DISCUSSION

The physico-chemical analysis of water is most important aspect to determine the quality of lentic ecosystem for its best use. The main object of physico-chemical analysis of water is to determine the status of medium. Like all other lentic and lotic ecosystems the water bodies present under investigation are also under the influence of different anthropogenic activities and other development factors of human being. The biotic components present in the water bodies are influencing the fluctuating different physico-chemical parameters. The abiotic environment of the water bodies found to be the limiting factors for controlling diversity and density of zooplanktons and other microorganisms. The present study helped to understand the effect of physico-chemical parameters and their interaction among themselves in deciding the final biotic and abiotic environment of water bodies. The atmospheric temperature and temperature of water body play important role to indicate the quality of water and effects on the biological reactions in the organisms in water.

The present studies were done from Chitri dam to assess the water quality and study of Ichthyofauna and Avifauna from lentic water body. In the present work Water temperature, Total Dissolved Solids, Transparency, Turbidity, Conductivity, Dissolved oxygen, free CO$_2$ Biochemical Oxygen Demand Total Alkalinity, Total Hardness, Phosphates, Chlorides, Sulphates were studied for two years. Besides this diversity of Zooplankton diversity and phytoplankton observed for all four sampling sites.

In the following discussion except the temperature ($^0$C), Transparency (cm), Conductivity (Micro mhos/cm), Zooplanktons (No./l) and other parameters in mg/lit.

The temperature is one of the most important abiotic factors which regulate the self purification capacity of water body. Increasing atmospheric temperature increases water temperature. Particularly in shallow water bodies the water shows close relation with atmospheric temperature. Welch (1952).

The temperature of water body ranged between 19.3$^0$C to 28$^0$C in first year July 2006 to June 2007. The highest temperature recorded in the month of May and lowest temperature in the month of December. The temperature observation in second year ranges between 19.5$^0$C to 28.9$^0$C. The highest temperature was 28.9$^0$C in the month of March and Low temperature in the month of December i.e. 19.5$^0$C.
In summer and monsoon, the temperature of water body was generally higher as compared to that in the winter. It was in agreement with the work of Welch (1952) who observed that shallow water reacts more quickly to change in atmospheric temperature. Zingade (1981) predicted that seasonal variations were observed in the temperature of water body, which also exhibited a correlation with atmospheric temperature. Trivedy, Goel (1988) have reported that the temperature was higher in March and lower in November of few water bodies. The temperature of water body during investigation period was always below the atmospheric temperature.

High summer temperature and strong sunshine increased the process of decay of organic matter resulting into nutrients and CO$_2$ was produced in large quantities. Kodarkar (1994) observed direct relationship between the duration of bright sunshine and temperature in tropical countries. Yogesh Shastri, Bhogaonkar, Mamude and Pendse (1999) reported that, the temperature of water body of a percolation tank of Pimpalgaon was generally higher in summer and monsoon as compared to that in the winter. According to Bangale (1999) higher summer temperature is due to greater solar radiation, low level of water and clear atmosphere. Chavan R.J. (2002) observed similar range of temperature from Manjara Project water reservoir in Beed district. Abdar M.R. (2007) reported that, the temperature of water body ranged between 13$^\circ$C to 27$^\circ$C in winter and 24$^\circ$C to 30$^\circ$C during summer. Similar results were observed by Prasanthan and Vasudevan Nayar (2000) have reported that temperature was high in March and April and low in December and January of Parvathyputhe aquatic system in Thiruananthapuram of Kerala. Narasimba Rao and Jaya Raju (2001) have observed that atmospheric temperature was higher than that of water in sewage – Fed fish culture pond at Nambur near Guntur A.P. India. Bohura (2001) have reported that temperature of water body was lower than that of air of Ganjer lake Bikaner. Lendhe and Yeragi (2004) have reported that the temperature of water from Phirange Kharbav Lake of Dist. Thane was low in winter and high in summer. Nisar Patel and Bhadane (2004) have reported seasonal variation in the temperature of water from Tadya Nallah Pond at Amalner Dist. Jalgaon, which exhibited correlation with temperature of air. Madhuri Pejaver and et.al (2004) have reported that the temperature of water was highest in May while lower in January of two quarries, near Thane City. The results discussed above were in well agreement with that of Chitri dam and similar results were also reported by Angadi (1986), Singh and Rai (1988), Trivedi and Goel (1988), Krishnamurthy (1990), Bhat et.al (1990) Sampathkumar (1991), Bhosale

