

## **Monitoring Plan for 2008:**

### **Sacramento Valley Water Quality Coalition**

In January 2005, the Sacramento Valley Water Quality Coalition commenced monitoring under its Monitoring and Reporting Program Plan (MRPP) and Quality Assurance Project Plan (QAPP) submitted to the Regional Water Quality Control Board, Central Valley Region (Regional Board) on April 1, 2004 and December 22, 2004 respectively. The Regional Board issued a Conditional Approval of the Coalition's MRPP on December 2, 2004.

This document is the Coalition's Monitoring Plan for 2008 and is provided as an attachment to the Coalition's amended MRRP. Under the long-term monitoring strategy outlined in 2006 and implemented in 2007, there would have been substantial changes included in the sites monitored for 2008. However, due to the significant changes expected in monitoring requirements for the revised Irrigated Lands Program MRP due to be released this year, the Monitoring Plan for 2008 is largely a continuation of the monitoring planned and conducted in 2007. Because the Coalition selected high priority drainages for its initial monitoring efforts, the monitoring conducted through 2008 will provide a solid foundation of data to characterize agricultural waters in the watershed.

Recommended locations for continued evaluation monitoring are provided in Table 1.

Recommended site-specific changes in monitoring parameters, status, or frequency at continued 2008 monitoring locations are summarized in Table 2.

The overall monitoring plan is summarized in Table 3. The frequency and season for monitoring are as required by the MRP, unless site-specific modifications are specified. The parameters monitored will generally be a continuation of required MRP monitoring described in the Coalition's 2007 Monitoring Plan and conducted in 2007, with the following modifications:

- "Color" has not been determined to be a parameter of site-specific or regional concern in the Sacramento Valley watershed or to be useful for the purpose of evaluating ambient surface water quality. There are no relevant applicable water quality objectives for comparison. Color has been recommended to be discontinued in the draft MRP under development by the Water Board, and was not included in the tentative draft MRP released by the Water Board in November 2007. The Coalition proposes to discontinue monitoring of "color" (by U.S. EPA Method 110.2) at all Coalition locations.
- Molinate and thiobencarb are crop-specific pesticides that may only be used on rice. These pesticides are adequately monitored by the California Rice Commission ILRP monitoring program, which also has responsibility for managing these pesticides. The Coalition will discontinue monitoring these two pesticides at all Coalition locations.
- Coalition monitoring conducted through 2006 determined that toxicity testing with fathead minnows did not provide useful information regarding the quality of agricultural discharges. There were no cases of significant fathead minnow toxicity in any samples collected by the Coalition. Toxicants to which this

species are particularly sensitive include ammonia and trace metals, which are adequately monitored through standard water column chemistry, and have been determined not to be parameters of special concern in the Sacramento River watershed through Coalition monitoring. On this basis, the Coalition discontinued monitoring with fathead minnows in 2007, but has reinstated this monitoring for 2008 at the request of the Water Board ILRP staff.

- Monitoring at Colusa Basin Drain at the Knight's Landing and Sacramento Slough sites was previously conducted through coordination with the Sacramento River Watershed Program (SRWP) in 2006 and 2007. Monitoring by SRWP has been suspended as of August 2007. Consequently, the Coalition will coordinate with the ongoing California Rice Commission (CRC) ILRP monitoring effort to conduct monitoring at these two locations. Sampling will be conducted by the CRC according to their approved schedule, which includes 6 irrigation season events and 2 rice drainage season events as part of their ILRP monitoring. Analyses that are included in the CRC's ILRP monitoring will be performed by the CRC's laboratories. Parameters that are not included in the CRC's monitoring but are required for the Coalition's monitoring efforts will be conducted by the Coalition's contract laboratories. Primary reporting of all exceedances of field parameters and toxicity, and for all chemical analyses included in the CRC program, will be by the CRC to their assigned Water Board ILRP staff. These exceedance reports and any subsequent communication reports will also be provided to the Water Board ILRP staff assigned to the Coalition. Any additional exceedances of parameters not included in the CRC's monitoring program will be reported directly to the Water Board ILRP staff assigned to the Coalition, and also copied to the CRC's ILRP staff. Responsibility for follow-up monitoring and analyses may be assumed by the CRC or the Coalition, depending on the specific exceedances.
- North Canyon Creek: This site was monitored for two years, with Phase 2 parameters implemented in 2006. No toxicity was observed in 2006. A single DDE exceedance was observed in 2006, and no other Phase 2 exceedances were observed. The Coalition replaced this monitoring site in 2007 with the Coon Hollow Creek site. However, monitoring was continued in 2007 for selected parameters at this site to compensate for missed samples in 2006. No exceedances were observed in 2007 sampling at this site. This site will be discontinued as a regularly scheduled evaluation monitoring site in 2008. Monitoring may be continued for specific parameters according to the schedule required by Management Plans currently under development.
- Dry Creek at Alta Mesa Road: Phase 2 monitoring was implemented in 2007 at this site. Additionally, *Ceriodaphnia* testing was continued through the 2007 storm season to address toxicity observed in the 2006 storm season. *Ceriodaphnia* toxicity testing was discontinued in the 2007 irrigation season due to lack of toxicity in the 2006 irrigation monitoring season. No toxicity exceedances were observed at the Dry Creek site in 2007 monitoring. This site will be discontinued as a regularly scheduled evaluation monitoring site in

