San Joaquin County and Delta Water Quality Coalition

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September 2, 2015

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

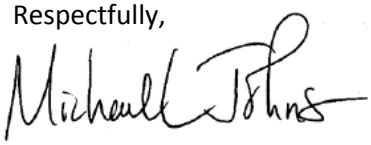
Dear Ms. Creedon,

The San Joaquin County and Delta Water Quality Coalition (SJCDWQC 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 (R5-2014-0029-R1), Appendix MRP-1, Page 9 per each site subwatershed in the attached letter. Monitoring results for each site/constituent included in this letter are provided in Appendix I.

The ten sites (21 constituents) listed below meet the four requirements for management plan completion. If approved, the Coalition will remove site specific constituent management plans and MPM for:

- Bear Creek @ North Alpine Rd (pH, chlorpyrifos, and malathion)
- Drain @ Woodbridge Rd (chlorpyrifos)
- French Camp Slough @ Airport Way (pH and sediment toxicity to *H. azteca*)
- Kellogg Creek along Hoffman Ln (water column toxicity to *P. promelas* and sediment toxicity to *H. azteca*)
- Littlejohns Creek @ Jack Tone Rd (chlorpyrifos and copper)
- Mormon Slough @ Jack Tone Rd (water column toxicity *to C. dubia*)
- Roberts Island @ Whisky Slough Pump (chlorpyrifos, diuron, and sediment toxicity to *H. azteca*)
- Sand Creek @ Hwy 4 Bypass (dieldrin)
- Unnamed Drain to Lone Tree Creek @ Jack Tone Rd (SC, copper, and diuron)
- Walthall Slough @ Woodward Ave (chlorpyrifos, HCH, sediment toxicity to *H. azteca*)

Respectfully,



Michael L. Johnson
Technical Program Manager

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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 (dissolved oxygen (DO) specific conductance (SC), boron, chlorpyrifos, and diazinon), or more than one exceedance of the WQTL for other constituents.

When a constituent becomes the focus of the SJCDWQC Management Plan, the Coalition initiates actions to address the exceedances including focused outreach and additional MPM during months of past exceedances and high pesticide use. The SJCDWQC Management Plan includes a flow chart which describes the process by which the Coalition conducts monitoring, source identification, as well as outreach and evaluation of implemented management practices. In 2007, the Coalition initiated general outreach to growers including information about management practices that could be implemented to reduce the impact of agriculture on water quality. Focused outreach began in 2008 and water quality data for a subset of subwatersheds has been collected for several constituents to document improved water quality. Therefore, the Coalition determined that there are sufficient data and evidence to request the removal of 21 site specific constituents in the 10 site subwatersheds listed in Table 1.

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

Site Subwatershed	Years of Focused Outreach	pH*	SC*	Copper (Total & Dissolved)	Chlorpyrifos	Dieldrin	Diuron	HCH-delta	Malathion	*C. dubia* Toxicity	*P. promelas* Toxicity	*H. azteca* Toxicity	TOTAL
Bear Creek @ North Alpine Rd	2013-2015	X			X				X				3
Drain @ Woodbridge Rd	2014-2016				X								1
French Camp Slough @ Airport Way	2011-2013	X										X	2
Kellogg Creek along Hoffman Ln	2012-2014										X	X	2
Littlejohns Creek @ Jack Tone Rd	2010-2012			X	X								2
Mormon Slough @ Jack Tone Rd	2012-2014									X			1
Roberts Island @ Whiskey Slough Pump	2013-2015				X		X					X	3
Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	2008-2010		X	X			X						3
Sand Creek @ Hwy 4 Bypass	2012-2014					X							1
Walthall Slough @ Woodward Ave	2013-2015				X			X				X	3
	Total	**2**	**1**	**2**	**5**	**1**	**2**	**1**	**1**	**1**	**1**	**4**	**21**

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

This proposal to remove constituents from management plans was justified using available laboratory results through May 2015. Monitoring results for field parameters and toxicity are through June 2015. In some cases preliminary results were used from June (laboratory results) and July (field parameter results) to justify management plan removal if available. 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. These data document improved water quality due to successful outreach and education. The section key in Table 2 includes the requirements for management plan completion as outlined in the WDR (R5-2014-0029-R1), Appendix MRP-1, Page 9 and corresponding sections per each site subwatershed.

Table 2. Management plan completion section key.

Requirements for Management Plan Completion: as outlined in the WDR for Growers Within the San Joaquin County and Delta Area That Are Members of a Third-Party Group (Order No. R5-2014-0029-R1)	Section Name/Location
1. Demonstration through evaluation of monitoring data that the water quality impairment is no longer occurring (i.e., 3 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 to Remove Constituents • Future Monitoring

SUPPORTING DOCUMENTATION FOR MANAGEMENT PLAN COMPLETION

BEAR CREEK @ NORTH ALPINE RD

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

Constituents Requested to Remove from Management Plan:

- pH
- Chlorpyrifos
- Malathion

Subwatershed Overview and Monitoring History

Bear Creek @ North Alpine Rd is a Represented site located in the Mokelumne River @ Bruella Rd Zone (Zone 1). Monitoring began in the fall season of 2008 and continued through 2009 and again in 2011 through the 2015 WY. Management Plan Monitoring for chlorpyrifos and malathion began in 2012 and continued through 2015.

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. 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 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 for all constituents listed below.

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.

The proposal to remove pH from the management plan of Bear Creek @ North Alpine Rd is justified using monitoring results available through June 2015. There have been two exceedances of the WQTL

for pH in the site subwatershed; one occurred on January 13, 2011 (5.82) and the other occurred on April 12, 2011 (8.60). Since the last exceedance in April 2011, pH has been monitored 27 times with no exceedances (results through June 2015). The Coalition does not perform MPM for field parameters alone; therefore, pH was measured at the site during monitoring events where sampling was scheduled for constituents which can be tracked to a source. Exceedances of the WQTL for pH occurred during January and April at the site. Since the last exceedance, the Coalition monitored for pH in January three times, and in April once. Since the Coalition was not scheduled to monitor for any constituents at the site during April, and since field conditions during the irrigation months of April and May are similar, the Coalition asks staff to consider pH measurements taken during May as part of the monitoring requirements for completion of the pH management plan. Measurements of pH occurred in May three times. Including pH measurements taken in May, the Coalition has completed more than three years of monitoring with no exceedances of the WQTL for pH.

All field parameters, including pH, are measured during every monitoring event (Core Monitoring, Represented Monitoring, and MPM). Therefore, monitoring for pH will occur at Bear Creek @ North Alpine Rd during every sampling event.

Chlorpyrifos

The proposal to remove chlorpyrifos from the management plan of Bear Creek @ North Alpine Rd is justified using available laboratory results through May 2015. The Regional Board established a TMDL for chlorpyrifos for the SJCDWQC 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 three exceedances of the WQTL for chlorpyrifos in the Bear Creek @ North Alpine Rd site subwatershed, all three occurred in 2011 (January, September, and October); MPM for chlorpyrifos was initiated in 2012.

Samples collected on January 11, 2011 resulted in an exceedance of the WQTL for chlorpyrifos (0.11 µg/L). The PUR data associated with the January 2011 exceedance indicate one application totaling one pound AI across 0.25 acres of nursery/outdoor plants occurred on December 31, 2010. Since the parcel with reported applications was located far from the creek; it is possible that not all were reported. The PUR data associated with the September 20, 2011 exceedance (0.089 µg/L) indicate nine applications totaling 288 lbs AI across 153 acres of walnuts occurred from August 24, 2011 through September 15, 2011. Additionally, five applications were associated with the October 6, 2011 exceedance totaling 68 lbs AI across 36 acres of walnuts occurred from September 8, 2011 through September 22, 2011.

Since the last exceedance of the WQTL for chlorpyrifos in October 2011, Bear Creek @ North Alpine Rd has been has been monitored for chlorpyrifos 11 times with no exceedances. The end of three years of monitoring with no exceedances was October 2014. In addition, the Coalition continued with MPM during 2015 with no exceedances.

Malathion

The proposal to remove malathion from the management plan of Bear Creek @ North Alpine Rd is justified using available laboratory results through May 2015. Malathion is an organophosphate insecticide applied to over 100 crops in the United States including alfalfa, rice, cotton, sorghum, wheat, and walnuts. Any detection of malathion in the water column is considered an exceedance. There were three detections of malathion in the Bear Creek @ North Alpine Rd site subwatershed, all three occurred in 2011 (January, May, and September). Management Plan Monitoring for malathion was initiated in the site subwatershed in 2012.

The PUR data indicated that there were no reported applications associated with the January 11, 2011 exceedance (0.1 µg/L) and that the last application of malathion was on October 31, 2010. There were 18 applications totaling 991 lbs AI across 822 acres of cherry orchards from May 13, 2011 through May 23, 2011 associated with the May 24, 2011 exceedance (0.064 µg/L). The PUR data associated with the September 20, 2011 exceedance (0.089 µg/L) indicate seven applications totaling 1,173 lbs AI were applied across 219 acres of walnuts occurred from August 26, 2011 through September 9, 2011. Toxicity was not associated with any of the exceedances. Since the last exceedance in September 2011, malathion has been monitored 13 times with no exceedances of the WQTL. The end of three years of monitoring with no exceedances was January 2015. In addition, the Coalition continued with MPM during May 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 Bear Creek @ North Alpine Rd site subwatershed. The Coalition conducted focused outreach from 2013 through 2015 with seven targeted growers in the site subwatershed to document current management practices and to discuss water quality impairments. The Coalition followed up with six targeted members in the subwatershed to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the Bear Creek @ North Alpine Rd site subwatershed was reported in the SJCDWQC May 1, 2015 Annual Report. Results from that analysis are included in the section below.

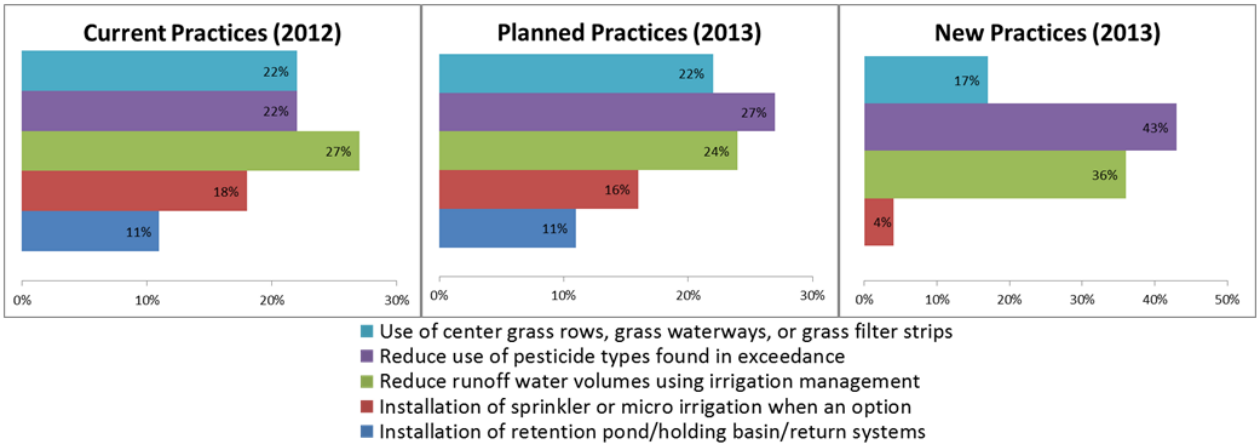
Management Practices Implemented

In 2013, the Coalition contacted seven targeted growers farming 655 acres in the site subwatershed. Management practices were documented for 5% of the acreage with direct drainage. Grower meetings were conducted with all targeted growers in 2013 to record management practice information. Follow-up surveys were sent in early 2014 and 100% of the surveys were returned.

