

# Improving Water Quality in the Sacramento Valley

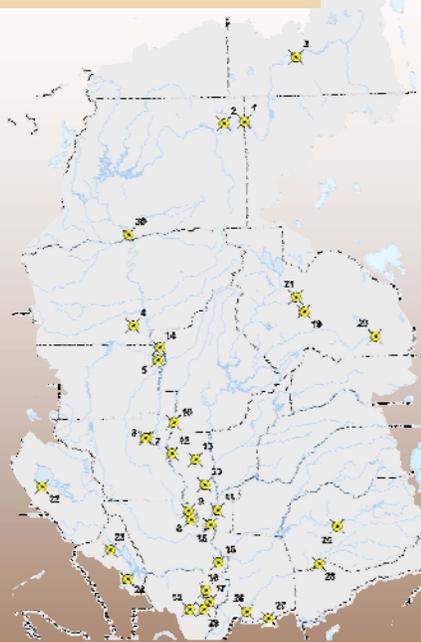
## *Introduction*

The Sacramento Valley is a rich mosaic of farmlands, cities and rural communities, refuges and managed wetlands for waterfowl and shorebird habitat, and meandering rivers and streams that support numerous fisheries and wildlife, including Chinook salmon and steelhead trout. To improve water quality and provide water supplies for all of these diverse purposes, Northern California public agencies have been working with landowners and conservation organizations to refine an integrated regional water management program for the Sacramento Valley that was formally adopted under Water Code section 10541 on December 12, 2006. (See [www.norcalwater.org/int\\_program](http://www.norcalwater.org/int_program).) As part of this regional effort, the Sacramento Valley Water Quality Coalition (Coalition) organized around a 2003 "Regional Plan for Action" that brought together farmers, ranchers, wetlands managers, conservation organizations, water resources managers, resource conservation districts and local governments to protect and enhance water quality throughout the Sacramento Valley. The Coalition was designed to build on the successful efforts by many of the same parties over the past decade to improve fishery habitat and water management in the Sacramento Valley, which has led to the highest salmon returns in thirty years and strong returning shorebird and waterfowl numbers.



## **Ten Subwatersheds:**

- **Butte-Yuba-Sutter**
- **El Dorado**
- **Glenn-Colusa**
- **Lake-Napa**
- **Pit River**
- **Placer-Nevada-South Sutter-North Sacramento**
- **Sacramento-Amador**
- **Shasta-Tehama**
- **Yolo-Solano**
- **Upper Feather River**



## A Scientific and Comprehensive Third Party Monitoring Program

The Coalition and its partners in the 2006 storm season monitored 30 sites and collected 67 samples, for the 2006 irrigation season 31 sites and 156 irrigation season samples were collected. Additionally, 14 sediment samples were taken in both the storm and at the end of irrigation season; there were no sediment exceedances in the storm season and two in the irrigation season. The monitoring program was designed by leading scientists in coordination with local knowledge in the ten subwatersheds described below. The program is managed by a neutral third party, Larry Walker Associates (LWA), which has considerable history in management of both point and non-point source water quality sampling and reporting programs. LWA has sub-contracted sampling and analytical work to several California certified laboratories, including: Pacific EcoRisk, CalTest, CRG Marine Labs, and APPL. The 2007 monitoring program will build upon the effectiveness of the 2006 program and will be further tailored to characterize drainage from irrigated lands and managed wetlands in the Sacramento Valley.

### What Water Quality Exceedances are we Seeing in the Sacramento Valley?

The Coalition submitted semi-annual reports to the Regional Water Quality Control Board (Water Board) on both June 30 and December 29, 2006. Toxicity was observed in less than 9% of the toxicity tests performed during the 2006 storm season. Toxicity was observed in less than 3% of the toxicity tests performed during the 2006 irrigation season.

