

# Investigation and analysis of water quality in Xinglong Park, Taipei City

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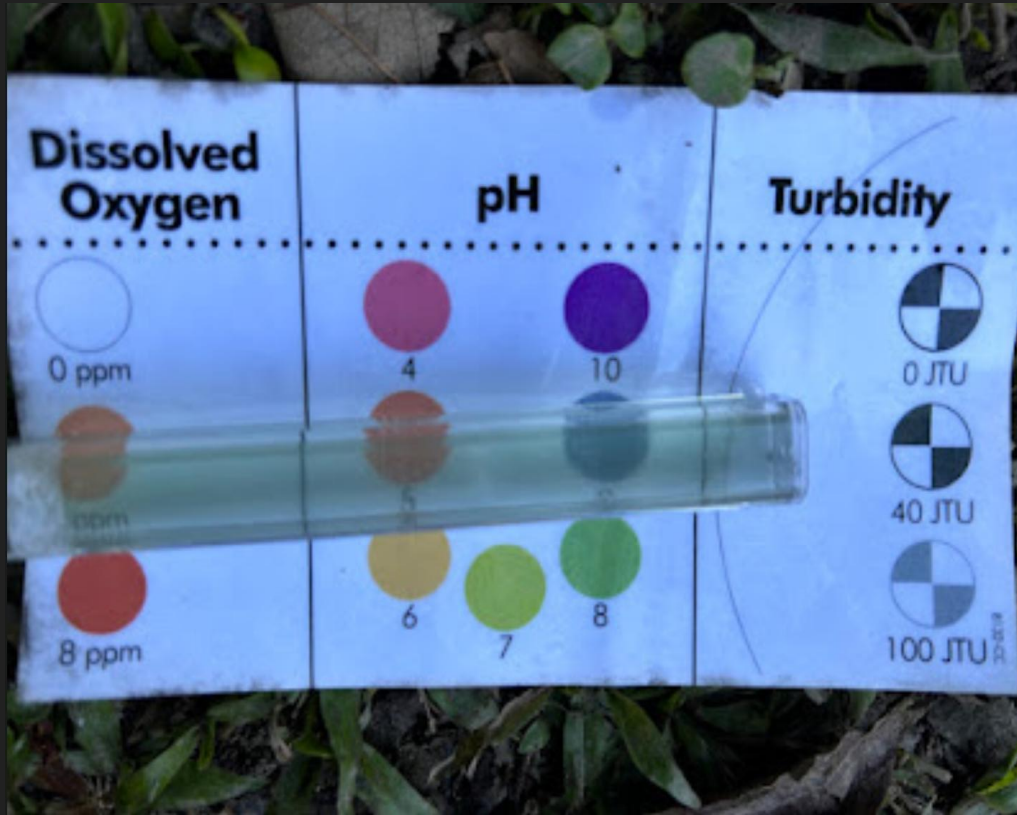
# 1-1. Research motivation

I was curious about whether the pollution sources in the water would have an impact on water quality, and wanted to understand the principles behind the phenomenon



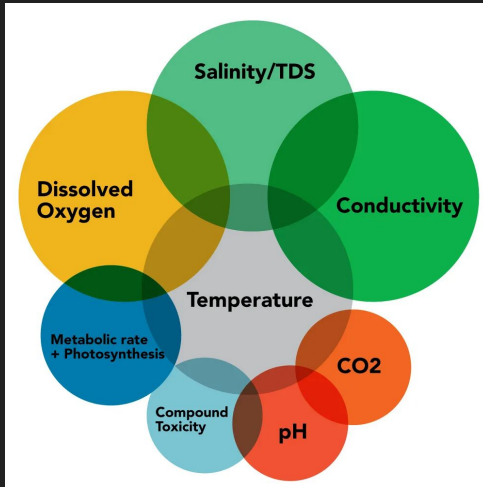
(from: dead flies on gray pavement, Fly, Ants, Insect, Pest, Macro, fauna, HD wallpaper)

## 1-2. Previous research:



# 1-3. Research purpose:

- (1) **Literature discussion and actual operation of changes in pH value, temperature, turbidity, dissolved oxygen and amount of plastic particles.**
- (2) Local residents' standards and opinions on water quality.
- (3) Find sources of pollution and propose solutions.







