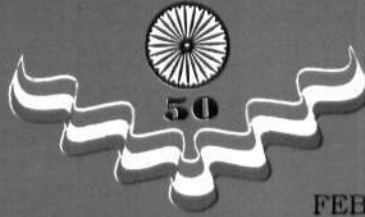




# समुद्री मात्स्यकी सूचना सेवा

## MARINE FISHERIES INFORMATION SERVICE



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केन्द्रीय समुद्री मात्स्यकी अनुसंधान संस्थान कोचिन, भारत CENTRAL MARINE FISHERIES RESEARCH INSTITUTE COCHIN, INDIA

भारतीय कृषि अनुसंधान परिषद्  
INDIAN COUNCIL OF AGRICULTURAL RESEARCH

## 837 MAJOR AND MINOR FISHERIES HARBOURS OF INDIA

### 3. THE FISHERIES HARBOURS AND FISHERY IN SOUTH KARNATAKA

#### Area covered

The fisheries harbours situated in the coastal region of south Karnataka from Talapady in south to Manki-madi (Uttara Kannada District) in the north is included here (Fig. 1).

#### Layout of the harbours

The layouts of the 3 major fishing harbours (Mangalore, Malpe and Gangolli) and 2 minor harbours (Hangarcutta and Bhatkal) are given in Fig. 2-6.

#### Status of harbours

The status of the fisheries harbours, number and type of fishing vessels operating from minor and major fisheries harbours in the region are given in Table 1. There are 3 major harbours and

4 minor harbours in the region. These centres cater almost exclusively to the needs of mechanised fishing sector, the principal gear being trawl (single day and multi-day), purse seine and gill-net and in addition a few small long liners. Mechanised trawl fishing in the region is carried out principally by two fleet. The multi-day fleet, whose number is growing at a fast pace at both Mangalore and Malpe harbours, undertakes multiple day voyages (upto 7 days) in depths upto 100 m. Recently multi-day longliners are also operated from these centres principally for sharks. The purse seine fleet (293 nos) is mainly concentrated in the 3 major harbours. Of late, their number is on the decline with some of them being converted to multi-day trawl fishing and a few functioning as combination vessels (purse seining during the peak pelagic season and muti-

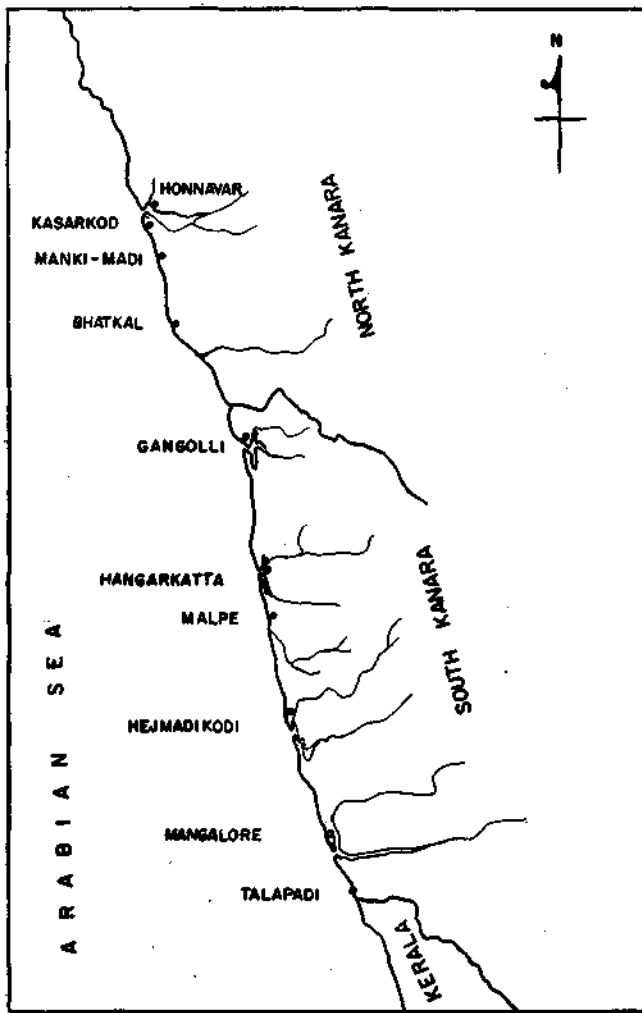


Fig. 1. Location of fisheries harbours South Karnataka.

day trawling during the rest of the season). The largest fleet in all the harbours is the small coastal trawlers (single day fleet - 30-32 footers) operating on daily basis in the nearshore areas upto 25 m depth. Their number is decreasing due to dwindling profits and no additions to fleet have taken place during the last few years.

