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On the current status of biodiversity in Ghodahada reservoir, Ganjam district, Odisha, India

Pati Mitali Priyadarsini, Nayak Lakshman, Sharma Satyabrata Das* and Pragnya Padhi
Department of Marine Sciences, Berhampur University,Bhanja Bihar, Berhampur, 760007, Odisha, INDIA

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Abstract

The study was carried out for a period of one year from February 2013 to January 2014. The Ghodahada reservoirs harbor many diversified fauna and flora. During the study period; 10 species of aquatic weeds, 2 species of prawns, 4 species of gastropods, 4 species of bivalvia, 29 species of Pisces, 2 species of amphibians, 3 species of reptiles and 2 species of aves were observed. Out of 3 species of reptile, two were from Viperidae group and one was from Crocodilia. Presence of crocodile is most attractive feature of the reservoir. Periodically water quality parameters such as temperature, pH, dissolved oxygen and biological oxygen demand were analyzed. The water temperature was in a range of 24.2^{0}C to 32.9 ^{0}C (29.49 ± 2.42), pH varied from 6.74 to 7.39 (7.06 ± 0.19), dissolved oxygen ranged from 3.88 to 5.32 mg/l (4.61 ± 0.43) and biological oxygen demand was observed to be 2.09 to 3.73 mg/l (2.73 ± 0.41) during the year, 2013. The physico -chemical parameters of the reservoir were within WHO limits. The result indicated that the water quality of Ghodahada reservoir is quite suitable for growing vegetative as well as faunal community and carrying high ecological status.

Keywords: Biodiversity, water quality, Ghodahada Reservoir.

Introduction

Biological diversity or "biodiversity" refers to the variety of life on earth. In other words it means the variability among living organisms from all sources including, interlace, terrestrial, marine and other aquatic systems and the ecological complexes of which they are part this includes diversity within species, between species and of ecosystem[1]. India is a tropical Peninsular country endowed with extensive coastline of more than 8129 km. dotted with many estuarine, backwaters, bays, lagoons, Inland waters, reservoirs etc. The time has come now when man has to depend more and more on water than land, because the sources of the land are getting depleted. In India the growth rate of population is increasing in a geometric progression where as the production of food is not increasing in a steady rate. The main requirement is animal protein. Fish is a source of animal protein. Fish protein is supposed to be the cheapest and of superior quality as it contains all essential amino acids for body building. In India the per capita consumption of fish is 40 kg so far as diet 56 grams (gm) per head per day is concerned. Assuming 20 gm of animal protein from fish and rest by meat, milk and others. At present India is requiring more than 13 million tons of fish. The country is endowed with huge resources of water of which 1.97 million hectare of reservoirs and about 1.3 million hector of bheels in Assam and Bihar that can be utilized for aquaculture. Besides 1.69 lakh km of rivers, streams, estuaries and lakes such as Chilika (Orissa), Pulicat (Andhra Pradesh) and Kerala backwaters can also be utilized for aquaculture. The role of water storage is to impound water during periods of high flows, thus preventing flood disasters and then permit gradual release of water during periods of less water flow. These processes help for the development of fishery resources of the country. The exploration and exploitation of water resource is neglected which is available in plenty can augment our food supply through fish culture. More than 800 numbers of Reservoirs scattered over various river systems not only facilitate irrigation but also are used for fish resource. The great water mass they hold is being exploited for developing a number of local fisheries as well as of exotic species. An approximate estimate of the average fish production from Indian reservoirs varies only 6-7kg/ha. There are about 2365 number of reservoirs in the country. Out of which there are, 58 large, 152 medium and 2155 small reservoirs having an area of nearly two million hectare of surface area. The average fish production per hectare per annum was 22.84 kg[2]. The average fish production level of around one lakh tones per annum can be obtained from reservoir provided there are determined efforts coupled with facilities. In intensive waters like reservoirs fish are reared more as a part of general fishery improvement programme, than as pure fish culture. The rational management of reservoirs is of great significance in food production. The improvement of reservoirs is a recent development in fishery management and is still in its infancy. Orissa has constructed 163 numbers of large dams of which 55 number are Major and Medium Project Dams and 108 nos. of Minor Irrigation Project Dams. Therefore, the present study is an attempt to study the biodiversity of Ghodahada reservoir and the main objective of the work is to study on diversity of the major flora such as aquatic weeds and fauna like invertebrates and vertebrates in relation to some environmental parameters.

