A STUDY OF POPUATION DYNAMICS OF ROHTEE OGILBII (SYKES, 1839) FROM NIRA RIVER BHOR. MAHARASHTRA (INDIA)

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Abstract : Rohitee ogilbii (Sykes, 1839) is the endemic species of Western Ghats of Maharashtra the fish belongs to the family Cyprinidae and order Cypriniformes. The study is undertaken so as to understand the population dynamics of the population. Population dynamics plays an important role in understanding the status of the fish in natural habitat. The sex ratio is defined as the comparison of number of male individual to female individual of a given species in a natural habitat. An statistical study of the sex ratio in Rohtee ogilbii (Sykes, 1839)in various seasons is an essential parameter for obtaining information on seasonal segregation of the sexes and their abundance in spawning season of the fish. The results clearly show the ratio of female: male is highest during the month of June 2.14: 0.466. The ratio of female: male was lowest in the month of January 1.08:0.923. According to the data obtained month wise ratio was calculated by using chi-square (x2). The chi-square value obtained in the present study showed 3.84 which are significant at 5% level. There were slight deviation in the ratio for few months in the present study but it could be attributed to the environmental stress on the habitat.

KEYWORDS: Rohtee ogilbii (Sykes, 1839) Population dynamics sex ratio seasonal chi-square ($x^{2)}$

I. INTRODUCTION

A Rohitee ogilbii (Sykes, 1839) is the endemic species of Western Ghats so the population dynamics plays an important role in understanding the status of the fish in natural habitat. Sex population of any species in generally defined as the abundance of sex at any given time in the natural habitat of that species. The sex ratio is the ratio of male to female in any given population of species at any given time in its natural habitat In most sexually reproducing species, the ratio tends to be 1:1. This tendency is explained by Fisher's Principal. [1]. A study of sex ratio in fishes is a very essential tool for fishery management. The sex ratio provides basic information to assess the reproductive potential and to estimates tock size of fish populations [2] various environmental factors have a direct effect on the population of the species namely. The study of Sex ratio means the comparison of number of male individual with the female individual of the selected species under study from its natural habitat. The study helps in understanding the male: female ration throughout the year. It also helps in understanding the growth pattern of both the sexes in the same habitat with reference to the same resources available. Various environmental such as temperature, ecological hazard, migratory phase probably change the composition of sex ratio in the natural habitat [3]Various workers have carried out their work in studying the sex ratio [4,5, 6, 7] studied the sex ratios in fresh water fishes. [8,9]. The sex ratio may vary drastically as a result of numerous factors natural as well as manmade. [10] Rohtee ogilbii (Sykes, 1839) exhibits dual spawning period and the sex ratio during the first breeding season is higher compared with the second breeding season when the water parameters are at their peak [11]. Various environmental factors are responsible for the change in the sex ratio. The sex ratio of any selected species under study would be different for different habitat. The present study helps in understanding the sex ratio of Rohtee ogilbii (Sykes, 1839) from Nira River. Rohitee ogilbii (Sykes, 1839)is the endemic species of Western Ghats so the population dynamics plays an important role in understanding the status of the fish in natural habitat. Since, the natural habitat of the fish has been over pounded by introduction of exotic species.

II. METHODOLOGY:

Rohtee ogilbii (Sykes, 1839)was collected from the Nira River It is a tributary of Bhima River and flows through Satara District, Pune and Solapur districts of Maharashtra. Latitude: 17° 58' 59.99" N Longitude: 75° 06' 60.00" E for a period of 30 months March 2012 to August 2014 with the help of net. A total of 781specimen were collected during the study period. In all 463 females and 318 males were examined. The sex ratio for *Rohtee ogilbii* (Sykes, 1839) was calculated by using the chi-square formula. Chi-square X 2= $(O-E)^2 / E$; where O - the observed number of fishes and E - the expected number of fishes. Fishes were fished out from Nira river and were numbered, the total body weight was considered (to the nearest gram, g) and total body length was noted down to the nearest centimeter, cm). Since distinguished characteristics of sexual dimorphism were not exhibited by *Rohtee oglibii* (Sykes, 1839) Fish was dissected and sex was identified based on the macroscopic characteristics of gonads as per the word done by [12].

