SANITATION DISTRICTS OF LOS ANGELES COUNTY

*Converting Waste Into Resources*

# A POTW Perspective on CEC Research, Monitoring, and Management

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Laboratories Section

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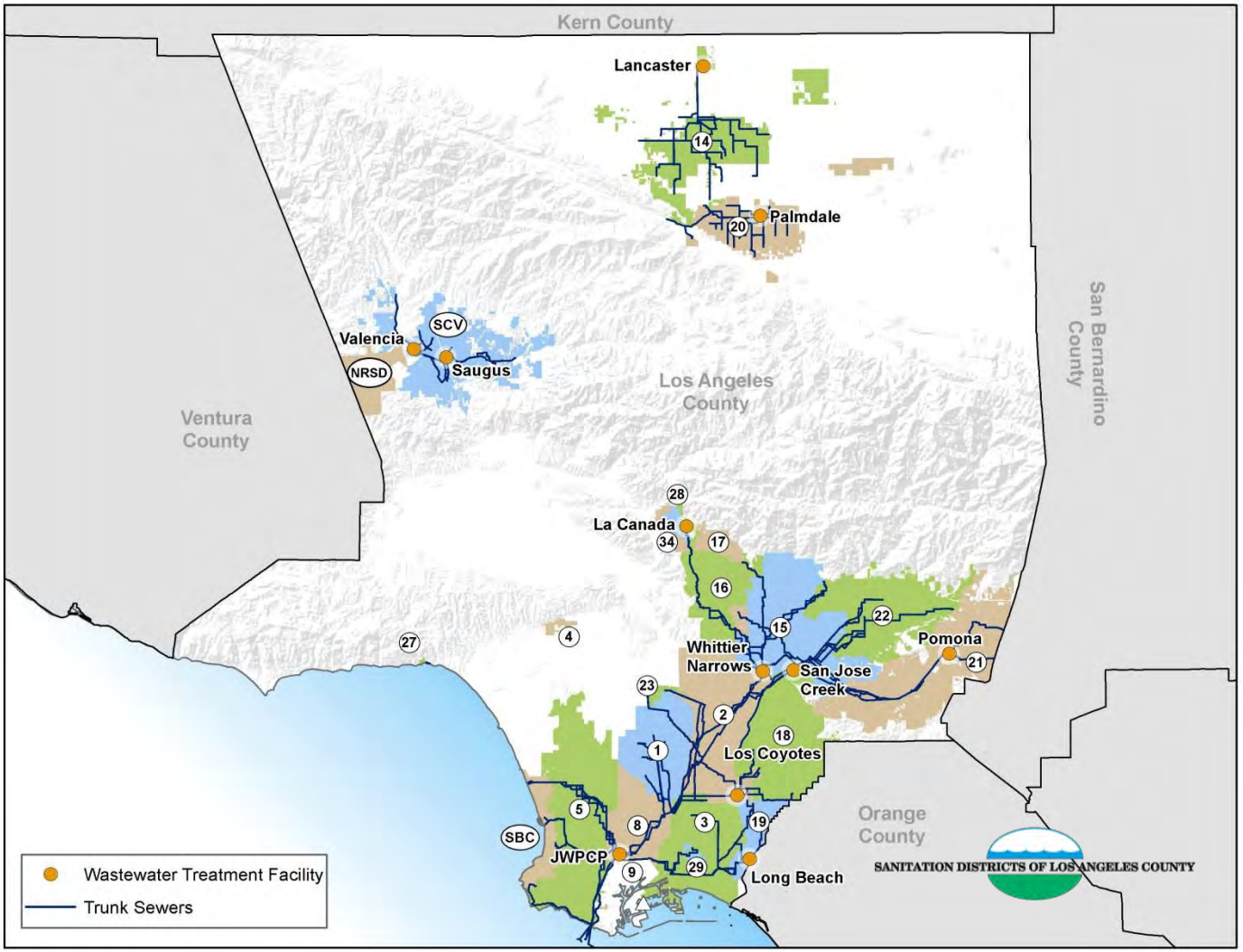
# Key topics that will be covered today

Overview of LACSD CEC efforts

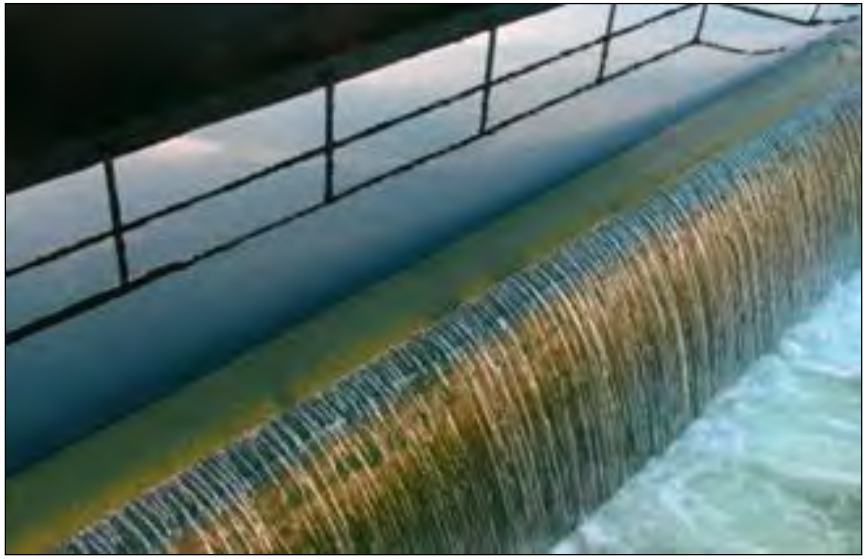

Lessons learned

Going forward

# LACSD operates large interconnected wastewater systems in LA County



# LACSD is a major recycled water producer



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# Compost is produced from 350,000 wet tons of LACSD biosolids each per year