The ambient temperature and water temperature play important role as indicate the quality of water, effects on the biological reactions in the organisms in water. A rise in temperature of the water leads to the spreading up of the chemical reaction in water reduces the solubility of gases like $O_2$, $CO_2$. The water temperature ranged between $14.20^\circ C$ to $21.92^\circ C$ in winter months and $17.72^\circ C$ to $33.95^\circ C$ during summer months. The difference ranges from 3.52 to $12.03^\circ C$. However, in rainy season from June to Sept. the water temperature ranged between $24.78^\circ C$ to $31.5^\circ C$ (Fig 3, 4). In summer water temperature was generally higher as compared to winter and monsoon months. Seasonal variations were observed in water temperature, which also exhibited a correlation with atmospheric temperature (Zingade 1981), Welch (1952) has observed that shallow water reacts more quickly to change in atmospheric temperature. Trivedy, Goel (1988) have reported that temperature was higher in summer (March) and lower in winter (November) of few water bodies of Satara District. The water temperature during investigation period was always below the ambient temperature.

High summer temperature and strong sunshine increases the process of decay of organic matter resulting into nutrients and $CO_2$ was produced in large quantities. A direct relationship between the duration of bright sunshine and temperature has been observed in tropical countries (Kodarkar 1994). Yogesh Shastri, Bhogaonkar, Mamude and Pendase (1999) reported that in summer and monsoon the water temperature is generally higher as compare to winter months. Ravishanker Piska (2000) have reported that temperature in rain-fed seasonal tank in Karimnagar was higher in month of February and March , while lower in November and September. Prasanthan and Vasudevan Nayar (2000) have reported that maximum temperature was in month of March and April and minimum temperature was in the month of
December and January of Parvatiputhe aquatic system in Thiruvananthapuram of Kerala. Narsinha Rao and Jaya Raju (2001) have observed that ambient temperature was higher than water temperature in sewage feed Fish culture pond at Nambur near Guntur, A.P., India. Bohure (2001) has reported that water temperature was lower than the air temperature of Ganjer Lake Bikaner. Landhe and Yeragi (2004) have reported that minimum water temperature in winter and maximum temperature in summer season of Phirange Kahrbaav Lake District Thane of Maharashtra. Nisar Patel and Bhadane (2004) have reported that seasonal variation in the water temperature, which exhibited in co relation with air temperature of Tadya Nallah pond at Amalner District Jalgaon. Madhuri Pejavar et.al (2004) have reported that water temperature was highest in the month of May while lower in the Month of January of two quarry lakes near Thane city. The present results were in agreement with above results. Similar results were also reported by Angadi (1986), Singh and Rai (1988), Trivedi and Goel (1988), Krishnamurthy (1990), Bhat et.al (1990), Sampatkumar (1991), Bhosale et.al (1994), Zirk et.al (1996), Singh (1999), Dhatta et.al (1999), Narsinharao(2001), Perumalsamy and Thangamani (2004), Yeole and Patil (2005), Bankar, Manjappa and Ravikumar (2005), Meshram (2005), Kadam, Mali and Ambore (2005), Pawar and Pulle (2005), Pawar and Mane (2006), Dhere and Gaikwad (2006) and Tamlurkar and Ambore (2006).


The acidity and alkalinity of water is measured in terms of its value of hydrogen ion concentration. The pure water consists of positively charged hydrogen ions or hydrogen ions combined with negatively charged hydroxyl ions. The water become acidic when hydrogen ions are excess than hydroxyl ions and if the condition is reserved the water becomes alkaline.