In total, there are more than 2,400 mechanised fishing vessels comprising 1,871 trawlers, 293 purse seiners, 245 drift gillnetters and 19 longliners distributed among the 3 major and 4 minor fisheries harbours in south Karnataka.

There are 51 beach landing centres in the area covered (Table 2) which are classified as minor landing centres. A unique feature of all these centres is that all of them have tarred approach roads. A list of craft and gear employed at each of these centres is also given in Table 2. These centres ope-

rate almost exclusively mechanised and non-mechanised artisanal gear and in addition, a few small trawlers are also present in one of the centres. The non-mechanised artisanal gears are

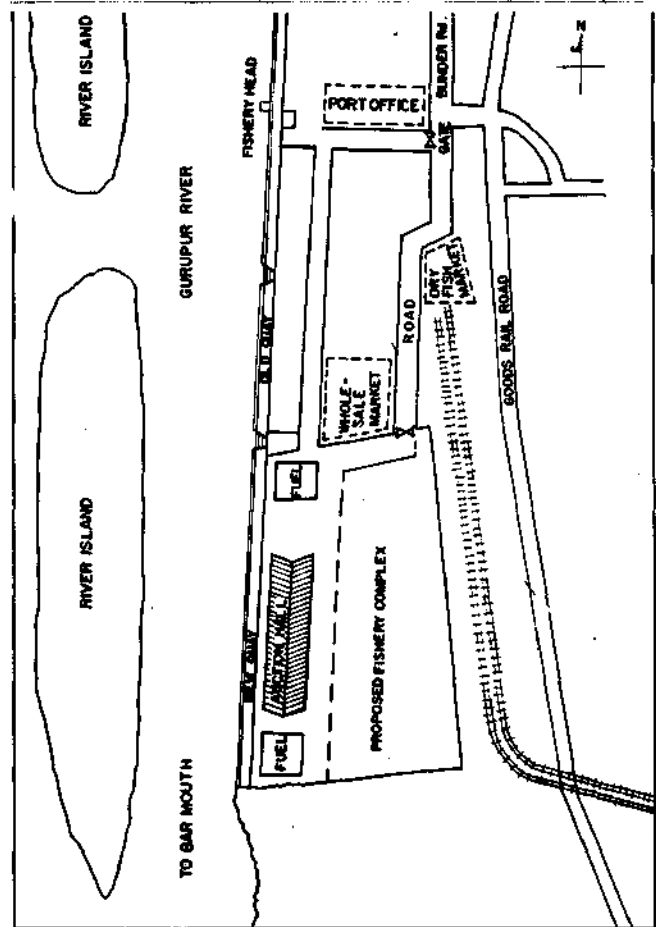


Fig. 2. The lay out of the Mangalore Fisheries Harbour (major).

mainly concentrated in the northern regions (Utara Kannada District), while mechanised (outboard engines) artisanal gears are in vogue in the southern regions.

#### Cost of construction and infrastructure

The cost of construction of the major and minor fisheries harbours in the region is given in Table 3. Maximum allocations have been made to Mangalore and Malpe fishing harbours. The minor harbours are yet to be developed. In the case of Hejmadi Kodi, Rs. 95 lakhs is already sanctioned (on 31-10-'95) for its development under a centrally sponsored scheme.

