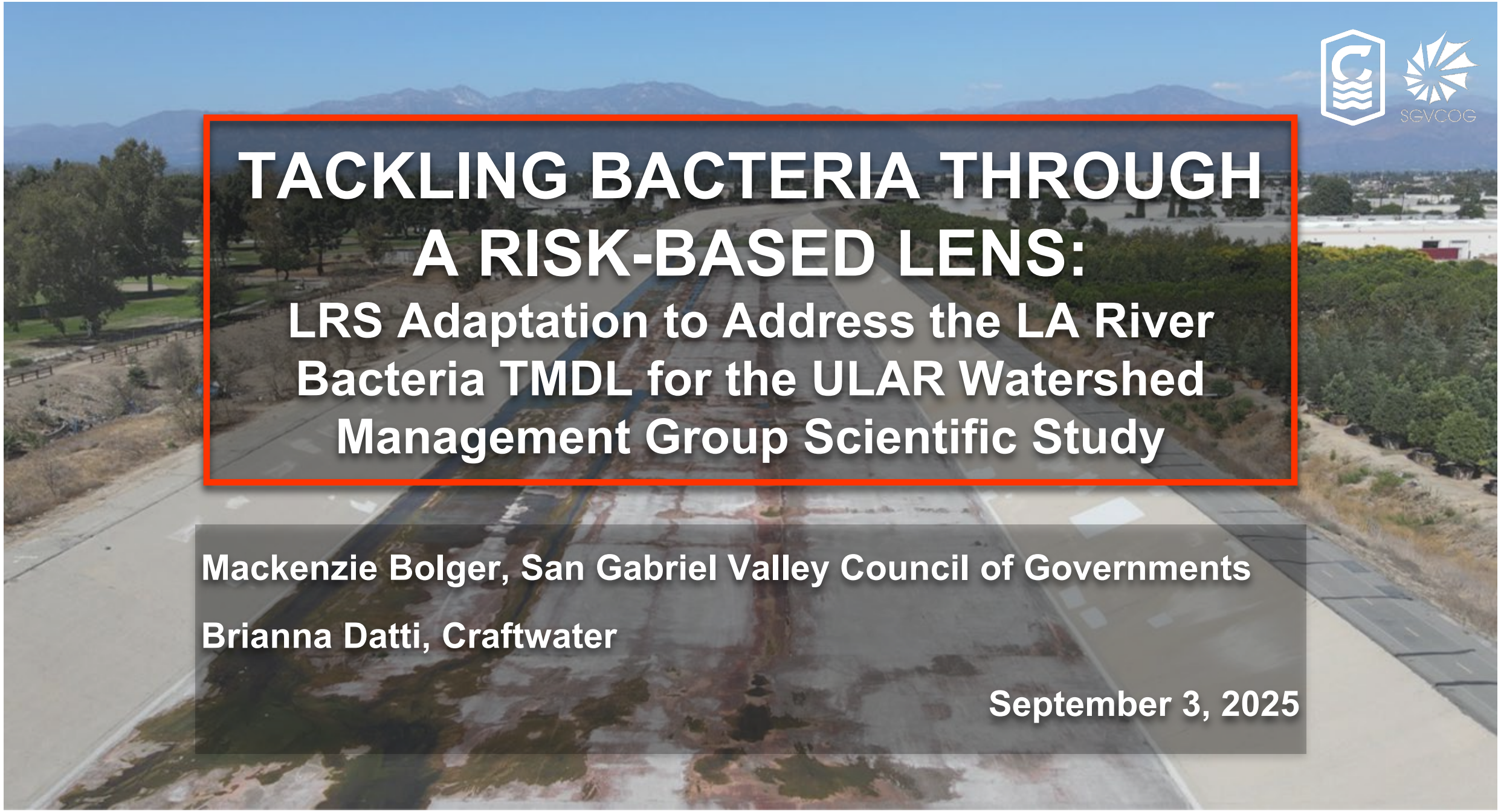


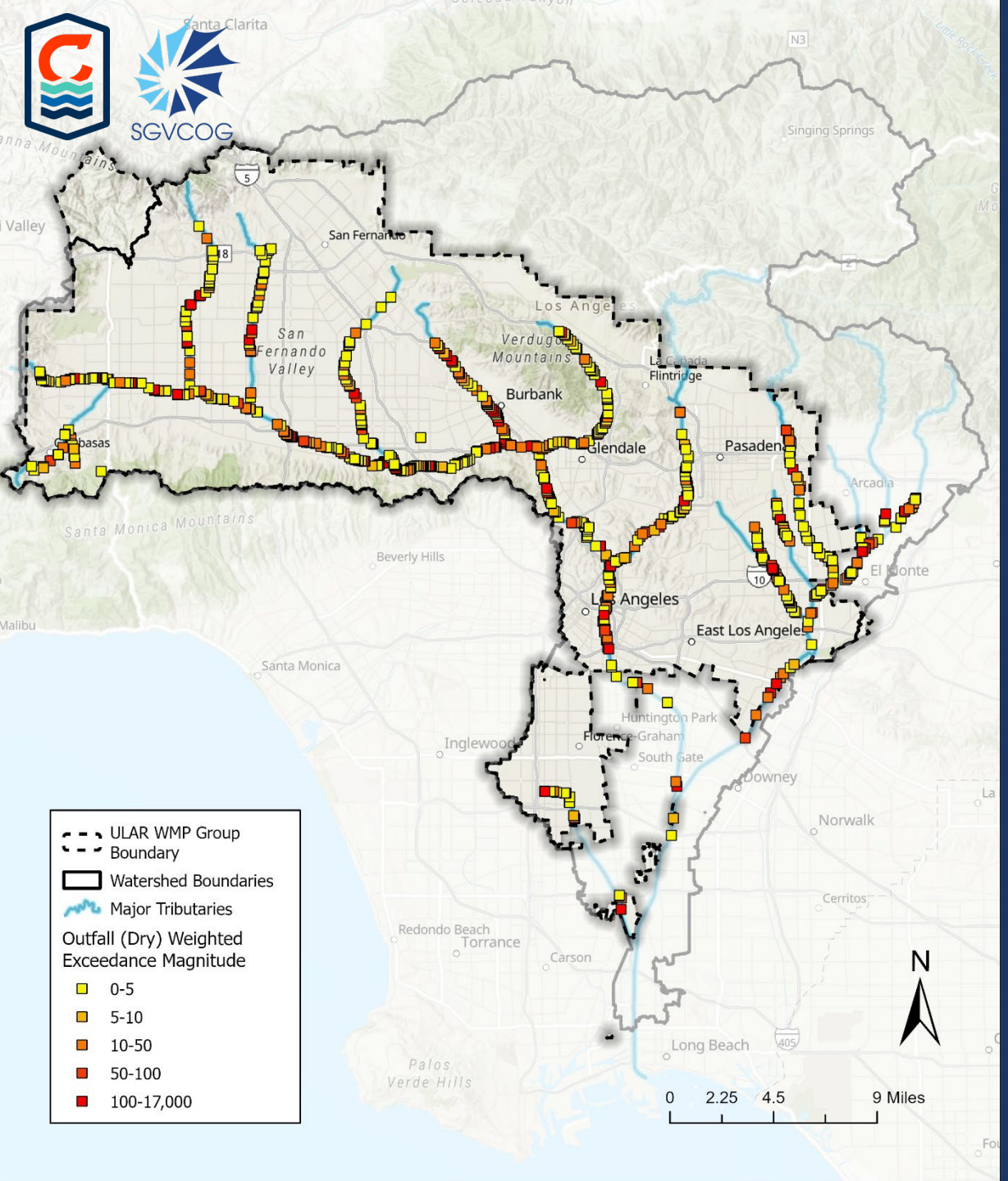
TACKLING BACTERIA THROUGH A RISK-BASED LENS:

