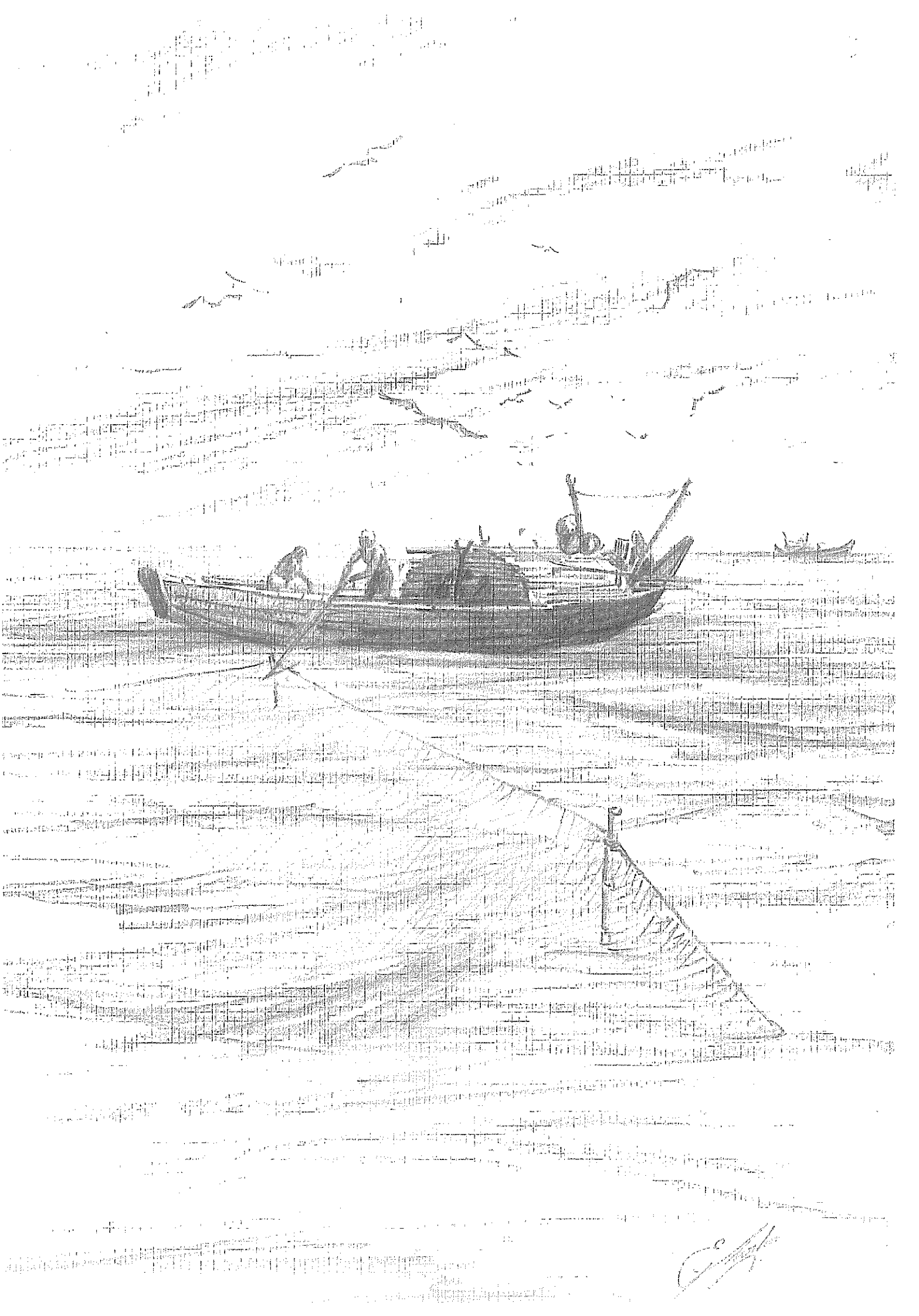
THE MARINE SET BAGNET FISHERY

by

Md. S A Quayum
Md. G Khan
Md. S Islam
Md. U Sada
Md. Z A Chowdhury

Marine Fisheries Survey,
Management and Development Project,
Department of Fisheries, Chittagong



