

SOME OBSERVATIONS ON GROWTH PATTERN IN NEWLY RECORDED *SOLETELLINA VIOLACEA*

ABSTRACT

In the present work, an attempt has been made to obtain the generalised growth pattern of the *Soletellina violacea*. The growth of the juveniles was faster than that exhibited by the adults. The growth rates also show a direct relationship with the salinity of the environment.

THE GROWTH PATTERN is affected by several internal as well as external factors like food, space, seasons, tide, exposure, locations, age, salinity, etc. Local disturbances in the environment are known to temporarily inhibit molluscan growth. Walne (1958) has shown that oysters do not grow if tidal exposure exceeds 30‰. It has also been observed that generally growth is slower in the older specimens.

Material and methods

Random samples of *Soletellina violacea* were collected at fortnightly intervals for a period of 15 months in 1978-79. The animals were collected from 6 different locations in order to cover the entire area of the bed. The length was measured to 0.1 mm accuracy by a sliding calliper. The animals were then arranged in size groups with a class interval of 10 mm.

Results

In the collection obtained during March 1978, specimens of lengths varying from 70 mm to 110 mm formed the largest group. The small specimens of upto 40 mm were absent in this collection. In April '78, a distinct mode was observed at 95 mm, which shifted to 105 mm by May-June 1978. In July 1978 the largest specimens disappeared and in the absence of the juveniles the medium sized animals (40 to 80 mm) predominated. The juveniles made their appearance in August, 1978 with a mode at 25 mm, which remained stationary till

November, 1978 by which time the larger sized animals reappeared. In December, 1978, the distribution was quite uniform with 2 peaks at 25 mm and 85 mm. In January and February 1979, the juveniles were absent and a mode was observed at 80 mm. Thereafter the trend observed in the previous year was repeated.

Discussion

It is apparent from the study that in the case of *S. violacea* the growth of the juveniles was faster than that exhibited by the adults. Occurrence of similar differences in the growth rates of the juveniles and adults have been reported in *Mya aranaria* (New Comba, 1935) and *Meretrix casta* (Salih, 1973). It was suggested by Salih (1973) that these higher growth rates during the early juvenile stages coincide with periods of high salinity and that in fact the faster growth may be due to these high salinity conditions of the environment during the postmonsoon season. This was borne out by the present study within *S. violacea* showed high growth rates during November 1978-June 1979. These were the months of relatively high salinity which ranged from 30.1‰ to 32.4‰. But the growth rate during the monsoon, when the salinity of the water was low at 15‰-21‰ due to extensive inflow of rain water from the flooded river and also due to land drain, was comparatively very slow. Ranade (1964) has reported that at low salinity the clams close valves, thus reducing the extent

of water circulation. This would naturally result in a decrease in the filtration rate. Durve (1960) has pointed out that this rate was adversely affected by low salinity. It is

therefore suggested that under conditions of low salinity during the monsoon the food consumption was low due to low filtration with the result that growth was retarded.

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OTOLITH LENGTH—TOTAL LENGTH RELATIONSHIP IN TWO SPECIES OF SCIAENIDS

ABSTRACT

The relationship between otolith length and total length of two sciaenid fishes *Kathala axillaris* (Cuvier) and *Otolithes ruber* (Schneider), was studied statistically by the method of least squares and found that total length can be estimated from the otolith length in these fishes.

RELATIONSHIP between otolith length and total length of a fish is useful in archaeological studies and prey-predator dynamics. Obvious as this relation is, fish size can be extrapolated from length of otolith found at cooking sites of archaeological middens (Fitch, 1972), in coastal archaeological excavations (Fitch and Brownell, 1968) and in predator's stomach (Ainley *et al.*, 1981; Treacy and Crawford, 1981). Complete knowledge of prey species could be obtained with the aid of existing taxonomic keys of fish species based on otolith morphology. If the prey is a sciaenid it is extremely easy because the large sciaenid otolith is mainly used in the identification of species by taxonomists (Trewavas, 1977). Echeverria

(1987) worked out the relationship between otolith length and total length for 30 rockfish species of the genus *Sebastes*. The present study attempts to derive for the first time the relationship between total length and otolith length of the sciaenid species *Kathala axillaris* (Cuvier) and *Otolithes ruber* (Schneider).

The specimens were collected from commercial landings at Pondicherry during 1989. After re-establishing the identity of the species in the laboratory, they were measured with a scale in mm. The greatest length of the otolith was measured from the anterior to the posterior end to the nearest 0.1 mm with vernier calipers. The linear regressions on total length (y) versus