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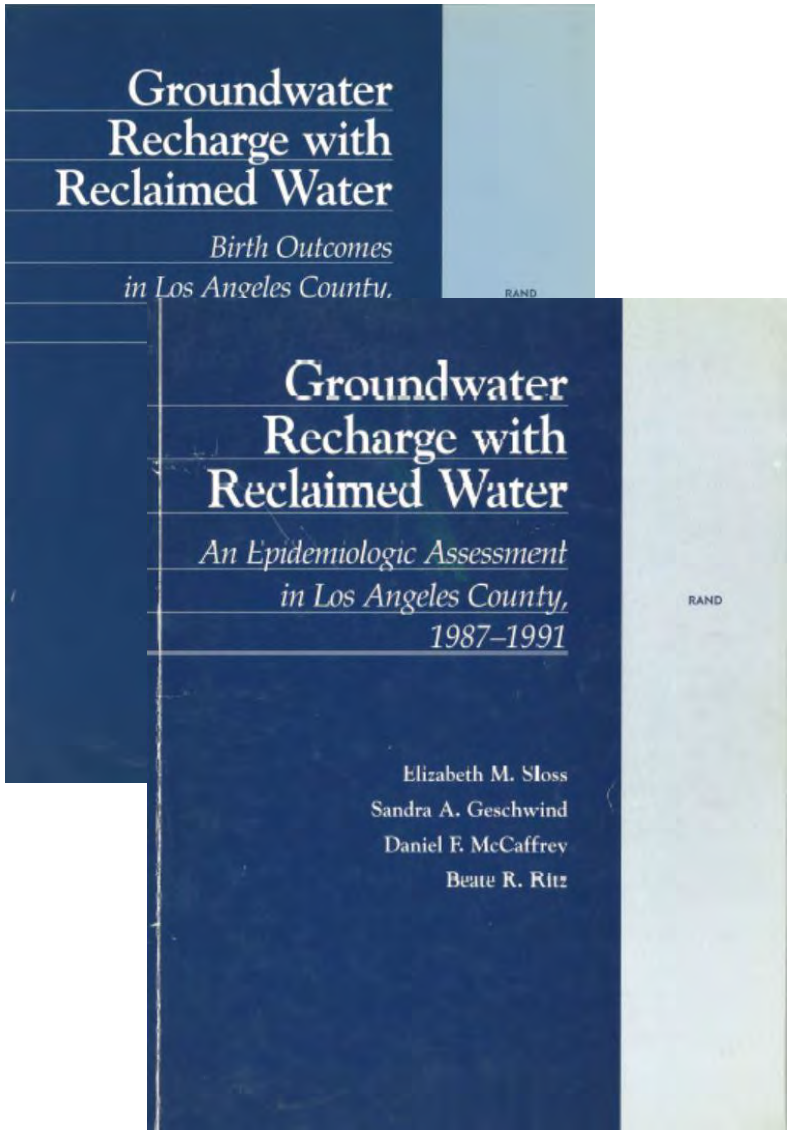
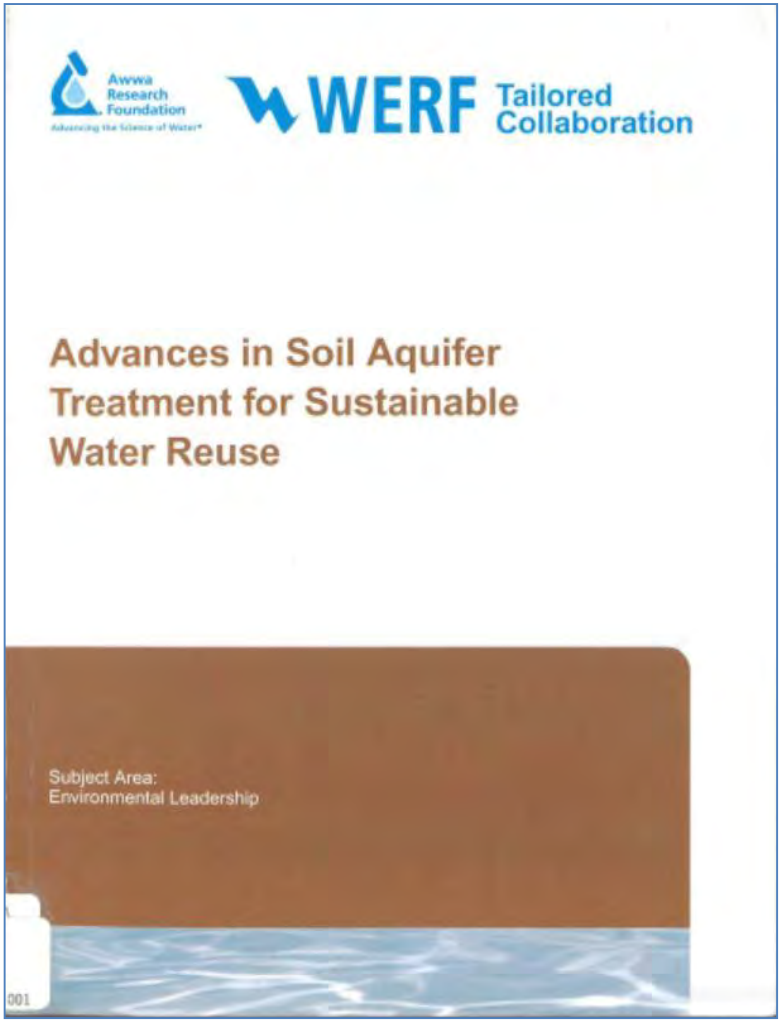
# LACSD was addressing CECs before they were called CECs



# The 1999 USGS Survey brought a new focus

USGS
science for a changing world

**Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams**

*Pharmaceuticals, hormones, and other organic wastewater contaminants were measured in 139 streams during 1999 and 2000.*

