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MADRAS FISHERIES HARBOUR — A STATUS REPORT FOR 1995

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Madras Fisheries Harbour is one of the largest fisheries harbours in the east coast of India. It provides base for mechanised as well as indigenous fishing crafts. It is estimated that 480 trawlers, 20 mechanised gill netters, 25 motorised and 200 nonmotorised catamarans make use of this harbour. The annual fish landings in 1995 were 38,251 tonnes; the trawlers contributing 96.1% of the landings.

Trawlers

The 480 trawlers are of three different length categories, viz. 32', 36' and 40-45', with horse-power ranging between 65 and 120. The small trawlers (32 and 36') are engaged in daily voyage or occasionally undertake 2 day voyage and operate between Pudhupatnam (south of Madras) and Sriharikota (north of Madras) in 15-40 m depth. The larger trawlers (40-45')

conduct voyages lasting upto 6 days off Nizampatnam, which is 315 km northeast of Madras (Fig. 1). The depth of operation of the larger trawlers is 15-60 m (Table 1).

The trawl effort (Fig. 2) and landings (Fig. 3), particularly those of the larger trawlers increased over the years. In 1995, about 56% of the total trawl effort (fishing hours) and 59% of the total landings were by the larger trawlers. The smaller trawlers are being phased out gradually. Addition of larger trawlers to the fleet has enabled intensification of fishing in the hitherto underexploited areas.

However, most of the trawling activity was restricted to depth within 50 m. The trawlers spent only 7.8% of the total effort in depth beyond 50 m and realised 10.0% of the total landings (Table 2).

TABLE 1. Operational details of fishing vessels in Madras Fisheries Harbour in 1995

Parameters	Trawler			Gillnetter	Motorised Catamaran	Non-motorised Catamaran		
	32'	36'	40-46'					
Number of boats	100	80	300	20	25	200		
Engine horsepower	65	90	120	60	6-10			
Duration of voyage	12h	24h	4-6 days	48h	8h	6h		
Area of operation	P. patnam S.harikota	P. patnam K.patnam	off N. patnam	Madras- S.harikota	off Madras	Madras- Pulicat		
Distance from shore (km)	5-18	5-20	5-15	8-20	2-5	2-3		
Depth (m)	15-40	15-80	15-60	40-80	<15	>15		
Gear	Shrimp trawl			Drift net	Bag, net	trammel, net	gill net	hook & line
Fishing hour/unit	6-9	15-18	30-50	24	1.5	1.5	3-6	5-7
Fishing effort in depth > 50 m (% of total effort)	Nil	5	10	50	Nil	Nil	Nil	Nil
No. of hauls/unit	2-3	6	12-20	2	2-3	2-3	2-3	2-3
Duration of haul (h)	3	3	3-5	12	0.5	0.5	1.5	2
Manpower/unit	5	5-6	6	5-6	16	3	3	3
Diesel (l/day)	150	150	200	150				
Ice (t/unit)	0.3	0.75	3	0.3				
Fishhold capacity (t)	0.5	0.75	5	0.5				

P.patnam = Pudhupatnam, K.patnam = Krishnapatnam, N.patnam = Nizampatnam, S.harikota = Sriharikota

The catch/h increased upto 1991 (110.8 kg/h) subsequently, it declined sharply and was only 48.3 kg/h in 1995 (Fig. 4). The long voyage trawlers discarded 2,671 t of trash fish in 1995, which is equivalent to about Rs. 0.5 crore. The daily voyage trawlers landed the entire catch.

In the coastal area between Pudhupatnam and Nizampatnam, the area between 15 and 50 m depth (4,000 sq. km) is being fully exploited by the Madras based trawlers. As the yield per fishing intensity is higher in the depth more than 50 m (98.7 kg/sq.km/000h) compared to depth less than 50 m (11.8 kg/sq.km/000h) (Table 4), there is considerable scope to increase the trawling effort beyond 50 m. However, less abundance of shrimps in depth beyond 50 m has forced the trawl operators to restrict fishing in depth less than 50 m. In 1996, the tendency of the fishermen is to venture further north of

Nizampatnam rather than fish in the deeper waters.

Gillnetters

There are only 20 mechanised vessels which operate drift gill net. The fishing area of these vessels is between Madras and Sriharikota (Table 1).