17. *INTRODUCTION*

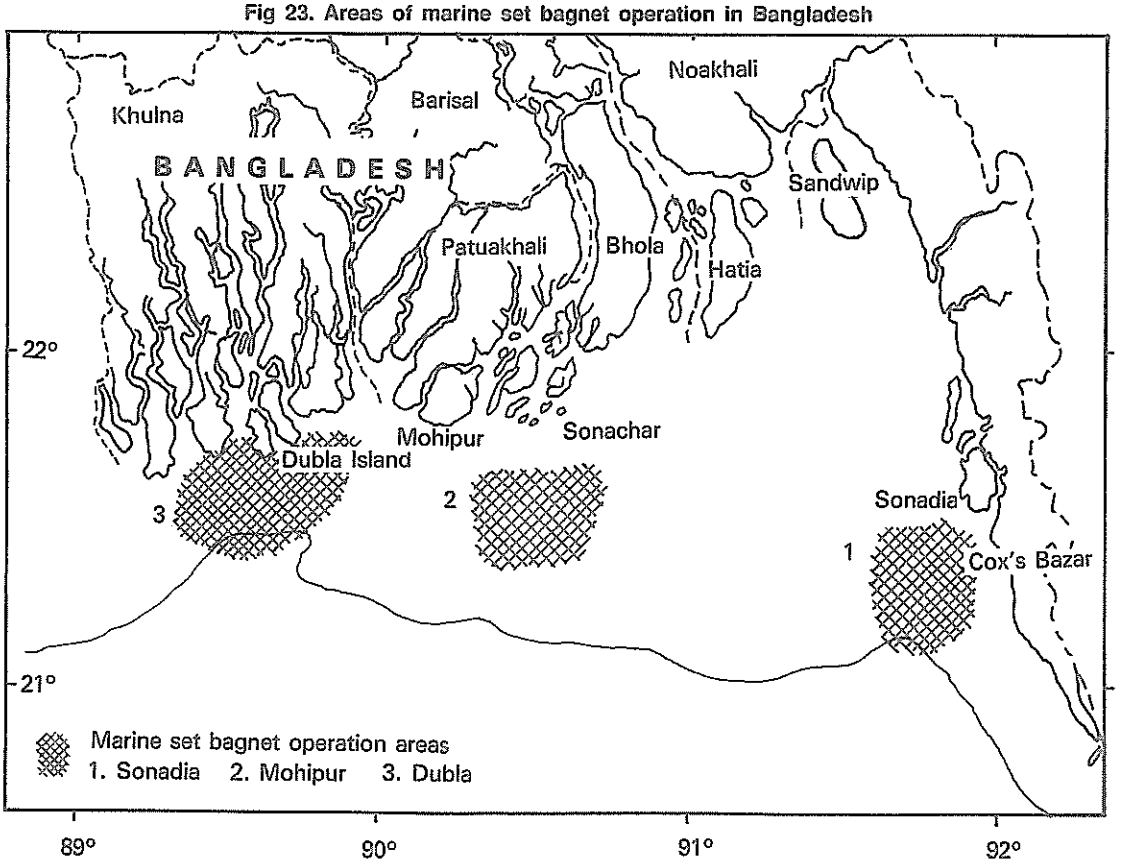
According to existing fisheries statistics (1988-89), the annual marine fish production in Bangladesh is 233,000 t. The small-scale fisheries contribute 96 per cent of this production *i.e* 225,600 t, and 28 per cent of this, 63,000 t, is reported to be from set bagnets (SBN). Marine set bagnets (MSBN) are reported to contribute about 27 per cent of the total SBN production, *i.e.* 17,000t.

In connection with a comprehensive biosocioeconomic study of the estuarine set bagnet fishery, an attempt was also made to assess the level of exploitation by MSBNs. The study particularly aimed to determine the catch rates, production, species composition and size ranges of the predominant species caught. The mean length at first capture and fishing mortality in the MSBN fishery were also examined. The results are included in this paper.

18. *METHODOLOGY*

Data collection was from the three main Marine SBN fishing areas (Figure 23). Mohipur and Dubla are remote areas where communication is irregular and accessibility is not easy, hence extensive sampling was conducted only during the few field visits. In Sonadia, data had been collected throughout the 1983-1986 seasons under another activity of the BOBP, but sampling during the present study was conducted, as in the other two areas, only in 1991. Catch and effort data in Sonadia, had been collected from 1983-86 but size composition and species composition data were collected only in 1985/86.

Fig 23. Areas of marine set bagnet operation in Bangladesh



Monthly species composition was estimated for Sonadia using the data collected during the earlier period, but for the other two areas it was established on the basis of the two surveys conducted in 1991.

Surveys were carried out, in Mohipur and Dubla in January and March 1991 and in Sonadia in January 1991, to estimate the catch, effort, size composition and species composition.

The monthly catch rate (kg/haul) in Sonadia was estimated by averaging the corresponding monthly catches and effort samples for 1983-1986.

19. *FISHING GROUNDS AND SEASON*

The MSBN is operated in a depth range of 10 - 30m in areas where the salinity is 20-30 $^{o}/_{oo}$.

The fishing season is during the winter months, when there is no freshwater run-off. The fishery is suspended during the summer months, mainly because fishermen find it difficult to operate the gear under monsoon weather conditions.

MSBN fishing usually starts after the Southwest Monsoon and continues until the end of the Northeast Monsoon:

— In **Sonadia,** operations start around mid-September and continue up to February;

— In **Mohipur,** fishing starts in October and continues up to mid-March; and

— In **Dubla,** fishing is from October till the end of January.

