SEASONAL ANALYSIS OF PHYSICO- CHEMICAL PARAMETERS OF GIRNA DAM, NASHIK

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Abstract

In the present worked carried out to studied physico-chemical parameters of Girna dam, Nasik the annual variation in water quality parameters as pH (7.6 to 8.90), temperature (22.1 to 27.4.^{o}C) the Dissolved oxygen & BOD in the ranges from (5.27-5.75 mg/l) to (11.70 to 13.00 mg/l) respectively. The high range of TDS recorded in summer season due to evaporation & accumulation of solid . Chloride ranges recorded (261.11 to 382.1 mg/l). The present data reveals that the water quality altered, compare with standard values. The water polluted due to pollution & intense human activities

Key words- Physico-chemical parameters, Girna dam

Introduction

Water is essential requirement of all living beings for survival. Water is necessary for all round development of country. On earth 71 % areas covered by ocean water, but drinking water percent is limited. Last few decades many states of India facing drought condition. Now Scarcity of water is very common problem. No doubts Industrial & agricultural development based on water, other hand every animal's has fundamentals rights to get clean water for drinking. But due to craze of modernization we are making every lakes & river polluted .Untreated sewages & industrials effluents directly discharge in to water bodies make them highly polluted. Every river & lakes has natural tendency to repair themselves come to normal state its required some time, but intolerable burden of untreated sewages, agricultural waste & industrials wastes directly throwing in water bodies. So Water bodies lost its natural cleaning capacity.

Water pollution means external material altered chemical & physical properties of water. The main causes of water pollution improper method to discharge sewage, effluents in water bodies. The present work attempt to seasonal analyzing the physico chemical parameter of water of Girna dam. Its biggest water storage in Nasik district .Many people's are depends on dam for drinking & other purposes.

Material & Methods

Girna dam biggest water reservoir in Nasik district height-178 ft,length-3160ft, volume-2,042 km^3 , storage capacity near about-608,980.00km^3 . Sample water collected from different sites at monthly intervals. pH & temperature was determined on the spot. For other physico-chemical parameters sample collected in

clean bottles. Samples were analyzed according to Trivedy & Goyal (1986) & APHA (1995) methods. The result are shown in table -1

Table-01) Seasonal variation in physico-chemical parameters of Girna dam

Sr.no	Parameter	Monsoon	Winter	Summer
1	pH	7.6	**8.90**	7.82
2	Tempreture(^{0}c)	**27.4**	22.1	26.3
3	D.O (mg/l)	5.27	**5.75**	5.32
4	BOD (mg/l)	11.70	12.00	**13.00**
5	TDS(mg/l)	1022.1	1011.1	1331
6	Chlorides (mg/l)	382.15	291.13	261.11

Result & Discussion

Last few decades, pollution of water bodies' increases tremendously due to heavy load of untreated waste water directly discharge in to water reservoir. Girna dam adjoining area covered by agricultural field, industrial field also contributed to contaminate water quality. The present find out as follow

pH- the pH values slightly alkaline in monsoon & summer. High value recorded in winter due to biological activities & temperature changes same observation reported (adebowale et.al., 2008;Bhaskar et.al 2011)

Temprature-tempreture ranges between (22.1 to 27.4^{0}C) .The high temperature recorded in monsoon. (Kavita et.al 2011) observed same result in their study of

Mansagar Lake, Jaipur, increases temperature in monsoon due to increases load of suspended solid, sewages in dam absorbed heat.

Dissolved oxygen – The major parameter to determine the quality of water**.** Dissolved oxygen changes due aerobic & anaerobic activity of organism. Dissolved oxygen highest recorded in winter.In winter water holding capacity increases similar finding reported (Subramanyam et.al 2003; Kavita et.al 2011) .In monsoon Dissolved oxygen declined probably reduced penetration of light, lower photosynthesis process.

BOD- The biological oxygen demand ranges (11.70 to 13.00mg/l).In summer high BOD recorded. (Sathiyavathi et al 2011; Abdo2002) suggested that BOD increases in summer because of increases the population of phytoplankton Enhancing Photosynthesis activities during hot climate.

TDS & chlorides- Total dissolved solid indicate hardness of water.TDS minimum founded in winter & high value recorded in summer season .Abdel-satar(2005) observed same result. They mentioned the cause of increase TDS in hot season due to increase evaporation & accumulation of solid material in water.chloride contained increased in monsoon main cause rain water run off carried high amount of organic wastes.

This study shows water quality of dam altered because of agricultural, domestics wastes directly discharged in water reservoirs, which contaminate water. Polluted water unfit for drinking purpose. This study suggested regular pollution monitoring programme in necessary for Girna dam.

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