LRS Adaptation to Address the LA River Bacteria TMDL for the ULAR Watershed Management Group Scientific Study

Mackenzie Bolger, San Gabriel Valley Council of Governments

Brianna Datti, Craftwater

September 3, 2025



Adapt the Load Reduction Strategy (LRS) to Guide Long-Term Pathogen Reduction

- **FY20-21** Supported Scientific Study
- **$1.15M** Funding Allocated ($885k from ULAR)
- **3-Year** Study Period
- **Additional 2 Years** of Strategic Monitoring & Source Investigations Supported

Bacteria Challenges

1. Fecal Indicator Bacteria Is **Everywhere**
2. Not All Sources Are **Equal**
3. **Limited** Reliable Reduction Strategies

Load Reduction Strategy Adaptation Scientific Study

Build foundation to address pathogen health risk and streamline effective strategies to improve public health and attain bacteria-related water quality objectives in the Upper Los Angeles River Watershed Management Area

→ **Reduce Pathogens to Provide Safer Waters**

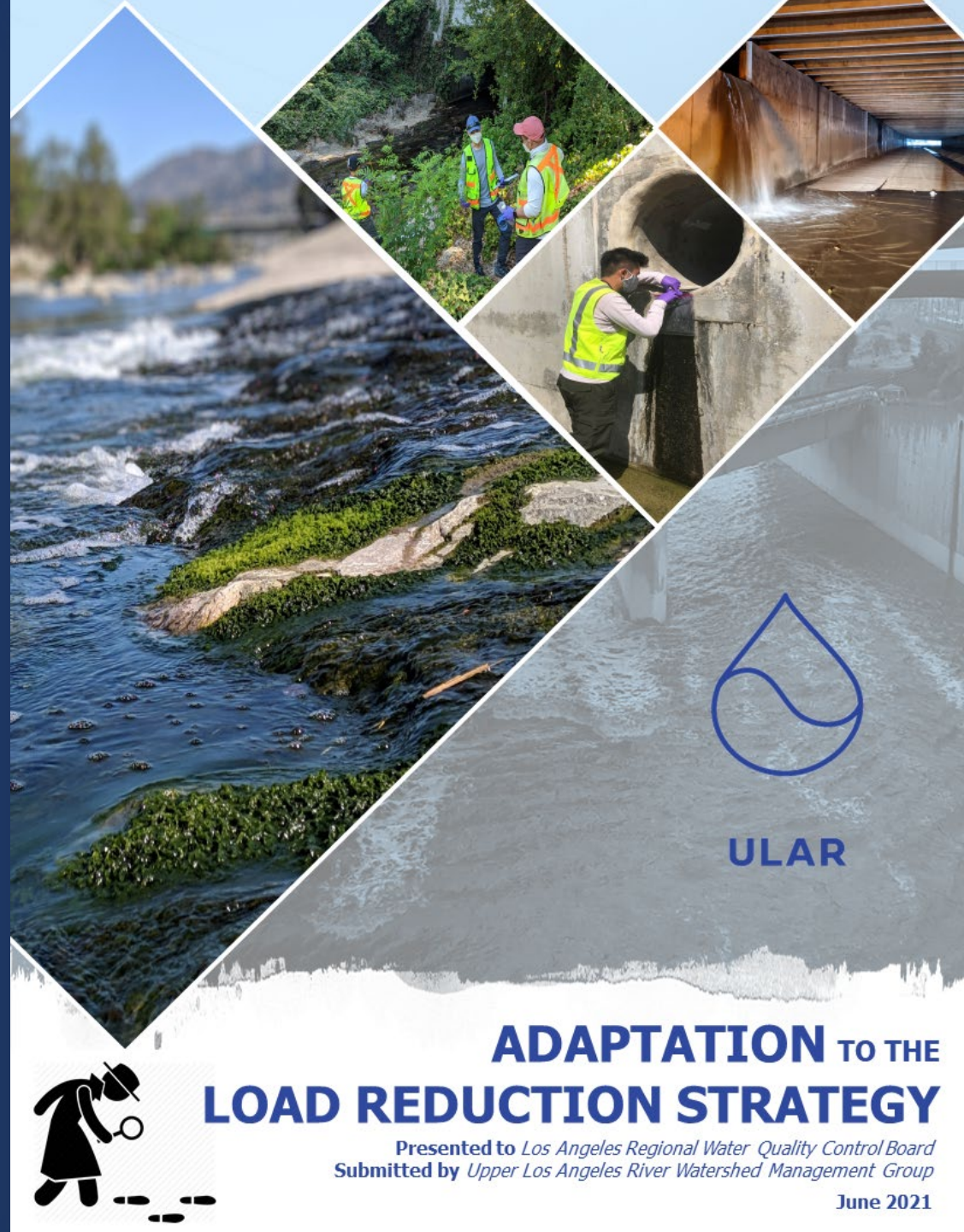
Study Objectives

Catchment Prioritization Approach
prioritize based on high-risk

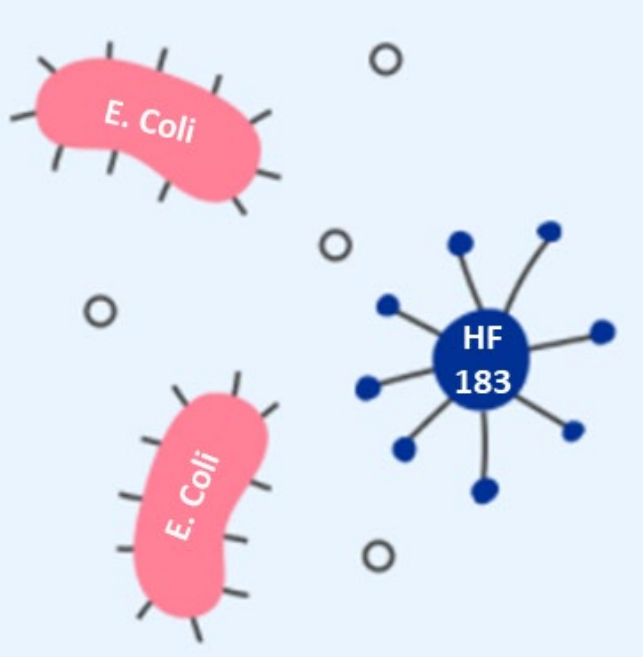
LRS Adaptation Plan Updates