20. *FISHING GEAR AND CRAFT*

20.1 *The gear*

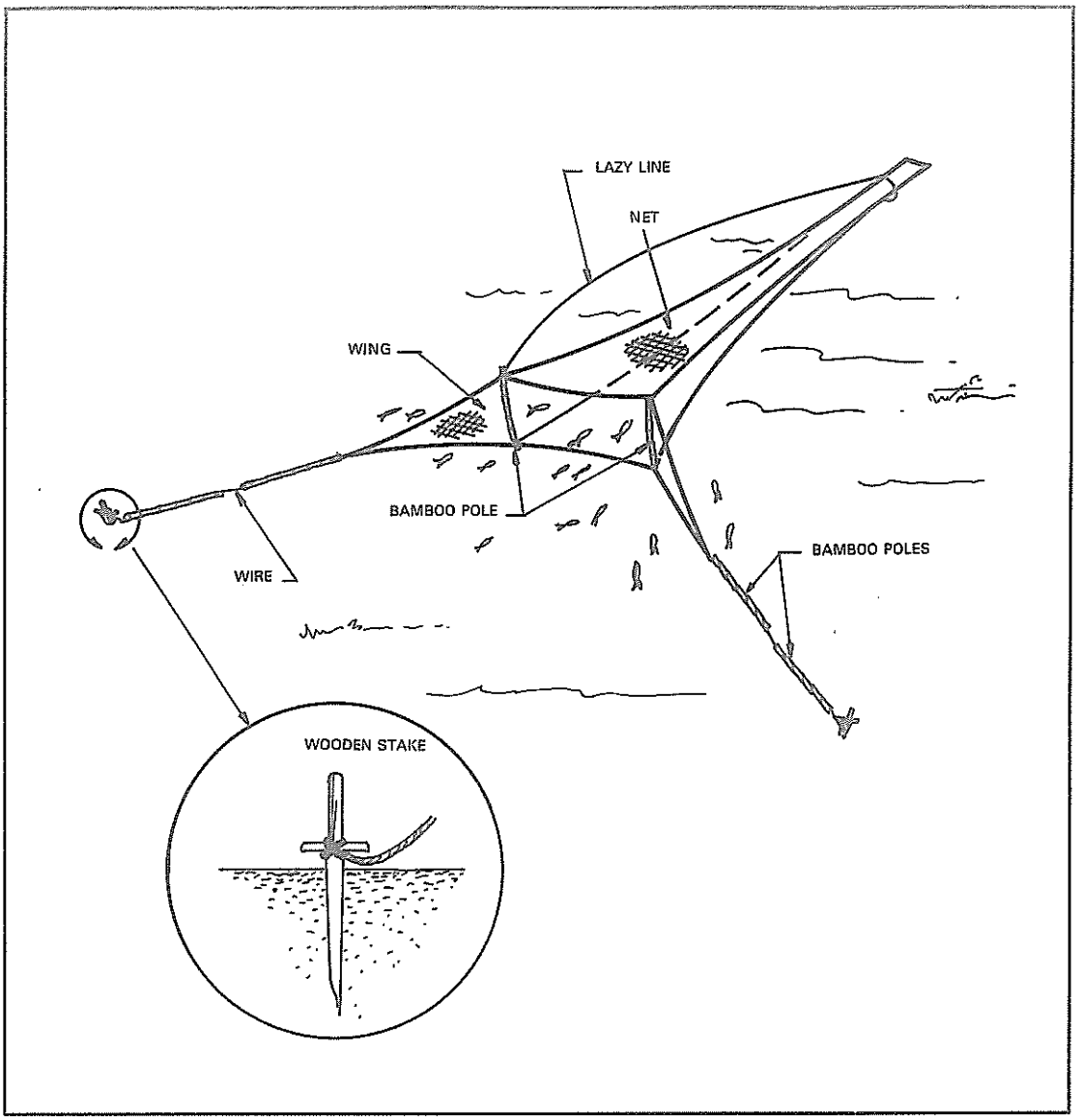
According to a pilot survey of the SBN fisheries of Bangladesh (Kashem and Iqbal, 1985), the number of MSBN in Sonadia was 549, in Mohipur 289 and in Dubla 2248, totaling 3086. According to the fisheries statistics of Bangladesh (DOF 1987/88), the total number of seasonal SBN, *i.e.* MSBN, was 5400. According to the pilot survey of this study in 1991, the total number of MSBN was estimated at 3852 (Table 22) — 65 per cent of them in Dubla, 24 per cent in Mohipur and only 11 per cent in Sonadia.

Table 22: Number and particulars of marine set bagnets used in different areas

Fishing area	*Gear class code*	*No. of gear*	*Width of opening (m)*	*Length of wings (m)*	*Length of net (m)*	*Depth of mouth opening (m)*	*Cod end mesh (mm)*	*Original cost (Tk)*
Sonadia	Glc	415	11 - 15	10 - 16	18.5-35	5 - 8	12-25	25,000-35,000
	Gld	7	15.5 - 20	15.5 - 20	35-40	7 - 8	15-25	30,000-38,000
Mohipur	Glc	930	10.2 - 12.8	10.2 - 11.4	18.3-25	3.2 - 4.6	12	9000-30,000
Dubla	Glc	2125	10 - 15	9 - 16	22-36	3.7 - 6.9	12-18	12,000-30,000
	Gld	375	15 - 23	15.5 - 23	34-36	6 - 6.9	15-18	30,000-35,000
TOTAL		**3852**						

The length of a MSBN varies from 18 to 40m. Its structure and shape and method of operation are similar to that of the estuarine set bagnet. The width of the mouth is given as the distance between poles, assuming that the distance between the poles is proportional to the area of the mouth and, consequently, the volume of water filtered by the gear. A diagram of the set bagnet operated in the marine sector is shown in Figure 24 (facing page).

Fig 24. Traditional set bagnet



The classification of the set bagnets in Bangladesh, as established during the estuarine set bagnet study (Shafiqul *et al.* 1992), is as follows:

Gear class code	*Distance between poles (m)*	*Mouth opening area (m^2)*
G1b*	<6	<15
G1b*	6-10	
18-50		
G1c**	10-15	50-90
G1d**	>15	>90

* (Estuarine, year round)
** (Estuarine and marine, seasonally)

G1c were dominant in all three areas, G1d were totally absent in Mohipur and G1d were less than 2 per cent of MSBN in operation in Sonadia.

20.2 *The craft*

Both motorized and nonmotorized craft are used in the MSBN fishery. The motorized craft are used both for fishing and as carrier boats. Details of different sizes and types of craft used in different areas are given in Table 23.