# LACSD targeted source control efforts on hospitals and residents


# LACSD was an early pioneer in method development

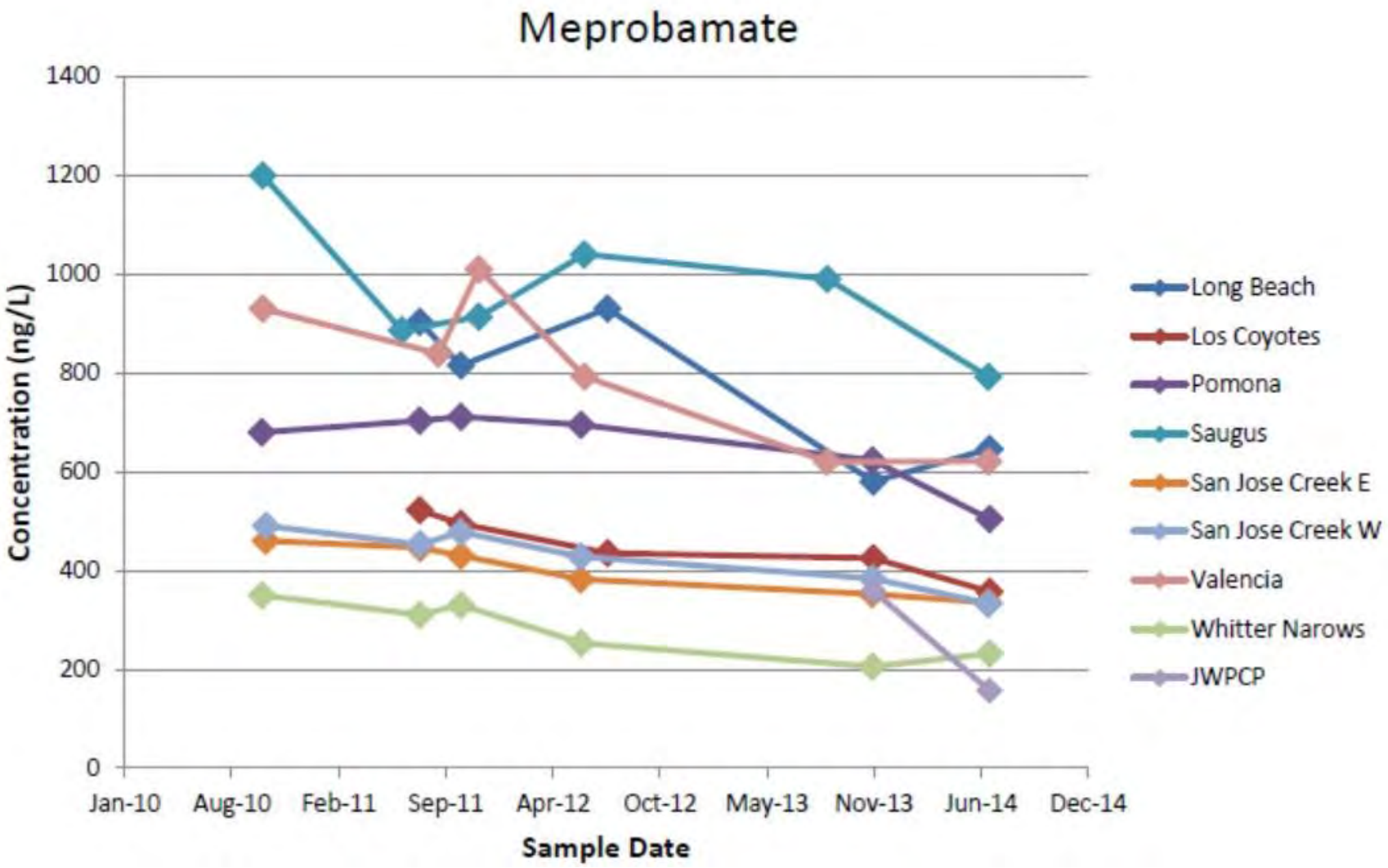

**6810 Pharmaceuticals and Personal Care Products**

**6810 Pharmaceuticals and Personal Care Products**

Approved by SM Committee: 2013

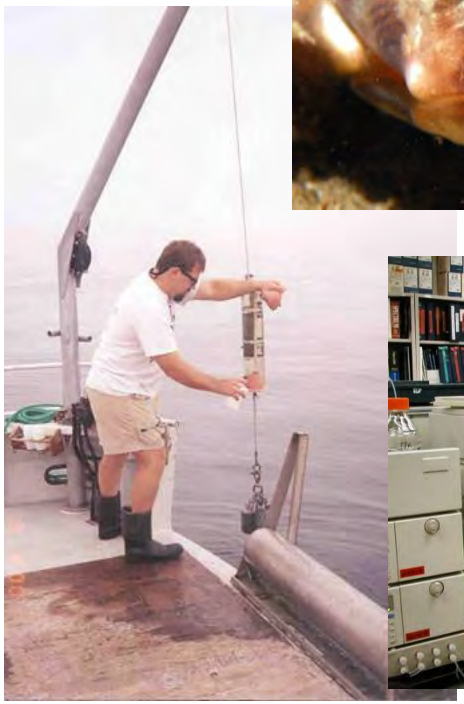
[N] - New Methods

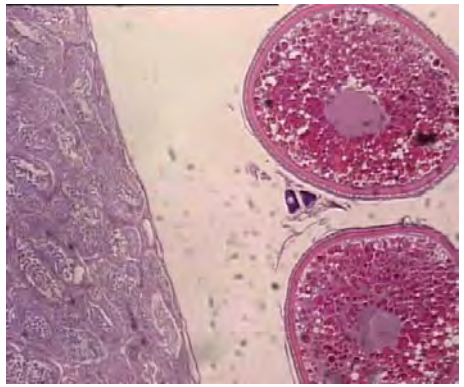
# LACSD results show no expected impacts and no strong trends



# LACSD has conducted wide ranging CEC research efforts

# Ocean discharge study showed no organism morphology or population level impacts



# Freshwater studies show some compounds above monitoring trigger levels

San Gabriel River

Santa Clara River

SCCWRP Established 1969

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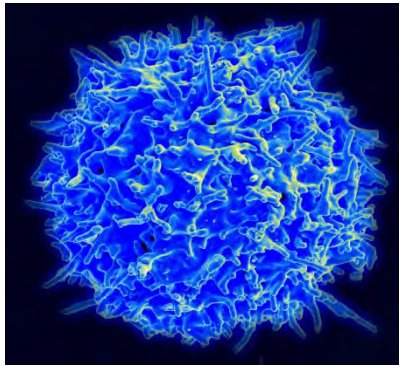
Water Boards

