

California Bay-Delta Program

Drinking Water Quality Program Multi-Year Program Plan (Years 5 – 8)

Implementing Agencies:

State Water Resources Control Board
Regional Water Quality Control Boards
United States Environmental Protection Agency
State Department of Health Services

April 2004



Goals, Objectives and Targets

Goals and Objectives:

The Drinking Water Quality Program (DWQP) goal is to advance efforts to provide safe, reliable, and affordable drinking water to the millions of Californians who rely on waters from the Delta watershed through cost-effective continuous improvement to source water quality, water management, and treatment. The CALFED Program is committed to achieving continuous improvement in the quality of the waters of the Bay-Delta system with the goal of minimizing ecological, drinking water and other water quality problems. 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 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. Work is progressing on all of the Record of Decision commitments with emphasis on source water improvement and treatment technologies.

The Drinking Water Subcommittee (DWS) of the Bay-Delta Public Advisory Committee is helping shape the strategy of the program. The DWS developed a framework for drinking water quality management - "Equivalent Level of Public Health Protection Decision Tree" (ELPH diagram)- as well as a Conceptual Framework descriptive document in 2002. A focused workshop to identify and prioritize actions for program implementation was held¹ and a process to develop a comprehensive strategic plan for the DWQP started in 2003. The ELPH diagram shows the broad range of actions and factors that can affect drinking water quality, while recognizing the role of regional solutions. The ELPH diagram is now used as the basic structure for all program documents.

The water quality improvement accomplishments and activities of the program are grouped into five categories:

- **Delta Water Quality** – actions to improve the quality of the water that reaches Delta municipal intakes including Source Improvement, Conveyance/Delta Operations, and Storage
- **Imported Water Quality** – actions to improve the quality of water conveyed south from the Delta, including CVP/SWP Operations, Storage south of Delta, and Source Water Exchanges outside of the Delta
- **Local Source Water Quality** – actions to improve the quality of local sources that are used in conjunction with Delta water, including Source Improvement, Operational Changes, and Storage
- **Treatment Options** – includes actions to advance the use of innovative water treatment methods at drinking water treatment plants
- **Program Management** - includes Monitoring, Assessment, Implementation Commitments, Subcommittee support, and other actions necessary for program implementation

¹ Using the "Nominal Group Technique."

Targets:

Page 65 of the CALFED ROD states the drinking water quality program's general target is "continuously improving Delta water quality for all uses, including in-Delta environmental and agricultural uses" and its specific target is "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 using a cost-effective combination of alternative source waters, source control and treatment technologies." The CALFED Water Quality Program Plan (Appendix to the CALFED EIR/EIS, 2000) defines water quality targets as "A numeric or narrative water, sediment, or tissue value associated with a parameter of concern. Water quality targets are based on existing water quality, sediment, and tissue objectives recognized by the scientific community and regulatory authorities. In general, targets have been established to represent a threshold below which beneficial uses of water are not impaired. The target represents the goal toward which the Water Quality Program will strive; realizing targets may not be possible to reach in all cases." In Appendix D² of the Water Quality Program Plan, there are several numeric targets listed for drinking water intakes:

Bromide	<50 µg/L (or an equivalent level of public health protection, based on a regulatory bromate standard of 5 µg/L and the CUWA ³ expert panel report)
Total Organic Carbon	< 3 mg/L (or an equivalent level of public health protection, based on a regulatory bromate standard of 5 µg/L and the CUWA ⁴ expert panel report)
Chloride	250 mg/L, 150 mg/L (Same as D-1641 and the current Sacramento-San Joaquin Bay Delta Water Quality Control Plan)
Nutrients	10 mg/L, no increase in nitrate levels
Total Dissolved Solids	< 220 mg/L (10-yr avg) (from SWP Water Service Contract, may be changed to a 6-month or 1 year avg target) < 440 mg/L (monthly avg)
Pathogens	No MCL standard; < 1 oocyst/100L for <i>Giardia</i> and <i>Cryptosporidium</i>
Turbidity	0.5 or 1.0 NTU (in treated water); 50 NTU (target is to reduce current variability)

² "Water Quality Targets for Parameters of Concern"

³ California Urban Water Agencies "Bay Delta Water Quality Criteria", December 1996.

⁴ California Urban Water Agencies "Bay Delta Water Quality Criteria", December 1996.

The Drinking Water Subcommittee is reviewing these targets and goals in Year 4 through a stakeholder forum, and is convening an expert review panel in Year 5. The ROD milestones and projected expenditures for the Drinking Water Quality Program are being similarly reviewed and updated.

