

THE EFFECTS OF DELTA OPERATIONS ON DELTA DRINKING WATER QUALITY



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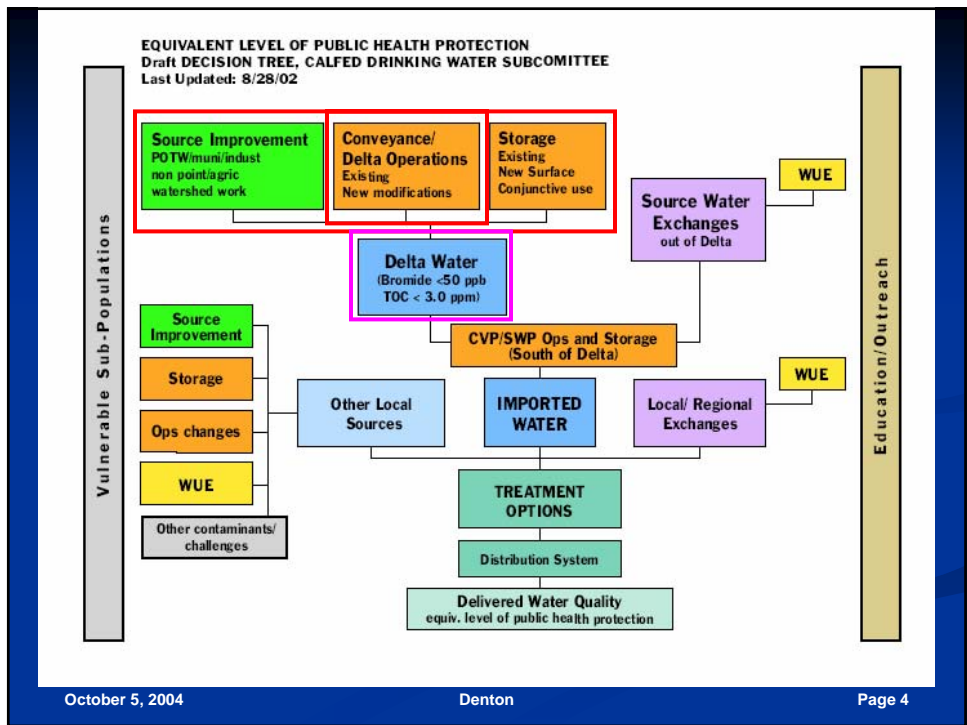
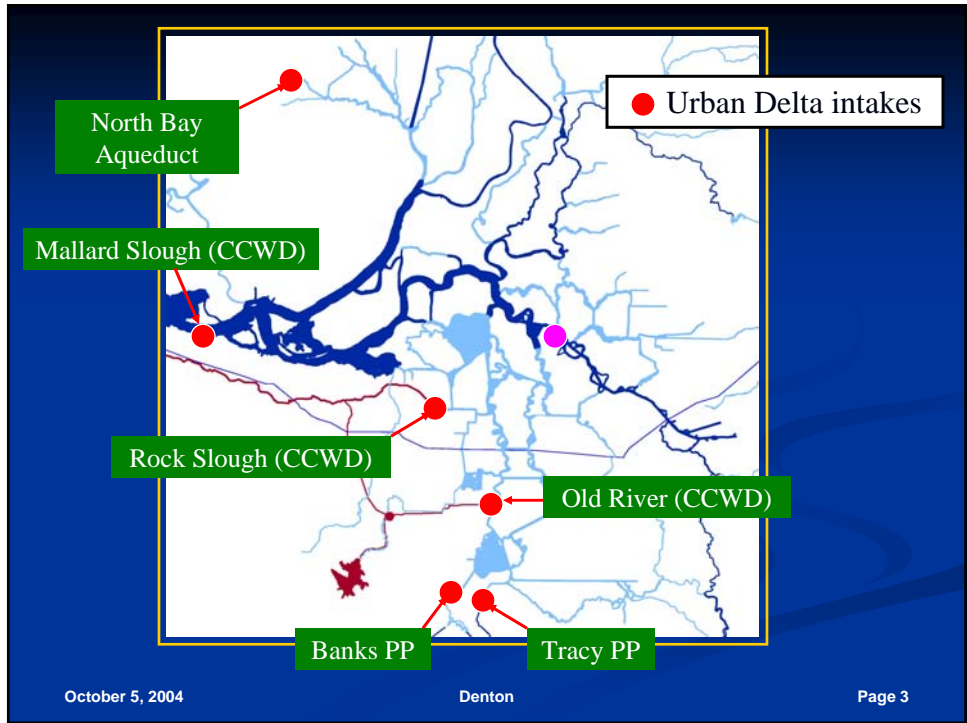
Why Delta Water Quality Needs To Be Improved

- **23 million Californians drink Delta water**
- **Public health and safety**
 - ◆ Disinfection of water containing **bromide** and **organic carbon** produces disinfection byproducts (DBPs)
 - ◆ DBPs are suspected carcinogens (chronic effects)
 - ◆ May also cause other health impacts (acute effects)
- **Drinking water regulations becoming more stringent (and more numerous)**
- **Population increase will result in increased diversions and contaminant discharges in the Delta**
→ net degradation

