

Study and comparison of water quality in the area of Ban Hat Canal and Ban Nong Lung.



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Abstract

This research aimed to study and compare the water quality of Ban Had Reservoir and Ban Nong Lung Reservoir in Phak Mai Subdistrict, Huai Thap Than District, Sisaket Province. The study was conducted from November to July 2025. Water quality was measured using four parameters: temperature, pH, dissolved oxygen (DO), and water transparency. The results showed that water temperature ranged from 28–34 °C, pH values ranged from 6.83–7.54, and dissolved oxygen (DO) ranged from 6.0–7.5 mg/L. A comparison of water quality by month and between the two sampling sites revealed differences in all measured parameters, particularly during the period from May to July. During this period, Ban Had Reservoir recorded a temperature of 32.5 °C, DO of 7.5 mg/L, pH of 7.54, and water transparency of 14 cm. In contrast, Ban Nong Lung Reservoir showed a temperature of 33.8 °C, DO of 6.0 mg/L, pH of 6.83, and water transparency of 23 cm. These results indicate that Ban Nong Lung Reservoir had better water clarity and overall cleanliness compared to Ban Had Reservoir.

Introduction

Water is an essential natural resource for all living organisms and has a significant impact on various aspects of life on Earth, especially during periods of global climate change, which have led to water shortages and sanitation problems. The residents of Ban Had and Ban Nong Lung communities utilize the reservoirs for a variety of activities. Consequently, the condition of these reservoirs is affected by community activities as well as natural factors. Therefore, this research aims to study the water quality of Ban Had Reservoir and Ban Nong Lung Reservoir by comparing water quality from upstream areas. The analysis focuses on the effects of physical and chemical factors on water quality, which can be used to support planning for water resource management and conservation. In addition, this study seeks to raise community awareness of the importance of shared water resources within the community.



Ban Had Reservoir



Ban Nong Lung Reservoir

Research Question

How does the water quality differ between Ban Had Reservoir and Ban Nong Lung Reservoir?

Research Hypothesis

The water quality of Ban Had Reservoir and Ban Nong Lung Reservoir is different.

Research Objectives

To study and compare the water quality of Ban Had Reservoir and Ban Nong Lung Reservoir in Phak Mai Subdistrict, Huai Thap Than District, Sisaket Province.

Variables Used in the Study

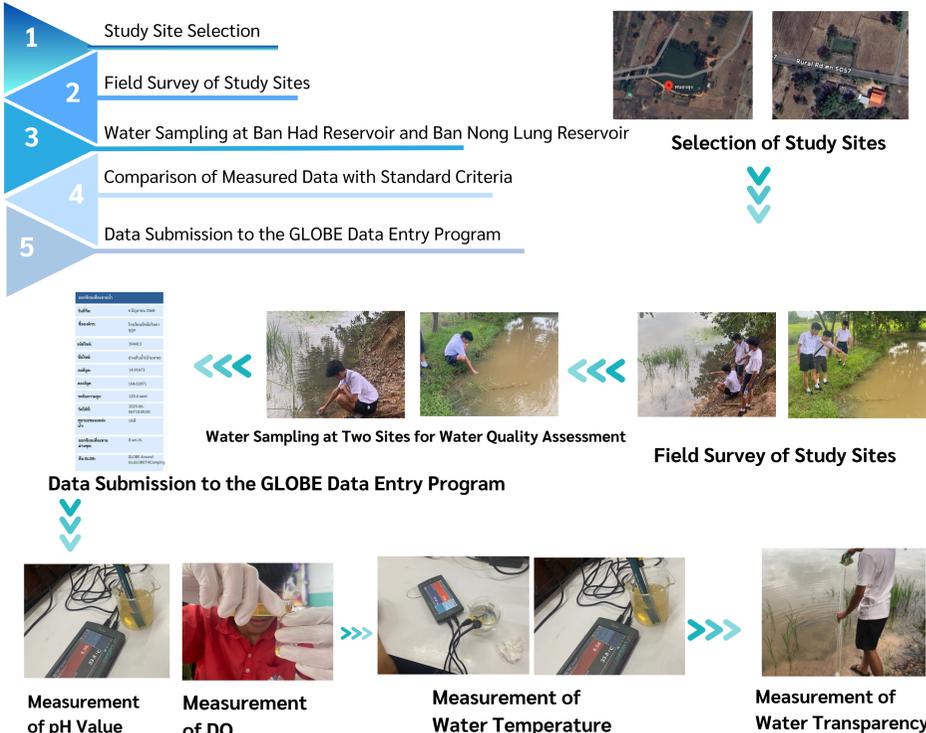
Independent Variable: Ban Hat Reservoir and Ban Nong Lung Reservoir, Phak Mai Subdistrict, Huai Thap Than District, Sisaket Province

