

Fig. 1 Schematic map of the upper Bay of Bengal region.

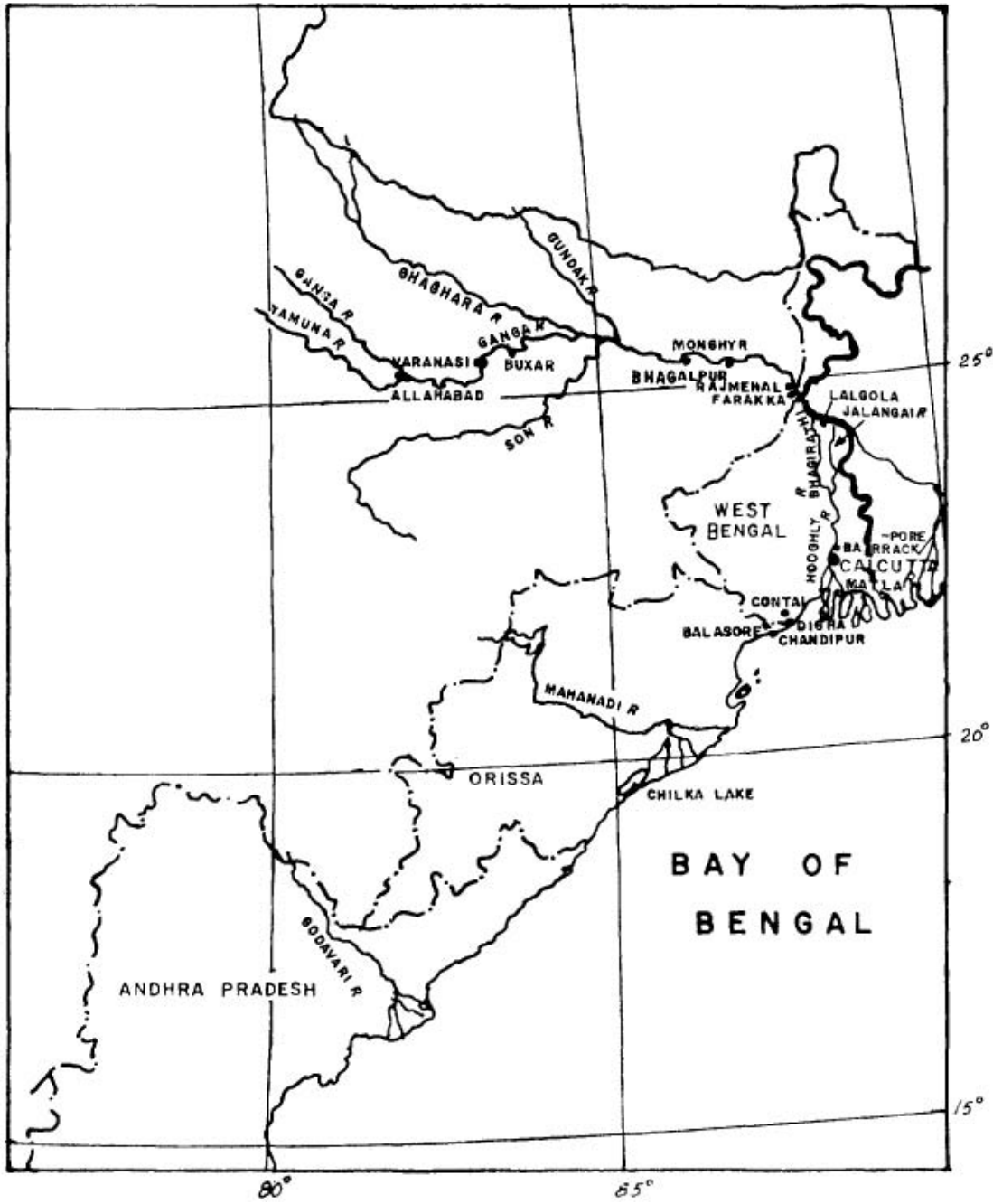


Fig. 2 Schematic map showing the Indian region considered in the study.

