East San Joaquin
WATER QUALITY COALITION
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September 21, 2015

Pamela Creedon, Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Dear Ms. Creedon,

The East San Joaquin Water Quality Coalition (ESJWQC or Coalition) is submitting a request to remove specific constituents from selected site subwatershed management plans and from the site's Management Plan Monitoring (MPM) schedule. Justification for the request is provided through the four requirements outlined in the WDR (R5-2012-0116-R3) Attachment B, Appendix MRP-1, Section III, Pages 8 and 9 per each site subwatershed in the attached letter.

Sites listed below meet the four requirements for management plan completion due to improved water quality. If approved, the Coalition will remove site specific constituent management plans from:

- Bear Creek @ Kibby Rd (pH)
- Berenda Slough along Ave 18 ½ (copper and chlorpyrifos)
- Black Rascal Creek @ Yosemite (lead, chlorpyrifos, and *C. dubia* water column toxicity)
- Deadman Creek @ Gurr Rd (*S. capricornutum* water column toxicity)
- Deadman Creek @ Hwy 59 (pH and chlorpyrifos)
- Dry Creek @ Rd 18 (lead)
- Dry Creek @ Wellsford Rd (pH and *H. azteca* sediment toxicity)
- Duck Slough @ Gurr Rd (lead)
- Highline Canal @ Hwy 99 (lead)
- Highline Canal @ Lombardy Rd (lead)
- Hilmar Drain @ Central Ave (pH, copper, diuron)
- Howard Lateral @ Hwy 140 (pH and chlorpyrifos)
- Livingston Drain @ Robin Ave (chlorpyrifos and *S. capricornutum* water column toxicity)
- Miles Creek @ East Ave (copper, lead, chlorpyrifos, and *C. dubia* water column toxicity)
- Mootz Drain downstream of Langworth Pond (chlorpyrifos)
- Mustang Creek @ East Ave (SC)
- Prairie Flower Drain @ Crows Landing Rd (*P. promelas* water column toxicity)

Submitted respectfully,

Parry Klassen
Executive Director
East San Joaquin Water Quality Coalition

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INTRODUCTION

Management Plan Monitoring (MPM) is conducted as part of the Coalition's management plan strategy to identify contaminant sources and evaluate the effectiveness of management practices in improving water quality. When sources of water quality impairments are identified, the constituents causing impairments are listed in the site's management plan. Management plans are required as a result of a single exceedance of the Water Quality Trigger Limit (WQTL) of a Total Maximum Daily Load (TMDL) constituent (Specific conductance (SC), boron, chlorpyrifos, and diazinon), or more than one exceedance of a WQTL of other constituents.

When a constituent becomes the focus of the ESJWQC Management Plan, the Coalition initiates focused outreach and additional MPM during months of past exceedances. The Coalition identifies potential sources of the exceedances, contacts those growers directly to arrange meetings on their farm, conducts initial and follow-up surveys with those growers to identify if any additional management practices are needed and then to determine if those practices were implemented, and monitoring to determine if the implemented practices are effective in eliminating the discharges responsible for the exceedances. The ESJWQC Management Plan (submitted on 5/1/2014 and resubmitted 3/10/2015, awaiting approval) describes this process in detail. This process of sourcing, outreach, and monitoring was started in 2008 and sufficient water quality data for a subset of site subwatersheds have been collected to document improved water quality. Therefore, the Coalition is requesting the removal of 29 constituents in 17 site subwatersheds (Table 1).

Table 1. ESJWQC sites and constituents proposed for management plan completion.

Site Subwatershed	Years of Focused Outreach	pH	SC	Copper	Lead	Chlorpyrifos	Diuron	*C. dubia*	*S. capricornutum*	*H. azteca* Toxicity	*P. promelas* Toxicity	TOTAL
Bear Creek @ Kibby Rd	2010-2012	X										1
Berenda Slough along Ave 18 ½	2011-2013			X		X						2
Black Rascal Creek @ Yosemite	2012-2014				X	X		X				3
Deadman Creek @ Gurr Rd	2012-2014								X			1
Deadman Creek @ Hwy 59	2012-2014	X				X						2
Dry Creek @ Rd 18	2011-2013				X							1
Dry Creek @ Wellford Rd	2008-2010	X								X		2
Duck Slough @ Gurr Rd	2010-2012				X							1
Highline Canal @ Hwy 99	2010-2012				X							1
Highline Canal @ Lombardy Rd	2013-2015				X							1
Hilmar Drain @ Central Ave	2012-2014	X		X			X					3
Howard Lateral @ Hwy 140	2015-2017	X				X						2
Livingston Drain @ Robin Ave	2011-2013					X			X			2
Miles Creek @ Reilly Rd	2013-2015			X	X	X		X				4
Mootz Drain downstream of Langworth Pond	2015-2017					X						1
Mustang Creek @ East Ave	2014-2016		X									1
Prairie Flower Drain @ Crows Landing Rd	2008-2010										X	1
	Total	**5**	**1**	**3**	**6**	**7**	**1**	**2**	**2**	**1**	**1**	**29**

*Field parameters will continue to be monitored during all monitoring events.

The proposal to remove constituents from management plans has been justified using available Pesticide Use Report (PUR) data and laboratory results through August 2015. Field parameters and toxicity results are through September 2015. In some cases, the Coalition utilized field result data from months with similar field conditions if data for the month of the past exceedance was not collected due to monitoring events not being scheduled for that month. Field conditions in months within each season are similar; the Coalition asks staff to consider field measurements taken during months of similar field conditions as part of the monitoring requirements for completion of the field parameter management plans in the letter below. Additionally, all field parameters are measured during every monitoring event (Core Monitoring, Represented Monitoring, and MPM). Therefore, if field parameters are removed from management plans, they will still be monitored during scheduled monitoring events. The Coalition will report all monitoring results for the 2015 Water Year (WY) in the May 2016 Annual Report.

To support the Coalition's request, monitoring data are provided in Appendix I for each site/constituent and PUR data charts for agriculturally applied chemicals are included in Appendix II. These data document improved water quality due to successful outreach and education. The section key (Table 2) below outlines the requirements for management plan completion as stated in the WDR (R5-2012-0116-R3) and corresponding sections per each site subwatershed:

Table 2. Management plan completion section key.

Requirements for Management Plan Completion: as outlined in the Waste Discharge Requirements General Order (WDR or General Order) for Growers within the Eastern San Joaquin River Watershed (Order No. R5-2012-0116-R3)	Section Name/Location – Annual Report
1. Demonstration through evaluation of monitoring data that the water quality impairment is no longer occurring (i.e., three or more years with no exceedances during the times of the year when previous exceedances occurred) or demonstrated compliance with the WDR's surface and groundwater receiving water limitations.	• Subwatershed Overview and Monitoring History, • Constituent Monitoring Results and Sourcing (including review of PUR data)
2. Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred.	• Summary of Outreach
3. Documentation of member implementation of management practices that address the water quality exceedance.	• Management Practices Implemented
4. Demonstration that the management practices implemented by members are effective in addressing the water quality impairment.	• Justification for Removal- review of how the Coalition has met the requirements for removal as outlined in the WDR Attachment B, Appendix MRP-1, Section III, Pages 8 and 9. • Future Monitoring

SUPPORTING DOCUMENTATION FOR MANAGEMENT PLAN COMPLETION

BEAR CREEK @ KIBBY RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- pH

Subwatershed Overview and Monitoring History

Bear Creek @ Kibby Rd is a Represented site located in Zone 4. Monitoring began during the storm season of 2005 and continued through the 2014 WY with the exception of 2009 when no monitoring occurred. Management Plan Monitoring was performed during months of past exceedances from May 2010 through April 2014 to evaluate the effectiveness of the Coalition's outreach strategy and recommended and implemented management practices on water quality.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2010 and continued through 2012. Growers in the site subwatershed with the greatest likelihood of contributing to water quality impairments associated with exceedances of the WQTL for chlorpyrifos and toxicity to *C. dubia* were identified. The Coalition contacted 14 targeted growers in 2010 to discuss water quality impairments, document existing management practices, and encouraged the implementation of additional management practices. The Coalition followed up with targeted growers in 2011 to determine which additional management practices were implemented. Growers implemented management practices effective in reducing discharge of agriculturally applied constituents eliminating exceedances of chlorpyrifos, toxicity to *C. dubia*, as well as pH. Consequently, chlorpyrifos and toxicity to *C. dubia* were approved for removal from the Bear Creek @ Kibby Rd site subwatershed's management plan on May 30, 2012 and October 10, 2015, respectively.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

pH

Exceedances of water quality objectives for field parameters such as pH are impossible to track and source. Parameters such as pH are non-conserved, meaning they change as water moves downstream. The pH of a waterbody results from processes occurring in the water column and in the sediment. These processes can vary diurnally and seasonally. Naturally occurring minerals such as calcium carbonate, precipitation (including acid rain), photosynthesis and algal respiration, point source

pollution of industrial pollutants, mining, and decomposition of plant material can all cause daily and seasonal variations in the pH of a waterbody.

There have been a total of five exceedances of the upper WQTL for pH in the Bear Creek @ Kibby Rd site subwatershed ranging from 8.69 to 9.0. All of the exceedances were of the upper WQTL (8.5) for pH. Since the last exceedance on May 9, 2012 (9.0), pH has been monitored eight times with no exceedances.

The Coalition does not do MPM for field parameters alone. Field parameters in management plans are measured during scheduled monitoring events where samples are collected for analysis. Therefore, pH was measured at Bear Creek @ Kibby Rd eight times after the last exceedance with no exceedances of the pH WQTLs. Four of the eight monitoring events were in months of past exceedances, and the other five were during months with similar field conditions as the months when past exceedances occurred (example: July field conditions are similar to June field conditions). The Coalition used months with similar field conditions to justify management plan completion when months of past exceedances were unable to be monitored for pH because monitoring was not scheduled to collect samples for analysis. No exceedances of the WQTL for pH have occurred in eight monitoring events since the last exceedance occurred in May 2012.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in Bear Creek @ Kibby Rd site subwatershed. General outreach includes grower notifications such as newsletters, mailings, meetings, and workshops to inform growers of regulations and water quality impairments including exceedances of field parameters such as pH, pesticides, and toxicity. The Coalition conducted focused outreach from 2010 through 2012 with 14 targeted growers to review each grower's operation and document management practices as well as discuss all water quality impairments. The Coalition followed up with targeted growers in 2011 to determine if any recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Bear Creek @ Kibby Rd site subwatershed was reported in the ESJWQC April 1, 2012 MPUR. Results from that analysis are included in the section below.

Management Practices Implemented

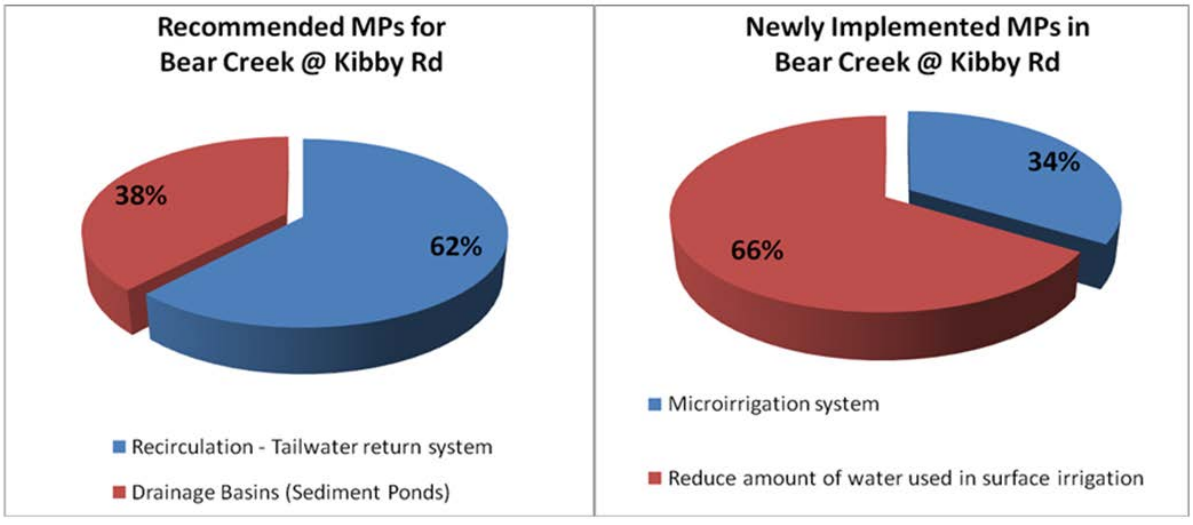
Growers in the Bear Creek @ Kibby Rd site subwatershed implemented management practices designed to improve water quality where pesticides and toxicity are concerned. Management practices implemented to reduce discharge of agriculturally applied constituents were also effective in eliminating exceedances of the WQTL for pH.

In 2010, the Coalition contacted 14 targeted growers farming 4,179 acres in the Bear Creek @ Kibby Rd site subwatershed. Management practices were documented for 31% of the acreage identified as having direct drainage. The Coalition met individually with growers to discuss water quality concerns, document management practices, and recommend additional practices.

Figure 1 represents the percent of acreages with recommended management practices and newly implemented management practices for the Bear Creek @ Kibby Rd site subwatershed. Coalition representatives recommended growers improve the management of their irrigation discharge by installing recirculation/tailwater return systems (62% acreage) and constructing drainage basins/sediment ponds (38% acreage; Figure 1).

Growers in the Bear Creek @ Kibby Rd site subwatershed implemented two new management practices, microirrigation system installation (34% acreage) and reducing the amount of water used during surface irrigation (66% acreage; Figure 1).

Figure 1. Percent of acreage represented by recommended and implemented management practices in the Bear Creek @ Kibby Rd site subwatershed.



4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

Management practices implemented to reduce discharge of agriculturally applied constituents were also effective in eliminating exceedances of the WQTL for pH. The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate no exceedances of the WQTL for pH since May 9, 2012. Based on focused outreach surveys and follow-up results, targeted growers in the Bear Creek @ Kibby Rd site subwatershed are cognizant of water quality impairments and have implemented management practices that resulted in improved water quality as reflected by the absence of exceedances of the WQTL for pH and other constituents such as chlorpyrifos and copper (approved for removal from management plan (May 30, 2012 and October 10, 2015, respectively). Therefore, the Coalition requests that pH be removed from the Bear Creek @ Kibby Rd site subwatershed management plan.

Future Monitoring

During the 2015 WY, the site is not scheduled for MPM or Represented site monitoring (MPU; approved January 5, 2015). The last remaining constituent in the site's management plan is *E. coli*. The Coalitions will work with Regional Board staff to develop an approach to determining the source of *E. coli*. Future monitoring for *E. coli* in the site subwatershed will be determined based on the results of the Source Identification Study.

BERENDA SLOUGH ALONG AVE 18 1/2

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Copper
- Chlorpyrifos

Subwatershed Overview and Monitoring History

Berenda Slough @ Ave 18 ½ is a Represented site located in Zone 6. Monitoring began during the irrigation season of 2006 and continued through the 2015 WY with the exception of 2009 and 2010 during which no monitoring occurred. Assessment Monitoring occurred in 2011 and 2012 according to the Coalition's 2008 MRPP. Management Plan Monitoring occurred during 2007, 2008, and from 2011 through and has continued through the present.

