

Targeted Human Waste Source Reduction Strategy to Address Bacteria-Related Compliance Objectives for the Los Cerritos Channel

Scientific Studies Program

Fiscal Year 2023-2024

Lower San Gabriel River

Project Lead: Gateway Water Management Authority

Presenter: Brianna Datti, Craftwater Engineering



Study Overview

Data-driven framework to guide and prioritize source ID and abatement efforts, focusing on reducing sources of human waste, for bacteria

- Bacteria one of most challenging pollutants for stormwater management
- Focus resources where urban runoff poses greatest threat to public health
- Target abating sources in the urban watershed

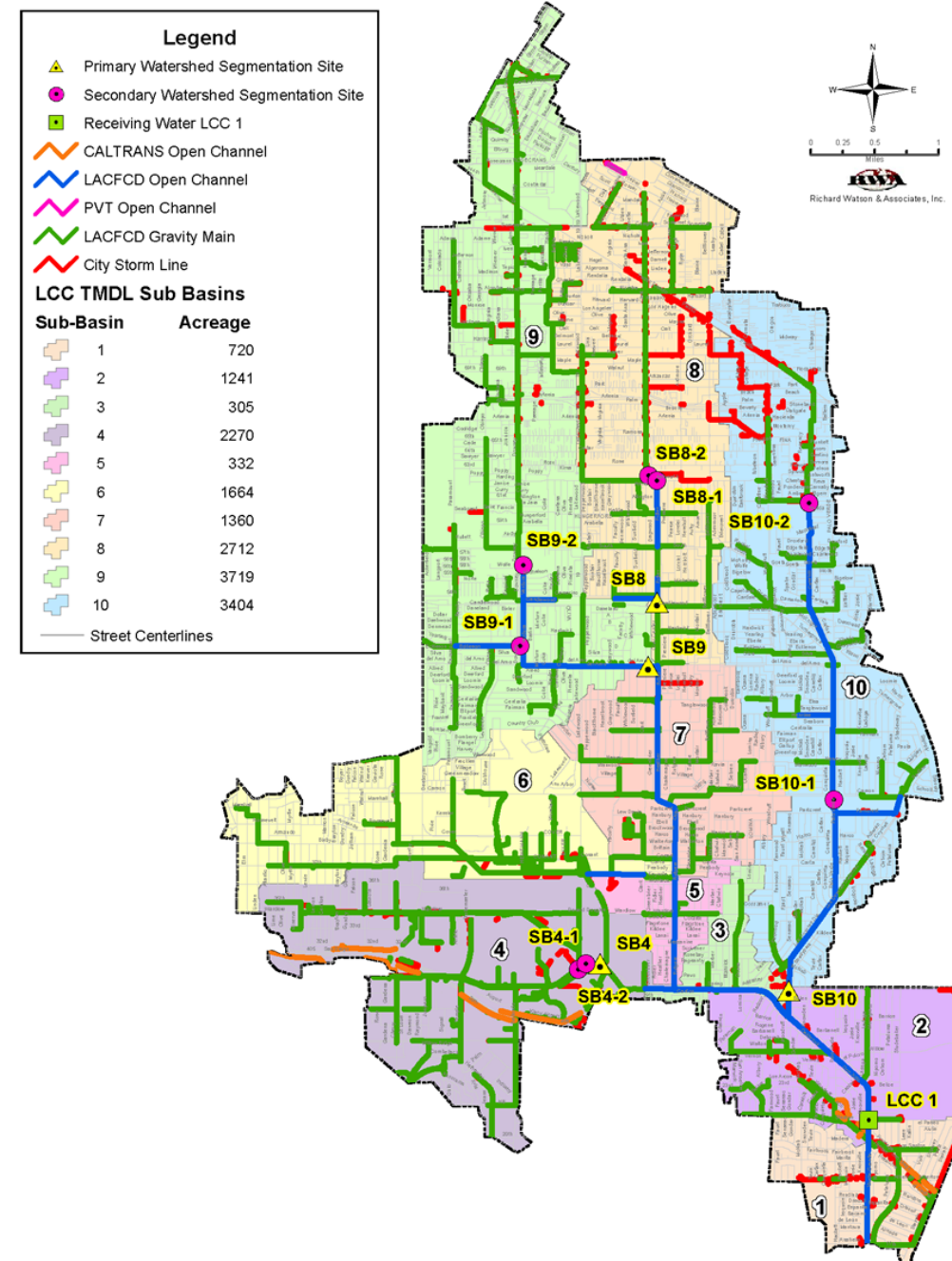




Study Location

- Focused on Los Cerritos Channel Watershed Management Area
- Leverage and expand on existing monitoring (LCC1, SB4, SB8, SB9, and SB10) to target priority areas and conduct effective human waste source investigations and abatement

Los Cerritos Channel Wet-Weather Watershed Segmentation and Source Tracking Monitoring Sites





Study Team

Applicant:

- Gateway Water Management Authority on behalf of the Los Cerritos Channel Watershed Management Group



LOS CERRITOS CHANNEL
WATERSHED GROUP

Technical Team:

- Lead: Craftwater Engineering, Inc.



