**RELATIONSHIP BETWEEN CONDUCTIVITY AND TEMPERATURE IN THE WATERS OF LAKE VICTORIA**.

*A RESEARCH CONDUCTED BY HOMA BAY HIGH SCHOOL GLOBE STUDENTS*

*BETWEEN SEPTEMBER 2016 TO MARCH 2017*

**RESEARCH QUESTIONS**

1. Is there a relationship between temperature and conductivity variations in the waters of Lake Victoria?
2. What is the effect of variations in temperature and conductivity on aquatic life in the lake?

**RESEARCH OBJECTIVES:**

* To determine causes of variation in temperature and conductivity.
* To determine the effects of temperature and conductivity on aquatic life.

**RESEARCH HYPOTHESES**

* There is no relationship between temperature and conductivity.
* High temperature encourages survival of aquatic life in the lake.
* There is no relationship between conductivity and aquatic life.

**RESEARCH TOOLS**

* Labquest
* Conductivity probe
* Thermometer
* Dissolved oxygen probe

The above apparatus were used to help in collecting data twice a week in the lake. Three readings are taken and the average determined and then used as the standard figure for that protocol measured for the day.

Readings taken at the onset of water hyacinth from September 2016 to March 2017

|  |  |
| --- | --- |
| CONDUCTIVITY (MICROSIEMENS/CM) | TEMPERATURE (0C) |
| 160.3 | 32 |
| 146.6 | 31 |
| 139.87 | 30.8 |
| 139.86 | 30.5 |
| 139.83 | 30.2 |
| 137.73 | 30 |
| 135.37 | 29.5 |
| 134 | 28.2 |
| 133.1 | 27.8 |
| 132.9 | 27.2 |
| 126.03 | 26.5 |

**A compound line graph showing relationship between conductivity and temperature in L. Victoria between September 2016 and March 2017**

**OBSERVATIONS/CONCLUSION**

* There is a positive correlation between temperature and conductivity since an increase in temperature causes a corresponding increase in conductivity.
* Conductivity decreases from the shore as one move into the lake.
* Presence of water hyacinth led to decrease in temperature and conductivity.
* More aquatic plants colonize the waters when temperatures are higher. This is because the optimum conditions for plant growth are met and more minerals are availed in liquid form for easy absorption by the plants. It is possible that more aquatic animals also dominate the waters when temperatures are slightly higher.

**EXPLANATION**

1. Conductivity decreases by 2 – 3% for a decrease in temperature by 10C. This is because low temperature causes a decrease in the number of ions present in water due to more cohesion of water molecules.
2. Conductivity decreases as one moves into the lake from the shore. This is possibly because of less dissolved ions as compared to the lake shore.
3. Presence of water hyacinth led to slight decrease in temperature and conductivity. This is possibly because water hyacinth prevents direct sunlight from reaching water surface. For decrease in conductivity, the water remains clear since it is less disturbed leading to low amounts of dissolved substances.

**Conclusion**

The research has proven that there is an inverse relation between temperature and conductivity. It has also enabled us to conclude that when temperature is high, more aquatic life exist in the lake.

**REFERENCES**

1. The internet.

NB: This research was conducted by the following students:

1. Erick Joseph
2. Johnwestly Ong’ete
3. Evans Ndong’
4. Phil Collis
5. Salvin Mionwa
6. McRege Joshua
7. Maxwell Juma
8. Collins Mbeki
9. Phelix Owaka
10. Jeverson Mwaita