The Coalition began conducting outreach and education in the Berenda Slough @ Ave 18 ½ site subwatershed in 2007. Focused outreach with targeted growers began in 2011 and will continue through 2013. Growers with the greatest likelihood of contributing to water quality impairments were identified. The Coalition contacted targeted growers to document existing management practices, and to encourage the implementation of additional management practices. The Coalition followed up with targeted growers in 2012 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

Copper

Exceedances of the hardness based WQTL for copper in the Coalition region could be due to a number of possible sources. Copper is applied as a fungicide to a variety of vegetable crops, grains, and fruit and nut orchards in forms such as copper hydroxide, copper sulfide, and copper oxide. Copper can also enter drainage systems from sources other than agriculture. Copper is commonly used by dairies and can also enter waterbodies through the weathering of rocks and soils. Automobile components may also contain copper and the wearing of brakes can add substantial amounts of copper to surface waters that pass through urban areas. A definitive source for copper has not been clearly identified in the Coalition region; however, there are four potential sources including 1) recent agricultural applications that move to surface waters either through storm/irrigation tailwater runoff or spray drift, 2) dairy uses of copper sulfate in footbaths discharged to surface waters, 3) resuspension of historic copper from upstream mining, brake pads and other anthropogenic uses, and 4) copper used for algae and aquatic weed control in irrigation supply ditches.

In October 2008, the Coalition began analyzing for both total and the dissolved fraction of metals to better characterize contamination in the water column. Dissolved metals more accurately reflect the bioavailability, and therefore the toxic fraction in the water column.

The proposal to remove copper from the management plan of Berenda Slough along Ave 18 ½ is justified using monitoring results available through May 2015. Monitoring for copper at Berenda Slough along Ave 18 ½ has resulted in 13 exceedances of the hardness based WQTL for dissolved copper from 2011 to 2012. In 2011, exceedances of the copper WQTL occurred every month of the year except March (ranging from 2.1 (1.46) µg/L to 6.8 (2.65) µg/L). The PUR data associated with all copper exceedances in 2011 indicate 214 applications totaling 37,579 lbs AI across 15,699 acres of almonds, grapes, oranges, and walnuts from December 30, 2010 to October 28, 2011.

The last two exceedances occurred on June 12, 2012 and July 10, 2012 (5.7 (3.02) µg/L and 4.8 (3.02) µg/L, respectively). The PUR data associated with the June 12, 2012 dissolved copper exceedance indicate 36 applications of copper products totaling 4,323 lbs AI across 4,510 acres of grapes and walnuts between March 20, 2012 and May 31, 2012. Additionally, the PUR data associated with the July 10, 2012 indicate that 11 applications totaling 2,765 lbs AI occurred across 1,204 acres to grapes and walnuts from April 17, 2012 through May 31, 2012. However, the PUR data indicate a decline in copper use since 2006; the year with the highest copper use was 2006 (35,265 lbs AI across 15,005 acres) while the year of lowest copper use was 2014 (10,885 lbs AI across 7,173 acres).

Since the last exceedance of the copper WQTL in July 2012, monitoring has occurred at the site 36 times (through September 2015); 34 of those monitoring events were dry. Because the site is frequently dry, only two samples out of the 36 were collected since the last exceedance (in August 2012 and in July 2013, no exceedance occurred). The July 2015 MPM event for copper concluded three years of monitoring with no copper exceedances at Berenda Slough along Ave 18 ½.

Chlorpyrifos

The Regional Board established a TMDL for chlorpyrifos for the ESJWQC region (Lower San Joaquin River Chlorpyrifos and Diazinon TMDL). Consequently, chlorpyrifos is considered one of the highest priority constituents under the Coalition's Management Plan. There have been four exceedances of the WQTL for chlorpyrifos at Berenda Slough along Ave 18 ½, two in 2006 (July and September), one in 2007 (July), and one in 2011 (April). In 2007, MPM for chlorpyrifos was initiated in the site subwatershed.

The proposal to remove chlorpyrifos from the management plan of Berenda Slough along Ave 18 ½ is justified using monitoring results available through May 2015. The PUR data associated with the July 11, 2006 exceedance (0.043 µg/L) indicate 14 chlorpyrifos applications totaling 1,383 lbs AI across 774 acres of almonds were applied from June 15, 2006 through July 11, 2006. The PUR data associated with the September 12, 2006 exceedance (0.14 µg/L) indicate 14 applications totaling 2,968 lbs AI occurred across 1,560 acres of almonds, corn, and alfalfa from August 16 through September 11, 2006. The PUR data associated with the July 24, 2007 exceedance (0.028 µg/L) indicate 27 applications totaling 3,146 lbs AI across 1,466 acres of almonds applied from July 4, 2007 through July 22, 2007.

Samples collected on April 19, 2011 resulted in an exceedance of the WQTL for chlorpyrifos (0.021 µg/L). The PUR data associated with the April 2011 exceedances indicate four applications totaling 38 lbs AI across 176 acres of alfalfa between March 27, 2011 and April 2, 2011.

Since the last exceedance in April 2011, Berenda Slough along Ave 18 ½ has been monitored 32 times for chlorpyrifos (results through September 2015). Of those 32 events, the site was dry 19 times and samples were collected for chlorpyrifos 13 times with no exceedances of the WQTL for chlorpyrifos since April 2011. Furthermore, no applications of chlorpyrifos were reported in the site subwatershed in 2014. The end of three years of monitoring with no exceedances was April 2014. In addition, the Coalition monitored for chlorpyrifos through September 2015 with no exceedances.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in Berenda Slough along Ave 18 ½ site subwatershed. The Coalition conducted focused outreach from 2011 through 2013 with 19 targeted growers to review each grower's operation and document management practices as well as discuss water quality impairments. The Coalition followed up with the growers in 2012 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the site subwatershed was reported in the ESJWQC April 1, 2013 MPUR. Results from that analysis are included in the section below.

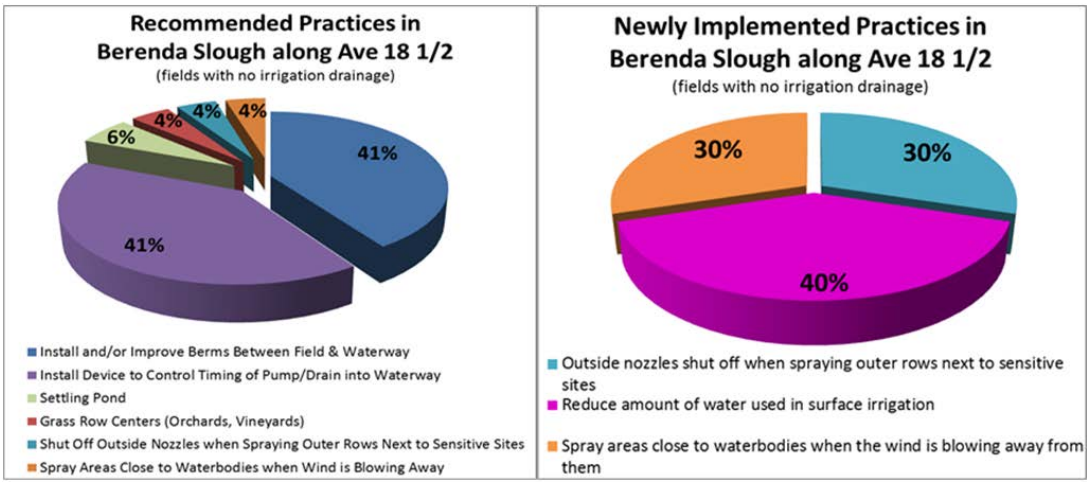
Management Practices Implemented

In 2011, the Coalition contacted 19 targeted growers farming 4,103 acres in the site subwatershed. Management practices were documented for 38% of the acreage identified as having direct drainage. Individual meetings with 100% of targeted growers were completed in 2011.

Figure 2 represents the percent of acreages with recommended management practices and newly implemented management practices for the Berenda Slough along Ave 18 ½ site subwatershed. During initial contact meetings, Coalition representatives recommended six practices to three growers; three of the six practices were implemented (Figure 2). Newly implemented practices include shutting off

outside nozzles when spraying outer rows next to sensitive sites (30% acreage), spraying areas close to waterbodies when wind is blowing away (30% acreage), and reducing the amount of water used in surface irrigation (40% acreage; Figure 2).

Figure 2. Percent of acreage represented by recommended and implemented management practices in the Berenda Slough along Ave 18 ½ site subwatershed.



4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate three years of monitoring with no exceedances of the WQTLs for copper (dissolved) and chlorpyrifos. Furthermore, PUR data indicate that there has been a significant decline in chlorpyrifos use in the site subwatershed with only 1,088 lbs AI applied in 2014 compared to 3,125 in 2013. In 2015, PUR data indicate applications of chlorpyrifos have continued to decline with only 465 lbs AI reported through March 2015 (PUR data results are preliminary). In addition, the site has been dry during almost all monitoring events since 2011. Based on focused outreach surveys and follow-up results, targeted growers in the Berenda Slough along Ave 18 ½ subwatershed implemented management practices that resulted in improved water quality as reflected by the absence of exceedances of copper and chlorpyrifos. Furthermore, Berenda Slough has been dry during every single monitoring event since February 2012 except for four events. Therefore, the Coalition requests that copper and chlorpyrifos be removed from the Berenda Slough along Ave 18 ½ site subwatershed management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

BLACK RASCAL CREEK @ YOSEMITE RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Lead
- Chlorpyrifos
- Water column toxicity to *C. dubia*

Subwatershed Overview and Monitoring History

Black Rascal Creek @ Yosemite Rd is a Represented site located in Zone 4. Monitoring began during the irrigation season of 2006 and continued through 2008. Monitoring resumed in 2013 when MPM was initiated for lead, chlorpyrifos, and toxicity to *C. dubia;* MPM will continue through the 2015 WY.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2012 and continued through 2014. Growers with the greatest likelihood of contributing to water quality impairments were identified. The Coalition contacted a single targeted grower in the site subwatershed to document existing management practices, and to encourage the implementation of additional management practices. The Coalition followed up with the targeted grower in 2013 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

Lead

Lead is a legacy contaminant from various sources, such as old applications of lead arsenate pesticides, deposition from leaded gasoline, and disposal of lead-containing products including paints, electronic components, lead pipes, and batteries. Since lead arsenate pesticide use was banned before the PUR data system was initiated, no data exist to assist in the sourcing of past agricultural applications of lead. Given the number of potential sources and since lead is no longer applied for agricultural use, the Coalition categorized lead as low priority for outreach and monitoring.

In October 2008, the Coalition began analyzing for both the total and hardness-based dissolved fractions of metals to better characterize contamination in the water column. Dissolved metals more adequately reflect the bioavailable, and therefore the toxic fraction in the water column.

The proposal to remove lead from the management plan of Black Rascal Creek @ Yosemite Rd is justified using monitoring results available through May 2015. There have been two exceedances of the

hardness based WQTL for lead at Black Rascal Creek @ Yosemite Rd. Samples collected from the Black Rascal Creek @ Yosemite Rd sample site subwatershed on April 29 and September 30, 2008 resulted in exceedances of the hardness based WQTL for lead (2.4 (2.39) and 1.3 (0.75) µg/L, respectively). Lead predominately resides in the sediments and could have been mobilized in the water during the sampling event as a result of some disturbance upstream.

Since the September 2008 exceedance, lead has been monitored five times during the two months of past exceedances in April and September (results through May 2015). The end of three years of monitoring with no exceedances is September 2015. The Coalition will provide September MPM results for lead to Regional Board staff when they become available (lead results for September monitoring events are typically available around the end of October). There have been zero exceedances of the hardness based WQTL for lead at any site in the Coalition region since 2008. Furthermore, lead is not an agriculturally applied constituent. Therefore, the Coalition does not anticipate an exceedance to occur during the September 2015 lead monitoring event in samples from Black Rascal Creek @ Yosemite Rd.

Chlorpyrifos

The Regional Board established a TMDL for chlorpyrifos for the ESJWQC region (Lower San Joaquin River Chlorpyrifos and Diazinon TMDL). Consequently, chlorpyrifos is considered one of the highest priority constituents under the Coalition's Management Plan. There have been four exceedances of the WQTL for chlorpyrifos in samples collected from Black Rascal Creek @ Yosemite Rd, in 2006 (May) and in 2007 (July, August, and September).

Samples collected from Black Rascal Creek @ Yosemite Rd on May 18, 2006 resulted in an exceedance of the WQTL for chlorpyrifos (0.033 µg/L). The PUR data associated with the May 2006 exceedance indicate two applications totaling 173 lbs AI across 91 acres of walnuts occurred on May 13 and May 17, 2006.

Samples collected in the site subwatershed on July 24, 2007 resulted in an exceedance of the WQTL for chlorpyrifos (3.7 µg/L). The PUR data associated with the July 2007 exceedance indicate four applications totaling 351 lbs AI across 174 acres of almonds occurred on July 1, 2007. The July 2007 exceedance coincided with toxicity to *C. dubia* where samples resulted in complete mortality of the test species. Samples collected in the site subwatershed on August 21, 2007 resulted in an exceedance of the WQTL for chlorpyrifos (0.12 µg/L). Samples collected in the site subwatershed on September 18, 2007 resulted in an exceedance of the WQTL for chlorpyrifos (0.031 µg/L). The PUR data associated with both the August and September 2007 exceedances indicate only one application totaling 40 lbs AI across 20 acres of walnuts occurred on August 6, 2007. The August 2007 exceedance coincided with toxicity to *C. dubia* resulting in complete mortality of the test species. Discharge could not be measured during the July, August, and September 2007 sampling events at the site because velocity was too low to measure. It was noted that a beaver dam was located just downstream and was blocking outflow of the creek. It is likely the low flow conditions retained the high concentration of chlorpyrifos from the July monitoring event in the waterbody. The detections of chlorpyrifos in samples collected on August 21, 2007 and September 18, 2007 were likely residual from the July 2007 chlorpyrifos detection.

Since the last exceedance of the WQTL for chlorpyrifos in September 2007, Black Rascal Creek @ Yosemite Rd has been monitored for chlorpyrifos 20 times with no exceedances. The end of three years of monitoring with no exceedances was September 2014. In addition, the Coalition continued with MPM during 2015 with no exceedances. Furthermore, chlorpyrifos has not been applied in the site subwatershed since 2012.

Water column toxicity to *C. dubia*

There have been five instances of *C. dubia* toxicity in samples collected from Black Rascal Creek @ Yosemite Rd. All toxicities occurred in 2007 (once in May, twice in July, and twice in August).

Samples collected on May 29, 2007 resulted in toxicity to *C. dubia* (20% survival compared to the control). Toxicity was not persistent in the resample. Results from the TIE indicate that the toxicity was likely due pyrethroids; however, pyrethroids in the water column were monitored at the site from 2006 through 2008 and no pyrethroids were detected during any event. Furthermore, no pesticides were detected in the samples associated with the May 2007 toxicity. Although no pyrethroids were detected, the PUR data indicate pyrethroids were applied up to two months prior to the May 29, 2007 sampling event. The PUR data associated with the May 29, 2007 toxicity indicate there were 29 applications of pesticides totaling 1,515 lbs AI across 910 acres of almond, corn, cotton, and walnuts from March 24, 2007 through May 28, 2007.

Samples collected on July 24, 2007 resulted complete mortality to *C. dubia*; toxicity was persistent in the resample with complete mortality. A TIE conducted on the July 24 sample indicated that the toxicity was due to a metabolically activated, nonpolar organic compound, such as an organophosphate pesticide. An exceedance of the WQTL for chlorpyrifos (3.7 µg/L) coincided with the exceedance. Coalition representatives took immediate action and went directly to the grower upstream of the site to inquire whether they had recently sprayed chlorpyrifos since PUR data were not yet available. It was determined that the July toxic sample was a result of an almond hull-split application of chlorpyrifos in a field adjacent to the creek in which the grower followed label instructions. It was determined that a beaver downstream damn was obstructing the outflow of the waterbody. The PUR data associated with the July 2007 toxicity indicate 41 applications of pesticides totaling 1,562 lbs AI across 1,789 acres of almond, corn, cotton, pastureland, tomato, and walnuts occurred from May 11, 2007 through July 22, 2007, although the application immediately upstream was the most likely source of the chlorpyrifos causing the exceedance.

