



SAN JOAQUIN COUNTY & DELTA WATER QUALITY COALITION

November 16, 2018

Patrick Pulupa, Executive Officer

Central Valley Regional Water Quality Control Board

11020 Sun Center Drive, #200

Rancho Cordova, CA 95670-6114

Dear Mr. Pulupa,

The San Joaquin County and Delta Water Quality Coalition (SJCDWQC or Coalition) is submitting a request for the completion of management plans and Management Plan Monitoring (MPM) for specific constituents from selected site subwatersheds. Justification for the request is provided through the four requirements outlined in the Coalition's Waste Discharge Requirements (WDR R5-2014-0029-R1), Appendix MRP-1, Page 9 per each site subwatershed in the attached letter. Monitoring results for each site/constituent are provided in Appendix I.

The six sites listed below meet the requirements for management plan completion. If approved, the Coalition will remove site specific constituent management plans and MPM for:

- Duck Creek @ Hwy 4 (SC and chlorpyrifos)
- French Camp Slough @ Airport Way (diuron)
- Roberts Island @ Whiskey Slough Pump (pH)
- Terminous Tract Drain @ Hwy 12 (arsenic)
- Unnamed Drain to Lone Tree Creek @ Jack Tone Rd (lead)
- Union Island Drain @ Bonetti Rd (chlorpyrifos)

Respectfully,

Michael L. Johnson

Technical Program Manager

TABLE OF CONTENTS

| | |
|---|----|
| Table of Contents..... | 1 |
| List of Tables | 2 |
| List of Figures..... | 1 |
| Introduction | 2 |
| Supporting Documentation for Management Plan Completion..... | 5 |
| Duck Creek @ Hwy 4..... | 5 |
| Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring | 5 |
| Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred..... | 5 |
| Documentation of member implementation of management practices that address the water quality exceedance..... | 6 |
| Demonstration that the management practices implemented by members are effective in addressing the water quality impairment | 7 |
| French Camp Slough @ Airport Way | 9 |
| Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring | 9 |
| Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred..... | 9 |
| Documentation of member implementation of management practices that address the water quality exceedance..... | 9 |
| Demonstration that the management practices implemented by members are effective in addressing the water quality impairment | 11 |
| Roberts Island @ Whiskey Slough Pump..... | 12 |
| Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring | 12 |
| Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred..... | 12 |
| Documentation of member implementation of management practices that address the water quality exceedance..... | 12 |
| Demonstration that the management practices implemented by members are effective in addressing the water quality impairment | 13 |
| Terminus Tract @ Hwy 12..... | 15 |
| Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring | 15 |
| Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred..... | 15 |

| | |
|---|----|
| Documentation of member implementation of management practices that address the water quality exceedance..... | 15 |
| Demonstration that the management practices implemented by members are effective in addressing the water quality impairment | 17 |
| Unnamed Drain to Lone Tree Creek @ Jack Tone Rd | 18 |
| Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring | 18 |
| Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred..... | 18 |
| Documentation of member implementation of management practices that address the water quality exceedance..... | 18 |
| Demonstration that the management practices implemented by members are effective in addressing the water quality impairment | 20 |
| Union Island Drain @ Bonetti Rd..... | 21 |
| Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring | 21 |
| Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred..... | 21 |
| Documentation of member implementation of management practices that address the water quality exceedance..... | 21 |
| Demonstration that the management practices implemented by members are effective in addressing the water quality impairment | 22 |

LIST OF TABLES

| | |
|---|----|
| Table 1. SJCDWQC sites and constituents proposed for management plan completion..... | 3 |
| Table 2. Management plan completion section key. | 4 |
| Table 3. Acreages of newly implemented management practices in the French Camp Slough @ Airport Way 2016 Focused Outreach site subwatershed (2016-2018). | 10 |
| Table 4. Acreages of newly implemented management practices in the Terminous Tract Drain @ Hwy 12 2016 Focused Outreach site subwatershed (2016-2018)..... | 17 |
| Table 5. Acreages of newly implemented management practices in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd 2016 Focused Outreach site subwatershed (2016-2018)..... | 20 |

LIST OF FIGURES

| | |
|---|----|
| Figure 1. Duck Creek @ Hwy 4 summary of management practices..... | 6 |
| Figure 4. Monitoring history for SC at Duck Creek @ Hwy 4. | 7 |
| Figure 5. Monitoring history for chlorpyrifos at Duck Creek @ Hwy 4..... | 8 |
| Figure 6. French Camp Slough @ Airport Way summary of management practices. | 10 |
| Figure 7. Monitoring history for diuron at French Camp Slough @ Airport Way. | 11 |
| Figure 8. Roberts Island @ Whiskey Slough Pump summary of management practices..... | 13 |
| Figure 9. Monitoring history for pH at Roberts Island @ Whiskey Slough Pump. | 14 |
| Figure 10. Terminous Tract Drain @ Hwy 12 summary of management practices..... | 16 |
| Figure 11. Monitoring history for arsenic at Terminous Tract Drain @ Hwy 12. | 17 |
| Figure 12. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd summary of management practices. | 19 |
| Figure 14. Monitoring history for lead at Unnamed Drain to Lone Tree Creek @ Jack Tone Rd..... | 20 |
| Figure 16. Grant Line Canal sites summary of management practices. | 22 |
| Figure 17. Monitoring history for chlorpyrifos at Union Island Drain @ Bonetti Rd..... | 23 |

INTRODUCTION

Management Plan Monitoring (MPM) is conducted as part of the San Joaquin County and Delta Water Quality Coalition's (SJCDWQC or Coalition) management plan strategy to identify contaminant sources and evaluate the efficacy of management practices. 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 including dissolved oxygen (DO), specific conductance (SC), boron, chlorpyrifos, and diazinon, or more than one exceedance in a three-year period of the WQTL for any other constituent. When a constituent becomes the focus of the SJCDWQC Management Plan, the Coalition initiates actions to address the exceedances including focused outreach and MPM during months of high pesticide use.

