



EFFECT OF WATER PH ON GROWTH AND PRODUCTION OF FISH IN THE BANSAGAR DAM DISTT. SHAHDOL (M.P.)

Mahesh bhupati * Suryavanshi S.k. Balram das**

Department of Zoology

Govt. S.K.N. PG College mauganj Rewa (MP)

*Govt. J.N.S. PG College Shujalpur Distt. Shajapur (MP)

**Govt amarpatan college Satna (MP)

Abstract- Bansagar dam is big water bodies rich flora and fauna. The dam also use for fish culture when the control of Department of fisheries Govt. of M.P. composite fish cultures were conducted in Bansagar dam Shahdol having 2.3 hectare water area. Amblypharyngodon mola (Ham.) Catla catla (Ham) cirrhinus mrigala (Ham.) and labeo calbasu (Ham.) Were cultured in experimental and control Bansagar dam in recommended density and ratio. The pH of water of the experimental Bansagar dam was within 5.5-8.5 on application of limestone containing 55-66% Cao and dolomite containing 30-32% Cao at higher doses than the control one. Application of dolomite helps to increase the water retention capacity of the Bansagar dam. Yield was observed higher in experimental Bansagar dam than control one.

KEYWORDS- Fish Production, Bansagr Dam.

I. INTRODUCTION-

The fresh water bodies are spread over diverse Geo climatic regions. They are exposed to various climatic conditions and received drainage from Deferent of catchments area. The hydrogen-ion concentration (pH) of natural waters is an important environmental factor. Increases in the concentration of H₂ – ions results lower pH value and low H⁺ ions concentration brings about higher pH of water is the logarithm of the reciprocal of hydrogen ion concentration. The objective of this study was to find out the effects of pH of water on the production of fish in composite fish culture. Demand of table fishes

are increasing day by day. Production of fish depends on the application of required of organic and inorganic fertilizer which are helpful to increase the natural fish food. Optimum level of water quality such as dissolved oxygen, alkalinity, hardness and pH are also the prerequisite for fish production. Among which pH of water has an important role for enhancement of fish yield. Lime fertilizers such as lime stone containing 55-66% Cao, dolomite lime stone containing 42-55% Cao, and dolomite containing 30-32% Cao are generally used for raising the water pH level to required doses. Natural water of Rewa district in Madhya Pradesh is mostly acidic. Having pH ranging from 4.0 to 5.5 to find out the effects of pH on fish growth and production the fresh water ponds were selected for composite fish culture of four species. Expected yield was observed for grass carp Cirrhinus and Hetropneustes in the ponds. The growth rate and production of Indian major carps, rohu, Labeo rohita, Catla, Cirrhinus mrigala and Hetropneustes per unit area were evaluated. The various work have been made by dutt, et al (2001), George. M.R. (1969) Khare.

Geography:-

The Shahdol district is a part of Vindhyan basin which lies admist the vast hilly expanse of Central India. It has a saucer shaped structure, composed of sedimentary rocks. The sand stones, lime stones and shale's are found in this region. The hilly areas are much than the plains. There are two big rivers Sone and Narmada, both originating from the Amarkantak.



II. MATERIAL AND METHODS-

Location : The Bansagar Dam is a multipurpose river valley project on Sone river situated in Ganga Basin in Madhya Pradesh envisaging both irrigation and hydroelectric power generation. The Bansagar Dam across Sone River has been constructed at village, Deolond in Shahdol district on Rewa-Shahdol road, at a distance of 51.4 km from Rewa. Bansagar Dam is located at latitude 24°11'30"N and longitude 81°17'15"E. Fish sampling were collected from the bansagar dam district shahdol has season viz. summer monsoon and winter. Which are easily visible. Summer extends from march to June during change frequently occurred in air temperature during change frequently occurred in air temperature during this season. Water samples were collocated at 1st of each monthly for all the five sites. The of water samples directly measured from digital. pH meter. Collected fish during sampling were preserved in 10% formalin and were identified with help of identification. Methods were used as per methodology given by APHA (1995) Mishra (1968).

