



The studies on physico-chemical parameters of Karadkhed Dam, District Nanded, Maharashtra, India

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ABSTRACT

The present study was conducted to assess the Physico-chemical Parameters of Karadkhed dam water of Deglur Taluka in Nanded district Maharashtra, India, during the year June 2016 to May 2017. Analysis was performed on 05 different parameters. The monthly Variation in the physical and chemical parameters such as Water transparency, Total Solids, Total dissolved solids, Total suspended solids and Total Alkalinity. Were investigated. All the parameter was beyond on the permissible limits. Aquatic ecosystem monitoring has been carried out in India based on either chemical or biological analysis. The result revealed that there were significant seasonal variations in some physico-chemical parameters and most of the parameters were in the normal range and indicated better quality of dam water.

Key word: Karadkhed dam, Water transparency, Total solids, Total Alkalinity.

INTRODUCTION

The quality of drinking water is essential for life. Fresh water bodies are important wetland located in and around human habitations as they are generally semi natural ecosystems constructed by man in landscape suitable for water stagnation (Dhembare and Pondhe, 1997). Life on the earth. All organisms depend on water for their survival. Water is one of the most important and abundant compounds of the ecosystem (Hiware and Jadhav, 2001, Khatavkar *et al.*, 2004). The availability of good quality water is an indispensable feature for preventing diseases and improving quality of life (Pawar, 2017a, 2017b, 2017a, 2017b, 2018a, 2018b). India has vast fresh water resources in the form of both lentic and lotic ecosystems. The lentic ecosystems have long attracted attention of ecologists, both for their importance as a source of drinking water and the development of fishers. Therefore, the attention is given on the physico-chemical factors which affect the aquatic inhabitants (Khatavkar *et al.*, 2004). All living organisms on the earth need water for their survival and growth. Water is one of the most important and abundant compounds of the ecosystem. An essential resource for human life, freshwater has no substitutes (Alka, 2014, Manjare *et al.*

2010). Freshwater is also essential for many natural systems that support human well being. Expanding human activity has extensively altered the planets freshwaters, with modifications impacting the physical, chemical and biological features of aquatic system. This review emphasizes large-scale physical, chemical and biological changes in fresh waters and their associated arrivers, including human factors that affect fresh waters, but does not address institutional aspects of water management oxygen (Chandanshive, 2013, Jagtap, 2012, Pawar, 2017a, 2017b, 2017a, 2017b, 2018a, 2018b, 2018c). Aquatic ecosystems undergo constant change and adaptation and can withstand stress based on their unique physical, chemical and biological properties (Simpi *et al.*, 2011, Meme *et al.*, 2014). Each species of animal and plant has an optimal range for physical and chemical requirements. Aquatic organisms and the physical and chemical components of their environment are inseparably inter related and interact with each other. Many researchers have done studies on Physico-Chemical and biological characters of river and dam water. Dhembare and Pondhe (1997), Hiware and Jadhav (2001), Khatavkar *et al.* (2004), (Pawar, 2017a, 2017b, 2017a, 2017b, 2018a, 2018b, 2018c). Lendhe and Yergi (2004), Alka (2014), Manjare *et al.* (2010), Harmey *et al.* (2012), Chandanshive (2013), Jagtap (2012), Simpi *et al.* (2011), Meme *et al.* (2014).

The present study was to accesses the ecosystem of Karadkhed dam Taluka Deglur in Nanded District Maharashtra by estimating the various physico-chemical parameters like Water transparency, Total solids, Total dissolved solids, Total suspended solids and Total Alkalinity.

MATERIAL AND METHODS

The water samples were collected for physico-chemical analysis from dam. At the regular intervals of one month a period of one year from June 2016 to May 2017. The samples are well mixed and stored in two litre plastic cans. Sample collection was usually completed during morning hours between 6:00 a.m. to 9:00 a.m. every for further analysis. The water transparency was estimated on the spot at the time of sampling while other parameters were estimated in the laboratory. Standard methods as prescribed APHA (1992), were followed for examination of various Physical and Chemical Parameters of Water.

RESULT AND DISCUSSION

The seasonal variation in physico-chemical parameters are given table respectively.

Water Transparency

The water transparency depends on the micro organisms present in water bodies and suspended organic and inorganic matter present in water. In the present study it ranged from 31.5 to 76.2 cm. The water transparency values were maximum in the season of summer and minimum in the season of monsoon. The minimum value was recorded during September while maximum value was recorded during May. Bose (1956), pointed out that transparency is one of the most6 important factors governing the distribution of fishes as it directly influences the Planktonic Productivity.

