



Introduction and Objectives

Fujian Agriculture and Forestry University (FAFU) is located just across the street from the Min River in Fuzhou, China. This river multipurposely serves the FAFU campus, one of which includes being the source for its scenic waterfall and Guan Yin lake. Water from the Min river is treated on campus and then pumped up to the waterfall, which empties into the drain down the street, then enters the Guan Yin lake after passing through a grate, and is then once again returned to the Min River. Since the water in the waterfall and drain is constantly running, and due to the inability to sample from the inner portion of the lake, Systematic Random Sampling will be performed. Samples should be collected at all 3 locations at specified time intervals in order to determine the location with the highest contamination, therefore determining where to implement a monitoring system.

Objective: Determine a sampling plan on a water source in the FAFU campus in order to decide whether a monitoring system is appropriate, and if so, what location would be best suitable

Methods

Available sampling equipment used included:

Dipper	Glass jars
Gloves	Safety coat
Labels	Pen



Systematic Random Sampling, based on time intervals, was performed on 3 water sources on campus. Using the dipper, the running water at the locations was collected and placed in glass jars. The jars were labeled after collection and stored:

1. The waterfall source input



2. The running water in the drain



3. The Guan Yin Lake source input



Results

After collecting the samples, they should be analyzed for any types of bacteria, including coliforms such as E. Coli, as well as for any other dangerous substances and chemicals.



If laboratory results were to come back as:

1. High number of contaminants found in the Waterfall sample

Either an update on current campus treatment procedures or an update on the treatment system to remove more contaminant types would be advised. This would aid in preventing a major spread of the contaminant all the way down towards the Guan Yin lake, since the waterfall is the first entry point in the running water cycle.

2. High number of contaminants found in the drain sample

Due to the drain along the street being open, it is highly susceptible to waste. Implementation of a monitoring system in the drain would be unsuitable due to how easily human activity could contaminate it.

3. High number of contaminants found in the Guan Yin Lake

The current grate keeping large waste from entering the lake would need to be replaced with an electrical, constant running filter system. This system would be used not only for prevention of waste entering the lake through the drain, but could also aid in ridding the water of dumped waste, since the lake is occasionally used for recreational fishing.

Conclusion

No real testing was done on the samples, therefore, the following conclusion is hypothetical. Due to it being the main campus lake, where various activities take place and students gather to socialize and relax, the Guan Yin lake appears to be the most appropriate location to introduce a monitoring system. Whether there were to be contamination in the waterfall or in the drain, the final destination for that water on campus is the Guan Yin lake. Due to its large scale, multiple monitoring systems should be introduced at various sites around the lake. Constant monitoring should take place in the case of any high risk contamination to prevent harm to students.

Acknowledgements

Thanks to FAFU and undergraduate students Lucy, Claire, and Christine for helping me obtain information and translating the information on the water flow on campus, as well as graduate student Hailin for providing information on the Guan Yin lake.

Sponsors for high impact experiences for BESC and the BESC poster symposium include the Department of Plant Pathology and Microbiology, the College of Agriculture and Life Sciences, the Office of the Provost and Executive Vice President for Academic Affairs.