

APRIL 2014

SACRAMENTO VALLEY
WATER QUALITY COALITION

Water Quality Management Plan Progress Report

prepared by

LARRY WALKER ASSOCIATES

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Management Plan Progress Report

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 Plan¹) and the Coalition's progress in implementing this plan.

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 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.

The activities conducted in 2013 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 and 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 for each management plan element². 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.

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

² 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.

Management Plan elements with tasks to be completed in 2013 are listed in Table 1. This table provides the water body and analyte or monitoring category of concern, and a summary of the major Management Plan task activity. The remainder of this report documents the status, progress, and results for the following Management Plan Components:

- Results of Monitoring
- Source Evaluations
- Outreach Documentation
- Management Practices Inventories and Member Surveys
- Recommendations for Management Plan Monitoring
- Status of Management Plan tasks
- Proposed Goals for Implementation of Management Practices
- Update to Required Management Plans
- TMDL Compliance Reporting
- Evaluation of Progress

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Table 1. Summary of Management Plan Task Activity

Management Plan Category	Subwatershed	Waterbody	Analytes	Summary of Major Management Plan Activity and Status;
DO and pH	ButteYubaSutter	Butte Slough	DO	Sampled at all sites in 2013; 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	
	ColusaGlenn	Freshwater Creek	DO	
		Stone Corral Creek	DO	
		Stony Creek	pH	
		Sycamore Slough	DO	
		Walker Creek	DO	
	Lake	McGaugh Slough	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	Analytes	Summary of Major Management Plan Activity and Status;
Legacy Pesticides	ButteYubaSutter	Gilsizer Slough	DDT and degradation products	Sampled at all management plan sites in 2013; Other Tasks suspended on direction from EO; Revised draft completion requests for El Dorado water bodies prepared and submitted for review;
	ColusaGlenn	Lurline Creek Sycamore Slough		
	SacramentoAmador	Grand Island Drain		
	Yolo	Willow Slough		
	El Dorado	Coon Hollow Creek North Canyon Creek		
Pathogen Indicators	ButteYubaSutter	Gilsizer Slough Lower Honcut Creek Lower Snake River Pine Creek Wadsworth Canal	E. coli	Sampled at Assessment sites in 2013; Other Tasks suspended pending direction from EO Re: development of a region-wide approach [December 5, 2011 comm from EO];
	ColusaGlenn	Colusa Basin Drain Freshwater Creek Logan Creek Lurline Creek Stone Corral Creek Sycamore Slough Walker Creek		
	Lake	McGaugh Slough Middle Creek		
	Napa	Capell Creek		
	SacramentoAmador	Cosumnes River Dry Creek Grand Island Laguna Creek		
	ShastaTehama	Anderson Creek Burch Creek Coyote Creek		
	Solano	Ulatis Creek Shag Slough Z-Drain		
	Upper Feather River	Indian Creek Spanish Creek		
	Yolo	Tule Canal Willow Slough		

Management Plan Category	Subwatershed	Waterbody	Analytes	Summary of Major Management Plan Activity and Status;
Registered Pesticides	ButteYubaSutter	Gilsizer Slough	Diazinon	MPIPG Addendum submitted in 2013; Outreach and implementation is in progress;
		Lower Snake River	Chlorpyrifos	Request for completion submitted in 2013; Implementation is in progress;
		Pine Creek	Chlorpyrifos	Implementation in progress; Action Plan Report submitted in April 2012; Grower and PCA meeting Dec 2013;
	ColusaGlenn	Colusa Drain	Malathion	MPIPG submitted 2013; Outreach and implementation in progress;
		Walker Creek	Chlorpyrifos	Monitoring continued in 2013, with no exceedances; Request for completion approved Jan 2014;
	Solano	Ulatis Creek	Diuron	MPIPG Addendum submitted 2013; Outreach and implementation in progress;
		Ulatis Creek	Malathion	Completion of management plan approved May 2013;
		Ulatis 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 2013; Request for completion in preparation based on compliance;
		Willow Slough	Malathion	MPIPG submitted in 2013; Outreach and implementation are in progress;
Salinity	ButteYubaSutter	Gilsizer Slough	EC	Sampled at all sites in 2013; Continued active participation in CV-SALTS; SVWQC joined CV Salinity Coalition as funding partner;
	ColusaGlenn	Colusa Basin Drain	EC	
		Freshwater Creek	EC	
		Logan Creek	TDS	
		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		
Yolo	Cache Creek	EC		
	Tule Canal	Boron, EC		
	Willow Slough	Boron, EC		
Upper Feather River	MF Feather River	EC		

Management Plan Category	Subwatershed	Waterbody	Analytes	Summary of Major Management Plan Activity and Status;
Toxicity	Butte Yuba Sutter	Butte Slough	<i>Selenastrum</i> (unidentified cause)	Monitoring continued in 2013; No toxicity, no detection of targeted pesticide approaching effect concentrations (Oxyfluorfen); 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 2013; No toxicity exceedances in last 11 samples (4 in 2013), no cause identified;
	Colusa Glenn	Stony Creek	<i>Ceriodaphnia</i> (unidentified cause)	Monitoring of toxicity and potential causes continued in 2013; No toxicity exceedance in last 5 samples (2 in 2013), no cause identified; Request for completion submitted in July 2013 and awaiting approval;
			<i>Hyalella</i> (pyrethroids)	Monitoring of toxicity and potential causes continued in 2013; No toxicity exceedance in last 6 samples (1 in 2013); no cause identified; Request for completion submitted in 2013 and awaiting approval;
		Walker Creek	<i>Ceriodaphnia</i> (chlorpyrifos)	Implementation continued in 2013; Monitoring of toxicity and chlorpyrifos continued in 2013, 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 2013; Request for completion based on lack of toxicity and lack of probable ag sources submitted 2013 is awaiting approval;
	Solano	Ulatis Creek	<i>Selenastrum</i> (diuron)	Monitoring of toxicity and diuron continued in 2013; No toxicity or pesticide exceedances observed; Diuron MPIPG submitted in 2013; Outreach is in progress;
		Z-Drain	<i>Hyalella</i> (pyrethroids)	Monitoring of toxicity and expanded monitoring of potential causes and sources continued in 2013; Inconclusive toxicity monitoring results in 2013; 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 2013; No toxicity exceedances observed and no probable cause identified; Request for completion submitted in 2013 and awaiting approval;
			<i>Ceriodaphnia</i> (chlorpyrifos)	Chlorpyrifos MPIPGs submitted in 2013; Implementation is in progress; Monitoring continued in 2013 with no toxicity exceedances observed in last 16 samples;
		Willow Slough	<i>Selenastrum</i> (diuron)	Request for completion is in preparation; No toxicity or diuron exceedances observed in 2013;

Management Plan Category	Subwatershed	Waterbody	Analytes	Summary of Major Management Plan Activity and Status;
Trace Metals	Butte Yuba Sutter	Pine Creek	Copper	Monitoring required beginning in 2014 MY; Source evaluation will be integrated into MPIPG in prep for 2014;
	Pit River	Pit River	Lead	Monitoring continued in 2013; Source evaluation submitted in 2013 in review; Preparation of completion request will commence in 2014;
	Sacramento Amador	Grand Island Drain	Arsenic	Monitoring continued in 2013; Source evaluation submitted August 2013;

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RESULTS OF MONITORING

Management Plan monitoring was conducted as scheduled in the Coalition's 2013 Monitoring Plan, as approved by the Water Board. The results of monitoring conducted in the 2013 Monitoring Year (October 2012-September 2013) for all management plan analytes through September 2013 have been reported in the Coalition's 2013 AMR and submitted to the Water Board. Additionally, exceedances for all management plan sampling conducted from October 2012-January 2013 have been reported in Exceedance Reports as required by the ILRP MRP.

The 2013 monitoring year (October 2012-September 2013) was a "Core" 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. The results of Management Plan monitoring conducted for 2013 are summarized below. The results of Management Plan compliance monitoring are also summarized in Table 2.

Registered Pesticides

Seven 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.