Materials and Method

Study Area: Ghodahada is a major reservoir which was constructed during the year 1962 – 1978 with an estimated cost of Rs. 366.13 lakh. It is located near Digapahandi in the Ganjam District which is about 48 km from Berhampur town and about 60 kms from Berhampur University. It is located at 19^0 17' 30" N latitude and 84^0 20/ 30// E longitude (figure-1) adjoining the Lakhari valley sanctuary and in a part of the Eastern Ghats. The Catchment area is 138 km^2, length of the reservoir is 1724m and height is 27.23m. The gross water holding capacity of the reservoir is 24.17 m^3. The discharging capacity of the spillway 906 m^3 /sec with a flood lift of 2.89 m. Month wise multiple water samples were collected from 3 different stations and their average were recorded. The physico- chemical parameters such as water temperature (WT), pH, dissolved oxygen (DO), biological oxygen demand (BOD) were analyzed using standard methods of APHA 2005[3]. The water samples as well as the different flora like aquatic weeds and fauna were collected from the study site during the period from February, 2013 to January, 2014. The aquatic weeds and fauna were collected with the help of local fisher men. The fauna and flora were washed, packed and were brought to the laboratory of P.G. Department of Marine Sciences, Berhampur University for further analysis. The vertebrate fauna like crocodiles were observed on site and recorded. Statistical analysis like mean and standard deviation were done to know the seasonal variation of the physico – chemical parameters.

Collection, Preservation and Identification: Collected animals were placed in trays and completely immersed in fresh water without any disturbance. The adult fishes and shell fishes and other animals were preserved in 5 % neutral formalin and stored in polythene bottles for further studies. Molluscan specimen were then allowed to extend their contracted body parts and process at narcotisation were done by sprinkling fine powders of $MgSO_4$ on the waters containing specimens. After narcotisation, animals were preserved in glycerol modified ethyl alcohol (70%) in the ratio of 1:9. Taxonomic identification was made for invertebrates as well as fishes using different standard literature such as Day (1878)[4], Munro (1982)[5] and Jayaram (1981)[6].

Results and Discussion

Physico-chemical parameters: Temperature: Temperature plays an important role in distribution, growth and reproduction of fresh water environment both flora and fauna. The water temperature during the study period was in a range of 24.2^0C to 32.9 ^{0}C (29.49 ± 2.42) in the year, 2013 (table-2). The water temperature varied from 28.1 to 32.9 (29.88 ± 1.78) during pre-monsoon, 29 to 32.3 (31.52 ± 1.22) during monsoon and 24.2 to 28.9 (27.08 ± 1.73) during post-monsoon (table-3 and figure-2).

Hydrogen Ion concentration (pH): It is a quantitative expression for acidity or alkalinity of water. Generally the biological processes and biochemical reactions are pH dependent. Measurement of pH is one of the most important and most frequently used tests in determining water quality. The pH was varied from 6.74 to 7.39 (7.06 ± 0.19), where the lowest pH during the month of May, 2013 at station- I and highest was during November, 2013 at station –II, (table- 2). The pH ranges from 6.74 to 7.29 (6.91 ± 0.12) during pre-monsoon, 6.78 to 7.23 (7.02 ± 0.17) during monsoon and 7.07 to 7.39 (7.25 ± 0.10) during post-monsoon (table –3 and figure-3).

