

San Joaquin County and Delta Water Quality Coalition

San Joaquin County Resource Conservation District
3422 W. Hammer Lane, Suite A
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May 1, 2015

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

Dear Ms. Creedon,

The San Joaquin County and Delta Water Quality Coalition (SJCDWQC) is submitting the 2015 Surface Water Quality Management Plan (SQMP) for review by the Central Valley Regional Water Quality Control Board (CVRWQCB) as required by the Waste Discharge Requirements General Order for Growers within the San Joaquin County and Delta Area that are members of the SJCDWQC (WDR; R5-2014-0029).

“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 knowingly submitting false information, including the possibility of fine and imprisonment for violations.”

This letter is being mailed with an original signature to the CVRWQCB.

Submitted respectfully,



Michael L. Johnson
SJCDWQC Technical Program Manager
Michael L. Johnson, LLC

San Joaquin County and Delta Water Quality Coalition

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Michael L. Johnson
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Revised Surface Water Quality Management Plan



San Joaquin County & Delta Water Quality Coalition



May 1, 2015

Irrigated Lands Regulatory Program

Central Valley Regional Water Quality Control Board

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Appendix I. SJCDWQC Site Subwatershed Water Quality Data Summaries

Appendix II. SJCDWQC Regional Board Management Plan Completion Approval Letters

LIST OF ACRONYMS

AWEP	Agricultural Water Enhancement Program
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins (4 th Ed.)
BMP	Best Management Practice
CEDEN	California Environmental Data Exchange Network
CTR	California Toxics Rule
CVRWQCB	Central Valley Regional Water Quality Control Board
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DO	Dissolved Oxygen
DPR	California Department of Pesticide Regulation
DWR	California Department of Water Resources
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FEP	Farm Evaluation Plan
GIS	Geographic Information System
HCH	Hexachlorocyclohexane
HUC	Hydrologic Unit Code
ILRP	Irrigated Land and Regulatory Program
MLJ-LLC	Michael L. Johnson, LLC Ecosystem Consulting
MPUR	Management Plan Update Report
MPM	Management Plan Monitoring
MPU	Monitoring Plan Update
MRP	Monitoring and Reporting Program
NA	Not Applicable
NAWQA	National Water-Quality Assessment Program
NMP	Nitrogen Management Plan
NRCS	Natural Resource Conservation Service
NTR	National Toxics Rule
PAM	Polyacrylamide
PCA	Pesticide Control Adviser
pH	Power of Hydrogen
PUR	Pesticide Use Report

QAPP	Quality Assurance Project Plan
qPCR	Quantitative Polymerase Chain Reaction
SC	Specific Conductance
SECP	Sediment Erosion Control Plan
SJCDWQC	San Joaquin County and Delta Water Quality Coalition
SJCRCD or RCD	San Joaquin County Resource Conservation District
SQMP	Surface Water Quality Management Plan
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey
WDR	Waste Discharge Requirements General Order r5-2014-0029
WQO	Water Quality Objective
WQP	Water Quality Portal
WQTL	Water Quality Trigger Limit
WQX	Water Quality Exchange
WY	Water Year

LIST OF UNITS

cfs	cubic feet per second
cm	centimeter
L	Liter
lbs	pounds
mg	milligram
MPN/100mL	most probable number per 100 milliliters
sec	second
µg	microgram
µS	microsiemens
µg/kg dw	microgram per kilogram of dry weight

LIST OF TERMS

Agricultural Commissioner – County Agriculture Commissioner

ArcGIS – Geographic Information Systems mapping software

Central Valley or Valley – California Central Valley

Coalition – San Joaquin County and Delta Water Quality Coalition

Core site monitoring – monitoring that occurs monthly at each Core site in each zone

Drainage – Water that moves horizontally across the surface or vertically into the subsurface from land

General Order – Waste Discharge General Order No. R5-2014-0029

Hydrologic units – A waterbody and its catchment. The hydrologic unit code (HUC) is the code associated with a hydrologic unit.

Landowners – One or more persons responsible for the management of the irrigated land

Non project QA sample – Sample results from another project other than the Coalition included to meet laboratory Quality Assurance requirements.

Regional Board – Central Valley Regional Water Quality Control Board

Represented site monitoring – monitoring that occurs at Represented sites as scheduled in the annual MPU.

Site subwatershed – Starting from the sampling site, all waterbodies that drain, directly or indirectly, into the waterbody before the point where sampling occurs.

Special study – A study conducted outside of Normal Monitoring activities that involves monitoring specific constituents in an effort to determine the mechanism responsible for the exceedances; also includes Total Maximum Daily Load (TMDL) monitoring.

Subwatershed – The topographic perimeter of the catchment area of a stream tributary (Environmental Protection Agency (EPA) terms of environment: <http://www.epa.gov/OCEPATERMS/sterms.html>).

Tract – A Delta island

Tributary Rule – Beneficial uses for Coalition monitoring sites are applied based on the most immediate downstream waterbody.

Waterbody – Standing or flowing water of any size that may or may not move into a larger body of water, including lakes, reservoirs, ponds, rivers, streams, tributaries, creeks, sloughs, canals, laterals and drainage ditches.

Watershed – The land area that drains into a stream; the watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common point (EPA terms of environment: <http://www.epa.gov/OCEPATERMS/wterms.html>).

WDR – Waste Discharge General Order No. R5-2014-0029

INTRODUCTION AND BACKGROUND

As outlined in the Waste Discharge Requirements General Order for Growers within the San Joaquin County and Delta Area (WDR or General Order; No. R5-2014-0029), the San Joaquin County and Delta Water Quality Coalition (SJCDWQC or Coalition) is submitting a revised Surface Water Quality Management Plan (SQMP). The Coalition first identified surface water locations and constituents that would require a management plan in 2007, and developed the SJCDWQC Management Plan in 2008. The SJCDWQC SQMP identifies all site subwatersheds and constituents with more than one exceedance within three years or one exceedance if the constituent is subject to a TMDL. The Coalition will submit a Management Plan Progress Report annually as part of the Annual Report. As a part of the Progress Report, the Coalition will report on the progress within subwatersheds requiring management plans including an evaluation of monitoring results, an assessment of management practice effectiveness, and a review of any new or removed site/constituent specific management plans. This report evaluates data through September 2014.

The SQMP is used to:

1. Evaluate the magnitude and extent of water quality impairments using monitoring data,
2. Establish a process for identifying the irrigated agricultural sources contributing water quality impairments,
3. Identify management practices that are effective in reducing impact of irrigated agriculture,
4. Establish a process to evaluate the effectiveness of implemented management practices,
5. Establish the Performance Goals and Measures that will be assessed in the Annual Report, and
6. Develop management plan compliance timetables for reporting to the Central Valley Regional Water Quality Control Board (CVRWQCB or Regional Board) on the effectiveness of the SQMP.

Although management plans are developed for individual subwatersheds and constituents of concern, the strategy employed by the Coalition is to address constituents across the entire Coalition region in as timely a manner as practicable. In the 2008 Management Plan, site subwatersheds were prioritized for focused outreach, implementation of management practices, and management plan monitoring (MPM). Constituents were grouped into one of five categories, A-E, which determined the amount and timing of outreach and monitoring in the site subwatersheds where exceedances of WQTLs had occurred. Constituents in categories A, B, and C had the highest priority for Coalition action while categories D and E were the lowest priority. This strategy allowed the Coalition to allocate resources to outreach and monitoring over time while addressing the most significant problems first. The Coalition has been very successful in removing pesticides and toxicity from management plans. As a result, numerous site subwatersheds are no longer in management plans for specific constituents.

The Coalition assigns exceedances into one of several categories as enumerated below. The four categories of exceedances all require significant effort to remove from management plans, however; the sourcing and management of exceedances moves from relatively easier at the top of the list to more difficult at the bottom of the list.

- Chemicals applied by irrigated agriculture that are traceable to a source(s) (e.g. pesticides, toxicity)
- Chemicals applied by irrigated agriculture that are also applied by other entities (e.g. herbicides, pyrethroids)
- Chemicals applied by irrigated agriculture that are not traceable to a single source (e.g. nitrate in fertilizers)
- Constituents with unknown/multiple sources that are difficult to identify (e.g. *E. coli*)
- Measured parameters with no direct sources whose concentration can be the result of many processes (e.g. dissolved oxygen and pH)

This revised SQMP presents the Coalition’s approach to eliminating impairments of beneficial uses of surface waters in the Coalition region along with a compliance schedule for each specific constituent. Additionally, for those constituents that are not easily tracked to a source, in place of a compliance schedule, a timetable is included for providing workplans to develop source identification studies to the Regional Board. The Management Plan approach involves source identification, outreach to members identified as having potential to discharge constituents of concern to the waterbody to notify them of water quality impairments, providing recommendations about potential management practices that are known to be efficacious in managing discharges, and monitoring to evaluate the efficacy of implemented management practices.

Table 1 identifies each of the required components and the corresponding section of the Management Plan where these components can be found.

Table 1. SJCDWQC SQMP reporting requirements and sections that address the WDR components.

REQUIRED ELEMENT (APPENDIX MRP-1)	SURFACE WATER QUALITY MANAGEMENT PLAN SECTIONS
A. Introduction and Background	Introduction and Background
B. Physical Setting and Information	Physical Setting and Geographical Characteristics
B.1.a. Land use maps	Land Use in Management Plan Watersheds, Appendix I Site Subwatershed Water Quality Data Summaries
B.1.b. Identification of potential agricultural sources of COCs	Identification of Agricultural Sources of Constituents of Concern
B.1.c. Beneficial uses	Beneficial Uses
B.1.d. Baseline of management practices	Baseline Inventory of Management Practices (2008-September 2014)
B.1.e. Summary, discussion, and compilation of surface water quality data	Available Surface Water Quality Data
B.2. Description of watershed areas addressed by the Management Plan	Appendix I Site Subwatershed Water Quality Data Summaries
C. Management Plan Strategy	Management Plan Strategy
C.1. Description of approach	Description of Approach
C.2. Actions to meet goals and objectives	Actions to Meet Goals and Objectives
C.2.a. Compliance with receiving water limitations	Actions to Meet Goals and Objectives
C.2.b. Educate members	Outreach and Education
C.2.c. Identify, validate and implement management practices	Identification, Validation, and Implementation of Management Practices
C.3 Duties and responsibilities of individuals	Duties and Responsibilities
C.4. Strategies to implement the Management Plan tasks	Strategies to Implement Management Plan Tasks
C.4.a. ID entities or agencies	Strategies to Implement Management Plan Tasks: Agencies Contacted for Data and/or Assistance
C.4.b. ID management practices	Management Practices to Reduce Water Use and Discharge
C.4.c. ID outreach	Outreach and Education
C.4.d. Specific schedule and milestones	Identification, Validation, and Implementation of Management Practices: Tables 14-18
C.4.e. Measurable performance goals with specific targets	Performance Goals and Performance Measures
D. Monitoring Methods	Monitoring Methods
D.2.a Locations of the monitoring site and schedule (including frequencies)	Site Subwatersheds in Surface Water Quality Management Plans, and Monitoring Design and Schedules
D.2.b. Surface water quality monitoring data electronically	Available Surface Water Quality Data, and Records and Reporting
E. Data Evaluation	Data Evaluation
F. Records and Reporting	Records and Reporting
G. Source Identification Study Requirements	Source Identification Studies

PHYSICAL SETTING AND GEOGRAPHICAL CHARACTERISTICS

The SJCDWQC area includes the entire San Joaquin County as well as portions of Alameda, Alpine, Amador, Contra Costa, Calaveras, and Stanislaus Counties. The Coalition area receives drainage from four major rivers: the San Joaquin River, Stanislaus River, Calaveras River, and the Mokelumne River. The eastern tributaries of the Delta drain the Sierra Nevada range from east to west. The Coalition region is comprised of a combination of county lines and hydrological units of area subbasins and watersheds within San Joaquin County, parts of the Contra Costa, Amador, Calaveras, Alpine, Alameda, and Stanislaus counties. Currently, under the approved WDR, the boundary of the Coalition region is defined by the San Joaquin Delta subbasin to the west, the Sacramento and San Joaquin County line until the intersection of Sacramento and San Joaquin and Amador County lines, the Lower Mokelumne River watershed, the Upper Mokelumne subwatershed, the Lower North Fork Mokelumne River watershed, the Lower North Fork Mokelumne River watershed to the Alpine County line to the north, the crest of the Sierra Nevada Mountain Range to the east, and the Upper Mokelumne subbasin to the Upper Calaveras California subbasin, the Upper Calaveras California subbasin, the Rock Creek-French Camp Slough subbasin to the Stanislaus County line in the south.

Water is either exported from the Coalition region to San Francisco Bay through the Delta or is diverted southward through State (California Aqueduct) and Federal (Delta Mendota Canal) water projects. The Coalition region receives drainage from four major rivers: the San Joaquin River, Stanislaus River, Calaveras River, and the Mokelumne River. Intermediate sized waterbodies in the Coalition area (Littlejohns Creek, Duck Creek, Lone Tree Creek, Bear Creek, French Camp Slough, Dry Creek, Marsh Creek, Mormon Slough, Mosher Creek, and Pixley Slough) are tributaries to the major rivers or empty into the Sacramento - San Joaquin Delta. Within the Coalition area, the lower reaches of the San Joaquin River drain the eastern and western parts of the California Central Valley (Valley). The eastern tributaries of the Delta drain the Sierra Nevada range from east to west. Much of the Delta is below sea level and consequently relies on a series of levee systems for protection against flooding. There are several small subwatersheds in this portion of the Coalition region including the Kellogg Creek, Marsh Creek, Sand Creek, and Brushy Creek subwatersheds that drain the northern hills of Mount Diablo. These waterbodies flow east through urban areas on the western edge of the central Delta. The levees surround an estimated 55-70 Delta islands or tracts interconnected by a network of sloughs. Many of the islands are 10 to 25 feet below sea level. Further discussion of hydrology specific to each of the waterbodies monitored by the Coalition can be found in the WDR.

Soil type and factors such as slope, soil saturation, rainfall/irrigation water amount, and drainage patterns determine runoff. During the winter, runoff is moved through the myriad of creeks, rivers, and drains. Runoff can also occur during the irrigation season if water entering the field is greater than the amount that can infiltrate the soil. In Delta islands, water is pumped in and out of supply and drainage canals. For a large number of islands, water is continually entering the islands through groundwater recharge (essentially seepage from the greater in elevation water source on the river side of the levee) thus requiring off-island draining.

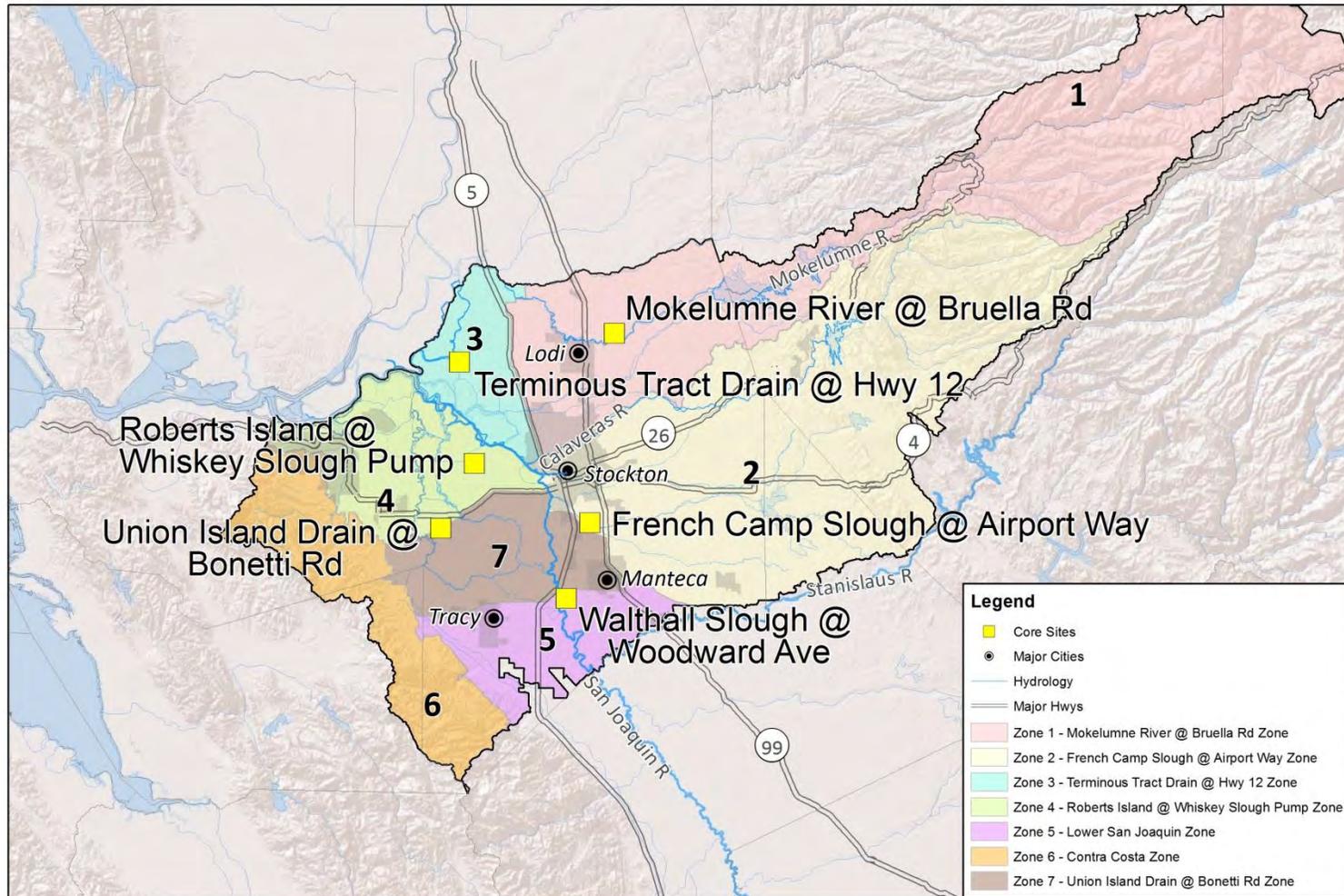
The impact of urban areas on water quality may be equal to the effects from agricultural land use, especially due to the rapid and ongoing growth of urban centers. The rapid growth of cities such as Lodi, Stockton, Lathrop, and Manteca on the east side of the Delta and Antioch, Sand Hill, Knightsen, and Brentwood on the

west side of the Delta are consuming large amounts of irrigated agricultural land. Land designated as agricultural only a few years ago, is now covered by housing developments and shopping malls.

The Coalition submitted a Sediment and Erosion Assessment Report that provides the details of the process used to delineate areas within the Coalition region that have the potential for erosion and movement of sediment to surface waters (submitted April 25, 2015).

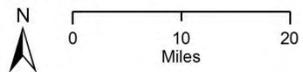
The Coalition area is divided into seven zones to facilitate the implementation of a comprehensive monitoring program (Figure 1). Each of the Coalition's seven zones have been subdivided to create a comprehensive monitoring program based on hydrology, crop types, land use, soil types, and rain fall. Zone acreages were determined using Land Use Survey Data (Table 2). The zone names are based on the Core Monitoring location within each zone: 1) Mokelumne River @ Bruella Rd Zone, 2) French Camp Slough @ Airport Way Zone, 3) Terminous Tract Drain @ Hwy 12 Zone, 4) Roberts Island @ Whiskey Slough Pump Zone, 5) Walthall Slough @ Woodward Ave Zone, 6) Roberts Island @ Whiskey Slough Pump Zone, and 7) Union Island Drain @ Bonetti Rd. Maps for Core and Represented sites per each zone are included in Figures 2-8.

Figure 1. SJCDWQC zone boundaries and Core sites.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library.
 Basemap, Shaded Relief - ESRI
 Datum - NAD 1983

Date Prepared: 3/5/2015
 SJCDWQC



SJCDWQC Zone Boundaries

SJCDWQC_2014_rpt

LAND USE IN MANAGEMENT PLAN WATERSHEDS

Although exact acreage is difficult to estimate due to rapidly changing land use and changing ownership of agricultural land, the Coalition area contains approximately 1,983,534 acres of which 626,537 acres (32%) are considered irrigated agriculture (Table 2). To obtain irrigated acreages, the Coalition uses information from two California Department of Water Resources (DWR) data sources: 1) DWR Agricultural Land and Water Use data and 2) DWR Land Use Survey.

Agricultural Land and Water Use data (DWR, <http://www.water.ca.gov/landwateruse/anaglwu.cfm>) estimates the acreage of irrigated crops for the entirety of each county. Land Use Survey data (DWR, <http://www.water.ca.gov/landwateruse/lusrvymain.cfm>) includes more detailed information regarding specific crop uses (both irrigated and non-irrigated) than the Agricultural Land and Water Use data but is updated less often. Because Land Use Survey data are available in Geographic Information System (GIS) shape files, the information can be mapped to the Coalition area and used for estimates of irrigated crop acreage. The data source used depends on: 1) whether or not the entire county is within the Coalition boundary, and 2) which data were developed most recently.

For Alameda, Calaveras, Contra Costa, and Stanislaus Counties, the Coalition utilized DWR Land Use Survey data to determine irrigated land area because only portions of these counties are included in the Coalition boundary. For San Joaquin County, data from Agricultural Land and Water Use was used as all of San Joaquin County is encompassed in the Coalition boundary (Table 2).

As mentioned above, the Coalition area is divided into seven zones to facilitate the implementation of a comprehensive monitoring program (Figure 1). Zone acreages were determined using Land Use Survey Data (Table 2). Land use maps are included for each zone: 1) Mokelumne River @ Bruella Rd Zone, 2) French Camp Slough @ Airport Way Zone, 3) Terminous Tract Drain @ Hwy 12 Zone, 4) Roberts Island @ Whiskey Slough Pump Zone, 5) Walthall Slough @ Woodward Ave Zone, 6) Roberts Island @ Whiskey Slough Pump Zone, and 7) Union Island Drain @ Bonetti Rd Zone in Figures 2-8. Table 3 includes land use for all site subwatersheds currently in a management plan.

Table 2. Total and irrigated acreages for Zones 1-6.

ZONES	TOTAL ACRES (FROM ARCGIS)	IRRIGATED ACRES (FROM LAND USE*)
Zone 1: Mokelumne River @ Bruella Rd Zone	622,908	107,537
Zone 2: French Camp Slough @ Airport Way Zone	702,057	186,489
Zone 3: Terminous Tract Drain @ Hwy 12 Zone	87,784	70,887
Zone 4: Roberts Island @ Whiskey Slough Pump Zone	157,537	92,369
Zone 5: Walthall Slough @ Woodward Ave Zone	112,684	74,660
Zone 6: Roberts Island @ Whiskey Slough Pump Zone	174,908	423
Zone 7: Union Island Drain @ Bonetti Rd Zone	125,653	94,172
Total	1,983,534	626,537

* Land use information was obtained from data provided by California Department of Water Resources, <http://www.water.ca.gov/landwateruse/anaglwu.cfm>. Data was compiled in 2001 and land use in some parts of the SJCDWQC area may have changed since that time.

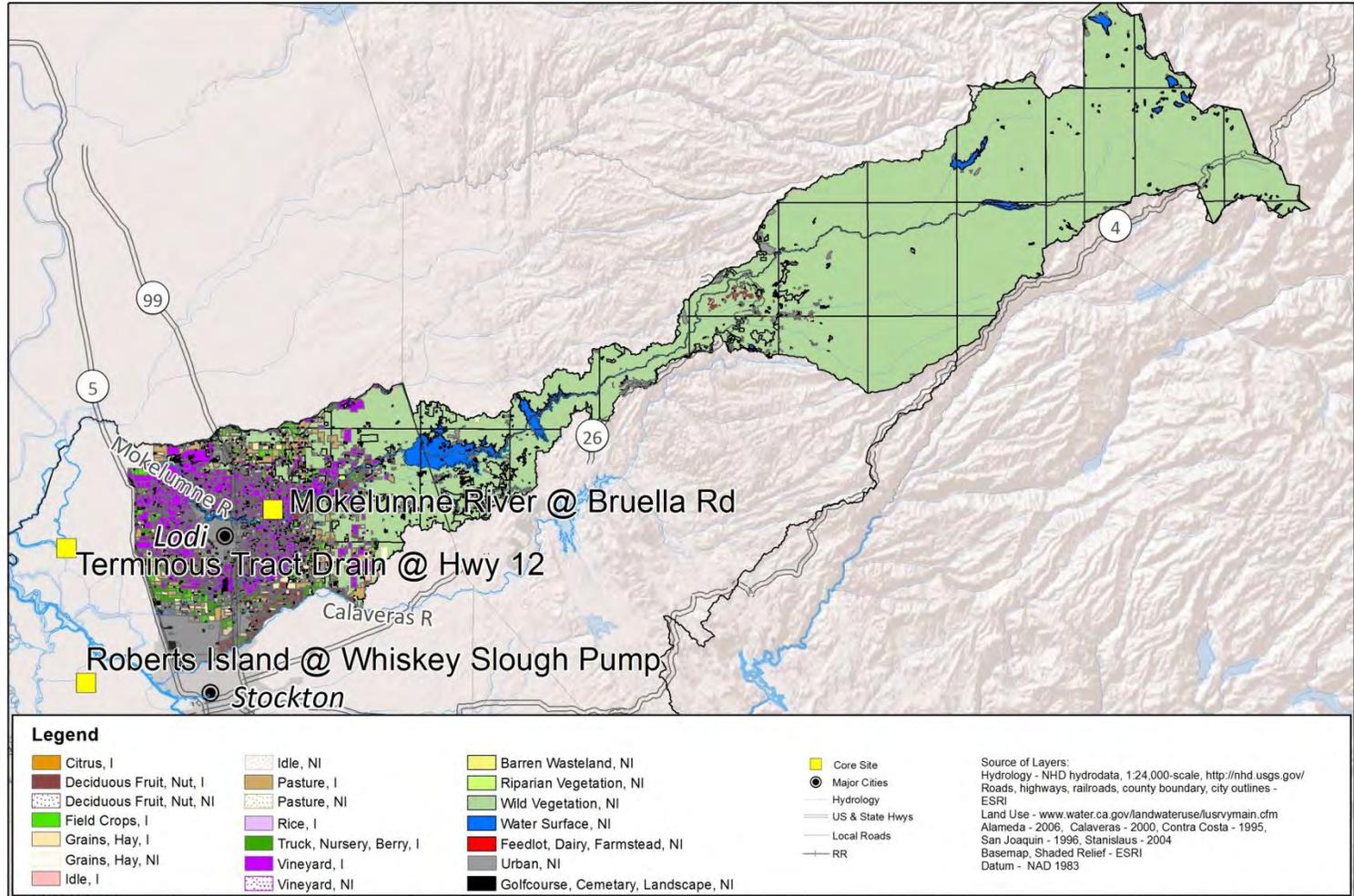
Table 3. SJCDWQC land use acreage of site subwatersheds in management plans as of September 2014.

Land uses designated as irrigated/non-irrigated (I/NI), sites listed alphabetically from Bacon Island Pump @ Old River to Walthall Slough @ Woodward Ave; numbers are rounded to nearest whole number.

LAND Use*	I/NI	BACON ISLAND PUMP @ OLD RIVER	BEAR CREEK @ NORTH ALPINE RD	DRAIN @ WOODBRIDGE RD	DRAIN TO BISHOP CUT @ NORTH RIO BLANCO RD	DUCK CREEK @ HWY 4	EMPIRE TRACT @ 8 MILE RD	FRENCH CAMP SLOUGH @ AIRPORT WAY	KELLOGG CREEK ALONG HOFFMAN LN	LITTLEJOHNS CREEK @ JACK TONE RD	LONE TREE CREEK @ JACK TONE RD	MOKELUMNE RIVER @ BRUELLA RD	MORMON SLOUGH @ JACK TONE RD	ROBERTS ISLAND @ WHISKEY SLOUGH PUMP	SAND CREEK @ HWY 4 BYPASS	SOUTH WEBB TRACT DRAIN	TERMINOUS TRACT @ HWY 12	UNION ISLAND DRAIN @ BONETTI RD	UNNAMED DRAIN TO LONE CREEK @ JACK TONE RD	WALTHALL SLOUGH @ WOODWARD AVE	
Citrus	I		63					11	4		5	5	234	39						6	
Citrus	NI													33							
Deciduous Nut And Fruit	I		3217	5	5	1871		13185	902	2587	6949	2537	11687	13	39					1471	835
Deciduous Nut And Fruit	NI		19									4	2		5						
Field Crop	I	3149	1282	2309	488	2336	2234	8627	225	2220	1887	519	1290	4357		1993	5032	1415	3229	1311	
Grain And Hay	I	852	1277	761	78	3428	664	14292		3589	2698	79	2159	2297	70	1304	2051	652	4533	2552	
Grain And Hay	NI		480			44		1332		977	272	2	138		12					80	
Idle	I	14	756			91		697	161	85	245	453	453	18	9	17	34			325	57
Idle	NI		102					42												42	
Barren Wasteland	NI	13										11	710								
Riparian Vegetation	NI		92				53	261	5	235	6	311	56	65		125	23	1	19	37	
Wild Vegetation	NI	358	45773	229	96	17757	136	106211	5329	92625	2016	15105	70931	611	7010	25	272	47	14101	437	
Water Surface	NI	7	501		5	67	52	1720	16	183	95	4410	617	362		91	221	24	1433	190	
Pasture	I		6005	650	66	1698		25777	52	3047	11071	843	2351	2159				988	866	8711	2706
Pasture	NI		6					166		46	120		21							30	
Rice	I							7017		244	1577									5025	
Feedlot, Dairy, Farmstead	NI	23	445	10		228		3443	45	492	1200	154	429	90	2		20	27	1300	370	
Truck, Nursery, Berry	I	1097	824	306	371	2017	490	5176	486	1690	257	342	3062	2832			1273	1477	842	941	
Urban	NI	14	1586	7	49	113	3	3191	151	600	1170	599	3689	868	204		139		403	95	
Golf Course, Cemetery, Landscape	I				7										284						
Golf Course, Cemetery, Landscape	NI		170			18		260		100	51	14	123								
Vineyard	I		6219	508		1516		8447		2705	1098	5189	3378				351			3757	24
Vineyard	NI		26																		
Total Acres		5528	68861	4785	1165	31185	3631	199856	7377	111425	30720	30576	101364	13711	7635	3555	10403	4410	45308	9555	
Irrigated Acres		5112	19642	4540	1009	12958	3388	83229	1831	16167	25789	9966	24615	11716	402	3314	9728	4509	27900	8426	

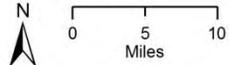
* Land use information was obtained from data provided by California Department of Water Resources, <http://www.water.ca.gov/landwateruse/anaglwu.cfm>. Data was compiled in 2001 and land use in some parts of the SJCDWQC area may have changed since that time.

Figure 2. Mokelumne River @ Bruella Rd Zone (Zone 1) Land Use.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library.
 Basemap, Shaded Relief - ESRI
 Datum - NAD 1983

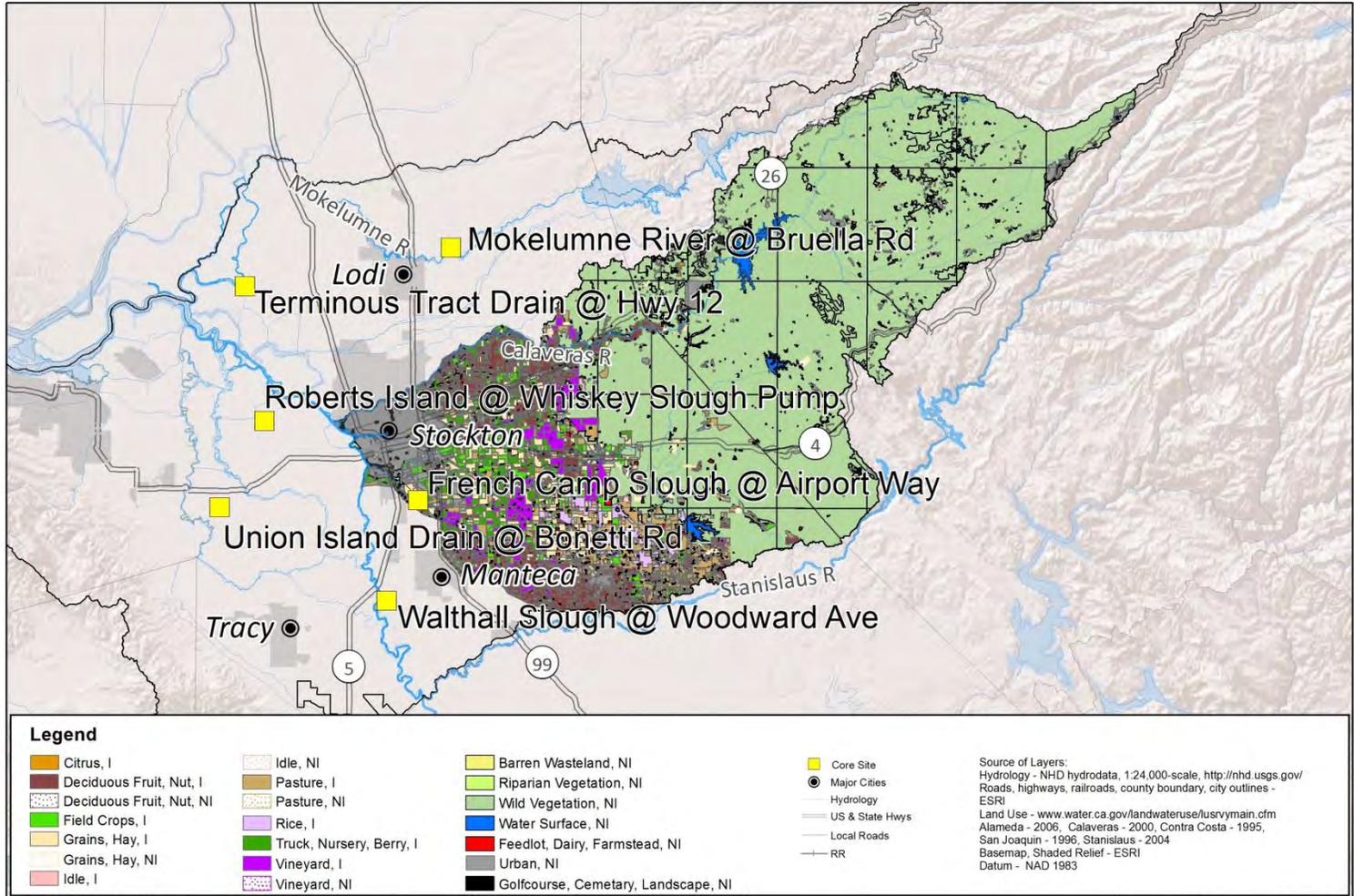
Date Prepared: 3/5/2015
 SJCDWQC



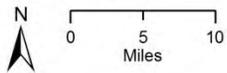
SJCDWQC Zone 1 Land Use

SJCDWQC_2014_rpt

Figure 3. French Camp Slough @ Airport Way Zone (Zone 2) Land Use.



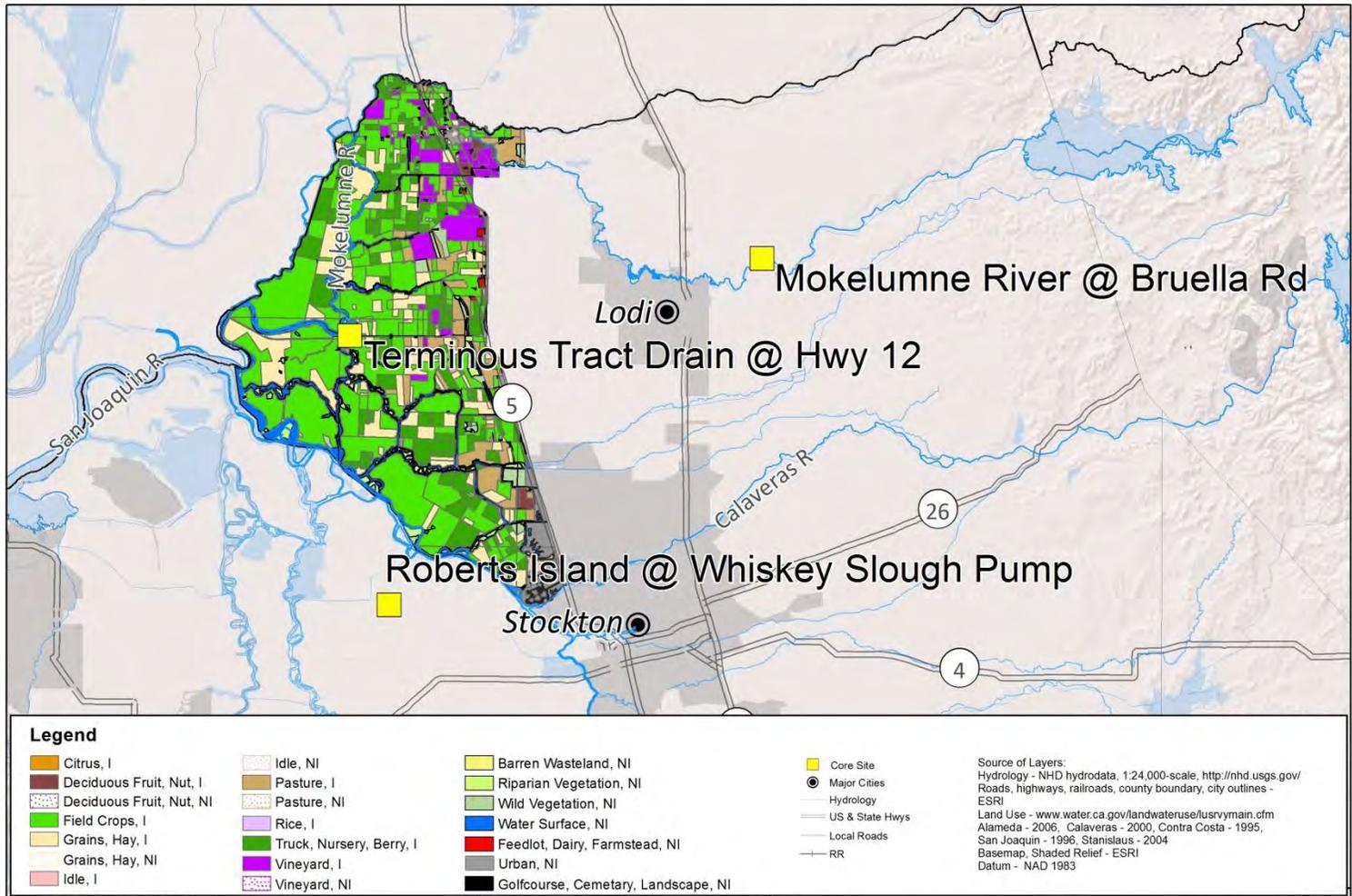
Date Prepared: 3/5/2015
 SJCWDWQC



SJCWDWQC Zone 2 Land Use

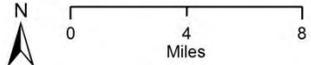
SJCWDWQC_2014_rpt

Figure 4. Terminous Tract @ Hwy 12 Zone (Zone 3) Land Use.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library.
 Basemap, Shaded Relief - ESRI
 Datum - NAD 1983

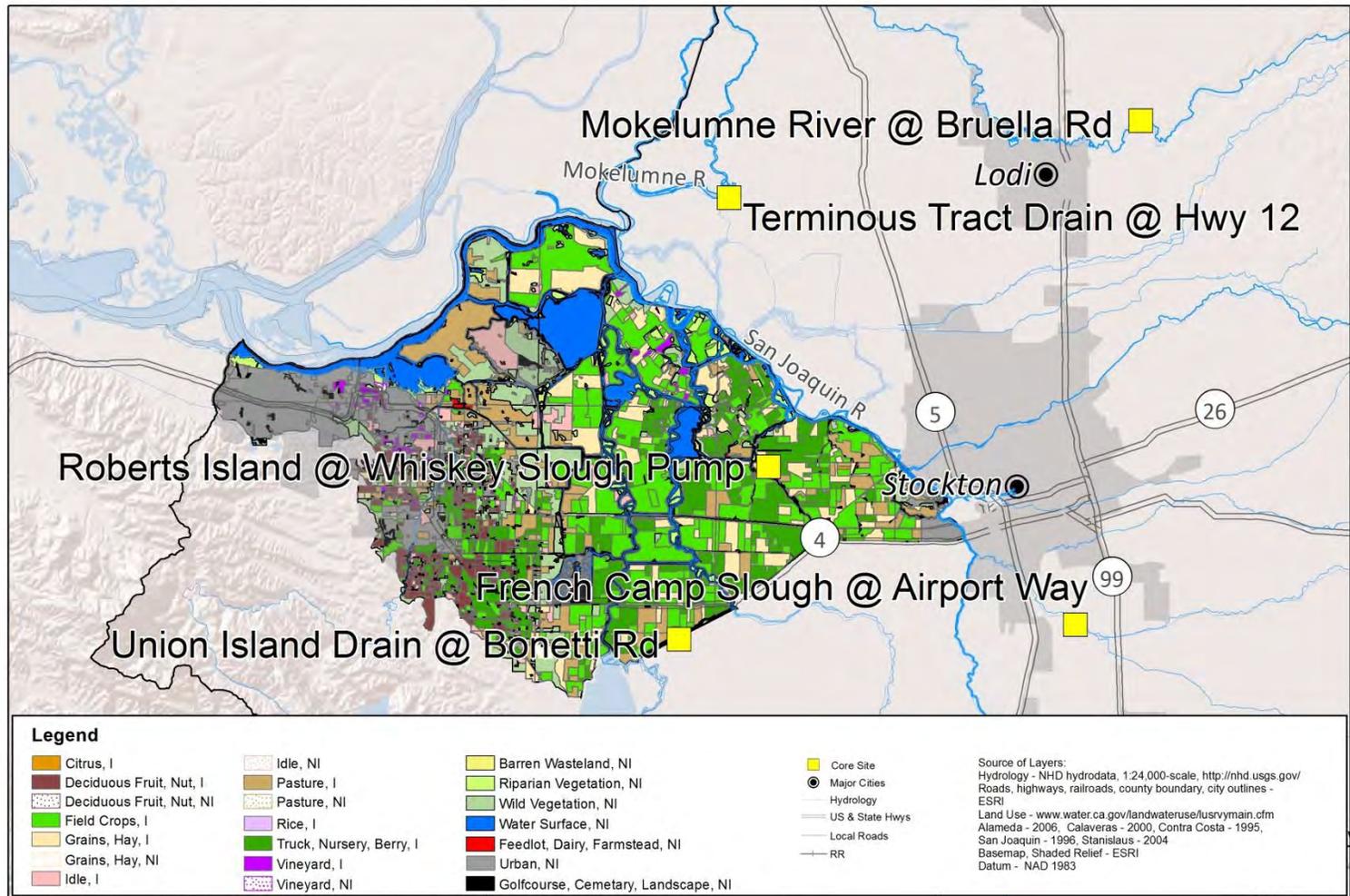
Date Prepared: 3/5/2015
 SJCDWQC



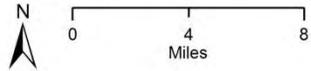
SJCDWQC Zone 3 Land Use

SJCDWQC_2014_rpt

Figure 5. Roberts Island @ Whiskey Slough Pump Zone (Zone 4) Land Use.



Date Prepared: 3/5/2015
 SJCDWQC



SJCDWQC Zone 4 Land Use

SJCDWQC_2014_rpt

Figure 6. Walthall Slough @ Woodward Ave Zone (Zone 5) Land Use.

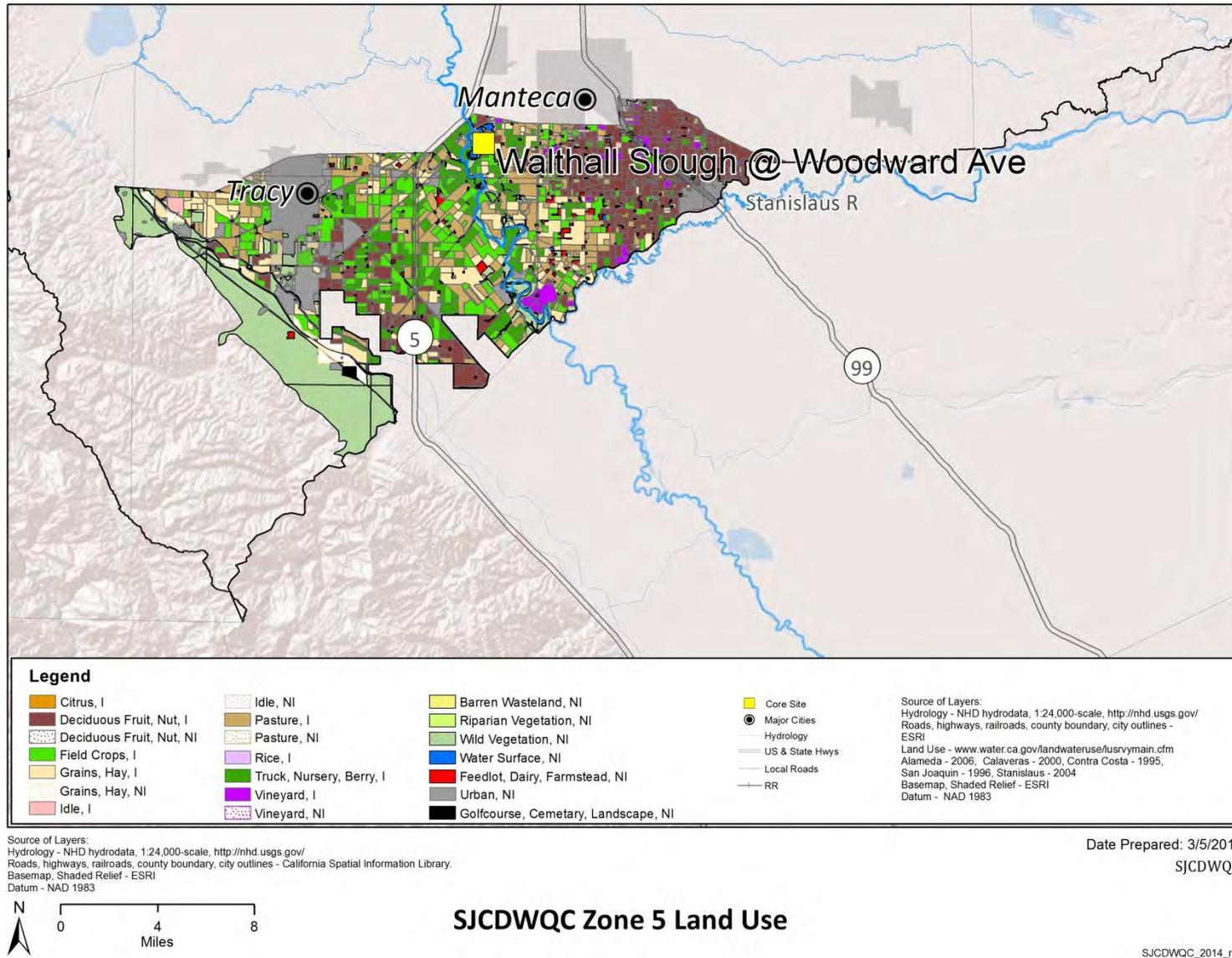
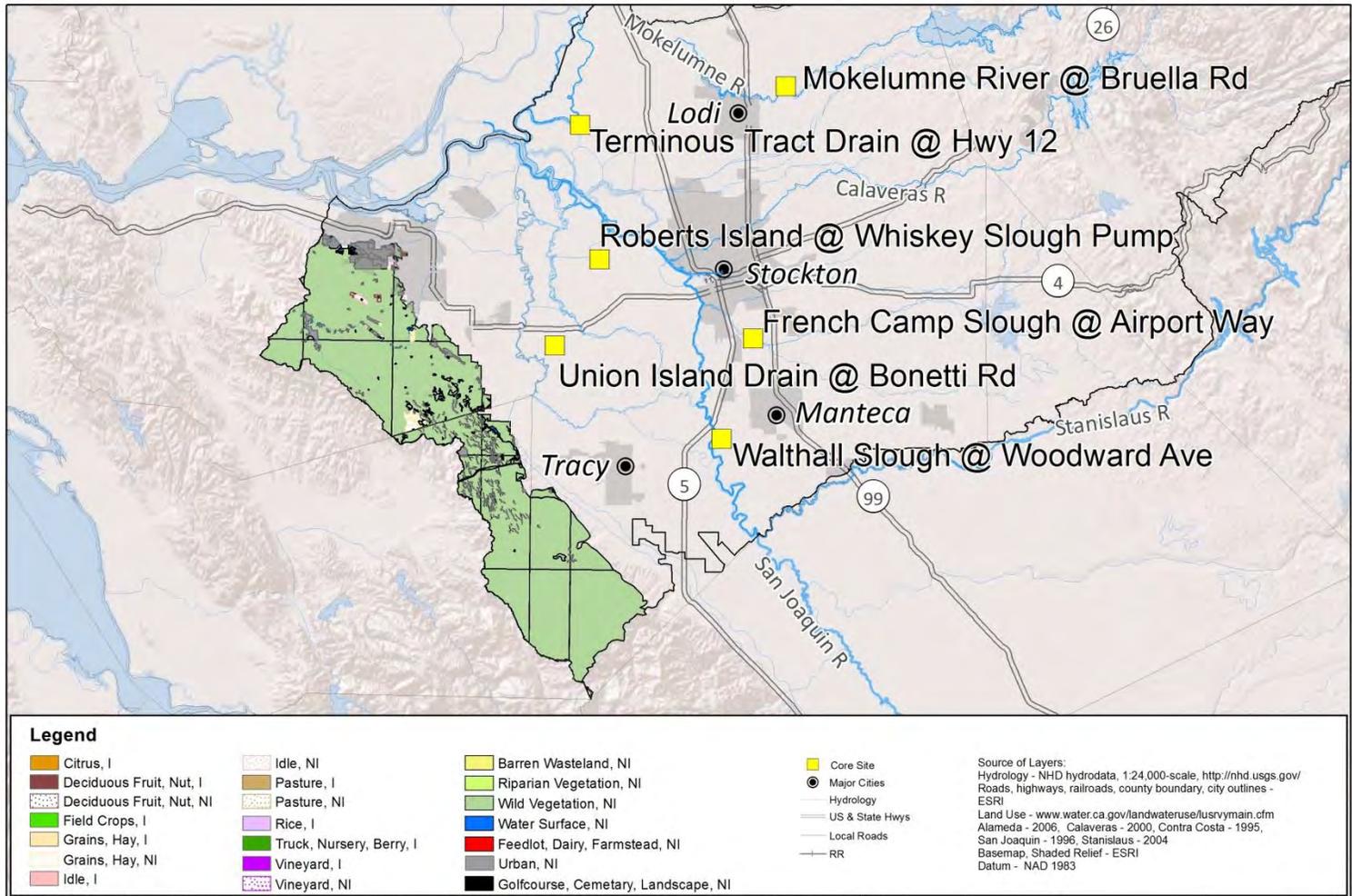
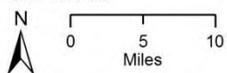


Figure 7. Contra Costa Zone (Zone 6) Land Use.



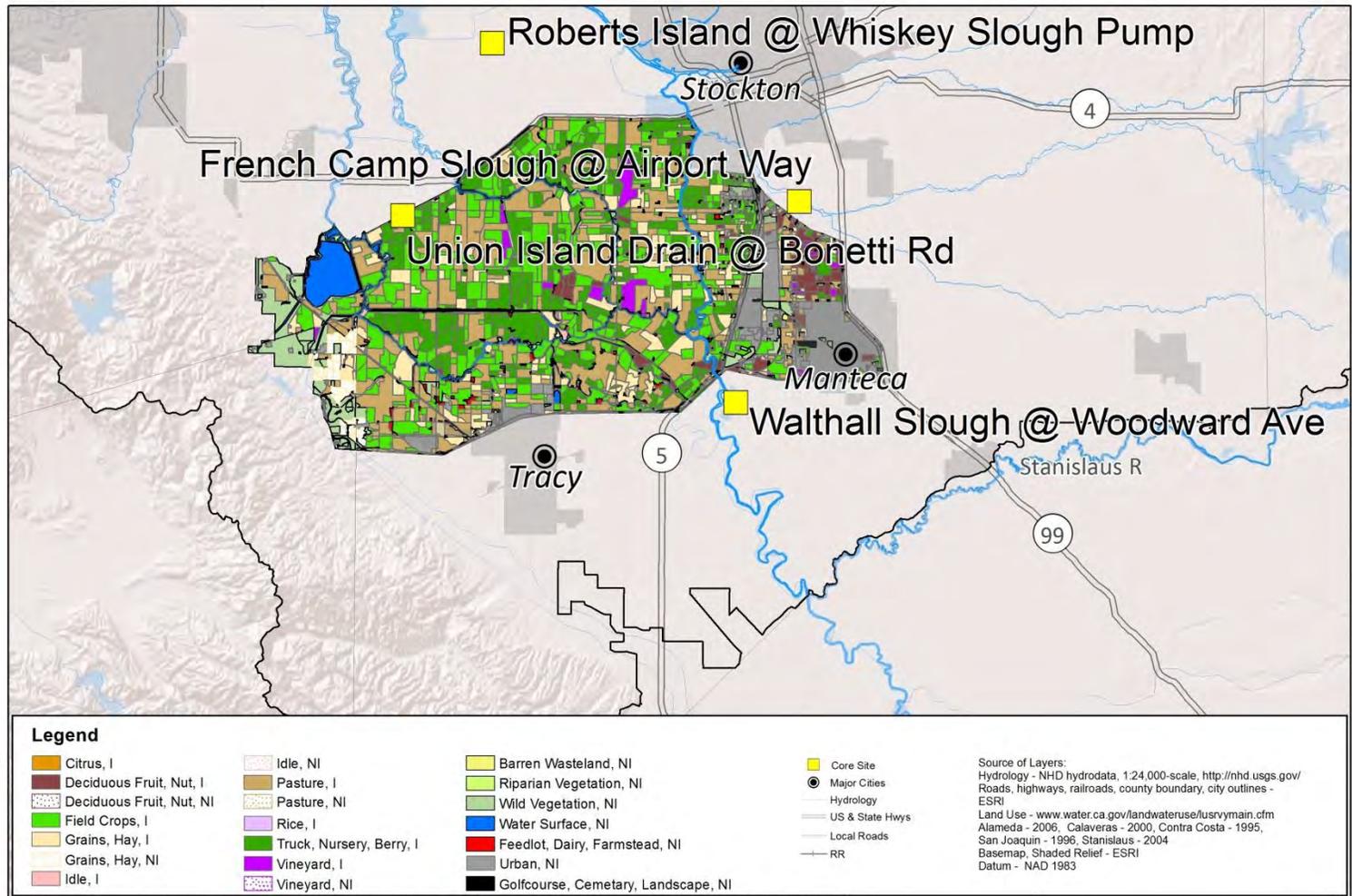
Date Prepared: 3/5/2015
 SJCDWQC



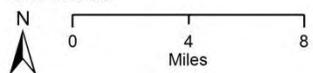
SJCDWQC Zone 6 Land Use

SJCDWQC_2014_rpt

Figure 8. Union Island Drain @ Bonetti Rd Zone (Zone 7) Land Use.



