

STUDY ON LAKES OF MYSORE DISTRICT: FOCUSING ON WATER QUALITY OF PHYSICAL AND CHEMICAL PARAMETERS.

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Abstract: In order to assess water quality in Mysore district lakes, a study would likely look at both physical parameters (temperature, pH, turbidity, etc.). The study conduct through lakes are Karanji lake, Hebbal lake and Hadinaru lake. Karanji Lake is a lake located in the city of Mysore in the state of Karnataka, India. The lake is surrounded by a nature park consisting of a butterfly park and a walk-through aviary. This aviary is the biggest 'walk-through aviary' in India. Hebbal Lake, located near Mysore, India, is a scenic water body known for its natural beauty and recreational activities. Hadinaru Lake, also known as Doddalake, is a freshwater lake located in the Nanjangud taluk of Mysuru district, approximately 33 km from Mysore city. This study highlights the quality of water analysed with reference to various physico-chemical parameters in selected lakes of Mysore District, Karnataka.

Keywords: Lakes, Water Quality, Physical and Chemical parameters, Development.

Abbreviations:

DO: Dissolved oxygen

BOD: Biochemical Oxygen Demand

COD: Chemical Oxygen Demand

TDS: Total Dissolved Solid

Ph: Potential of hydrogen

EC: Electrical Conductivity

MCF: Million cubic feet

I. INTRODUCTION

A lake is a body of water that has land all around it. The world has millions of lakes. They can be found on every continent and in all types of environments, including plains, mountains, deserts, and areas close to the coast. A lake (from Latin: lacus) is a large body of water (larger and deeper than a pond) within a body of land. Lakes are land-enclosed bodies of water that are deeper and bigger than ponds. They have a significant role in maintaining ecosystems, regulating regional climates, and providing freshwater for human consumption as part of the Earth's water cycle. Every lake fills basins, which are bowl-shaped depressions in the surface of the Earth. There are various ways that lake basins form. A lake is a body of water that is encircled by land. While some seas are actually big lakes, ponds are regarded as tiny lakes. Lakes are significant landforms that provide as vital habitats for a variety of plants and animals. Numerous lakes are artificial reservoirs created for recreational purposes, electrical production, agriculture, industrial, or drinking water. Mysore district, officially Mysuru district, is an administrative district located in the southern part of the state of Karnataka. The lakes are found to be under the influence of major parameters like nitrate, pH, chloride, Total dissolved solids (TDS), calcium and magnesium.

II. OBJECTIVE

The objective of this study is to gain information of water quality of physical parameters.

Study area: Mysore district, officially Mysuru district, is an administrative district located in the southern part of the state of Karnataka. Mysore is one of the famous tourist centres of Asia, located between latitude 11°45' to 12°40' N and longitude 75°57' to 77°15' E. It is bounded by Mandya district to the northeast, Chamara Nagar district to the southeast, Kerala state to the south, Kodagu district to the west, and Hassan district to the north. It has an area of 6,854 km² (ranked 12th in the state). The administrative centre of Mysore District is Mysore City. The district lies on the

