	0.3	7.8	2.0	0.5	13
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Sphyraena	A	0.0	0.0	2.8	0.0	1.6	0.9	0.2	14
	B	0.0	0.0	0.3	0.3	0.0	0.1	0.3	12
Other perchlike	A	3.8	19.4	15.5	0.6	10.3	9.9	2.4	7
fishes	B	0.4	0.0	1.6	0.1	0.0	0.4	0.9	10
Miscellaneous	A	0.4	0.8	0.2	1.0	0.0	0.5	0.1	15
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Total	A	509.0	634.2	306.9	197.5	420.1	413.5		
	B	74.6	32.6	58.0	37.7	19.9	44.6		

Note : A = Catch by motorised units, B = Catch by non-motorised units.

TABLE 7. *Catch composition of important groups of fish (tonnes) during the years 1986-1990 in Troll line ('Odu kayiru')*

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sharks	A	4.1	0.0	7.3	11.8	5.8	5.8	13.0	3
	B	1.1	0.0	0.0	0.0	0.0	0.2	16.9	2
Tuna	A	4.4	10.3	2.5	9.4	13.4	8.0	18.0	2
	B	1.1	0.0	0.0	0.0	0.0	0.2	16.9	3
Seer fish	A	7.3	24.9	6.7	37.0	9.6	17.1	38.5	1
	B	2.0	0.0	0.0	0.0	0.0	0.4	30.8	1
Carangids	A	0.8	0.0	0.0	9.5	17.0	5.4	12.3	4
	B	0.5	0.0	0.0	0.0	0.0	0.1	7.7	6
Sphyraena	A	1.3	0.3	2.3	3.1	7.4	2.9	6.5	6
	B	1.0	0.0	0.0	0.0	0.0	0.2	15.4	4
Rachycentron	A	5.6	6.8	1.1	5.4	4.6	4.7	10.6	5
	B	0.8	0.0	0.0	0.0	0.0	0.2	12.3	5
Other fish	A	1.0	0.0	0.2	0.5	0.8	0.5	1.1	7
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Total	A	24.5	42.3	20.1	76.7	58.6	44.4		
	B	6.5	Nil	Nil	Nil	Nil	1.3		

Note : A = Catch by motorised units, B = Catch by non-motorised units.

TABLE 8. *Catch composition of important groups of fish (tonnes) during the years* 1986-1990 *in* 'Sinki valai' (*Bottom set net*)

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sharks	A	0.0	0.0	0.0	5.7	0.0	1.1	2.1	11
	B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Rays	A	0.0	5.7	15.7	7.4	2.2	6.2	11.4	4
	B	14.5	5.9	0.0	0.0	0.0	4.1	11.7	4
Seer fish	A	0.0	0.0	0.4	0.0	0.0	0.4	1.1	12
	B	0.5	0.0	0.0	0.0	0.0	0.1	0.3	12
Carangids	A	0.0	7.2	9.5	5.4	2.8	5.0	9.2	5
	B	6.5	24.7	0.0	0.0	1.2	6.5	18.5	1
Cat fish	A	0.0	8.4	11.3	8.1	5.5	6.7	12.3	2
	B	16.3	9.2	0.0	0.0	0.6	5.2	14.9	3
Lethrinids	A	0.0	13.3	11.5	12.7	2.4	8.0	14.7	1
	B	9.6	5.7	0.0	0.0	0.0	3.1	8.8	5
Serranus	A	0.0	2.4	4.0	3.2	0.0	1.9	3.5	10
	B	11.5	0.7	0.0	0.0	0.4	2.5	7.2	7
Lutjanids	A	0.0	6.1	1.7	3.0	1.5	2.5	4.5	9
	B	2.7	1.7	0.0	0.0	0.9	1.1	3.0	9
Diagramma	A	0.0	16.6	15.7	19.7	19.3	61.2	12.2	3
	B	12.4	12.9	0.0	0.0	1.9	5.4	15.6	2
Callyodon	A	0.0	2.2	5.5	6.0	4.1	3.6	6.6	6
	B	4.5	4.8	0.0	0.0	0.9	2.0	5.8	8
Soles	A	0.0	3.5	6.1	4.7	2.3	3.3	6.1	7
	B	10.8	3.5	0.0	0.0	0.4	2.9	8.4	6
Other fish	A	0.0	1.6	3.9	7.1	0.0	2.5	4.6	8
	B	1.9	0.9	0.0	0.0	0.0	0.6	1.6	11
Lobster	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	3.6	1.5	0.0	0.0	0.0	1.0	2.9	10
Crabs	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	0.6	0.0	0.0	0.0	0.0	0.1	0.3	13
Miscellaneous	A	0.0	0.0	0.0	0.2	0.4	0.1	0.2	13
	B	0.7	1.0	0.0	0.0	0.0	0.3	1.0	12
Total	A	Nil	68.3	87.0	83.9	32.4	54.3		
	B	96.1	72.5	Nil	Nil	6.3	35.0		