# Low potential for reproductive impairment in SJCE WRP final effluent

# Currently investigating linkages between cellular, tissue, and whole organism effects for 17-β estradiol




Cellular

Tissue

Whole organism

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SCCWRP
Established 1969

# Lessons Learned

# Bad QA/QC is bad news

**Male fish with eggs in sewage off California coast** *Reuters* 11/15/05

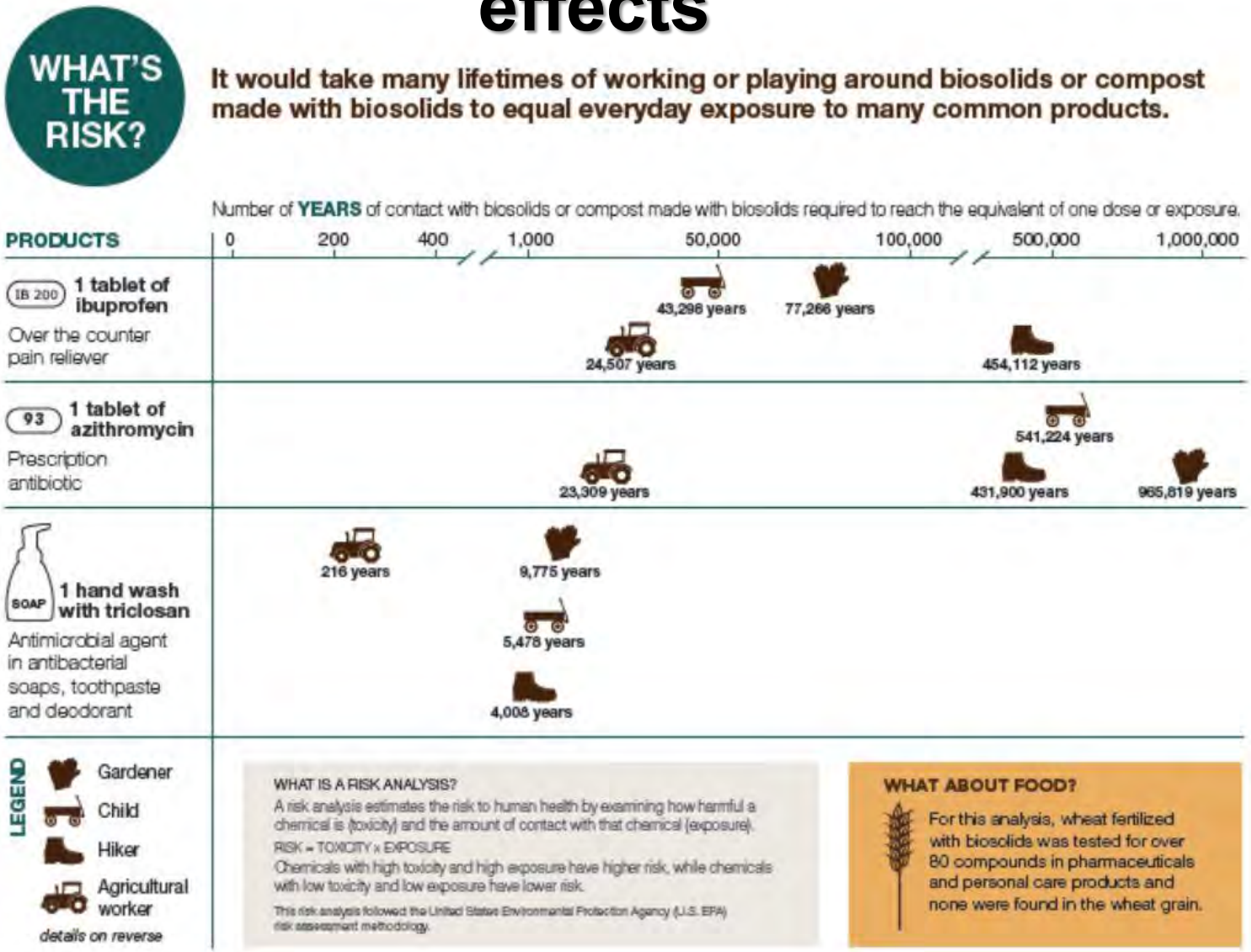
