1.1 Drinking Water Policy

Delta Water

PS 1. Delta watershed source water is not of sufficient quality to meet future and, in some cases, current drinking water needs, and is at risk of further water quality degradation in the future.

Source Improvement

Action 1.1: Support the development of State and Regional Board policies that would provide improved source water quality protection for drinking water supplies.

Description/Background: Drinking water providers use a multiple barrier approach to reduce risk to consumers. The multiple barrier approach includes source water protection, appropriate treatment, and safe distribution of treated water. The source water protection component of the multiple barrier approach is under the Central Valley Regional Water Quality Control Board's (Regional Board) jurisdiction. Some Regional Board and State Water Resources Control Board (State Board) plans and polices are meant to protect water quality for the beneficial use of drinking water. However, they do not provide adequate protection of drinking water source water quality because they do not include enforceable water quality objectives for some important drinking water constituents of concern, specifically pathogens and total organic carbon. As a result, current water quality control programs are not designed to address all drinking water quality concerns.

Status: The Regional Board has been designated as the lead agency to work with other agencies and stakeholders to develop a drinking water policy for the Central Valley. A workgroup has been engaged for over two years, and has initiated work on this action. It is funded through 2007.

Science/Knowledge Gaps: What is the most cost-effective balance of source improvement with treatment technology? How do we connect the Safe Drinking Water Act and Clean Water Act in regulatory enforcement? How is drinking water quality changing over time?

Role of CBDA/Implementing Agencies: RWQCB/SWRCB lead effort in coordination with DHS, EPA, and CBDA. All implementing agencies should encourage collaboration among interested parties.

Funding: Fully funded until 2007: $970,000 funded from Prop 50, $300,000 from USEPA and $150,000 from SRCSD and CUWA. Funding needed to support RWQCB staff.

Priority: HIGH

Next Steps/Potential Projects:

- Develop policy alternatives and staff recommendation (now-2006).
- Basin Plan amendment process (2007-2009).

Initiate similar policy development for groundwater.

1.2 Urban Source Improvement

Delta Water

PS 1. Delta watershed source water is not of sufficient quality to meet future and, in some cases, current drinking water needs, and is at risk of further water quality degradation in the future.

Source Improvement

Action 1.2: Conduct studies and implement projects to reduce loadings of drinking water constituents of concern to the Delta watershed from urban runoff and wastewater discharges.

Description/Background: Municipal wastewater and urban stormwater runoff contain drinking water constituents of concern including dissolved solids, organic carbon, pathogens, and nutrients. Currently, little is known about the sources and loads of drinking water constituents in stormwater discharges. As the population of the Central Valley grows, loads of drinking water constituents from urban sources will increase.

Status: CALFED has funded three projects in this action, one in a flood plain in Contra Costa County, one in the Steelhead Creek watershed, and the other in urbanized Sacramento and Orange Counties. Studies conducted for developing a drinking water policy for the Central Valley (Action 1.1) will include identification of sources and loads of drinking water constituents.

Science/Knowledge Gaps: What are sources and loads of drinking water constituents in urban runoff and what are the economics of reducing/removing them? What are the municipal wastewater contributions of drinking water constituents to surface waters and what are the economics of reducing/removing them? How do we connect the Safe Drinking Water Act and Clean Water Act in regulatory enforcement?

Role of CBDA/Implementing Agencies: RWQCB regulates wastewater and stormwater discharge through NPDES permits, which include monitoring and reporting requirements. CBDA is studying the significance of this contribution to determine future action.

Funding: The USEPA and Proposition 50 have provided $3.6 million to this action. Future actions could be funded out of Proposition 50, Chapters 5 and 8, and through USEPA 319(h) grants (nonpoint source pollution).

Priority: LOW

Next Steps/Potential Projects:

- Assess progress of funded projects to determine additional research and implementation needs.
- Model impacts of urban sources of drinking water constituents on water quality at drinking water intakes.
- Encourage new development to reduce/minimize urban runoff or implement best management practices, and/or supplement monitoring efforts of BMPs.

1.3 Agricultural Source Improvement

Delta Water

PS 1. Delta watershed source water is not of sufficient quality to meet future and, in some cases, current drinking water needs, and is at risk of further water quality degradation in the future.

Source Improvement

Action 1.3: Conduct studies and implement projects to manage agricultural drainage and reduce the discharge of drinking water constituents of concern to the Delta watershed from agricultural lands.

Description/Background: The discharge of water from irrigated agriculture adds total organic carbon, salinity, pesticides, nutrients, and pathogens into surface waters in the Central Valley. This is generally a broad category of non-point source pollution that includes many types of irrigated agriculture, rice production, cattle grazing, dairies, and managed wetlands and is common to both the Sacramento and San Joaquin Rivers and their tributaries. Solutions include best management practices and structural relocations of agricultural drains near drinking water intakes.

Status: The CBDA has funded 20 actions designed to develop best management practices for irrigated agriculture, as they relate to the introduction of drinking water constituents and 2 actions relocating drains. The CVRWQCB adopted an interim conditional waiver of discharge for this class of dischargers requiring coalition groups of farmers or individual farmers to monitor surface waters for a range of constituents, including total organic carbon and salinity.

Science/Knowledge Gaps: What is the magnitude and frequency of irrigated agriculture's contribution of TOC and salinity to surface waters? Would cost-effective BMPs reduce loadings of drinking water constituents of concern? How do we connect the Safe Drinking Water Act and Clean Water Act in regulatory enforcement?