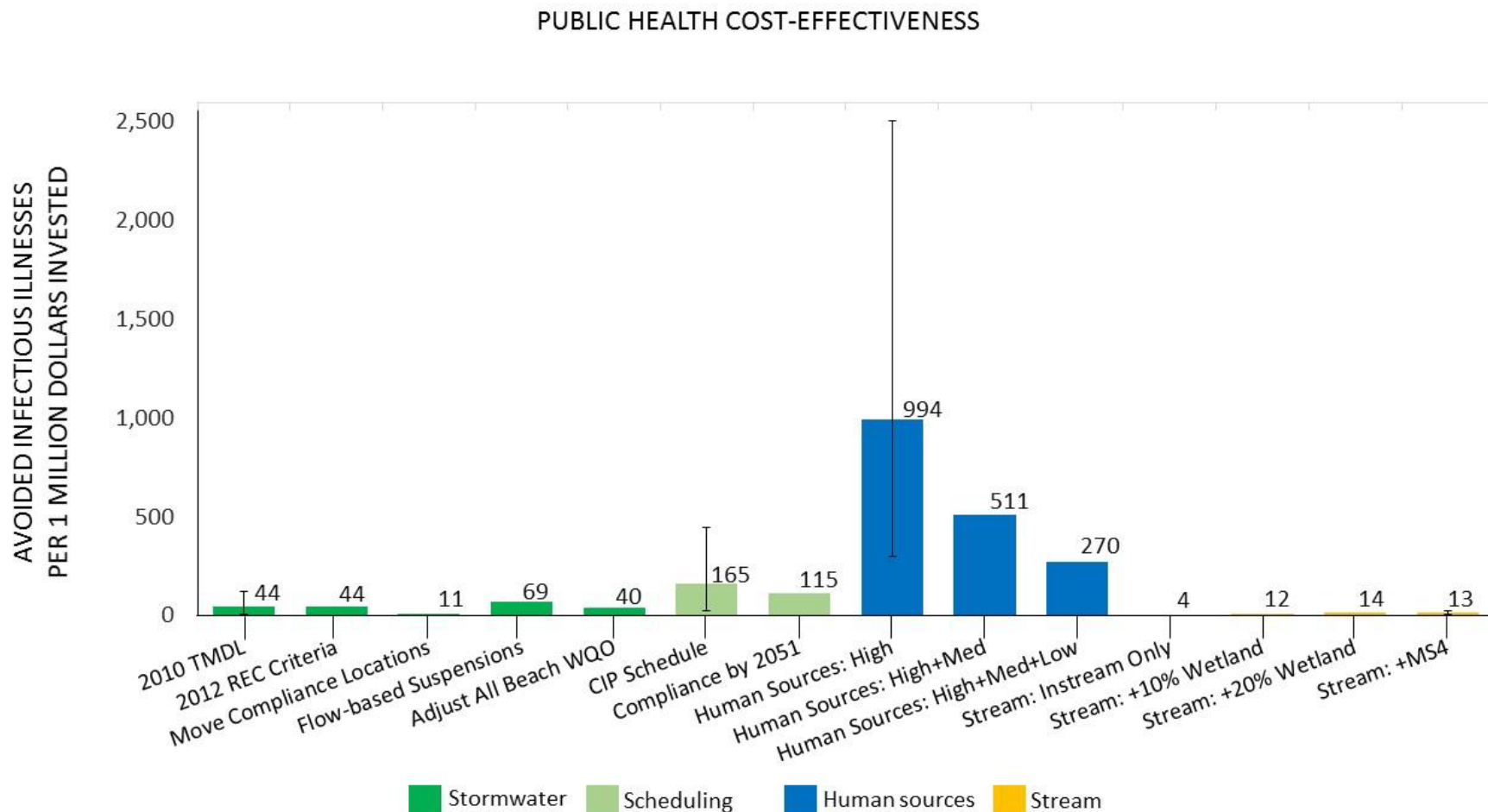
- Monitoring: Kinnetic Environmental, Inc.





Advances in Scientific Understanding and Tools

- Addressing human waste sources more cost-effective approach to public health protection





Study Objectives



Risk-based framework to expeditiously reduce public health risks and demonstrate compliance with bacteria objectives



Characterize ***highest priority areas*** to invest resources



Prioritize identification and ***abatement of human sources*** of waste, utilizing human markers and other diagnostic tools



