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Hydrobiological Studies in Special Reference with the Manner Dam Sirisilla District

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Abstract: ***The life and the life processes studied in water is Hydrobiology. Modern hydrobiology views as a discipline of ecology, but hydrobiology includes taxonomy, economic biology, industrial biology, and morphology. Limnology studies all freshwater bodies concerning physical, chemical, and biological characteristics (Das 1989). Studies on the ecology of various water reservoirs, dams, and river algae have been carried out extensively in different parts of India. The present review literature focuses on the pollution of water, the quantitative study of algal taxa, and the various works done around the globe with this respect.***

Keywords: Alge, diversity, aquatic habitat, freshwater, phytoplankton,

I. INTRODUCTION

Water is one of the most essential substances available on earth. India has abundant sources of freshwater, and with the rapid increase in population, the demand for irrigation, natural resources, and industrial use has increased considerably. This puts tremendous pressure on the limited fresh water. Uncontrolled disposals of urban waste and industrial and agricultural waste like fertilizers and agrochemicals contaminated the water qualities of surface water. Ultimately, most of the freshwater bodies pollute in the religious undergoing development. A freshwater ecosystem varies in size and composition and contains a wide range of organisms interacting. The dynamic heterozygous relationship gains physical, chemical, and biological elements in the freshwater ecosystem, which can be recorded by regular monitoring to maintain the integrity and conserve the ecosystem. Basavarajapp et al. (2010)) Rivers are the lifelines of the majority population.

Our most ancient civilizations grew along the banks of the river. Today, millions of people worldwide live on the banks of rivers and depend on them for survival. Rivers are nothing but the larger orders of streams flowing from a high to a low altitude due to the pull of gravity (Singh 1993).

II. OBJECTIVES

The main objectives of the study are as follows. They are

1) To study the distribution of general fauna in Maneru
2) To understand what makes the dam water different in appearance

III. RESEARCH METHODOLOGY

The data has been collected from both primary and as well as secondary sources. Most of the data was collected from the secondary sources.

IV. ANALYSIS

The upper Manair Project is an existing Medium Irrigation Project constructed across the Manair River near Narmal village, Gambhiraopet Mandal in Rajanna Siricilla District, Telangana State. The Project is located at a distance of 40 km from Siricilla town. The scheme is intended to irrigate an ayacut of 13,086 Acres. They are benefiting 16 villages in Gambhiraopet, Yellareddypeta and Mustabad mandals of Siricilla. Flora and fauna are the prominent biological factors which are influencing the river water. Both the Krishna and the Godavari rivers are the nesting sites of the endangered fauna. It is the home of fringed lipped carp which is an endangered sp. The sp. Diversity in the river is dominated by Cypriniformes with 8 fish sp. 44% followed by Perciformes 5 28% Osteoglossifomes 2 11% Siluriformis 2 11% Synbranchiformes with one sp. 6. These sp. Play a significant role in river fauna.

Rivers carry dissolved minerals, organic compounds, tiny particles of sand gravel, and other materials as they flow downstream. The water reservoir is used for most human activities like bathing, drinking, washing, irrigation, industrial, supply, etc. Most of the reservoirs are heavily polluted Chacko and Ganpati, (1949); Nirmal Kumar et al., (1991) Biswas et al., Chopra and Patrick (2000).

Dingley (2001) attempted 58 new species records for New South Wales, of which 27 are newly recorded in Australia. Komar ek and Janakovska (2001) enumerated 24 species of Pediastrum that have been described from the World, and among them, four species are Worldwide in distribution, generally in eutrophic waters. S.M. Leghari (2001) studied fifty-nine Desmids, Sicldharthavator, and Cosmarium taxa recorded from Sindh's Riverian Ponda, Bakar, and Kinjhar lakes. Talling and Parker (2002) studied the seasonal dynamics of phytoplanktons; abundance and bloom were detected in spring and summer observed in shallow Upland Lake Malham Tarn, Northern England. Hubble and Harper (2002). They found that nutrient limitation is vital for phytoplankton abundance in shallow freshwater lakes in Naivasha, Kenya. Cetin (2002) observed the temporal changes that cause uncertainty in the phytoplankton composition and assemblage of Golbasi Lake, Turkey.