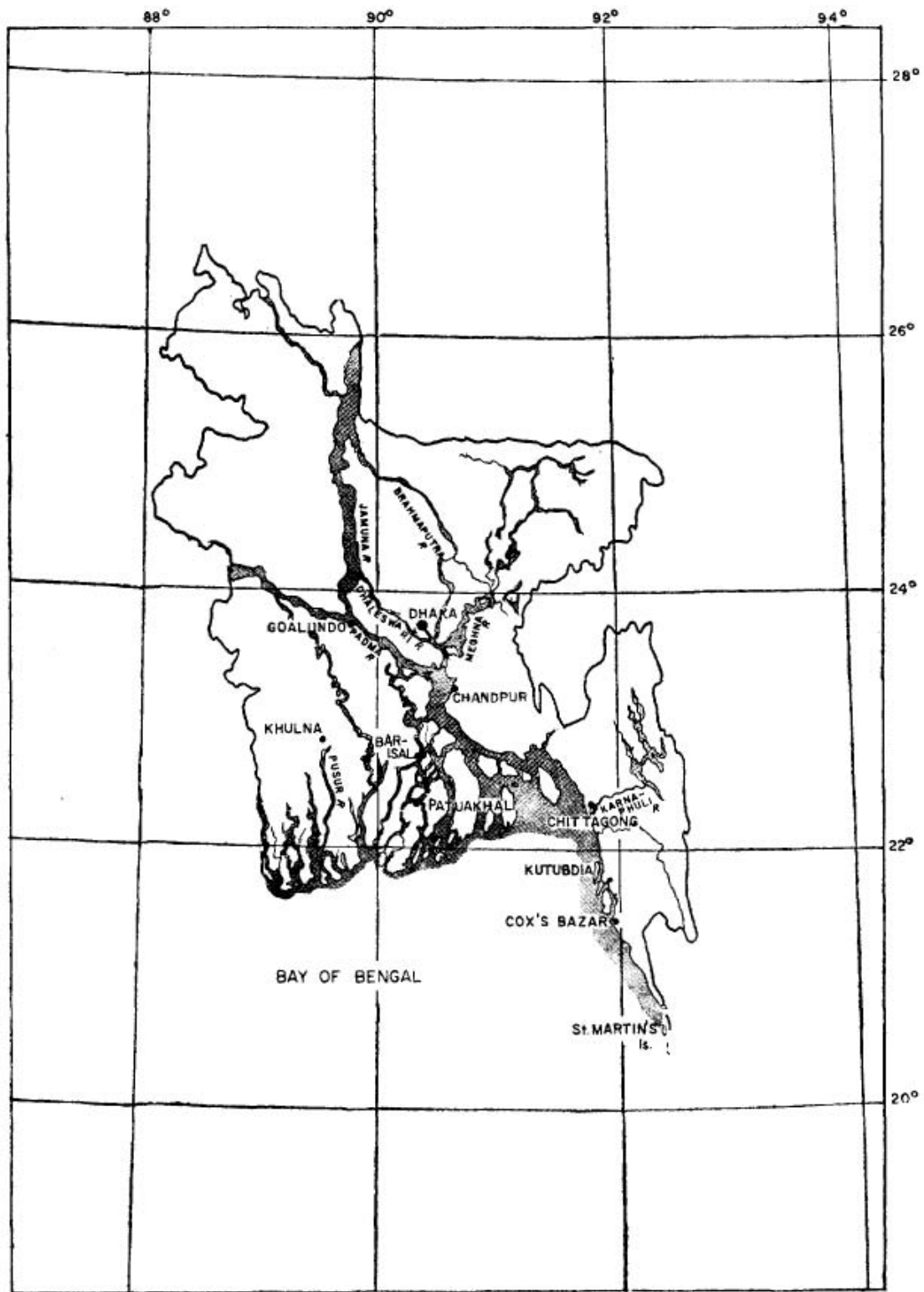


Fig. 3 Schematic map of Bangladesh coast.

