FINAL REPORT
ACTIONS AND CATEGORIES

Prepared for:

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1.0
INTRODUCTION

The following report presents the work products of Tasks 1 and 2 as described in the August 25, 1995, Task Order No. 8. Specifically, the report presents an inventory of proposed actions from previous and current public and private planning efforts that address problems in the Sacramento-San Joaquin Delta, and Suisun Bay and Suisun Marsh. The inventory has been prepared following a review of reports, activities, and programs prepared by numerous agencies and organizations that deal with Delta issues, including fisheries, water quality, system vulnerability, and water supply reliability. The inventory of actions is organized into categories which were developed in an effort to meet the objectives of the CALFED process, as outlined in the June 22, 1995, *Draft Plan of Action.*

This report is organized into three sections:

1.0 Introduction

2.0 Actions and Categories

3.0 Sources of Information

The Actions and Categories are presented first, in the following.

2.0
ACTIONS AND CATEGORIES

The following inventory presents actions and categories that address Delta problems. The actions were identified during the survey of programs, activities, and reports. The categories used to group the actions were developed in an effort to meet at least one of the objectives identified through previous CALFED program activities.

Table 2-1 presents a summary of the categories utilized in organizing the actions. The complete inventory of actions and categories is presented in Table 2-1.

TABLE 2-1. CATEGORIES

MAIN CATEGORY: WATER SUPPLY MANAGEMENT (QUANTITY, TIMING, AND RELIABILITY)

SUB-CATEGORY: EXPAND WATER SUPPLY

Types of Action:
- Desalination
- Water Importation
- Develop Groundwater Resources
- Weather Modification
- Watershed Management
- Utilize other Sources of Water

SUB-CATEGORY: IMPROVE UTILIZATION OF EXISTING WATER SUPPLY

Types of Action:
- Water Conservation
- Water Reclamation
- Land Fallowing
- Water Transfers
- Create Export Capacity Market
- Modifications of Standard SWP and CVP Operations

SUB-CATEGORY: INCREASE TOTAL STORAGE CAPACITY

Types of Action:
- In-stream Storage
- Off-stream Storage
- Groundwater Banking and Management
- Increase Diversion/Conveyance Capacity

SUB-CATEGORY: REDUCE SYSTEM VULNERABILITY

Types of Action:
- Reduce Land Subsidence
- Levee Maintenance/Stabilization
- Improve Aqueduct/Pipeline Safety
- Reduce Seismic Hazards
- Reduce Catastrophic Contamination Risks
- Flood Protection
- Long-term Drought Contingency Planning

SUB-CATEGORY: GENERAL WATER SUPPLY MANAGEMENT ACTIONS

Types of Action: Consistency with General Plans
Ensure Supply Meets Demand

MAIN CATEGORY: WATER QUALITY AND HABITAT MANAGEMENT

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Types of Action: Conveyance Facilities
Channel Modifications
Flow Barriers
Delta Inflow/Outflow/Export Management

SUB-CATEGORY: REDUCE CONTAMINANTS LOADING

Types of Action: Manage Agricultural Drainage
Manage Mine Drainage
Manage Urban/Industrial Discharge
Manage Dredge Sediments
Restrict Intake to Higher Quality Water (by location or timing)
Reduce Contaminants at Intake
Control Contaminants Sources

SUB-CATEGORY: RESTORE, IMPROVE. AND PROTECT NATURAL HABITATS

Types of Action: Delta Riparian Habitat
Delta Shallow Water Habitat
Delta Wetlands Habitat
Delta Riverine Habitat
Delta Terrestrial Habitat
Upstream Anadromous Fish Habitat
Upstream Riparian Habitat
Upstream Shallow Water Habitat
Upstream Wetlands Habitat
Nutrients Input Management
Fish Passage/Homing Improvements
General Actions to Restore, Improve, and Protect Habitats

MAIN CATEGORY: SPECIES MANAGEMENT AND CONTROL

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Types of Action:
- Fish Screens
- Fish Behavioral Barriers
- Fish Physical Barriers
- Improve Salvage Operations
- Predator Removal/Control
- Diversion Reductions
- Change Location/Flow Conditions of Diversion
- Real-time Monitoring

SUB-CATEGORY: SUPPRESS UNDESIRABLE SPECIES AND ENHANCE DESIRABLE SPECIES

Types of Action:
- Control Exotic Species and New Species Introductions
- Fish Hatcheries/Stock and Harvest Management
- Terrestrial Species Management

MAIN CATEGORY: SOCIOECONOMIC AND INSTITUTIONAL MEASURES

SUB-CATEGORY: IMPLEMENT NEW OR EXISTING STATUTES, REGULATIONS, POLICIES, AND PROGRAMS

Types of Action:
- Water Rights Law Modifications
- Statutory and Regulatory Changes
- Policy Changes
- Adaptive Management Strategies
- Special Programs and Agreements
- Threatened and Endangered Species Protection
- Wetlands Protection
- Preservation of Agricultural Lands and/or their Water Supplies
- Protection of Public Trust Values

SUB-CATEGORY: IMPROVE FUNDING MECHANISMS RELATED TO WATER

Types of Action
- Reduce or Eliminate Subsidies
- Adjust Water Rates to Reflect the Real Cost of Water
- Protect Economic Viability of Rural Communities
- Provide Funding for Research
- Provide Funding to Implement Programs
- Compensation for Damages
- Cost Sharing

Disaster Planning and Assistance

SUB-CATEGORY: PROMOTE EDUCATION AND PUBLIC INVOLVEMENT

Types of Action:
- Focused Research
- Public Education and Awareness
- Public and Agency Interaction
- Public Consensus Building and Acceptance
- Public Incentives
- Data and Information Management

SUB-CATEGORY: IMPROVE RECREATION

Types of Action:
- Recreation Opportunities
- Reduce Impacts Associated with Recreation

TABLE 2. ACTIONS AND CATEGORIES

B-003674

MAIN CATEGORY: WATER SUPPLY MANAGEMENT

(QUANTITY, TIMING, AND RELIABILITY)

B-003675

Type of Action: Desalination

Action	Reference
Implement desalinization of South Coast ground water.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement desalinization of Imperial drainage water.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement desalinization of San Joaquin Valley drainage water.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement desalinization of Riverside County drainage water.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement desalinization of sea water.	DWR. 1990. Draft EIR/EIS, North Delta Program.

Type of Action: Develop Groundwater Resources

Action	Reference
Recharge groundwater supplies with wastewater effluent from Publicly Owned Treatment Works.	Brad Bowman, Engineer City of Pasadena. Personal Communication. Examples: City of San Diego.

Type of Action: Watershed Management

Action	Reference
Implement watershed management practices (snowpack management, vegetation manipulation) to increase water yield and improve water quality in the Feather River Basin (Plumas National Forest)	Kattelmann. 1987. Feasibility of More Water from Sierra Nevada Forests.
Implement watershed management practices (snowpack management, vegetation manipulation) to increase water yield in the Yuba River Basin (Downieville Ranger District)	Kattelmann. 1987. *Feasibility of More Water from Sierra Nevada Forests*

Type of Action: Watershed Management

Action	Reference
Implement watershed management practices (snowpack management, vegetation manipulation) to increase water yield and improve water quality in the American River Basin (Eldorado National Forest)	Kattelmann. 1987. Feasibility of More Water from Sierra Nevada Forests.
Implement watershed management practices (snowpack management, vegetation manipulation) to increase water yield and improve water quality in the Stanislaus River Basin (Niagara and Eagle creek watersheds)	Kattelmann. 1987. Feasibility of More Water from Sierra Nevada Forests.
Implement watershed management practices (snowpack management, vegetation manipulation) to increase water yield and improve water quality in the San Joaquin River Basin (specifically in the watersheds of the Mammoth Pool and Big Creek systems)	Kattelmann. 1987. Feasibility of More Water from Sierra Nevada Forests.

Type of Action: Water Conservation

Action	Reference
Implement and expand current federal and state water efficiency programs.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
New methods of agricultural water conservation should be researched though pilot projects and implemented where feasible.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Water conservation feasibility studies shall be completed and implemented by municipalities and/or water districts.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
In the South Coast Region, cut back on deliveries to MWD member agencies made under the interruptible sea water intrusion barrier program.	DWR. 1990. Draft EIR/EIS, North Delta Program.
In the South Coast Region, cut back on deliveries to MWD member agencies made under the interruptible agricultural delivery program.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Allow 10-20% of corn and grain crops Sherman Island to remain unharvested, to reduce the rate of soil subsidence and consumptive water use.	DWR, Central District. 1988. West Delta Water Management Program. July 1988.
Implement landscape water conservation programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement water management planning assistance in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement residential retrofit programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement low interest loan programs for capital improvements by local public agencies in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement water audits and leak detection programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement conservation information programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement industrial water conservation programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.

Type of Action: Water Conservation

Action	Reference
Provide technical assistance in irrigation management.	DWR. 1990. Draft EIR/EIS, North Delta Program.
In the South Coast Region, institute public relations campaign to heighten conservation awareness, use alternative-day watering, gutter-flooder patrols, etc.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Conduct residential water audits in the South Coast Region.	DWR. 1990. Draft EIR/EIS, North Delta Program.
In the South Coast Region, institute a rationing program designed to minimize adverse economic impacts (provide for business exemptions based on economic hardship).	DWR. 1990. Draft EIR/EIS, North Delta Program.
Retrofit existing toilets with ultra-low flush versions in the South Coast Region.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement urban and agricultural water conservation in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Implement urban water rationing in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Increase agricultural water use efficiency in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Increase urban water use efficiency in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Implement Santa Clara Valley Water Management programs.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Authorize a public entity to enter into agreements with other public and private entities to provide water conservation services and measures and materials for implementing water conservation programs.	Assembly Bill No. 561. Introduced by Assembly Member Archie-Hudson. February 17, 1995
Implement Urban Best Management Practices, as described in an MOU Regarding Urban Water Conservation in California	DWR. 1993. Programmatic EIR for State Drought Water Bank.
Improve irrigation management	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Water Reclamation

Action	Reference
Reclaim waste water effluent and treat for drinking water supply.	Brad Bowman, Engineer City of Pasadena. Personal Communication. Examples: City of San Diego.
If practical, use existing facilities and develop new facilities in order to deliver reclaimed and recycled water for beneficial reuse.	SFEP. 1994. *comprehensive Conservation and Management Plan*
Reclaim waste water effluent and treat for drinking water supply.	Brad Bowman, Engineer City of Pasadena. Personal Communication. Examples: City of San Diego.
Municipalities and counties should adopt water reclamation ordinances encouraging the use of reclaimed water, to the maximum extant practical, while providing for the protection of public health and the environment.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Ensure that state water quality standards and Basin Plans encourage water reclamation and reuse.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Water reclamation and reuse feasibility studies should be compiled by each Publicly Owned Treatment Works (POTW), municipality, and/or water district.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Implement water reclamation programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement wastewater reclamation in the South Coast Region.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Implement reclamation measures such as use of gray water, water recycling and desalting, and reuse of agricultural brackish water in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.

Type of Action: Water Reclamation

Action	Reference
"The district may sell, or otherwise dispose of, any nonpotable water; resulting from the operation of a sewerage system, sewage disposal plant, refuse disposal plant or process, or treatment plant...." The Department of Water Resources may assist sanitary districts in applying for, and in obtaining approval of, federal and state funding and permits for cost-effective water reclamation projects and shall confer and cooperate with the legislative body of the district during the application and approval process."	Assembly Bill No. 125, as amended. Introduced by Assembly Member Rainey. January 12, 1995
Add Section 13557 to the Water Code. Expedite the processing and approval of permits related to the beneficial use of "new water". New water means recycled water that meets certain requirements.	Assembly Bill No. 363. Introduced by Assembly Member Cannella. February 10, 1995
Encourage the University of California to establish a research and extension program concerning water reuse issues. The purpose o the program would be to enhance the implementation of water reuse and recycling to maintain a sustainable environment for the benefit of all Californians.	Senate Bill No. 179, as amended. Introduced by Senator Kelley. January 31, 1995
Require the Department of Water Resources, in consultation with the Department of Health Services and the Center for Irrigation Technology at Fresno State University, to adopt standards for the installation of graywater systems for subsurface irrigation and other safe uses. Require the department to include drip systems among the approved methods of subsurface irrigation.	Assembly Bill No. 313, as amended. Introduced by Assembly Member McDonald. February 8, 1995
Authorize certain cities to use recycled water for the flushing of toilets and urinals in residential structures if the level of treatment and the use of the recycled water meets the criteria set by the State Department of Health Services.	Assembly Bill No. 172. Introduced by Senator Beverly. January 30, 1995

Type of Action: Water Reclamation

Action	Reference
"A local entity shall not discharge reclaimed water into the aquifer of the San Gabriel Valley Basin or provide any of its water users with water containing reclaimed water added by means of groundwater recharge unless the users agree, pursuant to subdivision (c), to allow the discharge or provision of that water."	Senate Bill No. 1304. Introduced by Senator Mountjoy. February 24, 1995
Local water management: waste water recycling	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Local water management: use of gray water	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Reuse of agricultural brackish water	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Tertiary treated water from Central Coast to DMC & Salt Management	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Reverse Osmosis Treated water from Central Coast to DMC	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendixes, 1995
Reverse Osmosis Treated water from Central Coast to Delta Salinity Repulsion	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Tertiary Treated water from Central Coast to Delta Islands	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendixes, 1995
Reverse Osmosis Treated water from Central Coast to Delta Islands	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Tertiary Treated water from Central Coast to South of the Bay (100,000 ac-ft/yr)	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Tertiary Treated water from Central Coast to South of the Bay (400,000 ac-ft/yr)	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.

