

# Water Quality

Presentation to the Water Management  
Science Board

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# CALFED Water Quality Goals

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- “Continuous improvement in water quality in the Bay-Delta system”
- “Provide good quality water for all beneficial uses”
  - “Provide safe, reliable and affordable drinking water to the 22 million Californians who rely on the Delta for all or part of their drinking water”

# CALFED Drinking Water Quality Target

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- “CALFED Agencies’ target for providing safe, reliable, and affordable drinking water in a cost-effective way, is to achieve either:
  - a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 ug/L bromide and 3.0 mg/L total organic carbon, or
  - b) an equivalent level of public health protection (ELPH) using a cost-effective combination of alternative source waters, source control and treatment technologies.”

# Additional Drinking Water Constituents of Concern

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- bromide
- organic carbon
- pathogens
- nutrients
- salinity
- turbidity
- taste and odor

# Multiple Barrier Principle

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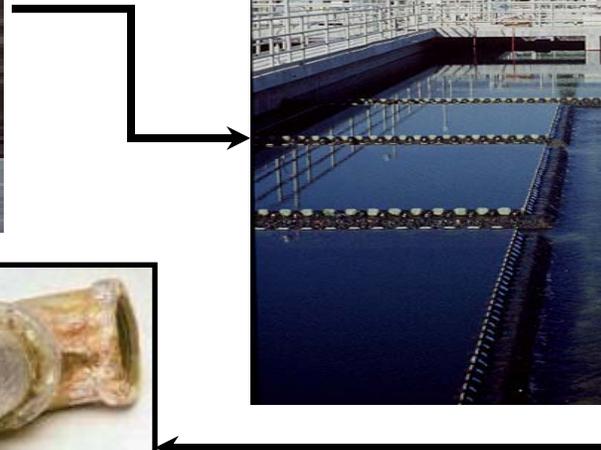
## Source Protection