**Sunscreen Sexually Alters Fish**

*United Press International* 11/15/05

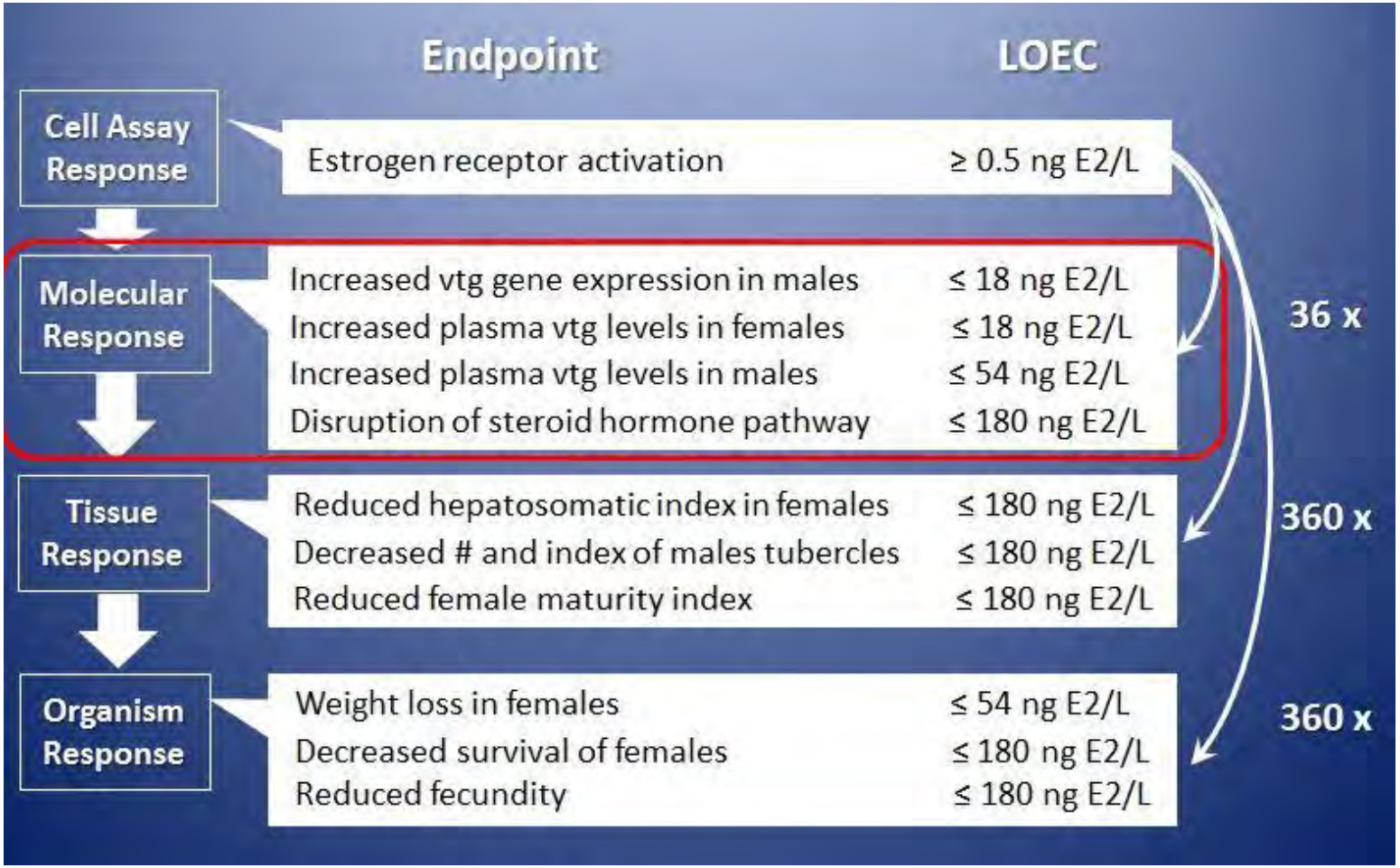
**Sewage pollutants cause southern California male fishes to bear eggs**

*Xinhua English* 11/15/2005

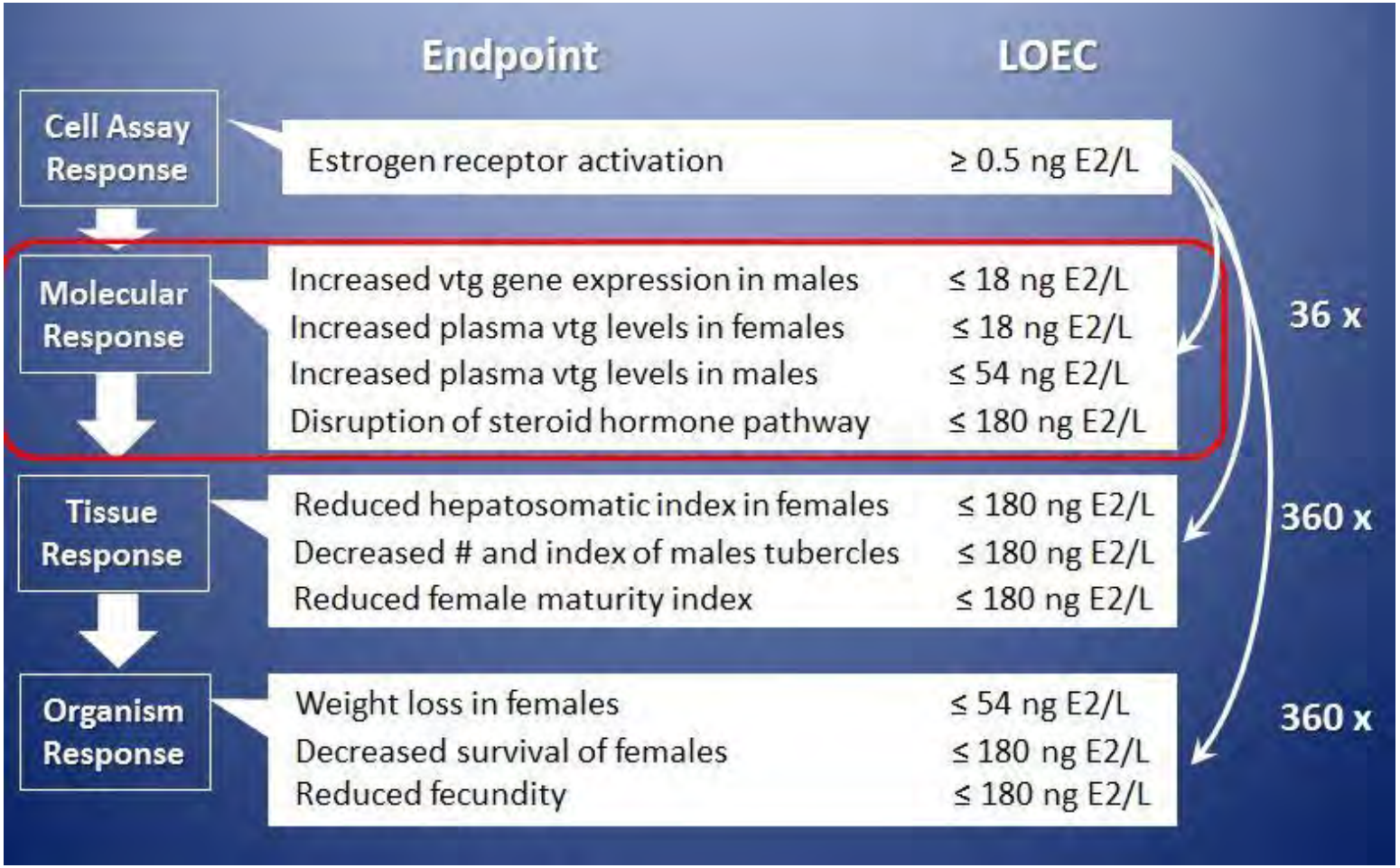
# Concentrations linked to management actions must be compared to meaningful effects



