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BIODIVERSITY CONSERVATION - PRESENT SCENARIO AND FUTURE PERSPECTIVE

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Human And Climate Change Impact on Water Quality of Darna River, Dist. Nasik

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Abstract:

Water is required for all the physiological and metabolic activities of all living organisms. Fresh water of population increasing living standard is urban areas and industrialization has resulted in greater demand of quality water. Water is any physical, chemical action in water which will adversely have an effect on organisms. This paper discuss the atmosphere temperature, humidity, rainfall changes water quality of water. This paper also discuss the sources of water pollution of Darna River.

Keyword: Climate change, water quality, Darna River

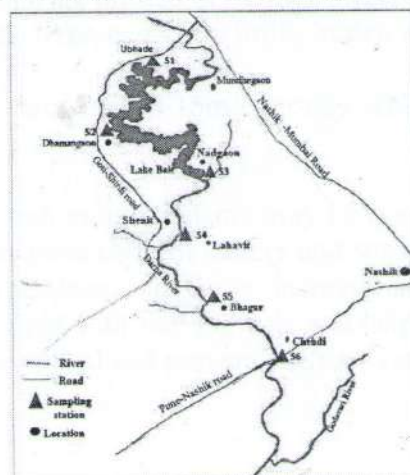
Introduction:

Sources of water pollution are colorless, most significant and of great concern are because of human activities. Water Resource are contaminated because of industrialization, urbanization, rapid increase population growth, agrochemical pollutants and unconscious attitude towards the atmosphere. The term water quality is intimately related to water pollution. The domestic sewage, industrial waste and agriculture runoff discharged direct and indirect in water bodies of river and lake. Due to climate change is effect on the source of water, river and lake. The climate change also affect the hydrological cycle, average annual rainfall, Intensity of daily rainfall. The atmospheric temperature is responsible for heating and cooling of water ecosystems. The minimum temperature difference between the atmospheric temperature and water temperature plays a major role in the production biology of shallow water bodies

Methodology :-

I) Climate and rainfall data: During the year 2015, the maximum rainfall 142mm in the September month then minimum in the December month of Darna river. During the year 2016, maximum rainfall in month August (235mm) and minimum at month December to march. The atmospheric temperature is maximum in the month June (40°C) and minimum in the month January (15°C) and same as in the year 2016.

II) Field work: Six sampling site of Darna River were selected for the collection of water and algal samples during period of study. The analysis of water sample is done as per set standard. Temperature and pH are analysis at time sample is taken and The physical, chemical and biological parameters tests were conducted immediately after collection of samples at the respective sampling stations. Other samples were brought to the laboratory for analysis.



**Discussion:**

Due to the air temperature, change the water temperature hence same physical and chemical parameter is affected. Conductivity increase with increase temperature of water and conductivity decreases with decrease in temperature. If temperature and conductivity has positive correlation, it plays a vital role in the release of nutrients and consequently the productivity of aquatic ecosystem. Turbidity and temperature are co related to each other. If turbidity are increase, water temperature will be increase (Mehta 1999). The suspended particles are more heat absorbs from solar radiation and surrounding water temperature are increase. The maximum water temp is 32 °C in the month April and minimum 14°C in month June. It happen due the air temperature.

Water temperature can alter the number ions present, changing the pH of the solution without making it more acidic or basic. In domestic waste water the pH value usually varies from zero to seven and there for don't have an effect on the receiving water body however an altogether totally different picture may arise that is acidic or alkaline wastes move into the streams. pH value over eight once discharged into the receiving stream combines with free dioxide and additional increasing the pH of the water. The Maximum pH 8.86 at the downstream site of river due the city discharge. Patil et al. (2012)

Turbidity of water is responsible for the light to be scattered. Turbidity is important parameters to introduce the physical status of rivers. The suspended particles, soil particles discharged effluents, decomposed organic matter, TDS as well as microscopic organisms increase the turbidity of water. Turbidity and temperature are co related to each other. If turbidity are increase, water temperature will be increase. The suspended particles are more heat absorbs from solar radiation and surrounding water temperature are increase. During the study, the maximum turbidity is found at January month and minimum at monsoon season Verma and Munshi(1983)

Increase in the temperature of water in summer might have resulted in decrease of DO during this period. High values of DO during winter could be due to the greater solubility of oxygen in water at lower temperature.(Gupta & Sharma 1994). The deletion of DO values due to discharge and degradation of wastes at stations indicated that Darna River was polluted and water quality was deteriorated during summer months. The presence of large loads of organic waste has completely changed the balance between oxygen producing and oxygen consuming processes resulting into lowering of DO values.

Conclusion

The water of the rivers polluted mainly due to discharged waste water from residential areas, industries, use of agricultural pesticides on farm lands along the watersheds. The atmospheric temperature is affect the water temperature of river. Water temperature was positively correlated with turbidity, TDS, conductivity, pH, chlorides, BOD, COD, and phytoplankton. The temperature of water regulates the role of photosynthesis in aquatic ecosystems. In fresh water, the optimum temperature for majority of algae is between 20 – 25°C. (Prescott, 1984)

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