

**CREST
Los Angeles River
Bacteria Source
Identification Study Update**

**Steering Committee Meeting
April 12, 2007**

Working Technical Group

MEETINGS DATES:

February 16, 2007

April 3, 2007

April 6, 2007 (call)

City of LA WPD & EMD

LA County DPW

Caltrans

LACSD

Regional Board

USEPA

SCCWRP

Heal the Bay

City of Downey

City of Burbank

City of Bell

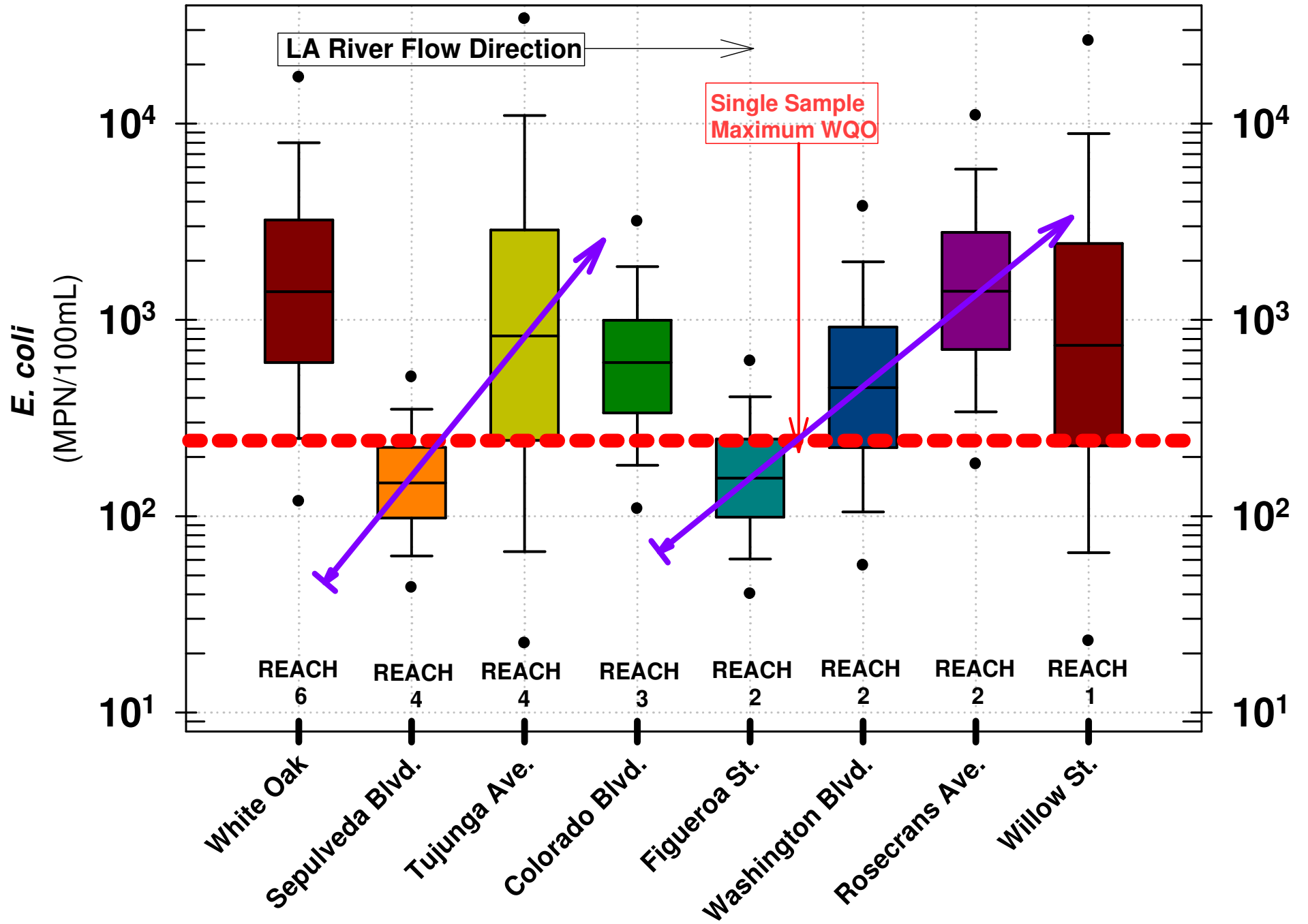
City of Signal Hill

City of Arcadia

FlowScience

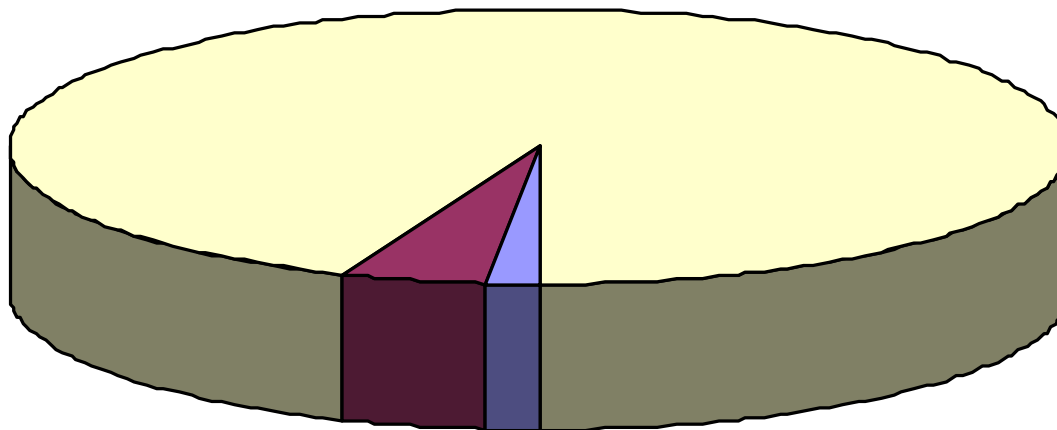
Previous Studies

DRY WEATHER LA RIVER *E. coli* CONCENTRATIONS



