

## ADVANCEMENT IN TRADITIONAL FISHING METHODS FOR NEARSHORE FISHERIES AROUND TUTICORIN, GULF OF MANNAR\*

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### ABSTRACT

Recent years have witnessed a silent diversification of traditional fishing methods all along the east and west coasts of India. This is especially so around Tuticorin. Two recent innovations in fishing gear added great impetus to the capture of nearshore fish and prawns.

One such gear is the 'Thallu madi' a smaller modified version of the shrimp trawl. It is operated round the year from a single non-mechanised Tuticorin type boat. Another gear is the improved drift gill net the 'Disco net'. It is normally operated from a powered Tuticorin type boat. By and large these nets are dependable and good many traditional fishermen are benefited from them by way of improved catch.

Operational parameters, species composition and catch-per-unit are given for 'Thallu madi' from 1979 to 1986 and for 'Disco net' from its introduction in the 1987 season.

### INTRODUCTION

DURING the last several years important considerations in the fishing industry were greater mobility of the fishing craft and excellent shrimp catches for export. To this point in view the Government and financial institutions encouraged the development of industrial trawl fisheries. Sadly enough as more and more trawlers entered into the fishing industry the traditional fisheries were given second place and left to fend for themselves. All along the coast a good percentage of the fish fishery remains in the hands of traditional small scale sector. But the shock of the aggressive mechanised sector is not very easy to be taken by the traditional sector.

Against this background the traditional fishermen have gradually modified their fishing technology not to compete with modern mechanised fishing sector, but to harvest effectively and economically some of the traditional fisheries which give promising financial returns to the additional investment. This diversification practices resulted in the introduction of two new nets for catching prawns and fishes concentrated in the near shore regions. This account details the salient features of two new gears introduced in the traditional fishery in recent times to catch effectively the nearshore prawn and fish resources. Benefits gained by way of increased catch are given.

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## THALLU MADI

One of the fishing gears introduced by the traditional fishermen for taking in prawns from the nearshore areas is the *Thallu madi*. It is a modified version of the shrimp trawl used by the trawlers without otter-board. Introduced mainly for catching prawns from the shallower waters within 5 m depth during their abundance. The net consists essentially of a bag portion with wide mouth and narrow cod end. Floats are attached to the head rope and lead sinkers at the foot rope. Side ropes of 10 to 15 m length tie the mouth of the net with the boat

The net is operated usually in the nearshore waters between 3 to 4 km from shore where periodical concentrations of prawns and smaller finfishes occur. Very often the water also becomes turbid by wave and wind actions. The net is paid with the mouth end facing the wind direction and the side ropes are secured to the sides of the boat. Both the net and the boat are allowed to drift slowly in the water current. Occasionally the direction of the net is corrected by moving the boat. Prawns and fish enter into the net along with water current and are hauled after the lapse of one to two hours. Normally four or five hauls