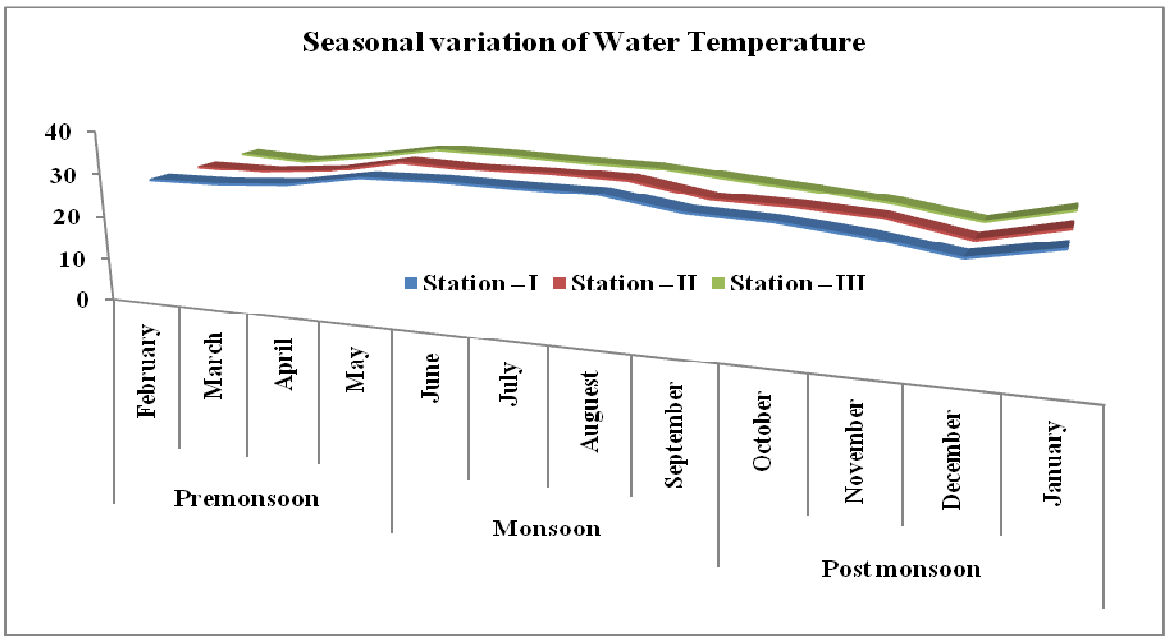

Figure-1
Seasonal variation of Water Temperature

Table-1
Check list of Aquatic weeds and Fauna present in Ghodahada Reservoir during February 2013 to January 2014

SI. No	Class/Division	Order	Family	Genus	Species
Check list of Aquatic weeds present in Ghodahada Reservoir					
1	Pteridopsida	Salviniales	Marsileaceae	*Marsilea*	*quadrifolia*
2	Unranked	Solanales	Convolvulaceae	*Ipomea*	*aquatica*
3	Monocotyledon	Alismatales	Hydrocharitaceae	*Hydrilla*	*verticillata*
4	Charophyceae	Charales	Characeae	*Chara*	*species*
5	Pteridopsida	Salviniales	Salviniaceae	*Salvinia*	*natans*
6	Monocotyledon	Alismatales	Araceae	*Pistia*	*stratiotes*
7	Monocotyledon	Alismatales	Araceae	*Colocasia*	*esculenta*
8	Monocotyledon	Cyperales	Cyperaceae	*Scripus*	*erectus*
9	Dicotyledon	Ranales	Nympaeaceae	*Nymphae*	*stellata*
10	Dicotyledon	Ranales	Nympaeaceae	*Nelumbo*	*nucifera*
Checklist of Prawn (Arthopoda) present in Ghodahada Reservoir					
1	Malacostraca	Decapada	Palaemonidae	*Macrobranchium*	*rosenbergii*
2	Malacostraca	Decapada	Palaemonidae	*Macrobranchium*	*Malcolmsonii*
Checklist of Molluscan (Gastropoda and) present in Ghodahada Reservoir					
1	Gastropoda	Architaenioglossa	Viviparidae	*Bellamya*	*bengalensis*
2	Gastropoda	Hygrophila	Planorbidae	*Indoplanorbis*	*exustus*
3	Gastropoda	Sorbeoconcha	Thiaridae	*Melanoides*	*tuberculata*
4	Gastropoda	Hygrophila	Lymnaeidae	*Lymnaea*	*luteola*
5	Bivalvia	Veneroida	Corbiculidae	*Corbicula*	*peninsularis*
6	Bivalvia	Unionoida	Unionidae	*Parreysia*	*caerulea*
7	Bivalvia	Unionoida	Unionidae	*Radiatula*	*caerulea*
8	Bivalvia	Unionoida	Unionidae	*Trapezoideus*	*exolescens*
Checklist of fish (Pisces) species present in Ghodahada Reservoir					
1	Pisces	Cypriniforms	Cyprinidae	*Catla*	*catla*
2	Pisces	Cypriniforms	Cyprinidae	*Labeo*	*rohita*
3	Pisces	Cypriniforms	Cyprinidae	*Channa*	*punctatus*
4	Pisces	Cypriniforms	Cyprinidae	*Cirrhinus*	*mrigala*
5	Pisces	Cypriniforms	Cyprinidae	*Cirrihinus*	*reba*
6	Pisces	Channiformes	Channidae	*Ophicephalus*	*punctatus*
7	Pisces	Cypriniforms	Cyprinidae	*Labeo*	*calbasu*
8	Pisces	Physostomi	Cyprinidae	*Amblypharyngodon*	*mola*
9	Pisces	Siluriforms	Siluridae	*Clarius*	*bactrachus*
10	Pisces	Siluriforms	Bagridae	*Mysteus*	*gulio*
11	Pisces	Cypriniformes	Cyprinidae	*Esomus*	*danricus*
12	Pisces	Perciforms	Nanidae	*Badis*	*badis*
13	Pisces	Osteoglossiformes	Notopteridae	*notopterus*	*chitala*
14	Pisces	Synbranchiformes	Synbranchidae	*Amphipenous*	*cuchia*
15	Pisces	Perciformes	Channidae	*Channa*	*gachua*
16	Pisces	Perciformes	Channidae	*Channa*	*asiatica*
17	Pisces	Perciformes	Channidae	*Channa*	*striatus*
18	Pisces	Siluriformes	Heteropneustidae	*Heteropneustes*	*fossilis*
19	Pisces	Siluriformes	Bagridae	*Mystus*	*gulio*
20	Pisces	Siluriformes	Siluridae	*Wallago*	*attu*
21	Pisces	Siluriformes	Pangasiidae	*Pangasius*	*pangasius*
22	Pisces	Cyprinodontiformes	Poeciliidae	*Gambusia*	*affinis*
23	Pisces	Perciformes	Nandidae	*Nandus*	*nandus*
24	Pisces	Perciformes	Anabantidae	*Anabas*	*testudineus*
25	Pisces	Cypriniformes	Cyprinidae	*Cyprinus*	*carpio*
26	Pisces	Siluriformes	Ictaluridae	*Ictalurus*	*punctatus*
27	Pisces	Cypriniformes	Cyprinidae	*Labeo*	*bata*
28	Pisces	Synbranchiformes	Mastacembelidae	*Macrognathus*	*aculeatus*