Eight sample events were conducted for chlorpyrifos in Lower Snake River. There were no detections or exceedances in any of these samples.

Three sample events were conducted for chlorpyrifos in Pine Creek and four additional planned samples were not collected because the site was dry. There was one exceedance observed in May 2013 (0.0368 µg/L). Chlorpyrifos was applied to approximately 327 acres of walnuts and 49 acres of almonds in the Pine Creek drainage during the month of May. At the time of sampling there was only standing water at the sampling site and the drainage had only received trace amounts of rain. Due to the lack of precipitation and flow at this site, the exceedance was likely due to residual drift from the aerial applications. There were no exceedances observed in any of the other samples collected for 2013 monitoring.

Four sample events were conducted for chlorpyrifos in Walker Creek. There were no detections or exceedances in any of these samples.

Six events were conducted for chlorpyrifos in Ulatis Creek. Chlorpyrifos was detected in three 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*.

Six 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) and Basin Plan prohibition of discharge.

Seven sample events were conducted for chlorpyrifos in Willow Slough. There were no detections or exceedances in any of these samples.

Three sample events were conducted for diuron and eight sample events were conducted for algae toxicity at Willow Slough, which has a Management Plan requirement for diuron and algae toxicity exceedances. There were no detections or exceedances of diuron in any of the samples and none of the samples were toxic to *Selenastrum*.

Seven sample events were conducted for malathion in Willow Slough. Malathion was detected in one of these samples and it was an exceedance based on the ILRP trigger limit (0 µg/L) and Basin Plan prohibition of discharge. There were no reported applications of malathion in the Willow Slough drainage in the month prior to the exceedance observed on March 20, 2013 and it was concluded that the exceedance was not caused by an agricultural application. The detected concentration (0.0583 µg/L) is below concentrations expected to cause toxicity to sensitive invertebrates (0.5 µg/L *Daphnia magna* 2-day EC50, USEPA ECOTOX database). Toxicity for *Ceriodaphnia* and *Selenastrum* were both negative for this sample.

Seven sample events were conducted for malathion in Colusa Basin Drain. Malathion was detected in one sample and thus exceeded the ILRP trigger limit (0 µg/L) and Basin Plan prohibition of discharge. There were 12 reported applications of malathion to approximately 865 acres of alfalfa in the Colusa Basin Drain drainage (Colusa County portion) in the month prior to the exceedance observed on March 20, 2013. There were no reported applications in the Yolo County portion in January, February, or March of 2013. The detected concentration (0.0967 µg/L) is below concentrations expected to cause toxicity to sensitive invertebrates (0.5 µg/L *Daphnia magna* 2-day EC50, USEPA ECOTOX database). No toxicity tests were performed for this sample.

Toxicity

Butte Slough had a Management Plan requirement for algae toxicity exceedances, and samples for three events were analyzed for *Selenastrum* toxicity. None of these samples were toxic to *Selenastrum*. This management plan was approved as completed in 2013.

Lower Snake River has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances, and samples for four 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. One sample was analyzed for *Hyaella* toxicity and this sample was not toxic to *Hyaella*. A second sample planned for August was not collected because the site was dry (as is common for the location in late summer).

Stony Creek also has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances, and two samples were analyzed for *Ceriodaphnia* toxicity. Neither of these samples was toxic.

Walker Creek has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances and for chlorpyrifos exceedances, and samples were analyzed for four events for *Ceriodaphnia* toxicity. None of these samples were toxic and there were no chlorpyrifos exceedances in any sample. There have been no observations of toxicity in

the last 44 sample events tested with *Ceriodaphnia* and this management plan was approved as completed in January 2014.

Cosumnes River has a Management Plan requirement for sediment toxicity exceedances, and one sample was analyzed (April 2013) for *Hyaella* toxicity. The sample had survival of 92% compared to the control. The analysis following the flowchart in the EPA method EPA/600/R-99/064 indicated that the primary sample was “toxic”, but with less than a 10% reduction in survival compared to the control. The sample would have passed the State’s proposed Test of Significant Toxicity (TST), because survival was greater than 90%. The low level of toxicity observed in the Cosumnes River sample (<20% reduction compared to control) did not trigger any follow-up evaluations or analyses. No potential causes of the toxicity were investigated. A second sample event planned for August 2013 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 three sample events were conducted for *Selenastrum* toxicity. None of the three samples were toxic.

Willow Slough has a Management Plan requirement for *Ceriodaphnia* toxicity exceedances and chlorpyrifos exceedances, and samples from eight events were analyzed for *Ceriodaphnia* toxicity. No samples were toxic to *Ceriodaphnia* and there were no chlorpyrifos exceedances.

Willow Slough also has a Management Plan requirement for algae toxicity exceedances and for diuron. Nine sample events were conducted for *Selenastrum* toxicity. None of these samples were toxic and there were no diuron exceedances in any sample tested. There have been no observations of toxicity in the last 27 events tested with *Selenastrum*.

Z-Drain has a Management Plan requirement for sediment toxicity exceedances, and sediment samples were analyzed for two events for *Hyaella* toxicity and pesticides. Samples for both events were significantly toxic to *Hyaella*. In the April 2013 sample, the Coalition observed a reduction in survival of 20% at Z-Drain compared to the control survival. The toxicity observed in this sample ($\geq 20\%$ reduction compared to control) triggered follow-up sediment analyses for pyrethroid and organophosphate pesticides. Four pesticides were detected in the ZDDIX sample: bifenthrin (8.6 ng/g dw); esfenvalerate/fenvalerate (0.45 ng/g dry weight (dw)); L-cyhalothrin (0.16 ng/g dw); and chlorpyrifos (0.35 ng/g dw). In addition, sediment analyses conducted for the upstream ZDINF sample and duplicate sample resulted in detections of four pesticides: bifenthrin (0.12 and 0.14 ng/g dw); chlorpyrifos (1.2 and 1.6 ng/g dw); cyfluthrin (0.4 ng/g dw (only detected in the field duplicate); and L-cyhalothrin (0.22 and 0.25 ng/g dw). A total of 1.52 Toxic Units (TUs) of agricultural use pyrethroids and chlorpyrifos were likely responsible for the toxicity observed at ZDDIX. The sample from the upstream inflow location (ZDINF) was unlikely to have been toxic based on the lower estimated TUs (0.195) in the sample. Toxic units were estimated based on published LC50s for pyrethroids and chlorpyrifos in sediment, normalized for organic carbon concentrations. The toxicity observed in the primary August 2013 sample (87% survival compared to

control) did not trigger any follow-up evaluations or analyses, and the replicate sample collected at the site was not toxic (95% survival compared to control).

Legacy Pesticides

Management Plan monitoring for legacy organochlorine pesticides was conducted at seven sites for two events each (Gilsizer Slough, Lurline Creek, Rough and Ready Pumping Plant, Coon Hollow Creek, North Canyon Creek, Grand Island Drain, Willow Slough). In samples collected in May and August of 2013, DDE was detected in Coon Hollow Creek, and DDE and DDD were detected in Grand Island Drain.

Pathogen indicators

There are 31 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 Central Valley RWQCB pending development of a region-wide approach for this category (December 5, 2011 comm). Management Plan monitoring for *E. coli* consisted of sampling at core monitoring sites, and there were 138 samples collected from 14 sites with active Management Plan requirements for pathogen indicators. There were 32 exceedances of the ILRP trigger limit for *E. coli* observed at these sites (23%) during 2013 monitoring.

Trace Metals

There were two active Management Plans for trace metals in 2013: lead in the Pit River, and arsenic in Grand Island Drain.

Four events were conducted for arsenic in Grand Island Drain and two 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, and (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.

Two samples were analyzed for lead 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 (conductivity and boron). Management Plan monitoring for these parameters consisted of sampling at seven representative sites and eight additional Management Plan sites in 2013. There were 111 sample events for conductivity at these 15 sites, with 45 observed exceedances of the ILRP trigger limit for conductivity (41%). Two sites also

have a requirement for boron (Willow Slough and Tule Canal). All four samples collected from Willow Slough exceeded the ILRP trigger limit for boron, and three of four samples from Tule Canal exceeded the ILRP trigger limit for boron.

