

Fecundity Index in fresh water Crabs (*Barytelphusa cunicularis*) in Shivrath River different sites in Durg District (C.G.).

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Abstract –

The aquaculture sector has benefited from the rapid growth rate, high meat content, great palatability, and resistance to white spot virus of crab species. The fecundity and reproductive biology of the freshwater crab *Barytelphusa cunicularis* were examined in this study. The study examined the gonad maturation, development, breeding season, and timing of juvenile crab release, fecundity, and behavior of ovigerous females. During the reproductive phase, *Barytelphusa cunicularis* had high gonad index values. The findings showed that throughout the year, fecundity and body weight, carapace width, and carapace length were positively correlated. Females deposit yolk primarily between April and June, with the majority of eggs maturing by the end of June.. According to the results of the current investigation, the number of eggs in *Barytelphusa cunicularis* increased linearly as body weight, carapace length, and width increased. This study used seasonal measurements of the fecundity index analysis of the animal , and monthly collection of crabs and young-one-bearing females to investigate the natural reproductive cycle of the edible freshwater crab, *Barytelphusa cunicularis*.

Keywords: *Barytelphusa cunicularis*, Gonad index, Reproductive cycle, Fecundity Index.

Introduction –

Barytelphusa cunicularis is nocturnal in nature, it has been observed in small pits at the banks of rivers, lakes or reservoirs, It is most commonly found inhabiting rocky crevices adjoining paddy fields, streams and rivulets, it builds borrows in an rectangular shape. it is dioecious. The spawning season starts in the month of June and ends in September, the females are more in number than the males in the breeding period (June to September). An male *B.cunicularis* enters puberty upon attaining a carapace

with a width about 40mm, and females when with a width of 44mm. The reproductive activity of the species is dependent on rainfall. The ripening of the gonads starts during March and up till May. By June, most of the gonads attain full maturity and spawning starts.

In ecology, fecundity is a measure of the reproductive capacity of an individual or population, typically restricted to the reproductive individuals. It can be equally applied to sexual and asexual reproduction, as the purpose of fecundity is to measure how many new individuals are being added to a population.

Reviews –

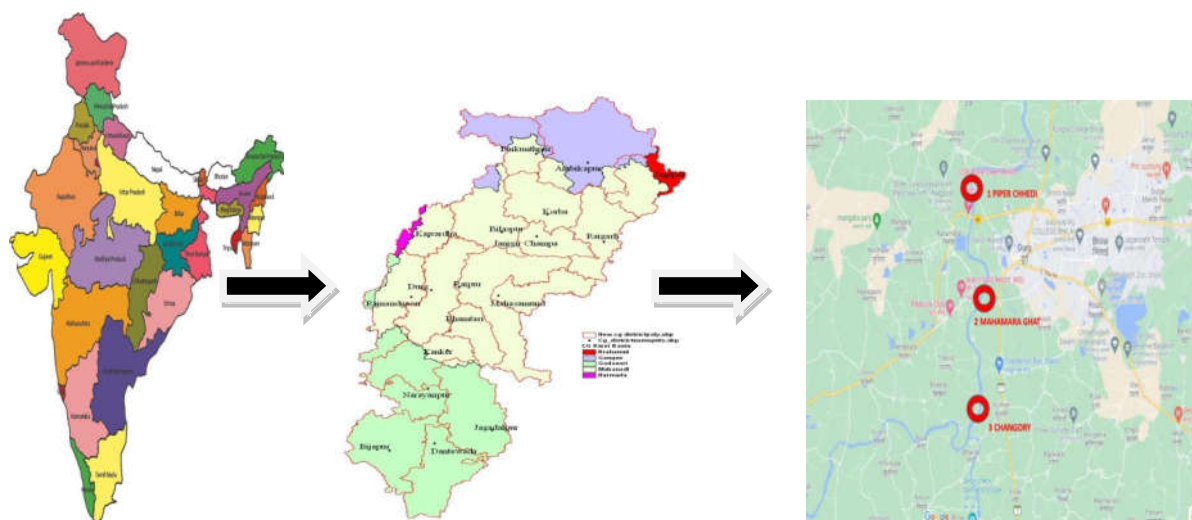
Pathre & Meena .(2010). Studied that Breeding cycle and fecundity of the fresh water crabs, *Berrytelphusa cunicularis* (Decapoda, Potamonidae) and it was discovered that *Barytelphusa cunicularis* is a continuous breeder. From July to September, the highest number of ovigerous females were detected, and the breeding peak was adjusted to coincide with the crabs' greatest gonad growth and The greatest number of males with fully developed gonads and the longest carapace length were noted in July and September.