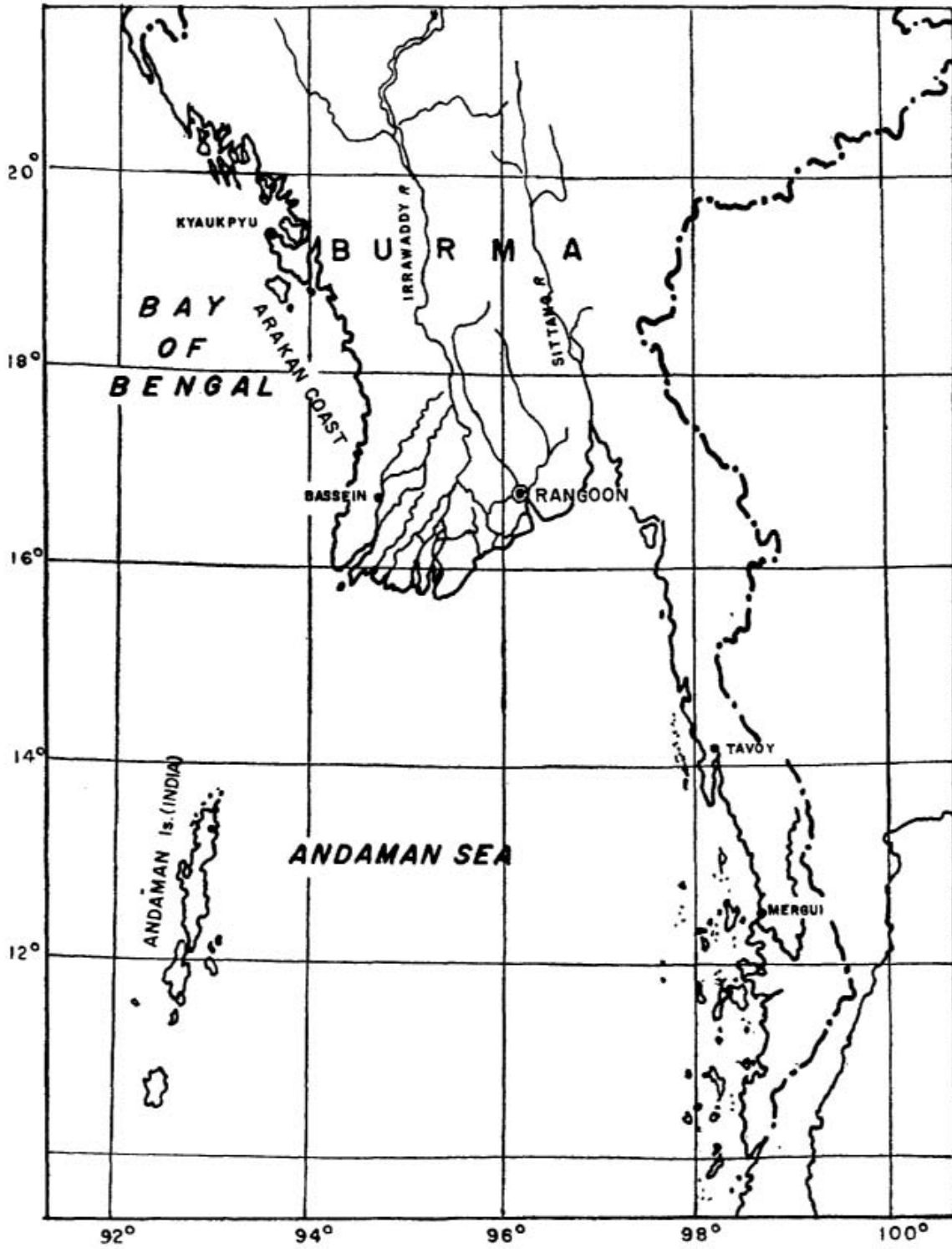


Fig. 4 Schematic map of Burmese coast.

**Table I**  
**Fecundity estimates in Hilsa**

Author	Place	Size range of fish (in cm)	Fecundity range (In million)
<i>India</i>			
Pillay, 1958a	Hooghly	25.3-48.1	0.25- 1.60
Swarup, 1961	Ganga/Jamuna	31 .0 - 43.6	0.20 - 1.20
Pillay & Rao 1963	Godavari	40.1 - 54.8	0.40- 1.30
Mathur, 1964	Ganga (Allahabad/ Varanasi)	31 .5 - 50.6	0.30 - 1 .80
Ramakrishnaiah, 1972	Chilka lake	35.3 - 51 .5	0.39 - 1.12
De, 1980	Hooghly	34.3 - 45.0	0.37 - 1.32
<i>Bangladesh</i>			
Quereshi, 1968	Padma/Meghna	27.5-48.3	0.09 -2.00
Doha & Hye, 1970	Padma	27.3 - 42.0	0.35 - 1.50
		(Fork length)	
Shafi, Quddus & Islam, 1977	Meghna	38.0- 52.0	0.38- 1.82
Quddus, 1982	Padma/Meghna	(i) 33.0 - 51.0*	0.60- 1.50
		(ii) 32.0 - 49.0**	0.40 - 0.67