Total Solids, total dissolved solids and total Suspended Solids

The total solids ranged from 271 to 395 mg/l. The total dissolved solids ranged from 192 to 284 mg/l. The total suspended solids ranged from 62 to 164 mg/l. The high contents of total solids elevate the density of water and such a medium increases Osmoregulatory stress on aquatic biota. The excessive total dissolved solids generally affect palatability. In river total dissolved solids increase is attributed to pollution by effluents. The values of all water sample are within the permissible limits prescribed by WHO. Alaka (2014), reported that the amount of total dissolved solids detected from water sample at Borgaon was 347.16 mg/l. to 738.0 mg/l.

Total Alkalinity

Water is said to be alkaline when the concentration of hydroxyl ion exceeds that of hydrogen ions. Chemically pure water is neutral having equal amount of hydrogen and hydroxyl ion. The total alkalinity of Karadkhed Dam water varied between 92 to 205 mg/l. These values are without the desirable limit according to ICMR and BIS specification. Sakhre and Joshi (2003) found the alkalinity values varied from 672 to 1023 mg/l in papnas a minor wetland in Tuljapur Town, Maharashtra

Table 1: Studies on Physico-Chemical Parameters of Karadkhed Dam During the Year June 2016 to May 2017.

Parameters	Water transparency cm.				Total Alkalinity (mg/l)				Total solids (mg/l)				Total Dissolved Solids (mg/l)				Total Suspended (mg/l)			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
June	62.2	65.3	63.1	64.7	192	195	199	201	324	330	335	340	238	241	243	245	86	89	92	95
July	51.2	53.5	56.1	58.3	165	168	170	172	345	348	352	358	348	252	258	258	97	96	100	97
August	42.5	42.2	44.1	43.3	156	158	153	160	371	375	378	380	362	264	268	274	109	111	110	106
September	33.5	36.2	31.6	38.3	162	168	165	169	385	387	390	395	271	275	270	282	114	114	120	113
October	42.2	44.1	48.3	45.2	158	162	164	160	371	374	378	384	251	256	259	262	120	118	119	122
November	47.2	49.5	51.3	52.6	122	124	128	130	345	348	350	354	240	242	248	251	105	106	102	103
December	51.1	53.5	52.7	55.7	116	112	118	120	380	382	384	387	221	218	223	229	159	164	161	158
January	55.2	57.3	56.5	58.1	95	92	98	94	366	364	368	375	276	278	280	284	90	86	88	91
February	59.1	60.2	61.5	62.3	114	118	120	116	271	275	278	295	192	194	202	198	79	81	76	97
March	63.5	64.2	65.5	66.6	142	148	144	149	283	286	290	296	201	203	205	208	82	83	85	88
April	67.1	68.3	69.6	69.9	187	190	192	188	295	298	300	304	229	236	234	240	66	62	66	64
May	72.2	74.1	75.5	76.2	197	199	202	205	320	314	319	324	242	246	248	250	78	68	71	74

