

Assessment of muttukadu lake water quality in Terms of water quality index & Regression Analysis of water quality parameters

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ABSTRACT--*In today's industrial societies, necessities for water—quite a bit of which is gotten from lakes—incorporate its utilization for weakening and expulsion of city and modern squanders, requirements include. The lake water is normally used for agricultural purposes, it is also Use for dilution and elimination of municipal and industrial wastes, for irrigation, for energy technology, and for local undertaking and aesthetic displays. However, the contaminated water produced by the ventures and homes which are not appropriately treated gets cycled once again into lakes, bringing about the contamination of lakes. The present study manages the assurance of water quality list based on Weighted Arithmetic Index by contemplating different Total hardness, Electrical Conductivity, total alkalinity, Total Dissolved Solids, Magnesium and Calcium particles, and so on to survey the water quality and phyico-parameters of Muttukadu Lake.*

KEYWORDS--*Lake water, water quality index, physicochemical*

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I. INTRODUCTION:

Testing Lake Water is an critical step for assessing its first-rate and to assist prevent troubles earlier than they arise. For ponds or lakes with an present water pleasant application, trying out is an important tool for diagnosing the purpose of the problem and figuring out suitable remedy alternatives. Muttukadu Lake is a well-known lake situated on the East Coast Road, The reason for study's was to help in environmental and ecology of earth and nature of the estuary and help effective management. The accessibility of good quality water is a necessary element for preventing diseases and improving personal satisfaction. A lake is an enormous waterway encompassed by With the aid of land, inhabited by using various aquatic lifestyles bureaucracy, for all sensible reason, natural water is taken into consideration to that which has low dissolved or suspended solids and obnoxious gases as nicely low in organic life. Waterfront has become an essential concern in view of its esteem related with financial improvement and human. Because of human populace and business industry development, marine water has gotten huge sums of contamination from various sources, for example, entertainment, fish culture, can flushing, and the digestion and transport of effluents. Muttukadu Backwater is a pleasant outing spot and a community for water sports with broadly advanced sailing and wind surfing. The Tamil Nadu Tourism Development Corporation (TTDC) has built a boat shelter at Muttukadu to empower the travel industry exercises. Dumping of oil and oil from motor cleaning, spillage of lamp oil into the estuary from vessels, also, tossing of nourishment squander by sightseers are some of the contamination sources. part of an financially burdened populace of the angling town; the region is additionally encompassed by numerous aquaculture ranches.

II. WATER QUALITY TESTING PARAMETERS

Generally, water quality tests include:

Temperature testing:

Trying out the temperature makes a decision the tempo of biochemical reaction in an amphibian scenario and clearly whether they could manifest with the aid of any means. Within the event that the water temperature is excessively raised, this can restriction the water's ability to keep oxygen and discount dwelling beings' capacity to oppose particular contaminations.

PH testing:

PH is one of the maximum common water pleasant tests achieved. PH indicates the pattern's acidity however is genuinely a size of the viable recreation of hydrogen ions (H+) inside the pattern. PH measurements run on a scale from zero to fourteen, with 7.Zero considered impartial. Solutions with a pH underneath 7.Zero are taken into consideration acids

Chloride check:

Chloride is usually found in new and salt water. Anyhow, its degrees may be exacerbated due to minerals dissolving and contemporary infection

Saltiness Testing:

Measures the mixture of all non-carbonate salts broke down in water. Estimating groundwater saltiness demonstrates how salty your topsoil can also emerge as if the water in a position ascents.

Dissolved Oxygen check:

Measures the measure of oxygen broke down in water. Without this, amphibian lifestyles can't direct mobile breath and is therefore a key pointer of water well being.

Turbidity Testing:

Measures the degree of particulate difficulty that is suspended in the water, or all of the greater basically, how clear the water is. In the event that good sized degrees of turbidity are available, photosynthesis is motivated as light cannot input, increasing water temperature.

Nitrate and Phosphate:

The nearness of those fundamental supplements is a respectable pointer of stable flora. Be that as it could, the enlargement of fake nitrates and phosphates via cleansers, manures or sewage may be risky and result in eutrophication, for the maximum part as undesirable algal blossoms.

Pesticides:

We measure whether any pesticides are available and their recognition tiers.

Redox:

The estimation of the decrease oxidization capability of an answer, which demonstrates the electron movement. Small scale living being development is profoundly reliant on these levels.

Electrical conductivity:

Assessments the aggregate sum of solids broke up in the water. This can be a decent marker of the way degree of saltiness

Water Quality Assessment Process:

As characterized in , water quality appraisal is the general procedure of assessment of the physical, concoction and organic nature of the water, while water quality checking is the assortment of the important data. This manual focuses on the entire appraisal process, in various sorts of water bodies.