Table 23: Particulars of craft used in marine set bagnet fisheries in different areas

Area	*Type of craft*	*Length (m)*	*Engine power (hp)*	*Crew/ craft (no)*	*Gear/ craft (no)*	*Avg. life (yrs.)*	*Original cost (Tk x 1000)*
Sonadia	Motorized boat	>12	15-22	08-12	5-8	8-10	300-500
	Motorized countrycraft	>12	15-22	08-10	5-7	8-10	300-400
	SBN craft (nonmotorized)	8-12	-	06-08	3-4	5-6	050-060
Mohipur	Motorized boat	>12	15-22	07-10	5-10	8-10	350-500
	Motorized Countrycraft	>12	15-22	05-08	5-8	8-10	300-400
	SBN craft (nonmotorized)	8-12	-	02-03	2-3	6-8	011-025
Dubla	Motorized boat	>12	15-22	16-20	4-13	8-10	400-550
	Motorized countrycraft	>12	15-22	10-15	4-8	8-10	400-500
	SBN craft (nonmotorized)	8-12	-	06-08	3-8	5-7	040-055

Motorized countrycraft and other motorized boats have engines of 15-22 hp in all three areas. In Sonadia, nonmotorized countrycraft stay in the fishing grounds as long as the nets are in operation, subject to weather conditions, but the motorized craft are mainly used as carrier boats.

In Sonadia, 6-8 units of gear are operated by one motorized boat/countrycraft, while 3 or 4 units of the gear are operated by one nonmotorized boat. In Mohipur, 5-10 units and in Dubla, 4-13 units are operated by a motorized boat/countrycraft. On the other hand, a nonmotorized countrycraft operates 2 or 3 gear in Mohipur and 3-8 in Dubla (Table 23).

The MSBN craft categories are similar in all three areas. However, their costs vary with area, mainly due to differences in availability and quality of the timber used and also due to the purchase of secondhand engines for the motorized craft.

21. *RESULTS*

21.1 *Species composition*

There were 39 species/species groups identified in the MSBN catches, of which five were marine shrimp (penaeids), two freshwater prawn (palaemonids), one sergestid shrimp, one other non-penaeid shrimp (solinoceran) and thirty finfish.

A comparison of the major species/groups in the three areas during January 1991 is given in Table 24 (facing page). The largest share of shrimp/prawn in the catches was recorded in Mohipur (17.8 per cent), followed by Dubla (11.1 per cent). The share of Rainbow Shrimp (*Parapenaeopsis sculptilis*) was approximately half in both areas. Other major species of shrimp/prawn included a sergestid shrimp (*Acetes spp.*) in Mohipur, Yellow Shrimp (*M. brevicornis*) in Mohipur and Dubla, Kiddi Shrimp (*P. stylifera*) in Sonadia and a freshwater prawn (*Macrobrachium rudis*) in Dubla.

The finfish catches were dominated by the same three or four species in all areas, but their relative proportions varied between areas. In Sonadia, the Ribbonfish (*Lepturacanthus savala*) was dominant, followed by the Silver Pomfret (*Pampus argenteus*), Bombay Duck (*Harpodon nehereus*) and

Anchovy (*Setipinna phasa*). Anchovy was the dominant group in Mohipur, followed by Bombay Duck and Ribbonfish. Dubla had Bombay Duck as the predominant species, followed by Ribbonfish and Anchovy. The detailed species composition of all the species is given in Appendix III.

Data available from the BOBP-supported coastal set bagnet fishing trials and investigations (Akerman, 1986) on the monthly variation in the catch rate and percentage composition of main species in MSBN catches in Sonadia are presented in Table 25.

The share of shrimp/prawn in the MSBN catch in Sonadia decreased from November to February. The share of caridean prawn in the catches also dropped from November to February, while the penaeid shrimp (Yellow Shrimp and Rainbow Shrimp) were dominant in February. Among finfish catches, the share of Anchovy and Ribbonfish decreased from November to February, while that of Croaker increased. Bombay Duck contributed to over 50 per cent of the catch in December and January. A comparison of the species composition of MSBN catches in Sonadia between between January 1991 (Table 24) and January 1986 (Table 25) shows a reduced contribution of Anchovy and Bombay Duck and an increased contribution of Ribbonfish and Silver Pomfret in recent catches.

21.2 *Catch rate*

The mean catch rate (kg/haul) estimated for different months in the different areas, the average number of hauls per day, the average number of MSBN gear operating per day and the

Table 24: Major species/groups in the MSBN catches in the three areas during January 1991 (percentage by weight)

	Species/Group	*Sonadia*	*Mohipur*	*Dubla*
a)	**Shrimp/Prawn**			
	Rainbow Shrimp	0.2	8.6	5.9
	Sergestid shrimp	—	4.3	—
	Yellow Shrimp	—	2.9	2.1
	Kiddi Shrimp	2.6	—	—
	Freshwater prawn	—	0.7	—
	M. rudis		*1.1*	*3.1*
	Others	2.0	0.2	
	Subtotal	**4.8**	**17.8**	**11.1**
b)	**Finfish**			
	Anchovy	4.1	28.6	9.1
	Bombay Duck	5.4	25.4	52.3
	Ribbonfish	55.5	5.4	21.0
	Silver Pomfret	7.2		
	Others	23.0	22.8	6.5
	Subtotal	**95.2**	**82.2**	**88.9**

Table 25: Species composition and CPUE (kg/haul) of MSBN at Sonadia during 1985/86

