

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

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[www.sccwrp.org](http://www.sccwrp.org)

# 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 County Public Facilities and Resources 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

# 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

# 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

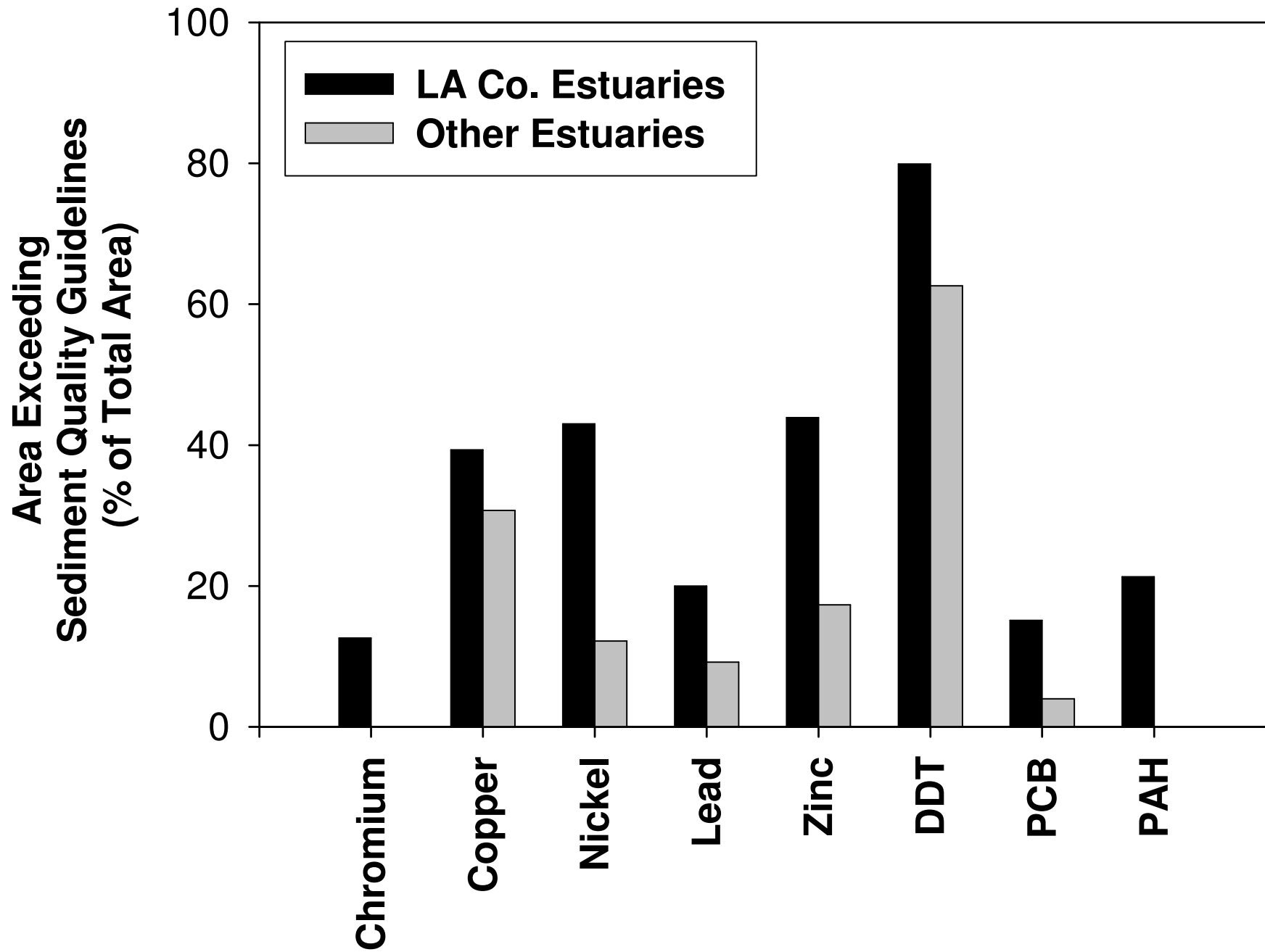
- Most of the bacterial water quality problems at beaches occur near storm drains
  - Monitoring should integrate with County Health Departments
  - Risk based design approach to follow BWQWG design
- Ecosystem health impacts near creek mouths vary by watershed
  - Triad approach for weight of evidence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