2008. Monitoring may be continued for specific parameters according to the schedule required by Management Plans currently under development.

- **Stony Creek at Highway 45:** This site was monitored for two years, with Phase 2 parameters implemented in 2006. This site was replaced with a new site in this subwatershed in 2007. However, aquatic toxicity, OP and triazine pesticides were continued through the 2007 storm season to address single simazine and diazinon exceedances observed in 2006. This site will be discontinued as a regularly scheduled evaluation monitoring site in 2008. Monitoring may be continued for specific parameters according to the schedule required by Management Plans currently under development.
- **Anderson Creek at Ash Creek Road:** This site was monitored for two years, with Phase 2 parameters implemented in 2007. This site will be discontinued as a regularly scheduled evaluation monitoring site in 2008. Monitoring may be continued for specific parameters according to the schedule required by Management Plans currently under development.

The Coalition also recommended and proposed additional modifications for 2008, but has deferred implementing these at the request of the Water Board ILRP staff:

- **Selenium** has been determined not to be a parameter of site-specific or regional concern in the Sacramento Valley watershed. Total selenium has been analyzed in 244 individual Coalition samples from 40 different sites, and exceeded the California Toxics Rule criterion of 5 ug/L in only two samples from two different locations in the Solano-Yolo subwatershed. The majority of the results (72%) are below detection limits of 0.7-1.0 ug/L. Selenium is not an agricultural chemical and concentrations in runoff are determined primarily by regional supply water quality. Based on these results, the Coalition concludes that selenium is not a parameter of concern in agricultural runoff or in ambient receiving waters of the Sacramento River watershed, and the Coalition proposed to discontinue monitoring of selenium at all Coalition locations. However, at the specific request of the Water Board ILRP staff, the Coalition will also continue monitoring selenium at other sites in 2008. Analytical results for total selenium through October 2007 are provided in the attached spreadsheet (“Selenium, unfiltered.xls”).
- **Boron** has been determined to be a parameter of concern only in the Solano-Yolo subwatershed of the Sacramento Valley. Total boron has been analyzed in 130 individual Coalition samples from 28 sites, and exceeded the unadopted Ayers and Westcott “trigger limit” of 700 ug/L only in samples from the Solano-Yolo subwatershed. Boron is not an agricultural chemical and concentrations in runoff are determined primarily by regional supply water quality. Based on this analysis, the Coalition proposed to continue monitoring of boron only in the Solano-Yolo subwatershed, but will continue monitoring boron at other sites in 2008 at the specific request of the Water Board ILRP staff. Analytical results for total boron through October 2007 are provided in the attached spreadsheet (“Boron, unfiltered.xls”).

- Five trace metals (arsenic, cadmium, lead, nickel, and zinc) have been determined not to be parameters of site-specific or regional concern for Sacramento Valley watershed ILRP sites. These five trace metals have been analyzed in 491 samples from 40 different sites, and not been associated with any toxicity or exceedances of water quality objectives. Additionally, they are not agricultural chemicals, and their concentrations in runoff are determined primarily by regional geology and supply water quality. Based on these factors, the Coalition proposed to discontinue monitoring of these trace metals in all Coalition subwatersheds, but will continue monitoring these parameters for 2008 at the specific request of the Water Board ILRP staff. Analytical results for these five trace metals through October 2007 are provided in the attached spreadsheet (“Other trace metals.xls”).
- Coalition monitoring conducted through 2007 has determined that glyphosate and paraquat are not parameters of significant concern in the Sacramento Valley. Glyphosate is a low risk herbicide that has been detected in only one Coalition sample (209 samples analyzed from 29 sites), and has not been associated with any toxicity or exceedances. Paraquat has never been detected in any Coalition samples (188 samples analyzed from 29 sites) and has not been associated with any toxicity or exceedances. The Coalition has proposed to discontinue monitoring of glyphosate and paraquat at all Coalition locations based on these results, but will continue monitoring these parameters for 2008 at the specific request of the Water Board ILRP staff.. Analytical results for glyphosate and paraquat through October 2007 are provided in the attached spreadsheets (“Glyphosate.xls” and “Paraquat.xls”).

