

## Short Communication

# A note on the fecundity of *Amblypharyngodon mola* (Ham.)

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### Abstract

Absolute fecundity of *Amblypharyngodon mola* (Ham.) varied from 2071 to 6094 eggs. Relative fecundity was calculated to be 967 ova per gram body weight of the fish. The relationships between fecundity and length of fish as well as weight were linear. Likewise, length/weight of ovaries and fecundity were also linear.

**Key words:** Fecundity, maturity, length/weight-fecundity relationships, correlation coefficient.

### 1. Introduction

Fecundity is a parameter for pronouncing the reproductive capacity of a fish. A knowledge of the fecundity of fish is essential for successful management and exploitation of fisheries. Egg production differs in different species as well as sizes. Research workers<sup>1-6</sup> have reported fecundity of different fishes and the relations of fish weights and lengths with fecundity. During the present study, absolute and relative fecundities and the relationship between fecundity and length/weight of fish and ovaries of *Amblypharyngodon mola* (Ham.) are determined.

### 2. Material and methods

Individuals of *A. mola* were collected from Himayatsagar, Hyderabad, during the breeding season from February to July, 1985. Total lengths and weights of fish were noted. The ovaries were fixed in 5% formalin for further analyses. After 3 days, 4 sub-samples of known weights were taken from each ovary and the IV and V stage mature ova were counted. Both absolute and relative fecundities were calculated.

### 3. Results and discussion

The absolute number of mature ova varied from 2071 to 6094 in fishes with total lengths ranging from 55 to 98 mm, and weights from 2830 to 6110 mg. (Table I). Relative fecundity ranged from 732 to 1300 ova per gram body weight, with an average of 967.

In order to calculate the values of total length and fecundity the linear regression formula was applied. The linear relationship between the total length (L) and fecundity (F) was  $F = -0.0892 + 1.9608(L)$ ; ( $r = 0.9244$ ). The results showed that the fecundity increased at a rate, about the square (1.96) of the length of the fish. The linear relation between body weight

(W) and fecundity (F) was  $F = 0.4532 + 1.1216 (W)$ , ( $r = 0.9167$ ). The relation between the weight of the ovary (OW) and fecundity (F) in a linear regression was  $F = 0.6952 + 1.0704 (OW)$ ; ( $r = 0.9739$ ). The linear relation between ovary length (OL) and fecundity (F) was  $F = 1.3236 + 1.6702 (OL)$ ; ( $r = 0.9283$ ).

Different relationships have been found to exist between length and fecundity in different species of fishes. Clark<sup>7</sup> has observed that the fecundity in fishes increases in proportion to the square of the length. Saxena<sup>8</sup> observed a similar proportion in *Rita rita* (2.21), Sinha<sup>9</sup> observed 2.51 in *Puntius sarana* and Malhotra *et al*<sup>10</sup> reported a value of 3.6 in *Garra lamta* and 3.02 in *Mystus vittatus*. The relationship between fecundity and fish length has been observed to be related to the cube of the length<sup>11-14</sup>. Pathak and Jhingran<sup>15</sup> recorded highest exponential value (5.48) in *Labeo calbasu*. Varghese<sup>2</sup> reported that the fecundity in *Coilia dussumieri* was related to 4.82 of its length. Kaliyamurthy<sup>6</sup> found 1.15 in *Mystus gulio*. During the present study on *A. mola*, the increase in fecundity is around the square (1.96) of the fish length.

In this study, the relationship between total length and fecundity of *A. mola* was found to be linear. Similar observations have been reported by many authors like Lehman<sup>4</sup> for the American shad, Saxena<sup>8</sup> for *Puntius sarana*, Pathak and Jhingran<sup>15</sup> for *Labeo calbasu*. Curvilinear relationship has been reported by DeSilva<sup>1</sup> for the spart and Varghese<sup>14,2</sup> for *Coilia ramcarati* and *C. dussumieri*.

**Table I**  
**Fecundity data of *A. mola* (Ham.)**

Sl. no.	Total length (mm.)	Body weight (mg.)	Ovary weight (mg.)	Ovary length (mm)	Total number of ova	Ova/cm total body length	Ova/gram body weight
1.	55	2830	310	17	2071	377	732
2.	57	2850	320	17	2110	370	740
3.	59	2840	340	17	2380	403	838
4.	61	2990	320	18	2672	438	894
5.	62	2890	340	18	2620	423	907
6.	65	3010	450	19	3912	602	1300
7.	68	2840	400	19	3276	482	1154
8.	69	3240	420	20	3511	509	1084
9.	70	3050	370	21	2390	341	784
10.	72	3990	510	23	4158	578	1042
11.	75	4310	530	24	4490	599	1042
12.	77	4310	550	25	4421	574	1026
13.	80	4580	630	25	4690	586	1024
14.	85	5400	690	26	5100	600	944
15.	90	5770	740	28	5780	642	002
16.	94	5960	720	29	5562	592	933
17.	98	6110	820	31	6094	622	997

A linear relation between fish weight and fecundity has been reported by several workers like Tandon<sup>5</sup> for *Seloridea leptolepis*, Qasim and Qayyum<sup>13</sup> for *Channa punctatus*, David<sup>16</sup> for *Mystus gulio*, Pathani<sup>17</sup> for *Tor paititora*. During the present study of *A. mola*, a linear relationship between fish weight and fecundity was observed.

Linear relation was also found between ovary weight and fecundity of *A. mola*. Similar observations are reported by Qasim and Qayyum<sup>13</sup> for *Channa punctatus*, Parameswaran *et al*<sup>18</sup> for *Cyprinus carpio* and Rao *et al*<sup>19</sup> for *Puntius dorsalis*. In *A. mola*, it was estimated that the ova per centimeter total length of fish was lower (532 ova/cm) than ova per gram body weight (967 ova/gm). Similar observations were reported by Pathani<sup>17</sup> in *Tor paititora* and Bisht and Upadhyay<sup>20</sup> in *Barilius bendefisis*.

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