Educate and outreach to stakeholders on bacteria issues

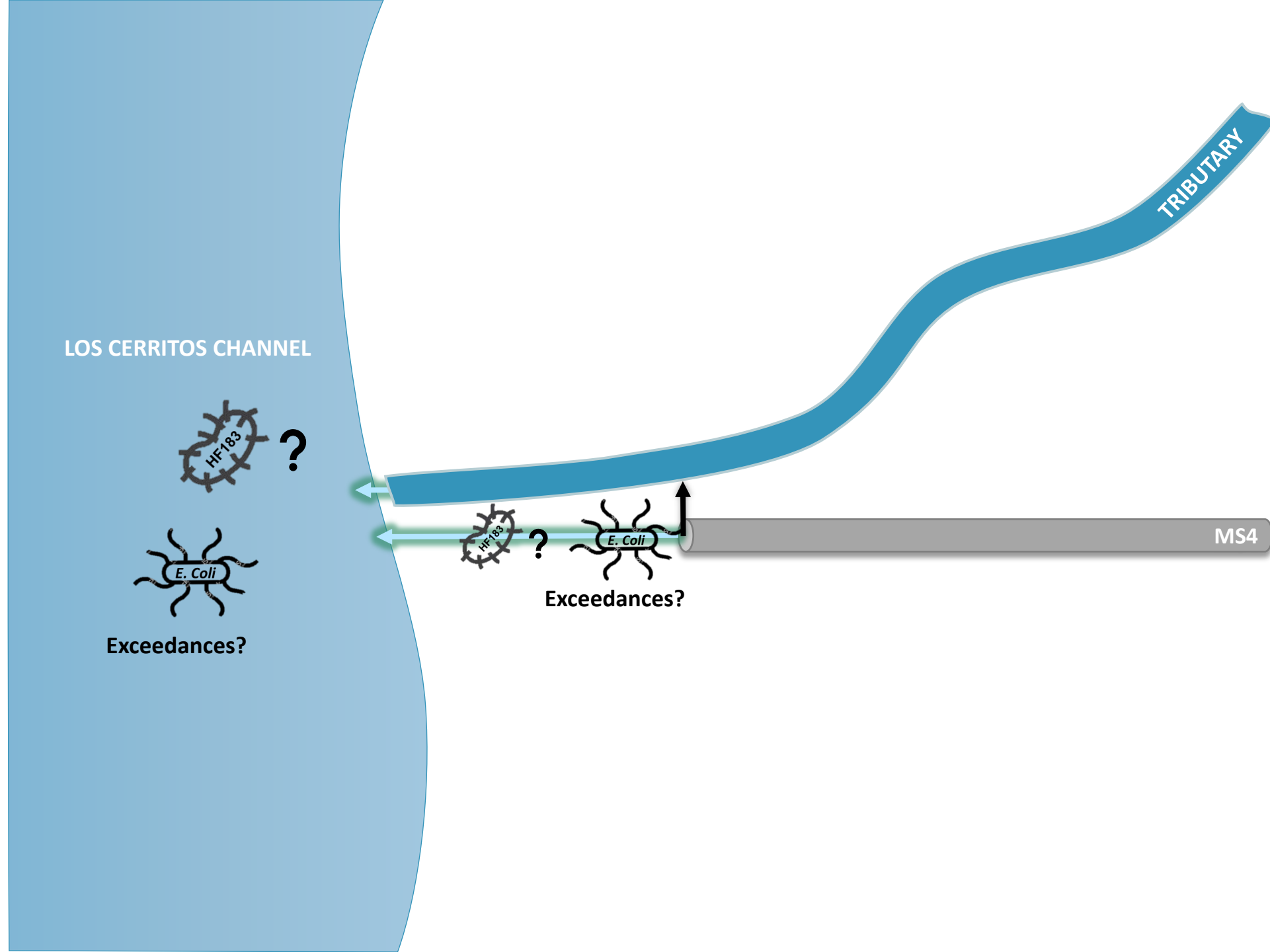


Provide technical resources to inform and be leveraged by similar efforts in the region.



