

Research Paper :

Water quality scenario of drying river Sirsa at Shikohabad U.P. (India)

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Accepted : October, 2009

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ABSTRACT

Certain water quality parameters of the river Sirsa were investigated during the premonsoon period and after the onset of monsoon. The high degree of water pollution is reflected by the values of different parameters.

Key words : Water quality scenario, River

River Sirsa originates from the plains of Aligarh District (U.P.) and the hydrology is such that the main flow will be during the period of July to September/ October and the flow in the rest of the year is negligible and very after it is charged with effluent in certain stretches of the river.

Due to unorganised community or urban settlement, waste waters generated from various beneficial uses of water like domestic, commercial, industrial etc. are collected through and discharged into the natural drainage of the area at a particular point and constitute point sources of pollution. The present communication outlines the pollution load in river Sirsa during the pre-monsoon and on the onset of monsoon.

MATERIALS AND METHODS

The water samples were collected from five stations and brought to the laboratory for the analysis of the physico-chemical parameters. The methods mentioned by APHA (1995) and Trivedy *et al.* (1987) have been used in the present study. Temperature, dissolved oxygen (DO) and pH were determined on the spot by analyzer kit and pH-meter. The nitrogen was determined as total nitrogen by the Kjeldahl's method. The trace elements were determined by Atomic absorption spectrophotometer.

RESULTS AND DISCUSSION

The results have been given in the Table 1. The temperature of the water ranged from 19.9°C–39.5°C. The variation in temperature is due to atmospheric temperature.

pH ranged from 6.95 – 8.90 which indicates the good water quality. The dissolved oxygen values were low in

the pre monsoon and were high after onset of monsoon. This variation is due to the variation in temperature Shastree *et al.* (1991).

The pollution is directly related with the total dissolved solid (Prasad *et al.*, 1980). The total dissolved solid (TDS) was found in the range from 500–900 mg/l which shows the pollution load to be going high.

In pre-monsoon the value of conductivity was high and low in onset of monsoon which may be due to the input of salts from the adjacent agricultural fields.

Salinity is also online of conductivity. It is high in pre monsoon and low in onset of monsoon it may be due to evaporation rate.

The free carbon dioxide ranged from 1.75–2.65 ppm

Table 1 : Variations in physico-chemical properties of river Sirsa

Sr. No.	Parameters	Per-monsoon	After monsoon
1.	Temperature °C	39.5°C	19.9°C
2.	pH	8.90	6.95
3.	Dissolved O ₂ mg/l	5.40	8.00
4.	TDS mg/l	900	500
5.	Conductivity (μ mhos)	0.70	0.60
6.	Salinity mg/l	7.0	4.0
7.	Free CO ₂ (ppm)	1.75	2.65
8.	Alkalinity (ppm)	120.50	99.00
9.	Chloride (ppm)	20.35	12.44
10.	Hardness total (ppm)	95	120
11.	Nitrogen (mg/l)	5.60	4.55
12.	Magnesium (mg/l)	7.85	6.50
13.	Potassium (mg/l)	70.00	60.58
14.	Sodium (mg/l)	40.15	32.20

* The above values are mean value of five sampling stations

it was low after the monsoon.

The alkalinity ranges from 99.00 – 120.50 ppm indicates the good water quality for irrigation.

The chloride content ranged between (12.44 – 20.35 ppm), the fluctuation in the hardness is between 95 – 120 ppm of CaCO₃ and CaCl₂.

The nitrogen is important element and its value was between 5.60 mg/l to 4.55 mg/l which is good for irrigation purpose.

The range of fluctuation of Mg, Na and K is 6.50 – 7.85, 60.50 – 70.00 and 32.20 – 40.15 mg/l, respectively indicating that water quality is not so bad as it looks.

Thus, it may be concluded that water pollution in the river Sirsa is due to lack of rain which is the main source for it and mismanagement of municipal corporation of the cities lying down in the pathway of the river. By little efforts the problem of pollution may be over come in respect of this river.

Acknowledgement:

The authors are thankful to the Management and the Principal of Narain (P.G.) College, SHIKOHABAD and K.K. (P.G.) College, Etawah.

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REFERENCES

1. **APHA**, AWWA and WPCF (1995). standard method for the examination of water and waste water, 19th edn. American Public Health Association Washington.
2. **Trivedy, P.K.**, Goel P.K. and Trisal, C.L. (1987). Practical Methods in Ecology and Environmental Science, Environmental Publications, Karad.
3. **Shastree, N.K.**, Islam, M.S. Pathak, S. and Afshan, M. (1991). Studies on the physico-chemical dimensions of the letic hydrosphere of Ravindra Salovar (Gaya) In current Trends in Limnology-1 Ed. Shastri N.K. Narendra Publishing House, Delhi p.133-152.
4. **Prasad, B.N.** and Saxena M. (1980). Ecological study of bluegreen Algee in river Gomati, *Indian J. Environ. Hlth.*, **22** (2) : 151-168.
5. **Nair, J.** and Ganapathi, S. (1997) water quality of Bhadar River Basin. *Indian J. Environ. Hlth.*, **39**(3) : 197-206.