Not all planned practices were implemented by targeted growers. Many times, lack of funding can cause a delay in implementation, and changes in other practices that serve the same purpose influence which practices are implemented compared to those planned. For example, one targeted member with the Bear Creek @ North Alpine Rd indicated that they planned to install a retention pond however in their follow-up survey they instead reduced the volume of water used in irrigation.

Survey responses indicated that in 2012, the two most implemented management practices were reducing use of pesticide types found in exceedances (43%), and reducing runoff water volumes using irrigation management (36%, Figure 1). The other management practices implemented in 2013 included use of center grass rows, grass waterways, or grass filter strips and installation of sprinkler or micro irrigation. In 2012, all targeted members had one or more management practice in place specific to runoff management or pesticide application management. Continued and newly implemented management practices have been successful in improving water quality in the site subwatershed.

Figure 1. Bear Creek @ North Alpine Rd summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Bear Creek @ North Alpine 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 WQTL for pH, chlorpyrifos, and malathion. Furthermore, PUR data indicate that there has been a considerable

decline in chlorpyrifos use in the site subwatershed since 2009. Based on focused outreach surveys and follow-up results, targeted growers in the site subwatershed implemented management practices resulting in improved water quality as reflected by the absence of exceedances of the WQTLs for chlorpyrifos and malathion for three years each. By including pH monitoring results from the months of January, April, and May, the Coalition has monitored for three years with no pH exceedances. Therefore, the Coalition requests that pH, chlorpyrifos, and malathion be removed from the Bear Creek @ North Alpine Rd site subwatershed management plan and MPM schedule.

Future Monitoring

Bear Creek @ North Alpine Rd is a Represented site located within Zone 1. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 Monitoring Plan Update (MPU); MPM is scheduled for chlorpyrifos, malathion and toxicity to *S. capricornutum* based on months of past exceedances and PUR analysis. Field parameters (DO, pH, and SC) are measured during every monitoring event.

DRAIN @ WOODBRIDGE RD

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

Constituents Requested to Remove from Management Plan:

- Chlorpyrifos

Subwatershed Overview and Monitoring History

Drain @ Woodbridge Rd is a Represented site located in the Terminous Tract Drain @ Hwy 12 Zone (Zone 3). Monitoring began in the fall season of 2008 and continued through 2010 and again from 2013 through the 2015 WY. The Coalition initiated MPM for chlorpyrifos in 2013.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach with targeted growers began in 2014 and will continue through 2016. The Coalition identified growers with the greatest likelihood of contributing to water quality impairments. In 2014, 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 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 for all constituents listed below.

Chlorpyrifos

The proposal to remove chlorpyrifos from the management plan of Drain @ Woodbridge Rd is justified using available results through May 2015. Samples collected from Drain @ Woodbridge Rd on April 13, 2010 resulted in an exceedance of the WQTL for chlorpyrifos (0.029 µg/L). The April 2010 exceedance of the WQTL for chlorpyrifos is the only instance of a detection of chlorpyrifos that exceeded the WQTL. The PUR data associated with the April 13, 2010 exceedance (0.029 µg/L) indicate nine applications totaling 765 lbs AI across 326 acres of alfalfa occurred on March 16, 2010. Since the April 2010 exceedance, chlorpyrifos has been monitored 11 times with no exceedances. The end of three years of monitoring with no exceedances was April 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 Drain @ Woodbridge Rd site subwatershed. The Coalition conducted focused outreach meetings with 4 targeted growers during 2014 to discuss water quality concerns, review each

grower's operation, and document existing management practices. The Coalition followed up with all targeted members during 2015 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within the Drain @ Woodbridge Rd 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 the water quality exceedance

The complete analysis of management practices implemented in the Drain @ Woodbridge Rd site subwatershed will be reported in the SJCDWQC 2016 Annual Report. Preliminary results are described in the section below.

Management Practices Implemented

In 2014, the Coalition contacted four targeted growers farming 1,553 acres in the Drain @ Woodbridge Rd site subwatershed. Management practices were documented for 32% of the acreage identified as having direct drainage. Grower meetings were conducted in 2014 and 100% of targeted members returned surveys with their management practice information.

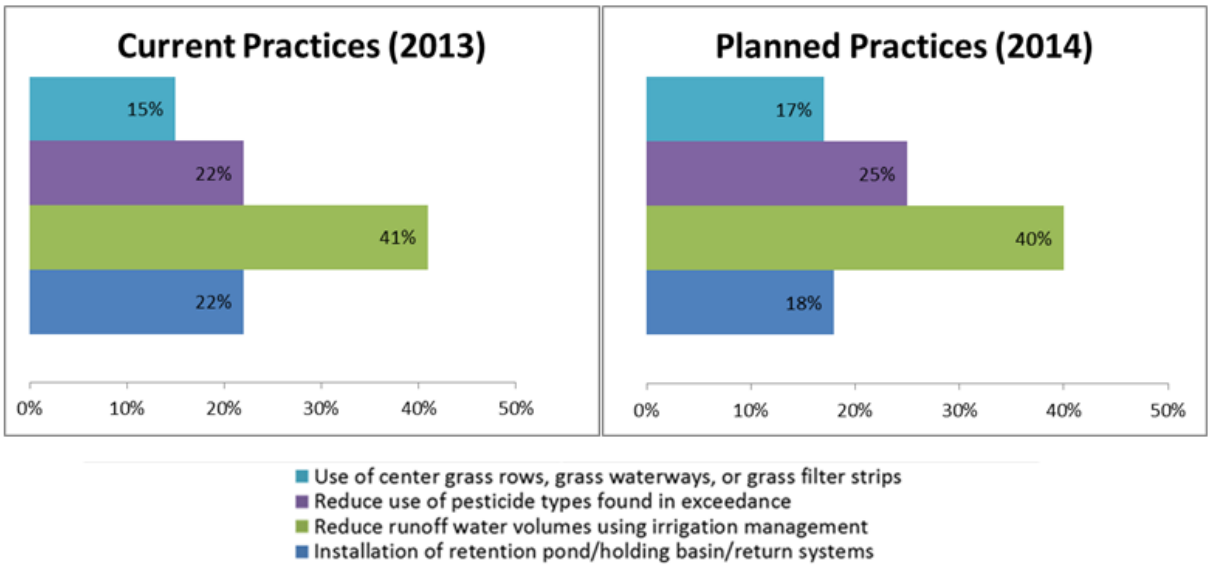
The most common management practices that members were implementing in 2013 were reducing runoff water volumes, reducing the use of the pesticide types found in exceedances, and installation of retention pond/holding basin/return systems (Figure 2). In 2013, all targeted members in the Drain @ Woodbridge Ave site subwatershed had one or more management practice currently in place that were specific to runoff management or pesticide application management.

The management practices targeted growers in the Drain @ Woodbridge Rd site subwatershed planned to implement in 2014 were reduced runoff water volume (40%), reduced the use of the pesticides found in exceedances (25%), use of center grass rows/grass waterways/grass filter strips (17%), and installation of retention pond/holding basin/return systems (18%, Figure 2).

The Coalition sent follow-up surveys to growers who indicated on their initial surveys that they would implement additional management practices by the end of 2014. A final analysis of implemented management practices in the Drain @ Woodbridge Rd site subwatershed will be included in the 2016 Annual Report.

Figure 2. Drain @ Woodbridge Rd summary of management practices.

Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Drain @ Woodbridge 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 WQTL for chlorpyrifos. Furthermore, applications of chlorpyrifos have decreased substantially since 2010; during 2010, there was 765 lbs AI applied compared to 74 lbs AI during 2014. Therefore, the Coalition requests that chlorpyrifos be removed from the Drain @ Woodbridge Rd management plan and MPM schedule.

Future Monitoring

Drain @ Woodbridge Rd is a Represented site located within Zone 3. During the 2015 WY, MPM will occur according to the schedule outlined in the Coalition's 2015 MPU; MPM is scheduled for chlorpyrifos through September 2015.

FRENCH CAMP SLOUGH @ AIRPORT WAY

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

Constituents Requested to Remove from Management Plan:

- pH
- Sediment toxicity to *H. azteca*

Subwatershed Overview and Monitoring History

French Camp Slough @ Airport Way is the Core site located in the French Camp Slough @ Airport Way Zone (Zone 2). Normal Monitoring was initiated at French Camp Slough in the storm season of 2005 and continued through 2008. Core Monitoring began in October 2008 with Assessment Monitoring occurring every third year; the last Assessment Monitoring year was 2014. The Coalition initiated MPM in 2007; MPM resumed in 2010 and continued through 2015.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach began in 2011 continued through 2013. Growers with the greatest likelihood of contributing to water quality impairments were identified. The Coalition contacted 13 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 for all constituents listed below.

pH

The proposal to remove pH from the management plan of French Camp Slough @ Airport Way is justified using available monitoring results through June 2015. There have been a total of seven exceedances of the WQTLs of pH at French Camp Slough @ Airport Way between 2005 and 2012. The most recent exceedance of the WQTL for pH occurred during the February 2012 monitoring event. Since the February 2012 exceedance, pH has been monitored 40 times with no exceedances (results through June 2015). The end of three years of monitoring with no exceedances was February 2015, and field parameter measurements beyond February (March through June 2015) did not result in an exceedance of the WQTLs for pH.

All field parameters, including pH, are measured during every monitoring event (Core Monitoring, Represented Monitoring, and MPM). Therefore, monitoring for pH will occur during every sampling event.

Sediment toxicity to *H. azteca*

The proposal to remove sediment toxicity to *H. azteca* from the management plan of French Camp Slough @ Airport Way is justified using available sediment monitoring results through the March 2015 sediment sampling event. There have been five instances of toxicity to *H. azteca* in samples collected from French Camp Slough @ Airport Way (April 2006, August 2007, March 2008, September 2010, and October 2011). Samples collected during April 27, 2006 resulted in 93.6% survival compared to the control.

Samples collected in August 2007 resulted in 34% survival compared to the control and therefore were resampled; however, sediment toxicity was not persistent in the resample. The PUR data associated with the August 9, 2007 toxicity indicate 1,626 applications of pesticides totaling 47,523 lbs AI across 78,795 acres of orchard and row crops occurred from February 1, 2007 through August 9, 2007.

Sediment samples collected in March 2008 were toxic to *H. azteca* in the field duplicate only (94% survival compared to the control). Survival was greater than 80% compared to the control and although the sample was statistically different than the control, the level of toxicity was not ecologically significant. The PUR data associated with the March 18, 2008 toxicity data indicate 483 applications of pesticides totaling 37,267 lbs AI across 18,095 acres of orchards occurred from October 2, 2007 through March 18, 2008.

Sediment samples collected on September 7, 2010 resulted in 1% survival compared to the control. Additional chemistry analysis for pyrethroids and chlorpyrifos was required on the September 2010 sediment samples. The additional chemistry results indicate the samples contained bifenthrin, chlorpyrifos, cypermethrin, esfenvalerate: fenvalerate, fenpropathrin, and lambda-cyhalothrin. The PUR data associated with the September 7, 2010 toxicity indicate 1,820 applications of pesticides totaling 27,708 lbs AI across 81,776 acres of orchards and row crops occurred from March 26, 2010 through September 5, 2010.

Both the environmental and field duplicate sediment samples collected on October 14, 2011 were toxic to *H. azteca* (86% and 81% survival compared to the control, respectively). Chemical analysis of the sediment was not required because the survival was greater than 80% compared to the control. The PUR data associated with the October 14, 2011 toxicity indicate 1,550 applications of pesticides totaling 21,964 lbs AI across 71,091 acres of orchards and row crops occurred from April 29, 2011 through October 12, 2011.

