

## NOTES

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### A NOTE ON THE DOL-NET FISHERY OFF JAFFRABAD (GUJARAT) WITH SPECIAL REFERENCE TO BOMBAYDUCK, FROM 1979-80 TO 1981-82

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#### ABSTRACT

An estimated catch of 17,345.6 t were landed at Jaffrabad by dol nets. The bombayduck formed about 90.6% of the landings. The peak periods of abundance were October-November (CPUE 245.0 and 216.9 kg) and May (CPUE 231.4 kg). The size range of bombayduck varied between 30 mm and 375 mm. Juveniles below 210 mm were more abundant during February-May (93.7 to 98.6%).

The bycatch consisted of *Colia dussumieri* (2.6%), non-penaeid prawns (2.2%), penaeid prawns (0.8%), Ghol (1.7%) and *Trichiurus* (0.7%). Considerable quantities of *Pampus argenteus* (25.3 tonnes) in the size range 30 to 149 mm were also landed.

Jaffrabad is one of the most important fishing centres in Gujarat. During the period under report the fishery there was seasonal, confining until 1980-81 to the period from September/October to the first fortnight of January; but extending up to the end of May during 1981-82. Though the dol-net fishery off Jaffrabad had been of high magnitude, no studies were made earlier to assess the annual production, species composition and other aspects of fishery. There were about 200 boats, both mechanised and non-mechanised, under operation. The non-mechanised boats generally operated 2 nets whereas mechanised boats operated 3 nets. The fishing was confined to a depth range of 27-40 metres. As the fishing grounds were far off Jaffrabad (24-32 km), usually 3-4 hauls were taken by each boat on each fishing trip.

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Six days' observations were made in a month, keeping a regular interval. Monthly estimations were arrived at following the methods given by Sekharan and Dhulkhed (1963). As two types of dolnetters were in operation the effort was standardised by the method:

$$SE = \text{No. of net} \times \text{No. of haul}$$

and the CPUE expressed as catch per haul.

**Fishery:** Estimated total catches of 13,893.7 t and 12,775.6 t were landed respectively in 1979-80 and 1980-81 against fishing efforts of 68,329 and 79,468 hauls, realising catch rates of 203.3 kg and 160.8 kg, respectively. During 1981-82 season the estimated catch of 20,647.81 t was landed against 1,31,014 haul, at a reduced catch rate of 157.6 kg. The average species composition of fish landed during the three fishing season is given in Table 1.

An estimated catch of 15,712.2 t of bombayduck were landed at the catch rate of 144.5 kg. The bombayduck formed about 90.6% of the dol-net landings. The catch rate varied between 75.7 kg (March) and 245.0 kg (October). However, October-November, with catch rates of 245.0 and 216.9 kg, and May, with 231.4 kg, were the peak periods of abundance. There was gradual decline in catch rate from October to March. Thereafter it showed increasing trend. A similar trend had been observed at Nawabunder also (Zafar Khan 1980).

The size of bombayduck ranged from 30 mm to 375 mm. The month-wise size distribution of the species in the catch are given in Fig. 1. The juvenile fish (below 210 mm) formed about 44.8% to 27.2% of the catch during October-January, whereas they contributed to 93.7% to 98.6% during February-May.

The bycatch was constituted by *Coilia dussumieri* (2.6%), *Protonibea diacanthus* (1.7%), Elasmobranchs (0.3%), *Pampus argenteus* (0.1%), non-penaeid prawns (2.2%) and penaeid prawns (0.8%). An average catch of 448.0 t of *C. dussumieri* were landed at the catch rate of 4.1 kg. The peak period of abundance was February-April (CUPE 7.8-17.9 kg). *P. diacanthus* was landed in large quantities (297.8 t), the peak period being February-May, when the catch per haul varied between 2.5 kg and 66.2 kg. An estimated 115.9 t of *Trichiurus* spp were landed mainly in October and April-May. An estimated catch of 25.3 t of *P. argenteus* was landed, mainly young ones in size range 30-149 mm. In addition to these, *Ilisha filigera*, *Tachysurus* spp and *Muraenox talabonoides* were also landed in appreciable quantities.

Non-penaeid prawns, viz *Acetes indicus*, *Nematopalaemon tenuipes* and *Exhippolysmata ensirostris* together formed an important fishery (380.1 t). *P. tenuipes* contributed about 290.9 t with peak catch rate in October (6.38 kg),

TABLE 1. Average species composition of 'dol' net landings (kg) at Jaffrabad during 1979-80 to 1981-82. (Figures within bracket show catch per haul).