II. RESULT AND DISCUSSION:

There is no sexual dimorphism exhibited by *Rohtee ogilbii*, (Sykes, 1839) general observation clearly states that the female are longer than the males and stumpy. The monthly variation in the population under study has been tabulated in Chart: 1. The results clearly shows the ratio of female: male is highest during the month of June 2.14: 0.466. The ratio of Female: Male was lowest in the month of January 1.08:0.923. According to the data obtained month wise ratio was calculated by using chi-square (x^2). It was observed in the present study that sex ratio showed non significantly at 5% level of significance in the seasons. There were slight deviation in the ratio for few months in the present study but it could be attributed to the environmental stress on the habitat. Graphical presentation is shown in chart: 2. various environmental factors such as temperature, ecological hazard, and migratory phase probably change the composition of sex ratio in the natural habitat. [13]. the results are in accordance. The sex ratio is

higher during the first spawning season and lower during the second one spawning season. The present study is in accordance with [14]. The graphical presentation is shown in chart: 3.

Chart no: 1 represents the sex ratio of *Rohtee ogilbii* (Sykes, 1839) for the period under study

			.	Percentage		Ratio			
Months	Total	Female	male	Female%	Male%	Female	male	X^2	Remark
Mar	14	8	6	57.14	42.85	1.333	0.749	0.285	NS
April	15	9	6	60	40	1.5	0.666	0.6	NS
May	30	20	10	66.66	33.33	2	0.5	3.333	NS
June	38	24	14	63.15	36.84	1.714	583	2.631	NS
July	22	15	7	68.18	31.81	2.14	0.466	2.909	NS
Aug	35	21	14	60	40	1.5	0.666	1.4706	NS
Sep	24	14	10	58.33	41.66	1.4	0.7142	0.666	NS
Oct	40	21	19	52.5	47.5	1.105	0.964	0.1	NS
Nov	28	16	12	57.14	42.85	1.333	0.749	0.5714	NS
Dec	26	15	11	57.69	42.3	1.363	0.733	0.6154	NS
Jan	25	13	12	52	48	1.08	0.923	0.0833	NS
Feb	18	10	8	55.55	44.44	1.25	0.8	0.222	NS
Mar	15	9	6	60	40	1.5	0.666	0.7143	NS
April	18	11	7	61.11	38.88	1.571	0.636	0.888	NS
May	27	15	12	55.55	44.44	1.25	0.8	0.384	NS
June	36	24	12	66.66	33.33	2	0.5	2.876	NS
July	38	25	13	65.78	34.21	1.922	0.52	3.789	NS
Aug	34	18	16	52.94	47.05	1.125	0.888	0.117	NS
Sep	26	16	10	61.53	38.45	1.599	0.625	1.384	NS
Oct	24	14	10	58.33	41.66	1.4	0.714	0.666	NS
Nov	30	17	13	56.66	43.33	1.307	0.764	0.533	NS
Dec	28	18	10	64.28	35.71	1.8	0.555	2.285	NS
Jan	22	15	7	68.18	31.81	2.14	0.466	2.909	NS
Feb	20	12	8	60	40	1.5	0.666	0.8	NS
Mar	16	9	7	56.25	43.77	1.285	0.777	0.25	NS
April	14	9	5	64.28	35.71	1.799	0.555	1.142	NS
May	20	12	8	60	40	1.5	0.666	0.8	NS
June	26	15	11	57.69	42.3	1.36	0.733	0.615	NS
July	34	18	16	52.94	47.09	1.125	0.888	0.117	NS
Aug	38	20	18	52.63	47.36	1.111	0.899	0.105	NS

X^2= Values are not significant at either level (d.f.l. on p =0.05 in 3.84) NS= Non significant.

Chart :2 represent the graphical illustration of the sex ratio of *Rohtee ogilbii* (Sykes, 1839) monthwise