Tier 2 Load Accounting: LAR @ Reach 4

Reach 4: *E. coli* Loading (MPN/day)

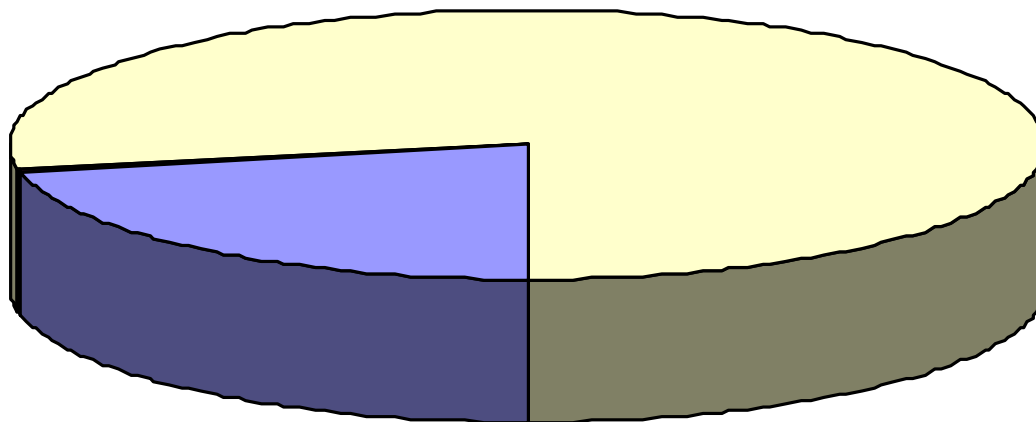


Will this
plot
change?

- Urban Runoff
- Tributaries
- Unknown

Tier 2 Load Accounting: LAR @ Reach 2

Reach 2: *E. coli* Loading (MPN/day)



Will this
plot
change?

- Urban Runoff
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Existing Dataset Cannot Account for Loads

Focus the BSI Study:

1. Identify the inputs that may be responsible for impairments to Reach 2 and Reach 4
2. Also screen Reach 6
3. Dry weather only