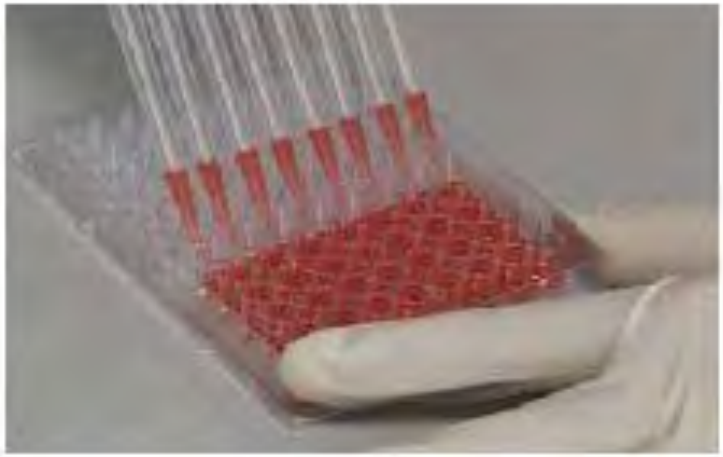
# Linkages are key to use of bioanalytical techniques

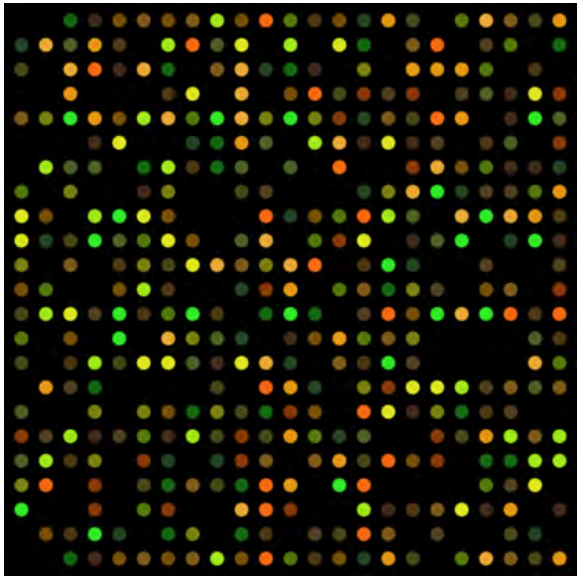


# Appropriate use of thresholds needs to be clearly articulated

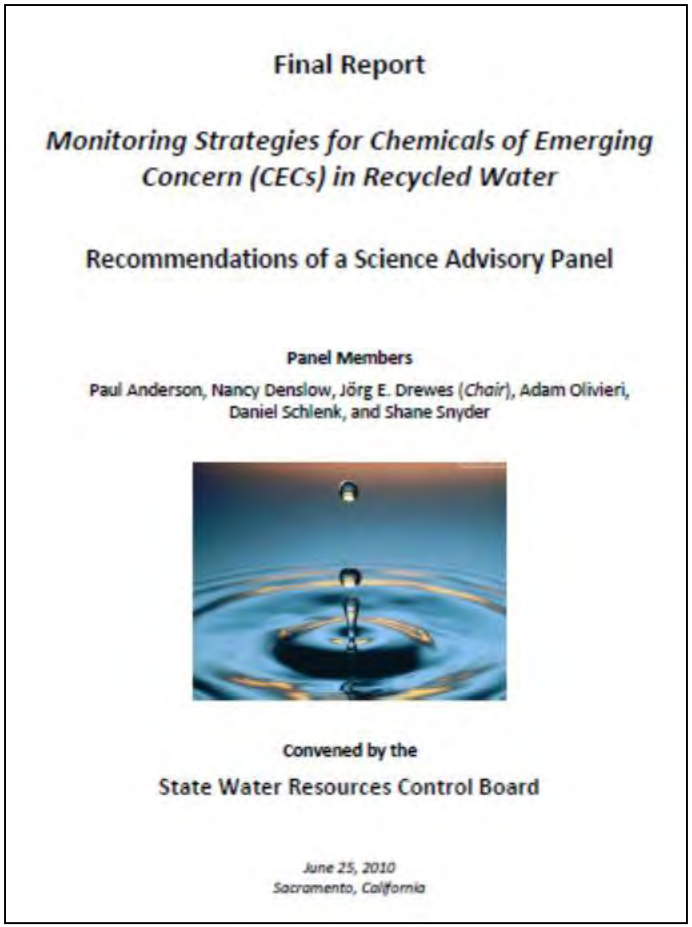


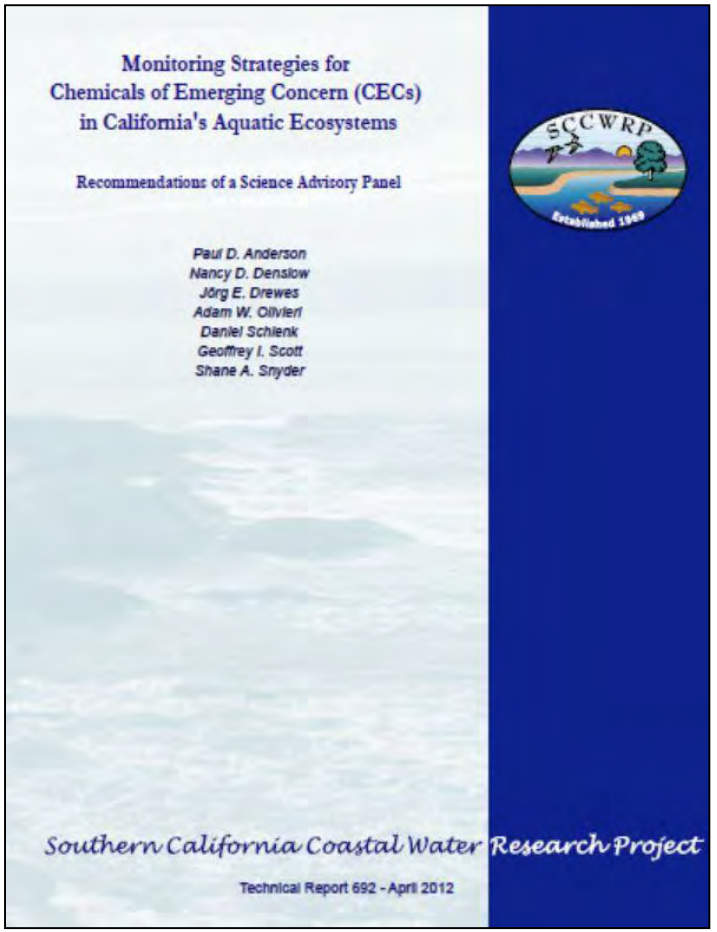
# Screening bioassays should be used properly