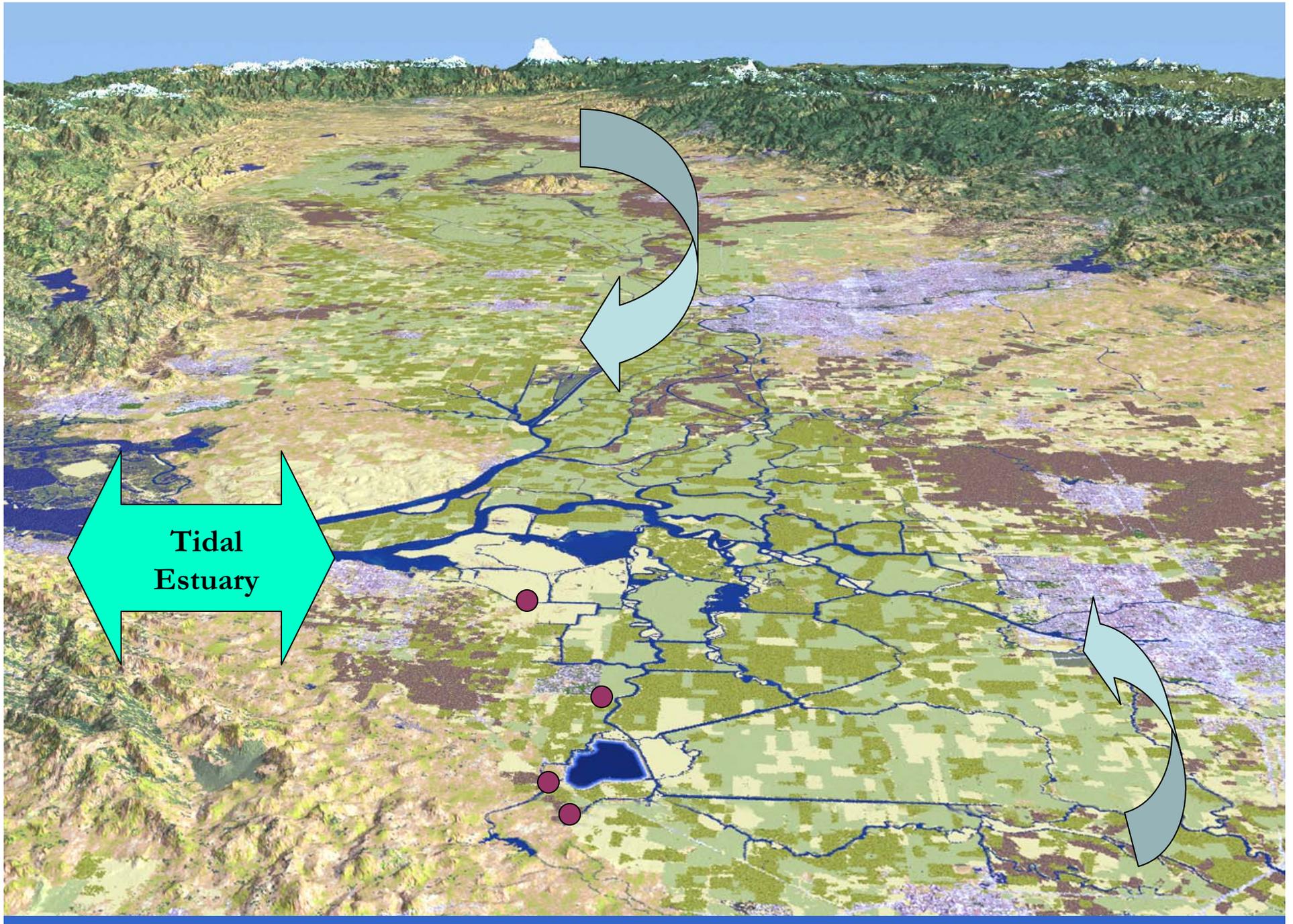


## Treatment Effectiveness



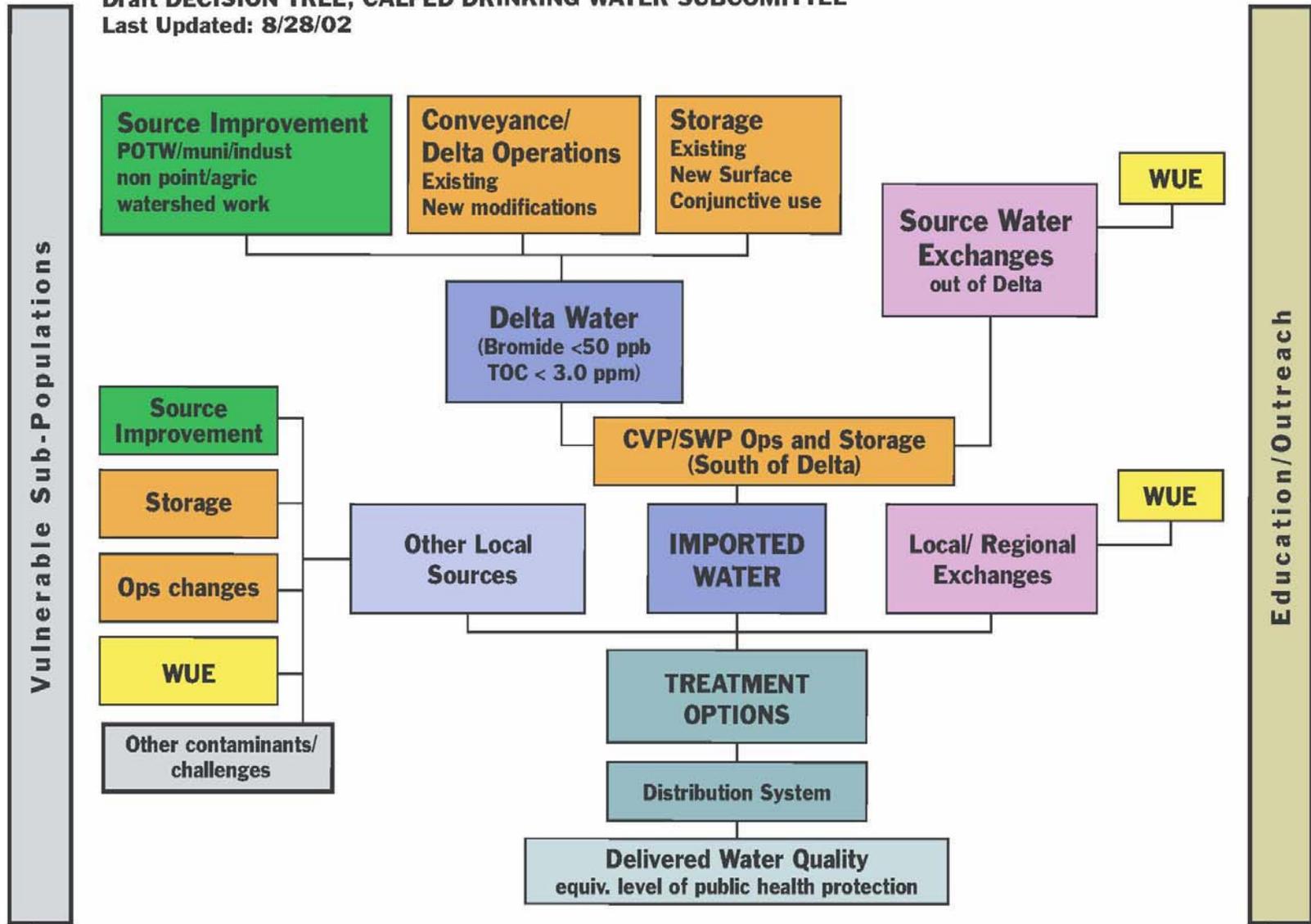
## Distribution Integrity





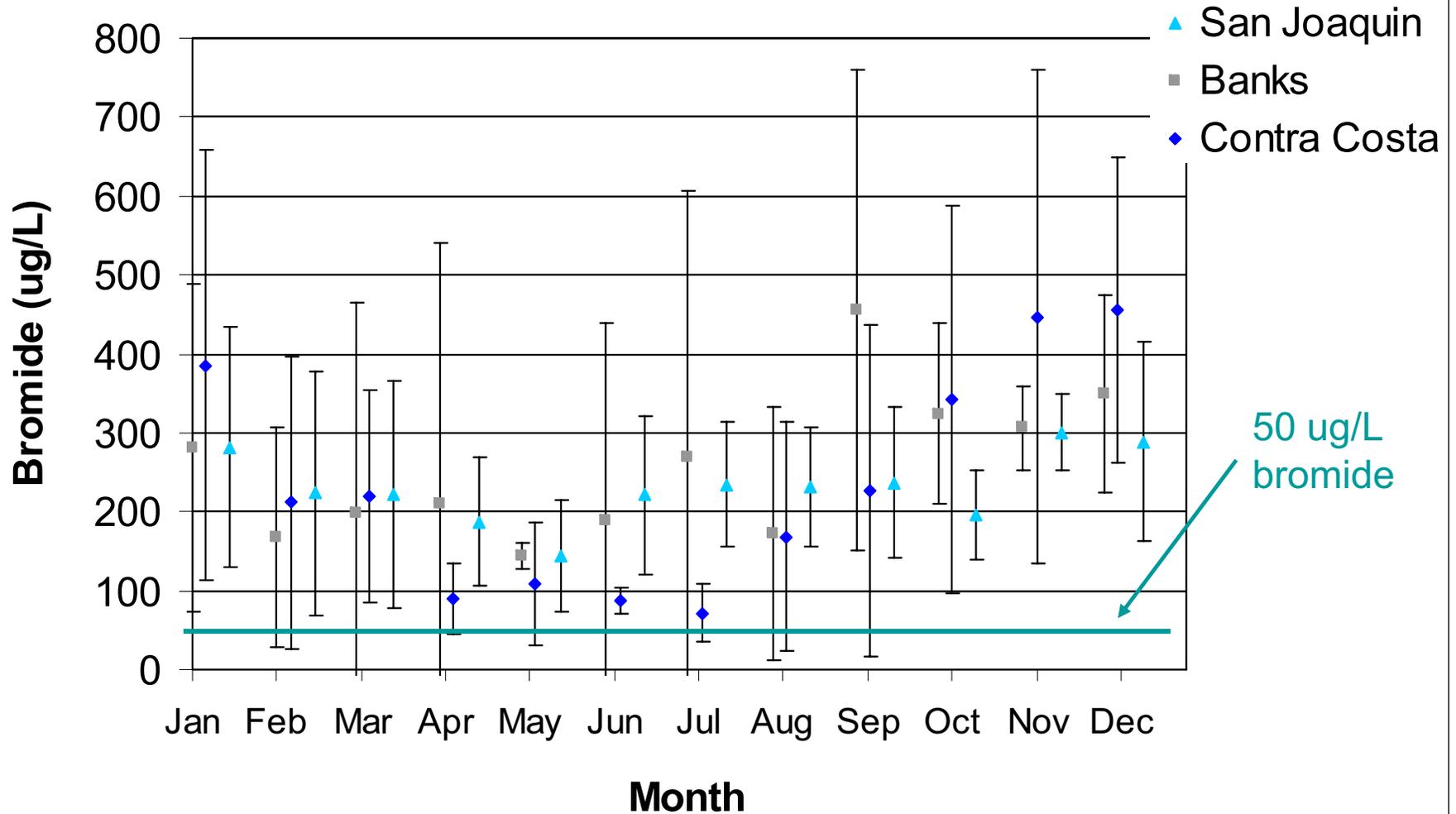
**Tidal  
Estuary**

**EQUIVALENT LEVEL OF PUBLIC HEALTH PROTECTION**  
**Draft DECISION TREE, CALFED DRINKING WATER SUBCOMMITTEE**  
 Last Updated: 8/28/02



