

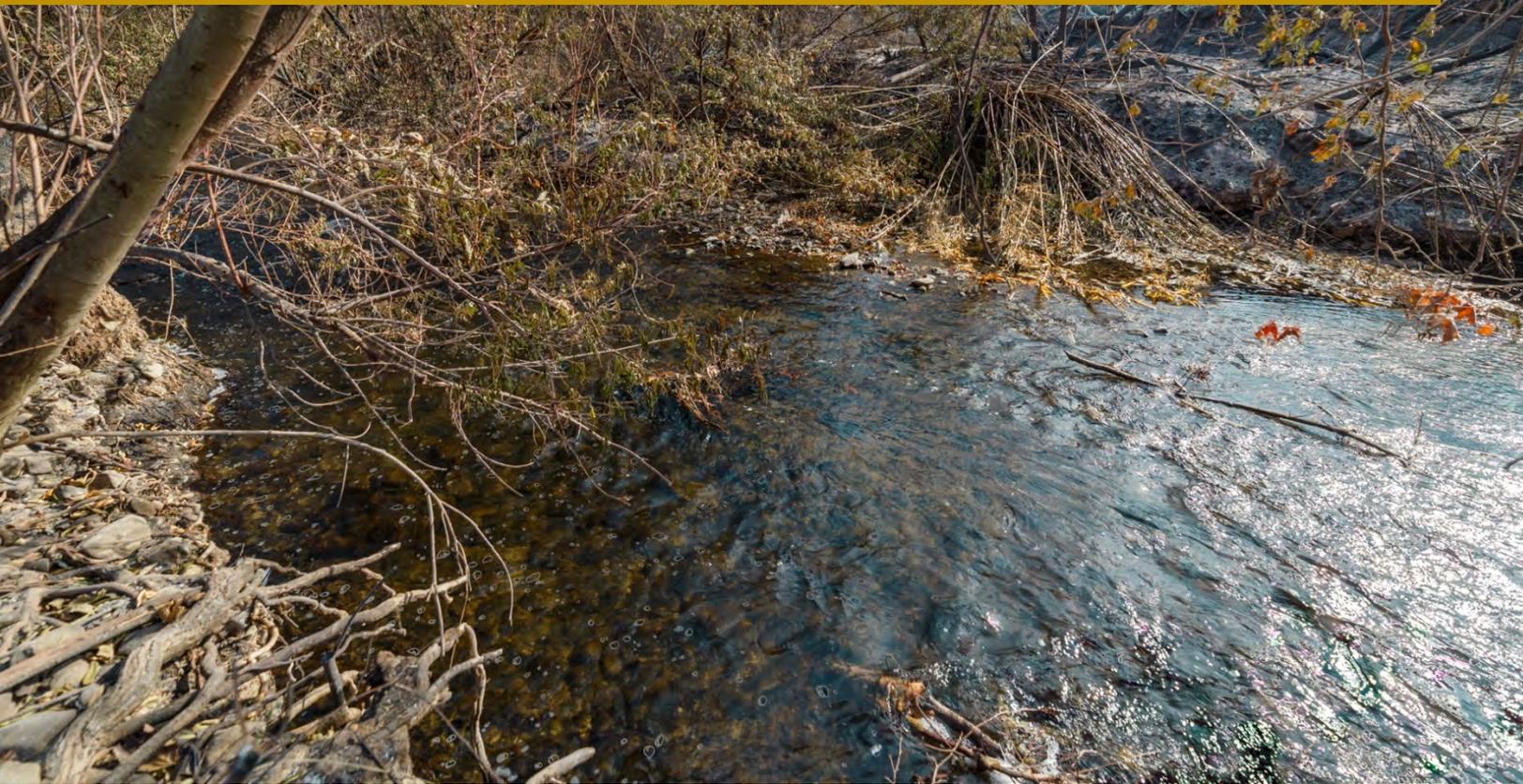


*Ventura Countywide
Stormwater Quality
Management Program*

2018-2019
Permit Year

Ventura Countywide Stormwater Quality
Management Program Annual Report

Attachment E – TMDL Reports (3/3)



Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura

Ventura County Watershed Protection District

December 13, 2019



June 28, 2019

Jenny Newman, Assistant Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th St., Suite 200
Los Angeles, CA 90013

**Subject: 2019 ANNUAL REPORT FOR THE VENTURA RIVER ALGAE TMDL
(RESOLUTION NO. R12-011)**

Dear Ms. Newman:

Enclosed for your review and consideration is the 2019 Annual Report prepared and submitted to document completion of monitoring activities required by the Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients Total Maximum Daily Load, Resolution No. R12-011 (Ventura Algae TMDL) and the Ventura Algae TMDL Comprehensive Monitoring Plan for Receiving Water approved by Los Angeles Regional Water Quality Control Board on October 20, 2014.

This document is being submitted on behalf of the County of Ventura, Ventura County Watershed Protection District, Ojai Valley Sanitary District, City of Ojai, City of Ventura, California Department of Transportation, and the Ventura County Agricultural Irrigated Lands Group (represented by the Farm Bureau of Ventura County).

If you have any comments or questions regarding the attached document, please contact me at (805) 645-1382 or Ewelina.Mutkowska@ventura.org.

Sincerely,

Ewelina Mutkowska
County Stormwater Program Manager
Ventura County Watershed Protection District

Ms. Jenny Newman,
June 28, 2019
Page 2 of 2

cc: Jun Zhu, Los Angeles Regional Water Quality Control Board
Jeff Pratt, Ventura County Public Works Agency
Glenn Shephard, Ventura County Watershed Protection District
Arne Anselm, Ventura County Watershed Protection District
Joe Yahner, City of Ventura
Greg Grant, City of Ojai
Jeff Palmer, Ojai Valley Sanitary District
John Krist, Farm Bureau of Ventura County
Shirley Pak, California Department of Transportation

TOTAL MAXIMUM DAILY LOAD FOR ALGAE, EUTROPHIC CONDITIONS, AND NUTRIENTS IN VENTURA RIVER, INCLUDING THE ESTUARY, AND ITS TRIBUTARIES (VR ALGAE TMDL)

2019 ANNUAL REPORT

Submitted to
TMDL Responsible Parties Implementing Receiving Water Monitoring Requirements:

City of Ojai
City of Ventura
County of Ventura
Ojai Valley Sanitary District
California Department of Transportation
Ventura County Agricultural Irrigated Lands Group
Ventura County Watershed Protection District

Prepared by:
Ventura County Watershed Protection District
June 28, 2019



TABLE OF CONTENTS

Executive Summary	i
Background	1
Access Permission	2
Monthly Monitoring	2
Field Observations	17
Continuous Data Logging	18
Observations and Lessons Learned.....	25
Appendices to Annual Report	27

LIST OF FIGURES

Figure 1. Sampling Sites and Flow Observation Locations.....	1
Figure 2. 2018 – 2019 Monthly Monitoring - Flow	6
Figure 3. 2018 – 2019 Monthly Monitoring - Dissolved Oxygen	7
Figure 4. 2018 – 2019 Monthly Monitoring - pH	8
Figure 5. 2018 – 2019 Monthly Monitoring - Total Nitrogen	12
Figure 6. 2017 – 2018 Monthly Monitoring - Total Nitrogen	12
Figure 7. 2016 – 2017 Monthly Monitoring - Total Nitrogen	12
Figure 8. 2018 – 2019 Monthly Monitoring - Total Phosphorus.....	13
Figure 9. 2017 – 2018 Monthly Monitoring - Total Phosphorus.....	13
Figure 10. 2016 – 2017 Monthly Monitoring - Total Phosphorus.....	13
Figure 11. 2018 Dry Season - Chlorophyll a	15
Figure 12. 2018 Dry Season - Macroalgal Percent Cover	15
Figure 13. 2018 Dry Season Seasonal Averages - Chlorophyll <i>a</i> and Macroalgal Cover	16
Figure 14. Hydrolab HL4 sonde.....	18
Figure 15. Continuous Deployment Sonde Data - pH	20
Figure 16. Continuous Deployment Sonde Data - Dissolved Oxygen	22
Figure 17. Continuous Deployment Sonde Data - Temperature	23
Figure 18. Continuous Deployment Sonde Data - Specific Conductance	24

LIST OF TABLES

Table 1. May 2018 – April 2019 Observation Sites	2
Table 2. May 2018 – April 2019 Water Quality Sample Collection Date Agency	3
Table 3. May 2018 – April 2019 Field Data	3
Table 4. May 2018 – April 2019 Nutrient Data	8
Table 5. 2018 Dry Season Riverine Monthly Algal Biomass (Chlorophyll <i>a</i>) and Percent Macroalgal Cover	14
Table 6. 2018 Dry Season Riverine Seasonal Averages - Macroalgal Biomass and Cover	16
Table 7. 2018 Dry Season Estuarine Monthly Algal Biomass (Phytoplankton Chlorophyll <i>a</i>) and Percent Macroalgal Cover ..	16
Table 8. May 2018 – April 2019 Sonde Deployment Dates	20
Table 9. Exceedances By Site and Month	27

APPENDICES

- Appendix A: Field Data Sheets (May 2018 – April 2019)
- Appendix B: Chain of Custodies and Laboratory Reports (May 2018 – April 2019)

EXECUTIVE SUMMARY

On behalf of the Total Maximum Daily Load (TMDL) Responsible Parties, the Ventura County Watershed Protection District (District) began sampling in accordance with the Ventura River Algae TMDL Comprehensive Monitoring Plan for Receiving Waters (CMP) on January 14, 2015. As required by the TMDL and described in the CMP, monitoring is conducted at one site in the Ventura River Estuary (TMDL-Est), one site in each of the Ventura River reaches 1 – 4, and in two main tributaries, Cañada Larga and San Antonio Creek (TMDL-R1, TMDL-R2, TMDL-R3, TMDL-R4, TMDL-CL and TMDL-SA, respectively).

This monitoring report covers May 2018 – April 2019 and includes field measurements, continuous data logger results, laboratory results, and field observations for the prescribed monitoring parameters at each site, including monthly measurements of flow, nutrients, dissolved oxygen (DO), and pH; two-week continuous monitoring of DO and pH every quarter (temperature and conductivity are also recorded); observations of flow along the Ventura River mainstem; and monthly monitoring of algae during the dry season (May – September) for chlorophyll *a* and macroalgal percent cover.

The Ventura River Watershed has been subjected to increased environmental stresses in recent years. In addition to severe drought, the watershed was heavily impacted by the Thomas Fire, which started on December 4, 2017 and continued through January 9, 2018, becoming (at that time) the largest recorded wild fire in California history. The fire burned most of the open space and forest lands in the watershed, as well as orchards, homes, and other structures from Fillmore to Santa Barbara. Areas that did not burn (mainly the Ojai Valley), were still subject to heavy ash deposition.

Although Ventura County received average rainfall over the last two wet seasons (2017/18 and 2018/19), drought is still not over in the county. Rainfall in the 2017/18 wet season caused many creeks and streams in the Ventura River watershed to flow into the beginning of the 2018 dry season (May), however flow was observed to be discontinuous in the Ventura River above Casitas Vista Road and in San Antonio Creek by May and June 2018, respectively. Flow connectivity was restored by rainfall prior to the January 2019 monitoring event. TMDL-Est through TMDL-R3 are perennial and able to be sampled for nutrients and algae throughout the dry season, however TMDL-R4, TMDL-SA, and TMDL-CL were dry for most of the dry season. Flow variations observed between monitoring sites and events might be due to a combination of factors including geology, weather conditions, inputs, and extractions.

Quarterly two-week continuous monitoring was conducted using calibrated Hydrolab HL4 water quality sondes beginning May 1, 2018, September 12, 2018, December 11, 2018, and March 13, 2019. Sondes were not deployed at dry sites (TMDL-R4, TMDL-SA, and TMDL-CL in September and December). Heavy winter storms in early 2019 reshaped the estuary and removed camouflaging vegetation cover so the TMDL-Est sonde was not deployed in March 2019 because of the high risk of theft at this site (following the loss of a sonde in September 2017).

All sampled sites except for TMDL-R1, TMDL-R2, and TMDL-CL exceeded the seasonal average numeric target for macroalgal cover ($\leq 15\%$ for the estuary and $\leq 30\%$ for the riverine sites). All sites except TMDL-CL and TMDL-SA exceeded the seasonal average numeric target for algal biomass (estuarine phytoplankton seasonal average chlorophyll *a* target of $\leq 20 \mu\text{g/L}$, riverine seasonal average chlorophyll *a* target of $\leq 150 \text{ mg/m}^2$).

All measurements for pH were within the numeric target limits of 6.5-8.5 pH units except for TMDL-Est and TMDL-CL during May 2018 monthly and continuous monitoring as well as TMDL-Est December 2018 continuous monitoring. pH values were highest during the May 2018 sonde deployment (8.77 at TMDL-Est and 8.79 at TMDL-CL). DO levels below the numeric target of 7 mg/L were observed frequently at sites with low flow during monthly grab sample monitoring, particularly at TMDL-R4 and TMDL-SA, and during dry season sonde deployments at almost all sites. The general association between DO and low flow is possibly due to the ponding of water upstream and/or at the measurement location, as well as higher temperatures. The measured range for total nitrogen was from $<0.20 \text{ mg/L}$ to 4.1 mg/L and total phosphorus was between 0.0070 (DNQ) mg/L and 1.0 mg/L .

Sampling event data, including laboratory reports, chain of custody forms, and field data sheets, are provided as appendices to this report.

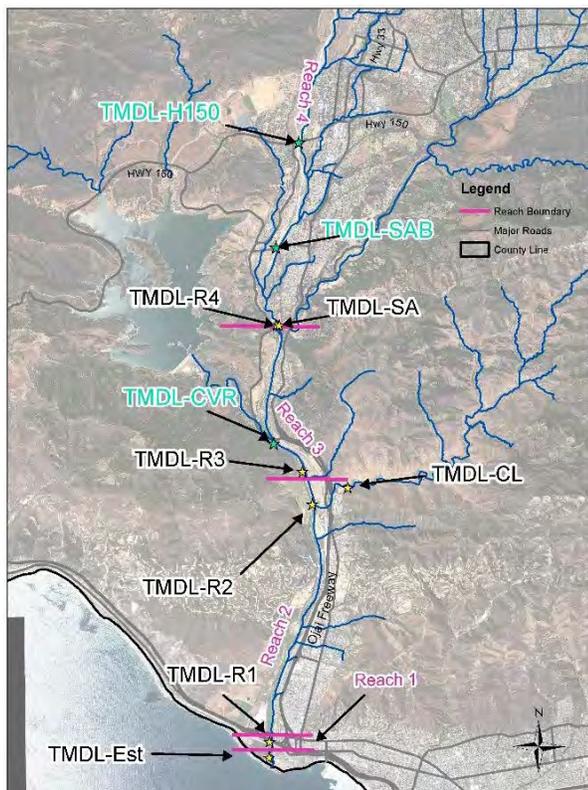
BACKGROUND

The Water Quality Control Plan for the Los Angeles Region was amended on December 6, 2012 to incorporate the Total Maximum Daily Load for Algae, Eutrophic Conditions, and Nutrients in the Ventura River, including the Estuary, and its Tributaries (VR Algae TMDL). The VR Algae TMDL became effective on June 28, 2013 and required the development and implementation of a comprehensive monitoring plan (CMP) for receiving water monitoring to assess numeric attainment and measure in-stream nutrient concentrations. The CMP submitted by the Responsible Parties (Ojai Valley Sanitary District, Ventura County Watershed Protection District, County of Ventura, City of Ojai, City of San Buenaventura (Ventura), California Department of Transportation, and the Ventura County Agricultural Irrigated Lands Group (represented by the Farm Bureau of Ventura County)) was approved by the Los Angeles Regional Water Quality Control Board (Regional Board) on October 20, 2014.

On November 18, 2014, the Ventura County Watershed Protection District (District) was retained by the Responsible Parties to conduct monitoring in accordance with the CMP for up to 5 years. The CMP required sampling to begin no later than 90 days after the Los Angeles Regional Water Quality Control Board approved the CMP, which equates to January 18, 2015. Monitoring began on January 14, 2015.

As required by the VR Algae TMDL, the CMP prescribes year-round monthly water quality monitoring for nutrients and other water quality parameters at one site in the Ventura River Estuary, one site in each of the Ventura River reaches 1 – 4, and in two main tributaries, Cañada Larga and San Antonio Creek. Continuous monitoring of dissolved oxygen (DO) and pH (both of which also require temperature monitoring), are required at each site every quarter. Conductivity is also measured during the continuous monitoring. The CMP also requires monthly monitoring of algae (chlorophyll *a* and percent macroalgal cover) during the dry season (May – September). This report is a summary of monthly dry season monitoring data from May – September 2018, monthly wet season monitoring data from October 2018 – April 2019, and quarterly continuous data logging conducted in May, September, and December 2018, and March 2019.

FIGURE 1. SAMPLING SITES AND FLOW OBSERVATION LOCATIONS



Note:

* Yellow site markers (black labels) are sampling locations including TMDL-Est, TMDL-R1, TMDL-R2, TMDL-R3, TMDL-CL, TMDL-R4, and TMDL-SA.

** Blue site markers (blue labels) are flow observation locations including TMDL-CVR, TMDL-SAB, and TMDL-H150.

ACCESS PERMISSION

In 2015, in order to allow for continuity of monitoring site locations, five-year easements were sought from property owners where sampling sites are located for the fee of \$250 per term. The temporary easements expire five years from the date of approval (early 2020). Two property owners declined the five-year easement request but signed a revocable access permit instead. The sites affected by the permits are TMDL-R2 (which was moved upstream of the site listed in the CMP because the owner of that parcel denied the access request) and TMDL-SA directly above the confluence with the Ventura River. TMDL-R2 was sampled approximately 200 meters upstream of the Ojai Valley Sanitary District site (OVSD-R5) for monthly monitoring and approximately 300 meters upstream for continuous monitoring in order to be entirely on permitted property.

MONTHLY MONITORING

Monitoring occurred monthly as required. Flow was observed to be discontinuous along the mainstem of the Ventura River upstream of Casitas Vista Road until the January 2019 monitoring event, as shown in Table 1. Sample dates and collecting agency are shown in Table 2 (sample sites that were dry are noted as such and shaded grey). Monthly field data (including flow) is summarized in Table 3 and nutrient data is summarized in Table 4. The District contracted with Aquatic Bioassay & Consulting Laboratories, Inc. (ABC) for assistance with the monthly monitoring of chlorophyll *a* and percent cover of algae during the 2018 Dry Season (Table 5, Table 6, and Table 7).

TABLE 1. MAY 2018 – APRIL 2019 OBSERVATION SITES

Date	Ventura River at Hwy 150	Ventura River at Santa Ana Blvd	Ventura River at Casitas Vista Road
5/16/2018	6 cfs	Water visible downstream but DRY at bridge	6 cfs
6/4/2018	DRY	DRY	Flowing east end ~ 2 cfs
7/10/2018	DRY	DRY	Flowing east end ~ 2 cfs
8/15/2018	DRY	DRY	Flowing east end ~ 2-3 cfs
9/4/2018	DRY	DRY	Ponded west end. Flowing east end ~ 2-3 cfs
10/10/2018	DRY	DRY	Ponded west end. Flowing east end ~ 2-3 cfs
11/19/2018	DRY	DRY	Ponded west end. Flowing east end ~ 3-4 cfs
12/10/2018	~3 cfs	DRY	Ponded west end. Flowing east end ~ 5 cfs
1/10/2019	~6 cfs	~2 cfs, flowing west channel only	~ 6 cfs, ~2cfs west side and 4-6 cfs east side.
2/12/2019	Est 30 cfs	Est 30 cfs. Main flow west channel, also flowing east channel.	Est 50 cfs. Main flow east bank, also flowing west bank.
3/13/2019	Est 60 cfs	Est 50 cfs	Est 80 cfs. Main flow east bank (~70 cfs), also flowing west bank (~10 cfs).
4/8/2019	Est 20 cfs	Est 20 cfs	Est 30 cfs

TABLE 2. MAY 2018 – APRIL 2019 WATER QUALITY SAMPLE COLLECTION DATE AGENCY

Sample Month	Season	Collecting Agency	Sample Date						
			TMDL-Est	TMDL-R1	TMDL-R2	TMDL-R3	TMDL-R4	TMDL-SA	TMDL-CL
MAY 2018	Dry	District/ABC	5/16	5/16	5/16	5/15	5/15	5/15	5/15
JUN 2018	Dry	District/ABC	6/7	6/7	6/6	6/6	6/6	Mostly Dry (6/6)	DRY (6/4)
JUL 2018	Dry	District/ABC	7/10	7/10	7/9	7/9	7/9	Mostly Dry (7/9)	DRY (7/10)
AUG 2018	Dry	District/ABC	8/15	8/15	8/14	8/14	DRY (8/14)	Mostly Dry (8/14)	DRY (8/14)
SEP 2018	Dry	District/ABC	9/5	9/5	9/5	9/5	DRY (9/4)	DRY (9/4)	DRY (9/4)
OCT 2018	Wet	District	10/10	10/10	10/10	10/10	DRY (10/10)	DRY (10/10)	DRY (10/10)
NOV 2018	Wet	District	11/19	11/19	11/19	11/19	DRY (11/19)	DRY (11/19)	DRY (11/19)
DEC 2018	Wet	District	12/10	12/10	12/10	12/10	DRY (12/10)	DRY (12/10)	DRY (12/10)
JAN 2019	Wet	District	1/10	1/10	1/10	1/10	1/10	1/10	1/10
FEB 2019	Wet	District	2/12	2/12	2/12	2/12	2/12	2/12	2/12
MAR 2019	Wet	District	3/13	3/13	3/13	3/13	3/13	3/13	3/13
APR 2019	Wet	District	4/8	4/8	4/8	4/8	4/8	4/8	4/8

“Mostly Dry” indicates that water was present at the monitoring site but upstream flow was insufficient to meet algae sampling protocols so monthly monitoring parameters were sampled but algae monitoring/collection could not be conducted. “DRY” sites had insufficient water present for any sampling to take place. TMDL-SA and TMDL-CL were “Mostly Dry” or “DRY” for much of the reporting period and TMDL-R4 went dry for a shorter duration..

MONTHLY FIELD DATA

TABLE 3. MAY 2018 – APRIL 2019 FIELD DATA

Site	Sample Date	Sample Time	Berm Status	Flow (cfs)	pH (pH Units)	DO (mg/L)	SC (µS/cm)	Salinity (ppt)	Water Temp (°C)
					Numeric Target 6.5 - 8.5	Numeric Target >7 mg/L			
TMDL-Est	5/16/2018	12:55	Open-west end	NA	8.68	12.02	39080	24.9	22.7
TMDL-Est	6/7/2018	9:45	Open-west end	NA	8.42	11.02	7670	4.2	22.1
TMDL-Est	7/10/2018	10:10	Closed	NA	8.06	8.34	4536	2.4	27.2
TMDL-Est	8/15/2018	10:20	Closed	NA	8.27	9.08	3314	1.7	26
TMDL-Est	9/5/2018	13:50	Closed	NA	8.15	7.47	2434	1.3	23.5
TMDL-Est	10/10/2018	11:25	Closed	NA	7.94	8.22	1940	1	21.3
TMDL-Est	11/19/2018	14:55	Closed	NA	8.22	13.78	1595	0.8	14.5

Site	Sample Date	Sample Time	Berm Status	Flow (cfs)	pH (pH Units)	DO (mg/L)	SC (µS/cm)	Salinity (ppt)	Water Temp (°C)
					<i>Numeric Target 6.5 - 8.5</i>	<i>Numeric Target >7 mg/L</i>			
TMDL-Est	12/10/2018	12:00	Open-west end	NA	7.96	11.09	25100	15.3	15.3
TMDL-Est	1/10/2018	12:00	Open-west end	NA	7.88	8.71	16320	9.6	13.1
TMDL-Est	2/12/2019	12:40	Open both ends	NA	7.41	6.35	29720	18.1	17.3
TMDL-Est	3/13/2019	13:20	Open both ends	NA	8.3	9.38	1190	0.6	14.6
TMDL-Est	4/8/2019	14:15	Open both ends	NA	8.33	11.11	1379	0.7	21.1
TMDL-R1	5/16/2018	11:00	NA	3.73	8.35	9.51	1719	0.9	18.5
TMDL-R1	6/7/2018	7:45	NA	2.69	8.37	9.22	1794	0.9	18.3
TMDL-R1	7/10/2018	7:45	NA	1.93	7.77	6.42	1742	0.9	23.3
TMDL-R1	8/15/2018	7:40	NA	1.3	8.03	7.46	1691	0.9	22.5
TMDL-R1	9/5/2018	11:50	NA	2.03	8.14	7.14	1645	0.8	21
TMDL-R1	10/10/2018	10:40	NA	1.51	7.9	7.62	1778	0.9	18.5
TMDL-R1	11/19/2018	13:45	NA	2.22	7.93	9.7	1557	0.8	13.4
TMDL-R1	12/10/2018	11:05	NA	5.3	8.03	9.93	1527	0.8	13.3
TMDL-R1	1/10/2019	11:10	NA	6.07	8.15	9.42	1716	0.9	12.9
TMDL-R1	2/12/2019	12:00	NA	50**	8.32	10.21	1191	0.6	10.6
TMDL-R1	3/13/2019	12:30	NA	80**	8.35	9.41	1170	0.6	13.5
TMDL-R1	4/8/2019	13:15	NA	53.27	8.41	10.85	1204	0.6	19.9
TMDL-R2	5/16/2018	8:20	NA	3.35	8.06	7.42	1255	0.6	18.4
TMDL-R2	6/6/2018	13:10	NA	3.26	8.22	9.15	1327	0.7	21.5
TMDL-R2	7/9/2018	13:00	NA	2.94	8.17	8.91	1305	0.7	26.1
TMDL-R2	8/14/2018	11:15	NA	2.11	8.2	6.66	1315	0.7	25.1
TMDL-R2	9/5/2018	9:45	NA	2.61	7.96	6.84	1269	0.6	22.7
TMDL-R2	10/10/2018	9:30	NA	1.72	7.78	7.31	1324	0.7	21.1
TMDL-R2	11/19/2018	12:00	NA	6.84	7.85	9.4	1232	0.6	16.5
TMDL-R2	12/10/2018	10:00	NA	4.89	7.93	9.14	1232	0.6	15.2
TMDL-R2	1/10/2019	10:10	NA	6.69	8.03	7.95	1185	0.6	14.6
TMDL-R2	2/12/2019	10:50	NA	55**	8.25	10.03	1054	0.5	9.8
TMDL-R2	3/13/2019	11:30	NA	80**	8.23	9.62	1030	0.5	13
TMDL-R2	4/8/2019	12:20	NA	30**	8.2	9.32	1083	0.5	19.1
TMDL-R3	5/15/2018	12:00	NA	0.92	8.28	12.94	1152	0.6	21.2
TMDL-R3	6/6/2018	11:05	NA	0.8	8.02	8.69	1176	0.6	20
TMDL-R3	7/9/2018	11:00	NA	1.46	8	9.63	1219	0.6	24.4
TMDL-R3	8/14/2018	9:00	NA	1	7.92	6.74	1219	0.6	22
TMDL-R3	9/5/2018	7:40	NA	1	7.74	6.91	1192	0.6	20.9
TMDL-R3	10/10/2018	8:25	NA	0.74	7.47	7.89	1229	0.6	18.1
TMDL-R3	11/19/2018	10:40	NA	2.31	7.85	10.3	1189	0.6	15.1
TMDL-R3	12/10/2018	9:00	NA	3.39	7.89	9.5	1083	0.6	14.5

Site	Sample Date	Sample Time	Berm Status	Flow (cfs)	pH (pH Units)	DO (mg/L)	SC (µS/cm)	Salinity (ppt)	Water Temp (°C)
					<i>Numeric Target 6.5 - 8.5</i>	<i>Numeric Target >7 mg/L</i>			
TMDL-R3	1/10/2019	9:10	NA	4.6	7.96	8.18	1159	0.6	15.4
TMDL-R3	2/12/2019	10:00	NA	50**	8.24	10.62	1040	0.5	8.9
TMDL-R3	3/13/2019	10:40	NA	80**	8.27	9.77	1000	0.5	12.1
TMDL-R3	4/8/2019	11:20	NA	30**	8.19	9.22	1056	0.5	18
TMDL-R4	5/15/2018	8:05	NA	0.69	7.66	8.36	1070	0.5	16.6
TMDL-R4	6/6/2018	8:00	NA	0.24	7.48	6.12	1060	0.5	17.7
TMDL-R4	7/9/2018	8:40	NA	0.02*	7.2	5.46	1092	0.5	19.4
TMDL-R4	8/14/2018	8:00	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	9/4/2018	10:00	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	10/10/2018	7:50	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	11/19/2018	9:30	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	12/10/2018	8:25	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	1/10/2019	8:25	NA	<0.1*	7.45	5.37	1147	0.6	12
TMDL-R4	2/12/2019	9:00	NA	40**	8.25	10.37	937	0.5	8.4
TMDL-R4	3/13/2019	9:15	NA	80.9	8.18	9.59	901	0.4	11.8
TMDL-R4	4/8/2019	9:20	NA	34.6	7.88	9	949	0.5	17.2
TMDL-SA	5/15/2018	10:25	NA	0.01*	7.25	4.54	1026	0.5	17.3
TMDL-SA	6/6/2018	10:20	NA	0.01*	7.2	3.38	1030	0.5	17.5
TMDL-SA	7/9/2018	10:00	NA	0.02*	7.11	4.79	1073	0.5	19.2
TMDL-SA	8/14/2018	8:20	NA	<0.01*	7.07	5.84	997	0.5	18.3
TMDL-SA	9/4/2018	10:10	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	10/10/2018	8:00	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	11/19/2018	9:30	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	12/10/2018	8:35	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	1/10/2019	8:10	NA	<0.01*	7.68	5.79	1208	0.6	8.4
TMDL-SA	2/12/2019	8:25	NA	26.3	8.28	10.99	1188	0.6	7.2
TMDL-SA	3/13/2019	8:45	NA	58.6	8.26	10.12	1072	0.5	10.2
TMDL-SA	4/8/2019	9:00	NA	9:55	8.25	10.05	1271	0.6	16.7
TMDL-CL	5/15/2018	14:00	NA	0.035	8.73	10.58	3709	1.9	31.4
TMDL-CL	6/4/2018	13:30	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	7/10/2018	12:15	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	8/14/2018	13:30	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	9/4/2018	8:45	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	10/10/2018	10:15	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	11/19/2018	13:20	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	12/10/2018	7:50	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	1/10/2019	7:25	NA	0.04	8.2	11.78	4147	2.2	5.6
TMDL-CL	2/12/2019	7:30	NA	2.45	8.27	11.7	4003	2.1	5.5

Site	Sample Date	Sample Time	Berm Status	Flow (cfs)	pH (pH Units)	DO (mg/L)	SC (µS/cm)	Salinity (ppt)	Water Temp (°C)
					<i>Numeric Target 6.5 - 8.5</i>	<i>Numeric Target >7 mg/L</i>			
TMDL-CL	3/13/2019	7:30	NA	4.5	8.34	10.47	3583	1.9	8.9
TMDL-CL	4/8/2019	8:10	NA	1.27	8.22	11.03	3706	2	15.3

* The flow during this event was below the threshold for accurate meter measurement. These results are estimated.

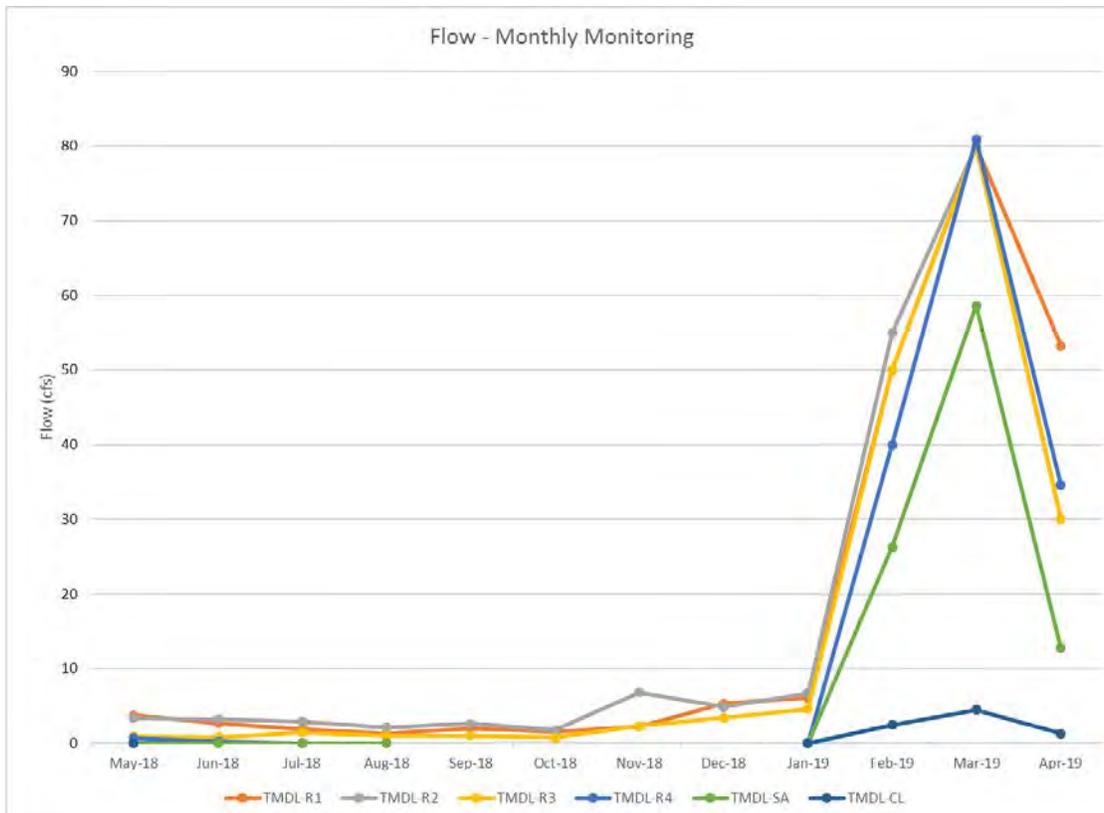
** Flow too high for safe wadeability at this site. Estimated visually and/or from nearby gauges/measurements.

NA: Not applicable. Berm status only applies to the estuary site TMDL-Est.

At the start of the dry season, surface flow in the Ventura River began downstream of the Santa Ana Blvd Bridge, upstream of TMDL-R4, and continued to the estuary, including through the perennial reaches of TMDL-R3 and below. TMDL-R4 went dry mid-way through the dry season after which flow in the River began near the TMDL-CVR observation site until January 2019, when enough rain fell to create runoff at all sites and re-establish flow connectivity with the upper watershed.

Year-round surface flow in the River starts around Foster Park (near the Casitas Vista Rd Bridge observation point) and is typically perennial at TMDL-R3 and below. The flow at TMDL-R2 is a combination of Ventura River surface flow downstream of TMDL-R3 and the discharge from the Ojai Valley Sanitary District’s wastewater treatment plant. Flow measurements taken during this reporting period were typically higher at TMDL-R2 than TMDL-R1 during ambient conditions but the reverse was true during the wettest periods (Feb - Apr 2019). Potential causes for changes in flow include surface/subsurface flow, groundwater interaction, geology and infiltration rates, antecedent moisture, agricultural and urban inputs and extractions, etc.

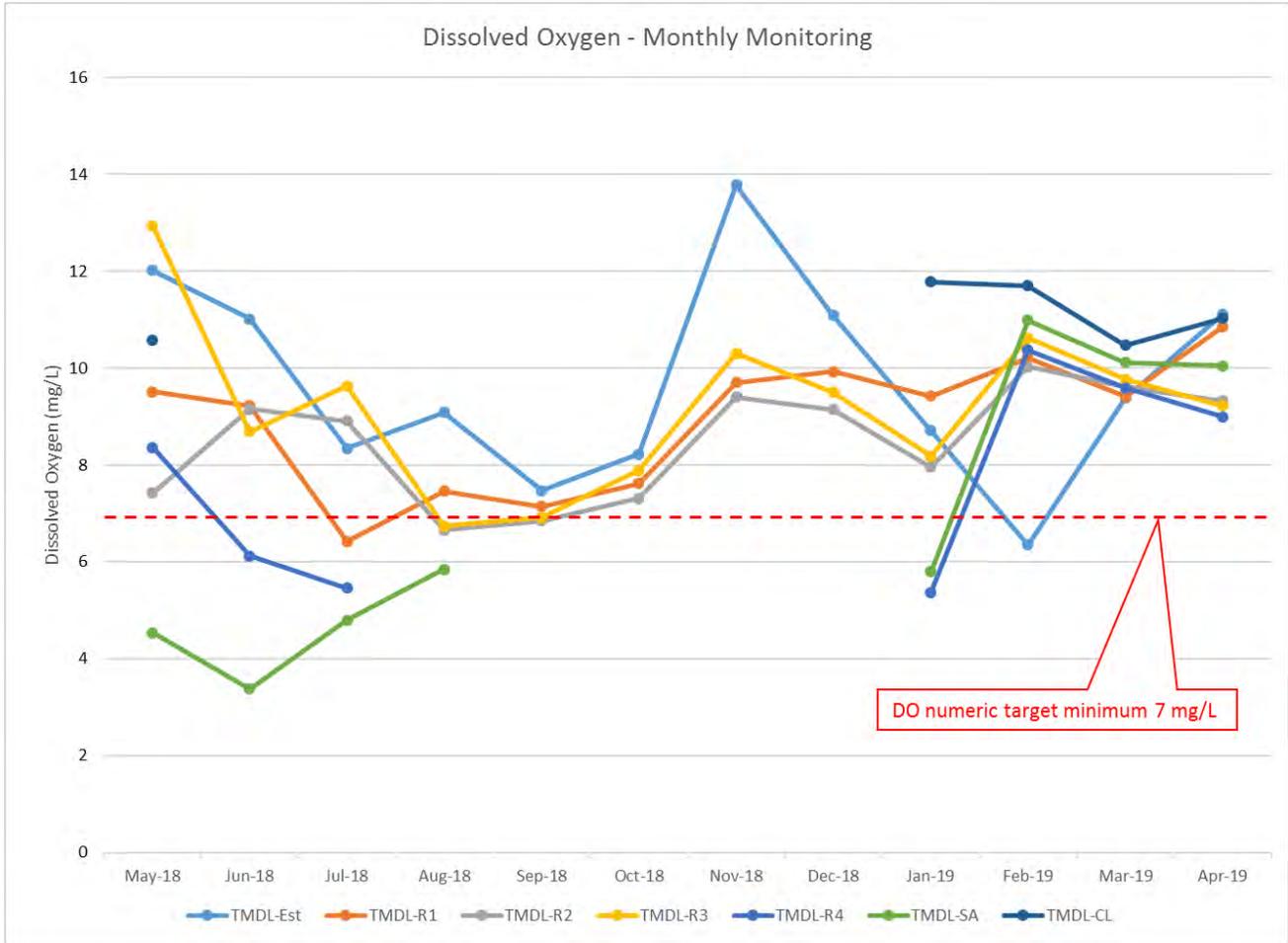
FIGURE 2. 2018 – 2019 MONTHLY MONITORING - FLOW



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

Low levels of DO tended to occur during periods of low flow, possibly due to the ponding (and potential stagnation) of water observed upstream and/or at the measurement location.

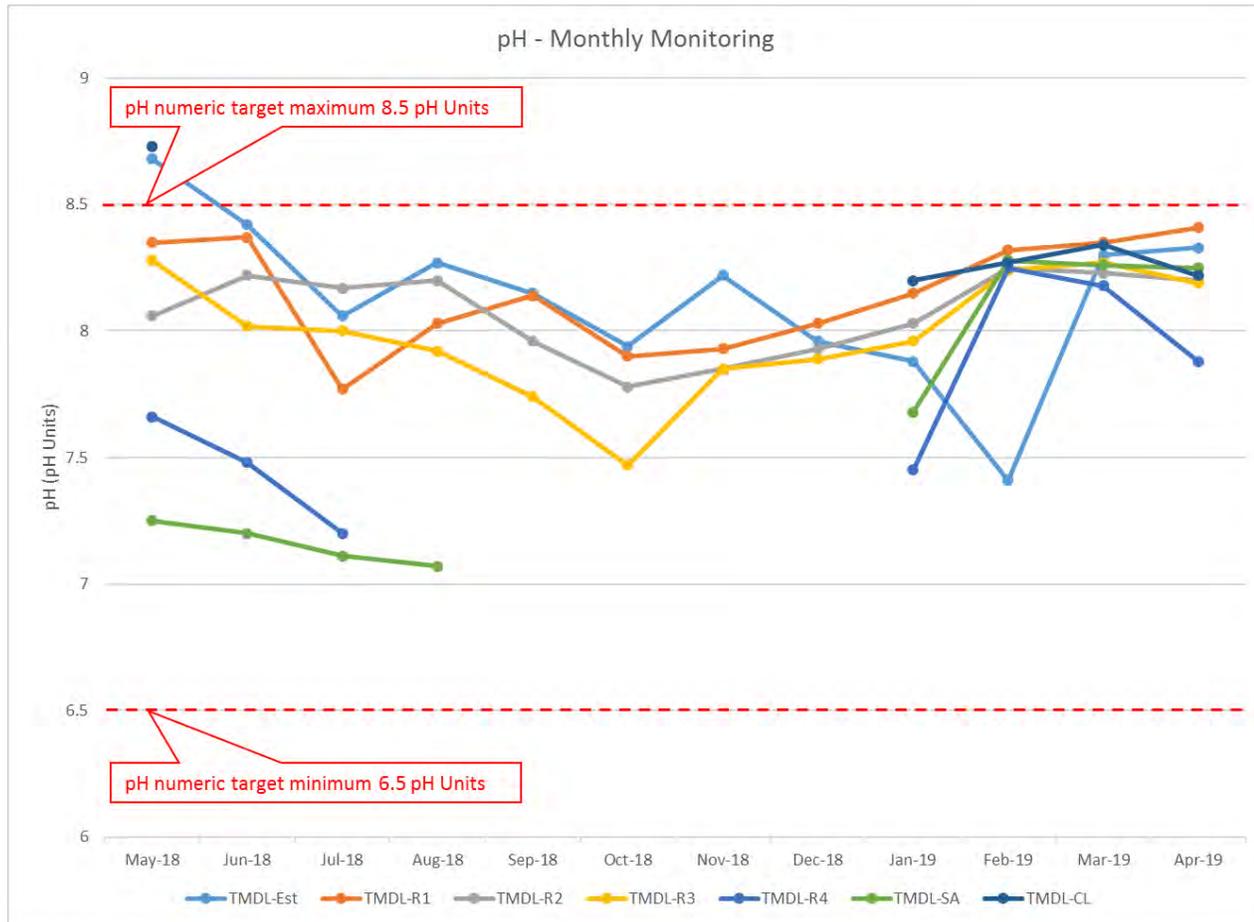
FIGURE 3. 2018 – 2019 MONTHLY MONITORING - DISSOLVED OXYGEN



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

All monthly field measurements for pH were within the numeric target limits, except for TMDL-Est and TMDL-CL in May 2018.

FIGURE 4. 2018 – 2019 MONTHLY MONITORING - PH



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

MONTHLY NUTRIENT DATA

TABLE 4. MAY 2018 – APRIL 2019 NUTRIENT DATA

Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-Est	5/16/2018	12:55	0.065	0.0084 (DNQ)	0.58	0.3	0.58	0.3	<0.083
TMDL-Est	6/7/2018	9:45	0.13	0.042	1.1	0.62	1.2	0.72	0.1 (DNQ)
TMDL-Est	7/10/2018	10:10	0.12	0.091	0.92	0.61	0.92	0.61	<0.083
TMDL-Est	8/15/2018	10:20	0.14	0.19	1.1	0.53	1.2	0.67	0.15 (DNQ)
TMDL-Est	9/5/2018	13:50	0.11	0.025	0.75	0.48	0.75	0.48	<0.083
TMDL-Est	10/10/2018	11:25	0.055	0.026	0.78	0.43	0.78	0.43	<0.083
TMDL-Est	11/19/2018	14:55	0.075	0.026	0.68	0.44	0.68	0.44	<0.083

Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-Est	12/10/2018	12:00	0.14	0.092	0.59	0.34	1	0.78	0.44
TMDL-Est	1/10/2018	12:00	0.12	0.077	0.8	0.52	1.2	0.92	0.4
TMDL-Est	2/12/2019	12:40	0.13	0.013	1.4	1.2	1.4	1.2	<0.083
TMDL-Est	3/13/2019	13:20	0.15	0.041	0.13	<0.050	1.9	1.8	1.8
TMDL-Est	4/8/2019	14:15	0.17	0.013	1.3	0.059 (DNQ)	2.9	1.6	1.6
TMDL-R1	5/16/2018	11:00	0.044	0.022	0.59	0.49	1.4	1.3	0.84
TMDL-R1	6/7/2018	7:45	0.097	0.08	0.7	0.58	1.5	1.4	0.81
TMDL-R1	7/10/2018	7:45	0.18	0.16	0.64	0.68	2.1	2.2	1.5
TMDL-R1	8/15/2018	7:40	0.12	0.088	0.55	0.47	0.55	0.47	<0.083
TMDL-R1	9/5/2018	11:50	0.1	0.09	0.52	0.53	0.93	0.94	0.41
TMDL-R1	10/10/2018	10:40	0.13	0.12	0.57	0.47	1.5	1.4	0.89
TMDL-R1	11/19/2018	13:45	0.18	0.17	0.37	0.27	1.1	1	0.74
TMDL-R1	12/10/2018	11:05	0.16	0.17	0.64	0.44	1.8	1.6	1.2
TMDL-R1	1/10/2019	11:10	0.14	0.067	0.46	0.35	1.4	1.3	0.91
TMDL-R1	2/12/2019	12:00	0.19	0.044	0.11	0.2	2.1	2.2	2
TMDL-R1	3/13/2019	12:30	0.16	0.042	0.29	0.18	2.3	2.2	2
TMDL-R1	4/8/2019	13:15	0.03	0.011	0.28	0.26	1.9	1.9	1.6
TMDL-R2	5/16/2018	8:20	0.16	0.14	0.52	0.38	2.6	2.4	2
TMDL-R2	6/6/2018	13:10	0.36	0.27	0.75	0.28	2.8	2.3	2
TMDL-R2	7/9/2018	13:00	0.52	0.26	0.72	0.48	4	3.8	3.3
TMDL-R2	8/14/2018	11:15	0.26	0.24	0.63	0.57	2.5	2.5	1.9
TMDL-R2	9/5/2018	9:45	0.19	0.17	0.58	0.58	2.3	2.4	1.8
TMDL-R2	10/10/2018	9:30	1	0.57	0.85	0.66	4.1	4	3.3
TMDL-R2	11/19/2018	12:00	0.31	0.28	0.39	0.37	1.5	1.5	1.1
TMDL-R2	12/10/2018	10:00	0.14	0.14	0.29	0.31	1.1	1.1	0.77
TMDL-R2	1/10/2019	10:10	0.038	0.034	0.23	0.2	0.8	0.77	0.57
TMDL-R2	2/12/2019	10:50	0.16	0.042	0.13	<0.050	2.2	2.1	2.1
TMDL-R2	3/13/2019	11:30	0.14	0.036	0.13	<0.050	2.2	2	2
TMDL-R2	4/8/2019	12:20	0.037	0.027	<0.050	<0.050	2	2	2
TMDL-R3	5/15/2018	12:00	0.01	0.0072 (DNQ)	0.078 (DNQ)	0.068 (DNQ)	0.6	0.59	0.52
TMDL-R3	6/6/2018	11:05	0.069	0.031	0.39	0.16	0.71	0.49	0.33
TMDL-R3	7/9/2018	11:00	0.092	0.046	0.13	0.11	0.3	0.28	0.17 (DNQ)
TMDL-R3	8/14/2018	9:00	0.024	0.016	0.22	0.11	0.22	0.11	<0.083
TMDL-R3	9/5/2018	7:40	0.0081 (DNQ)	0.01	0.17	0.1	0.28	0.21 (DNQ)	0.11 (DNQ)
TMDL-R3	10/10/2018	8:25	0.021	0.018	0.063 (DNQ)	<0.050	0.18 (DNQ)	0.12 (DNQ)	0.12 (DNQ)
TMDL-R3	11/19/2018	10:40	0.014	0.01	0.083 (DNQ)	<0.050	<0.20	<0.20	<0.083

Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-R3	12/10/2018	9:00	0.038	0.026	0.071 (DNQ)	0.073 (DNQ)	0.27	0.27	0.2
TMDL-R3	1/10/2019	9:10	0.04	0.018	0.15	<0.050	0.46	0.31	0.31
TMDL-R3	2/12/2019	10:00	0.17	0.035	0.2	<0.050	2.3	2.1	2.1
TMDL-R3	3/13/2019	10:40	0.12	0.031	<0.050	<0.050	2	2	2
TMDL-R3	4/8/2019	11:20	0.01	0.0068 (DNQ)	0.33	0.36	2.1	2.2	1.8
TMDL-R4	5/15/2018	8:05	0.0070 (DNQ)	0.0064 (DNQ)	<0.050	<0.050	1.5	1.5	1.5
TMDL-R4	6/6/2018	8:00	0.022	0.021	<0.050	<0.050	1.6	1.6	1.6
TMDL-R4	7/9/2018	8:40	0.055	0.049	0.15	<0.050	1.7	1.5	1.5
TMDL-R4	8/14/2018	8:00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	9/4/2018	10:00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	10/10/2018	7:50	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	11/19/2018	9:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	12/10/2018	8:25	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	1/10/2019	8:25	0.036	0.025	0.27	0.094 (DNQ)	0.72	0.54	0.45
TMDL-R4	2/12/2019	9:00	0.22	0.03	<0.050	<0.050	1.8	1.8	1.8
TMDL-R4	3/13/2019	9:15	0.028	0.012	0.12	<0.050	1.8	1.7	1.7
TMDL-R4	4/8/2019	9:20	0.013	0.0052 (DNQ)	<0.050	<0.050	1.8	1.8	1.8
TMDL-SA	5/15/2018	10:25	0.024	0.012	<0.050	<0.050	1.7	1.7	1.7
TMDL-SA	6/6/2018	10:20	0.032	0.028	<0.050	<0.050	1.6	1.6	1.6
TMDL-SA	7/9/2018	10:00	0.042	0.036	<0.050	<0.050	1.6	1.6	1.6
TMDL-SA	8/14/2018	8:20	0.029	0.017	0.076 (DNQ)	0.055 (DNQ)	0.42	0.39	0.34
TMDL-SA	9/4/2018	10:10	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	10/10/2018	8:00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	11/19/2018	9:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	12/10/2018	8:35	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	1/10/2019	8:10	0.078	0.062	0.21	0.064 (DNQ)	0.42	0.27	0.21
TMDL-SA	2/12/2019	8:25	0.47	0.056	0.31	0.11	2.8	2.6	2.5
TMDL-SA	3/13/2019	8:45	0.13	0.04	0.32	<0.050	2.5	2.2	2.2
TMDL-SA	4/8/2019	9:55	0.019	0.0097 (DNQ)	0.19	<0.050	1.8	1.6	1.6
TMDL-CL	5/15/2018	14:00	0.024	0.032	0.83	0.65	0.83	0.65	<0.083
TMDL-CL	6/4/2018	13:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	7/10/2018	12:15	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	8/14/2018	13:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	9/4/2018	8:45	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	10/10/2018	10:15	DRY	DRY	DRY	DRY	DRY	DRY	DRY

Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-CL	11/19/2018	13:20	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	12/10/2018	7:50	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	1/10/2019	7:25	0.078	0.017	0.56	0.48	0.56	0.48	<0.083
TMDL-CL	2/12/2019	7:30	0.72	0.095	1.3	0.9	2.8	2.4	1.5
TMDL-CL	3/13/2019	7:30	1	0.1	1.3	0.76	2.8	2.3	1.5
TMDL-CL	4/8/2019	8:10	0.022	0.0084 (DNQ)	0.51	0.44	0.51	0.44	<0.083

Nutrient levels show variation between sites, seasons, and years. Charts of results for total nitrogen and total phosphorus from the previous two years are included below for comparison.

FIGURE 5. 2018 – 2019 MONTHLY MONITORING - TOTAL NITROGEN

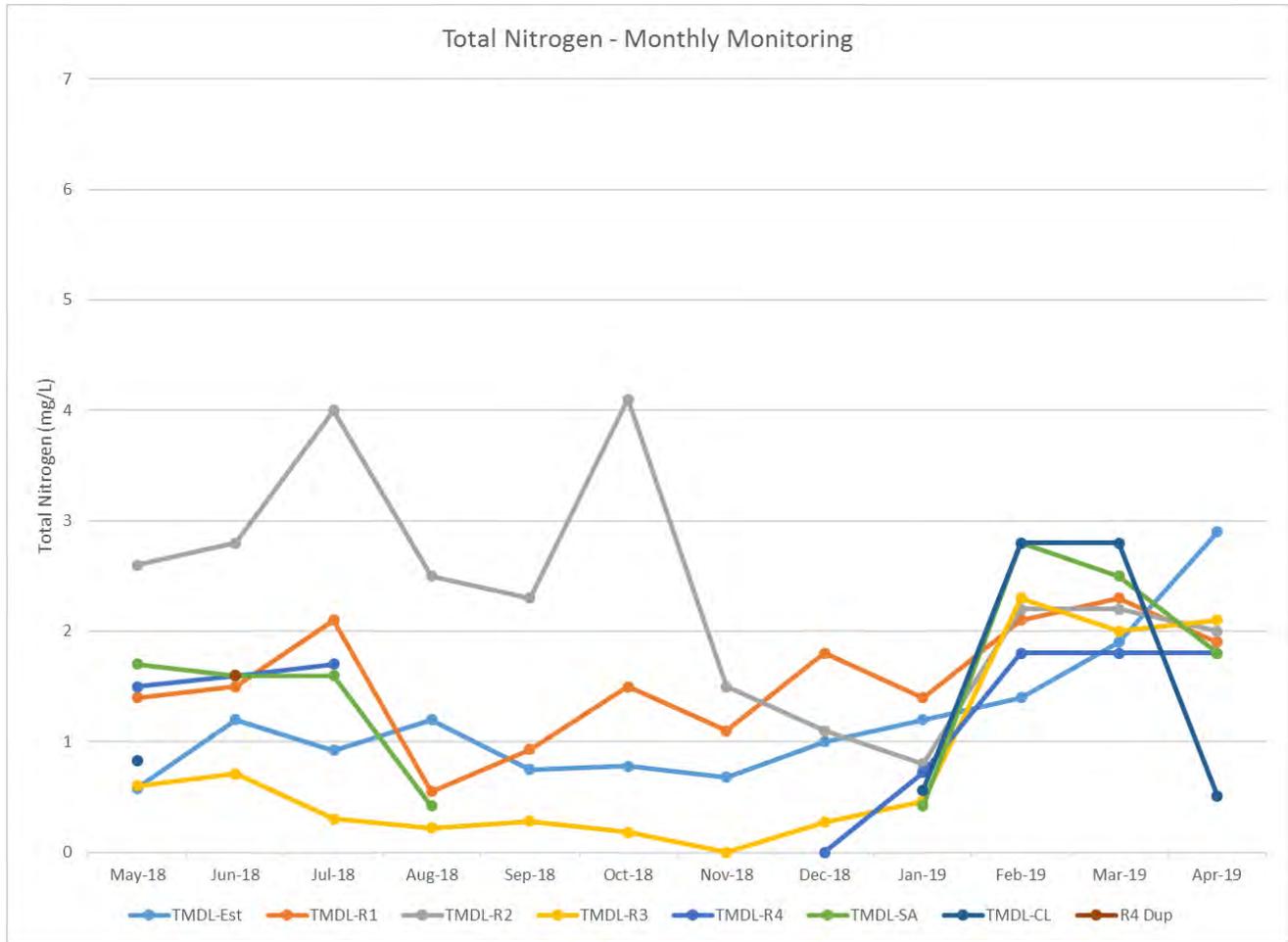


FIGURE 6. 2017 – 2018 MONTHLY MONITORING - TOTAL NITROGEN

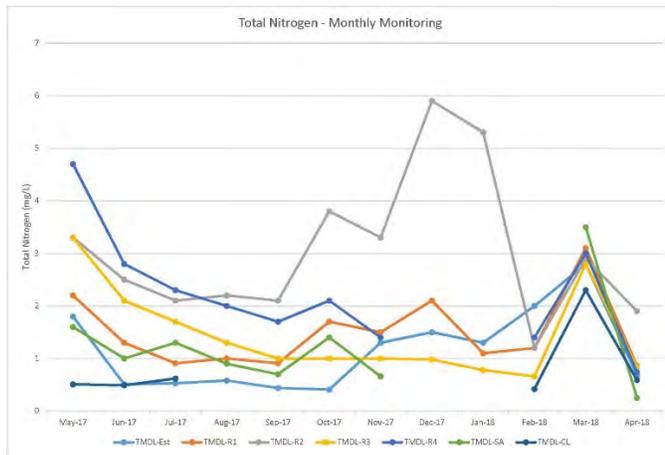
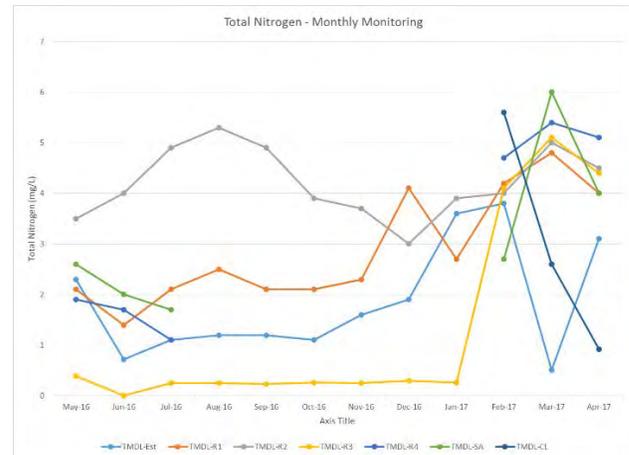


FIGURE 7. 2016 – 2017 MONTHLY MONITORING - TOTAL NITROGEN



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

FIGURE 8. 2018 – 2019 MONTHLY MONITORING - TOTAL PHOSPHORUS

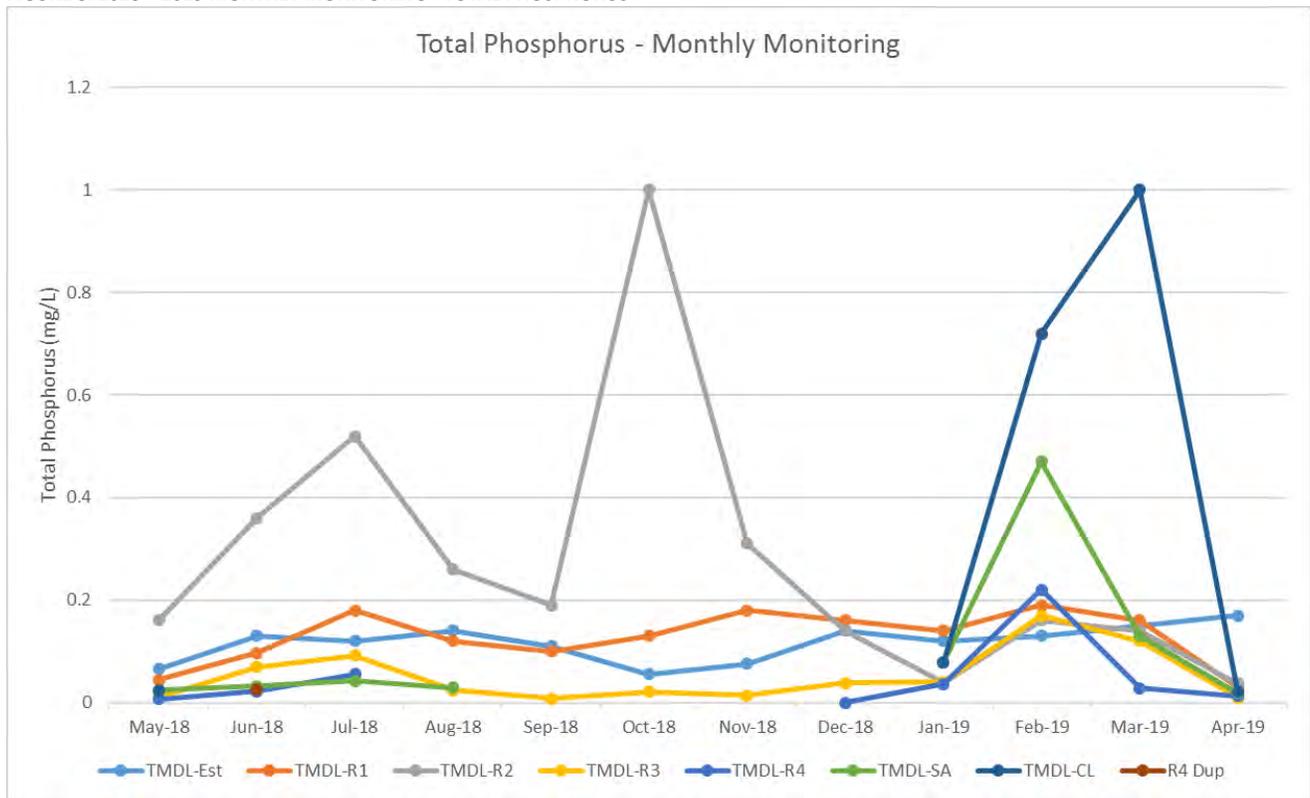


FIGURE 9. 2017 – 2018 MONTHLY MONITORING - TOTAL PHOSPHORUS

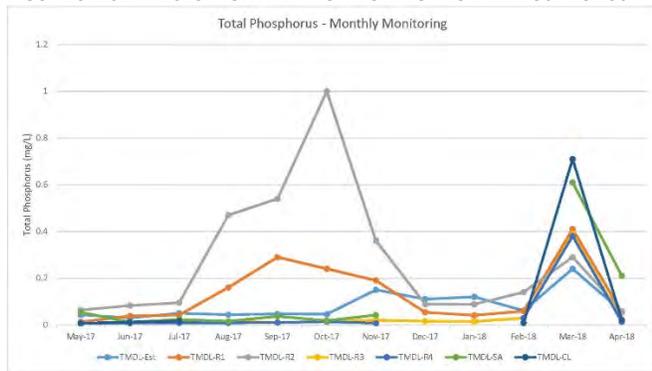
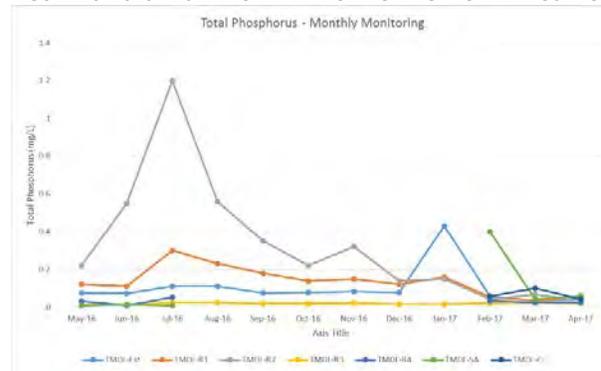


FIGURE 10. 2016 – 2017 MONTHLY MONITORING - TOTAL PHOSPHORUS



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

DRY SEASON MONTHLY ALGAE DATA

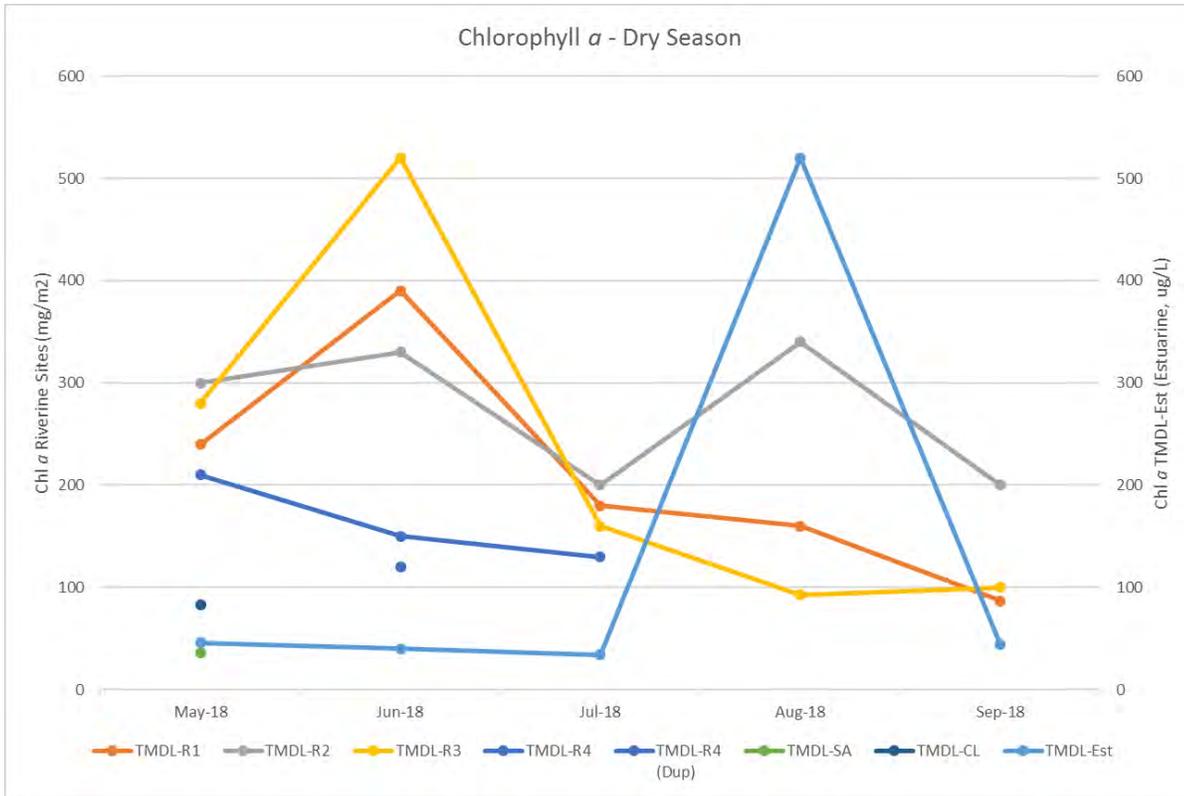
SWAMP protocol for riverine sites (specified by the TMDL) includes both suspended (floating) and attached (land-based) macroalgae for chlorophyll *a*, and only considers alive algae when determining percent cover. Riverine results are shown in Table 5 and Table 6. TMDL-SA and TMDL-CL met the riverine seasonal average numeric target for chlorophyll *a*. TMDL-R1, TMDL-R2 and TMDL-CL met the seasonal average numeric target for macroalgal cover. The other riverine sites did not meet the seasonal average numeric targets.

Bight '08 (estuarine) protocol (specified by the TMDL) measures algal cover on the shoreline as well as floating algae at a depth of 0.3 meters, and includes dead, desiccated, fresh, and intermediate algae in the protocol. The estuarine chlorophyll *a* sample is collected from the water column. The estuarine results are in Table 7. Site TMDL-Est exceeded the seasonal average numeric target for percent cover and phytoplankton biomass (chlorophyll *a*) in 2018.

TABLE 5. 2018 DRY SEASON RIVERINE MONTHLY ALGAL BIOMASS (CHLOROPHYLL A) AND PERCENT MACROALGAL COVER

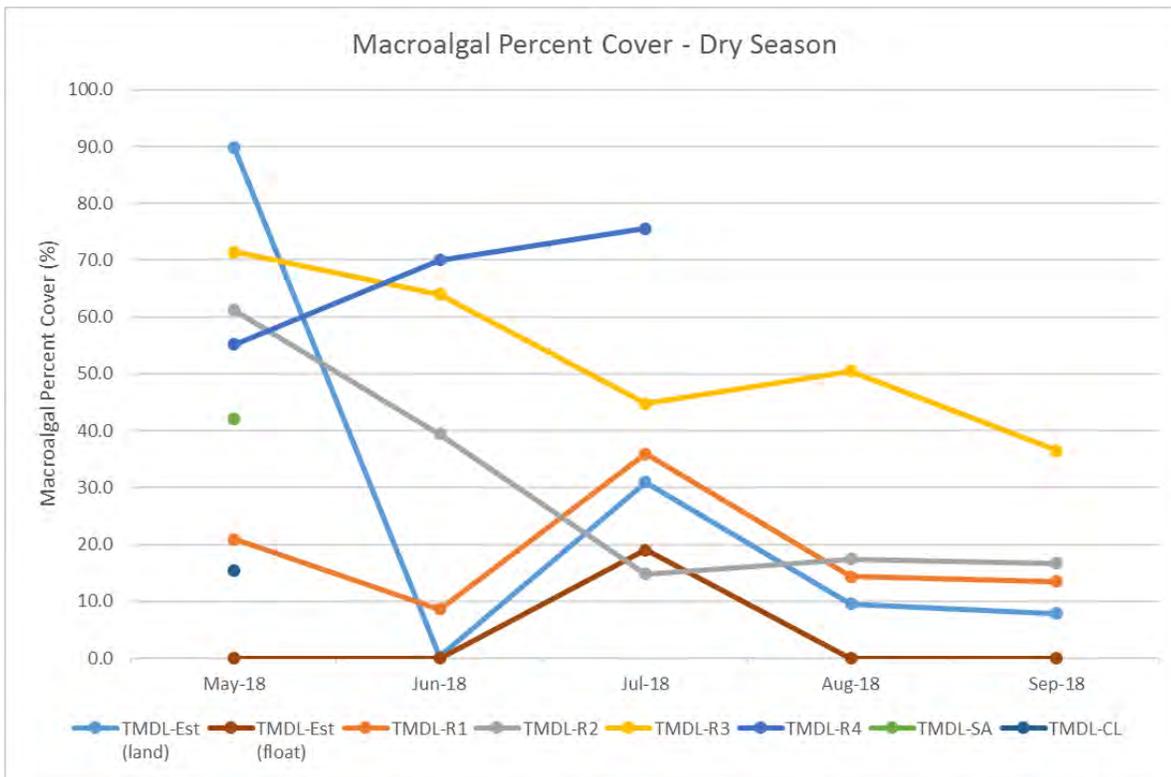
Site	Date	Field Replicate	Number of Transects Collected	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> units	Percent Presence Macroalgae (%)
TMDL-R1	5/16/2018	1	11	240	mg/m ²	20.95
TMDL-R1	6/7/2018	1	11	390	mg/m ²	8.57
TMDL-R1	7/10/2018	1	11	180	mg/m ²	35.92
TMDL-R1	8/15/2018	1	11	160	mg/m ²	14.29
TMDL-R1	9/5/2018	1	11	87	mg/m ²	13.46
TMDL-R2	5/16/2018	1	11	300	mg/m ²	61.22
TMDL-R2	6/6/2018	1	11	330	mg/m ²	39.42
TMDL-R2	7/9/2018	1	11	200	mg/m ²	14.85
TMDL-R2	8/14/2018	1	11	340	mg/m ²	17.48
TMDL-R2	9/5/2018	1	11	200	mg/m ²	16.67
TMDL-R3	5/15/2018	1	11	280	mg/m ²	71.43
TMDL-R3	6/6/2018	1	11	520	mg/m ²	64.08
TMDL-R3	7/9/2018	1	11	160	mg/m ²	44.76
TMDL-R3	8/14/2018	1	11	93	mg/m ²	50.48
TMDL-R3	9/5/2018	1	11	100	mg/m ²	36.54
TMDL-R4	5/15/2018	1	11	210	mg/m ²	55.24
TMDL-R4	6/6/2018	1	11	150	mg/m ²	70.00
TMDL-R4	6/6/2018	2	11	120	mg/m ²	NA
TMDL-R4	7/9/2018	1	9	130	mg/m ²	75.56
TMDL-R4	8/14/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-R4	9/4/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	5/15/2018	1	9	36	mg/m ²	42.16
TMDL-SA	6/6/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	7/9/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	8/14/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	9/4/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	5/15/2018	1	11	83	mg/m ²	15.38
TMDL-CL	6/4/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	7/10/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	8/14/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	9/4/2018	1	DRY	DRY	mg/m ²	DRY

FIGURE 11. 2018 DRY SEASON - Chlorophyll a



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

FIGURE 12. 2018 DRY SEASON - MACROALGAL PERCENT COVER



Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

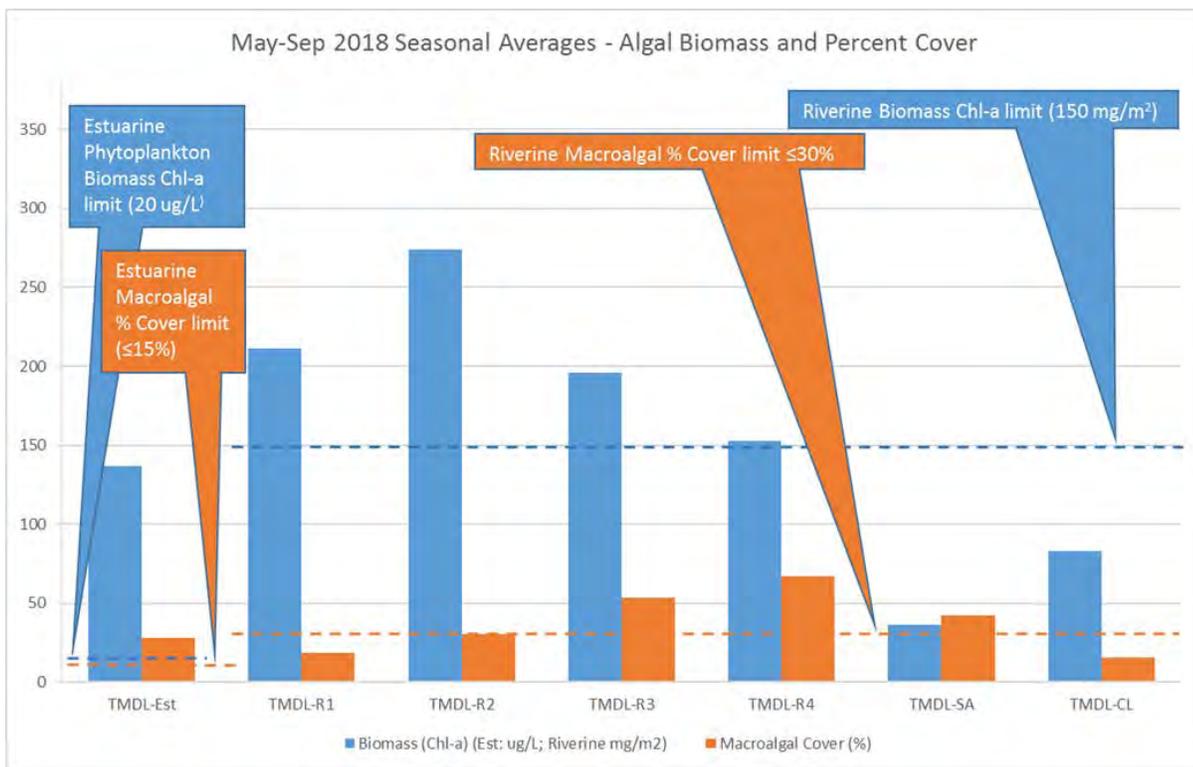
TABLE 6. 2018 DRY SEASON RIVERINE SEASONAL AVERAGES - MACROALGAL BIOMASS AND COVER

Site	Seasonal Average Biomass (Chlorophyll <i>a</i>) <i>Numeric Target Seasonal Average 150 mg/m² (mg/m²)</i>	Seasonal Average Macroalgal Cover <i>Numeric Target Seasonal Average ≤ 30% (%)</i>
TMDL-R1	211	18.64
TMDL-R2	274	29.93
TMDL-R3	196	53.46
TMDL-R4	153	66.93
TMDL-SA	36	42.16
TMDL-CL	83	15.38

TABLE 7. 2018 DRY SEASON ESTUARINE MONTHLY ALGAL BIOMASS (PHYTOPLANKTON CHLOROPHYLL A) AND PERCENT MACROALGAL COVER

Site	Date	Field Replicate	Phytoplankton Biomass Chlorophyll <i>a</i> (µg/L)	Land-Based Macroalgal Cover (%)	Floating Macroalgal Cover (%)
<i>Seasonal Average Numeric Target</i>			<i>20 µg/L</i>	<i>≤ 15%</i>	
TMDL-Est	5/16/2018	1	46	89.80	0.00
TMDL-Est	6/7/2018	1	40	0.27	0.00
TMDL-Est	7/10/2018	1	34	30.95	19.05
TMDL-Est	8/15/2018	1	520	9.59	0.00
TMDL-Est	9/5/2018	1	44	7.89	0.00
TMDL-Est	Seasonal Average		137	27.70	3.81

FIGURE 13. 2018 DRY SEASON SEASONAL AVERAGES - CHLOROPHYLL A AND MACROALGAL COVER



FIELD OBSERVATIONS

TMDL-EST: Water level in the estuary fluctuates with the tides; it was very low in May and very high in July, probably related to tide height and sand berm status. Dogs are frequently seen in the water and birds (especially gulls) are always present. A red duckweed-type plant was growing in the estuary water in September. Dog feces and bird carcasses are occasionally seen in or near the water, including September 2018. Heavy flow from stormwater runoff in early 2019 breached the berms at the east and west ends of the estuary. From February 2019 – April 2019 the connectivity between the river and the east side of the estuary gradually decreased until the previously dominant channel through the east end of the estuary remained connected to the ocean but was no longer connected to the river flow. The river flowed only through the west end of the estuary and connected directly to the ocean. This resulted in a significantly different shape for the estuary for March and April 2019 compared to all previous CMP monitoring events (since January 2015).

