Monitoring Microbial Loading in Storm Water Runoff from Various Surface Types

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Goals

- Quantify the concentration of total coliform, *E. coli, and enterococcus* in storm water runoff.
- Determine the influence of runoff material and influence of nearby plant life.
- Determine the influence of the interval between storms on first flush data.

Figure 1. (Left) The auto samplers at the Engineering sump. (Right) The pump house with collection gutters attached.

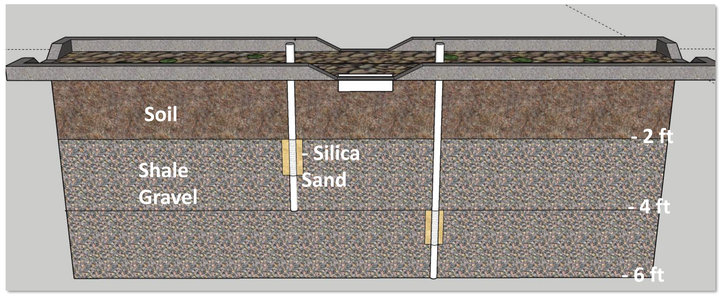

Figure 2. Diagram of the dry collection wells at the Early Childhood Education parking lot.

Research Methods

- Install ISCO auto samplers at sites with dry collection wells and install gutters for surface water collection.
- Collect water samples during different stages of a storm in bleached bottles.
- Simulate first flush rainfall and collect samples from the pump house roof.
- Analyze storm water samples using IDEXX Quanti-tray/2000 to determine the MPN of each sample.

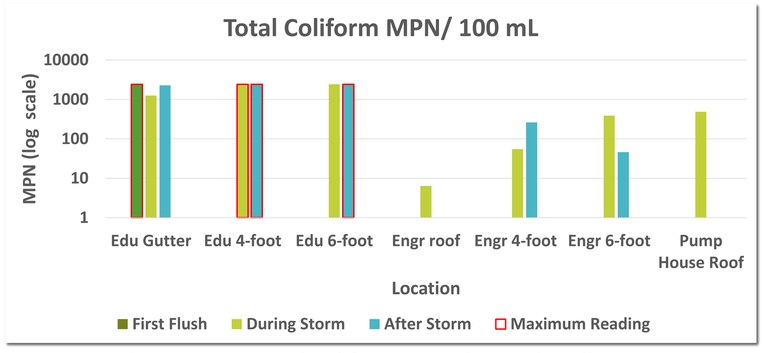

Figure 3. The average total coliform MPN for each collection site.

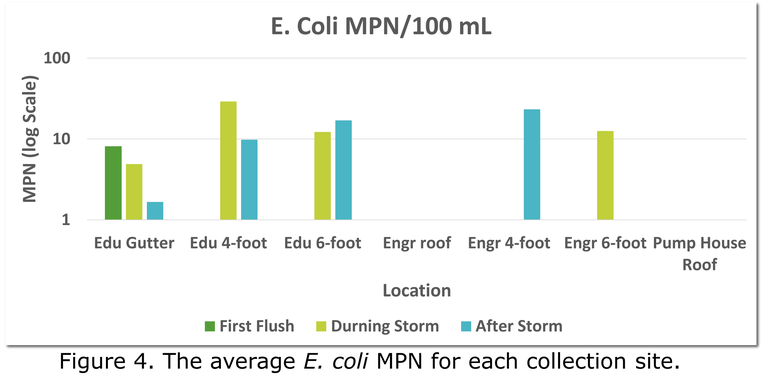

Figure 4. The average *E. coli* MPN for each collection site.

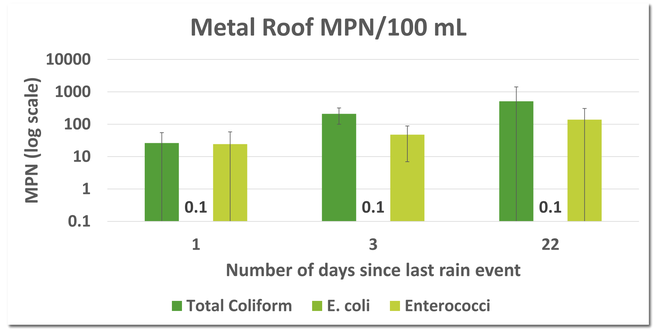

Figure 5. The average total coliform*, E. coli,* and enterococci for the metal roof.

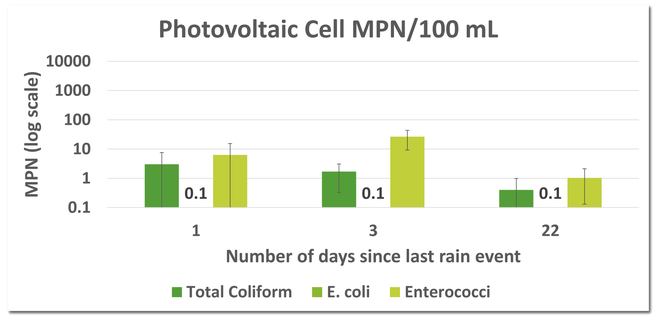

Figure 6. The average total coliform*, E. coli,* and enterococci for the photovoltaic cell.

Relevance

- Bacteria in storm water can lead to household contamination.
- Understanding what materials inhibit bacterial growth can inform material choices for storm water collection.
- Understanding the potential bacterial loading of storm water can aid in storm water cleanup design.

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