

NOTES

Fecundity Studies on Sand Whiting, *Sillago sihama* (Forsk.) from Karwar Waters

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Fecundity is one of the best indicators of reproductive potential of a species (Taub, 1969). The fecundity variations of different species of fish have been found to exhibit close relationship with existing conditions and pattern of reproduction (Oven, 1977). Results of studies on the fecundity of sand whiting, *Sillago sihama* are reported in this communication.

A total of 29 mature ovaries of *S. sihama* ranging in total length from 200 to 335 mm caught mainly by hook and line, cast net and shore seine from Kali estuary and in-shore waters of Karwar were utilised for estimating fecundity. After measuring total length and weight of fish and weight of ovary, mature ova were counted under a binocular microscope from a weighed portion of the ovary and total number of mature ova was computed based on the total weight of the ovary. The fecundity estimates were

statistically correlated with total length, body weight and weight of ovary.

The total number of mature eggs ranged between 20184 and 120450 in fishes ranging from 200 to 335 mm in total length. The relationship between length of fish and fecundity is shown by scatter diagram (Fig.1a) Regression equation of the variable can be expressed as $Y = -7.3669 + 3.7697 X$, where $Y = \log \text{fecundity}$ and $X = \log \text{length of fish}$. The fecundity increases at a rate of 3.7697 times the log total length depicting a linear relationship. The relationship between fecundity and body weight of fish was found to be positive and linear (Fig.1b). The fecundity increased by 1.0802 times the log weight of fish and the regression equation can be expressed as $Y = -0.5282 + 1.0802 X$ where $Y = \log \text{fecundity}$ and $X = \log \text{weight of fish}$. The relation between fecundity and weight of ovary was linear

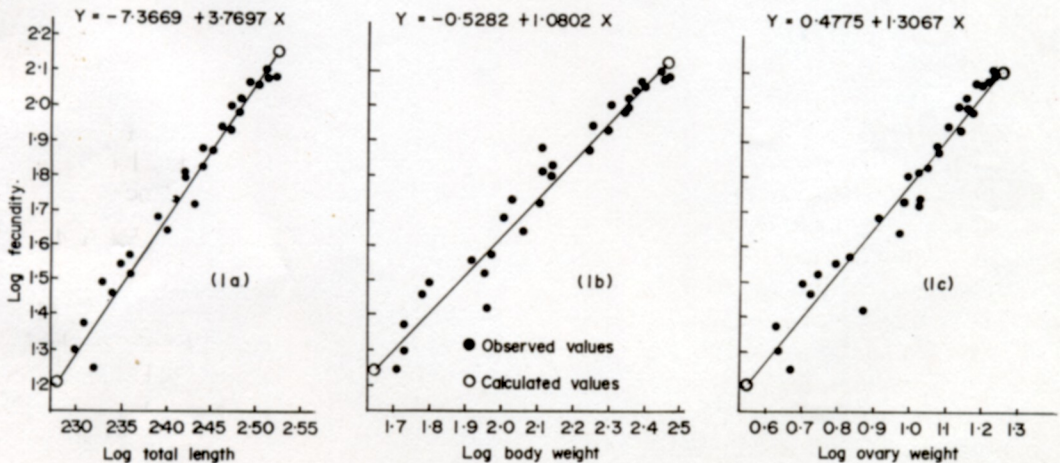


Fig. 1. Regression of fecundity on (a) total length, (b) body weight and (c) ovary weight of *Sillago sihama*

and the number of ova increases at a rate of 1.3067 times the ovary weight.

The highly significant correlation coefficients between fecundity and length, fecundity and weight of fish and fecundity and ovary weight were 0.9777, 0.9760 and 0.9734 respectively.

The exponential value is usually 3 when fecundity is related to length and 1 when related to weight (Bagenal & Braum, 1978). In the present study the value is greater than cube when fecundity is related to total length and slightly higher than 1 when fecundity is compared to weight of fish. These differences could be attributed to age, season and environment (Antonyraja, 1971, Ziglstra, 1973).

Fecundity indices were estimated in order to find the trends in fecundity with increase in length and weight of spawners. The different indices calculated were relative fecundity (Bagenal, 1957, De Silva, 1973), number of ova per gram ovary weight, coefficient of maturity (Nikolsky, 1961) and gonosomatic index. The number of ova per gram weight of fish varied from 287 to 587 with a mean value of 442, while the number of ova per gram ovary weight

ranged between 3533 and 7659 with 6120 as average. The coefficient of maturity values were found to vary from 5.72 to 9.07 (average 7.35) and gonosomatic index from 6.07 to 9.98 (average 7.95).

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