The pH is the negative logarithm of hydrogen ion concentration, more precisely hydrogen ion activity. It is one of the most important abiotic factors that serve as an index for the pollution. pH of most natural water falls within the range of 4 to 9. The majority of water bodies are slightly basic because of the presence of Carbonate and Bicarbonate. The pH increases during daytime due to photosynthetic activity. The water of Chitri dam was always alkaline as pH constantly remained
above 7. In present study variation in pH from 7.3 to 8.1 was observed. Minimum value of pH was observed in rainy and beginning of winter season while maximum in summer season (Fig 5, 6). It was also observed that high pH indicated high productivity (Bhatnagar 1984). Higher pH showed photosynthetic activity (Wetzel 1960). A bloom of phytoplankton was observed at higher pH (Jana 1973). High values of pH were recorded during rainy season (Tripathi and Pandey 1990). Narrow annual variation in pH (7.1 to 8.9) coincided with low records of free CO2 (Jhingran 1982, Goldman and Home 1983 and Dutta et.al 1999). Seasonal variation of pH between 8.9-7.1 was also reported in present water body (Sreenivasan 1964, Vyas and Kumar 1968, Vergheses 1992, Yogesh Shastri et.al 1999). The values of pH observed were higher in August at the site (Kannan and Job 1980, Mathur et.al 1987, Trivedy and Goel 1988, Tripathi and Pandey 1990, Sinha 1995, Bhatt et.al 1999, Arun Singh 1999, Yogesh Shastri 2001, Chamundeswari Devi 2001, Madhuri Pejaver 2002, Patil et.al 2002, Alfred 2002, Sakhare 2004, Meshram 2005).

The present studies showed pH range favourable for aquatic life (Das 1978, Singhal et.al 1990). The pH remained always above 7 in the studies (Ragunathan and et.al 2000, Salaskar and Yeragi 2003, Khobragade 2003). The investigations of the lake water body showed pH levels within the limit set for protection of aquatic life (6.5 to 9.0 USEPA. 1975; for irrigation 5.5 to 9.0. and domestic use 7 to 9 ICMR 1975).

However, contrast results were also reported (Sushla et.al 1992, Bahura 2001, Mohammad Musaddia and Rizwan Khan 2001, Narasimha Rao and Jaya Raju 2001, Yogesh Shastri 2004, Ravi Kumar and et.al 2005).

Turbidity of the dam water ranged between 5-26 NTU. Turbidity values were high in monsoon due to the addition of silt load with the influx of monsoon run off and earthen bundh (Sinha 1995, Patil et al 2002, Dutta and Deepika Slathia 2004, Sahib 2004, Meera Srivastava 2004, Pailwan and Muley 2006). However, contrast results were reported by Jodine Zirk 1996, Thorat 2000; Kadam and et.al 2005.

Total Dissolved Solid (TDS) denotes the various types of mineral and other substances in water in the dissolved form, all matter present in water are the part of the total solids in the water along with the suspended solids. TDS is an important parameter in drinking water quality standards. High TDS evaluate the density of water and reduce solubility and gases. High concentration of dissolved solids in irrigation water increases the salinity of soil and produces distress in cattle. The TDS also increases with in pollution of water. Trivedy R.K. (1998) All water in nature contains dissolved solids are vary qualitatively depending upon the season, location and other factors. Rain water contains 30 to 40 ppm dissolved solids Welch (1952).

Total dissolved solid values ranged between 68 to 222 mg/L. In present investigation the minimum value were recorded in the rainy and summer season while the maximum values were recorded in the early winter season (Fig 11, 12). The winter rains caused a little bit of dilution of the water evidenced from 68 mg/L TDS in month of November. Similar results observed by (Sengar and Sing 1986, Jhingran and Sugunan 1990, Shobha Chaturvedi et al 1996, Bhatt 1999, Thorat 2000, Mohammad Musaddia and Rizwan Khan 2001, Sakhre and Joshi 2002, Patil et al 2002, Mahadev, Nagarathnamma and Hosmani 2003, Nisar Patel and Bhadone 2004, Sakhare 2004, Meera Srivastava 2004, Pawar and Pulle 2005). Contrast result were reported by Kumavat and Jawale (2003), Khedkar and Dixit (2003), Kho bragade Kshama (2003), Meera Srivastava (2004) and Khaire (2008).