To assist in future evaluation of progress towards targets and goals, the Drinking Water Subcommittee has initiated a strategic planning process, to build on its work in Years 2-3. The strategic planning process was started in October of 2003 and is scheduled for completion by July 2004. The plan is being developed by a workgroup consisting of implementing agency staff, CBDA staff, DWS representatives, and stakeholders. The strategic plan is intended to guide program implementation for the next ten years. It will consolidate the information in several planning documents previously developed for the program and may include new actions developed during the strategic planning process. It will include recommendations for processes to measure success including revised targets and milestones, performance measures, and reporting.

Accomplishments

Most program actions have taken place through competitive grants. Since the program's inception in August 2000, three proposal solicitations have occurred. The first of these was conducted by the DWQP with the participation of the implementing agencies.

2001 CALFED Drinking Water Quality Program Grants: The DWQP awarded grants for 13 projects totaling \$6.7 million. Emphasis in this first PSP was on monitoring and assessment.

2002 SWRCB RFP: The SWRCB, with the DWQP, awarded grants for 13 projects totaling \$7.2 million in Prop 13 nonpoint source funds. Seven of these projects are related to agriculture in the San Joaquin Valley.

2003 SWRCB Grants – Release of \$31.5 million for drinking water quality source improvement projects, including development and assessment of best management practices for discharges from Delta islands, irrigated agricultural and urban sources.

The last two requests for proposals have been conducted by the SWRCB with DWQP assistance. Program funding and implementation responsibility continue to shift from program staff to the implementing agencies.

The program has been unable to meet the aggressive schedule in the ROD due primarily to a lack of resources. Additional staff is needed in both the CBDA and the implementing agencies to oversee and coordinate program actions. Restrictions on available funding have also resulted in uneven implementation of the program. For example in Years 3 and 4, nearly all of the available funding was for competitive nonpoint source pollution control grants. The program has had almost no funding for treatment technology, monitoring, or many other program commitments in the past two years.

Source Improvement

Completed Actions:

North Bay Aqueduct Alternative Intake Study: Evaluation of intake relocation was completed in 2003 (2001 DWQP grant). Cost for the the selected relocation alternatives is \$150 to \$175 million.

North Bay Aqueduct Watershed Management: A watershed management evaluation of Barker Slough was completed.

Real Time Monitoring and Management of Salinity: The Regional Board, DWR, and Lawrence Berkeley National Laboratory in cooperation with the USGS and local water districts, implemented a real-time monitoring and modeling program for salinity in the San Joaquin River. Flow and salinity were monitored, and salt load and salt assimilative capacity were modeled, for three years through December 2002 (DWQP, DWR, Prop 204).

Rock Slough and Old River Water Quality: Contra Costa Water District completed feasibility studies and environmental documentation.

Ongoing Actions:

North Bay Aqueduct Watershed Management: Recommended Best Management Practices (BMPs) are being implemented and results monitored. (Prop 204 and DWQP)

Best Management Practices for Agriculture: Twelve projects have been awarded to develop and implement agricultural Best Management Practices (BMPs) that reduce loads of drinking water constituents of concern. (DWQP and Prop 13)

CVRWQCB Basin Plan Amendment (salinity and boron): The draft BPA and TMDL have been circulated for public review. Two workshops were held in 2003. A hearing was held in early 2004, resulting in additional stakeholder meetings in 2004.

DWR Agricultural Drainage Program (salinity and selenium): Includes management and coordination, monitoring and evaluation, on-farm drainage reduction, treatment, integrated drainage management and environmental investigations. Since 2000, the program has funded 40 projects with a total investment of \$4.8 million from Prop 204. Projects are located in both the San Joaquin and Tulare basins. Reducing salinity in the San Joaquin River is an important component of the Delta Improvements Package.

Rock Slough and Old River Water Quality: Recommended projects were awarded and will begin in 2004. (DWR, Prop 13) These actions are included in the Delta Improvements Package, which goes before the Authority in June 2004.

Sanitary Surveys: DWR completed the sanitary survey of the State Water Projects and its tributaries. DWR also monitors run-off into the California Aqueduct and the South Bay Aqueduct.

Bay Area Water Quality and Supply Reliability Program: This program is evaluating cooperative projects among Bay Area water districts to meet their water supply reliability and drinking water quality objectives. Phase 1 evaluated overall Bay Area water quality, developed a list of potential projects and provided a qualitative evaluation of the ability of existing infrastructure to provide sufficient high quality water to meet the drinking water objectives in the ROD.

State Water Project Watershed Actions: Six projects to perform watershed assessments and implement watershed improvement actions have been awarded in watersheds draining into the California Aqueduct, other SWP conveyances and SWP reservoirs downstream of the Delta (DWQP, Watershed Program, Prop 13).

San Joaquin Valley / Southern California Water Quality Exchanges: Metropolitan Water District (MWD) has entered into two partnerships with San Joaquin Valley water agencies to explore water management opportunities to help resolve water supply and water quality management problems.

