



# 2019 WY Monitoring Plan Update Addendum

June – September 2018 Data

**East San Joaquin Water Quality Coalition**

Central Valley Regional Water Board

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## SUMMARY

Based on the requirements in the Order R5-2012-0116-R4, a monitoring schedule is submitted annually in the Monitoring Plan Update (MPU) which is due August 1 prior to the monitoring water year (WY). The Coalition submitted the 2019 WY MPU on August 1, 2018 (conditionally approved September 21, 2018 and revised September 28, 2018). In order to determine the constituent, monitoring frequency, and where Management Plan Monitoring (MPM) and Normal Monitoring (NM) should occur, the Coalition utilized the Pesticide Evaluation Protocol (for Core sites only), reviewed available monitoring results, and reviewed Pesticide Use Report (PUR) data through December 2017. The August 1 MPU submittal includes an assessment of data through May of that year and this addendum addresses monitoring results from June through September 2018 and any monitoring schedule updates required due to exceedances that occurred during that timeframe.

## UPDATES TO THE 2019 WY MPU

Updates made to the monitoring schedule based on June through September results are included in Table 1. The exceedances that occurred from June through September are discussed below and included in Table 2.

Two exceedances of the Water Quality Trigger Limits (WQTLs) for copper and the acute pyrethroid goal unit were incorrectly reported to the Regional Board and evaluated for monitoring in the 2019 WY MPU submitted on August 1, 2018. Since the receipt of the conditional approval for the 2019 WY MPU (September 21, 2018), these exceedances have been removed from the data and the monitoring schedule has been updated as discussed by Zone below.

**Table 1. June through September 2018 exceedances and 2019 WY monitoring schedule additions.**

ZONE	SITE NAME	SITE TYPE	YEAR	MONTH	CHLORPYRIFOS	MALATHION	SEDIMENT TOXICITY TO H. AZTECA
2	Lateral 2 ½ near Keyes Rd	Represented	2019	September			R
2	Prairie Flower Drain @ Crows Landing Rd	Represented	2019	September			R
4	Bear Creek @ Kibby Rd	Represented	2019	September			R
4	Black Rascal Creek @ Yosemite Rd	Represented	2019	September			R
4	Howard Lateral @ Hwy 140	Represented	2019	September			R
4	Livingston Drain @ Robin Ave	Represented	2019	September			R
4	McCoy Lateral @ Hwy 140	Represented	2019	September			R
4	Unnamed Drain @ Hwy 140	Represented	2019	September			R
6	Ash Slough @ Ave 21	Represented	2019	February*	R	R	

R - Represented site monitoring

\*Monitoring required for one storm event between February 1 and March 31, 2019.

## MONITORING EVALUATION

From June through September 2018, the Coalition monitored Core sites for field parameters, bacteria, nutrients, PEP constituents, water column toxicity, and sediment toxicity to *H. azteca*. Sediment toxicity to *H. azteca* occurred at the Zone 1, Zone 2, and Zone 4 Core sites in September 2018. Exceedances of the WQTLs for chlorpyrifos and malathion occurred at the Zone 6 Core site. Included below is the rationale for monitoring by Zone.

### Zone 1

#### **Sediment Toxicity to *H. azteca***

Sediment samples collected for NM from Dry Creek @ Church St on September 11, 2018 were analyzed for toxicity to *H. azteca*; the sample was toxic with 25% survival compared to the control. Sediment toxicity last occurred in samples collected from Dry Creek @ Wellsford Rd on September 6, 2011. During the 2019 WY, the Coalition will continue to monitor for sediment toxicity in March and September at Dry Creek @ Church St for Core site monitoring (2019 WY MPU).

The Coalition evaluated the need for sediment toxicity monitoring at the Represented site Mootz Drain downstream of Langworth Pond. If sites had two years of monitoring that didn't result in toxicity or three years of monitoring that didn't result in the initiation of a management plan in the past five years, monitoring was determined to not be required. Due to two years of monitoring in the past five years (from 2014 through 2018) with no toxicity, the Coalition determined monitoring for sediment toxicity is not required at Mootz Drain downstream of Langworth Pond.

### Zone 2

#### **Sediment Toxicity to *H. azteca***

Sediment samples collected for NM from Prairie Flower Drain @ Crows Landing Rd on September 11, 2018 were analyzed for toxicity to *H. azteca*; the sample was toxic with 4% survival compared to the control. Sediment toxicity last occurred in samples collected on March 10, 2015. A management plan was not initiated due to more than three years since the last toxic sample was collected. The Coalition will add monitoring for toxicity to *H. azteca* at Prairie Flower Drain @ Crows Landing Rd in September 2019. If the September 2019 sediment samples are not toxic, the Coalition will not schedule monitoring in 2020 due to five continuous years of monitoring, from 2014 through 2018, that didn't result in the initiation of a management plan.

