IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

THE STUDY OF PLANKTON VARIATION IN THE PADDY FIELD WATER OF RURAL CHAPRA

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ABSTRACT

A basic feature of the earth is an abundance of water which extends over 71% of its surface to an average depth of 3800m over 99% of this immense hydrosphere is deposited in occur depreasions. The relatively small amounts of water that ocean in freshwater bodies belie their fundamental importance in the maintenance of terrestrial life.

INTRODUCTION

The scope of plankton study is immense involving such diverse system as lakes, ponds, bogs, paddy fields Btreams and rivers. Each has its own peculiarities and is populated with a community that has specific adaptations not only to cope with the prevailing condition but the entire life history of such organism is moduleted in a way as to survive seasonal fluctuations and exlreme conditions Water is the essence of life on earth and totally dominates the chemical composition of all organism. The ubiquity of water in biota, as the fulcrum biocheraical metaboliam rests on its unique physical and chemical properties.

A basic feature of the earth is an abundance of water which extends over 71% of its surface to an average depth of 3800m over 99% of this immense hydrosphere is deposited in occur depreasions. The relatively small amounts of water that ocean in freshwater bodies belie their fundamental importance in the maintenance of terrestrial life.

The real freshwater supply is in reality much smaller than the potential total because of many factors. First, rainfall is not evenly distributed over land surfaces and humans themaelves are not distributed lend in proportion to water availability This disparity resulta in a great expanse ef resources and energy for distribution system to move water from places of water abundance to places where it is inadequate to support human activities. Seconds total consumption has increased exponentlally with demotechnic growth Expansion of distribution systems to areas of low precipitation such as for irrigation of semiarid regions, results in disproportionately high use of water because of very high loeses by evapotranspiration.

Third, potentially the most serious factor stemming from demotechnic growth is the severe degradation from contaminants of water quality The elfect is a severe reduction of water supply available for other purposes.

Fresh waters of the world are collectively experiencing markedly accelerating rates of qualitative and quantitative degradation. Certain societies can cope. at least temporarily with pollution and availalbility oonstraints and can even reduces freshwater degradation In most of the world however human population growth continues without Significant reduction rates Until human growth and consumption is stabilized one hopes by the mid twenty first century cither by intelligence or eatastrophes, further loscs and patially on a global basis. Control and reversal of degradation requires a proper economic and social valuation of fresh waters, With proper valuation methods for effective utilization of existing, finite supplies can be applied to agricultural, industrial and residential uses.

THEORY

Freshwaters still save purposes other than water supply such as reereation transportation systems, asthetics, and others, However the demands of exponential demotechnic growth elearly receive total precedence over uses of fresh waters for other purposed. The most fundamental laws of resource utilization may be recognised by most agencies and industries but they are not being Implemental significantly. The remarks above although pessimistic accurately assess existing pattern of utilization of our water resources. It is clear that demotechnic growth will continue to impose increasing demands upon freshwater supplies either until inefficient utilization creates a disastrous situation threatening the survival of a

major segment of human race or until the expenditures of energy needed to obtain water exceed tolerable operational levels. Looking back at the repetitions history of responses to impending environmental disasters, we can be optimistic about the future only until such time as our understanding of the operation of the biosphere and our knowledge of freshwater ecosystems in particular is adequate to allow us to recognize the joint of irreversibility. As one reflects on the progress that has been made in freshwater biology since its inception a century ago. It becomes apparent that the time available for understanding freshwaters is disconcertingly limited. We need to intensify study of and time to understand freshwater in systems sufficiently to judge their resiliency and capacity for change in response to exponential demotechnic utilization and loading of contaminants Existing understanding of freshwater ecosystems must be extended to a greater percentage of the population being educated so that this information can be effectively fused into the population at all levels.