Date Prepared: 3/5/2015
 SJCDWQC



SJCDWQC Zone 7 Land Use

SJCDWQC_2014_rpt

CONSTITUENTS OF CONCERN REQUIRING MANAGEMENT PLANS

As of September 2014, there are 21 constituents in management plans across 18 site subwatersheds. All are addressed in this revision of the Management Plan with the exception of Total Dissolved Solids (TDS) which is no longer monitored under the WDR. However, any management plan for TDS will be converted to a management plan for specific conductance (SC) to capture the impairment of beneficial use due to salinity. If a site subwatershed has exceedances of the Water Quality Trigger Limit (WQTL) for TDS that triggers a management plan without any exceedances of SC, the management plan for SC will be initiated. Table 3 lists all of the sites in active management plans and the constituents approved for removal from active management plans. Table 4 includes a tally of all exceedances of WQTLs.

The constituents with the largest number of management plans are dissolved oxygen (DO, 16 of 18 sites) and *E. coli* (17 of the 18 sites). Ammonia, nitrate, lead, dieldrin, HCH, malathion, and toxicity to *P. promelas* are in management plans in only one site subwatershed each (not the same site subwatershed). There are multiple constituents in management plans in each site subwatershed but there appears to be no pattern in the suite of constituents that are in management plans across the Coalition region. Due to improved water quality, management plans are now complete for diazinon, disulfoton, and simazine.

From January through September 2014, exceedances occurred and management plans were reinstated at sites where management plans had been removed. An exceedance of the 2 µg/L WQTL for diuron and toxicity to *S. capricornutum* occurred during February in samples collected from French Camp Slough @ Airport Way. Consequently, diuron and *S. capricornutum* management plans have been reinstated at the site. Toxicity to *S. capricornutum* occurred in samples collected from Mokelumne River @ Bruella Rd in May requiring the management plan to be reinstated. The reinstated constituents are indicated by cells highlighted in light grey in Tables 3 and 4.

Monitoring results for individual site subwatersheds with management plans are discussed in the Site Subwatershed Water Quality Data Summary Appendix (Appendix I). Appendix I describes specific water quality impairments for site subwatersheds with management plans, including all exceedances of WQTLs, management plan constituents, constituents that have been removed from management plans, and constituent-specific compliance schedules. Appendix II includes all of the Regional Board approval letters for management plan completion.

Table 4. Status of management plan constituents for SJCDWQC sites through September 2014.

Active - X, removed – dark grey cell, or reinstated – light grey cell with ‘X’. Existing management plans reflective of data through September 2014.

SITE SUBWATERSHED	DO*	pH*	SC*	TDS ¹	AMMONIA	NITRATE/NITRITE	E. COLI	ARSENIC	COPPER (TOTAL & DISSOLVED)	LEAD (TOTAL & DISSOLVED)	CHLORPYRIFOS	DDE	DDT	DIAZINON	DIELDRIN	DIURON	DISULFOTON	HCH, DELTA	MALATHION	SIMAZINE	C. DUBIA TOXICITY	P. PROMELAS TOXICITY	S. CAPRICORNUTUM TOXICITY	H. AZTECA TOXICITY
Bacon Island Pump @ Old River	X		X	X			X	X																
Bear Creek @ North Alpine Rd	X	X					X				X								X					
Drain @ Woodbridge Rd	X		X	X			X	X			X													
Duck Creek @ Hwy 4	X						X				X											X		X
Empire Tract @ 8 Mile Rd ²	X		X	X			X	X																
French Camp Slough @ Airport Way	X	X					X				X					X							X	X
Kellogg Creek along Hoffman Ln	X	X	X	X			X					X	X										X	X
Littlejohns Creek @ Jack Tone Rd	X						X		X		X													
Lone Tree Creek @ Jack Tone Rd		X		X	X		X				X											X		
Mokelumne River @ Bruella Rd		X					X																X	
Mormon Slough @ Jack Tone Rd	X	X									X										X			
Roberts Island @ Whiskey Slough Pump	X	X	X	X			X				X	X				X					X		X	X
Sand Creek @ Hwy 4 Bypass	X		X	X			X					X	X		X									X
South Webb Tract Drain	X		X	X			X	X																
Terminus Tract Drain @ Hwy 12	X		X	X			X	X			X													X
Union Island Drain @ Bonetti Rd ³	X		X	X			X	X				X											X	X
Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	X		X	X			X		X	X	X					X								X
Walthall Slough @ Woodward Ave	X		X	X		X	X				X							X						X
Total Approved Management Plan Completion (Grey Cells)³	2	2	1	0	0	0	0	0	5	2	4³	0	0	5	1	1	1	0	0	1	5	1	8	1
Total Reinstated Management Plans (Light Grey Cells)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0
Total Management Plan Constituents Remaining (X)	16	7	13	14	1	1	17	8	2	1	11	4	2	0	1	2	0	1	1	0	3	1	5	10

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

¹ TDS is no longer monitored at any Coalition site. All management plans for TDS will be converted to management plans for SC (the alternative measure of salinity).

² Monitoring for management plan constituents from Drain to Bishop Cut @ North Rio Blanco Rd will take place at Empire Tract @ 8 Mile Rd.

³ Active management plan constituents from Grant Line Canal @ Clifton Court and Grant Line Canal near Calpack Rd are now evaluated under the Union Island Drain @ Bonetti Rd site subwatershed management plan. Chlorpyrifos was approved for removal from both Grant Line Canal @ Clifton Court and Grant Line Canal near Calpack Rd; therefore, the ‘Total Approved Management Plan Completion’ row includes a tally of these removed management plan constituents in the count.

Table 5. SJCDWQC exceedance tally based on results through September 2014.

Sites listed alphabetically by name, constituents listed alphabetically by group: field parameters (F), inorganics (I), bacteria (B), metals (M), pesticides (P) and toxicity (T). Management plan constituents are in blue, removed management plan constituents are in grey, and reinstated management plan constituents are in light grey. Field duplicate exceedances only included if no exceedance occurred in the environmental sample. Existing management plans reflective of data through September 2014.

SITE NAME	F			I			B		M										P										T																
	OXYGEN, DISSOLVED	PH	SPECIFIC CONDUCTIVITY	TOTAL DISSOLVED SOLIDS	AMMONIA	NITRATE AS N	NITRATE + NITRITE AS N	E. COLI	ARSENIC	BORON	COPPER DISSOLVED†	COPPER TOTAL†	LEAD	MOLYBDENUM	NICKEL	AZINPHOS METHYL	CARBOFURAN	CHLORPYRIFOS	CYPERMETHRIN	DDD (P,P')	DDE (P,P')	DDT (P,P')	DIAZINON	DICHLORVOS	DIELDRIN	DIMETHOATE	DISULFOTON	DIURON	ENDRIN	HCH, DELTA	LINURON	MALATHION	METHIDATHION	METHOMYL	METHYL PARATHION	PARAQUAT DICHLORIDE	PERMETHRIN, TOTAL	THIOBENCARB	SIMAZINE	C. DUBIA	P. PROMELAS	S. CAPRICORNUTUM	H. AZTECA		
Bacon Island Pump @ Old River	8	1	2	3	1		3	2					1															1														1			
Bear Creek @ North Alpine Rd	16	2					2										3																	3											
Drain @ Woodbridge Rd	18		17	15			2	13									1																											1	
Drain to Bishop Cut @ North Rio Blanco Rd	2		3	3				2																																					
Duck Creek @ Hwy 4	54	3					7			1							18						1											1						7	3	4			
Empire Tract @ 8 Mile Rd ⁵	12		5	8			2	7																																1	1				
French Camp Slough @ Airport Way	21	7					38				12	2			1	1	13					2		2	1	3						1				2	1	2	3	5					
Grant Line Canal @ Clifton Court Rd ⁴	42	7	43	16	1		19	10			6	3		1	1	6				2	1				1														1	4	7				
Grant Line Canal near Calpack Rd ⁴	56	1	78	25	1		19	4								4				1					1	1		1	1										4	15	10				
Kellogg Creek @ Hwy 4	3	1	8	5			5										1 ¹																						1	2 ¹	1	3			
Kellogg Creek along Hoffman Ln	9	16	5	3		1	4				3						0 ¹		3	2																			2	0 ¹	4	6			
Littlejohns Creek @ Jack Tone Rd	33	3 [*]					6			2	5				1	9						1																		1	5	2 [*]			
Lone Tree Creek @ Jack Tone Rd	20	6	1	1	4		26				7	1				10	1	1	1	1	2					3										2	1	1	2	7	2				
Mokelumne River @ Bruella Rd	5	12					6				3										1																			5		11			
Mormon Slough @ Jack Tone Rd	16	12					1										8																					1	2		4	1			
Roberts Island Drain @ Holt Rd	36	1	59	45			12	1								4			3							2													2		5	2			
Roberts Island Drain along House Rd	23	3	22	14			7	1								2	1	2	1																				2 [*]		4	4			
Roberts Island @ Whiskey Slough Pump ²	23		34	32		1	5																	1																1	1	2			
Sand Creek @ Hwy 4 Bypass	48		65	19			17									2	1	5	3	2				6	3	1														3	1	3	14		
South Webb Tract Drain	17	1	5	5	1		5	12	1				1																												1				
Terminus Tract Drain @ Hwy 12 ³	69	1	53	44		1	17	8								3						1																			1	4	2		
Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	10	1	3	1			10			2	5	2				1	20			1						4												3	2	5		5	9		
Walthall Slough @ Woodward Ave	54		19	17	1	7	7									2				1																							1	2	
GRAND TOTAL	597	76	421	256	9	1	9	220	60	1	5	41	8	2	1	1	4	106	2	1	19	10	8	1	8	2	4	14	1	3	1	6	2	1	1	1	1	1	1	7	5	39	10	82	74

¹Exceedances from the Kellogg Creek @ Hwy 4 site count toward the management plan for Kellogg Creek along Hoffman Ln (site location was moved in May 2006 due to urban influences).

²All MPM for the three Roberts Island monitoring locations takes place at the Roberts Island @ Whiskey Slough Pump Core Monitoring site (as of January 2012).

³Exceedances from Delta Drain-Terminus Tract off Guard Rd and off Glasscock Rd count toward the management plan for Terminus Tract Drain @ Hwy 12 (*H. azteca*, *P. promelas*, and *S. capricornutum*), tally only includes count of exceedances from Terminus Tract Drain @ Hwy 12.

⁴Management Plan Monitoring for Grant Line @ Clifton Court Rd and Grant Line Canal near Calpack Rd will take place at Union Island Drain @ Bonetti Rd.

⁵Monitoring for management plan constituents from Drain to Bishop Cut @ North Rio Blanco Rd will take place at Empire Tract @ 8 Mile Rd.

*Not prioritized for MPM; either the exceedances were not within a three year period or both toxic samples were from the same sampling event (sample and resample to test for persistence).

† Exceedances of the hardness based WQTL for dissolved and total copper are evaluated under the same management plan.

WATER QUALITY TRIGGER LIMITS AND OBJECTIVES

The Water Quality Trigger Limits (WQTLs) were established to preserve water quality within the Valley as defined in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). The Coalition monitors for the constituents listed in Table 6. The Coalition submits a Monitoring Plan Update (MPU) annually on August 1 outlining monitoring locations, constituents, frequency of sample collection, and analysis for the next Water Year (WY). The MPU includes the monitoring schedule for management plan constituents. Water quality results are evaluated based on WQTLs to determine if any detections of constituents exceed the WQTL and if a management plan is required. This evaluation is included in the Annual Reports submitted May 1.

Field parameters, physical parameters, pesticides, selected metals, indicator bacteria (*E. coli*), water column toxicity testing (three species), and nutrients are sampled during Core site monitoring event as outlined in the MPU. Sediment is collected for toxicity testing twice per year. As indicated in the approved 2015 WY MPU report (and updated annually), glyphosate and paraquat are monitored twice yearly during a high total suspended solids (TSS) storm event and a high TSS irrigation event (approved January 5, 2015). Measurements of TSS are collected either in the field or are generated by laboratory analyses as outlined in the SJCDWQC Quality Assurance Project Plan (QAPP).

The Coalition evaluates water quality data based on the WQTL table updated and disseminated by Regional Board staff on September 18, 2008 (Table 7). Objectives and limits listed in the WQTL table are based on the following beneficial uses: Agriculture, Aquatic Life (freshwater habitat, spawning, and migration), Municipal and Domestic Supply, Water Contact Recreation. Waters of the State are protected if no exceedances of specific WQTLs occur.

The WQTL table has changed over the years and therefore the Coalition may have reported exceedances in the past that are no longer considered exceedances of current WQTLs. There may also be exceedances reported in this document that have not been reported in previous documents because the WQTL has been adjusted to a lower concentration. Table 8 includes constituents added to and/or removed from the current WQTL list in Table 7.

Dissolved Oxygen and Specific Conductivity/Total Dissolved Solids

On July 1, 2014, the Coalition requested to amend its 2008 Management Plan to use WQTLs for DO based on criteria described in the Basin Plan (Page III-5), and the objectives for SC outlined in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Basin Plan (Table 2, Page 13). All details for sites where the updated WQTL would affect management plan status were provided in the July 1, 2014 amendment request. Upon approval, the Coalition will update the SQMP based on the most recent data. Since this request is pending approval, the SJCDWQC SQMP evaluates exceedances of the DO and SC WQTLs based on the most conservative limit (Table 7).

Under the WDR, the Coalition is no longer required to analyze for TDS (Attachment B, Table 2). All sites in management plans for TDS were already in management plans for SC and therefore the SJCDWQC will continue to manage and update SC management plans. Dissolved oxygen and SC are field parameters and are measured at all sites during every monitoring event regardless of its management plan status.

Table 6. Monitoring parameters.

CONSTITUENTS, PARAMETERS, AND ANALYSIS		
Photograph of monitoring location		
WATER COLUMN SAMPLING		
Flow (field measure)	Physical Parameters and General Chemistry	
pH (field measure)		
Electrical Conductivity (at 25°C, field measure)		
Dissolved Oxygen (DO, field measure)		
Temperature (field measure)		
Turbidity		
Total Suspended Solids (TSS)		
Hardness (dissolved metals analysis only)		
Total Organic Carbon (TOC)		
<i>E. coli</i>		Indicator Bacteria
Pesticides ^{1,2}		
Aldicarb	Carbamates	
Carbaryl		
Carbofuran		
Methiocarb		
Methomyl		
Oxamyl		
Hexachlorocyclohexane (including Lindane) (gamma-HCH)	Group A (as needed to characterize 303d listed waterbodies)	
Hexachlorocyclohexane (alpha-HCH)		
Hexachlorocyclohexane (beta-HCH)		
Hexachlorocyclohexane (delta-HCH)		
Azinphos-methyl	Organophosphates	
Chlorpyrifos		
Diazinon		
Dichlorvos		
Dimethoate		
Demeton-s		
Disulfoton		
Malathion		
Methamidophos		
Methidathion		
Parathion-methyl		
Phorate		
Phosmet		
Atrazine		Herbicides
Cyanazine		
Diuron		
Glyphosate ¹		
Linuron		
Paraquat ¹		
Simazine		
Trifluralin		
Arsenic (total)	Metals ⁴ (metals monitoring is determined annually in the August 1 MPU)	
Boron (total)		
Cadmium (dissolved)		
Copper (dissolved)		
Lead (dissolved)		

CONSTITUENTS, PARAMETERS, AND ANALYSIS	
Nickel (dissolved)	
Molybdenum (total)	
Selenium (total)	
Zinc (dissolved)	
Nitrate plus Nitrite as Nitrogen	Nutrients
Total Ammonia	
Unionized Ammonia (calculated value)	
Soluble Orthophosphate	
Algae - <i>Selenastrum capricornutum</i>	Water Column Toxicity
Water Flea - <i>Ceriodaphnia dubia</i>	
Fathead Minnow - <i>Pimephales promelas</i>	
Toxicity Identification Evaluation (TIE) ⁴	
SEDIMENT SAMPLING	
<i>Hyalella azteca</i>	Sediment Toxicity
Bifenthrin	Pesticides (as needed based on percent survival/toxicity)
Cyfluthrin	
Cypermethrin	
Deltamethrin	
Esfenvalerate/Fenvalerate	
Lambda-Cyhalothrin	
Permethrin	
Fenpropathrin	
Piperonyl butoxide (PBO)	
Chlorpyrifos	
Total Organic Carbon	Other sediment parameters
Grain Size	

¹ Beginning with the 2015 WY, monitoring for glyphosate and paraquat was reduced to two high TSS monitoring events per year (MPU approved January 5, 2015).

² Pesticides to be monitored will be identified by a process that is being developed by stakeholders in coordination with the Department of Pesticide Regulation (DPR). Once the process is approved by the Regional Board, the Coalition will develop a list of pesticides that require monitoring in in each site subwatershed based on pesticides applied and with potential to impair water quality.

⁴ Monitoring for metals occurs according to the August 1 annual MPU analysis (2015 WY MPU approved January 5, 2015).

³ Specific TIE manipulations utilized in each test will be reported.

Table 7. Water Quality Trigger Limits for constituents and parameters measured during Coalition monitoring.

CONSTITUENT	WATER QUALITY TRIGGER LIMIT (WQTL)	STANDARD TYPE	BENEFICIAL USE (BU) WITH MOST PROTECTIVE LIMIT	REFERENCE FOR THE TRIGGER LIMIT	CATEGORY (SEE FOOTNOTES)
pH	6.5 - 8.5 units	Numeric		Sacramento/San Joaquin Rivers Basin Plan (Page III.6.00)	1
Electrical Conductivity (maximum)	700 µmhos/cm	Narrative	Agricultural Supply	Water Quality for Agriculture (Ayers & Westcot)	3
Dissolved Oxygen (minimum)	7 mg/L	Numeric	Cold Freshwater Habitat, Spawning	Sacramento/San Joaquin Rivers Basin Plan. Water Quality Control Plan for the Tulare Lake Basin. Basin Plan Objective, Page III-5.00: for waters designated WARM (aquatic life). Tulare Lake Basin Plan	1
	5 mg/L		Warm Freshwater Habitat		
Turbidity	variable	Numeric	Municipal and Domestic Supply	Basin Plan Objective - increase varies based on natural turbidity	1
Total Dissolved Solids	450 mg/L	Narrative	Agricultural Supply	Water Quality for Agriculture (Ayers & Westcott)	3
Total Suspended Solids	NA				
Temperature	variable	Numeric		Basin Plan Objective (see objectives for COLD, WARM, and Enclosed Bays and Estuaries)	1
E coli	235 MPN/100 ml	Narrative	Water Contact Recreation	EPA ambient water quality criteria, single-sample maximum	3
Fecal coliform	200 MPN/100 ml 400 MPN/100 ml	Numeric	Water Contact Recreation	Sacramento/San Joaquin Rivers Basin Plan (Page III.3.00) Geometric mean of not less than five samples for any 30- day period, nor shall more than 10% of the total number of samples taken during a 30 -day period.	1
TOC	NA				
Pesticides – Carbamates					
Aldicarb	3 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: United States Environmental Protection Agency (USEPA) Primary Maximum Contaminant Level (MCL) (MUN, human health)	1
Carbaryl	2.53 µg/L	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average	3
Carbofuran	ND	Numeric		Sacramento/San Joaquin Basin Plan - Basin Plan Prohibition	2
Methiocarb	0.5 µg/L	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: Handbook of Acute Toxicity of Chemicals to Fish and Aquatic Invertebrates	3
Methomyl	0.52 µg/L	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average (California Department of Fish and Game) (aquatic life)	3
Oxamyl	50 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: Drinking Water Standards - Maximum Contaminant Levels (MCLs). California Dept of Health Services. Primary MCL	3
Pesticides – Organochlorines					
DDD(p,p')	0.00083 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR, Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
DDE(p,p')	0.00059 µg/L				
DDT(p,p')	0.00059 µg/L				
Dicofol	NA				
Dieldrin	0.00014 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.056 µg/L	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)	1
Endrin	0.036 µg/L	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Continuous Concentration 4-Day Average	1
	0.76 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1

CONSTITUENT	WATER QUALITY TRIGGER LIMIT (WQTL)	STANDARD TYPE	BENEFICIAL USE (BU) WITH MOST PROTECTIVE LIMIT	REFERENCE FOR THE TRIGGER LIMIT	CATEGORY (SEE FOOTNOTES)
Methoxychlor	0.03 µg/L	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA National Ambient Water Quality Criteria - Freshwater Aquatic Life Protection - instantaneous maximum	3
	30 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Pesticides – Organophosphates					
Azinphos methyl	0.01 µg/L	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA National Ambient Water Quality Criteria - instantaneous maximum	3
Chlorpyrifos	0.015 µg/L	Numeric	Freshwater Habitat	Sacramento/San Joaquin Rivers Basin Plan: page III-6.01; San Joaquin River & Delta, Sacramento & Feather Rivers; more stringent 4-day average.	1
Diazinon	0.1 µg/L	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan: San Joaquin River & Delta numeric standard. Sacramento & Feather Rivers numeric standard	1
Dichlorvos	0.085 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: Drinking Water Health Advisories or Suggested No-Adverse-Response Levels for non-cancer health effects. One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water. Cal/EPA Cancer Potency Factor as a drinking water level	3
Dimethoate	1.0 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: Notification Level – DHS (MUN, human health). California Notification Levels. (Department of Health Services)	3
Demeton-s	NA				
Disulfoton	0.05 µg/L	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA National Ambient Water Quality Criteria - Freshwater Aquatic Life Protection - instantaneous maximum	3
Malathion	ND	Numeric		Sacramento/San Joaquin Basin Plan - Basin Plan Prohibition	2
Methamidophos	0.35 µg/L	Narrative	Municipal and Domestic Supply	Basin Plan Toxicity Objective, Drinking Water Health Advisories or Suggested No-Adverse-Response Levels for non-cancer health effects. USEPA IRIS Reference Dose (RfD) as a drinking water level.	3
Methidathion	0.7 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Reference Dose (MUN, human health)	3
Parathion, Methyl	ND	Numeric		Sacramento/San Joaquin Basin Plan - Basin Plan Prohibition	2
Phorate	0.7 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: Drinking Water Health Advisories or Suggested No-Adverse-Response Levels for non-cancer health effects. USEPA IRIS Reference Dose as a drinking water level.	3
Phosmet	140 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: Drinking Water Health Advisories or Suggested No-Adverse-Response Levels for non-cancer health effects. USEPA IRIS Reference Dose as a drinking water level.	3
Group A Pesticides					
Aldrin	0.00013 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	3 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Instantaneous maximum	
Chlordane	0.00057 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.0043 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Continuous Concentration 4-day average (total)	

CONSTITUENT	WATER QUALITY TRIGGER LIMIT (WQTL)	STANDARD TYPE	BENEFICIAL USE (BU) WITH MOST PROTECTIVE LIMIT	REFERENCE FOR THE TRIGGER LIMIT	CATEGORY (SEE FOOTNOTES)
Heptachlor	0.00021 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.0038 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Continuous Concentration 4-day average (total)	
Heptachlor Epoxide	0.0001 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.0038 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Continuous Concentration 4-day average (total)	
Total Hexachlorocyclohexane (including lindane)	0.0039 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.95 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Maximum Concentration (1-hour Average)	
Endosulfan	110 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.056 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: NTR (USEPA) - Continuous Concentration 4-day average (total)	
Toxaphene	0.00073 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)	1
	0.0002 µg/L		Cold Freshwater Habitat, Spawning	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Continuous Concentration 4-day average (total)	
Pesticides – Herbicides					
Atrazine	1.0 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL	1
Cyanazine	1.0 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA Health Advisory (human health)	3
Diuron	2 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water. USEPA Health Advisory. Likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).	3
Glyphosate	700 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Linuron	1.4 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Reference Dose as a drinking water level	3
Molinate	ND	Numeric		Sacramento/San Joaquin Basin Plan - Basin Plan Discharge Prohibition	2
Paraquat	3.2 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Reference Dose as a drinking water level	3
Simazine	4.0 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Thiobencarb	ND	Numeric		Sacramento/San Joaquin Basin Plan - Basin Plan Discharge Prohibition	2
Trifluralin	5 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Cancer Risk Level. One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water	3

Metals (c)

CONSTITUENT	WATER QUALITY TRIGGER LIMIT (WQTL)	STANDARD TYPE	BENEFICIAL USE (BU) WITH MOST PROTECTIVE LIMIT	REFERENCE FOR THE TRIGGER LIMIT	CATEGORY (SEE FOOTNOTES)
Arsenic	10 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: USEPA Primary MCL (MUN, human health)	1
Boron	700 µg/L	Narrative	Agricultural Supply	Water Quality for Agriculture (Ayers & Westcot)	3
Cadmium	for aquatic life; variable (see cadmium worksheet).	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average - Varies with water hardness	1
	5 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Copper	for aquatic life; variable (see copper worksheet).	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average - Varies with water hardness/	1
	1,300 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Lead	for aquatic life; variable (see lead worksheet).	Numeric	Freshwater Habitat	CTR Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average - varies with water hardness	1
	15 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Molybdenum	15 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan - San Joaquin River, Mouth of the Merced River to Vernalis	1
	50 µg/L			Sacramento/San Joaquin Basin Plan - Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River	
	10 µg/L	Narrative	Agricultural Supply	Water Quality for Agriculture (Ayers & Westcot)	3
	35 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Reference Dose as a drinking water level.	
Nickel	For aquatic life variable (see Nickel worksheet).	Numeric	Freshwater Habitat	CTR Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average - varies with water hardness	1
	100 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
Selenium	50 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	1
	5 µg/L (4-day average)	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: NTR Freshwater Aquatic Life Protection - Continuous Concentration - 4-Day Average	
Zinc	For aquatic life variable (see Zinc worksheet).	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average - varies with water hardness	1
Nutrients					
Nitrate as NO3 Nitrate as N	45,000 µg/L as NO3 10,000 µg/L as N	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL	1
Nitrite as Nitrogen	1,000 µg/L as N	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL	1
Ammonia	For aquatic life variable (see ammonia worksheet).	Narrative	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA Freshwater Aquatic Life Criteria, Continuous Concentration	3
	1.5 mg/L (regardless of pH and Temperature values)	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: Taste and Odor Threshold (Ammore and Hautala)	3
Hardness	NA				

CONSTITUENT	WATER QUALITY TRIGGER LIMIT (WQTL)	STANDARD TYPE	BENEFICIAL USE (BU) WITH MOST PROTECTIVE LIMIT	REFERENCE FOR THE TRIGGER LIMIT	CATEGORY (SEE FOOTNOTES)
Phosphorus, total	NA				
Orthophosphate, soluble	NA				
TKN	NA				

Category 1: Constituents that have numeric water quality objectives in the Sac-SJR Basin Plan or other Water Quality Objective (WQO) listed by reference such as MCLs (Page III-3.0)* , CTRs (Page III-10.1)*,

Category 2: Pesticides with discharge prohibitions. Prohibitions apply to any discharges not subject to board-approved management practices (Page IV-25.0)*.

Category 3: Constituent does not have numeric WQO, and does not have a primary MCL. WQTL exceedance is based on implementation of narrative objective. All detections should be tracked. None are default exceedances.

MUN-Municipal and Domestic Supply

NA-Not Available. Until completion of evaluation studies and MRP Plan submittals with site specific information on beneficial uses.

ND-Not Detected

(*)-Water Quality Control Plan for the Sacramento and San Joaquin River Basins. Revised on October 2007.

Narrative WQTLs are based on Water Quality Goals Database. Updated by Jon Marshack on July 16, 2008.

Table 8. WQTL updates since 2008.

CONSTITUENT GROUP	CONSTITUENT	WQTL	STANDARD TYPE	BU	REFERENCE
Added to WQTL Table Since 2008					
Organochlorines	Dieldrin	0.056 µg/L	Numeric	Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)
	Endrin	0.76 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
Organophosphates	Dichlorvos	0.085 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: Drinking Water Health Advisories or Suggested No-Adverse-Response Levels for non-cancer health effects. One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water. Cal/EPA Cancer Potency Factor as a drinking water level
	Demeton-s	NA			
Group A	Aldrin	0.00013 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		3 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Instantaneous maximum
	Chlordane	0.00057 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		0.0043 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)
	Heptachlor	0.00021 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		0.0038 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)
	Heptachlor Epoxide	0.0001 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		0.0038 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)
	Total Hexachlorocyclohexane (including lindane)	0.0039 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		0.95 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) - Maximum Concentration (1-hour Average)
	Endosulfan	110 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		0.056 µg/L		Freshwater Habitat	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)
	Toxaphene	0.00073 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA), Human Health Protection, 30-Day Average - Sources of Drinking Water (water & fish consumption)
		0.0002 µg/L		Cold Freshwater Habitat, Spawning	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: CTR (USEPA) / Continuous Concentration 4-day average (total)
Herbicide	Trifluralin	5 µg/L	Narrative	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Cancer Risk Level. One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water

CONSTITUENT GROUP	CONSTITUENT	WQTL	STANDARD TYPE	BU	REFERENCE
Metals	Cadmium	5 µg/L (was 0.04 µg/L)	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)
	Copper	1300 µg/L (was 170 µg/L)	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)
	Lead	15 µg/L (was 2.0 µg/L)	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)
	Molybdenum	15 µg/L	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan - San Joaquin River, Mouth of the Merced River to Vernalis
		50 µg/L			Sacramento/San Joaquin Basin Plan - Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River
		10 µg/L	Narrative	Agricultural Supply	Water Quality for Agriculture (Ayers & Westcot)
		35 µg/L		Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Toxicity Objective: USEPA IRIS Reference Dose as a drinking water level.
Nickel	100 µg/L (was 12 µg/L)	Numeric	Municipal and Domestic Supply	Sacramento/San Joaquin Basin Plan Chemical Constituents Objective: California Primary MCL (MUN, human health)	
Removed from WQTL Table Since 2008					
Pyrethroids (water column)	Biphenrin	110 µg/L	Narrative		Basin Plan Toxicity Objective, USEPA IRIS Reference Dose (human health)
	Cypermethrin, total	0.002 µg/L	Narrative	Cold Freshwater Habitat, Spawning	Basin Plan Toxicity Objective, Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average (California Department of Fish and Game) (aquatic life)
	Lambda-cyhalothrin, total	35 µg/L	Narrative		Basin Plan Toxicity Objective, USEPA IRIS Reference Dose (human health)
	Permethrin, total	0.03 µg/L	Narrative	Cold Freshwater Habitat, Spawning	Basin Plan Toxicity Objective, Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average (California Department of Fish and Game) (aquatic life). USEPA National Ambient Water Quality Criteria, CA DFG, 2000
	Cyfluthrin, total	NA			
	Esfenvalerate/Fenvalerate, total	NA			
Metals	Zinc	5000 µg/L	Numeric	Cold Freshwater Habitat, Spawning, Municipal and Domestic Supply	Freshwater Aquatic Life Protection - Continuous Concentration, 4-Day Average - varies with water hardness/ CA Public Health Goal for Drinking Water

SITE SUBWATERSHEDS IN SURFACE WATER QUALITY MANAGEMENT PLANS

The Core and Represented site locations that are in a management plan are provided in Table 9. Maps of all site subwatersheds by zone are provided in Figures 9-14. All 18 site subwatersheds included in the SQMP are described below including crop types and irrigated acreages; sites are listed alphabetically. Tallies of irrigated acreages are subject to change due to updated GIS layers and subwatershed boundary modifications as boundaries are refined. In the descriptions, site subwatersheds are identified as Core sites; all other sites are Represented sites. The site subwatershed descriptions include a reference to the drainage areas (site subwatershed) and the area represented by monitoring conducted at the site. Represented areas are also illustrated in maps for zone 1, 3, 4, and 7; zones 2, 5, and 6 do not have any represented areas (Figures 9-14). Members within represented areas will receive outreach and education regarding the water quality results and management plan actions that occur as a result of WQTL exceedances at the site.

Included in Appendix I are monitoring results for each individual site subwatershed with management plans, land use maps, exceedance tables, active management plan constituents, removed management plan constituents, and specific schedules for compliance. Tables 4 and 5 list all constituents in a management plan for each site as well as constituents approved for management plan completion.

Table 9. SJCDWQC Core and Represented monitoring locations with existing management plans.

Listed by zone. 'Existing Management Plans' refers to active management plans through September 2014.

Zone	Site Type	Site Name	Station Code	Latitude	Longitude	Year First Monitored
Zone 1	Core	Mokelumne River @ Bruella Rd	531XMRABR	38.16022	-121.20643	2004
Zone 1	Represented	Bear Creek @ North Alpine Rd	531BCANAR	38.07386	-121.21215	2008
Zone 2	Core	French Camp Slough @ Airport Way	531SJC504	37.88172	-121.24933	2005
Zone 2	Represented	Duck Creek @ Highway 4	531XDCAHF	37.94949	-121.18208	2004
Zone 2	Represented	Littlejohns Creek @ Jack Tone Rd	531XLCAJR	37.88958	-121.14727	2004
Zone 2	Represented	Lone Tree Creek @ Jack Tone Rd	531XLTCJR	37.83754	-121.14460	2004
Zone 2	Represented	Mormon Slough @ Jack Tone Road	544MSAJTR	37.96470	-121.14880	2006
Zone 2	Represented	Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	531UDLTAJ	37.85360	-121.14570	2006
Zone 3	Core	Terminus Tract Drain @ Hwy 12	544XTTHWT	38.11558	-121.49380	2005
Zone 3	Represented	Drain @ Woodbridge Rd	544DAWRXX	38.15256	-121.50095	2008
Zone 3	Represented	Empire Tract @ 8 Mile Rd	544ETAEMR	38.06012	-121.49912	2013
Zone 4	Core	Roberts Island @ Whiskey Slough Pump ²	544RIAWSP	37.96737	-121.46434	2012
Zone 4	Represented	Bacon Island Pump @ Old River	544BIPAOR	37.97916	-121.57023	2014
Zone 4	Represented	Kellogg Creek along Hoffman Lane	544XKCAHL	37.88188	-121.65221	2007
Zone 5	Core/Represented	Walthall Slough @ Woodward Ave	544WSAWAV	37.77046	-121.29227	2009
Zone 6	Core	Roberts Island @ Whiskey Slough Pump ²	544RIAWSP	37.96737	-121.46434	2012
Zone 6	NA	Sand Creek @ Hwy 4 Bypass	544SCAHFB	37.94750	-121.74300	2006
Zone 7	Core	Union Island Drain @ Bonetti Rd ³	544UIDABR	37.87170	-121.52551	2014

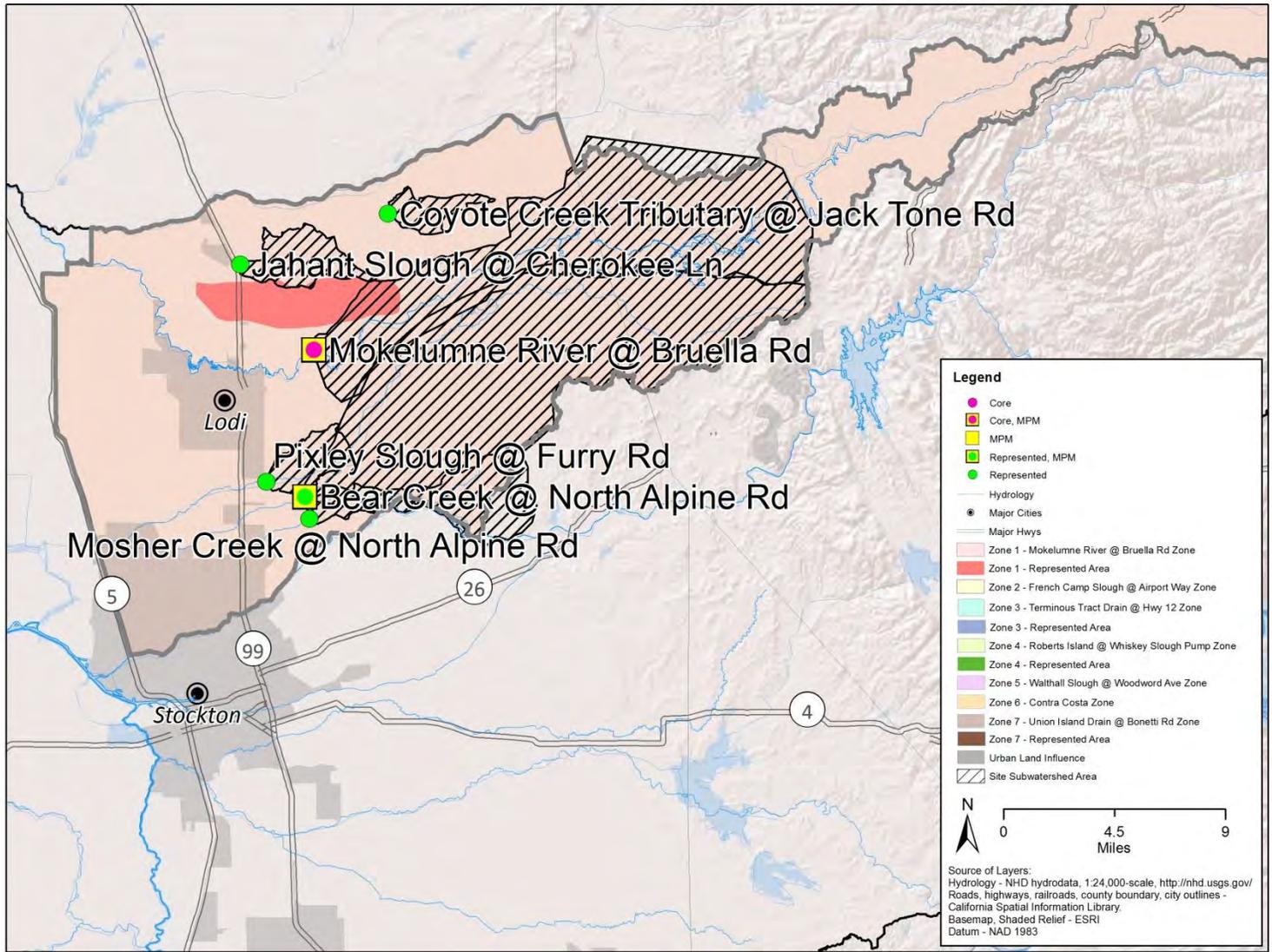
NA- Monitoring for this site began in Fall 2014, sites monitored during the 2015 WY and requiring a management plan will be reported in the SJCDWQC 2015 Annual Report.

¹Monitoring at Mokelumne River @ Bruella will be representative of Mokelumne River Drain @ North Lower Sacramento Rd.

²Roberts Island @ Whiskey Slough Pump represents water quality in both Zone 4 and Zone 6.

³Monitoring for management plan constituents from Grant Line Canal @ Clifton Court Rd and Grant Line Canal near Calpack Rd will take place at Union Island Drain @ Bonetti Rd.

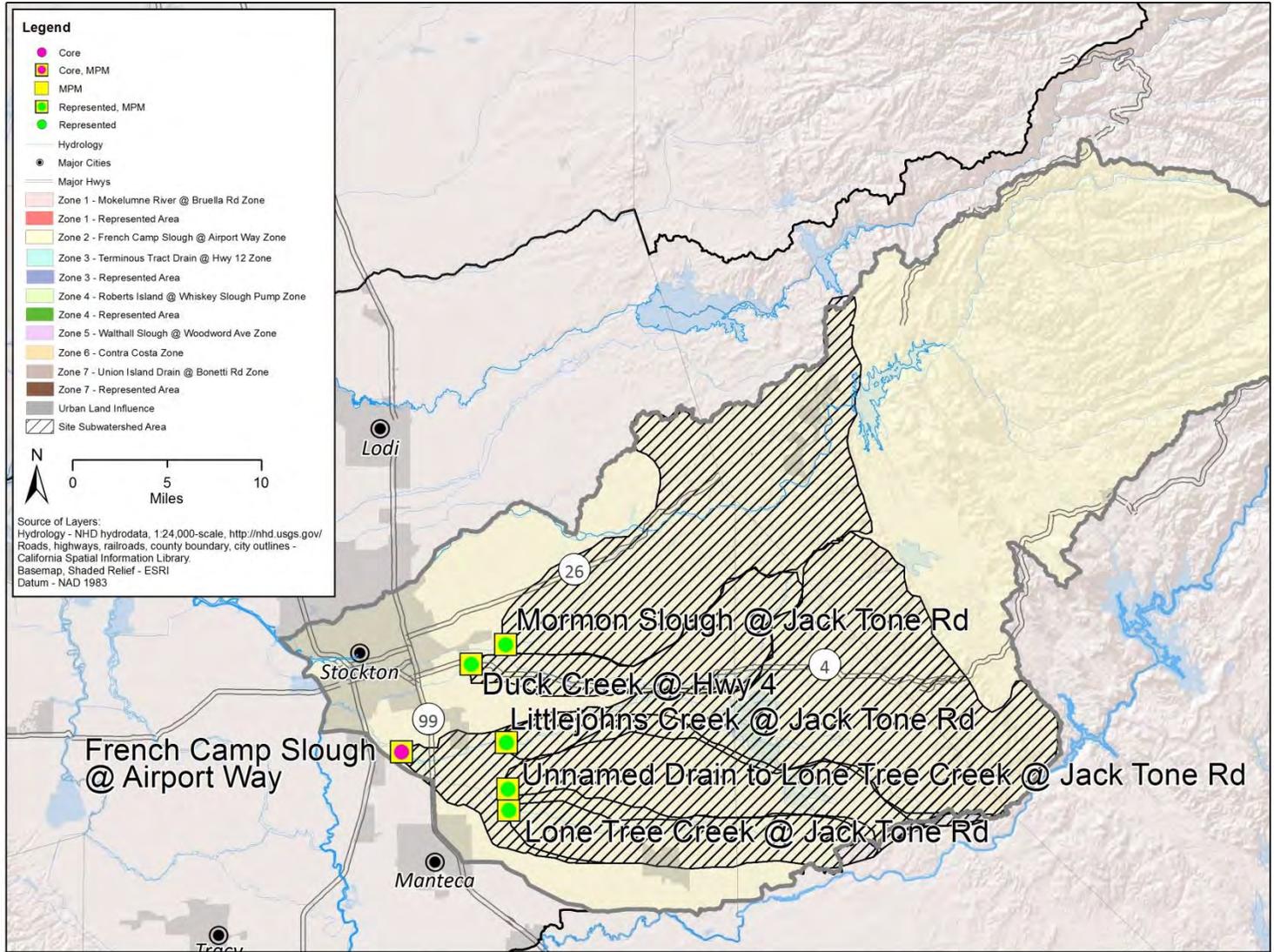
Figure 9. Mokelumne River @ Bruella Rd Zone (Zone 1) represented areas, Core, Represented, and MPM sites.



SJCDWQC_2014_rpt

Date Prepared: 3/26/2015

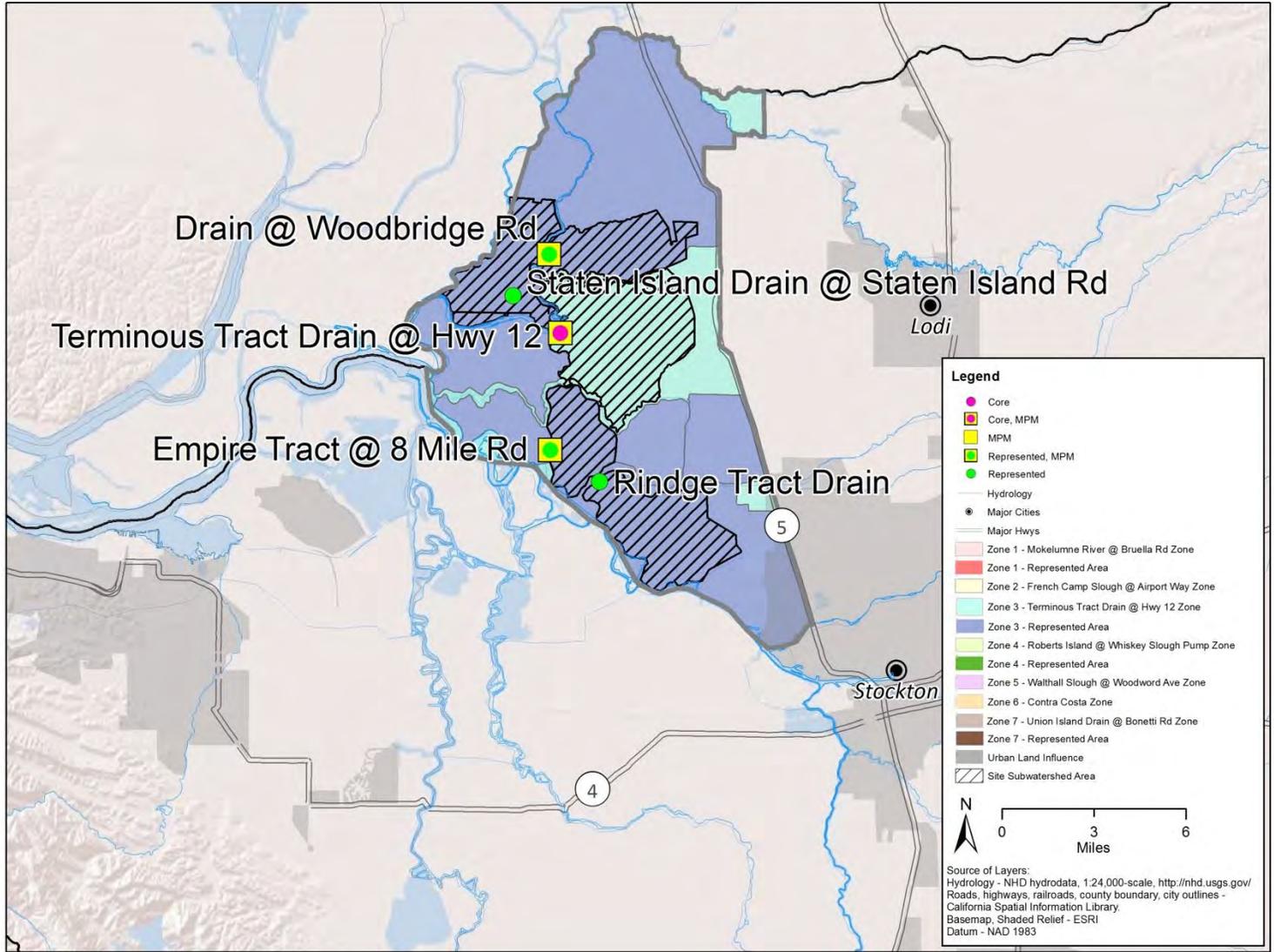
Figure 10. French Camp Slough @ Airport Way Zone (Zone 2) Core, Represented, and MPM sites.



SJCDWQC_2014_rpt

Date Prepared: 3/25/2015

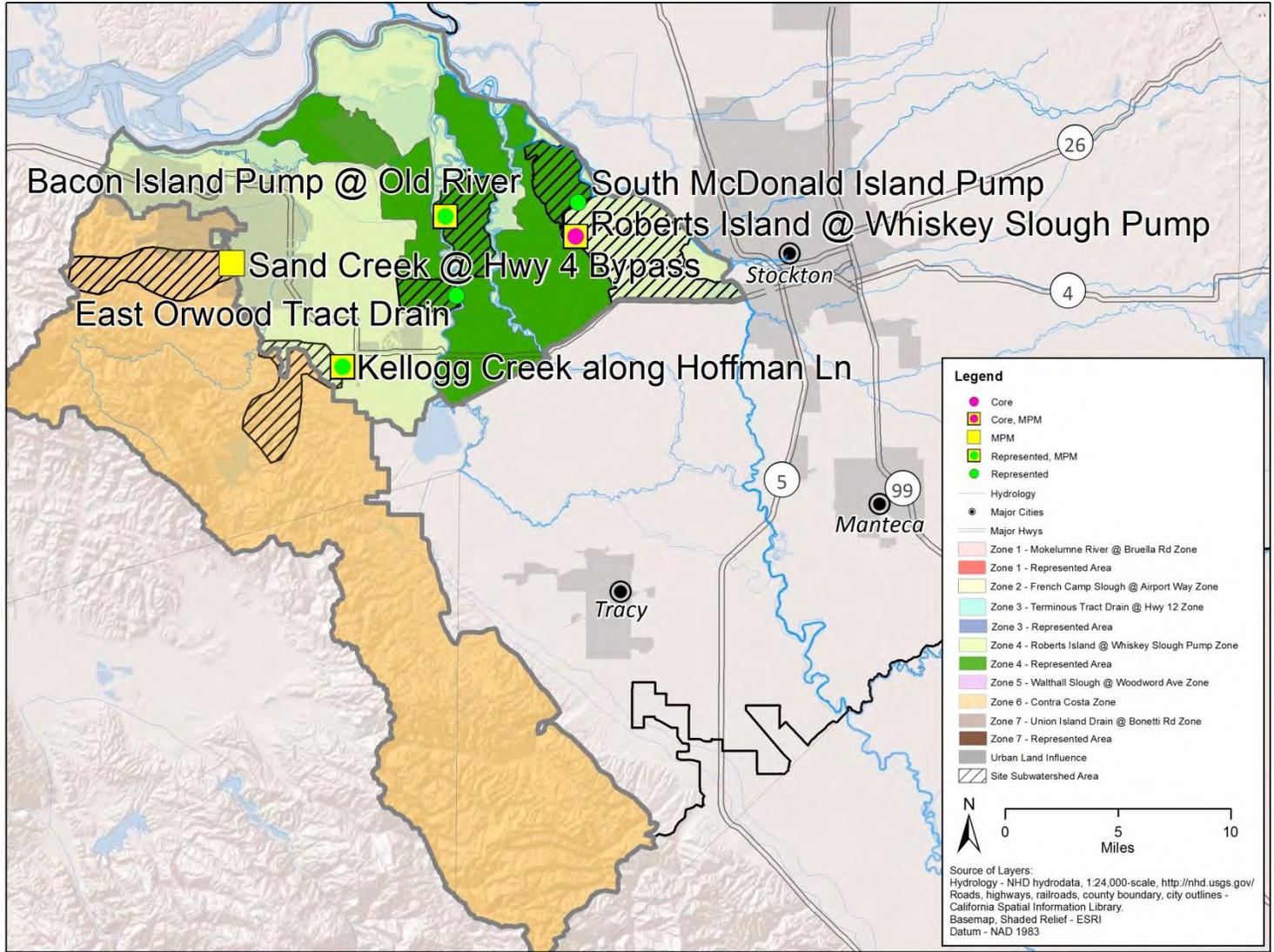
Figure 11. Terminus Tract Drain @ Hwy 12 Zone (Zone 3) represented areas, Core, Represented, and MPM sites.