SUB-CATEGORY: IMPROVE UTILIZATION OF EXISTING WATER SUPPLY

Type of Action: Water Reclamation

Action	Reference
Tertiary Treated water from Central Coast to South San Joaquin w/DMC conveyance.	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Tertiary Treated water from Central Coast to South San Joaquin w/o DMC conveyance.	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Reverse Osmosis Treated water from Central Coast to Indirect Potable Use.	Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices.
Divert treated wastewater from San Francisco Bay area to San Joaquin valley	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Land Fallowing

Action	Reference
Allow natural vegetation to take over Sherman Island, to reduce the rate of soil subsidence and consumptive water use.	DWR, Central District. 1988. North Delta Water Management Program.
Retire agricultural land in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Implement land fallowing and short-term water transfer programs in SWP service areas.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Incentive payments to landowners	DWR. 1995. San Joaquin River Management Plan.
Land retirement	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Water Transfers

Action	Reference
Water Transfer: Statewide Supply Management.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Acquire Butte Creek water rights from willing sellers.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Water Transfers

Action	Reference
Provide legislative, regulatory, and administrative support to those water transfers that improve water efficiency, enhance California's natural environment, and promote the overall well being of rural communities.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
More fully utilize the existing and expand, where appropriate, the legal and regulatory framework to facilitate voluntary water marketing agreements among agricultural, urban, and environmental interests.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Reallocate water supply in SWP service areas, for short- or long-term transfers.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Prohibit a district located south of the Tehachapi Mountains from purchasing water from any agricultural water user north of the Tehachapi Mountains if surplus water is available for purchase south of the Tehachapi Mountains.	Senate Bill No. 281. Introduced by Senator Ayala. February 9, 1995
Create a voluntary expedited transfer system.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.
Create expedited transfer procedures for transfers of conserved and "unutilized" water.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.
Authorize user initiated transfers of water supplied by local water agencies.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.
Authorize the acquisition of water by members and customers of local water agencies.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.

SUB-CATEGORY: IMPROVE UTILIZATION OF EXISTING WATER SUPPLY

Type of Action: Water Transfers

Action	Reference
Protect third party interests through a variety of categorical limitations on transfers and compensation of third-party injuries that may occur despite these protections.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.
Authorize transfers to instream users.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.
Authorize future state water banks and regional and local water banks.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. July 1995.
Evaluate the use of alternative water supplies for riparian diversions from the lower San Joaquin River during April and May.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Modifications of Standard SWP and CVP Operations

Action	Reference
Reevaluate carryover storage and operational criteria for the Shasta-Trinity Division of the Central Valley Project.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Separate statewide water planning and data activities from current water project operations.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Modifications of Standard SWP and CVP Operations

Action	Reference
Request the State Water Resources Control Board to review the appropriative rights granted to the United States Bureau of Reclamation for the Federal Central Valley Project pursuant to state law to determine whether any evidence has been brought to the attention of the board that may show that the bureau has violated any terms or conditions contained in a permit or license for that project. During their review, the board should consider any information generated as a result of the Memorandum of Agreement for Transferring Title to the Central Valley Project from the United States Department of the Interior to the State of California. The board should report their results to the Legislature on or before January 1, 1996.	Senate Concurrent Resolution No. 20. Introduced by Senator Kelley. February 22, 1995
Allocate SWP water from existing facilities based on entitlements rather than the previously used methodology.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
In years when total available SWP supplies are less than total Contractor requests for water, water will be allocated in proportion to each Contractor's share of total Contractor entitlements, thereby eliminating the initial supply reduction to Agricultural Contractors, which is currently applied with certain limitations.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
Property comprising the Kern Fan Element (KFE) of the Kern Water Bank (KWB) currently owned by DWR will be sold or leased (with an option to purchase) on a long-term basis to designated Agricultural Contractors.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.

Type of Action: Modifications of Standard SWP and CVP Operations

Action	Reference
Permanent Sales of Entitlement. Agricultural Contractors will make available for permanent transfer (on a willing buyer-willing seller basis) 130,000 AF of annual entitlements to Urban Contractors, or to non-Contractors after a right of first refusal by Urban Contractors	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
The SWP Contractors and DWR will develop a number of financial programs with SWP funds that will (1) establish a SWP operating reserve, (2) establish a program for water rate management, and (3) provide for revenue bond financing of specific planned future operation and maintenance facilities, if such facilities are constructed.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
Contractors will be provided the opportunity to directly utilize a portion of the respective storage capacities of reservoirs in order to optimize the operation of both local and SWP facilities.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
Contractors shall have the right to transport non-Project water in SWP facilities at the melded SWP power rate.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
SWP water may be stored from year to year in SWP surface conservation storage facilities or in non-SWP surface storage facilities outside a Contractor's service area. There are no limits on groundwater storage of SWP water outside a Contractor's service area.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.

Type of Action: Modifications of Standard SWP and CVP Operations

Action	Reference
An annual turn-back pool of water is created and administered by DWR under which water allocated but not needed by a Contractor may be sold to interested contractors and/or DWR at a percentage of the Delta Water Rate, or to non-contractors.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.
Manage water project operations with a high degree of coordination between the State Water Project and the Central Valley Project.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Transfers by unidentified holders of water entitlements, water rights, and water supplies who feel they have excess water to sell on a short-term or long-term basis (from the SWP, the Central Valley Project, and any other water resource or project) to unidentified Southern and Central California purveyors who wish to acquire that water.	Science Applications International Corporation. 1995. Implementation of the Monterey Agreement. Statement of Principles by the State Water Contracters and the State of California, Department of Water Resources for Potential Amendments to the State Water Supply Contracts, May 1995.

Type of Action: In-Stream Storage

Action	Reference
In the South Coast Region, use local reservoir carryover storage, as available.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Authorize the Department of Water Resources to construct, operate, and maintain an Auburn Dam Project, as defined. "Auburn Dam Project" means a "multipurpose dam and reservoir on the North Fork of the American River...".	Assembly Bill No. 1359. Introduced by Assembly Member Knowles. February 23, 1995
Develop additional storage for high-quality water upstream of the Delta to release for salinity control requirements	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
New Los Padres Reservoir - MPWMD (enlarge existing reservoir)	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Shasta Lake enlargement (storage)	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Clair Engle Lake enlargement (storage)	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Develop additional conservation storage north of the Delta	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Storage on Delta islands (Delta Wetlands Project)	Jones and Stokes Associates. 1994. Administrative Draft Biological Assessment: Impacts of the Delta Wetlands Project on Fish Species.
Mendota dam replacement	DWR. 1995. San Joaquin River Management Plan.
Friant Dam enlargement	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Off-stream Storage

Action	Reference
Increase in-Delta storage to provide operational flexibility for fisheries.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Study storage of surface water on Delta islands.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
In the South Coast Region, cut back on deliveries to MWD member agencies for reservoir carryover storage.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Construct a 350,000 acre-foot reservoir in the Montezuma Hills.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Los Banos Grandes Reservoir.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Los Vaqueros Reservoir-Contra Costa Water District for offstream storage and emergency supply.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Domenigoni Valley Reservoir-MWDSC for offstream storage of SWP and Colorado River water.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Red Bank Project (storage).	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Westside Reservoirs (storage).	DWR. 1994. California Water Plan Update. Bulletin 160-93.
San Diego Emergency Water Storage Project.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
In-Delta storage to supplement Delta channel water supply.	
Fine Gold Creek offstream storage project.	DWR. 1995. San Joaquin River Management Plan.
Montgomery reservoir off-stream storage project.	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Groundwater Banking and Management

Action	Reference
In the South Coast Region, use local ground water banked through an exchange agreement with another agency, as available.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Maximize conjunctive use of water through groundwater recharge.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
In the South Coast Region, use local ground water banked within the service area in previous year, as available.	DWR. 1990. Draft EIR/EIS, North Delta Program.
In the South Coast Region, cut back on deliveries for ground water recharge through in-lieu agreement with MWD member agencies.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Enter into a new conjunctive use program with local interests for New Melones releases to the south Delta.	DWR, Central District. 1988. South Delta Water Management Program.
Create a Groundwater Management Agency by supplementing the Water Code with the Groundwater Management Agency Act.	Assembly Bill No. 1067. Introduced by Senator Mello. February 24, 1995
Kern Water Bank.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Groundwater reclamation/use.	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Conjunctive use demonstrations	DWR. 1995. San Joaquin River Management Plan.
Improve conjunctive use of ground water and surface water in the San Joaquin basin to enhance water supplies.	DWR. 1995. San Joaquin River Management Plan.
Evaluate and encourage conjunctive benefits of domestic water supply projects.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Groundwater Banking and Management

Action	Reference
Accelerate planning studies for additional off-stream storage and conjunctive use programs which benefit protection of salmon habitats in the San Joaquin River and its tributaries.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Increase Diversion/Conveyance Capacity

Action	Reference
Increase diversions into Clifton Court Forebay.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.

Type of Action: Reduce Land Subsidence

Action	Reference
Reduce long term levee maintenance and improvement costs by controlling subsidence. Subsidence could potentially be controlled by shallow flooding and/or placing dredged fill.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels
"Controlling subsidence should be a significant element of any Delta flood control plan."	Bay-Delta Oversight Council. 1993. Bay-Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Minimize tilling of crops on Sherman Island to reduce the rate of soil subsidence.	DWR, Central District. 1988. West Delta Water Management Program.

Type of Action: Levee Maintenance/Stabilization

Action	Reference
Rehabilitate nonproject levees on Sherman Island.	DWR, Central District. 1988. North Delta Water Management Program.
Provide that a levee may be protected or strengthened in the case of emergency during the season of floodwater if the levee or the immediately adjoining property is in danger of injury or destruction from the floodwater.	Assembly Bill No. 832. Introduced by Assembly Member Woods. February 22, 1995.
Create an organization to implement the Delta levees and channel element of the plan for "fixing the Delta."	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels
Include improvement standards, minimum levee maintenance criteria and an inspection program in Delta levee target maintenance and improvement levels.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels
Implement an inspection program to ensure compliance with maintenance standards.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels

Type of Action: Levee Maintenance/Stabilization

Action	Reference
Consider the use of new designs, extensive monitoring, and economical borrow sources in developing realistic future costs for levee rehabilitation.	Bay-Delta Oversight Council. 1993. Bay -Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues
CDFG should work with the Reclamation Districts to make sure that needed levee maintenance is accomplished.	Bay -Delta Oversight Council. 1993. Reclamation District No. 548. Letter dated September 19 to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Stabilize levees in eight western Delta islands.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Reduce Seismic Hazards

Action	Reference
Establish target levels of seismic stability for levees in the Delta.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.
Perform studies of potential earthquake risk to help develop contingency plans in the event of earthquake-induced failures. These studies should be focused upon critical levees on the western side of the Delta.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.
Conduct further investigations involving field and laboratory testing to reduce the uncertainties and better define the expected performance of the levees during future earthquakes. In particular, determine the ability of the soft organic soils beneath the levees to either amplify or dampen motions.	Bay-Delta Oversight Council. 1993. Bay-Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Consider the Delta area's vulnerability to earthquake damage when addressing existing and future development, water transport and other safety issues.	Bay-Delta Oversight Council. 1993. Seismic Safety Commission letter dated September 15, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.

Type of Action: Reduce Seismic Hazards

Action	Reference
Consider the risk of development on or behind levees from ground failure and shaking.	Bay-Delta Oversight Council. 1993. Seismic Safety Commission letter dated September 15, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Address the implications of seismic hazards in the Delta on existing and future developments. Identify areas expected to experience the strongest earthquake ground motion and ground failure and the implications of levee failure on land uses, the environment and fresh water transport.	Bay-Delta Oversight Council. 1993. Seismic Safety Commission letter dated September 15, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Call for an overall earthquake emergency response and recovery plan. It should include procedures for rapidly coping with levee failures following a major distant or local earthquake. It also should clearly specify which organizations are responsible for repair of the Delta levees after a destructive earthquake.	Bay-Delta Oversight Council. 1993. Seismic Safety Commission letter dated September 15, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.

Type of Action: Flood Protection

Action	Reference
Develop and implement a program of flood control projects on Bethel, Bradford, Holland, Hotchkiss, Jersey, Sherman, Twitchell, and Webb Islands in the delta and for the Towns of Thornton and Walnut Grove.	Senate Bill No. 34. Approved by the Governor on March 11, 1988. Cited as the Delta Flood Protection Act of 1988.

Type of Action: Flood Protection

Action	Reference
The Department of Water Resources shall develop a list of areas where flood control work is needed to protect public facilities or provide public benefits. Guided by the approved priority list, the Department shall develop project plans to accomplish the needed flood protection work, in cooperation with the local public agency, the public beneficiary, and the Department of Fish and Game.	Senate Bill No. 34. Approved by the Governor on March 11, 1988. Cited as the Delta Flood Protection Act of 1988.

Type of Action: Long-term Drought Contingency Planning

Action	Reference
Rice Wetlands Project (Store excess river flow on rice fields for later release in Spring)	DWR. 1993. Programmatic EIR for State Drought Water Bank.
In the South Coast Region, purchase emergency imported supply through long-term water marketing agreement.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Convert McCormack-Williamson Tract, Dead Horse Island, and Staten Island, as well as parts of Bouldin Island and Brannan-Andrus Island to a floodway.	DWR. 1990. Draft EIR/EIS, North Delta Program.

