

MAY 2015

SACRAMENTO VALLEY  
WATER QUALITY COALITION

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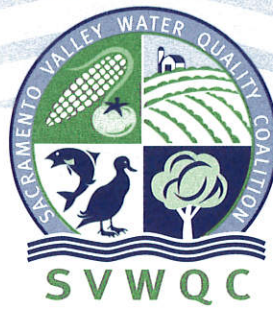
# Water Quality Management Plan Progress Report

*Prepared by*

LARRY WALKER ASSOCIATES



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May 1, 2015

Pamela Creedon, Executive Officer  
Central Valley Regional Water Quality Control Board  
11020 Sun Center Drive  
Rancho Cordova, CA 95670-6114

**RE: 2014 Annual Monitoring Report, 2014 Management Plan Progress Report, and 2014 Chlorpyrifos Diazinon TMDL Compliance Monitoring Report**

Dear Ms. Creedon:

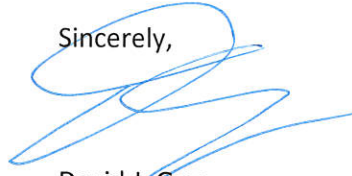
Attached are three annual reports for the Sacramento Valley Water Quality Coalition (Coalition):

- **The 2014 Annual Monitoring Report (AMR) for the Coalition's Monitoring and Reporting Program (MRP).** The Coalition has developed and implemented a MRP to meet the requirements of the *Waste Discharge Requirements General Order for Growers within the Sacramento River Watershed that are Members of a Third-Party Group (R5-2014-0030)* (WDR). The scope of the MRP and the sampling and analytical methods used in the 2014 Coalition Monitoring have been approved by the Central Valley Regional Water Quality Control Board. The AMR summarizes the sampling results and analysis, provides interpretation of the data, and documents the outreach to Coalition landowners.
- **The 2014 Management Plan Progress Report (MPPR).** The Coalition has implemented the monitoring, reporting, outreach, analysis, and evaluations needed to assess our progress toward the goals of the Coalition's approved Management Plan. The MPPR summarizes this information and the progress toward meeting these goals.
- **The Management of Chlorpyrifos and Diazinon Discharges to the Sacramento and Feather Rivers and the Sacramento-San Joaquin Delta: 2014 TMDL Compliance Monitoring Report (TMDL Compliance Monitoring Report).** The Coalition has implemented the monitoring approved to meet the requirements of the TMDL and conducted analysis and evaluations to assess progress toward the goals of the TMDL. The TMDL Compliance Monitoring Report summarizes the monitoring results and analyses, presents our evaluations and interpretations of the data, and provides our conclusions about progress toward meeting the TMDL's goals.

*"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment for violations."*

If you or your staff have questions on these reports, please contact me or Bruce Houdesheldt at (916) 442-8333.

Sincerely,

A handwritten signature in blue ink, appearing to read "David J. Guy", with a large, stylized flourish extending to the right.

David J. Guy  
President  
Northern California Water Association

Cc: Sue McConnell  
Susan Fregien  
Lynn Coster  
Gurbinder Dhaliwal  
Claus Suverkropp  
Bruce Houdesheldt

M A Y 2 0 1 5

SACRAMENTO VALLEY WATER QUALITY COALITION

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# Water Quality Management Plan Progress Report

*Prepared by*

L A R R Y  
W A L K E R



ASSOCIATES

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## **Executive Summary**

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The Coalition's Management Plan approach implements the processes and elements needed to comply with the requirements of the MRP previously adopted by the Water Board in December 2009 (*Order No. R5-2009-0875*). The requirements were retained in the 2014 Waste Discharge Requirement (WDR) and Monitoring and Reporting Program (MRP) (*Order No. R5-2014-0030*), and are addressed by specific deliverables or processes of the current approved Management Plan, as well as in the Comprehensive Surface Water Quality Management Plan (CSQMP) in development for the 2014 WDR.

In general terms, the processes to meet the requirements of the Management Plan can be distilled to these elements – source evaluation, identification of management practices needed to address exceedances, implementation of management practices, evaluation of effectiveness, and regular assessment of progress toward completion of the management plan. The Coalition has successfully developed and implemented processes for source evaluation and identification of management practices needed. Source evaluations have been completed and provided to the Water Board for a large number of management plan requirements for pesticides, toxicity, pathogen indicators, and legacy organochlorine pesticide exceedances.

### **Management Plan Monitoring**

The need for management plan monitoring is determined primarily based on the potential to provide useful information for source identification, in establishing causes of toxicity, and to evaluate management practice effectiveness. This monitoring may consist of water column or sediment sampling, field evaluations, or surveys of agricultural practices. With the exception of pathogen indicator Management Plans for 19 sites, all Management Plans had monitoring scheduled for source evaluation and/or compliance in 2014.

Based on the evaluations of Management Plan monitoring results through 2014 and source evaluations presented in this document, the Coalition has submitted or is preparing requests to deem complete the monitoring and other requirements for nine Management Plans.

### **Goals for Implementation of Management Practices**

Changes in practices and implementation of additional management practices to minimize discharges of waste contributing to exceedances have been ongoing since the ILRP was initiated, due to the outreach and education efforts of the Coalition and its members and partners. Specific trackable goals (Management Practice Implementation and Performance Goals MPIP-Gs) for a number of pesticide and toxicity Management Plans have been developed and submitted to the Water Board beginning in 2011. To date there have been nine MPIP-Gs submitted to the Water Board. Although most of these MPIP-Gs were never comprehensively reviewed by the Water Board, implementation to meet these goals was initiated in the subwatersheds in anticipation of Water Board approval. Assessment of progress toward specific implementation goals will continue to be conducted regularly as documented in individual approved MPIP-G documents.

### **New Management Plan Elements**

There were three new Management Plans triggered by exceedances observed in Coalition monitoring conducted from October 2013 through September 2014. Lower Snake River, located

within the ButteYubaSutter subwatershed, requires a new Management Plan for dissolved oxygen. Walker Creek, which is within the ColusaGlenn subwatershed, requires both pH and conductivity Management Plans. All of the new Management Plans are Low Priority and there were no new management plans for High Priority parameters (toxicity and pesticides), or for legacy pesticides, nutrients, or pathogen indicators.

### **Evaluation of Progress**

Meeting water quality objectives is the ultimate goal and measure of effectiveness of the implemented management practices and progress for the Management Plan. Water quality monitoring to measure this progress is ongoing and assessed annually, and has resulted in the completion of several management plans to date. As measured by the completion and ongoing work on specific Management Plan tasks and deliverables and documented throughout this Progress Report, the Coalition continues to make good progress toward meeting all of these requirements and expects to achieve the goals of the current approved Management Plan and the CSQMP update that is currently in development.

## Management Plan Progress Report

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The purpose of this document is to provide an update on the status of the Sacramento Valley Water Quality Coalition's (Coalition) Water Quality Management Plan (the Management Plan<sup>1</sup>) and the Coalition's progress in implementing this plan. This document also addresses the applicable reporting requirements of the *Waste Discharge Requirements General Order for Growers within the Sacramento River Watershed that are Members of a Third-Party Group (R5-2014-0030)* (WDR).<sup>2</sup>

Reporting for the Management Plan is intended to provide information regarding progress toward and achievement of the Management Plan performance goals. These Progress Reports document the results of source identification evaluations, any evaluations conducted to determine the effectiveness of the management practice implementation, and whether additional or different management practices need to be implemented. These evaluations are conducted and reported according to the Management Plan deliverable schedule. Data reports for monitoring conducted for the Management Plan are submitted on the same quarterly schedule and in the same formats as required by the Monitoring and Reporting Program (MRP) for regular Coalition monitoring.

This Progress Report provides summaries of progress toward completion of specific Management Plan elements, updates to the list of required Management Plan elements, and recommendations for continuation or modification of the Management Plan. This Progress Report also summarizes the results of initial source identification evaluations and results of selected Management Plan monitoring for the previous year, provides documentation of outreach efforts, and provides a summary of completed baseline management practice inventories in priority drainages. Future Progress Reports will also document goals established for additional management practice implementation and assess progress toward these implementation goals.

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<sup>1</sup> SVWQC 2009. Water Quality Management Plan. Prepared by Larry Walker Associates for the Sacramento Water Quality Coalition (SVWQC). Sacramento, California. January 2009.

<sup>2</sup> Prior to adoption of the WDR, the Coalition was subject to a Conditional Waiver of Waste Discharge Requirements for the Irrigated Lands Regulatory Program (ILRP) and subsequent amendments to the ILRP requirements (WQO-2004-0003, SWRCB 2004, R5-2005-0833, R5-2008-0005, R5-2009-0875).