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

# Extent and Magnitude Monitoring

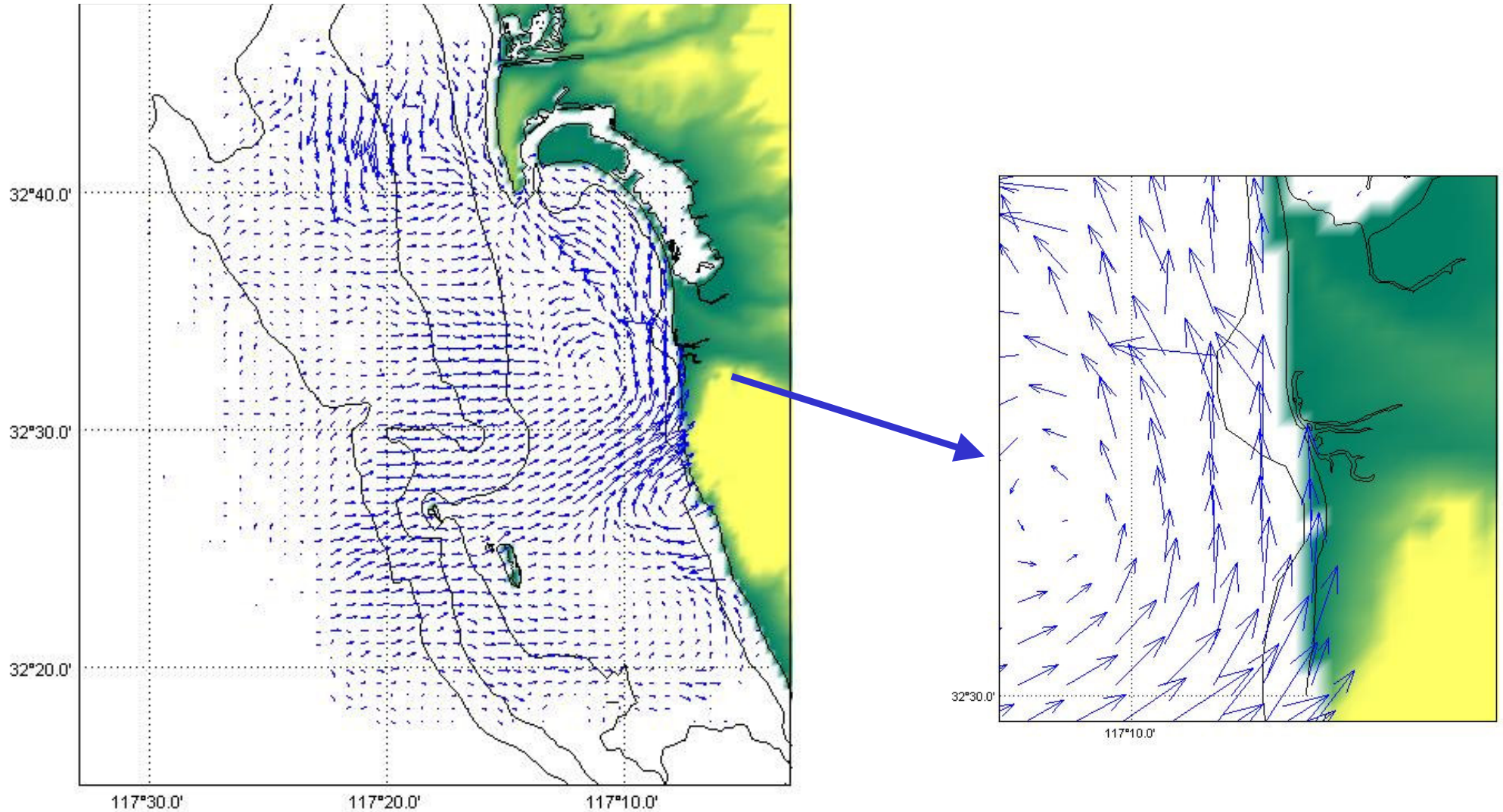
- Triggered by Assessment question
- Special studies or regional monitoring
- Should have temporal and spatial components
  - Plots over time, maps, % area estimates

