

# ***IMPROVEMENT OF WATER QUALITY THROUGH WATERSHED MANAGEMENT***

***(Actions 21, 29, 30, 31)***

## ***Goal***

The goal of these actions is to maintain or improve water quality in the Sacramento-San Joaquin Delta (Delta) so that all beneficial uses are protected (e. g. municipal, industrial and agricultural water supply, recreation, fish and wildlife).

## ***Objective***

The objective of these actions is to improve water quality (as defined by the parameters of concern listed below) within the Sacramento River and San Joaquin River Basins, Delta and Suisun Marsh through coordination with and /or assistance to local watershed management programs or other efforts.

## ***Geographic Scope***

All areas within Sacramento, San Joaquin, and Delta watersheds, with emphasis on waterways below major dams.

## ***Parameters of Concern***

- Cadmium
- Copper
- Mercury
- Selenium
- Zinc
- Carbofuran
- Chlorpyrifos
- Diazinon
- Ammonia
- Dissolved Oxygen
- Salinity
- Sodium
- Nitrate
- pH
- Temperature
- Total Dissolved Solids
- Total Organic Carbon
- Turbidity

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## *Estimated Loadings*

[Work in Progress]

## *Water Quality Problem Areas for Parameters of Concern*

[Work in Progress]

This section will include a comparison of water quality parameter target ranges and measured levels of parameters. Exceedences of target ranges that occur within the Delta, Sacramento, and San Joaquin rivers will be identified.

## *Current Programs*

[Work in Progress]

A number of localized watershed management efforts are underway in the hydrologic basin which drains to the Delta. These efforts are motivated by a variety of goals and objectives, including water quality protection, riparian habitat restoration, habitat management, fishery enhancement, water conservation, erosion control, wetlands protection, sustainable land use and development, and total resource management. Stakeholders in these efforts are similarly varied, including local landowners, community organizations, lumber companies, utility companies, corporations, local resource conservation districts, reclamation districts, irrigation districts, counties, cities, flood control agencies, state agencies (CDFG, DWR, RWQCB, DPR, CDF, SWRCB, CalTrans), federal agencies (USFS, NRCS, EPA, USFWS, ACE, BLM, USDA, BOR, DOT, FHA), The Nature Conservancy, The Audubon Society, California Waterfowl Association, Ducks Unlimited, California Trout, Inc., California Fly Fishermen, University of California, and UC Cooperative Extension.

The following is a brief description of watershed management efforts currently underway in the Sacramento Valley, San Joaquin Valley and Delta. This listing is not comprehensive

### **Sacramento River Watershed Programs**

**Name** Cache Creek  
**Location** Cache Creek Basin, Yolo County, Colusa County, Lake County, and Napa County (736,000 acres)  
**Description** Environmental restoration along creek, wetland habitat creation, water quality protection, control sediment loadings

**Name** California Mallard Program  
**Location** Upper Stoney Creek, Glenn County, Colusa County, Tehama County (900 acres)  
**Description** Manage grazing operations to benefit upland nesting habitat for birds, restore riparian vegetation, protect water quality

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**Name** Laguna Creek and Deer Creek Watershed Study  
**Location** Laguna Creek and Deer Creek, Sacramento County (20,000 acres)  
**Description** Wetlands preservation and creation, water quality protection

**Name** Morrison Creek Project  
**Location** Upper Morrison Creek, Cosumnes River, Sacramento County (15,000 acres)  
**Description** Preservation and creation of wetlands, resource management

**Name** Reclamation District 1500 River Basin Plan  
**Location** Sutter County (68,000 acres)  
**Description** Water quality protection, water quantity issues, water conservation

**Name** Sacramento River Project  
**Location** Sacramento River, Tehama County, Butte County, Glenn County, Colusa County (10,000 acres)  
**Description** Restore riparian habitat along 100 mile reach of river between Red Bluff and Colusa

**Name** Sacramento River Watershed Program  
**Location** Entire Sacramento River drainage, numerous counties (16 million acres)  
**Description** Protect water quality, promote sustainable development, improve aquatic and riparian habitat, total resource management

**Name** Yolo County Habitat Management Program  
**Location** Yolo County  
**Description** Multi-species habitat management and enhancement, sustainable agriculture, erosion control

**Name** Hahn Road Watershed  
**Location** Sacramento River, Colusa Basin Drain, Colusa County  
**Description** Six water quality demonstration sites for reduction of nonpoint source pollutant loadings into Colusa Basin Drain

**Name** Cow Creek CRMP  
**Location** Cow Creek, Shasta County (185,500 acres)  
**Description** Reduce fire hazard, improve riparian habitat, improve timber production

**Name** Lassen Willow Creek Watershed Project  
**Location** Willow Creek, Lassen Creek, Modoc County (40,000 acres)  
**Description** Improve water quality and fish habitat

**Name** Upper Pit River Watershed Project  
**Location** Upper Pit River, Modoc County (359,000 acres)  
**Description** Resource management to control soil erosion, protect water quality, sustain agricultural, recreational and rural activities

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**Name** Lassen Watershed Project - Mill Creek  
**Location** Mill Creek, Tehama County (85,800 acres)  
**Description** Erosion control, fisheries protection, water quality protection, riparian habitat protection, sustainable land use and development