## 2. literature discussion

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Finally, in order to consolidate the core spirit of this paper, I used the keywords water quality or microplastic to search for relevant literature on the IVSS page of the GLOBE official website. I found that other people had done similar research and discussions, and conducted literature discussions.

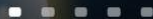


Who Uses GLOBE

In the paper "Research on Domestic Wastewater Quality Treatment in Tainan City Urban High School Campus" discovered through government and official regulations, researcher Li Junxian even cited information from the **Environmental Protection Agency** to strengthen enforceability.

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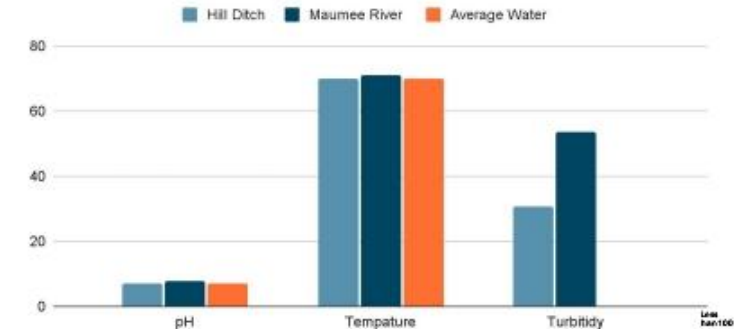
## 2. literature discussion

The article delves into a study comparing fish habitat quality in Hill Ditch and the Maumee River. It reveals that Hill Ditch, located behind NSTC, has slightly superior water quality for fish, supported by marginal advantages in pH, temperature, and turbidity. The research concludes that Hill Ditch provides a better habitat for fish than the Maumee River.

Referring to how others present data and content. In addition to tables, the same parameters in different locations can also be converted into graphs for comparison.

### Is the Water Quality in the Maumee River or Hill Ditch better for fish?

pH, Temperature, Turbidity in Hill Ditch, Maumee River and Average Water



The chart on the top shows that Hill Ditch (the creek in the back of NSTC) has slightly better water quality for fish than the Maumee Rivers water.

Hill Ditch

Maumee River

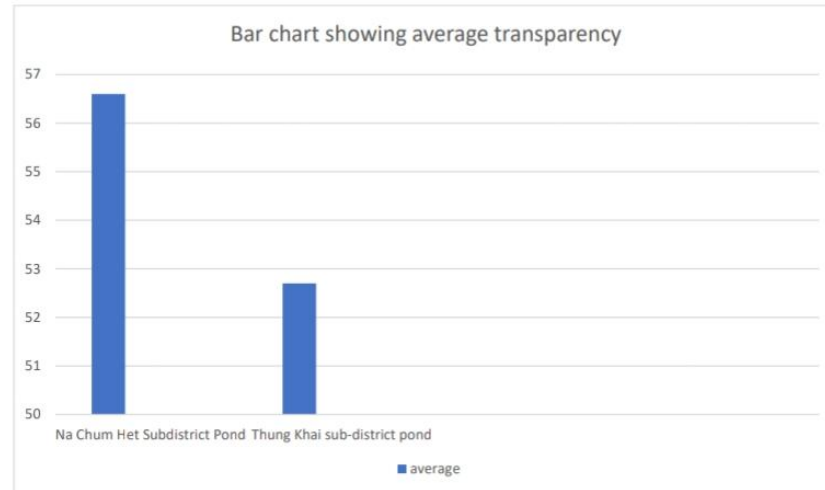
## 2. literature discussion

From the comparison of water quality in natural pools Na Chum Het and Thung Khai sub-districts In Yan Ta Khao District, Trang Province, it was found that the quality of water .

he average of each parameter can be calculated to illustrate the overall condition of the ecological pool.

location	1st time	2st time	3st time	average
Na Chum Het Subdistrict Pond	60.5	59	50.3	56.6
Thung Khai sub-district pond	33	60	65	52.7

From Table 4, it was found that water sources from Na Chum Het Subdistrict More transparency Water source from Thung Khai Subdistrict .



