Study of Water Quality Changes in Chang Canal from 2023 - 2026

Princess Chulabhorn Science High School Trang

Miss Kunlaphat Sontimuaeng, Miss Thananchanok Jitrawut and Miss Pariyakorn Phajonphai

Intoduction

Water quality

Chang canal, Trang Province, Thailand

Research Questions

1.How do changes in water quality over the past 4 years reflect the trend of environmental factors?

2.Is there any difference in water quality parameters based on physical and chemical characteristics?

Hypothesis

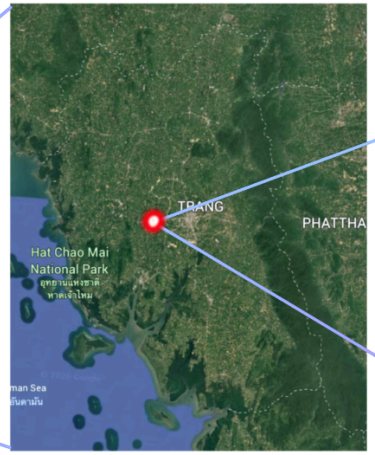
1. Changes in water quality over the past 4 years reflect changes in environmental factors in the study area.

2. The physical and chemical water quality parameters of each water source are different.

Study Site

Klong Chang,
Trang Province, Thailand

Thailand



Trang Province

7.55330◦N,99.55591◦E

Experimental method

Choose area of study

Material

Conductivity meter

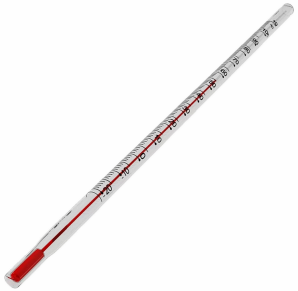
pH meter

DO meter

Laser meter

Salinity Tester