	Month							
	Nov. '85		*Dec. '85*		*Jan. '86*		*Feb. '86*	
Species	*kg/ haul*	*%*	*kg/ haul*	*%*	*kg/ haul*	*%*	*kg/ haul*	*%*
A. Shrimp								
Metapenaeus brevicornis	1.6	1.9	1.2	1.8	0.2	0.5	3.9	8.1
Parapenaeopsis sculptilis	0.1	0.1	0	-	0.2	0.4	1.6	3.3
Other penaeids	-	-	-	-	-	-	0.8	1.7
Subtotal	**1.7**	**2**	**1.2**	**1.8**	**0.4**	**0.9**	**6.3**	**13.1**
Palaemon styliferus	13.8	16.3	2	3.1	0.8	1.8	-	-
Other carideans	10.3	12.2	1.4	2.1	0.6	1.4	-	-
Acetes spp.	0.7	0.8	-	-	-	-	-	-
Subtotal	**24.8**	**29,3**	**3.4**	**5.2**	**1.4**	**3.2**	**-**	**-**
B. Finfish								
Arius spp.	-	-	-	-	0.7	1.6	-	-
Setipinna phasa	36.9	43.7	18.6	28.7	12.4	28.2	4.7	9.7
S. taty	0.2	0.2	-	-	-	-	-	-
Coilia dussumieri	2.7	3.2	0.8	1.2	0	-	2.7	5.6
Thryssa spp.	0.2	0.2	-	-	-	-	-	-
Subtotal	**40.0**	**47.3**	**19.4**	**29.9**	**13.1**	**29.8**	**7.4**	**15.3**
Harpodon nehereus	1.4	1.7	32.5	50.1	22.6	51.5	7.4	15.3
Polynemus spp.	-	-	-	-	0.6	1.4	-	-
Croakers	2.0	2.4	2.8	4.3	4.5	10.3	18.9	39.1
Pampus argenteus	2.0	2.4	-	-	0.1	0.2	-	-
Lepturacanthus savala	10.8	12.8	5.6	8.6	0.3	0.7	1.2	2.5
Others	1.8	2.1	0.4	0.1	0.9	2.0	7.1	14.7
TOTAL	**84.5**	**100.0**	**64.9**	**100.0**	**43.9**	**100.0**	**48.3**	**100.0**

number of active fishing days during each month are given in Table 26. There was no significant difference between the catch rates of MSBN categories G1c and G1d.

Table 26: Catch rate (kg/haul) and total production by marine set bagnets in different areas

Area	*Period*	*Catch rate (kg/haul)*	*Hauls (no/day)*	*Gear in operation (no/day)*	*Fishing effort (days/ month)*	*Monthly production (t)*	*Fishing season (months/ year)*	*Seasonal production (t)*	*Areawise production (t/year)*	*Total MSBN production (t/year)*
Sonadia	Sept.	107.94	4	320	9	1,243				
	Oct.	67.07	4	355	18	1,714				
	Nov.	84.59	4	380	22	2,829				
	Dec.	64.90	4	370	22	2,113				
	Jan	47.93	4	362	20	1,272				
	Feb.	48.37	4	325	9	565	5	9,736	9,736	
Mohipur	Mid-Oct. to mid Jan. (peak)	11.90	4	777	22	814	3	2,442		
	Mid Jan to mid March (lean)	7.80	4	650	18	365	2	730	3,172	
Dubla	Dec. (peak)	47.50	4	2125	22	8,883	1	8,883		
	Jan. to Feb (lean)	16.00	4	1875	18	2,160	2	4,320	13,203	
TOTAL										**26,111**

In Sonadia, where the available monthly catch rates for 1985/86 — have been utilized in the present study, the catch rate peaked in September and declined steadily towards February. In the other two areas, catch rates were not available on a monthly basis, but two mean catch rates were estimated for lean and peak seasons in both areas. For most months, the monthly mean catch rates obtained for Sonadia were very much higher than those obtained for the lean and peak seasons in Mohipur and Dubla.

Notable seasonal variations in the catch rate of major species/groups in Sonadia included decreased catch rates of Caridean Shrimp, Anchovy, Silver Pomfret and Ribbonfish from November to February and increased catch rates of Rainbow Shrimp, Yellow Shrimp and Croakers over the same period. Bombay Duck showed a peak catch rate in December which declined towards February.

21.3 *Production*

The estimated annual production was 9736 t for Sonadia, 3172 t for Mohipur and 13,203 t for Dubla. Peak production was from October to December, October to January and in December for the three areas respectively. Total production for MSBN was estimated to be 26,111 t (Table 26) and production by area is shown in Figure 25.

21.4 *Size ranges of major species*

The size ranges of major penaeid shrimps and finfish caught in the MSBN fishery, based on information collected in 1983-1986, 1987 and 1991 are presented in Figure 26.

The penaeid shrimps were mostly 3-17 cm in length, except for the Tiger Shrimp (*P.monodon*) and Banana Shrimp (*P.merguiensis*), which occurred at size ranges of 12-23 cm and 8-19 cm, with predominant sizes 19-20 cm and 15-16 cm respectively. Length range of Brown or Speckled Shrimp (*Metapenaeus monoceros*) was 6-13 cm, with predominant size 9-13 cm.

Size ranges of finfish were 2-43 cm, except Ribbonfish which occurred in the size range of 14-103 cm (predominant sizes being 20-32 cm and 60-68 cm). The size ranges of Bombay Duck, Silver Pomfret and Croaker were 4-32 cm, 9-35 cm and 2-33 cm respectively, with the predominant sizes 8-14 and 22 cm, 22-24 cm and 5-10 cm.