III. RESULT AND DISCUSSION-

The fish production fresh water were selected at Bansagar Dam distt. Shahdol Madhya Pradesh having two hectare water area of composite fish culture. One of which was as experimental Bansagar Dam and the other as control Bansagar Dam dolomite 5470 kg./ hectare containing 30-32% cao and lime stone 2500 kg./ hectare containing 55-56% Cao were applied to the experimental Bansagar Dam pH water was maintained within 5.5-8.5 the pH of water of control Bansagar Dam carried within 3.5-5.5 as lime fertilizers were not applied. Manuring was done by applying now during at kg./ hectare per month in the Bansagar Dam fry of Labeocalbasu (Ham.), Cirrhinus mrigala(Ham.), Catla catla (Ham), Amblypharyngodon mola (Ham.) were intruded in experimental and control Bansagar Dam. Fry were stocked at the rate of 12000/ hectare and in the ratio 3:1 5:2: 1of Labeo calbasu (Ham.), Cirrhinusmrigala(Ham.), Catla catla (Ham),

Amblypharyngodon mola (Ham.) respectively. Netting was performed twice a month. Rice bran as supplementary feed was applied at 2 kg/ hectare per day for first 90 days, 4 kg/ hectare per day for second 90 days, 6 kg/ hectare per day for first 90 days and 8kg/hectare per day for first 90 days in the Bansagar Dam. Weeds lemna, azalea and hydrilla one basket/day were applied in the cases. Dissolved oxygen, alkalinity and hardness of water were almost same in the Bansagar Dam standard methods of APHA et al.(1995), harvesting in the Bansagar Dam were performed in june 2010. Tables 1 and table 2 show the yield of fish in a year. Fish yield was 3400 kg/ hectare in the experimental Bansagar Dam and 250 kg/rectare in-the control Bansagar Dam was growth and production of the Labeo calbasu (Ham.), Cirrhinus mrigala(Ham.), Catla catla (Ham), Amblypharyngodon mola (Ham.) in the experimental Bansagar Dam observed higher than the control one. Remarkably, the Bansagar Dam during 2012-2013. Bansagar Dam up in march but in 2012-2013 and 2013-2014 Bansagar Dam not dry up. So dolomite have played an important role to minimize the water seepage. It has been established that water having ph of water Bansagar Dam varies only in the range of during March to June. It has also been established that water having pH ranges between 5.5-8.0 are most suitable for in land Bansagar Dam fish culture and pH value more than 8.5 was found to be unsuitable as CO₂ in not available. Mortality of fishes occur at about pH in acid waters lose their appetite, growth capacity and tolerance to toxic substances. Toxic effects of H₂ S₂ copper and other heavy metals to fish increased by lowering the pH of water. Indian major carps prefer to feed the aquatic organisms as their food. In control Bansagar Dam low yield of the Indians major carps may be due to 10 wph of water than the experimental one. Because acid waters may indirectly harmful effect on aquatic organisms which was used as natural food by fishes. On the contrary the yield of grass carp and silver carp were almost same in both the Bansagar Dam. So low pH of water may not have low productive effects on the growth and production of



these two exotic Carps. The various work have been already made by bhatt V.S. (1968) singh R.K. (2007) Welch, P.S. (1948) das S.M.(1957) david A (1956-63) dattamunshi J.S. & shrivastava (1988) faiace

S.B.(1978) fulton T.W. (1904). Kaur, H and Sharma, I.D. (2001). Mathew, P.M. (1975) Thilak, J., Ojha, Praveen (2008) Sreenivasan, A. (1964). Shrivastava, N.P., Das, AK,. (2003)

Table 1. Yield of fish (kg/hectare) in the Bansagar dam M.P.

Fish	Family	pH	Amount (kg.)
Labeocalbasu (Ham.)	Cyprinidae	3.5-5.5	582
Cirrhinusmrigala(Ham.)	Cyprinidae	3.5-5.5	232
Catla catla (Ham)	Cyprinidae	3.5-5.5	223
Amblypharyngodon mola (Ham.)	Cyprinidae	3.5-5.5	285

Table 2. Yield of fish (kg/hectare) in the experimental Bansagar Dam M.P.

Fish	Family	pH	Amount (kg.)
Labeocalbasu (Ham.)	Cyprinidae	5.5-8.5	635
Cirrhinusmrigala(Ham.)	Cyprinidae	5.5-8.5	455
Catla catla (Ham)	Cyprinidae	5.5-8.5	498
Amblypharyngodon mola (Ham.)	Cyprinidae	5.5-8.5	562

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