

Species of fishes which survive in the hot climatic condition of Godavari river Marathwada region district Nanded, Maharashtra, India

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Abstract

Nanded is a town of Marathwada Region of Maharashtra. In summer temperature ranges from 40° C to 46° C. In the present investigation study of fish species was carried out. Its conservation preserves and protects the ecosystem. Several factors including environmental pollution, population explosion and depletion of forests lead to the rapid extinction of species. This crisis in all its dimensions has now become a global issue. It is evident that any attempt to disrupt nature's link between man and other species of animals and plants leads to serve adverse consequences. Our progeny will never forgive us if we fail to develop proper awareness of biodiversity and take adequate steps to preserve life on this planet. Fish species were collected from the river with the help of local fisherman. In the present study fishes from 12 different types of families Cyprinidae, Bagridae, Clupeidae, Siluridae, Clariidae, Channidae, Anabantidae, Belonidae, Masta cembelidae, Notoptridae, masticembeliidae and Amphipnidae were collected and identified with the help of identification keys. The present investigation confirms the occurrence of 23 fish species. 7 orders Cypriniformes, Siluriformes, Perciformes, Beloniformes, Syndranchiformes, Osteoglossiformes and Anguiliformes was found an in all these orders Cypriniformes is dominant.

Keywords: Environmental pollution, fishes, population explosion, climatic condition. Godavari river, Marathwada,

Introduction

The number of species of living beings on the face of the Earth constitutes biological diversity or simply biodiversity. The biological diversity is the sum total of whole package of genes,

population, species and cluster of interactions they manifest [1,2]. In fact, the biodiversity is the history of life itself in all its forms over the entire period it existed on the planet Earth [1]. It is an umbrella term for the degree of variability among living organisms and the ecological complexes in which they occur. Biological diversity is vast and complex. It is continuous yet discrete. It is widespread with time and space. Diversity is limitless yet measurable [3].

Fishes are one of the most important group of vertebrates which benefits human beings in more than one way. These are more common and widely distributed almost in all parts of the world. The species may be different, the quality and quantity may vary but they are used by the man everywhere. Fishes are known to man since time immemorial, and our pre-historic paintings show the importance of the fish [3,4]. Even Holy books like Ramayana and Mahabharat give evidences that in those days also there were human races which were totally dependent on fishes for their food and development. They living on the river banks feeding on fishes and helping people on aquatic transport - which was the only mode of movement in those days and this was the reason why they wear powerful and respected persons, governing the total transport system. Not only this our Vedic literature too possesses a Puran known as "Matsya Puran" telling about the importance of fishes and fishing values.

Methodology

The study was conducted on dated 22nd of each month during two years study tenure from July- 2014 to June-2016. For present investigation four study stations were selected viz Station A - located at Shankar Sagar reservoir (Vishnupuri Dam), Station B - located at Nagina Ghat, Station C - located at Shikar Ghat and Station D - located at Kaleshwar. The fishes were collected through monofilament us gill net with mesh size 30 mm. For collection of fish sample special fisherman was appointed with gill net.

Fish samples were also collected from other fishermen, fishing at the sites and also from the local fish markets. The collected fishes were counted and then preserved in 4% formalin solution and identified in laboratory using standard taxonomic keys of Jayaram [5] Jhingran [6] and Talwar and Jhingran [7].

Results and Discussions

The fish species belongs to various orders were varying considerably in shape, size and their life span. The maximum size and age are specific for every species. The growth of particular fish species is dependent on its environment. The fishes which gets optimum temperature in water results in better growth and attains proper weight. The major carps are fast growing fishes, each species has an inherent temperature range within which it survives, grow and reproduce comfortably. Natural water supports the life of fishes. The temperature of river water under investigation ranges between 21^oC to 45.6^oC for first and second year indicates favorable conditions for growth of fishes. Some species of fishes prefer temperature below 30^oC. Major carps tolerate range of temperature between 18.3^oC to 37.8^oC temperature below 16.7^oC and above 38^oC prove lethal to them [6].