TMDL-R1: The water level was too high to sample at the typical transect “A” location from July to September so the transects were moved about 25 meters upstream to shallower water. The lower section of this reach is frequently littered with washing materials and containers (e.g. soap, shampoo, laundry detergent, clothing, towels, etc.) and is commonly known as the “laundry site” due to its frequent use for that purpose by the homeless in the area. The Ventura Land Trust removes the items when it sees them and posts signs, as well as speaking with people directly about the hazards and illegal nature of washing in the stream, however most of the activity occurs when no one is around. The use is heavier in the summer months. The Ventura Land Trust plans to remove some of the vegetation in the area outside of nesting season and investigate funding and partnerships for starting an alternative laundry program for homeless people in the area. During the September event, a man was present in the area with a large sheathed knife strapped to his hip, but he left slowly after he saw the sampling team arrive. A similar man wearing a knife was in the area during the February event and he yelled/proselytized to the crew from across a ditch as they returned to their vehicle. In April, a self-described homeless man (with suspected recent methamphetamine use) approached the crew to request water testing of the river at his home in the riverbed upstream and became agitated when the crew explained they could not do that. Graffiti is common on the pylons under the Main Street bridge and a person was actively engaged in graffiti as the sampling crew passed by during the September event.

TMDL-R2: Several homeless camps are present on the private property in this area. Two camps are on the east bank among the Arundo. Evidence of washing (e.g. soap, shampoo bottles, etc.) are sometimes seen near the water. Some rocks have been moved to create some deeper sections for the camps. A small garden was observed in a cleared space on the river bank at one of the camps in August and in September the garden was fenced with small gauge chicken wire. There appeared to be an improvised toilet on the banks in August.

TMDL-R3: This site was moved approximately 100 meters downstream for February – April 2019 sampling since stormflow debris and high flows eliminated access to the previously sampleable section.

TMDL-R4: Another data collection sonde (short sonde inside PVC tubing) is frequently seen installed (by an unknown party) in the water near the monthly monitoring location/transect “A”. The sonde monitoring appears to be ongoing. The site was moved approximately 200 meters downstream beginning in February 2019 after heavy storms redirected flow in the river bottom and prevented access to the previous location.

TMDL-SA: A natural spring tends to keep the area directly above the confluence with the Ventura River wet for most of the year, however upstream/influent flow dried out by June, and the area was too dry for sampling at all by September. Flow resumed in January following winter storms.

TMDL-CL: The sonde was loosely covered with camouflaging rocks when it was installed in May, however when the crew was onsite to perform the monthly monitoring approximately two weeks later, the rocks were gone and the sonde installation was visible but the sonde itself was embedded in sediment. Flow in the creek was minimal so the velocity could not have moved the rocks. The crew tried to remove the sediment, but it was quickly replaced. The data logging period ended several hours later and the sonde was collected the following day, as scheduled. Human interference with the sonde is suspected but

the timing of the presumed interference cannot be inferred from the data due to lack of support by all parameters. Fouling of the sonde tends to recur at this site due to the shallow nature of this stream. The sonde needs to be installed near the streambed to keep it submerged during deployment however the fine-grained substrate tends to bury the sensors. In April, a dead calf was present under the bridge (downstream of the sampling location) and a flock of turkey vultures were in a tree nearby (but out of the streambed).

CONTINUOUS DATA LOGGING

Seven Hydrolab HL4 water quality data sondes (Figure 14) are used for this program. The HL4 has the ability to accurately measure and log DO, conductivity, pH and temperature within a self-contained package that is 1.75" in diameter and just over two feet in length, which allows it to fit inside a short length of protective housing of 2" diameter schedule 40 pipe. The data sonde installations are vulnerable to potential vandalism and theft and so need to be as inconspicuous as possible (i.e. below the water surface among rocks and tree roots). Each sonde is assigned to a particular TMDL site and is labeled with the site name for additional consistency between events. Pre and post calibrations and/or calibration checks are performed for each deployed sonde for each event.

FIGURE 14. HYDROLAB HL4 SONDE



Sondes were installed for continuous monitoring for pH, specific conductivity, temperature, and DO for a two-week period at all wet sites in May, September, and December 2018, and March 2019¹. The sondes were programmed to begin logging data soon after deployment and continue logging for a little over two weeks to allow field staff to get concurrent field meter measurements during sonde retrieval to compare to the sonde data. After the first deployment in March 2015 when the estuary breached and left the estuary sonde exposed to potential vandalism or theft, the placement was redesigned to prevent exposure in the event of future breaches. However, the Estuary sonde is still subject to high flows during winter storms, which could cause the loss of the sonde and its data, therefore the Estuary sonde is removed when storms are forecast that have the potential to generate high flows. The estuary sonde went missing during the September 2017 deployment and is presumed stolen (flow remained steady/low during the deployment period). The estuary sonde deployment was redesigned following the theft and the location was moved further south of the railroad bridge. The sonde is deployed inside a housing designed to float at an approximately 45-degree angle and secured to a 20-foot, 3/8 inch diameter chain connected to a cinder block that is dropped on the estuary floor to prevent the sonde from migrating too far with any currents. This deployment strategy has been used as standard since 2017-Q4, however there was nowhere hidden to deploy the sonde in 2019-Q1, when the River was flowing directly to the ocean and not acting as an estuary, so the risk of theft was deemed too high to safely deploy the sonde this quarter. Sonde data for this reporting period are shown in Figure 15,

¹ The TMDL requires quarterly monitoring, including the months of May and September. Therefore, Quarter 2 (Q2) monitoring is conducted in May and Quarter 3 (Q3) monitoring is conducted in September. Quarter 1 (Q1) includes one event during January – March and Quarter 4 (Q4) includes one event during October – December.

Figure 16, Figure 17, and Figure 18.

2018-Q2 (May 2018): Seven Hydrolab HL4 water quality data sondes were installed and began logging data on May 1, 2018 at 19:00. The TMDL-R4 conductivity readings were in error for the first half of the deployment, however conductivity is not a required measurement at this site and the conductivity at this site (known from past measurements and as measured by the field meter check at retrieval) is low enough ($\sim 1,000 \mu\text{S}$) to not affect the other collected data², so redeployment was unnecessary. The TMDL-CL conductivity sensor became fouled a third of the way through deployment and the DO sensor became fouled two thirds of the way through deployment, so readings are in error for those periods. There was insufficient flow for re-deployment at TMDL-CL. The affected data is not included in the charts. It is likely that stream flow decreased at TMDL-SA during deployment resulting in lower DO and conductivity levels as the composition of the water became more dominated by the natural spring at the site.

2018-Q3 (September 2018): Sondes were installed at four TMDL monitoring sites for continuous data logging (TMDL-R4, TMDL-SA, and TMD-CL were dry). The sondes were installed before the logging program began on September 12, 2018 and removed after two weeks of logging. The TMDL-R1 DO sensor became fouled partway through its deployment so the erroneous data is excluded from this report. Graphical representations of the continuous monitoring data are presented below.

2018-Q4 (December 2018): Sondes were installed at the TMDL-Est, TMDL-R1, TMDL-R2, and TMDL-R3 sites. The sondes were programmed to log from December 11, 2018 at 18:00 through December 26, 2018 at 18:00. TMDL-R4, TMDL-SA, and TMDL-CL were dry so sondes were not installed at these locations.

2019-Q1 (March 2019): Sondes were able to be deployed at all sites during this event except TMDL-Est, which was not deployed due to a very high risk of vandalism/theft resulting from heavy winter storms flushing out the camouflaging vegetation cover and reshaping the estuary to resemble a river mouth, eliminating all discreet locations for sonde deployment. Since this area gets a lot of pedestrian traffic, particularly from the homeless, and since the sonde already went missing once from this location (2017-Q3) it was decided to skip the deployment for this quarter. The deployed sondes logged data from March 13 at 19:00 to March 27 at 19:00. The TMDL-R2 pH readings drifted out of quality control specifications by the end of deployment due to sensor fouling. The TMDL-R3 pH readings were in error for full deployment due to a poor connection of a circuit board within the sonde resulting in data failure. The TMDL-R3 conductivity readings drifted out of specification by the end of deployment likely due to fouling. (Field meter at retrieval 1045 μS and sonde reading 610 μS .) Drift appears to begin at the start of deployment, but exact timing cannot be determined. TMDL-R4 conductivity readings may be too low. TMDL-SA conductivity readings are in error. The TMDL-CL conductivity and DO readings are in error for this deployment due to sensor fouling. The DO failure is suspected to have begun mid-deployment. The conductivity readings for TMDL-CL were high for this deployment in comparison to the field meter measurement taken during sonde retrieval, so are not included in the chart. Conductivity is not a required parameter at riverine sites so the sondes were not redeployed.

² The conductivity measurement is used by the sonde when calculating DO, however the influence of conductivity on DO measurements for the conductivity levels seen at the TMDL riverine stations is negligible.

TABLE 8. MAY 2018 – APRIL 2019 SONDE DEPLOYMENT DATES

Site	2018 Quarter 2 (May*)	2018 Quarter 3 (September*)	2018 Quarter 4	2019 Quarter 1
TMDL-Est	5/1 – 5/15	9/12 – 9/26	12/11 – 12/25	NA ^a
TMDL-R1	5/1 – 5/15	9/12 – 9/26 ^c	12/11 – 12/25	3/13 – 3/27
TMDL-R2	5/1 – 5/15	9/12 – 9/26	12/11 – 12/25	3/13 – 3/27
TMDL-R3	5/1 – 5/15	9/12 – 9/26	12/11 – 12/25	3/13 – 3/27 ^{b,d}
TMDL-R4	5/1 – 5/15 ^d	DRY	DRY	3/13 – 3/27 ^d
TMDL-SA	5/1 – 5/15	DRY	DRY	3/13 – 3/27 ^d
TMDL-CL	5/1 – 5/15 ^{c,d}	DRY	DRY	3/13 – 3/27 ^{c,d}

* Month required by TMDL

^a Sonde not deployed due to high risk of theft in current estuary (open river) condition.

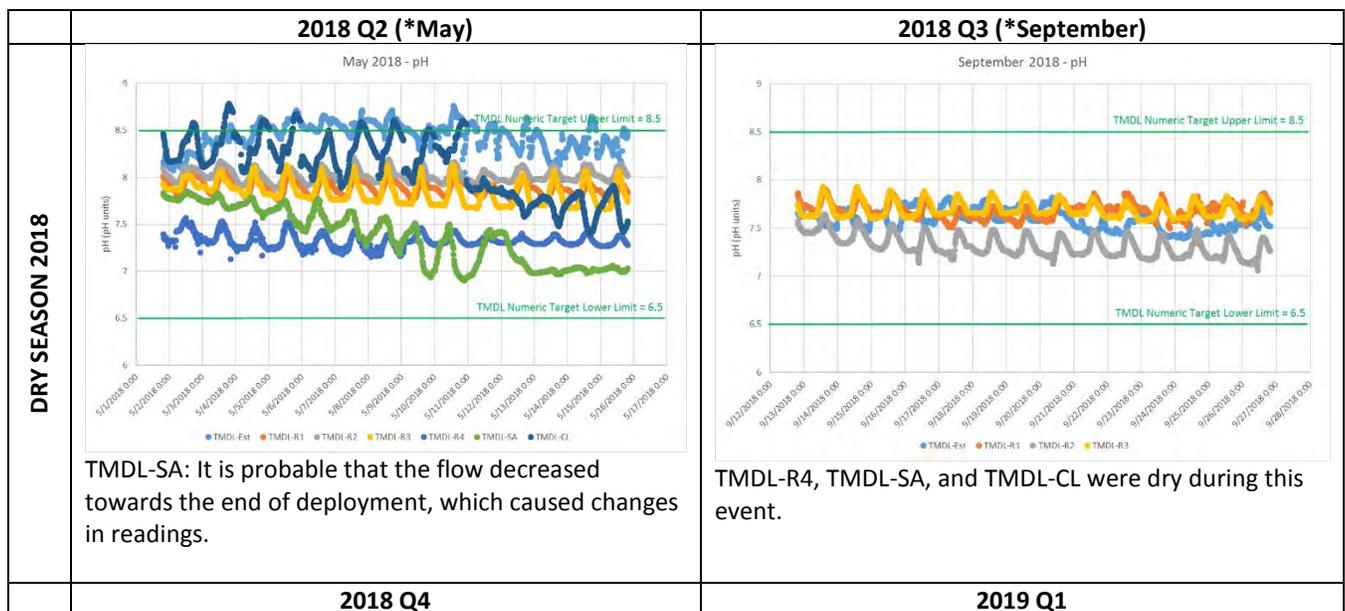
^b pH readings in error because of a loose circuit board.

^c DO sensor became fouled partway through deployment.

^d Conductivity readings in error and/or sensor fouled partway through deployment.

Graphical representations of the continuous monitoring data are presented below.

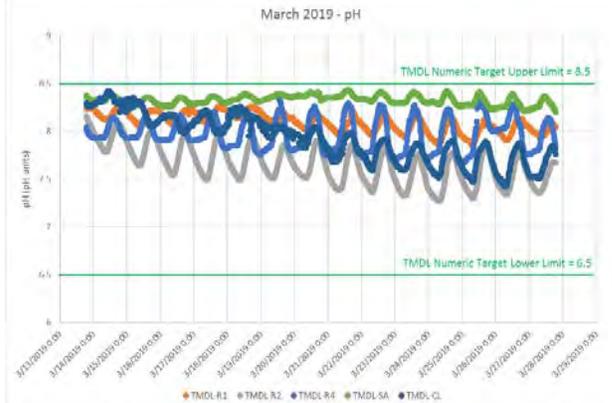
FIGURE 15. CONTINUOUS DEPLOYMENT SONDE DATA - PH



WET SEASON 2018-19



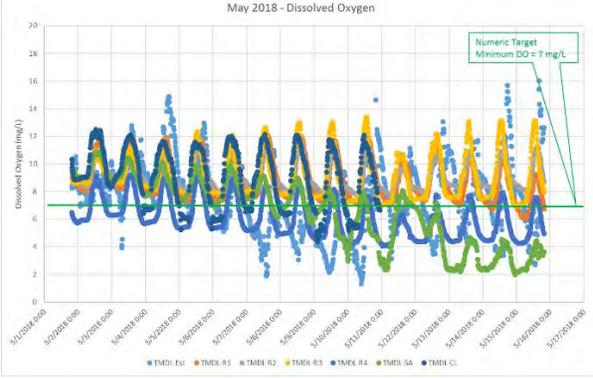
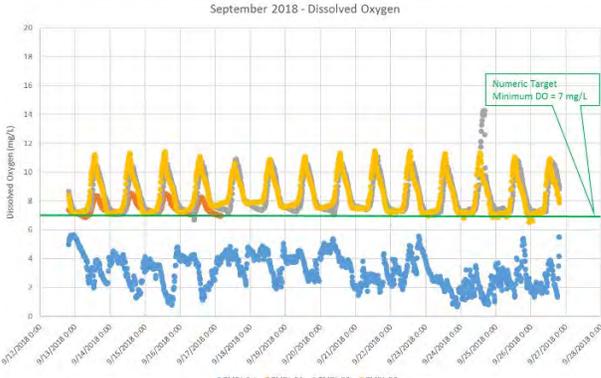
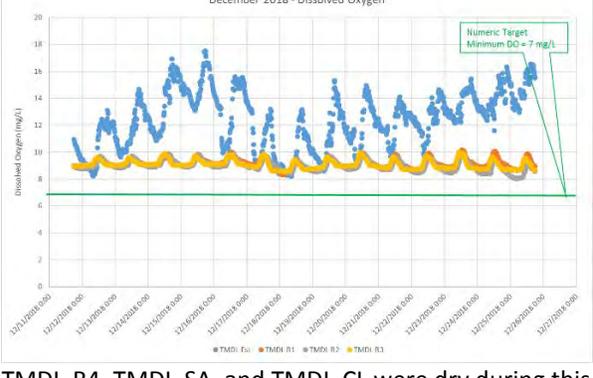
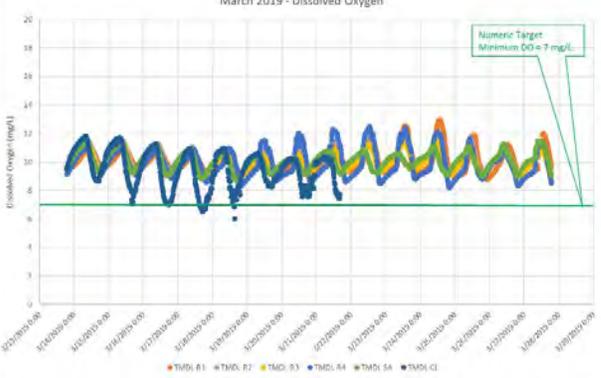
TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event.



TMDL-Est: Sonde not deployed due to high risk of theft in current estuary (open river) condition. TMDL-R2: pH readings drifted out of quality control specifications by the end of deployment (3/28: Field meter = 8.40 pH units, Sonde = 7.48 pH units) due to sensor fouling. TMDL-R3: pH readings were in error for full deployment (loose circuit board).

All continuous pH monitoring data for this reporting period was within the numeric target limits except for TMDL-Est and TMDL-CL in May 2018 and TMDL-Est in December 2018.

FIGURE 16. CONTINUOUS DEPLOYMENT SONDE DATA - DISSOLVED OXYGEN

		2018 Q2 (*May)	2018 Q3 (*September)
DRY SEASON 2018	 <p>May 2018 - Dissolved Oxygen</p> <p>Numeric Target Minimum DO = 7 mg/L</p> <p>Legend: TMDL-Est, TMDL-R1, TMDL-R2, TMDL-R3, TMDL-R4, TMDL-SA, TMDL-CL</p> <p>TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings. TMDL-CL: The DO sensor became fouled two thirds of the way through deployment, so data is not included for that period.</p>	 <p>September 2018 - Dissolved Oxygen</p> <p>Numeric Target Minimum DO = 7 mg/L</p> <p>Legend: TMDL-Est, TMDL-R1, TMDL-R2, TMDL-R3</p> <p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event. TMDL-R1: The DO sensor became fouled near the end of the first week of deployment.</p>	
		 <p>December 2018 - Dissolved Oxygen</p> <p>Numeric Target Minimum DO = 7 mg/L</p> <p>Legend: TMDL-Est, TMDL-R1, TMDL-R2, TMDL-R3</p> <p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event.</p>	 <p>March 2019 - Dissolved Oxygen</p> <p>Numeric Target Minimum DO = 7 mg/L</p> <p>Legend: TMDL-Est, TMDL-R1, TMDL-R2, TMDL-R3, TMDL-SA, TMDL-CL</p> <p>TMDL-Est: Sonde not deployed due to high risk of theft in current estuary (open river) condition. TMDL-CL: DO readings are in error for this deployment due to sensor fouling (suspected to have begun mid-deployment).</p>
WET SEASON 2018-19			

Low levels of DO (below the numeric target of 7 mg/L) were observed at most sites during the dry season deployments (May and September 2018), particularly at the low points of the diurnal variation. TMDL-CL also dipped below 7 mg/L during the low points of the diurnal variation in March 2019. All monitored sites were above the target in December 2018. Low DO appears to be generally associated with low flow, possibly due to the ponding of water upstream and/or at the measurement location. All sites exhibited diurnal variation in levels.

FIGURE 17. CONTINUOUS DEPLOYMENT SONDE DATA - TEMPERATURE

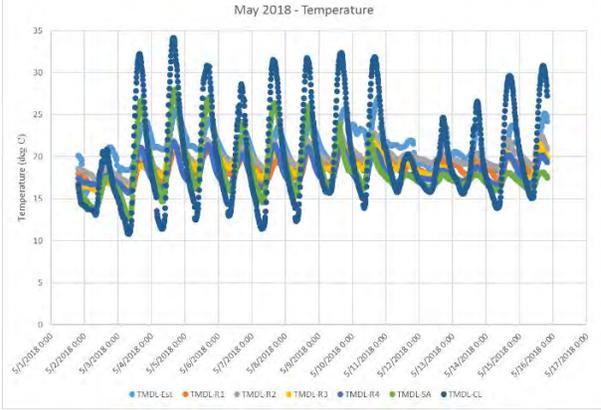
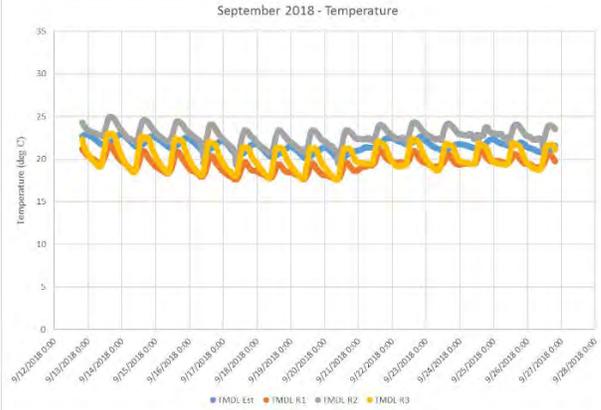
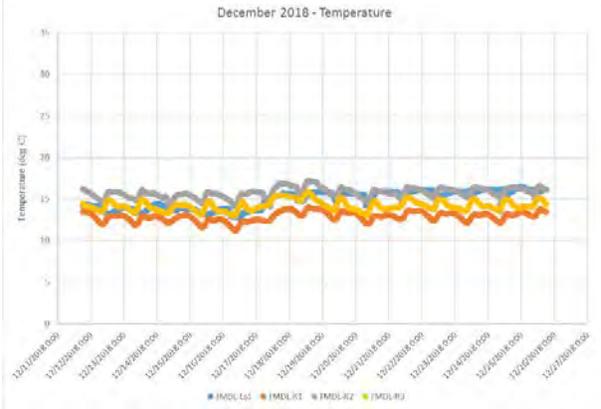
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">DRY SEASON 2018</p>	<p style="text-align: center;">2018 Q2 (*May)</p> <p style="text-align: center;">May 2018 - Temperature</p>  <p>TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings.</p>	<p style="text-align: center;">2018 Q3 (*September)</p> <p style="text-align: center;">September 2018 - Temperature</p>  <p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event.</p>
	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">WET SEASON 2018-19</p>	<p style="text-align: center;">2018 Q4</p> <p style="text-align: center;">December 2018 - Temperature</p>  <p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event.</p>

FIGURE 18. CONTINUOUS DEPLOYMENT SONDE DATA - SPECIFIC CONDUCTANCE

		2018 Q2 (*May)	2018 Q3 (*September)
DRY SEASON 2018	<p>May 2018 - Specific Conductance (Log₂ scale)</p>	<p>September 2018 - Specific Conductance</p>	
	<p>TMDL-R4: Conductivity readings were in error for the first half of the deployment. TMDL-CL: Conductivity sensor became fouled a third of the way through deployment. Conductivity is not a required parameter for these sites and the erroneous measurements are not included in this chart. TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings.</p>	<p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event.</p>	
WET SEASON 2018-19	<p>December 2018 - Specific Conductance (Log₂ scale)</p>	<p>March 2019 - Specific Conductance (Riverine)</p>	
	<p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event. December 17th: Rain showers but no clock resets. Est: High tide 4.85' at 05:26 on 12/17. High surf advisories (Ventura Pier damaged) so deduce that waves crested berm, increasing conductivity/salinity.</p>	<p>TMDL-Est: Sonde not deployed due to high risk of theft in current estuary (open river) condition. TMDL-R3: Conductivity readings drifted out of specification by the end of deployment likely due to fouling. (Field meter at retrieval 1045 uS and sonde reading 610 uS.) Drift appears to begin at start of deployment, but exact timing cannot be determined. TMDL-R4: Conductivity readings are in error due to sensor failure. TMDL-SA: Conductivity readings are in error due to sensor failure. TMDL-CL: Conductivity readings are in error for this deployment due to sensor fouling.</p>	

OBSERVATIONS AND LESSONS LEARNED

Southern California has been experiencing extreme drought conditions since before this monitoring program began (January 2015). During the drought, the Ventura River and its tributaries have been particularly dry, resulting in lost hydrological connectivity between the upper and lower watershed. While the drought is not yet over for Ventura County, the county received about average rainfall over the last two wet seasons (2017/18 and 2018/19) which helped reestablish flow in many creeks and streams that had been dry. However, as has been typical, there was no flow in the mainstem Ventura River downstream of the Santa Ana Bridge for the 2018 dry season monitoring (May – September 2018) and flow ceased in San Antonio Creek at TMDL-SA in June, resulting in a loss of connectivity with the upper watershed, as occurred during the dry season in 2015-2017. TMDL-SA would have been dry June-September if not for a small spring at the site. Connectivity between the upper and lower watershed was reestablished in January 2019, after a large storm passed through the area. The higher flows resulted in very turbid water in January, February, and March 2019, and unsafe conditions for flow measurement from February – April 2019. Flow is typically perennial downstream of Foster Park and the Casitas Vista Bridge observation point.

Flow variations between monitoring sites and events are likely due to a combination of factors, including geology, temperature, inputs, and extractions. Ponded locations, and those with shallow and/or slow-moving water appear to experience greater variation in measured levels of DO and so ponds are avoided where possible but may not be avoidable in all cases.

Siltation can be an issue in slow moving water and sondes are installed higher in the water column in areas where it is likely to occur, when possible. All sondes were checked and/or calibrated by monitoring staff before and after deployment, regardless of history, and field meter readings were taken in the vicinity of the sondes immediately prior to sonde removal to check/confirm that the sondes were still reading accurately in situ at the end of the deployment. Following the disappearance of the TMDL-Est sonde in September 2017, the method and location for deploying this sonde was modified to try to further reduce the potential for vandalism/theft.

Heavy storms in early 2019 postponed sonde deployment for all sites until March due to heavy flow. The storms also reshaped the estuary, separating the east end of the estuary from the river (Photo 1) but maintaining its connection to the ocean (Photo 2), eliminating the vegetation cover and drying out the location where the sonde had been able to be discreetly deployed during previous monitoring events (Photo 3), and causing the west end of the estuary to exhibit riverine and exposed characteristics. High pedestrian/homeless traffic in the area and the shape of the wet portion of the estuary combined to create a high risk of theft/vandalism of the sonde (Photo 4 and Photo 5), so the estuary sonde was not deployed in 2019-Q1 (March 2019).

Photo 1. East end of estuary looking inland towards the former (now dry) connection to the main flow.



Photo 2. East end of estuary open to the ocean.



Photo 3. Former site of sonde deployment exposed and dry in 2019-Q1.



Photo 4. West end of estuary looking inland. Railroad bridge in foreground receives heavy pedestrian/homeless traffic.



Photo 5. West end of estuary looking to the ocean. Berm was fully breached in 2019-Q1 and estuary resembled a river mouth.



All monthly grab measurements for pH during this reporting period were within the numeric target limits of 6.5-8.5 pH units, except for TMDL-Est and TMDL-CL in May 2018. Similarly, all continuous data logger pH results were within limits except for TMDL-Est and TMDL-CL in May 2018, and TMDL-Est in December 2018, which experienced multiple excursions over 8.5, with the maximum value occurring during the May sonde deployment, of 8.77 for TMDL-Est and 8.79 for TMDL-CL.

Low levels of DO (below the numeric target of 7 mg/L) were observed frequently at sites with low flow for the monthly grab monitoring, particularly at TMDL-R4 and TMDL-SA, and during the dry season sonde deployments at almost all sites. The general association with low flow is possibly due to the ponding of water upstream and/or at the measurement location, as well as higher temperatures. Similar to 2017, DO levels below the numeric target were observed during the continuous monitoring at most sites during the May deployment, and again at the September deployment. All sites exhibited diurnal variation in levels. The lower levels during the diurnal cycles resulted in a few dips below the numeric threshold for TMDL-CL in March. All sites were above the DO threshold in December.

Specific conductance remained relatively stable at the riverine sites for the deployments during this reporting period. By comparison, TMDL-Est experiences much greater variability in conductivity both within and between deployments, likely due

to the interactions with the ocean through tides, diffusion, and berm breaches, however since it is infeasible to monitor the berm status for the entire duration of the sonde deployment, it is unknown when all breaches occur.

TABLE 9. EXCEEDANCES BY SITE AND MONTH

Sample Month	TMDL-Est	TMDL-R1	TMDL-R2	TMDL-R3	TMDL-R4	TMDL-SA	TMDL-CL
MAY 2018	DO (c) >pH (c) >pH (m)	DO (c)			DO (c) *	DO (c) * DO (m)	DO (c) * >pH (c) >pH (m)
JUN 2018					DO (m) *	DO (m) *	DRY
JUL 2018		DO (m)			DO (m) *	DO (m) *	DRY
AUG 2018			DO (m)	DO (m)	DRY	DO (m) *	DRY
SEP 2018	DO (c)	DO (c)	DO (c) DO (m)	DO (c) DO (m)	DRY	DRY	DRY
OCT 2018					DRY	DRY	DRY
NOV 2018					DRY	DRY	DRY
DEC 2018	>pH (c)				DRY	DRY	DRY
JAN 2019					DO (m) *	DO (m) *	
FEB 2019	DO (m)						
MAR 2019							DO (c)
APR 2019							
Seasonal Average	Chl <i>a</i> Macro cover	Chl <i>a</i>	Chl <i>a</i>	Chl <i>a</i> Macro cover	Chl <i>a</i> Macro cover	Macro cover	

Notes:

(m) is the monthly grab sample measurement

(c) is the continuously monitored sonde measurement

* low flow conditions may have contributed to exceedance

Chl *a* is chlorophyll *a*, a measurement of algal biomass

Macro cover is macroalgal cover, a measurement of algal presence

APPENDICES TO ANNUAL REPORT

The field data sheets, chain of custodies, and laboratory reports are provided as appendices to this report.

TOTAL MAXIMUM DAILY LOAD
FOR ALGAE, EUTROPHIC CONDITIONS, AND
NUTRIENTS IN VENTURA RIVER, INCLUDING THE
ESTUARY, AND ITS TRIBUTARIES (VR ALGAE TMDL)

2019 ANNUAL REPORT

APPENDIX A: FIELD DATA SHEETS (MAY 2018 - APRIL 2019)

Submitted to
TMDL Responsible Parties Implementing Receiving Water Monitoring Requirements:

City of Ojai
City of Ventura
County of Ventura
Ojai Valley Sanitary District
California Department of Transportation
Ventura County Agricultural Irrigated Lands Group
Ventura County Watershed Protection District

Prepared by:

Ventura County Watershed Protection District
June 1, 2019



Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): MAY 2018 Date: 5/15 + 5/16/18
Crew Members: K. HAAS L. MEERER J. MANN
Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____
Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following)
Notes: YSA 85 # 05E1126
Beckman 410 # 110341139

OBSERVATION SITES (RIVER FLOW)

Ventura River at Highway 150 (Baldwin Road)

Flow Status: Dry / Pondered / Flowing (Estimated Flow: 6 cfs) Photos Taken: Upstream / Downstream
Notes: _____

Ventura River at Santa Ana Blvd

Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: water visible downstream but dry at bridge

Ventura River at Casitas Vista Road

Flow Status: Dry / Pondered / Flowing (Estimated Flow: 6 cfs) Photos Taken: Upstream / Downstream
Notes: _____

Additional Observation Site:

Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

UNSAMPLED TMDL SITES

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 2 of 2

Ventura River Algae TMDL— Estuary Transect Measurements Date: 5/16/18 Crew: KH, LM, JM

TRANSECT 2

Photos: <input checked="" type="checkbox"/> Oceanward <input type="checkbox"/> Landward	Start Time: <u>1320</u>	End Time: <u>13:27</u>
Start Latitude: <u>34.27481</u>	Start Longitude: <u>-119.30740</u>	
End Latitude: <u>34.27484</u>	End Longitude: <u>-119.30762</u>	
PVC Latitude:	PVC Longitude:	

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>1.64</u>	<u>4.46</u>	<u>8.87</u>	<u>10.40</u>	<u>14.74</u>	<u>19.84</u>	<u>23.21</u>	<u>25.71</u>	<u>27.40</u>	<u>29.50</u>	0.3 →			
Water Depth (must be ≤ 0.3 m)	0.3 →										0.3 →			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd													
No. Crosshairs with Macroalgae Present	<u>49</u>	<u>47</u>	<u>40</u>	<u>49</u>	<u>49</u>	<u>46</u>	<u>46</u>	<u>48</u>	<u>40</u>	<u>42</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>0</u>	<u>2</u>	<u>9</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>3</u>	<u>1</u>	<u>9</u>	<u>7</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>
Crosshair Total (must equal 49)	<u>49</u>													

TRANSECT 3

Photos: <input checked="" type="checkbox"/> Oceanward <input type="checkbox"/> Landward	Start Time: <u>1330</u>	End Time: <u>1336</u>
Start Latitude: <u>34.27487</u>	Start Longitude: <u>-119.30765</u>	
End Latitude: <u>34.25727513</u>	End Longitude: <u>-119.30778</u>	
PVC Latitude:	PVC Longitude:	

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>1.64</u>	<u>4.46</u>	<u>8.87</u>	<u>10.40</u>	<u>14.74</u>	<u>19.84</u>	<u>23.21</u>	<u>25.71</u>	<u>27.40</u>	<u>29.50</u>	0.3 →			
Water Depth (must be ≤ 0.3 m)	0.3 →										0.3 →			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd													
No. Crosshairs with Macroalgae Present	<u>49</u>	<u>46</u>	<u>48</u>	<u>49</u>	<u>45</u>	<u>48</u>	<u>49</u>	<u>49</u>	<u>46</u>	<u>49</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>0</u>	<u>3</u>	<u>1</u>	<u>0</u>	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>
Crosshair Total (must equal 49)	<u>49</u>													

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAY 2018
 Site ID: R1
 Date/Time: 5/16/18 1100
 Crew Members: KH, LM, JM
 Latitude/Longitude: 34.28024 -119.30832
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 8.35 pH units EC: 1506 $\mu\text{S}/\text{cm}$
 DO: 9.51 mg/L SC: 1719 $\mu\text{S}/\text{cm}$
 DO: 102.0 % Salinity: 0.90 ppt
 Water Temp: 18.5 °C
 Flow (from discharge measurement): 3.73 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	8.30	0.50	0.11
2	10.00	0.75	0.23
3	11.50	0.80	0.33
4	13.00	0.85	0.53
5	14.50	0.80	0.42
6	16.00	0.60	0.53
7	17.50	0.70	0.54
8	19.00	0.50	0.37
9	20.50	0.75	0.32
10	22.00	0.90	0.10
11	23.00	1.00	0.04
12	24.00	0.00	0.00
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	4
PVC Delimiter (Area=12.6cm ²)	7
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	330
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R1 Date: 5/16/18 Crew: RH, LM, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	5	0A	50A	70A	45A	10A	1	0	1	0	✓
AB	4.8	0A	52A	60A	31A	0A					
B	3.9	30A	30A	36A	50A	(0P)	0	0	1	0	
BC	3.0	10A	(20P)	(13P)	(15P)	0A					
C	2.0	(0P)	(30P)	(31P)	(9P)	(10P)	6	0	5	2	
CD	2.15	0A	(19P)	(25P)	(21P)	0A					
D	2.2	(0P)	(25P)	24A	32A	0A	14	2	13	11	
DE	3.1	(0P)	15A	20A	17A	12A					
E	4.9	0A	42A	19A	47A	10A	17	17	17	17	
EF	4.05	0A	51A	55A	60A	0A					
F	3.4	0A	0A	63A	53A	0A	9	7	3	1	✓
FG	3.6	0A	45A	39A	32A	0A					
G	3.5	0A	48A	34A	35A	0A	17	17	17	17	
GH	4.4	0A	35A	37A	34A	0A					
H	5.0	(0P)	(15P)	(20P)	(21P)	0A	7	2	10	5	
HI	5.0	0A	12A	49A	38A	0A					
I	2.5	0A	(18P)	(7P)	25A	0A	12	14	8	2	
II	2.5	0A	35A	36A	14A	0A					
J	3.0	0A	40A	47A	32A	0A	6	10	7	2	
JK	2.4	0A	45A	54A	50A	0A					
K	2.3	0A	15A	(15P)	8A	0A	14	8	17	17	✓

22P
0dy

22/105

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAY 2018
 Site ID: R2
 Date/Time: 5/16/18 0820
 Crew Members: KH, LM, JM
 Latitude/Longitude: 34.33930, -119.29731
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	2.30	0.00	0.00
2	4.00	0.50	0.01
3	6.00	1.30	0.02
4	8.00	1.20	0.08
5	10.00	1.50	0.05
6	12.00	1.30	0.07
7	14.00	1.05	0.62
8	16.00	0.50	1.02
9	18.00	0.60	0.33
10	21.00	0.20	-0.10
11	23.00	0.00	0.00
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly *In Situ* Measurements:

pH: 8.06 pH units EC: 1099 $\mu\text{S}/\text{cm}$
 DO: 7.42 mg/L SC: 1255 $\mu\text{S}/\text{cm}$
 DO: 79.2 % Salinity: 0.60 ppt
 Water Temp: 18.4 °C
 Flow (from discharge measurement): 3.35 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

May—September: Algae Collection for Chlorophyll *a* Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	3
PVC Delimiter (Area=12.6cm ²)	8
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	316
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R2 Date: 5/16/18 Crew: KH, LM, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	6.2	OP	22A	29P	20P	OA	1	8	15	9	✓
AB	5.8	OA	5P	26A	2A	OA					
B	6.3	OP	DRY	21P	55P	OA	7	0	3	0	
BC	6.0	Inaccess (handley camp)		25P	33P	OP					
C	6.2	OA	OA	16P	36P	OP	15	6	3	0	
CD	5.6	OA	18P	14P	6P	OP					
D	5.3	OP	6P	9P	15P	15P	17	14	2	11	
DE	6.7	OA	29P	12P	DRY	OP					
E	5.6	OA	25P	17P	DRY	OP	16	8	0	9	
EF	6.6	20A	15P	39P	40P	OA					
F	6.4	OP	5P	25P	30P	OA	15	2	4	6	✓
FG	6.3	OP	17P	20P	5P	OP					
G	6.2	OA	42P	29P	28P	OP	17	3	0	2	
GH	5.9	OP	15P	4P	20P	OP					
H	8.2	OA	20A	DRY	1P	OA	8	0	3	2	
HI	4.4	OA	2P	14P	19A	OA					
I	7.0	OA	22P	14P	5P	OA	11	2	0	3	
J	9.7	OA	DRY	10P	5A	OP					
J	6.2	OA	39P	37A	24A	15A	17	7	9	10	
JK	7.5	OA	45A	39A	43A	OA					
K	6.4	OA	27A	36P	26P	20A	15	5	9	5	✓

homeless camp

7 dry/inaccess
60P
60/18

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAY 2018
 Site ID: R3
 Date/Time: 5/18/18 / 1200
 Crew Members: KH, JM, DL
 Latitude/Longitude: 34.34586, -119.29993
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	7.10	0.00	0.00
2	8.00	0.50	-0.20
3	9.00	0.60	-0.13
4	10.00	0.75	0.02
5	11.00	0.90	0.26
6	12.00	0.40	0.30
7	13.00	0.85	-0.06
8	14.00	0.65	0.15
9	15.00	0.90	0.23
10	16.00	0.95	0.38
11	17.00	1.00	0.28
12	18.00	1.10	-0.04
13	19.00	1.10	-0.09
14	20.00	0.50	-0.09
15	21.00	0.30	0.02
16	22.00	0.60	0.02
17	22.70	0.00	0.00
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly *In Situ* Measurements:
 pH: 8.28 pH units EC: 1069 $\mu\text{S}/\text{cm}$
 DO: 12.94 mg/L SC: 1152 $\mu\text{S}/\text{cm}$
 DO: 144.8 % Salinity: 0.6 ppt
 Water Temp: 21.2 °C
 Flow (from discharge measurement): 0.92 cfs

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	0
PVC Delimiter (Area=12.6cm ²)	11
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	390
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R3 Date: 5/19/18 Crew: KH, DL, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	Upstream/ Downstream
A	7.0	OP	11P	16P	OP	OA	0	2	2	0	✓
AB	9.0	OA	9P	15P	21P	OA					
B	11.9	OP	5P	6P	21P	OA	2	2	2	1	
BC	10.5	OA	37P	13P	4P	OP					
C	10.0	OP	18P	OA	10P	OA	5	16	12	6	
CD	9.5	OA	14P	36P	54P	OP					
D	6.0	OA	5P	49P	31P	OP	3	0	9	0	
DE	5.0	OP	30P	29P	43P	OA					
E	6.0	OP	1P	29P	32P	OP	0	0	6	1	
EF	5.0	18P	38P	50P	41P	OA					
F	4.0	OP	10P	11P	15P	OA	17	17	17	17	✓
FG	3.7	OP	2P	25P	9P	OP					
G	3.8	OA	OP	17P	21P	OA	5	8	12	5	
GH	4.2	OA	OA/OP	18P	9P	OA					
H	6.0	OA	30P	OP	4A	OA	0	6	12	2	
HI	9.0	OP	OP	3A	OA	OA					
I	12.0	OP	OP	2A	OA	OA	17	17	17	17	
II	4.9	OP	19P	26P	16A	OA					
J	6.5	OP	OP	34P	48P	OA	5	1	5	5	
JK	6.0	OP	21P	30P	45A	OA					
K	6.0	OP	5P	19P	18P	OP	3	3	8	2	✓

~~30A~~
75P
ody

75/105

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAY 2018
 Site ID: R4
 Date/Time: 5/15/18 0805
 Crew Members: KH, DL, JM
 Latitude/Longitude: 34-38187, -119-30916
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.65	0.00	0.00
2	5.00	0.50	0.23
3	5.50	0.25	1.07
4	6.00	0.30	1.03
5	6.50	0.35	1.45
6	7.00	0.30	0.72
7	7.50	0.25	0.20
8	8.00	0.00	0.60
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly In Situ Measurements:
 pH: 7.66 pH units EC: 898 $\mu\text{S/cm}$
 DO: 8.36 mg/L SC: 1070 $\mu\text{S/cm}$
 DO: 85.7 % Salinity: 0.5 ppt
 Water Temp: 16.6 °C
 Flow (from discharge measurement): 0.69 cfs

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	5
PVC Delimiter (Area=12.6cm ²)	6
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	300
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R4 Date: 5/15/18 Crew: KH, DL, JM

Transect	m Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken) Upstream/ Downstream
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	5.6	OP	16A	39A	29A	0A	2	0	0	0	✓
AB	6.1	OP	19A	37P	13P	OP					
B	5.0	OP	23A	39P	35A	0A	0	1	6	0	
BC	4.8	0A	11A	24P	11A 21P	0A					
C	5.05	OP	9P	13P	5P	0A	0	2	1	0	
CD	7.00	0A	21P	32P	20A	0A					
D	4.6	OP	13P	33A	29A	0A	17	17	17	17	
DE	2.4	0A	2A	2A	5P	0A					
E	3.0	0A	5A	15A	12P	0A	17	17	17	17	
EF	5.0	OP	9P	OP	0A	0A					
F	8.4	OP	10P	OP	13P	0A	0	0	0	0	✓
FG	8.0	0A	16P	16P	21P	0A					
G	7.0	0A	22P	31P	18P	0A	0	0	0	0	
GH	5.0	OP	33P	43P	28A	0A					
H	5.0	0A	29P	29P	36P	OP	0	0	0	0	
HI	4.25	0A	32P	35P	34P	0A					
I	3.8	0A	5P	5P	15P	0A	0	1	0	2	
II	2.55	0A	16P	20P	26P	OP					
J	5.0	0A	1A	11P	13P	OP	0	0	0	0	
JK	5.0	0A	1A	5P	8P	OP					
K	6.0	0A	10A	18P	13P	OP	14	5	4	9	✓

58 P
0 dy

58/105

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAY 2018

Site ID: SA

Date/Time: 5/15/18 1025

Crew Members: KH, DL, JM

Latitude/Longitude: 34.38075, -119.30735

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Ponded/dry upstream

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.6	0	0
2	5.2	0.2	0.013
3	5.6	0.2	0.10
4	6.0	0.2	0.06
5	6.3	0.2	0.01
6	6.4	0	0
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly In Situ Measurements:

pH: 7.25 pH units EC: 875 μ S/cm

DO: 4.54 mg/L SC: 1026 μ S/cm

DO: 47.2 % 47.0 Salinity: 0.5 ppt

Water Temp: 17.3 °C

Flow (from discharge measurement): 0.01 cfs

May—September: Algae Collection for Chlorophyll a

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	5
PVC Delimiter (Area=12.6cm ²)	4
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	9
Composite Volume (mL)	288
Chlorophyll a Volume (use GF/F filter, 25 mL preferred volume)	25

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll a (filters—algae):

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)

Site: SA Date: 5/15/18 Crew: KH, OL, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	3.7	0A	(12P)	(11P)	5A	(0P)	15	12	7	9	✓
AB	3.0	(0P)	7A	12A	13A	(0P)					
B	2.15	(0P)	0A	1A	(0P)	0A	17	17	17	17	
BC	1.25	(0P)	(40P)	(12P)	5A	(0P)					
C	0.8	(0P)	(0P)	(0P)	(0P)	(0P)	17	16	17	17	
CD	1.40	(0P)	DRY	(0P)	DRY	0A					
D	← 0.5	(0P)	(0P) DRY	(0P)	(0P)	(0P)	10	11	6	7	→
DE	1.0	(0P)	(0P)	(0P)	(0P)	(0P)					
E	5.0	0A	0A	0A	0A	(0P)	2	0	4	4	
EF	9.0	(0P)	DRY	0A	0A	0A					
F	1.25	0A	(0P)	1A	(2P)	0A	0	4	9	3	✓
FG	0.9	0A	(2P)	(1P)	(0P)	(0P)					
G	2.1	(0P)	6A	(2P)	(2P)	(0P)	0	0	3	0	
GH	2.1	0A	25A	12A	4A	0A					
H	1.0	(0P)	8A	10A	7A	(0P)	4	0	3	3	
HI	4.5	0A	0A	0A	7A	0A					
I	1.3	0A	6A	13A	24A	0A	13	15	17	17	
II	1.5	0A	1A	6A	14A	0A					
J	1.6	0A	4A	(5P)	4A	0A	8	15	17	17	
JK	2.5	0A	1A	2A	1A	0A					
K	1.25	0A	1A	0A	0A	0A	12	17	16	16	✓

↑ wet ↑

↓ water ↓

damp

dead/dried
algae layer
on top of
damp ground

wet ↑

↓

3dy
43P

43/102

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAY 2018
 Site ID: CL
 Date/Time: 5/15/18 1400
 Crew Members: KH, DL, JM
 Latitude/Longitude: 34.34204 -119.28646
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Sand installation visible and embedded in sediment. ~~was~~ had been covered w/ rocks when first installed. Removal scheduled for tomorrow

Tried to remove it but sediment quickly found
January—December Monthly *In Situ* Measurements:
 pH: 8.73 pH units EC: 4169 $\mu\text{S}/\text{cm}$
 DO: 10.58 mg/L SC: 3709 $\mu\text{S}/\text{cm}$
 DO: 144.6 % Salinity: 1.9 ppt
 Water Temp: 31.4 °C
 Flow (from discharge measurement): 0.035 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
<u>cm</u>	Float 1	Float 2	Float 3
Distance (ft)	100	100	100
Float Time (sec)	24	26	27
Float Reach Cross Section (ft)			
<u>cm</u>	Upper Section	Middle Section	Lower Section
Width	90	90	85
Depth 1	0	0	0
Depth 2	2	3	3
Depth 3	2	4	5
Depth 4	5	5	6
Depth 5	0	0	0

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	4
PVC Delimiter (Area=12.6cm ²)	7
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	340
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: CL Date: 5/15/18 Crew: KH, DL, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	0.5	OA	0.05A	2A	1P	OA	2	0	11	1	✓
AB	1.05	OA	6A	DRY	2A	OA					
B	0.75	6A	OA	1P	OA	OA	0	0	0	0	
BC	0.5	OA	2P	OP	1P	OP					
C	0.6	OA	OP	2P	1A	OA	0	0	0	0	
CD	0.9	OP	0.05A	2A	0.05P	OP					
D	1.7	OA	3A	6A	1A	OP	1	0	0	0	
DE	1.4	OA	OA	1A	OA	OA					
E	1.25	OA	3A	5A	6A	OA	3	3	0	0	
EF	0.6	OA	6A	5A	5A	OA					
F	0.85	1A	2A	1A	OA	OA	4	3	0	0	✓
FG	6.33	OA	OA	OA	OA	OA					
G	5.9	OA	OP	OA	2A	OA	2	0	0	0	
GH	3.3	OA	2A	OA	1A	OA					
H	1.5	OA	6A	6A	4A	OA	0	0	1	0	
HI	2.2	OA	2A	OA	OA	OA					
I	1.5	OA	2A	2A	2A	OA	0	0	0	0	
II	0.95	OA	5A	OA	6A	OA					
J	1.00	OA	3A	4A	4A	OA	14	5	0	7	
JK	0.6	OP	1P	3P	1A	OA					
K	1.25	OA	3A 1A	6A	3A	OA	14	5	0	5	✓

16P
1dy

16/104

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): JUNE 2018 Date: 6/6/18 + 6/7/18

Crew Members: K. HAHS, D. LAAK, B. JONES (6/6/18), J. MANN (6/7/18)

Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____

Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following)

Notes: Field Dups at R4
VSI 85 # 03D0379
Bottom 210 # 2554
255

OBSERVATION SITES (RIVER FLOW) WB CAREY 6/4/18

Ventura River at Highway 150 (Baldwin Road)
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream ✓ ✓
 Notes: _____

Ventura River at Santa Ana Blvd
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream ✓ ✓
 Notes: _____

Ventura River at Casitas Vista Road
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: 2 cfs) Photos Taken: Upstream / Downstream
 Notes: Flowing east side

Additional Observation Site: _____
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
 Notes: _____

UNSAMPLED TMDL SITES WB CAREY 6/4/18

Site ID: CL Time: 13:30 Photos Taken: Upstream / Downstream ✓ ✓
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 2

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est
Event ID (Month Year): JUNE 2018 **Date:** 6/7/18 0945
Crew Members: KH, DL, JM
Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy **Ocean Inlet (circle one):** Open / Restricted / Closed
Direction of Tide: Ebb / Flood / Slack / N/A **Time of Low Tide:** 1115 **Time of High Tide:** 0431
Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind **Wind Direction:** Blowing From / To W
Notes (e.g. homeless, wildlife, dogs, swimming/recreation): beam open west end.

TRANSECT 1

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):
 pH: 8.42 pH units EC: 7180 $\mu\text{S}/\text{cm}$ Water Temp: 22.1 °C
 DO: 11.02 mg/L SC: 7670 $\mu\text{S}/\text{cm}$
 DO: 128.6 % Salinity: 4.2 ppt

Photos: <input checked="" type="checkbox"/> Oceanward <input type="checkbox"/> Landward	Start Time: <u>0940</u>	End Time: <u>0945</u>
Start Latitude: <u>34-27471</u>	Start Longitude: <u>-119-30699</u>	
End Latitude: <u>34-27474</u>	End Longitude: <u>-119-30730</u>	
PVC Latitude:	PVC Longitude:	

Water Samples Collected (check box)

[Collect at Floating Macroalgae Quadrat 1, Transect 1]

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:
 Phosphorus, total and dissolved:
 Nitrate + Nitrite as Nitrogen:

Dry Season Algae (May—Sep):

Chlorophyll a (phytoplankton):
 Volume filtered per sample: 250

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>0.6</u>	<u>3.9</u>	<u>5.6</u>	<u>6.1</u>	<u>9.6</u>	<u>11.7</u>	<u>13.0</u>	<u>22.1</u>	<u>23.7</u>	<u>29.9</u>				
Water Depth (must be ≤ 0.3 m)											<u>0.3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd												
No. Crosshairs with Macroalgae Present	<u>2</u>	<u>0</u>	<u>0</u>											
No. Crosshairs with Macroalgae Absent	<u>47</u>	<u>49</u>	<u>49</u>											
Crosshair Total (must equal 49)	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 2 of 2

 Ventura River Algae TMDL— Estuary Transect Measurements Date: 6/7/18

 Crew: KH, JM

TRANSECT 2

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward		Start Time: <u>0950</u>				End Time: <u>0955</u>								
Start Latitude: <u>34-27470</u>		Start Longitude: <u>-119.30737</u>												
End Latitude: <u>34-27475</u>		End Longitude: <u>-119.30763</u>												
PVC Latitude:		PVC Longitude:												
Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>0.6</u>	<u>3.9</u>	<u>5.6</u>	<u>6.1</u>	<u>9.6</u>	<u>11.7</u>	<u>13.0</u>	<u>22.1</u>	<u>23.7</u>	<u>29.9</u>				
Water Depth (must be ≤ 0.3 m)											<u>0.3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	
No. Crosshairs with Macroalgae Present	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>49</u>	<u>48</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>48</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>
Crosshair Total (must equal 49)	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>

TRANSECT 3

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward		Start Time: <u>0957</u>				End Time: <u>1000</u>								
Start Latitude: <u>34-27482</u>		Start Longitude: <u>-119.30766</u>												
End Latitude: <u>34-27508</u>		End Longitude: <u>-119.30777</u>												
PVC Latitude:		PVC Longitude:												
Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>0.6</u>	<u>3.9</u>	<u>5.6</u>	<u>6.1</u>	<u>9.6</u>	<u>11.7</u>	<u>13.0</u>	<u>22.1</u>	<u>23.7</u>	<u>29.9</u>				
Water Depth (must be ≤ 0.3 m)											<u>0.3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	
No. Crosshairs with Macroalgae Present	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>49</u>										<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>
Crosshair Total (must equal 49)	<u>49</u>										<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JUNE 2018
Site ID: R1
Date/Time: 6/7/18 0745
Crew Members: KH, DL, JM
Latitude/Longitude: 34-28016, -119-30836
Flow (circle one): Flowing / Ponded / Dry
Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
Wind Direction: Blowing (circle one) From / To _____
Photos (check): Upstream Downstream
Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 8.37 pH units EC: 1056.5 $\mu\text{S}/\text{cm}$
 DO: 9.22 mg/L SC: 1794 $\mu\text{S}/\text{cm}$
 DO: 109.0 % Salinity: 0.90 ppt
 Water Temp: 18.3 °C
 Flow (from discharge measurement): 2.69 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	8.0	0.00	0.00
2	8.5	0.50	0.12
3	9.5	0.50	0.18
4	10.5	0.75	0.08
5	11.5	0.70	0.29
6	12.5	0.60	0.43
7	13.5	0.80	0.44
8	14.5	0.80	0.49
9	15.5	0.70	0.32
10	16.5	0.60	0.31
11	17.5	0.60	0.36
12	18.5	0.60	0.28
13	19.5	0.40	0.27
14	20.5	0.70	0.30
15	21.5	0.80	0.11
16	22.5	0.90	0.07
17	23.5	0.80	0.00
18	24.0	0.00	0.00
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150 m

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	8
PVC Delimiter (Area=12.6cm ²)	3
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	500
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R1 Date: 6/8 + 6/8 Crew: KH, DL

6/7/18

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	Upstream/ Downstream
A	4.7	0A	50A	89A	55A	6A	10	6	9	0	✓
AB	4.5	0A	48A	54A	39A	5A					
B	3.15	0A	4A	37A	41A	19A	0	0	3	1	
BC	1.7	0A	20A	20A	22A	13A					
C	1.6	10A	13A	22A	27A	19A	8	6	9	1	
CD	1.5	0A	25A	7A	24A	2A					
D	2.0	0A	15A	15A	35A	6A	15	14	13	8	
DE	4.5	0A	33A	32A	45A	10A					
E	4.5	0A	60A	65A	45A	5A	17	15	3	13	
EF	3.6	0A	49A	67A	46A	5A					
F	3.4	0A	25A	40A	41A	5A	17	17	17	17	✓
FG	4.5	OP	30A	36A	17A	1P					
G	6.5	OP	10A	11A	13A	2P	9	3	8	9	
GH	3.45	OP	16A	37A	24A	2A					
H	2.65	0A	20P	37A	35A	1P	12	4	8	7	
HI	4.0	OP	40A	55A	46A	3A					
I	3.75	0A	34A	46A	8A	2A	17	16	16	8	
II	3.8	0A	27A	31A	37A	4A					
J	2.05	0A	30A	47A	11A	1A	17	16	15	14	
JK	2.4	0A	25A	33A	29A	3A					
K	3.3	OP	30A	41A	45A	3A	17	14	13	17	✓

9/105

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JUNE 2018
Site ID: R2
Date/Time: 6/6/18 1310
Crew Members: KH, DL, AJ

Latitude/Longitude: 34.33945, -119.29723
Flow (circle one): Flowing / Ponded / Dry
Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
Wind Direction: Blowing (circle one) From / To _____
Photos (check): Upstream Downstream
Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 8.22 pH units EC: 1238 $\mu\text{S}/\text{cm}$
 DO: 9.15 mg/L SC: 1327 $\mu\text{S}/\text{cm}$
 DO: 101.5 % Salinity: 0.7 ppt
 Water Temp: 21.5 °C
 Flow (from discharge measurement): 3.26 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3	0	0
2	6	1.20	-0.02
3	7.5	1.40	0.01
4	9.0	1.00	-0.02
5	10.5	1.45	0.03
6	12.0	1.50	0.24
7	13.5	1.15	0.48
8	15.0	1.00	0.81
9	16.5	0.45	0.85
10	18.0	0.55	0.26
11	19.5	0.75	-0.06
12	21.5	0.25	-0.07
13	23.6	0	0
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	0
PVC Delimiter (Area=12.6cm ²)	4
Syringe Scrubber (Area=5.3cm ²)	7
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	520
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R2 Date: 6/6/18 Crew: KH, DL

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	5.5	OP	14P	25A	16P	2P	4	2	15	9	✓
AB	5.0	OP	OP	26P	DRY	OA					
B	4.0	OA	25A	28A	35A	OP	6	5	9	1	
BC	3.5	OP	8P	OP	19P	OP					
C	6.5	OA	17P	OP	8P	OP	17	17	3	4	
CD	6.5	OA	20P	1A	24A	OA					
D	8.0	OA	24P	15A	10P	OA	17	15	4	15	
DE	8.0	OA	47A	34A	12P	OA					
E	8.0	30P	36A	30A	37A	8A	178	8	0	8	
EF	6.5	OA	25P	30A	35A	OA					
F	5.5	OA	46A	30P	40A	OA	17	13	7	4	✓
FG	7.5	OA	34A	11P	20P	OA					
G	6.0	OA	3P	22P	10P	OP	9	17	0	1	
GH	6.0	OA	25P	20P	20P	OA					
H	6.0	OP	5P	10P	24A	OP	7	2	5	1	
HI	8.0	OA	2P	9A	OP	2A					
I	7.0	OA	39A	24A	27A	3A	17	12	11	15	
IJ	6.2	OA	7A	24P	48A	OA					
J	6.0	OA	15P	31A	18A	OA	15	6	6	5	
JK	6.0	OA	40A	47A	35A	OA					
K	4.2	OA	55A	58A	35A	3A	17	17	15	17	✓

handless camp

41/104

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JUNE 2018
 Site ID: R3
 Date/Time: 6/6/18 1105
 Crew Members: KH, BT, DL
 Latitude/Longitude: 34.34580 -119.29984
 Flow (circle one): Flowing / Poned / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 8.02 pH units EC: 1063 $\mu\text{S}/\text{cm}$
 DO: 8.109 mg/L SC: 1176 $\mu\text{S}/\text{cm}$
 DO: 95.0 % Salinity: 0.16 ppt
 Water Temp: 20.0 °C
 Flow (from discharge measurement): 0.80 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	6.3	0.2	0
2	6.5	0.2	0.07
3	6.8	0.2	-0.05
4	7.0	\emptyset	\emptyset
5	8.3	\emptyset	\emptyset
6	8.5	0.2	0.4
7	9.0	0.2	-0.15
8	10.0	0.7	-0.01
9	11.0	0.7	0.19
10	12.0	0.4	0.21
11	13.0	0.35	0.04
12	14.0	1.0	-0.23
13	15.0	0.9	0.44
14	16.0	1.0	0.12
15	17.0	0.95	0.14
16	18.0	1.0	0.07
17	19.0	0.5	0.15
18	20.0	0.35	0.01
19	21.0	0.7	\emptyset
20	21.6	0.5	0.01

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	\emptyset
PVC Delimiter (Area=12.6cm ²)	2
Syringe Scrubber (Area=5.3cm ²)	9
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	402
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R3 Date: 6/6/18 Crew: KH, DL

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	7.0	OP	7P	6P	3P	2P	2	1	6	2	✓
AB	7.0	OP	9P	6P	15P	0A					
B	10.0	0A	9P	10P	10P	1A	4	4	7	0	
BC	10.8	0A	23P	5P	20A	2P					
C	10.0	0A	15A	10A	36P	1P	17	16	17	16	
CD	7.5	0A	8P	27P	30P	1P					
D	4.5	OP	34A	36P	46P	15P	6	3	14	2	
DE	6.5	OP	14P	OP	28P	20P					
E	5.0	0A	28P	41P	41P	6A	8	4	13	1	
EF	5.5	OP	4A	14A	21P	1A					
F	4.5	OP	3P	20A	11P	2A	6	3	11	2	✓
FG	3.8	0A	2P	16A	24P	1A					
G	3.8	0A	OP	8P	15P	2A	8	10	17	8	
GH	3.0	0A	DRY	9P	8A	2A					
H	4.3	OP	19P	16P	15P	NA (C13)	16	16	16	13	
HI	8.0	OP	OP	14P	11A	2A					
I	6.0	OP	OP	28A	30A	2A	17	17	17	12	
II	6.5	OP	30P	33P	59P	2A					
J	5.0	OP	11P	29P	21A	3P	9	1	15	2	
JK	5.5	OP	15A	10P	OP	5A					
K	6.7	OP	15A	24P	17A	3A	2	15	17	9	✓

66
/ 103

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JUNE 2018

Site ID: R4

Date/Time: 6/6/18 0800

Crew Members: KH, DL, 3J

Latitude/Longitude: 34-38176 -119-30914

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Field dup taken.

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	5.6	0	0
2	6.3	0.2 0.22	0.12
3	6.6	0.25	0.60
4	6.9	0.3	0.46
5	7.2	0.3	0.51
6	7.5	0.35	0.46
7	7.9	0.3	0.42
8	8.3	0.3	-0.04
9	8.8	0.2	-0.10
10	9.1	0	0
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly *In Situ* Measurements:

pH: 7.48 pH units EC: 912 $\mu\text{S}/\text{cm}$

DO: 6.12 mg/L SC: 1060 $\mu\text{S}/\text{cm}$

DO: 64.4 % Salinity: 0.5 ppt

Water Temp: 17.7 °C

Flow (from discharge measurement): 0.24 cfs

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	1
PVC Delimiter (Area=12.6cm ²)	10
Syringe Scrubber (Area=5.3cm ²)	⊕ 1
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	404
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Dup
2
8
1
11
260
25

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered): +FD

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae): +FD

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R4 Date: 6/6/18 Crew: KH, DL

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth ^{cm} (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	7.3	OA	20A	46P	DRY	Inacc	0	0	2	0	✓
AB	5.3	OA	14A	33P	26P	5P					
B	5.5	OA	24P	37P	25P	1P	0	0	0	0	
BC	4.8	OP	27P	32P	30P	31P					
C	4.9	OA	10P	21P	30P	5A	0	0	8	0	
CD	5.0	OP	11P	6P	7P	10A					
D	6.0	OA	20P	27P	14P	3A	0	15	9	1	
DE	5.7	OA	21A	24A	14A	Inacc					
E	2.5	OA	DRY	5A	7A	OA	17	17	17	15	
EF	3.7	OA	OA	4A	9A	OA					
F	4.75	OP	OP	3P	3A	OA	13	17	14	6	✓
FG	8.7	OP	11P	OP	10P	OA					
G	8.0	OP	22P	18P	19P	OP	0	0	0	0	
GH	7.5	OP	30P	21P	21P	6A					
H	7.0	OA	28P	28P	24P	2A	0	0	0	0	
HI	5.5	OA	10P	35P	34P	6A					
I	4.0	OP	41P	30P	31P	3A	0	0	0	0	
II	4.2	OA	OA	DRY	21P	OA					
J	3.0	OP	16P	24P	23P	1P	0	0	3	0	
JK	3.0	OP	19P	1P	13P	OP					
K	3.5	OP	13P	11P	9P	2P	0	0	0	0	✓

105 = 35 = 70

$\frac{70}{100}$

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JUNE 2018

Site ID: 3A

Date/Time: 6/6/18 1020

Crew Members: KH, DL, BJ

Latitude/Longitude: 34.38075, -119.30735

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): wet A → BC, dry c + above did not collect algae
transect data (site doesn't meet protocol requirements)

January—December Monthly *In Situ* Measurements:

pH: 7.20 pH units EC: 882 $\mu\text{S}/\text{cm}$

DO: 3.38 mg/L SC: 1030 $\mu\text{S}/\text{cm}$

DO: 35.8 % Salinity: 0.5 ppt

Water Temp: 17.5 °C

Flow (from discharge measurement): 0.014 cfs
Est 20.01

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae): NOT COLLECTED
(TO MANY) DRY TRANSECTS

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.0	0	0
2	4.3	0.25	-0.07
3	4.6	0.25	0.06
4	5.0	0.25	0.14
5	5.4	0	0
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: SA Date: 6/8/18 Crew: _____

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A											
AB											
B											
BC											
C											
CD											
D											
DE											
E											
EF											
F											
FG											
G											
GH											
H											
HI											
I											
II											
J											
JK											
K											

TOO DRY TO MEET SAMPLING PROTOCOL

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): JULY 2018 Date: 7/9/18 + 7/10/18
Crew Members: K. HAYS, L. MEEKER, J. MANN, B. JONES
Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____
Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following)
Notes: YSI 85# 05E1126
Beckman 410 # 130240875

OBSERVATION SITES (RIVER FLOW)

7/10/18 WBC

Ventura River at Highway 150 (Baldwin Road)

Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

Ventura River at Santa Ana Blvd

Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

Ventura River at Casitas Vista Road

Flow Status: Dry / Pondered / Flowing (Estimated Flow: 2 cfs) Photos Taken: Upstream / Downstream
Notes: _____

Additional Observation Site:

Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

UNSAMPLED TMDL SITES

Site ID: CL Time: 7/10/18 / 1215 Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 2

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): JULY 2018

Date: 7/10/18 1010

Crew Members: KH, LM, BJ

Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy

Ocean Inlet (circle one): Open / Restricted / Closed

Direction of Tide: Ebb / Flood / Slack / N/A

Time of Low Tide: 13:36 Time of High Tide: 08:42

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind

Wind Direction: Blowing From W To W

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): 2 St. Bernards playing in water. Estuary level high (due to closed basin?)