The Coalition evaluated the need for sediment toxicity monitoring at the Represented sites in Zone 2. No monitoring was scheduled at Hatch Drain @ Tuolumne Rd, Hilmar Drain @ Central Ave, and Levee Drain @ Carpenter Rd as the management plans were approved for completion in 2019, 2016, and 2018. All remaining Zone 2 Represented sites, with the exception of Lateral 2 ½ near Keyes Rd, have had at least two years of sediment toxicity monitoring in the past five years

that didn't result in the initiation of a management plan. Only the Lateral 2 ½ near Keyes Rd site subwatershed was determined to need monitoring in the 2019 WY for toxicity to *H. azteca*. Monitoring for sediment toxicity occurred at Lateral 2 ½ near Keyes Rd in 2009, 2010, and 2014 with no toxicity. Due to only one year of monitoring within the last five years, the Coalition will add monitoring for sediment toxicity to *H. azteca* at Lateral 2 ½ near Keyes Rd in September 2019.

### **Water Column Toxicity to *S. capricornutum***

Water column toxicity to *S. capricornutum* occurred on September 11, 2018 in samples collected from Hilmar Drain @ Central Ave (77% growth compared to the control) and Lateral 5 ½ @ South Blaker Rd (82% growth). During the 2019 WY, Management Plan Monitoring (MPM) is scheduled to occur in September for toxicity to *S. capricornutum* at both sites (2019 WY MPU).

### **Pyrethroids**

In the 2019 WY MPU August 1 submittal, Zone 2 Represented sites were evaluated for the need for pyrethroid monitoring due to an incorrectly reported exceedance of the acute concentration goal unit at Prairie Flower Drain @ Crows Landing Rd on May 8, 2018. Based on corrected trigger limit information, the evaluation and scheduling of pyrethroid monitoring for Zone 2 Represented site subwatersheds is being rescinded. However, the Coalition will continue a second year of monitoring for pyrethroids at Prairie Flower Drain @ Crows Landing Rd to complete the site characterization for pyrethroids.

As of March 2019, the Coalition will use the chronic pyrethroid trigger formula to determine exceedances based on guidance from the Regional Board.

## **Zone 4**

### **Sediment Toxicity to *H. azteca***

Sediment samples collected for NM from Merced River @ Oakdale Rd on September 11, 2018 were analyzed for toxicity to *H. azteca*; the sample was toxic with 10% survival compared to the control. This was the first sediment toxicity to occur at the site. During the 2019 WY, the Coalition will continue to monitor for sediment toxicity to *H. azteca* in March and September at Merced River @ Oakdale Rd for Core site monitoring (2019 WY MPU).

The Coalition evaluated the need for *H. azteca* toxicity monitoring at the Represented sites in Zone 4. No sediment toxicity monitoring was scheduled at Canal Creek @ West Bellevue Rd since the site was last monitored during the 2016 and 2017 WYs. Because more than five years have passed since samples were last analyzed for sediment toxicity, the Coalition will add monitoring in September 2019 at the remaining Zone 4 Represented sites: 1) Bear Creek @ Kibby Rd 2) Black Rascal Creek @ Yosemite Rd, 3) Howard Lateral @ Hwy 140, 4) Livingston Drain @ Robin Ave, 5) McCoy Lateral @ Hwy 140, and 6) Unnamed Drain @ Hwy 140.

## **Zone 5**

## Copper

Samples collected on March 5, 2018 from Deadman Creek @ Hwy 59 were analyzed for dissolved copper and results were incorrectly reported to the Regional Board as an exceedance that triggered the initiation of a management plan. The Coalition included a MPM schedule in the 2019 WY MPU for dissolved copper. Since no management plan was initiated, the monitoring type for copper has been updated from “MPM” to “R” in the schedule provided in Attachment A. Represented site monitoring for dissolved copper is scheduled for the third year during the 2019 WY at Deadman Creek @ Hwy 59 site subwatershed.