Fig 25. Total number of hauls per year, the annual production and the gross value of the production of the marine set bagnet fishery (1991, Sonadia 1983-'86, '87, '91)

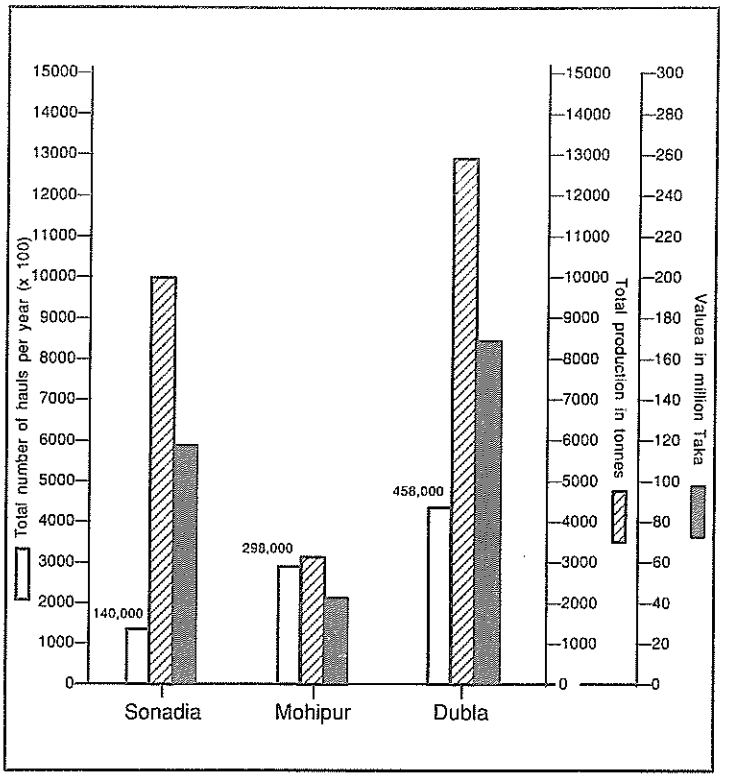
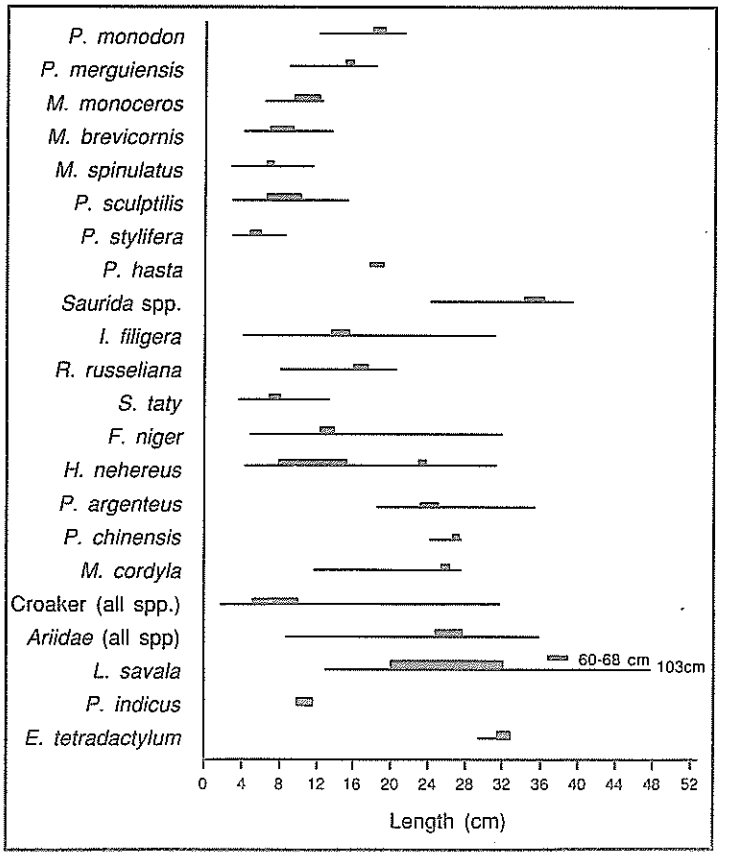


Fig 26. Total length range and predominant length range of major shrimp and finfish in marine set bagnet catches from Sonadia (1983-'86, '87, '91), Mohipur (1991) and Dubla (1991)



22. *ECONOMICS OF THE FISHERY*

22.1 *Prices of shrimp and fish*

Price of Indian White Shrimp *(P. indicus)* was higher in Sonadia than in the other two areas, while Brown Shrimp fetched higher prices in Mohipur. Price of dried fish is not much different in the three areas (Figure 27). Silver Pomfret fetched the highest price in all three **areas.**

Seasonal differences in the value of shrimp and finfish in Sonadia are shown in Table 27.

Flg 27. Price (Tk/kg) of wet shrimp and dry fish from the marine set bagnet fishery in different areas (1991)

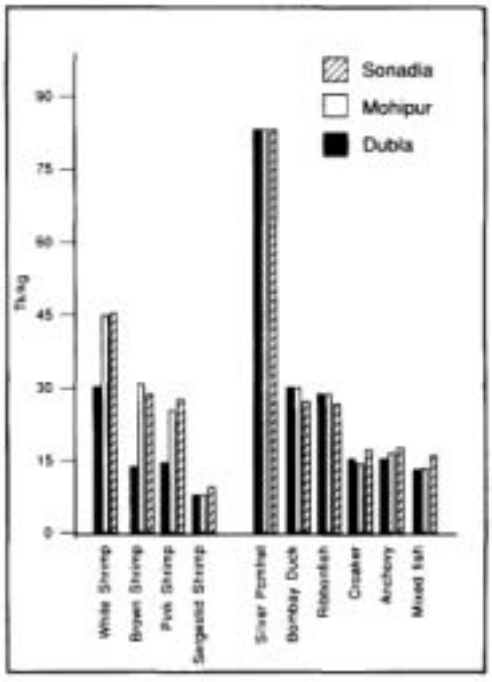


Table 27: Value of dried fish/shrimp and gross earnings at Sonadia (Tk/haul)