Chemically pure water does not conduct electricity. Any rise in the electrical conductivity of water indicates pollution. In present investigation EC value of water ranged between 180 and 390 $\mu$mho/cm. The highest value (390 $\mu$mho/cm.) was recorded in the month of March and April and lowest (180 $\mu$mho/cm.) in the months of November (Fig 13, 14). Electric conductivity value was high due to water receives sewage, domestic waste, industrial waste and high built of salts. Trivedy and Goel (1988), Bhatt (1999), Patil et al (2002), Ramakrishna (2002).

Free CO$_2$ present in water plus that in the form of carbonic acid is termed as free CO$_2$ in water is mainly due to diffusion from air, from inflow ground waters. The amount of CO$_2$ in water mainly depends upon temperature, pressure and mineral contents of the water free CO$_2$ is used by algae and aquatic plants for their photosynthetic activity.

In present study Free Carbon dioxide was found maximum in the month of May (5 mg/l). It was detected minimum in month of January (2mg/l) (Fig 17, 18). The absence of free CO$_2$ may be due to its utilization in photosynthetic activity. (Sreenivasan 1971). Or its inhibition may be because of the formation of appreciable

Total alkalinity ranged between 76-170 mg/l from June 2008 to May 2010 in the two years (Fig. 19-20). The alkalinity values of the dam remained higher than 100 mg/l which may have nutritionally enriched the water body (Philipose 1959). The values found to support higher productivity (Alikunhi *et.al* 1955). Thus the present lake water seems to have moderately polluted due to domestic sewage and agricultural run off, which indirectly suggested the beginning of eutrophication (Kanhere 1997, Bhatt 1999, Sing 1999, Narasimba Rao 2001, Mohammad Musaddiq, Rizwan Khan 2001, Ram Krishna 2002, Patil *et.al* 2002, Sakhre and Joshi 2002, Sakhare 2004, Sampatkumar 2004, Chavan, Sawant, Hiware and Tat 2004, Lendhe and Yeragi 2004). A decline in the alkalinity of the lake was observed during the monsoon, which may be due to dilution effect (Khatavkar, Kulkarni and Goel 1985, Bhatt *et.al* 1999, Rao 1999, Madhuri Pegaver, Somani and Quadros 2004, Pawar and Mane 2006).

Chlorides occur naturally in all types of water; which are indicative of cultural pollution. The chloride contents of the lake water were in the range of 30-150 mg/l. (Fig. 21-22). High chloride contents (150 mg/l) were recorded in October monyh.. This was observed by the influx of highly contaminated domestic sewage. Higher concentration of chloride in the water was an index of pollution of animal origin (Adoni 1985, Goel *et.al* 1988, Bahura 1998, Meshram *et.al* 2000, Yogesh Shastri 2001, Patil *et.al* 2002, Kumavat & Jawale 2003, Khobragade Kshama 2003, Khedkar and Dixit 2003, Yogesh Shastri 2004, Meera Srivastava 2004, Lendhe and Yeragi 2004, Nisar Patel and Bhadane 2004).


The lower values of chlorides in early rainy and summer may be due to their deposition in the soil and evaporative loss. Present observation was agreed with above.

Total Hardness depends on the amount of calcium and magnesium salts dissolved in water. Hardness is the property of water, which prevents the lather formation with soap. Hardness indicates level of carbonate and bicarbonates in the water body. Total Hardness values of the lake were found between 54-107mg/l. (Fig.

The sulphates of the dam were found between 1.8-16. (mg/l, Fig.25-26). The value of sulphate recorded during the rainy was highest (16 mg/l), while it was lowest (1.8mg/l) during the winter (Kaur et.al 1995, Bhatt and Negi 1985, Meshram and Dhande 1996, Hari Krishnan 1999, Bahura 2001, Khedkar and Dixit 2003, Halwe and Pachkhede 2004, Srivastava 2004, Yeole and Patil 2005).