Operational Improvements/ Recirculation in the San Joaquin River: US Bureau of Reclamation and DWR completed the modeling studies, which are undergoing management review. The reports will then be forwarded to the fisheries agencies for a preliminary fish and wildlife evaluation. This action is included in the Delta Improvements Package, which goes before the Authority in June 2004.

Treatment Options

Completed Actions:

Bromate Control by Carbon Dioxide Addition: Alameda County Water Agency completed studies to reduce bromate formation from ozone treatment of Delta water containing bromide. Bromate was reliably and cost effectively reduced to levels meeting the new disinfection byproducts standard.

Ongoing Actions:

Ultraviolet (UV) Light Disinfection: Metropolitan Water District is conducting studies integrating UV disinfection and other oxidants (DWQP). A consortium of Bay Area water agencies led by Contra Costa Water District is beginning a program investigating combinations of advanced treatment technologies applied to Delta Water. The primary objective is to aid utilities using Delta water in developing compliance strategies through modification of existing facilities, and installation of new treatment processes (EPA and AWWARF).

Ion Exchange for Organic Carbon Removal: The DWQP awarded a grant to Solano County Water Agency to investigate application of innovative ion exchange technology for organic carbon removal. Bench scale studies are under way to be followed by a pilot scale system.

Regional Desalination: Agricultural drainage water recycling using membrane technology by Panoche Drainage District started in Year 4. (DWQP, ERP, Prop 204). This partially satisfies the ROD commitment for a regional desalination project.

Program Management

Completed Actions:

Drinking Water Quality Workshop: The DWQP and USEPA Region IX conducted a focused workshop July 29-31, 2003 to identify "the most important issues that must be addressed to meet the CALFED drinking water quality goals in a cost-effective and equitable manner". The workshop identified 10 recommended actions that will be an important part of the program's strategy for the future.

Monitoring and Assessment: Continuous organic carbon analyzers have been installed at Hood and the Banks Pumping Plant. Data from these analyzers and other sensors is now compiled, analyzed, and reported in Water Quality Weekly Reports by the DWR Office of Water Quality.

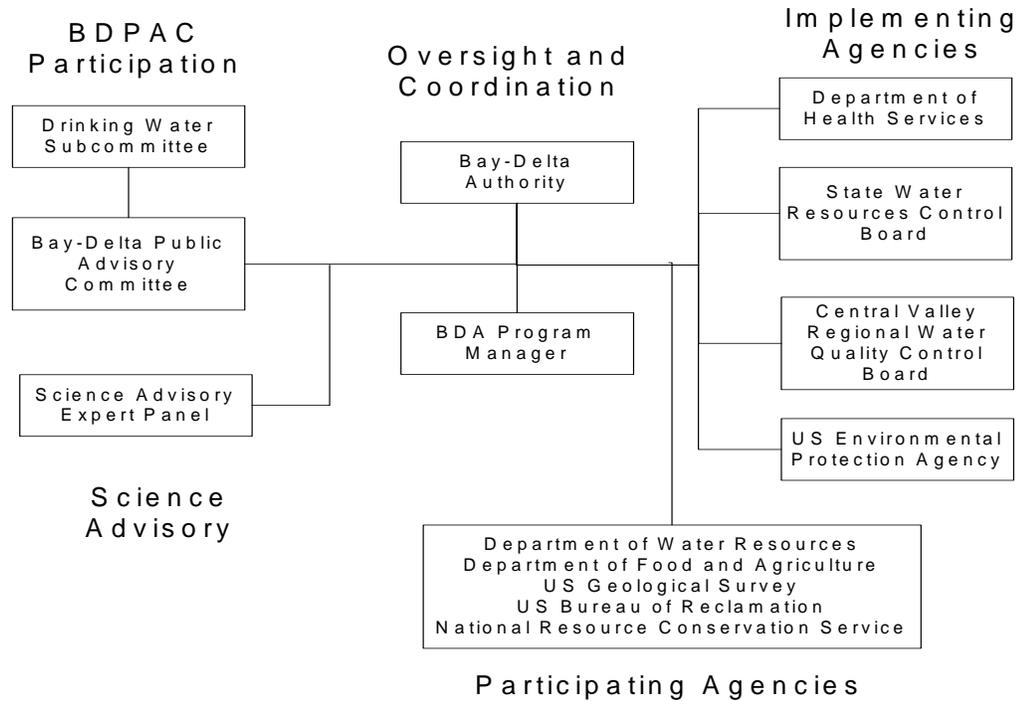
Ongoing Actions:

Monitoring and Assessment: The DWQP is working with existing monitoring programs and supporting complimentary efforts. 15 monitoring and assessment projects have been awarded for \$8 million. New projects initiated in FY 03/04 include an award to Santa Clara Valley Water District to purchase and install continuous real-time bromide and nutrient monitoring devices at Banks Pumping Plant and Vernalis (DWQP, DWR).