The infrastructures available (quays, jetties,

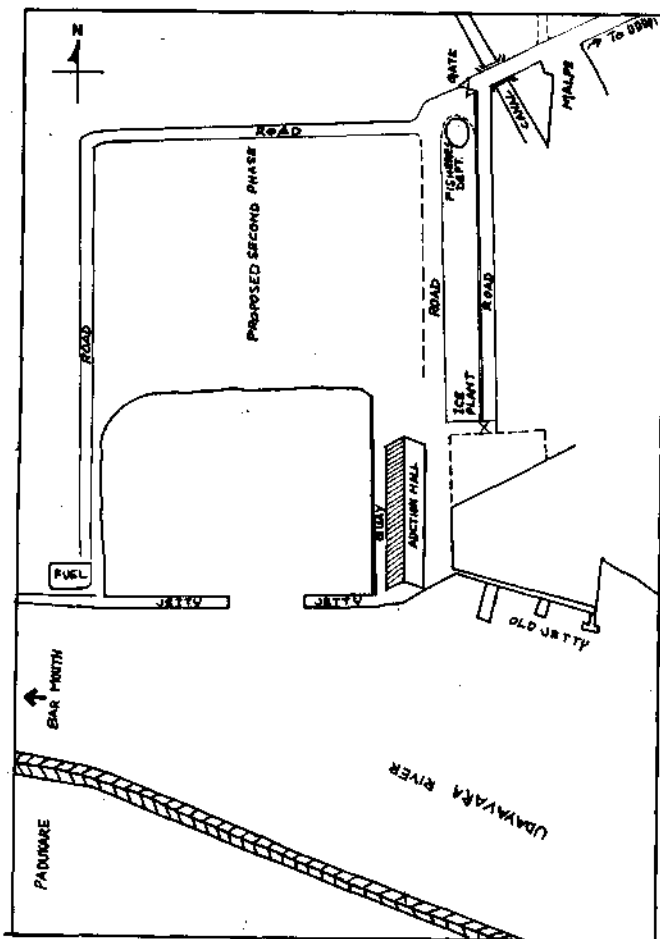


Fig. 3. The lay out of the Malpe Fisheries Harbour (major).

auction halls, berthing capacity, other amenities and marketing infrastructure) at the 3 major and 2 minor harbours are listed in Table 4. Mangalore and Malpe fisheries harbours are fairly well developed. Although Gangolli caters to a large number of mechanised fishing vessels, the facilities available there are meagre. The recent trend of multi-day trawlers and longliners exploiting deeper areas necessitates better radio telephone communication facilities at all the major fishing harbours.

### Processing industries

The number of ice plants, cold storages, processing plants, canning plants and fish meal plants in the region are given in Table 5 together with their production capacity. The large number of ice plants and their production capacity of 951 tonnes/day are primarily meant for the substantial intake of ice by the multi-day trawlers for their voyages. The number of processing industries loca-

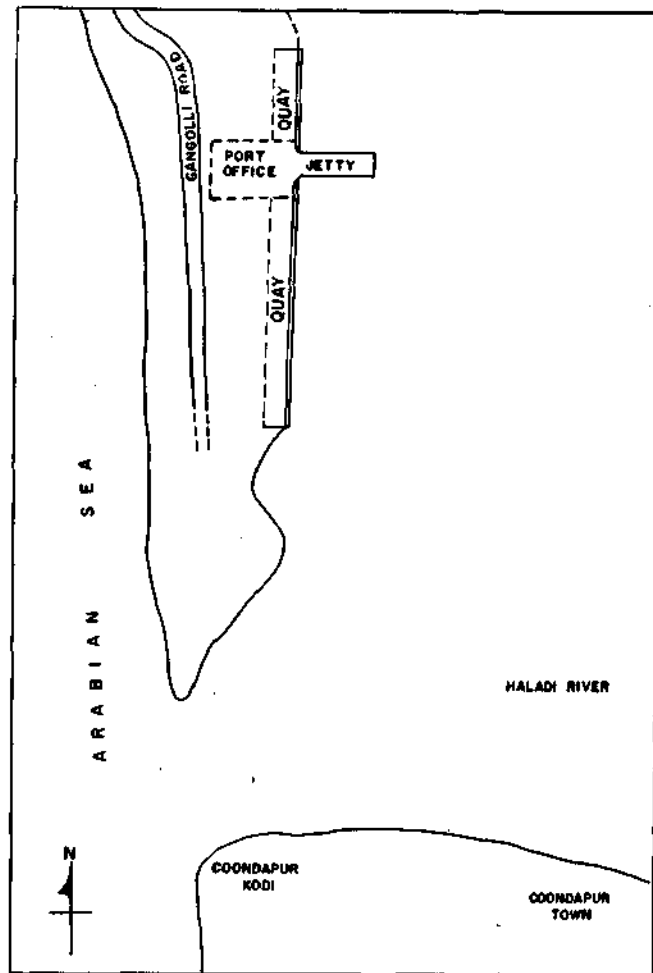


Fig. 4. The lay out of the Gangolli Fisheries Harbour (major)

ted adjacent to each fisheries harbour is indicated in Table 4.

### Production details

Yearwise (3 years: 1992-'93 to 1994-'95) and gearwise production details in respect of Mangalore and Malpe fisheries harbours are given in Table 6 & 7. During 1994-'95 Mangalore fisheries harbour produced 47,315 tonnes (56 % multi-day trawl; 16 % single day trawl; 26 % purse seine; 1% artisanal and 1 % gillnet) by all gear, while Malpe fisheries harbour produced 18,708 tonnes (40 % multi-day trawl; 20 % single day trawl; 35 % purse seine; 4 % artisanal and 1 % gillnet). Separate production data with regard to other centres major, medium and minor) are not available.