# Existing Conditions (Examples)

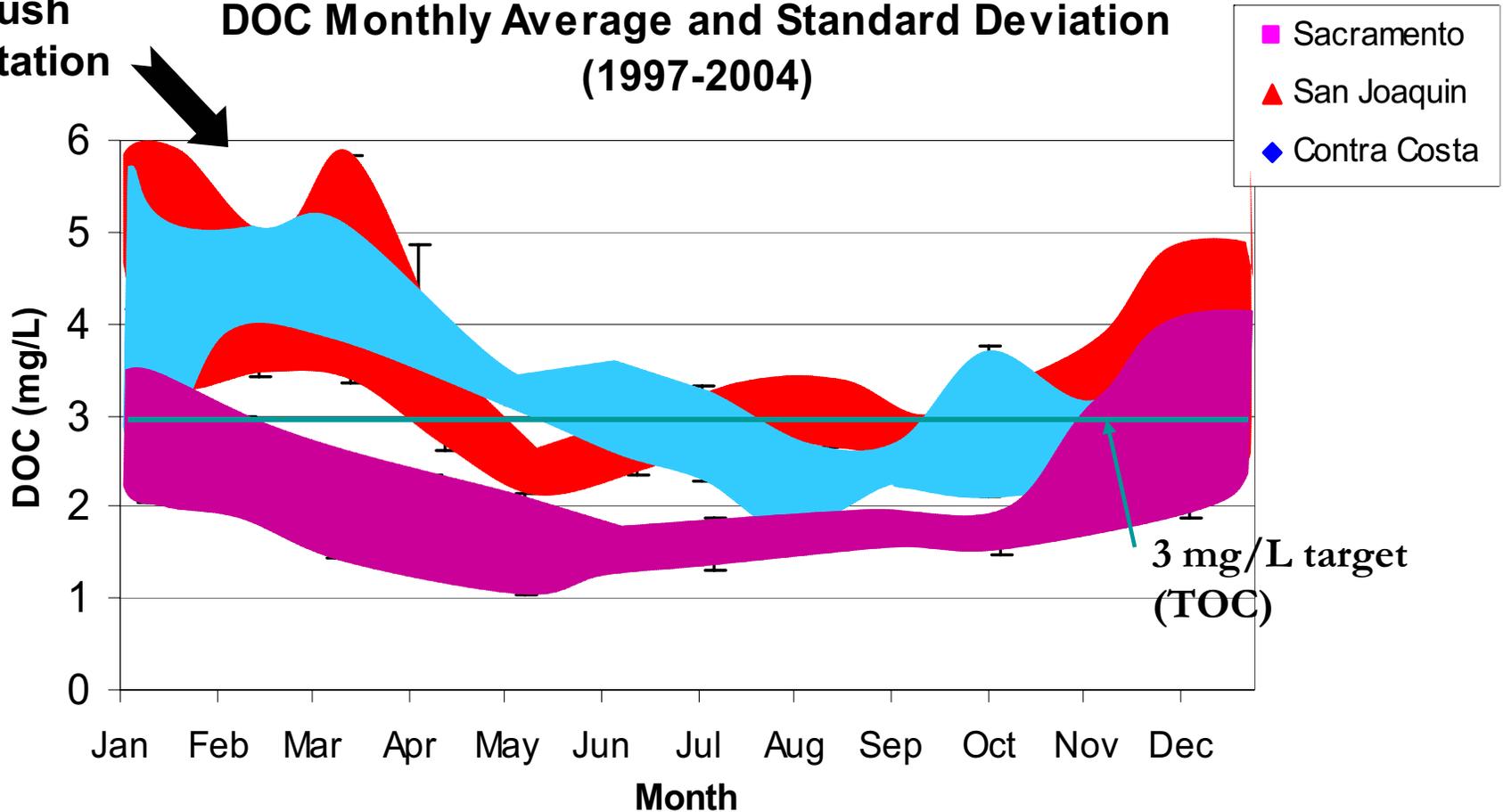
## Bromide Monthly Average and Standard Deviation (1996-2004)