TRANSECT 1

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):

pH: 8.06 pH units EC: 4726 $\mu\text{S}/\text{cm}$ Water Temp: 27.2 $^{\circ}\text{C}$

DO: 8.34 mg/L SC: 4536 $\mu\text{S}/\text{cm}$

DO: 106.9 % Salinity: 2.4 ppt

Photos: Oceanward Landward Start Time: 1008 End Time: 1017

Start Latitude: 34.27451 Start Longitude: -119.30698

End Latitude: 34.27447 End Longitude: -119.30726

PVC Latitude: PVC Longitude:

Water Samples Collected (check box)

[Collect at Floating Macroalgae Quadrat 1, Transect 1]

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Dry Season Algae (May—Sep):

Chlorophyll a (phytoplankton):

Volume filtered per sample: 250

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	4.7	8.4	9.8	14.7	16.2	17.6	26.0	27.7	28.7	29.8				
Water Depth (must be ≤ 0.3 m)											0.3			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd													
No. Crosshairs with Macroalgae Present	38	17	2	2	4	4	0	0	1	1	49	49	6	8
No. Crosshairs with Macroalgae Absent											0	0	43	41
Crosshair Total (must equal 49)	49										49	49	49	49

(69)

(112)

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 2 of 2

Ventura River Algae TMDL— Estuary Transect Measurements Date: 7/10/18 Crew: KH, BJ

TRANSECT 2

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward	Start Time: <u>1020</u>	End Time: <u>1029</u>
Start Latitude: <u>34.27451</u>	Start Longitude: <u>-119.30737</u>	
End Latitude: <u>34.27462</u>	End Longitude: <u>-119.30767</u>	
PVC Latitude:	PVC Longitude:	

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>4.7</u>	<u>8.4</u>	<u>9.8</u>	<u>14.7</u>	<u>16.2</u>	<u>17.6</u>	<u>26.0</u>	<u>27.7</u>	<u>28.7</u>	<u>29.8</u>				
Water Depth (must be ≤ 0.3 m)											<u>0-3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd									
No. Crosshairs with Macroalgae Present	<u>1</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>2</u>	<u>8</u>	<u>25</u>	<u>14</u>	<u>27</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent											<u>49</u>			
Crosshair Total (must equal 49)	<u>49</u>	<u>49</u>									<u>49</u>			

(112)

(0)

TRANSECT 3

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward	Start Time: <u>1032</u>	End Time: <u>1041</u>
Start Latitude: <u>34.27470</u>	Start Longitude: <u>-119.30768</u>	
End Latitude: <u>34.27497</u>	End Longitude: <u>-119.30775</u>	
PVC Latitude:	PVC Longitude:	

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>4.7</u>	<u>8.4</u>	<u>9.8</u>	<u>14.7</u>	<u>16.2</u>	<u>17.6</u>	<u>26.0</u>	<u>27.7</u>	<u>28.7</u>	<u>29.8</u>				
Water Depth (must be ≤ 0.3 m)											<u>0-3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd									
No. Crosshairs with Macroalgae Present	<u>48</u>	<u>16</u>	<u>15</u>	<u>33</u>	<u>34</u>	<u>26</u>	<u>35</u>	<u>15</u>	<u>25</u>	<u>27</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent											<u>49</u>			
Crosshair Total (must equal 49)	<u>49</u>										<u>49</u>			

(274)

(0)

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JULY 2018
 Site ID: R1
 Date/Time: 7/10/18 0745
 Crew Members: KH, LM, BJ

Latitude/Longitude: 34.28041, -119.30846
 Flow (circle one): Flowing Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): hard @ A v. high bank
more upstream. Estuary is backed up above
freeway (High tide 8:42 AM, low tide 13:36)

January—December Monthly In Situ Measurements:
 pH: 7.77 pH units EC: 1169.2 $\mu\text{S}/\text{cm}$
 DO: 6.42 mg/L SC: 1742 $\mu\text{S}/\text{cm}$
 DO: 76.1 % Salinity: 0.9 ppt
 Water Temp: 23.3 °C
 Flow (from discharge measurement): 1.93 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	6.6	0.2	0.03
2	8.0	0.5	0.11
3	9.0	0.55	0.06
4	10.0	0.6	0.03
5	11.0	0.8	0.40
6	12.0	0.6	0.43
7	13.0	0.7	0.37
8	14.0	0.6	0.33
9	15.0	0.55	0.37
10	16.0	0.45	0.33
11	17.0	0.4	0.23
12	18.0	0.5	0.22
13	19.0	0.65	0.24
14	20.0	0.8	0.06
15	21.0	0.9	0.02
16	22.0	⊖	⊖
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): 150m

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	0
PVC Delimiter (Area=12.6cm ²)	3
Syringe Scrubber (Area=5.3cm ²)	8
Other (Area=)	—
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	430
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R1 Date: 7/10/18 Crew: KH, LM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	2.1	OA	15A	20A	(25P)	(OP)	13	16	17	7	✓
AB	2.0	OA	21A	27A	36A	OA					
B	2.25	OA	5A	32A	(24P)	OA	17	17	17	17	
BC	3.65	(OP)	24A	(16P)	(13P)	OA					
C	4.7	OA	34A	30A	44A	OA	17	17	17	17	
CD	4.2	OA	55A	66A	52A	24A					
D	3.1	(OP)	DRY	52A	51A	27A	14	10	17	7	
DE	4.5	OA	INACCESS	65A	41A	11A					
E	3.8	OA	38A	35A	25A	11A	17	17	17	17	
EF	4.4	OA	27A	(27P)	(27P)	OA					
F	4.0	(OP)	24A	24A	25A	(OP)	13	7	11	11	✓
FG	4.2	(OP)	(11P)	45A	37A	(OP)					
G	4.15	OA	28A	(30P)	(25P)	OA	17	13	11	6	
GH	2.55	(OP)	(10P)	31A	(30P)	(OP)					
H	2.6	(OP)	9A	(32P)	(40P)	(OP)	16	13	17	9	
HI	3.0	OA	35A	(25P)	(5P)	(OP)					
I	3.3	OA	22A	37A	43A	20A	17	17	17	16	
J	1.7	OA	15A	(30P)	30A	(OP)					
J	2.65	OA	10A	37A	(31P)	(OP)	17	17	17	17	
JK	2.65	(OP)	3A	(15P)	OA	OA					
K	2.35	(OP)	(22P)	(13P)	(20P)	OA	17	17	17	17	✓

37/103

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JULY '18
 Site ID: R-2
 Date/Time: 07.9.18 1300
 Crew Members: KH LM JM
 Latitude/Longitude: 34.33947 -119.2731
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 8.17 pH units EC: 1334 $\mu\text{S}/\text{cm}$
 DO: 8.91 mg/L SC: 1305 $\mu\text{S}/\text{cm}$
 DO: 110.4 % Salinity: 0.7 ppt
 Water Temp: 26.1 °C
 Flow (from discharge measurement): 2.94 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll α (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.00	0.00	0.00
2	7.00	1.50	-0.04
3	8.50	1.35	-0.02
4	10.00	1.15	-0.01
5	11.50	1.40	0.15
6	13.00	1.20	0.28
7	15.00	1.05	0.56
8	16.00	0.65	0.87
9	17.50	0.65	0.55
10	19.00	0.60	0.19
11	20.50	0.00	0.00
12	22.00	0.20	-0.12
13	23.80	0.00	0.00
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll α
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	10
PVC Delimiter (Area=12.6cm ²)	1
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	0
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	412
Chlorophyll α Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R2 Date: 7/9/18 Crew: KH, LM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	6.0	0A	15P	27A	0P	0A	8	7	12	13	✓
AB	5.5	0P	DRY	19A	9A	3A					
B	5.2	0A	DRY	22A	40A	9A	17	17	17	17	
BC	4.0	0A	14A	4A	DRY	0A					
C	5.5	17A	12A	16A	14A	11A	17	14	3	10	
CD	5.5	0A	19P	DRY	27A	15P					
D	6.0	0P	25A	4P	15P	0A	17	13	5	12	
DE	6.0	0A	19A	27A	7A	0A					
E	8.0	0A	25A	37A	37A	0A	17	10	4	11	
EF	6.3	0A	45A	37A	31A	41A					
F	6.5	20A	20A	24A	17A	0A	16	9	8	2	✓
FG	5.5	0A	41A	50A	22A	10P					
G	6.0	0A	0P	27P	22A	0P	15	3	4	5	
GH	7.0	0A	35A	5P	14A	0A					
H	5.2	0A	18A	19A	25A	0A	13	13	16	4	
HI	5.5	0P	7P	14A	10A	0A					
I	6.0	0A	25A	9A	7A	0A	17	17	17	16	
J	7.25	0A	26A	37A	29A	0A					
J	6.5	0A	42A	40A	37A	0A	16	7	15	7	
JK	6.0	0A	45A	50A	46A	0A					
K	7.0	0A	28A	15A	20A	0A	16	5	12	9	✓

15
/101

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JULY 9 18
 Site ID: R-3
 Date/Time: 7.9.18 1100
 Crew Members: KH LM JM
 Latitude/Longitude: 34.34587, -119.29983
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	6.8	0.00	0.00
2	8.0	0.50	0.00
3	9.0	0.50	0.01
4	10.0	0.50	0.20
5	11.0	0.60	0.18
6	12.0	0.80	-0.02
7	13.0	0.50	0.14
8	14.0	1.05	0.23
9	15.0	1.00	0.24
10	16.0	0.55	0.39
11	17.0	1.00	0.30
12	18.0	0.95	0.09
13	19.0	0.50	0.12
14	20.0	0.30	0.01
15	21.0	0.65	0.07
16	21.6	0.45	0.07
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly In Situ Measurements:
 pH: 8.0 pH units EC: 1205 $\mu\text{S}/\text{cm}$
 DO: 9.63 mg/L SC: 1219 $\mu\text{S}/\text{cm}$
 DO: 115.8 % Salinity: 0.6 ppt
 Water Temp: 24.4 °C
 Flow (from discharge measurement): 1.46 cfs

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	11
PVC Delimiter (Area=12.6cm ²)	0
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	362
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)

Site: R3 Date: 7/9/18 Crew: KH, LM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	Upstream/ Downstream
A	5.3	OP	11A	26P	25A	2DA	1	8	16	10	✓
AB	7.5	OP	8P	17P	17A	OP					
B	9.5	OP	1P	2P	17A	0A	13	5	12	5	
BC	8.5	0A	20A	5A	14A	10P					
C	8.8	0A	21A	4P	16A	OP	8	2	13	0	
CD	9.0	0A	0A	10P	19A	0A					
D	8.5	0A	10A	35P	60P	OP	2	4	13	2	
DE	7.5	OP	27A	35A	35A	33P					
E	5.5	OP	24A	27P	40A	0A	8	5	17	15	
EF	5.5	OP	15A	27A	30P	OP					
F	4.0	OP	24A	37A	33A	OP	10	6	16	5	✓
FG	4.0	OP	11P	18A	12A	0A					
G	3.4	OP	2P	15A	5A	0A	12	11	16	4	
GH	3.8	OP	6P	13P	19A	0A					
H	3.75	OP	13P	1P	15A	0A	13	11	17	13	
HI	2.7	0A	14P	OP	14P	OP					
I	3.0	0A	4P	8A	10P	0A	17	17	14	16	
II	3.7	0A	11P	18A	10A	0A					
J	5.0	OP	10P	16A	19A	0A	17	15	16	15	
JK	6.35	OP	19A	37A	41A	0A					
K	5.5	OP	12P	34A	54A	55A	13	6	16	12	✓

47
48/105

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JULY 2018
 Site ID: R4
 Date/Time: 7/19/18 0840
 Crew Members: KH, JM, LM
 Latitude/Longitude: 34.38182 -119.30923
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 7.2 pH units EC: 974 $\mu\text{S/cm}$
 DO: 5.46 mg/L SC: 1092 $\mu\text{S/cm}$
 DO: 50.7 % Salinity: 0.5 ppt
 Water Temp: 19.4 °C
 Flow (from discharge measurement): 0.02 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.8	0.0	0.0
2	5.0	0.15	0.03
3	5.3	0.20	0.21
4	5.6	0.20	0.02
5	6.1	0.00	0.00
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	2
PVC Delimiter (Area=12.6cm ²)	7
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	9
Composite Volume (mL)	348
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R4 Date: 7/9/18 Crew: KH, LM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	4.5	OP	10P	28P	29P	OP	8	1	0	4	✓
AB	5.0	OP	23P	31P	37P	OP					
B	5.5	OP	21P	33P	37P	OA	1	2	5	0	
BC	3.5	OP	OP	12P	24P	OP					
C	6.1	OP	15P	11A	2A	OA	6	10	6	12	
CD	7.0	OA	22A	22P 25P	20A	OA					
D	5.5	OA	16A	25A	40A	OA	17	17	17	17	
DE	1.05	OP	1A	3P	1A	OA					
E	2.1	OA	OA	10A	7A	OA	17	17	17	17	
EF			DRY								
F			DRY								✓
FG			DRY								
G	2.6	OP	OP	OP	OP	OP	0	0	0	0	
GH	4.0	OP	OP	6P	OP	OP					
H	3.3	OP	OP	OP	1P	OP	0	0	0	0	
HI	3.0	OP	5P	6P	9P	OP					
I	2.3	OP	OP	OP	OP	OP	9	3	17	13	
II	1.6	OP	5P	15P	20P	OP					
J	1.85	OP	5P	OP	OP	OP	0	2	3	0	
JK	1.1	OP	6P	11P	2P	OP					
K	2.2	OA	2P	4P	20P	OP	1	4	3	2	✓

22 x A
90 - 22 = 68

68 / 90

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JULY 2018
 Site ID: SA
 Date/Time: 7/19/18 1000
 Crew Members: KH, JM, LM
 Latitude/Longitude: 34.38072 -119.30734
 Flow (circle one): Flowing / Poned / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Dry @ CD and above so no algae measurements taken.

January—December Monthly *In Situ* Measurements:
 pH: 7.11 pH units EC: 954 $\mu\text{S}/\text{cm}$
 DO: 4.79 mg/L SC: 1073 $\mu\text{S}/\text{cm}$
 DO: 51.8 % Salinity: 0.5 ppt
 Water Temp: 19.2 °C
 Flow (from discharge measurement): 0.02 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.6	0	0
2	4.1	0.25	
3	4.1	0.2	0.24
4	4.5	0	0
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): Not collected. TDDK

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 2

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): AUGUST 2018

Date: 8/15/18 1020

Crew Members: KH, CG, BJ

Weather (circle one): Clear Partly Cloudy / Overcast / Rainy / Foggy

Ocean Inlet (circle one): Open / Restricted / Closed

Direction of Tide: Ebb / Flood / Slack / N/A

Time of Low Tide: 0708 Time of High Tide: 1331

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind

Wind Direction: Blowing From / To S

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): Birds (mostly gulls) in water. 2 dogs playing in water (separate to each other)

TRANSECT 1

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec): 0300379

pH: 8.27 pH units EC: 3373 $\mu\text{S}/\text{cm}$ Water Temp: 25.9 $^{\circ}\text{C}$ (26-0)

DO: 8.6 mg/L (9.08) SC: 3314 $\mu\text{S}/\text{cm}$ (3350)

DO: 8.7 % (112.7) Salinity: 1.7 ppt (3.90) (1.7)

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward	Start Time: <u>1022</u>	End Time: <u>1039</u>
Start Latitude: <u>34.27452</u>	Start Longitude: <u>-119.30698</u>	
End Latitude: <u>34.27448</u>	End Longitude: <u>-119.30725</u>	
PVC Latitude:	PVC Longitude:	

Water Samples Collected (check box)

[Collect at Floating Macroalgae Quadrat 1, Transect 1]

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Dry Season Algae (May—Sep):

Chlorophyll a (phytoplankton):

Volume filtered per sample: 250

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>5.4</u>	<u>6.9</u>	<u>9.6</u>	<u>12.3</u>	<u>17.3</u>	<u>18.2</u>	<u>20.3</u>	<u>22.4</u>	<u>23.9</u>	<u>28.6</u>				
Water Depth (must be ≤ 0.3 m)											<u>0.3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	<u>Frsh</u> Int Des Dd	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	<u>Frsh</u> Int Des Dd	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	<u>Frsh</u> Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	<u>0</u>	<u>0</u>	<u>21</u>	<u>5</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>14</u>	<u>7</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>49</u>	<u>49</u>	<u>28</u>	<u>44</u>	<u>48</u>	<u>48</u>	<u>46</u>	<u>35</u>	<u>42</u>	<u>47</u>	<u>49</u>			
Crosshair Total (must equal 49)	<u>49</u>										<u>49</u>			

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 2 of 2

Ventura River Algae TMDL— Estuary Transect Measurements Date: 8/15/18 Crew: KH, CE, BS

TRANSECT 2

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward	Start Time: <u>1045</u>	End Time: <u>1103</u>
Start Latitude: <u>34.27453</u>	Start Longitude: <u>-119.30740</u>	
End Latitude: <u>34.27464</u>	End Longitude: <u>-119.30766</u>	
PVC Latitude:	PVC Longitude:	

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>5.4</u>	<u>6.9</u>	<u>9.6</u>	<u>12.3</u>	<u>17.3</u>	<u>18.2</u>	<u>20.3</u>	<u>22.4</u>	<u>23.9</u>	<u>28.6</u>				
Water Depth (must be ≤ 0.3 m)	—————										<u>0.3</u>	—————→		
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd													
No. Crosshairs with Macroalgae Present	<u>1</u>	<u>0</u>	<u>6</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>3</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>48</u>	<u>49</u>	<u>43</u>	<u>45</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>44</u>	<u>46</u>	<u>46</u>	<u>49</u>	—————→		
Crosshair Total (must equal 49)	<u>49</u>	—————→									<u>49</u>	—————→		

TRANSECT 3

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward	Start Time: <u>1105</u>	End Time: <u>1124</u>
Start Latitude: <u>34.27501</u> <u>34.27475</u>	Start Longitude: <u>-119.30776</u> <u>-119.30769</u>	
End Latitude: <u>34.27501</u>	End Longitude: <u>-119.30776</u>	
PVC Latitude:	PVC Longitude:	

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>5.4</u>	<u>6.9</u>	<u>9.6</u>	<u>12.3</u>	<u>17.3</u>	<u>18.2</u>	<u>20.3</u>	<u>22.4</u>	<u>23.9</u>	<u>28.6</u>				
Water Depth (must be ≤ 0.3 m)	—————										<u>0.3</u>	—————→		
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int Des Dd													
No. Crosshairs with Macroalgae Present	<u>16</u>	<u>4</u>	<u>1</u>	<u>4</u>	<u>6</u>	<u>6</u>	<u>3</u>	<u>7</u>	<u>16</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>33</u>	<u>45</u>	<u>48</u>	<u>45</u>	<u>43</u>	<u>43</u>	<u>46</u>	<u>42</u>	<u>33</u>	<u>47</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>
Crosshair Total (must equal 49)	<u>49</u>	—————→									<u>49</u>	—————→		

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): August 2018
 Site ID: RI
 Date/Time: 08.15.18 0740
 Crew Members: KH, CG, BS
 Latitude/Longitude: 34.28046 -119.30849
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.):
YS185 OIG0625 mail anchoring - switched to 0300379

January—December Monthly *In Situ* Measurements: 0300379
 pH: 8.03 pH units EC: 1621 $\mu\text{S}/\text{cm}$ 1612
 DO: 6.59 mg/L SC: 1720 $\mu\text{S}/\text{cm}$ 1691
 DO: 7.58 % Salinity: 0.9 ppt 0.9
 Water Temp: 21.9 °C 22.0 22.5
 Flow (from discharge measurement): 1.30 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.0	0	0
2	3.5	0.5	0.11
3	5.0	0.4	0.10
4	6.5	0.2	0.24
5	8.0	0.6	0.38
6	9.5	0.3	0.47
7	11.0	0.4	0.38
8	12.5	0.2	0.21
9	14.0	0.3	0.16
10	15.5	0.5	0.18
11	17.0	0.7	0.10
12	17.3	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	5
Syringe Scrubber (Area=5.3cm ²)	6
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	448
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

0300379
7.46
80.7

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)

Site: R1 Date: 8/15/18 Crew: KH, CG, BJ

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	1-35	(1P)	(8P)	21A	2A	2A	15	10	12	12	✓
AB	1-55	0A	27A	26A	16A	15A					
B	1-45	24A	40A	(10P)	18A	11A	16	17	17	15	
BC	3-5	0A	26A	29A	21A	(4P)					
C	5-0	0A	47A	25A	47A	17A	17	17	17	17	
CD	4-5	0A	50A	55A	(58P)	(1P)					
D	4-7	0A	58A	57A	42A	12A	14	7	8	12	
DE	3-55	0A	50A	62A	(23P)	(21P)					
E	3-5	0A	40A	21A	14A	13A	17	17	17	17	
EF	4-5	0A	33A	35A	22A	2A					
F	4-0	0A	(4P)	(20P)	19A	(12P)	10	6	11	8	✓
FG	3-75	(0P)	17A	42A	27A	4A					
G	3-45	0A	35A	(4P)	14A	12A	16	17	17	15	
GH	2-4	0A	29A	33A	30A	5A					
H	2-6	0A	9A	35A	19A	11A	13	14	12	12	
HI	3-0	0A	42A	30A	33A	29A					
I	2-4	0A	45A	46A	(50P)	11A	17	17	17	15	
II	2-4	3A	(5P)	30A	30A	1A					
J	2-2	0A	45A	30A	20A	4A	17	17	17	17	
JK	2-2	0A	16A	26A	23A	2A					
K	2-7	0A	36A	39A	38A	4A	17	17	17	17	✓

15
/ 105

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): 8/ AUGUST 2018

Site ID: AB R2

Date/Time: 8/14/18 1115

Crew Members: KH, JF, BJ

Latitude/Longitude: 34.33947 -119.29731

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To S

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:

pH: 8.20 pH units EC: 1317 $\mu\text{S}/\text{cm}$

DO: 6.66 mg/L SC: 1315 $\mu\text{S}/\text{cm}$

DO: 80.7 % Salinity: 0.7 ppt

Water Temp: 25.1 °C

Flow (from discharge measurement): 2.11 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	2.0	0	0
2	4.0	1.3	0
3	6.0	1.45	0.02
4	8.0	1.0	0.06
5	10.0	0.7	0.40
6	12.0	1.3	0.22
7	14.0	1.1	0.30
8	16.0	1.1	0.09
9	18.0	1.0	-0.03
10	20.0	0	0
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	1
PVC Delimiter (Area=12.6cm ²)	4
Syringe Scrubber (Area=5.3cm ²)	6
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	540
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R2 Date: 8/14/18 Crew: KH, JF, BJ

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	7.1	0A	20A	15A	14A	0A	6	16	15	8	✓
AB	6.1	0A	15A	(15P)	10A	0A					
B	4.75	(0P)	27A	36A	37A	0A	8	9	10	3	
BC	4.95	0A	DRY	26A	15A	0A					
C	5.0	10A	(1P)	25A	16A	(0P)	16	8	4	9	
CD	5.5	8A	25A	DRY	24A	6A					
D	5.0	0A	25A	16A	17A	12A	17	14	4	16	
DE	6.5	0A	13A	(14P)	14A	(18P)					
E	5.9	35A	53A	38A	37A	0A	17	2	6	11	
EF	5.0	10A	35A	44A	(8P)	15A					
F	5.5	0A	34A	(27P)	(14P)	0A	9	6	3	4	✓
FG	5.5	0A	32A	50A	21A	0A					
G	6.5	0A	10A	15A	20A	0A	7	2	1	5	
GH	8.0	0A	0A	14A	8A	0A					
H	6.4	0A	(0P)	16A	(18P)	16A	13	8	11	10	
HI	6.8	0A	0A	13A	25A	0A					
I	5.7	0A	(10P)	9A	8A	0A	12	5	2	16	
J	10.0	0A	35A	2A	(12P)	0A					
J	7.4	0A	45A	42A	(22P)	0A	17	8	14	17	
JK	6.5	0A	10A	(39P)	(40P)	0A					
K	7.2	0A	18A	(26P)	(24P)	0A	14	5	6	7	✓

handless camp w/ row crops + toilet visible from stream.

18 / 103

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): AUGUST 2018
 Site ID: R3
 Date/Time: 8/14/18 0900
 Crew Members: KH, JF, BJ
 Latitude/Longitude: 34-34587, -119.29983
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.0	0	0
2	4.3	0.3	0.08
3	6.0	0.5	0.01
4	7.5	0.8	-0.01
5	8.5	0.4	0.22
6	9.5	0.4	0.18
7	10.5	0.6	-0.03
8	11.5	0.9	0.25
9	12.5	0.6	0.34
10	13.5	1.0	0.19
11	14.5	0.8	0.14
12	15.5	0.9	0.01
13	16.5	0.7	0.05
14	17.5	0.3	0.05
15	18.5	0.4	0.06
16	19.5	0.5	0.06
17	19.7	0	0
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly In Situ Measurements:
 pH: 7.92 pH units EC: 1150 $\mu\text{S}/\text{cm}$
 DO: 6.74 mg/L SC: 12.9 $\mu\text{S}/\text{cm}$
 DO: 77.5 % Salinity: 0.6 ppt
 Water Temp: 21.9 °C 22.0 °C
 Flow (from discharge measurement): 1.0 cfs

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	3
PVC Delimiter (Area=12.6cm ²)	0
Syringe Scrubber (Area=5.3cm ²)	8
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	510
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)

Site: R3 Date: 8/14/18 Crew: KH, JF, BT

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	5-7	OP	19A	11P	12P	5P	8	6	14	3	✓
AB	6-0	1P	1P	11P	12P	0A					
B	11-0	0A	15A	5P	15P	4P	2	6	4	1	
BC	8-0	0A	25A	10A	16A	7A					
C	9-0	OP	8A	OP	25A	OP	17	17	17	17	
CD	9-0	OP	12A	36A	66P	OP					
D	6-0	OP	4P	39A	61P	OP	0	5	7	2	
DE	4-5	OP	29A	30P	55A	17A					
E	5-5	OP	14A	30A	19A	3P	0	3	15	9	
EF	4-5	OP	11P	22A	42A	OP					
F	5-0	OP	13A	1P	22A	0A	6	4	7	1	✓
FG	4-95	0A	0A	1P	12A	0A					
G	3-35	0A	2P	21A	15A	0A	3	5	15	3	
GH	3-8	1A	21A	OP	26A	0A					
H	3-25	0A	5P	14A	14P	0A	6	15	17	8	
HI	3-5	0A	15A	28A	15P	OP					
I	3-45	0A	15P	1P	6A	0A	17	17	17	17	
J	3-0	0A	12P	8A	8P	0A					
J	6-8	OP	2P	19P	16P	0A	16	11	10	9	
JK	5-25	OP	4P	34P	27A	0A					
K	5-1	OP	15P	29P	35P	38P	6	3	6	7	✓

53/105

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

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Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): TMDL AUGUST 2018

Site ID: TMDL-~~RH~~ SA

Date/Time: 8/14/18 ~~0800~~ 0820

Crew Members: KH, JP, BJ

Latitude/Longitude: _____

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Dry above C. water samples only. Photos A, F, K

January—December Monthly *In Situ* Measurements:

pH: 7.07 pH units EC: 877 $\mu\text{S}/\text{cm}$

DO: 5.84 mg/L SC: 997 $\mu\text{S}/\text{cm}$

DO: 62.8 % Salinity: 0.5 ppt

Water Temp: 18.3 °C R: 7

Flow (from discharge measurement): 60.01 cfs
(trickle)

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R4 Date: 8/17/18 Crew: KH, JF, BJ

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots			Photo (✓ when Taken)	
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	Upstream/ Downstream
A											
AB											
B											
BC											
C											
CD											
D											
DE											
E											
EF											
F											
FG											
G											
GH											
H											
HI											
I											
IJ											
J											
JK											
K											

DR

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 2

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est
Event ID (Month Year): SEPT 2018 **Date:** 9/5/18 1350
Crew Members: KH, CG, BJ
Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy **Ocean Inlet (circle one):** Open / Restricted / Closed
Direction of Tide: Ebb / Flood / Slack / N/A **Time of Low Tide:** 1330 **Time of High Tide:** 1932
Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind **Wind Direction:** Blowing From / To S
Notes (e.g. homeless, wildlife, dogs, swimming/recreation): Red duckweed-type plant on SE of estuary. Dry poop + dead bird bath in the water near transect 1

TRANSECT 1

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):
 pH: 8.15 pH units EC: 2368 μS/cm Water Temp: 23.5 °C
 DO: 7.47 mg/L SC: 2434 μS/cm
 DO: 88.3 % Salinity: 1.3 ppt

Photos: <input type="checkbox"/> Oceanward <input type="checkbox"/> Landward	Start Time: <u>1352</u>	End Time: <u>1401</u>
Start Latitude: <u>34.27448</u>	Start Longitude: <u>-119.30699</u>	
End Latitude: <u>34.27449</u>	End Longitude: <u>-119.30731</u>	
PVC Latitude:	PVC Longitude:	

Water Samples Collected (check box)

[Collect at Floating Macroalgae Quadrat 1, Transect 1]

Monthly Water (Jan—Dec):
 Nitrogen, total and dissolved:
 Phosphorus, total and dissolved:
 Nitrate + Nitrite as Nitrogen:

Dry Season Algae (May—Sep):
 Chlorophyll a (phytoplankton):
 Volume filtered per sample: _____

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>0.7</u>	<u>7.1</u>	<u>8.9</u>	<u>13.3</u>	<u>17.4</u>	<u>20.7</u>	<u>23.8</u>	<u>25.3</u>	<u>26.7</u>	<u>28.2</u>	→			
Water Depth (must be ≤ 0.3 m)	→										<u>0.3</u>	→		
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh ² Int ³ Des Dd	Frsh Int Des Dd	Frsh Int ⁷ Des Dd	Frsh Int ² Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int ¹ Des Dd	Frsh Int Des Dd						
No. Crosshairs with Macroalgae Present	<u>5</u>	<u>0</u>	<u>7</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>						
No. Crosshairs with Macroalgae Absent	<u>44</u>	<u>49</u>	<u>42</u>	<u>47</u>	<u>49</u>	<u>49</u>	<u>48</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	→		
Crosshair Total (must equal 49)	<u>49</u>	→									<u>49</u>	→		

15/490

0/190

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 2 of 2

Ventura River Algae TMDL— Estuary Transect Measurements Date: 9/5/18 Crew: KH, BT

TRANSECT 2

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward		Start Time: <u>1404</u>				End Time: <u>1415</u>			
Start Latitude: <u>34.27457</u>		Start Longitude: <u>-119.30746</u>							
End Latitude: <u>34.27470</u>		End Longitude: <u>-119.30769</u>							
PVC Latitude:		PVC Longitude:							

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>0.7</u>	<u>7.1</u>	<u>8.9</u>	<u>13.3</u>	<u>17.4</u>	<u>20.7</u>	<u>23.8</u>	<u>25.3</u>	<u>26.7</u>	<u>28.2</u>				
Water Depth (must be ≤ 0.3 m)											<u>0.3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int ¹⁴ Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int ⁴ Des Dd	Frsh Int ⁵ Des Dd	Frsh Int ⁶ Des Dd	Frsh Int ² Des Dd	Frsh Int ⁷ Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	<u>14</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>2</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>35</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>45</u>	<u>44</u>	<u>43</u>	<u>47</u>	<u>42</u>	<u>49</u>			
Crosshair Total (must equal 49)	<u>49</u>										<u>49</u>			

38/490

0/196

TRANSECT 3

Photos: <input checked="" type="checkbox"/> Oceanward <input checked="" type="checkbox"/> Landward		Start Time: <u>1420</u>				End Time: <u>1435</u>			
Start Latitude: <u>34.27499</u> <u>34.27474</u>		Start Longitude: <u>-119.30775</u> <u>-119.30768</u>							
End Latitude: <u>34.27499</u>		End Longitude: <u>-119.30775</u>							
PVC Latitude:		PVC Longitude:							

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	<u>0.7</u>	<u>7.1</u>	<u>8.9</u>	<u>13.3</u>	<u>17.4</u>	<u>20.7</u>	<u>23.8</u>	<u>25.3</u>	<u>26.7</u>	<u>28.2</u>				
Water Depth (must be ≤ 0.3 m)											<u>0.3</u>			
Condition [Frsh=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Frsh Int ¹⁴ Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int ⁴ Des Dd	Frsh Int ⁶ Des Dd	Frsh Int ¹ Des Dd	Frsh Int ¹⁵ Des Dd	Frsh Int ¹³ Des Dd	Frsh Int ¹⁴ Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	<u>14</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>7</u>	<u>1</u>	<u>15</u>	<u>13</u>	<u>14</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
No. Crosshairs with Macroalgae Absent	<u>35</u>	<u>49</u>	<u>49</u>	<u>49</u>	<u>45</u>	<u>42</u>	<u>48</u>	<u>34</u>	<u>36</u>	<u>35</u>	<u>49</u>			
Crosshair Total (must equal 49)	<u>49</u>										<u>49</u>			

63/490

0/196

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): SEPT 2015
 Site ID: TMDL - R1
 Date/Time: 9/5/18 1150
 Crew Members: KA, CG, RJ
 Latitude/Longitude: 34-28045 -119-30848
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Grffiti artist working on pylons (not near water) w/ woman. Man w/ large, sheathed knife near "A". Saw us and left. lots of washing for trash (soap, sponges, laundry detergent, etc.)

January—December Monthly In Situ Measurements:
 pH: 8.14 pH units EC: 1518 $\mu\text{S}/\text{cm}$
 DO: 7.14 mg/L SC: 1645 $\mu\text{S}/\text{cm}$
 DO: 80.3 % Salinity: 0.8 ppt
 Water Temp: 21.0 °C
 Flow (from discharge measurement): 2.03 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.2	0	0
2	4.3	0.5	0.07
3	5.0	0.6	0.17
4	6.0	0.7	0.08
5	7.0	0.6	0.25
6	8.0	0.6	0.35
7	9.0	0.7	0.48
8	10.0	0.8	0.37
9	11.0	0.7	0.25
10	12.0	0.3	0.39
11	13.0	0.4	0.37
12	14.0	0.4	0.26
13	15.0	0.4	0.19
14	16.0	0.6	0.19
15	17.0	0.8	0.09
16	18.0	0.8	0.10
17	18.9	0	0
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	1
PVC Delimiter (Area=12.6cm ²)	2
Syringe Scrubber (Area=5.3cm ²)	8
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	440
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May—September)

Site: R1 Date: 9/5/18 Crew: KH, CG, BJ

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	Upstream/ Downstream
A	1-85	7A	24A	26A	31A	5A	17	17	12	12	✓
AB	2-3	0A	15A	40A	36A	9A					
B	3-5	0P	35A	32A	36A	22A	17	17	17	17	
BC	4-8	0A	57A	48A	49A	9A					
C	3-85	0A	55A	62A	55A	30A	17	15	17	17	
CD	3-30	0A	0A	62A	52A	26A					
D	3-65	0A	55A	55A	33A	16A	17	17	17	17	
DE	4-5	0A	40A	41P	31A	14A					
E	4-2	0A	36P	32A	34A	4A	14	5	17	16	
EF	3-85	0A	43A	34A	32A	0A					
F	3-40	26P	29A	1P	19A	4A	16	17	17	17	✓
FG	3-8	0A	37A	40A	36A	0A					
G	2-8	0A	29A	46A	24A	2P	17	17	17	17	
GH	2-9	0A	30A	44A	42P	15P					
H	1-5	0A	19A	15P	6P	1A	17	17	17	17	
HI	2-5	INACLES	7P	35A	11P	2A					
I	2-7	0A	2P	20P	32A	2A	16	17	17	15	
J	2-75	2A	30A	33A	29A	0A					
J	1-4	0A	18A	18A	14A	0A	17	15	14	16	
JK	1-6	0A	13A	15A	17A	0A					
K	8-5	0A	44A	69A	67A	0A	6	8	16	5	✓

14
/ 104

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): Sept 2018
 Site ID: TMDL-R2
 Date/Time: 9/5/18 0945
 Crew Members: KH, CG, BJ
 Latitude/Longitude: 34-23941 -119-29726
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.):
Y51 85# OSE1042
Homeless camps + garden (now fenced) ~CD-F

January—December Monthly In Situ Measurements:
 pH: 7.96 pH units EC: 1214 $\mu\text{S}/\text{cm}$
 DO: 6.84 mg/L SC: 1269 $\mu\text{S}/\text{cm}$
 DO: 79.5 % Salinity: 0.6 ppt
 Water Temp: 22.7 °C
 Flow (from discharge measurement): 2.61 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.8	1.1	0
2	6.0	1.5	0.02
3	7.0	1.2	0.10
4	8.0	0.6	0.24
5	9.0	1.3	0.12
6	10.0	1.1	0.42
7	11.0	1.3	0.46
8	12.0	0.9	0.83
9	13.0	0.8	0.35
10	14.0	0.5	0.14
11	15.0	0.9	-0.02
12	16.0	0.9	-0.08
13	17.0	0.85	0.12
14	18.0	0.75	-0.04
15	19.0	0	0
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	4
PVC Delimiter (Area=12.6cm ²)	0
Syringe Scrubber (Area=5.3cm ²)	7
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	582
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)

Site: R2 Date: 9/5/18 Crew: KH, CG, BJ

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	5.3	0A	15A	26A	22A	1A	12	8	15	8	✓
AB	5.05	0A	DRY	5A	(6P)	19A					
B	4.8	0A	11A	40A	47A	6A	8	14	16	7	
BC	4.3	0A	26A	36A	33A	4A					
C	3.4-15	0A	(0P)	25A	32A	3A	15	17	17	17	
CD	4.45	0A	14A	(2P)	0A	(4P)					homeless camp
D	6.3	0A	19A	20A	24A	0A	4+17	12	14	12	
DE	5.3	0A	15A	20A	10A	22A					
E	7.35	0A	(15P)	15A	27A	7A	17	14	2	13	
EF	3.4-87	0A	50A	45A	(0P)	8A					
F	6.7	20A	(8P)	(22P)	(22P)	2A	17	15	2	9	✓ garden
FG	7.0	0A	(25P)	(22P)	33A	4A					
G	6.0	0A	41A	35A	32A	11A	17	14	15	17	
GH	6.7	0A	37A	32A	22A	1A					
H	4.6	9A	19A	(0P)	(0P)	4A	10	7	3	6	
HI	7.2	0A	27A	15A	15A	3A					
I	6.25	0A	4A	DRY	(9P)	19A	17	14	15	16	
J	6.0	(0P)	17A	DRY	(16P)	9A					
J	9.0	0A	35A	(8P)	0A	19A	0A 17	17	17	14	
JK	6.3	0A	49A	22A	16A	12A					
K	6.45	0A	36A	43A	37A	26A	16	12	12	10	✓

17
102

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 2

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): SEPT 2018
 Site ID: 9/5/18TMA-R3
 Date/Time: 9/5/18 0740
 Crew Members: KH, BT, CG
 Latitude/Longitude: 34.34592 -119.29989
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	7.4	⊖	⊖
2	8.0	0.4	0.01
3	9.0	0.3	-0.06
4	10.0	0.4	0.20
5	11.0	0.5	0.26
6	12.0	0.6	-0.02
7	13.0	0.85	0.31
8	14.0	0.65	0.33
9	15.0	1.0	0.11
10	16.0	0.8	0.16
11	17.0	0.6	0.16
12	18.0	0.6	0.03
13	19.0	0.2	-0.22
14	20.0	0.4	0.08
15	21.0	⊖	⊖
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

January—December Monthly In Situ Measurements:
 pH: 7.74 pH units EC: 1098 μS/cm
 DO: 6.91 mg/L SC: 1192 μS/cm
 DO: 77.7 % Salinity: 0.6 ppt
 Water Temp: 20.9 °C
 Flow (from discharge measurement): 1.0 cfs

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width ≤ 10 m; 250 m if wetted width > 10 m): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	2
PVC Delimiter (Area=12.6cm ²)	⊖
Syringe Scrubber (Area=5.3cm ²)	9
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	560
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)

Site: R3 Date: 9/5/18 Crew: KH, CG, BJ

Transect	Wetted ^m Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densimeter (0-17) Count covered dots				Photo (✓ when Taken)
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	Upstream/ Downstream
A	7.15	0A	(1P)	(1P)	14A	(2P)	14	4	17	4	✓
AB	5.9	0A	2+7A	21A	(2P)	2A					
B	11.0	0A	(9P)	(3P)	13A	1A	13	3	16	10	
BC	8.5	0A	30A	2A	(12P)	2A					
C	9.5	0A	10A	(0P)	26A	4A	17	17	17	17	
CD	8.55	0A	(15P)	37A	53A	(3P)					
D	5.85	(0P)	(5P)	36A	72A	3A	13	3	16	23	
DE	4.9	0A	(27P)	37A	53A	2A					
E	3.8	(0P)	(11P)	26A	16A	6A	12	1	16	14	
EF	4.75	1A	(3P)	23A	41A	3A					
F	4.45	(0P)	(1P)	20A	22A	(6P)	15	11	15	5	✓
FG	3.40	(0P)	(2P)	19A	(14P)	4A					
G	3.7	0A	(1P)	8A	12A	4A	16	10	9	4	
GH	3.0	0A	2A	8A	12A	23A					
H	3.7	0A	(1P)	(2P)	(22P)	11A	13	10	17	15	
HI	3.1	0A	0A	22A	DRY	(8P)					
I	2.3	(0P)	15A	(0P)	22A	8A	17	17	17	17	
II	3.65	0A	(7P)	17A	(5P)	8A					
J	5.2	0A	(12P)	(0P)	(25P)	20A	17	15	17	16	
JK	5.8	0A	0A	(36P)	46A	12A					
K	4.85	(0P)	(26P)	(37P)	42A	30A	15	6	16	8	✓

38/104

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): R2 OCT 2018

Site ID: _____

Date/Time: 10/10/18 0825

Crew Members: EH, KE

Latitude/Longitude: _____

Flow (circle one): Flowing / Ponded / Dry

Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:

pH: 7.47 pH units EC: 1067 $\mu\text{S}/\text{cm}$

DO: 7.89 mg/L SC: 1229 $\mu\text{S}/\text{cm}$

DO: 84.5 % Salinity: 0.6 ppt

Water Temp: 18.1 °C

Flow (from discharge measurement): 0.74 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)				Buoyant Object Method (Use only if velocity area method not possible)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft./sec)	Distance (ft)	Float 1	Float 2	Float 3
1	4.9	0	0				
2	5.2	0.4	-0.09				
3	6.0	0.6	0.02				
4	7.0	0.4	0.20				
5	8.0	0.4	0.17				
6	9.0	0.5	-0.04				
7	10.0	0.6	0.32				
8	11.0	0.55	0.26				
9	12.0	0.7	0.20				
10	13.0	0.55	0.20				
11	14.0	0.6	0.11				
12	15.0	0.6	0.0				
13	16.5	0.3	-0.06				
14	18.0	0.4	-0.01				
15							
16							
17							
18							
19							
20							

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): Oct 2018

Site ID: RI

Date/Time: 10/10/18 / 1040

Crew Members: KW CF

Latitude/Longitude: _____

Flow (circle one): Flowing / Ponded / Dry

Wind Strength: _____

Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	6.7	0.4	0.02
2	8.0	0.6	0.16
3	9.0	0.65	0.01
4	10.0	0.6	0.26
5	11.0	0.7	0.28
6	12.0	0.8	0.28
7	13.0	0.75	0.25
8	14.0	0.6	0.21
9	15.0	0.6	0.18
10	16.0	0.4	0.22
11	17.5	0.4	0.12
12	19.0	0.65	0.18
13	20.0	0.85	
14	21.0	0	0
15			
16			
17			
18			
19			
20			

January-December Monthly In Situ Measurements:

pH: 7.90 pH units EC: 1559 $\mu\text{S}/\text{cm}$

DO: 7.62 mg/L SC: 1776 $\mu\text{S}/\text{cm}$

DO: 81.7 % Salinity: 0.9 ppt

Water Temp: 16.5 °C

Flow (from discharge measurement): 1.51 cfs

Samples Collected (check box)

January-December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May-September Dry Season Monthly Algae:

Chlorophyll *a* (filters-algae):

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross-Section (ft)			
Width	Upper Section	Middle Section	Lower Section
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May-September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 1

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est
Event ID (Month Year): KN KF OCT 2018 **Date/Time:** 10/10/18 / 11:25
Crew Members: KN KF
Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy **Ocean Inlet (circle one):** Open / Restricted / Closed
Direction of Tide: Ebb / Flood / Slack / N/A **Time of Low Tide:** 1714 **Time of High Tide:** 1035
Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind **Wind Direction:** Blowing From / To S
Notes (e.g. homeless, wildlife, dogs, swimming/recreation): High tide causing bp of beam but not over it. 260 gulls in estuary water plus some other aquatic birds.

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)
Monthly (Jan—Dec):
 pH: 7.94 pH units **EC:** 1804 $\mu\text{S}/\text{cm}$ **Water Temp:** 21.3 $^{\circ}\text{C}$
DO: 8.22 mg/L **SC:** 189 $\mu\text{S}/\text{cm}$ 1940
DO: 814 % **Salinity:** 1.0 ppt

Photos: <input checked="" type="checkbox"/> Oceanward	<input checked="" type="checkbox"/> Landward
Sample Latitude: <u>34.274854</u>	
Sample Longitude: <u>-119.307828</u>	

Water Samples Collected (check box)
[Collect at Floating Macroalgae Quadrat 1, Transect 1]
Monthly Water (Jan—Dec):
 Nitrogen, total and dissolved:
 Phosphorus, total and dissolved:
 Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): NOVEMBER 2018 Date: 11/19/18

Crew Members: L. MEEKER, K. FORTNER, W.B. CAREY - obs. photos

Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____

Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following)

Notes: A small rain event occurred ~~before~~ after sampling and before the observation photos were taken. It did not establish connectivity between the upper and lower watershed.

OBSERVATION SITES (RIVER FLOW)

WBC 11/27/18

Ventura River at Highway 150 (Baldwin Road)

Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream

Notes: _____

Ventura River at Santa Ana Blvd

Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream

Notes: _____

Ventura River at Casitas Vista Road

Flow Status: Dry / Ponded / Flowing (Estimated Flow: 3-4 cfs) Photos Taken: Upstream / Downstream

Notes: Flowing east end.

Additional Observation Site:

Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream

Notes: _____

UNSAMPLED TMDL SITES

Site ID: R4 Time: 9:30 Photos Taken: Upstream / Downstream

Flow Status: Dry / Ponded / Flowing (Estimated Flow: 0 cfs)

Reason not sampled (if flowing): _____

Notes: _____

Site ID: San Antonio Time: 9:45 Photos Taken: Upstream / Downstream

Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)

Reason not sampled (if flowing): _____

Notes: _____

Site ID: CL Time: 13:20 Photos Taken: Upstream / Downstream

Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)

Reason not sampled (if flowing): _____

Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream

Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs)

Reason not sampled (if flowing): _____

Notes: _____

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): Nov 2012

Crew Members: Lucy M. Kelle E.

Date/Time: 11/9/12 14:55

Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy

Direction of Tide: Ebb / Flood / Slack / N/A

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): people sitting in open ocean water

Ocean Inlet (circle one): Open / Restricted / Closed

Time of Low Tide: 13:16 Time of High Tide: 19:02

Wind Direction: Blowing From / To _____

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):

pH: 8.22 pH units

DO: 13.78 mg/L

DO: 135.5 %

EC: 1274 μ S/cm

SC: 1595 μ S/cm

Salinity: 0.8 ppt

Water Temp: 14.5 °C

Photos: Oceanward Landward

Sample Latitude: 34.27438

Sample Longitude: 119.30729

Water Samples Collected (check box)

Collect at Floating Macroalgae Quadrat 1, Transect 1

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): Nov 2018
 Site ID: 23
 Date/Time: 11/9/18 10:40
 Crew Members: DM, K, KF
 Latitude/longitude: 34.34591, -119.29977
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
 pH: 7.85 pH units EC: 965 $\mu\text{S}/\text{cm}$
 DO: 10.30 mg/L SC: 1189 $\mu\text{S}/\text{cm}$
 DO: 99.5 % Salinity: 0.6 ppt
 Water Temp: 15.1 °C
 Flow (from discharge measurement): 2.31 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll α (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.0	0	0
2	4.7	0.4	0.07
3	5.0	0.3	0.06
4	6.5	0.4	0.18
5	7.0	0.4	0.22
6	8.0	0.2	0.08
7	9.0	5.05	0.04
8	10	5.05	0.48
9	11	0.2	-0.11
10	12	0.2	-0.03
11	14	0.7	0.74
12	16	0.3	0.31
13	18	0.2	0.26
14	20	0.6	0.23
15	22	0.4	0.35
16	24	0	0
17			
18			
19			
20			

Buoyant Object Method
 (Use only if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll α
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll α Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): Nov 2018
 Site ID: VR2
 Date/Time: 11/19/18 12:00
 Crew Members: Les M Kellie F
 Latitude/Longitude: 34.3947, -119.29726
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 7.85 pH units EC: 1033 $\mu\text{S}/\text{cm}$
 DO: 96.9 mg/L SC: 1232 $\mu\text{S}/\text{cm}$
 DO: 9.40 % O_2 Salinity: 0.6 ppt
 Water Temp: 16.5 °C
 Flow (from discharge measurement): 6.84 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.5	0	0
2	5.0	1.2	0.0
3	7.0	0.6	0.4
4	9.0	0.9	0.1
5	11.0	0.9	0.95
6	13.0	1.0	0.82
7	15.0	1.4	0.36
8	17.0	1.35	0.6
9	19.0	1.35	0.0
10	21.0	1.0	0.1
11	23.2	0.4	-0.02
12	23.8	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
Width	Upper Section	Middle Section	Lower Section
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): Nov 18

Site ID: R1

Date/Time: 11/9/18 1345

Crew Members: Lina M & Kellee F

Latitude/Longitude: 34.28194 -119.39906

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:

pH: 7.95 pH units EC: 1213 $\mu\text{S}/\text{cm}$

DO: 9.70 mg/L SC: 1557 $\mu\text{S}/\text{cm}$

DO: 93.3 % Salinity: 0.8 ppt

Water Temp: 13.4 °C

Flow (from discharge measurement): 2.22 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	7.0	0	0
2	9.0	0.2	-0.07
3	11.0	0.6	0.7
4	13.0	0.5	0.1
5	15.0	0.75	0.42
6	17.0	0.85	0.44
7	19.0	1.0	0.24
8	21.0	0.7	0.02
9	23.0	0.6	0.06
10	25.0	0.2	-0.1
11	28.0	0	0
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method
(Use only if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			

Float Reach Cross Section (ft)

	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): DECEMBER 2018 Date: 12/10/18
Crew Members: K. HAHS K. FORTNER
Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____
Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following)
Notes: K YSI 85 #05E1126
Bedmon 255 #2151

OBSERVATION SITES (RIVER FLOW)

Ventura River at Highway 150 (Baldwin Road)
Flow Status: Dry / Pondered / Flowing (Estimated Flow: ~3 cfs) Photos Taken: Upstream / Downstream
Notes: _____

Ventura River at Santa Ana Blvd
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

Ventura River at Casitas Vista Road
Flow Status: Dry / Pondered / Flowing (Estimated Flow: ~5 cfs) Photos Taken: Upstream / Downstream
Notes: Flowing east bank

Additional Observation Site: _____
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

UNSAMPLED TMDL SITES

Site ID: CL Time: 0750 Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: R4 Time: 0825 Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: SA Time: 0835 Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

80
12/10/18

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 1

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): DEC 2018

Date/Time: 12/10/18 1200PM

Crew Members: KA KF

Weather (circle one): Partly Cloudy / Overcast / Rainy / Foggy

Ocean Inlet (circle one): Restricted / Closed

Direction of Tide: Ebb / Flood / Slack / N/A

Time of Low Tide: 17:46 Time of High Tide: 10:10

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind

Wind Direction: Blowing From / To W

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): high tide water advisory issued by NWS from 12pm-6pm

~100 gulls in water + saw a few other birds. Estuary open on west end

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):

pH: 7.96 pH units

EC: 19870 $\mu\text{S}/\text{cm}$

Water Temp: 14.1 $^{\circ}\text{C}$

DO: 11.09 mg/L

SC: 25100 $\mu\text{S}/\text{cm}$

DO: 118.5 %

Salinity: 15.3 ppt

Photos: Oceanward Landward

Sample Latitude: 34-27480

Sample Longitude: -119-30736

Water Samples Collected (check box)

Collect at Floating Macroalgae Quadrat 1, Transect 1

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): DEC 2018
 Site ID: R2
 Date/Time: 12/10/18 1000
 Crew Members: K.H. KT
 Latitude/Longitude: 34.33936 -119.29721
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.):
Y5185 # 05E1126

January—December Monthly *In Situ* Measurements:
 pH: 7.93 pH units EC: 1000 $\mu\text{S}/\text{cm}$
 DO: 9.14 mg/L SC: 1232 $\mu\text{S}/\text{cm}$
 DO: 90.8 % Salinity: 0.6 ppt
 Water Temp: 15.2 °C
 Flow (from discharge measurement): 4.89 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	5.0	0.6	-0.02
2	6.0	1.25	-0.02
3	7.0	1.4	-0.02
4	8.0	0.9	0.03
5	9.0	0.9	0.03
6	10.0	0.9	0.07
7	11.0	0.14	0.17
8	12.0	0.9	0.40
9	13.0	1.05	0.75
10	14.0	0.9	0.46
11	15.0	1.0	1.15
12	16.0	1.25	0.35
13	17.0	1.1	0.73
14	18.0	1.0	0.39
15	19.0	0.85	0.13
16	20.0	0.8	0.44
17	21.0	0	0
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
Width	Upper Section	Middle Section	Lower Section
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Spring Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (ml)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): DEC 2018
 Site ID: R3
 Date/Time: 12/10/18 0900
 Crew Members: KV CE
 Latitude/Longitude: 34.34581 -119.29824
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Flowing
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To E
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 7.89 pH units EC: 246 μ S/cm
 DO: 9.50 mg/L SC: 1085 μ S/cm
 DO: 93.5 % Salinity: 0.6 ppt
 Water Temp: 14.5 °C
 Flow (from discharge measurement): 3.39 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	7	0	0
2	8	0.5	0.01
3	9	0.6	0.41
4	10	0.95	0.07
5	11	0.75	0.47
6	12	0.9	0.32
7	13	0.7	0.13
8	14	1.0	0.33
9	15	1.1	0.58
10	16	1.15	0.39
11	17	1.0	0.43
12	18	1.1	0.22
13	19	0.65	0.06
14	20	0.5	0.13
15	21	0.7	0.15
16	21.8	0.6	0.23
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Event Details



EVENT DETAILS

Event ID (Month Year): JANUARY 2019 Date: 1/10/19
Crew Members: K. HAYS K. FORTNER
Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____
Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following) (rained Mon 1/7/19)
Notes: YS185 # 05E1042
Beckma 255 # 2554

OBSERVATION SITES (RIVER FLOW)

Ventura River at Highway 150 (Baldwin Road)
Flow Status: Dry / Pondered / Flowing (Estimated Flow: ~ 6 cfs) Photos Taken: Upstream / Downstream
Notes: _____

Ventura River at Santa Ana Blvd
Flow Status: Dry / Pondered / Flowing (Estimated Flow: ~ 2 cfs) Photos Taken: Upstream / Downstream
Notes: Flowing west channel only.

Ventura River at Casitas Vista Road
Flow Status: Dry / Pondered / Flowing (Estimated Flow: ~ 6 cfs) Photos Taken: Upstream / Downstream
Notes: ~ 2 cfs west side, ~ 4-6 cfs east side.

Additional Observation Site: _____
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

UNSAMPLED TMDL SITES

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
Reason not sampled (if flowing): _____
Notes: _____

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 1

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): JAN 2019

Date/Time: 1/10/19

Crew Members: KH KF

Ocean Inlet (circle one): Open / Restricted / Closed

Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy

Direction of Tide: Ebb / Flood / Slack / N/A

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): ~20 gulls in water, surf board at / fair amount appears to have come over beach but beneath inlet. west end treated

Time of Low Tide: _____

Time of High Tide: _____

Wind Direction: Blowing From / To W

In Situ Measurements [Measure at Floating Macroalgae Quadrat 1, Transect 1]

Monthly (Jan—Dec):

pH: 7.88 pH units

EC: 12676 $\mu\text{S}/\text{cm}$

Water Temp: 13.1 $^{\circ}\text{C}$

DO: 8.71 mg/L

SC: 16320 $\mu\text{S}/\text{cm}$

DO: 87.4 %

Salinity: 9.6 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27484

Sample Longitude: -119.30766

Water Samples Collected (check box)

[Collect at Floating Macroalgae Quadrat 1, Transect 1]

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JAN 2019
 Site ID: R1
 Date/Time: 1/10/19 / 1110
 Crew Members: KH EF
 Latitude/Longitude: 34-28194 -119-30906
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
 pH: 8.15 pH units EC: 1321 $\mu\text{S}/\text{cm}$
 DO: 9.42 mg/L SC: 1716 $\mu\text{S}/\text{cm}$
 DO: 90.1 % Salinity: 0.9 ppt
 Water Temp: 12.9 °C
 Flow (from discharge measurement): 6.07 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

No.	Velocity Area Method (preferred)		Velocity (ft./sec)
	Distance from Left Bank (ft)	Depth (ft)	
1	8.0	0.8	0.30
2	9.5	1.0	0.44
3	11.0	0.95	0.18
4	12.5	1.1	0.60
5	14.0	1.15	0.57
6	15.5	1.0	0.63
7	17.0	0.9	0.77
8	18.5	0.4	0.62
9	20.0	1.0	0.31
10	21.5	0.5	0.25
11	23.0	0.2	-0.03
12	24.5	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): JAN 2019
 Site ID: RS
 Date/Time: 1/10/19 0910
 Crew Members: KA KF
 Latitude/Longitude: 34.34581 -119.29984
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
 pH: 7.96 pH units EC: 903 $\mu\text{S}/\text{cm}$
 DO: 8.18 mg/L SC: 1159 $\mu\text{S}/\text{cm}$
 DO: 78.6 % Salinity: 0.6 ppt
 Water Temp: 15.4 °C
 Flow (from discharge measurement): 4.60 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	5.5	0	0
2	6.0	0.2	0.3
3	7.0	0.8	0.02
4	7.5	0.9	0.34
5	8.5	0.95	0.04
6	9.5	0.9	0.84
7	10.5	0.9	0.72
8	11.5	0.9	0.10
9	12.5	1.0	0.58
10	13.5	1.15	0.74
11	14.5	1.2	0.44
12	15.5	0.9	0.55
13	16.5	1.1	0.24
14	17.5	1.1	0.01
15	18.5	0.7	0.19
16	19.5	0.65	0.22
17	20.5	0.7	0.17
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): SA JAN 2019

Site ID: SA

Date/Time: 1/10/19 0810

Crew Members: KH, KF

Latitude/Longitude: 34.30075 - 119.36735

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From To E

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:

pH: 7.68 pH units EC: 82.4 $\mu\text{S/cm}$

DO: 5.79 mg/L SC: 1208 $\mu\text{S/cm}$

DO: 5.6 % Salinity: 0.6 ppt

Water Temp: 8.4 °C

Flow (from discharge measurement): 40.01 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
Width	Upper Section	Middle Section	Lower Section
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): JAN 2019
 Site ID: CL
 Date/Time: 1/10/19 0725
 Crew Members: KH KE
 Latitude/Longitude: 34.34208 -119.2837
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
 pH: 8.20 pH units EC: 2611 $\mu\text{S}/\text{cm}$
 DO: 11.78 mg/L SC: 4147 $\mu\text{S}/\text{cm}$
 DO: 95.9 % Salinity: 2.2 ppt
 Water Temp: 5.6 °C
 Flow (from discharge measurement): 0.04 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.4	0	0
2	4.8	0.2	0.11
3	5.2	0.2	0.55
4	5.5	0.2	0.13
5	5.9	0	0
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): FEBRUARY 2019 Date: 2/12/19
 Crew Members: K. HAYS, K. FORNER
 Weather (circle): Clear / Partly Cloudy / Overcast / Showers / Rain / Other _____
 Event Type (check): Dry (<0.1" rain per day for the preceding three days)
 Wet (days with ≥0.1" rain and the three days following)
 Notes: YSI 85 # 05E1042
Beckman 255 # 2554

OBSERVATION SITES (RIVER FLOW)

Ventura River at Highway 150 (Baldwin Road) 30
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 30 cfs) Photos Taken: Upstream / Downstream ✓ ✓
 Notes: _____

Ventura River at Santa Ana Blvd
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 30 cfs) Photos Taken: Upstream / Downstream ✓ ✓
 Notes: flow east + west channels. Mainly west.

Ventura River at Casitas Vista Road
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 50 cfs) Photos Taken: Upstream / Downstream ✓ ✓
 Notes: Flowing east + west banks but predominantly east EAST.

Additional Observation Site: _____
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
 Notes: _____

UNSAMPLED TMDL SITES

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Site ID: _____ Time: _____ Photos Taken: Upstream / Downstream
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: _____ cfs)
 Reason not sampled (if flowing): _____
 Notes: _____

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est
 Event ID (Month Year): FEB 2019 Date/Time: 2/12/19 1240
 Crew Members: KARF
 Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy Ocean Inlet (circle one): Open / Restricted / Closed
 Direction of Tide: Ebb / Flood / Slack / N/A Time of Low Tide: 0943 Time of High Tide: 1529
 Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind Wind Direction: Blowing From / To S
 Notes (e.g. homeless, wildlife, dogs, swimming/recreation): Eschery breached both ends. Very deep mud/quicksand on east bank and in water. Crossed east side to collect sample but high tide was coming in so had to overtake stream.

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):
 pH: 7.41 pH units EC: 25020 µS/cm Water Temp: 17.3 °C
 DO: 6.35 mg/L SC: 29270 µS/cm
 DO: 73.6 % Salinity: 18.1 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27560
 Sample Longitude: -119.30769

Water Samples Collected (check box)
 Collect at Floating Macroalgae Quadrat 1, Transect 1)
 Monthly Water (Jan—Dec):
 Nitrogen, total and dissolved:
 Phosphorus, total and dissolved:
 Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): R1 FEB 2019

Site ID: R1

Date/Time: 2/12/19 1200

Crew Members: KM, KF

Latitude/Longitude: 34° 28' 18.4" -119° 30' 89.9"

Flow (circle one): Flowing / Ponded / Dry

Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Reached end of floatline
sampled at west end floatline
heavy algae

January—December Monthly *In Situ* Measurements:

pH: 8.32 pH units EC: 863 $\mu\text{S}/\text{cm}$

DO: 10.21 mg/L SC: 1191 $\mu\text{S}/\text{cm}$

DO: 91.8 % Salinity: 0.6 ppt

Water Temp: 10.6 °C

Flow (from discharge measurement): 50 cfs BT
Est 0565 Foster P/L 50

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method
(Use only if velocity area method not possible)

Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			

Float Reach Cross Section (ft)

	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): R2 FEB 2019

Site ID: R2

Date/Time: 2/12/19 1050

Crew Members: KM, KF

Latitude/Longitude: 34.33937 -119.29725

Flow (circle one): Flowing / Ponded / Dry

Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Flow too heavy to safely take discharge measurement. Channel bifurcated. Sampled east bank. Flow from west channel entering east channel in several locations.

January—December Monthly In Situ Measurements:

pH: 8.25 pH units EC: 747 $\mu\text{S}/\text{cm}$

DO: 10.03 mg/L SC: 1054 $\mu\text{S}/\text{cm}$

DO: 29.2 % Salinity: 0.5 ppt

Water Temp: 9.8 °C 55 est

Flow (from-discharge measurement): 500 cfs 80 53

est use use Foster Rd

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll a (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method
(Use only if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			

Float Reach Cross Section (ft)

	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll a

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll a Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): R3 FEB 2019
 Site ID: R3
 Date/Time: 2/12/19 10:00
 Crew Members: KH KF
 Latitude/Longitude: 34.34491 -119.29916
 Flow (circle one): Flowing Ponded / Dry
 Wind Strength: Calm Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Flowing too fast for safe flow measurement. Took samples downstream of usual spot due to debris obstacles but no info on bin location

January—December Monthly In Situ Measurements:
 pH: 8.24 pH units EC: 721 $\mu\text{S}/\text{cm}$
 DO: 10.62 mg/L SC: 1040 $\mu\text{S}/\text{cm}$
 DO: 92.2 % Salinity: 0.5 ppt
 Water Temp: 8.9 °C
 Flow (from discharge measurement): 50 cfs
Foster Park USGS 53

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method
 (Use only if velocity area method not possible)

Distance (ft)	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			

Float Reach Cross Section (ft)

	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): SA FEB 2019

Site ID: SA

Date/Time: 2/2/19 0825

Crew Members: KH, KF

Latitude/Longitude: 34.38075 -119.30735

Flow (circle one): Flowing / Ponded / Dry

Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Flow lots of debris in river, mostly secondary channel - mostly

January—December Monthly *In Situ* Measurements:

pH: 8.28 pH units EC: 784 μ S/cm

DO: 10.99 mg/L SC: 1188 μ S/cm

DO: 91.7 % Salinity: 0.6 ppt

Water Temp: 7.2 °C

Flow (from discharge measurement): 26.3 cfs

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae: Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	6	0	0
2	8	0.9	0.26
3	10	1.1	0.47
4	12	1.2	0.84
5	14	1.6	0.38
6	16	1.3	1.06
7	18	1.2	0.93
8	20	1.1	1.12
9	22	1.2	1.25
10	24	1.2	1.23
11	26	1.3	1.44
12	28	1.25	1.01
13	30	1.0	0.69
14	32	0.75	0.37
15	34	0	0
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach length (150 m if wetted width > 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

R4 0500 pH 8.25 DO 88.8% TC 640 Sal 0.5

34.38075 -119.30735

10.37 temp 8.4

7/185 = 0.51092

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): 1511 KIT MAR 2019 Date/Time: 3/13/19 1320

Crew Members:

Weather (circle one): Clear Partly Cloudy / Overcast / Rainy / Foggy Ocean Inlet (circle one): Open / Restricted / Closed

Direction of Tide: Ebb / Flood / Slack / N/A Time of Low Tide: 0958 Time of High Tide: 1652

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind Wind Direction: Blowing From / To W

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): Main flow existing to ocean on west end. East side of estuary also open to ocean but not really hydrologically connected to the river. Samples taken west end downslope of railroad tracks.

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):

pH: 8.30 pH units EC: 956 $\mu\text{S}/\text{cm}$ Water Temp: 14.6 $^{\circ}\text{C}$
 DO: 9.38 mg/L SC: 1190 $\mu\text{S}/\text{cm}$
 DO: 92.5 % Salinity: 0.6 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27654

Sample Longitude: -119.30901

Water Samples Collected (check box)

Collect at Floating Macroalgae Quadrat 1, Transect 1

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): MAR 2019
 Site ID: R1
 Date/Time: 3/13/19
 Crew Members: KH KF
 Latitude/Longitude: 34.28212 -119.30888
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Flowing 3 channels (2 fastest west run one dry next flowing) Rowbo out/drop/dumped (or safe etc) accurate measurement!

January—December Monthly *In Situ* Measurements:
 pH: 8.35 pH units EC: 913 $\mu\text{S}/\text{cm}$
 DO: 9.41 mg/L SC: 1170 $\mu\text{S}/\text{cm}$
 DO: 90.9 % Salinity: 0.6 ppt
 Water Temp: 13.5 °C
 Flow (from discharge measurement): 80 cfs
Estimated

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

05E1042
2554

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method
(Use only if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			

Float Reach Cross Section (ft)

	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (ml)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

2

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): Mar 2019
 Site ID: R4
 Date/Time: 3/13/19 0915
 Crew Members: KH KF
 Latitude/Longitude: 34.38003 -119.30857
 Flow (circle one): Flowing / Pondered / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In situ* Measurements:
 pH: 8.18 pH units EC: 674 $\mu\text{S}/\text{cm}$
 DO: 9.59 mg/L SC: 901 $\mu\text{S}/\text{cm}$
 DO: 88.9 % Salinity: 0.4 ppt
 Water Temp: 11.8 °C
 Flow (from discharge measurement): 80.9 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	14.0	0.4	0.12
2	16	0.5	0.71
3	18	0.9	1.35
4	20	0.95	1.97
5	22	1.15	2.39
6	24	1.0	2.18
7	26	1.1	2.80
8	28	1.1	2.46
9	30	0.95	2.37
10	32	0.95	2.82
11	34	1.0	2.50
12	36	1.1	2.47
13	38	1.0	2.48
14	40	0.9	2.56
15	43	1.1	1.95
16	46	0.7	2.34
17	49	0.95	1.47
18	52	0.8	1.68
19	55	0.9	0.74
20	57	0.5	0.32

68 0 0

Buoyant Object Method
 (Use only if velocity area method not possible)
 Distance (ft) Float 1 Float 2 Float 3
 Float Time (sec) _____
 Float Reach Cross Section (ft)
 Upper Section Middle Section Lower Section
 Width _____
 Depth 1 _____
 Depth 2 _____
 Depth 3 _____
 Depth 4 _____
 Depth 5 _____

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____
 Collection Device (sum # transects per Device) Quantity
 Rubber Delimiter (Area=12.6cm²) _____
 PVC Delimiter (Area=12.6cm²) _____
 Syringe Scrubber (Area=5.3cm²) _____
 Other (Area= _____) _____
 Number of Transects Sampled (0-11) _____
 Composite Volume (mL) _____
 Chlorophyll *a* Volume (use GF/F filter, 25 mL preferred volume) _____

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): Mar 2019

Site ID: SA

Date/Time: 3/13/19 0845

Crew Members: KL KF

Latitude/Longitude: 34-38075, -119-30735

Flow (circle one): Flowing / Ponded / Dry

Wind Strength:

Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:

pH: 8.26 pH units EC: 748 $\mu\text{S}/\text{cm}$

DO: 10.12 mg/L SC: 114 $\mu\text{S}/\text{cm}$

DO: 90.4 % Salinity: 30.8 ppt

Water Temp: 10.2 °C

Flow (from discharge measurement): 58.6 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	<u>2.5</u>	<u>0</u>	<u>0</u>
2	<u>3.5</u>	<u>0.5</u>	<u>0.67</u>
3	<u>5.0</u>	<u>0.7</u>	<u>0.93</u>
4	<u>6.5</u>	<u>0.7</u>	<u>1.19</u>
5	<u>8.0</u>	<u>0.8</u>	<u>1.35</u>
6	<u>9.5</u>	<u>1.2</u>	<u>2.24</u>
7	<u>11.0</u>	<u>1.35</u>	<u>2.91</u>
8	<u>12.5</u>	<u>1.45</u>	<u>3.28</u>
9	<u>14.0</u>	<u>1.55</u>	<u>3.42</u>
10	<u>15.5</u>	<u>1.45</u>	<u>3.13</u>
11	<u>17.0</u>	<u>1.40</u>	<u>2.20</u>
12	<u>18.5</u>	<u>1.40</u>	<u>2.58</u>
13	<u>20.0</u>	<u>1.55</u>	<u>2.34</u>
14	<u>21.5</u>	<u>1.45</u>	<u>1.31</u>
15	<u>23.0</u>	<u>1.0</u>	<u>1.71</u>
16	<u>24.5</u>	<u>0.85</u>	<u>1.33</u>
17	<u>25.5</u>	<u>0.80</u>	<u>0.42</u>
18	<u>26.0</u>	<u>0</u>	<u>0</u>
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement
1st Measurement = left bank (looking downstream)

Event ID (Month Year): CL MAR 2019
Site ID: _____
Date/Time: 3/13/19 0730
Crew Members: KH KF
Latitude/Longitude: 34-34208 -119.28637
Flow (circle one): Flowing / Ponded / Dry
Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
Wind Direction: Blowing (circle one) From / To S
Photos (check): Upstream Downstream
Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
pH: 8.34 pH units **EC:** 2477 $\mu\text{S}/\text{cm}$
DO: 10.47 mg/L **SC:** 3583 $\mu\text{S}/\text{cm}$
DO: 11.3 % **Salinity:** 1.9 ppt
Water Temp: 8.9 °C
Flow (from discharge measurement): 4.5 cfs

Samples Collected (check box)
January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
May—September Dry Season Monthly Algae:
 Chlorophyll α (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3	0.25	0.40
2	3.5	0.2	0.35
253	5.4	0.1	0.7
4	7.3	0.25	1.06
5	8.3	0.25	1.31
6	9.3	0.25	1.63
7	10.3	0.25	1.28
8	11.3	0.3	1.62
9	12.3	0.25	1.46
10	13.3	0.25	1.43
11	14.3	0.25	1.42
12	15.3	0.3	1.30
13	16.3	0.4	1.28
14	17.3	0.5	0.76
15	18	0	0
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
	Float 1	Float 2	Float 3
Distance (ft)			
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll α
Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll α Volume	
(use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Estuary) - Page 1 of 1

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): Apr 2019

Date/Time: 4/8/19 14:15

Crew Members: KHEL

Weather (circle one): Partly Cloudy / Overcast / Rainy / Foggy

Ocean Inlet (circle one): Open / Restricted / Closed

Direction of Tide: Ebb / Flood / Slack / N/A

Time of Low Tide: 17:56 / Time of High Tide: 12:18

Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind

Wind Direction: Blowing From / To

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): East end of estuary connected to ocean but not river. Sampled west end. 100's of birds in area mostly gulls.

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)

Monthly (Jan—Dec):

pH: 8.33 pH units

EC: 1276 $\mu\text{S}/\text{cm}$

Water Temp: 21.1 °C

DO: 11.11 mg/L

SC: 1379 $\mu\text{S}/\text{cm}$

Salinity: 0.7 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27683

Sample Longitude: -119.30886

Water Samples Collected (check box)

Collect at Floating Macroalgae Quadrat 1, Transect 1

Monthly Water (Jan—Dec):

Nitrogen, total and dissolved:

Phosphorus, total and dissolved:

Nitrate + Nitrite as Nitrogen:

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): APR 2019
 Site ID: R2
 Date/Time: 4/8/19 12:20
 Crew Members: KH, EL
 Latitude/Longitude: 34.23937 - 119.29725
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Flow too deep/fast to safely measure

January—December Monthly In Situ Measurements:
 pH: 8.20 pH units EC: 962 $\mu\text{S}/\text{cm}$
 DO: 9.32 mg/L SC: 1083 $\mu\text{S}/\text{cm}$
 DO: 100.6 % Salinity: 0.5 ppt
 Water Temp: 19.1 °C
 Flow (from-discharge-measurement): 30 cfs
Estimated

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____
 Collection Device (sum # transects per Device) Quantity
 Rubber Delimiter (Area=12.6cm²)
 PVC Delimiter (Area=12.6cm²)
 Syringe Scrubber (Area=5.3cm²)
 Other (Area=)
 Number of Transects Sampled (0-11)
 Composite Volume (mL)
 Chlorophyll *a* Volume (use GF/F filter, 25 mL preferred volume)

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): ARR 2019
 Site ID: R3
 Date/Time: 4/8/19 1120
 Crew Members: KH EL
 Latitude/Longitude: 34.34491 -119.29916
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Too deep to measure flow. Estimate

January—December Monthly In Situ Measurements:
 pH: 8.19 pH units EC: 915 $\mu\text{S}/\text{cm}$
 DO: 9.22 mg/L SC: 1056 $\mu\text{S}/\text{cm}$
 Salinity: 0.5 ppt
 Water Temp: 18.0 °C
 Flow (from discharge measurement): 30 cfs
Estimated

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Reach Cross/Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (1.50 m if wetted width \leq 10 m; 250 m if wetted width > 10 m): _____
 Collection Device (sum # transects per Device) Quantity

Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): NR 2019
 Site ID: SA
 Date/Time: 4/8/19 0955
 Crew Members: KH EL
 Latitude/Longitude: 34-38075 -119.30735
 Flow (circle one): Flowing Ponded / Dry
 Wind Strength: Calm Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
 pH: 8.25 pH units EC: 1067 $\mu\text{S/cm}$
 DO: 10.05 mg/L SC: 1271 $\mu\text{S/cm}$
 DO: 103.7 % Salinity: 0.6 ppt
 Water Temp: 16.7 °C
 Flow (from discharge measurement): 12.75 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	1.0	0	0
2	2.0	0.8	0.06
3	3.0	0.8	0.01
4	4.0	0.7	0.01
5	5.0	0.8	0.11
6	6.0	1.0	0.65
7	7.5	1.0	1.23
8	9.0	1.0	0.57
9	10.5	0.8	0.95
10	12.0	0.9	1.33
11	13.5	0.95	1.71
12	15.0	0.9	1.60
13	16.5	0.65	1.13
14	18.0	0.4	0.63
15	19.5	0.2	0.13
16	21.0	0.2	0.13
17	22.0	0	0
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)				
Distance (ft)	Float 1	Float 2	Float 3	
Float Time (sec)				
Float Reach Cross Section (ft)				
	Upper Section	Middle Section	Lower Section	
Width				
Depth 1				
Depth 2				
Depth 3				
Depth 4				
Depth 5				

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area=)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): APR 2019
 Site ID: R4
 Date/Time: 4/8/19 0920
 Crew Members: KA, EL
 Latitude/Longitude: 34.38003, -119.30857
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To _____
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly *In Situ* Measurements:
 pH: 7.88 pH units EC: 807 $\mu\text{S}/\text{cm}$
 DO: 9.00 mg/L SC: 919 $\mu\text{S}/\text{cm}$
 DO: 93.6 % Salinity: 0.5 ppt
 Water Temp: 17.2 °C
 Flow (from discharge measurement): 34.60 cfs

Samples Collected (check box)
 January—December Monthly Water:
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 May—September Dry Season Monthly Algae:
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	11.4	0	0
2	12.0	0.35	0.20
3	14.0	0.30	0.47
4	17.0	0.30	1.07
5	20.0	0.60	0.93
6	23.0	0.65	0.94
7	26.0	0.75	1.37
8	29.0	0.60	1.54
9	32.0	0.80	1.89
10	35.0	0.60	2.23
11	38.0	0.50	1.92
12	41.0	0.70	2.22
13	44.0	0.75	1.62
14	47.0	0.20	1.92
15	50.0	1.0	1.75
16	50.0	1.0	0.65
17	50.2	1.0	1.17
18			
19			
20			

Buoyant Object Method (Use only if velocity area method not possible)			
Distance (ft)	Float 1	Float 2	Float 3
Float Time (sec)			
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

May—September: Algae Collection for Chlorophyll *a*
 Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____
 Collection Device (sum # transects per Device) _____ Quantity _____
 Rubber Delimiter (Area=12.6cm²) _____
 PVC Delimiter (Area=12.6cm²) _____
 Syringe Scrubber (Area=5.3cm²) _____
 Other (Area= _____) _____
 Number of Transects Sampled (0-11) _____
 Composite Volume (mL) _____
 Chlorophyll *a* Volume (use GF/F filter, 25 mL preferred volume) _____

751 85 0300379

Ventura River Algae TMDL Field Data Sheet (Reaches 1—4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): 0 APR 2019

Site ID: 0

Date/Time: 4/8/19 0810

Crew Members: SM EL

Latitude/Longitude: 34.34288, -119.28637

Flow (circle one): Flowing Ponded / Dry

Wind Strength: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy

Wind Direction: Blowing (circle one) From / To _____

Photos (check): Upstream Downstream

Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): dead calf e. bank (out of water). Float of wires and trees nearby.