Since the last toxicity in October 2011, the Coalition has monitored French Camp Slough @ Airport Way seven times with no instances of toxicity to *H. azteca* (monitoring results through the March 2015 sediment toxicity event). There have been more than three years of monitoring with no *H. azteca* toxicity. The end of three years of monitoring with no exceedances was October 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 French Camp Slough @ Airport Way site subwatershed. The Coalition conducted focused outreach from 2011 through 2013 with 13 targeted growers in the site subwatershed to document current management practices and discuss water quality impairments. The Coalition followed up with all targeted growers in 2012 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the French Camp Slough @ Airport Way site subwatershed was provided in the SJCDWQC 2013 MPUR. Results from that analysis are included in the section below.

Management Practices Implemented

In 2011, the Coalition contacted 13 targeted growers farming 3,767 acres in the site subwatershed. Management practices were documented for 45% of the acreage identified as having direct drainage. Grower meetings were conducted in 2011 and 100% of targeted members returned surveys with their management practice information. Follow-up surveys were sent in 2012 and 100% of follow-up surveys were returned.

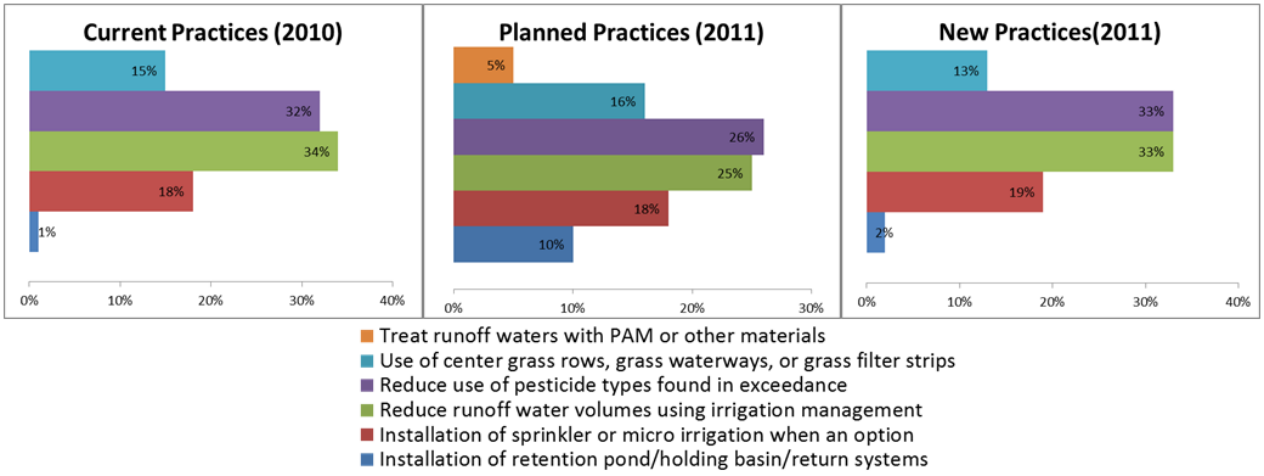
As indicated in Figure 3, the two most common management practices used in the subwatershed in 2010 were reducing runoff water volumes by irrigation management (34%) and reducing the use of pesticides of concern (32%). Other management practices in place included installation of sprinkler or micro irrigation (18%), use of center grass rows, grass waterways, or grass filter strips (15%) and installation of retention pond, holding basin, or return systems (1%). In 2010, 100% of targeted members had one or more management practices in place that were specific to runoff management and/or pesticide application management.

The most common practices planned for 2011 were reduced use of pesticides of concern (26%) and reduced runoff water volumes (25%). Targeted growers also planned installation of sprinklers or micro irrigation systems (18%), use of center grass rows, grass waterways, or grass filter strips (16%),

installation of retention pond, holding basin, or return systems (10%), and treating runoff waters with PAM or other materials (5%, Figure 3).

A final analysis of follow-up surveys indicated that reduced runoff water volumes using irrigation management (33%) and reduced use of the pesticides of concern (33%) were the most popular newly implemented practices (Figure 3). The two most popular management practices also had the highest implementation rate; they were both implemented on 100% of the acres where growers planned to implement them. Other management practices implemented in 2011 included the installation of retention pond/holding basin/return systems (2%), use of center grass rows, grass waterways, or grass filter strips (13%). Nineteen percent of targeted growers indicated they implemented the management practice associated with installation of sprinkler or micro irrigation on their follow-up survey (Figure 3).

Figure 3. French Camp Slough @ Airport Way summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from French Camp Slough @ Airport Way

The Coalition's focused outreach and management practice tracking strategy is effective at improving water quality. Monitoring results demonstrate three years of monitoring with no exceedances of the WQTLs for pH and sediment toxicity to *H. azteca.* 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 sediment toxicity. Therefore, the Coalition requests that pH and sediment toxicity to *H. azteca* be removed from the French Camp Slough @ Airport Way management plan and MPM schedule.

Future Monitoring

French Camp Slough @ Airport Way is a Core site located in Zone 2. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 MPU; MPM is scheduled for chlorpyrifos, diuron, toxicity to *S. capricornutum* and *H. azteca* through September 2015. Field parameters (DO, pH, and SC) are measured during every monitoring event.

KELLOGG CREEK ALONG HOFFMAN LN

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

Constituents Requested to Remove from Management Plan:

- Water column toxicity to *P. promelas*
- Sediment toxicity to *H. azteca*

Subwatershed Overview and Monitoring History

Kellogg Creek along Hoffman Ln is located in the Roberts Island @ Whiskey Slough Pump Zone (Zone 4). Normal Monitoring was initiated at Kellogg Creek @ Hwy 4 in the storm season of 2005 and continued through the storm season of 2006. Kellogg Creek @ Hwy 4 (which is downstream of the Kellogg Creek along Hoffman Ln) is no longer sampled because of large urban inputs.

The Kellogg Creek along Hoffman Ln site subwatershed monitoring location was established during an upstream sampling event in September 2005 to isolate the source of toxicity. Monitoring at Kellogg Creek along Hoffman Ln replaced Kellogg Creek @ Hwy 4 in 2007. In 2007, MPM was initiated; no monitoring occurred from 2009 through 2010; monitoring resumed from 2011 through the 2015 WY.

The Coalition began general outreach and education in the Kellogg Creek along Hoffman Ln site subwatershed in 2007. Focused outreach in Kellogg Creek along Hoffman Ln began in 2012 and continued through 2014. The Coalition identified growers with the greatest likelihood of contributing to water quality impairments. Targeted growers were contacted in 2012 to document existing management practices and encourage implementation of additional management practices. Follow ups occurred 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 for all constituents listed below.

Water column toxicity to *P. promelas*

The proposal to remove water column toxicity to *P. promelas* from the management plan of Kellogg Creek along Hoffman Ln is justified using three years of monitoring results collected from the site in September 2005 through September 2008. There were two instances of toxicity to *P. promelas* in samples collected from upstream at Kellogg Creek @ Highway 4, in June 2005 and September 2005. Samples collected on June 21, 2005 resulted in toxicity of 21% compared to the control. A TIE was performed and the results indicated that particulate-associated contaminants and/or metabolically activated organophosphate pesticide(s) may have contributed to the toxicity. Furthermore, the PUR data associated with the June 21, 2005 toxicity indicate there were 494 applications totaling 19,570 lbs

AI across 17,464 acres of orchards and row crops occurred from January 20, 2005 through June 21, 2005.

Samples collected on September 20, 2005 also resulted in toxicity to *P. promelas* with 85% survival compared to the control. The PUR data associated with the September 20, 2005 toxicity indicate 425 applications of pesticides totaling 2,783 lbs AI across 14,716 acres of orchards and row crops occurred April 10, 2005 through September 19, 2005.

Since the last toxicity in September 2005, the Coalition has monitored Kellogg Creek along Hoffman Ln 33 times without toxicity to *P. promelas*. The end of three years of monitoring with no exceedances was September 2008.

Sediment toxicity to *H. azteca*

The proposal to remove sediment toxicity to *H. azteca* from the management plan of Kellogg Creek along Hoffman Ln is justified using available sediment monitoring results through the March 2015 sediment sampling event. Toxicity to *H. azteca* has occurred nine times in samples collected from the two Kellogg Creek sites. The first three sediment toxicities occurred in samples collected from Kellogg Creek @ Highway 4 in 2005 (May, July, and September). Samples collected on May 17, 2005 resulted in 93.6% survival compared to the control. The PUR data indicate there were no applications that could be associated with the May 2005 toxicity. Toxicity to *H. azteca* occurred on July 19, 2005 and resulted in complete mortality. The PUR data associated with the July 2005 toxicity indicate 361 applications of pesticides totaling 6,953 lbs AI across 12,771 acres of orchards and row crops occurred from March 5, 2005 through July 19, 2005. Toxicity to *H. azteca* occurred on September 20, 2005 and resulted in 58% survival compared to the control. The PUR data associated with the September 20, 2005 toxicity indicate 444 applications of pesticides totaling 7,149 lbs AI across 15,066 acres of row crops and orchards occurred from April 10, 2005 through September 19, 2005.

Sediment samples collected on August 9, 2007 resulted in complete mortality and therefore were resampled; toxicity was persistent in the resample with complete mortality. The PUR data associated with the August 9, 2007 toxicity indicate 286 applications of pesticides totaling 2,556 lbs AI across 6,798 acres of orchards and row crops occurred from February 22, 2007 through August 7, 2007.

Samples collected on March 18, 2008 were toxic and toxicity was persistent in the resample (29%, and 72% survival compared to control, respectively). The PUR data associated with the March 2008 toxicity indicate 87 applications of pesticides totaling 2,135 lbs AI across 979 acres of orchards and row crops occurred from October 5, 2007 through March 10, 2008.

The most recent sediment toxicities occurred in samples collected from Kellogg Creek along Hoffman Ln in 2011 (March and October). Samples collected March 8, 2011 for sediment MPM resulted in toxicity to *H. azteca* (78% survival compared to the control). Sediment chemistry analysis was performed and resulted in detections of bifenthrin, chlorpyrifos, lambda-cyhalothrin, cypermethrin, and permethrin. The PUR data associated with the March 2011 toxicity indicate 76 applications totaling 1,683 lbs AI

across 739 acres of orchards occurred from December 26, 2010 through March 3, 2011. Sediment samples were toxic to *H. azteca* during MPM on October 14, 2011 (62% survival compared to the control). Sediment chemistry analysis resulted in detections of bifenthrin, chlorpyrifos, cyfluthrin, cypermethrin, esfenvalerate, fenvalerate, lambda-cyhalothrin, and permethrin. The PUR data associated with the October 2011 toxicity indicate 320 applications of pyrethroids and chlorpyrifos, totaling 7,737lbs AI across 9,659 acres of orchards and row crops occurred from May 1, 2011 through October 2, 2011.

Since the last toxicity in October 2011, the Coalition has monitored Kellogg Creek along Hoffman Ln seven times for toxicity to *H. azteca* with no toxicity (monitoring results through the March 2015 sediment toxicity event). There have been more than three years of monitoring with no instance of toxicity to *H. azteca*. The end of three years of monitoring with no exceedances was October 2014; additionally, the Coalition monitored for sediment toxicity during March 2015 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 Kellogg Creek along Hoffman Ln site subwatershed. The Coalition conducted focused outreach in 2012 through 2014 with 10 targeted growers to document current management practices and discuss water quality impairments. The Coalition followed up with all targeted growers in the site subwatershed to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the Kellogg Creek along Hoffman Ln site subwatershed was reported in the SJCDWQC 2014 MPUR. Results from that analysis are described in the section below.