# ***Bight '03 Regional Monitoring***



# ***Southern California Coastal Ocean Observing System (SCOOS)***

***24 hr averaged ocean currents – 23Feb03***



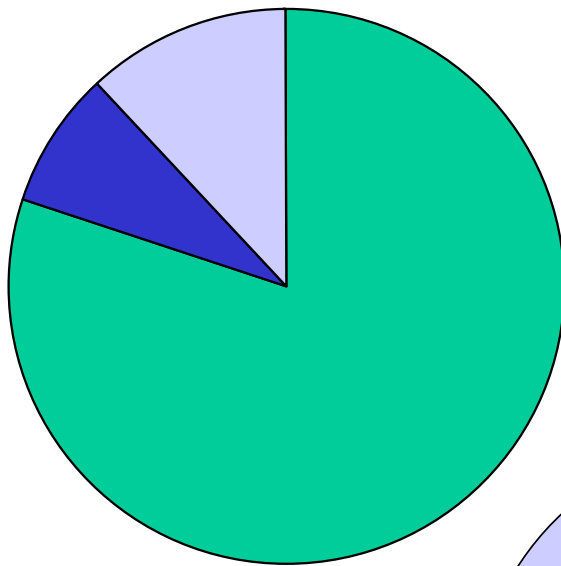
# Urban Runoff Contribution Assessment

- 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

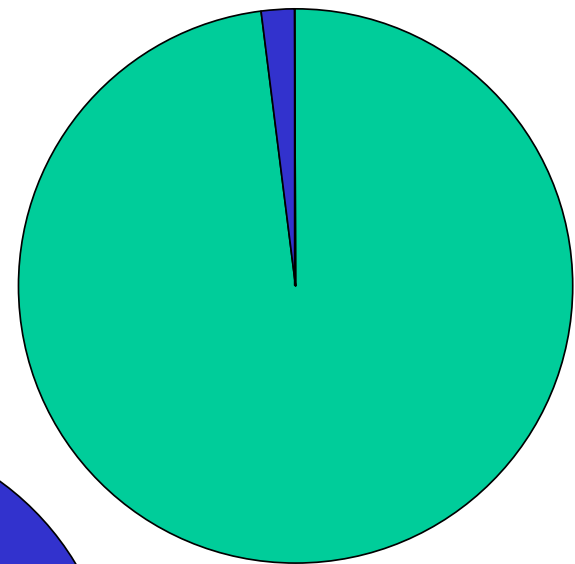