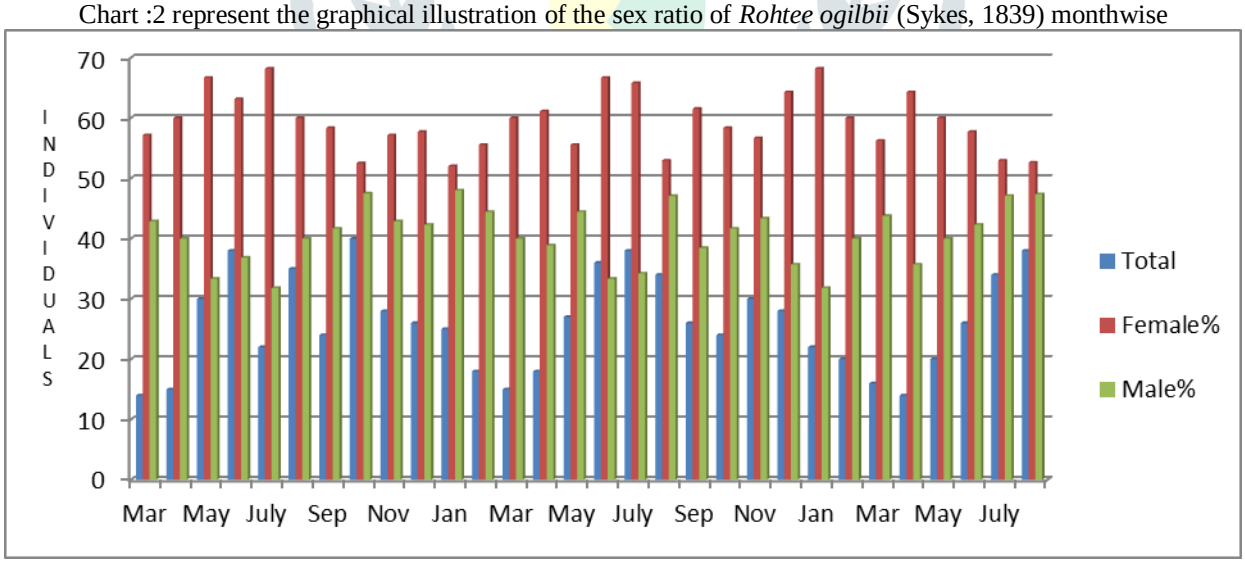
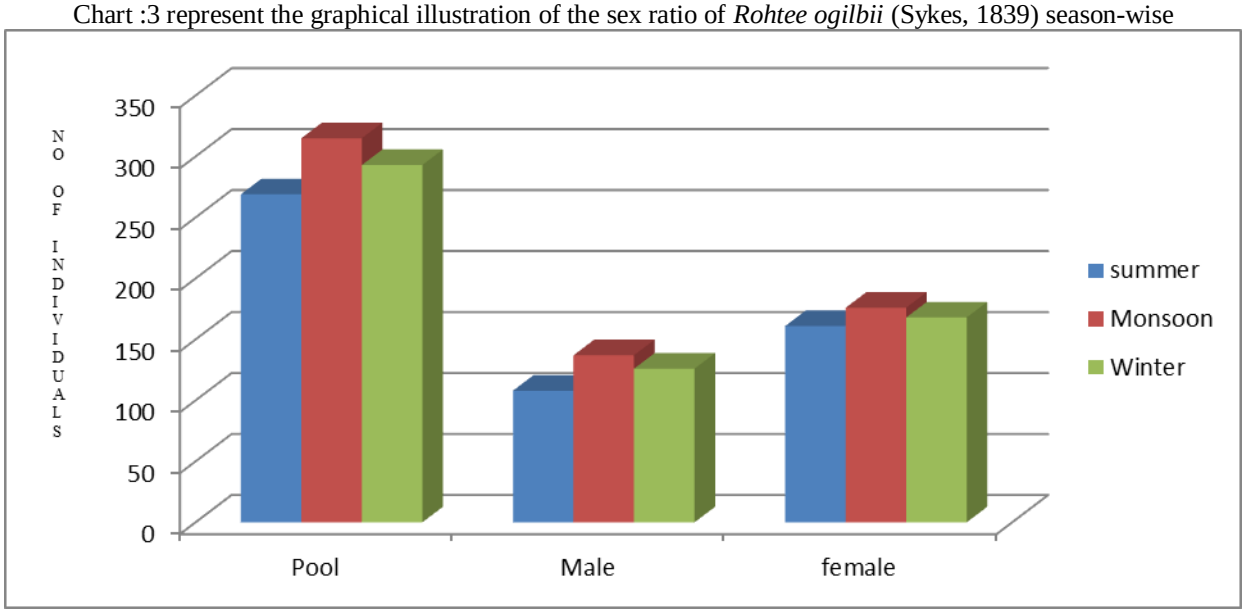


Chart :3 represent the graphical illustration of the sex ratio of *Rohtee ogilbii* (Sykes, 1839) season-wise



The month wise data indicates variation in the sex ration which is higher during the spawning season and gradually decreases post spawning. The average ratio of male to female for *Rohtee ogilbii* (Sykes, 1839) was 2:1.3. The overall male female population fluctuated throughout the various months. The observation is similar as per the work done by [15] Similar sex ratio was noticed by [16, 17, 18,19] showed a 1:2 ratio in P. sarana, The predominance of the male population of *Rohtee ogilbii* (Sykes, 1839) during spawning season would be due to faster growth of males. Similar result was reported by [20, 21, 22, 23].

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