Turbidity Tube



Thermometer

Experimental method

Measure temperature of the water

Measure water turbidity

Experimental method

Measure the surface temperature of the water

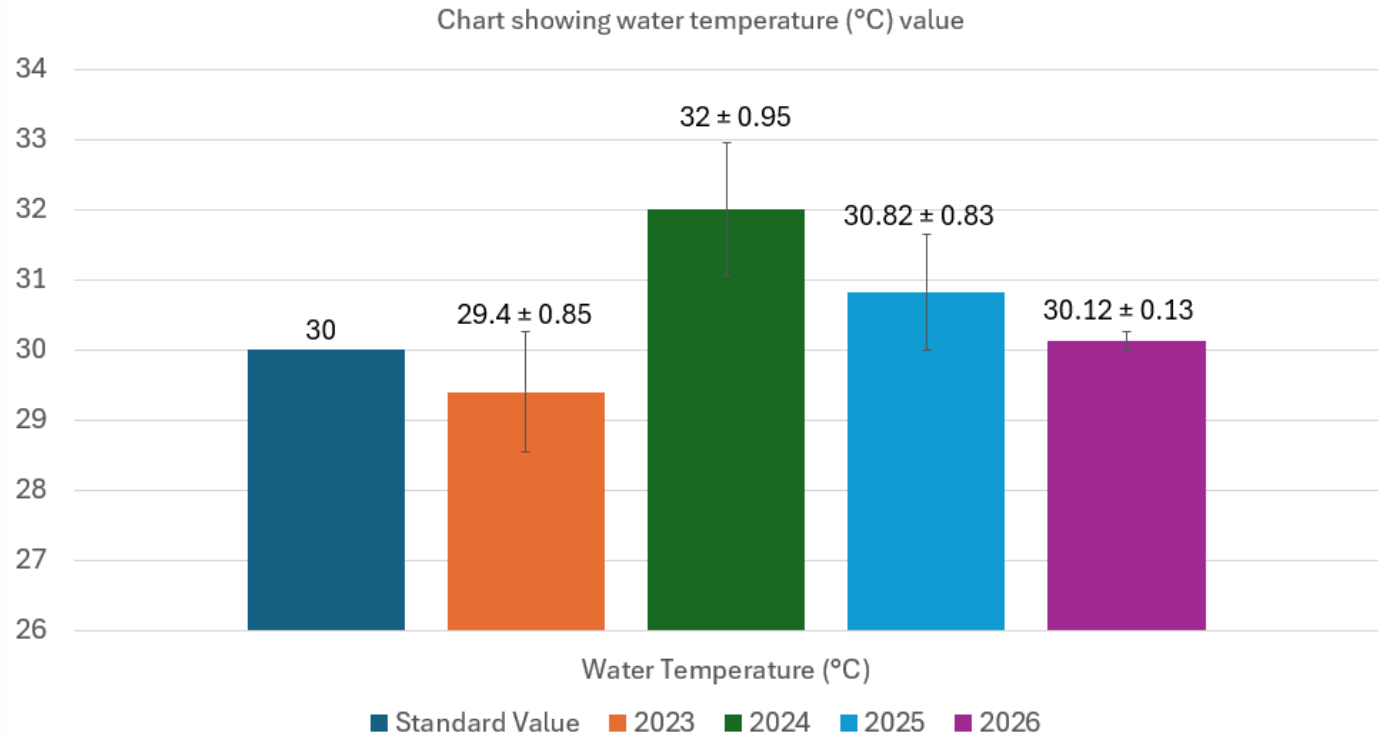
Measure water pH

Experimental method

Measure DO (Dissolved Oxygen) of the water

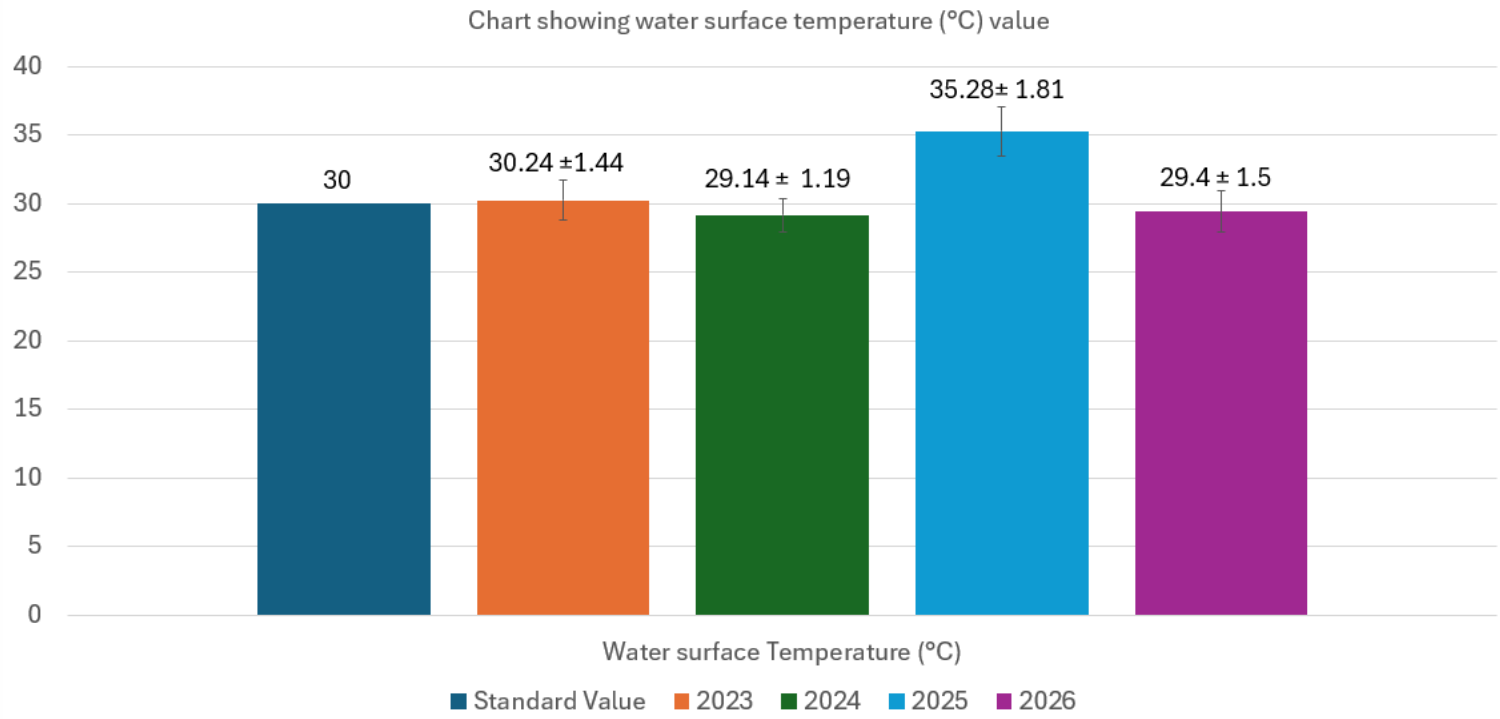
Measure water conductivity

Water temperature Results



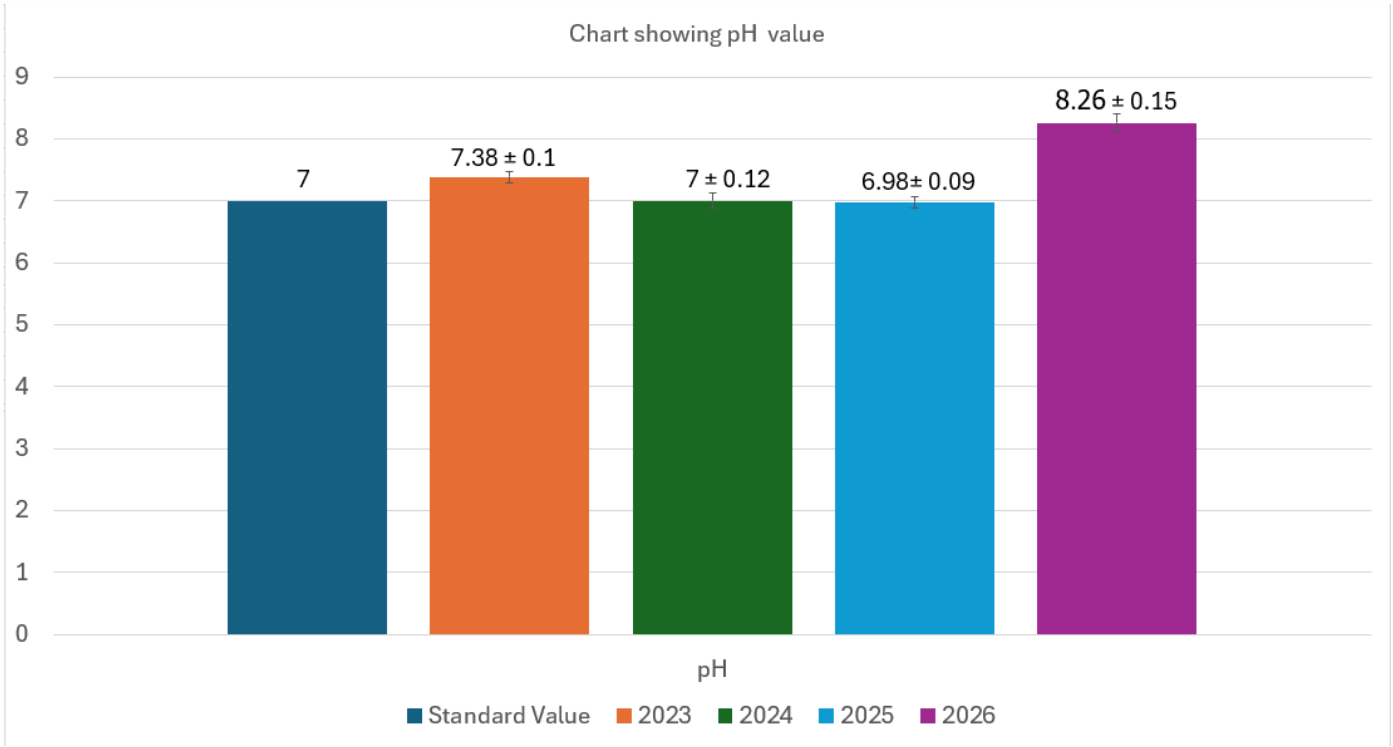
Graph 1) Water temperature comparison from 2023-2026

