

THE ESTUARINE GREY MULLET FISHERY RESOURCES OF DAKSHINA KANNADA DISTRICT*

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ABSTRACT

Estuarine grey mullet resources of Dakshina Kannada District were studied during 1982-84 based on commercial landings. The fisheries were mainly supported by *Valamugil seheli*, *V. speigleri*, *Mugil cephalus*, *Liza macrolepis*, *L. tade* and *L. parvia*. Size ranges, sex ratios, seasonal abundance, landings and gear employed have been studied.

INTRODUCTION

GREY MULLETs are widely distributed in the tropical and sub-tropical waters, occurring in both marine as well as brackishwater environments, forming valuable fishery. In the Indian Sub-Continent, they are caught all along the coast in the lagoons, the estuaries and the brackishwater lakes. They are more abundant on the east coast than on the west coast. The average annual catch of mullets estimated by CMFRI in India during the period 1971-1981 was 2,685 tonnes, constituting about 0.21% of the total marine fish landings. In Karnataka, they contribute about 0.01% to the total annual fish production.

Karnataka State has a coast line of about 300 km spread out in two districts namely Dakshina Kannada and Uttara Kannada with a number of estuaries opening into the Arabian Sea (Fig. 1). The estuaries of Dakshina Kannada District harbour valuable potential resource of fishes, crustaceans and molluscs. Of the fishes, the most important

ones are *Sillago sihama* and the grey mullets. On an average these two groups together

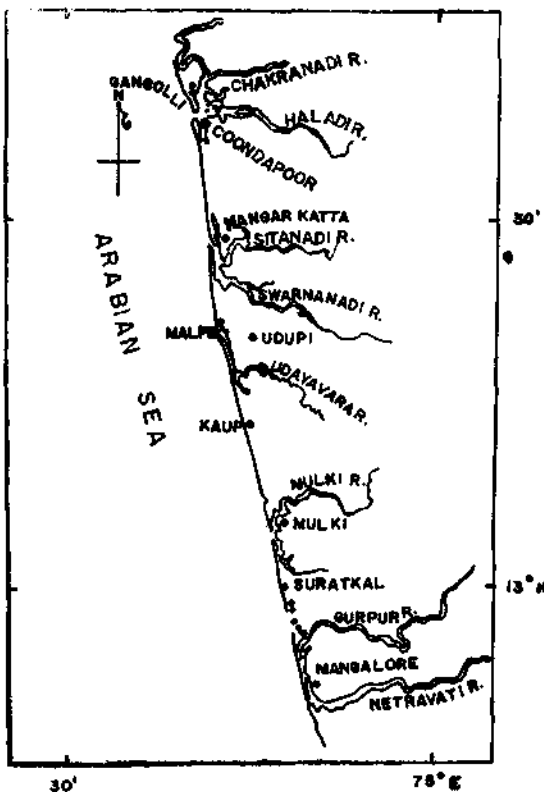


FIG. 1. Estuaries of Dakshina Kannada District.

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constitute nearly 50% of the total estuarine landings along this coast. Although the estuaries of Dakshina Kannada District harbour important fishery resources, very little detailed investigation has been carried out so far (James *et al.*, 1975, Mohan Joseph, 1980; Shanbhogue and Joseph, 1982). Practically no information is available as far as the landings of different groups of fish are concerned. In this study an attempt has been made to study the grey mullet fishery resources of Dakshina Kannada District.

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MATERIAL AND METHODS

The study was carried out for a period of two years (1982-'84). Random sampling technique was adopted for the collection of data. Four centres namely Gangolli, Hangarkatta, Mulki and Mangalore were selected and weekly observations were made on the size ranges, sex ratios and the abundance of mullets in the commercial catches.

FISHERY

The fishery is mainly supported by *Valamugil seheli*, *V. speigleri*, *Mugil cephalus*, *Liza macrolepis*, *L. tade* and *L. parsia*. Stray occurrence of few other species were also noticed during

the study, namely *L. dussumieri*, *L. vaigiensis* and *Mugil poecillus*. By and large, *V. seheli* was the dominant species in the catch throughout the period of study. Data on the percentage composition of different species during different months exhibited high variations (Table 1). On rare occasions, at Mulki centre, *L. macrolepis* surpassed *V. seheli* in bulk.

