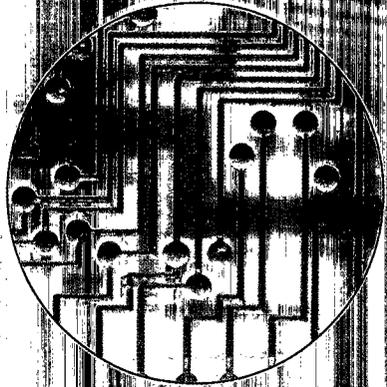
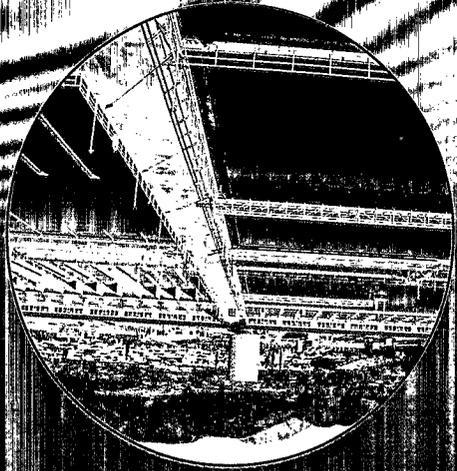
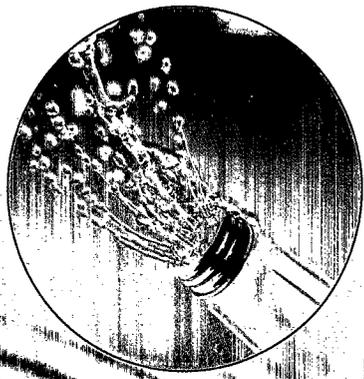
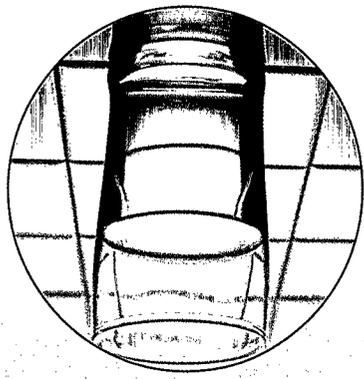


California's Bay-Delta Water Quality Dilemma: It's Getting Worse - Not Better

December 1999



C-031252

C-031252

Presented by:

The Bay-Delta Urban Coalition

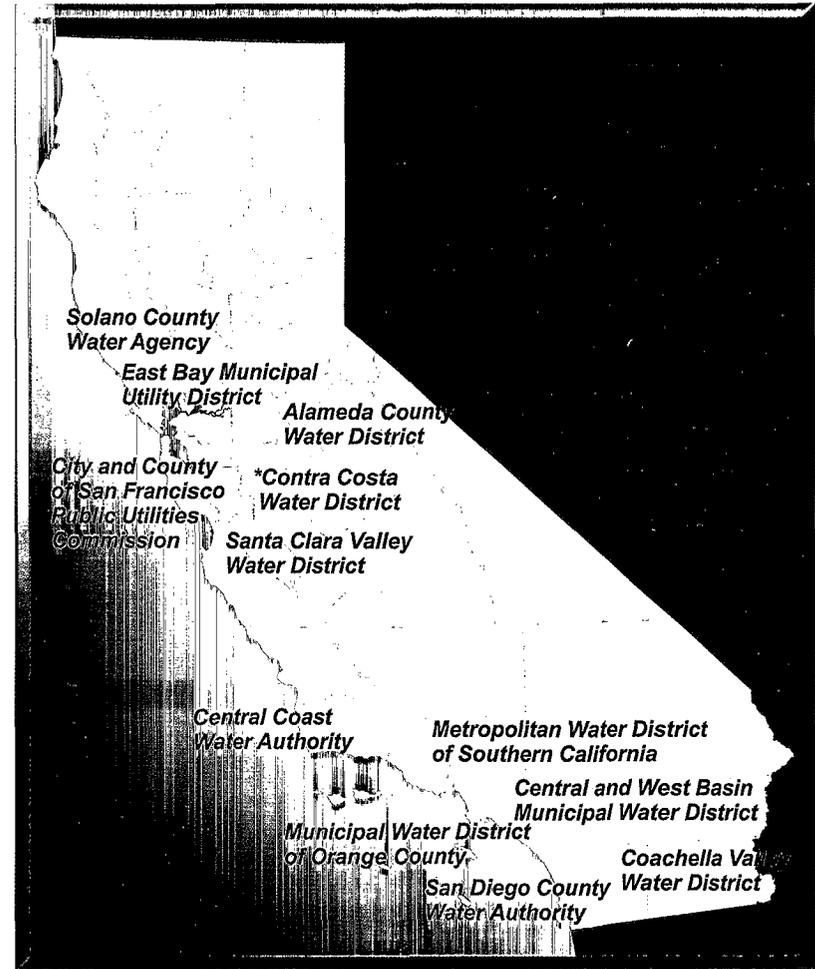
- Alameda County Water District
- Central Coast Water Authority
- Central & West Basin Municipal Water District
- Coachella Valley Water District
- East Bay Municipal Utility District
- Metropolitan Water District of Southern California
- Municipal Water District of Orange County
- Public Utilities Commission, City & County of San Francisco
- San Diego County Water Authority
- Santa Clara Valley Water District
- Solano County Water Agency

and

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California's Bay-Delta Water Quality Dilemma: It's Getting Worse - Not Better

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Executive Summary

Urban California has been a steadfast supporter of the CALFED process, seeking to protect the reliability of water supplies from the Bay-Delta system and, equally important, to improve the quality of those source supplies. **But, after 5 years of intensive effort in the CALFED process, federal regulatory agencies are taking actions which seriously threaten both supply reliability and source water quality and CALFED has no credible plan to protect either in the near-term or to provide promised improvements in the future.** This briefing book summarizes the serious concerns of urban water agencies throughout California regarding the failure of CALFED to protect or improve water quality.*

Delta water quality raises serious challenges to urban water suppliers, who are dedicated to the continued delivery of safe and healthy water to their customers. Improving the quality of Delta and upstream waters at the source is an extraordinarily important objective of CALFED.

- More than 22 million Californians depend on the Delta for all or part of their drinking water supplies.
- Delta water contains high levels of organic carbon and more than six times the national average level of bromide; both of these substances can cause by-products in the water treatment process which are subject to regulation

because they may contribute to cancer in humans.

- Delta water contains 1.5 times more salinity (salts) than the national average. High salinity levels impose substantial costs on the California economy, inhibit important water management programs, raise demands for Delta water, and undermine public confidence in the water supply.

To protect public health and promote better water management, both the urban water supply agencies and CALFED have established quantified goals for water quality improvement. **To accomplish these goals, we must improve both the quality of water at the source and water treatment processes.**

Unfortunately, **CALFED appears to be moving in the wrong direction.** Recently proposed federal regulatory actions pose serious threats to degrade water quality with no plan in place to mitigate these impacts and move towards promised water quality improvement.

- Federal actions run the risk of emptying San Luis Reservoir, located 70 miles south of the Delta, thereby causing serious quality problems and potentially cutting off entirely one of the key supply sources for the high-tech Silicon Valley economy.

- Federal actions are forcing water project operations to shift pumping from higher quality spring months to lower quality fall months. During 1999 alone, these actions to protect fisheries increased salt loads south of the Delta by more than 83,000 tons.
- Proposed federal actions in the northern part of the Delta would interrupt the flow of higher quality water to urban water suppliers (and Delta farmers), which could result in a 20 percent increase in the amount of salt in Delta water.

