AGE AND GROWTH OF THE CLAM *SUNETTA SCRIPTA* (L) IN VELLAR ESTUARY, EAST COAST OF INDIA

ABSTRACT

Length frequency method was not helpful in detecting age and growth of *Sunetta scripta* because of its prolonged breeding periods at Porto Novo waters. All the other methods *viz.* probability plot and von Bertalanffy's equation showed general agreement in the growth pattern. *S. scripta* attained 17.55, 26.63, 32.48 mm during 1st, 2nd and 3 year respectively and life span of this species was 3 to 4 years.

Sunetta scripta is an economically important clam in appreciable quantities at different places in east and west coast of India (Mohan and Damodaran, 1972). Despite its great food value and culture prospects, the biology of the species is little understood. A few reports are available on the rate of growth and age in clam species (Rao, 1952 ; Kalyanasundaram and Kasinathan, 1983 ; Jayabal, 1984). Age and growth studies provide an insight in the age class structure, changes in abundance and the relation of the stock to their relation to fishing. The present study deals with age and growth of the clam *S. scripta*.

Materials and methods

Random samples of *S. scripta* were collected at monthly intervals for a year between October 1984 and September 1985 from the shores of Porto Novo (11°30'N ; 70°46'E).

Growth rate was determined by probability plot method (Cassie, 1956 ; Harding, 1949), von Bertalanffy's equation (von Bertalanffy, 1938 ; Pantalu, 1963) and Ford Walford graph (Walford, 1946), shell length (greatest antero-posterior length) was measured to the nearest 0.1 mm using a vernier calliper. The data were arranged in size groups of 1.5 mm intervals. As the number of total observations varied in different months, size frequencies were converted into percentages.

Results and discussion

Length-frequency distribution : Size groups 6.2-7.7 mm were present during October 1984, March, April, May and June 1985. while maximum height of *S. scripta* (35-0 - 36.5mm) present during November 1984, January April, July and August 1985. During December 1984, size groups 25.4 - 26.9 mm showed peak abundance. The groups 12.6 - 15.7 mm 17.4 - 22.1 mm and 23.8 - 31.7 mm were present in all months. Size groups 22.2 - 23.7, 31.8 - 33.3 mm were available throughout the year except January and March 1985 respectively.

Due to continuous breeding habits (Dravidamani, 1985) of *S. scripta* length frequency method did not give any clue. Secondly some year classes may not be represented in the catches and overlapping the distribution of older size groups is likely to yield erroneous results by Peterson's method.

The cumulative percentage of occurrence of different size groups was plotted on arith-

matic probability paper to note the point of inflection. Growth of *S. scripta* was 6.9 mm in 0 year and was 17.55, 26.63, 32.48 mm during 1st, 2nd and 3rd year respectively. The life span appears to be 3 to 4 years (Fig. 1).

This method is used for species which have prolonged spawning periods. The probability

the growth pattern. For this growth curve, it could be observed that the '0' year clam attains 6.41 mm, the 1st year 17.49 mm, 2nd year 25.91 mm and the 3rd year clam 32.30mm.

Ford-Walford graph

Ford-Walford graph constructed for *S. scripta* by plotting Lt + 1 against Lt, where Lt is the height of the animal at a particular
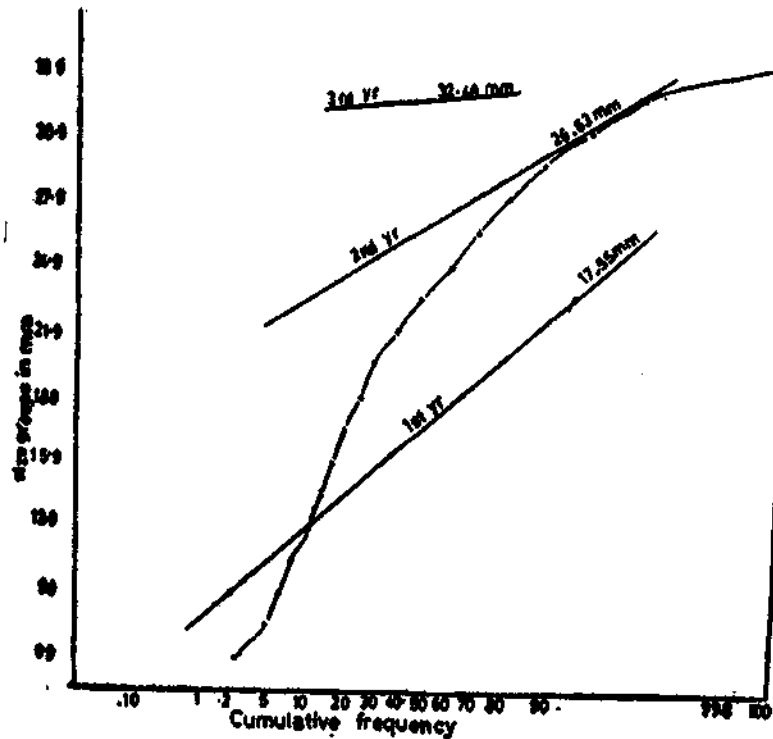

FIG. 1. The cumulative (%) occurrence of different size groups of *S. Scripta*.

method of separating the polymodel length frequency distribution has been used to find out modal lengths of different year classes. This method is found to be very useful in getting a higher degree of accuracy in sorting out the different size groups contributed from different broods.

Von Bertalanffy's growth equation : Length calculated for different years using this equation plotted along with the observed length for some period showed a general agreement in

age. The straight line obtained from the Lt against Lt + 1 when intersected by 45° diagonal from the origin. Lφ (length at infinity) was attained, it was found to be 52.48 mm in *S. scripta*.

In the mouth of Vellar Estuary, *Katelysia opima* (Kalyanasundaram and Kasinathan, 1983) has a length of 26.65, 36.62 and 43.15 mm during 1st, 2nd and 3rd year respectively. Growth of *Meretrix meretrix* (Jayabal, 1984) attained 47 mm and 61.5 mm during 1st year

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2nd year respectively. But the growth of the present species was 17.55 mm, 26.63 and 32.48 mm during 1st, 2nd and 3rd year respectively and longivity of the species is 3 to 4 years. This result agrees well with the longivity of *K. opima* and contradict with the longivity of *M. meretrix* (Jayabal, 1984).

Growth rate at 1st and 2nd year was high when compared to 3rd and 4th year which is similar to that observed earlier in Porto Novo waters (Kalyanasundaram and Kasinathan, 1983; Jayabal, 1984).

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ARTHROPOD FAUNA OF LITTORAL ZONE IN TWO ISLANDS OF HOOGHLY ESTUARINE COMPLEX, WEST BENGAL, INDIA

ABSTRACT

This study analyses the species composition and density of macro-arthropod fauna of four littoral zones, two each in Chuksar Island and Sagar Island. Characteristics of these zones were the dominance of insects, specially staphylinid beetles.

IN RECENT TIMES, the studies on marine and estuarine littoral ecology has gained immense momentum in tropical and temperate zones. In India, the pioneer work on benthos was