The effort, catch and catch/h have increased over the years. During 1984-'86 the annual average effort, catch and catch/h were 20,808 h, 270 t and 13.0 kg/h, respectively and in 1995, the corresponding estimates were 47,568 h, 822 t and 17.3 kg/h.

In 1995, about 50% of the landings was from depth more than 50 m. Considering the number performance (Table 2) and operational income (Table 3), the number of drift gill netters could be substantially increased.

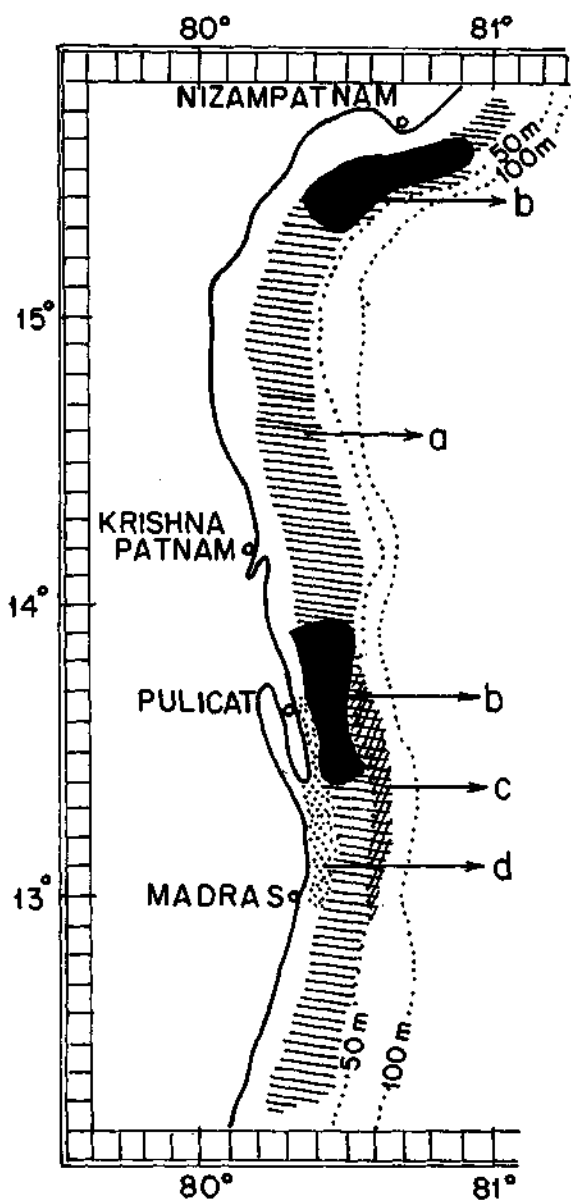


Fig. 1. Fishing areas of Madras based vessels.
 a. Area under trawling (4650 sq.km).
 b. Areas under intensive trawling (1250 sq.km) by small and large trawlers
 c. Area under mechanized gill net fishing (270 sq.km).
 d. Area under artisanal fishing (40 sq.km).

Catamaran

During the past 15 years a few artisanal gears were introduced and a few others were phased out. Trammel net and *pannu valai* (gill net) were introduced; *madha valai* (bag net), *ara valai* and *irukka valai* (gill nets) and boat seine were also phased out.

The effort of *eda valai* (bag net), *kavala valai* (gill net) and hooks & line increased. The annual landings increased from 239 t (1980-'83) to 682 t (1995; Table 5).

TABLE 2. Effort and catch of mechanised vessels in Madras Fisheries Harbour during 1995

Parameters	Trawler		Total	Gillnetter
	Daily voyage	Long voyage		
Effort				
Number of vessels	180	300	480	20
Number of units	43,963	10,684	54,647	1,982
Fishing hours				
<50m	3,13,500 (95.0%)	3,84,624 (90.0%)	6,98,124 (92.2%)	23,784 (50.0%)
>50m	16,500 (5.0%)	42,736 (10.0%)	59,236 (7.8%)	23,784 (50.0%)
Total	330,000	427,360	757,360	47,568
Total catch				
Landings (t)				
<50m depth	13,869 (92.5%)	19,077 (87.7%)	32,946 (89.7%)	411 (50.0%)
>50m depth	1,125 (7.5%)	2,676 (12.3%)	3,801 (10.3%)	411 (50.0%)
Total	14,994	21,753	36,747	822
Catch/unit (kg)	341	2,036		415
Catch/h (kg)				
<50m depth	44.2	49.6		17.3
>50m depth	68.2	62.6		17.3
Mean	45.4	50.9		17.3
Trash				
per unit (kg)	60	250		Nil
t/year	2,638	2,671	5,309	Nil
% in total landings	17.5	12.3	14.4	Nil
Discard				
per unit (kg)	Nil	250	250	Nil
t/year	Nil	2,671	2,671	Nil
% in total landings	Nil	12.3	7.3	Nil

