

SOME PRELIMINARY OBSERVATIONS ON THE *RASTRELLIGER FAUGHNI* MATSUI OCCURRING IN THE MADRAS COASTAL WATERS

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ABSTRACT

A preliminary account on the biological observations on the *Rastrelliger faughni* Matsui occurring along the Madras coast is given. Unlike the Indian mackerel *Rastrelliger kanagurta* this species seems to appear in loose concentrations. The species contributes, though in a very minor way, to the fisheries during February-March, when adults above 220 mm in total length are mainly caught. Juveniles measuring 35-159 mm form a notable portion of whatever mackerel contribution to the shore seine fishery in March and April.

The Indian mackerel contributes in minor proportions to the fishery along the east coast of India, fluctuating between 4.8% in 1978 and 23.9% in 1980 of the total mackerel landings of India (Noble 1982). In Tamil Nadu and Pondichery, during 1971-1981, the average annual catch was estimated to be 6815 t, forming 9% of the all-India mackerel catch.

The mackerel which thus contributes to the fishery of the east coast is also consisted of another species, *R. faughni*. This species was first described by Matsui (1967), and its occurrence in Indian waters and the characters distinguishing it from *R. kanagurta* have been reported by Gnanamuttu (1971). Sekharan* obtained specimens of *R. faughni* from areas off Waltair. An account of the resources and spawning of *R. faughni* has been given by Gnanamuttu (1972). Silas et al (1976) opined that *R. faughni* is mainly an oceanic species. According to Manacop (1956) *Pneumatophorus australasicus* (= *R. faughni*) occurs in fairly good concentrations in Philippine waters. Apart from these, there is no further information extant on this species. The present report on the availability and spawning of *R. faughni* is based on the observations made at Madras in 1972.

The principal gears that catch whatever mackerel off Madras are boat seines (*Eda valai*), drift gillnets and shore seines, all operated from catamarans.

* Source: Marine Fisheries Information Service, T and E series No. 41; 1982.

* Personal communication.

While adult and larger juveniles are mostly caught in boat seines and gillnets, young fish below 150 mm are caught in shore seines and in small-meshed gillnets used for sardines. Among the gears employed, only drift gillnets and shore seines account for the catches of *R. faughni*. Small quantities of *R. faughni* have also been recorded from trawl operations along the 30-m line.

According to Noble (1982), the period of occurrence of the Indian mackerel in the fishery along the Tamil Nadu coast extends from December to June. This is the period in which mackerel occurs also in Madras. The available catch data of *R. faughni* collected by the senior author from the Triplicane-Nochikuppam landing centre at Madras reveal that the availability extended from February to April in 1972. Of the total estimated landings of 1753 kg and 1430 kg of adult mackerel (both species combined) recorded from drift gillnet units respectively in February and March, 10% and 12% were accounted for by *R. faughni*. In March, an estimated 277 kg of juvenile mackerel (both species combined) were recorded from shore seine units, of which *R. faughni* made up as much as 61%. During April, juvenile *R. faughni* formed 30% of the total catch (384 kg) of young mackerel. However, it is of interest to note, from the account of the trend in marine fish production in India in 1981 (Anon 1982), that an estimated catch of 24 tonnes of mackerel other than *R. kanagurta* were recorded for the first time along Tamil Nadu and Pondicherry coasts. The catch might have been, for all possibility, that of *R. faughni*.

The size ranges and modal sizes of *R. faughni* caught at Madras during 1972 are given below. It is evident from this that the catch was composed of adults in February and March; juveniles were taken in fairly good quantities during March and April. Small numbers of this species also occurred in the trawl catches of Exploratory fishing vessels in the other months of the year.

	size range (mm)	Modal size (in 5 mm group)
January 1972	No data	
February	225-260	230
March	35-260	50;230
April	60-229	75
May	66-150	75
June	No data	75
July	123-155	135
August	No data	
September	214-236	230
October	No data	
November	210-227	220
December	No data	