Biochemical Oxygen Demand (BOD) values of the dam ranged between 1.6 mg/l to 32 mg/lit in the two years (Fig. 27-28). High value of BOD in summer may be due to increased rate of organic decomposition. The gradual decline in BOD observed from monsoon followed by winter may be due to decrease in temperature, which in turn retards microbial activity (Bhatt 1999, Singh 1999). The cause of high BOD values may be the excessive growth (eutrophication) of aquatic flora, which could be fatal for aquatic fauna (Sharma et.al 2000, Ramkrishna 2002, Mahadev 2003, Khedkar and Dixit 2003).


Zooplanktons are the microscopic free-swimming animal cule component of an aquatic ecosystem. They are primarily consumers in the lake that feed on phytoplankton. Zooplankton includes Rotifers, cladocerans, and copepods. The
seasonal variation of these organisms was dependent on physico chemical and biological parameters. Temperature, free CO$_2$, pH conductivity and chlorides affect their presence (APHA 1998).

In year 2008-09 rotifers dominated the zooplankton population of the reservoir (-----%) followed by copepods (----%) and cladocerans (------%). Similarly in 2009-10 also rotifers dominated the zooplankton population of the lake (----%) followed by copepods (----%) and cladocerans (----%). During present investigation 16 species of zooplanktons were identified (Fig 29 to 34). They were abundant in summer and early monsoon months with peak in April and May. All zooplankton showed a high degree and low degree positive correlation with water temperature, pH, conductivity, frees CO$_2$ and BOD.

Five genus and ten species of Rotifers were recorded from the dam (Fig 29, 30). In present investigation seasonal summer abundance was observed. Nayar (1970), Patil et.al (1985), Narasimha Rao (2001) and Meshram (2005). This is in contrast to winter abundance as studied by Patil et.al (2002).

Higher temperature and low oxygen contents favored them to prosper. This was in confirmation with the observation of Arora (1966). Among observed rotifers the species Brachionus factutus, B. Calcyciflorus, Lecane were pollution indicator species. Rotifers were generally been considered to indicate trophic status of the water body Peyler (1957), Radwan (1976) and Arora (1961, 1966). Rotifers were first used as indicator by Kolkwitz and Marsson (1902, 1909) and Lolkwitz (1935). Rotifer is as indicator of water quality Sladecek (1983).

In present study show that majority of Rotifer species were cosmopolitan five species of Brachionus were observed in Chitri dam at Ajara. The abundance of Brachionus species in tropical area pointed out by Green (1972) Chengalath et. al (1974), Peyler (1977b) and Fernando (1980).

There are number of observation regarding dominance of Rotifers. Yusuf and Quadri attributed it to temperature, which is the main factor for appearance of Rotifers while Davis (1955) has stated that pH is the important parameter in controlling the rotifer population. Balkhi et.al (1984) pointed out that temperature and dissolved Oxygen have their influence on the abundance of species composition of rotifers in Anchor Lake. Campbell (1941) attributed it to three factor like dissolved oxygen CO$_2$ and pH in fresh water plankton. Summer season has been considered suitable for the peak of loricate rotifer i.e. April and May Michael (1964), Patil (1976).
It is observed that the genus *Brachionus* showed its occurrence in the water of the reservoir with complete absence of boreal genus *Natholca* which is the characteristic of many tropical water as stated by Green (1972) and Chengalath et al. (1974). The same holds good in the present study.

*B. anagularis* and *B. calyciflorus* represent eutrophic indicator Sharma (1983). More occurrences often coincide with the blooming of the blue green alga *Microcystis*. Ability for co-existence of *Brachionus* species with blue green algae was considered a pre supposition for survival in reservoir Peyler (1977). Low species diversity and lower richness during monsoon period was due to reflection of environmental stresses Hawkes (1979), Thomas (1999). Rotifers can also be used at test organism in toxicity tests Sladecek (1983).