# Organic Carbon

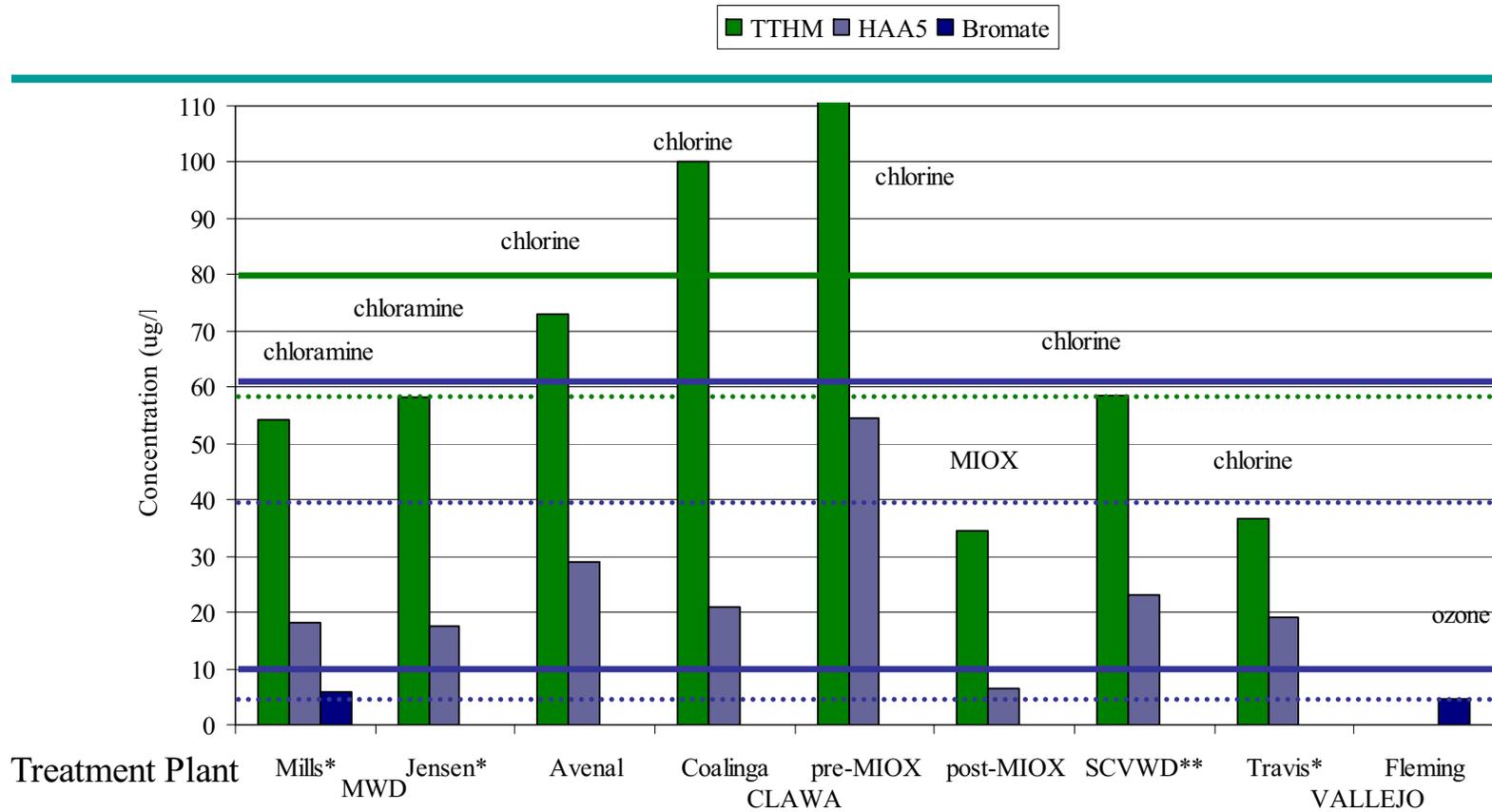
Winter and Spring  
First Flush  
Precipitation

DOC Monthly Average and Standard Deviation  
(1997-2004)



## Four-Year Average of DBP Levels (2000-2004)

Data gathered by DHS from individual treatment plants



**Notes:**

Bromate data was reported for the Mills Treatment Plant for only the fourth quarter of 2003.

\*Data sets reporting DBP concentrations were incomplete for at least one year within the four-year period of sampling.

\*\*Future use of ozone disinfection planned.