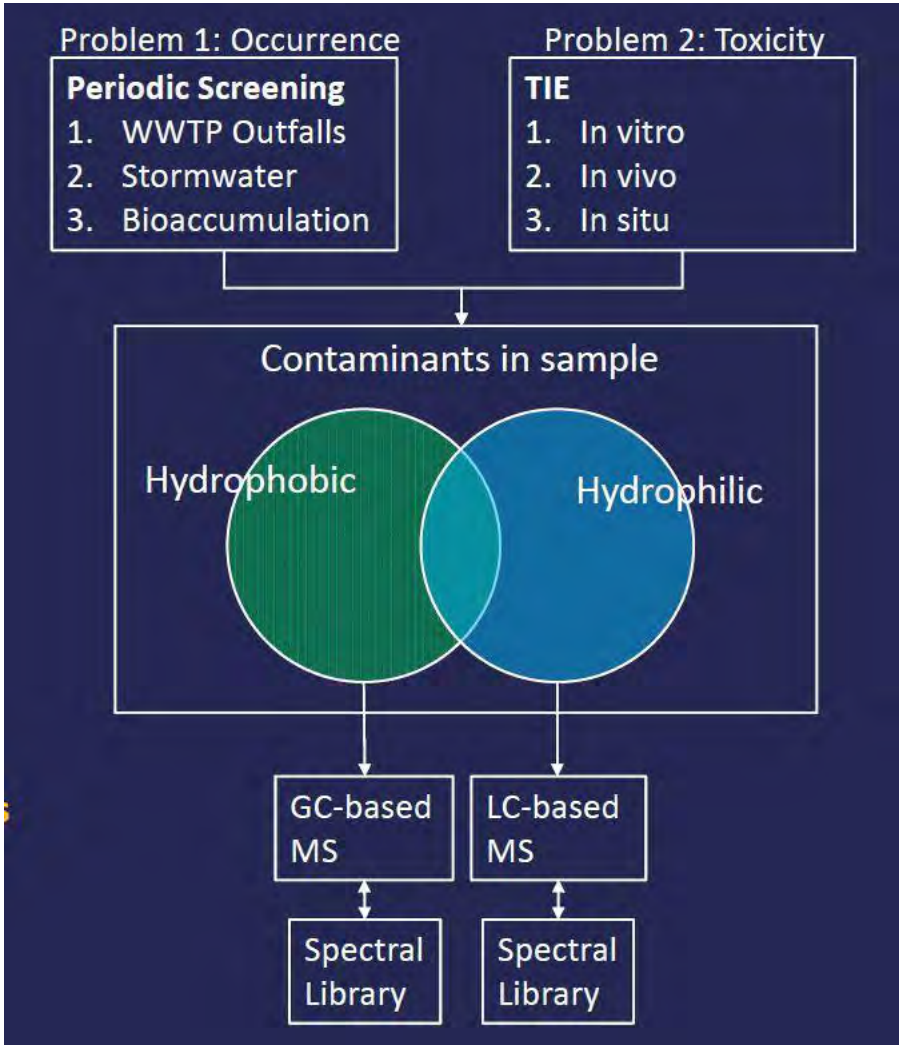
# Scientifically based process should be used to determine CEC monitoring requirements for dischargers



