Identifying Sources of Contaminants in Urban Stormwater and Evaluation of their Removal Efficacy Across a Continuum of Urban Best Management Practices.

St. Cloud State University **&** **U.S. Geological Survey**

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Project Summary – August 2020

Activity 1: Identifying Stormwater Sources (*lead: St. Cloud State University*)

- All samples have been filtered, and their genetic materials were trapped on filter membranes.
- DNA/RNA extraction kits are back-ordered due to their mass usage in COVID-19 testing.
- Species-specific feces bacteria detections have been validated (Fig. 1) and quantitative PCR conditions have been optimized with specific primers, probes, and positive controls.
- Results will be presented at SETAC North America in November 2020 and UCOWR/NIWR Conference in Greenville, SC June 2021.
- An abstract had been submitted for the 2020 UCOWR/NIWR Water Resources Conference in Minneapolis, but the conference was canceled.
- A workshop on stormwater and CECs with 15 high school science teachers was held at St. Cloud State U.
- A manuscript on the biological effects of urban stormwater is in preparation.

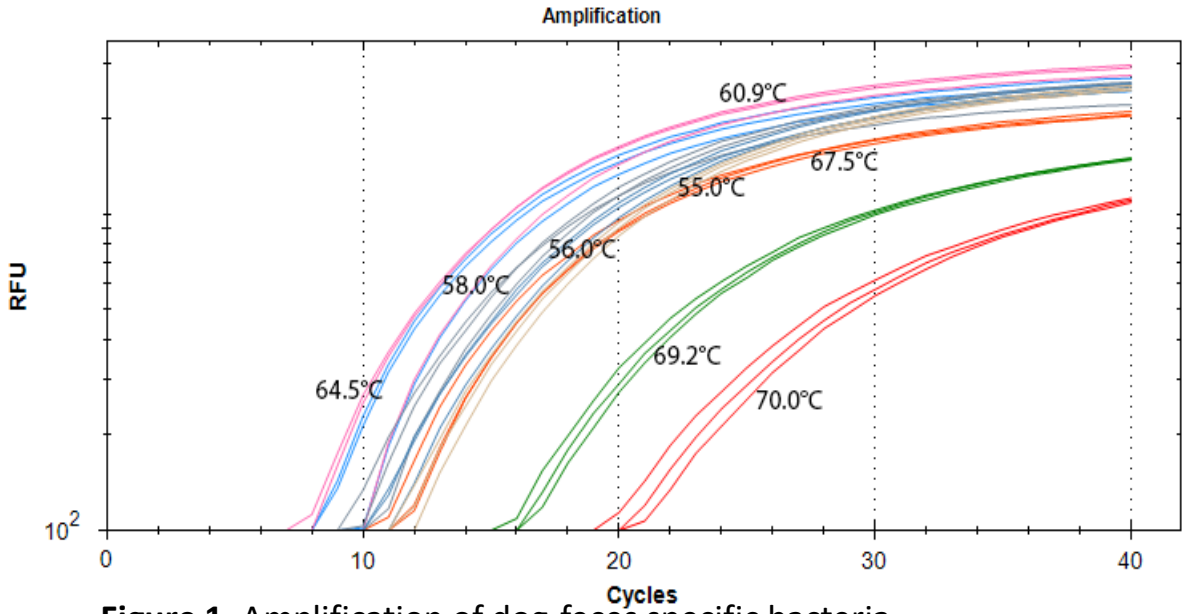

Figure 1. Amplification of dog-feces specific bacteria.

Activity 2: Stormwater Contaminant Loading (*lead: U.S. Geological Survey*)

- A total of 41 samples were collected:
  - 8 pond inflow
  - 8 pond outflow
  - 8 shallow groundwater near pond
  - 6 underground infiltration basin inflow
  - 6 groundwater near infiltration basin
  - 5 quality assurance samples
- Sample analyses ~75% complete
- Leveraged USGS funding to install pressure transducers in monitoring wells near two underground infiltration basins, which will result in ~1 year of continuous groundwater level data
- Results will be presented at both MNWRC & SETAC in Fall 2020
- Draft intro and methods of a report are in progress