\*Monsoon spawners, broad-bodied form

\*\*Wjnter spawners, slender-bodied form

**Table II**

**A. Hilsa landings (tonnes) in West Bengal and Orissa**

Year	West Bengal	Orissa	Total
1974	—	—	3513
1975	—	—	5254
1976	799	5477	6276
1977	96	2948	3044
1978	193	7737	7930
1979	660	9969	10629
1980	644	5091	5735
1981	2672	2085	4757
Average	894	5551	5892

Source: Trends in Marine Fish Production in India—i981

Mar. Fish. Infor. Serv. T & E Ser., No. 41, 1982.

**B. Records of hilsa catch (tonnes) in Orissa, India**

Year	Catch
1972-1 973	198.0
1973-1974	1014.7
1974-1975	635.4
1975-1976	1619.1
1976-1977	720.0
1977-1 978	134.4
1978-1979	1472.0
1979-1980	1088.0
1980-1981	1474.5
1981-1982	571.0
1982-1983	3560.0
Average	1135.2

Source: Directorate of Fisheries, Cuttack, Orissa.

**Table III****Hilsa catch (tonnes) in Hooghly-Matlah Estuarine System**

Year	Catch	Year	Catch
1952	3371	1967-1968	1337
1953	3490	1968-1969	678
1954	7454	1969-1970	1753
1955	9170	1970-1971	1731
1958-1959	241	1971-1972	6573
1959-1960	139	1972-1973	1219
1960-1961	631	1973-1974	2059
1961 -1962	1058	1974-1975	2080
1962-1963	1504	1975-1976	2359
1963-1964	1413	1976-1977	1200
1964-1965	1476	1977-1978	2000
1965-1966	888	—	—
1966-1967	799	1981	over 6000

Source: 1952 to 1955

1958-1959 to 1961 -1962

1964-1965 to 1975-1976

1976-1977 to 1977-1978

& 1981

Pillay, 1957a; converted from lbs.

Gopalakrishnan, 1969.

Jhingran, 1982.

Rough estimation on the basis of

Anon., 1982a.

**Table IV****Hilsa catch (tonnes) at Allahabad in rivers Jamuna and Ganga**

Year	Jamuna	Ganga
1955	120.9	160
1956	283.5	190
1957	94.3	200
1958	6.9	40
1959	14.6	30
1960	15.6	120
1961	21.1	60
1962	18.1	150
Average	71.9	119

Source: Ghosh, 1967. The data for Ganga is approximate, as taken from author's text—  
Fig. 1.

**Table V**

**Catch records of Hilsa (tonnes) in the Chilka lake**

Year	Catch	Year	Catch
1957	160.2	1971-1972	130.7
1958	267.4	1972-1973	153.7
1959	116.2	1973-1974	201.5
1960	100.6	1974-1975	102.9
1961	64.7	1975-1976	177.3
1962	172.3	1976-1977	162.1
1963	292.7	1977-1978	162.9
1964	65.3	1978-1979	159.7
1965	33.6	1979-1980	129.2
		1980-1981	141.9
		1981-1982	252.8
		1982-1983	203.0
Average	141.4	Average	164.8

Source: Jhingran and Natarajan, 1969

Source: Directorate of Fisheries Cuttack, Orissa

**Table VI**

**Hilsa catch (tonnes) in Bangladesh**                      **Quantity of Hilsa exported to India from former East Pakistan (tonnes)**

Season	Catch	Season	Catch
1956-1957	137,583	1948-1949	2,661
1957-1958	134,290	1949-1950	2,785
1958-1959	147,065	1950-1951	1,491
1959-1960	124,951	1951-1952	3,822
1960-1961	95,255		
1961-1962	96,886		