# Pesticides monitoring should be conducted by Department of Pesticide Regulation

# Non-targeted analyses have a role to play



# Identifying chemicals of concern based on sales/usage is useful

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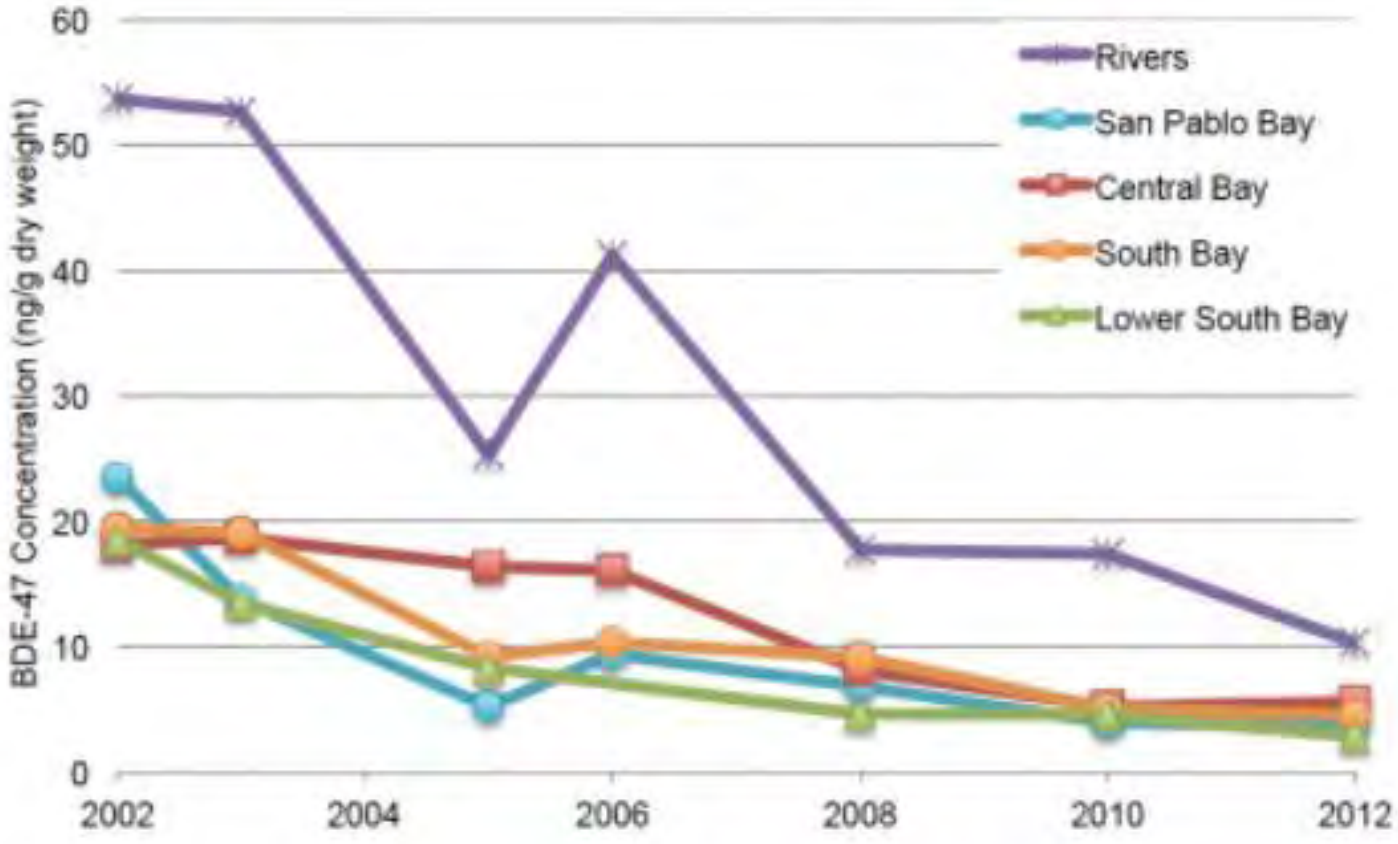
## DIAGNOSTIC TOOLS TO EVALUATE IMPACTS OF TRACE ORGANIC COMPOUNDS ON AQUATIC POPULATIONS

WERF recently completed Phase 1 research on *Diagnostic Tools to Evaluate Impacts of Trace Organic Compounds on Aquatic Populations and Communities: Phase I -- Prioritization, Development and Testing of a Site-Specific Framework* The following is a brief summary of the series of products/tools from Phase 1 and what they can achieve:

- CEC5R08 --*Diagnostic Tools to Evaluate Impacts of Trace Organic Compounds* the summary final report of the research performed in Phase 1.
- CEC5R08a -- *Prioritization Framework for Trace Organic Compounds*outlines prioritization approaches that will be useful to utilities or localities to organize, reduce, and manage the process of screening TOrC.
- CEC5R08b -- *Development of Diagnostic Tools for Trace Organic Compounds and Multiple Stressors* presents a preliminary screening process and ecological diagnostic approaches that could be used to help prioritize and evaluate treated wastewater-influenced sites that may be most at risk from TOrC exposure.
- CEC5R08c --*Testing Diagnostic Tools for Trace Organic Compounds and Multiple Stressors: Case Studies* presents seven case studies which illustrate the use of different techniques for diagnosing potential effects of TOrC at a site. These case studies represent a range of scenarios and the monitoring information available that most utilities and water resource managers are likely to face.

# Focus management actions on high threats

# True source control is a highly effective means of reducing pollutants



# Stakeholder input is important

# Collaboration is highly valuable











# Going forward

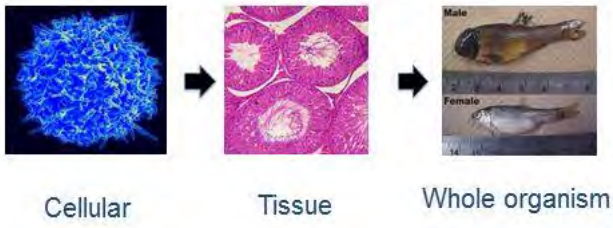
# Coordination and input are important

Continue statewide coordination

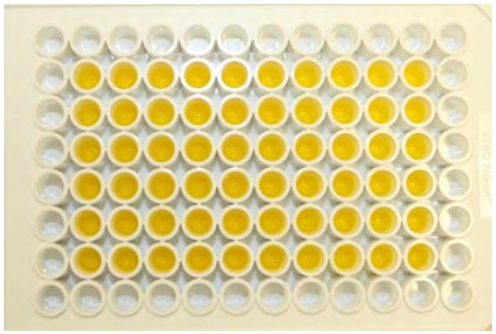
Continue on-going stakeholder involvement

Continue use of expert panels

# Focus on important science needs

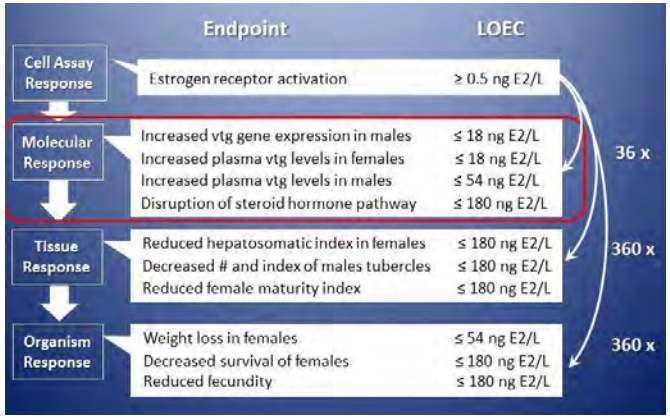



Linkages for bioassays



Bioassay standardization and validation

Setting thresholds appropriately




Accurately communicating appropriate use of thresholds

# Support true source control efforts

State's Safer Consumer Products Regulations

Federal TSCA Prioritization of Chemicals for Risk Evaluation

Coordination of pesticide regulation between Water Boards and DPR

Pharmaceutical collection programs

***Questions?***