DO and pH

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

- There were 175 events sampled for 24 sites with active Management Plan requirements for dissolved oxygen. There were 37 exceedances (21%) of the ILRP trigger limit for dissolved oxygen observed at 14 sites.
- There were 59 samples collected from 11 sites with active Management Plan requirements for pH. There were 4 exceedances observed (7%) of the ILRP trigger limit for pH at three sites.

Nutrients

There were no active Management Plans for nutrient exceedances in 2013.

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 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 one of the 7 events. There was one exceedance of the ILRP trigger limit for nitrate at McGaugh Slough in March 2013. Compliance with the agriculture TMDL load allocations for phosphorus require evaluation of a larger data set of coordinated monitoring data not yet available and therefore compliance has not yet been determined.

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Table 2. Summary of Management Plan Compliance Monitoring Outcomes

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances
Registered Pesticides	Chlorpyrifos	ButteYubaSutter	Lower Snake R. at Nuestro Rd	8	0	0
			Pine Creek at Nord Gianella Road	3	1	1
		ColusaGlenn	Walker Creek near 99W and CR33	4	0	0
		Solano	Ulati Creek at Brown Road	6	3	0
		Yolo	Willow Slough Bypass at Pole Line	7	0	0
	Diazinon	ButteYubaSutter	Gilsizer Slough at George Washington Road	7	0	0
	Diuron	Solano	Ulati Creek at Brown Road	3	1	0
		Yolo	Willow Slough Bypass at Pole Line	3	0	0
	Malathion	ButteYubaSutter	Gilsizer Slough at George Washington Road	7	0	0
		ColusaGlenn	Colusa Basin Drain above KL	7	1	1
		Solano	Ulati Creek at Brown Road	6	0	0
		Yolo	Willow Slough Bypass at Pole Line	7	1	1
Toxicity	<i>Ceriodaphnia</i> survival	ButteYubaSutter	Lower Snake R. at Nuestro Rd	5	5	0
		ColusaGlenn	Stony Creek on Hwy 45 near Rd 24	2	NA	0
			Walker Creek near 99W and CR33	4	NA	0
		Yolo	Cache Creek at Capay Diversion Dam	4	NA	0
	Willow Slough Bypass at Pole Line		8	NA	0	
	<i>Selenastrum</i> Growth	ButteYubaSutter	Butte Slough	3	NA	0
		Solano	Ulati Creek at Brown Road	3	NA	0
		Yolo	Willow Slough Bypass at Pole Line	9	NA	0
	<i>Hyalella</i> survival	ColusaGlenn	Stony Creek on Hwy 45 near Rd 24	1	NA	0
		SacramentoAmador	Cosumnes River at Twin Cities Rd	1	NA	1
		Solano	Z Drain	2	NA	2
	Trace Metals	Arsenic	SacramentoAmador	Grand Island Drain near Leary Road	4	NA
Lead		PitRiver	Pit River at Pittville	2	NA	0
Legacy Pesticides	Legacy Organochlorine and Group A Pesticides	ButteYubaSutter	Gilsizer Slough at George Washington Road	2	0	0
		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	2 (DDE)	2
			North Canyon Creek	2	0	0
		SacramentoAmador	Grand Island Drain near Leary Road	2	2 (DDD)	2
		Yolo	Willow Slough Bypass at Pole Line	2	2 (DDE)	2
			2	0	0	

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances	
Salinity	Boron	Yolo	Tule Canal at I-80	4	NA	3	
			Willow Slough Bypass at Pole Line	4	NA	4	
	Conductivity	ButteYubaSutter	ColusaGlenn	Gilsizer Slough at George Washington Road	9	NA	0
				Colusa Basin Drain above KL	10	NA	3
		Lake	SacramentoAmador	Freshwater Creek at Gibson Rd	10	NA	4
				Lurline Creek at 99W	4	NA	1
		Solano	Solano	Rough and Ready Pumping Plant (RD 108)	6	NA	1
				Stone Corral Creek near Maxwell Road	3	NA	0
		UpperFeatherRiver	Yolo	McGaugh Slough at Finley Road East	6	NA	5
				Grand Island Drain near Leary Road	12	NA	2
		Yolo	Yolo	Shag Slough at Liberty Island Bridge	12	NA	2
				Ulati Creek at Brown Road	11	NA	10
	Yolo	Yolo	Z Drain	4	NA	2	
			Middle Fork Feather River above Grizzly Cr	6	NA	<i>unavailable</i>	
Pathogen Indicators	<i>E. coli</i>	ButteYubaSutter	Cache Creek at Capay Diversion Dam	4	NA	1	
			Tule Canal at I-80	4	NA	4	
			Willow Slough Bypass at Pole Line	10	NA	5	
		ColusaGlenn	ColusaGlenn	Lower Honcut Creek at Hwy 70	12	NA	3
				Lower Snake R. at Nuestro Rd	12	NA	2
				Pine Creek at Nord Gianella Road	8	NA	1
		Lake	Lake	Colusa Basin Drain above KL	10	NA	0
				Freshwater Creek at Gibson Rd	10	NA	5
				Walker Creek near 99W and CR33	10	NA	5
		PNSSNS	PNSSNS	Middle Creek u/s from Highway 20	7	NA	0
		SacramentoAmador	SacramentoAmador	Coon Creek at Brewer Rd	8	NA	2
				Cosumnes River at Twin Cities Rd	6	NA	1
		ShastaTehama	ShastaTehama	Grand Island Drain near Leary Road	12	NA	2
				Anderson Creek at Ash Creek Road	12	NA	7
Solano	Solano	Shag Slough at Liberty Island Bridge	10	NA	0		
		Ulati Creek at Brown Road	11	NA	1		
Yolo	Yolo	Willow Slough Bypass at Pole Line	10	NA	3		

Management Plan Category	Analyte	Subwatershed	Site Name	Events Sampled	Pesticide Detections	Exceedances
DO and pH	Dissolved Oxygen	ButteYubaSutter	Butte Slough at Pass Road	6	NA	2
			Gilsizer Slough at George Washington Road	9	NA	3
			Lower Honcut Creek at Hwy 70	12	NA	1
			Pine Creek at Nord Gianella Road	7	NA	4
			Sacramento Slough bridge near Karnak	12	NA	0
		ColusaGlenn	Colusa Basin Drain above KL	9	NA	1
			Freshwater Creek at Gibson Rd	9	NA	0
			Rough and Ready Pumping Plant (RD 108)	6	NA	1
			Stone Corral Creek near Maxwell Road	4	NA	0
			Walker Creek near 99W and CR33	10	NA	2
		Lake	McGaugh Slough at Finley Road East	6	NA	2
		PitRiver	Pit River at Canby Bridge	2	NA	2
			Pit River at Pittville	2	NA	0
	PNSSNS	Coon Creek at Brewer Road	7	NA	2	
		Coon Creek at Striplin Road	5	NA	4	
	SacramentoAmador	Cosumnes River at Twin Cities Rd	6	NA	0	
		Grand Island Drain near Leary Road	12	NA	3	
		Laguna Creek at Alta Mesa Rd	5	NA	1	
	ShastaTehama	Anderson Creek at Ash Creek Road	12	NA	0	
		Coyote Creek at Tyler Road	5	NA	3	
Solano	Ulati Creek at Brown Road	11	NA	1		
	Z Drain	4	NA	1		
Yolo	Cache Creek at Capay Diversion Dam	4	NA	0		
	Willow Slough Bypass at Pole Line	9	NA	3		
pH		ButteYubaSutter	Gilsizer Slough at George Washington Road	9	NA	2
			ColusaGlenn	Stony Creek on Hwy 45 near Rd 24	4	NA
		PitRiver	Fall River at Fall River Ranch Bridge	2	NA	0
			Pit River at Pittville	2	NA	0
		SacramentoAmador	Cosumnes River at Twin Cities Rd	11	NA	0
			Dry Creek at Alta Mesa Road	5	NA	0
			Laguna Creek at Alta Mesa Rd	5	NA	0
		Solano	Ulati 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	10	NA	1		

SOURCE EVALUATIONS

Source evaluations conducted for the Management Plan and submitted in 2013 included evaluations for lead and arsenic. Summaries of the source evaluations listed in Table 3 are provided below.