January—December Monthly In Situ Measurements:

pH: 8.22 pH units EC: 3021 $\mu\text{S}/\text{cm}$

DO: 11.1 mg/L SC: 3706 $\mu\text{S}/\text{cm}$

DO: 11.03 % mg/L Salinity: 2.0 ppt

Water Temp: 15.3 °C

Flow (from discharge measurement): 1.27 cfs

Samples Collected (check box)

January—December Monthly Water:

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):

Dissolved Phosphorus and Nitrogen (field filtered):

May—September Dry Season Monthly Algae:

Chlorophyll *a* (filters—algae):

Y51 05 # 0160625
6edman 410 # 110341139

Velocity Area Method (preferred)			Buoyant Object Method		
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft./sec)	Distance (ft)	Float Time (sec)
1	5.8	0	0		
2	6.1	0.9	0.41		
3	6.5	1.0	0.54		
4	7.0	1.0	0.85		
5	7.5	1.0	0.52		
6	8.0	0.8	0.28		
7	8.5	0.6	0.19		
8	9.0	0.5	0.13		
9	9.5	0.4	0.09		
10	10.0	0.3	0.06		
11	10.5	0.2	0.04		
12	10.9	0	0		
13					
14					
15					
16					
17					
18					
19					
20					

Buoyant Object Method (Use only if velocity area method not possible)						
Distance (ft)	Float 1	Float 2	Float 3	Upper Section	Middle Section	Lower Section
Float Time (sec)						
Float Reach Cross Section (ft)						
Width						
Depth 1						
Depth 2						
Depth 3						
Depth 4						
Depth 5						

May—September: Algae Collection for Chlorophyll *a*

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	
PVC Delimiter (Area=12.6cm ²)	
Syringe Scrubber (Area=5.3cm ²)	
Other (Area= _____)	
Number of Transects Sampled (0-11)	
Composite Volume (mL)	
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	

TOTAL MAXIMUM DAILY LOAD
FOR ALGAE, EUTROPHIC CONDITIONS, AND
NUTRIENTS IN VENTURA RIVER, INCLUDING THE
ESTUARY, AND ITS TRIBUTARIES (VR ALGAE TMDL)

2019 ANNUAL REPORT

**APPENDIX B: CHAIN OF CUSTODIES AND LABORATORY
REPORTS (MAY 2018 - APRIL 2019)**

Submitted to
TMDL Responsible Parties Implementing Receiving Water Monitoring Requirements:

City of Ojai
City of Ventura
County of Ventura
Ojai Valley Sanitary District
California Department of Transportation
Ventura County Agricultural Irrigated Lands Group
Ventura County Watershed Protection District

Prepared by:

Ventura County Watershed Protection District
June 1, 2018





**Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)**

8E17091

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

_____ 1 OF _____ 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORYFY18MA01, Project P6040555)

SAMPLING EVENT: MAY 2018

SAMPLING DATE: 5/15/18 + 5/16/18

SAMPLERS: L. MEEKER, D. LAAR

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED	
						NOTES
TMDL-Est	5/16/18 1255	X	X	X		LM
TMDL-R1	↓ 1100	X	X	X		LM
TMDL-R2	↓ 0820	X	X	X		LM
TMDL-R3	5/15/18 1200	X	X	X		DL
TMDL-R4	↓ 0805	X	X	X		DL
TMDL-CL	↓ 1400	X	X	X		DL
TMDL-SA	↓ 1025	X	X	X		DL
TMDL-FD	_____	X	X	X		(Note WHICH site)

Signature: <i>Kelly Hays</i>	Signature: <i>Bruce Markovich</i>
Print Name: <u>KELLY HAYS</u>	Print Name: <u>BRUCE MARKOVICH</u>
Affiliation: <u>WCWPD</u>	Affiliation: <u>WECK LABS</u>
Date/Time Received: _____	Date/Time Received: <u>5/17/18 / 1325</u>
Date/Time Relinquished: <u>5/17/18 / 1325</u>	Date/Time Relinquished: <u>5/17/18</u>

Signature: <i>Edgar Abad</i>	Signature: <i>Edgar Abad</i>
Print Name: <u>Edgar Abad</u>	Print Name: <u>Edgar Abad</u>
Affiliation: _____	Affiliation: _____
Date/Time Received: <u>5/17/18</u>	Date/Time Received: <u>5/17/18 16:50</u>
Date/Time Relinquished: _____	Date/Time Relinquished: _____

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

1.1

Work Orders: 8E17091

Report Date: 6/08/2018

Received Date: 5/17/2018

Project: TMDL Study May 2018 P6040555

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

Attn: Kelly Hahs

P.O. #: WECKLABORATORY1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

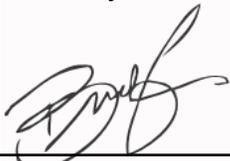
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Kelly Hahs,

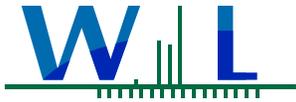
Enclosed are the results of analyses for samples received 5/17/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:



Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

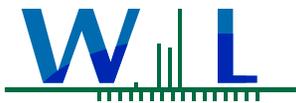
Project Number: TMDL Study May 2018 P6040555

Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	L. Meeker, D. Laac	8E17091-01	Water	05/16/18 12:55	
TMDL-R1	L. Meeker, D. Laac	8E17091-02	Water	05/16/18 11:00	
TMDL-R2	L. Meeker, D. Laac	8E17091-03	Water	05/16/18 08:20	
TMDL-R3	L. Meeker, D. Laac	8E17091-04	Water	05/15/18 12:00	
TMDL-R4	L. Meeker, D. Laac	8E17091-05	Water	05/15/18 08:05	
TMDL-CL	L. Meeker, D. Laac	8E17091-06	Water	05/15/18 14:00	
TMDL-SA	L. Meeker, D. Laac	8E17091-07	Water	05/15/18 10:25	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2018 P6040555

Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

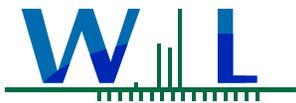
Sample Results

Sample: TMDL-Est
8E17091-01 (Water) Sampled: 05/16/18 12:55 by L. Meeker, D. Laac

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 19:00		Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	0.3		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 18:56		Analyst: mnq	
Nitrogen, Total	0.58		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668	Instr: AA06		Prepared: 05/30/18 18:56		Analyst: mnq	
TKN	0.58	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1669	Instr: AA06		Prepared: 05/30/18 19:00		Analyst: mnq	
TKN, Soluble	0.30	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 353.2	Batch ID: W8E1096	Instr: AA04		Prepared: 05/21/18 09:40		Analyst: ajk	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	05/21/18 16:08	
Method: EPA 365.1	Batch ID: W8E1430	Instr: AA01		Prepared: 05/25/18 12:05		Analyst: AJK	
Phosphorus, Dissolved	0.0084	0.0014	0.010	mg/l	1x1	05/30/18 14:55	J
Method: EPA 365.1	Batch ID: W8E1431	Instr: AA01		Prepared: 05/25/18 12:14		Analyst: AJK	
Phosphorus as P, Total	0.065	0.0014	0.010	mg/l	1x1	05/30/18 15:49	

Sample: TMDL-R1
8E17091-02 (Water) Sampled: 05/16/18 11:00 by L. Meeker, D. Laac

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 19:00		Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	1.3		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 18:56		Analyst: mnq	
Nitrogen, Total	1.4		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668	Instr: AA06		Prepared: 05/30/18 18:56		Analyst: mnq	
TKN	0.59	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1669	Instr: AA06		Prepared: 05/30/18 19:00		Analyst: mnq	
TKN, Soluble	0.49	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 353.2	Batch ID: W8E1096	Instr: AA04		Prepared: 05/21/18 09:40		Analyst: ajk	
NO2+NO3 as N	0.81	0.083	0.20	mg/l	1x1	05/21/18 16:09	
Method: EPA 365.1	Batch ID: W8E1430	Instr: AA01		Prepared: 05/25/18 12:05		Analyst: AJK	
Phosphorus, Dissolved	0.022	0.0014	0.010	mg/l	1x1	05/30/18 14:59	
Method: EPA 365.1	Batch ID: W8E1431	Instr: AA01		Prepared: 05/25/18 12:14		Analyst: AJK	
Phosphorus as P, Total	0.044	0.0014	0.010	mg/l	1x1	05/30/18 15:51	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2018 P6040555

Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

Sample Results

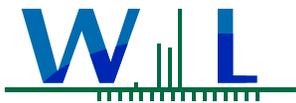
(Continued)

Sample: TMDL-R2
8E17091-03 (Water) Sampled: 05/16/18 8:20 by L. Meeker, D. Laac

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/30/18 19:00	Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	2.4		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/30/18 18:56	Analyst: mnq	
Nitrogen, Total	2.6		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668		Instr: AA06		Prepared: 05/30/18 18:56	Analyst: mnq	
TKN	0.52	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1669		Instr: AA06		Prepared: 05/30/18 19:00	Analyst: mnq	
TKN, Soluble	0.38	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 353.2	Batch ID: W8E1096		Instr: AA04		Prepared: 05/21/18 09:40	Analyst: ajk	
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	05/21/18 16:10	
Method: EPA 365.1	Batch ID: W8E1430		Instr: AA01		Prepared: 05/25/18 12:05	Analyst: AJK	
Phosphorus, Dissolved	0.14	0.0014	0.010	mg/l	1x1	05/30/18 15:01	
Method: EPA 365.1	Batch ID: W8E1431		Instr: AA01		Prepared: 05/25/18 12:14	Analyst: AJK	
Phosphorus as P, Total	0.16	0.0014	0.010	mg/l	1x1	05/30/18 15:52	

Sample: TMDL-R3
8E17091-04 (Water) Sampled: 05/15/18 12:00 by L. Meeker, D. Laac

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/30/18 19:00	Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	0.59		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/30/18 18:56	Analyst: mnq	
Nitrogen, Total	0.6		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668		Instr: AA06		Prepared: 05/30/18 18:56	Analyst: mnq	
TKN	0.078	0.050	0.10	mg/l	1x1	06/01/18 16:25	J
Method: EPA 351.2	Batch ID: W8E1669		Instr: AA06		Prepared: 05/30/18 19:00	Analyst: mnq	
TKN, Soluble	0.068	0.050	0.10	mg/l	1x1	06/01/18 16:25	J
Method: EPA 353.2	Batch ID: W8E1096		Instr: AA04		Prepared: 05/21/18 09:40	Analyst: ajk	
NO2+NO3 as N	0.52	0.083	0.20	mg/l	1x1	05/21/18 16:11	
Method: EPA 365.1	Batch ID: W8E1430		Instr: AA01		Prepared: 05/25/18 12:05	Analyst: AJK	
Phosphorus, Dissolved	0.0072	0.0014	0.010	mg/l	1x1	05/30/18 15:02	J
Method: EPA 365.1	Batch ID: W8E1431		Instr: AA01		Prepared: 05/25/18 12:14	Analyst: AJK	
Phosphorus as P, Total	0.010	0.0014	0.010	mg/l	1x1	05/30/18 15:54	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2018 P6040555

Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

Sample Results

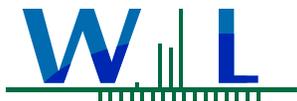
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Sample: TMDL-R4
8E17091-05 (Water) Sampled: 05/15/18 8:05 by L. Meeker, D. Laac

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 19:00		Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	1.5		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 18:56		Analyst: mnq	
Nitrogen, Total	1.5		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668	Instr: AA06		Prepared: 05/30/18 18:56		Analyst: mnq	
TKN	ND	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1669	Instr: AA06		Prepared: 05/30/18 19:00		Analyst: mnq	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 353.2	Batch ID: W8E1096	Instr: AA04		Prepared: 05/21/18 09:40		Analyst: ajk	
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	05/21/18 16:11	
Method: EPA 365.1	Batch ID: W8E1430	Instr: AA01		Prepared: 05/25/18 12:05		Analyst: AJK	
Phosphorus, Dissolved	0.0064	0.0014	0.010	mg/l	1x1	05/30/18 15:04	J
Method: EPA 365.1	Batch ID: W8E1431	Instr: AA01		Prepared: 05/25/18 12:14		Analyst: AJK	
Phosphorus as P, Total	0.0070	0.0014	0.010	mg/l	1x1	05/30/18 15:55	J

Sample: TMDL-CL
8E17091-06 (Water) Sampled: 05/15/18 14:00 by L. Meeker, D. Laac

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 19:00		Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	0.65		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 18:56		Analyst: mnq	
Nitrogen, Total	0.83		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668	Instr: AA06		Prepared: 05/30/18 18:56		Analyst: mnq	
TKN	0.83	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1669	Instr: AA06		Prepared: 05/30/18 19:00		Analyst: mnq	
TKN, Soluble	0.65	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 353.2	Batch ID: W8E1096	Instr: AA04		Prepared: 05/21/18 09:40		Analyst: ajk	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	05/21/18 16:17	
Method: EPA 365.1	Batch ID: W8E1430	Instr: AA01		Prepared: 05/25/18 12:05		Analyst: AJK	
Phosphorus, Dissolved	0.032	0.0014	0.010	mg/l	1x1	05/30/18 15:05	
Method: EPA 365.1	Batch ID: W8E1431	Instr: AA01		Prepared: 05/25/18 12:14		Analyst: AJK	
Phosphorus as P, Total	0.024	0.0014	0.010	mg/l	1x1	05/30/18 15:57	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2018 P6040555

Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

Sample Results

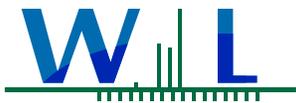
(Continued)

Sample: TMDL-SA

Sampled: 05/15/18 10:25 by L. Meeker, D. Laac

8E17091-07 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 19:00		Analyst: mnq	
METHOD ***							
Dissolved Nitrogen	1.7		0.30	mg/l	1x1	06/01/18 16:25	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/30/18 18:56		Analyst: mnq	
Nitrogen, Total	1.7		0.20	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1668	Instr: AA06		Prepared: 05/30/18 18:56		Analyst: mnq	
TKN	ND	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 351.2	Batch ID: W8E1669	Instr: AA06		Prepared: 05/30/18 19:00		Analyst: mnq	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/01/18 16:25	
Method: EPA 353.2	Batch ID: W8E1096	Instr: AA04		Prepared: 05/21/18 09:40		Analyst: ajk	
NO2+NO3 as N	1.7	0.083	0.20	mg/l	1x1	05/21/18 16:17	
Method: EPA 365.1	Batch ID: W8E1430	Instr: AA01		Prepared: 05/25/18 12:05		Analyst: AJK	
Phosphorus, Dissolved	0.012	0.0014	0.010	mg/l	1x1	05/30/18 15:07	
Method: EPA 365.1	Batch ID: W8E1431	Instr: AA01		Prepared: 05/25/18 12:14		Analyst: AJK	
Phosphorus as P, Total	0.024	0.0014	0.010	mg/l	1x1	05/30/18 15:45	



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Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8E1096 - EPA 353.2											
Blank (W8E1096-BLK1)					Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8E1096-BS1)					Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	0.978	0.083	0.20	mg/l	1.00		98	90-110			
Duplicate (W8E1096-DUP1)					Source: 8E17073-02 Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	ND	0.083	0.20	mg/l		ND				20	
Matrix Spike (W8E1096-MS1)					Source: 8E21037-21 Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	9.88	0.083	0.20	mg/l	2.00	7.74	107	90-110			
Matrix Spike (W8E1096-MS2)					Source: 8E21041-11 Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	4.34	0.083	0.20	mg/l	2.00	2.34	100	90-110			
Matrix Spike Dup (W8E1096-MSD1)					Source: 8E21037-21 Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	9.95	0.083	0.20	mg/l	2.00	7.74	110	90-110	0.8	20	
Matrix Spike Dup (W8E1096-MSD2)					Source: 8E21041-11 Prepared & Analyzed: 05/21/18						
NO2+NO3 as N	4.39	0.083	0.20	mg/l	2.00	2.34	103	90-110	1	20	
Batch: W8E1430 - EPA 365.1											
Blank (W8E1430-BLK1)					Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8E1430-BS1)					Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus, Dissolved	0.0497	0.0014	0.010	mg/l	0.0500		99	90-110			
Matrix Spike (W8E1430-MS1)					Source: 8E17091-01 Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus, Dissolved	0.0575	0.0014	0.010	mg/l	0.0500	0.00839	98	90-110			
Matrix Spike Dup (W8E1430-MSD1)					Source: 8E17091-01 Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus, Dissolved	0.0563	0.0014	0.010	mg/l	0.0500	0.00839	96	90-110	2	20	
Batch: W8E1431 - EPA 365.1											
Blank (W8E1431-BLK1)					Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8E1431-BS1)					Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus as P, Total	0.0497	0.0014	0.010	mg/l	0.0500		99	90-110			
Matrix Spike (W8E1431-MS1)					Source: 8E17091-07 Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus as P, Total	0.0689	0.0014	0.010	mg/l	0.0500	0.0241	90	90-110			
Matrix Spike Dup (W8E1431-MSD1)					Source: 8E17091-07 Prepared: 05/25/18 Analyzed: 05/30/18						
Phosphorus as P, Total	0.0700	0.0014	0.010	mg/l	0.0500	0.0241	92	90-110	2	20	
Batch: W8E1668 - EPA 351.2											
Blank (W8E1668-BLK1)					Prepared: 05/30/18 Analyzed: 06/01/18						
TKN	ND	0.050	0.10	mg/l							
Blank (W8E1668-BLK2)					Prepared: 05/30/18 Analyzed: 06/01/18						
TKN	ND	0.050	0.10	mg/l							



WECK LABORATORIES, INC.

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Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8E1668 - EPA 351.2 (Continued)											
LCS (W8E1668-BS1)											
TKN	0.978	0.050	0.10	mg/l	1.00		98	90-110			
Prepared: 05/30/18 Analyzed: 06/01/18											
LCS (W8E1668-BS2)											
TKN	0.964	0.050	0.10	mg/l	1.00		96	90-110			
Prepared: 05/30/18 Analyzed: 06/01/18											
Matrix Spike (W8E1668-MS1)											
TKN	1.18	0.050	0.10	mg/l	1.00	0.155	102	90-110			
Source: 8E22012-06 Prepared: 05/30/18 Analyzed: 06/01/18											
Matrix Spike (W8E1668-MS2)											
TKN	1.16	0.050	0.10	mg/l	1.00	0.172	99	90-110			
Source: 8E22012-07 Prepared: 05/30/18 Analyzed: 06/01/18											
Matrix Spike Dup (W8E1668-MSD1)											
TKN	1.19	0.050	0.10	mg/l	1.00	0.155	103	90-110	0.7	10	
Source: 8E22012-06 Prepared: 05/30/18 Analyzed: 06/01/18											
Matrix Spike Dup (W8E1668-MSD2)											
TKN	1.18	0.050	0.10	mg/l	1.00	0.172	101	90-110	2	10	
Source: 8E22012-07 Prepared: 05/30/18 Analyzed: 06/01/18											
Batch: W8E1669 - EPA 351.2											
Blank (W8E1669-BLK1)											
TKN, Soluble	ND	0.050	0.10	mg/l							
Prepared: 05/30/18 Analyzed: 06/01/18											
LCS (W8E1669-BS1)											
TKN, Soluble	0.952	0.050	0.10	mg/l	1.00		95	90-110			
Prepared: 05/30/18 Analyzed: 06/01/18											
Matrix Spike (W8E1669-MS1)											
TKN, Soluble	1.30	0.050	0.10	mg/l	1.00	0.298	100	90-110			
Source: 8E17091-01 Prepared: 05/30/18 Analyzed: 06/01/18											
Matrix Spike Dup (W8E1669-MSD1)											
TKN, Soluble	1.34	0.050	0.10	mg/l	1.00	0.298	104	90-110	3	10	
Source: 8E17091-01 Prepared: 05/30/18 Analyzed: 06/01/18											



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2018 P6040555

Reported:
06/08/2018 14:35

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



aquatic
bioassay &
consulting
laboratories, inc

September 10th, 2018

Ventura Country Watershed Protection District
Kelly Hahs
800 S Victoria Ave
Ventura, CA 93009

Dear Ms. Hahs:

Aquatic Bioassay & Consulting Laboratories is pleased to provide you with the enclosed chlorophyll-a data report for the Ventura River Algae TMDL. Chlorophyll- a analyses are conducted under guidelines prescribed in *Standard Methods for the Examination of Water and Wastewater* (APHA, 22nd Edition), Section SM 10200 H.

Please contact me with any questions or issues you may have regarding this report.

Sincerely,



Karin Wisenbaker
Senior Biologist
(805) 643-5621 ex.17

Client: Ventura Country Watershed Protection District
Project: Ventura River Algae TMDL



Chlorophyll a results from May 15th-16th, 2018

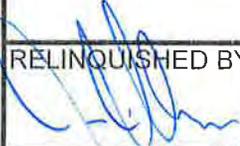
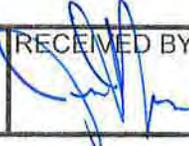
Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	24	ug/cm2
TMDL-R2	1	11	30	ug/cm2
TMDL-R3	1	11	28	ug/cm2
TMDL-R4	1	11	21	ug/cm2
TMDL-CL	1	11	8.3	ug/cm2
TMDL-SA	1	9	3.6	ug/cm2
TMDL-Est	1	NA	46	ug/L

Chain study

From: Aquatic Bioassay and Consulting Labs. 29 N. Olive St. Ventura, CA 93001	Phone: (805) 643-5621 Fax: (805) 643-2930 Project ID: VCWPD Algae TMDL	To: Company: Aquatic Bioassay and Consulting Labs. 29 N. Olive St. Ventura, CA 93001 Phone:
---	---	--

Sample I.D. No.	Sample Date	Time	Matrix	Composite Volume/ No.	Reps	ANALYSIS														
						Chl-a														
R-4	5-15-18	0805		300ml		✓														
SA	5-15-18	1025		288ml		✓														
R-3	5-15-18	1200		390ml		✓														
CL	5-15-18	1400		340ml		✓														

Special Instructions:

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
	5-15-18	1525		5-15-18	1525						



8F07096

Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL (VR Algae TMDL)

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

_____ 1 OF _____ 1 _____

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: JUNE 2018

SAMPLING DATE: 6/6/18 + 6/7/18

SAMPLERS: D. LAAK

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED			NOTES
TMDL-Est	6/7/18 0945	X	X	X				
TMDL-R1	↓ 0745	X	X	X				
TMDL-R2	6/6/18 1310	X	X	X				
TMDL-R3	↓ 1105	X	X	X				
TMDL-R4	↓ 0800	X	X	X				
TMDL-CL	_____ DRY	X	X	X				DRY
TMDL-SA	6/6/18 1020	X	X	X				
TMDL-FD	4 ↓ 0800	X	X	X				(Note which site) (R4)

Signature: <u>Kelly Haas</u>	Signature: <u>Alan G</u>
Print Name: <u>KELLY HAAS</u>	Print Name: <u>ALLAN G</u>
Affiliation: <u>VCWPD</u>	Affiliation: <u>WECK</u>
Date/Time Received: _____	Date/Time Received: <u>6/7/18 1415</u>
Date/Time Relinquished: <u>6/7/18 1415</u>	Date/Time Relinquished: _____

Signature: <u>Alan G</u>	Signature: <u>Peter Abad</u>
Print Name: <u>ALLAN G</u>	Print Name: <u>Peter Abad</u>
Affiliation: <u>WECK</u>	Affiliation: <u>WECK</u>
Date/Time Received: _____	Date/Time Received: <u>6/7/18 18:30 11'</u>
Date/Time Relinquished: <u>6/7/18 1830</u>	Date/Time Relinquished: _____

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

Work Orders: 8F07096

Report Date: 7/16/2018

Received Date: 6/7/2018

Project: TMDL Study June 2018 P6040555

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

Attn: Kelly Hahs

P.O. #: WECKLABORATORY1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

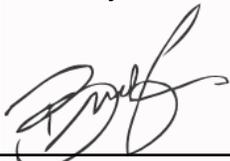
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Kelly Hahs,

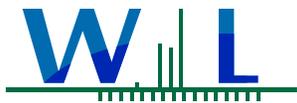
Enclosed are the results of analyses for samples received 6/07/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:



Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

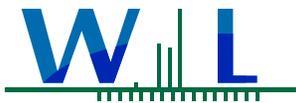
Project Number: TMDL Study June 2018 P6040555

Reported:
07/16/2018 09:18

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	D.Laak	8F07096-01	Water	06/07/18 09:45	
TMDL-R1	D.Laak	8F07096-02	Water	06/07/18 07:45	
TMDL-R2	D.Laak	8F07096-03	Water	06/06/18 13:10	
TMDL-R3	D.Laak	8F07096-04	Water	06/06/18 11:05	
TMDL-R4	D.Laak	8F07096-05	Water	06/06/18 08:00	
TMDL-SA	D.Laak	8F07096-06	Water	06/06/18 10:20	
TMDL-FD	D.Laak	8F07096-07	Water	06/06/18 08:00	



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Reported:
07/16/2018 09:18

Project Manager: Kelly Hahs

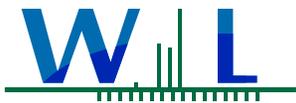
Sample Results

Sample: TMDL-Est
8F07096-01 (Water) Sampled: 06/07/18 9:45 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	0.72		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT
Nitrogen, Total	1.2		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946		Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT
TKN	1.1	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947		Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt
TKN, Soluble	0.62	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644		Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK
NO2+NO3 as N	0.10	0.083	0.20	mg/l	1x1	06/12/18 16:01	J
Method: EPA 365.1	Batch ID: W8F1270		Instr: AA01		Prepared: 06/21/18 15:18		Analyst: AJK
Phosphorus, Dissolved	0.042	0.0014	0.010	mg/l	1x1	06/29/18 13:40	
Method: EPA 365.1	Batch ID: W8F1335		Instr: AA01		Prepared: 06/22/18 15:36		Analyst: AJK
Phosphorus as P, Total	0.13	0.0028	0.020	mg/l	2x1	06/27/18 14:41	M-06

Sample: TMDL-R1
8F07096-02 (Water) Sampled: 06/07/18 7:45 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	1.4		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT
Nitrogen, Total	1.5		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946		Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT
TKN	0.70	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947		Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt
TKN, Soluble	0.58	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644		Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK
NO2+NO3 as N	0.81	0.083	0.20	mg/l	1x1	06/12/18 16:04	
Method: EPA 365.1	Batch ID: W8F0793		Instr: AA01		Prepared: 06/13/18 19:55		Analyst: AJK
Phosphorus as P, Total	0.097	0.0014	0.010	mg/l	1x1	06/20/18 16:34	
Method: EPA 365.1	Batch ID: W8F1270		Instr: AA01		Prepared: 06/21/18 15:18		Analyst: AJK
Phosphorus, Dissolved	0.080	0.0014	0.010	mg/l	1x1	06/29/18 13:42	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study June 2018 P6040555

Reported:
07/16/2018 09:18

Project Manager: Kelly Hahs

Sample Results

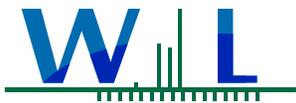
(Continued)

Sample: TMDL-R2
8F07096-03 (Water) Sampled: 06/06/18 13:10 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt
Dissolved Nitrogen	2.3		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT
Nitrogen, Total	2.8		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946		Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT
TKN	0.75	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947		Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt
TKN, Soluble	0.28	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644		Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	06/12/18 16:05	
Method: EPA 365.1	Batch ID: W8F0793		Instr: AA01		Prepared: 06/13/18 19:55		Analyst: AJK
Phosphorus as P, Total	0.36	0.0028	0.020	mg/l	2x1	06/20/18 16:35	
Method: EPA 365.1	Batch ID: W8F1270		Instr: AA01		Prepared: 06/21/18 15:18		Analyst: AJK
Phosphorus, Dissolved	0.27	0.0028	0.020	mg/l	1x2	06/29/18 13:49	

Sample: TMDL-R3
8F07096-04 (Water) Sampled: 06/06/18 11:05 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt
Dissolved Nitrogen	0.49		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT
Nitrogen, Total	0.71		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946		Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT
TKN	0.39	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947		Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt
TKN, Soluble	0.16	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644		Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK
NO2+NO3 as N	0.33	0.083	0.20	mg/l	1x1	06/12/18 16:06	
Method: EPA 365.1	Batch ID: W8F0793		Instr: AA01		Prepared: 06/13/18 19:55		Analyst: AJK
Phosphorus as P, Total	0.069	0.0028	0.020	mg/l	2x1	06/20/18 16:37	
Method: EPA 365.1	Batch ID: W8F1270		Instr: AA01		Prepared: 06/21/18 15:18		Analyst: AJK
Phosphorus, Dissolved	0.031	0.0014	0.010	mg/l	1x1	06/29/18 13:45	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study June 2018 P6040555

Reported:
07/16/2018 09:18

Project Manager: Kelly Hahs

Sample Results

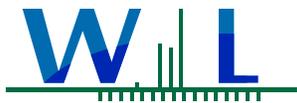
(Continued)

Sample: TMDL-R4
8F07096-05 (Water) Sampled: 06/06/18 8:00 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	1.6		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT	
Nitrogen, Total	1.6		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946	Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT	
TKN	ND	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947	Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644	Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK	
NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	06/12/18 16:07	
Method: EPA 365.1	Batch ID: W8F0705	Instr: AA01		Prepared: 06/12/18 16:50		Analyst: AJK	
Phosphorus, Dissolved	0.021	0.0014	0.010	mg/l	1x1	06/27/18 11:57	
Method: EPA 365.1	Batch ID: W8F0793	Instr: AA01		Prepared: 06/13/18 19:55		Analyst: AJK	
Phosphorus as P, Total	0.022	0.0014	0.010	mg/l	1x1	06/20/18 16:22	

Sample: TMDL-SA
8F07096-06 (Water) Sampled: 06/06/18 10:20 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	1.6		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT	
Nitrogen, Total	1.6		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946	Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT	
TKN	ND	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947	Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644	Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK	
NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	06/12/18 16:08	
Method: EPA 365.1	Batch ID: W8F0793	Instr: AA01		Prepared: 06/13/18 19:55		Analyst: AJK	
Phosphorus as P, Total	0.032	0.0014	0.010	mg/l	1x1	06/20/18 16:38	
Method: EPA 365.1	Batch ID: W8F1270	Instr: AA01		Prepared: 06/21/18 15:18		Analyst: AJK	
Phosphorus, Dissolved	0.028	0.0028	0.020	mg/l	1x2	06/29/18 13:53	



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07/16/2018 09:18

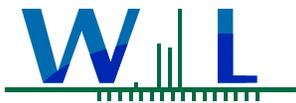
Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-FD
8F07096-07 (Water) Sampled: 06/06/18 8:00 by D.Laak

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 06/17/18 09:30		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	1.5		0.30	mg/l	1x1	06/19/18 14:05	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 06/17/18 09:25		Analyst: YMT	
Nitrogen, Total	1.6		0.20	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0946	Instr: AA06		Prepared: 06/17/18 09:25		Analyst: YMT	
TKN	0.17	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 351.2	Batch ID: W8F0947	Instr: AA06		Prepared: 06/17/18 09:30		Analyst: ymt	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/19/18 14:05	
Method: EPA 353.2	Batch ID: W8F0644	Instr: AA01		Prepared: 06/12/18 08:23		Analyst: AJK	
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	06/12/18 16:10	
Method: EPA 365.1	Batch ID: W8F0705	Instr: AA01		Prepared: 06/12/18 16:50		Analyst: AJK	
Phosphorus, Dissolved	0.022	0.0014	0.010	mg/l	1x1	06/27/18 12:13	
Method: EPA 365.1	Batch ID: W8F0793	Instr: AA01		Prepared: 06/13/18 19:55		Analyst: AJK	
Phosphorus as P, Total	0.025	0.0014	0.010	mg/l	1x1	06/20/18 16:43	



WECK LABORATORIES, INC.

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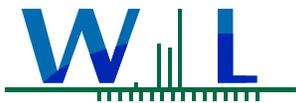
Reported:
07/16/2018 09:18

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8F0644 - EPA 353.2											
Blank (W8F0644-BLK1)					Prepared & Analyzed: 06/12/18						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8F0644-BS1)					Prepared & Analyzed: 06/12/18						
NO2+NO3 as N	1.00	0.083	0.20	mg/l	1.00		100	90-110			
Matrix Spike (W8F0644-MS1)					Source: 8F06094-01 Prepared & Analyzed: 06/12/18						
NO2+NO3 as N	2.04	0.083	0.20	mg/l	2.00	ND	102	90-110			
Matrix Spike (W8F0644-MS2)					Source: 8F06094-05 Prepared & Analyzed: 06/12/18						
NO2+NO3 as N	1.88	0.083	0.20	mg/l	2.00	ND	94	90-110			
Matrix Spike Dup (W8F0644-MSD1)					Source: 8F06094-01 Prepared & Analyzed: 06/12/18						
NO2+NO3 as N	2.07	0.083	0.20	mg/l	2.00	ND	104	90-110	1	20	
Matrix Spike Dup (W8F0644-MSD2)					Source: 8F06094-05 Prepared & Analyzed: 06/12/18						
NO2+NO3 as N	1.85	0.083	0.20	mg/l	2.00	ND	92	90-110	2	20	
Batch: W8F0705 - EPA 365.1											
Blank (W8F0705-BLK1)					Prepared: 06/12/18 Analyzed: 06/27/18						
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8F0705-BS1)					Prepared: 06/12/18 Analyzed: 06/27/18						
Phosphorus, Dissolved	0.0512	0.0014	0.010	mg/l	0.0500		102	90-110			
Matrix Spike (W8F0705-MS1)					Source: 8F07096-05 Prepared: 06/12/18 Analyzed: 06/27/18						
Phosphorus, Dissolved	0.0745	0.0014	0.010	mg/l	0.0500	0.0208	107	90-110			
Matrix Spike Dup (W8F0705-MSD1)					Source: 8F07096-05 Prepared: 06/12/18 Analyzed: 06/27/18						
Phosphorus, Dissolved	0.0734	0.0014	0.010	mg/l	0.0500	0.0208	105	90-110	1	20	
Batch: W8F0793 - EPA 365.1											
Blank (W8F0793-BLK1)					Prepared: 06/13/18 Analyzed: 06/20/18						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8F0793-BS1)					Prepared: 06/13/18 Analyzed: 06/20/18						
Phosphorus as P, Total	0.0505	0.0014	0.010	mg/l	0.0500		101	90-110			
Matrix Spike (W8F0793-MS1)					Source: 8F07096-05 Prepared: 06/13/18 Analyzed: 06/20/18						
Phosphorus as P, Total	0.0815	0.0014	0.010	mg/l	0.0500	0.0219	119	90-110			MS-03
Matrix Spike Dup (W8F0793-MSD1)					Source: 8F07096-05 Prepared: 06/13/18 Analyzed: 06/20/18						
Phosphorus as P, Total	0.0783	0.0014	0.010	mg/l	0.0500	0.0219	113	90-110	4	20	MS-03
Batch: W8F0946 - EPA 351.2											
Blank (W8F0946-BLK1)					Prepared: 06/17/18 Analyzed: 06/19/18						
TKN	ND	0.050	0.10	mg/l							
LCS (W8F0946-BS1)					Prepared: 06/17/18 Analyzed: 06/19/18						
TKN	1.01	0.050	0.10	mg/l	1.00		101	90-110			
Matrix Spike (W8F0946-MS1)					Source: 8F07096-02 Prepared: 06/17/18 Analyzed: 06/19/18						
TKN	1.67	0.050	0.10	mg/l	1.00	0.696	97	90-110			



WECK LABORATORIES, INC.

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FINAL REPORT

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07/16/2018 09:18

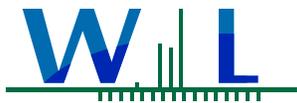
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8F0946 - EPA 351.2 (Continued)											
Matrix Spike Dup (W8F0946-MSD1) Source: 8F07096-02 Prepared: 06/17/18 Analyzed: 06/19/18											
TKN	1.64	0.050	0.10	mg/l	1.00	0.696	94	90-110	2	10	
Batch: W8F0947 - EPA 351.2											
Blank (W8F0947-BLK1) Prepared: 06/17/18 Analyzed: 06/19/18											
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W8F0947-BS1) Prepared: 06/17/18 Analyzed: 06/19/18											
TKN, Soluble	0.996	0.050	0.10	mg/l	1.00		100	90-110			
Matrix Spike (W8F0947-MS1) Source: 8F07096-02 Prepared: 06/17/18 Analyzed: 06/19/18											
TKN, Soluble	1.56	0.050	0.10	mg/l	1.00	0.581	98	90-110			
Matrix Spike Dup (W8F0947-MSD1) Source: 8F07096-02 Prepared: 06/17/18 Analyzed: 06/19/18											
TKN, Soluble	1.56	0.050	0.10	mg/l	1.00	0.581	98	90-110	0.003	10	
Batch: W8F1270 - EPA 365.1											
Blank (W8F1270-BLK1) Prepared: 06/21/18 Analyzed: 06/29/18											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8F1270-BS1) Prepared: 06/21/18 Analyzed: 06/29/18											
Phosphorus, Dissolved	0.0509	0.0014	0.010	mg/l	0.0500		102	90-110			
Matrix Spike (W8F1270-MS1) Source: 8F07096-06 Prepared: 06/21/18 Analyzed: 06/29/18											
Phosphorus, Dissolved	0.0760	0.0028	0.020	mg/l	0.0500	0.0282	96	90-110			
Matrix Spike Dup (W8F1270-MSD1) Source: 8F07096-06 Prepared: 06/21/18 Analyzed: 06/29/18											
Phosphorus, Dissolved	0.0800	0.0028	0.020	mg/l	0.0500	0.0282	104	90-110	5	20	
Batch: W8F1335 - EPA 365.1											
Blank (W8F1335-BLK1) Prepared: 06/22/18 Analyzed: 06/27/18											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8F1335-BS1) Prepared: 06/22/18 Analyzed: 06/27/18											
Phosphorus as P, Total	0.0517	0.0014	0.010	mg/l	0.0500		103	90-110			
Matrix Spike (W8F1335-MS1) Source: 8F14033-07 Prepared: 06/22/18 Analyzed: 06/27/18											
Phosphorus as P, Total	0.0621	0.0014	0.010	mg/l	0.0500	0.0113	102	90-110			
Matrix Spike Dup (W8F1335-MSD1) Source: 8F14033-07 Prepared: 06/22/18 Analyzed: 06/27/18											
Phosphorus as P, Total	0.0632	0.0014	0.010	mg/l	0.0500	0.0113	104	90-110	2	20	



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07/16/2018 09:18

Project Manager: Kelly Hahs

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
MS-03	Multiple analyses indicate the percent recovery is out of acceptance limits due to a possible matrix effect.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



aquatic
bioassay &
consulting
laboratories, inc

September 10th, 2018

Ventura County Watershed Protection District
Kelly Hahs
800 S Victoria Ave
Ventura, CA 93009

Dear Ms. Hahs:

Aquatic Bioassay & Consulting Laboratories is pleased to provide you with the enclosed chlorophyll-a data report for the Ventura River Algae TMDL. Chlorophyll- a analyses are conducted under guidelines prescribed in *Standard Methods for the Examination of Water and Wastewater* (APHA, 22nd Edition), Section SM 10200 H.

Please contact me with any questions or issues you may have regarding this report.

Sincerely,



Karin Wisenbaker
Senior Biologist
(805) 643-5621 ex.17

Client: Ventura Country Watershed Protection District
Project: Ventura River Algae TMDL



Chlorophyll a results from June 6th-7th, 2018

Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	39	ug/cm2
TMDL-R2	1	11	33	ug/cm2
TMDL-R3	1	11	52	ug/cm2
TMDL-R4	1	11	15	ug/cm2
TMDL-R4	2	11	12	ug/cm2
TMDL-CL	1	0	DRY	ug/cm2
TMDL-SA	1	0	DRY	ug/cm2
TMDL-Est	1	NA	40	ug/L



**Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)**

Comprehensive Monitoring Program

891125

CHAIN-OF-CUSTODY RECORD

_____ 1 OF _____ 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: JULY 2018

SAMPLING DATE: 7/9/18 + 7/10/18

SAMPLERS: L. MECKER

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED			NOTES
TMDL-Est	7/10/18 1010	X	X	X				
TMDL-R1	7/10/18 0745	X	X	X				
TMDL-R2	7/9/18 1300	X	X	X				
TMDL-R3	↓ 1100	X	X	X				
TMDL-R4	↓ 0840	X	X	X				
TMDL-CL	DRY	X	X	X				
TMDL-SA	7/9/18 1000	X	X	X				
TMDL-ED		X	X	X				(Note=which site)

Signature: <u>Kelly Hays</u>	Signature: <u>Bruce Markovich</u>
Print Name: <u>KELLY HAYS</u>	Print Name: <u>BRUCE MARKOVICH</u>
Affiliation: <u>VCWPD</u>	Affiliation: <u>WECK LABS</u>
Date/Time Received: _____	Date/Time Received: <u>7/11/18 1510</u>
Date/Time Relinquished: <u>7/11/18 1510</u>	Date/Time Relinquished: <u>7/11/18 1630</u>

Signature: <u>Alan G</u>	Signature: <u>Sam Jones</u>
Print Name: <u>ALAN G</u>	Print Name: <u>SAM JONES</u>
Affiliation: <u>WECK</u>	Affiliation: <u>WECK LABS</u>
Date/Time Received: <u>7/11/18 1645</u>	Date/Time Received: <u>7/11/18 1810</u>
Date/Time Relinquished: <u>7/11/18 1810</u>	Date/Time Relinquished: _____

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.): Dissolved samples were field filtered



aquatic
bioassay &
consulting
laboratories, inc

September 10th, 2018

Ventura County Watershed Protection District
Kelly Hahs
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Dear Ms. Hahs:

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Please contact me with any questions or issues you may have regarding this report.

Sincerely,



Karin Wisenbaker
Senior Biologist
(805) 643-5621 ex.17

Client: Ventura Country Watershed Protection District
Project: Ventura River Algae TMDL



Chlorophyll a results from July 9th-10th, 2018

Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	18	ug/cm2
TMDL-R2	1	11	20	ug/cm2
TMDL-R3	1	11	16	ug/cm2
TMDL-R4	1	9	13	ug/cm2
TMDL-CL	1	0	DRY	ug/cm2
TMDL-SA	1	0	DRY	ug/cm2
TMDL-Est	1	NA	34	ug/L

Work Orders: 8G11125

Report Date: 8/13/2018

Received Date: 7/11/2018

Project: TMDL Study July 2018 P6040555

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

Attn: Kelly Hahs

P.O. #: WECKLABORATORYF1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

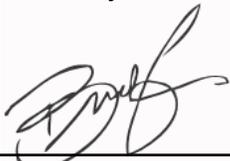
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Kelly Hahs,

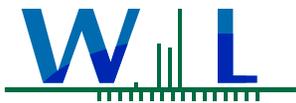
Enclosed are the results of analyses for samples received 7/11/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.3 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:



Brandon Gee
Operations Manager/Senior PM





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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

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FINAL REPORT

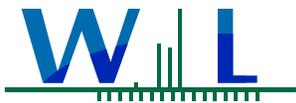
Project Number: TMDL Study July 2018 P6040555

Reported:
08/13/2018 16:37

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	L.Meeker	8G11125-01	Water	07/10/18 10:10	
TMDL-R1	L.Meeker	8G11125-02	Water	07/10/18 07:45	
TMDL-R2	L.Meeker	8G11125-03	Water	07/09/18 13:00	
TMDL-R3	L.Meeker	8G11125-04	Water	07/09/18 11:00	
TMDL-R4	L.Meeker	8G11125-05	Water	07/09/18 08:40	
TMDL-SA	L.Meeker	8G11125-06	Water	07/09/18 10:00	



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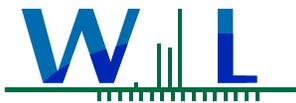
Sample Results

Sample: TMDL-Est
8G11125-01 (Water) Sampled: 07/10/18 10:10 by L.Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:32		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.61		0.30	mg/l	1x1	07/23/18 18:57	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:33		Analyst: ymt	
Nitrogen, Total	0.92		0.20	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0963	Instr: AA06		Prepared: 07/17/18 17:33		Analyst: ymt	
TKN	0.92	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0964	Instr: AA06		Prepared: 07/17/18 17:32		Analyst: ymt	
TKN, Soluble	0.61	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 353.2	Batch ID: W8G0688	Instr: AA01		Prepared: 07/12/18 12:19		Analyst: AJK	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	07/13/18 12:33	
Method: EPA 365.1	Batch ID: W8G0683	Instr: AA01		Prepared: 07/12/18 11:24		Analyst: Station22	
Phosphorus as P, Total	0.12	0.0014	0.010	mg/l	1x1	07/24/18 17:21	
Method: EPA 365.1	Batch ID: W8G0777	Instr: AA01		Prepared: 07/13/18 14:01		Analyst: Station22	
Phosphorus, Dissolved	0.091	0.0014	0.010	mg/l	1x1	07/24/18 15:50	

Sample: TMDL-R1
8G11125-02 (Water) Sampled: 07/10/18 7:45 by L.Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:32		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	2.2		0.30	mg/l	1x1	07/23/18 18:57	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:33		Analyst: ymt	
Nitrogen, Total	2.1		0.20	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0963	Instr: AA06		Prepared: 07/17/18 17:33		Analyst: ymt	
TKN	0.64	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0964	Instr: AA06		Prepared: 07/17/18 17:32		Analyst: ymt	
TKN, Soluble	0.68	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 353.2	Batch ID: W8G0688	Instr: AA01		Prepared: 07/12/18 12:19		Analyst: AJK	
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	07/13/18 12:34	
Method: EPA 365.1	Batch ID: W8G0683	Instr: AA01		Prepared: 07/12/18 11:24		Analyst: Station22	
Phosphorus as P, Total	0.18	0.0014	0.010	mg/l	1x1	07/24/18 17:22	
Method: EPA 365.1	Batch ID: W8G0777	Instr: AA01		Prepared: 07/13/18 14:01		Analyst: Station22	
Phosphorus, Dissolved	0.16	0.0014	0.010	mg/l	1x1	07/24/18 15:51	



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Project Manager: Kelly Hahs

Sample Results

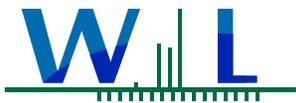
(Continued)

Sample: TMDL-R2
8G11125-03 (Water) Sampled: 07/09/18 13:00 by L.Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:32		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	3.8		0.30	mg/l	1x1	07/23/18 18:57	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:33		Analyst: ymt	
Nitrogen, Total	4		0.20	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0963	Instr: AA06		Prepared: 07/17/18 17:33		Analyst: ymt	
TKN	0.72	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0964	Instr: AA06		Prepared: 07/17/18 17:32		Analyst: ymt	
TKN, Soluble	0.48	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 353.2	Batch ID: W8G0688	Instr: AA01		Prepared: 07/12/18 12:19		Analyst: AJK	
NO2+NO3 as N	3.3	0.083	0.20	mg/l	1x1	07/13/18 12:35	
Method: EPA 365.1	Batch ID: W8G0683	Instr: AA01		Prepared: 07/12/18 11:24		Analyst: Station22	
Phosphorus as P, Total	0.52	0.0070	0.050	mg/l	1x5	07/24/18 17:24	
Method: EPA 365.1	Batch ID: W8G0777	Instr: AA01		Prepared: 07/13/18 14:01		Analyst: Station22	
Phosphorus, Dissolved	0.26	0.0028	0.020	mg/l	1x2	07/24/18 15:53	

Sample: TMDL-R3
8G11125-04 (Water) Sampled: 07/09/18 11:00 by L.Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:32		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	ND		0.30	mg/l	1x1	07/23/18 18:57	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:33		Analyst: ymt	
Nitrogen, Total	0.3		0.20	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0963	Instr: AA06		Prepared: 07/17/18 17:33		Analyst: ymt	
TKN	0.13	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0964	Instr: AA06		Prepared: 07/17/18 17:32		Analyst: ymt	
TKN, Soluble	0.11	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 353.2	Batch ID: W8G0688	Instr: AA01		Prepared: 07/12/18 12:19		Analyst: AJK	
NO2+NO3 as N	0.17	0.083	0.20	mg/l	1x1	07/13/18 12:36	J
Method: EPA 365.1	Batch ID: W8G0683	Instr: AA01		Prepared: 07/12/18 11:24		Analyst: Station22	
Phosphorus as P, Total	0.092	0.0014	0.010	mg/l	1x1	07/24/18 17:25	
Method: EPA 365.1	Batch ID: W8G0777	Instr: AA01		Prepared: 07/13/18 14:01		Analyst: Station22	
Phosphorus, Dissolved	0.046	0.0014	0.010	mg/l	1x1	07/24/18 15:54	



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08/13/2018 16:37

Project Manager: Kelly Hahs

Sample Results

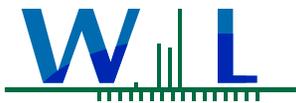
(Continued)

Sample: TMDL-R4
8G11125-05 (Water) Sampled: 07/09/18 8:40 by L.Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:32		Analyst: ymt	
Dissolved Nitrogen	1.5		0.30	mg/l	1x1	07/23/18 18:57	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:33		Analyst: ymt	
Nitrogen, Total	1.7		0.20	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0963	Instr: AA06		Prepared: 07/17/18 17:33		Analyst: ymt	
TKN	0.15	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0964	Instr: AA06		Prepared: 07/17/18 17:32		Analyst: ymt	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 353.2	Batch ID: W8G0688	Instr: AA01		Prepared: 07/12/18 12:19		Analyst: AJK	
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	07/13/18 12:37	
Method: EPA 365.1	Batch ID: W8G0683	Instr: AA01		Prepared: 07/12/18 11:24		Analyst: Station22	
Phosphorus as P, Total	0.055	0.0014	0.010	mg/l	1x1	07/24/18 17:12	
Method: EPA 365.1	Batch ID: W8G0777	Instr: AA01		Prepared: 07/13/18 14:01		Analyst: Station22	
Phosphorus, Dissolved	0.049	0.0014	0.010	mg/l	1x1	07/24/18 15:56	

Sample: TMDL-SA
8G11125-06 (Water) Sampled: 07/09/18 10:00 by L.Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:32		Analyst: ymt	
Dissolved Nitrogen	1.6		0.30	mg/l	1x1	07/23/18 18:57	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 07/17/18 17:33		Analyst: ymt	
Nitrogen, Total	1.6		0.20	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0963	Instr: AA06		Prepared: 07/17/18 17:33		Analyst: ymt	
TKN	ND	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 351.2	Batch ID: W8G0964	Instr: AA06		Prepared: 07/17/18 17:32		Analyst: ymt	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	07/23/18 18:57	
Method: EPA 353.2	Batch ID: W8G0688	Instr: AA01		Prepared: 07/12/18 12:19		Analyst: AJK	
NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	07/13/18 12:38	
Method: EPA 365.1	Batch ID: W8G0683	Instr: AA01		Prepared: 07/12/18 11:24		Analyst: Station22	
Phosphorus as P, Total	0.042	0.0014	0.010	mg/l	1x1	07/24/18 17:27	
Method: EPA 365.1	Batch ID: W8G0777	Instr: AA01		Prepared: 07/13/18 14:01		Analyst: Station22	
Phosphorus, Dissolved	0.036	0.0014	0.010	mg/l	1x1	07/24/18 15:45	



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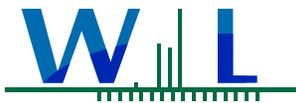
08/13/2018 16:37

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8G0683 - EPA 365.1											
Blank (W8G0683-BLK1) Prepared: 07/12/18 Analyzed: 07/24/18											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8G0683-BS1) Prepared: 07/12/18 Analyzed: 07/24/18											
Phosphorus as P, Total	0.0501	0.0014	0.010	mg/l	0.0500		100	90-110			
Matrix Spike (W8G0683-MS1) Source: 8G11125-05 Prepared: 07/12/18 Analyzed: 07/24/18											
Phosphorus as P, Total	0.108	0.0014	0.010	mg/l	0.0500	0.0552	106	90-110			
Matrix Spike Dup (W8G0683-MSD1) Source: 8G11125-05 Prepared: 07/12/18 Analyzed: 07/24/18											
Phosphorus as P, Total	0.152	0.0014	0.010	mg/l	0.0500	0.0552	194	90-110	34	20	MS-01
Batch: W8G0688 - EPA 353.2											
Blank (W8G0688-BLK1) Prepared: 07/12/18 Analyzed: 07/13/18											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8G0688-BS1) Prepared: 07/12/18 Analyzed: 07/13/18											
NO2+NO3 as N	1.05	0.083	0.20	mg/l	1.00		105	90-110			
Matrix Spike (W8G0688-MS1) Source: 8G11044-01 Prepared: 07/12/18 Analyzed: 07/13/18											
NO2+NO3 as N	5.03	0.083	0.20	mg/l	2.00	3.05	99	90-110			
Matrix Spike (W8G0688-MS2) Source: 8G11044-02 Prepared: 07/12/18 Analyzed: 07/13/18											
NO2+NO3 as N	3.76	0.083	0.20	mg/l	2.00	1.63	106	90-110			
Matrix Spike Dup (W8G0688-MSD1) Source: 8G11044-01 Prepared: 07/12/18 Analyzed: 07/13/18											
NO2+NO3 as N	5.00	0.083	0.20	mg/l	2.00	3.05	98	90-110	0.6	20	
Matrix Spike Dup (W8G0688-MSD2) Source: 8G11044-02 Prepared: 07/12/18 Analyzed: 07/13/18											
NO2+NO3 as N	3.77	0.083	0.20	mg/l	2.00	1.63	107	90-110	0.3	20	
Batch: W8G0777 - EPA 365.1											
Blank (W8G0777-BLK1) Prepared: 07/13/18 Analyzed: 07/24/18											
Phosphorus, Dissolved	0.00203	0.0014	0.010	mg/l							J
LCS (W8G0777-BS1) Prepared: 07/13/18 Analyzed: 07/24/18											
Phosphorus, Dissolved	0.0514	0.0014	0.010	mg/l	0.0500		103	90-110			
Matrix Spike (W8G0777-MS1) Source: 8G11125-06 Prepared: 07/13/18 Analyzed: 07/24/18											
Phosphorus, Dissolved	0.0888	0.0014	0.010	mg/l	0.0500	0.0360	106	90-110			
Matrix Spike Dup (W8G0777-MSD1) Source: 8G11125-06 Prepared: 07/13/18 Analyzed: 07/24/18											
Phosphorus, Dissolved	0.0895	0.0014	0.010	mg/l	0.0500	0.0360	107	90-110	0.8	20	
Batch: W8G0963 - EPA 351.2											
Blank (W8G0963-BLK1) Prepared: 07/17/18 Analyzed: 07/23/18											
TKN	ND	0.050	0.10	mg/l							
LCS (W8G0963-BS1) Prepared: 07/17/18 Analyzed: 07/23/18											
TKN	1.02	0.050	0.10	mg/l	1.00		102	90-110			
Matrix Spike (W8G0963-MS1) Source: 8G13055-08 Prepared: 07/17/18 Analyzed: 07/23/18											
TKN	1.27	0.050	0.10	mg/l	1.00	0.192	108	90-110			



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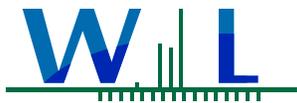
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8G0963 - EPA 351.2 (Continued)											
Matrix Spike Dup (W8G0963-MSD1)											
			Source: 8G13055-08			Prepared: 07/17/18 Analyzed: 07/23/18					
TKN	1.32	0.050	0.10	mg/l	1.00	0.192	113	90-110	4	10	MS-01
Batch: W8G0964 - EPA 351.2											
Blank (W8G0964-BLK1)											
						Prepared: 07/17/18 Analyzed: 07/23/18					
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W8G0964-BS1)											
						Prepared: 07/17/18 Analyzed: 07/23/18					
TKN, Soluble	1.00	0.050	0.10	mg/l	1.00		100	90-110			
Matrix Spike (W8G0964-MS1)											
			Source: 8G11125-02			Prepared: 07/17/18 Analyzed: 07/23/18					
TKN, Soluble	1.69	0.050	0.10	mg/l	1.00	0.681	101	90-110			
Matrix Spike Dup (W8G0964-MSD1)											
			Source: 8G11125-02			Prepared: 07/17/18 Analyzed: 07/23/18					
TKN, Soluble	1.73	0.050	0.10	mg/l	1.00	0.681	104	90-110	2	10	



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08/13/2018 16:37

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

8/15/2018



Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL (VR Algae TMDL)

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: AUGUST 2018

SAMPLING DATE: 8/14 + 8/15/18

SAMPLERS: J. FORREST, C. GUZMAN

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED	
						NOTES
TMDL-Est	8/15/18 1020	X	X	X		CG
TMDL-R1	8/15/18 0740	X	X	X		CG
TMDL-R2	8/14/18 1115	X	X	X		JF
TMDL-R3	8/14/18 0900	X	X	X		JF
TMDL-R4	DRY	X	X	X		
TMDL-CL	DRY	X	X	X		
TMDL-SA	8/14/18 / 0820	X	X	X		JF
TMDL-FD		X	X	X		(Note which site)

Signature: <i>Kelly Hatis</i>	Signature: <i>Bruce Markovich</i>
Print Name: KELLY HATIS	Print Name: BRUCE MARKOVICH
Affiliation: VCWPD	Affiliation: WECK LABS
Date/Time Received: 8/15/18 / 1400	Date/Time Received: 8/15/18 / 1400
Date/Time Relinquished: 8/15/18 / 1400	Date/Time Relinquished: 1555

Signature: <i>Mung</i>	Signature: <i>Lester Abad</i>
Print Name: MUNG	Print Name: Lester Abad 2110
Affiliation: WECK	Affiliation: Weck
Date/Time Received: 8/15/18 / 1555	Date/Time Received: 8/15/18 / 17:40
Date/Time Relinquished: 8/15/18 / 1740	Date/Time Relinquished:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered



Certificate of Analysis

FINAL REPORT

Work Orders: 8H15095

Report Date: 9/18/2018

Project: TMDL Study August 2018 P6040555

Received Date: 8/15/2018

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
8MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

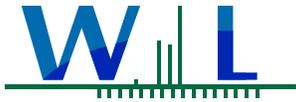
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 8/15/18 with the Chain-of-Custody document. The samples were received in good condition, at 2.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

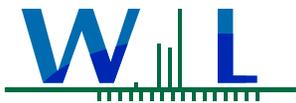
Project Number: TMDL Study August 2018 P6040555

Reported:
09/18/2018 15:44

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	J. Forrest, C. Guzman	8H15095-01	Water	08/15/18 10:20	
TMDL-R1	J. Forrest, C. Guzman	8H15095-02	Water	08/15/18 07:40	
TMDL-R2	J. Forrest, C. Guzman	8H15095-03	Water	08/14/18 11:15	
TMDL-R3	J. Forrest, C. Guzman	8H15095-04	Water	08/14/18 09:00	
TMDL-SA	J. Forrest, C. Guzman	8H15095-05	Water	08/14/18 08:20	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study August 2018 P6040555

Reported:
09/18/2018 15:44

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 08/15/18 10:20 by J. Forrest, C. Guzman

8H15095-01 (Water)

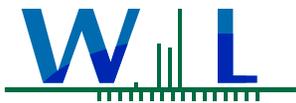
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 08/21/18 12:58		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.67		0.30	mg/l	1x1	08/28/18 18:54	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 08/21/18 12:58		Analyst: ymt	
Nitrogen, Total	1.2		0.20	mg/l	1x1	08/28/18 18:54	
Method: EPA 351.2	Batch ID: W8H1154	Instr: AA06		Prepared: 08/20/18 12:04		Analyst: ymt	
TKN, Soluble	0.53	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 351.2	Batch ID: W8H1155	Instr: Inst		Prepared: 08/20/18 12:06		Analyst: ymt	
TKN	1.1	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 353.2	Batch ID: W8H1250	Instr: AA01		Prepared: 08/21/18 12:58		Analyst: mnq	
NO2+NO3 as N	0.15	0.083	0.20	mg/l	1x1	08/28/18 18:54	J
Method: EPA 365.1	Batch ID: W8H1241	Instr: AA01		Prepared: 08/21/18 12:05		Analyst: vll	
Phosphorus as P, Total	0.14	0.0014	0.010	mg/l	1x1	08/30/18 17:31	
Phosphorus, Dissolved	0.19	0.0014	0.010	mg/l	1x1	08/30/18 17:32	

Sample: TMDL-R1

Sampled: 08/15/18 7:40 by J. Forrest, C. Guzman

8H15095-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 08/21/18 12:58		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.47		0.30	mg/l	1x1	08/28/18 18:56	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 08/21/18 12:58		Analyst: ymt	
Nitrogen, Total	0.55		0.20	mg/l	1x1	08/28/18 18:56	
Method: EPA 351.2	Batch ID: W8H1154	Instr: AA06		Prepared: 08/20/18 12:04		Analyst: ymt	
TKN, Soluble	0.47	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 351.2	Batch ID: W8H1155	Instr: Inst		Prepared: 08/20/18 12:06		Analyst: ymt	
TKN	0.55	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 353.2	Batch ID: W8H1250	Instr: AA01		Prepared: 08/21/18 12:58		Analyst: mnq	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	08/28/18 18:56	
Method: EPA 365.1	Batch ID: W8H1241	Instr: AA01		Prepared: 08/21/18 12:05		Analyst: vll	
Phosphorus as P, Total	0.12	0.0014	0.010	mg/l	1x1	08/30/18 17:37	
Phosphorus, Dissolved	0.088	0.0014	0.010	mg/l	1x1	08/30/18 17:38	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study August 2018 P6040555

Reported:
09/18/2018 15:44

Project Manager: Kelly Hahs

Sample Results

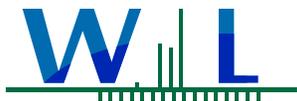
(Continued)

Sample: TMDL-R2
8H15095-03 (Water) Sampled: 08/14/18 11:15 by J. Forrest, C. Guzman

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	Batch ID: [CALC]	Instr: [CALC]	Prepared: 08/21/18 12:58	Analyst: ymt			
	2.5		0.30	mg/l	1x1	08/28/18 18:57	
Method: _Various Nitrogen, Total	Batch ID: [CALC]	Instr: [CALC]	Prepared: 08/21/18 12:58	Analyst: ymt			
	2.5		0.20	mg/l	1x1	08/28/18 18:57	
Method: EPA 351.2 TKN, Soluble	Batch ID: W8H1154	Instr: AA06	Prepared: 08/20/18 12:04	Analyst: ymt			
	0.57	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 351.2 TKN	Batch ID: W8H1155	Instr: Inst	Prepared: 08/20/18 12:06	Analyst: ymt			
	0.63	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 353.2 NO2+NO3 as N	Batch ID: W8H1250	Instr: AA01	Prepared: 08/21/18 12:58	Analyst: mnq			
	1.9	0.083	0.20	mg/l	1x1	08/28/18 18:57	
Method: EPA 365.1 Phosphorus as P, Total	Batch ID: W8H1241	Instr: AA01	Prepared: 08/21/18 12:05	Analyst: vll			
	0.26	0.0028	0.020	mg/l	2x1	08/30/18 17:39	M-06
Phosphorus, Dissolved	0.24	0.0028	0.020	mg/l	2x1	08/30/18 17:41	M-06

Sample: TMDL-R3
8H15095-04 (Water) Sampled: 08/14/18 9:00 by J. Forrest, C. Guzman

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	Batch ID: [CALC]	Instr: [CALC]	Prepared: 08/21/18 12:58	Analyst: ymt			
	ND		0.30	mg/l	1x1	08/28/18 18:58	
Method: _Various Nitrogen, Total	Batch ID: [CALC]	Instr: [CALC]	Prepared: 08/21/18 12:58	Analyst: ymt			
	0.22		0.20	mg/l	1x1	08/28/18 18:58	
Method: EPA 351.2 TKN, Soluble	Batch ID: W8H1154	Instr: AA06	Prepared: 08/20/18 12:04	Analyst: ymt			
	0.11	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 351.2 TKN	Batch ID: W8H1155	Instr: Inst	Prepared: 08/20/18 12:06	Analyst: ymt			
	0.22	0.050	0.10	mg/l	1x1	08/27/18 14:40	
Method: EPA 353.2 NO2+NO3 as N	Batch ID: W8H1250	Instr: AA01	Prepared: 08/21/18 12:58	Analyst: mnq			
	ND	0.083	0.20	mg/l	1x1	08/28/18 18:58	
Method: EPA 365.1 Phosphorus as P, Total	Batch ID: W8H1241	Instr: AA01	Prepared: 08/21/18 12:05	Analyst: vll			
	0.024	0.0014	0.010	mg/l	1x1	08/30/18 17:42	
Phosphorus, Dissolved	0.016	0.0014	0.010	mg/l	1x1	08/30/18 17:45	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study August 2018 P6040555

Reported:
09/18/2018 15:44

Project Manager: Kelly Hahs

Sample Results

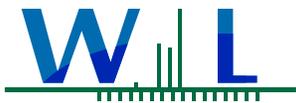
(Continued)

Sample: TMDL-SA

Sampled: 08/14/18 8:20 by J. Forrest, C. Guzman

8H15095-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 08/21/18 12:58		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.39		0.30	mg/l	1x1	08/28/18 18:59	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 08/21/18 12:58		Analyst: ymt	
Nitrogen, Total	0.42		0.20	mg/l	1x1	08/28/18 18:59	
Method: EPA 351.2	Batch ID: W8H1154	Instr: AA06		Prepared: 08/20/18 12:04		Analyst: ymt	
TKN, Soluble	0.055	0.050	0.10	mg/l	1x1	08/27/18 14:40	J
Method: EPA 351.2	Batch ID: W8H1155	Instr: Inst		Prepared: 08/20/18 12:06		Analyst: ymt	
TKN	0.076	0.050	0.10	mg/l	1x1	08/27/18 14:40	J
Method: EPA 353.2	Batch ID: W8H1250	Instr: AA01		Prepared: 08/21/18 12:58		Analyst: mnq	
NO2+NO3 as N	0.34	0.083	0.20	mg/l	1x1	08/28/18 18:59	
Method: EPA 365.1	Batch ID: W8H1241	Instr: AA01		Prepared: 08/21/18 12:05		Analyst: vll	
Phosphorus as P, Total	0.029	0.0014	0.010	mg/l	1x1	08/30/18 17:47	
Phosphorus, Dissolved	0.017	0.0014	0.010	mg/l	1x1	08/30/18 17:48	



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study August 2018 P6040555

Reported:
09/18/2018 15:44

Project Manager: Kelly Hahs

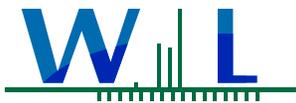
Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W8H1154 - EPA 351.2											
Blank (W8H1154-BLK1)					Prepared: 08/20/18 Analyzed: 08/27/18						
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W8H1154-BS1)					Prepared: 08/20/18 Analyzed: 08/27/18						
TKN, Soluble	0.999	0.050	0.10	mg/l	1.00		100	90-110			
Matrix Spike (W8H1154-MS1)					Source: 8H15095-04 Prepared: 08/20/18 Analyzed: 08/27/18						
TKN, Soluble	1.10	0.050	0.10	mg/l	1.00	0.115	99	90-110			
Matrix Spike Dup (W8H1154-MSD1)					Source: 8H15095-04 Prepared: 08/20/18 Analyzed: 08/27/18						
TKN, Soluble	1.15	0.050	0.10	mg/l	1.00	0.115	103	90-110	4	10	
Batch: W8H1155 - EPA 351.2											
Blank (W8H1155-BLK1)					Prepared: 08/20/18 Analyzed: 08/27/18						
TKN	ND	0.050	0.10	mg/l							
LCS (W8H1155-BS1)					Prepared: 08/20/18 Analyzed: 08/27/18						
TKN	1.00	0.050	0.10	mg/l	1.00		100	90-110			
Matrix Spike (W8H1155-MS1)					Source: 8H15095-04 Prepared: 08/20/18 Analyzed: 08/27/18						
TKN	1.15	0.050	0.10	mg/l	1.00	0.219	93	90-110			
Matrix Spike Dup (W8H1155-MSD1)					Source: 8H15095-04 Prepared: 08/20/18 Analyzed: 08/27/18						
TKN	1.17	0.050	0.10	mg/l	1.00	0.219	95	90-110	2	10	
Batch: W8H1241 - EPA 365.1											
Blank (W8H1241-BLK1)					Prepared: 08/21/18 Analyzed: 08/30/18						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8H1241-BS1)					Prepared: 08/21/18 Analyzed: 08/30/18						
Phosphorus as P, Total	0.0487	0.0014	0.010	mg/l	0.0500		97	90-110			
Phosphorus, Dissolved	0.0487	0.0014	0.010	mg/l	0.0500		97	90-110			
Matrix Spike (W8H1241-MS1)					Source: 8H15095-01 Prepared: 08/21/18 Analyzed: 08/30/18						
Phosphorus as P, Total	0.190	0.0014	0.010	mg/l	0.0500	0.144	92	90-110			
Matrix Spike Dup (W8H1241-MSD1)					Source: 8H15095-01 Prepared: 08/21/18 Analyzed: 08/30/18						
Phosphorus as P, Total	0.189	0.0014	0.010	mg/l	0.0500	0.144	90	90-110	0.5	20	
Batch: W8H1250 - EPA 353.2											
Blank (W8H1250-BLK1)					Prepared: 08/21/18 Analyzed: 08/28/18						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8H1250-BS1)					Prepared: 08/21/18 Analyzed: 08/28/18						
NO2+NO3 as N	0.993	0.083	0.20	mg/l	1.00		99	90-110			
Matrix Spike (W8H1250-MS1)					Source: 8G09017-01 Prepared: 08/21/18 Analyzed: 08/28/18						
NO2+NO3 as N	8.17	0.083	0.20	mg/l	2.00	6.12	102	90-110			
Matrix Spike (W8H1250-MS2)					Source: 8H09001-01 Prepared: 08/21/18 Analyzed: 08/28/18						
NO2+NO3 as N	2.00	0.083	0.20	mg/l	2.00	ND	100	90-110			
Matrix Spike Dup (W8H1250-MSD1)					Source: 8G09017-01 Prepared: 08/21/18 Analyzed: 08/28/18						
NO2+NO3 as N	8.16	0.083	0.20	mg/l	2.00	6.12	102	90-110	0.1	20	

8H15095

Page 6 of 8



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study August 2018 P6040555

Reported:
09/18/2018 15:44

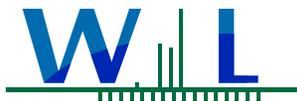
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W8H1250 - EPA 353.2 (Continued)											
Matrix Spike Dup (W8H1250-MSD2)		Source: 8H09001-01			Prepared: 08/21/18 Analyzed: 08/28/18						
NO2+NO3 as N	1.98	0.083	0.20	mg/l	2.00	ND	99	90-110	1	20	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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Reported:
09/18/2018 15:44

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



aquatic
bioassay &
consulting
laboratories, inc

September 10th, 2018

Ventura Country Watershed Protection District
Kelly Hahs
800 S Victoria Ave
Ventura, CA 93009

Dear Ms. Hahs:

Aquatic Bioassay & Consulting Laboratories is pleased to provide you with the enclosed chlorophyll-a data report for the Ventura River Algae TMDL. Chlorophyll- a analyses are conducted under guidelines prescribed in *Standard Methods for the Examination of Water and Wastewater* (APHA, 22nd Edition), Section SM 10200 H.

Please contact me with any questions or issues you may have regarding this report.