Type of Action: Consistency with General Plans

Action	Reference
"Create a state-mandated local program, by requiring the city or county, upon the adoption or the next revision of its general plan following January 1, 1996, to incorporate by reference in the general plan, as a source document, the specified information relating to water supply availability, provided that this information is available, and has been submitted to the city or county by the water agency."	Assembly Bill No. 584, as amended. Introduced by Assembly Member Rainey. February 17, 1995
Require a city or county that determines that an environmental impact report is required in connection with specified projects that include certain courses of land use action to identify water systems that provide water supplies for the proposed project. The bill would require the city or county to request the identified public water systems to prepare a prescribed water supply and demand reliability assessment.	Senate Bill No. 901, as amended. Introduced by Senator Costa. February 23, 1995

Type of Action: Ensure Supply Meets Demand

Action	Reference
Revise the components required to be included in urban water management plans submitted to the Department of Water Resources, and require each urban water supplier to update its plan at least once every 5 years. Among other things, the plan shall "describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities."	Senate Bill No. 1011 Introduced by Senator Polanco February 24, 1995
Integrate land-use and water-supply planning for new development in urban areas.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Require all new urban developments to demonstrate a secure, permanent supply of water before permits are approved.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Ensure Supply Meets Demand

Action	Reference
In the course of preparing the Stanislaus River Basin and Calaveras River Water Use Program EIS, evaluate and determine existing and anticipate future needs in the Stanislaus River basin.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require every urban water supplier to include, as part of its urban water management plan, a prescribed water supply and demand assessment of the reliability of its water service to its customers during normal, dry, and critically dry water runoff years. Among other things, "this water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years..."	Assembly Bill No. 1845, as amended. Introduced by Assembly Member Cortese February 24, 1995

MAIN CATEGORY: WATER QUALITY AND HABITAT MANAGEMENT

B-003699

Type of Action: Conveyance Facilities

Action	Reference
Construct new intake for Clifton Court Forebay at Italian Slough (northwest corner of Forebay).	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Expand the existing Clifton Court Forebay intake by adding five more gates.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Enlarge Clifton Court Forebay to include the northwest portion of Victoria Island and the remaining area of Clifton Court Tract.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a new intake for the expanded Clifton Court Forebay at the confluence of North Victoria Canal and Middle River.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a new intake for the expanded Clifton Court Forebay at the confluence of North Victoria Canal and Old River.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct new intake at northeast corner of Clifton Court Forebay opposite north end of Coney Island.	DWR, Central District. 1988. South Delta Water Management Program.
Pump water from Clifton Court Forebay via a pipeline to SDWA agricultural water users.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a new Sacramento River connecting channel near Hood or Isleton to further improve efficiency of water transfer through the Delta.	DWR, Central District. 1988. North Delta Water Management Program.
Construct an east Delta conveyance channel, one-third the size of the Peripheral Canal, to connect the Sacramento River to Clifton Court Forebay.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
In conjunction with the Peripheral Canal, construct a 700 cfs pumping plant in Middle River about 3 miles above the Peripheral Canal to convey water up-river.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Inland feeder - MWDSC	DWR. 1994. California Water Plan Update. Bulletin 160-93.
San Felipe Extension - PVWA	DWR. 1994. California Water Plan Update. Bulletin 160-93.
Mid-Valley Canal	DWR. 1994. California Water Plan Update. Bulletin 160-93.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Conveyance Facilities

Action	Reference
Modify Delta islands to store and convey water diverted from the Sacramento River.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Modify the Sacramento Deep Water Ship Channel to convey water, construct a downstream storage facility, and develop facilities to convey water from the storage facility to Clifton Court Forebay,	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct a channel from the Sacramento River to the extended Folsom South Canal (FSC) and extend to the Stanislaus River.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct a full isolated facility on the eastern periphery of the Delta to convey drinking water, agricultural water, and environmental water.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct an isolated facility to divert water from the Sierra streams to the existing Project facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct an isolated facility to divert water from the Sacramento River to the existing Project facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct a small isolated facility of the eastern periphery of the Delta to convey drinking water.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct dual facilities to transfer water through the Delta and also on the periphery.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct an isolated water transfer facility on the western periphery of the Delta.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
In-basin water transfer facilities.	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Channel Modifications

Action	Reference
Divert water from the Sacramento River into Snodgrass Slough, using the slough as a connecting channel to the Mokelumne River system.	DWR, Central District. 1988. North Delta Water Management Program.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Channel Modifications

Action	Reference
Increase hydraulic capacity of the South Fork Mokelumne River by dredging, levee setbacks, and levee improvements.	DWR, Central District. 1988. North Delta Water Management Program.
Construct siphons on Tom Paine Slough through the existing tide gate embankment.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Salmon Slough.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Old River west of Sugar Cut.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Middle River between Old River and Highway 4.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge and set back levee on Old River.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge and set back levee on Middle River.	DWR, Central District. 1988. South Delta Water Management Program.
Enlarge Clifton Court Forebay from 2,100 acres to ~ 5,000 acres and provide a new gate at north end.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Middle River east of Victoria and Woodward Islands and include levee setbacks as needed.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Victoria and North Canals and include levee setbacks as needed.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Old River north of Coney Island and include levee setbacks as needed.	DWR, Central District. 1988. South Delta Water Management Program.
Dredge Woodward and North Victoria Canals and include levee setbacks as needed.	DWR, Central District. 1988. South Delta Water Management Program.
Construct a new channel the size of the existing Central Valley Project intake channel to connect the existing Central Valley Project intake channel with Clifton Court Forebay.	DWR, Central District. 1988. South Delta Water Management Program.
Relocate Contra Costa Canal intake to Clifton Court Forebay.	DWR, Central District. 1988. South Delta Water Management Program.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Channel Modifications

Action	Reference
Dredge the South Fork Mokelumne River from New Hope Landing to San Joaquin River, plus a short segment of Snodgrass Slough from the Delta Cross Channel to New Hope Landing, to increase flow capacity and reduce reverse flow in the San Joaquin River and central Delta.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Dredge the South Fork Mokelumne River from New Hope Landing to San Joaquin River.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Dredge Snodgrass Slough from the Delta Cross Channel to New Hope Landing.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Add three more gates to the Delta Cross Channel gate structure.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Dredge the South Fork and North Fork Mokelumne River from New Hope Landing to San Joaquin River.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Dredge the channels from the Delta Cross Channel to New Hope Landing.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Dredge the North Fork Mokelumne River and other channels from the Delta Cross Channel to New Hope Landing.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Enlarge the South Fork Mokelumne River through a combination of dredging the existing channel and excavating a new parallel channel from I-5 to the San Joaquin River.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Enlarge the Mokelumne River and North Fork Mokelumne River from I-5 to the San Joaquin River.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Dredge the South Fork Mokelumne River and other channels from the Delta Cross Channel to New Hope Landing.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Excavate channels parallel to the North Fork Mokelumne River.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Construct new intake structure and channel in the vicinity of Isleton to connect the Sacramento River to Georgiana Slough.	DWR. 1990. Draft EIR/EIS, North Delta Program.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Channel Modifications

Action	Reference
Construct a new intake structure and channel from Hood to the Mokelumne River parallel to Snodgrass Slough, discharging into Lost Slough, the Mokelumne River, and Beaver Slough.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Perform channel dredging along Old River between North Victoria Canal and West Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Widen a portion of Middle River to increase hydraulic capacity.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Dredge south Delta channels to facilitate consolidation of agricultural diversions.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Dredge and enlarge West Canal, constructing a setback levee approximately 300 feet into Coney Island.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Enlarge the proposed Sacramento River Hood-Clay connection.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Enlarge the Folsom South Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Place a siphon under the San Joaquin River for the Mokelumne River to control water transfer through existing channels.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct an earth-lined canal across Roberts Island between Middle River and the San Joaquin River.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct the New Hope Cross Channel.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct the Isleton Cross Channel.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct the Mathena Landing Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct the West Delta Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct the Central Delta Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct the North Stub Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Channel Modifications

Action	Reference
Construct the South Stub Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Improve channel configuration by preserving the existing channel configuration along with enhancing certain valuable features. Examples of those features would include; 1) the protection and development of channel island berms; 2) channel widening or levee setbacks; 3) dredging; and development of waterside recreation destination spots.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee October 1994 (Revised February 1995). Delta, Levees, Channels
Fill near-shore dredger cuts with ship channel dredge spoils to reduce seepage, improve levee stability and provide near-shore shallow water.	Bay-Delta Oversight Council. 1993. Reclamation District No. 2026 in a letter dated September 1, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Dredge channels of the North and South Forks of the Mokelumne River and enlarge channels by constructing setback levees to increase water supply/reliability.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct a second cross channel from the Sacramento River to the Central Delta (Hood to Beaver Slough).	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct a second cross channel to complement the Delta Cross Channel.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Modify Delta channels to deliver higher quality water from the Sacramento River and east side streams more directly to points of diversion in the southern Delta.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct channel improvements and barriers in the south Delta to manage flow patterns and isolate Delta agricultural drainage from water project diversion points.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Flow Barriers

Action	Reference
Modify tidal pumping into Clifton Court Forebay to reduce drawdown in south Delta channels.	DWR, Central District. 1988. South Delta Water Management Program.
In conjunction with deepening of the Baldwin and Stockton Deep water Ship Channels, construct a submerged sill in Carquinez Strait to block off the heavier saline water.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Modify or raise the Delta Cross Channel gates to prevent Sacramento River floodwaters from flowing into the Mokelumne River system.	DWR, Central District. 1988. North Delta Water Management Program.
Construct a partial tide gate structure in the Sacramento River.	DWR, Central District. 1988. North Delta Water Management Program.
Construct a partial tide gate structure in Steamboat Slough.	DWR, Central District. 1988. North Delta Water Management Program.
Construct a partial tide gate structure in Threemile Slough.	DWR, Central District. 1988. North Delta Water Management Program.
Construct a barrier to physically separate saline water of the San Francisco Bay system from fresh water of the Delta.	DWR, Central District. 1988. North Delta Water Management Program.
Construct tide gate on Middle River near Highway 4.	DWR, Central District. 1988. South Delta Water Management Program.
Construct tide gate on Old River near Delta-Mendota Canal.	DWR, Central District. 1988. South Delta Water Management Program.
Construct tide gate on Grant Line Canal near project facilities.	DWR, Central District. 1988. South Delta Water Management Program.
Install partial tide gate barriers in the Sacramento River and Steamboat Slough.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Install tide gate structure in Threemile Slough.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Construct a flow control structure on Middle River near the confluence with Victoria Canal, North Canal and Trapper Slough.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a flow control structure on Grant Line Canal at the confluence with Old River.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a flow control structure on Old River east of the Delta-Mendota Canal.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Flow Barriers

Action	Reference
Construct a barrier in the Sacramento River between Chipps Island and Mallard Island.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct dikes across Spoonhill Creek.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a barrier across Carquinez Strait between Crockett and Benicia.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct a barrier across San Pablo Strait between San Francisco Bay and San Pablo Bay.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Construct barriers to convert part of Suisun Bay and the upper reaches of the Carquinez Straits to fresh water embayments.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install operable barriers to better manage flow in the Delta channels.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Construct channel improvements and barriers in the south Delta to manage flow patterns and isolate Delta agricultural drainage from water project diversion points.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage flow patterns in the Delta channels so as to redirect Delta island drainage and San Joaquin Valley drainage away from Project facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Dissolved oxygen and circulation solutions.	DWR. 1995. San Joaquin River Management Plan.
Evaluate and install a complete barrier at the Head of Old River from April 1 through May 31 of each year, in conjunction with other south Delta water quality barriers, and monitor its effectiveness.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Delta Inflow/Outflow/Export Management

Action	Reference
Establish interim basin outflow objectives, criteria, or standards to protect the upstream migration of adult salmon in the San Joaquin River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action..
Establish interim basin outflow objectives, criteria, or standards to protect juvenile salmon and steelhead during April 15 - May 15.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action..

Type of Action: Delta Inflow/Outflow/Export Management

Action	Reference
Operate the State and Federal water projects in a manner that provides a positive San Joaquin River Flow downstream through the San Joaquin Delta in April and May	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Manage combined CVP and SWP Delta exports to improve water levels and circulation in the south Delta during the agricultural season.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Reduce SWP and CVP pumping during the irrigation season.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Manage south Delta export operations to pump when doing so would least affect fish.	DWR, Central District. 1988. South Delta Water Management Program.
Release water from Clifton Court Forebay at low tide.	DWR, Central District. 1988. South Delta Water Management Program.
Increase flows on the San Joaquin River during the agricultural season.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Restrict SWP and CVP pumping plant diversions from the Delta and concurrently provide transport flows.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Implement measures to assure water availability to maintain existing habitat in the Delta, Sacramento River, San Joaquin River, and Suisun Marsh.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Delta Inflow/Outflow/Export Management

Action	Reference
Manage the water system to meet Delta standards designed to minimize the intrusion of ocean salinity into the lower San Joaquin River and connecting Delta channels.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage water quality in the South Delta through reservoir releases from New Melones and other San Joaquin River system reservoirs.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop long term standards to minimize intrusion of ocean salinity.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Reduce exports from the Delta.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage Delta outflows so that they are sufficient to maintain appropriate salinity regime for estuarine dependent species.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage reservoir releases and project pumping rates so as to maintain a positive net flow pattern in the lower San Joaquin River.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage San Joaquin River operations so as to improve migratory and resident fishery habitats (including pulse flows where appropriate).	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage Sacramento River system operations so as to improve migratory and resident fishery habitats (including pulse flows where appropriate).	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restrict SWP and CVP pumping plant diversions from the Delta and concurrently provide transport flows.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Basin flow and Delta export coordination	DWR. 1995. San Joaquin River Management Plan.
Friant Reservoir release schedule revision	DWR. 1995. San Joaquin River Management Plan.
Reservoir flood release coordination	DWR. 1995. San Joaquin River Management Plan.

SUB-CATEGORY: IMPROVE FLOW CONDITIONS IN THE DELTA (FOR WATER QUALITY AND HABITAT IMPROVEMENTS)

Type of Action: Delta Inflow/Outflow/Export Management

Action	Reference
Augment April and May flow at Vernalis and into the south Delta.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Manage Agricultural Drainage

Action	Reference
Reinforce existing programs and develop new incentives where necessary to reduce selenium levels in agricultural drainage water.	SFEP. 1994. *Comprehensive Conservation and Management Plan.*
Improve agricultural practices that reduce introduction of pollutants into the Estuary.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Implement agricultural drainage reduction program.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Retire land with poor drainage disposal in western San Joaquin Valley.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Reduce San Joaquin River agricultural drainage.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Retire agricultural lands where large quantities or concentrations of contaminants drain into the Delta.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Collect Delta drainage and treat for salt.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Collect Delta drainage and treat for organics.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Impound Delta island drainage to coincide with flushing flows from the tributaries.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Improve land and water management on Delta islands to improve water quality in the Delta channels.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Modify Delta cropping patterns so as to reduce island drainage.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Reduce the organic content of levee maintenance material so as to improve channel water quality.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Reroute Delta drainage and discharge at a common point.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Reduce the quantity of agricultural drainage in the San Joaquin Valley through improved water application techniques.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Manage Agricultural Drainage

Action	Reference
Intercept drainage from the west side of the San Joaquin Valley and discharge it to areas which are not tributary to the Delta export facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Impound San Joaquin Valley drainage to coincide discharges with flushing flows.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop facilities to treat sub-surface agricultural drainage from the San Joaquin Valley prior to discharging it to the Delta.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Implement agricultural water manage, emphasizing the Efficient Water Management Practices developed as a result of the Agricultural Water Supplies Efficient Water Management Practices Act of 1990.	DWR. 1993. Programmatic EIR for State Drought Water Bank.
Develop facilities to divert agricultural drainage from the Colusa Basin to areas which are not tributary to the Delta export facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Drainage management--isolated drain routed to below Merced River inflow.	DWR. 1995. San Joaquin River Management Plan.
Drainage management--real time	DWR. 1995. San Joaquin River Management Plan.
Drainage management--recirculation of wetland return flows	DWR. 1995. San Joaquin River Management Plan.
Drainage management--San Joaquin River recirculation	DWR. 1995. San Joaquin River Management Plan.
Salt export enhancement--wet year water delivery manipulations	DWR. 1995. San Joaquin River Management Plan.
Drainage management--isolated drain out of basin	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Manage Mine Drainage

Action	Reference
Reduce toxic loading from mines.	SFEP. 1994. *Comprehensive Conservation and Management Plan*

Type of Action: Manage Mine Drainage

Action	Reference
Complete EPA superfund cleanup of Iron Mountain Mine by 1996.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Control effluent from Iron Mt. Mine Superfund site until Basin Plan objectives are met.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Manage Urban/Industrial Discharge

Action	Reference
Implement public education program to minimize waste loads.	Roger James. Santa Clara County Water District, personal communication.
Perform waste load allocations for receiving waters.	San Francisco Bay-Delta Aquatic Habitat Institute. 1991. Status and trends report on pollutants in the San Francisco Estuary, San Francisco Estuary Project; San Francisco Regional Water Quality Control Board, Dr. Tom Mumley. Personal Communication; Woodward-Clyde Consultants. 1991. Loads assessment report. Santa Clara County Valley Nonpoint Source Control Program.
Divert effluent from Publicly Owned Treatment Works to constructed wetlands for waste water enhancement.	McCreary. S. et. al. 1991. Regulatory Analysis for the San Francisco Estuary Project, 3, 1992. Example: City of Martinez Waste Water Treatment Plant; City of Palo Alto Water Control Plant.
Introduce State urban growth management legislation, set statewide goals for land use planning to protect and restore wetland habitats and stream environment zones.	McCreary. S. et. al. 1992. Land Use Change and Impacts on the San Francisco Estuary: A Regional Assessment with National Policy Implications..
Identify illicit and unauthorized stormwater discharges.	Walter Wadlow. Santa Clara County Flood Control District, personal communication.
Improve the management and control of urban runoff from public and private sources.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Separate industrial from municipal sewage.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.

