Project Name: Comparison of water quality of natural pond, open areas and tree-covered areas.
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Abstract

The study on comparing the water quality of natural pond, open areas and tree-covered areas by trees by studying in the area of Village No.4, Bang Rak Sub-district, Mueang District, Trang Province, Thailand. The indices used are values, temperature, water transparency. Acidity-Base Let's compare the differences using the principle of GLOBE THAILAND to measure temperature, oxygen, acidity-base. Water Transparency And take the average of each index of each of the 2 natural pond to compare the differences. Water transparency, acidity-base, oxygen is 30 °C, 37.43 cm, 7.01 3.50 respectively. Natural ponds in tree-covered areas have an average temperature, Water transparency, acidity-base, oxygen is 26 °C, 109.33 cm, 7.06 8.33 respectively.

Keywords: water quality, open areas, tree-covered areas, Natural Ponds

Sources and importance

Water is the most important factor of freshwater ecosystems, both in origin and existence. The fact that water is drained through freshwater fields moves slowly because of its flat terrain. This causes various suspensions and sediments to flow with the water. Precipitation is a nutrient to aquatic plants. Animals (Watit Charoensiri, 1991)

A pond is a stagnant body of water that is normally smaller than a lake, either natural or man-made. Pools may occur naturally in floodplains as part of a river system, or they can be separate basins.

In the area of Village No.4, Bang Rak Sub-district, Mueang District, Trang Province, Thailand There are both natural pond, open areas and tree-covered areas, and each pond will have different water quality according to the characteristics of the pond. Bang Rak Subdistrict, Mueang District, Trang Province the index for measuring water quality is acidity-base. Oxygen, water transparency, temperature.

Research objectives

To study the water quality in natural pond, open areas and tree-covered areas.

Research Questions

Temperature, acidity-base Oxygen, water transparency in natural pond, open areas and tree-covered areas. Is there a difference?

Research hypothesis

Natural pond, open areas and tree-covered areas have different water quality.

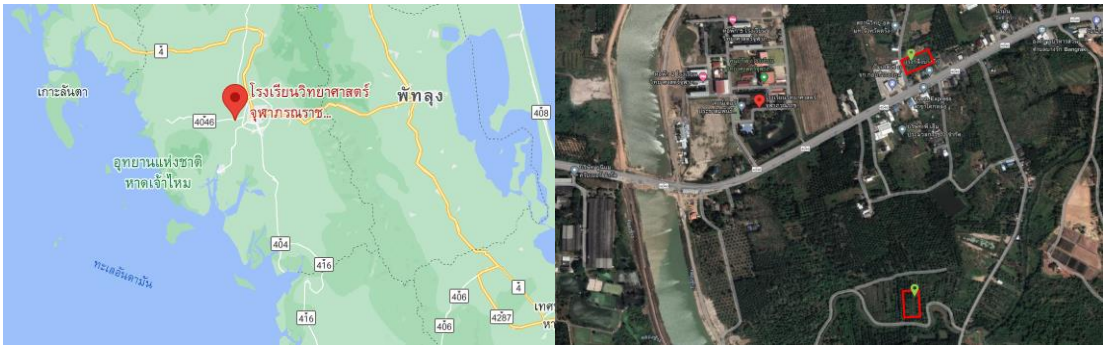
Research methods

Equipment materials

1. Thermometer
2. Water transparency measuring tube
3. 6 bottles of 1.5 liters
4. pH meter
5. Oxygen Test Kit
6. Beaker size 250 cubic centimeters

Study Locations

Natural pond, open areas and tree-covered areas. Village No.4, Bang Rak Sub-district, Mueang District, Trang Province, Thailand (7°33'17.5"N 99°33'56.3"E) has designated the area of natural ponds, open areas and tree-covered areas to be 4 meters wide and 4 meters long.



▲ Study Area (7°33'11.7"N 99°33'30.4"E)

▲ Natural ponds covered with trees
(7°32'50.5"N 99°33'45.0"E)

▲ Natural ponds in open areas
(7°33'15.0"N 99°33'43.9"E)

GLOBE Protocols

1. How to perform temperature measurements
2. Principles of how to conduct water transparency measurements
3. How to perform acid-base measurement of water
4. How to perform measurement of dissolved oxygen
5. Principles of how data transmission is processed

Water Quality Monitoring

1. Check water quality, natural ponds, open areas and tree-covered areas.

1.1 Water temperature measurement

1.1.1 Dip the thermometer into water about 3 centimeters deep for 3-5 minutes.

1.1.2 Read the thermometer at eye level The thermometer bulb must be in the water.

1.1.3 Dip the thermometer for another 3 minutes for the second and third measurements without changing the thermometer reader.

