



1201 L Street Modesto, CA 95354
www.esjcoalition.org

September 16, 2015

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

Re: *Resubmittal of the 2017 WY Monitoring Plan Update for Waste Discharge Requirements General Order R5-2012-0116-3 for Growers in the Eastern San Joaquin River Watershed*

Dear Ms. Creedon,

The East San Joaquin Water Quality Coalition (ESJWQC) is resubmitting the 2017 WY Monitoring Plan Update (MPU) which has been updated to include edits discussed with Regional Board staff on September 6, 2016. This document is to replace the original MPU submitted on August 1, 2016.

Table A, included at the beginning of the MPU, details all updates made since the original August 1, 2016 submission. An updated Excel file with the monitoring schedule is also attached.

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

Submitted respectfully,

Parry Klassen
Executive Director
East San Joaquin Water Quality Coalition

Enclosure:

ESJWQC 2017 WY Monitoring Plan Update
ESJWQC 2017 WY Monitoring Schedule Excel file

Monitoring Plan Update

2017 WY



**Irrigated Lands Regulatory Program
Central Valley Regional Water Quality Control Board**

Submitted August 1, 2016

Revised September 15, 2016

Table A. ESJWQC 2017 WY MPU amendments summary submitted on September 15, 2016.

Item #	Description of Updates	Items Revised
1	Clarification and PUR graphs were added to explain the Coalition’s decision to not monitor for chlorpyrifos at Mustang Creek @ East Ave during the 2017 WY.	Text, page 66; Figure 19, 20, page 67-68
2	The monitoring schedule for the 2017 WY was updated for <i>S. capricornutum</i> toxicity at Mustang Creek @ East Ave; monitoring was added at the Represented site from December through March.	Table 3, page 4; Text, 66; Figure 21, page 69; Excel file
3	The monitoring schedule for the 2017 WY was updated for copper at Deadman Creek @ Gurr Rd; monitoring was added at the Represented site during one storm event from January through March.	Table 2, page 3; Text, 85; Figure 30, page 87; Excel file
4	The monitoring schedule for the 2017 WY was updated for copper at Deadman Creek @ Hwy 59; monitoring was added at the Represented site during one storm event from January through March.	Table 2, page 3; Text 89; Excel file
5	The monitoring schedule Excel file was updated to remove <i>C. dubia</i> MPM for Highline Canal @ Hwy 99; it was incorrectly included. There is no management plan for <i>C. dubia</i> at Highline Canal @ Hwy 99 or Highline Canal @ Lombardy Rd.	Table 3, page 4; Excel file

TABLE OF CONTENTS

Surface Water Monitoring Overview	1
Normal Monitoring	1
Reduced Monitoring for the Delta RMP	2
Special Project Monitoring.....	5
Management Plan Monitoring.....	5
Total Maximum Daily Load Monitoring	11
Monitoring at Core Sites	12
Core Site Pesticides	15
Core Site Metals	15
Dry Creek @ Wellsford Rd	18
Lateral 5 ½ @ South Blaker Rd.....	20
Highline Canal @ Hwy 99.....	23
Canal Creek @ West Bellevue Rd.....	28
Miles Creek @ Reilly Rd	31
Dry Creek @ Rd 18.....	35
Monitoring at Represented Sites	39
Zone 1.....	43
Mootz Drain downstream of Langworth Pond	43
Zone 2.....	46
Hatch Drain @ Tuolumne Rd	46
Hilmar Drain @ Central Ave	48
Lateral 2 ½ near Keyes Rd	49
Lateral 6 and 7 @ Central Ave	51
Levee Drain @ Carpenter Rd	53
Lower Stevinson @ Faith Home Rd	55
Prairie Flower Drain @ Crows Landing Rd	56
Unnamed Drain @ Hogin Rd.....	60
Westport Drain @ Vivian Rd.....	61
Zone 3.....	63
Highline Canal @ Lombardy Rd	63
Mustang Creek @ East Ave.....	64
Zone 4.....	68
Bear Creek @ Kibby Rd	71
Black Rascal Creek @ Yosemite Rd	72
Howard Lateral @ Hwy 140	74
Livingston Drain @ Robin Ave.....	76
Merced River @ Santa Fe	79
McCoy Lateral @ Hwy 140.....	82
Unnamed Drain @ Hwy 140	82

Zone 5..... 84
 Deadman Creek @ Gurr Rd..... 84
 Deadman Creek @ Hwy 59 89
 Duck Slough @ Gurr Rd..... 92
Zone 6..... 96
 Ash Slough @ Ave 21 96
 Berenda Slough along Ave 18 ½..... 98
 Cottonwood Creek @ Rd 20 103

LIST OF TABLES

Table 1. Delta RMP Reduced Monitoring Schedule.....	2
Table 2. ESJWQC 2017WY monitoring frequency (field parameters, physical parameters, nutrients, bacteria, metals, and organophosphate pesticides).....	3
Table 3. ESJWQC 2016 WY monitoring frequency (carbamates, herbicides, toxicity, and sediment parameters).	4
Table 4. Evaluation and monitoring decision based on the strategy outlined in flowchart (Figure 1).....	7
Table 5. ESJWQC results of the management plan strategy flowchart analysis for the 2017 WY.	8
Table 6. Management plan constituents not applied by agriculture addressed in the preliminary analyses submitted during the 2016 WY.	10
Table 7. ESJWQC Core sites monitored during the 2016 and 2017 WY.....	12
Table 8. ESJWQC parameters to be monitored at the Core sites for the 2017 WY.....	12
Table 9. Results of the flowchart analysis for Dry Creek @ Wellsford Rd outlined in Figure 3.....	18
Table 10. Dry Creek @ Wellsford Rd site subwatershed dissolved and total metals summary of sample counts.....	19
Table 11. Results of the flowchart analysis for Lateral 5 ½ @ South Blaker Rd outlined in Figure 3.	20
Table 12. Lateral 5 ½ @ South Blaker Rd site subwatershed dissolved and total metals monitoring results for the 2016 WY and sample counts summaries.	21
Table 13. Results of the flowchart analysis for Highline Canal @ Hwy 99 outlined in Figure 3.	23
Table 14. Highline Canal @ Hwy 99 site subwatershed dissolved and total metals monitoring results for the 2016 WY and sample counts summaries.....	27
Table 15. Results of the flowchart analysis for Canal Creek @ West Bellevue Rd outlined in Figure 3. ...	28
Table 16. Canal Creek @ West Bellevue Rd site subwatershed dissolved and total metals monitoring results for the 2016 WY and sample counts summaries.	29
Table 17. Results of the flowchart analysis for Miles Creek @ Reilly Rd outlined in Figure 3.....	31
Table 18. Miles Creek @ Reilly Rd site subwatershed dissolved and total metals monitoring results (2016 WY) and sample counts summaries.....	34
Table 19. Results of the flowchart analysis for Dry Creek @ Rd 18 outlined in Figure 3.....	35
Table 20. Dry Creek @ Rd 18 site subwatershed dissolved and total metals monitoring results (2006-2016 WY).....	38
Table 21. ESJWQC Represented site locations by zone monitored in the 2017 WY.....	39
Table 22. 2016 WY exceedances of the WQTL for applied pesticides, metals, and toxicity.	42
Table 23. Zone 1 management plan constituents and 2016 WY exceedances.....	43
Table 24. Zone 2 management plan constituents and 2016 WY exceedances.....	46
Table 25. Zone 3 management plan constituents and 2016 WY exceedances.....	63
Table 26. Zone 4 management plan constituents and 2016 WY exceedances.....	71
Table 27. Zone 5 management plan constituents and 2016 WY exceedances.....	84
Table 28. Zone 6 management plan constituents and 2016 WY exceedances.....	96

LIST OF FIGURES

Figure 1. Management plan strategy flowchart based on the 2016 SQMP.....	6
Figure 2. ESJWQC flowchart for the monitoring strategy at Core sites.....	14
Figure 3. ESJWQC flowchart for the Core site metals monitoring strategy.....	17
Figure 4. Lateral 5 ½ @ South Blaker Rd copper use (2013-2015).	22
Figure 5. Highline Canal @ Hwy 99 monitoring history and copper applications.	24
Figure 6. Highline Canal @ Lombardy Rd monitoring history and copper applications.	25
Figure 7. Canal Creek @ West Bellevue Rd copper applications (2013-2015).	30
Figure 8. Miles Creek @ Reilly Rd monitoring history and copper applications.....	32
Figure 9. Dry Creek @ Rd 18 monitoring history and copper applications.....	36
Figure 10. ESJWQC flowchart for the monitoring strategy at Represented sites.....	41
Figure 11. Mootz Drain monitoring history and diuron applications.	44
Figure 12. Lateral 2 ½ near Keyes Rd monitoring history and chlorpyrifos applications.....	50
Figure 13. Lateral 6 and 7 @ Central Ave diuron applications (2013-2015).....	52
Figure 14. Levee Drain @ Carpenter Rd diuron applications (2013-2015).....	54
Figure 15. Prairie Flower Drain @ Crows Landing Rd monitoring history and chlorpyrifos applications..	57
Figure 16. Prairie Flower Drain @ Crows Landing Rd monitoring history and dimethoate applications. .	58
Figure 17. Westport Drain @ Vivian Rd monitoring history and chlorpyrifos applications.....	62
Figure 18. Mustang Creek @ East Ave monitoring history and copper applications.	65
Figure 19. Mustang Creek @ East Ave chlorpyrifos applications (2008-2015).....	68
Figure 20. Comparison of Mustang Creek @ East Ave and Highline Canal @ Hwy 99 (Core site) chlorpyrifos applications (2013-2015).....	69
Figure 21. Mustang Creek @ East Ave copper and herbicide applications (2013-2015).....	70
Figure 22. Black Rascal Creek @ Yosemite Rd copper applications (2013-2015).....	73
Figure 23. Howard Lateral @ Hwy 140 monitoring history and copper applications.....	75
Figure 24. Livingston Drain @ Robin Ave monitoring history and chlorpyrifos applications.	77
Figure 25. Livingston Drain @ Robin Ave monitoring history and copper applications.	78
Figure 26. Merced River @ Santa Fe monitoring history and chlorpyrifos applications.	80
Figure 27. Merced River @ Santa Fe copper applications (2010-2015).	81
Figure 28. Unnamed Drain @ Hwy 140 copper applications (2013-2015).	83
Figure 29. Deadman Creek @ Gurr Rd monitoring history and chlorpyrifos applications.	85
Figure 30. Deadman Creek @ Gurr copper applications (2008-2015).....	88
Figure 31. Deadman Creek @ Hwy 59 monitoring history and chlorpyrifos applications.....	89
Figure 32. Deadman Creek @ Hwy 59 copper applications (2008-2015).	91
Figure 33. Duck Slough @ Gurr Rd monitoring history and chlorpyrifos applications.	93
Figure 34. Duck Slough @ Gurr Rd monitoring history and malathion applications.	94
Figure 35. Ash Slough @ Ave 21 monitoring history and copper applications.....	97
Figure 36. Berenda Slough along Ave 18 ½ monitoring history and chlorpyrifos applications.	99
Figure 37. Berenda Slough along Ave 18 ½ monitoring history and copper applications.	100

Figure 38. Berenda Slough @ Ave 18 ½ diuron applications (2008-2015). 102
Figure 39. Cottonwood Creek @ Rd 20 monitoring history and copper applications. 104

LIST OF ACRONYMS

AI	Active Ingredient
C	Core site
CalPIP	California Pesticide Information Portal
CVRWQCB	Central Valley Regional Water Quality Control Board (Regional Board)
DDE	Dichlorodiphenyldichloroethylene
DO	Dissolved Oxygen
DPR	Department of Pesticide Regulation
DWSC	Deep Water Ship Channel
ESJWQC	East San Joaquin Water Quality Coalition
ILRP	Irrigated Lands Regulatory Program
MPM	Management Plan Monitoring
MRP	Monitoring and Reporting Program
pH	Power of Hydrogen
PUR	Pesticide Use Report
R	Represented site
RMP	Regional Monitoring Program
SC	Specific Conductance
SQMP	Surface Water Quality Management Plan
TIE	Toxicity Identification Evaluation
TOC	Total Organic Carbon
TSS	Total Suspended Solids
TMDL	Total Maximum Daily Load
WDR	Waste Discharge Requirements General Order for Growers within the Eastern San Joaquin River Watershed, Order R5-2012-0116 (The Order)
WQTL	Water Quality Trigger Limit
WY	Water Year

LIST OF UNITS

cfs	cubic feet per second
lbs	pounds
L	liter
mg	milligrams
μg	microgram

SURFACE WATER MONITORING OVERVIEW

This Monitoring Plan Update (MPU) provides the schedules and the rationale for monitoring in the 2017 Water Year (WY). Water quality results through June 2016 were evaluated to determine the 2017 WY monitoring schedule. The remaining 2016 WY monitoring results (July through September) and associated Pesticide Use Report (PUR) data will be evaluated as an appendix in the 2017 Annual Report and the 2017 WY monitoring schedule will be modified as needed. Monitoring will be performed by the East San Joaquin Water Quality Coalition (ESJWQC or the Coalition) as determined in the Waste Discharge Requirements General Order for Growers within the Eastern San Joaquin River Watershed, Order R5-2012-0116-R3 (hereafter the 'WDR' or 'Order'). The Coalition will conduct monitoring at Core and Represented sites, including Management Plan Monitoring (MPM), during the 2017 WY as described below.

NORMAL MONITORING

The Coalition conducts Normal Monitoring (NM), monitoring at Core and Represented sites, to characterize discharge from irrigated agriculture. As described in the Monitoring and Reporting Program (MRP), Attachment B to the WDR, surface water monitoring at Core sites will occur once a month and will include an assessment of field parameters, nutrients, pathogens, pesticides, metals, and toxicity to water column and sediment test species. Attachment A is an Excel workbook submitted with the MPU that includes site information and the monitoring schedule for the 2017 WY. Table 2 and Table 3 indicate the frequency of monitoring for each constituent at each Core and Represented site.

The Coalition attempts to sample two storm events per year. A storm monitoring event is defined as monitoring within three days of a rainfall event that exceeds 0.25 inches within 24 hours.

Monitoring at Represented sites for specific constituents may be scheduled due to an exceedance of a Water Quality Trigger Limit (WQTL) that occurred at the Core site in the same zone during the previous water year, or based on an evaluation of Core site management plan constituents and PUR data.

Available PUR data are provided to the Coalition from each of the County Agricultural Commissioner's offices. Products recorded in the database are evaluated for applications relevant to exceedances of WQTLs. Pesticide Use Report data used for this report are for applications of Active Ingredients (AI) that occurred through December 2015 and are considered preliminary until received from California Pesticide Information Portal (CalPIP); finalized CalPIP data are available for pesticides applied through December 2012.

The Coalition is required to sample every site scheduled for monitoring during the 2017 WY; however, certain field conditions can prevent samples from being collected. If a site has no water present during the scheduled sampling event, the Coalition identifies the site as 'dry' and no samples are collected. If a site does not have enough water present for sample collection, the Coalition identifies the site as 'too shallow' or 'non-contiguous' (puddle-like conditions; waterbody not connected upstream or downstream) and no samples are collected. Appendix I includes a detailed flowchart, photos, and

descriptions for determining when samples cannot be collected from a monitoring site. All 'Dry', 'Too Shallow', and 'Non-contiguous' events are counted as sampled events and reported as 'no exceedances of the WQTLs'.

Reduced Monitoring for the Delta RMP

The ESJWQC contributes funds to the Delta Regional Monitoring Program (RMP) which is a coordinated monitoring effort across many entities. The program is designed to fill data gaps related to contaminants, water quality impairments, aquatic health, and also reduce redundant monitoring efforts and cost.

For the 2016 WY, the Coalition received approval on September 29, 2015 to reduce monitoring to transfer the monetary savings to fund the Delta RMP. The Coalition will continue the same reduced monitoring schedule to support the Delta RMP for the 2017 WY with one modification. The Coalition received approval on June 28, 2016 to reduce monitoring at Dry Creek @ Rd 18 during November for the 2017 WY. Table 1 details the reduced monitoring schedule for the 2016 and 2017 WYs.

Table 1. Delta RMP Reduced Monitoring Schedule.

SITE NAME	2016 WY REDUCTION	TYPE REDUCED MONITORING	2017 WY REDUCTION	TYPE REDUCED MONITORING
Dry Creek @ Rd 18	October	No Core Site Monitoring	Continue for 2017 WY	No Core Site Monitoring
Dry Creek @ Rd 18		NA	November	No Core Site Monitoring
Dry Creek @ Wellsford Rd	November	No Core Site Monitoring	Continue for 2017 WY	No Core Site Monitoring
Highline Canal @ Hwy 99	October	No Core Site Monitoring	Continue for 2017 WY	No Core Site Monitoring
Highline Canal @ Hwy 99	November	No Core Site Monitoring	Continue for 2017 WY	No Core Site Monitoring
Highline Canal @ Lombardy Rd	MPM months	HCALR MPM at HCHNN	Continue for 2017 WY	HCALR MPM at HCHNN
Miles Creek @ Reilly Rd	October	No Core Site Monitoring	Continue for 2017 WY	No Core Site Monitoring
Miles Creek @ Reilly Rd	November	No Core Site Monitoring	Continue for 2017 WY	No Core Site Monitoring
San Joaquin @ Airport Way near Vernalis	All months	No TMDL Monitoring	Continue for 2017 WY	No TMDL Monitoring

NA-No reduced monitoring occurred.

TMDL-Total Maximum Daily Load

Table 2. ESJWQC 2017WY monitoring frequency (field parameters, physical parameters, nutrients, bacteria, metals, and organophosphate pesticides).

Core sites are bolded. A complete list of sites, analytes, and months to be monitored are listed in Attachment A. The MPM at Core sites coincides with monthly Core site monitoring.

ESJWQC 2017 WY MONITORING FREQUENCY			FIELD PARAMETERS				PHYSICAL PARAMETERS			NUTRIENTS			BACT.	METALS ¹								ORGANOPHOSPHATES															
Zone	Site Name	Monitoring Type	Dissolved Oxygen	pH	Specific Conductance	Temperature	Suspended Solids	Total Organic Carbon (TOC)	Turbidity	Nitrate + Nitrite (as N)	Soluble Orthophosphate	Total Ammonia (as N)	<i>E. coli</i>	Arsenic (Total)	Boron (Total)	Cadmium (Dissolved)	Copper (Dissolved)	Lead (Dissolved)	Molybdenum (Total)	Nickel (Dissolved)	Selenium (Total)	Zinc (Dissolved)	Azinphos-methyl	Chlorpyrifos	Demeton-s	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Malathion	Methamidophos	Methidathion	Parathion, methyl	Phorate	Phosmet		
			1	Dry Creek @ Wellsford Rd	C	11	11	11	11	11	11	11	11	11	11	11										11	11	11	11	11	11	11	11	11	11	11	11
		M																					4														
2	Lateral 5 1/2 @ South Blaker Rd	C	12	12	12	12	12	12	12	12	12	12	12	4	4	4	5	4	4	4	4	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Lateral 2 ½ near Keyes Rd	M																					4														
	Prairie Flower Drain @ Crows Landing Rd	M																					7			3											
3	Highline Canal @ Hwy 99	C	10	10	10	10	10	10	10	10	10	10	10										10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		M															4						3														
	Mustang Creek @ East Ave	M															5																				
4	Canal Creek @ West Bellevue Rd	C	12	12	12	12	12	12	12	12	12	12	12	4	4	4	6	4	4	4	4	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Black Rascal Creek @ Yosemite Rd	R															2																				
	Howard Lateral @ Hwy 140	M															4																				
	Livingston Drain @ Robin Ave	M															4						3														
		M																					2														
	Merced River @ Santa Fe	R															1																				
5	Miles Creek @ Reilly Rd	C	10	10	10	10	10	10	10	10	10	10	10										10	10	10	10	10	10	10	10	10	10	10	10	10	10	
		M															6								1												
	Deadman Creek @ Gurr Rd	M															1						2														
	Deadman Creek @ Hwy 59	M															1						4														
	Duck Slough @ Gurr Rd	M																					2						2								
6	Dry Creek @ Rd 18	C	10	10	10	10	10	10	10	10	10	10	10										10	10	10	10	10	10	10	10	10	10	10	10	10	10	
		M															10																				
	Ash Slough @ Ave 21	M															1																				
	Berenda Slough along Ave 18 1/2	M															4						3														
	Cottonwood Creek @ Rd 20	M															3																				
Grand Total			65	65	65	65	65	65	65	65	65	65	65	8	8	8	58	9	8	8	8	8	65	94	65	65	65	68	65	67	65	65	65	65	65	65	

C –Core site
M –Management Plan Monitoring
R- Represented site
¹ Hardness will be analyzed with dissolved metals.

Table 3. ESJWQC 2016 WY monitoring frequency (carbamates, herbicides, toxicity, and sediment parameters).

Core sites are bolded. A complete list of sites, analytes, and months to be monitored are listed in Attachment A. The MPM at Core sites coincides with monthly Core site monitoring.

ESJWQC 2017 WY MONITORING FREQUENCY			CARBAMATES								HERBICIDES						WATER COLUMN TOXICITY			SEDIMENT		
ZONE	SITE NAME	MONITORING TYPE	ALDICARB	CARBARYL	CARBOFURAN	DIURON	LINURON	METHIOCARB	METHOMYL	OXAMYL	ATRAZINE	CYANAZINE	GLYPHOSATE	PARAQUAT	SIMAZINE	TRIFLURALIN	CERIODAPHNIA DUBIA	PIMEPHALES PROMELAS	SELENASTRUM CAPRICORNUTUM	GRAIN SIZE	TOTAL ORGANIC CARBON (TOC)	HYALELLA AZTECA
1	Dry Creek @ Wellsford Rd	C	11	11	11	11	11	11	11	11	11	11	2	2	11	11	11	11	11	2	2	2
	Mootz Drain downstream of Langworth Pond	M				2																
2	Lateral 5 1/2 @ South Blaker Rd	C	12	12	12	12	12	12	12	12	12	12	2	2	12	12	12	12	12	2	2	2
	Hatch Drain @ Tuolumne Rd	M																	6	2	2	2
	Hilmar Drain @ Central Ave	M																	3	2	2	2
	Lateral 2 ½ near Keyes Rd	M																	3			
	Lateral 6 and 7 @ Central Ave	R				4																
	Levee Drain @ Carpenter Rd	M															2		3	1	1	1
	Prairie Flower Drain @ Crows Landing Rd	M																				
3	Highline Canal @ Hwy 99	C	10	10	10	10	10	10	10	10	10	10	2	2	10	10	10	10	10	2	2	2
		M																	8			
	Mustang Creek @ East Ave	R																	4			
4	Canal Creek @ West Bellevue Rd	C	12	12	12	12	12	12	12	12	12	12	2	2	12	12	12	12	12	2	2	2
	Livingston Drain @ Robin Ave	M																	3			
5	Miles Creek @ Reilly Rd	C	10	10	10	10	10	10	10	10	10	10	2	2	10	10	10	10	10	2	2	2
		M																	3			
	Deadman Creek @ Gurr Rd	M															3	7				
	Duck Slough @ Gurr Rd	M															4	2		1	1	1
6	Dry Creek @ Rd 18	C	10	10	10	10	10	10	10	10	10	10	2	2	10	10	10	10	10	2	2	2
		M				2													3			
Grand Total			65	65	65	71	65	65	65	65	65	65	12	12	65	65	71	65	92	20	20	20

C-Core site
M-Management plan monitoring
R-Represented site

SPECIAL PROJECT MONITORING

Special Project Monitoring includes site specific MPM to address sites in a management plan and monitoring for parameters associated with a Total Maximum Daily Load (TMDL).

Management Plan Monitoring

Management Plan Monitoring is conducted as part of the Coalition's management plan strategy to identify contaminant sources and evaluate the effectiveness of newly implemented management practices. The Coalition will conduct the MPM as outlined in the 2014 Surface Water Quality Management Plan (SQMP; submitted May 1, 2014, resubmitted March 10, 2015, and conditionally approved on November 4, 2015). The Coalition utilizes the flowchart in Figure 1 to determine which sites require focused outreach and MPM; the management plan strategy was updated in the 2014 SQMP to take into account the compliance schedule described in the WDR (Section XII, Page 36). The flowchart is used to evaluate 1) management plans that will reach the compliance deadline in the next three years, and 2) new management plans, or reinstated management plans that have occurred due to exceedances in the previous water years. The flowchart helps to determine what action is required to remain in compliance with the compliance deadlines and address all constituents in a management plan within a practicable timeframe.

Table 4 includes the scenarios based on the evaluation of the management plan strategy described in the flowchart and the subsequent monitoring decisions. For any exceedances of the WQTLs for pesticides, the Coalition will begin sourcing, outreach, and monitoring activities within three years from the initiation of a management plan. Table 5 lists each site in a management plan for constituents with known agricultural sources, each constituent's compliance deadline, and if MPM and 2017 Focused Outreach are required.

The Coalition will conduct MPM at Core sites according to the frequency outlined in Attachment B, section III.A.1 of the Order; all management plan constituents will be monitored monthly at the Core sites, with the exception of sediment toxicity and metals (Table 2 and Table 3).

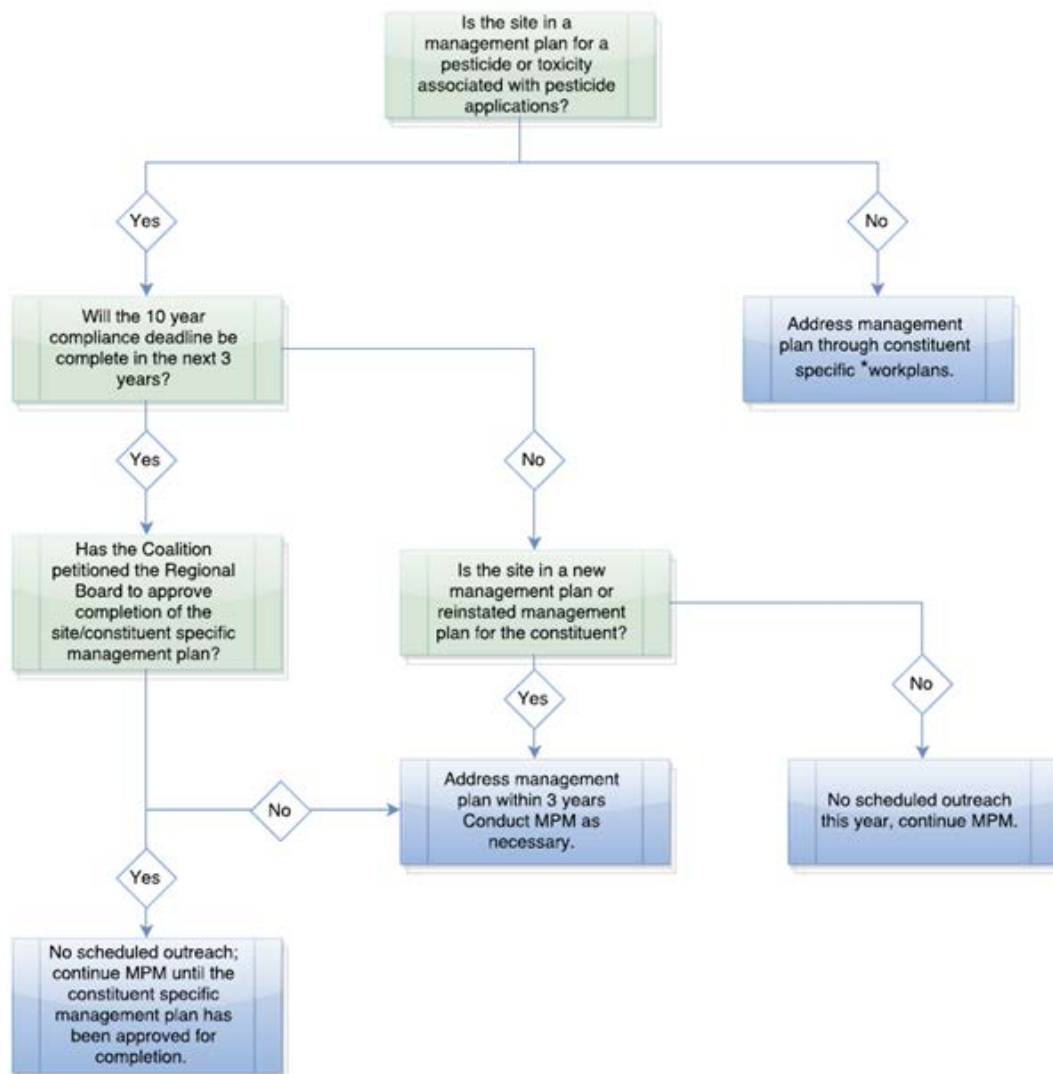
Management Plan Monitoring will occur at Represented sites at a frequency representative of potential discharge of the management plan constituent based on PUR data and past exceedances. Therefore, the following process was used to determine the frequency of MPM at Represented sites:

- Determine months of past exceedances for applied pesticides, metals, and toxicity,
- Determine months of high use and seasonal trends using PUR data and compare those trends with water quality data.

Constituents not applied by agriculture, including ammonia, *E. coli*, field parameters, legacy pesticides (lead, Dichlorodiphenyldichloroethylene (DDE), metals (arsenic and molybdenum), and nitrates are not easily traced and multiple sources may contribute to the levels detected in the waterbodies. The Coalition submitted preliminary analyses for all constituents that are not applied by agriculture during the 2016 WY according to the schedule outlined in the 2014 SQMP. The Coalition provided evidence that suggests detections of these constituents in waterbodies could be the result of 1) natural occurrences in the environment, 2) the constituent could be applied by other land uses in the Coalition

region, and/or 3) the constituent is an artifact of use that has since been discontinued. The amount these sources contribute to water quality impairments is unknown and there is not enough evidence to suggest management practices alone will improve water quality. Until the Coalition receives feedback from the Regional Board, these constituents (ammonia, *E. coli*, field parameters, lead, DDE, arsenic, molybdenum, and nitrate) will not be monitored as part of MPM or at Represented sites. Table 6 lists the management plans for constituents not applied by agriculture and when the preliminary analyses were submitted during the 2016 WY.

Figure 1. Management plan strategy flowchart based on the 2016 SQMP.



*Workplan timelines are proposed in the SQMP (submitted May 1, 2014 and resubmitted March 10, 2015).

Table 4. Evaluation and monitoring decision based on the strategy outlined in flowchart (Figure 1).

EVALUATION	MONITORING DECISION
10 year deadline is not within the next three years and the management plan was initiated prior to the 2017 WY.	Continue MPM.
10 year deadline is not within the next three years and a management plan for applied pesticides or toxicity was reinstated for the 2017 WY.	Resume MPM.
Constituent was petitioned to be completed.	Continue MPM until approved for completion.
10 year deadline is not within the next three years for newly initiated management plans.	MPM will coincide with outreach.
10 year deadline is within the next three years for an applied pesticide or toxicity.	Additional focused outreach within next three years and continue MPM.

Table 5. ESJWQC results of the management plan strategy flowchart analysis for the 2017 WY.

Sites are listed in order of the 10 year deadline alphabetically. Red text indicates the site was reinstated in a management plan for that constituent for the 2017 WY. The MPM schedule is included in the Excel workbook in Attachment A.

10YR DEADLINE	SITE	CONSTITUENT	LAST OUTREACH DATE	LAST EXCEEDANCE	10 YEAR DEADLINE IN 3 YRS	PETITION TO COMPLETE (IF NO EXD.)	ADDRESS WITHIN 3YRS ¹	2016 FOCUSED OUTREACH	2017 FOCUSED OUTREACH	2017 MPM
2016	Dry Creek @ Wellsford Rd	Chlorpyrifos	2016-2018	2014 WY	X	2017		X		X
2016	Duck Slough @ Gurr Rd	<i>H. azteca</i>	2016-2018	2013	X	2016		X		X
2017	Ash Slough @ Ave 21	Copper	2014-2016	2010	X	2016				X
2017	Berenda Slough along Ave 18 1/2	Chlorpyrifos	2011-2013	2011	X	2016				X
2017	Cottonwood Creek @ Rd 20	Copper	2010-2012	2013	X	2016				X
2017	Deadman Creek @ Gurr Rd	Chlorpyrifos	2012-2014	2010	X	2016				X
2017	Deadman Creek @ Hwy 59	Chlorpyrifos	2012-2014	2011	X	2016				X
2017	Dry Creek @ Rd 18	Copper	2011-2013	2016 WY	X				X	X
2017	Duck Slough @ Gurr Rd	<i>C. dubia</i>	2016-2018	2015 WY	X	2018		X		X
2017	Highline Canal @ Lombardy Rd	<i>S. capricornutum</i>	2013-2015	2012	X					X
2017	Prairie Flower Drain @ Crows Landing Rd	<i>H. azteca</i>	2016-2018	2015 WY	X	2018		X		X
2018	Deadman Creek @ Gurr Rd	<i>P. promelas</i>	2012-2014	2014 WY	X	2017				X
2018	Hatch Drain @ Tuolumne Rd	<i>H. azteca</i>	2013-2015	2014 WY	X	2017				X
2018	Highline Canal @ Hwy 99	Copper	2016-2018	2016 WY	X			X		X
2018	Highline Canal @ Lombardy Rd	Copper	2013-2015	2015 WY	X					X
2018	Hilmar Drain @ Central Ave	<i>S. capricornutum</i>	2012-2014	2008	X	2016				X
2018	Livingston Drain @ Robin Ave	Chlorpyrifos	2011-2013	2008	X	2016			X	X
2018	Livingston Drain @ Robin Ave	Copper	2011-2013	2016 WY	X				X	X
2018	Miles Creek @ Reilly Rd	Copper	2013-2015	2016 WY	X				X	X
2018	Prairie Flower Drain @ Crows Landing Rd	<i>C. dubia</i>	2016-2018	2015 WY	X	2018		X		X
2018	Westport Drain @ Vivian Rd	Chlorpyrifos	2014-2016	2008	X	2016				X
2019	Dry Creek @ Rd 18	Diuron	2011-2013	2013	X	2016			X	X
2019	Dry Creek @ Rd 18	<i>S. capricornutum</i>	2011-2013	2013	X	2016			X	X
2019	Hatch Drain @ Tuolumne Rd	<i>S. capricornutum</i>	2013-2015	2014 WY	X	2017				X
2019	Highline Canal @ Hwy 99	<i>S. capricornutum</i>	2016-2018	2015 WY	X	2018		X		X
2019	Hilmar Drain @ Central Ave	<i>H. azteca</i>	2012-2014	2008	X	2016				X
2019	Livingston Drain @ Robin Ave	<i>S. capricornutum</i>	2011-2013	2008	X	2016			X	X
2019	Miles Creek @ Reilly Rd	<i>S. capricornutum</i>	2013-2015	2013	X	2016			X	X
2019	Prairie Flower Drain @ Crows Landing Rd	<i>S. capricornutum</i>	2016-2018	2016 WY	X	2019		X		X
2019	Westport Drain @ Vivian Rd	<i>S. capricornutum</i>	2014-2016	2008	X	2016				X
2020	Deadman Creek @ Gurr Rd	<i>C. dubia</i>	2012-2014	2014 WY		2017				X
2020	Lateral 2 1/2 near Keyes Rd	Chlorpyrifos	2011-2013	2014 WY		2017	X		X	X
2020	Mustang Creek @ East Ave	Copper	2014-2016	2016 WY						X
2021	Howard Lateral @ Hwy 140	Copper	2015-2017	2016 WY						X

10YR DEADLINE	SITE	CONSTITUENT	LAST OUTREACH DATE	LAST EXCEEDANCE	10 YEAR DEADLINE IN 3 YRS	PETITION TO COMPLETE (IF NO EXD.)	ADDRESS WITHIN 3YRS ¹	2016 FOCUSED OUTREACH	2017 FOCUSED OUTREACH	2017 MPM
2021	Mootz Drain downstream of Langworth Pond	Diuron	2015-2017	2010		2017				X
2022	Berenda Slough along Ave 18 1/2	Copper	2011-2013	2016 WY						X
2022	McCoy Lateral @ Hwy 140	Copper	NA	2013						
2022	Prairie Flower Drain @ Crows Landing Rd	Dimethoate	2016-2018	2011		2016		X		X
2024	Levee Drain @ Carpenter Rd	<i>C. dubia</i>	2015-2017	2013		2016				X
2024	Miles Creek @ Reilly Rd	Diazinon	2013-2015	2013		2016			X	X
2025	Duck Slough @ Gurr Rd	<i>P. promelas</i>	2016-2018	2014 WY		2017		X		X
2025	Duck Slough @ Gurr Rd	Chlorpyrifos	2016-2018	2015 WY		2018	X	X		X
2025	Lateral 5 1/2 @ South Blaker Rd	<i>S. capricornutum</i>	NA	2016 WY		2019				
2025	Levee Drain @ Carpenter Rd	<i>S. capricornutum</i>	2015-2017	2014 WY		2017				X
2025	Levee Drain @ Carpenter Rd	<i>H. azteca</i>	2015-2017	2014 WY		2017				X
2025	Lower Stevinson @ Faith Home Rd	<i>S. capricornutum</i>	NA	2015 WY		2018				
2026	Duck Slough @ Gurr Rd	Malathion	2016-2018	2015 WY		2018	X	X		X
2026	Highline Canal @ Hwy 99	Chlorpyrifos	2016-2018	2016 WY		2019	X	X		X
2026	Lateral 2 1/2 near Keyes Rd	<i>S. capricornutum</i>	2011-2013	2016 WY		2019			X	X
2026	Lateral 6 and 7 @ Central Ave	<i>S. capricornutum</i>	NA	2015 WY		2018				
2026	Prairie Flower Drain @ Crows Landing Rd	Chlorpyrifos	2016-2018	2015 WY		2018	X	X		X
2027	Merced River @ Santa Fe	Chlorpyrifos	2013-2015	2016 WY		2019	X			X

NA-Focused Outreach has not been scheduled.

1-For any exceedances of WQTLs for pesticides that trigger a management plan, the Coalition will begin sourcing, outreach, and monitoring activities within 3 years from the need to develop a management plan.

Table 6. Management plan constituents not applied by agriculture addressed in the preliminary analyses submitted during the 2016 WY.