Concern	Reported Exceedances <sup>1</sup> (#)	Monitoring Locations
 <p><b>Drinking Water</b></p>	<ul style="list-style-type: none"> <li><b>Total Dissolved Solids</b> Storm Season: (4) Irrigation Season: (6)</li> <li><b>Simazine</b> Storm Season: (1)</li> </ul>	<p><b>Total Dissolved Solids</b> - Rough &amp; Ready Pumping Plant, Stone Corral Creek, Tule Canal, Ulatis Creek and Z-drain  <b>Simazine</b> - Stony Creek</p>
 <p><b>Recreation</b></p>	<ul style="list-style-type: none"> <li><b>E. coli</b> Storm Season: (15) Irrigation Season: (23)</li> </ul>	<p><b>E. coli</b> - Anderson Creek, Big Indian Creek, Burch Creek at Woodson, Colusa Drain, Coon Creek, Dry Creek at Alta Mesa Road, Gilsizer Slough, McGaugh Slough, Pine Creek, Rough &amp; Ready Pumping Plant, Stone Corral Creek, Tule Canal, Ulatis Creek, Wadsworth Canal, North Canyon Creek, Butte Creek, and Spanish Creek.</p>
 <p><b>Aquatic Life</b></p>	<ul style="list-style-type: none"> <li><b>pH</b> Storm Season: (5) Irrigation Season: (12)</li> <li><b>Dissolved Oxygen</b> Irrigation Season: (24)</li> <li><b>Chlorpyrifos</b> Storm Season: (1)</li> <li><b>Diazinon<sup>2</sup></b> Storm Season: (4)</li> <li><b>DDE</b> Storm Season: (2)</li> <li><b>Water Column Toxicity:</b> Ceriodaphnia (8) Senastrum (1)</li> <li><b>Sediment Toxicity:</b> Hyalella (3)</li> </ul>	<p><b>pH</b> - Dry Creek at Alta Mesa Rd, Burch Creek at Rawson, Spanish Creek, Stony Creek, Ulatis Creek, Pit River at Pittville, Middle Fork Feather River, North Canyon Creek, Stone Corral Creek, and Z-drain. <b>DO</b> - Anderson Creek, Butte Creek, Gilsizer Slough, Middle Fork Feather River, Rough &amp; Ready Pumping Plant, Stone Corral Creek, Indian Valley, Pit River at Pittville and Z-drain. <b>Chlorpyrifos</b> - Ultatis Creek. <b>Diazinon</b> - Stony Creek, Gilsizer Slough, Colusa Drain and Ulatis Creek. <b>DDE</b> - Rough &amp; Ready Pumping Plant and North Canyon Creek. <b>Ceriodaphnia</b> - Anderson Creek, Burch Creek at Woodson (not a result of agriculture), Dry Creek, Gilsizer Slough, McGaugh Slough, Sacramento Slough, Spanish Creek, and Ulatis Creek. <b>Senastrum</b> - Ulatis. <b>Sediment Toxicity</b> - Anderson Creek, Dry Creek and Z-drain.</p>
 <p><b>Agriculture</b></p>	<ul style="list-style-type: none"> <li><b>Boron</b> Storm Season: (2) Irrigation Season: (4)</li> <li><b>Selenium</b> Storm Season: (1)</li> <li><b>Electrical Conductivity</b> Storm Season: (3) Irrigation Season: (9)</li> </ul>	<p><b>Boron</b> - Z-drain, Tule Canal and Shag Slough  <b>Selenium</b> - Z-drain  <b>Electrical Conductivity</b> - Gilsizer Slough, Stone Corral Creek, Tule Canal, Ulatis Creek, and Z-drain</p>

<sup>1</sup> Reported "exceedances" are either numeric objectives formally adopted by the Water Board or based on the numeric interpretation of the narrative objectives.

<sup>2</sup> Diazinon exceeded the Regional Board's water quality objective of .05 ug/L, only one sample exceeded the National Criterion objective of .17 ug/L.