Role of CBDA/Implementing Agencies: The CVRWQCB is developing a ten-year conditional waiver program, the USDA runs the EQIP program. The implementing agencies should coordinate on this effort as well as on funding of projects under this action.

Funding: The USEPA, SB23, Proposition 13, and Proposition 50 have provided $24 million in funding of activities in this action category. Future projects could be funded under Proposition 50, Chapter 5 AWQGP ($46.4 million), other Chapter 5(a) funding ($25 million remaining), or under the USDA EQIP program.

Priority: HIGH

Next Steps/Potential Projects:

- Closer coordination with USDA/NRCS, CDFA and RWQCB.
- Education on BMPs that improve drinking water quality.
- Assess DWQP funded projects to define scope of problem and potential solutions.
- Use water quality monitoring of agricultural waiver to help understand scope of agricultural discharge contribution of drinking water constituents.
- Colusa Basin Drain Feasibility Study.

1.4 San Joaquin River Salinity

Delta Water

PS 1. Delta watershed source water is not of sufficient quality to meet future and, in some cases, current drinking water needs, and is at risk of further water quality degradation in the future.

Source Improvement

Action 1.4: Develop and implement projects to reduce salinity discharges to the San Joaquin River from agricultural lands and managed wetlands.

Description/Background: There is a salt build-up in the San Joaquin River watershed. Salty water from the Delta (and from the San Joaquin River) is imported into the Valley for agriculture and for managed wetlands, where it is concentrated and the concentrate is discharged to the San Joaquin River. This cycle currently operates to meet existing water quality standards at Vernalis, but not to reduce the historic build up of salt in the San Joaquin watershed.

Status: The CBDA has funded 3 projects specifically focused on salinity reduction in the San Joaquin River. The Delta Improvements Package includes the "San Joaquin Water Quality Management Program" (managed by a stakeholder group) and the Central Valley Regional Water Quality Control Board will consider action on the Lower San Joaquin River Salinity and Boron TMDL in September 2004. The USBR is also investigating salinity solutions in its San Luis Drain Feature Reevaluation

Science/Knowledge Gaps: What are the actions needed to achieve a maintainable salt balance in the San Joaquin River watershed while improving drinking water quality?

Role of CBDA/Implementing Agencies: The CVRWQCB adopts the regulatory structure of a San Joaquin River Salinity TMDL. the USDA runs the EQIP program. The CBDA and Implementing Agencies can support the Delta Improvements Package through funding of the activities in this action.

Funding: The USEPA, Proposition 204, and Proposition 50 have provided $1.5 million of funding to activities in this action. Future projects could be funded under Proposition 50, Chapter 5 Agricultural Water Quality Grant Program ($46.4 million), and other Chapter 5(a) funding ($25 million remaining). Proposition 50, Chapter 4 also contains funding for Source Water Protection Grants (<$12M). There is also funding in the USDA EQIP program.

Priority: HIGH

Next Steps/Potential Projects:

- Participate in the San Joaquin River Water Quality Management Group to represent drinking water interest.
- Provide an agency/stakeholder forum for all related projects and programs.
- Coordinate with existing programs/projects to identify needs and provide needed funding.
- Fund implementation actions of the Lower San Joaquin River Salinity TMDL.

Delta Water

1.5 Recreational Sources

PS 1. Delta watershed source water is not of sufficient quality to meet future and, in some cases, current drinking water needs, and is at risk of further water quality degradation in the future.

Source Improvement

Action 1.5: Conduct studies and implement projects to reduce loadings of drinking water constituents of concern from recreational activities.

Description/Background: Boats and marinas contribute gasoline compounds, oil, human and other wastes to surface waters. 2-cycle watercraft engines are responsible for most of the BTEX/fuel components found in multi-use lakes. Swimming and other body contact recreation has been shown to be a significant source of microbial pathogens in lakes, reservoirs, and rivers.

Status: The CBDA has funded two projects related to recreational impacts on drinking water quality. One project addresses pathogen contamination from body contact recreation in a major SWP reservoir in Southern California. The other is implementing public outreach and best management practices for boaters and marina operations in the Delta.

Science/Knowledge Gaps: Does recreational activity in the Delta, reservoirs, and conveyances pose a significant risk to drinking water supplies? To what extent can management practices reduce this risk?

Role of CBDA/Implementing Agencies: Support studies to identify the drinking water quality impacts of recreational activities. Promote management practices and adopt appropriate regulations to control such risks.

Funding: Proposition 13 has provided $2.4 million for activities in this action. Future projects could be funded under Proposition 50 Chapter 5(a) funding ($70 million remaining). Proposition 50, Chapter 4 also contains funding for Source Water Protection Grants (<$12M).

Priority: LOW

Next Steps/Potential Projects:

- Conduct studies to characterize the distribution and sources of microbial pathogens in the Delta.
- Continue development of DHS guidelines for recreational use of water supply reservoirs.
- Support recreation related source water protection demonstration projects.

Delta Water

2.1 Delta Conveyance

PS 2. Seasonally reduced Delta outflow combined with tidal influences and watershed diversions increase salinity and bromide concentrations at the drinking water diversion points within the Delta.

Conveyance/ Delta Ops

Action 2.1: Work with the CALFED Conveyance Program to study and implement Delta conveyance and operations improvements that will improve drinking water quality.

Description/Background: Water quality problems associated with existing conveyance practices include sea-water intrusion due to low Delta outflow and short circuiting of poor quality San Joaquin River water to the South Delta diversion points. Example conveyance practices that influence water quality include operation of the Delta Cross Channel, timing and rate of SWP and CVP pumping, and installation of temporary barriers in the South Delta. Implementation of conveyance and operation improvements that enhance Delta outflow, reduce seawater intrusion and improve system flexibility have the potential to improve Delta water quality.