Constituent	Preliminary Analysis Submittal Date	Core sites					Represented sites																					
		Dry Creek @ Rd 18	Dry Creek @ Wellsford Rd	Highline Canal @ Hwy 99	Lateral 5 ½ @ South Blaker Rd	Miles Creek @ Reilly Rd	Ash Slough @ Ave 21	Bear Creek @ Kibby Rd	Berenda Slough along Ave 18 1/2	Black Rascal Creek @ Yosemite Rd	Cottonwood Creek @ Rd 20	Deadman Creek @ Gurr Rd	Deadman Creek @ Hwy 59	Duck Slough @ Gurr Rd	Hatch Drain @ Tuolumne Rd	Highline Canal @ Lombardy Rd	Hilmar Drain @ Central Ave	Howard Lateral @ Hwy 140	Lateral 2 ½ near Keyes Rd	Levee Drain @ Carpenter Rd	Livingston Drain @ Robin Ave.	McCoy Lateral @ Hwy 140	Merced River @ Santa Fe	Mootz Drain downstream of Langworth Pond	Mustang Creek @ East Ave	Prairie Flower Drain @ Crows Landing Rd	Unnamed Drain @ Hwy 140	Westport Drain @ Vivian Rd
DO	2/2/2016	X	X			X			X	X		X	X	X	X					X			X	X	X	X	X	X
pH	2/2/2016	X	X	X	X			X		X		X	X	X		X	X	X	X		X	X						X
SC	NA ¹				X							X		X				X							X	X		X
Ammonia	4/4/2016											X					X			X					X		X	
Nitrate	4/4/2016				X											X			X						X	X		X
<i>E. coli</i>	NA ²	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X
Arsenic	3/23/2016											X	X		X													
Copper*	3/23/2016	X		X		X	X		X		X					X	X	X			X	X			X			
Molybdenum	3/23/2016																									X		
DDE	5/2/2016																								X			

*MPM is conducted at sites that are in management plans for copper.

NA-Not Applicable; a preliminary analysis was not submitted in the 2016 WY.

1-SC is being addressed by CV-SALTS which is a collaborative effort to develop and implement a salinity and nitrate management program and Basin Plan Amendment.

2- The Coalition currently relies on existing agricultural practices to manage *E. coli* pollution pending further discussion and/or direction with the Regional Board regarding a region-wide management program. No work plan/study on the source of *E. coli* is currently being developed for the site.

Total Maximum Daily Load Monitoring

The ESJWQC will monitor parameters that are part of an adopted TMDL with a source of agriculture, in accordance with adopted Basin Plan provisions or as directed by the Executive Officer. Currently the parameters include the San Joaquin River Deep Water Ship Channel (DWSC) DO; San Joaquin River salt, boron, selenium, diazinon, and chlorpyrifos. The ESJWQC utilizes existing monitoring data for all of the above TMDLs except for diazinon and chlorpyrifos.

Chlorpyrifos and Diazinon

The ESJWQC and the Westside Coalition collaborated to develop a monitoring plan for assessing compliance with concentration based loads of chlorpyrifos and diazinon at six compliance sites in the Lower San Joaquin River. Those sites are identified in the Basin Plan Amendment (October 2005). The ESJWQC conducts monitoring to assess compliance at three of the six compliance points: San Joaquin River at Hills Ferry Rd, San Joaquin River at the Maze Blvd Bridge, and San Joaquin River at the Airport Way Bridge near Vernalis. These sites are monitored once during the winter storm season (January or February) and monthly from May through September.

For the 2017 WY, the Coalition will not monitor for chlorpyrifos and diazinon at the TMDL compliance site, San Joaquin River @ Airport near Vernalis, during one storm event and from May through September. The ESJWQC obtained data collected by the United States Geological Survey (USGS) at the monitoring site, San Joaquin River @ Vernalis, to demonstrate compliance with the TMDL monitoring requirements.

MONITORING AT CORE SITES

During the 2017 WY, the Coalition will monitor designated Core sites within each of the six zones in the ESJWQC boundary for 12 months (October 2016 through September 2017; Attachment B of the Order, Page 3). Each Core site is monitored for two consecutive years. After two years, a second Core site is monitored in each zone for two years. Monitoring at the two designated Core sites are then alternated every two years. The Core sites listed in Table 7 are the second set of Core sites rotated into monitoring for the 2016 and 2017 WYs (approved June 15, 2015).

Table 7. ESJWQC Core sites monitored during the 2016 and 2017 WY.

ZONE	SITE TYPE	SITE NAME	STATION CODE	LATITUDE	LONGITUDE
1	Core	Dry Creek @ Wellsford Rd	535XDCAWR	37.66000	-120.87526
2	Core	Lateral 5 1/2 @ South Blaker Rd	535LFHASB	37.45827	-120.96730
3	Core	Highline Canal @ Hwy 99	535XHCHNN	37.41254	-120.75941
4	Core	Canal Creek @ West Bellevue Rd	535CCA WBR	37.36090	-120.54940
5	Core	Miles Creek @ Reilly Rd	535XMCARR	37.25830	-120.47524
6	Core	Dry Creek @ Rd 18	545XDCARE	36.98180	-120.22056

Monitoring constituents are established by the Irrigated Lands Regulatory Program (ILRP) in the WDR. The Coalition will monitor physical parameters, nutrients, bacteria, pesticides, metals, water column and sediment toxicity at each Core site as indicated in Table 2, Attachment B of the Order (Page 7). Table 8 lists all monitoring constituents and outlines the monitoring frequency during the 2017 WY at Core sites.

If the concentration of a constituent exceeds the WQTL at a Core site, monitoring will continue for a third consecutive year (Attachment B of the Order, Page 3). However, if the exceedance of the WQTL requires the Core site to be placed in a management plan, monitoring will be determined in the MPU the following year. The flowchart in Figure 2 depicts the Core site monitoring strategy.

Table 8. ESJWQC parameters to be monitored at the Core sites for the 2017 WY.

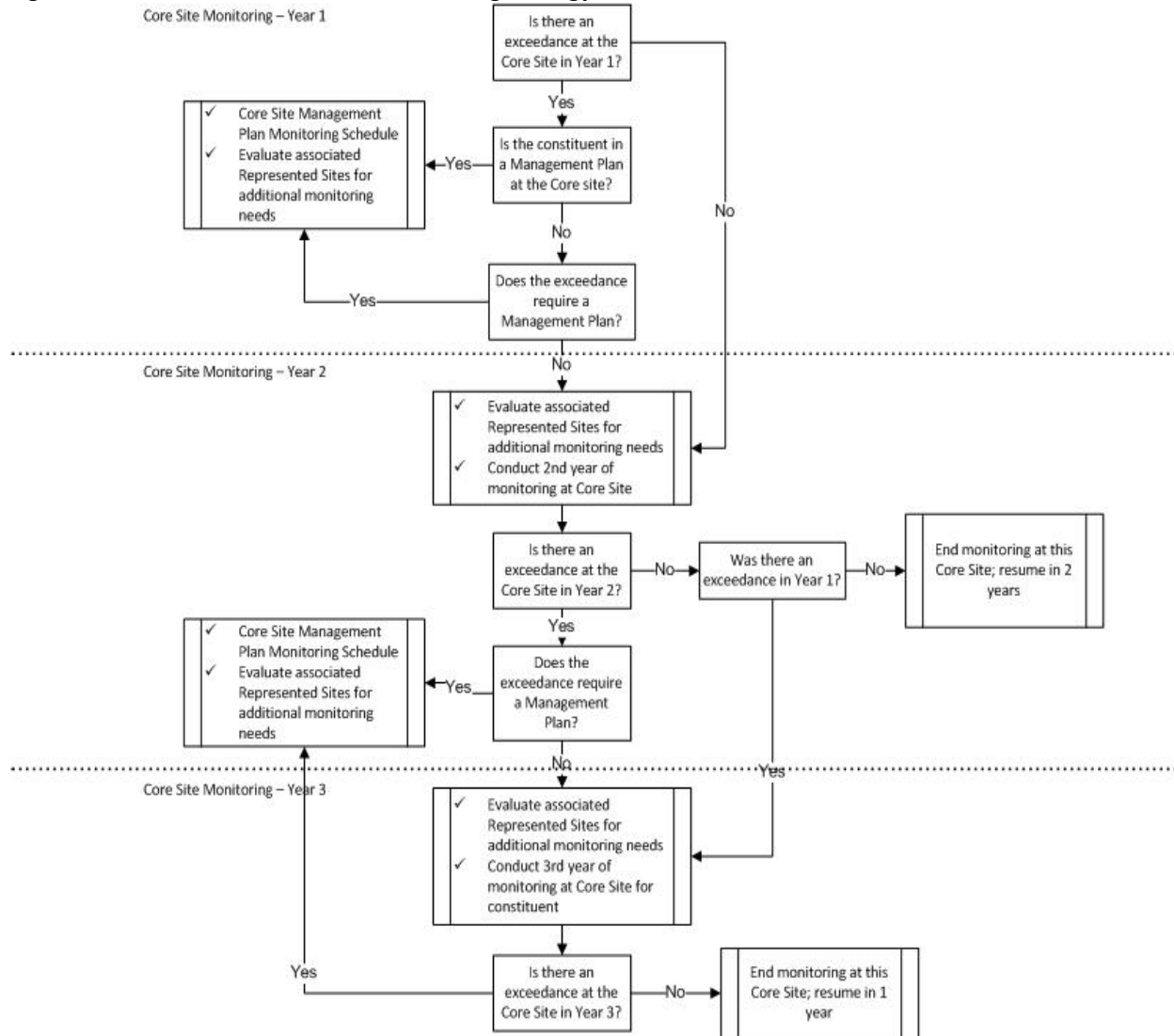
PARAMETER GROUP	PARAMETER	MONITORING FREQUENCY
Water Column Sampling		
Photo Monitoring	Photograph documentation	With every monitoring event
Physical Parameters	Estimated flow (cfs, field measure)	Monthly
	pH (field measure)	Monthly
	Electrical Conductivity (at 25°C, field measure)	Monthly
	Dissolved Oxygen (DO, field measure)	Monthly
	Temperature (field measure)	Monthly
	Turbidity	Monthly
	Total Suspended Solids (TSS)	Monthly
	Hardness (as CaCO ₃)-collected with dissolved metals	Monthly
	Total Organic Carbon (TOC)	Monthly
Bacteria	<i>E. coli</i>	Monthly
Toxicity	Algae - <i>Selenastrum capricornutum</i>	Monthly
	Water Flea - <i>Ceriodaphnia dubia</i>	Monthly

PARAMETER GROUP	PARAMETER	MONITORING FREQUENCY	
	Fathead Minnow - <i>Pimephales promelas</i>	Monthly	
	Toxicity Identification Evaluation (TIE) ¹	As needed based on section III.C.4 of Attachment B	
Pesticides	Carbamates	Aldicarb	Monthly
		Carbaryl	Monthly
		Carbofuran	Monthly
		Methiocarb	Monthly
		Methomyl	Monthly
		Oxamyl	Monthly
	Organophosphates	Azinphos-methyl	Monthly
		Chlorpyrifos	Monthly
		Diazinon	Monthly
		Dichlorvos	Monthly
		Dimethoate	Monthly
		Demeton-s	Monthly
		Disulfoton (Disyton)	Monthly
		Malathion	Monthly
		Methamidophos	Monthly
		Methidathion	Monthly
		Parathion-methyl	Monthly
		Phorate	Monthly
	Herbicides	Phosmet	Monthly
		Atrazine	Monthly
Cyanazine		Monthly	
Diuron		Monthly	
Glyphosate		One storm, one irrigation event per year	
Linuron		Monthly	
Paraquat		One storm, one irrigation event per year	
Simazine		Monthly	
Metals ¹	Trifluralin	Monthly	
	Arsenic	See Core Site Metals section below	
	Boron	See Core Site Metals section below	
	Cadmium	See Core Site Metals section below	
	Copper	See Core Site Metals section below	
	Lead	See Core Site Metals section below	
	Molybdenum	See Core Site Metals section below	
	Nickel	See Core Site Metals section below	
	Selenium	See Core Site Metals section below	
Nutrients	Zinc	See Core Site Metals section below	
	Nitrate plus Nitrite as Nitrogen	Monthly	
	Total Ammonia	Monthly	
	Unionized Ammonia (calculated value)	Monthly	
Sediment Sampling			
Toxicity	<i>Hyaella azteca</i>	March and September	
Sediment Pesticides ²	Bifenthrin	As Needed	
	Cyfluthrin	As Needed	
	Cypermethrin	As Needed	
	Deltamethrin: Tralomethrin	As Needed	
	Esfenvalerate	As Needed	
	Lambda-Cyhalothrin	As Needed	
	Permethrin	As Needed	
	Fenpropathrin	As Needed	
	Chlorpyrifos	As Needed	
Piperonyl butoxide (PBO)	As Needed		
Physical Parameters	Total Organic Carbon (sediment)	March and September	
	Grain Size	March and September	

¹ Specific Toxic Identification Evaluation (TIE) manipulations utilized in each test will be reported.

³ Sediment pesticides will be analyzed if *H. azteca* survival is less than 80% compared to the control and statistically different.

Figure 2. ESJWQC flowchart for the monitoring strategy at Core sites.



CORE SITE PESTICIDES

According to the Order, section III.C, a list of pesticides to be monitored will be identified and developed through a process which will include input from qualified scientists and coordination with the Department of Pesticide Regulation (DPR). Until this process is finalized, the Coalition will monitor monthly at each Core site for the actively registered pesticides listed in Table 8, with the exception of paraquat and glyphosate. The Coalition will continue to monitor for paraquat and glyphosate during one storm and one irrigation event during the 2017 WY (see Attachment A).

CORE SITE METALS

The metals listed in Table 2 of Attachment B of the Order were evaluated using the flowchart in Figure 3 to determine the timing and frequency of monitoring. The process includes evaluating past monitoring results and metals application history at each Core site. The results of the evaluation are used to establish the monitoring frequency for metals. The analysis for each Core site below includes rationale for metals monitoring; all other constituents, with the exception of sediment toxicity, are monitored monthly.

The flowchart is used to determine whether a metal is:

1. On the 303(d) list for that site or immediate downstream waterbody
2. Adequately characterized for that site
3. Impairing the water quality for that site (exceeded the WQTL)
4. In management plan
5. Has been concluded in a TIE as a causal agent
6. Applied to >1% irrigated acres (average of 3 years)

If a metal is listed as impairing a Core site waterbody on the 303(d) list and there is an approved TMDL, then the Coalition will monitor based on a schedule approved by the Regional Water Board. None of the Core site waterbodies are listed for metals on the 2012 California 303(d) List of Water Quality Limited Segments.

There is a TMDL for selenium discharges on the west side of the San Joaquin River basin and a TMDL for boron for the San Joaquin River segment between the Merced and Tuolumne Rivers. The boron TMDL is being addressed through the Sacramento River and San Joaquin River Basin Plan amendment process for the Control of Salt and Boron Discharges into the San Joaquin River. There is currently no required TMDL monitoring at any of the Core sites for either selenium or boron.

If a metal is not listed on the 303(d) list for the Core site waterbody, past monitoring results are reviewed to determine if the site has been adequately characterized and if there have been recent exceedances of a WQTL for the metal.

These evaluations lead to one of the following decisions:

- Follow the monitoring program as described in the ESJWQC 2014 SQMP (constituent in a management plan due to two or more exceedances in a three year period).

- Develop a monitoring schedule based on past results and application data (not adequately characterized at the site).
- No monitoring is necessary (adequately characterized at the site).

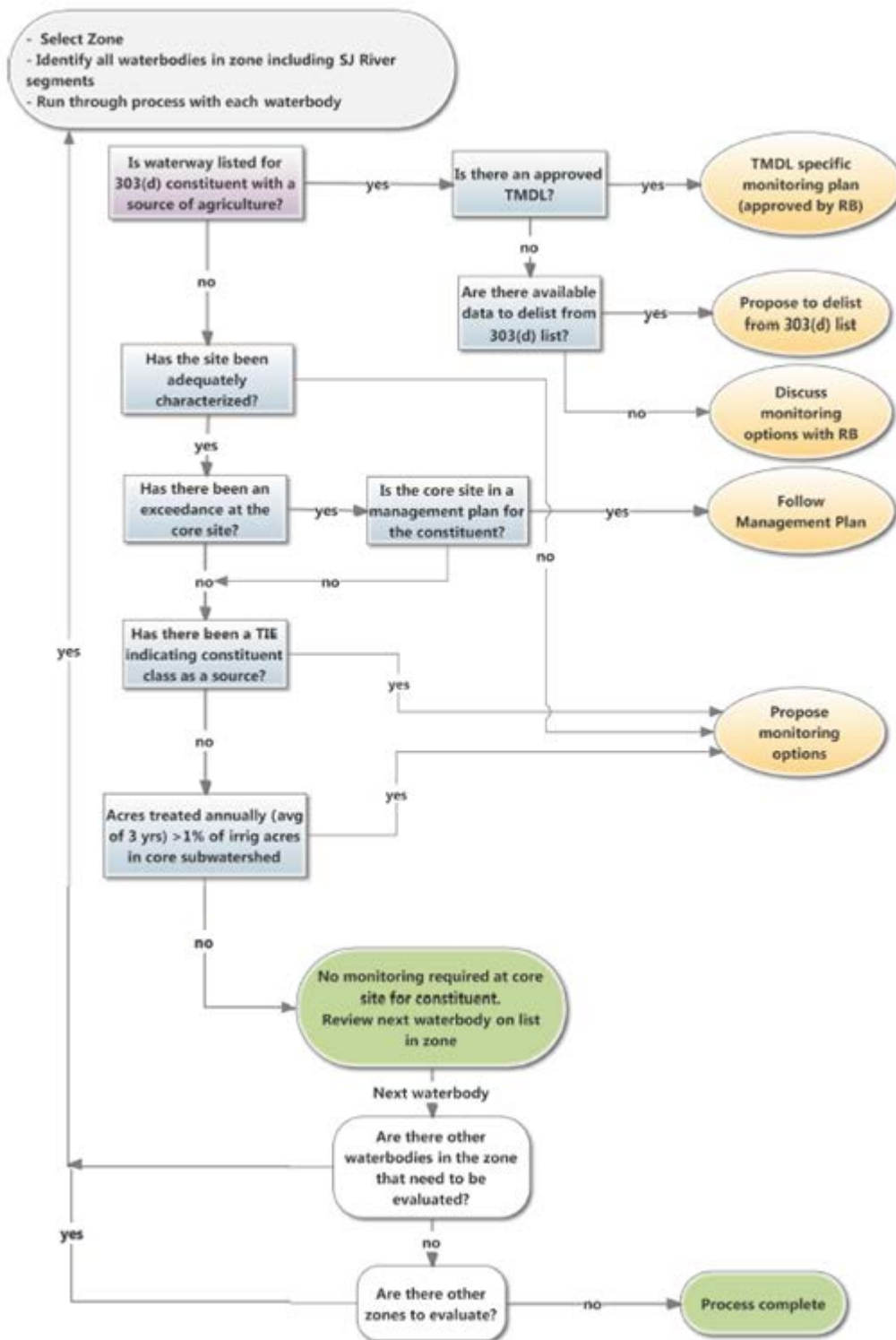
The Coalition determined if a site has been adequately characterized by having three years of monitoring data for a constituent. However, if the constituents are not applied by agriculture or occur naturally in the environment, they may be deemed as adequately characterized in a site subwatershed with less than three years of monitoring data if no exceedances of the WQTL have occurred.

The goal of adequate characterization is to establish that the concentration of the metal does not exceed the WQTL at any time and does not impair beneficial uses. The Coalition can use the combined history of monitoring for the total fraction and the dissolved fraction to demonstrate adequate characterization provided there are no exceedances of the WQTL for either the total or dissolved fractions of any metal.

If Figure 3 indicates a metal should be monitored, the Coalition will monitor only the total fraction for arsenic, boron, molybdenum, and selenium and only the dissolved fraction for cadmium, copper, lead, nickel, and zinc.

The Coalition considered geologic conditions as part of the evaluation for metals applied to lands for irrigated agricultural purposes. Metals applied by agriculture tend to bind to sediments and become settled or concentrated in the bed of the waterbodies. These compounds can result in water contamination when the sediments become mobilized in the water column. The Coalition has developed a monitoring schedule of metals that includes monitoring during irrigation and storm events with high total suspended solids (high TSS) in order to capture sediment-bound metals.

Figure 3. ESJWQC flowchart for the Core site metals monitoring strategy.



Dry Creek @ Wellsford Rd

Dry Creek @ Wellsford Rd is the Core site in Zone 1. The Coalition determined metals are not impairing water quality in the subwatershed; the decision to not monitor for metals during the 2017 WY is outlined in Table 9 and the rationale is discussed below. Metals were monitored at Dry Creek @ Wellsford Rd from 2006 through December 2014. A summary of the number of events metals were monitored from 2006 through the 2014 WY and percentages of any exceedances are listed in Table 10; all metal results are tabulated in Table 6 of the 2014 WY MPU (pages 13-14).

Table 9. Results of the flowchart analysis for Dry Creek @ Wellsford Rd outlined in Figure 3.

“X” indicates a specific monitoring decision per each constituent.

FLOWCHART QUESTION	ARSENIC	BORON	CADMIUM	COPPER	LEAD	MOLYBDENUM	NICKEL	SELENIUM	ZINC
1. Is site on 303d list for constituent?	No	No	No	No	No	No	No	No	No
2. Has the site been adequately characterized?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Has there been an exceedance?	No	No	No	Yes	Yes	No	No	No	No
4. Is waterbody in a management plan for constituent?	No	No	No	No	No	No	No	No	No
5. Has there been a TIE indicating the constituent class as causal agent?	No	No	No	No	No	No	No	No	No
6. Acres treated > 1%?	No	No	No	No	No	No	No	No	No
Monitoring Decision									
1. TMDL-specific monitoring									
2. Propose to delist from 303(d) list									
3. Monitoring according to management plan									
4. Propose monitoring plan in MPU analysis below									
5. No monitoring during the 2017 WY	X	X	X	X	X	X	X	X	X

Monitoring Decision #5 - No monitoring

Arsenic, Boron, Cadmium, Copper, Lead, Molybdenum, Nickel, Selenium, and Zinc

The Coalition monitored for arsenic (As), boron (B), cadmium (Cd), nickel (Ni), selenium (Se), and zinc (Zn) from 2006 through 2008, 2011, and during two storm and two irrigation events in the 2014 WY; no exceedances of the WQTLs occurred (Table 10). Molybdenum (Mo) was monitored in 2013 and no exceedances occurred. The Coalition determined that monitoring is not necessary for arsenic, boron, cadmium, nickel, molybdenum, selenium, and zinc because they are neither applied by agriculture nor impairing water quality at Dry Creek @ Wellsford Rd.

Copper (Cu) and lead (Pb) have been monitored at the site since 2006. Exceedances of the WQTL occurred three times (February 2007, April 2007, and February 2008) for total copper and once (February 2008) for total lead. All of these exceedances occurred when hardness results were used to calculate the WQTLs for the total fraction. Since the Coalition began monitoring for the dissolved fraction of these metals in 2011, no exceedances of the hardness based WQTLs have occurred (2015 WY MPU, Table 6). The copper management plan was approved for completion on May 30, 2012 due to an improvement in water quality. Lead is not applied by agriculture and, based on water quality results, is

not impairing water quality in the site subwatershed. The Coalition determined that monitoring is not necessary for copper or lead during the 2017 WY.

Table 10. Dry Creek @ Wellsford Rd site subwatershed dissolved and total metals summary of sample counts. Metals were monitored at site through December 2014. Asterisk indicates an exceedance occurred in samples collected for that year.

SAMPLES COLLECTED	METALS (µG/L)														TSS, TOTAL (MG/L)
	As, Total	B, Total	Cd, Dissolved	Cd, Total	Cu, Dissolved	Cu, Total	Pb, Dissolved	Pb, Total	Mo, Total	Ni, Dissolved	Ni, Total	Se, Total	Zn, Dissolved	Zn, Total	
2006	5	5	0	5	0	5	0	5	0	0	5	5	0	5	0
2007	8	8	0	8	0	8*	0	8	0	0	8	4	0	8	0
2008	8	8	0	8	0	8*	0	8*	0	0	8	8	0	8	3
2009	0	0	0	0	0	0	1	1	0	0	0	0	0	0	12
2010	0	0	0	0	2	2	6	6	0	0	0	0	0	0	12
2011	8	12	8	8	12	12	8	8	8	12	12	12	12	12	12
2012	0	0	0	0	1	1	0	0	0	0	0	0	0	0	3
2013	0	0	0	0	1	1	0	0	0	0	0	0	0	0	3
2014 WY	4	4	4	4	4	1	4	0	0	4	0	4	0	0	4
Total Samples Collected	33	37	12	33	20	38	19	36	8	16	33	33	12	33	49
Total Exceedances	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0
% Exceedances	0%	0%	0%	0%	0%	8.3%	0%	2.7%	0%	0%	0%	0%	0%	0%	0%

Lateral 5 ½ @ South Blaker Rd

Lateral 5 ½ @ South Blaker Rd is the Core site in Zone 2 for the 2017 WY. The decisions to monitor for metals during the 2017 WY at Lateral 5 ½ @ South Blaker Rd are outlined in Table 11 and discussed below. Monitoring for metals at Lateral 5 ½ @ South Blaker Rd began in the 2016 WY. A summary of the number of events metals were monitored, the results, and percentages of any exceedances are listed in Table 12.

Table 11. Results of the flowchart analysis for Lateral 5 ½ @ South Blaker Rd outlined in Figure 3.

"X" indicates a specific monitoring decision per each constituent.

FLOWCHART QUESTION	ARSENIC	BORON	CADMIUM	COPPER	LEAD	MOLYBDENUM	NICKEL	SELENIUM	ZINC
1. Is site on 303d list for constituent?	No	No	No	No	No	No	No	No	No
2. Has the site been adequately characterized?	No	No	No	No	No	No	No	No	No
3. Has there been an exceedance?	No	No	No	No	No	No	No	No	No
4. Is waterbody in a management plan for constituent?	No	No	No	No	No	No	No	No	No
5. Has there been a TIE indicating the constituent class as causal agent?	No	No	No	No	No	No	No	No	No
6. Acres treated > 1%?	No	No	No	No	No	No	No	No	No
Monitoring Decision									
1. TMDL-specific monitoring									
2. Propose to delist from 303(d) list									
3. Monitoring according to management plan									
4. Propose monitoring plan in MPU analysis below	X	X	X	X	X	X	X	X	X
5. No monitoring during the 2017 WY									

Monitoring Decision #4 – Proposed monitoring plan

Arsenic, Boron, Cadmium, Lead, Molybdenum, Nickel, Selenium, and Zinc

Lateral 5 ½ @ South Blaker Rd was not monitored for metals prior to the 2016 WY because it was added to the Coalition's monitoring program in 2012 with the adoption of the WDR; the site rotated in as the Core site in Zone 2 for the 2016 WY and 2017 WY. During the 2016 WY, monitoring for all metals was scheduled from December through April, as well as two storm events (November 10, 2015 and January 7, 2016) and two irrigation events (July 12 and August 9, 2016). No exceedances of the WQTL for any metals occurred during the 2016 WY through June (Table 12).

Since arsenic, boron, cadmium, lead, molybdenum, nickel, and selenium are not applied by agriculture, there is no way to differentiate months of potential risk for water quality impairments caused by these metals, if any. Zinc was applied in the site subwatershed as zinc phosphide (2.08 lbs of AI) in 2013, as zinc salt (0.35 lbs AI) and zinc phosphide (23.27 lbs AI) in 2014, and as zinc salt (26.58 lbs AI), and as zinc phosphide (21.89 lbs AI) in 2015. The amounts applied for each year are minimal and unlikely to impact water quality. Therefore, the Coalition will continue to monitor for these metals (arsenic, boron,

cadmium, lead, molybdenum, nickel, selenium, and zinc) during two storm and two irrigation events during the 2017 WY to adequately characterize water quality.

Copper

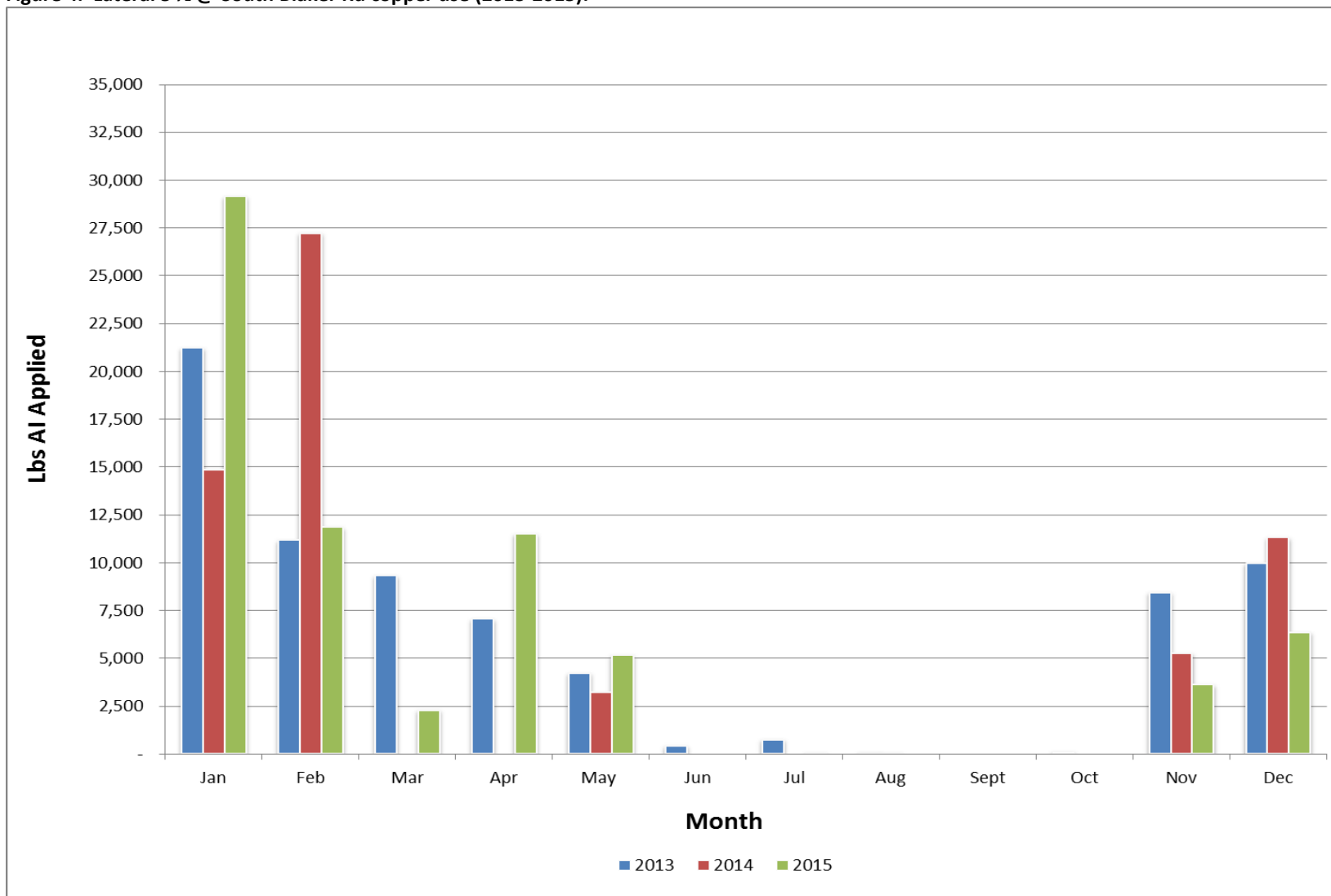
Copper applications are greater than zinc applications and occur more frequently during the fall and winter months. The Coalition evaluated PUR data over a three year period (2013 through 2015) to determine months that present the most risk of potential exceedances of the WQTLs based on greatest use (**Error! Not a valid bookmark self-reference.**). Therefore, monitoring for copper will occur at the site in January, February, and April and during two storm and two irrigation events during the 2017 WY.

Table 12. Lateral 5 ½ @ South Blaker Rd site subwatershed dissolved and total metals monitoring results for the 2016 WY and sample counts summaries.

Total Suspended Solids (TSS) results are included as a measurement of sediment mobilization. "NA" indicates that a constituent was not analyzed on that date. The 2016 WY data are through June.

SAMPLE DATE	METALS (µG/L)													TSS, TOTAL (MG/L)
	As, Total	B, Total	Cd, Dislvd.	Cd, Total	Cu, Dislvd.	Cu, Total	Pb, Dislvd.	Pb, Total	Mo, Total	Ni, Dislvd.	Ni, Total	Se, Total	Zn, Total	
11/10/2016	5.6	73	<0.05	NA	5.3	NA	<0.03	NA	3.4	2.7	NA	0.22	2.5	<2
1/7/2016	3.7	42	<0.05	NA	5.5	NA	0.09	NA	1.8	1.8	NA	0.17	13	12
2/9/2016	NA	NA	NA	NA	3.0	NA	NA	NA	NA	NA	NA	NA	NA	2.0
3/8/2016	NA	NA	NA	NA	2.1	NA	NA	NA	NA	NA	NA	NA	NA	<2
4/12/2016	NA	NA	NA	NA	1.7	NA	NA	NA	NA	NA	NA	NA	NA	<2
Summary														
Samples Collected	2	2	2	0	5	0	2	0	2	2	0	2	2	5
Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Exceedances	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Figure 4. Lateral 5 ½ @ South Blaker Rd copper use (2013-2015).



Highline Canal @ Hwy 99

Highline Canal @ Hwy 99 is the Core site in Zone 3. The decisions to monitor for metals at Highline Canal @ Hwy 99 during the 2017 WY are outlined in Table 13 and discussed below. Metals have been monitored at Highline Canal @ Hwy 99 from 2006 through May 2016. A summary of the number of events metals were monitored, 2016 WY results, and percentages of any exceedances are listed in Table 14; all metal results prior to the 2016 WY are tabulated in Table 13 of the 2015 WY MPU (pages 19-20).

Table 13. Results of the flowchart analysis for Highline Canal @ Hwy 99 outlined in Figure 3.

"X" indicates a specific monitoring decision per each constituent.

FLOWCHART QUESTION	ARSENIC	BORON	CADMIUM	COPPER	LEAD	MOLYBDENUM	NICKEL	SELENIUM	ZINC
1. Is site on 303d list for constituent?	No	No	No	No	No	No	No	No	No
2. Has the site been adequately characterized?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
3. Has there been an exceedance?	No	No	No	Yes	Yes	No	No	No	No
4. Is waterbody in a management plan for constituent?	No	No	No	Yes	No	No	No	No	No
5. Has there been a TIE indicating the constituent class as causal agent?	No	No	No	Yes	Yes	No	No	No	No
6. Acres treated > 1%?	No	No	No	No	No	No	No	No	No
Monitoring Decision									
1. TMDL-specific monitoring									
2. Propose to delist from 303(d) list									
3. Monitoring according to management plan				X					
4. Propose monitoring plan in MPU analysis below									
5. No monitoring during the 2017 WY	X	X	X		X	X	X	X	X

Monitoring Decision #3 - Monitoring according to a management plan

Copper

As approved on September 29, 2015, all management plan constituents for Highline Canal @ Lombardy will be addressed at Highline Canal @ Hwy 99. Therefore, the monitoring history, PUR data, and months of past exceedances will be evaluated for management plan constituents from both sites. All MPM will occur at Highline Canal @ Hwy 99 during the 2017 WY; both sites are in management plans for copper.

A total of 25 exceedances of the WQTL for copper have occurred at the two sites; 13 exceedances of the WQTL for copper at Highline Canal @ Hwy 99 from 2007 through March 2016, and 12 exceedances at Highline Canal @ Lombardy Rd from 2007 through August 2015. During the 2016 WY, MPM for copper occurred from December through May and will occur in August at Highline Canal @ Hwy 99; two exceedances of the hardness based WQTL for dissolved copper occurred on January 7 and March 8, 2016 (Table 14).

During the 2017 WY, MPM for dissolved copper will occur from January through March and in August based on past exceedances and PUR data at Highline Canal @ Hwy 99 (Figure 5) and Highline Canal @

Lombardy Rd (Figure 6). The Coalition determined MPM is not necessary in April, May, June, or July because monitoring occurred for three years during these months without any exceedances.

Figure 5. Highline Canal @ Hwy 99 monitoring history and copper applications.

Shaded cells represent months of past monitoring. Hatched shading represents scheduled monitoring for the remaining months of the 2016 WY. "X" depicts months in which exceedances occurred. The PUR data are through December 2015.