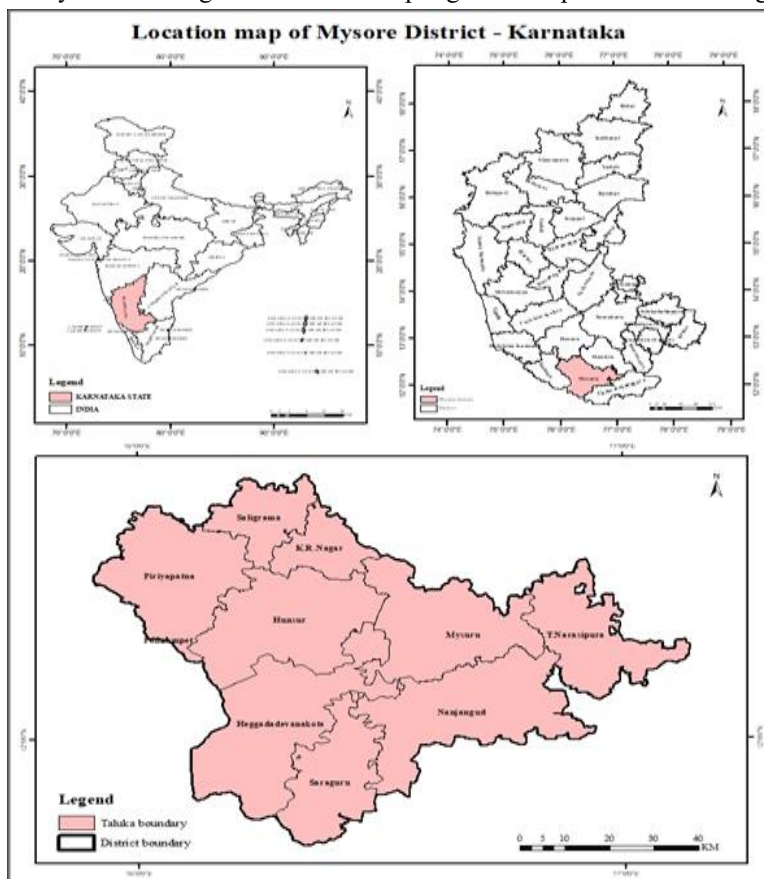
undulating table land of the southern Deccan plateau, within the watershed of the Kaveri River, which flows through the northwestern and eastern parts of the district. The temperature in the district varies from 15 °C in winters to 35 °C in summers. Mysore district receives an average rainfall of 885 mm. The study conduct through lakes are Karanji lake, Hebbal lake and Hadinaru lake. The Indian state of Karnataka contains the lake known as Karanji Lake, which is situated in the city of Mysore. A nature park with a walk-through aviary and a butterfly park encircles the lake. Hebbal Lake, a picturesque body of water close to Mysore, India, is well-known for its leisure opportunities and natural beauty. Doddalake, another name for Hadinaru Lake, is a freshwater lake about 33 kilometers from Mysore city in the Nanjangud taluk of the Mysuru district.

III. METHODOLOGY

An extensive comprehensive study was conducted to learn more about the construction and upkeep of Karanji, Hebbal and Hadinaru lakes in Mysore.

In order to determine the ecological aspects and water quality study of Karanji Lake, Hebbal Lake, and Hadinaru Lake in Mysore, a thorough review survey was conducted. Google Scholar, Research Gate, Google earth, Shodhganga, and online editions were among the search engines used to access online journals, theses, articles, and newspapers.

Data collected by field survey of collecting the water for sampling and interpret the data through Bar graph.



IV. RESULT AND DISCUSSION

Karanji Lake:

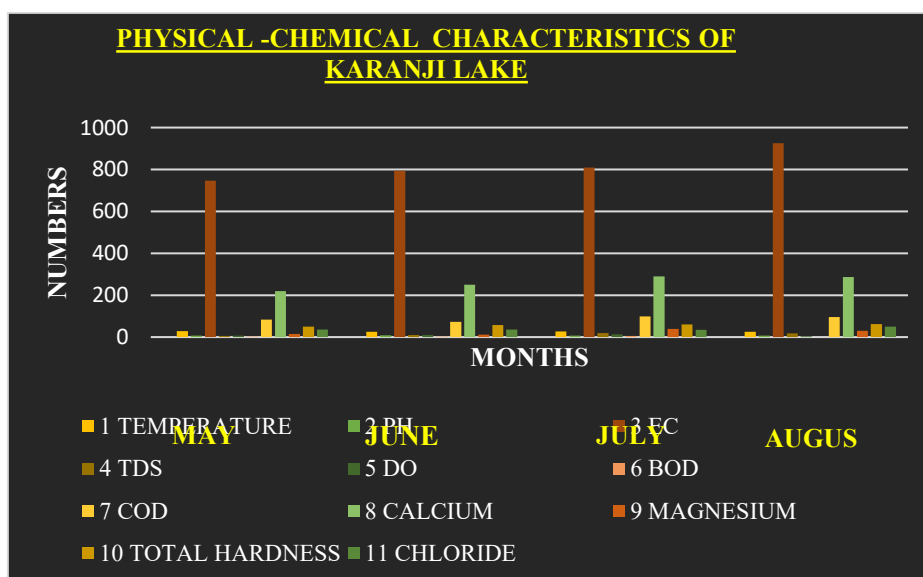
Karanji Lake is one of the recreational lake of the Maharaja's family. It is a beautiful lake attracting varieties of migratory birds and water fowls. Karanji Lake is an attractive place for regular tourists. It has an area of 150 ha located adjacent to the Mysore Zoo in the West and by the Mysore Race Course in the South. It is 0.7 km long, 0.8 km broad, and oval in shape. Its depth ranges from 5 to 10 m. Karanji Lake is encircled by a wildlife park that includes a walk-through aviary and a butterfly park on an island. Currently, the Mysore Zoo administration owns this lake. For migratory birds like egrets and herons, this lake is a favorite hangout. Karanji Lake in Mysore is located at approximately 12°18'10"N

76°40'25"E. It's situated in the southern part of Karnataka, India, and is known for being a popular tourist destination and a haven for migratory birds.