Cladocerans were represented by three species. The cladocerans were second dominant group. *Moina, Daphnia, Bosmina*, was found throughout the period of investigation (Fig 31, 32). The peaks of cladocerans were observed in April and May due to the interaction of various physico chemical and biotic factors Patrick (1971), Nayar (1971), Wetzen (1975), Thomas (1999). In present study water temperature was ranged between 12 to 38$^\circ$C controlled hatching and growth rate of cladocerans Venkateraman (2000). The present water body pH range was 7.3 to 8.1, which inversely affect the population of Cladocerans Bayly (1963), Moitra and Bhattacharya (1965), Chengalath (1982), Venkateraman (2000). Diversity of cladocerans was affected by the Macrophytes and was close association between cladocerans and Macrophytes Synerhold (1974), Quade (1969), Freyer (1968), Venkatraman (1999). The population of cladocerans in the reservoir was good as per annual percentage composition of zooplankton. Cladocerans were the second dominant group followed by copepods. The reason might due to good fish population in the reservoir and in the presence of good number of predator Patil et al. (2002). The cladocerans distribution pattern in the lake was not found much fixed Nordlie (1976) pointed out that there are two types of zooplankton assemblages occurred in the Florida Lake. One type is poor in cladocerans and rich in Rotifers and in the second type assemblage rich in cladocerans with reduced number of Rotifers. The first type assemblage was found in the present water body.

In all three species of cladocerans were recorded. The most abundant tropical species was *Moina brachiata*. The cladocerans play important role in vertical migration on daily basis Bhatnagar (1984), Patil et al. (2002).
In present study three species of copepods was recorded. These are *Mesocyclops* species, *Cyclops* species and Nauplius larvae (Fig 33, 34). The abundance of copepods in tropical eutrophic water has been already noted by Burgis (1974). Reid and wood (1976) have suggested that copepods were abundant in open water than cladocerans although the number of species of former may be less. The annual percentage composition of copepods was -----% in 2008-09 and -----% in 2009-10. This shows that a copepods population was comparatively better in the dam. The peaks of copepods were observed in April and May. The summer peak may be due to the diatoms and blue green algae. Bini et.al (1997), Maier et.al (1998), Patil et.al (2002).

A decrease in rainy season may be because of predation by fishes, prawn, shrimps, Baruah et.al (1998).

Plankton species including phyto and Zooplankton existing in fresh water have an indispensable role in energy transfer through the mechanism of primary and secondary production. The phytoplanktons are the primary producers as they traps solar energy and produce organic molecules by consuming CO$_2$. Phytoplanktons are not only primary producers but also bring out biogenic oxygenation of water during day time. Welchi (1952) (Wetzel, 1964). Whereas the zooplanktons are not only primary consumer to produce secondary production but also occupies an intermediate position in the aquatic food web between (algae) secondary consumes (Carnivorous fishes) and acts as links in the food web of aquatic ecosystem. They are also indicating status of water body.

Bacillariophyceae represented the bulk of the phytoplankton throughout the period of study at all stations, followed by Chlorophyceae and Euglenophyceae. The temperature may effect the seasonal cycle of phytoplanktons in temperate zone (Chari 1980, Nazneen (1980). The species of three groups Bacillariophyceae, and Chlorophycae have occurred in more abundance during pre-monsoon period and could be attributed to increase in temperature and light during this season (Kopoczynska 1980, Saad and Abbas 1980, Verma and Mohanty 1995, Sabu Thomas 1999, Sigh 1999).


Myxophyceae represented the bulk of the phytoplankton throughout the period of study followed by Bacillariophyceae, Euglenophyceae and Chlorophyceae. Temperature may effect the seasonal cycle of phytoplankton in temperate zones Mc Combie (1953), Hutchinson (1957) mentioned that temperature is important in controlling both the quality and quantity of planktonic flora. Jana (1973) and Chari (1980) observed that temperature is a critical factor for the seasonal periodicity of phytoplankton, Nazneen (1980). The water temperature plays an important role in controlling the occurrence and abundance of phytoplankton. The maximum occurrence of three group of phytoplankton (Bacillariophyceae, Myxophyceae and euglenophyceae) in the present study during premonsoon period could be attributed to
increased temperature and light during this season. Similar results were reported by Kopoczynsk (1980), Verma and Mohanty (1995), Sabu Thomas (1999) and Singh (1999). The myxophyceae were generally abundant in the summer, similar observation shown by Chu and Tiffany (1951), Pearsall (1932).