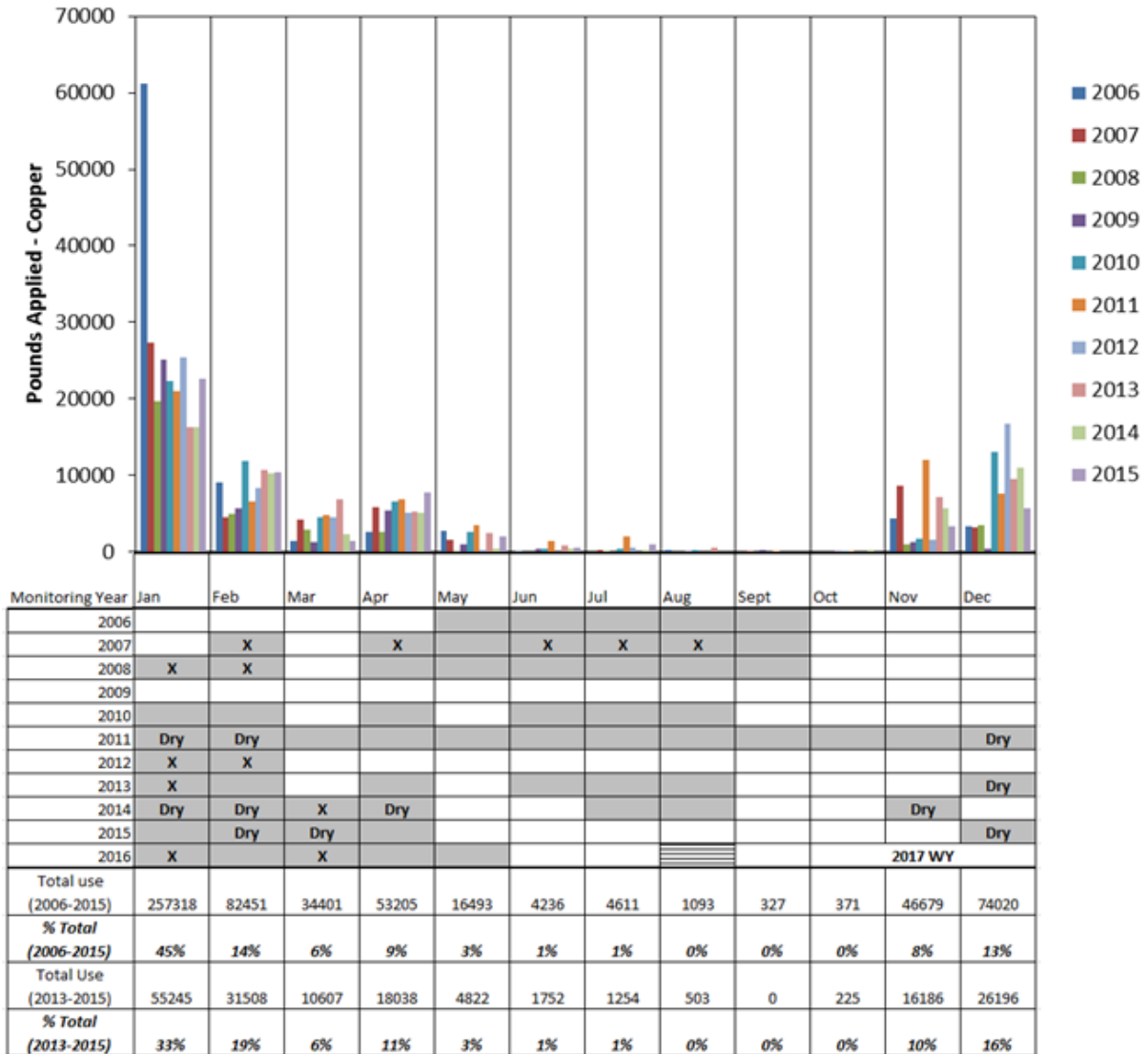
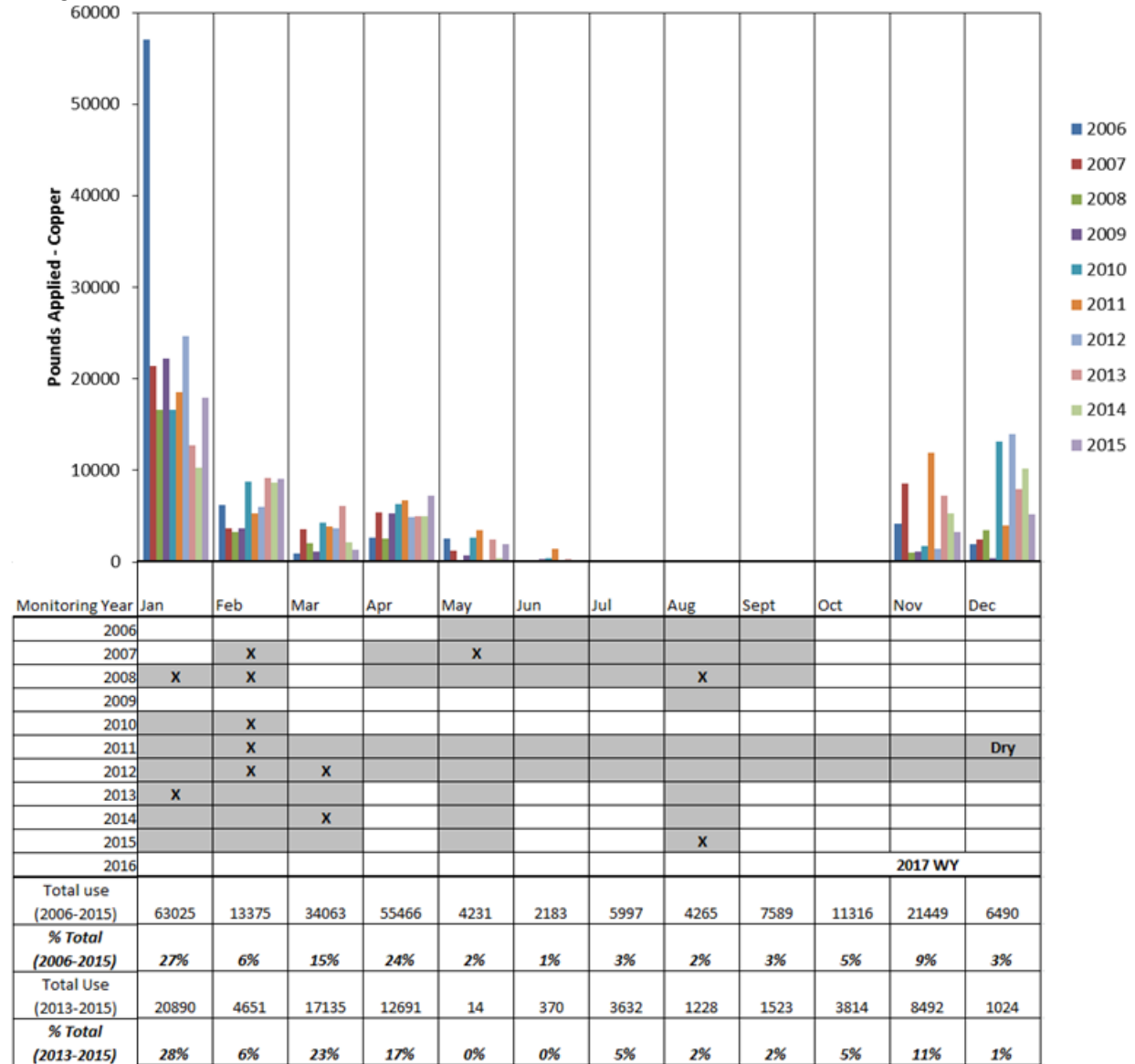


Figure 6. Highline Canal @ Lombardy Rd monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. The PUR data are through December 2015.



Monitoring Decision #5 - No monitoring

Arsenic, Boron, Cadmium, Molybdenum, Nickel, Selenium, and Zinc

The Coalition monitored for arsenic, boron, cadmium, nickel, selenium, and zinc from 2006 through 2008, 2011, and during the 2014 WY, and for molybdenum in 2011 and during the 2014 WY; no exceedances of the WQTLs occurred (Table 14). The Coalition determined that monitoring is not necessary for arsenic, boron, cadmium, selenium, nickel, molybdenum, and zinc because these metals are not applied by agriculture and are not impairing water quality in the site subwatershed.

Lead

The lead management plan was approved for management plan completion on March 25, 2016 due to improved water quality in the subwatershed. Therefore, monitoring for lead is no longer required at Highline Canal @ Hwy 99.

Table 14. Highline Canal @ Hwy 99 site subwatershed dissolved and total metals monitoring results for the 2016 WY and sample counts summaries.

Total Suspended Solids (TSS) results are included as a measurement of sediment mobilization. An exceedance of a WQTL is highlighted in blue. "NA" indicates that a constituent was not analyzed on that date. Asterisk indicates an exceedance occurred in samples collected for that year. The 2016 WY data are through June.

SAMPLE DATE	METALS (µg/L)														TSS, TOTAL (MG/L)
	As, Total	B, Total	Cd, Dissolved	Cd, Total	Cu, Dissolved	Cu, Total	Pb, Dissolved	Pb, Total	Mo, Total	Ni, Dissolved	Ni, Total	Se, Total	Zn, Dissolved	Zn, Total	
12/15/2016	NA	NA	NA	NA	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry
1/7/2016	NA	NA	NA	NA	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	33
2/9/2016	NA	NA	NA	NA	17	NA	0.23	NA	NA	NA	NA	NA	NA	NA	24
3/8/2016	NA	NA	NA	NA	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	103
4/12/2016	NA	NA	NA	NA	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
5/10/2016	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
Sample Count Summary															
Samples collected in 2006	5	5	0	5	0	5	0	5*	0	0	5	0	0	5	0
Samples collected in 2007	7	7	0	7	0	7*	0	7*	0	0	7	3	0	7	0
Samples collected in 2008	8	8	0	8	0	12*	0	8	0	0	8	8	0	8	0
Samples collected in 2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Samples collected in 2010	0	0	0	0	6	6	0	0	0	0	0	0	0	0	6
Samples collected in 2011	6	9	6	6	9	9	6	6	6	9	9	9	9	9	9
Samples collected in 2012	0	0	0	0	2*	2	1	1	0	0	0	0	0	0	2
Samples collected in 2013	0	0	0	0	6*	6	6	6	0	0	0	0	0	0	7
Samples collected in 2014 WY	3	3	3	1	3*	0	5	0	3	3	0	3	3	0	5
Samples collected in 2015 WY	0	0	0	0	4	0	4	0	0	0	0	0	0	0	2
Samples collected in 2016 WY	0	0	0	0	5*	0	1	0	0	0	0	0	0	0	5
Exceedance Summary															
Total Samples Collected	32	37	9	30	35	50	23	36	9	12	32	23	12	32	36
Total Exceedances	0	0	0	0	6	7	0	5	0	0	0	0	0	0	0
% Exceedances	0%	0%	0%	0%	17%	14%	0%	14%	0%	0%	0%	0%	0%	0%	0%

Canal Creek @ West Bellevue Rd

Canal Creek @ West Bellevue Rd is the Core site in Zone 4 for the 2017 WY. The decisions to monitor for metals at Canal Creek @ West Bellevue Rd during the 2017 WY are outlined in Table 15 and discussed below. Monitoring for metals at Canal Creek @ West Bellevue Rd began in the 2016 WY. A summary of the number of events metals were monitored, the results, and percentages of any exceedances are listed in Table 16.

Table 15. Results of the flowchart analysis for Canal Creek @ West Bellevue Rd outlined in Figure 3.

"X" indicates a specific monitoring decision per each constituent.

FLOWCHART QUESTION	ARSENIC	BORON	CADMIUM	COPPER	LEAD	MOLYBDENUM	NICKEL	SELENIUM	ZINC
1. Is site on 303d list for constituent?	No	No	No	No	No	No	No	No	No
2. Has the site been adequately characterized?	No	No	No	No	No	No	No	No	No
3. Has there been an exceedance?	No	No	No	Yes	No	No	No	No	No
4. Is waterbody in a management plan for constituent?	No	No	No	No	No	No	No	No	No
5. Has there been a TIE indicating the constituent class as causal agent?	No	No	No	No	No	No	No	No	No
6. Acres treated > 1%?	No	No	No	Yes	No	No	No	No	No
Monitoring Decision									
1. TMDL-specific monitoring									
2. Propose to delist from 303(d) list									
3. Monitoring according to management plan									
4. Propose monitoring plan in MPU analysis below	X	X	X	X	X	X	X	X	X
5. No monitoring during the 2017 WY									

Monitoring Decision #4 – Proposed monitoring plan

Arsenic, Boron, Cadmium, Lead, Molybdenum, Nickel, Selenium, and Zinc

Canal Creek @ West Bellevue Rd was not monitored for metals prior to the 2016 WY because it was added to the Coalition's monitoring program in 2012 with the adoption of the WDR; the site rotated in as the Core site in Zone 4 for the 2016 WY and 2017 WY. During the 2016 WY, monitoring for metals was scheduled during two storm (November 10, 2015 and January 7, 2016) and two irrigation events (July 12 and August 9, 2016); no exceedances occurred (Table 16).

Since arsenic, boron, cadmium, lead, molybdenum, nickel, and selenium are not applied by agriculture, there is no way to differentiate months of potential risk for water quality impairments caused by these metals, if any. Zinc was applied in the site subwatershed as zinc phosphide (5.8 lbs AI) in 2014 and as zinc salt (1.4 lbs AI) in 2015. The amounts applied for each year are minimal and unlikely to impact water quality. Therefore, the Coalition will continue to monitor for arsenic, boron, cadmium, lead, molybdenum, nickel, selenium, and zinc during two storm and two irrigation events during the 2017 WY to adequately characterize water quality.

Copper

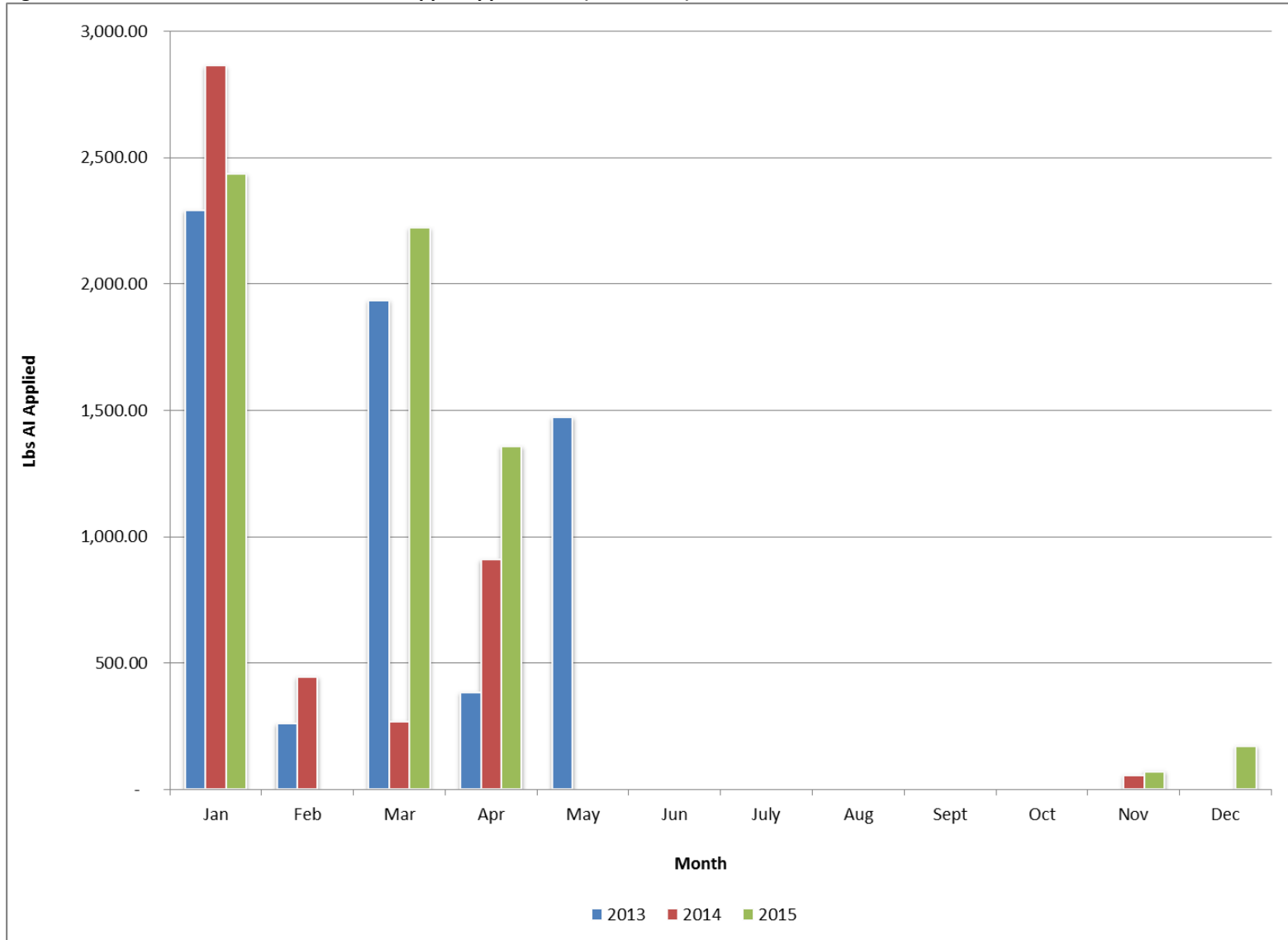
An exceedance of the hardness WQTL for copper occurred in samples collected in January 2016. Products containing copper are applied in the subwatershed, and the greatest amount of use occurred during the winter and early irrigation seasons (Figure 7). The Coalition will monitor for dissolved copper in January, March, and April based on high use, as well as two storm and two irrigation events during the 2017 WY.

Table 16. Canal Creek @ West Bellevue Rd site subwatershed dissolved and total metals monitoring results for the 2016 WY and sample counts summaries.

Total Suspended Solids (TSS) results are included as a measurement of sediment mobilization. An exceedance of a WQTL is highlighted in blue. "NA" indicates that a constituent was not analyzed on that date. The 2016 WY data are through June.

SAMPLE DATE	METALS (µG/L)													TSS, TOTAL (MG/L)
	As, Total	B, Total	Cd, Dislvd.	Cd, Total	Cu, Dislvd.	Cu, Total	Pb, Dislvd.	Pb, Total	Mo, Total	Ni, Dislvd.	Ni, Total	Se, Total	Zn, Total	
12/15/2016	1	16	<0.05	NA	1.2	NA	0.19	NA	0.54	0.97	NA	0.08	1	7
1/7/2016	1.5	17	0.06	NA	2.9	NA	0.41	NA	0.34	1.8	NA	0.09	2.7	89
2/9/2016	NA	NA	NA	NA	3.5	NA	NA	NA	NA	NA	NA	NA	NA	<2
3/8/2016	NA	NA	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA	NA	32
Summary														
Total Samples Collected	2	2	2	0	4	0	2	0	2	2	0	2	2	2
Total Exceedances	0	0	0	0	1	0	0	0	0	0	0	0	0	0
% Exceedances	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Figure 7. Canal Creek @ West Bellevue Rd copper applications (2013-2015).



Miles Creek @ Reilly Rd

Miles Creek @ Reilly Rd is the Core site in Zone 5 for the 2017 WY. The decisions to monitor for metals at Miles Creek @ Reilly Rd during the 2017 WY are outlined in Table 17 and discussed below. Metals have been monitored at Mile Creek @ Reilly Rd from 2007 through 2010, 2013, and during the 2014 WY, 2015 WY, and through February of the 2016 WY. A summary of the number of events metals were monitored, 2016 WY results, and percentages of any exceedances are listed in Table 18; all metal results prior to the 2016 WY are tabulated in Table 13 of the 2016 WY MPU (pages 26-27).

Table 17. Results of the flowchart analysis for Miles Creek @ Reilly Rd outlined in Figure 3.

“X” indicates a specific monitoring decision per each constituent.

FLOWCHART QUESTION	ARSENIC	BORON	CADMIUM	COPPER	LEAD	MOLYBDENUM	NICKEL	SELENIUM	ZINC
1. Is site on 303d list for constituent?	No	No	No	No	No	No	No	No	No
2. Has the site been adequately characterized?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
3. Has there been an exceedance?	No	No	No	Yes	Yes	No	No	No	No
4. Is waterbody in a management plan for constituent?	No	No	No	Yes	No	No	No	No	No
5. Has there been a TIE indicating the constituent class as causal agent?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Acres treated > 1%?	No	No	No	Yes	No	No	No	No	No
Monitoring Decision									
1. TMDL-specific monitoring									
2. Propose to delist from 303(d) list									
3. Monitoring according to management plan				X					
4. Propose monitoring plan in MPU analysis below									
5. No monitoring during the 2017 WY	X	X	X		X	X	X	X	X

Monitoring Decision #3-Monitoring according to a management plan

Copper

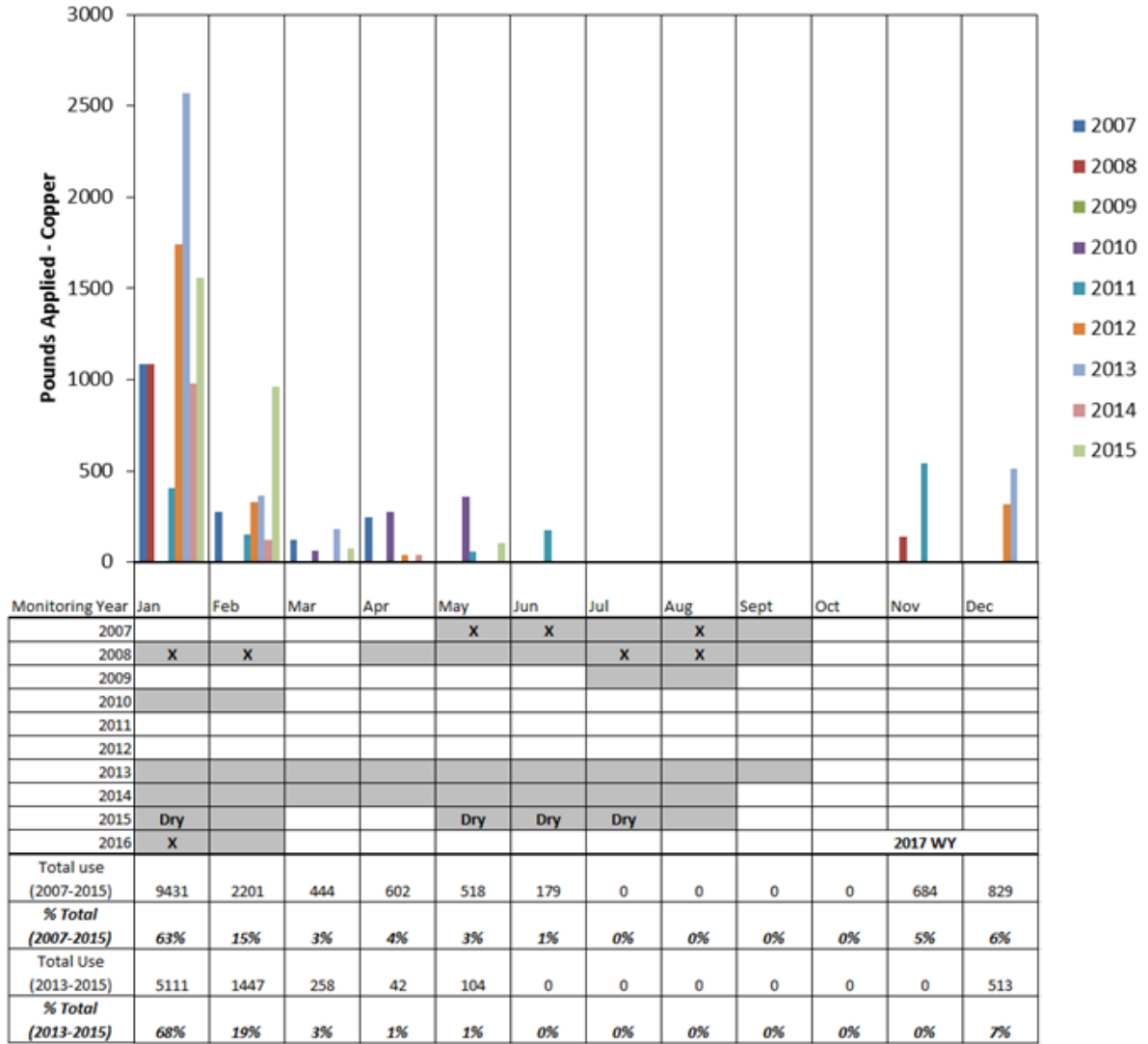
Samples collected in 2007 (May, June, and August) and 2008 (January, February, July, and August) resulted in exceedances the hardness based WQTL for total copper, and samples collected in January 2016 resulted in exceedances the hardness based WQTL for dissolved copper.

During the 2017 WY, the Coalition will conduct MPM for dissolved copper in January and February based on months of past exceedances and current PUR data (**Error! Not a valid bookmark self-reference.**).

The Coalition monitored for copper for four years following the 2007 and 2008 exceedances in May through August; no applications of any products containing copper coincided with the exceedances. However, the site was dry from May through July 2015. In order to determine that water quality is not impaired when water is present, the Coalition will include monitoring in May through August during the 2017 WY.

Figure 8. Miles Creek @ Reilly Rd monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. The PUR data are through December 2015.



Monitoring Decision #5 - No monitoring

Arsenic, Boron, Cadmium, Molybdenum, Nickel, Selenium, and Zinc

The Coalition determined that monitoring is not necessary during the 2017 WY. Arsenic, boron, cadmium, selenium, nickel, molybdenum are not applied by agriculture and are not impacting water quality. Zinc is applied in the site subwatershed, but the amounts applied (53 lbs from 2006 through 2015) have not impacted water quality. The Coalition monitored for arsenic, boron, nickel, selenium, and zinc in 2007, 2008, and 2013, for cadmium in 2008, and for molybdenum in 2013; no exceedances of the WQTLs for any of these constituents occurred (Table 18).

Lead

The Coalition received approval for management plan completion for lead on March 25, 2016. Therefore, monitoring for lead will not occur at the Core site during the 2017 WY.

Table 18. Miles Creek @ Reilly Rd site subwatershed dissolved and total metals monitoring results (2016 WY) and sample counts summaries.

Total Suspended Solids (TSS) results are included as a measurement of sediment mobilization. An exceedance of a WQTL is highlighted in blue. "NA" indicates that a constituent was not analyzed on that date. Asterisk indicates an exceedance occurred in samples collected for that year. The 2016 WY data are through June.

SAMPLE DATE	METALS (µG/L)														TSS, Total (mg/L)
	AS, TOTAL	B, TOTAL	CD, DISSOLVED	CD, TOTAL	CU, DISSOLVED	CU, TOTAL	PB, DISSOLVED	PB, TOTAL	MO, TOTAL	NI, DISSOLVED	NI, TOTAL	SE, TOTAL	ZN, DISSOLVED	ZN, TOTAL	
1/7/2016	NA	NA	NA	NA	6.1	NA	0.76	NA	NA	NA	NA	NA	NA	NA	214
2/9/2016	NA	NA	NA	NA	4.2	NA	0.34	NA	NA	NA	NA	NA	NA	NA	1300
Sample Count Summary															
Samples collected in 2007	5	5	0	0	0	5*	0	5*	0	0	5	0	0	5	0
Samples collected in 2008	8	8	0	3	0	11*	0	8*	0	0	8	8	0	8	0
Samples collected in 2009	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
Samples collected in 2010	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
Samples collected in 2013	4	10	0	0	10	10	7	7	4	10	10	10	7	10	10
Samples collected in 2014 WY	0	0	0	0	8	4	3	2	0	0	0	0	0	0	0
Samples collected in 2015 WY	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0
Samples collected in 2016 WY	0	0	0	0	2*	0	2	0	0	0	0	0	0	0	2
Exceedance Summary															
Total Samples Collected	17	23	0	3	28	34	16	22	4	10	23	18	7	23	12
Total Exceedances	0	0	0	0	1	7	0	5	0	0	0	0	0	0	0
% Exceedances	0%	0%	0%	0%	3.5%	21%	0%	23%	0%	0%	0%	0%	0%	0%	0%

Dry Creek @ Rd 18

Dry Creek @ Rd 18 is the Core site in Zone 6 for the 2017 WY. The decisions to monitor for metals during the 2017 WY are outlined in Table 19 and discussed below. Metals have been monitored at Dry Creek @ Rd 18 from 2006 through 2008, and 2011 through June 2016. A summary of the number of events metals were monitored, 2016 WY results, and percentages of any exceedances are listed in Table 20.

Table 19. Results of the flowchart analysis for Dry Creek @ Rd 18 outlined in Figure 3.

"X" indicates a specific monitoring decision per each constituent.

FLOWCHART QUESTION	ARSENIC	BORON	CADMIUM	COPPER	LEAD	MOLYBDENUM	NICKEL	SELENIUM	ZINC
1. Is site on 303d list for constituent?	No	No	No	No	No	No	No	No	No
2. Has the site been adequately characterized?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
3. Has there been an exceedance?	No	No	No	Yes	Yes	No	No	No	Yes
4. Is waterbody in a management plan for constituent?	No	No	No	Yes	No	No	No	No	No
5. Has there been a TIE indicating the constituent class as causal agent?	No	No	No	No	No	No	No	No	No
6. Acres treated > 1%?	No	No	No	No	No	No	No	No	No
Monitoring Decision									
1. TMDL-specific monitoring									
2. Propose to delist from 303(d) list									
3. Monitoring according to management plan				X					
4. Propose monitoring plan in MPU analysis below									
5. No monitoring during the 2017 WY	X	X	X		X	X	X	X	X

Monitoring Decision #3-Monitoring according to a management plan

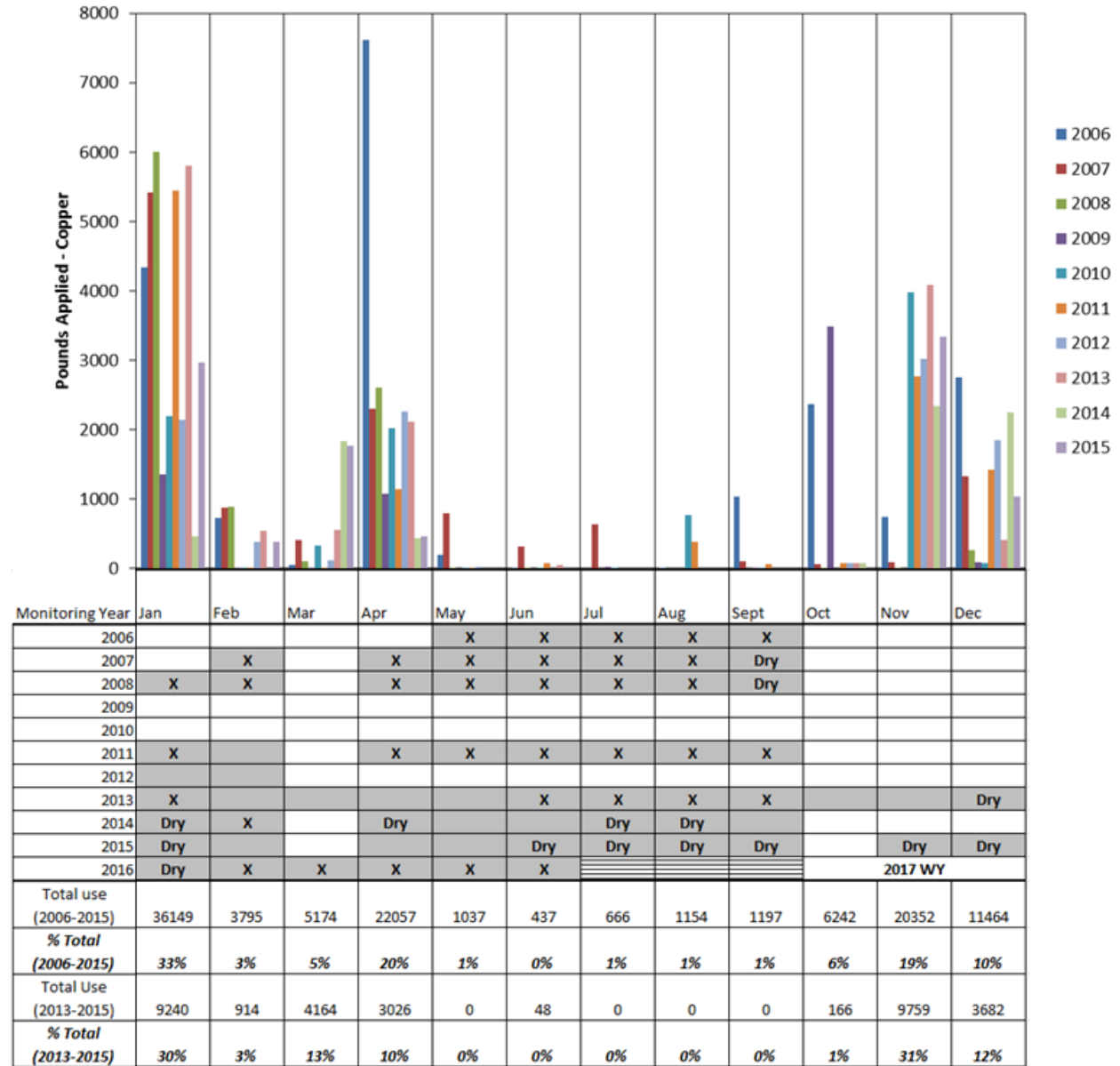
Copper

Management Plan Monitoring for copper was scheduled from November through September during the 2016 WY; four exceedances of the hardness based WQTL occurred from February through May (Table 20). Overall, high applications of products containing copper and the occurrence of exceedances do not coincide. The site has also been dry more frequently in months that are considered winter (November through January) and late irrigation (June through August).

During the 2017 WY, the Coalition will conduct MPM for dissolved copper from December through September, based on current PUR data and months of past exceedances (Figure 9).

Figure 9. Dry Creek @ Rd 18 monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Monitoring Decision #5 - No monitoring

Arsenic, Boron, Cadmium, Molybdenum, Nickel, Selenium, and Zinc

The Coalition monitored for arsenic, boron, cadmium, molybdenum, nickel, selenium, and zinc at various times from 2006 through 2013; one exceedance of the WQTL for total zinc occurred in 2006 (2016 WY MPU; Table 20). Since, arsenic, boron, cadmium, molybdenum, nickel, and selenium are neither applied nor impacting water quality, the Coalition determined monitoring is not necessary during the 2017 WY. Products containing zinc are applied in the site subwatershed, approximately 120 lbs AI have been applied from 2007 through 2015; however, the amounts applied for each year have not impacted water quality since 2006. Therefore, the Coalition determined monitoring for zinc is not necessary during the 2017 WY.

Lead

The Coalition received approval for management plan completion for lead on March 25, 2016. Therefore, the Coalition will not monitor for lead at the site in the 2017 WY.

Table 20. Dry Creek @ Rd 18 site subwatershed dissolved and total metals monitoring results (2006-2016 WY).

Total Suspended Solids (TSS) results are included as a measurement of sediment mobilization. An exceedance of a WQTL is highlighted in blue. "NA" indicates that a constituent was not analyzed on that date. Asterisk indicates an exceedance occurred in samples collected for that year. The 2016 WY data are through June.

SAMPLE DATE	METALS (µG/L)														TSS, TOTAL (MG/L)
	As, Total	B, Total	Cd, Dissolved	Cd, Total	Cu, Dissolved	Cu, Total	Pb, Dissolved	Pb, Total	Mo, Total	Ni, Dissolved	Ni, Total	Se, Total	Zn, Dissolved	Zn, Total	
11/10/2015	NA	NA	NA	NA	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry
12/15/2015	NA	NA	NA	NA	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry
1/7/2016	NA	NA	NA	NA	Dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry
2/9/2016	NA	NA	NA	NA	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	40
3/8/2016	NA	NA	NA	NA	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	19
4/12/2016	NA	NA	NA	NA	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	3
5/10/2016	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
6/14/2016	NA	NA	NA	NA	3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	6
Sample Count Summary															
Samples collected in 2006	5	5	0	0	0	5*	0	5*	0	0	5	5	0	5*	0
Samples collected in 2007	6	6	0	2	0	9*	0	6*	0	0	6	0	0	7	0
Samples collected in 2008	7	7	0	1	0	7*	0	7*	0	0	7	6	0	7	0
Samples collected in 2011	0	0	0	0	8*	8	3	4	0	0	0	0	0	0	0
Samples collected in 2012	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
Samples collected in 2013	3	9	0	0	9*	9	6	6	3	9	9	5	9	9	6
Samples collected in 2014 WY	0	0	0	0	6*	3	0	0	0	0	0	0	0	0	0
Samples collected in 2015 WY	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0
Samples collected in 2016 WY	0	0	0	0	8*	0	0	0	0	0	0	0	0	0	8
Exceedance Summary															
Total Samples Collected	21	27	0	3	38	43	11	28	3	9	27	16	6	27	14
Total Exceedances	0	0	0	0	15	21	0	5	0	0	0	0	0	1	0
% Exceedances	0%	0%	0%	0%	39%	49%	0%	18%	0%	0%	0%	0%	0%	4%	0%

MONITORING AT REPRESENTED SITES

The Coalition evaluates the potential risk for water quality impairments at Represented sites when an exceedance of a WQTL occurs at an associated Core site (Attachment B of the Order, Page 4). Table 21 includes a list of the Represented sites in each zone. Monitoring at Represented sites for applied pesticides, applied metals, and toxicity were reviewed utilizing monitoring results from Core and Represented sites through June 2016 based on the following criteria:

- An exceedance of an applied pesticide, applied metal, or toxicity occurred at the Core site in the same zone during the 2016 WY,
- The Core site is in a management plan for an applied pesticide, applied metal, or toxicity and monitoring at the Represented site is necessary to characterize potential discharge.
- An exceedance of an applied pesticide, applied metal, or toxicity occurred at the Represented site during the 2016 WY.

The Coalition monitors Represented sites during the times of year with the highest applications of the constituent for a minimum of two years. If two or more exceedances occur at the Represented site (or one exceedance for TMDL constituents), a management plan is initiated. The flowchart in Figure 10 depicts the monitoring strategy for Represented sites.

Table 22 lists the exceedances that occurred at Core and Represented sites during the 2016 WY through June 2016. Attachment A includes the 2017 WY monitoring schedule. Represented sites are not evaluated for metals that are not applied by agriculture; however, in some cases, the Coalition may conduct MPM for these constituents on a site by site basis (Attachment A).

Until the Coalition receives feedback from the Regional Board for the submitted preliminary analyses (Table 6), the constituents (ammonia, *E. coli*, field parameters, lead, DDE, arsenic, molybdenum, and nitrate) will not be evaluated for monitoring at Represented sites.

The rationale for monitoring at Represented sites is discussed below by zone. Figure 11 through Figure 37 were used to evaluate monitoring and include PUR results and exceedances.

Management Plan Monitoring for each Represented site in a management plan is discussed in the sections below and include 1) a discussion of management plan constituents (applied pesticides, applied metals, or toxicity) that will be monitored, and 2) an evaluation of monitoring frequency (past exceedances and PUR evaluations). Where MPM is required, a MPM constituent figure is provided to evaluate constituent specific PUR data of the pounds applied during the same time at which water quality monitoring at the site occurred. Below each figure is a table noting the months of past sampling and exceedances by year. The figure also contains a summary of the percentage of total use and change in use for the years evaluated.

Table 21. ESJWQC Represented site locations by zone monitored in the 2017 WY.

ZONE	SITE TYPE	SITE NAME	STATION CODE	LATITUDE	LONGITUDE
1	Represented	Mootz Drain Downstream of Langworth Pond	535XMDDL	37.70539	-120.89569
2	Represented	Hatch Drain @ Tuolumne Rd	535XHDATR	37.51498	-121.01229
2	Represented	Hilmar Drain @ Central Ave	535XHDACA	37.39058	-120.95820

ZONE	SITE TYPE	SITE NAME	STATION CODE	LATITUDE	LONGITUDE
2	Represented	Lateral 2 1/2 near Keyes Rd	535LTHNKR	37.54766	-121.08509
2	Represented	Lateral 6 and 7 @ Central Ave	535LSSACA	37.39779	-120.95960
2	Represented	Levee Drain @ Carpenter Rd	535XLDACR	37.48062	-121.03106
2	Represented	Lower Stevinson @ Faith Home Rd	535LSAFHR	37.37248	-120.92324
2	Represented	Prairie Flower Drain @ Crows Landing Rd	535XPFDCCL	37.44187	-121.00331
2	Represented	Unnamed Drain @ Hogin Rd	535XUDAHR	37.43120	-120.99475
2	Represented	Westport Drain @ Vivian Rd	535XWDAVR	37.53682	-121.04861
3	Represented	Highline Canal @ Lombardy Rd ¹	535XHCALR	37.45547	-120.72181
3	Represented	Mustang Creek @ East Ave	535XMCAEA	37.49180	-120.68390
4	Represented	Black Rascal Creek @ Yosemite Rd	535BRCAJR	37.33202	-120.39435
4	Represented	Howard Lateral @ Hwy 140	535XHLAHO	37.30790	-120.78200
4	Represented	Livingston Drain @ Robin Ave	535XLDARA	37.31693	-120.74229
4	Represented	Merced River @ Santa Fe	535XMRSFD	37.42705	-120.67353
4	Represented	Unnamed Drain @ Hwy 140	535XUDAHO	37.31331	-120.89218
5	Represented	Deadman Creek @ Gurr Rd	535XDCAGR	37.19514	-120.56147
5	Represented	Deadman Creek @ Hwy 59	535DMCAHF	37.19755	-120.48763
5	Represented	Duck Slough @ Gurr Rd	535XDSAGR	37.21408	-120.56126
6	Represented	Ash Slough @ Ave 21	545XASAAT	37.05448	-120.41575
6	Represented	Berenda Slough along Ave 18 1/2	545XBSAAE	37.01820	-120.32650
6	Represented	Cottonwood Creek @ Rd 20	545XCCART	36.86860	-120.18180

¹Monitoring for management plan constituents will take place at Highline Canal @ Hwy 99 due to reduced monitoring for the Delta RMP.

