Project

Report

On

"DRINKING WATER ANALYSIS"

Submitted by

K.UPENDRA

Group: 3rd B.Sc., M.P.C

Registered Number: 190557101008

Year: August, 2022.

In partial fulfillment for the award of the degree

of

Bachelor of Science

DEPARTMENT OF CHEMISTRY
V.K.V GOVERNMENT DEGREE COLLEGE
KOTHAPETA – 533223

Date of Submission: 11-08-2022

Principal
V.K.V.Govt.Degree College
KOTHAPETA

STUDENT STUDY PROJECT REPORT

CERTIFICATE

This is to certify that the project report entitled **"Drinking Water Analysis"** submitted by **K.Upendra, 3rd B.Sc., M.P.C, Registered Number: 190557101008, Year Aug, 2022** to the **VKV GOVT DEGREE COLLEGE, KOTHAPETA** for the partial fulfillment project during Sixth semester for award of *the award of the degree* of Bachelor of science is a bonafide record of project work carried out by him under my mentorship.

Project Mentor 5/8/2022
(P. SAI KRISHNA)

Head of the Department 5/08/22
(Dr. G.Srinivasulu)

Dr. SRINIVASULU GONU
M.Sc., Ph.D.
Lecturer in Chemistry
V.K.V.Government Degree College
KOTHAPETA, E.G.Dt-533223, A.P

VKV GOVT DEGREE COLLEGE,
KOTHAPETA-533223
Date:

Valued
1. Y. Krishna
2.

Principal
V.K.V.Govt.Degree College
KOTHAPETA

VISWANADHAVI VEMANA GOVT. DEGREE COLLEGE
KOTHAPETA
PIN: 533 223
E.G.Dt.,

INTRODUCTION

Water chemistry plays an important role in the health, abundance and diversity of the aquatic life that can live in a stream. Excessive amounts of some constituents (nutrients), or the lack of others (dissolved oxygen), can result in degraded conditions and harm aquatic life.

1.1. Temperature: Water temperature is important because most of the physical,chemical, and biological characteristics of a river are directly affected by temperature

A. Factors effecting on temperature:-

1. The amount of gas, including oxygen, that can be dissolved in the water; cold water can hold more oxygen than warm water.
2. The rate of photosynthesis by algae and other aquatic plants
3. The metabolic rates of aquatic organisms (increased respiration, digestion, etc.)
4. Organisms can become more sensitive. Increased metabolic rates result in the organism being stressed and more vulnerable to disease, parasites and pollution.

B. Impacts of stream temperature:-

1. Air temperature. The natural seasonal changes in temperature impact stream temperature.

In addition to natural influences, man's activities can impact stream temperature:

2. Thermal pollution occurs when water entering the stream is warmer than the water already present in the stream. One source is industries like nuclear power plants, which discharge cooling water. Another source is stream water runoff from heated surfaces such as parking lots, streets, roofs, etc
3. Riparian cover removal. The removal of trees impacts water temperature by eliminating shade along the river and allowing more soil particles to reach the stream.
4. Soil erosion increases the amount of suspended solids carried by the water. The cloudy water absorbs the sun's rays, which warms the water.

1.2. Dissolved Oxygen:-

A. Dissolved oxygen (DO) is essential to the survival of organisms in a stream. The presence of oxygen is a positive sign and the absence of oxygen is a sign of severe pollution. Waters with consistently high dissolved oxygen are considered to be stable aquatic systems capable of supporting many different kinds of aquatic life.

B. Sources of Dissolved Oxygen:-

1. Atmosphere. The air we breathe contains approximately 21% oxygen which equatesto 210,000 ppm oxygen. Most surface waters contain between 5 and 15 ppm DO.

2. Photosynthesis by algae and rooted aquatic plants. Plants deliver oxygen to water through photosynthesis.

C. Natural Influences on Dissolved Oxygen:-

3. Seasonal Temperature Changes:-

Gases, like oxygen, are more easily dissolved in cooler water than in warmerwater. DO levels may be higher in winter than in summer.

4. Stream Discharge:-

Dry periods often result in severely reduced stream discharge and increased water temperatures. This combination acts to reduce DO levels. Wet weather or melting snows increase stream discharge and the possibility for mixing of atmosphericoxygen.