## Zone 6

### Organophosphates

Samples collected from Cottonwood Creek @ Rd 20 on June 12, 2018 were analyzed for chlorpyrifos and malathion and exceedances of the WQTLs for both constituents occurred (Table 2). During the 2019 WY, monitoring at the Core site, Cottonwood Creek @ Rd 20, is scheduled for chlorpyrifos and malathion according to the results of the PEP (2019 WY MPU). Since a management plan for chlorpyrifos was triggered for the 2019 WY, the monitoring type for chlorpyrifos has been updated from “Core” to “MPM” in the schedule provided in Attachment A.

The Coalition evaluated the need for chlorpyrifos and malathion monitoring at Represented sites in Zone 6. In 2010, the Coalition monitored for malathion at Ash Slough @ Ave 21 and the chlorpyrifos management plan was approved for completion. Due to more than five years since the site was last monitored for chlorpyrifos and malathion, the Coalition evaluated PUR data from 2015 through 2017 to evaluate months of highest use. Based on the Coalition’s evaluation monitoring for chlorpyrifos and malathion will occur for one storm event from February 1 through March 31, 2019 (Figure 1 and Figure 2). Ash Slough is an ephemeral stream that is consistently dry during the irrigation season; therefore, no monitoring is scheduled in June or July for chlorpyrifos or malathion.

Monitoring for chlorpyrifos last occurred at Berenda Slough along Ave 18 ½ during the 2016 and 2017 WYs with no exceedances. During the 2019 WY, monitoring for chlorpyrifos is not scheduled to occur. The Coalition last monitored for malathion at Berenda Slough along Ave 18 ½ in 2011 and 2012. Since the only applications in the last three years occurred during August of 2017, along with the ephemeral nature of the stream during summer months, the Coalition did not schedule monitoring for malathion at Berenda Slough along Ave 18 ½ in August of the 2019 WY (Figure 3).

## Copper

An exceedance of the hardness based WQTL for dissolved copper occurred in samples collected on July 10, 2018 from Cottonwood Creek @ Rd 20. An evaluation of the Represented sites was not required, as all Zone 6 site subwatersheds are already in a management plan for copper and MPM is scheduled to occur during the 2019 WY based on months of peak use (2019 WY MPU).

Figure 1. Ash Slough @ Ave 21 applications of chlorpyrifos (2015-2017).

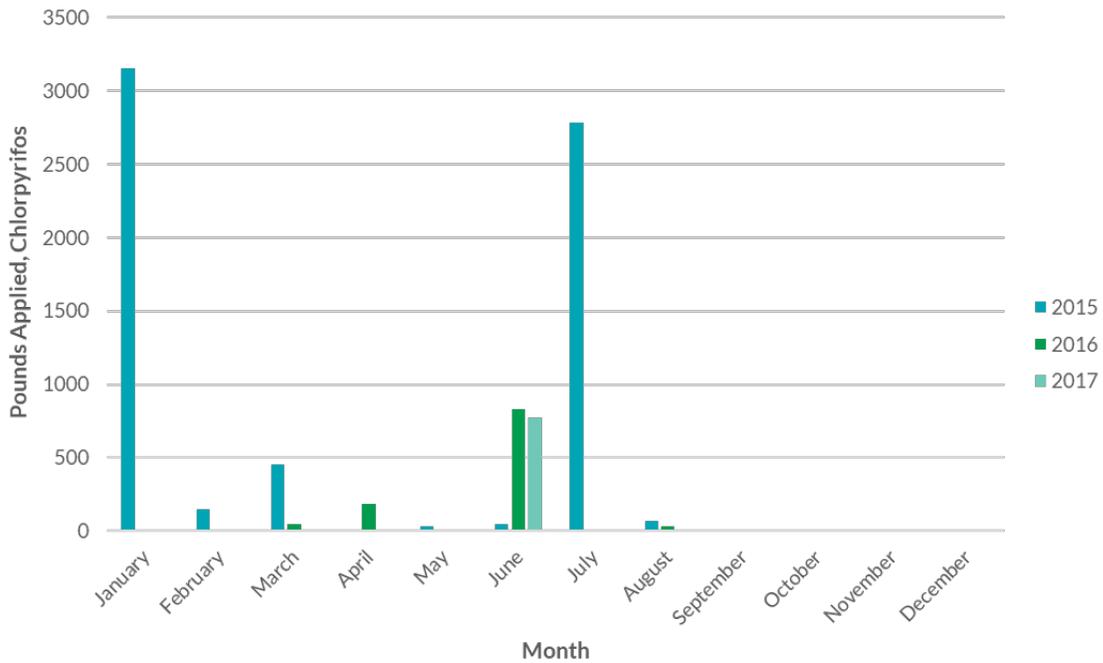


Figure 2. Ash Slough @ Ave 21 applications of malathion (2015-2017).