Figure 10. ESJWQC flowchart for the monitoring strategy at Represented sites.



Table 22. 2016 WY exceedances of the WQTL for applied pesticides, metals, and toxicity.

Data from October 2015 through June 2016 are listed by zone alphabetically by site. The WQTL is listed after each constituent.

ZONE	SITE NAME	SAMPLE DATE	SITE TYPE	SAMPLING TYPE	ARSENIC (TOTAL), 10 µg/L	COPPER (DISSOLVED); µg/L, VARIABLE ¹	LEAD (DISSOLVED); µg/L, VARIABLE ¹	CHLORPYRIFOS, > 0.015 µg/L	DIURON, > 2.0 µg/L	MALATHION (>ND)	S. CAPRICORNUTUM TOXICITY, % CONTROL
2	Lateral 2 1/2 near Keyes Rd	5/10/2016	Represented	MPM							74
	Lateral 5 1/2 @ South Blaker Rd	2/9/2016	Core	NM							70
	Lateral 5 1/2 @ South Blaker Rd	3/8/2016	Core	NM							31
	Lateral 5 1/2 @ South Blaker Rd	5/10/2016	Core	NM							51
	Lateral 5 1/2 @ South Blaker Rd	6/14/2016	Core	NM							15
	Lateral 6 and 7 @ Central Ave	3/8/2016	Represented	NM					22		
	Prairie Flower Drain @ Crows Landing Rd	3/8/2016	Represented	MPM, NM							69
3	Highline Canal @ Hwy 99	1/7/2016	Core	NM, MPM		19 (13.38)		0.018			
	Highline Canal @ Hwy 99	3/8/2016	Core	MPM, NM		21 (10.47)					
	Highline Canal @ Hwy 99 (FD) ²	5/10/2016	Core	MPM, NM						0.031	
	Mustang Creek @ East Ave	12/15/2015	Represented	MPM, Non-contiguous		11 (10.47)					
	Mustang Creek @ East Ave	1/7/2016	Represented	MPM		13 (6.12)					
	Mustang Creek @ East Ave	3/8/2016	Represented	MPM		14 (8.03)					
4	Canal Creek @ West Bellevue Rd	1/7/2016	Core	NM, High TSS		2.9 (2.83)					
	Howard Lateral @ Hwy 140	4/12/2016	Represented	MPM		3.90 (3.56)					
	Livingston Drain @ Robin Ave	1/7/2016	Represented	MPM		5.5 (3.2)					
	Livingston Drain @ Robin Ave	3/8/2016	Represented	MPM		3.2 (2.83)					
	Merced River @ Santa Fe	11/10/2015	Represented	MPM				0.028			
5	Duck Slough @ Gurr Rd	11/10/2015	Represented	NM, Non-contiguous, High TSS	20						
	Duck Slough @ Gurr Rd	1/7/2016	Represented	MPM, High TSS			4.8 (3.9)				
	Miles Creek @ Reilly Rd	1/7/2016	Core	NM		6.1 (4.44)					
6	Berenda Slough along Ave 18 1/2	1/7/2016	Represented	MPM, Non-contiguous		7.6 (6.12)					
	Berenda Slough along Ave 18 1/2	4/12/2016	Represented	MPM		4.7 (3.56)					
	Dry Creek @ Rd 18	2/9/2016	Core	NM, MPM		19 (9.72)					
	Dry Creek @ Rd 18	3/8/2016	Core	MPM, NM		25 (4.95)					
	Dry Creek @ Rd 18	4/12/2016	Core	NM, MPM		24 (6.92)					
	Dry Creek @ Rd 18	5/10/2016	Core	NM, MPM		5.6 (2.07)					
	Dry Creek @ Rd 18	6/14/2016	Core	NM, MPM		3.0 (1.67)					

¹Metal WQTL variable depending on hardness; calculated WQTL is listed in parenthesis.

³FD-Field duplicate; exceedance of the WQTL occurred only in the field duplicate sample.

ZONE 1

Dry Creek @ Wellsford Rd is the Core site in Zone 1. The management plan constituents for sites in Zone 1 are listed in Table 23 and will be monitored monthly at the Core site. The last exceedance of the WQTL for chlorpyrifos occurred at the Core site in October 2013. If no exceedance of the WQTL occurs in October 2016, the Coalition plans to request the management plan completion for chlorpyrifos at Dry Creek @ Wellsford Rd.

The Represented site in Zone 1 will be monitored based on an evaluation of Represented and Core site exceedances that occurred in previous years. In Zone 1, the potential for water quality impairments related to chlorpyrifos was evaluated at the Represented site and the rationale for monitoring is provided below.

Table 23. Zone 1 management plan constituents and 2016 WY exceedances.

Core site is bolded. An 'M' indicates a current management plan constituent.

SITE NAME	DO	PH	E. COLI	AMMONIA	CHLORPYRIFOS	DIURON
Dry Creek @ Wellsford Rd	M	M	M		M	
Mootz Drain downstream of Langworth Pond	M		M	M		M

Mootz Drain downstream of Langworth Pond

Mootz Drain downstream of Langworth Pond is a Represented site in Zone 1. Monitoring was initiated at Mootz Drain @ Langworth Pond in 2008 moved to Mootz Drain downstream of Langworth Pond in 2009. During the 2016 WY, the Coalition conducted MPM for chlorpyrifos, diuron, and monitored for sediment toxicity to *H. azteca* based on exceedances at the Represented site.

During the 2016 WY, Mootz Drain downstream of Langworth Pond was schedule for a third consecutive year of sediment toxicity monitoring based on the March 2014 sediment toxicity. However, due to the updated definition of sediment toxicity as defined within Surface Water Ambient Monitoring Program (SWAMP) protocol (approved March 7, 2016) the sample from March 2014 is no longer considered toxic. Therefore, monitoring for *H. azteca* is not necessary during the 2017 WY.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for diuron at Mootz Drain downstream of Langworth Pond.

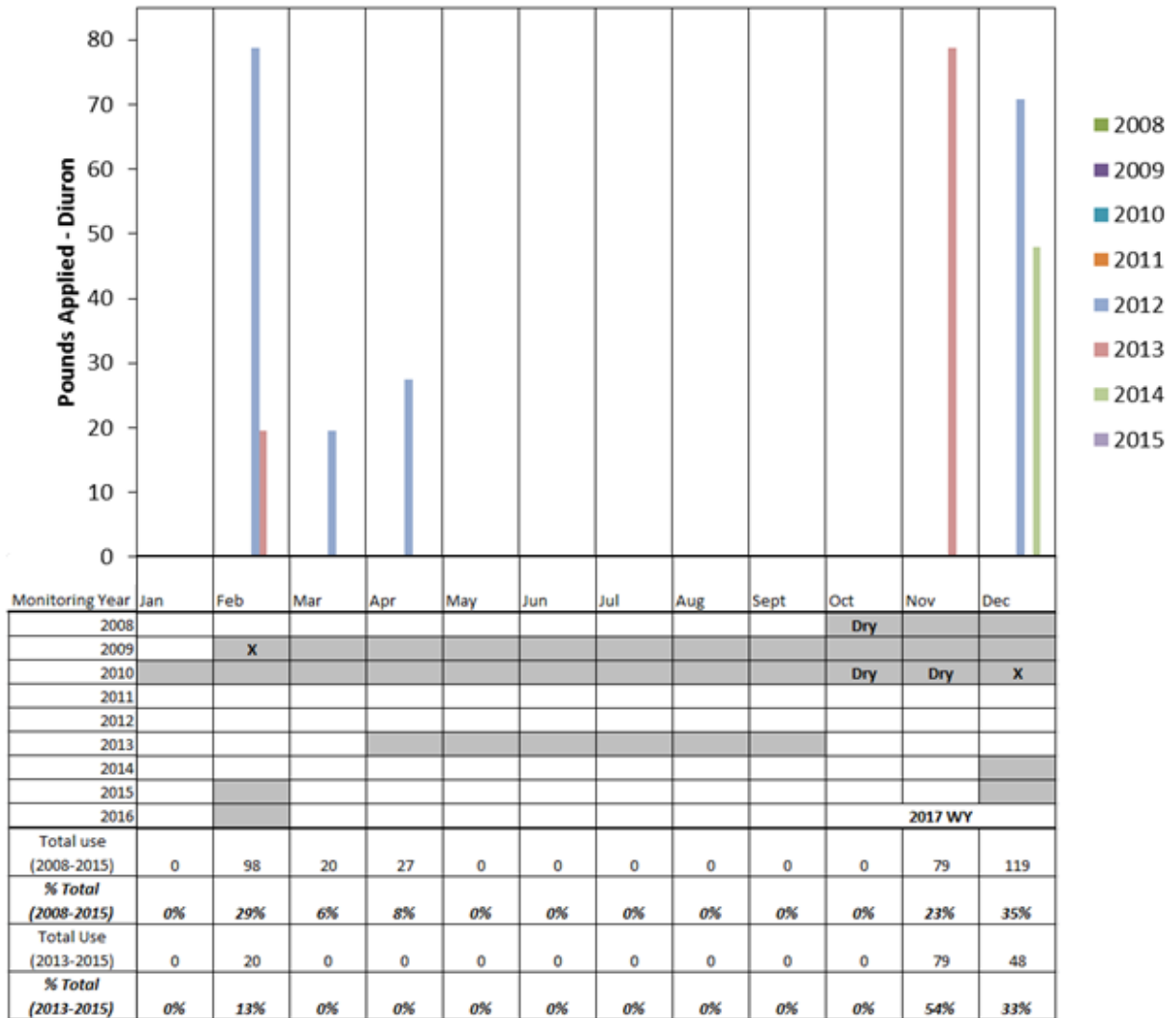
Diuron

The Coalition reviewed PUR data from 2008 through December 2015; very few applications of diuron occur in the site subwatershed. During 2015, no applications of diuron occurred. The most recent applications occurred in December 2014 (Figure 11). The Coalition monitored for three years in February since the last exceedance of the WQTL for diuron in 2009; no exceedances occurred.

The Coalition will conduct one more year of MPM in December and February during the 2017 WY. If an exceedance of the WQTL for diuron does not occur in December, the Coalition can petition to the Regional Board for completion of the diuron management plan in the Mootz Drain downstream of Langworth Pond site subwatershed.

Figure 11. Mootz Drain monitoring history and diuron applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred (upstream and downstream of Langworth Pond). The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

Mootz Drain downstream of Langworth Pond was evaluated for chlorpyrifos water quality impairments based on the Core site management plan.

Chlorpyrifos

Mootz Drain downstream of Langworth Pond was in a management plan for chlorpyrifos due to an exceedance of the WQTL for chlorpyrifos that occurred in 2008 and 2009. The chlorpyrifos management plan was approved for completion on March 25, 2016. Therefore, monitoring for chlorpyrifos based on Core site exceedances is not necessary during the 2017 WY.

ZONE 2

Lateral 5 ½ @ South Blaker Rd is the rotating Core site in Zone 2. The management plan constituents for sites in Zone 2 are listed in Table 24 and will be monitored monthly at the Core site, with the exception of *H. azteca* sediment toxicity, arsenic, and molybdenum (see Core Site Metals section). Sediment toxicity monitoring will occur in March and September during the 2017 WY.

The Represented sites in Zone 2 will be monitored based on an evaluation of Represented and Core site exceedances that occurred in previous years. The rationale for monitoring each constituent is provided below.

Table 24. Zone 2 management plan constituents and 2016 WY exceedances.

Core site is bolded. An 'M' indicates a current management plan constituent and an 'M' in red text indicates exceedances in the 2016 WY triggered a management plan. An 'X' indicates one exceedance occurred during the 2016 WY that did not initiate a management plan.

SITE NAME	DO	pH	SC	E. COLI	AMMONIA	NITRATE + NITRITE	ARSENIC	MOLYBDENUM	CHLORPYRIFOS	DIURON	DIMETHOATE	C. DUBIA	S. CAPRICORNUTUM	H. AZTECA
Lateral 5 ½ @ South Blaker Rd		M	M	M	X	M							M	
Hatch Drain @ Tuolumne Rd	M		M	M		M	M						M	M
Hilmar Drain @ Central Ave	M		M	M	M	M							M	M
Lateral 2 ½ near Keyes Rd		M	M						M				M	
Lateral 6 and 7 @ Central Ave	M	M	M							X			M	
Levee Drain @ Carpenter Rd	M		M	M	M	M						M	M	M
Lower Stevinson @ Faith Home Rd	M	M	M										M	
Prairie Flower Drain @ Crows Landing Rd	M	M	M	M	M	M		M	M		M	M	M	
Unnamed Drain @ Hogin Rd	M		M											
Westport Drain @ Vivian Rd	M	M	M	M		M			M				M	

Hatch Drain @ Tuolumne Rd

Hatch Drain @ Tuolumne Rd is a Represented site in Zone 2. Monitoring was initiated at the site in 2007. During the 2016 WY, the Coalition monitored for toxicity to *C. dubia* at Hatch Drain @ Tuolumne Rd based on past exceedances at the Prairie Flower Drain @ Crows Landing Rd Core site and MPM for toxicity to *S. capricornutum* and sediment toxicity to *H. azteca*.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled Hatch Drain @ Tuolumne Rd for toxicity to *S. capricornutum* and *H. azteca* sediment toxicity.

***Selenastrum capricornutum* toxicity**

Samples collected from Hatch Drain @ Tuolumne Rd have been toxic to *S. capricornutum* seven times in 2008 (January, February, April, May, July, and August) and again in July 2014. Toxic Identification Evaluations (TIEs) were performed on four samples and only concluded sources for two of the four. The TIE indicated non-polar organics were the source of toxicity for the February 2008 sample and ammonia was the source for the July 2014 sample. In both these cases, the potential toxicants were not detected in either sample.

The Coalition will conduct MPM for *S. capricornutum* toxicity in January, February, April, May, July, and August during the 2017 WY.

***Hyalella azteca* sediment toxicity**

Sediment toxicity occurred in samples collected during both storm and irrigation seasons; the last samples collected to result in toxicity to *H. azteca* occurred in September 2014. The Coalition will conduct MPM for *H. azteca* sediment toxicity in March and September during the 2017 WY.

Monitoring decision based on exceedances at the Core site

Hatch Drain @ Tuolumne Rd was monitored for toxicity to *C. dubia* during the 2015 and 2016 WYs based on exceedances at the Prairie Flower Drain @ Crows Landing Rd Core site. No toxicity occurred and therefore, a third year of monitoring is not necessary.

Hilmar Drain @ Central Ave

Hilmar Drain @ Central Ave is a Represented site in Zone 2. Monitoring was initiated at the site in 2005. During the 2016 WY, the Coalition conducted MPM for copper (until the approval to complete the management plan on March 25, 2016), toxicity to *S. capricornutum*, and sediment toxicity to *H. azteca*.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled at Hilmar Drain @ Central Ave for *S. capricornutum* toxicity and *H. azteca* sediment toxicity.

***Selenastrum capricornutum* toxicity**

Selenastrum capricornutum toxicity occurred in samples collected from Hilmar Drain @ Central Ave in July 2006, April 2007 and 2008, September 2008 and 2015. All past toxicities were not persistent and the TIE analyses could not be concluded. Copper was detected in the samples collected in July 2006, April 2007, and September 2008; the copper concentration in the July 2006 sample was above the WQTL. Diuron was detected in samples collected in April 2007 and April 2008; the diuron concentrations in both samples were above the WQTL. However, concentrations of copper have not impaired the water quality at Hilmar Drain since 2007 and concentrations of diuron have not impaired the water quality since 2008. The Coalition received approval for management plan completion of both the copper and diuron management plans on March 25, 2016.

During the 2017 WY, MPM for *S. capricornutum* toxicity will continue during months of past exceedances in April, July, and September.

***Hyalella azteca* sediment toxicity**

Sediment toxicity occurred in samples collected during both storm and irrigation seasons; the last samples collected to result in toxicity to *H. azteca* occurred in August 2008.

The Coalition will conduct MPM for sediment toxicity to *H. azteca* in March and September during the 2017 WY. In addition, the Coalition will request for completion of the *H. azteca* sediment toxicity management plan after 2016.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at Hilmar Drain@ Central Ave during the 2017 WY due to Core site exceedances.

Lateral 2 ½ near Keyes Rd

Lateral 2 ½ near Keyes Rd is a Represented site in Zone 2. Monitoring was initiated at the site in 2008. During the 2016 WY, the Coalition conducted MPM for chlorpyrifos and toxicity to *S. capricornutum*.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for chlorpyrifos and *S. capricornutum* toxicity.

Chlorpyrifos

Samples collected in July 2009, April 2010, July 2010, and July 2014 resulted in exceedances of the WQTL for chlorpyrifos (Figure 12). The greatest amount of applications of chlorpyrifos occurred from May through August (a total of 80% of all applications from 2013 through 2015).

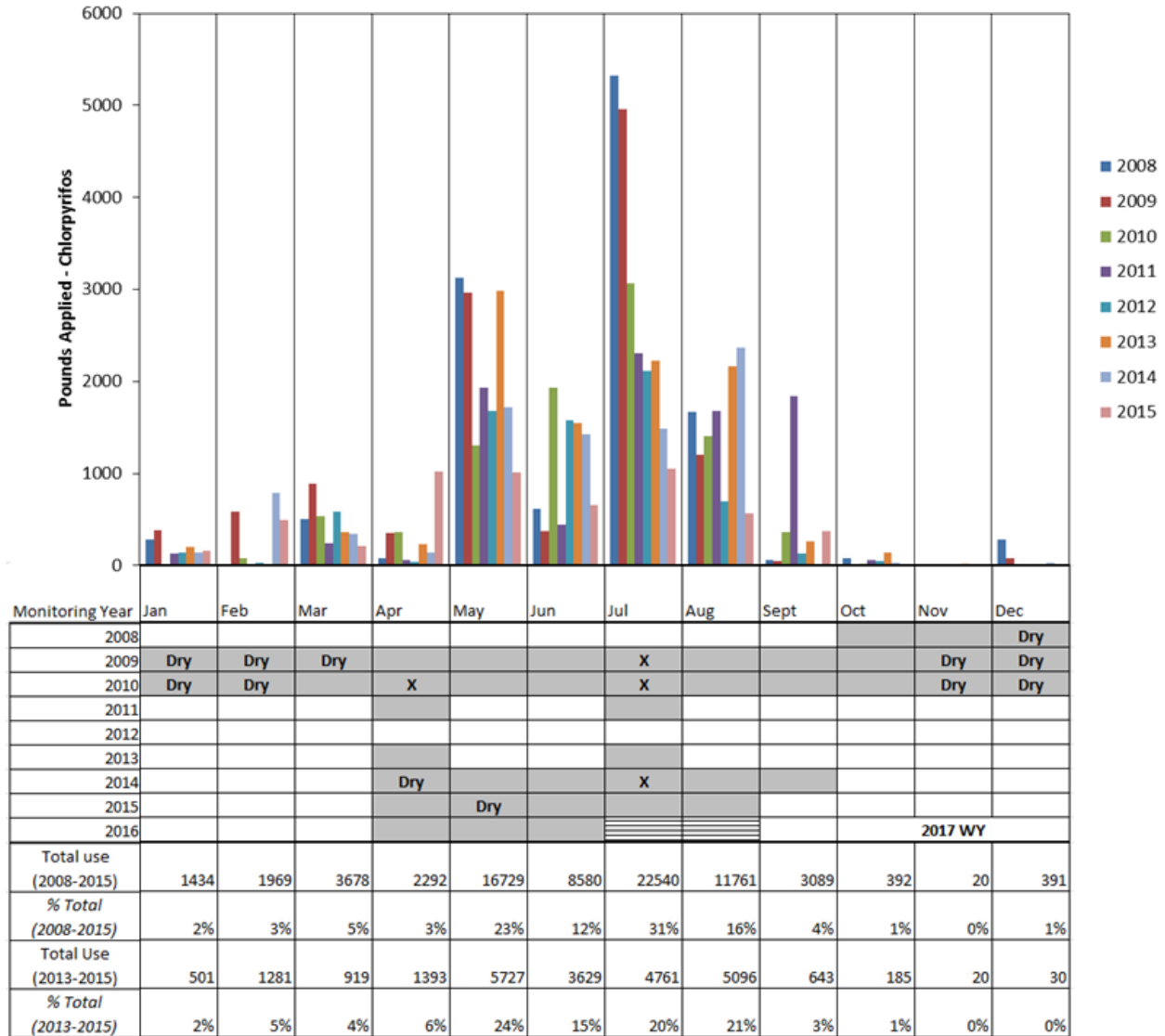
During the 2017 WY, the Coalition will conduct MPM for chlorpyrifos from May through August based on months of past exceedances and PUR data.

***Selenastrum capricornutum* toxicity**

The Coalition collected samples to test for toxicity to *S. capricornutum* from 2008 through 2010, and in February and May through July from the 2014 WY through 2016 WY. Samples were toxic in May 2009, June and July 2015, and in May 2016. During the 2017 WY, MPM for toxicity to *S. capricornutum* is scheduled from May through July.

Figure 12. Lateral 2 ½ near Keyes Rd monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

Based on the Coalition’s monitoring strategy, no monitoring is required at this site during the 2017 WY due to Core site exceedances.

Lateral 6 and 7 @ Central Ave

Lateral 6 and 7 @ Central Ave is a Represented site in Zone 2. Monitoring was initiated at the site in the 2014 WY. During the 2016 WY, the Coalition monitored for diuron for a second consecutive year, based on exceedances at the Prairie Flower Drain @ Crows Landing Rd Core site; a single exceedance of the WQTL for diuron occurred in March 2016. Therefore, a third consecutive year of monitoring is required during the 2017 WY.

Monitoring decision based on exceedances at the Represented site

Lateral 6 and 7 @ Central Ave is in a management plan for DO, pH, SC, and *S. capricornutum* toxicity. Management Plan Monitoring will be scheduled once focused outreach is initiated in the site subwatershed, as described in the Management Plan Monitoring section of this report.

During the 2016 WY, Lateral 6 and 7 @ Central Ave was scheduled for a third consecutive year of sediment toxicity monitoring based on the September 2014 sediment toxicity. However, due to the updated definition of sediment toxicity as defined within SWAMP protocol (approved March 7, 2016) the sample from September 2014 is no longer considered toxic and September monitoring was removed from the 2016 WY schedule. Therefore, monitoring for *H. azteca* is not necessary during the 2017 WY.

Diuron

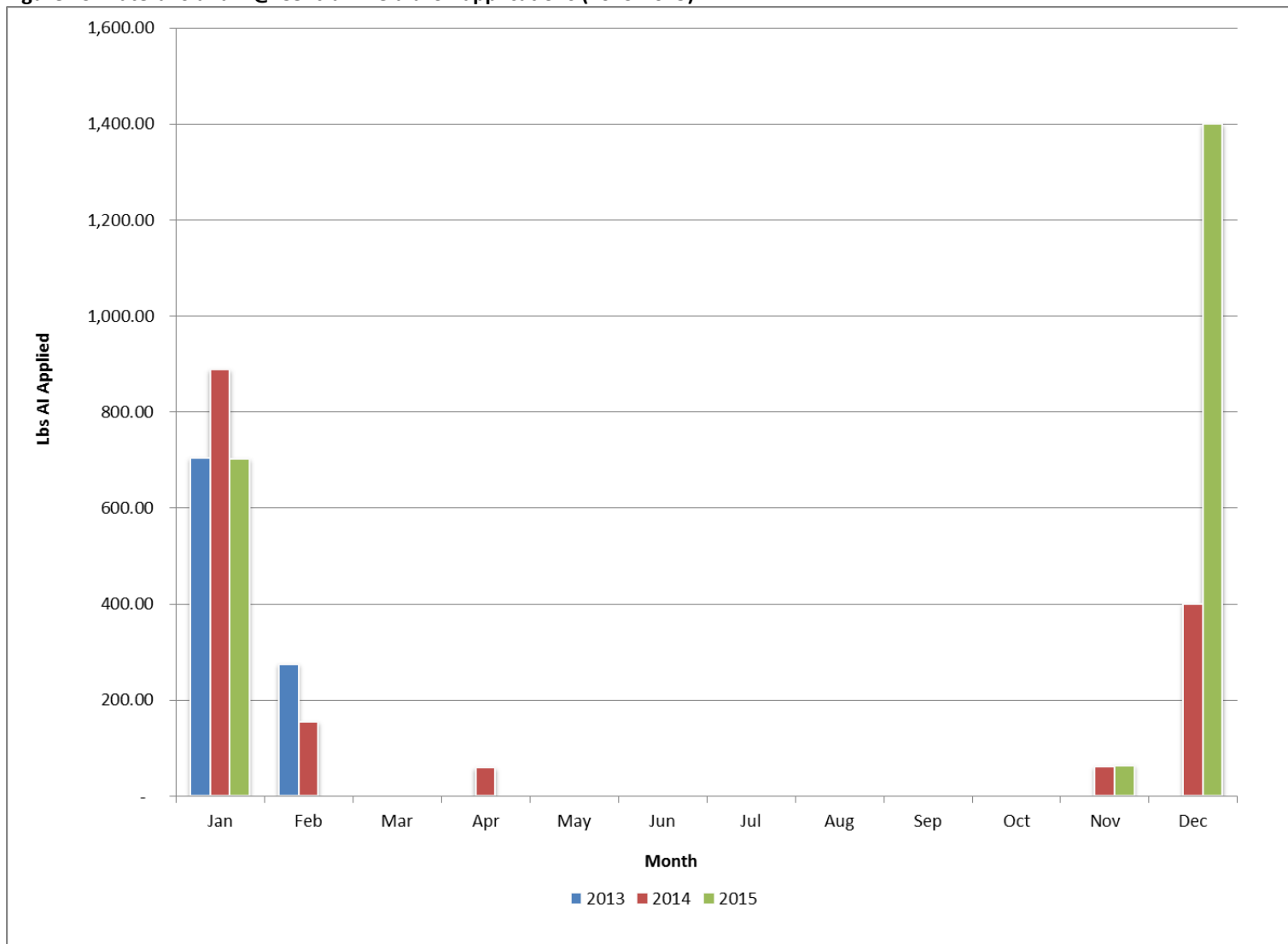
Samples were collected for the analysis of diuron from December through May during the 2015 WY and 2016 WY. During the two years of monitoring at Lateral 6 and 7 @ Central Ave, a single exceedance of the WQTL occurred in March 2016. Applications of diuron occurred in the site subwatershed from 2013 through 2015 during the winter months in November through February, and only in April 2014 (Figure 13).

During the 2017 WY, the Coalition will monitor for diuron at Lateral 6 and 7 @ Central Ave from December through March, for a third consecutive year, based on high use and the March 2016 exceedance.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY due to Core site exceedances.

Figure 13. Lateral 6 and 7 @ Central Ave diuron applications (2013-2015).



Levee Drain @ Carpenter Rd

Levee Drain @ Carpenter Rd is a Represented site in Zone 2. Monitoring was initiated at the site in 2012. During the 2016 WY, the Coalition monitored for toxicity to *C. dubia*, *S. capricornutum*, and sediment toxicity to *H. azteca* during MPM.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled at Levee Drain @ Carpenter Rd during the 2017 WY for toxicity to *C. dubia*, *S. capricornutum*, and *H. azteca* sediment toxicity.

***Ceriodaphnia dubia* toxicity**

Samples collected from Levee Drain @ Carpenter Rd were tested for toxicity to *C. dubia* monthly in 2012 and 2013, and during MPM in the 2014, 2015, 2016 WYs due to toxic samples collected in February and July 2013. A TIE was conducted on both of the samples and it was concluded that ammonia was the cause of the toxicities. Exceedances of the WQTL for ammonia occurred in samples collected from the site in February (17 mg/L) and in July (5.4 mg/L) 2013.

During the 2017 WY, the Coalition will continue to conduct MPM for toxicity to *C. dubia* during February and July. After the 2016 WY, the Coalition can petition to the Regional Board for completion of the *C. dubia* toxicity management plan in the site subwatershed.

***Selenastrum capricornutum* toxicity**

Samples were collected and tested for *S. capricornutum* toxicity monthly in 2012 and 2013 and during MPM in the 2014, 2015, and 2016 WYs. Toxicity to *S. capricornutum* occurred in February 2013 and in December and June of the 2014 WY. The TIE conducted on the February 2013 sample indicated the sample lost all toxicity prior to the evaluation. The TIE conducted on the June 2014 sample indicated non-polar organics were the cause of toxicity. Diuron is a non-polar organic pesticide monitored by the Coalition and most likely to cause toxicity to *S. capricornutum*; however, applications of diuron are very minimal in the site subwatershed and have only occurred from November through March (Figure 14).

During the 2017 WY, the Coalition will conduct MPM for toxicity to *S. capricornutum* in December, February, and June based on months of past toxicities.

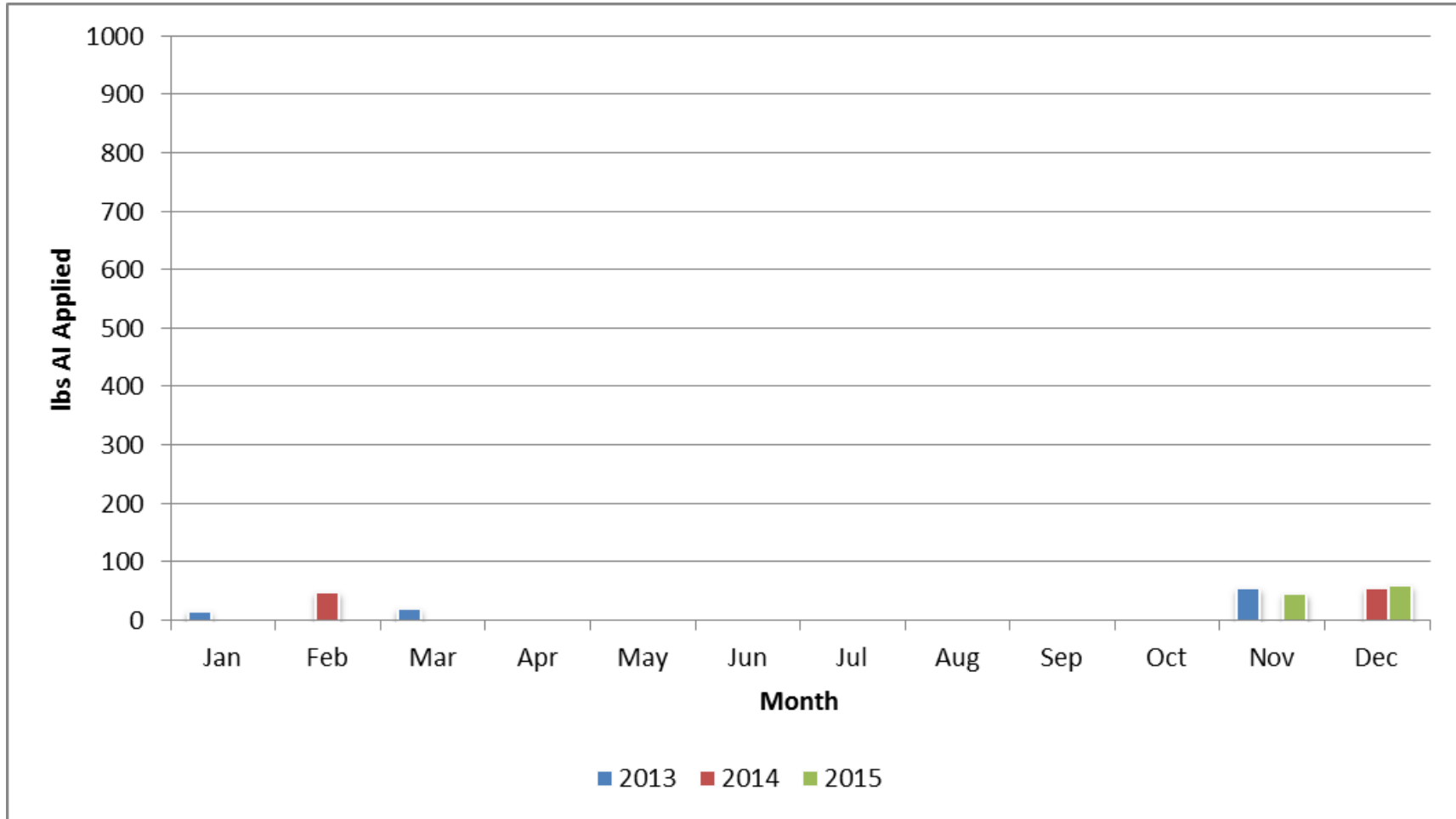
***Hyalella azteca* sediment toxicity**

Sediment toxicity occurred at Levee Drain @ Carpenter Rd in March 2012 and March 2014; therefore the Coalition will conduct MPM for sediment toxicity in March during the 2017 WY.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY due to Core site exceedances.

Figure 14. Levee Drain @ Carpenter Rd diuron applications (2013-2015).



Lower Stevinson @ Faith Home Rd

Lower Stevinson @ Faith Home Rd is a Represented site in Zone 2. Monitoring was initiated at the site in the 2014 WY. During the 2016 WY, the Coalition monitored for diuron for a second consecutive year, based on exceedances at the Prairie Flower Drain @ Crows Landing Rd Core site; no exceedances of the WQTL for diuron occurred. Therefore, monitoring for diuron is not required during the 2017 WY.

Monitoring decision based on exceedances at the Represented site

Lower Stevinson @ Faith Home Rd is in a management plan for DO, pH, SC, and *S. capricornutum* toxicity. Toxicity to *S. capricornutum* was placed in a management plan after the 2014 WY exceedances. Management Plan Monitoring will be scheduled once focused outreach is initiated in the site subwatershed, as described in the Management Plan Monitoring section of this report.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY due to Core site exceedances.

Prairie Flower Drain @ Crows Landing Rd

Prairie Drain @ Crows Landing Rd is a Represented site in Zone 2 for the 2017 WY and a rotating Core site every two years. Monitoring was initiated at the site in 2005. During the 2016 WY, the Coalition conducted MPM for chlorpyrifos, dimethoate, toxicity to *C. dubia*, toxicity to *S. capricornutum*, and sediment toxicity to *H. azteca*. In addition, the Coalition monitored for diuron for a third consecutive year, due to a single exceedance of the WQTL in March 2014.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled at Prairie Flower Drain @ Crows Landing Rd for chlorpyrifos, dimethoate, toxicity to *C. dubia*, and toxicity to *S. capricornutum*.

Chlorpyrifos

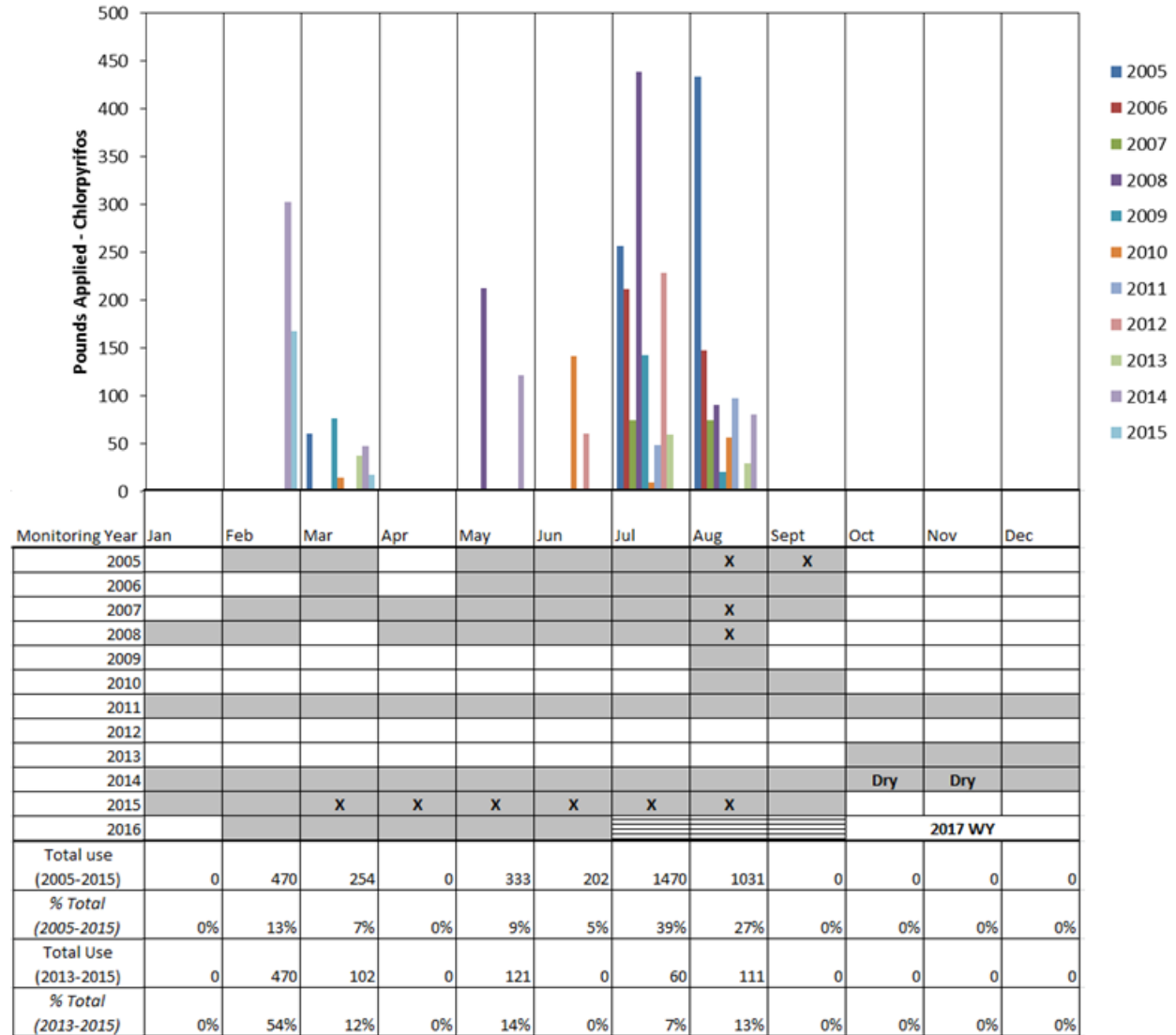
Prairie Flower Drain @ Crows Landing Rd was monitored monthly during the 2014 WY and 2015 WY as the Core site; exceedances of the WQTL for chlorpyrifos occurred from March through August 2015. Therefore, the management plan for chlorpyrifos was reinstated in the 2016 WY.