The Progress Report includes the following elements, as specified in the MRP:

**Table 1. Management Plan Progress Report Requirements<sup>3</sup>**

MRP-1 Section	MPPR Requirement	Report Section Headings	Page
	Signed Transmittal Letter	NA	-
I.F.(1)	Title page	Title page	-
I.F.(2)	Table of contents	Table of Contents	<i>i</i>
I.F.(3)	Executive Summary	Executive Summary	<i>v</i>
I.F.(4)	Location map(s) and a brief summary of management plans covered by the report	Results of Monitoring	4-8,13
I.F.(5)	Updated table that tallies all exceedances for the management plans	Results of Monitoring	14-17
I.F.(6)	A list of new management plans triggered since the previous report	Update to Required Management Plans	22
I.F.(7)	Status update on preparation of new management plans	New Management Plan Elements	22
I.F.(8)	A summary and assessment of management plan monitoring data collected during the reporting period	Results of Monitoring	9
I.F.(9)	A summary of management plan grower outreach conducted	Outreach Documentation	18
I.F.(10)	A summary of the degree of implementation of management practices	Summary: Evaluation of Progress	29-30
I.F.(11)	Results from evaluation of management practice effectiveness	Summary: Evaluation of Progress	29-30
I.F.(12)	An evaluation of progress in meeting performance goals and schedules	Summary: Evaluation of Progress	29-30
I.F.(13)	Any recommendations for changes to the management plan	Proposed Changes to the Management Plan	29-30

The activities conducted in 2014 to implement the Coalition's Management Plan continued to focus primarily on addressing the higher priority Management Plan elements triggered by exceedances of water quality objectives or trigger limits for registered pesticides and toxicity. Deliverables completed for registered pesticides included review and evaluation of pesticide application data, identification of potential sources, and determination of likely agricultural sources. Implementation completed to address toxicity exceedances included review and evaluation of pesticide application data, evaluation of monitoring results to identify potential causes of toxicity, and determination of likely agricultural sources of identified causes of toxicity. Source evaluations have been documented in the Source Evaluation Reports submitted

<sup>3</sup> Monitoring and Reporting Program (Attachment B to R5-2014-0030), Appendix MRP-1: Third-Party Management Plan Requirements, Section I.F.

for each management plan element.<sup>4</sup> For registered pesticides and identified causes of toxicity, surveys of Coalition members operating on high priority parcels were also conducted to determine the degree of implementation of relevant management practices. These survey results form the basis for establishing goals for additional management practice implementation needed to address exceedances of Basin Plan water quality objectives and *ILRP* trigger limits.

Management Plan elements with tasks to be completed in 2014 are listed in **Table 2**. This table provides the water body and analyte or monitoring category of concern and a summary of the major Management Plan task activity.

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<sup>4</sup> A Management Plan element is the specific individual combination of the water body and analyte or monitoring category requiring management, e.g., diazinon in Gilsizer Slough, or invertebrate toxicity in Coon Hollow Creek.

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**Table 2. Summary of Management Plan Task Activity**

Management Plan Category	Subwatershed	Waterbody	Analyte(s)	Summary of Major Management Plan Activity and Status
DO and pH	ButteYubaSutter	Butte Slough	DO	Sampled at all sites in 2014; Other tasks suspended on direction from EO; Source Evaluations deferred
		Gilsizer Slough	DO, pH	
		Lower Honcut Creek	DO	
		Pine Creek	DO	
		Sacramento Slough	DO	
	ColusaGlenn	Colusa Basin Drain	DO	
		Freshwater Creek	DO	
		Stone Corral Creek	DO	
		Stony Creek	pH	
		Sycamore Slough	DO	
Lake	McGaugh Slough	DO		
	Middle Creek	DO		
Pit River	Fall River	pH		
	Pit River	DO, pH		
PNSSNS	Coon Creek	DO		
SacramentoAmador	Cosumnes River	DO, pH		
	Dry Creek	pH		
	Grand Island Drain	DO		
	Laguna Creek	DO, pH		
ShastaTehama	Anderson Creek	DO		
	Coyote Creek	DO		
Solano	Ulatis Creek	DO, pH		
	Z-Drain	DO, pH		
Yolo	Cache Creek	DO		
	Tule Canal	pH		
	Willow Slough	pH		

Management Plan Category	Subwatershed	Waterbody	Analyte(s)	Summary of Major Management Plan Activity and Status
Legacy Pesticides	ButteYubaSutter	Gilsizer Slough	DDT and degradation products	Sampled at all management plan sites in 2014; Other Tasks suspended on direction from EO; Revised draft completion requests for El Dorado water bodies prepared and submitted for review
	ColusaGlenn	Freshwater Creek		
		Lurline Creek Sycamore Slough		
	El Dorado	Coon Hollow Creek North Canyon Creek		
	SacramentoAmador	Grand Island Drain		
Yolo	Willow Slough			
Pathogen Indicators	ButteYubaSutter	Gilsizer Slough	<i>E. coli</i>	Sampled at Assessment sites in 2014; Other Tasks suspended pending direction from EO Re: development of a region-wide approach [December 5, 2011 comm from EO]
		Lower Honcut Creek Lower Snake River Pine Creek Wadsworth Canal		
	ColusaGlenn	Colusa Basin Drain Freshwater Creek Logan Creek Lurline Creek Stone Corral Creek Sycamore Slough Walker Creek		
		Lake		
SacramentoAmador	Cosumnes River Dry Creek Grand Island Laguna Creek			



Management Plan Category	Subwatershed	Waterbody	Analyte(s)	Summary of Major Management Plan Activity and Status
Pathogen Indicators (continued)	ShastaTehama	Anderson Creek Burch Creek Coyote Creek	<i>E. coli</i> (continued)	Sampled at Assessment sites in 2014; Other Tasks suspended pending direction from EO Re: development of a region-wide approach [December 5, 2011 comm from EO]
	Solano	Ulati Creek Shag Slough Z-Drain		
	Upper Feather River	Indian Creek Spanish Creek		
	Yolo	Tule Canal Willow Slough		
Registered Pesticides	ButteYubaSutter	Gilsizer Slough	Diazinon	MPIPG Addendum submitted in 2013; Outreach and implementation is in progress
		Lower Snake River	Chlorpyrifos	Monitoring continued in 2014, with no exceedances; Request for completion approved Mar 2015
		Pine Creek	Chlorpyrifos	Implementation in progress; Action Plan Report submitted in April 2012; Grower and PCA meeting Dec 2014.
	ColusaGlenn	Colusa Drain	Malathion	MPIPG submitted 2013; Outreach and implementation in progress
		Walker Creek	Chlorpyrifos	Monitoring continued in 2014, with no exceedances; Request for completion approved Jan 2014
	Solano	Ulati Creek	Diuron	MPIPG Addendum submitted 2013; Outreach and implementation in progress
		Ulati Creek	Malathion	Completion of management plan approved May 2013
		Ulati Creek	Chlorpyrifos	MPIPG Addendum submitted in 2013; Outreach and implementation are in progress
	Yolo	Willow Slough	Chlorpyrifos	MPIPG Addendum is in preparation; Outreach and implementation are in progress
		Willow Slough	Diuron	Outreach and implementation continued in 2014; Request for completion in preparation based on compliance
Willow Slough		Malathion	MPIPG submitted in 2013; Outreach and implementation are in progress	

Management Plan Category	Subwatershed	Waterbody	Analyte(s)	Summary of Major Management Plan Activity and Status
Salinity	ButteYubaSutter	Gilsizer Slough	EC	Sampled at all sites in 2014; Continued active participation in CV-SALTS; SVWQC joined CV Salinity Coalition as funding partner
	ColusaGlenn	Colusa Basin Drain	EC	
		Freshwater Creek	EC	
		Lurline Creek	EC	
		Stone Corral Creek	EC	
		Sycamore Slough	EC	
	Lake	McGaugh Slough	EC	
	SacramentoAmador	Dry Creek	TDS	
Grand Island Drain		EC		
Solano	Ulatis Creek	EC		
	Shag Slough	EC		
	Z-Drain	EC		
Upper Feather River	MF Feather River	EC		
Yolo	Cache Creek	EC		
	Tule Canal	Boron, EC		
	Willow Slough	Boron, EC		
Toxicity	Butte Yuba Sutter	Butte Slough	<i>Selenastrum</i> (unidentified cause)	Management Plan approved as completed by Water Board in 2013
		Lower Snake River	<i>Ceriodaphnia</i> (unidentified cause)	Monitoring of toxicity and potential causes continued in 2014; No toxicity exceedances in last 20 samples (9 samples in 2014), no cause identified
	Colusa Glenn	Stony Creek	<i>Ceriodaphnia</i> (unidentified cause)	Monitoring of toxicity and potential causes continued in 2014; No toxicity exceedance in last 5 samples (0 in 2014 due to site being dry), no cause identified; Request for completion submitted in July 2013 and awaiting approval
		Stony Creek	<i>Hyalella</i> (pyrethroids)	Monitoring of toxicity and potential causes continued in 2014; No toxicity exceedance in last 6 samples (0 in 2014 due site being dry); no cause identified; Request for completion submitted in 2013 and awaiting approval