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 were collected to document improved water quality annually.

The Coalition continues to provide general outreach to all members within the Coalition region. 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.

When an exceedance of the WQTL for a management plan constituent does not occur for three or more years at a site, the Coalition may send a letter to the Regional Water Board petitioning to complete the management plan for the constituent.

With the adoption of the Waste Discharge Requirements General Order for Growers within the San Joaquin County and Delta (Order No. R5-2014-0029-R1; hereafter WDR or Order), the frequency of monthly monitoring and the scheduling of MPM during months of past exceedances were modified as described in WDR Attachment A page 14: "The previous requirement to monitor monthly resulted in monitoring during months in which no problems would be expected and infrequent monitoring during peak periods when potential problems could occur. The third-party will be required to evaluate pesticide use patterns and peak times when pesticides from irrigated agriculture operations may cause problems in surface water. Based on that evaluation, the third-party will propose a frequency and time period to conduct monitoring that will adequately characterize surface waters receiving irrigated agricultural waste discharges."

Therefore, the MPM schedules proposed/approved in the Coalition's Monitoring Plan Update (MPU) reports are based on months of peak pesticide use. Furthermore, page 9 of the WDR Appendix MRP-1 indicates: "demonstration of management plan completion must include consideration of periods of peak use and/or periods when a parameter is likely to be present." Appendix I of this letter includes tabulated results for all monitoring within three years for the

constituents and sites in this request. In some cases, monitoring is scheduled during months of past exceedances because of high pesticide use during those months; in other cases, applications of pesticides shift to different months and monitoring is adjusted according to the patterns in pesticide use.

Consequently, this request should be evaluated based on the new WDR requirements that monitoring should occur during months of high use.

Through analysis of monitoring data, the Coalition determined there is enough evidence of water quality improvements to request the completion of seven management plans from the six 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* | ARSENIC | CHLORPYRIFOS | DIURON | LEAD |
|---|----------------------------|----------|----------|----------|--------------|----------|----------|
| Duck Creek @ Hwy 4 | 2008-2010, 2012, 2017-2019 | | X | | X | | |
| French Camp Slough @ Airport Way | 2011-2013, 2016-2018 | | | | | X | |
| Roberts Island @ Whiskey Slough Pump | 2013-2015 | X | | | | | |
| Terminus Tract Drain @ Hwy 12 | 2011-2013, 2016-2018 | | | X | | | |
| Unnamed Drain to Lone Tree Creek @ Jack Tone Rd | 2008-2010, 2016-2018 | | | | | | X |
| Union Island Drain @ Bonetti Rd | 2017-2019 | | | | X | | |
| | Total | 1 | 1 | 1 | 2 | 1 | 1 |

*Monitoring for field parameters will continue to occur on all sampling events.

The Coalition will include all tabulated monitoring results for the 2018 Water Year (WY) in the 2019 Annual Report.

This proposal is justified using preliminary monitoring data available through September 2018. To support the Coalition’s request, tabulated monitoring results for each site/constituent for the relevant three years of monitoring required are provided in an Excel file (Appendix I). 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 sites subwatershed.

Table 2. Management plan completion section key.

| Requirements for Management Plan Completion: as outlined in the WDR (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 ¹) or demonstrated compliance with the WDR's surface and groundwater receiving water limitations. | <ul style="list-style-type: none"> • Site Subwatershed Overview and Monitoring History • Constituent Monitoring Results and Sourcing |
| 2. Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred. | <ul style="list-style-type: none"> • Summary of Outreach |
| 3. Documentation of member implementation of management practices that address the water quality exceedance. | <ul style="list-style-type: none"> • Management Practices Implemented |
| 4. Demonstration that the management practices implemented by members are effective in addressing the water quality impairment. | <ul style="list-style-type: none"> • Justification to Complete Management Plans • Future Monitoring |

SUPPORTING DOCUMENTATION FOR MANAGEMENT PLAN COMPLETION

DUCK CREEK @ HWY 4

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

Constituents Requested to Remove from Management Plan

- Specific Conductivity (SC)
- Chlorpyrifos

Site Subwatershed Overview and Monitoring History

Duck Creek @ Hwy 4 is one of the rotating Core sites in Zone 2. Monitoring was initiated in 2004 and MPM was initiated in 2007 and continued through the 2018 WY. Additional samples were collected for chlorpyrifos from June 2010 through February 2011 as part of a grant program conducted through the California Department of Pesticide Regulation (DPR).

Constituent Monitoring Results and Sourcing

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

Specific Conductivity

A single exceedance of WQTL for SC occurred at Duck Creek @ Hwy 4 in April 2015 (Appendix I). Since the last exceedance, the Coalition has monitored for SC 20 times; there were no exceedances.

Chlorpyrifos

Since monitoring began at Duck Creek @ Hwy 4 in August 2004, there have been a total of 19 exceedances of the water quality trigger limit (WQTL) for chlorpyrifos. Since the most recent in August 2015, the Coalition monitored for chlorpyrifos 17 times with no detections (Appendix I). The end of the required three years of monitoring with no exceedances was August 2018.

Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Duck Creek @ Hwy 4 site subwatershed from 2008 through 2010. In 2012, the Coalition conducted additional outreach with two new

members, due to continued exceedances of the WQTL for chlorpyrifos. The Duck Creek @ Hwy 4 site subwatershed was also included in the 2017 through 2019 Focused Outreach.