SJCDWQC_2014_rpt

Date Prepared: 3/25/2015

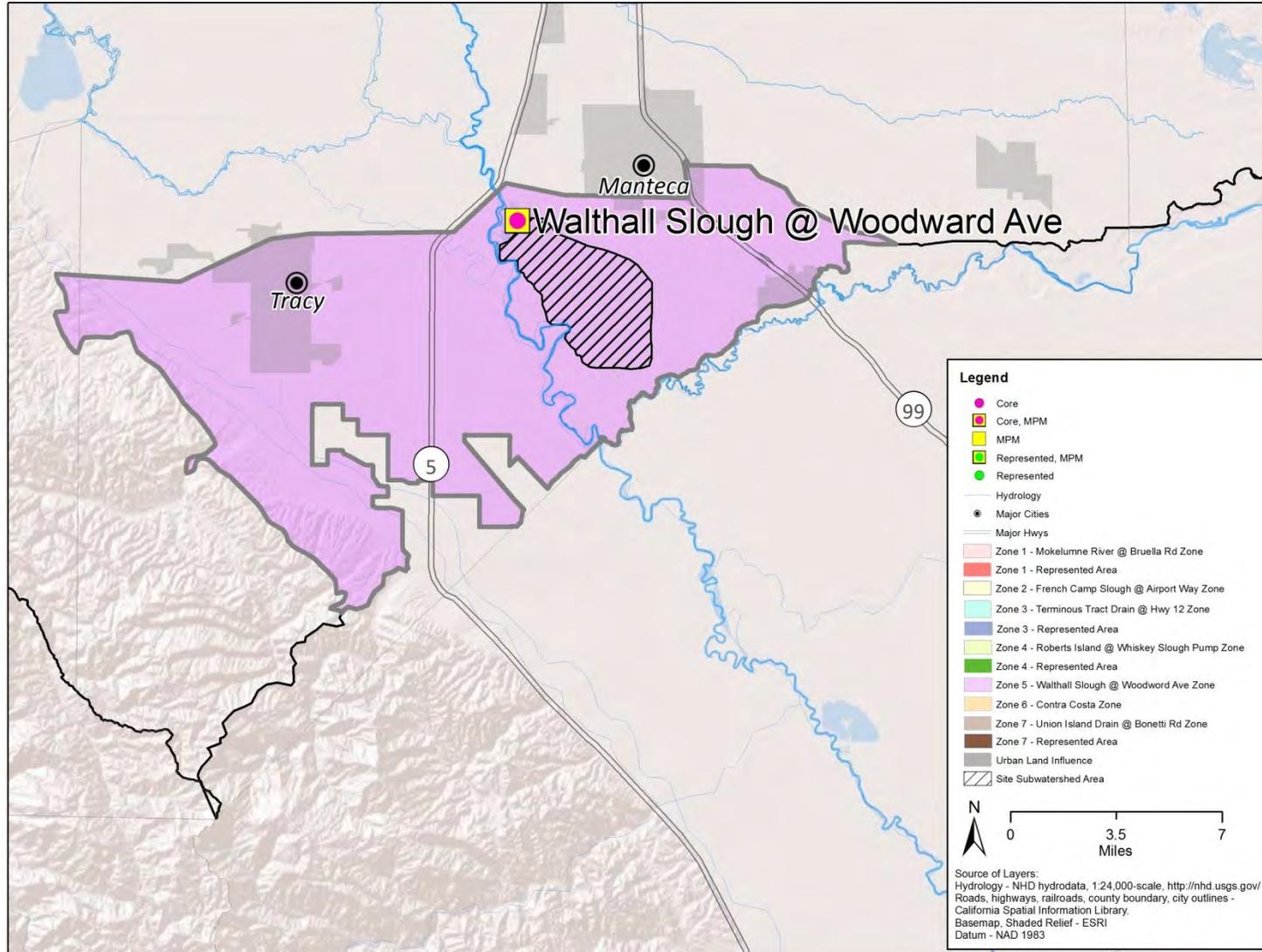
Figure 12. Roberts Island @ Whiskey Slough Pump Zone (Zone 4) / Contra Costa Zone (Zone 6) represented areas, Core, Represented, and MPM sites.



SJCDWQC_2014_rpt

Date Prepared: 3/25/2015

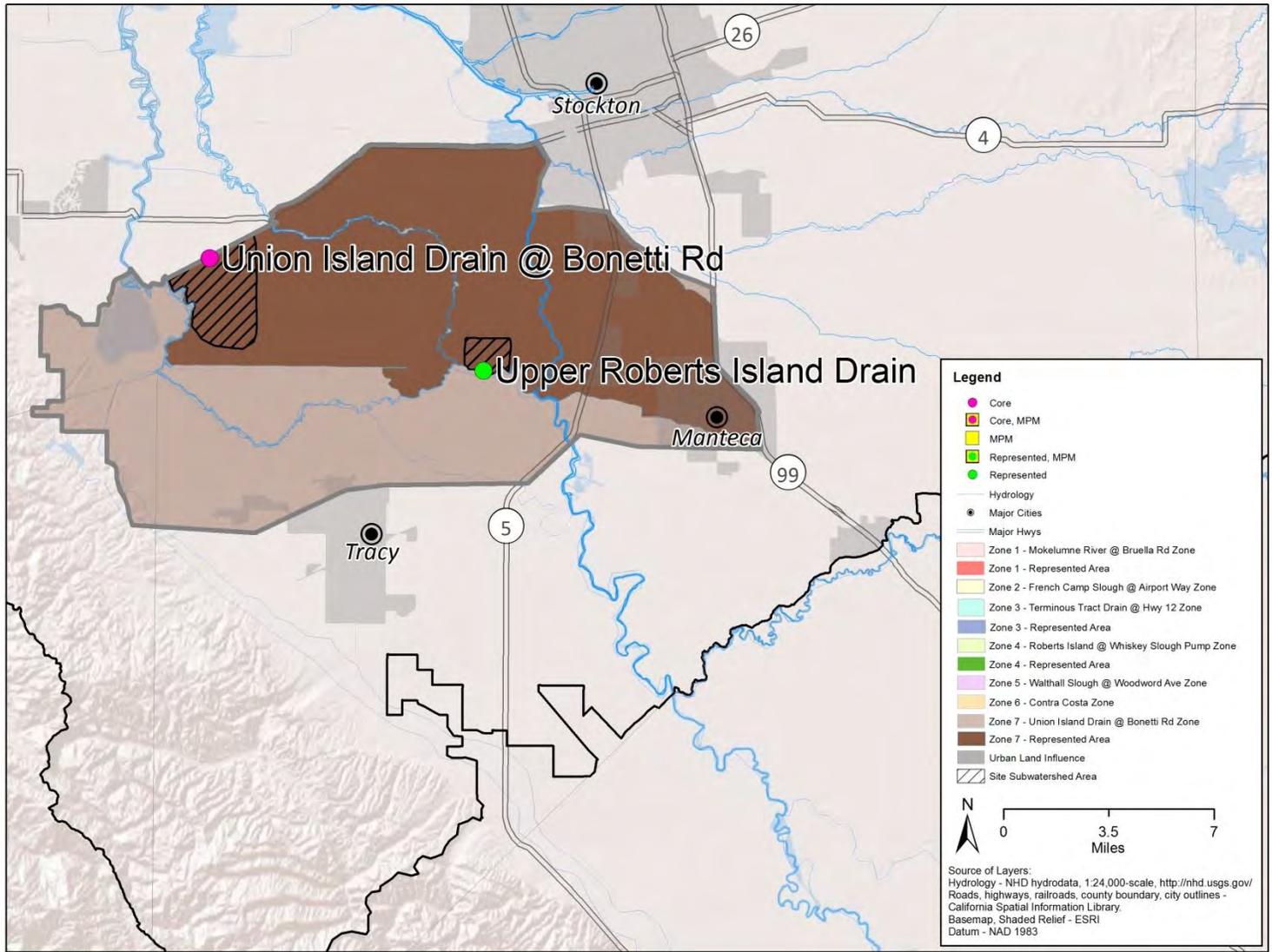
Figure 13. Walthall Slough @ Woodward Ave Zone (Zone 5) Core and MPM site.



SJCDWQC_2014_rpt

Date Prepared: 3/25/2015

Figure 14. Union Island Drain @ Bonetti Rd Zone (Zone 6) represented areas, Core, and Represented sites.



SJCDWQC_2014_rpt

Date Prepared: 3/26/2015

Bacon Island Pump @ Old River (5,113 irrigated acres) – This site subwatershed represents all of Bacon Island with the sample site on the eastern border of the Island. The island is bordered by Middle River on the east and Old River on the west. Land use is primarily field crops (sunflower, corn and sorghum) with some potatoes and grains and hay.

Bear Creek @ North Alpine Rd (19,642 irrigated acres) – This site subwatershed is located on the northern edge of the Coalition region; its boundary starts in the north eastern region of San Joaquin County and portions of Calaveras County in its upstream region. Land use in the site subwatershed primarily includes pasture, vineyards, and deciduous orchards with some field crops, grains, and hay.

Drain @ Woodbridge Rd (4,540 irrigated acres) – This site is located on the northern side of the Coalition region. Water from the drain is pumped to the Mokelumne River close to the sample location. The site drains an area of land to the east of the site between Hog Slough and Sycamore Slough. Land use in the site subwatershed includes field crops, truck/nursery/berry crops, vineyards, pasture, grains/hay, and dairy.

Duck Creek @ Hwy 4 (12,958 irrigated acres) – This site subwatershed is located just to the east of the city of Stockton. Duck Creek drains a section of southern San Joaquin County between Stockton and the Lone Tree Creek site subwatershed. During the summer, flow is typically low in the creek. The predominant land uses for irrigated agriculture are grains, hay and field crops. There are also relatively large amounts of deciduous nuts, truck farm/nursery, berry crops, irrigated pasture, and vineyards in this site subwatershed.

Empire Tract @ 8 Mile Rd (3,388 irrigated acres) – This site subwatershed represents all of Empire Tract and the sample site is located at the western pumping station on 8 Mile Rd. The pump drains water into Little Connection Slough which in turn drains into Potato Slough and then the San Joaquin River. The primary agriculture in the site subwatershed is row crops, grains, and truck/nursery/berry crops.

French Camp Slough @ Airport Way (83,229 irrigated acres) – French Camp Slough @ Airport Way is one of the Core sites in Zone 2. French Camp Slough is formed by the confluence of Littlejohns Creek and Lone Tree Creek. This site was selected as a downstream companion site to the Littlejohns Creek @ Jack Tone Road, Unnamed Drain @ Jack Tone Rd, and Lone Tree Creek @ Jack Tone Road sites. These waterbodies drain agricultural land to the east of Manteca and Stockton and eventually flow through urban areas prior to their confluence and discharge to the San Joaquin River. This site includes all of the major types of agriculture present in the Coalition region including field crops, orchards, grains, hay, rice, tomatoes, irrigated pasture, and vineyards.

Kellogg Creek along Hoffman Ln (1,831 irrigated acres) – This site subwatershed is located just southwest of Discovery Bay and drains field crops immediately upstream. The headwaters originate in the Black Hills north of Livermore. Kellogg Creek runs through Discovery Bay and drains into Indian Slough in the western Delta. The agricultural land is primarily deciduous orchards, truck crops, and field crops.

Littlejohns Creek @ Jack Tone Rd (16,167 irrigated acres) – This site subwatershed is upstream from the French Camp Slough @ Airport Way site. The crops grown in the site subwatershed are all of the major types

of agriculture present in the Coalition region including field crops, orchards, grains, vineyards, and irrigated pastureland.

Lone Tree Creek @ Jack Tone Rd (25,789 irrigated acres) – This site subwatershed is upstream from the French Camp Slough @ Airport Way site. Lone Tree Creek drains a large portion of the southern SJCDWQC region and confluences downstream with Littlejohns Creek eventually French Camp Slough, where it flows through urban areas before emptying into the Delta. The main agricultural land use upstream consists of deciduous nuts, field crops, grains, irrigated pasture, and dairies.

Mokelumne River @ Bruella Rd (9,966 irrigated acres) – Mokelumne River @ Bruella Rd is one of the Core sites in Zone 1. Monitoring at Mokelumne River @ Bruella Rd represents both the site subwatershed at and the Mokelumne River Drain @ North Lower Sacramento Rd site subwatershed. Water flow in the Mokelumne River is controlled by the amount of water released from the Comanche Reservoir. Water in the Mokelumne River integrates the water quality signal from a relatively large upstream area. Upstream agriculture consists of vineyards that are primarily drip irrigated and orchards irrigated by microspray. The main agricultural land use is fruit and nut orchards, vineyards, and small amounts of field crops throughout the subwatershed.

Mormon Slough @ Jack Tone Rd (24,615 irrigated acres) – This site subwatershed is located in the eastern portion of San Joaquin County and extends upstream into Calaveras County. The primary crops consist of orchards (mostly walnut) with smaller amounts of truck farm/nursery, berry crops, and vineyards.

Roberts Island @ Whiskey Slough Pump (11,716 irrigated acres) – Roberts Island @ Whiskey Slough Pump is one of the Core sites in Zones 4 and 6. This site subwatershed drains the entirety of Roberts Island north of Hwy 4 by a pump located along McDonald Road on the western edge of the island. Monitoring at Roberts Island @ Whiskey Slough Pump represents all of Roberts Island. The primary agriculture upstream of the sample site includes asparagus, field crops, grains, hay (alfalfa), and pastureland.

Sand Creek @ Hwy 4 Bypass (402 irrigated acres) – This site subwatershed is located west of Brentwood at the intersection of Hwy 4 Bypass and Sand Creek. The Roddy Ranch Golf Club located off Empire Mile Rd in Horse Valley is adjacent to an upstream tributary of Sand Creek. The DWR map for land use identifies deciduous nuts, grains and hay; however, recent visits to the site subwatershed indicate the area consists of field crops, grains, hay and pasture. Areas to the east and west of Highway 4 Bypass have had significant urban development consisting of new residential neighborhoods and shopping outlets in recent years. Analysis using the USDA Cropland Data layer from 2009 (<http://www.nass.usda.gov/research/Cropland/SARS1a.htm>) indicate approximately 25 acres of planted corn, wheat, safflower, alfalfa, tomatoes, and approximately 775 acres of pasture and grassland.

South Webb Tract Drain (4,769 irrigated acres) – This site subwatershed is located in Webb Tract which is a central Delta island located just north of Franks Tract near Discovery Bay. There are two pumps on the island, the south pump moves the largest portion of water and the north pump runs only occasionally. The primary agriculture on the island is field crops as well as grain and hay.

Terminus Tract Drain @ Hwy 12 (9,728 irrigated acres) – Terminus Tract Drain @ Hwy 12 is one of the Core sites in Zone 3. This site subwatershed drains all of the acreage north and south of State Highway 12 on Terminus Tract. This sampling site is located near the confluence of White Slough/Potato Slough and the Mokelumne River. Monitoring at Terminus Tract Drain @ Hwy 12 represents all of Terminus Tract. The primary agricultural crops are field crops, turf, truck/nursery/berry crops, grains, and hay.

Union Island Drain @ Bonetti Rd (4,410 irrigated acres) – Union Island Drain @ Bonetti Rd is one of the Core sites in Zone 7. Union Island is one of the Delta Islands and the Union Island Drain @ Bonetti Rd site subwatershed is located just east of Clifton Court Forebay. The pump drains into Victoria North Canals. Monitoring at Union Island Drain @ Bonetti Rd represents all of Union Island. Monitoring for all constituents in management plans from Grant Line Canal @ Clifton Court Rd and Grant Line Canal near Calpack Rd will take place at Union Island Drain @ Bonetti Rd. Agriculture in this site subwatershed is primarily field/truck crops, nursery, and berry with some grain, hay, and pastureland.

Unnamed Drain to Lone Tree Creek @ Jack Tone Rd (27,900 irrigated acres) – This site subwatershed is located to the north of the Lone Tree Creek site subwatershed and south of Littlejohns Creek. The drain forms in eastern San Joaquin County and flows west eventually converging with Lone Tree Creek just west of Jack Tone Rd. Unlike most of the SJCDWQC area, rice is a major crop in this site subwatershed. The rest of the agriculture consists of irrigated pasture, deciduous orchards, field crops, grains, and vineyards.

Walthall Slough @ Woodward Ave (8,426 irrigated acres) – This site subwatershed is located just upstream of the residential area at the confluence of Walthall Slough and the San Joaquin River. The site subwatershed drains land to the south and to the east. Land use includes pasture, field crops, truck/nursery/berry crops, fruits/nuts, grains/hay, and dairy.

IDENTIFICATION OF AGRICULTURAL SOURCES OF CONSTITUENTS OF CONCERN

PESTICIDES AND TOXICITY

Pesticides refer to a general group of chemicals that include insecticides, herbicides, fungicides, rodenticides, acaricides, nematocides, and molluscicides (among others). Pesticides are applied to kill pests that damage agricultural commodities, dwellings, or pose public health risks, and may have impacts on non-target aquatic organisms if the chemicals are released into aquatic environments.

Pesticides are applied to agricultural commodities by a variety of methods including solid and liquid applications to soil, liquid applications to the surface of the plants by sprayers, and aerial application. Many pesticides have chemical properties that make it difficult for them to be applied effectively and they require an adjuvant to facilitate the application and the product's performance and effectiveness. Pesticides may be found in the water column or sediment as a result of applications to fields that are subsequently irrigated, have runoff after rainfall events, or from spray drift to surface waters. Irrigation return flows from fields or storm water runoff can move sediment and chemicals to surface waters (see below).

Based on monitoring results through September 2014, there are pesticide management plans in place for chlorpyrifos (11), DDE (4), DDT (2), dieldrin (1), diuron (3), HCH (1), and malathion (1; Tables 4 and 5). Altogether, there are a total of 14 site subwatersheds in management plans for pesticides.

The SJCDWQC analyzes samples for only a small number of pesticides relative to the number of pesticides that are applied to commodities across the Coalition region. In many cases, there are no certified analytical methods available to measure the concentration of the chemicals in water. The chemical properties of many pesticides make them difficult to measure in the dissolved phase, and/or the amount of a pesticide applied within a site subwatershed is very small making chemical analysis an unlikely method to determine their impacts in surface waters. The Coalition analyzed for 45 pesticides through September 2014. Many of the pesticides monitored in the Coalition region are considered legacy pesticides since they are no longer registered for use and no longer applied. Some are degradation products (dieldrin, DDD, DDE). Chemical characterization of the limited number of pesticides may not adequately characterize the potential impacts of pesticides (and other constituents) on aquatic communities; consequently the SJCDWQC also uses toxicity testing to measure potential impacts on aquatic communities in surface water. Under the 2014 WDR, pesticides to monitor will be identified by a process that is being developed by stakeholders in coordination with the Department of Pesticide Regulation (DPR). Once the process is approved by the Regional Board, the Coalition will develop a list of pesticides that require monitoring in each site subwatershed. Therefore, pesticides monitored will change in the future based on the final decisions made by the Pesticide Advisory Work Group (WDR; Attachment B).

Pesticides are applied, or were applied, by irrigated agriculture but many are registered for uses that allow them to be applied by numerous other entities. Some pesticides are registered for use only on irrigated agriculture, e.g. chlorpyrifos and diazinon, and finding these constituents in the water or sediment indicates

that the source is irrigated agriculture. Other pesticides may be registered for a variety of uses but may be used primarily by irrigated agriculture. For example, malathion is registered for use for mosquito control by vector control districts but is also used by irrigated agriculture. Some pesticides such as pyrethroids are used by irrigated agriculture but are also heavily used for structural pest control. Diuron is used for weed control by both irrigated agriculture and a variety of other entities such as cities, counties, Caltrans, railroads, and irrigation districts. Legacy pesticides that are no longer registered for use, e.g. DDT, were applied by a wide variety of entities including irrigated agriculture, vector control districts, municipalities, and industry.

Toxicity testing is complementary to chemical analyses and can provide an independent assessment of the level of impairment in the waterbody. The objective of the Coalition is to use the results of toxicity testing along with water chemistry analysis to assess the impact of discharges from irrigated agriculture. The Coalition performs toxicity tests using three species of aquatic organisms to determine if aquatic organisms in the water column are potentially impacted by pesticides. The three species are green algae (*Selenastrum capricornutum*), water flea (*Ceriodaphnia dubia*), and fathead minnow (*Pimephales promelas*). The Coalition tests for toxicity to benthic communities using an amphipod crustacean (*Hyalella azteca*).

The primary cause of toxicity in the Coalition region is pesticides, both organic compounds and those containing cationic metals. The Coalition performs Phase I Toxicity Identification Evaluations (TIEs) on water column samples with mortality greater than 50% (compared to the control) and uses its analyses of samples collected for analytical chemistry to attempt to account for the Toxic Units in the sample. Consequently, based on the responses to manipulations of the sample performed during the Toxicity Identification Evaluation (TIE), the Coalition is able to identify causes of toxicity to broad chemical class, e.g. pyrethroids, organophosphates, nonpolar organics, or cationic metals. The Coalition does not conduct TIEs on every sample, and when performed, the samples may lose their toxicity and TIEs are not able to identify the class of compound responsible for the toxicity.

The Coalition performs chemical analyses on sediment samples that cause >20% mortality to the test organisms when compared to the control. Analyses are performed for selected pyrethroids and chlorpyrifos. These pesticides are transported to surface waters either sorbed to sediments which settle in the waterbody, or dissolved in the water column which then bind to sediment. Chlorpyrifos is registered for use only by agriculture but many pyrethroids are used by structural pest control companies to control insects around houses, businesses, and industrial sites due to their low mammalian toxicity. Similarly, vector control districts use pyrethroids to control mosquitos. In site subwatersheds with upstream dwellings, urban areas, or wetlands, it is possible that pyrethroids are originating with applications in those areas.

Toxicity can be caused by constituents other than pesticides although pesticides historically have been the primary source of toxicity in the water column and sediment. The methods used for performing toxicity tests eliminates factors such as DO, temperature, and pH from causing toxicity because the goal of the testing is to determine if chemicals present in the water are causing toxicity. In the Coalition region, a few water samples have been collected with concentrations of ammonium high enough cause toxicity to test species. Although natural processes can convert nitrate or organic nitrogen to ammonium, the concentration of ammonium in these conditions is relatively low. Concentrations of ammonium in the water column measured by the

Coalition can only be generated by the discharge of dairy waste or direct discharge of anhydrous ammonium into the waterbody. Because toxicity due to ammonium typically occurs in months when fertilizer applications do not take place, dairy discharges are the only potential source of the ammonium. Dairies are not allowed to discharge lagoon waste into surface waters although such discharges must take place and are assumed to be the source of the ammonium that causes toxicity.

Based on monitoring results through September 2014, there are management plans in place for *C. dubia* (3), *H. azteca* (10), *P. promelas* (1), and *S. capricornutum* (5). All sites/constituents in management plans are listed in Tables 2 and 3. The management plans for toxicity cover 13 different site subwatersheds as some of the chemicals that cause toxicity to one test organism also cause toxicity to a second test organism.

NUTRIENTS AND PHYSICAL PARAMETERS

Nutrients

Excessive nutrients can cause eutrophication of surface waters resulting in low DO and an inability to support healthy aquatic communities. The Coalition's objective is to determine if exceedances of nutrient trigger limits are occurring and if potential sources can be identified. However, sources of nutrients and physical parameters such as organic carbon are difficult to identify. If current monitoring data are not sufficient, the Coalition may conduct further investigations to identify sources. Such investigations may include special studies if they are determined to be cost effective. By understanding the sources of nutrients responsible for the exceedances, the Coalition can properly recommend management practices to address exceedances of nutrients and physical parameters.

The SJCDWQC monitors for total ammonium, nitrate + nitrite, and soluble orthophosphate, hardness (as CaCO₃), TSS, turbidity, and calculates unionized ammonia based on the temperature and pH of the water. Hardness is used to determine if the concentration of dissolved metals exceed the hardness-based WQTLs. Measurements of TOC are taken as part of the drinking water constituent class. Based on monitoring results through September 2014, management plans are currently in place for ammonium (1), nitrate + nitrite (1), and TDS (14; Tables 4 and 5). Site subwatersheds currently in a management plan for TDS will continue to be in a management plan although the Coalition will monitor for salts under SC management plans.

The source of ammonium was addressed above during the discussion of toxicity. Briefly, the concentration of ammonium in the water column and the timing of the exceedances argue that discharges from dairies are the cause of elevated concentrations of ammonium in surface waters. In addition, there has never been an exceedance of the WQTL for ammonium in a waterbody that does not contain dairies in close proximity to the waterbody, i.e. exceedances always occur where there are upstream dairies.

Nitrate can have several sources including synthetic fertilizers applied to agricultural fields and suburban lawns and gardens, manures that are applied and incorporated into the soil in agricultural fields, suburban lawns and gardens, discharges from leaky septic systems, discharges from wastewater treatment plants, and discharges by dairies to surface and groundwater.

Field Parameters

There are management plans in place for DO (16), pH (7), and SC (13) based on results through September 2014 (Tables 4 and 5). As is evidenced from the number of management plans, exceedances of the WQTLs for field parameters are common. Much like physical parameters, exceedances of water quality objectives for pH, DO, and SC are the result of processes that occur on the landscape as well as in the waterbody. Both DO and pH are non-conserved meaning that they can increase or decrease as water moves downstream. Processes affecting DO in waterways include stream flow, water temperature, the presence of submerged vegetation, emergent vegetation, benthic and suspended algae, organic compounds in the water column (Chemical Oxygen Demand), algal respiration, and microbial physiological processes (Biological Oxygen Demand). The latter can be stimulated by the presence of excessive nutrients. Many of these factors also vary diurnally. As with nutrients and physical parameters, the Coalition's objective is to determine if exceedances are occurring and to investigate potential sources through analysis of monitoring data and special studies.

Measurements of pH indicate the acidity of the water in the waterbody. The acceptable values for pH provided in the Basin Plan are 6.5 – 8.5 which means the water can be slightly acidic to moderately basic. Measurements of pH outside this range constitute an exceedance. The Coalition has recorded numerous values of pH above the upper limit resulting in exceedances of the objective. Measurements of pH in the waterbody can vary considerably diurnally depending on the amount of suspended and benthic algae present in the system and the buffering capacity of the water determined by water chemistry which is in turn determined by the underlying geology. During the non-daylight hours, algae are respiring removing oxygen from the water and releasing carbon dioxide. During daylight hours, photosynthesis reverses that process and oxygen is produced and carbon dioxide is removed. A large amount of organic matter can also result in changes in pH as microbial breakdown of dead algae and other organic matter in the water can lead to elevated pH. In other studies (Washington Department of Ecology, Factors affecting waters with high pH: a statewide analysis, <https://fortress.wa.gov/ecy/publications/publications/0203005.pdf>), elevated pH in surface waters is associated with excessive nutrients. The Coalition will perform a preliminary analysis to determine which, if any, factors are associated with elevated pH in Coalition surface waters. The results of the analysis will be used to determine if a source identification study is necessary or if the Coalition can move forward with recommendations for implementation of management practices that can reduce the number of exceedances of the pH objective. The Coalition will work with Regional Board staff as they complete the analysis and make a determination if a source identification study is necessary.

Currently, the Coalition cannot identify the specific contributions of any of the factors to determining the concentration of DO or pH in surface waters. The Coalition will use past monitoring data, landscape data, and weather data (e.g. temperature and rainfall) to perform preliminary analyses to determine the relative contribution of these factors to DO concentration and pH. These analyses will explore the contribution to the variability in DO or pH from all of the other variables used in the analysis. The multivariate statistical analysis will provide the Coalition with an indication if the variation in DO within the Coalition region is attributable to a factor that can be controlled by implementation of management practices. For example, it is well known that water temperature is a major determinant of the amount of DO that the water can hold. Warmer water holds less oxygen simply due to the laws of physics. However, the amount of DO in a waterbody may be even lower than what would be expected from water temperature alone. Excessive nutrients could be present which

would lead to elevated algal productivity and eventually a significant Biological Oxygen Demand (BOD) which would lower the amount of DO even more. The Coalition may have a difficult time recommending practices to growers that lower the temperature of the water, especially as members implement management practices that reduce the amount of water discharged to surface waters. However, it may be possible to control the discharge of excessive nutrients. All of these factors will be examined in a statistical analysis of the data from within the Coalition region and across the entire Central Valley. Once the results of these analyses are available, the Coalition will work with Regional Board staff to determine whether a workplan needs to be developed for any field studies to confirm or further examine the causes of low DO and elevated pH. The preliminary analyses will be provided to the Regional Board within 90 days of the date of approval of the SJCDWQC revised SQMP.

E. COLI

E. coli is a natural component of ecosystems and also occurs in the intestinal tracts of animals. Coliform bacteria are voided in fecal material which can enter surface waters. *E. coli* may persist in the presence of oxygen in the environment for periods of time after being voided, and are known to reproduce and proliferate in the environment. Any species of vertebrate that voids feces can contribute *E. coli* to surface waters, including humans, companion animals such as dogs and cats, cows, chickens, waterfowl (ducks and geese), raccoons, otters, ground squirrels, feral pigs, and in some locations deer. Furthermore, manure is applied to crops as a fertilizer and can contribute to the presence of *E. coli* bacteria if composting is not conducted appropriately. Manure application practices are intended to keep manure from reaching waterways and proliferating pathogens. Even though landowners and operators are required to follow crop specific manure application practices and guidelines, contamination may occur.

There are 18 site subwatersheds in a management plan for *E. coli* (Tables 4 and 5). A preliminary study performed in 2007 used an obligate anaerobic genus, *Bacteroides*, and Quantitative Polymerase Chain Reaction (qPCR) to identify sources of fecal bacteria. There were small contributions from bovine sources but the majority of the bacteria were of human origin. The study did not sample for *E. coli* and was conducted only during the dry season. Additional analyses are needed. The Coalition will develop a workplan for submission to the Regional Board to identify sources of *E. coli* in surface waters. The workplan will be submitted 120 days after the approval of the SQMP.

METALS

The Coalition monitored for nine metals through September 2014: arsenic, boron, cadmium, copper, lead, molybdenum, nickel, selenium, and zinc. In order to assess compliance with water quality standards the Coalition analyzed for dissolved fractions of cadmium, copper, lead, nickel and zinc. The remaining metals were analyzed for total concentrations only. Management plans are currently in place for arsenic (8), copper (2), and lead (1; Tables 4 and 5). All future monitoring for metals will be determined on a site by site scenario and will be sampled according to the annual MPU schedule.

There are four general classes of metals: 1) those that are naturally present because of underlying geologic materials but not applied by agriculture (boron, selenium, molybdenum), 2) those that are naturally present

because of underlying geologic materials and may be applied by agriculture (copper, zinc, nickel), 3) those that are naturally present because of underlying geologic materials and are legacy pesticides but also have numerous nonagricultural sources (lead, arsenic), and 4) those that are found solely as a result of nonagricultural anthropogenic sources (cadmium). These categories are not mutually exclusive and in fact, all metals belong to the first category. For example, nickel is a plant micronutrient that is rarely incorporated into fertilizer mixes, although normally there is a sufficient quantity of nickel in soils to supply the needs of crops. As a result, although applied by agriculture, exceedances of the WQTL for nickel would be expected to primarily be a result of a high concentration of nickel in soil.

Natural weathering of geologic materials can release metals and metalloid elements such as selenium, arsenic, and boron to surface waters. Selenium salts are naturally elevated in the southwest portion of the San Joaquin Valley and are transported to surface waters during storm water runoff or irrigation tailwater discharge. These salts are so problematic that there is a prohibition of discharge of irrigation tailwater in some locations in the Valley. Arsenic appears to be naturally elevated in several locations in the San Joaquin Valley. Zinc and nickel are also found in soils and can be found in surface waters at levels that reflect background concentrations. Both of these metals can be applied during agricultural operations as well; therefore, the difference between applications and natural weathering must be understood to properly manage the amounts reaching surface waters. Understanding background levels of these elements will be an important task for the Coalition when trying to understand the impact of agricultural inputs to surface waters.

While all metals can be released as a result of the weathering of geologic materials, elevated levels of most metals are a result of anthropogenic inputs. Lead was used as a pesticide during the last century although it was applied in declining amounts over the last several decades before finally being prohibited in the 1990s. Lead was used in gasoline until the early 1980s when it was replaced by other fuel oxygenates. Lead-based paint was routinely used until the latter parts of the last century and is still present in many old buildings and structures. Lead is a component of batteries, and is the material in solder in numerous electronic devices including televisions, computers, and cell phones. Copper is routinely used by agriculture on a number of crops and could be found in surface waters as a result of these applications. Additional sources include road surfaces where wearing of brake pads can result in substantial loading to surface waters, use of copper by irrigation districts for channel maintenance, and releases from improperly closed mining operations in the Sierra Nevada Mountains.

TRANSPORT OF CONSTITUENTS OF CONCERN TO SURFACE WATER

Mechanisms of transport of agricultural constituents to surface waters include 1) direct discharge of storm water and irrigation tailwater mobilizing dissolved and sediment-bound constituents, and 2) spray drift. A wide variety of irrigation practices are employed by growers in the Coalition region including flood, furrow, sprinklers, microsprinklers, above ground and below ground drip irrigation. The potential for discharge of sediment and tailwater exists with each of these practices although the potential for discharge from fields using microsprinklers or drip systems is extremely small provided the systems are managed correctly. Fields that are flood irrigated or furrow irrigated generate the greatest potential for discharge of both dissolved agricultural constituents and sediment-bound constituents.

A complex system of conveyances for water transfer, use, and re-use is utilized within the Coalition region. If a sufficiently large amount of water is applied using flood irrigation, some water may return to the source canal after being used on the field. In some cases, the volume of water applied to a field for irrigation may represent not only what is needed by the crop, but also a greater quantity used either to push the water over the field, or as a method of reducing the negative effects of evapotranspiration and consequent accumulation of salts. Many of the urban centers contribute discharge seasonally as storm water mixes with agricultural inputs especially around the cities of Stockton, Lodi, and Galt. Some irrigation supply canals accept discharges from upstream agriculture which are transferred downstream where the water may be reused. Even when supply canals do not receive tailwater discharge, these canals can receive spray drift from adjacent fields. Consequently, waterbodies in the Coalition region can carry clean irrigation water exclusively, a combination of clean water and agricultural discharge, or primarily agricultural discharge depending on the season.

Pesticides and metals can be transported in the dissolved phase or bound to sediment. The sorption-desorption kinetics are characterized by partitioning coefficients which indicate the relative tendency of the constituents of concern to be found dissolved in water or bound to sediments. The Coalition maintains a database of information on constituents of concern including organic carbon partitioning coefficients. When constituents of concern are detected in surface water during Coalition monitoring, understanding the primary transport mechanism allows the Coalition to recommend appropriate management practices to eliminate the discharges.

There is a tendency for increase runoff with increased slope, soil water saturation, and volume of water applied for irrigation or falling as rain. During the winter, runoff is moved through the myriad of creeks, rivers, and drains. Runoff can also occur during the irrigation season if water entering the field is greater than the amount that can infiltrate the soil. In Delta islands, water is pumped in and out of supply and drainage canals. Ordinarily, drains pumping water off the islands could be turned off thus eliminating runoff. This cannot occur because water is continually entering the islands through groundwater recharge (essentially seepage from the greater in elevation water source on the river side of the levee) thus requiring off-island draining.

Source Identification

The sources of constituents of concern can be identified generally, and the method of transport can be determined generally, but it is very difficult to pinpoint specific sources and explicit transport mechanisms for every constituent of concern in every site subwatershed. This makes it difficult for the Coalition to determine the relative contribution, if any, of irrigated agriculture to exceedances of WQTLs. The problem of understanding relative contributions to exceedances of WQTLs is common to several constituents including nitrate, copper, pesticides such as diuron, and salt. In addition, there are constituents such as molybdenum, arsenic, lead, and cadmium that are not directly applied by irrigated agriculture. These constituents may reach surface water through discharge of tailwater that is originally groundwater pumped for irrigation. Again, it is unknown if the discharge of tailwater is the primary source of these constituents in surface water or if the major source is shallow groundwater that reaches waterbodies in the Coalition region. Understanding the relative contribution will be critical in determining whether these are manageable water quality impairments.

The method of source identification varies depending on the constituent or process involved. Some constituents such as pesticides can be identified to source by use of Pesticide Use Report (PUR) data. The PUR data also provide information on the commodity to which the pesticide was applied and the method of application which allows the Coalition to review the member's current management practices and if appropriate, discuss additional management practices that can prevent discharges. Other elements monitored by the Coalition, e.g. water column and sediment toxicity, can be more problematic. If toxicity is accompanied by the presence of chemicals in the water, the Coalition can use PUR data to identify potential sources. If toxicity occurs and no chemicals are detected in the water, identifying the source of the toxicity becomes more difficult. The Coalition does not monitor for every chemical applied by members and the PUR data can be searched for chemicals for which the Coalition does not sample with the assumption that the toxicity is caused by a pesticide applied by growers in the watershed. However, there are instances of toxicity for which there are no recent applications of pesticides that could be the cause (e.g. *S. capricornutum* toxicity with no recent applications of herbicides or cationic metals) and these exceedances cannot be assigned to a potential source.

There are also constituents that are applied by irrigated agriculture that are impossible to source or may have multiple sources (e.g. nitrate, copper, zinc), and there are constituents/measured parameters that are not applied by irrigated agriculture (e.g. arsenic, molybdenum, cadmium, lead, DDE), or may be the result of other processes (pH, DO, SC, *E. coli*) and the Coalition cannot currently assign exceedances to a cause/source. These constituents will be the subject of source identification studies conducted by the Coalition over the next several years. If irrigated agriculture is identified as a potential source, the Coalition will then determine which management practices could be effective in reducing discharges and will conduct outreach with growers to review appropriate practices. It should be noted that since Coalition activities were initiated under the 2008 Management Plan a large number of management practices have been implemented across the Coalition region and there has been a significant decline in the number of exceedances of WQTLs of applied pesticides and a decline in toxicity. A number of these management practices are designed to prevent discharge of all runoff and are not specific to pesticides, e.g. installation of pressurized irrigation, constructing berms between fields and surface waters, or constructing sediment/tailwater detention basins and recirculation systems.

BENEFICIAL USES

Water Quality Trigger Limits (WQTLs) and Water Quality Objectives (WQO) are applied based on the beneficial uses assigned to a specific waterbody. Consequently, identifying appropriate beneficial uses determines the appropriate WQTLs to use in the evaluation of water quality data, which in turn determine the exceedances managed by the Coalition. The Regional Board has assigned beneficial uses to many waterbodies within the Coalition region; however there are several waterbodies monitored by the Coalition that do not have assigned beneficial uses. If a waterbody does not have an assigned BU, the waterbody is subject to the tributary rule as described from the Basin Plan. The Basin Plan language for application of the tributary rule is:

“Beneficial uses of any specifically identified waterbody generally apply to its tributary streams, except as provided below:

- MUN, COLD, MIGR and SPWN do not apply to Old Alamo Creek (Solano County) from its headwaters to the confluence with New Alamo Creek

- MUN and the human consumption of aquatic organisms do not apply to Sulphur Creek (Colusa County) from Schoolhouse Canyon to the confluence with Bear Creek

In some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board’s judgment will be applied. It should be noted that it is impractical to list every surface waterbody in the Region. For unidentified waterbodies, the beneficial uses will be evaluated on a case-by-case basis.”

Based on the Basin Plan, tributaries that drain to the Sacramento San Joaquin Delta that do not have listed uses are subjected to the beneficial uses assigned to the Sacramento San Joaquin Delta. The Coalition region receives drainage from four major rivers: the Calaveras River, the Mokelumne River, the San Joaquin River, and the Stanislaus River. Table 10 lists the beneficial uses (Agriculture, Aquatic Life (freshwater habitat, spawning, and migration), Municipal and Domestic Supply, Water Contact Recreation) as identified in the Basin Plan for surface waterbody segments of the four major rivers in the SJCDWQC. Figure 15 represents the beneficial uses of the designated major rivers and tributaries of the Coalition region to the Sacramento San Joaquin Delta.

Table 11 includes a list of Coalition tributaries and the beneficial uses of the major rivers as listed in the Basin Plan. Table 12 includes all SJCDWQC monitoring sites with active management plans and the associated 303(d) listed constituents for the immediate downstream waterbodies. In order to protect the beneficial uses, a list of WQTLs is used to determine if and to what magnitude an exceedance of the WQO for a chemical constituent has occurred (Table 12).

Table 10. Beneficial use as identified in the Basin Plan for SJCDWQC surface waterbody segments of the major rivers/waterbodies of the SJCDWQC.

MAJOR RIVER ⁶	SURFACE WATERBODY SEGMENTS	AGRICULTURE		FRESHWATER HABITAT ²		MIGRATION		SPAWNING		MUNICIPAL	RECREATION		
		IRRIGATION	STOCK WATERING	WARM	COLD	WARM ³	COLD ⁴	WARM ³	COLD ⁴	MUNICIPAL /DOMESTIC SUPPLY	CONTACT	CANOEING AND RAFTING ⁵	OTHER NON-CONTACT
Calaveras River	New Hogin Reservoir to Delta	X	X	X	X	X	X	X	X		X	X	X
Mokelumne River	Comanche Reservoir to Delta	X	X	X	X	X	X	X	X	X	X	X	X
Stanislaus River	Goodwin Dam to San Joaquin River	X	X	X	X		X	X	X	X ¹	X	X	X
Sacramento San Joaquin Delta	Eastern, central, southern, and western portions and export area. All segments have same BUs	X	X	X	X	X	X	X	X	X	X		X

¹-Pending Beneficial Use.

²-Does not include anadromous. Any segments with both COLD and WARM beneficial uses are considered COLD waterbody for WQOs.

³-Striped bass, sturgeon, and shad.

⁴-Salmon and steelhead.

⁵-For streams and rivers only with implication that certain flows are required for the beneficial use.

⁶-San Joaquin River not included in table. Only a small stretch of the river is in Coalition region and it does not receive inputs from Coalition tributaries.

Table 11. Primary waterbodies that drain directly into the major rivers of the SJCDWQC region and the beneficial use for each of the major river reaches.

MONITORING SITE	IMMEDIATE DOWNSTREAM RIVER	BENEFICIAL USE OF IMMEDIATE DOWNSTREAM RIVER*
Bacon Island Pump @ Old River	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Bear Creek @ North Alpine Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Drain @ Woodbridge Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Duck Creek @ Hwy 4	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Empire Tract @ 8 Mile Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
French Camp Slough @ Airport Way	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Kellogg Creek along Hoffman Ln	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Littlejohns Creek @ Jack Tone Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Lone Tree Creek @ Jack Tone Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Mokelumne River @ Bruella Rd	Mokelumne River ²	2-3, 7-16
Mormon Slough @ Jack Tone Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Roberts Island @ Whiskey Slough Pump	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Sand Creek @ Hwy 4 Bypass	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
South Webb Tract Drain	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Terminus Tract Drain @ Hwy 12	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Union Island Drain @ Bonetti Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17
Walthall Slough @ Woodward Ave	Sacramento San Joaquin Delta ¹	1-5, 7, 9-14, 16-17

¹ Beneficial uses vary throughout the Delta and will be evaluated on a case-by-case basis" (Basin Plan).

² Comanche Reservoir to Delta Reach

* Beneficial Use code list:

- 1 - Municipal and Domestic Supply
- 2 - Agriculture Supply (irrigation)
- 3 - Agriculture Supply (stock watering)
- 4 - Industrial Process Supply
- 5 - Industrial Service Supply
- 6 - Hydropower Generation
- 7 - Water Contact Recreation
- 8 - Canoeing and Rafting

- 9 - Other Non-contact Water Recreation
- 10 - Warm Freshwater Habitat
- 11 - Cold Freshwater Habitat
- 12 - Migration of Aquatic Organisms (warm)
- 13 - Migration of Aquatic Organisms (cold)
- 14 - Spawning, Reproduction, and/or Early Development (warm)
- 15 - Spawning, Reproduction, and/or Early Development (cold)
- 16 - Wildlife Habitat
- 17 - Navigation

Figure 15. Beneficial use designated major waterbodies and tributaries of the SJCDWQC region.

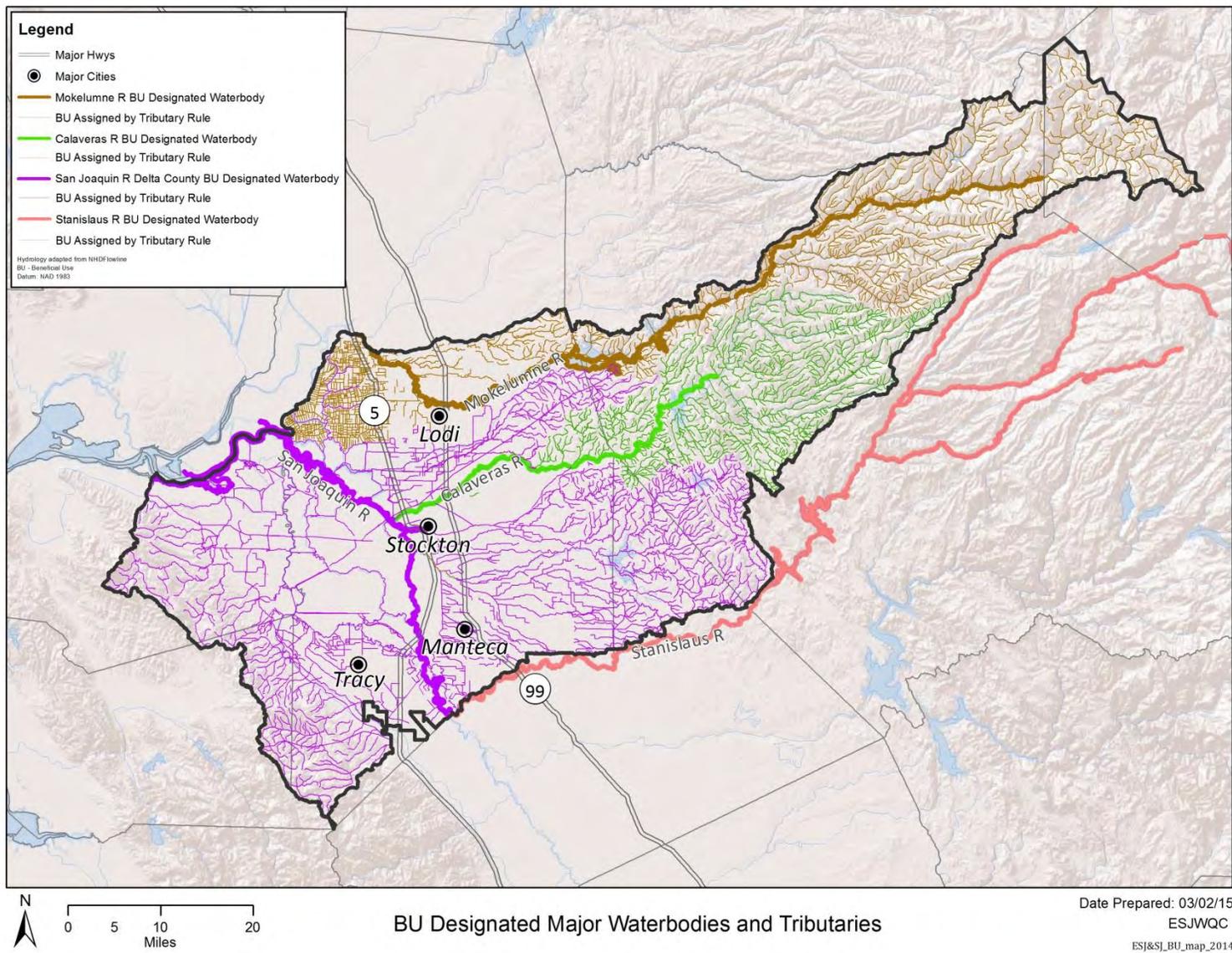


Table 12. Monitoring sites and associated 303(d) constituents for immediate downstream waterbodies.

ZONE	MONITORING SITE (CORE SITES IN BOLD)	303(d) LISTED DOWNSTREAM WATERBODY	303(d) LISTED CONSTITUENTS																	
			DO	BOD	SC	E. COLI	AMMONIA	COPPER	MERCURY	ZINC	CHLORPYRIFOS	DIAZINON	DIELDRIN	DIURON	DDE	DDT	GROUP A PESTICIDES	INVASIVE SPECIES	SEDIMENT TOXICITY	UNKNOWN TOXICITY
1	Bear Creek @ North Alpine Rd	Bear Creek (San Joaquin and Calaveras Counties; partly in Delta Waterways, eastern portion)	X			X		X			X									
	Mokelumne River @ Bruella Rd	Mokelumne River, Lower (in Delta Waterways, eastern portion)	X					X	X	X										X
2	Duck Creek @ Hwy 4	Duck Creek (San Joaquin County)				X		X		X										
	French Camp Slough @ Airport Way	French Camp Slough (confluence of Littlejohns and Lone Tree Creeks to San Joaquin River, San Joaquin Co; partly in Delta Waterways, eastern portion)	X			X				X	X								X	X
	Littlejohns Creek @ Jack Tone Rd	Littlejohns Creek				X														X
	Lone Tree Creek @ Jack Tone Rd	Lone Tree Creek		X		X	X			X			X						X	X
	Mormon Slough @ Jack Tone Rd	Mormon Slough (from Stockton Diverting Canal to Bellota Weir-Calaveras River)								X										X
	Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	Temple Creek			X		X													
3	Drain @ Woodbridge Rd	Delta Waterways (central portion)							X	X			X		X	X	X			X
	Empire Tract @ 8 Mile Rd	Delta Waterways (central portion)							X	X			X		X	X	X			X
	Terminus Tract Drain @ Hwy 12	Delta Waterways (central portion)							X	X			X		X	X	X			X
4	Bacon Island Pump @ Old River	Delta Waterways (central portion)							X	X	X				X	X	X			X
	Kellogg Creek along Hoffman Ln	Kellogg Creek (Los Vaqueros Reservoir to Discovery Bay; partly in Delta Waterways, western portion)	X		X	X													X	X
	Roberts Island @ Whiskey Slough Pump	Delta Waterways (central portion)							X	X			X		X	X	X			X
	South Web Tract Drain	Delta Waterways (central portion)							X	X			X		X	X	X			X
5	Union Island Drain @ Bonetti Rd	Delta Waterways (export area)			X				X	X	X				X	X	X			X
	Walthall Slough @ Woodward Ave	Delta Waterways (eastern portion)							X	X	X				X	X	X			X
6	Sand Creek @ Hwy 4 Bypass	Sand Creek (tributary to Marsh Creek, Contra Costa County; partly in Delta Waterways, western portion)			X	X					X		X		X	X				X

BOD-Biological Oxygen Demand

INVENTORY OF EXISTING MANAGEMENT PRACTICES

Prior to the development of the Management Plan in 2008, the Coalition developed a survey for growers to complete and provide information on their management practices. The surveys were sent to growers during the spring and summer of 2007 and the responses were summarized in the December 31, 2007 Semi Annual Monitoring Report. Growers were allowed to select from a list of management practices used on their operations and were also given an option to provide a written response. Many of the written responses appear to be variations of the listed options and, consequently, a complete, detailed analysis was difficult to provide. Failure of growers to provide survey responses was due to one or more of the following reasons: 1) the grower was not a member of the Coalition, 2) the grower was unable to respond (i.e. wrong address, did not receive mail, did not have enough information to respond) or 3) the grower was unwilling to respond. A review of the survey responses that were received was performed to determine the general status of the management practices in the region in 2007.

As site subwatersheds entered management plans between 2008 and 2014, the Coalition distributed management practice surveys to selected growers in the subwatersheds (both Coalition members and non-members). The surveys were sent to landowners who were identified as having fields directly adjacent or near the waterbody in a management plan.

Of the returned surveys, a large number of growers indicated that there was no discharge from their property during either the storm or irrigation season as a result of local conditions or lack of proximity to waterways. Of those who indicated discharge was a possibility, growers often indicated that several different management practices were utilized to control discharge. Drainage management systems included holding basins, bermed fields, recirculating systems, and sediment settling basins. Many growers indicated that they allowed vegetation to grow in drainage ditches in either winter or summer, or both as a means of trapping sediment. When asked about practices used to reduce storm or irrigation runoff from fields to ditches, canals, or streams, growers indicated that they used a variety of practices including grass row centers in orchards, grass waterways, gravity tailwater recapture systems, vegetated filter strips, or pressurized irrigation systems such as drip, microspray, sprinkler, or careful water management. Additionally, growers reduced discharges by implementing management practices based on information obtained in commodity-specific training sessions. Discharges of constituents were reduced by implementing planned practices which include, 1) using information obtained from soil nutrient analyses, 2) developing and implementing a crop nutrient management plan, 3) receiving an agronomist's advice on farming practices, 4) laser leveling fields, 5) obtaining Certified Crop Advisor recommendations, and/or 6) performing sprayer calibrations to reduce the potential for drift.

In the past, the Coalition developed an inventory of management practices of the growers with direct discharge to a waterbody that is in a management plan. These management practices were described and summarized in Management Plan Update Reports (MPUR) submitted by the Coalition each year. Currently, the Coalition is using the Farm Evaluation Plan (FEP) to collect additional baseline information on management practices from all members who are farming in surface and groundwater high vulnerability areas. The information will be available from all members farming in each site subwatershed in a management plan, not

just those with direct drainage to the waterbody. The results of the FEPs from growers in high vulnerability areas will be available June 15, 2015 and will be summarized in the May 1, 2016 Annual Report. Below are the results from the grower surveys of management practices obtained when the site subwatershed became the focus of outreach and monitoring.

MANAGEMENT PRACTICES TO REDUCE WATER USE AND WASTE DISCHARGE

The list of management practices that can be used to keep pesticides out of surface waters is not large. Generally they fall into three categories:

1. practices that manage movement of irrigation tailwater,
2. practices that manage the movement of sediment, and
3. practices that manage applications of pesticides and fertilizers.

Managing the movement of surface water will manage pesticides in two categories; 1) pesticides that are soluble in water, and 2) pesticides that are bound to sediment. Managing the movement of sediment will manage pesticides with high K_{oc} that attach to sediment or organic material. Assigning pesticides to either of these two categories associates chemicals with either water column or sediment toxicity, or both, and enables the Coalition to conduct effective outreach.

One of the primary goals of the Coalition is to gather information on management practices that are demonstrated to benefit water quality and to provide information and support to growers to facilitate the implementation of these management practices. Over the last several years, the Coalition has collaborated with many groups including County Agricultural Commissioners, Pesticide Control Advisors (PCAs), and pesticide registrants to provide growers with information on effective and most up-to-date management practices. Information is provided to growers regularly throughout the year by means of Coalition outreach meetings, mailings, personal communication and the Coalition website. Each management practice is viewed as one tool in a collective tool box and the management practices (tools) that are most beneficial to a particular farm will depend on factors such as the size of the farm, the drainage system, soil type, crop type and the agricultural pests that must be controlled.

Management Practice Implementation

Over the course of monitoring, when exceedances occur at a sample site more than once, the Coalition is required to formulate a Management Plan to address those exceedances. The SJCDWQC Management Plan contains goals and actions that are designed to address water quality impairments specific to a site subwatershed. Outreach and implementation are important components of the plan. Growers are informed of management practices effective at reducing discharge through general outreach and at county and/or subwatershed meetings for sites in management plans. After outreach occurs, management practices are implemented by growers on a voluntary basis. Documentation of practices implemented has been done through follow-up surveys completed by members in the year after the member received the focused outreach to see if they implemented management practices.