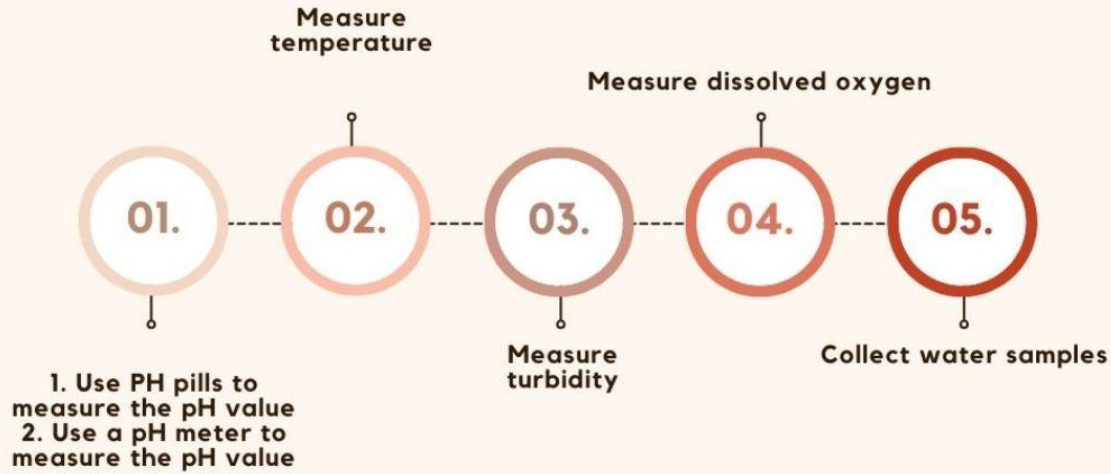
### 3. research methods



parameter	tool	method
Dissolved oxygen	visual grade pills	The purpose is to measure the oxygen content in liquids. First add visual grade pills to the measured object, wait until it dissolves, and then use test paper to record the data. Compare the dissolved oxygen content of the water sample and the standard reference to the ratio of possible polluting original substances to measure the water. same amount of dissolved oxygen.
pH value	pH Wide Range pills	The purpose is to measure the acidity and alkalinity in liquids. First add pH Wide Range pills to the measured object, wait until it dissolves, and then use test paper and measuring strips to record the data. Compare the water sample and the standard reference pH value to the ratio of possible polluting original substances. , to determine the pH value of water samples.
Turbidity	round bottom of cup	The method is to directly use the measuring cup to measure the liquid. First check the clarity of the circle at the bottom of the cup, then add the measuring strip and then add the measuring strip. After recording the two data, compare the water sample and the standard turbidity for possible contamination sources. The ratio of substances to determine the turbidity of a water sample.
cellulose fibres	disc test paper	Collect 2 bottles of sample water, use test paper to introduce into the measuring cup, look at the substances filtered out by the test paper and the substances in the water, and then extend the discussion.