Type of Action: Manage Urban/Industrial Discharge

Action	Reference
Separate industrial from municipal sewage.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Implement RWQCB waste discharge requirements for operation of the One Mile Recreation Area in Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Coordinate with local agencies to develop a program to improve water quality of runoff into Westside streams from urban areas.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Reduce sewage discharge into Churn Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Coordinate with local agencies to develop stream overflow areas to attenuate storm water runoff into Westside streams from urban areas.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Implement plans and regulations which reduce the impact on the fishery from once-through cooling processes for industrial plants (thermal pollution).	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Urban runoff management	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Manage Dredge Sediments

Action	Reference
Prohibit dredging operations during late summer and fall in the Stockton Ship Channel to protect water quality for anadromous fish.	DFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Expedite the clean up of toxic hot spots in estuarine sediments.	SFEP. 1994. *Comprehensive Conservation and Management Plan.*
Time dredging for periods when there is minimal tidal movement.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Use silt curtains or suction dredging to localize sediment movement.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Develop management plans which will reduce in-bay disposal of dredge materials.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Sediment removal from San Joaquin mainstem	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Control Contaminants Sources

Action	Reference
Adopt water quality objectives that effectively protect estuarine species and human health.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Monitor metal, dioxin, and nutrient contaminants in the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Change application practices for insecticides, herbicides, and fertilizers.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Change residence times of insecticides, herbicides, and fertilizers.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Address and resolve, as appropriate, the impacts on water reclamation and water conversation caused by the discharge of brine from self-regenerating water softeners and other sources into the wastewater stream.	SFEP. 1994. *Comprehensive Conservation and Management Plan.*
Establish specific goals for reducing the discharge of toxic pollution over time and discourage the reliance on toxic material. All discharges should implement measures to reduce pollutants at their sources.	SFEP. 1994. *Comprehensive Conservation and Management Plan.*
Recommend institution and financial changes needed to place more focus on pollution prevention.	SFEP. 1994. *Comprehensive Conservation and Management Plan.*
Develop environmental audit procedures for all significant users and/or produces of toxic substances.	SFEP. 1994. *Comprehensive Conservation and Management Plan.*
Identify and control sources and sinks of selenium and mercury where they are accumulating in aquatic populations in the Estuary.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Develop control measures to reduce pollutant loading form energy and transportation systems.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Clean up contaminants presently affecting fish, wildlife, their habitats, and food supplies.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Develop a comprehensive strategy to reduce pesticides coming into the Estuary.	SFEP. 1994. *Comprehensive Conservation and Management Plan*

SUB-CATEGORY: REDUCE CONTAMINANTS LOADING

Type of Action: Control Contaminants Sources

Action	Reference
Pursue a mass emissions strategy to reduce pollution discharges into the Estuary form point and non-point sources and to address the accumulation of pollutants in estuarine organisms and sediments.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Identify and control sources and sinks of contaminates that may affect fish populations of ecosystem health.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Implement more stringent control of point/non-point waste discharges.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage point and non-point discharges into the Delta in order to improve water quality at the Project facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Delta Riparian Habitat

Action	Reference
DFG, in concert with other involved State agencies, should develop a program to preserve and enhance the wildlife habitat on channel islands.	Bay-Delta Oversight Council. 1993. Reclamation District No. 548 in a letter dated September 19, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Reclamation districts should encourage the growth of tules along the water side toe of the levees.	Bay-Delta Oversight Council. 1993. Reclamation District No. 548 in a letter dated September 19, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Implement plans to preserve channel islands and enhance habitat on them.	Bay-Delta Oversight Council. 1993. Reclamation District No. 548 in a letter dated September 19, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Protect existing shaded riverine aquatic habitats to ensure no net loss of acreage, linear coverage, and habitat value within the Estuary. Activities within the "legal Delta" should be conducted consistent with California's Delta Levees Flood Protection Act of 1988.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Increase the quantity of shaded riverine aquatic habitat by 1,000 percent.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Enhance levees for plant and wildlife resources along the Sacramento River and the San Joaquin River between Sacramento and Vernalis.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restore shaded riverine habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restore or create riparian and shaded riverine aquative habitat along the Delta river and channel system.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restore or create additional riparian habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Delta Riparian Habitat

Action	Reference
Develop and implement Best Management (BMP's) for levee management so as to increase plant and wildlife habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Reduce channel velocities and erosions to protect channel and river vegetation.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Create channel islands in Delta backwater areas.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Obtain easements or acquire areas of existing natural vegetation along Delta rivers and channels.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Provide protection to areas of existing natural vegetation along Delta rivers and channels to enhance migratory and resident fish as well as wildlife habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Protect and restore areas in the 100 year floodplain as plant and wildlife habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Delta Shallow Water Habitat

Action	Reference
Promote the maintenance and development of tule island, tidal wetlands, and offshore berms to protect against erosion and provide detrital input and juvenile fish nursery habitat.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Work with the dredging and flood control interests to reduce or eliminate practices that adversely affect fish habitat.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Allow no net loss of shallow-water (less than 3 meter deep) habitat to dredging, and mitigate for all functions and values.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.

Type of Action: Delta Wetlands Habitat

Action	Reference
Increase the acreage of seasonal wetlands.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop seasonal wetlands in the context of tidally influenced areas.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Increase the area of seasonal wetlands and modify wetlands for use by water related wildlife.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Increase the area of tidal wetlands.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Adopt salinity standards, operate existing facilities, and construct additional facilities in Suisun Marsh to protect a wider array of species.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restore the elevation of some Delta lands in order to restore plant and wildlife functions lost through subsidence.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Protect and maintain marshes, wetlands, shallow water areas, and tidal sloughs to protect fisheries values.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Expand wetlands acquisition program, or establish a new Estuary-specific wetland acquisition program.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Encourage geographically focused cooperative efforts to protect wetlands.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Identify and convert/restore non-wetland areas to wetland- or riparian oriented wildlife habitat. Purchase non-wetland areas to create wetlands. This action should be guided by and consistent with the Regional Wetlands Management Plan.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Implement concerted efforts to acquire wetlands already dredged or destroyed and restore them so that wetlands in the Estuary are increased by 50 percent by 2000.	SFEP. 1994. *Comprehensive Conservation and Management Plan*
Create wetland (20%), upland and riparian habitats on Sherman Island to benefit wildlife and control subsidence.	DWR, Central District. 1988. North Delta Water Management Program.

Type of Action: Delta Wetlands Habitat

Action	Reference
Create wetland (40%), upland and riparian habitats on Sherman Island to benefit wildlife and control subsidence.	DWR, Central District. 1988. North Delta Water Management Program.
Create wetland (60%), upland and riparian habitats on Sherman Island to benefit wildlife and control subsidence.	DWR, Central District. 1988. North Delta Water Management Program.
Restore tidal wetlands and shallow water habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restore shallow water habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Delta Riverine Habitat

Action	Reference
Identify and protect remnant stream habitat containing indigenous and endemic fishes and other native aquatic species.	SFEP. 1994. *Comprehensive Conservation and Management Plan*

Type of Action: Delta Terrestrial Habitat

Action	Reference
Time mowing of alfalfa and safflower on Sherman Island so it does not coincide with pheasant and quail hatching.	DWR, Central District. 1988. West Delta Water Management Program. July 1988.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Maintain water temperatures at or below 56 degrees F from Keswick Dam to Bend Bridge except in extreme water years.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Develop a flow regime that imitates natural flow changes and avoids dewatering redds or isolating or stranding juveniles on monthly and daily rates of change.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Complete an integrated instream flow study (IFIM) to refine a river regulation program that actively balances fishery habitat with the flow regime, including needs for adequate temperature, flushing flows, outmigration, channel maintenance, attraction flows, and maintenance of a riparian corridor.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Conduct flow management activities along Deer Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Maintain mean monthly flows of 31,000 cfs at Verona from February to May in wet and above-normal years.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Work with water right holders to obtain an agreement for adequate flows in Cow Creek for fall-run salmon migration and spawning and juvenile steelhead.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop a plan to increase rearing habitat for juvenile salmon and steelhead in the Yuba River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Establish water temperature protection objectives for the San Joaquin River at Vernalis (fall and spring).	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Establish the water quality objectives on the Merced River for the protection of salmon spawning, rearing, and emigration.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Establish water quality objectives for the protection of salmon spawning, rearing, and emigration on the Tuolumne River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Establish water quality objectives on the Stanislaus River for the protection of salmon spawning, rearing, and emigration.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Adopt new flow release criteria for the Feather River following completion of the DWR instream flow study.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Prepare and implement a comprehensive plan to restore habitat in Battle Creek for winter- and spring-run chinook salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop a comprehensive plan to address fish and wildlife on the San Joaquin River, including stream flow, channel, and riparian habitat, and water quality improvements needed to re-establish naturally reproducing anadromous fisheries on the San Joaquin River below Friant Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate the benefit of drilling new wells to establish a water exchange program with private landowners who divert Antelope Creek water.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Consider administrative or legal remedies to obtain streamflows in Antelope Creek to ensure restoration of habitat for salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Continue to provide recommendations to the USFS for developing land use policies to protect spring-run chinook salmon habitat in Mill Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Release 200 cfs of water from Whiskeytown Dam to Clear Creek from October to April and 150 cfs the remainder of the year with variable spring-time releases depending on water year type.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop additional instream flows in the San Joaquin River and its tributaries to augment existing schedules.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Develop and implement measures that provide adequate water temperature within the designated spawning areas by mid-October each year.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Establish minimum instream flows to support fish/riparian habitat for San Joaquin tributaries.	DWR. 1995. San Joaquin River Management Plan.
Instream flow management--Stanislaus, Tuolumne, Merced rivers.	DWR. 1995. San Joaquin River Management Plan.
Develop and implement an integrated river regulation plan that balances carryover storage needs with instream flow needs based on runoff and storage conditions.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Provide necessary instream flows and temperatures to benefit salmon and steelhead in the Central Valley to support the implementation of the state and federal mandates to double the natural production of anadromous fishes.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Evaluate tri-annual amendments to the Regional Water Quality Control Board's 5C Plan for Adequate Protection of Cold Water Beneficial Uses in the San Joaquin Drainage.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Improve land use practices adjacent to Cottonwood Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Treat CNFH water supply.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Protect and enhance spawning gravel in Cottonwood Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Restore instream flows in Bear Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Restore gravel and spawning habitat in Clear Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Prevent habitat degradation in Clear Creek due to sedimentation and urbanization.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Restrict gravel mining and restore degraded channel in Clear Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Maintain water temperatures in Clear Creek at or below 65 degrees F during periods of juvenile rearing, at or below 60 degrees F during adult holding and prespawn, and at or below 56 degrees F during egg incubation.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Devise alternative methods other than the Gradient Restoration Facility to increase head differential for the Glenn-Colusa Irrigation District diversion.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Create a 50,000-acre meander belt from Red Bluff to Chico Landing to provide gravel recruitment, large woody debris, moderate air temperatures, and nutrient input to the lotic system.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Implement the Grimes flow schedule.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Restore adequate instream flows in Paynes Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Restore spawning gravel in Paynes Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Restore instream flows in Antelope Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Create defined stream channel in Antelope Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Adopt an erosion control ordinance to minimize sediment input into Elder Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Protect and restore anadromous salmonid fisheries habitat and preserve the long-term productivity of the upper Mill Creek aquatic ecosystem through cooperative watershed management.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve salmon spawning areas in lower Mill Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Maintain and restore riparian habitat along lower reaches of Mill Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Modify gravel mining methods in Thomes Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Modify timber harvest practices adjacent to Thomes Creek	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Modify grazing practices adjacent to Thomes Creek	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Stabilize areas of high erosion adjacent to Thomes Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Develop a release strategy for TCC into Thomes Creek between Oct and May-Until a strategy is developed, flows of 50 cfs should be released from TCC into Thomes Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Conduct regular water quality monitoring in Thomes Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve transportation flows in the valley reach of Deer Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Protect and restore chinook salmon and steelhead habitat and preserve the long-term productivity of the upper Deer Creek aquatic ecosystem through cooperative watershed management.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve salmon spawning areas in lower Deer Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Maintain and restore riparian habitat along lower reaches of Deer Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop water management release strategy for Black Butte Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Modify gravel extraction permits for Stony Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Add spawning gravel to Stony Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop a distinct channel in Stony Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Develop plan to establish a riparian corridor along Stony Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop plan to assess water quality in Stony Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Conduct Instream Flow Incremental Methodology (IFIM) in Stony Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Substitute an alternate source of irrigation water for that currently supplied by the M&T Ranch Pumps.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Replace spawning gravel in the channels of Big Chico Creek modified for flood control.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve cleaning procedure at One-Mile Pool.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Preserve primary summer holding areas for spring-run chinook salmon in Big Chico Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Revegetate denuded stream reaches and restore and maintain a protected riparian strip along Big Chico Creek	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Replace gravel in the flood-diversion reach of Mud Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Obtain rights to approximately 105 cfs of water form Parrott-Phelan diversion.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Acquire water rights as part of the Western Canal Siphon Project.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Adjudicate water rights and provide watermaster service or equivalent for all of Butte Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Maintain a minimum of 40 cfs instream flow below Centerville Diversion Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Purchase existing water rights from diverters of Butte Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Install and operate permanent structural temperature control devices at Shasta and Whiskeytown dams and develop and implement modifications in Central Valley Project operations as needed to assist in the Secretary of the Interior's efforts to control water temperatures in the upper Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Restore spawning gravel in Clear Creek for salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Repair or rebuild the water control structures in Big Chico Creek at Five Mile Dam and Lindo Channel following completion of the hydrologic study.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Restore habitat for salmon migration, spawning, and rearing in the Merced River by rehabilitating riffle areas, repairing or constructing levees and channels, and isolating mining pit areas from the active channel.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Restore habitat for spawning, rearing, and migration on the Tuolumne River at 17 sites by renovating spawning gravel and riffle areas, increasing side channel diversity, recontouring channels, and isolating predator habitat.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Restore habitat for spawning, rearing, and migration on the Stanilaus River by renovating approximately 11,400 square yards of spawning and rearing habitat and modify approximately 14,600 linear feet of channel.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Remove Sacramento River bank rip-rap and restore anadromous fish habitat.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Purchase land adjacent to Clear Creek to preserve remaining sources of spawning gravel.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Manage agricultural return flows from Colusa Drain and Sutter Slough to control water temperatures in the Sacramento River, and install barriers to upstream migration.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Improve spawning and rearing habitat in Butte Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Improve spawning and rearing habitat in Yuba River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Avoid peaking power operations at Oroville Reservoir when storage is at or below 1.7 million AF.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Improve spawning habitat on the Mokelumne River by addition of approximately 23,000 cubic yards of gravel.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require stockpiling of spawning gravel from existing mining operations in Cottonwood Creek for subsequent placement in the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Replenish gravel on reconstructed spawning riffles in Paynes Creek on an as-needed basis.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