submit adaptation plan & iterative adaptive management

Monitoring Techniques
utilize techniques to ID high-risk sources

Areas of Investigation Meeting Bacteria Requirements
implement source abatement strategies to help meet compliance



Assess Water Quality Conditions



Evaluate Potential Human Waste Sources

Exfiltration from Public Sewer System

Exfiltration from Private Laterals

Faulty Onsite Wastewater Treatment Systems

Sanitary Sewer Overflows

Illicit Connections/ Illegal Discharges

People Experiencing Homelessness

Catchment Prioritization

Source Investigations

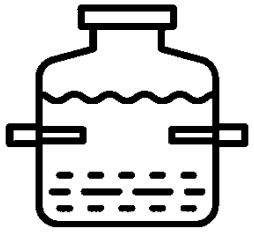
Human Waste Source Tracking Toolbox

Physical Markers	Bacterial Markers	Viral Markers	Chemical Markers
- Dye Testing - Smoke Testing - CCTV - Electroscan Technology - Flow-paced Sampling - GIS - Canine Scent Tracking	- **Fecal Indicator Bacteria (FIB)** - **Human-Specific Bacterial Markers (e.g., HF183, HumM2)** - Human Fecal Score (average HF183 gene in water samples) - Microbial Community Analysis (includes community fingerprinting, microarrays, and DNA sequencing)	- Coliphage - Adenovirus - Polyomavirus	- Caffeine - Cotinine - Optical Brighteners - Fecal Sterols