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Factors Affecting Water Quality at Delta Drinking Water Intakes

- **Operational**
 - ❖ Delta Outflow
 - ❖ Delta Exports
 - ❖ Delta Cross-Channel
 - ❖ Tidal Barriers
- **Others**
 - ❖ Agricultural Drainage
 - ❖ Municipal Wastewater
 - ❖ Wetlands Restoration
 - ❖ Tides

Delta Outflow

- Repels seawater intrusion, improves water quality
- SWRCB estuarine habitat (X2) standards for fish also protect Delta water quality in Spring
- SWRCB Periodic Review looking at Delta outflow and X2 objectives
- **Solution**
 - ❖ Any modifications of Bay-Delta objectives must not degrade water quality
 - ❖ Need objectives based on actual drinking water needs, e.g., a bromide target

High Delta Exports

- Higher exports cause additional salinity intrusion
 - ❖ Increasing Banks capacity to 8,500 cfs
 - ❖ Joint Point of Diversion for water transfers, etc.
 - ❖ Relaxation of export/inflow ratio
 - ❖ Fish protection actions in the Spring shift exports to Fall

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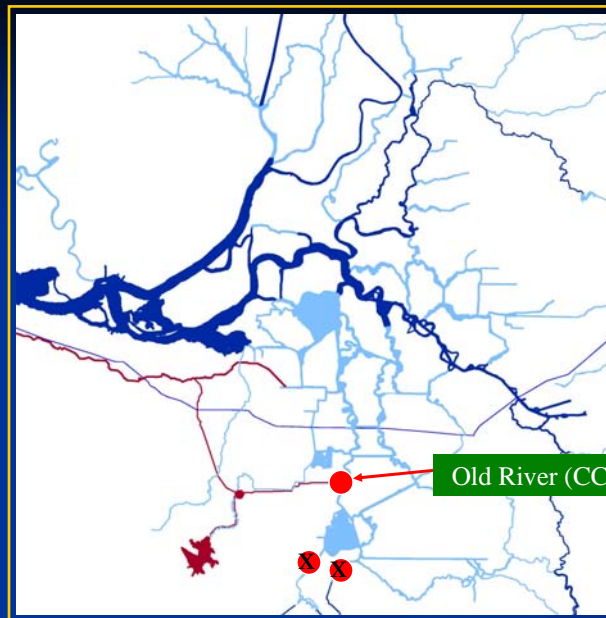
Low Delta Exports

- Low exports can result in build up of agricultural drainage in south Delta → net water quality degradation at urban intakes
 - ❖ VAMP shutdown, April 15 – May 15

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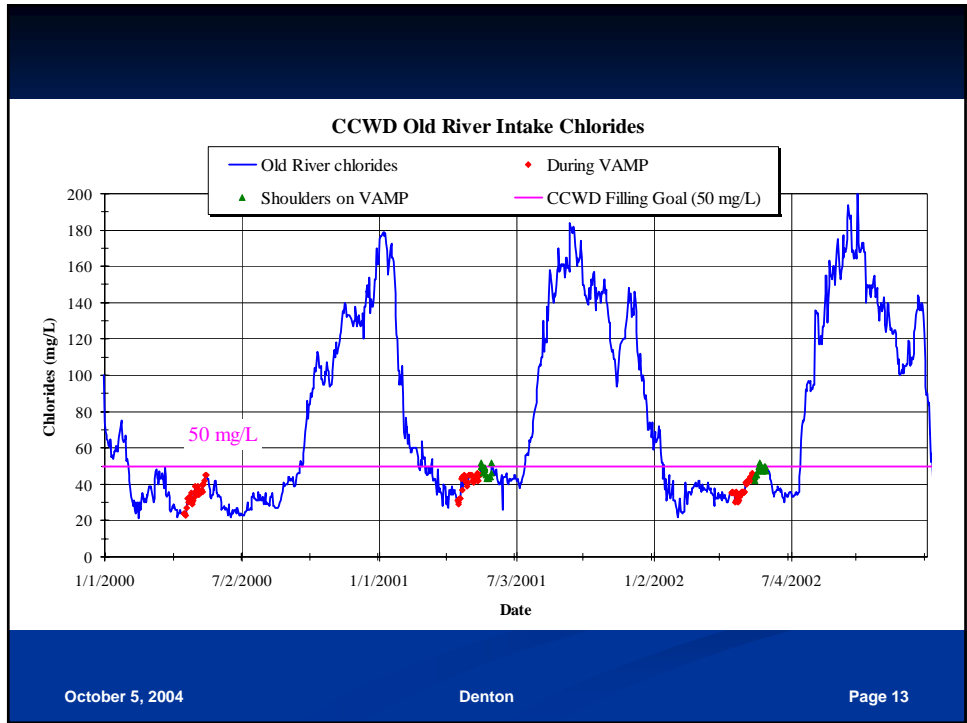
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- ## Low Delta Exports
- Solutions
 - ❖ Franks Tract modification
 - ❖ Intake Relocation
 - ❖ Los Vaqueros Reservoir Expansion
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Delta Cross-Channel Operations