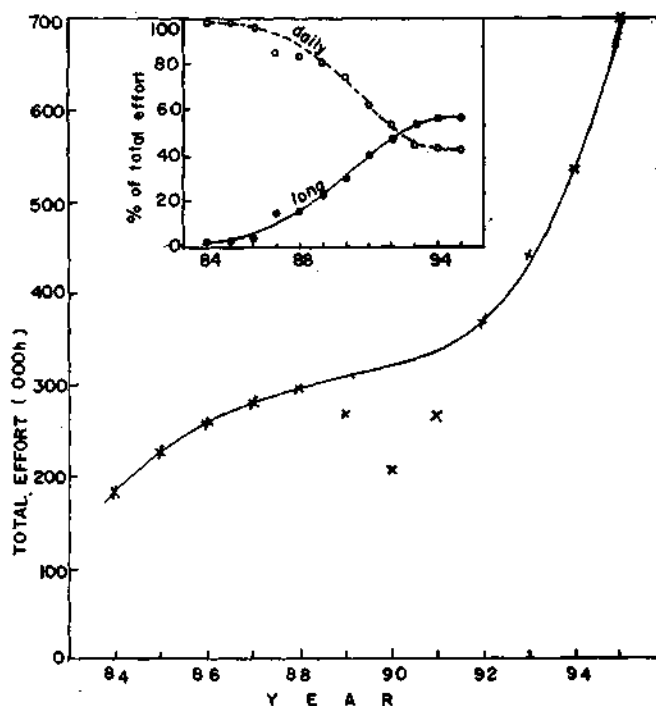


Fig. 2. Estimated annual effort of trawlers at Madras. Inset: The increasing effort of long voyage trawlers. All the lines are eye-fits.

TABLE 3. Value of fish landings from mechanised vessels in Madras Fisheries Harbour during 1995

Parameters	Trawler		Total	Gillnetter
	Daily voyage	Long voyage		
Value (Rs.)				
Average value of catch/kg	18	34	52	45
Average value of trash/kg	2	2	4	
Fish sale/unit	5,058	60,724	65,782	18,675
Trash sale/unit	120	500	620	
Total annual scale (in crores)	22.8	65.4	88.2	3.7
Annual discard (Rs. in crores)	Nil	0.5	0.5	Nil
Operational expenses/unit (Rs.)				
Diesel & oil	1,500	10,000	11,500	1,500
Ice	200	2,000	2,200	350
Labour	932	11,020	11,952	3,735
	(18% of total sale)		(20% of sale)	
Total	2,632	23,020	25,652	5,585
Operational income/unit (Rs.)				
	2,546	38,204	40,750	13,090

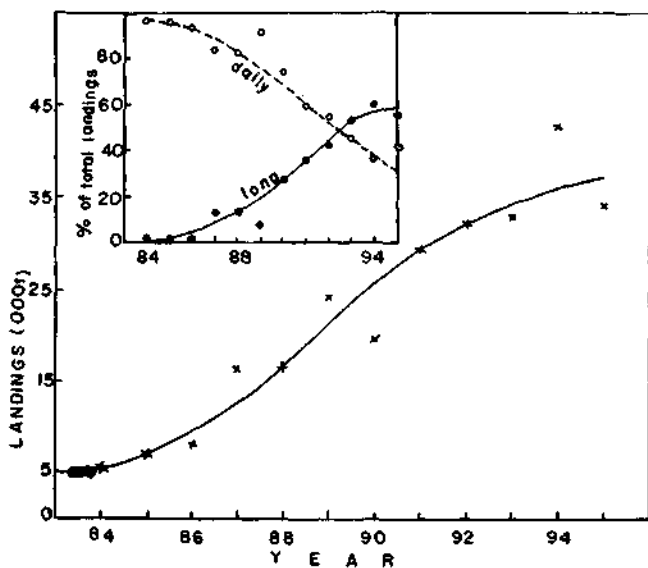


Fig. 3. Estimated annual landings of trawlers at Madras. Inset: The increasing contribution of long voyage trawlers. All the lines are eye-fits.