Note : A = Catch by motorised units, B = Catch by non-motorised units.

TABLE 9. *Catch composition of important groups of fish (tonnes) during the years* 1986-1990 *in* 'Thirukkai valai' (*Bottom set net*)

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Sharks	A	0.0	44.1	43.7	36.4	68.3	38.5	23.4	2
	B	78.3	55.5	0.0	2.7	0.0	27.3	28.5	2
Rays	A	0.0	108.5	149.1	177.5	107.8	108.6	66.0	1
	B	168.5	93.8	0.0	2.9	0.0	53.0	55.4	1
Skates	A	0.0	11.0	22.5	32.6	21.3	17.5	10.6	3
	B	30.2	35.7	0.0	0.0	0.0	13.2	13.8	3
Pristis	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	8.8	0.0	0.0	0.0	0.0	10.8	1.8	4
Miscellaneous	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	B	2.4	0.0	0.0	0.0	0.0	0.5	0.5	5
Total	A	Nil	163.6	215.3	246.5	197.4	164.6		
	B	288.2	185.0	Nil	5.6	Nil	95.8		

Note : A = Catch by motorised units, B = Catch by non-motorised units.

TABLE 10. *Catch composition of important groups of fish (tonnes) during the years* 1986-1990 *in* 'Kara valai' (*Shore seine*), *non-motorised*

Fish groups	1986	1987	1988	1989	1990	Average	%	Rank
Lesser sardines	0.0	0.0	4.2	0.0	0.0	0.8	1.3	13
Pellona	0.0	0.0	0.0	0.0	2.7	0.5	0.8	14
Kowala kowal	2.4	0.0	0.0	13.1	10.7	5.2	8.0	3
Hilsa toli	2.3	1.2	2.9	0.0	11.5	3.6	5.5	4
Thrissocles	0.0	0.0	1.6	0.0	12.9	2.9	4.4	6
Chirocentrus	0.2	0.0	0.8	0.0	0.0	0.2	0.3	20
Sphyraena	2.2	1.4	1.0	0.0	0.0	0.9	1.4	12
Carangids	24.2	2.2	6.8	12.0	16.5	12.3	18.9	2
Leiognathids	4.6	5.5	5.4	62.9	57.4	27.2	41.6	1
Sciaenids	0.7	1.8	0.0	1.3	1.2	1.0	1.5	10
Mackerel	1.8	0.0	0.0	0.0	7.2	1.8	2.8	7
Lethrinids	1.6	0.0	0.8	0.0	0.0	0.5	0.7	15
Mullet	5.3	4.0	3.0	3.1	0.0	3.1	4.8	5
Sillago sihama	0.0	0.0	0.0	4.4	0.5	1.0	1.5	11
Upeneoides	0.0	0.0	0.0	2.1	0.0	0.4	0.6	19
Belonids	2.1	0.0	0.3	0.0	0.0	0.5	0.7	16
Other fishes	0.0	0.0	0.0	2.2	2.9	1.0	1.6	9
Prawns	0.1	0.0	0.2	0.6	1.5	0.5	0.7	17
Crabs	0.3	0.0	0.8	0.2	0.9	0.4	0.7	18
Miscellaneous	1.6	0.4	1.6	2.6	0.8	1.4	2.2	8
Total	49.4	16.5	29.4	104.5	126.7	65.3	-	-

Elasmobranchs comprised of sharks, rays and skates formed 7.2% of the average catch. Annually 345.1 tonnes of elasmobranchs were caught. Most of the fish comprised of large rays and sharks which were cured and sent to interior markets. Small sharks were marketed locally. They were caught in deeper waters.