Isbakan et al. (2002) reported that Pediastrum species were found in oligomesotrophic reservoirs in Turkey. Chellappa et al. (2004) said that Cynophyceae members can grow in turbid water with low light intensity to maintain buoyancy and the capacity to grow exponentially in the wet period in which nitrogenous nutrients were high, as observed in the Campo Grande reservoir as in Brazil. Pasztaleniec and Poniewozik (2004) enumerated the knowledge of Pediastrum as beneficial for determining the triplicity of water in the present and past. Abdo (2005) studied the physicochemical characteristics of Abu Za Baal Pond, Egypt, and concluded that the pond is oligotrophic. Aysel (2005) reported 29 species, a new record for Turkish freshwater algae. Ying Ouyang (2005) evaluated water quality and concluded calcium ranges between 39 and 78 mg/L, fawning the dominance of Bacillariophyceae. Iqbal et al. (2006) worked on a limnological study of the river Soon in Pakistan. They reported 134 phytoplankton genera and concluded water quality was within safe limits. Adefemi et al. (2007) investigated the physicochemical status of water from Major dams in Ekiti State, Nigeria. They found that the physicochemical parameters were higher in the summer than in other seasons. Tas and Eiunnol (2007) Studied ecological characteristics, not only the quality of an aquatic ecosystem but also its biological productivity.

Adesalu and Nwankwo (2008) reported Spirogyra sp and Closterium acerosum, two species that indicate the eutrophic nature of the water body. Rai et al.'s (2008) preliminary work on the desmids reported 36 taxa belonging to 7 genera of desmids had been described from Beeshazaar Lakein, eleven tax records for the first time from Nepal. Razak Abdul et al., (2009) Assessment of water quality of the Oti River in Ghana. Their studies revealed that nitrate showed comparatively higher values in the monsoon season, possibly due to farm surface runoff and stormwater runoff into the river during the rainy season. Hassan et al. (2010) studied the distribution of algae and the physicochemical properties of three ponds in Kano City, Nigeria, concluding that the most significant number of algae is probably due to the favorable physicochemical properties. Kowalska and Wolowski's (2010) studies revealed that most the species of Pediastrum are restricted to particular geographical areas.

Maria da Graca Sophia and Carmen Perez (2010) studied planktic desmids from Merin Lagoon, a biosphere world reserve in Brazil. They encountered 61 desmids taxa belonging to 15 genera of Staurastrum Meyen Cosmarium corde, and Closterium Nitzsch ex Ralfs Staurodesmus Teiling concluded that Staurastrum and Cosmarium were the most represented genera. Sevindik et al. (2010) reported 29 species, a new record for Turkish freshwater algae. Ali et al. (2011) concluded that desmids are essential members of algal communities. It plays a remarkable role as a primary producer in aquatic ecosystems. Maraslioglu et al. (2011) studied the Chlorococcales Chlorophyta community structure and seasonal variations regarding species composition and abundance of dominant species in Tath, Gici, Liman, and Cernek lakes, Turkey. 36 Chlorococcales species were reported, and different seasonal trends indicated high species richness. Prasad (2011) wrote five species of Oedogonium from Nepal. Mubashrah Munir et al. (2012) reported a taxonomic enumeration of the Bacillariophyta group from KallarKahur Lake in Pakistan. They enumerated 35 species distributed in two orders; seven families and 15 genera have been reported for the first time in that area.

Rai (2012) reported six species and the genus Oedogonium Link from Nepal, five species recorded for the first time in Nepal. Raj S. K. and P. K. Misra (2012) recorded twenty taxa of Pediastrum in East Nepal. They reported that paediastrum is not restricted to Nepal's eastern and central parts. Han Soon Kim's (2013) study summarizes the occurrence, distribution, and autecology of Cynophyceae twelve class taxa collected in South Korea. He recorded one new species, the Anabaena Korean species, and eleven species recorded for the first time in Korean freshwater algal flora.