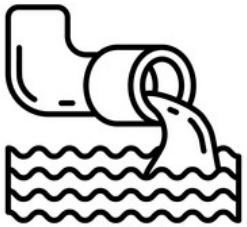
Exfiltration from Public Sewer System

Exfiltration from Private Laterals

Faulty Onsite Wastewater Treatment Systems



Sanitary Sewer Overflows



Maintain, repair or replace infrastructure

Illicit Connections/ Illegal Discharges

Educate, issue notice of violation, and clean up impacted area

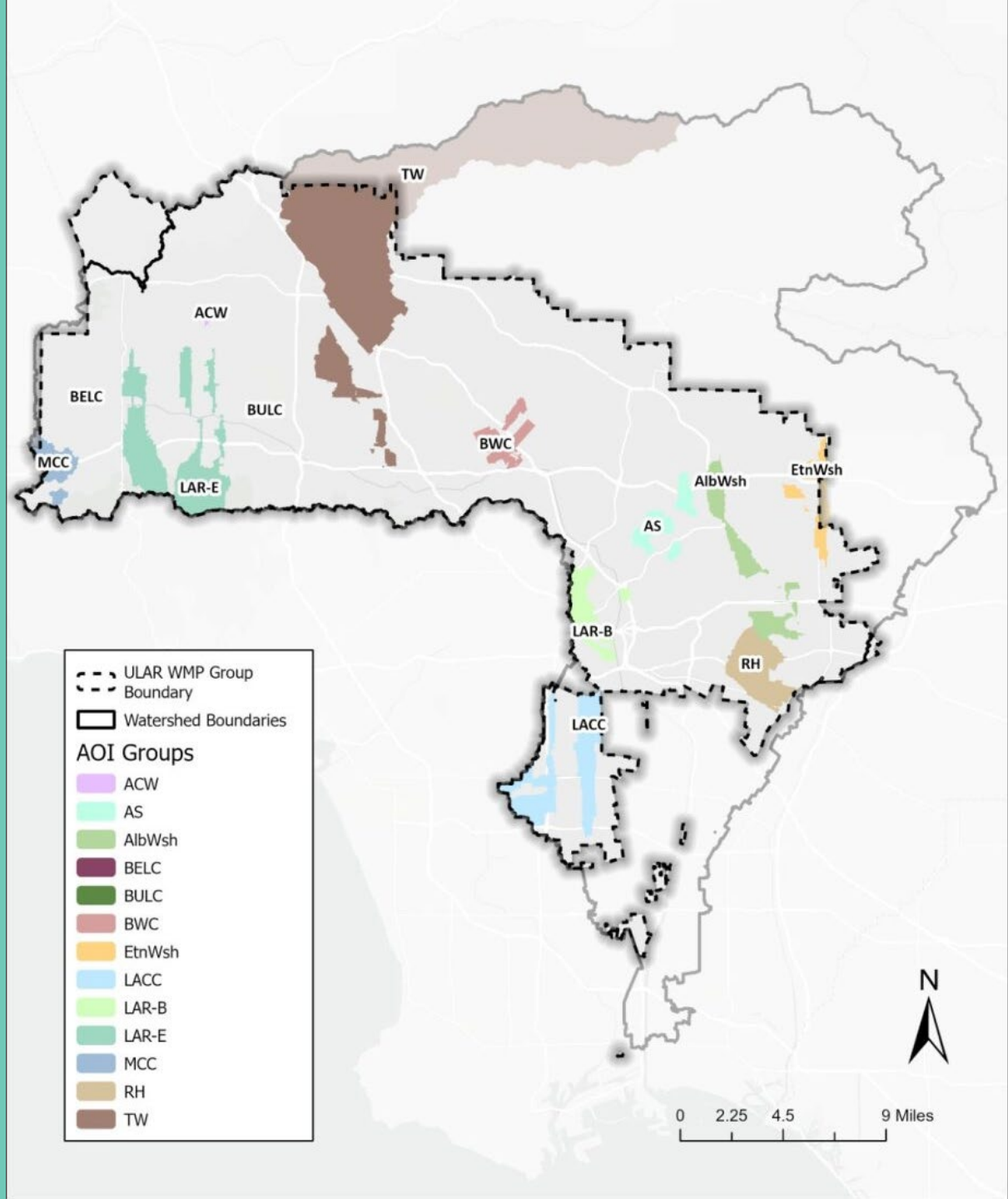
People Experiencing Homelessness

Coordinate with City departments and latest policy

Source Abatement Strategies

Human Waste Source Investigations

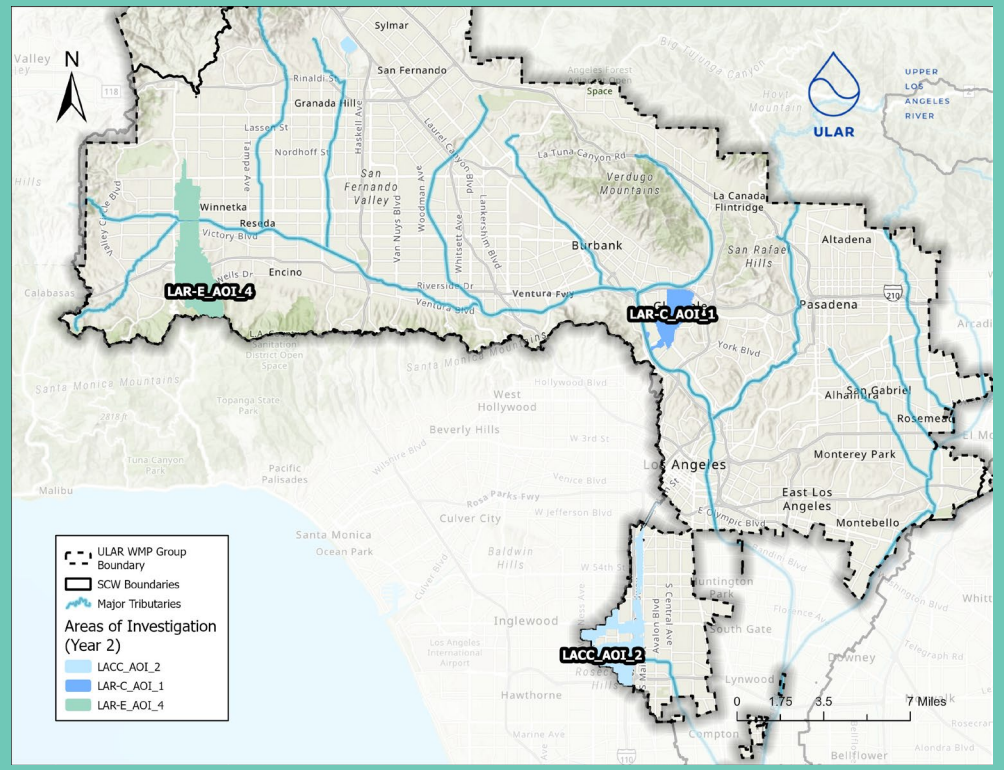
- **24** Areas of Investigation
- **69** Outfalls
- **~69,000** Acres Catchment Area