Management Plan Category	Subwatershed	Waterbody	Analyte(s)	Summary of Major Management Plan Activity and Status
Toxicity (continued)	Colusa Glenn (continued)	Walker Creek	<i>Ceriodaphnia</i> (chlorpyrifos)	Implementation continued in 2014; Monitoring of toxicity and chlorpyrifos continued in 2014, with no toxicity or chlorpyrifos exceedances; Request for completion was approved in January 2014
	Sacramento Amador	Cosumnes River	<i>Hyalella</i>	Monitoring of toxicity and potential causes continued in 2014; Request for completion based on lack of toxicity and lack of probable ag sources submitted in 2013 was approved in February 2015
		Solano	Ulatis Creek	<i>Selenastrum</i> (diuron)
	Z-Drain		<i>Hyalella</i> (pyrethroids)	Monitoring of toxicity and expanded monitoring of potential causes and sources continued in 2014; Inconclusive toxicity monitoring results in 2014; MPIPG Addendum submitted in 2013; Implementation of MPIPG is in progress
	Yolo	Cache Creek	<i>Ceriodaphnia</i> (unidentified cause)	Monitoring of potential causes continued in 2014; No toxicity exceedances observed and no probable cause identified; Request for completion submitted in 2013 and awaiting approval
		Willow Slough	<i>Ceriodaphnia</i> (chlorpyrifos)	Chlorpyrifos MPIPGs submitted in 2013; Implementation is in progress; Monitoring continued in 2014 with no toxicity exceedances observed in last 23 samples
		Willow Slough	<i>Selenastrum</i> (diuron)	Request for completion planned; No toxicity or diuron exceedances observed in 2014
	Trace Metals	Butte Yuba Sutter	Pine Creek	Copper
Pit River		Pit River	Lead	Monitoring continued in 2014; Source evaluation submitted in 2013 in review; Supplemental Source evaluation analysis requested by Regional Water Board in 2015;
Sacramento Amador		Grand Island Drain	Arsenic	Monitoring continued in 2014; Source evaluation submitted August 2013

## Notes:

DO = Dissolved Oxygen

EC = Electrical Conductivity

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## RESULTS OF MONITORING

Management Plan monitoring was conducted as scheduled in the Coalition's 2014 Monitoring Plan, as approved by the Water Board. The results of monitoring conducted in the 2014 Monitoring Year (October 2013-September 2014) for all management plan analytes through September 2014 have been reported in the Coalition's 2014 AMR and submitted to the Water Board. Additionally, exceedances for all management plan sampling conducted from October 2013-January 2014 have been reported in Exceedance Reports as required by the ILRP MRP.

The 2014 monitoring year (October 2013-September 2014) was an "Assessment" monitoring year for all representative Coalition sites, and most management plan monitoring was coordinated with scheduled monitoring or conducted independently as needed for the specific locations and parameters. Management Plan monitoring was conducted at the sites shown in **Figure 1** and the results monitoring conducted for 2014 are summarized below. The results of Management Plan compliance monitoring are also summarized in **Table 3**.

### Registered Pesticides

- Six samples were analyzed for diazinon and malathion in Gilsizer Slough. These pesticides were not detected in any of the samples, and there were no exceedances of the ILRP trigger limit and Basin Plan objectives for diazinon or malathion.
- Five sample events were conducted for chlorpyrifos in Lower Snake River. Two results were detected above the method detection limit, but they did not result in an exceedance of the Basin Plan Amendment objective.
- Four sample events were conducted for chlorpyrifos in Pine Creek. Chlorpyrifos was detected in two of the samples, but only one, sampled in June 2014 (0.1867 µg/L), resulted in an exceedance.
  - There were 56 reported applications of chlorpyrifos in the month prior to the June 18, 2014 exceedance. Chlorpyrifos was applied to approximately 8,288 acres of walnuts in the Pine Creek drainage during that time. Although standing water was present in the creek, there was no observable flow at this site. The area received only trace amounts of rain<sup>5</sup> in the month preceding the exceedance. Due to the lack of precipitation and flow at this site, the exceedance was likely due to residual drift from the aerial applications. Toxicity tests for *Ceriodaphnia*, *Pimephales*, and *Selenastrum* were performed with this sample, and no toxicity was observed.
- Four sample events were conducted for chlorpyrifos and *Ceriodaphnia* toxicity in Walker Creek, which has a linked Management Plan requirement for chlorpyrifos and *Ceriodaphnia* toxicity. Only one chlorpyrifos result was detected above the method detection limit, but it did not result in an exceedance of the Basin Plan Amendment objective. None of the four *Ceriodaphnia* samples were toxic. An additional *Ceriodaphnia* toxicity event was conducted, and that, too, did not exhibit toxicity. There have been no observations of toxicity in the last 49 sample events tested with *Ceriodaphnia*, and this management plan was approved as completed in January 2014.

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<sup>5</sup> Based on precipitation data from CDEC site "Chico (CHI)" (<http://cdec.water.ca.gov/cdecstation/?staid=chi>)

- Seven events were conducted for chlorpyrifos in Ulatis Creek. Chlorpyrifos was detected in two of these six samples, but none of the samples exceeded the Basin Plan Amendment objective.
- Three sample events for diuron were conducted in Ulatis Creek, which has a Management Plan requirement for diuron and algae toxicity exceedances. One sample had a detection of diuron below the ILRP trigger limit. No samples exhibited significant toxicity to *Selenastrum*.
- Seven sample events were conducted for malathion in Ulatis Creek. Malathion was not detected in any of these samples and did not exceed the ILRP trigger limit (0 µg/L) or Basin Plan prohibition of discharge.
- Five sample events were conducted for chlorpyrifos and *Ceriodaphnia* toxicity in Willow Slough, which has a linked Management Plan requirement for chlorpyrifos and *Ceriodaphnia* toxicity. There were no detections or exceedances in any of these samples and none of the samples were toxic. There were two additional *Ceriodaphnia* toxicity events and none of them resulted in toxicity.
- Two sample events were conducted for diuron and algae toxicity at Willow Slough, which has a Management Plan requirement for diuron and algae toxicity exceedances. None of the samples were toxic to *Selenastrum*, and there was one detection of diuron, but it did not result in an exceedance. Six additional sampling events were conducted for algae toxicity, and none of them were toxic. There have been no observations of toxicity in the last 36 events tested with *Selenastrum*.
- Five sample events were conducted for malathion in Willow Slough. There were no detections or exceedances in any of these samples.
- Five sample events were conducted for malathion in Colusa Basin Drain. There were no detections or exceedances in any of these samples.

## Toxicity

- Lower Snake River has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances, and samples for nine events were analyzed for *Ceriodaphnia* toxicity. None of these samples were toxic to *Ceriodaphnia*.
- Stony Creek has a Management Plan requirement for sediment toxicity exceedances. There were two planned sediment sampling events, but the site was dry for each event. Due to site the being dry, no *Hyalella* toxicity analysis was performed during the 2014 monitoring year.
- Stony Creek also has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances. Four sampling events were planned for *Ceriodaphnia* analysis, but for each planned event, the site was dry. No toxicity analysis was performed during the 2014 monitoring year.
- Cosumnes River has a Management Plan requirement for sediment toxicity exceedances, and one sample was analyzed (April 2014) for *Hyalella* toxicity and did not exhibit any toxicity. A second sample event planned for August 2014 was not completed because the site was dry, as is typical for this location in late summer.

- Cache Creek has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances, and five sample events were conducted for *Ceriodaphnia* toxicity. None of the samples were toxic to *Ceriodaphnia*.
- Ulatis Creek has a Management Plan requirement for algae toxicity exceedances and diuron, and ten sample events were conducted for *Selenastrum* toxicity. None of the samples were toxic.
- Z-Drain has a Management Plan requirement for sediment toxicity exceedances, and sediment samples were analyzed for two events for *Hyalella* toxicity and pesticides. Toxicity was observed in the primary August 2014 sample (87% survival compared to control), but it did not trigger any follow-up evaluations or analyses. No potential causes of the toxicity were investigated.
- Walker Creek and Willow Slough both have toxicity Management Plans that are linked to registered pesticides. The monitoring performed as a result of these linked Management Plans was discussed in the previous section (Registered Pesticides).

### Legacy Pesticides

Management Plan monitoring for legacy organochlorine pesticides was conducted at eight sites for two events each (Gilsizer Slough, Freshwater Creek, Lurline Creek, Rough and Ready Pumping Plant, Coon Hollow Creek, North Canyon Creek, Grand Island Drain, and Willow Slough). In samples collected in August 2014, DDE, a breakdown product of the legacy pesticide DDT, was detected in Gilsizer Slough, and other breakdown products of DDT, DDE, and DDD were detected in Coon Hollow Creek. Due to the water quality objectives being at or below the analytical detection limit, all of these detections resulted in exceedances. All uses of DDT have been banned in the United States since 1972, except for control of emergency public health problems.<sup>6</sup>

### Pathogen indicators

There are 30 sites with Management Plan requirements for pathogen indicator bacteria. Management Plan tasks for pathogen indicators have been suspended at the direction of the Executive Officer of the Water Board, pending development of a region-wide approach for this category (December 5, 2011 comm). Management Plan monitoring for *E. coli* consisted of sampling at Representative monitoring sites, and there were 127 samples collected from 14 sites with active Management Plan requirements for pathogen indicators. There were 31 exceedances (24% of total samples) of the ILRP trigger limit for *E. coli* observed at these sites during 2014 monitoring.

