

ASSESSMENT OF GODAVARI RIVER WATER QUALITY IN RELATION TO BIO CHEMICAL OXYGEN DEMAND AND CHEMICAL OXYGEN DEMAND AT NANDED MAHARASHTRA

R.K.Narkhede **Dr.J.M.Patwari ***Dr.V.S.Nagpurne *Mr.S.M.Dapkekar**

Water resources has been the most exploited natural system since man strode the earth water is an essential requirement for all biological systems. Riverine systems are the major sources of the drinking water and the means of sustaining human animal and plant life despite its abundance its vast resource has come to exist as a scarce commodity. Increased Urbanization and Industrialization caused stress on the self-purification mechanism of rivers. The ultimate effect of this is on the DO content finally increasing BOD and COD of the river which directly affects the purification process.

The river Godavari is one of the major sources of fresh water in south region and also called as South Ganga. When organic matter such as dead plants, manure, sewage and domestic waste along with industrial waste is released in the river directly /partially treated. The aerobic organisms robbing other aquatic organism oxygen they need to live consume the dissolved oxygen. BOD is the measure of oxygen consumed by the microorganisms to decompose the organic waste. COD determines the quantity of molecular oxygen require to oxidize complex matter present under specific conditions.

The present investigation was carried out during the period of January 2001 to December 2001. APHA methods were adopted for the analysis.

The present investigation was made on the river Godavari, in the year 2001. The river Godavari is the life line of the Maharashtra and Andhra Pradesh. It is one of the major rivers of south. It is rain fed river. The Godavari river rises near Trimbakeshwar in Nalsik district of Maharashtra about an elevation at 1065 k.m. after flowing a distance of 1465 k. ms Joins the bay of Bengal in A.P. the major tributaries of the river Godavari are Pravara, Ourna, Dharana, Bindusara, majara, painganga, Wainganga, Wardha, Pranhita, Sabri and Indravati. River has several large multipurpose projects Jaikwadi near Paithan District Aurangabad and Vishnupuri at Dist. Nanded.

Nanded is a district place in Maharashtra situated on the bank of river Godavari. The population of the city is about 23 lakh. Industrial area have the Pharmaceutical, Steel, Textile and Fertilizers are the major and the oil, fabrication and food packaging etc are the

minor one.

A way to measure the potential for bacterial growth to deplete oxygen in response to the presence of organic waste material is through the test for biochemical oxygen demand. The test is mostly used to measure waste loadings at waste water treatment plants this is a laboratory testing procedure. The presence of BOD as an indicator of fecal contamination can restrict water use of development or necessitate expensive treatment. Ill health due to water quality problems can reduce work capability and affect children's growth and education it is therefore important to monitor organic pollution to identify area passing threat to health, to identify sources of contamination to ensure adequate treatment and provide information for discussion making to enhance water sustainability.

COD is the measure of oxygen required in oxidizing organic compounds present in water by means of chemical reactions involving oxidizing substances such as potassium dichromate and potassium permanganate. The estimation of COD is of great importance water having unfavorable conditions for the growth of microorganism, toxic chemicals. In such water BOD cannot be determined. COD is important parameter because of its rapidity in determination and management and design of treatment plants. COD values are taken as basis for calculation of efficiency of treatment of plant and also figure in the standards for discharging industrial, domestic waste in effluents in various kinds of water.

Material and methods

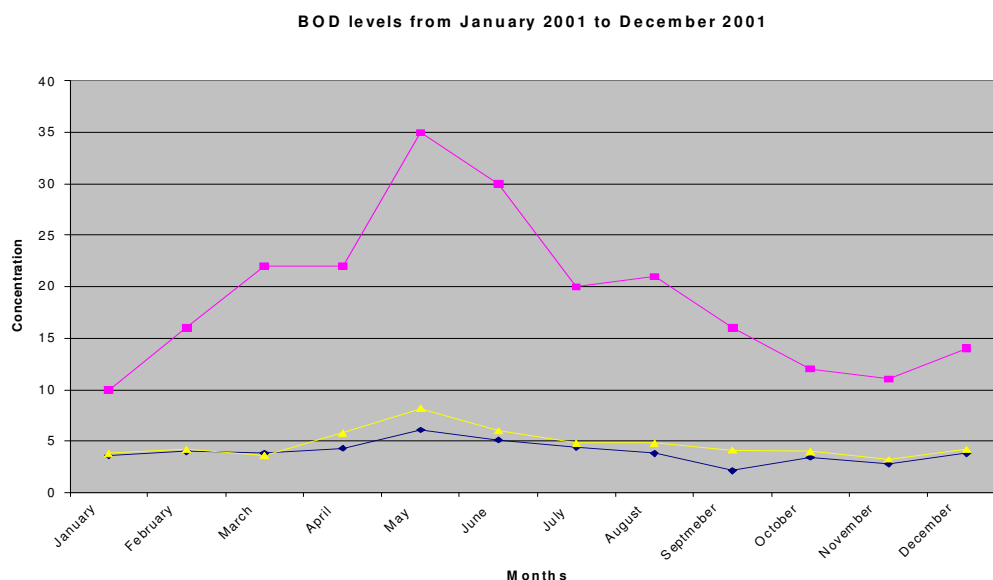
The study was carried out at three sites. The sites were Dunkin sampling site I Upstream, New bridge site II Mid stream, Old bridge, site III downstream . these sampling sites were located at the entry of the river in the Nanded city the section of the river through city and the exit of river from the city. Method used for the determination of DO, COD and BOD were Winkler's, Five day BOD and Reflux method for the COD as per the American Public Health Association manual.

Results and Discussion

Table:-1

Month	US	MS	DS
January	3.6	10	3.8
February	4	16	4.2
March	3.8	22	3.6
April	4.3	22	5.8
May	6.1	35	8.2
June	5.1	30	6
July	4.4	20	4.8
August	3.8	21	4.8
September	2.1	16	4.1
October	3.4	12	4
November	2.8	11	3.2
December	3.8	14	4.2

BOD Levels for the year 2001

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Results and Discussion

Table:-1

Months	US	MS	DS
January	35	162	390
February	52	181	410
March	48	204	510
April	49	210	562
May	58	198	563
June	58	186	576
July	59	188	535
August	35	158	490
September	39	145	410
October	28	130	380
November	29	138	378
December	35	148	390

COD levels for the year 2001

As per the observations the results are very interesting. In the year BOD and COD levels were observed always highest at midstream. BOD levels were maximum in the month of May- 35 mg/lit and minimum in the month of January- 10 mg/lit. In upstream and downstream the BOD levels were highest in the month of May- 6.1 and 8.1 mg/lit and lowest in the month of September 2.1 and November -3.2 mg/lit. COD observation showed the highest concentration in the midstream. It was highest in the month of April- 210 and lowest in October- 130 mg/lit. In the upstream highest was observed in the month of July- 59mg /lit and lowest- 28 mg/lit in the month of October. In the down-