Black Rascal Creek @ Yosemite Rd was sampled two more times after the July sampling event on August 21 and September 18, 2007. Toxicity occurred again in August (0% survival compared to the control). Toxicity was persistent in the resample with complete mortality. The TIE conducted on the August 21 sample concluded that the toxicity was due to an organophosphate. The PUR data associated with the August 21, 2007 toxicity indicate 15 applications of pesticides totaling 203 lbs AI across 655 acres of almond, corn, pastureland, tomato, and walnuts were applied from May 11, 2007 through August 17, 2007. By September 2007, toxicity had dissipated.

Since the last toxicity in August 2007, the Coalition has monitored Black Rascal Creek @ Yosemite Rd 19 times without toxicity to *C. dubia*. The end of three years of monitoring without toxicity to *C. dubia* was August 2014 (additional samples were collected through May 2015 with no toxicity).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Black Rascal Creek @ Yosemite Rd site subwatershed. The Coalition conducted focused outreach with a single targeted member from 2012 through 2014 to discuss water quality concerns, review the grower's operation, and document existing management practices. The Coalition followed up with the targeted member in 2013 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Black Rascal Creek @ Yosemite Rd site subwatershed was reported in the ESJWQC 2014 Annual Report. Results from that analysis are included in the section below.

Management Practices Implemented

In 2012, the Coalition contacted the single targeted grower farming 301 irrigated acres in the site subwatershed and documented their management practices. The Coalition representative discussed with the grower local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents but did not recommend any specific additional management practices be implemented as the grower had implemented several practices. The grower indicated on the follow-up survey he did not implement any new management practices.

The grower flood irrigates the orchard, but has laser leveled the property and installed a drainage basin (sediment pond) to capture and retain runoff and the grower irrigates based on the actual moisture levels in the soil and crop needs. The grower does have some storm runoff in heavy (100 year) storms, but is able to control the timing of runoff. Herbicides are applied when the crop is dormant during the winter to control weeds. The grower implements several erosion and sediment management practices including grass row centers, filter strips around the field perimeter at least 10 feet wide, and vegetation along ditches.

4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Black Rascal Creek @ Yosemite Rd

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate more than three years of monitoring with no exceedances of the hardness based WQTLs for lead (total and dissolved), chlorpyrifos, and toxicity to *C. dubia*. Based on focused outreach surveys and follow-up results, the targeted grower in the Black Rascal Creek @ Yosemite Rd site subwatershed implements management practices that improve water quality. Furthermore, lead is not an agriculturally applied constituent and PUR data indicate chlorpyrifos has not been applied in the subwatershed since 2012. Therefore, the Coalition requests the removal of lead, chlorpyrifos, and toxicity to *C. dubia* from the Black Rascal @ Yosemite Rd management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

DEADMAN CREEK @ GURR RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Water column toxicity to *S. capricornutum*

Subwatershed Overview and Monitoring History

Deadman Creek @ Gurr Rd is a Represented site located in Zone 5. Monitoring began during the irrigation season of 2004 and continued through 2008. From October 2008 through 2010, Assessment Monitoring occurred according to the Coalition's 2008 MRPP. In April 2012, MPM was temporarily suspended from May through December 2012; MPM for toxicity to *S. capricornutum* occurred in February 2012. Monitoring resumed in 2013 and has continued uninterrupted through the present.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2012 and continued through 2014. The Coalition identified growers with the greatest likelihood of contributing to water quality impairments. The Coalition contacted targeted growers in 2012 to document existing management practices, and to encourage the implementation of additional management practices. The Coalition followed up with targeted growers in 2013 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

Water column toxicity to *S. capricornutum*

There have been three instances of *S. capricornutum* toxicity in samples collected from Deadman Creek @ Gurr Rd (July 2007, February 2008, and February 2009). Samples collected on July 24, 2007 were toxic to *S. capricornutum* (42% growth compared to the control); toxicity was not persistent in the resample. A TIE analysis was initiated; however, the toxicity was not persistent and the evaluation was inconclusive. The PUR data associated with the toxicity indicate 175 applications of pesticides totaling 9,822 lbs AI across 12,524 acres from May 1, 2007 through July 24, 2007.

Samples collected on February 25, 2008 resulted in 47% growth compared to the control. Toxicity was not persistent in the resample. A TIE was conducted on the original sample; the sample lost all toxicity leading to inconclusive results. The PUR data associated with the February 2008 toxicity indicate 313 applications of pesticides totaling 23,763 lbs AI across 18,434 acres from December 14, 2007 through February 22, 2008.

The last toxicity occurred in samples collected on February 7, 2009 (7% growth compared to the control). Results from the TIE indicate ammonia was the cause of the toxicity (45 mg/L ammonia recorded at the laboratory). An exceedance level detection of ammonia (50 mg/L) coincided with the toxic event. The PUR data associated with the February 2009 toxicity indicate 217 applications of pesticides totaling 34,746 lbs AI across 15,382 acres from December 6, 2008 through February 6, 2009.

Since the last toxicity in February 2009, the Coalition has monitored Deadman Creek @ Gurr Rd 28 times for toxicity to *S. capricornutum* without any instances of toxicity (results through July 2015). The end of three years of monitoring with no toxicity *to S. capricornutum* was February 2013. In addition, the Coalition conducted MPM for toxicity to *S. capricornutum* during the 2014 and 2015 WYs with no toxicity. There have been more than three years of monitoring with no *S. capricornutum* toxicity.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Deadman Creek @ Gurr Rd site subwatershed. The Coalition conducted focused outreach with two growers from 2012 through 2014 to review each grower's operation and document management practices as well as discuss water quality impairments. Management practices were recommended to eliminate agricultural discharges. Both targeted growers were contacted again in 2013 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the Deadman Creek @ Gurr Rd subwatershed. Through grower notifications and meetings, the Coalition informs members of monitoring results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Deadman Creek @ Gurr Rd site subwatershed was reported in the ESJWQC 2014 Annual Report. Results from that analysis are included in the section below.

Management Practices Implemented

In 2012, the Coalition contacted two targeted growers farming 240 acres in the site subwatershed and documented management practices for 9% of the acreage identified as direct drainage. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents but did not recommend any specific, additional management

practices be implemented as the growers were already implementing several practices. Both growers indicated on their follow-up surveys that no new management practices were implemented.

Both growers use surface irrigation techniques, and both growers laser level their fields. One of the growers, whose property accounts for 96 acres, has a drainage basin (sediment ponds) to capture and retain runoff. The growers both irrigate based on the actual moisture levels in the soil and crop needs. One grower indicated he has no storm water runoff. The other grower farming the remaining acres reported that storm water runoff from fields can occur after the soil is saturated in late winter. Both growers implement erosion and sediment management practices, including maintaining vegetation along ditches and filter strips around field perimeters at least 10 feet wide. Neither grower sprays pesticides during the dormant season.

One of the two growers reported that he implements several pest management practices including calibrating equipment prior to every application, adjusting spray nozzles to match crop canopy profile, and shutting off outside nozzles when spraying outer rows next to sensitive sites. The other grower specified herbicides are not applied during the winter months.

4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Deadman Creek @ Gurr Rd

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Management Plan Monitoring results indicate more than three years of monitoring with no toxicity to *S. capricornutum*. Based on focused outreach surveys and follow-up results, the targeted grower in the Deadman Creek @ Gurr Rd site subwatershed implement management practices designed to improve water quality. Therefore, the Coalition requests that toxicity to *S. capricornutum* be removed from the Deadman Creek @ Gurr Rd management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

DEADMAN CREEK @ HWY 59

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- pH
- Chlorpyrifos

Subwatershed Overview and Monitoring History

Deadman Creek @ Hwy 59 is a Represented site located in Zone 5. Monitoring was initiated at Deadman Creek @ Hwy 59 in the irrigation season of 2006 and continued through September 2008. Assessment Monitoring occurred in 2011 and 2012 according to the Coalition's 2008 MRPP. Management Plan Monitoring for chlorpyrifos began in 2008, continued through 2010, then resumed in 2013 and has continued uninterrupted through the present.

The Coalition began general outreach and education in the Deadman Creek @ Hwy 59 site subwatershed in 2007. Focused outreach with targeted growers began in 2012 and continued through 2014. The Coalition identified eight growers with the greatest likelihood of contributing to the water quality impairments, and contacted these growers in 2012 to document existing management practices, and to encourage the implementation of additional management practices. The Coalition followed up with the targeted grower in 2013 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

pH

There have been a total of six exceedances of the upper WQTL for pH; four in 2011 and two in 2012 (ranging from 8.57 – 9.63). The last exceedance of the upper WQTL for pH occurred in February 2012.

Since the last exceedance in February 2012, pH has been monitored 22 times with no exceedances. All field parameters, including pH, are measured during all monitoring events (Core monitoring, Represented monitoring, and MPM). Therefore, monitoring for pH will occur at Deadman Creek @ Hwy 59 during every sampling event.

The Coalition does not do MPM for field parameters alone. Field parameters in management plans are measured during scheduled monitoring events where samples are collected for analysis. Therefore, pH was measured at Deadman Creek @ Hwy 59 22 times after the last exceedance with no exceedances of

the pH WQTLs. Eight of the 22 monitoring events were in months of past exceedances, and the other pH measurements were taken during months with similar field conditions as the months when past exceedances occurred. The Coalition assessed months with similar field conditions to justify management plan completion when months of past exceedances were unable to be monitored for pH because monitoring was not scheduled to collect samples for analysis. Since the last exceedance in February 2012, the Coalition monitored pH 22 times during scheduled monitoring events with no exceedances.

All field parameters, including pH, are measured during all monitoring events (Core monitoring, Represented monitoring, and MPM). Therefore, monitoring for pH will occur at Deadman Creek @ Hwy 59 during every scheduled monitoring event.

Chlorpyrifos

There have been six exceedances of the WQTL for chlorpyrifos at Deadman Creek @ Hwy 59 (September 2006, August 2007, August and September 2008, April and September 2011). Toxicity did not coincide with any of the exceedances. Management Plan Monitoring for chlorpyrifos was initiated in 2008.

Samples collected from Deadman Creek @ Hwy 59 on September 12, 2006 resulted in an exceedance of the WQTL for chlorpyrifos (0.059 µg/L). The PUR data associated with the September 2006 exceedance indicate 17 applications totaling 559 lbs AI across 990 acres of almonds, alfalfa, corn, and walnuts, from August 30 through September 11, 2006.

Samples collected on August 21, 2007 resulted in an exceedance of the WQTL for chlorpyrifos (0.038 µg/L). The PUR data associated with the August 2007 exceedance indicate there were 16 applications totaling 730 lbs AI across 1,511 acres of alfalfa from July 24 through August 8, 2007.

Samples collected on August 5 and September 9, 2008 contained concentrations of chlorpyrifos above the WQTL (0.14 and 0.069 µg/L, respectively). The PUR data associated with the August 2008 exceedance indicate 33 applications totaling 817 lbs AI across 2,837 acres of alfalfa from July 9 through August 2, 2008. Fifteen applications totaling 383 lbs AI across 1,036 acres of alfalfa and corn from August 16 through September 4, 2008 were associated with the September 2008 exceedance.

Samples collected on April 19, 2011 resulted in an exceedance of the WQTL for chlorpyrifos (0.016 µg/L). The PUR data associated with the April exceedance indicate there were 27 applications totaling 484 lbs AI across 2,342 acres comprised primarily of alfalfa from March 25 through April 8, 2011. Samples collected on September 13, 2011 resulted in an exceedance of the WQTL for chlorpyrifos (0.049 µg/L). The PUR data associated with the September 2011 exceedance indicate two applications totaling 190 lbs AI across 146 acres of walnut and alfalfa from August 30, 2011 and September 9, 2011 occurred.

Since the last exceedance of the WQTL for chlorpyrifos in September 2011, Deadman Creek @ Hwy 59 has been monitored for chlorpyrifos 22 times with no exceedances. The end of three years of

monitoring with no exceedances was September 2014 (additional samples were collected through September 2015 with no exceedances).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Deadman Creek @ Hwy 59 site subwatershed. The Coalition conducted focused outreach with eight targeted growers from 2012 through 2014 to discuss water quality concerns, review each grower's operation, and document existing management practices. The Coalition followed up with the targeted members in 2013 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of monitoring results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Deadman Creek @ Hwy 59 site subwatershed was reported in the ESJWQC 2014 Annual Report. Results from that analysis are included in the section below.

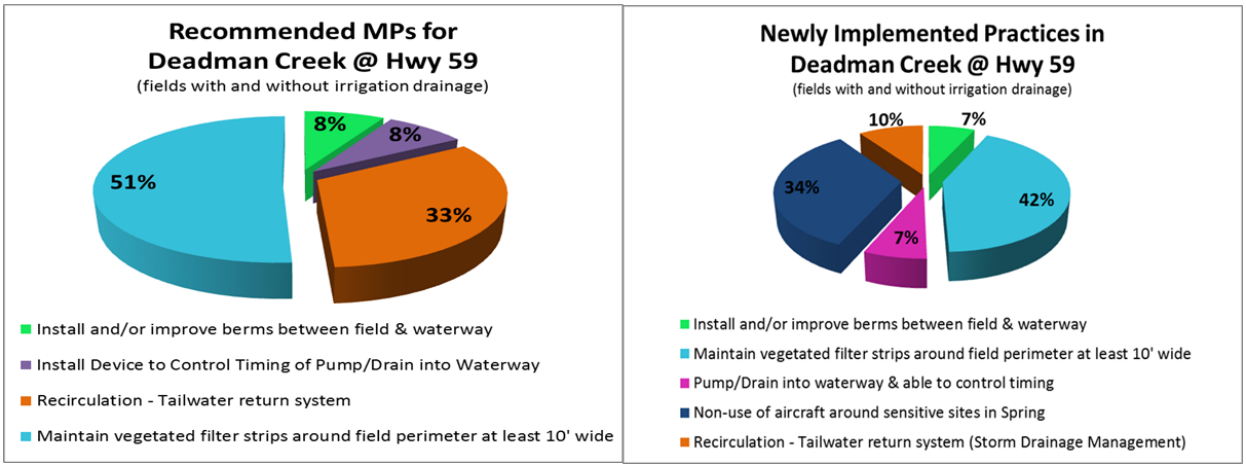
Management Practices Implemented

In 2012, the Coalition contacted eight targeted growers farming 3,414 acres in the site subwatershed (30% of direct drainage acreage) and documented management practices. The Coalition representative discussed water quality concerns and the importance of preventing the offsite movement of all agricultural constituents; additional management practices were recommended.

The Coalition recommended additional practices to five growers designed to improve irrigation tailwater and storm water management and to reduce erosion and offsite movement of sediment (Figure 3).

Four of the five growers implemented all recommended management practices and one grower implemented an additional practice not recommended by the Coalition. Growers installed and/or improve berms between fields and waterways, install a device to control timing of pump/drain into waterway, installed recirculation/tailwater return systems, and/or installed and maintain vegetated filter strips at least 10 feet wide around the perimeter of fields to properties with no irrigation drainage (Figure 3).

Figure 3. Percent of acreage represented by recommended and implemented management practices in the Deadman Creek @ Hwy 59 site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Deadman Creek @ Hwy 59

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Management practices implemented to reduce discharge of agriculturally applied constituents were effective in eliminating exceedances of the WQTL for both chlorpyrifos and pH. Monitoring results demonstrate more than three years of monitoring with no exceedances of the WQTLs for pH and chlorpyrifos. Based on focused outreach surveys and follow-up results, targeted growers in the Deadman Creek @ Hwy 59 site subwatershed implemented management practices and improved water quality. Therefore, the Coalition requests the removal of pH and chlorpyrifos be removed from the Deadman Creek @ Hwy 59 management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015). Field parameters (DO, pH, and SC) are measured during every monitoring event.