In the future, the Coalition will document the implementation of management practices in the Coalition region through the use of the FEPs submitted by members every year. Changing chemicals, application practices (e.g. timing of application, calibrating nozzles), or implementing structural management practices are occurring in

the Coalition region and these practices can be reported to the Coalition through yearly submittals of the FEP. The Coalition has developed a database to track new management practices reported in the FEPs that have been implemented in the Coalition region.

The Coalition provides growers with information through mailings and meetings concerning various management practices that are designed to 1) reduce storm water runoff, 2) manage discharge of irrigation tailwater, 3) manage spray applications, and 4) avoid mobilization of sediment and that could transport to receiving waters. Applicable management practices include use of alternative products, structural or procedural changes to manage irrigation tailwater and storm water, and utilizing pesticide application practices that minimize spray drift. Listed below are eight general categories of management practices that are effective at reducing the impacts of agricultural discharges on water quality including (Table 13):

1. Reduction in application rates,
2. Alternative material application,
3. Spot treating,
4. Sprinkler or microspray irrigation,
5. Retention pond/holding basin,
6. Grass waterways or grass filter strips,
7. Reduce water volumes using irrigation management, and
8. Treat runoff waters with Polyacrylamide (PAM) or other materials.

Practices 1-3 above fall under the Pesticide Application Management Practices category and generally can be implemented sooner than structural practices. Practices 4-8 are considered relevant to the Runoff management practices category and may require that the grower secure additional resources for implementation (Table 13). The Coalition also informs growers of funding resources through Agricultural Water Enhancement Program (AWEP), Environmental Quality Incentives Program (EQIP), and Proposition 84 projects which are available for management practice implementation.

BASELINE INVENTORY OF MANAGEMENT PRACTICES (2008-SEPTEMBER 2014)

The Coalition completed focused outreach in 15 site subwatersheds. Prior to outreach, individual members were targeted based on the chemicals they applied, the dates of applications, proximity to the waterbody and, in some cases, the method of application. Meetings with targeted members were held in all of the 15 site subwatersheds. Information on current management practices was collected and planned practices were documented. Follow-up surveys to assess implementation of new management practices were completed for 100% of all targeted members. The Coalition reported final results of current and planned management practices in the 2011, 2012, 2013, and 2014 MPURs. The Coalition has received and recorded 100% of the follow-up surveys for the fifth set of priority subwatersheds and a final analysis of implemented management practices is included in the 2015 Annual Report. The final analysis for implemented management practices in the sixth priority subwatershed will be included in the 2016 Annual Report.

Members in all remaining site subwatersheds with management plans received FEPs to complete. Completed FEPs are being returned to the Coalition and the data are being stored in a database maintained by the Coalition. As analyses of exceedances occur in the immediate future, members will be targeted using the

criteria discussed above. Once targeted members are identified, their FEPs will be reviewed to obtain an understanding of the management practices that are currently in place. Having this inventory of practices will facilitate identifying those members that should receive visits from Coalition representatives and allow the Coalition to prioritize those visits leading to greater efficiency in the Coalition’s outreach program.

During initial focused outreach meetings, the Coalition documents numerous management practices currently implemented by members. The surveys completed during the initial contact are organized into Checklist Sections which fall in two categories: Pesticide Application Management and Runoff Management Practices. Practices associated with each category are listed in Table 13.

Table 13. Management practice categories and associated management practice.

MANAGEMENT PRACTICE CATEGORY	MANAGEMENT PRACTICE	MANAGEMENT PRACTICE SURVEY RESULTS
Pesticide Application Management Practices	Reduction in application rates	Reduce use of the pesticide types found in exceedance
	Alternative material application	
	Spot treating	
Runoff Management Practices	Sprinkler or microspray irrigation	Installation of sprinkler or micro irrigation when an option
	Retention pond/holding basin	Installation of retention pond / holding basin / return systems
	Grass waterways or grass filter strips	Use of center grass rows, grass waterways, or grass filter strips
	Reduce water volumes using irrigation management	Reduce runoff water volumes using irrigation management
	Treat runoff waters with PAM or other materials	Treat runoff waters with PAM or other materials

Table 14 and Figure 16 include the acreage associated with newly implemented practices (after outreach) for first through fourth priority subwatersheds. Pest Application Management Practices have been implemented by members across the largest amount of acreage after outreach (Table 14 and Figure 16). As a result of focused outreach, 31,823 acres in 12 site subwatersheds have management practices implemented that are effective in reducing the impact of agriculture on water quality (Table 14 and Figure 16).

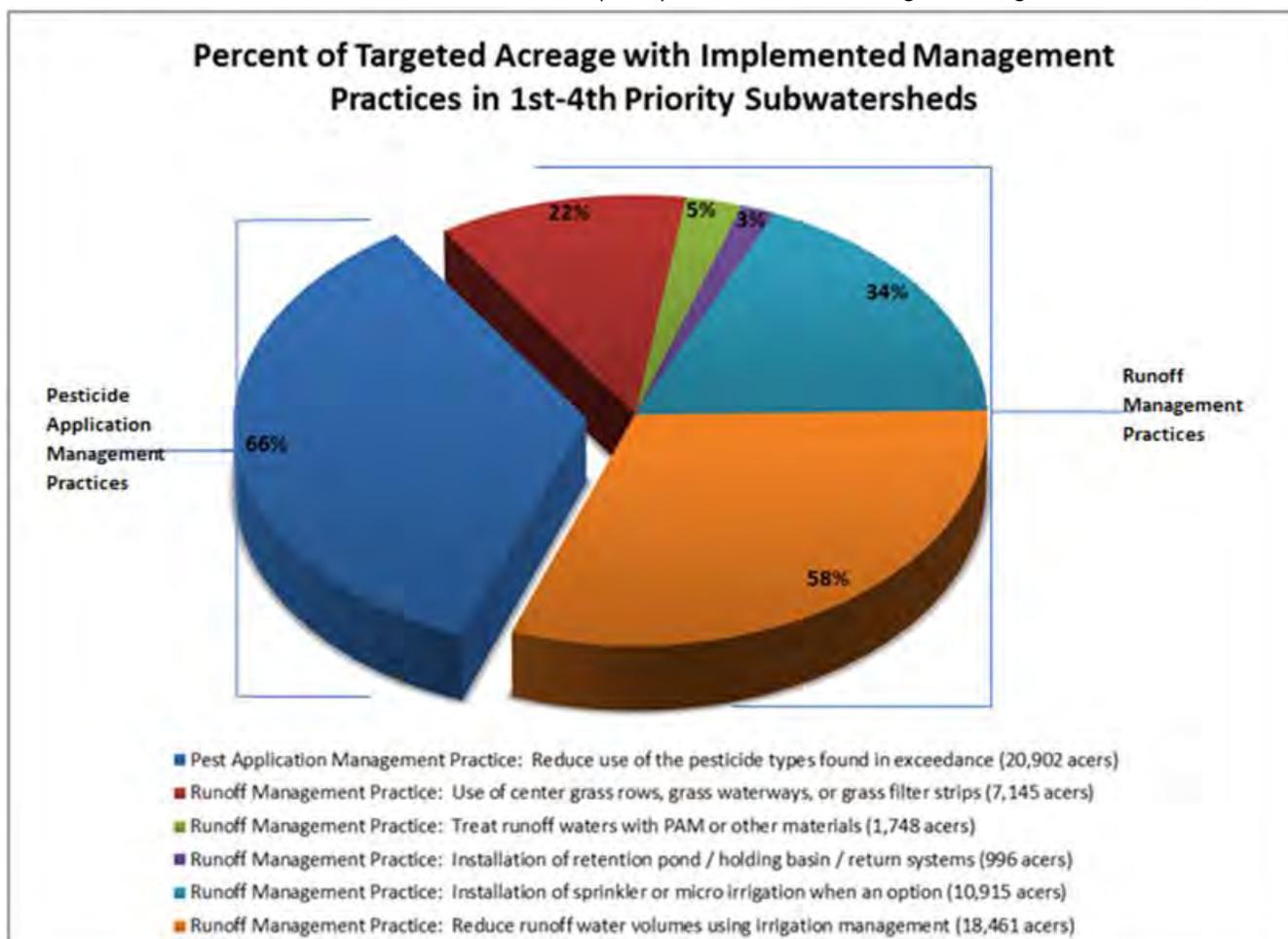
Table 14. First through fourth priority site subwatershed acreage with implemented management practices.

Includes additional contacts in first and second priority site subwatersheds from 2010 and 2012. Targeted acreage based on acreage of members contacted.

MANAGEMENT PRACTICE SURVEY RESULTS	FIRST THROUGH FOURTH PRIORITY SUM OF ACREAGE	PERCENT OF TARGETED ACREAGE
Reduce use of the pesticide types found in exceedance	20,902	66%
Installation of retention pond / holding basin / return systems	996	3%
Installation of sprinkler or micro irrigation when an option	10,915	34%
Reduce runoff water volumes using irrigation management	18,461	58%
Use of center grass rows, grass waterways, or grass filter strips	7,145	22%
Treat runoff waters with PAM or other materials	1,748	5%
TARGETED ACRES	31,823	NA

Figure 16. Percent targeted acreage with implemented management practices in the first through fourth priority site subwatersheds.

Includes 2010 and 2012 additional contacts in first and second priority site subwatersheds. Targeted acreage is from member contacts.



MANAGEMENT PLAN STRATEGY

DESCRIPTION OF APPROACH

The objectives of the SJCDWQC Management Plan are:

1. Identification of irrigated agriculture source(s) (general practice or specific location) that may be the cause of the water quality problem or a study design to determine the source
2. Identification of management practices to be implemented to address the exceedances
3. Development of a management practice implementation schedule designed to address the specific exceedances
4. Development of management practice performance goals with a schedule
5. Development of waste-specific monitoring schedule
6. Development of a process and schedule for evaluating management practice effectiveness

The Coalition has developed an approach that involves source identification, outreach to members in management plan site subwatersheds, and monitoring of water quality to evaluate the efficacy of implemented management practices. The strategy allows the Coalition to address multiple constituents in multiple watersheds simultaneously which will facilitate compliance within the 10 year (or as soon as practicable) time period outlined in the WDR (see Timetable in Tables 15-18 below). In many instances, the sources of the constituents responsible for the exceedances are not known (e.g. nitrate, copper), and the cause of exceedances of WQTLs for parameters such as DO are not well understood. For this subset of constituents, the Coalition will develop source identification workplans prior to establishing a compliance schedule, engaging in individual grower outreach, and monitoring for compliance. However, as currently conducted, outreach will continue to involve discussions of constituents for which no source is identified with certainty, but for which management practices could be effective in reducing and eliminating exceedances.

The process described above is similar although not identical to the Coalition's 2008 Management Plan strategy. Major differences include 1) the strategy proposed in the SQMP does not assign a priority level or tier to constituents that dictate the level of outreach and monitoring in site subwatersheds, 2) grower management practices will be documented using the responses on the FEPs, 3) the strategy proposed in the SQMP involves conducting analyses of water quality data and/or source identification studies to identify the sources/processes driving the exceedances, 4) the compliance schedule address all exceedances in as short a time as practicable but prior to the 10 year deadline required in the WDR, and 5) focused outreach and education will occur with growers in the site subwatersheds as well as with all growers in other site subwatersheds represented by the location in the management plan. Table 19 includes the source identification, outreach, and evaluation details.

Because of the similarity of the 2008 Management Plan and proposed SQMP strategies, the 2008 program is described briefly and the proposed SQMP is discussed in more detail.

Management Plan Strategy 2008 - 2015

In 2008, the Coalition developed a prioritization process that allowed a focus on constituents of greatest concern in management plans. That process is outlined in Figure 3 of the 2008 Management Plan and involves tiers and priority levels. The priority level determines the amount of effort expended by the Coalition to source the cause of the exceedance, the outreach involved to encourage members to implement management practices, and the amount of monitoring involved in evaluating water quality after outreach. The tiering approach was abandoned after the first few years of the implementation of the 2008 management plan because 1) the success of outreach and improvements in water quality, and 2) the Coalition's decision to focus on constituents for which sources could be identified. This focus resulted in assigning the highest priority to constituents such as pesticides that were applied by agriculture regardless of the priority level determined by Figure 3 of the 2008 Management Plan.

Following the flowchart in Figure 3 of the 2008 Management Plan, a priority level was assigned to a constituent in a site subwatershed based on a series of questions about sourcing and management such as whether or not the analyte was an applied pesticide, metal or nutrient. Assessing whether the analyte was found in association with sediment toxicity (i.e. total metals that may be bound to sediment) addressed erosion and sediment transport. If a single exceedance of a TMDL constituent occurred, a management plan was required for that constituent and site subwatershed. The prioritization process resulted in a constituent being assigned to Priority Level A/B through Priority Level E.

Priority A/B constituents were applied metals, nutrients, and pesticides for which there are Total Maximum Daily Loads (TMDLs) established and/or associated toxicity. If at the time of an exceedance of the WQTL for a pesticide or metal there was also toxicity in the sample, then this constituent at this site subwatershed would become a priority A/B (Figure 3 of the 2008 Management Plan). Priority C constituents were applied pesticides or metals that had associated toxicity but for which there was no TMDL. For example, diuron was a priority C constituent if multiple exceedances in a specific site subwatershed occurred and at least one of which was associated with toxicity to *S. capricornutum*. As originally planned, priority C constituents had actions for sourcing, outreach and evaluation of management practices identical to priority A/B constituents but differed from priority A/B constituents in that there were to be no individual contacts for priority C constituents in Tier 2. However, because the Coalition could identify potential sources of priority C pesticides and metals, these were treated as priority A/B constituents and individual contacts were made to discuss management practices and determine if additional practices could be implemented by members.

Priority D constituents included applied pesticides and metals that caused exceedances of their respective WQTLs, but for which there are no TMDLs and which were not associated with water column or sediment toxicity. Priority E constituents include many of the physical parameters including TDS, SC, pH, DO, temperature and any other constituent that is not an applied pesticide or metal. Source identification for these constituents is extremely difficult and can require expensive and sophisticated analytical tools. Water column toxicity at a site subwatershed where no priority A/B, or C constituent exceedances occurred was also be classified as priority E. Because management practices can be extremely expensive to put into place (e.g. pressurized irrigation), it is difficult to recommend that a member implement such a practice without

substantial evidence that they could be responsible for the chemical in the water. During grower outreach meetings, priority E exceedances were addressed although no meetings were held specifically for these constituents.

Because of the large number of water quality impairments that faced the Coalition in 2008, the prioritization process allowed the Coalition to schedule source identification, outreach, and monitoring activities in a phased approach scheduled from 2008 to 2024. Each year, a group of three or four site subwatersheds was elevated to high priority status meaning that source identification, focused outreach, and monitoring activities would begin. The first site subwatersheds to be elevated to high priority status were determined to have the most significant water quality impairments and the site subwatersheds scheduled for activities at the end of the period were determined to have the least impairments. It should also be noted that as the Coalition's monitoring program expanded to include additional site subwatersheds, exceedances of various WQTLs occurred. Not all exceedances occurred at the same time, not all management plans were triggered at the same time, and the dates assigned for completion of management plan activities generally were in compliance with a 10 year time period. This phased approach and management plan strategy has allowed the Coalition to remove 44 constituents from management plans due to improved water quality; four of the 44 removed management plan constituents have been reinstated due to recent exceedances (Tables 4 and 5).

2015 SQMP Strategy

As part of its regular monitoring and reporting program under the WDR, the Coalition conducts monitoring of ambient surface waters to characterize discharges from irrigated agriculture. The Coalition notifies the Regional Board of all exceedances with electronically submitted Exceedance Reports. Monitoring results are analyzed to identify constituents, agricultural lands, crops, and/or specific pesticides to be managed differently to reduce or eliminate discharges from agriculture. Actions taken to determine the potential sources of chemicals causing exceedances include 1) use of PUR data to identify applications that occurred upstream of the sample site and within a specified time period prior to the sampling event, and 2) an analysis of monitoring data and toxicity results to better understand the potential sources and toxicity of detected constituents.

The Coalition also notifies members of exceedances in their site subwatersheds and works with those growers to address water quality impairments. A few of the Coalition's monitoring sites represent water quality in an extended area called "represented areas". These represented areas may include other site subwatersheds where monitoring no longer occurs and/or Hydrologic Unit Codes (HUCs). If an exceedance of the WQTL occurs in the water collected from one of these sites that has a represented area, outreach will take place with members who farm parcels within the site subwatershed where the exceedance occurred, and within the represented area.

Monitoring results are disseminated to Coalition members via grower mailings, at grower outreach meetings, and by personal communication with growers. All documents associated with outreach are made available in the Annual Monitoring Report each year and are available from the Coalition at any time upon request. In fact, all large meetings are open to the public. The Coalition encourages growers to be cognizant of water quality concerns and, when applicable, to implement management practices designed to improve water quality. Grower notification, management practice outreach and education, and management practice implementation

and tracking are all additional actions taken by the Coalition to ensure that growers are aware of and take actions to address downstream water and sediment quality concerns.

Moving forward, the level of effort and the timing involved in source identification, outreach, and monitoring will be determined by the ability of the Coalition to identify the source(s) of the exceedances (e.g. member applications of pesticides or unknown sources of *E. coli* in surface waters) and recommend management practices to prevent discharges. All constituents scheduled for elevation to high priority status in the upcoming years under the previous management plan will be elevated to active status by the 2018 WY (Table 16). This means that source identification will take place and members who are potential sources will be identified, the FEPs will be reviewed to determine their management practices, contacts with targeted growers will be made, planned management practices will be recorded, and MPM will occur.

For any exceedances of WQTLs for pesticides that trigger a management plan in the future, the Coalition will begin sourcing, outreach, and monitoring activities within 3 years of the need to develop a management plan. This strategy ensures that the management plan process is complete within 5 years of the inception of the management plan, with the exception of the monitoring to evaluate compliance. When three years of monitoring are complete with no exceedances at a specific site for a management plan constituent, the Coalition can request management plan completion approval for sites/constituents with improved water quality results. Table 20 in the Performance Goals and Performance Measures section of this report lists the new SQMP Performance Goals and Table 21 provides a comparison between the 2008 Management Plan strategy Performance Goals and the new proposed Performance Goals.

The Coalition is proposing to develop workplans to determine the sources of constituents or measured parameters that can't be easily sourced (e.g. *E. coli* and DO) or that have several potential non-agricultural sources (e.g. metals such as copper) (Tables 17-18). In other instances, the Coalition will address constituents when other processes in the San Joaquin Valley are concluded (e.g. CV-SALTS development of a Salt and Nitrogen Management Plan process). However, the Coalition recognizes the importance of meeting the 10 year compliance schedule as outlined in the WDR. Consequently, the Coalition is proposing a process that guarantees that all constituents with known causes/sources that cause impairments of beneficial uses are addressed as soon as practicable but within the 10 year compliance time limit.

ACTIONS TO MEET GOALS AND OBJECTIVES

Compliance will be determined in two ways 1) achieving completion of the performance goals and performance measures, and 2) monitoring to determine if discharges have been eliminated and water quality is improving (discussed below in the Monitoring Design and Schedules section).

ACHIEVING PERFORMANCE GOALS AND PERFORMANCE MEASURES

Achieving completion of performance goals and performance measures involves:

- 1) determining which management practices are in place (outreach and education through meetings),
- 2) tracking planned and implemented management practices (review of grower surveys), and
- 3) determining the effectiveness of the implemented management practices (monitoring data).

One of the most difficult actions facing the Coalition is evaluating the effectiveness of management practices and outreach to growers. During the first year of management plan implementation the Coalition will conduct monitoring as outlined in the MPU to assess the impact of Coalition outreach. It is the goal of the Coalition that through meetings and direct mailings to growers of specific crops, Coalition efforts will eliminate exceedances.

Each year, the Annual Report includes a High Priority Site Subwatershed Analysis (Appendix I) which includes an evaluation of the sources of exceedances and uses that information to encourage the adoption of management practices within the area with the highest potential of eliminating exceedances. Details on how to select and implement the proper management practices will be discussed at grower meetings.

Outreach and Education

Once the potential sources of exceedances are identified, outreach is initiated to inform members of the exceedances and eventually meet with members to discuss implementation of management practices that will eliminate the exceedances. The Coalition's outreach program occurs through meetings for growers across the Coalition region. Information on management practices is provided by the Coalition in several forums that range from meetings with one or two growers to large meetings sponsored by the County Agricultural Commissioner. Outreach and education activities are an important component of the Coalition monitoring and reporting program.

The Coalition also provides information to growers through mailings and workshops. To keep growers informed of relevant Coalition news, the Coalition distributes a newsletter which is mailed to all members in the Coalition region. The Coalition coordinates with other entities to educate broader grower audiences, and when possible, including growers who are not Coalition members.

The Coalition hosts a website which serves as a clearing house for information on Coalition activities and outreach on management practices (<http://www.sjdelatwatershed.org/>). Information provided through the website is a useful supplement to regular grower contacts and meetings. Interested entities can find information on past exceedances of WQTLs in site subwatersheds, management plans, links to websites

describing management practices, upcoming grower meeting dates, and the long term Irrigated Land and Regulatory Program (ILRP).

Further discussion of outreach is provided in the Identification, Validation, and Implementation of Management Practices section.

Pest Control Advisors, Agricultural Commissioners, and Registrants

The Coalition collaborates with County Agricultural Commissioners, Pest Control Advisors (PCAs), and pesticide registrants to provide growers within the Coalition region information on effective management practices. In 2014, the Coalition collaborated with these entities as needed to follow-up on exceedances, provide management practice information, and prepare strategies for compliance under the WDR. Coalition members also participate in annual meetings hosted by Spray Safe to discuss topics such as grower responsibility, pesticide transportation, best management practices (BMPs), water quality laws and regulations, and labor relations.

Identification, Validation, and Implementation of Management Practices

The Coalition will utilize information submitted by members as required in the WDR to understand current management practices implemented within the site subwatersheds and to evaluate changes in practices over time. The Coalition will obtain this information through two types of member surveys: FEPs and the Nitrogen Management Plan (NMP) Summary Reports. The FEP has been mailed to all members within the Coalition region. Returned FEP surveys are entered into an Access database and are being linked to member information. The Coalition is currently compiling all returned surveys which are due from growers by June 15, 2015 and data from these FEPs will be compiled in the May 1, 2016 SJCDWQC Annual Report. An analysis of FEP responses will be completed prior to scheduling grower outreach meetings. During outreach meetings, growers review management practices they utilize and indicate if they plan to implement additional practices. The NMP is still under development and will not be available until mid to late 2015. A Sediment Erosion Control Plan (SECP) may be required by some members to be completed and kept on farm. Many of the practices that are documented on the SECPs are included in the FEPs and member responses on the FEPs will enable the Coalition to evaluate if appropriate sediment erosion control practices are in place. Table 19 describes management practice identification, evaluation and outreach.

Table 15. Schedule for addressing each site subwatershed with a detailed, focused Management Plan approach.

SITE SUBWATERSHED NAME	INITIAL MANAGEMENT PLAN ACTIVITIES ¹	10 YEAR COMPLIANCE DEADLINE ²	NON-AG SOURCE FOR ONE OR MORE MANAGEMENT PLAN CONSTITUENTS (YES OR NO)
Duck Creek @ Hwy 4	2008-2010	2023	Yes
Lone Tree Creek @ Jack Tone Rd	2008-2010	2019	Yes
Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	2008-2010	2019	Yes
Grant Line Canal @ Clifton Court Rd ³	2010-2012	2018 ³	Yes
Grant Line Canal near Calpack Rd ³	2010-2012	2018 ³	Yes
Littlejohns Creek @ Jack Tone Rd	2010-2012	2016	Yes
French Camp Slough @ Airport Way	2011-2013	2025	Yes
Mokelumne River @ Bruella Rd	2011-2013	2025	Yes
Terminus Tract Drain @ Hwy 12	2011-2013	2019	Yes
Kellogg Creek along Hoffman Ln	2012-2014	2016	Yes
Mormon Slough @ Jack Tone Rd	2012-2014	2019	Yes
Sand Creek @ Hwy 4 Bypass	2012-2014	2017	Yes
Bear Creek @ North Alpine Rd	2013-2015	2022	Yes
Roberts Island @ Whiskey Slough Pump ⁴	2013-2015	2021	Yes
Walthall Slough @ Woodward Ave	2013-2015	2022	Yes
Drain @ Woodbridge Rd	2014-2016	2021	Yes
Empire Tract @ 8 Mile Rd ⁶	2015-2017	Pending Workplan ⁵	Yes
Bacon Island Pump @ Old River	2016-2018	Pending Workplan ⁵	Yes
South Webb Tract	NA	Pending Workplan ⁵	Yes

¹ First date is year source identification and outreach was initiated. All constituents that can be sourced will be the focus of the SQMP activities regardless of 10 year compliance horizon.

² Date is the ten year compliance deadline for the most recent exceedance/constituent placed in the site subwatershed management plan (see table 16 below).

³ Monitoring for management plan constituents from Grant Line Canal @ Clifton Court Rd and Grant Line Canal near Calpack Rd will take place at Union Island Drain @ Bonetti Rd.

⁴ Roberts Island @ Whiskey Slough Pump monitoring occurred for all management plan constituents from the two previous sites.

⁵ All constituents in the site subwatershed management plan are pending workplans for source identification.

NA- Not Applicable; all constituents in a management plan for these sites are Priority E and do not have scheduled MPM.

⁶ Empire Tract @ 8 Mile Rd represents water quality in the Drain to Bishop Cut @ North Rio Blanco Rd and therefore management plans for Bishop Cut will serve as the management plans at Empire Tract.

Table 16. Management plan compliance timetable for constituents with irrigated agricultural as the known source in the site subwatershed.

Year	Constituent	Bear Creek @ North Alpine Rd	Drain @ Woodbridge Rd	Duck Creek @ Hwy 4	French Camp Slough @ Airport Way	Kellogg Creek along Hoffman Ln	Littlejohns Creek @ Jack Tone Rd	Lone Tree Creek @ Jack Tone Rd	Mokelumne River @ Bruella Rd	Mormon Slough @ Jack Tone Rd	Roberts Island @ Whiskey Slough Pump	Sand Creek @ Hwy 4 Bypass	Terminus Tract Drain @ Hwy 12	Union Island Drain @ Bonetti Rd ²	Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	Walshall Slough @ Woodward Ave
2016	Chlorpyrifos				X		X	X								
	<i>C. dubia</i> toxicity													X		
	<i>H. azteca</i> toxicity					X								X		
	<i>P. promelas</i> toxicity					X										
2017	Chlorpyrifos			X						X	X					X
	<i>H. azteca</i> toxicity										X	X	X			
2018	Diuron															X
	<i>H. azteca</i> toxicity				X											
	<i>S. capricornutum</i> toxicity													X		
2019	Chlorpyrifos											X				
	Diuron										X					
	<i>C. dubia</i> toxicity			X						X						
	<i>H. azteca</i> toxicity															X
	<i>P. promelas</i> toxicity							X								
2021	Chlorpyrifos		X													
	<i>C. dubia</i> toxicity										X					
	<i>H. azteca</i> toxicity															X
	Chlorpyrifos	X														X
2022	Malathion	X														
	<i>H. azteca</i> toxicity			X												
2023	<i>H. azteca</i> toxicity			X												
2024	<i>S. capricornutum</i> toxicity				X											
2025	Diuron				X											
	<i>S. capricornutum</i> toxicity								X							

¹Monitoring for management plan constituents from Drain to Bishop Cut @ North Rio Blanco Rd will take place at Empire Tract @ 8 Mile Rd.

²Monitoring for management plan constituents from Grant Line Canal @ Clifton Court Rd and Grant Line Canal near Calpack Rd will take place at Union Island Drain @ Bonetti Rd.

Table 17. Site subwatersheds with management plan constituents requiring source identification studies or workplans.

Constituent	Bacon Island Pump @ Old River	Bear Creek @ North Alpine Rd	Duck Creek @ Hwy 4	Drain @ Woodbridge Rd	Empire Tract @ 8 Mile Rd ¹	French Camp Slough @ Airport Way	Kellogg Creek along Hoffman Ln	Littlejohns Creek @ Jack Tone Rd	Lone Tree Creek @ Jack Tone Rd	Mokelumne River @ Bruella Rd	Mormon Slough @ Jack Tone Rd	Roberts Island @ Whiskey Slough Pump	Sand Creek @ Hwy 4 Bypass	South Webb Tract Drain	Terminus Tract Drain @ Hwy 12	Union Island Drain @ Bonetti Rd ²	Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	Walthall Slough @ Woodward Ave
DO	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X
pH		X				X	X		X	X	X	X						
SC ¹	X			X	X		X		X			X	X	X	X	X	X	X
Ammonia									X									
Nitrate																		X
<i>E. coli</i>	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
Arsenic	X			X	X									X	X	X		
Copper								X									X	
Lead																	X	
DDE							X					X				X		
DDT							X					X						
Dieldrin												X						
HCH																		X

¹ All TDS management plans will be managed under SC management plans. Sites only in management plans for TDS will be placed in SC management plans (Lone Tree Creek @ Jack Tone Rd).

² Active management plan constituents from the two Grant Line Canal sites are evaluated under the Union Island Drain @ Bonetti Rd site subwatershed management plan. Chlorpyrifos was approved for removal from both Grant Line Canal @ Clifton Court and Grant Line Canal near Calpack Rd; therefore, the 'Total Approved Management Plan Completion' row includes a tally of these removed management plan constituents in the count.

Table 18. Timetable for addressing constituents requiring source identification studies and workplans.

CONSTITUENT	PRELIMINARY ANALYSIS DONE AFTER SQMP APPROVAL	WORKPLAN SUBMISSION DATE
<i>E. coli</i>	None	120 days after SQMP approval
SC (TDS)	None	Pending CV-SALTS
DO	90 days	TBD
pH	90 days	TBD
Arsenic	120 days	TBD
Copper	120 days	TBD
Ammonia	150 days	Pending CV-SALTS
Nitrates	150 days	Pending CV-SALTS
Lead	180 days	TBD
DDE, DDT, Dieldrin, and HCH	180 days	TBD

Table 19. Management Plan source identification, outreach and evaluation schedule.

ACTION	DESCRIPTION	WHEN
SOURCING		
Review PUR data	Request pesticide use information from County Agricultural Commissioners to identify specific problem applications.	Standing request with Ag Commissioners to receive data as soon as possible.
Conduct Special Studies	Special studies will occur when additional information about potential sources needs to be obtained beyond the additional monitoring.	Will be specific to the situation.
OUTREACH		
County grower meetings and site subwatershed grower meetings	Hold meetings for growers in the subwatershed to discuss management practices that can be used to eliminate exceedances and to encourage implementation of new management practices. Provide general outreach including quarterly monitoring results to growers, landowners and/or stakeholders to inform them about water quality impairments.	Between each season (storm and irrigation).
Grower group meetings	Provide information and outreach materials about management practices that could be used by growers to reduce the impact of agriculture on water quality specific to a group of growers (i.e. walnut or alfalfa growers).	Between each season (storm and irrigation) and as needed.
	Conduct meetings with growers, landowners and/or stakeholders to discuss water quality impairments, current management practices, and planned management practices to improve water quality.	Winter (November to February).
EVALUATION		
Meeting participation and documentation of member actions	Assess effectiveness of Coalition meetings by tracking attendance, documenting management practice implementation and monitoring water quality. Document where and when management practices have been implemented in order to track effects on water quality at relevant monitoring sites through individual grower meetings.	Annually in Management Plan Progress Report.
Normal monitoring	Monitoring at Core and Represented sites as described in the MPU (updated annually).	Once a month, every month of the year depending on site schedules.
Additional monitoring (for compliance)	Monitoring for management plan constituents that can be sourced will occur to evaluate effectiveness of management practice implementation.	As specified in the SQMP and MPU.

Management Practices to Control Constituents of Concern

As discussed above, technically feasible and economically feasible management practices that are effective in eliminating discharge from farming operations have been developed by groups such as Natural Resource Conservation Service (NRCS) and UC Cooperative Extension. The Coalition uses the information provided by these entities when making recommendations to growers about how to eliminate discharges from their farming operation. During outreach with growers, Coalition representatives discuss practices effective in eliminating discharge and improving water quality. The practices range from reducing the amount of pesticide applied to installation of pressurized irrigation systems. These practices have a range of efficacy and cost to the member. These management practices were discussed in detail in the Management Practices to Reduce Water Use and Discharge section of this report. Table 13 includes a list of effective management practices; this list contains all available and feasible management practices based on experience and research. This list is complete and will remain unchanged unless other practices are proven to be effective and then the Coalition will update the list of available management practices growers can implement to improve water quality (Table 13). Some management practices are less technically feasible on some crops, e.g. drip irrigation in alfalfa. Some practices may be technically feasible but for some members, the practices may be at the edge of economic feasibility. For these members, the Coalition provides information about programs that provide a cost share of the purchase and installation improving the affordability of these systems. Visits with individual members at their farming operation allow the Coalition to discuss technical and economic feasibility, understand the unique conditions associated with each ranch, and tailor their recommendations to each grower on their own ranch.

Specific Schedule and Milestones for Implementing Management Practices

There are schedules and milestones involved in 1) scheduling individual site subwatersheds and constituents for implementing the management plan, i.e. which site subwatersheds and constituents are the focus of source identification, outreach, and monitoring and when, 2) developing preliminary analyses to identify the potential causes of exceedances of the WQTLs for DO and pH, and 3) developing workplans to identify sources of constituents such as *E. coli* and nitrate. Completing each of these tasks determines when constituents and site subwatersheds are elevated to active status where site subwatershed specific source identification, outreach, and monitoring occur. The schedules for these tasks are provided in Tables 15-19.

Once the sites and constituents become the focus of management plan activities, implementation of management practices to eliminate discharges is expected to occur in the year immediately after the initial individual meeting with the member. Determining whether the management practices were implemented occurs in the year following the meeting and is performed using the information on the FEP submitted by the member. If it is unclear if the member has implemented the practice(s) or the member states that the practice was not implemented, the member is contacted by the Coalition with a request for an explanation for the delay. For structural practices that are costly to put in place, it may require more than a year to obtain funding and implementation may take additional time. In these instances, growers are provided with alternative management practices that can reduce or eliminate the exceedances (e.g. change to an alternative product) until the structural practice (e.g. installing pressurized irrigation) can be put in place. While the alternative

practices may not be preferred by the member due to lower efficacy or higher cost, members are expected to take the necessary steps to eliminate exceedances in both the short and long term.

Performance Goals and Performance Measures

The Coalition's Performance Goals are built on actions essential to successful completion of the Management Plan strategy. The Performance Goals reflect the steps necessary to guarantee that the objectives of the Management Plan program are met and that water quality improves in the ESJWQC region. Each year the Coalition will submit the Performance Goals for the next set of site subwatersheds where focused outreach will occur. The Performance Goals are:

1. Identify members with the potential to discharge to surface waters causing exceedances of WQTLs of constituents identified in the Order,
2. Review the member's Farm Evaluation Plan from the year prior to initiation of Management Plan activities (focused outreach and monitoring) to determine the number/type of management practices currently in place, and determine if additional practices are necessary,
3. Hold grower group meetings to inform members of water quality impairments and recommend additional practices as necessary,
4. Review the member's Farm Evaluation Plan from the year following initiation of Management Plan activities to document the number/type of new management practices implemented, and
5. Evaluate the effectiveness of new management practices using water quality data.

These five goals reflect the current SJCDWQC SQMP process and successful completion will incorporate information generated from the FEPs and NMP Summary Reports. A description of the process used for each goal is provided below.

Performance Goal 1. Identify members with the potential to discharge to surface waters causing exceedances of WQTLs of constituents identified in the Order.

Performance Measures

- 1.1 Perform source analysis, when possible, of constituents causing exceedances of WQTLs.
- 1.2 Identify all members that had the potential to discharge agricultural wastes to surface waters causing exceedances of WQTLs.

When there is an exceedance of a WQTL of a chemical constituent applied by irrigated agriculture (i.e. a pesticide) or a sample that is toxic to one of the three species used in the toxicity testing, the Coalition attempts to find the source(s) of the discharge. Once the source(s) is identified, the Coalition can move forward with focused outreach to the members. Members are identified as being a potential source of an exceedance based on one or more factors including 1) use of the chemical causing the exceedance, 2) ability of the parcel to drain to surface water, and 3) use of pesticide in the past when exceedances occurred. For more details, see Data Evaluation section below.

Performance Goal 2. Review the member's Farm Evaluation Plan (or Nitrogen Management Plan) from year prior to initiation of Management Plan activities (focused outreach and monitoring) to determine

number/type of management practices currently in place, and determine if additional practices are necessary.

Performance Measures

- 2.1 From 100% of targeted members, review FEP (or NMP Summary Report as appropriate) to determine management practices currently implemented.
- 2.2 Identify management practices used by members that are effective in preventing discharges to surface water.
- 2.3 Identify management practices not currently used by members that members plan to implement to prevent discharges to surface water.

The FEP is to be completed by all members in high vulnerable areas annually and members in low vulnerable areas every 5 years. The NMP and Sediment Erosion Control Plan (SECP) are to be completed by all members in high vulnerability regions. These three documents provide a record of the practices each member has in place for managing discharges to surface and groundwater. The NMP is kept on farm and a NMP Summary Report is to be submitted to the Coalition annually for members in high vulnerable areas for groundwater. Members that self-identify or members identified by the Coalition as having the potential for erosion and discharge of sediment will complete a SECP and maintain the plan at their base of operations for their ranch.

Performance Goal 3. Hold meetings as necessary to inform members of water quality problems and recommend additional practices.

Performance Measures

- 3.1 Provide monitoring results at meetings with members and recommend practices that can be used to eliminate exceedances.
- 3.2 When available and appropriate, provide information on the results of the management practices studies.
- 3.3 Track attendance at meetings attended by the targeted members.

The Coalition holds several different types of meetings each year. Large meetings and regional meetings to discuss water quality impairments and provide information on management practices do not focus on individual site subwatersheds in management plans. However, all exceedances are discussed as well as the management practices that can be implemented to eliminate those exceedances. The Coalition does hold, and will continue to hold as needed, meetings with growers from site subwatersheds in management plans to review information generated by FEPs and NMP Summary Reports. At these meetings, if additional management practices are necessary to prevent discharges, Coalition representatives will recommend that the member implement the practices.

Performance Goal 4. Review the member's FEP (or NMP Summary Report) from the year following initiation of Management Plan activities to document number/type of new management practices implemented.

Performance Measures

- 4.1 If additional practices were planned, document management practice implementation by targeted members.

Once the Coalition discusses a management practice with a grower, the grower indicates if he/she plans to implement the practice in the next year. The information provided on the FEP (or NMP Summary Report) the following year should reflect that the member did implement the practice. The Coalition will review the FEPs of members contacted the previous year to determine if the practice(s) was implemented. If it appears that the practice was not implemented, the Coalition will contact the member to determine why, and if the member anticipates being able to implement the practice in the coming year. If finances prevented the implementation, the Coalition will provide the member with information on programs that can provide funds to assist with the implementation. The experience of the Coalition is that the meetings with members are extremely effective in improving water quality but that non-members and new farmers often discharge tailwater or generate spray drift that result in exceedances of WQTLs or toxicity. These exceedances may occur several years after outreach is complete and may require that the Coalition identify new members and perform additional outreach to provide recommendations for implementation of specific management practices. New members are identified on July 31 annually when member lists are updated and submitted to the Regional Board. All Coalition members receive general outreach to inform them of water quality concerns, management practices, and upcoming meetings (mailings, emails, workshops, and newsletters).

Performance Goal 5. Evaluate effectiveness of new management practices.

Performance Measures

- 5.1 Monitoring at sites with exceedances after implementation of management practices to evaluate effectiveness.

Evaluation of the effectiveness of management practices is ultimately based on water quality. Monitoring for management plan constituents will occur in each site subwatershed in a management plan to determine if water quality is improving.

The following section describes the Performance Measures associated with each Performance Goal (Table 20). These Performance Measures are the actions the Coalition will perform to meet the Performance Goals. Included in the table of Performance Goals and Performance Measures are the parties responsible for performing the actions described by the Performance Measures. The performance goals and performance measures are applied individually to each site subwatershed in a management plan. Each year, the Coalition will submit a technical memo to the Regional Board outlining the site subwatersheds in which these activities will take place over the next years along with a time schedule for completion of the Performance Measures.

Table 22 provides a comparison between the proposed Performance Goals and the Performance Goals from the 2008 Management Plan. The process for conducting additional outreach and evaluating changes in management practices and water quality is essentially the same. In both cases, the Coalition identifies members with the potential to discharge to surface waters. In the proposed Performance Goals, identification is followed by evaluating management practice information from FEPs prior to contacting the individuals. The FEP surveys are used to determine current practices. If members are encouraged to adopt additional management practices, the Coalition will utilize the following year's FEP survey to determine if those practices have been implemented (Table 20-21).

Table 20. High Priority Performance Goals for the SJCDWQC SQMP.

PERFORMANCE GOAL/PERFORMANCE MEASURE	OUTPUTS	WHO
<i>Performance Goal 1: Identify members with the potential to discharge to surface waters causing exceedances of WQTLs of constituents identified in the Order.</i>		
Performance Measure 1.1. – Perform source analysis, when possible, of constituents causing exceedances of WQTLs.	Identification of members with the potential to discharge to surface waters and cause the observed exceedance.	MLJ-LLC
Performance Measure 1.2. – Identify all members that had the potential to discharge agricultural wastes to surface waters causing exceedances of WQTLs.	Report in Management Plan Progress Report the acreage represented by members with the potential for direct discharge.	MLJ-LLC
<i>Performance Goal 2: Review the member’s Farm Evaluation Plan (FEP) (or Nitrogen Management Plan [NMP] Summary Report as appropriate) from year prior to initiation of Management Plan activities to determine number/type of management practices currently in place, and determine if additional practices are necessary.</i>		
Performance Measure 2.1 – Review FEP (or NMP Summary Report as appropriate) from 100% of targeted members.	Completed individual management practice evaluations recorded in an Access database.	MLJ-LLC
Performance Measure 2.2 – Identify management practices used by members that are effective in preventing discharges to surface water.	Record of management practices in place that reduce agricultural impact on water quality.	SJCDWQC/ MLJ-LLC
Performance Measure 2.3 – Identify management practices not currently used by members that that members plan to implement to prevent discharges to surface water.	Summary in the Management Plan Progress Report of management practices planned by members.	SJCDWQC
<i>Performance Goal 3: Hold meetings as necessary to inform members of water quality problems and recommend additional practices.</i>		
Performance Measure 3.1 – Provide monitoring results at meetings with members, and discuss practices that can be used to eliminate exceedances.	Agendas and/or reports of all meetings with members.	SJCDWQC/ MLJ-LLC
Performance Measure 3.2 – When available and appropriate, provide information on the results of the management practices studies.	Provide reports from studies.	SJCDWQC
Performance Measure 3.3 - Track attendance at meetings attended by the targeted members.	Report of members attending meetings provided in Management Plan Progress Report.	SJCDWQC/ MLJ-LLC
<i>Performance Goal 4: Review the member’s Farm Evaluation Plan from the year following initiation of Management Plan activities to document number/type of new management practices implemented.</i>		
Performance Measure 4.1 – Document management practice implementation, if needed, by targeted members.	Summary in the Management Plan Progress Report of management practices implemented by members at site subwatershed level.	MLJ-LLC
<i>Performance Goal 5: Evaluate effectiveness of new management practices.</i>		
Performance Measure 5.1 – Monitoring at sites with exceedances after implementation of management practices to evaluate effectiveness.	MPM results in Monitoring Plan Progress Report.	MLJ-LLC

Table 21. Proposed Performance Goals for compared to previously approved Performance Goals.

PG	Proposed Performance Goals	PG	Previous Performance Goals
1	Identify members with the potential to discharge to surface waters causing exceedances of WQTLs of management plan constituents.	1	Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.
2	Review the member's FEP from the year prior to initiation of Management Plan activities to determine number/type of management practices currently in place, and determine if additional practices are necessary.	2	Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.
3	Hold meetings as necessary to inform members of water quality problems and recommend additional practices.	3	Encourage growers to implement additional management practices based on water quality results.
4	Review the member's Farm Evaluation Plan from the year following initiation of Management Plan activities to document number/type of new management practices implemented.		NA
5	Evaluate effectiveness of new management practices.	4	Evaluate effectiveness of the new management practices implemented during years that site is high priority.
	NA	5	Consult with CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in Management Plan strategy for High Priority waterbodies.

NA- Performance Goal does not match up with a goal from previous 2008 Management Plan or 2014 SQMP.

PG-Performance Goal

FEP-Farm Evaluation Plan

NMP-Nutrient Management Plan

SECP-Sediment and Erosion Control Plan

Strategies to Implement Management Plan Tasks

Agencies Contacted for Data and/or Assistance

The Coalition utilizes data from DPR to assist with sources of applied pesticides and toxicities that occur due to applied pesticides. The Coalition works with the different County Agricultural Commissioner offices to get preliminary data approximately every quarter. These data are reviewed, analyzed and summarized in the Annual Report which includes the Management Plan Progress Report.

Information regarding county wide NRCS assistance through funding programs is provided to growers to implement new management practices. This information is summarized in the Management Plan Progress Report. The Coalition encourages members to apply for NRCS funds to implement structural BMPs and obtain cost-share funds.

In addition, several Coalitions are working with the California Department of Food and Agriculture to develop a nitrogen management curriculum that will allow members who successfully complete the course and certify their NMPs. The Coalition may contact any public agency or private consultant to guarantee successful completion of management plan activities and assist with sourcing of management plan constituents, outreach to growers regarding water quality impairments, solutions, and evaluation of additional management practices.

Monitoring Water Quality

As described in the annual August 1 MPU and in the Monitoring Methods section below, the Coalition will maintain its monitoring network of Core and Represented sites, and will perform MPM at sites that are the

focus of SQMP activities. The demonstration of compliance with the WDR will be monitoring results that do not have exceedances of WQTLs for management plan constituents. In site subwatersheds with sources of constituents other than irrigated agriculture, e.g. dairy operations, exceedances may continue even though management practices have been implemented by Coalition members. In this case, compliance may not rely on water quality data but will depend instead on documentation of implemented management practices by members that have the ability to discharge management plan constituents to surface waters.

Available Surface Water Quality Data

The Coalition has an extensive monitoring and reporting program which has generated surface water quality data since 2004. All data through September 2014 are available on the California Environmental Data Exchange Network (CEDEN) and all data were submitted electronically to the Regional Board quarterly.

Site monitoring history and data for sites with management plans are discussed in detail (including land use maps, table of active and removed management plan constituents, all exceedances and detections, and constituent specific compliance schedules in site subwatersheds that have been the focus of management plan activities) in the Site Subwatershed Water Quality Data Summaries provided in Appendix I of this report. Regional Board approval letters for management plan completion are located in Appendix II.

Table 16 includes a list of all site subwatershed management plan constituents the Coalition can source and the respective completion deadlines. Table 17 includes a list of all site subwatershed management plan constituents where completion deadlines are pending further investigation (special studies, workplans, etc.).

Monitoring in the Coalition Region by Other Entities

The Coalition reviewed water quality data from SWAMP, USGS, DPR, US EPA, and CA DWR to determine if data are available for waterbodies in the Coalition region. Several sources do contain surface water data, although with the exception of USGS, most of the data are available in CEDEN. The constituents for which surface water quality data are available are provided in Table 22. A summary of the data sources is provided below.

The Water Quality Portal (WQP <http://www.waterqualitydata.us/> available as of 2012) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA) and the National Water Quality Monitoring Council (NWQMC) that integrates publicly available water quality data from the USGS' National Water Information System (NWIS), the EPA's STORage and RETrieval (STORET) Data Warehouse, and the USDA Agricultural Research Service's Sustaining The Earth's Watersheds - Agricultural Research Database System (STEWARDS). A web service is a computer-to-computer protocol that allows for the direct sharing of information. The services provide the ability to combine data from USGS's NWIS and EPA's STORET systems. The services produce data formatted according to the Water Quality Exchange (WQX) Outbound XML schema, which has been developed collaboratively by USEPA and USGS. Applications such as internet portals can use the web services to access data from both NWIS and the STORET Warehouse without needing an authorized database connection.

The Department of Pesticide Regulation maintains a Surface Water Database containing data from a wide variety of environmental monitoring studies designed to test for the presence or absence of pesticides in

MONITORING METHODS

MONITORING DESIGN AND SCHEDULES

As described in the Monitoring and Reporting Program (MRP), Attachment B to the WDR, surface water monitoring at Core sites will occur based on a Water Year (October through September) and will include an assessment of field parameters, nutrients, pathogens, pesticides, metals and toxicity to water column and sediment species.

The Coalition submits a Monitoring Plan Update (MPU) on August 1 of each year detailing the locations scheduled for monitoring, the constituents to be monitored at each site, and the frequency of monitoring for the upcoming water year. The Coalition reports on the monitoring results from the previous WY in the May 1 Annual Report.

The Coalition designed a monitoring program to measure improvements in water quality and the effectiveness of focused management practice outreach and tracking. The monitoring program involves monitoring at Core and Represented sites based on the MPU, and MPM occurs to assess water quality improvements as a result of SQMP activities. Figures 9-14 are maps of the Coalition's zones and Core, Represented, and MPM sites. Table 9 includes the zones and coordinates for all Core and Represented sites in the Coalition region.

Core Site Monitoring

Each zone has two Core sites although only one Core site is currently identified in the WDR. The second Core site will be identified in the MPU report after discussions with Regional Board staff during 2015–2016. Each Core site is monitored for two consecutive years after which the second Core site is monitored the following two years. When an exceedance of the WQTL for a constituent occurs at any Core site monitoring location, that parameter must be monitored at that Core location for a third year (Attachment B of the WDR, page 3). If a Core site is currently in a management plan or if monitoring results indicate that the Core site must be placed in a management plan, the site will be evaluated through MPM.

Represented Site Monitoring

Whenever an exceedance of a water quality objective occurs at the Core site in the same zone, the Coalition must evaluate the potential for similar risks or threats to water quality associated with that constituent at each Represented site within that zone. If the evaluation indicates that there is the potential for similar risk, Represented site monitoring must occur for that constituent for at least two years. If the exceedance of the WQTL for the constituent triggers a management plan at the Core site, the Represented site may or may not be placed in a management plan depending on analysis of the PUR data, monitoring results, and an evaluation of the risk of exceedances at the site. If it is determined that monitoring at the Represented site should take place, the Coalition evaluates the PUR data for the Represented site subwatershed and develops a monitoring schedule accordingly (Attachment B of the WDR, pages 3-4). Once Represented site monitoring is initiated, the Coalition will monitor at the Represented site during the time period of highest risk of exceedance of the

WQTL for that parameter for a minimum of two years. If two exceedances of the WQTL for the constituent occur at the Represented site, the Represented site must be placed in a management plan.

Management Plan Monitoring

Management Plan Monitoring falls under the Special Project monitoring category and includes monitoring conducted at either Core or Represented sites to further evaluate water quality, sources of identified water quality impairments, and the effectiveness of management practice implementation by growers. In order to determine when, what, and where MPM will occur, the Coalition reviews available monitoring results and PUR data.

Management Plan Monitoring is conducted as part of the Coalition's Management Plan strategy to identify contaminant sources and evaluate effectiveness of newly implemented management practices. When a site has three years of monitoring with no exceedances of the WQTL of a particular constituent, the Coalition will petition to remove the constituent from the site's management plan. When constituents are removed from a site's management plan, MPM for that constituent is no longer required at that site.

The frequency and timing of MPM monitoring are determined by:

- Months of past exceedances for the targeted constituent(s) (e.g. applied pesticides, metals, toxicity) in the site subwatershed.
- Months of high use of the targeted constituent(s) determined using PUR data for that site subwatershed.

If a management plan is required for a Core site, all Represented sites in the zone will be evaluated to determine if monitoring should occur in those site subwatersheds. The PUR data will be analyzed to determine the extent of use of the targeted constituent(s) in the Represented site subwatersheds, the location of use, and the timing of the use. If the evaluation determines that the targeted constituents are used in Represented site subwatersheds and could potentially impair beneficial uses, monitoring will be conducted at the Represented sites for the targeted constituents. If two exceedances of the targeted constituent occur, a management plan will be triggered. The Coalition will continue to monitor at the Represented sites until no exceedances have occurred for three years.

DATA EVALUATION

INFORMATION TO QUANTIFY PROGRAM EFFECTIVENESS

To quantify the Management Plan program effectiveness over the long term, there are several types of data collected each year:

- Water quality monitoring data including concentrations of management plan constituents relative to WQTLs,
- Number of exceedances of WQTLs occurring at management plan site subwatersheds in the Coalition region,
- Management practices used by members in site subwatersheds in management plans,
- Management practices growers plan to implement in the future,
- Planned management practices actually implemented by members, and
- Pesticide use data.

The Coalition currently maintains databases for water quality monitoring data, management practices reported in the FEPs, practices growers plan to implement, and PUR data received from the office of the County Agricultural Commissioners. In addition, the Coalition maintains a database of pesticides applied in the Coalition region including physical, chemical, and toxicological information that is used to identify applications that have the potential to cause toxicity.

When toxicity or an exceedance of a WQTL for a chemical requires the development of a management plan for the constituent and site subwatershed, the Coalition contacts the County Agricultural Commissioner and requests the PUR data filed by Coalition members who farm in the site subwatershed. Depending on the constituent, all members who applied the target chemical within a period of time prior to the sample collection date are identified. Although the PUR data provide location information only to the section level, the Coalition has a process that uses the commodity and acreage to identify the fields to which the chemical was applied. This process has been made even easier in the 2015 WY because the FEP provides up to date information on the crops grown, the acreage, and the exact location of the field. These data are then compared to the data generated from the pesticide use database to identify exactly which members applied the target chemical, when they applied the chemical, how they applied the chemical, and what practices were used to control the discharge (see below). This information allows the Coalition representatives to develop a set of management practices that can be implemented to prevent discharges in the future.