Source: Ahsanullah, 1964

Source: Ahmed, 1954

**Table VII**

**Hilsa catch (July-June) at Cox's Bazar (tonnes) from mechanized boats**

Season	Catch	Season	Catch
1967-1968	59.54	1975-1976	933.15
1968-1969	98.64	1976-1977	498.61
1969-1970	145.68	1977-1978	725.81
1970-1971	179.63	1978-1979	835.83
1971-1972	180.92	1979-1980	1434.63
		1980-1981	992.38
		1981-1982	1139.06
		1982-1983	1058.40

Source: Mohiuddin *et al.*, 1980

Source: Freshwater Fisheries Research Station, Chandpur

**Table VIII**

**Hilsa landings (tonnes) at different centres in Bangladesh**

Year	Chandpur- ghat	Goalundo- ghat	Khulna	Barisal	Dhaka wholesale market	Narayanganj wholesale market	Chitta- gong	Total
1972	11729	921	2095	9216	—	—	100	24061
1973	13341	12014	3088	10482	—	—	231*	39156
1974	10474	2435	1920	8230	—	—	483	23542
1975	16008*	3568	3698	12667	—	—	1076	37017
1976	5077	2960	1814	4611	1772	700	1553	18487
1977	4568	2424	1409	3582	2517	995	2500	17995
1978	7393	3977*	1178	5120	4286	2118	4000	28072
1979	7424	3209	686	4486	3779	1834	5123	26541
1980	6269	3101	902	5710	6736	2952	5783	31453
1981	8632	4426*	1049	6844	14193	6177	7485	48806
1982	9631	5973	N.A.	N.A.	N.A.	N.A.	9369	NA.
1983	9951	4520	N.A.	N.A.	N.A.	N.A.	13052	N.A.

Source: Dunn (1982b); Melvin (1984).

- Note:
- (i) Landings at Barisal for the years 1972 to 1975 estimated on the basis of relation with Chandpurghat for the years 1976 to 1981.
  - (ii) Landings at Khulna for 1977 extrapolated on the basis of relation with Barisal for 1976.
  - (iii) Landings at Narayanganj for 1976 extrapolated on the basis of relation with Dhaka Wholesale Market for 1977.
  - (iv) Landings at Chittagong for 1977 and 1978 represent a rough estimation on the basis of an increasing trend.
  - (v) Data for 1982 and 1983 taken from Melvin (1984); those figures with asterisks (\*) were as corrected by Melvin on those given by Dunn—accordingly the figures under 'Total' have been revised.
- N.A.—Not available.

**Table IX**

**Hilsa landings (tonnes) in Rangoon fish market**

Year	Catch		
	Freshwater	Marine	Total
1966*	782.7	1860.6	2643.3
1967*	19.9	3272.8	3292.7
1968*	—	2753.9	2753.9
1968**	—	—	3378.0
1969**	—	—	4844.0

Source: \*FAO, 1970  
\*\*FAO, 1971



**Table X**

**Fishing effort (E) and catch per unit effort (CUE) (in kg) of Hilsa in the Godavari**

Sampling centre	April	May	June	July	August	October	September	November	December	January	February	March
	E. C.U.E.	E. C.U.E.	E. CUE.	E. C.U.E.	E. C.U.E.	E. CUE.	E. C.U.E.	E. C.U.E.	E. C.U.E.	E. C.U.E.	E. C.U.E.	E. C.U.E.
1958-59												
Dowlaiswaram						26 0.4585	13 0.1564					
Kotipalli	4 —	3 —	2 —	60.0189	43 0.1512	89 0.1342	83 0.0587	4 0.0520			30.0756	9 —
Bodaskurru	2 —		1 —	10 —	22 0.1460	34 0.1979	74 0.0579				4 —	3 —
Peechupalem	1 —			2 —	18 0.0577	13 0.1112	24 0.0463				2 —	2 —
1959-60												
Dowlaiswaram												
Kotipalli	2 —		17 —			54 0.2617	86 0.2347	13 —		26 0.0414	31 0.1366	8 0.1701
Bodaskurru	2 —			1 —		51 0.2916	66 0.1773	9 —		22 0.0344	24 0.0454	
Peechupalem					3 —	10 0.0707	37 0.1108	1 —		8 —	6 0.0907	
1960-61												
Dowlaiswaram				2 —	60 2.970	68 3.168	70 10.980	4 1.988				
Kotipalli				5 —	70 0.986	122 1.798	72 0.939					
Bodaskurru				10 —	43 0.411	67 0.665	16 0.696	46 1.419	37 1.169	8 0.071	9 1.414	13 1.060
Injaram	2 —	1		1 —	3 —	8 2.576	5 0.273			40 2.569		