It is of the utmost importance therefore that we understand the structure and function of freshwater ecosystems Humans are a component of these ecosystems, and these effects on them will increase markedly until demotechnic growth is stabilized. Emotionalism and alarmist reactions to the momentum of exploitation of the finite biosphere by the technological system accomplish little and as has been demonstrated repeatedly are often antagonistic to improvement strict. Conservation and isolation of resource Parcels in the belief that such areas are exempted from technological alterations of the atmosphere and water supply are native and little to solution of the overall problem understanding the metabolic responses of aquatic ecosystem is essential in order to confront and offset the effects of these alterations and in order to achieve maximum, effective management of freshwater resources All waters of course cannot be managed directly Rather an integration of human growth and utilization with the melaboliam of fresh water is required to minimize detrimental changes. A well documented effect of human impact upon aquatic ecoaystem is cutrophication a multifaceted term associated with increased productivity simplification of biotic communities, and a reduction in the ability of the metabolism of the organisms to adapt to the imposed loading of nutrients. These conditions lead to reduced stability of the ecosystem In this condition of cutrophication excessive inputs often exceed the capacity of the ecosystem to be balanced. In reality however the ecosystem are out of equilibrium only with respect to the freshwater chemical and biotic

characteristics that are desired by humans for specific purposes. In order to have any hope of effectively integrating humans as a component of aquatic ecosystema and of monitoring their utilization of these resources, it is mandatory that we comprehend in some detail the functional properties of freshwaters.

V.K. Jain TP Sinha & A.K. Sinha (2005) noted that the transparency did not show any correlation with plankton production, temperature, P^H, total alkalinity chloride was inveraely correlated with plankton. The phosphate content showed a direct relationship with plankton pollution. The free Co_2 and Plankton production was negatively cerrelated which can be attributed to the photosynthetic activity.

Anamika Kumari Anuradha Kumari, R.P. Mahto & Ashok Kumar (2000) shown that dissolved oxygen and carbon dioxide in water have relatively more influence on the diatom population whereas temperature has shown a considerably higher standardized regreasion coefficient and F test value on the blue green algae NeeraShrivastava et al (2003) were recorded D.0 from the water bodies around Jaipur was at Jalmahal 4,7 mg/1 at Ramgarh with highest dissolved oxygen level i.e 7.6 mg/ 1

J. S. Chandra Shekhar (2003) recorded D.O. was 3.8 mg/1 at in let HC 63 varthur outlet in Bellandur tank near Banglore city.

Sedamukar and Angad (2003) were recorded D.O. minimum 5.2mg/1 in the month of January and Maximum 10.4mg/ Iin the Pala tank near Gulberga.

Stevenson F-1 and Ardakani (1972) studied on organic matter reactions involving Micronutrients in soil.

Shiv Kumar Raghbendra Pratap and M. C. Verma (2007) studied the ehloride and nitrate content in the reservoir of Jagdishpur Block (Banka, Bihar) he recorded chloride content during, first year 32.3mg/1 in November A8.4mg/ 1 in September The nitrate content was 3.6mg/1 in November whereas 8.6Mg/L in September.

BIOTIC FACTOR

In course of study the present worker had gone through the works of foreign and Indian outstanding scientists on the different aspect of biotic parameter.

Beaner and crisman (1989) studied the cilliate abundance is coupled to maximum abundance of phytoplankton in the spring and early summer months.

Weise (1991) explained the seasonal successional pattern among heterotrophic nanofingelates is exemplified well in lake Constance Germany Mathes and Arndt (1995) studied the analogous seasonal distribution were found in the detailed studics of flagellate, Sarcodine, and Cilliate communities of Neumihler see, Germany.

Crittenden (1981), Geller and-Muller (1981), Brendelbenger and Galler (1985) Gant and Shiel (1985) Gophen and Geller (1985), Hessen (1989), Brendelberger (1991), etudied the size perticle that can be cleared from water is a function of

(a) The morpholegy of the setae of the moving appendages.

