

## **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<br><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.