The fishery of *V. seheli* was constituted by individuals measuring 90-460 mm. However, the dominant size range in the commercial catch was 251-300 mm. The size ranges in the fishery and the dominant size ranges in the commercial catches for different species recorded and the sex ratio are given in Table 2. Observations on the sex ratio in the population

TABLE 2. Size range (mm) and sex ratios of different species of mullets during 1982-84

Species	Size range	Dominant size range	Sex-ratio Male : Female
<i>Valamugil seheli</i>	90—460	251—300	1 : 0.48
<i>V. speigleri</i>	82—220	141—180	1 : 1.08
<i>Mugil cephalus</i>	.. 129—510	201—250	1 : 0.33
<i>Liza macrolepis</i>	.. 110—490	201—250	1 : 2.23
<i>L. tade</i>	.. 70—330	151—200	1 : 0.97
<i>L. parsia</i>	.. 72—343	151—200	1 : 1.15
<i>L. vaigiensis</i>	.. 125—500

TABLE 1. Estimated percentage composition of most important species in the commercial catches

Species	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Valamugil seheli</i>	.. 61.87	60.14	24.50	28.34	33.33	42.10	10.34	28.60	59.37	70.37	48.78	30.23
<i>V. speigleri</i>	.. 27.50	9.42	15.50	14.17	18.52	2.63	36.20	16.55	6.25	9.25	21.95	51.16
<i>Mugil cephalus</i>	.. 3.75	10.14	26.10	24.29	11.11	15.78	8.62	9.35	18.75	3.70	14.63	4.65
<i>Liza spp.</i>	.. 6.87	20.28	33.90	33.19	37.07	39.47	44.82	45.50	15.65	16.66	14.63	13.95

indicated that males dominated in the case of *V. seheli*, *M. cephalus* and *L. tade*.

The estimated monthly landings of mullets did not exhibit any trend (Fig. 2). The catch varied from 575 kg (October) to 8,500 kg (June). The average annual production of mullets from the estuaries of Dakshina Kannada District during 1982-'84 was estimated at 28 tonnes.

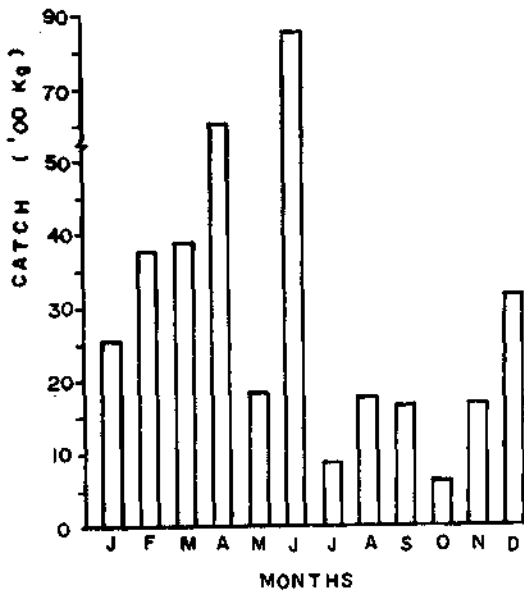


FIG. 2. Estimated month-wise catch (kg) of mullets during 1982-'84.

DISCUSSION

Mullets occupy an important position in the estuarine fisheries of Dakshina Kannada next only to *Sillago sihama*. The observation revealed that, this group constituted nearly 20-25% of the total estuarine landings. The qualitative composition of the catches in all the estuaries was more or less same as reported by James *et al.* (1975). Among the different species recorded, *V. seheli* remained a dominant species through out the period of study and in all the centres. The dominant size range of this

species in the commercial catch was 251-300 mm and the fishery was made up of mature specimens. Only on few occasions (February), juveniles ranging from 131-150 mm, appeared in large numbers in the catch. The fry and fingerlings of mullets are found in the estuaries round the year indicating continuous spawning habit of the population. Studies have shown that *V. seheli* has an extended spawning period lasting from September to January (Gangadhar Gowda, 1984), while *L. tade* from February to July (Shekhar Reddy, 1985) in Mangalore waters.

There is no exclusive fishery for the mullets in the estuaries of the district. Fishing is carried out round the year. During the south-west monsoon, the estuarine fishing is more intensified, when sea fishing is suspended, bringing an increased catch. Similarly, when the marine catches are poor the fishermen divert themselves to estuarine fishing. Thus, the monthly variations in the total catch recorded are more related to the variations in the fishing effort than to the availability of the resource.

Various kinds of fishing gears are employed in the estuaries for catching mullets along this coast. The most common and effective gear is an encircling net—'Kairampani', operated from canoes. The other important gear is the cast net. Usually, fishing is carried out in the early morning hours before the sun rise. Occasionally, fishing is done in the afternoon also.

Presently, only traditional fishing methods are in vogue in the exploitation of the estuarine fishery resources. Large quantities of juveniles are caught by the non-selective 'Kairampani' net which has a small meshsize resulting in considerable loss to the potential fishery. Further research is required to estimate the mullet seed resources and recommend better fishing methods for capturing adults in the estuaries for rational exploitation of the resources.

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