# 3. research methods



### 3. research methods



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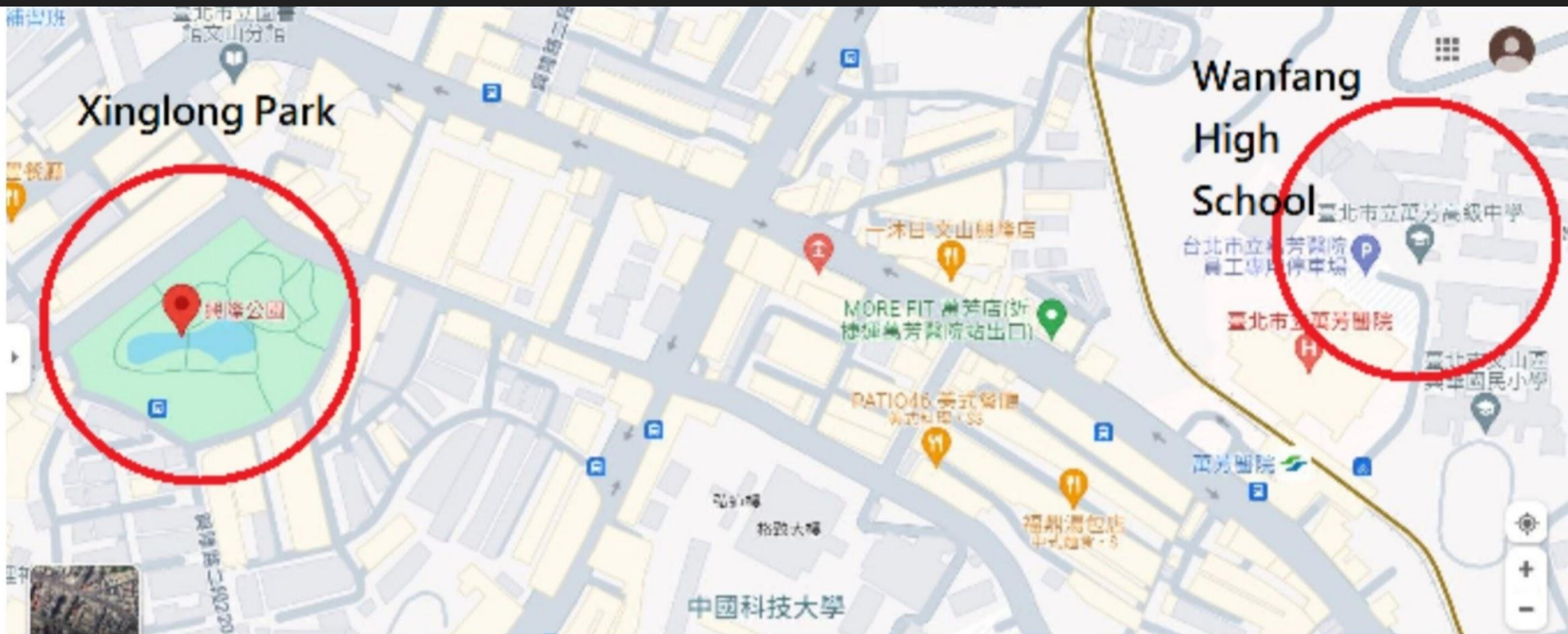


### 3. research methods





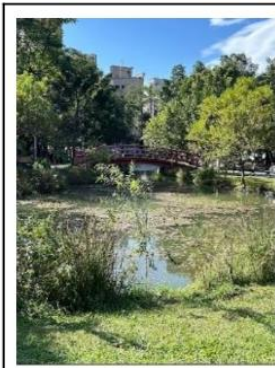
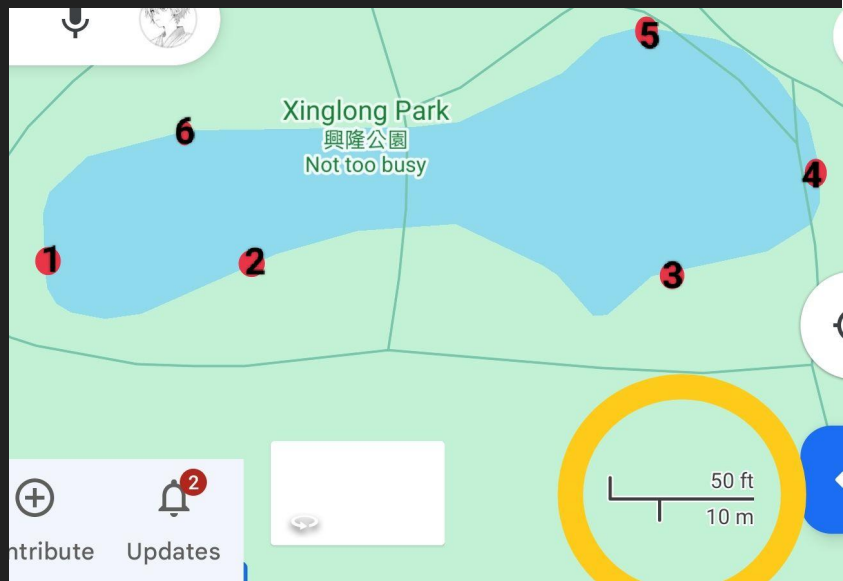
### 3. research methods