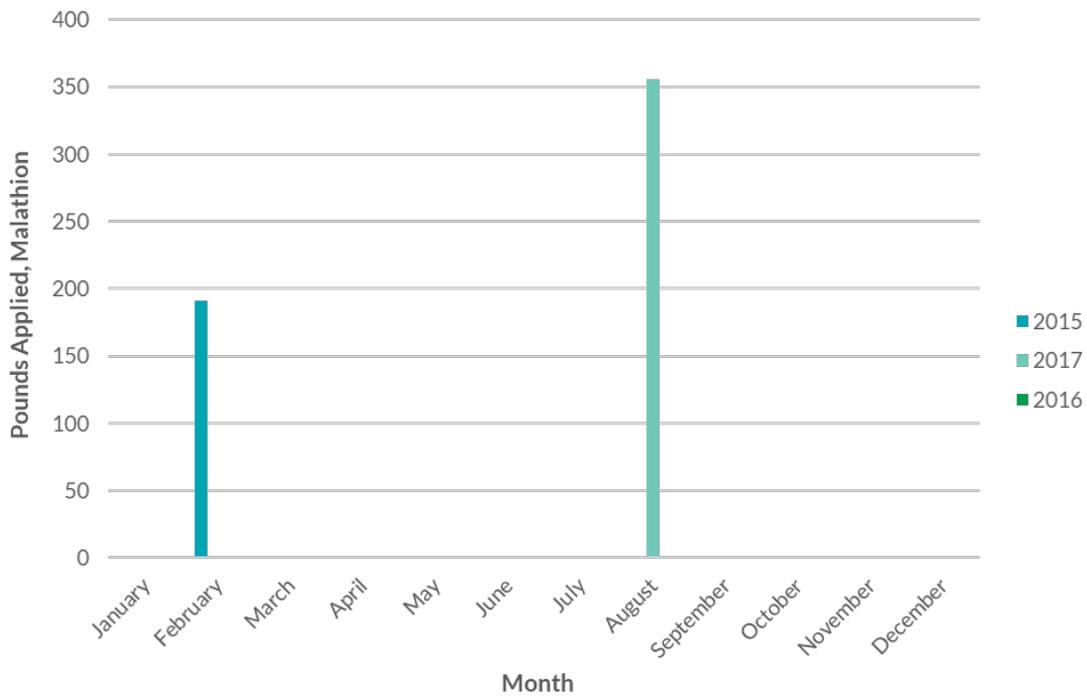
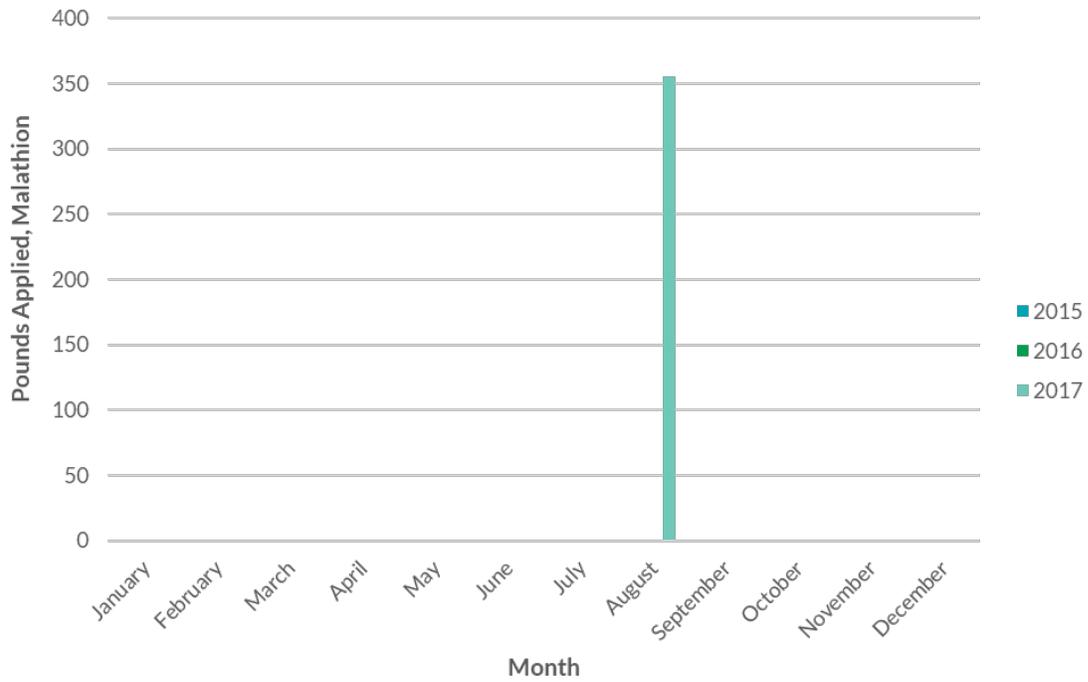


Figure 3. Berenda Slough along Ave 18 1/2 applications of malathion (2015-2017).