Gonads of adult fish were in maturity stages IV to VI, stages V and VI dominating in February and March. Ovaries in Stage VIa (Plum pudding stage) were obtained in both the months. Ripe transparent ova were found evenly spread in the ovaries. The diameter of one of the largest of the ova from such an ovary measured 1.044 mm and the mode in the ova diameter frequencies was at 0.87 mm. In preserved condition, ova appeared spherical and

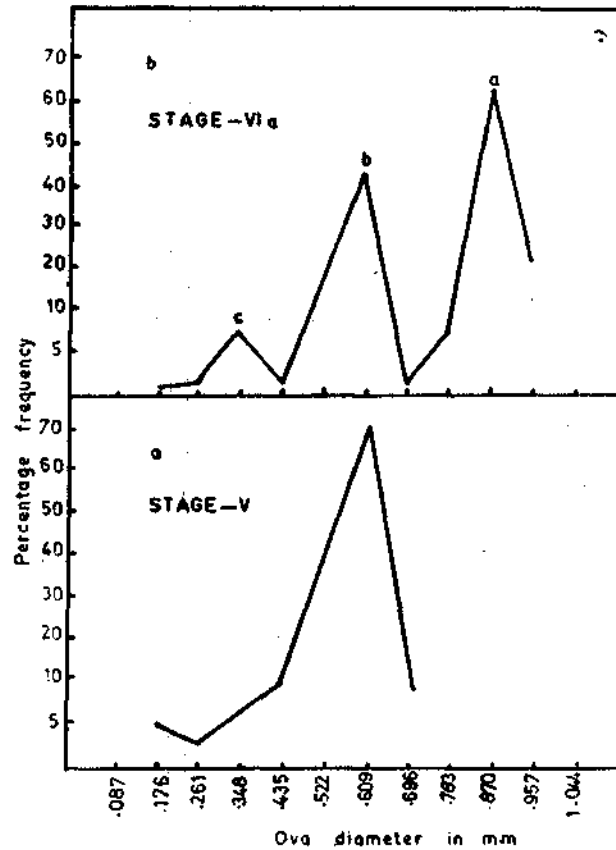


FIG. 1. Ova-diameter frequency polygons of stage V and VI ovaries of *R. faughni*.

translucent and the oil globule somewhat pale yellow in colour, having a diameter of 0.27 mm. The eggs got loosened at a slight pressure on the ovary. A ripe ovary had over 50% transparent ova. No partially spent or spent-recovering stages were recorded. A few specimens measuring over 210 mm in length recorded in September and November were in maturity stage II. The occurrence in considerable numbers of mature and ripe fish in February and March and juveniles from March to May suggests that peak spawning of *R. faughni* off Madras coast takes place around February-March.

Measurements of ova diameters of about 200 eggs drawn from anterior, middle and posterior regions of the ovaries in advanced stages of maturity (V and VIa) were taken and the frequency distribution is shown in Figs. 1a and 1b. Fig. 1a shows ova-diameter frequency of a stage V ovary, where the ripening group is represented by a single mode at 0.609 mm. Gonads in maturity stage VIa showed further development of ova (Fig. 1b), the ripe eggs being represented by mode 'a' at 0.870 mm, the ripening ones by mode 'b' at 0.609 mm and the maturing by mode 'c' at 0.348 mm. Judging from the number of eggs at mode 'b' it may be assumed that these eggs ripen after the first batch is shed. The low percentage of maturing eggs at mode 'c' suggests that these may undergo degeneration after the first two batches are shed.

The gill rakers in *R. faughni* are few and short as in *Scomber* species and the alimentary canal is much shorter than that of *R. kanagurta*. Analyses of stomach contents revealed that during the spawning season feeding intensity was very low; mostly empty stomachs were encountered. In a few stomachs, partly digested anchovies and alima larvae were met with.

Collection of catch, effort and biological data of *R. faughni* at different centres in the area of occurrence may have to be done for understanding the population characteristics. As medium-sized *R. faughni* are rare in the coastal waters, an exploratory fishing may be useful in locating grounds offshore, where the species may be available in sufficient numbers to contribute to a fishery.

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