Monitoring and assessment is a major part of the work of the Central Valley Drinking Water Policy Work Group. The group is nearing completion on a study of monitoring data availability as a first step in gathering the data necessary for development of a Drinking Water Policy for the Delta and its tributaries.

Strategic Plan: DWQP staff convened a workgroup to continue the efforts of the Drinking Water Subcommittee to develop a comprehensive strategic plan for the DWQP. The workgroup is making good progress towards its goal to complete this task by July 2004.

Program Structure



Agency	Roles and Responsibilities
California Bay-Delta Authority	<ul style="list-style-type: none"> Oversight and coordination
Department of Health Services	<ul style="list-style-type: none"> State co-lead Management of treatment technology development, and health effects studies Grant funds manager
State Water Resources Control Board	<ul style="list-style-type: none"> State co-lead, Grant funds manager
Central Valley Regional Water Quality Control Board	<ul style="list-style-type: none"> Management of source protection efforts
U.S. Environmental Protection Agency	<ul style="list-style-type: none"> Federal lead Administration of Clean Water Act and Safe Drinking Water Act via state agencies
Department of Water Resources	<ul style="list-style-type: none"> Municipal water quality investigations SWP water quality monitoring Conveyance program
U.S. Bureau of Reclamation	<ul style="list-style-type: none"> San Joaquin Valley agriculture drainage program CVP water quality monitoring, Recirculation study
Department of Food and Agriculture	<ul style="list-style-type: none"> Conservation programs for agriculture
U.S. Geological Survey	<ul style="list-style-type: none"> Data and science assessments of water quality Contract research

Major Activities

The Delta Improvements Package (DIP), discussed briefly below, will be a focus of the program in Year 5 and beyond. This package includes DWQP source improvement actions as well as projects in other programs that will improve water quality at the export pumps. The primary drinking water quality goal of the DIP is reducing salinity at the Delta export pumps. Projects in other programs that help to achieve this goal, the Frank's Tract project for example, are not listed in this Program Plan but DWQP staff will work closely with the appropriate programs on the water quality improvement aspects of the projects.

Source Improvement projects will continue to be a high priority for the DWQP in Years 4-7. Nearly all of the projects funded by the DWQP in Years 1-3 are in progress and will be completed in Years 4-7. Projects will be assessed for progress towards programmatic goals. Funding is available for implementation of source improvement projects from Prop 50 Chapters 5 and 8 although none of this funding is specifically designated for the DWQP.

Water utilities continue to look for assistance to address treatment technology needs associated with Delta water quality. Treatment technology projects that address program goals will likely be funded through DHS Prop 50 grants from Chapter 4 but may also be funded from Chapters 3 and 8.

Monitoring and assessment are becoming increasingly important. Additional monitoring is needed to provide a complete picture of drinking water quality in the system as well as a consistent record over time. DWQP performance measures will be heavily dependent on data availability. Monitoring and assessment conducted in connection with grant funded projects helps but inevitably leaves significant information gaps. Consistent long term funding is needed to support this component of the program.

Source Improvement

Delta Improvements Package: The drinking water quality elements proposed for inclusion in a Delta Improvements Package are also listed individually in this program plan. They include the Rock Slough and Old River projects, lower San Joaquin River salinity TMDL, and San Joaquin Valley drainage programs.

Schedule: Ongoing

Implementing Agencies: SWRCB, DWR, USBR, USEPA

Funding: Partial. Level of effort to address San Joaquin Valley drainage and salinity problems will depend on funding.

Coordinate with Conveyance Projects: The DWQP will continue to coordinate with and support analysis of conveyance projects in order to fully understand water quality benefits and cost-effectiveness of potential actions including the South Delta Program, Through-Delta Facility/Delta Cross Channel Operations, and flooded island studies.

Schedule: Ongoing

Implementing Agencies: SWRCB, USEPA

Funding: Partial. Staff and additional funding needed.

Coordinate with Storage Projects: The DWQP will continue to coordinate with storage projects in order to fully understand water quality benefits and cost-effectiveness of potential Storage actions including North of Delta Off-Stream Storage, Los Vaqueros Reservoir Expansion, and In-Delta Storage.

Schedule: Ongoing

Implementing Agencies: SWRCB, USEPA

Funding: Staff and additional funding needed.

Support Regional Planning – The program will release a Request for Proposals for regional drinking water quality planning projects. These projects will be awarded in Year 4 and completed in Year 5.

Schedule: Ongoing

Implementing Agencies: CBDA

Funding: Year 5, under existing funding, beyond year 5 if full funding available.

Drinking Water Policy for the Delta and its Tributaries – Years 4-7 will be devoted to implementation of the policy work plan. The final product of the working group will be a comprehensive policy proposal that will be provided to the Regional Board for their regulatory adoption (likely in the form of a Basin Plan Amendment).

Schedule: Complete technical work in 2007, basin plan amendment in 2009

Implementing Agencies: SWRCB, USEPA

Funding: Currently funded.