### Trace Metals

There were two active Management Plans for trace metals in 2014: lead in the Pit River, and arsenic in Grand Island Drain.

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<sup>6</sup> Agency for Toxic Substances and Disease Registry (ATSDR). 2002. Toxicological Profile for DDT. U.S. Department of Health and Human Services. September 2002.

Seven events were conducted for arsenic in Grand Island Drain, and four of the samples were exceedances of the ILRP trigger limit for arsenic (10 µg/L). There are both legacy and a few potential current sources of arsenic. There is very little remaining agricultural use of arsenic-based pesticide products (based on review of DPR's PUR data), and arsenic has only a few potentially significant sources: (1) natural background from arsenic in the soils, (2) arsenic remaining from legacy lead arsenate use in orchards, (3) arsenic used in various landscape maintenance and structural pest control applications (non-agriculture), and (4) arsenic used in wood preservatives. One possible source is the wooden bridge structure just upstream of the GIDLR sampling site, if arsenic-based preservatives were used in the wood. A final, but somewhat unlikely, source is an arsenic-based additive that may still be used for chicken feed and which can potentially make its way into agricultural fields and runoff if the poultry litter is used on the field.

Four samples were analyzed for lead (total and dissolved) in the Pit River and neither sample exceeded Basin Plan objectives or ILRP trigger limits.

### **Salinity**

There are 15 sites with active Management Plan requirements for parameters related to salinity (EC and boron). Management Plan monitoring for these parameters consisted of sampling at seven representative sites and eight additional Management Plan sites in 2014. There were 103 sample events for EC at these 15 sites, with 59 observed exceedances (57%) of the ILRP trigger limit for EC. Two sites (Willow Slough and Tule Canal) also have a requirement for boron. All four samples collected from Tule Canal exceeded the ILRP trigger limit for boron, and all three samples from Willow Slough exceeded the ILRP trigger limit for boron.

### **DO and pH**

There are 24 sites with active Management Plan requirements for DO and 11 sites with active Management Plan requirements for pH.

- There were 157 events sampled for 24 sites with active Management Plan requirements for DO. There were 46 exceedances (29%) of the ILRP trigger limit for DO observed at 17 sites.
- There were 43 samples collected from 11 sites with active Management Plan requirements for pH. There was only one exceedance (Willow Slough) observed (2%) of the ILRP trigger limit.

### **Nutrients**

There were no active Management Plans for nutrient exceedances in 2014.

The other nutrient-related Management Plan requirement is for the Clear Lake Nutrient TMDL. Monitoring for this Management Plan requirement consisted of seven sample events at the McGaugh Slough and Middle Creek sites in the Lake County subwatershed. McGaugh Slough typically has zero or near-zero flow, even when water is present, and was dry for all seven of the events. Samples were collected at Middle Creek for all seven of the events, but none of the results exceeded any objectives. Compliance with the agriculture TMDL load allocations for phosphorus requires evaluation of a larger set of coordinated monitoring data not yet available; therefore, compliance has not yet been determined.



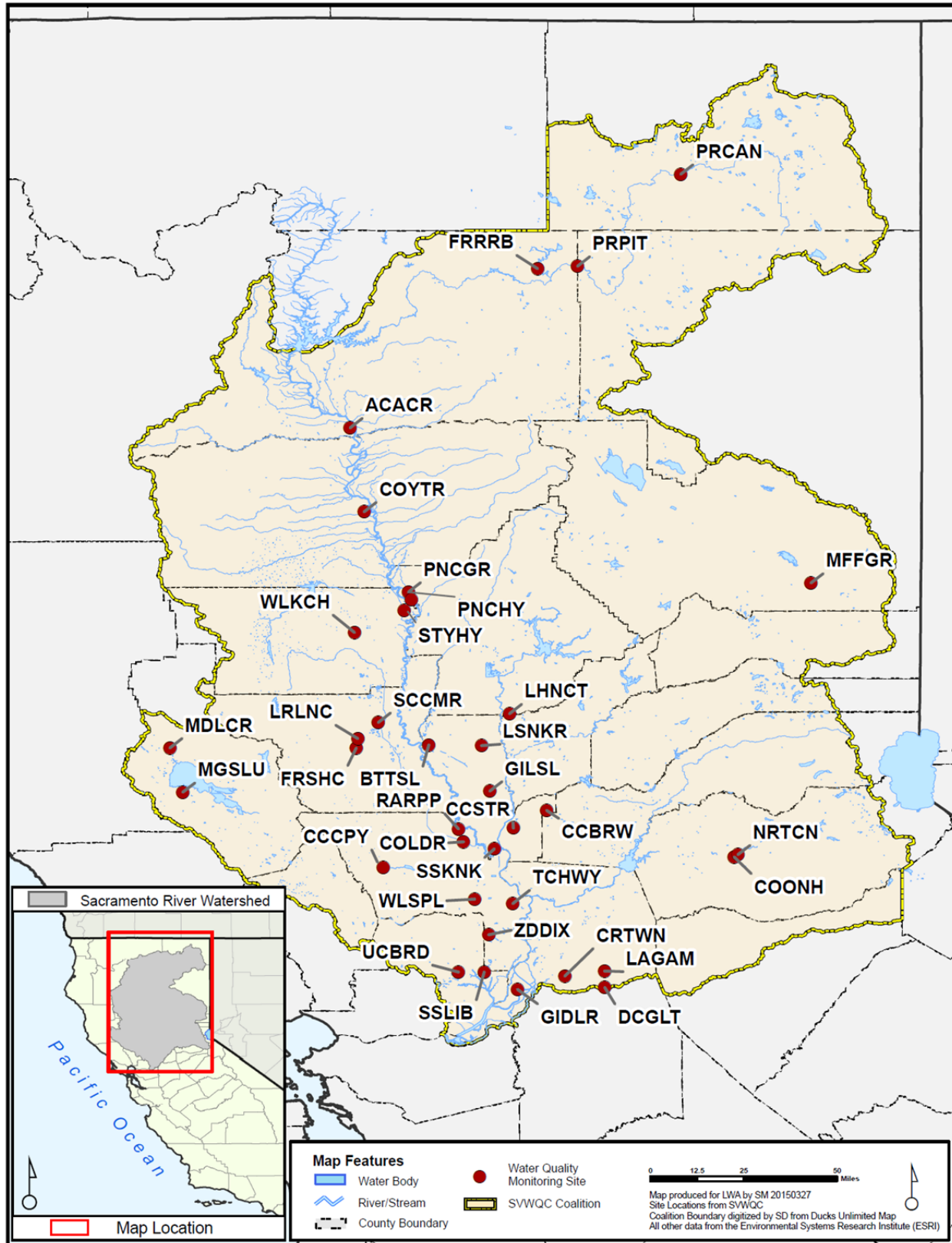


Figure 1. Coalition Monitoring Sites with Management Plans, 2014

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**Table 3. Summary of Management Plan Compliance Monitoring Outcomes**

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances
DO and pH	Dissolved Oxygen	ButteYubaSutter	Butte Slough at Pass Road	1	NA	0
			Gilsizer Slough at George Washington Road	6	NA	2
			Lower Honcut Creek at Hwy 70	11	NA	3
			Pine Creek at Nord Gianella Road	3	NA	3
			Pine Creek at Highway 23	8	NA	3
			Sacramento Slough bridge near Karnak	10	NA	1
		ColusaGlenn	Colusa Basin Drain above KL	10	NA	4
			Freshwater Creek at Gibson Rd	10	NA	0
		Sycamore Slough	Rough and Ready Pumping Plant (RD 108)	6	NA	3
			Stone Corral Creek near Maxwell Road	4	NA	0
			Walker Creek near 99W and CR33	10	NA	3
		Lake	McGaugh Slough at Finley Road East	0	NA	0
			Middle Creek u/s from Highway 20	9	NA	0
		PitRiver	Pit River at Canby Bridge	1	NA	0
			Pit River at Pittville	2	NA	1
		PNSSNS	Coon Creek at Brewer Road	8	NA	1
			Coon Creek at Striplin Road	4	NA	1
		SacramentoAmador	Cosumnes River at Twin Cities Rd	4	NA	0
			Grand Island Drain near Leary Road	12	NA	5
			Laguna Creek at Alta Mesa Rd	4	NA	4
		ShastaTehama	Anderson Creek at Ash Creek Road	10	NA	2
			Coyote Creek at Tyler Road	3	NA	3
		Solano	Ulati Creek at Brown Road	11	NA	3
			Z Drain	4	NA	0
		Yolo	Cache Creek at Capay Diversion Dam	4	NA	2
			Willow Slough Bypass at Pole Line	11	NA	2