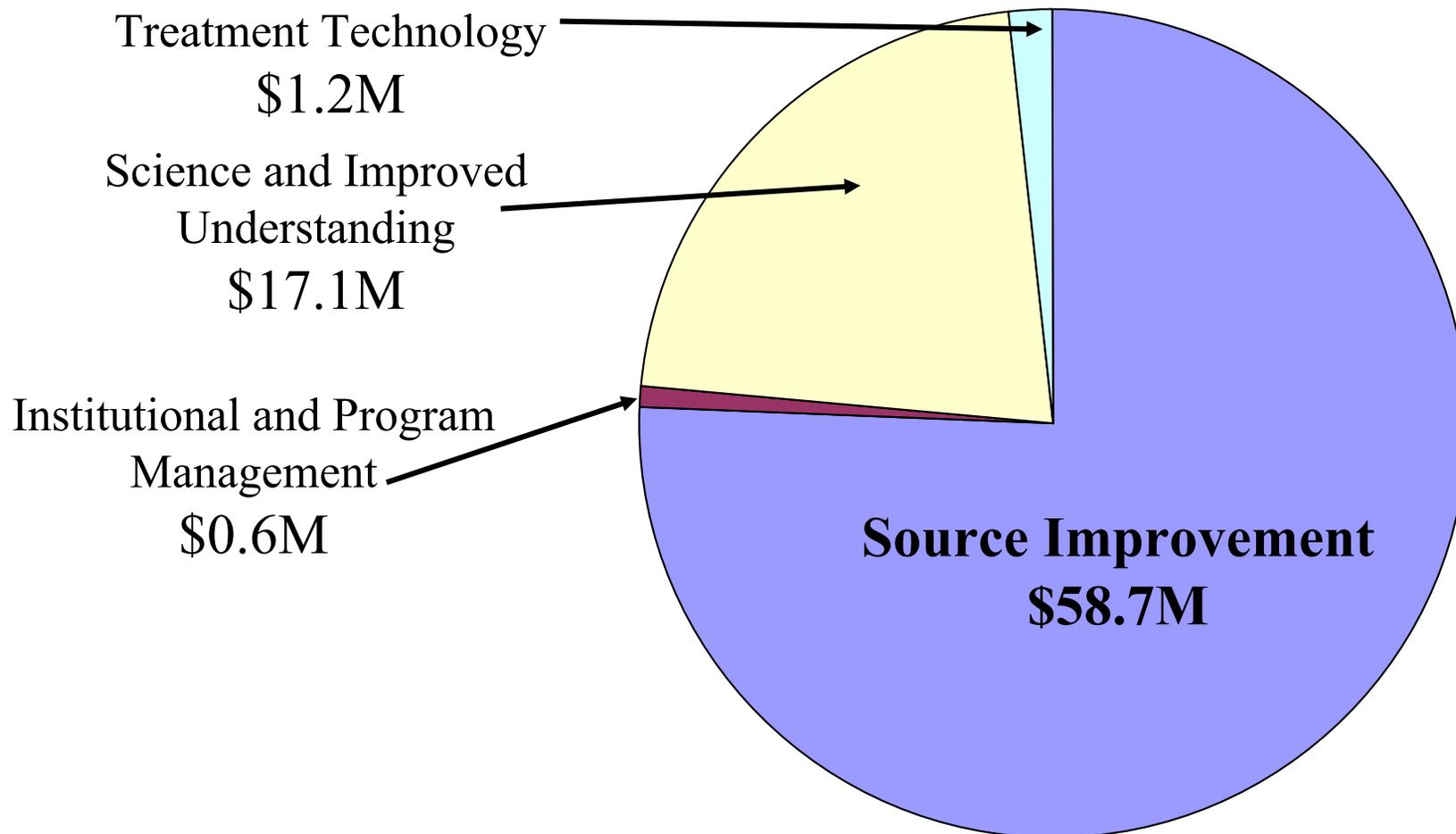
# DWQP Action Areas

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- Regional Planning
- Source Improvement
- Treatment Technology
- Institutional & Program Management
- Science and Improved Understanding

