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EFFECT OF PHYSICAL PARAMETER OF WATER QUALITY OF DARNA RIVER, DIST. NASIK

MRS. YOGITA S. PATIL., DR. H.A. THAKUR, DR. B.N. ZAWARE

S.P.H. Mahila College, Malegoan
Email-Patilysp@gmail.Com

ABSTRACT

Darna River are secondary water supply sources to the Nasik city. Water of Darna River used many purpose such as drinking, hydroelectric plant, irrigation for agriculture. Hence so needed it all parameter to measure such as physical, chemical and biological parameter of water of Darna River. In this paper mainly focused on the physical parameter of water of Darna River. The studies are carried out in Darna River at four sampling sites during Jul. 2014 to June. 2015. In present investigation monthly variation in the parameter have been observed. Also attempt average seasonal variation values.

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KEY WORDS: Darna River, physical parameter

Introduction

Water pollution is one of the most important problems being faced by both developed and developing world together. Earth's water resources are limited and erratic supply and pollution further retries the availability of water for diverse uses like drinking, cooking cleaning, recreation, aquaculture and industry. Several, 70% of India's water resources are declared to be polluted. Water pollution is one of the most investigated subject in past one hundred year with millions of scientists and technocrats all over the world monitoring, controlling or carrying out research on water pollution.

This paper includes a discussion of the physical water quality parameters measured during the 2014 – 2015 of Darna River during monitoring period. These parameters are interdependent and define the overall condition of the river. Physical parameters measured during this study included water temperature, turbidity, and pH.

Collection of Water and Testing Water Samples

Four sampling stations of Darna River were selected for the collection of water and algal samples during period of study. Four sites were selected for collection of water

Samples for i.e. S₁, S₂, S₃, and S₄. Water samples for analysis were taken from collection sites at monthly intervals in mg/lit. Capacity plastic bottles. For estimation of dissolved oxygen separate sample was collected in 250 ml BOD. Water temp. at each site was recorded by using mercury centigrade thermometer at depth 4 to 10 cm from the surface of water pH of water was examined in the field at the time of collection by using digital pH meter. Temperature is very important in determination of various other parameters. Such as pH, Dissolved Oxygen alkalinity etc. It was recorded by using mercury field Celsius thermometer up to 0.1°C accuracy. Turbidity is a measure of the amount of suspended organic and inorganic material in the water column. Turbidity is deleterious to water quality because it reduces the amount of light available to rooted aquatic plants. pH of water sample were measured for all the stations with the help of digital pH method and calibrated with buffer solution for pH – 7.00 before reading.