Water surface temperature Results



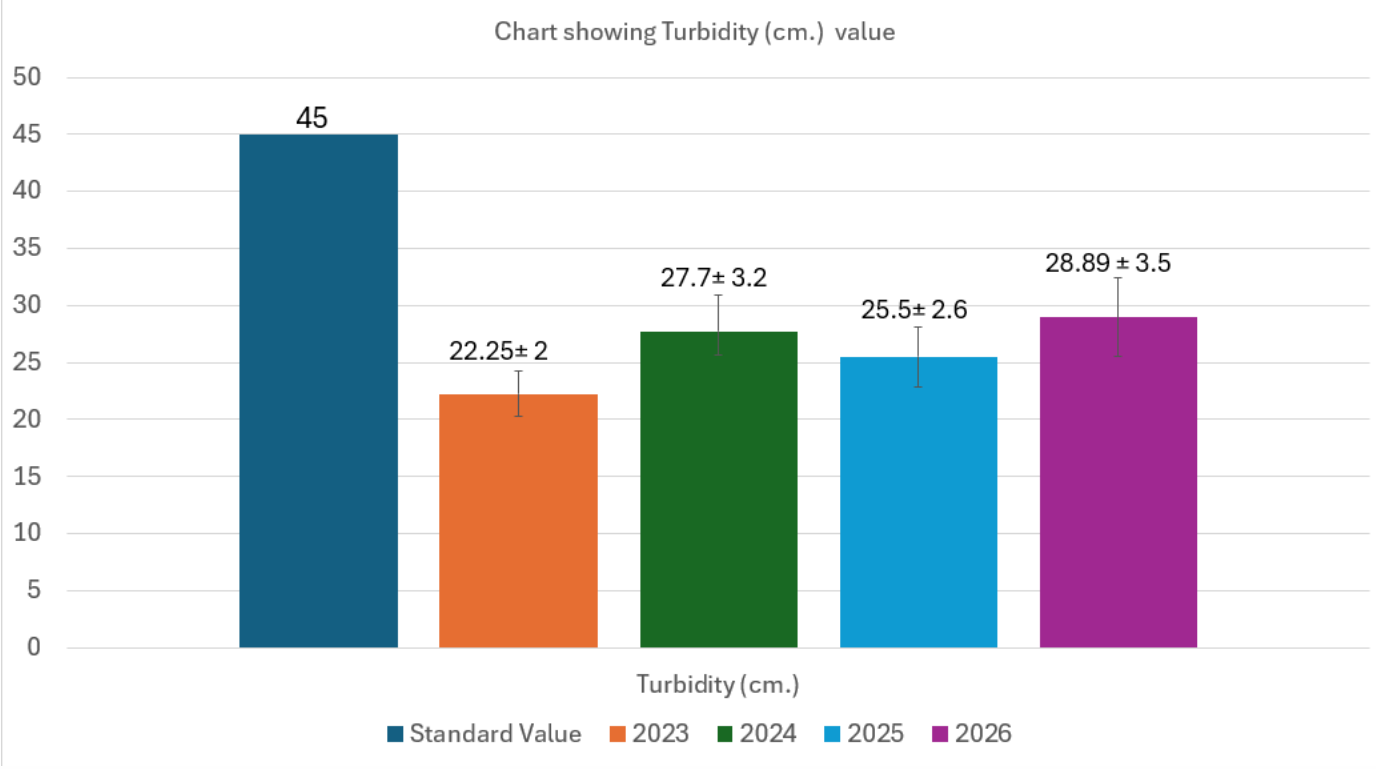
Graph 2) Water surface temperature comparison from 2023-2026