SUB-CATEGORY: RESTORE, IMPROVE, AND PROTECT NATURAL HABITATS

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Assist the city of Chico in eliminating siltation problems at One Mile Dam on Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Renovate existing spawning gravel in Mill Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Construct gravel detention structures in Mill Creek to provide new or additional spawning areas.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Restore spawning gravel in the North Fork of Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Restore spawning gravel in the lower reach of Deer Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Dredge behind Saeltzer Dam on Clear Creek to provide a sediment trap.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Meet flow standards, objectives, and diversion limits set forth in all laws and judicial decisions that apply to Central Valley Project facilities.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Adopt instream flow, seasonal fluctuations, and ramping rates for the Sacramento River as recommended by DFG.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Through negotiations, obtain instream flows for salmon and steelhead in the lower reach of Deer Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Obtain increased streamflow below Whiskeytown Dam on Clear Creek to improve migration, spawning, and rearing habitat.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Seek amendments to existing water rights and power licenses to provide additional Butte Creek flow for salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Through the FERC and water rights processes, obtain increase releases from PG&E power in Battle Creek to provide for anadromous fish.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Negotiate with the Los Molinos Mutual Water Company for additional flow in Antelope Creek for salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Establish a program to exchange Antelope Creek surface water for ground water with landowners with existing wells.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require interim total annual instream flow releases (AF) on the Merced River for fisheries.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require measurement of instream flow requirements at the Crocker-Huffman and Snelling stream gauges on the Merced River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require adequate instream flow releases for the protection of salmon spawning, rearing, and emigration on the Tuolumne River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require interim total annual instream flow releases on the Stanislaus River for fisheries (AF).	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require temperatures and streamflows to protect salmon and steelhead in the Lower Yuba River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Maintain 1.5 million AF of carryover storage in Oroville Reservoir on October 1 of each year to preserve cold water for later release into the Feather River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require streamflow and temperature standards for the Feather River at specified locations.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop and implement a continuing program for the purpose of restoring and replenishing, as needed, spawning gravel lost due to the construction and operation of Central Valley Project dams, bank protection projects, and other actions that have reduced the availability of spawning gravel and rearing habitat in the upper Sacramento River from Keswick Dam to Red Bluff Diversion Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Provide additional law enforcement to protect Stanislaus River salmon habitat through diligent enforcement of screening, water pollution, and streambed alteration Fish and Game Code sections.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Provide additional law enforcement to protect Tuolumne River salmon habitat through diligent enforcement of screening, water pollution, and streambed alteration Fish and Game Code sections.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop and implement a continuing program for the purpose of restoring and replenishing, as needed, spawning gravel lost due to the construction and operation of Central Valley Project dams, bank protection projects, and other actions that have reduced the availability of spawning gravel and rearing habitat in the Stanislaus River downstream from Goodwin Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Regulate gravel extraction to protect salmon and steelhead spawning areas in the Yuba River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Provide additional law enforcement to protect Merced River salmon habitat through diligent enforcement of screening, water pollution, and streambed alteration Fish and Game Code sections.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
After installation of an effective water treatment system at CNFH, allow fall-run salmon to migrate past the hatchery to spawn naturally in Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require instream flow releases to the American River below Nimbus Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Adopt ramping rate criteria to protect eggs and fry of anadromous fish in the American River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require total annual instream flow releases from the Mokelumne River (AF).	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Establish water quality objectives on the Mokelumne River for the protection of salmon spawning, rearing, and emigration.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop and implement a gravel management program for Cottonwood Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete an instream flow study for the lower Bear River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate the existing water rights throughout the Bear River watershed and, if warranted, petition the SWRCB for increased instream flow.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop and implement a continuing program for the purpose of restoring and replenishing, as needed, spawning gravel lost due to the construction and operation of Central Valley Project dams, bank protection projects, and other actions that have reduced the availability of spawning gravel and rearing habitat in the American River downstream from Nimbus Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Restrict gravel extraction within the Mokelumne River floodplain.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Prepare a gravel management plan for Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Obtain 50 cfs for fish migration in Cow Creek through an agreement with private water right holders.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require adequate instream flows in the Calaveras River for chinook salmon spawning, rearing, and emigration.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Negotiate for increased instream flows in Bear Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Coordinate and implement an agreement with Anderson-Cottonwood Irrigation District for future canal operations affecting Westside streams.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Continue to coordinate with local agencies to develop and implement sediment control measures for Westside streams.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Require all gravel extraction permit applications to provide protection for fish passage in Thomas Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Institute an erosion control ordinance to protect salmon habitat in Thomes Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Institute an erosion control ordinance to minimize sediment input into Elder Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate the performance of all structural remedies implemented to protect and restore the anadromous fish within the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete the Sacramento River instream flow study.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct an instream flow study on the lower reach of Deer Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Continue monitoring upper Sacramento River spawning gravel restoration.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct a stream flow study on Mill Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install a stage recorder to monitor flows in Mill Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct instream flow, stream temperature modeling, and related studies on the Merced River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate effects of fluctuating flows due to power peaking on salmon spawning and rearing in the Tuolumne River. Develop appropriate flow fluctuation criteria.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate the benefits of interim increases in outflow in the spring and fall months for the migration of juvenile and adult salmon in the San Joaquin River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop a water temperature model for the San Joaquin River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Evaluate opportunities to re-establish spring-run salmon and increase late fall-run salmon and steelhead populations in the Stanislaus River basin.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete evaluation of spawning, rearing, and migration habitat restoration needs on the Stanislaus River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete water temperature modeling study on the Stanislaus River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete evaluation of spawning, rearing, and migration habitat restoration needs on the Tuolumne River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete evaluation of spawning, rearing, and migration habitat restoration needs on the Merced River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct an instream flow study on Clear Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct a Butte Creek water quality study.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete the instream flow study on the Feather River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete the instream flow study on the Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Monitor flow and temperatures at the hatchery to insure Feather River temperature compliance from the Fish Barrier Dam to the Thermalito Afterbay Outlet.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct instream flow study on Butte Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop hydrologic model for Butte Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Investigate flow-temperature relationship in Mill Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate existing spring-run chinook salmon and steelhead holding, spawning, and rearing habitat in Antelope Creek to identify opportunities.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Reestablish the abandoned USGS gauging station upstream of the existing agricultural diversion dam on Antelope Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct annual spring-run chinook salmon snorkel surveys in Antelope Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Continue to install and monitor thermographs in the headwaters of Antelope Creek to record summer water temperatures in spring-run chinook salmon holding area.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install and operate a thermograph and streamflow gauge near the mouth of Antelope Creek to determine flow-temperature relationships.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct surveys in Antelope Creek for fall-run and late-fall-run chinook spawning habitat.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Reestablish the Upper Bidwell Park USGS streamflow gauge in Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete a sediment transport and hydrologic study for Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install and monitor thermographs in Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Monitor flow and temperatures in the Feather River at the riffle one mile below the Thermalito Afterbay Outlet.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate opportunities for alternative methods of providing temperature control at New Melones Reservoir on the Stanislaus River (e.g. installation of a temperature curtain, removal of Old Melones Dam).	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Complete instream flow studies on the lower American River and conduct monitoring as required by court order.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate establishing vegetative cover along the banks of the American River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate the need for gravel restoration in the American River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Upstream Anadromous Fish Habitat

Action	Reference
Conduct a temperature modeling study in Deer Creek below existing diversions.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct instream flow and stream temperature modeling studies to determine flow needs for spawning and rearing on the Calaveras River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct an instream flow study in Cow Creek to determine migration, spawning, and rearing needs for fall- and late-fall chinook salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate the effectiveness of Sacramento River spring pulse flows on the survival of juvenile anadromous fish.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop predictive methodology for Sacramento River hydrology, temperature, fish populations, fish harvest. water development, and wetlands.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Investigate the feasibility of developing alternative water supplies for diverters in Paynes Creek drainage.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Investigate the feasibility of obtaining adequate stream flows for salmon in Stony Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct annual salmon spawning surveys in Bear Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Channel and spawning gravel work	DWR. 1995. San Joaquin River Management Plan.
Salmon rearing flows	DWR. 1995. San Joaquin River Management Plan.
Salmon stranding loss reduction	DWR. 1995. San Joaquin River Management Plan.
Develop and implement measures to maintain water temperatures in the spawning reaches of the San Joaquin River basin at adequate levels October 15 through mid-March and for juvenile rearing reaches particularly in April and May.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Increase survival-to-emergence and improve rearing habitats in the San Joaquin River and its tributaries.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

SUB-CATEGORY: RESTORE, IMPROVE, AND PROTECT NATURAL HABITATS

Type of Action: Upstream Riparian Habitat

Action	Reference
Augment existing instream flows in the nursery tributaries of the San Joaquin River in April and May.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Develop and implement actions that maintain acceptable water quality in the nursery tributaries and the lower San Joaquin River during the April-May outmigration period.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Sediment control--watershed and watercourse management.	DWR. 1995. San Joaquin River Management Plan.
Manage flow to restore riparian vegetation.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Establish a riparian corridor protection zone for Cow Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Seek general plan amendments to establish protection zones for riparian vegetation throughout the Sacramento River Basin.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Continue acquisition of land and conservation easements to protect the riparian corridor along the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Continue planting riparian vegetation along the banks of the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Protect and manage riparian habitat along the Yuba River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Fence riparian corridors to exclude livestock from Cow Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Andrew Firebaugh Historical Park	DWR. 1995. San Joaquin River Management Plan.
Restoration of riparian corridor	DWR. 1995. San Joaquin River Management Plan.
San Joaquin River parkway plan	DWR. 1995. San Joaquin River Management Plan.
Tuolumne River Regional Park Plan	DWR. 1995. San Joaquin River Management

SUB-CATEGORY: RESTORE, IMPROVE, AND PROTECT NATURAL HABITATS

Type of Action: Upstream Wetlands Habitat

Action	Reference
Expand the floodplain of the rivers entering the Delta as joint flood protection and wildlife conservation areas.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Create a seasonal floodplain by modifying or removing levees.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Complete the National Wetlands Inventory of the Central Valley.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges
Protect and restore areas in the 100 year floodplain as plant and wildlife habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Dual purpose floodway proposal	DWR. 1995. San Joaquin River Management Plan.
In-channel aggradation control (demonstration project)	DWR. 1995. San Joaquin River Management Plan.
Mainstem levee design correction	DWR. 1995. San Joaquin River Management Plan.
San Joaquin River overflow onto riparian and wetland areas	DWR. 1995. San Joaquin River Management Plan.
Protection of existing wetlands through acquisitions	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Nutrients Input Management

Action	Reference
Implement a nutrient enhancement program.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Implement enhanced management of existing lands to increase productivity so as to benefit a wider diversity of species.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Evaluate and establish conditions on dredging of the Stockton Turning basin that help avoid dissolved oxygen levels below 6.0 ppm during salmon migration periods.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Develop a dissolved oxygen model for the San Joaquin River near Stockton area to evaluate all options to decrease or avoid adult migration delays.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Improve transportation flows in the valley reach of Mill Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Remove Clough Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve fish passage in Eagle Canyon.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Increase bypass flows at PG&E's hydropower diversions from Battle Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Eliminate attraction flows in Crowley Gulch.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Create adequate fall attraction flows from each spawning tributary within the San Joaquin River drainage.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

