



Water Quality Investigation with GIS Map Illustration of Water Quality using IDW method in Huay Had Sai Waterfall and Nong Nam Khiao Reservoir, Chonburi

International Virtual Science Symposium 2025
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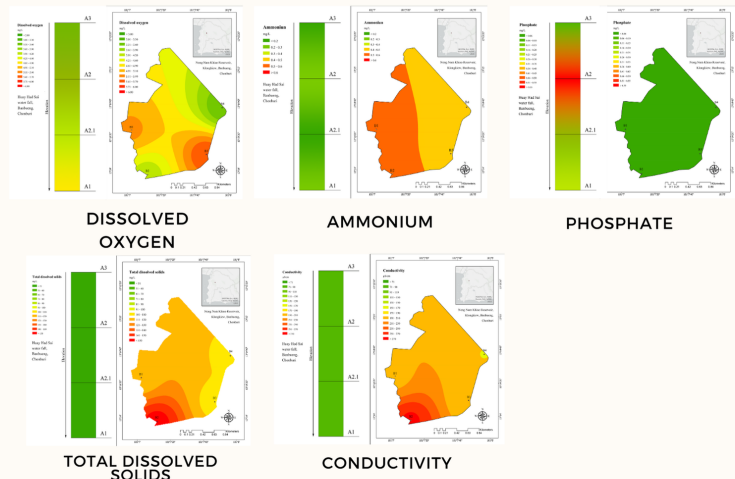
Abstract

The purpose of this study was to make a water quality comparison between the upstream point of Huai Sai Waterfall and the downstream point of Nong Nam Khiao Reservoir, Chonburi. The operation was divided into 3 steps. The first step was to determine the water sample points from Nong Nam Khiao Reservoir and Huai Had Sai Waterfall, 4 sample points in each place. The second step was collecting water samples and testing the water quality. This step has two parts: First, Testing the quality at the actual area by using a Multiparameter water quality instrument. Next part, sent to the laboratory for testing. Last step was field or environmental data collection. From the study, We found that At Huai Had Sai Waterfall, the temperature was 26.3 - 26.7 °C, pH was 6.09 to 6.78, dissolved oxygen was 3.33 - 4.8 mg/L, Conductivity and dissolved solid were 189.8 - 274.9. µS/cm, ammonium content The nitrate and phosphate values were between <0.2 - 0.2 mg/L, 0 mg/L and 0.025 - 0.6 mg/L, respectively. The temperature of Nong Khiaw Reservoir was 32.8 to 34.7 °C, pH was 6.99 to 7.98, the dissolved oxygen content was 3.32 - 5.70 mg/L, conductivity and dissolved solids were 105.30 - 155.35 µS/cm, ammonium content. The nitrate and phosphate values were between 0.4 - 0.6 mg/L, 0 mg/L and 0.025 - 0.04 mg/L, respectively. The experiments showed that the water quality at Huay had Sai Waterfall was better than the Nong Nam Khaio reservoir because the ammonium content, Conductivity and dissolved solids were significantly less.

Result

parameter	Unit	Huai Hat Sai				Kheow-Khao Chomphu			
		A1	A2	A2.1	A3	B1	B2	B3	B4
Temperature	degree Celsius	26.7	26.3	26.6	26.4	34	32.8	34.7	32.3
pH	-	6.78	6.47	6.22	6.09	7.64	6.99	7.98	7.11
Dissolved oxygen	mg/L.	4.8	3.79	4.11	3.33	5.18	4.02	5.7	3.32
Ammonium	mg/L.	0.2	0.2	<0.2	<0.2	0.6	0.6	0.4	0.4
Ammonia	mg/L.	-	-	-	-	-	-	-	-
Nitrate Nitrite	mg/L.	ND.	ND.	ND.	ND.	ND.	ND.	ND.	ND.
Phosphate	mg/L.	0.025	0.6	0.16	0.03	0.025	0.0416	0.03	0.025
Conductivity	µS/cm	80.5	78.5	79.6	74.0	202	274.9	191.9	189.8
TDS	mg/L.	50.70	49.40	50.70	41.60	111.80	155.35	105.30	107.90
CCME WQI		91.85				90.69			

GIS Map by part of parameter



Introduction

Currently, the world is experiencing a shortage of water quality and a scarcity of available water resources with the demand for water.



Purpose

The purpose of this study was to compare the water quality between the upstream point of Huai Hat Sai Waterfall and the downstream point of Nong Nam Khiao Reservoir in Chonburi.

Hypothesis

The water quality at the upstream source has been better than water quality at the downstream area.

Tool



YSI, a Xylem brand Professional Plus (ProPlus) Multiparameter Instrument



Quantofix Nitrate Nitrite Test kit

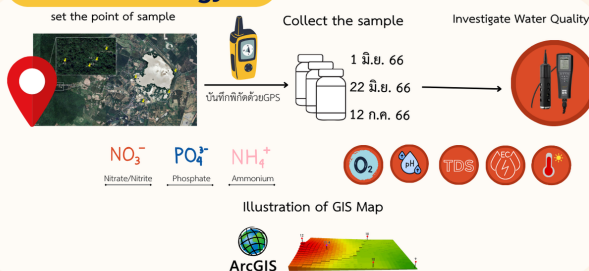


Vunique Ammonia Test kit

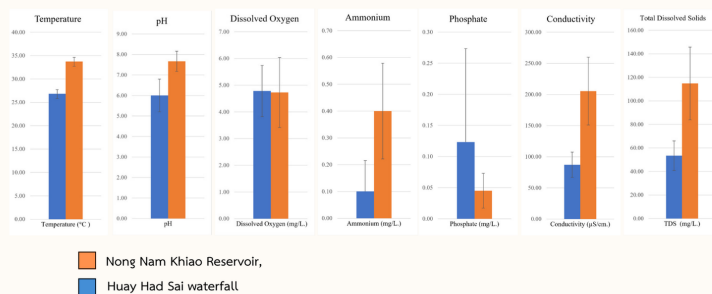


Phosphate Field Test Kit

Methodology



Compare by parameter



Conclusion

BASED ON THE SURVEY AND EXPERIMENT, WE CONCLUDED THAT THE WATER QUALITY AROUND HUAI HAD SAI WATERFALL IS BETTER THAN THE WATER QUALITY AROUND NONG NAM KHIAO RESERVOIR. THIS CONCLUSION ALIGNS WITH OUR HYPOTHESIS, AS THE CONDUCTIVITY VALUES AT THE UPSTREAM POINTS ARE LOWER THAN THE VALUES AT THE DOWNSTREAM, CORRESPONDING TO THE TOTAL DISSOLVED SOLIDS (TDS) VALUES. ADDITIONALLY, OUR DISCOVERY INDICATED THAT THE AMOUNT OF AMMONIUM (NH₄⁺) IN THE WATER WAS LOWER UPSTREAM THAN DOWNSTREAM, SUGGESTING THE PRESENCE OF BACTERIA BREAKING DOWN VARIOUS WASTES, EXCREMENT, AND SMALL AMOUNTS OF LIVING ORGANISMS.

Refferent

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