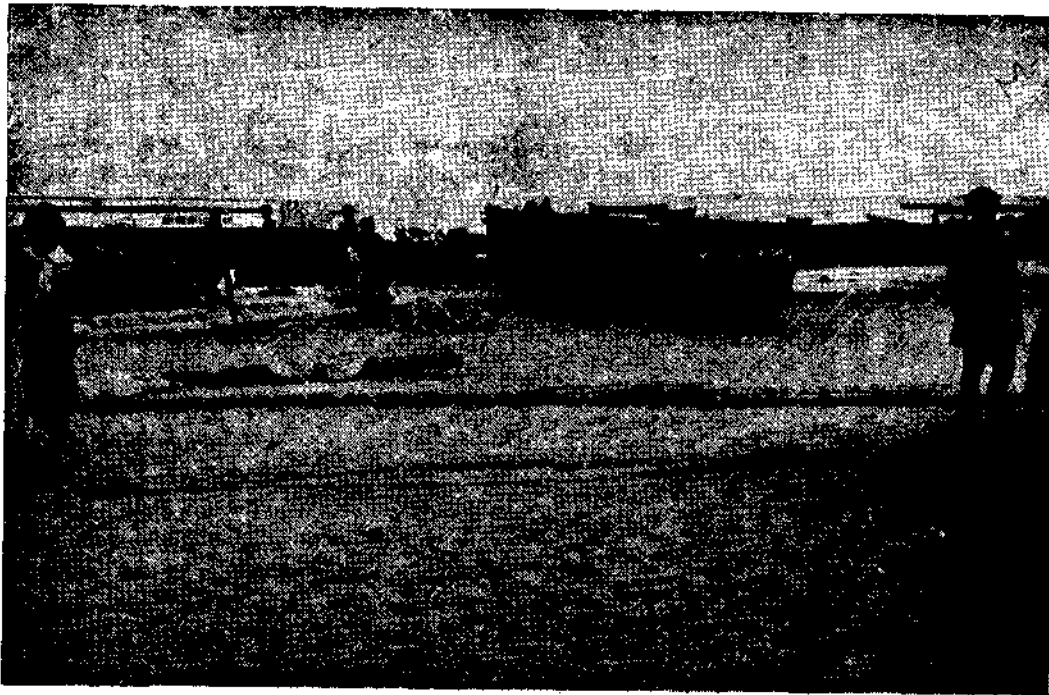


FIG. 1. Disco net. 'Tuticorin type fishing boat' at the background.

at its sides. Net and rope are made of synthetic fibre. The size of the net is variable. Mesh size at cod end varies from 20 mm to 30 mm.

The *Thallu madi* is operated from a single Tuticorin type boat not powered by machine.

are made during each fishing trip. Operational details as observed at Tuticorin are given below.

Cost of net : Rs. 1200 to 1300.  
Operation period : Throughout the year. Non-mechanised.

Direction : North or South depending on wind direction.  
 Length of net : A, 20 m. B, 12 to 16 m.  
 No. of units : One.  
 Distance : 3 to 4 km from the shore.  
 Man power : 4 to 5.  
 Time taken : Dep. 30 to 45 min. Arr. 30 to 45 min.  
 No. of haul : 4 to 5.  
 Time of operation : 0600 to 1700 hrs (day). 1700 to 0400 hrs (night).

Operation of *Thallu madi* depends on the concentration of prawns in the nearshore fishing grounds and the direction and intensity of prevailing winds. Though operated to catch prawns, fishes like *Lelognathus* form the major catch forming 43.7% in the total catch. Prawns form 13.5% with an average of 5.7 tonnes per year (Table 1). Other fishes in the catch include Sciaenids, *Hilsa tolli*, carangids and crabs.

**DISCO NET**

Another notable development in the traditional fishery is the introduction of the gill net called *Disco net* for the effective capture of prawns from deeper waters in 6 to 15 m depth range. It is operated from powered Tuticorin type boat near Tuticorin Harbour mouth and at Punnaikayal Madai areas. The *Disco net* is essentially a trammel net made of synthetic twines. Three vertical walls of netting are joined at the top and bottom with thicker lines. At the top line are added rubber floats and lead sinkers are attached at the bottom line. The middle wall of netting is made of fine twine with mesh size from 2.0 cm to 3.5 cm and is hung loosely. The outer walls are of large mesh and thick twine and are hung tightly. Mesh size for all the three walls of netting are variable.