DRY CREEK @ RD 18

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Lead

Subwatershed Overview and Monitoring History

Dry Creek @ Rd 18 is a rotating Represented site located in Zone 6. Every third year the site becomes the Core site for Zone 6. Monitoring began during the irrigation season of 2006 and continued through 2008. No monitoring occurred in 2009 or 2010. During 2011, MPM resumed and has continued through the present with the exception of 2012 when MPM was temporarily suspended from April through December 2012. Assessment Monitoring occurred in 2013 according to the Coalition's 2008 MRPP.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2011 and continued through 2013. The Coalition identified growers with the greatest likelihood of contributing to the water quality impairments. The Coalition contacted targeted growers in 2011 to document existing management practices and encouraged the implementation of additional management practices designed to eliminate water quality impairments. The Coalition followed up with targeted growers in 2012 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

Lead

Five exceedances of the hardness based WQTL for lead occurred in samples collected from Dry Creek @ Rd 18, three in 2006 (May , June, and September), in August of 2007 and 2008 (ranging from 0.27 (0.21) to 0.36 (0.31) µg/L). Lead predominately resides in the sediment and could have been mobilized in the water during the sampling event as a result of some disturbance upstream. No pesticides were applied containing lead during or around the monitoring period.

Since the August 2008 exceedance, lead has been monitored 17 times in the site subwatershed with no exceedances; of the 17 times the site was dry three times, was monitored for total lead 10 times and for dissolved lead 14 times (results through August 2015). There have been more than three years of monitoring with no exceedances; the end of three years monitoring with no exceedances was September 2014.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Dry Creek @ Rd 18 site subwatershed. The Coalition conducted focused outreach with 17 growers in late 2010 and 2011 to discuss water quality impairments, review each grower's operation, and document management practices. The Coalition recommended additional management practices to some growers. Targeted growers who indicated they would implement new management practices were contacted again in 2012 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Dry Creek @ Rd 18 site subwatershed was reported in the ESJWQC 2013 MPUR. Results from that analysis are included in the section below.

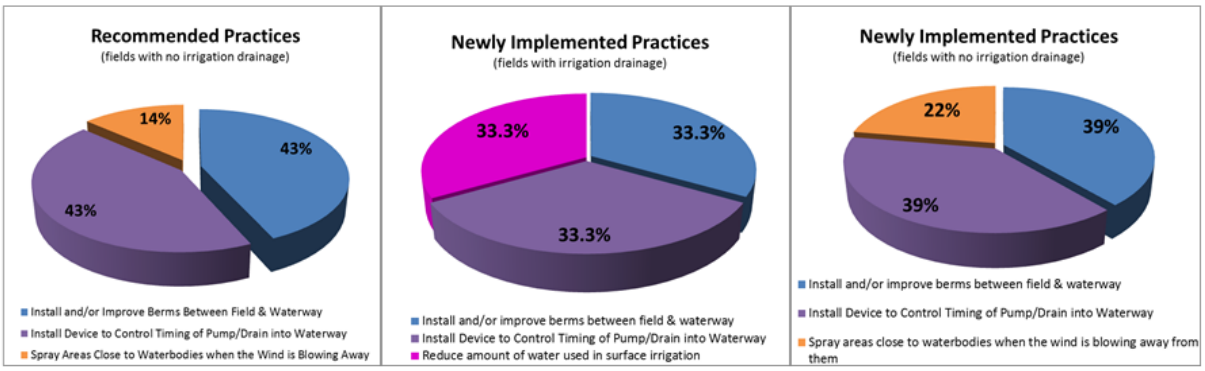
Management Practices Implemented

In 2011, the Coalition contacted 17 targeted growers who farm 4,710 acres in the Dry Creek @ Rd 18 site subwatershed. Management practices were documented for 53% of the acreage identified as having direct drainage. The Coalition met individually with growers to discuss water quality concerns, document management practices, and recommend additional practices. The majority of targeted growers were already implementing several irrigation, erosion and sediment, and pest management practices on all 4,710 acres. The Coalition recommended additional practices designed to manage spray drift and potential storm water runoff to 524 acres (Figure 4).

In 2012, the Coalition contacted the three growers who previously received recommendations to implement additional practices to document the newly implemented management practices. Two of the three growers that indicated no irrigation drainage implemented new practices that included installing a device that controls the timing of discharge, installing and/or improving berms between fields and waterways, and spraying areas close to waterbodies when the wind is blowing away (Figure 4). The third grower contacted implemented practices to improve the management of irrigation tailwater and possible storm water runoff from 189 acres. The grower also installed a device that

controls the timing of discharge, installed and/or improved berms between fields and waterways, and reduced the amount of water used during surface irrigation.

Figure 4. Percent of acreage represented by recommended and implemented management practices in the Dry Creek @ Rd 18 site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification for Remove Constituents from Dry Creek @ Rd 18

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate more than three years of monitoring with no exceedances of the hardness based WQTL for lead. Based on focused outreach surveys and follow-up results, targeted growers in the site subwatershed implemented management practices and improved water quality as reflected by the absence of exceedances of the hardness based WQTL for lead. Furthermore, lead is not an agriculturally applied constituent. Therefore, the Coalition requests that lead be removed from the Dry Creek @ Rd 18 site subwatershed management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

DRY CREEK @ WELLSFORD RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- pH
- Sediment toxicity to *H. azteca*

Subwatershed Overview and Monitoring History

Dry Creek @ Wellsford Rd is the Core site located in Zone 1. Monitoring began during the storm season of 2005 and continued through the 2015 WY. Assessment Monitoring occurred in 2011 according to the Coalition's 2008 MRPP. Management Plan Monitoring began at the site in 2009 and has continued through the present with the exception of 2012 when MPM was temporarily suspended from April through December 2012. During 2012, MPM occurred only in February and March. Dry Creek @ Wellsford Rd was monitored monthly for all constituents during the 2014 and 2015 WYs, as the Core site in Zone 1.

The Coalition began general outreach and education in the Dry Creek @ Wellsford Rd site subwatershed in 2007. Focused outreach with targeted growers began in 2008 and continued through 2010. The Coalition identified growers with the greatest likelihood of contributing to the water quality impairments. The Coalition contacted these growers in 2008 to document existing management practices and encouraged the implementation of additional management practices. The Coalition followed up with targeted growers in 2009 to determine if additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

pH

There have been a total of seven exceedances of the WQTL for pH between March 2005 and March 2012 with measurements ranging from 6.14 to 9.18. The last exceedance of the upper WQTL for pH occurred on March 6, 2012. Since the last exceedance in March 2012, pH has been monitored 37 times with no exceedances. There have been more than three years of monitoring with no exceedances of the WQTL for pH (results through September 2015).

The Coalition does not do MPM for field parameters alone. Field parameters in management plans are measured during scheduled monitoring events where samples are collected for analysis. Therefore, pH was measured 37 times at the site after the last exceedance with no exceedances of the pH WQTLs.

Fifteen of the 37 monitoring events were in months of past exceedances, and the other pH measurements were taken during months with similar field conditions as the months when past exceedances occurred. The Coalition assessed pH measurements in months with similar field conditions to justify management plan completion when months of past exceedances were unable to be monitored for pH because monitoring was not scheduled to collect samples for analysis. Since the last exceedance in March 2012, the Coalition monitored pH 37 times during scheduled monitoring events with no exceedances.

All field parameters, including pH, are measured during all monitoring events (Core monitoring, Represented monitoring, and MPM). Therefore, monitoring for pH will occur at Dry Creek @ Wellsford Rd during every scheduled monitoring event

Sediment toxicity to *H. azteca*

There have been three instances of toxicity to *H. azteca* in samples collected from Dry Creek @ Wellsford Rd (March 2008, August 2008, and September 2011).

Samples collected from Dry Creek @ Wellsford Rd on March 4, 2008 resulted in 88% survival compared to the control. The PUR data associated with the March 2008 sediment toxicity indicate 122 applications (including pyrethroids and chlorpyrifos) totaling 5,960 lbs AI across 3,921 acres of fruit and nut trees occurred from November 7, 2007 through March 4, 2008. Sediment toxicity to *H. azteca* occurred in samples collected on August 28, 2008 (73% survival compared to the control). There were no exceedances of pesticides or metals in water column in samples collected one week prior. The only organic detected in the water column during the August 19, 2008 sampling event was dimethoate at a concentration of 0.25 µg/L (below the WQTL). The PUR data associated with the August 2008 toxicity indicate 633 applications of pesticides totaling 18,064 lbs AI across 32,060 acres of fruit and nut trees occurred from March 18 through August 28, 2008.

Sediment samples collected during MPM on September 6, 2011 tested toxic to *H. azteca* (76% survival compared to the control); additional chemistry analysis for pyrethroids and chlorpyrifos was required. Additional chemistry results indicated detections of bifenthrin (J0.32 µg/kg dw) and chlorpyrifos (J0.15 µg/kg dw). Both detections were less than the reporting limit and therefore are considered estimates. The PUR data associated with the September 2011 sediment toxicity indicate that a total of 548 applications of pesticides totaling 6,183 lbs AI across 39,118 acres of multiple orchards and row crops occurred from April 9 through September 6, 2011. The majority of applications were to almonds and walnuts.

Since the last toxicity in September 2011, the Coalition has monitored Dry Creek @ Wellsford Rd six times, with no instance of sediment toxicity to *H. azteca*. In addition, PUR data indicate applications of pyrethroids and chlorpyrifos are declining in the site subwatershed. The end of three years of monitoring is September 2015. The Coalition will provide Regional Board staff with September

Sediment toxicity MPM results when they become available (preliminary sediment toxicity results for September monitoring events are typically available around the end of October).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Dry Creek @ Wellsford Rd site subwatershed. The Coalition conducted focused outreach with targeted members from 2008 through 2010 to discuss water quality concerns, review grower's operations, and document management practices. The Coalition followed up with targeted members in 2009 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members in the subwatershed. Through grower notifications and grower meetings, the Coalition informs members of water quality results, relevant management practices that can eliminate water quality impairments, availability of funding to assist in the implementation of management practices, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Dry Creek @ Wellsford Rd site subwatershed was reported in the ESJWQC 2011 MPUR. Results from that analysis are included in the section below.

Management Practices Implemented

In late 2008 and 2009, the Coalition contacted 25 targeted growers who farm 6,392 acres in the Dry Creek @ Wellsford subwatershed. Figure 5 includes recommended and newly implemented management practices as a percentage of the overall acreage.

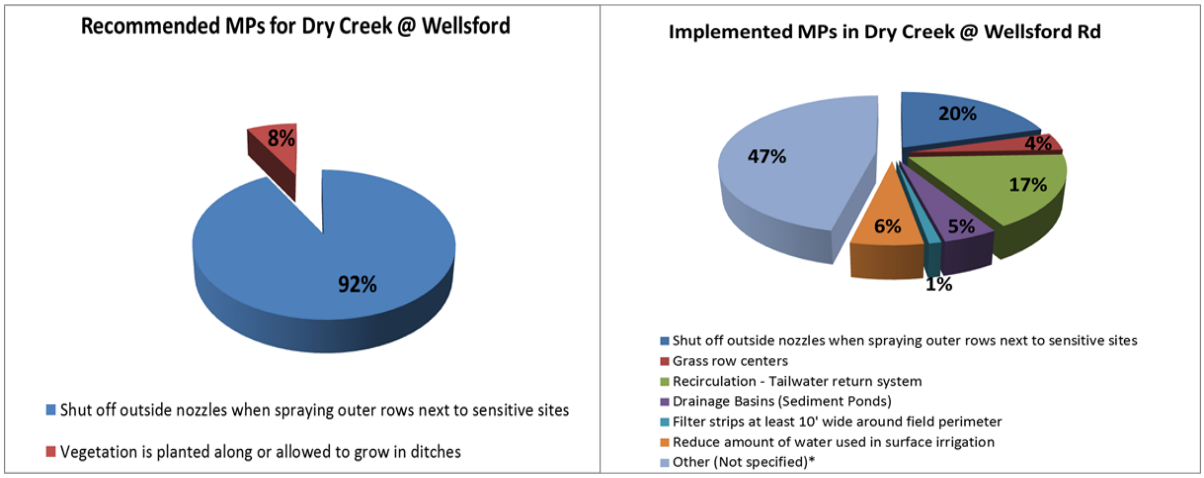
All practices recommended in the site subwatershed were for parcels with no irrigation drainage; however, growers implemented practices on land with and without drainage. Most growers in Dry Creek utilize microirrigation and/or sprinklers to irrigate their parcels. Only 1% of the acres for which responses are available are irrigated by surface (flood) techniques. Most growers (86%) irrigate based on actual moisture levels and crop needs rather than on a set schedule. There is a mixture of growers that have storm drainage when the soil is saturated in late winter (27%) and/or in 100 year storms (36%). Four growers utilize tail water return systems and/or settling ponds to manage storm runoff and over a third of the acreage has no storm drainage. All respondents indicated that they controlled erosion and sediment delivery by some means. Herbicides were applied by most growers with only 14% indicating no applications. Over 98% of the acreage was sprayed with equipment that was calibrated

prior to each application and the majority took numerous steps to manage their spray drift including adjusting spray nozzles to match the canopy profile (95%), shutting outside nozzles when spraying outer two rows (73%), spraying areas close to waterbodies when the wind is blowing away from them (86%), using air blast applications when wind is between 3-10 mph (73%), and using nozzles that provide the largest effective droplet size to minimize drift (86%).

Overall, newly implemented management practices include shutting off outside nozzles when spraying outer rows next to surface water (20% acreage), constructing drainage basins/sediment ponds (5% acreage), maintaining filter strips at least 10 feet wide around field perimeters and allowing grass to grow in the centers of orchard rows (5% acreage), using recirculation/tailwater return systems (17% acreage), and using less water during surface irrigation (6% acreage; Figure 5).

In addition, some growers indicated they implemented management practices that were not recommended by the Coalition (47% acreage; Figure 5). One grower now allows grass to grow in the center of his orchard rows (4% acreage). Two growers installed recirculation/tailwater return systems on their properties (17% acreage). A single grower constructed a drainage basin/sediment pond (5% acreage). Another grower installed filter strips at least 10 feet wide around their field perimeter (1% acreage), and one grower reduced the amount of water used during surface irrigation (6% acreage).

Figure 5. Percent of acreage represented by recommended and implemented management practices in the Dry Creek @ Wellsford Rd site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification for Removal of the Constituents from Dry Creek @ Wellsford

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Management practices implemented to reduce discharge of agriculturally applied constituents were effective in eliminating both sediment toxicity as well as exceedances of the WQTL for

pH. Monitoring results indicate three years of monitoring with no toxicity to *H. azteca.* Based on focused outreach surveys and follow-up results, targeted growers implemented management practices and water quality improved. Therefore, the Coalition requests that *H. azteca* sediment toxicity be removed from the Dry Creek @ Wellford Rd management plant and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015). Field parameters (DO, pH, and SC) are measured during every monitoring event.

DUCK SLOUGH @ GURR RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Lead

Subwatershed Overview and Monitoring History

Duck Slough @ Gurr Rd is one of the rotating Core sites located in Zone 5. Every third year the site rotates to Represented site monitoring and Miles Creek @ Reilly Rd becomes the Core site for Zone 5. Monitoring began during the irrigation season of 2004 and continued through 2015. In 2006, 2007, and 2008 irrigation and storm monitoring occurred, Core Monitoring occurred in 2010 and 2013. During 2012, MPM did not take place at the site due to temporary MPM suspension from April through December 2012. In 2011, Assessment Monitoring was conducted according to the Coalition's 2008 MRPP. In addition, Duck Slough @ Gurr Rd was monitored monthly for all constituents in the 2014 and 2015 WY, as the Core site.