(Reads temperature in degrees Celsius (°C), performs 3 measurements in total)

1.2 Water sampling

1.2.1 Bring a water bottle to collect water samples of natural pond, open area and tree-covered areas where temperature measurements are performed.

(Holds 1.5 liters of water. In the position where the temperature is measured all 3 times).

1.3 Water transparency monitoring

1.3.1 Fill water samples natural pond, open areas and tree-covered areas into the tube to measure the transparency of the water even if it does not look colored on the Secchi Disk.

1.3.2 Then read the height of the water. Inside the tube measures the transparency of water.

(Reads in cm and takes 3 measurements)

1.4 Acid-base measurement

1.4.1 Add water samples to the beaker in moderation.

1.4.2 Dip pH meter into the water, flood and stir gently.

1.4.3 Leave it until the value is constant, then read the value and take notes.

(Take 1 measurement of each point and average 3 points of the pond)

1.5 Oxygen Determination

1.5.1 Rinse the sampling cylinder under water 2-3 times and fill it with water. Close the lid under water so that there is no air, be careful not to get bubbles.

1.5.2 Gently open the lid, 2 drops of solution #1, then 2 drops of solution #2 and close the lid. Be careful not to get bubbles in.

1.5.3 Shake while the lid will form yellow sediment.

1.5.4 Wait for the sediment to fall about half a barrel.

1.5.5 Open the lid, drop the #3 solution into the sample of 5 drops and close the lid. Be careful not to let the air in, shake well, wait until the sediment has completely dissolved.

1.5.6 Pour the sample from item 5, insert the new test tube to the limit of 5 ml.

1.5.7 Add solution #4 one drop at a time, shake well, count the number of stops used. The sample will turn blue, droplet #4, and continue counting the drops until the sample water turns colorless.

1.5.8 Bring the number of drops that can be counted. Read the result in mg/L Oxygen, make measurements. 3 times in total

(How many drops? Compare oxygen content equal to mg/L, take a total of 3 measurements)

Data Analysis

The way to find the average is to combine groups of data into the same number and divide them by the amount of data. Divide (average) evenly to find out what is the median value of the data or the average (Kris Piroj, 2018).

$$\text{Average} = \frac{\text{All information}}{\text{Number of data}}$$

All data is the sum of all the data that needs to be averaged.

A data count is the total amount of data that we combine the values of those data.

Findings

Table: 1 shows a comparison of water temperatures in open areas and tree-covered areas.

Water temperature		
Times	Open areas	Tree-covered areas
1	30 °c	26 °c
2	30 °c	26 °c
3	30 °c	26 °c
average	30 °c	26 °c

From Table 1, water temperature It was found that the water in the open areas had an average temperature of 30°C and the water in the area covered with trees had an average temperature of 26°C.

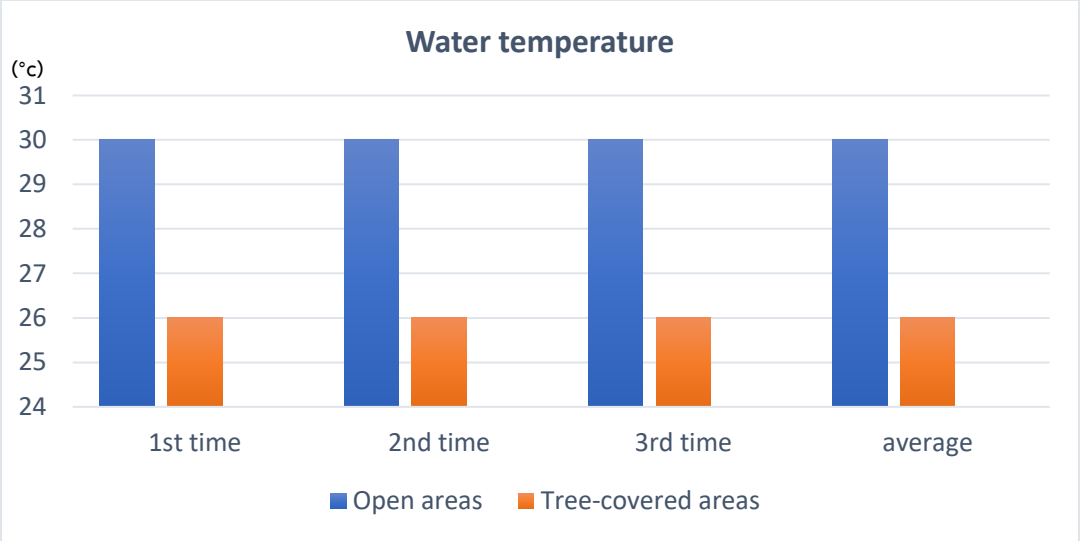


Table: 2 shows the transparency of natural pond, open areas and tree-covered areas.