Sincerely,



Karin Wisenbaker
Senior Biologist
(805) 643-5621 ex.17

Client: Ventura Country Watershed Protection District
Project: Ventura River Algae TMDL



Chlorophyll a results from August 14th-15th, 2018

Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	16	ug/cm2
TMDL-R2	1	11	34	ug/cm2
TMDL-R3	1	11	9.3	ug/cm2
TMDL-R4	1	0	DRY	ug/cm2
TMDL-CL	1	0	DRY	ug/cm2
TMDL-SA	1	0	DRY	ug/cm2
TMDL-Est	1	NA	520	ug/L



Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)

2106085

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY MA01, Project P6040555)

SAMPLING EVENT: SEPTEMBER 2018

SAMPLING DATE: 9/5/18

SAMPLERS: C. GUZMAN, K. HAHS, D. JONES

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	FIELD FILTERED		NOTES
TMDL-Est	9/5/18 13:50	X	X	X			
TMDL-R1	↓ 11:50	X	X	X			
TMDL-R2	↓ 09:45	X	X	X			
TMDL-R3	↓ 07:40	X	X	X			
TMDL-R4	_____	X	X	X			DRY
TMDL-CL	_____	X	X	X			DRY
TMDL-SA	_____	X	X	X			DRY
TMDL-ED	_____	X	X	X			(Note which site)

Signature: [Signature]
 Print Name: KELLY HAHS
 Affiliation: VCWPD
 Date/Time Received:
 Date/Time Relinquished: 9/6/18 1400

Signature: [Signature]
 Print Name: ALLAN GOLDBERG
 Affiliation: WECKLABS
 Date/Time Received: 9/6/18 1400
 Date/Time Relinquished: 9/6/18 1800

Signature: [Signature] 2c
 Print Name: J. Lester Abad
 Affiliation: weck
 Date/Time Received: 9/6/18 18:00
 Date/Time Relinquished:

Signature:
 Print Name:
 Affiliation:
 Date/Time Received:
 Date/Time Relinquished:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered



Certificate of Analysis

FINAL REPORT

Work Orders: 8106085

Report Date: 10/22/2018

Project: TMDL Study September 2018 P6040555

Received Date: 9/6/2018

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYF1
8MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

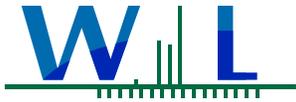
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 9/06/18 with the Chain-of-Custody document. The samples were received in good condition, at 2.0 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

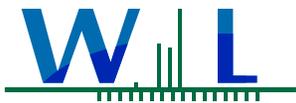
Project Number: TMDL Study September 2018 P6040555

Reported:
10/22/2018 07:35

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	C Guzman, K Haha, B Jones	8106085-01	Water	09/05/18 13:50	
TMDL-R1	C Guzman, K Haha, B Jones	8106085-02	Water	09/05/18 11:50	
TMDL-R2	C Guzman, K Haha, B Jones	8106085-03	Water	09/05/18 09:45	
TMDL-R3	C Guzman, K Haha, B Jones	8106085-04	Water	09/05/18 07:40	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study September 2018 P6040555

Reported:
10/22/2018 07:35

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est
8106085-01 (Water) Sampled: 09/05/18 13:50 by C Guzman, K Haha, B Jones

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]	Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt	
Dissolved Nitrogen	0.48		0.30	mg/l	1x1	09/17/18 14:50	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt	
Nitrogen, Total	0.75		0.20	mg/l	1x1	09/17/18 14:50	
Method: EPA 351.2	Batch ID: W810660	Instr: AA06		Prepared: 09/13/18 10:07		Analyst: ymt	
TKN	0.75	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 351.2	Batch ID: W810662	Instr: AA06		Prepared: 09/13/18 10:11		Analyst: ymt	
TKN, Soluble	0.48	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 353.2	Batch ID: W810776	Instr: Inst		Prepared: 09/14/18 10:47		Analyst: mnq	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	09/17/18 14:50	
Method: EPA 365.1	Batch ID: W811145	Instr: AA01		Prepared: 09/20/18 12:31		Analyst: mnq	
Phosphorus as P, Total	0.11	0.0014	0.010	mg/l	1x1	09/21/18 13:53	
Method: EPA 365.1	Batch ID: W811284	Instr: AA01		Prepared: 09/24/18 12:44		Analyst: mnq	
Phosphorus, Dissolved	0.025	0.0014	0.010	mg/l	1x1	09/27/18 15:30	

Sample: TMDL-R1
8106085-02 (Water) Sampled: 09/05/18 11:50 by C Guzman, K Haha, B Jones

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]	Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt	
Dissolved Nitrogen	0.94		0.30	mg/l	1x1	09/17/18 15:00	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt	
Nitrogen, Total	0.93		0.20	mg/l	1x1	09/17/18 15:00	
Method: EPA 351.2	Batch ID: W810660	Instr: AA06		Prepared: 09/13/18 10:07		Analyst: ymt	
TKN	0.52	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 351.2	Batch ID: W810662	Instr: AA06		Prepared: 09/13/18 10:11		Analyst: ymt	
TKN, Soluble	0.53	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 353.2	Batch ID: W810776	Instr: Inst		Prepared: 09/14/18 10:47		Analyst: mnq	
NO2+NO3 as N	0.41	0.083	0.20	mg/l	1x1	09/17/18 15:00	
Method: EPA 365.1	Batch ID: W811145	Instr: AA01		Prepared: 09/20/18 12:31		Analyst: mnq	
Phosphorus as P, Total	0.10	0.0014	0.010	mg/l	1x1	09/21/18 13:57	
Method: EPA 365.1	Batch ID: W811284	Instr: AA01		Prepared: 09/24/18 12:44		Analyst: mnq	
Phosphorus, Dissolved	0.090	0.0014	0.010	mg/l	1x1	09/27/18 15:31	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study September 2018 P6040555

Reported:
10/22/2018 07:35

Project Manager: Kelly Hahs

Sample Results

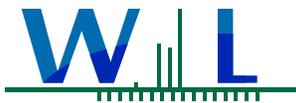
(Continued)

Sample: TMDL-R2
8106085-03 (Water) Sampled: 09/05/18 9:45 by C Guzman, K Haha, B Jones

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt
Dissolved Nitrogen	2.4		0.30	mg/l	1x1	09/17/18 15:01	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt
Nitrogen, Total	2.3		0.20	mg/l	1x1	09/17/18 15:01	
Method: EPA 351.2	Batch ID: W810660		Instr: AA06		Prepared: 09/13/18 10:07		Analyst: ymt
TKN	0.58	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 351.2	Batch ID: W810662		Instr: AA06		Prepared: 09/13/18 10:11		Analyst: ymt
TKN, Soluble	0.58	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 353.2	Batch ID: W810776		Instr: Inst		Prepared: 09/14/18 10:47		Analyst: mnq
NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	09/17/18 15:01	
Method: EPA 365.1	Batch ID: W811145		Instr: AA01		Prepared: 09/20/18 12:31		Analyst: mnq
Phosphorus as P, Total	0.19	0.0028	0.020	mg/l	1x2	09/21/18 14:00	
Method: EPA 365.1	Batch ID: W811284		Instr: AA01		Prepared: 09/24/18 12:44		Analyst: mnq
Phosphorus, Dissolved	0.17	0.0014	0.010	mg/l	1x1	09/27/18 15:33	

Sample: TMDL-R3
8106085-04 (Water) Sampled: 09/05/18 7:40 by C Guzman, K Haha, B Jones

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt
Dissolved Nitrogen	ND		0.30	mg/l	1x1	09/17/18 15:02	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 09/14/18 10:47		Analyst: ymt
Nitrogen, Total	0.28		0.20	mg/l	1x1	09/17/18 15:02	
Method: EPA 351.2	Batch ID: W810660		Instr: AA06		Prepared: 09/13/18 10:07		Analyst: ymt
TKN	0.17	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 351.2	Batch ID: W810662		Instr: AA06		Prepared: 09/13/18 10:11		Analyst: ymt
TKN, Soluble	0.10	0.050	0.10	mg/l	1x1	09/16/18 13:08	
Method: EPA 353.2	Batch ID: W810776		Instr: Inst		Prepared: 09/14/18 10:47		Analyst: mnq
NO2+NO3 as N	0.11	0.083	0.20	mg/l	1x1	09/17/18 15:02	J
Method: EPA 365.1	Batch ID: W811145		Instr: AA01		Prepared: 09/20/18 12:31		Analyst: mnq
Phosphorus as P, Total	0.0081	0.0014	0.010	mg/l	1x1	09/21/18 14:01	J
Method: EPA 365.1	Batch ID: W811284		Instr: AA01		Prepared: 09/24/18 12:44		Analyst: mnq
Phosphorus, Dissolved	0.010	0.0014	0.010	mg/l	1x1	09/27/18 15:34	



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study September 2018 P6040555

Reported:
10/22/2018 07:35

Project Manager: Kelly Hahs

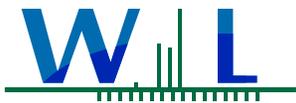
Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W810660 - EPA 351.2											
Blank (W810660-BLK1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN	ND	0.050	0.10	mg/l							
LCS (W810660-BS1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN	0.976	0.050	0.10	mg/l	1.00		98	90-110			
Matrix Spike (W810660-MS1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN	1.22	0.050	0.10	mg/l	1.00	0.169	105	90-110			
Matrix Spike Dup (W810660-MSD1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN	1.20	0.050	0.10	mg/l	1.00	0.169	103	90-110	2	10	
Batch: W810662 - EPA 351.2											
Blank (W810662-BLK1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W810662-BS1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN, Soluble	0.980	0.050	0.10	mg/l	1.00		98	90-110			
Matrix Spike (W810662-MS1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN, Soluble	1.16	0.050	0.10	mg/l	1.00	0.105	106	90-110			
Matrix Spike Dup (W810662-MSD1)					Prepared: 09/13/18 Analyzed: 09/16/18						
TKN, Soluble	1.14	0.050	0.10	mg/l	1.00	0.105	103	90-110	2	10	
Batch: W810776 - EPA 353.2											
Blank (W810776-BLK1)					Prepared: 09/14/18 Analyzed: 09/17/18						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W810776-BS1)					Prepared: 09/14/18 Analyzed: 09/17/18						
NO2+NO3 as N	0.972	0.083	0.20	mg/l	1.00		97	90-110			
Matrix Spike (W810776-MS1)					Prepared: 09/14/18 Analyzed: 09/17/18						
NO2+NO3 as N	23.9	0.33	0.80	mg/l	8.00	15.9	100	90-110			
Matrix Spike (W810776-MS2)					Prepared: 09/14/18 Analyzed: 09/17/18						
NO2+NO3 as N	5.29	0.083	0.20	mg/l	2.00	3.26	102	90-110			
Matrix Spike Dup (W810776-MSD1)					Prepared: 09/14/18 Analyzed: 09/17/18						
NO2+NO3 as N	23.9	0.33	0.80	mg/l	8.00	15.9	100	90-110	0	20	
Matrix Spike Dup (W810776-MSD2)					Prepared: 09/14/18 Analyzed: 09/17/18						
NO2+NO3 as N	5.27	0.083	0.20	mg/l	2.00	3.26	100	90-110	0.4	20	
Batch: W811145 - EPA 365.1											
Blank (W811145-BLK1)					Prepared: 09/20/18 Analyzed: 09/21/18						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
Blank (W811145-BLK2)					Prepared: 09/27/18 Analyzed: 09/28/18						
Phosphorus as P, Total	0.00155	0.0014	0.010	mg/l							J
LCS (W811145-BS1)					Prepared: 09/20/18 Analyzed: 09/21/18						
Phosphorus as P, Total	0.0480	0.0014	0.010	mg/l	0.0500		96	90-110			
LCS (W811145-BS2)					Prepared: 09/27/18 Analyzed: 09/28/18						
Phosphorus as P, Total	0.0501	0.0014	0.010	mg/l	0.0500		100	90-110			

8106085

Page 5 of 7



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study September 2018 P6040555

Reported:
10/22/2018 07:35

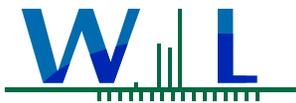
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W811145 - EPA 365.1 (Continued)											
LCS (W811145-BS2)											
Matrix Spike (W811145-MS1)						Source: 8I06085-01					
Phosphorus as P, Total						Prepared: 09/27/18 Analyzed: 09/28/18					
	0.112	0.0014	0.010	mg/l	0.0500	0.112	0	90-110			MS-01
Matrix Spike (W811145-MS2)						Source: 8I06085-01					
Phosphorus as P, Total						Prepared: 09/27/18 Analyzed: 09/28/18					
	0.143	0.0014	0.010	mg/l	0.0500	0.112	62	90-110			MS-03
Matrix Spike Dup (W811145-MSD1)						Source: 8I06085-01					
Phosphorus as P, Total						Prepared: 09/20/18 Analyzed: 09/21/18					
	0.103	0.0014	0.010	mg/l	0.0500	0.112	NR	90-110	8	20	MS-01
Matrix Spike Dup (W811145-MSD2)						Source: 8I06085-01					
Phosphorus as P, Total						Prepared: 09/27/18 Analyzed: 09/28/18					
	0.143	0.0014	0.010	mg/l	0.0500	0.112	62	90-110	0	20	MS-03
Batch: W811284 - EPA 365.1											
Blank (W811284-BLK1)						Source: 8I06085-01					
Phosphorus, Dissolved						Prepared: 09/24/18 Analyzed: 09/27/18					
	ND	0.0014	0.010	mg/l							
LCS (W811284-BS1)						Source: 8I06085-01					
Phosphorus, Dissolved						Prepared: 09/24/18 Analyzed: 09/27/18					
	0.0477	0.0014	0.010	mg/l	0.0500		95	90-110			
Matrix Spike (W811284-MS1)						Source: 8I06096-01					
Phosphorus, Dissolved						Prepared: 09/24/18 Analyzed: 09/27/18					
	0.140	0.0014	0.010	mg/l	0.0500	0.0893	101	90-110			
Matrix Spike Dup (W811284-MSD1)						Source: 8I06096-01					
Phosphorus, Dissolved						Prepared: 09/24/18 Analyzed: 09/27/18					
	0.140	0.0014	0.010	mg/l	0.0500	0.0893	101	90-110	0	20	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study September 2018 P6040555

Reported:
10/22/2018 07:35

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
MS-03	Multiple analyses indicate the percent recovery is out of acceptance limits due to a possible matrix effect.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



October 3rd, 2018

Ventura Country Watershed Protection District
Kelly Hahs
800 S Victoria Ave
Ventura, CA 93009

Dear Ms. Hahs:

Aquatic Bioassay & Consulting Laboratories is pleased to provide you with the enclosed chlorophyll-a data report for the Ventura River Algae TMDL. Chlorophyll- a analyses are conducted under guidelines prescribed in *Standard Methods for the Examination of Water and Wastewater* (APHA, 22nd Edition), Section SM 10200 H.

Please contact me with any questions or issues you may have regarding this report.

Sincerely,

Scott Johnson
Environmental Programs
(805) 643-5621 ex.11

Client: Ventura Country Watershed Protection District
Project: Ventura River Algae TMDL



Chlorophyll a results from September 5th, 2018

Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	8.7	ug/cm2
TMDL-R2	1	11	20	ug/cm2
TMDL-R3	1	11	10	ug/cm2
TMDL-R4	1	0	DRY	ug/cm2
TMDL-CL	1	0	DRY	ug/cm2
TMDL-SA	1	0	DRY	ug/cm2
TMDL-Est	1	NA	44	ug/L



**Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)**

Comprehensive Monitoring Program

8310111

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY19MA01, Project P6040555)

SAMPLING EVENT: OCTOBER 2018

SAMPLING DATE: 10/10/18

SAMPLERS: K. HAYS, K. FORTNER

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus			Dissolved Nitrogen, Dissolved Phosphorus**			Nitrate + Nitrite as Nitrogen			NOTES
TMDL-Est	10/10/18 11:25	X	X	X							** FIELD FILTERED
TMDL-R1	↓ 10:40	X	X	X							
TMDL-R2	↓ 09:30	X	X	X							
TMDL-R3	↓ 08:25	X	X	X							
TMDL-R4	—	X	X	X							DRY
TMDL-CL	—	X	X	X							DRY
TMDL-SA	—	X	X	X							DRY

Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <u>KELLY HAYS</u>	Print Name: <u>BRUCE MARKOVICIT</u>
Affiliation: <u>VCWPD</u>	Affiliation: <u>WECK LABS</u>
Received Date/Time: <u>—</u>	Received Date/Time: <u>10/10/18 / 14:45</u>
Relinquished Date/Time: <u>10/10/18 / 14:45</u>	Relinquished Date/Time: <u>10/10/18 / 16:00</u>

Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <u>ALLAN G</u>	Print Name: <u>JAIME GOMEZ</u>
Affiliation: <u>WECK</u>	Affiliation: <u>WECK LABS</u>
Received Date/Time: <u>10/10/18 1600</u>	Received Date/Time: <u>10/10/18 17:25</u>
Relinquished Date/Time: <u>10/10/18 17:25</u>	Relinquished Date/Time: <u>—</u>

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.): 2.6%



Certificate of Analysis

FINAL REPORT

Work Orders: 8J10111

Report Date: 12/18/2018

Project: TMDL Study October 2018 P6040555

Received Date: 10/10/2018

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
8MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

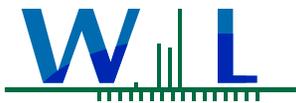
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 10/10/18 with the Chain-of-Custody document. The samples were received in good condition, at 2.6 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study October 2018 P6040555

Reported:
12/18/2018 16:20

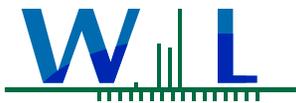
Project Manager: Kelly Hahs

Case Narrative

SUPP Report generated to correct dilution factor calculation for sample -03. BG 12/18/18

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs, K.Fortner	8J10111-01	Water	10/10/18 11:25	
TMDL-R1	K. Hahs, K.Fortner	8J10111-02	Water	10/10/18 10:40	
TMDL-R2	K. Hahs, K.Fortner	8J10111-03	Water	10/10/18 09:30	
TMDL-R3	K. Hahs, K.Fortner	8J10111-04	Water	10/10/18 08:25	



WECK LABORATORIES, INC.

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FINAL REPORT

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Reported:
12/18/2018 16:20

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 10/10/18 11:25 by K. Hahs, K.Fortner

8J10111-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 10/29/18 10:17		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.43		0.30	mg/l	1x1	11/05/18 14:29	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 10/29/18 10:17		Analyst: ymt	
Nitrogen, Total	0.78		0.20	mg/l	1x1	11/05/18 14:29	
Method: EPA 351.2	Batch ID: W8J1489	Instr: AA06		Prepared: 10/23/18 15:25		Analyst: ymt	
TKN	0.78	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 351.2	Batch ID: W8J1490	Instr: AA06		Prepared: 10/23/18 15:26		Analyst: ymt	
TKN, Soluble	0.43	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 353.2	Batch ID: W8J1759	Instr: AA01		Prepared: 10/29/18 10:17		Analyst: mnq	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	11/05/18 14:29	
Method: EPA 365.1	Batch ID: W8J0978	Instr: Inst		Prepared: 10/15/18 15:59		Analyst: het	
Phosphorus as P, Total	0.055	0.0014	0.010	mg/l	1x1	10/31/18 15:34	
Method: EPA 365.1	Batch ID: W8J1211	Instr: Inst		Prepared: 10/18/18 11:18		Analyst: het	
Phosphorus, Dissolved	0.026	0.0014	0.010	mg/l	1x1	10/31/18 17:48	

Sample: TMDL-R1

Sampled: 10/10/18 10:40 by K. Hahs, K.Fortner

8J10111-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 10/24/18 14:03		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	1.4		0.30	mg/l	1x1	10/29/18 20:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 10/24/18 14:03		Analyst: ymt	
Nitrogen, Total	1.5		0.20	mg/l	1x1	10/29/18 20:01	
Method: EPA 351.2	Batch ID: W8J1489	Instr: AA06		Prepared: 10/23/18 15:25		Analyst: ymt	
TKN	0.57	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 351.2	Batch ID: W8J1490	Instr: AA06		Prepared: 10/23/18 15:26		Analyst: ymt	
TKN, Soluble	0.47	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 353.2	Batch ID: W8J1570	Instr: AA01		Prepared: 10/24/18 14:03		Analyst: mnq	
NO2+NO3 as N	0.89	0.083	0.20	mg/l	1x1	10/29/18 20:01	
Method: EPA 365.1	Batch ID: W8J0978	Instr: Inst		Prepared: 10/15/18 15:59		Analyst: het	
Phosphorus as P, Total	0.13	0.0014	0.010	mg/l	1x1	10/31/18 15:34	
Method: EPA 365.1	Batch ID: W8J1211	Instr: Inst		Prepared: 10/18/18 11:18		Analyst: het	
Phosphorus, Dissolved	0.12	0.0014	0.010	mg/l	1x1	10/31/18 17:48	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
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Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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Reported:
12/18/2018 16:20

Project Manager: Kelly Hahs

Sample Results

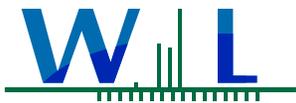
(Continued)

Sample: TMDL-R2
8J10111-03 (Water) Sampled: 10/10/18 9:30 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 10/24/18 14:03		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	4		0.30	mg/l	1x1	10/29/18 20:02	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 10/24/18 14:03		Analyst: ymt
Nitrogen, Total	4.1		0.20	mg/l	1x1	10/29/18 20:02	
Method: EPA 351.2	Batch ID: W8J1489		Instr: AA06		Prepared: 10/23/18 15:25		Analyst: ymt
TKN	0.85	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 351.2	Batch ID: W8J1490		Instr: AA06		Prepared: 10/23/18 15:26		Analyst: ymt
TKN, Soluble	0.66	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 353.2	Batch ID: W8J1570		Instr: AA01		Prepared: 10/24/18 14:03		Analyst: mnq
NO2+NO3 as N	3.3	0.083	0.20	mg/l	1x1	10/29/18 20:02	
Method: EPA 365.1	Batch ID: W8J0978		Instr: Inst		Prepared: 10/15/18 15:59		Analyst: het
Phosphorus as P, Total	1.0	0.014	0.10	mg/l	10x1	10/31/18 15:34	M-06
Method: EPA 365.1	Batch ID: W8J1211		Instr: Inst		Prepared: 10/18/18 11:18		Analyst: het
Phosphorus, Dissolved	0.57	0.014	0.10	mg/l	1x10	10/31/18 17:48	

Sample: TMDL-R3
8J10111-04 (Water) Sampled: 10/10/18 8:25 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 10/24/18 14:03		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	ND		0.30	mg/l	1x1	10/29/18 20:03	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 10/24/18 14:03		Analyst: ymt
Nitrogen, Total	ND		0.20	mg/l	1x1	10/29/18 20:03	
Method: EPA 351.2	Batch ID: W8J1489		Instr: AA06		Prepared: 10/23/18 15:25		Analyst: ymt
TKN	0.063	0.050	0.10	mg/l	1x1	10/29/18 14:56	J
Method: EPA 351.2	Batch ID: W8J1490		Instr: AA06		Prepared: 10/23/18 15:26		Analyst: ymt
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	10/29/18 14:56	
Method: EPA 353.2	Batch ID: W8J1570		Instr: AA01		Prepared: 10/24/18 14:03		Analyst: mnq
NO2+NO3 as N	0.12	0.083	0.20	mg/l	1x1	10/29/18 20:03	J
Method: EPA 365.1	Batch ID: W8J0978		Instr: Inst		Prepared: 10/15/18 15:59		Analyst: het
Phosphorus as P, Total	0.021	0.0014	0.010	mg/l	1x1	10/31/18 15:34	
Method: EPA 365.1	Batch ID: W8J1211		Instr: Inst		Prepared: 10/18/18 11:18		Analyst: het
Phosphorus, Dissolved	0.018	0.0014	0.010	mg/l	1x1	10/31/18 17:48	



WECK LABORATORIES, INC.

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Certificate of Analysis

FINAL REPORT

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Reported:

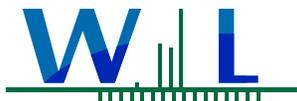
12/18/2018 16:20

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8J0978 - EPA 365.1											
Blank (W8J0978-BLK1) Prepared: 10/15/18 Analyzed: 10/31/18											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
Blank (W8J0978-BLK2) Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus as P, Total	0.00650	0.0014	0.010	mg/l							J
LCS (W8J0978-BS1) Prepared: 10/15/18 Analyzed: 10/31/18											
Phosphorus as P, Total	0.0495	0.0014	0.010	mg/l	0.0500		99	90-110			
LCS (W8J0978-BS2) Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus as P, Total	0.0513	0.0014	0.010	mg/l	0.0500		103	90-110			
Duplicate (W8J0978-DUP1) Source: 8J13021-03 Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l		ND				20	
Matrix Spike (W8J0978-MS1) Source: 8J13021-03 Prepared: 10/15/18 Analyzed: 10/31/18											
Phosphorus as P, Total	0.0499	0.0014	0.010	mg/l	0.0500	ND	100	90-110			
Matrix Spike Dup (W8J0978-MSD1) Source: 8J13021-03 Prepared: 10/15/18 Analyzed: 10/31/18											
Phosphorus as P, Total	0.0492	0.0014	0.010	mg/l	0.0500	ND	98	90-110	1	20	
Batch: W8J1211 - EPA 365.1											
Blank (W8J1211-BLK1) Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8J1211-BS1) Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus, Dissolved	0.0522	0.0014	0.010	mg/l	0.0500		104	90-110			
Duplicate (W8J1211-DUP1) Source: 8J13019-01 Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus, Dissolved	0.274	0.0056	0.040	mg/l		0.274			0.1	20	
Matrix Spike (W8J1211-MS1) Source: 8J10111-01 Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus, Dissolved	0.0792	0.0014	0.010	mg/l	0.0500	0.0263	106	90-110			
Matrix Spike Dup (W8J1211-MSD1) Source: 8J10111-01 Prepared: 10/18/18 Analyzed: 10/31/18											
Phosphorus, Dissolved	0.0782	0.0014	0.010	mg/l	0.0500	0.0263	104	90-110	1	20	
Batch: W8J1489 - EPA 351.2											
Blank (W8J1489-BLK1) Prepared: 10/23/18 Analyzed: 10/29/18											
TKN	ND	0.050	0.10	mg/l							
LCS (W8J1489-BS1) Prepared: 10/23/18 Analyzed: 10/29/18											
TKN	0.927	0.050	0.10	mg/l	1.00		93	90-110			
Matrix Spike (W8J1489-MS1) Source: 8J10111-04 Prepared: 10/23/18 Analyzed: 10/29/18											
TKN	1.02	0.050	0.10	mg/l	1.00	0.0634	96	90-110			
Matrix Spike Dup (W8J1489-MSD1) Source: 8J10111-04 Prepared: 10/23/18 Analyzed: 10/29/18											
TKN	1.08	0.050	0.10	mg/l	1.00	0.0634	102	90-110	5	10	
Batch: W8J1490 - EPA 351.2											
Blank (W8J1490-BLK1) Prepared: 10/23/18 Analyzed: 10/29/18											
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W8J1490-BS1) Prepared: 10/23/18 Analyzed: 10/29/18											
TKN, Soluble	0.913	0.050	0.10	mg/l	1.00		91	90-110			



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FINAL REPORT

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12/18/2018 16:20

Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8J1490 - EPA 351.2 (Continued)											
LCS (W8J1490-BS1)											
						Prepared: 10/23/18 Analyzed: 10/29/18					
Matrix Spike (W8J1490-MS1)											
						Source: 8J10111-04					
						Prepared: 10/23/18 Analyzed: 10/29/18					
TKN, Soluble	1.04	0.050	0.10	mg/l	1.00	ND	104	90-110			
Matrix Spike Dup (W8J1490-MSD1)											
						Source: 8J10111-04					
						Prepared: 10/23/18 Analyzed: 10/29/18					
TKN, Soluble	0.988	0.050	0.10	mg/l	1.00	ND	99	90-110	5	10	
Batch: W8J1570 - EPA 353.2											
Blank (W8J1570-BLK1)											
						Prepared: 10/24/18 Analyzed: 10/29/18					
NO2+NO3 as N	ND	0.050	0.050	mg/l							
LCS (W8J1570-BS1)											
						Prepared: 10/24/18 Analyzed: 10/29/18					
NO2+NO3 as N	0.993	0.050	0.050	mg/l	1.00		99	90-110			
Matrix Spike (W8J1570-MS1)											
						Source: 8J09008-15					
						Prepared: 10/24/18 Analyzed: 10/29/18					
NO2+NO3 as N	4.07	0.050	0.050	mg/l	2.00	1.93	107	90-110			
Matrix Spike (W8J1570-MS2)											
						Source: 8J10012-22					
						Prepared: 10/24/18 Analyzed: 10/29/18					
NO2+NO3 as N	6.28	0.050	0.050	mg/l	2.00	4.35	97	90-110			
Matrix Spike Dup (W8J1570-MSD1)											
						Source: 8J09008-15					
						Prepared: 10/24/18 Analyzed: 10/29/18					
NO2+NO3 as N	4.04	0.050	0.050	mg/l	2.00	1.93	106	90-110	0.7	20	
Matrix Spike Dup (W8J1570-MSD2)											
						Source: 8J10012-22					
						Prepared: 10/24/18 Analyzed: 10/29/18					
NO2+NO3 as N	6.29	0.050	0.050	mg/l	2.00	4.35	97	90-110	0.2	20	
Batch: W8J1759 - EPA 353.2											
Blank (W8J1759-BLK1)											
						Prepared: 10/29/18 Analyzed: 11/05/18					
NO2+NO3 as N	ND	0.050	0.050	mg/l							
LCS (W8J1759-BS1)											
						Prepared: 10/29/18 Analyzed: 11/05/18					
NO2+NO3 as N	0.924	0.050	0.050	mg/l	1.00		92	90-110			
Matrix Spike (W8J1759-MS1)											
						Source: 8J16016-04					
						Prepared: 10/29/18 Analyzed: 11/05/18					
NO2+NO3 as N	3.22	0.050	0.050	mg/l	2.00	1.23	100	90-110			
Matrix Spike (W8J1759-MS2)											
						Source: 8J16016-05					
						Prepared: 10/29/18 Analyzed: 11/05/18					
NO2+NO3 as N	3.82	0.050	0.050	mg/l	2.00	1.80	101	90-110			
Matrix Spike Dup (W8J1759-MSD1)											
						Source: 8J16016-04					
						Prepared: 10/29/18 Analyzed: 11/05/18					
NO2+NO3 as N	3.21	0.050	0.050	mg/l	2.00	1.23	99	90-110	0.3	20	
Matrix Spike Dup (W8J1759-MSD2)											
						Source: 8J16016-05					
						Prepared: 10/29/18 Analyzed: 11/05/18					
NO2+NO3 as N	3.80	0.050	0.050	mg/l	2.00	1.80	100	90-110	0.5	20	



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Certificate of Analysis

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12/18/2018 16:20

Project Manager: Kelly Hahs

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL (VR Algae TMDL)

OK 20056

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY19MA01, Project P6040555)

SAMPLING EVENT: NOVEMBER 2018

SAMPLING DATE: 11/19/2018

SAMPLERS: Lara M. Kellie F.

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Nutrients			Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen			NOTES
TMDL-Est	11/19/18 1500	X	X	X						** FIELD FILTERED
TMDL-R1	11/19/18 1345	X	X	X						
TMDL-R2	11/19/18 1200	X	X	X						
TMDL-R3	11/19/18 1100	X	X	X						
TMDL-R4		X	X	X						
TMDL-CL		X	X	X						
TMDL-SA		X	X	X						

Signature: <u>Lara Meeker</u>	Signature: <u>Steven S. Greer</u>
Print Name: <u>Lara Meeker</u>	Print Name: <u>Steven S. Greer</u>
Affiliation: <u>VC WPD</u>	Affiliation: <u>VCWPD</u>
Received Date/Time: <u>11/19/18</u>	Received Date/Time: <u>11/20/2018 0600</u>
Relinquished Date/Time: <u>11/19/18 18:40 (in fridge)</u>	Relinquished Date/Time: <u>11/20/2018</u>

Signature: <u>Edusio Dange</u>	Signature:
Print Name: <u>Edusio Dange</u>	Print Name:
Affiliation: <u>weck Lab.</u>	Affiliation:
Received Date/Time: <u>11-20-18</u>	Received Date/Time: <u>11/20/18 (received)</u>
Relinquished Date/Time: <u>10:08</u>	Relinquished Date/Time: <u>11/20/18 11:49</u>

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):



Certificate of Analysis

FINAL REPORT

Work Orders: 8K20056

Report Date: 1/11/2019

Project: TMDL Study November 2018 P6040555

Received Date: 11/20/2018

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
8MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

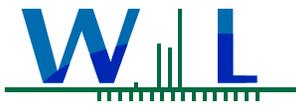
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 11/20/18 with the Chain-of-Custody document. The samples were received in good condition, at 3.6 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

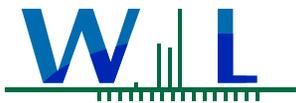
Project Number: TMDL Study November 2018 P6040555

Reported:
01/11/2019 14:53

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	Lara M/ Kellie F	8K20056-01	Water	11/19/18 15:00	
TMDL-R1	Lara M/ Kellie F	8K20056-02	Water	11/19/18 13:45	
TMDL-R2	Lara M/ Kellie F	8K20056-03	Water	11/19/18 12:00	
TMDL-R3	Lara M/ Kellie F	8K20056-04	Water	11/19/18 11:00	



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Project Number: TMDL Study November 2018 P6040555

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01/11/2019 14:53

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 11/19/18 15:00 by Lara M/ Kellie F

8K20056-01 (Water)

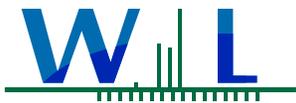
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	0.44		0.30	mg/l	1x1	12/12/18 17:52	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
Nitrogen, Total	0.68		0.20	mg/l	1x1	12/12/18 17:52	
Method: EPA 351.2	Batch ID: W8K1075	Instr: AA06		Prepared: 11/20/18 14:04		Analyst: mcs	
TKN	0.68	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 351.2	Batch ID: W8K1076	Instr: AA06		Prepared: 11/20/18 14:07		Analyst: mcs	
TKN, Soluble	0.44	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 353.2	Batch ID: W8L0442	Instr: AA01		Prepared: 12/06/18 22:38		Analyst: ymt	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	12/12/18 17:52	
Method: EPA 365.1	Batch ID: W8K1512	Instr: AA01		Prepared: 11/29/18 15:18		Analyst: YMT	
Phosphorus as P, Total	0.075	0.0014	0.010	mg/l	1x1	12/18/18 17:19	O-04
Method: EPA 365.1	Batch ID: W8K1598	Instr: AA01		Prepared: 11/30/18 14:30		Analyst: YMT	
Phosphorus, Dissolved	0.026	0.0014	0.010	mg/l	1x1	12/18/18 18:08	O-04

Sample: TMDL-R1

Sampled: 11/19/18 13:45 by Lara M/ Kellie F

8K20056-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1		0.30	mg/l	1x1	12/12/18 17:56	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
Nitrogen, Total	1.1		0.20	mg/l	1x1	12/12/18 17:56	
Method: EPA 351.2	Batch ID: W8K1075	Instr: AA06		Prepared: 11/20/18 14:04		Analyst: mcs	
TKN	0.37	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 351.2	Batch ID: W8K1076	Instr: AA06		Prepared: 11/20/18 14:07		Analyst: mcs	
TKN, Soluble	0.27	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 353.2	Batch ID: W8L0442	Instr: AA01		Prepared: 12/06/18 22:38		Analyst: ymt	
NO2+NO3 as N	0.74	0.083	0.20	mg/l	1x1	12/12/18 17:56	
Method: EPA 365.1	Batch ID: W8K1512	Instr: AA01		Prepared: 11/29/18 15:18		Analyst: YMT	
Phosphorus as P, Total	0.18	0.0014	0.010	mg/l	1x1	12/18/18 17:22	O-04
Method: EPA 365.1	Batch ID: W8K1598	Instr: AA01		Prepared: 11/30/18 14:30		Analyst: YMT	
Phosphorus, Dissolved	0.17	0.0028	0.020	mg/l	1x2	12/18/18 18:54	O-04



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01/11/2019 14:53

Project Manager: Kelly Hahs

Sample Results

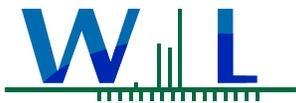
(Continued)

Sample: TMDL-R2
8K20056-03 (Water) Sampled: 11/19/18 12:00 by Lara M/ Kellie F

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.5		0.30	mg/l	1x1	12/12/18 17:58	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
Nitrogen, Total	1.5		0.20	mg/l	1x1	12/12/18 17:58	
Method: EPA 351.2	Batch ID: W8K1075	Instr: AA06		Prepared: 11/20/18 14:04		Analyst: mcs	
TKN	0.39	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 351.2	Batch ID: W8K1076	Instr: AA06		Prepared: 11/20/18 14:07		Analyst: mcs	
TKN, Soluble	0.37	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 353.2	Batch ID: W8L0442	Instr: AA01		Prepared: 12/06/18 22:38		Analyst: ymt	
NO2+NO3 as N	1.1	0.083	0.20	mg/l	1x1	12/12/18 17:58	
Method: EPA 365.1	Batch ID: W8K1512	Instr: AA01		Prepared: 11/29/18 15:18		Analyst: YMT	
Phosphorus as P, Total	0.31	0.0070	0.050	mg/l	1x5	12/18/18 17:52	O-04
Method: EPA 365.1	Batch ID: W8K1598	Instr: AA01		Prepared: 11/30/18 14:30		Analyst: YMT	
Phosphorus, Dissolved	0.28	0.0056	0.040	mg/l	1x4	12/18/18 18:55	O-04

Sample: TMDL-R3
8K20056-04 (Water) Sampled: 11/19/18 11:00 by Lara M/ Kellie F

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	ND		0.30	mg/l	1x1	12/12/18 17:59	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 12/06/18 22:38		Analyst: mcs	
Nitrogen, Total	ND		0.20	mg/l	1x1	12/12/18 17:59	
Method: EPA 351.2	Batch ID: W8K1075	Instr: AA06		Prepared: 11/20/18 14:04		Analyst: mcs	
TKN	0.083	0.050	0.10	mg/l	1x1	11/23/18 11:46	J
Method: EPA 351.2	Batch ID: W8K1076	Instr: AA06		Prepared: 11/20/18 14:07		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	11/23/18 11:46	
Method: EPA 353.2	Batch ID: W8L0442	Instr: AA01		Prepared: 12/06/18 22:38		Analyst: ymt	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	12/12/18 17:59	
Method: EPA 365.1	Batch ID: W8K1512	Instr: AA01		Prepared: 11/29/18 15:18		Analyst: YMT	
Phosphorus as P, Total	0.014	0.0014	0.010	mg/l	1x1	12/18/18 17:24	O-04
Method: EPA 365.1	Batch ID: W8K1598	Instr: AA01		Prepared: 11/30/18 14:30		Analyst: YMT	
Phosphorus, Dissolved	0.010	0.0014	0.010	mg/l	1x1	12/18/18 18:14	O-04



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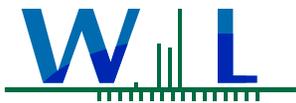
Reported:
01/11/2019 14:53

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8K1075 - EPA 351.2											
Blank (W8K1075-BLK1)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 11/20/18 Analyzed: 11/23/18					
LCS (W8K1075-BS1)											
TKN	0.938	0.050	0.10	mg/l	1.00		94	90-110			
						Prepared: 11/20/18 Analyzed: 11/23/18					
Matrix Spike (W8K1075-MS1)											
TKN	1.03	0.050	0.10	mg/l	1.00	0.0832	95	90-110			
						Source: 8K20056-04					
						Prepared: 11/20/18 Analyzed: 11/23/18					
Matrix Spike Dup (W8K1075-MSD1)											
TKN	1.03	0.050	0.10	mg/l	1.00	0.0832	95	90-110	0.2	10	
						Source: 8K20056-04					
						Prepared: 11/20/18 Analyzed: 11/23/18					
Batch: W8K1076 - EPA 351.2											
Blank (W8K1076-BLK1)											
TKN, Soluble	ND	0.050	0.10	mg/l							
						Prepared: 11/20/18 Analyzed: 11/23/18					
LCS (W8K1076-BS1)											
TKN, Soluble	0.930	0.050	0.10	mg/l	1.00		93	90-110			
						Prepared: 11/20/18 Analyzed: 11/23/18					
Matrix Spike (W8K1076-MS1)											
TKN, Soluble	0.992	0.050	0.10	mg/l	1.00	ND	99	90-110			
						Source: 8K20056-04					
						Prepared: 11/20/18 Analyzed: 11/23/18					
Matrix Spike Dup (W8K1076-MSD1)											
TKN, Soluble	1.00	0.050	0.10	mg/l	1.00	ND	100	90-110	0.8	10	
						Source: 8K20056-04					
						Prepared: 11/20/18 Analyzed: 11/23/18					
Batch: W8K1512 - EPA 365.1											
Blank (W8K1512-BLK1)											
Phosphorus as P, Total	0.00149	0.0014	0.010	mg/l							J
						Prepared: 11/29/18 Analyzed: 12/18/18					
LCS (W8K1512-BS1)											
Phosphorus as P, Total	0.0459	0.0014	0.010	mg/l	0.0500		92	90-110			
						Prepared: 11/29/18 Analyzed: 12/18/18					
Matrix Spike (W8K1512-MS1)											
Phosphorus as P, Total	0.0810	0.0014	0.010	mg/l	0.0500	0.0309	100	90-110			
						Source: 8K27014-04					
						Prepared: 11/29/18 Analyzed: 12/18/18					
Matrix Spike (W8K1512-MS2)											
Phosphorus as P, Total	0.0661	0.0014	0.010	mg/l	0.0500	0.0141	104	90-110			
						Source: 8K27014-05					
						Prepared: 11/29/18 Analyzed: 12/18/18					
Matrix Spike Dup (W8K1512-MSD1)											
Phosphorus as P, Total	0.0814	0.0014	0.010	mg/l	0.0500	0.0309	101	90-110	0.5	20	
						Source: 8K27014-04					
						Prepared: 11/29/18 Analyzed: 12/18/18					
Matrix Spike Dup (W8K1512-MSD2)											
Phosphorus as P, Total	0.0657	0.0014	0.010	mg/l	0.0500	0.0141	103	90-110	0.6	20	
						Source: 8K27014-05					
						Prepared: 11/29/18 Analyzed: 12/18/18					
Batch: W8K1598 - EPA 365.1											
Blank (W8K1598-BLK1)											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
						Prepared: 11/30/18 Analyzed: 12/18/18					
LCS (W8K1598-BS1)											
Phosphorus, Dissolved	0.0481	0.0014	0.010	mg/l	0.0500		96	90-110			
						Prepared: 11/30/18 Analyzed: 12/18/18					
Matrix Spike (W8K1598-MS1)											
Phosphorus, Dissolved	0.0713	0.0014	0.010	mg/l	0.0500	0.0260	91	90-110			
						Source: 8K20056-01					
						Prepared: 11/30/18 Analyzed: 12/18/18					
Matrix Spike (W8K1598-MS2)											
Phosphorus, Dissolved	0.0611	0.0014	0.010	mg/l	0.0500	0.0102	102	90-110			
						Source: 8K20056-04					
						Prepared: 11/30/18 Analyzed: 12/18/18					



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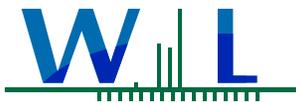
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8K1598 - EPA 365.1 (Continued)											
Matrix Spike (W8K1598-MS2)	Source: 8K20056-04			Prepared: 11/30/18 Analyzed: 12/18/18							
Matrix Spike Dup (W8K1598-MSD1)	Source: 8K20056-01			Prepared: 11/30/18 Analyzed: 12/18/18							
Phosphorus, Dissolved	0.0299	0.0014	0.010	mg/l	0.0500	0.0260	8	90-110	82	20	A-01
Matrix Spike Dup (W8K1598-MSD2)	Source: 8K20056-04			Prepared: 11/30/18 Analyzed: 12/18/18							
Phosphorus, Dissolved	0.0601	0.0014	0.010	mg/l	0.0500	0.0102	100	90-110	2	20	
Batch: W8L0442 - EPA 353.2											
Blank (W8L0442-BLK1)				Prepared: 12/06/18 Analyzed: 12/12/18							
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8L0442-BS1)				Prepared: 12/06/18 Analyzed: 12/12/18							
NO2+NO3 as N	0.936	0.083	0.20	mg/l	1.00		94	90-110			
Matrix Spike (W8L0442-MS1)	Source: 8K14059-01RE1			Prepared: 12/06/18 Analyzed: 12/12/18							
NO2+NO3 as N	3.08	0.083	0.20	mg/l	2.00	1.18	95	90-110			
Matrix Spike (W8L0442-MS2)	Source: 8K14059-02RE1			Prepared: 12/06/18 Analyzed: 12/12/18							
NO2+NO3 as N	3.07	0.083	0.20	mg/l	2.00	1.13	97	90-110			
Matrix Spike Dup (W8L0442-MSD1)	Source: 8K14059-01RE1			Prepared: 12/06/18 Analyzed: 12/12/18							
NO2+NO3 as N	3.06	0.083	0.20	mg/l	2.00	1.18	94	90-110	0.7	20	
Matrix Spike Dup (W8L0442-MSD2)	Source: 8K14059-02RE1			Prepared: 12/06/18 Analyzed: 12/12/18							
NO2+NO3 as N	3.08	0.083	0.20	mg/l	2.00	1.13	98	90-110	0.3	20	



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Reported:
01/11/2019 14:53

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
A-01	Analyst did not spike into the sample.
J	Estimated conc. detected <MRL and >MDL.
O-04	This analysis was performed outside the EPA recommended holding time.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



Certificate of Analysis

FINAL REPORT

Work Orders: 8L11033

Project: TMDL Study December 2018 P6040555

Attn: Kelly Hahs

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Report Date: 1/24/2019

Received Date: 12/11/2018

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYF1
8MA01

Billing Code:

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

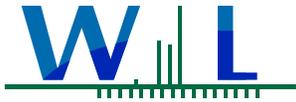
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 12/11/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.6 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





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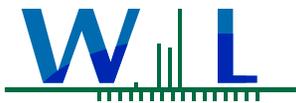
Project Number: TMDL Study December 2018 P6040555

Reported:
01/24/2019 15:10

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs/ K, Fortner	8L11033-01	Water	12/10/18 12:00	
TMDL-R1	K. Hahs/ K, Fortner	8L11033-02	Water	12/10/18 11:05	
TMDL-R2	K. Hahs/ K, Fortner	8L11033-03	Water	12/10/18 10:00	
TMDL-R3	K. Hahs/ K, Fortner	8L11033-04	Water	12/10/18 09:00	



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01/24/2019 15:10

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 12/10/18 12:00 by K. Hahs/ K, Fortner

8L11033-01 (Water)

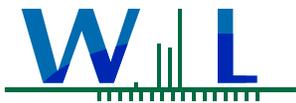
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:28		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	0.78		0.20	mg/l	1x1	01/05/19 11:44	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:24		Analyst: mcs
Nitrogen, Total	1		0.20	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0027		Instr: AA06		Prepared: 01/02/19 11:24		Analyst: mcs
TKN	0.59	0.050	0.10	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0028		Instr: AA06		Prepared: 01/02/19 11:28		Analyst: mcs
TKN, Soluble	0.34	0.050	0.10	mg/l	1x1	01/05/19 11:44	
Method: EPA 353.2	Batch ID: W8L1484		Instr: AA01		Prepared: 12/26/18 10:34		Analyst: het
NO2+NO3 as N	0.44	0.083	0.20	mg/l	1x1	12/31/18 14:18	
Method: EPA 365.1	Batch ID: W8L1489		Instr: AA01		Prepared: 12/26/18 11:09		Analyst: HET
Phosphorus, Dissolved	0.092	0.0014	0.010	mg/l	1x1	12/28/18 11:18	
Method: EPA 365.1	Batch ID: W8L1653		Instr: AA01		Prepared: 12/28/18 13:01		Analyst: HET
Phosphorus as P, Total	0.14	0.0014	0.010	mg/l	1x1	01/02/19 14:28	

Sample: TMDL-R1

Sampled: 12/10/18 11:05 by K. Hahs/ K, Fortner

8L11033-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:28		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	1.6		0.20	mg/l	1x1	01/05/19 11:44	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:24		Analyst: mcs
Nitrogen, Total	1.8		0.20	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0027		Instr: AA06		Prepared: 01/02/19 11:24		Analyst: mcs
TKN	0.64	0.050	0.10	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0028		Instr: AA06		Prepared: 01/02/19 11:28		Analyst: mcs
TKN, Soluble	0.44	0.050	0.10	mg/l	1x1	01/05/19 11:44	
Method: EPA 353.2	Batch ID: W8L1484		Instr: AA01		Prepared: 12/26/18 10:34		Analyst: het
NO2+NO3 as N	1.2	0.083	0.20	mg/l	1x1	12/31/18 14:20	
Method: EPA 365.1	Batch ID: W8L1489		Instr: AA01		Prepared: 12/26/18 11:09		Analyst: HET
Phosphorus, Dissolved	0.17	0.0014	0.010	mg/l	1x1	12/28/18 11:20	
Method: EPA 365.1	Batch ID: W8L1653		Instr: AA01		Prepared: 12/28/18 13:01		Analyst: HET
Phosphorus as P, Total	0.16	0.0028	0.020	mg/l	2x1	01/02/19 14:57	M-06



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study December 2018 P6040555

Reported:
01/24/2019 15:10

Project Manager: Kelly Hahs

Sample Results

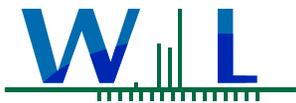
(Continued)

Sample: TMDL-R2
8L11033-03 (Water) Sampled: 12/10/18 10:00 by K. Hahs/ K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:28		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	1.1		0.20	mg/l	1x1	01/05/19 11:44	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:24		Analyst: mcs
Nitrogen, Total	1.1		0.20	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0027		Instr: AA06		Prepared: 01/02/19 11:24		Analyst: mcs
TKN	0.29	0.050	0.10	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0028		Instr: AA06		Prepared: 01/02/19 11:28		Analyst: mcs
TKN, Soluble	0.31	0.050	0.10	mg/l	1x1	01/05/19 11:44	
Method: EPA 353.2	Batch ID: W8L1484		Instr: AA01		Prepared: 12/26/18 10:34		Analyst: het
NO2+NO3 as N	0.77	0.083	0.20	mg/l	1x1	12/31/18 13:57	
Method: EPA 365.1	Batch ID: W8L1489		Instr: AA01		Prepared: 12/26/18 11:09		Analyst: HET
Phosphorus, Dissolved	0.14	0.0014	0.010	mg/l	1x1	12/28/18 11:21	
Method: EPA 365.1	Batch ID: W8L1653		Instr: AA01		Prepared: 12/28/18 13:01		Analyst: HET
Phosphorus as P, Total	0.14	0.0014	0.010	mg/l	1x1	01/02/19 14:59	

Sample: TMDL-R3
8L11033-04 (Water) Sampled: 12/10/18 9:00 by K. Hahs/ K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:28		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	0.27		0.20	mg/l	1x1	01/05/19 11:44	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/02/19 11:24		Analyst: mcs
Nitrogen, Total	0.27		0.20	mg/l	1x1	01/05/19 11:44	
Method: EPA 351.2	Batch ID: W9A0027		Instr: AA06		Prepared: 01/02/19 11:24		Analyst: mcs
TKN	0.071	0.050	0.10	mg/l	1x1	01/05/19 11:44	J
Method: EPA 351.2	Batch ID: W9A0028		Instr: AA06		Prepared: 01/02/19 11:28		Analyst: mcs
TKN, Soluble	0.073	0.050	0.10	mg/l	1x1	01/05/19 11:44	J
Method: EPA 353.2	Batch ID: W8L1484		Instr: AA01		Prepared: 12/26/18 10:34		Analyst: het
NO2+NO3 as N	0.20	0.083	0.20	mg/l	1x1	12/31/18 14:21	
Method: EPA 365.1	Batch ID: W8L1489		Instr: AA01		Prepared: 12/26/18 11:09		Analyst: HET
Phosphorus, Dissolved	0.026	0.0014	0.010	mg/l	1x1	12/28/18 11:07	
Method: EPA 365.1	Batch ID: W8L1653		Instr: AA01		Prepared: 12/28/18 13:01		Analyst: HET
Phosphorus as P, Total	0.038	0.0014	0.010	mg/l	1x1	01/02/19 14:37	



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study December 2018 P6040555

Reported:
01/24/2019 15:10

Project Manager: Kelly Hahs

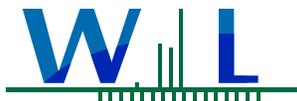
Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8L1484 - EPA 353.2											
Blank (W8L1484-BLK1)					Prepared: 12/26/18 Analyzed: 12/31/18						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8L1484-BS1)					Prepared: 12/26/18 Analyzed: 12/31/18						
NO2+NO3 as N	0.943	0.083	0.20	mg/l	1.00		94	90-110			
Matrix Spike (W8L1484-MS1)					Prepared: 12/26/18 Analyzed: 12/31/18						
NO2+NO3 as N	2.02	0.083	0.20	mg/l	2.00	0.0870	97	90-110			
Matrix Spike (W8L1484-MS2)					Prepared: 12/26/18 Analyzed: 12/31/18						
NO2+NO3 as N	2.74	0.083	0.20	mg/l	2.00	0.773	98	90-110			
Matrix Spike Dup (W8L1484-MSD1)					Prepared: 12/26/18 Analyzed: 12/31/18						
NO2+NO3 as N	2.01	0.083	0.20	mg/l	2.00	0.0870	96	90-110	0.5	20	
Matrix Spike Dup (W8L1484-MSD2)					Prepared: 12/26/18 Analyzed: 12/31/18						
NO2+NO3 as N	2.69	0.083	0.20	mg/l	2.00	0.773	96	90-110	2	20	
Batch: W8L1489 - EPA 365.1											
Blank (W8L1489-BLK1)					Prepared: 12/26/18 Analyzed: 12/28/18						
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
Blank (W8L1489-BLK2)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8L1489-BS1)					Prepared: 12/26/18 Analyzed: 12/28/18						
Phosphorus, Dissolved	0.0520	0.0014	0.010	mg/l	0.0500		104	90-110			
LCS (W8L1489-BS2)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus, Dissolved	0.0537	0.0014	0.010	mg/l	0.0500		107	90-110			
Matrix Spike (W8L1489-MS1)					Prepared: 12/26/18 Analyzed: 12/28/18						
Phosphorus, Dissolved	0.0875	0.0014	0.010	mg/l	0.0500	0.0263	122	90-110			MS-01
Matrix Spike (W8L1489-MS2)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus, Dissolved	0.0924	0.0014	0.010	mg/l	0.0500	0.0263	132	90-110			MS-03
Matrix Spike Dup (W8L1489-MSD1)					Prepared: 12/26/18 Analyzed: 12/28/18						
Phosphorus, Dissolved	0.0966	0.0014	0.010	mg/l	0.0500	0.0263	141	90-110	10	20	MS-01
Matrix Spike Dup (W8L1489-MSD2)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus, Dissolved	0.0897	0.0014	0.010	mg/l	0.0500	0.0263	127	90-110	3	20	MS-03
Batch: W8L1653 - EPA 365.1											
Blank (W8L1653-BLK1)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8L1653-BS1)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus as P, Total	0.0537	0.0014	0.010	mg/l	0.0500		107	90-110			
Matrix Spike (W8L1653-MS1)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus as P, Total	0.202	0.0014	0.010	mg/l	0.0500	0.139	126	90-110			MS-02
Matrix Spike (W8L1653-MS2)					Prepared: 12/28/18 Analyzed: 01/02/19						
Phosphorus as P, Total	0.101	0.0014	0.010	mg/l	0.0500	0.0379	126	90-110			MS-01
Matrix Spike Dup (W8L1653-MSD1)					Prepared: 12/28/18 Analyzed: 01/02/19						

8L11033

Page 5 of 7



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study December 2018 P6040555

Reported:
01/24/2019 15:10

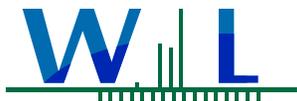
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W8L1653 - EPA 365.1 (Continued)											
Matrix Spike Dup (W8L1653-MSD1)	Source: 8L11033-01				Prepared: 12/28/18		Analyzed: 01/02/19				
Phosphorus as P, Total	0.208	0.0014	0.010	mg/l	0.0500	0.139	138	90-110	3	20	MS-02
Matrix Spike Dup (W8L1653-MSD2)	Source: 8L11033-04				Prepared: 12/28/18		Analyzed: 01/02/19				
Phosphorus as P, Total	0.103	0.0014	0.010	mg/l	0.0500	0.0379	130	90-110	2	20	MS-01
Batch: W9A0027 - EPA 351.2											
Blank (W9A0027-BLK1)					Prepared: 01/02/19		Analyzed: 01/05/19				
TKN	ND	0.050	0.10	mg/l							
LCS (W9A0027-BS1)					Prepared: 01/02/19		Analyzed: 01/05/19				
TKN	0.960	0.050	0.10	mg/l	1.00		96	90-110			
Matrix Spike (W9A0027-MS1)	Source: 8L11033-03				Prepared: 01/02/19		Analyzed: 01/05/19				
TKN	1.35	0.050	0.10	mg/l	1.00	0.285	106	90-110			
Matrix Spike Dup (W9A0027-MSD1)	Source: 8L11033-03				Prepared: 01/02/19		Analyzed: 01/05/19				
TKN	1.35	0.050	0.10	mg/l	1.00	0.285	106	90-110	0.1	10	
Batch: W9A0028 - EPA 351.2											
Blank (W9A0028-BLK1)					Prepared: 01/02/19		Analyzed: 01/05/19				
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W9A0028-BS1)					Prepared: 01/02/19		Analyzed: 01/05/19				
TKN, Soluble	0.948	0.050	0.10	mg/l	1.00		95	90-110			
Matrix Spike (W9A0028-MS1)	Source: 8L11033-03				Prepared: 01/02/19		Analyzed: 01/05/19				
TKN, Soluble	1.51	0.050	0.10	mg/l	1.00	0.310	120	90-110			MS-01
Matrix Spike Dup (W9A0028-MSD1)	Source: 8L11033-03				Prepared: 01/02/19		Analyzed: 01/05/19				
TKN, Soluble	1.28	0.050	0.10	mg/l	1.00	0.310	97	90-110	16	10	MS-01



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study December 2018 P6040555

Reported:
01/24/2019 15:10

Project Manager: Kelly Hahs

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
MS-03	Multiple analyses indicate the percent recovery is out of acceptance limits due to a possible matrix effect.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)

9A15047

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORYFY19MA01, Project P6040555)

SAMPLING EVENT: JANUARY 2019

SAMPLING DATE: 01/10/19

SAMPLERS: K. FORTNER

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED			NOTES
TMDL-Est	01/10/19 12:00	X	X	X				
TMDL-R1	11:10	X	X	X				
TMDL-R2	10:10	X	X	X				
TMDL-R3	09:10	X	X	X				
TMDL-R4	08:25	X	X	X				
TMDL-CL	07:25	X	X	X				
TMDL-SA	08:10	X	X	X				

Signature:	Signature:
Print Name: <u>Steven Greer</u>	Print Name: <u>Carlos Navarro</u>
Affiliation: <u>VCWPD</u>	Affiliation: <u>WECK-fcls</u>
Received Date/Time: <u>1/15/2018 1:02 PM</u>	Received Date/Time: <u>1/15/19 102</u>
Relinquished Date/Time:	Relinquished Date/Time:

Signature:	Signature:
Print Name: <u>Carlos Navarro</u>	Print Name: <u>LESTER ABAD</u>
Affiliation: <u>WECK-fcls</u>	Affiliation: <u>WECK</u>
Received Date/Time: <u>1/15/19 3:46</u>	Received Date/Time: <u>1-15-19 15:46</u>
Relinquished Date/Time:	Relinquished Date/Time:

2.4"

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):



Certificate of Analysis

FINAL REPORT

Work Orders: 9A15047

Report Date: 2/19/2019

Project: TMDL Study Jan. 2019 P6040555

Received Date: 1/15/2019

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
9MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

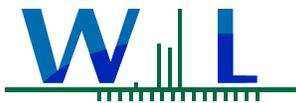
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 1/15/19 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

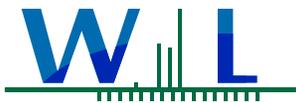
Project Number: TMDL Study Jan. 2019 P6040555

Reported:
02/19/2019 17:42

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K, Fortner	9A15047-01	Water	01/10/19 12:00	
TMDL-R1	K, Fortner	9A15047-02	Water	01/10/19 11:10	
TMDL-R2	K, Fortner	9A15047-03	Water	01/10/19 10:10	
TMDL-R3	K, Fortner	9A15047-04	Water	01/10/19 09:10	
TMDL-R4	K, Fortner	9A15047-05	Water	01/10/19 08:25	
TMDL-CL	K, Fortner	9A15047-06	Water	01/10/19 07:25	
TMDL-SA	K, Fortner	9A15047-07	Water	01/10/19 08:10	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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Reported:
02/19/2019 17:42

Project Manager: Kelly Hahs

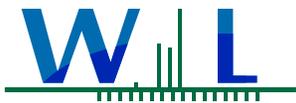
Sample Results

Sample: TMDL-Est
9A15047-01 (Water) Sampled: 01/10/19 12:00 by K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]	Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs	
Dissolved Nitrogen	0.92		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs	
Nitrogen, Total	1.2		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289	Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs	
TKN	0.80	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290	Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs	
TKN, Soluble	0.52	0.050	0.10	mg/l	1x1	01/26/19 11:53	
Method: EPA 353.2	Batch ID: W9A0918	Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat	
NO2+NO3 as N	0.40	0.083	0.20	mg/l	1x1	01/23/19 13:03	
Method: EPA 365.1	Batch ID: W9A1347	Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT	
Phosphorus as P, Total	0.12	0.0014	0.010	mg/l	1x1	02/01/19 11:43	
Method: EPA 365.1	Batch ID: W9A1348	Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT	
Phosphorus, Dissolved	0.077	0.0014	0.010	mg/l	1x1	02/01/19 12:40	

Sample: TMDL-R1
9A15047-02 (Water) Sampled: 01/10/19 11:10 by K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]	Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs	
Dissolved Nitrogen	1.3		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs	
Nitrogen, Total	1.4		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289	Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs	
TKN	0.46	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290	Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs	
TKN, Soluble	0.35	0.050	0.10	mg/l	1x1	01/26/19 11:53	
Method: EPA 353.2	Batch ID: W9A0918	Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat	
NO2+NO3 as N	0.91	0.083	0.20	mg/l	1x1	01/23/19 13:04	
Method: EPA 365.1	Batch ID: W9A1347	Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT	
Phosphorus as P, Total	0.14	0.0028	0.020	mg/l	2x1	02/01/19 12:00	
Method: EPA 365.1	Batch ID: W9A1348	Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT	
Phosphorus, Dissolved	0.067	0.0014	0.010	mg/l	1x1	02/01/19 12:42	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study Jan. 2019 P6040555

Reported:
02/19/2019 17:42

Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-R2
9A15047-03 (Water) Sampled: 01/10/19 10:10 by K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs
Dissolved Nitrogen	0.77		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs
Nitrogen, Total	0.80		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289		Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs
TKN	0.23	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290		Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs
TKN, Soluble	0.20	0.050	0.10	mg/l	1x1	01/26/19 11:53	
Method: EPA 353.2	Batch ID: W9A0918		Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat
NO2+NO3 as N	0.57	0.083	0.20	mg/l	1x1	01/23/19 13:05	
Method: EPA 365.1	Batch ID: W9A1347		Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT
Phosphorus as P, Total	0.038	0.0014	0.010	mg/l	1x1	02/01/19 11:57	
Method: EPA 365.1	Batch ID: W9A1348		Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT
Phosphorus, Dissolved	0.034	0.0014	0.010	mg/l	1x1	02/01/19 12:35	

Sample: TMDL-R3
9A15047-04 (Water) Sampled: 01/10/19 9:10 by K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs
Dissolved Nitrogen	0.31		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs
Nitrogen, Total	0.46		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289		Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs
TKN	0.15	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290		Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	01/26/19 11:53	
Method: EPA 353.2	Batch ID: W9A0918		Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat
NO2+NO3 as N	0.31	0.083	0.20	mg/l	1x1	01/23/19 12:41	
Method: EPA 365.1	Batch ID: W9A1347		Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT
Phosphorus as P, Total	0.040	0.0014	0.010	mg/l	1x1	02/01/19 12:01	
Method: EPA 365.1	Batch ID: W9A1348		Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT
Phosphorus, Dissolved	0.018	0.0014	0.010	mg/l	1x1	02/01/19 12:43	



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Reported:
02/19/2019 17:42

Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-R4
9A15047-05 (Water) Sampled: 01/10/19 8:25 by K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs
Dissolved Nitrogen	0.54		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs
Nitrogen, Total	0.72		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289		Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs
TKN	0.27	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290		Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs
TKN, Soluble	0.094	0.050	0.10	mg/l	1x1	01/26/19 11:53	J
Method: EPA 353.2	Batch ID: W9A0918		Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat
NO2+NO3 as N	0.45	0.083	0.20	mg/l	1x1	01/23/19 13:06	
Method: EPA 365.1	Batch ID: W9A1347		Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT
Phosphorus as P, Total	0.036	0.0014	0.010	mg/l	1x1	02/01/19 12:03	
Method: EPA 365.1	Batch ID: W9A1348		Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT
Phosphorus, Dissolved	0.025	0.0014	0.010	mg/l	1x1	02/01/19 12:45	

Sample: TMDL-CL
9A15047-06 (Water) Sampled: 01/10/19 7:25 by K, Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs
Dissolved Nitrogen	0.48		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs
Nitrogen, Total	0.56		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289		Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs
TKN	0.56	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290		Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs
TKN, Soluble	0.48	0.050	0.10	mg/l	1x1	01/26/19 11:53	
Method: EPA 353.2	Batch ID: W9A0918		Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	01/23/19 13:08	
Method: EPA 365.1	Batch ID: W9A1347		Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT
Phosphorus as P, Total	0.078	0.0014	0.010	mg/l	1x1	02/01/19 12:11	
Method: EPA 365.1	Batch ID: W9A1348		Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT
Phosphorus, Dissolved	0.017	0.0014	0.010	mg/l	1x1	02/01/19 12:46	



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FINAL REPORT

Project Number: TMDL Study Jan. 2019 P6040555

Reported:
02/19/2019 17:42

Project Manager: Kelly Hahs

Sample Results

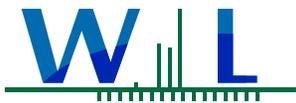
(Continued)

Sample: TMDL-SA

Sampled: 01/10/19 8:10 by K, Fortner

9A15047-07 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:08		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	0.27		0.20	mg/l	1x1	01/26/19 11:53	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 01/22/19 19:06		Analyst: mcs
Nitrogen, Total	0.42		0.20	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1289		Instr: AA06		Prepared: 01/22/19 19:06		Analyst: mcs
TKN	0.21	0.050	0.10	mg/l	1x1	01/26/19 11:43	
Method: EPA 351.2	Batch ID: W9A1290		Instr: AA06		Prepared: 01/22/19 19:08		Analyst: mcs
TKN, Soluble	0.064	0.050	0.10	mg/l	1x1	01/26/19 11:53	J
Method: EPA 353.2	Batch ID: W9A0918		Instr: AA01		Prepared: 01/16/19 11:50		Analyst: mat
NO2+NO3 as N	0.21	0.083	0.20	mg/l	1x1	01/23/19 13:09	
Method: EPA 365.1	Batch ID: W9A1347		Instr: AA01		Prepared: 01/23/19 18:41		Analyst: MAT
Phosphorus as P, Total	0.078	0.0014	0.010	mg/l	1x1	02/01/19 12:39	
Method: EPA 365.1	Batch ID: W9A1348		Instr: AA01		Prepared: 01/23/19 18:46		Analyst: MAT
Phosphorus, Dissolved	0.062	0.0014	0.010	mg/l	1x1	02/01/19 12:48	



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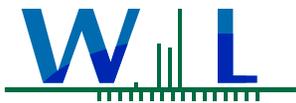
Reported:
02/19/2019 17:42

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W9A0918 - EPA 353.2											
Blank (W9A0918-BLK1)					Prepared: 01/16/19 Analyzed: 01/23/19						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W9A0918-BS1)					Prepared: 01/16/19 Analyzed: 01/23/19						
NO2+NO3 as N	1.01	0.083	0.20	mg/l	1.00		101	90-110			
Matrix Spike (W9A0918-MS1)					Source: 9A15047-04 Prepared: 01/16/19 Analyzed: 01/23/19						
NO2+NO3 as N	2.27	0.083	0.20	mg/l	2.00	0.314	98	90-110			
Matrix Spike (W9A0918-MS2)					Source: 9A15077-03 Prepared: 01/16/19 Analyzed: 01/23/19						
NO2+NO3 as N	2.19	0.083	0.20	mg/l	2.00	0.227	98	90-110			
Matrix Spike Dup (W9A0918-MSD1)					Source: 9A15047-04 Prepared: 01/16/19 Analyzed: 01/23/19						
NO2+NO3 as N	2.27	0.083	0.20	mg/l	2.00	0.314	98	90-110	0	20	
Matrix Spike Dup (W9A0918-MSD2)					Source: 9A15077-03 Prepared: 01/16/19 Analyzed: 01/23/19						
NO2+NO3 as N	2.19	0.083	0.20	mg/l	2.00	0.227	98	90-110	0	20	
Batch: W9A1289 - EPA 351.2											
Blank (W9A1289-BLK1)					Prepared: 01/22/19 Analyzed: 01/26/19						
TKN	ND	0.050	0.10	mg/l							
LCS (W9A1289-BS1)					Prepared: 01/22/19 Analyzed: 01/26/19						
TKN	0.988	0.050	0.10	mg/l	1.00		99	90-110			
Matrix Spike (W9A1289-MS1)					Source: 9A15047-03 Prepared: 01/22/19 Analyzed: 01/26/19						
TKN	1.23	0.050	0.10	mg/l	1.00	0.227	101	90-110			
Matrix Spike Dup (W9A1289-MSD1)					Source: 9A15047-03 Prepared: 01/22/19 Analyzed: 01/26/19						
TKN	1.30	0.050	0.10	mg/l	1.00	0.227	107	90-110	5	10	
Batch: W9A1290 - EPA 351.2											
Blank (W9A1290-BLK1)					Prepared: 01/22/19 Analyzed: 01/26/19						
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W9A1290-BS1)					Prepared: 01/22/19 Analyzed: 01/26/19						
TKN, Soluble	0.996	0.050	0.10	mg/l	1.00		100	90-110			
Matrix Spike (W9A1290-MS1)					Source: 9A15047-03 Prepared: 01/22/19 Analyzed: 01/26/19						
TKN, Soluble	1.25	0.050	0.10	mg/l	1.00	0.196	106	90-110			
Matrix Spike Dup (W9A1290-MSD1)					Source: 9A15047-03 Prepared: 01/22/19 Analyzed: 01/26/19						
TKN, Soluble	1.36	0.050	0.10	mg/l	1.00	0.196	116	90-110	8	10	MS-01
Batch: W9A1347 - EPA 365.1											
Blank (W9A1347-BLK1)					Prepared: 01/23/19 Analyzed: 02/01/19						
Phosphorus as P, Total	0.00163	0.0014	0.010	mg/l							J
LCS (W9A1347-BS1)					Prepared: 01/23/19 Analyzed: 02/01/19						
Phosphorus as P, Total	0.0512	0.0014	0.010	mg/l	0.0500		102	90-110			
Matrix Spike (W9A1347-MS1)					Source: 9A15047-01 Prepared: 01/23/19 Analyzed: 02/01/19						
Phosphorus as P, Total	0.178	0.0014	0.010	mg/l	0.0500	0.122	112	90-110			MS-02
Matrix Spike (W9A1347-MS2)					Source: 9A15047-03 Prepared: 01/23/19 Analyzed: 02/01/19						
Phosphorus as P, Total	0.102	0.0014	0.010	mg/l	0.0500	0.0378	128	90-110			MS-01



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Reported:
02/19/2019 17:42

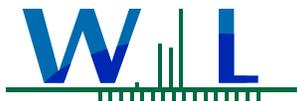
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W9A1347 - EPA 365.1 (Continued)											
Matrix Spike (W9A1347-MS2)	Source: 9A15047-03			Prepared: 01/23/19 Analyzed: 02/01/19							
Matrix Spike Dup (W9A1347-MSD1)	Source: 9A15047-01			Prepared: 01/23/19 Analyzed: 02/01/19							
Phosphorus as P, Total	0.179	0.0014	0.010	mg/l	0.0500	0.122	114	90-110	0.6	20	MS-02
Matrix Spike Dup (W9A1347-MSD2)	Source: 9A15047-03			Prepared: 01/23/19 Analyzed: 02/01/19							
Phosphorus as P, Total	0.0914	0.0014	0.010	mg/l	0.0500	0.0378	107	90-110	11	20	
Batch: W9A1348 - EPA 365.1											
Blank (W9A1348-BLK1)				Prepared: 01/23/19 Analyzed: 02/01/19							
Phosphorus, Dissolved	0.00196	0.0014	0.010	mg/l							J
LCS (W9A1348-BS1)				Prepared: 01/23/19 Analyzed: 02/01/19							
Phosphorus, Dissolved	0.0529	0.0014	0.010	mg/l	0.0500		106	90-110			
Matrix Spike (W9A1348-MS1)	Source: 9A15047-03			Prepared: 01/23/19 Analyzed: 02/01/19							
Phosphorus, Dissolved	0.0874	0.0014	0.010	mg/l	0.0500	0.0335	108	90-110			
Matrix Spike Dup (W9A1348-MSD1)	Source: 9A15047-03			Prepared: 01/23/19 Analyzed: 02/01/19							
Phosphorus, Dissolved	0.107	0.0014	0.010	mg/l	0.0500	0.0335	147	90-110	20	20	MS-01



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02/19/2019 17:42

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)

9B19048

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORYFY19MA01, Project P6040555)

SAMPLING EVENT: FEBRUARY 2019

SAMPLING DATE: 2/12/19

SAMPLERS: K. HAHS, K FORTNER

GRAB SAMPLES

SAMPLE ID	DATE/TIME	** FIELD FILTERED			NOTES
		Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	
TMDL-Est	2/12/19 12:40	X	X	X	
TMDL-R1	12:00	X	X	X	
TMDL-R2	10:50	X	X	X	
TMDL-R3	10:00	X	X	X	
TMDL-R4	09:00	X	X	X	
TMDL-CL	07:30	X	X	X	
TMDL-SA	↓ 08:25	X	X	X	

Signature: <i>Steven S. Greer</i>	Signature: <i>[Signature]</i>
Print Name: Steven S. Greer	Print Name: <i>[Name]</i>
Affiliation: VCWPD	Affiliation: <i>[Affiliation]</i>
Received Date/Time: 2/19/2019 12:24	Received Date/Time: 2/19/19 1224
Relinquished Date/Time: 2/19/2019 12:24	Relinquished Date/Time:

Signature: <i>[Signature]</i>	Signature: <i>James Gomez</i>
Print Name: <i>Carlos Navarro</i>	Print Name: James Gomez
Affiliation: <i>WVLF</i>	Affiliation: <i>Wool Labs</i>
Received Date/Time: 2/19/19 3/2	Received Date/Time: 2/19/19 1512
Relinquished Date/Time:	Relinquished Date/Time:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

2010



Certificate of Analysis

FINAL REPORT

Work Orders: 9B19048

Report Date: 3/20/2019

Project: TMDL Study Feb. 2019 P6040555

Received Date: 2/19/2019

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYF1
9MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

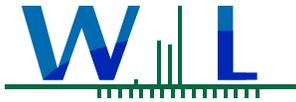
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 2/19/19 with the Chain-of-Custody document. The samples were received in good condition, at 2.0 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





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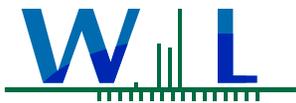
Project Number: TMDL Study Feb. 2019 P6040555

Reported:
03/20/2019 14:18

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs, K.Fortner	9B19048-01	Water	02/12/19 12:40	
TMDL-R1	K. Hahs, K.Fortner	9B19048-02	Water	02/12/19 12:00	
TMDL-R2	K. Hahs, K.Fortner	9B19048-03	Water	02/12/19 10:50	
TMDL-R3	K. Hahs, K.Fortner	9B19048-04	Water	02/12/19 10:00	
TMDL-R4	K. Hahs, K.Fortner	9B19048-05	Water	02/12/19 09:00	
TMDL-CL	K. Hahs, K.Fortner	9B19048-06	Water	02/12/19 07:30	
TMDL-SA	K. Hahs, K.Fortner	9B19048-07	Water	02/12/19 08:25	



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Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 02/12/19 12:40 by K. Hahs, K.Fortner

9B19048-01 (Water)