**Table 1. Coalition Evaluation Monitoring Sites, 2008**

Subwatershed	Site Name	Latitude	Longitude	Implementing Agency	Map Index
ButteYubaSutter	Sacramento Slough Bridge near Karnak	38.7850	-121.6533	SVWQC/CRC	55
	Grasshopper Slough at Forty Mile Road	38.9938	-121.4898	SVWQC	39
	Lower Snake R. at Nuestro Rd	39.1853	-121.7036	SVWQC	40
ColusaBasin	Colusa Basin Drain above KL	38.8125	-121.7731	SVWQC/CRC	9
	Freshwater Creek at Gibson Rd	39.1766	-122.1892	SVWQC	41
	Logan Creek at 4 Mile-Excelsior Rd	39.3653	-122.1161	SVWQC	42
	Lurline Creek at 99W	39.2122	-122.1833	SVWQC	43
	Walker Creek at Co Rd 48	39.5388	-122.1762	SVWQC	44
EIDorado	Coon Hollow Creek	38.7534	-120.7240	SVWQC	45
LakeNapa	Pope Creek upstream from Lake Berryessa	38.6464	-122.3642	PCWG	23
	Capell Creek u/s from Lake Berryessa	38.4825	-122.2411	PCWG	24
	Middle Creek u/s from Highway 20	39.1635	-122.9161	SVWQC	38
PitRiver	Pit River at Pittville	41.0454	-121.3317	NECWA	1
	Fall River at Fall River Ranch Bridge	41.0351	-121.4864	NECWA	2
	Pit River at Canby Bridge	41.4017	-120.9310	NECWA	3
PNSSNS	Coon Creek at Brewer Road	38.9340	-121.4518	SVWQC	46
SacramentoAmador	Laguna Creek at Alta Mesa Road	38.3110	-121.2263	SVWQC	47
	Grand Island Drain near Leary Road	38.2399	-121.5649	SVWQC	54
ShastaTehama	Coyote Creek at Tyler Road	40.0926	-122.1590	SVWQC	48
SolanoYolo	Willow Slough Bypass at SP	38.5994	-121.7528	SVWQC	49
	Cache Cr. at Diversion Dam	38.7137	-122.0851	SVWQC	50
	Shag Slough at Liberty Island Bridge	38.3068	-121.6934	SVWQC	29
	Ulatris Creek at Brown Road <sup>(2)</sup>	38.3070	-121.7940	SVWQC	32
UpperFeatherRiver	Middle Fork Feather River above Grizzly Cr.	39.8160	-120.4260	UFRW	53
	Indian Creek at Arlington Bridge	40.0846	-120.9161	UFRW	36
	Spanish Creek below Greenhorn Creek	39.9735	-120.9103	UFRW	37

**Table 2. Modifications for Continued Monitoring in 2008 at Sites Monitored in 2007**

Subwatershed	Site	2008 Action and Rationale
ButteYubaSutter	Gilsizer Slough at George Washington Road	Continue with selected analytes to support evaluation of parameters of concern and management effectiveness.
ButteYubaSutter	Pine Creek at Nord Gianella Road	Continue with selected analytes to support documentation of management practice effectiveness. Monitoring conducted only during storm season.
Sacramento-Amador	Dry Creek at Alta Mesa Road	These sites are discontinued as regularly scheduled monitoring sites in 2008. Each site may continue to be monitored for specific parameters according to the schedule required by Management Plans currently under development.
Shasta-Tehama	Anderson Creek at Ash Creek Road	
El Dorado	North Canyon Creek	
Colusa-Glenn	Stony Creek on Hwy 45	