Approach

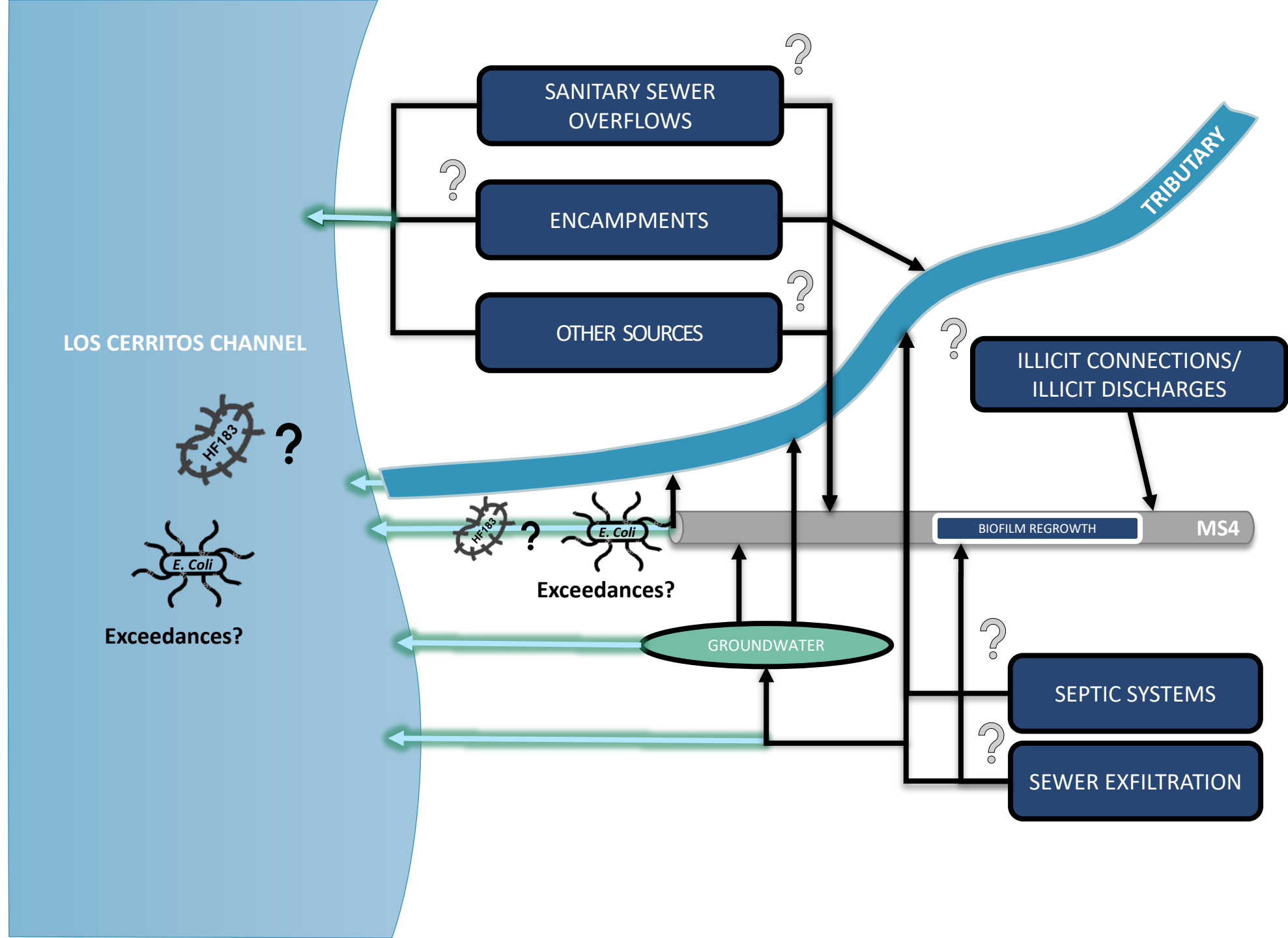
- (1) Assess Receiving Water Quality Conditions
- (2) Assess Outfall Water Quality Conditions





Approach

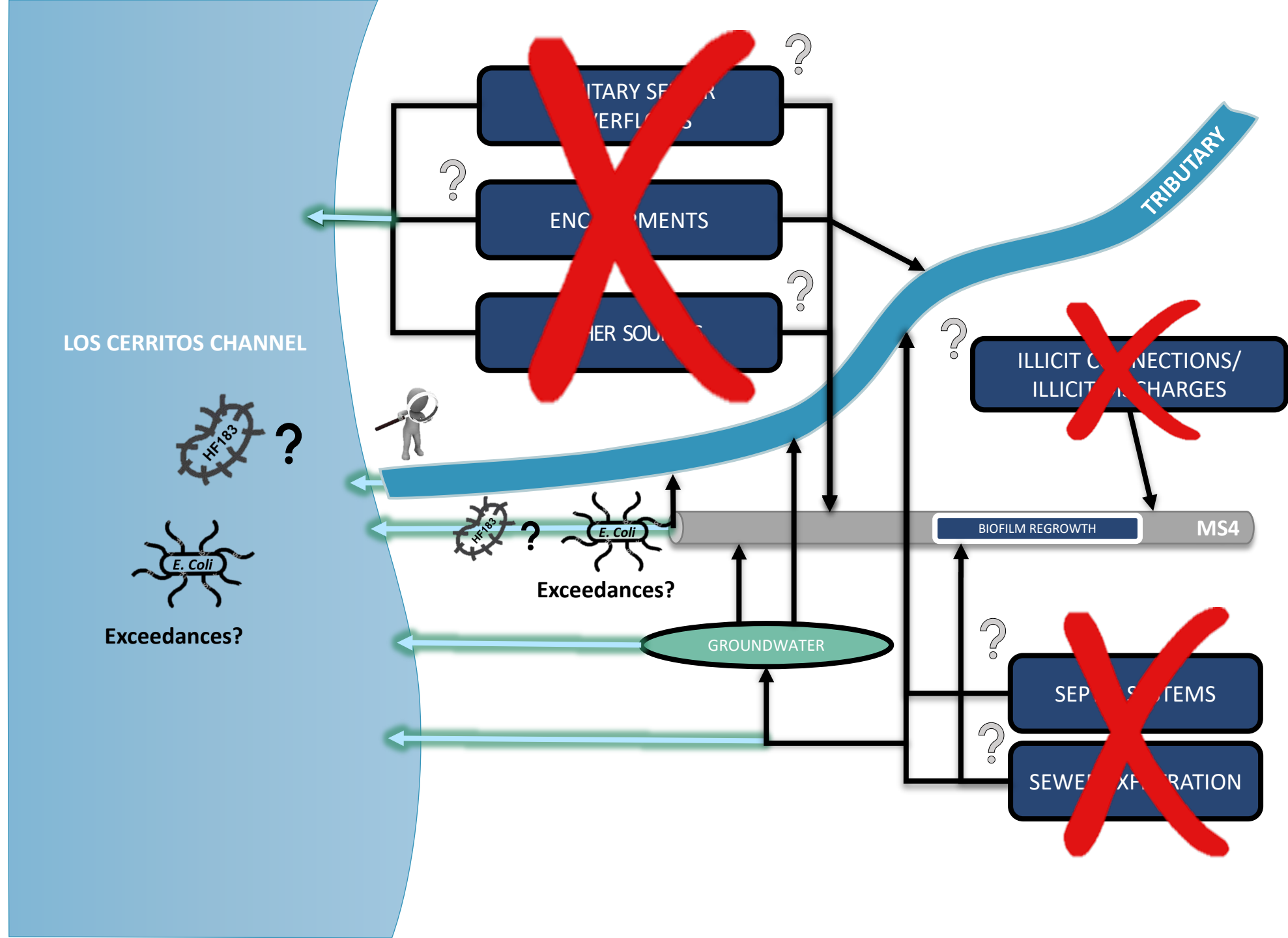
- (1) Assess Receiving Water Quality Conditions
- (2) Assess Outfall Water Quality Conditions
- (3) Prioritize Catchment Areas