29	Pisces	Perciformes	Gobiidae	*Gobius*	*viridipunctatus*
Checklist of Amphibians present in Ghodahada Reservoir					
1	Amphibia	Anura	Dicroglossidae	*Rana*	*tigerina*
2	Amphibia	Anura	Bufonidae	*Bufo*	*melanostictus*
Checklist of Reptiles present in Ghodahada Reservoir					
1	Reptilia	Squamata	Colubridae	*Ptyas*	*mucosus*
2	Reptilia	Squamata	Colubridae	*Natrix*	*tiscator*
3	Reptilia	Crocodilia	Graviladae	*Gavialis*	*gangeticus*
Checklist of Aves present in Ghodahada Reservoir					
1	Aves	Anseriforms	Anatidae	*Histrionicus*	*histrionicus*
2	Aves	Pelecaniformes	Ardidae	*Casmerodius*	*albus*

Table-2
Showing seasonal and spatial variation of water quality parameters of Ghodahada reservoir during February 2013 to January 2014

Station	Season	Sampling Month	WT	pH	DO	BOD
Station – I	Pre monsoon	February	28.4	6.92	4.44	2.88
	Pre monsoon	March	28.6	6.89	4.29	2.69
	Pre monsoon	April	29.6	6.88	4.37	2.71
	Pre monsoon	May	32.2	6.74	3.92	3.17
	Monsoon	June	32.5	6.91	4.17	2.73
	Monsoon	July	32.2	6.83	4.46	3.13
	Monsoon	August	32.1	7.18	4.78	2.12
	Monsoon	September	29.6	7.15	5.23	2.57
	Post Monsoon	October	28.9	7.23	4.94	3.73
	Post Monsoon	November	27.2	7.14	4.89	2.48
	Post Monsoon	December	24.6	7.32	4.79	3.3
	Post Monsoon	January	27.8	7.23	4.34	2.67
Station – II	Pre monsoon	February	28.6	7.09	4.67	2.33
	Pre monsoon	March	28.5	6.78	4.36	2.14
	Pre monsoon	April	29.8	7.02	4.67	2.93
	Pre monsoon	May	32.8	7.09	3.89	2.22
	Monsoon	June	32.2	7.29	3.97	3.19
	Monsoon	July	32.3	6.78	4.22	2.67
	Monsoon	August	31.9	7.23	4.49	2.56
	Monsoon	September	29	7.08	5.19	2.23
	Post Monsoon	October	28.6	7.07	5.29	2.67
	Post Monsoon	November	27.5	7.39	4.87	2.48
	Post Monsoon	December	24.2	7.26	5.32	3.12
	Post Monsoon	January	27.9	7.36	4.27	2.54
Station – III	Pre monsoon	February	28.9	6.97	4.82	2.49
	Pre monsoon	March	28.1	6.92	4.42	2.74
	Pre monsoon	April	30.2	6.82	4.58	2.76
	Pre monsoon	May	32.9	6.77	3.88	2.41
	Monsoon	June	32.6	6.98	4.19	3.1
	Monsoon	July	32	6.82	4.15	2.97
	Monsoon	August	31.7	7.09	4.92	2.19
	Monsoon	September	30.1	6.93	4.79	2.3
	Post Monsoon	October	28.7	7.27	5.11	3.41
	Post Monsoon	November	27	7.36	5.13	2.09
	Post Monsoon	December	24.3	7.18	5.27	3.46
	Post Monsoon	January	28.2	7.22	4.69	2.93
		Mean & SD	29.49 ± 2.42	7.06 ± 0.19	4.61 ± 0.43	2.73 ± 0.41