Status: The CBDA Conveyance Program is conducting feasibility and planning studies for potential conveyance improvements in the South Delta, North Delta, California Aqueduct/Delta Mendota Canal and San Luis Reservoir. Of particular interest to the DWQP are on-going studies of Delta Cross Channel (DCC) operations, a potential Through Delta Facility (TDF), and Franks Tract improvements, all of which are part of the Delta Improvement Package.

Science/Knowledge Gaps: What are the water quality benefits of the proposed conveyance improvements individually and in combination? Do the conveyance improvements have any impacts on the ecosystem? How do the conveyance alternatives interact with other Delta actions?

Role of CBDA/Implementing Agencies: DWR and USBR are the state and federal lead agencies for the CBDA Conveyance Program.

Funding: The Conveyance Program funds the conveyance studies. Future sources of funding for conveyance studies include Prop 50 Chapter 7.

Priority: HIGH

Next Steps/Potential Projects:

- Coordinate with the Conveyance Program to provide input and ensure evaluation of water quality benefits of proposed conveyance projects.
- Delta Improvement Package (DCC operations, TDF, Franks Tract, and potentially the relocation of Old River Intake)

Delta Water

2.2 Storage (for Drinking WQ Improvement)

PS 2. Seasonally reduced Delta outflow combined with tidal influences and watershed diversions increase salinity and bromide concentrations at the drinking water diversion points within the Delta.

Storage

Action 2.2: Work with the CALFED Storage Program to study and implement additional storage operated to provide drinking water quality improvement.

Description/Background: Storage reservoirs upstream of the Delta capture wet weather flows and spring snowmelt and through controlled releases attenuate otherwise highly variable Delta flows. Additional surface storage capacity dedicated to water quality management could be operated to enhance Delta outflow and improve Delta water quality, and to store good quality water supplies for later use. Operational changes at existing storage facilities and potential new storage facilities should be evaluated for cost-effective water quality benefits.

Status: The CBDA Storage Program is conducting feasibility and planning studies for potential new and expanded surface storage projects, including In-Delta Storage, enlarged Shasta Lake storage, Los Vaqueros Reservoir expansion, North-of-Delta storage and Upper San Joaquin River Basin storage. To date, potential benefits to drinking water quality have been identified by the North-of-Delta and Los Vaqueros projects.

Science/Knowledge Gaps: What are the water quality benefits and project costs of proposed storage projects? How do the proposed storage projects interact with other Delta actions?

Role of CBDA/Implementing Agencies: DWR and USBR are the state and federal lead agencies for the CBDA Storage Program.

Funding: The Storage Program funds the storage studies. Future sources of funding for storage planning and feasibility studies include Prop 50 Chapter 7. DWR is developing an approach to prioritize surface storage investigations utilizing Prop 50 funding.

Priority: MEDIUM

Next Steps/Potential Projects:

- Coordinate with the Storage Program to provide input and ensure evaluation of potential water quality benefits and impacts of proposed storage projects.
- Storage upstream of the Delta (Sites Reservoir, Upper San Joaquin River storage)
- Los Vaqueros Reservoir expansion

3.1 Structural Improvements to Conveyance

CVP/SWP Ops

The quality of water in conveyance and storage facilities downstream of the Delta may be degraded by the introduction of drinking water constituents of concern from the immediate watersheds.

CVP/SWP Ops & Storage

Action 3.1: Conduct studies and implement structural improvements to protect aqueduct and reservoir water quality.

Description/Background: Drinking water constituents of concern can be washed directly into conveyance facilities and downstream reservoirs with rain and irrigation water. Algae can bloom within downstream facilities, releasing taste and odor compounds, causing filter clogging, or generally increasing the cost of treatment. Wind and wave action in downstream facilities can stir up bottom and shoreline sediment, causing turbidity spikes. In many cases, structural improvements, such as re-routing drain pipes away from canals, covering or lining aqueducts, moving or modifying intake structures, or adding oxygenation systems to local reservoirs can protect and improve water quality in these facilities.

Status: The CBDA has funded three studies/projects to protect and improve water quality in conveyance and storage facilities downstream of the Delta. One study identified alternatives to relocate the North Bay Aqueduct to reduce severe TOC and turbidity problems. One project will isolate the unlined portion of the Contra Costa Canal from nonpoint source pollution. The other project will enhance dissolved oxygen in Lake Perris to control algae and taste and odor events. The Conveyance Program is the lead for the San Luis Reservoir Low Point project, which would improve water quality for the South Bay Aqueduct users.

Science/Knowledge Gaps: What is the cost-benefit of implementing structural improvements in conveyance and storage facilities downstream of the Delta? What new technologies and innovative strategies are available to protect and improve water quality downstream of the Delta?

Role of CBDA/Implementing Agencies: Encourage local agencies and regional groups to evaluate and implement structural improvements to protect water quality in downstream conveyance and storage facilities.

Funding: Proposition 13 has provided $10.3 million for activities in this action. Future projects could be funded under Proposition 50, Chapter 8.

Priority: MEDIUM

Next Steps/Potential Projects:

- Identify, prioritize, and fund specific projects (identified through sanitary surveys).
- Disseminate information on funded studies to provide examples of potential improvement strategies.
- San Luis Reservoir Low Point Project
- Evaluate and implement physical improvements to the California Aqueduct.