Salinity TMDL for the Lower San Joaquin River (Delta Improvements Package): This is part of the ROD commitment to address drainage problems in the San Joaquin Valley to improve downstream water quality. ROD milestone date was 12/2001. Completion has been delayed due to staffing constraints and implementation issues. Phase 1 will address Vernalis objectives. Phase 2 to address upstream objectives.

Schedule: Completion of Phase 1, 6/2004

Implementing Agencies: RWQCB

Funding: Funded.

DWR Agricultural Drainage Program (Delta Improvements Package): DWR will continue its drainage program including management and coordination, monitoring and evaluation, on-farm drainage reduction, treatment, integrated drainage management and environmental investigations. DWR will also manage Proposition 204 Drainage Reuse Sub-account projects.

Schedule: Ongoing

Implementing Agencies: DWR

Funding: Funded through 2006. Beyond 2006 if full funding available.

Best Management Practices (BMPs) for Nonpoint Sources – This includes projects to identify, develop, and implement management practices to reduce loads of drinking water pollutants of concern to the Delta and its tributaries. These projects are primarily funded through implementing agency grant solicitations. Efforts focus on the major types of nonpoint sources in the Delta watershed including irrigated agriculture, managed wetlands, livestock grazing, and urban runoff.

Schedule: Ongoing

Implementing Agencies: SWRCB, CDFA, NRCS

Funding: Identification and development under existing funding level. Implementation if full funding available.

State Water Project Watershed Sanitary Survey – Future work includes an update report for 2006, as well as the development of modeling tools to track sources and loads of contaminants in the project. DWR lead.

Schedule: Completion 2007

Implementing Agencies: DWR

Funding: Currently funded.

Bay Area Water Quality and Supply Reliability Program – Phase 2 includes completion of the analysis and evaluation of those results to identify alternatives or portfolios that group a variety of alternatives together that meet the objectives of the various Bay Area agencies. As Phase 2 nears completion, the Bay Area water districts involved in the project will need to work closely with other Bay Area stakeholders and STATE AND FEDERAL agencies to determine how to proceed with Phase 3, environmental review, feasibility, and design.

Schedule: Phase 1 completion Spring 2004

Implementing Agencies: CBDA, DWR

Funding: Phase 1 funded. Phase 2 if funding available.

San Joaquin Valley / Southern California Water Quality Exchanges – Both the Friant and Kings Partnerships are moving towards investigating specific projects that will facilitate water quality exchanges. In December 2003, Friant and Metropolitan Water District (MWD) approved a Phase 2 Workplan. Soon, MWD will be amending the existing Kings Workplan to address funding specific projects.

Schedule: Completion 2007

Implementing Agencies: DWR

Funding: Planning under existing funding level.

Operational Improvements/ Recirculation in the San Joaquin River (Delta Improvements Package)– Contingent upon funding being identified, USBR will conduct sediment sampling, economic analysis, legal analysis, additional fisheries study, public involvement, and final documentation.

Schedule: Completion 2007

Implementing Agencies: USBR

Funding: Funded

Structural Changes to the California Aqueduct and Similar Conveyances – Part of the ROD commitment to control runoff into conveyances.

Schedule: Begin in 2005

Implementing Agencies: DWR

Funding: If full funding available.

Treatment Options

UV Light Disinfection (CCWD Project) – Bench-scale, pilot-scale and demonstration-scale testing of UV treatment on Delta waters. (EPA grant)

Schedule: Completion 2006

Implementing Agencies: USEPA

Funding: Funded.

Program Management

Support Regional Planning – The program will release a Request for Proposals for regional drinking water quality planning projects. These projects will be awarded in Year 4 and completed in Year 5. The DWQP through its implementing agencies will support regional and local drinking water quality planning efforts. Actions to improve local source water quality will be supported through competitive grant programs managed by the implementing and participating agencies.

Schedule: Ongoing

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Year 5, under existing funding, beyond year 5 if full funding available.

Monitoring and Assessment – CALFED Monitoring and Assessment Program (MAP): There are three primary goals for the MAP. 1)

Develop a trends monitoring program that will indicate if drinking water quality is changing over time and identify where changes are taking place. 2) Develop a program of studies, conceptual models, numerical models, workshops, and reports that will answer questions about sources, fate, transport, and management of contaminants of concern. 3) Improve access to information related to drinking water quality in the California Bay-Delta Program solution area.

The data gathering and analysis tasks of the Central Valley Drinking Water Policy Work Group are an important part of the monitoring and assessment program. The program will coordinate with the SWRCB Surface Water Ambient Monitoring Program (SWAMP) and other monitoring programs to obtain data on drinking water quality constituents of concern.

Schedule: Ongoing

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Partial. Additional funding and staff needed.