The amount of water in the tube measures the transparency of water.		
Times	Open areas	Tree-covered areas
1	35.7 cm	112.3 cm
2	36.8 cm	110.4 cm
3	39.8 cm	105.3 cm
average	37.43 cm	109.33 cm

From Table 2, Water Transparency It was found that the transparency of the water in the open areas. It has an average of 37.43 cm and water transparency in tree-covered areas has an average of 109.33 cm.

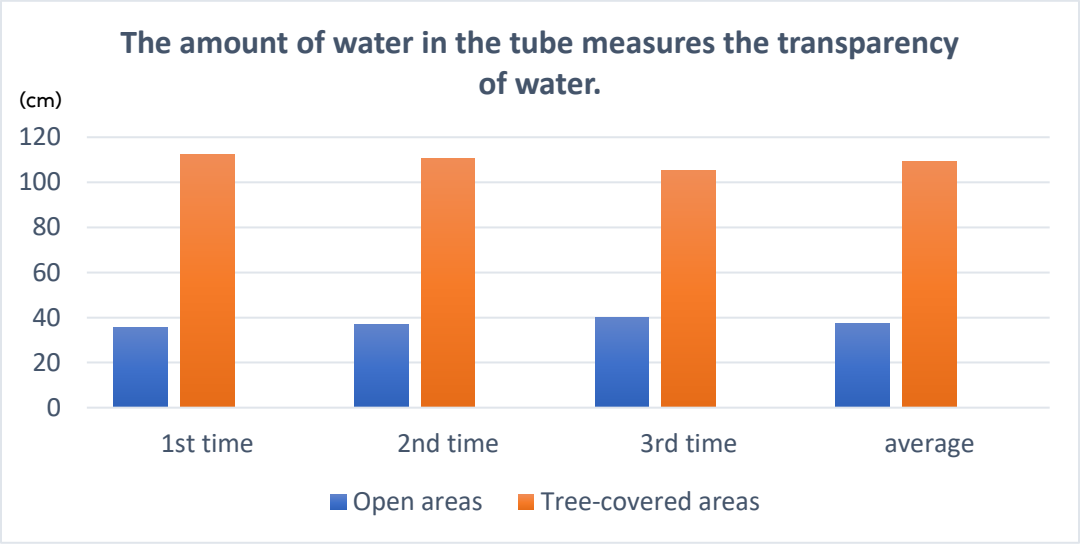


Table: 3 shows the acidity-base values of natural pond, open areas and tree-covered areas.

Water acidity-base		
Times	Open areas	Tree-covered areas
1	6.99	7.12
2	6.95	7.09
3	7.09	7.08
average	7.01	7.06

From Table 3, acidity-base values, it is found that the acidity-base values of open areas It has an average of 7.01 and the area covered with trees has an average of 7.06.

