

The Study of fecundity and its Relationship to the fish length, fish weight and ovary weight of the *puntius kolus* (SYKES)

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Abstract

The fecundity of *puntius Kolus* (Sykes) Total length, Total Weight, (Inper 500 grams) ovary Weight (Per/Hundred Miligram) the number of eggs give a direct liner relationship giving a "Straight line". Its all relationship is a cubic 'parbola' as the fish undergoes change in the form of its Body by growth and ovaries Change with spawning cycle in each individual in the heterogeneous distribution random methods give a rough estimate of the potential stock and variation in number may be due to size. In this relationship of the fecundity with the total length, total weight and ovary weight has been considered and observe.

Keywords: *puntius kolus* (SYKES) fecundity, weight

Introduction

The fecundity of *puntius Kolus* (Sykes) Under This heading the reproductive capacity of the fishes has been considered relation the total length, total ovary weight and the ova production. These determined by the pillay in 1954 The Egg Produced by various species of Fish with difference size Weight, length and the fecundity depends upon this factor, variation from year to year in the total fecundity of the population. Many difference favourable condition in environment for the reception of eggs. Every year the result will change of the brood young stock. This result to be clear by the kesteven in the 1950 Year. These Fecundity has relation between Total length, total weight and ovary weight by the under this formula: $y-y=b(x-x)$ or $y=a+bx$. Here x = Total length, Total Weight and ovary Weight, Y is the fecundity of fish, b regression coefficient in the calculation logarithmic relationship.

Material and Methods

The Entire Study has been completed for the fishes three type.

1. Fish size, gonad weight and average ova production 2. Fecundity in relation to the fish, size, length; fish weight and ovary weight 3. Sex ratio.

1. Fish size gonad weight and average ova production:

The present investigation relate separately the length, weight relationship, percentage of ovary weight and count per gram body weight and ovary weight is per hundred Milligram.

Puntius Kolus (Sykes) has been recorded that normally the number of eggs is directly proportional to the fish size as the maximum number range 46223 in a fish of 15.9 cm. and the minimum being 9537 in a specimen of 8.2 cm increase in the range is from 10538 to 40646 in 8.5 to 15.5 cms in total length. The variation of the eggs is high but the average fecundity value shows the above proportion further the average production in each 5.0 gms groups of fish indicates a clear upward trend in the number of ova as it is 11296 in 7.5 gms and 45380 in 32.8 gms fish and ratio has been established in the gonad and body weight, these data being 12.81 to

22.09% of the ovaries to stand is comparison of the total body weight. Per 100 milligram No. of ova weight of the mature ovary has been estimated at the average rate of 1012 count. A direct proportional relationship with obtained mean weight.

2. **Fecundity and its relation to fish size, fish weight and ovary weight:** The fecundity of a fish shows remarkable variation this the weight or the conditions controlling the maturity moreover, the ova the similar weight and stage showing a differ because the production cycle in each individual in the heterogeneous distribution random methods gives a rough estimate of the potential stock and the variation in number may be due to the size. In this relationship of the fecundity with the total length, total weight and ovary weight has been considered.

In the fecundity and total length relationship work of Simpson 1951 found some basic errors in it and showed the cube of the length. He further surmised that this was probably due to the simple theoretical argument as the egg production being a surface phenomenon. This view has been further under stood by sarojini 1957. In this Regards the work of franz 1910 distinguished, in which he has described that the increase in fecundity remains proportional to the square of the length. *Puntius Kolus* (Sykes) an exponential relationship in least square regression on the log values has been carried out. The correlation coefficient calculated is found to be $r = 0.9508$ shows a high degree of positive correlations.

$$\text{Log } Y = 0.3658 + 3.8637 \text{ Log } X$$

It seems relationship is a cubic parabola as the fish undergoes change in the form of its Body by growth and ovaries change with spawning cycle. The test of linearity shows the total length being highly Significant for increase in fecundity. The fecundity increasing a powers a power its total length. Fecundity and ovary weight relationship shown by prabhu 1955 and Bhatnagar 1964. This Point of interest to different workers as Hick Ling 1940. Started a direct correlation ship between the weight of the ovary and the number eggs. The correlation ship is a liner type. The correlation coefficient

$r=0.6238$ with $\log Y = 2.6228 + 10.7849 \log X$. The test of linearity is significantly.