### Potential yields and current yields

Comparison of MSY levels and current yields of major commercial species occurring at Mangalo-

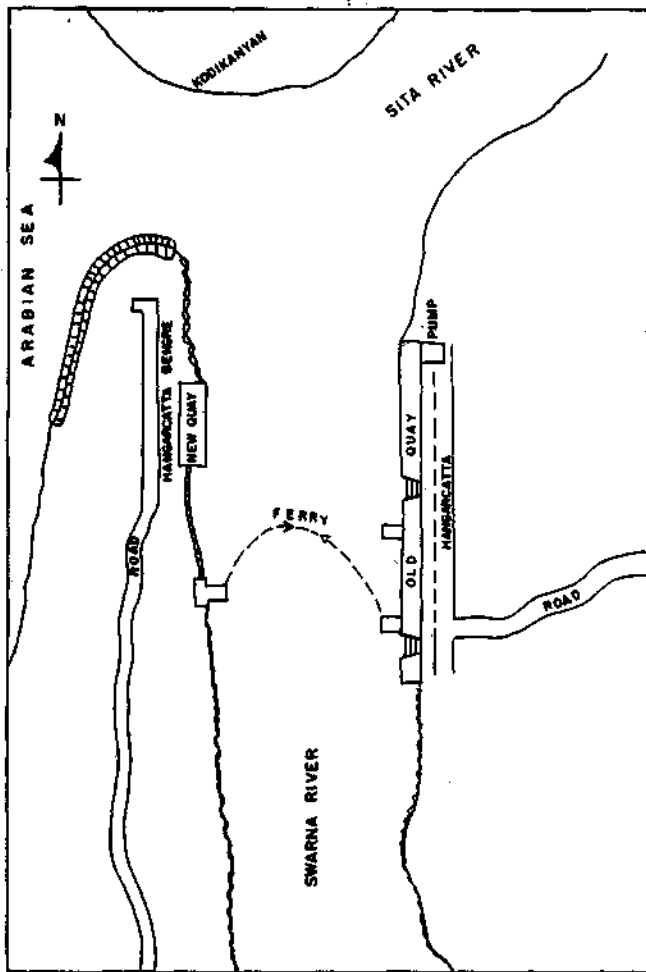


Fig. 5. The lay out of the Hangarcatta Fisheries Harbour (major).

re/Malpe region are given in Table. 8. Majority of the species are fully or overexploited. Only a few species like goatfish and small shrimp in trawl and tunas in gillnets offer scope for increased exploitation. Since the grounds of the multi-day fleet of trawl are being expanded every year (boats exploiting more deeper areas) many of the MSY estimates have subsequently become under estimates.

**Marketing infrastructure**

Wholesale and retail fresh fish markets are well

developed in the region (Table 4). The Karnataka State Fisheries Development Corporation (KFDC) has a cold chain to market frozen marine fish to the interior districts of Karnataka. Dry fish production and marketing (wholesale and retail) are also well developed.

**Management for sustained development**

Management of marine fishery resources of the state has received the attention of the Government and the State Fisheries Department. The Government of Karnataka (GOK) passed the model **Marine Fisheries Regulation Act** in July, 1986 and subsequently the rules were issued in August, 1987. This act provides for:

- 1) Registration of all fishing vessels including non-mechanised country craft at their respective base ports.
- 2) Licensing of fishing vessels for fishing in specified areas.
- 3) Regulation, restriction or prohibition of fishing in specified areas.
- 4) Regulation or restriction of number of fishing vessels for fishing in specified areas.
- 5) Regulation, restriction or prohibition of catch of particular species of fish or use of particular gear in any specified area.
- 6) Fixation of the hours in a day during which any person may carry out fishing.