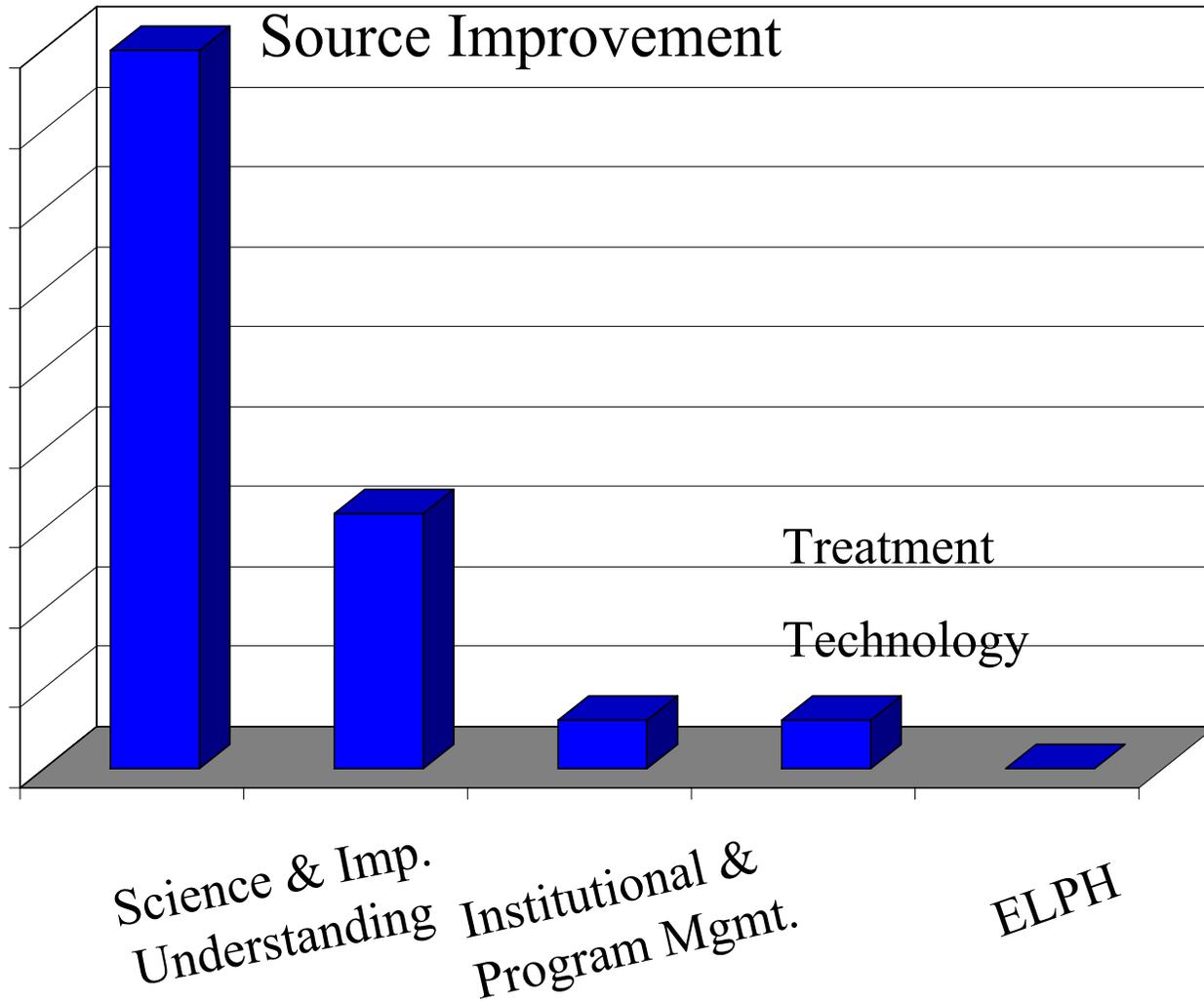
# DWQP Investments to Date

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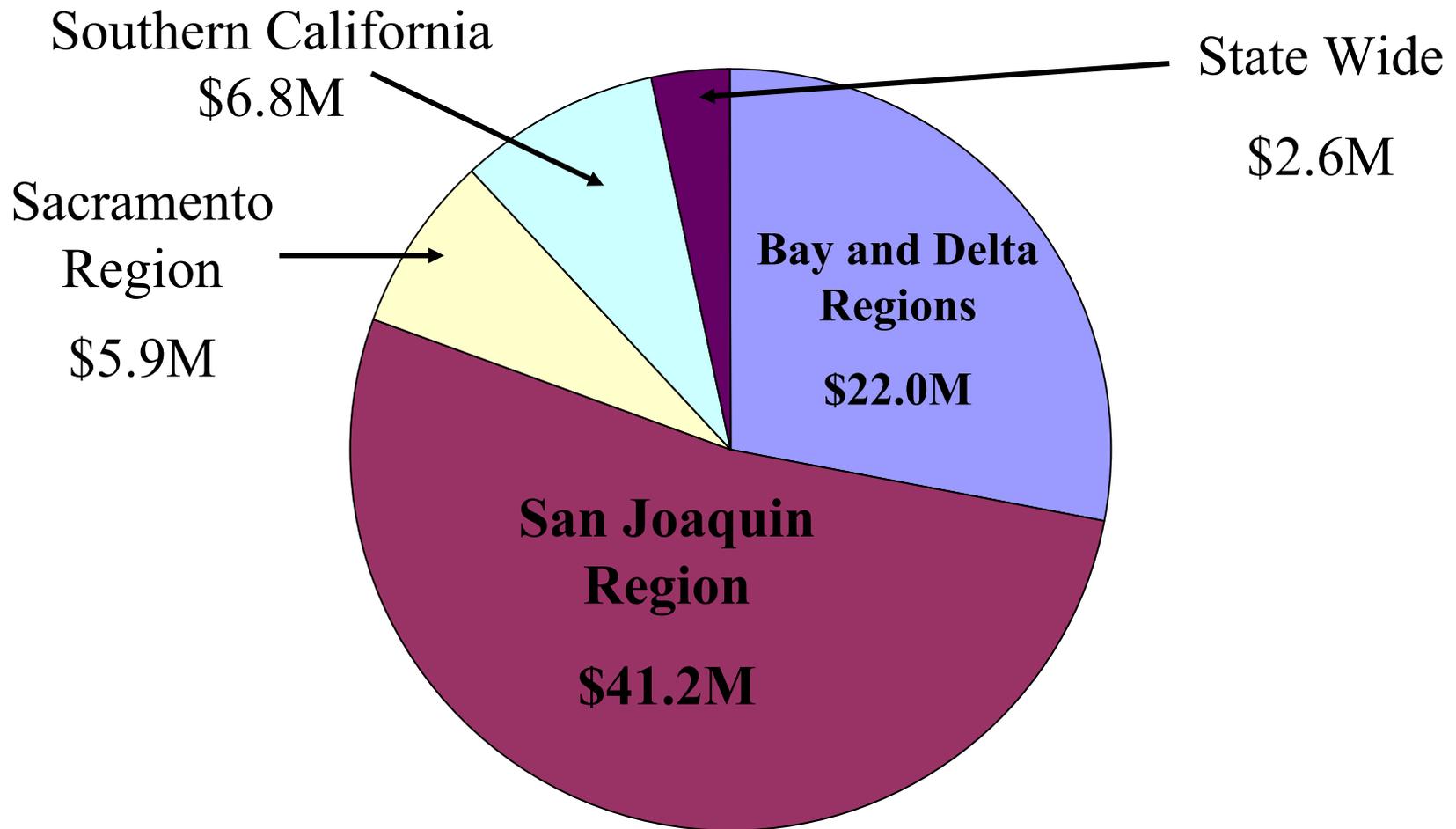
# Number of DWQP Projects