During the 2017 WY, MPM for chlorpyrifos will occur from March through August based on past exceedances and February due to an increase in use; February applications make up for 54% of the total applications in the last three years (Figure 15).

The Coalition determined that MPM in September is no longer necessary; applications of chlorpyrifos have not occurred in September and monitoring has occurred for seven years in September without resulting in an exceedance of the WQTL (Figure 15).

Figure 15. Prairie Flower Drain @ Crows Landing Rd monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.

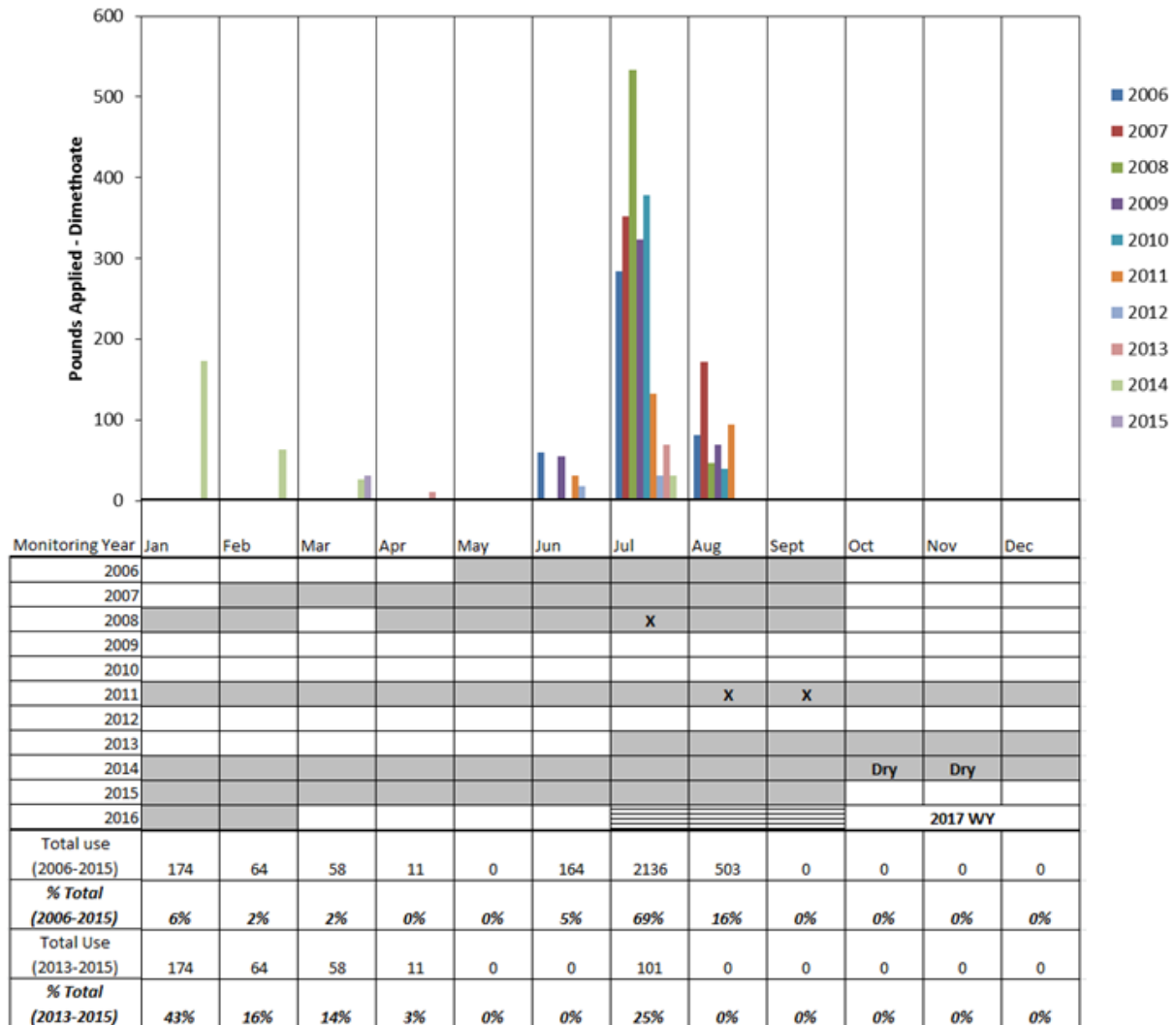


Dimethoate

Prairie Flower Drain @ Crows Landing Rd was monitored monthly during the 2014 WY and 2015 WY as the Core site; no exceedances of the WQTL for dimethoate occurred. The Coalition also conducted MPM for dimethoate in January and February 2016 based on high use and July, August, and September 2016 due to past exceedances; no exceedances occurred. Within the last three years, most dimethoate applications occurred in January (43% of total applications); however, no applications occurred in 2015 and no exceedances of the WQTL for dimethoate occurred since monitoring began in 2008 (Figure 16).

During the 2017 WY, the Coalition will conduct MPM for dimethoate from July through September based on past exceedances. In addition, the Coalition can petition to the Regional Board for completion of the dimethoate management plan after the 2016 WY, based on three years of monitoring with no exceedances.

Figure 16. Prairie Flower Drain @ Crows Landing Rd monitoring history and dimethoate applications. Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



***Ceriodaphnia dubia* toxicity**

Toxicity to *C. dubia* has occurred nine times in samples collected from Prairie Flower Drain @ Crows Landing Rd during March through September months. During the 2015 WY, five samples were toxic to *C. dubia* and all five correlated with high concentrations of chlorpyrifos (0.18-4.2 µg/L) detected in samples collected from March through July. During the 2016 WY, toxicity to *C. dubia* or exceedances of the WQTL for chlorpyrifos has not occurred.

During the 2017 WY, the Coalition will conduct MPM for toxicity to *C. dubia* from March through August. Chlorpyrifos MPM will occur concurrently from March through August.

The Coalition determined that MPM in September is no longer necessary. The last sampled collected in September that resulted in toxicity occurred in 2007. Since 2007, samples have been collected and tested for *C. dubia* toxicity in September for six years in 2009, 2010, 2011, and 2013 through the 2015 WY; no toxicity occurred. In addition, applications of chlorpyrifos are decreasing during the month of

August, no applications occurred in August 2015, and applications have never occurred in September (Figure 15).

***Selenastrum capricornutum* toxicity**

Twenty samples collected from 2007 through the 2015 WY resulted in toxicity in the January through August, October, and December months; toxicity has not occurred in samples collected during September or November. Samples collected in March 2016 also resulted in *S. capricornutum* toxicity.

Of the toxic samples, only two TIEs conducted concluded metals and/or non-polar organics (April 2008) and metals and/or ammonia (May 2009) were the sources of toxicity. However, exceedances of the WQTLs for ammonia, nitrate, and diuron occurred frequently. The TIEs for the other toxic samples were either not conducted due to the result being above 50% compared to the control or inconclusive due to non-persistent or unknown toxicity.

During the 2017 WY, the Coalition will conduct MPM for *S. capricornutum* toxicity in October, December, and January through August, based on months of past toxicities.

***Hyalella azteca* toxicity**

Sediment samples have been collected 22 times from May 2005 through March 2016 and the site has been in a management plan for *H. azteca* toxicity since 2007. The Coalition received approval to update the criteria defining sediment toxicity as described by SWAMP protocol. As a result, sediment toxicity only occurred in two samples collected in August 2007 and March 2015. Due to five years of monitoring between the August 2007 and March 2015 toxicities, the site no longer requires a management plan for *H. azteca* sediment toxicity.

Due to the recent toxicity to *H. azteca* in March 2015, the site was monitored in March 2016; no toxicity occurred. The Coalition will monitor the site in March and September and during the 2017 WY for a third consecutive year.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY due to Core site exceedances.

Unnamed Drain @ Hogin Rd

Unnamed Drain @ Hogin Rd is a Represented site in Zone 2. Monitoring was initiated at the site in the 2014 WY. During the 2016 WY, the Coalition monitored for diuron for a second consecutive year, based on exceedances at the Prairie Flower Drain @ Crows Landing Rd Core site; no exceedances of the WQTL occurred. Monitoring for diuron is not required during the 2017 WY.

The Coalition monitored for dimethoate during the 2016 WY for a third consecutive year, based on the exceedance that occurred at the site in March 2015; no exceedances of the WQTL for dimethoate occurred. Therefore, monitoring for dimethoate is not required during the 2017 WY.

Monitoring decision based on exceedances at the Represented site

Unnamed Drain @ Hogin Rd is in a management plan for the field parameters, DO and SC; therefore no MPM is scheduled during the 2017 WY.

Dimethoate

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY; no exceedances of the WQTLs occurred during the 2016 WY.

Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituent not in a management plan at Unnamed Drain @ Hogin Rd: *S. capricornutum* toxicity.

***Selenastrum capricornutum* toxicity**

Samples were collected and analyzed for toxicity to *S. capricornutum* at Unnamed Drain @ Hogin Rd from the 2014 WY through the 2015 WY; eight samples were collected and no toxicity occurred. Toxicity monitoring was scheduled for two consecutive years at Unnamed Drain @ Hogin Rd due to algae toxicity found at the Prairie Flower Drain @ Crows Landing Core site. Because the Coalition did not find the same water quality impairment at Unnamed Drain @ Hogin Rd no toxicity monitoring is necessary during the 2017 WY.

Westport Drain @ Vivian Rd

Westport Drain @ Vivian Rd is a Represented site in Zone 2. Monitoring was initiated at the site in 2007. During the 2016 WY, the Coalition monitored for chlorpyrifos and toxicity to *S. capricornutum* during MPM.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled at Westport Drain @ Vivian Rd for chlorpyrifos and *S. capricornutum* toxicity during the 2017 WY.

Chlorpyrifos

Chlorpyrifos was detected at concentrations above the WQTL in samples collected at the site in July 2007 and 2008. Chlorpyrifos was monitored based on high use in January, March, and August in the 2015 WY and January and August in the 2016 WY.

For the 2017 WY, the Coalition will conduct chlorpyrifos MPM in July based on past exceedances and February due to increased use in 2015 and only one year of monitoring in 2008.

Monitoring for chlorpyrifos in January, March, and August is not necessary because use has declined substantially within recent years and the Coalition has monitored over three years during those months with no exceedances of the WQTL (Figure 17). In addition, if no exceedances of the WQTL occur in July and August 2016, the Coalition will petition to the Regional Board for completion of the chlorpyrifos management plan after the 2016 WY.

***Selenastrum capricornutum* toxicity**

Samples collected from the site were toxic in May 2007 and February and April 2008. The Coalition monitored for *S. capricornutum* toxicity during MPM in February, April, and May during the 2014, 2015, and 2016 WYs.

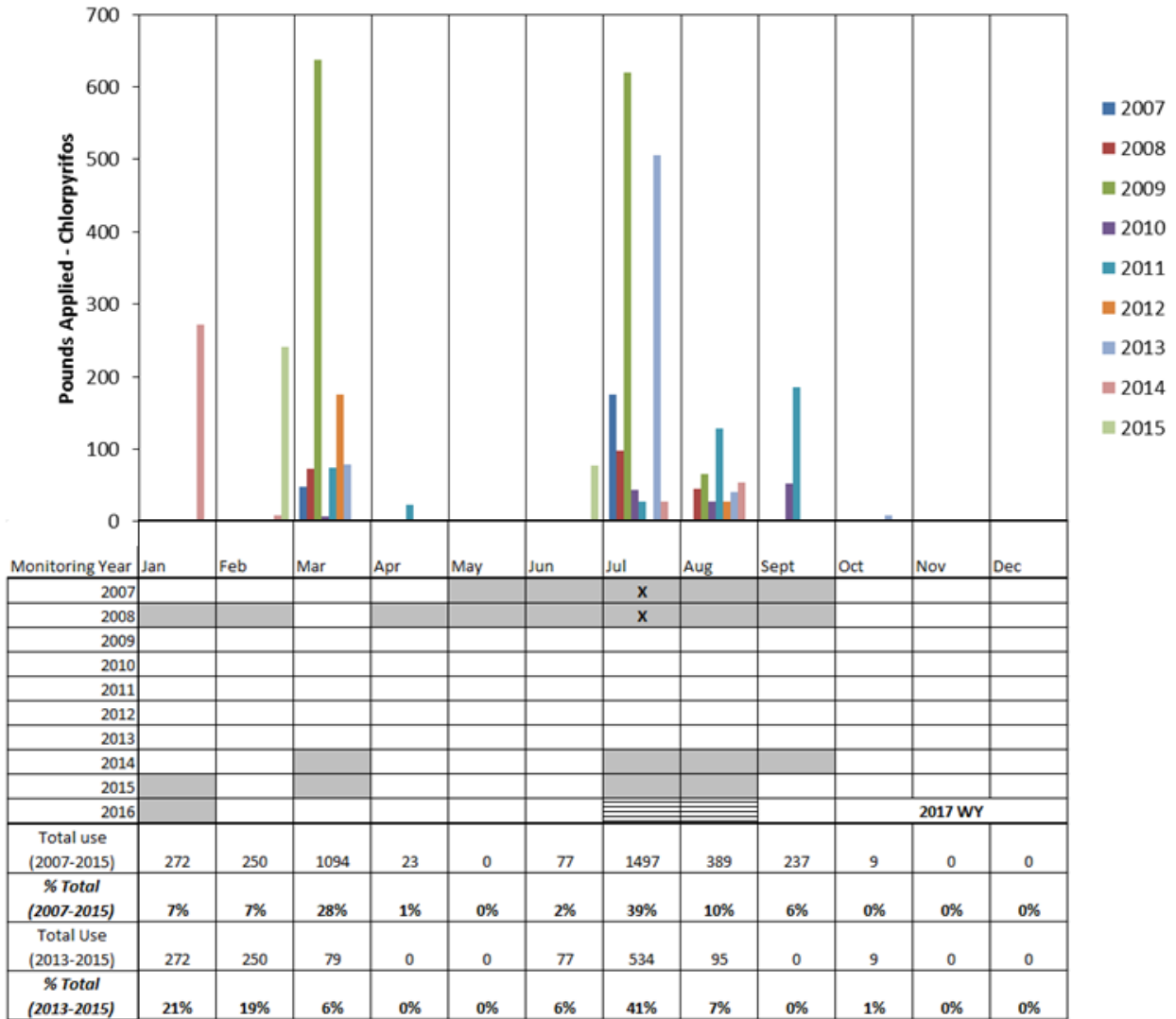
The Coalition will continue to monitor for *S. capricornutum* toxicity in February, April, and May during the 2017 WY. In addition, the Coalition can petition to the Regional Board for completion of the *S. capricornutum* toxicity management plan after the 2016 WY, due to improved water quality and three years of monitoring with no toxicity.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY due to Core site exceedances.

Figure 17. Westport Drain @ Vivian Rd monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



ZONE 3

Highline Canal @ Hwy 99 is the Core site in Zone 3. The management plan constituents for sites in Zone 3 are listed in Table 25 and will be monitored monthly at the Core site, with the exception of copper. Monitoring for copper will occur as outlined in the Core Site Metals section. A single exceedance of the WQTL for malathion occurred in the field duplicate sample collected at the Core site on May 10, 2016; malathion will be monitored monthly during the 2017 WY.

The Represented sites in Zone 3 will be monitored based on an evaluation of Represented and Core site exceedances that occurred in previous years. The rationale for monitoring each constituent is provided below.

Table 25. Zone 3 management plan constituents and 2016 WY exceedances.

Core site is bolded. An 'M' indicates a current management plan constituent and an 'M' in red text indicates exceedances in the 2016 WY triggered a management plan. An 'X' indicates one exceedance occurred during the 2016 WY that did not initiate a management plan.

SITE NAME	DO	PH	SC	E. COLI	AMMONIA	NITRATE + NITRITE	COPPER	CHLORPYRIFOS	DDE	MALATHION	S. CAPRICORNUTUM
Highline Canal @ Hwy 99	M	M	M	M	M		M	M		X	M
Highline Canal @ Lombardy Rd ¹	M	M	M	M			M				M
Mustang Creek @ East Ave	M		M	M		M	M		M		

¹Highline Canal @Lombardy management plans are addressed at Highline Canal @ Hwy 99 based on the Delta RMP reduced monitoring schedule in the 2016 and 2017 WYs.

Highline Canal @ Lombardy Rd

Monitoring will not occur at Highline Canal @ Lombardy Rd during the 2017 WY. Management plan constituents for Highline Canal @ Lombardy Rd are scheduled to be monitored at Highline Canal @ Hwy 99.

Mustang Creek @ East Ave

Mustang Creek @ East Ave is a Represented site in Zone 3. Monitoring was initiated at the site in 2006. During the 2016 WY, the site was monitored for dissolved copper during MPM.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for dissolved copper.

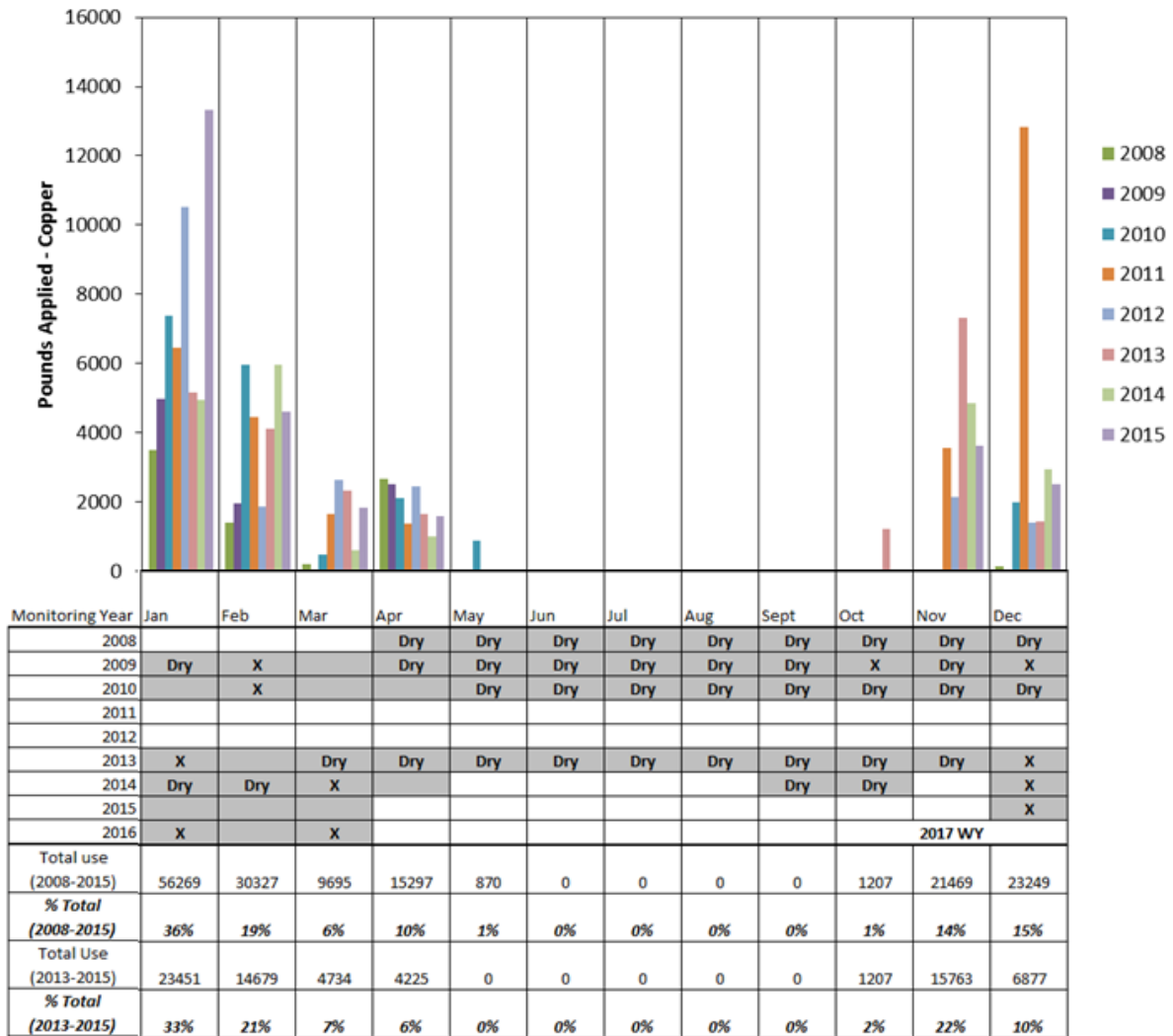
Copper

Exceedances of the hardness based WQTL for dissolved copper have occurred 11 times with the most recent exceedance in March 2016. Past exceedances occurred in January, February, March, October, and December. The months in which exceedances of the hardness based WQTL occurred also coincide with copper applications, with the exception of October 2009 (Figure 18).

During the 2017 WY, MPM for copper will occur in November, December, January, February, and March based on past exceedances and PUR data. The site is an ephemeral waterbody and tends to have water only after sufficient rainfall. The Coalition determined MPM for copper in October is not necessary because monitoring occurred for three years in October after the 2009 exceedance and the site was dry for each event (Figure 18).

Figure 18. Mustang Creek @ East Ave monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Mustang Creek @ East Ave: chlorpyrifos and *S. capricornutum* toxicity. In addition, a single exceedance of the WQTL for malathion occurred in samples collected from the Core site in May 2016.

Chlorpyrifos

Two exceedances of the WQTL for chlorpyrifos occurred in samples collected from Mustang Creek @ East Ave during storm monitoring events in 2008 (January and February). Since the most recent chlorpyrifos exceedance in February 2008, Mustang Creek @ East Ave has been monitored for chlorpyrifos 33 times through February 2013. Water was present in 10 of 33 events with no detections of chlorpyrifos; the last samples collected and analyzed for chlorpyrifos occurred in January and February 2013 and no exceedance of the WQTL occurred. The chlorpyrifos management plan was approved for completion on May 30, 2012.

The PUR data for Mustang Creek @ East Ave indicate that the most applications of chlorpyrifos occurred in 2009 (9,029 lbs) and 2010 (9,104 lbs), which coincides with the years of Assessment Monitoring; during which time no exceedances occurred (Figure 19). The PUR data from both the Core site and Mustang Creek @ East Ave indicate no use associated with chlorpyrifos exceedances during the winter months (November through January; Figure 20). In addition, the exceedances of the WQTL for chlorpyrifos at the Core site have not been associated with use; the Coalition will continue to monitor for chlorpyrifos monthly at the Core site.

Because the chlorpyrifos management plan has been completed at Mustang Creek @ East Ave, and the Coalition has adequately characterized the site, the Coalition determined monitoring for chlorpyrifos is not necessary during the 2017 WY.

***Selenastrum capricornutum* toxicity**

Toxicity to *S. capricornutum* has been monitored 54 times from 2006 through 2010, including twice in 2013; however, the site was dry 33 of those times. One sample collected from Mustang Creek @ East Ave in February 2008 resulted in toxicity to *S. capricornutum*. The TIE initiated on the sample lost all toxicity and toxicity was not persistent in the resample. Despite the site being frequently dry in the past, water has been present a total of nine times during the 2015 WY and 2016 WY. The TIE conducted on the Core site toxicity samples from June and July 2014 indicated that non-polar organics and cationic chemicals were the cause of toxicity. Copper and herbicide applications occur at Mustang Creek @ East Ave mostly during the winter months (November through March; Figure 21) and recent exceedances of the WQTL for copper have occurred during December, January, February, and March.

The Coalition will conduct *S. capricornutum* toxicity during December through March to coincide with copper MPM and high copper and herbicide use.

Malathion

From 2006 through February 2013, the Coalition monitored for malathion 19 times; all results were non-detect. According to recent PUR data, malathion is not applied in the site subwatershed. The Coalition determined monitoring for malathion is not necessary during the 2017 WY.

Figure 19. Mustang Creek @ East Ave chlorpyrifos applications (2008-2015).

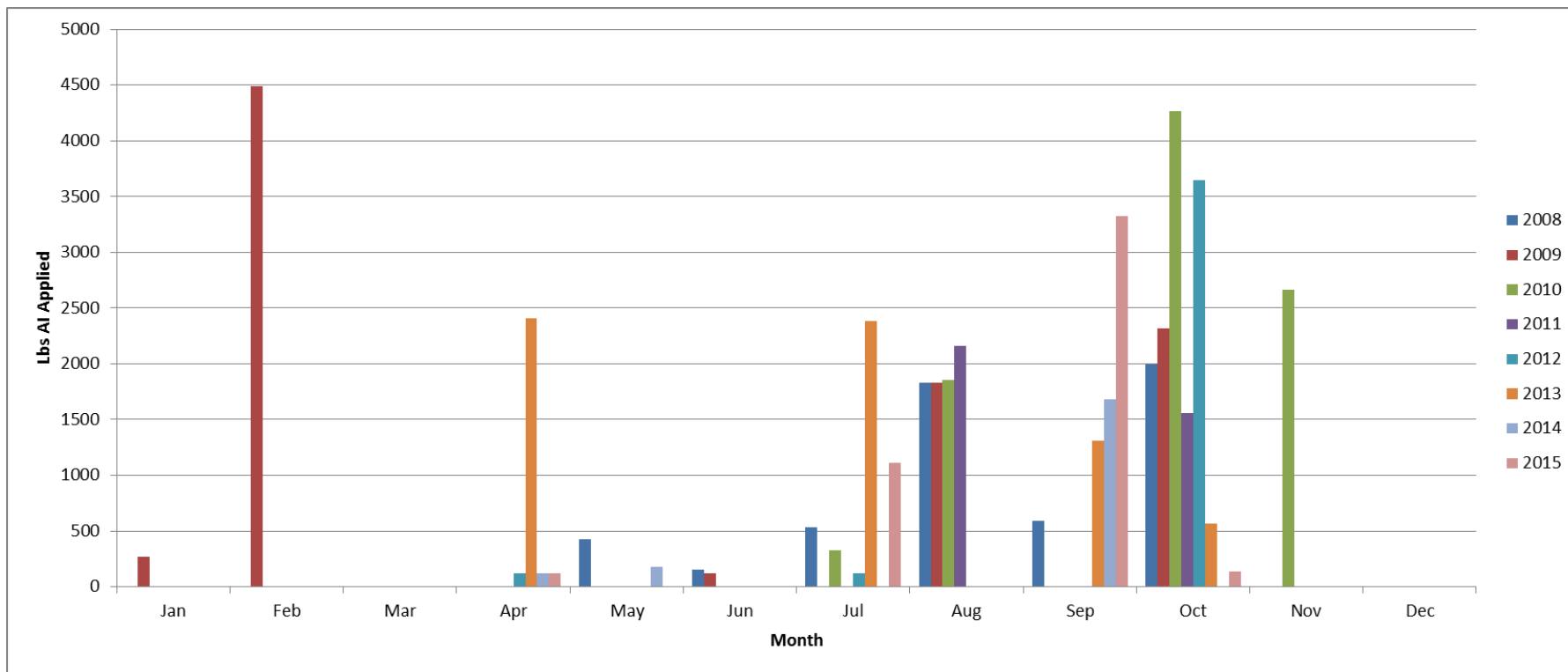


Figure 20. Comparison of Mustang Creek @ East Ave and Highline Canal @ Hwy 99 (Core site) chlorpyrifos applications (2013-2015).

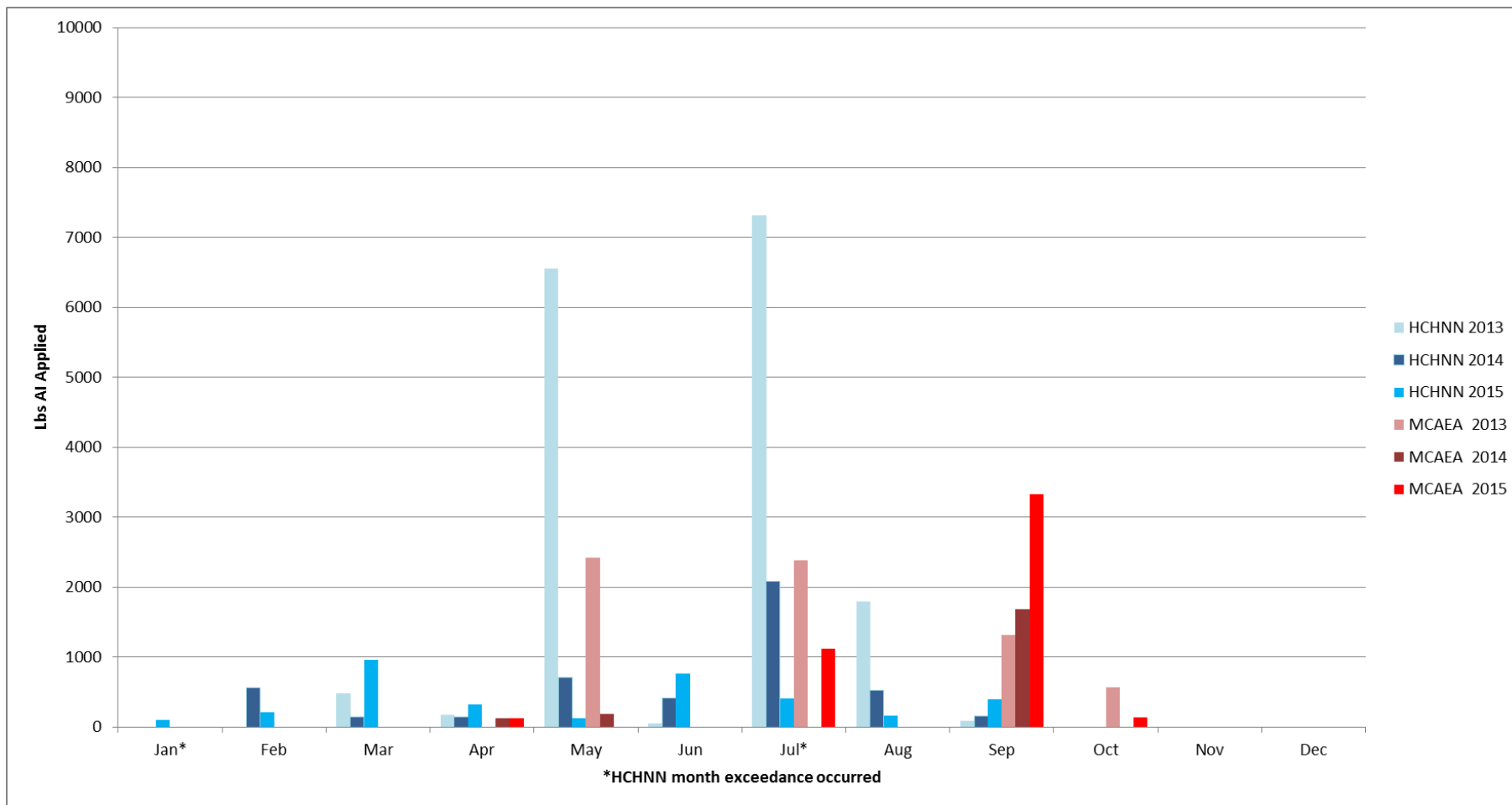
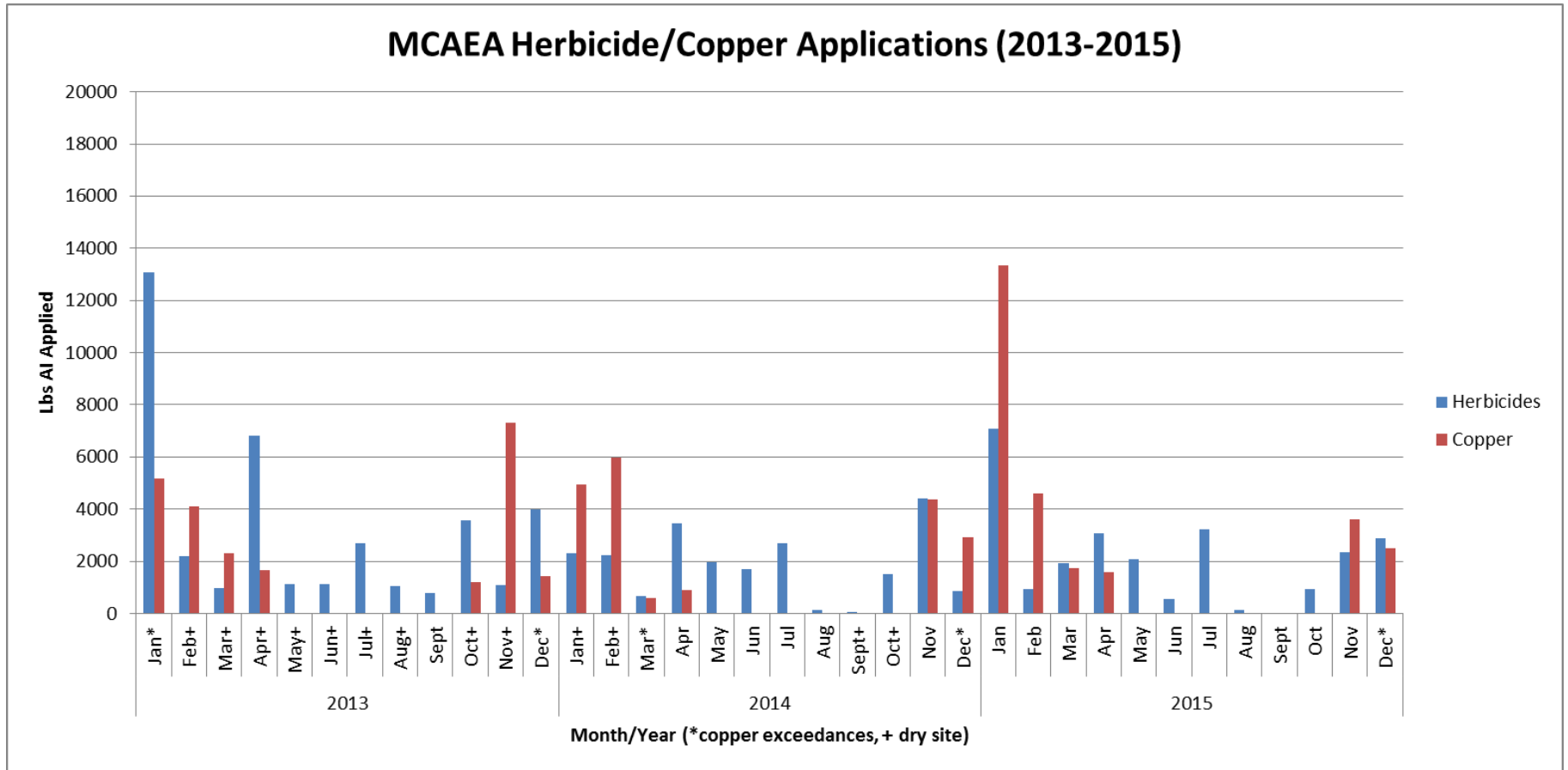


Figure 21. Mustang Creek @ East Ave copper and herbicide applications (2013-2015).



Zone 4

Canal Creek @ West Bellevue Rd is the rotating Core site in Zone 4. The management plan constituents for sites in Zone 4 are listed in Table 26 and will be monitored monthly at the Core site. A single exceedance of the hardness based WQTL for copper occurred at the Core site on January 7, 2016; monitoring for copper will continue during the 2017 WY as outlined in the Core Site Metals section.

The Represented sites in Zone 4 will be monitored based on an evaluation of Represented and Core site exceedances that occurred in previous years. The rationale for monitoring each constituent is provided below.

Table 26. Zone 4 management plan constituents and 2016 WY exceedances.

Core site is bolded. An 'M' indicates a current management plan constituent and an 'M' in red text indicates exceedances in the 2016 WY triggered a management plan. An 'X' indicates one exceedance occurred during the 2016 WY that did not initiate a management plan.

SITE NAME	DO	pH	SC	E. COLI	COPPER	LEAD	CHLORPYRIFOS	C. DUBIA	S. CAPRICORNUTUM
Canal Creek @ West Bellevue Rd	M	M		M	X				
Bear Creek @ Kibby Rd		M		M					
Black Rascal Creek @ Yosemite Rd	M	M		M					
Howard Lateral @ Hwy 140	M	M	M	M	M				
Livingston Drain @ Robin Ave	M	M		M	M		M		M
McCoy Lateral @ Hwy 140		M			M				
Merced River @ Santa Fe	M	X		M			M		
Unnamed Drain @ Hwy 140	M	M	M	M					

Bear Creek @ Kibby Rd

Bear Creek @ Kibby Rd is a Represented site in Zone 4. Monitoring was initiated at the site in 2005. During the 2016 WY, monitoring was not scheduled; water quality impairments of pesticides, metals, or toxicity have not occurred at Bear Creek @ Kibby Rd since 2008. Therefore, monitoring is not necessary at Bear Creek @ Kibby Rd during the 2017 WY.

Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Represented site based on exceedance of the hardness based WQTL for dissolved copper that occurred at the Core site during the 2016 WY.

Copper

The copper management plan was approved for completion on October 15, 2013. The Coalition determined it is not necessary to monitor for copper at the site during the 2017 WY.

Black Rascal Creek @ Yosemite Rd

Black Rascal Creek is a Represented site in Zone 4. Monitoring was initiated at the site in 2006. During the 2016 WY, no monitoring was scheduled due to improved water quality. The lead, chlorpyrifos, and *C. dubia* toxicity management plans were approved for completion on March 25, 2016.