Documentation of member implementation of management practices that address the water quality exceedance

The complete analysis of management practices implemented in the Duck Creek @ Hwy 4 site subwatershed was reported in the SJCDWQC 2011 MPUR. All management practice information obtained during additional focused outreach in 2012 was reported in the 2013 MPUR. Results from the analysis are summarized in the section below. The Coalition also included an update on the current status of 2017 Focused Outreach at Duck Creek @ Hwy 4 in the 2018 Annual Report.

Management practices implemented by growers do not affect SC levels in the water column. Monitoring data do not provide a clear indication of what changed the number of exceedances of the WQTLs for SC; however, water quality in the site subwatershed has improved as indicated by the number of completed management plans since focused outreach began.

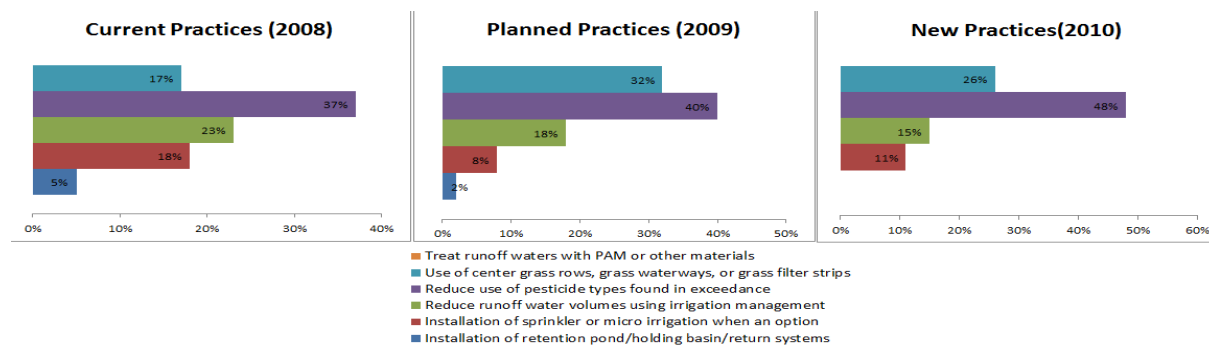
Management Practices Implemented

Focused Outreach (2008-2010)

Initial survey results indicated growers already applied several management practices to address runoff and/or pesticide application management and still planned to implement additional practices. The 2010 follow-up surveys indicated the two most commonly implemented practices after focused outreach were 1) reduce use of pesticides found in exceedances and 2) use of center grass rows, grass waterways, or grass filter strips (Figure 1).

Figure 1. Duck Creek @ Hwy 4 summary of management practices.

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



Focused Outreach (2017-2019)

The 2017 Focused Outreach is still in progress. In 2017, the Coalition contacted four targeted growers farming 715 irrigated acres. Two of the four targeted growers were not contacted during the previous round of focused outreach (2008-2010). The Coalition mailed three follow-up surveys to growers who indicated that they would implement new management practices in 2018. Results from these surveys will be reported in the 2019 Annual Report.

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

Justification to Complete Management Plans

The Coalition’s focused outreach and management practice tracking strategy continues to be effective at improving water quality in the Duck Creek @ Hwy 4 site subwatershed as shown by no exceedances of the WQTLs for SC and chlorpyrifos in three or more years. Therefore, the Coalition requests to complete the management plans and MPM for SC and chlorpyrifos in the Duck Creek @ Hwy 4 site subwatershed.

SC

The proposal to complete the management plan for SC in the Duck Creek Hwy 4 site subwatershed is justified based on monitoring data from 2015 through the 2018 WY (Figure 2). Since the last exceedance in April 2015, the Coalition monitored for SC during 20 sampling events; no exceedances occurred.

Figure 2. Monitoring history for SC at Duck Creek @ Hwy 4.

Light grey cells indicate months monitored. Dark grey cells indicate months with exceedances. Exceedance values listed bolded white.

| SC | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|------------|-----|-----|-----|-----|-----|-----|-----|-----|
| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | |
| 2015 | | | | 765 | | | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Chlorpyrifos

The proposal to complete the management plan for chlorpyrifos in the Duck Creek @ Hwy 4 site subwatershed is justified based on monitoring data from 2015 through the 2018 WY (Figure 3).

Since the last exceedance in August 2015, the Coalition monitored for chlorpyrifos during 17 sampling events for more than three years; there were no exceedances.

Figure 3. Monitoring history for chlorpyrifos at Duck Creek @ Hwy 4.

Light grey cells indicate months monitored. Dark grey cells indicate months with toxicity. Toxicity values listed bolded white.

| Chlorpyrifos | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------------|-----|-----|-----|--------------|--------------|-------------|--------------|--------------|--------------|-----|-----|-----|
| 2004 | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | |
| 2006 | | | | | 0.029 | | | | 0.15 | | | |
| 2007 | | | | | | | 0.024 | | 0.029 | | | |
| 2008 | | | | 0.057 | | 0.11 | 0.066 | 0.017 | 0.027 | | | |
| 2009 | | | | | | 0.07 | 0.15 | 0.031 | | | | |
| 2010 | | | | | 0.055 | | 0.02 | 0.3 | 0.023 | | | |
| 2011 | | | | | | | | | 0.12 | | | |
| 2012 | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | |
| 2015 | | | | 0.016 | | | | 0.022 | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Future Monitoring

Duck Creek @ Hwy is one of the rotating Core sites in Zone 2. Monitoring for the field parameter SC will continue to occur during all sampling events. Monitoring for chlorpyrifos will occur as outlined in the 2019 WY MPU until approval of management plan completion is received from the Regional Water Board.