Dependent Variable: Water quality

Controlled Variables:

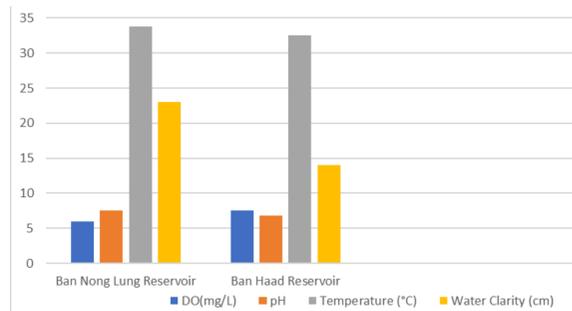
Water sampling methods at each study site; sampling time periods; types of sampling sets used; and instruments used to measure water quality.

Methodology



Results

Study Sites	Table Showing Water Quality			
	DO(mg/L)	pH	Temperature (°C)	Water Transparency (cm)
Ban Nong Lung	6	7.54	33.8	23
Ban Had Reservoir	5	6.83	32.5	14



Materials, Equipment, and Chemicals Used in the Experiment

1. Glass Thermometer
2. Dissolved Oxygen (DO) Test Kit
3. Water Transparency Tube
4. Labquest
5. Mobile phone
6. Google map
7. Pencil / Pen
8. Graduated Cylinder
9. Beaker
10. Sample collection bottle
11. Test Tube Rack

Conclusions and Discussion

Based on the measurement of water quality in Ban Had Reservoir and Ban Nong Lung Reservoir in Phak Mai Subdistrict, Huai Thap Than District, Sisaket Province, this study aimed to investigate the causes of changes in water quality and to compare water quality across different months and sampling locations. Water quality was assessed using four physical and chemical parameters: temperature, pH, dissolved oxygen (DO), and water transparency (cm). The results showed that Ban Had Reservoir had a water temperature of 32.5 °C, a DO value of 7.5 mg/L, a pH value of 7.54, and a water transparency of 14 cm. In contrast, Ban Nong Lung Reservoir recorded a water temperature of 33.8 °C, a DO value of 6.0 mg/L, a pH value of 6.83, and a water transparency of 23 cm. When compared with the surface water quality standards, both Ban Had Reservoir and Ban Nong Lung Reservoir met the criteria for Type 2 surface water quality. This indicates that the water quality is suitable for agricultural use and for the conservation of aquatic organisms. The findings also indicate that Ban Nong Lung Reservoir had higher water cleanliness and transparency than Ban Had Reservoir.

Benefits of the Study

1. To determine the current water quality of Ban Hat Reservoir and Ban Nong Lung Reservoir, Phak Mai Subdistrict, Huai Thap Than District, Sisaket Province.
2. To provide baseline data for planning water resource management and conservation, to raise community awareness of the importance of shared water resources, and to propose appropriate guidelines for water quality management within the community, ensuring suitability for use in water production processes for domestic consumption.

Recommendations

1. Additional water quality indicators should be studied, such as biochemical oxygen demand (BOD), suspended solids (SS), and total coliform bacteria (TCB).
2. Water samples collected for laboratory analysis should be tested immediately to prevent data inaccuracies or deviations.
3. Data collection should be conducted throughout the entire year to assess water quality across all seasons.

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Badge