WT= Water Temperature, pH, DO= Dissolved Oxygen, BOD= Biological oxygen demand

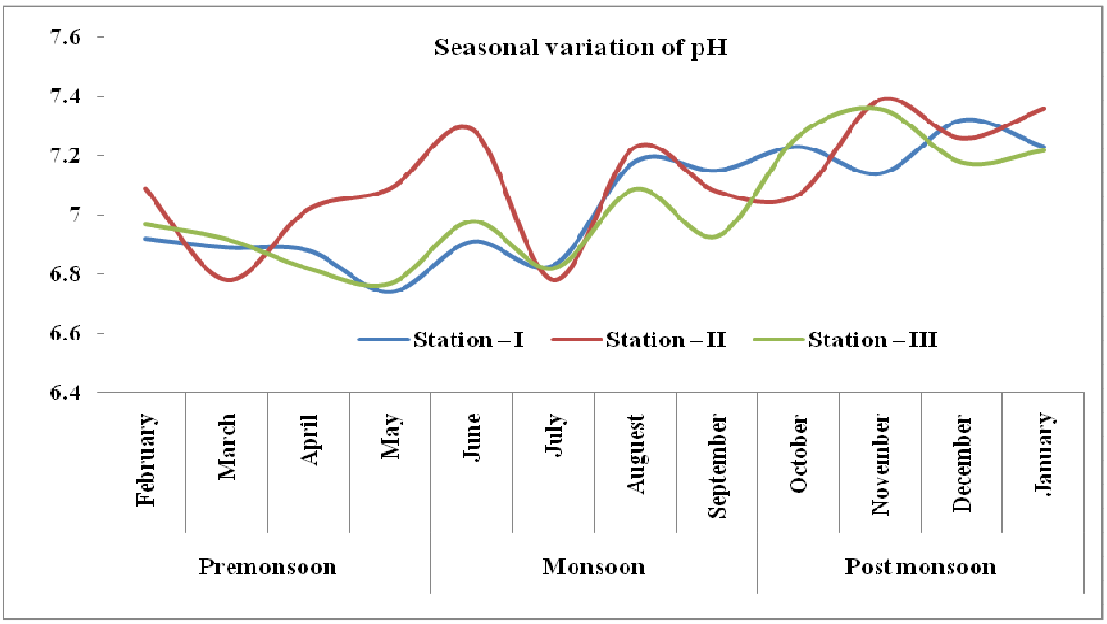

Figure-2
Seasonal variation of pH

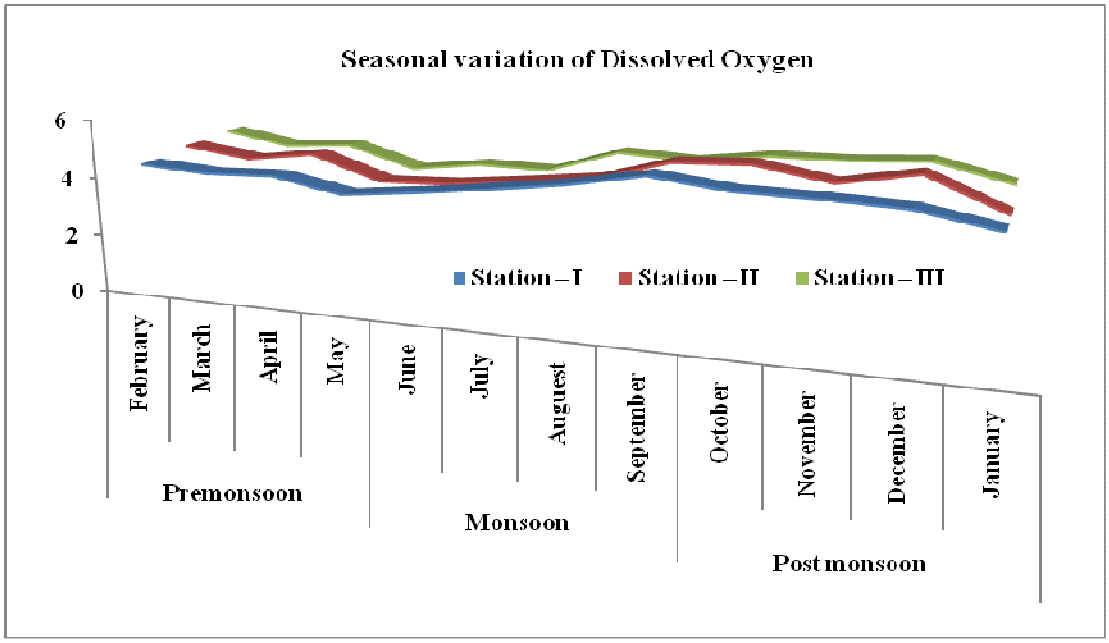

Figure-3
Seasonal variation of dissolved oxygen

Table-3
Seasonal variation (Mean and standard deviation) of water quality parameters of Ghodahada reservoir during February 2013 to January 2014

Parameter	Pre monsoon	Monsoon	Post monsoon
WT	29.88 ± 1.78	31.52 ± 1.22	27.08 ± 1.73
pH	6.91 ± 0.12	7.02 ± 0.17	7.25 ± 0.10
DO	4.36 ± 0.32	4.55 ± 0.43	4.91 ± 0.35
BOD	2.62 ± 0.31	2.65 ± 0.39	2.91 ± 0.50

Dissolved Oxygen (DO): Dissolved oxygen is one of the important parameter in water quality assessment. It reflects the physical and biological processes prevailing in the water. Non polluted surface water is normally saturated with DO. The DO was varied from 3.88 to 5.32 mg/l (4.61 ± 0.43, table-2) during the study period. The highest DO was observed to be 5.32 mg/l during the month of December, 2013 at station – II and DO was observed to be 3.88 mg/l during the month May, 2013 at station-

III (table – 2). The DO varies from 3.88 to 4.67 mg/l during pre-monsoon (4.36 ± 0.32), 4.15 to 5.23 (4.55 ± 0.43) mg/l during monsoon and 4.79 to 5.32 (4.91 ± 0.35) mg/l during post-monsoon (table-3 and figure-4).

Biological Oxygen Demand (BOD): Biological oxygen demand is an important parameter to the oxygen required to degradation of organic matter. It is the amount of oxygen required by the bacteria in stabilizing the decomposable organic matter and it determines the amount of bio