3.2 Watershed Improvements to Conveyance

CVP/SWP Ops

PS 3. The quality of water in conveyance and storage facilities downstream of the Delta may be degraded by the introduction of drinking water constituents of concern from the immediate watersheds.

Source Improvement

Action 3.2: Conduct studies and implement projects to reduce loadings of drinking water constituents of concern to the State Water Project facilities and other water supply facilities.

Description/Background: (see Action 3.1) Projects to reduce nonpoint source loading into drinking water conveyance and storage facilities include local watershed management programs, public outreach and education programs, implementation and demonstration of good management practices, and design and construction of treatment systems such as constructed wetlands and vegetated buffers. The goal of this action is to reduce or eliminate further degradation of water quality within downstream facilities through the evaluation and implementation of local and regional water quality management measures, both within the local watershed areas and within the conveyance and storage facility.

Status: The CBDA has funded four projects to protect and improve water quality in conveyance and storage facilities downstream of the Delta through watershed management activities (North Bay Aqueduct, California Aqueduct, SWP reservoirs and local reservoirs).

Science/Knowledge Gaps: How can the benefits of local management practices and projects be measured when they may constitute only a minor contribution to the overall concentration of drinking water constituents of concern? What new technologies and innovative strategies are available to protect and improve water quality downstream of the Delta?

Role of CBDA/Implementing Agencies: Encourage local agencies to evaluate and implement local watershed management practices and programs to protect and improve water quality in downstream conveyance and storage facilities. Disseminate information on demonstration projects and other local and regional watershed management programs. The Watershed Program funds projects in this action, and the USEPA funds projects in this action through their nonpoint source 319(h) grants.

Funding: SB23 and Proposition 13 have provided $1 million for activities in this action. Future projects could be funded under Proposition 50 Chapter 5(a) funding ($25 million remaining). Proposition 50, Chapter 4 also contains funding for Source Water Protection Grants (<$12M).

Priority: LOW

Next Steps/Potential Projects:

- Identify, prioritize, and fund specific projects.
- Disseminate information on funded studies to provide examples of potential improvement strategies.
- Coordinate with the Watershed Program and the California Watershed Council.

4.1 Water Quality Exchanges

Imported Water

PS 4. Water diverted from the Delta is not of sufficient quality to meet future and, in some cases, current drinking water needs.

WQ Exchanges

WUE

Action 4.1: Conduct feasibility and planning studies for water management programs, such as water quality exchanges and water supply blending, to improve drinking water quality.

Description/Background: The DWQP includes water quality exchanges or blending projects as a tool to improve drinking water quality. This concept involves the voluntary exchange of high quality water from sources such as Sierra Nevada water in the eastern San Joaquin Valley for an equal amount of Delta water. Water quality exchange partnerships could provide drinking water quality improvement benefits for urban water agencies and provide infrastructure improvements and water supply reliability benefits for agricultural water districts. The CALFED ROD specifically identifies potential water quality exchanges between San Joaquin Valley interests and the Metropolitan Water District of Southern California (MWD) as an action under the DWQP.

Status: MWD has entered into partnerships with the Friant Water Users Authority and the Kings River Water Association to develop and implement workplans to evaluate the feasibility of potential water management actions including water quality exchanges. MWD and Friant Water Users Authority have completed Phase 1 technical studies and are identifying projects for implementation. MWD and the Kings River Water Association have completed technical studies of projects which will be reevaluated in the future for implementation. Additional water quality exchange opportunities may be identified as regional drinking water quality planning efforts move forward.

Science/Knowledge Gaps: What are the potential water quality benefits and costs of water quality exchange programs? What are the indirect impacts of water quality exchange programs?

Role of CBDA/Implementing Agencies: The CBDA DWQP supports efforts to evaluate potential water quality exchanges, and provides a forum (BDPAC Drinking Water Subcommittee) for discussing water quality exchange issues of shared interest.

Funding: MWD received a $20 million Prop 13 grant in 2000 to fund water quality exchange feasibility studies and demonstration projects. This funding is anticipated to last through 2009.

Priority: MEDIUM

Next Steps/Potential Projects:

- Continue feasibility and planning studies for potential water quality exchange projects.
- Implement demonstration projects

5.1 Groundwater Quality

Local Sources

PS 5. In some CALFED regions, local surface water and groundwater supplies are not of sufficient quality to meet drinking water needs, resulting in more demand for Delta water. Groundwater quality may become an environmental justice issue where contamination disproportionately impacts disadvantaged communities.

Other contaminants/ challenges

Action 5.1: Support local efforts to evaluate groundwater quality problems and implement groundwater quality improvement projects.

Description/Background: Groundwater makes up about 30% of California's water supply overall and many communities, particularly in the Central Valley, are completely dependent on groundwater. In Southern California, communities are increasingly looking to their groundwater resources to decrease their dependence on imported water supplies. Contaminants, such as pathogens, salinity, nitrate, MTBE, TCE, PCE, chromium, perchlorate, DBCP, and arsenic, present a number of challenges for groundwater users. These contaminants may result in the need for costly treatment systems or in the complete loss of the water supply. Another important groundwater issue is the connection between groundwater and surface water quality through groundwater pumping and natural flow processes.

Status: The CBDA has funded a project in the San Joaquin Valley to investigate the impacts of dairies on groundwater and management practices to reduce those impacts. Funded projects in Southern California address treatment of groundwater (desalination) and water quality improvement associated with groundwater recharge.