These actions are undermining important public investments throughout California. Examples include:

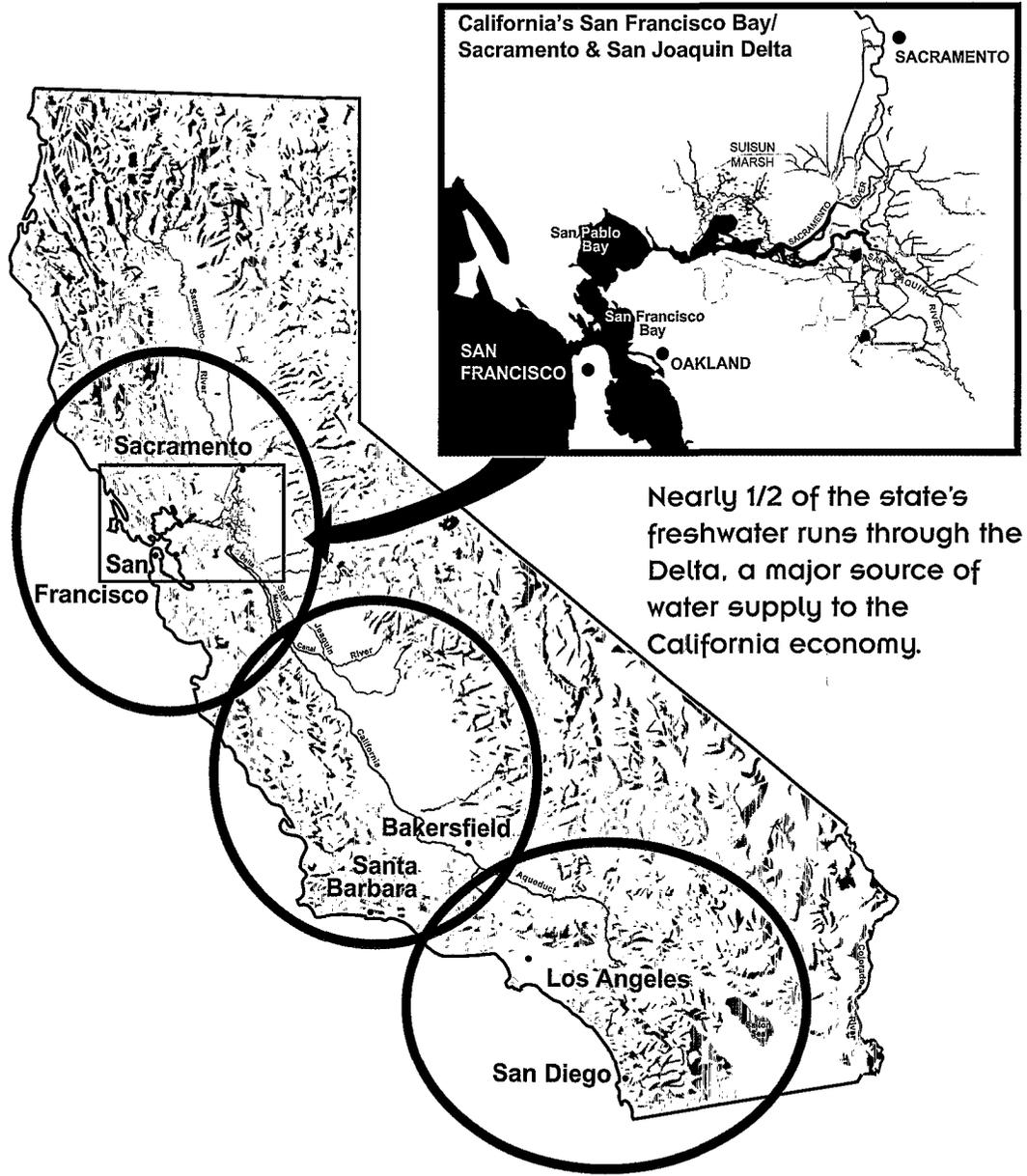
- In Contra Costa County, these actions could substantially devalue a \$450 million investment in the Los Vaqueros Reservoir, which may never fully achieve its vital water quality objectives due to deteriorating Delta water quality.
- In Santa Clara County, these actions undermine the ability of the Santa Clara Valley Water District to meet the water quality and reliability needs of the high-tech Silicon Valley economy.
- In Southern California, failure to improve Delta water quality could substantially increase demands for Delta water, because poor quality

water inhibits the region's ambitious program to reclaim and reuse imported water and to maintain a full Colorado River Aqueduct.

In the face of these threats to current water quality levels, CALFED has proposed no effective plan for water quality improvement. Indeed, CALFED agencies which should champion water quality improvements have proposed nothing more than continued studies and monitoring. From an urban California perspective, while CALFED studies and monitors, it appears our water quality will continue to degrade.

Urban California needs a successful CALFED. **CALFED must immediately develop a more comprehensive approach which avoids any degradation of water quality in the near-term and includes a viable plan for source water quality improvement in the future.** This will require a balanced solution that commits the CALFED agencies to meaningful actions to improve water quality at the source and urban agencies to investments in treatment. If such steps are not taken, CALFED will hold no promise of benefits for urban California, our continued support will be jeopardized, and we will have to seek solutions elsewhere.

*A previous booklet, "California's Looming Water Crisis" discusses water supply concerns.



Nearly 1/2 of the state's freshwater runs through the Delta, a major source of water supply to the California economy.

Urban areas throughout the state receive water from the Bay-Delta watershed.

Why Should We Care About Delta Water Quality?

Most Urban Californians Rely on the Delta for Water, but Its Quality Is Poor Compared to Other Supplies

More than 22 million Californians -- two-thirds of the state's residents -- depend on the Delta for some or all of their drinking water.

The quality of Delta water affects almost all Californians, whether they live in the towns and cities surrounding the Delta and San Francisco Bay, the communities in the Central Valley, along the Central Coast, or urban Southern California.

In some respects, Delta water quality is poor compared to water sources throughout the nation.

Introduction

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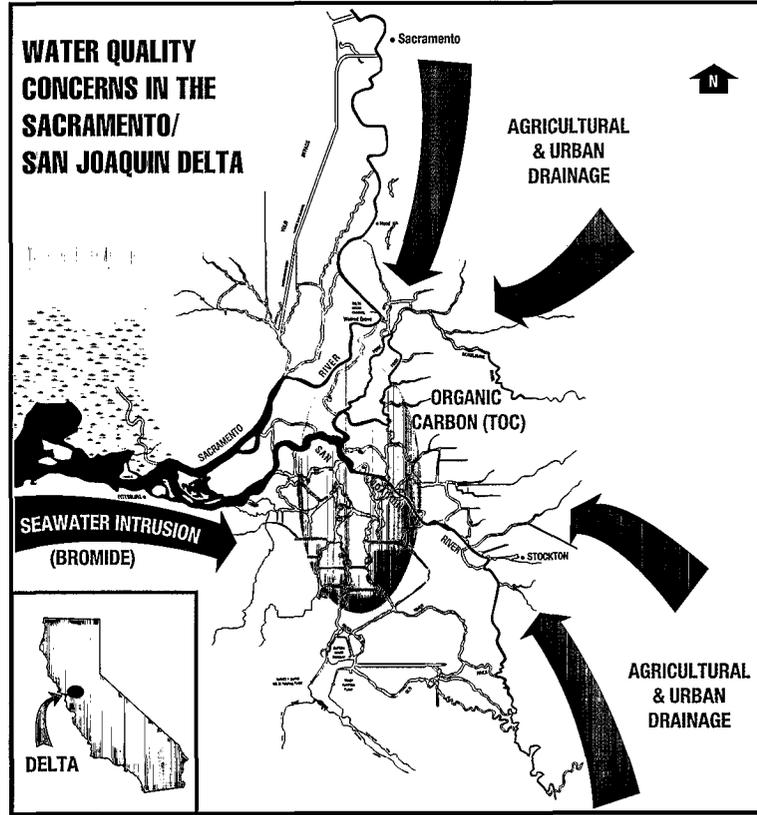
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Delta water quality is inferior compared to national averages for key substances of concern

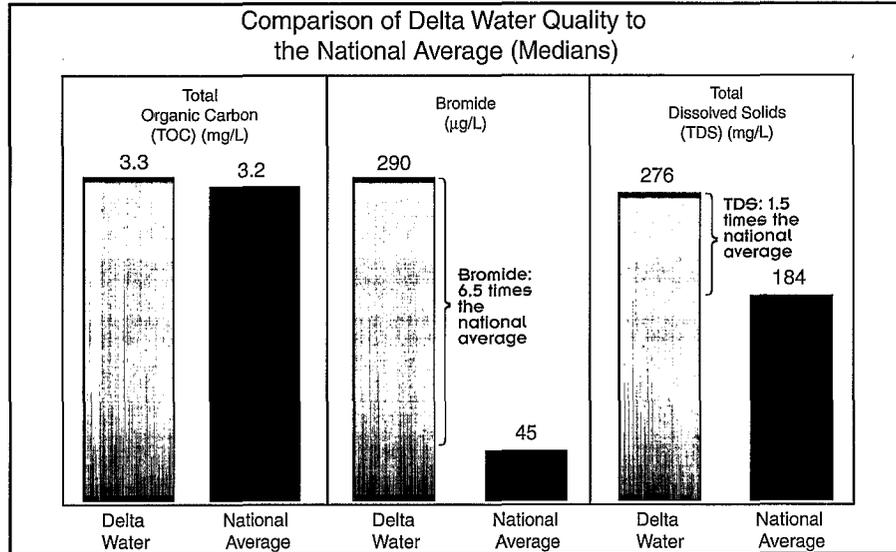
The pumps that draw water from the Delta for delivery to cities and farms are located in a tidal zone. This makes them susceptible to seawater intrusion, which brings with it high levels of bromide and other salts.