There is a finite set of management practices that can be used to eliminate discharges from agricultural operations. These practices (e.g. planting grass filter strips) have been developed and validated by entities such as NRCS and various State Agricultural Extension Services including UC Cooperative Extension. Not all practices are appropriate for all farming operations; management practices are discussed during grower group meetings. Tracking the effectiveness of management plans involves:

1. identifying growers that are potentially discharging constituents that impair water quality,
2. understanding what practices those growers currently have in place,
3. verifying that the practices are being implemented,
4. recommending new practices if appropriate,
5. verifying that the planned practices have been implemented, and
6. monitoring water quality to determine if the discharges have been eliminated.

Independent of water quality monitoring results, the Coalition maintains a relational database that holds member information including the results of the FEPs. The member is requested to complete a different FEP for every field that is managed differently. All survey responses are placed into the database and the Coalition is able to associate every response and every management practice reported with a specific parcel and field. When all growers complete their FEPs, the Coalition will have a record of all management practices implemented on every field in the Coalition region. Each year's FEP will be added to the database providing the Coalition with a record of management practices implemented over time. Growers attending focused outreach group meetings with Coalition representatives provide information on their survey such as practices growers planned to implement and the specific field/location. These data are also recorded in the database. If it is determined that the FEP does not adequately capture the practices used by members, the Coalition will request additional information be provided by the member. This information will also be placed into the database. Each year during the process of preparing the Management Plan Progress Report (submitted in the Annual Report), the Coalition will review the practices currently used by members, the practices members planned to implement, and the practices implemented by members. The review involves simple queries of the relational database that the technical consultants have generated while developing this practice tracking system. This system is currently used by the Coalition to track management practice implementation by members in management plan site subwatersheds under the 2008 Management Plan and is completely operational and effective. The only difference between management practice tracking efforts performed prior to the 2015 WY is the information collected prior to the 2015 WY was obtained using the Coalition's management practice survey. The management practice information collected during the 2015 WY is from member FEPs.

As growers complete and submit their yearly FEPs to the Coalition, a record is developed of the practices used on their farming operation which can then be associated with water quality data. If it appears that additional practices are being implemented by the member and water quality does not improve, either the practices are not effective, or the discharge is from a non-member in the site subwatershed. Other than Coalition members, the region consists of 1) numerous dairies in the region that do not belong to the Coalition, and 2) some growers refuse to join the Coalition. Given the documented efficacy of the management practices planned to be implemented, it is likely that the discharge is from a non-member. If the Coalition believes that non-members are responsible for discharges, they will bring the information to the Regional Board during one of the quarterly meetings held with Regional Board staff.

Verification of the management practices information will be performed for those members who are identified as a potential source of a discharge to surface waters. Meetings with members will allow the Coalition representatives to determine if the practices listed on the FEP are actually being implemented by the member.

Although verification will occur, it is the experience of the Coalition that members are extremely honest about their farming operation and the practices they employ.

Verification of the management practices information provided by members will not occur for those members in low vulnerability areas or for members who are not identified as potential dischargers.

METHODS OF DATA EVALUATION

The data to be evaluated will be entered into an Access database and associated with a member, township, crop, and acreage. The Coalition expects that graphical and tabular presentations of data such as management practices in place, planned, and implemented will be sufficient to convey results of the evaluation of the tracking of the management practice implementation. Water quality data will be summarized with simple descriptive statistics for presentation in the Management Plan Progress Report submitted as part of the Annual Report.

RECORDS AND REPORTING

On August 1 annually, the Coalition submits a Monitoring Plan Update report with the monitoring schedules and constituents for the upcoming WY. In addition, the Coalition will submit an annual Management Plan Progress Report as part of the Annual Monitoring Report (submitted May 1 annually). This report will contain the 13 components listed in Appendix MRP-1 of the WDR. All data and reports are submitted to the Regional Board electronically.

SOURCE IDENTIFICATION STUDIES

As indicated above, there are several constituents and measured parameters for which source identification is not well understood and which could be attributable to both agricultural and non-agricultural sources (e.g. nitrate, copper, zinc), and there are constituents/measured parameters that are not applied by irrigated agriculture (e.g. arsenic, cadmium, lead, DDE), or may be the result of other processes (pH, DO, SC, *E. coli*). The Coalition cannot currently assign exceedances of the WQTLs of these constituents to a cause/source. These constituents will be the subject of source identification studies conducted by the Coalition over the next several years. If irrigated agriculture is identified as a potential source, the Coalition will then determine which management practices could be effective in reducing discharges and will conduct outreach with growers to review appropriate practices. It should be noted that since the 2008 Management Plan was implemented, there have been a large number of management practices implemented across the Coalition region and a significant decline in the number of exceedances of WQTLs of applied pesticides and toxicity. A number of these management practices are designed to prevent discharge of all runoff and are not specific to pesticides (e.g. installation of pressurized irrigation, constructing berms between fields and surface waters, or constructing sediment/tailwater detention basins and recirculation systems). If exceedances of WQTLs for parameters such as DO are the result of discharges from irrigated agriculture, it would be expected that the number of exceedances of WQTLs for these constituents would similarly decline. However, that has not occurred indicating the processes that determine the DO concentration in surface water, or pH of the water are most likely outside of the ability of irrigated agriculture to manage.

The Coalition must have a reasonable understanding of sources before recommending management practices because of the potential cost of implementation to the grower. The Coalition will undertake a series of preliminary analyses, workplan development, and source identification studies over the next several years in an effort to identify sources of discharged constituents, or understand the processes that drive the daily dynamics of DO and pH (Table 18). Once these sources and processes are understood, the Coalition can determine which management practices, if any, will be effective in eliminating exceedances of the WQTLs for these constituents/parameters. The Coalition may work with other ILRP coalitions in the Valley on some workplans and studies, but if cooperation is not forthcoming, the Coalition will undertake the studies on its own and submit plans as outlined in Table 18 and according to the schedule provided in Table 16.

DUTIES AND RESPONSIBILITIES

SJCDWQC policy is determined by the San Joaquin County Resource Conservation District (SJCRCDC or RCD). The RCD oversees and operates the Coalition, which in turn represents the concerns of its members and works to fulfill the requirements of the ILRP and WDR. The RCD is made up of a Board of Directors that meet monthly to set SJCDWQC policy and provide oversight on financial matters. Policy and business oversight includes setting the yearly fee charged to members to support Coalition activities, review (if desired) and approval of report submissions to the Regional Board, approval of expenditures by the Coalition, and negotiating consultant contracts and rates. The RCD Board of Directors is appointed by the San Joaquin Board of Supervisors and consists of farmers and ranchers from the San Joaquin area. The RCD works closely with the Executive Director of the Coalition to ensure smooth management of Coalition activities. The responsible parties are provided in organizational chart provided below (Figure 17).

Mike Wackman is the Executive Director of the SJCDWQC and the project lead for management plan activities. Mr. Wackman is responsible for implementing policy as directed by the RCD including budgeting and financial management, management of the Coalition's membership, member outreach, oversight of consultant contracts, and management of consultant work products. Mr. Wackman works closely with the technical consultants contracted by the Coalition to guarantee completions of reports submitted to the Regional Water Board. Mr. Wackman is responsible for the execution and completion of the Management Plan.

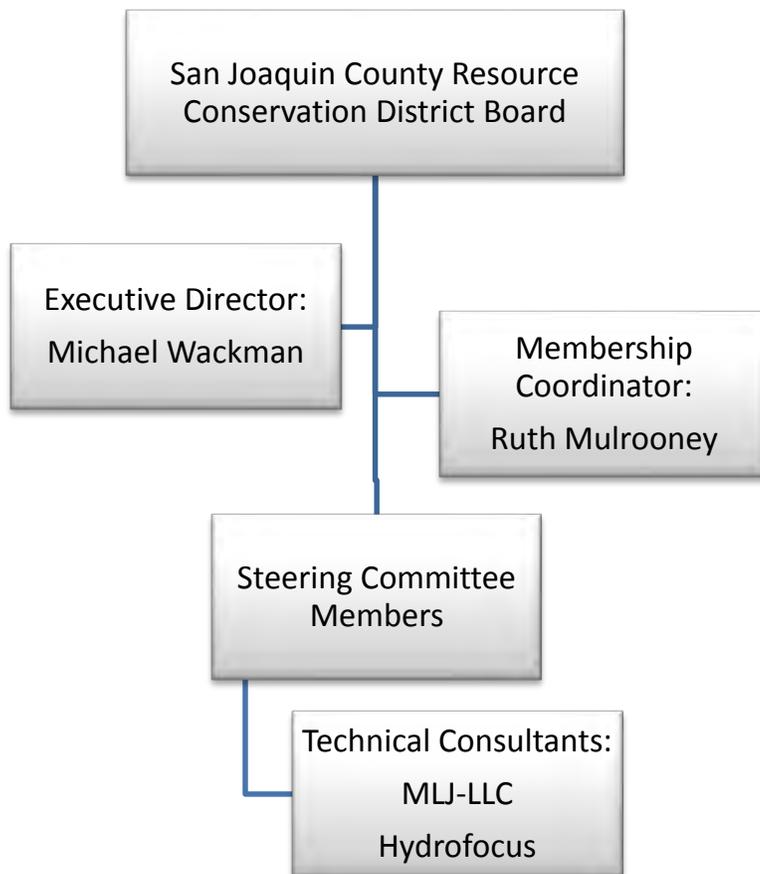
Ruth Mulrooney is the Coalition Membership Coordinator. Mrs. Mulrooney is responsible for maintaining and reporting Coalition membership information. Mrs. Mulrooney also participates in the Coalition's Steering Committee meetings. Mrs. Mulrooney has a long history in the Coalition region. Mrs. Mulrooney meets with individual members to discuss memberships as needed.

Technical consultants are contracted by SJCDWQC as needed to complete tasks and activities required by the Regional Board. Currently, the technical consultants to the ESJWQC are Michael L. Johnson, LLC Ecosystem Consulting (MLJ-LLC) and HydroFocus. MLJ-LLC is responsible for conducting the surface water monitoring and reporting program and HydroFocus provides technical support for groundwater. The Coalition enters into additional contracts with consultants as needed.

Dr. Michael Johnson (MLJ-LLC) is the Monitoring Program Lead. He is responsible for the design and implementation of the surface water monitoring program. Dr. Johnson supervises all reporting and is responsible for technical aspects of the monitoring and reporting program.

Ms. Melissa Turner (MLJ-LLC) is the Data Manager and the Quality Assurance Officer for Management Plan activities. Ms. Turner is responsible for developing and updating the QAPP, and providing oversight of all quality assurance actions associated with the Coalition's monitoring program. Ms. Turner works with the contract laboratories to assure the highest quality data are provided to the Coalition. Ms. Turner is also responsible for receiving and accepting all monitoring, management practice, and pesticide use data used in management plan activities.

Figure 17. Identification key of responsible parties involved in major aspects of the project.



Coalition Contact Information

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APPENDIX I

SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

SITE SUBWATERSHED WATER QUALITY DATA SUMMARIES

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INTRODUCTION

A summary of monitoring data is provided below for all SJCDWQC site subwatersheds requiring a management plan, discussed alphabetically. Each site subwatershed summary includes monitoring results for sites that are in a management plan (including land use maps, table of active and removed management plan constituents, and exceedances of management plan constituents), and an overview which includes sourcing, outreach, and evaluation of management practice effectiveness.

The SJCDWQC May 1, 2015 Annual Report High Priority Analyses (Appendix I and Appendix II) include a complete detailed list of site's exceedances, discussions of specific water quality impairments, sourcing analysis, recommendations of management practices to improve water quality, as well as specific schedules for outreach, and a complete evaluation of management practice effectiveness.

BEAR CREEK @ NORTH ALPINE RD

Overview

Bear Creek @ North Alpine Rd is one of the Coalition's fifth priority site subwatersheds. The Coalition completed the second year of its focused management plan strategy in the site subwatershed. Water quality concerns were discussed and current management practices were documented. Growers in the site subwatershed were informed of water quality impairments and encouraged to prevent offsite movement of agricultural constituents. Constituents listed in the active management plan are chlorpyrifos, DO, *E. coli*, malathion, and pH (Table 1).

From January through September 2014, MPM occurred for chlorpyrifos and malathion and no exceedances of the WQTLs occurred. The last time exceedances of the WQTLs for chlorpyrifos and malathion occurred was in October and September 2011, respectively. Priority E constituents, DO and pH, were monitored during all MPM events in through September 2014 and two exceedances of the WQTL for DO occurred.

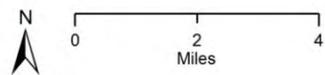
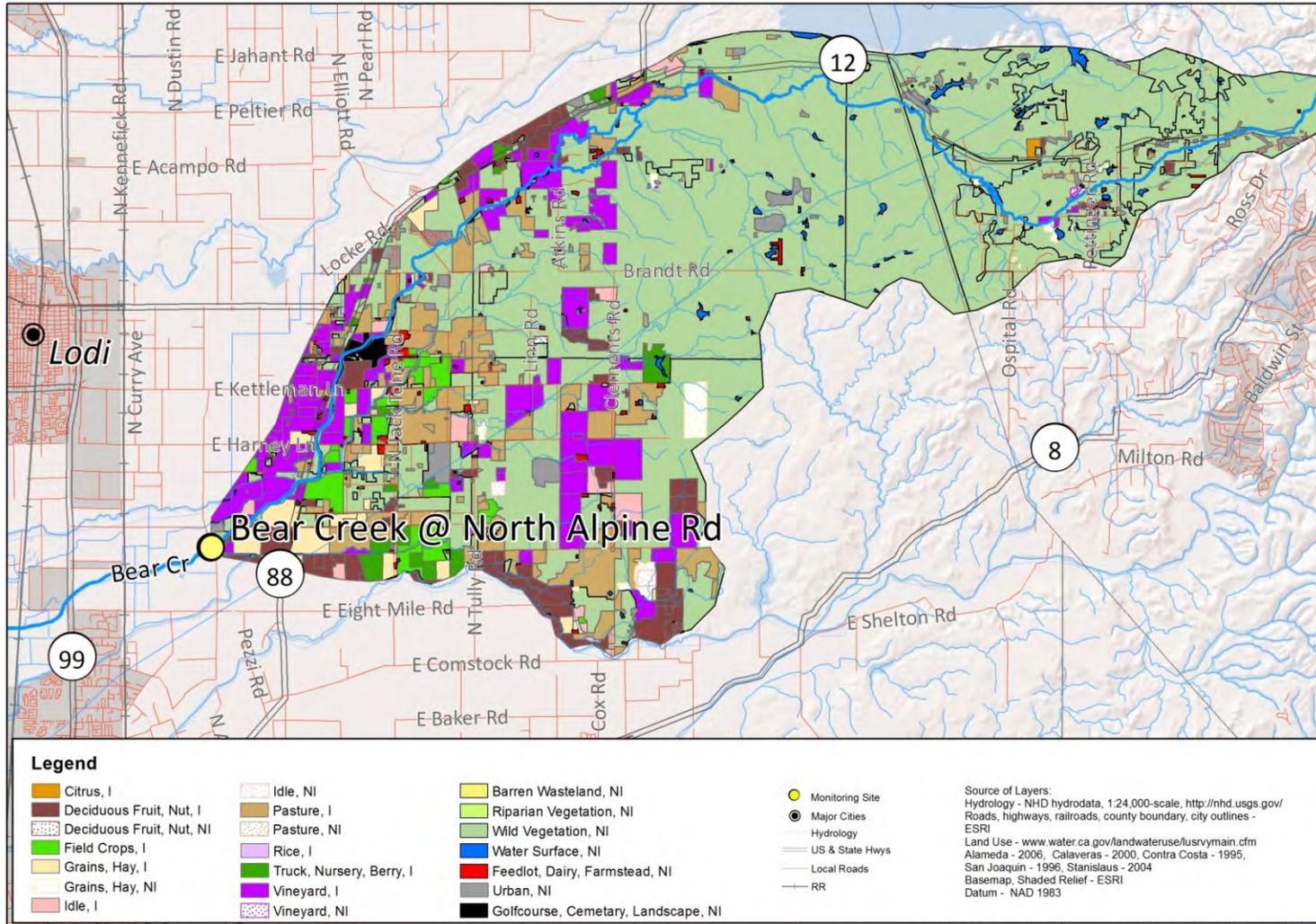
In the 2015 WY, Bear Creek @ North Alpine Rd is classified as a Represented site. As outlined in the 2014 MPU strategy for Represented sites, the Coalition will monitor for water column toxicity to *S. capricornutum* based on past exceedances in the Zone 1 Core site, Mokelumne River @ Bruella Rd. Additionally, MPM is scheduled to occur for chlorpyrifos and malathion; field parameters will be measured during every monitoring event. The Coalition will analyze these results to evaluate the overall water quality in the site subwatershed. Land use for Bear Creek @ North Alpine Rd is depicted in Figure 1.

Table 1. Bear Creek @ North Alpine Rd management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2012	Active
C	Malathion	2012	Active
E	Dissolved Oxygen	2009	Active
E	pH	2012	Active
E	<i>E. coli</i>	2012	Active

Figure 1. Bear Creek @ North Alpine Rd site subwatershed land use map.



Bear Creek @ North Alpine Rd

Date Prepared: 9/26/2014
 SJCDWQC

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Monitoring Results

From January through September 2014, MPM for chlorpyrifos and malathion resulted in no exceedances (Table 2). The Coalition measured DO and pH during all MPM events for high priority constituents; exceedances of the WQTL for DO occurred in May and September 2014.

Table 2 is a tally of exceedances of WQTLs from 2006 through 2014 for management plan constituents in the site subwatershed (organized alphabetically by constituent priority).

Table 2. Bear Creek @ North Alpine Rd management plan constituent exceedance tally (2008- September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	MANAGEMENT PLAN CONSTITUENTS				
	CHLORPYRIFOS, > 0.015 µg/L	MALATHION, > 0 µg/L	DISSOLVED OXYGEN, <7 mg/L	E. COLI, >235 MPN/100 mL	pH, <6.5 AND >8.5 UNITS
2008	0	0	3	1	0
2009	0	0	1	0	0
2011	3	3	4	1	2
2012	0	0	3	NA	0
2013	0	0	3	NA	0
2014 WY*	0	0	2	NA	0
OVERALL TALLY	3	3	16	2	2
CONSTITUENT PRIORITY	A/B	C	E	E	E

NA – Not Applicable; monitoring did not occur for this constituent during the year.

*2014 includes January through September results only.

DRAIN @ WOODBRIDGE RD

Overview

Drain @ Woodbridge Rd is a sixth priority site subwatershed. Monitoring at Drain @ Woodbridge Rd was initiated in October 2008 and continued through 2010; Assessment Monitoring last occurred in 2010. The Coalition began focused outreach and MPM for high priority constituents as part of the management plan strategy in 2014, and will continue through 2016. Water quality concerns were discussed and management practices were documented. Growers in the site subwatershed were informed of water quality impairments and encouraged to prevent offsite movement of agricultural constituents.

The active management plan constituents for Drain @ Woodbridge Rd are chlorpyrifos, arsenic, DO, *E. coli*, SC, and TDS (Table 3). Management Plan Monitoring for chlorpyrifos occurred in April 2014; no exceedance occurred.

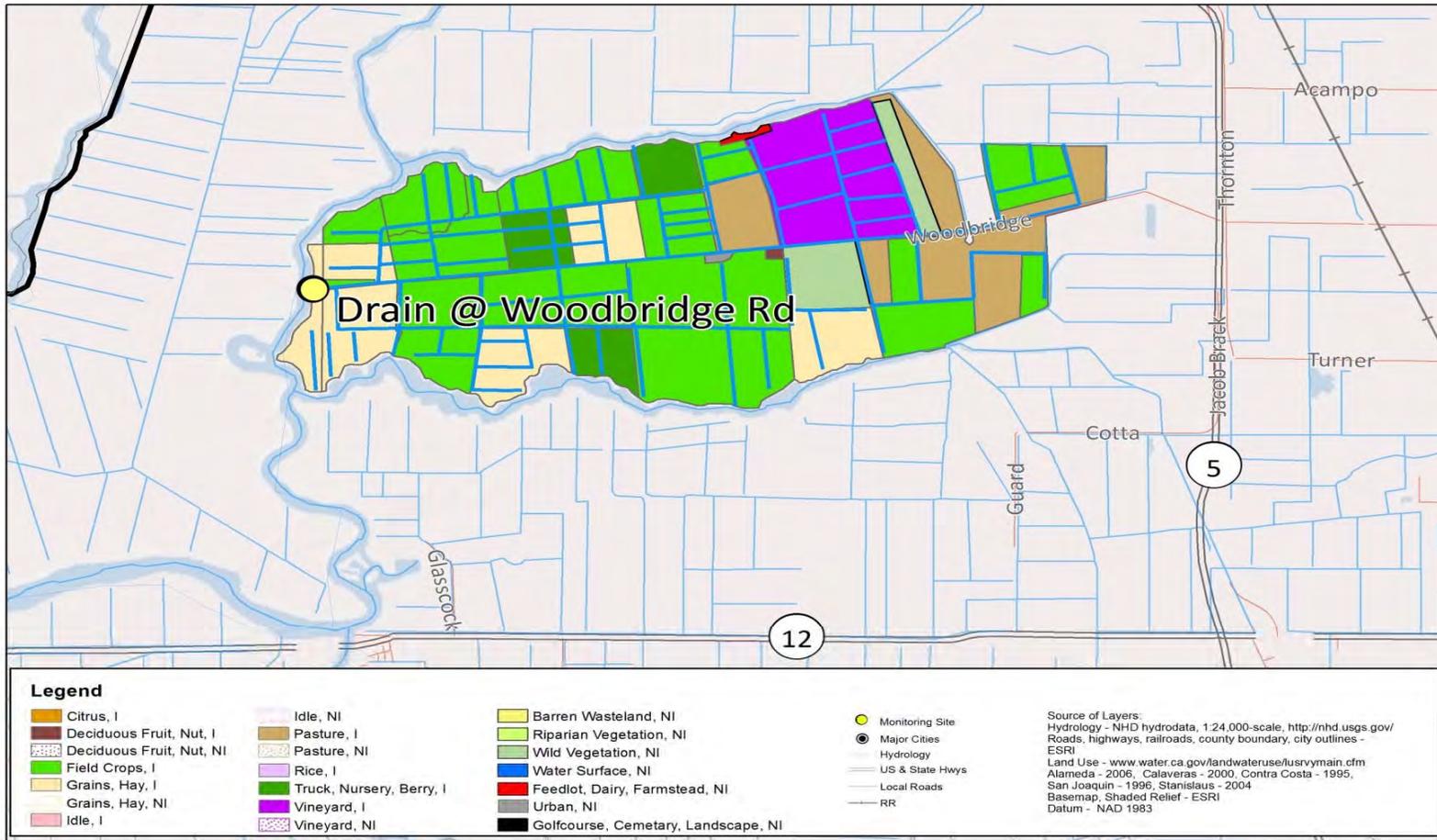
In 2015, Drain @ Woodbridge is classified as a Represented site. As outlined in the 2014 MPU strategy for Represented sites, the Coalition will monitor for sediment toxicity to *H. azteca* based on past exceedances in the Zone 3 Core site, Terminous Tract Drain @ Hwy 12. Additionally, the Coalition will continue to conduct MPM for chlorpyrifos. Land use for Drain @ Woodbridge Rd is depicted in Figure 2.

Table 3. Drain @ Woodbridge Rd management plan constituents.

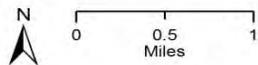
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2011	Active
E	Arsenic	2009	Active
E	Dissolved Oxygen	2009	Active
E	<i>E. coli</i>	2011	Active
E	Specific Conductivity	2009	Active
E	Total Dissolved Solids	2009	Active

Figure 2. Drain @ Woodbridge Rd site subwatershed land use map.



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Drain @ Woodbridge Rd

SJCDWQC_2014_rpt

Monitoring Results

Drain @ Woodbridge Rd was monitored for chlorpyrifos twice in 2008, three times in 2009, and every month in 2010 during Assessment Monitoring; one exceedances of the WQTL occurred in 2010 (Table 4). Chlorpyrifos was added to the subwatershed management plan in 2011 after the single exceedance of the WQTL occurred in April 2010; MPM was initiated in 2013. The Coalition conducted MPM in April 2014, and there was no detection of chlorpyrifos.

Arsenic, DO, *E. coli*, SC, and TDS are priority E constituents monitored at Drain @ Woodbridge Rd; arsenic, *E. coli*, and TDS were monitored 17 times from 2008 through 2010, and field parameters were monitored during every monitoring event. From January through September 2014, there were exceedances of the WQTLs for SC (1) and DO (1) during the April MPM sampling event (Table 4).

Table 4 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the Drain @ Woodbridge Rd site subwatershed (organized alphabetically by constituent priority).

Table 4. Drain @ Woodbridge Rd management plan constituent exceedance tally (2008-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	CHLORPYRIFOS, > 0.015 µg/L	ARSENIC, >10 µg/L	DISSOLVED OXYGEN, >7 mg/L	E. COLI, >235 MPN/100 ML	SPECIFIC CONDUCTIVITY, >700 µS/CM	TOTAL DISSOLVED SOLIDS, >450 mg/L
2008	0	2	2	1	2	2
2009	0	3	2	0	3	3
2010	1	9	12	1	11	10
2013	0	NA	1	NA	0	NA
2014*	0	NA	1	NA	1	NA
OVERALL TALLY	1	14	18	2	17	15
CONSTITUENT PRIORITY	A/B	E	E	E	E	E

NA – Not Applicable; monitoring did not occur for this constituent during the year.

*2014 includes January through September results only.

DUCK CREEK @ HWY 4

Overview

Duck Creek @ Hwy 4 is one of the Coalition’s first priority site subwatersheds. The Coalition completed the focused outreach portion of its management plan strategy in 2012 (including additional outreach) and monitoring results from 2009 through 2014 indicate water quality improved within the site subwatershed. The Coalition received approval to remove diazinon, pH, and water column toxicity to *S. capricornutum* from the active management plan on March 22, 2012 (Table 5). The remaining constituents in the Duck Creek @ Hwy 4 site subwatershed management plan include chlorpyrifos, DO, *E. coli*, water column toxicity to *C. dubia*, and sediment toxicity to *H. azteca* (Table 5).

The Coalition initially planned to conduct focused outreach from 2008 through 2010. Due to continued exceedances of the WQTL for chlorpyrifos and associated toxicity to *C. dubia*, however, the Coalition conducted additional focused outreach to growers in 2010 and 2012. Exceedances of the WQTL for chlorpyrifos and toxicity to *C. dubia* have not occurred since 2011, which indicates that additional outreach activities were successful in improving water quality within the site subwatershed.

Management Plan Monitoring occurred in 2014 for chlorpyrifos, water column toxicity to *C. dubia*, and sediment toxicity to *H. azteca*; there were no exceedances of the WQTLs or toxicity. Exceedances of the WQTL for DO occurred in 2014; however, the frequency of exceedances decreased from 2013. *E. coli* is a priority E constituent and therefore was not included in MPM in 2014.

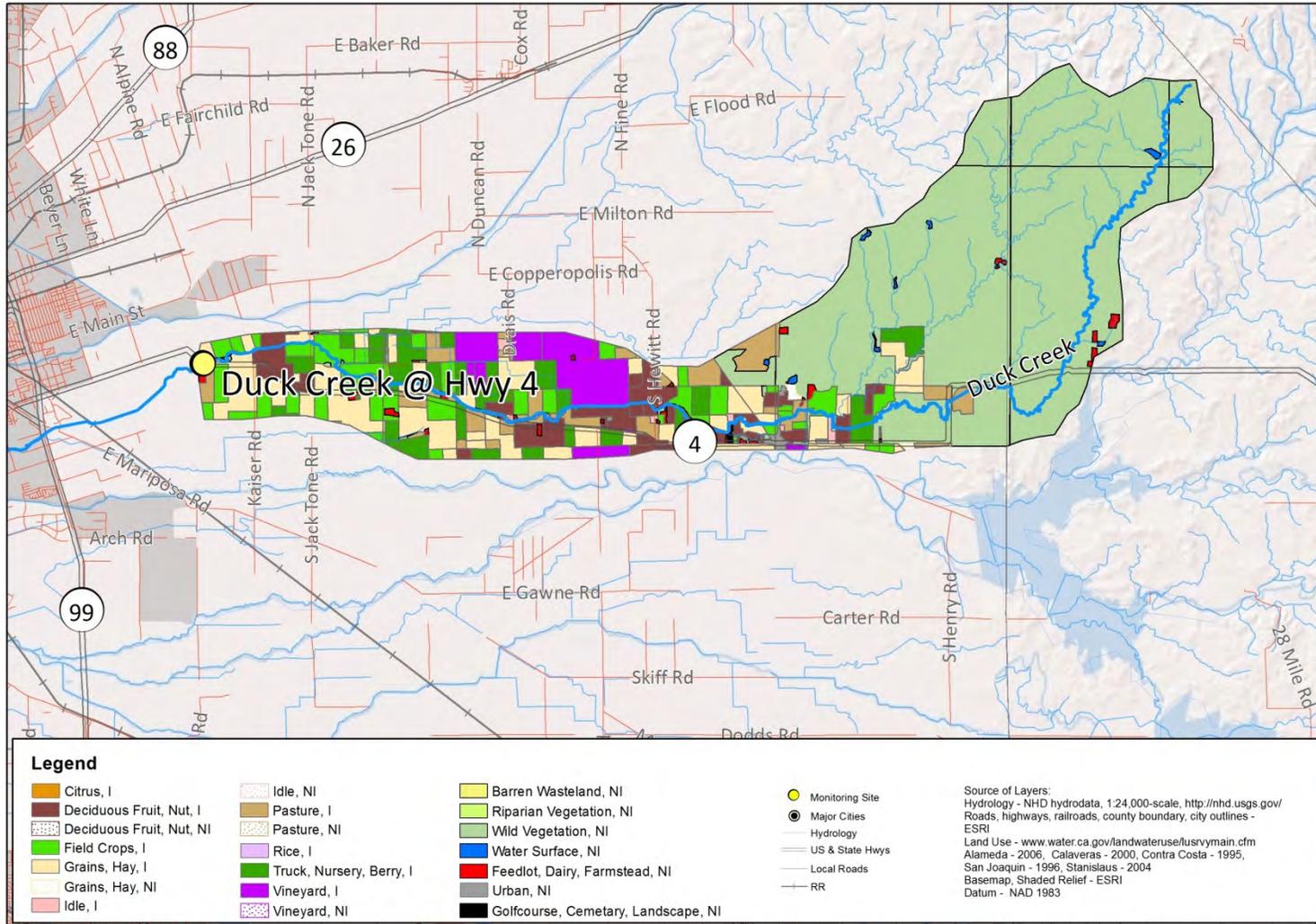
In 2015, Duck Creek @ Hwy 4 is classified as a Represented site and MPM will continue for chlorpyrifos, water column toxicity to *C. dubia*, and sediment toxicity to *H. azteca*. Field parameters, including DO and pH will be measured during all MPM events. Land use for Duck Creek @ Hwy 4 is depicted in Figure 3.

Table 5. Duck Creek @ Hwy 4 management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2007	Active
D	<i>C. dubia</i> water column toxicity	2009	Active
D	<i>H. azteca</i> sediment toxicity	2013	Active
E	Dissolved Oxygen	2007	Active
E	<i>E. coli</i>	2007	Active
CONSTITUENT (REMOVED)			
A/B	Diazinon	2008	2012
E	pH	2008	2012
E	<i>S. capricornutum</i> water column toxicity	2009	2012

Figure 3. Duck Creek @ Hwy 4 site subwatershed land use map.



Date Prepared: 9/29/2014
 SJCDWQC



Duck Creek @ Hwy 4

SJCDWQC_2014_rpt

Monitoring Results

From January through September 2014, MPM occurred at Duck Creek @ Hwy 4 for chlorpyrifos, water column toxicity to *C. dubia*, and sediment toxicity to *H. azteca*. There were no detections of the WQTL for chlorpyrifos, toxicity to *C. dubia* or toxicity to *H. azteca* occurred. The last exceedance of the WQTL for chlorpyrifos, as well as the last toxicity to *C. dubia*, occurred in 2011 (Table 6). During MPM in 2014, DO and pH were also measured; four exceedances of the WQTL occurred for DO and no exceedances of the WQTL occurred for pH. Although *E. coli* is in the site's management plan, it was last monitored in 2012 during Assessment Monitoring and one exceedance of the WQTL occurred during December 2012.

Table 6 is a tally of exceedances of WQTLs from 2006 through 2014 for management plan constituents in the Duck Creek @ Hwy 4 site subwatershed (organized alphabetically by constituent priority).

Table 6. Duck Creek @ Hwy 4 management plan constituent exceedance tally (2006-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS					REMOVED MANAGEMENT PLAN CONSTITUENTS		
	CHLORPYRIFOS, >0.015 µg/L	C. DUBIA, (%CONTROL)	H. AZTECA, (%CONTROL)	E. COLI, >235 MPN/100 ML	OXYGEN, DISSOLVED, <7 MG/L	DIAZINON, >0.1 µg/L	PH, <6.5 AND >8.5 UNITS	S. CAPRICORNUTUM, (% CONTROL)
2006	2	1	0	2	3	0	1	0
2007	3	0	0	3	5	1	1	1
2008	5	4	0	1	8	0	1	2
2009	3	1	NA	0	6	0	0	0
2010	4	0	1	NA	8	0	0	0
2011	1	1	NA	NA	4	0	0	0
2012	0	0	2	1	10	0	0	0
2013	0	0	1	NA	6	NA	0	NA
2014 WY*	0	0	0	0	4	NA	0	NA
OVERALL TALLY	18	7	4	7	54	1	3	3
CONSTITUENT PRIORITY	A/B	D	D	E	E	A/B^R	E^R	E^R

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

EMPIRE TRACT @ 8 MILE RD

Overview

Empire Tract @ 8 Mile Rd is a seventh priority site subwatershed. Empire Tract @ 8 Mile Rd replaced Drain to Bishop Cut @ North Rio Blanco Rd as an Assessment site in Zone 3. Monitoring at Empire Tract @ 8 Mile Rd was initiated in July 2013 and continued through June 2014; Assessment Monitoring last occurred in June 2014. The Coalition will conduct focused outreach and MPM for high priority constituents as part of the management plan strategy from 2015 through 2017.

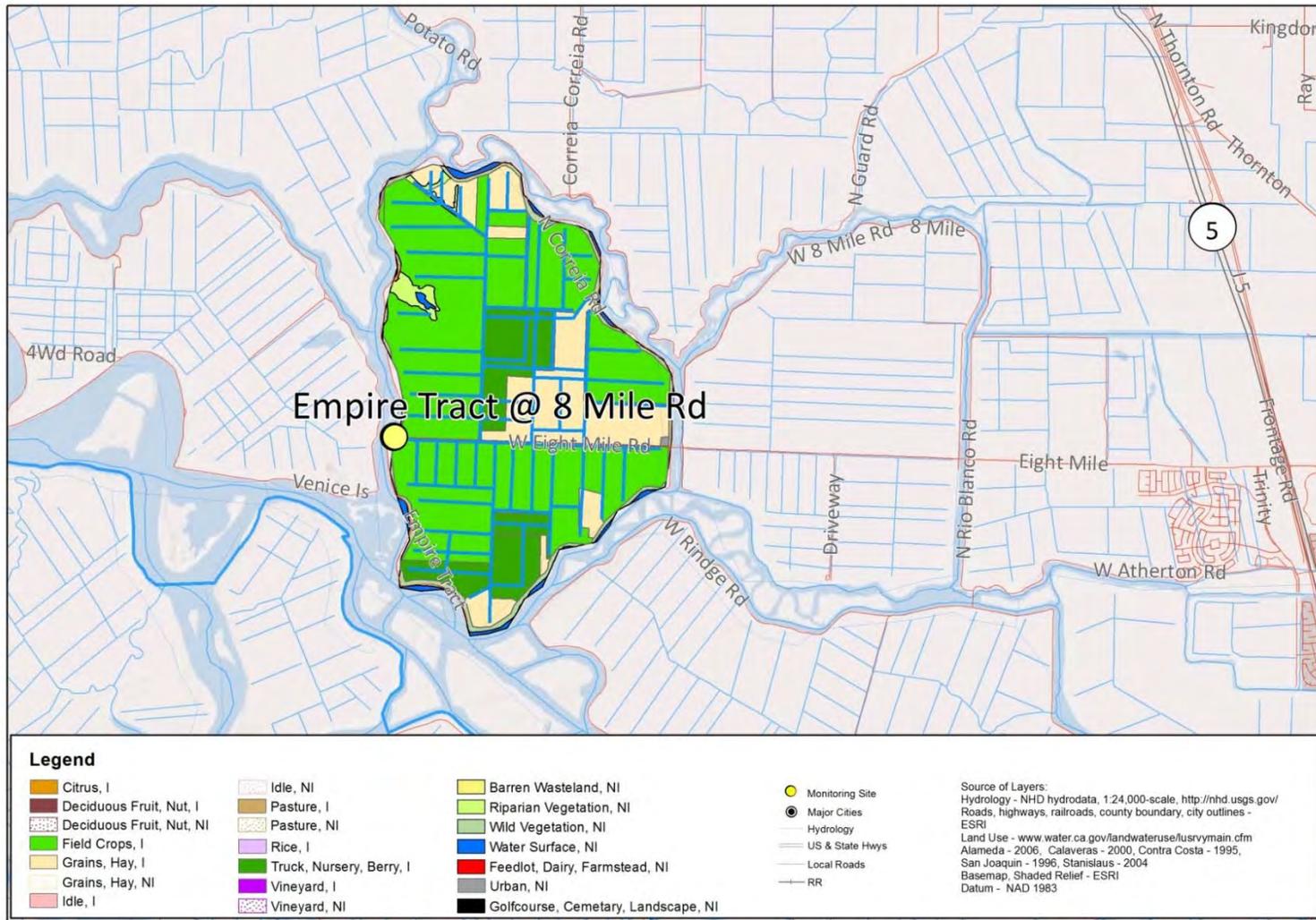
In 2015, Empire Tract @ 8 Mile Rd is classified as a Represented site. As outlined in the strategy for Represented sites in the 2014 MPU, the Coalition will monitor for chlorpyrifos and sediment toxicity to *H. azteca* based on past exceedances in the Zone 3 Core site, Terminous Tract Drain @ Hwy 12. The active management plan constituents are arsenic, DO, *E. coli*, SC, and TDS (Table 7). The Coalition has not initiated MPM at this site subwatershed. Land use for Empire Tract @ 8 Mile Rd is depicted in Figure 4.

Table 7. Empire Tract @ 8 Mile Rd management plan constituents.

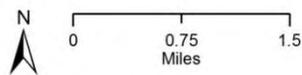
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
E	Arsenic	2014	Active
E	Dissolved Oxygen	2014	Active
E	<i>E. coli</i>	2015	Active
E	Specific Conductivity	2015	Active
E	Total Dissolved Solids	2014	Active

Figure 4. Empire Tract @ 8 Mile Rd site subwatershed land use map.



Date Prepared: 10/1/2014
 SJCDWQC



Empire Tract @ 8 Mile Rd

SJCDWQC_2014_rpt

Monitoring Results

Arsenic, DO, *E. coli*, SC, and TDS are priority E constituents monitored at Empire Tract @ 8 Mile Rd. Arsenic, *E. coli*, and TDS were monitored 12 times from July 2013 through June 2014, and field parameters were monitored during every monitoring event. Arsenic was added to the management plan in 2014 after two exceedances occurred in 2013. Exceedances of the WQTL for DO occurred every month of monitoring during the 2013 WY, and during the months of January, February, March, May, and June in 2014. The Coalition added DO to the Empire Tract @ 8 Mile Rd management plan in 2014. An exceedance of the WQTL for *E. coli* occurred once in 2013 and once in 2014; and therefore it will be added to the site’s management plan in 2015. The Coalition will add SC to the site’s management plan in 2015 after exceedances of the WQTL occurred during the months of February, March, May, and June of 2014. The Coalition added TDS to the management plan in 2014 after two exceedances occurred in 2013. Exceedances of the WQTL for TDS continued to occur every month of monitoring from January through July 2014.

Table 8 is a tally of exceedances of WQTLs from July 2013 through June 2014 for management plan constituents in the Empire Tract @ 8 Mile Rd site subwatershed (organized alphabetically by constituent priority).

Table 8. Empire Tract @ 8 Mile Rd management plan constituent exceedance tally (July 2013-June 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ARSENIC, >10 µg/L	DISSOLVED OXYGEN, >7 mg/L	E. COLI, >235 MPN/100 ML	TOTAL DISSOLVED SOLIDS, >450 mg/L
2013	3	7	1	2
2014*	4	5	1	6
OVERALL TALLY	7	12	2	8
CONSTITUENT PRIORITY	E	E	E	E

NA – Not Applicable; monitoring did not occur for this constituent during the year.

*2014 includes January through June results only.

FRENCH CAMP SLOUGH @ AIRPORT WAY

Overview

French Camp Slough @ Airport Way is one of the Coalition’s third priority site subwatersheds. The Coalition completed focused outreach in the site subwatershed in 2013 and monitoring results from 2011 through September 2014 indicated improved water quality. The Coalition received approval to remove dieldrin from the site subwatershed active management plan (March 22, 2012) as well as copper, diazinon, diuron, lead, and water column toxicity to *C. dubia* and *S. capricornutum* (February 27, 2013). However, there was one sample collected on February 11, 2014 that exceeded the WQTL for diuron; there was also a sample collected on the same event that was toxic to *S. capricornutum*. The Coalition will reclassify diuron and toxicity to *S. capricornutum* as active management plan constituents in the 2015 WY. The remaining constituents in the site’s active management plan include: chlorpyrifos, DO, *E. coli*, pH, and sediment toxicity to *H. azteca* (Table 9).

From January through September 2014, MPM occurred for chlorpyrifos and sediment toxicity to *H. azteca*. No exceedances of the WQTL for chlorpyrifos occurred through September 2014; the last exceedance of the chlorpyrifos WQTL occurred in 2013. No sediment toxicity to *H. azteca* occurred during 2014; there were no samples toxic to *H. azteca* collected from this site for three years. Assessment Monitoring through September 2014 resulted in exceedances of the WQTL for diuron, DO, *E. coli*, simazine, and one toxic sample to *S. capricornutum*.

In 2015, the Coalition will conduct monitoring at French Camp Slough @ Airport Way based on the monitoring strategy at a Core site, as described in the 2014 MPU. Additionally, MPM will occur for chlorpyrifos, diuron, water column toxicity to *S. capricornutum*, and sediment toxicity to *H. azteca*. The field parameters DO and pH will also be measured during all monitoring events. Land use for French Camp Slough @ Airport Way is depicted in Figure 5.

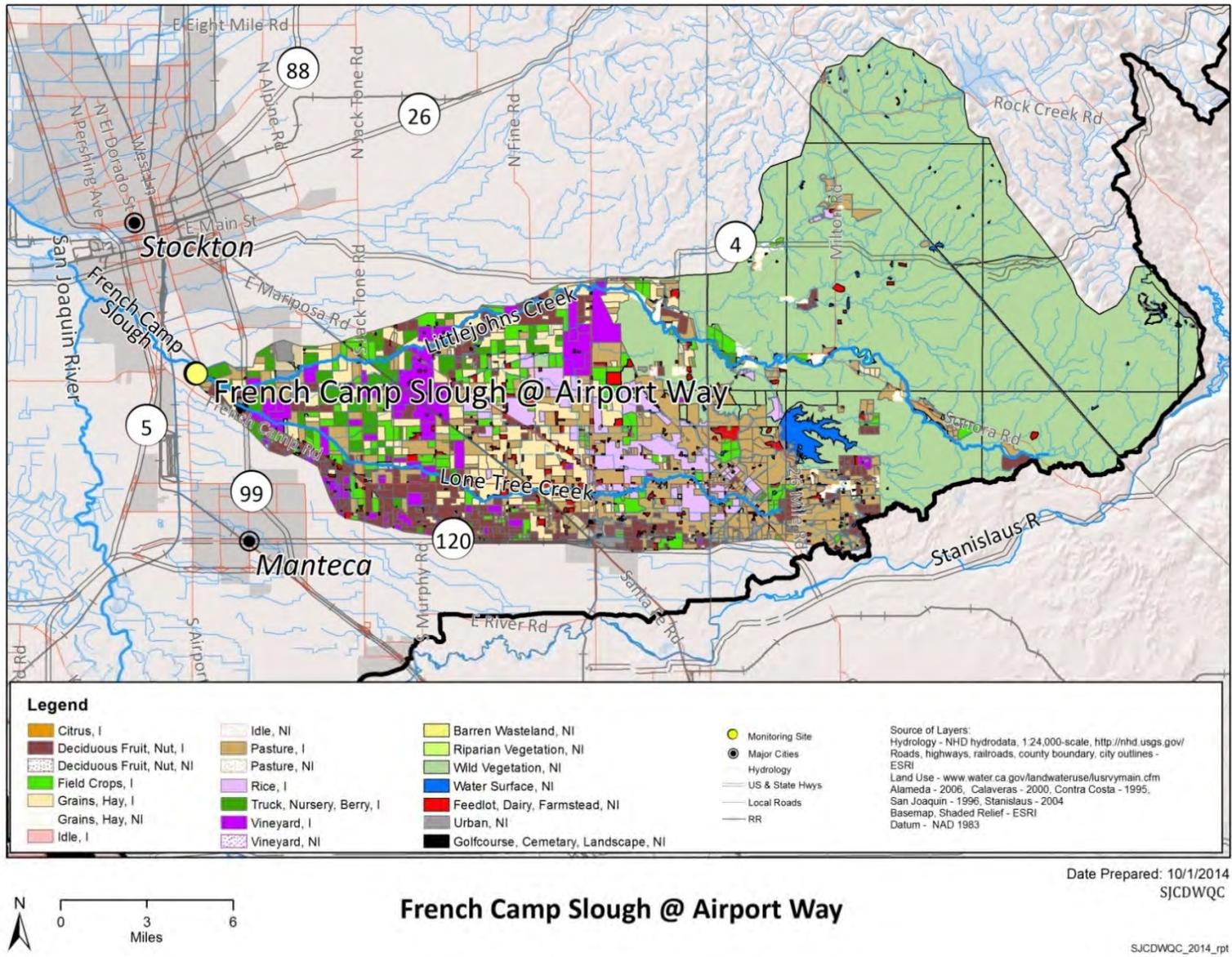
Table 9. French Camp Slough @ Airport Way management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2006	Active
C	Diuron	2009, 2015	Active
D	<i>S. capricornutum</i> water column toxicity	2009, 2015	Active
D	<i>H. azteca</i> sediment toxicity	2008	Active
E	Dissolved Oxygen	2006	Active
E	<i>E. coli</i>	2006	Active
E	pH	2009	Active
CONSTITUENT (REMOVED)			
A/B	Diazinon	2008	2013
C	Copper	2007	2013
D	<i>C. dubia</i> water column toxicity	2008	2013
E	Dieldrin	2009	2012
E	Lead	2008	2013

¹ Diuron was approved for removal on February 27, 2013; however, diuron will be reinstated into a management plan during 2015 as a result of exceedance of the WQTL which occurred during the 2014 WY.

Figure 5. French Camp Slough @ Airport Way site watershed land use map.



Monitoring Results

In 2014, Assessment Monitoring occurred at French Camp Slough @ Airport Way in addition to MPM for chlorpyrifos and sediment toxicity to *H. azteca* (Table 10). There were no detections for chlorpyrifos and no sediment toxicity to *H. azteca* through the September 2014 monitoring events. Management Plan Monitoring was not conducted for diuron or *S. capricornutum*; however, both constituents were monitored monthly under Assessment Monitoring and resulted in one exceedance of the WQTL for diuron and one sample was toxic to *S. capricornutum* in February 2014. Furthermore, there was one exceedance of the WQTL for simazine in March 2014. Exceedances of priority E constituents occurred during 2014 Assessment Monitoring including DO (2) and *E. coli* (1).

Table 10 is a tally of exceedances of WQTLs from 2006 through 2014 for management plan constituents (organized alphabetically by constituent priority).

Table 10. French Camp Slough @ Airport Way management plan constituent exceedance tally (2005-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS					REMOVED MANAGEMENT PLAN CONSTITUENTS						
	CHLORPYRIFOS, >0.015 µg/L	H. AZTECA, (%CONTROL)	DISSOLVED OXYGEN, <7mg/L	E. COLI, >235 MPN/100 ML	PH, <6.5 OR > 8.5 UNITS	DIAZINON, >0.1 µg/L	COPPER (TOTAL), VARIABLE ¹ OR >1300 µg/L	DIURON, >2 µg/L	C. DUBIA, (%CONTROL)	S. CAPRICORNUTUM, (%CONTROL)	DIELDRIN, >0.00014 µg/L	LEAD (TOTAL), VARIABLE ¹ OR >15 µg/L
2005	2	0	3	6	1	0	NA	NA	0	1	NA	NA
2006	2	1	3	5	0	0	4	0	1	0	0	1
2007	1	1	1	5	0	1	8	1	1	0	1	1
2008	3	1	4	4	2	1	0	1	0	1	1	0
2009	1	NA	2	1	0	0	NA	0	NA	NA	0	NA
2010	1	1	2	5	0	NA	0	NA	NA	0	0	NA
2011	2	1	0	5	3	0	0	0	0	0	0	0
2012	0	0	2	5	1	0	0	0	0	0	NA	0
2013	1	0	2	1	0	0	0	0	0	0	NA	NA
2014 WY*	0	0	2	1	0	0	0	1	0	1	0	0
OVERALL TALLY	13	5	19	37	7	2	12	2	2	2	2	2
CONSTITUENT PRIORITY	A/B	D	E	E	E	A/B^R	C^R	C^R	D^R	D^R	E^R	E^R

¹ Metal WQTL variable based on hardness.

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

GRANT LINE CANAL @ CLIFTON COURT RD

Overview

Grant Line Canal @ Clifton Court is one of the Coalition’s second priority site subwatersheds. Monitoring results through September 2014 indicate improved water quality within the site subwatershed. On August 22, 2014 the Coalition received approval to remove chlorpyrifos from the site’s active management plan. The remaining high priority constituents in the Grant Line Canal @ Clifton Court management plan are water column toxicity to *S. capricornutum* and sediment toxicity to *H. azteca* (Table 11).

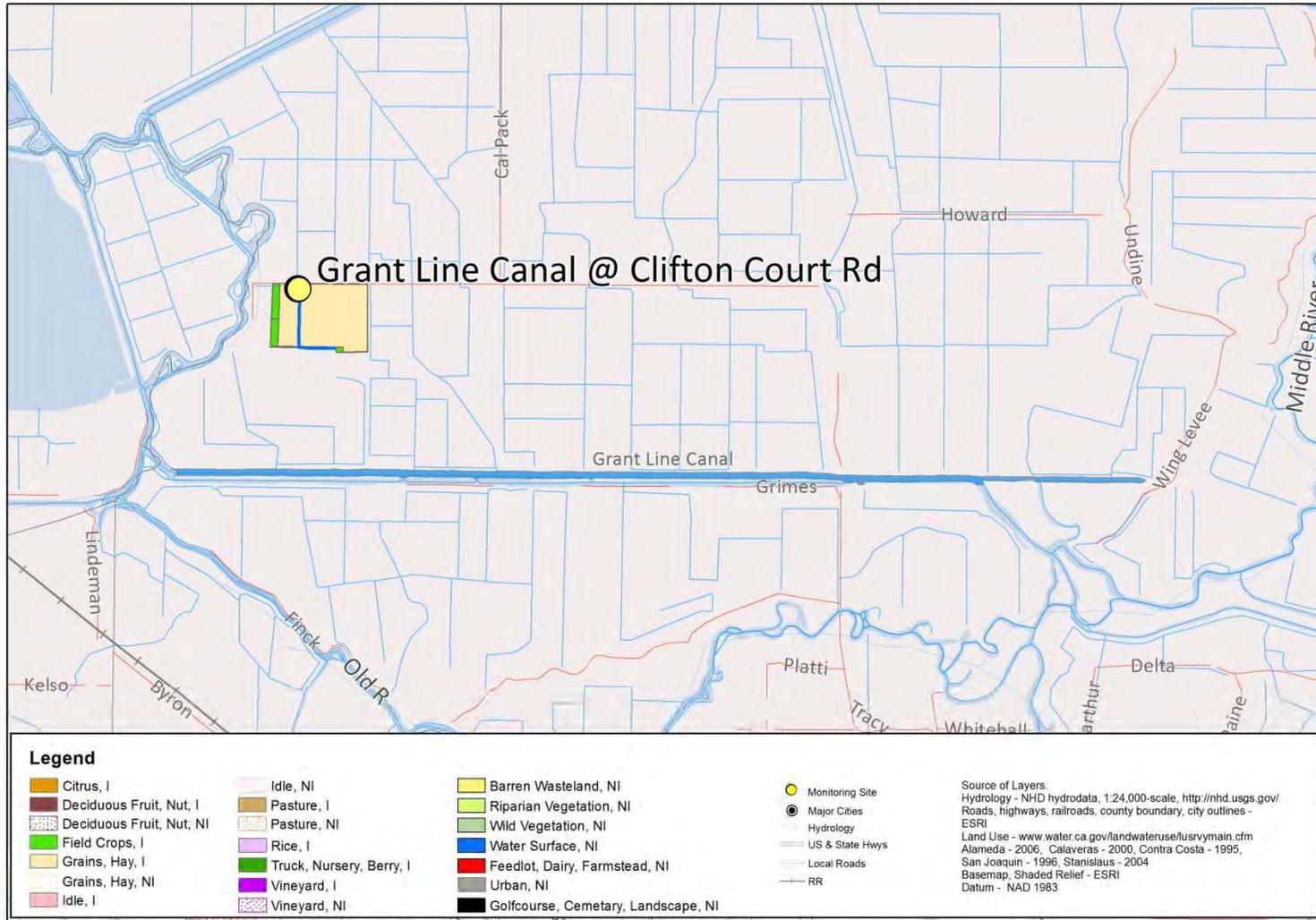
Management Plan Monitoring occurred for chlorpyrifos, sediment toxicity to *H. azteca*, and water column toxicity to *S. capricornutum* from January through September 2014, with the exception of chlorpyrifos in September 2014. There were no exceedances of high priority constituents or toxicity through September 2014. In the 2015 WY, the Coalition will continue to address all constituents through general outreach and MPM for water column toxicity to *S. capricornutum* and sediment toxicity to *H. azteca* will occur during months of past exceedances. The Grant Line @ Clifton Court site and the Grant Line near Calpack Road site management plans will be transferred to the new Zone 7 Core site, Union Island Drain @ Bonetti Road. Refer to the 2014 MPU for more information. Land use for Grant Line Canal @ Clifton Court Rd is depicted in Figure 6.