SUB-CATEGORY: RESTORE, IMPROVE, AND PROTECT NATURAL HABITATS

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Improve instream flows in the Merced, Tuolumne, Stanislaus, and San Joaquin rivers for upstream migrating adult salmon.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Salmon attraction/migration/spawning flows (fall)	DWR. 1995. San Joaquin River Management Plan.
Salmon outmigrating flows (spring)	DWR. 1995. San Joaquin River Management Plan.
Salmon straying reduction (adults)	DWR. 1995. San Joaquin River Management Plan.
Install siphon under Stony Creek for GCID canal.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Repair the Lindo Channel weir and fishway.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Repair Iron Canyon fish ladder.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Split low flow between Big Chico Creek and Lindo Channel.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Correct problems associated with North Diversion Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Discontinue diversions to the TCC.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Minimize diversion barriers usage.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Replace Corning Canal Siphon.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Construct a fish passage structure over Corning Canal Siphon.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Evaluate effectiveness of fish ladders at PG&E diversions from Battle Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Allow passage above the CNFH weir.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve passage at agricultural diversion dams.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Provide effective fish passage above Saeltzer Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Construct an escape channel from stilling basin to the Sacramento River at Keswick Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Complete the process to find final solutions to passage problems at RBDD and improve passage conditions beyond opening the dam gates longer than 8 months.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Raise RBDD gates for a minimum period from Sept. 15 to June 30.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Build a new high-volume fish ladder at Durham Mutual Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop and construct a Western Canal Siphon.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Investigate the possibility of consolidation or replacement of additional diversions below the Western Canal Siphon Project.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Remove Western Canal Dam and replace with siphon.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Establish operational criteria for Sanborn Slough Bifurcation.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop operational criteria for, and potential modification to, Butte Slough outfall.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Build a new high-volume fish ladder at Adams Dam	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Build a new high-volume fish ladder at Gorrill Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Build a new high-volume fish ladder at Western Canal Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Build a new high-volume fish ladder at McPherrin Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Build a new high-volume fish ladder at McGowan Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Build a new high-volume fish ladder at East-West Diversion Weir.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Establish operational criteria for the East and West Barrows.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Establish operational criteria for Sutter Bypass Weir #2.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Establish operational criteria for Nelson Slough.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Establish operational criteria for Sutter Bypass Weir #1.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Develop and implement permanent measures to minimize fish passage problems for adult and juvenile anadromous fish at the Red Bluff Diversion Dam in a manner that provides for the use of associated Central Valley Project conveyance facilities for delivery of water to the Sacramento Valley National Wildlife Refuge complex.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Remove Clough Dam on Mill Creek and move the existing diversion to allow salmon and steelhead unimpaired access to spawning areas.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Identify and correct fish passage problems at diversions in Butte Creek through dam removal or improvements to existing fish ladders.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

SUB-CATEGORY: RESTORE, IMPROVE, AND PROTECT NATURAL HABITATS

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Inspect and repair existing fish ladders in Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Construct an effective escape channel in the west corner of the Keswick Dam stilling basin to protect salmon and steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Improve fish passage at Eagle Canyon in Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Correct fish passage and flow fluctuation problems at Anderson-Cottonwood Irrigation District's diversion dam on the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Improve upstream fish passage in the Mokelumne River at Woodbridge Irrigation District Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Construct fish passage facilities in the Calaveras River at Bellota Weir (Mormon Slough Diversion), Clements Dam (Clements Road Bridge), and Cherryland Dam, unless sufficient flow is obtained for adult salmon passage.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Construct a fish passage structure over the Corning Canal siphon in Elder Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Obtain increased flow in Mill Creek to allow adult and juvenile salmon and steelhead unimpaired up- and downstream passage.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require removal of all temporary flashboard dams in the Calaveras River, Mormon Slough, and Stockton Diverting Canal during the upstream migration period, or require provision of adequate fish passage facilities at these sites.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require fish passage when issuing permits for the Tehama-Colusa and Corning Canal siphon crossing on Thomas Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Obtain increased flow in Paynes Creek to allow adult and juvenile salmon and steelhead unimpaired up- and downstream passage.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Investigate the feasibility of constructing a siphon at the Glenn-Colusa Irrigation District canal crossing on Stony Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Fish Passage/Homing Improvements

Action	Reference
Evaluate fish passage problems throughout the Deer Creek drainage.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Monitor adult salmon and steelhead passage at Saeltzer Dam on Clear Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Monitor fish passage on Butte Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Monitor salmon and steelhead passage on Big Chico Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct a fish passage problem survey in lower Antelope Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Conduct a fish passage study in Thomes Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
San Joaquin fall barrier at Merced River	DWR. 1995. San Joaquin River Management Plan.
Obstruction removal: Dennet Dam and others	DWR. 1995. San Joaquin River Management Plan.
Salmon trapping and moving (juveniles)	DWR. 1995. San Joaquin River Management Plan.
Install and evaluate a temporary electrical or physical migration barrier in combination with greater attraction flows from the Merced River.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Evaluate "trap and truck" or other measures to avoid high mortality of salmon juveniles and smolts.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: General Actions to Restore, Improve, and Protect Habitats

Action	Reference
Acquire the proposed Stone Lakes National Wildlife Refuge.	SFEP. 1994. Comprehensive Conservation and Management Plan
Monitor land use changes that influence waterfowl activity and threaten habitat.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl, Concerns and Challenges.

Type of Action: General Actions to Restore, Improve, and Protect Habitats

Action	Reference
Develop a plan to secure long term water sources for federal, state, and private waterfowl habitats.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl, Concerns and Challenges.
Develop and implement the San Joaquin River Management Plan to identify reservoir operational changes, habitat improvement measures, and other action items to improve habitat and health of the aquatic ecosystem in the San Joaquin River watershed.	SFEP. 1994. Comprehensive Conservation and Management Plan
Establish and maintain a Sacramento River meander belt and limit future bank protection to preserve instream and riparian habitat.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Require the Department of Water Resources, in consultation with the Department of Fish and Game, to develop and submit to the Reclamation Board, criteria for levee maintenance activities, including habitat restoration work that could be performed by the local agencies on levees. Reimburse an eligible local agency for costs incurred in any year for levee maintenance activities that include benefits to the Delta and the state by providing habitat restoration.	Assembly Bill No. 360. Introduced by Assembly Member Hannigan. February 10, 1995.
Require the State Water Resources Control Board to prepare and maintain a registry of instream flow reservations and dedications. In addition, require the board, in considering whether a diversion, change in point of diversion, place of use, purpose of use or water transfer, lease, or conveyance will unreasonably affect fish, wildlife, or other instream flow reservations and dedications reflected in the registry.	Assembly Bill No. 1533. Introduced by Assembly Member Cortese. February 24, 1995.
Sensitive species habitat acquisitions	DWR. 1995. San Joaquin River Management Plan.
Project plans shall include provision for the protection of fish and wildlife habitat determined to be necessary by the Department of Fish and Game.	Senate Bill No. 34. Approved by the Governor on March 11, 1988. Cited as the Delta Flood Protection Act of 1988.

Type of Action: General Actions to Restore, Improve, and Protect Habitats

Action	Reference
The Resources Agency shall supervise the implementation of specified special flood control projects and certain levee projects. The Resources Agency, the Department of Water Resources, the Reclamation Board, and the Department of Fish and Game shall enter into a memorandum of understanding to coordinate the implementation of those projects. The agreement shall include a provision requiring the DFG to enforce mitigation requirements involving those specified projects.	Senate Bill No. 1065. Approved by the Governor on October 14, 1991
Establish goals to direct efforts in fish and wildlife habitat development. Provide numerical goals by creating an inventory of plant and animal habitats and a documentation of their health.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.
Explore the utility of Habitat Conservation Plans.	Bay -Delta Oversight Council. 1993. Bay-Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Provide guidance on Habitat Mitigation Plan	Bay -Delta Oversight Council. 1993. Bay-Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Use mitigation "banks" to enhance overall habitat quality and diversity.	Bay -Delta Oversight Council. 1993. Bay-Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Establish habitat corridors to interconnect existing wildlife preserves.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Incorporate mitigation for development through mitigation banks and compensated acquisition of habitats into wildlife preserve expansion or creation.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Promote wildlife-friendly agricultural practices and implement enhance Delta farm-water management practices and farming practices that benefit fish and wildlife.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: General Actions to Restore, Improve, and Protect Habitats

Action	Reference
Develop, design, and implement a conservation management plan in the Estuary.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Control urban growth and wildlife damaging conversion of agricultural land use.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

MAIN CATEGORY: SPECIES MANAGEMENT AND CONTROL

Type of Action: Fish Screens

Action	Reference
Consolidate agricultural diversions in the south Delta, and distribute via overland pipeline(s) or canal(s).	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Install fish screens on both diversions at Durham Mutual Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Use operational criteria that optimize screening efficiencies (e.g. approach velocities) for salmon at the State and Federal water export facilities during San Joaquin smolt outmigrations	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Establish conditions on industrial facilities to control entrainment of eggs, larvae, and juvenile fish.	SFEP. 1994. Comprehensive Conservation and Management Plan..
Design, install, and effectively operate fish screens or other protective devices at diversions associated with fish mortality.	SFEP. 1994. Comprehensive Conservation and Management Plan..
Improve screen efficiencies at state and federal water project pumping facilities.	SFEP. 1994. Comprehensive Conservation and Management Plan..
Screen upstream diversions that individually or cumulatively result in significant mortality to fishes that utilize the Estuary.	SFEP. 1994. Comprehensive Conservation and Management Plan..
Screen consolidated agricultural diversions in the south Delta.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Implement structural and operational modifications at ACID to eliminate stranding, toxic discharges, improve screens, and eliminate passage problems for chinook salmon and steelhead.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Screen diversions at the CCWD Rock Slough intake.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Fish Screens

Action	Reference
Reduce entrainment and impingement losses at the PG&E Pittsburg and Contra Costa power plants and other industrial diverters when eggs, larvae, or juveniles are present.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Reduce entrainment at agricultural diversions by a combination of screening, consolidating diversions, and restricting diversion when critical life-stages of fish are present.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Develop a flow regime that imitates natural flow changes and avoids dewatering redds or isolating or stranding juveniles on monthly and daily rates of change.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Complete an integrated instream flow study (IFIM) to refine a river regulation program that actively balances fishery habitat with the flow regime, including needs for adequate temperature, flushing flows, outmigration, channel maintenance, attraction flows, and maintenance of a riparian corridor.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Manage flow to restore riparian vegetation.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Maintain water temperatures at or below 56 degrees F from Keswick Dam to Bend Bridge except in extreme water years.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Effectively screen agricultural diversions in Cow Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Build and operate fish screens on all unscreened diversions in Bear Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Fish Screens

Action	Reference
Construct a rack to prevent adult salmon from entering Grover diversion.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Screen Orwick diversion.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Screen the tailrace of Coleman Powerhouse.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Construct fish screens at PG&E water diversions from Battle Creek.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Install fish screens on both diversion at Adams Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Install fish screens on diversions at McGowan Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Install fish screens on both diversions at Western Canal Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Install fish screens on both diversions at Gorrill Dam.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Install fish screen at the head of Old River..	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install fish screen at the Delta Cross-channel.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install fish screen at the head of Georgiana Slough.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Fish Screens

Action	Reference
Install fish screens at the head the Three-mile Slough.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install fish screens for the Clifton Court Forebay Intake.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Screen smaller water diversions in the Delta.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Screen Delta agricultural diversions.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Manage existing Delta fish screening operations for higher survival rates.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Resolve entrainment problems at the Glenn-Colusa Irrigation District's Hamilton City Pumping Plant on the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install fish screens on 11 agricultural diversions in Butte Creek that range in capacity from 70 to 1,100 cfs.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install a fish screen in the Yuba River on Browns Valley Irrigation District diversion.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Replace screens in the Yuba River on South Yuba-Brophy and the Hallwood-Cordua diversions.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Upgrade screens on four medium-sized riparian diversions in the Merced River (diversion capacities [cfs]: 20, 25, 27, 52), and upgrade fish bypasses on two additional diversions.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
In the absence of a water exchange program, install fish screens on the agricultural diversion in Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Screen all unscreened hydropower diversions in Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Screen the larger diversions along the Sacramento River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Upgrade existing fish screens in the Mokelumne River at Woodbridge Irrigation District Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install fish screens in the Mokelumne River at North San Joaquin Water Conservation District diversions (north and south).	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Fish Screens

Action	Reference
Screen, as needed, any diversion on Cow Creek (each diversion < 5 cfs) that entrains juvenile salmon or steelhead.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install fish screens on all major water diversions in Bear Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Ensure compliance with fish screening requirements in Fish and Game Code Section 6100 for diversions in the Yuba River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate screening needs and set priorities in the San Joaquin River existing small- (< 10 cfs) and medium-size (15-250 cfs) diversions.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate fish screening needs at 44 small riparian pump irrigation diversions on the Stanislaus River. Set priorities for installation of screens.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate fish screening needs at 36 small riparian pump irrigation diversions on the Merced River. Set priorities for installation of screens.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Evaluate screening needs at small riparian diversions in the Mokelumne River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Determine the number and capacity of unscreened water diversions on the Calaveras River. Establish a priority for installing screens.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Determine adequacy of fish screen at Granlees Diversion Dam on the Cosumnes River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Riparian diversions: pilot screening projects	DWR. 1995. San Joaquin River Management Plan.
Accelerate evaluations of the impact of different types of diversions and install protective devices on priority agricultural or other diversions within the nursery and migration reaches of the San Joaquin River and its tributaries.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Install fish protective devices on agricultural or other diversions in the San Joaquin River and south Delta.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Fish Behavioral Barriers

Action	Reference
Install a behavioral barrier in Georgiana Slough.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Divert downstream migrants into Sacramento Ship Channel.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Divert downstream migrants into Sutter Slough and/or Steamboat Slough.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install behavioral barrier at head of Old River.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install behavioral barrier at the Delta Cross-channel.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Install behavioral barrier at the head of Three-mile Slough.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Fish Physical Barriers

Action	Reference
Install the upper Old River Barrier each fall to improve guidance flows and water quality for fish migrating upstream through the San Joaquin Delta.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Construct a barrier at the confluence of Old River and the San Joaquin River, and operate seasonally in spring and fall to improve fishery conditions for salmon migrating along the San Joaquin River.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.
Design and install gates or other facilities at channel openings known to be associated with the loss of fishes.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Evaluate diversion of San Joaquin salmon from their migratory route at Old River and other strategic locations.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Close Delta Cross Channel gates when juveniles are present using generalized "windows" or "recent-time" monitoring.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.