The Sacramento and San Joaquin rivers, which converge to form the Delta, carry large amounts of agricultural and urban drainage that raise the water's salinity level.

Irrigation of peat soil in the Delta adds high levels of total organic carbon to Delta water.



Delta source drinking water quality concerns



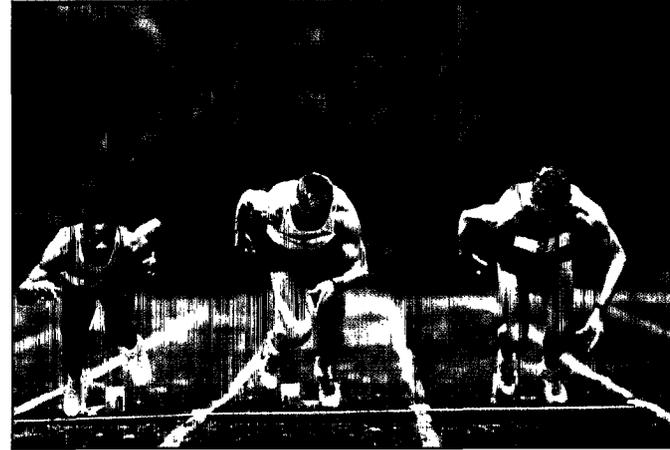
With respect to some substances of concern, Delta water quality compares poorly to the national average. This results in higher regional treatment costs borne by Delta water users.

Improvement of Delta source water quality is a matter of public health

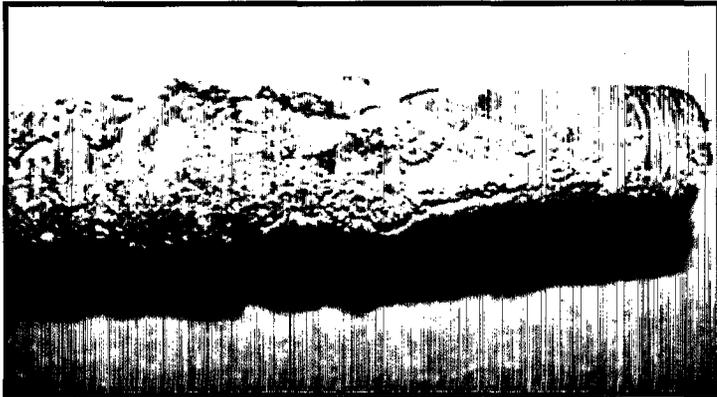
Delta water contains high levels of bromide and total organic carbon. When water containing these elements is purified and treated, new chemicals are produced. These disinfection by-products are regulated by the Environmental Protection Agency because they may be connected to cancer in humans.

Studies are ongoing to evaluate reproductive health effects relating to some disinfection by-products associated with using Delta water.

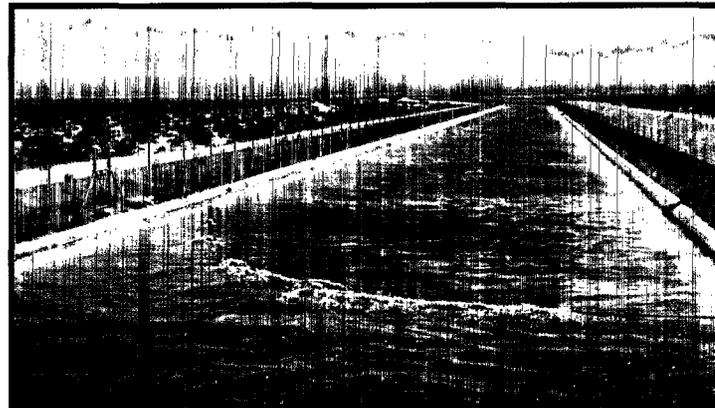
California water agencies treat drinking water so it is healthy and safe. Treatment of Delta water is becoming an increasingly difficult and costly task. In addition to seeking advancements in treatment technology, it is imperative that the quality of Delta water be improved at the source, in order to be able to continue to provide healthy and safe drinking water.



High salinity levels cause negative economic impacts and undermine consumer confidence



Homeowners: High salinity levels in water damage water pipes and water-using appliances.

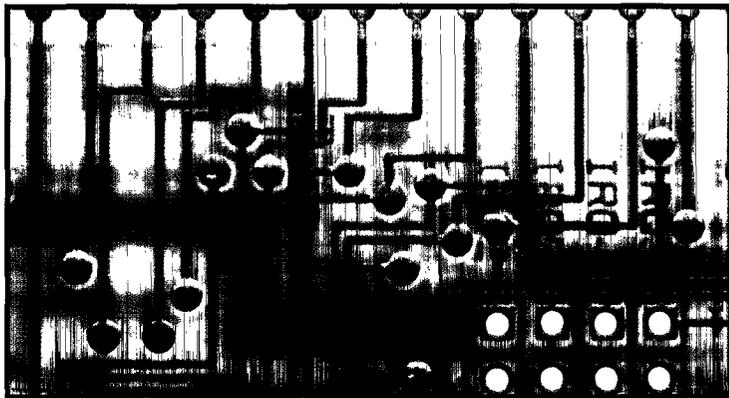


Increased Demands for Delta Water: High salinity levels in Delta water increase the amount of water needed by Southern California from the Delta, because they limit the ability to recycle water and to make full use of the Colorado River Aqueduct.

"Salinity in the Central Valley and Southern California is probably the biggest water problem in the state that isn't being adequately addressed." *

-- Walt Pettit, Executive Director, State Water Resources Control Board

* *Western Water*, Water Education Foundation, Sept-Oct 1999 issue



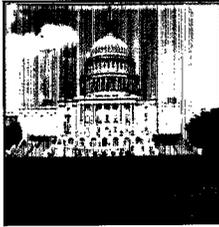
High-Tech Industry: California's high-tech industries require very high-quality water to remain competitive in the worldwide marketplace.

High salinity Delta water supplies undermine public confidence in drinking water supplies, hinder water resources management programs and result in hundreds of millions of dollars in economic impacts.



Groundwater Management: High-quality surface water is used to replenish groundwater basins. Delta water containing high salinity levels degrades groundwater basins and may cause some basins to become unusable.

Significant Drinking Water Quality Milestones



1972: Congress enacts federal Clean Water Act

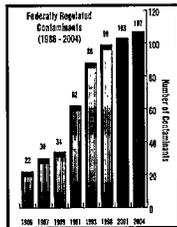


1974: Congress enacts federal Safe Drinking Water Act

1976: California Legislature enacts Safe Drinking Water Act



1979: EPA sets first drinking water standard for disinfection by-products (total trihalomethanes)



1986: Congress enacts sweeping amendments to Safe Drinking Water Act; number of contaminants regulated in drinking water increases significantly



1988: Contra Costa County approves the Los Vaqueros Reservoir Project, a \$450 million investment for water quality improvement and emergency reliability

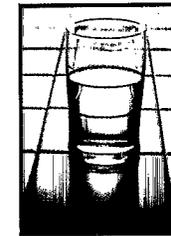


1992: Contra Costa Water District completes construction of Randall-Bold Treatment Plant, one of the first ozone disinfection plants in California, at a cost of \$50 million

1994: EPA proposes more stringent standards for disinfection by-products and microbial pathogens



1996: Congress enacts amendments to federal Safe Drinking Water Act. Drinking water source protection becomes a national priority



1996: California voters approve Proposition 204, a \$995 million water bond that includes significant investments in clean water programs



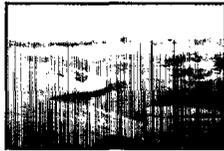
1996: Santa Clara County water quality and supply from San Luis Reservoir was put at risk due to planned federal operations



1997: MWD initiates the Desalination Research and Innovation Partnership (DRIP); an historic partnership to develop new and innovative water treatment technologies



Californians have consistently invested public resources to ensure reliable, clean and healthy water supplies. But federal actions to protect Delta fish have adversely affected California's drinking water supply. Proposed actions threaten to further undermine the state's investments in water quality.