Results and discussion

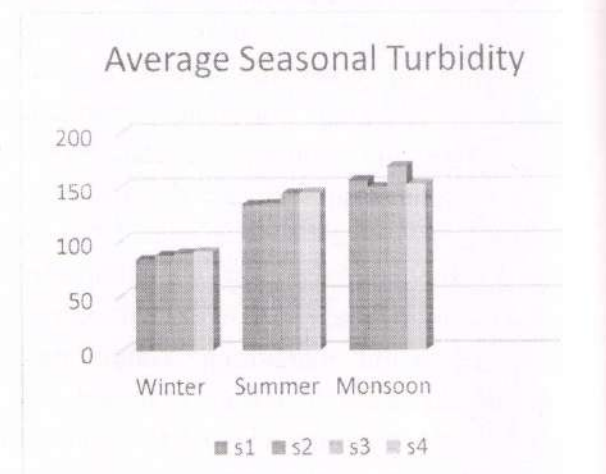
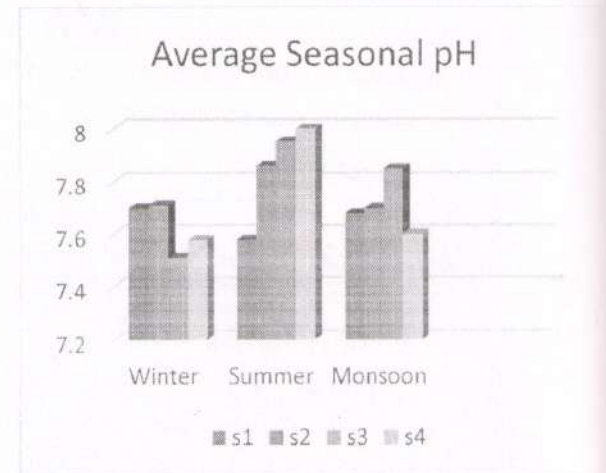
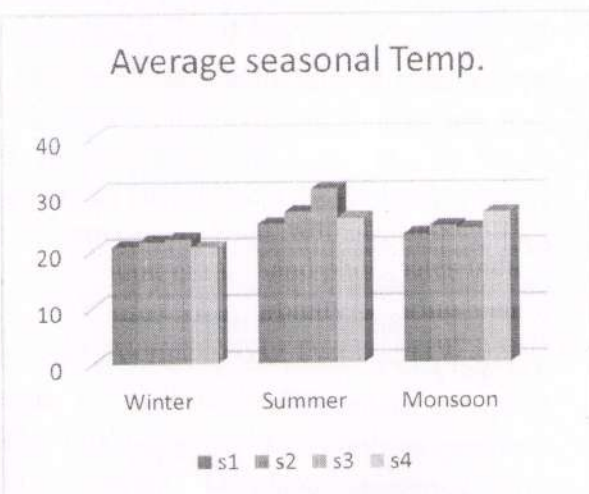
Temperature: Water temperature is recorded lower in monsoon may be due to cloudy weather and influx of rain water and winter due to extreme cold and shorter sunshine period whereas higher in summer. (Zafar,

1964; Munnawar, 1970; Gita patil 1994, Rajasegar, 2003, Dabhade2007). A close correlation was evident between atmospheric and water temperature. The latter was constantly lower than the former by 1 to 2⁰C throughout the study period. Mehta, (1999).The minimum temperature difference between the atmospheric temperature and water temperature plays a major role in the production biology of shallow water bodies. Vyas and Kumar, (1968); Mehta, (1999). All the biotic components studied were temperature dependent and there was a fluctuation in the abundance of biotic components with the variation in temperature.

Turbidity: It Display an important role in the energy dynamics of an aquatic ecosystem. Water transparency is dependent on turbidity which is directly proportional to the amount of suspended matter. The turbidity can be positively correlated with hardness, calcium, magnesium, nitrates and phosphates indicating the cause of turbidity during summer months. Verma and Dalela, (1975). High turbidity affects the aquatic ecosystem i.e. fishes as well as productivity, also photosynthesis rate decreased in monsoon. During summer the turbidity was due to less flow of water, enriching organic matter. Shukla el. (1989). In winter the water was relatively clean and less turbid. It is observed that the highest value of seasonal turbidity was 220 NTU (station S3) which is

ten times more than the prescribed limit, indicating the Darna water as highly polluted.

pH: The maximum pH was recorded in summer and minimum in winter with slight increase in monsoon season. Singh, (1979). Jha and Verma, (2000). pH also plays an important role in the formation of algal blooms. Srivastava *et.al.*, (2003). It is observed a positive correlation between pH and carbonate.



Conclusion: The physical water properties of Darna River at Nashik" was undertaken from July, 14 to June, 15. Temperature affects the odour/taste, characteristics of water, and the stability of salts and in particular gases. The maximum temperature was recorded in summer in the month of May and minimum in the month of January. Water temperature was positively correlated with turbidity. Turbidity in water and low transparency resulted in less penetration of sun light into subsurface water and decrease in photosynthesis, consequently low production was observed. Turbidity is an

important parameter in deciding algal flora. Water pH might be considered as an indicator of overall productivity that can cause

habitat diversity the pH depicted the alkaline nature of water throughout the period of study.

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