Many workers from India have worked on the limnology and ecological aspects of freshwater bodies, including rivers, dams, lakes, ponds, etc., but biologically, very few studies were made concerning algal flora. Work on algae distribution, ecology, and periodicity began after the Indian Science Congress, Calcutta (1938), following the session's central theme, "Algal problem peculiar to tropics with special reference to India."

Bahura (2001) studies a highly eutrophic temple tank near Bikaner, Rajasthan. Jarousha (2002) reported that the higher diversity of the blue-green algae may be attributed to high nitrate values during the rainy season. Kiran et al. (2002) said that a higher range of Carbon dioxide promoted the moderate growth of Euglenophyceae.

Sukumaran (2002) studied in a perennial tank in Bangalore. Disposing of agricultural waste and untreated sewage into water bodies adversely affected flora and fauna. They concluded organic content leads to eutrophication and deterioration of water quality. Tiwari and Chauhan (2006) studied physicochemical characteristics and the Phytoplankton population of Kitham Lake, reporting 73 genera. They observed that the Phytoplankton population showed two peaks, in winter and summer. Tiwari and Chauhan (2006) reported the seasonal Phytoplanktonic diversity of Katham Lake, Agra. Vishnoi and Srivastava (2006) have reported the algal taxa from the alkaline pond of Gura Vishnoiyan near Jodhpur, Rajasthan. The physicochemical parameters change throughout the year, showing a diverse distribution pattern of algal flora. They recorded 36 species of Cynophyceae members and ten species of Chlorophyceae.

Das and Chakrabarty (2007) performed a limnological study survey of three tropical water reservoirs in Eastern India. They reported that 32 pollution-tolerant genera of algae were recorded in 3 water reservoirs that were organically polluted. Muthukumar et al. (2007) studied Cynobacterial Biodiversity from different freshwater ponds of Thanjavur, Tamilnadu, and reported 39 taxa of 20 genera of Cyanobacteria in all five other ponds. Mahendraperumal and Anand (2008) studied freshwater algae of Tamilnadu based on different types of lotic and lentic water bodies. Misra et al. (2008) performed a water quality index and suitability of water from the Kohargaddi dam in the Balrampur district. The result concluded their seasonal rhythm in some physicochemical parameters and water quality index. The results indicate the poor status of water during monsoon and winter seasons.

Parasher et al. (2008) reported that the range of pH (7.2-7.8), alkalinity (80-120 ppm), dissolved oxygen (7.02- 8.73 mg/L), and BOD (1.4 -2.4 ppm) is the expected level of drinking water reservoir studied in Bhopal (M.P.). Sankaran (2009) studied taxonomic groups of the freshwater algal ecosystem in the Anaimalai hills of Tamil Nadu. Thirugnanamoorthy and Selvaraju (2009) did a preliminary study of phytoplankton diversity about physicochemical parameters of the Gnanprekasam temple pond of Chidambaram in Tamil Nadu, India. They reported that the distribution and population density of phytoplankton species depend upon the physicochemical parameters of the environment and concluded the pond is mesotrophic. Toppo and Suseela (2009) enumerated 28 species of Cosmarium from Mani Pokhar of Jashpur district. All these species have been recorded for the first time from Chhattisgarh. Arulmurugan et al. (2010) investigated a temple tank in Kerala, and they observed that depending on the season, the algae appeared and disappeared, and they concluded that seasonal variation was in combination with the ecosystem.

Arulmurugan (2011) studied freshwater algae from the University of Madras Guindy campus in Chennai and reported 39 genera and 62 species belonging to Chlorophyceae, Bacillariophyceae, and Cynophyceae. Rita et al. (2012) studied the Sabarmati River, Ahmadabad, and reported 48 phytoplankton species. Among these, twenty-one species of Chlorophyceae, 13 species of Bacillariophyceae, 11 species of Cynophyceae, and three species of Euglenophyceae are the algal flora of polluted water bodies. Chalotra Priyanka et al. (2013) enumeration of four species of pond scum genus Zyghemopsis Skuja from different water bodies of Jammu and Kashmir. The species were taxonomically determined based on vegetative and reproductive structure. Jose John et al., (2013). New addition to freshwater algae of Western Ghats Idukki District, Kerala, reported that 19 new taxa to the class Chlorophyceae are new to science and recent reports from Indian subcontinents and Kerala State.