1998: Contra Costa Water District completed Los Vaqueros Reservoir project and began filling reservoir



Feb. 1998: President Clinton announces the Clean Water Action Plan -- protecting sources of drinking water is a priority



Nov. 1998: EPA sets more stringent drinking water standards for pathogens and disinfection by-products



1999: Santa Clara Valley Water District is currently in the design phase for its Treated Water Improvement Project, which is expected to cost \$150 million



1999: To date, MWD has invested \$45.5 million in research, planning, design and construction for retrofitting its Jensen and Mills treatment plants with ozone disinfection. Upon completion, these treatment plant upgrades are expected to cost about \$200 million



1999: Los Vaqueros reservoir is filled, enabling CCWD to use it to achieve water quality goals for first time (see page 20)

1999: Delta Smelt crisis: planned federal operations, along with unplanned actions, to protect Delta Smelt cause water quality impacts



April 1999: MWD adopts salinity management policy; policy includes a blended water salinity objective of 500 mg/L total dissolved solids



October 1999: Contra Costa Water District completes conversion of its Bollman Treatment Plant to ozone disinfection; a \$40 million investment



October 1999: Proposition 13--\$1.97 billion water bond qualifies for the March 2000 ballot. It includes \$385 million for clean water and safe drinking water projects



1999: Regulatory agencies propose actions to protect fish that do not balance environmental needs with water supply and water quality needs; these actions have the potential to cause further water quality impacts



Introduction

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Delta Source Water Quality Improvement Goals

CALFED and urban agencies have established important goals to improve the quality of source water from the Delta

California Urban Water Agencies Delta Drinking Water Quality Objectives

Urban water agencies have established strong, realistic goals for achievement of their water quality needs in the short term and long term.

	CURRENT LEVELS (Average)	URBAN WQ GOALS*	
		SHORT-TERM (by 2007)	LONG-TERM (by 2011)
Br	290 µg/L	100-150 µg/L	50 µg/L
TOC	3.3 mg/L	3.5 mg/L	3 mg/L
TDS	276 mg/L	220 mg/L	150 mg/L
<p>Br = Bromide</p> <p>TOC = Total Organic Carbon</p> <p>TDS = Total Dissolved Solids (salts)</p> <p>* Objectives call for meeting these numeric goals or an equivalent level of public health protection</p>			

CALFED's Delta Water Quality Objectives

"CALFED's specific 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 south and central Delta drinking water intakes of 50 µg/L bromide and 3 mg/L total organic carbon; or
- b) an equivalent level of public health protection using a cost-effective combination of alternative water sources, source control and treatment technologies."

-- CALFED Revised Phase II Report (page 43)

In order to achieve these goals, CALFED must develop a water quality action plan that:

- Allows no degradation of Delta water quality due to proposed water management actions for fish protection and future urban development in the Central Valley.
- Recognizes the importance of balancing Delta source water quality improvements and water treatment.

Proposed Federal Actions Would Further Degrade Water Quality, Not Improve It

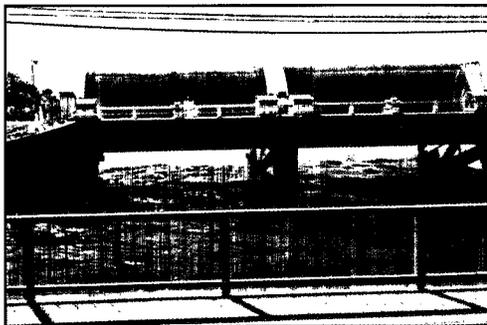
Three examples of federal actions that harm water quality



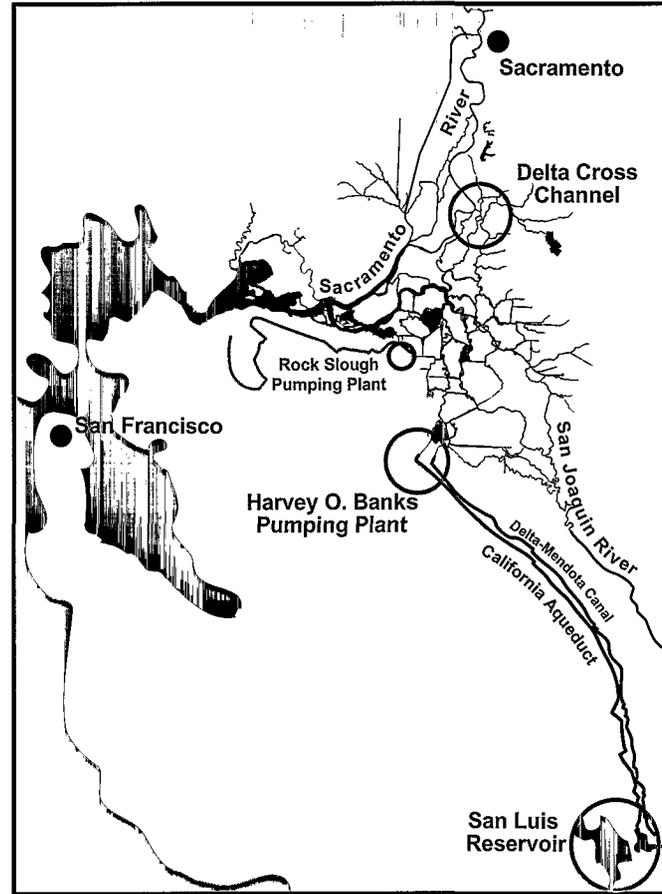
1. Under the federal plan, San Luis Reservoir will be drained to low levels that threaten water quality and supply



2. Pumping restrictions degrade quality of water available to urban California



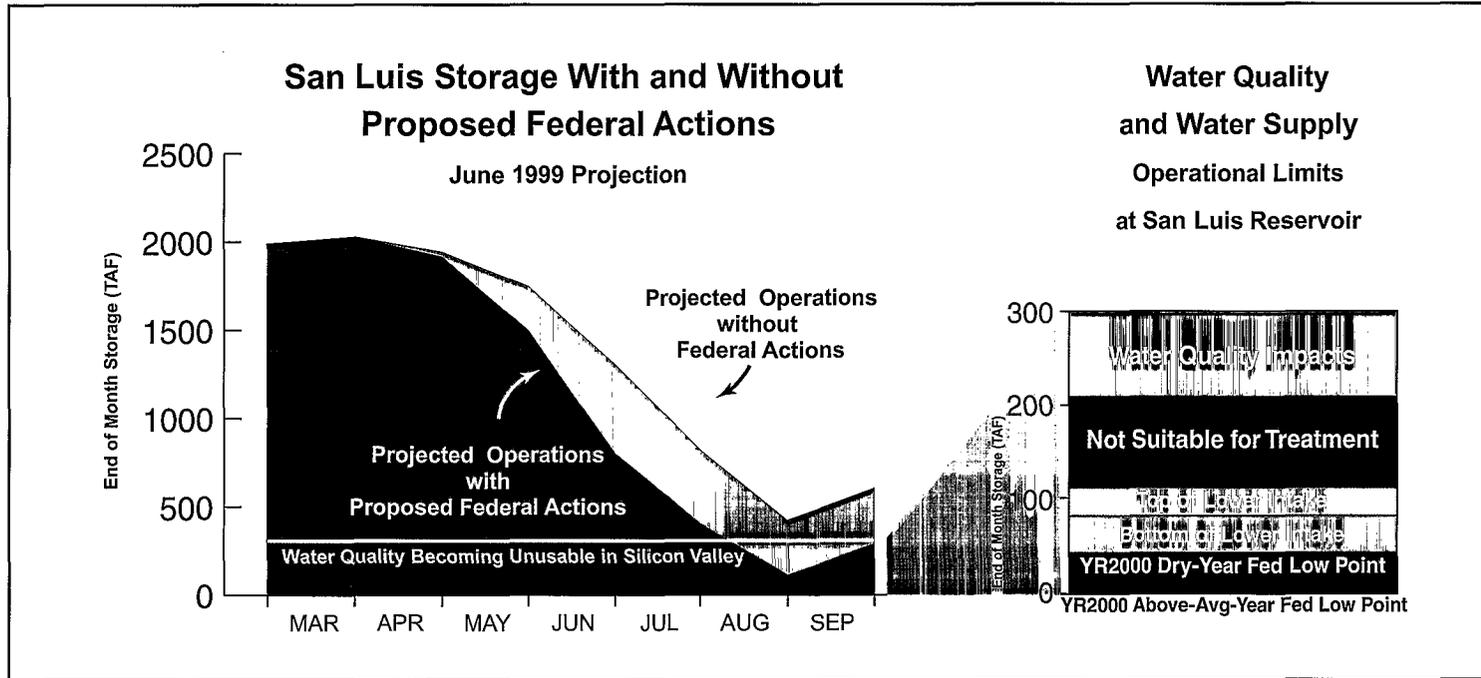
3. Delta Cross Channel closures cut off urban California from higher quality water



Facility Locations

These actions, mandated by federal agencies, are directly contrary to the anti-degradation provisions of the 1972 federal Clean Water Act.