Monitoring, survey and surveillance:

The fundamental purpose behind the evaluation of the nature of the sea-going condition has been, generally, the need to check whether the watched water quality is reasonable for expected employments. The utilization of observing has likewise developed to help decide slants in the nature of the amphibian condition and how that quality is influenced by the arrival of contaminants, other anthropogenic exercises, as well as by squander treatment activities (sway checking). All the more as of late observing has been completed to evaluate supplement or then again poison transitions released by streams or groundwaters to lakes and seas, or over global limits. Checking to decide the foundation nature of the sea-going condition is likewise now broadly did, as it furnishes a methods for examination with sway observing. It is additionally utilized basically to check whether any sudden change is happening in any case immaculate conditions, for instance, through the long range transport of environmental toxins (note, notwithstanding, that normal water quality is truly factor contingent upon neighborhood conditions).



Fig : Muttukadu Lake

Samples collections:

This sample should be collected at a location that is representative of the water in the lake. Pattern packing containers ought to be washed 3-4 times with water from the exact website online of sampling previous to taking the sample. A total of 4 stations water samples with comparison method samples were collected. At every sample location, GPS coordinates, site depth, the water sample was collected (to a depth of 1 m above the lake bottom).

Regression analysis:

Regression analysis gives an oblique technique to screen the water exceptional and a specific parameter with the calculation of coefficient of correlation between the expected water first-class parameters. So that it will show a genuine water fine circumstance, relapse models are utilized which calls for two parameters—needy and self sufficient. The Closeness amongst needy and free factors are recommended by way of correlation analysis.

III. LITERATURE SURVEY

Suman.K. Dhaka and Narendra Bhaskar² (2017), Present work is expected to get to ground water quality regarding water quality file by Weighted Arithmetic Index Method. All out 22 groundwater tests and ten water quality parameters of each example are considered in this examination. Water quality is acceptable at seven stations and exceptionally poor and unacceptable for drinking at ten stations. High water quality list is because of high turbidity, high convergence of Fluoride and iron. Connection of chose parameters is examined and found that Electrical conductivity has huge relationship with Alkalinity, nitrite, sodium, and sulfate. Relapse conditions relating corresponded parameters were detailed. A similar report is likewise finished with Indian standard and WHO standard for drinking water.

K. Yogendra* and E.T. Puttaiah(2017), Dedication of Water quality Index and Suitability of urban within the year 2017 okay. Yogendra, et al. Have studied on, ‘dedication of Water first-rate Index and Suitability of an urban Water body in Shimoga metropolis, Karnataka.’ in this take a look at they decided WQI of an city water frame on the premise of various physico-chemical parameters. The evaluation found out that water our bodies have

low DO, excessive COD and excessive nitrate awareness. And it indicates that, for home purpose that water changed into wrong.

Jyoti Bansal & A.K. Dwivedi (2018), Water quality considered as a primary problem in numerous city areas of creating countries. Bore well water is good sized than surface water but because of numerous physical activities accomplished by character this water is polluted. What is extra, presently - a - days this is the grave issue. In those regions of Indore city in which the entryway to entryway trash pickup automobile brought their trash, the appraisal of the drag nicely water turned into achieved. At evaluating the water high-quality listing (WQI) and physico concoction parameters for the ground water of Indore the present paintings is pointed. For a physico chemical.

M.Anwarhaja And V.Anita aggarawal (2017), The present investigation endeavors to assess the groundwater nature of Hapur city, Uttar Pradesh. Groundwater checks have been accumulated from 20 shallow wells and examined for physico-synthetic traits water fine report (WQI), became determined to show the general water quality status in a solitary time period. The effects of this exam uncovered that the grouping of alkalinity, entire broke down solids, absolute hardness, nitrate, fluoride and chlorides is higher than as some distance as viable as endorsed by means of the Bureau of Indian model the WQI for all examples were discovered inside the scope of 12 to 211. This exam suggests that the drinking water of the city do no longer match in with the prescribed norms and in the end it's far proposed to discover a manner to oversee water first-rate on this place before it will become an emergency, as this could impact the economy and could likewise prompt various water-borne sicknesses.

Dr. Durai Arulneyam And Dr.R.Premasudha (2018), Indian subcontinent has favored with rich water assets in the structure enduring waterways and subsurface water. Water bodies like lakes, lakes, waterways and streams are contaminated to a lesser degree by normal sources however are profoundly dirtied by anthropogenic sources, for example, urbanization, industrialization and different human formative exercises. Each resident of this nation has the obligation and obligation towards securing these most valuable assets. In this line, Saroornagar lake found in Hyderabad City, Telangana has been decided for surveying the water quality.