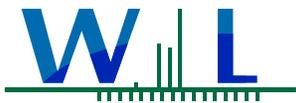
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:13		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.2		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:15		Analyst: mcs	
Nitrogen, Total	1.4		0.20	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0024	Instr: AA06		Prepared: 03/01/19 10:13		Analyst: mcs	
TKN, Soluble	1.2	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026	Instr: AA06		Prepared: 03/01/19 10:15		Analyst: mcs	
TKN	1.4	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 353.2	Batch ID: W9B1523	Instr: AA01		Prepared: 02/27/19 10:39		Analyst: mat	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	02/27/19 20:14	
Method: EPA 365.1	Batch ID: W9B1341	Instr: AA01		Prepared: 03/05/19 12:00		Analyst: mat	
Phosphorus as P, Total	0.13	0.0028	0.020	mg/l	2x1	03/08/19 16:50	M-06
Method: EPA 365.1	Batch ID: W9B1344	Instr: AA01		Prepared: 02/25/19 10:17		Analyst: mat	
Phosphorus, Dissolved	0.013	0.0014	0.010	mg/l	1x1	03/08/19 16:24	

Sample: TMDL-R1

Sampled: 02/12/19 12:00 by K. Hahs, K.Fortner

9B19048-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:13		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.2		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:15		Analyst: mcs	
Nitrogen, Total	2.1		0.20	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0024	Instr: AA06		Prepared: 03/01/19 10:13		Analyst: mcs	
TKN, Soluble	0.20	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026	Instr: AA06		Prepared: 03/01/19 10:15		Analyst: mcs	
TKN	0.11	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 353.2	Batch ID: W9B1523	Instr: AA01		Prepared: 02/27/19 10:39		Analyst: mat	
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	02/27/19 20:34	
Method: EPA 365.1	Batch ID: W9B1341	Instr: AA01		Prepared: 03/05/19 12:00		Analyst: mat	
Phosphorus as P, Total	0.19	0.0028	0.020	mg/l	2x1	03/08/19 16:52	M-06
Method: EPA 365.1	Batch ID: W9B1344	Instr: AA01		Prepared: 02/25/19 10:17		Analyst: mat	
Phosphorus, Dissolved	0.044	0.0014	0.010	mg/l	1x1	03/08/19 16:26	



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Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-R2
9B19048-03 (Water)

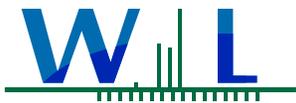
Sampled: 02/12/19 10:50 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/01/19 10:13		Analyst: mcs
Dissolved Nitrogen	2.1		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/01/19 10:15		Analyst: mcs
Nitrogen, Total	2.2		0.20	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0024		Instr: AA06		Prepared: 03/01/19 10:13		Analyst: mcs
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026		Instr: AA06		Prepared: 03/01/19 10:15		Analyst: mcs
TKN	0.13	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 353.2	Batch ID: W9B1523		Instr: AA01		Prepared: 02/27/19 10:39		Analyst: mat
NO2+NO3 as N	2.1	0.083	0.20	mg/l	1x1	02/27/19 20:35	
Method: EPA 365.1	Batch ID: W9B1341		Instr: AA01		Prepared: 03/05/19 12:00		Analyst: mat
Phosphorus as P, Total	0.16	0.0028	0.020	mg/l	2x1	03/08/19 16:53	M-06
Method: EPA 365.1	Batch ID: W9B1344		Instr: AA01		Prepared: 02/25/19 10:17		Analyst: mat
Phosphorus, Dissolved	0.042	0.0014	0.010	mg/l	1x1	03/08/19 16:20	

Sample: TMDL-R3
9B19048-04 (Water)

Sampled: 02/12/19 10:00 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/01/19 10:13		Analyst: mcs
Dissolved Nitrogen	2.1		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/01/19 10:15		Analyst: mcs
Nitrogen, Total	2.3		0.20	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0024		Instr: AA06		Prepared: 03/01/19 10:13		Analyst: mcs
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026		Instr: AA06		Prepared: 03/01/19 10:15		Analyst: mcs
TKN	0.20	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 353.2	Batch ID: W9B1523		Instr: AA01		Prepared: 02/27/19 10:39		Analyst: mat
NO2+NO3 as N	2.1	0.083	0.20	mg/l	1x1	02/27/19 20:17	
Method: EPA 365.1	Batch ID: W9B1341		Instr: AA01		Prepared: 03/05/19 12:00		Analyst: mat
Phosphorus as P, Total	0.17	0.0028	0.020	mg/l	2x1	03/08/19 16:55	M-06
Method: EPA 365.1	Batch ID: W9B1344		Instr: AA01		Prepared: 02/25/19 10:17		Analyst: mat
Phosphorus, Dissolved	0.035	0.0014	0.010	mg/l	1x1	03/08/19 16:27	



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Reported:
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Project Manager: Kelly Hahs

Sample Results

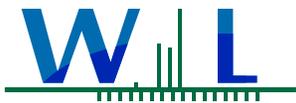
(Continued)

Sample: TMDL-R4
9B19048-05 (Water) Sampled: 02/12/19 9:00 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:13		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.8		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:15		Analyst: mcs	
Nitrogen, Total	1.8		0.20	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0024	Instr: AA06		Prepared: 03/01/19 10:13		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026	Instr: AA06		Prepared: 03/01/19 10:15		Analyst: mcs	
TKN	ND	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 353.2	Batch ID: W9B1523	Instr: AA01		Prepared: 02/27/19 10:39		Analyst: mat	
NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	02/27/19 20:37	
Method: EPA 365.1	Batch ID: W9B1341	Instr: AA01		Prepared: 03/05/19 12:00		Analyst: mat	
Phosphorus as P, Total	0.22	0.0028	0.020	mg/l	2x1	03/08/19 16:56	M-06
Method: EPA 365.1	Batch ID: W9B1344	Instr: AA01		Prepared: 02/25/19 10:17		Analyst: mat	
Phosphorus, Dissolved	0.030	0.0014	0.010	mg/l	1x1	03/08/19 16:29	

Sample: TMDL-CL
9B19048-06 (Water) Sampled: 02/12/19 7:30 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:13		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.4		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/01/19 10:15		Analyst: mcs	
Nitrogen, Total	2.8		0.20	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0024	Instr: AA06		Prepared: 03/01/19 10:13		Analyst: mcs	
TKN, Soluble	0.90	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026	Instr: AA06		Prepared: 03/01/19 10:15		Analyst: mcs	
TKN	1.3	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 353.2	Batch ID: W9B1523	Instr: AA01		Prepared: 02/27/19 10:39		Analyst: mat	
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	02/27/19 20:38	
Method: EPA 365.1	Batch ID: W9B1341	Instr: AA01		Prepared: 03/05/19 12:00		Analyst: mat	
Phosphorus as P, Total	0.72	0.011	0.080	mg/l	4x2	03/08/19 17:24	M-06
Method: EPA 365.1	Batch ID: W9B1344	Instr: AA01		Prepared: 02/25/19 10:17		Analyst: mat	
Phosphorus, Dissolved	0.095	0.0014	0.010	mg/l	1x1	03/08/19 16:30	



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Project Manager: Kelly Hahs

Sample Results

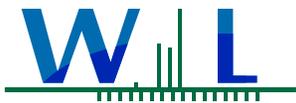
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Sample: TMDL-SA

Sampled: 02/12/19 8:25 by K. Hahs, K.Fortner

9B19048-07 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]	Prepared: 03/01/19 10:13		Analyst: mcs		
METHOD ***							
Dissolved Nitrogen	2.6		0.20	mg/l	1x1	03/06/19 13:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]	Prepared: 03/01/19 10:15		Analyst: mcs		
Nitrogen, Total	2.8		0.20	mg/l	1x1	03/12/19 11:43	
Method: EPA 351.2	Batch ID: W9C0024	Instr: AA06	Prepared: 03/01/19 10:13		Analyst: mcs		
TKN, Soluble	0.11	0.050	0.10	mg/l	1x1	03/06/19 13:01	
Method: EPA 351.2	Batch ID: W9C0026	Instr: AA06	Prepared: 03/01/19 10:15		Analyst: mcs		
TKN	0.31	0.050	0.10	mg/l	1x1	03/12/19 11:43	
Method: EPA 353.2	Batch ID: W9B1523	Instr: AA01	Prepared: 02/27/19 10:39		Analyst: mat		
NO2+NO3 as N	2.5	0.083	0.20	mg/l	1x1	02/27/19 20:39	
Method: EPA 365.1	Batch ID: W9B1341	Instr: AA01	Prepared: 03/05/19 12:00		Analyst: mat		
Phosphorus as P, Total	0.47	0.011	0.080	mg/l	2x4	03/08/19 17:27	M-06
Method: EPA 365.1	Batch ID: W9B1344	Instr: AA01	Prepared: 02/25/19 10:17		Analyst: mat		
Phosphorus, Dissolved	0.056	0.0014	0.010	mg/l	1x1	03/08/19 16:32	



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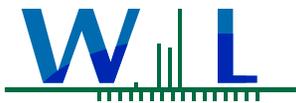
03/20/2019 14:18

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W9B1341 - EPA 365.1											
Blank (W9B1341-BLK1)					Prepared: 03/05/19 Analyzed: 03/08/19						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W9B1341-BS1)					Prepared: 03/05/19 Analyzed: 03/08/19						
Phosphorus as P, Total	0.0501	0.0014	0.010	mg/l	0.0500		100	90-110			
Matrix Spike (W9B1341-MS1)					Source: 9B20012-01 Prepared: 03/05/19 Analyzed: 03/08/19						
Phosphorus as P, Total	0.0834	0.0014	0.010	mg/l	0.0500	0.0417	83	90-110			MS-01
Matrix Spike (W9B1341-MS2)					Source: 9B20012-03 Prepared: 03/05/19 Analyzed: 03/08/19						
Phosphorus as P, Total	0.117	0.0014	0.010	mg/l	0.0500	0.0775	79	90-110			MS-01
Matrix Spike Dup (W9B1341-MSD1)					Source: 9B20012-01 Prepared: 03/05/19 Analyzed: 03/08/19						
Phosphorus as P, Total	0.0832	0.0014	0.010	mg/l	0.0500	0.0417	83	90-110	0.2	20	MS-01
Matrix Spike Dup (W9B1341-MSD2)					Source: 9B20012-03 Prepared: 03/05/19 Analyzed: 03/08/19						
Phosphorus as P, Total	0.116	0.0014	0.010	mg/l	0.0500	0.0775	77	90-110	0.9	20	MS-01
Batch: W9B1344 - EPA 365.1											
Blank (W9B1344-BLK1)					Prepared: 02/25/19 Analyzed: 03/08/19						
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W9B1344-BS1)					Prepared: 02/25/19 Analyzed: 03/08/19						
Phosphorus, Dissolved	0.0519	0.0014	0.010	mg/l	0.0500		104	90-110			
Matrix Spike (W9B1344-MS1)					Source: 9B19048-03 Prepared: 02/25/19 Analyzed: 03/08/19						
Phosphorus, Dissolved	0.0933	0.0014	0.010	mg/l	0.0500	0.0417	103	90-110			
Matrix Spike Dup (W9B1344-MSD1)					Source: 9B19048-03 Prepared: 02/25/19 Analyzed: 03/08/19						
Phosphorus, Dissolved	0.0928	0.0014	0.010	mg/l	0.0500	0.0417	102	90-110	0.5	20	
Batch: W9B1523 - EPA 353.2											
Blank (W9B1523-BLK1)					Prepared & Analyzed: 02/27/19						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W9B1523-BS1)					Prepared & Analyzed: 02/27/19						
NO2+NO3 as N	0.977	0.083	0.20	mg/l	1.00		98	90-110			
Matrix Spike (W9B1523-MS1)					Source: 9B19048-01 Prepared & Analyzed: 02/27/19						
NO2+NO3 as N	2.03	0.083	0.20	mg/l	2.00	ND	102	90-110			
Matrix Spike (W9B1523-MS2)					Source: 9B19048-04 Prepared & Analyzed: 02/27/19						
NO2+NO3 as N	4.03	0.083	0.20	mg/l	2.00	2.13	95	90-110			
Matrix Spike Dup (W9B1523-MSD1)					Source: 9B19048-01 Prepared & Analyzed: 02/27/19						
NO2+NO3 as N	2.04	0.083	0.20	mg/l	2.00	ND	102	90-110	0.5	20	
Matrix Spike Dup (W9B1523-MSD2)					Source: 9B19048-04 Prepared & Analyzed: 02/27/19						
NO2+NO3 as N	4.01	0.083	0.20	mg/l	2.00	2.13	94	90-110	0.5	20	
Batch: W9C0024 - EPA 351.2											
Blank (W9C0024-BLK1)					Prepared: 03/01/19 Analyzed: 03/06/19						
TKN, Soluble	ND	0.050	0.10	mg/l							
Blank (W9C0024-BLK2)					Prepared: 03/01/19 Analyzed: 03/06/19						
TKN, Soluble	ND	0.050	0.10	mg/l							



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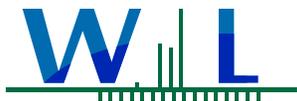
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier	
Batch: W9C0024 - EPA 351.2 (Continued)												
Blank (W9C0024-BLK2)					Prepared: 03/01/19 Analyzed: 03/06/19							
LCS (W9C0024-BS1)												
TKN, Soluble 0.968 0.050 0.10 mg/l 1.00 97 90-110												
LCS (W9C0024-BS2)												
TKN, Soluble 0.931 0.050 0.10 mg/l 1.00 93 90-110												
Matrix Spike (W9C0024-MS1)					Source: 9B19048-01			Prepared: 03/01/19 Analyzed: 03/06/19				
TKN, Soluble 2.27 0.050 0.10 mg/l 1.00 1.23 104 90-110												
Matrix Spike Dup (W9C0024-MSD1)					Source: 9B19048-01			Prepared: 03/01/19 Analyzed: 03/06/19				
TKN, Soluble 2.25 0.050 0.10 mg/l 1.00 1.23 103 90-110 0.5 10												
Batch: W9C0026 - EPA 351.2												
Blank (W9C0026-BLK1)					Prepared: 03/01/19 Analyzed: 03/06/19							
TKN ND 0.050 0.10 mg/l												
Blank (W9C0026-BLK2)					Prepared: 03/01/19 Analyzed: 03/12/19							
TKN ND 0.050 0.10 mg/l												
LCS (W9C0026-BS1)												
TKN 0.979 0.050 0.10 mg/l 1.00 98 90-110												
LCS (W9C0026-BS2)												
TKN 0.969 0.050 0.10 mg/l 1.00 97 90-110												
Matrix Spike (W9C0026-MS1)					Source: 9B19048-01			Prepared: 03/01/19 Analyzed: 03/06/19				
TKN 2.36 0.050 0.10 mg/l 1.00 1.35 101 90-110												
Matrix Spike Dup (W9C0026-MSD1)					Source: 9B19048-01			Prepared: 03/01/19 Analyzed: 03/06/19				
TKN 2.34 0.050 0.10 mg/l 1.00 1.35 98 90-110 1 10												



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study Feb. 2019 P6040555

Reported:
03/20/2019 14:18

Project Manager: Kelly Hahs

Notes and Definitions

Item	Definition
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



7014011

Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL (VR Algae TMDL)

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORYFY19MA01, Project P6040555)

SAMPLING EVENT: MARCH 2019

SAMPLING DATE: 3/13/19

SAMPLERS: K. HAHS, K. FORTNER

GRAB SAMPLES

SAMPLE ID	DATE/TIME	** FIELD FILTERED			Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen				NOTES
TMDL-Est	3/13/19 1320	X	X	X							
TMDL-R1	1230	X	X	X							Please get sample time from bottle.
TMDL-R2	1130	X	X	X							
TMDL-R3	1040	X	X	X							
TMDL-R4	0915	X	X	X							
TMDL-CL	0730	X	X	X							
TMDL-SA	✓ 0845	X	X	X							

Signature: <u>Kelly Hahs</u>	Signature:
Print Name: <u>KELLY HAHS</u>	Print Name:
Affiliation: <u>VCWPD</u>	Affiliation:
Received Date/Time: <u>3/13/19</u>	Received Date/Time:
Relinquished Date/Time: <u>3/14/19</u>	Relinquished Date/Time:

Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>
Print Name: <u>[Name]</u>	Print Name: <u>LESTER HAWK 23</u>
Affiliation: <u>RMS</u>	Affiliation:
Received Date/Time: <u>7:12 AM</u>	Received Date/Time: <u>3-14-19 10:00</u>
Relinquished Date/Time:	Relinquished Date/Time:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

T-0209



Certificate of Analysis

FINAL REPORT

Work Orders: 9C14011

Project: TMDL Study March. 2019 P6040555

Attn: Kelly Hahs

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Report Date: 4/17/2019

Received Date: 3/14/2019

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYF1
9MA01

Billing Code:

EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA •
NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

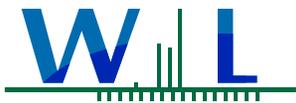
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 3/14/19 with the Chain-of-Custody document. The samples were received in good condition, at 2.3 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study March. 2019 P6040555

Reported:
04/17/2019 15:03

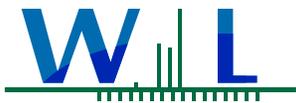
Project Manager: Kelly Hahs

Case Narrative

SUPP report generated to correct sampling date. BG

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs, K.Fortner	9C14011-01	Water	03/13/19 13:20	
TMDL-R1	K. Hahs, K.Fortner	9C14011-02	Water	03/13/19 12:30	
TMDL-R2	K. Hahs, K.Fortner	9C14011-03	Water	03/13/19 11:30	
TMDL-R3	K. Hahs, K.Fortner	9C14011-04	Water	03/13/19 10:40	
TMDL-R4	K. Hahs, K.Fortner	9C14011-05	Water	03/13/19 09:15	
TMDL-CL	K. Hahs, K.Fortner	9C14011-06	Water	03/13/19 07:30	
TMDL-SA	K. Hahs, K.Fortner	9C14011-07	Water	03/13/19 08:45	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study March. 2019 P6040555

Reported:
04/17/2019 15:03

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 03/13/19 13:20 by K. Hahs, K.Fortner

9C14011-01 (Water)

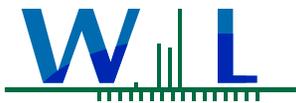
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.8		0.20	mg/l	1x1	03/22/19 12:44	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs	
Nitrogen, Total	1.9		0.20	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1070	Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs	
TKN	0.13	0.050	0.10	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1072	Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/22/19 12:44	
Method: EPA 353.2	Batch ID: W9C0813	Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het	
NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	03/15/19 12:53	
Method: EPA 365.1	Batch ID: W9C0859	Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het	
Phosphorus as P, Total	0.15	0.0014	0.010	mg/l	1x1	03/20/19 12:59	
Method: EPA 365.1	Batch ID: W9C0861	Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het	
Phosphorus, Dissolved	0.041	0.0014	0.010	mg/l	1x1	03/20/19 13:35	

Sample: TMDL-R1

Sampled: 03/13/19 12:30 by K. Hahs, K.Fortner

9C14011-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.2		0.20	mg/l	1x1	03/28/19 12:01	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs	
Nitrogen, Total	2.3		0.20	mg/l	1x1	03/28/19 11:37	
Method: EPA 351.2	Batch ID: W9C1070	Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs	
TKN	0.29	0.050	0.10	mg/l	1x1	03/28/19 11:37	
Method: EPA 351.2	Batch ID: W9C1072	Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs	
TKN, Soluble	0.18	0.050	0.10	mg/l	1x1	03/28/19 12:01	
Method: EPA 353.2	Batch ID: W9C0813	Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het	
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	03/15/19 12:57	
Method: EPA 365.1	Batch ID: W9C0859	Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het	
Phosphorus as P, Total	0.16	0.0014	0.010	mg/l	1x1	03/20/19 13:00	
Method: EPA 365.1	Batch ID: W9C0861	Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het	
Phosphorus, Dissolved	0.042	0.0014	0.010	mg/l	1x1	03/20/19 13:36	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study March. 2019 P6040555

Reported:
04/17/2019 15:03

Project Manager: Kelly Hahs

Sample Results

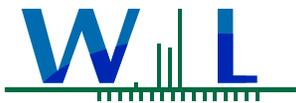
(Continued)

Sample: TMDL-R2
9C14011-03 (Water) Sampled: 03/13/19 11:30 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	2.0		0.20	mg/l	1x1	03/22/19 12:44	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs
Nitrogen, Total	2.2		0.20	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1070		Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs
TKN	0.13	0.050	0.10	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1072		Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/22/19 12:44	
Method: EPA 353.2	Batch ID: W9C0813		Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	03/15/19 12:58	
Method: EPA 365.1	Batch ID: W9C0859		Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het
Phosphorus as P, Total	0.14	0.0014	0.010	mg/l	1x1	03/20/19 13:02	
Method: EPA 365.1	Batch ID: W9C0861		Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het
Phosphorus, Dissolved	0.036	0.0014	0.010	mg/l	1x1	03/20/19 13:38	

Sample: TMDL-R3
9C14011-04 (Water) Sampled: 03/13/19 10:40 by K. Hahs, K.Fortner

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	2.0		0.20	mg/l	1x1	03/22/19 12:44	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs
Nitrogen, Total	2.0		0.20	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1070		Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs
TKN	ND	0.050	0.10	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1072		Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/22/19 12:44	
Method: EPA 353.2	Batch ID: W9C0813		Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	03/15/19 12:59	
Method: EPA 365.1	Batch ID: W9C0859		Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het
Phosphorus as P, Total	0.12	0.0014	0.010	mg/l	1x1	03/20/19 13:03	
Method: EPA 365.1	Batch ID: W9C0861		Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het
Phosphorus, Dissolved	0.031	0.0014	0.010	mg/l	1x1	03/20/19 13:39	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study March. 2019 P6040555

Reported:
04/17/2019 15:03

Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-R4

Sampled: 03/13/19 9:15 by K. Hahs, K.Fortner

9C14011-05 (Water)

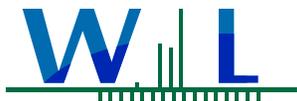
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.7		0.20	mg/l	1x1	03/22/19 12:44	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs	
Nitrogen, Total	1.8		0.20	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1070	Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs	
TKN	0.12	0.050	0.10	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1072	Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/22/19 12:44	
Method: EPA 353.2	Batch ID: W9C0813	Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het	
NO2+NO3 as N	1.7	0.083	0.20	mg/l	1x1	03/15/19 13:52	
Method: EPA 365.1	Batch ID: W9C0859	Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het	
Phosphorus as P, Total	0.028	0.0014	0.010	mg/l	1x1	03/20/19 12:57	
Method: EPA 365.1	Batch ID: W9C0861	Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het	
Phosphorus, Dissolved	0.012	0.0014	0.010	mg/l	1x1	03/20/19 13:33	

Sample: TMDL-CL

Sampled: 03/13/19 7:30 by K. Hahs, K.Fortner

9C14011-06 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.3		0.20	mg/l	1x1	03/22/19 12:44	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs	
Nitrogen, Total	2.8		0.20	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1070	Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs	
TKN	1.3	0.050	0.10	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1072	Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs	
TKN, Soluble	0.76	0.050	0.10	mg/l	1x1	03/22/19 12:44	
Method: EPA 353.2	Batch ID: W9C0813	Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het	
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	03/15/19 13:00	
Method: EPA 365.1	Batch ID: W9C0859	Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het	
Phosphorus as P, Total	1.0	0.014	0.10	mg/l	5x2	03/20/19 13:20	M-06
Method: EPA 365.1	Batch ID: W9C0861	Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het	
Phosphorus, Dissolved	0.10	0.0014	0.010	mg/l	1x1	03/20/19 13:41	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study March. 2019 P6040555

Reported:
04/17/2019 15:03

Project Manager: Kelly Hahs

Sample Results

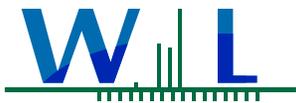
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Sample: TMDL-SA

Sampled: 03/13/19 8:45 by K. Hahs, K.Fortner

9C14011-07 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:50		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.2		0.20	mg/l	1x1	03/22/19 12:44	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 03/19/19 17:49		Analyst: mcs	
Nitrogen, Total	2.5		0.20	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1070	Instr: AA06		Prepared: 03/19/19 17:49		Analyst: mcs	
TKN	0.32	0.050	0.10	mg/l	1x1	03/22/19 12:13	
Method: EPA 351.2	Batch ID: W9C1072	Instr: AA06		Prepared: 03/19/19 17:50		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	03/22/19 12:44	
Method: EPA 353.2	Batch ID: W9C0813	Instr: AA01		Prepared: 03/14/19 15:34		Analyst: het	
NO2+NO3 as N	2.2	0.083	0.20	mg/l	1x1	03/15/19 12:42	
Method: EPA 365.1	Batch ID: W9C0859	Instr: AA01		Prepared: 03/15/19 12:30		Analyst: het	
Phosphorus as P, Total	0.13	0.0014	0.010	mg/l	1x1	03/20/19 13:06	
Method: EPA 365.1	Batch ID: W9C0861	Instr: AA01		Prepared: 03/15/19 12:34		Analyst: het	
Phosphorus, Dissolved	0.040	0.0014	0.010	mg/l	1x1	03/20/19 13:42	



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study March, 2019 P6040555

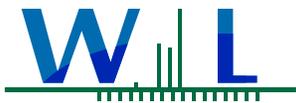
Reported:
04/17/2019 15:03

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W9C0813 - EPA 353.2											
Blank (W9C0813-BLK1) Prepared: 03/14/19 Analyzed: 03/15/19											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W9C0813-BS1) Prepared: 03/14/19 Analyzed: 03/15/19											
NO2+NO3 as N	0.940	0.083	0.20	mg/l	1.00		94	90-110			
Matrix Spike (W9C0813-MS1) Source: 9C14011-05 Prepared: 03/14/19 Analyzed: 03/15/19											
NO2+NO3 as N	3.72	0.083	0.20	mg/l	2.00	1.71	100	90-110			
Matrix Spike (W9C0813-MS2) Source: 9C14011-07 Prepared: 03/14/19 Analyzed: 03/15/19											
NO2+NO3 as N	4.23	0.083	0.20	mg/l	2.00	2.23	100	90-110			
Matrix Spike Dup (W9C0813-MSD1) Source: 9C14011-05 Prepared: 03/14/19 Analyzed: 03/15/19											
NO2+NO3 as N	3.75	0.083	0.20	mg/l	2.00	1.71	102	90-110	0.8	20	
Matrix Spike Dup (W9C0813-MSD2) Source: 9C14011-07 Prepared: 03/14/19 Analyzed: 03/15/19											
NO2+NO3 as N	4.24	0.083	0.20	mg/l	2.00	2.23	100	90-110	0.2	20	
Batch: W9C0859 - EPA 365.1											
Blank (W9C0859-BLK1) Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W9C0859-BS1) Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus as P, Total	0.0489	0.0014	0.010	mg/l	0.0500		98	90-110			
Matrix Spike (W9C0859-MS1) Source: 9C14011-05 Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus as P, Total	0.0790	0.0014	0.010	mg/l	0.0500	0.0275	103	90-110			
Matrix Spike Dup (W9C0859-MSD1) Source: 9C14011-05 Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus as P, Total	0.0796	0.0014	0.010	mg/l	0.0500	0.0275	104	90-110	0.8	20	
Batch: W9C0861 - EPA 365.1											
Blank (W9C0861-BLK1) Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W9C0861-BS1) Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus, Dissolved	0.0495	0.0014	0.010	mg/l	0.0500		99	90-110			
Matrix Spike (W9C0861-MS1) Source: 9C14011-05 Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus, Dissolved	0.0630	0.0014	0.010	mg/l	0.0500	0.0119	102	90-110			
Matrix Spike Dup (W9C0861-MSD1) Source: 9C14011-05 Prepared: 03/15/19 Analyzed: 03/20/19											
Phosphorus, Dissolved	0.0628	0.0014	0.010	mg/l	0.0500	0.0119	102	90-110	0.3	20	
Batch: W9C1070 - EPA 351.2											
Blank (W9C1070-BLK1) Prepared: 03/19/19 Analyzed: 03/22/19											
TKN	ND	0.050	0.10	mg/l							
Blank (W9C1070-BLK2) Prepared: 03/19/19 Analyzed: 03/28/19											
TKN	ND	0.050	0.10	mg/l							
LCS (W9C1070-BS1) Prepared: 03/19/19 Analyzed: 03/22/19											
TKN	1.04	0.050	0.10	mg/l	1.00		104	90-110			
LCS (W9C1070-BS2) Prepared: 03/19/19 Analyzed: 03/28/19											
TKN	0.901	0.050	0.10	mg/l	1.00		90	90-110			



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
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FINAL REPORT

Project Number: TMDL Study March. 2019 P6040555

Reported:
04/17/2019 15:03

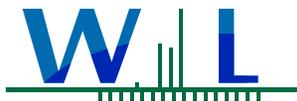
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W9C1070 - EPA 351.2 (Continued)											
LCS (W9C1070-BS2)											
						Prepared: 03/19/19 Analyzed: 03/28/19					
Matrix Spike (W9C1070-MS1)											
						Source: 9C14011-05					
						Prepared: 03/19/19 Analyzed: 03/22/19					
TKN	0.887	0.050	0.10	mg/l	1.00	0.120	77	90-110			MS-01
Matrix Spike Dup (W9C1070-MSD1)											
						Source: 9C14011-05					
						Prepared: 03/19/19 Analyzed: 03/22/19					
TKN	1.11	0.050	0.10	mg/l	1.00	0.120	99	90-110	23	10	MS-01
Batch: W9C1072 - EPA 351.2											
Blank (W9C1072-BLK1)											
						Prepared: 03/19/19 Analyzed: 03/22/19					
TKN, Soluble	ND	0.050	0.10	mg/l							
Blank (W9C1072-BLK2)											
						Prepared: 03/19/19 Analyzed: 03/28/19					
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W9C1072-BS1)											
						Prepared: 03/19/19 Analyzed: 03/22/19					
TKN, Soluble	0.973	0.050	0.10	mg/l	1.00		97	90-110			
LCS (W9C1072-BS2)											
						Prepared: 03/19/19 Analyzed: 03/28/19					
TKN, Soluble	0.907	0.050	0.10	mg/l	1.00		91	90-110			
Matrix Spike (W9C1072-MS1)											
						Source: 9C14011-02					
						Prepared: 03/19/19 Analyzed: 03/22/19					
TKN, Soluble	1.24	0.050	0.10	mg/l	1.00	0.181	105	90-110			
Matrix Spike Dup (W9C1072-MSD1)											
						Source: 9C14011-02					
						Prepared: 03/19/19 Analyzed: 03/22/19					
TKN, Soluble	0.989	0.050	0.10	mg/l	1.00	0.181	81	90-110	22	10	MS-01



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Reported:
04/17/2019 15:03

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL (VR Algae TMDL)

Comprehensive Monitoring Program

9d09052

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORYFY19MA01, Project P6040555)

SAMPLING EVENT: APRIL 2019

SAMPLING DATE: 4/8/2019

SAMPLERS: K. HAYS, E. LOMELI

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus**	Nitrate + Nitrite as Nitrogen								NOTES
TMDL-Est	4/8/19 14:15	X	X	X								
TMDL-R1	13:15	X	X	X								
TMDL-R2	12:20	X	X	X								
TMDL-R3	11:20	X	X	X								
TMDL-R4	09:20	X	X	X								
TMDL-CL	08:10	X	X	X								
TMDL-SA	09:55	X	X	X								

** FIELD FILTERED

Signature: <u>Steven S. Greer</u>	Signature: <u>[Handwritten Signature]</u>
Print Name: <u>Steven S. Greer</u>	Print Name: <u>Charles A. [Handwritten]</u>
Affiliation: <u>VCWPD</u>	Affiliation: <u>[Handwritten]</u>
Received Date/Time: <u>4/8/2019 0830</u>	Received Date/Time: <u>4/9/19 1200</u>
Relinquished Date/Time: <u>4/8/2019 12:00pm</u>	Relinquished Date/Time:

Signature: <u>[Handwritten Signature]</u>	Signature: <u>[Handwritten Signature]</u>
Print Name: <u>Carla [Handwritten]</u>	Print Name: <u>JAMES GONZALEZ</u>
Affiliation: <u>[Handwritten]</u>	Affiliation: <u>Waterlabs</u>
Received Date/Time: <u>4/8/19 405</u>	Received Date/Time: <u>4/9/19 1125</u>
Relinquished Date/Time:	Relinquished Date/Time:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

2.8°C T0131



Certificate of Analysis

FINAL REPORT

Work Orders: 9D09052

Report Date: 5/01/2019

Project: TMDL Study April. 2019 P6040555

Received Date: 4/9/2019

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYF1
9MA01

Attn: Kelly Hahs

Billing Code:

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

EPA-UCMR #CA00211 • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 •
NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

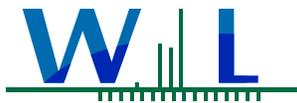
Dear Kelly Hahs,

Enclosed are the results of analyses for samples received 4/09/19 with the Chain-of-Custody document. The samples were received in good condition, at 2.8 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

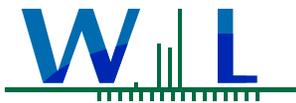
Project Number: TMDL Study April. 2019 P6040555

Reported:
05/01/2019 12:07

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs, E. Lomeli	9D09052-01	Water	04/09/19 14:15	
TMDL-R1	K. Hahs, E. Lomeli	9D09052-02	Water	04/09/19 13:15	
TMDL-R2	K. Hahs, E. Lomeli	9D09052-03	Water	04/09/19 12:20	
TMDL-R3	K. Hahs, E. Lomeli	9D09052-04	Water	04/09/19 11:20	
TMDL-R4	K. Hahs, E. Lomeli	9D09052-05	Water	04/09/19 09:20	
TMDL-CL	K. Hahs, E. Lomeli	9D09052-06	Water	04/09/19 08:10	
TMDL-SA	K. Hahs, E. Lomeli	9D09052-07	Water	04/09/19 09:55	



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FINAL REPORT

Project Number: TMDL Study April. 2019 P6040555

Reported:
05/01/2019 12:07

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 04/09/19 14:15 by K. Hahs, E. Lomeli

9D09052-01 (Water)

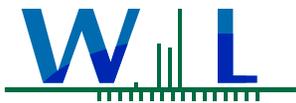
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.6		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
Nitrogen, Total	2.9		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594	Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs	
TKN, Soluble	0.059	0.050	0.10	mg/l	1x1	04/17/19 13:31	J
Method: EPA 351.2	Batch ID: W9D0595	Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs	
TKN	1.3	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908	Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat	
NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	04/16/19 11:06	
Method: EPA 365.1	Batch ID: W9D0857	Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het	
Phosphorus as P, Total	0.17	0.0028	0.020	mg/l	2x1	04/22/19 16:38	M-06
Method: EPA 365.1	Batch ID: W9D0858	Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het	
Phosphorus, Dissolved	0.013	0.0014	0.010	mg/l	1x1	04/22/19 16:57	

Sample: TMDL-R1

Sampled: 04/09/19 13:15 by K. Hahs, E. Lomeli

9D09052-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.9		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
Nitrogen, Total	1.9		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594	Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs	
TKN, Soluble	0.26	0.050	0.10	mg/l	1x1	04/17/19 13:31	
Method: EPA 351.2	Batch ID: W9D0595	Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs	
TKN	0.28	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908	Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat	
NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	04/16/19 11:03	
Method: EPA 365.1	Batch ID: W9D0857	Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het	
Phosphorus as P, Total	0.030	0.0014	0.010	mg/l	1x1	04/22/19 16:34	
Method: EPA 365.1	Batch ID: W9D0858	Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het	
Phosphorus, Dissolved	0.011	0.0014	0.010	mg/l	1x1	04/22/19 17:01	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
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Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study April. 2019 P6040555

Reported:
05/01/2019 12:07

Project Manager: Kelly Hahs

Sample Results

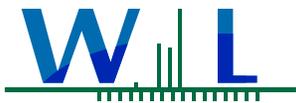
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Sample: TMDL-R2
9D09052-03 (Water) Sampled: 04/09/19 12:20 by K. Hahs, E. Lomeli

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.0		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
Nitrogen, Total	2.0		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594	Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	04/17/19 13:31	
Method: EPA 351.2	Batch ID: W9D0595	Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs	
TKN	ND	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908	Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat	
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	04/16/19 11:07	
Method: EPA 365.1	Batch ID: W9D0857	Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het	
Phosphorus as P, Total	0.037	0.0014	0.010	mg/l	1x1	04/22/19 16:40	
Method: EPA 365.1	Batch ID: W9D0858	Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het	
Phosphorus, Dissolved	0.027	0.0014	0.010	mg/l	1x1	04/22/19 17:03	

Sample: TMDL-R3
9D09052-04 (Water) Sampled: 04/09/19 11:20 by K. Hahs, E. Lomeli

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	2.2		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
Nitrogen, Total	2.1		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594	Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs	
TKN, Soluble	0.36	0.050	0.10	mg/l	1x1	04/17/19 13:31	
Method: EPA 351.2	Batch ID: W9D0595	Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs	
TKN	0.33	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908	Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat	
NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	04/16/19 11:08	
Method: EPA 365.1	Batch ID: W9D0857	Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het	
Phosphorus as P, Total	0.010	0.0014	0.010	mg/l	1x1	04/22/19 16:41	
Method: EPA 365.1	Batch ID: W9D0858	Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het	
Phosphorus, Dissolved	0.0068	0.0014	0.010	mg/l	1x1	04/22/19 17:04	J



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Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study April. 2019 P6040555

Reported:
05/01/2019 12:07

Project Manager: Kelly Hahs

Sample Results

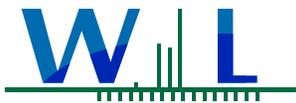
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Sample: TMDL-R4
9D09052-05 (Water) Sampled: 04/09/19 9:20 by K. Hahs, E. Lomeli

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	1.8		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs
Nitrogen, Total	1.8		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594		Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	04/17/19 13:31	
Method: EPA 351.2	Batch ID: W9D0595		Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs
TKN	ND	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908		Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat
NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	04/16/19 11:10	
Method: EPA 365.1	Batch ID: W9D0857		Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het
Phosphorus as P, Total	0.013	0.0014	0.010	mg/l	1x1	04/22/19 16:43	
Method: EPA 365.1	Batch ID: W9D0858		Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het
Phosphorus, Dissolved	0.0052	0.0014	0.010	mg/l	1x1	04/22/19 17:06	J

Sample: TMDL-CL
9D09052-06 (Water) Sampled: 04/09/19 8:10 by K. Hahs, E. Lomeli

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs
METHOD ***							
Dissolved Nitrogen	0.44		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs
Nitrogen, Total	0.51		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594		Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs
TKN, Soluble	0.44	0.050	0.10	mg/l	1x1	04/17/19 13:31	
Method: EPA 351.2	Batch ID: W9D0595		Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs
TKN	0.51	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908		Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	04/16/19 11:11	
Method: EPA 365.1	Batch ID: W9D0857		Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het
Phosphorus as P, Total	0.022	0.0014	0.010	mg/l	1x1	04/22/19 16:44	
Method: EPA 365.1	Batch ID: W9D0858		Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het
Phosphorus, Dissolved	0.0084	0.0014	0.010	mg/l	1x1	04/22/19 17:07	J



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FINAL REPORT

Project Number: TMDL Study April. 2019 P6040555

Reported:
05/01/2019 12:07

Project Manager: Kelly Hahs

Sample Results

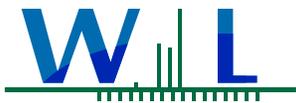
(Continued)

Sample: TMDL-SA

Sampled: 04/09/19 9:55 by K. Hahs, E. Lomeli

9D09052-07 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
METHOD ***							
Dissolved Nitrogen	1.6		0.20	mg/l	1x1	04/17/19 13:31	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/15/19 11:31		Analyst: mcs	
Nitrogen, Total	1.8		0.20	mg/l	1x1	04/17/19 13:04	
Method: EPA 351.2	Batch ID: W9D0594	Instr: AA06		Prepared: 04/09/19 15:15		Analyst: mcs	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	04/17/19 13:31	
Method: EPA 351.2	Batch ID: W9D0595	Instr: AA06		Prepared: 04/09/19 15:17		Analyst: mcs	
TKN	0.19	0.050	0.10	mg/l	1x1	04/17/19 13:04	
Method: EPA 353.2	Batch ID: W9D0908	Instr: AA01		Prepared: 04/15/19 11:31		Analyst: mat	
NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	04/16/19 11:12	
Method: EPA 365.1	Batch ID: W9D0857	Instr: AA01		Prepared: 04/12/19 16:12		Analyst: het	
Phosphorus as P, Total	0.019	0.0014	0.010	mg/l	1x1	04/22/19 16:46	
Method: EPA 365.1	Batch ID: W9D0858	Instr: AA01		Prepared: 04/12/19 16:20		Analyst: het	
Phosphorus, Dissolved	0.0097	0.0014	0.010	mg/l	1x1	04/22/19 17:09	J



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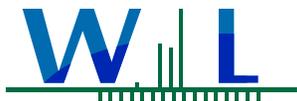
Reported:
05/01/2019 12:07

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W9D0594 - EPA 351.2											
Blank (W9D0594-BLK1)					Prepared: 04/09/19 Analyzed: 04/17/19						
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W9D0594-BS1)					Prepared: 04/09/19 Analyzed: 04/17/19						
TKN, Soluble	0.991	0.050	0.10	mg/l	1.00		99	90-110			
Matrix Spike (W9D0594-MS1)					Source: 9D09052-04 Prepared: 04/09/19 Analyzed: 04/17/19						
TKN, Soluble	1.38	0.050	0.10	mg/l	1.00	0.357	102	90-110			
Matrix Spike Dup (W9D0594-MSD1)					Source: 9D09052-04 Prepared: 04/09/19 Analyzed: 04/17/19						
TKN, Soluble	1.40	0.050	0.10	mg/l	1.00	0.357	104	90-110	1	10	
Batch: W9D0595 - EPA 351.2											
Blank (W9D0595-BLK1)					Prepared: 04/09/19 Analyzed: 04/17/19						
TKN	ND	0.050	0.10	mg/l							
LCS (W9D0595-BS1)					Prepared: 04/09/19 Analyzed: 04/17/19						
TKN	0.942	0.050	0.10	mg/l	1.00		94	90-110			
Matrix Spike (W9D0595-MS1)					Source: 9D09052-04 Prepared: 04/09/19 Analyzed: 04/17/19						
TKN	1.25	0.050	0.10	mg/l	1.00	0.329	92	90-110			
Matrix Spike Dup (W9D0595-MSD1)					Source: 9D09052-04 Prepared: 04/09/19 Analyzed: 04/17/19						
TKN	1.09	0.050	0.10	mg/l	1.00	0.329	76	90-110	13	10	MS-01
Batch: W9D0857 - EPA 365.1											
Blank (W9D0857-BLK1)					Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus as P, Total	0.00324	0.0014	0.010	mg/l							J
LCS (W9D0857-BS1)					Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus as P, Total	0.0514	0.0014	0.010	mg/l	0.0500		103	90-110			
Matrix Spike (W9D0857-MS1)					Source: 9D09052-02 Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus as P, Total	0.0785	0.0014	0.010	mg/l	0.0500	0.0299	97	90-110			
Matrix Spike Dup (W9D0857-MSD1)					Source: 9D09052-02 Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus as P, Total	0.0802	0.0014	0.010	mg/l	0.0500	0.0299	101	90-110	2	20	
Batch: W9D0858 - EPA 365.1											
Blank (W9D0858-BLK1)					Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W9D0858-BS1)					Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus, Dissolved	0.0495	0.0014	0.010	mg/l	0.0500		99	90-110			
Matrix Spike (W9D0858-MS1)					Source: 9D09052-01 Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus, Dissolved	0.0610	0.0014	0.010	mg/l	0.0500	0.0131	96	90-110			
Matrix Spike Dup (W9D0858-MSD1)					Source: 9D09052-01 Prepared: 04/12/19 Analyzed: 04/22/19						
Phosphorus, Dissolved	0.0621	0.0014	0.010	mg/l	0.0500	0.0131	98	90-110	2	20	
Batch: W9D0908 - EPA 353.2											
Blank (W9D0908-BLK1)					Prepared: 04/15/19 Analyzed: 04/16/19						
NO2+NO3 as N	ND	0.083	0.20	mg/l							



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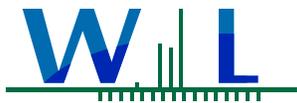
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W9D0908 - EPA 353.2 (Continued)											
LCS (W9D0908-BS1)											
NO2+NO3 as N	0.971	0.083	0.20	mg/l	1.00		97	90-110			
					Prepared: 04/15/19 Analyzed: 04/16/19						
Matrix Spike (W9D0908-MS1)											
NO2+NO3 as N	3.77	0.083	0.20	mg/l	2.00	1.64	106	90-110			
					Source: 9D09052-02 Prepared: 04/15/19 Analyzed: 04/16/19						
Matrix Spike Dup (W9D0908-MSD1)											
NO2+NO3 as N	3.73	0.083	0.20	mg/l	2.00	1.64	104	90-110	1	20	



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Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation. The MDL and MRL were raised due to this dilution.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.



December 31, 2018

Jenny Newman, Regional Programs Section Chief
Regional Water Quality Control Board
320 W. 4th St., Suite 200
Los Angeles, CA 90013

Subject: **2018 DRY SEASON DATA SUMMARY FOR THE VENTURA RIVER ALGAE TMDL (RESOLUTION NO. R12-011)**

Dear Ms. Newman:

Enclosed for your review and consideration is the 2018 Dry Season Data Summary prepared and submitted to document completion of monitoring activities required by the Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients Total Maximum Daily Load, Resolution No. R12-011 (Ventura Algae TMDL) and the Ventura Algae TMDL Comprehensive Monitoring Plan for Receiving Water approved by Regional Water Quality Control Board on October 20, 2014.

This document is being submitted on behalf of the Ojai Valley Sanitary District, County of Ventura, Ventura County Watershed Protection District, City of Ojai, City of Ventura, California Department of Transportation, and the Ventura County Agricultural Irrigated Lands Group (represented by the Farm Bureau of Ventura County).

If you have any comments or questions regarding the attached document, please contact Ewelina Mutkowska at (805) 645-1382 or ewelina.mutkowska@ventura.org.

Sincerely,

A handwritten signature in blue ink, appearing to read "Arne Anselm".

Arne Anselm
Deputy Director,
Ventura County Watershed Protection District

Ms. Jenny Newman
December 31, 2018
Page 2 of 2

cc: Renee Purdy, Regional Water Quality Control Board
Jeff Pratt, County of Ventura Public Works Agency
Glenn Shephard, Ventura County Watershed Protection District
Ewelina Mutkowska, Ventura County Public Works Agency
Joe Yahner, City of Ventura
Greg Grant, City of Ojai
Jeff Palmer, Ojai Valley Sanitary District
John Krist, Farm Bureau of Ventura County
Shirley Pak, California Department of Transportation

TOTAL MAXIMUM DAILY LOAD FOR ALGAE, EUTROPHIC CONDITIONS, AND NUTRIENTS IN VENTURA RIVER, INCLUDING THE ESTUARY, AND ITS TRIBUTARIES (VR ALGAE TMDL)

2018 DRY SEASON DATA SUMMARY

Submitted to
TMDL Responsible Parties Implementing Receiving Water Monitoring Requirements:

City of Ojai
City of Ventura
County of Ventura
Ojai Valley Sanitary District
California Department of Transportation
Ventura County Agricultural Irrigated Lands Group
Ventura County Watershed Protection District

Prepared by:
Ventura County Watershed Protection District
November 15, 2018



TABLE OF CONTENTS

Executive Summary	ii
Background	1
Access Permission	2
Monthly Monitoring	2
Field Observations	7
Continuous Data Logging	8
Observations and Lessons Learned.....	14

LIST OF FIGURES

Figure 1. Sampling Sites and Flow Observation Locations.....	1
Figure 2. Dry Season Seasonal Averages - Chlorophyll a and Macroalgal Cover	7
Figure 3. Hydrolab HL4 sonde	9
Figure 4. Dry Season 2018 - Temperature (Continuous Data Logger)	10
Figure 5. Dry Season 2018 - pH (Continuous Data Logger)	11
Figure 6. Dry Season 2018 - Dissolved Oxygen (Continuous Data Logger)	12
Figure 7. Dry Season 2018 - Specific Conductance (Continuous Data Logger)	13

LIST OF TABLES

Table 1. May - September 2018 Observation Sites.....	2
Table 2. May - September 2018 Water Quality Sample Collection Date Agency	2
Table 3. May – September 2018 Field Data	3
Table 4. May - September 2018 Nutrient Data.....	4
Table 5. May – September 2018 Riverine Sites Monthly Algal Biomass (Chlorophyll A) and Percent Macroalgal Cover	5
Table 6. 2018 Dry Season Riverine Sites Average Macroalgal Biomass and Cover.....	6
Table 7. 2018 Dry Season Estuary Site Average Macroalgal Biomass and Cover	7
Table 8. 2018 Dry Season Two-Week Continuous Monitoring Periods	9
Table 9. Sites with DO Measured below the Daily Minimum Numeric Target (7 mg/L).....	14
Table 10. Sites Above the Seasonal Average Maximum Numeric Algae Targets.....	15
Table 11. Exceedances By Site and Month	15

EXECUTIVE SUMMARY

On behalf of the Total Maximum Daily Load (TMDL) Responsible Parties, the Ventura County Watershed Protection District (District) began sampling in accordance with the Ventura River Algae TMDL Comprehensive Monitoring Plan for Receiving Waters (CMP) on January 14, 2015. As required by the TMDL, the CMP prescribes year-round monthly water quality monitoring for nutrients and other water quality parameters at one site in the Ventura River Estuary (TMDL-Est), one site in each of the Ventura River reaches 1 – 4, and in two main tributaries, Cañada Larga and San Antonio Creek (TMDL-R1, TMDL-R2, TMDL-R3, TMDL-R4, TMDL-CL and TMDL-SA, respectively). Continuous monitoring of dissolved oxygen (DO) and pH, (both of which also require temperature monitoring) are required at each site every quarter. Conductivity is also measured during the continuous monitoring. The CMP also requires monthly monitoring of algae during the dry season (May – September). This report covers the dry season monitoring from May 2018 – September 2018, including monthly checks for flow at the observations sites, field and laboratory results, and the continuous data logging conducted in May and September 2018.

The Ventura River Watershed has been subjected to increased environmental stresses in recent years. In addition to the ongoing severe drought, the watershed was heavily impacted by the Thomas Fire, which started on December 4, 2017 and was declared contained on January 12, 2018, becoming (at that time) the largest recorded fire in California history. The fire burned most of the open space and forest lands in the watershed, as well as orchards, homes, and other structures from Fillmore to Santa Barbara. Areas that did not burn (mainly the floor of the Ojai Valley) were still subject to heavy ash deposition.

While the drought is not yet over for Ventura County, the county received sufficient rainfall in early 2018 to get many creeks and rivers flowing again, including some that had been dry in the Ventura River watershed. All observation sites were flowing in April and TMDL-CVR (Ventura River at Casitas Vista Road) flowed through September, however connectivity with the upper watershed was lost by June for the remainder of the dry season, with TMDL-H150 (Ventura River at Hwy 150), TMDL-SAB (Ventura River at Santa Ana Blvd), and TMDL-CL completely dry, and TMDL-SA dry upstream with limited flow at the nutrient collection site. TMDL-R4 was dry by August. TMDL-Est through TMDL-R3 are perennial so were sampleable for nutrients and algae throughout the dry season. Flow variations between monitoring sites and events might be due to a combination of factors including geology, weather conditions, inputs, and extractions.

All sampleable sites except for TMDL-R1, TMDL-R2, and TMDL-CL exceeded the seasonal average numeric target for macroalgal cover ($\leq 15\%$ for the estuary and $\leq 30\%$ for the riverine sites). All sites except TMDL-CL and TMDL-SA exceeded the seasonal average numeric target for algal biomass (estuarine phytoplankton seasonal average chlorophyll *a* target of ≤ 20 $\mu\text{g/L}$, riverine seasonal average chlorophyll *a* target of ≤ 150 mg/m^2). All measurements for pH were within the numeric target limits except for TMDL-Est and TMDL-CL during the May sampling (monthly and continuous). Levels of DO below the numeric target were measured during periods of low flow and at the low points of the diurnal patterns at some sites. The measured range for total nitrogen was 0.22 mg/L – 4.0 mg/L and total phosphorus was 0.0070 (DNQ) mg/L – 0.52 mg/L .

Hydrolab HL4 water quality sondes have been used for the quarterly two-week continuous monitoring requirement since March 2015. As required by the TMDL, the sondes were deployed in May and September during the 2018 Dry Season. The sondes were calibrated by District staff before each event to ensure calibrations were accurate. Field meter measurements were taken near the sondes during sonde retrieval to check for drift/fouling of the sonde sensors during deployment. The estuary sonde is deployed at a depth of approximately 7-10 feet to avoid exposure if the estuary breaches and to reduce the risk of potential vandalism. Sondes in areas with known siltation issues were deployed higher in the water column. Sondes were deployed at all sites in May, and all sites except TMDL-R4, TMDL-SA, and TMDL-CL in September due to dry conditions. The deployed sondes logged data for a two-week period in the 2nd and 3rd quarters beginning on May 1 and September 12, respectively. TMDL-R4 had conductivity errors in May and the TMDL-CL conductivity and DO sensors became fouled during the May deployment. (Conductivity is not a required parameter at these sites.) The DO sensor at TMDL-CL became fouled during the September deployment. All other required data was successfully collected.

Sampling event data, including field data sheets and laboratory reports, will be provided with the 2018 Annual Report.

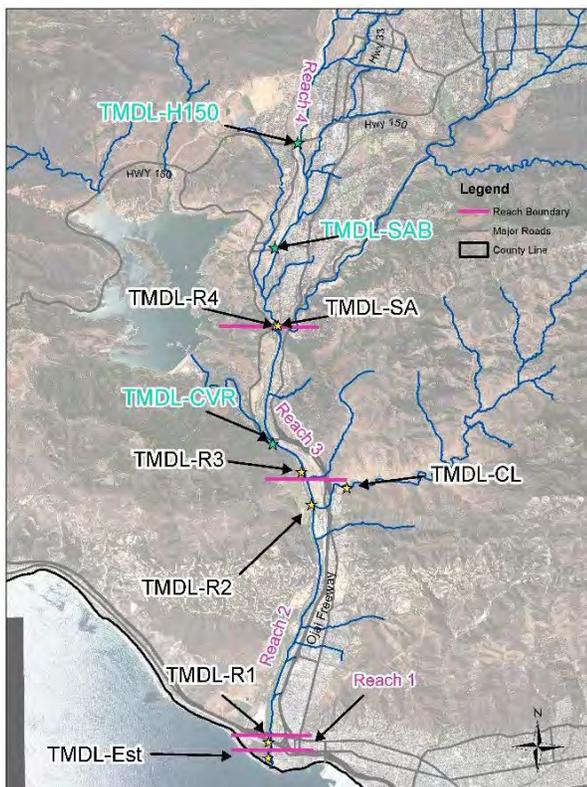
BACKGROUND

The Water Quality Control Plan for the Los Angeles Region was amended on December 6, 2012 to incorporate the Total Maximum Daily Load for Algae, Eutrophic Conditions, and Nutrients in the Ventura River, including the Estuary, and its Tributaries (VR Algae TMDL). The VR Algae TMDL became effective on June 28, 2013 and required the development and implementation of a comprehensive monitoring plan (CMP) for receiving water monitoring to assess numeric attainment and measure in-stream nutrient concentrations. The CMP submitted by the Responsible Parties (Ojai Valley Sanitary District, Ventura County Watershed Protection District, County of Ventura, City of Ojai, City of San Buenaventura (Ventura), California Department of Transportation, and the Ventura County Agricultural Irrigated Lands Group (represented by the Farm Bureau of Ventura County)) was approved by the Los Angeles Regional Water Quality Control Board (Regional Board) on October 20, 2014.

On November 18, 2014, the Ventura County Watershed Protection District (District) was retained by the Responsible Parties to conduct the monitoring in accordance with the CMP for up to 5 years. The CMP required sampling to begin no later than 90 days after the Los Angeles Regional Water Quality Control Board approved the CMP, which equates to January 18, 2015. Monitoring began on January 14, 2015.

As required by the TMDL, the CMP prescribes year-round monthly water quality monitoring for nutrients and other water quality parameters at one site in the Ventura River Estuary, one site in each of the Ventura River reaches 1 – 4, and in two main tributaries, Cañada Larga and San Antonio Creek. Continuous monitoring of dissolved oxygen (DO) and pH, (both of which also require temperature monitoring) are required at each site every quarter. Conductivity is also measured during the continuous monitoring. The CMP also requires monthly monitoring of algae (chlorophyll a and percent macroalgal cover) during the dry season (May – September). This report is a summary of dry season monitoring data from May – September 2018, including the continuous data logging conducted in May and September.

FIGURE 1. SAMPLING SITES AND FLOW OBSERVATION LOCATIONS



Note: Yellow site markers (black labels) are sampling locations. Blue site markers (blue labels) are flow observation locations

ACCESS PERMISSION

In 2015, to allow for continuity of site locations, five-year easements were sought from the property owners where the sites are located for the fee of \$250 per term. The temporary easements expire five years from the date of approval (early 2020). Two property owners declined the five-year easement request but signed a revocable access permit instead. The sites affected by the permits are TMDL-R2 (which was moved upstream of the site listed in the CMP because the owner of that parcel denied the access request) and TMDL-SA directly above the confluence with the Ventura River. TMDL-R2 was sampled approximately 200 meters upstream of the OVSD site (OVSD-R5) for monthly monitoring and approximately 300 meters upstream for continuous monitoring to be entirely on permitted property.

MONTHLY MONITORING

The 2018 dry season sampling occurred monthly from May through September as required. There was limited connectivity between the upper and lower watershed in May but none after that, as shown in Table 1. All TMDL sample sites had sampleable flow for nutrients and algae sampling in May, however by June TMDL-CL was completely dry and TMDL-SA was too dry for algae sampling (TMDL-SA would have been dry in June-September if not for a small spring at the site.) TMDL-R4 was too dry for all sampling after July and TMDL-SA was too dry for nutrient collection after August. Dry season sample dates and the collecting agency are shown in Table 2 (sample sites that were dry are noted as such and shaded grey). Monthly field data is summarized in Table 3 and nutrient data in Table 4. The District contracted with Aquatic Bioassay & Consulting Laboratories, Inc. (ABC) for assistance with the monthly monitoring of chlorophyll *a* and percent cover of algae during the dry season, May to September. Algal biomass and percent cover data are summarized in Table 5, Table 6, and Table 7.

TABLE 1. MAY - SEPTEMBER 2018 OBSERVATION SITES

Date	Ventura River at Hwy 150	Ventura River at Santa Ana Blvd	Ventura River at Casitas Vista Road
5/16/2018	6 cfs	Water visible downstream but DRY at bridge	6 cfs
6/4/2018	DRY	DRY	Flowing east end ~ 2 cfs
7/10/2018	DRY	DRY	Flowing east end ~ 2 cfs
8/15/2018	DRY	DRY	Flowing east end ~ 2-3 cfs
9/4/2018	DRY	DRY	Ponded west end. Flowing east end ~ 2-3 cfs

There was no connectivity with the upper watershed after May for the 2018 dry season.

TABLE 2. MAY - SEPTEMBER 2018 WATER QUALITY SAMPLE COLLECTION DATE AGENCY

Site	Collecting Agency	Sampling Date				
		May 2018	June 2018	July 2018	August 2018	September 2018
TMDL-Est	District/ABC	5/16/2018	6/7/2018	7/10/2018	8/15/2018	9/5/2018
TMDL-R1	District/ABC	5/16/2018	6/7/2018	7/10/2018	8/15/2018	9/5/2018
TMDL-R2	District/ABC	5/16/2018	6/6/2018	7/9/2018	8/14/2018	9/5/2018
TMDL-R3	District/ABC	5/15/2018	6/6/2018	7/9/2018	8/14/2018	9/5/2018
TMDL-R4	District/ABC	5/15/2018	6/6/2018	7/9/2018	(DRY) 8/14/2018	(DRY) 9/4/2018
TMDL-CL	District/ABC	5/15/2018	(DRY) 6/6/2018	(DRY) 7/9/2018	(DRY) 8/14/2018	(DRY) 9/4/2018
TMDL-SA	District/ABC	5/15/2018	(Mostly Dry) 6/4/2018	(Mostly Dry) 7/10/2018	(Mostly Dry) 8/14/2018	(DRY) 9/4/2018

Mostly Dry sites had water present in at least one location in the reach so could be sampled for regular monthly monitoring parameters but did not have sufficient water present to meet algae sampling protocols, so algae monitoring/collection was not conducted. DRY sites had insufficient water present for any sampling to take place.

TABLE 3. MAY – SEPTEMBER 2018 FIELD DATA

Site	Sample Date	Sample Time	Berm Status	Flow Field Meter (cfs)	pH Field Meter (pH Units) <i>Numeric Target 6.5 - 8.5</i>	DO Field Meter (mg/L) <i>Numeric Target >7 mg/L</i>	SC Field Meter (µS/cm)	Salinity Field Meter (ppt)	Water Temp Field Meter (°C)
TMDL-Est	5/16/2018	12:55	Open-west end	NA	8.68	12.02	39080	24.9	22.7
TMDL-Est	6/7/2018	9:45	Open-west end	NA	8.42	11.02	7670	4.2	22.1
TMDL-Est	7/10/2018	10:10	Closed	NA	8.06	8.34	4536	2.4	27.2
TMDL-Est	8/15/2018	10:20	Closed	NA	8.27	9.08	3314	1.7	26
TMDL-Est	9/5/2018	13:50	Closed	NA	8.15	7.47	2434	1.3	23.5
TMDL-R1	5/16/2018	11:00	NA	3.73	8.35	9.51	1719	0.9	18.5
TMDL-R1	6/7/2018	7:45	NA	2.69	8.37	9.22	1794	0.9	18.3
TMDL-R1	7/10/2018	7:45	NA	1.93	7.77	6.42	1742	0.9	23.3
TMDL-R1	8/15/2018	7:40	NA	1.3	8.03	7.46	1691	0.9	22.5
TMDL-R1	9/5/2018	11:50	NA	2.03	8.14	7.14	1645	0.8	21
TMDL-R2	5/16/2018	8:20	NA	3.35	8.06	7.42	1255	0.6	18.4
TMDL-R2	6/6/2018	13:10	NA	3.26	8.22	9.15	1327	0.7	21.5
TMDL-R2	7/9/2018	13:00	NA	2.94	8.17	8.91	1305	0.7	26.1
TMDL-R2	8/14/2018	11:15	NA	2.11	8.2	6.66	1315	0.7	25.1
TMDL-R2	9/5/2018	9:45	NA	2.61	7.96	6.84	1269	0.6	22.7
TMDL-R3	5/15/2018	12:00	NA	0.92	8.28	12.94	1152	0.6	21.2
TMDL-R3	6/6/2018	11:05	NA	0.8	8.02	8.69	1176	0.6	20
TMDL-R3	7/9/2018	11:00	NA	1.46	8	9.63	1219	0.6	24.4
TMDL-R3	8/14/2018	9:00	NA	1	7.92	6.74	1219	0.6	22
TMDL-R3	9/5/2018	7:40	NA	1	7.74	6.91	1192	0.6	20.9
TMDL-R4	5/15/2018	8:05	NA	0.69	7.66	8.36	1070	0.5	16.6
TMDL-R4	6/6/2018	8:00	NA	0.24	7.48	6.12	1060	0.5	17.7
TMDL-R4	7/9/2018	8:40	NA	0.02	7.2	5.46	1092	0.5	19.4
TMDL-R4	8/14/2018	8:00	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	9/4/2018	10:00	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	5/15/2018	10:25	NA	0.01	7.25	4.54	1026	0.5	17.3
TMDL-SA	6/6/2018	10:20	NA	0.01	7.2	3.38	1030	0.5	17.5
TMDL-SA	7/9/2018	10:00	NA	0.02	7.11	4.79	1073	0.5	19.2
TMDL-SA	8/14/2018	8:20	NA	<0.01	7.07	5.84	997	0.5	18.3
TMDL-SA	9/4/2018	10:10	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	5/15/2018	14:00	NA	0.035	8.73	10.58	3709	1.9	31.4
TMDL-CL	6/4/2018	13:30	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	7/10/2018	12:15	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	8/14/2018	13:30	NA	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	9/4/2018	8:45	NA	DRY	DRY	DRY	DRY	DRY	DRY

NA: Not applicable. Berm status only applies to the estuary site TMDL-Est. Salinity is included for the TMDL-Est and TMDL-R1 sites to indicate the level of ocean influence at these sites.

Surface flow in the River during this period began downstream of the Santa Ana Blvd Bridge, upstream of TMDL-R4 and continued to the estuary, including through the typically perennial reaches of TMDL-R3 and below. The flow at TMDL-R2 is a combination of the flow in the Ventura River downstream of TMDL-R3 and the discharge from the Ojai Valley Sanitary District’s wastewater treatment plant. Flow typically decreased between TMDL-R2 and TMDL-R1. Potential causes for changes in flow include surface/subsurface flow, groundwater interaction, geology and infiltration rates, antecedent moisture, agricultural and urban inputs and extractions, etc. Poned locations, and those with shallow and/or slow-moving water appear to experience greater variation in measured levels of DO and so ponds are avoided where possible but may not be able to be avoided in all cases.

All monthly measurements for pH were within the numeric target limits except for TMDL-Est on 5/16/18, which was marginally higher than the upper TMDL numeric target. Low levels of DO tended to occur in ponded areas and during periods of low flow, possibly due to the lack of water movement upstream and/or at the measurement location.

TABLE 4. MAY - SEPTEMBER 2018 NUTRIENT DATA

Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-Est	5/16/2018	12:55	0.065	0.0084 (DNQ)	0.58	0.3	0.58	0.3	<0.083
TMDL-Est	6/7/2018	9:45	0.13	0.042	1.1	0.62	1.2	0.72	0.1 (DNQ)
TMDL-Est	7/10/2018	10:10	0.12	0.091	0.92	0.61	0.92	0.61	<0.083
TMDL-Est	8/15/2018	10:20	0.14	0.19	1.1	0.53	1.2	0.67	0.15 (DNQ)
TMDL-Est	9/5/2018	13:50	0.11	0.025	0.75	0.48	0.75	0.48	<0.083
TMDL-R1	5/16/2018	11:00	0.044	0.022	0.59	0.49	1.4	1.3	0.84
TMDL-R1	6/7/2018	7:45	0.097	0.08	0.7	0.58	1.5	1.4	0.81
TMDL-R1	7/10/2018	7:45	0.18	0.16	0.64	0.68	2.1	2.2	1.5
TMDL-R1	8/15/2018	7:40	0.12	0.088	0.55	0.47	0.55	0.47	<0.083
TMDL-R1	9/5/2018	11:50	0.1	0.09	0.52	0.53	0.93	0.94	0.41
TMDL-R2	5/16/2018	8:20	0.16	0.14	0.52	0.38	2.6	2.4	2
TMDL-R2	6/6/2018	13:10	0.36	0.27	0.75	0.28	2.8	2.3	2
TMDL-R2	7/9/2018	13:00	0.52	0.26	0.72	0.48	4.0	3.8	3.3
TMDL-R2	8/14/2018	11:15	0.26	0.24	0.63	0.57	2.5	2.5	1.9
TMDL-R2	9/5/2018	9:45	0.19	0.17	0.58	0.58	2.3	2.4	1.8
TMDL-R3	5/15/2018	12:00	0.01	0.0072 (DNQ)	0.078 (DNQ)	0.068 (DNQ)	0.6	0.59	0.52
TMDL-R3	6/6/2018	11:05	0.069	0.031	0.39	0.16	0.71	0.49	0.33
TMDL-R3	7/9/2018	11:00	0.092	0.046	0.13	0.11	0.3	0.28	0.17 (DNQ)
TMDL-R3	8/14/2018	9:00	0.024	0.016	0.22	0.11	0.22	0.11	<0.083
TMDL-R3	9/5/2018	7:40	0.0081 (DNQ)	0.01	0.17	0.1	0.28	0.21 (DNQ)	0.11 (DNQ)

Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-R4	5/15/2018	8:05	0.0070 (DNQ)	0.0064 (DNQ)	<0.050	<0.050	1.5	1.5	1.5
TMDL-R4	6/6/2018	8:00	0.022	0.021	<0.050	<0.050	1.6	1.6	1.6
TMDL-R4 Field Dup	6/6/2018	8:00	0.025	0.022	0.17	<0.050	1.6	1.5	1.5
TMDL-R4	7/9/2018	8:40	0.055	0.049	0.15	<0.050	1.7	1.5	1.5
TMDL-R4	8/14/2018	8:00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	9/4/2018	10:00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	5/15/2018	10:25	0.024	0.012	<0.050	<0.050	1.7	1.7	1.7
TMDL-SA	6/6/2018	10:20	0.032	0.028	<0.050	<0.050	1.6	1.6	1.6
TMDL-SA	7/9/2018	10:00	0.042	0.036	<0.050	<0.050	1.6	1.6	1.6
TMDL-SA	8/14/2018	8:20	0.029	0.017	0.076 (DNQ)	0.055 (DNQ)	0.42	0.39	0.34
TMDL-SA	9/4/2018	10:10	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	5/15/2018	14:00	0.024	0.032	0.83	0.65	0.83	0.65	<0.083
TMDL-CL	6/4/2018	13:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	7/10/2018	12:15	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	8/14/2018	13:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	9/4/2018	8:45	DRY	DRY	DRY	DRY	DRY	DRY	DRY

DNQ: Detected Not Quantified (analyte can be positively identified but is below the method reporting limit)

TABLE 5. MAY – SEPTEMBER 2018 RIVERINE SITES MONTHLY ALGAL BIOMASS (CHLOROPHYLL A) AND PERCENT MACROALGAL COVER

Site	Date	Field Replicate	Number of Transects Collected	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> units	Percent Presence Macroalgae (%)
TMDL-R1	5/16/2018	1	11	240	mg/m ²	20.95
TMDL-R1	6/7/2018	1	11	390	mg/m ²	8.57
TMDL-R1	7/10/2018	1	11	180	mg/m ²	35.92
TMDL-R1	8/15/2018	1	11	160	mg/m ²	14.29
TMDL-R1	9/5/2018	1	11	87	mg/m ²	13.46
TMDL-R2	5/16/2018	1	11	300	mg/m ²	61.22
TMDL-R2	6/6/2018	1	11	330	mg/m ²	39.42
TMDL-R2	7/9/2018	1	11	200	mg/m ²	14.85
TMDL-R2	8/14/2018	1	11	340	mg/m ²	17.48
TMDL-R2	9/5/2018	1	11	200	mg/m ²	16.67
TMDL-R3	5/15/2018	1	11	280	mg/m ²	71.43
TMDL-R3	6/6/2018	1	11	520	mg/m ²	64.08
TMDL-R3	7/9/2018	1	11	160	mg/m ²	44.76
TMDL-R3	8/14/2018	1	11	93	mg/m ²	50.48
TMDL-R3	9/5/2018	1	11	100	mg/m ²	36.54
TMDL-R4	5/15/2018	1	11	210	mg/m ²	55.24
TMDL-R4	6/6/2018	1	11	150	mg/m ²	70.00
TMDL-R4	6/6/2018	2	11	120	mg/m ²	NA

Site	Date	Field Replicate	Number of Transects Collected	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> units	Percent Presence Macroalgae (%)
TMDL-R4	7/9/2018	1	9	130	mg/m ²	75.56
TMDL-R4	8/14/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-R4	9/4/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	5/15/2018	1	9	36	mg/m ²	42.16
TMDL-SA	6/6/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	7/9/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	8/14/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-SA	9/4/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	5/15/2018	1	11	83	mg/m ²	15.38
TMDL-CL	6/4/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	7/10/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	8/14/2018	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	9/4/2018	1	DRY	DRY	mg/m ²	DRY

TABLE 6. 2018 DRY SEASON RIVERINE SITES AVERAGE MACROALGAL BIOMASS AND COVER

Site	Seasonal Average Biomass (Chlorophyll <i>a</i>) <i>Numeric Target Seasonal Average 150 mg/m² (mg/m²)</i>	Seasonal Average Macroalgal Cover <i>Numeric Target Seasonal Average ≤ 30% (%)</i>
TMDL-R1	211	18.64
TMDL-R2	274	29.93
TMDL-R3	196	53.46
TMDL-R4	153	66.93
TMDL-SA	36	42.16
TMDL-CL	83	15.38

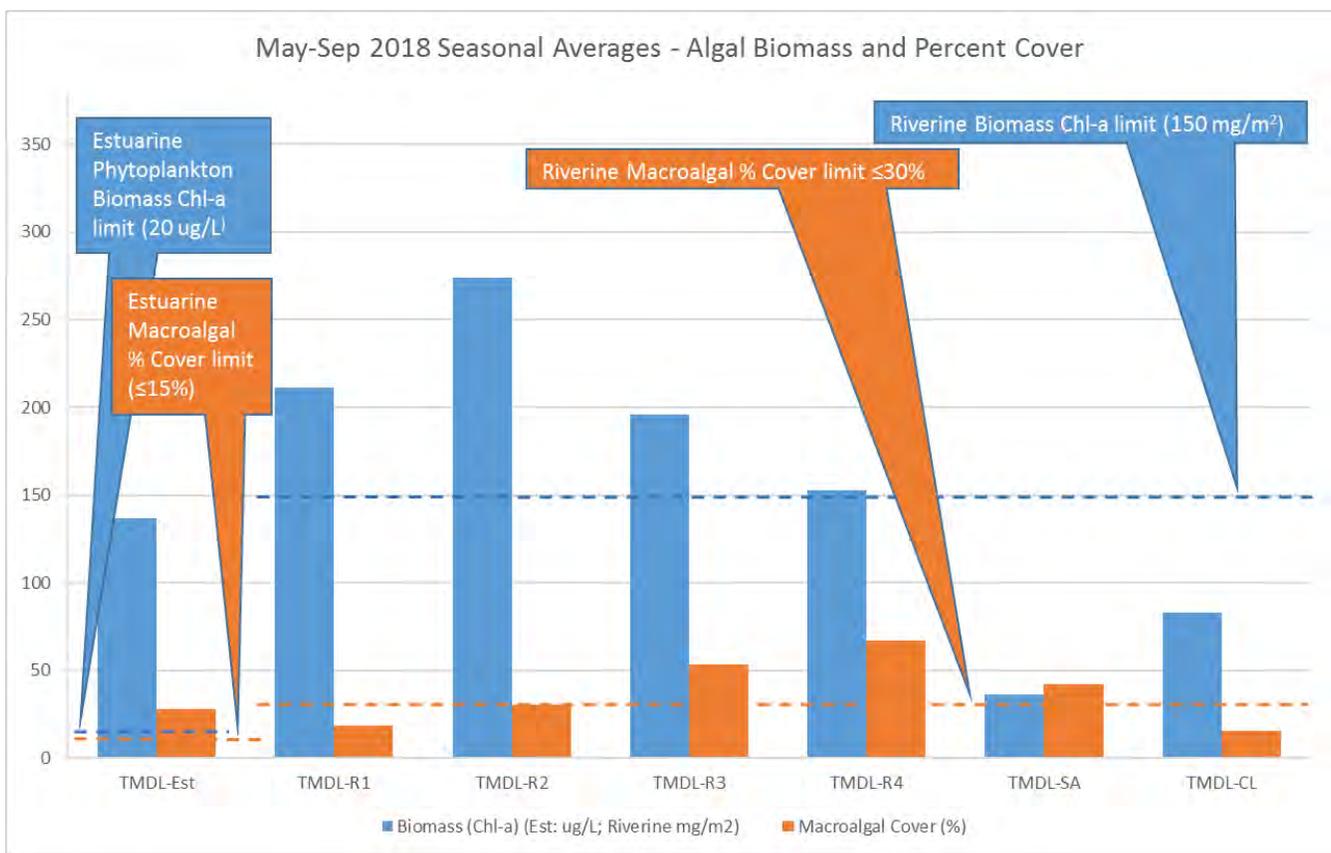
TMDL-SA and TMDL-CL met the riverine seasonal average numeric target for chlorophyll *a*. TMDL-R1, TMDL-R2 and TMDL-CL met the seasonal average numeric target for macroalgal cover. The other riverine sites did not meet the seasonal average numeric targets.