Table 11. Grant Line Canal @ Clifton Court Rd management plan constituents.

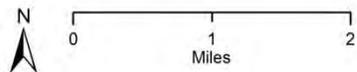
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
D	<i>H. azteca</i> sediment toxicity	2007	Active
D	<i>S. capricornutum</i> water column toxicity	2009	Active
E	Arsenic	2007	Active
E	DDE	2008	Active
E	Dissolved Oxygen	2006	Active
E	<i>E. coli</i>	2006	Active
E	Specific Conductivity	2006	Active
E	Total Dissolved Solids	2006	Active
CONSTITUENT (REMOVED)			
A/B	Chlorpyrifos	2006	2014
C	Copper	2007	2012
E	Lead	2007	2012
E	pH	2007	2013

Figure 6. Grant Line Canal @ Clifton Court Rd site subwatershed land use map.



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 SJCDWQC



Grant Line Canal @ Clifton Court Rd

SJCDWQC_2014_rpt

Monitoring Results

From January through September 2014, MPM occurred at Grant Line Canal @ Clifton Court Rd for chlorpyrifos, water column toxicity to *S. capricornutum*, and sediment toxicity to *H. azteca* (2015 Annual Report Appendix I). No exceedances of the high priority constituents occurred through September 2014. On August 22, 2014, as a result of three or more years without an exceedance of the WQTL, the Regional Board approved the removal of chlorpyrifos from the active management plan.

Priority E constituents DO and SC were monitored during every MPM sampling event January through September 2014; five exceedances of the WQTL for DO and six exceedances of the WQTL for SC occurred. Arsenic, DDE, *E. coli*, and TDS were not monitored in 2014.

Table 12 is a tally of exceedances of WQTLs from 2005 through September 2014 for the management plan constituents in the Grant Line Canal @ Clifton Court Rd site subwatershed (organized alphabetically by constituent priority). The constituents are organized by priority and status (active or removed).

Table 12. Grant Line Canal @ Clifton Court Rd management plan constituent exceedance tally (2005-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS									REMOVED MANAGEMENT PLAN CONSTITUENTS		
	CHLORPYRIFOS, >0.015 µg/L	<i>H. AZTECA</i> , (%CONTROL)	<i>S. CAPRICORNUTUM</i> , (%CONTROL)	ARSENIC, >10 µg/L	DDE (p,p'), >0.00059 µg/L	DISSOLVED OXYGEN, <7 mg/L	<i>E. COLI</i> , >235 MPN/100 ML	SPECIFIC CONDUCTIVITY, >700 µS/CM	TOTAL DISSOLVED SOLIDS, >450 mg/L	COPPER (TOTAL), VARIABLE ¹ OR >1300 µg/L	LEAD, (TOTAL), VARIABLE ¹ OR >15 µg/L	pH, <6.5 AND > 8.5 UNITS
2005	1	1	0	NA	NA	6	4	3	3	NA	NA	0
2006	0	1	0	2	1	5	7	2	2	3	3	4
2007	3	0	0	4	1	6	5	6	5	2	0	2
2008	1	0	2	4	0	6	3	8	6	1	0	1
2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	1	2	1	NA	NA	4	NA	3	NA	0	NA	0
2011	0	2	0	NA	NA	4	NA	6	NA	0	NA	0
2012	0	1	1	NA	NA	4	NA	5	NA	NA	NA	0
2013	0	1	0	NA	NA	2	NA	4	NA	NA	NA	0
2014 WY*	0	0	0	NA	NA	5	NA	6	NA	NA	NA	0
OVERALL TALLY	6	8	4	10	2	42	19	43	16	6	3	7
CONSTITUENT PRIORITY	A/B	D	D	E	E	E	E	E	E	C^R	F^R	F^R

¹ Metal WQTL variable based on hardness.

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

GRANT LINE CANAL NEAR CALPACK RD

Overview

Grant Line Canal near Calpack Rd is one of the Coalition’s second priority site subwatersheds. Focused outreach was initiated in 2010 and continued through 2012. To evaluate the effectiveness of outreach, Management Plan Monitoring during months of past exceedances occurred in 2010 through September 2014. The high priority constituents under the site’s active management plan include sediment toxicity to *H. azteca* and water column toxicity to *C. dubia* and *S. capricornutum* (Table 13).

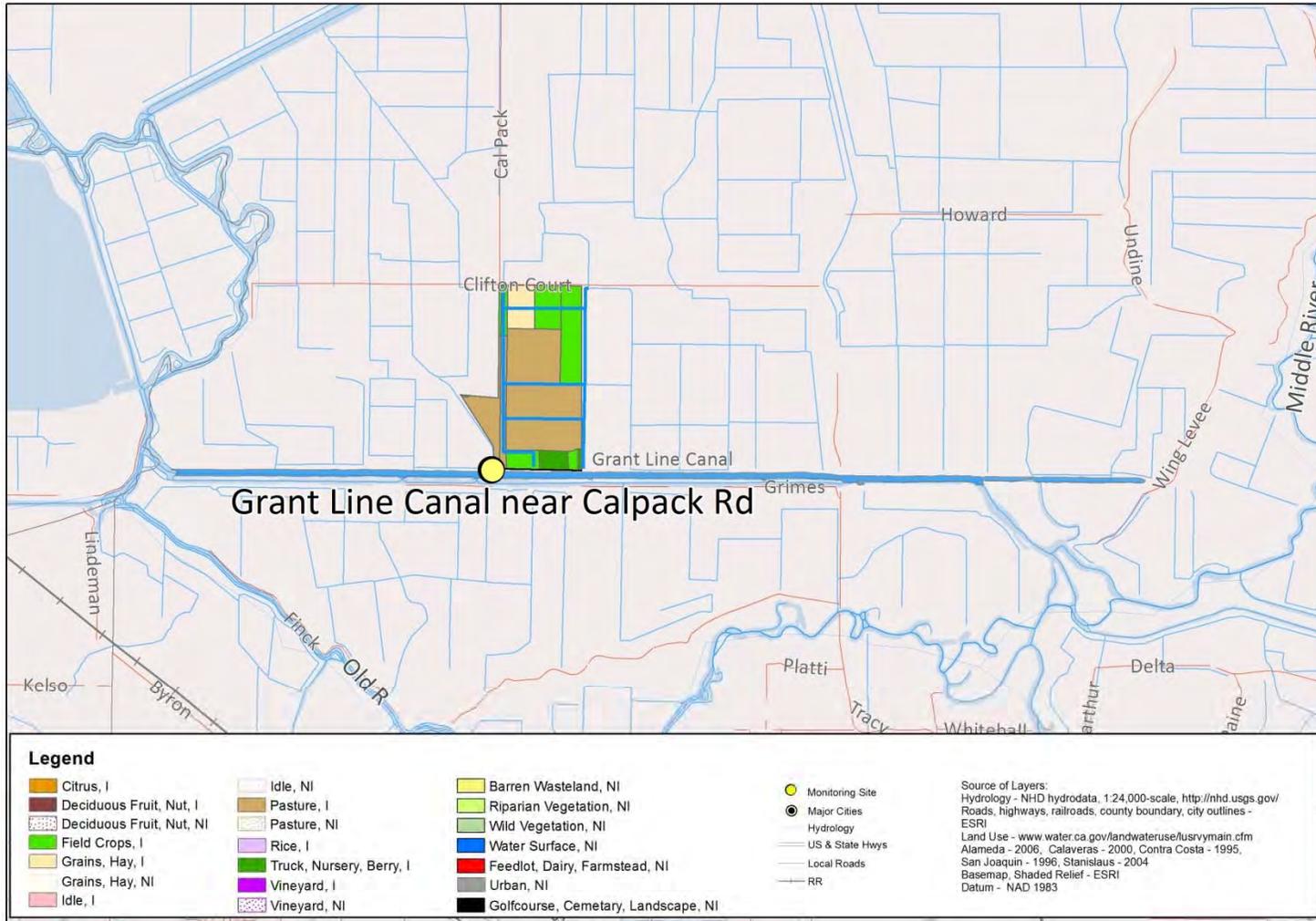
During January through September 2014 MPM, toxicity to *S. capricornutum* occurred three times. Exceedances of the WQTL for priority E constituents DO and SC also occurred at Grant Line Canal near Calpack Rd. During the 2015 WY, MPM is scheduled to continue for sediment toxicity to *H. azteca* and water column toxicity to *C. dubia* and *S. capricornutum*; DO and SC are field parameters and will be measured during all monitoring events. In the 2015 WY, the Grant Line near Calpack Road along with the Grant Line @ Clifton Court site management plans will be transferred to the new Zone 7 Core site, Union Island Drain @ Bonetti Road. Refer to the 2014 Monitoring Plan Update for more information. Land use for Grant Line Canal near Calpack Rd is depicted in Figure 7.

Table 13. Grant Line Canal near Calpack Rd management plan constituents.

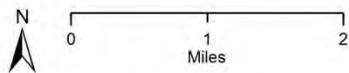
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
D	<i>C. dubia</i> water column toxicity	2006	Active
D	<i>H. azteca</i> sediment toxicity	2006	Active
D	<i>S. capricornutum</i> water column toxicity	2008	Active
E	Arsenic	2007	Active
E	Dissolved Oxygen	2006	Active
E	<i>E. coli</i>	2006	Active
E	Specific Conductivity	2006	Active
E	Total Dissolved Solids	2006	Active
CONSTITUENT (REMOVED)			
A/B	Chlorpyrifos	2006	2013

Figure 7. Grant Line Canal near Calpack Rd site subwatershed land use map.



Date Prepared: 10/1/2014
 SJCDWQC



Grant Line Canal near Calpack Rd

SJCDWQC_2014_rpt

Monitoring Results

From January through September 2014, MPM was scheduled at Grant Line Canal near Calpack Rd for water column toxicity to *C. dubia* and *S. capricornutum* and sediment toxicity to *H. azteca* (2015 Annual Report Appendix I). No samples were toxic to *C. dubia* or *H. azteca*; however toxicity to *S. capricornutum* occurred three times (Table 14). Priority E constituents, DO and SC, were also measured during all monitoring events and resulted in six exceedances of the WQTL of DO and nine exceedances of SC.

Table 14 is a tally of exceedances of WQTLs from 2005 through September 2014 for management plan constituents in the Grant Line Canal near Calpack Rd site subwatershed (organized alphabetically by constituent priority).

Table 14. Grant Line near Calpack Rd management plan constituent exceedance tally (2005-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS								REMOVED MANAGEMENT PLAN CONSTITUENTS
	<i>C. DUBIA</i> , (%CONTROL)	<i>H. AZTECA</i> , (%CONTROL)	<i>S. CAPRICORNUTUM</i> , (%CONTROL)	ARSENIC, > 10 µg/L	DISSOLVED OXYGEN, < 7 mg/L	<i>E. COLI</i> , > 235 MPN/100 ML	SPECIFIC CONDUCTIVITY, > 700 µS/cm	TOTAL DISSOLVED SOLIDS, > 450 mg/L	CHLORPYRIFOS, > 0.015 µg/L
2005	2	3	1	NA	8	5	9	6	3
2006	1	1	0	2	7	5	7	4	1
2007	0	2	3	1	10	5	14	8	0
2008	0	0	6	1	10	4	12	7	0
2009	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	NA	1	0	NA	3	NA	5	NA	0
2011	0	1	1	NA	2	NA	7	NA	0
2012	1	1	0	NA	6	NA	7	NA	0
2013	0	1	1	NA	4	NA	8	NA	NA
2014 WY*	0	0	3	NA	6	NA	9	NA	NA
OVERALL TALLY	4	10	12	4	56	19	78	25	4
CONSTITUENT PRIORITY	D	D	D	E	E	E	E	E	A/B^R

NA – Not Applicable; monitoring did not occur for constituent.

^R – Removed from active management plan.

*2014 includes January through September results only.

KELLOGG CREEK ALONG HOFFMAN LN

Overview

Kellogg Creek along Hoffman Ln is one of the Coalition’s fourth priority site subwatersheds. In 2014, the Coalition completed its focused management plan strategy in the site subwatershed. The Coalition evaluated the effectiveness of implemented management practices and results indicate improved water quality. On August 22, 2014, the Coalition received approval to remove water column toxicity to *S. capricornutum* from the active management plan. The remaining constituents in the site’s active management plan include DDE, DDT, *E. coli*, pH, SC, TDS, and water column toxicity to *P. promelas*, sediment toxicity to *H. azteca* (Table 15).

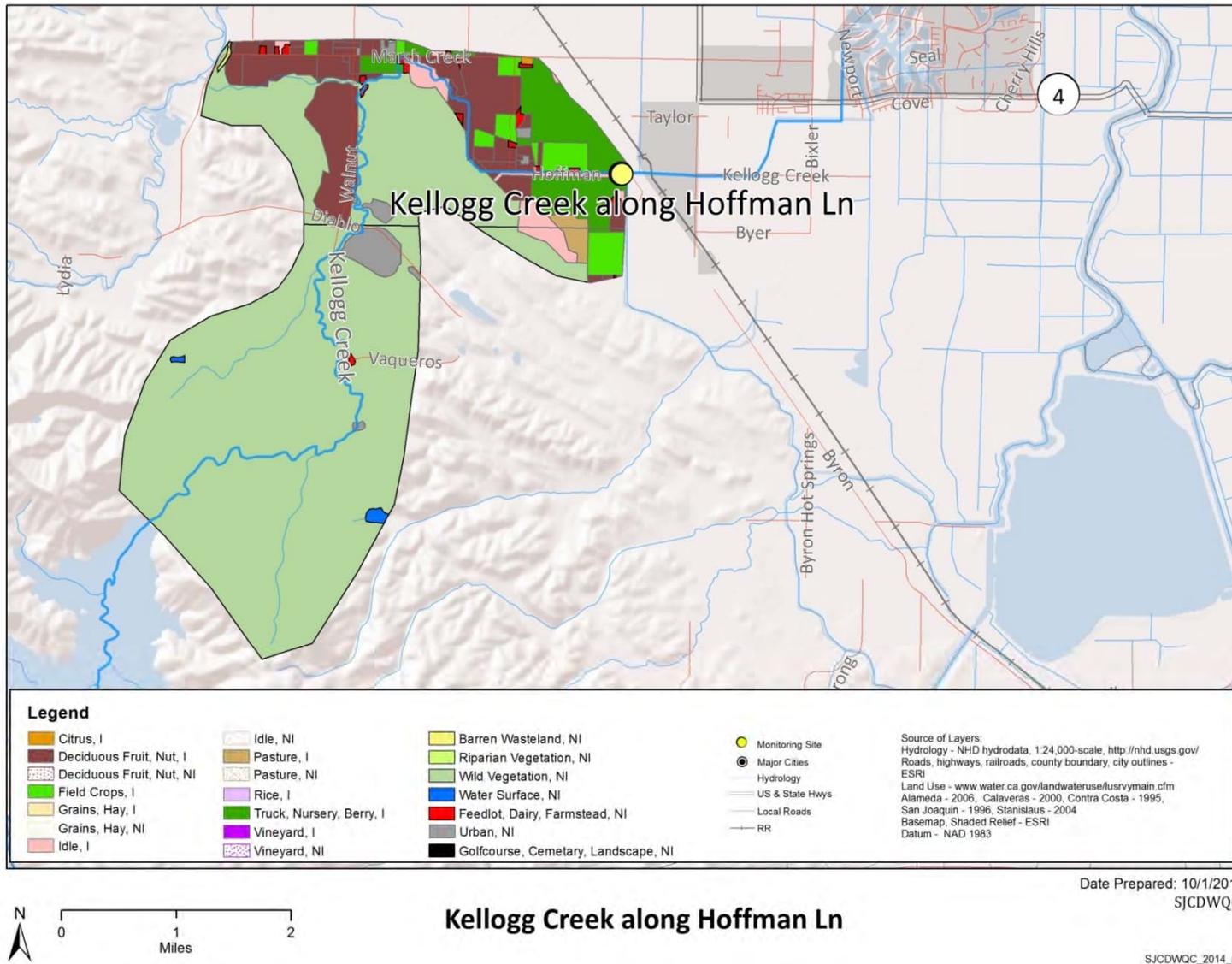
From January through September 2014, MPM occurred for water column toxicity to *S. capricornutum* and sediment toxicity to *H. azteca*; no toxic samples occurred. The field parameters, pH and SC, were measured during all MPM events and one exceedance of the upper WQTL for each constituent occurred. In the 2015 WY, Kellogg Creek along Hoffman Ln is classified as a Represented site, and MPM is scheduled for sediment toxicity to *H. azteca*. Land use for Kellogg Creek along Hoffman Ln is depicted in Figure 8.

Table 15. Kellogg Creek along Hoffman Ln management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
D	<i>H. azteca</i> sediment toxicity	2006	Active
E	DDE	2008	Active
E	DDT	2008	Active
E	<i>E. coli</i>	2006	Active
E	pH	2006	Active
E	<i>P. promelas</i> water column toxicity	2006	Active
E	Specific Conductivity	2006	Active
E	Total Dissolved Solids	2006	Active
CONSTITUENT (REMOVED)			
A/B	Chlorpyrifos	2006	2013
C	Copper	2008	2013
D	<i>C. dubia</i> water column toxicity	2007	2013
D	<i>S. capricornutum</i> water column toxicity	2009	2014
E	Dissolved Oxygen	2006	2013

Figure 8. Kellogg Creek along Hoffman Ln site subwatershed land use map.



Monitoring Results

In January through September 2014, MPM for water column toxicity to *S. capricornutum* and sediment toxicity to *H. azteca* occurred and there were no toxic samples. On August 22, 2014, the Coalition received approval to remove water column toxicity to *S. capricornutum* from the active management plan. The last time sediment toxicity to *H. azteca* occurred was in October 2011; with no exceedances in three years of monitoring, the Coalition will request to remove sediment toxicity from the site's active management plan.

The field parameters, pH and SC, were measured during all MPM events from January through September 2014; one exceedance of each upper WQTL limit occurred. The DO measurement at Kellogg Creek along Hoffman Ln (6.71 mg/L) on September 16, 2014 was reported as an exceedance after this constituent was approved for removal from the site subwatershed's management plan. However, based on the Fourth Edition of the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins, the lower DO trigger limit of 5 mg/L should be utilized for Delta waterways that have a 'warm' beneficial use designation, and/or are not considered a resource for fisheries. Therefore, the Coalition reevaluated the DO measurements at the site and determined it was not considered an exceedance.

The SC measurement at Kellogg Creek along Hoffman Ln (804 μ S/cm) on March 5, 2014 was reported as an exceedance after the Coalition petitioned to remove SC from the site subwatershed's management plan. However, the San Francisco Bay/Sacramento-San Joaquin Delta Basin Plan (Table 2, Page 13) indicates the WQTL for SC should be based on the seasonal criteria of 700 μ S/cm from April through August, and 1,000 μ S/cm from September through March. Therefore, the Coalition reevaluated the SC measurement at the site and determined it was not considered an exceedance.

Table 16 is a tally of exceedances of WQTLs from 2005 through September 2014 for the management plan constituents (organized alphabetically by constituent priority).

Table 16. Kellogg Creek management plan constituent exceedance tally (2005-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS									REMOVED MANAGEMENT PLAN CONSTITUENTS			
	<i>H. AZTECA</i> , (%CONTROL)	DDE (P,P'), >0.00059 µg/L	DDT (P,P'), >0.00059 µg/L	<i>E. COLI</i> , >235 MPN/100 ML	pH, <6.5 AND >8.5 UNITS	<i>P. PROMELAS</i> , (%CONTROL)	SPECIFIC CONDUCTIVITY, >700 µS/CM	TOTAL DISSOLVED SOLIDS, >450 MG/L	CHLORPYRIFOS, >0.015 µg/L	COPPER (TOTAL), VARIABLE ¹ OR >1300 µg/L	<i>C. DUBIA</i> , (%CONTROL)	DISSOLVED OXYGEN, <7 MG/L	<i>S. CAPRICORNUTUM</i> , (%CONTROL)
2005	3	NA	NA	4	2	2	5	3	1	NA	1	2	1
2006	0	1	1	4	0	0	6	4	0	NA	1	4	0
2007	2	2	1	1	2	0	0	1	0	2	1	2	0
2008	2	0	0	0	1	0	0	0	0	1	0	3	4
2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	2	NA	NA	NA	4	NA	1	NA	NA	0	0	0	0
2012	0	NA	NA	NA	4	NA	0	NA	NA	0	0	0	0
2013	0	NA	NA	NA	3	NA	0	NA	0	0	0	0	0
2014*	0	NA	NA	NA	1	NA	1	NA	NA	NA	NA	1	0
OVERALL TALLY	9	3	2	9	17	2	13	8	1	3	3	12	5
CONSTITUENT PRIORITY	D	E	E	E	E	E	E	E	A/B^R	C^R	D^R	E^R	D

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

LITTLEJOHNS CREEK @ JACK TONE RD

Overview

Littlejohns Creek @ Jack Tone Rd is one of the Coalition’s second priority site subwatersheds. The Coalition completed the focused outreach portion of its management plan strategy in 2012. Monitoring results through September 2014 indicate improved water quality. The remaining constituents under the site’s active management plan include chlorpyrifos, copper, DO, and *E. coli* (Table 17).

Management Plan Monitoring occurred from January to September 2014 for chlorpyrifos and copper; the remaining constituents do not require MPM as they are priority E (Table 17). Monitoring through September 2014 marked the third consecutive year with no exceedances of the WQTL for chlorpyrifos and copper.

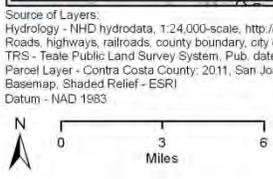
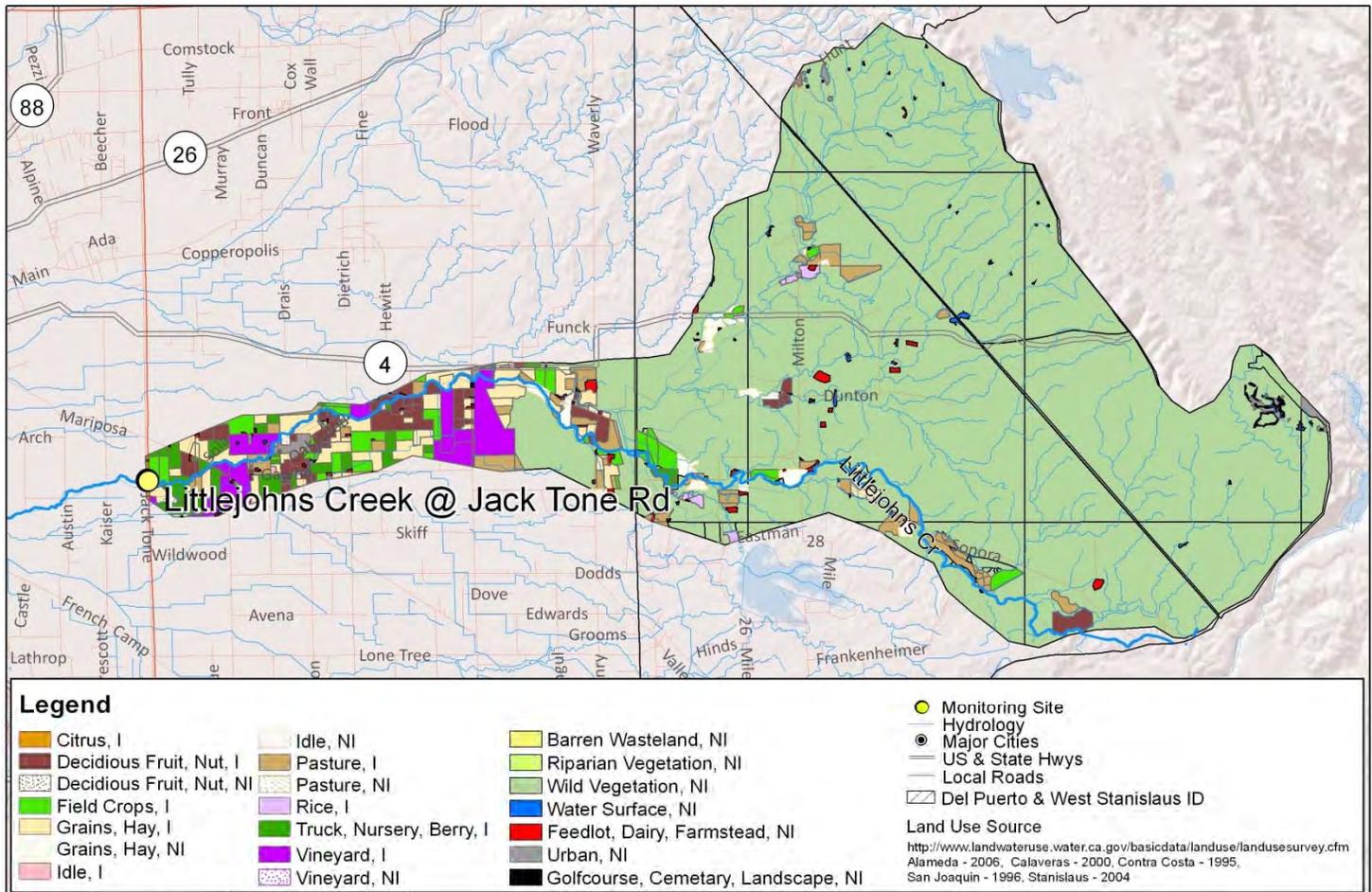
In 2015, Littlejohns Creek @ Jack Tone Rd is classified as a Represented site. As outlined in the 2014 MPU strategy for Represented sites, the Coalition will monitor for diuron based on past exceedances in the Zone 2 Core site, French Camp Slough @ Airport Way. Management Plan Monitoring will continue in the 2015 WY, however, the Coalition will petition to remove chlorpyrifos and copper from the site subwatershed’s active management plan. Land use for Littlejohns Creek @ Jack Tone Rd is depicted in Figure 9.

Table 17. Littlejohns Creek @ Jack Tone Rd management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2006	Active
C	Copper	2008	Active
E	Dissolved Oxygen	2006	Active
E	<i>E. coli</i>	2006	Active
E	pH	2009	Active
CONSTITUENT (REMOVED)			
A/B	Diazinon	2008	2013
D	<i>S. capricornutum</i> water column toxicity	2006	2013

Figure 9. Littlejohns Creek @ Jack Tone Rd site subwatershed land use map.



Littlejohns Creek @ Jack Tone Rd

Monitoring Results

In January through September 2014, MPM occurred at Littlejohns Creek @ Jack Tone Rd for chlorpyrifos and copper (Table 18). This year marked the third year with no exceedances of the WQTL for chlorpyrifos or copper. The field parameter DO was measured during all MPM events and four exceedances of the WQTL occurred.

Table 18 is a tally of exceedances of WQTLs from 2004 through September 2014 for management plan constituents in the Littlejohns Creek @ Jack Tone Rd site subwatershed (organized alphabetically by constituent priority).

Table 18. Littlejohns Creek @ Jack Tone Rd management plan constituent exceedance tally (2006- September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS						REMOVED MANAGEMENT PLAN CONSTITUENTS	
	CHLORPYRIFOS, >0.015 µg/L	COPPER (DISSOLVED), VARIABLE ¹	COPPER (TOTAL), VARIABLE ² OR >1300 µg/L	DISSOLVED OXYGEN, <7 MG/L	E. COLI, >235 MPN/100 ML	pH, <6.5 AND >8.5 UNITS	DIAZINON, >0.1 µg/L	S. CAPRICORNUTUM, (%CONTROL)
2004	0	NA	NA	1	0	0	0	1
2005	1	NA	NA	2	4	1	0	1
2006	1	NA	1	3	1	0	0	0
2007	2	NA	2	4	1	0	1	1
2008	3	0	2	3	0	0	0	2
2009	NA	NA	NA	NA	NA	NA	NA	NA
2010	1	1	0	4	NA	0	0	0
2011	1	1	0	3	NA	1	0	0
2012	0	0	0	5	NA	0	0	0
2013	0	0	0	4	NA	0	0	NA
2014 WY*	0	0	0	4	NA	1	NA	NA
Overall Tally	9	2	5	33	6	3	1	5
Constituent Priority	A/B	C	C	E	E	E	A/B^R	D^R

¹ Metal WQTL variable; based on hardness. Dissolved metals not analyzed until October 2008.

² Metal WQTL variable; based on hardness.

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

LONE TREE CREEK @ JACK TONE RD

Overview

Lone Tree Creek @ Jack Tone Rd is a first priority site subwatershed. The Coalition completed focused outreach in 2012 (including additional outreach) and monitoring results from 2009 through September 2014 indicate water quality improvements. By demonstrating improved water quality, the Coalition received approval to remove SC, diazinon, diuron, copper, water column toxicity to *S. capricornutum*, and sediment toxicity to *H. azteca* from the active management plan on May 21, 2012 and DO on February 27, 2013 (Table 19). The remaining constituents in the active management plan include ammonia chlorpyrifos, *E. coli*, pH, TDS, and water column toxicity to *P. promelas* (Table 19).

The Coalition initially planned to conduct focused outreach from 2008 through 2010. Due to continued exceedances of chlorpyrifos, the Coalition conducted additional focused outreach to two growers in 2012.

From January through September 2014, MPM occurred for chlorpyrifos; the remaining constituents do not require MPM since they are priority E (Table 19).

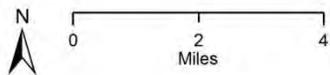
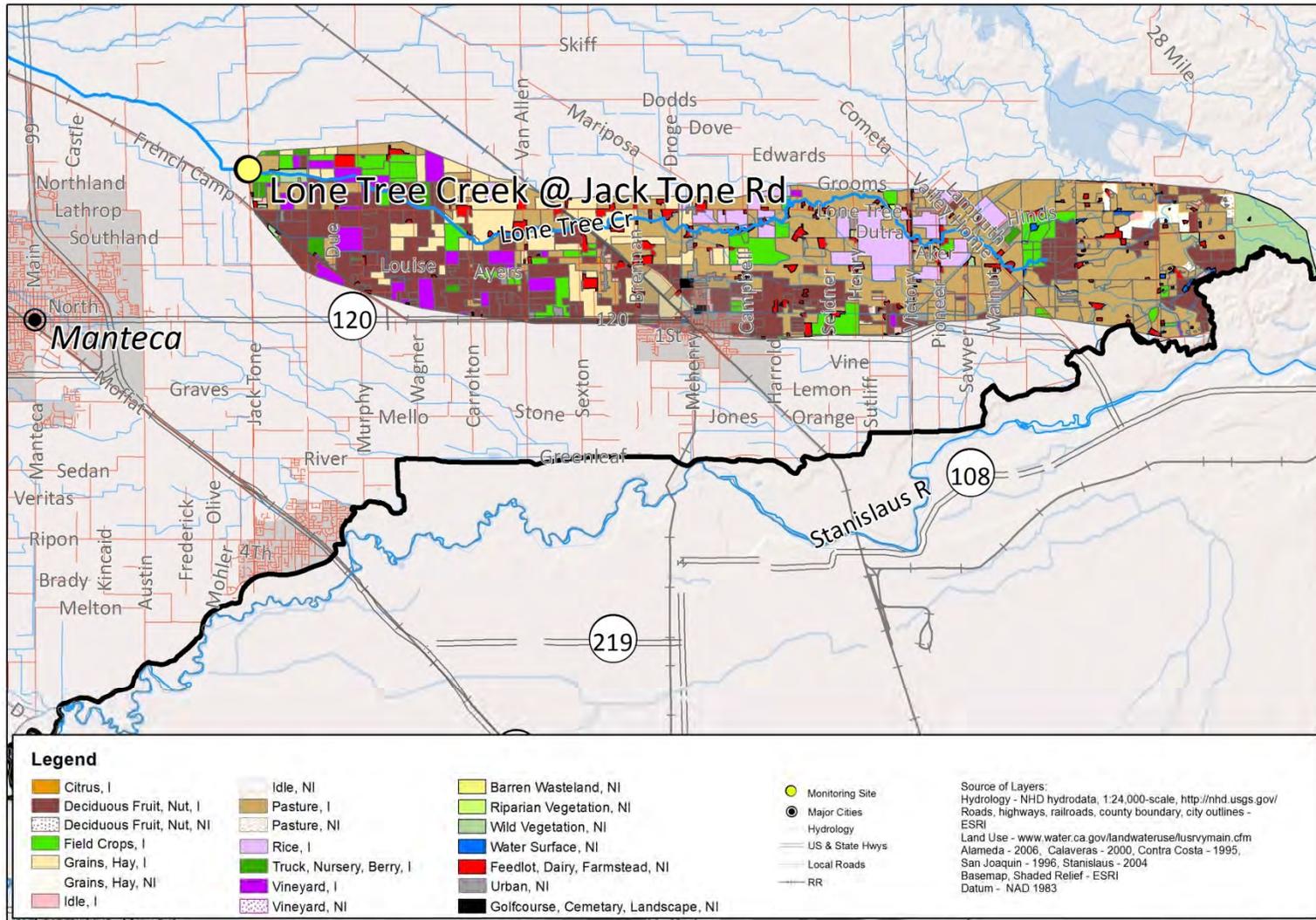
In 2015, Lone Tree Creek @ Jack Tone Rd is classified as Represented site and MPM will continue for chlorpyrifos; field parameters, including pH, will be measured during all monitoring events. Land use for Lone Tree Creek @ Jack Tone Rd is depicted in Figure 10.

Table 19. Lone Tree Creek @ Jack Tone Rd management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2006	Active
D	<i>P. promelas</i> water column toxicity	2009	Active
E	Ammonia	2008	Active
E	<i>E. coli</i>	2006	Active
E	pH	2007	Active
E	Total Dissolved Solids	2007	Active
CONSTITUENT (REMOVED)			
A/B	Diazinon	2009	2012
C	Copper	2008	2012
C	Diuron	2008	2012
D	<i>H. azteca</i> sediment toxicity	2007	2012
D	<i>S. capricornutum</i> water column toxicity	2007	2012
E	Dissolved Oxygen	2006	2013
E	Specific Conductivity	2013	2012

Figure 10. Lone Tree Creek @ Jack Tone Rd site subwatershed land use map.



Lone Tree Creek @ Jack Tone Rd

Date Prepared: 9/29/2014
 SJCDWQC

SJCDWQC_2014_rpt

Monitoring Results

From January through September 2014, the Coalition conducted MPM for chlorpyrifos at Lone Tree Creek @ Jack Tone Rd; there were no detections (Table 20). Chlorpyrifos was added to the Lone Tree Creek @ Jack Tone Rd site subwatershed management plan in 2007, and MPM was initiated in 2008. Water column toxicity to *P. promelas* is a priority D constituent, and was added to the management plan after an exceedance in 2008. Monitoring did not occur for *P. promelas* toxicity from January through September 2014. pH, a priority E constituent, was monitored during all MPM events through September 2014; one exceedance of the WQTL for pH occurred during the month of February.

On February 27, 2013, the Coalition received approval to remove DO from the active management plan; however DO was measured during all 2014 MPM events. In August 2014, the DO concentration was 6.61 mg/L and was considered an exceedance of the WQTL of 7.00 mg/L for DO. However, the Coalition reevaluated the criteria for exceedances of the WQTL for DO provided in the Sacramento and San Joaquin Rivers Basin Plan (September 1998, Chapter III, page 5). The Beneficial Use of the immediate downstream waterbody is protective to warm water aquatic life and the WQTL of 5 mg/L for DO should be utilized for this site. Therefore, the DO concentration of 6.61 mg/L measured during August 2014 MPM was not considered to be an exceedance based on the 5.00 mg/L WQTL and DO was not reinstated into the active management plan. The Coalition also reevaluated the SC measurement (799 μ mhos/cm) from February 14, 2012 based on the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Basin Plan (Table 2, Page 13). The Basin Plan indicates that detections of SC from September through March are not considered exceedances when they are below 1,000 μ mhos/cm; therefore, the value was not considered an exceedance and the constituent will remain removed from the site's active management plan.

Table 20 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the Lone Tree Creek @ Jack Tone site subwatershed (organized alphabetically by constituent priority).

Table 20. Lone Tree Creek @ Jack Tone Rd management plan constituent exceedance tally (2004-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS					REMOVED MANAGEMENT PLAN CONSTITUENTS							
	CHLOROPYRIFOS, >0.015 µg/L	P. PROMELAS, (%CONTROL)	AMMONIA, VARIABLE ¹ OR >1.5 MG/L	E. COLI, >235 MPN/100 ML	PH, <6.5 AND >8.5 UNITS	DIAZINON, >0.1 µg/L	COPPER (TOTAL), VARIABLE ² OR >1300 µg/L	DIURON, >2 µg/L	H. AZTECA, (%CONTROL)	S. CAPRICORNUTUM, (%CONTROL)	DISSOLVED OXYGEN, <7 MG/L	SPECIFIC CONDUCTIVITY, >700 µS/cm	
2004	0	0	NA	1	0	0	NA	NA	0	0	1	0	
2005	2	1	NA	7	1	0	NA	NA	1	1	4	0	
2006	1	0	0	6	1	0	1	0	1	1	6	0	
2007	2	0	3	6	0	1	5	2	0	1	1	0	
2008	1	1	1	6	1	1	1	1	0	4	3	0	
2009	1	NA	NA	NA	0	NA	0	NA	NA	0	2	0	
2010	2	NA	NA	NA	0	0	0	0	0	0	1	0	
2011	0	NA	NA	NA	2	0	0	0	0	0	0	0	
2012	0	NA	NA	NA	0	0	0	0	0	0	0	0	
2013	1	NA	NA	NA	0	NA	NA	NA	NA	NA	0	0	
2014 WY*	0	NA	NA	NA	1	NA	NA	NA	NA	NA	1	0	
OVERALL TALLY	10	2	4	26	6	2	7	3	2	7	19	0	
CONSTITUENT PRIORITY	A/B	D	E	E	E	A/B^R	C^R	C^R	D^R	D^R	E^R	E^R	

¹ Ammonia WQTL variable based on pH and temperature.

² Metal WQTL variable based on hardness.

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

MOKELUMNE RIVER @ BRUELLA RD

Overview

Mokelumne River @ Bruella Rd is one of the Coalition’s third priority site subwatersheds. The Coalition completed the focused outreach portion of its management plan strategy in 2013, and monitoring results from 2011 through September 2014 indicate improved water quality. The Coalition received approval on May 30, 2012 to remove copper and DO from the site’s active management plan and toxicity to *C. dubia* and *S. capricornutum* on February 27, 2013. However, samples collected in May 2014 were toxic to *S. capricornutum*; therefore, the Coalition will re-instate toxicity to *S. capricornutum* in the site’s active management plan. The only constituents remaining in the active management plan are toxicity to *S. capricornutum* and priority E constituents *E. coli* and pH (Table 21).

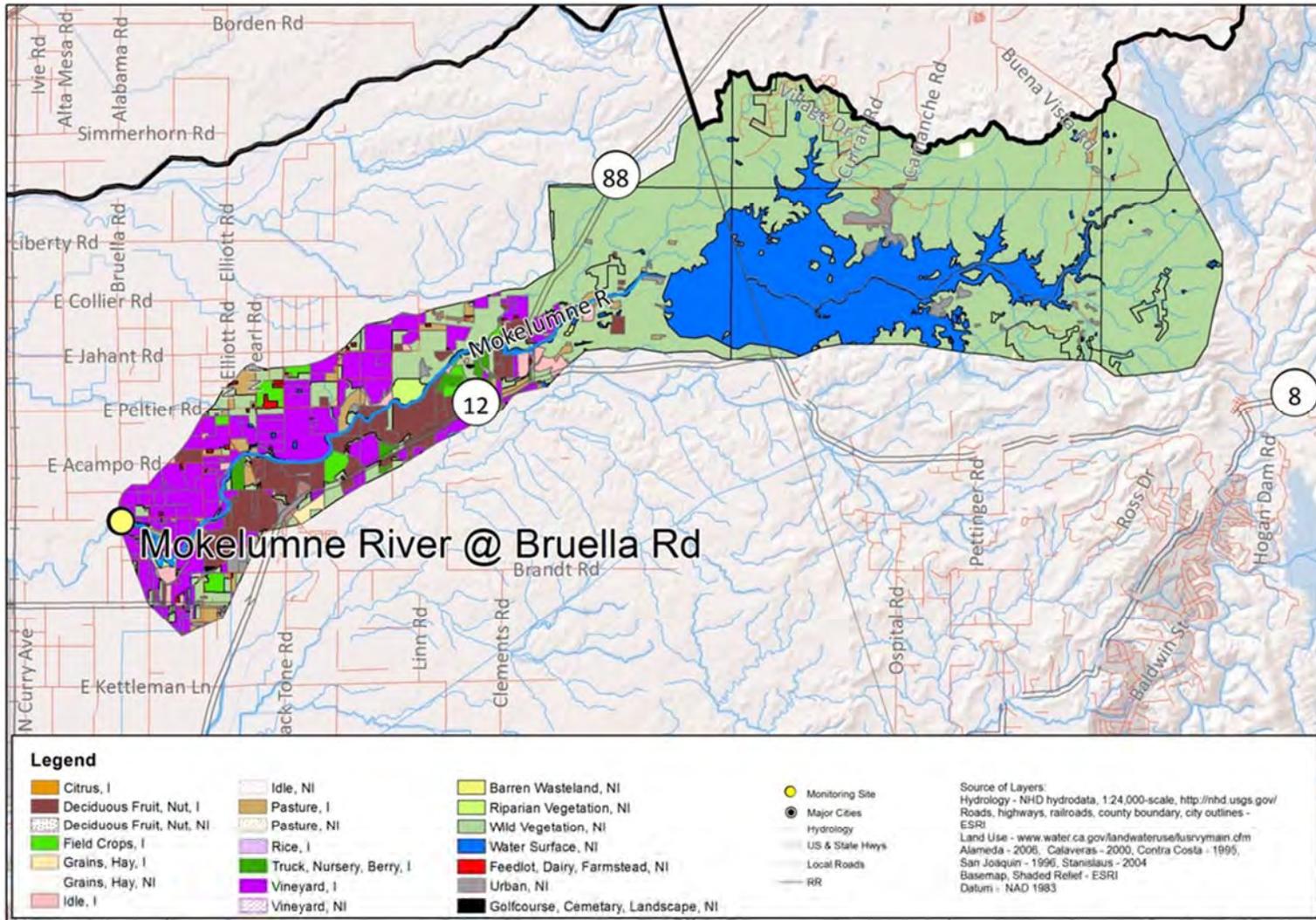
In 2015, the Coalition will conduct monitoring at Mokelumne River @ Bruella Rd based on the monitoring strategy at a Core site, as described in the 2014 MPU. Additionally, the Coalition will re-initiate MPM for *S. capricornutum*, and will continue to monitor the priority E constituents, *E. coli* and pH, during all monitoring events. Land use for Mokelumne River @ Bruella Rd is depicted in Figure 11.

Table 21. Mokelumne River @ Bruella Rd management plan constituents.

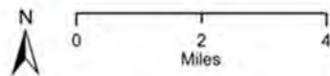
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
D	<i>S. capricornutum</i> water column toxicity	2006, 2015	Active
E	<i>E. coli</i>	2010	Active
E	pH	2007	Active
CONSTITUENT (REMOVED)			
C	Copper	2008	2012
E	<i>C. dubia</i> water column toxicity	2006	2013
E	Dissolved Oxygen	2006	2012

Figure 11. Mokelumne River @ Bruella Rd site subwatershed land use map.



Date Prepared: 9/26/2014
 SJCDWQC



Mokelumne River @ Bruella Rd

SJCDWQC_2014_rpt

Monitoring Results

From January through September 2014, Assessment Monitoring occurred at Mokelumne River @ Bruella Rd. Management Plan Monitoring was not conducted because all high priority constituents were approved for removal based on improved water quality at this site subwatershed. However, a sample collected on May 20, 2014 during Assessment Monitoring was toxic to *S. capricornutum*; and a single exceedance of the WQTL for pH occurred on July 15, 2014 (Table 22).

Table 22 is a tally of exceedances of WQTLs from 2006 through 2014 for management plan constituents in the Mokelumne River @ Bruella Rd site subwatershed (organized alphabetically by constituent priority).

Table 22. Mokelumne River @ Bruella Rd management plan constituent exceedance tally (2004- September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS		REMOVED MANAGEMENT PLAN CONSTITUENTS			
	<i>E. COLI</i> , >235 MPN/100 mL	pH <6.5 AND >8.5 UNITS	COPPER (TOTAL) VARIABLE ¹ OR >1300 µg/L	<i>S. CAPRICORNUTUM</i> , (%CONTROL)	<i>C. DUBIA</i> , (%CONTROL)	DISSOLVED OXYGEN, <7 mg/L
2004	0	0	NA	1	1	0
2005	0	0	NA	2	2	2
2006	0	2	0	0	2	2
2007	0	1	3	1	0	0
2008	1	0	0	6	0	0
2009	1	2	NA	NA	NA	1
2010	0	1	0	0	NA	0
2011	2	3	0	0	0	0
2012	1	1	NA	0	0	0
2013	1	1	NA	NA	0	0
2014 WY*	0	1	0	1	0	0
OVERALL TALLY	6	11	3	10	5	5
CONSTITUENT PRIORITY	E	E	C^R	D^R	E^R	E^R

¹ Metal WQTL variable based on hardness.

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan

*2014 includes January through September results only.

MORMON SLOUGH @ JACK TONE RD

Overview

Mormon Slough @ Jack Tone Rd is one of the Coalition’s fourth priority site subwatersheds. The Coalition completed focused outreach for the site subwatershed in 2014. Management Plan Monitoring occurred during months of past exceedances from 2011 through September 2014 and results indicate improved water quality. The Coalition received approval to remove *S. capricornutum* from the active management plan on August 22, 2014 (Table 23). The constituents remaining in the site’s management plan are chlorpyrifos, DO, pH, and water column toxicity to *C. dubia*.

From January through September 2014, MPM occurred for chlorpyrifos and water column toxicity to *C. dubia* and *S. capricornutum* and no exceedances or toxicity occurred. Priority E constituents, DO and pH, were monitored during every MPM event through September 2014; two exceedances of the WQTL for DO and three exceedances of the WQTL for the upper limit of pH occurred.

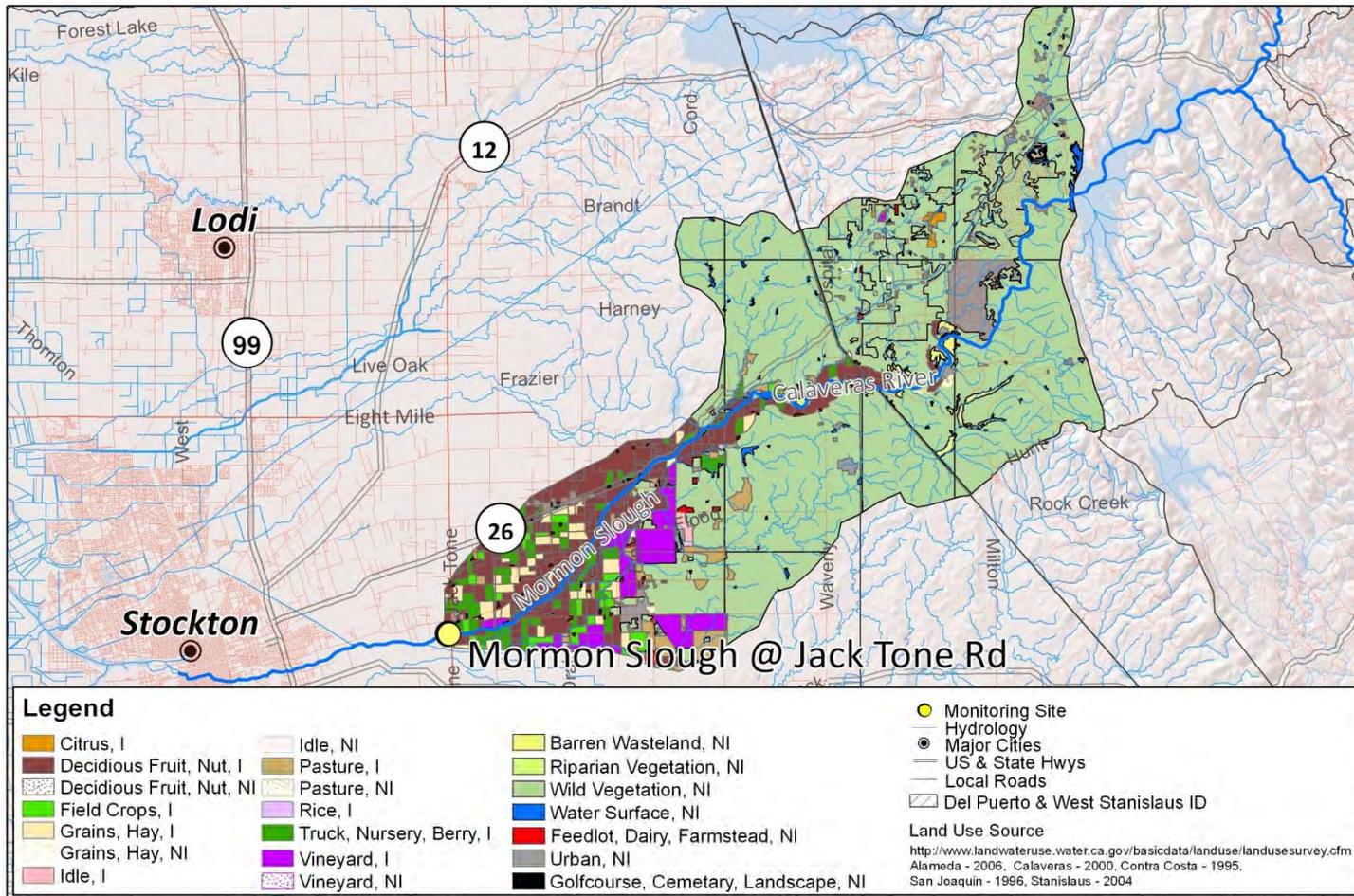
In the 2015 WY, Mormon Slough @ Jack Tone Rd is classified as Represented site. As outlined in the 2014 MPU strategy for Represented sites, the Coalition will monitor for diuron and sediment toxicity to *H. azteca* based on past exceedances in the Zone 2 Core site, French Camp Slough @ Airport Way. Management Plan Monitoring is also scheduled to continue for chlorpyrifos and water column toxicity to *C. dubia*. Land use for Mormon Slough @ Jack Tone Rd is depicted in Figure 12.

Table 23. Mormon Slough @ Jack Tone Rd management plan constituents.

Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

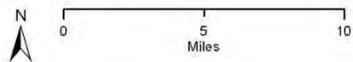
PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2007	Active
D	<i>C. dubia</i> water column toxicity	2009	Active
E	Dissolved Oxygen	2007	Active
E	pH	2009	Active
CONSTITUENT (REMOVED)			
D	<i>S. capricornutum</i> water column toxicity	2009	2014

Figure 12. Mormon Slough @ Jack Tone Rd site subwatershed land use map.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date. 2009/01/01, California Spatial Information Library
 Basemap, Shaded Relief - ESRI
 Datum - NAD 1983

Date Prepared: 06/14/12
 SJCDWQC



Mormon Slough @ Jack Tone Rd

SJCDWQC_2012

Monitoring Results

From January through September 2014, MPM occurred for chlorpyrifos and water column toxicity to *C. dubia* and *S. capricornutum*; no exceedances of the WQTL or toxicity occurred (Table 24). On August 22, 2014 the coalition received approval to remove *S. capricornutum* from the active management plan; therefore, toxicity to *S. capricornutum* was not monitored in the month of September 2014. The priority E constituents, DO and pH, were measured during all MPM events from January through September 2014. Two exceedances of the WQTL for DO occurred in August and September of 2014 and three exceedances of the upper WQTL for pH occurred in April, May, and July of 2014.

Table 24 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the site subwatershed (organized alphabetically by constituent priority).