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances
DO and pH (continued)	pH	ButteYubaSutter	Gilsizer Slough at George Washington Road	1	NA	0
		ColusaGlenn	Stony Creek on Hwy 45 near Rd 24	0	NA	0
		PitRiver	Fall River at Fall River Ranch Bridge	1	NA	0
			Pit River at Pittville	2	NA	0
		SacramentoAmador	Cosumnes River at Twin Cities Rd	4	NA	0
			Dry Creek at Alta Mesa Road	2	NA	0
			Laguna Creek at Alta Mesa Rd	4	NA	0
		Solano	Ulatis Creek at Brown Road	11	NA	0
			Z Drain	4	NA	0
		Yolo	Tule Canal at I-80	4	NA	0
Willow Slough Bypass at Pole Line	11		NA	1		
Legacy Pesticides	Legacy Organochlorine and Group A Pesticides	ButteYubaSutter	Gilsizer Slough at George Washington Road	2	1 (DDE)	1
		ColusaGlenn	Freshwater Creek at Gibson Rd	2	0	0
			Lurline Creek at 99W	2	0	0
			Rough and Ready Pumping Plant (RD 108)	2	0	0
		EIDorado	Coon Hollow Creek	2	1 (DDE)	1
					1 (DDT)	1
		North Canyon Creek	2	0	0	
		SacramentoAmador	Grand Island Drain near Leary Road	2	0	0
Yolo	Willow Slough Bypass at Pole Line	2	0	0		
Pathogen Indicators	<i>E. coli</i>	ButteYubaSutter	Lower Honcut Creek at Hwy 70	11	NA	1
			Lower Snake R. at Nuestro Rd	11	NA	4
			Pine Creek at Highway 23	8	NA	4
			Pine Creek at Nord Gianella Road	3	NA	2
		ColusaGlenn	Colusa Basin Drain above KL	11	NA	0
			Freshwater Creek at Gibson Rd	10	NA	1
			Walker Creek near 99W and CR33	10	NA	3
		Lake	Middle Creek u/s from Highway 20	7	NA	1

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances	
Pathogen Indicators (continued)	<i>E. coli</i> (continued)	SacramentoAmador	Cosumnes River at Twin Cities Rd	4	NA	1	
			Grand Island Drain near Leary Road	11	NA	1	
		ShastaTehama	Anderson Creek at Ash Creek Road	10	NA	5	
		Solano	Shag Slough at Liberty Island Bridge	10	NA	1	
			Ulatis Creek at Brown Road	11	NA	5	
		Yolo	Willow Slough Bypass at Pole Line	10	NA	2	
Registered Pesticides	Chlorpyrifos	ButteYubaSutter	Lower Snake R. at Nuestro Rd	5	2	0	
			Pine Creek at Nord Gianella Road	4	2	1	
		ColusaGlenn	Walker Creek near 99W and CR33	4	1	0	
		Solano	Ulatis Creek at Brown Road	7	2	0	
		Yolo	Willow Slough Bypass at Pole Line	5	0	0	
	Diazinon	ButteYubaSutter	Gilsizer Slough at George Washington Road	6	0	0	
	Diuron	Solano	Ulatis Creek at Brown Road	3	1	0	
		Yolo	Willow Slough Bypass at Pole Line	2	1	0	
	Malathion	ButteYubaSutter	Gilsizer Slough at George Washington Road	6	0	0	
		ColusaGlenn	Colusa Basin Drain above KL	5	0	0	
		Solano	Ulatis Creek at Brown Road	7	0	0	
		Yolo	Willow Slough Bypass at Pole Line	5	0	0	
	Salinity	Boron	Yolo	Tule Canal at I-80	4	NA	4
				Willow Slough Bypass at Pole Line	3	NA	3
Conductivity		ButteYubaSutter	Gilsizer Slough at George Washington Road	6	NA	2	
			ColusaGlenn	Colusa Basin Drain above KL	10	NA	8
		ColusaGlenn	Freshwater Creek at Gibson Rd	10	NA	4	
			Lurline Creek at 99W	4	NA	2	
			Rough and Ready Pumping Plant (RD 108)	6	NA	4	
			Stone Corral Creek near Maxwell Road	4	NA	2	
		Lake	McGaugh Slough at Finley Road East	0	NA	0	
		SacramentoAmador	Grand Island Drain near Leary Road	12	NA	2	

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances
Salinity (continued)	Conductivity (continued)	Solano	Shag Slough at Liberty Island Bridge	11	NA	1
			Ulati Creek at Brown Road	11	NA	10
			Z Drain	4	NA	2
		Upper Feather River	Middle Fork Feather River above Grizzly Cr	6	NA	4
		Yolo	Cache Creek at Capay Diversion Dam	4	NA	4
			Tule Canal at I-80	4	NA	3
			Willow Slough Bypass at Pole Line	11	NA	11
Toxicity	Ceriodaphnia survival	Butte/Yuba/Sutter	Lower Snake R. at Nuestro Rd	9	NA	0
		Colusa/Glenn	Stony Creek on Hwy 45 near Rd 24	0	NA	0
			Walker Creek near 99W and CR33	5	NA	0
		Yolo	Cache Creek at Capay Diversion Dam	5	NA	0
			Willow Slough Bypass at Pole Line	7	NA	0
	Selenastrum Growth	Solano	Ulati Creek at Brown Road	10	NA	0
		Yolo	Willow Slough Bypass at Pole Line	9	NA	0
	Hyalella survival	Colusa/Glenn	Stony Creek on Hwy 45 near Rd 24	0	NA	0
		Sacramento/Amador	Cosumnes River at Twin Cities Rd	1	NA	0
Solano		Z Drain	2	NA	1	
Trace Metals	Arsenic	Sacramento/Amador	Grand Island Drain near Leary Road	7	NA	4
	Copper	Butte/Yuba/Sutter	Pine Creek at Highway 23	5	NA	0
	Lead	Pit River	Pit River at Pittville	2	NA	0

NA = Not applicable

## **SOURCE EVALUATIONS**

There were no new source evaluations conducted for the Management Plan in 2014.

## **OUTREACH DOCUMENTATION**

The Coalition and its subwatersheds continue to work with the Water Board and its staff to implement the Coalition's *Landowner Outreach and Management Practices Communications Process* and the Coalition's approved Management Plan to address exceedances of water quality objectives identified in the Sacramento Valley. The primary strategic approach taken by the Coalition has been to notify and educate the subwatershed landowners, farm operators, and/or wetland managers about the cause(s) of toxicity and/or exceedance(s) of water quality objectives or ILRP trigger limits. Notifications have initially focused on (but have not been not limited to) growers who operate directly adjacent to or within close proximity to the waterway. The broader outreach program, which includes both grower meetings and the notifications distributed through direct mailings, encourages the adoption of BMPs and modification of the uses of specific farm and wetland inputs to prevent movement of constituents of concern into Sacramento Valley surface waters.

To identify landowners operating in high priority lands, the Coalition identifies the assessor parcels and subsequently the owners of agricultural operations nearest the water bodies of interest. From the list of assessor parcel numbers, the Coalition identifies its members and mails to them an advisory notice along with information on options to address the specific exceedances using BMPs. This same approach has been used to conduct management practice surveys in areas targeted by the Management Plans.

Descriptions of the outreach and education activities conducted by the Coalition's subwatersheds in 2014 are provided in Appendix F (*SVWQC Outreach Materials*) of the Coalition's 2014 Annual Monitoring Report.

## **MANAGEMENT PRACTICES INVENTORIES AND MEMBER SURVEYS**

Inventories of management practices have been conducted by the Coalition in several contexts for the ILRP. For 2014, surveys were conducted to support developing implementation baseline for water bodies in three subwatersheds (Butte Yuba Sutter, Colusa Glenn, and Solano) with management plan requirements for registered pesticides or toxicity with an identified cause. The results of these surveys are incorporated as part of the specific Management Practice Implementation Performance Goals documents for each Management Plan element and form the basis for setting goals for management practices implementation for the Management Plans.