In the present investigation maximum temperature was recorded 45.6^oC at sampling station-D in the month of May 2015, and lowest temperature was recorded 20^oC on the sampling station-A in the month of January 2015. In the year 2015-2016 the temperature varies from 31.6^oC to 45.6^o C was recorded on sampling station 'B' in the month of May 2015 and lowest 21^oC was recorded at sampling station 'A' in the month of January 2016.

All the metabolic and physiologic activities and life processes such as feeding, reproduction, movements and distribution of aquatic organisms are greatly influenced by water temperature. The oxygen content of water in general decreases with rise in temperature. Temperature also affects the speed of chemical changes in soil and water.

Table 1:

Sr.No	Order	Family Name	Scientific Name	Local Name
1	Cyperiniformes	Cyprinidae	1) <i>Catla Catla</i>	Catla
			2) <i>Cirrhina marigala</i>	Mrigal
			3) <i>Labeo rohita</i>	Roha
			4) <i>Labeo fimbriatus</i>	Wades
			5) <i>Labeo Calbasu</i>	Crowte/(Karoot
			6) <i>Labeo Goniuis</i>	i) Silver carp
			7) <i>Tor Tor</i>	Podes
			8) <i>Cyprinus carpio</i>	Gachu
			9) <i>Cirrhinus cirrhosa</i>	Grass carp
		Bagridae	1) <i>Mystus seenghala</i>	Choer
		Clupeidae	1) <i>Hilsailisha</i>	(Podes) (Chapati)
2	Siluriformes	Siluridae	1) <i>Wallago attu</i>	Attu
		Clariidae	2) <i>Clarius batrachus</i>	Magur
		Bagridae	1) <i>Mystus bleekeri</i>	Singhala (Shingta)
			2) <i>Mystus cavaisius</i>	Katirna
3	Perciformes	Channidae	1) <i>Channa Marulius</i>	Murrel
				(Maral)
			2) <i>Channa striates</i>	Dekhu (Sohr)
		Anabantidae	1) <i>Anabas testidineus</i>	Nanded pomfire
4	Beloniformes	Belonidae	1) <i>Xenentodon Cancila</i>	Tokali
5	Synbranchiformes	Mastacembelidae	1) <i>Mastacembelus pancalus</i>	Spinyeel
			2) <i>Masta cembelus are matus</i>	Magur
6	Osteoglossiformes	Notopteridae	1) <i>Notopterus notopterus</i>	Chalat (Patri)
			2) <i>Notopterus chitala</i>	Patola
7	Anguilliformes	Amphipnidae	1) <i>Anguilla eel</i>	Baam

Table 2: Monthly variation in Water Temperature (°C) at during July 2014 to June 2015

Month	July 2014- June2015			
	Station A Vishnupuri dam	Station B Nagina Ghat	Station C Shikar Ghat	Station D Kaleshwar
July	30.4	29.8	30.5	30.3
August	28.7	31.5	31.1	30.2
September	28.1	28.9	28.7	28.1
October	26.9	25.9	25.9	25.9
November	27.2	26.3	25.8	25.1
December	21.4	23.1	21.8	22.3
January	21.0	23.6	23.9	20.0
February	25.7	25.8	25.3	25.1
March	28.3	29.9	29.1	30.3
April	37.4	38.1	38.3	39.1
May	44.7	43.4	43.2	45.6
June	41.9	42.1	42.1	41.8