Table 24. Mormon Slough @ Jack Tone Rd management plan constituent exceedance tally (2006-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	MANAGEMENT PLAN CONSTITUENTS				
	CHLORPYRIFOS, >0.015 µg/L	C. DUBIA, (%CONTROL)	S. CAPRICORNUTUM, (%CONTROL)	DISSOLVED OXYGEN, <7 MG/L	pH, <6.5 AND >8.5 UNITS
2006	1	0	0	3	0
2007	1	1	1	3	0
2008	5	1	3	5	4
2011	1	0	0	0	2
2012	0	0	0	2	1
2013	0	0	0	1	2
2014 WY*	0	0	0	2	3
OVERALL TALLY	8	2	4	16	12
CONSTITUENT PRIORITY	A/B	D	D	E	E

*2014 includes January through September results only.

ROBERTS ISLAND @ WHISKEY SLOUGH PUMP

Overview

Roberts Island @ Whiskey Slough Pump is one of the Coalition's fifth priority site subwatersheds. The Coalition completed the second year of its focused management plan strategy in the site subwatershed. Water quality concerns were discussed and current management practices were documented. Growers in the site subwatershed were informed of water quality impairments and encouraged to prevent offsite movement of agricultural constituents. Roberts Island @ Whiskey Slough Pump replaced Roberts Island Drain along House Rd and Roberts Island Drain @ Holt Rd as the Core site on January 12, 2012 because it is more representative of the entire island. The Roberts Island @ Whiskey Slough Pump management plan includes constituents that were listed in both the Roberts Island @ Holt Rd and Roberts Island Drain along House Rd management plans. The constituents listed in the site's active management plan include chlorpyrifos, DDE, diuron, DO, *E. coli*, pH, SC, TDS, water column toxicity to *C. dubia* and *S. capricornutum*, and sediment toxicity to *H. azteca* (Table 25).

From January through September 2014, MPM occurred for chlorpyrifos, diuron, water column toxicity to *C. dubia* and *S. capricornutum*, and sediment toxicity to *H. azteca*. Toxicity to *C. dubia* occurred once in July and toxicity to *S. capricornutum* occurred in February and April. In addition to MPM, Assessment Monitoring occurred at Roberts Island @ Whiskey Slough Pump to monitor general water quality parameters on a monthly basis. Monitoring through September 2014 resulted in exceedances of the WQTLs for DO (9), *E. coli* (1), SC (10), and TDS (9).

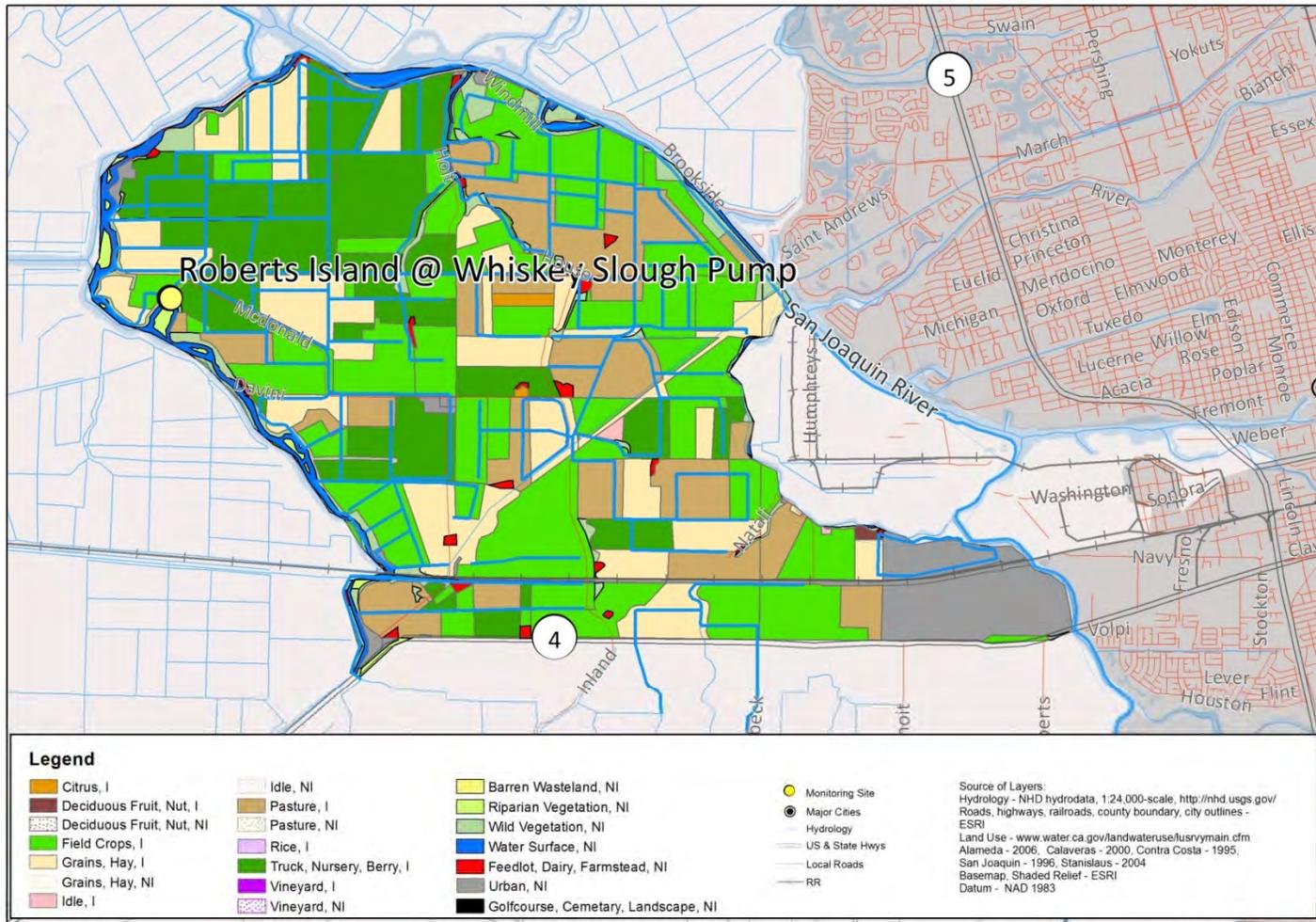
In 2015, monitoring at Roberts Island @ Whiskey Slough Pump is scheduled based on the monitoring strategy at a Core site, as described in the 2014 MPU. Additionally, MPM is scheduled to occur for chlorpyrifos, diuron, water column toxicity to *C. dubia* and *S. capricornutum*, and sediment toxicity to *H. azteca*. Field parameters such as DO, pH, and SC will be measured during every monitoring event. Land use for Roberts Island @ Whiskey Slough Pump is depicted in Figure 13.

Table 25. Roberts Island @ Whiskey Slough Pump management plan constituents.

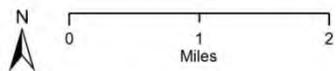
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2007	Active
C	Diuron	2009	Active
D	<i>C. dubia</i> water column toxicity	2011	Active
D	<i>H. azteca</i> sediment toxicity	2007	Active
D	<i>S. capricornutum</i> water column toxicity	2009	Active
E	DDE	2007	Active
E	Dissolved Oxygen	2007	Active
E	<i>E. coli</i>	2007	Active
E	pH	2007	Active
E	Specific Conductivity	2007	Active
E	Total Dissolved Solids	2007	Active

Figure 13. Roberts Island @ Whiskey Slough Pump site subwatershed land use map.



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 SJCDWQC



Roberts Island @ Whiskey Slough Pump

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Monitoring Results

From January through September 2014, MPM for chlorpyrifos, diuron, water column toxicity to *C. dubia* and *S. capricornutum*, and sediment toxicity to *H. azteca* occurred at Roberts Island @ Whiskey Slough Pump. Assessment Monitoring also occurred in the site subwatershed during 2014. Toxicity to *C. dubia* occurred in July, resulting in 0% survival compared to the control. Toxicity to *S. capricornutum* occurred in February and April, resulting in 67% and 50% survival compared to the control, respectively. The Priority E constituents, DO, SC, and TDS were monitored during all events through September 2014. Exceedances of the WQTLs for DO and TDS occurred in 9 out of 10 sampling events through September 2014. Exceedances of the WQTL for SC occurred during every monitoring event through September 2014.

Table 26 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the site subwatershed (organized alphabetically by constituent priority).

Table 26. Roberts Island management plan constituent exceedance tally (2006- September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	MANAGEMENT PLAN CONSTITUENTS										
	CHLORPYRIFOS, >0.015 µg/L	DIURON, >2 µg/L	C. DUBIA, (%CONTROL)	H. AZTECA, (%CONTROL)	S. CAPRICORNUTUM, (%CONTROL)	DDE (P,P'), >0.00059 µg/L	DISSOLVED OXYGEN, <7 MG/L	E. COLI, >235 MPN/100 mL	pH, <6.5 AND >8.5 UNITS	SPECIFIC CONDUCTIVITY, >700 µS/CM	TOTAL DISSOLVED SOLIDS, >450 MG/L
2006	1	0	0	2	0	1	5	4	3	3	4
2007	0	1	1	2	1	2	12	3	0	14	9
2008	2	1	2	2	8	1	13	4	0	16	9
2009	0	NA	0	NA	NA	0	4	1	0	10	10
2010	0	NA	1	NA	NA	NA	4	3	0	12	11
2011	2	0	0	0	0	0	4	3	1	10	8
2012	0	0	0	0	0	NA	9	4	0	12	11
2013	0	0	0	0	0	NA	5	0	0	12	12
2014 WY*	0	0	1	0	2	0	9	1	0	10	9
OVERALL TALLY	5	2	5	6	11	4	65	23	4	99	79
CONSTITUENT PRIORITY	A/B	C	D	D	D	E	E	E	E	E	E

NA – Not Applicable; monitoring did not occur for this constituent during the year.

*2014 includes January through September results only.

SAND CREEK @ HWY 4 BYPASS

Overview

Sand Creek @ Hwy 4 Bypass is one of the Coalition’s fourth priority site subwatersheds. Focused outreach to targeted growers occurred from 2012 through 2014 and growers implemented new management practices in 2012 and 2013. To evaluate the effectiveness of outreach, MPM occurred during months of past exceedances from 2011 through September 2014. By demonstrating improved water quality, the Coalition received approval to remove chlorpyrifos, diazinon, and water toxicity to *C. dubia* from the site’s active management plan on February 27, 2013. The Coalition received approval to remove disulfoton and water column toxicity to *S. capricornutum* from the site’s active management plan on August 22, 2014. The remaining constituents in the subwatersheds management plan are DDE, DDT, dieldrin, DO, *E. coli*, SC, TDS, and sediment toxicity to *H. azteca* (Table 27).

From January through September 2014, MPM for disulfoton (prior to removal), water column toxicity to *S. capricornutum* (prior to removal), dieldrin, and sediment toxicity to *H. azteca* occurred. Field parameters, including DO and SC, were measured during all MPM events. There were no exceedances of the WQTLs for high priority constituents. Exceedances of the WQTLs for DO and SC are common in the Sand Creek @ Hwy 4 Bypass site subwatershed; from January through September 2014, exceedances for DO and SC occurred six times each.

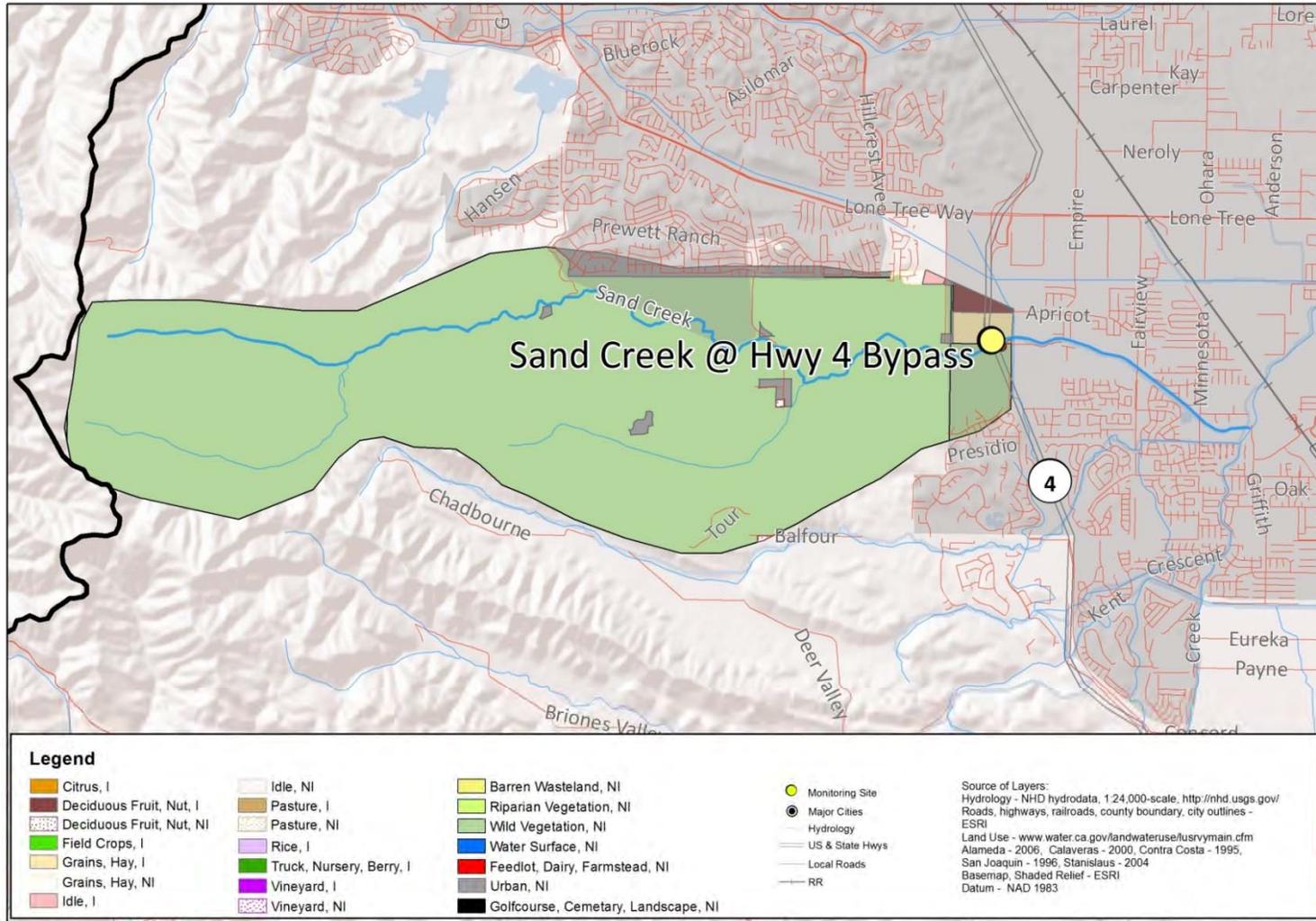
In the 2015 WY, Sand Creek @ Hwy 4 Bypass is classified as a Represented site and MPM is scheduled to continue for dieldrin and sediment toxicity to *H. azteca*. Field parameters, including DO and SC, will continue to be monitored during all MPM events. Land use for Sand Creek @ Hwy 4 is depicted in Figure 14.

Table 27. Sand Creek @ Hwy 4 Bypass management plan constituents.

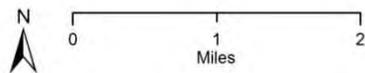
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
D	<i>H. azteca</i> sediment toxicity	2007	Active
E	DDE	2007	Active
E	DDT	2007	Active
E	Dieldrin	2007	Active
E	Dissolved Oxygen	2007	Active
E	<i>E. coli</i>	2007	Active
E	Specific Conductivity	2007	Active
E	Total Dissolved Solids	2007	Active
CONSTITUENT (REMOVED)			
A/B	Chlorpyrifos	2007	2013
A/B	Diazinon	2007	2013
C	Disulfoton	2009	2014
D	<i>C. dubia</i> water column toxicity	2007	2013
D	<i>S. capricornutum</i> water column toxicity	2009	2014

Figure 14. Sand Creek @ Hwy 4 Bypass site subwatershed land use map.



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 SJCDWQC



Sand Creek @ Hwy 4 Bypass

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Monitoring Results

From January through September 2014, MPM for disulfoton, water column toxicity to *S. capricornutum*, dieldrin, and sediment toxicity to *H. azteca* occurred at Sand Creek @ Hwy 4 Bypass. Disulfoton and dieldrin were each monitored in May, June, and August of 2014. Water column toxicity to *C. dubia* and sediment toxicity to *H. azteca* were each monitored twice. No exceedances or toxicity occurred for any high priority constituents (Table 28). The Coalition received approval to remove disulfoton and toxicity to *S. capricornutum* from the site's active management plan on August 22, 2014. The field parameters, DO and SC, were measured during all MPM events through September 2014. Exceedances of the WQTL for DO and SC occurred six times each.

Table 28 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the site subwatershed (organized alphabetically by constituent priority).

Table 28. Sand Creek @ Hwy 4 Bypass management plan constituent exceedance tally (2006- September 2014). Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS										REMOVED MANAGEMENT PLAN CONSTITUENTS		
	DISULFOTON, >0.05 µg/L	H. AZTECA, (%CONTROL)	S. CAPRICORNUTUM, (%CONTROL)	DDE (p,p'), >0.00059 µg/L	DDT (p,p'), >0.00059 µg/L	DIELDRIN, >0.00014 µg/L	DISSOLVED OXYGEN, <7 mg/L	E. COLI, >235 MPN/100 mL	SPECIFIC CONDUCTIVITY, >700 µS/CM	TOTAL DISSOLVED SOLIDS, >450 mg/L	CHLORPYRIFOS, >0.015 µg/L	DIAZINON, >0.1 µg/L	C. DUBIA, (%CONTROL)
2006	0	2	0	2	2	2	7	5	6	4	2	1	3
2007	0	4	0	1	0	0	6	5	14	8	0	0	0
2008	3	4	3	2	1	2	12	7	16	7	0	1	0
2011	0	2	0	NA	NA	1	6	NA	9	NA	0	0	0
2012	0	1	0	NA	NA	1	5	NA	7	NA	0	0	0
2013	0	1	0	NA	NA	0	6	NA	7	NA	NA	0	NA
2014 WY*	0	0	0	NA	NA	0	6	NA	6	NA	NA	NA	NA
OVERALL TALLY	3	14	3	5	3	6	48	17	65	19	2	2	3
CONSTITUENT PRIORITY	C	D	D	E	E	E	E	E	E	E	A/B^R	A/B^R	D^R

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

TERMINOUS TRACT DRAIN @ HWY 12

Overview

Terminus Tract Drain @ Hwy 12 is one of the Coalition’s third priority site subwatersheds. The Coalition completed focused outreach in the site subwatershed in 2013. To evaluate the effectiveness of outreach, MPM during months of past exceedances occurred from 2010 through September 2014 and monitoring results indicate improved water quality. Based on three or more years of no toxicity, the Coalition received approval to remove water column toxicity to *P. promelas* and *S. capricornutum* from the Terminus Tract @ Hwy 12 active management plan on April 17, 2012 (Table 29). The remaining constituents in the site’s management plan include: arsenic, chlorpyrifos, DO, *E. coli*, SC, TDS, and sediment toxicity to *H. azteca*.

Core Monitoring occurred through September 2014. Additionally, MPM for chlorpyrifos and sediment toxicity to *H. azteca* occurred; there were exceedances of the WQTLs for DO, *E. coli*, SC, and TDS. The Coalition’s management plan strategy includes addressing irrigation and storm water management to improve water quality relative to exceedances of the WQTL for chlorpyrifos. The Coalition’s strategy was successful at eliminating the number of chlorpyrifos exceedances; the last exceedance of the WQTL occurred once during 2011.

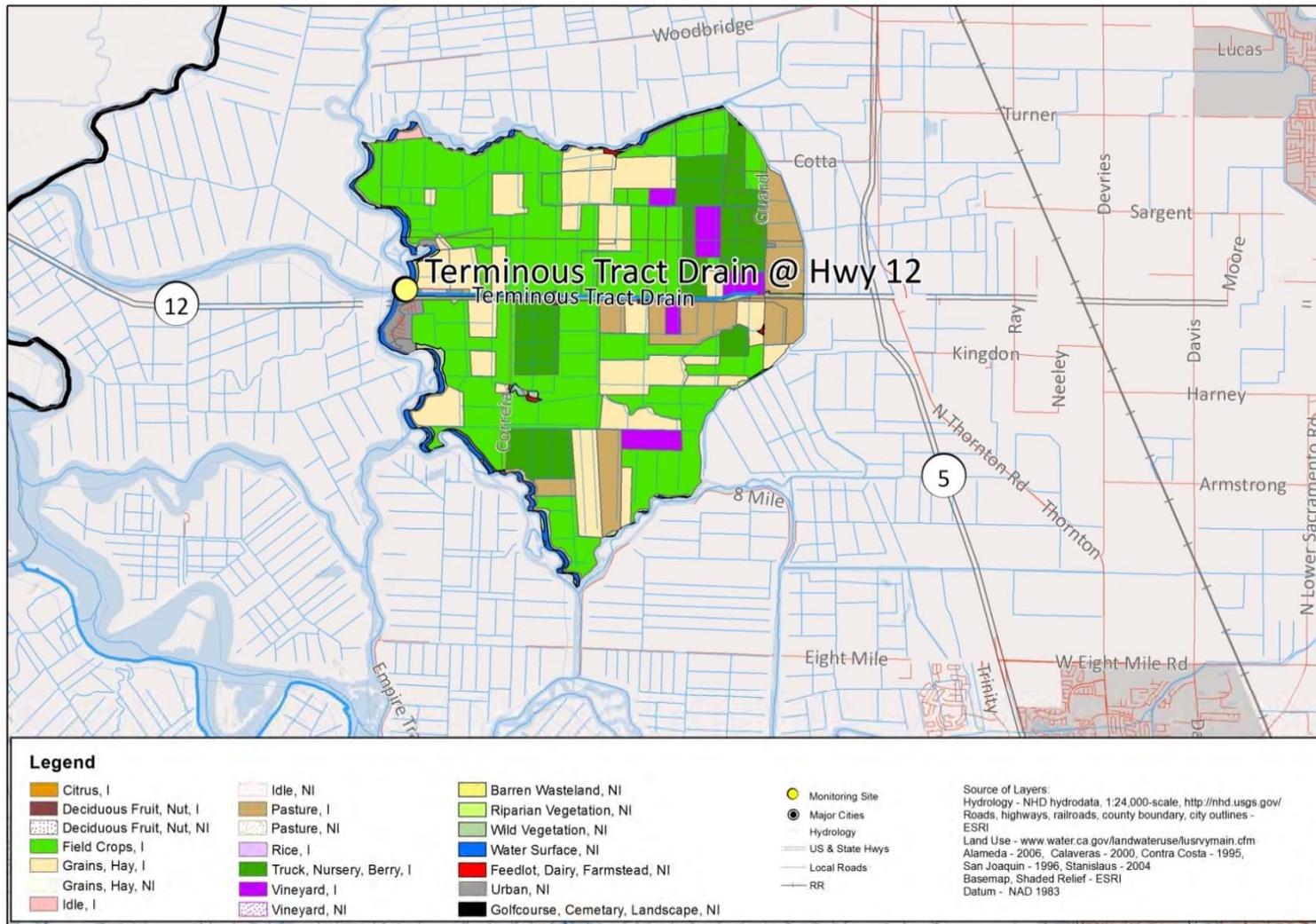
In 2015, the Coalition will conduct monitoring at Terminus Tract Drain @ Hwy 12 based on the monitoring strategy at a Core site, as described in the 2014 MPU. Additionally, MPM for chlorpyrifos and sediment toxicity to *H. azteca* are scheduled. Land use for Terminus Tract Drain @ Hwy 12 is depicted in Figure 15.

Table 29. Terminus Tract Drain @ Hwy 12 management plan constituents.

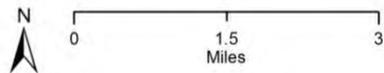
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2009	Active
D	<i>H. azteca</i> sediment toxicity	2007	Active
E	Arsenic	2008	Active
E	Dissolved Oxygen	2006	Active
E	<i>E. coli</i>	2006	Active
E	Specific Conductivity	2006	Active
E	Total Dissolved Solids	2006	Active
CONSTITUENT (REMOVED)			
E	<i>P. promelas</i> water column toxicity	2006	2012
E	<i>S. capricornutum</i> water column toxicity	2007	2012

Figure 15. Terminous Tract Drain @ Hwy 12 site subwatershed land use map.



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 SJCDWQC



Terminous Tract Drain @ Hwy 12

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Monitoring Results

From January through September 2014, Core Monitoring occurred at Terminus Tract Drain @ Hwy 12 in addition to MPM for chlorpyrifos and sediment toxicity to *H. azteca* (Table 30). No exceedances of the WQTL for chlorpyrifos or sediment toxicity to *H. azteca* occurred through September. Exceedances of priority E constituents occurred through September 2014 Core Monitoring including DO (8), *E. coli* (2), SC (3), and TDS (3).

Table 30 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the Terminus Tract Drain @ Hwy 12 site subwatershed (organized alphabetically by constituent priority).

Table 30. Terminus Tract Drain @ Hwy 12 management plan constituent exceedance tally (2005-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS							REMOVED MANAGEMENT PLAN CONSTITUENTS	
	CHLORPYRIFOS, >0.015 µg/L	<i>H. AZTECA</i> , (%CONTROL)	ARSENIC, >10 µg/L	DISSOLVED OXYGEN, <7 mg/L	<i>E. COLI</i> , >235 MPN/100 ML	SPECIFIC CONDUCTIVITY, >700 µS/CM	TOTAL DISSOLVED SOLIDS, >450 mg/L	<i>P. PROMELAS</i> , (%CONTROL)	<i>S. CAPRICORNUTUM</i> , (%CONTROL)
2005	0	0	NA	4	2	4	2	1	1
2006	0	0	1	6	3	3	3	0	0
2007	0	0	2	8	3	3	2	0	0
2008	2	0	2	5	0	10	6	0	3
2009	NA	NA	NA	6	1	6	5	NA	NA
2010	0	1	2	7	1	6	6	0	0
2011	1	0	NA	9	2	8	7	NA	0
2012	0	0	NA	9	2	6	6	NA	0
2013	0	1	1	7	1	4	4	0	0
2014 WY*	0	0	NA	8	2	3	3	NA	NA
OVERALL TALLY	3	2	8	69	17	53	44	1	4
CONSTITUENT PRIORITY	A/B	D	E	E	E	E	E	E^R	E^R

NA – Not Applicable; monitoring did not occur for this constituent during the year.

^R – Removed from active management plan.

*2014 includes January through September results only.

UNNAMED DRAIN TO LONE TREE CREEK @ JACK TONE RD

Overview

Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is one of the Coalition’s first priority site subwatersheds. The Coalition completed the focused outreach portion of its management plan strategy in the site subwatershed in 2012 (including additional outreach), and monitoring results through September 2014 indicate improved water quality. The Coalition received approval to remove simazine and water column toxicity to *C. dubia* and *S. capricornutum* from the active management plan on May 21, 2012, and petitioned to remove SC on June 9, 2014 after three years of no exceedances. The remaining constituents in the site subwatershed management plan include: chlorpyrifos, copper, diuron, DO, *E. coli*, lead, SC, TDS, and sediment toxicity to *H. azteca* (Table 31).

In addition to focused outreach from 2008 through 2010, the Coalition conducted additional focused outreach with two new growers in 2012 to address continued chlorpyrifos use.

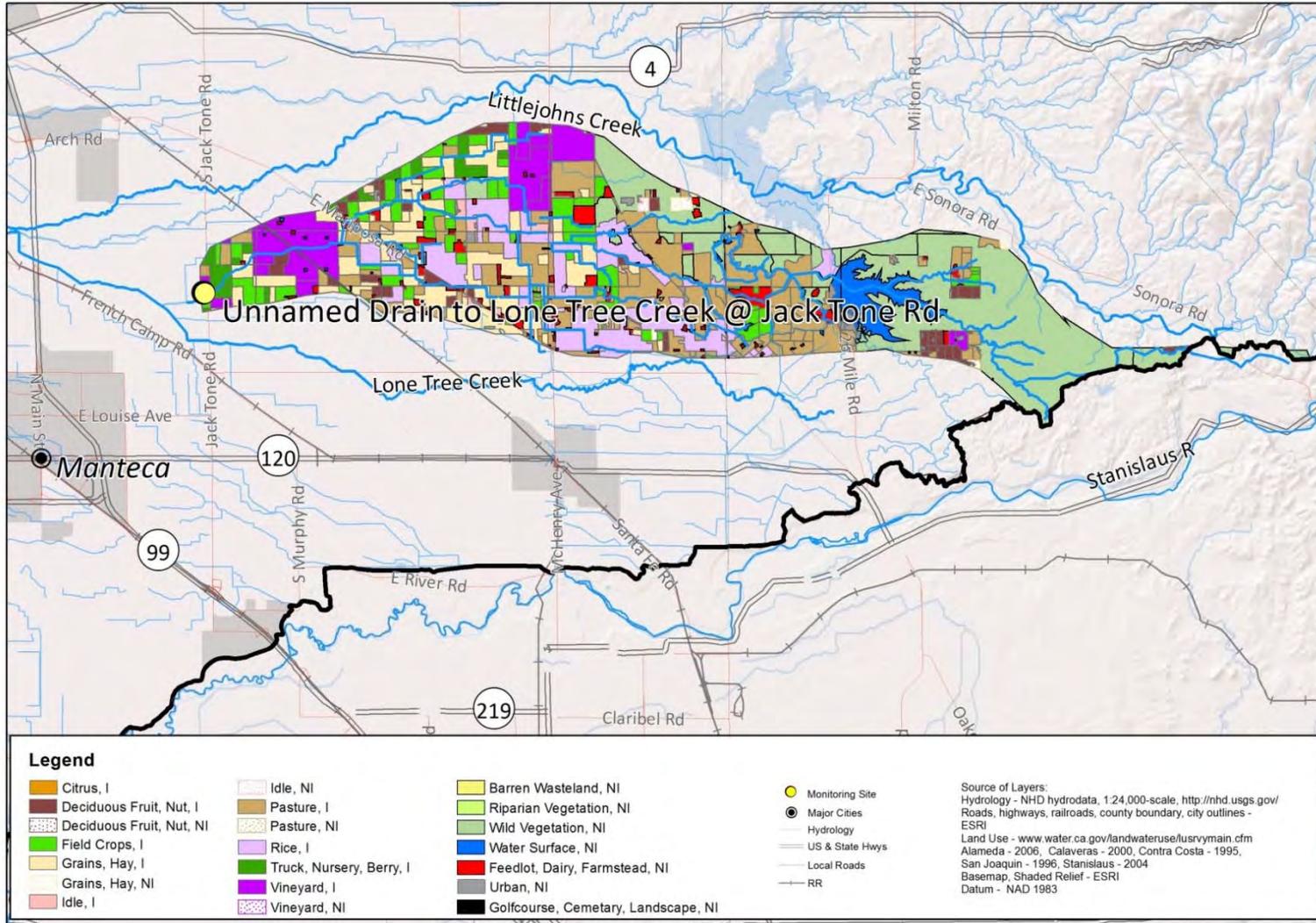
From January through September 2014, the Coalition conducted MPM for chlorpyrifos, copper, diuron, and sediment toxicity to *H. azteca*. No high priority management plan constituents exceeded the WQTLs since 2013, and thus demonstrating an improvement in water quality in the site subwatershed. In 2015, Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is classified as a Represented site and MPM will continue for chlorpyrifos, copper, diuron and sediment toxicity to *H. azteca*. The field parameters DO and SC will be measured during all high priority MPM events. Land use for Unnamed Drain to Lone Tree Creek @ Jack Tone Rd is depicted in Figure 16.

Table 31. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd management plan constituents.

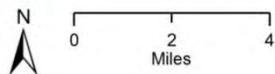
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2007	Active
C	Copper	2009	Active
C	Diuron	2008	Active
D	<i>H. azteca</i> sediment toxicity	2009	Active
E	Dissolved Oxygen	2007	Active
E	<i>E. coli</i>	2008	Active
E	Lead	2009	Active
E	Specific Conductivity	2008	Active
E	Total Dissolved Solids	2008	Active
CONSTITUENT (REMOVED)			
C	Simazine	2009	2012
D	<i>C. dubia</i> water column toxicity	2009	2012
D	<i>S. capricornutum</i> water column toxicity	2008	2012

Figure 16. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd site subwatershed land use map.



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Unnamed Drain to Lone Tree Creek @ Jack Tone Rd

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Monitoring Results

From January through September 2014, MPM occurred at Unnamed Drain to Lone Tree Creek @ Jack Tone Rd for chlorpyrifos, copper, diuron, and sediment toxicity to *H. azteca*; no exceedances of the WQTLs or toxicity occurred (Table 32). There were five detections of copper, but none exceeded the WQTL. The priority E constituents DO and SC were monitored during all MPM events in 2014; one exceedance of the WQTL for DO occurred in April 2014.

Table 32 is a tally of yearly exceedances of WQTLs from 2006 through September 2014 for management plan constituents in this site subwatershed (organized alphabetically by constituent priority).

Table 32. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd management plan constituent exceedance tally (2006-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	ACTIVE MANAGEMENT PLAN CONSTITUENTS										REMOVED MANAGEMENT PLAN CONSTITUENTS		
	CHLORPYRIFOS, >0.015 µg/L	COPPER (DISSOLVED), VARIABLE ¹	COPPER (TOTAL), VARIABLE ¹ OR >1300 µg/L	DIURON, >2 µg/L	H. AZTECA, (%CONTROL)	DISSOLVED OXYGEN, <7 mg/L	E. COLI, >235 MPN/100 ML	LEAD (TOTAL), VARIABLE ¹ OR > 15 µg/L	SPECIFIC CONDUCTIVITY, >700µS/CM	TOTAL DISSOLVED SOLIDS, >450 mg/L	SIMAZINE, >4 µg/L	C. DUBIA, (%CONTROL)	S. CAPRICORNUTUM, (%CONTROL)
2006	2	NA	NA	0	0	2	1	NA	0	0	0	0	0
2007	3	NA	NA	2	1	0	4	NA	2	1	1	1	4
2008	5	NA	5	1	3	2	5	2	0	0	1	3	1
2009	3	0	0	NA	NA	1	NA	NA	0	0	NA	1	0
2010	3	1	0	0	1	1	NA	NA	0	0	0	0	0
2011	2	1	0	0	2	0	NA	NA	1	0	0	0	0
2012	1	0	0	1	1	1	NA	NA	0	0	0	0	0
2013	1	0	0	0	1	2	NA	NA	0	NA	NA	NA	NA
2014 WY*	0	0	0	0	0	1	NA	NA	0	NA	NA	NA	NA
OVERALL TALLY	20	2	5	4	9	10	10	2	3	1	2	5	5
CONSTITUENT PRIORITY	A/B	C	C	C	D	E	E	E	E	E	C^R	D^R	D^R

¹ Metal WQTL variable based on hardness.

NA – Not Applicable; monitoring for constituent did not occur.

^R – Removed from active management plan.

*2014 includes January through September results only.

WALTHALL SLOUGH @ WOODWARD AVE

Overview

Walthall Slough @ Woodward Ave is one of the Coalition’s fifth priority site subwatersheds. The Coalition completed the second year of its focused management plan strategy in the site subwatershed. Water quality concerns were discussed and management practices were documented. Growers in the site subwatershed were informed of water quality impairments and encouraged to prevent offsite movement of agricultural constituents. The high priority constituents in the Walthall Slough @ Woodward Ave site subwatershed management plan are chlorpyrifos, nitrate/nitrite, and sediment toxicity to *H. azteca* (Table 33).

From January through September 2014, MPM for chlorpyrifos, HCH-delta, and sediment toxicity to *H. azteca* occurred during months of past exceedances and no exceedances or toxicity occurred. Monitoring at a Core site also occurred on a monthly basis at Walthall Slough @ Woodward Ave. Additionally, this site is a TMDL compliance monitoring location for the Sacramento-San Joaquin Delta TMDL monitoring program. Monitoring for TMDL constituents of chlorpyrifos and diazinon occurred during February storm sampling and from May through August 2014. Monitoring from January through September 2014 resulted in exceedances of the WQTLs for DO (9), *E. coli* (1), SC (3), and TDS (2).

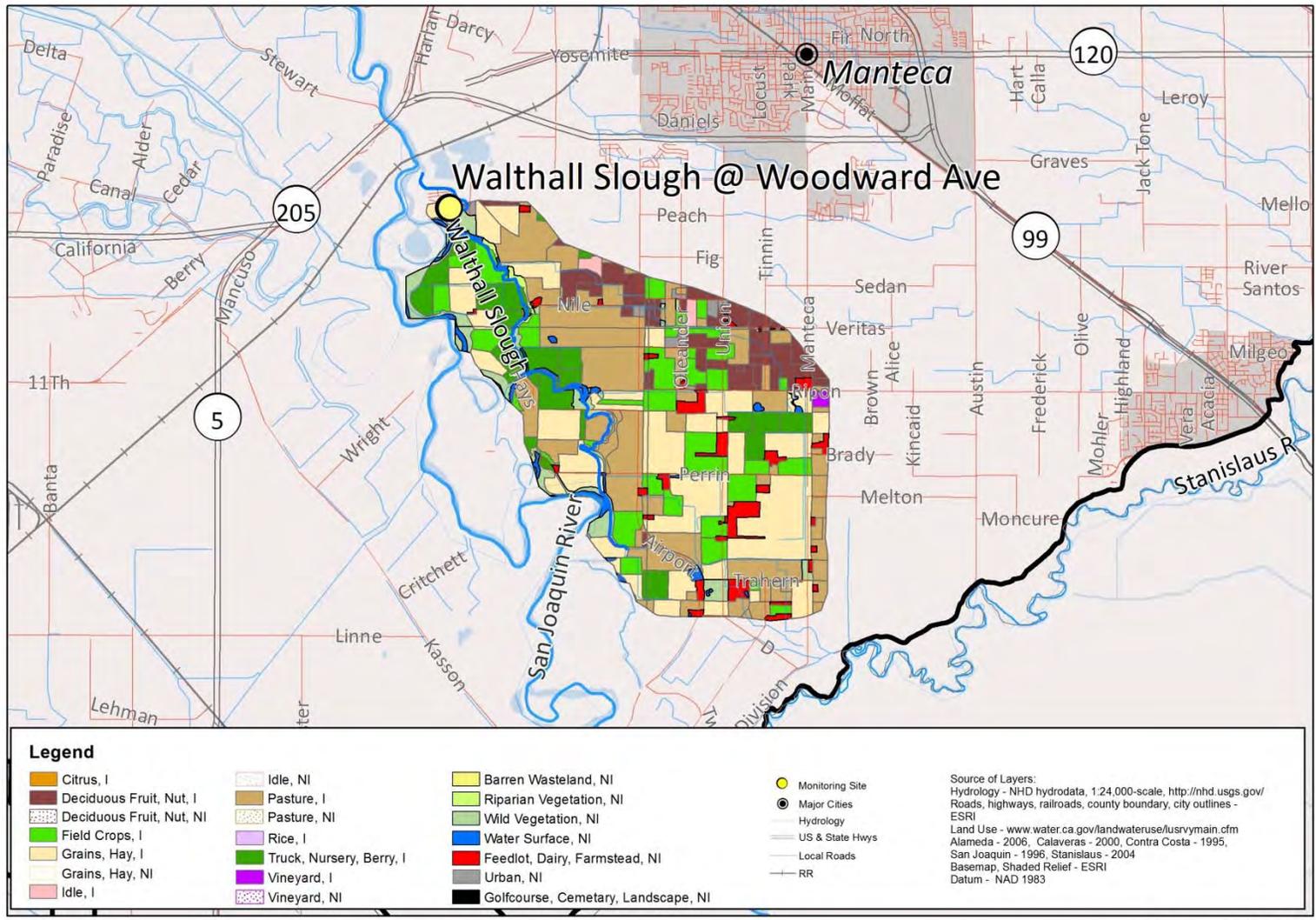
In 2015, the Coalition will conduct monitoring at Walthall Slough @ Woodward Ave based on the monitoring strategy at a Core site, as described in the 2014 MPU. In addition, MPM for chlorpyrifos, HCH-delta, and sediment toxicity to *H. azteca* will continue at the site during the 2015 WY. Land use for Walthall Slough @ Woodward Ave is depicted in Figure 17.

Table 33. Walthall Slough @ Woodward Ave management plan constituents.

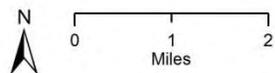
Management plan initiation year refers to when the site and constituent are addressed in SJCDWQC MPURs and in the Management Plan Progress Report sections of the Annual Reports.

PRIORITY	CONSTITUENT	MANAGEMENT PLAN INITIATION YEAR	MANAGEMENT PLAN REMOVAL YEAR
A/B	Chlorpyrifos	2012	Active
C	Nitrate + Nitrite as N	2012	Active
D	<i>H. azteca</i> sediment toxicity	2011	Active
E	Dissolved Oxygen	2010	Active
E	<i>E. coli</i>	2010	Active
E	HCH-delta	2010	Active
E	Specific Conductivity	2010	Active
E	Total Dissolved Solids	2010	Active

Figure 17. Walthall Slough @ Woodward Ave site subwatershed land use map.



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Walthall Slough @ Woodward Ave

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Monitoring Results

From January through September 2014, MPM for chlorpyrifos, HCH-delta, and sediment toxicity to *H. azteca* occurred during months of past exceedances. No exceedances of the WQTL occurred for high priority constituents through September 2014. The Coalition does not conduct MPM for nitrate; however, nitrate was monitored monthly during 2014 under Core Monitoring and resulted in no exceedances. In addition, exceedances of priority E constituents, including DO (9), *E. coli* (1), SC (3), and TDS (2), occurred during monitoring (Table 34).

Table 34 is a tally of exceedances of WQTLs from 2006 through September 2014 for management plan constituents in the site subwatershed (organized alphabetically by constituent priority).

Table 34. Walthall Slough @ Woodward Ave management plan constituent exceedance tally (2009-September 2014).

Exceedances that occurred during resampling for field parameters and toxicity are included in the tally. Exceedances are organized alphabetically by constituent priority.

MONITORING YEAR	MANAGEMENT PLAN CONSTITUENTS							
	CHLORPYRIFOS, >0.015 µg/L	NITRATE + NITRITE AS N, >10 mg/L	H. AZTECA, (%CONTROL)	DISSOLVED OXYGEN, <7 mg/L	E. COLI, >235 MPN/100 mL	HCH, DELTA, >0.0039 µg/L	SPECIFIC CONDUCTIVITY, >700 µS/cm	TOTAL DISSOLVED SOLIDS, >450 mg/L
2009	0	0	1	11	2	3	3	3
2010	0	1	1	6	2	0	3	1
2011	2	2	NA	8	1	NA	4	3
2012	0	1	0	11	0	NA	3	4
2013	0	3	0	9	0	0	3	4
2014 WY*	0	0	0	9	1	0	3	2
OVERALL TALLY	2	7	2	54	6	3	20	19
CONSTITUENT PRIORITY	A/B	C	D	E	E	E	E	E

NA – Not Applicable; monitoring did not occur for this constituent during the year.

*2014 includes January through September results only.

APPENDIX II

SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

REGIONAL BOARD MANAGEMENT PLAN COMPLETION APPROVAL LETTERS

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MARCH 22, 2012



Central Valley Regional Water Quality Control Board

22 March 2012

Mr. Michael Waokman
San Joaquin & Delta Water Quality Coalition
3422 W. Hammer Lane, Suite A
Stockton, CA 95219

Mr. Mike Johnson, Program Manager
MLJ-LLC
632 Central Drive
Davis, CA 95618

REQUEST TO REMOVE ANALYTES FROM MANAGEMENT PLAN MONITORING – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

Thank you for submitting the 6 January 2012 request to remove analytes from the San Joaquin County and Delta Water Quality Coalition (Coalition) Management Plan. The request includes the Coalition's rationale for removing analytes (i.e. determining that these Management Plans are complete) from specific monitoring sites in its Management Plan (see Table 1 in attachment). In accordance with the Coalition's Management Plan, if there has been two or more years of Management Plan monitoring without an exceedance of a water quality trigger, then the Coalition may petition the Central Valley Water Board to remove it from the Management Plan.

To facilitate the review process, staff initially addressed the analytes requested for the Duck Creek at Highway 4 (pH, diazinon, *Selenastrum* toxicity) and French Camp Slough at Airport Way (dieldrin) sites. Staff will address the remaining five sites tabulated in the attached memorandum in subsequent memoranda.

The attached memorandum presents staff's analysis of the information provided in the Coalition's request. In summary, staff determined that there was sufficient evidence to support completion of the Management Plans for these sites and analytes. Based on staff's analysis, I approve the Coalition's request to consider those Management Plans complete. Therefore, Management Plan monitoring is not required for these site analytes and the Coalition will continue with the Assessment and Core monitoring schedule.

I commend the Coalition for successfully implementing the Management Plan for these analytes. The Coalition should continue aggressive outreach efforts to ensure these water quality problems do not recur. In accordance with the Sacramento San Joaquin Basin Plan, if the Coalition observes more than one exceedance within a three year period for any of these analytes going forward, then the Coalition must revert back to Management Plan implementation for those analytes.

KIM E. LOJOL'S SE DP CHAIR 1: P.W.A.C. CHIEF, (CUT) OMCTN.

11625 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley



If you have questions, please contact Chris Immerson at (916) 464-4859, or by E-mail at chrisimmerson@waterboards.ca.gov.

Executive Officer

Attachment – staff memorandum

Central Valley Water Board staff (staff) reviewed the Coalition's request and developed recommendations using a set of evaluation factors. Staff developed the evaluation factors as a tool to be consistent during the review process. A summary of the evaluation factors is presented below. However, not all of the evaluation factors can be considered for all the analytes because the nature of the analyte may not be fully applicable.

Evaluation Factors

1. Did the Coalition implement actions according to its Management Plan?
2. Does the analyte fall under a High Priority Management Plan Site?
3. What is the date of most recent exceedance?
4. Have there been any detects observed during the two year period with no exceedances?
5. What year did the last sampling event take place?
6. What year will monitoring resume?
7. Do we have a sufficient amount of sampling results?
8. Is the analyte currently being applied to a crop within the site subwatershed?
9. Is the site within the Legal Delta?
10. Is the analyte on the 303(d) list for that waterbody?
11. Is the analyte part of a TMDL?
12. Is the analyte a Group A organochlorine pesticide and by default no longer applied?
13. Have management practices been implemented?
14. Can the analyte likely be remedied or addressed by a Management Plan?

A. Duck Creek at Hwy. 4

The Coalition proposes to remove diazinon, pH, and *Selenastrum capricornutum* toxicity testing, from the Duck Creek at Hwy. 4 Management Plan. Based on the evaluation factors, staff's findings support the Coalition's request to remove diazinon, pH, and *Selenastrum capricornutum* toxicity from its Duck Creek at Hwy. 4 Management Plan. Each evaluation factor is summarized below for Duck Creek at Hwy. 4.

A.1 Evaluation Factors Concerning Diazinon

1. As the Management Plan required, the Coalition contacted growers identified as having greatest likelihood of contributing to exceedances, conducted meetings, and individual surveys.
2. This is a High Priority Site under a Management Plan since 2008.
3. The most recent exceedance was observed in 2007.
4. Between 2007 and 2011, no diazinon exceedances and one detection have been observed in 30 tests.
5. The last sampling event occurred in 2011.
6. The Coalition will resume monthly monitoring in 2012, as part of its monthly Assessment monitoring. If more than two exceedances are observed within the next three years, the Coalition will roll diazinon back into a Management Plan.
7. A sufficient number of sampling results have been collected - 30 between years 2007 and 2011.
8. The rate of pesticide use has decreased from 566 pounds in 2007 to 295 pounds in 2010 - this is the most recent use information available today.
9. Duck Creek at Hwy. 4 is not within the Legal Delta.
10. Diazinon is not on the 303(d) list for this waterbody.
11. Duck Creek at Hwy. 4 is not part of the San Joaquin River chlorpyrifos and diazinon TMDL.

12. Diazinon is not a Group A organochlorine. Diazinon is currently applied to crops.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices.
14. The Management Plan successfully managed diazinon.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for diazinon is complete. Monitoring results reported between 2007 and 2011 reported no exceedances and one detection below the trigger limit. In 2009,

Staff

recommends that diazinon at Duck Creek at Hwy. 4 should be removed from the Management Plan.

A.2 Evaluation Factors Concerning pH

1. As the Management Plan required, the Coalition contacted growers identified as having greatest likelihood of contributing to exceedances, conducted meetings, and Individual surveys.
2. This is a High Priority Site under the Management Plan, although the analyte itself is not a high priority.
3. The most recent exceedance was observed in 2008.
4. Between 2008 and 2011, 39 sampling events have taken place and no pH exceedances have been observed.
5. The last sampling event occurred in 2011.
6. The Coalition will continue to collect pH data in 2012, as part of its monthly Assessment monitoring. If more than two exceedances are observed within the next three years, the Coalition will roll pH back into a Management Plan.
7. A sufficient number of sampling results have been collected - 39 between years 2008 and 2011.
8. This evaluation factor does not apply.
9. Duck Creek at Hwy. 4 is not within the Legal Delta.
10. pH is not on the 303(d) list for this waterbody.
11. Duck Creek at Hwy. 4 is not part of the San Joaquin River chlorpyrifos and diazinon TMDL.
12. pH is not a Group A organochlorine. pH is not applied to crops.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices.
14. According to the MRP Order, "All the request of the Coalition Group or upon recommendation by Regional Water Board staff, the Executive Officer may provide authorization to exempt a Coalition Group from the development of a Management Plan if the Executive Officer determines that the exceedance is not likely to be remedied or addressed by a Management Plan." (MRP Order No. R5-2003-0005, page 25).

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for pH is complete. The Coalition will continue to collect pH field data from Duck Creek during its normal monitoring schedule, but should discontinue reporting the analyte in its Management Plan.

A.3 Evaluation Factors Concerning *Selenastrum caerleonutum* toxicity

1. As the Management Plan required, the Coalition contacted growers identified as having greatest likelihood of contributing to exceedances, conducted meetings, and individual surveys.
2. This is a High Priority Site under a Management Plan, although the analyte itself is not a high priority because sampling results indicate that there have been no herbicidal

- exceedances or detections to account for any of the algal toxicity results. Duck Creek at Hwy 4 does not have any Management Plans for herbicides that could cause toxicity. Metals could have been a source of algal toxicity for the most recent toxic event in 2008, but TIEs were inconclusive.
3. The most recent exceedance occurred in 2008.
 4. Between 2008 and 2011, 20 sampling events have taken place.
 5. The last sampling event occurred in 2011.
 6. The Coalition will resume monthly monitoring in 2012, as part of its monthly Assessment monitoring. If more than two exceedances are observed within the next three years, the Coalition will roll *Selenastrum capricornutum* back into a Management Plan.
 7. A sufficient number of sampling results have been collected- 20 between years 2008 and 2011.
 8. Herbicides are applied to crops in this subwatershed and there has been an absence of any herbicidal exceedances.
 9. This evaluation factor does not apply.
 10. *Selenastrum capricornutum* is not on the 303(d) list for this waterbody.
 11. This evaluation factor does not apply.
 12. *Selenastrum capricornutum* is not a Group A organochlorine.
 13. The growers have implemented management practices according to the Coalition's follow up surveys and participated in personal meetings with the Coalition.
 14. The Management Plan successfully managed *Selenastrum capricornutum*.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for *Selenastrum capricornutum* is complete. The primary rationale is that there has been an absence of algal and herbicidal exceedances over 20 sampling events and algae Assessment sampling will resume in 2012.

B. French Camp Slough at Airport Way

The Coalition proposes to remove dieldrin from the French Camp Slough at Airport Way Management Plan. Based on the evaluation factors, staff findings support the Coalition's request to remove dieldrin from the Management Plan. Each evaluation factor is summarized below for French Camp Slough at Airport Way

8.1 Evaluation Factors Concerning Dieldrin

1. As the Management Plan required, the Coalition contacted growers identified as having greatest likelihood of contributing to exceedances, conducted meetings, and individual surveys.
2. This is a High Priority Site under a Management Plan since 2008 that required the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most recent exceedance
4. Since 2008, 29 sampling events have taken place through 2011 with no exceedances or detections. Only two dieldrin exceedances have been observed at this site since monitoring began in 2006.
5. The last sampling event occurred in 2011.
6. The Coalition will resume monthly monitoring in 2014, as part of its monthly Assessment monitoring.
7. A sufficient number of sampling results have been collected- 29 between years 2008 and 2011.

8. Dieldrin (banned from agricultural use since 1965) is a hydrophobic Group A organochlorine pesticide suggesting that sediment control management practices implemented will prevent discharge from agriculture fields.
9. This evaluation factor does not apply.
10. Dieldrin is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. Dieldrin is a Group A organochlorine and no longer applied to crops.
13. According to the Coalition's follow up surveys, growers have implemented management practices that reduced their runoff and sediment discharges. The Coalition has been implementing this Management Plan since 2007. Management practices have also been implemented in High Priority watersheds upstream of French Camp Slough.
14. The Management Plan successfully managed dieldrin.

The Coalition provided sufficient information and reasonable justification for eliminating dieldrin from its Management Plan. The Coalition has documented reduced agriculture runoff which could reduce suspension of sediment and hydrophobic analytes like dieldrin. There were no reported exceedances or detections of dieldrin during monitoring conducted from 2008 to 2011. Further, dieldrin is no longer applied to crops. Between the years 2006 and 2011, only two detections were observed.

