



FECUNDITY AND SEX-RATIO OF COMMON CARP, *CYPRINUS CARPIO* VAR. *COMMUNIS* (L.)

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Cyprinus carpio var. *communis* locally called "Carpus", "Japani Rui" belongs to a family Cyprinidae of order Cypriniformes is a freshwater species in Bangladesh. Its tasty and rich flesh is valued commercially important. It is adapted for cultivation with different type of fishes and this species is preferred by people as food fish. Knowledge about fecundity of a fish is essential for evaluating the commercial potentialities of its stock, life history, practical culture and actual management of the fishery (Ahamed *et al.* 1979, Kurian and Inasu, 2003). The study of fecundity is undertaken to determine the index of density dependent factor affecting the population size of a fishery ground (Simpson 1951, Das 1977). In the present fecundity and sex ratio of *C. carpio* var. *communis* has been estimated.

A total of 334 specimens were collected at random from different place in Rajshahi metropolitan city during the period from November-2006 to June-2007. Of the collected samples 175 were females and 159 were males. 15 gravid females were studied for estimation of fecundity. In the laboratory total length and weight of fishes were measured. After dissection the gonads were taken out intact and moisture was thoroughly wiped out from ovaries with blotting paper and preserved in 70% alcohol solution. The length and weight of ovaries were also taken. Gravimetric and actual counting method was used for the estimation of fecundity.

It was observed that the number of eggs varied from 3791.67 (for a fish with total length 28.5 cm and total weight 375 g) to 46250 (for a fish with total length 50.0 cm and total weight 1950 g). The mean fecundity was recorded as $14980.83 \pm 10871g$ for a fish with a mean total length of $30.47 \pm 7.81cm$ and mean total weight of $573.67 \pm 557.76g$. The mean total length of ovary was 10.22 ± 3.35 cm with mean total weight of ovary was 78.17 ± 95.51 g.

Table 1. Values of regression co-efficient (b), intercept (a) and co-efficient of correlation(r) of fecundity and different morphometrical measurements

Fecundity vs. measurements	a	b	r	t
Total length	-21548	1198.8	0.861*	5.329
Standard length	-20174	1472.4	0.879*	5.331
Total weight	5561.2	1662	0.842*	5.362
Ovary length	-13789	2816	0.868*	5.335
Ovary weight	7738.9	92648	0.814*	5.347

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Table 2. Male and Female percentage and Sex-ratio of *Cyprinus carpio* var. *communis*

Months (2006-07)	♂	♀	Sex-ratio ♂: ♀
November	21	23	1:1.10
December	25	27	1:1.08
January	26	28	1:1.08
February	23	25	1:1.09
March	23	25	1:1.09
April	16	18	1:1.13
May	12	13	1:1.08
June	13	16	1:1.23
Total	159	175	1:1.10

The mathematical relationship between the fecundity with other parameters such as total length, total weight, ovary length and ovary weight were calculated. The values of intercepts (a), regression co-efficient (b), co-efficient of correlation(r) were calculated (Table 1). It was found that all these relationships are positively correlated. Simpson (1951) found that fecundity was related nearly to the cube of the length and was thus directly proportional to the fish weight. The analysis of the Sex-ratio was based on 334 specimens, which were collected all over the month from November-2006 to June-2007. Out of 334 specimens, 159 specimens were males and 175 specimens were females. The total males and females ratio was 1:1.10. From the monthly collection the female were found to be predominant during the month of November, December, February and June the males were predominant in the rest of month. It was manifest from the Table 2 that the females were dominating throughout the year. The Chi-square test shows that the male and female distribution in the natural population is not significantly different at 5% and 1% level of significance..

References

- Ahmed ATA, Mustafa G, Hai A. 1979. Fecundity of the catfish. *Clarias batrachus* (L.). *J. Asiatic Soc. Bangladesh*(Sc.) 5(2), 7-12.
- Das HP. 1977. Length weight relationship and relative condition of grey mullet, *Mugil cephalus* (L.), *Mahasagar Bull. Nat Ocear* 10(3 & 4), 145-149.
- Kurian M, Inasu ND. 2003. Reproductive biology of a cat fish *Horabagrus brachysoma* (Gunther) from inland water of Central Kerala. *J Inland Fish Soc India* 35 (1), 1-7.
- Simpson AC. 1951. The fecundity of the plaice. *Fish Invest London Serv* 2(17), 1-27.