# What are the Coalition and Subwatersheds Doing to Address Water Quality Exceedances?

## Management Plans

The Coalition submitted a *Diazinon Runoff Management Plan for Orchard Growers in the Sacramento Valley (Plan)* to the Water Board on August 31, 2005 that was approved in March 2006. This Plan was developed in response to the Sacramento and Feather Rivers Total Maximum Daily Load (TMDL) for Diazinon and as part of the Coalition's commitment to address water quality issues caused by agriculture and managed wetlands in the watershed. The Coalition submitted an Annual Report summarizing the 2005-2006 monitoring objectives, location and results, outreach efforts, grower survey follow-up, and management practices effectiveness. No samples taken exceeded the revised objectives for Diazinon.

A *Yolo Technical Report* was developed in December 2005 and revised in June 2006 and again in March 2007 to address boron, conductivity, algal toxicity, and E. coli. The Coalition and the Yolo-Solano subwatershed are implementing a workplan to identify appropriate numeric boron and electrical conductivity criteria. To further understand the algal toxicity the Coalition is reviewing pesticides being used in both Solano and Yolo Counties that are not being monitored under the Irrigated Lands Program, but could potentially be contributing to algal toxicity. Additionally, DNA analysis to identify sources of E. coli in Yolo County began in September 2006, along with an additional five sites in the Valley that have shown high E. coli numbers.

## Management Practices Action Plan

The Coalition on May 10, 2005 sent a letter to the Chairs of the Water Boards outlining a "Management Practices Action Plan" for the Sacramento Valley. Building on both the Coalition's "Management Practices Action Plan," and the "Regional Plan for Action," the Coalition submitted a detailed plan on November 14, 2006 that describes an aggressive approach for the Coalition and its subwatersheds to follow when there are exceedances of water quality objectives formally adopted by the Regional Board.

The refined plan provides a detailed approach the Coalition and its subwatersheds will take when notifying the affected subwatershed landowners, farm operators and/or wetland managers about the cause(s) of toxicity or exceedance of water quality standards. Depending on the causes of toxicity or exceedances, solutions will include a targeted outreach program with landowners and operators. The outreach program will encourage the adoption of known management practices or modifying the uses of specific farm and wetland inputs to prevent movement of the constituent of concern into the surface water. The Coalition and its subwatersheds, with the Coalition for Urban/Rural Environmental Stewardship (CURES), stand committed to working with the Water Boards and their staff to implement this plan to help improve water quality in the Sacramento Valley.

## A Nested Basin Planning Approach for the Sacramento Valley

The Coalition is comprised of ten (10) subwatersheds that are nested within and were designed to fit within the Regional Board's Region 5a. Importantly, the Coalitions June 2003 Regional Plan for Action was specifically designed and tailored to help the Water Boards meet the Strategic Plan, Watershed Management Initiative, and Basin Plan objectives, as well as the requirement in Porter-Cologne to "encourage regional planning and action for water quality control." (Water Code §13225(i).)

The Coalition addresses agricultural and managed wetlands runoff throughout a predominantly rural area. This endeavor will require a long-term collaborative effort among the people who live and work within the region. Within these subwatersheds, Resource Conservation Districts, Farm Bureaus, water resources managers, Reclamation Districts, local watershed groups and other stakeholders have stepped forward to actively participate in these subwatersheds and to advance the efforts necessary to improve water quality. For many years these groups have worked with landowners to implement local watershed enhancement projects for various purposes and are now committed to implementing this Plan. The leadership of these groups is actively working with farmers and wetlands managers to ensure that a unique approach to managing water quality is tailored to their crop conditions, land uses and the local hydrology.

To fit with the Basin Plan and the hydrologic nature of the Sacramento River Basin, the Coalition provides a systematic approach to address water quality. The Coalition coordinates the subwatersheds to enhance overall water quality throughout the region and to otherwise avoid conflict among the subwatersheds and the local participants. Additionally, a coordinated approach by subwatersheds, within the Sacramento River Basin, provides economic efficiency and helps streamline the allocation of limited human and financial resources for the State of California, its agencies and Coalition partners as they collectively implement the Regional Plan.





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