chemically oxidisable carbonaceous matter. The highest BOD was observed to be 3.73 mg/l during the month of October, 2013 at station-I and the lowest BOD was observed to be 2.09 mg/l during the month of November, 2013 at station -III (table -4). The BOD value during the study period varied from 2.09 to 3.73 mg/l (2.73 ± 0.41, table -2). The BOD varies from 2.14 to 3.19 mg/l (2.62 ± 0.31) during pre-monsoon, 2.19 to 3.13 mg/l (2.65 ± 0.39) during monsoon and 3.73 to 2.09 mg/l (2.91 ± 0.50) during post-monsoon period (table-3 and figure-4).

The reservoirs harbor many diversified fauna and flora. In the present study, there were 10 species of aquatic weeds, 2 species of prawns, 8 species of molluscans, 29 species of Pisces, 2 species of amphibians, 3 species of reptiles and 2 species of aves were observed. Out of 3 species of reptile, two were from viperidae group and one is from crocodilia (table-1). Besides this, the main attraction of Ghodahada reservoir is the presence of crocodile. There are about 22 species of Crocodiles seen in all over the world, which are present either in marine, brackish water or fresh water. Among the biodiversity, crocodile acts as a rare and endangered species. These crocodiles are found in few places. The freshwater crocodiles are available in the Ghodahada reservoir. In India there are three species of crocodiles found which are Gharial (Gavialis gangeticus), Mugger or Marsh Crocodile (Crocodilus palustries) and Salt water or estuarine crocodile (Crocodilus porosus). Out of that only Gavialis gangeticus is present in the reservoir.