The Coalition began conducting general outreach and education in the Duck Slough @ Gurr Rd site subwatershed in 2007. Focused outreach with targeted growers began in 2010 and continued through 2012. The Coalition identified growers with the greatest likelihood of contributing to the water quality impairments. The Coalition contacted targeted growers in early 2009 and 2010 to document existing management practices and to encourage the implementation of additional management practices. The Coalition followed up with targeted growers in 2011 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

Lead

Four exceedances of the hardness based WQTL for lead occurred in samples collected from Duck Slough @ Gurr Rd between 2007 and 2008, two in 2007 (February and June), and two in 2008 (January and February) ranging from 1.0 (0.81) to 3.7 (3.2) µg/L. Lead predominately resides in the sediment and could have been mobilized in the water during the sampling event as a result of some disturbance upstream. Lead is not an agriculturally applied constituent; there were no pesticides applied that contained lead during or around the monitoring period.

Since the February 2008 exceedance, monitoring for lead has occurred 43 times with no exceedances. The end of three years of monitoring with no exceedances was June 2013. The Coalition continued with MPM for lead in 2015 with no exceedances (results through September 2015).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has since taken several actions to address water quality concerns in the Duck Slough @ Gurr Rd subwatershed. The Coalition conducted focused outreach with targeted members from 2010 through 2012 to discuss water quality impairments, review each grower's farming operation, and document management practices. The Coalition encouraged growers to evaluate their farming operations to eliminate offsite movement of pesticides and recommended several management practices. All targeted members were contacted again in 2011 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, relevant management practices to address water quality concerns, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Duck Slough @ Gurr Rd site subwatershed was reported in the ESJWQC 2012 MPUR. Results from that analysis are included in the section below.

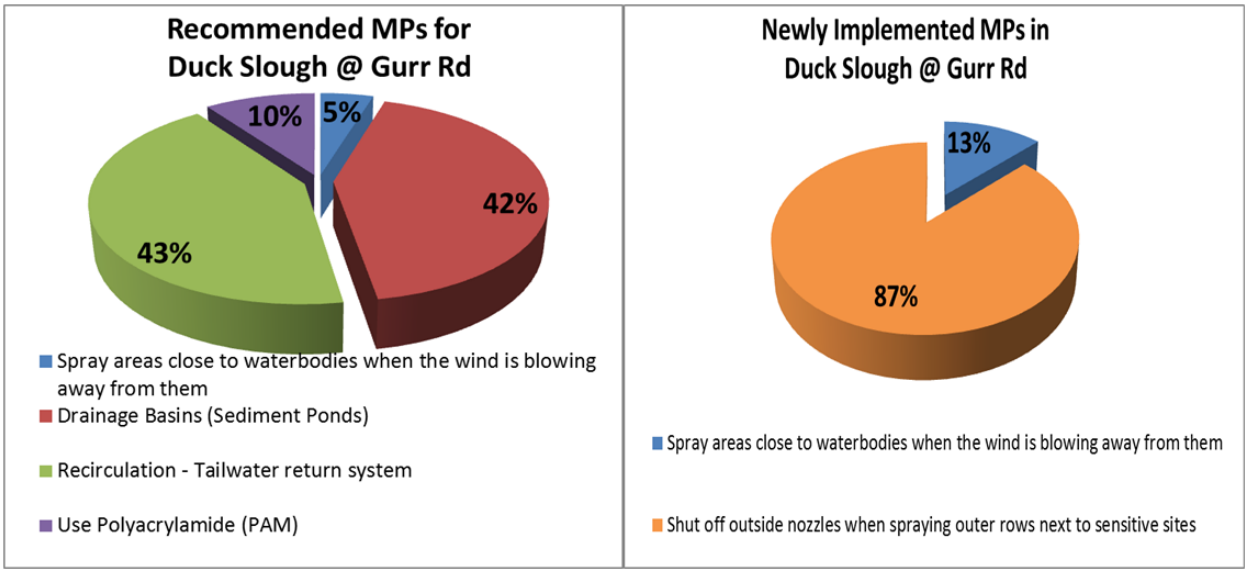
Management Practices Implemented

In 2010, the Coalition contacted six targeted growers who farm 46% of the total direct drainage area in the Duck Slough @ Gurr Rd subwatershed. The Coalition representative discussed with the grower local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents but did not recommend any specific additional management practices be implemented as the grower already employed several practices. Coalition representatives recommended installing a recirculation/tailwater return system (43% acreage), constructing a drainage basin/sediment pond to reduce runoff (42% acreage), and using PAM during irrigation to reduce furrow erosion (10% acreage; Figure 6).

Growers in the site subwatershed implemented management practices that focused on spray drift management including spraying areas close to waterbodies when the wind is blowing away from them

(13% acreage) and shutting off outside nozzles when spraying outer rows next to sensitive sites (87% acreage; Figure 6). Growers implemented recommended practices as well as practices that were not recommended for their operations (accounting for 713 acres of land with and without irrigation drainage).

Figure 6. Percent of acreage represented by recommended and implemented management practices in the Duck Slough @ Gurr Rd site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Duck Slough @ Gurr Rd

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate three years of monitoring with no exceedances of the WQTLs for lead. Based on focused outreach surveys and follow-up results, targeted growers in the Duck Slough @ Gurr Rd site subwatershed implemented management practices and improved water quality as reflected by the absence of exceedances of the hardness based lead WQTL. Furthermore, lead is not an agriculturally applied constituent. Therefore, the Coalition requests the removal of lead from the Duck Slough @ Gurr Rd site subwatershed management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

HIGHLINE CANAL @ HIGHWAY 99

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Lead

Subwatershed Overview and Monitoring History

Highline Canal @ Hwy 99 is the Core site located in Zone 3. Monitoring began during the irrigation season of 2005 and has continued through the 2015 WY. All constituents were monitored monthly during Assessment Monitoring in 2011 according to the Coalition's 2008 MRPP. Management Plan Monitoring for lead was initiated at Highline Canal @ Hwy 99 in 2013 and has continued through the 2015 WY.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers occurred from 2010 through 2012. Growers with the greatest likelihood of contributing to water quality impairments were identified. The Coalition contacted targeted growers in 2010 to document their existing management practices and to encourage the implementation of additional management practices designed to eliminate water quality impairments. The Coalition followed up with targeted growers in 2011 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

Lead

Seven exceedances of the hardness based WQTL for lead occurred in samples collected from Highline Canal @ Hwy 99 from May 2006 through August 2007, two in 2006 (May and August) and five in 2007 (February, April, and June through August). The exceedances of the hardness based WQTL for lead ranged from 0.39 (0.031) to 5.1 (3.59) µg/L. Lead predominately resides in the sediment and could have been mobilized in the water during the sampling event as a result of some disturbance upstream. Lead is not an agriculturally applied constituent; there were no pesticides applied that contained lead during or around the monitoring period.

Since the last exceedance in August 2007, the Coalition monitored for 39 times, 23 times for dissolved and for 22 times for total lead with no exceedances (results through August 2015). The end of three years of monitoring with no exceedances was August 2013. There has been more than three years of monitoring with no exceedances.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Highline Canal @ Hwy 99 site subwatershed. The Coalition conducted focused outreach with 10 targeted growers from 2010 through 2012 to review each grower's operation and document their existing management practices as well as discuss water quality impairments. Management practices were recommended to eliminate agricultural discharges. Targeted growers were contacted again in 2011 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

Additionally, in 2013, the Coalition initiated focused outreach at the upstream site subwatershed, Highline Canal @ Lombardy Rd, which should lead to further improvement of the water quality in the downstream reach of Highline Canal.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Highline Canal @ Hwy 99 site subwatershed was reported in the ESJWQC 2012 MPUR. Results from that analysis are included in the section below.

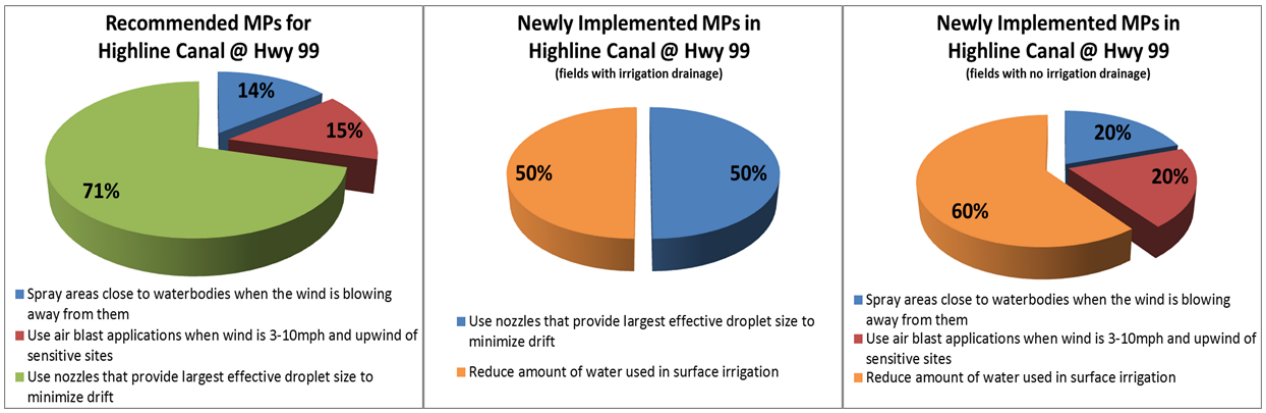
Management Practices Implemented

In 2010, the Coalition contacted and received completed surveys from 10 targeted growers farming 33% of the direct drainage acreage in the site subwatershed. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents but did not recommend any specific, additional management practices be implemented as the grower already employed several practices. Of the 10 targeted growers, one grower dropped their Coalition membership and one grower discontinued enrolling parcels in the Highline Canal subwatershed. Consequently, eight growers completed follow-up surveys.

Coalition representatives recommended reducing the amount of water used in surface irrigation, using air blast applications when the wind is 3-10 mph and upwind of sensitive sites, and spraying areas close to waterbodies when the wind is blowing away from them; growers implemented all recommended practices (Figure 7).

For parcels with irrigation drainage, growers reduced water use during irrigation (50% acreage) and utilized nozzles that provided the largest effective droplet size (50% acreage; Figure 7). For parcels without irrigation drainage, newly implemented practices include reducing the amount of water used in surface irrigation (60% acreage), using air blast applications when the wind is 3-10 mph and upwind of sensitive sites (20% acreage), and spraying areas close to waterbodies when the wind is blowing away from them (20% acreage; Figure 7).

Figure 7. Percent of acreage represented by recommended and implemented management practices in the Highline Canal @ Hwy 99 site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from the Highline Canal @ Hwy 99

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate three years of monitoring with no exceedance of the hardness based WQTL for lead. The end of three years of monitoring with no exceedances was August 2014. Monitoring continued for lead during the 2015 WY with no exceedances. Based on focused outreach surveys and follow-up results, the targeted growers in the Highline Canal @ Hwy 99 site subwatershed implemented management practices and improved water quality. Furthermore, lead is not an agriculturally applied constituent. Therefore, the Coalition requests to remove lead from the Highline Canal @ Hwy 99 management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

HIGHLINE CANAL @ LOMBARDY RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Lead

Subwatershed Overview and Monitoring History

Highline Canal @ Lombardy Rd is a Represented site located in Zone 3. Monitoring began during the 2005 storm season and has continued through July 2015. Assessment Monitoring occurred in the site subwatershed in 2011 and 2012 where all constituents were monitored monthly according to the Coalition's 2008 MRPP with the exception of 2012 where MPM and monitoring for certain constituents was temporarily suspended (lead monitored April 2012). Management Plan Monitoring occurred for lead in the 2014 and 2015 WY.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2013 and will continue through 2015. The Coalition identified growers with the greatest likelihood of contributing to water quality impairments. The Coalition contacted targeted growers in 2013 to document existing management practices and to encourage the implementation of additional management practices designed to eliminate water quality impairments. The Coalition followed up with targeted growers in 2014 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

Lead

Eight exceedances of the hardness based WQTL for lead occurred in samples collected from Highline Canal @ Lombardy Rd from May 2006 through August 2008, four in 2006 (May, June, August, and September), three in 2007 (February, May, and June), and one in 2008 (August). The exceedances of the hardness based WQTL for lead ranged from 0.27 (0.26) to 0.55 (0.52) µg/L. Lead predominately resides in the sediment and could have been mobilized in the water during the sampling event as a result of some disturbance upstream. Lead is not an agriculturally applied constituent; there were no lead-based products labeled for agricultural use applied during or around the monitoring period.

Since the last exceedance in August 2008, the site was monitored for lead 20 times, 11 times for total lead and 18 times for dissolved lead with no exceedances; the site was dry once during these events. The end of three years of monitoring with no exceedances was August 2015. Furthermore, lead is not an agriculturally applied constituent.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Highline Canal @ Lombardy Rd site subwatershed. The Coalition conducted focused outreach with 20 targeted growers in 2013 to discuss water quality impairments, review each grower's operation, and document management practices. Management practices were recommended to eliminate agricultural discharges. The Coalition followed up with targeted growers in 2014 to assess if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Highline Canal @ Lombardy Rd site subwatershed is provided in the ESJWQC 2015 Annual Report. Results from that analysis are included in the section below.

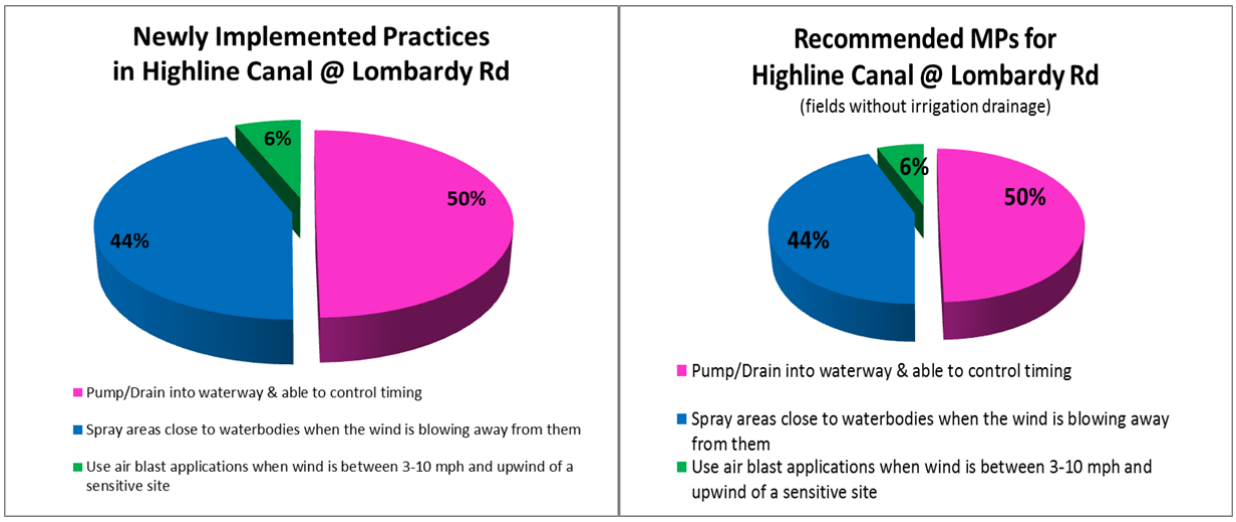
Management Practices Implemented

In 2013, the Coalition completed initial contacts with the 20 targeted growers farming 4,226 acres in the site subwatershed. Management practices were documented for 46% of the acreage identified as having direct drainage. Coalition representatives discussed water quality concerns, the importance of preventing the offsite movement of all agricultural constituents, and recommend additional management practices to be implemented to eight growers. Growers indicated on their follow-up surveys they implemented the recommended management practices.

Figure 8 includes the percent of acreages with recommended management practices and newly implemented management practices for the Highline Canal @ Lombardy Rd site subwatershed. During initial contact meetings, Coalition representatives recommended three practices to eight growers; all recommended practices were implemented.