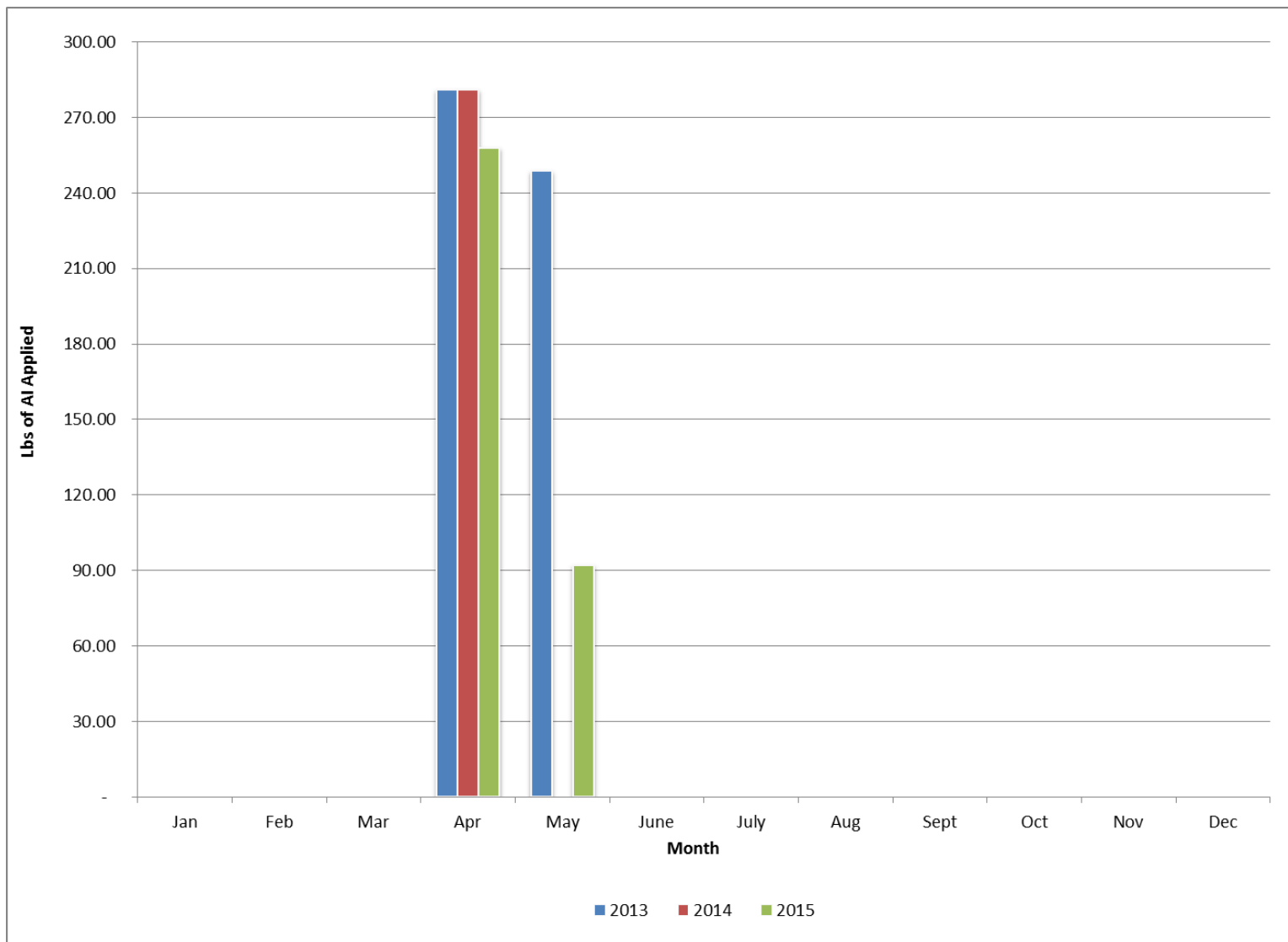
Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Represented site based on exceedance of the hardness based WQTL for dissolved copper that occurred at the Core site during the 2016 WY.

Copper

Total copper was monitored during six irrigation events in 2008 and one sample resulted in an exceedance of the WQTL in April 2008. Since the site has not been monitored for dissolved copper, the Coalition will monitor in April based on the past exceedance and in May based on recent copper applications for the 2017 WY (Figure 22).

Figure 22. Black Rascal Creek @ Yosemite Rd copper applications (2013-2015).



Howard Lateral @ Hwy 140

Howard Lateral @ Hwy 140 is a Represented site in Zone 4. Monitoring was initiated at the site in 2009. During the 2016 WY, MPM began for copper.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for dissolved copper.

Copper

Exceedances of the hardness based WQTL have occurred in February, April, July, and October; the most recent exceedance of the hardness based WQTL occurred in April 2016. The PUR data indicate 57% of total applications from 2013 through 2015 occurred in January (Figure 23).

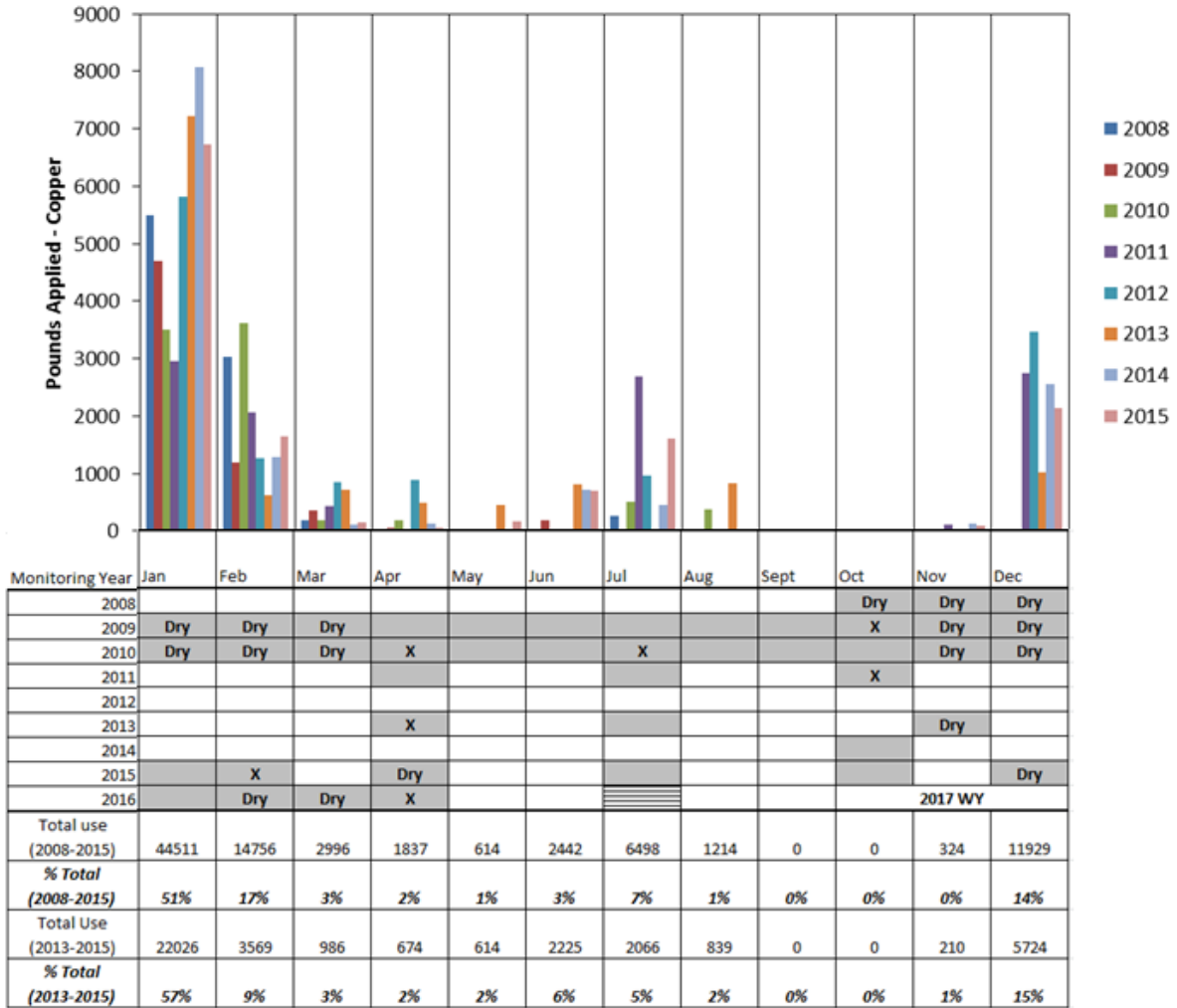
During the 2017 WY, the Coalition will conduct MPM for dissolved copper in January based on high use and October, February, and April based on months of past exceedances. The Coalition determined that July MPM is no longer necessary. Since the last exceedance of the WQTL in 2010, the Coalition has monitored three years with no exceedances.

Monitoring decision based on exceedances at the Core site

Based on the Coalition's monitoring strategy, no monitoring is required at the site during the 2017 WY due to Core site exceedances since Howard Lateral @ Hwy 140 is in a management plan for copper.

Figure 23. Howard Lateral @ Hwy 140 monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Livingston Drain @ Robin Ave

Livingston Drain @ Robin Ave is a Represented site in Zone 4. Monitoring was initiated at the site in 2007. During the 2016 WY, the site was monitored for dissolved chlorpyrifos, copper, and toxicity to *S. capricornutum* during MPM.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled at Livingston Drain @ Robin Ave for chlorpyrifos, copper, and toxicity to *S. capricornutum*.

Chlorpyrifos

The Coalition conducted MPM in 2011, 2013, and from the 2014 WY through the June 2016. Exceedances occurred in August 2007 and January, June, and July 2008. Since 2008, the Coalition monitored for chlorpyrifos from 2011 through the 2015 WY during months of past exceedances, and scheduled MPM for the 2016 WY. In the last three year, very minimal use occurred in January (less than 100 lbs AI) and August (Figure 24). The site has been monitored five years after the exceedances in 2007 and 2008; no exceedances of the WQTL occurred. Applications during months of past exceedances have remained mostly consistent, with a slight increase in use in June and a decrease in use in July and August 2015 (Figure 24). In addition, there has been a continued increase in applications in April every year.

Therefore, the Coalition will conduct MPM in April, June, and July during the 2017 WY. The Coalition can petition to the Regional Board for completion of the chlorpyrifos management plan after the 2016 WY, due to over three years of monitoring with no exceedances of the WQTL.

Copper

Exceedances of the WQTL for copper have occurred 15 times in the site subwatershed; nine of the exceedances were for the total fraction and six were for the dissolved fraction. The most recent exceedance was in March 2016. Use of products containing copper does not directly correlate to all of the months in which exceedances occurred (Figure 25). Applications in May through September are substantially lower compared to December, January, and February, when high copper applications are expected. However, exceedances have occurred in May, June, July and September.

During the 2017 WY, the Coalition will conduct MPM for copper from December through March. The Coalition determined monitoring in May, June, July, and September is not necessary because monitoring occurred for three or more years during those months without any exceedances. Therefore, the Coalition will focus MPM efforts during months when applications are high and recent exceedances of the hardness based WQTL have occurred.

Figure 24. Livingston Drain @ Robin Ave monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.

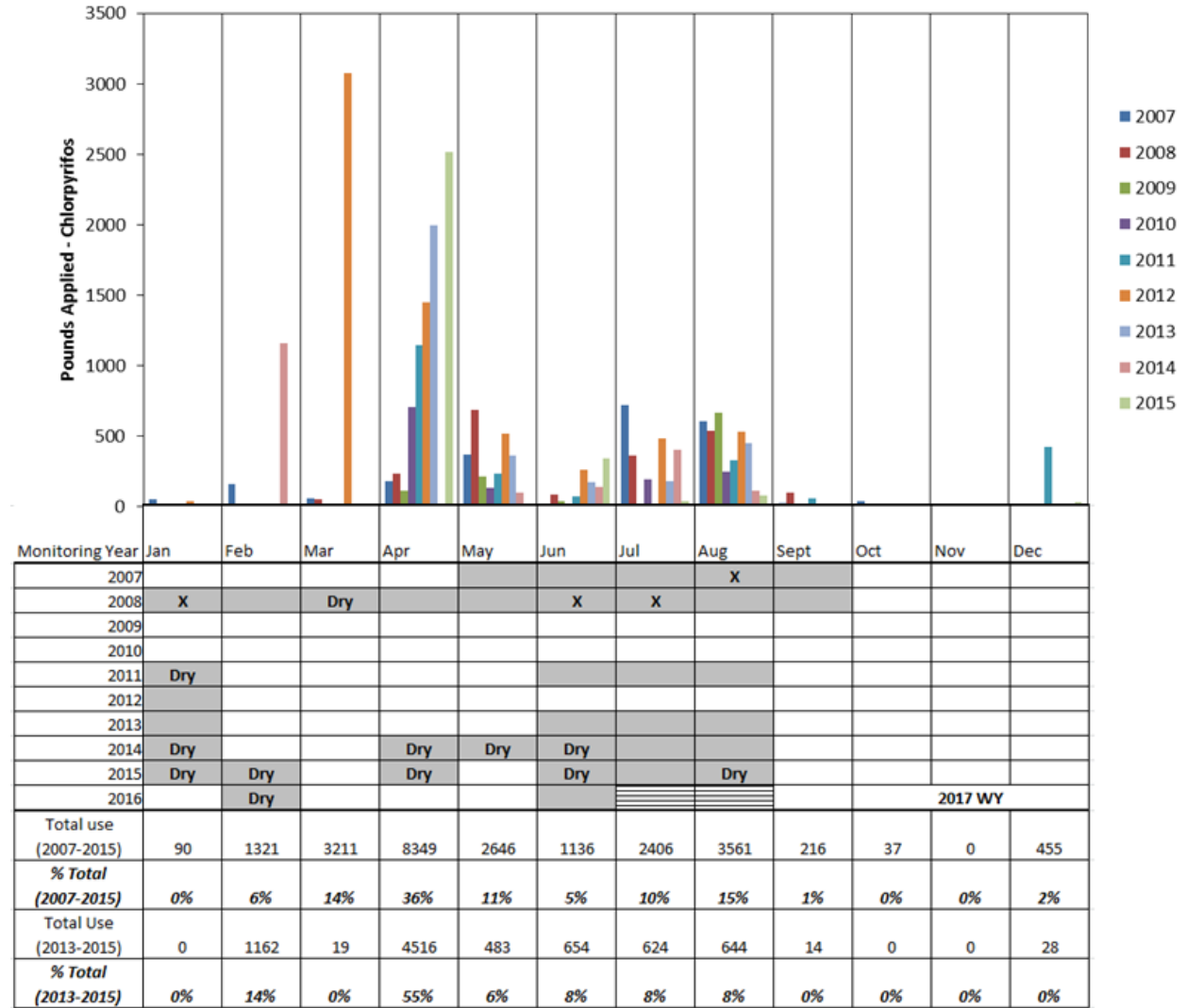
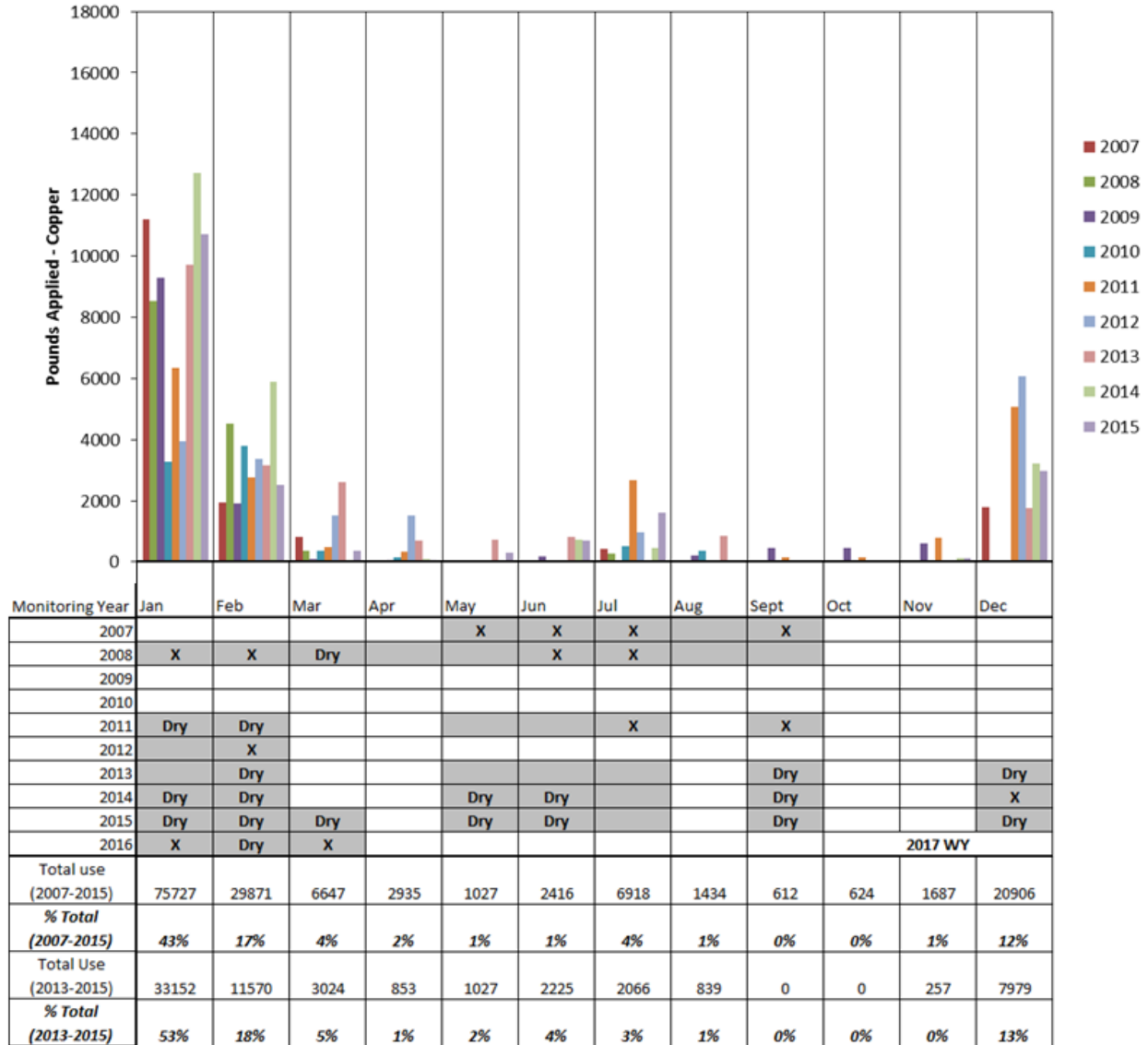


Figure 25. Livingston Drain @ Robin Ave monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



***Selenastrum capricornutum* toxicity**

There have been three toxic samples collected from Livingston Drain @ Robin Ave in February, April, and May 2008; no TIEs were required. One exceedance of the WQTL for total copper coincided with the February 2008 toxicity.

During the 2017 WY, the Coalition will continue to conduct MPM in February, April, and May. In addition, the site has been consistently dry during monitoring in February (2011-2016), April (2014-2016), and May (2014-2015), demonstrating runoff is no longer occurring at the site and water quality is not being impaired. The Coalition can petition to the Regional Board for completion of the S.

capricornutum toxicity management plan after the 2016 WY, due to three years of monitoring without exceedances.

Merced River @ Santa Fe

Merced River @ Santa Fe is a Represented site in Zone 4 for the 2017 WY and a rotating Core site every two years. Monitoring was initiated at the site in 2004. During the 2016 WY, the Coalition monitored for chlorpyrifos during MPM and for toxicity to *S. capricornutum* for a third consecutive year based on samples collected from the site in July 2015 that resulted in toxicity.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled at Merced River @ Santa Fe for chlorpyrifos.

Chlorpyrifos

Four exceedances of the WQTL for chlorpyrifos have occurred in samples collected from the site (July 2007, January and November 2008, November 2015). Chlorpyrifos use has remained consistent (average annual use is 6,908 lbs AI) in the site subwatershed during the years evaluated in Figure 26. In 2015, use in November increased significantly due to one member applying chlorpyrifos to grapes (less than 4,000 lbs AI; Figure 26). The Coalition collected samples from the site during storm sampling in November, which resulted in an exceedance level detection.

During the 2017 WY, the Coalition will conduct MPM in October and November due to increased use and the recent exceedance of the WQTL in November 2015.

The Coalition determined MPM in January and July is no longer necessary. Monitoring has occurred in January and July for six years since the last exceedance resulting in no impairments of the water quality during those months.

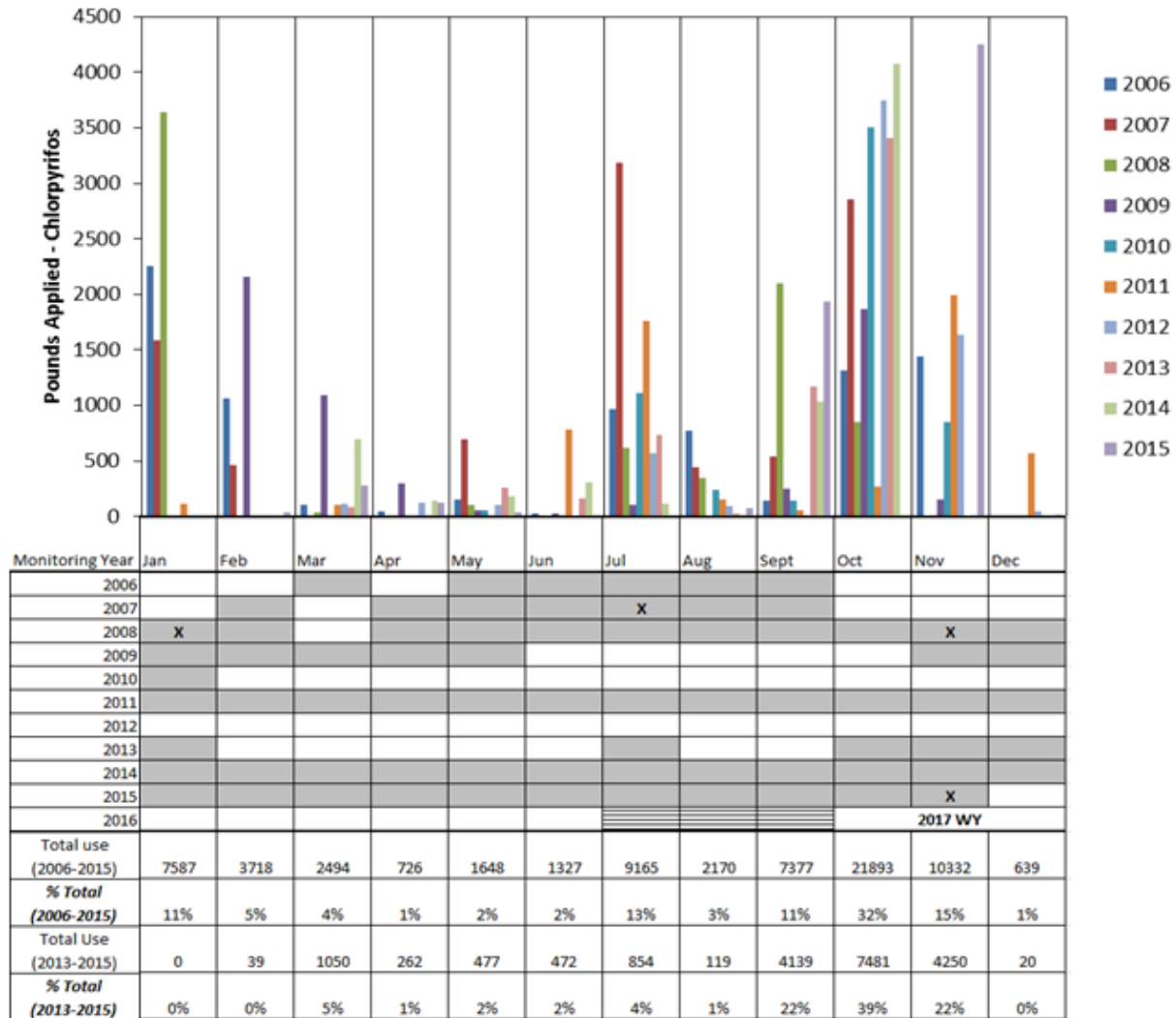
Selenastrum capricornutum

Toxicity to *S. capricornutum* has been monitored at the site from 2006 through the 2015 WY, and monitoring is scheduled in July for the 2016 WY. One sample collected in July 2015 was toxic to *S. capricornutum*. In the 2015 WY, Merced River @ Santa Fe was a Core site and samples were collected for all constituents (except metals) in July. There were no detections of pesticides in the samples collected in July 2015. Ammonia and nitrate + nitrite as N can be toxic to *S. capricornutum* at certain levels; however, the concentrations of ammonia (0.16 mg/L) and nitrate + nitrite as N (0.074 mg/L) detected in the samples collected in July 2015 likely did not cause the toxicity.

Preliminary results for July 2016 toxicity monitoring indicate the sample was not toxic. Monitoring in July completed the third consecutive year of monitoring required by the WDR. Therefore, the Coalition will not monitor for *S. capricornutum* during the 2017 WY. Once it rotates in as a Core site in the 2018 WY, monthly toxicity monitoring will resume.

Figure 26. Merced River @ Santa Fe monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



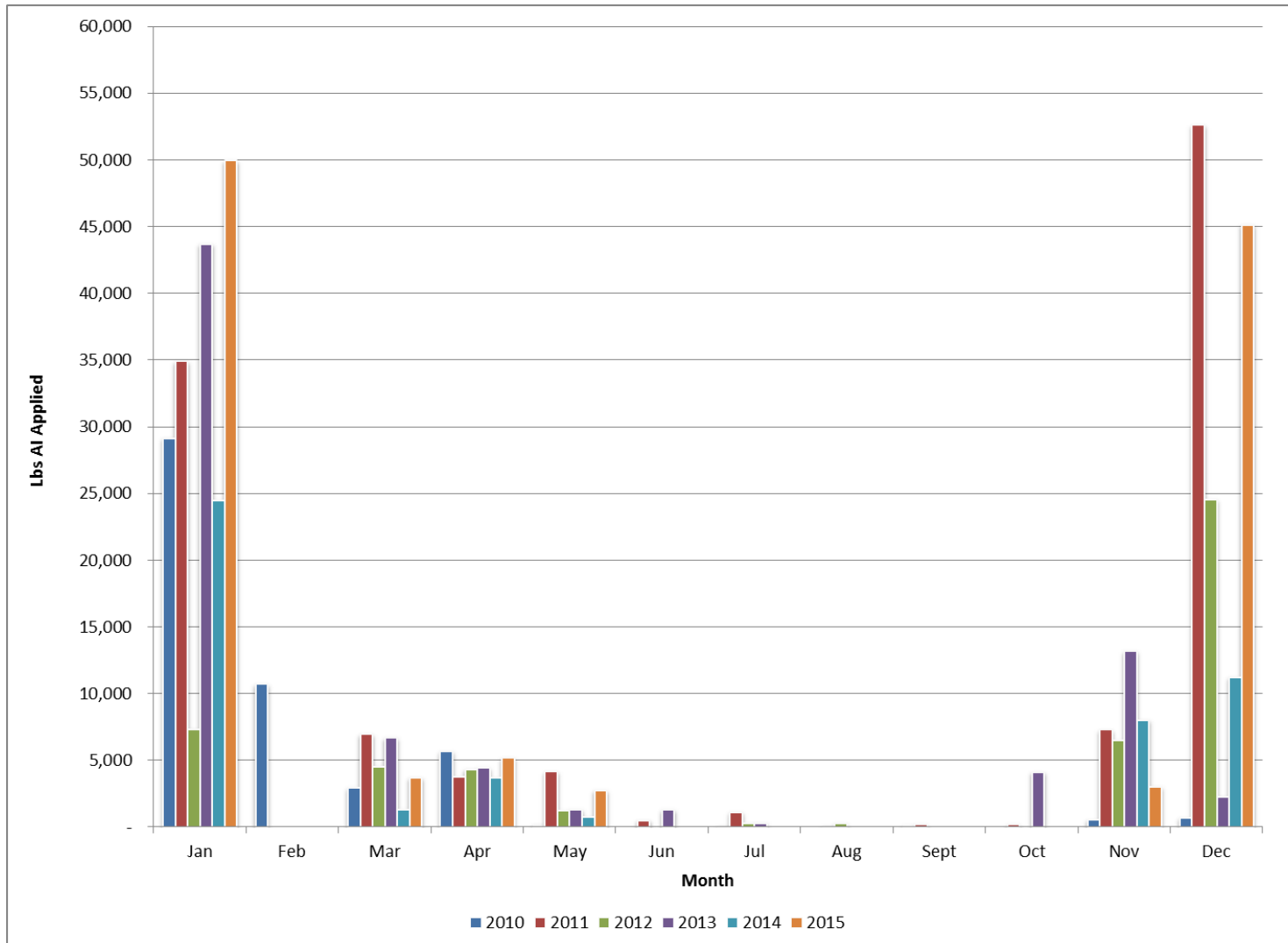
Monitoring decision based on exceedances at the Core site

During the 2016 WY, a single exceedances of the hardness based WQTL for dissolved copper occurred at the Core site in January 2016. Copper is not in a management plan at Merced River @ Santa Fe and therefore evaluated for monitoring below.

Copper

Total copper was monitored from 2006 through 2011 and one exceedance occurred in January 2008. Dissolved copper was monitored at the site from 2008 through 2011, and during high TSS events in the 2014 WY; no exceedances occurred. Pesticides containing were applied the most in January and December, with use decreasing from February through May, and increasing in November (Figure 27). Therefore, the Coalition will monitor for dissolved copper during one storm event in December through March during the 2017 WY.

Figure 27. Merced River @ Santa Fe copper applications (2010-2015).



McCoy Lateral @ Hwy 140

McCoy Lateral @ Hwy 140 is a Represented site in Zone 4. McCoy Lateral @ Hwy 140 is in a management plan for pH and copper. However, focused outreach has not been conducted in the site subwatershed yet. The Coalition will not schedule MPM until focused outreach begins in order to evaluate the effectiveness of implemented management practices.

Unnamed Drain @ Hwy 140

Unnamed Drain @ Hwy 140 is a Represented site in Zone 4. Monitoring was initiated at the site in 2013. During the 2016 WY, the Coalition monitored for dissolved copper based on a previous exceedance of the hardness based WQTL at Unnamed Drain @ Hwy 140 in January 2013.

Monitoring decision based on exceedances at the Core site

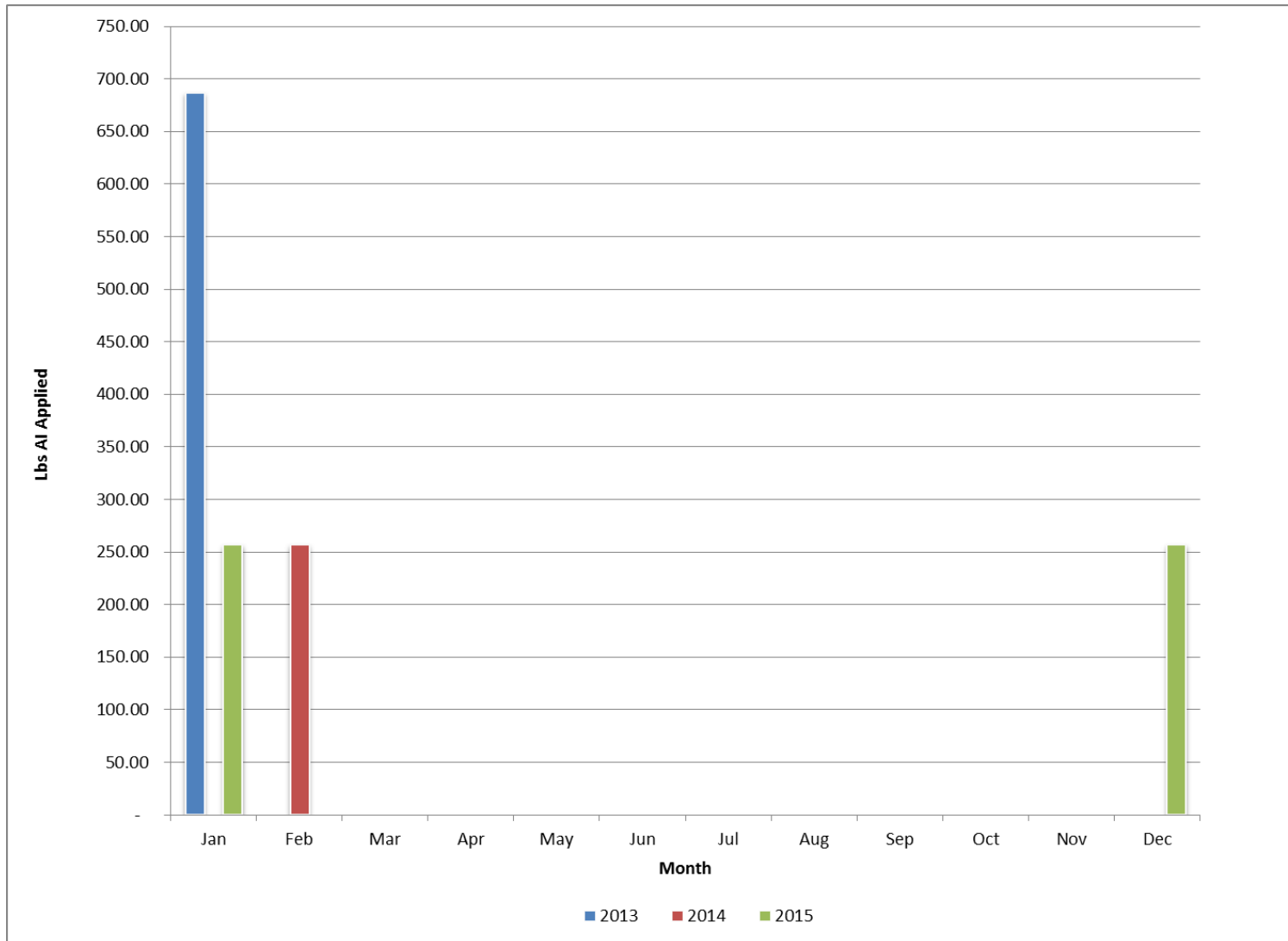
Copper

Copper was monitored at Unnamed Drain @ Hwy 140 every month in 2013 and in January and February during the 2015 and 2016 WYs due to the single exceedance of the hardness based WQTL in January 2013. The 2016 WY monitoring completed the required two years of monitoring at the Represented site. However, due to the recent exceedance of the hardness based WQTL for dissolved copper at the Core site on January 2016, the Coalition will monitor an additional year for dissolved copper at Unnamed Drain @ Hwy 140.

Copper use does not occur frequently in the site subwatershed and it is difficult to determine when water quality impairments are most likely to occur (Figure 28). In this case, water quality impairments would most likely occur after high use and during storm events that mobilize copper.

During the 2017 WY, the Coalition will monitor for dissolved copper during one storm event that takes place either in January, February, or March.

Figure 28. Unnamed Drain @ Hwy 140 copper applications (2013-2015).



ZONE 5

Miles Creek @ Reilly Rd is the rotating Core site in Zone 5. The management plan constituents in Zone 5 are listed in Table 27 and will be monitored monthly at the Core site, with the exception of copper; monitoring for copper will occur as outlined in the Core Site Metals section. The Coalition plans to request for the management plan completion of diazinon and *S. capricornutum* toxicity management plan at Miles Creek @ Reilly Rd.

The Represented sites in Zone 5 will be monitored based on an evaluation of Represented and Core site exceedances that occurred in previous years. The rationale for monitoring each constituent is provided below.

Table 27. Zone 5 management plan constituents and 2016 WY exceedances.

Core site is bolded. An 'M' indicates a current management plan constituent and an 'M' in red text indicates exceedances in the 2016 WY triggered a management plan. An 'X' indicates one exceedance occurred during the 2016 WY that did not initiate a management plan.

SITE NAME	DO	PH	SC	E. COLI	AMMONIA	ARSENIC	COPPER	LEAD	CHLORPYRIFOS	DIAZINON	MALATHION	C. DUBIA	P. PROMELAS	S. CAPRICORNUTUM	H. AZTECA
Miles Creek @ Reilly Rd	M	M		M			M			M				M	
Deadman Creek @ Gurr Rd	M	M	M	M	M	M			M			M	M		
Deadman Creek @ Hwy 59	M	M		M		M			M						
Duck Slough @ Gurr Rd	M	M	M	M	M	M		X	M		M	M	M		M

Deadman Creek @ Gurr Rd

Deadman Creek @ Gurr Rd is a Represented site in Zone 5. Monitoring was initiated at the site in 2004. During the 2016 WY, monitoring was scheduled for chlorpyrifos and toxicity to *C. dubia*, *P. promelas*, and *S. capricornutum* during MPM; the toxicity to *S. capricornutum* management plan was approved for completion on March 25, 2016.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for chlorpyrifos and toxicity to *C. dubia* and *P. promelas*.

Chlorpyrifos

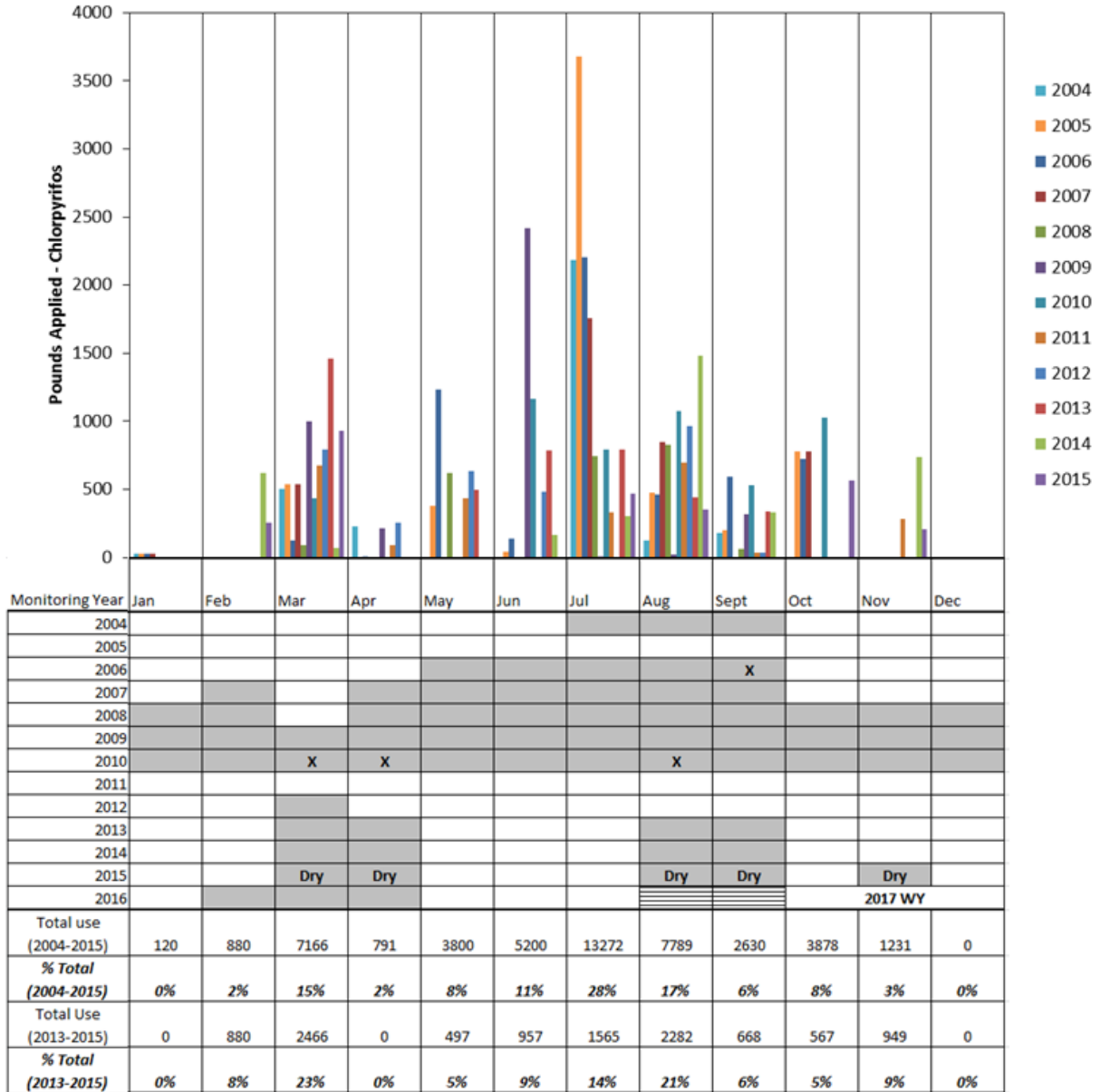
Chlorpyrifos use is frequent in the site subwatershed, with the most applications occurring in March and August. However, over the last three years, use has been declining during months of past exceedances. Applications in April have not occurred since 2012 and September use has declined to under 500 lbs AI

applied in 2013 and 2015, and no use in 2015. In addition, April and September months have been monitored for over four years since the last exceedances of the WQTL (Figure 29).