Discussion: Reservoirs are large number of artificially constructed fresh water impoundments where water is retained to serve the needs of man. Reservoirs are important sources of water in all over the world. Reservoirs formed part of storage basins for municipal and industrial water supply, agriculture and hydropower. Some reservoirs are constructed as flood control detention storage to buffer the different flow during dry and wet season, although most of them, currently have multipurpose functions. Physical and chemical properties of the fresh water exert considerable influence on the flora and fauna presenting in the Ghodahada reservoir. During the present study the physico-chemical parameters like Temperature, Dissolved oxygen, pH and Biological oxygen Demand in respect of the each of the stations has been analyzed for a period of ten month which is shown in the table-2. Seasonal variations of the physic-chemical parameters were also noticed during the study period (figure-1 to 4). Among the hydrological parameters, temperature is the most critical environment factor influencing metabolism, growth, reproduction, distribution and survival of flora and fauna in fresh water reservoir[7]. Temperature also affects solubility of oxygen in water.

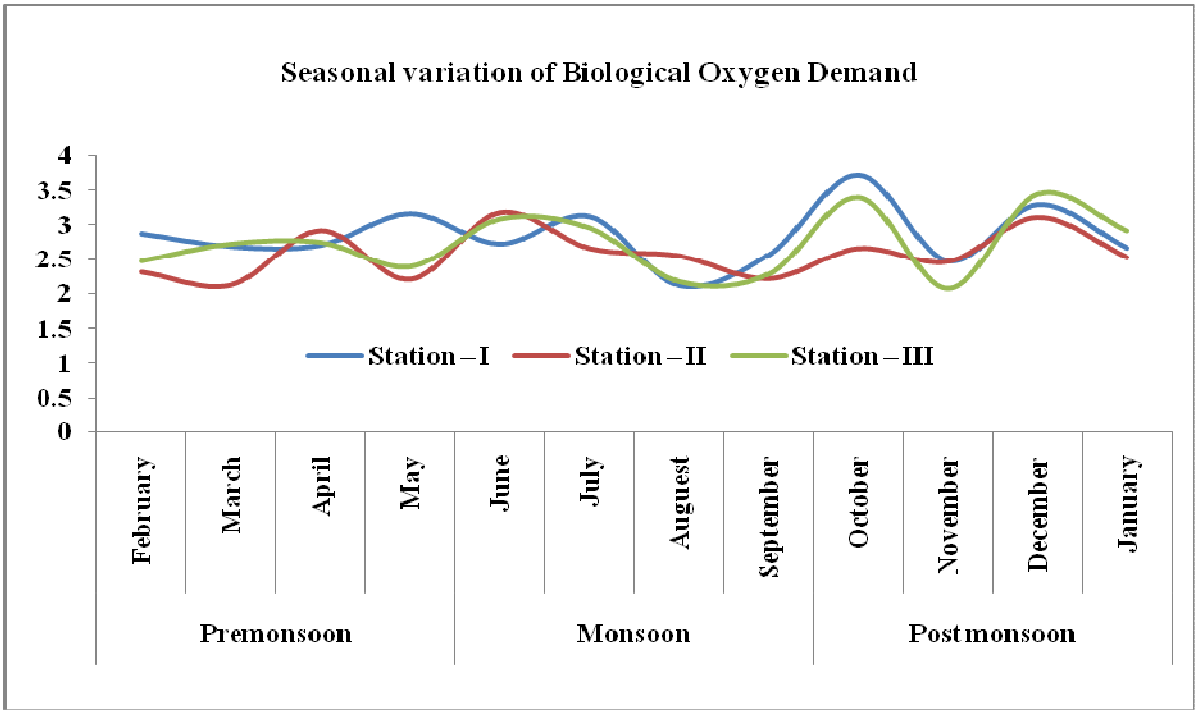

Figure-4
Seasonal variation of biological oxygen demand

Solubility of oxygen in water increases with decreasing temperature[8]. Aquatic organisms often have narrow temperature tolerances. Thus reasonable changes in water temperatures can have severe impacts on aquatic life, including bacteria, algae, invertebrates and fish. During the present study, the water temperature was in range of 24.2^{0}C to 32.9 ^{0}C (29.49 ± 2.42). The present study revealed that the temperature variation of the reservoir is suitable for the growth of aquatic life. The pH was varied from 6.74 to 7.39 (7.06 ± 0.19), where seasonal changes in the pH was also observed i.e. in summer it was in a range of 6.74 to 7.29 (6.92 ± 0.16), in monsoon it was varied from 6.78 to 7.23 (7.01 ± 0.17) and 7.07 to 7.39 (7.25 ± 0.10) in period of post-monsoon. In general the pH values are higher in post monsoon season than other seasons. The variation can be due to the exposure of dam water to atmosphere, biological activities and temperature changes[9]. The maximum permissible limit of pH as prescribed by ICMR & BIS is 6.5 to 8.5 and WHO is 7.0 to 8.5. In this regard, the present study is partial agreement with the above standards and the pH values are falling within the desirable and suitable range. The dissolved oxygen was varied from 3.88 to 5.32 mg/l (4.61 ± 0.43, table-2) throughout the study period, where in summer it was varied from 3.88 to 4.67 mg/l (4.23 ± 0.27), 4.15 to 5.23 (4.69 ± 0.39) mg/l in monsoon and 4.79 to 5.32 (5.07 ± 0.20) mg/l during the period of post-monsoon. The variation may be due to exposure of water to atmosphere in different seasons[10]. Least values observed during summer which may be due to high metabolic rate of organisms and high atmospheric temperature[10] and maximum values reported during in post monsoon period, may be due to low atmospheric temperature[11]. Though the dissolved Oxygen value of the present study is slightly higher than the permissible limits as prescribed by ICMR and BIS still than it is within the pleasing and appropriate range. The biological oxygen demand during the study period varied from 2.09 to 3.73 mg/l (2.73 ± 0.41, table -2) where it was in a range of 2.14 to 3.19 (2.73 ± 0.34) mg/l during summer, 2.19 to 3.13 (2.53 ± 0.35) mg/l during monsoon and 3.73 to 2.09 (2.97 ± 0.56) mg/l during the period of post-monsoon. All the above results are within permissible limit. Similar study was observed by Moshood, 2008 on the physico-chemical parameters of Oyon reservoir of Nigeria during the month of January 2002 to December 2003 [12]. The present result is partially agreement with a result of Moshood, 2008 which may be due to difference in the location and difference in the environmental condition of the two biotopes[12].