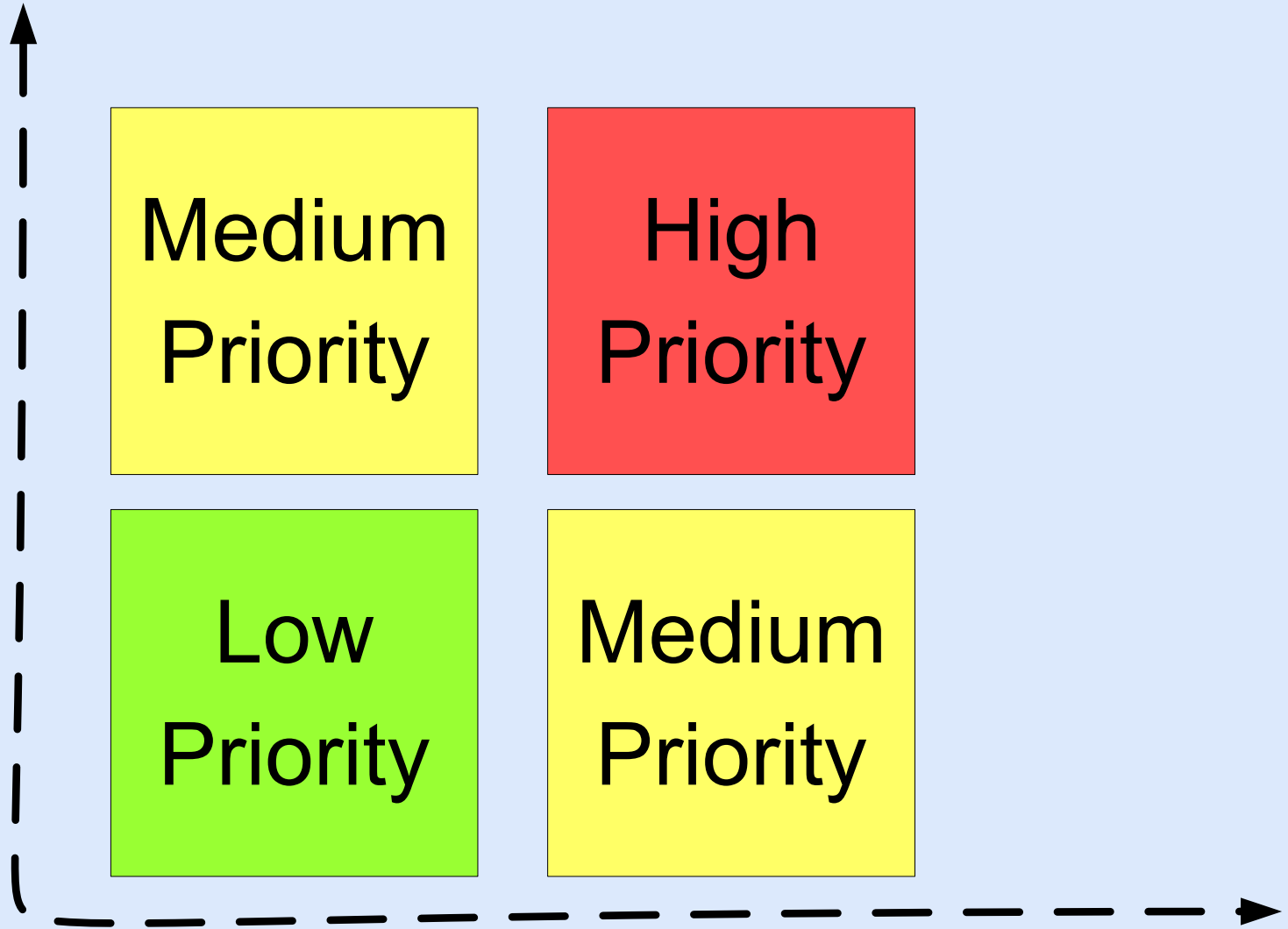
BSI Study Design

BSI Study Objective

The overall goal of the BSI Study is to improve the likelihood of success for bacteria source control efforts associated with implementation of the LAR Bacteria TMDL, in order to prioritize TMDL actions and locations.

COST RANGE: \$575k - \$844k

Human Loading



Indicator Loading

Study Design Questions

#1) (a) Are storm drain and tributaries responsible for the significant bacteria loads entering Reach 2 and 4 of the LAR and causing WQO exceedances?

(b) Which storm drains and/or tributaries are contributing the highest indicator bacteria loads to Reach 2 and 4 of the LAR?

Study Design Questions (cont'd)

#2) (a) Are human or non-human sources responsible for the significant bacteria loads entering Reach 2, 4 and 6 of the LAR?

(b) How does human and non-human loading from storm drains and tributaries compare to loading to Reach 2 and 4 of the LAR?

Study Design Questions (cont'd)

#3) Which runoff sources (e.g. specific storm drain or tributary discharges) or areas exhibit the highest human fecal discharges?

Study Design Questions (cont'd)