- Closing DCC during low flow conditions degrades interior Delta water quality, e.g., November 1999 closure
- **Solution**
 - CALFED Science funding fish and water quality experiments – Will closing DCC for part of day or part of tide **protect fish without degrading water quality?**

Tidal Barriers

- **Head of Old River barrier and South Delta agricultural barriers (SDIP)**
 - ❖ Create circulation to **improve** irrigation water quality for south-east Delta farmers
 - ❖ Can **degrade** water quality by redirecting San Joaquin drainage toward urban intakes in southwestern Delta

Tidal Barriers (continued)

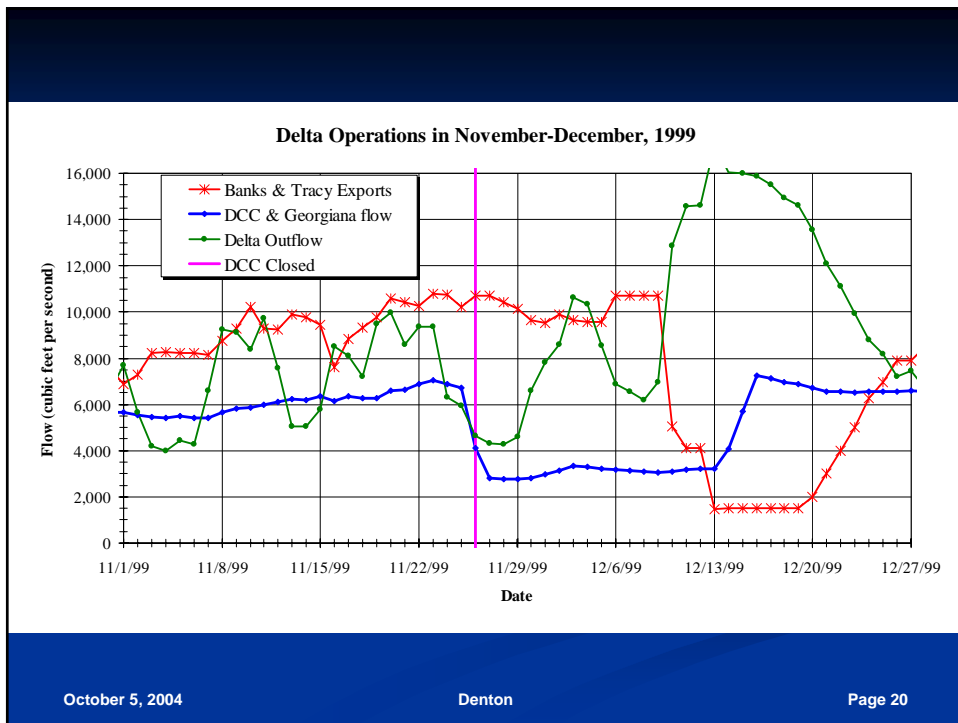
- **Solutions**

- ❖ Veale Tract / Byron Tract projects to eliminate local drainage impacts at CCWD intakes
- ❖ Franks Tract modification
- ❖ Intake relocation
- ❖ Los Vaqueros Reservoir Expansion
- ❖ Improve San Joaquin water quality
- ❖ Modify barrier operations

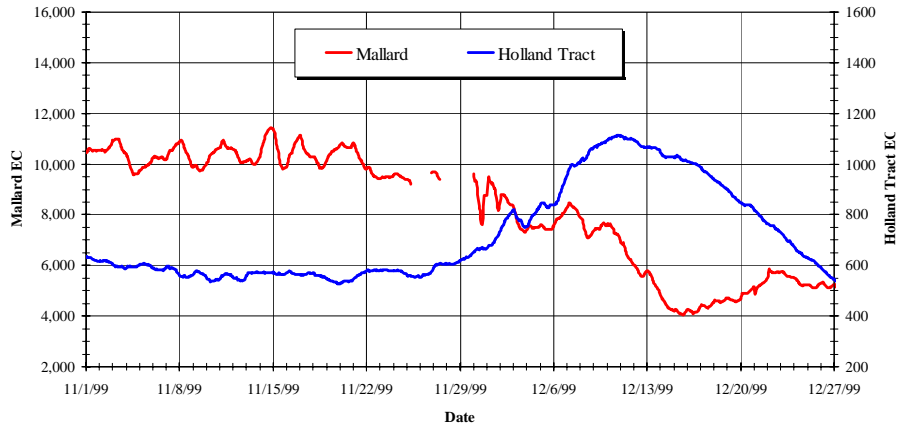
Conclusions

- Actions to increase water supply and protect fish can degrade drinking water quality
- Urban agencies will need improved source water quality to meet future regulations
- Need to implement water quality projects that help meet CALFED's goal of continuous improvement in drinking water quality

The End



**Electrical Conductivities November-December, 1999
(25-hour averages)**



Antioch Tidal Stage