During the 2017 WY, the Coalition will conduct MPM in March and August during months of past exceedances and high use. The Coalition can petition to the Regional Board for completion of the chlorpyrifos management plan after the 2016 WY, due to over three years of monitoring with no exceedances of the WQTL.

Figure 29. Deadman Creek @ Gurr Rd monitoring history and chlorpyrifos applications.

Shaded cells represent months of monitoring. An 'X' depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



***Ceriodaphnia dubia* toxicity**

Water column toxicity to *C. dubia* occurred five times (February 2009, March 2009 and 2010, and November 2010 and 2013). The TIEs concluded ammonia was the source of toxicity in the samples collected in February 2009 and November 2013; exceedances of the WQTL for ammonia coincided with toxicity in samples collected in February 2009, March 2010, and November 2010. In addition, chlorpyrifos was detected above the WQTL in samples collected in March 2010 and could have contributed to the *C. dubia* toxicity.

The Coalition will conduct MPM for *C. dubia* toxicity during months when past toxicity occurred in November, February, and March during the 2017 WY.

***Pimephales promelas* toxicity**

Water column toxicity to *P. promelas* occurred during nine sampling events from 2006 through 2013 (January, February, March, May, June, November, and December). The TIEs conducted on the samples collected in February 2009 and November 2010 indicated ammonia was the source of toxicity; exceedances of the WQTL for ammonia in the same samples confirmed the source of toxicity. Exceedances of the WQTL for ammonia also coincided with toxic samples in January and December 2009, and in March and November 2010.

The Coalition will continue MPM for *P. promelas* toxicity during months when past toxicity occurred in November through March, May, and June during the 2017 WY.

Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Deadman Creek @ Gurr Rd: copper, diazinon, and *S. capricornutum*.

Copper

The Coalition monitored copper from 2008 through February 2012; exceedances of the WQTL for total copper occurred in February, April, and May 2007, and in January 2008. No exceedances of the hardness based WQTL for dissolved copper occurred. The Coalition received approval to complete the copper management plan in May 30, 2012, after demonstrating copper was no longer impairing the water quality.

The greatest amount of pesticides containing copper applications occurred in January; however, use has generally decreased in the site subwatershed in recent years (less than 12,000 lbs AI applied in January 2012 compared to less than 1,000 lbs AI in January 2014, and 5,000 lbs AI in 2015; Figure 30) as a result of focused outreach and management practices implemented by growers.

Based on the exceedance of the hardness based WQTL for copper at the Core site that occurred during the January storm event and an increase in applications during January 2015, the Coalition will monitor for dissolved copper at Deadman Creek @ Gurr Rd during one storm event from January through March.

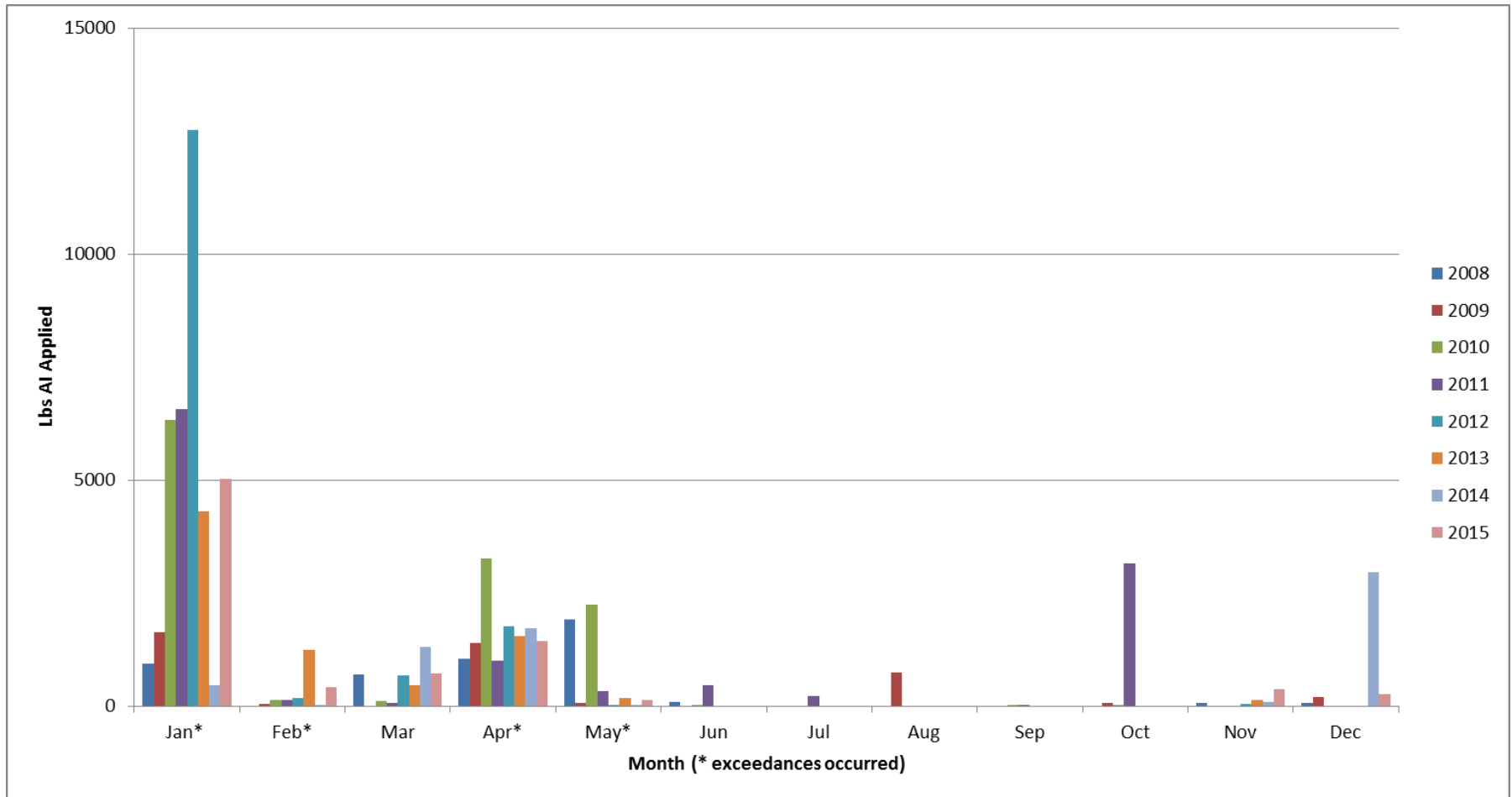
Diazinon

The Coalition monitored for diazinon at Deadman Creek @ Gurr Rd from 2004 through 2010; 51 samples were collected and all results were non-detect. In addition, diazinon applications have not occurred since 2007. The Coalition determined monitoring for diazinon during the 2017 WY is not necessary.

***Selenastrum capricornutum* toxicity**

The *S. capricornutum* toxicity management plan was approved for completion on March 25, 2016; therefore, the Coalition determined it is not necessary to monitor for toxicity to *S. capricornutum* during the 2017 WY.

Figure 30. Deadman Creek @ Gurr copper applications (2008-2015).



Deadman Creek @ Hwy 59

Deadman Creek @ Hwy 59 is a Represented site in Zone 5. Monitoring was initiated at the site in 2006. During the 2016 WY, MPM was scheduled for chlorpyrifos.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM for chlorpyrifos is scheduled at Deadman Creek @ Hwy 59.

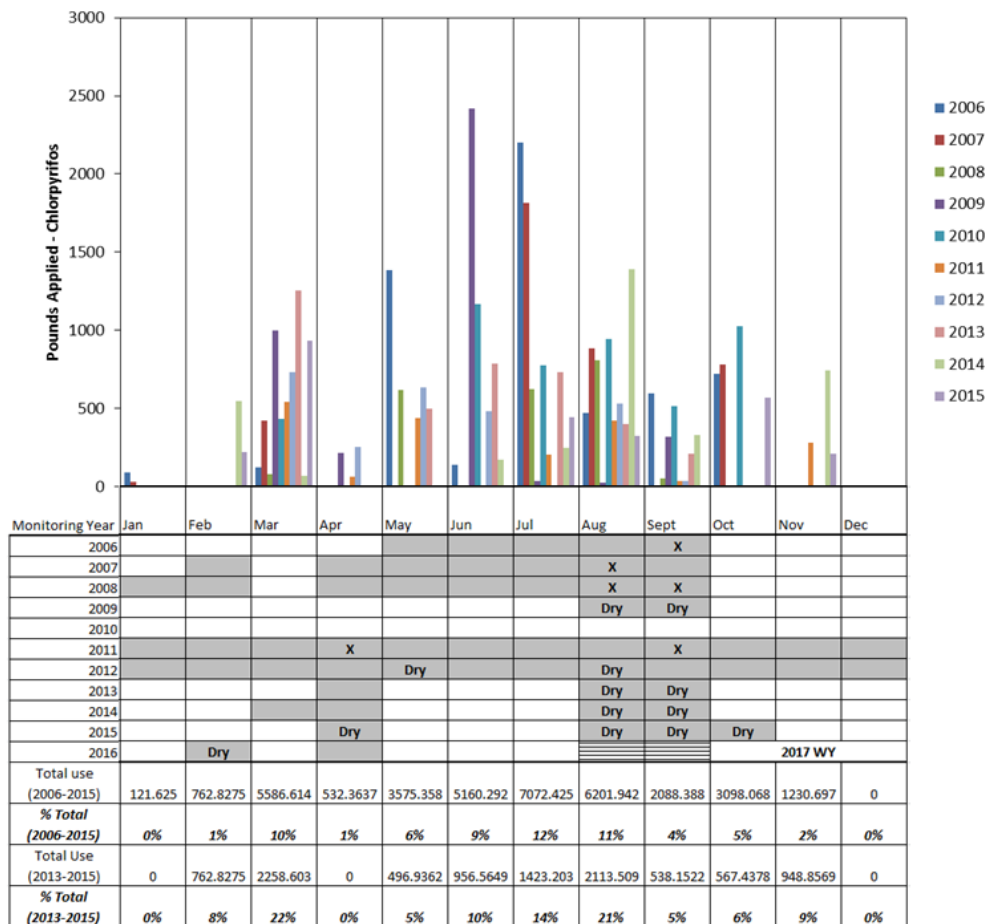
Chlorpyrifos

Exceedances of the WQTL for chlorpyrifos occurred three times in samples collected at Deadman Creek @ Hwy 59; the most recent exceedance of the WQTL occurred in samples collected in September 2011.

During the 2017 WY, the Coalition will conduct MPM for chlorpyrifos during months of past exceedances in April, August, and September 2017. In addition, the Coalition will add March to the MPM schedule based on a trend of increasing use (Figure 31).

Figure 31. Deadman Creek @ Hwy 59 monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Deadman Creek @ Hwy 59: copper, diazinon, and *S. capricornutum* toxicity.

Copper

Copper was monitored in 2008 and from 2011 through 2012; 50 samples were collected, 28 were analyzed for the total fraction and 22 for the dissolved fraction; no exceedances of the WQTL occurred. From 2008 through 2015, products containing copper were applied more frequently in January and April, with total pounds applied in January being 2.5 times greater than April (Figure 32). In 2012, a total of approximately 12,500 lbs AI were applied within the site subwatershed and the concentrations of total copper (10 µg/L) and dissolved copper (0.82 µg/L) did not exceed the WQTLs.

Based on the exceedance of the hardness based WQTL for copper at the Core site that occurred during the January storm event and an increase in use during January 2015, the Coalition will monitor for dissolved copper at Deadman Creek @ Hwy 59 during one storm event from January through March.

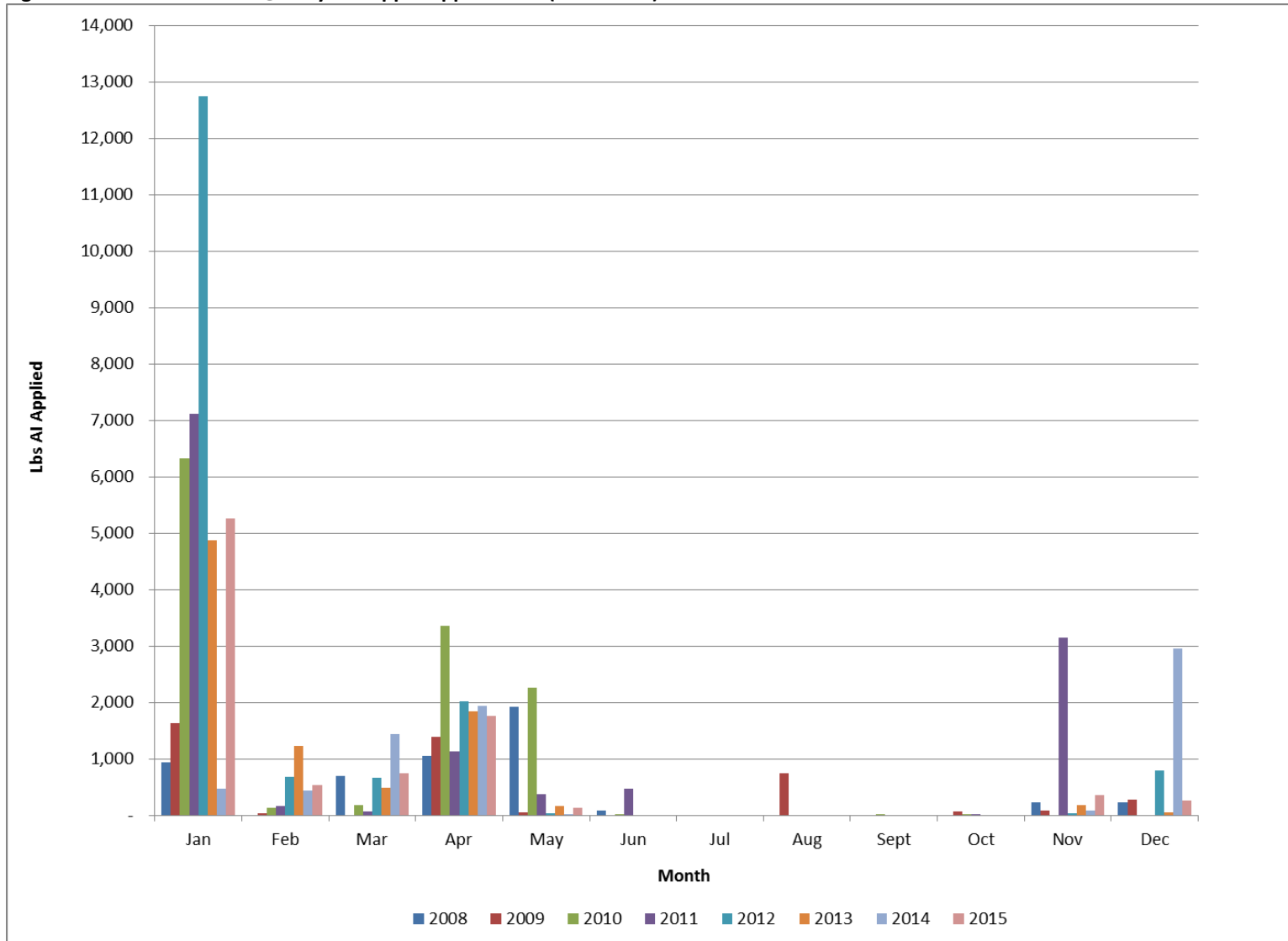
Diazinon

The Coalition monitored for diazinon at Deadman Creek @ Hwy 59 from 2006 through 2012; 43 samples were collected, 41 samples were non-detect, and no exceedances of the WQTL occurred. In addition, no applications of products containing diazinon in the site subwatershed have occurred since 2007. The Coalition determined monitoring for diazinon during the 2017 WY is not necessary.

***Selenastrum capricornutum* toxicity**

Toxicity to *S. capricornutum* was in a management plan for Deadman Creek @ Hwy 59 from 2009 through 2013; the Coalition received approval to complete the management plan on October 15, 2013. Monitoring for *S. capricornutum* toxicity is not necessary during the 2017 WY.

Figure 32. Deadman Creek @ Hwy 59 copper applications (2008-2015).



Duck Slough @ Gurr Rd

Duck Slough @ Gurr Rd is a Represented site in Zone 5 during the 2017 WY and a rotating Core site every two years. Monitoring was initiated at the site in 2004. During the 2016 WY, monitoring was scheduled for lead, chlorpyrifos, malathion, *C. dubia* and *P. promelas* toxicity, and sediment toxicity to *H. azteca* during MPM; the lead management plan was approved for completion on March 25, 2016.

In addition, *S. capricornutum* toxicity monitoring was scheduled based on the Miles Creek @ Reilly Rd Core site management plan.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for chlorpyrifos, malathion, *C. dubia* and *P. promelas* toxicity, and *H. azteca* sediment toxicity during the 2017 WY. In addition, a single exceedance of the WQTL for lead occurred on January 7, 2016.

Chlorpyrifos

Duck Slough @ Gurr Rd was the Core site during the 2014 WY and 2015 WY. One exceedance of the WQTL for chlorpyrifos occurred in March 2014. The PUR data indicate use from 2004 through 2015 are highest in March (14%), July (29%), and August (27%; Figure 33). The Coalition determined MPM for chlorpyrifos in August is not necessary because monitored occurred in August for eight years and no exceedances of the WQTL occurred.

During the 2017 WY, the Coalition will conduct MPM for chlorpyrifos during March and July based on months of past exceedances and high use.

Malathion

Two exceedances of the WQTL for malathion occurred in April 2014 and in March 2015. The months in which exceedances occurred also coincide with high use in the site subwatershed (Figure 34).

During the 2017 WY, the Coalition will conduct MPM for malathion in March and April based on past exceedances and high use.

***Ceriodaphnia dubia* toxicity**

Samples collected from the site have been toxic to *C. dubia* seven times. Five samples required a TIE; however, the TIEs were inconclusive because toxicity was not persistent for the baseline testing. Exceedances of the WQTL for chlorpyrifos coincided with the toxicity in March 2014 and July 2015.

During the 2017 WY, the Coalition will continue MPM for *C. dubia* toxicity during months when previous toxic samples were collected, in February, March, June, and July; March and July MPM will also coincide with chlorpyrifos MPM.

***Pimephales promelas* toxicity**

Samples collected from Duck Slough @ Gurr Rd were toxic in October 2011 and March 2014, resulting in a management plan. No TIEs were required for either sample; however, samples also exceeded the WQTL for chlorpyrifos in March 2014.

During the 2017 WY, MPM for *P. promelas* toxicity will occur in October and March. March MPM will also coincide with chlorpyrifos MPM.

***Hyalella azteca* sediment toxicity**

Sediment toxicity occurred at Duck Slough @ Gurr Rd eight times from 2004 through 2013, in the late irrigation season between July and September. The Coalition will continue to conduct MPM for *H. azteca* sediment toxicity in September for the 2017 WY.

Figure 33. Duck Slough @ Gurr Rd monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.

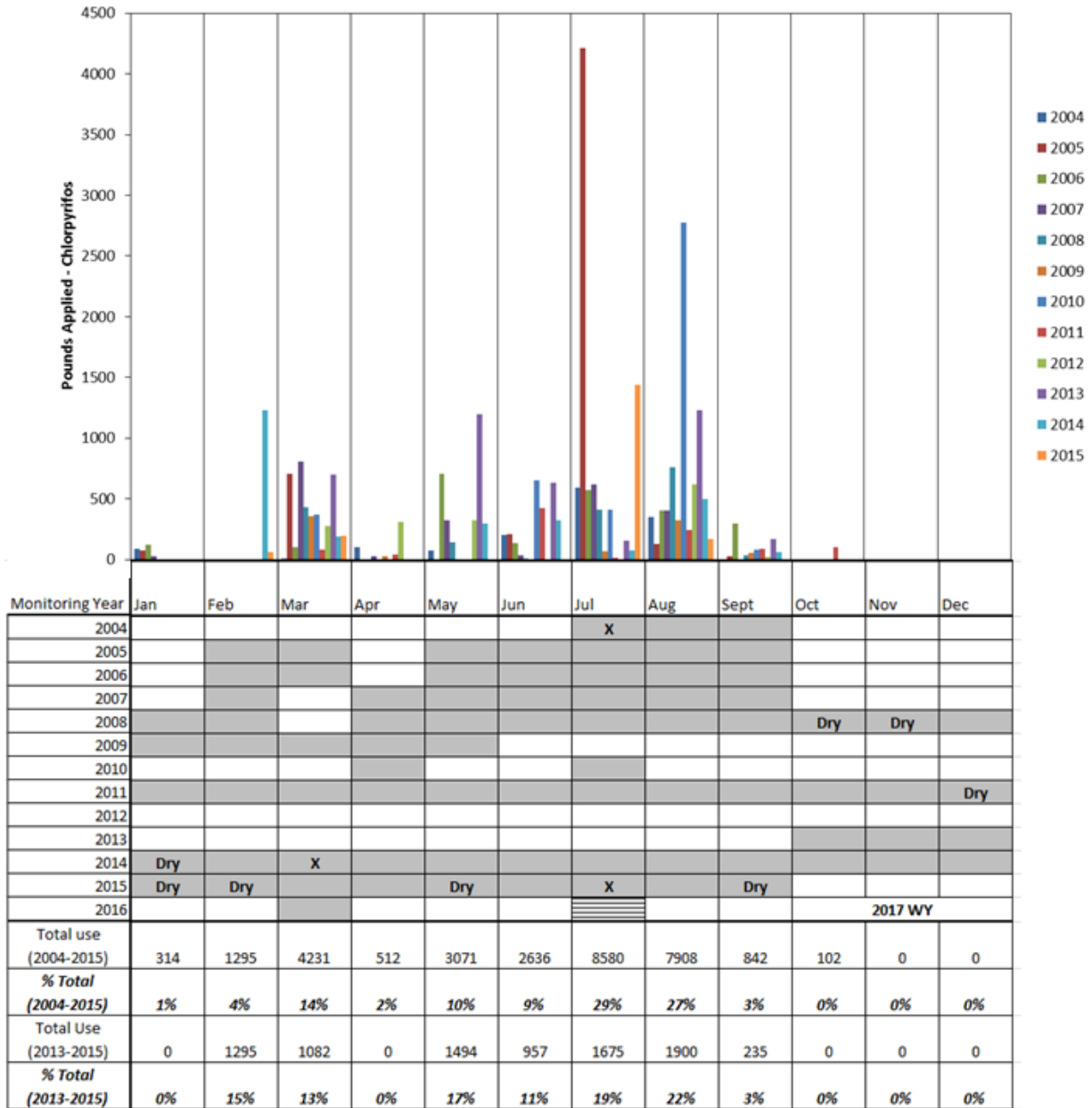
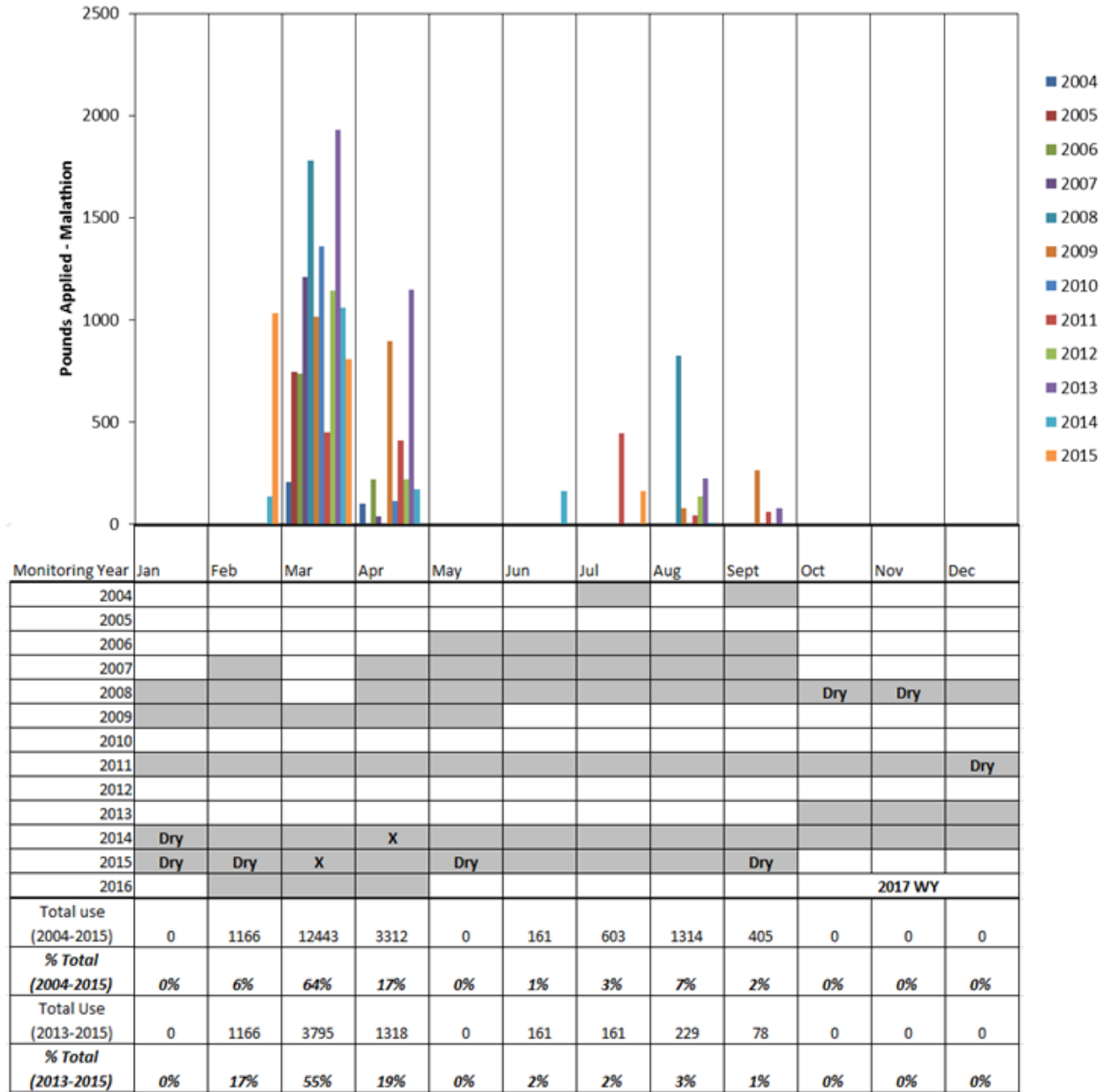


Figure 34. Duck Slough @ Gurr Rd monitoring history and malathion applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Lead

The Coalition received approval to complete the lead management plan in March 25, 2016, based on a demonstrated improved water quality through the 2015 WY. During the 2016 WY, a single exceedance of the WQTL for dissolved lead occurred in January during a storm monitoring event. The management plan will not be reinstated; two exceedances within three years are required for a management plan.

During the 2017 WY, the Coalition will monitor for dissolved lead during a storm event that takes place in January, February, or March.

Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Duck Slough @ Gurr Rd: copper, diazinon, and *S. capricornutum* toxicity.

Copper

The Coalition received approval to remove copper from the site's management plan in December 4, 2015. Therefore, the Coalition demonstrated that copper is not impairing water quality in the subwatershed and monitoring for copper at the site is not necessary for the 2017 WY.

Diazinon

The Coalition monitored for diazinon from 2004 through 2011, monthly during the 2014 WY and 2015 WY; all results were non-detect. Therefore, the Coalition determined no monitoring is necessary for diazinon during the 2017 WY.

***Selenastrum capricornutum* toxicity**

The Coalition received approval to complete the *S. capricornutum* management plan in May 30, 2012. Samples collected from the site have been toxic to *S. capricornutum* in September 2004, July 2007, and June 2015. Only the June 2015 toxicity required a TIE; however, results were inconclusive because the toxicity was lost in the baseline tests. The Coalition monitored for *S. capricornutum* toxicity in June 2016 and the samples were not toxic.

During the 2017 WY, the Coalition will monitor for *S. capricornutum* toxicity in June 2017 for the third consecutive year.

ZONE 6

Dry Creek @ Rd 18 is the rotating Core site in Zone 6. The management plan constituents in Zone 6 are listed in Table 28 and will be monitored monthly at the Core site, with the exception of copper. Monitoring for copper will occur as outlined in the Core Site Metals section.

The Represented sites in Zone 6 will be monitored based on an evaluation of Represented and Core site exceedances that occurred in previous years. The rationale for monitoring each constituent is provided below.

Table 28. Zone 6 management plan constituents and 2016 WY exceedances.

Core site is bolded. An 'M' indicates a current management plan constituent and an 'M' in red text indicates exceedances in the 2016 WY triggered a management plan. An 'X' indicates one exceedance occurred during the 2016 WY that did not initiate a management plan.

SITE NAME	DO	PH	E. COLI	COPPER	CHLORPYRIFOS	DIURON	S. CAPRICORNUTUM
Dry Creek @ Rd 18		M	M	M		M	M
Ash Slough @ Ave 21				M			
Berenda Slough along Ave 18 ½	M	M	M	M	M		
Cottonwood Creek @ Rd 20			M	M			

Ash Slough @ Ave 21

Ash Slough @ Ave 21 is a Represented site in Zone 6. Monitoring was initiated at the site in 2005. During the 2016 WY, MPM was scheduled for dissolved copper.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for dissolved copper at Ash Slough @ Ave 21.

Copper

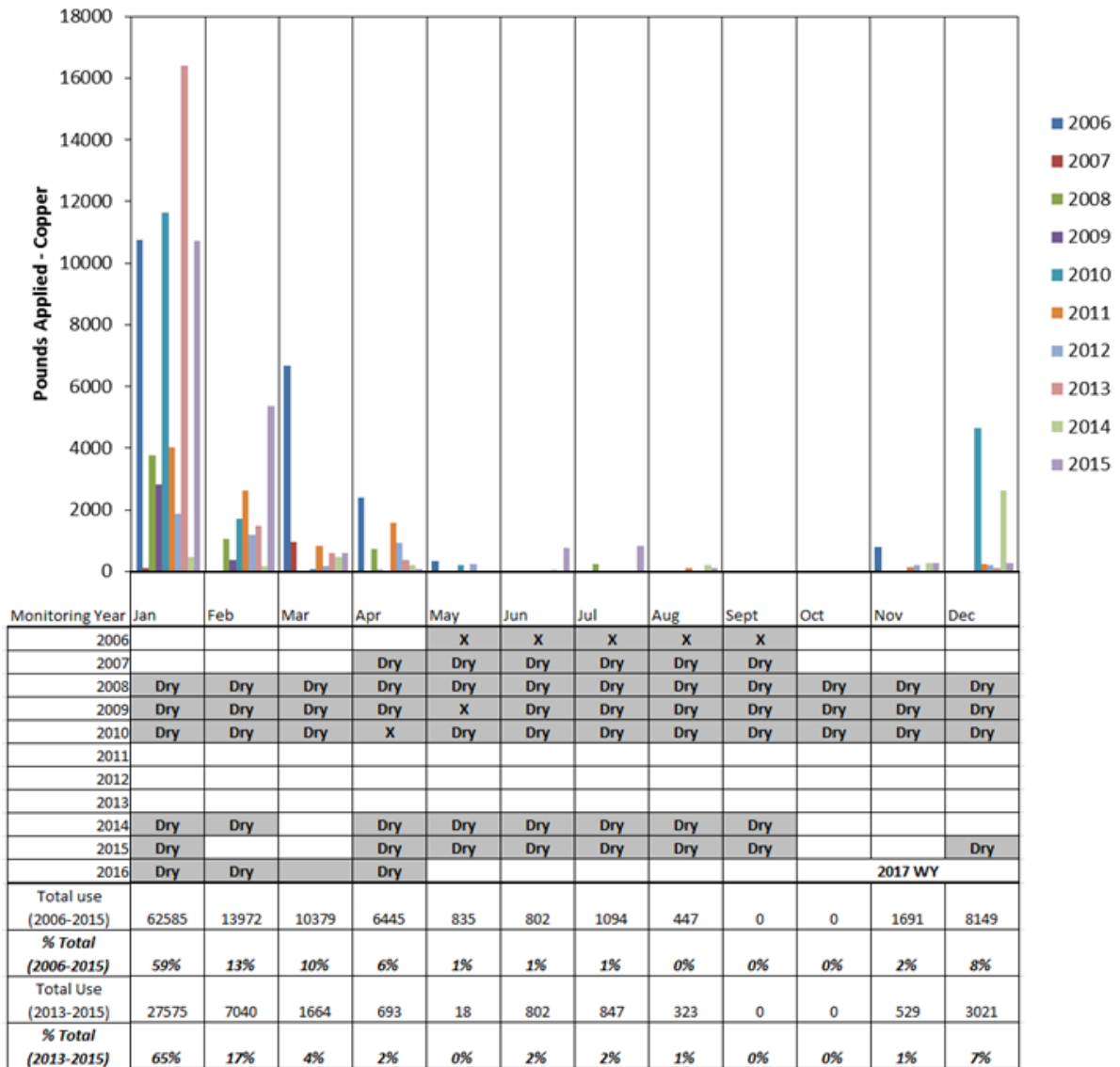
Past exceedances of the WQTL for total copper occurred in May through September 2006, and for dissolved copper in May 2009 and April 2010. The site has been consistently dry during most monitoring events. Exceedances of the WQTL for copper have occurred when enough volume was present to collect a sample except one instance (March 2016; Figure 35). High use occurs consistently in January, making up 59% of the total use from 2006 through 2015 (Figure 35). The site is at risk for water quality impairments related to copper when enough water is present to collect a sample.

During the 2017 WY, the Coalition will conduct MPM for copper during one storm event scheduled from January through March, when copper use is high and water is most likely present. The Coalition determined it is not necessary to conduct MPM in April; use is minimal and the site has been dry during monitoring for the past three years. The Coalition determined it is not necessary to conduct MPM June

through September; copper MPM has occurred for six years with no exceedances and use is minimal during those months. Since, there have been three years of monitoring since the most recent exceedance (April 2010), the Coalition can petition to the Regional Board for completion of the copper management plan after the 2016 WY.

Figure 35. Ash Slough @ Ave 21 monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate where monitoring has not yet occurred. The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Ash Slough @ Ave 21: diuron and *S. capricornutum* toxicity. Due to no water quality impairments based on past results and the number of times the site has been dry; the Coalition determined monitoring is not necessary during the 2017 WY for diuron or *S. capricornutum* toxicity.

Diuron

Samples were collected for diuron 2006 and 2008 through 2010. Monitoring was scheduled for 54 events and the site was dry for 34 of those events. No exceedances of the WQTL for diuron have occurred at the site.

***Selenastrum capricornutum* toxicity**

The only toxicity to *S. capricornutum* occurred in samples collected at the site in February 2006. After February 2006, eight samples were tested for *S. capricornutum* toxicity from 2006 through 2010 and all samples were not toxic.

Berenda Slough along Ave 18 ½

Berenda Slough along Ave 18 ½ is a Represented site in Zone 6. Monitoring was initiated at the site in 2006. During the 2016 WY, MPM was scheduled for chlorpyrifos and dissolved copper.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM is scheduled for chlorpyrifos and copper at Berenda Slough @ Ave 18 ½.

Chlorpyrifos

Exceedances of the WQTL for chlorpyrifos occurred during July and September 2006, July 2007, and April 2011. Applications in April 2015 increased significantly, from less than 100 lbs applied in 2014 to over 2,000 lbs of AI. During the months when use was applied the most (May, July, and August) applications have declined to less than 1,000 lbs AI (Figure 36). The site is frequently dry during the irrigation months, including the months of past exceedances. However, during the 2016 WY, water has been present in April and July (non-contiguous) 2016.

During the 2017 WY, the Coalition will conduct MPM for chlorpyrifos in April based on the previous exceedance and an increase in use, and July and September based on previous exceedances of the WQTL and potential for water to be present.

Copper

Water quality impairments related to copper are apparent in the site subwatershed; 14 exceedances of the hardness based WQTL for dissolved copper have occurred from 2011 through 2016. At least one exceedance has occurred every month, with the exception of March (Figure 37). The exceedances that occurred during May through September do not coincide with high copper use and is an indication that copper water quality impairments are not entirely due to agricultural sources. Copper use in the subwatershed follows a trend in which high use occurs in January and declines substantially through the

rest of the year. In recent years, the site has been dry frequently except when enough precipitation occurred to collect samples. During the 2016 WY, samples were collected in January and April after rainfall and both events resulted in exceedance level detections.

During the 2017 WY, the Coalition will conduct MPM for dissolved copper from January through April.

Figure 36. Berenda Slough along Ave 18 ½ monitoring history and chlorpyrifos applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.