Table 3. 2012 Source Evaluation Submittals

Management Plan	Water Bodies	Submitted
Lead	Pit River	May 2013
Arsenic	Grand Island Drain	August 2013

Lead Source Evaluation, Pit River

There are no current agricultural uses of lead, and there is little or no ability for irrigated agriculture in the drainage to affect lead concentrations in the Pit River. Legacy uses of lead-based pesticides were primarily on orchards, which have never comprised a significant proportion of crops in the Pit River drainage.

Because the most common non-agricultural uses of lead have been banned for at least 15 years (e.g., lead-based paints and leaded fuels), the likely sources of the lead exceedances are still unknown. It is likely that lead sources are from legacy deposits in soils or potentially from illicit discharges. One possible unconfirmed source is an old concrete block manufacturing facility near the sampling location.

Based on the findings of these source evaluations, agriculture is not likely to be a significant factor currently affecting lead concentrations in Pit River. Consequently, implementation of additional management practices does not appear warranted and is unlikely to result in any environmental benefit related to lead concentrations or loads.

Based on the completion and outcomes of this source evaluation, the Coalition concludes that the management plan requirements for lead in the Pit River should be considered complete. The next step will be to provide the Executive Officer of the Regional Water Quality Control Board with a request to deem this management plan requirement complete.

Arsenic Source Evaluation, Grand Island Drain

There are no current agricultural uses of arsenic, and as the sources of arsenic are unknown, there is little or no ability for irrigated agriculture in the drainage to affect arsenic concentrations in Grand Island Drain.

Arsenic remaining in soil from legacy lead arsenate use in orchards is a potentially significant source of arsenic, though arsenic may also be naturally present in soils on Grand Island. Groundwater samples from wells on Grand Island were found to have exceedances of the Primary drinking water MCL. Collection of groundwater quality and water level samples could be used to determine if shallow groundwater high in arsenic is discharging to surface water on Grand Island. Surface water samples from the

Sacramento-San Joaquin Delta downstream of Grand Island do not indicate high background levels of arsenic in these receiving waters.

One potential non-agricultural source of arsenic could be from use of wood preservatives. Investigation of maintenance practices for nearby wood structures in Grand Island Drain would be helpful in evaluating if this is a potentially significant source of arsenic to surface water.

Based on the findings of these source evaluations, the specific sources of arsenic on Grand Island remain unknown, though agriculture is not likely to be a significant factor currently affecting arsenic concentrations. Consequently, implementation of additional management practices does not appear warranted and may not contribute to any environmental benefit related to arsenic concentrations or loads. However, collection of additional soil, groundwater, and surface water samples could be helpful in evaluating potential sources and the overall impacts of discharges from Grand Island to the Sacramento San Joaquin Delta.

OUTREACH DOCUMENTATION

The Coalition and its subwatersheds continue to work with the Central Valley Regional 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 2013 are provided in **Appendix A** (*Summary of 2013 Management Plan Outreach Efforts*). These have been previously reported in the Coalition's 2013 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 2013, 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 Central Valley Regional Water Quality Control 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 have monitoring scheduled for source evaluation and/or compliance in 2013. Monitoring proposed for 2013 was submitted to and approved by the Central Valley Regional Water Quality Control Board's Executive Officer in 2012. The Coalition's approved 2013 monitoring plan includes the recommended monitoring schedule for the Management Plan (**Appendix B**), 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 2013 ILRP Monitoring Plan).

Based on the evaluations of 2013 Management Plan monitoring results and source evaluations presented earlier in this document, the Coalition has submitted or is preparing requests to deem complete the requirements and monitoring for 13 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 Central Valley Water Quality Control Board, as required by the Coalition's MRP.

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Table 4. Requests for Management Plan Completions

Sub-watershed	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);
	Walker Creek	Registered Pesticides	Chlorpyrifos	Approved for completion (January 24, 2014);
	Walker Creek	Toxicity	<i>Ceriodaphnia</i>	Approved for completion (January 24, 2014);
El Dorado	Coon Hollow Creek	Legacy Pesticides	DDE/DDT	Monitoring required; Other tasks suspended; Draft RTC submitted in 2013, revision submitted May 2013;
	North Canyon Creek	Legacy Pesticides	DDE	Monitoring required; Other tasks suspended; Draft RTC submitted in 2013, revision submitted May 2013;
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>	Continue monitoring; waiting for RTC approval (submitted July 2013);
Solano	Ulatis Creek	Registered Pesticides	Malathion	Approved for completion (May 21, 2013);
Yolo	Cache Creek Willow Slough	Toxicity Salinity	<i>Ceriodaphnia</i> Boron	Continue monitoring; RTC submitted Dec 2013;; Continue monitoring; Willow Slough Boron RTC in preparation for 2014;
	Willow Slough	Toxicity, Registered Pesticides	<i>Selenastrum</i> , diuron	Continue monitoring; Willow Slough Selenastrum/diuron RTC in preparation for 2014;

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PROPOSED 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 Central Valley Regional Water Quality Control 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
Diazinon	Gilsizer Slough	Addendum submitted April 2013
Chlorpyrifos	Pine Creek	Final Action Plan submitted April 2012
Chlorpyrifos	Ulatis Creek	MPIPG submitted April 2013
Malathion	Ulatis Creek	Completion request approved May 2013
<i>Selenastrum</i> toxicity and diuron	Ulatis Creek	MPIPG submitted May 2013
<i>Ceriodaphnia</i> toxicity and Chlorpyrifos	Walker Creek	Completion request approved January 2014
<i>Ceriodaphnia</i> toxicity and Chlorpyrifos	Willow Slough	MPIPG/addendum in preparation for 2014
<i>Selenastrum</i> toxicity and Diuron	Willow Slough	MPIPG requirement eliminated; Completion request in preparation for 2014
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. The existing Management Plan approved in 2009 included elements based on monitoring conducted from 2005 through September 2007, and was last updated in 2011 with data collected by the Coalition through September 2012. Data collected by the Coalition through September 2013 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 described.

New Management Plan Elements

There is only one new Management Plan triggered by exceedances observed in Coalition monitoring conducted from October 2012 through September 2013. The new required Management Plan is for dissolved oxygen in Middle Creek, which is located in the Lake subwatershed. There were no new management plans for High Priority Management Plan parameters (toxicity and pesticides), or for legacy pesticides, nutrients, or pathogen indicators. The new Management Plan requirements based on monitoring data through September 2013 are listed in Table 6.

Table 6. Additions to Management Plan for Data through September 2012

Subwatershed	Water Body	Category	Analyte	Priority
Lake	Middle Creek	DO and pH	Dissolved Oxygen	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

No significant changes to the scope of the Management Plan are proposed in this Progress Report.

The Central Valley Regional Water Quality Control Board staff proposed to incorporate details and additional changes in the Management Plan approach into the Coalition's Waste Discharge Requirements (WDR) being developed for the Long-Term Irrigated Lands Regulatory Program. The Coalition's WDR for the Long-Term ILRP was adopted by the Central Valley Regional Water Quality Control Board in March 2014. Changes to Management Plan requirements to the approaches for pathogen indicators, dissolved oxygen and pH, and legacy organochlorine pesticides were proposed by the Regional Water Board in early stages of WDR development, but were not included in the adopted WDR.

Deliverables and Schedule for Ongoing Management Plan Elements

Deliverables to be completed in 2013 for existing Management Plan elements are listed in Table 8. The specific detailed tasks for these existing Management Plan elements have been provided previously.