Management Practices Implemented

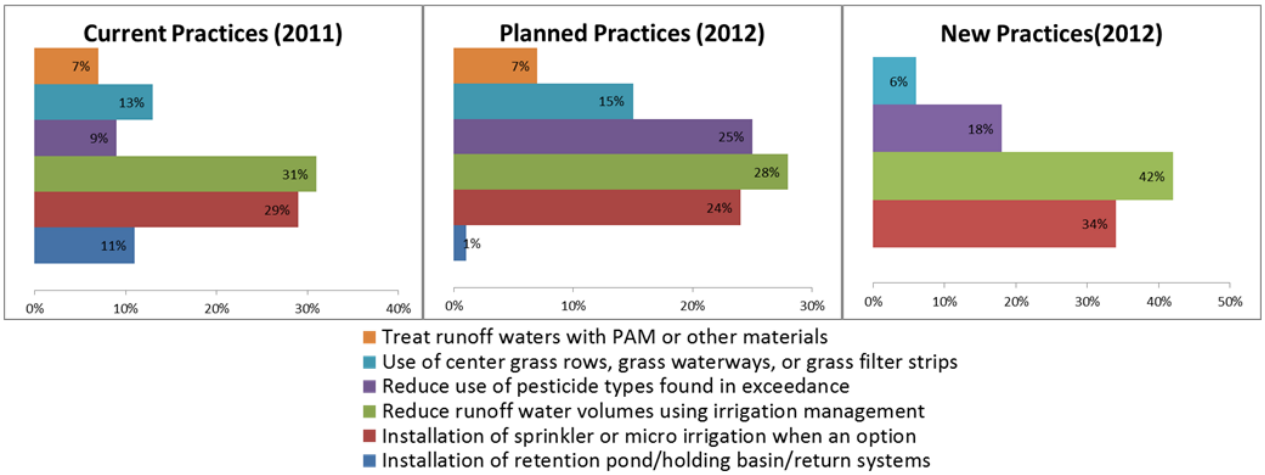
Focused outreach to document current management practices and track implementation of additional management practices began in 2012. The Coalition contacted 10 targeted growers farming 402 acres in the Kellogg Creek along Hoffman Ln site subwatershed. Management practices were documented for 8% of the acreage identified as having direct drainage. Grower meetings were conducted in 2012 and

100% of targeted members returned surveys with their management practice information. Follow-up surveys were sent in early 2013 and 100% of follow-up surveys were returned.

The most common management practices that members were implementing when focused outreach began were reduce runoff volumes using irrigation management (31%), installation of sprinkler or micro irrigation (29%), use of center grass rows/grass waterways/grass filter strips (13%, Figure 4). All targeted members in the Kellogg Creek along Hoffman Ln site subwatershed had one or more management practices in place that were specific to runoff management or pesticide application management. The most common management practices planned for implementation in 2012 were reducing runoff water volume (28%), reducing the use of the pesticide of concern (25%), and installation of sprinkler or micro irrigation (24%, Figure 4).

Figure 4 includes results of a final analysis of the follow-up surveys indicating that the two most implemented practices were reducing runoff water volume (42%), and installing sprinkler or micro irrigation (34%). Other management practices implemented in 2012 included reducing the use of the targeted pesticide and using center grass rows, waterways or filter strips (6%).

Figure 4. Kellogg Creek along Hoffman Ln summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Kellogg Creek along Hoffman Ln

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 *P. promelas* or *H. azteca* toxicity. Furthermore, PUR data indicate a decline in insecticide use across the site subwatershed in recent years. 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 *P. promelas* and *H. azteca* toxicity. Therefore, the Coalition

requests that *P. promelas* and *H. azteca* toxicity be removed from the Kellogg Creek @ Hoffman Ln management plan and MPM schedule.

Future Monitoring

Kellogg Creek along Hoffman Ln is a Represented site located in Zone 4. During 2014, monitoring will occur according to the schedule outlined in the 2015 MPU; MPM is scheduled for toxicity to *H. azteca* through September 2015.

LITTLEJOHNS CREEK @ JACK TONE RD

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

Constituents Requested to Remove from Management Plan:

- Copper
- Chlorpyrifos

Subwatershed Overview and Monitoring History

Littlejohns Creek @ Jack Tone Rd is a Represented site located in the French Camp Slough @ Airport Way Zone (Zone 2). Sampling was initiated during the irrigation season of 2004 and continued through 2008. The Littlejohns Creek @ Jack Tone Rd site subwatershed management plan was established in 2007 and MPM for high priority management plan constituents has occurred from the 2007 irrigation season through the 2015 WY.

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. The Coalition established a list of targeted growers with the greatest likelihood of contributing to water quality impairments. These targeted growers were contacted to document existing management practices and encourage the implementation of additional management practices. The Coalition followed up with targeted growers in 2011 to determine which additional management practices were implemented. Furthermore, the Coalition conducted additional focused outreach during 2012 to growers in the site subwatershed who had reported recent use of chlorpyrifos.

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 for all constituents listed below.

Chlorpyrifos

The proposal to remove chlorpyrifos from the management plan of Littlejohns Creek @ Jack Tone Rd is justified using available laboratory results through May 2015. There have been a total of nine exceedances of the WQTL for chlorpyrifos in samples collected from the site subwatershed in February (2007), April (2008), June (2008), July (2005, 2006, 2007 and 2008) and November (2010 and 2011). Toxicity was not associated with any of the exceedances of the WQTL for chlorpyrifos.

The PUR data associated with the July 19, 2005 exceedance (0.017 µg/L) indicate 20 applications totaling 1660 lbs AI across 1,361 acres of walnuts, corn, and alfalfa occurred from June 25 through July 18, 2005.

The PUR data associated with the July 18, 2006 exceedance (0.027 µg/L) indicate 14 applications totaling 1,146 lbs AI across 775 acres of walnuts, corn, and almonds occurred from March 24 through July 18, 2006.

No applications could be associated with the February 11, 2007 exceedance (0.029 µg/L); previous reported applications were on or before September 1, 2006. The PUR data associated with the July 30, 2007 exceedance (0.018 µg/L) indicate seven applications totaling 362 lbs AI across 240 acres of walnuts and almonds occurred from June 2, 2007 through July 29, 2007.

The PUR data associated with April 15, 2008 exceedance (0.034 µg/L) indicate one application totaling 70 lbs AI across 62 acres of corn occurred on April 8, 2008. The PUR data associated with the June 10, 2008 exceedance (0.077 µg/L) indicate nine applications totaling 959 lbs AI across 525 acres of walnuts, corn, and almonds occurred from May 14, 2008 and June 6, 2008. The PUR data associated with the July 15, 2008 exceedance (0.025 µg/L) indicate 12 applications totaling 740 lbs AI across 500 acres of walnuts, corn, and almonds occurred from June 23, 2008 through July 13, 2008.

The two most recent exceedances occurred in November of 2010 and 2011. The PUR data associated with November 9, 2010 exceedance (0.04 µg/L) indicate four applications totaling 1,722 lbs AI across 917 acres of grapes occurred from October 20, 2010 through November 3, 2010. The PUR data associated with November 15, 2011 exceedance (0.022 µg/L) indicate one application totaling 44 lbs AI across 88 acres of alfalfa occurred on September 26, 2011.

Since the last exceedance of the WQTL for chlorpyrifos in November 2011, chlorpyrifos has been monitored at the site during months of past exceedances for more than three years with no exceedances. The end of three years of monitoring with no exceedances was November 2014. In addition, the Coalition continued MPM during the 2015 WY with no exceedances.

Copper

There are a number of possible sources of copper in waterbodies in the Coalition region. Copper is applied as a fungicide to a variety of vegetable crops, grains, and fruit and nut orchards in forms of 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 enter waterbodies through weathering of rocks and soils. Automobile components may also contain copper and wearing of brakes can add substantial amounts of copper to surface waters passing through urban areas. A definitive source of copper that results in exceedances has not been clearly identified in the Coalition region; however, there are four potential sources including 1) recent agricultural applications moving to surface waters either through storm/irrigation 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 monitoring for both the total and dissolved copper fractions to better characterize contamination and more accurately estimate the bioavailable fraction in the water column. The proposal to remove copper from the management plan of Littlejohns Creek @ Jack Tone Rd is justified using available laboratory results through May 2015.

Exceedances of the hardness based WQTL for copper occurred seven times in the Littlejohns Creek @ Jack Tone Rd site subwatershed. The first five exceedances of the hardness based WQTL for copper were based on the total copper fraction in 2006 (May), 2007 (February and June), and 2008 (May and September); two exceedances of the hardness based WQTL for dissolved copper occurred in May 2010 and 2011. Toxicity was not associated with any of the exceedances from 2006 through 2008.

The PUR data associated with the May 16, 2006 exceedance (4.4 (3.9) µg/L) indicate 68 applications of copper hydroxide totaling 15,034 lbs AI across 3,157 acres of orchards and row crops occurred from February 23, 2006 through May 15, 2006 to walnuts and cherries.

The PUR data associated with the February 28, 2007 exceedance (11 (9.0) µg/L) indicate six applications of copper hydroxide totaling 915 lbs AI across 297 acres of almonds occurred from January 5, 2007 through February 24, 2007. The PUR data associated with June 12, 2007 exceedance (3.6 (3.3) µg/L) indicate 71 applications of totaling 19,264 lbs AI across 3,227 acres of grapes, tomatoes, and walnuts occurred from March 21, 2007 through June 3, 2007.

The PUR data associated with both the May (4.2 (4.1) µg/L) and September 2008 (4.2 (3.5) µg/L) exceedances indicate 55 applications totaling 14,674 lbs AI across 2,679 acres of walnuts, nursery crops, and almonds occurred from February 20, 2008 through May 5, 2008.

The two remaining exceedances were based on the dissolved fraction in May 2010 (1.7 (1.46) µg/L) and May 2011 (1.7 (1.03) µg/L). Toxicity was not associated with the two exceedances of the dissolved copper hardness based WQTL. The PUR data associated with May 11, 2010 exceedance indicate 66 applications totaling 13,424 lbs AI across 5,052 acres of walnuts, tomatoes, and grapes occurred from March 25, 2010 through May 7, 2010. The PUR data associated with May 24, 2011 exceedance indicate 75 applications totaling 11,674 lbs AI across 4,179 acres of walnuts, tomatoes, and olives occurred from March 5, 2011 through May 23, 2011.

Since the last exceedance occurred in 2011, copper has been monitored at the site during months of past exceedances for more than three years with no exceedances. The end of three years of monitoring with no exceedances was May 2014. In addition, the Coalition monitored the site during the 2015 WY 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 Littlejohns Creek @ Jack Tone Rd site subwatershed. The Coalition conducted focused outreach from 2010 through 2012 with 16 targeted growers to document current management practices and discuss water quality impairments. The Coalition followed up with 13 targeted growers in the site subwatershed to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the Littlejohns Creek @ Jack Tone Rd site subwatershed was reported in the SJCDWQC 2011 MPUR. Results from that analysis are included in the section below.