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# 3. research methods



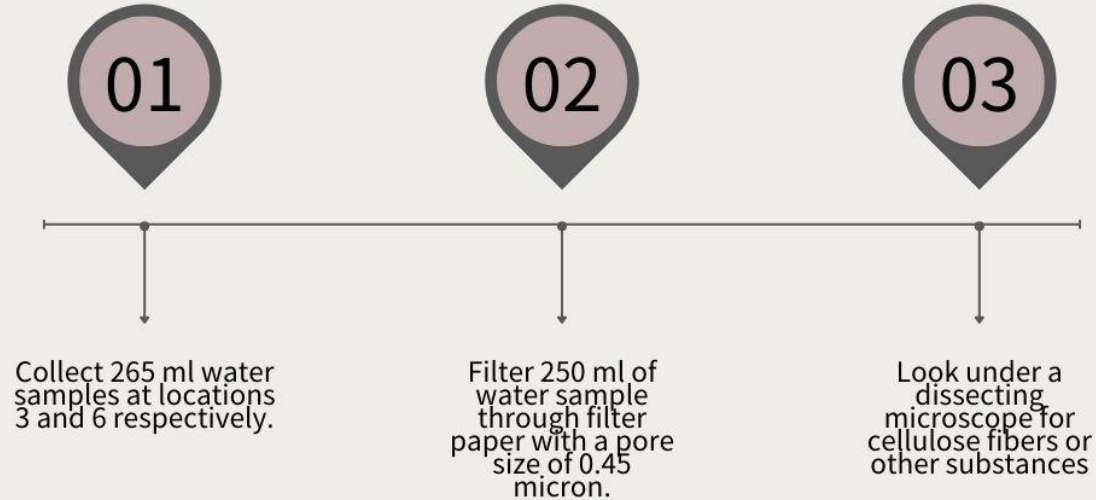
### 3. research methods

地點	GPS	PH值:丸/電子	溫度 (°C)	濁度 (JTU)	溶氧量 (ppm)
1	25°00'01.04"N 121°33'04.74"E	7.5/7.5	18.6	100	2
2	25°00'.00.57"N 121°33'03.49"E	7.8/7.7	18.3	40	1
3	25°00'00.16"N 121°33'02.53"E	7.7/7.6	18.2	50	2
4	25°00'00.12"N 121°33'03.33"E	7.0/7.5	17.9	50	1
5	25°00'00.22"N 121°33'04.5"E	8.5/8.3	18.3	40	2.5
6	25°00.0064"N 121°33.05.35"E	7.0/7.6	18.9	30	1



# 3. research methods

## 流程圖



# water sample 6

- plant roots or hairs
- algae
- cellulose fibres
- Not sure

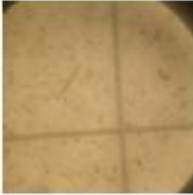

(but it shouldn't be cellulose fibers)

Photo code	shape	color	size(mm)	guess
	Slender strips, not equally thick in the middle and at both ends.	brown	0.16×0.1	hair
	Slender strips, ranging from thick to thin overall. Not sure if it's extra thick or translucent. Very similar to W4N1	brown	0.2*0.006	plant roots or hairs
	Slender strips, ranging from thick to thin overall. Not sure if it's extra thick or translucent. Very similar to W4N1.	brown	0.32*0.006	plant roots or hairs
	Slender strips, ranging from thick to thin overall. Not sure if it's extra thick or translucent. Very similar to W4N1.	brown	0.32*0.006	plant roots or hairs

# water sample 6

- plant roots or hairs
- **algae**
- cellulose fibres
- Not sure

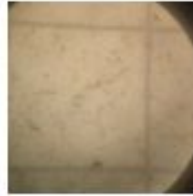

(but it shouldn't be cellulose fibers)

Photo code	shape	color	size	guess
	Slender strips, equally thick.	green	0.09*0.006	algae
	Slender strips, from thick to thin overall	green	0.1*0.006	algae

# water sample 6

- plant roots or hairs
- algae
- **cellulose fibres**
- Not sure

(but it shouldn't be cellulose fibers)

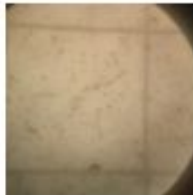

Photo code	shape	color	size	guess
	The slender strip is very long and extremely thin. It almost looks like it is broken in the middle. It is speculated that it is "twisted".	black	0.2*0.006	cellulose fibres
	Slender strips, equally thick, with a "twisted" appearance at both ends	black	0.16*0.006	cellulose fibres