**Table 3. Summary of Planned Routine Monitoring in 2008**

Subwatershed	Location	Physical, Chemical, and Microbiological										Toxicity					Implementation	Notes
		pH, conductivity, DO, temperature, flow	Turbidity, TDS, TSS, TOC	Nutrients	Trace Metals	Organophosphate pesticides	Triazines	Organochlorines	Carbamate and Urea Pesticides	Glyphosate and Paraquat	Pathogen Indicators: <i>E. Coli</i>	Ceriodaphnia, 96-h acute	Pimephales, 96-h acute	Selenastrum, 96-h short-term chronic	Hyalella, 10-day short-term chronic	Pyrethroids in toxic sediments		
Butte-Sutter-Yuba	Grasshopper Sl. at Forty Mile Rd <i>Alternate site TBD</i>	2	2	2	2	2	2	2	2	2	2	2	2	2	ns	ns	SVWQC	2
		6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2	SVWQC
	Lower Snake R. at Nuestro Rd	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Sacramento Sl. Br. near Karnak	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC/CRC	
Colusa Basin	Freshwater Creek at Gibson Rd	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Logan Cr. at 4 Mile-Excelsior Rd	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Lurline Creek at 99W	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Walker Creek at Co Rd 48	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Colusa Drain above KL	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC/CRC	
El Dorado	Coon Hollow Creek	8	8	8	8	mp	mp	mp	mp	ns	8	8	8	8	2	2	SVWQC	1
Lake-Napa	Middle Creek u/s Hwy 20	3	3	3	3	3	3	3	ns	3	3	3	3	3	2	2	SVWQC	1
	Pope Cr u/s from L. Berryessa	3	3	ns	ns	ns	ns	ns	ns	ns	3	ns	ns	ns	ns	ns	PCWG	1
	Capell Cr u/s from L. Berryessa	3	3	ns	ns	ns	ns	ns	ns	ns	3	ns	ns	ns	ns	ns	PCWG	1
Pit River	Pit River at Pittville	8	8	8	ns	ns	ns	ns	ns	ns	8	ns	ns	ns	ns	ns	NECWA	1
	Fall R. at Fall R. Ranch Bridge	8	8	8	ns	ns	ns	ns	ns	ns	8	ns	ns	ns	ns	ns	NECWA	1
	Pit River at Canby Bridge	8	8	8	ns	ns	ns	ns	ns	ns	8	ns	ns	ns	ns	ns	NECWA	1
PNSNSS	Coon Creek at Brewer Rd	8	8	8	8	8	8	8	8	ns	8	8	8	8	2	2	SVWQC	
Sac-Amador	Laguna Creek at Alta Mesa Rd	8	8	8	8	8	8	8	8	ns	8	8	8	8	2	2	SVWQC	
	Grand Island Drain nr Leary Rd	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
Shasta-Tehama	Coyote Creek at Tyler Rd	8	8	8	8	8	ns	ns	8	ns	8	8	8	8	2	2	SVWQC	1
Solano-Yolo	Willow Sl. Bypass at Pole Line	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Cache Cr. at Diversion Dam	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Ulatis Creek at Brown Road	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
	Shag Sl. at Liberty Island Bridge	8	8	8	8	8	8	8	8	8	8	8	8	8	2	2	SVWQC	
Upper Feather	Spanish Cr. below Greenhorn Cr	7	7	7	ns	ns	ns	ns	ns	ns	7	ns	ns	ns	ns	ns	UFRW	1
	Indian Creek at Arlington Bridge	7	7	7	ns	ns	ns	ns	ns	ns	7	ns	ns	ns	ns	ns	UFRW	1
	Middle Fk Feather R. above Grizzly Cr.	7	7	7	ns	ns	ns	ns	ns	ns	7	ns	ns	ns	ns	ns	UFRW	1

Table notes provided on following page...

General notes for Table 3:

Tabled values indicate number of regular analyses planned for 2008.

“*ns*” indicates parameters are not sampled.

“*mp*” indicates specific parameters and frequency established in a Management Plan.

*Implementation* indicates whether monitoring is conducted by the Coalition (SVWQC), Northeastern California Water Association (NECWA), Napa County Putah Creek Watershed Group (PCWG), Upper Feather River Watershed Prop 50 Project Team (UFRW), or in coordination with California Rice Commission (CRC).

Highlighting provided only to distinguish between general categories of monitoring.

1. Subset of MRP parameters are monitored based on agricultural and pesticide use patterns in watershed.
2. An alternate site for Grasshopper Slough is being evaluated and will be initiated during Irrigation Season 2008. Grasshopper Slough will continue to be monitored as planned for the 2008 Storm Season.