		Sep.		*Oct.*		*Nov.*		*Dec.*		*Jan.*		*Feb.*	
Name of spp group	*Price (Tk/kg)*	*Weight* (kg/haul)*	*Value (Tk/haul)*	Weight* (kg/haul)	Value. (Tk/haul)	Weight* (kg/haul)	Value (Tk/haul)	Weight* (kg/haul)	Value (Tk/haul)	Weight* (kg/haul)	Value (Tk/haul)	Weight* (kg/haul)	Value (Tk/haul)
Pomfret	85	—	—	0.95	80.75	1.20	102.00	—	—	0.05	4.25	—	—
Ribbonfjsh	22	1.59	34.98	5.11	112.42	6.47	142.34	3.35	73.70	0.21	4.62	0.71	15.6
Bombay Duck	25	9.97	249.25	0.70	17.50	0.88	22.00	19.48	487.00	13.57	339.25	4.47	111.75
Anchovy	15	9.97	149.55	19.06	285.90	24.01	360.15	11.63	174.45	7.45	111.75	4.47	67.05
Croaker	IS	25.39	380.85	0.91	13.65	1.15	17.25	1.66	24.90	2.72	40.80	11.38	170.70
Mixed shrimp	25	8.39	209.75	12.30	307,50	15.50	387.50	2.81	70,25	1.08	27.00	3.76	94,00
Misc.	7	9.45	66.15	1.18	8.26	1,49	10,43	0.02	0.14	1.28	8.96	4.23	29.61
Total		64.76	1090.53	40.21	825.98	50.70	1041.67	38.95	830.44	26.36	536.63	29.02	488.73
Hauls/day			4		4		4		4		4		4
Fishing days/ month			9		18		22		22		20		9
Gross earning/ month/net			39,259.08		59,470.56		91,666.96		73,078.72		42,930.40		17,594.28

* **Dried** weight *i.e.* 60 per cent of wet weight.
* **All shrimp** prices **at dried** shrimp **rates.**

22.2 *Costs and earnings*

An owner of a MSBN and supporting craft is locally known as a *hahardar*. He organizes the fishing units and may use his own craft and gear or, sometimes, hires craft and other equipment for the fishing season. At Sonadia, remuneration is based on a share system, but in Mohipur and Dubla

<<

both share and wage systems were observed. One, or a combination, of the two systems is applicable in all three areas. In the share system, the net income is divided into 74 shares and distributed as follows:

A. ***Bahardar's* shares**

Boat (I motorized)	2	shares
Set bagnets (15 units)	30	shares (2 shares per net)
Personal share as shore manager		
Subtotal	33	

B. Crew shares

Majhi (1 no.)	1.5	shares
Majhi (2 nos. for rented boat)	3.0	
Engine driver (2 nos.)	2.5	(1.25 share per driver)
General crew (28 nos.)	28.0	**(I** share each)
Shore labour (6 nos.)	6.0	**(I** share each)
Subtotal	**41.0**	
Total	74	

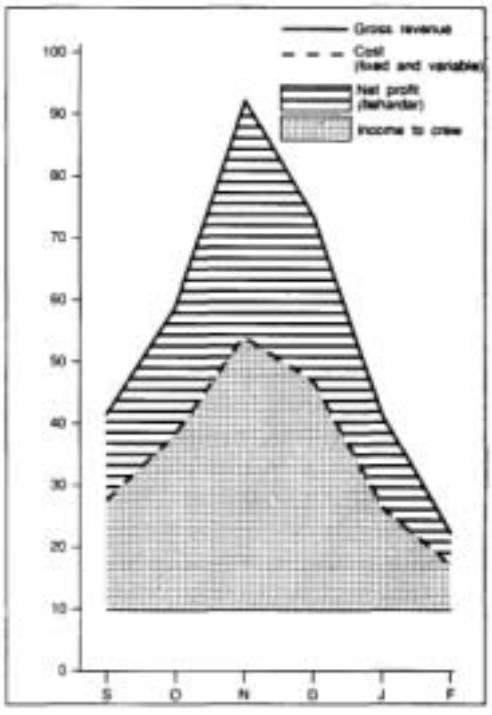
The *bahardar* generally bears all expenses and these expenses are deducted from the gross revenue before the net revenue is shared. A typical operating unit comprises of two motorized craft (one generally rented) and one rented nonmotorized craft. These are used to operate 15 set bagnets. Table 28 (next page) and Figure 28 give details of the gross revenue, and costs. The operational cost includes hire of two craft, craft and gear repair, fuel, food, firewood, utensils, bamboo mats, drying racks, jute piling etc.

The costs, expenditure, profit and crew share for **the entire fishing season** for one net were as **follows:**

		1k
Gross revenue	=	323,999
Total costs	=	61,956
Net revenue	=	262,043
Income to owner (33 shares)	=	116,856
Income from one net to all crew (41 shares)	=	145,186
Income per crew member for keeping 15 units of gear (145,186 x 15) / 41	=	53,117

In Sonadia, the resulting average net income per crew member per month was 1k 8934, with the highest in November (Tk 16,488) and the lowest in February (Tk 1473). Earnings increased until November and then decreased to February.

Fig **28. Costs and earnings analysis and** net Income of *behardar* **and**



<<

Table 28: Capital and operational **cost of marine set bagnet unit at Sonadia (share system)**

I. INVESTMENT COST

		Tk
1.	One motorized fish carrier boat	400.000
2.	15 set bagnets (Each Tk.30.000)	450.000
	Total	850,000

Depreciation	*Yearly (6 month* fishing)	*Monthly* (15 *net)*	*Monthly per net*
* Craft (10 years)	20,000*	3,333	222
Gear (5 years)	90.000	15,000	1.000
Operating cost	819,400	136,567	9,104
Total		154,900	10,326

Outs 50% of depreciation accounted for the fishery and the balance 50% attributed to other fisheries conducted during the remaining 6 months.

