LINKING INDICATORS OF FECAL CONTAMINATION TO HUMAN HEALTH RISK
Regulators have prioritized human sources

We have developed the ability to effectively differentiate between human and non-human sources

HF183 is the most utilized human genetic marker, with EPA recently promulgating an approved method

HF183 currently used for management purposes
PROBLEM STATEMENT

- No HF183 critical thresholds developed to date
- No HF183 health-related guidelines
- Limits ability to interpret HF183 levels and utilize those levels in a prioritization step
HF183 IN LOCAL WATERS

- Ubiquitous detection of HF183 in wet weather discharges
- Stormwater represents a complicated mixture of human sources
- We don’t have all of the appropriate information to use HF183 for management decisions
MAIN OBJECTIVE

Develop risk-based thresholds for HF183 in stormwater

- Thresholds can be used for multiple purposes including site prioritization
Utilize Quantitative microbial risk assessment (QMRA) framework to develop risk-based thresholds for HF183 in stormwater
APPROACH

- QMRA to model scenario where stormwater is the contamination source

- This scenario will utilize paired HF183 and pathogen concentration data from stormwater

- We will simulate this scenario multiple times with different concentrations of HF183 and different ingestion volumes
APPROACH

- Establish a relationship between HF183 and health risk in stormwater
- Can develop risk-based threshold for different risk benchmarks
PROJECT FRAMEWORK

1. Measure paired HF183 and pathogens in stormwater

2. Develop QMRA model

3. Use QMRA model to establish HF183 and human health risk relationship in stormwater
CRITICAL STEPS ALONG THE WAY

- Task 1: Refine pathogen measurement methods in stormwater
- Task 2: Paired measurement of pathogens and HF183 in stormwater
- Task 3: Build QMRA models from pathogen measurements in Task 2
- Task 4: Apply QMRA model framework to establish relationships between HF183 and health risk
PROPOSED SCHEDULE

- Task 1: Establish workgroup
- Task 2: Measurement optimization, SOPs and Technical Memo
- Task 3: Stormwater sampling, Technical Memo
- Task 4 and Task 5: Develop QMRA models, Develop risk-based thresholds, Final report

Year 1: Start of project
Year 2: Mid-project
Year 3: End of project
QUESTIONS??????

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