Moslem Sharifinia & Zohreh Ramezanpour (2013), The Zarivar Lake a freshwater lake in west of Kurdistan Province is domestic for sizable range of nearby plant and creature species alongside those lines water excellent and wellbeing of the lake are vital for safety of these species. The present research focused on assessment of the Zarivar Lake utilising NSF-WQI as a marker of water quality. WQI is a reasonable tool to research and organization spatial additionally, temporary sorts in water excellent and infection stacks in a water body. Seven locales have been chosen in diverse portions of the lake for testing. Water checks had been taken and set in dim bottle, kept in fridge to prevent any adjustment in substance properties of checks preceding transportation to the lab for added investigations. Water temperature (oC), Phosphate, Nitrate, overall Suspended strong (TSS) and turbidity. The maximum noteworthy well worth was recorded for Nitrate and least for fecal coliform. The exam indicated dependent on WQI marker the Zarivar Lake is a low or marginally infected bowl with a everyday water great.

T. Dharani Priya & A. K. Vidya (2019), Rice husk, a rural waste, its result rice husk debris and initiated rice husk were explored for its viability in residential sewage water treatment. The principle markers of water quality to be specific physical, concoction and organic attributes decide the degree of treatment required for its utilization in many expected purposes as indicated by nearby and universal water gauges. Various strategies for water quality

appraisal were utilized to guarantee the allowable furthest reaches of physicochemical parameters of water before its utilization for proper purposes. It is accounted for that the principle wellspring of water contamination is brought about by residential sewage. The present examination was performed to decide the different physicochemical parameters of household sewage water after its treatment with rice husk, rice husk debris and enacted rice husk. Gauged water quality list (WQI) was likewise determined to survey the nature of water for its re-use of use of treated water

.Sajitha V., Smitha Asok Vijayamma(2016),

This examination was intended to survey the nature of lake water in Athiyannoor panchayath, Thiruvananthapuram District, Kerala, With deference to the physico-artificial parameters along with Temperature, pH, EC (electrical Conductivity), TDS (overall Dissolved Solids), TA (general Alkalinity), DO (Dissolved oxygen), TH (general Hardness), NaCl (Salinity), Ca (Calcium), Mg (Magnesium), Cl (Chloride), Na (Sodium) and okay (Potassium). The effects have been assessed and contrasted and WHO and BIS water exceptional ideas. From the facts obtained, the water first-rate listing changed into determined to degree by using and large lake water exceptional reputation of the region. It is observed that depending on the WQI outcomes the examples are falling below extraordinary magnificence and subsequently suitable for family functions.

Namita Saxena and Alka Sharma(2017), Water sources accessible for drinking and other household purposes must have high level of virtue, liberated from synthetic sully and smaller scale creatures. Be that as it may, the fast increment in populace and industrialization together with the absence of insight to live in concordance with nature had prompted the disintegration of good nature of water in this manner bringing about water contamination. Hence, contamination of water assets needs a genuine and prompt consideration through periodical checking of water quality. In present investigation Physicochemical attributes of ground water tests of in what's more, around Tekanpur in Gwalior city of M.P. India were concentrated to survey its reasonableness for open utilization. Water tests were gathered from five diverse gathering purposes of chosen region. Physicochemical parameters were investigated and values got were contrasted and standard qualities suggested by WHO and ISI. The comparing water quality record were additionally worked out.

V.Jena andD.Sinha(2017), Appraisal and mapping of groundwater is a significant amount in light of the fact that the physical and substance attributes of groundwater decide its appropriateness for horticultural, mechanical and residential utilizations. Present work manages the appraisal of physico-substance parameters of ground water tests Raipur city during 2015-2016.

Ground water tests were tried for physico-substance parameters keeping the standard techniques and methodology. Factual investigations have been done by figuring connection coefficients between various sets of parameters and t-test applied for checking criticalness. The watched estimations of different physico-substance parameters of water tests were contrasted and standard qualities prescribed by WHO for drinking and the degree of disintegration. Sewage and modern effluents are the presumably hotspots for the variety of water quality in the examination locale

IV. CONCLUSION

The present study was under taken to characterize the nature of water tests with exceptional reference to physicochemical properties to choose its WQI. Pollutants and contamination load is regularly expanding and with

the present pace of contamination load the lake water won't be appropriate for huge number sea-going life forms any longer and inevitably will bring about eradication of huge number of plant and creature species soon. Broken down oxygen (DO), Phosphate, Alkalinity and all out suspended solids as prevailing components affecting lake water quality appraisal ought to be overseen. At long last a powerful and dependable environment based administration measures ought to be taken to control contamination loads and spare existence of the Muttukadu Lake. Supplement improvement is a worry to inhabitants living along Muttukadu Lake alongside its suggestions on the long haul oceanic wellbeing of the framework. Kept observing is required to build up a dataset to mirror the characteristic varieties and land use suggestions on water quality inside Muttukadu Lake.

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