Sharma *et al.* (2017). They studied and found that mature females of *M. masoniana* and *H. emphysetum* were only available in June-July and December-January, while in *H. emphysetum*, they appeared throughout the year. The maximum number of ovigerous females in *M. masoniana* was recorded in July and January, while in *H. emphysetum*, it was observed in March and June, and minimum in May and October. Fecundity varied between *M. masoniana* and *H. emphysetum*, with an average of 650 ± 171 eggs in *M. masoniana* and 351 ± 158 eggs in *H. emphysetum*. In both species, fertility, weight, and crab weight correlated positively and significantly.

Study side –

Durg is important district of Chhattisgarh with latitude 21.1623^0 N and longitude 81.6296^0 E. Shivnath River is one of the important river in Chhattisgarh. The Shivnath River originated from Panabaras hill, 624meters (2047ft) above sea level in the Ambagarh chouki division of Rajnandgaon district of Chhattisgarh. Shivnath River is longest tributary of Mahanandi River. 3

different location will be selected for present study in shivnath river from drug district, 1st location will be Changori (latitude 21.0839°N and longitude 81.2388°E), the 2nd location is Mahmara – Ghat (latitude 21°09' 55.3" N and longitude 81°14'21.6" E.) and the 3rd location will be Piperchhery with latitude 21.2038° N and longitude 81.2346° E.



Method and Material –

Adult *Barytelphusa cunicularis* were collected from rice fields and irrigation canals around Shivnath River. Animals were collected every month during one year. Only mature female crabs were selected for sampling. Number of egg bearing and young one bearing females were noted. Number and weight of eggs and young ones were noted from these crabs. Without allowing the remaining animals to acclimatize to laboratory conditions, their somatic weights were noted. The ovaries from the crabs per month were isolated, blotted on a filter paper and weighed to the nearest mg in an electronic balance. The ovarian index was calculated using the equation:

$$\text{Fecundity index (FI)} = W1 / W2 \times 100$$

where

W1 is wet weight of the Egg and

W2 is total wet weight of the crab.

Result and Discussion –

Crab Fecundity Index in different sites –

Piperchhery -

S. no.	Total no. of Egg (gm)	Total Egg weight (gm)	Total weight of Crab with Egg (gm)	Fecundity Index
1	105	0.78	34.58	2.25
2	90	0.63	25.28	2.52
3	171	1.71	40.11	4.26
4	140	1.40	54	2.59
5	196	1.86	58.45	3.18

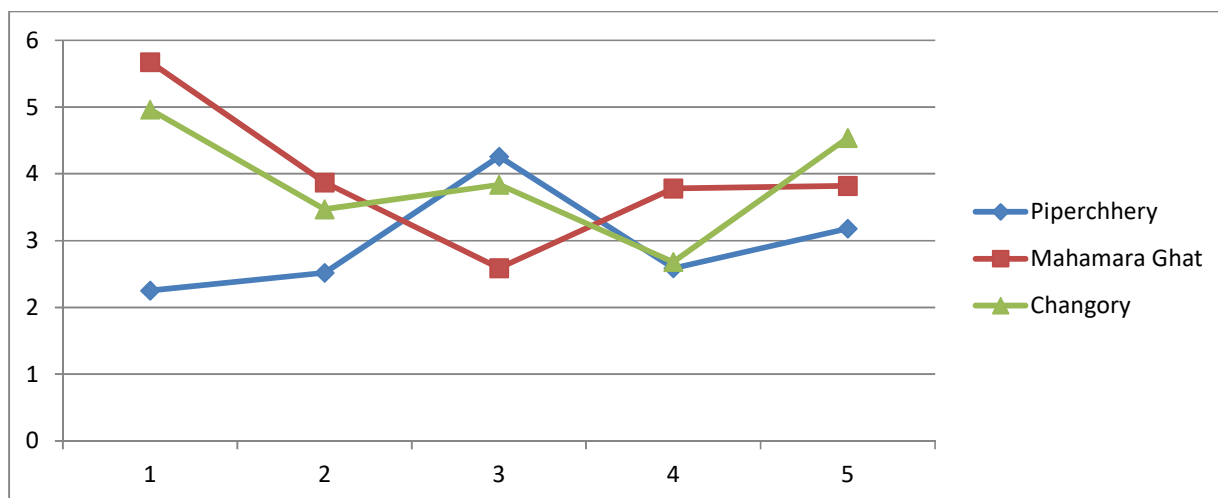
Mahamarra Ghat -

S. no.	Total no. of Egg (gm)	Total Egg weight (gm)	Total weight of Crabs with Egg (gm)	Fecundity Index
1	123	1.53	26.98	5.67
2	140	2.1	54.20	3.87
3	145	1.45	55.90	2.59
4	138	1.38	36.42	3.78
5	130	1.30	34	3.82

Changory -

S. no.	Total no. of Egg (gm)	Total Egg weight (gm)	Total weight of Crabs with Egg (gm)	Fecundity Index
1	135	2.7	54.40	4.96
2	130	1.3	37.45	3.47
3	136	1.36	35.36	3.84
4	120	1.2	44.70	2.68
5	125	1.23	27.05	4.54

Comparative Fecundity Index in Different sites –



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