



Water Quality Monitoring for E. coli and Total Coliform on Coastal Carolina University's Campus

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Abstract

Water is important because we use it for our everyday use, whether it's for drinking, bathing, or for our enjoyment. Pollution causes the environment to have a harmful effect, which is usually caused by microorganisms (bacteria). Some of those Bacteria's include E. coli and Total Coliform. They're mainly found in the intestines of humans, in animals, in water, and also found in the soil. Most of these bacteria are harmless but it can provide you with symptoms of diarrhea, vomiting, and stomach cramps. When water comes in contact with feces the water is contaminated. There was a total of 256 samples of E. Coli and Total Coliform that was measured in CFU/100 mL (Colony Forming Unit). Samples came from the 544 West location at Coastal Carolina University. From 2011-2020 the number of E. Coli and Total Coliform increased compared to the standards and averages.

Introduction

The focus is to explain and provide information about the campus monitoring of stormwater quality at Coastal Carolina University; the samples were collected and analyzed for E. coli and Total coliform. Stormwater is water that does not soak into the ground. E. coli is defined as bacteria found in the environment, foods, and intestines of people and animals. E. coli are a large and diverse group of bacteria. Coliforms are bacteria that are always present in the digestive tracts of animals, including humans, and are found in their wastes. They are also found in plant and soil material E. Coli and Total Coliforms end up in water & water supplies by private wells, that have been contaminated with feces from infected humans or animals. Waste can enter the water through different ways, including sewage overflows, sewage systems that are not working properly, polluted storm water runoff, and agricultural runoff. Contamination after flooding usually causes E. coli and Total Coliforms.

Methods & Materials

There was a total of 256 samples of E. Coli and Total Coliform that was measured in CFU/100 mL (Colony Forming Unit). Samples came from the 544 West location at Coastal Carolina University. From 2011-2020 the number of E. Coli and Total Coliform increased compared to the standards and averages. When water comes in contact with feces the water is contaminated. Water samples can be collected, analyzed, stored, and measured in a numerous amount of ways. But for this particular experiment, Water samples were collected by using either a bucket, a tub or even a water bottle.

Conclusion

Water is needed because we use it for our everyday use. We need to help keep water clean and eliminate contamination. Contamination causes E. coli and Total coliform. Overall E. Coli and Total Coliform have increased. 256 samples were collected from 544 West and it proves that it has increased overtime. After analyzing and collected data based on coliforms and E.coli, water quality is very important. In this article we've introduced what was the problem, what was being tested and where it was being tested from. Then we have moved on to how it was measured and what was being measured. From that validation have been proven, results have been shown, and data have been collected. I hope that you have understand and realize how important water quality really is, why campus monitoring is effective, and how water affects us.

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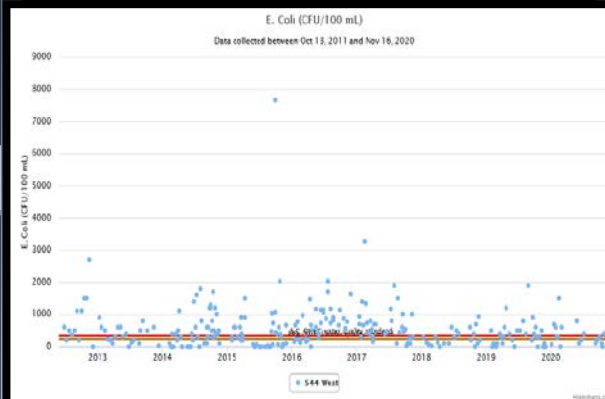


Figure 1: This represents E. Coli data collection from 544 West

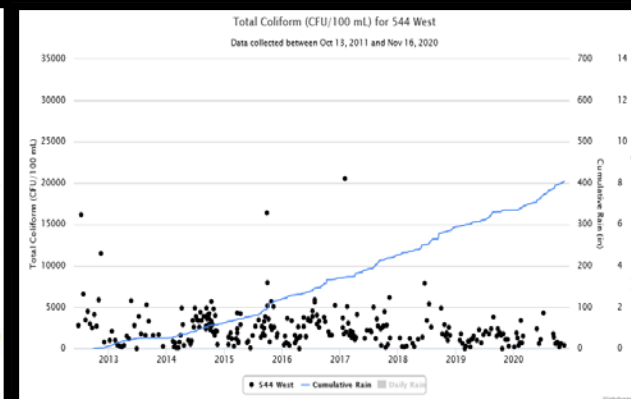


Figure 2: This represents data collection of Total Coliform from 544

Results & Discussion

256 samples	Mean	Standard D.	Median	Min	Max
E.coli	553	670	400	0	7667
Total Coli.	2437	2367	1900	0	20567

The EPA Maximum Contaminant Level (MCL) for coliform bacteria in drinking water is zero (or no) total coliform per 100 mL of water

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