Seemingly valuable and coveted forms are the medium and large sized seer fish species. These are the monopoly of the traditional fishery at Tuticorin. Every year about 79.7 tonnes of seer fish were caught by small scale fishermen forming 1.6% in the total fish landings. This compares adversely with the seer fish landings during the previous years when seer fish formed 4.2% of the average fish catch. Seer fish species *Scomberomorus commerson* and *S. guttatus* were the major components in the fishery.

Carangids were caught by most of the gear at Tuticorin except 'Thirukkai valai' and some hand lines. Average annual catch of caranx species came to 159.6 tonnes forming 3.3% in the

TABLE 11. *Catch composition of important groups of fish (tonnes) during the years* 1986-1990 *in* 'Thallu madi' (*Prawn net*), *non-motorised unit*

Fish groups	1986	1987	1988	1989	1990	Average	%	Rank
Leiognathids	0.0	8.9	13.1	1.8	2.9	5.3	12.3	4
Sciaenids	0.0	5.8	1.5	1.5	6.8	3.1	7.2	6
Sillago sihama	0.0	0.0	0.0	29.5	7.7	7.9	18.1	3
Carangids	0.0	5.6	6.9	9.8	1.7	4.8	11.1	5
Kowala kowal	0.0	0.0	0.0	0.0	0.7	0.1	0.3	10
Pellona	0.0	0.0	0.0	0.0	3.6	0.7	1.7	7
Therapon	0.0	1.3	0.0	0.0	0.0	0.2	0.6	9
Prawns	0.0	3.1	11.6	28.1	18.8	12.3	28.4	1
Crabs	0.0	0.0	0.8	0.0	1.9	0.6	1.2	8
Miscellaneous	0.0	4.7	8.1	27.2	1.4	8.3	19.1	2
Total	Nil	29.4	42.0	97.9	47.5	43.4	—	—

TABLE 12. *Catch composition of important groups of fish (tonnes) during 1986-1990 in* Podi valai *(Hilsa net)* 'Catamaran' *unit*

Fish groups	1986	1987	1988	1989	1990	Average	%	Rank
Pellona	—	—	0.4	4.3	2.1	1.4	4.7	5
Hilsa toli	—	—	35.0	15.4	8.6	11.8	41.1	1
Chirocentrus	—	—	0.7	0.7	0.0	0.3	1.0	11
Sphyraena	—	—	0.0	0.6	0.0	0.1	0.4	13
Carangids	—	—	3.9	2.0	0.0	1.2	4.1	6
Mackerel	—	—	13.4	5.8	0.0	3.8	13.4	3
Sciaenids	—	—	16.7	10.1	0.0	5.4	18.7	2
Otolithus	—	—	9.5	1.7	0.0	2.2	7.5	4
Sillago sihama	—	—	0.0	0.6	0.0	0.1	0.4	12
Lethrinids	—	—	0.0	1.7	0.0	0.3	1.2	9
Other perch like fishes	—	—	0.0	3.2	0.0	0.6	2.2	8
Crabs	—	—	3.1	2.5	0.0	1.1	3.9	7
Miscellaneous	—	—	0.0	1.3	0.3	0.3	1.1	10
Total	Nil	Nil	82.7	49.9	11.0	28.7	—	—

total fish landings by traditional gear. Large sized carangids were caught by drift nets and hooks & line.