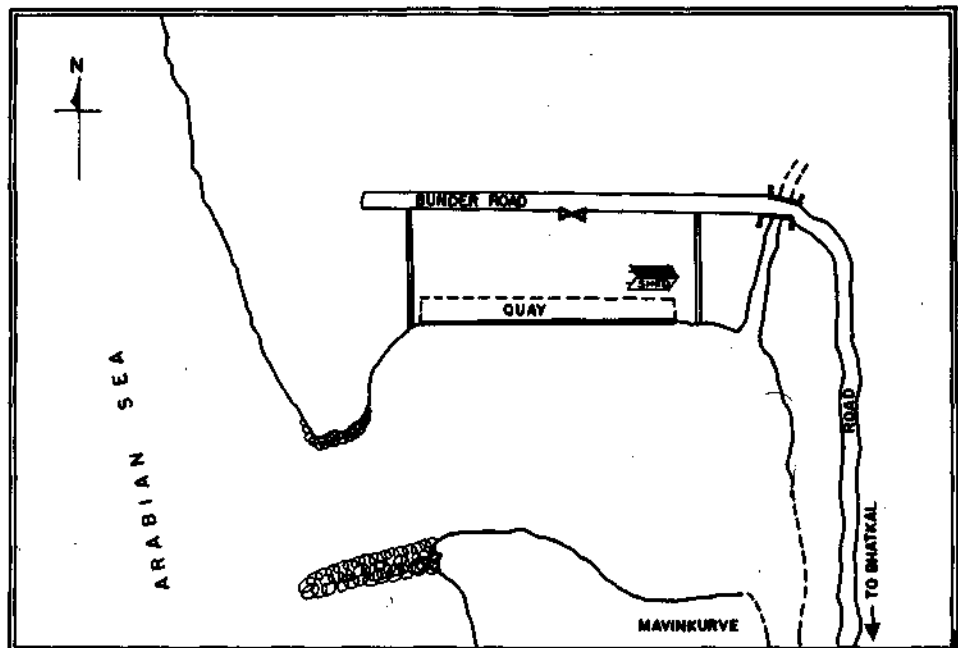


Fig. 6. The lay out of the Bhatkal Fisheries Harbour (major).

Although this act has been promulgated as early as 1986, it has not so far been implemented in full. In 1995, the GOK initiated steps to implement the first part of the act i.e., registration of all fishing vessels. The next part is that of fishing licences for which action is to follow. As a general consensus agreements of fishermen associations/groups, the region observes a closed fishing season during the monsoon months (Jun. to Aug.) primarily due to the rough seas during the period and lack of insurance cover for the boats. Lately, the GOK has issued orders prohibiting operation of mechanised fishing boats from 1st June to 31st August. However, in recent years, purse seiners and trawlers have started their operations in mid-August itself violating these orders.

Apart from this, several self imposed local regulations exist which are more or less adhered to by all fleet. Local fisheries associations (for example the Purse Seine Association) have regulations on rights to fish a shoal at sea and also night purse seining (Kemperaju *et al.*, 1992. MFIS No. 116 : 12-14).

TABLE 1. Minor and major fisheries harbours in south Karnataka and strength of fishing fleets (from Talapady in Dakshina Kannada to Manki-madi in Uttara Kannada)

Name of harbour	Classification	Trawlers			Purse seine	Drift gillnet	Long-line
		SDF	MDF	Total			
Hejmadi Kodi	Minor	39	0	39	6	0	0
Hangarcutta	Minor	125	0	125	0	0	0
Bhatkal	Minor	80	9	89	40	0	0
Thengingundi	Minor	45	0	45	0	0	0
Mangalore Bunder	Major	312	398	710	87	80	10
Malpe Bunder	Major	440	225	665	90	60	2
Gangolli Bunder	Major	189	15	204	70	105	7
Total		1,230	647	1,877	293	245	19

SDF = Single day fleet; MDF = Multi day fleet.

TABLE 2 : (Beach landing centres) Fishing harbours in south Karnataka and number of crafts/gear (from Talapady in Dakshina Kannada to Manki-madi in Uttara Kannada)

Name of landing centre	Trawl	Mechanised (OBE)		Non-mechanised		
		Gillnet	Seine nets	Gillnet	Hooks & line	Kairam-pani
Talapady	0	0	0	0	10	1
Someswara	0	0	4	0	0	0
Ullal	0	0	20	0	3	0
Panambur(S)	0	0	80	0	6	1
Baikampady	0	0	0	0	16	0

Name of landing centre	Trawl	Mechanised (OBE)		Non-mechanised		
		Gillnet	Seine nets	Gillnet	Hooks & line	Kairam-pani
Kulai	0	0	6	0	12	0
Hosabettu	0	0	28	0	4	0
Surathkal	0	0	6	0	4	0
Mukka	0	0	18	0	4	0
Lachil	0	0	12	0	4	0
Sasihithlu	0	0	16	0	3	0
Hejmadi	0	55	50	0	0	0
Padubidri	7	0	10	0	2	2
Thenka Yermal	0	0	0	0	6	3
Bada Yermal	0	0	5	0	0	2
Bada Uchila	0	0	10	0	8	0
Kaupu lighthouse	0	60	0	0	0	0
Polipu	0	0	6	0	4	0
Kaipunjai	0	0	0	0	4	0
Mattukoppal	0	0	8	0	0	1
Padukare	0	0	10	0	0	14
Thottam	0	0	4	0	5	3
Hoode	0	0	4	0	4	3
Kodikanya	0	0	3	0	8	2
Manoor	0	0	12	0	3	2
Gopadi	0	0	4	0	0	2
Bijadi	0	0	2	0	0	0
Hale Alive	0	0	2	0	0	2
Kundapura kodi	0	0	8	0	0	3
Gangolli	0	25	0	150	0	0
Kanchi kodi	0	45	15	10	10	0
Maravanthe	0	30	5	20	0	0
Navunda	0	4	1	10	0	0
Gangeballu	0	0	0	6	0	0
Kodiyari	0	25	4	8	0	1
Paduvari	0	25	9	15	0	0
Kesarakodi	0	30	0	90	0	0
Govte	0	0	0	150	0	0
Belke	0	0	0	200	0	0
Mundali	0	6	2	250	0	0
Mavinkurve	0	0	0	80	0	0
Karikal	0	0	0	50	0	0
Jali	0	0	0	30	0	0
Honnagadde	0	2	0	75	0	0
Kaikini	0	0	0	15	0	0
Murdeswara	0	10	6	200	0	0
Byloor-Belashe	0	0	0	15	0	1
Hosahittlu	0	6	0	30	0	2
Alvehittlu	0	0	0	20	0	0
Manki-Madi	0	8	0	200	0	0
Total	7	339	370	1,633	120	45