# *San Gabriel River - Sept 2002*

## *( % of Total )*

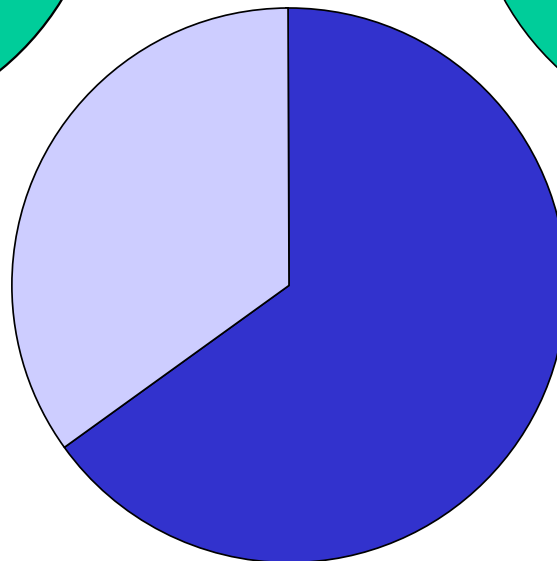
■ WRP ■ Lg Drains ■ Sm Drains



**Volume**



**Nitrate**

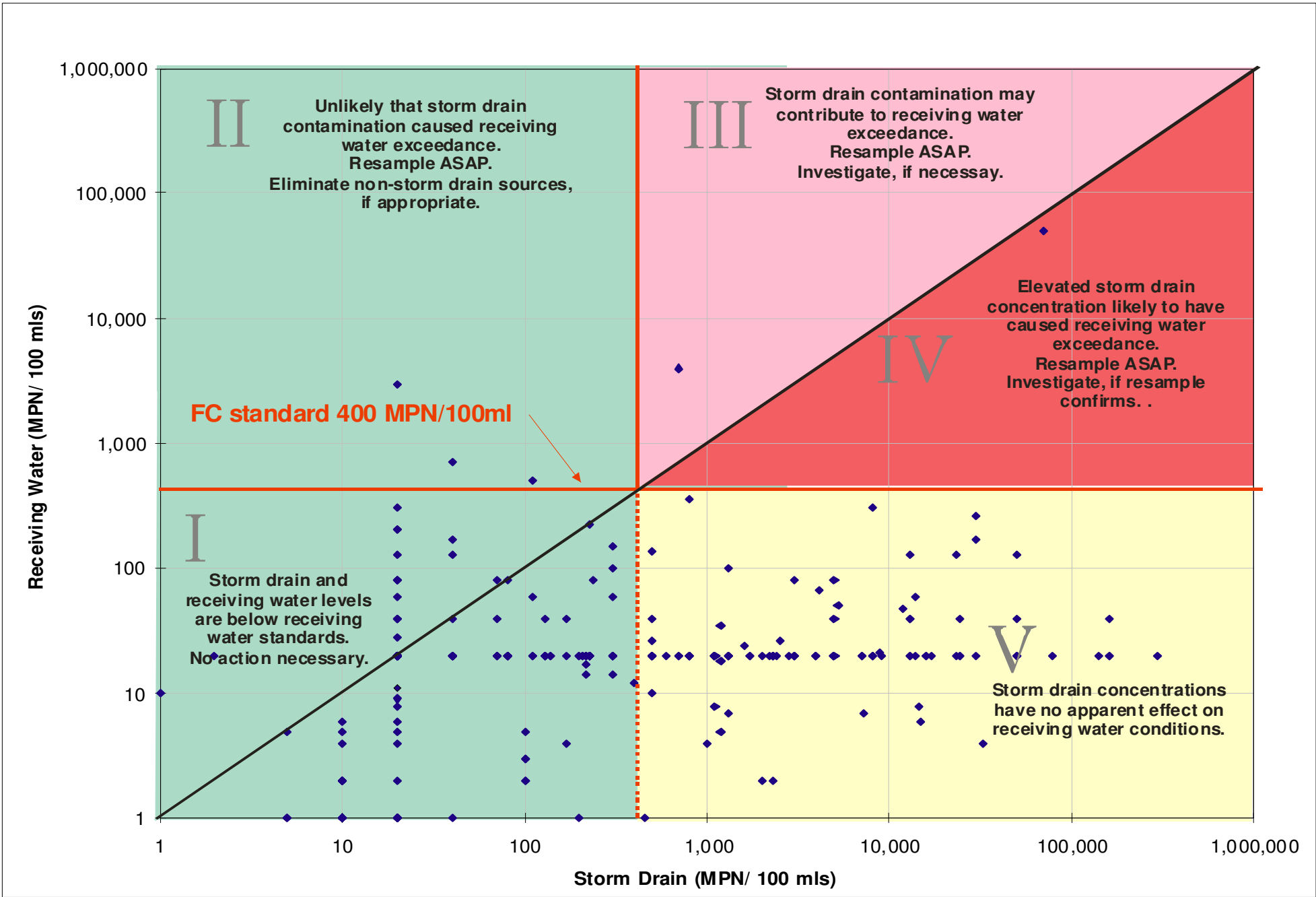


**E. coli**



# Source ID Monitoring

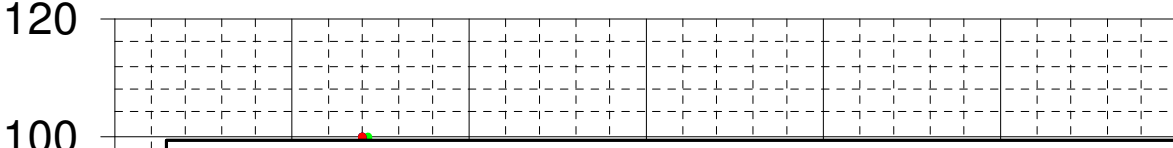
- Two main design considerations
- Which drains?
  - Created a prioritization scheme
- How to do it?
  - Created a design for tracking