Table 7. Initial Deliverables for New Management Plan Elements

Waterbody (Subwatershed)	Analyte (Category)	Management Plan Deliverables	Element Detail	Proposed Due Date
Middle Creek (Lake)	Dissolved Oxygen (DO and pH)	No deliverable requirements established	Monitoring required; Other management plan tasks suspended by Executive Officer of the CVRWQCB;	None

Table 8. 2013 Deliverables for Ongoing Management Plans

	Analytes	Subwatershed	Water Body	Status	Next Deliverable ⁽¹⁾
Registered Pesticides	Chlorpyrifos	ButteYubaSutter	Lower Snake River	Continue monitoring; Waiting for RTC approval;	None established
	Chlorpyrifos	ButteYubaSutter	Pine Creek	Continue monitoring and implementation; Action Plan Report submitted April 2012;	None established
	Chlorpyrifos	ColusaGlenn	Walker Creek	Approved as completed	None
	Chlorpyrifos	Solano	Ulati Creek	Continue monitoring & implementation per MPIPG/addendum;	IPR, 2015
	Chlorpyrifos	Yolo	Willow Slough	Continue monitoring & implementation; MPIPG/addendum in prep;	MPIPG, 2014
	Diazinon	ButteYubaSutter	Gilsizer Slough	Continue monitoring & implementation per MPIPG/addendum;	Survey Summary, 2014
	Diuron	Solano	Ulati Creek	Continue monitoring & implementation per MPIPG/addendum;	IPR, 2015
	Diuron	Yolo	Willow Slough	Continue monitoring; RTC in prep for 2014;	RTC, 2014
	Malathion	ButteYubaSutter	Gilsizer Slough	Approved as completed in 2013;	None
	Malathion	ColusaGlenn	Colusa Drain	Continue monitoring & implementation per MPIPG/addendum;	IPR, 2016
	Malathion	Solano	Ulati Creek	Approved as completed in 2013;	None
	Malathion	Yolo	Willow Slough	Continue monitoring & implementation per MPIPG/addendum;	IPR, 2016
	Toxicity	Ceriodaphnia	ButteYubaSutter	Lower Snake River	Continue monitoring;
Ceriodaphnia		ColusaGlenn	Stony Creek	Continue monitoring; RTC submitted for approval;	None
Ceriodaphnia		ColusaGlenn	Walker Creek	Approved as completed in 2013;	None
Ceriodaphnia		Yolo	Cache Creek	Continue monitoring; RTC submitted for approval;	None
Ceriodaphnia		Yolo	Willow Slough	Continue monitoring & implementation per chlorpyrifos MPIPG/addendum;	MPIPG/addendum
Hyaella		ColusaGlenn	Stony Creek	Continue monitoring; RTC submitted for approval;	None
Hyaella		Solano	Z Drain	Continue monitoring and implementation per MPIPG and 2012 addendum;	None
Selenastrum		ButteYubaSutter	Butte Slough	Continue monitoring; waiting for RTC approval;	None
Selenastrum		Solano	Ulati Creek	Continue monitoring and implementation per May 2013 diuron MPIPG;	None
Selenastrum		Yolo	Willow Slough	Continue monitoring; RTC in preparation for 2014	RTC

	Analytes	Subwatershed	Water Body	Status	Next Deliverable ⁽¹⁾
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; MPIPG/addendum in prep for 2014;	MPIPG
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 DDE	EIDorado EIDorado	Coon Hollow Creek North Canyon Creek	Monitoring required; Other tasks suspended; Draft RTC submitted in 2013;	RTC (No deliverable requirements established)
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, Upper Feather River	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;

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 Regional 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 Order³ 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 2010 MRP and the *Addendum to Sacramento Valley Water Quality Coalition Management Plan: Chlorpyrifos and Diazinon TMDLs* present the technical approach and rationale for the monitoring. The schedule for TMDL monitoring at these locations is also included in the 2013 ILRP Monitoring Plan (the 2014 monitoring schedule specifically for TMDLs and the Management Plan is provided in **Appendix B**).

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;

³ 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.

- Determine whether the discharge causes or contributes to a toxicity impairment due to additive or synergistic effects of multiple pollutants; and
- 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 2013 were reported in *Management Of Chlorpyrifos And Diazinon Discharges To The Sacramento And Feather Rivers And The Sacramento-San Joaquin Delta: 2013 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 2005-2013 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 plausible 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 Regional 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 Central Valley Regional Water Quality Control Board (Regional 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 TMDL⁴. Key findings

⁴ *Clear Lake Nutrient Total Maximum Daily Load Control Program 5-Year Update*. Regional Water Quality Control Board Central Valley Region. September 2012.

and conclusions of the TMDL Update that were relevant to agricultural stakeholders in the region include:

- The TMDL adopted by the Central Valley Water Board in 2006 for control of phosphorus in Clear Lake is still appropriate.
- 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 Central Valley 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 memorandum⁵ 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

⁵ 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.

acreage and 145 winegrape growers have begun the process to become certified as sustainable winegrowers as part of the California Sustainable Winegrowing Alliance (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 in 2013 and 2014. All of the relevant data for the Clear Lake monitoring sites is 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 Monitoring and Reporting Program (MRP) adopted by the Regional Water Board in December 2009 (*Order No. R5-2009-0875*). These requirements are addressed by specific deliverables or processes of the Management Plan as described below:

- 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 routine Core and Assessment monitoring is prepared annually for review and approval by the Water Board. The Coalition is currently implementing the approved monitoring plan for 2013.
- 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 MPIPGs) for a number of pesticide and toxicity Management Plans have been developed and submitted to the Water Board beginning in 2011. Although these MPIPGs 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 be conducted regularly as documented in individual approved MPIPG 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 is making good progress toward meeting all of these requirements and expects to achieve the goals of the Management Plan.