S = seasonal.

TABLE 3. Fisheries harbours – year and cost of construction

Fisheries harbour	Cost of construction	year	Proposed
<b>Major</b>			
Mangalore	Rs. 1.35 crores spent (Central sponsored scheme sanctioned in 1984 at a cost of Rs. 99.5 lakhs)	1993-'94	Expansion plans being made
Malpe	Rs. 2.065 crores spent (Central Govt. sanctioned project in 1975-'76 at a cost of Rs. 4.13 crores)	1985	II stage expansion at Rs. 10 crores
Gangolli	Rs. 8.0 lakhs (Quay and jetty only)	1995	Expansion at a cost of Rs. 75 lakhs
<b>Minor</b>			
Hejmadi Kodi	Central sponsored scheme for Rs. 95 lakhs sanctioned on 31-10-'95	Project yet to be initiated	
Hangar-cutta (Kodi Bengre)	Proposal to construct at a cost of Rs. 72 lakhs		
Bhatkal	Details not available		
Thengingu-ndi	Details not available		

Source : Department of Fisheries, Government of Karnataka.

TABLE 4. Infrastructure and marketing facilities at major and minor fisheries harbours in southern Karnataka

Infrastructure	Mangalore	Malpe	Gangolli	Hangar cutta	Bhatkal
Quay (m)	323 x 10	118 x 13	54 x 6 44 x 6 (P)	200 x 4 100 x 6 (P)	125 x 6
Brething capacity	230	279	40	150	100
Jetty (m)	NA	160	NA	10	NA
Auction hall (m <sup>2</sup> )	675	1,500	NA	NA	300
<b>Amenities</b>					
Electricity	A	A	A	A	A
Freshwater	A	A	NA	A	A
Toilets	A	A	NA	NA	NA
Drainage	A	A	NA	NA	NA
Road	A	A	A	A	A
Parking	A	A	A	A	A
Ice Plants	3	3	1	1	1
Fuel bunks	4	2	1	1	1
Radio	NA	A	NA	NA	NA
communicaton					
<b>Marketing</b>	A	A	A	NA	NA
Wholesale					
Co-ops.	A	NA	NA	NA	A
Dry fish	A	A	A	NA	NA
<b>Processing plants</b>	6	1	1	1	NA

P = Proposed ; A = Available ; NA = Not available.

TABLE 5. No. & capacity of ice plants, cold storages and processing industries situated in southern Karnataka

Category	Number	Capacity (tonnes/day)
Ice plants	74	951
Cold storages	23	1,150
Processing plants	9	124
Canning plants	9	30
Fishmeal plants	20	160

Source : (1) Statistical Bulletin of Fisheries (1993-'94), Published by Department of Fisheries, Government of Karnataka. (2) MPEDA Regional Centre, Mangalore.

TABLE 6. Yearwise and gearwise catch (in tonnes) at Mangalore (1992-'93 to 1994-'95)

**1. Gear : Multi-day trawl**

Species	1992-'93	1993-'94	1994-'95
Prawns	735.3	1,074.6	1,407.4
Crabs	225.8	120.5	163.1
Cephalopods	2,369.5	3,133.7	3,102.7
<i>Nemipterus</i>	1,683.1	1,677.5	2,866.8
Sciaenids	194.6	353.6	463.4
Ribbonfish	513.9	661.4	729.9
Lizardfish	296.0	700.8	1,254.0
Anchovies	430.5	1,116.3	1,931.3
Carangids	1,025.2	1,320.9	2,525.4
Clupeids	373.7	450.8	737.2
<i>Epinephelus</i>	267.9	412.8	821.8
Mackerel	129.8	386.1	935.2
<i>Priacanthus</i>	313.2	730.4	717.3
<i>Squilla</i>	2,622.8	3,214.1	4,241.7
Misc. and trash	2,336.6	2,933.9	4,768.0
<b>Total catch</b>	<b>13,517.8</b>	<b>18,287.3</b>	<b>26,665.2</b>