Silverbellies (*Leiognathidae*) formed an important component in the sardine gill net catches. Other units like 'Disco net', shore seines and 'Thallu madi' also landed good quantities. Total quantity of silverbellies per year came to 79.8 tonnes forming 1.6% in the total catch. They were caught along with other smaller fish like lesser sardines and anchovies.

Anchovies were among the important clupeid fishes caught by traditional fishery. They were caught mostly by sardine gill net, *podi valai* and shore seine. The anchovies contribute annually about 354.0 tonnes to the fishery forming 7.3% in the total catch. *Stolephorus* spp., *Thrissocles* spp. and *Ilisha* spp. formed the major portion of the catch. Human consumption of anchovies is restricted but they are in great demand in the fish meal industry.

Fishery for *Nemipterus* was considered to be the monopoly of hand line units. Some quantity was also caught by 'Podi valai' units. During the period 57.1 tonnes of *Nemipterus* was landed per year. On the other hand 110.8 tonnes were landed on an average during the earlier years. *Nemipterus* formed 1.2% in the annual fish landings.

Barracuda fishery was an important one by the traditional units. Smaller sized *Sphyraena* were available in sardine gill nets, shore seine and 'Podi valai' units. Larger forms of barracuda were caught by Paru valai, long line and troll line. On an average 56.6 tonnes of barracuda were landed at Tuticorin every year.

TABLE 13. *Catch composition of important groups of fish (tonnes) during* 1986-1990 *in* 'Disco net' *(Prawn net), motorised unit*

Fish groups	1986	1987	1988	1989	1990	Average	%	Rank
Carangids	—	5.3	0.2	0.0	0.0	1.1	4.7	4
Leiognathids	—	2.0	1.6	0.0	1.2	1.0	4.1	5
Sciaenids	—	19.0	3.1	1.5	5.1	5.7	24.5	2
Therapon	—	0.0	0.0	3.4	0.0	0.7	2.9	9
Sillago sihama	—	3.5	4.7	1.9	13.6	4.7	20.2	3
Kowala kowal	—	0.0	0.0	0.0	3.5	0.7	3.0	8
Saurida tumbil	—	0.0	0.0	0.0	3.8	0.8	3.2	6
Other fish	—	0.0	1.9	1.9	0.0	0.8	3.2	7
Prawns	—	11.9	11.9	6.2	7.4	7.5	31.9	1
Miscellaneous	—	0.0	2.0	0.7	0.0	0.5	2.3	10
Total	Nil	41.7	25.4	15.6	34.6	23.5	—	—

TABLE 14. *Catch composition of important groups of fish (tonnes) during* 1986-1990 *in* 'Mural valai', *motorised unit*

Fish groups	1986	1987	1988	1989	1990	Average	%	Rank
Belonids	—	—	—	—	6.1	1.2	70.1	1
Scolopsis	—	—	—	—	2.6	0.5	29.5	2
Total	—	—	—	—	8.7	1.7	—	—

Cat fishes caught by traditional gears formed an average of 24.6 tonnes per year. They were caught both by motorised as well as non-motorised units. Larger cat fish were caught by 'Paru valai' and long line units. Smaller cat fish species were caught by 'Podi valai' and 'Sinki valai units. Cat fish formed only a small portion in the Tuticorin traditional fishery.

Tuna and bill fishes were a regular feature in the traditional fishery during their season of abundance in the months from July to September. On an average 84.6 tonnes of tuna and 13.7 tonnes of bill fishes were landed every year. Together they formed 2.0% in the total fish catch. Tuna and bill fishes were caught by 'Paru valai', 'Podi valai' and troll line units.

Chirocentrus and *Hilsa toli* form two important species of clupeids in the traditional fishery. They are in demand for the interior markets. These two groups contributed 26.6 tonnes and 23.2 tonnes respectively in the fishery. They were caught by 'Podi valai', sardine gill net and shore seine units. Recently some 'Podi valai' units in catamarams were engaged exclusively for *Hilsa toli* fishery and landed good quantities of the fish. The fishing unit combination of 'Catamaran' and 'Podi valai' were responsible for major portion of the *Hilsa toli* catch.