REFERENCES

- Alka PA (2014) An Assessment of water Quality of Borgaon Reservoir in Sangli District of Maharashtra, India. International Journal of Environment Sciences. 3 (5) : P. 48-53.
- APHA (1992) Standard methods for the examination of water and waste water 16th ed. American Public Health Association. New York (1992).
- Bose BB (1956) observations on the Hydrology of the Hooghly Estuary. Indian J. Fish, 3 (1) : 101 P.P.
- Chandanshive NE (2013) The seasonal fluctuations of physico-chemical parameters of river mula mutha at Pune, India and their impact on fish biodiversity. Res. J. Animal. Vet. Fishery Sci. 1 (1) : 11-16.
- Dhembare AJ and Pondhe GM (1997) Correlation of ground water parameters of pravara area, Maharashtra State, India. Vol. 12 (1 and 2) : 32-33.
- Fakayode SO (2005) Impact Assessment of Industrial Effluent on water quality of the receiving A Laro River in Ibadan. Nigeria. Ajeam-Ragee. (2005), Volume 10, 1-13.
- Harney NV, Dhamani AA and Andrew RJ (2012) Physico-chemical status of three water bodies near Bhadrawater Town, Dist. Chandrapur, (M.S.) India. Bionano frontier Eco Revolution, Colombo, Srilanka.
- Hiware CJ and Jadhav BV (2001) Biological Studies of manjara river near kallam, District Osmanabad, Maharashtra, India. J. Aqu. Biol. Vol. 16 (2), P. 11-13.
- Interim Technical Report, EU-Russia cooperation Programme (2009), P.12.
- Jagtap MN, Dama LB, Shaik KA and Shaik HG (2012) Isolation of phytoplanktons from three urban lakes of Solapur City, Maharashtra State, India. J. Aquatic Biol. 21 (2) : 67-71.
- Jakher GR and Rawat M (2003) Studies on physico-chemical parameters of a Tropical lake, Jodhpur, Rajasthan, India. J. Aqua. Biol. Vol. 18, (2) : P. 79-83.
- Kar D, Sur P, Mandal SK, Saha T, Kole RK (2008) Int. J. Environ. Sci. Tech., 5 (1) : 119-124.
- Khatavkar RS, Shah NV, Rao KR and Navale RA (2004) Variations in Physico-chemical parameters in Freshwater Tanks in and around Solapur city, Maharashtra. J. Aqu. Biol., Vol. 19 (1), P.111-114.
- Khatavkar RS, Shah NV, Rao KR and Navale RA (2004) Variations in Physico-chemical parameters in Freshwater Tanks in and around Solapur city, Maharashtra. J. Aqu. Biol., Vol. 19 (1), P.111-114.
- Lendhe RS and Yergi SG (2004) Seasonal Variations in primary productivity of phirange khasbav Lake, Bhiwandi District Thane, Maharashtra. J. Aqua. Biol., Vol. 19 (2), P. 49-51.
- Lubal MJ, Sutar AV and Pawar KW (2012) Studies on physical-chemical aspect of mhaswad water reservoir of Satara District (Maharashtra) India. ISPAES. 2 (3) : 12-15.
- Manjare SA, Vhanalakar SA and Muley DV (2010) Water Quality assessment of Vadgaon tank of Kolhapur (Maharashtra), with special reference to Zooplankton. International Journal of Advanced Biotechnology and Research. 1 (2) : 91-95.
- Manjare SA, Vhanalakar SA and Muley DV (2010) Water Quality assessment of Vadgaon tank of Kolhapur (Maharashtra), with special reference to Zooplankton. International Journal of Advanced Biotechnology and Research. 1 (2) : 91-95.
- Meme FK, Arimoro FO and Nwudukwe FO (2014) Analyses of Physical and Chemical Parameters in Surface Water near by a Cement Factory in North Central, Nigeria. Journal of Environmental Protection. 5 : 826-834.
- Pawar SK (2017a) Physico-chemical analysis of water in Vishnupuri dam, Nanded (M.S.) India,, *Int. J. of Life Sciences*, Volume 5(4): 754-757.
- Pawar SK (2017b) Fish diversity in relation to fish economics of Isapur dam, from Pusad, Yavatmal District (Maharashtra), India, *Int. J. of Life Sciences*, Volume 5(1): 133-136.
- Pawar SK (2017c) Population kinetics and seasonal fluctuation of phytoplankton of Vishnupuri dam, Nanded district, (M.S) India. *Int. Res. Journal of Science & Engineering*,; 5 (3): 231-234.
- Pawar SK (2017d) Population kinetics and seasonal fluctuation of zooplankton of Vishnupuri dam, Nanded district, (M.S) India. *Int. Res. Journal of Science & Engineering*, 5 (3): 227-230.
- Pawar SK (2017e) The study on fish diversity in the Vishnupuri dam, Nanded (M.S.) India, *Int. J. of Life Sciences*, Volume 5(1): 137-139.
- Pawar SK (2017f) Water quality assessment of Vishnupuri dam, in Nanded District, Maharashtra, India, *Int. J. of Life Sciences*, Volume 5(4): 758-761.
- Pawar SK (2018a) Assessment of phytoplankton of Karadkhed Dam, District Nanded, Maharashtra, India. *Int. Res. Journal of Science & Engineering*, (2): 137-140.
- Pawar SK (2018b) Determination of physico-chemical parameters of Vishnupuri Dan, Nanded District, Maharashtra, India. *Int. Res. Journal of Science & Engineering*, 6 (1): 26-30.
- Pawar SK (2018) Assessment of Zooplankton of Karadkhed Dam, District Nanded, Maharashtra, India, *Int. J. of Life Sciences*, Volume 6(3): 825-828.
- Ramachandra Mohan et al. (2010) Water Quality and Pollution Status of Madivala Lake, Bangalore Environment and Ecology 28 (3).
- Sakhre VB and Joshi PK (2003) Physico-Chemical Limnology of Papnas : A minor wetland in Tuljapur Twon, Maharashtra, J. Aqua, Biol., Vol. 18 (2), P.93-95.
- Simpi B, Hiremath SM, Mur thy KNS, Candreshe karappak N, Patel AN and Puttiah ET (2011) Analysis of water Quality Using Physico-chemical parameters Hosahalli Tank in Shimoga District, Karnataka, India. *Global Journal of Science frontier Research*. 1 (3) : 31-34.