APRIL 17, 2012



Central Valley Regional Water Quality Control Board

17 April 2012

Mr. Michael Wackman
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3422 W. Hammer Lane, Suite A
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Mr. Mike Johnson, Program Manager
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REQUEST TO REMOVE ANALYTES FROM MANAGEMENT PLAN MONITORING--SAN
JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

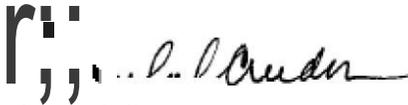
Thank you for your letter of 6 January 2012 requesting to remove analytes from the San Joaquin County and Delta Water Quality Coalition (Coalition) Management Plan. The request includes the Coalition's rationale for removing analytes (i.e. determining that these Management Plans are complete) from specific monitoring sites in its Management Plan (see Table 1 in attachment). In accordance with the Coalition's Management Plan, if there have been two or more years of Management Plan monitoring without an exceedance of a water quality trigger, then the Coalition may petition the Central Valley Water Board to remove it from the Management Plan.

In the attached memorandum, staff addresses Management Plans for the Grant Line Canal at Clifton Court Road (copper, lead), Mokelumne River at Bonilla Road (dissolved oxygen, copper), and Terminous Tract Drain at Highway 12 (*Pimphilphals promelas*, *Selenastrum capricornutum* toxicity) sites. In a letter dated 22 March 2012, the Executive Officer approved completion of Management Plans at the Duck Creek at Highway 4 and French Camp Slough at Airport Way sites. Staff will address the remaining two sites, Lone Tree Creek at Jack Tone Road and Unnamed Drain to Lone Tree Creek at Jack Tons Road, in a subsequent memorandum.

The attached memorandum presents staff's analysis of the information provided in the Coalition's request. In summary, staff determined that there was sufficient evidence to support completion of the Management Plans for these sites and analytes. Based on staff's analysis, I approve the Coalition's request to consider those Management Plans complete. The Coalition will continue with the Assessment and Core monitoring schedule.

I commend the Coalition for successfully implementing the Management Plan for these analytes. The Coalition should continue aggressive outreach efforts to ensure these water quality problems do not recur. If the Coalition observes more than one exceedance within a three year period for any of these analytes going forward, then the Coalition must revert back to Management Plan implementation for those analytes.

If you have questions, please contact Chris Jimmerson at (916) 464-4859, or by E-mail at cjimmerson@waterboard.ca.gov.


Pamela C. Creedon
Executive Officer

Attachment – staff memorandum

Central Valley Water Board staff (staff) reviewed the Coalition's request and developed recommendations using a set of evaluation factors. Staff developed the evaluation factors as a tool to be consistent during the review process. A summary of the evaluation factors is presented below. However, not all of the evaluation factors can be considered for all the analytes because the nature of the analyte may not be relevant to the evaluation factor.

Evaluation Factors

1. Did the Coalition implement actions according to its Management Plan?
2. Does the analyte fall under a High Priority Management Plan Site?
3. What is the date of most recent exceedance?
4. Have there been any detections observed during the two year period with no exceedances?
5. What year did the last sampling event take place?
6. What year will monitoring resume?
7. Do we have a sufficient amount of sampling results?
8. Is the analyte currently being applied to a crop within the site subwatershed?
9. Is the site within the Legal Offset?
10. Is the analyte on the 303(d) list for that waterbody?
11. Is the analyte part of a TMDL?
12. Is the analyte a Group A organochlorine pesticide and by default no longer applied?
13. Have management practices been implemented?
14. Can the analyte likely be remedied or addressed by a Management Plan?

A. Grant Line canal at Clifton Court Road

The Coalition proposes to remove copper and lead from the Grant Line canal at Clifton Court Road Management Plan. Based on the evaluation factors, staff findings support the Coalition's request to remove both copper and lead from the Management Plan. Each evaluation factor is summarized below.

A1 Evaluation Factors Concerning Copper

1. The Coalition contacted growers identified as having greatest likelihood of contributing to exceedances. All operators have been encouraged to consider irrigation tailwater retention to prevent copper from entering waterways.
2. This is a High Priority Management Plan Site since 2010 that required the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. No exceedances of dissolved copper have been observed at this site.
4. Between 2006 and 2011, 32 sampling events have taken place and six exceedances of total copper have been observed. Between 2010 and 2011, 10 sampling events for dissolved copper have taken place and zero exceedances have been observed.
5. The last sampling event occurred in 2011.
6. This is a revolving Assessment site. Sampling for copper will not resume until the site falls back in Assessment rotation in 2031.
7. A sufficient number of sampling results have been collected- 32 total copper and 10 dissolved copper sampling events.
8. Copper is not currently being applied to alfalfa in this site subwatershed. Pesticide use reports indicate that no applications of copper have taken place in 2009, 2010, and 2011.
9. This evaluation factor does not apply.
10. Copper is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.

12. This evaluation factor does not apply.
13. According to the Coalition, tallwater and spray drift management practices are the focal point in this subwatershed.
14. A Management Plan is not necessary for this site because no exceedances of dissolved copper have been observed.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for copper is complete. Staff verified that the current Management Plan is based on the exceedances of "total" copper rather than the bio-available form "dissolved" copper. The Coalition has not observed any dissolved copper exceedances. Staff recommends that copper should be removed from this Management Plan.

A.2 Evaluation Factors Concerning Lead

1. This is a low priority analyte under the Management Plan since agricultural use of lead is banned. The banned pesticide formulation was lead arsenate.
2. This is a High Priority Site under a Management Plan, although the analyte itself is not a high priority.
3. The most recent exceedance was observed in 2006.
4. Between 2006 and 2008, 20 sampling events have taken place and three total lead exceedances have been observed. Fifteen sampling events occurred from February 2007 to September 2008 with no exceedances.
5. The last sampling event occurred in 2008 which ended the Assessment monitoring period. The Management Plan does not require lead monitoring during the Core monitoring years (2009-2011). Management Plan monitoring is not required for low priority analytes.
6. This is a revolving Assessment site. Sampling for lead will not resume until the site resumes Assessment monitoring in 2031.
7. A sufficient number of sampling results have been collected - 20 total lead sampling events.
8. Lead is not currently applied to crops.
9. This evaluation factor does not apply.
10. Lead is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition, tallwater and spray drift management practices are the focal point in this subwatershed.
14. The growers have implemented management practices according to the Coalition's follow up surveys, indicating a reduction of irrigation runoff.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for lead is complete. Staff verified that the current Management Plan is based on the exceedances of "total" lead rather than the bio-available form "dissolved" lead. In the absence of "dissolved" lead sampling results, "total" lead is adequate because the "total" criterion is more protective than the "dissolved" criterion. In addition, lead is not currently applied to crops. Staff recommends that lead should be removed from this Management Plan.

B. Mokolunne River at Bruella Road

The Coalition proposes to remove dissolved oxygen and copper from its Management Plan at this site. Based on the evaluation factors, staff's findings support the Coalition's request to remove dissolved oxygen and copper from the Management Plan. Each evaluation factor is summarized below.

6.1 Evaluation Factors Concerning Dissolved Oxygen

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, conducted meetings, and collected individual surveys.
2. This is a High Priority Site under a Management Plan since 2007 that required the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most recent exceedance occurred in 2009. Since 2009, 30 sampling events have taken place with no exceedances.
4. This evaluation factor does not apply.
5. The most recent sampling event occurred in 2012.
6. The Coalition will continue monthly monitoring in 2012, as part of its monthly Core monitoring.
7. A sufficient number of sampling results have been collected.
8. This evaluation factor does not apply.
9. This evaluation factor does not apply.
10. Dissolved oxygen is on the 303(d) list for the lower Mokelumne River. Analysis will continue during the Assessment and Core monitoring.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tail water runoff in 2011.
14. According to the MRP Order, "At the request of the Coalition Group or upon recommendation by Regional Water Board staff, the Executive Officer may provide authorization to exempt a Coalition Group from the development of a Management Plan if the Executive Officer determines that the exceedance is not likely to be remedied or addressed by a Management Plan." (MRP Order No. R5-2008-0005, page 25).

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for dissolved oxygen is complete. The Coalition will continue to collect dissolved oxygen monitoring results during its Assessment and Core monitoring.

8.2 Evaluation Factors Concerning Copper

1. The Coalition contacted growers identified as having greatest likelihood of contributing to exceedances. The Coalition held nine individual grower meetings in 2011 to review each grower's operation and document current management practices.
2. This is a High Priority Management Plan Site requiring the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. No exceedances of dissolved copper have been observed at this site.
4. Between 2006 and 2011, 53 sampling events have taken place and three exceedances of total copper have been observed. Between 2010 and 2011, 15 sampling events for dissolved copper have taken place and zero exceedances have been observed.
5. The last sampling event occurred in 2011.
6. The Coalition will continue monthly monitoring in 2014, as part of its monthly Assessment monitoring.
7. A sufficient number of sampling results have been collected - 38 total copper and 15 dissolved copper sampling events.
8. Copper is currently being applied in this site subwatershed.
9. This evaluation factor does not apply.

10. Copper is on the 303(d) list for the lower Mokelumne River. Analysis will continue during the Assessment monitoring.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition, targeted growers have implemented management practices to reduce copper use and tail water runoff in 2011.
14. A Management Plan is not necessary for this site because no exceedances of dissolved copper have been observed.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the Management Plan for copper is complete. Staff verified that the current Management Plan is based on the "total" fraction exceedances rather than the "dissolved" fraction exceedances. There were no reported exceedances of dissolved copper. Staff recommends that copper should be removed from this Management Plan.

C. Terminous Tract Drain at Highway 12

The Coalition proposes to remove *Pimephales promelas* and *Selenastrum capricornutum* from this Management Plan. Based on the evaluation factors, staff's findings support the Coalition's request to remove *Pimephales promelas* and *Selenastrum capricornutum* from the Management Plan. Each evaluation factor is summarized below.

C.1 Evaluation Factors Concerning *Pimephales promelas*

1. The Coalition contacted growers identified as having greatest likelihood of contributing to exceedances. The Coalition held four individual grower meetings in 2011 to review each grower's Operation and document current management practices.
2. This is a High Priority Management Plan site requiring the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most exceedance occurred in 2005. Since 2005, 34 sampling events have taken place through 2011 with no exceedances.
4. This evaluation factor does not apply.
5. The last sampling event occurred in 2011.
6. The Coalition will continue monthly monitoring in 2013, as part of its Assessment monitoring.
7. A sufficient number of sampling results have been collected - 34 between years 2005 and 2011.
8. Ammonia, copper and pesticides have been detected at this site, but there has been an absence of exceedances that occurred at the same time as the two toxicity exceedances.
9. This evaluation factor does not apply.
10. *Pimephales promelas* is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition, targeted growers have implemented management practices to reduce copper use and tail water runoff in 2011.
14. The Management Plan successfully managed *Pimephales promelas*.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the management plan for *Pimephales promelas* is complete. There has been an absence of toxicity, ammonia, metal, and pesticide exceedances over the last 34 sampling events. *Pimephales promelas* sampling will resume in 2014, as part of Assessment monitoring.

C.2 Evaluation Factors Concerning *Selenastrum capricornutum*

1. The Coalition contacted growers identified as having greatest likelihood of contributing exceedances. The Coalition held four individual grower meetings in 2011 to review each grower's operation and document current management practices.
2. This is a High Priority Management Plan site requiring the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most recent exceedance occurred in 2008. Since 2008, 20 sampling events have taken place through 2011 with no exceedances.
4. This evaluation factor does not apply.
5. The last sampling event occurred in 2011.
6. The Coalition will continue monthly monitoring in 2013, as part of its Assessment monitoring.
7. A sufficient number of sampling results have been collected—46 between years 2005 and 2011.
8. Herbicides are applied to crops in this subwatershed and there has been an absence of any herbicidal exceedances.
9. This evaluation factor does not apply.
10. *Selenastrum capricornutum* is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. *Selenastrum capricornutum* is not a Group A organochlorine.
13. The growers have implemented management practices according to the Coalition's follow up surveys and participated in personal meetings with the Coalition.
14. The Management Plan successfully managed *Selenastrum capricornutum*.

The Coalition provided sufficient information and reasonable justification for staff to conclude that the management plan for *Selenastrum capricornutum* is complete. There has been an absence of toxicity, ammonia, metal, and pesticide exceedances over the last 20 sampling events since 2008. *Selenastrum capricornutum* sampling will resume in 2014, as part of Assessment monitoring.

MAY 21, 2012



Central Valley Regional Water Quality Control Board

21 May 2012

Mr. Michael Wackman
San Joaquin & Delta Water Quality Coalition
3422 W. Hammer Lane, Suite A
Stockton, CA 95219

Mr. Mike Johnson, Program Manager
MLJ-LLC
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Davis, CA 95618

REQUEST TO REMOVE ANALYTES FROM MANAGEMENT PLAN MONITORING – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

Thank you for your letter of 6 January 2012 requesting to remove analytes from the San Joaquin County and Delta Water Quality Coalition (Coalition) Management Plan. The request includes the Coalition's rationale for removing analytes (i.e. determining that these Management Plans are complete) from specific monitoring sites in its Management Plan (see Table 1 in attachment). In accordance with the Coalition's Management Plan, if there have been two or more consecutive years of Management Plan monitoring without an exceedance of a water quality trigger, then the Coalition may petition the Central Valley Water Board to remove it from the Management Plan.

In the attached memorandum, staff addresses the analytes requested for the Lone Tree Creek at Jack Tone Road site (specific conductance, copper, diazinon, diuron, *Selenastrum capricornutum*, and *Hyalella azteca* toxicity) and the Unnamed Drain to Lone Tree Creek at Jack Tone Road site (diuron, simazine, *Ceriodaphnia dubia*, and *Selenastrum capricornutum* toxicity). In letters dated 22 March 2012 and 17 April 2012, the Executive Officer has already responded to requests for Duck Creek at Highway 41 (pH, diazinon, *Selenastrum capricornutum* toxicity), French Camp Slough at Airport Way (dieldrin), Grant One canal at Clifton Court Road (copper, lead), Mokelumne River at Bruella Road (dissolved oxygen, copper), and Terminous Tract Drain at Highway 12 (*Pimephales promelas* and *Selenastrum capricornutum* toxicity).

The attached memorandum presents staff's analysis of the information provided in the Coalition's request. In summary, staff determined that there was sufficient evidence to support completion of the Management Plans that are addressed herein, with the exception of diuron in the Unnamed Drain to Lone Tree Creek at Jack Tone Road. The recent exceedance in 2012 suggests diuron may be an ongoing problem, so monitoring and management plan activities must continue.

I commend the Coalition for successfully implementing the Management Plan for several of these analytes. The Coalition should continue aggressive outreach efforts to ensure these water quality problems do not recur. In accordance with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, if the Coalition observes more than one

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exceedance within a three year period for any of these approved analytes going forward, then the Coalition must reinstate Management Plan implementation for those analytes.

If you have questions, please contact Chris Jimmerson at (916) 464-4859, or by E-mail at cjimmerson@waterboards.ca.gov

Sincerely,
Original signed by

Pamela C. Creedon
Executive Officer

Attachment – staff memorandum

Central Valley Water Board staff (staff) reviewed the Coalition's request and developed recommendations using a set of evaluation factors. Staff developed the evaluation factors as a tool to be consistent during the review process. A summary of the evaluation factors is presented below. However, not all of the evaluation factors can be considered for all the analytes because the nature of the analyte may not be relevant to the evaluation factor.

Evaluation Factors

1. Did the Coalition implement actions according to its Management Plan?
2. Does the analyte fall under a High Priority Management Plan Site?
3. What is the date of most recent exceedance?
4. Have there been any detects observed during the two year period with no exceedances?
5. What year did the last sampling event take place?
6. What year will monitoring resume?
7. Do we have a sufficient amount of sampling results?
8. Is the analyte currently being applied to a crop within the site subwatershed?
9. Is the site within the Legal Delta?
10. Is the analyte on the 303(d) list for that waterbody?
11. Is the analyte part of a TMDL?
12. Is the analyte a Group A organochlorine pesticide and by default no longer applied?
13. Have management practices been implemented?
14. Can the analyte likely be remedied or addressed by a Management Plan?

A. Lone Tree Creek at Jack Tone Road

The Coalition proposes to remove specific conductivity, copper, diazinon, diuron, *Selenastrum capricornutum*, and *Hyafella azteca* toxicity from the Lone Tree Creek at Jack Tone Road Management Plan. Based on the evaluation factors, staff's findings support the Coalition's request to remove them from the Management Plan. Although findings support removal of diuron and *Selenastrum capricornutum* from the Management Plan, Assessment monitoring should resume in 2014 rather than in 2026. For each analyte, the results of each evaluation factor are summarized below.

A1 Evaluation Factors Concerning Specific Conductivity

1. The Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 43 individual meetings. Surveys indicate that targeted members have fewer applications of pesticides and growers have implemented management practices to reduce runoff.
2. This is a High Priority Management Plan Site since 2008 that required the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most recent exceedance occurred in August 2006.
4. Between 2006 and 2011, 79 sampling events have taken place and two exceedance of specific conductance were observed. Sixty-five events occurred from August 2006 to October 2011 with no exceedances.
5. The last sampling event occurred in 2011.
6. Sampling for specific conductance will continue to be collected in 2012 for other Management Plan analytes not part of this request evaluation.
7. A sufficient number of sampling results have been collected - 79 sampling events from 2006 to 2011.
8. This evaluation factor does not apply.

9. This evaluation factor does not apply.
10. Specific conductivity is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tail water runoff and pesticide use in 2011.
14. According to the MRP Order, "At the request of the Coalition Group or upon recommendation by Regional Water Board staff, the Executive Officer may provide authorization to exempt a Coalition Group from the development of a Management Plan if the Executive Officer determines that the exceedance is not likely to be remedied or addressed by a Management Plan. (MRP Order No. R5-2008-0005, page 25).

Based on the evaluation factors, staffs findings support that the Management Plan for specific conductance is complete. Staff verified that the current Management Plan is based on exceedances out of 79 sampling events, with the most recent exceedance in 2006. Specific conductance sampling will continue in 2012, as part of the Management Plan monitoring for other analytes. Staff recommends that specific conductance should be removed from this Management Plan.

A2 Evaluation Factors Concerning Copper

1. The Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 43 individual meetings. Alfalfa operators have been encouraged to consider irrigation tailwater retention to prevent copper from entering waterways.
2. This is a High Priority Management Plan Site since 2008 that required the Coalition to contact growers identified as having the greatest likelihood of contributing to exceedances.
3. No exceedances of dissolved copper have been observed at this site.
4. Between 2006 and 2011, 33 sampling events have taken place and seven exceedances of total copper were observed. Between 2009 and 2011, 13 sampling events for dissolved copper have taken place and zero exceedances were observed.
5. The last sampling event occurred in 2011.
6. This is a revolving Assessment site. Sampling for copper will resume in 2026 when the site falls back in Assessment rotation.
7. A sufficient number of sampling results have been collected - 33 total copper and 13 dissolved copper sampling events.
8. Copper is being applied in this site subwatershed. Pesticide use reports indicate that applications of copper have decreased by approximately 50% from 2005 to 2010.
9. This evaluation factor does not apply.
10. Copper is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tail water runoff and pesticide use in 2011.
14. The Management Plan for this site should be considered complete because no exceedances of dissolved copper were observed.

Based on the evaluation factors, staffs findings support that the Management Plan for copper is complete. Staff verified that the current Management Plan is based on "total" copper

exceedances rather than the bio-available form "dissolved" copper. The Coalition has not observed any dissolved copper exceedances. Staff recommends that copper should be removed from this Management Plan.

A3 Evaluation Factors Concerning Diazinon

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 43 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site since 2008 that required the Coalition to contact growers identified as having the greatest likelihood of contributing to exceedances.
3. The most recent exceedance was observed in 2008.
4. Between 2008 and 2011, no diazinon exceedances and two detections have been observed in 17 tests.
5. The last sampling event occurred in 2011.
6. This is a revolving Assessment site. Sampling for diazinon will resume in 2026 when the site falls back in Assessment rotation.
7. A sufficient number of sampling results have been collected - 17 between years 2008 and 2011.
8. The rate of pesticide use has decreased from 1,948 pounds in 2006 to 341 pounds in 2010.
9. Lone Tree Creek at Jack Tone Road is not within the Legal Delta
10. Diazinon is not on the 303(d) list for this waterbody.
11. Lone Tree Creek at Jack Tone Road is not part of the San Joaquin River chlorpyrifos and diazinon TMDL
12. Diazinon is not a Group A organochlorine, but diazinon is currently applied to crops.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tail water runoff and pesticide use in 2011.
14. Managing diazinon can be directly related to the success of management practice implementation.

Based on the evaluation factors, staff's findings support that the Management Plan for diazinon is complete. Pesticide use has decreased and monitoring results between 2008 and 2011 reported no exceedances and two detections in 17 tests. Testing was conducted in accordance with the Monitoring and Reporting Program and Management Plan. Diazinon is not part of a TMDL at this site. Staff recommends that diazinon at Lone Tree Creek at Jack Tone Road should be removed from this Management Plan.

A4 Evaluation Factors Concerning Diuron

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 43 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site since 2008 where the Coalition has focused its outreach with individual growers.
3. The most recent exceedance was observed in 2008.
4. Between 2008 and 2011, one diuron exceedance and six detections have been observed in 11 tests. Four of the six detections were below the reporting limit.
5. The most recent sampling event occurred in 2011. Diuron monitoring has been underway since 2006.

6. This is a revolving Assessment site. Sampling for diuron will resume in 2026 when the site falls back in Assessment rotation.
7. The Coalition has collected the required number of samples in accordance with the Management Plan. Management Plan monitoring has been conducted January through September during months of peak pesticide use and historical exceedances.
8. The rate of pesticide use has decreased from 866 pounds in 2004 to 269 pounds in 2010.
9. This evaluation factor does not apply.
10. Diuron is on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tailwater runoff and pesticide use in 2011.
14. The Management Plan will be able to manage diuron. staff recommends that the Coalition will need to remind its Lone Tree Creel members to continually manage any potential diuron discharges.

Based on the evaluation factors, staff's findings support that the Management Plan for diuron is complete. According to the current 303(d) list, a TMDL for diuron and unkr101M1 toxicity is required and is scheduled to be completed by 2021. Monitoring sufficiently represents pesticide applications during peak use. Testing occurred in May, June, July, August, and September in years 2006 through 2008, then in January and February 2010 and 2011. The Coalition should continue to inform growers of diuron management practices at its meetings. Assessment monitoring will be required sooner than 2026 under the Coalition's new Waste Discharge Requirements (WOR) Order.

A.5 Evaluation Factors Concerning *Selenastrom capn"cornutum*

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 43 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site since 2008 where the Coalition has focused its outreach with individual growers.
3. The most recent exceedance was observed in 2008.
4. Between 21 May 2008 and 24 May 2011, no *Selenastrom capn"cornutum* exceedances have been observed in 17 tests. However, detections of herbicides have been present between May 2008 and May 2011 that could contribute to toxicity.
5. The most recent sampling event occurred in 2011. Monitoring has been underway since 2004.
6. This is a revolving Assessment site. Sampling for *Selenastrom capn"cornutum* will resume in 2026 when the site falls back in Assessment rotation.
7. Sampling results have been collected since the most recent exceedance was observed- five tests in 2008, two in 2009, five tests in 2010, and five tests in 2011. Monitoring has been conducted during months of peak pesticide use and during months of historical exceedances in accordance with the Management Plan and Monitoring and Reporting Program Plan.
8. Herbicides are applied in this site subwatershed. Exceedances of sampled herbicides include two diuron and one simazine exceedance in 2007 and 2008. No herbicide exceedances have been observed post-May 2008.
9. This evaluation factor does not apply.

10. Unknown toxicity is on the 303(d) list for this waterbody. *Selenastrum capricornutum* toxicity was one of the lines of evidence used to assess unknown toxicity status.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tailwater runoff and pesticide use in 2011.
14. The Management Plan could adequately manage toxicants that cause *Selenastrum capricornutum* toxicity.

Based on the evaluation factors, staff's findings support that the Management Plan for *Selenastrum capricornutum* is complete. According to the current 303(d) list, a TMDL for diuron and unknown toxicity is required and is scheduled to be completed by 2021. The Management Plan is based on six *Selenastrum capricornutum* exceedances and there have been diuron and other herbicide detections that could have contributed to the *Selenastrum capricornutum* toxicity. The Coalition should continue to inform growers of herbicide management practices at its meetings. Assessment monitoring will be required sooner than 2026 under the Coalition's new WDR Order.

A6 Evaluation Factors Concerning *Hyalella azteca*

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 43 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site since 2008. Where the Coalition has focused its outreach with individual growers.
3. Two exceedances have been reported for this site. The most recent exceedance was observed in 2006.
4. Between August 2006 and October 2011, no *Hyalella azteca* exceedances have been observed out of eight tests. According to the Monitoring and Reporting Program, one storm and one irrigation season toxicity test for sediment toxicity is required per year.
5. The most recent sampling event occurred in 2011. Monitoring has been underway since 2004.
6. This is a revolving Assessment site. Sampling for *Hyalella azteca* will not resume until the site falls back in Assessment rotation in 2026.
7. The Coalition collected the required sediment samples in accordance with the Monitoring and Reporting Plan and Management Plan.
8. Pyrethroids and chlorpyrifos are applied in this site subwatershed. Pyrethroid water column samples between years 2004 and 2008 were all non-detect. There is no pyrethroid results post 2008 because pyrethroid sampling is only required if sediment toxicity exhibit a > 20% reduction in survival compared to the control.
9. This evaluation factor does not apply.
10. Sediment toxicity is on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tailwater runoff and pesticide use in 2011.
14. The Management Plan will be able to adequately manage *Hyalella azteca* toxicity.

Based on the evaluation factors, staff's findings support that the Management Plan for *Hyalella azteca* is complete. The Management Plan is based on two exceedances between years 2005

and 2006. There have been no *Hyalella azteca* exceedances between August 2006 and October 2011 in eight tests. Testing was conducted in accordance with Monitoring and Reporting Program and Management Plan. Pyrethroid use is ongoing, and detections of pyrethroids in the water column have been absent. A chlorpyrifos Management Plan is currently underway that should reduce the risk of *Hyalella azteca* toxicity.

Staff recommends that *Hyalella azteca* monitoring at Lone Tree Creek at Jack Tone Road should be removed from the Management Plan. Notwithstanding, the Coalition should continue to inform growers of management practices to control sediment runoff during the grower meetings.

B. Unnamed Drain to Lone Tree Creek at Jack Tone Road (Temple Creek)

The Coalition proposes to remove diuron, simazine, *Ceriodaphnia dubia*, and *Selenastrom capricornutum* toxicity from its Management Plan at this site. Based on the evaluation factors, staffs findings support the Coalition's request to remove all analytes, with the exception of diuron, from the Management Plan at this site.

B. 1 Evaluation Factors Concerning Diuron

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 34 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site since 2000 where the Coalition has focused its outreach with individual growers.
3. The most recent exceedance was observed in 2012.
4. Between 2008 and 2012, two diuron exceedances and eight detections were observed in 14 tests. Five of the eight detections were below the reporting limit.
5. The most recent sampling event occurred in February 2012. Diuron monitoring has been underway since 2006.
6. This is a revolving Assessment site. Assessment monitoring will resume in 2030 when the site falls back in Assessment rotation. Management Plan monitoring will continue in 2012.
7. The Coalition has collected the required number of samples in accordance with the Management Plan. Management Plan monitoring has been conducted during months of peak pesticide use and historical exceedances.
8. The rate of pesticide use has decreased from 2,183 pounds in 2006 to 889 pounds in 2010.
9. This evaluation factor does not apply.
10. Diuron is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce agriculture discharges, but improvement is necessary to eliminate the exceedances.
14. Diuron exceedances can be prevented through Management Plan efforts. Staff recommends that the Coalition should remind its growers to manage any potential diuron discharges.

Based on the evaluation factors, staffs findings do not support that the Management Plan for diuron is complete. Even though pesticide use has decreased, four exceedances have been reported in years 2007, 2008, and 2012. The frequency of testing is sufficient to represent pesticide applications during peak use, and testing occurred in accordance with the Monitoring

and Reporting Program Plan and Management Plan. Diuron is not on the 303(d) list for this waterbody. The Coalition will need to continue its Management Plan activities for diuron.

8.2 Evaluation Factors Concerning Simazine

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 34 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site requiring the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most recent exceedance was observed in 2008.
4. Between January 2008 and February 2011, one simazine exceedance and four detections have been observed in 11 tests. The detections range from 0.37 ug/L – 0.69 ug/L. The water quality trigger limit is 4.0 ug/L. No exceedances were observed from April 2008 to February 2011 in 10 tests.
5. The most recent sampling event occurred in 2011. Simazine monitoring has been underway since 2006.
6. This is a revolving Assessment site. Sampling for simazine will resume in 2030 when the site falls back in Assessment rotation.
7. The Coalition has collected the required number of samples in accordance with the Management Plan. Management Plan monitoring has been conducted during months of peak pesticide use and historical exceedances.
8. The rate of pesticide use has decreased from 2,557 pounds in 2006 to 1,782 pounds in 2010.
9. This evaluation factor does not apply.
10. Simazine is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce agriculture discharges.
14. The Management Plan appears to be adequately managing simazine. Staff recommends that the Coalition should remind its growers to manage any potential simazine discharges.

Based on the evaluation factors, staff's findings support that the Management Plan for simazine is complete. Although detections have been observed in 2010 and 2011, each was below the water quality trigger limit. Pesticide use has decreased and no exceedances have been reported between April 2008 and February 2011. The frequency of testing is sufficient to represent pesticide applications during peak use. Testing occurred in accordance with the Monitoring and Reporting Program Plan and Management Plan. Simazine is not 303(d) listed for this waterbody. Notwithstanding, the Coalition should continue to inform growers of simazine management practices at its meetings to reduce the number of detections.

8.3 Evaluation Factors Concerning *Ceriodaphnia dubia*

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 34 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site requiring the Coalition to contact growers identified as having the greatest likelihood of contributing to exceedances.
3. The most recent exceedance was observed in 2009.
4. Between January 2010 and September 2011, no *Ceriodaphnia dubia* exceedances have been observed out of six tests.

5. The most recent sampling event occurred in 2011. Monitoring has been conducted since 2006.
6. This is a revolving Assessment site. Sampling for *Ceriodaphnia dubia* is scheduled to resume in 2030 when the site falls back in Assessment rotation.
7. The Coalition has collected the required number of samples in accordance with the Management Plan.
8. Chemicals that could cause *Ceriodaphnia dubia* toxicity are applied to crops in this site subwatershed. Chlorpyrifos has been implicated as a potential cause of the *Ceriodaphnia dubia* toxicity exceedances through toxicity identification evaluations.
9. This evaluation factor does not apply.
10. *ceriodaphnia dubia* is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.
13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tail water runoff and pesticide use in 2011.
14. The Management Plan could manage the toxicants that could cause *Ceriodaphnia dubia*. Chlorpyrifos may be a potential cause of the toxicity. Chlorpyrifos is currently under a Management Plan for this site. Chlorpyrifos exceedances have been reported in the 2010 and 2011 sampling events.

Based on no exceedances in two years and management practice implementation, the completion of the management plan for *Ceriodaphnia dubia* toxicity is recommended. The Coalition will continue to implement the chlorpyrifos management plan and assessment monitoring until occur sooner than 2030 under the Coalition's new WDR Order.

BA Evaluation Factors Concerning *Selenastrum capricornutum*

1. As the Management Plan required, the Coalition contacted growers identified as having the greatest likelihood of contributing to exceedances, holding 34 individual meetings, and individual surveys.
2. This is a High Priority Management Plan Site requiring the Coalition to contact growers identified as having greatest likelihood of contributing to exceedances.
3. The most recent exceedance was observed in 2008.
4. Between June 2008 and March 2011, no *Selenastrum capricornutum* exceedances have been observed in 12 tests. Detections of herbicides that could cause toxicity have been present between June 2008 and March 2011, but no exceedances have been observed.
5. The most recent sampling event occurred in 2011. Monitoring has been conducted since 2006.
6. This is a revolving Assessment site. Sampling for *Selenastrum capricornutum* will resume in 2030 when the site falls back in Assessment rotation.
7. The Coalition has collected the required number of samples in accordance with the Management Plan. Management Plan monitoring has been conducted during months of peak pesticide use and historical exceedances.
8. Herbicides are applied in this site subwatershed. No herbicide exceedances have been observed since Management Plan implementation in 2008.
9. This evaluation factor does not apply.
10. *Selenastrum capricornutum* is not on the 303(d) list for this waterbody.
11. This evaluation factor does not apply.
12. This evaluation factor does not apply.

13. According to the Coalition's management practice follow up surveys, growers have implemented management practices to reduce tail water runoff and pesticide use in 2011.
14. The Management Plan appears to be adequately managing toxicants that could cause *Selenastrum capricomutum*.

Based on the evaluation factors, staff's findings support that the Management Plan for *Selenastrum capricomutum* is complete. Herbicide use is ongoing, and exceedances of herbicides and *Selenastrum capricomutum* have not occurred since implementation of the Management Plan. Testing occurred in accordance with the Monitoring and Reporting Program Plan and Management Plan. *Selenastrum capricomutum* is not on the 303(d) list for this waterbody.

Staff recommends that *Selenastrum capricomutum* should be removed from the Management Plan. Notwithstanding, the Coalition should continue to inform growers of management practices that may affect toxicity because herbicides are applied to crops in this site subwatershed.

FEBRUARY 27, 2013



Central Valley Regional Water Quality Control Board

27 February 2013

Mr. Michael Wackman
San Joaquin & Delta Water Quality Coalition
3422 W. Hammer Lane, Suite A
Stockton, CA 95219

Mr. Mike Johnson, Program Manager
MLJ-LLC
632 Cartron Drive
Davis, CA 95618

REQUEST TO REMOVE ANALYTES FROM MANAGEMENT PLAN MONITORING - SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

Thank you for your letter of 13 November 2012 requesting to remove analytes from the San Joaquin County and Delta Water Quality Coalition (Coalition) Management Plan. The request includes the Coalition's rationale for removing analytes (i.e. determining that these Management Plans are complete) from specific monitoring sites in its Management Plan (see Table 1 in attachment). In accordance with the Coalition's approved Management Plan, if there have been two or more years of Management Plan monitoring without an exceedance of a water quality trigger, then the Coalition may petition the Central Valley Water Board to remove it from the Management Plan.

The attached memorandum presents staff's analysis of the information provided in the Coalition's request. Based on the information provided in the request letter and staff's analysis, I approve the Coalition's request to consider 20 of the 27 Management Plans complete (Tables 2 and 3 of memorandum). The remaining seven Management Plans are considered pending. Staff will address the remaining Management Plans in a subsequent memorandum.

I commend the Coalition for successfully implementing the Management Plan for these analytes. The Coalition should continue aggressive outreach efforts to ensure these water quality problems do not recur. If the Coalition observes more than one exceedance within a three year period for any of these analytes going forward, then the Coalition must revert back to Management Plan implementation for those analytes.

If you have questions, please contact Chris Jimmerson at (916) 464-4859, or by E-mail at cjmerson@waterboards.ca.gov.

Original signed by:

Pamela C. Creedon
Executive Officer

Attachment – staff review of the Request to Remove Analytes from Management Plan Monitoring – San Joaquin County and Delta Water Quality Coalition

11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley



Water Boards

Central Valley Regional Water Quality Control Board

TO: Susan Fregien
Senior Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

FROM: Chris Jimmerson
Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

DATE: 31 January 2013

SUBJECT: REQUEST TO REMOVE ANALYTES FROM MANAGEMENT PLAN
MONITORING – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY
COALITION

The California Regional Water Quality Control Board, Central Valley Region, (Central Valley Water Board) received a request from the San Joaquin County and Delta Water Quality Coalition (Coalition) on 13 November 2012 to consider the Management Plans for certain analytes complete. Table 1 presents the requested analytes that the Coalition proposes to remove from the current Management Plan monitoring schedule. The request is based on the criterion of zero exceedances during two consecutive years of monitoring in months of past exceedances.

Table 1. Table of the Coalition has petitioned for Management Plan completion
(● = Analyte eliminated for Management Plan completion)

	1	2	3	4	5	6	7	8	9	10	11	12
A French Camp Road Airport W/7	●	●	●	●	●	●	●	●	●	●	●	●
B Gratiun Creek d/101 In C<u/R:1	●	●	●	●	●	●	●	●	●	●	●	●
C Gratiun Creek d/101 In C<u/R:1	●	●	●	●	●	●	●	●	●	●	●	●
D Gratiun Creek d/101 In C<u/R:1	●	●	●	●	●	●	●	●	●	●	●	●
E Uleons Creek d/101 In C<u/R:1	●	●	●	●	●	●	●	●	●	●	●	●
F Lone Tree Creek d/101 In C<u/R:1	●	●	●	●	●	●	●	●	●	●	●	●
G MJK Inne Ri\8 c'll Bruella Rj	●	●	●	●	●	●	●	●	●	●	●	●
H Mnd1 Sict d/101 In C<u/R:1	●	●	●	●	●	●	●	●	●	●	●	●
I Srd Creek CHow 4 Elvlass	●	●	●	●	●	●	●	●	●	●	●	●



When a new management plan is triggered at a site, the Coalition monitors analytes during months of past exceedances for at least two years. The Management Plan requires that if exceedances are observed, multiple efforts are implemented. These include source identification¹, general outreach², focused outreach³ to targeted growers⁴ or crops, and grower surveys⁵. The Coalition recommends specific management practices to targeted growers and initiates additional monitoring including surveying the targeted growers once the site subwatershed rotates into High Priority status. The Coalition then documents subsequent changes in management practices, and conducts more monitoring to evaluate changes in water quality and the effectiveness of newly implemented management practices. If results during two consecutive years of monitoring any time after the Management Plans are triggered demonstrate water quality improvement and compliance with water quality objectives, the site subwatershed/analyte pair is petitioned for management plan completion. Therefore, this evaluation is mostly based on sufficient water quality data as all in evidence to justify that the management plan should be considered complete.

Central Valley Water Board staff (staff) reviewed the water quality data presented in the Coalition's request, in previous Management Plan Update Reports, and in the Coalition's monitoring data submissions. Seven of the 27 site subwatershed/analyte pairs will require additional lines of evidence because the Coalition's request did not contain sufficient information to support the conclusions posed in the request letter. For example, in addition to sufficient water quality data, a summary of implemented management practices is needed to demonstrate that beneficial uses are protected. Therefore, staff will provide a separate memorandum addressing the seven Management Plans where further data is needed. Based on the water quality data for 20 out of the 27 cases presented in the request letter, the data is sufficient to conclude that the Management Plan does not need to continue. These are presented in Table 2 along with the analytes pending approval.

Table 2. Table of analytes that the Coalition has petitioned for completion. (Legend: ● = Pending)

Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. aba-																											
2. aba-																											
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1. Source: [http://www.cdpr.ca.gov/Programs/OPA/Pages/NR09-001.aspx](#).
 2. Outreach: [http://www.cdpr.ca.gov/Programs/OPA/Pages/NR09-001.aspx](#).
 3. Focused: [http://www.cdpr.ca.gov/Programs/OPA/Pages/NR09-001.aspx](#).
 4. Grower surveys: [http://www.cdpr.ca.gov/Programs/OPA/Pages/NR09-001.aspx](#).
 5. Source: [http://www.cdpr.ca.gov/Programs/OPA/Pages/NR09-001.aspx](#).

To keep the review consistent, staff's assessment is based on key considerations identified below and evaluated in Table 3. Other considerations unique to each site subwatershed/analyte pair include pesticide use, sampling frequency, and the timing of the approved High Priority Management Plan implementation.

Key considerations:

1. Sufficient monitoring (i.e. to request approval for completion, two consecutive years of no exceedances are needed) – This is a key consideration because it is the basis of the Coalition's request. If this condition was not met, staff would not recommend approval. Staff also considered when the last sampling event took place and when the most recent exceedance occurred. Samples should be recent with no exceedances. Based on the historical monitoring data, staff verified that each site subwatershed/analyte pair in the Coalition's request met this consideration and that sufficient monitoring took place. Monitoring data should be sufficient to indicate that the water quality objectives are being met.
2. Management practices implemented – This is a key consideration because the goal of the management plan is to implement management practices protective of water quality. As part of this key consideration, staff considered whether or not the site subwatershed is currently under a High Priority Management Plan. If it is, then specific management practices have either been implemented or current ones were evaluated. All of the site subwatersheds in this request fall under high priority status, with four completed and five in progress (Table 3).
3. Monitoring to resume in 2013 or 2014 – This is a key consideration because more monitoring is an opportunity to demonstrate the Management Plan's effectiveness in the site subwatershed. The upcoming Assessment monitoring in 2013 – 2014 or as part of the TMDL monitoring will provide information about the water quality even if the site subwatershed/analyte is approved for removal from the Management Plan.

Based on the considerations summarized in Table 3, 20 of the 27 Coalition's site subwatershed/analyte pairs petitioned for removal are recommended for approval.

Table 3. Staff review of the Coalition's request. Information moved from Appendix C.

Site subwatershed (High Priority Management Plan)	Analyte	(b) Sufficient Monitoring Data Demonstrated	(1b) Year of the Most Recent Exceedance	(1c) Number of Tests Since the Most Recent	(2) Management Practices Implemented	(3) Monitoring to Resume in 2013 or 2014	Approved
French Camp Slough @ Airport Way (2011-2013)	Cetiodaphna Toxicity		2007	2B			
	Copper (Total & Dissolved)	Staff verified that the current Management Plan is based on the exceedances of "total" copper rather than the bio-available form "dissolved" copper. The Coalition has not demonstrated copper exceedances at this site.	2008	35			

AUGUST 22, 2014

Water Boards

Central Valley Regional Water Quality Control Board

22 August 2014

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APPROVED
Author _____
Senior _____

REQUEST TO REMOVE ANALYTES FROM MANAGEMENT PLAN MONITORING – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

Thank you for submitting the 9 June 2014 request to remove thirteen constituents from select San Joaquin County and Delta Water Quality Coalition (Coalition) site subwatershed management plans. The 9 June request incorporates six of the seven site/constituent pairs that were pending staff review per a letter issued by the Executive Officer on 15 March 2013. Those seven pending site/constituent pairs are addressed herein.

The Coalition has implemented management plans according to requirements in the Waste Discharge Requirements General Order R5-2014-0029 (Order). The Coalition's approved 2008 Management Plan continues to be implemented as a part of the Order for Growers within the San Joaquin County and Delta Area that are Members of a Third-party Group. The conditions for requesting completion of a Management Plan outlined in the Order apply.

The Central Valley Regional Water Quality Control Board staff (staff) reviewed the Coalition's request for management plan completion (see enclosure). Staff compiled information and summarized data used to address the criteria outlined in the Order (Attachment B, Appendix MRP-1, Section III, pages 8 and 9) and to consider if the completion of management plans is justified.

Based on the information provided in the request letter and in the enclosed staff review, I approve the completion of management plans for the following five site/constituent pairs:

- Grant Line canal at Clifton Court Rd. (chlorpyrifos)
- Kellogg Creek along Hoffman Ln. (*Selenastrum capricornutum*)
- Mormon Slough (*Selenastrum capricornutum*)
- Sand Creek at Hwy 4 Bypass (disulfoton and *Selenastrum capricornutum*)

Implementation of management plans must continue for Mormon Slough (*Ceriodaphnia dubia*) and Lone Tree Creek at Jack Tone Rd. (chlorpyrifos) because additional monitoring is required or the monitoring data do not support completion of the management plan.

The remaining seven site/constituent pairs from the 9 June request are considered pending and will be addressed by staff in a subsequent memorandum. These include:

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- Kellogg Creek along Hoffman In. (specific conductivity)
- Roberts Island at Whisky Slough Pump (pH, chlorpyrifos, diuron, and *Ceriodaphnia dubia*)
- Terminous Tract Drain at Hwy. 112 (chlorpyrifos)
- Unnamed Drain to Lone Tree Creek at Jack Tone Rd. (specific conductivity)

If you have questions, please contact Chris Jimmerson at (916) 464-4859, or by E-mail at gimmerson@waterboards.ca.gov.

Original signed by:

Pamela C. Creedon
Executive Officer

Attachment – staff review memorandum



Central Valley Regional Water Quality Control Board

TO: Susan Fregien
Senior Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

FROM: Chris Jimmerson
Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

DATE: 29 July 2014

SUBJECT: REQUEST TO REMOVE PENDING ANALYTES FROM MANAGEMENT PLAN MONITORING – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

The California Regional Water Quality Control Board, Central Valley Region, (Central Valley Water Board) received a request from the San Joaquin County and Delta Water Quality Coalition (Coalition) on 13 November 2012 to consider the Management Plans for certain analytes complete. On 15 March 2013, the Executive Officer approved 20 of the 27 Management Plans as complete while the remaining seven Management Plans were considered pending. Since then, the Coalition submitted an additional request on 9 June 2014 that included six site/constituent pairs repeated from the original November request. Until now, the November pending site/constituent pairs were not evaluated. This memorandum only discusses the seven pending Management Plans from the November request. Staff will evaluate the 2014 request, minus the repeated site/constituent pairs, in a subsequent memorandum.

After the March 2013 approval, the Central Valley Water Board adopted Waste Discharge Requirements for growers within the San Joaquin County and Delta Area (R5-2014-0029) on 12 March 2014. The Coalition's pending site/constituent pairs are now subject to the new requirements found in the 2014 Order. At least three years of compliance with receiving water limitations during the times of year when previous exceedances occurred and consideration of peak use must be demonstrated before a management plan can be petitioned for completion. Five of the seven Management Plans meet this condition. Staff prepared this review based on information found in the 2013 and 2014 Management Plan Update Reports and the Coalition's 2012 management plan completion request, and to a limited extent the 2014 request.

Staff developed the attached tables and narrative discussing the necessary information required for staff to determine if the Management Plan is complete. A tabulated listing of each site/constituent pair is provided. In addition, a chart providing the sampling and exceedance history is provided.

Considerations unique to each site/constituent pair were taken into account, and this review of the management plan completion request provides a transition to requirements of the new

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Order for the Coalition. Based on information available to staff, the petitioned site/constituent pairs were categorized in one of the following three groups:

- I. There is sufficient information that management plans are no longer required. There are five site/constituent pairs recommended for removal from management plans.
- II. Additional monitoring is required to demonstrate at least three years of compliance with water quality objectives for one site/constituent pair. When 2014 monitoring is completed management plans can be petitioned for completion if no additional exceedances are found.
- III. Test results still show exceedances of water quality objectives for one site. The completion of management plans cannot be recommended for this site/constituent pair.

Further details about each category of site/constituent pairs petitioned for the completion of management plans are provided below.

I. Management plan no longer required

Management Plan	Most Recent Exceedance	Monitoring Exceedances	Demonstration Sufficient?	Approved?
Chlorpyrifos in Grant Line Canal @ Clifton Court Rd	2010	12	III	YES
Selenasfrum Toxicity in Kellogg Creek @ Ing Hdiinan Ln	200B	13	III	YES
Selenasfrum Toxicity in Mjnnoo Slol9J	2008	13	III	YES
Disulfotan in Sand Creek @ Hnt4 B)paS'i	2008	10	III	YES
Selenasfrum in Sand OEek @ Hnt4 B)paS'S	2008	8	III	YES

To assist in the transition to requirements of the new Order and address criteria outlined in the Order, Attachment B, Appendix MRP-1, section III, pages 8-9, the review includes a data summary for each constituent where criteria for management plan completion are met. Education and outreach, implemented management practices in each subwatershed, and additional information used to justify management plan completion are all so summarized.

A. Chlorpyrifos in Grant Line Canal at Clifton Court Rd.

This site is within the legal Delta and part of the High Priority management plans where focused outreach occurred 2010-2012. According to the surveys, growers have reduced the pesticide use, reduced irrigation runoff, and applied PAM to their fields. Based on the monitoring data, pesticide use, and focused outreach efforts, the chlorpyrifos management plan can be considered complete. Monitoring will continue as part of the current TMDL monitoring schedule and pending TMDL Basin Plan Amendment. There have been no chlorpyrifos exceedances for



B. *Selenasrrum capriconium* in Kellogg Creek along Hoffman Ln.

This site is part of the High Priority management plans where focused outreach began in 2012 and will continue through 2014. The Management Plan is based on exceedances in April/May 2008 and on upstream exceedances at Hwy 4 in 2005. No herbicide or dissolved copper exceedances coincided with the *S. capricorium* exceedances, although a TIE conducted in 2008 implicated diuron, copper, and zinc as potential causes. The Coalition has followed-up with targeted growers in 2012 and 2013 to determine if additional management practices were implemented from what was planned. According to the surveys, growers have increased management practices in microirrigation, reduced pesticide use, and reduced runoff in the acres since the first survey. There have been no *S. capricorium* toxicity events for the last three years during times when the past exceedances have been observed.

StationName	AnalyteFractionUnit	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kellogg Creek along Hoffman Ln	Selenasrrum capricom	2004												
		2005												
		2006												
		2007												
		2008												
		2009												
		2010												
		2011												
		2012												
		2013												

C. *Selenasrrum capriconium* in Mormon Slough at Jack Tone Rd

Between May 2008 and May 2012, no *s. capricorium* exceedances have been observed in 10 tests since the last exceedance. None of the three historical exceedances in July 2007 and April/May 2008 coincided with any metal or herbicidal exceedance, but the toxicity identification evaluation implicated metals as a leading cause. According to the Coalition's request, 34 individual growers were contacted in 2012 to document existing management practices. Continued follow-up in 2013 determined that nearly all the growers implemented either microirrigation, reduced runoff, reduced pesticide use, and installed filter strips, as a result of the outreach. No exceedances have been observed in the last five years.

StationName	AnalyteFractionUnit	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mormon Slough at Jack Tone Rd	Selenasrrum capricom	2004												
		2005												
		2006												
		2007												
		2008												
		2009												
		2010												
		2011												
		2012												
		2013												

D. Disulfoton in Sand Creek at Hwy 4 bypass

The Disulfoton Management Plan is based on four exceedances that were observed in May/June/August 2008. Disulfoton is a legacy pesticide and banned from agricultural use. The pesticide report data did not indicate any use of disulfoton and there have been no disulfoton detections since 2008. The Coalition contacted the only grower within the site subwatershed and documented management practices during the Coalition's outreach. Micro-irrigation was implemented and other pesticide use was reduced. No exceedances have been observed in the last three years.

Station Name	Analyte/Fraction/Unit	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sand Creek at Hwy 4 Bypass	Disulfoton, Total, ug/L	2004												
		2005												
		2006												
		2007												
		2008												
		2009												
		2010												
		2011												
		2012												
		2013												

E. *Selenasrum C4pricomutum* in Sand Creek at Hwy 4 bypass

The Management Plan is based on three April/August 2008 exceedances, including one resample event. One of the exceedances required a TIE. Since the last *S. capricomutum* exceedance, eight samples were collected in the months of past exceedances. The only exceedances to coincide with the 2008 algal toxicity were legacy pesticides that are no longer legally used in agriculture: ODD, ODE, DDT, dieldrin, and disulfoton. Even though this waterbody is on the 303(d) list for unknown water column toxicity, the additional information provided in a June 2014 request indicate that legacy pesticide may have caused toxicity. No recent pesticide use reports indicate applications of the legacy pesticides. The Coalition summarized the new management practices implemented by the only grower within the subwatershed to substantiate management practice implementation. The grower installed micro-irrigation, reduced pesticide use, and implemented better irrigation management to reduce any runoff, as of 2012. No exceedances have been observed in the last three years.

Station Name	Analyte/Fraction/Unit	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sand Creek at Hwy 4 Bypass	Selenasrum capricomutum	2004												
		2005												
		2006												
		2007												
		2008												
		2009												
		2010												
		2011												
		2012												
		2013												

II. Additional monitoring required

Management Plan	Goal Rec.:nt Eltc.:edanc:.	Monlortng Ewnlll Sine. Eltc.:edance	Demonalralla COMpliance sulllclent?	Approv?
Chl()()/lapM/a JOOICRy . , MonnonSIOLqI	20GB	6	t<>	t<>

A. *Ceriodaplma dubia* in Mormon Slough
 The *C. dubia* Management Plan is based on two exceedances observed in September 2007 and May 2008 (0% survival). The TEs were inconclusive or the evaluation determined that the cause was a non-polar organic. Although chlorpyrifos exceedances can contribute to *C. dubia* toxicity, chlorpyrifos tests have not indicated any exceedances since 2011. Chlorpyrifos continues to be managed as part of the Delta chlorpyrifos TMDL. Due to county construction activity, samples could not be collected in September 2013. Therefore, five years of monitoring has not been reached. At least three years of compliance with receiving water limitations during the times of year when previous exceedances occurred and consideration of peak use must be demonstrated before a management plan can be petitioned for completion.

StationName	AnalyteFractionUnit	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mormon Slough at Jack Tone Rd	Ceriodaphnia dubia	2004												
		2005												
		2006												
		2007												
		2008												
		2009												
		2010												
		2011												
		2012												
		2013												

III. Monitoring data do not support completion of the management plan

Management Plan	Goal Rec.:nt Eltc.:edanc:.	Monlortng Ewnlll Sine. Eltc.:edance	Demonalralla COMpliance Sulllclent?	Approv?
cr. oqyroo ooe Tree Creet C Jack Tone RO	201J		t<>	t<>

A. Chlorpyrifos in Lone Tree Creek at Jack Tone Rd.
 This site is part of the High Priority sites where focused outreach occurred 20m-2010. The chlorpyrifos Management Plan is based on 10 exceedances from 2005-2013. Although applications of chlorpyrifos have reduced by 65% from 2005 to 2011, a chlorpyrifos exceedance was observed in July 2013. Based on the recent chlorpyrifos exceedance, this site/constituent pair has not met at least three years of compliance with receiving water limitations during the times of year when previous exceedances occurred.

StationName	AnalyteFractionUnit	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lone Tree Creek at Jack Tone Rd	Chlorpyrifos, Total, ug/L	2004												
		2005												
		2006												
		2007												
		2008												
		2009												
		2010												
		2011												
		2012												
		2013												