Performance Measures – Develop a portfolio of performance measures for the program. The program has a list of candidate indicators, has established indicators for TOC and bromide in exported water, and plans to develop more indicators as resources and data allow.

Schedule: Ongoing

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Partial funding through June 2005. Additional funding and staff needed.

Drinking Water Quality Science – Work with the Drinking Water Subcommittee, Science Program, and the CBDA Science Board to identify key science questions. Then seek to answer these questions through the appropriate use of scientific experts, directed studies, grants, workshops, and peer review.

Schedule: Ongoing

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Not funded.

Support for the Drinking Water Subcommittee – The Drinking Water Subcommittee provides stakeholder input to the program.

Continued development of the program strategy, identification of stakeholder needs, and assessments of progress, all critical to the program, depend on the DWS.

Schedule: Ongoing

Implementing Agencies: CBDA

Funding: Funded through May 2005.

SWRCB Prop 50 Grants – The SWRCB is planning the next round of Prop 50 Chapter 5 grants to start in late 2004.

Schedule: RFP late 2004

SWRCB Agricultural Water Quality Grant Program – The SWRCB is developing guidelines for a grants program to address agricultural water quality issues. The program includes funding from Prop 50, Prop 40, and other sources.

Schedule: RFP Summer 2004

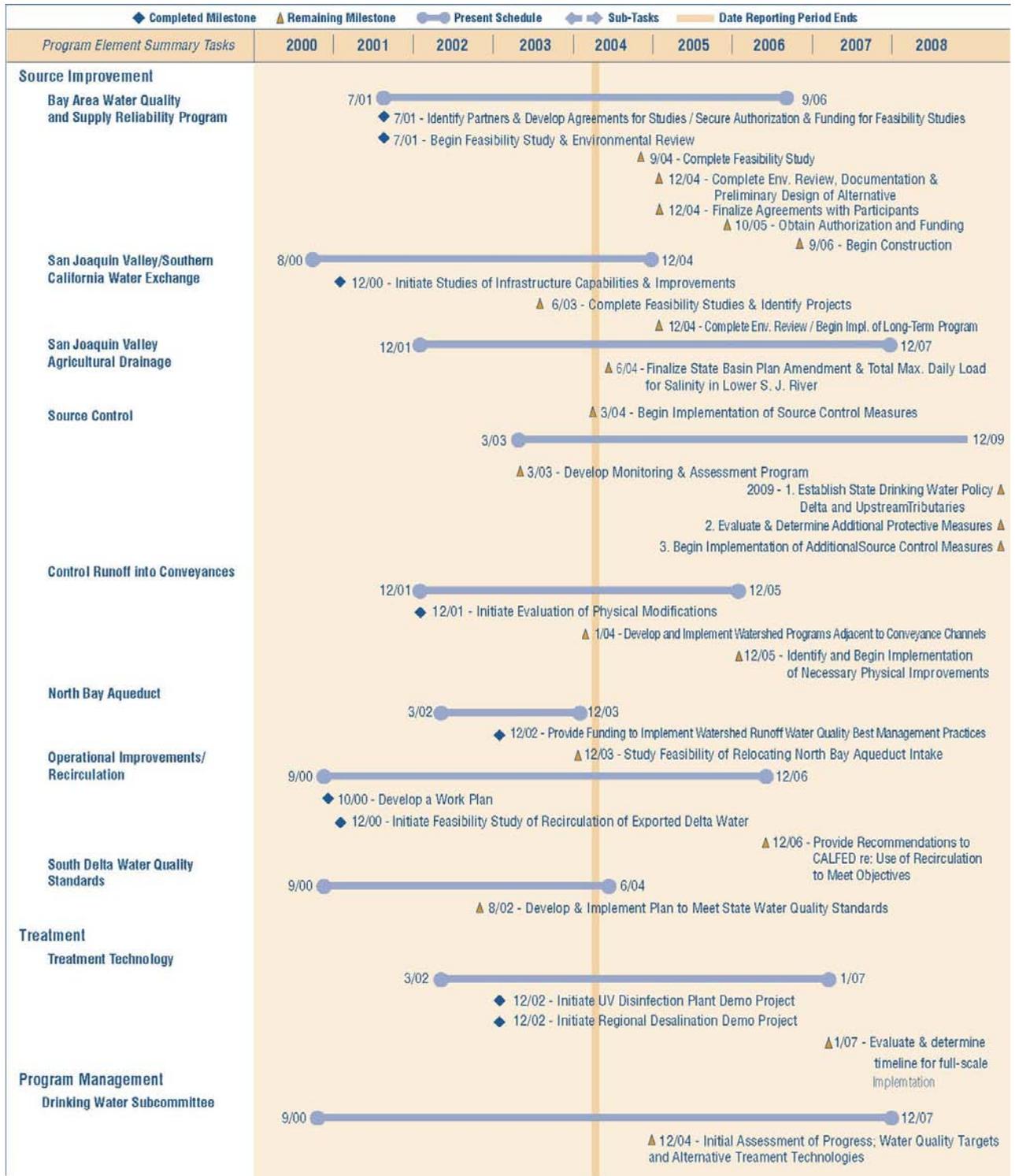
DHS Prop 50 Grants – DHS is planning to start the first round of grant funding for Prop 50 Chapters 3, 4, and 6 also in late 2004. Criteria and process are currently under development.

