

Title: Comparison of water quality between marshes covered with aquatic vegetation and without aquatic vegetation Nai Khuan Subdistrict, Yan Ta Khao District, Trang Province

Student : Ms. Nada Longkao Mr. Pisek U-Thong Ms. Atiya Weanwet

Grade Level : Grade 5

Advisor : Mrs. Kwanjai Kanchanasrimak Ms.Sutheera Thacheen

School : Wichienmatu School Trang

Scientist : Mr. Pairoj Jaiboon

Abstract or summary

Based on experiments, a comparison of water quality between marshes covered with aquatic vegetation and without aquatic vegetation aimed to study the comparison of water quality and species diversity. It is monitored by measuring pH base, temperature, dissolved oxygen content and water transparency. It was found that the marsh area covered with floating plants and without floating vegetation covered had a pH-base value. There is a difference in temperature, dissolved oxygen content and water transparency. In marshes covered with floating vegetation, it has an average acidity-base of 6, which is acidic. It has an average temperature of 29, an average dissolved oxygen content of 6.1 mg/L and an average transparency value of 4.6 cm. Marshes without floating vegetation It has an average acidic acidity of 6.3 with an average temperature of 31.6 °C, an average dissolved oxygen content of 7.6 mg/L, and an average transparency value of 4.3 cm.

Keywords: compare water quality, natural marsh, ph-base, temperature, oxygen content, Transparency value

Introduction

Water is an important resource that can be circulated indefinitely, is one of the most abundant liquids on the earth's surface and is an important factor for the life of all living things, both in terms of consumption and consumption. Aquatic animals starved of oxygen die and then pollute the water. Aquatic plants are plants that require high amounts of water and therefore must live. In water and adaptable to thrive in water, plants may float at the surface of the water. It rises above the water or thrives on the banks or banks of canals, and includes plants that prefer to thrive in waterlogged water. The research team then used two water sources in Nai Khuan district to compare water quality and check acidity-base, temperature, dissolved oxygen and transparency.

objective

To compare water quality between marshes covered with aquatic vegetation and without aquatic vegetation.

Research Questions

Is there a difference in water quality between marshes with and without vegetation?

Research hypothesis

There is a difference in water quality between vegetation-covered and unvegetated marshes.

Methods and materials

Equipment material

1. Beaker
2. Test tube
3. Test tube holder
4. pH paper
5. Thermometer
6. Dissolved oxygen content measurement kit
7. Transparency measuring plate

GLOBE protocol

How to measure the acidity-base of water

Principles of water temperature measurement methods

Methods for measuring dissolved oxygen content

Transparent measurement methodology

Defining Study Points

Marshes covered with aquatic vegetation and without aquatic vegetation cover. Nai Khuan

Subdistrict, Ta Khao District, Trang Province

Experiment 1: pH measurement

Step 1: Measure the acid-base value in natural marshes covered with floating plants.

pH measurement with universal indicator paper Gargle the container with natural water covered with floating plants twice . A natural marsh covered with floating plants compares the color of the pH measuring paper with the colored strip attached to the pH measuring paper used for measurement. Measured 3 times in total

Step 2: Measure the acidity-base in a natural marsh area that is not covered with floating plants. pH measurement with universal indicator paper Gargle the container with natural water that is not covered with floating plants twice . A natural marsh area without floating vegetation cover compared the color of the pH measuring paper with the colored strip attached to the pH measuring paper used for measurement.

Experiment 2: Temperature measurement

Step 1: Check the temperature of the natural marsh covered with floating plants.

Measurement Temperature with thermometer

Dip the thermometer in the water around a natural marsh covered with floating plants.

About 3 – 5 minutes to read the thermometer. Dip the thermometer meter for another 1 minute to measure, measure the 2nd and 3rd measurements and read the 2nd step, check the temperature in the natural marsh area without floating vegetation. Measurement

Temperature with thermometers Dip thermometers into water in natural marsh areas that are not covered by floating plants. About 3 – 5 minutes to read the thermometer. Dip the thermometer for another 1 minute. In measurement, measure 2 and 3 and read the value.

Experiment 3: Determination of dissolved oxygen content

Step 1: Measure dissolved oxygen in natural marshes covered with floating plants. Rinse the water collection bottle with water in a natural marsh covered with floating plants 3 times first, then open the lid of 2 drops of the 1st solution, then 2 drops of the 2nd solution, then close the lid, shake until a yellow sediment is formed, waiting for the sediment to fall in half, then open the lid of the 3rd 5 drops and shake well until the sediment is completely dissolved. Pour 5 mL of the resulting water into the new test tube, adding the 4th reagent drop by drop. Count the number of drops used, and see the color of the water as a faded yellow. Then 2 drops of the 5th solution turned blue, then dripped the 4th solution, and counted the number of drops until the water became colorless.

Step 2: Measure dissolved oxygen in natural marshes without floating vegetation. Rinse the water collection bottle with water in a natural marsh area without floating vegetation 3 times first, then open the lid of 2 drops of the 1st solution, then 2 drops of the 2nd solution, then close the lid, shake until a yellow sediment is formed, waiting for the sediment to fall in half, then open the lid of the 3rd 5 drops and shake well until the sediment is completely dissolved. Pour 5 mL of the resulting water into the new test tube, adding the 4th reagent drop by drop. Count the number of drops used, and see the color of the water as a faded yellow. Then 2 drops of the 5th solution turned blue, then dripped the 4th solution, counted the number of drops until the water became colorless, then read the value.