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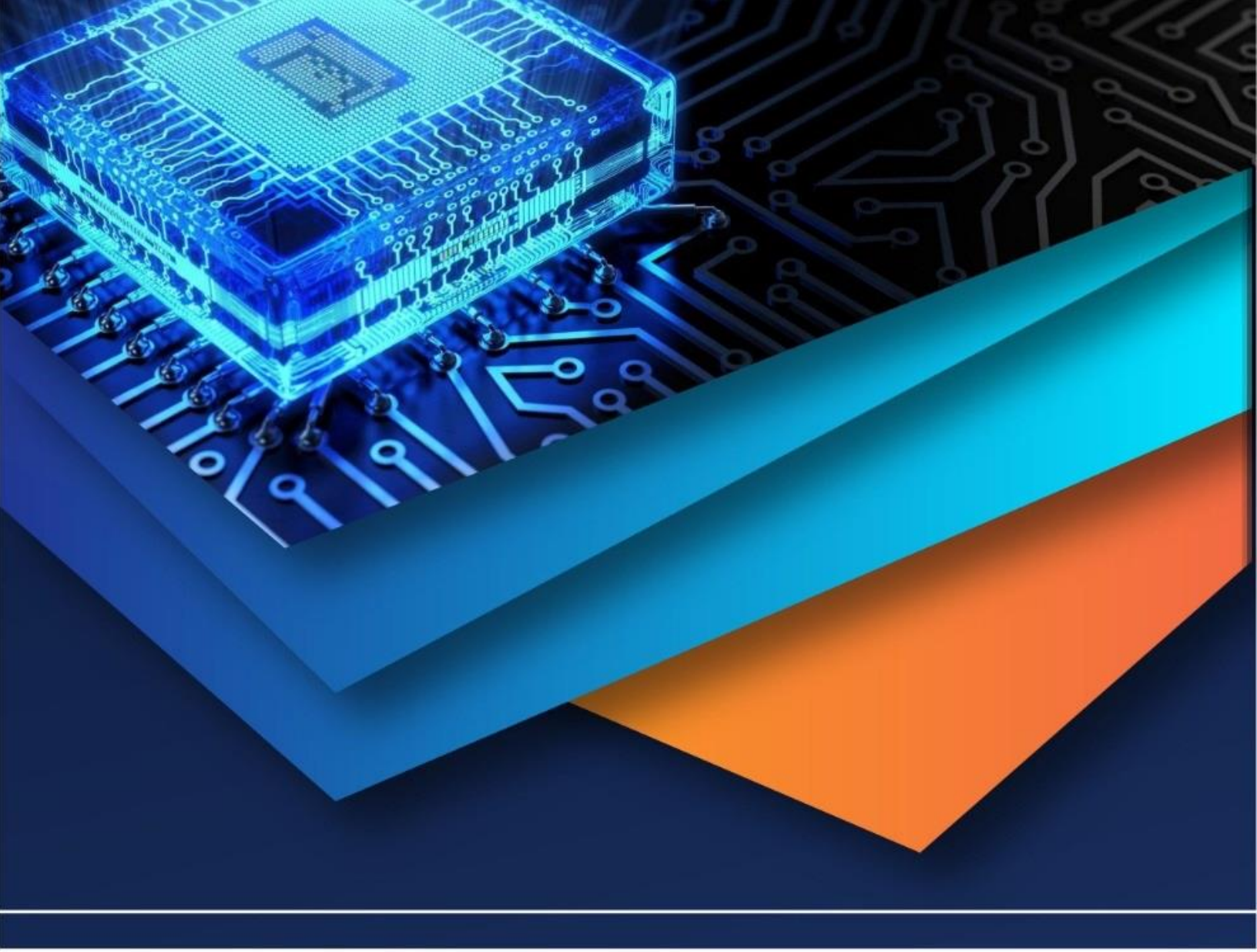

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