Management Practices Implemented

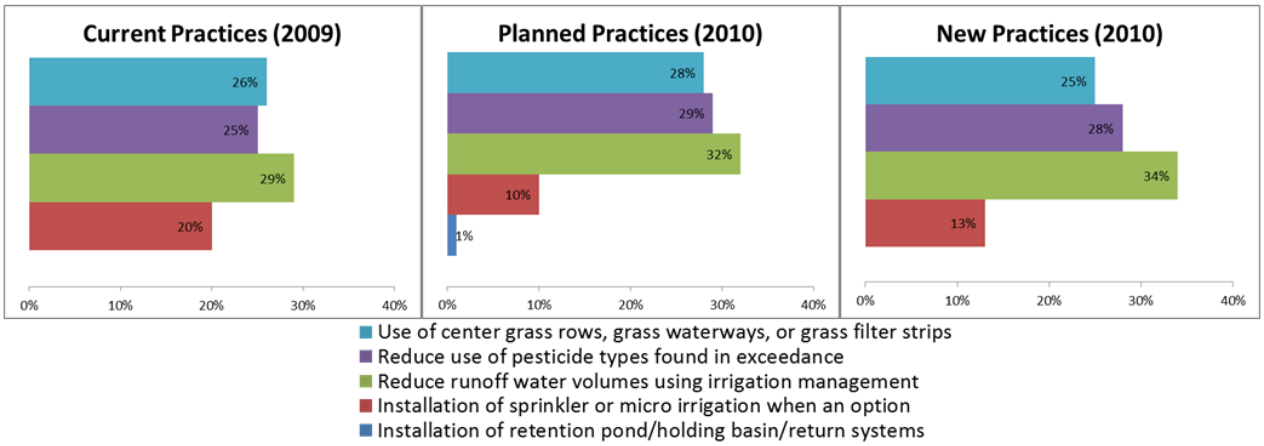
In 2010, the Coalition contacted 16 targeted growers farming 2,796 acres in the Littlejohns Creek @ Jack Tone Rd site subwatershed. Management practices were documented for 90% of the acreage identified as having direct drainage. Grower meetings were conducted in 2010 and 100% of targeted members returned surveys with their management practice information. Follow-up surveys were sent in 2011 and 100% of follow-up surveys were returned. Six additional members were contacted during 2012. All six growers indicated they were not applying chlorpyrifos and one grower already implemented all suggested management practices.

The most common management practice implemented by growers in 2009 was reducing runoff water volumes through irrigation management (29%) followed by use of center grass rows, grass waterways or grass filter strips (26%) and reducing the use of pesticides such as chlorpyrifos (25%, Figure 5). Additionally, 20% of acres had sprinklers or micro irrigation (Figure 5).

Growers indicated that they intended to implement additional practices in 2010 including irrigation management practices to reduce water runoff (32%), reduced application of pesticides of concern such as chlorpyrifos (29%), and use of center grass rows, grass waterways or grass filter strips (28%, Figure 5).

As indicated in Figure 5, management practices implemented based on 2010 follow-ups included reducing runoff water volumes using irrigation management (34%), reducing use of pesticides of concern (28%), using center grass rows, grass waterways or grass filter strips (25%), and installation of sprinkler or microspray irrigation (13%). The continued and newly implemented management practices have been successful in improving water quality in Littlejohns Creek @ Jack Tone Rd site subwatershed.

Figure 5. Littlejohns Creek @ Jack Tone Rd summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Littlejohns Creek @ Jack Tone 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 WQTLs for copper or chlorpyrifos. Furthermore, PUR data indicate that there has been a significant decline in copper and chlorpyrifos use in the site subwatershed in recent years. 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 WQTLs for copper and chlorpyrifos. Therefore, the Coalition requests that copper and chlorpyrifos be removed from the Littlejohns Creek @ Jack Tone Rd management plan and MPM schedule.

Future Monitoring

Littlejohns Creek @ Jack Tone Rd is Represented site located in Zone 2. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 MPU; MPM for chlorpyrifos and copper is scheduled to occur during months of past exceedances and periods of high pesticide applications.

MORMON SLOUGH @ JACK TONE RD

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

Constituents Requested to Remove from Management Plan:

- Water column toxicity to *C. dubia*

Subwatershed Overview and Monitoring History

Mormon Slough @ Jack Tone Rd is a Represented site located in the French Camp Slough @ Airport Way Zone (Zone 2). Monitoring began during the irrigation season of 2006 and continued through September 2008 at which time the site became an Assessment Monitoring location; Assessment Monitoring last occurred in 2008. No monitoring occurred from 2009 through 2010. The Coalition initiated MPM in 2008; MPM began again in 2011 and has continued through 2015.

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 targeted 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 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 for all constituents listed below.

Water column toxicity to *C. dubia*

The proposal to remove water column toxicity to *C. dubia* from the management plan of Mormon Slough @ Jack Tone Rd is justified using available laboratory results through May 2015. There have been two instances of toxicity to *C. dubia* in samples collected from Mormon Slough @ Jack Tone Rd (September 2007 and May 2008). Both toxicities were associated with exceedances of the WQTL for chlorpyrifos.

Samples collected on September 4, 2007 resulted in complete mortality to *C. dubia* and therefore were resampled; toxicity was not persistent in the resample. Chemical analyses resulted in an exceedance of the WQTL for chlorpyrifos (0.21 µg/L). The quantity of chlorpyrifos detected in the sample likely accounted for all of the toxicity to *C. dubia*. Furthermore, the PUR data associated with the September 2007 toxicity indicate 399 applications of pesticides totaling 21,003 lbs AI across 13,687 acres of orchards and row crops occurred from May 5, 2007 through September 4, 2007.

Samples collected on May 13, 2008 resulted in complete mortality to *C. dubia* and therefore were resampled; however, sediment toxicity was not persistent in the resample. Chemical analysis of the samples collected during the May 13, 2008 sampling event resulted in an exceedance of the WQTL for chlorpyrifos (0.066 µg/L). The PUR data associated with the May 2008 toxicity indicate 659 applications of pesticides totaling 100,754 lbs AI across 23,386 acres of orchards and row crops occurred from February 25, 2008 through May 13, 2008.

Since the last toxicity in May 2008, the Coalition has monitored Mormon Slough @ Jack Tone Rd 13 times without toxicity to *C. dubia*. Out of 33 sampling events for toxicity to *C. dubia*, toxicity has only been associated exceedances of chlorpyrifos twice (September 2007 and May 2008). Furthermore, samples collected to test for toxicity to *C. dubia* from the site have resulted in 100% survival during every monitoring event since the last toxicity. The end of three years of monitoring with no exceedance was September 2014. In addition, the Coalition continued with MPM during the 2015 WY with no toxicity (preliminary results through August 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 Mormon Slough @ Jack Tone Rd site subwatershed. The Coalition conducted focused outreach from 2012 through 2014 to document current management practices and discussed water quality impairments with targeted growers. The Coalition followed up with targeted growers in 2013 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the Mormon Slough @ Jack Tone Rd site subwatershed was reported in the SJCDWQC 2014 MPUR. Results from that analysis are included in the section below.

Management Practices Implemented

In 2012, the Coalition contacted 29 targeted growers farming 1,789 acres in the site subwatershed. Management practices were documented for 43% of the acreage identified as having direct drainage. Grower meetings were conducted in 2012 and 100% of targeted members returned surveys with their

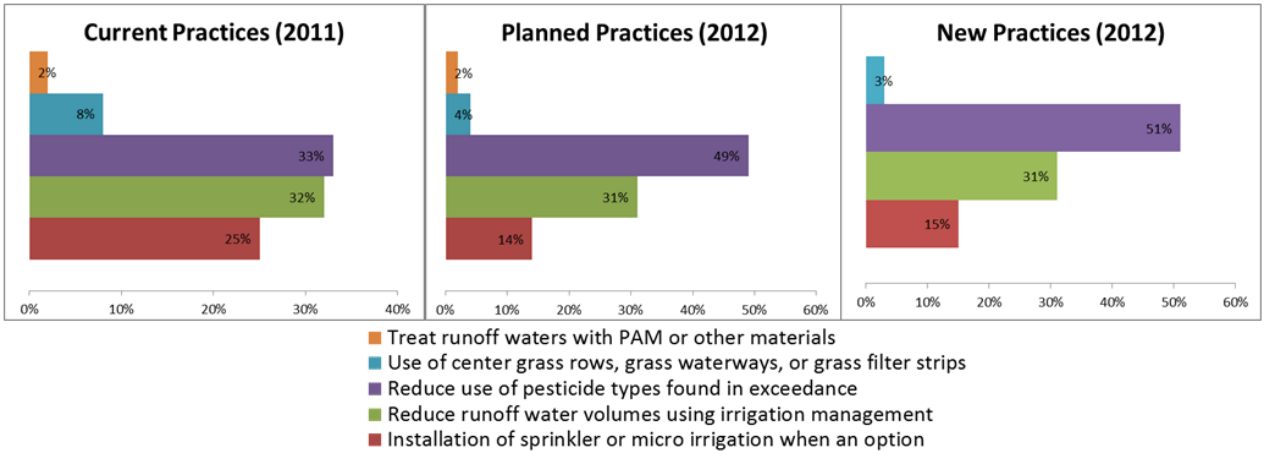
management practice information. Follow-up surveys were sent in 2013 and 100% of follow-up surveys were returned.

The most common management practices in place by members were reduced use of the pesticide of concern (33%), reduced runoff water volumes (32%), and installing sprinkler or micro irrigation systems (25%, Figure 6). In 2011, all targeted members in the site subwatershed had one or more management practices in place that were specific to runoff management or pesticide application management.

Returned surveys indicate that five of the six management practices were planned for implementation by growers. The most common practices planned for implementation in 2012 were reducing use of the pesticides of concern (49%), reducing runoff water volume (31%), and installation of sprinkler or micro irrigation systems (14%, Figure 6).

The final analysis indicated that reducing the use of pesticides of concern (51%) and reducing tailwater volume using irrigation management (31%) were the most commonly implemented practices (Figure 6). Installation of sprinkler or micro irrigation (15%) was the third most implemented practice and the use of center grass rows, waterways or filter strips made up the remaining 3% of management practices implemented in 2012 (Figure 6). Of the direct drainage acreage associated with members contacted in the site subwatershed, 70% was associated with reduced use of pesticides such as chlorpyrifos and 63% is associated with irrigation management, including installing sprinkler or micro irrigation.

Figure 6. Mormon Slough @ Jack Tone Rd summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Mormon Slough @ Jack Tone 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 no water

column toxicity to *C. dubia*. 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 water column toxicity to *C. dubia*. Furthermore, samples collected to test for toxicity to *C. dubia* from the site have resulted in 100% survival during every monitoring event since the last toxicity. The end of three years of monitoring with no exceedance was September 2014. In addition, the Coalition continued with MPM during the 2015 WY with no toxicity (preliminary results through August 2015).

Therefore, the Coalition requests that water column toxicity to *C. dubia* be removed from the Mormon Slough @ Jack Tone Rd management plan and MPM schedule.

Future Monitoring

Mormon Slough @ Jack Tone Rd is a Represented site located in Zone 2. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 MPU. During the 2015 WY, MPM for toxicity to *C. dubia* is scheduled to occur through September.

ROBERTS ISLAND @ WHISKEY SLOUGH PUMP

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

Constituents Requested to Remove from Management Plan:

- Chlorpyrifos
- Diuron
- Sediment toxicity to *H. azteca*

Subwatershed Overview and Monitoring History

Roberts Island @ Whiskey Slough Pump is the Core site for both Zones 4 and 6. Monitoring began on Roberts Island in the storm season of 2005 and has occurred continuously since then. Roberts Island @ Whiskey Slough Pump replaced Roberts Island Drain along House Rd and Roberts Island Drain @ Holt Rd as the Core site for Zone 4 because the site is more representative of drainage from the entire island (approved January 12, 2012). The Roberts Island @ Whiskey Slough Pump management plan includes constituents that were listed in both the Roberts Island @ Holt Rd and Roberts Island Drain along House Rd management plans.

The Coalition began general outreach and education on Roberts Island in 2007. Focused outreach and education of targeted growers began in 2013 and will continue through 2015. 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 six targeted growers in 2014 to determine which additional management practices were implemented.

Constituents Requested to Remove from Management Plan

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

Chlorpyrifos

Beginning in 2010, the Coalition designated the Core site on Roberts Island as the Chlorpyrifos and Diazinon TMDL loading capacity site. Therefore, in addition to MPM, monitoring for chlorpyrifos at the site occurred monthly from 2010 through March 2013, during one storm and May through August in 2014, and Core site occurred monthly during the 2015 WY as outlined in the MPU (approve January 5, 2015).