# Trend Monitoring

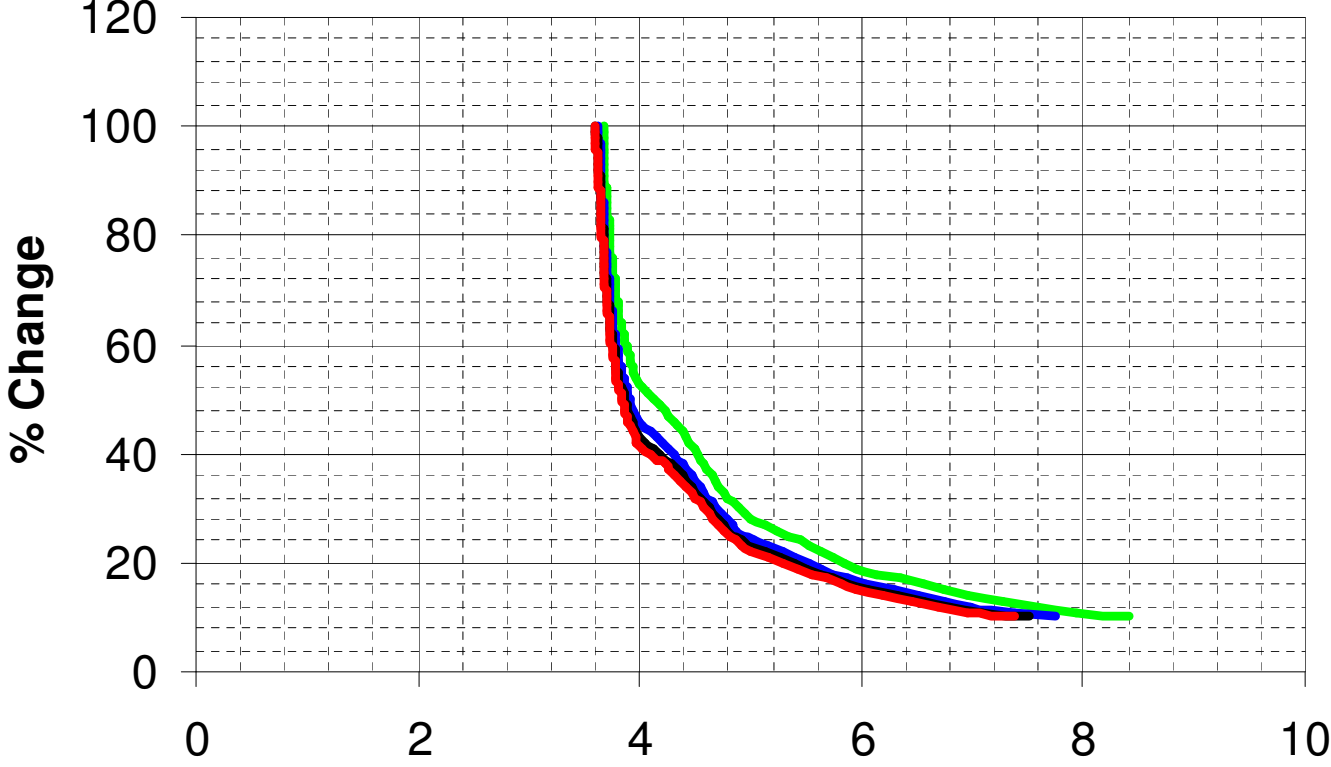
- Trend monitoring is a function of 3 factors
  - Amount of change, time and variability
- Should include loads and impacts
- Use power analysis to estimate frequency
  - May require initial sampling

# TSS - Santa Clara River



# TSS - Calleguas Creek

% Change



- NW=2
- NW=4
- NW=6
- NW=8

# of Years

# 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