Science/Knowledge Gaps: What is the appropriate role for CBDA in groundwater? How interconnected is groundwater with Bay-Delta water supplies?

Role of CBDA/Implementing Agencies: To be determined.

Funding: Propositions 13 and 50 have provided $1 million for activities in this action. These types of activities will qualify for funding under Proposition 50 Chapter 4. The SWRCB has funding for groundwater monitoring under AB599, and leads a comprehensive groundwater monitoring program.

Priority: LOW

Next Steps/Potential Projects:

- Determine CBDA role in groundwater as drinking water.
- Characterize the extent and severity of groundwater contamination with particular attention to impacts on disadvantaged communities.
- Support treatment research and demonstration projects addressing those contaminants with the most significant impacts on local water supplies.
- Investigate the potential for source water protection programs and best management practices to address groundwater contamination problems.

5.2 Local Source Water Protection

Local Sources

PS 5. In some CALFED regions, local surface water and groundwater supplies are not of sufficient quality to meet drinking water needs, resulting in more demand for Delta water. Groundwater quality may become an environmental justice issue where contamination disproportionately impacts disadvantaged communities.

WUE

Ops Changes

Other contaminants/ challenges

Action 5.2: Support local efforts to implement source water protection projects.

Description/Background: Source water protection is widely recognized as one of the key components of a multi-barrier approach to drinking water quality protection and improvement. Surface water and groundwater sources can be vulnerable to a variety of chemical contaminants and microbial pathogens. There may be regions where source water protection/improvement at a local level will be more beneficial than improvement in the Delta. DHS developed and is implementing the Drinking Water Source Assessment and Protection (DWSAP) program, beginning with assessments at a local level.

Status: Most California drinking water suppliers have completed Source Water Assessments and many have also completed Watershed Sanitary Surveys.

Science/Knowledge Gaps: What is the most cost-effective balance of source improvement with treatment technology? How do we connect the Safe Drinking Water Act and Clean Water Act in regulatory enforcement?

Role of CBDA/Implementing Agencies: To be determined through regional planning action.

Funding: Proposition 50 Chapter 4 will support activities in this action, Chapter 8 may also support these activities.

Priority: LOW

Next Steps/Potential Projects:

- Use Regional Water Quality Management Plans to identify the most effective state-level investments.

6.1 Demonstrate Treatment Technology

Treatment Options

PS 6. Treatment of Delta water requires advanced or alternative technologies to meet existing or future drinking water regulations.

Action 6.1: Demonstrate advanced/alternative treatment technologies ability to treat Delta watershed waters.

Description/Background: Many utilities treating Delta watershed waters are currently employing or on schedule to employ some level of advanced/alternative treatment technology, such as disinfectant ozone, in order to meet current drinking water regulations. Population growth and future regulations are the driving factors in determining what level of advanced treatment is needed. Advanced/alternative technologies are developed and tested outside of the CALFED arena, but still need to be demonstrated as able to effectively treat Delta waters. The goal of this action is to determine the effectiveness of identified technologies on Delta waters or mixes of Delta waters, with studies done for groups of agencies within a region.

Status: The CBDA has funded 4 advanced treatment studies, ranging from the removal of precursors of disinfection by-products, alternative disinfectants to reduce disinfection by-products, to alternative treatment processes to remove disinfection by-products. One precursor study funded is on the North Bay Aqueduct, focusing on the removal of total organic carbon through selective ion exchange. A large Bay Area study funded by the EPA is studying a range of alternative disinfectants and alternative treatment processes, and a MWD study was funded to study ultraviolet light technology. One study of a process to reduce bromate formation through carbon dioxide addition concluded a technical and economical success.

Science/Knowledge Gaps: What is the most cost-effective balance of source improvement with treatment technology? Will new technologies result in new disinfection by-products?

Role of CBDA/Implementing Agencies: Encourage local agencies to regionally evaluate treatment needs. Fund regional demonstration projects where appropriate.

Funding: The CBDA (SB23) and the EPA have provided $2 million for activities in this action. Proposition 50 Chapters 4 and 6 could support activities in this action; Chapter 8 may also support these activities.

Priority: HIGH

Next Steps/Potential Projects:

- Disseminate the products of the funded studies to agencies treating Delta watershed waters and solicit feedback (through workshops, conferences)
- Phase II of the Bay Area Advanced Treatment Studies.
- Use an expert panel to determine additional treatment study needs.

6.2 Tracking Treatment Research

Treatment Options

PS 6. Treatment of Delta water requires advanced or alternative technologies to meet existing or future drinking water regulations.

Action 6.2: Use assessment of current treatment methods, advances in treatment technology, and the changing regulatory environment to guide treatment technology demonstration and research priorities.

Description/Background: There are a number of organizations and agencies which track and fund treatment technology research and which track and engage on regulatory issues. CALFED should not duplicate these efforts, but periodically assess the state of knowledge on treatment technology and future regulations in order to adaptively manage the DWQP and to identify potential appropriate regional demonstration studies. Local drinking water agencies can assist the DWQP in this action.

Status: This action is new to the DWQP, resulting from Drinking Water Subcommittee direction.

Science/Knowledge Gaps: Will new technologies result in new disinfection by-products? How will new regulations affect the DWQP goals and objectives?

Role of CBDA/Implementing Agencies: CBDA will coordinate with local utilities and DHS to obtain updated information.

Funding: This new effort will require staff resources. No funding has been identified.

Priority: MEDIUM

Next Steps/Potential Projects:

- Establish a work group to meet quarterly/yearly to assess the status of treatment technology and drinking water regulations.
- Use an expert panel on treatment technology to assess affect of technology developments and regulatory changes on DWQP goals and objectives.