Prawns, lobsters and cephalopods are the potential money makers and are important in the export trade. Competitive fishery is going on for all the three groups because of their value as foreign exchange earners. On an average, every year 20.3 tonnes of prawns, 2.1 tonnes of lobsters and 5.9 tonnes of cephalopods were caught by traditional fishermen using specialised gear. 'Sinkivalai', 'Disco net', 'Thallu madi' and shore seine units landed prawns and lobsters. Cephalopods were mostly caught by hand lines both in the motorised and non-motorised sectors.

Variety of other fishes were caught by all the units. Fish species like belonids, *Sillago sihama*, *Rachycentron* sp., *Therapon* spp. and soles were important. Edible crabs were also caught by traditional fishermen. During certain months, these species were caught in good quantity. Put together, all these groups contribute valuable income for the small-scale traditional fishery along the Tuticorin coast.

Remarks

The present study has given a wealth of information on the small-scale traditional fishery at Tuticorin. More than twenty five species of fish in twelve broad groups support the fishery with good landings and many other species occur during particular seasons boosting the total fish

TABLE 15. *Catch composition of important groups of fish (tonnes) during* 1986-1990 *in Hand line* ('Thoondil'), 'Catamaran' *Cephalopod unit*

Fish groups		1986	1987	1988	1989	1990	Average	%	Rank
Balistids	A	—	—	—	—	0.5	0.1	2.0	4
	B	—	—	—	—	0.2	0.1	2.7	3
Saurida tumbil	A	—	—	—	—	2.7	0.5	10.7	2
	B	—	—	—	—	2.2	0.4	29.7	2
Other fish	A	—	—	—	—	2.3	0.5	9.0	3
	B	—	—	—	—	4.9	1.0	62.2	1
Cephalopods	A	—	—	—	—	19.8	4.0	78.3	1
	B	—	—	—	—	0.1	0.1	1.4	4
Total	A	Nil	Nil	Nil	Nil	25.3	5.1		
	B	Nil	Nil	Nil	Nil	7.4	1.5		

Note : A = Catch by motorised units, B = Catch by non-motorised units.

TABLE 16. *Average month-wise landings of important marine fishes at Tuticorin (in kg) from 1986 to 1990*

