

The Stormwater Monitoring Coalition of Southern California: Urban Stormwater Model Monitoring Program

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Stormwater Monitoring Coalition

- All of the stormwater agencies and RWQCBs in So Cal
- Mission is to work together to address common technical issues
- Objective is to improve stormwater management and decision-making
 - Improve cost efficiency

Member Agencies

- Ventura Co. Watershed Protection Dist.
- Los Angeles Co. Dept. Public Works
- San Bernardino Co. Flood Control Dist.
- Riverside Co. Flood Control Dist.
- Orange Co. Resources & Development Man. Dept.
- San Diego County Dept. of Environmental Health
- Los Angeles RWQCB
- Santa Ana RWQCB
- San Diego RWQCB
- SCCWRP

Need For A “Model” Program

- Every agency had a different monitoring program
 - What, where, how they monitor
- Varying levels of effort among agencies
- Many agencies feel they have redundant or unimportant monitoring requirements
 - Asked to design an efficient program

Stormwater Model Monitoring

- Goal is to develop a guidebook for developing a monitoring program
 - Not site specific
- Focus on monitoring design
 - Separate manuals for IM and Lab QA
- In partial support of SB72
 - Additional partners

Monitoring Philosophy

- Question driven
 - Focused on decision making
- Effort should be proportional to level of impact
- Monitoring should be adaptive

Three Piece Framework

- Core monitoring
- Regional monitoring
- Special studies

Questions

- Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
- What is the extent and magnitude of the current or potential receiving water problems?
- What is the relative urban runoff contribution to the receiving water problem(s)?
- What are the sources to urban runoff that contribute to receiving water problem(s)?
- Are conditions in receiving waters getting better or worse?

Bite-Sized Pieces

- Break into two general beneficial use categories
 - Human health
 - Ecosystem health
- Break into three habitats
 - Marine, estuarine, freshwater
- Develop tools for regulated and regulators
 - Always arrive at a base program

Assessment Monitoring

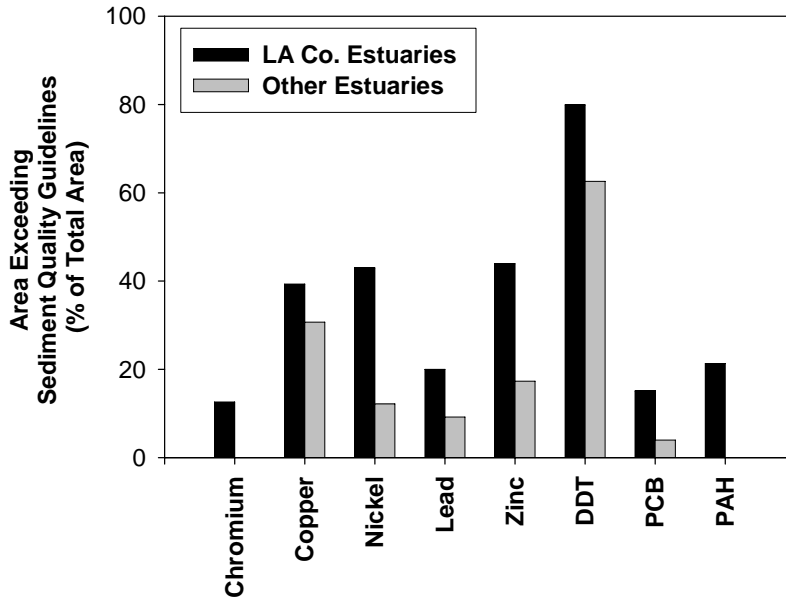
- Most of the bacterial water quality problems at beaches occur near storm drains
 - Monitoring should integrate with County Health Departments
 - Risk based design approach to follow BWQWG design
- Ecosystem health impacts near creek mouths vary by watershed
 - Triad approach for weight of evidence
 - Integrating with regional monitoring programs to determine breadth of natural variability

USAGE	LIKELIHOOD OF CONTAMINATION			
	High	Medium	Low	No known source
High use beach	Daily or 5X per week	5X per week	Weekly or 5X per month	Weekly or 5X per month
Accessible sandy beach	2 – 3X per week	Weekly or 5X per month	Weekly or 5X per month	None
Other accessible	Weekly or 5X per month	Weekly or 5X per month	Monthly or other ID system	None
Not accessible	None	None	None	None