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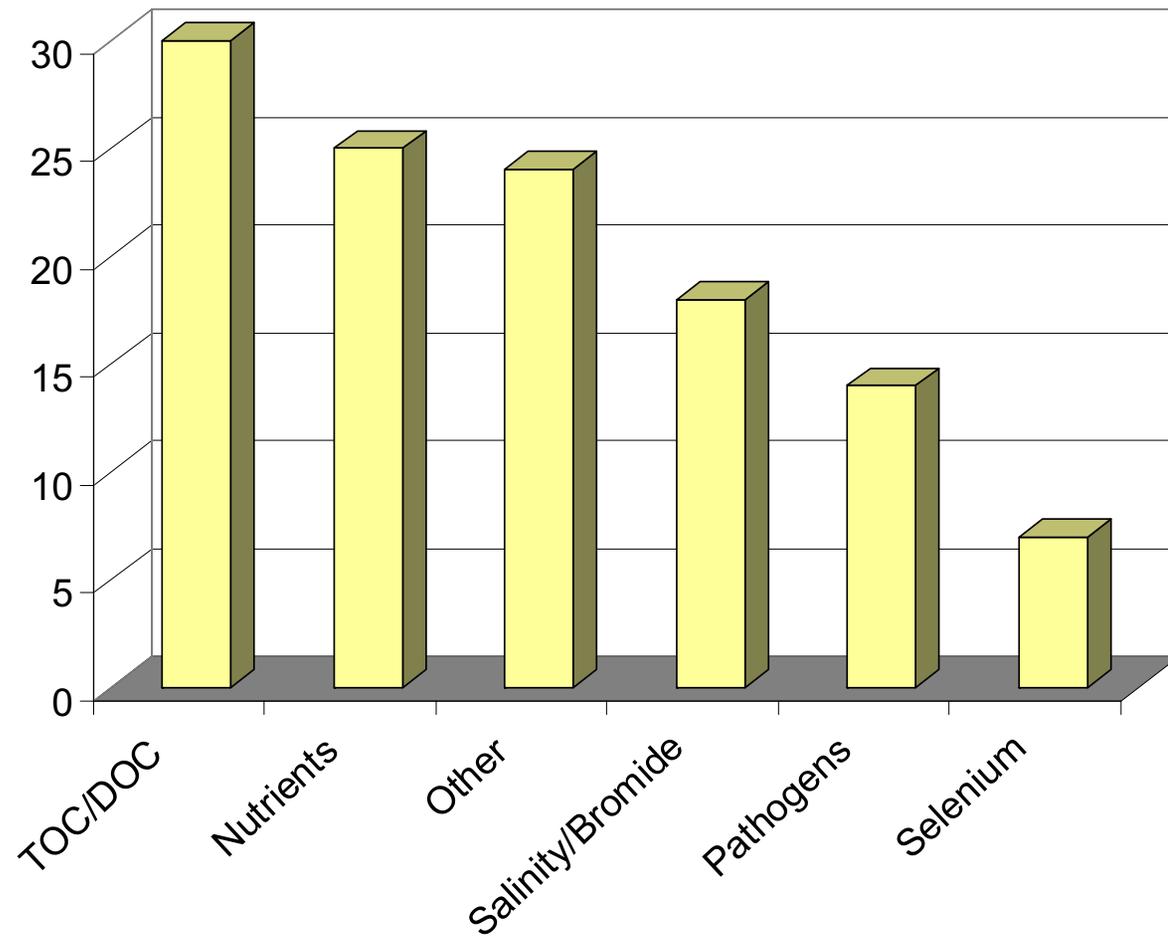
# DWQP Investments by Region

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# Number of Projects by Constituent

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# Immediate Priorities

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- Funding regional planning efforts to assist in determining specific quality goals for Delta waters
- Implementation of DIP water quality actions to assure balance
- Developing conceptual models of high priority constituents (bromide, TOC) to determine optimum ways to improve water quality where really needed, without redirecting impacts

# Current DWQP Science Activities

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- Performance Measures
- Science Panel
- Central Valley Drinking Water Policy Workgroup (conceptual models)
- Research Projects

# Some DWQP critical issues

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- What are the sources and fates of organic carbon in the system?
- What can we do to reduce the salinity of exported water?
- What can new treatment technologies do to improve drinking water quality?
- How are we doing? Is water quality improving?

# DWQP Agencies

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- Implementing Agencies
  - U.S. Environmental Protection Agency
  - State Water Resources Control Board
  - Regional Water Quality Control Boards
  - Department of Health Services
- Participating Agencies – DWR, USBR, CDFA, USGS, and NRCS