Type of Action: Fish Physical Barriers

Action	Reference
Install and operate a temporary fish barrier on the San Joaquin River at the Merced River confluence each fall to prevent adult salmon from straying into irrigation canals. The barrier should be operated until a decision is made regarding restoration of chinook salmon in the upper San Joaquin River below Friant Dam.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install a fish protective device in the San Joaquin River at Banta-Carbona Irrigation District diversion, or provide alternative water supplies to the district.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install a fish protective device in the San Joaquin River at West Stanislaus Irrigation District diversion, or provide alternate water supplies to the district.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install a fish protective device in the San Joaquin River at Patterson Irrigation District diversion, or provide alternate water supplies to the district.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install a fish protective device in the San Joaquin River at El Soylo Irrigation District diversion.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Construct a barrier at the mouth of Crowley Gulch on Cottonwood Creek to prevent entry of adult fish.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Improve Salvage Operations

Action	Reference
Improve fish handling facilities at the CVP and SWP Fish Facilities.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Improve operation of the Skinner Fish Protective Facility, based on results of proposed evaluation studies.	DWR and USBR. 1995. Administrative Draft EIR/EIS, Interim South Delta Program.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Predator Removal/Control

Action	Reference
Develop and implement a management plan to reduce predation in Clifton Court Forebay and near the John E. Skinner Delta Fish Protection Facility.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Reduce predation within Clifton Court Forebay and within other SWP and CVP diversions.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Salmon predation reduction (juveniles)	DWR. 1995. San Joaquin River Management Plan.
Reduce predation mortality on juvenile salmon through harvest of un-naturally high concentrations of predators from spawning and rearing reaches of the San Joaquin River and its tributaries.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Diversion Reductions

Action	Reference
Curtail diversion during critical fish migration periods.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Shift pumping to times when fishery impact is least	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Restrict diversions by the CCWD when eggs, larvae, or juveniles are present using generalized "windows" or "recent-time" monitoring.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Restrict diversions to the North Bay Aqueduct when eggs, larvae, or juveniles are present using generalized "windows' or "recent-time" monitoring.	USFWS. 1994. Recovery plan for the Sacramento-San Joaquin Delta native fishes.
Curtail diversion during critical fish migration periods.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

SUB-CATEGORY: REDUCE DIVERSION-RELATED FISH MORTALITY

Type of Action: Change Location/Flow Conditions of Diversion

Action	Reference
Relocate the M&T diversion in Big Chico Creek to the Sacramento River and install fish screens.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Develop facilities to divert SWP water from Italian Slough rather than Clifton Court Forebay during critical periods for fisheries.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Real-Time Monitoring

Action	Reference
Develop and implement a mechanism for real-time water projects operations coordination between the CVP and SWP in the Sacramento River Basin.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Install an electronic fish counter on one of the diversion dams on Deer Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.
Shift pumping to times when fishery impact is least.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Curtail diversion during critical fish migration periods.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Implement real time operational management to improve migratory fish habitat.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Control Exotic Species and New Species Introductions

Action	Reference
Develop and implement regulations on discharge of ballast.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop plans and regulations which discourage the further introduction of invasive non-native species in the Estuary.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop programs for inspection at the borders to control non-native species introductions.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop educational programs on introduced aquatic species.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Exotic vegetation removal	DWR. 1995. San Joaquin River Management Plan.
Monitor and, if necessary, recommend expansion of the water hyacinth control efforts into other parts of the drainage.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Fish Hatcheries/Stock and Harvest Management

Action	Reference
Strengthen programs to reduce the poaching of species within the Estuary.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Review and modify, if necessary, harvest regulations of aquatic species of concern.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Develop funding for additional enforcement of fishing regulations in the Estuary.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop more restrictive fishing regulations for the Estuary.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Fishing regulation enforcement	DWR. 1995. San Joaquin River Management Plan.
Salmon harvest management	DWR. 1995. San Joaquin River Management Plan.

SUB CATEGORY: SUPPRESS UNDESIRABLE SPECIES AND ENHANCE DESIRABLE SPECIES

Type of Action: Fish Hatcheries/Stock and Harvest Management

Action	Reference
Establish zero salmon limit in the San Joaquin drainage from river mile zero near Chipps Island upstream to the first major dams on all spawning tributaries south of Stockton.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Evaluate information for San Joaquin salmon and procedures for modifying the Pacific Fisheries Management Council Framework Plan that defines current fish management policies and ocean regulations.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Elevate law enforcement effort during October through December to curb poaching losses in designates salmon spawning areas of the San Joaquin drainage.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Develop an information document requesting voluntary assistance of various constituent groups in activating stream-watch networks to report poaching.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Increase incentives for reporting poachers.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Selective harvest of hatchery fish	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Research and develop methods to reduce the incident of take of non-target species in commercial activities.	SFEP. 1994. Comprehensive Conservation and Management Plan

SUB CATEGORY: SUPPRESS UNDESIRABLE SPECIES AND ENHANCE DESIRABLE SPECIES

Type of Action: Fish Hatcheries/Stock and Harvest Management

Action	Reference
Avoid potential competitive displacement of wild, naturally produced juveniles with hatchery-released juveniles by stabilizing hatchery production levels and implementing release strategies designed to minimize detrimental interactions.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Implement specific hatchery spawning protocols and genetic evaluation programs to maintain genetic diversity in hatchery and wild stocks.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California. Prepared for the U.S. Fish and Wildlife Service under the direction of the Anadromous Fish Restoration Program Core Group. May 1995. Vols. 1-3.
Evaluate transfer of disease between hatchery and natural stocks.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California
Examine feasibility of establishing a spawning population of winter-run chinook salmon.	USFWS. 1995. Working Paper on Restoration Needs, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California.
Improve hatchery operations and procedures.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Develop additional fish hatchery facilities.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Mark all Central Valley hatchery-reared fish.	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.
Investigate developing a disease-free water supply for Coleman National Fish Hatchery on Battle Creek.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action
Genetic maintenance	DWR. 1995. San Joaquin River Management Plan.
Salmon: artificial production	DWR. 1995. San Joaquin River Management Plan.
Salmon fishery re-establishment	DWR. 1995. San Joaquin River Management Plan.

SUB CATEGORY: SUPPRESS UNDESIRABLE SPECIES AND ENHANCE DESIRABLE SPECIES

Type of Action: Fish Hatcheries/Stock and Harvest Management

Action	Reference
Salmon marking: natural production	DWR. 1995. San Joaquin River Management Plan.
Trap and spawn adult salmon at various locations in the San Joaquin drainage.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Produce an acceptable number of hatchery yearling salmon when trapping and hatchery programs are used.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Use a gene bank (cryogenic preservation) to ensure the protection of San Joaquin fall-run salmon genetic material in the event of a catastrophic loss.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Use natural fish in captive breeding programs.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Complete genetic differentiation studies in the San Joaquin tributaries and monitor appropriate indicators through time to help preserve genetic variability and diversity.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.
Establish a genetic advisory committee using the knowledge and resources of academia and management experts.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

SUB CATEGORY: SUPPRESS UNDESIRABLE SPECIES AND ENHANCE DESIRABLE SPECIES

Type of Action: Fish Hatcheries/Stock and Harvest Management

Action	Reference
Evaluate upgrading existing fish screening facilities and accelerate planning to implement changes.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Terrestrial Species Management

Action	Reference
Evaluate the influence of weather, agriculture, and hunting on the distribution and abundance of waterfowl.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges.
Assess the physical condition and reproductive potential of waterfowl relative to winter habitat conditions.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges.
Survey riparian forests of the Sacramento and San Joaquin valleys for the presence of valley elderberry longhorn beetle and incorporate findings into short- and long-term management programs.	USFWS. 1984. Recovery Plan Valley Elderberry Longhorn Beetle.
Evaluate the cause, chronology, and magnitude of non-hunting mortality of waterfowl.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges
Assess winter foods and other requirements of key species and the ability of major habits to produce these resources.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges
Implement management strategies for public waterfowl areas that will enhance their carrying capacity for wintering waterfowl.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges
Time mowing of alfalfa and safflower on Sherman Island so it does not coincide with pheasant and quail hatching.	DWR, Central District. 1988. West Delta Water Management Program.
Implement predator control programs in area where introduced predators are a constraint to maintenance and restoration of native populations.	SFEP. 1994. Comprehensive Conservation and Management Plan.

SUB CATEGORY: SUPPRESS UNDESIRABLE SPECIES AND ENHANCE DESIRABLE SPECIES

Type of Action: Terrestrial Species Management

Action	Reference
Continue hunting closures to protect Aleutian Canada goose. Investigate the need for hunting closures for other waterfowl species as necessary.	SFEP. 1994. Comprehensive Conservation and Management Plan. USFWS. 1982. Aleutian Canada Goose Recovery Plan.
Implement a captive breeding program for the California clapper rail.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Develop and evaluate methods to obtain quantitative data on abundance and distribution of waterfowl.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges
Update, and, where necessary, prepare recovery plans for all listed wildlife species.	SFEP. 1994. Comprehensive Conservation and Management Plan.

MAIN CATEGORY: SOCIOECONOMIC

AND INSTITUTIONAL MEASURES

Type of Action: Water Rights Law Modifications

Action	Reference
Amend Section 1011 of the Water Code as follows: "1011. (a) When any person entitled to the use of water under an appropriative water right fails to use all or any part of the water because of water conservation efforts, any cessation or reduction in the use of such appropriated water shall be deemed equivalent to a reasonable beneficial use of water...No forfeiture of the appropriative right to the water conserved shall occur upon the lapse of the forfeiture period..."	Assembly Bill No. 120. Introduced by Assembly Member Katz. January 12, 1995
Consolidate all water transfer laws by enacting a comprehensive statute governing transfers of water and water rights.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. 1995.
Broaden the law governing transfers of water rights.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. 1995.
Protect water rights during and after transfer by clarifying and strengthening the rights of transferors and transferees. This would be achieved by: 1) declaring the conservation and transfer of water to be a reasonable and beneficial use by the transferor; 2) requiring that assessment of waste and unreasonable use during the term of the transfer agreement be made by reference of the transferors use; 3) ensuring the full reversion of rights to the transferor at the conclusion of the term of the transfer agreement, and 4) the previous transfer of water will not be considered in determining waste and unreasonable use.	Options for California Law as it Affects Water Transfers - Discussion Briefs for the Business-Sponsored Water Marketing and Finance Project Discussion-Group Meetings. 1995.

SUB-CATEGORY: IMPLEMENT NEW OR EXISTING STATUES, REGULATIONS, POLICIES, AND PROGRAMS

Type of Action: Statutory and Regulatory Changes

Action	Reference
Enforce the 1982 Reclamation Reform Act acreage limitations.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Streamline the regulatory process by combining the following approaches: 1) include all foreseeable activities related to improvement and maintenance of all Delta levees and channels, floodfight, levee restoration and island reclamation in a programmatic CEQA/NEPA document; 2) include specific elements in the project that will encourage regulators to furnish timely approval of all activities; 3) draft and support passage of legislation to set specific reasonable time limits within which any State or Federal organization approving or disapproving a project must act; and 4) assign the responsibility of streamlining the permitting to the regulatory agencies by executive order.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.
Streamline permits for levee work in the Delta.	Bay-Delta Oversight Council. 1993. Bay -Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.
Relax regulatory standards that require withdrawal from storage	DWR. 1993. Programmatic EIR for State Drought Water Bank.
Memorialize the Congress and the President of the United States "not to repeal or otherwise weaken the federal Clean Water Act by enacting HR 961 or similar legislation that would prove harmful to the health and safety of all Americans."	Senate Joint Resolution No. 28. Introduced by Senator Peace. June 6, 1995.

SUB-CATEGORY: IMPLEMENT NEW OR EXISTING STATUES, REGULATIONS, POLICIES, AND PROGRAMS

Type of Action: Adaptive Management Strategies

Action	Reference
Refine and coordinate existing monitoring programs to: (i) better evaluate ecosystem responses to immediate, phased, and long-term water quality and flow standards; (ii) more fully characterize ecosystem processes and properties; and (iii) enhance predictive capabilities of ecosystem models.	SFEP. 1994. Comprehensive Conservation and Management Plan.

Type of Action: Special Programs and Agreements

Action	Reference
Implement long-term agreements to protect the Bay-Delta region.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
The state should continue to negotiate with the federal government to determine whether, and to what extent, it is appropriate for the federal government to transfer the ownership or operational control of the Central Valley Project (CVP) to a non-federal agency.	SFEP. 1994. Comprehensive Conservation and Management Plan.

Type of Action: Threatened and Endangered Species Protection

Action	Reference
Monitor status of all candidate species and list them if warranted.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Adopt listed species recovery as a policy for all public agencies whose actions affect them.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Prepare/update recovery plans for all listed species. This includes designation of critical habitat.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Initiate consultation with all federal agencies that propose or are continuing actions that may affect listed species.	SFEP. 1994. Comprehensive Conservation and Management Plan.

SUB-CATEGORY: IMPLEMENT NEW OR EXISTING STATUES, REGULATIONS, POLICIES, AND PROGRAMS

Type of Action: Threatened and Endangered Species Protection

Action	Reference
Review all non-federal proposals and continuing actions that may result in take of listed species and take appropriate actions.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Investigate the feasibility of developing a Habitat Conservation Plan (or Plans) for the Bay and Delta that promotes the recovery of species and addresses incidental take associated with non-federal actions.	SFEP. 1994. Comprehensive Conservation and Management Plan.
"Require the Fish and Game Commission to allocate all public or private resources available to it for the purposes of conservation and recovery of endangered species and threatened species in accordance with specified priorities. Require the commission, in determining to list a species, to additionally consider the range of the species and to identify potential sources of funding to carry out all recommendations and suggestions."	Assembly Bill No. 350, as amended. Introduced by Assembly Member Bustamante. February 10, 1995.

Type of Action: Wetlands Protection

Action	Reference
Prepare Regional Wetlands Management Plan(s).	SFEP. 1994. Comprehensive Conservation and Management Plan.
Establish a comprehensive state wetlands program for the Estuary that, in addition, includes a coordinated regulatory and policy framework.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Increase enforcement efforts to curtail illegal wetland alteration and to ensure compliance with permit conditions.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Improve wetlands protection provided under the Clean Water Act.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Encourage wetland protection by-laws.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Develop methods of using available water most effectively for wetland habitat.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges.

SUB-CATEGORY: IMPLEMENT NEW OR EXISTING STATUES, REGULATIONS, POLICIES, AND PROGRAMS

Type of Action: Wetlands Protection

Action	Reference
Develop means to encourage landowners to preserve wetlands.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges.
Evaluate alternative water sources for managing wetland habitat.	Gilmer et. al. 1982. California's Central Valley Wintering Waterfowl; Concerns and Challenges.