Example 1: Under federal plan, San Luis Reservoir will be drained to low levels that threaten water quality and supply



The Department of the Interior's proposed water management actions will erode operational flexibility to such an extent that the Department will be unable to respond to unplanned events such as pumping restrictions imposed to protect endangered species or problems with facilities.

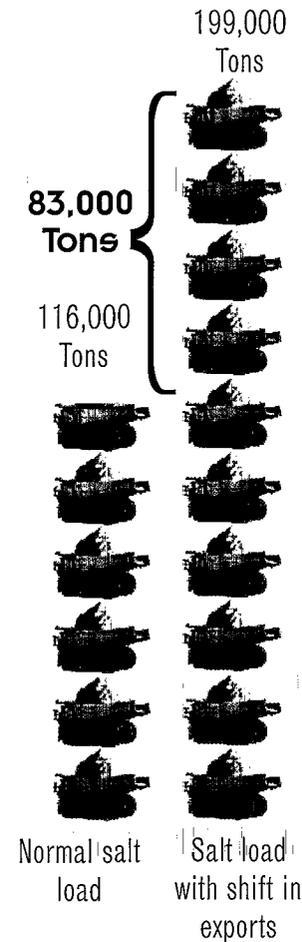
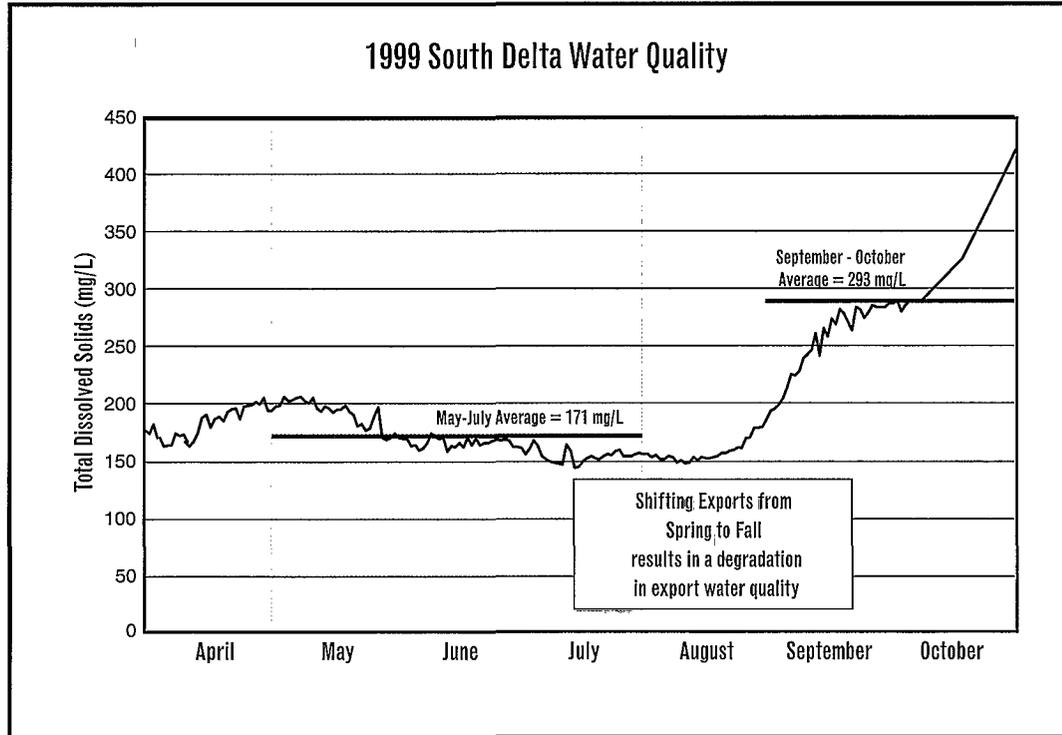
In 1999, pumping restrictions imposed by the Fish and Wildlife Service to protect Delta smelt compromised water quality and water supplies for Santa Clara County, which includes the Silicon Valley.

The Department of the Interior's proposed operations for 2000 include no contingency plan to maintain adequate storage levels in San Luis Reservoir. Once again, this will pose problems for Santa Clara County.

- First, water quality may be threatened;
- Then, interruptions of supply are possible.

Federal Actions Degrade Delta Water Quality

Example 2: Pumping restrictions degrade quality of water for urban California



Water providers can obtain the best quality drinking water available from the Delta by pumping during the spring, when quality is better because the concentration of total dissolved solids is lower.

Pumping restrictions imposed by the federal government force water providers to pump more during the fall, when quality is poorer because the concentration of total dissolved solids is higher.

In 1999 the amount of additional salt resulting from the federally mandated shift in pumping exceeded 83,000 tons.

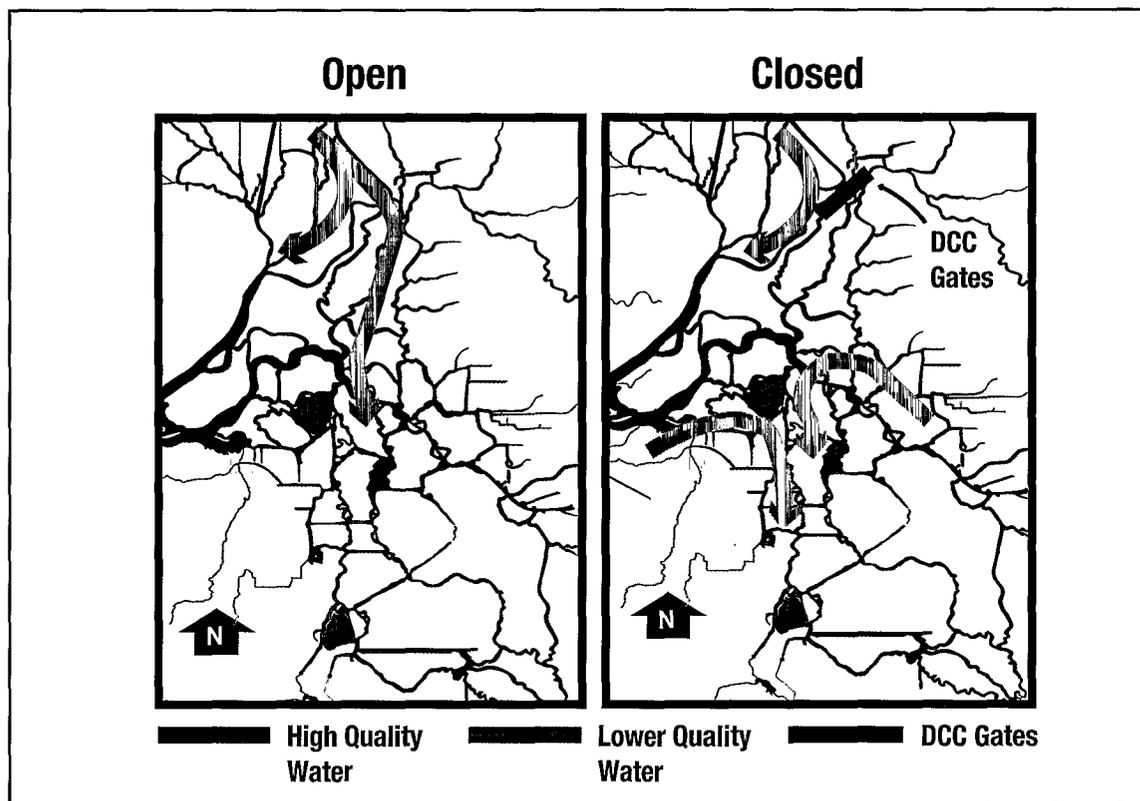
Example 3: Delta Cross Channel closures cut off urban California from higher quality water

The Delta Cross Channel was constructed to facilitate the flow of high quality water from the Sacramento River to agriculture and urban areas that use water from the South Delta.

Federal regulatory agencies propose closing the Delta Cross Channel more often to steer salmon

away from the interior of the Delta, but they have not included measures to offset the resulting degradation of water quality.

CALFED's plan must include actions to improve Delta water quality and fisheries.



Closing the Delta Cross Channel can increase total dissolved solids in Delta water by 20 percent.

