

NOTES

MATURATION AND FECUNDITY IN *SCIAENA GLAUCA* (DAY)

ABSTRACT

At Veraval, *Sciaena glauca* occupies an important position among the sciaenids in trawl catches. Intraovarian studies of this species showed that the spawning period was during December-April and the species bred only once a year. Fecundity varied from 57,654 to 3,44,288 eggs. The relationship between fecundity and length of fish, weight of ovary and fish weight was estimated.

AT VERAVAL, sciaenids form one of the commercially important groups of fishes in the catches of powered craft, particularly trawlers. One of the important species contributing to the catches of sciaenids is *Sciaena glauca*.

Though studies have been made on many other sciaenid species, e.g. on the larvae, post larvae of different species by Pantulu and Jones (1951), John (1951), Bapat and Bal (1952), Karamchandani and Motvani (1954), on the spawning habits by Rao (1963), Annigeri (1963), Rao (1967), Devadoss (1969), Nair (1977), Muthiah (1982) and Mahadevan Pillai (1983), no observation has been made on *Sciaena glauca* particularly from Saurashtra Coast and the results of a study on the spawning habits and fecundity of this species are given in this paper.

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Material and methods

The samples were collected from the trawlers and analysed in the laboratory. The total length of this fish was measured to the millimetre and the weight to the gram. The ovaries were preserved in 5% formalin and allowed to harden for several days.

Standard procedures were adopted in determining the stage of maturity and measuring the diameters of the ova. The diameters were measured at a set magnification where one micrometer division was equal to 0.01 mm. The percentage frequency of ova was calculated and plotted in the graph.

Fecundity studies were based on formalin preserved ovaries in stages IV—V of maturity from 30 specimens ranging from 198 to 270 mm in total length. Estimation on fecundity was made by weighing the ovary after drying with blotting paper. Two small samples were taken from each lobe of the ovary and their weights were taken. By counting the mature ova in each piece and raising by ratio of total weight to the total weight of the sample, total number of mature eggs were estimated.

Results

Figure 1 shows the size distribution of ova in maturing and mature ovaries from specimens whose size ranged from 197 to 270 mm. In Fig. 1 a, there are two modes 'a' and 'b' formed by the maturing ova at 30 and 25 micrometer divisions. These modes could be traced in Fig. 1 b. Mode 'a' has progressed to 36 m.d and mode 'b' also shifted to 32 m.d.

Figure 1 c also represents frequency polygon of ova from maturing ovaries. Ova which had formed modes 'a', 'b' at 36 and 32 m.d (Fig. 1 b) increased in size and formed modes at 46 and 40 micrometer divisions respectively.

mature ova at 54 and 48 micrometer divisions respectively. Ova which have formed modes 'a' and 'b' in Fig. 1 c increased in size and formed modes at 54 and 48 micrometer divisions respectively. The ova falling under these modes are ripe and transparent and