Approach

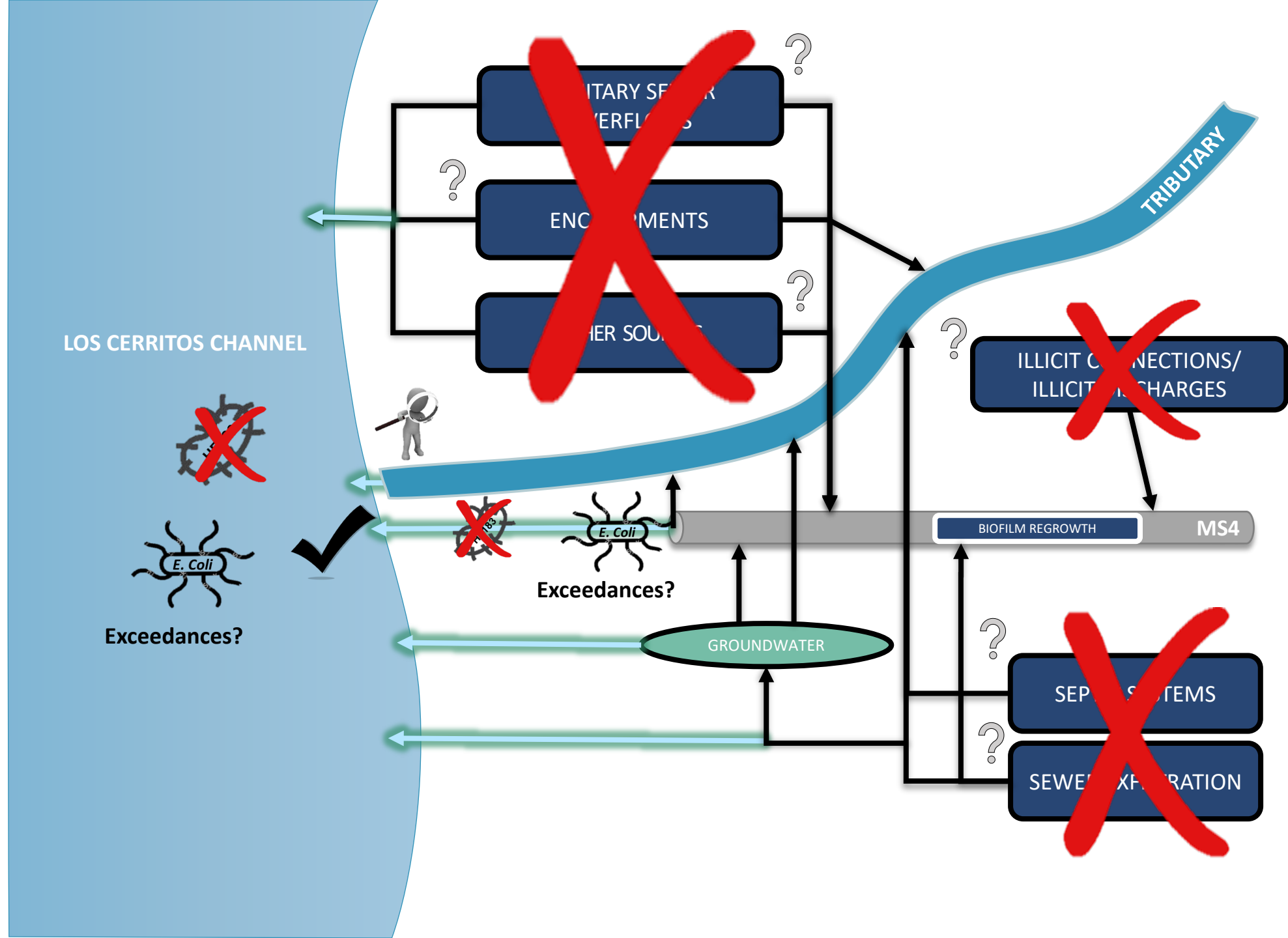
- (1) Assess Receiving Water Quality Conditions
- (2) Assess Outfall Water Quality Conditions
- (3) Prioritize Catchment Areas
- (4) Source Identification Monitoring
- (5) Source Abatement





