

## SHORT COMMUNICATION

# A NOTE ON FECUNDITY OF BACHWA (*CLUPISOMA NAZIRI*) FROM THE RIVER INDUS NEAR ATTOCK KHURD

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**Abstract:** The fecundity of *Clupisoma naziri* was studied by gravimetric method. Ovaries were weighed to the nearest mg. Then a part (75-100 mg) was cut from their mid points, weighed and processed for separating and counting the eggs. Absolute fecundity varied from 1403 to 17255 eggs for a fish of 21.5cm to 32.2cm total length and 55gm to 278gm body weight. The relative fecundity varied considerably. Relation of fecundity to size revealed that the larger fish were more fecund than the smaller ones. Egg diameter was measured with the help of a calibrated ocular fitted electric microscope at 40X magnification. The diameter ranged from 1215 $\mu$ m to 1509 $\mu$ m. Further up and low stream data may identify best spawning locations of the fish.

**Key words:** Fish, ovaries, egg diameter absolute and relative fecundities.

## INTRODUCTION

The number of eggs contained in the ovaries of a fish is termed the fecundity (Nikolsky, 1963). Knowledge about fecundity of a fish is essential for evaluating the commercial potentialities of its stock, life history, practical culturing and actual management of the fishery (Lagler *et al.*, 1956; Doha and Hye, 1970). Fecundity varies from one species to another and depends on the environmental conditions, length and

age etc of the fish (Bhuiyan *et al.*, 1993; Alam *et al.*, 1994; Kuddus *et al.*, 1996; Bhuiyan and Parveen, 1998; Bhuiyan *et al.*, 2000; Kiran and Puttaiah, 2003). A considerable volume of information is currently available on the fecundity of diverse fish species, however, information is not available on the fecundity of *Clupisoma naziri* in Pakistan. Present study was carried out to determine absolute and relative fecundities as well as eggs' diameters of this species.

## MATERIALS AND METHODS

The specimens of *Clupisoma naziri* for study of fecundity were collected from the river Indus near Attock Khurd in the month of May, 2007 and were saved. A total of 7 fish samples containing mature and ripe ovaries were selected. The size of the fish ranged from 21.5cm to 32.2cm total length (T.L) and 55g to 278g total body weight (T.B.W).

The ovaries were removed and weighed to the nearest mg on a balance and preserved in 10% formalin. Fecundity was determined by gravimetric method. A 75-100g sample of ovary was taken from its mid part. Following softening of connective tissue each sample was teased with glass needles and shaken to free the oocytes. The oocytes separated in this way were counted and then the total number of oocytes in the ovaries of a fish were calculated. Then the ova were placed on the slide and were measured with the help of a calibrated ocular fitted electric microscope at 40X. All oocytes measuring in size from 1215 $\mu$ m to 1509 $\mu$ m were counted. These counts were used to calculate the total number of ova in the ovaries (absolute fecundity) and then the number of ova/g b.w. (relative fecundity).

## RESULTS AND DISCUSSION

The present study showed that the absolute fecundity of *C. naziri* in general increased progressively with increase in body lengths as well as body and ovarian weights. It varied between 1403 to 17255 eggs for fish of 21.5 cm to 32.2 cm total length and 55 g to 278 g body weight and conclusively the larger fish were more fecund than the smaller ones. The relative fecundity varied considerably (8.88 to 75.14 ova/g b.w) in relation to body weight. The maximum value for relative fecundity was 75.14

ova/gm b.w which is an indicative of high fecundity rate of *C. naziri*. The lowest value for relative fecundity was 8.88 ova/g b.w. Here it can be speculated that the fish might have laid some eggs before its capturing. It was also noticed that some fish samples with almost same size had different number of eggs in their ovaries. Environmental factors and food supply are known to affect the fecundity of fish (Bagenal, 1957). The variations in fecundity of the *C. naziri* may be attributed to such factors that might had been prevailing in the river Indus.

There is no information available in the literature on absolute and relative fecundities and eggs' diameters of *C. naziri*. Thus the present data report these informations for the first time.

**Table I: Absolute and relative fecundities of *Clupisoma naziri*.**

Sr. No.	Total length (cm)	Total body weight (g)	Ovary weight (g)	Absolute fecundity (Ova/fish)	Relative fecundity (Ova/g b.w.)
1.	21.5	55	6.2	4133	75.14
2.	24.0	75	7.137	4758	63.44
3.	29.6	196	9.969	6646	33.91
4.	29.7	212	10.084	6722	31.71
5.	29.8	158	2.104	1403	8.88
6.	30.4	262	14.126	9417	35.94
7.	32.2	278	25.883	17255	62.06

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#### **REFERENCES**

- ALAM, M.R., MORTUZA, M.G., ISLAM, M.S. AND HOSSAIN, M.A., 1994. The fecundity of *Ailia coila* (Hamilton-Buchannan) (Siluriformes: Schilbeidae) from the river Padma near Rajshahi city. *J. Biol. Sci.*, **2**: 113-116.

- BAGENAL, T.B., 1957. The breeding and fecundity of the long roughdab, *Hippoglossoides platessoides* (Fabr.) and the associated cycle in condition. *J. Mar. Biol. Ass.*, **36**: 339-375.
- BHUIYAN, A.S. AND PARVEEN, A.S., 1998. Fecundity of *Puntius sophore* (Hamilton) (Cyprinidae: Cypriniformes). *J. Bio-Sci.*, **6**: 153-154.
- BHUIYAN, A.S., NESSA, Q. AND BEGUM, M., 2000. Fecundity and sex-ratio of Thai silver barb *Barbodes gonionotus* (Bleeker). *Bangladesh J. Fish. Res.*, **4** (1): 97-99.
- BHUIYAN, A.S., NESSA, Q. AND BEGUM, M., 1993. The fecundity and sex ratio of *Aspidoparia morar* (Hamilton) from the river Padama. *Rajshahi Univ. J. Zool.*, **12**: 59-63.
- DOHA, S. AND HYE, M.A., 1970. Fecundity of the Padama river *Hilsa ilisha* (Ham.). *Pakistan J. Sci.*, **22**: 176-183.
- KIRAN, B.R. AND PUTTAIAH, E.T., 2003. Fecundity studies on *Chela untrahi* (Day) from Bhadra reservoir, Karnataka. *India Inland Fish. Soc.*, **35**(2): 41-44.
- KUDDUS, R., QUDDUS, M.M.A. AND SHAFI, M., 1996. Feeding and breeding habit of Shing fish, *Heteropneustes fossilis* (Bloch). *D. U. J. Bio. Sci.*, **5**(1): 35-43.
- LAGLER, K.F., BARDACH, T.E. AND MILLER, R.R., 1967. *Ichthyology*. Jhon Willey & Sons. Inc. New York, 271-274.
- NIKOLSKY, G.V., 1963. *The Ecology of fishes*. Academic press, London, pp. 352.

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