IN ACTION:
Human Waste
Source ID

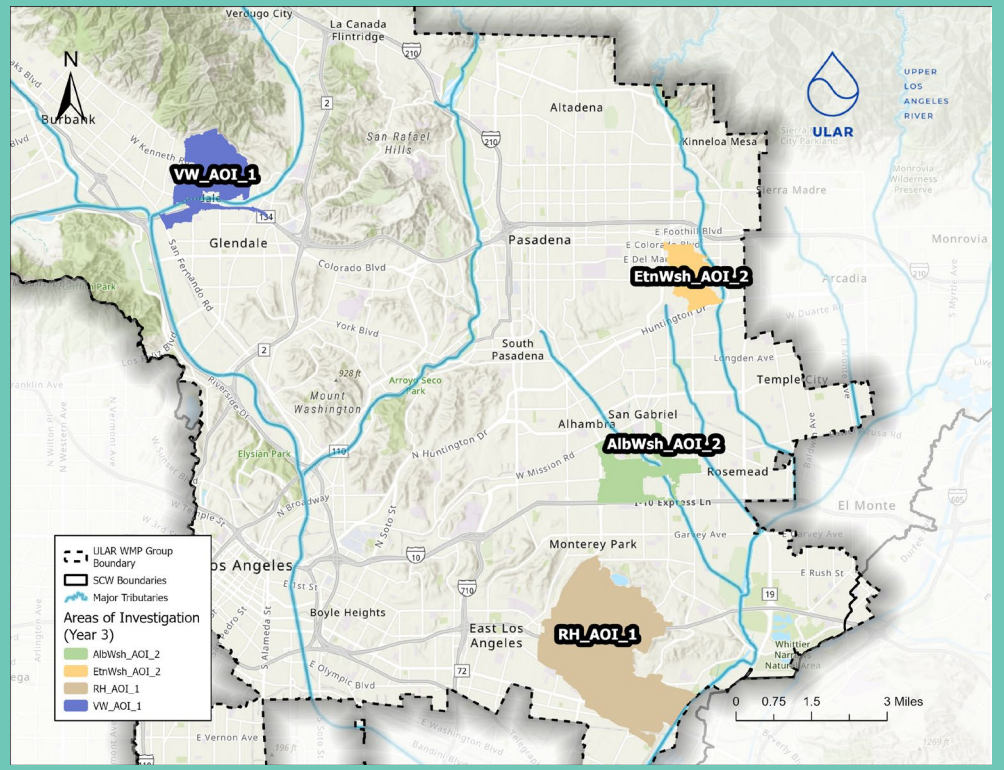
7 Targeted Areas Investigated

First Round:

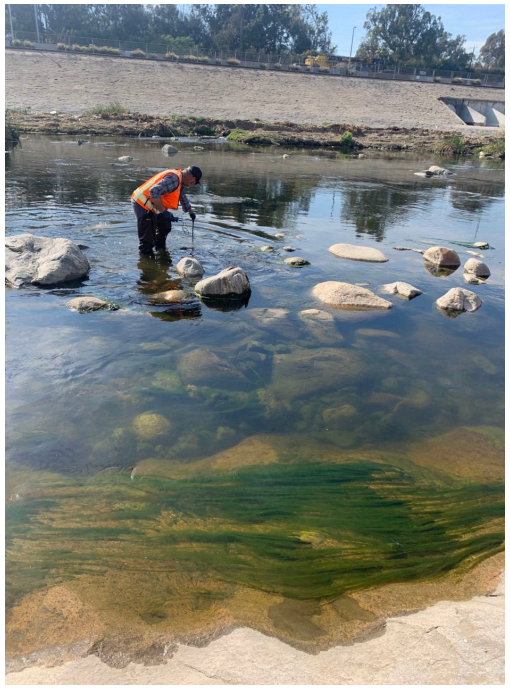


- Segment E
- Segment C
- Compton Creek

Second Round:



- Verdugo Wash
- Eaton Wash
- Alhambra Wash
- Rio Hondo Mainstem



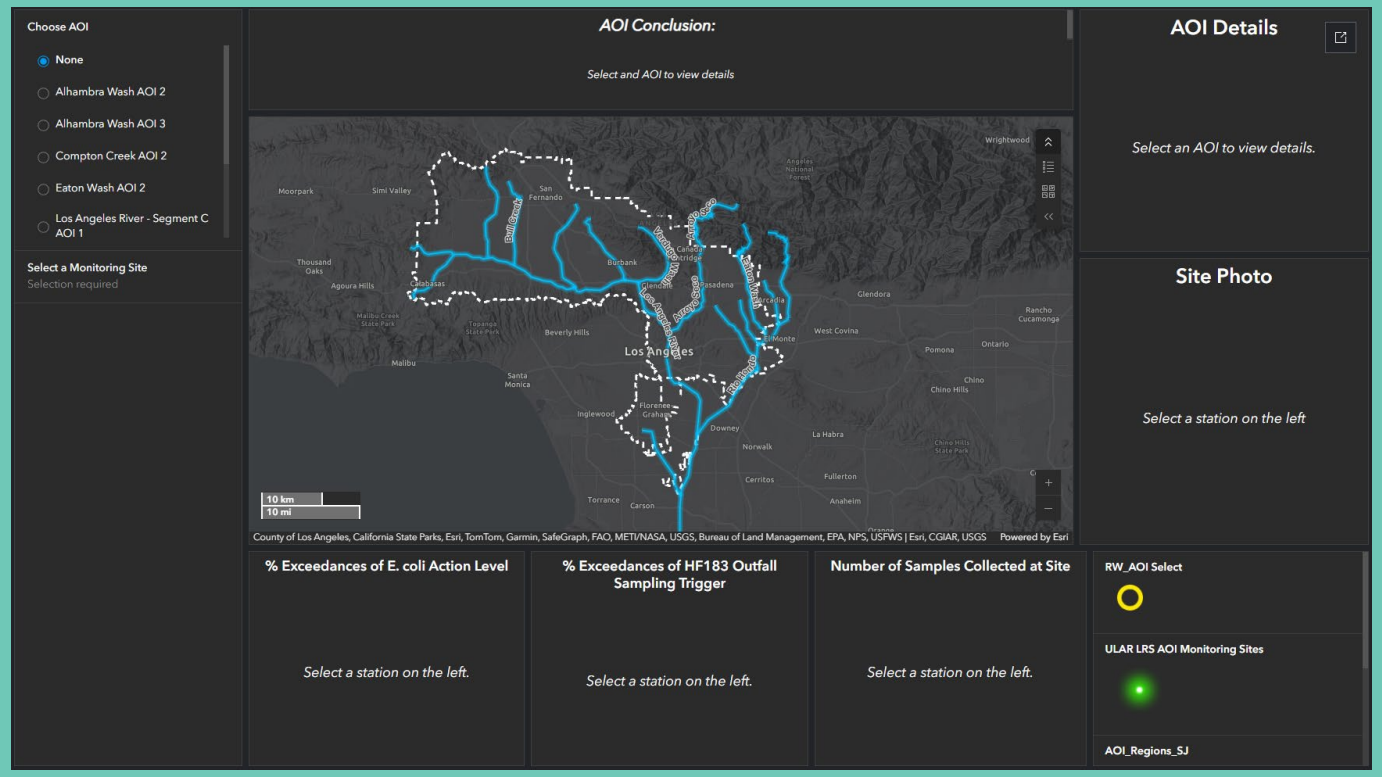








LIL CRICKET
GO THIS



Explore the interactive Human Waste Source Investigation dashboard in the [ULAR LRS Adaptation StoryMap] for details on each Area of Investigation (AOI)

Major Findings

- High *E. coli* loading observed in areas with minimal HF183 (human marker) loading - 4 of 7 AOIs
- Account for all existing infrastructure - Eaton Wash Spreading Grounds
- Episodic sources identified, significant upstream tracking – 2 of 7 AOIs

SCWP Goals

Improve water quality, public health, and contribute to attainment of water-quality requirements

- Prioritized pathway to address highest-risk bacteria sources
- Reduction of human waste sources improves conditions and helps meet bacteria objectives

SCWP Goals

Encourage innovation and adoption of new technologies and practices

- Incorporated new technologies to track human waste sources
- New source abatement strategies to tackle reduction of human waste in stormwater

SCWP Goals

Invest in independent scientific research

- Research on human health risks associated with bacteria and prioritizing activities within body of latest scientific understanding
- Presented at >10 local and national conferences

SCWP Goals

Implement an iterative planning and evaluation process to ensure adaptive management

- Iterative updates to the LRS Adaptation Plan and catchment prioritization

LRS Adaptation Story Map

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