Newly implemented practices include spraying areas close to waterbodies when the wind is blowing away from them (44% acreage), using air blast applications when wind is between 3-10 mph and upwind of a sensitive site (6% acreage), and installing a device to control timing of pump/drain into waterway (50% acreage; Figure 8).

Figure 8. Percent of acreage represented by recommended and implemented management practices in the Highline Canal @ Lombardy Rd site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Highline Canal @ Lombardy Rd

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate more than three years of monitoring with no exceedances of the hardness based WQTL for lead. Based on focused outreach surveys and follow-up results, targeted growers in the Highline Canal @ Lombardy Rd subwatershed implemented management practices that resulted in improved water quality as reflected by the absence of exceedances of the hardness based WQTL for lead. Furthermore, lead is not an agriculturally applied constituent. Therefore, the Coalition requests that lead be removed from the Highline Canal @ Lombardy Rd management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

HILMAR DRAIN @ CENTRAL AVE

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- pH
- Copper
- Diuron

Subwatershed Overview and Monitoring History

Hilmar Drain @ Central Ave is a Represented site located in Zone 2. Monitoring began in 2005 and has continued through the 2015 WY. Additional MPM occurred at the site in 2007 and MPM resumed again in 2009 and has continued through the present with the exception of 2012 when MPM was temporarily suspended from April through December (MPM occurred for copper in February 2012).

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2012 and continued through 2014. In 2012, the Coalition contacted three growers to document existing management practices and to encourage the implementation of additional management practices. The Coalition followed up with targeted growers in 2013 to determine which management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

pH

There have been three exceedances of the upper WQTL for pH between March 2006 and March 2007 with measurements ranging from 8.58 to 9.55. The last exceedance of the upper WQTL for pH occurred in March 7, 2007. Since the last exceedance, pH has been monitored 50 times with no exceedances. The end of three years of monitoring with no exceedances was March 2013. There have been more than three years of monitoring with no exceedances.

The Coalition does not do MPM for field parameters alone. Field parameters in management plans are measured during scheduled monitoring events where samples are collected for analysis. Therefore, pH was measured at 50 times at Hilmar Drain @ Central Ave after the last exceedance with no exceedances of the pH WQTLs. Eight of the 50 monitoring events were in months of past exceedances, and the other measurements were taken during months with similar conditions as the months when past exceedances occurred (example: June field conditions are similar to May field conditions). The Coalition assessed months with similar field conditions to justify management plan completion when months of past

exceedances were unable to be monitored for pH because monitoring was not scheduled to collect samples for analysis. Since the last exceedance occurred in March 2007, the Coalition monitored pH 50 times during scheduled monitoring events with no exceedances.

All field parameters, including pH, are measured during all monitoring events (Core monitoring, Represented monitoring, and MPM). Therefore, monitoring for pH will occur at Hilmar Drain @ Central Ave during every scheduled monitoring event

Copper

Since monitoring began in 2005 only two exceedances of the hardness based WQTL for copper occurred in samples collected at Hilmar Drain @ Central Ave. Exceedances occurred in July 2006 and February 2007 (31 (19) and 84 (10.1) µg/L, respectively). The July 31, 2006 copper exceedance coincided with toxicity to *S. capricornutum*. Copper is applied primarily during the winter and spring months, but copper is also heavily used by dairies. There were no applications of copper associated with the July 2006 exceedance. The PUR data associated with the February 11, 2007 exceedance indicate there were two applications of copper containing products totaling 421 lbs AI across 70 acres of almonds from January 9 through January 26, 2007.

Since the last exceedance in February 2007, the site has been monitored for copper 26 times and no exceedances occurred. The end of three years of monitoring with no exceedances was February 2014. Additionally, the Coalition monitored for copper at the site in the 2015 WY with no exceedances.

Diuron

Diuron is a soluble herbicide applied throughout the year although the bulk of the applications are during the winter. Exceedances of the WQTL for diuron occurred three times in samples collected from Hilmar Drain @ Central Ave, twice in 2007 (April and June), and once in April 2008.

Samples collected on April 17, 2007 resulted in an exceedance of the WQTL for diuron (3.3 µg/L); this exceedance coincided with toxicity to *S. capricornutum* during the same monitoring event. The PUR data associated with the April exceedance indicate one application of 1.6 lbs AI to four acres of 'rights of way' parcels occurred on February 22, 2007. Samples collected on June 19, 2007 resulted in an exceedance of the WQTL for diuron (6.6 µg/L). The PUR data associated with the July 2007 exceedance indicate one application of 0.67 lbs AI to 18 acres of corn occurred June 19, 2007. Diuron is persistent and soluble; it is possible that the product was mobilized and moved to the drain several weeks after application.

Samples collected on April 29, 2008 resulted in an exceedance of the WQTL for diuron (3.43 µg/L); the exceedance coincided with toxicity to *S. capricornutum* during the same sampling event. The PUR data indicate that there were no applications of diuron reported that could be associated with the April exceedance.

Since the last exceedance of the WQTL for diuron in April 2008, diuron has been monitored at the site 14 times with no exceedances. The end of three years monitoring with no exceedances was June 2014 (additional monitoring occurred in 2015 with no exceedances).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the site subwatershed. The Coalition conducted focused outreach from 2012 through 2014 with three targeted growers to discuss water quality concerns, review each grower's operation, and document existing management practices. The Coalition followed up with the targeted growers in 2013 to assess if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the Hilmar Drain @ Central Ave site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Hilmar Drain @ Central Ave site subwatershed was reported in the ESJWQC 2014 Annual Report. That analysis is included in the section below.

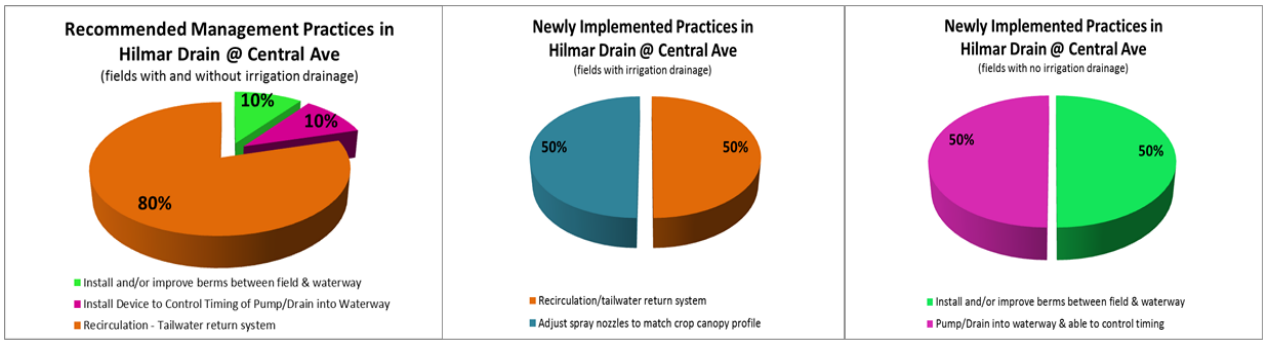
Management Practices Implemented

In 2012, the Coalition contacted three targeted growers farming 455 acres in the Hilmar Drain @ Central Ave site subwatershed. Management practices were documented for 39% of the acreage identified as having direct drainage. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents. Coalition representatives recommended management practices to two of the three growers because one grower already employed several practices. In 2013, follow-ups occurred and 100% of targeted members returned their follow-up surveys with their management practice information.

Figure 9 represents the percent of acres with recommended management practices and newly implemented management practices for the Hilmar Drain @ Central Ave site subwatershed. During initial contact meetings, Coalition representatives recommended three management practices to two of the three targeted growers, install recirculation/tailwater return systems (80%), install and/or improved berms between fields and waterways (10% acreage), and install a device to control timing of pump/drain into waterway (10% acreage (Figure 9).

Follow-up surveys indicate growers implemented all recommended management practices (Figure 9). Growers installed and/or improved berms between fields and waterways (50% acreage with no irrigated drainage), installed a device to control timing of pump/drain into waterway (50% acreage with no irrigated drainage), and/or installed recirculation/tailwater return systems (50% acreage with irrigated drainage) totaling 175 acres with one or more recommended practices implemented. Figure 9 also includes the percentage of acreage represented by new management practices not recommended by the Coalition; growers adjusted spray and nozzles to match crop canopy profile on 50% acreage with irrigation drainage (Figure 9).

Figure 9. Percent of acreage represented by recommended and implemented management practices in the Hilmar Drain @ Central Ave site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Hilmar Drain @ Central Ave

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Management practices implemented to reduce discharge of agriculturally applied constituents were effective in eliminating exceedances of the WQTLs for copper, diuron, and toxicity to *S. capricornutum* as well as exceedances of pH. Monitoring results indicate three years without any exceedances of the WQTLs for pH, copper, or diuron. The PUR data indicate that copper use has been declining since 2010. Applications of diuron have also decreased significantly and have not occurred in the site subwatershed since 2011. Therefore, the Coalition requests that pH, copper, and diuron be removed from the Hilmar Drain @ Central Ave management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015). Field parameters (DO, SC, and pH) are measured during every monitoring event.

HOWARD LATERAL @ HWY 140

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- pH
- Chlorpyrifos

Subwatershed Overview and Monitoring History

Howard Lateral @ Hwy 140 is a Represented site in Zone 4. Monitoring began in October 2008 and continued through 2010 for all constituents as part of Assessment Monitoring, based on the 2008 MRPP. Management Plan Monitoring began in 2011. In 2012, MPM was temporarily suspended from April through December. Monitoring for management plan constituents continued in 2013 and has occurred uninterrupted through the present.

The Coalition began general outreach and education in the Howard Lateral @ Hwy 140 subwatershed in 2007. Focused outreach with targeted growers began in November and December of 2014 and will continue through 2017. On February 3, 2015, the Coalition mailed targeted growers a letter requesting that growers contact the Coalition to schedule individual meetings with Coalition representatives. The Coalition began conducting individual meetings with targeted growers in 2015. Preliminary results will be reported in the 2016 Annual Report. The Coalition will determine which additional management practices were implemented when reviewing the targeted grower's Farm Evaluation plan in 2016; results will be report in the May 1, 2017 Annual Report.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

pH

There have been six exceedances of the upper WQTL for pH in the Howard Lateral @ Hwy 140 site subwatershed; in both 2009 and 2010 during July, August, and September. Measurements of pH ranged from 8.88 to 9.28. Since the last exceedance, the Coalition monitored pH 20 times with no exceedances.

The Coalition does not do MPM for field parameters alone. Field parameters in management plans are measured during scheduled monitoring events where samples are collected for analysis. Therefore, pH was measured at Howard Lateral @ Hwy 140 20 times after the last exceedance with no exceedances of the pH WQTLs. Five of the 20 events were dry. Four of the 20 monitoring events were in months of past exceedances, and the other 16 were during months with similar conditions as the months when past exceedances occurred (example: July field conditions are similar to August field conditions). The

Coalition assessed months with similar field conditions to justify management plan completion when months of past exceedances were unable to be monitored for pH because monitoring was not scheduled to collect samples for analysis. Since the last exceedance occurred in September 2010, the Coalition monitored pH 20 times during scheduled monitoring events with no exceedances.

All field parameters, including pH, are measured during all monitoring events (Core monitoring, Represented monitoring, and MPM). Therefore, monitoring for pH will occur at Howard Lateral @ Hwy 140 during every scheduled monitoring event

Chlorpyrifos

There has been a single exceedance of the WQTL for chlorpyrifos in samples collected from Howard Lateral @ Hwy 140 since monitoring began at the site. An exceedance of the WQTL for chlorpyrifos occurred on June 15, 2010 (0.022 µg/L). The PUR data associated with the exceedance indicate one application totaling 333 lbs AI across 165 acres of sweet potatoes occurred on May 3, 2010.

Since the June 2010 exceedance, the Coalition monitored for chlorpyrifos 13 times with no exceedances. The PUR data indicate chlorpyrifos use in the Howard Lateral site subwatershed has declined since the 2010 exceedance. The end of three years of monitoring with no exceedance was June 2015.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Howard Lateral @ Hwy 140 site subwatershed. The Coalition began conducting focused outreach in the site subwatershed in 2015. The Coalition is in the process of contacting 13 targeted members farming 944 irrigated acres to determine management practices currently implemented and to recommend management practices if necessary. Results from individual meetings will be reported in the May 1, 2016 Annual Report.

The Coalition will continue to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The Coalition will complete individual contacts with the 13 targeted growers in the Howard Lateral @ Hwy 140 site subwatershed in 2015. A preliminary analysis of currently implemented and recommended management practices will be provided in the ESJWQC May 1, 2016 Annual Report. In

2016, the Coalition will follow-up with growers to see if recommended management practices were implemented. The final analysis of these results will be included in the May 1, 2017 Annual Report.

4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Management practices implemented to reduce discharge of agriculturally applied constituents were effective in eliminating exceedances of the WQTLs for both chlorpyrifos and pH. Monitoring results indicate three years of monitoring with no exceedances of the WQTLs for pH and chlorpyrifos. Furthermore, PUR data indicate that chlorpyrifos applications have decreased since 2012. The Coalition requests that pH and chlorpyrifos be removed from the Howard Lateral @ Hwy 140 management plan and MPM schedule.

Future Monitoring

During the 2015 WY, MPM is scheduled as outlined in the Coalition's MPU (approved January 5, 2015). Field parameters (DO, SC, and pH) are measured during each monitoring event.

LIVINGSTON DRAIN @ ROBIN AVE

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Chlorpyrifos
- Water column toxicity to *S. capricornutum*

Subwatershed Overview and Monitoring History

Livingston Drain @ Robin Ave is a Represented site located in Zone 4. Monitoring began during the irrigation season of 2007 and continued through 2008. From 2009 through 2010, monitoring did not occur at the site. Management Plan Monitoring occurred in 2011 and has continued through the present with the exception of 2012 when MPM was temporarily suspended from April through December 2012 (MPM occurred at the site in January and February 2012).

The Coalition began conducting outreach and education in the site subwatershed in 2007. Focused outreach with 11 targeted growers began in 2011 and will continue through 2013. The Coalition identified growers with the greatest likelihood of contributing to the water quality impairments, and contacted these growers in 2011 to document existing management practices. Based on an evaluation of implemented management practices, Coalition representatives recommended additional management practices designed to address stormwater retention and reduce spray drift. The Coalition followed up with targeted growers in 2012 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

Chlorpyrifos

There have been four exceedances of the WQTL for chlorpyrifos in samples collected from Livingston Drain @ Robin Ave, one in August 2007, and three in 2008 (January, June, and July). Toxicity to *C. dubia* did not coincide with any of the exceedances. Samples collected on August 14, 2007 resulted in an exceedance of the WQTL for chlorpyrifos (0.016 µg/L). The PUR data associated with the August 2007 exceedance indicate there were 26 applications totaling 847 lbs AI across 569 acres of almonds from July 20 through August 12, 2007.

Samples collected during the January 24, 2008 storm event resulted in an exceedance of the WQTL for chlorpyrifos (0.020 µg/L). The PUR data indicate there was no reported use of chlorpyrifos in the site

subwatershed during the timeframe that could have contributed to the exceedance. Chlorpyrifos was detected at exceedance level concentrations during the June 17, 2008 (0.230 µg/L) and July 22, 2008 (0.025 µg/L) monitoring events. The PUR data associated with the June 2008 exceedance indicate five applications totaling 104 lbs AI across 51 acres of sweet potatoes on June 17, 2008. The PUR data associated with the July 2008 exceedance indicate four applications totaling 196 lbs AI across 127 acres of almond orchards and corn on July 22, 2008.

The PUR data indicate applications of chlorpyrifos are declining in the site subwatershed. Since the last exceedance in July 2008, the site has been monitored for chlorpyrifos 23 times (data through May 2015). The July 2014 monitoring event for chlorpyrifos concluded three years of monitoring with no exceedance (additional samples were collected through August 2015 with no exceedances).