7.1 Regional Water Quality Planning

Delivered WQ

PS 7. The lack of understanding of the balance of local, regional and statewide actions that are needed to achieve the CALFED ELPH goal delays DWQP implementation.

Delivered WQ

Action 7.1: Develop and implement a Regional Water Quality (ELPH) Planning effort which enables local and regional entities to assess the status of their water quality and to plan for their water quality future, while identify water quality improvement actions needed at local, regional, and state levels. Use these plans to determine which actions the state should undertake and where funding is best directed.

Description/Background: The Drinking Water Subcommittee has developed a description of the ROD concept "an equivalent level of public health protection" (ELPH). An intricate component of this description is the use of local drinking water knowledge to help identify the water quality needs at local, regional and state levels in order for every CALFED region to achieve ELPH (the ROD objective for water quality).

Status: The DWQP anticipates funding four regional planning efforts in FY05, including the ongoing Bay Area Water Quality/Water Supply Reliability Project.

Science/Knowledge Gaps: What are the specific needs of each region to achieve ELPH? What are the significant drinking water constituents of concern? What is the level of source improvement needed in the Delta?

Role of CBDA/Implementing Agencies: Encourage and fund local agencies to develop regional water quality plans, either as stand-alone plans or as part of integrated resource plans. Provide guidance for the planning effort so that all regions will be comparable. Work at a state level to integrate the plans. Work with bond funding agencies to support implementation of these plans.

Funding: The CBDA has provided $850,000 for a pilot regional planning effort, and has funded $1.5 million for the Bay Area project. Proposition 50 Chapter 8 could support implementation of regional plan actions.

Priority: HIGH

Next Steps/Potential Projects:

- Develop a framework for Regional ELPH Planning.
- Demonstrate the feasibility of Regional Planning as a tool to implement the DWQP through grants for regional planning projects.
- Integrate Regional Plans into the management of the DWQP.

8.1 Monitoring and Assessment

Delivered WQ

PS 8. The Drinking Water Quality Program lacks sufficient information on public health risk and drinking water quality, which is needed to inform management decisions and measure program performance.

Imported Water

Action 8.1: Develop and implement a drinking water quality monitoring and assessment program through cost-effective coordination and enhancement of existing monitoring programs and provide public access to information.

Description/Background: An understanding of the current state of water quality in the Bay-Delta is necessary in order to evaluate the needs and the accomplishments of the DWQP. Monitoring and assessment plays a key role in developing this understanding, and in measuring the progress of program implementation. There is already a lot of water quality monitoring occurring in the CALFED solution area, but these programs are not currently coordinated, from the quality of the data collected to the assessments made of the data's meaning.

Status: CALFED has funded 6 monitoring projects, including the installation of continuous monitoring stations at three key points in the Delta. The Central Valley Drinking Water Policy project performed a study that found that the Delta and its tributaries have generally good monitoring for the major drinking water constituents. The study also recommended some additional monitoring to fill in information gaps, and within lesser tributaries and agricultural drains which appear not to have adequate monitoring for organic carbon, some nutrients, TDS, and chloride.

Science/Knowledge Gaps: What is the existing water quality in the Delta and how should it be described? What is the baseline for the Drinking Water Quality Program? How should progress by measured? How should other programs and projects determine their effect on drinking water quality?

Role of CBDA/Implementing Agencies: Encourage federal, state, and local agencies to coordinate and share monitoring data.
Funding: SB 23, Proposition 13 and Proposition 50 have provided $1.6 million (not included the Drinking Water Policy work) to activities in this action.. General bonds are not written in a way that allows for funding of monitoring or monitoring coordination activities.

Priority: HIGH

Next Steps/Potential Projects:

- (NGT) Initiate a Joint Powers Authority (JPA) to focus on drinking water quality data acquisition, coordination, management, and dissemination.
- Establish a forum for monitoring program personnel to share program information, through regular meetings, with a coordinator.
- Fund data assessment through a project solicitation proposal package.
- Develop baseline description for DWQP.
- Annual water quality assessment (or equivalent, per DIP)

8.2 Public Health Index

Delivered WQ

PS 8. The Drinking Water Quality Program lacks sufficient information on public health risk and drinking water quality, which is needed to inform management decisions and measure program performance.

Delivered WQ

Action 8.2: Develop and test model public health indices to assess level of public health protection.

Description/Background: Multiple drinking water quality standards and a variety of interpretations of these standards are causing havoc within the California water management arena. Regions, cities, and regulators all have different expectations of what constitutes "safe" drinking water. For a statewide effort like CALFED, it is essential to have a singular expectation or about a minimum protective level necessary for drinking water. It may not necessarily be regulatory based. Some possibilities include no waterborne-disease outbreaks; compliance with drinking water regulations; and, total risks that are less than 1/10,000 excess disease.

Status: This topic was identified in the July 2003 Nominal Group Technique workshop. No work has been done in this area.

Science/Knowledge Gaps: What is the appropriate quantitative method of comparing water quality strategies for their achievement of DWQP goals?

Role of CBDA/Implementing Agencies: The CBDA/implementing agencies could provide facilitation of discussions or fund directed studies. Implementing agencies could also provide significant institutional guidance on this issue.

Funding: This activity has not been funded.

Priority: MEDIUM

Next Steps/Potential Projects:

- Facilitate the development of public health indices by sponsoring workshops or other forums for discussion.
- Provide directed funding to develop public health indices.
- Facilitate a collaborative discussion between various stakeholders to develop a set of indices that would reflect an agreed upon definition of "safe."
    - Determine how the public health indices would be applied.