Appendix A: Summary of 2013 Management Plan Outreach Efforts

Appendix A: Summary of 2013 Management Plan Outreach Efforts

Sub-watershed	Water Body Name	Site Name	Mgt Plan Category	Analyte or Test Species	Date of Outreach	Organization Providing Outreach	Focus of Outreach (Topics/ Exceedances)	Location Where Outreach Conducted (include Phone Calls)	# Attending, Successfully Contacted, or on Mailing Distribution	Outreach Type	Other Outreach Type (SPECIFY)	Document Title(s) (if applicable)	Document(s) Provided? (Select Y/N)
ButteYubaSutter	Lower Snake River	Lower Snake R. at Nuestro Rd	Toxicity	Ceriodaphnia	3/12/2013	SCRCD	2011 Ceriodaphnia Toxicity	Sent via USPS	31 Members	Letter		Ceriodaphnia Toxicity Exceedence Letter - Lower Snake	Yes
ButteYubaSutter	Pine Creek	Pine Creek at Nord Gianella Road	Registered Pesticides	Chlorpyrifos	8/1/2013	SCRCD	Chlorpyrifos Exceedence	Sent via USPS	3 Members	Letter		Chlorpyrifos Exceedence Letter - 2013 Pine Creek	Yes
ButteYubaSutter	Pine Creek	Pine Creek at Nord Gianella Road	Registered Pesticides	Chlorpyrifos	12/12/2013	SCRCD/BCAC	Chlorpyrifos Exceedence	Butte Co. Ag Commissioner's Office	3 Members, 1 PCA, Richard Price (Butte County Agricultural Commissioner)	Meeting		Pine Creek Meeting Agenda; Pine Creek Meeting Powerpoint	Yes
ButteYubaSutter	Pine Creek	Pine Creek at Nord Gianella Road	Registered Pesticides	Chlorpyrifos	11/19/2013; 12/5/2013	SCRCD	Chlorpyrifos Exceedence	Sent via USPS	7 Members, 3 PCAs	Letter		Pine Creek Dec 2013 meeting letter growers & Pine Creek Dec 2013 meeting letter PCAs	Yes
ColusaGlenn	COLDR	Colusa Basin Drain above KL	Registered Pesticides	Malathion	12/5/2012	CGSP	Annual Colusa County Grower's Meeting / Grower View of the Current & LT-ILRP / all / Management Plan: Malathion in Colusa Basin Drain/Rough & Ready Pumping Plant (Event 49, 66)	Colusa County Fairgrounds, Colusa CA	147	OTHER (Specify)	PowerPoint @ Meeting	CGSP_ColusaGrower Meeting_12.05.2012.pdf	Yes
ColusaGlenn	COLDR	Colusa Basin Drain above KL	Registered Pesticides	Malathion	2/22/2013	CGSP	LCBD At Knights Landing Malathion Management Plan (Event 49, 66)	Colusa County	6500	Article/Newsletter		CGSP_PressRelease_Malathion_2-22-2013.pdf	Yes
ColusaGlenn	COLDR	Colusa Basin Drain above KL	Registered Pesticides	Malathion	5/28/2013	CGSP	Malathion Management Plan & Long-Term ILRP (Events 49, 66, 85)	Colusa County Farm Bureau, Colusa CA	22	OTHER (Specify)	PowerPoint @ Meeting	PowerPoint Slides	Yes
ColusaGlenn	COLDR	Colusa Basin Drain above KL	Registered Pesticides	Malathion	6/26/2013	CGSP	LCBD At Knights Landing Malathion Management Plan - 3rd Exceedance Workshop / Notice (Event 85)	Colusa County	352 = 158 Producers; 74 Pilots; 114 Advisors; 6 Businesses	Letter		LCBDKL_ExcLetter_6_20.2013_third_no2.pdf	Yes
Sacramento Amador	CRTWN	Cosumnes River at Twin Cities Rd	Toxicity	Hyalella azteca	12/16/2013	SAWQA	Exceedances to date and future LTILRP	Frasinetti Windery	10	Meeting	Phone Call	RCD Report	Yes
Sacramento Amador	GIDLR	Grand Island Drain near Leary Road	Pesticide	Dimethoate	1/29/2014	SAWQA	Dimethoate exceedence/ new program requirements	Sacramento County Farm Bureau office	15	Meeting	Powerpoint Presentation Pamphlets	Witon Growers Meeting 2014: Orchard Air Blast Sprayers Mixing and Loading (CURES); Diazinon Management Practices for Protecting Surface Water During Dormant Orchard Applications (CURES)	Yes
Solano	UCBRD	Ulatis Creek at Brown Road	Registered Pesticides	Chlorpyrifos	2/1/2013	Dixon Solano Water Quality Coalition	Water Quality ALERT (Spring Insecticides) & Advertise USDA NRCS cost-share availability for water quality practices	mail (Solano County alfalfa/almond/walnut growers)	120	Flyer		General Insecticide Issues Flyer February 2013 & BDL_brochure_HQPri nt	Yes

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Sub-watershed	Water Body Name	Site Name	Mgt Plan Category	Analyte or Test Species	Date of Outreach	Organization Providing Outreach	Focus of Outreach (Topics/ Exceedances)	Location Where Outreach Conducted (include Phone Calls)	# Attending, Successfully Contacted, or on Mailing Distribution	Outreach Type	Other Outreach Type (SPECIFY)	Document Title(s) (if applicable)	Document(s) Provided? (Select Y/N)
Solano	UCBRD	Ulatis Creek at Brown Road	Registered Pesticides	Chlorpyrifos	2/22/2013	Dixon Solano Water Quality Coalition	Advertise USDA NRCS cost-share availability for water quality practices to ALL Coalition Members (Landowners/growers)	mail Dixon/Solano Coalition membersip	580	Flyer		General Insecticide Issues Flyer February 2013 & BDL_brochure_HQPri nt & landowner note BDI February 2013	Yes
Solano	UCBRD	Ulatis Creek at Brown Road	Registered Pesticides	Chlorpyrifos	2/28/2013	Dixon Solano Water Quality Coalition	Advertise USDA NRCS cost-share availability for water quality practices to local pest control advisors	mail to pest control advisors	35	Flyer		General Insecticide Issues Flyer February 2013 & BDL_brochure_HQPri nt & PCA - Applicator note February 2013	Yes
Solano	UCBRD	Ulatis Creek at Brown Road	Registered Pesticides	Chlorpyrifos	2/20/2013 - 3/26/13	Dixon Solano Water Quality Coalition	Phone calls & completion of management practice surveys	Phone Calls	45	Phone Call		January 2013 Baseline Survey & Chlorpyrifos list of practices 0313	Yes
Solano	UCBRD	Ulatis Creek at Brown Road	Registered Pesticides	Diuron	11/6/2012	Dixon Solano Water Quality Coalition	Pre-Season Water Quality Reminder for PCAs & Alfalfa Growers	Mailing	63 growers, 33 PCAs	Flyer		Alfalfa Diuron Flyer November 2012; PCA - Applicator Send to List 022813	Yes
Solano	ZDDIX	Z Drain	Registered Pesticides	Chlorpyrifos, Pyrethroids	March 2014	Dixon Solano Water Quality Coalition	Summary of sampling results for April and August 2013 sediment toxicity and pesticide analyses.	Mail to growers and PCAs	10	OTHER (Specify)	Two-page document summarizing results, with figure and location map for sites	2013 Z-Drain Monitoring Results Update	Yes
Solano	ZDDIX	Z Drain	Registered Pesticides	Chlorpyrifos, Pyrethroids	March 2014	Dixon Solano Water Quality Coalition	General pyrethroid outreach information	Mail to past and new users of pyrethroids	56	Flyer			No
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	10/1/2012	Dixon Solano Water Quality Coalition	Annual Newsletter to update members	by mail	581	Article/Newsletter		Dixon Solano Coalition Annual Newsletter FINAL 2012-2013	Yes
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	12/6/2012	Dixon Solano Water Quality Coalition	Solano Ag Commissioner PCA/CCA Training`	Solano County Ag Department, Fairfield	35	Meeting		Ag Comm Meeting 12_20_12	Yes
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	12/20/2012	Dixon Solano Water Quality Coalition	Solano Ag Commissioner PCA/CCA Training`	Solano County Ag Department, Fairfield	35	Meeting		Ag Comm Meeting 12_20_12	Yes
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	1/24/2013	Dixon Solano Water Quality Coalition	Solano Ag Commissioner PCA/CCA Training`	Solano County Ag Department, Fairfield	49	Meeting		Ag Comm Meeting 12_20_12	Yes
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	2/1/2013	Dixon Solano Water Quality Coalition	Water Quality ALERT (Spring Insecticides) & Advertise USDA NRCS cost-share availability for water quality practices	mail (Solano County alfalfa/almond/w alnut growers)	120	Flyer		General Insecticide Issues Flyer February 2013 & BDL_brochure_HQPri nt	Yes
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	3/14/2013	Dixon Solano Water Quality Coalition	Solano Irrigation District	Local Grower's Packing Shed	22	Meeting		Irrigation Efficiency Workshop 03_14_13 printout	Yes

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Sub-watershed	Water Body Name	Site Name	Mgt Plan Category	Analyte or Test Species	Date of Outreach	Organization Providing Outreach	Focus of Outreach (Topics/ Exceedances)	Location Where Outreach Conducted (include Phone Calls)	# Attending, Successfully Contacted, or on Mailing Distribution	Outreach Type	Other Outreach Type (SPECIFY)	Document Title(s) (if applicable)	Document(s) Provided? (Select Y/N)
Solano	ZDDIX	Z Drain	Toxicity	Hyalella azteca	6/12/2013	Dixon Solano Water Quality Coalition	Review Management Plan Commitments, planned practices for 2013-2014 & Discuss Monitoring Results & additional monitoring locations	Z-Drain Grower/PCA Meeting	12	Meeting		061213 Grower PCA Meeting Agenda	Yes
Yolo	WLSPL	Willow Slough Bypass at Pole Line	Registered Pesticides	Malathion	2/7/2013	YCFBEC	Spray Safe program	YC Fairgrounds	350 - 380 attend	Workshop		final agenda	Yes
Yolo	WLSPL	Willow Slough Bypass at Pole Line	Registered Pesticides	Malathion	9/30/2013	YCFBEC	growers - survey		126	Letter		March 13 exceedance notice letter for Alfalfa growers Sept 2013	Yes
Yolo	WLSPL	Willow Slough Bypass at Pole Line	Registered Pesticides	Malathion	December 2013	YCFBEC/Ag Dept	Grower Meetings for Renewal Program	Clarksburg, Winters, Woodland	1700 flyers mailed, about 150 people attend	Workshop		2013 Irrigated Lands flyer; 2013 Irrigated Ag Lands Program Binder Cover-Evening	Yes
Yolo	WLSPL	Willow Slough Bypass at Pole Line	Registered Pesticides	Malathion		YC Ag Dept	PCAs - exceedance	YC Ag Dept		Meeting			No
Yolo	WLSPL	Willow Slough Bypass at Pole Line	Registered Pesticides	Malathion		YC Ag Dept	growers - survey		10	Meeting			No
Yolo	WLSPL	Willow Slough Bypass at Pole Line	Registered Pesticides	Malathion		YC Ag Dept	growers - survey			Phone Call			No