Since monitoring began, there have been six exceedances of the WQTL for chlorpyrifos at sites on Roberts Island, four at Roberts Island Drain @ Holt Rd (September 2006, August 2008, January and February 2011), and two at Roberts Island Drain along House Rd (August and September 2008).

The proposal to remove chlorpyrifos from the management plan of Roberts Island @ Whiskey Slough Pump is justified using available laboratory results through May 2015. Four exceedances of the WQTL for chlorpyrifos occurred during sampling at Roberts Island Drain @ Holt Rd. The PUR data associated with the September 19, 2006 exceedance (0.018 µg/L) indicate that there were no applications of chlorpyrifos reported during the timeframe that could be responsible for the exceedance. The PUR data associated with the August 12, 2008 exceedance (0.034 µg/L) indicate 12 applications totaling 357 lbs AI across 418 acres of corn and alfalfa occurred from July 15, 2008 through July 29, 2008. The PUR data associated with the January 11, 2011 and February 8, 2011 exceedances indicate that there were no applications of chlorpyrifos reported during the timeframe that could be responsible for the exceedances.

Two exceedances of the WQTL for chlorpyrifos occurred in samples collected from the Roberts Island Drain along House Rd site subwatershed on August 12, 2008 and September 16, 2008. The PUR data associated with the August 12, 2008 exceedance (0.044 µg/L) indicate 12 applications totaling 357 lbs AI across 418 acres of alfalfa and corn occurred from July 15, 2008 through July 29, 2008. The PUR data associated with the September 16, 2008 exceedance indicate that there aplications totaling 100 lbs AI across 88 acres of corn occurred from July 23, 2008 through July 29, 2008.

Since the last chlorpyrifos exceedance in February 2011, sites on Roberts Island have been monitored for chlorpyrifos during MPM, TMDL, and Core site monitoring 50 times through May 2015 (10 times at Roberts Island Drain @ Holt Rd, and 40 times at Roberts Island @ Whiskey Slough Pump) with no exceedances of the WQTL for chlorpyrifos. There have been no exceedances of the WQTL for chlorpyrifos in the site subwatershed since the Coalition began monitoring at the Roberts Island @ Whiskey Slough Pump location. The end of three years of monitoring with no exceedances was in February 2014. Additionally, the Coalition is scheduled to monitor for chlorpyrifos for MPM during the 2015 WY; January and February samples did not result in any exceedances.

Diuron

Diuron is a soluble herbicide applied throughout the year. The proposal to remove diuron from the management plan of Roberts Island @ Whiskey Slough Pump is justified using available laboratory results through May 2015. Exceedances of the WQTL for diuron occurred twice in samples collected from Roberts Island Drain @ Holt Rd, the first occurred in July 2007 and the second in January 2008. Toxicity was associated with both exceedances. Samples collected from Roberts Island @ Holt Rd on July 10, 2007 resulted in an exceedance of the WQTL for diuron (4.8 µg/L) and toxicity to *S. capricornutum* coincided with this event with 40% growth compared to the control. No reported applications could be associated with the exceedance of diuron in July 2007.

Samples collected from Roberts Island @ Holt Rd on January 23, 2008 resulted in an exceedance of the WQTL for diuron (17 µg/L) and toxicity to *S. capricornutum* coincided with this event with 1% growth compared to the control. The PUR data associated with the January 23, 2008 exceedance indicate six applications across 232 acres of alfalfa occurred from January 17, 2008 through January 23, 2008.

Since the last exceedance of the WQTL for diuron in January 2008 (Roberts Island @ Holt Rd), sites on Roberts Island have been sampled for diuron 39 times (18 times at Roberts Island Drain @ Holt Rd and 21 times at Roberts Island @ Whiskey Slough Pump; through May 2015) with no exceedances. The end of three years of monitoring with no exceedances was July 2013. Additionally, all constituents were monitored at the site during January through September 2014 with no exceedances and January 2015 MPM samples for diuron did not result in an exceedance.

Sediment toxicity to *H. azteca*

The proposal to remove sediment toxicity to *H. azteca* from the management plan of Roberts Island @ Whiskey Slough Pump is justified using available sediment monitoring results through the March 2015 sediment sampling event. There have been six instances of sediment toxicity to *H. azteca* in samples collected from Roberts Island; toxicity occurred twice in samples collected from Roberts Island Drain @ Holt Rd (August and September 2006), and four times in samples collected from Roberts Island Drain along House Rd (twice in March 2007, and August and September 2008).

Roberts Island Drain @ Holt Rd samples collected on August 15, 2006 and during the resampling event resulted in 74% and 12% survival compared to the control, respectively. The PUR data indicate no applications could be associated with the August 2006 toxicity.

Sediment toxicity to *H. azteca* occurred in samples collected from Roberts Island Drain along House Rd during the March 6, 2007 sample event and toxicity was persistent in the resample with 5% and 18% survival compared to the control, respectively. The PUR data associated with the March 2007 toxicity indicate 119 applications of pyrethroids, chlorpyrifos, and paraquat totaling 2,099 lbs AI were applied across 4,445 acres of alfalfa and tomatoes occurred from September 20, 2006 through March 21, 2007.

Sediment toxicity to *H. azteca* occurred in the field duplicate sample collected from Roberts Island Drain along House Rd on August 13, 2008 (83% survival compared to the control); resampling occurred and toxicity was persistent in the water column resulting in 85% survival compared to the control. The PUR data associated with the August 2008 toxicity indicate 84 applications pesticides and pyrethroids totaling 1,111 lbs AI across 3,208 acres of alfalfa, corn, grapes, rice and tomatoes occurred from March 7, 2008 through August 7, 2008.

Since the last sediment toxicity occurred in September 2008, the Coalition has monitored sites on Roberts Island 10 times for sediment toxicity (three times at Roberts Island Drain @ Holt Rd and seven times at Roberts Island @ Whiskey Slough Pump with no instances of toxicity (monitoring results through the March 2015 sediment toxicity event). The end of three years of monitoring with no toxicity was September 2013. Additionally, samples were collected as part of MPM in March and September of 2014 and March of 2015 with no instance of sediment 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 on Roberts Island. The Coalition conducted focused outreach from2013 through 2015 with seven targeted growers on the island to discuss water quality impairments, review each grower's operation, and document existing management practices. The Coalition followed up with six targeted growers on the island to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the site subwatershed was provided in the SJCDWQC May 1, 2015 Annual Report. Results from that analysis are included in the section below.

Management Practices Implemented

In 2013, the Coalition contacted seven targeted growers farming 1,618 acres in the Roberts Island @ Whiskey Slough Pump site subwatershed. Management practices were documented for 12% of the acreage identified as having direct drainage. Of the contacted growers, 100% returned an initial survey, and all but one grower indicated they were going to implement new practices in 2013. Growers in the site subwatershed were sent follow-up surveys on February 14, 2014 and 100% were returned.

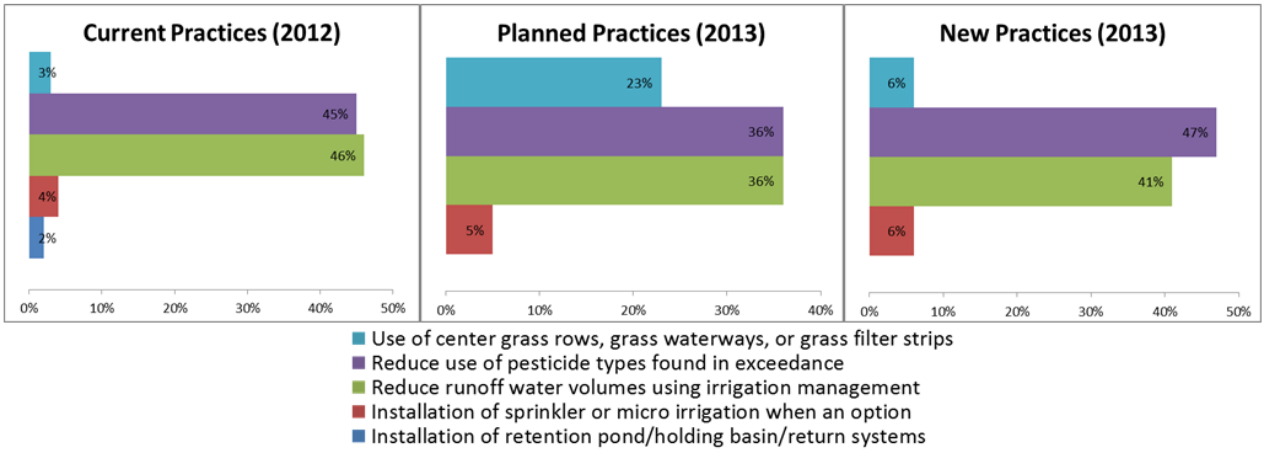
The most common existing management practices in 2012 included reducing runoff water volume (46%) and reducing the use of the pesticides causing exceedances (45%, Figure 7). In 2012, all targeted members in the Roberts Island @ Whiskey Slough Pump site subwatershed were implementing runoff management or pesticide application management.

Returned initial surveys from three of the six growers indicated that growers planned to implemented new management practices in 2013. The most common practices planned for implementation in 2013 included reducing the use of the pesticides causing exceedances and reducing runoff water volume (Figure 7).

A final analysis of the follow-up surveys indicated that the two most implemented practices were 1) reducing use of pesticide types found in exceedances (47%), and 2) reducing runoff water volumes using irrigation management (41%, Figure 7). The other management practices implemented in 2013 were

use of center grass rows, grass waterways, or grass filter strips (6%) and installation of sprinkler or micro irrigation systems (6%, Figure 7).

Figure 7. Roberts Island @ Whiskey Slough Pump summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Roberts Island @ Whiskey Slough Pump

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 pH, chlorpyrifos, and diuron, as well as no toxicity to *H. azteca*. Based on focused outreach surveys and follow-up results, targeted growers in the site subwatershed implemented management practices and water quality has improved. Therefore, the Coalition requests that chlorpyrifos, diuron, and sediment toxicity to *H. azteca* be removed from the Roberts Island @ Whiskey Slough Pump management plan and MPM schedule.

Future Monitoring

Roberts Island @ Whiskey Slough Pump is one of the Core sites located in Zone 4. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 MPU; MPM is scheduled for chlorpyrifos, diuron, and toxicity to *C. dubia* and *S. capricornutum,* and sediment toxicity to *H. azteca* based on months of past exceedances and PUR data.

SAND CREEK @ HWY 4 BYPASS

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

Constituents Requested to Remove from Management Plan:

- Dieldrin

Subwatershed Overview and Monitoring History

Sand Creek @ Hwy 4 Bypass is the only remaining sampling location in the Contra Costa Zone (Zone 6). Over the course of time, urban development has eliminated most of the agricultural land in this site subwatershed. The site is not scheduled for Normal Monitoring under the current WDR due to a large amount of urban influence. Monitoring began at the site in the irrigation season of 2006 and continued through the irrigation season of 2008. No monitoring occurred at this location during 2009 through 2010; MPM began during 2011 and has continued since.

The Coalition began general outreach and education in the site subwatershed in 2007. Focused outreach began in 2012 and continued through 2014. The Coalition identified growers with the greatest likelihood of contributing to water quality impairments. The Coalition contacted one targeted grower in 2012 to document existing management practices, and to encourage the implementation of additional management practices designed to address water quality impairments. 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 for all constituents listed below.