8.3 Sources and Loads

Delivered WQ

PS 8. The Drinking Water Quality Program lacks sufficient information on public health risk and drinking water quality, which is needed to inform management decisions and measure program performance.

Delta Water

Imported Water

Action 8.3: Conduct focused studies to improve the scientific understanding of sources and loads of drinking water constituents of concern.

Description/Background: To cost-effectively and equitably improve Delta water quality, the major sources of degradation must be identified and quantified. This includes quantifying contaminant inputs from manmade and natural sources. A better understanding of how physical, chemical, and biological processes work within the Delta is needed.

Status: The CBDA has funded 9 projects under this activity. The majority of them are focused on determining the sources and loads of organics, pathogens, and nutrients. EPA will be supporting the Central Valley Drinking Water Policy efforts by funding a task to improve the understanding of processes within the Bay-Delta system. The project will identify the sources, behavior, fate, transport, and effect for high priority drinking water constituents.

Science/Knowledge Gaps: What are the largest contributions of drinking water constituents of concern?

Role of CBDA/Implementing Agencies: Coordinate and disseminate scientific information identified as part of individual projects.

Funding: SB 23, Proposition 13, and Proposition 50 have provided $6 million to activities under this action. Future projects need to have funding identified.

Priority: HIGH

Next Steps/Potential Projects:

- The results of the Central Valley Drinking Water Policy task will help to identify priority areas for further research and funding.
- Continue to support projects and assess their progress.
- Coordinate with the Science Program and ERP Water Quality Coordinators.

8.4 Science Panel

Delivered WQ

PS 8. The Drinking Water Quality Program lacks sufficient information on public health risk and drinking water quality, which is needed to inform management decisions and measure program performance.

Action 8.4: Convene an Independent Science Panel to address drinking water quality problems and solutions.

Description/Background: The CALFED ROD called for the convening of an independent science panel to address water quality problems and public health issues for Delta water and local water sources.

Status: The CBDA is currently in the process of convening an independent Water Management Science Board, which will include drinking water and water-use efficiency experts. The Drinking Water Subcommittee, in conjunction with staff from the DWQP and the implementing agencies, will be asked to recommend scientific/management questions to be forwarded to this Board.

Science/Knowledge Gaps: This is a venue for addressing science and knowledge gaps.

Role of CBDA/Implementing Agencies: EPA is assisting in facilitating the development of the science/management questions. The implementing agencies should participate in identifying the appropriate drinking water technical experts for the various boards and panels.

Funding: CBDA will fund the Water Management Science Board through May 2005.

Priority: HIGH

Next Steps/Potential Projects:

- Identify key scientific/management questions for the Water Management Science Board.
- Establish focused Independent Science Panels when science/management questions are better suited to such a venue.
- Participate in development of Science Program Delta water quality workshops.
- Participate in development of the drinking water session as part of the 2004 CALFED Science Conference.

9.1 Agency Coordination for Source Protection

Delivered WQ

PS 9. Implementation of the Drinking Water Quality Program requires improved integration and coordination among the implementing agencies and the CBDA. Coordination also needs to be improved with stakeholders and other CBDA Programs.

Delta Water

Imported Water

Local Sources

Action 9.1: Improve integration of the Clean Water Act (CWA), Safe Drinking Water Act (SDWA) and Porter-Cologne Act tools and requirements into the CALFED Drinking Water Quality Program at the program- and project-level.

Description/Background: DHS has jurisdiction over treated drinking water while the RWQCBs have jurisdiction over ambient water quality (surface water and ground-water). These distinct but overlapping functions beg cooperation between the two agencies. Neither DHS nor the RWQCB has dedicated resources for cooperating to control constituents in source water that may threaten municipal water supplies. CALFED provides a forum for such coordination to occur; but not the necessary dedicated resources. This lack of coordination is evident in the current Basin Plan, which does not adequately address the mutual source protection goals of the CWA, SDWA, Porter-Cologne, and CALFED water quality program plan. Specifically, the basin plan does not address the full range of issues (including known, unknown, and emerging contaminants) identified in the CALFED water quality program plan. The overall lack of resources for basin planning activities exacerbates this problem.

Status: This action was identified as a top priority in the Nominal Group Technique workshop. DHS and the RWQCB resources for this activity have been reduced in recent years.

Science/Knowledge Gaps: What are the appropriate connections between the CWA and the SDWA?

Role of CBDA/Implementing Agencies: Implementing agencies need to make this issue a higher priority, but cannot do so under existing resource limitations. All of the agencies should coordinate on this issue.

Funding: A legislative budget change would be needed to provide agencies with staff resources.

Priority: HIGH

Next Steps/Potential Projects:

- The RWQCB and DHS must work together to establish basin plan objectives and implementation plans to protect drinking water sources. Establish and fund a working group to facilitate coordination.
- Prioritize projects/funding with a multi-barrier approach, which provide multiple benefits, or which control multiple contaminants.
- Identify funding sources for staff resources.

9.2 Coordination with Implementing Agencies and Programs

Delivered WQ

PS 9. Implementation of the Drinking Water Quality Program requires improved integration and coordination among the implementing agencies and the CBDA. Coordination also needs to be improved with stakeholders and other CBDA Programs.

Action 9.2: Improve administrative accountability, reporting, communication and collaboration between staff and management of the state and federal CALFED implementing agencies to leverage funding and staff resources within the CALFED Drinking Water Quality Program.