Approach

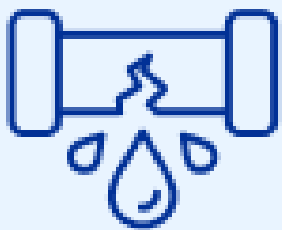
- (1) Assess Receiving Water Quality Conditions
- (2) Assess Outfall Water Quality Conditions
- (3) Prioritize Catchment Areas
- (4) Source Identification Monitoring
- (5) Source Abatement
- (6) Performance Monitoring



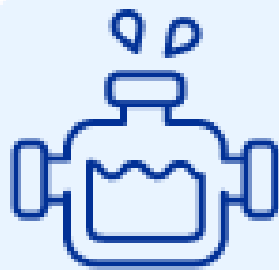


Targeted Human Waste Sources

Leaking Sewer Pipes & SSOs



Leaking/Failing Septic System



Illegal Dumping



Illicit Connections/Discharges

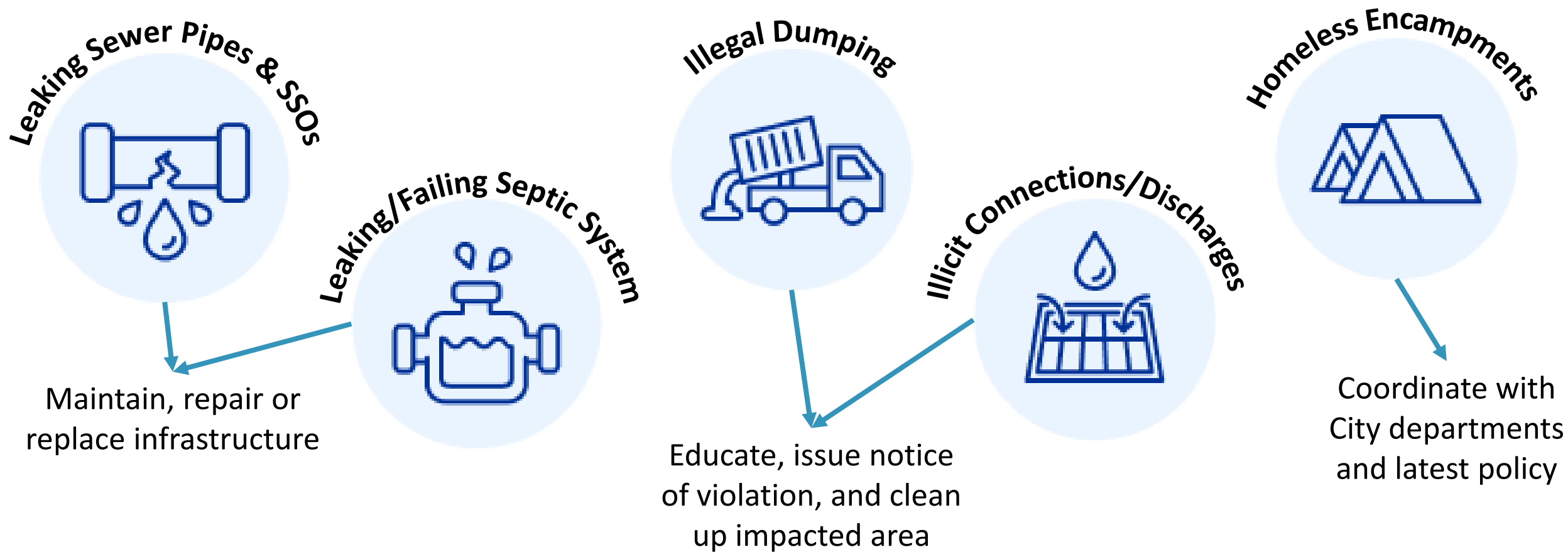


Homeless Encampments



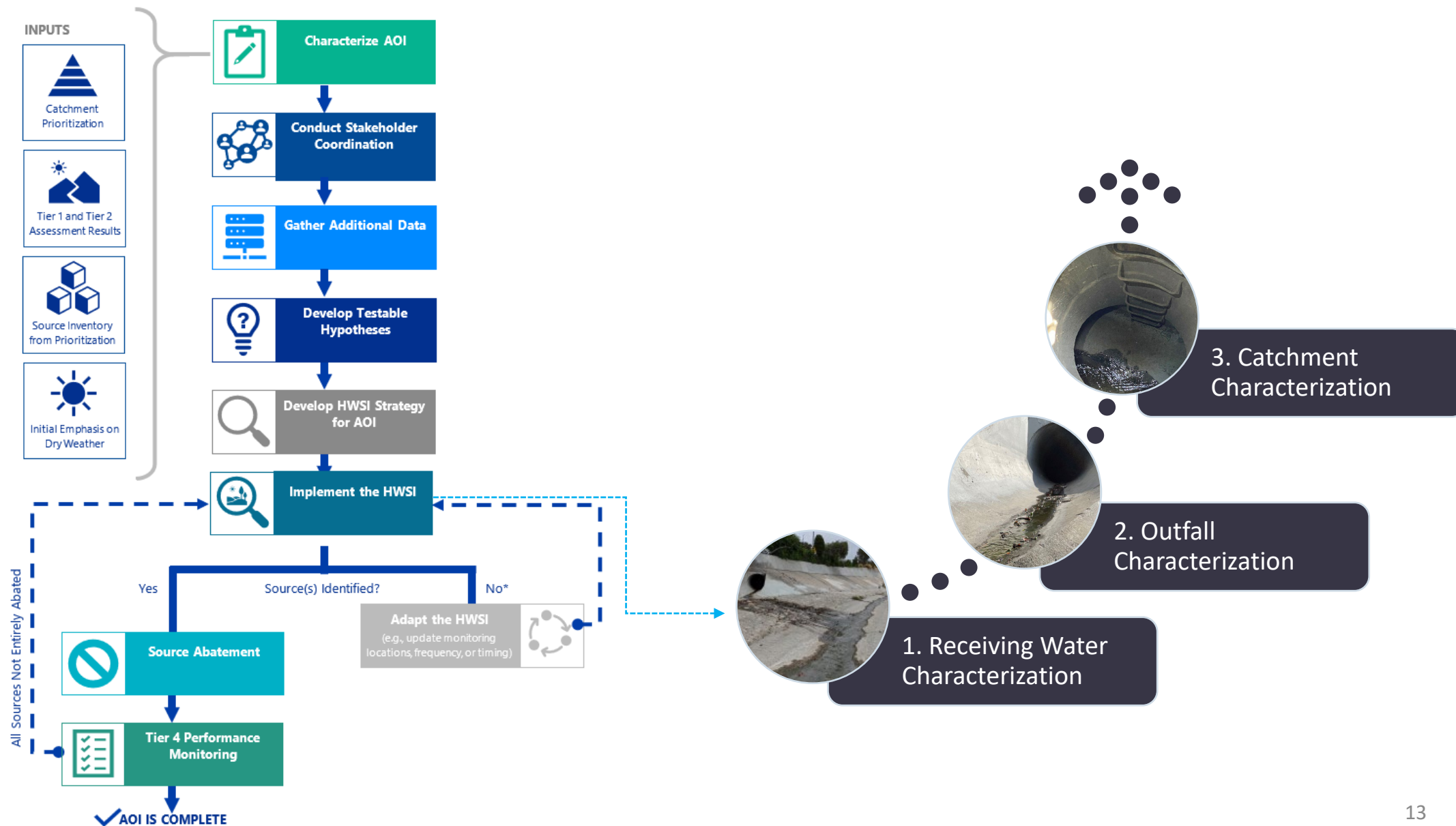


Targeted Human Waste Sources





Source Investigation Framework



*Reasons to adapt an HWSI can be driven by other factors (e.g., additional stakeholder input, additional data, new scientific techn



Monitoring Techniques

Human Waste Source Tracking Toolbox

Traditional Indicators

- **E. coli**
- Ammonia
- Smoke & Dye Testing

Non-Traditional Indicators

- **Human specific genetic markers (e.g., HF183)**
- Human Viruses (norovirus, adenovirus)
- Human virus analogs (Coliphage, Crassphage)
- Single chemical markers (caffeine, pharma, optical brighteners, etc)