Physical-chemical parameters: The physical and chemical characteristics of the water were examined, and the findings are discussed and shown in the sections that follow. The table also displays the values found in all samples that were taken between May and August of 2024

SL.NO	PARAMETERS	MAY	JUNE	JULY	AUGUST
1	TEMPERATURE	27.3	26.3	28	26.5
2	PH	9.1	8.7	7.7	9.2
3	EC	804	840	520	480
4	TDS	515	438	270	308
5	DO	8.2	8.2	8.4	8.1
6	BOD	6.1	2.3	2.4	2
7	COD	36	45	45	35
8	CALCIUM	224.44	186.2	216.4	216.54
9	MAGNESIUM	66.07	53.07	76.3	66
10	TOTAL HARDNESS	830.66	608.2	836.1	810.6
11	CHLORIDE	51.4	60.26	138.25	44.31



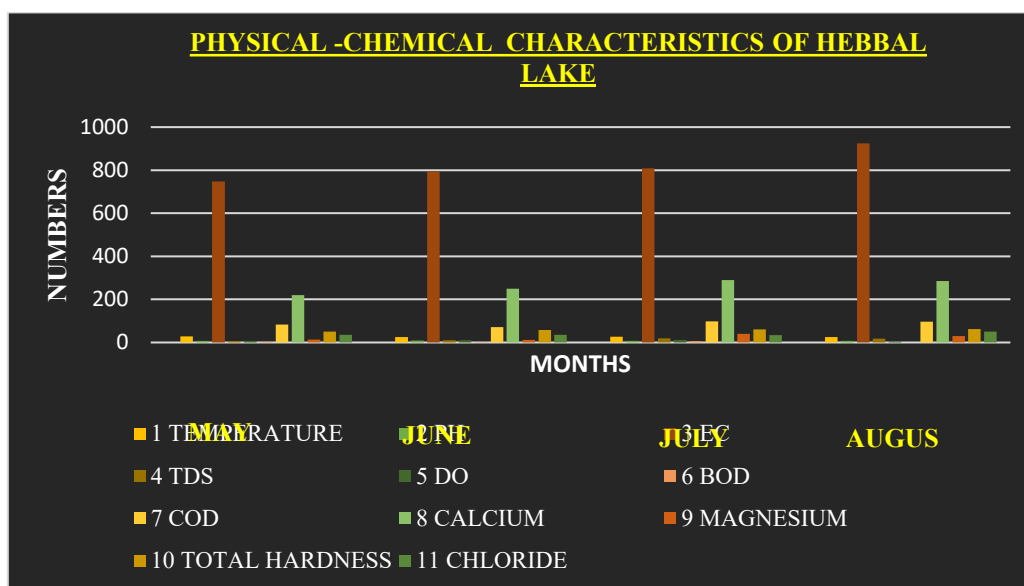
Hebbal Lake: Hebbal lake is Situated at latitude 12°21'31" N and departure 76°36'40" E and is at an elevation of +751.220m. It is spread over an area of 17.44hectares. The physical, chemical, biological characteristics of Hebbal Lake were evaluated to estimate the quality of lake water. A large number of migrating birds call the lake home. There are

numerous places to see birds around the lake, and there is one on a small, easily accessible island. Sudhamurthy Chairperson, Infosys Foundation and district administration signed a Memorandum of Understanding (MoU) for conserving the lake.