Appendix B: 2014 Management Plan Monitoring

2014 Management Plan Monitoring from Attachment D of the *2014 ILRP Monitoring Plan*. Prepared by Larry Walker Associates for the Sacramento Valley Water Quality Coalition, August 2103.

KEY

Column in Management Plan Monitoring 2014 Worksheet	Explanation
Subwatershed	Name of subwatershed for the monitoring site
Waterbody	Name of monitored waterbody
SiteID	SVWQC Site Identification Code
MONITORING CATEGORIES	Indicates category of monitoring: REP=Representative; MP=Management Plan; TMDL=TMDL
Parameter Category	Category of monitored analytes
Active Management Plan Categories	Indicates management plan category when appropriate
Matrix	Water or Sediment
Monitored Parameters	Analyte names
Parameter-specific Schedule Notes 2014	Comments and exceptions
92 OCT	"X" indicates sampled months "C" indicates samples collected by coordinating monitoring effort Blanks indicate no samples planned in the month for that analyte
93 NOV	
94 DEC	
95 JAN	
96 FEB	
97 MAR	
98 APR	
99 MAY	
100 JUN	
101 JUL	
102 AUG	
103 SEP	

Management Plan Monitoring 2014

Subwatershed	Waterbody	SiteID	MONITORING CATEGORIES	Parameter Category	Active Management Plan Categories	Matrix	Monitored Parameters	Parameter-specific Schedule Notes 2014	2014														
									92 OCT	93 NOV	94 DEC	95 JAN	96 FEB	97 MAR	98 APR	99 MAY	100 JUN	101 JUL	102 AUG	103 SEP			
ButteYubaSutter	Butte Slough	BTTSL	MP	00 Field Measured	DO and pH	water	Field Measured Group	Alternate representative months;	X							C		C		C			
ButteYubaSutter	Gilsizer Slough	GILSL	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	With TMDL monitoring;			X						X			X	X	X	
ButteYubaSutter	Gilsizer Slough	GILSL	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															
ButteYubaSutter	Gilsizer Slough	GILSL	MP	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	MAY, AUG [with TMDL monitoring]									X				X		
ButteYubaSutter	Gilsizer Slough	GILSL	MP TMDL	07 Registered Pesticides	Registered Pesticides	water	diazinon	Use-based schedule;				X	X				X						
ButteYubaSutter	Lower Honcut Creek	LHNCT	REP MP	00 Field Measured	DO and pH	water	Field Measured Group			X	X	X	X	X	X	X	X	X	X	X	X	X	
ButteYubaSutter	Lower Honcut Creek	LHNCT	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X	X	X	
ButteYubaSutter	Lower Snake River	LSNKR	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X	X	X	
ButteYubaSutter	Lower Snake River	LSNKR	REP MP TMDL	07 Registered Pesticides	Registered Pesticides	water	chlorpyrifos	Use-based schedule;												X	X	X	X
ButteYubaSutter	Lower Snake River	LSNKR	REP MP	08 Toxicity-water	Toxicity	water	Water Flea - Ceriodaphnia	Scheduled for higher risk pesticides;					X			X	X	X	X	X	X	X	X
ButteYubaSutter	Pine Creek	PNCGR	REP MP	00 Field Measured	DO and pH	water	Field Measured Group			X	X	X	X	X	X	X	X	X	X	X	X	X	X
ButteYubaSutter	Pine Creek	PNCGR	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X	X	X	X
ButteYubaSutter	Pine Creek	PNCGR	REP MP	04 Metals	Trace Metals	water	copper (total and dissolved)	Use-based schedule;								X	X	X	X				
ButteYubaSutter	Pine Creek	PNCGR	REP MP TMDL	07 Registered Pesticides	Registered Pesticides	water	chlorpyrifos	Use-based schedule;												X	X	X	X
ButteYubaSutter	Sacramento Slough	SSKNK	REP MP	00 Field Measured	DO and pH	water	Field Measured Group	Coordinated with CRC April-Aug		X	X	X	X	X	X	C	C	C	C	C	C	C	X
ButteYubaSutter	Wadsworth Canal	WADCN	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															
ColusaGlenn	Colusa Drain	CODMR	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															
ColusaGlenn	Colusa Drain	COLDR	REP MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	Coordinated with CRC April-Aug		X	X	X	X	X	X	C	C	C	C	C	C	C	X
ColusaGlenn	Colusa Drain	COLDR	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X	X	X	X
ColusaGlenn	Colusa Drain	COLDR	REP MP	07 Registered Pesticides	Registered Pesticides	water	malathion	Use-based schedule;							X	X							
ColusaGlenn	Freshwater Creek	FRSHC	REP MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group			X	X	X	X	X	X	X	X	X	X	X	X	X	
ColusaGlenn	Freshwater Creek	FRSHC	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X	X	X	
ColusaGlenn	Logan Creek	LGNCR	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															
ColusaGlenn	Lurline Creek	LRLNC	MP	00 Field Measured	Salinity	water	Field Measured Group	Alternate representative months;						X			X			X		X	
ColusaGlenn	Lurline Creek	LRLNC	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															
ColusaGlenn	Lurline Creek	LRLNC	MP TMDL	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	APR, AUG									X					X	
ColusaGlenn	Stone Corral Creek	SCCMR	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	Alternate representative months;						X			X			X		X	
ColusaGlenn	Stone Corral Creek	SCCMR	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															
ColusaGlenn	Stony Creek	STYHY	MP	00 Field Measured	DO and pH	water	Field Measured Group	Alternate representative months;						X			X			X		X	
ColusaGlenn	Stony Creek	STYHY	MP	08 Toxicity-water	Toxicity	water	Water Flea - Ceriodaphnia	2 Wet season storm events [Continue MP					X			X							
ColusaGlenn	Stony Creek	STYHY	MP	09 Toxicity-sediment	Toxicity	sediment	Hyalella azteca	APR, AUG									X					X	
ColusaGlenn	Sycamore Slough	RARPP	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	Alternate representative months;									X			X		X	X
ColusaGlenn	Sycamore Slough	RARPP	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)															