pH Results



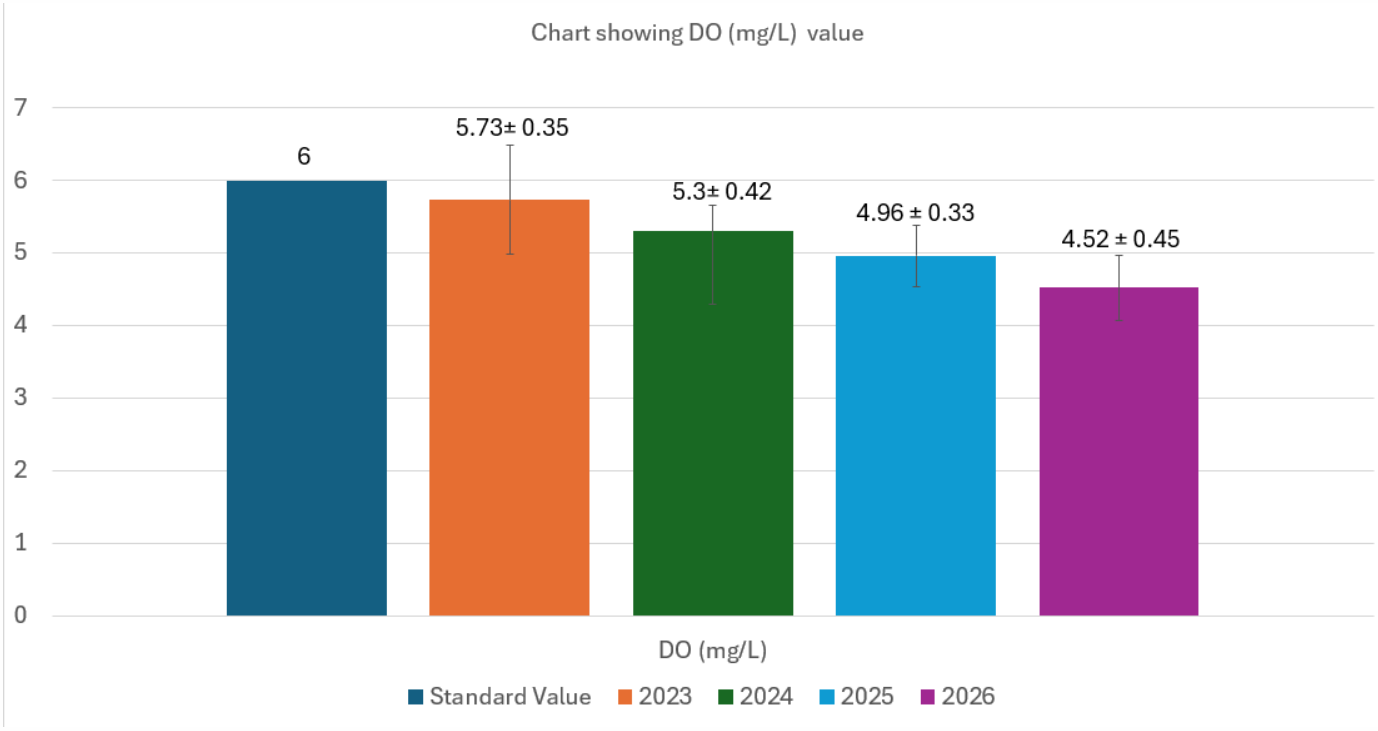
Graph 3) pH level comparison from 2023-2026

