

A COMPARATIVE STUDY OF THE STATUS AND TRENDS IN THE PHYSICO-CHEMICAL WATER QUALITY OF THE PING RIVER IN CHIANG MAI PROVINCE OVER THE PAST 5 YEARS.

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ABSTRACT

The water quality of the Ping River has changed over time and may be influenced by climate change and human activities. This study compares water quality data from 2007 and 2019-2023, focusing on water temperature, electrical conductivity, transparency, and dissolved oxygen. The results indicate that these parameters show noticeable variations across different periods. The findings provide useful baseline information for long-term water quality monitoring and support sustainable management of the Ping River.

RESEARCH OBJECTIVES

- 1.To examine the effects of human activities on Ping River water quality.
- 2.To evaluate the long-term changes in physical and chemical water quality parameters of the Ping River

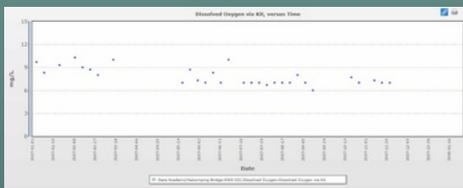
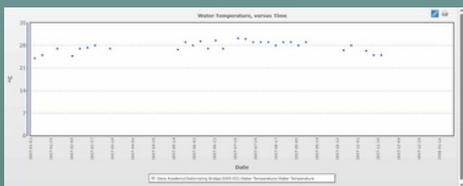
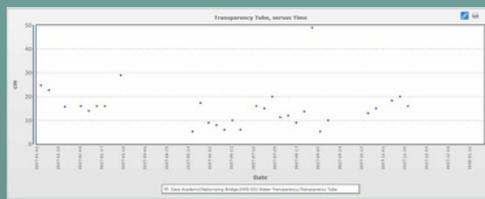
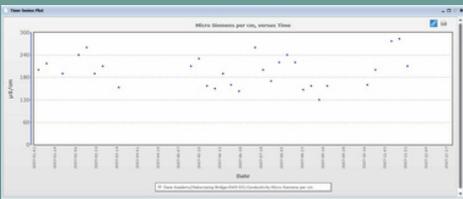
RESEARCH QUESTIONS

1. Which physicochemical factors most strongly influence water quality in the Ping River within Chiang Mai Province?
- 2.Does the long-term trend of increasing Conductivity and decreasing Transparency reflect the impact of urbanization in Chiang Mai on the Ping River's health?

RESEARCH METHODS

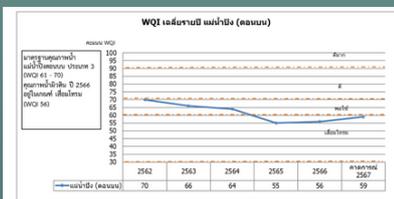
1. Study Site Selection
2. Study the environment of each study point through Google Earth
3. Explain the results of studying the environment at each study point
4. Survey the area and test the water in all areas including the physical, chemical, g and biological qualities following the GLOBE testing process and insert all data into the GLOBE DATA website

RESULTS



ตารางที่ 2-5 แสดงผลการตรวจวัดคุณภาพน้ำบริเวณเขื่อนบางตาศาแม่น้ำปิง (ตอนบน) ประจำปี พ.ศ.2566

สถานี	พิกัด	DO (mg/L)	BOD (mg/L)	TSS (mg/L)	FCB (mg/L)	NH ₄ (mg/L)	UV254 (mg/L)	ค่าเฉลี่ยค่ามาตรฐาน	ค่าที่วัดได้	คุณภาพน้ำ
P10	สะพานวัดอุบลราชธานีเขื่อนบางตาศา 3 ตอน ข.บริเวณ	2.17	1.42	9,733	1,110	1.16	59	เกณฑ์ที่ 4	2.17	NH ₄
P11	สะพานวัดอุบลราชธานีเขื่อนบางตาศา 3 ตอน ข.บริเวณ	8.75	1.15	4,253	158	0.66	62	เกณฑ์ที่ 3	8.75	NH ₄
P113	สะพานวัดอุบลราชธานีเขื่อนบางตาศา 3 ตอน ข.บริเวณ	5.45	3.00	16,667	13,600	2.32	39	เกณฑ์ที่ 3	5.45	BOD TSS FCB NH ₄
P12	สะพานวัดอุบลราชธานีเขื่อนบางตาศา 3 ตอน ข.บริเวณ	5.83	1.40	16,333	2,699	1.19	54	เกณฑ์ที่ 4	5.83	NH ₄
P13	สะพานวัดอุบลราชธานีเขื่อนบางตาศา 3 ตอน ข.บริเวณ	9.56	1.91	13,733	433	2.96	47	เกณฑ์ที่ 3	9.56	NH ₄
P14	สะพานวัดอุบลราชธานีเขื่อนบางตาศา 3 ตอน ข.บริเวณ	6.72	1.95	13,733	530	1.87	50	เกณฑ์ที่ 3	6.72	NH ₄
	ค่าเฉลี่ย	14.0	1.20	120,000	14,000	0.90				



CONCLUSION

THE COMPARISON OF WATER QUALITY BETWEEN 2007 AND 2019-2023 REVEALS A SIGNIFICANT DECLINE IN RIVER HEALTH. BOTH CHEMICAL AND BIOLOGICAL DATA SHOW THAT THE ECOSYSTEM IS DETERIORATING DUE TO INTENSIFIED HUMAN ACTIVITIES AND TECHNOLOGICAL EXPANSION. AS URBANIZATION GROWS, CHEMICAL POLLUTANTS HAVE INCREASED, WHILE BIODIVERSITY HAS PLUMMETED, LEAVING BEHIND ONLY POLLUTION-TOLERANT SPECIES.

RESEARCH SCOPE

EDUCATIONAL INFORMATION

- Nakornping Bridge
- The bridge in front of the Kong Hin Hydrology Center, Hang Dong Sub-district, Hot District, Chiang Mai. Latitude: 18.1785288° Longitude: 98.630294°
- Nong Pla Sawai - Dong Hat Nak Bridge, Sop Tia Sub-district, Chom Thong District, Chiang Mai. Latitude: 18.358245° Longitude: 98.729117°
- Pa Daet - Tha Wang Tan Bridge, Pa Daet Sub-district, Mueang District, Chiang Mai. Latitude: 18.7366° Longitude: 98.9912°
- Mahidol Bridge (beside Provincial Police Region 5), Nong Hoi Sub-district, Mueang District, Chiang Mai. Latitude: 18.7600° Longitude: 98.9989°
- Pa Tan - Ban Wang Sing Kham Bridge, Pa Tan Sub-district, Mueang District, Chiang Mai. Latitude: 18.815255° Longitude: 98.99514°
- Cho Lae Bridge, Ban Cho Lae, Cho Lae Sub-district, Mae Taeng District, Chiang Mai. Latitude: 19.145994° Longitude: 99.007566°

RELATED FACTORS THAT NEED TO BE MEASURED

- Dissolved Oxygen
- Biochemical Oxygen Demand
- Ammonia
- Total Coliform Bacteria
- Fecal Coliform Bacteria
- Conductivity
- Water Temperature
- Water Transparency

RESEARCH PERIOD

January to December 2007 and January 2019 to December 2023

REFERENCES

Nakornping Bridge: SWS-03. (2026). GLOBE Science Data Visualization. Global Learning and Observations to Benefit the Environment (GLOBE) Program. https://vis.globe.gov/GLOBE/popUpContents.jsp?site_id=13428

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