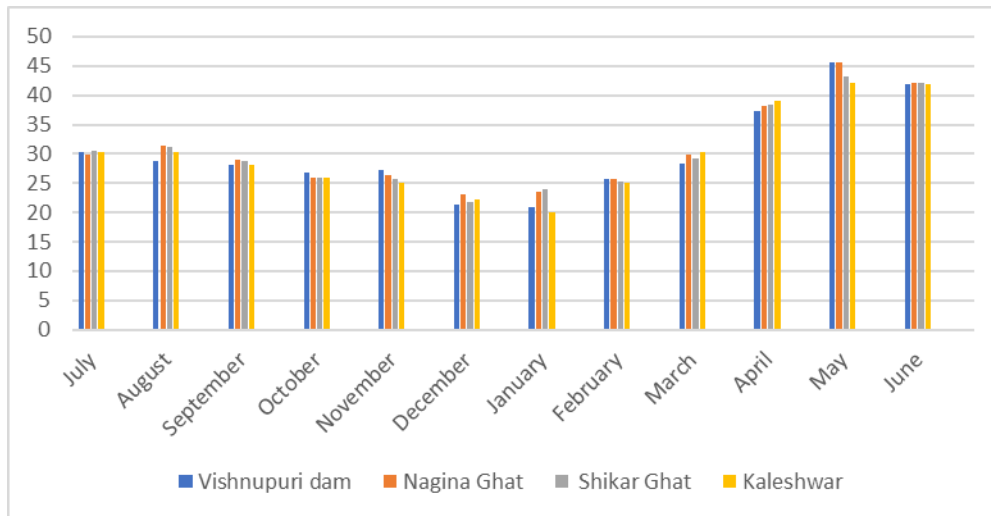


Figure 1: Temperature Graph at Different Stations in Year July 2014 - June 2015

Table 3 : Monthly variation in Water Temperature (°C) at during July 2015 to June 2016

Month	July 2015- June2016			
	Station A Vishnupuri dam	Station B Nagina Ghat	Station C Shikar Ghat	Station D Kaleshwar
July	27.1	28.4	29.4	29.6
August	27.4	27	28.4	28.2
September	27.1	27.6	28	28.4
October	24.4	25.1	25.1	26.2
November	23.4	24.1	26.4	25.4
December	21.4	22.4	23.6	24.1
January	21.0	13.7	18.1	21.0
February	21.5	21.6	23	24.5
March	24.5	27.4	28	27.2
April	36.5	36.7	37.2	38.4
May	44.4	44.6	44.9	45.6
June	42.4	42.1	42.4	41.2

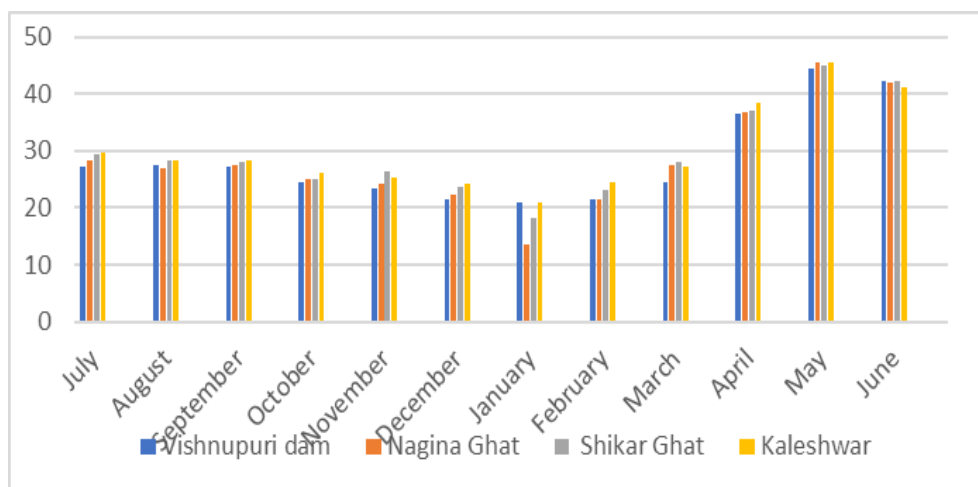


Figure 2: Temperature Graph at Different Stations in Year July 2015 - June 2016

Singh and Saha [8] observed diurnal cycle of abiotic parameters in Ramsar well at Bhagalpur (Bihar) and reported the ambient temperature fluctuated between 17°C to 26°C. It was highest at 14 hours and lowest at 5.00 hours at the morning. The temperature of water fluctuated between 22°C to 24°C, having diurnal change of 2°C. Bohra [9] also observed the same diurnal range. Dobriyal and Singh [10] also studied on diurnal variation in limnology of the river Mandakini from the Garhwal Himalayas and observed that water temperature for 24 hours are in the range of 4.5°C to 15.5°C. In the Mandakini river water temperature follows definite pattern of diurnal decrease than increase and decrease, also reported by Bohra [9], Michael [11], Verma [12], Karamchandani et al. [13], Motwani et al. [14] and Saha [15].