3. Sex ratio: The mainly deals with the ratio and its deviation in different sexes all Round the year. This probably gives a hint in the stocking as well as in the productivity. The sex ratio, control the bearings on the Fishable stock. Over one thousand specimens have been examined and the ratio is about 1:1.5 The percentage of female is far greater that the male all around the year, the maximum percentage being the October for females may for the males. Sex ratio average with the distribution and the percentage of occurrence together with the

percentage in different size groups of the species in the monthly sample have been considered. Male and female occurrence highly sex during the mansoon and bost-Mansoon season.

The small size of the Male group about 3 to 9.8 cms. Are Maximum in number, But with increase in size, of the females became more abundant from 10.1 to large size. This is the population of comman fish presumable because of a high mortality rate among the males we can see in the table (1,2,3,4,5,6) various analysis of fecundity of total length, total weight and ovary weight of fish puntius Kulus (Sykes).

Table 1: Regression analysis of the in respect of the total length of the fish Puntius Kulus (Sykes.) Regression Data

Degree of freedom	Sum of squares of log total length	Sum of the products of the log total length and log fecundity	Sum of squares of the log fecundity	Regression coefficient	Correlation coefficient
(f)	(sx^2)	(sxy)	(sy^2)	(b)	(r)
37	43.8211	173.6527	723.9842	3.9628	0.9505

Table 2: Test of linearity of the regression by analysis of the variance

Source of Variation	Degree of freedom	Sum of Squares	Mean Square Variance	Observed (F)	5% (F)
Variation due to Regression	1	688.1509	688.1509		
Residual	36	35.8333	0.9954	691.33	4.05
Total	37	723.9842			

Table-3: Regression analysis of the fecundity in respect of the total weight of the fish Puntius Kulus (Sykes.) Regression Data

Degree of freedom	Sum of squares of log total length	Sum of the products of the log total length and log fecundity	Sum of squares of the log fecundity	Regression coefficient	Correlation coefficient
(f)	(sx^2)	(sxy)	(sy^2)	(b)	(r)
37	45.534	174.4100	723.9842	3.8303	0.9227

Table 4: Test of linearity of the regression by analysis of the variance

Source of Variation	Degree of freedom	Sum of Squares	Mean Square Variance	Observed (F)	5%(F)
Variation due to Regression-	1	687.0427			
Residual	36	56.8434	667.0438	429.9042	4.07
Total	37	724.834	1.4548		

Table 5: Regression analysis of the fecundity in respect of the ovary weight of the fish Puntius Kulus (Sykes.) Regression Data

Degree of freedom	Sum of squares of log total length	Sum of the products of the log total length and log fecundity	Sum of squares of the log fecundity	Regression coefficient	Correlation coefficient
(f)	(sx^2)	(sxy)	(sy^2)	(b)	(r)
37	3.8837	42.7094	723.9842	10.7842	0.6335

Table 6: Test of linearity of the regression by analysis of the variance

Source of Variation	Degree of freedom	Sum of Squares	Mean Square Variance	Observed (F)	5% (F)
Variation due to Regression-	1	461.3538			
Residual	36	273.6504	452.4458	58.5875	4.07
Total	37	732.8867	7.7744		

Results

In the fecundity, total length, number of eggs give a direct proportionality fish size as the show a general relationship of 'Parabola' fecundity and weight per 500 gms proportionality give a clear upward show relation ship of the "Straight line". In the fecundity and ovary weight/ hundred milligram a liner relationship a giving a straight line has been observed. Sex ratio showing the Male & female of puntius Kulus (Sykes) 1:1.5, respectively. Study has been done under maturation, spawning, reproductive behavior and gonad somatic index.

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