FRENCH CAMP SLOUGH @ AIRPORT WAY

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

Constituents Requested to Remove from Management Plan

- Diuron

Site Subwatershed Overview and Monitoring History

French Camp Slough @ Airport Way is one of the rotating Core sites in Zone 2. Monitoring was initiated in 2005 and MPM was initiated in 2007 and continued through the 2018 WY.

Constituent Monitoring Results and Sourcing

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

Diuron

Since monitoring began at French Camp Slough @ Airport Way in 2006, four exceedances occurred of the WQTL for diuron have occurred (Appendix I). Since the last exceedance in February 2015, the Coalition monitored for diuron 29 times with no exceedances. The end of the required three years of monitoring with no exceedances was February 2018.

Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the French Camp Slough @ Airport Way site subwatershed from 2011 through 2013. The French Camp Slough @ Airport Way site subwatershed was included in the 2016 through 2018 Focused Outreach set.

Documentation of member implementation of management practices that address the water quality exceedance

The complete analysis of management practices implemented in the French Camp Slough @ Airport Way site subwatershed during the first round of focused outreach (2011-2013) was reported in the SJCDWQC 2014 MPUR. The complete analysis of management practices implemented during 2016 Focused Outreach was reported in the 2018 Annual Report. Results from these analyses are summarized in the section below.

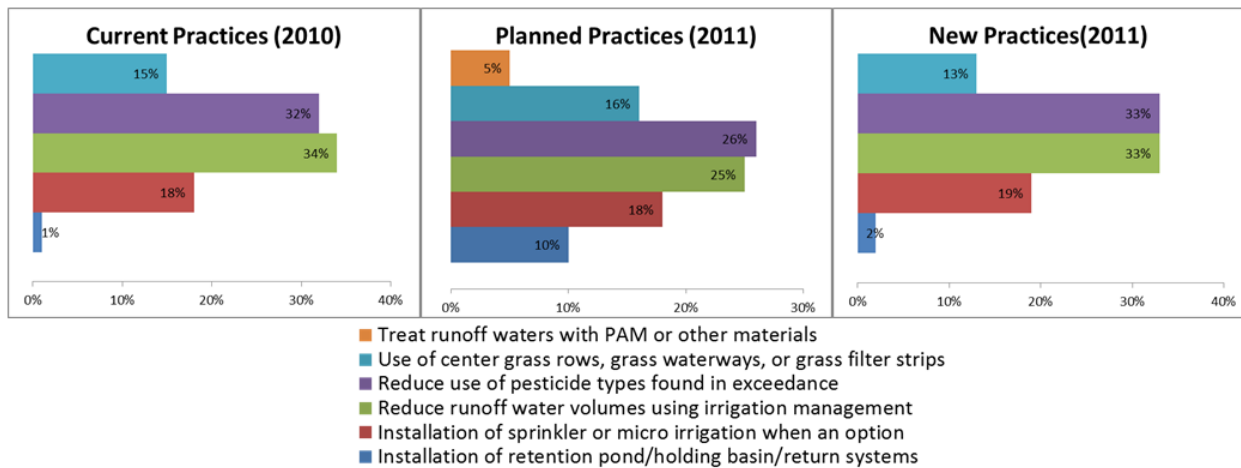
Management Practices Implemented

Focused Outreach (2011-2013)

After initial surveys were filled out, growers in the site subwatershed planned to implement various management practices to address runoff and pesticide application management. Follow-up surveys indicated the three most commonly implemented practices were 1) reduced use of pesticides found in exceedances, 2) reduce runoff water volumes using irrigation management, and 3) installation of sprinkler or micro irrigation when an option (Figure 4).

Figure 4. French Camp Slough @ Airport Way summary of management practices.

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



Focused Outreach (2016-2018)

In 2016, the Coalition contacted 20 targeted growers. Fourteen growers indicated that they planned to implement additional management practices. The Coalition mailed 14 follow-up surveys to determine if the growers implemented any new management practices in 2018. The 2016 Focused Outreach round was completed in 2018 and results were reported in the 2018 Annual Report. Table 3 provides an account of all newly implemented management practices in the French Camp Slough @ Airport Way site subwatershed as a result of 2016 Focused Outreach.

Table 3. Acreages of newly implemented management practices in the French Camp Slough @ Airport Way 2016 Focused Outreach site subwatershed (2016-2018).

| IMPLEMENTED MANAGEMENT PRACTICE | # GROWERS | ACREAGE |
|--|-----------|---------|
| Redesign inlets and outlets into tailwater ditches to reduce erosion | 1 | 1,094 |
| Reduce use of chlorpyrifos and/or diuron | 11 | 3,005 |
| Use cover crops | 2 | 1,452 |
| Use of drip or micro irrigation system | 7 | 1,800 |
| Use vegetative filter strips or ditches | 2 | 1,127 |

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

Justification to Complete Management Plans

The Coalition’s focused outreach and management practice tracking strategy continues to be effective at improving water quality in the French Camp Slough @ Airport Way site subwatershed as shown by no exceedances of the WQTL for diuron in three or more years. Therefore, the Coalition requests to complete the management plan and MPM for diuron in the French Camp Slough @ Airport Way site subwatershed.

Diuron

The proposal to complete the management plan for diuron in the French Camp Slough @ Airport Way site subwatershed is justified based on monitoring data from 2015 through the 2018 WY (Figure 5). Since the last exceedance in February 2015, the Coalition monitored for diuron during 29 sampling events; no exceedances occurred.

Figure 5. Monitoring history for diuron at French Camp Slough @ Airport Way.

