

Physico-chemical parameter for testing of Hatni river water at Jobat fata dam district–Alirajpur Madhya Pradesh, India

Kushal Singh Baghel

Department of Zoology, Govt. P.G. College Khargone, Madhya Pradesh, India

Abstract

The Jobat Fata dam is situated near Nanpur District Alirajpur. This medium sized dam is mainly constructed for irrigation purpose. It is about 25km away from Dhar District kukshi village and is surrounded by hills, agricultural fields and village Jobat dam. The sample collection, preservation and treatment according to standard method of collecting samples at international level i.e. APHA and BIS procedure. After collecting sample sites water analysis pH, TDS, Turbidity, DO, BOD, COD, Calcium, Chloride, Fluoride and Magnesium parameter were determined for the testing of water quality.

Keywords: physico-chemical parameters, pH, TDS, DO, BOD, water quality Jobat fata dam

Introduction

Water is life. No life can exist without water. Water is absolutely essential not only for survival of human beings, but also for animals, plant and all other living beings. It has many beneficial uses such as drinking, irrigation, navigation, propagation of wild life, fisheries; aesthetic etc. water is the most valuable nature resources. It is the essential for health society and sustainable development. Water, the matrix of life is exposing to pollution, unhealthy environment, resulting in human affliction and diseases transmission due to rapid industrialization and population.

The Shahid Chandar Shekhar Azad sagar (Jobat) project in Madhya Pradesh is irrigation project investing construction of a 38.60 m high and 462.50 m long composite gravity dam across the river hatni, a tributary of river Narmada, which is near village waskala, 24 km from kukshi town. Water is scarce and valuable resource and it is highly essential for the survival of mankind. man mad activities are changing the morphology of the area of the river regimes and causing problem of pollution of water. The present study has been carried out evolution the impact of man induced environmental changes on the water quality through variation in the chemical and microbiological properties at different location of sites of waskala village.

Material and Methods

The River Dam has been surveyed through in out the year. Four sampling sites were selected dame, one sampling site Station I: Western side of the reservoir village umdha. Station II Eastern shore of the reservoir and canal constriction in use for irrigation. Station III: Northern side of the reservoir. It is a inlet of water collected the rainwater from a big area. Station IV: Southern shore of the reservoir. This area is wall and deep area. The various physico-chemical and biological parameters were determined as per methods suggested APHA (1976).

Temperature, pH, and DO were recorded immediately after collection of sample at the sites, while other parameters were analyzed in the laboratory within 24 hours.

Result

The result of various physico-chemical parameters for the calculation of water quality index is presented in table 1.

Table 1: Physico-chemical parameters of Jobat Dam Hatni River sites water sample

Parameter	S1	S2	S3	S4
Temperature	25.2	25.0	25.2	25.0
PH	8.00	7.55	7.65	7.12
TDS	229	221	220	216
DO	6.2	6.5	7.8	8.2
COD	9.8	9.6	10.0	9.5
BOD	5.1	4.5	4.2	4.9
Chloride	33.2	33.3	32.0	34.2
Magnesium	26.0	27.2	27.2	26.2
Calcium	34.2	36.4	37.0	36.3
Fluoride	0.3	0.3	0.3	0.3
Alkalinity	119	129	129	151

High values of COD 10.0 mg/lit have been observed at the site of Northern side of the reservoir. Low BOD value 4.2ppm is recorded at iii rd site of Dam. The pH was maximum (8.10) in at site I. Higher concentration of calcium in water may also increase pH. The pH was recorded to be minimum (7.12) in at site IV. The dissolved oxygen found maximum was (8.2 mg/l) at site Iv which gradually reduced from middle of summer season and was recorded to be minimum (6.2 mg/l) at site I. TDS In the present study the maximum value of TDS was found (229 mg/l) at site I and minimum value of TDS was (216 mg/l) at site IV. Fluoride in water was remain constant (0.3 mg/l) at all the four sampling sites. Chloride present study was recorded to minimum 32.0Mg/l at iii site and maximum

34.3 at site IV. Transparency is low during the monsoon season due to heavy load of suspended particle and maximum in winter due to less activity.

Discussion

Several physic-chemical and biological parameters and their variability have been studied in relation to the site of dam river water. The chemical analysis showed that site contained high values of chloride, total hardness, Alkalinity, COD, DO, chloride, calcium etc. which indicates of water.

Acknowledgement

I am also thankful to Dr. Shail Joshi, Prof. & Head of Zoology for her generous help during the research work.

References

1. Anita G, Chandrasekhar SVA, Kodarkarm MS. Limnology studies on Mir Alam Lake. Hyderabad. poll. Res. 2005; (3):681-687.
2. Rao AV, Jain BL, Gupta IC, Indian Jour. Environ. Hlth, 1993, 35-132.
3. APHA. Standard Method for Examination of water and wastewater, 20th edition American Public Health Association Washington D.C, 1985.
4. Dixit AK, Pandey S K, Mehta R, Niyaz Ahmad, Gunjan, Jyoti Pandey, *et al.* Study of physico-chemical parameters of different pond water of Bilaspur District, Chhattisgarh, India. Environmental Skeptics and Critics. 2015; 4(3):89-95.
5. Gohram. the Chemical composition of Some Waters from Dune slacks at Sadscale, North Lancashire, J. Ecol, 1961; 49(1):79-82.
6. Jawale AK, Patil SA. Physico-chemical characteristic and phytoplankton abundance of Mangrul Dam dist-Jalgaon, Maharashtra. J Aqua Biol. 2009; 24(1):7-12.
7. Kataria HC, Gupta MK, Kushwaha S, Kashyap S, Trivedi S, Bhadoriya R *et al.* Study of physico-chemical parameters of drinking water of Bhopal city with Reference to Health Impacts. Current World Environment. 2011; 6(1):95-99
8. Mahajan A, Tank SK. studies on the physico-chemical parameters of water body Dara, Maharashtra, India. International of Innovation Research and development. 2013; 2(3):751-759
9. Narayan, Puttaiah JET, Basavaraja D. Water quality characteristic of anjanapura Reservoir near shikarpur dist. shimoga, Karnataka J Aqua, Biol. 2008; 23(1):59-63.
10. Raut KS, Shinde SE, Pathan TS, Sonawane DL. Seasonal variations in physico-chemical characteristics of Peth Lake at Ambajogai district, Beed Marathwada Region, India. Journal of Research in Biology. 2011; 1(4):258-262.
11. Sing RP, Mathur P. Investigation of Variation in physico-chemical characteristics of a fresh water reservoir of Ajmer city Rajasthan Ind. J Env Sci. 2005; 9:57:61.
12. Virendra Kumar, Verma SR. Survey of Yamuna River and a few related drains with reference to Physico-chemical and biological characteristics. Ph.D. Thesis. Meerut Uni. Muzaffarpur, 1980.