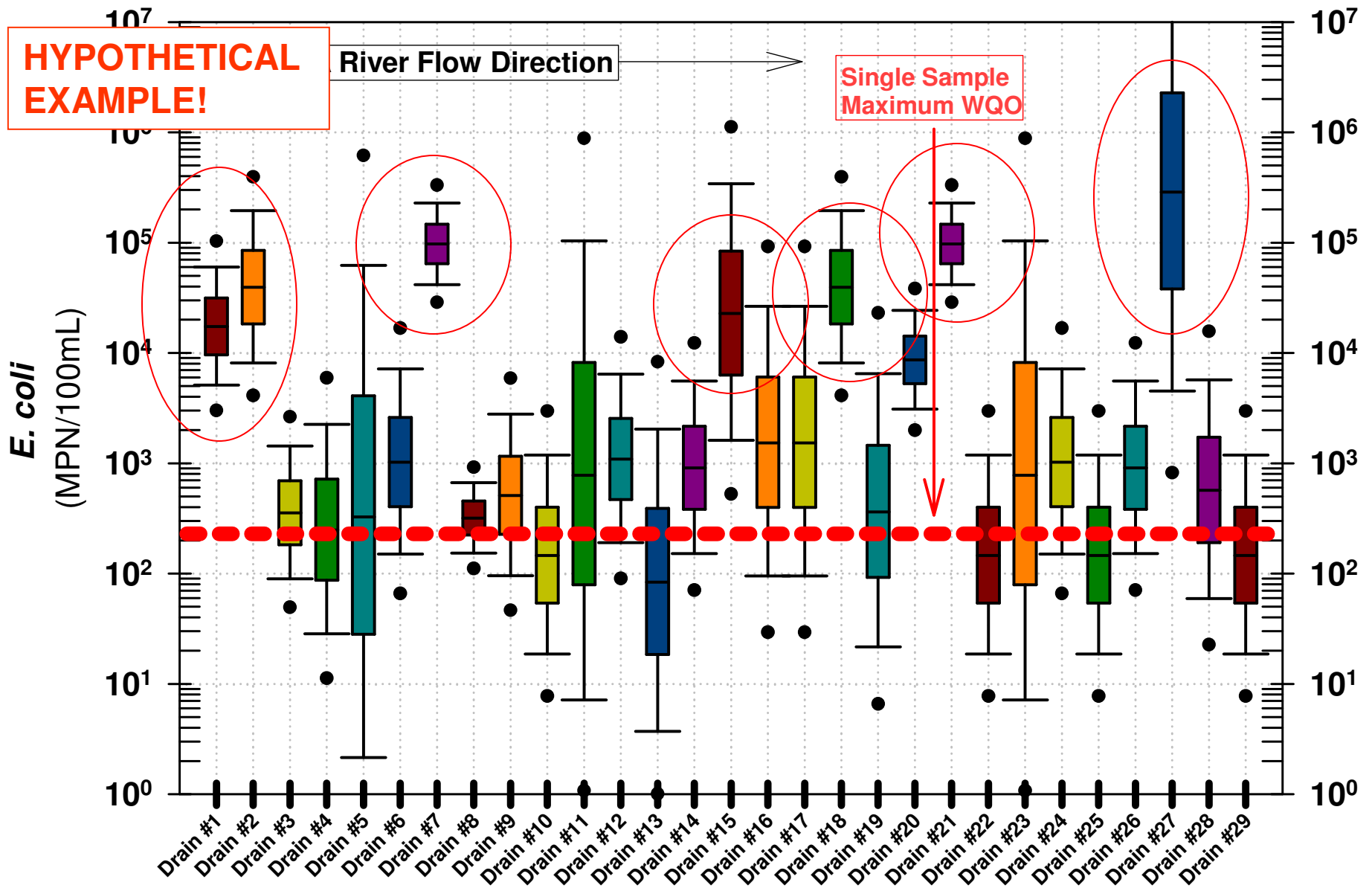
#4) What are the land uses and drainage areas of the subwatersheds that are draining to the most problematic storm drain outfalls?

Methodology

Indicator Loading = Snapshots

- *Traditional Indicators*
 - ***E. coli* and enterococcus**
 - **Flow rate**
 - **Measure loading from all flowing outfalls**
 - **Comprehensive “snapshots”**

Which drains are problematic?



Sampling Frequency

- *Use Power Analysis based on indicators*
 - **Set desired level of confidence in results**
 - **Determine % change that is desired to observe significant differences**
 - **RESULT = minimum of 6 events per site**
- *Why more than 6 events?*
 - **More confidence in results**
 - **Higher likelihood of identifying statistical differences**
 - **Longer time-span / more conditions (e.g. dry weather in wet season)**

Human Loading = Human Toolkit

- *Bacteroidales*
 - anaerobic bacteria
 - Quantitative = concentrations (not just +/-)
 - “Universal” and human markers
- Human-specific viruses
 - Enterovirus and adenovirus (quantitative)
 - Pathogens

Number and Types of Sites

LAR Reach	NUMBER OF SAMPLES							
	Mainstem		Tributaries		Storm Drains		Tillman and LA-Glendale Influent and Effluent	
	Indicators	Human Toolkit	Indicators	Human Toolkit	Indicators	Human Toolkit	Indicators	Human Toolkit
Reach 2	4	2	2	1	~30	7*	6	6
Reach 4	4	2	1	1	~30	7*	6	6
Reach 6	2	1	0	0	0	0	0	0

* = composites of multiple drains

Core BSI Study

Snapshots and Library-Independent Methods

- Evaluate results every 3 events
- Update steering committee
- Includes storm drain watershed analysis

Option	No. of Dry Events	% Difference that can be Significantly Detected	Total BSI Study Cost
1	6	120%	~\$575k
2	7	105%	~\$642k
3	8	95%	~\$709k
4	10	85%	~\$844k

Schedule

Next Steering Committee: June 14, 2007

Sampling could start in July, 2007 if we receive funding approval

Steering Committee on September 13, 2007 could have report on first round of results

Discussion