TABLE 4. Area of trawling and yield/fishing intensity of Madras based commercial trawlers

Depth (m)	Potential area of trawling (sq. km)	Area under trawling (sq. km)	Fishing intensity (h/sq. km)	Yield/fishing intensity (kg)*
15 - 50	4,000	4,000	174.5	11.8
50-100	2,170	650	91.1	98.7
15-100	6,170	4,650	162.9	10.4

* Yield = Catch (kg)/(trawling area (sq. km) x effort (000h))

TABLE 5. Effort, catch and operational income of catamarans in Madras Fisheries Harbour during 1995

Parameters	Bag net	Trammel net	Gill nets	Hooks & Total	Total
			Kavala valai	Pannu valai	
Effort					
Number of units	2,326	1,055	1,888	5,528	13,830
Fishing hours	3,489	1,583	5,664	22,112	31,048
Catch					
Catch (t)	440	4	64	138	682
Catch/unit (kg)	189	4	34	25	264
Catch/h (kg)	126	2.5	11	6	147.5
Fish sale (Rs.)					
Value of catch/kg	15	50-350	6	15	50
Annual sale/unit	2,835	800	204	374	600
Annual sale (Rs. in lakhs)	65.9	8.4	3.9	20.7	18.2
Labour (50% of sale)	1,417	400	102	187	300
Operational income/Unit (Rs. in lakhs)	1,417	400	102	187	2,406

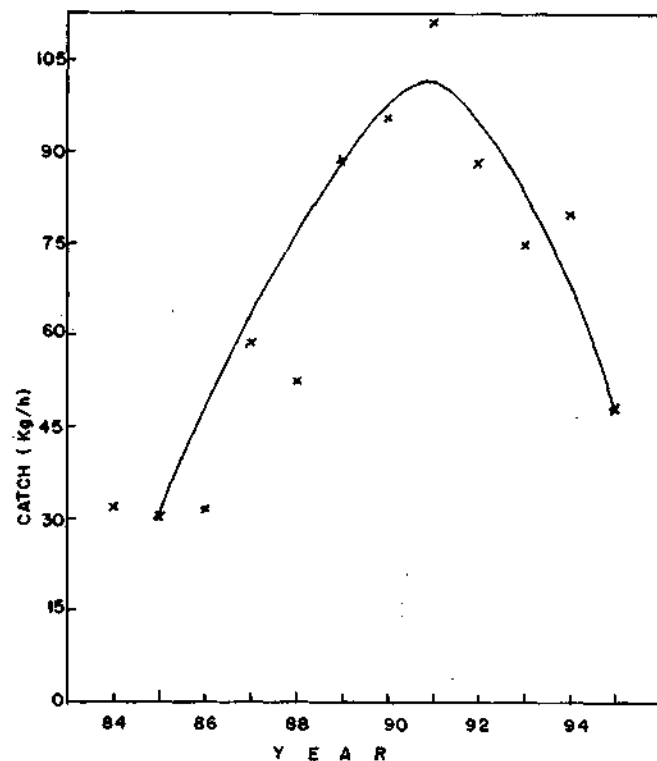


Fig. 4. Catch (kg/h) of trawlers based at Madras. The line is eye-fit.

TABLE 6. Summary of the quantity and value of the landings in Madras Fisheries Harbour during 1995

Parameters	Trawl	Gill net	Artisanal	Total
Landings (t)	36,747 (96.1%)	822 (2.1%)	682 (1.8%)	38,251
Landings from depth >50m (%)	10.3	50.0	0.0	10.9
Discard (t)	2,671 (7.3%)	Nil	Nil	2,671 (7.3%)
Value (Rs. in crores)	88.2 (94.7%)	3.7 (4.0%)	1.2 (1.3%)	93.1

Other major developments are motorisation of catamaran in the 1990s and introduction of fibreglass boats in 1995.

Due to the large scale expansion of the trawl fleet the contribution of the artisanal sector to the total landings has declined. During 1980-'83 the trawlers contributed 93.7%, gill netters 2.4% and artisanal crafts 3.9% to the total landings. In 1995 the trawlers contributed 96.1%, gillnetters 2.1% and artisanal crafts 1.8% (Table 6).