Source: Pillay and Rao (1963)

**Table XI**

**Estimated yield in tonnes (*yi*), effort in thousands of man-hours (*gi*) and catch per man-hour in kg (*di*) for different types of gear used in capture of *H. ilisha* at Bobbarlanka and Dowlaiswaram, India, during 1963-67.**

Year	Month	Nylon drift gillnet			Stake net ( <i>Kattuvala</i> )			Rangoon net		
		<i>yi</i>	<i>gi</i>	<i>di</i>	<i>yi</i>	<i>gi</i>	<i>di</i>	<i>yi</i>	<i>gi</i>	<i>di</i>
1963:	July	1.3	15.8	0.08	—	—	—	0.6	10.7	0.05
	Aug	0.5	5.7	0.09	—	—	—	<b>0.2</b>	<b>4.2</b>	0.04
	Sep	5.0	37.8	0.15	—	—	—	3.4	34.4	0.10
	Oct	0.7	4.4	0.16	0.1	1.4	0.07	0.8	43.2	0.19
	Nov	—	—	—	—	—	—	0.1	0.8	0.12
	Total	7.5	63.7	0.11	0.1	1.4	0.07	5.1	54.3	0.09
1964:	July	2.4	38.6	0.06	—	—	—	—	—	—
	Aug	2.6	69.1	0.08	—	—	—	—	—	—
	Sep	23.4	133.6	0.17	—	—	—	0.2	0.8	0.25
	Oct	12.5	64.9	0.19	1.6	36.3	0.04	0.1	0.6	0.16
	Nov	—	—	—	0.7	2.5	0.28	—	—	—
	Total	43.9	306.2	0.14	2.3	38.8	0.05	0.3	1.4	0.21
1965:	July	0.9	5.1	0.17	—	—	—	—	—	—
	Aug	1.9	36.8	0.05	0.3	2.7	0.11	0.1	1.9	0.05
	Sep	30.2	92.2	0.33	5.1	3.5	1.45	1.7	3.4	0.50
	Oct	3.3	16.1	0.20	2.2	4.6	0.47	—	—	—
	Nov	—	—	—	—	—	—	—	—	—
	Total	36.8	150.2	0.24	7.6	10.8	0.70	1.8	5.3	0.33
1966:	July	1.4	9.1	0.15	—	—	—	—	—	—
	Aug	10.7	93.4	0.11	—	—	—	0.3	4.5	0.06
	Sep	2.5	49.7	0.05	0.9	11.5	0.08	—	—	—
	Oct	0.4	13.1	0.03	2.5	32.4	0.08	—	—	—
	Nov	—	—	—	0.1	13.4	0.01	—	—	—
	Total	15.0	165.3	0.09	3.5	57.3	0.06	0.3	4.5	0.06
1967:	July	0.6	14.2	0.04	—	—	—	—	—	—
	Aug	4.5	111.3	0.04	0.3	1.0	0.30	—	—	—
	Sep	3.6	72.2	0.05	2.4	20.7	0.11	—	—	—
	Oct	0.9	24.0	0.04	1.0	16.7	0.06	—	—	—
	Nov	—	—	—	0.4	9.1	0.04	—	—	—
	Total	9.6	221.7	0.04	4.1	47.5	0.09	—	—	—

Source: Rajyalakshmi, 1973.

**Table XII**

**Quantity of nylon twine imported in Bangladesh and quantity distributed through BFDC/BJMSS**

Period	Quantity <sup>1</sup> imported (tonnes)	Quantity <sup>2</sup> distributed (tonnes)	Percentage distributed
1977-78	2655.3	198.3	7.5
1978-79	2476.9	29.3	1.2
1979-80	1443.1	135.3	9.4
1980-81	2005.2	132.0	6.6

Source: <sup>1</sup>Anon., 1983  
Melvin, 1984