The SWAMP protocol for the riverine sites includes both suspended (floating) and attached (land-based) macroalgae when determining percent cover. The Bight '08 (estuarine) protocol includes measurements of floating algae at a depth of 0.3 meters for four quadrats per transect in addition to measuring algal cover on the shoreline. These variables are included in Table 7. Site TMDL-Est exceeded the seasonal average numeric target for percent cover and phytoplankton biomass (chlorophyll *a*) in 2018.

TABLE 7. 2018 DRY SEASON ESTUARY SITE AVERAGE MACROALGAL BIOMASS AND COVER

Site	Date	Field Replicate	Phytoplankton Biomass Chlorophyll <i>a</i> (µg/L)	Land-Based Macroalgal Cover (%)	Floating Macroalgal Cover (%)
Seasonal Average Numeric Target			20 µg/L	≤ 15%	
TMDL-Est	5/16/2018	1	46	89.80	0.00
TMDL-Est	6/7/2018	1	40	0.27	0.00
TMDL-Est	7/10/2018	1	34	30.95	19.05
TMDL-Est	8/15/2018	1	520	9.59	0.00
TMDL-Est	9/5/2018	1	44	7.89	0.00
TMDL-Est	Seasonal Average		137	27.70	3.81

FIGURE 2. DRY SEASON SEASONAL AVERAGES - CHLOROPHYLL A AND MACROALGAL COVER



Sampling event data, including field data sheets and laboratory reports, will be provided with the 2018 Annual Report.

FIELD OBSERVATIONS

TMDL-EST: Water level in the estuary fluctuates with the tides. It was very low in May and very high in July, probably related to tide height and sand berm status. Dogs are frequently seen in the water and birds (especially gulls) are always present. A red duckweed-type plant was growing in the estuary water in September. Dog feces and bird carcasses are occasionally seen in or near the water, including September 2018.

TMDL-R1: The water level was too high to sample at the typical transect “A” location from July to September so the transects were moved about 25 meters upstream to shallower water. The lower section of this reach is frequently littered with washing

materials and containers (e.g. soap, shampoo, laundry detergent, clothing, towels, etc.) and is commonly known as the “laundry site” due to its frequent use for that purpose by the homeless in the area. The Ventura Land Trust removes the items when it sees them and posts signs, as well as speaking with people directly about the hazards and illegal nature of washing in the stream, however most of the activity occurs when no one is around. The use is heavier in the summer months. The Ventura Land Trust plans to remove some of the vegetation in the area outside of nesting season and investigate funding and partnerships for starting an alternative laundry program for homeless people in the area. During the September event, a man was present in the area with a large sheathed knife strapped to his hip, but he left slowly after he saw the sampling team arrive. Graffiti is common on the pylons under the Main Street bridge and a person was actively engaged in graffiti as the sampling crew passed by during the September event.

TMDL-R2: Several homeless camps are present on the private property in this area. Two camps are on the east bank among the Arundo. Evidence of washing (e.g. soap, shampoo bottles, etc.) are sometimes seen near the water. Some rocks have been moved to create some deeper sections for the camps. A small garden was observed in a cleared space on the river bank at one of the camps in August and in September the garden was fenced with small gauge chicken wire. There appeared to be a toilet facility on the banks in August.

TMDL-R3: Nothing unusual to report.

TMDL-R4: Another data collection sonde (short sonde inside PVC tubing) is frequently seen installed (by an unknown party) in the water near transect “A”. The sonde monitoring appears to be ongoing.

TMDL-SA: A natural spring tends to keep the area directly above the confluence with the Ventura River wet for most/all of the year, however upstream/influent flow dried out by June, and the area was too dry for sampling at all by September.

TMDL-CL: The sonde was loosely covered with camouflaging rocks when it was installed in May, however when the crew was onsite to perform the monthly monitoring approximately two weeks later, the rocks were gone and the sonde installation was visible but the sonde itself was embedded in sediment. Flow in the creek was minimal so the velocity could not have moved the rocks. The crew tried to remove the sediment, but it was quickly replaced. The data logging period ended several hours later and the sonde was collected the following day. Human interference with the sonde is suspected but the timing of the presumed interference cannot be inferred from the data due to lack of support by all parameters. [The conductivity sensor became fouled a third of the way through deployment and the DO sensor became fouled two thirds of the way through deployment, at about which time the pH appears to have decreased (and remained lower for the remainder of the deployment) but there was no obvious change in conductivity during the latter part of the deployment).

CONTINUOUS DATA LOGGING

Seven Hydrolab HL4 water quality data sondes (Figure 3) are used for the continuous data monitoring requirement of this program. The HL4 has the ability to accurately measure and log DO, conductivity, pH and temperature within a self-contained package that is 1.75” in diameter and just over two feet in length, which allows it to fit inside a short length protective housing of 2” diameter schedule 40 pipe. The data sonde installations are vulnerable to potential vandalism and theft and so need to be as inconspicuous as possible (i.e. below the water surface among rocks and tree roots). Each sonde is assigned to a particular TMDL site and is labeled with the site name for additional consistency between events. Pre and post calibrations and/or calibration checks are performed for each deployed sonde for each event.

Continuous monitoring for pH, specific conductivity, temperature, and DO was conducted for a two-week period at all sites (except those that were dry) in May and September. The sondes were programmed to begin logging data soon after deployment and continue logging for a little over two weeks to allow field staff to get concurrent field meter measurements during sonde retrieval to compare to the sonde data (Figure 4, Figure 5, Figure 6, and Figure 7).

FIGURE 3. HYDROLAB HL4 SONDE



In May 2018, seven Hydrolab HL4 water quality data sondes were installed and began logging data on May 1, 2018 at 19:00. The TMDL-R4 conductivity readings were in error for the first half of the deployment, however conductivity is not a required measurement at this site and the conductivity at this site (known from past measurements and as measured by the field meter check at retrieval) is low enough (~1,000 µS) to not affect the other collected data¹, so redeployment was unnecessary. The TMDL-CL conductivity sensor became fouled a third of the way through deployment and the DO sensor became fouled two thirds of the way through deployment, so readings are in error for those periods. There was insufficient flow for redeployment at TMDL-CL. The affected data is not included in the charts. It is likely that stream flow decreased at TMDL-SA during deployment resulting in lower DO and conductivity levels as the composition of the water became more dominated by the natural spring at the site.

In September 2018, sondes were installed at four TMDL monitoring sites for continuous data logging (TMDL-R4, TMDL-SA, and TMD-CL were dry). The sondes were installed before the logging program began on September 12, 2018 and removed after two weeks of logging, (Figure 4, Figure 5, Figure 6, and Figure 7). The TMDL-R1 DO sensor became fouled partway through its deployment so the erroneous data is excluded from this report. Graphical representations of the continuous monitoring data are presented below.

TABLE 8. 2018 DRY SEASON TWO-WEEK CONTINUOUS MONITORING PERIODS

Site	2018 Quarter 2 (May*)	2018 Quarter 3 (September*)
TMDL-Est	5/1/2018 – 5/15/2018	9/12/2018 – 9/26/2018
TMDL-R1	5/1/2018 – 5/15/2018	9/12/2018 – 9/26/2018 ^b
TMDL-R2	5/1/2018 – 5/15/2018	9/12/2018 – 9/26/2018
TMDL-R3	5/1/2018 – 5/15/2018	9/12/2018 – 9/26/2018
TMDL-R4	5/1/2018 – 5/15/2018 ^a	DRY
TMDL-SA	5/1/2018 – 5/15/2018	DRY
TMDL-CL	5/1/2018 – 5/15/2018 ^a	DRY

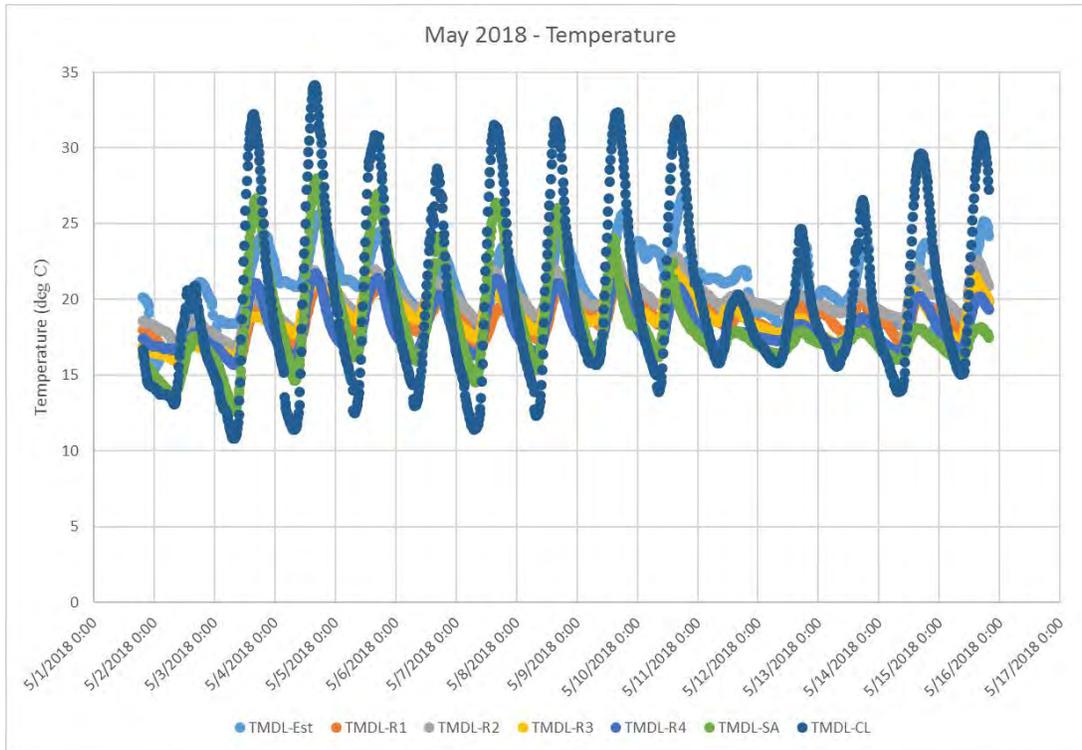
* Month required by TMDL

^a Conductivity in error for part of deployment but not a required parameter so not redeployed.

^b DO sensor became fouled partway through deployment.

¹ The conductivity measurement is used by the sonde when calculating DO, however the influence of conductivity on DO measurements for the conductivity levels seen at the TMDL riverine stations is negligible.

FIGURE 4. DRY SEASON 2018 - TEMPERATURE (CONTINUOUS DATA LOGGER)



TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings.

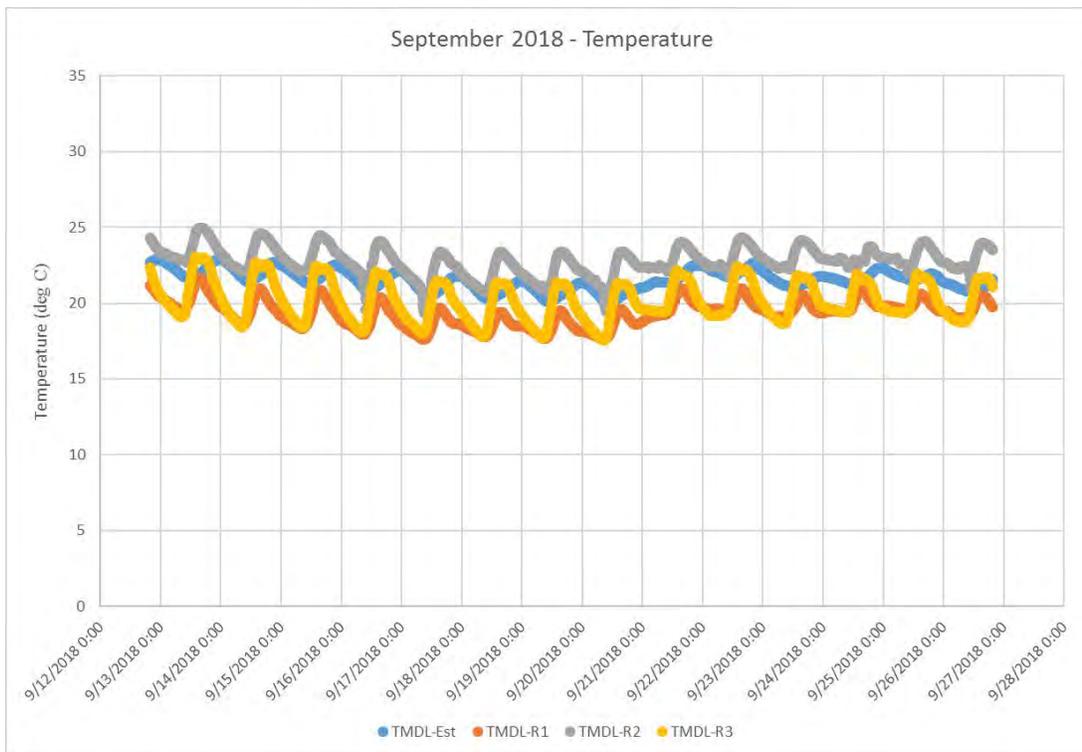
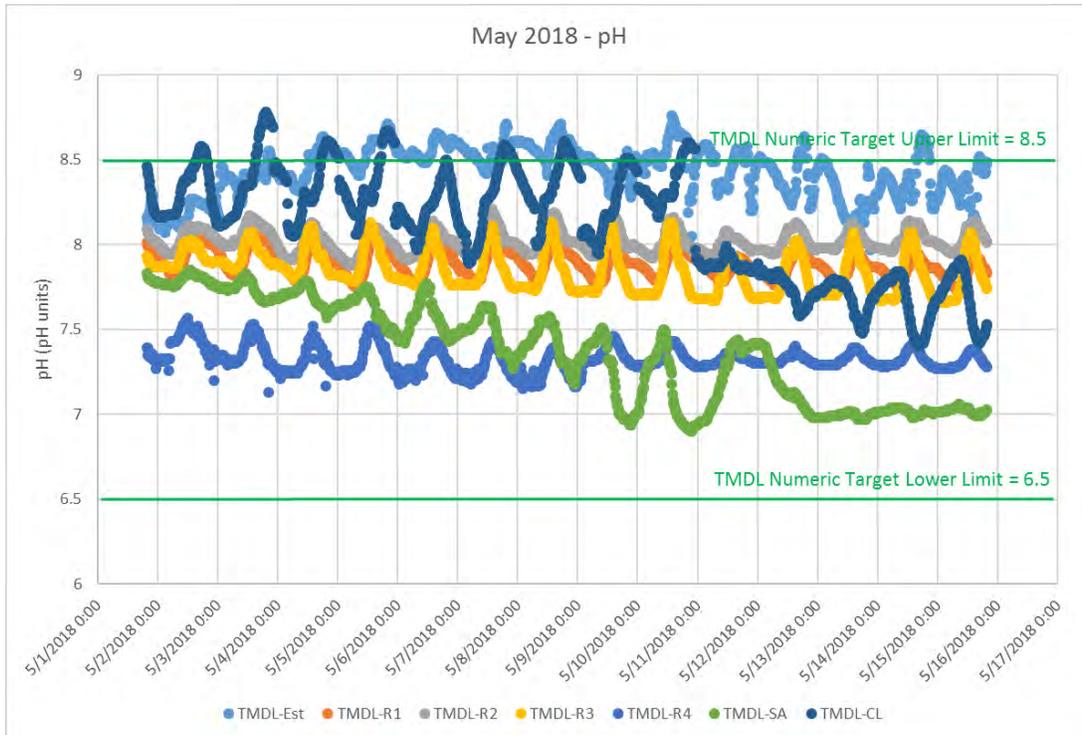


FIGURE 5. DRY SEASON 2018 - PH (CONTINUOUS DATA LOGGER)



TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings.

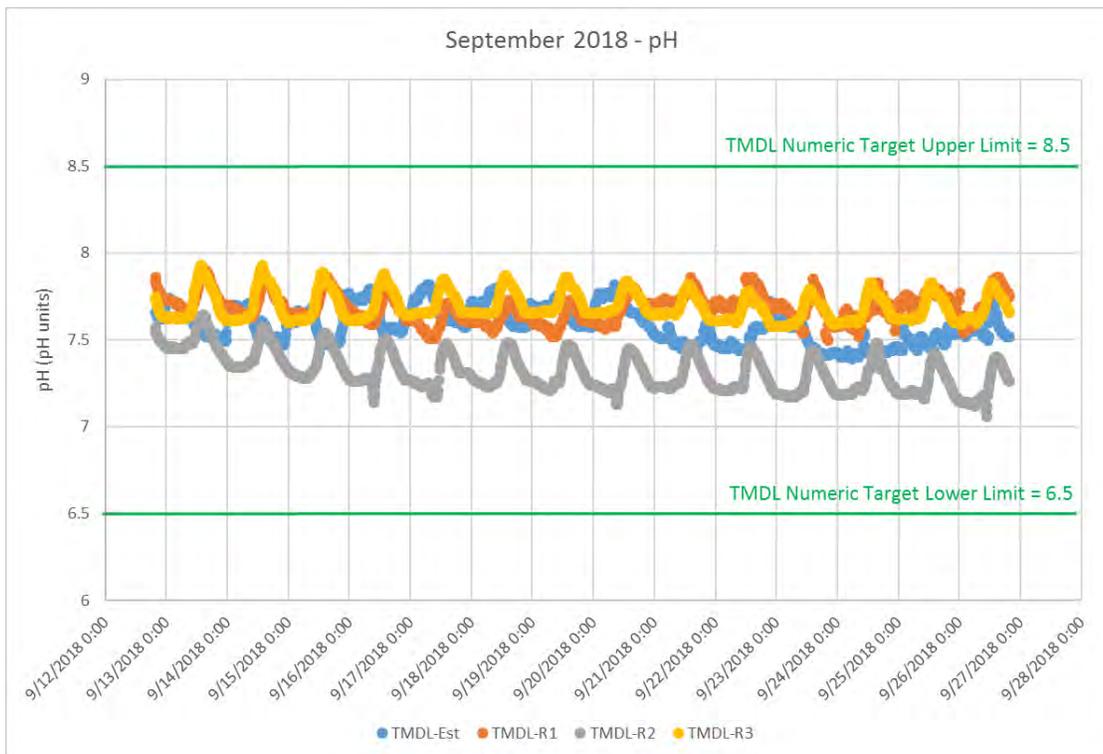
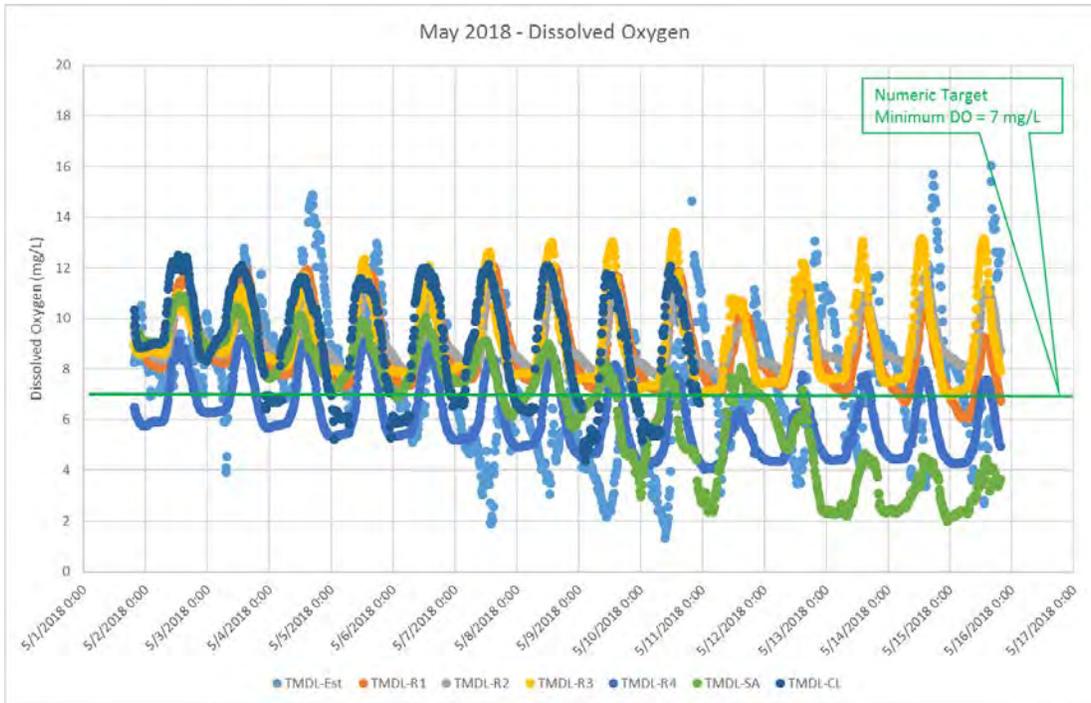
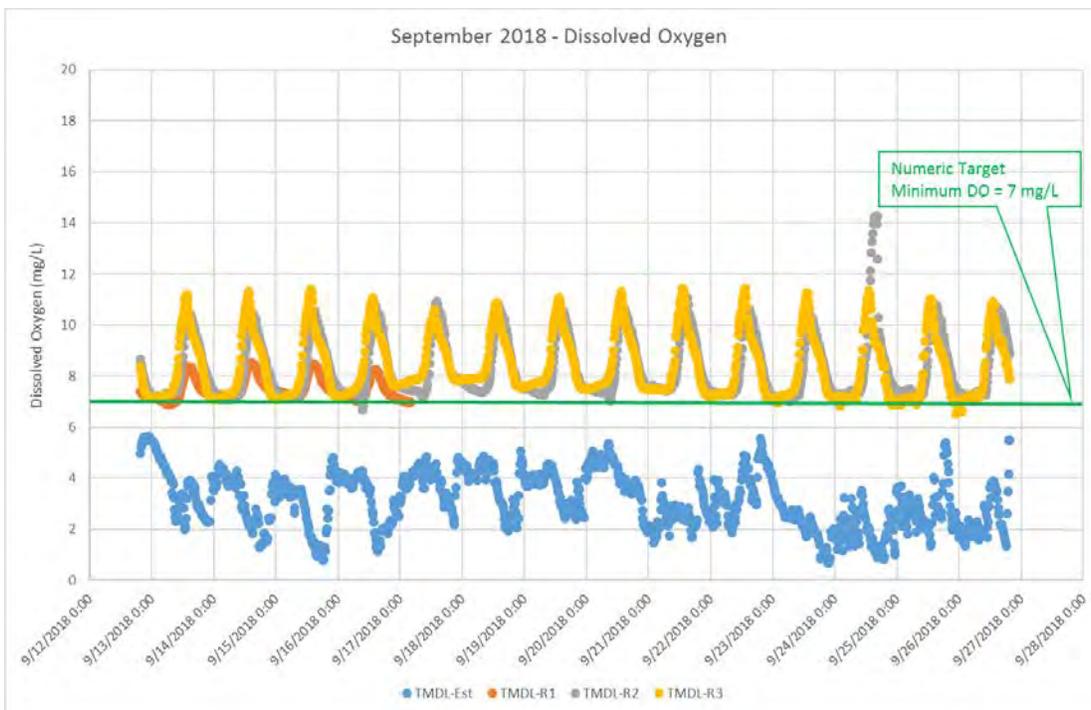


FIGURE 6. DRY SEASON 2018 - DISSOLVED OXYGEN (CONTINUOUS DATA LOGGER)

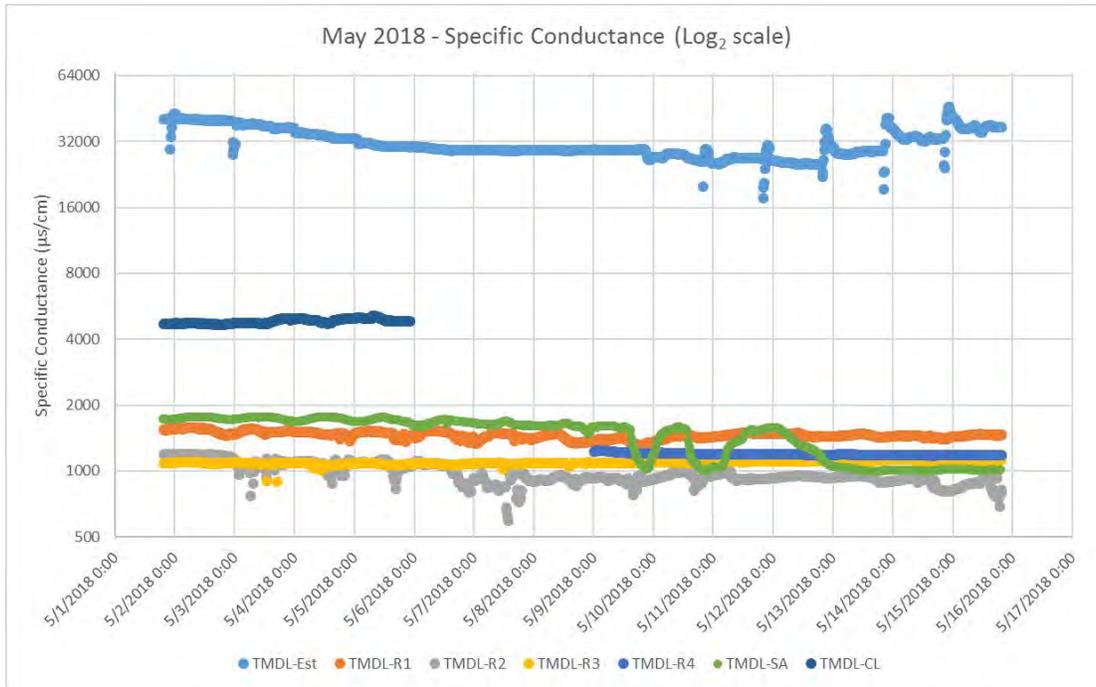


TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings. TMDL-CL: The DO sensor became fouled two thirds of the way through deployment, so data is not included for that period.

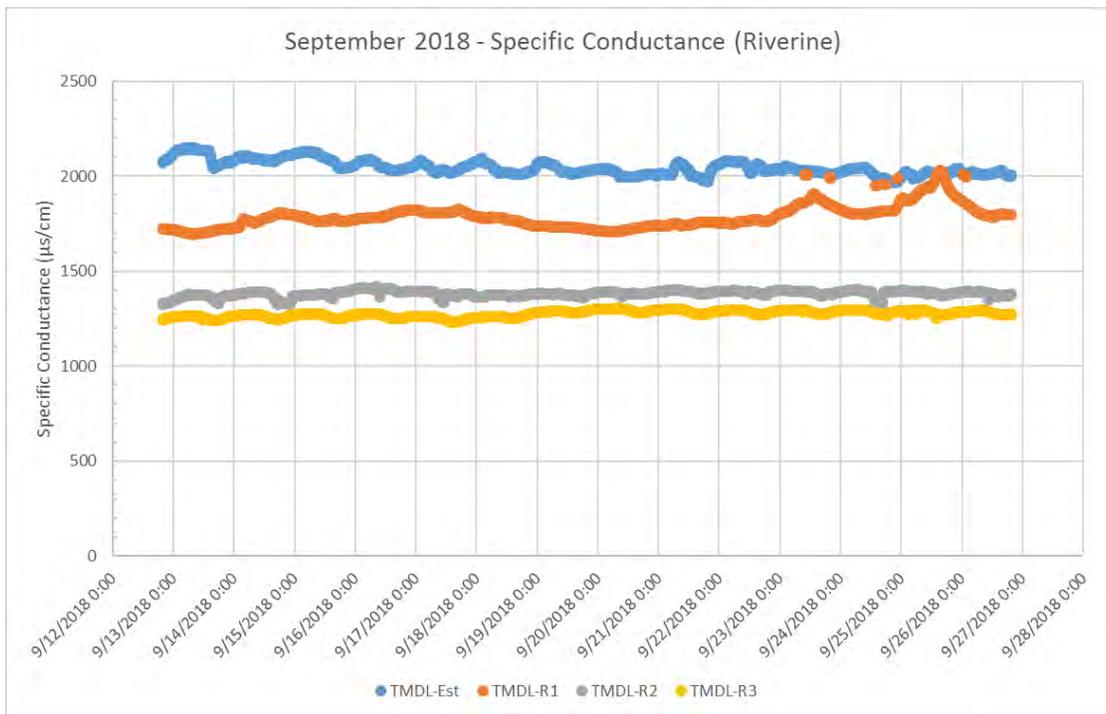


TMDL- R1: The DO sensor became fouled near the end of the first week of deployment.

FIGURE 7. DRY SEASON 2018 - SPECIFIC CONDUCTANCE (CONTINUOUS DATA LOGGER)



TMDL-R4: Conductivity readings were in error for the first half of the deployment. TMDL-CL: Conductivity sensor became fouled a third of the way through deployment. Conductivity is not a required parameter for these sites and the erroneous measurements are not included in this chart. TMDL-SA: It is probable that the flow decreased towards the end of deployment, which caused changes in readings.



OBSERVATIONS AND LESSONS LEARNED

Southern California has been experiencing extreme drought conditions since before this monitoring program began (January 2015). During the drought, the Ventura River and its tributaries have been particularly dry, resulting in lost hydrological connectivity between the upper and lower watershed. A large storm in January and a series of storms in March resulted in flow at all observation points and briefly reestablished hydrologic connectivity between the upper and lower watershed for the end of the 2017/18 wet season. However, by the time the 2018 dry season monitoring began in May, flow on the mainstem Ventura River had ceased at the Santa Ana Bridge and by June had also ceased in San Antonio Creek at TMDL-SA, resulting in a loss of connectivity with that portion of the upper watershed, as occurred during the dry season in 2015-2017.

Flow variations between monitoring sites and events are likely due to a combination of factors, including geology, temperature, inputs, and extractions. Ponded locations, and those with shallow and/or slow-moving water appear to experience greater variation in measured levels of DO and so ponds are avoided where possible but could not be avoided in all cases. TMDL-Est appears to have experienced a greater ocean influence in May than in September (as seen in 2015-2017²) according to the conductivity data.

Siltation can be an issue in slow moving water and sondes are installed higher in the water column in areas where it is likely to occur, but shallow water sometimes restricts the level at which the sonde can be placed. All sondes were checked and/or calibrated by monitoring staff before and after deployment, regardless of history, and field meter readings were taken near the sondes immediately prior to sonde removal to check/confirm that the sondes were still reading accurately in situ at the end of the deployment. However, it should be noted that field readings may not match the sonde data for reasons other than sonde/meter malfunction, including placement (meter distance from sonde, depth of measurement, flow velocity), fouling of the sonde (sedimentation, algae, films, etc.). Additionally, the sondes are covered with rocks to camouflage them to prevent vandalism, however the rock cover could affect flow, fouling, and deposition depending on stream conditions at the time of placement and changes during the deployment period.

All monthly grab and continuous monitoring pH measurements were within the numeric target limits of pH 6.5-8.5, except for the May grab and continuous samples at TMDL-Est and TMDL-CL, which were over the upper limit of 8.5. Sites with DO measured below the daily minimum numeric target are shown in Table 9. All sites exhibited diurnal DO, pH, and temperature patterns during the continuous monitoring events, and all monitored sites (except TMDL-R2 and TMDL-R3 in May) were below the DO daily minimum numeric target for at least one trough of the diurnal variation. Low levels of DO appear to be associated with low flow, possibly due to the ponding of water upstream and/or at the measurement location. TMDL-SA would have been dry in June-September if not for a small spring at the site. Sites with seasonal average chlorophyll *a* and macroalgal cover exceedances are listed in Table 10.

TABLE 9. SITES WITH DO MEASURED BELOW THE DAILY MINIMUM NUMERIC TARGET (7 MG/L)

	May	June	July	August	September
Grab	SA	R4, SA	R4, SA	R2, R3, SA	R2
Continuous	Est, R1, R4, SA, CL	Not Applicable	Not Applicable	Not Applicable	Est, R1, R2, R3
Dry		CL	CL	R4, CL	R4, SA, CL

Note: TMDL-SA would have been dry June-September if not for a small spring at the site.

² TMDL-Est sonde conductivity data is unavailable for September 2017 due to the loss of the sonde during that event. The conductivity measured during field sampling in September 2018 was in line with results for September in previous years.

TABLE 10. SITES ABOVE THE SEASONAL AVERAGE MAXIMUM NUMERIC ALGAE TARGETS

Parameter	Above Seasonal Average Numeric Target
Chlorophyll <i>a</i>	Est, R1, R2, R3, R4
Macroalgal Cover	Est, R3, R4, SA

Note: TMDL-SA was too dry for algae sampling in June-September and would have been completely dry if not for a small spring at the site. CL was dry in August and September.

TABLE 11. EXCEEDANCES BY SITE AND MONTH

	Seasonal Average	May	June	July	August	September
TMDL-Est	Chl <i>a</i> / cover	pH(m) / pH(c), DO(c)				DO(c)
TMDL-R1	Chl <i>a</i>	DO(c)		DO(m)		DO(c)
TMDL-R2	Chl <i>a</i>				DO(m)	DO(m) / DO(c)
TMDL-R3	Chl <i>a</i> / Cover				DO(m)	DO(c)
TMDL-R4	Chl <i>a</i> / Cover	DO(c)	DO(m)	DO(m)	DRY	DRY
TMDL-SA	Chl <i>a</i> / Cover	DO(m) / DO(c)	DO(m)*	DO(m)*	DO(m)*	DRY
TMDL-CL	Chl <i>a</i>	pH(m) / pH (c) DO(c)	DRY	DRY	DRY	DRY

Notes:

*: site was too dry to meet protocol requirements for algae collection. Only water grab samples were collected.

(m) is the monthly grab sample measurement

Chl *a*: Chlorophyll *a*

(c) is the continuously monitored DO.

Cover: Percent macroalgal cover



January 28, 2019

Renee Purdy
Assistant Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th St., Suite 200
Los Angeles, CA 90013

Subject: 2017-2018 Annual Monitoring Report for Ventura River Estuary Trash TMDL (Resolution No. R4-2007-008)

Dear Ms. Purdy,

Enclosed for your review and consideration is the Ventura River Estuary Trash TMDL Annual Monitoring Report for 2017-2018 monitoring year. This Annual Monitoring Report is being submitted per the requirements of the Ventura River Estuary Trash TMDL, Los Angeles Regional Water Quality Control Board Resolution No. R4-2007-008.

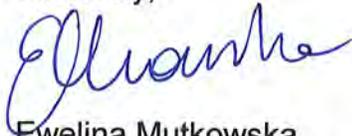
This document is being submitted on behalf of the following responsible parties: City of Ventura, County of Ventura, Ventura County Watershed Protection District, Ventura County Fairgrounds, California Department of Transportation, California Department of Parks and Recreation-Channel Coast District, and participants in the Ventura County Agricultural Irrigated Lands Group, which is a subdivision of the Farm Bureau of Ventura County.

During the 2013-2014 monitoring year, the responsible parties developed a revised Trash Monitoring and Reporting Plan (TMRP–Addendum No. 1) to include a new MFAC/BMP Program that utilizes visual trash assessments and targeted clean ups of the parcels located within the Estuary, coupled with BMPs implemented in the Estuary and on the land areas adjacent to the Estuary. The Addendum 1 dated October 22, 2014 was submitted by our consultant Larry Walker & Associates on November 11, 2014 reflective of the input received from Regional Board staff during the June 17, 2014 meeting between the Responsible Parties and Regional Board staff. The responsible parties are still waiting for approval of the Addendum No. 1; however, Regional Board staff indicated the responsible parties should implement the revised TMRP program while awaiting approval.

This Annual Monitoring Report summarizes the results of the fourth year of the revised TMRP and MFAC/BMP Program (October 2017 through September 2018).

If you have any comments or questions regarding the attached document, please contact me at (805) 645-1382 or Ewelina.Mutkowska@ventura.org.

Sincerely,



Ewelina Mutkowska
County Stormwater Program Manager
Ventura County Public Works Agency

cc: Jenny Newman, Los Angeles Regional Water Quality Control Board
Stefanie Hada, Los Angeles Regional Water Quality Control Board
Jeff Pratt, Ventura County Public Works Agency
Glenn Shepard, Ventura County Watershed Protection District
Arne Anselm, Ventura County Watershed Protection District
Joe Yahner, City of Ventura
Peter Shellenbarger, City of Ventura
Nat Cox, California Department of Parks and Recreation
Rich Rozelle, California Department of Parks and Recreation
John Krist, Farm Bureau of Ventura County
Jodi Switzer, Farm Bureau of Ventura County
Shirley Pak, California Department of Transportation
Constantine Kontaxis, California Department of Transportation
Sunny Liem, California Department of Transportation
Joshi Bhaskar, California Department of Transportation
Ron Murphy, Ventura County Fairgrounds
Derek Poultney, Ventura Land Trust
Dan Hulst, Ventura Land Trust



JANUARY 2019

Ventura River Estuary Trash TMDL 2017-2018 TMRP Annual Report

prepared by

VENTURA LAND TRUST

submitted to

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
LOS ANGELES REGION

submitted by

CITY OF VENTURA, COUNTY OF VENTURA, VENTURA COUNTY
WATERSHED PROTECTION DISTRICT, PARTICIPANTS IN THE VENTURA
COUNTY AGRICULTURAL IRRIGATED LANDS GROUP, CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE, CALIFORNIA DEPARTMENT
OF STATE PARKS, AND CALIFORNIA DEPARTMENT OF TRANSPORTATION



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Table of Contents

Introduction	1
Monitoring Summary	4
Assessments and Collection Events.....	4
Assessment Findings.....	6
MFAC Events/BMP Implementation Summary	7
MFAC Collection Events and Additional Clean-Up Events	8
BMP Implementation.....	12
City of Ventura Litter Management Program BMPs.....	12
County of Ventura and VCWPD Litter Management Program BMPs.....	14
Caltrans Litter Management Program BMPs.....	16
Ventura County Fairgrounds Litter Management BMPs.....	19
California Department of Parks and Recreation (State Parks) BMPs.....	20
VCAILG Litter Management Program BMPs.....	21
MFAC/BMP Program Evaluation and Revision Recommendations	22

List of Tables

Table 1. Responsible Parties Participating in the TMRP and MFAC/BMP Program	2
Table 2. Estuary Parcels by MFAC Area.....	2
Table 3. Assessment, Collection, and Patrol Dates for October 2017-September 2018	5
Table 4. Percent of MFAC Area by Assessment Category	7
Table 5. Summary of Trash Collected during the MFAC Collection and Additional Clean-up Events.....	9

List of Figures

Figure 1. MFAC/BMP Program Monitoring Area and Assessment/Patrol Route.....	3
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List of Appendices

Appendix 1. VLT Assessment and Collection Worksheets	
Appendix 2. VLT Clean-up Photos	
Appendix 3. Countywide Outreach Materials	

Introduction

This Annual Report is being submitted to fulfill the compliance requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Ventura River Estuary Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2007-008 (effective March 6, 2008). The purpose of this report is to present the results of the monitoring efforts conducted in accordance with the Trash Monitoring Reporting Plan (TMRP) and Minimum Frequency Assessment Collection/Best Management Practice (MFAC/BMP) Program developed to meet the requirements of the Trash TMDL.

The initial TMRP, which was approved in 2009 by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), was revised to more effectively target the disbandment of homeless encampments in the Ventura River Estuary (Estuary), which have been determined to be the primary source of trash in the TMDL compliance area.

Initially, the responsible parties submitted a TMRP revision request letter, dated October 9, 2013, asking for additional time to develop the details of the monitoring approach, particularly the most effective locations to implement the patrols and visual assessments. As such, the responsible parties proposed implementing an interim MFAC/BMP Program to begin in October 2013 while the responsible parties developed the revised MFAC/BMP Program and Regional Board staff reviewed and approved the revised MFAC/BMP Program. An interim MFAC/BMP Program was necessary to support development of some aspects of the monitoring approach, facilitate transition to a more effective clean-up and trash prevention program, and avoid the necessity of continuing to count pieces of trash while the responsible parties developed the detailed TMRP. The interim MFAC/BMP Program implemented by the responsible parties was as follows:

1. Conducted clean-up of all Estuary parcels within the TMDL compliance area by mid-November 2013 as the initial quarterly event.
2. Began initial patrols to determine the route(s) that will be used for visual assessments and identified the preferred routes by January 2014.
3. Formalized Memorandum of Agreement with Ventura Hillside Conservancy to organize and manage volunteer cleanup events and conduct trash monitoring activities.
4. Conducted regularly scheduled clean-up events in the Estuary beginning in March 2014, which were additional to the required collection events for the MFAC/BMP Program.

In addition, the responsible parties conducted several initial assessments in May and June 2014 and an initial collection event in May 2014 to test the applicability of the revised MFAC/BMP Program.

An Addendum No. 1 to the TMRP was submitted on April 30, 2014 and a revised Addendum was submitted on October 22, 2014 addressing comments from Regional Board staff. In a meantime, the revised MFAC/BMP Program began in July 2014. The TMRP and MFAC/BMP Program are designed to prioritize the use of resources to implement actions effective in reducing trash in the Estuary, while still providing a monitoring approach that will allow for an evaluation of the effectiveness of the MFAC/BMP Program and support identification of any needed adjustments to the MFAC/BMP Program. The responsible parties are still waiting for approval of

the Addendum No. 1; however, Regional Board staff indicated the responsible parties should implement the revised TMRP program while awaiting approval.

This Annual Report includes the following information from fifth-year monitoring conducted under the revised TMRP and MFAC/BMP Program:

- Monitoring Summary
- MFAC Events/BMP Implementation Summary
- MFAC/BMP Program Evaluation and Revision Recommendations

The efforts to implement the Trash TMDL are being completed on behalf of the responsible parties to the Trash TMDL as listed in **Table 1**. The efforts to implement the Trash TMDL requirements for nonpoint sources are focused within the Estuary and the parcels adjacent to the Estuary. **Table 2** presents the names of the parcels within the Estuary, which were grouped into four MFAC areas identified for the MFAC/BMP Program implementation. **Figure 1** shows the locations of the parcels within the Estuary. Per 2014 revised MFAC/BMP Program, the cleanup and monitoring efforts included the whole TMDL compliance area including areas that are not part of the eight parcels listed in **Table 2** and shown in **Figure 1** including the area under the Main Street Bridge, the area under the US 101 Bridge, and the area under the railroad bridge between MFAC Area 1 and MFAC Area 2. In addition, both County of Ventura and City of Ventura installed required full trash capture devices within their respective jurisdictions draining to the MS4 within the Trash TMDL Staff Report-defined Estuary Sub-watershed area.

Table 1. Responsible Parties Participating in the TMRP and MFAC/BMP Program

Responsible Party	Nonpoint Source (NPS)	Point Source (PS)
City of Ventura (City)	X	X
Ventura County (County)	X	X
Ventura County Watershed Protection District (VCWPD)	X	X
California Department of Food & Agriculture (Ventura Fairgrounds)	X	X
California Department of Transportation (Caltrans)	X ¹	X
California Department of Parks and Recreation	X	--
Participants in the VCAILG ²	X	--

1. Caltrans was not assigned a Load Allocation, yet it is participating in the MFAC/BMP Program to meet the Trash TMDL goals.

2. Ventura County Agricultural Irrigated Lands Group.

Table 2. Estuary Parcels by MFAC Area

	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
Parcel Owner	State of California Department of Parks and Recreation	State of California Department of Parks and Recreation	Ventura Beach RV Resort, Inc.	Wood-Claeysens Foundation
	City of San Buenaventura	State of California Department of Parks and Recreation	Ventura Land Trust (formerly Ventura Hillside Conservancy)	Ventura County Watershed Protection District

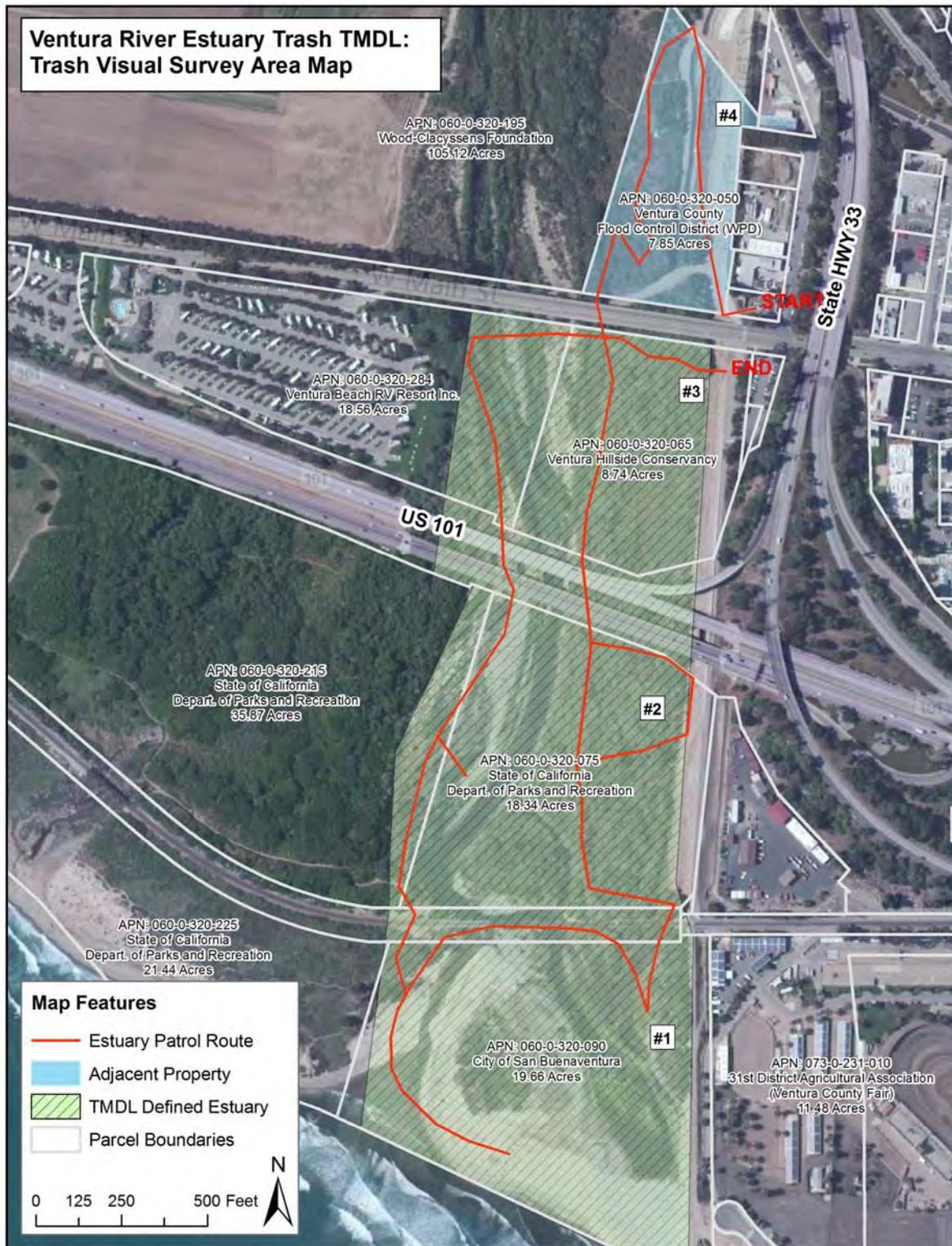


Figure 1. MFAC/BMP Program Monitoring Area and Assessment/Patrol Route

Monitoring Summary

ASSESSMENTS AND COLLECTION EVENTS

The responsible parties implemented the revised MFAC/BMP Program (as of July 2014) from the October 2017 to September 2018 reporting period. Upon implementation of the revised MFAC/BMP Program, the responsible parties conducted regular visual trash assessment surveys along a pre-defined route in the Estuary on a rotating schedule each month to ensure the entire Estuary, as defined in the Trash TMDL, was covered on a quarterly basis. The assessment route was designed to include historic in-Estuary TMRP monitoring locations in addition to other areas on all parcels of the Estuary to reflect the new MFAC/BMP Program. The assessment route is shown in **Figure 1**. The visual trash assessment surveys were conducted in accordance with the revised TMRP. However, the responsible parties conducted significantly more assessments than required in the revised TMRP, which is one assessment per quarter. This is due to this monitoring year being a transition year between the previous MFAC/BMP Program and the revised MFAC/BMP Program. Additional cleanups have been determined to be necessary to address legacy trash that has accumulated in the Estuary. After the legacy trash has been removed, the revised TMRP frequency will be implemented.

The responsible parties also conducted trash collection events utilizing information from the monitoring program and from the assessments to determine the locations to focus trash collection efforts.

In addition, the responsible parties conducted regularly scheduled patrols along the assessment route as shown in **Figure 1**. The patrols were conducted to eliminate existing homeless encampments and prevent the establishment of new homeless encampments and to assess trash levels, as homeless individuals and homeless encampments are the main nonpoint sources of trash for the Estuary. The responsible parties averaged up to two patrols per week in areas exhibiting large homeless populations and averaged up to two patrols per month in areas exhibiting small homeless populations. The responsible parties conducted 71 patrols from October 2017 to September 2018.

A summary of the assessment dates, the collection event dates, and the patrol dates is presented in **Table 3**. **Appendix 1** contains the Trash Visual Survey Worksheets and the Collection Event Worksheets for all MFAC Events conducted between October 2017 to September 2018.

Table 3. Assessment, Collection, and Patrol Dates for October 2017-September 2018

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Q1			Q2			Q3			Q4		
Assessment Dates												
MFAC Area 1		11/13/17	12/19/17	1/12/18	2/8/18	3/29/18	4/12/18	5/17/18	6/7/18	7/5/18	8/14/18	9/7/18
MFAC Area 2		11/13/17	12/19/17	1/12/18	2/8/18	3/29/18	4/12/18	5/17/18	6/7/18	7/5/18	8/14/18	9/7/18
MFAC Area 3		11/13/17	12/19/17	1/12/18	2/8/18	3/29/18	4/12/18	5/17/18	6/7/18	7/5/18	8/14/18	9/7/18
MFAC Area 4			12/19/17		2/8/18	3/29/18	4/12/18	5/17/18	6/7/18	7/5/18	8/14/18	
Collection Dates												
MFAC Area 1		11/19/17			2/17/18		4/21/18		6/25/18			9/10/18
MFAC Area 2					2/17/18	3/30/18	4/21/18		6/25/18			9/10/18
MFAC Area 3		11/14/17	12/22/17		2/10/18	3/30/18	4/21/18		6/12/18			9/25/18
MFAC Area 4					2/10/18	3/30/18	4/21/18					
Patrol Dates												
10/4/17	11/19/17	1/24/18	2/21/18	3/29/18	5/4/18	6/12/18	8/14/18					
10/11/17	11/22/17	1/26/18	2/29/18	3/30/18	5/7/18	6/14/18	8/22/18					
10/13/17	11/28/17	1/29/18	3/1/18	4/4/18	5/11/18	6/16/18	8/29/18					
10/16/17	11/31/17	2/2/18	3/6/18	4/12/18	5/16/18	6/20/18	9/7/18					
10/25/17	12/19/17	2/7/18	3/7/18	4/19/18	5/17/18	6/25/18	9/10/18					
11/2/17	12/22/17	2/8/18	3/9/18	4/20/18	5/23/18	7/5/18	9/15/18					
11/10/17	1/5/18	2/10/18	3/16/18	4/21/18	5/30/18	7/9/18	9/25/18					
11/13/17	1/12/18	2/15/18	3/20/18	5/2/18	6/1/18	7/30/18	9/27/18					
11/14/17	1/19/18	2/17/18	3/23/18	5/3/18	6/7/18	8/9/18						

ASSESSMENT FINDINGS

The goal of the MFAC/BMP Program is to ensure the parcels in the Estuary are at a Category 1 level of trash based on the information collected during Estuary visual assessments.

The three Trash Assessment Categories of the MFAC/BMP Program are:

- Category 1 – Represents the SWAMP Category “Optimal”
- Category 2 – Represents the SWAMP Category “Suboptimal”
- Category 3 – Represents the SWAMP Category “Poor”

The definition of Category 1 is:

- “On first glance, no trash is visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves.”

The definition of Category 2 is:

- “On first glance, low to medium levels of trash are evident (10 – 100 pieces). Stream, bank surfaces, and riparian zone contain some litter and debris. Possible evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, or clothing.”

The definition of Category 3 is:

- “On first glance, medium to high levels of trash (>100 pieces) are visible at stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, or clothing.”

There were multiple locations on the parcels within the four MFAC Areas that were assessed during the MFAC Events. These areas were located along the assessment route and in other areas of the Estuary identified through the patrols. Based on the trash conditions at the multiple assessed locations, the Ventura Land Trust determined the overall percentage of the MFAC Areas that were in each of the Trash Assessment Categories. **Table 4** presents a summary of the Trash Assessment Categories for MFAC Areas resulting from the assessments conducted during 2017-2018. These percentages were determined after estimating the amount of trash per quarter, within each MFAC area, after visually evaluating and averaging the category and amount of trash observed per each Trash Visual Survey conducted. **Appendix 1** contains the Trash Visual Survey Worksheets and MFAC Events Worksheets conducted during 2017-2018.

Table 4. Percent of MFAC Area by Assessment Category for October 2017 - September 2018

Quarter 1*				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	94%	3%	3%	
MFAC Area 2	93%	4%	3%	
MFAC Area 3	92%	4%	4%	
MFAC Area 4	99%	1%	0%	No trash observed in MFAC area 4 during quarter 1 was category 3
Quarter 2				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	92%	6%	2%	
MFAC Area 2	91%	5%	4%	
MFAC Area 3	90%	5%	5%	
MFAC Area 4	96%	4%	0%	No trash observed in MFAC area 4 during quarter 2 was category 3
Quarter 3				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	96%	4%	0%	No trash observed in MFAC area 1 during quarter 3 was category 3
MFAC Area 2	90%	3%	7%	
MFAC Area 3	92%	5%	3%	
MFAC Area 4	97%	3%	0%	No trash observed in MFAC area 4 during quarter 3 was category 3
Quarter 4				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	96%	4%	0%	No trash observed in MFAC area 1 during quarter 4 was category 3
MFAC Area 2	92%	5%	3%	
MFAC Area 3	92%	4%	4%	
MFAC Area 4	98%	1%	1%	

MFAC Events/BMP Implementation Summary

To ensure the parcels are all within Category 1, the MFAC/BMP Program is continuously evaluated and modified using the following adaptive management approach:

1. Estuary parcels in Category 1 for the monitoring event conducted prior to a scheduled MFAC Event are noted and any trash observed is collected during the visual survey. If no potential high trash generating areas are identified through the patrol of the parcel, the MFAC Event is not conducted. If potential high trash generating areas are identified by the patrols, then the MFAC Event focusing on those areas of the parcel that require clean-up is conducted.
2. Monitoring sites in Category 2 are evaluated to determine if additional BMPs are needed to reduce the accumulation of trash between monitoring events (i.e., visual surveys). The types of trash, likely sources, and observed trends in trash amounts are considered in

determining if modifications to the MFAC/BMP Program are necessary to move these sites to Category 1.

3. MFAC parcels that have Category 3 levels of trash for two consecutive quarters are targeted for more frequent patrols and/or more frequent clean-ups (depending on the identified primary source of trash) until the parcels reach Category 1 levels of trash for two consecutive visual surveys.

This following section provides the results of the collection events and the results of the BMPs implemented related to reducing trash within the Estuary and from adjacent land areas.

MFAC COLLECTION EVENTS AND ADDITIONAL CLEAN-UP EVENTS

One facet of the MFAC/BMP Program is to clean up any trash found through the assessments. This is done to ensure zero pieces of trash are found after the assessment. **Table 5** presents the trash collected during all collection events during 2018, all dates in 2017 were noted on the 2016-2017 report. **Appendix 1** contains the Collection Event Worksheets for MFAC Events conducted during 2017-2018 (**Appendix 1**). Third Saturday of the month volunteer clean up events and several mid-week clean ups have MFAC Event Worksheets; all other clean up events listed in Table 5 were smaller scale, hour to two hour long events by VLT volunteers who chose to pick up trash in their own time outside of monthly volunteer events. Another facet of the MFAC/BMP Program is to conduct additional clean-ups in the Estuary if it is found that trash is accumulating in deleterious amounts between assessments. The Ventura Land Trust and volunteers conducted 152 clean-ups in the Estuary to address high trash accumulation areas. Parcels 1, 2, and 3 were known to have legacy trash issues, and therefore were targeted for additional clean-ups from the beginning of the 2017-2018 monitoring year. Clean-up photos provided in **Appendix 2** include the types of trash removed during collection events and additional clean-up events.

Table 5. Summary of Trash Collected during the MFAC Collection and Additional Clean-up Events

Date	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
10/12/17	2/ 50 lbs		2/ 50 lbs	
10/16/17			1/ 25 lbs	
10/19/17		2/ 50 lbs		
11/02/17			4/ 100 lbs	
11/03/17	2/ 50 lbs	2/ 50 lbs		
11/10/17		1/ 25 lbs		1/ 25 lbs
11/12/17	1/25 lbs			
11/13/17			2/ 50 lbs	
11/14/17			2/ 50 lbs	1 / 25 lbs
11/19/17	1/ 25 lbs	2/ 50 lbs		
11/22/17		1/ 25 lbs		
11/24/17			1/ 25 lbs	
11/25/17		2/ 50 lbs		
11/27/17			2/ 50 lbs	
11/28/17	1/ 25 lbs	2/ 50 lbs	1/ 25 lbs	
12/01/17			1 / 25 lbs	
12/11/17		1/ 25 lbs		
12/13/17		1/ 25 lbs		
12/22/17			3/ 75 lbs	1/ 25 lbs
12/27/17	1/ 25 lbs			
12/28/17			1/ 25 lbs	
12/29/17			1/ 25 lbs	
12/20/17		1/ 25 lbs		
1/1/18			1/ 25 lbs	
1/8/18			1/ 25 lbs	
1/11/18		1/25 lbs		
1/24/18		2/ 50 lbs	2/50 lbs	
2/2/18		1/ 25 lbs	2/50 lbs	
2/10/18			5/ 125 lbs	2/ 50 lbs
2/15/18		1/ 25 lbs		
2/17/18	10/ 250 lbs	8/ 200 lbs	12/ 300 lbs	5/125 lbs
2/23/18		1/ 25 lbs		
2/27/18		1/ 25 lbs		
3/1/18		1/ 25 lbs	3/75 lbs	
3/6/18		1/ 25 lbs		
3/16/18		1/ 25 lbs	10/ 250 lbs	4/ 100 lbs
3/30/18	18/450 lbs	21/ 525 lbs	26/650 lbs	
3/31/17		1/ 25 lbs		

Table 6. Summary of Trash Collected during the MFAC Collection and Additional Clean-up Events (continued)

Date	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
4/2/18		1/ 25 lbs	1/ 25 lbs	
4/6/18	1/ 25 lbs			
4/9/18		1/ 25 lbs		
4/12/18		1/ 25 lbs		
4/17/18		1/ 25 lbs		
4/21/18	27/ 675 lbs	32/ 800 lbs	41/ 1,025 lbs	9/ 225 lbs
4/24/18			1/ 25 lbs	
4/27/18			1/ 25 lbs	
5/2/18	1/ 25 lbs			
5/3/18		1/ 25 lbs		
5/7/18		1/ 25 lbs		
5/9/18			1/ 25 lbs	
5/11/18			5/ 125 lbs	
5/17/18	1/ 25 lbs			
5/18/18		1/ 25 lbs		
5/19/18		1/ 25 lbs		
5/23/18			3/ 75 lbs	
5/24/18		1/ 25 lbs		
5/31/18	1/ 25 lbs			
6/1/18			1/ 25 lbs	
6/7/18		1/ 25 lbs		
6/11/18	1/ 25 lbs			
6/12/18			6/ 150 lbs	
6/14/18	1/ 25 lbs			
6/16/18		1/ 25 lbs		
6/17/18		1/ 25 lbs		
6/20/18	1/ 25 lbs			
6/21/18		1/ 25 lbs		
6/22/18	1/ 25 lbs			
6/25/18	97/2,425 lbs	68/ 1,700 lbs		
6/27/18	1/ 25 lbs			
6/28/18			1/ 25 lbs	
6/29/18		1/25 lbs		
6/30/18	1/ 25 lbs			
7/05/18			1/ 25 lbs	
7/07/18		1/ 25 lbs		
7/08/18	1/ 25 lbs	1/ 25 lbs		
7/09/18		1/ 25 lbs		

Table 7. Summary of Trash Collected during the MFAC Collection and Additional Clean-up Events (continued)

Date	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
7/13/18			1/25 lbs	
7/15/18		1/ 25 lbs		
7/17/18	1/ 25 lbs			
7/19/18			1/ 25 lbs	
7/21/18			1/ 25 lbs	
7/23/18	1/ 25 lbs			
7/27/18		1/ 25 lbs		
7/29/18	1/ 25 lbs			
8/01/18	1/ 25 lbs	1/ 25 lbs		
8/02/18			2/ 50 lbs	
8/04/18		1/ 25 lbs		
8/06/18	1/ 25 lbs			
8/08/18		1/ 25 lbs		
8/11/18		1/ 25 lbs		
8/12/18			1/ 25 lbs	
8/14/18	1/ 25 lbs			
8/16/18			1/ 25 lbs	
8/17/18		1/ 25 lbs		
8/19/18	1/ 25 lbs			
8/23/18		1/ 25 lbs		1/ 25 lbs
8/26/18			1/ 25 lbs	
8/28/18		1/ 25 lbs		
8/30/18		1/ 25 lbs		
9/01/18	1/ 25 lbs			
9/03/18		1/ 25 lbs	1/ 25 lbs	
9/05/18	1/ 25 lbs		1/ 25 lbs	
9/07/18		1/ 25 lbs		
9/08/18	1/ 25 lbs			
9/10/18		4/100 lbs	9/ 225 lbs	5/125 lbs
9/12/18			1/25 lbs	
9/15/18		1/ 25 lbs		
9/16/18			1/ 25 lbs	
9/17/18	1/ 25 lbs			
9/20/18		1/ 25 lbs		
9/25/18			12/ 300 lbs	
9/27/18	1/ 25 lbs			
9/30/18			1/ 25 lbs	

lbs=pounds (1 bag roughly equal to 25 lbs)

BMP IMPLEMENTATION

This section describes the BMPs implemented by the responsible parties within the Estuary and on land areas adjacent to the Estuary.

City of Ventura Litter Management Program BMPs

- Installation of required Full Capture Catch Basin Trash Excluders completed in October 2014 to achieve 100% point-source compliance.
 - Installation of certified Stormtek Full Capture Catch Basin Trash Excluder Devices (CPS Devices) to achieve 100% reduction of trash from Baseline WLA, for all of the MS4 areas within the City of Ventura that drain to the Ventura River estuary.
- Street Sweeping
 - Residential Streets swept at least once a month.
 - Commercial Streets swept two to four times per month.
 - Information encouraging residents/businesses to move parked cars for sweeping.
 - Over 15,000 miles of total curb area are swept in City of Ventura’s jurisdiction on an annual basis.
- Catch Basin Inlet-Cleaning and Placarding
 - City-maintained catch basin inlets are inspected and cleaned of trash and debris one to three times per year depending on the priority categorization of the catch basin.
 - Information encouraging residents/businesses to report trash filled inlets.
 - “Don’t Dump – Drains to Oceans – Only Rain Down the Drain” stencils or placards placed on storm drain inlets.
- Trash Collection in Public Areas
 - The City installed 3 ‘bear proof’ trash containers along the bike path directly adjacent to the river to promote the proper disposal of refuse and prevent the spread of litter by providing locked, secure containers.
 - Trash and recycling containers are installed at all transit shelters and maintained at least once per week to remove litter and to verify that containers are functioning properly.
 - Special event permit language requires additional trash and recycling containers to be set out during street fairs and art walks, along with litter clean-up following events.
 - Collection of trash from 18 public trash receptacles located within the watershed two or three times per week depending on the locations of the receptacles.
- Cigarette Butt Collection Receptacle Installation
 - The City, in collaboration with Surfrider Ventura County Chapter, began installing cigarette butt collection receptacles in high generating cigarette butt areas.
 - Over 90 cigarette butt collection receptacles have been installed.

- Surfrider Ventura County Chapter reported over 200,000 cigarette butts collected and recycled since December 2016.
- Trash Collection and Bulky Item Pickup
 - Residents and businesses are provided with trash and recycling collection services.
 - Residential customers are allowed to set out two “bulky items” for free collection once per year as part of their regular trash collection service.
- Inspection, Planning and Enforcement Support
 - The City identifies and requires corrective measures for litter or litter sources found during commercial, industrial, and construction site inspections.
 - New development and redevelopment projects are required to install trash enclosures with doors and covers to reduce litter.
 - The Ventura Police Department conducts periodic “enforcement sweeps” through the portion of the Estuary that is adjacent to the City limits.
 - Litter laws that prohibit the accumulation of trash on private property are enforced by the City Code Enforcement and County Environmental Health Department. Private properties are required to remove all trash from their premises at least once every seven days.
- Outreach
 - Litter prevention outreach is included in classroom presentations and stormwater pollution prevention advertisements/announcements.
 - Several half-hour TV programs produced by the City encourage residents to prevent litter.
- Volunteer Ventura
 - The City, along with our dedicated community partners, host one-time and recurring volunteer events to support a wide variety of programs and services offered to our community. Monthly volunteer events include beach, harbor and inland area cleanups as well as other events that focus on natural resource education, preservation and restoration.
 - Residential and commercial best management practices brochures are dispersed at tabling/outreach events throughout the year that focus on decreasing pollutant loading in local watersheds.
- City-Initiated Clean-Up Events
 - The City will initiate clean-up events, as necessary, in response to observed elevated trash levels.
- City-Sponsored Clean-Up Events
 - The City sponsors various clean-up events throughout the City that may include one or more of the following events during any given year: Earth Day beach clean-up; Coastal Clean-Up Day; Vans Warped Tour clean-up; and Ventura Charter School clean-ups.

- The City provided marketing materials and support for Westside specific cleanups including October 21st, 2017, March 10th, 2018, and October 6th 2018 event dates. At these events, the Westside Community Development Corporation provided free disposal of solid waste from any west side (adjacent to the Ventura River) Ventura residents. Residents brought solid waste to a centralized location where it was sorted for recycling or disposal.
- Work Plan to Eliminate Homeless Encampments (Safe and Clean Program)
 - The Ventura City Council initiated the development of a work plan in September 2012 to eliminate encampments in the Estuary and to implement an on-going enforcement program as a component of the City’s Safe and Clean Program. The work plan included organizing stakeholder partners, conducting civil engagement, developing an action plan and corresponding follow-up steps, posting camps, conducting camp removal, and launching post-camp removal strategies. Additional components of the City’s Safe and Clean Program that reduce trash accumulation in City watersheds include maintaining clean public spaces, strengthening collaboration with neighboring agencies and bolstering social services to the homeless community with local partners.

County of Ventura and VCWPD Litter Management Program BMPs

- 100% Point-Source Compliance - Installation of required full trash capture devices in County’s MS4 catch basins was completed in October 2014. Certified Stormtek Connector Pipe Screen (CPS) devices were installed to achieve 100% reduction of trash from Baseline WLA, for all Ventura County Unincorporated areas draining to the County’s MS4 within the Ventura River Estuary subwatershed. The County’s Certification Report with installation details was provided in the 2013-2014 Annual Report.
- Development and Implementation of Full Trash Capture Operation and Maintenance Plan (O&M Plan) – An O&M Plan including schedule for regular maintenance and reporting of debris/trash removed for all CPS devices installed within the watershed was developed and signed by the responsible Department Heads. Training was provided to maintenance staff in both the classroom and field to ensure proper cleanout and reporting methods and procedures. Maintenance and proper documentation are on-going.
- Regular Maintenance and Reporting for the CPS Devices – Per the Full Trash Capture O&M Plan, County staff inspect and perform necessary maintenance of each catch basin with CPS devices installed a minimum of three times per fiscal year: (1) One inspection before the wet season, (2) one inspection during the wet season and (3) one inspection after the wet season. Debris depth is recorded and all debris is removed. Volume and type of debris is recorded and documented. During the 2017-2018 monitoring year, the County removed 16.71 cubic feet of trash from full capture devices within the Ventura River Watershed.
- Catch Basin Cleaning – Catch basins are inspected at least once per year and cleaned when filled to 25% or more of the catch basin’s capacity. During storm season, all drainage facilities are inspected and cleaned as necessary.
- Catch Basin Labeling – All County catch basins are labeled with “Don’t Pollute, Flows to Waterways.”

- Open Channel Storm Drain Maintenance – All VCWPD owned and maintained channels are cleared, inspected, and cleaned as required at least once per year. Following the Thomas Fire in December 2017, VCWPD increased flood control channel maintenance in Fiscal Year 2017-2018 to clean all post-fire debris and maintain flood control capacity.
- Trash Management at Public Events – A plan for the proper management of trash and litter is required when obtaining a permit for staging public events. This plan requires adequate facilities for trash collection and disposal.
- Trash Collection in Public Areas – Trash receptacles have been placed within high trash generation areas. These devices are cleaned and maintained regularly to prevent trash overflow.
- Ventura County Ordinance No. 4142 – County ordinance (Section 6923 “Litter” and Section 6955 “Watercourse Protection”) prohibit the disposal and accumulation of trash in public areas, private driveways, parking areas, streets, alleys, sidewalks, or components of the storm drain or any watercourse.
- Inspections – The County conducts commercial, industrial, and construction facility/site inspections to ensure proper pollution prevention BMPs are being applied and to educate employees on the importance of pollution prevention.
- Anti-Littering Signage – The County has installed anti-dumping and anti-littering signage at key locations including high trash generating areas, as well as at known illegal dumping locations.
- Foster Park Trash Management – The County manages Foster Park, which is situated along the Ventura River upstream of the Estuary, to ensure that trash originating from the park does not enter the river and deposit in the Estuary. Management actions include:
 - Park host and rangers removing trash and enforcing litter ordinance
 - Increased enforcement and collection during high trash generating events (holidays)
 - Covered trash containers and frequent trash pick-up and removal
 - Continued evaluation of trash management practices to determine whether current practices are sufficient
 - Continued evaluation of existing litter-related signage to determine whether current signage is adequate
- Happy Valley Bioswale was designed and constructed in Spring of 2016 to capture runoff from 40% or 37 acres of urban area within the County unincorporated Meiners Oaks community for removal of trash, debris, and other stormwater pollutants. This project treats an estimated 1.6M cubic feet of the average annual runoff discharging into Happy Valley Drain, a tributary to the Ventura River. This project was funded in part by the Proposition 84 Storm Water Implementation Grant, Round 2. Project photos were provided in the 2016-2017 Annual Report.
- Watershed Friendly Gardens – In Fall 2016, the County sponsored a series of five, free, open to the public, Watershed Friendly Garden Hands-On-Workshops in Meiners Oaks. The workshops focused on how to construct your own Watershed Friendly Garden, designed to help prevent stormwater pollutants, including trash, from entering the storm

drains, creeks and rivers. The class culminated with construction of a Watershed Friendly Garden at Meiners Oaks Elementary School. Project photos were provided in the 2017 Annual Report.

- Countywide Outreach – The County and VCWPD continue to participate in the Countywide Outreach Program retaining the services of The Agency, a professional advertisement group that designs and conducts countywide, bilingual outreach programs advocating proper trash disposal. The most recent addition to the outreach program is trash prevention and protection of storm water quality education using Facebook®, Twitter® and other forms of social media. Examples of outreach materials are provided in Appendix 4.
- Targeted Outreach – The County conducts targeted outreach to schools within the area covered by the Trash TMDL to educate students, staff, and faculty on the importance of pollution prevention specifically regarding trash.

Caltrans Litter Management Program BMPs

- Ventura River Estuary – State Highway 33, between Post Mile 0.0 and 5.55, has litter removed approximately twice per month and is mechanically swept approximately once per month, as needed. This highway is also open to 'Adopt-A-Highway' groups and there are groups who currently have adoptions and perform litter removal twice per month.

Additional Trash Management Plans/BMPs in place for Caltrans:

- Caltrans currently uses a variety of methods to educate the public about the importance of managing stormwater. These are intended to change public behavior regarding the release of potential pollutants (e.g., litter, spilled loads, and oil leaks).
 - The outreach program consists of a variety of written materials, monthly and quarterly bulletins, websites, workshops, and Caltrans's Adopt-a-Highway Program, as described below.
- Caltrans installs “No Dumping” and “Litter Fine” signs at selected locations on highways and freeways. Stenciled warnings prohibiting discharges to drain inlets at state-owned park-and-ride lots, rest areas, vista points, and other areas with pedestrian traffic are also used to increase public awareness.
- Litter and debris removal activities include sweeping of shoulders, paved medians, etc., and litter removal along the roadsides.
- Caltrans uses venues such as public schools, community-sponsored clean-up events, Bring Your Child to Work Day, and Earth Day to educate the public about the importance of excluding pollutants from stormwater.
- Caltrans's Adopt-A-Highway program is an opportunity for volunteers to make a tangible contribution to community and roadside aesthetics, and acts as a way to inform the public about the stormwater problems related to illegal dumping of litter and debris. As part of this program, signs are posted along roadways acknowledging groups that have volunteered to plant wildflowers, trees and/or shrubs, collect litter, or remove graffiti from structures.