Light grey cells indicate months monitored. Dark grey cells indicate months with exceedances. Exceedance values listed bolded white.

| Diuron | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2006 | | | | | | | | | | | | |
| 2007 | | 3.2 | | | | | | | | | | |
| 2008 | 3.3 | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | |
| 2014 | | 38 | | | | | | | | | | |
| 2015 | | 2.9 | | | | | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Future Monitoring

French Camp Slough @ Airport Way is a rotating Core site in Zone 2. Monitoring for diuron will occur as outlined in the 2019 WY MPU until approval of management plan completion is received from the Regional Water Board.

ROBERTS ISLAND @ WHISKEY SLOUGH PUMP

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

Constituents Requested to Remove from Management Plan

- pH

Site Subwatershed Overview and Monitoring History

Roberts Island @ Whiskey Slough Pump is one of the rotating Core sites 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 @ Holt Rd as the Core site for Zone 4 in 2012 because Roberts Island @ Whiskey Slough Pump 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.

Constituent Monitoring Results and Sourcing

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

pH

Since monitoring began at Roberts Island @ Whiskey Slough Pump in 2012, a single exceedance of WQTL for pH occurred during the June 2015 sampling event (Appendix I). Since the single exceedance in June 2015, the Coalition has monitored for pH during 27 sampling events through July 2018; there were no exceedances.

Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Roberts Island @ Whiskey Slough Pump from 2013 through 2015.

Documentation of member implementation of management practices that address the water quality exceedance

The complete analysis of management practices implemented in the Roberts Island @ Whiskey Slough Pump 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 by growers do not affect pH levels in the water column. Monitoring data do not provide a clear indication of what changed the number of exceedances of the WQTLs for pH; however, water quality in the site subwatershed has improved as indicated by the number of completed management plans since focused outreach began.

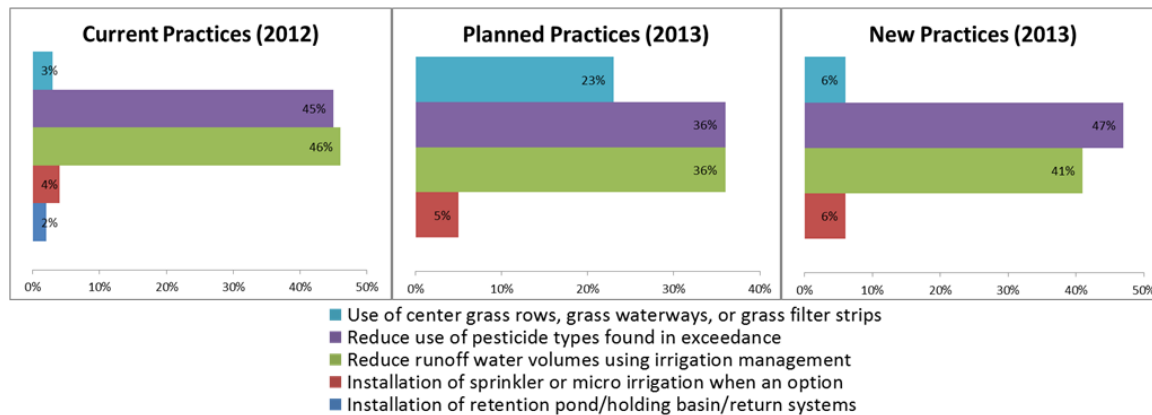
Management Practices Implemented

Focused Outreach (2013-2015)

After initial surveys were filled out, growers in the site subwatershed planned to implement various management practices to address runoff and pesticide application management. Follow-up surveys indicated the two most commonly implemented practices were 1) reduced use of pesticides found in exceedances and 2) reduce runoff water volume using irrigation management (Figure 6).

Figure 6. Roberts Island @ Whiskey Slough Pump summary of management practices.

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



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

Justification to Complete Management Plans

The Coalition’s focused outreach and management practice tracking strategy continues to be effective at improving water quality in the Roberts Island @ Whiskey Slough Pump site subwatershed as shown by no exceedances of the WQTL for pH in three or more years. Therefore, the Coalition requests to complete the management plan for pH in the Roberts Island @ Whiskey Slough Pump site subwatershed.

pH

The proposal to complete the management plan for pH in the Roberts Island @ Whiskey Slough Pump site subwatershed is justified based on monitoring data from 2015 through the 2018 WY

(Figure 7). Since the last exceedance in June 2015, the Coalition monitored for pH during 27 sampling events; no exceedances occurred.

Figure 7. Monitoring history for pH at Roberts Island @ Whiskey Slough Pump.

Light grey cells indicate months monitored. Dark grey cells indicate months with exceedances. Exceedance values listed bolded white.

| pH | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-----|-----|
| 2012 | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | |
| 2015 | | | | | | 6.12 | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Future Monitoring

Roberts Island @ Whiskey Slough Pump is a rotating Core site in Zones 4 and 6. Monitoring for the field parameter pH will continue to occur during all sampling events.

TERMINOUS TRACT @ HWY 12

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

Constituents Requested to Remove from Management Plan

- Arsenic

Site Subwatershed Overview and Monitoring History

Terminus Tract Drain @ Hwy 12 is one of the rotating Core sites in Zone 3. Monitoring was initiated at the site in 2005 and continued through the 2018 WY.

The Coalition previously monitored at two sites within the Terminus Tract Drain subwatershed (Delta Drain-Terminus Tract off Glasscock Rd and Delta Drain-Terminus Tract off Guard Rd). Terminus Tract Drain @ Hwy 12, was more representative of all of the irrigation drainage on Terminus Tract; consequently, monitoring at the two upstream locations was discontinued.