Experiment 4: Measuring Water Transparency with Secchi Disk

Step 1: Measure the transparency of natural marshes covered with floating plants.

1. Gently lower the transparency measuring plate into the water until you reach the point where the black and white are not visible on the transparency measuring plate. Mark the rope at the surface point of the water (maybe with a pin to pin the cloth on it). It must be marked on a rope high above the surface of the water, where the exact distance value is known.
2. Slowly pull the rope higher until the color is visible on the transparency measuring plate again, and then mark the rope at the surface level again (or use the method of measuring the distance from the surface of the water to the measured point above the water).
3. Record the distance difference between the 2 measured points. If the measured distance is in fractions of a centimeter, the closest centimeter value, e.g. 2.1 centimeters, record 2 centimeters in the data sheet.
4. If the difference between the two measured depth values is more than 10 centimeters, repeat the experiment and then record the measured value.
5. If the transparency measuring plate sinks to the bottom of the water at the measurement point but the color of the plate is still visible, record that the water transparency value is greater than the depth from the measuring plate to the surface by writing a sign greater than (>) in front of the reading number.
6. Indicates the amount of cloud cover in the sky above the study area. Find the distance between the markings made on the rope and the surface of the water, and record both values in the data sheet (if marked on the rope at the surface of the water, put 0).

Step 2: Measure the transparency of natural marshes without floating vegetation.

1. Gently lower the transparency measuring plate into the water until you reach the point where the black and white are not visible on the transparency measuring plate. Mark the rope at the surface point of the water (maybe with a pin to pin the cloth on it). It must be marked on a rope high above the surface of the water, where the exact distance value is known.
2. Slowly pull the rope higher until the color is visible on the transparency measuring plate again, and then mark the rope at the surface level again (or use the method of measuring the distance from the surface of the water to the measured point above the water).
3. Record the distance difference between the 2 measured points. If the measured distance is in fractions of a centimeter, the closest centimeter value, e.g. 2.1 centimeters, record 2 centimeters in the data sheet.

4. If the difference between the two measured depth values is more than 10 centimeters, repeat the experiment and then record the measured value.
5. If the transparency measuring plate sinks to the bottom of the water at the measurement point but the color of the plate is still visible, record that the water transparency value is greater than the depth from the measuring plate to the surface by writing a sign greater than (>) in front of the reading number.
6. Indicates the amount of cloud cover in the sky above the study area. Find the distance between the markings made on the rope and the surface of the water, and record both values in the data sheet (if marked on the rope at the surface of the water, put 0).

Results and data

The results of the experiment were to study the relationship between marshes, areas covered by aquatic vegetation and areas without aquatic vegetation. as follows

Table 1 Shows the pH-base value in a marsh covered with floating vegetation and no floating vegetation.

	Acid-Base			average
	1st time	2nd time	3rd time	
A marsh area covered with floating vegetation.	5	6	7	6
Marshy areas without floating vegetation cover.	6	6	7	6.3

According to the table, the pH-base values in marshes without floating vegetation cover are higher than in marshes covered with floating plants.

Table 2 Displays the temperature value of the marsh area covered with floating vegetation and without floating vegetation.

	Temperature (°C)			average
	1st time	2nd time	3rd time	
A marsh area covered with floating vegetation.	29	30	30	29.6
Marshy areas without floating vegetation cover.	31	32	32.8	31.9

According to the table, the temperature values in the marsh area without floating vegetation cover are higher than in the marsh area covered with floating vegetation.

Table 3 Shows the amount of dissolved oxygen in a marsh covered with floating vegetation and without floating vegetation.

	Dissolved oxygen content(mg/L)			average
	1st time	2nd time	3rd time	
A marsh area covered with floating vegetation.	4.5	6.5	7.5	6.1
Marshy areas without floating vegetation cover.	6.5	8	8.5	7.6

According to the table, the amount of dissolved oxygen in a marsh area without floating vegetation cover is higher than in a marsh area covered with floating vegetation.

Table 4 Shows transparency values around marshes covered with floating vegetation and no floating vegetation.

	Transparency (cm)			average
	1st time	2nd time	3rd time	
A marsh area covered with floating vegetation.	4	5	5	4.6
Marshy areas without floating vegetation cover.	4	4	5	4.3

From the table, it was found that the transparency value in the marsh area without floating vegetation was higher than in the area of the marsh covered with floating plants.

Discussion

Research on the comparison of water quality between marshes covered with and without aquatic vegetation. It was found that the pH-Base value in marsh areas without floating vegetation cover was higher than in marsh areas covered with floating plants. which has a pH-base value of acid. The temperature of a marsh area without floating vegetation cover is higher than that of a marsh area covered with floating vegetation. The dissolved oxygen content in a marsh without floating vegetation is higher than in a marsh covered with floating vegetation, and the water transparency in a marsh without floating vegetation is higher than in a marsh covered with floating vegetation. In conclusion, a marsh area without floating vegetation cover is of higher quality than a marsh area covered with floating vegetation.

Conclusion

From a study comparing water quality between ponds, it was found that pH, temperature, oxygen content and transparency of water The area of a pond without floating plants is more valuable than the area of a pond covered with floating plants.

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