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PRESENT

ATTEMPT
Present attempt is to assess the nature of 'Chatri lake', and the reasons or causes for its deterioration, so that the freshwater body can be managed properly for future. For this the work was categorised into physico-chemical and biological parameters along with study of flora and fauna. In addition primary production rate, number pyramid, food web, biogeochemical cycles, health studies and nutrient bioassay are also covered.

**PHYSICO - CHEMICAL**

Changes in water temperature of Chatri lake is to be studied to evaluate the effect on water body at different stations and throughout the year. pH influences the nature of water and thus the organisms living in water. Hence, during present study pH will be determined and later its effect on lake will be assessed. Conductivity of water reflects on concentration of ions, minerals and salts content of lake. Hence, conductivity of the lake is to be studied. To check the level of pollution in Chatri lake will be the objective for analysis of dissolved oxygen. The quantity of raw water and biological activities in water body will also be detected by dissolved oxygen studies. The turbidity affect the productivity rate, water quality and flora of lake, therefore measurement of turbidity will be an approach during present investigations. Total dissolved solids help us to assess amount of solids present in water. During the present investigation total dissolved solids are to be studied to perceive its effect on water quality, flora and reasons for its presence in water. Alkalinity in water is due to bicarbonate, hydroxy ions and carbonates. The rise or fall in alkalinity during present investigation will be taken in to account for evaluation of water quality and its treatment. To detect level of pollution due to addition of sewage waste or chemical industry will provide clue for the source of chloride in water. Chloride content help to analyse addition of wastes either by man, animal or industry to water body. Sulphate concentration above a limit produces hardness, objectionable taste and corrosion of pipes. The objective to study sulphate during present study will be to detect the level of sulphate and trace out its sources and causes. Increase in the concentration of nitrogenous compounds causes eutrophication. During present study the analysis will be carried out to check the state of their level in water and to search the source and cause. Phosphorus acts as growth limiting factor in water bodies. The objective will be to seek the level of phosphorus, its form in lake water, to trace out the reasons for its presence and its effect on water body. Sodium in natural waters affects soil, human and agricultural fields. Hence presence of sodium metal will be detected to judge the quality of water. As potassium occur abundant in natural water, to detect its level during present study will be the objective. Presence of potassium affects soil, water quality and health. To see the effect of P on the water body is a need. BOD helps to evaluate the demand of microorganisms for oxygen to stabilize organic matter. It also provide information on oxidizable organic matter present in waste treatment system and thus help to give solution for control and management of water body pollution. Chlorophyll - a estimates phytoplankton biomass of a water body. Estimation of chlorophyll - a a major photosynthetic pigment, and its effect and causes on the water body will be studied on Chatri lake.
BIOLOGICAL

Pathogenic bacteria are harmful for human health. The objective of bacteriological studies is to detect the pathogenic bacteria, their count and to trace their causal agency. The biological interactions of the aquatic community are considered for evaluation of the state of natural waters. The plankters study of the lake will be carried out to identify species and to calculate their number belonging to different groups and families and also to know their composition.

FLORA & FAUNA

The vegetation around the lake plays a major ecological role. The marshy vegetation plays a key role in attracting migratory birds and conservation of other aquatic life like mollusks, snails etc. They also play major role in treatment of waste water, reducing sediment load, production of organic matter, ground water recharge, biofertilizers etc. Hence identification of the genera, species and family to which they belong is a necessary part of the present work. Faunal diversity enriches beauty of lake. During present study the varied faunal species of the lake will be identified to collect data that will be correlated for food web, number pyramid and faunal status of lake.

FOOD WEB

The food web of Chatri lake is to be studied to understand the trophic structure of different communities, interrelationship between communities and the pathway through which energy flows in the food web.

NUMBER PYRAMID

The pyramid of number serves to evaluate the number of primary producers supporting primary, secondary and tertiary consumers. This number pyramid helps to construct trophic structure of the community and hence an ecosystem.

PRIMARY PRODUCTION

Primary productivity of Chatri lake is to be undertaken to find out quantitative information about amount of energy available to support bioactivity of the system. To compare the gross primary production, net primary production and respiration of phytoplanktons seasonally and to trace relation between production, composition and biomass of phytoplanktons was the objective.
BIOGEOCHEMICAL CYCLES

The water cycle of the lake helps to evaluate the amount of water content of lake after a complete cycle. The nutrient cycle like nitrogen and phosphorus on one hand and carbon, oxygen, hydrogen on other hand provide current knowledge on distribution of elements in different phases and on movement of elements between lithosphere and hydrosphere. This information help us to understand natural environment, stimulate interdisciplinary thinking and assist in environmental management.

HEALTH STUDIES

The physico-chemical and bacteriological analysis of the different samples collected from lake, zhiras, tubewells and wells will help to assess the water quality of the sites selected. The results of bacteriological studies will be correlated with the information collected from doctors of the diseased patients of the area and with the information about layers of soil from which percolation might have taken place.

NUTRIENT BIOASSAY

Nitrate and phosphates cause eutrophication of water body. Present study aims to estimate the amount of nitrates and phosphates as they are the deciding factors to determine trophic status of water body.