## **RECOMMENDATIONS FOR MANAGEMENT PLAN MONITORING**

Special project monitoring for the Management Plan includes specific targeted monitoring or studies to address implementation of a TMDL or implementation of a Management Plan that results from exceedances. Management plan monitoring is generally conducted to support source identification or effectiveness assessment, and may include surveys of agricultural practices as well as water column or sediment sampling. The monitoring sites, special study parameters, management plan strategy, implementation steps, and general schedule for management plans have been presented previously in the Sacramento Valley Coalition Group's approved 2009

*Management Plan, Management Plan Progress Reports (2010, 2011, 2012), the Addendum to Sacramento Valley Water Quality Coalition Management Plan: Chlorpyrifos and Diazinon TMDLs, and in the Coalition's monitoring plan prepared annually for approval by the Executive Officer of the Water Board.*

The need for management plan monitoring is determined primarily based on the potential to provide useful information for source identification, in establishing causes of toxicity, and to evaluate management practice effectiveness. This monitoring may consist of water column or sediment sampling, field evaluations, or surveys of agricultural practices. With the exception of pathogen indicator Management Plans for 19 sites, all Management Plans had monitoring scheduled for source evaluation and/or compliance in 2014. The monitoring proposed and conducted in 2014 was submitted to and approved by the Water Board's Executive Officer in 2013. The Coalition's approved 2014 monitoring plan includes the recommended monitoring schedule for the Management Plan, as well as monitoring required in 303(d)-listed water bodies and TMDLs for chlorpyrifos and diazinon, legacy OC pesticides, and Group A OC pesticides (Attachment D (Site Specific Monitoring Tables) of the 2014 ILRP Monitoring Plan).

Based on the evaluations of Management Plan monitoring results through 2014 and source evaluations presented earlier in this document, the Coalition has submitted or is preparing requests to deem complete the requirements and monitoring for nine Management Plans. These Management Plans are summarized in **Table 4**. Monitoring scheduled for these management plans will continue until completion is approved by the Executive Officer of the Water Board, as required by the Coalition's MRP.



**Table 4. Requests for Management Plan Completions**

Subwatershed	Water Body	Category	Analyte	Status
Butte Yuba Sutter	Lower Snake River	Registered Pesticides	Chlorpyrifos	Continue monitoring; waiting for RTC approval (submitted 2013);
Colusa Glenn	Stony Creek	Toxicity	<i>Hyalella</i>	Continue monitoring; waiting for RTC approval (submitted 2013);
	Stony Creek	Toxicity	<i>Ceriodaphnia</i>	Continue monitoring; waiting for RTC approval (submitted 2013);
El Dorado	Coon Hollow Creek	Legacy Pesticides	DDE/DDT	Monitoring required; Other tasks suspended; Draft RTC submitted in 2013, revisions submitted May 2013 and April 2015;
	North Canyon Creek	Legacy Pesticides	DDE	Monitoring required; Other tasks suspended; Draft RTC submitted in 2013, revision submitted May 2013 and April 2015;
Pit River	Pit River	Trace Metals	Lead	Continue monitoring; Source Evaluation submitted in 2013 and RTC in preparation;
Sacramento Amador	Cosumnes River	Toxicity	<i>Hyalella</i>	Approved for completion (February 2015)
Yolo	Cache Creek	Toxicity	<i>Ceriodaphnia</i>	Continue monitoring; RTC submitted Dec 2013;
	Willow Slough	Salinity	Boron	Continue monitoring; Willow Slough Boron RTC in preparation for 2015;
	Willow Slough	Toxicity, Registered Pesticides	<i>Selenastrum</i> , diuron	Continue monitoring; Willow Slough <i>Selenastrum</i> /diuron RTC in preparation for 2015;

## GOALS FOR IMPLEMENTATION OF MANAGEMENT PRACTICES

The Coalition is required to develop performance goals and a schedule for implementation of management practices when it is determined that agriculture is a contributor to exceedances of water quality objectives or ILRP trigger limits. These goals are developed as independent documents for specific Management Plan elements. The status of Management Practice Implementation Performance Goals (MPIPG) that have been submitted to date is provided in **Table 5**. Many MPIPGs that were initially submitted were not officially reviewed by the Water Board. Instead, in 2013, Water Board staff requested a change in the scope, content, and specificity of the MPIPGs generally, and, additionally, requested preparation of specific “addenda” to update the information basis and goals for the MPIPGs. Most of these addenda have been submitted, and several additional addenda or MPIPGs are currently in preparation.

**Table 5. Status: Submitted Management Practices Implementation and Performance Goals**

Management Plan Analytes	Water Body	Status
Malathion	Colusa Drain	MPIPG submitted May 2013
Diazinon	Gilsizer Slough	Addendum submitted April 2013
Chlorpyrifos	Pine Creek	Final Action Plan submitted April 2012
Chlorpyrifos	Ulati Creek	MPIPG submitted April 2013
<i>Selenastrum</i> toxicity and diuron	Ulati Creek	MPIPG submitted May 2013
<i>Ceriodaphnia</i> toxicity and Chlorpyrifos	Willow Slough	MPIPG/addendum in preparation for 2015
<i>Selenastrum</i> toxicity and Diuron	Willow Slough	MPIPG requirement eliminated; Completion request in preparation for 2015
Malathion	Willow Slough	MPIPG submitted June 2013
<i>Hyalella</i> toxicity and pyrethroid pesticides	Z-Drain	Addendum submitted April 2013

## UPDATE TO REQUIRED MANAGEMENT PLANS

This section provides an update to the Coalition’s currently approved Management Plan. Data collected by the Coalition through September 2014 were evaluated to update the management plan requirements for this Progress Report. Requirements for new management plan elements were based on observations of more than one exceedance in a three-year period, as required by the ILRP. Proposed tasks and schedules to implement the new elements were developed. If modifications to the existing scope or schedule for implementation in the approved Management Plan were proposed, these are also described.

### New Management Plan Elements

There were three Management Plans triggered by exceedances observed in Coalition monitoring conducted from October 2013 through September 2014. Lower Snake River, located within the ButteYubaSutter subwatershed, requires a new Management Plan for dissolved oxygen. Walker Creek, which is within the ColusaGlenn subwatershed, requires both pH and conductivity Management Plans. All of the new Management Plans are Low Priority and there were no new management plans for High Priority parameters (toxicity and pesticides), or for legacy pesticides, nutrients, or pathogen indicators. The new Management Plan requirements based on monitoring data through September 2014 are listed in **Table 6**.

**Table 6. Additions to Management Plan for Data through September 2014**

<b>Subwatershed</b>	<b>Water Body</b>	<b>Category</b>	<b>Analyte</b>	<b>Priority</b>
ButteYubaSutter	Lower Snake River	DO and pH	DO	LOW
ColusaGlenn	Walker Creek	DO and pH	pH	LOW
ColusaGlenn	Walker Creek	Salinity	Conductivity	LOW

### **Implementation Tasks and Schedule for New Elements**

Tasks and schedules to implement the new management plan requirements were developed to be consistent with the Coalition's existing Management Plan, unless otherwise specified. In cases where it was possible, the existing schedules for a category were adopted without modification. In others, the schedules were adjusted to conform to agricultural cycles, Coalition reporting schedules, or other ILRP programmatic constraints. The only modifications to the approaches or scope for specific Management Plan categories are the elimination of the "Review Regulatory Basis" task for analytes if this has already been completed or is not necessary for the specific parameter.

The tasks and schedules proposed for the new Management Plan elements are provided in **Table 7**.

### **Proposed Changes to the Management Plan**

The Coalition's currently approved Management Plan and updates will be integrated into a Comprehensive Surface Water Quality Management Plan (CSQMP) to meet the requirements of the Coalition's Waste Discharge Requirements (WDR) Order No. R5-2014-0030 Monitoring and Reporting Program (MRP) adopted by the Water Board in March 2014. The CSQMP will be submitted by May 2015 at the same time as this Progress Report.

### **Deliverables and Schedule for Ongoing Management Plan Elements**

Deliverables to be completed in 2014 for existing Management Plan elements are listed in **Table 8**. The specific detailed tasks for these existing Management Plan elements have been provided previously.

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**Table 7. Initial Deliverables for New Management Plan Elements**

<b>Waterbody (Subwatershed)</b>	<b>Analyte (Category)</b>	<b>Management Plan Deliverables</b>	<b>Element Detail</b>	<b>Proposed Due Date</b>
Lower Snake River (ButteYubaSutter)	Dissolved Oxygen (DO and pH)	No deliverable requirements established	Monitoring required; Other management plan tasks suspended by Executive Officer of the CVRWQCB;	None
Walker Creek (ColusaGlenn)	pH (DO and pH)	No deliverable requirements established	Monitoring required; Other management plan tasks suspended by Executive Officer of the CVRWQCB;	None
Walker Creek (ColusaGlenn)	Conductivity (Salinity)	No deliverable requirements established	Monitoring required; Other management plan tasks suspended by Executive Officer of the CVRWQCB;	None