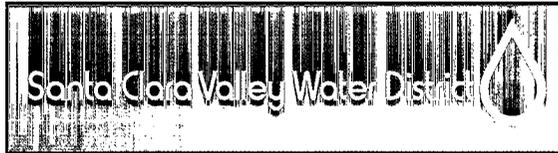
Water Quality Degradation Undermines Public Investments Throughout California

Three Case Studies on Urban Impacts



Case Study 1:

Contra Costa Water District:
Federal actions undermine investment in Los Vaqueros Reservoir to improve local drinking water quality



Case Study 2:

Santa Clara Valley Water District:
Susceptibility of Silicon Valley's residents and high-tech economy to proposed San Luis Reservoir operations

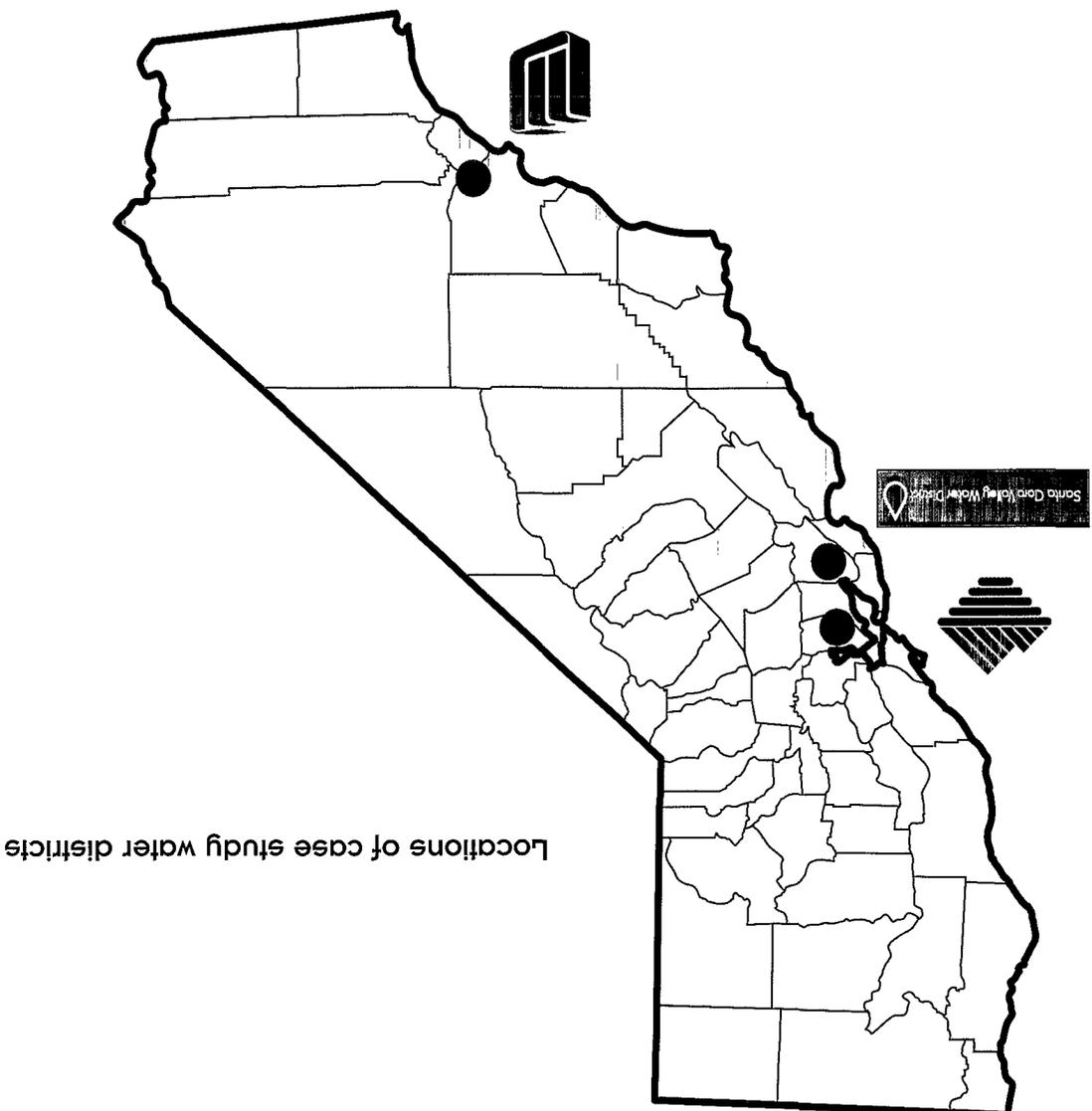


Case Study 3:

Metropolitan Water District of Southern California:
Dependence on lower-salinity Delta water to achieve blending goal and minimize demand for imported supplies from the Delta

Urban Water Quality Needs - Case Studies

C-031272



Locations of case study water districts

Case Study 1: Contra Costa Water District

Contra Costa Water District customers have invested hundreds of millions of dollars in their water supply, but federal actions endanger the success of such investments

Contra Costa County water customers have made substantial investments in the quality and reliability of their water supply:

1988: Contra Costa County voters approve the Los Vaqueros Reservoir, a \$450 million project to improve water quality and emergency reliability. The Contra Costa Water District raises rates significantly over a four-year period to pay the bill for the project.

1992: The Contra Costa Water District, in partnership with the Diablo Water District, completes construction of the \$50 million Randall-Bold Treatment Plant, one of the first ozone disinfection facilities in California.

1999: The Contra Costa Water District completes the \$40 million conversion of its other water treatment plant to ozone disinfection.

1999: The Los Vaqueros Reservoir is filled, enabling the Contra Costa Water District to use it to achieve water quality goals for the first time.

Contra Costa Water District customers continue to pay some of the highest water rates in California to finance these projects.

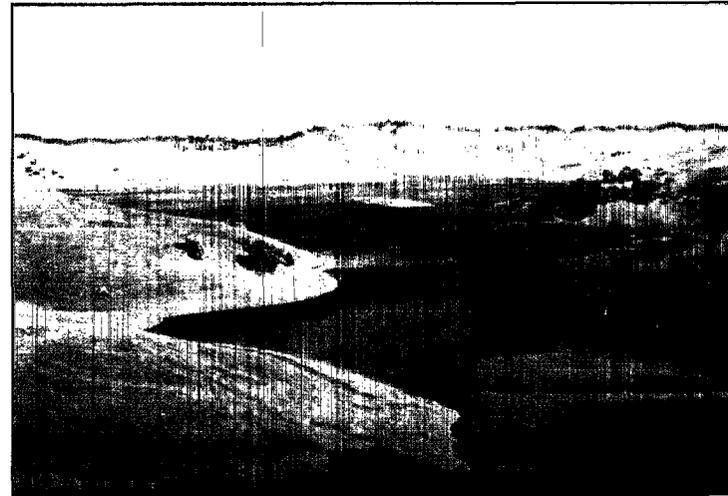
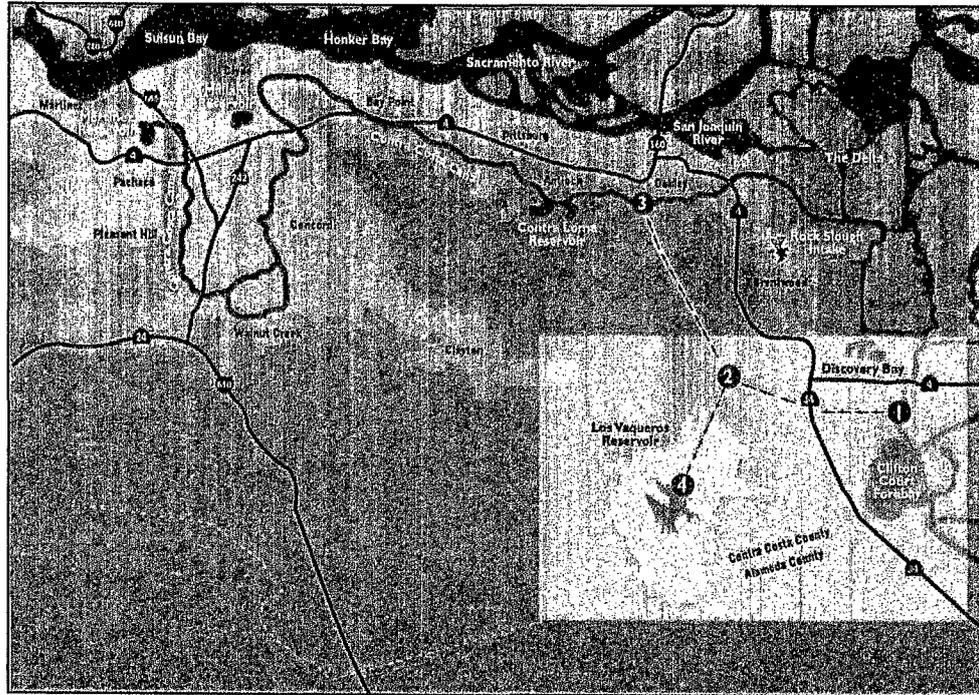


Photo: Stephen Joseph

CCWD - Los Vaqueros Reservoir

Urban Water Quality Needs - Case Studies (CCWD)



Location of the Los Vaqueros Reservoir

The Contra Costa Water District has established a water quality goal of no more than 65 mg/L of chlorides (a measure of salt).