Turbidity Results



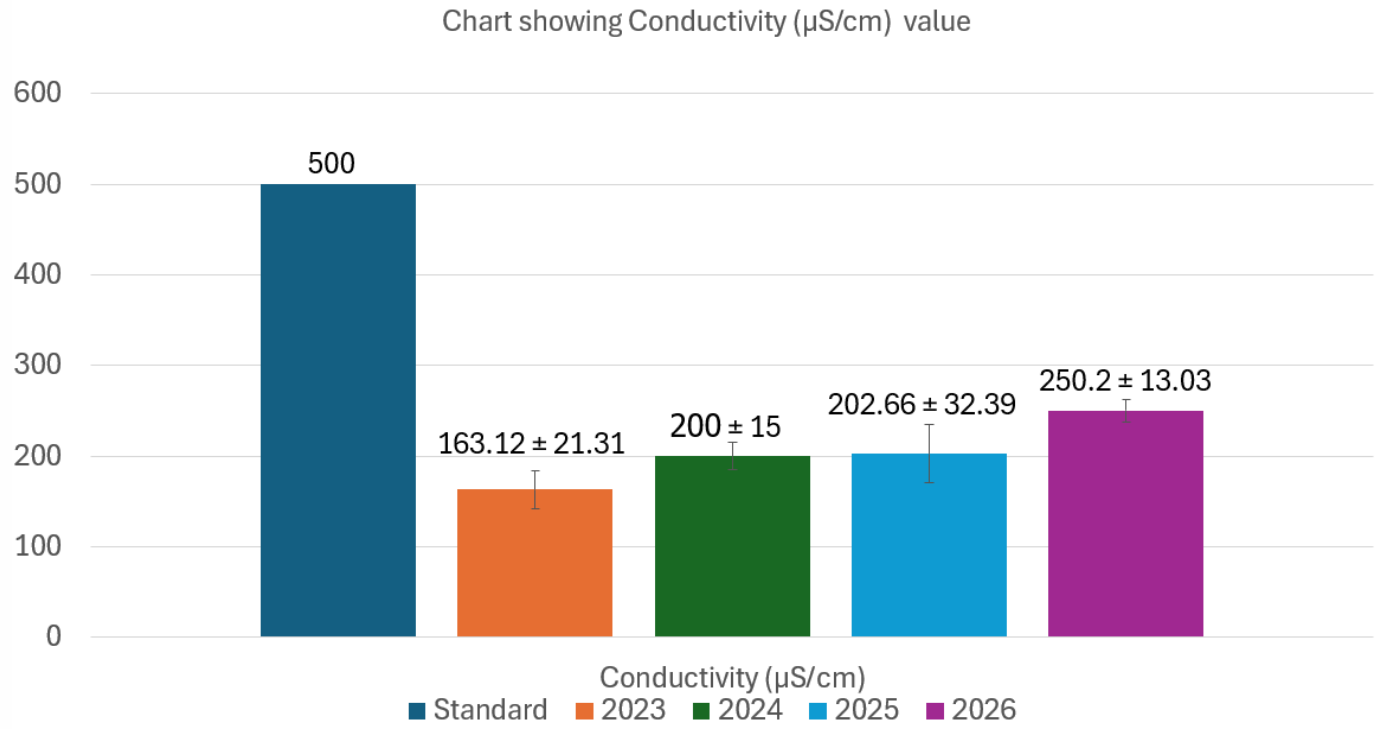
Graph 4) Turbinity comparison from 2023-2026

DO Results



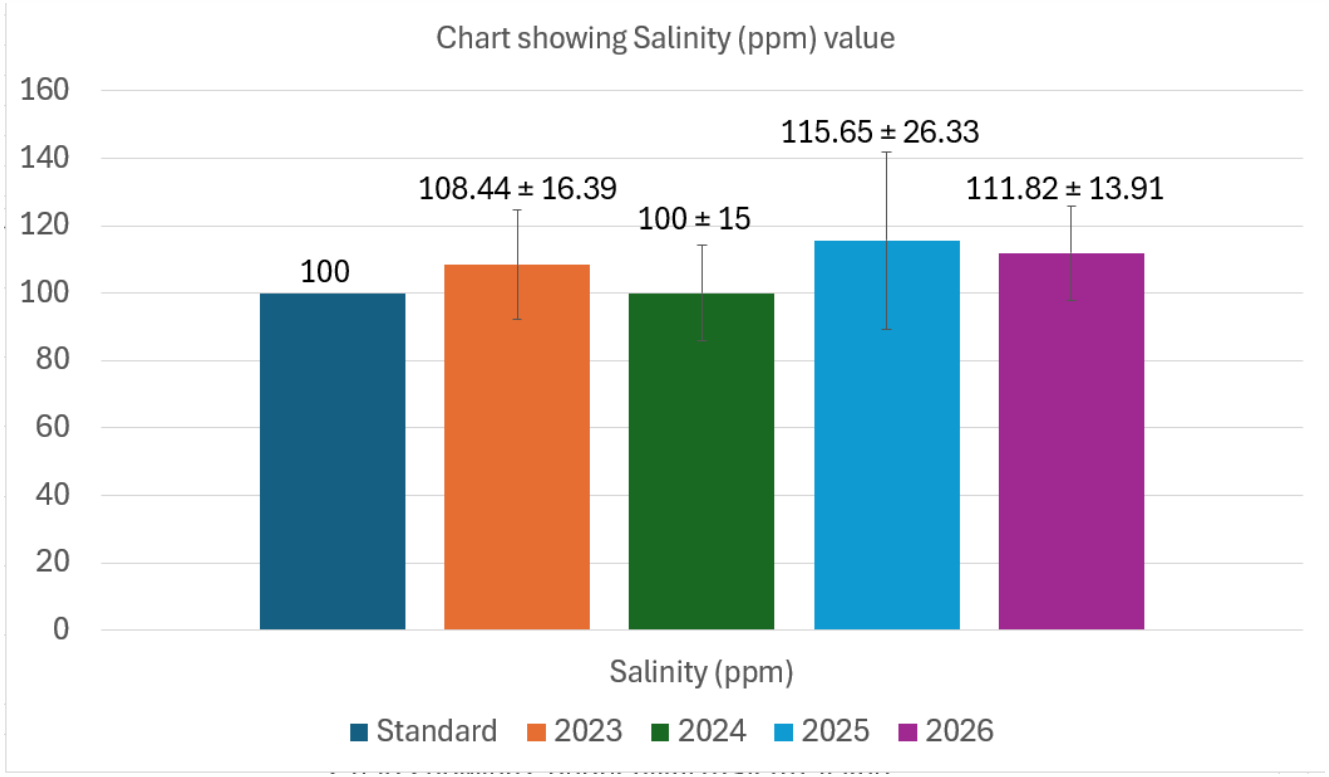
Graph 5) Dissolved Oxygen comparison from 2023-2026

