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THE FOOD, FECUNDITY AND GONADAL MATURITY OF *VALAMUGIL CUNNESIUS* (PISCES: MUGILIDAE) IN THE NEGOMBO LAGOON, SRI LANKA

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ABSTRACT

Investigations on reproductive biology and feeding of *Valamugil cunnesius* (Valenciennes) were carried out for a period of two years on the specimens collected from Negombo lagoon (7°10′N and 79° 50′E) in the west coast of Sri Lanka. *V. cunnesius* was found to be spawning in March, June, August and December. The percentage of females in the population was about 80%. The mean lengths at maturity for males and females were 16.9 and 16.0 cm respectively. The absolute fecundity ranged from 80,000 to 1,40,000 for the fish of 15–20 cm in total length. The most important food item was observed to be benthic polychaetes. High overlap in the dietary composition was evident among the individuals of different size groups.

INTRODUCTION

Valamugil cunnesius is one of the grey mullet species (Family: Mugilidae) of major economic importance in fin fish fisheries of brackishwater environments. In the western Indian Ocean, it is distributed from South Africa to Red Sea and in the west coast of India and Sri Lanka (Fischer and Bianchi, 1984). Although biology of many other species of grey mullets such as *M. cephalus* has been thoroughly investigated (Brusle, 1981), very little work has been done on this species. It is well known that an understanding of the biology and ecological requirements is essential for aquaculture and efficient management of the stocks. This paper describes reproductive biology, food and feeding of *V. cunnesius* from Negombo lagoon (7° 10'N and 79° 50'E) in the west coast of Sri Lanka.

MATERIALS AND METHODS

More than 70 individuals of *V. cunnesius* were obtained twice a month from the fishermen's catch of Negombo lagoon for a period of two years. Total length and weight of the fish were measured and the maturity stage of gonads was visually examined. Gonads were then removed, weighed and gonadosomatic indices were calculated. Mature ovaries were preserved in Gilsons fluid (Benegal and Braum, 1968) for one week and fecudity was estimated by subsampling gravimetrically (Lagler, 1956). Egg diameters were measured using an ocular micrometer. Length of the intestine was measured and relative gut length was calculated. The stomach contents were scooped out, weighed and gastrosomatic index was determined. Stomach contents were identified as much as possible under an optical microscope. Quantitative analysis of the stomach contents was done by the method described by Helawell and Abel (1971). This method was found to be the most suitable and least subjective for this study. It enabled the rapid quantification of detritus and polychaetes which were present in the diet in large amounts. Using the relative importance of each food item in the Shoener's (1970) formula, similarity among the diets of different size groups was determined.