Schedule: RFP late 2004

SWRCB and DWR Prop 50 Grants for Integrated Regional Water Management projects – The SWRCB and DWR have initiated a coordinated process for grants from Prop 50 Ch. 8.

Schedule: RFP in late 2004

Schedule



Integrating Science, Environmental Justice and Tribal Relations

Science:

The DWQP will work with the Science Program and the Drinking Water Subcommittee to develop appropriate management questions for an independent expert review in 2004. The program will seek to address the findings of this effort through the appropriate use of scientific experts, directed studies, grants, workshops, and peer review.

The DWQP will also work with the Science Program to develop a Monitoring and Assessment Program work plan in Year 5.

Performance Measurement – The program is committed to gathering information about water quality and other measures of program success. This is one of the primary objectives of the monitoring and assessment program. The program has a list of candidate indicators, has established indicators for TOC and bromide in exported water, and plans to develop more indicators as resources and data allow. The DWQP has convened a group of stakeholders to work on the development of performance measures for the program. This work will be influenced by the strategic plan, which is currently in progress.

Environmental Justice:

The DWQP and DWS is committed to working with the Environmental Justice Program and Subcommittee to determine and address environmental justice issues related to drinking water quality. Actions, performance measures and targets will be developed in Year 5.

Tribal Relations:

Drinking water quality issues are important to many tribes and tribal relations are an important part of the DWQP. DWQP grants to other parties may affect tribal interests and tribes may need direct assistance to address water quality problems. Projects funded through the implementing agency grant programs are required to identify potential tribal issues and address them in their projects. The DWQP participates in tribal workshops to help identify drinking water quality issues of concern to tribes.

In addition, the program has identified the following opportunities for expanding tribal participation:

- Consider Tribal Water Programs – The majority of California tribes have developed USEPA Tribal Environmental Programs that have extensive water protection and water quality elements that need to be taken into consideration during drinking water project planning and implementation. Many tribes have their own USEPA approved water quality standards. The upstream and downstream impacts/benefits of these standards need to be considered. This may include working with Indian Health Services and the BIA Natural Resource Agencies.
- Involve the Bureau of Indian Affairs (BIA) – Although the BIA is not a CALFED member agency, it is the lead federal agency for the protection of Indian Trust Assets (ITAs). The BIA reviews environmental compliance documents for CALFED projects impacting ITAs.
- Notify Tribes of Grant Opportunities – Tribal governments should be notified when there are opportunities for drinking water quality improvement grants.
- Education and Outreach – Tribes should be included in drinking water quality education and outreach programs.

Cross-Program Relationships

Conveyance Program – DWQP has contributed resources to the modeling of how water moves through the Delta, operations of the Delta Cross Channel to move high quality Sacramento River water to central Delta channels and the export pumps and studies of the proposed screened diversion on the Sacramento upstream of the Delta Cross Channel. Integration with this program is critical to the success of the DWQP.

Ecosystem Restoration Program – ERP and DWQP water quality problems are frequently associated with the same sources indicating the need for cooperative monitoring and source improvement strategies. Frank's Tract restoration will be a focal point for cross-program activities.

Watershed Management – The Watershed Program and DWQP work cooperatively on grant funding processes and have overlapping program objectives. Building local capacity for watershed management activities provides the mechanism for identifying, guiding, and implementing drinking water quality improvement projects. The Watershed and Drinking Water Quality Programs, working with the SWRCB, have coordinated their grant funding processes.

Water Use Efficiency – An important element of both the WUE program is promotion of good water measurement and management by agricultural users. Reducing agricultural water use reduces the loads of drinking water pollutants of concern in drainage, tail water, and runoff. Urban water use efficiency likewise contributes to improved drinking water quality by reducing demand, urban runoff, and wastewater loads. Water Use Efficiency is identified as an important element in the ELPH diagram.

Levee System Integrity Program – The Delta levee system provides important protection against salinity intrusion, therefore, the DWQP recognizes the significant influence the progress and success that the LSIP will have on protecting the quality of Delta water supplies.

Storage Program – DWQP is coordinating with the Storage Program since storage projects can have positive or negative effects on Delta Water Quality. The construction of the major dams of both the State and federal water projects greatly reduced seasonal fluctuations in Delta salinity. Additional storage north of the Delta is likewise expected to have water quality benefits. On the other hand, feasibility studies of the proposed in-Delta storage project show that it could increase loadings of some pollutants. Integration with this program is critical to the success of the DWQP.