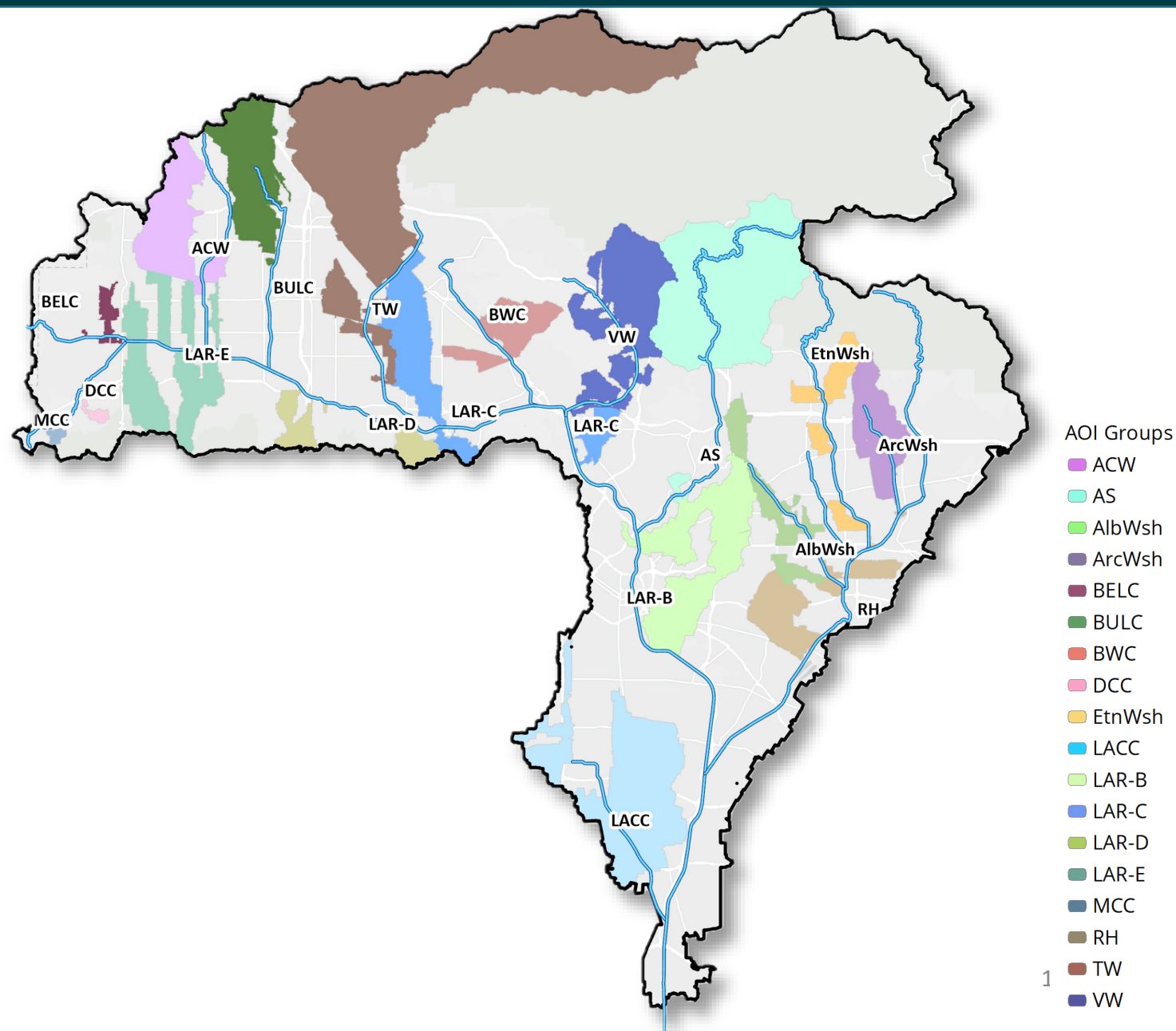
New Research Indicators

- Microbial community profiling
- Non-targeted chemical analysis



Upper LA River WMA Example

- 43 Areas of Investigation Identified
- 166 Outfall Catchments
- Conducting Human Waste Source Investigations





Cost & Schedule

Phase	Description	Cost	Completion Date
Project Management	PM coordination and reporting	\$45,000	Ongoing
Catchment Prioritization	Data-driven prioritization for areas of investigation	\$90,000	3/29/2023
Targeted Human Waste Source Reduction Strategy	Implementation strategy that incorporates prioritization and source investigation framework	\$75,000	6/28/2024
Source Identification & Abatement	Conduct human waste source investigations and abatement of identified sources	\$225,000	6/30/2025
Outreach & Engagement	Coordination with key stakeholders	\$40,000	6/30/2025
TOTAL		\$475,000	



Funding Request

WASC	Year 1	Year 2
LSGR	\$175,000	\$300,000
TOTAL	\$175,000	\$300,000



Summary of Benefits

- Align implementation actions to successfully *reduce potential health risks* to recreators
- *Emphasize source control* for expedited pathway for improving water quality conditions



A person is seen from the side, pointing at a whiteboard. The whiteboard is covered with numerous sticky notes, some of which contain handwritten text and diagrams. The person's hand is visible, pointing towards the center of the board. The background is slightly blurred, showing a window with blinds.

Questions?

Brianna Datti,
Craftwater Engineering

Grace Kast,
Gateway Water
Management Authority