**Name** Big Chico Creek Watershed Project  
**Location** Big Chico Creek, Butte County and Tehama County  
**Description** Fisheries protection, water quality protection, riparian habitat protection

**Name** Deer Creek Watershed Project  
**Location** Deer Creek, Tehama County  
**Description** Fisheries protection, sustainable land uses and economy, habitat protection, land stewardship

### San Joaquin River Watershed Programs

**Name** Selenium Total Maximum Monthly Load (TMML) for San Joaquin River  
**Location** Grasslands watershed (south of Mendota)  
**Description** Agricultural stakeholders participated in the development of a TMML for selenium discharges to the San Joaquin River. This TMML will be administered by the Central Valley Regional Board as part of its recently adopted Basin Plan. This is an ongoing program to work with stakeholders to meet selenium waste discharge requirements

**Name** San Joaquin River National Water Quality Assessment (NAWQA) Program  
**Location** San Joaquin River and tributaries  
**Description** This three-year sampling effort was conducted by the U.S. Geological Survey between 1991 and 1994, including physical, chemical, and biological monitoring of surface and ground waters within the San Joaquin River system. Sampling stations were located on the San Joaquin River, the Merced, Stanislaus, and Tuolumne Rivers, and in Mud and Salt Sloughs, Orestimba Creek, and Turlock Irrigation Drain Lateral No. 5. USGS staff are currently compiling and analyzing the results of the sampling efforts

**Name** Stanislaus Work Group  
**Location** Stanislaus River  
**Description** Developing interim and long term watershed management approaches for the Stanislaus River watershed in order to meet salinity water quality objectives at Vernalis. Interim approach (for years 1997-98) currently being finalized. (I believe Bureau of Reclamation is involved/overseeing these efforts

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**Name** Panoche/Silver Creek Coordinated Resource Management and Planning (CRMP)  
**Location** Panoche Creek, Silver Creek, San Joaquin River  
**Description** Cooperative effort of 18+ agencies/organizations and 20+ private landowners to reduce flooding and selenium contamination along Panoche Creek and the City of Mendota, and to improve the riparian condition of the watershed. Addresses agriculture, erosion control, grazing, mining, riparian, and other resource management issues.

**Name** Dormant Spray Pesticide Management Efforts  
**Location** San Joaquin Valley  
**Description** Department of Pesticide Regulation efforts to develop management programs/BMPs for dormant crop pesticide sprays containing diazinon and chlorpyrifos

**Name** Salinity Management Program for San Joaquin River  
**Location** San Joaquin River (primarily westside dischargers)  
**Description** Central Valley Regional Board in the early stages of initiating a stakeholder-based effort aimed at meeting salinity water quality objectives at Vernalis

Other Small-Scale related efforts:

- Tuolumne River Salmon Habitat Enhancement - Ruddy Project
- Root Creek Study
- Magneson Pond Isolation and Stream Habitat Modification

**Delta Watershed Programs**

[Work in Progress]

***Effectiveness of Current Programs***

It is premature to judge the effectiveness of many of the ongoing efforts on Delta water quality and ecosystem integrity. Most programs have been effective in the recruitment of stakeholders, mobilization of local interests and the development of community awareness around specific issues.

***Priority Actions to Improve Water Quality***

**Action 21: Promote and support efforts of local watershed programs that improve water quality parameters of concern within the Delta and Delta tributary watersheds. Efforts may include coordination, incentives, and/or other assistance.**

Expected Benefits. Benefits include local project support, interest-based solutions to conflicts, greatly expanded information base available through monitoring and data management activities

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common to most programs which will lead to better decision-making in the long term, greatly expanded public outreach and education possibilities, increased efficiency at all levels through coordination, collaboration and elimination of redundancies.

Other Considerations. Problem identification and solution is slower but potentially more durable with the watershed approach; most approaches rely heavily on consensus driven solutions and voluntary participation in problem solving; coordination will require diligence and adequate funding.

Compatibility with On-going Programs.

**Actions 29 and 30 -Improve water quality parameters of concern within the Delta and its tributaries by restoring or improving riparian habitat.**

Expected Benefits. Benefits include an improved ecosystem, reduction of significant ecosystem stresses, and improved conditions for species of concern.

Other Considerations. Improvements will be gradual. Action will not be successful in isolation, they must be an element of a comprehensive watershed approach.

Compatibility with On-going Programs.

[Work in Progress]

**Action 31: Identify and implement actions to address potential toxicity to water and sediment within the Delta and its tributaries by conducting toxicity testing and toxicity identification evaluations and/or other appropriate methods. Coordinate these efforts with other programs.**

Expected Benefits. Benefits include better understanding of ambient conditions and of toxic stressors, improved ability to focus solutions on significant problem areas, and improved ability to communicate the need for solutions.

Other Considerations. This action must be part of an overall information collection effort to improve the understanding of factors influencing water quality and associated beneficial uses. There may be an opportunity to utilize or contribute to ongoing or planned efforts under existing watershed programs.

Compatibility with On-going Programs.

[Work in Progress]

*References:*

[Work in Progress]

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*Conversation with Joseph Domagalski at USGS*

*Conversation with Kathy Freas, CH2M HILL - 12/3/96*

*Conversation with Joe Karkoski, EPA assigned to State Board - 12/3/96*

*Conversation with Jerry Bruns, Central Valley Regional Board*

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