(b) Physical characteristics of the sieving surfaces and particle moVment and

(c) Locomotion of the animal brings particle laden water the setse The Morphological characteristic and dimensions of the filaments structures and apertures heve been examined in the cladocerans in particular

A. K. Singh (1990) shidied on the review on limnological status of some lakes and paddy fields in Uttar Pradesl. AlamA.K. M. and Van der Hoek (2001). Explained increasing wild fislh harvest by enhancing rice field habitat utilizing different aquatic resources for livelihood In Asia. Alikuhni K.H (1965). Explained the observation on grawth, maturity and feeding of inclured bred, pond reared silver carp and grass carp in India during July 1962 to August 1963. Amon (1969) Described the high fish yielde mixed culture in small freshwater ponds. Mimo.

Chandrasekhriah (2000) studies on the status of fish fauna in Karnataka. Chen, H. Hu. B. and Charles, T (1995). Studied on the Chinese integrated farming, a comparative bioccomic analysis, Chumatrio, S.K. Scholz, U.K. (1995). Explained integrated aquaculture agriculture farming systems a sustainable response towards food security for small scale poor

farmers in Malaroi. Cummins (1969) discussed a detailed study of the sooplanktonic population of shallow extremely productive sanctuary waters in northwestern Pensylvania. three species of daphnia occurred and exhibited a large spring maximum anda small autumn peak. Dagget and Davis (1974) explained the seasonal quantitative study of littoral Cladocera and Copepoda in a big pond and an acid marsh in Neofounland. Das (1994) studied on the fish biodiversity conservation in our evolutionary responsibility Das (1995) explained the fish biodiversity conservation and genetic conservation can accelerate blue revolution. Das and Barat (1990) studied on the fish habitat degradation necessitating conservation. Das and Shrivastav (1959) studies on fresh water plankton and qualitative composition and seasonal fluctuations in plankton components. Das, Singh Kapoor, Mahanta&s Upadhyay studied on the sophisticated tool for fish stock improvement Demaine H and Halwart. M (2001).

PLANKTON VARIATION IN THE PADDY FIELDS WATER OF RURAL CHAPRA

The study was conducted during the period from Jan 2009 to December 2010. Collected phytoplankton and zooplankton were brought in the ICAR laboratory of Deptt. of Zoology. Lok Mahavidyalaya Hafizpur Baniapur Saran and preserved in 5% formaline of Lugol's solution and alcohol separately for further study The counting of plankton was made by Haemocytometer& Sedgwick rafter.

RESULTS

Different groups of sooplankton also showed marked variation in their in the different months maximum number of pretozoa were collected in the month of May and October while minimum number were collected during February and September in 2009 and 2010. Fotifera cladocera copepod ostracoda showed their maximum number during April, May October and November while they showed their minimum numbers during February and September. Similarly the lowest collection of zooplankton was recorded during September 2009 and 2010. However the highest collection recorded during May of each year.

Among phytoplankton the group Bacillariophyceace dominated other groups. The second group chlorophyeeae was the second dominating group throughout the study of phytoplankton from different paddy fields (Chenwar) of Rural Chapra. While the cyanophyceae was the third group in the population and percentage of the plankton in the lentic water bodies

of rural Chapra the fourth group constituted mostly vaucheria (xanthophyceae) and ceratium (Dinophyceac) in low percentage in the study.

The pH value is one of the important parameters regarding the quality of water Meetu Rastogi CL. Jain Ashok Kumar (2006) reported high P^H (9.2) in the lentic water body at Gaziabad. Bilgrami and Duttamunshi (1979) reported pH value from 7.2 to 8.2 In the present study the pH value of paddy fields water of Rural Chapra have been absorbed to vary from 6.0 to 9.9 which more or less resembled with the above findings. Bilgrami et. al (1985) recorded lower pH during the rainy season and higher in winter Sinha (1985- 88) recorded higher pH in summer and winter seasons and lower in rainy season.

In present study the higher pH value was recorded in winter and summer season and lower in rainy season and thus are in resemblance with the finding of Bilgrami and Sinha.

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