# water sample 6

- plant roots or hairs
- algae
- cellulose fibres
- **Not sure**

**(but it shouldn't be cellulose fibers)**

Photo code	shape	color	size	guess
	The slender strip is very long and extremely thin. It almost looks like it is broken in the middle. It is speculated that it is "twisted".	black	0.2*0.006	cellulose fibres
	Slender strips, equally thick, with a "twisted" appearance at both ends	black	0.16*0.006	cellulose fibres

# water sample 3

- plant roots or hairs
- algae
- cellulose fibres
- Not sure

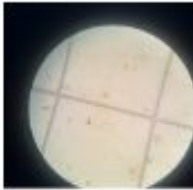
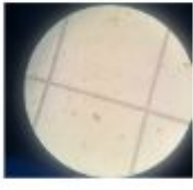
(but it shouldn't be cellulose fibers)

Photo code	shape	color	size	guess
	Slender strip	black	0.23*0.06	hairs
	Slender strip	brown	0.06*0.0066	plant roots or hairs
	Short and wide type	brown	0.05*0.02	plant roots or hairs

# water sample 3

- plant roots or hairs
- algae
- **cellulose fibres**
- Not sure

(but it shouldn't be cellulose fibers)

Photo code	shape	color	size	guess
	Slender strip	red	0.3*0.06	cellulose fibres
	Slender strip	red	0.12*0.06	cellulose fibres

## 4. Conclusion

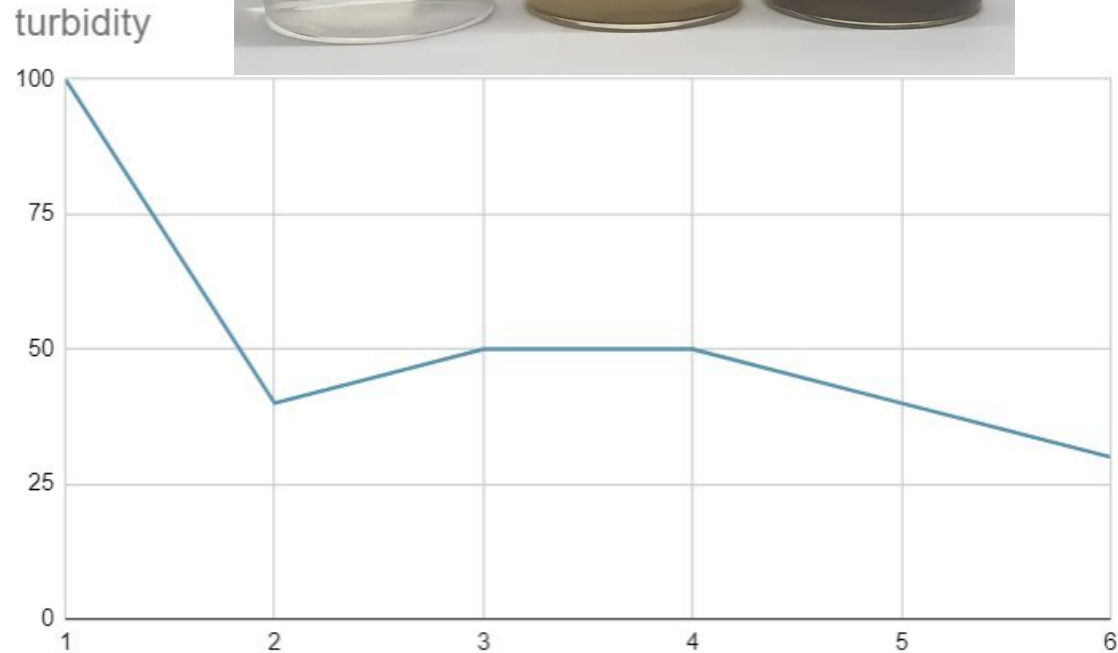
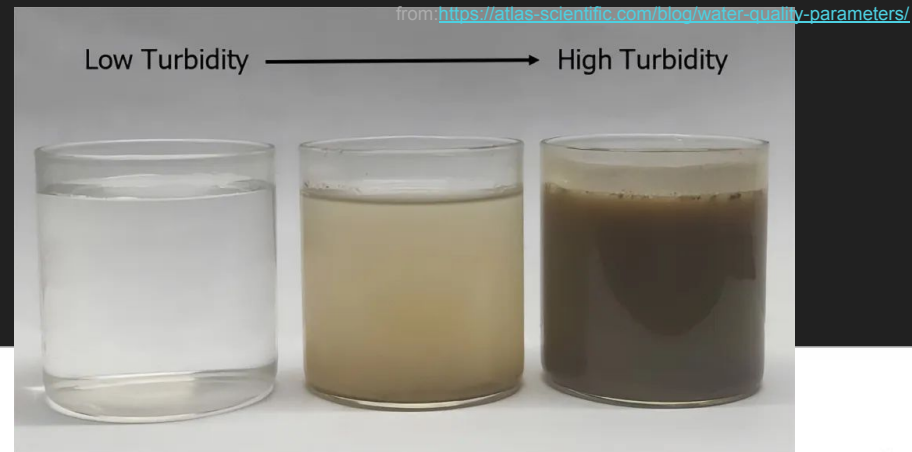
1. The turbidity of point 1 is **100 (JTU)**, and the turbidity of the other five points all falls between 1 and 2. It can be seen that the turbidity of point 1 is higher than that of other points.
2. Location 4 is next to the pond water circulation equipment
3. The temperature at location 4 is **17.9**, and the temperatures at the other five points all fall between 18.3 and 18.9. It can be seen that the temperature at location 4 is lower than the other points.
4. The pH value of location 5 is **8.5 (8.3)**, and the pH values of the other five points all fall between 7.0 and 7.8. It can be seen that the turbidity of location 1 is higher than that of other points.