Water column toxicity to *S. capricornutum*

There have been four instances of *S. capricornutum* toxicity in samples collected from Livingston Drain @ Robin Ave. All toxicities occurred in 2008 (once in February, twice in April, and once in May).

Samples collected during the February 26, 2008 storm event resulted in 61% growth compared to the control and 65% growth compared to the control in the field duplicate. An attempt to resample was made on March 4, 2008; however, the site was dry. Since growth was greater than 50% compared to the control, a TIE was not initiated. Exceedances of the hardness based WQTL for copper occurred in both the environmental and field duplicate samples (15 (4.1) and 18 (4.1) µg/L, respectively) and lead (1.1 (0.92) and 0.93 (0.92) µg/L, respectively). The PUR data associated with the February 2008 toxicity indicate 416 applications of herbicides and fungicides totaling 43,005 lbs AI across 13,103 acres of orchards and row crops from December 8, 2007 through February 26, 2008.

Samples collected on April 22, 2008 resulted in 58% growth compared to the control. The site was resampled on April 29, 2008 and resulted in 63% growth compared to the control, indicating toxicity was persistent. Since growth was greater than 50% compared to the control, a TIE was not initiated. There were no exceedance level concentrations of any pesticides or metals during the April 2008 sampling event. The PUR data associated with the April 2008 toxicity indicate 281 applications totaling 11,396 lbs AI across 8,140 acres of orchards and row crops from January 30, 2008 through April 22, 2008.

Samples collected on May 20, 2008 resulted in 62% growth compared to the control. Since growth was greater than 50% compared to the control, a TIE was not initiated. There were no exceedance level concentrations of any pesticides or metals during the May 2008 sampling events. The PUR data associated with the May 2008 toxicity indicate 199 applications totaling 7,612 lbs AI across 6,537 acres of fruit and nut trees from February 27, 2008 through May 20, 2008.

Since the last toxicity in May 2008, monitoring for toxicity to *S. capricornutum* has occurred 20 times. The end of three years of monitoring with no exceedances was May 2014 (additional samples were collected through June 2015 with no toxicity).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Livingston Drain @ Robin Ave site subwatershed. The Coalition conducted focused outreach with 11 targeted growers from 2011 through 2013 to review grower operations, document management practices, and discuss water quality impairments. Management practices were recommended to eliminate agricultural discharges. Follow-ups occurred with all targeted growers in 2012 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of monitoring results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

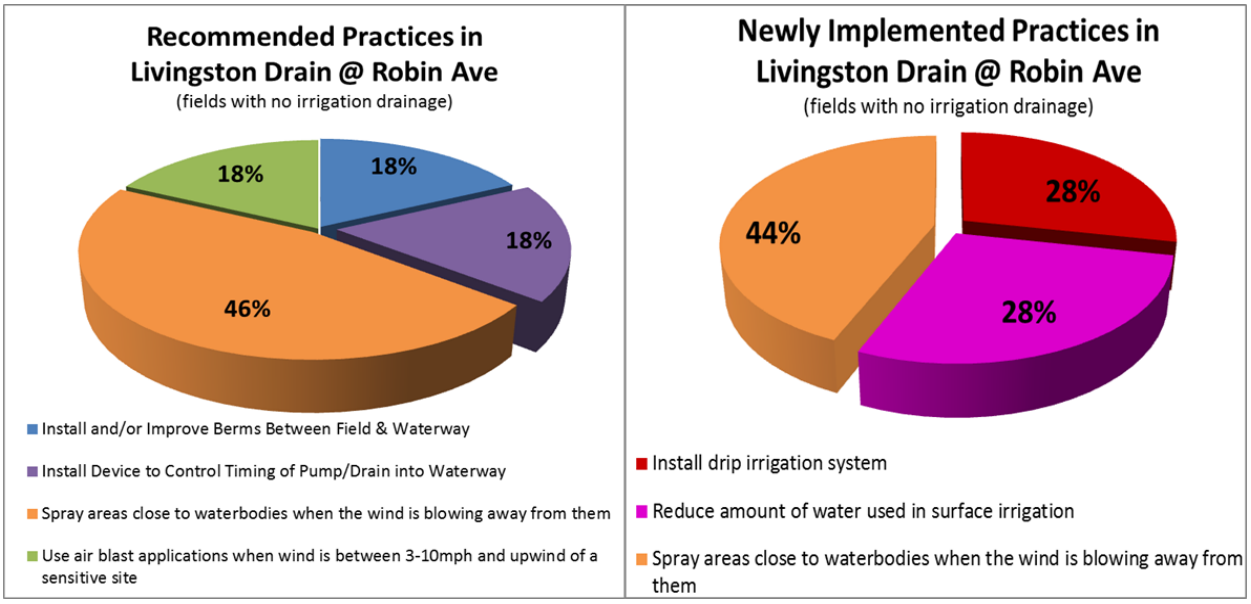
The complete analysis of management practices implemented in the Livingston Drain @ Robin Ave site subwatershed was reported in the ESJWQC 2013 MPUR. Results from that analysis are included in the section below.

Management Practices Implemented

In 2011, the Coalition contacted 11 targeted growers farming 335 acres in the Livingston Drain @ Robin Ave site subwatershed. Management practices were documented for 23% of the acreage identified as direct drainage. The Coalition met individually with growers to discuss water quality concerns, document management practices, and recommend additional practices. The Coalition recommended management practices designed to address storm water retention and reduce spray drift on 151 acres (Figure 10). In 2012, the Coalition followed up with targeted growers with recommended practices to document newly implemented management practices (Figure 10).

Growers implemented spray drift management practices recommended by Coalition representatives and also some practices not specifically recommended. Per the Coalition's recommendation, growers now spray areas close to waterbodies when the wind is blowing away from them (44% acreage),reduced the amount of water used in surface irrigation (28% acreage), and installed drip irrigation systems (28% acreage; Figure 10).

Figure 10. Percent of acreage represented by recommended and implemented management practices in the Livingston Drain @ Robin Ave site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Livingston Drain @ Robin Ave

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate more than three years of monitoring with no exceedances of the WQTL for chlorpyrifos and no toxicity to *S. capricornutum*. Based on focused outreach surveys and follow-up results, targeted growers in the Livingston Drain @ Robin Ave site subwatershed continued to implement management practices and improved water quality. Therefore, the Coalition requests that chlorpyrifos and water column toxicity to *S. capricornutum* be removed from the Livingston Drain @ Robin Ave management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

MILES CREEK @ REILLY RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Copper
- Lead
- Chlorpyrifos
- Water column toxicity to *C. dubia*

Subwatershed Overview and Monitoring History

Miles Creek @ Reilly Rd is a rotating Represented site located in Zone 5. Every third year the site becomes the Core site for Zone 5. Monitoring at Miles Creek @ Reilly Rd took place from 2007 through 2010; the Coalition conducted additional MPM for copper at the site in 2008. Management Plan Monitoring occurred in 2009 and 2010, and from 2013 through the present; however, MPM was temporarily suspended from April through December 2012. Assessment Monitoring for all constituents took place at the site in 2013 according to the Coalition's 2008 MRPP.

The Coalition began conducting general outreach and education in the Miles Creek @ Reilly Rd site subwatershed in 2007. Focused outreach with targeted growers began in 2013 and continued through 2015. The Coalition identified growers with the greatest likelihood of contributing to the water quality impairments. The Coalition contacted targeted growers to document existing management practices and encouraged the implementation of additional management practices designed to eliminate water quality impairments. The Coalition followed up with targeted growers in 2015 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

Copper

There have been seven exceedances of the hardness based WQTL for copper in samples collected from Miles Creek @ Reilly Rd. In 2007 (May, June, and August), three samples resulted in exceedances the hardness based WQTL for total copper (between 4.3 µg/L and 5.8 µg/L, respectively). In 2008 (January, February, July, and August) there were four exceedances of the hardness based WQTL for copper.

Samples collected on May 29, 2007 resulted in an exceedance of the copper WQTL (4.3 (3.5) µg/L). The PUR data associated with the May 2007 exceedance indicate three applications totaling 370 lbs AI across

60 acres of walnuts on March 24, 2007 and April 13, 2007. Samples collected on June 26, 2007 and August 21, 2007 also resulted in exceedances of the hardness based copper WQTL (5.8 (4.3) and 5.2 (4.4) µg/L, respectively). The June 2007 exceedance coincided with toxicity to *S. capricornutum* during the same monitoring event. However, PUR data indicate no additional herbicide applications were made after April 13, 2007 that could be associated with the toxicity.

Storm samples collected on January 25, 2008 resulted in an exceedance (15 (6.2) µg/L). Toxicity was not associated with the exceedance. The PUR data associated with the January 2008 exceedance indicate four applications totaling 1,088 lbs AI across 254 acres of almonds and peaches from January 10, 2008 through January 17, 2008. Three additional exceedances occurred on February 25 (34 (8.0) µg/L), July 29 (7.5 (6.7) µg/L), and August 26 (7.5 (6.7) µg/L); however, no applications of copper were made to fields in the site subwatershed after January 17 that could be associated with any exceedance. It is possible that the applications of copper containing products in January could have contributed to both the January and February exceedances. No applications could be associated with the July or August 2008 exceedances.

Since the last exceedance occurred in August 2008, the site has been monitored 30 times for copper with no exceedances. The end of three years of monitoring with no exceedances was June 2015 (additional monitoring occurred through August 2015 with no exceedances).

Lead

Five exceedances of the hardness based WQTL for lead occurred in samples collected Miles Creek @ Reilly Rd, once in 2007 (June), 2008 (January, February, July, and August) with concentrations ranging from 1.0 (0.99) to 7.70 (2.5) µg/L. Lead predominately resides in the sediment and could have been mobilized in the water during the sampling event as a result of some disturbance upstream. No pesticides were applied containing lead during or around the monitoring period.

Since the last exceedance in August 2008, lead has been monitored 18 times in the site subwatershed with no exceedances. The August 2015 monitoring event concluded three years monitoring with no exceedances. Furthermore, lead is not an agriculturally applied constituent.

Chlorpyrifos

There have been four exceedances of the WQTL for chlorpyrifos in samples collected from Miles Creek @ Reilly Rd in 2007 (September), in 2008 (July and August), and in 2009 (July). Samples collected on September 18, 2007 resulted in an exceedance of the WQTL for chlorpyrifos (0.03 µg/L). Toxicity to *C. dubia* coincided with the exceedance with 60% growth compared to the control. The PUR data associated with the September 2007 exceedance indicate three applications totaling 361 lbs AI across 483 acres of corn on August 27, 2007 and September 8, 2007.

Chlorpyrifos was detected at concentrations above the WQTL during the July 29 and August 26, 2008 monitoring events (0.021 and 0.042 µg/L, respectively). Toxicity to *C. dubia* did not coincide with either

of these samples. The PUR data associated with the July 2008 exceedance indicate 13 applications totaling 497 lbs AI across 777 acres of alfalfa from July 5 through July 29, 2008. The PUR data associated with the August 2008 exceedance indicate17 applications totaling 409 lbs AI across 596 acres of almonds and alfalfa from July 30 through August 24, 2008.

The last exceedance of the WQTL for chlorpyrifos occurred in samples collected on July 21, 2009 (0.028 µg/L). Toxicity was not associated with the exceedance. The PUR data indicate three applications totaling 115 lbs AI across 156 acres of alfalfa, almonds, and cotton from June 27 through July 20, 2009.

Since the last exceedance of the WQTL for chlorpyrifos in July 2009, Miles Creek @ Reilly Rd has been monitored 22 times with no exceedances. The July 2015 monitoring event concluded three years of monitoring with no exceedances (additional monitoring occurred through September 2015 with no exceedances).

Water column toxicity to *C. dubia*

There have been three instances of toxicity to *C. dubia* in samples collected from Miles Creek @ Reilly Rd in 2007 (September) and in 2008 (twice in January) . Samples collected on September 18, 2007 resulted in 60% survival compared to the control; toxicity was not persistent in the resample. A TIE was not conducted. Toxicity coincided with an exceedance of the WQTL for chlorpyrifos (0.03 µg/L). Although the chlorpyrifos concentration detected is below the standard LC_{50} value for *C. dubia* (approximately 0.06 µg/L), it is possible that the amount of chlorpyrifos in conjunction with other chemicals that the Coalition does not sample for could have contributed to the toxicity. The PUR data associated with the September 2008 toxicity indicate 57 applications totaling 3,049 lbs AI across 4,971 acres of orchards and row crops from April 5, 2007 through September 15, 2007.

Samples collected on January 25, 2008 were toxic to *C. dubia* and toxicity was persistent in the resample (0% and 19% compared to the control, respectively). A dilution series was run to quantify the level of toxicity in the sample and TIE tests were performed to identify the agents of toxicity. All toxicity was lost prior to the TIE test and the cause of toxicity could not be determined. Samples collected during the same January 2008 event resulted in exceedances of methidathion (2.3 µg/L) and copper (15 µg/L). The PUR data associated with the January 2008 toxicity indicate 70 applications of potentially toxic products totaling 64,754 lbs AI across 7,242 acres of fruit and nut trees and row crops from August 15, 2007 through January 26, 2008.

Since the last toxicity in January 2008, Miles Creek @ Reilly Rd has been monitored 23 times for toxicity to *C. dubia* with no instances of toxicity; of those 23, the site was dry five times. The January 2015 monitoring event concluded three years monitoring with no exceedances (additional samples were collected during the 2015 WY and no toxicity occurred).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Miles Creek @ Reilly Rd site subwatershed. The Coalition conducted focused outreach with targeted growers from 2013 through 2015 to review grower operations, document management practices, and discuss water quality impairments. Management practices were recommended to eliminate spray drift impacts. All targeted growers were contacted again in 2014 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of monitoring results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

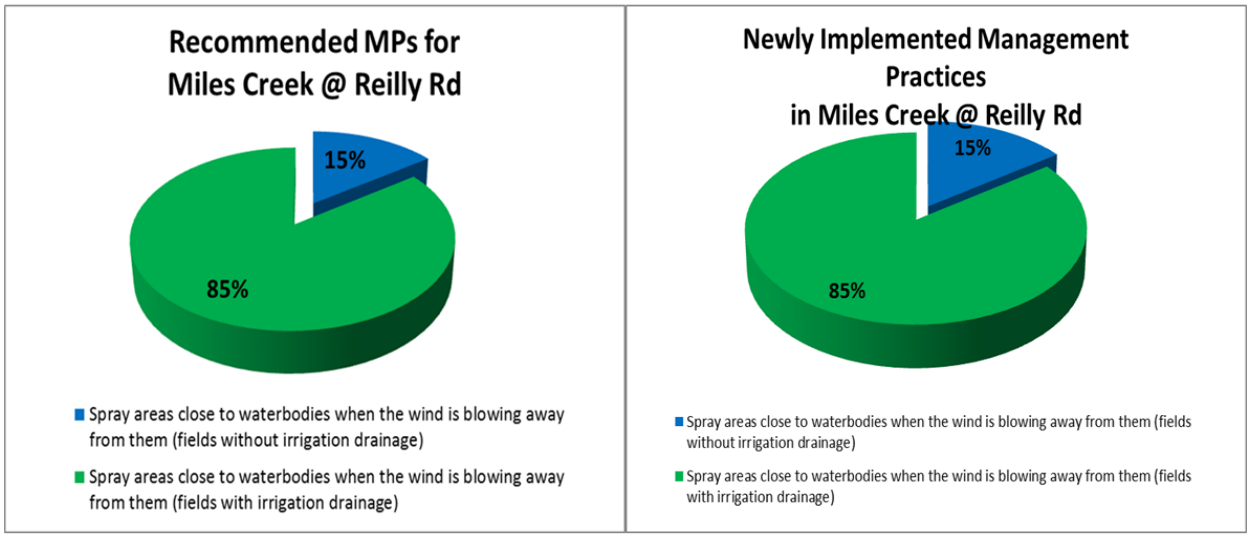
The complete analysis of management practices implemented in the Miles Creek @ Reilly Rd site subwatershed was reported in the ESJWQC 2015 Annual Report. Results from that analysis are included in the section below.