**Table 8. 2014 Deliverables for Ongoing Management Plans**

	<b>Analytes</b>	<b>Subwatershed</b>	<b>Water Body</b>	<b>Status</b>	<b>Next Deliverable<sup>(1)</sup></b>
Registered Pesticides	Chlorpyrifos	ButteYubaSutter	Lower Snake River	Continue monitoring; <b>Waiting for RTC approval;</b>	None established
	Chlorpyrifos	ButteYubaSutter	Pine Creek	Continue monitoring and implementation; Action Plan Report submitted April 2012;	<b>None established</b>
	Chlorpyrifos	ColusaGlenn	Walker Creek	Approved as completed in 2014	None
	Chlorpyrifos	Solano	Ulatis Creek	Continue monitoring & implementation per MPIP/ addendum;	IPR, 2015
	Chlorpyrifos	Yolo	Willow Slough	Continue monitoring & implementation; MPIP/ addendum in prep;	MPIP/ addendum, with 2015 CSQMP
	Diazinon	ButteYubaSutter	Gilsizer Slough	Continue monitoring & implementation per MPIP/ addendum;	FEP Summary, 2015
	Diuron	Solano	Ulatis Creek	Continue monitoring & implementation per MPIP/ addendum;	IPR, 2015
	Diuron	Yolo	Willow Slough	Continue monitoring; RTC in prep for 2015;	RTC, 2015
	Malathion	ColusaGlenn	Colusa Drain	Continue monitoring & implementation per MPIP/ addendum;	IPR, 2016
	Malathion	Yolo	Willow Slough	Continue monitoring & implementation per MPIP/ addendum;	IPR, 2016
Toxicity	Ceriodaphnia	ButteYubaSutter	Lower Snake River	Continue monitoring;	None
	Ceriodaphnia	ColusaGlenn	Stony Creek	Continue monitoring; RTC submitted for approval;	None
	Ceriodaphnia	ColusaGlenn	Walker Creek	Approved as completed in 2014;	None
	Ceriodaphnia	Yolo	Cache Creek	Continue monitoring; RTC submitted for approval;	None
	Ceriodaphnia	Yolo	Willow Slough	Continue monitoring & implementation per chlorpyrifos MPIP/ addendum;	MPIP/ addendum, with 2015 CSQMP
	Hyalella	ColusaGlenn	Stony Creek	Continue monitoring; RTC submitted for approval;	None
	Hyalella	Solano	Z Drain	Continue monitoring and implementation per MPIP/ addendum and 2012 addendum;	None
	Selenastrum	ButteYubaSutter	Butte Slough	Continue monitoring; waiting for RTC approval;	None
	Selenastrum	Solano	Ulatis Creek	Continue monitoring and implementation per May 2013 diuron MPIP/ addendum;	None
	Selenastrum	Yolo	Willow Slough	Continue monitoring; RTC in preparation for 2015	RTC
Trace Metals	Arsenic	Sacramento Amador	Grand Island Drain	Continue monitoring; SER submitted in 2013;	None established
	Lead	PitRiver	Pit River	Continue monitoring; SER submitted in 2013;	RTC
	Copper	ButteYubaSutter	Pine Creek	Continue monitoring; MPIP/ addendum in prep for 2015;	MPIP/ addendum, with 2015 CSQMP

	<b>Analytes</b>	<b>Subwatershed</b>	<b>Water Body</b>	<b>Status</b>	<b>Next Deliverable<sup>(1)</sup></b>
Legacy Pesticides	DDE	ButteYubaSutter	Gilsizer Slough	Monitoring required; Other tasks suspended by Executive Officer of the CVRWQCB;	No deliverable requirements established
	DDE	ColusaGlenn	Lurline Creek		
	DDE	Yolo	Willow Slough		
	DDE/DDT	ColusaGlenn	Sycamore Slough		
	DDE/DDT	Sacramento Amador	Grand Island Drain		
	DDE/DDT	EIDorado	Coon Hollow Creek		
	DDE	EIDorado	North Canyon Creek		
Pathogen Indicators	<i>E. coli</i>	ButteYubaSutter, ColusaGlenn, Lake, Napa, Sacramento-Amador, Shasta-Tehama, Pit River, Solano, Yolo, Upper Feather River	30 water bodies	All Management Plan tasks suspended by Executive Officer of the CVRWQCB pending development of a region-wide strategy;	No deliverable requirements established;
Salinity	Conductivity, TDS, Boron	ButteYubaSutter, ColusaGlenn, Lake, Sacramento-Amador, Solano, Yolo, Upper Feather River	17 water bodies	Monitoring required; Other tasks suspended by Executive Officer of the CVRWQCB;	No deliverable requirements established
DO and pH	DO, pH	ButteYubaSutter, ColusaGlenn, Lake, Sacramento-Amador, ShastaTehama, Pit River, PNSSNS, Solano, Yolo,	25 water bodies	Monitoring required; Other tasks suspended by Executive Officer of the CVRWQCB;	No deliverable requirements established

1 MPIPG = Management Practices Implementation and Performance Plan; RTC = Request to Complete Management Plan; IPR = Implementation Progress Report; CSQMP = Comprehensive Surface Water Management Plan;

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## TMDL COMPLIANCE REPORTING

Currently, TMDL compliance monitoring and reporting by the Coalition is limited to the TMDLs for chlorpyrifos and diazinon discharges to the Sacramento and Feather Rivers and the Sacramento-San Joaquin Delta, and for the Clear Lake Nutrient TMDL.

### Chlorpyrifos and Diazinon TMDL

The Basin Plan amendments (R5-2007-0034 and R5-2006-0061) require dischargers, either individually or as a coalition, to submit a management plan that describes the actions that they will take to reduce diazinon and chlorpyrifos discharges and meet the applicable allocations by the required compliance dates. The Coalition's Management Plan (SVWQC 2009) includes a process for source identification and identification of additional management practices that may be needed to achieve additional reductions in diazinon and chlorpyrifos discharges. Quarterly meetings are held with the Water Board in order to evaluate progress in meeting these reductions and other Management Plan requirements, and revisions to the Management Plan will be made if sufficient progress is not being achieved.

The Coalition continues to monitor chlorpyrifos and diazinon according to the SVWQC 2010-2014 MRP Order<sup>7</sup> and the Coalition's approved 2014 ILRP Monitoring schedule. The monitoring locations are representative of discharges to the Sacramento River, Feather River, and Delta. This monitoring will continue to provide information on the wide range of discharges and hydrologic conditions likely to occur in the Sacramento Valley watershed and Delta. The Coalition's Addendum to the Management Plan presents the technical rationale for selecting the representative monitoring locations for the TMDL compliance monitoring and for the schedule for chlorpyrifos and diazinon monitoring. The schedule for TMDL monitoring at these locations is included in the Coalition's annual monitoring plans.

The seven Basin Plan requirements for TMDL compliance monitoring are:

- Determine compliance with established water quality objectives and loading capacities in Sacramento-San Joaquin Delta and the Sacramento and Feather rivers;
- Determine compliance with established waste load allocations and load allocations for diazinon and chlorpyrifos;
- Determine the degree of implementation of management practices to reduce off-site migration of diazinon and chlorpyrifos;
- Determine the effectiveness of management practices and strategies to reduce off-site migration of diazinon and chlorpyrifos;
- Determine whether alternatives to diazinon and chlorpyrifos are causing surface water quality impacts;
- Determine whether the discharge causes or contributes to a toxicity impairment due to additive or synergistic effects of multiple pollutants; and

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<sup>7</sup> Monitoring And Reporting Program Order No. R5-2009-0875 for Sacramento Valley Water Quality Coalition Under Amended Order No. R5-2006-0053 Coalition Group Conditional Waiver Of Waste Discharge Requirements For Discharges From Irrigated Lands. California Regional Water Quality Control Board Central Valley Region, Rancho Cordova, California. December 2009.

- Demonstrate that management practices are achieving the lowest pesticide levels technically and economically achievable.

The Coalition's approach in addressing these requirements has been described previously in the *Addendum to Sacramento Valley Water Quality Coalition Management Plan: Chlorpyrifos and Diazinon TMDLs*.

The results of the Coalition's TMDL compliance monitoring through 2014 were reported in *Management Of Chlorpyrifos And Diazinon Discharges To The Sacramento And Feather Rivers And The Sacramento-San Joaquin Delta: 2014 TMDL Compliance Monitoring Report* (SVWQC 2014). The conclusions of this report of TMDL compliance monitoring results were as follows:

- Based on the results of ILRP and TMDL monitoring, compliance with the TMDL water quality objectives and load allocations is achieved in the overwhelming percentage of samples. These results demonstrate that outreach and education, the resulting changes in diazinon use patterns and changes in management practices, and modifications to labeling have been successful in reducing instream ambient concentrations of chlorpyrifos and diazinon to the degree required by the TMDL. The relatively low rate of exceedances since the beginning of the ILRP suggests that many of the changes were successfully implemented prior to or soon after 2005. Although exceedances are still occasionally observed, the overall trend from 2005-2014 has been a decrease in the rate of annual exceedances. Exceedances observed in the TMDL tributaries monitored for compliance were determined to be unlikely to cause exceedances of the TMDL Load Allocations in the named TMDL receiving water bodies under any reasonably probable scenario.
- Continuing efforts to further reduce exceedances are being implemented through the Coalition Management Plans for sites that have triggered a Management Plan requirement for these pesticides. Additionally, the Coalition aggressively investigates all exceedances and conducts follow-up contacts with growers reporting applications with the potential to cause specific observed exceedances. These combined efforts are expected to result in continuation of the decreasing trend in the number of exceedances for these pesticides.