## 5.discussion

1. The turbidity at location 1 is 100 (JTU), which is higher than other points.

The water depth was changed to location 1, which made it easier to install to the sediment below when collecting water samples. Next to location 1 is the wash basin, and sewage may flow directly into the ecological pool.



## 5.discussion

2. Location 4 is next to the pond water circulation equipment

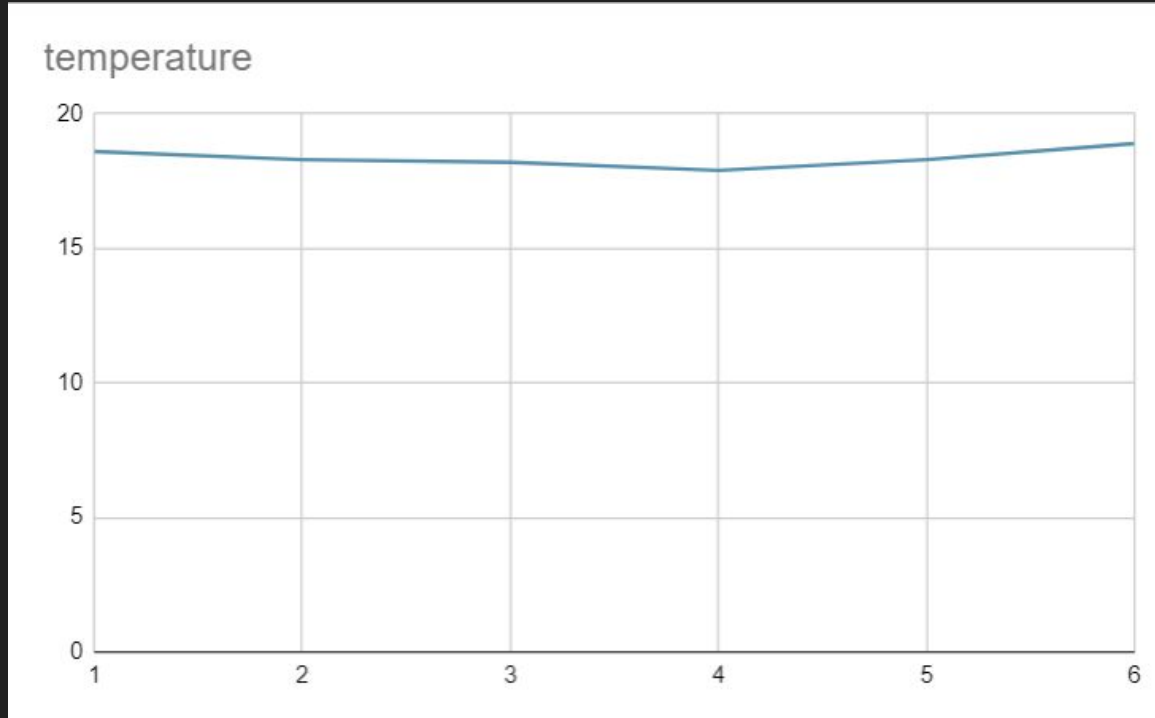
It is an important hub in the water conservancy system, so all parameters are median or relatively average values.