5. Dissolved or suspended solids:-

Oxygen dissolves more readily in water that does not contain a high concentration of salts, minerals or other solids.

6. Aquatic Plants:-

a. Density:

The density of aquatic plants will affect DO. Fewer plants grow in winter because of cold temperature and shorter day length. More green plants mean more photosynthesis, which produces more oxygen during the day when the sun is shining

b. Respiration:

Conversely, plants and animals respire 24 hours per day, using oxygen and producing carbon dioxide. So there is a net gain in DO as long as photosynthesis is occurring. In addition, when plants die, DO is used in the decomposition process. This occurs when organic matter decomposes. If there is an overabundance of algae or otheraquatic plants and a large die-off occurs at one time, DO can be dramatically impacted.

c. Diels Oxygen Fluctuation:

The term, "diel" refers to a 24-hour period that usually includes a day and adjoining night. During the daylight hours, DO levels rise due to plant photosynthesis? When the sun sets, photosynthesis stops and respiration continues.

As a result, DO levels naturally drop overnight, reaching their lowest level just before dawn, at which time the sun rises and photosynthesis again pumps more DO into the water. Extensive algal growth can result in large fluctuations in oxygen from late afternoon to early morning. If they DO levels fall too low, aquatic animals can die. This is more of a problem in ponds and in backwaters of streams where flow is nonexistent or very slow.

d. Human-Caused Changes in Dissolved Oxygen:-

1. Organic wastes:

These include wastes from once-living plants and animals and fromanimal feces. Excessive organic waste often comes from sewage treatment plants, malfunctioning septic systems or manure runoff from animal operations. Organic waste can act as a fertilizer to stimulate aquatic plant growth. In time, these plants die, and they too become organic waste.

2. Urban runoff:

Rain carries heat, salt, sediment and other pollutants off of impervious surfaces (streets, roofs, parking lots) into streams. This raises the water temperatures and total solids in the water reducing the amount of DO it can hold.

3. Dams:

Some dams are constructed so that water is released from the bottom of a lakeor reservoir. Seasonally this water can be almost devoid of oxygen. The opposite problem can occur when water is released from the top of a dam or spillway. This can cause excessive uptake of air from the atmosphere and result in water that has too much atmospheric gas.

4. Removal of vegetation (especially trees) in the riparian corridor:

A lack of shade causes increased water temperature and a lack of protection from erosion. This causes increased suspended solids that can work together to reduce oxygen levels. Depletion of DO can cause a major shift in the types of aquatic organisms present in a stream from pollution sensitive species to pollution tolerant species.

V.K.V GOVERNMENT DEGREE COLLEGE KOTHAPETA

(Accredited by NAAC "B"Grade)

(An ISO 9001:2015 Certified College by HYM International Certifications Pvt.Ltd.)

DEPARTMENT OF CHEMISTRY

Student Study Projects

Academic year: 2021-2022

S.no	Reg.no	Name of the student	Name of the project & Student signature	
1	190557101003	Ganisetti Naga Satish	Water analysis	G. Naga Satish
2	190557101004	Ganta Seshu	Water analysis	G. Seshu
3	190557101005	Gollapalli Sirisha	Water analysis	Gollapalli Sirisha
4	190557101006	Kombathula Swetha	Water analysis	K. Swetha
5	190557101007	Koppisetti Rukmini Anantha Lakshmi	Water analysis	K.R.A. Lakshmi
6	190557101008	K. Upendra	Water analysis	K. Upendra
7	190557101009	Nakka Sri Lakshmi	Water analysis	N. Sri Lakshmi
8	190557101010	P.Vamsi Krishna Babu	Water analysis	
9	190557101011	Ryali Lakshmi Prasanna	Water analysis	R. Lakshmi Pra-sanna
10	190557101012	Thirupathi Baby Prasanna	Water analysis	T. Baby Prasanna
11	190557101013	Vara Puja Harshini	Water analysis	V. Puja harshini
12	190557101014	V. Naveen	Water analysis	V. Naveen
13	190557101016	V. Sai Parameswararao	Water analysis	V. Sai Parameswararao

Principal
V.K.V.Govt.Degree College
KOTHAPETA