**Table 2. Exceedances of the WQTLs from June 1, 2018 through September 30, 2018.**

Listed by zone and alphabetically by site name.

ZONE	SITE NAME	SAMPLE DATE	SEASON	SITE TYPE	DO (<7 MG/L)	PH (<6.5 OR >8.5)	SC (>700 µS/CM)	E. COLI (235 MPN/100)	AMMONIA (1.5 MG/L OR VARIABLE BASED ON PH/TEMP)	COPPER, DISSOLVED (HARDNESS BASED WQTL)	NITRATE + NITRITE (10 MG/L)	CHLORPYRIFOS, 0.015 µG/L	MALATHION, ND	S. CAPRICORNUTUM, % GROWTH	H. AZTECA, % SURVIVAL
1	Dry Creek @ Church St	6/12/2018	Irrigation 3	Core	6.2										
2	Lateral 6 and 7 @ Central Ave	6/12/2018	Irrigation 3	Represented			1179								
2	Levee Drain @ Carpenter Rd	6/12/2018	Irrigation 3	Represented	0.68		1956								
2	Prairie Flower Drain @ Crows Landing Rd	6/12/2018	Irrigation 3	Core	1.23		1597	285.1			20				
2	Unnamed Drain @ Hogin Rd	6/12/2018	Irrigation 3	Represented	0.93		929								
3	Highline Canal @ Hwy 99	6/12/2018	Irrigation 3	Core	6.34	8.7									
4	Merced River @ Oakdale Rd	6/12/2018	Irrigation 3	Core	5.03			260.3							
5	Duck Slough @ Gurr Rd - FD	6/12/2018	Irrigation 3	Core											
6	Cottonwood Creek @ Rd 20	6/12/2018	Irrigation 3	Core								0.025	0.03		
1	Dry Creek @ Church St	7/10/2018	Irrigation 4	Core	5.07			579.4							
2	Hatch Drain @ Tuolumne Rd	7/10/2018	Irrigation 4	Represented	0.32		1438								
2	Hilmar Drain @ Central Ave	7/10/2018	Irrigation 4	Represented	6.9		926								
2	Lateral 6 and 7 @ Central Ave	7/10/2018	Irrigation 4	Represented		8.52									
2	Prairie Flower Drain @ Crows Landing Rd	7/10/2018	Irrigation 4	Core	1.44		1035	1986.3	5						
2	Unnamed Drain @ Hogin Rd	7/10/2018	Irrigation 4	Represented	3.58		1011								
4	Merced River @ Oakdale Rd	7/10/2018	Irrigation 4	Core	6.02										
5	Duck Slough @ Gurr Rd	7/10/2018	Irrigation 4	Core				517.2							
5	Miles Creek @ Reilly Rd	7/10/2018	Irrigation 4	Represented	6.2										
6	Cottonwood Creek @ Rd 20	7/10/2018	Irrigation 4	Core					4.8 (4.6)						
6	Cottonwood Creek @ Rd 20-FD	7/10/2018	Irrigation 4	Core					5.8 (4.6)						
1	Dry Creek @ Church St	8/14/2018	Irrigation 5	Core				272.3							
2	Lateral 2 1/2 near Keyes Rd	8/14/2018	Irrigation 5	Represented		8.74									
2	Prairie Flower Drain @ Crows Landing Rd	8/14/2018	Irrigation 5	Core	0.72		1775	>2419.6							
2	Prairie Flower Drain @ Crows Landing Rd-FD	8/14/2018	Irrigation 5	Core				>2419.6							
4	Merced River @ Oakdale Rd	8/14/2018	Irrigation 5	Core	5.61										
5	Duck Slough @ Gurr Rd	8/14/2018	Irrigation 5	Core	5.82										
5	Miles Creek @ Reilly Rd	8/14/2018	Irrigation 5	Represented	6.98										