Extent and Magnitude Monitoring

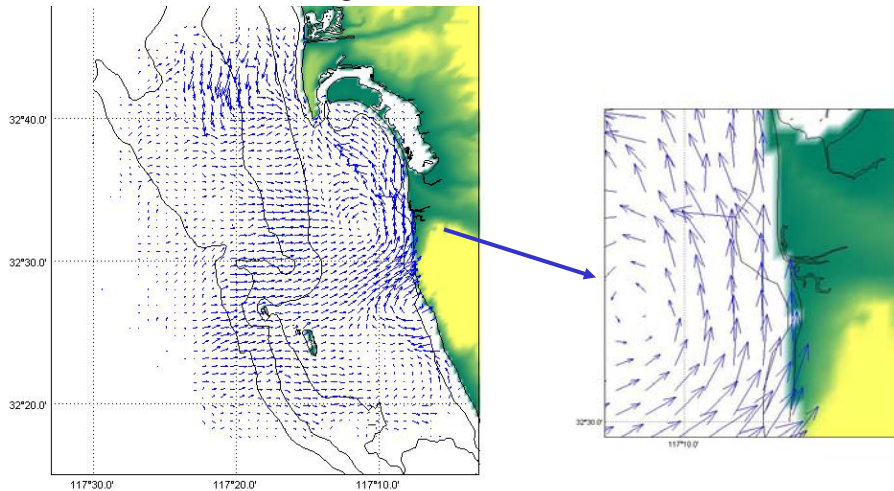
- Triggered by Assessment question
- Special studies or regional monitoring
- Should have temporal and spatial components
 - Plots over time, maps, % area estimates

Bight '03 Regional Monitoring

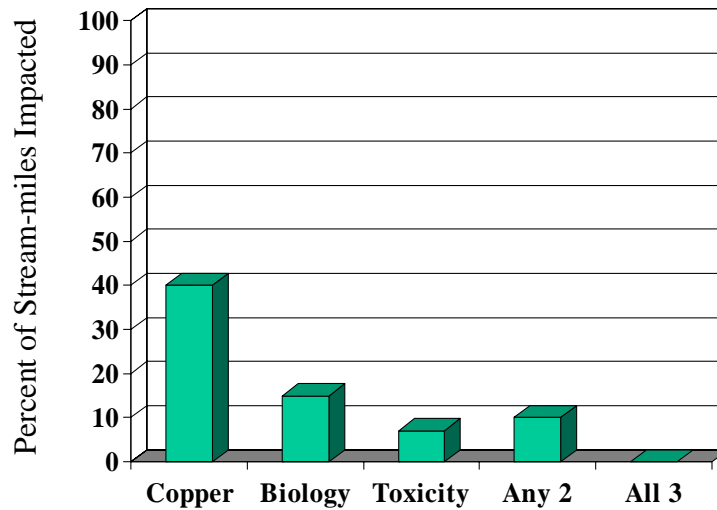


Southern California Coastal Ocean Observing System (SCOOS)

24 hr averaged ocean currents – 23Feb03



San Gabriel River Watershed Wide Monitoring Summer 2005

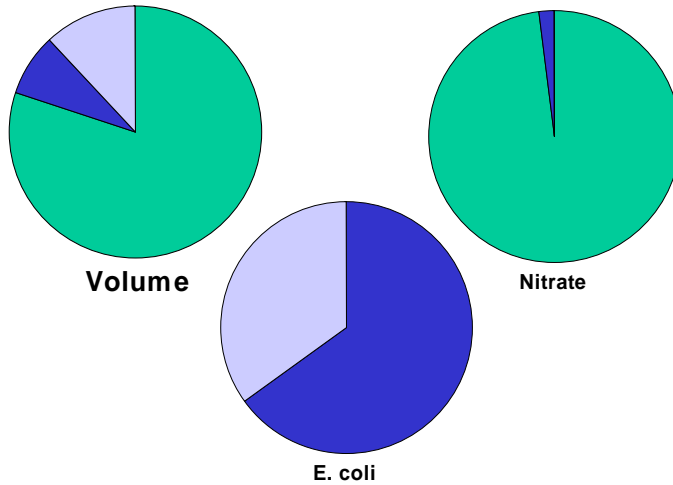


Urban Runoff Contribution Assessment

- Goal is to get relative contribution among potential sources
 - Pie chart
- Visual recon to detailed modeling
 - Low to moderate accuracy is adequate
- Use as a trigger for Source ID