Ten species of fresh water aquatic weed such as: *Marsilea quadrifolia, Ipomea aquatica, Hydrilla verticillata, Chara species, Salvinea natans, Pistia stratiotes, Colocasia esculenta, Scripus erectus, Nymphae stellata* and *Nelumbo nucifera* have been observed from Ghodahada reservoir during the study period. Carrion *et al*, 2008[13] have studied on inferred vegetation types include oak, pine, juniper woodlands, mixed woodlands and savannahs, grasslands with heaths, heliophytic matorrals, phreatophytic formation and thermomediterranean coastal scrub from coastal reservoir of Iberian Peninsula during 2001 to 2008. Therefore the present result is partially agreement with the result of Carrion *et al*[13]. This may be varying because of environmental condition and other parameter which play a major role in the distribution and abundance of these floras. Ali, 1996 [14] studied on the conservation and fish biodiversity from a tropical reservoir of Malaysia. He was observed 37 numbers of fish species from the downstream area and some floral community like *H.verticillata* and *Pistia statiotes*[14]. In the present study 29 species of fishes were observed from the Ghodahada reservoir. As per the above discussion the present result is partially in agreement with the result of Ali, 1996[14]. In the present study aquatic weeds, molluscas, fishes, frogs, snake, aves and fresh water crocodiles (*Gavialis gangeticus*) were observed. Jordi and Ming, 2009[15] was studied on biodiversity of three Gorges reservoir from Yangtze River of Central China. The result revealed that there were 6000 plant species, over 500 terriestrial vertebrates and about 160 species of fish were found. In the present study, there were 10 species of aquatic weeds, 2 species of prawns, 8 species of molluscans, 29 species of Pisces, 2 species of amphibians, 3 species of reptiles and 2 species of aves were observed. It may be vary due to duration of study period or environmental factor.

Conclusion

Reservoirs are very important sources of water and can have multipurpose functions. They formed partial storage basins for industrial and municipal water supply. Reservoir also supports important ecosystem and repository biodiversity of rare, endemic and endangered species. Due to its economic potential, many reservoirs ponds have become popular tourism and water based recreational sites or commercial fishing activities. Ghodahada reservoir has good water quality and sustainable for water supply for domestic and agricultural uses. At present there is no threat due to non development of any industry except only small scale fishing activities by local fishermen. There is no record on soil erosion, as soil erosion study was not yet been carried out. Due to the climatic change in the reservoir in different season, it affects the fish catching from the reservoir. Biodiversity is the most important ingredient of an ecosystem. The biodiversity of Ghodahada reservoir studied for one year is not sufficient to make a detail account on the biodiversity of this reservoir. The time period was too short to study the biodiversity of Ghodahada reservoir in detail. So a long term study is required for this reservoir to know the detailed list of biodiversity, conservation measure and to make proper strategies for monitoring.

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