Conductivity Results



Graph 6) Conductivity comparison from 2023-2026

Salinity Results



Graph 7) Salinity value comparison from 2023-2026

Conclusion

According to the analysis of water quality data in Khlong Chang from 2023 to 2026, water quality has clearly declined, with increasing turbidity, electrical conductivity, and salinity, while dissolved oxygen levels have decreased. These changes are influenced by climate conditions, monsoon effects, and human activities. If the situation continues without proper management, it may further degrade the freshwater ecosystem. Therefore, continuous water quality monitoring, pollution control, and increased community awareness are essential to support sustainable water use and long-term conservation of the canal.

Discussion

The results show that water quality in Khlong Chang has declined over time. Turbidity, electrical conductivity, and salinity increased, while dissolved oxygen decreased. These changes indicate a negative impact on the freshwater ecosystem.

According to previous studies, water quality in this area is affected by rainfall, monsoon winds, and human activities. During the rainy season, runoff and sediment increase turbidity. In addition, seawater intrusion, evaporation, and wastewater discharge contribute to higher salinity and conductivity. Higher water temperature and organic matter also reduce dissolved oxygen levels due to increased microbial activity.

In conclusion, water quality in Khlong Chang is influenced by climate conditions and human activities. Continuous monitoring and proper water management are necessary to protect the ecosystem and ensure sustainable water use.

References

กรมชลประทาน. (2556). รายงานการศึกษาคุณภาพน้ำผิวดินในประเทศไทย. กรุงเทพมหานคร: กระทรวงเกษตรและสหกรณ์.

กรมอุตุนิยมวิทยา. (2564). รายงานสภาพภูมิอากาศของประเทศไทย. กรุงเทพมหานคร: กรมอุตุนิยมวิทยา.

มหาวิทยาลัยขอนแก่น. (2557). การวิเคราะห์ข้อมูลทางสถิติสำหรับงานด้านสิ่งแวดล้อม. สืบค้นจาก https://sc2.kku.ac.th/stat/statweb/images/project%20stat/p57/p57_2.pdf

Supmea Auto. (2024). Turbidity of Water. สืบค้นจาก https://th.supmeaauto.com/training/turbidity-of-water

ThaiEnvi. (2023). คุณภาพน้ำและผลกระทบต่อสิ่งแวดล้อม. สืบค้นจาก https://thaienvi.com/article/view/309

Tandfonline. (2017). Effects of temperature and organic matter on dissolved oxygen in aquatic systems. Retrieved from https://www.tandfonline.com

Thank you