Dieldrin

The proposal to remove dieldrin from the management plan of Sand Creek @ Hwy 4 Bypass is justified using available laboratory results through June 2015. Dieldrin is an organochlorine insecticide. Dieldrin was used as a wood preservative, to control termites and insects such as locusts and mosquitoes. The product was applied to cotton, corn and citrus crops until it was banned in 1987. Dieldrin is no longer produced in the United States and it has been banned globally due to its toxic effects on humans, fish and wildlife. The chemical is extremely persistent and does not break down easily in the environment. Dieldrin has a high K_{oc} and consequently binds to sediment where it can remain for extended periods of time. All detections of dieldrin in the environment are from past uses and therefore no PUR data can be associated with the legacy pesticide.

There have been a total of six exceedances of the WQTL for dieldrin in samples collected from Sand Creek @ Hwy 4 Bypass in May and June 2006, May and August 2008, May 2011, and June 2012. Dieldrin is banned from the United States and no applications were associated with the exceedances. Since the

last exceedance in June 2012, Sand Creek @ Hwy 4 Bypass has been monitored for three years with no exceedances of the WQTL for dieldrin (results through June 2015). The Coalition will provide staff with the laboratory results for dieldrin MPM samples collected on August 18, 2015 when they become available. The end of three years of monitoring with no exceedances 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 site subwatershed. The Coalition conducted focused outreach from 2012 through 2014 with a single targeted grower to discuss water quality impairments, review grower operations, and document existing management practices. The Coalition followed up with the targeted grower in 2013 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the Sand Creek @ Hwy 4 Bypass site subwatershed was reported in the SJCDWQC 2014 MPUR. Results from that analysis are included in the section below.

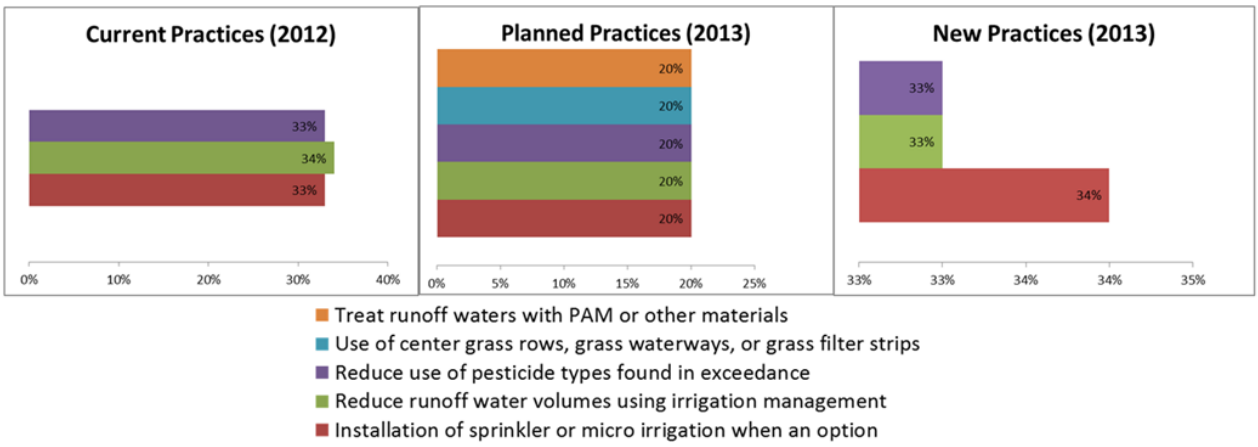
Management Practices Implemented

In 2012, the Coalition contacted a single member farming 116 acres in the site subwatershed. Management practices on 3% of the acreage identified as having direct drainage were documented. The grower returned a survey with current management practices and management practices planned for 2012. The Grower returned a follow-up survey in 2013.

The targeted grower indicated he intended to implement five of the six management practices in 2012 (Figure 8). On the follow-up survey returned in January 2013, the grower indicated that he implemented three out of the five practices planned. Results from the final analysis of the follow-up survey are included in Figure 8. The continued and newly implemented management practices along with three years of focused outreach and education improved water quality in the site subwatershed.

Figure 8. Sand Creek @ Hwy 4 Bypass summary of management practices.

Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Sand Creek @ Hwy 4 Bypass

The Coalition's focused management practice outreach and tracking strategy is effective at improving water quality. Management Plan Monitoring results indicate three years of monitoring with no exceedances of the WQTL for dieldrin. Based on focused outreach surveys and follow-up results, the targeted grower in the site subwatershed implemented management practices resulting in improved water quality. Therefore, the Coalition requests that dieldrin be removed from the Sand Creek @ Hwy 4 Bypass management plan and MPM schedule.

Future Monitoring

Sand Creek @ Hwy 4 Bypass is a MPM site located in Zone 6 where there is high degree of urban influence. During 2015, MPM will occur according to the schedule outlined in the MPU; MPM is scheduled for dieldrin based on months of past exceedances and analysis of PUR data.

UNNAMED DRAIN TO LONE TREE CREEK @ JACK TONE RD

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

Constituents Requested to Remove from Management Plan:

- Specific Conductivity (SC)
- Copper
- Diuron

Subwatershed Overview and Monitoring History

Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is a Represented site in the French Camp Slough @ Airport Way Zone (Zone 2). Monitoring began at the site during the irrigation season of 2006 and has continued through the 2015 WY. Management Plan Monitoring first began in the site subwatershed during the 2007 irrigation season.

The Coalition began general outreach and education in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed in 2007. Focused outreach in with targeted growers occurred from 2008 through 2010. The Coalition identified growers with the greatest likelihood of contributing to water quality impairments. The Coalition contacted these targeted growers in 2008 and 2009 to document current management practices and to encourage the implementation of additional management practices designed to address water quality impairments. The Coalition followed up with targeted growers in 2009 and 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 for all constituents listed below.

Specific Conductivity (SC)

The proposal to remove SC from the management plan of Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is justified using available monitoring results through June 2015. Since monitoring began in the site subwatershed, three exceedances of the WQTL for SC occurred at Unnamed Drain to Lone Tree Creek @ Jack Tone Rd; two occurred in 2007 (March and May), and the third occurred in 2011 (March).

Since the last exceedance in March 2011, monitoring for SC has taken place at Unnamed Drain to Lone Tree Creek @ Jack Tone Rd during every sampling event (34 events) and no exceedances occurred. The end of three years of monitoring with no exceedances was March 2014. Additionally, the site was monitored for SC from April 2014 through July 2015 with no exceedances. All field parameters, including SC, are measured during every monitoring event (Core Monitoring, Represented Monitoring, and MPM).

Copper

The proposal to remove copper from the management plan of Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is justified using available laboratory results through May 2015. Exceedances of the hardness based WQTL for copper occurred seven times in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed. The first five exceedances were based on the total fraction and occurred in 2008 (April, May, July, August, and September). Toxicity to *S. capricornutum* (34% growth compared to the control) coincided with the May 13, 2008 exceedance (7.8 (6.5) µg/L) only. A TIE was initiated on the May 2008 toxic sample; however, the sample lost toxicity and the results were inconclusive. The PUR data associated with the April (23 (8.4) µg/L) and May (7.8 (6.5) µg/L) exceedances indicate 59 copper applications totaling 16,848 lbs AI across 2,654 acres of orchards occurred from February 24, 2008 through May 12, 2008. All of the applications of copper that could be associated with the July 15, 2008 exceedance (6.9 (5.7 µg/L) took place on or before May 16, 2008 (with the exception of a single application to onions that occurred on June 23, 2008). No applications could be associated with the August and September exceedances.

The two remaining exceedances were based on the dissolved copper fraction on April 13, 2010 (5.5 (4.70) µg/L) and May 24, 2011 (11 (5.95) µg/L); toxicity was not associated with either exceedance. The PUR data associated with the April 2010 exceedance indicate 13 applications totaling 983 lbs AI across 603 acres of almonds, wine grapes, and walnuts occurred from February 4, 2010 through April 10, 2010. The PUR data associated with the May 2011 exceedance indicate 49 applications totaling 6,084 lbs AI across 2,113 acres of walnuts, tomatoes, and rice occurred from March 31, 2011 through May 24, 2011.

Since the last exceedance in May 2011, monitoring for copper has occurred at Unnamed Drain to Lone Tree Creek 24 times with no exceedances (through May 2015). The end of three years of monitoring with no exceedances was May 2014. In addition, samples for copper were collected in July through September 2014 and in April and May 2015 with no instance of toxicity.

Diuron

The proposal to remove diuron from the management plan of Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is justified using available laboratory results through May 2015. There have been four exceedances of the WQTL for diuron in samples collected from the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed in January (2008) and February (twice in 2007, and 2012).

Samples collected on February 11, 2007 (19 µg/L) and February 28, 2007 (29 µg/L) resulted in exceedances of the WQTL for diuron and were toxic to *S. capricornutum* with 53% and 4.8% growth compared to the control, respectively. The PUR data associated with the February 2007 exceedances indicate 16 applications totaling 1,331 lbs AI across 2,612 acres of grapes occurred from February 4, 2007 through February 6, 2007.

Samples collected on January 23, 2008 resulted in an exceedance of the WQTL for diuron (7.7 µg/L); toxicity was not associated with the exceedance. The PUR data associated with the January 2008

exceedance indicate six applications totaling 454 lbs AI across 331 acres of alfalfa and walnuts occurred from December 26, 2007 through January 22, 2008.

Samples collected on February 14, 2012 resulted in an exceedance of the WQTL for diuron (2.4 µg/L); toxicity was not associated with the exceedance. The PUR data associated with the February 2012 exceedance indicate three applications of diuron totaling 141 lbs AI across 120 acres of grapes and alfalfa occurred from December 12, 2011 through January 27, 2012.

Since the last exceedance on February 14, 2012, the site has been sampled for diuron eight times with no exceedances. The end of three years of monitoring with no exceedances was February 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 Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed. The Coalition conducted focused outreach from 2008 through 2010 with 34 targeted growers to document current management practices and discuss water quality impairments. The Coalition followed up with 18 of the targeted members in the subwatershed to assess if new practices were implemented. Furthermore, the Coalition conducted additional focused outreach during 2012 to growers in the site subwatershed with growers who had reported recent use of chlorpyrifos.

The Coalition continues to provide general outreach to all members within the site subwatershed. Through notifications and grower meetings, members continue to be made aware of water quality results, relevant management practices that address water quality impairments, availability of funding for management practice implementation, results special studies of management practice efficacy, and management practice tracking and implementation actions.

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

A complete analysis of management practices implemented in the Unnamed Drain to Lone Tree Creek site subwatershed was reported in the SJCDWQC 2011 MPUR; results from additional contacts in 2012 were included in the 2013 MPUR. Results from the analyses are included in the section below.

Management Practices Implemented

The Coalition contacted 34 targeted growers in 2008 and 2009 farming 6,463 acres in the site subwatershed. Management practices were documented for 22% of the acreage identified with direct drainage. The Coalition completed initial and follow-up surveys with 100% of targeted growers. In 2012, two additional growers were contacted farming 1238 acres. Both growers indicated they do not apply chlorpyrifos.