**2. Gear : Single day trawl**

Species	1992-'93	1993-'94	1994-'95
Prawns	629.9	526.6	809.6
<i>Squilla</i>	2,102.4	1,621.6	2,819.2
Crabs	377.0	79.9	57.0
Cephalopod	61.7	115.0	27.1
Carangids	210.6	162.3	148.1
Flatfish	2,060.5	1,634.7	1,897.2
<i>Leiognathus</i>	29.9	31.0	29.4
Clupeids	166.5	181.8	276.6
Sciaenids	147.4	141.6	173.3
Ribbonfish	1,308.8	397.9	1,023.8
Misc. and others	243.6	216.3	285.7
<b>Total</b>	<b>7,338.3</b>	<b>5,108.6</b>	<b>7,546.9</b>

### 3. Gear : Artisanal

Species	1992-'93	1993-'94	1994-'95
Mackerel	24.3	406.3	163.7
Oil sardine	0.8	0.0	1.0
Lesser sardine	2.7	0.0	2.2
Other clupeids	126.3	76.1	126.5
Anchovies	15.5	0.2	0.2
Carangids	2.3	20.1	3.4
Sciaenids	84.5	17.4	47.6
Silverbellies	29.9	5.2	9.5
Soles	0.5	0.3	0.4
Ribbonfish	11.0	0.9	4.3
Seerfishes	1.0	0.3	0.1
Prawns	68.5	43.0	17.5
Pomfret	1.0	0.3	2.4
Other fishes	14.3	8.8	13.2
Total	382.6	578.9	391.9

### 4. Gear : Purse seine

Species	1992-'93	1993-'94	1994-'95
Mackerel	2,634.9	5,377.7	4,178.6
Oil sardine	1,091.3	274.7	9.5
Lesser sardine	720.2	1,800.9	1,371.3
Other clupeids	288.6	531.3	976.5
Anchovies	1,426.5	2,274.2	2,242.1
Carangids	7,915.3	2,482.6	1,797.7
Tunas	1,661.4	5.2	1,039.3
Pomfrets	1,027.5	115.6	182.4
Silverbellies	8.4	9.1	133.5
Prawns	60.7	1.5	26.6
Other fishes	246.6	227.3	176.4
Total	17,081.4	13,100.1	12,133.9

### 5. Gear : Gillnet

Species	1992-'93	1993-'94	1994-'95
Seerfishes	157.4	102.9	339.1
Tunas	231.6	114.9	98.2
Catfishes	4.5	8.9	9.1
Elasmobranchs	22.1	25.8	65.9
Carangids	10.9	8.4	6.9
Pomfrets	19.4	8.6	14.5
Mackerel	9.7	3.9	14.1
Ribbonfishes	0.0	4.8	0.0
Other fishes	66.9	19.1	29.1
Total	522.5	297.3	576.9

TABLE 7. Year wise and gearwise catch (in tonnes) at Malpe (1992-'93 to 1994-'95)

### 1 Gear : Multi-day trawl

Species	1992-'93	1993-'94	1994-'95
Prawns	258.3	547.9	430.8
Crabs	37.0	73.3	46.2
Cephalopods	950.3	1,367.2	1,550.6
<i>Nemip.erus</i>	545.1	631.4	809.9
Sciaenids	20.9	136.9	105.2
Ribbonfish	94.2	767.5	245.3
Lizardfish	151.8	351.8	437.9
Anchovies	164.9	312.2	393.5
Carangids	309.2	822.0	640.8
Clupeids	36.2	214.9	111.3
<i>Epinephelus</i>	26.1	43.7	193.1
Mackerel	31.9	444.1	372.4
<i>Priacanthus</i>	127.4	276.6	598.3
<i>Squilla</i>	469.9	803.7	744.6
Misc. and trash	467.6	1,315.9	738.1
Total catch	3,690.9	8,108.9	7,417.9

### 2. Gear : Single day trawl

Species	1992-'93	1993-'94	1994-'95
Prawns	491.2	534.9	471.1
<i>Squilla</i>	1,247.3	1,413.8	1,691.5
Crabs	193.9	136.3	63.7
Cephalopod	114.9	165.2	7.1
Carangids	346.6	2.9	73.6
Flatfish	5,311.7	774.1	846.7
<i>Letognathus</i>	445.0	106.6	89.9
Clupeids	241.2	182.9	92.8
Sciaenids	257.9	114.0	139.5
Ribbonfish	93.0	268.3	347.7
Misc. and others	368.6	241.4	126.3
Total	9,111.4	3,940.3	3,949.9