Conclusion

From the above study, it can be concluded that almost all the parameters are within the prescribed limit of WHO and BIS standards. The assessment of water quality is an important factor to assess of pollution levels. The environmental factors and seasons are responsible for the variations in the physico-chemical factors of the Banegaon Dam. Finally it is concluded that the ecological as well as biological environment of Banegaon Dam is free from large pollution and water is quite suitable for drinking purpose, and also for agricultural and fish culture activities.

Conflicts of interest: The authors stated that no conflicts of interest.

References

1. Abraham JC. A survey of hydro-biological and fisheries of Cooum River, Madras. *J. Fish.* 1962; 1: 50-69.
2. Chacko PI and Dinamani P. Preliminary report on the fishery resources of the Bhavani River in relation to the lower Bhavani Project. *Proc. Indian Sci. Congr.*, 1949, 36(3): 166.
3. Rangnathan V and Natarajan V. Fisheries of Mettur reservoir, an artificial impoundment on the river Cauvery, Tamil Nadu. In seminar on the Ecology and fisheries of freshwater reservoirs, sponsored by ICAR at CIFRI, Barrackpore, Nov., 1969, 27-29.
4. Dubey GP and Mehra RK. Fish and fisheries of Chambal River, *Proc. All India Congr. Zool.* 1959, 1(2): 647-665.
5. Jayaram KC. The fresh water fishes of India, Pakistan, Bangladesh, Burma and Srilanka. *Hand book of Zoological survey of India*, 1981, no. 2. Xii + 475 pp.
6. Jhingran VG. Fish and fisheries of India, Hindustan Publishing Corporation (India), New Delhi. Alikunhi, K.rk (1952) - On the food of young fry. *J. Zool. Soc. India.*, 1985; 4: 77-84.
7. Talwar PK and Jhingran AG. Inland fishes of India and Adjacent Countries. 1991, Vol. No. I & II Inl. Oxford and IBB publishing Co.Ltd., pp.1158.
8. Singh NK and Saha LC. Diurnal cycle of abiotic parameters at Ramsar well, Bhagalpur. *Comp. Physiol. Ecol.* 1981, Vol. 6, No. 1, pp. 38-40.
9. Bohra OP. Some aspects of limnology of Padam sagar and Rani Sagar, Jodhpur Ph.D. thesis, 1976; University of Jodhpur.
10. Dubriyal AK and Singh HR. Diurnal, Variation in some aspects; of limnology of the river Mandakini from the Garhwal Himalaya. *Uttar Pradesh J. Zoo*; 1898, pp:16-18.
11. Michael RG. Studies on the zooplankton of a tropical fish pond: *Hydrobiologia*, 1968, 23, pp:4748.
12. Verma MN. Diurnal variation in fish pond in Seoni, India *J. Hydrobiologia*, 1967. 30(1):129-137.
13. Karamchandani SJ, Desai VR, Pisolkar MD and Bhatnagar GK. Biological investigations on the fish and fisheries of Narmada River (1958-66). *Bull. Centr. Inl. Fish. Res. Inst., Barrackpore*, 1967, (10): 40p (Mimeo).
14. Motwani MP, Jayaram KC and Sehgal KL. Fish and fisheries of Brahmaputra River System, Assam. 1. Fish fauna with observations on their zoogeographical significances, *Trop. Ecol.*, 1962, 3(1-2): 17-43.
15. Saha GN, Sahgal KL, Mitra E and Nandy AI. Studies on the seasonal and diurnal variation in physico-chemical and biological conditions of a perennial fresh water pond. *J. Ind. Fish. Soc. India.* 1971, 3:79-102.