Name of fish	January	Feb.	March	April	May	June	July	August	September	Oct.	Nov.	December	Total
Sharks	6167.7	10522.8	11159.2	15595.0	18951.2	9927.4	17821.2	8847.0	12339.4	10596.6	7479.0	2852.8	132259.3
Rays	10432.2	7307.8	15313.4	16722.2	23631.6	19317.2	17300.0	30691.0	17043.6	12488.8	6802.8	2806.6	179857.2
Skates	2569.2	850.8	3009.6	1566.4	8946.4	4348.6	4333.8	1199.4	3318.2	694.0	373.0	0.0	31209.4
Pristis	0.0	0.0	0.0	0.0	0.0	750.0	756.0	0.0	260.0	0.0	0.0	0.0	1766.0
Lesser sardine	189451.8	221592.0	208853.6	209457.4	216292.6	165573.6	220230.0	197944.6	230309.4	277372.0	242198.0	319914.2	2699189.2
Oil sardine	2500.0	0.0	0.0	0.0	0.0	0.0	0.0	68.0	770.0	540.0	488.8	0.0	4366.8
Pellona	556.8	1559.6	800.0	614.5	2187.4	2031.4	3190.8	4148.8	0.0	4833.0	2727.6	3051.4	25701.3
Kowala kowal	0.0	1792.0	845.2	0.0	1222.6	2170.2	4211.0	2957.6	1443.6	2184.0	1477.2	442.0	18745.4
Stolephorus	16848.0	0.0	0.0	0.0	733.2	1190.2	4200.4	1544.8	3013.6	1152.0	1480.2	228.0	30390.4
Hilsa toli	1224.6	193.4	1578.8	3209.8	2419.2	587.2	491.8	152.6	641.2	1209.6	2441.6	8990.4	23140.2
Thrissocles	8242.8	27285.4	45417.6	33580.6	13852.0	14711.0	37068.0	24557.4	25399.0	20943.8	8876.6	18995.4	278929.6
Chirocentrus	1639.0	575.6	1456.8	1113.0	1848.6	1724.8	1501.0	2961.0	5498.6	2941.0	4093.0	1180.0	26532.4
Saurida tumbil	767.0	536.0	330.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	86.4	1737.6
Cat fish	2206.2	1147.8	1025.2	1305.2	5558.0	769.8	3119.2	3050.2	2624.0	1572.8	1437.6	739.8	24555.8
Sphyraena	2314.2	1899.8	2764.2	9987.8	5959.0	4937.4	5227.2	6350.6	8251.6	3652.4	4010.8	1248.6	56603.6
Carangids	10010.2	10624.8	6805.4	13727.8	20041.8	14199.6	11165.8	19481.0	17844.2	16895.8	11246.2	7625.4	159668.0
Chorinemus	430.2	250.0	195.2	2301.0	521.6	2309.4	834.6	1072.4	877.0	0.0	1298.4	238.2	10328.0
Lutjanus	4896.8	5705.0	7147.2	12132.0	8886.4	4559.0	8176.4	8619.8	6832.8	3290.2	3643.8	2266.8	76156.2
Nemipterus	5317.4	6491.6	4732.4	1014.0	2732.2	1448.0	8530.0	10112.4	5254.4	2472.8	4217.6	4738.8	57061.6
Leiognathids	9043.2	4533.2	5041.4	1379.6	5813.6	7035.4	1699.8	6648.6	6431.8	16964.8	7440.8	7726.2	79758.4
Scolopsis	375.0	204.8	170.0	0.0	299.4	86.6	521.6	888.8	516.0	460.0	208.0	0.0	3730.2
Sciaenids	1122.4	408.0	591.6	1034.6	930.6	728.0	3178.2	1614.6	1670.2	542.4	1084.2	3911.0	17175.8
Mackerel	1025.0	206.4	324.0	584.4	501.8	400.4	78.0	1196.8	1742.4	757.2	2924.8	3399.4	13140.6
Mullet	503.6	141.6	306.0	156.0	0.0	208.0	0.0	686.4	247.0	0.0	175.0	650.0	3073.6
Otolithus	246.2	87.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	58.4	1977.0	2391.0
Tuna	798.2	888.0	2069.2	2972.0	7603.4	13385.6	4457.6	27823.2	13527.2	8191.0	2080.2	735.6	84531.2
Lethrinids	22952.0	15692.4	14778.8	27260.8	16525.2	22975.8	23438.6	24215.6	15745.8	13198.6	11331.4	6873.0	214988.0
Serranus	13306.2	10571.8	10927.6	17218.4	15453.4	9834.2	13833.8	21838.8	12832.8	10246.0	11536.2	4888.6	152487.2
Diagramma	747.0	1234.8	1568.8	2554.4	4254.6	2804.4	3625.2	3323.2	3089.4	1899.4	1536.8	697.0	27335.0
Lates calcarifer	52.0	90.4	732.0	171.6	2748.0	189.0	75.4	0.0	160.0	108.0	175.6	72.0	4574.0
Seer Fish	6915.2	3321.2	3767.4	8919.0	3263.6	2983.4	10440.2	9860.6	5976.8	6723.2	10065.8	7526.4	79762.8
Istiophorus	0.0	0.0	1341.8	1350.0	602.2	891.8	1332.4	4799.6	2435.0	871.0	0.0	0.0	13623.8
Rachycentron	65.0	624.8	452.4	646.0	529.2	896.0	440.4	857.4	509.6	264.6	624.0	643.0	6552.4
Polynemus	356.4	880.0	205.2	975.0	0.0	0.0	278.2	0.0	52.0	255.0	17.0	0.0	3018.8
Belonids	4713.2	2641.6	900.0	1222.0	2358.0	527.6	1763.2	1840.4	1466.4	1722.2	2067.8	5727.4	26949.8
Therapon	681.2	1174.4	1799.4	5623.6	1444.2	436.8	1138.0	1780.8	3955.6	1551.2	1559.8	1179.6	22324.6
Callyodon	57.2	40.8	243.6	499.2	390.6	243.6	137.6	150.0	78.0	151.2	0.0	52.0	2043.8
Sillago sihama	965.6	921.8	2384.2	2187.8	1456.2	634.4	941.2	5831.8	884.0	884.0	3142.0	2140.8	22373.8
soles	227.2	69.6	340.6	387.4	639.4	332.6	194.4	172.4	182.0	94.8	202.4	96.2	2939.0
Balistids	606.0	424.6	806.0	364.0	745.2	462.2	657.2	491.8	891.8	310.6	187.2	54.0	6000.2
Upeneoides	00	00	416.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.0
Lobsters	128.4	68.4	304.4	117.0	311.4	254.2	155.0	97.4	398.0	108.4	122.6	71.4	2116.6
Prawns	1375.8	1411.2	990.8	251.2	1881.0	1472.4	1633.0	3214.8	1363.6	536.8	3504.4	2616.2	20251.2
Crabs	170.0	16.8	185.4	454.4	0.0	234.0	0.0	0.0	108.0	0.0	405.6	669.8	2244.0
Other perch like fishes	5791.0	5113.2	7935.8	7959.4	6211.4	6790.8	10713.2	8199.6	8419.4	9265.0	9691.6	7134.2	93144.6
Cephalopods	873.6	3182.4	1441.0	0.0	0.0	0.0	0.0	0.0	0.0	154.0	49.4	189.6	5890.0
Miscellaneous	1302.4	1932.2	3920.0	4003.8	4165.8	4975.6	2087.8	4423.4	1958.8	5644.0	6662.4	6759.4	47834.6
TOTAL	339973.1	354215.2	375737.2	410618.3	411912.0	329337.6	430977.2	453633.6	426342.2	443764.2	381163.8	441194.6	4798869.0