TABLE 1. Catch, effort, catch per unit and species composition for *Thallu madi* for the period 1979-1986

Year	Catch (tonne)	Effort	Catch per unit (kg)
1979	28.4	2979	9.5
1980	99.5	2885	34.5
1981	7.5	356	21.0
1982	0.7	52	13.5
1983	20.6	628	32.7
1984	98.7	4069	24.3
1985	42.6	695	61.3
1986	..	Not operated	..
Average	42.6	1666	28.1

*Species composition*

Species	Average for 1979-1986 (tonne)	%	Rank
<i>Lelognathus</i>	18.6	43.7	1
Sciaenids	4.4	10.4	3
Carangids	1.6	3.9	7
<i>Hilsa tolli</i>	4.3	10.0	4
<i>Stolephorus</i>	0.7	1.6	8
Prawns	5.7	13.5	2
Crabs	4.2	9.6	5
Miscellaneous	3.1	7.0	6
Total	42.6	..	..

*Disco net* is operated usually by boats powered by machines. After paying the net, as in the case of a gill net, one end is tied to the boat and the boat is anchored. When the prawn or fish push the fine middle net a small bag of fine net is formed through the large meshed outer net entrapping it. The net is hauled after one or two hours depending on the catch. Four or five hauls are made each day. Details of the *Disco net* are given below.

Cost of net : Rs. 500 to 600.  
 Operation : Seasonal (June to September). Mechanised.

Direction	: Harbour mouth, Punnai-kayal Madai.
Length of net	: As desired.
No. of nets	: 7 to 8.
Distance	: 10 to 50 km from the shore.
Man power	: 3 to 5.
Time taken	: Dep. 1 to 4 hrs. Arr. 1 to 4 hrs.
No. of hauls	: 4 to 5.
Operation time	: 0300 hrs to 1600 hrs---1800 hrs.
Motor used	: Kangaroo, Field Master Sakthi.

On an average 40 to 60 units were operated every day during the prawn season from June to September 1987. *Penaeus indicus* formed a good percentage in landings (Table 2). Sciaenids, *Sillago sihama*, *Leiognathus* and carangid also were caught by the net. *Penaeus indicus* from 11.0 cm to 20.0 cm with the modal size at 16.5 cm were recorded in the landings.

The impact of the *Disco net* in the Tuticorin fishery is yet to be assessed. It is more costly than the gill net and requires greater expertise to make and handle during operation. On the other hand, the increased prawn landings is a great inducement to the fishermen to go in for the net and more and more small scale fishermen are making *Disco nets*.

#### Remarks

Various gears are in use in the nearshore areas to fish prawns and finfishes when they become abundant. High competition among the different types of fishing gears and the lure of high quality shrimp for export have made the traditional fishermen to go in for improved fishing nets so that maximum quantity could be fished in a shorter time. The introduction of *Thallu madi* made it possible to harvest good quantities of prawns from the nearshore areas by small scale fishermen. *Disco net* is in

TABLE 2. Catch, effort, catch per unit and species composition for *Disco net* for the period June to September 1987

Months	Catch (kg)	Units operated	Catch per unit (kg)
<i>Total catch</i>			
June	329	86	3.8
July	18252	472	38.6
August	12113	938	12.9
September	10962	606	18.1
Total	41656	2102	19.8
<i>Prawn catch</i>			
June	329	86	3.8
July	3212	472	6.8
August	5775	938	6.1
September	2539	606	4.2
Total	11855	2102	5.6

#### Species composition

Species	Total for June to Sept. 1987 (kg)	%	Rank
<i>Penaeus indicus</i>	11855	28.5	2
Sciaenids	18961	45.5	1
<i>Sillago sihama</i>	3542	8.5	4
<i>Leiognathus</i>	2038	4.9	5
Carangids	5260	12.6	3
Total	41656		

effect re-introduction of prawn gill net in a different form. Unlike the gill net the *Disco net* takes in prawns and fishes in a wide range of sizes. When operated at the prawn grounds this net is very effective. The catch per unit of prawns during the four months from June to September range from 3.8 kg to 6.8 kg. By present standards it is fairly high for a unit in the traditional sector. Good quantities of finfishes are also caught. By and large the *Thallu madi* and *Disco net* in vogue in the traditional fishery add greater catching power especially of highly priced prawns when they congregate in the nearshore areas.