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Assessment of Diversity And Productivity of Fishes In Rani Talab of Teaker, Rewa.

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ABSTRACT:

An experiment was carried out during the year 2011 and 2012 at the Research Centre, A.P.S. University, Rewa (M.P.) to assess the diversity and productivity of fishes in Rani Talab of Teaker village, Rewa (M.P.). The study was confined the five sites of the pond. The identification and relative abundance features of 15 types of fish species are summarized in Table 1. The five types of fish species under Table serial number 1, 5, 6, 11 and 15 were abundant in the pond water, whereas four species under Table serial number 7, 10, 12 and 13 were in the common range. Three species under 2, 3 and 8 serial number were in the moderate range, whereas three species at serial number 4, 9 and 14 were rare in the pond water. The maximum quantity (603-605) of fish species were obtained in January and 403-409 were found in October /August in both the years. The fish productivity was found highest (1146 to 1216 kg) in January in both the years, whereas the productivity was lowest (683 and 696 kg) in October or August months.

KEYWORDS : Diversity, productivity, fishes, Rani talab.

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INTRODUCTION:

The fish diversity is on a decline due to irrational fishing practices, reduction in pond-water volume, increased sedimentation, water abstraction and pollution over the years. Consequently the productivity of fish species might have adversely affected under such ponds. Because of man's exploitation of the water resources, the normal dynamic balance in the aquatic ecosystem has been continuously disturbed leading to fish kill. Thus the productivity of a pond depends on its ecological conditions and by monitoring water quality control, the sustainable fish productivity can be

increased (Goswami, 1985). Fishes are more dependant on water temperature, pH, dissolved oxygen, free CO_2, alkalinity and some salts for their growth and development

(Nikolsky, 1963). Pollution of the aquatic environment by additions of various agricultural and industrial chemicals is a major factor posing serious threats to the survival of aquatic organisms including fish (Saeed and Shaker, 2008). Looking to all these factors, the present research was initiated in the Rani Talab of Teaker village of Rewa district (M.P.).

MATERIAL AND METHODS:

The experiment was carried during the year 2011 and 2012 at the Research Centre, A.P.S. University, Rewa (M.P.). The fishes were collected from the from the five sites of the pond and preserved in 10 % formaldehyde solution for taxonomic analysis. Identification of fishes was carried out with the help of standard literature (Talwar and Jhingran, 1991). Fish diversity was subjected to diversity analysis using the Shannon-Weaver index (1949). The fish productivity was estimated by the formula as given by Ricker (1946) and Allen (1950).

RESULTS AND DISCUSSION:

The data highlighted in Table 1 reveal that the observations on fishes recorded 15 species from 6 families. Among the reported species only 4 sps.viz. *Labeorohita, Catlacatla, Cirrhinusmrigala, Mastacembelusarmatus* and *Wallago attu* were found in abundance, 4 sps. *Clariasbatrachus, Oxygaster bacaila, Mystusbleekeri and Mystusseenghala* showing common occurrence, 3 other sps. *Labeobata, Labeocalbasu and Cyprinuscarpio* were found in moderate amount. Whereas 3 sps. *Bagarius bagarius, Hypophthalmichthys molitrix and Nandusnandus* showed rare appearence in the pond.

The maximum quantity of fish species were obtained in the month of January 2011 and 2012 (603 to 605) and least quantity were obtained in the month of October or August (403 to 409). In both the years, the growth of fishes were maximum in August (0.197 to 0.239 kg) and minimum during May (0.02 to 0.7 kg). Stock biomass was reported maximum during January (122 to 126 kg) and minimum during July /August (68.32 to 72.48 kg). The average productivity of fishes were recorded the during year 2011 and 2012 (107.63 to 140.31 kg/ha).

Table 1- Relative Abundance and conservation status of fish sps. of Rani Talab, Teaker

S.No.	Species	Local Name	Family	Relative Abundance	Conservation status
1.	***Labeorohita***	**Rohu**	**Cyprinidae**	**++++**	**LR-LC(IUCN)**
2.	***Labeobata***	**Rohu**	**Cyprinidae**	**++**	**LR-LC(IUCN)**
3.	***Labeocalbasu***	**Kari**	**Cyprinidae**	**++**	**LR-LC(IUCN)**
4.	***Bagariusbagarius***	**Baiker**	**Sisoridae**	**+**	**Red list (IUCN)**
5.	***Catlacatla***	**Katla**	**Cyprinidae**	**++++**	**LR-Vulnerable (IUCN)**
6.	***Cirrhinusmrigala***	**Mrigal**	**Cyprinidae**	**++++**	**LR-NT**
7.	***Clariasbatrachus***	**Magur**	**Siluridae**	**+++**	**LC(IUCN)**
8.	***Cyprinuscarpio***	**Common carp**	**Cyprinidae**	**++**	**LR-LC (IUCN)**
9.	***Hypophthalmichthys Molitrix***	**Silver carp**	**Cyprinidae**	**+**	**NA**
10.	***Oxygasterbacaila***	**Chelhwa**	**Cyprinidae**	**+++**	**LR-LC(IUCN)**
11.	***Mastacembelusarmatus***	**Bam**	**Acanthopercidae**	**++++**	**LR-NT(IUCN)**
12.	***Mystusbleekeri***	**Tengra**	**Bagridae**	**+++**	**LR-LC(IUCN)**
13.	***Mystusseenghala***	**Tengara**	**Bagridae**	**+++**	**LC(IUCN)**
14.	***Nandusnandus***	**Leaf fish**	**Nandidae**	**+**	**LC(IUCN)**
15.	***Wallagoattu***	**Padin or Bual**	**Siluridae**	**++++**	**LC(IUCN)**

Abundant++++, Common+++, Moderate++, Rare+

Protz *et al.* (2006) reported that water quality is one of the most important contributors to fish health and stress level. Fish may be able to tolerate adverse water quality conditions; however, when combined with other stressors, fish may be quickly overcome by the resulting physiological challenges. Stress assoicated with short-term holding of fishes can have negative effects on overall health and well-being.

CONCLUSION:

Temperature, dissolved oxygen, ammonia, nitrite, nitrate, salinity, pH, carbon dioxide, alkalinity, and hardness are the most common water quality parameters affecting physiological stress. Jolley *et al*. (2010) indicated that food availability may regulate fish recruitment, both directly and indirectly. The availability of zooplankton, especially to newly hatched larvae, is thought to be crucial to their early growth and survival.

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