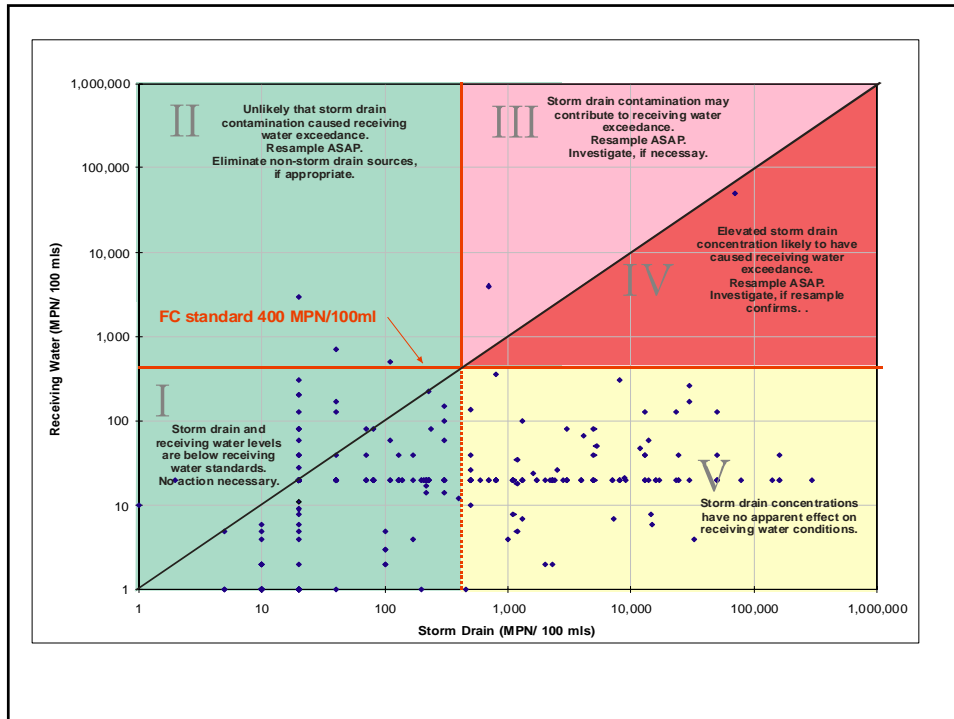
San Gabriel River - Sept 2002 (% of Total)

■ WRP ■ Lg Drains ■ Sm Drains



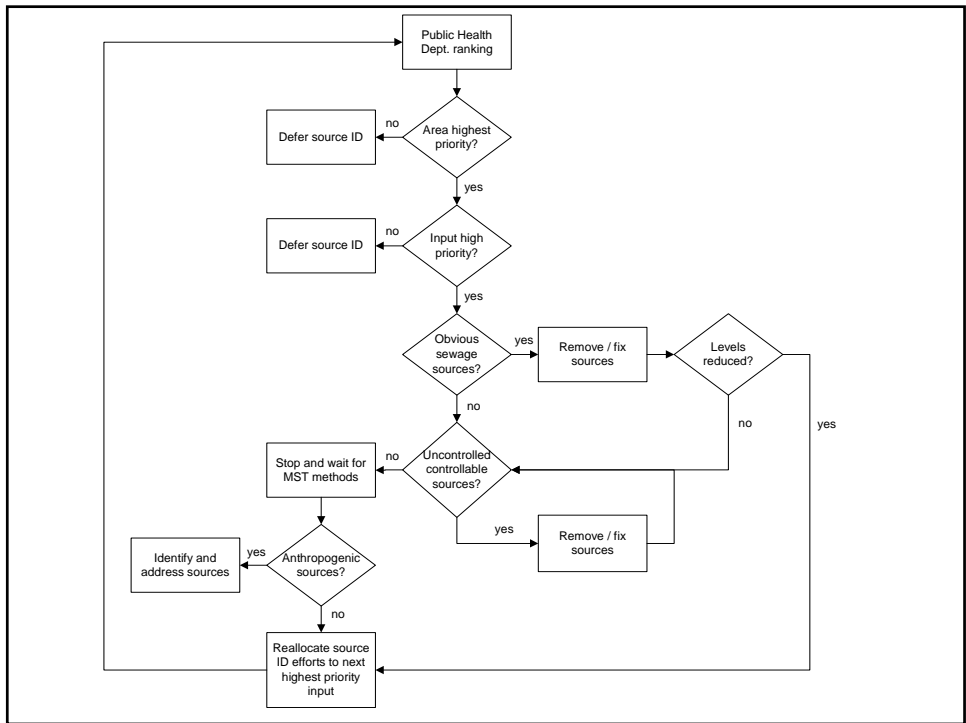
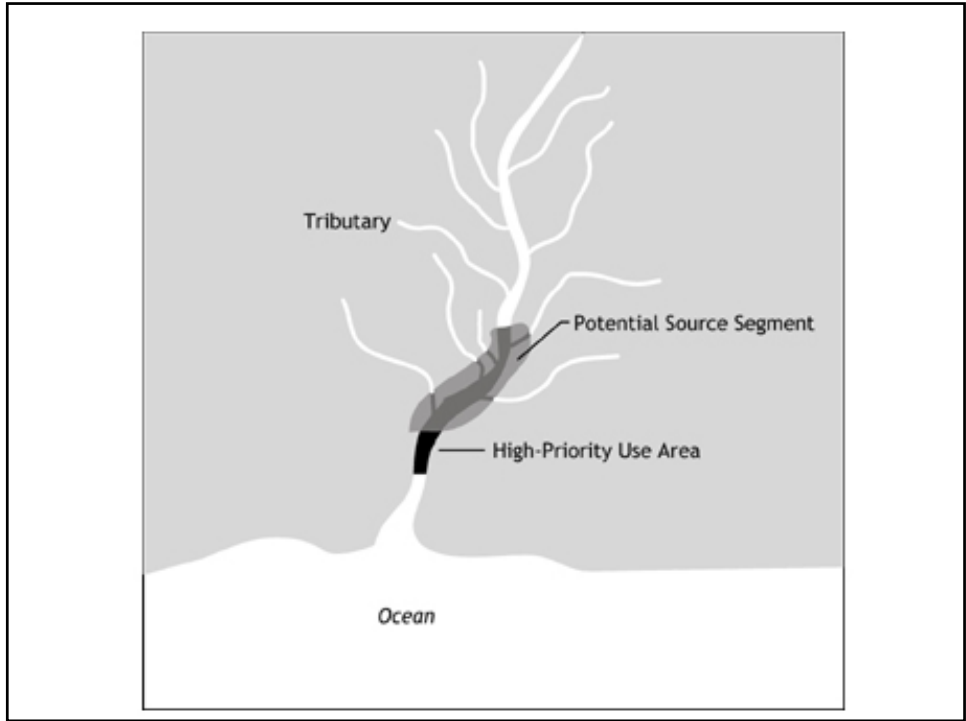
Source ID Monitoring