### 3. Gear : Artisanal

Species	1992-'93	1993-'94	1994-'95
Mackerel	452.1	311.1	61.5
Oil sardine	0.0	0.0	0.0
Lesser sardine	4.8	16.8	0.5
Other clupeids	92.1	140.3	382.6
Anchovies	0.8	0.8	0.2
Carangids	5.7	10.3	3.2
Sciaenids	49.2	33.4	17.8
Silverbellies	5.4	9.0	5.8
Soles	36.3	5.7	7.5
Ribbonfish	1.0	1.0	7.7
Seerfishes	2.2	0.8	2.1
Prawns	16.2	14.6	187.4
Pomfret	0.0	0.2	2.1
Other fishes	39.2	18.3	13.6
Total	705.0	562.3	691.9

### 4. Gear : Purse seine

Species	1992-'93	1993-'94	1994-'95
Mackerel	3,135.2	4,756.1	3,386.6
Oil sardine	2,306.7	312.8	117.5
Lesser sardine	1,688.5	390.5	856.8
Other clupeids	411.6	491.7	305.5
Anchovies	637.7	32.1	129.6
Carangids	6,062.5	2,386.9	563.9
Tunas	2,458.1	31.1	162.9
Pomfrets	81.3	782.6	589.6
Silverbellies	100.5	214.8	96.2
Prawns	34.8	2.1	17.9
Other fishes	217.5	116.8	292.9
Total	17,134.4	9,517.5	6,519.4

### 5. Gear : Gillnet

Species	1992-'93	1993-'94	1994-'95
Seerfishes	83.7	191.9	68.1
Tunas	83.7	68.4	25.3
Catfishes	3.9	4.9	4.6
Elasmobranchs	13.7	40.8	15.9
Carangids	5.5	12.8	1.1
Pomfrets	4.6	4.8	2.8
Mackerel	3.2	5.2	1.3
Ribbonfishes	0.0	0.0	0.0
Other fishes	17.9	14.7	9.9
Total	216.2	343.5	129.0



TABLE 8. Comparison of MSY levels, current yields and exploitation status of major commercial species at Mangalore and Malpe (Major pelagic stocks not included)

Stock/fishery	MSY level & assessed year (t)	Catch current season (94-'95) (t)	Exploitation status	Model used	Ref.
Flatfish - Trawl Malpe/Malpe	2,100 ('91-'92)	3,111	Over exp.	Schaefer	1
Whitefish - Trawl Malpe/Malpe	469 ('91-'92)	404	Fully exp.	Schaefer	1
Goatfish - Trawl Malpe/Malpe	30 ('91-'92)	5	Under exp.	Schaefer	1
Threadfin breams - Trawl Malpe/Malpe	1,649 ('94-'95)	1,611	Fully exp.	Thompson & Bell	1
Lizardfish - Trawl Malpe	550 (199)	11,198	Over exp. (grounds expanded)	YPR	2
Trawl MDF Mangalore	15,000 ('88-'89)	26,665	Over exp. (grounds expanded)	Alagaraja	3
Squid - Trawl Mangalore	878 ('87-'91)	2,716	Over exp. (grounds expanded)	YPR	4
Trawl MDF Malpe/Malpe	32,406 ('94-'95)	34,073	Fully exp.	Schaefer	5
Ribbonfish - Trawl Malpe/Malpe	2,081 ('92-'93)	2,892	Fully exp.	Gulland	6
Seerfish - Gillnet Malpe/Malpe	260 ('92-'93)	407	Over exp.	Gulland	6
Seerfish - Trawl Malpe/Malpe	182 ('92-'93)	508	Over exp.	Gulland	6

Stock/fishery	MSY level & assessed year (t)	Catch current season (94-'95) (t)	Exploitation status	Model used	Ref.
Tuna - Gillnet Malpe/Malpe	421 ('93-'94)	124	Under exp.	Gulland	6
Shrimp ( <i>M. dobsonii</i> ) - Trawl Mangalore	572 ('85-'89)	230	Under exp.	YPR	7
Shrimp ( <i>M. monocoeros</i> ) - Trawl Mangalore	546 ('89-'92)	887	Over exp.	YPR	8
Anchovies - Trawl Mangalore	795 (191)	2,469	Over exp.	Schaefer	9

#### References in Table 8

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