Management Plan Monitoring 2014

Subwatershed	Waterbody	SiteID	MONITORING CATEGORIES	Parameter Category	Active Management Plan Categories	Matrix	Monitored Parameters	Parameter-specific Schedule Notes 2014	92 OCT	93 NOV	94 DEC	95 JAN	96 FEB	97 MAR	98 APR	99 MAY	100 JUN	101 JUL	102 AUG	103 SEP
ColusaGlenn	Sycamore Slough	RARPP	MP TMDL	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	APR, AUG							X					X
ColusaGlenn	Walker Creek	WLKCH	REP MP	00 Field Measured	DO and pH	water	Field Measured Group			X	X	X	X	X	X	X	X	X	X	X
ColusaGlenn	Walker Creek	WLKCH	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X
ColusaGlenn	Walker Creek	WLKCH	REP MP	08 Toxicity-water	Toxicity [Completed]	water	Water Flea - Ceriodaphnia	Scheduled for higher risk pesticides;						X	X				X	X
ElDorado	Coon Hollow Creek	COONH	MP	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	APR, AUG							X					X
ElDorado	North Canyon Creek	NRTCN	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
ElDorado	North Canyon Creek	NRTCN	MP	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	APR, AUG							X					X
Lake	McGaugh Slough	MGSLU	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	With TMDL sampling;		X		X		X	X	X	X			X
Lake	McGaugh Slough	MGSLU	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
Lake	Middle Creek	MDLCR	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X		X		X	X	X	X			X
Napa	Capell Creek	CCULB	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)						X	X	X	X			X
NECWA	Fall River	FRRRB	MP	00 Field Measured	DO and pH	water	Field Measured Group	SWAMP Schedule		C			C			C				C
NECWA	Pit River	PRCAN	MP	00 Field Measured	DO and pH	water	Field Measured Group	SWAMP Schedule		C			C			C				C
NECWA	Pit River	PRPIT	REP MP	00 Field Measured	DO and pH	water	Field Measured Group			C			C			C	X	X		C
NECWA	Pit River	PRPIT	REP MP	04 Metals	Trace Metals	water	lead (total and dissolved)	Management Plan;		C						C	X	X		C
PNSSNS	Coon Creek	CCBRW	REP MP	00 Field Measured	DO and pH	water	Field Measured Group						X	X	X	X	X	X	X	X
PNSSNS	Coon Creek	CCBRW	REP	02 Pathogens	Pathogen Indicators	water	E. coli						X	X	X	X	X	X	X	X
PNSSNS	Coon Creek	CCSTR	MP	00 Field Measured	DO and pH	water	Field Measured Group	With TMDL monitoring;							X				X	X
SacramentoAmador	Cosumnes River	CRTWN	REP MP	00 Field Measured	DO and pH	water	Field Measured Group		X		X	X	X	X	X	X	X			X
SacramentoAmador	Cosumnes River	CRTWN	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli		X		X	X	X	X	X	X	X			X
SacramentoAmador	Cosumnes River	CRTWN	REP MP	09 Toxicity-sediment	Toxicity	sediment	Hyalella azteca	APR, AUG							X					X
SacramentoAmador	Dry Creek	DCGLT	MP	00 Field Measured	DO and pH	water	Field Measured Group	Alternate representative months in irrigation	X						X			X		X
SacramentoAmador	Dry Creek	DCGLT	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
SacramentoAmador	Grand Island Drain	GIDLR	REP MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group		X	X	X	X	X	X	X	X	X	X	X	X
SacramentoAmador	Grand Island Drain	GIDLR	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli		X	X	X	X	X	X	X	X	X	X	X	X
SacramentoAmador	Grand Island Drain	GIDLR	REP MP	04 Metals	Trace Metals	water	arsenic (total)	Every second month [regionally elevated]		X		X		X		X	X			X
SacramentoAmador	Grand Island Drain	GIDLR	REP MP TMDL	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	APR, AUG							X					X
SacramentoAmador	Laguna Creek	LAGAM	MP	00 Field Measured	DO and pH	water	Field Measured Group	Alternate representative months in irrigation	X						X			X		X
SacramentoAmador	Laguna Creek	LAGAM	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
ShastaTehama	Anderson Creek	ACACR	REP MP	00 Field Measured	DO and pH	water	Field Measured Group			X		X	X	X	X	X	X	X	X	X
ShastaTehama	Burch Creek	BRCWB	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)		X		X	X	X	X	X	X	X	X	X
ShastaTehama	Coyote Creek	COYTR	MP	00 Field Measured	DO and pH	water	Field Measured Group	Alternate representative months in irrigation							X			X		X
ShastaTehama	Coyote Creek	COYTR	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
Solano	Shag Slough	SSLIB	REP MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group		X	X	X	X	X	X	X	X	X	X	X	X
Solano	Shag Slough	SSLIB	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli		X	X	X	X	X	X	X	X	X	X	X	X
Solano	Ulatis Creek	UCBRD	REP MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group			X	X	X	X	X	X	X	X	X	X	X
Solano	Ulatis Creek	UCBRD	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli			X	X	X	X	X	X	X	X	X	X	X
Solano	Ulatis Creek	UCBRD	REP MP TMDL	07 Registered Pesticides	Registered Pesticides	water	chlorpyrifos	Use-based schedule;							X	X			X	X
Solano	Ulatis Creek	UCBRD	REP MP	07 Registered Pesticides	Registered Pesticides	water	diuron	Use-based schedule;				X	X	X					X	X
Solano	Ulatis Creek	UCBRD	REP MP	08 Toxicity-water	Toxicity	water	Algae - Selenastrum	Scheduled for higher risk herbicides;		X	X	X	X	X	X	X	X	X	X	X
Solano	Z Drain	ZDDIX	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	Alternate representative months;					X		X		X			X
Solano	Z Drain	ZDDIX	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												

Management Plan Monitoring 2014

Subwatershed	Waterbody	SiteID	MONITORING CATEGORIES	Parameter Category	Active Management Plan Categories	Matrix	Monitored Parameters	Parameter-specific Schedule Notes 2014	92 OCT	93 NOV	94 DEC	95 JAN	96 FEB	97 MAR	98 APR	99 MAY	100 JUN	101 JUL	102 AUG	103 SEP
Solano	Z Drain	ZDDIX	MP	09 Toxicity-sediment	Toxicity	sediment	Hyalella azteca	APR, AUG							X				X	
UpperFeatherRiver	Indian Creek	INDAB	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
UpperFeatherRiver	Middle Fork Feather River	MFFGR	REP MP	00 Field Measured	Salinity	water	Field Measured Group		C							C	X	X	C	
UpperFeatherRiver	Spanish Creek	SPGRN	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
Yolo	Cache Creek	CCCPY	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	Alternate months FEB-AUG;					X		X		X		X	
Yolo	Cache Creek	CCCPY	MP	08 Toxicity-water	Toxicity	water	Water Flea - Ceriodaphnia	Alternate months FEB-AUG;					X		X		X		X	
Yolo	Tule Canal	TCHWY	MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group	Alternate representative months;					X		X		X		X	
Yolo	Tule Canal	TCHWY	MP	02 Pathogens	Pathogen Indicators	water	E. coli	None; (suspended)												
Yolo	Tule Canal	TCHWY	MP	04 Metals	Salinity	water	boron (total)	Alternate representative months [regionally elevated];					X		X		X		X	
Yolo	Willow Slough	WLSPL	REP MP	00 Field Measured	DO and pH, Salinity	water	Field Measured Group		X	X	X	X	X	X	X	X	X	X	X	X
Yolo	Willow Slough	WLSPL	REP MP	02 Pathogens	Pathogen Indicators	water	E. coli		X	X	X	X	X	X	X	X	X	X	X	X
Yolo	Willow Slough	WLSPL	REP MP	04 Metals	Salinity	water	boron (total)	[regionally elevated]				X	X	X	X					
Yolo	Willow Slough	WLSPL	REP MP TMDL	05 Legacy OCLs	Legacy OCLs	water	Legacy OCLs	APR, AUG							X				X	
Yolo	Willow Slough	WLSPL	REP MP TMDL	07 Registered Pesticides	Registered Pesticides	water	chlorpyrifos	Use-based schedule;						X	X				X	X
Yolo	Willow Slough	WLSPL	REP MP	07 Registered Pesticides	Registered Pesticides	water	diuron	Use-based schedule;				X	X							
Yolo	Willow Slough	WLSPL	REP MP	07 Registered Pesticides	Registered Pesticides	water	malathion	Use-based schedule;						X						
Yolo	Willow Slough	WLSPL	REP MP	08 Toxicity-water	Toxicity	water	Algae - Selenastrum	Scheduled for higher risk herbicides;		X	X	X	X	X	X	X	X	X	X	X
Yolo	Willow Slough	WLSPL	REP MP	08 Toxicity-water	Toxicity	water	Water Flea - Ceriodaphnia	Scheduled for higher risk pesticides;					X	X	X		X	X	X	X