- Two main design considerations
- Which drains?
- How to prioritize?
 - Created a design for tracking



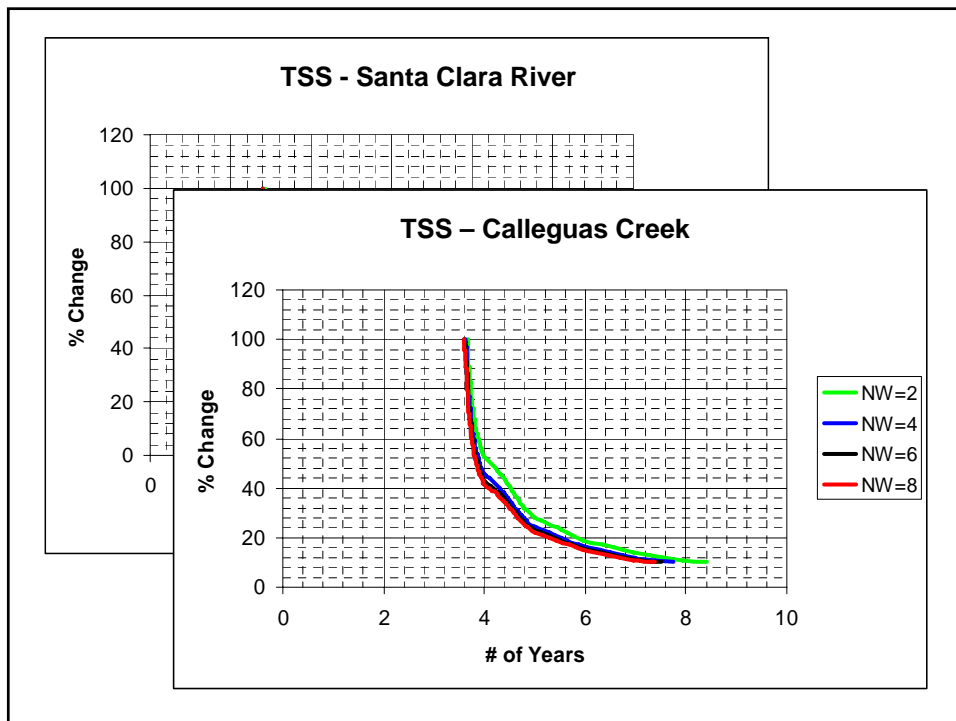
Source ID Prioritization

- Allows managers to rank drains for action
 - Forces and onramp for special studies
- Created a scoring system as a function of load and impact
 - Impact measured as upstream/downstream changes
- Allows an offramp
 - Focus on human sources of fecal contamination



Trend Monitoring

- Trend monitoring is a function of 3 factors
 - Amount of change, time and variability
- Should include loads and impacts
- Use power analysis to estimate frequency
 - May require initial sampling



Summary

- Stormwater agencies and RWQCBs have designed a “model monitoring” program
 - Guidance to initiate permit negotiations
- Question-focused monitoring
 - Do something with the data
 - Requires adaptive elements
- Three part framework
 - Core, regional, special studies
- Series of design tools available