Constituent Monitoring Results and Sourcing

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

Arsenic

Exceedances of the WQTL for arsenic, ranging from 11 mg/L to 15 mg/L (Appendix I), occurred in eight samples collected from Terminus Tract Drain @ Hwy 12 from May 2006 through March 2013. Elevated levels of arsenic in the water column are common in the Delta due to naturally contain higher levels of arsenic in the soil. Since the last exceedance of the WQTL for arsenic in March 2013, the Coalition has sampled for arsenic during 39 sampling events from April 2013 through August 2018; no exceedance occurred.

Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Terminus Tract Drain @ Hwy 12 site subwatershed from 2011 through 2013. The Terminus Tract Drain @ Hwy 12 site subwatershed was also included in the 2016 Focused Outreach set from 2016 through 2018.

Documentation of member implementation of management practices that address the water quality exceedance

Management practices implemented by growers have no direct effect on the concentrations of arsenic in the water column. However, management practices directed at reducing sediment mobilization may have a role in prevent sediment bound arsenic from entering the waterbody.

The complete analysis of management practices implemented in the Terminous Tract Drain @ Hwy 12 site subwatershed during the first round of focused outreach (2011-2013) was reported in the SJCDWQC 2014 MPUR. The complete analysis of management practices implemented during 2016 Focused Outreach was reported in the 2018 Annual Report. Results from these analyses are summarized in the section below.

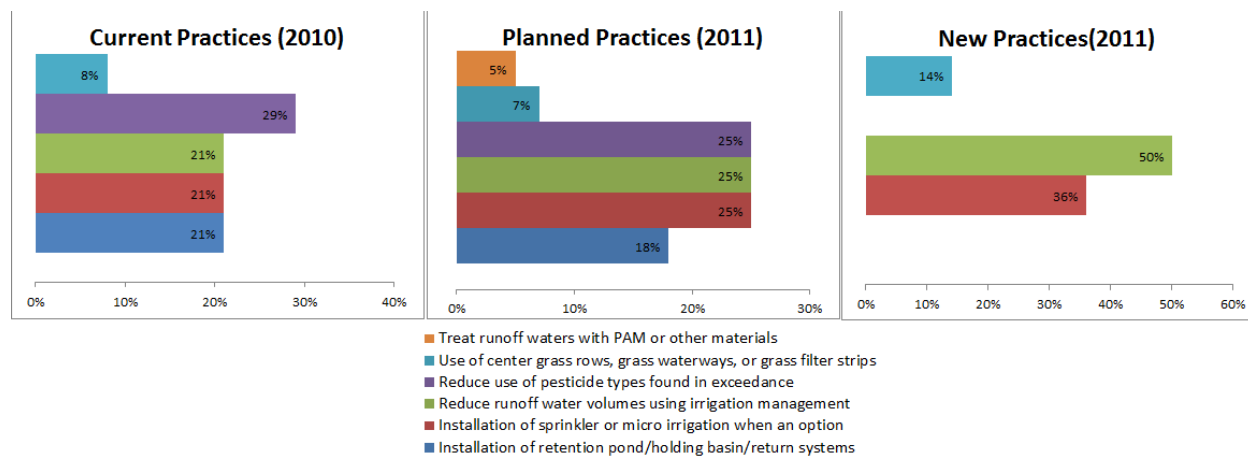
Management Practices Implemented

Focused Outreach (2011-2013)

After initial surveys were filled out, growers in the site subwatershed planned to implement various management practices to address runoff and pesticide application management. Follow-up surveys indicated the two most commonly implemented practices after focused outreach were 1) reduced runoff water volumes using irrigation management and 2) installation of sprinkler or micro irrigation system (Figure 8).

Figure 8. Terminous Tract Drain @ Hwy 12 summary of management practices.

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



Focused Outreach (2016-2018)

In 2016, the Coalition contacted three targeted growers. Two growers indicated that they planned to implement additional management practices. The Coalition mailed two follow-up surveys to determine if the growers implemented any new management practices in 2018. The 2016 Focused Outreach round was completed in 2018 and results were reported in the 2018 Annual Report. Table 4 provides an account of all newly implemented management practices in the Terminous Tract Drain @ Hwy 12 site subwatershed as a result of 2016 Focused Outreach.

Table 4. Acreages of newly implemented management practices in the Terminous Tract Drain @ Hwy 12 2016 Focused Outreach site subwatershed (2016-2018).

| IMPLEMENTED MANAGEMENT PRACTICE | # GROWERS | ACREAGE |
|--|-----------|---------|
| Reduce use of chlorpyrifos and/or diuron | 2 | 1,860 |

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

Justification to Complete Management Plans

The Coalition’s focused outreach and management practice tracking strategy continues to be effective at improving water quality in the Terminous Tract Drain @ Hwy 12 site subwatershed as shown by no exceedances of the WQTL for arsenic in three or more years. Therefore, the Coalition requests to complete the management plan for arsenic in the Terminous Tract Drain @ Hwy 12 site subwatershed.

Arsenic

The proposal to complete the management plan for arsenic in the Terminous Tract Drain @ Hwy 12 site subwatershed is justified based on monitoring data from 2013 through the 2018 WY (Figure 2). Since the last exceedance in March 2013, the Coalition monitored for arsenic during 39 sampling events; no exceedances occurred.

Figure 9. Monitoring history for arsenic at Terminous Tract Drain @ Hwy 12.

Light grey cells indicate months monitored. Dark grey cells indicate months with exceedances. Exceedance values listed bolded white.

| Arsenic | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2006 | | | | | 11 | | | | | | | |
| 2007 | | 12 | | | | | | | | | | |
| 2008 | 11 | | | | | | | | 11 | | | |
| 2009 | | | | | | | | | | | | |
| 2010 | | | | 13 | | | | | 11 | | | |
| 2011 | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | |
| 2013 | | | 15 | | | | | | | | | |
| 2014 | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Future Monitoring

Terminous Tract Drain @ Hwy 12 is a rotating Core site in Zone 3. Monitoring for arsenic will occur at the site as outlined in the 2019 WY MPU until approval of management plan completion is received from the Regional Water Board.