	<i>N. nehe-</i> <i>reus</i>	<i>C. dussu-</i> <i>mieri</i>	<i>Trichiurus</i> spp.	<i>P. diaca-</i> <i>nthus</i>	<i>P. argen-</i> <i>teus</i>	Elasmo- branchs	<i>A. indi-</i> <i>cus</i>	<i>N. tenu-</i> <i>ipes</i>	<i>E. ensi-</i> <i>rostris</i>	Penaeid prawn	Miscella- neous	Total Catch
Sept.	110920 (133.6)	4065 (5.0)	36 (0.04)	—	350 (0.4)	525 (0.6)	—	887 (1.1)	61 (0.07)	334 (0.4)	3244 (3.9)	120422 (145.1)
Oct.	3354170 (225.4)	54348 (3.7)	18377 (1.2)	11752 (0.8)	7891 (0.5)	7055 (0.5)	245 (0.02)	94867 (6.38)	12326 (0.83)	18206 (1.2)	65968 (4.4)	3645205 (245.01)
Nov.	4642198 (207.5)	48394 (2.16)	2402 (0.1)	19295 (0.9)	7116 (0.3)	4116 (0.2)	767 (0.03)	41896 (1.9)	11896 (0.05)	30684 (1.37)	43025 (1.9)	4851719 (216.9)
Dec.	4758523 (139.1)	23760 (0.7)	2000 (0.06)	22778 (0.7)	1832 (0.05)	5315 (0.16)	1206 (0.04)	81797 (2.4)	8939 (0.26)	20026 (0.6)	17934 (0.5)	4944110 (144.6)
Jan.	1356247 (102.8)	20189 (1.53)	1097 (0.08)	10629 (0.8)	816 2(0.06)	6591 (0.5)	770 (0.05)	18615 (1.41)	2942 (0.22)	4656 (0.35)	11465 (0.9)	1434017 (108.7)
Feb.	124456 (104.8)	17536 (14.8)	548 (0.5)	6336 (5.33)	188 (0.16)	512 (0.4)	3016 (2.5)	4148 (3.5)	624 (0.5)	2244 (1.9)	1884 (1.6)	161492 (135.9)
March	554042 (45.9)	215992 (17.9)	11591 (1.0)	30392 (2.5)	1842 (0.15)	11625 (1.00)	17742 (1.5)	22683 (1.9)	1208 (0.1)	25850 (2.1)	20941 (1.7)	913908 (75.7)
April	570600 (70.88)	62525 (7.8)	30975 (3.8)	68438 (8.5)	1200 (0.15)	6712 (0.83)	13588 (1.7)	24575 (3.05)	12000 (1.5)	22025 (0.2)	13125 (1.6)	825763 (102.6)
May	241043 (124.4)	1207 (0.6)	48858 (25.2)	128231 (66.17)	4029 (2.1)	426 (2.2)	731 (0.4)	1462 (0.8)	1122 (0.6)	7106 (0.07)	10914 (5.63)	448970 (231.66)
Total	15712199 (144.5)	448016 (4.1)	158841 (1.07)	297781 (2.7)	25274 (0.23)	46718 (0.4)	38065 (0.29)	290930 (2.68)	51118 (0.05)	131131 (1.21)	188500 (1.7)	17345606 (159.56)
% age	90.6	2.6	0.7	1.7	0.1	0.3	0.22	1.68	0.29	0.76	1.9	

NOTES

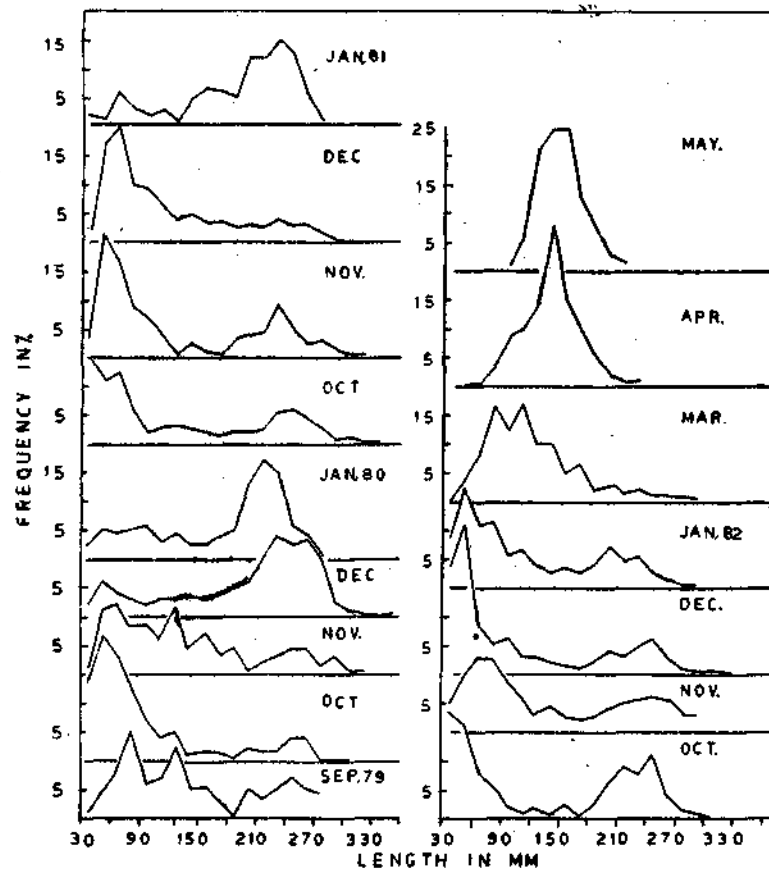


FIG. 1. Monthwise length-frequency distribution of bombayduck.

February (3.5 kg) and April (3.0 kg). Penaeid prawns were *Paraneopsis stylifera*, *P. sculptilis*, *P. hardwickii*, *Metapenaeus kutchensis*, *M. affinis*, *M. monoceros*, *Solenocera crassicornis* and *Penaeus* spp. The average landings of penaeids were 131.1 t. In addition to these crustaceans, *Squilla* and crabs were also landed in small quantities.

It is evident from the above studies that the bombayduck resource off Jaffrabad is of high magnitude (CUPE 144.5 kg) compared to that off Nawabunder (CPUE) 77.5 kg), forming about 90.6% of the total dol-net landings against 72.3% at Nawabunder (Zafar Khan 1982). The catch rate of Bombayduck varied between 133.6 kg and 225.4 kg during September to December, whereas it varied from 45.9 kg to 124.4 kg during January-May. Hence, the poor abundance of bombayduck together with high percentage of juveniles during February-May may probably be the reason for the short fishing season at

Jaffirabad. However, an attempt made by the local fishermen to fish during February-May during 1981-82 fishing season had indicated that *C. dussumieri* was abundant during February-April and *P. diacanthus* during February-May.

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