Research Article

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ANALYSIS OF PHYSICO-CHEMICAL PARAMETERS OF WAGHALA LAKE AURANGABAD DISTRICT MAHARASHTRA

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Abstract: Water is one of the most important and essential compounds of life water is called as liquid of life but now a days water is get polluted due to many man made activities which creates various problems in the water ecosystem Which severely damaging. The water quality and life of aquatic animals, present study attempt had been made to analysis of physico-chemical parameters such as temperature, dissolved oxygen, free Co_2 and BOD.

Keywords:-Seasonal variations, physico- chemical parameters, Waghala lake.

INTRODUCTION

In India fresh water is abundantly present in rivers dams, Lakes ponds, these fresh waters is utilized for various activates like drinking, washing, irrigation, aquaculture, hence water is the important for all living organisms hence called as liquid of life or the Universal solvent, the physical characteristics of water like temperature, PH, alkalinity and DO etc., Influences on the living organisms. Some chemical contents in water are useful for to increase the growth of flora and fauna of aquatic ecosystem, where as some chemical contents are harmful also.

As man-made activities are increasing, this causes disturbance in the natural quality of water. the industrialization urbanization & excess activities along the side of water reservoirs causes the water pollution, such polluted water with chemical content is not normal, it is always changed the chemical composition of water which causes the effects on aquatic ecosystem. Waghala lake is situated in vaijapur taluka, the more source of these lake is rainfall and agricultural runoff, these lake is mainly useful for washing of domestic animals, irrigation, and aquaculture, it has capability of 4.5mtft and characterized by muddy bottom with plenty of aquatic plants, an attempt has been made to check the quality of water during the period July 2011 to April 2012.

MATERIALS AND METHODS

The water samples were collected from the lakes over ten months from July 2011 to April 2012. The samples of water were collected from lake during morning period between 8.30 am to 10.30 am as per lind (1974) and welch (1953), The temperature of water were recorded at the time of sampling on the Sites by using thermometer, PH was measured by PH meter, dissolved oxygen by wrinkles methods, and other physico-chemical parameters were analyzed by standard method of APHA (1998) lind (1979) wiplle (1954).

RESULTS AND DISCUSSION

The physico-chemical parameters were analyzed during the study period from July 2011 to April 2012 for Temp, DO, BOD and free CO_2.

Temperature:

Temperature is the basic important physical parameter of water and temperature affects, Physiology & growth of aquatic flora and fauna in the Waghala Lake, the water temperature nearly follows the ambient temperature. In Indian sub-continent temperature of water bodies ranges between 7.8°_{c} to 38.5°c (Sehgal *et al.,* 1980), the ambient temperature is varied from 4°c to 13°c it was highest during the month of march and April 2012, and was lowest during month of November and December 2011, the water temperature ranged from 33°c to 11°c, it was highest 33°c in the month of April 2012, and was lowest 11°c during the month of December 2011, similar observations are made by Roy (1955) and singh (1960), the minimum values of water temperature was recorded during the months of December 2011, and its maximum values was recorded during the month of April 2012, these present observations are similar to those of Sharma *et al.* (2007), and shaikh and yeragi (2004), in tansa river thane district maharashtra as well as it was similar to the observations of solanki *et al.* (2004), from khari nadi Agra and also similar to Jayabhyaye, salve and Pentewar, (2004) from kayadhu river.

PH:

PH is a scale of intensity of acidity or alkalinity and PH measures the concentration of hydrogen ions in water, the variations in temperature affects on PH

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which causes change in PH, the changes in PH is also takes place due to discharge of agricultural wastes and surface run off, Bankar pooja and Tirumala (2009), most of the biological process and biochemical reaction are PH dependant, the PH values of these waghla lake fluctuate between 7.1mg/l to 8.5mg/l which is suitable for aquatic organisms subbamma and Rama (1992), the permissible limit of PH values is prescribed by ISI is 6.5mg/l to8.5 mg/l, in summer the value of PH is high in waghla lake it is due to high rate of evaporation and rapid growth of phytoplankton in summer season shastri *et al.,* (2007).

Dissolved oxygen:

Dissolved oxygen is very important parameters of aquatic ecosystem and affects on the physical & biological process of water, the oxygen is acts as an indicator of planktonic development and plays a significant role in proper growth of aquatic life like fishes. Jayaraju *et al.,* (1994), the optimum range of dissolved oxygen in natural water is 4.6mg\l (Jayashree, 2002), for the better growth of aquatic life minimum 3 mg\l dissolved oxygen is essential, Tarzwell (1957), in present study range of dissolved oxygen was found between 6.5 to 8.0mg\l, the minimum value was recorded in month of July 2011, and in April, 2012. The maximum range of dissolved oxygen was recorded in month of November, December and January. It is due to low water temperature, the maximum and minimum range of dissolved oxygen in lake is directly related with the presences of phytoplankton, Shashikant and Anil Raina (1990).

Free Carbon Dioxide:

In water body the presence of carbon dioxide is due to respiratory activity of aquatic life and the process of decomposition, the co_2 is useful for the photosynthetic activities of plants; the high range of carbon dioxide is present in polluted water.

In present study the values of carbon dioxide were observed in the range between 5.0 to 9.5 mg/l. The minimum range of carbon dioxide was observed during the month of December and Jan. whereas it is maximum during the months of July 2011, and April 2012. Dwivede and pandy (2002), the minimum range of carbon dioxide is in winter season. This in due to the higher photosynthetic activities of phytoplankton, similar findings are also made by Sahail and Sinha (1969) and sreenivasan (1971).

Bio-chemical oxygen demand:

This water parameter is useful to know the presences of organic matter in the lake, the organic matter causes pollution of water & growth of microorganisms in water, in present study the BOD is minimum during winter season, and is maximum during summer season and rainy season. The values of BOD maximum during rainy season is due to mixing of the organic material in lake with runoff the heavy rain, (Rice 1938). The minimum values of BOD during winter in due to low temperature which decreases the growth of microbes in water bodies, similar observations were made by mane and madlapure (2002).

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