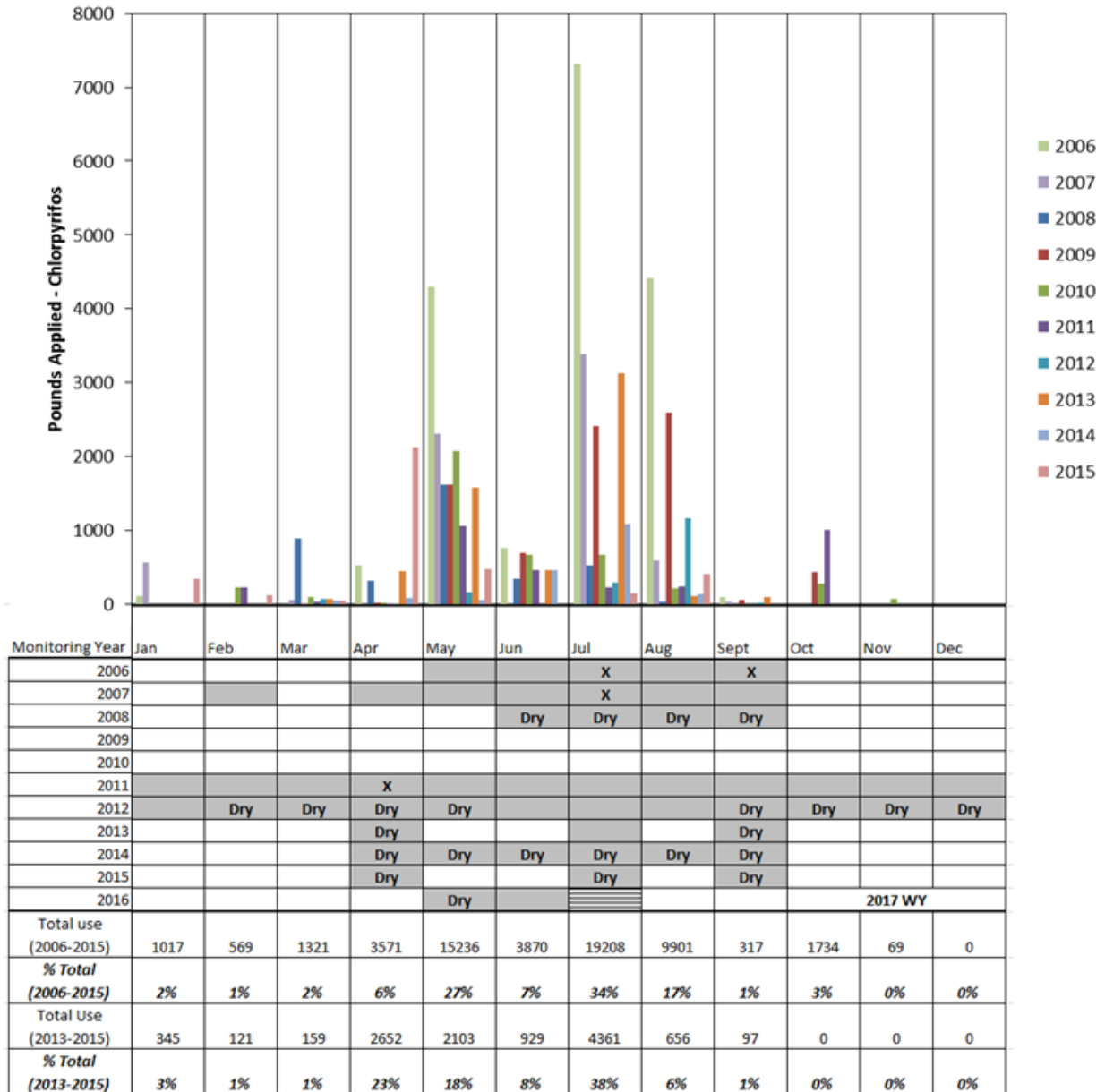
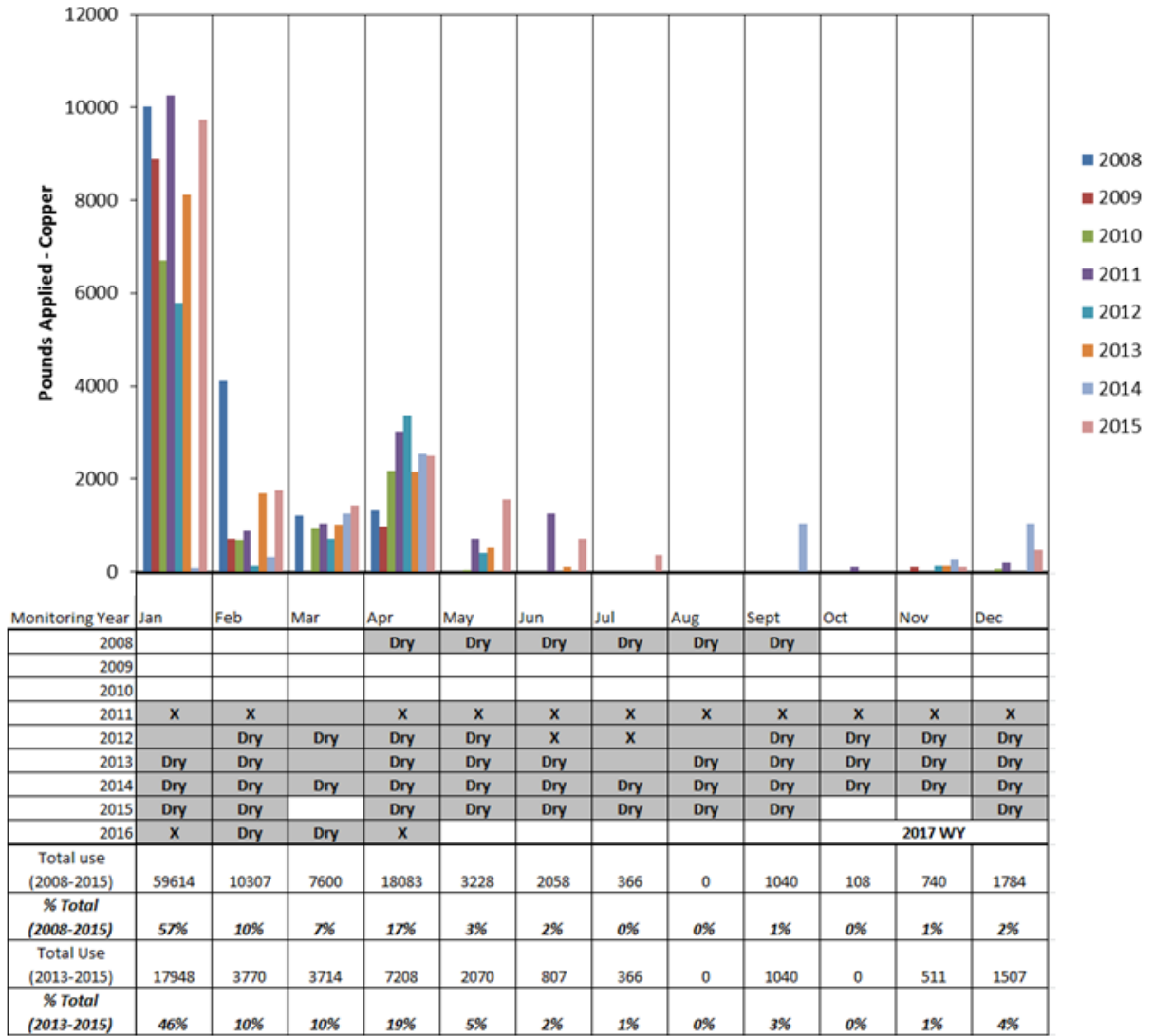


Figure 37. Berenda Slough along Ave 18 ½ monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Berenda Slough along Ave 18 ½: diuron and *S. capricornutum* toxicity. Due to no water quality impairments based on past results and the number of times the site has been dry; the Coalition determined monitoring is not necessary during the 2017 WY for diuron or *S. capricornutum* toxicity.

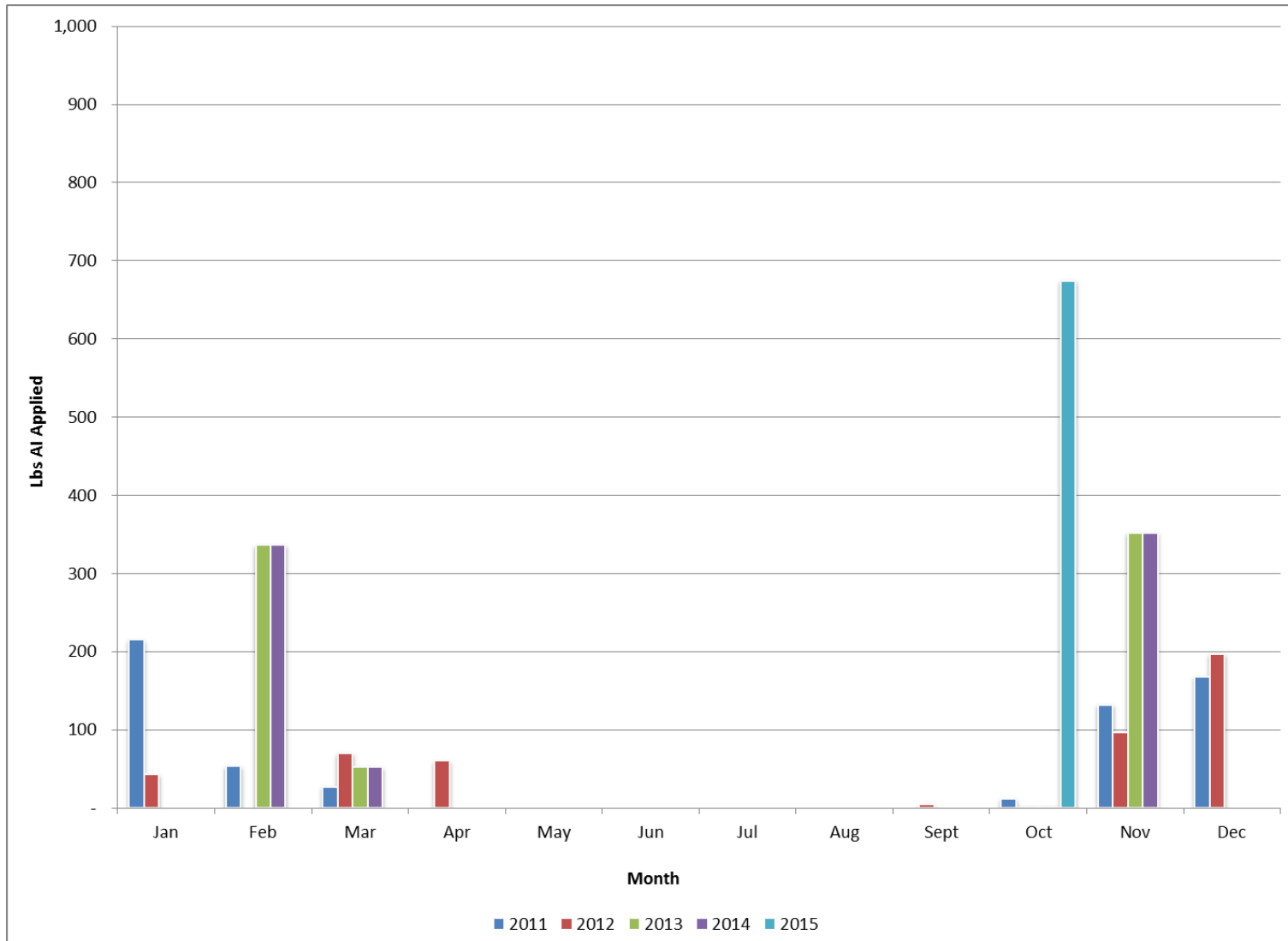
Diuron

Berenda Slough along Ave 18 ½ was monitored for diuron every month from 2011 through 2012 and no exceedances of the WQTL occurred. Applications within a given month do not exceed 1,000 lbs AI, which is minimal for the large site subwatershed (Figure 38). In addition, the site has a history of being consistently dry in recent years.

***Selenastrum capricornutum* toxicity**

The Coalition received approval to complete the *S. capricornutum* toxicity management plan on October 15, 2013. Toxicity to *S. capricornutum* has been monitored from 2006 through the 2013; toxicity did not occur in samples collected after 2007.

Figure 38. Berenda Slough @ Ave 18 ½ diuron applications (2008-2015).



Cottonwood Creek @ Rd 20

Cottonwood Creek @ Rd 20 is a Represented site in Zone 6 during the 2017 WY and a rotating Core site every two years. Monitoring was initiated at the site in 2005. During the 2016 WY, MPM was scheduled for dissolved copper and lead; the lead management plan was approved for completion on December 4, 2015.

Monitoring decision based on exceedances at the Represented site

During the 2017 WY, MPM for dissolved copper is scheduled at Cottonwood Creek @ Rd 20.

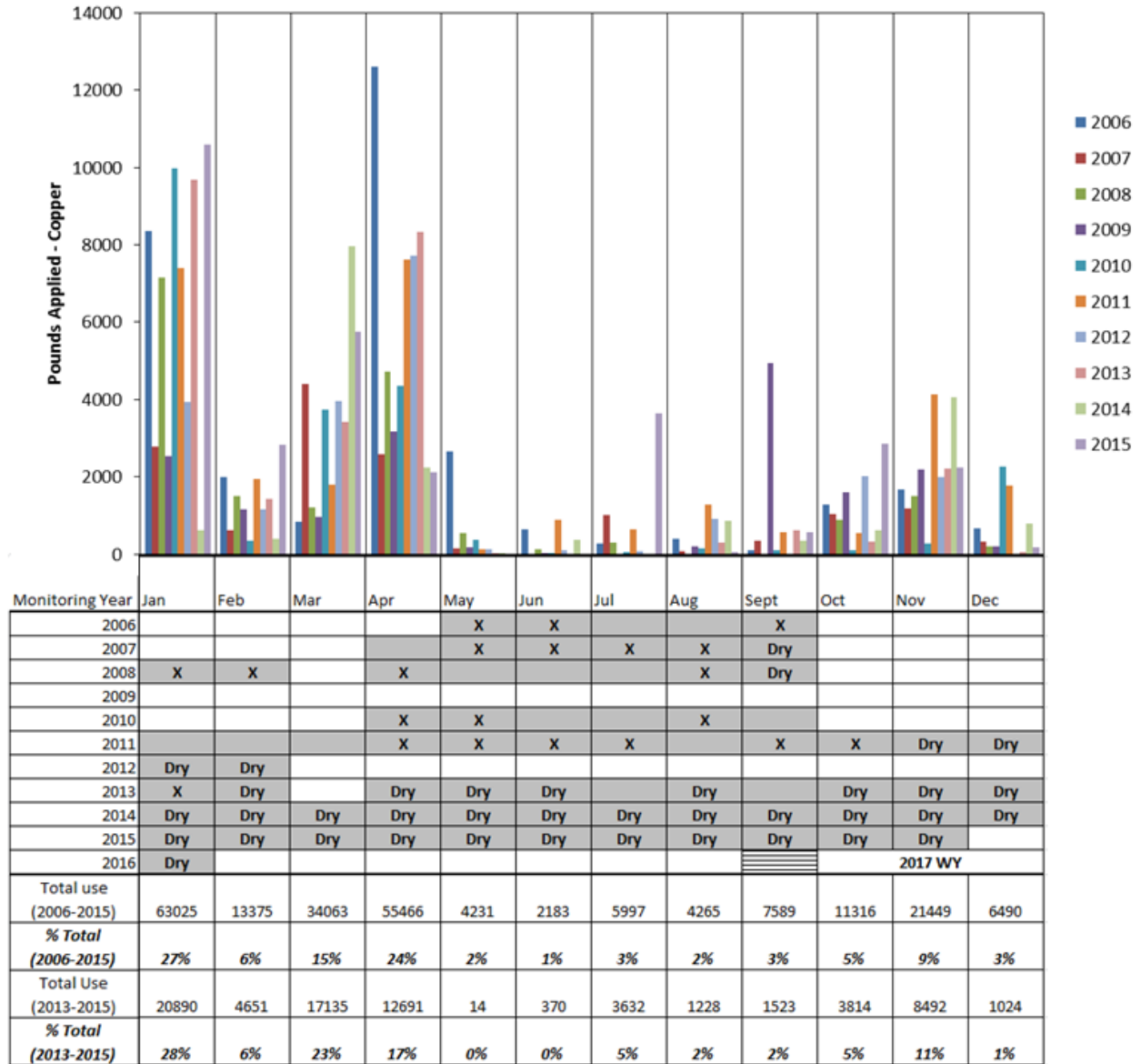
Copper

Exceedances of the WQTL for total copper occurred 12 times and for the hardness based WQTL for dissolved copper occurred 10 times from 2006 through January 2013, when enough water volume was in the waterbody to collect samples. The site has been dry during every monitoring event after January 2013 (Figure 39). It is difficult to associate copper use to exceedances because the two do not clearly coincide.

During the 2017 WY, the Coalition determined MPM for copper will occur during one storm event from January through March when copper use is high and water is most likely present, in addition to April based on past exceedances and to capture the beginning of the irrigation season, and in July to capture one the end of the irrigation season.

Figure 39. Cottonwood Creek @ Rd 20 monitoring history and copper applications.

Shaded cells represent months of past monitoring. "X" depicts months in which exceedances occurred. Hatched cells indicate monitoring has not yet occurred. The PUR data are through December 2015.



Monitoring decision based on exceedances at the Core site

The Coalition evaluated the Core site management plan constituents not in a management plan at Cottonwood Creek @ Rd 20: diuron and *S. capricornutum* toxicity.

Diuron

Cottonwood Creek @ Rd 20 was monitored for diuron from 2005 through 2013, and monthly in the 2014 and 2015 WY as the Core site. Two exceedances occurred in samples collected in January and February 2008. The Coalition received approval to complete the diuron management plan on May 30, 2012, demonstrating water quality has improved. Therefore, monitoring for diuron is not necessary during the 2017 WY.

***Selenastrum capricornutum* toxicity**

One sample collected in April 2008 was toxic to *S. capricornutum*. The TIE results indicated toxicity was caused by cationic chemicals and non-polar organics; an exceedance of the WQTL for total copper coincided with the toxicity. Cottonwood Creek @ Rd 20 was monitored monthly for *S. capricornutum* toxicity during the 2014 WY and 2015 WY as the Core site; the site was dry during every monitoring event. The Coalition determined monitoring for *S. capricornutum* toxicity is not necessary during the 2017 WY.

APPENDIX I

LOW FLOW, NO FLOW AND DRY SITE SAMPLE
COLLECTION PROTOCOL

TABLE OF CONTENTS

Introduction	1
ESJWQC Waterbody Characteristics	3
Water Sampling.....	4
Dry Site – Samples cannot be Collected	5
Non-Contiguous – Sample Collection Not Required	5
Too Shallow to Collect– Samples cannot be Collected	7
Sediment Sampling	9
Dry Site – Samples cannot be Collected	10
Hard Bottom – No Sediment Accumulated.....	10
Sediment Sample Location not Accessible.....	11

LIST OF FIGURES

Figure 1. ESJWQC flowchart strategy for sample collection.....	2
Figure 2. Sample bottle sizes.	4
Figure 3. Dry site at Duck Slough @ Gurr Rd – September 8, 2015.....	5
Figure 4. Non-contiguous waterbody at Miles Creek @ Reilly Rd – March 10, 2015.....	6
Figure 5. Non-contiguous waterbody at Lower Stevinson @ Faith Home Rd – January 13, 2015.	6
Figure 6. Normal conditions at Lateral 5 ½ @ South Blaker – July 12, 2016.	7
Figure 7. Too shallow to collect samples at Lateral 5 ½ @ South Blaker – December 15, 2015.	7
Figure 8. Too shallow waterbody with sample bottle for scale.....	8
Figure 10. Dry site at Duck Slough @ Gurr Rd – September 8, 2015.....	10
Figure 9. Hard bottom at Lateral 5 ½ @ South Blaker – March 10, 2016.....	11
Figure 11. Sediment sample not accessible at Dry Creek @ Wellsford Rd – March 8, 2016.....	12
Figure 12. Sediment sample accessible at Dry Creek @ Wellsford the following month – April 12, 2016.	12

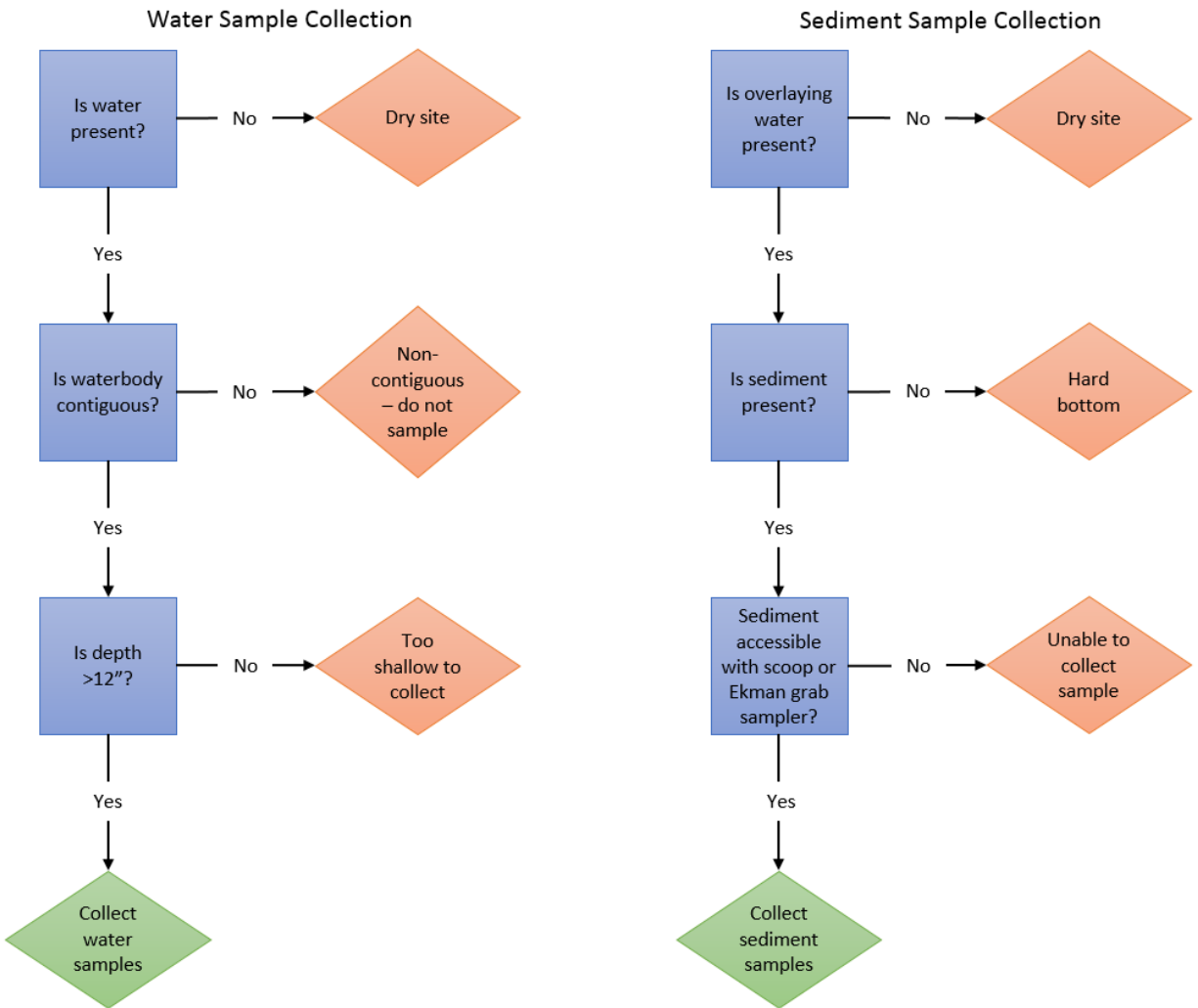
INTRODUCTION

Under typical monitoring conditions, all samples are collected according to the protocols and procedures outlined in the 2008 QAPP (amendment approved on January 8, 2016). However, due to the types of waterbodies monitored (drains, laterals, canals, rivers, and ephemeral and intermittent creeks), and variations in climatic patterns and agricultural irrigation patterns, conditions exist where the collection of a high quality, representative water or sediment samples cannot be collected due to low flow, no flow, and dry conditions.

The purpose of this appendix is to outline the decision making process for sampling actions as result of conditions where there is little to no flow or when there is no water (Figure 1). The flowchart in Figure 1 outlines the potential sample site flow conditions that occur at monitoring locations in the ESJWQC region. Potential reasons for not collecting a sample include:

- the waterbody is dry,
- the waterbody is non-contiguous,
- there is not enough water depth to submerge the sample bottles to collect a sample,
- there is not enough sediment accumulation in the channel to collect a sample, or
- sample site is not accessible for collection.

Figure 1. ESJWQC flowchart strategy for sample collection.



ESJWQC WATERBODY CHARACTERISTICS

Waterbodies in the ESJWQC region consist of drains, canals, laterals, rivers, and ephemeral and intermittent creeks. Drains, canals, and laterals receive irrigation district deliveries and agricultural return flows. These agricultural supply channels have been specifically designed to deliver irrigation water to parcels in the ESJWQC region. Grade control structures are used to control flows along the length of the channel.

Generally, irrigation water deliveries and return flows begin in April and continue through September. By October, water levels are low and flows have stopped; by November, many of the channels are non-contiguous or dry. Large storms can produce localized puddles and, in some cases, low flows between grade control structures. However, under these conditions, the waterbody is typically not connected upstream or downstream and is unable to discharge to waters of the state.

Due to the hot and dry climate of the ESJWQC region, flows in ephemeral and intermittent creeks mainly occur during large winter storms and spring snow melt. During the summer, many of these waterbodies have very little to no flow except when the waterbody is also used for irrigation deliveries and drainage. In addition, many of these waterbodies in the Coalition region have check dams and grade control structures to control flows and have little potential to discharge to waters of the state, except when a large amount of precipitation occurs during a storm.

WATER SAMPLING

The protocol for collecting water samples is to collect an environmental sample from the waterbody by submerging sample bottles 0.1 m (approximate 4 inches) below the surface of the water, uncapping the bottle, filling the bottle and re-capping it under the water with no headspace (see Appendix I-III of the ESJWQC QAPP). Sample bottles vary in size depending on the constituent that the sample will be tested for. However, the largest bottles are 8.5 inches (pesticide analysis) and 13.5 inches tall (toxicity analysis, Figure 2). Under certain conditions it is not possible to collect water samples according to approved protocols and criteria outlined in the QAPP due to situations that result in low volumns of water. These conditions and examples are outlined in the sections below.

Figure 2. Sample bottle sizes.



DRY SITE – SAMPLES CANNOT BE COLLECTED

A waterbody is considered dry when no water is present upstream or downstream from the sample location. An example of this type of site condition is Duck Slough @ Gurr Rd which was dry on September 8, 2015 and no water or sediment samples could be collected (Figure 3).

Figure 3. Dry site at Duck Slough @ Gurr Rd – September 8, 2015.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)



NON-CONTIGUOUS – SAMPLE COLLECTION NOT REQUIRED

There are various occasions throughout the year where ESJWQC waterbodies are non-contiguous. Sampling a non-contiguous waterbody is not representative of the water quality in a normal flowing waterbody and samples should not be collected for the following reasons:

- 1) Concentrations of pesticides and other analytes can become concentrated, and only represent the water quality of the isolated pool instead of the irrigation drainage of the site subwatershed;
- 2) Collecting samples from a shallow, isolated pool can introduce suspended sediments and potentially dislodge sediment-bound pesticides or herbicides that were not previously present in the water column;
- 3) Section 4.3 of the Surface Water Sampling SOP advises samplers only to collect samples if water conditions are normal and not to collect samples in shallow, no flow, or isolated pool conditions (Appendix II, ESJWQC QAPP) to avoid bias and unrepresentative sampling; and
- 4) Non-contiguous waterbodies are not connected upstream or downstream and are unable to flow or discharge to downstream waterbodies which have designated beneficial uses.

Beneficial uses are only assigned to two waterbodies monitored in the ESJWQC boundary: the San Joaquin River and Merced River. Many of the waterbodies sampled by the Coalition have the potential to drain to the San Joaquin River and have been assigned the same beneficial uses based on the

tributary rule. However, when these waterbodies have no flow or are non-contiguous, there is no potential to discharge to the San Joaquin River.

As mentioned in the ESJWQC Waterbody Characteristics section, many of the ESJWQC waterbodies only have intermittent flows, and have the potential to be non-contiguous or dry throughout the year. Results from samples collected from non-contiguous waterbodies are not indicative of the water quality of irrigation drainage. No samples will be collected if the waterbody is non-contiguous. An example of non-contiguous site condition is depicted in Figures 4 and 5.

Figure 4. Non-contiguous waterbody at Miles Creek @ Reilly Rd – March 10, 2015.

Photo on the left is facing upstream (north) and photo on the right is facing downstream (south)



Figure 5. Non-contiguous waterbody at Lower Stevinson @ Faith Home Rd – January 13, 2015.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)



TOO SHALLOW TO COLLECT- SAMPLES CANNOT BE COLLECTED

For waterbodies that measure less than 12 inches in depth, it is not possible to collect samples in accordance with sampling protocols. In the ESJWQC region, situations where the water is too shallow to collect generally occurs in irrigation water delivery canals, laterals, and drains during the fall and winter months when irrigation water deliveries are no longer occurring. These conditions may also occur during the summer and winter months in channels with intermittent flows.

Figure 6 and 7 depict Lateral 5 ½ @ South Blaker Rd during normal conditions in the irrigation season and shallow conditions in the fall. Figure 8 depicts the sample bottle to collect the required sample relative to the depth of the water at two different sample sites.

Figure 6. Normal conditions at Lateral 5 ½ @ South Blaker – July 12, 2016.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)



Figure 7. Too shallow to collect samples at Lateral 5 ½ @ South Blaker – December 15, 2015.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)



Figure 8. Too shallow waterbody with sample bottle for scale.



SEDIMENT SAMPLING

Page 10, MRP- Attachment B of the WDR indicates sediment samples must be collected twice a year, once during the storm season between 1 March and 30 April and once during the irrigation season between 15 August and 15 October, when overlying water is present. Sediment sample collection consists of collecting an integrated sample from the top 2 cm of sediment along the bank or from the bottom of the channel. Sediment is either collected with a stainless steel scoop or with an Ekman grab sample collection device if sampling from a bridge.

Under certain conditions it is not possible to collect sediment samples according to approved protocols and criteria outlined in the QAPP. Examples of when a sediment sample may not be able to be collected during the planned event includes no sediment is present to collect, no overlying water is present or the sediment is dry, and the location where sediment is collected cannot be accessed due to high water levels and/or high flows.

If a sediment sample cannot be collected due to an issue accessing the the location where sediment occurs in the waterbody, then an attempt will be made during the next sampling event to collect the sediment sample, as long as the event occurs within the timeframe prescribed in the Order.

When sites are dry or have no sediment accumulated, a sediment sample cannot be collected. In these situations it is not expected for the conditions to change before the end of the sediment sample collection period and therefore the site will be revisited during the next planned sediment sampling event. If the site continues to have no sediment, alternative sites will be evaluated to represent the waterbody. Communication will occur with Regional Board staff regarding sites that are not expected to have sediment in the future and options for alternative sampling locations.

DRY SITE – SAMPLES CANNOT BE COLLECTED

A waterbody is considered dry during sediment sampling when no overlying water is present over the sediment collection area. The Coalition will only collect sediment samples when water is present at the site. An example of a dry sediment sampling location is illustrated in Figure 10 where Duck Slough @ Gurr Rd was dry on September 8, 2015; no water or sediment samples were collected.

Figure 9. Dry site at Duck Slough @ Gurr Rd – September 8, 2015.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)



HARD BOTTOM – NO SEDIMENT ACCUMULATED

If a monitoring location has water but does not have enough sediment to collect a sample, the reason for not collecting a sample is recorded as ‘hard bottom’. This typically occurs in concrete lined channels where maintenance has recently occurred and sediment has been cleared from the waterbody.

If sediment samples cannot be collected because sediment is not present, the site is evaluated to determine if the cause is temporary or permanent. If the cause is deemed temporary, and it is probable that sediment will re-accumulate over time, sediment collection is attempted during the subsequent scheduled sediment sampling events (March and September). If it is determined that sediment accumulation is not likely to occur, then a surrogate location will be chosen for sediment collection. Sampling will occur either during the next month’s monitoring event, if it is within the sediment collection timeframe, or the next scheduled sediment monitoring event.

An example of a site with a ‘hard bottom’ is Lateral 5 ½ @ South Blaker on March 10, 2016 (Figure 9). The lateral was drained and scraped clean so that new concrete applications could occur to the waterway. The lack of sediment in the lateral is temporary and over time, sediment will accumulate in the channel. The site will be revisited during the next scheduled sampling event (September) and it is expected that there will be enough sediment accumulated to allow for samples to be collected.

Figure 10. Hard bottom at Lateral 5 ½ @ South Blaker – March 10, 2016.



SEDIMENT SAMPLE LOCATION NOT ACCESSIBLE

Sediment samples may not be collected from a waterbody due to site conditions where samplers cannot physically or safely access the section of the waterbody where sediment samples need to be collected. This occurs as result of high channel walls/slope/gradient (channels with steep banks that are lined with rip rap), high irrigation delivery flows, or high flows due to a large storm event. When flows are up and the channel is at, or has exceeded bankfull stage, sediment cannot be accessed for collection with the stainless steel scoop. When this occurs, an attempt is made to collect sediment samples using an Ekman grab sampler from a bridge, if a bridge is present at the location. However, due to scour around bridge pylons, many public works departments have modified channel hydraulics by adding rip rap around pylons and throughout the channel in the vicinity of the bridge and therefore an Ekman grab cannot successfully collect sediment samples under these conditions.

An example of no access due to high flows from a storm event is depicted in Figure 11 for Dry Creek @ Wellsford Rd on March 8, 2016. Due to the large amount of rain, flows in the creek were extremely high and the water's edge had reached the rip rap. Samplers were able to collect water samples from the bank, but it was not possible to reach any sediment with the stainless steel scoop. An Ekman grab sampler cannot be used from the bridge at this site because the dominant substrate is cobble and boulders around the bridge. Samplers returned the following month, when flows were down, and were able to collect sediment samples within the required timeframe (Figure 12).

Figure 11. Sediment sample not accessible at Dry Creek @ Wellsford Rd – March 8, 2016.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)



Figure 12. Sediment sample accessible at Dry Creek @ Wellsford the following month – April 12, 2016.

Photo on the left is facing upstream (east) and photo on the right is facing downstream (west)





October 7, 2016

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

Re: Memo to amend to the 2017 WY Monitoring Plan Update for Waste Discharge Requirements General Order R5-2012-0116-R3 for Growers in the Eastern San Joaquin River Watershed

Dear Ms. Creedon,

The East San Joaquin Water Quality Coalition (ESJWQC) is submitting this memo to amend the 2017 WY Monitoring Plan Update (MPU) and associated monitoring schedule. On October 6, 2016, the ESJWQC received an email from Regional Board staff requesting additional monitoring for nutrients (ammonia and nitrate + nitrite) to be added for Represented sites in Zone 2.

Based on recent exceedances of the WQTL for ammonia and nitrate at the Core site in Zone 2 (Lateral 5 ½ @ South Blaker Rd) during the 2016 WY, the Coalition will monitor for ammonia and nitrate during the 2017 WY at the following Represented sites: Lateral 6 and 7 @ Central Ave, Lower Stevinson @ Faith Home Rd, and Unnamed Drain @ Hogin Rd.

The following updates shown in Table 1 have been made to the attached monitoring schedule (Attachment A). Table 2 below includes the updates to the monitoring frequency table in the MPU (2017 WY MPU; Table 2, page 3).

Table 1. ESJWQC updates to the monitoring schedule to include monitoring of ammonia and nitrate at Represented sites in Zone 2.

Site	Site Type	Ammonia as N Monitoring	Nitrate + Nitrite as N Monitoring
Lateral 6 and 7 @ Central Ave	Represented	January	October, November, February, March, May, June, July
Lower Stevinson @ Faith Home Rd	Represented	January	October, November, February, March, May, June, July
Unnamed Drain @ Hogin Rd	Represented	January	October, November, February, March, May, June, July

Submitted respectfully,

Parry Klassen Executive Director
East San Joaquin Water Quality Coalition

Attachment A: ESJWQC 2017 WY monitoring schedule Excel file

Table 2. Updated ESJWQC 2017WY monitoring frequency (field parameters, physical parameters, nutrients, bacteria, metals, and organophosphate pesticides).
Core sites are bolded. A complete list of sites, analytes, and months to be monitored are listed in Attachment A. The MPM at Core sites coincides with monthly Core site monitoring.

ESJWQC 2017 WY MONITORING FREQUENCY			FIELD PARAMETERS				PHYSICAL PARAMETERS			NUTRIENTS			BAC	METALS ¹								ORGANOPHOSPHATES																
Zone	Site Name	Monitoring Type	Dissolved Oxygen	pH	Specific Conductance	Temperature	Suspended Solids	Total Organic Carbon	Turbidity	Nitrate + Nitrite (as N)	Soluble Orthophosphate	Total Ammonia (as N)	<i>E. coli</i>	Arsenic (Total)	Boron (Total)	Cadmium (Dissolved)	Copper (Dissolved)	Lead (Dissolved)	Molybdenum (Total)	Nickel (Dissolved)	Selenium (Total)	Zinc (Dissolved)	Azinphos-methyl	Chlorpyrifos	Demeton-s	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Malathion	Methamidophos	Methodathion	Parathion, methyl	Phorate	Phosmet			
1	Dry Creek @ Wellsford Rd	C	11	11	11	11	11	11	11	11	11	11	11										11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
		M																						4														
2	Lateral 5 1/2 @ South Blaker Rd	C	12	12	12	12	12	12	12	12	12	12	12	4	4	4	5	4	4	4	4	4	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Lateral 2 ½ near Keyes Rd	M																					4															
	Lateral 6 and 7 @ Central Ave	R								7		1																										
	Lower Stevinson @ Faith Home Rd	R								7		1																										
	Prairie Flower Drain @ Crows Landing Rd	M																					7					3										
	Unnamed Drain @ Hogin Rd	R									7		1																									
3	Highline Canal @ Hwy 99	C	10	10	10	10	10	10	10	10	10	10	10										10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
		M															4						3															
	Mustang Creek @ East Ave	M															5																					
4	Canal Creek @ West Bellevue Rd	C	12	12	12	12	12	12	12	12	12	12	12	4	4	4	6	4	4	4	4	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Black Rascal Creek @ Yosemite Rd	R															2																					
	Howard Lateral @ Hwy 140	M															4																					
	Livingston Drain @ Robin Ave	M															4						3															
	Merced River @ Santa Fe	M																					2															
5	Miles Creek @ Reilly Rd	C	10	10	10	10	10	10	10	10	10	10	10										10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
		M															6									1												
	Deadman Creek @ Gurr Rd	M															1						2															
	Deadman Creek @ Hwy 59	M															1						4															
	Duck Slough @ Gurr Rd	M																					2							2								
6	Dry Creek @ Rd 18	C	10	10	10	10	10	10	10	10	10	10	10										10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
		M															10																					
	Ash Slough @ Ave 21	M															1																					
	Berenda Slough along Ave 18 1/2	M															4						3															
	Cottonwood Creek @ Rd 20	M															3																					
Total			65	65	65	65	65	65	65	86	65	59	65	8	8	8	58	9	8	8	8	8	65	94	65	65	65	68	65	67	65	65	65	65	65	65		