Type of Action: Preservation of Agricultural Lands and/or their Water Supplies

Action	Reference
Combine efforts to minimize the adverse effects of urbanization on agricultural productivity with efforts to protect certain water supplies for agricultural communities.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Identify and protect strategic farmland from urban development.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Study the protection of prime agricultural land and the water required to support these lands.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Reduce or Eliminate Subsidies

Action	Reference
Eliminate double subsidies.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Eliminate pricing policies that subsidize the inefficient use of water at taxpayer expense.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Gradually reduce, then eliminate, most federal and state water subsidies.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Gradually reduce, then eliminate, federal crop subsidies for growing low-value, water-intensive crops.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Adjust Water Rates to Reflect the Real Cost of Water

Action	Reference
Repayment schedules for federal water projects should more accurately reflect the costs of providing water to different users.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Adjust urban and agricultural water rates to reflect the cost of service, including non-market costs.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Protect Economic Viability of Rural Communities

Action	Reference
Identify and reduce adverse impacts on rural communities and the environment from higher water costs or water transfers.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Provide Funding to Implement Programs

Action	Reference
Contribute $12,000,000 each year to the Delta Flood Protection Fund. From the fund, appropriate $6,000,000 a year for local assistance for the maintenance and improvement of delta levees and $6,000,000 for special delta flood protection projects and for subsidence studies and monitoring.	Senate Bill No. 34. Approved by the Governor on March 11, 1988. Cited as the Delta Flood Protection Act of 1988.
Reimburse any costs associated with levee maintenance incurred in excess of $1,000 per mile of levee.	Senate Bill No. 34. Approved by the Governor on March 11, 1988. Cited as the Delta Flood Protection Act of 1988.
Establish a reliable and equitable long-term funding mechanism for the improvement and maintenance of the Delta levee system to sustain its associated uses.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.
Enact the Water Resources and Delta Restoration Act of 1996, which if adopted, would authorize for the purpose of financing prescribed water programs, the issuance of bonds, the proceeds of which would be deposited in a Water Resources and Delta Restoration Fund. The funds would be used for "flood control, reclamation, the improvement of public water systems to meet safe drinking water standards, the correction or prevention of conditions of water pollution, and fish and wildlife restoration, and to increase water supplies."	Senate Bill No. 900, as amended. Introduced by Senator Costa. February 23, 1995.
Expand existing private, state, and federal financial and technical assistance programs to individual landowners.	SFEP. 1994. Comprehensive Conservation and Management Plan.

SUB-CATEGORY: IMPROVE FUNDING MECHANISMS RELATED TO WATER

Type of Action: Compensation for Damages

Action	Reference
Develop and adopt uniform compensatory mitigation policies.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Seek damages for all impacts to trust resources from spills and discharges affecting them and use the finds to improve the resources base.	SFEP. 1994. Comprehensive Conservation and Management Plan.

Type of Action: Cost Sharing

Action	Reference
Implement long term cost sharing arrangements extending beyond the year 2000 .	Bay-Delta Oversight Council. 1993. Reclamation District #548 in a letter dated September 19, 1993 responding to the Draft Briefing Paper on Delta Levee and Channel Management Issues.
Establish a comprehensive cost sharing arrangement for Delta levee improvements that address all beneficiaries.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.
Explore innovative funding techniques in order to secure financial participation by all parties that benefit from the protection afforded by the Delta levees.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.

Type of Action: Disaster Planning and Assistance

Action	Reference
Create an emergency fund.	Bay-Delta Oversight Council. 1993. Reclamation District #548 in a letter dated September 19, 1993 responding to the Draft Briefing Paper on Delta Levee and Channel Management Issues.
Set up an emergency fund of approximately $20,000,000 to pay for the repair of failed levees and the recovery of an inundated island or tract.	Bay-Delta Oversight Council. 1993. Reclamation District No. 548 in a letter dated September 19, 1993 responding to the Bay Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues.

Type of Action: Disaster Planning and Assistance

Action	Reference
Develop Contingency Plans to reclaim flooded islands. Contingency Plans could include: 1) the continuation of disaster assistance programs; and/or 2) establishing a fund which is supported by beneficiaries of Delta levees for use in reclamation of flooded islands.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.

Type of Action: Focused Research

Action	Reference
Develop water quality standards which support a wide array of plant and wildlife	CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary.

Type of Action: Public Education and Awareness

Action	Reference
Implement water education programs in urban areas.	DWR. 1990. Draft EIR/EIS, North Delta Program.
Establish a model environmental compliance program at federal facilities within the jurisdiction of the Estuary Project.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Local entities interested in implementing reclamation projects should develop and conduct public education programs.	SFEP. 1994. Comprehensive Conservation and Management Plan.
Education program - recreation, wildlife, fisheries	DWR. 1995. San Joaquin River Management Plan.
Explain importance of protecting fall-run salmon in the San Joaquin drainage to the public.	San Joaquin River Management Program, An Action Plan for San Joaquin Fall-Run /Chinook Salmon Populations. Prepared for the San Joaquin River Management Program Advisory Council by the Fisheries Subcommittee. January 1993.

Type of Action: Public and Agency Interaction

Action	Reference
Create an independent planning organization by streamlining existing water planning groups.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Develop a coordinated multi-agency management plan for the Lower American River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action.

Type of Action: Public Consensus Building and Acceptance

Action	Reference
Make California water planning more equitable and democratic by bringing in groups that have been excluded from the process.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.

Type of Action: Public Incentives

Action	Reference
Develop incentives for private land owners to increase stream flow, increase water yield, and improve water quality.	Kattelmann. 1987. Feasibility of More Water from Sierra Nevada Forests.

Type of Action: Data and Information Management

Action	Reference
Real-time water quality management network, phase 1	DWR. 1995. San Joaquin River Management Plan.
Real time water quality management network, phase 2	DWR. 1995. San Joaquin River Management Plan.
Develop on-line data collection and dissemination networks to provide farmers with immediate meteorological and hydrological information on climate, soil conditions, and crop water needs.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Create an organization that collects, maintains, and freely distributes state water resources data.	Gleick, Peter H., et al. 1995. California Water 2020: A Sustainable Vision.
Inventory all water diversions in the Yuba River drainage from Englebright Dam to the Feather River.	CDFG. 1993. Restoring Central Valley Streams: A Plan for Action
Aquatic resources database	DWR. 1995. San Joaquin River Management Plan.
Atlas of the San Joaquin River and its tributaries	DWR. 1995. San Joaquin River Management Plan.
Geographic information system	DWR. 1995. San Joaquin River Management Plan.

Type of Action: Data and Information Management

Action	Reference
Create and maintain a library (clearinghouse) containing all available reports, maps, appropriate models, data, and photographs relating to Delta issues.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.

Type of Action: Recreation Opportunities

Action	Reference
Resolve ownership questions (State Lands Commission)	DWR. 1995. San Joaquin River Management Plan.
Recreation area inventory	DWR. 1995. San Joaquin River Management Plan.
Enhance recreation opportunities in a manner compatible with other priorities, such as improvement and maintenance of levees and the environment.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.

Type of Action: Reduce Impacts Associated with Recreation

Action	Reference
Stanislaus River rock hazard solutions	DWR. 1995. San Joaquin River Management Plan.
Protect fish/wildlife habitats from recreation impacts.	DWR. 1995. San Joaquin River Management Plan.
Set a 5 mph boat speed limit in specified areas of the Delta.	Bay-Delta Oversight Council. 1993. Reclamation District #548 in a letter dated September 19, 1993 responding to the Draft Briefing Paper on Delta Levee and Channel Management Issues.
Address issues related to recreation. Sustain current level of recreation opportunities with redirection of activities and enforcement of laws to minimize negative impacts.	Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels.

3.0
SOURCES OF INFORMATION

Table 3-1 summarizes the programs, reports, and activities reviewed in the preparation of this report. The table also includes several programs and reports which may potentially contain useful information regarding Delta issues, but which were not available for inclusion in this report.

TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS (PROGRAMS, REPORTS, AND ACTIVITIES)

Sources of Information	Comments
Assembly Bill No. 1067. Introduced by Senator Mello. February 24, 1995.	
Assembly Bill No. 120. Introduced by Assembly Member Katz. January 12, 1995.	
Assembly Bill No. 125, as amended. Introduced by Assembly Member Rainey. January 12, 1995.	
Assembly Bill No. 1359. Introduced by Assembly Member Knowles. February 23, 1995.	
Assembly Bill No. 1533. Introduced by Assembly Member Cortese. February 24, 1995.	
Assembly Bill No. 172. Introduced by Senator Beverly. January 30, 1995.	
Assembly Bill No. 1845, as amended. Introduced by Assembly Member Cortese. February 24, 1995.	
Assembly Bill No. 313, as amended. Introduced by Assembly Member McDonald. February 8, 1995.	
Assembly Bill No. 350, as amended. Introduced by Assembly Member Bustamante. February 10, 1995.	
Assembly Bill No. 360. Introduced by Assembly Member Hannigan. February 10, 1995.	
Assembly Bill No. 363. Introduced by Assembly Member Cannella. February 10, 1995.	
Assembly Bill No. 561. Introduced by Assembly Member Archie-Hudson. February 17, 1995.	
Assembly Bill No. 584, as amended. Introduced by Assembly Member Rainey. February 17, 1995.	
Assembly Bill No. 832. Introduced by Assembly Member Woods. February 22, 1995.	
Bay-Delta Oversight Council Levee and Channel Management Technical Advisory Committee. 1994. Delta, Levees, Channels. October 1994 (Revised February 1995).	

TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS (PROGRAMS, REPORTS, AND ACTIVITIES)

Sources of Information	Comments
Bay-Delta Oversight Council. 1993. Bay-Delta Oversight Council Draft Briefing Paper on Delta Levee and Channel Management Issues. December 1993.	
CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary. May 1995 Draft. Sacramento, CA.	
CALFED Bay-Delta Program. 1995. Options to protect and enhance the Estuary. May 1995 Draft. Sacramento, CA.	
California Department of Fish and Game and California Department of Water Resources. 1993. Sacramento - San Joaquin Delta Master Environmental Assessment.	Reviewed, but not used for actions.
California Department of Fish and Game and U.S. Fish and Wildlife Service. 1980. Sacramento/San Joaquin Delta Wildlife Habitat Protection and Restoration Plan.	Plan reviewed but not used for actions. Contains potentially useful information and proposed actions.
California Department of Fish and Game, California Waterfowl Association, Ducks Unlimited, and U.S. Fish and Wildlife Service. 1990. Central Valley Habitat Joint Venture Implementation Plan: A component of the North American Waterfowl Management Plan. February 1990.	Reviewed, but not used for actions.
California Department of Fish and Game. 1994. Fish Screening Policies: Memorandum. February 2, 1994.	
California Department of Fish and Game. 1995. Restoring Central Valley Streams: A Plan for Action. Status of Implementation. June 1995. Sacramento, CA.	
California Department of Fish and Game. 1995. SB 34 Delta Levees Mitigation Guidance Document. Department of Fish and Game, Region 2: Delta Levees Project. May 1995. Rancho Cordova, CA.	

TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS
(PROGRAMS, REPORTS, AND ACTIVITIES)

Sources of Information	Comments
California Department of Fish and Game. Fish screen action plan. June 6, 1994.	Reviewed, but not used for actions.
CDFG. 1993. Restoring Central Valley Streams: A Plan for Action. November 1993.	
Central California Regional Water Recycling Project Step 1 Feasibility Study Administrative Draft Report Volume 2: Appendices, June 1995.	
Central Valley Project Improvement Act.	Program reviewed but not used for actions. Most actions described were included in other plans/programs.
Coordinated protection program for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Category III Implementation Plan - Proposals for the development and implementation of measures to control non-flow factors. Prepared on behalf of the Ad Hoc Category III Working Group under the sponsorship of the Joint California Water Users. July 5, 1995.	Plan reviewed, but not used for actions. Most actions were included in other plans/programs.
Delta Pumping Plant Fish Protection Agreement (4-Pumps). 1995. Work programs (1995-1996 and 1996-1997). Department of Water Resources. Sacramento, CA.	Reviewed, but not used for actions because actions described have been approved and are in the process of being implemented.
Department of Water Resources and U.S. Bureau of Reclamation. 1995. Administrative Draft EIR/EIS, Interim South Delta Program. May 1995. Sacramento, CA.	
Department of Water Resources, Central District. 1988. North Delta Water Management Program. March 1988. Sacramento, CA.	
Department of Water Resources, Central District. 1988. South Delta Water Management Program. April 1988. Sacramento, CA.	
Department of Water Resources, Division of Planning. 1990. Actions and Priorities, Delta Flood Protection Act: Eight Western Delta Islands. March 1990. Sacramento, CA.	

TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS
(PROGRAMS, REPORTS, AND ACTIVITIES)

Sources of Information	Comments
Department of Water Resources. 1990. Draft EIR/EIS, North Delta Program. November 1990. Sacramento, CA.	
Department of Water Resources. San Joaquin River Management Plan. 1995. Prepared for the Resources Agency by an Advisory Council established by Assembly Bill 3603. February 1995.	
Department of Water Resources. 1983. Alternatives for Delta water transfer.	Reviewed, but not used for actions because actions described were included in other programs/documents.
Department of Water Resources. 1994. California Water Plan Update. Bulletin 160-93. Sacramento, CA.	
Ducks Unlimited Valley Care Program. (pers. comm. Steve Burton, Ducks Unlimited)	Reviewed, but not used for actions.
DWR, Central District. 1988. West Delta Water Management Program.	
DWR. 1993. Programmatic EIR for State Drought Water Bank.	
DWR. 1994. California Water Plan Update. Bulletin 160-93. Sacramento, CA.	
DWR. 1995. San Joaquin River Management Plan. Prepared for the Resources Agency by an Advisory Council established by Assembly Bill 3603. February 1995.	
East Bay Municipal Utility District Conjunctive Use	Program not reviewed, but potentially contains useful information on proposed actions.
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TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS
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TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS (PROGRAMS, REPORTS, AND ACTIVITIES)

Sources of Information	Comments
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TABLE 3-1. SOURCES OF INFORMATION FOR ACTIONS (PROGRAMS, REPORTS, AND ACTIVITIES)

Sources of Information	Comments
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Sources of Information	Comments
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Sources of Information	Comments
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Yolo County Habitat Conservation Plan. (pers. comm. Mark Hamblin, Yolo County Community Development Agency)	Reviewed, but not used for actions.