UNNAMED DRAIN TO LONE TREE CREEK @ JACK TONE RD

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

Constituents Requested to Remove from Management Plan

- Lead

Site Subwatershed Overview and Monitoring History

Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is one of the rotating Core sites in Zone 2. Monitoring was initiated in 2006 and MPM was initiated in 2007 and continued through the 2018 WY.

Constituent Monitoring Results and Sourcing

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

Lead

Exceedances of the hardness based WQTL for lead occurred in April and September 2008 (Appendix I). Since the last exceedance in September 2008, the Coalition has monitored for lead during five sampling events; there were no exceedances.

Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred

Summary of Outreach

The Coalition first conducted focused outreach in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed from 2008 through 2010. The Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed was also included in the 2016 Focused Outreach set from 2016 through 2018.

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

Management practices implemented by growers have no direct effect on the concentrations of arsenic in the water column. However, management practices directed at reducing sediment mobilization may have a role in prevent sediment bound lead from entering the waterbody.

The complete analysis of management practices implemented in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed during the first round of focused outreach (2008-2010) was reported in the SJCDWQC 2011 MPUR. The complete analysis of management practices

implemented during 2016 Focused Outreach was reported in the 2018 Annual Report. Results from these analyses are summarized in the section below.

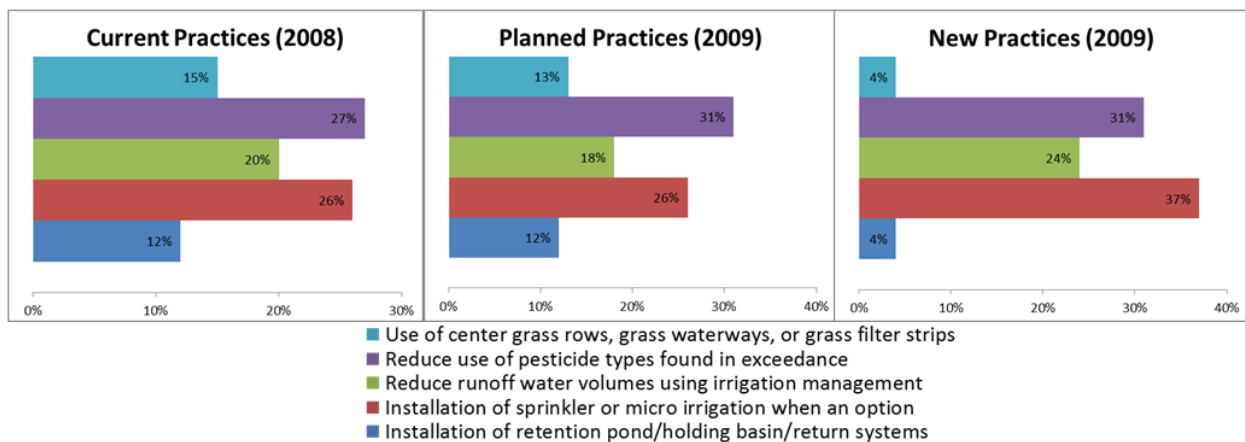
Management Practices Implemented

Focused Outreach (2008-2010)

Initial survey results indicated growers already applied several management practices to address runoff and/or pesticide application management and still planned to implement additional practices. The 2010 follow-up surveys indicated the two most commonly implemented practices after focused outreach were 1) use of sprinkler or micro irrigation system, and 2) reduce use of pesticides found in exceedances (Figure 10).

Figure 10. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd summary of management practices.

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



Focused Outreach (2016-2018)

The 2016 Focused Outreach round was completed in 2018 and results were reported in the 2018 Annual Report. In 2016, the Coalition contacted two targeted growers farming 557 acres. Both growers indicated that they would implement additional management practices. The Coalition mailed two follow-up surveys to determine if the growers implemented any new management practices in 2018. Table 5 provides an account of all newly implemented management practices in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed as a result of 2016 Focused Outreach.

Table 5. Acreages of newly implemented management practices in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd 2016 Focused Outreach site subwatershed (2016-2018).

| IMPLEMENTED MANAGEMENT PRACTICE | # GROWERS | ACREAGE |
|--|-----------|---------|
| Reduce use of chlorpyrifos and/or diuron | 1 | 458 |
| Use cover crops | 2 | 557 |
| Use of drip or micro irrigation system | 2 | 557 |

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

Justification to Complete Management Plans

The Coalition’s focused outreach and management practice tracking strategy continues to be effective at improving water quality in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed as shown by no exceedances of the hardness based WQTL for lead in three or more years. Therefore, the Coalition requests to complete the management plan and MPM for lead in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed.

Lead

The proposal to complete the management plan for lead in the Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed is justified based on monitoring data from 2016 through the 2018 WY (Figure 11). Since the last exceedance in September 2008, the Coalition monitored for lead during five sampling events; no exceedances occurred.

Figure 11. Monitoring history for lead at Unnamed Drain to Lone Tree Creek @ Jack Tone Rd.

Light grey cells indicate months monitored. Dark grey cells indicate months with exceedances. Exceedance values listed bolded white.

| Lead | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|
| 2008 | | | | 6.1 | | | | | 1.3 | | | |
| 2009 | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Future Monitoring

Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is a Represented site in Zone 2. Monitoring for lead will occur at the site as outlined in the 2019 WY MPU until approval of management plan completion is received from the Regional Water Board.