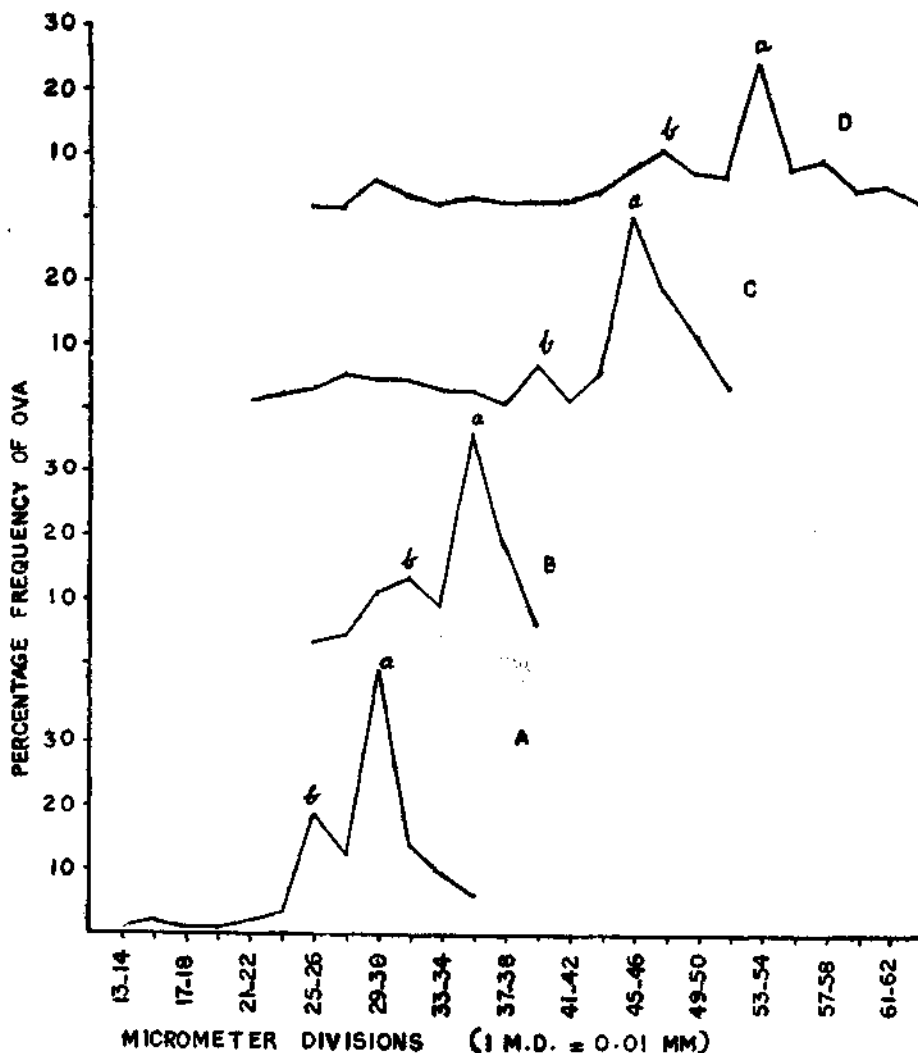


FIG. 1. Ova diameter-frequency distribution in nature and ripe ovaries of *Sciaena glauca* (a, b and c ovaries in stage IV and V and d. ripe ovaries in stage VI).

In Fig. 1d is shown frequency polygon of ova from running fish measuring 245 mm and obtained in April. It is seen that there are two modes 'a' and 'b' formed by

also contain 1 or 2 oil globules. As fishes with mature and ripe ovaries are obtained during the period December -- April, it may be concluded that spawning period of

S. glauca extends from December — April. During the period May — August specimens could not be obtained due to cessation of fishing due to monsoon. However, juveniles measuring 60-70 mm could be collected in the trawl catches from September to October. Thus it is inferred that the species breeds once a year and the spawning period is somewhat prolonged extending for about five months *i.e.* from December to April.

Fecundity in *S. glauca* varied from 57,654 to 3,44,288 with average figure of 1,24,477 eggs. It was observed that fecundity varied sometimes irrespective of length, but generally it increased with length. The relation-

ship between fecundity (f) and length (L) was found to be:

$$\text{Log } F = -5.8744 + 2.7854 \text{ Log } L$$

The correlation coefficient r was 0.5567. The relationship between fecundity and ovary weight (OW) was expressed as:

$$\text{Log } F = 1.0061 + 1.1862 \text{ Log } OW.$$

The values of correlation $r = 0.6961$. The fish weight (FW) and fecundity (F) relationship could be expressed as:

$$\text{Log } F = 0.0571 + 0.9064 \text{ Log } FW$$

The value of correlation r : 0.5148.

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REFERENCES

- ANNIGERI, G. G. 1963. *Indian J. Fish.*, 10 (1) : 23-52.
- BAPAT, S. V. AND D. V. BAL 1952. *Proc. Indian Acad. Sci.* 35 : 78-92.
- DEVADOSS, P. 1949. *Indian J. Fish.*, 16 : 117-128.
- JOHN, M. A. 1951. *J. Zool. Soc. India.*, 3 : 38-66.
- KARANCHANDANI, S. J. AND M. P. MOTVANI 1954. *Ibid.*, 6 (1) : 71-79.
- MAHADEVAN PILLAI, P. K. 1983. *Indian J. Fish.*, 16 : 117-128.
- MUTHIAH, C. 1982. *Ibid.*, 29 (1 & 2) : 118-237.
- NAIR, K. V. S. 1977. *Ibid.*, 24 (1 & 2).
- PANTULU, V. R. AND S. JONES 1951. *J. Zool. Soc. India.*, 3 (1) : 105-111.
- RAO, K. V. S. 1963. *Indian J. Fish.*, 10 (2) : 413-459.
- RAO, T. APPA 1967. *Ibid.*, 11 (1) : 121-126.

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