- Without the Los Vaqueros Reservoir, the district could achieve this goal only 59 percent of the time.
- With the project, the district expected to achieve this goal 94 percent of the time.
- Changes in Delta operations proposed by the federal government and CALFED would degrade Delta water quality and significantly reduce the district's ability to fill the reservoir with high quality water.

Such actions would reduce the reservoir's expected performance and diminish the water quality benefits that Contra Costa County water-users expect to receive from their substantial financial investment.

Case Study 2: Santa Clara Valley Water District

High-tech Santa Clara County is particularly vulnerable to the operational changes proposed by the federal government

Santa Clara County depends heavily on Delta water. Water diverted from the Delta makes up more than half of Santa Clara County's supply on average and up to 90 percent during dry years.

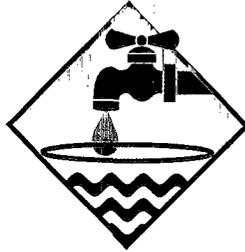
In particular, the county's high-tech industries -- known collectively as the Silicon Valley -- demand a consistent, high-quality supply to support their needs.

Santa Clara County leads the United States in high-tech output and includes 12 percent of the nation's fastest growing technology companies.

The growing degradation and unreliability of Delta supplies make it increasingly difficult for the Santa Clara Valley Water District to meet the county's water needs.



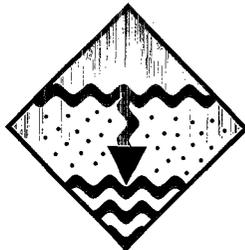
Short- and Long-Term Water Supply and Quality Impacts Diminish Returns on Silicon Valley's Investments



Conservation



Recycling



Banking



Transfers

The Santa Clara Valley Water District is making substantial investments to enhance its supplies, maintain water quality and restore the Delta and local ecosystems. The district has invested:

- \$150 million to upgrade its treatment plants to ozone disinfection.
- Hundreds of millions of dollars to offset shortages in Delta supplies.

Operational changes recommended by the federal government threaten the effectiveness of these investments.

Depletion of storage in San Luis Reservoir to 300,000 acre-feet or less would negatively affect Santa Clara County's water quality for drinking and high-tech industry.

The operational changes also would restrict the Santa Clara Valley Water District's ability to offset future shortages with groundwater banking and water transfers.

The Department of the Interior does not have a contingency plan to ensure uninterrupted water supplies to the 1.7 million residents and Silicon Valley businesses of Santa Clara County.

Case Study 3: Metropolitan Water District of Southern California

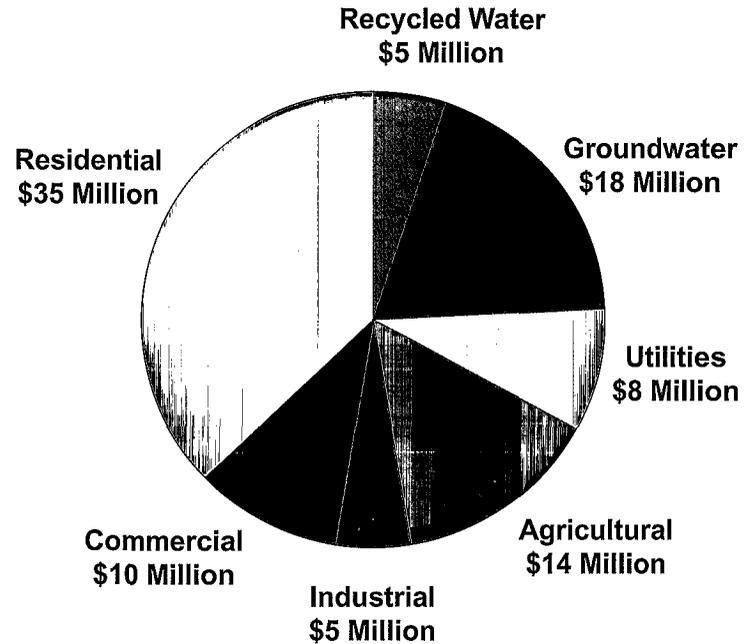
If salinity is too high, Southern California water agencies must turn to the Delta for more water

Colorado River water is essential to urban Southern California's economic health and quality of life, but it is the saltiest surface water supply in the state. Because salinity levels affect the region's economy and ability to develop local water resources, salinity management is one of the critical challenges facing Southern California water agencies.

- A joint study by the U.S. Bureau of Reclamation and the Metropolitan Water District of Southern California indicates that high salinity levels raise costs for businesses and property-owners.
- Southern California has invested heavily in local water resource programs that depend on a steady supply of high-quality imported water. High salinity affects the region's ability to develop recycling and groundwater projects.

Metropolitan seeks to deliver water containing no more than 500 mg/L total dissolved solids on a year-round basis.

- Achievement of this objective will ensure successful local resource programs, such as water recycling, minimize the economic impacts caused by high salinity and reinforce consumer acceptance of drinking water supplies.



A Reduction of 100 mg/L in Salinity of Imported Water Supplies Results in \$95 Million in Annual Benefits

Southern California Blending Requirements

Metropolitan intends to meet its salinity goal by blending lower salinity Delta water with saltier Colorado River supplies. As Delta water becomes more saline, Metropolitan will need additional deliveries from the Delta to reach the 500 mg/L level.

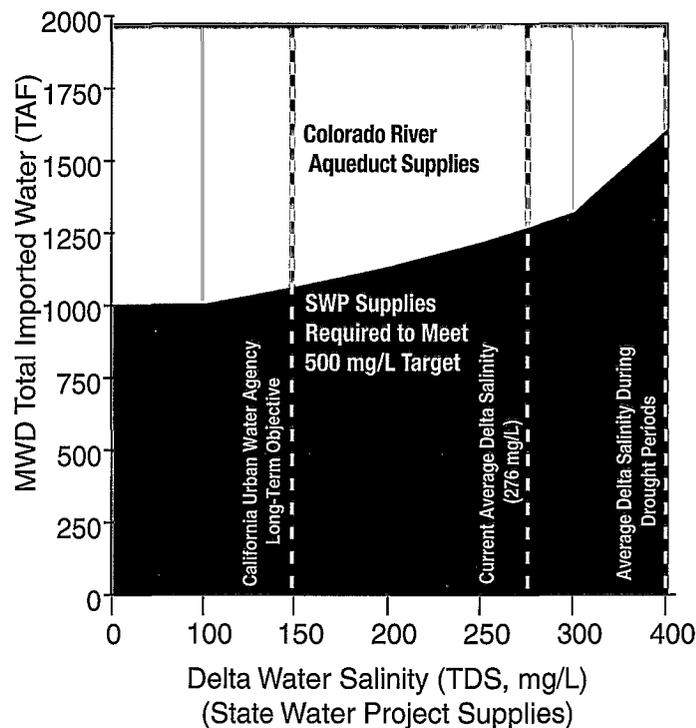
In other words, reducing the salinity of Delta water reduces Metropolitan's need for more Delta water to achieve the blending objective.

Delta water now contains 276 mg/L total dissolved solids on average, and 400 mg/L during dry years.

An increase in the level of salinity of Delta water delivered to Metropolitan to 400 mg/L would increase Metropolitan's average demand for Delta water by 385,000 acre-feet per year.



Mix of Imported Water Supplies to Meet Southern California Salinity Objectives
(Based on 2020 Demands)



The average Delta salinity level must be reduced to 150 mg/L -- the objective established by the California Urban Water Agencies -- to help Southern California meet its water management goals.

Water Quality Degradation Under the CALFED Plan

CALFED's plan will not achieve its water quality objectives

"The CALFED Revised Phase II Report being released today...outlines practicable steps for California to achieve continuous improvement in the quality of our drinking water, the quantity of our water supply, and the protections afforded to wildlife and habitat."

-- CALFED news release, Dec. 18, 1998

CALFED has promised that its plan will improve the quality of California's drinking water on a continuous basis, and has identified specific objectives.

CALFED has identified several actions to improve water quality in the Delta, but these alone will not achieve the water quality objectives. In fact, it is likely that Delta water quality will be degraded in the near-term by CALFED's planned wetlands restoration measures.

Improvement of Delta water quality is essential to improvement of drinking water. The contaminants found in drinking water prior to treatment often are best controlled at the source.

CALFED has proposed actions for Stage I of its program (the first seven years) that CALFED acknowledges may only improve Delta water quality minimally. In fact, some of these actions will degrade Delta water quality.