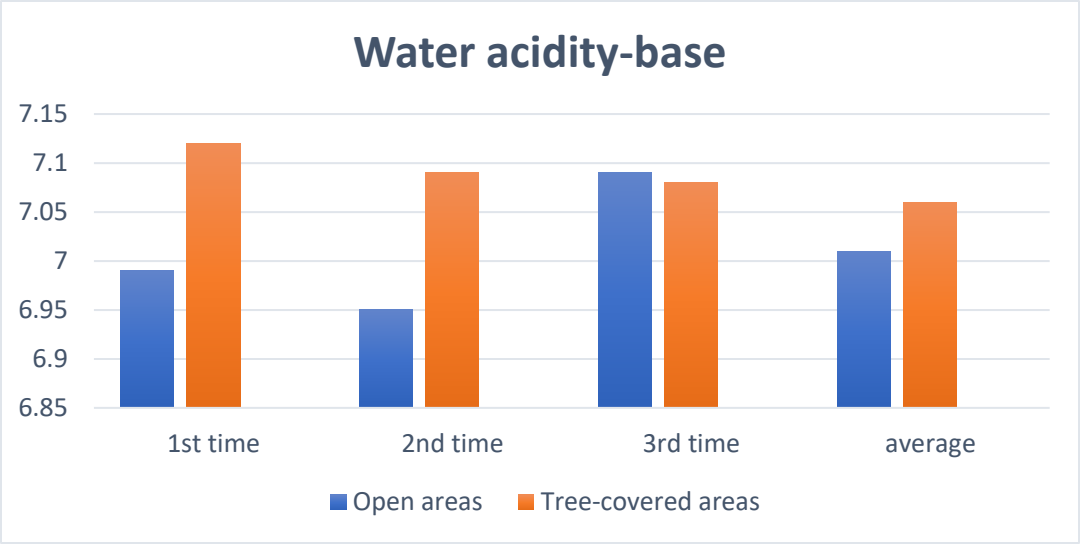
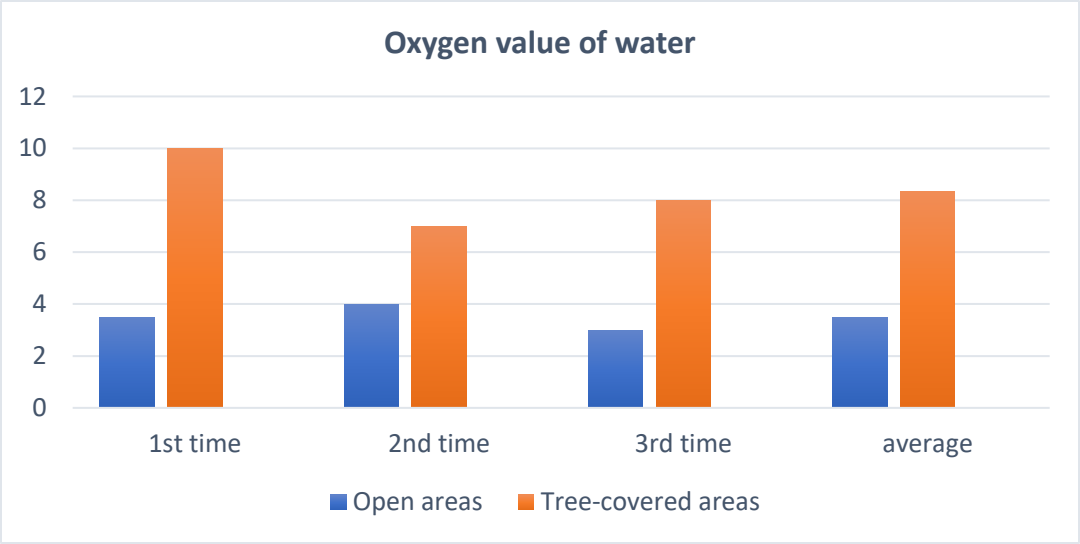


Table: 4 shows the oxygen values of natural pond, open areas and tree-covered areas.

Oxygen value of water		
Times	Open areas	Tree-covered areas
1	3.5	10
2	4	7
3	3	8
average	3.50	8.33

From Table 4, the oxygen value of water. It was found that the oxygen value of the water in the open areas. It has an average of 3.50 and the area covered with trees has an average of 8.33.



Discussion

Water quality study of open areas and natural pond, open areas and tree-covered areas. Village No.4, Bang Rak Sub-district, Mueang District, Trang Province, Thailand the index used to measure water quality is temperature, oxygen, acidity-base. Water transparency to compare differences According to research, the average temperature in natural pond, open areas and tree-covered areas., with the average temperature of natural ponds in open areas being 30 °C. The average value of natural ponds in tree-covered areas is 26 °C. The open areas have a higher temperature than the pond in the area covered by trees because of the shade of the trees, thus causing a lower temperature. The average oxygen standard for good quality water is about 5 – 8 mg/L and wastewater is less than 3 mg/L (Neonics Co., Ltd., 2021). 3.50 mg/L The pond in the tree-covered area has an average oxygen content. 8.33 mg/L average of Acidity-Base Most natural water has an acidity-base value. Relatively neutral in the range of 6.5 – 8.5 (Groundwater Analysis Division, 2018) open areas wells have acidity-base values. An average of 7.01 wells in tree-covered areas have acidity-base values. An average of 7.06 on average of water transparency is found to be in the range of 50-90 cm (Faculty of Environmental Management, Prince of Songkla University, 2014). The open areas pond has an average of 37.43 cm, the pond in the tree-covered area has an average of 109.33 cm.

Conclusions and recommendations

Screw up the results of the experiment.

The study compared water quality of natural pond, open areas and tree-covered areas. Village No.4, Bang Rak Sub-district, Mueang District, Trang Province, Thailand, it was found that the temperature value, oxygen value. Water transparency values differ markedly between natural pond, open areas and tree-covered areas, but the average acidity-base between the two ponds is slightly different.

suggestion

1. Places in the study should be added for comparison to make the data studied more accurate.

2. Comparison factors such as fish, shellfish, shrimps and other organisms should be added to the diversity of life within natural ponds.

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OPTIONAL BADGES

I AM A COLLABORATOR

We have a total of 3 members in that group, we have cooperation and unity. Both in area surveying, planning, data collection, problem solving, we divide the work duties in terms of collecting and compiling data. procurement of equipment giving examples of problems that each person encounters and taken into consideration for the preparation of research projects.

I AM A DATA SCIENTIST

From the comparison of water quality natural pond, open areas and tree-covered areas Until various values in terms of Temperature, acidity-base Oxygen, water transparency were taken and averaged data in tables and bar charts.