catch. A comparison of the average annual fish catch with that of the previous years from 1979 to '85 brings to light the decrease in average annual landings to the tune of 1,552 tonnes during the present period. Far from being improved, the decrease in catch happened despite the introduction and active participation of motorised units. Annual total fish catch from all units was much higher than the average annual catch during 1986, '87 and '89. But considerably lower catch was recorded during 1988 and '90. Decrease in total fish landings by non-motorised units was reported from 1986 to 1990. Because more and more boats were fitted with machine propellants every year bringing down the strength of non-motorised units from 439 in 1986 to '91 in 1990 a corresponding increase in total fish catch by motorised units was not achieved. Every year, some additions have been made in the number of crafts employed in the traditional fishery. Total number increased from 542 in 1986 to 613 in 1990.

With advantages in reaching fishing ground earlier, remaining in fishing grounds for longer time and returning with catch in time for the early market, many boats have switched over to motorisation. The enterprising small-scale fishermen were concerned with ends and whatever means they could employ they made full use of them. Those who could foot the bill for fitting machine propellants used their own resources. Others borrowed from bank. From 90 motorised boats in 1986 the number increased to 476 in 1990. Every year some boats are being fitted with machine propellants. Even catamarans are also going in for motorisation.

Catch per unit trends for comparable units show higher rates of catch per unit for motorised units than for the non-motorised units. Especially high are the catch per unit rates for 'Paruvalai', 'Podivalai', long line, troll line and 'Thirukkai valai' units operated by motorised boats than those nets operated by non-motorised boats. Concern is evident whether the inshore fishery by the traditional fishing units could be able to sustain large scale motorised units. Slump in growth may be one of the ill effects of motorisation. But there is no knowning how long the downward trend is going to last. Temporary low catch for one or two years were common in the past. The fishery recovered to new levels afterwards. Whether such buoyancy could be expected this time also is the anxious expectation. Much more scientific body of evidence is requirred to come to any conclusion.