



Water quality monitoring report between Nang Noi canal, Na Bin La Subdistrict, Mueang District, Trang Province and Kantang River, Kantang Subdistrict, Kantang District, Trang Province.



Abstract

This water quality assessment compares Khlong Nang Noi in Na Bin La Subdistrict, Mueang District, Trang, with the Kantang River in Kantang Subdistrict, Kantang District, Trang, aiming to evaluate and compare their temperature, pH levels, and dissolved oxygen (DO) content. The methodology involved measuring water temperature with a thermometer, testing pH levels using universal indicator paper, and determining dissolved oxygen levels with a DO test kit. The findings reveal significant differences in physical characteristics and chemical properties between the two sites, concluding that Khlong Nang Noi exhibits superior water quality compared to the Kantang River due to its higher dissolved oxygen levels and cooler water temperature.

Keywords: Water Quality, pH Level, Dissolved Oxygen, Temperature, Khlong Nang Noi, Kantang River

Research Question

1. Where is the water in which living organisms can thrive better?
2. Can this database help locals spot water problems early, without having to wait until they can see the changes?
3. Does collecting water quality data digitally help local agencies find information more quickly?

Introduction

Water resources are fundamental to human life, agriculture, and ecological balance.

This is particularly true in Trang Province, an area characterized by a complex network of tributaries and major rivers that flow through communities into the Andaman Sea. However, rapid urban expansion and changes in land use have placed these water bodies at risk of degradation, potentially impacting aquatic ecosystems and the health of residents who rely on them.

Khlong in the Na Bin La Subdistrict, Mueang Trang District, serves as a secondary waterway flowing through agricultural and residential areas, reflecting the water quality of upstream freshwater influenced by household and farming activities. In contrast, the Kantang River is a major artery that collects water from various tributaries before reaching the estuary. As a hub for maritime transport and diverse economic activities, its physical and chemical characteristics are influenced by more complex factors, including suspended solids and tidal fluctuations.

Monitoring basic water quality indices such as pH, temperature, transparency, and Dissolved Oxygen (DO) is a vital tool for understanding the current status of these two distinct water sources. These parameters not only indicate water cleanliness but also determine its suitability for supporting aquatic life and various human uses. Consequently, the authors recognize the importance of conducting a comparative study of water quality between the canal in Na Bin La Subdistrict and the Kantang River to analyze environmental differences across different contexts. The data obtained from this research will be instrumental in raising community awareness and providing a foundational database for relevant agencies to plan, monitor, and restore local water resources for long-term sustainability.

Research Methods

Research preparation phase.

- 1) Formulate a research question; choose a topic you wish to study.
 - 2) Study, research, and gather knowledge and theories related to the research.
 - 3) Define the learning objectives.
 - 4) Determine sampling points within the study area.
2. Procedures for operation and data collection.

Part 1: Collecting water samples for measurement according to the GLOBE principle.

- 1) Survey and collect water samples in Khlong Nang Noi, Na Bin La Subdistrict, Mueang Trang District, and the Kan Dang River, Kan Dang Subdistrict, Kantang District, Trang Province.
- 2) Measure the water temperature using a thermometer at a depth of 10 centimeters. Wait 5 minutes, read the value, and record the result.
- 3) Measure the pH of the water using Universal paper, read the value, and record the result.
- 4) Measure the dissolved oxygen (DO) content by taking the collected water and testing it with an oxygen test kit. Read the value and Record the results

Map of Study Site(s)



• 7° 35' 60" (Degrees North / °N)



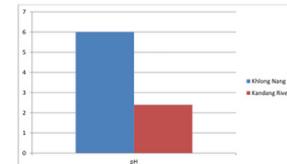
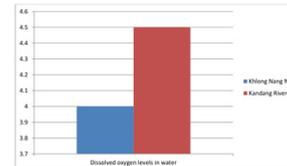
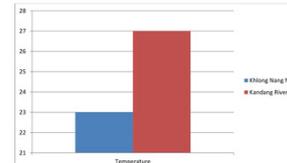
• 99° 43' 59.9" (Degrees East / °E)

Results

The study found that the average water temperature in Khlong Bang Noi was 23°C, while the average temperature in Mae Nam Kan Tang was 27°C, indicating that Mae Nam Kan Tang had a higher water temperature.

The average pH value of Khlong Bang Noi was 6, while Mae Nam Kan Tang had an average pH value of 7, indicating that Khlong Bang Noi was slightly more acidic.

The dissolved oxygen in Khlong Bang Noi averaged 4 mg/L, while Mae Nam Kan Tang averaged 4.5 mg/L, indicating that Mae Nam Kan Tang had a higher level of dissolved oxygen. Overall, Mae Nam Kan Tang showed better water quality than Khlong Bang Noi.



Discussion

The comparative analysis of the physical and chemical parameters between Khlong Bang Noi and the Kan Tang River reveals distinct environmental characteristics.

- Temperature Variation: The average water temperature in the Kan Tang River (27°C) is significantly higher than in Khlong Bang Noi (23°C). This 4°C difference likely stems from the river's geographical profile, which allows for greater water exposure and is influenced by coastal tidal movements.
- Acidity and Alkalinity: Khlong Bang Noi exhibits a slightly acidic profile with a mean pH of 6, whereas the Kan Tang River maintains a neutral pH of 7. This variance may be attributed to the concentration of organic matter or the specific geological gulf patterns feeding into the Khlong Bang Noi canal.
- Dissolved Oxygen (DO) Levels: The Kan Tang River maintains a higher DO average of 4.5 mg/L, compared to 4 mg/L in Khlong Bang Noi. A higher DO level generally indicates a better quality for the water body to support aquatic life and undergo natural self-purification processes.

Conclusions

In summary, based on the evaluation of temperature, pH, and dissolved oxygen levels, the **Kan Tang River exhibits superior overall water quality** compared to Khlong Bang Noi. The neutral pH and higher oxygen concentration in the Kan Tang River suggest a more robust aquatic ecosystem, making it better suited for biodiversity and sustainable community utilization.

Bibliography

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Data Base

1. Trang Provincial Administrative Organization (PAO)
 - Focus: Sustainable Natural Resource and Environmental Management
 - Enhanced Surveillance Efficiency: Research findings indicating temperature fluctuations of up to 4°C allow local authorities to proactively plan wastewater prevention strategies and prepare for ecological shifts within the Trang River Basin.
 - Strategic Alignment: This data empowers farmers and nearby communities to systematically manage impacts during seasonal transitions and periods of heavy rainfall.
2. Kantang Town Municipality and Kantang Sub-District Administrative Organizations (SAO)
 - Focus: Strengthening Coastal Economic Potential
 - Supporting Fisheries and Livelihoods: The recorded average Dissolved Oxygen (DO) level of 4.5 mg/L in the Kantang River serves as a vital benchmark for identifying suitable zones for commercial aquaculture.
 - Socio-Economic Development: This scientific data helps create newer career pathways and elevates the quality of life for coastal residents through evidence-based decision-making.
3. Trang City Municipality and Khlong Nang Noi Communities
 - Focus: Quality of Life and Green Science
 - Elevating Environmental Standards: Consistent monitoring of pH levels and temperature provides urban communities with the insights needed to manage wastewater effectively and maintain the water quality of Khlong Nang Noi in accordance with high living standards.
 - Local Innovation: Research data assists urban water users and agriculturalists in adapting their water usage practices to suit the specific physical characteristics and environmental conditions of the area.