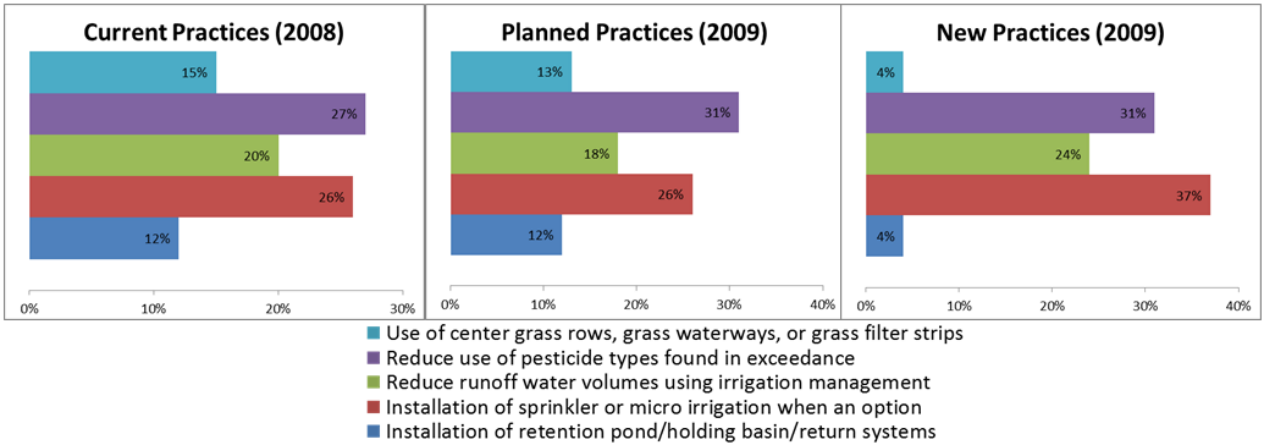
Of the members who completed the surveys in 2008 and 2009, the most common existing management practices were reduced use of pesticides (27%), use of sprinkler or microspray irrigation (26%), and reduced runoff water volume (20%). Additional management practices included use of center grass rows, grass waterways or grass filter strips (15%), and a retention pond, holding basin or return system (12%, Figure 9).

Of the growers that indicated that they intended to implement additional practices in 2009, reduced pesticide use was to occur on 31% of the total acreage. Installation of sprinklers or micro irrigation was to occur on 25%, implementation of irrigation management was to occur on 18%, installation of a retention pond, holding basin or return system was to occur on 12%, and center grass rows, grass waterways or grass filter strips were to be placed on 11% (Figure 9). Growers with 1% indicated that they do not make management practice decisions but would talk to the appropriate person about management practices.

Final results of follow-up surveys indicated 37% had completed the installation of sprinklers or micro irrigation, 31% had reduced pesticide applications, and 24% had reduced runoff water volume (Figure 9). The remaining 8% of the acres had the installation of retention pond, holding basin, or return systems, or using center grass rows, grass waterways or grass filter strips.

Figure 9. Unnamed Drain to Lone Tree Creek summary of management practices.

Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Unnamed Drain to Lone Tree Creek @ Jack Tone

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 SC, copper, and diuron. 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 SC, copper, and diuron. Therefore, the Coalition requests that SC, copper, and diuron be removed from the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed management plan and MPM schedule.

Future Monitoring

Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is a Represented site located in Zone 2. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 MPU; MPM is scheduled for copper (dissolved), chlorpyrifos and diuron based on months of past exceedances and PUR analysis. Field parameters (DO, pH, SC) are measured during every monitoring event.

WALTHALL SLOUGH @ WOODWARD AVE

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

Constituents Requested to Remove from Management Plan:

- Chlorpyrifos
- HCH
- Sediment toxicity to *H. azteca*

Subwatershed Overview and Monitoring History

Walthall Slough @ Woodward Ave is the Core site located in Zone 2. Normal Monitoring began at Walthall Slough in 2009 and has continued through the 2015 WY. The Coalition initiated MPM in 2012.

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. 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 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 for all constituents listed below.

Chlorpyrifos

Beginning in 2010, the Coalition designated Walthall Slough @ Woodward Ave as one of the Chlorpyrifos and Diazinon TMDL loading capacity sites. Therefore, in addition to MPM, monitoring for chlorpyrifos at the site occurred monthly from 2010 through March 2013, during one storm and May through August in 2014, and Core site occurred monthly during the 2015 WY as outlined in the MPU (approve January 5, 2015).

The proposal to remove chlorpyrifos from the management plan of Walthall Slough @ Woodward Ave is justified using available laboratory results through May 2015. There have been two exceedances of the WQTL for chlorpyrifos in the Walthall Slough @ Woodward Ave site subwatershed, both occurred in 2011 (September, and October); the concentration of chlorpyrifos in samples collected in September was 0.083 µg/L and in October was 0.078 µg/L. The PUR data associated with both the September 20, 2011 and the October 6, 2011 exceedance indicate eight applications totaling 225 lbs AI across 437 acres of alfalfa, corn, and walnuts occurred from August 24, 2011 through September 3, 2011.

Since the last exceedance of the WQTL for chlorpyrifos in October 2011, Walthall Slough @ Woodward Ave has been monitored for chlorpyrifos during MPM, TMDL, and Core site monitoring 38 times with no exceedances (results through May 2015). The end of three years of monitoring with no exceedances was October 2014.

Hexachlorocyclohexane

Isomers of HCH include alpha-HCH, beta-HCH,delta-HCH, and gamma-HCH (lindane). Lindane, one of the hexachlorocyclohexane (HCH) isomers, is classified as an organochlorine insecticide and the only isomer with pesticidal properties. The product was used in the past as a pesticide and a pharmaceutical treatment for lice and scabies. The product is no longer produced in the US (since 1970), but has been imported from other nations. In 2006, the United States Environmental Protection Agency (US EPA) called for a voluntary withdraw of all agricultural uses of lindane and it has been banned for use on agriculture in the US. Furthermore, all products containing lindane are currently banned in California. Any detection of HCH is a result of past applications and cannot be attributed to current agricultural practices.

The proposal to remove HCH from the management plan of Walthall Slough @ Woodward Ave is justified using available laboratory results through May 2015. There have been a total of three exceedances of the WQTL for HCH in samples collected from Walthall Slough @ Woodward Ave in January 2009 (0.0055 µg/L), November 2009 (0.0061 µg/L), and December 2009 (0.019 µg/L).

Since the last exceedance in December 2009, the Coalition has monitored Walthall Slough @ Woodward Ave 19 times for HCH with no exceedances (2010 monthly Assessment monitoring, and months of past exceedances in 2013, 2014, and January 2015); monitoring results are through May 2015. The end of three years of monitoring with no exceedance was December 2014. Additionally, samples were collected in January 2015 and no exceedance occurred.

Sediment toxicity to *H. azteca*

The proposal to remove sediment toxicity to *H. azteca* from the management plan of Walthall Slough @ Woodward Ave is justified using available sediment monitoring results through March 2015. There have been two instances of toxicity to *H. azteca* in sediment samples collected from Walthall Slough @ Woodward Ave; the first was on April 14, 2009 (81% survival compared to the control) and the second was on September 7, 2010 (69% survival compared to the control). Because survival was greater than 50 percent in samples collected during the April 2009 event, the samples were not analyzed for pesticides. The PUR data associated with the April 14, 2009 toxicity indicate 107 applications of pesticides totaling 17,294 lbs AI across 3,831 acres of orchards occurred from January 20, 2009 through April 13, 2009.

Sediment toxicity occurred in samples collected on September 7, 2010 in both the environmental and field duplicate samples (69 and 74% survival compared to the control, respectively). Additional chemistry analysis results indicated detections of bifenthrin and lambda-cyhalothrin in both samples.

The PUR data associated with the September 7, 2010 toxicity indicate 338 applications of pesticides totaling 4,046 lbs AI across 12,496 acres of row crops from April 30, 2010 through September 7, 2010.

Since the last sediment toxicity in September 2010, the Coalition has monitored Walthall Slough @ Woodward Ave seven times for toxicity to *H. azteca* with no instances of toxicity (monitoring results through the March 2015 sediment toxicity event). The end of three years of monitoring with no toxicity was September 2014. Additionally, sediment samples were not toxic during the March 2015 monitoring 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 Walthall Slough @ Woodward Ave site subwatershed. The Coalition conducted focused outreach from 2013 through 2015 with eight targeted growers to discuss water quality impairments, review each grower's operation, and document existing management practices. The Coalition followed up with five targeted growers in 2014 to assess if new practices were implemented.

The Coalition continues to provide general outreach to all members within 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 the water quality exceedance

The complete analysis of management practices implemented in the Walthall Slough @ Woodward Ave site subwatershed was reported in the SJCDWQC May 1, 2015 Annual Report. Results from that analysis are included in the section below.

Management Practices Implemented

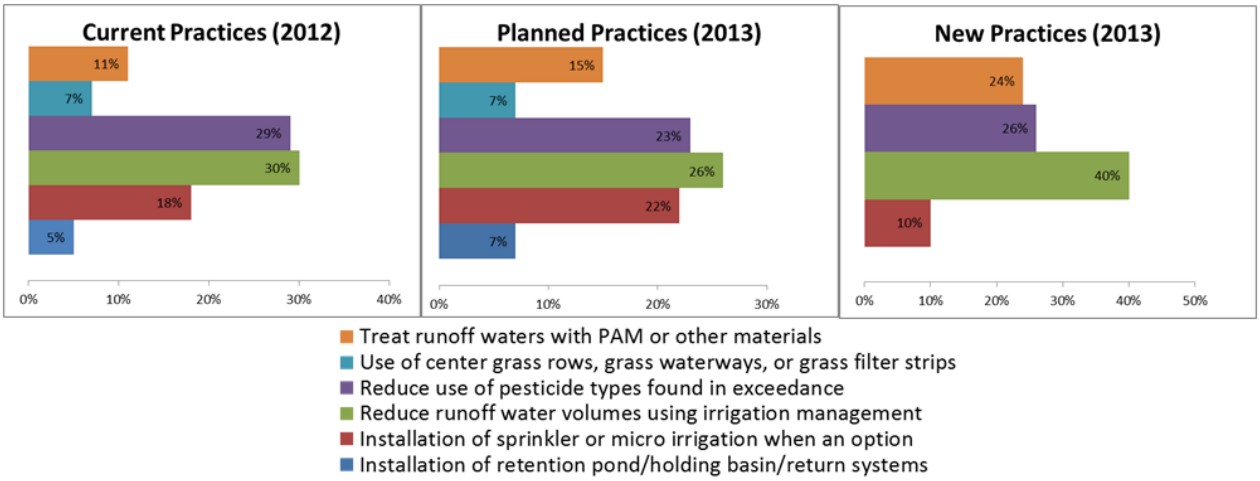
In 2013, the Coalition contacted eight targeted growers farming 1,490 acres in the Walthall Slough @ Woodward Ave site subwatershed. Management practices were documented for 61% of the acreage identified as having direct drainage. Grower meetings were conducted in 2013 and 100% of targeted members returned surveys with their management practice information. Follow-up surveys were sent in 2014 and 100% of follow-up surveys were returned.

The most common management practices that growers were implementing in 2012 included reducing the use of the pesticides found in exceedances (29%) and reducing tailwater water volumes (30%, Figure 10).

Returned initial surveys indicated seven out of eight targeted growers were already implementing one or more management practices. Five growers indicated that one or more management practices were planned to be implemented in 2013. The most common practices planned for implementation in 2013 included reducing the use of the pesticide types found in exceedances (24%), reduced runoff water volume (26%), and installing sprinkler or micro irrigation (23%, Figure 10).

A final analysis of the follow-up surveys indicated that the three most implemented practices were reduced runoff water volumes using irrigation management (40%), reduced use of pesticides found in exceedances (26%), and treating runoff waters with PAM or other materials (24%, Figure 10).

Figure 10. Walthall Slough @ Woodward Ave summary of management practices.
Percentage based on acreage associated with a specific practice compared to the summed acreage associated with all practices for each survey response.



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

Justification to Remove Constituents from Walthall Slough @ Woodward 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 or HCH, and no sediment toxicity to *H. azteca*. 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 chlorpyrifos, HCH, and sediment toxicity. Therefore, the Coalition requests that chlorpyrifos, HCH, and sediment toxicity be removed from the Walthall Slough @ Woodward Ave management plan and MPM schedule.

Future Monitoring

Walthall Slough @ Woodward Ave is a Core site located in Zone 5. During the 2015 WY, monitoring will occur according to the schedule outlined in the Coalition's 2015 MPU; MPM is scheduled for chlorpyrifos, HCH, and toxicity to *H. azteca* through September 2015.