Management Practices Implemented

In 2011, the Coalition contacted nine targeted growers farming 1,540 acres in the Miles Creek @ Reilly Rd site subwatershed. Management practices were documented for 18% of the acreage identified as direct drainage.

The Coalition recommended management practices designed to reduce spray drift to five targeted growers farming 1,195 acres. In 2014, the Coalition followed up with the five growers to document newly implemented management practices. Per the Coalition's recommendation, the five targeted growers implemented 100% of recommended management practices (Figure 11).

Figure 11. Percent of acreage represented by recommended and implemented management practices in the Miles Creek @ Reilly Rd site subwatershed.



4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

Focused outreach results indicate that grower's implemented recommended management practices. The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results indicate more than three years of monitoring with no exceedances of the WQTL for copper, lead, chlorpyrifos, and no toxicity to *C. dubia*. Furthermore, lead is not an agriculturally applied constituent. Therefore, the Coalition requests that these constituents be removed from the Miles Creek @ Reilly Rd management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

MOOTZ DRAIN DOWNSTREAM OF LANGWORTH POND

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Chlorpyrifos

Subwatershed Overview and Monitoring History

Mootz Drain downstream of Langworth Pond is a Represented site located in Zone 1. Monitoring at Mootz Drain @ Langworth Rd took place from November 2008 through November 2009. In December 2009, the site was replaced by Mootz Drain downstream of Langworth Pond. Assessment Monitoring occurred in 2009 at Mootz Drain @ Langworth Rd and in 2010 and 2013 at Mootz Drain downstream of Langworth Pond according to the Coalition's 2008 MRPP. Management Plan Monitoring began at the site in the 2015 WY.

The Coalition began general outreach and education with growers in Mootz Drain in 2007. Focused outreach with targeted growers began in 2015 and will continue through 2017. Growers with the greatest likelihood of contributing to water quality impairments were identified and contacted in late 2014. The Coalition is in the process of scheduling individual meetings with targeted growers to document existing management practices, and to encourage the implementation of additional management practices. The Coalition will determine which additional management practices were implemented when reviewing the targeted grower's Farm Evaluation plan in 2016; results will be report in the May 1, 2017 Annual Report.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. The PUR data associated with agriculturally applied constituents are included in Appendix II.

Chlorpyrifos

There have been two exceedances of the WQTL for chlorpyrifos at Mootz Drain @ Langworth Rd, one in December 2008, and one in June 2009. Toxicity to *C. dubia* did not coincide with either exceedance.

Samples collected on December 16, 2008 resulted in an exceedance of the WQTL for chlorpyrifos (0.017 µg/L). The PUR data for the December 2008 exceedance indicate that no applications could be associated with the exceedance.

Samples collected on June 16, 2009 (0.033 µg/L). The PUR data for the June 2009 exceedance indicate that no applications could be associated with the exceedance.

Since the last exceedance of the WQTL for chlorpyrifos in June 2009, Mootz Drain has been monitored for chlorpyrifos 26 times with no exceedances. The PUR data from 2006 through December 2014 indicate the only reported applications in the last four years occurred on October 2014 (8 lbs AI). The June 2015 monitoring event for chlorpyrifos concluded three years of monitoring with no exceedance at Mootz Drain downstream of Langworth Pond. Additionally, since monitoring was moved downstream of Langworth Pond beginning in December 2009, no exceedances of the WQTL have occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in Mootz Drain site subwatersheds. The Coalition began its first year of focused outreach in the Mootz Drain downstream of Langworth Pond site subwatershed in 2015. The Coalition is in the process of contacting targeted growers to determine management practices currently implemented. Results from individual contacts with targeted growers will be included in the May 1, 2016 Annual Report.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The Coalition will complete initial contacts with six targeted growers farming 917 acres of direct drainage in the site subwatershed in 2015. An analysis of currently implemented and recommended management practices will be provided in the ESJWQC May 1, 2016 Annual Report.

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

Through general outreach (including newsletters, emails, mailings, and annual meetings), growers keep informed of water quality results and requirements to protect water quality. Water quality results indicate growers are taking the initiative and implementing management practices to reduce discharge of agriculturally applied constituents before recommendations are made during individual focused outreach meetings with Coalition representatives. Monitoring results indicate water quality has improved in the site subwatershed; there have been zero exceedances of the WQTL for chlorpyrifos in

25 monitoring events. There has been three years of monitoring with no exceedances of the WQTL for chlorpyrifos. In addition, applications of chlorpyrifos in the Mootz Drain subwatershed are minimal; during 2014 only eight lbs AI were applied. The Coalition requests that chlorpyrifos be removed from the Mootz Drain downstream of Langworth Pond site subwatershed management plan and MPM schedule.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).

MUSTANG CREEK @ EAST AVE

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- SC

Subwatershed Overview and Monitoring History

Mustang Creek @ East Ave is a Represented site located in Zone 3. Monitoring took place from 2006 through 2008. From 2009 through 2010, and in 2013 all constituents were monitored monthly during Assessment Monitoring, as indicated in the 2008 MRPP. Management Plan Monitoring was initiated in 2010 and has continued through the present; however, MPM was temporarily suspended from April through December 2012.

The Coalition began conducting outreach and education in the Mustang Creek @ East Ave site subwatershed in 2007. Focused outreach with targeted growers began in 2014 and will continue through 2016. Growers with the greatest likelihood of contributing to water quality impairment were identified. The Coalition contacted six targeted growers in the site subwatershed to document existing management practices and to encourage the implementation of additional practices designed to eliminate water quality impairments. The Coalition plans to follow up with targeted growers in 2015 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

SC

Nine exceedances of the WQTL for SC have occurred in the Mustang Creek @ East Ave site subwatershed between February 2007 and March 2010 (704 µS/cm 1467 µS/cm). Since the last exceedance in March 2010, measuring SC has occurred 33 times with no exceedances. Of those 33 events, 22 were dry. The end of three years monitoring with no exceedances was March 2015 (additional measurements of SC were taken through September 2015 with no exceedances).

The Coalition does not do MPM for field parameters alone. Field parameters in management plans are measured during scheduled monitoring events where samples are collected for analysis. Therefore, SC was measured 33 times at the site after the last exceedance with no exceedances. Eighteen of the 33 monitoring events were in months of past exceedances, and the other SC measurements were taken during months with similar conditions as the months when past exceedances occurred; 22 of the 33 events were dry. The Coalition assessed months with similar field conditions to justify management

plan completion when months of past exceedances were unable to be monitored for SC because monitoring was not scheduled to collect samples for analysis. Since the last exceedance in March 2010, the Coalition monitored SC 33 times during scheduled monitoring events with no exceedances.

All field parameters, including SC, are measured during all monitoring events (Core monitoring, Represented monitoring, and MPM). Therefore, monitoring for SC will occur at Mustang Creek @ East Ave during every sampling event.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Mustang Creek @ East Ave site subwatershed. The Coalition conducted focused outreach with six growers in 2014 to review each grower's operation and document existing management practices. The Coalition is in the process of following up with targeted growers in 2015 to assess if new practices were implemented.

The Coalition continues to provide outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members about water quality results, relevant management practices that eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address water quality exceedance

The analysis of management practices currently implemented in the Mustang Creek @ East Ave site subwatershed was reported in the ESJWQC 2015 Annual Report. Results from that analysis are included in the section below.

Management Practices Implemented

In 2014, the Coalition completed initial contacts with six targeted growers farming 3,472 acres in the Mustang Creek @ East Ave site subwatershed. Management practices were documented for 82% of the acreage identified as direct drainage. Coalition representatives discussed local water quality concerns, the importance of preventing the offsite movement of all agricultural constituents, and recommended to one grower that additional management practices be implemented.

The Coalition recommended the grower spray areas close to waterbodies when the wind is blowing away from them; follow-up results indicate 100% of recommended practices were implemented.

4. Demonstration management practices implemented by members are effective in addressing water quality impairment

Justification to Remove Constituents from Mustang Creek @ East Ave

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Management practices implemented to reduce discharge of agriculturally applied constituents were also effective in eliminating exceedances of the WQTL for SC. Monitoring results indicate more than three years with no exceedances of the WQTL for SC. Therefore, the Coalition requests that SC be removed from the Mustang Creek @ East Ave management plan. The Coalition continues to work with CV-SALTS to develop a better understanding of sources and sinks of salt in surface and groundwater and practices effective in preventing further exceedances of the WQTLs of SC.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015). Field parameters such as SC are measured during every monitoring event.

PRAIRIE FLOWER DRAIN @ CROWS LANDING RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Water column toxicity to *P. promelas*

Subwatershed Overview and Monitoring History

Prairie Flower Drain @ Crows Landing Rd is one of the rotating Core sites located in Zone 2. Every third year the site rotates to Represented site monitoring and Lateral 5 ½ @ South Blaker Rd becomes the Core site for Zone 2. Monitoring at Prairie Flower Drain @ Crows Landing Rd was initiated during the storm season of 2005 and has continued uninterrupted to the present. Assessment Monitoring occurred in 2011 according to the Coalition's 2008 MRPP. Management Plan Monitoring was initiated at the site during the 2007 irrigation season and has occurred from 2009 through the present; however, MPM was temporarily suspended from April through December 2012. In addition, Prairie Flower Drain @ Crows Landing Rd was monitored monthly for all constituents during the 2014 and 2015 WY for Core site monitoring.

The Coalition began conducting general outreach and education in the Prairie Flower Drain @ Crows Landing Rd site subwatershed in 2007. Focused outreach began in 2008 and continued through 2010. Growers with the greatest likelihood of contributing to water quality impairments were identified. The Coalition contacted targeted growers to document existing management practices and to encourage the implementation of additional management practices. The Coalition followed up with targeted growers in 2010 to determine which additional management practices were implemented.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I.

Water column toxicity to *P. promelas*

There were three instances of *P. promelas* toxicity in samples collected from Prairie Flower Drain @ Crows Landing Rd (twice in July 2006 and once in April 2011). Samples collected on July 13, 2006 resulted in toxicity to *P. promelas* with survival of 8% compared to the control; toxicity was persistent in the resample with 70% survival compared to the control. The TIE results of the sample indicated that the toxicity was the result of high levels of ammonia in the water column. Chemistry results associated with the July 2006 toxicity indicate an exceedance of the WQTL for ammonia coincided with the toxicity (18 mg/L). In addition, the PUR data associated with the July 13, 2006 toxicity indicate 41 applications of pesticides totaling 775 lbs AI across 1,640 acres of alfalfa, corn, cucumbers, and Sudan grass from March 18, 2006 through July 11, 2006.

Samples collected on April 19, 2011 resulted in toxicity to *P. promelas* (80% survival compared to the control). Survival was greater than 50% compared to the control and therefore a TIE was not initiated. Chemistry results for samples collected during this event resulted in an exceedance of the WQTL for ammonia (12 mg/L). It is likely that the high ammonia was the cause of the 20% reduction in *P. promelas* survival. In addition, the PUR data associated with this toxicity indicate that there were a total of nine applications totaling 2,094 lbs AI across 542 acres of alfalfa and sweet potatoes from March 9, 2011 through April 16, 2011.

Since the last toxicity in April 2011 Prairie Flower Drain @ Crows Landing Rd has been monitored 35 times with no instances of toxicity to *P. promelas*. Of those 35 events, two were dry. The end of three years of monitoring with no toxicity was July 2015 (additional monitoring occurred through September with no toxicity).

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition initiated general outreach in 2007 and has taken several actions to address water quality impairments in the Prairie Flower Drain @ Crows Landing Rd site subwatershed. The Coalition conducted focused outreach in 2008 to document management practices and to discuss water quality impairments with 11 targeted growers farming 865 irrigated acres. Management practices were recommended if they could be effective in reducing agricultural discharges. The Coalition followed up with targeted growers to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members in the site subwatershed. Through grower notifications and meetings, the Coalition informs members of monitoring results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

3. Documentation of member implementation of management practices to address the water quality exceedance

The complete analysis of management practices implemented in the Prairie Flower Drain @ Crows Landing Rd site subwatershed was reported in the ESJWQC 2011 MPUR. Results from that analysis are included in the section below.

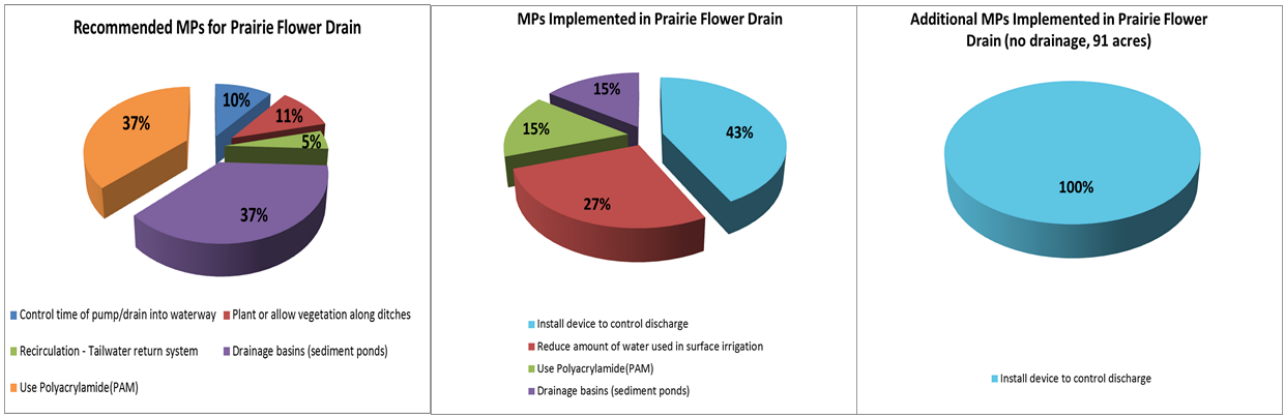
Management Practices Implemented

The Coalition contacted 11 targeted growers farming approximately 865 acres in the Prairie Flower Drain subwatershed or 4,097 acres. The remaining acreage is primarily in dairies.

The Coalition recommended PAM to a single grower, operating 270.9 acres, to control irrigation runoff, and installing a drainage basin /sediment pond to capture excess runoff (Figure 12).

The Coalition documented that the grower installed a device to control discharge and has reduced the amount of water used during surface irrigation. Therefore, although the grower did not use PAM as recommended, they did implement additional practices to reduce irrigation runoff. The final grower that received a recommendation to implement a management practice in the site subwatershed explained they did not install a recirculation / tailwater return system per the Coalition's advice because the 34-acre property is being sold. One grower implemented management practices in 2009 and 2010 without specific recommendations from the Coalition. Overall, the newly implemented management practices included reducing the amount of water used in surface irrigation (27% of the total acreage), installing devices to control discharge (43% of the total acreage), and the use of drainage basins and PAM were applied to 15% each of the total acreage (Figure 12).

Figure 12. Percent of acreage represented by recommended and implemented management practices in the Prairie Flower Drain @ Crows Landing Rd site subwatershed.



4. Demonstration that the management practices implemented by members are effective in addressing the water quality impairment

Justification to Remove Constituents from Prairie Flower Drain @ Crows Landing Rd

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results demonstrate more than three years of monitoring with no water column toxicity to *P. promelas*. Based on focused outreach and follow-up results, targeted growers in the site subwatershed implemented management practices and improved water quality as reflected by the absence of water column toxicity. Therefore, the Coalition requests that water column toxicity to *P. promelas* be removed from the Prairie Flower Drain @ Crows Landing Rd management plan and MPM.

Future Monitoring

During the 2015 WY, monitoring is scheduled as outlined in the Coalition's MPU (approved January 5, 2015).