### **Clear Lake Nutrient TMDL**

In 2006, the Water Board adopted the Clear Lake Nutrient TMDL with the goal of achieving a 40% reduction in non-point source contributions. Nonpoint source dischargers – the U.S. Bureau of Land Management, the U.S. Forest Service, irrigated agricultural dischargers and Lake County – were given a combined load allocation of 85,000 kg phosphorus per year. As specified in the TMDL responsible parties may choose to estimate their phosphorus loading through monitoring. At the request of the Water Board staff, the Sacramento Valley Water Quality Coalition (Coalition) provided information to assist them in preparation of its 2012 update of the Clear Lake Nutrient TMDL<sup>8</sup>. Key findings and conclusions of the TMDL Update that were relevant to agricultural stakeholders in the region include:

- The TMDL adopted by the Water Board in 2006 for control of phosphorus in Clear Lake is still appropriate.

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<sup>8</sup> *Clear Lake Nutrient Total Maximum Daily Load Control Program 5-Year Update*. Regional Water Quality Control Board Central Valley Region. September 2012.

- TMDL responsible parties have taken numerous actions directed toward reducing phosphorus inputs to the lake, including developing management plans, implementing sediment reduction BMPs, applying for planning and implementation grants, and conducting monitoring. Nevertheless, there is inadequate information available to 1) determine current phosphorus loading to the Lake from the various sources, 2) evaluate the effectiveness of implemented phosphorus control practices, and 3) evaluate overall compliance with the TMDL.
- The 2017 TMDL compliance date may be unrealistic because a major component of the implementation plan (Middle Creek Flood Damage Reduction and Ecosystem Restoration Project) is behind schedule despite efforts by Lake County to move this project forward.
- Responsible parties should 1) aggressively implement sediment reduction BMPs to decrease phosphorus loading to the Lake, 2) evaluate the effectiveness of BMPs in reducing phosphorus loading to the Lake and 3) provide this information to the Water Board on an annual basis. Staff will consider regulatory options if the above actions are not implemented.

A Memorandum of Understanding (MOU) developed in October 2008 documented a roadmap for a collective approach among all the “responsible parties” for proceeding with the development of the Nutrient TMDL and resulted in a five (5) year plan. The Coalition, in coordination with the Lake County Farm Bureau’s Lake County Farm Bureau Education Corporation (LCFBEC), conducted water quality monitoring as part of the 5-year plan. The Coalition’s November 2011 memorandum<sup>9</sup> to the Water Board provides the results of that monitoring and information on management practices documented by the LCFBEC in 2007, current efforts to increase the use of management practices and additional goals the LCFBEC will consider as more becomes known about the causes of algae blooms in Clear Lake.

Based on the information provided by the Coalition in 2011, the Coalition is already meeting the “aggressive BMP implementation” objective recommended by the CVRWQCB staff in the TMDL Update:

*“To mitigate erosion, Lake County has regulated development of conversion of agricultural properties for over 10 years due to the erosion hazard. Under the current Grading Ordinance (Chapter 30, LCC, adopted July 17, 2007) implementation of BMP’s is required for new agricultural properties (native vegetation to agriculture) and conversions of deep rooted crops (orchard to vineyard) on soils with a moderate to severe hazard rating. Erosion control management practices are implemented to limit the amount of sediment runoff and fertilizer runoff.*

*A 2007 survey conducted by the Lake County Farm Bureau Watershed Program indicated that 90% of vineyard acreage is maintaining a permanent or winter annual cover crop. The Lake County Winegrape Commission reports that 70% of the vineyard acreage and 145 winegrape growers have begun the process to become certified as sustainable winegrowers as part of the California Sustainable Winegrowing Alliance*

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<sup>9</sup> Memorandum: Clear Lake Nutrient TMDL Progress Information Request. November 23, 2011. Prepared for the Sacramento Valley Water Quality Coalition by Larry Walker Associates, Davis, CA.

*(CSWA). Management practices promoted by the CSWA include: soil management, cover cropping for erosion control and irrigation and nutrient management practices.”*

Additionally, the Coalition initiated monitoring at a second site in 2012 to provide additional data for the TMDL and BMP effectiveness assessments. This monitoring has continued through 2014 and 2015. All of the relevant data for the Clear Lake monitoring sites are routinely provided to the Water Board for use in their TMDL assessments.

## **SUMMARY: EVALUATION OF PROGRESS**

The Coalition’s Management Plan approach implements the processes and elements needed to comply with the requirements of the MRP previously adopted by the Water Board in December 2009 (*Order No. R5-2009-0875*). The requirements were retained in the 2014 WDR and MRP (*Order No. R5-2014-0030*), and are addressed by specific deliverables or processes of the current approved Management Plan as described below, as well as in the Comprehensive Surface Water Quality Management Plan (CSQMP) in development for the current WDR:

- 1) Identification of potential sources of the observed exceedances, and identification of the irrigated agriculture source that may be the cause of the water quality problem, or a study design to determine the source.  
*This requirement is addressed by the Source Evaluation Reports developed for site-specific Management Plan elements (e.g., pesticides or toxicity in specific drainages) or regionally for some categories of Management Plan parameters (e.g., pathogen indicators).*
- 2) Identification of management practices to be implemented to address the exceedances.  
*See 4) below.*
- 3) Management practice implementation schedule. (Implementation may occur through another Water Board regulatory program designed to address the specific exceedances.)  
*See 4) below.*
- 4) Management practice performance goals with a schedule.  
*Requirements 2) – 4) are being addressed in Management Practice Implementation and Performance Goals and schedule documents that are developed after agriculture is determined to be a probable contributor to exceedances of ILRP trigger limits. These are developed based on the results of surveys and direct contacts with growers conducted to estimate a baseline level of management practice implementation in the specific drainages.*
- 5) Waste-specific monitoring schedule.  
*A monitoring plan and schedule for Management Plan monitoring and Assessment monitoring is prepared annually for review and approval by the Water Board. The Coalition is currently implementing the approved monitoring plan for 2015.*
- 6) A process and schedule for evaluating management practice effectiveness. *The process and schedule is established in the Management Practice Implementation and Performance Goals and schedule documents developed for specific Management Plan requirements (e.g., for diuron in the region represented by Ulatis Creek). The overall effectiveness of the recommended practices and achievement of implementation goals will*

*be assessed based on monitoring results and compliance with relevant water quality objectives, ILRP trigger limits, or relevant toxicity benchmarks.*

7) Identification of the participants and Coalition Group(s) that will implement the Management Plan.

*The responsibilities to implement specific tasks are described generally in the Coalition's Monitoring Plan and specifically in the detailed descriptions and schedule of Management Plan tasks updated annually with this Management Plan Progress Report. Responsibilities for management practice implementation are further specified in Management Practice Implementation and Performance Goals documents.*

8) An identified routine schedule of reporting to the Central Valley Water Board. *This requirement is addressed by the numerous specific reporting requirements for the Management Plan, including Management Plan Progress Reports, Source Evaluation Reports, Management Practice Implementation and Performance Goals documents, and Management Practices Survey Report(s). Additionally, the Coalition conducts regular (approximately quarterly) meetings with designated Water Board ILRP staff to discuss Management Plan progress, products, and decisions.*

In general terms, the processes to meet the requirements of the Management Plan can be distilled to these elements – source evaluation, identification of management practices needed to address exceedances, implementation of management practices, evaluation of effectiveness, and regular assessment of progress toward completion of the management plan. The Coalition has successfully developed and implemented processes for source evaluation and identification of management practices needed. Source evaluations have been completed and provided to the Water Board for a large number of management plan requirements for pesticides, toxicity, pathogen indicators, and legacy organochlorine pesticide exceedances.

Changes in practices and implementation of additional management practices to minimize discharges of waste contributing to exceedances have been ongoing since the ILRP was initiated, due to the outreach and education efforts of the Coalition and its members and partners. Specific trackable goals (Management Practice Implementation and Performance Goals MPIP-Gs) for a number of pesticide and toxicity Management Plans have been developed and submitted to the Water Board beginning in 2011. Although most of these MPIP-Gs were never comprehensively reviewed by the Water Board, implementation to meet these goals was initiated in the subwatersheds in anticipation of Water Board approval. Assessment of progress toward specific implementation goals will continue to be conducted regularly as documented in individual approved MPIP-G documents and their addenda. Meeting water quality objectives is the ultimate goal and measure of effectiveness of the implemented management practices and progress for the Management Plan. Water quality monitoring to measure this progress is ongoing and assessed annually, and has resulted in the completion of several management plans to date. As measured by the completion and ongoing work on specific Management Plan tasks and deliverables summarized above and documented throughout this Progress Report, the Coalition continues to make good progress toward meeting all of these requirements and expects to achieve the goals of the current approved Management Plan and the CSQMP update that is currently in development.