Description/Background: The primary purpose of the CALFED Bay-Delta Program is to reduce conflict in the Delta system. Part of that conflict stems from the differing and sometimes overlapping missions and responsibilities of the many State and Federal agencies with an interest in the Program. The SWRCB (and the RWQCBs), USEPA, and DHS are the implementing agencies for the program. DWR, USBR, CDFA, USGS, and the NRCS also play important roles in the Drinking Water Quality Program, as it depends on actions within other CALFED program elements. The responsibilities delegated to these agencies may include infrastructure operations, restoration projects, monitoring, implementing regulatory programs, and financial assistance. The primary responsibility of the CBDA is coordination and oversight of agency actions and programs to insure effective implementation of the program.

Status: CALFED and implementing agencies coordinate on the support of the Drinking Water Subcommittee and its activities, on management of the program and on administration of state bonds.

Science/Knowledge Gaps: Where do DWQP goals align with implementing agency goals? Are there ways to better align goals and funding opportunities between implementing agency programs and the DWQP?

Role of CBDA/Implementing Agencies: Work together to create a more effective program. Coordinate on both bond language development and administration criteria to assure funding of projects that fit both DWQP and implementing agency goals.

Funding: The proposed budget for FY 04/05 includes funding for approximately 3-4 positions split between the CBDA and the implementing agencies.

Priority: HIGH

Next Steps/Potential Projects:

- Increase/improve level of coordination with agencies and their relevant programs., and with other CALFED programs.
- Coordinate resource identification and distribution.
- Identify mutual goals and objectives between the implementing/participatory agencies and DWQP and build partnerships around those goals/objectives.

9.3 Stakeholder Participation

Delivered WQ

PS 9. Implementation of the Drinking Water Quality Program requires improved integration and coordination among the implementing agencies and the CBDA. Coordination also needs to be improved with stakeholders and other CBDA Programs.

Vulnerable Sub-Pop

Education/ Outreach

Action 9.3: Increase the participation of stakeholders within the CALFED Drinking Water Quality Program, especially from currently under-represented groups such as environmental justice communities.

Description/Background: The CALFED Record of Decision includes a commitment to address Environmental Justice (EJ) communities and populations at both the programmatic and project levels. The Drinking Water Subcommittee (DWS) of the Bay-Delta Public Advisory Committee (BDPAC) is the primary CBDA forum for stakeholders to provide input to the DWQP.

Status: The DWS currently includes members representing urban water agencies, agricultural interests, environmental groups, wastewater agencies, community and public interest groups, and academia. The DWS is currently discussing draft EJ guidelines developed by the BDPAC Environmental Justice Subcommittee. The DWQP recently funded one project to develop a drinking water education program to address public perception of drinking water.

Science/Knowledge Gaps: What are the drinking water quality needs of environmental justice communities in the CALFED solution area?

Role of CBDA/Implementing Agencies: The CBDA provides support for BDPAC and the BDPAC subcommittees, including the DWS and Environmental Justice Subcommittee. CBDA staff are also responsible for program coordination.

Funding: Proposition 50 has provided $480,000 to fund one DWQP project related to this action.

Priority: MEDIUM

Next Steps/Potential Projects:

- Schedule a joint meeting of the DWS and BDPAC Environmental Justice (EJ) Subcommittee to discuss next steps.
- Work with the Environmental Justice Subcommittee to develop EJ guidelines for analysis and assessment of projects, and community participation in funded projects.
- Conduct a quantitative assessment of drinking water infrastructure and capacity needs for EJ communities and vulnerable populations in the CALFED solution area.

9.4 Strategic Planning

Delivered WQ

PS 9. Implementation of the Drinking Water Quality Program requires improved integration and coordination among the implementing agencies and the CBDA. Coordination also needs to be improved with stakeholders and other CBDA Programs.

Action 9.4: Assess strategic planning efforts within the CALFED Drinking Water Quality Program to-date and identify new efforts to move the program forward.

Description/Background: The CALFED ROD left the development of a strategic plan for the Drinking Water Quality Program in the hands of the Drinking Water Subcommittee. The Subcommittee first described the goal of "an equivalent level of public health protection" in its August 2002 Decision Tree, and then further in its November 2002 Conceptual Framework document. In July 2003, a Nominal Group Technique method was employed to focus the top issues for the program. Since that time, a work group of stakeholders has worked with a consultant and the Subcommittee to put together a strategic plan (for implementation guidance).

Status: The DWQP has engaged a consultant to conduct a performance assessment of the projects funded to date. This assessment will show the progress to date in each of the ELPH categories, the expected achievements of funded projects, and the top science/knowledge gaps identified by the projects. On a parallel track, the work group will continue to work with the Subcommittee to prioritize the identified action categories of the ELPH, to provide strategic guidance to the DWQP.

Science/Knowledge Gaps: What are the most critical and timely activities for the DWQP in the near future? How should the ELPH categories be prioritized prior to the implementation of regional water quality plans? What are the obstacles to achieving the goals of the DWQP?

Role of CBDA/Implementing Agencies: The CBDA and implementing agencies must play an active role in the development of a strategic plan, including identifying their roles in the implementation of the program.

Funding: This effort has been funded through existing funds at ABAG, and through stakeholder participation.

Priority: HIGH

Next Steps/Potential Projects:

- DWQP Performance Assessment (current, future periodic).
- Subcommittee development of strategic plan.
- Updates to strategic plan based on future performance assessments, development of performance measures, DWS direction.