Funding

Drinking Water Quality (\$ in millions)	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Subtotal	Yr 8	Grand Total
State	\$37.9	\$10.4	\$16.0	\$24.6	\$3.0	\$0.5	\$0.5	\$92.9	\$0.5	\$93.4
Federal	\$1.9	\$0.5						\$2.4		\$2.4
Local	\$0.5	\$0.8	\$4.5					\$5.9		\$5.9
Program Funding Total	\$40.4	\$11.7	\$20.5	\$24.6	\$3.0	\$0.5	\$0.5	\$101.1	\$0.5	\$101.6
Projected Needs Estimate										
Original ROD Estimate (Aug, 2000)	\$41.0	\$78.0	\$82.0	\$110.0	\$116.0	\$120.0	\$128.0	\$675.0		\$675.0
NOTES:										
1. Original ROD Estimate represents the original Stage 1 funding estimates from the Record of Decision (Aug 2000).										
2. Funding for Years 1 - 3 reflect actual State, Federal and Local obligations, commitments, encumbrances and expenditures updated to reflect actual fund amounts for each task. State funds for Years 4 & 5 reflect the April 1st Governor's budget. Federal funds are the Year 4 enacted and President's FY 2005 proposed budget. Projected funding shown in Years 6 - 8 includes remaining state bond funds that have been scheduled for future years and ongoing State base funding, plus estimates for local matching to grants for years where bond funding is available. Federal appropriations beyond Year 5 are unknown.										
3. The State budget includes funding for the California Bay-Delta Authority (BDA), Department of Water Resources (DWR), and the State Water Resources Control Board (SWRCB). In addition, statewide Prop 50 funding from Chapters 4 (Department of Health Services), 5 (SWRCB), and 6 (DWR) include funding for drinking water quality. A portion of this funding is expected to support CALFED Drinking Water Quality Program objectives.										
4. The Federal budget includes grant matching funds from federal funding sources.										
5. Local funding includes local grant matching funds which are estimated and updated as information becomes available.										

Funding by Task

Drinking Water Quality (\$ in millions)	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Subtotal	Yr 8	Grand Total
1) Bay Area Water Quality & Supply Reliability Program	\$1.6							\$1.6		\$1.6
2) San Joaquin Valley/Southern California Water Exchange	\$20.0							\$20.0		\$20.0
3) San Joaquin Valley Agricultural Drainage	\$0.8	\$0.2	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$1.4	\$0.1	\$1.4
4) Source Control	\$8.2	\$10.5	\$19.1	\$23.9	\$2.6	\$0.1	\$0.1	\$64.5	\$0.1	\$64.6
5) Control Runoff into Conveyances	\$2.5							\$2.5		\$2.5
6) Treatment Technology	\$5.7							\$5.7		\$5.7
7) North Bay Aqueduct	\$0.2							\$0.2		\$0.2
8) Operational Improvements/Recirculation		\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.8	\$0.2	\$1.0
9) Program Management & Oversight	\$1.5	\$0.8	\$1.3	\$0.4	\$0.2	\$0.2	\$0.2	\$4.5	\$0.2	\$4.6
Program Funding Total	\$40.4	\$11.7	\$20.5	\$24.6	\$3.0	\$0.5	\$0.5	\$101.1	\$0.5	\$101.6
Projected Needs Estimate										
Original ROD Estimate (Aug, 2000)	\$41.0	\$78.0	\$82.0	\$110.0	\$116.0	\$120.0	\$128.0	\$675.0		\$675.0
NOTES:										
1. Original ROD Estimate represents the original Stage 1 funding estimates from the Record of Decision (Aug 2000).										
2. Funding for Years 1 - 3 reflect actual State, Federal and Local obligations, commitments, encumbrances and expenditures updated to reflect actual fund amounts for each task. State funds for Years 4 & 5 reflect the April 1st Governor's budget. Federal funds are the Year 4 enacted and President's FY 2005 proposed budget. Projected funding shown in Years 6 - 8 includes remaining state bond funds that have been scheduled for future years and ongoing State base funding, plus estimates for local matching to grants for years where bond funding is available. Federal appropriations beyond Year 5 are unknown.										
3. The State budget includes funding for the California Bay-Delta Authority (BDA), Department of Water Resources (DWR), and the State Water Resources Control Board (SWRCB). In addition, statewide Prop 50 funding from Chapters 4 (Department of Health Services), 5 (SWRCB), and 6 (DWR) include funding for drinking water quality. A portion of this funding is expected to support CALFED Drinking Water Quality Program objectives.										
4. The Federal budget includes grant matching funds from federal funding sources.										
5. Local funding includes local grant matching funds which are estimated and updated as information becomes available.										

Geographical Distribution of Activities

To be updated.