



**CALFED  
BAY-DELTA  
PROGRAM**

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**State Agencies**

The Resources Agency:

Department of Water Resources

Department of Fish and Game

Delta Protection Commission

Department of Conservation

San Francisco Bay Conservation and  
Development Commission

California State Parks

The Reclamation Board

California Environmental  
Protection Agency:

State Water Resources Control Board

California Department of Food  
and Agriculture

California Department  
of Health Services

**Federal Agencies**

Department of the Interior:

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Geological Survey

Bureau of Land Management

US Army Corps of Engineers

Environmental Protection Agency

Department of Agriculture:

Forest Service

Natural Resources Conservation Service

Department of Commerce:

National Marine Fisheries Service

Western Area Power Administration

Date: January 4, 2008  
To: Gary Hunt, Chair  
Bay-Delta Public Advisory Committee  
From: Greg Gartrell and *Greg Gartrell*  
Steve Macaulay, Co-Chairs *Steve Macaulay*  
Water Quality Subcommittee  
Subject: CALFED Water Quality Program  
Stage 1 Final Assessment (attached)

**Introduction**

In the CALFED Bay-Delta Program Record of Decision (ROD) the goal of the Water Quality Program (WQP) is to provide "safe, reliable, and affordable drinking water in a cost-effective way," with a target to "achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 µg/L bromide and 3.0 mg/L total organic carbon, or (b) an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control, and treatment technologies". However, as recognized in the ROD and other CALFED planning documents, drinking water quality means more than just organic carbon and bromide. Salinity, pathogens, nutrients, turbidity, and other contaminants can also affect the basic goal of providing safe, reliable, and affordable drinking water and have been addressed by projects funded by the CALFED WQP during its first seven years of implementation (Stage 1).

The ROD wisely included two check-in points to assess progress, an initial assessment of progress at the end of 2003 and a final assessment by the end of 2007. As the successor to the Delta Drinking Water Council, the Water Quality Subcommittee is submitting this memorandum in part to fulfill the ROD action to "complete final assessment and submit final recommendations on progress toward meeting CALFED water quality targets and alternative treatment technologies by the end of 2007". This memorandum is based on the information in the October 2007 final draft report titled "CALFED Water Quality Program, Stage 1 Final Assessment" (the Report) and may be revised if there are substantive changes in the final report.

**Conclusions**

The Water Quality Subcommittee would like to call attention to the following key findings from the Report:

- ◆ Water moving through the Delta is still significantly degraded in quality. During the summer and fall months, seawater intrusion and agricultural drainage increase salinity and bromide at the western and southern Delta.

intakes. Local runoff affects the North Bay Aqueduct. Organic carbon from watershed and in-Delta sources usually peaks in late winter, affecting all intakes.

- ◆ The numeric targets for organic carbon and bromide at Delta drinking water intakes are rarely met. Bromide exceeds its target by the widest margin. Bromide exceeds the target because of seawater intrusion and drainage (also affected by seawater intrusion); organic carbon exceeds the target because of natural and anthropogenic sources.
- ◆ Most utilities both in the Delta and in the Central Valley watershed keep their DBP concentrations to less than about half of the 80 µg/L TTHM standard, while still maintaining adequate levels of disinfection and residual disinfectants in the water distribution systems.
- ◆ Treating Delta water requires a more complex combination of technologies, and is more expensive to treat than higher quality sources.
- ◆ Plants treating Delta water and using ozone as the primary disinfectant must also take steps to reduce bromate formation. While more plants are in the process of, or are likely to, switch to ozone to cope with high organic carbon concentrations, high bromide concentrations at most Delta intakes require additional management of treatment conditions to control conversion of bromide to bromate.
- ◆ Analysis of water quality at Delta drinking water intakes from 2000 through 2007 (Stage 1 of the CALFED program) shows that there has been little if any detectable change. This is not surprising considering the size and complexity of the Delta system and the resources available to the program.
- ◆ Changes in the Delta due to climate change and population growth are an increasing threat to water quality, in part because of increasing discharges to the system, in part because of the trade-off between water supply and Delta water quality and in part because of the change in quantity and patterns of precipitation and runoff in the watershed.
- ◆ The Water Quality Program still has a considerable amount of work to do in understanding and better defining the “ELPH” part of the program goal but this is critical to strategic implementation.

For a variety of reasons, including inadequate funding, contracting delays, and unrealistic schedules for some actions, the CALFED WQP has not completed all of the actions set forth in the ROD. Some of these actions are still of critical importance to improving the Delta as a source of drinking water. Regardless of the future direction and governance of the program, the Subcommittee makes the following recommendations.

## Recommendations

The CALFED program should:

- ◆ Reduce concentrations of bromide, organic carbon, and other constituents of concern in water supplied from the Delta.
  - Short term - Implement the most cost effective and feasible combination of Delta Cross Channel re-operation and Franks Tract Project actions.
  - Long term - Consider any and all conveyance alternatives and other strategies for assuring that an adequate and reliable supply of water can be provided from the Delta and its watersheds that is at least as good and preferably is of better quality than currently provided.
- ◆ Continue to be guided by the “multiple barriers” approach to drinking water protection as a continuing principle for action. In light of the uncertainties surrounding use of Delta water, a water supply and water quality strategy that emphasizes diversity and flexibility is becoming increasingly important.
- ◆ Review, refine, and possibly revise the program targets for organic carbon, bromide, and the “equivalent level of public health protection” goal to clarify the Program’s drinking water goal and allow for more effective and measurable implementation.
- ◆ Complete the remaining ROD commitments. Including but not limited to developing a Central Valley Drinking Water Policy and implementing a comprehensive and integrated monitoring, assessment, research, and performance measurement program.
- ◆ Develop a more thorough understanding of the linkage between source water quality and treatment plant operations.
- ◆ Continue to work with regional groups and the IRWM Grant Program to protect and improve water quality.
- ◆ Work with regional treatment technology research and demonstration projects to disseminate results.
- ◆ Implement a demonstration project that concentrates source reduction efforts in a small watershed to evaluate the effectiveness of such actions and increase the ability to measure program performance.
- ◆ Continue to periodically evaluate progress towards program goals and adjust strategies, projects, and programs accordingly.
- ◆ Take all necessary steps to make sure that sufficient resources are available for program implementation, performance measurement, and management.

Bay-Delta Public Advisory Committee  
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If you have any questions regarding our comments or recommendations, please contact Greg Gartrell at (925) 688-8100.

Cc: CALFED Water Quality Subcommittee