## 5.discussion

3. The temperature at location 4 is 17.9, which is lower than other points

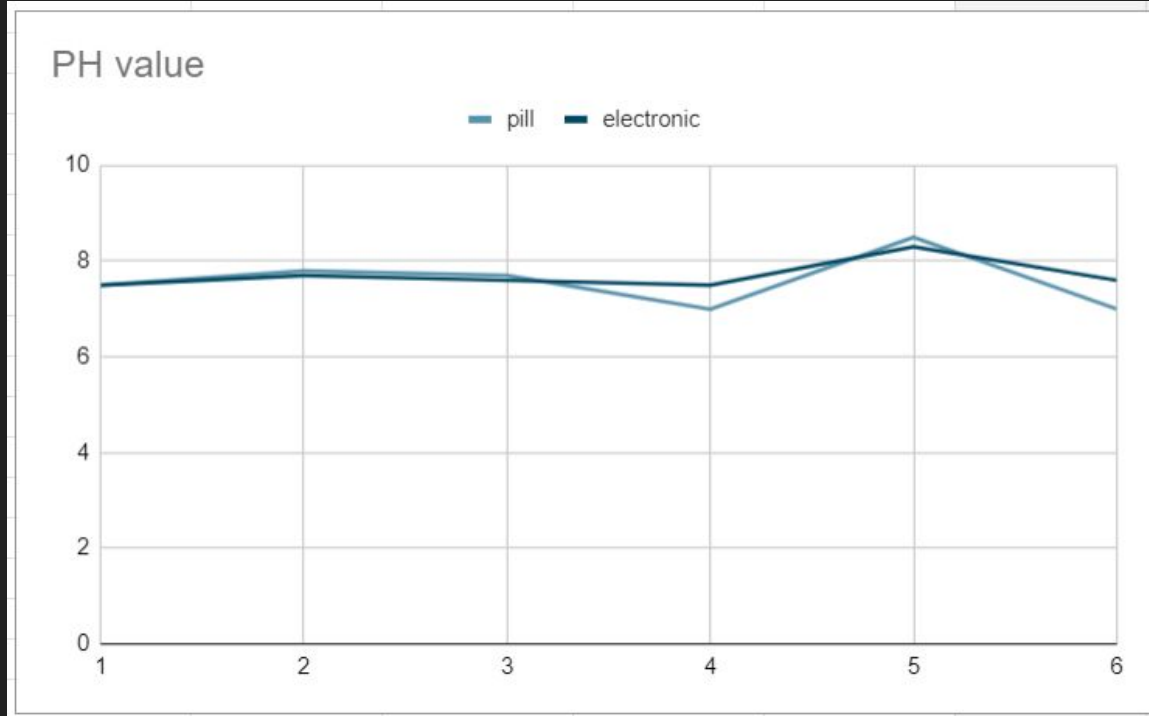
It is speculated that the temperature is lower because new water is coming in all the time.



## 5.discussion

4. The pH value of location 5 is 8.5

Site 5 is a relatively non-flowing water area next to the main pool, so there is less plankton, and an environment where more algae grows. Algae-shaped respiration and photosynthesis lead to a more alkaline situation.



## 參考文獻

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2. IVSS Comparison of water quality in natural ponds, Na Chum Het
3. National Digital Library of Theses and Dissertations in Taiwan  
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4. Essays for middle school students  
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5. ppt-A comparison of the water quality of natural pond
6. MMPT-2021-news-from-the-schools-n-2\_compressed
7. A MICROPLASTICS RECOGNITION GUIDE\_V2

thank you for your listening.

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