11. OPERATIONAL COST (including fish drying and shade-making materials)

		Taka
1.	Piling	6.800
2.	Bamboo	35,240
3.	Jute	18,000
4.	Miscellaneous rope.nut,bolt.wire etc	170.610
5.	Utensils	8.750
6.	Food items (including fire wood)	67.777
7.	Diesel. Lub. oil	150,123
8.	Mat	16,800
9.	Boat and net repair	225.900
10	Boat hire charge two boats)	110.000
		819.400

The craft **is** used in other months as a carrier boat. on a rent basis.

It was noted during the survey period that the shrimp catch, especially of exportable varieties was very low, and, hence, the price of shrimp was included under dried shrimp (Table 27). Normally, all the fish are sold after drying. When the fishing season ends, the drying racks, platforms and materials used in the fabrication of temporary shelter were auctioned by the *hahardar*. as these materials had been paid for by him.

As in the estimation of production from the catch per haul, for each area, the average value of a haul was raised for each area and for the season. The estimated total value of the annual production by marine set hagnets was. Tk 117.578,657. TK 35,686.378 and TK 168.353.011 in Sonadia. Mohipur and Dubla respectively (refer Figure 25).

23. *CONCLUSIONS*

The present study indicates that the marine set hagnet fishery contributes about 26.000 t of fish and shrimp. This is higher than the estimate of 17,000 t reported in the statistics of the Department of Fisheries, A total of 3852 units of gear are operated as approximately 250 operational units (each with 15 units of gear). considering that a minimum of 40 people are engaged in each MSBN operational unit — for fishing, processing and marketing of the catch approximately 10,000 people arc estimated to he directly engaged in these activities in the MSBN fishery.

<<

24. *REFERENCES*

AKERMAN. S.F. 1986, The Coastal Set Bagnet Fishery of Bangladesh Fishing Trials and Investigations BOBP/REP/34. FAO. Rome. 25pp.

BOBP AND DEPARTMENT OF FISHERIES. 1991 Estuarine Set Bagnet Fisheries of Bangladesh

DEPARTMENT OF FISHERIES. 1987-88. Fish Catch Statistics of Bangladesh 36pp

ISLAM MS.. BHUIYAN. S.M.I. and SIVASUBRAMANIAM K. 1967. A Preliminary Survey of the Set Bagnet Fishery and Its Interaction with Other Marine Fisheries of Bangladesh. Chittagong Mimeo. 18pp

and BHUIYAN..S.M.I. 988. No Easy Solutions for Set Bagnet Fisherfolk. Bay of Bengal News. March. t988. 4 pp.

KASHEM A.. and IQBAL, A. 1985. Pilot Survey of Set Bagnet Fisheries of Bangladesh BOBP WP/34.FAO. Rome. 26pp.

APPENDIX III

Species **composition of MSBN catches in three areas, during the month of January,** 1991 **(by weight)**

	Species/species group	Sonadia	Mohipur	Dubla
SHRIMP/PRAWN				
I.	*Penaeus indicus*	-	0.1	-
2.	*Metapenaeus brevicornis* (Yellow Shrimp)	-	2.9	2.1
3.	*M. spinulatus*	1.5	0.1	-
4.	*Parapenaeopsis sculptilis* (Rainbow Shrimp)	0.2	8.6	5.9
5.	*P. stylifero* (Kiddi Shrimp)	2.6	-	-
6.	*Macrobrachium rudis* (Freshwater Prawn)	-	0.7	3.1
7.	*Palaemon* spp.	-	1.1	
8.	*Acetes* spp. (Sergestid Shrimp)	-	4.3	
9.	*Solenocera* spp.	0.4		
	Subtotal	4.8	17.8	11.1
FINFISH				
I.	*Arius* spp.	2.5		
2.	*Hilsa ilisha*	0.1		
3.	*Ilisha filigera*	4.1		
4.	*Chirocentrus dorab*	0.1		
5.	*Raconda russeliana*	-	3.5	2.4
6.	*Coilia dussumieri*	2.4	2.5	
7.	*Setipinna phosa* (Anchovy)	4.1	28.6	9.1
8.	*S. taty*	0.1	1.4	
9.	*Stolephorus in*	-	2.8	-
10.	*Cynoglossus* sp.	0.4	0.7	
11.	*Formio niger*	0.0	-	
12.	*Harpadon nehereus* (Bombay Duck)	5.4	25.4	52.3
13.	*Kirtus indicus*	0.3		
14.	*Leiognaihus* spp.	1.5	2.8	1.1
15.	*Megalaspis cordyla*	1.5		
16.	*Polynemus paradiseus*	-	0.7	
17	*P. sextarius*	-	0.2	
18	*Polynemus* spp.	-	0.0	
19.	*Pomadasvs hasta*	0.4	0.2	
20.	*Pampus argenleus* (Silver Pomfret)	1.2		
21.	*Croaker*	3.2	1.3	0.8
22.	*Muraenesox talabonoides*	3.2	-	
23.	*Lepturacanthus sarala* (Ribbonfish)	55.5	5.4	21.0
24.	*Tnichiurus lepiurus*	0.4	-	-
25.	Crab	1.0	4.0	1.0
26.	Squilla	0.0		
27.	Sepia	0.6	-	
28.	Loligo	0.4	-	
29.	Jellyfish	0.6	-	
30.	Others	0.2	2.7	1.2
	Subtotal	95.2	82.2	88.9
	TOTAL	100	100	100

<<