During present investigations 31 species of aquatic birds were recorded belonging to 15 different families of class Aves during the present investigations. The families with no. of bird species observed are Phalconicidae-1, Ardeidae-6, Ciconidae-2, Threskionithidae-3, Phonicopteridae-1, Anatidae-4, Rallidae-1, Charadriinae-1, Scolopacinae-4, Phasianidae-1, Recurvirostridae-1, Burhinidae-1, Laridae-1, Alcedinidae-2, and Motacillidae-2. Out of all these birds observed at the site, some are local birds like Kingfisher, Wagtail, Stone plover, Heron, Egret, etc. while some are migratory. They are Stork, etc. They migrate from Northern hemisphere to India- South-Western Maharashtra and scatter at various wetlands like this study area. Incidence of birds of regular occurrence in year Jan 2009 - Dec 2009. Out of all these birds observed at the site, some are local birds like Kingfisher, Heron, Egret, etc. while some are migratory. They are Stork, Sandpiper, Tern and Stints etc. They migrate from Northern hemisphere to India- South-Western Maharashtra and scatter at various wetlands like this study area. The resident birds are observed in all the months of investigation period but the migratory birds are observed mostly in the winter months. According to this the population of migratory birds dominated the tank in winter as during these months the climatic conditions of northern hemisphere are harmful to these birds; especially in getting food and shelter, while at the same time in India- south-western Maharashtra, this season is best for getting food and shelter. The migratory species were winter visitors (Pandey 1993, Barman et al. 1995, Prakash 1999, Jyoti et al. 2001, Kumar and Bohra 2002, Malhotra Manjeet Prakash et al. 2005, Man Mohan Prakash 2005). The aquatic birds observed in the present investigations were grouped into Grebes, Cormorants, Herons, Egrets, Ducks, Cranes, Coots, Waders, Terns, King Fisher, Stork and Ibis, etc.

The species Indian Pond Heron, Grey Heron, Little Egret, Open Bill Stork, Spoon Bill, Black Winged Stilt, White Breasted Kingfisher, Painted Stork etc. were carnivorous. They were found feeding upon aquatic insects and their larvae, mollusks, crustaceans, fishes, tadpoles, frog etc. The species such as Common Teal were Herbivorous. Their Food consisted of fruits, grains, shoots of gram etc. The species such as Little Cormorant, Pied King Fisher, Small Blue King Fisher and River Tern were Piscivorus. Their Food consisted of fish species such as Catla catla, Labeo rohita, Cirhinus mrigala, etc. (Dhindsa and Toor 1986, Yahya 1988, Bharucha and Gogte 1990, Patel et.al 1992, Urfi 1992, Balchandran 1995, Salim Javed 1996 Sivaperuman and Jayson 2000, Rathore and Sharma 2000, Ramakrishna, Muley and Vasanth 2001, Steimetz, Kohler and Soluk 2003, Srinivasulu 2004, Kedar and Patil 2005).

Out of 9 fish species Catla catla, Cirrhina mrigal, Labeo rohita, Wallago attu, Channa punctatus Mastacembleus spp and Clarius batrachus have a very demand in fish market of Ajara, Chandgad and Kolhapur. The high price of large fishes. Unfortunately caches of such larger fish are very measure. In fish markets of Ajara, Chandgad and Kolhapur the price of Indian major carp remains almost constant at Rs.80 to 140 /kg. Fishes like Wallago, Clarius and Mastacembelus Spp are sold in all the Four fish markets invariably at higher prices as compared to Indian Major arps.

Present dam is extremely productive in terms of food, plants and animals, because the temperature of water was often lower than that of the surrounding air, it acts as valuable feeding havens during the cold. In addition it provides water for drinking, bathing and offers protection from land predators. It is not surprising therefore that this freshwater habitat is home of many bird species and visited by many other bird species not primarily adapted to aquatic life. Most of these are equally familiar in standing and flowing water, because of their size and the tendency of some types of flock together. Populations of aquatic birds are more likely to be found on lake, due to the amount of food needed to support them.