

## NOTES

### ENTRY OF THE SMALL-SIZED MACKEREL, *RASTRELLIGER KANAGURTA* (CUVIER) INTO THE COCHIN BACKWATER DURING THE MONSOON SEASON

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The Indian mackerel has already been reported to enter the rivers (Pradhan, 1956 and George *et al.*, 1959) and backwaters (George, 1965) during January-May. However, their entry into these areas during the rainy season especially when the salinity is low has not been reported earlier.

From 26 to 29 June 1972, juveniles of mackerel were caught in the Cochin Backwater in stake nets in close vicinity to the harbour area (Fig. 1).

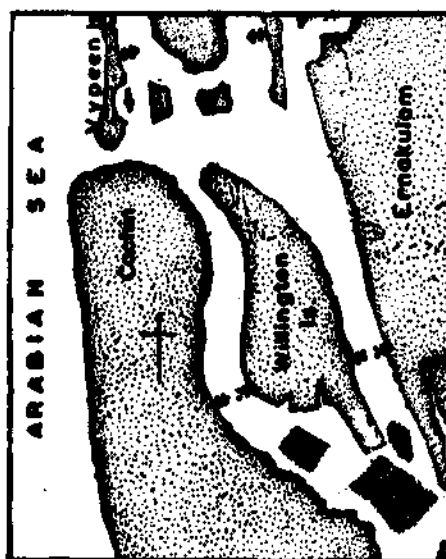


FIG. 1. Map of the Cochin Backwater showing the locations of the mackerel fishing.

In January-February 1961, the fishery was confined only to the south of the harbour (George, 1965) though the fish had entered further up from the port limits.

The mackerel occurred in a few nets in very small numbers on the 26th, and from 50-100 numbers on the 27th. On 28th they were present in all the nets in small numbers, but became rare on the following day. A total of about 5000 fish was caught on these days in the backwater. In the sea off Cochin, the rough weather and rain restricted the fishing activities resulting in no catches.

Prawns and other fishes formed the main catches of the stake nets in the backwater. *Metapenaeus dobsoni* was important among the prawns, whereas *M. affinis*, *M. monoceros* and *Penaeus indicus* occurred in smaller numbers. Among fishes, *Stolephorus commersonii*, *Leiognathus insidiator* and *Ambassis gymnocephalus* were the main species. *Stolephorus indica*, *Leiognathus ruconius*, *Kowala coval*, *Dussumieria acuta*, *Thrissocles mystax*, *Coilia dussumieri*, *Sardinella fimbriata*, *Caranx* spp., *Sciaena dussumieri*, *Johnius dussumieri*, and *Trypauchen vagina* were the other fishes which occurred in small quantities. The fishes were mostly the young ones, and also included the juveniles of *Scomberomorus* sp. and *Chorinemus* sp. Occasionally small numbers of the crab, *Scylla serrata* were also seen.

The size of the mackerel caught in the stake nets ranged between 45-109 mm in total length. The size groups 70 to 95 mm were common and the mode was at 85 mm (Fig. 2). During the fishery of 1961, the size range of the mackerel was found to be 200-230 mm with the peak at 210 mm (George, 1965).

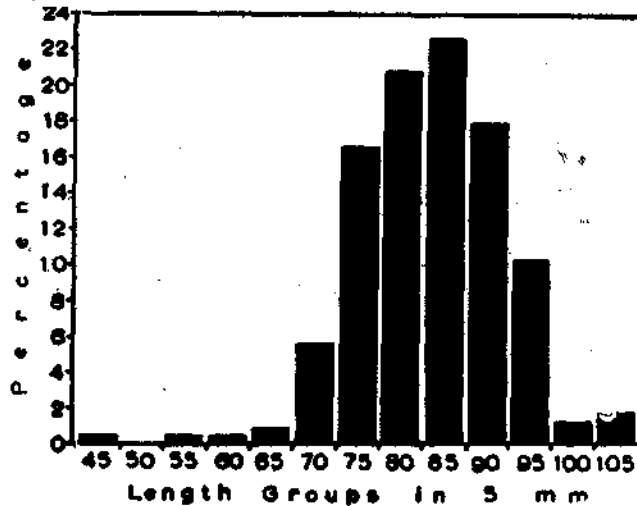


FIG. 2. Length frequency distribution of the small-sized mackerel caught in the Cochin Backwater.

The specimens of mackerel caught in the stake nets were not actively feeding, and their stomachs were almost empty to only one-third full. The contents included diatoms (*Coscinodiscus* spp., *Fragilaria oceanica*, *Biddulphia* sp., *Chaetoceros* sp., *Thalassiosira* sp., and *Pleurosigma* sp.), dinoflagellate (*Peridinium* sp.), cladocera (*Evadne tergestina*), copepods (*Oithona* sp., *Oncea* sp., *Paracalanus* sp., and *Acrocalanus* sp.), and larval forms (copepod nauplii, cypris larva, zoea of crab, bivalve larva and gastropod larva). In certain cases, remains of small crab and *Acetes* sp. were also seen. The chief item of the food appears to be the copepods, mainly *Oithona* sp. No fish larvae or fish remains were seen in the stomachs. Some digested food was invariably present in all the specimens.

Average rainfall at Fort Cochin, according to the daily weather chart of the Indian Meteorological Department, from 26th to 29th, was 39 mm. The temperature of the water was 27.0°C at the surface and 27.4°C at the bottom (5 m), and the surface and bottom salinities were 10.83 and 13.66‰ respectively in the southern area. Along the north end the water was only 3.5 m deep and the surface temperature and salinity were 26.2°C and 7.32‰ and at the bottom these were 26.4°C and 7.55‰ respectively. Tolerance of salinity as low as 2.04‰ by the mackerel of size range 151-175 mm in total length at Karwar has been reported earlier (Pradhan, 1956). The range of temperature during the 1961 fishery was found to be between 27.5-29.5°C at the surface and 28.02-29.28°C at the bottom and the salinity ranged between 27.90-30.13‰ at the surface and 27.65-32.45‰ at the bottom (George, 1965).

While reporting the 1961 fishery George (1965) suggested that the abundance of the pelagic fish populations including the mackerel in the coastal areas might perhaps lead to the migration of the mackerel into the backwater from the main population of the sea. But this alone does not seem to hold good, for the all-time high mackerel season of 1971 (CMFRI, 1971) passed without any such event. Probably some disturbance in the coastal waters may perhaps be driving them into the rivers and backwaters.

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