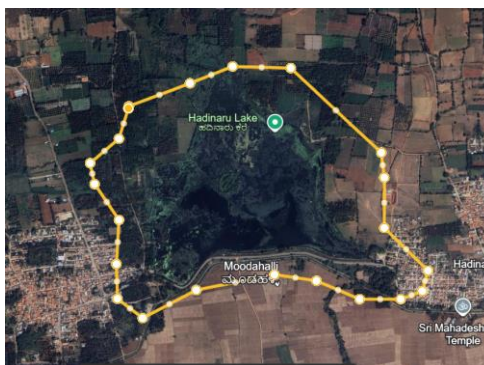


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SL.NO	PARAMETERS	MAY	JUNE	JULY	AUGUST
1	TEMPERATURE	29	26	27	28
2	PH	7.3	7.5	7.2	7.8
3	EC	614	625	670	655
4	TDS	7	5	10	8
5	DO	7.2	8.6	20	13.6
6	BOD	4.3	2.5	3.9	6.67
7	COD	64.2	52.8	87.2	89.6
8	TOTAL HARDNESS	182	190	220	260
9	CALCIUM	21	24.7	22.6	27.5
10	MAGNISIUUM	32.6	60.2	48	55.2
11	CHLORIDE	46.7	49.7	36.8	51.4

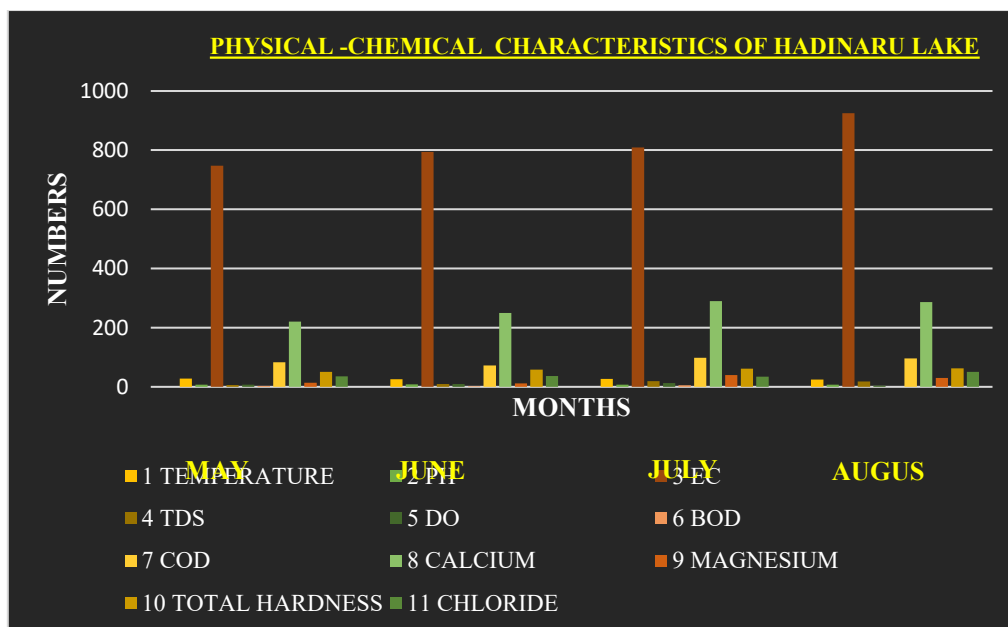


Hadinaru Lake :- Hadinaru lake is also called as Doddalake It is situated at 76° 41'38" East latitude and 12° 02' 02" North longitude, with an elevation of 653.35 meters above sea level. It is located 33 kilometers from the city of Mysore. Eleven kilometers separate Nanjangudu town and the lake, which is situated in Nanjangudu taluk. Its independent catchment area is 8.57 square kilometers, and its water spread area is 10.10 hectares, with a 54.43 MCFT living capacity.



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SL.NO	PARAMETERS	MAY	JUNE	JULY	AUGUST
1	TEMPERATURE	28	26	27	25
2	PH	7.6	8.6	7.4	7.5
3	EC	747	794	809	925
4	TDS	6	10	19	18
5	DO	6.8	10	12.56	4
6	BOD	3.2	1.9	5.67	0
7	COD	83.2	72	98	96
8	CALCIUM	220	250	290	286
9	MAGNESIUM	14	12	39.75	30.46
10	TOTAL HARDNESS	50.2	58	61.06	62.35
11	CHLORIDE	35.5	36.38	34.8	50.41



V. CONCLUSION

Water is one of the important natural resources of the planet earth and essential for the survival of all forms of life. The lake in the current study is ecologically endangered by a variety of anthropogenic activities that result in organic pollution and eutrophication, according to the results of physico-chemical and biological parameters, statistical methods, and biodiversity indices. Alkalinity, chlorides, iron, and phosphates are among the physico-chemical parameters that are

mostly within the acceptable range. A number of metrics, such as BOD, turbidity, and hardness, above the upper limits of drinking water guidelines.

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