UNION ISLAND DRAIN @ BONETTI RD

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

Constituents Requested to Remove from Management Plan

- Chlorpyrifos

Site Subwatershed Overview and Monitoring History

Union Island Drain @ Bonetti Rd is one of the rotating Core sites in Zone 7. Monitoring at Union Island Drain @ Bonetti Rd replaced Grant Line Canal @ Clifton Court Rd and Grant Line Canal near Calpack Rd monitoring in the 2015 WY. Management plans from the two Grant Line Canal sites were transferred to the Union Island Drain @ Bonetti Rd management plan. Monitoring was initiated at Union Island Drain @ Bonetti Rd in 2014 and MPM was initiated in 2015 and continued through the 2018 WY.

Constituent Monitoring Results and Sourcing

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

Chlorpyrifos

From October 2014 through January 2018, the Coalition monitored for chlorpyrifos at Union Island Drain @ Bonetti Rd; one exceedance of the WQTL for chlorpyrifos occurred. Since the last exceedance in January 2015, the Coalition has monitored for chlorpyrifos 33 times with no detections.

Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach to growers in both Grant Line Canal site subwatersheds from 2010 through 2012. The Coalition initiated focused outreach to growers in the Union Island Drain @ Bonetti Rd site subwatershed during 2017 Focused Outreach (2017-2019).

Documentation of member implementation of management practices that address the water quality exceedance

The Coalition conducted focused outreach in the Grant Line Canal site subwatersheds from 2010 through 2012. The complete analysis of management practices implemented in the site subwatershed was provided in the 2011 MPUR. The Coalition is currently conducting focused

outreach in the Union Island Drain @ Bonetti Rd site subwatershed during 2017 Focused Outreach (2017-2019), in which growers have been informed of water quality issues and management practices to help reduce impairments.

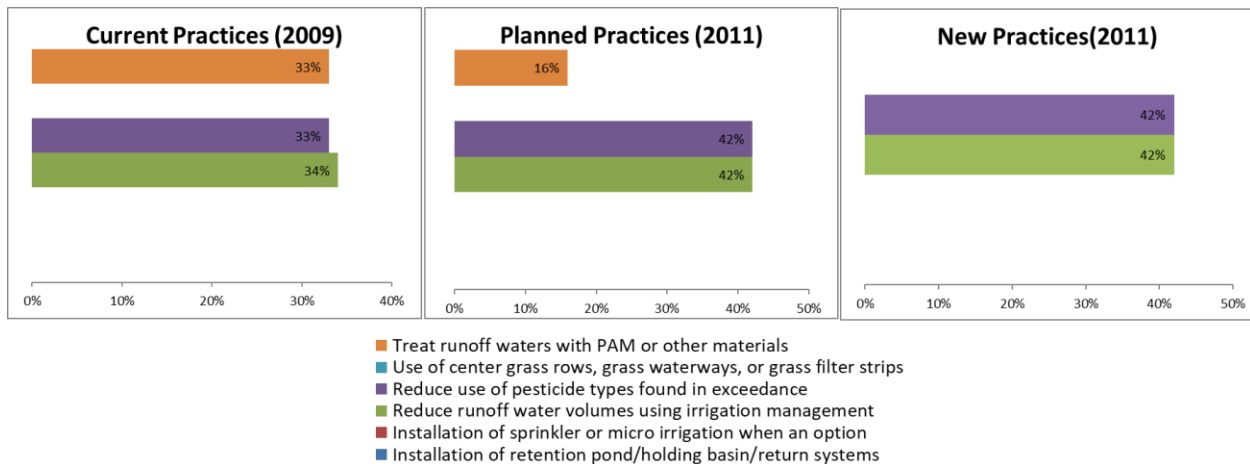
Management Practices Implemented

Focused Outreach (2010-2012)

The following management practice information is from focused outreach in the Grant Line Canal site subwatersheds (located on Union Island). After initial surveys were filled out, growers in the site subwatershed implemented various management practices to address runoff and pesticide application management. Follow-up surveys indicated the two most commonly implemented practices after focused outreach were 1) reduced use of pesticides found in exceedances and 2) reduce runoff water volume using irrigation management (Figure 12).

Figure 12. Grant Line Canal sites summary of management practices.

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



Focused Outreach (2017-2019)

The 2017 Focused Outreach is still in progress. In 2017, the Coalition contacted seven targeted growers farming 7,467 irrigated acres. Growers did not indicate whether they would implement additional management practices, but were notified of water quality impairments in their area and management practice options.

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

Justification to Complete Management Plans

The Coalition's focused outreach and management practice tracking strategy continues to be effective at improving water quality in the Union Island Drain @ Bonetti Rd site subwatershed as shown by no exceedances of the WQTL for chlorpyrifos in three or more years. Therefore, the

Coalition requests to complete the management plan and MPM for chlorpyrifos in the Union Island Drain @ Bonetti Rd site subwatershed.

Chlorpyrifos

The proposal to complete the management plan for chlorpyrifos in the Union Island Drain @ Bonetti Rd site subwatershed is justified based on monitoring data from 2015 through the 2018 WY (Figure 13). Since the last exceedance in January 2015, the Coalition monitored for chlorpyrifos during 33 sampling events; there were no detections.

Figure 13. Monitoring history for chlorpyrifos at Union Island Drain @ Bonetti Rd.

Light grey cells indicate months monitored. Dark grey cells indicate months with exceedances. Exceedance values listed bolded white.

| Chlorpyrifos | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2014 | | | | | | | | | | | | |
| 2015 | 0.077 | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

Future Monitoring

Union Island Drain @ Bonetti Rd is a rotating Core site in Zone 7. Monitoring for chlorpyrifos will occur as outlined in the 2019 WY MPU until approval of management plan completion is received from the Regional Water Board.