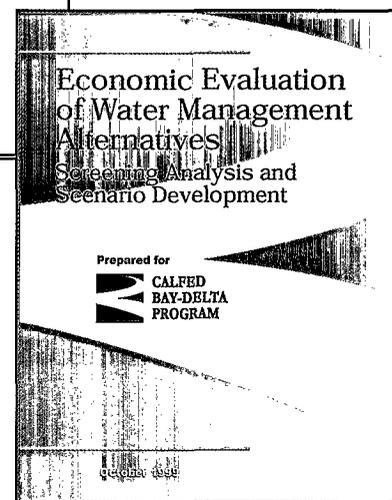
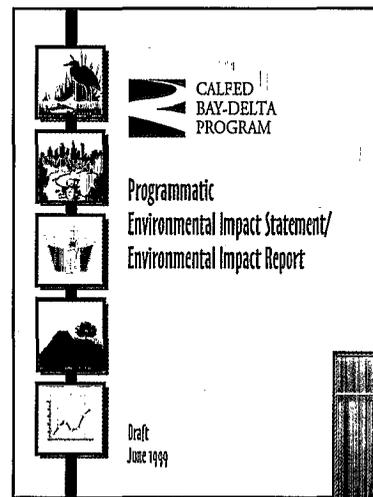
Some near-term CALFED actions will degrade Delta water quality

The Water Quality Program proposed by CALFED does not contain specific actions to reduce the amounts of bromide or other salts that pose public health concerns.

The CALFED program also does not recognize the impact on Delta water quality caused by further urbanization of the Central Valley. This development will degrade Delta water quality by increasing the amount of total dissolved solids and other contaminants flowing into the Delta.

It appears as if CALFED is hoping to discover a "silver bullet" in the form of a breakthrough in water treatment technology that will obviate the need to confront problems with source water quality in the Delta.

Rather, CALFED is poised to devote the first stage of its plan to studies of new water quality technology and monitoring of the development of existing technology that is not cost-effective.



While CALFED devotes the initial years of its program to conducting studies and monitoring, water quality in the Delta will continue to degrade.

CALFED's Water Quality Plan is Inadequate

Urban California needs a balanced water quality solution

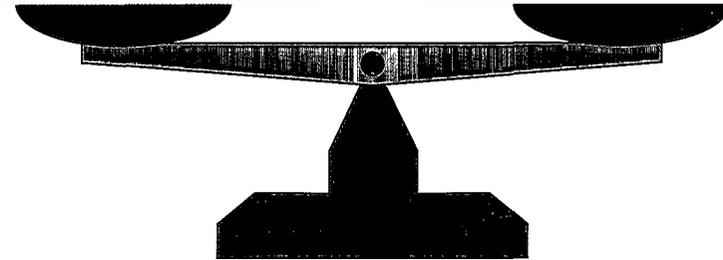
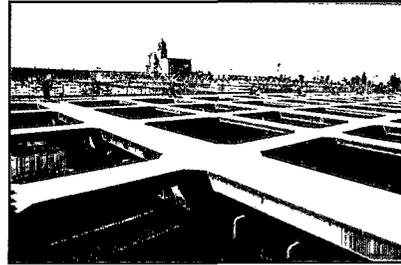
Urban water customers need a CALFED plan that includes actions that can be taken now to:

- Avoid further degradation of water quality.
- Achieve the urban water agencies' short-term goals to improve water quality in the Delta and upstream of the Delta.

CALFED must provide a balanced solution that both protects source water quality in the Delta and recognizes the importance of water treatment.

CALFED must utilize a comprehensive planning approach that addresses the totality of all concerns in balance rather than taking a "species du jour" approach.

If urban water agencies do not receive the considerations listed above, the CALFED plan will include few, if any, tangible benefits for California's cities and towns. The continued support of urban areas for CALFED's efforts will be placed in jeopardy.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF THE
REGIONAL ADMINISTRATOR

NOV 01 1999

Steve Ritchie
Executive Director
CALFED
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Dear Mr. Ritchie:

I appreciate CALFED's recent responses to the concerns raised by Representative Miller and Senator Boxer regarding a potential Hood-Mokelumne diversion facility. The responses clarify CALFED's proposed approach to conveyance options and their relationship to drinking water quality. Unfortunately, the recent letter from the Bay Delta Urban Coalition (BDUC) to Governor Davis and Secretary Babbitt evidences more fundamental misapprehensions among stakeholders on the drinking water quality issue than was touched on in the congressional correspondence. I want to provide EPA's perspective to further clarify drinking water issues.

First, as expected in CALFED's adaptive management approach to drinking water quality, our best information on drinking water quality continues to evolve. EPA's Information Collection Rule (ICR) is generating new data for the national drinking water FACA process to shape the Stage 2 Disinfection Byproduct (DBP) Rule and the new microbial rule. We look forward to presenting the very latest information to the CALFED Policy Group and the Bay Delta Advisory Council once the complete data set becomes available in December or January.

Stakeholder concerns continue to focus on the quantitative source water quality targets for bromide and total organic carbon (TOC) in CALFED's Revised Phase II Report. CALFED's underlying goal is for continuous improvement in Delta water quality, and its proposed approach does not include an explicit timeframe to achieve those targets. Instead, CALFED recognizes that the new information being generated will almost certainly produce an evolution in understanding of public health protection needs for drinking water, and that attempts by CALFED to predict future drinking water standards and any associated water quality needs would therefore be premature and inappropriate. CALFED thus includes a broader alternative to numerical targets: "an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control, and treatment technologies." This alternative exemplifies the adaptive management approach to drinking water quality that CALFED has proposed and that is reflected in the Stage 1 action program. CALFED's approach to continuous improvement of drinking water quality correctly includes the regular reevaluation of any targets to ensure they are relevant, appropriate and cost-effective means to secure public health protection.

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Appendix

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I will be direct about how these considerations are playing out. The numerical water quality targets reflect concerns which were reasonable when framed in light of the information then available, but which appear to be of decreasing significance as new information begins to alter key assumptions underlying these concerns. EPA's 1994 Stage 1 DBP proposal reflected a concern for areas with elevated source water levels of bromide (such as in the Delta) in the context of ozonation at high doses necessary to inactivate cryptosporidium, because of the resulting problematic levels of bromate. Some stakeholders assumed that the need to inactivate cryptosporidium would drive future drinking water rules to require the nationwide use of high-dose ozonation – without an exception or feasible alternative for areas with the highest source water bromide, which would then require such areas to seek new, lower bromide supplies.

The Stage 1 DBP rule, promulgated in November 1998, demonstrated that EPA would in fact consider different source water conditions in evaluating treatment technology effectiveness – in that case, by providing a flexible compliance regime for TOC removal that allows the Metropolitan Water District to address its distinctive source water blending problems. The new ICR data being generated to underpin the Stage 2 DBP and new microbial rules, while not yet complete, appears to indicate that high bromate levels in finished water resulting from ozonation at doses to inactivate cryptosporidium would be fairly widespread across the country, not a primarily Californian phenomenon. This includes several areas in the Midwest, and areas with fairly low bromide levels in their source water (some below the 50ppb CALFED target). If these relationships are borne out after analysis of the complete ICR data set, it is unclear how a national regulatory standard based solely on ozone inactivation of cryptosporidium could be established.

Not only has the science on risk and occurrence of drinking water contaminants continued to develop, as EPA anticipated, but treatment technologies continue to evolve as well. Stakeholder analyses of source water quality needs were premised on assumptions about both specific regulatory scenarios and the treatments available to meet those scenarios at the time of their analyses. Just as the new, complete ICR data set may raise questions about the feasibility of basing a specific microbial inactivation requirement solely on ozonation, evolving scientific information also brings into play the potential for new, cost-effective treatments which can overcome the quality constraints of Delta source water. A number of stakeholders in the rulemaking discussions, for example, are exploring the feasibility of ultraviolet disinfection as a primary tool to inactivate cryptosporidium without harmful byproducts. This technology is a very positive development and is expected to be available for use by large-scale systems in the relatively near term. Membrane filtration processes are rapidly becoming cost-effective to provide enhanced contaminant and DBP precursor control.

All of these developments bear out the wisdom, prudence and appropriateness of CALFED's adaptive management approach to future water quality needs. And, they demonstrate the inappropriateness of single-mindedly pursuing rigid numerical targets for source water quality based on compounded layers of assumptions that advancing science, policies, and time render increasingly questionable if not outdated. CALFED has proposed an ongoing process on

drinking water quality, utilizing the new Delta Drinking Water Council, that will enable the CALFED Policy Group to make decisions based on the most current information and protect public health fully while minimizing costs and environmental impacts.

Yours,



Felicia Marcus
Regional Administrator

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