- In the metropolitan portions of Los Angeles, San Diego, Orange, and Ventura Counties, storm drain inlets are inspected and cleaned annually prior to the rainy season. Those storm drain inlets that contain 12 inches or more of accumulated material will be cleaned.
- Litter and debris are periodically collected from Caltrans's rights-of-way and removed from drainage grates, trash racks, and ditch lines. Maintenance supervisors inspect highways in their assigned sections for the accumulation of litter. Signs may be installed where litter accumulation is a concern.
- "Protect Every Drop" is a statewide Caltrans education and outreach pollution reduction public program that has been conducted since March 2016. The program uses public service announcements through various media such as television and radio broadcasts, billboards, newspapers, public outreach events, banners, posters, tip cards etc., and focuses on behavior changes. The program encourages the public to learn more about sources and pathways of stormwater pollution and teaches motorists what to do to reduce pollutants like trash. Caltrans promotes public action to stop pollution at the source by: (1) properly disposing of trash and other items containing pollutants, (2) covering truckloads that may fall or blow off during transport, and (3) perform routine vehicle and tire maintenance. For more information, please refer to website www.protecteverydrop.com.
- Caltrans has accepted five (5) Gross Solids Removal Devices-Inclined Screen (EA: 2750U4) which were constructed. However, there are two (2) Gross Solids Removal Devices-Inclined Screen still under CCO (EA: 2750U4). There are two (2) Biofiltration Swales on Route 101, and one (1) Biofiltration Swale on Route 33 were proposed to be constructed (EA: 295404).

In addition to local anti-litter ordinances, Caltrans relies on Sections 23112, 23113, 23114, and 23115 of the Vehicle Code as legal authority to prevent spills, dumping or disposal of materials on the highways and freeways under its jurisdiction, as enforced by the California Highway Patrol.

- Section 23112 states:

No person shall throw or deposit, nor shall the registered owner or the driver, if such owner is not then present in the vehicle, aid or abet in the throwing or depositing upon any highway any bottle, can, garbage, glass, nail, offal, paper, wire, any substance likely to injure or damage traffic using the highway, or any noisome, nauseous, or offensive matter of any kind.

No person shall place, deposit, or dump, or cause to be placed, deposited, or dumped, any rocks, refuse, garbage, or dirt in or upon any highway, including any portion of the right-of-way thereof, without the consent of the state or local agency having jurisdiction over the highway.
- Section 23113 states:

Any person who drops, dumps, deposits, places or throws, or causes or permits to be dropped, dumped, deposited, placed or thrown, upon any highway or street any material described in Section 23112 or in subdivision (d) of Section 23114 shall immediately remove the material or cause the material to be removed.

If the person fails to comply with subdivision (a), the governmental agency responsible for the maintenance of the street or highway on which the material has been deposited may remove the material and collect, by civil action, if necessary, the actual cost of the removal operation in addition to any other damages authorized by law from the person made responsible under subdivision (a).

- Section 23114 states (in pertinent part):

No vehicle shall be driven or moved on any highway unless the vehicle is so constructed, covered, or loaded as to prevent any of its contents or load other than clear water or feathers from live birds from dropping, sifting, leaking, blowing, spilling, or otherwise escaping from the vehicle.

- Section 23115 of the Vehicle Code states (in pertinent part):

No vehicle loaded with garbage, swill, cans, bottles, waste papers, ashes, refuse, trash, or rubbish, or any other noisome, nauseous, or offensive matter, or anything being transported to a dump site for disposal shall be driven or moved upon any highway unless the load is totally covered in a manner which will prevent the load or any part of the load from spilling or falling from the vehicle.

Ventura County Fairgrounds Litter Management BMPs

Ventura County Fair's BMP for Litter Maintenance Non-Fair Time								
Description of Action	Daily	Weekly	Monthly	Annually	Before Event	During Event	After Event	As Needed
Litter pickup Main Parking Lot	X					X	X	X
Litter pickup Beach Lot		X			X	X	X	X
Overflow Lot		X				X	X	X
Area Around Event		X			X	X	X	X
Trash Cans emptied	X					X	X	X
Recycle bins emptied		X						X
40 Yard dens emptied		X						X
Straw and Hay Removal								X
Power Sweep			X					X
Storm Dain Maintenance				October				X
Wash Rack Maintenance				June & Aug				X

Ventura County Fair's BMP for Litter Maintenance Fair Time								
Description of Action	Daily	Weekly	Monthly	Annually	Before Event	During Event	After Event	As Needed
Litter pickup Main Parking Lot	X				X	X	X	X
Litter pickup Beach Lot	X				X	X	X	X
Overflow Lot	X				X	X	X	X
Area Around Event (Harbor to Calif., Promenade and Beach, Garden St. to Main St. and surrounding area).	X				X	X	X	X
Trash Cans emptied	X				X	X	X	X
Recycle bins emptied	X				X	X	X	X
40 Yard dens emptied	X				X	X	X	X
Straw and Hay Removal	X				X	X	X	X
Power Sweep	X				X	X	X	X
Storm Dain Maintenance	Storm Drain Diverted to Sewer during Fair July- August							
Wash Rack Maintenance				June & Aug.				

California Department of Parks and Recreation (State Parks) BMPs

- Designated Public Use Areas
 - Increased trail maintenance and fall vegetation reduction improves access for patrol and trash removal. Small motorized vehicles are able to access the trail and haul out larger volumes of trash. Increase in trail use by park personnel and the public discourages illegal camping near the trail.
 - Trash containers are installed at all visitor activity areas. Containers are kept in good working order and are emptied as needed.
 - State Parks keeps one mixed use 40 yard roll-off container onsite to collect and dispose of approximately 20,000 lbs. of trash annually.
 - Park personnel and camp hosts routinely collect loose trash within developed park areas as a part of their daily duties. In addition, park personnel conduct weekly sweeps to identify, and remove trash accumulation in vegetated areas along the established trail system east of the campground.
- Undeveloped Areas
 - Litter and debris is periodically collected from park backcountry lands, water courses, and roadways. Maintenance supervisors inspect park roads in their assigned sections for the accumulation of litter.
 - Signs may be installed where litter concentration is repetitive and at known illegal dumping locations.
 - Catch basins are inspected and cleaned at least once per year. During storm season, drainage facilities are inspected before significant storm events.
- Volunteer Events and Public Outreach
 - State Parks sponsors various Earth Day and Coastal Cleanup events throughout the district and participates in special cleanup events to address observed elevated trash levels.
 - Routine and random river bottom patrols are conducted by law enforcement at a minimum of once per week to discourage establishment of illegal camp sites.
 - Camper outreach and education is implemented year-round in an effort to limit trash dispersal by wind and wildlife.
- Construction Projects and Special Events
 - All special events permits issued on State Park property require a plan for the proper management of trash. This plan requires adequate facilities and patrols for trash collection and disposal.
 - All contractors that work on State property are required to implement BMPs to keep job site clean and litter free.

VCAILG Litter Management Program BMPs

- Conditional Waiver – The *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* (“Conditional Waiver,” Order No. R4-2016-0143) requires VCAILG to provide educational classes focused on improving water quality, including identifying trash as an impairment of water quality.
- VCAILG members are required to maintain trash control BMPs for agricultural areas. In its role, VCAILG will continue to assist members with implementation of additional BMPs for trash control, as necessary, following the adaptive process identified in the group’s Water Quality Management Plan (WQMP).
- Outreach – During VCAILG outreach activities, the Trash TMDL is highlighted and a connection made for the need to control trash in order to meet the requirements of the Trash TMDL. In 2018, eleven education and outreach workshops were conducted, one of which was held in the Ojai Valley targeting the Ventura River watershed. All of these outreach events focused on management practices important to protect water quality.
- Ventura River Trash TMDL Fee – VCAILG members are assessed a fee, based on acreage farmed, to further reinforce through a fiscal measure that trash in the watershed needs addressing.
- Plastics Recycling – Local farmers will recycle agricultural plastic used to cover strawberry beds and used in some vegetable fields during the growing season. Collection and recycling of plastic is an effective method for reducing plastic trash from entering the Ventura River and the Estuary.
- Taylor Ranch (Wood-Claeysens Foundation), a VCAILG member with property beginning immediately upstream of the Ventura River Main Street bridge, is an active participant in the Trash TMDL program by regularly cleaning and patrolling their property. Through the efforts of the Wood-Claeysens Foundation, it is estimated that approximately 55 tons of trash were removed from the Taylor Ranch Ventura River bottom from transient/homeless camps through March 2012. Since that time, 5 to 10 tons of trash has been collected annually. Taylor Ranch continues to be successful in maintaining the cleanliness of the property and protecting water quality by employing the following practices:
 - Regular monitoring and patrolling of the area adjacent to the river was increased to an average of every two weeks in 2016 to intercept homeless camps more quickly and prevent the cycle of trash accumulation.
 - As camps are discovered, clean-up is initiated as soon as possible in order to convey the message that the area is being actively monitored. Law enforcement assistance is requested, as needed.
 - Both the Ventura Police Department and the Ventura County Sheriff’s Department have responded in the past with Rangers from the California State Parks systems also helping with this effort.

MFAC/BMP Program Evaluation and Revision Recommendations

The TMRP states the responsible parties will: “Evaluate effectiveness of BMPs and recommended changes to TMRP Addendum No. 1 and MFAC/BMP Program, as necessary.” Under the previous MFAC/BMP Program and TMRP, the following steps were used to assess MFAC/ BMP Program effectiveness:

1. A review of BMP implementation, including identification of BMPs, location of BMPs, and time frame (*e.g.*, when an activity was implemented or installed); and
2. A comparison of monitoring results between monitoring locations and between events before and after BMP implementation.
3. Comprehensive review and assessment of MFAC/BMP Program

Given the broad nature of most of the BMPs implemented (*e.g.*, education programs, ordinances, street sweeping), the highly variable amounts of trash collected, and the relatively short time frame that full capture devices were installed, the responsible parties could not identify trends in the monitoring data that could be used to determine effectiveness of individual BMPs implemented. Based on the results of the previous evaluation and the structure of the new MFAC/BMP Program, the responsible parties utilized an approach based on the visual assessments.

The responsible parties utilized parcel rankings by Category as a means to assess effectiveness of the MFAC/BMP Program. That is, if there was an overall trend of parcels starting out and remaining in Category 1, or parcels moving from Category 2 or Category 3 to Category 1, then no modifications to the MFAC/BMP Program are needed. Conversely, if there was an overall trend of parcels moving from Category 1 to Category 2 or Category 3 over the course of the implementation year, then modifications to the MFAC/BMP Program would be considered.

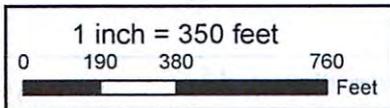
2013-14 was the first year of the revised TMRP and modified MFAC/BMP Program implementation. A large amount of legacy trash existed in the Ventura River Estuary and the bulk of the effort (including many additional clean-up events) during this monitoring year has gone towards cleaning up the legacy trash. While most of the parcels have been cleaned and legacy trash removed, the State Parks Parcel (MFAC Area 2) still contains legacy trash. This is due to a population of homeless individuals that are not receptive to relocating from the area, even after multiple citations from local law enforcement. Once the legacy trash is removed, the revised TMRP and MFAC/BMP Program will begin to be implemented at the frequency outlined in the TMRP (without the additional clean-ups).

As a result, the responsible parties are not conducting an assessment of the program or proposing any revisions to the MFAC/BMP Program during this annual report. The focus on removing remaining legacy trash in the Estuary during the monitoring year does not allow for development of an assessment of the baseline MFAC/BMP Program this year. Once the legacy trash is removed and the MFAC/BMP Program has been implemented without the legacy trash, the responsible parties will have a clearer understanding of the effectiveness of the baseline MFAC/BMP Program. However, through the initial implementation of the revised MFAC/BMP Program, it is clear that the revised MFAC/BMP Program is a better use of resources and much more effective at removing trash from the Estuary compared to the previous MFAC/BMP Program. If any needs for MFAC/BMP Program changes come up during an on-going monitoring, the responsible parties will provide detailed information in the next Annual Report.

Appendix 1. VLT Assessment and Collection Worksheets



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

DISCLAIMER:
The information combined hereon was created by the County of Ventura Geographic Information System (GIS) data which is operated for the convenience of the County. The County of Watershed Protection District makes no representation or warranty of this map, based on County GIS data, is accurate and that it contains no errors or omissions; and asserts that no economic or physical

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, & 3 Survey Date: 11-13-17
 Inspector: K. Furlong, D. Donkell, J. Harrison Survey Start/ End Time: 11:50 / 1:25
 Current Weather Condition: overcast E. Durtschi
 Antecedent Weather Condition: overcast

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① City - 1	3	campsite with multiple tents & fire pit
② state park/city = 1	3	trash pile
③ state park/city = 1	2	bottles, trash cord board
④ state park - 2	1	tent with mattress and clothes
⑤ RV Park - 3	3	camp with clothing & personal effects in river
⑥ RV Park - 3	2	pile of spray cans

Types of Trash Observed (check all that apply):

- | | | |
|--|--|---|
| Plastic/ Styrofoam <input checked="" type="checkbox"/> | Paper Products/Biodegradable <input checked="" type="checkbox"/> | Household Items <input checked="" type="checkbox"/> |
| Landscape Materials <input type="checkbox"/> | Aluminum/ Metal <input checked="" type="checkbox"/> | Automotive <input type="checkbox"/> |
| Toxic/ Hazardous Materials <input checked="" type="checkbox"/> | Glass <input checked="" type="checkbox"/> | Biohazardous <input checked="" type="checkbox"/> |
| Personal Effects <input checked="" type="checkbox"/> | Sports Equipment <input type="checkbox"/> | Other <input type="checkbox"/> |

Notes: 3 bags of trash removed from estuary.

Est. No. of Follow-up Cleanup Events Needed (describe why): 2 +

VLT clean up event planned for 11/19 with Surfrider Foundation
VLT staff and volunteers will remove camp from picture ⑤

Additional Notes: _____

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 2 & 3 Survey Date: 12.1.17
 Inspector: K. Furlong & T. Harris. Survey Start/ End Time: 12:15 / 12:56
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① VLT / RV (3)	2	Active(?) camp along river
② Under 101 2-3 Caltrans	3	Paint cans

Types of Trash Observed (check all that apply):

- Plastic/ Styrofoam
- Landscape Materials
- Toxic/ Hazardous Materials
- Personal Effects
- Paper Products/Biodegradable
- Aluminum/ Metal
- Glass
- Sports Equipment
- Household Items
- Automotive
- Biohazardous
- Other

Notes: _____

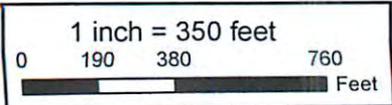
Est. No. of Follow-up Cleanup Events Needed (describe why): 2 hundreds of
spray paint cans, several large bags worth clothing
left in camp small clean up.

Additional Notes: _____



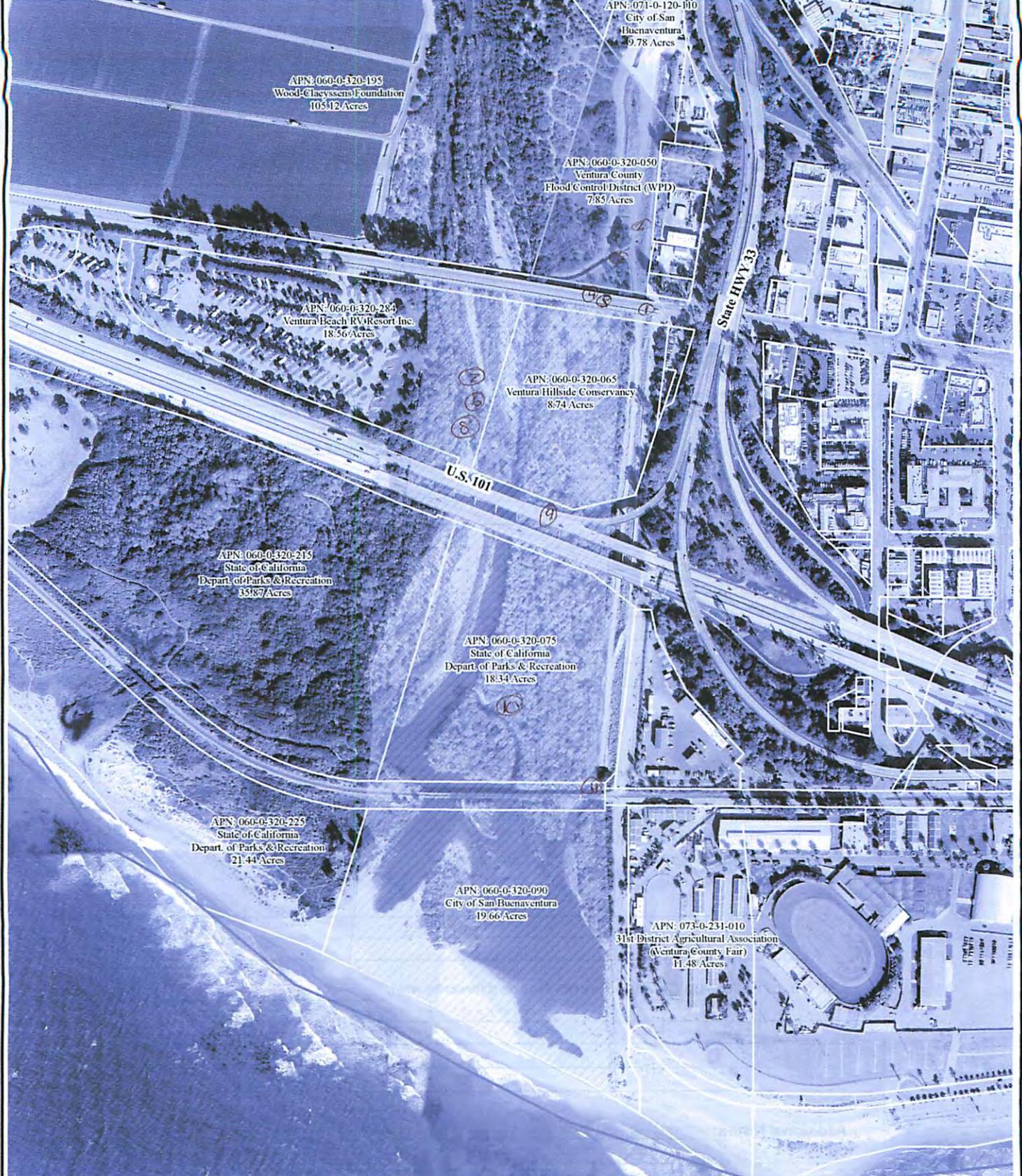
Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

DISCLAIMER:
The information combined hereon was created by the County of Ventura Geographic Information System (GIS) data which is operated for the convenience of the County. The County of Watershed Protection District makes no representation or warranty of this map, based on County GIS data, is accurate and that it contains no errors or omissions, and accepts that no economic or physical



APN: 060-0-320-195
Wood-Clayssens Foundation
105.12 Acres

APN: 071-0-120-100
City of San Buenaventura
9.78 Acres

APN: 060-0-320-050
Ventura County
Flood Control District (WPD)
7.85 Acres

APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Depart. of Parks & Recreation
35.87 Acres

APN: 060-0-320-075
State of California
Depart. of Parks & Recreation
18.34 Acres

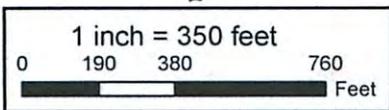
APN: 060-0-320-225
State of California
Depart. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres

Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

DISCLAIMER:
The information combined hereon was created by the County of Ventura Geographic Information System (GIS) data which is operated for the convenience of the County. The County of Watershed Protection District makes no representation or warranty of this map, based on County GIS data, is accurate and that it contains no errors or omissions, and asserts that no economic or physical

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, & 4 Survey Date: 12.19.17
 Inspector: K. Furlong & G. Sprack Survey Start/ End Time: 2:15 4:00 pm
 Current Weather Condition: sunny smokey
 Antecedent Weather Condition: smokey

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① main st bridge 3	2	food trash, bottles, clothes
② county 4	1	clothing
③ county 4	1	tent clothes
④ main st bridge 3	1	tent, tarp, bags
⑤ main st bridge 3	2	paint cans, tarp, boxes, clothes
⑥ river crossing 3	1	plastic bottles, inflatable toys
⑦ VLT/RV 3	2	active camp, clothing
⑧ VLT/RV 3	2	bath spot, shaving items
⑨ 101 bridge 2/3	3	spray cans, shoes
⑩ state parks 2	1	surfboards boat
⑪ tran trellis 1	1	shopping cart

Types of Trash Observed (check all that apply):

- | | | |
|--|--|---|
| Plastic/ Styrofoam <input checked="" type="checkbox"/> | Paper Products/Biodegradable <input checked="" type="checkbox"/> | Household Items <input checked="" type="checkbox"/> |
| Landscape Materials <input checked="" type="checkbox"/> | Aluminum/ Metal <input checked="" type="checkbox"/> | Automotive <input checked="" type="checkbox"/> |
| Toxic/ Hazardous Materials <input checked="" type="checkbox"/> | Glass <input checked="" type="checkbox"/> | Biohazardous <input checked="" type="checkbox"/> |
| Personal Effects <input checked="" type="checkbox"/> | Sports Equipment <input checked="" type="checkbox"/> | Other |

Notes: _____

Est. No. of Follow-up Cleanup Events Needed (describe why): Clean ups needed under 101 and main street bridges. Fire has hindered patrol abilities and lack of presence has increased activity.

Additional Notes: State Park official notified about island resident named Jack, clean up needed on the island

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2 and 3 Survey Date: 1.12.18
 Inspector: K. Furlong & T. Nelson Survey Start/ End Time: 12:01 / 1:25
 Current Weather Condition: overcast then sunny
 Antecedent Weather Condition: overcast then sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Willowby by river	3	2 active homeless camp.
② Under 101/State	2	1 clothing and cans
③ State Park island	2	2 (maybe 3) bridge built to island
④ State Park	1	plastic bags & water containers
⑤-⑧ City beach	2	Teepees on beach
⑨ City beach	2	abandoned camp in bushes
⑩ State Park cypress	3	large active camp.

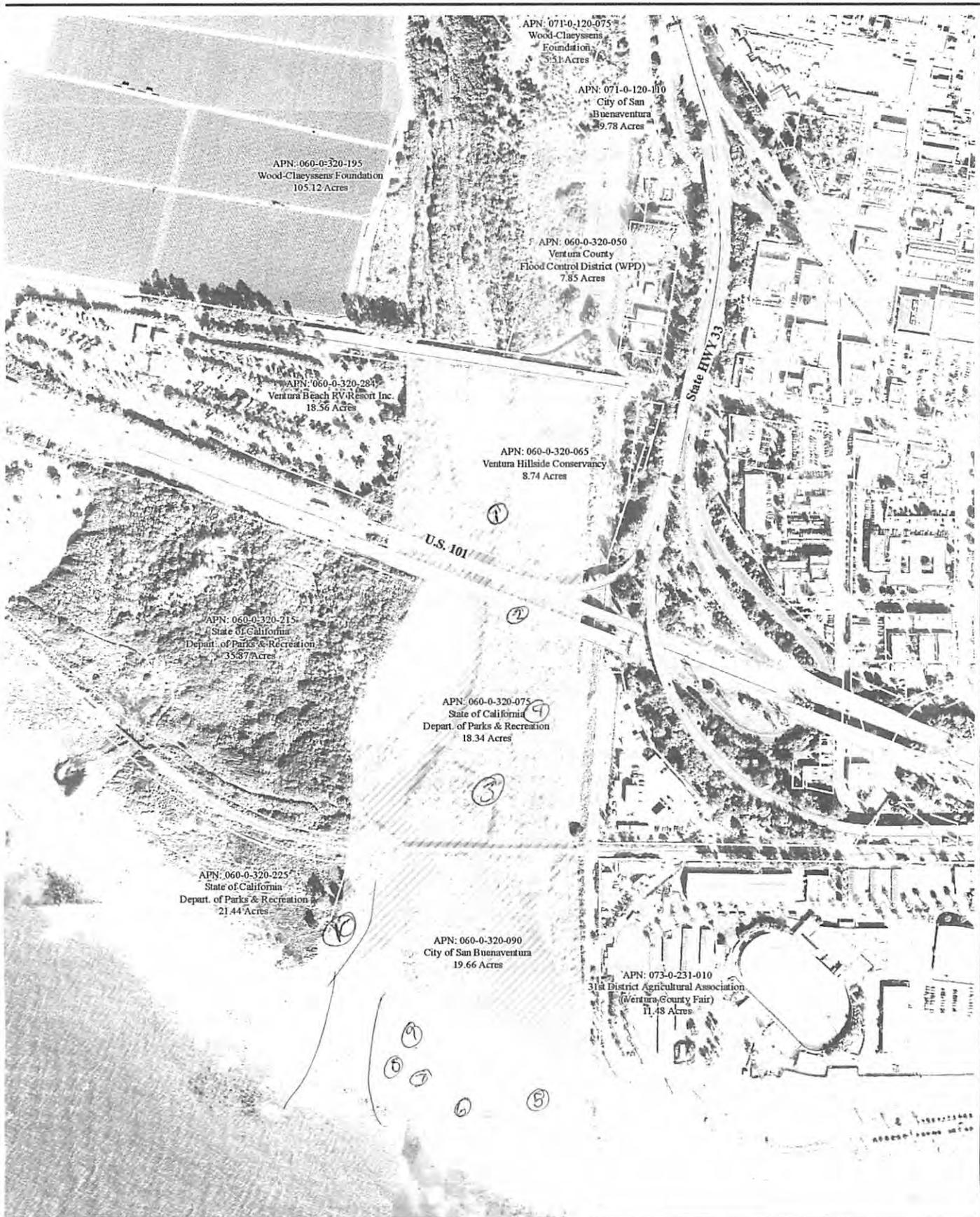
Types of Trash Observed (check all that apply):

- Plastic/ Styrofoam
- Landscape Materials
- Toxic/ Hazardous Materials
- Personal Effects
- Paper Products/Biodegradable
- Aluminum/Metal
- Glass
- Sports Equipment
- Household Items
- Automotive
- Biohazardous
- Other

Notes: Teepees built on beach, 4 had evidence of people staying there. Signs posted and police notified.
Large camp in cypress grove

Est. No. of Follow-up Cleanup Events Needed (describe why): Teepees need to be removed and trash cleared from the beach property. Clean up required for cypress grove area (2+ cleanups)

Additional Notes: River marsh has breached between City and State property, unsafe to cross.



APN: 060-0-320-195
Wood-Clayssens Foundation
105.12 Acres

APN: 071-0-120-075
Wood-Clayssens Foundation
5.31 Acres

APN: 071-0-120-110
City of San Buenaventura
29.78 Acres

APN: 060-0-320-050
Ventura County Flood Control District (WPD)
7.85 Acres

APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Dept. of Parks & Recreation
35.37 Acres

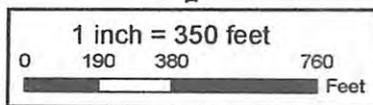
APN: 060-0-320-075
State of California
Dept. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres

Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area

DISCLAIMER:
The information combined hereon was created by the County of

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, & 4 Survey Date: 2/8/18
 Inspector: V. Furlong & L. Noriega Survey Start/ End Time: 9:41 am / 10:33 am
 Current Weather Condition: Sunny
 Antecedent Weather Condition: overcast

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main st bridge 3	2	food trash, needles, clothing
② County service road 4	1	plastic bottles & clothes
③ County drainage ditch 4	2	bottles, food trash
④ River crossing 3	1	clothing
⑤ Under 101 cross over 2-3	3	Active camp / laundry in river
⑥ State parks by 101 2	2	food trash & packaging
⑦ City beach 1	3	Active camp in teepee
⑧ City by train 1	2	bottles and food, plastic chairs

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam Paper Products/Biodegradable Household Items
 Landscape Materials Aluminum/ Metal Automotive
 Toxic/ Hazardous Materials Glass Biohazardous
 Personal Effects Sports Equipment Other

Notes: Camp under 101 has clothes lines tied around the area and does laundry in the river.

Est. No. of Follow-up Cleanup Events Needed (describe why): 3. Main street and county area will be cleaned this Saturday. Active camps on both the beach and under the 101 need to be cleared before cleanups can occur.

Additional Notes: Law enforcement contacted.



Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties

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1 inch = 350 feet

0 190 380 760 Feet

Ventura River Trash TMDL Estuary Subwatershed Area

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 3/29/18
 Inspector: K. Furlong & E. Rogers Survey Start/ End Time: 11:45/ 12:50
 Current Weather Condition: overcast
 Antecedent Weather Condition: overcast

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
①-② Main St bridge 3	2	mattress, clothing, food trash
③ 101 (3rd) 2-3	2	active camp
④ 100 (2nd) 2-3	1	tent posted
⑤ under train bridge 1	1	chairs
⑥ under 101 by bike trail 1	2	man camping on rocks.

Types of Trash Observed (check all that apply):

- | | | |
|--|--|---|
| Plastic/ Styrofoam <input checked="" type="checkbox"/> | Paper Products/Biodegradable <input checked="" type="checkbox"/> | Household Items <input checked="" type="checkbox"/> |
| Landscape Materials <input checked="" type="checkbox"/> | Aluminum/ Metal <input checked="" type="checkbox"/> | Automotive <input type="checkbox"/> |
| Toxic/ Hazardous Materials <input checked="" type="checkbox"/> | Glass <input checked="" type="checkbox"/> | Biohazardous <input checked="" type="checkbox"/> |
| Personal Effects <input checked="" type="checkbox"/> | Sports Equipment <input checked="" type="checkbox"/> | Other <input type="checkbox"/> |

Notes: active camps have been posted and notified.

Est. No. of Follow-up Cleanup Events Needed (describe why): 1 to remove what is left behind at the camps.

Additional Notes: could not safely cross river for a patrol

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 & 4 Survey Date: 4.12.18
 Inspector: B. Furlong & L. Noriega Survey Start/ End Time: 11:23 a 12:57 pm
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main St bridge ist side 3	2	food trash, bottles, bags, drug paraphernalia
② County drainage 4	2	run off from streets
③-④ Main St river 3	1	crate bridge in water
⑤ Milloughby river 3	1	bathtub spot
⑥-⑦ Laundry site 3	2	Active laundry site in river
⑧ State parks 2	2	pile of clothing
⑨ State Parks 2	1	backpack & dog stroller
⑩ state parks 2	1	bag of clothing & bottles

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam ✓	Paper Products/Biodegradable ✓	Household Items ✓
Landscape Materials	Aluminum/ Metal ✓	Automotive ✓
Toxic/ Hazardous Materials ✓	Glass ✓	Biohazardous ✓
Personal Effects ✓	Sports Equipment ✓	Other

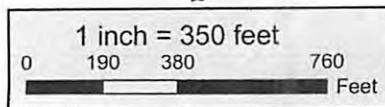
Notes: _____

Est. No. of Follow-up Cleanup Events Needed (describe why): 1 maybe 2. Planning large estuary wide cleanup 4/21/18.

Additional Notes: Estuary Mouth wide open, could not cross. Island on State Parks property is easily accessible. Contacting officials to schedule cleanup.



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 & 4 Survey Date: 9.17.18
 Inspector: K. Furlong & D. Dunkell Survey Start/ End Time: 11:22 / 12:29 pm
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main st bridge	3	2 food trash
② State parks	2	2 abandoned camp
③ State parks	2	1 bedding
④-6 Cypress grove	2	3 trash pile by water & Cypress for trees
⑦ OFC	3	1 bike frame & trash bag

Types of Trash Observed (check all that apply):

- | | | |
|------------------------------|--------------------------------|-------------------|
| Plastic/ Styrofoam ✓ | Paper Products/Biodegradable ✓ | Household Items ✓ |
| Landscape Materials | Aluminum/ Metal ✓ | Automotive |
| Toxic/ Hazardous Materials ✓ | Glass ✓ | Biohazardous ✓ |
| Personal Effects ✓ | Sports Equipment ✓ | Other |

Notes: crossed river and patrolled entire TMDL Area

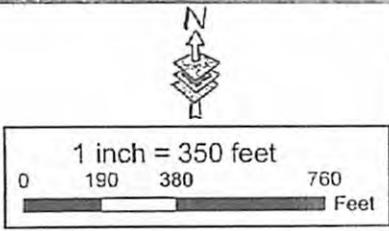
Est. No. of Follow-up Cleanup Events Needed (describe why): 2+ massive trash pile and reinforced fortress built under Cypress trees.

Additional Notes: Confronted an individual about doing laundry in the river, they seemed responsible, though I doubtful they won't can take.



Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, & 4 Survey Date: 6.7.18
 Inspector: K. Furlong; A. Aylard Survey Start/ End Time: 9:53 / 11:15 am
 Current Weather Condition: cloudy
 Antecedent Weather Condition: cloudy

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:	
① Main Street bridge	3	2	tent contents dumped clothing personal effects
② Main Street bridge	3	2	drug paraphernalia, food trash
③ County dump	4	1	food trash, cigarette butts
④ RV Milloughby	3	1	bridge across river
⑤ City beach	1	1	teepees

Types of Trash Observed (check all that apply):

- | | | |
|------------------------------|--------------------------------|-------------------|
| Plastic/ Styrofoam ✓ | Paper Products/Biodegradable ✓ | Household Items ✓ |
| Landscape Materials | Aluminum/ Metal ✓ | Automotive |
| Toxic/ Hazardous Materials ✓ | Glass ✓ | Biohazardous ✓ |
| Personal Effects ✓ | Sports Equipment ✓ | Other |

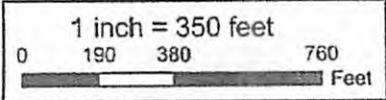
Notes: broke down beach teepees

Est. No. of Follow-up Cleanup Events Needed (describe why): 2; clear abandoned camp trash under the bridge and break up bridge in river

Additional Notes: _____



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 & 4 Survey Date: 7.5.18
 Inspector: R. Furlong & J. Chin Survey Start/ End Time: 9:51 / 11:43
 Current Weather Condition: cloudy
 Antecedent Weather Condition: cloudy

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

3rd Saturday
Beach

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main St bridge 3	1	food trash, needles, bike tire
② Drainage ditch 4	1	food trash, cans, cigarette butts
③ Main St bridge 3	1	needles, clothes, soap
④ river crossing 3	1	clothes, boxes, soap
⑤ bath spot 3	1	toilet, shampoo, clothes
⑥ 101 2-3	2	trash pile in fire pit
⑦ 101	3	trash pile surrounding ladder into 101
⑧ 101	3	trash pile 9 around fortners
⑨ 101	1	carts with muckete
⑩ cypress grove 2	2	trash pile by water
⑪ beach 1	1	teepee
⑫ City beach 1	1	teepee on beach (ensure it dry use)

Types of Trash Observed (check all that apply):

- | | | |
|------------------------------|--------------------------------|-------------------|
| Plastic/ Styrofoam ✓ | Paper Products/Biodegradable ✓ | Household Items ✓ |
| Landscape Materials ✓ | Aluminum/ Metal ✓ | Automotive ✓ |
| Toxic/ Hazardous Materials ✓ | Glass ✓ | Biohazardous ✓ |
| Personal Effects ✓ | Sports Equipment ✓ | Other ✓ |

Notes: teepee broken down to disassemble others being built

Est. No. of Follow-up Cleanup Events Needed (describe why): 3 + Massive trash piles under 101 where Jesse Bodley used to live.

Additional Notes: Will contact Caltrans & VPD for assistance.

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 8-14-18
 Inspector: K. Furlong & D. Hulst Survey Start/ End Time: 10:00 - 12:09
 Current Weather Condition: overcast
 Antecedent Weather Condition: overcast

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① county service road 4	1	food trash, bottles cans
② drainage ditch 4	1	debris, food trash,
③ RV & VLT 3	2	laundry in river/hanging
④ lot 2-3	1	personal effects, trash brush
⑤ city 1	1	boots & map
⑥ main street bridge 3	2	drug par., glass, spray cans bio.

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam Paper Products/Biodegradable Household Items
 Landscape Materials Aluminum/ Metal Automotive
 Toxic/ Hazardous Materials Glass Biohazardous
 Personal Effects Sports Equipment Other

Notes: no camps discovered on today's patrol

Est. No. of Follow-up Cleanup Events Needed (describe why): 2+ for the laundry area and under the main street bridge.

Additional Notes: high activity, day use visitors

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 Survey Date: 9-7-18
 Inspector: D. HUST, K. Furlong Survey Start/ End Time: 1 PM - 2:30 PM
 Current Weather Condition: Overcast
 Antecedent Weather Condition: Overcast

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
photo (1-4) Main St Bridge 3	3	active camp, food, biohazardous, drugs, papers
5,6 Main St Bridge (2) 3	3	Blankets, trash bags, food trash
7 Main St Bridge 3	2	Personal effects, 1 lock, food trash
8,9 Creek Crossing 3	2	Clothing, chopped bikes
10 Old Bridge 2/3	1	Bagged trash, boxes
11 Old Bridge 2/3	1	Clothing, personal effects
12 State Parks 2	2	Cans, wrappers, food trash

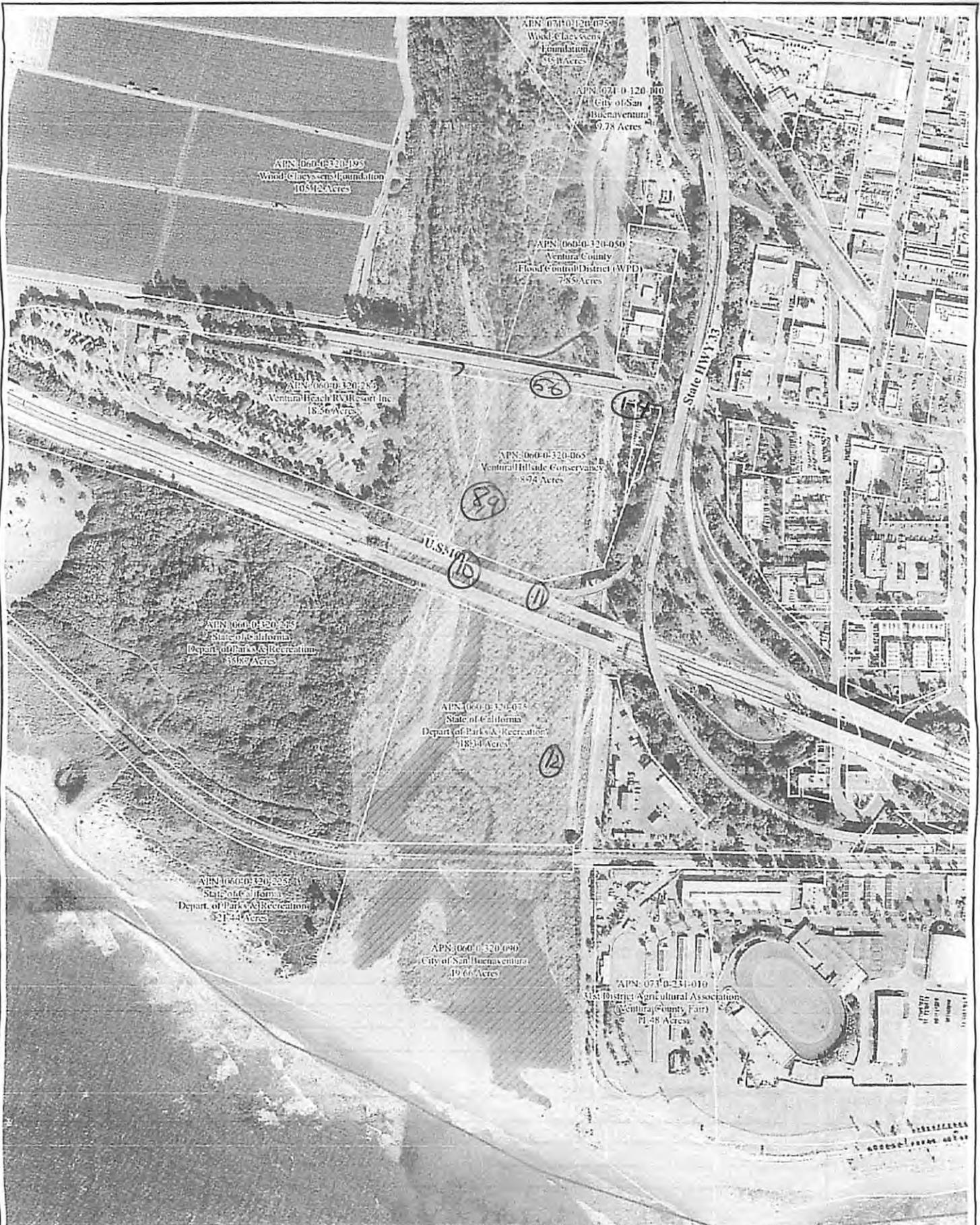
Types of Trash Observed (check all that apply):

- Plastic/ Styrofoam
- Landscape Materials
- Toxic/ Hazardous Materials
- Personal Effects
- Paper Products/Biodegradable
- Aluminum/ Metal
- Glass
- Sports Equipment
- Household Items
- Automotive
- Biohazardous
- Other

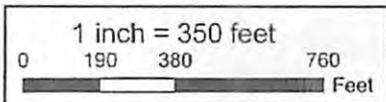
Notes: _____

Est. No. of Follow-up Cleanup Events Needed (describe why): One cleanup
scheduled for week of 9/9.

Additional Notes: Women screaming in state Parks. One
man was aggravated along bike path. Safety
concerns were addressed.



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 Event Date: 11.14.17
Specific Cleanup Location: near river crossing Event Start/ End Time: 10:35/11:00 pm
Field Technician name(s): K. Furlong, D. Dunkell, J. Harrison
Current Weather Condition: sunny
Antecedent Weather Condition: sunny

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive
Toxic/ Hazardous Materials	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment	Other

Notes: Camp was located directly next to the river with extreme potential of items being washed away in the flood.
Clothing, personal effects, broken mirrors, and household items next to water way.

Potential Source(s) of Trash Collected: Homeless encampment

Hazardous/ Legacy Trash Requiring Follow-up: NONE

MFAC Event Actions for Follow-up: NONE

Additional Notes: Resident from camp was previously removed by police, returned and notified by VLT staff of illegal camping, cited by police and was informed to clean the area. Resident has not returned to the area since.

Trash Collected:
No. of Trash Bags Filled: 9 Dumpster % Full: 25 Dumpster Size (cubic yds): 8

Lead Field Technician Certification (sign/print):

"Cleaned area is free of all visible trash." - Kate Furlong Kate Furlong

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 1 Event Date: 11.19.17
 Specific Cleanup Location: City beach / State Park Event Start/ End Time: 7:00 / 11:30
 Field Technician name(s): K. Furlong, D. Dinkell VLT of Surfrider Foundation volunteers
 Current Weather Condition: Partly cloudy
 Antecedent Weather Condition: partly cloudy

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input checked="" type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other

Notes: 1st Annual Ventura River to the Sea collaborative clean up between Ventura Land Trust and the Ventura County Chapter of the Surfrider Foundation. Removed trash from homeless encampments to prevent being washed into the ocean from flooding caused by winter rains.

Potential Source(s) of Trash Collected: Homeless encampments

Hazardous/ Legacy Trash Requiring Follow-up: none

MFAC Event Actions for Follow-up: none

Additional Notes: State Park officials notified of active camps. Trash still present though areas known to flood were cleared of trash.

Trash Collected: ~45 No. of Trash Bags Filled: 50 Dumpster % Fill: 50 Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/print):
 "Cleared area is free of all visible trash." - Kate Furlong Kate Furlong

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 Event Date: 12.22.17
 Specific Cleanup Location: Main St Bridge Event Start/ End Time: 10:30 / 12:17 pm
 Field Technician name(s): K. Furlong, J. Harrison, G. Spack
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input checked="" type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input checked="" type="checkbox"/>

Notes: Areas under the first three sections of the Main Street Bridge were cleaned

Potential Source(s) of Trash Collected: Homeless encampments drug users under bridge adjacent to bike trail.

Hazardous/ Legacy Trash Requiring Follow-up: First section always needs attention.

MFAC Event Actions for Follow-up: Standard.

Additional Notes: One active camp under second section signs posted and law enforcement informed.

Trash Collected:
 No. of Trash Bags Filled: 7 Dumpster % Fill: 20% Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - Kate Furlong Kate Furlong

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 and 4 Event Date: 2/10/18
 Specific Cleanup Location: County channel & Main St. Event Start/ End Time: 10:27 / 11:19 am
 Field Technician name(s): K. Furlong & Saturday volunteers
 Current Weather Condition: overcast
 Antecedent Weather Condition: overcast

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input type="checkbox"/>	Other <input type="checkbox"/>

Notes: Cleaned trash gathered in the channeled area of the County property as well as the first section under the main street bridge

Potential Source(s) of Trash Collected: run off from streets after last rain and homeless activity

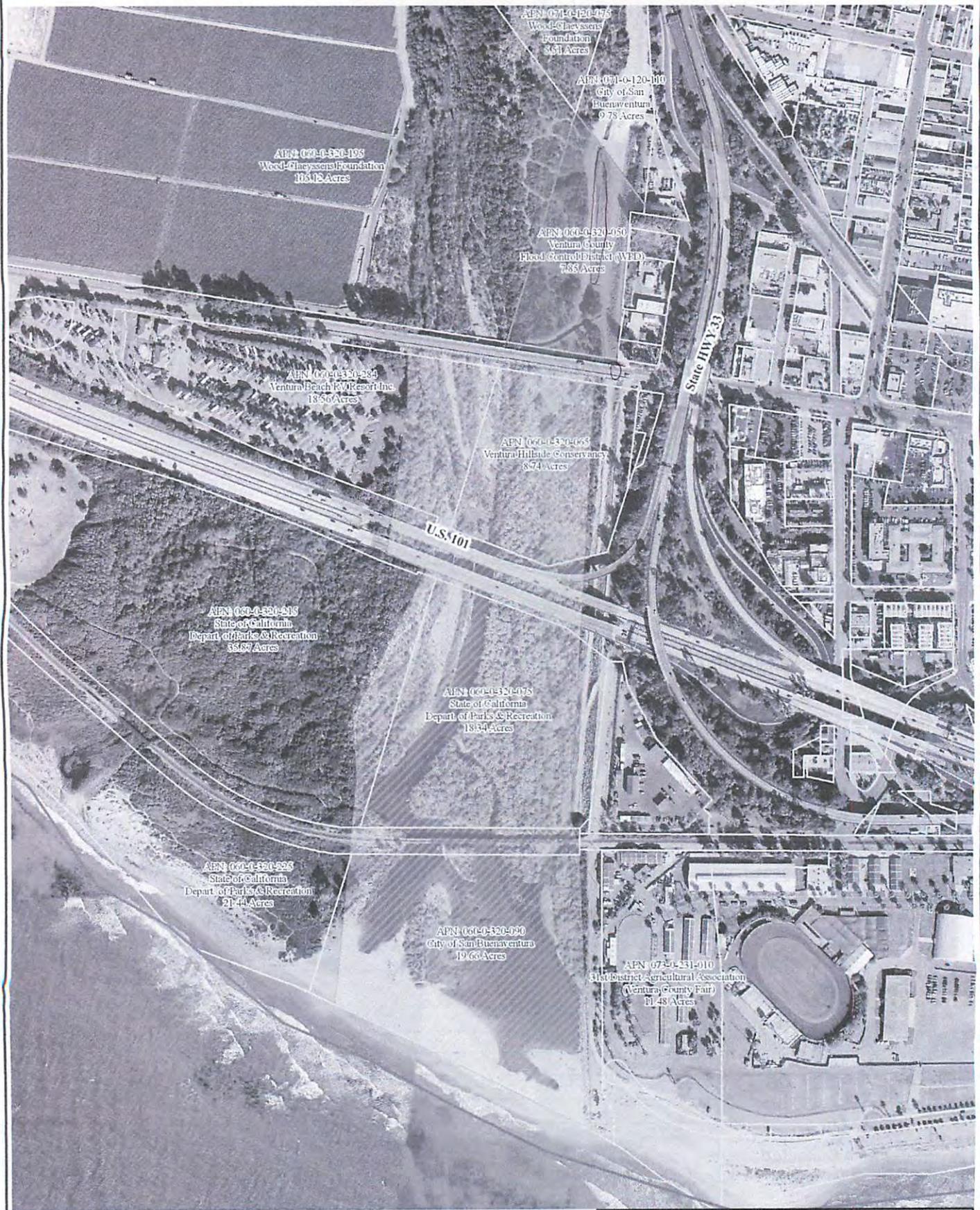
Hazardous/ Legacy Trash Requiring Follow-up: Areas to be monitored for more trash after next rain.

MFAC Event Actions for Follow-up: none

Additional Notes: 

Trash Collected:
 No. of Trash Bags Filled: 7 Dumpster % Fill: 20% Dumpster Size (cubic yds): 8

Lead Field Technician Certification (sign/ print):
 "Cleaned area is free of all visible trash." - Kate Furlong



APN 071-0-120-075
Wood-Gluyassens Foundation
358 Acres

APN 071-0-120-110
City of San Buenaventura
9.78 Acres

APN 061-0-320-195
Wood-Gluyassens Foundation
106.12 Acres

APN 060-0-320-250
Ventura County Flood Control District (VFD)
7.85 Acres

APN 060-0-320-284
Ventura Beach RW Report Inc
13.56 Acres

APN 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN 060-0-320-215
State of California
Dept. of Parks & Recreation
35.67 Acres

APN 060-0-320-078
State of California
Dept. of Parks & Recreation
18.94 Acres

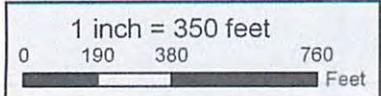
APN 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN 060-0-320-090
City of San Buenaventura
19.66 Acres

APN 07-50-131-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres

Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



**Ventura River
Trash TMDL
Estuary Subwatershed
Area
(as defined by TMDL)**

DISCLAIMER:
The information combined hereon was created by the County of Ventura Geographic Information System (GIS) data which is operated for the convenience of the County. The County of Watershed Protection District makes no representation or warranty of this map, based on County GIS data, is accurate and that it contains no errors or omissions, and asserts that no economic or physical reliance should be placed on the County data or on any conclusions generated.

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 1, 2, 3 & 4 Event Date: 2.17.18
 Specific Cleanup Location: Entire river patrol area Event Start/ End Time: 9:00/ 11:53 am
 Field Technician name(s): K. Furlong, C. Rogers, + Volunteers
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input checked="" type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input checked="" type="checkbox"/>

Notes: Patrolled and removed trash from TMDL MFAC Parcels with 3rd Saturday volunteers. Broke down beach teepees and removed trash along the river and under main street on 101 bridge S.

Potential Source(s) of Trash Collected: Homeless encampments, taggers

Hazardous/ Legacy Trash Requiring Follow-up: Emerging Wood homeless population causing health and safety hazards along waterway.

MFAC Event Actions for Follow-up: Increase law enforcement presence on State Park side of beach and plan another clean up event.

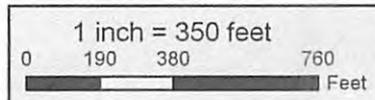
Additional Notes: Spread out drift wood and moved some into the water in the estuary to be used by birds and fish and deter people from building more teepees.

Trash Collected:
 No. of Trash Bags Filled: 35 Dumpster % Fill: 300% Dumpster Size (cubic yds): 8 (filled 3 dumpsters)

Lead Field Technician Certification (sign/ print):
 "Cleaned area is free of all visible trash." - Kate Furlong



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: Main bridge, 3, 101, city, state Event Date: 3-30-18
 Specific Cleanup Location: _____ Event Start/ End Time: 9:01 / 12:05
 Field Technician name(s): K. Furlong, J. Dunn, & Patagonia employees
 Current Weather Condition: overcast
 Antecedent Weather Condition: overcast

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input checked="" type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input checked="" type="checkbox"/>

Notes: Cleared 3 abandoned camps located under Main Street and 101 bridges. 2 bikes & flooring material found brought to Habitat for Humanity

Potential Source(s) of Trash Collected: Homeless

Hazardous/ Legacy Trash Requiring Follow-up: N/A

MFAC Event Actions for Follow-up: N/A

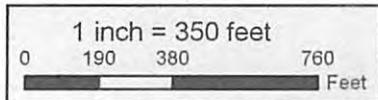
Additional Notes: _____

Trash Collected:
 No. of Trash Bags Filled: 65 Dumpster % Fill: 80 Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/ print):
 "Cleaned area is free of all visible trash." - [Signature]



Legend	
Parcels	
Ventura River Trash TMDL Subwatershed	
TMDL Defined Estuary	
Adjacent Properties	



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

DISCLAIMER
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Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 1, 2, 3, 4 Event Date: 4.21.18
 Specific Cleanup Location: Estuary wide Event Start/ End Time: 9:00 / 12:15
 Field Technician name(s): K. Furling, D. Dunkel, Starbucks volunteers (100+)
 Current Weather Condition: partly cloudy
 Antecedent Weather Condition: partly cloudy

Types of Trash Observed (check all that apply):

- | | | |
|--|---|---|
| Plastic/ Styrofoam <input checked="" type="checkbox"/> | Paper Products/ Biodegradable <input checked="" type="checkbox"/> | Household Items <input checked="" type="checkbox"/> |
| Landscape Materials <input checked="" type="checkbox"/> | Aluminum/ Metal <input checked="" type="checkbox"/> | Automotive <input checked="" type="checkbox"/> |
| Toxic/ Hazardous Materials <input checked="" type="checkbox"/> | Glass <input checked="" type="checkbox"/> | Biohazardous <input checked="" type="checkbox"/> |
| Personal Effects <input checked="" type="checkbox"/> | Sports Equipment <input checked="" type="checkbox"/> | Other |

Notes: Cleared trash and removed invasive species. Were able to access the "island" on State parks property and clear the area. Removed trash from all 4 parcels but were unable to cross the river due to breached estuary.

Potential Source(s) of Trash Collected: homeless encampments and street run off.

Hazardous/ Legacy Trash Requiring Follow-up: NA

MFAC Event Actions for Follow-up: NA. Once the mouth of the estuary closes, we will be able to clean up over there.

Additional Notes: Poison oak hindered some volunteer access though we were able to remove all visible trash from the island.

Trash Collected:
 No. of Trash Bags Filled: 109 Dumpster % Fill: 75% Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/ print):
 "Cleaned area is free of all visible trash." - 

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 Event Date: 6.12.18
 Specific Cleanup Location: laundry site Event Start/ End Time: 9:45 / 10:15
 Field Technician name(s): K. Furlong & A. Aylerd
 Current Weather Condition: sunny
 Antecedent Weather Condition: Sunny

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam	Paper Products/ Biodegradable	Household Items
Landscape Materials	Aluminum/ Metal	Automotive
Toxic/ Hazardous Materials	Glass	Biohazardous
Personal Effects	Sports Equipment <input checked="" type="checkbox"/>	Other

Notes: Children's playground slide was in the river, blocking fish, used as a bridge (8 feet). Retrieved a net from the water that was weighed down with rocks to catch fish.

Potential Source(s) of Trash Collected: Homeless Activity

Hazardous/ Legacy Trash Requiring Follow-up: N/A

MFAC Event Actions for Follow-up: N/A

Additional Notes: Nets and bridge building in this area is a continued problem. Working with F.W.S. and other partners to find a prevention.

Trash Collected: 6 (bulky side)
 No. of Trash Bags Filled: 6 Dumpster % Fill: 50% Dumpster Size (cubic yds): 8

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - Kathleen D. Furlong

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 192 Event Date: 6-25-18
 Specific Cleanup Location: Lower Estuary Event Start/ End Time: 8:00am to 12:17pm
 Field Technician name(s): K. Furlong, VLT Staff, Warped Tour Volunteers (267)
 Current Weather Condition: overcast
 Antecedent Weather Condition: overcast

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input checked="" type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other

Notes: Cleared over 8 tons of trash from the Cypress Grove/Emma Wood area

Potential Source(s) of Trash Collected: homeless encampments

Hazardous/ Legacy Trash Requiring Follow-up: trash along river too heavy to remove, A lot of trash has been buried.

MFAC Event Actions for Follow-up: Continue to clean up Emma Wood area, Cypress Grove. Increase law enforcement

Additional Notes: removed 2 40-cubic yard dumpsters of arundo

Trash Collected:
 No. of Trash Bags Filled: 165 Dumpster % Fill: 100 Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/print):
 "Cleared area is free of all visible trash." - [Signature]

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 2+3+4 Event Date: Sept 10th 2018
 Specific Cleanup Location: Under Main St, Service Road Event Start/ End Time: 10:30 / 12:40
 Field Technician name(s): Daniel Hulst, K. Furlong, J. Harrison, M. Kilpatrick
 Current Weather Condition: Overcast
 Antecedent Weather Condition: Overcast

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input type="checkbox"/>	Other <input checked="" type="checkbox"/>

Notes: Found large folding table.
Addressed trash in Cypress Grove.

Potential Source(s) of Trash Collected: Homeless activity, homeless encampments.

Hazardous/ Legacy Trash Requiring Follow-up: Cypress Grove pit of trash will be addressed on Sept 15 (Coastal Cleanup Day)
Buried trash will be dug out and removed.

MFAC Event Actions for Follow-up: Cypress Grove to be addressed on Coastal Cleanup day.

Additional Notes: All trash under Main St has been collected.

Trash Collected:
 No. of Trash Bags Filled: 18 Dumpster % Fill: 75% Dumpster Size (cubic yds): 8

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - Daniel Hulst

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 Event Date: Sept 25th 2018
 Specific Cleanup Location: Main St Bridge, Creek camp Event Start/ End Time: 10AM- Noon
 Field Technician name(s): D. Hulst, J. Harrison
 Current Weather Condition: Overcast
 Antecedent Weather Condition: Overcast

Types of Trash Observed (check all that apply):

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Plastic/ Styrofoam | <input checked="" type="checkbox"/> Paper Products/ Biodegradable | <input checked="" type="checkbox"/> Household Items |
| <input type="checkbox"/> Landscape Materials | <input checked="" type="checkbox"/> Aluminum/ Metal | <input type="checkbox"/> Automotive |
| <input checked="" type="checkbox"/> Toxic/ Hazardous Materials | <input checked="" type="checkbox"/> Glass | <input checked="" type="checkbox"/> Biohazardous |
| <input checked="" type="checkbox"/> Personal Effects | <input type="checkbox"/> Sports Equipment | <input type="checkbox"/> Other |

Notes: Two strollers found, along w/ an Igloo cooler.
Folding table found near stream, along with two
bicycle rims. Recovered an old mattress
from under 101.

Potential Source(s) of Trash Collected: Homeless activity, homeless
encampments.

Hazardous/ Legacy Trash Requiring Follow-up: Active camp near
stream crossing, will be addressed on next
cleanup date. Numerous bicycles and a BBQ spotted.

MFAC Event Actions for Follow-up: Standard Cleanup procedure to
address active camp.

Additional Notes: All trash under main street Bridge
has been collected, as well as assorted
piles throughout Willoughby. Filled my van to
the brim.

Trash Collected:
 No. of Trash Bags Filled: 12 Dumpster % Fill: 65 Dumpster Size (cubic yds): 8

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - David Hulst

Appendix 2. VLT Clean-Up Photos

Cleanup Photos



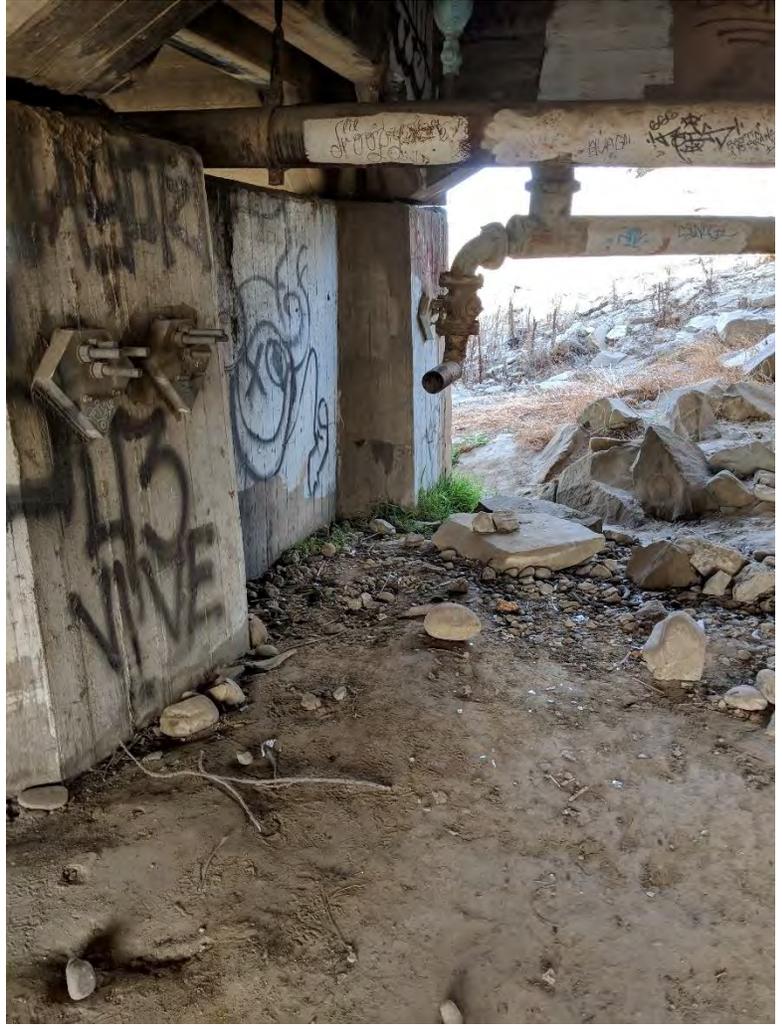
11.13.17: Clothing and personal affects abandoned at a camp next to the river in MFAC area 3



11.13.17: Area next to river after clearing the abandoned camp



11.19.17: Fortified Camp on City Beach disassembled and cleared with the help of volunteers at the first annual VLT and Surfrider Foundation River to the Sea Cleanup Event.



12.22.17: Before and After of area under the first section of the Main Street bridge next to the bike trail



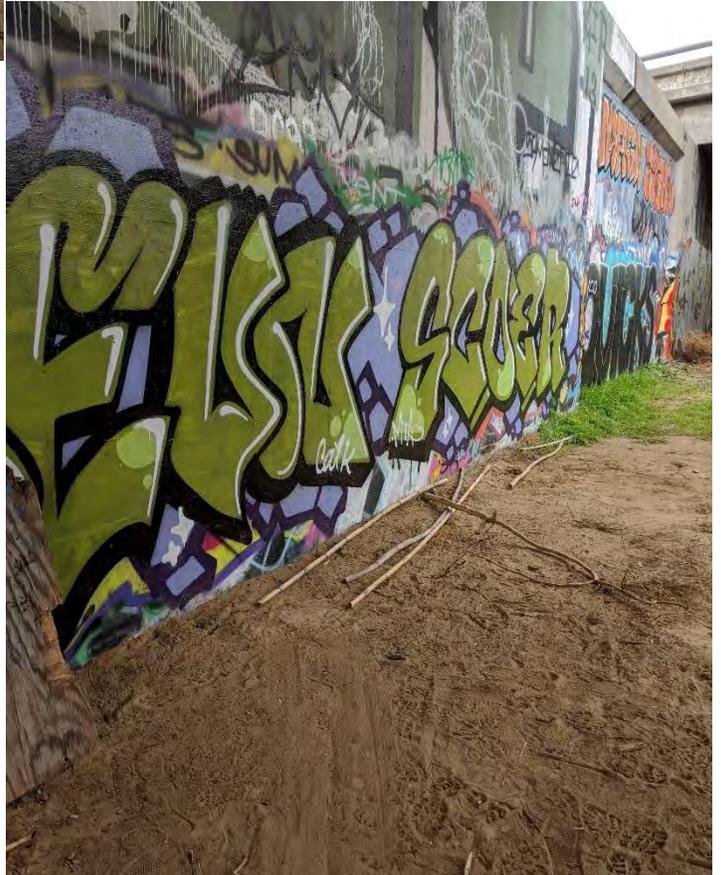
2/10/18 Clean up: Before and after of drainage ditch on Parcel 4 (County)

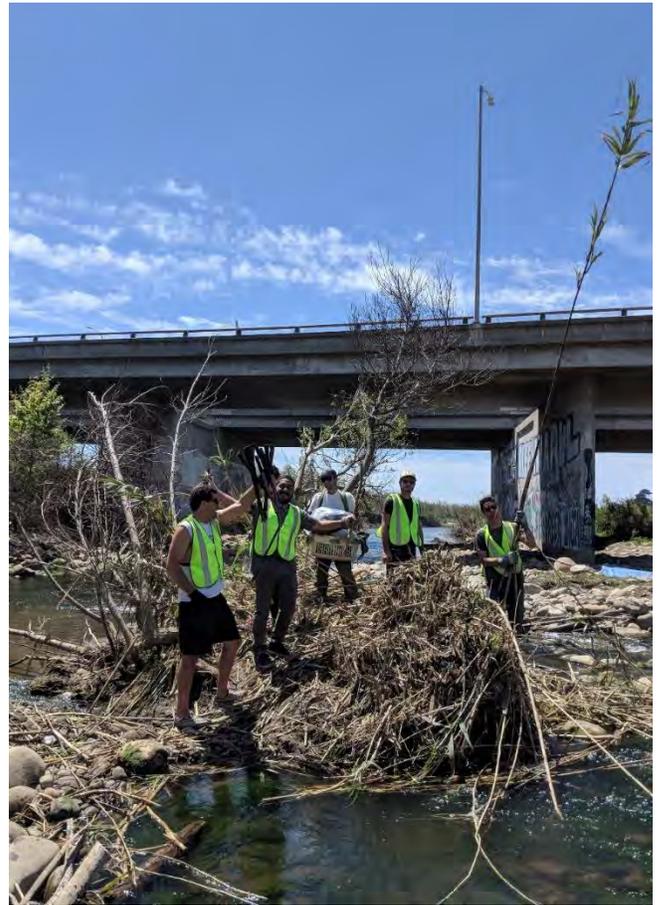




2/17/18 Cleanup: Volunteers helped clean the beach and break down abandoned beach teepees.

3/30/18 Cleanup: Patagonia employees and volunteers cleared several large abandoned camps under the Main Street and 101 Bridges (101 pictured here).





4.21.18 Cleanup: On Earth Day, Starbucks employees help clear Arundo at the 'Laundry Spot' between Willoughby and RV properties by the 101





6.12.18 Cleanup: Net removed from the river. This is the third net pulled from this area and it was blocking all fish passage. Rocks tied in to weigh down the bottom and Arundo across the top for floatation. FWS contacted about the issue.



6.25.18 Cleanup: Warped Tour Volunteers along with State Parks and City employees, and Surf Rodeo volunteers came together and helped remove over 8 tons of trash from the cypress grove.

Volunteers dig up a buried trash pile that has flooded after the river mouth closed

Volunteers help dismantle the Cypress Grove Arundo and palm palisade





Warped tour volunteers piled bags to be loaded on carts driven by State Parks employees



9.15.18 Cleanup: An abandoned camp is rendered invisible thanks to the help of our volunteer effort on California Coastal Cleanup Day.



9.15.18: Just some of the waste collected on Coastal Cleanup Day



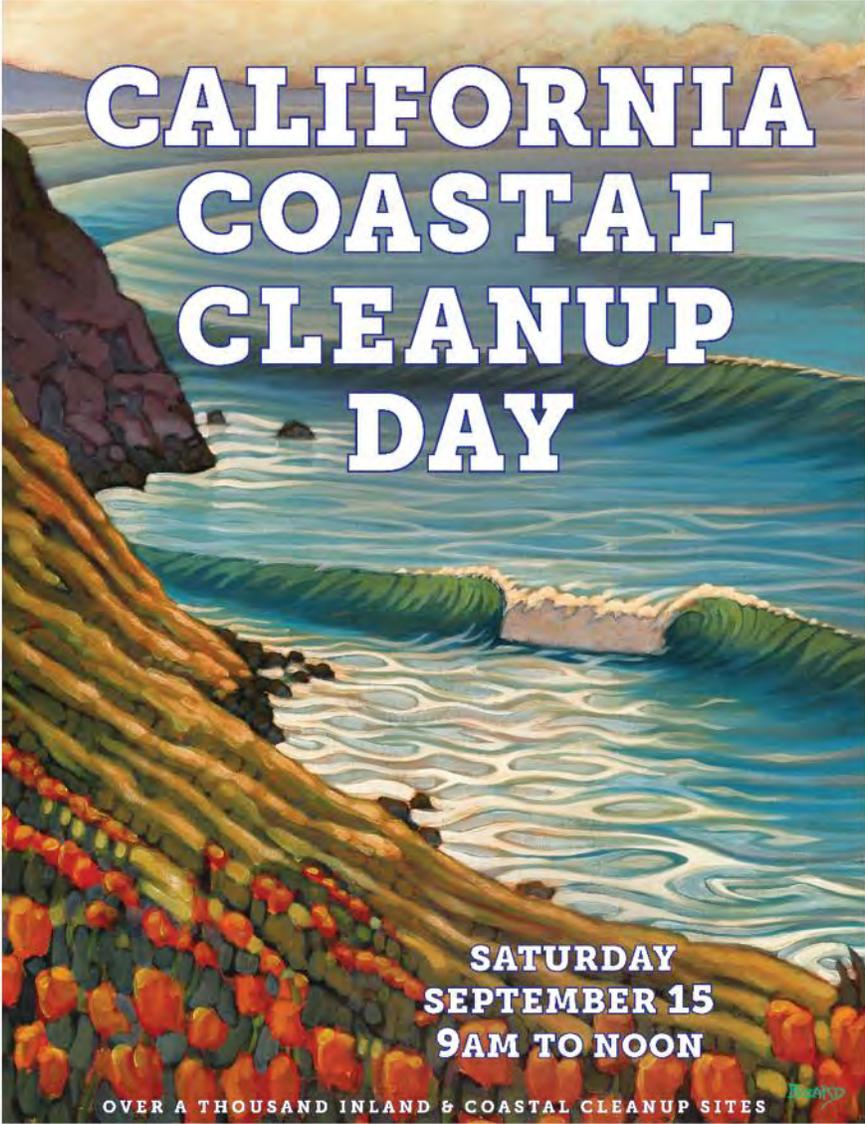
9.25.18 Cleanup: Assorted trash including spray cans, clothing, and an abandoned stroller strewn through the river bottom.



9.25.18 Cleanup: Quite a haul off!

Appendix 3. Countywide Outreach Materials

County Outreach Materials



**CALIFORNIA
COASTAL
CLEANUP
DAY**

**SATURDAY
SEPTEMBER 15
9AM TO NOON**

OVER A THOUSAND INLAND & COASTAL CLEANUP SITES

COASTALCLEANUPDAY.ORG



CRYSTAL GEYSERS NATURAL ALPINE SPRING WATER | ORACLE | salesforce | UnionBank | CALIFORNIA STATE PARKS FOUNDATION | OCEAN CONSERVANCY | PROTECT OUR COAST AND DEERY'S FUND | CALIFORNIA COASTAL COMMISSION

ARTWORK DONATED BY CALIFORNIA ARTIST NASTY SHABO. JUSTTRAILBLAZER.COM



Community for a Clean Watershed shared Ventura County Annual Coastal Cleanup Day's post.

October 1 at 10:51 PM · 🌐

WELL DONE VENTURA COUNTY!



Ventura County Annual Coastal Cleanup Day

September 26 at 9:41 PM · 🌐

We would like to take a moment and thank all of our volunteers who contributed to the success of Coastal Cleanup Day 2018! Here is a summary of our preliminary results.

Although our event is over, our efforts shouldn't be. Let's strive to keep our beaches and waterways clean every day!

5 Likes

VENTURA COUNTY'S
**WATERSHEDS
MAKE LIFE
BEAUTIFUL**

**PROTECT THEM
FOR THE FUTURE**



Find out how you can help at cleanwatershed.org





Community for a Clean Watershed

November 1 at 12:00 AM · 🌐

Happy Halloween #VenturaCounty! Make sure your candy wrappers don't become litter. Wrappers made of plastic and foil are not biodegradable and can pollute our waterways, potentially harming aquatic life.



12 Likes · 1 Comment



Community for a Clean Watershed

November 14 at 11:00 PM · 🌐

Did you know? Cigarette filters are made of plastic, which isn't biodegradable. Litter gets into our waterways and can harm aquatic life. Kick the habit now for the health of #VenturaCounty watersheds! 🚭
Learn more at
<http://www.cleanwatershed.org/watershed-trash-facts/>



7 Likes · 1 Comment



Community for a Clean Watershed

December 1 at 8:00 PM · 🌐

Did you know that when it rains, water accumulates on our streets & flows into storm drains, bringing pollutants with it? This stormwater ends up in our creeks, rivers & oceans 🌊. Please properly dispose of trash. 🗑️ #KeepVenturaBeautiful





How is the Watershed Protection District working with the community to reach their zero trash goal to keep the Ventura River Estuary Clean?



Meet John Harrison, Volunteer...

VCPWA Watershed Protection District and other Total Maximum Daily Load (TMDL) stakeholders are collaborating with Ventura Hillside Conservancy to clean up and restore the Ventura River estuary.

Since 2016, volunteer John Harrison has been dedicated to helping us reach our zero trash goal. John volunteers weekly – sometimes on his own, with his friend Frank, or with the Saturday volunteer group. He helps clean up trash in the Ventura River estuary and along the Ventura River Bike Trail.

On a given day, John clears up at least 2 full bags of litter, which include aluminum bottles, clothing, shoes, tents, sleeping bags, barrels, bicycle parts and more.

What keeps John motivated to keep coming back? “Before volunteering, I had no idea about the amount of litter that regularly accumulates in the Ventura River estuary, and what kind of dangers this poses to the marine and wildlife in the area. Ventura citizens very much enjoy the native fish and birds; they are part of what makes our coast beautiful and special. Now, I am much more aware of litter, and I hope others learn to be more mindful when they toss water bottles or other garbage on bike and walking trails. We’re so accustomed to living in a clean environment, but people don’t realize they’re taking organized trash pick-up for granted.”





There's No Poop Fairy
PICK IT UP!

More watershed tips at cleanwatershed.org



California Department of Transportation

Protect Every Drop

Campaign Artwork Guidelines

A public education campaign guide
for promoting clean water.

A Campaign Developed by Caltrans®



Protect Every DropSM

I. Introduction

About the Campaign

“Protect Every Drop” was created by the Caltrans’ Stormwater Management Program team to help encourage positive behaviors by the motoring public to help improve water quality throughout the state. By reducing stormwater pollution in and around the roadway and highway systems throughout California, water that flows into major watersheds in the state will carry less pollutants and reduce the impact to our precious waterways.

The campaign also addresses pollutants found in highway stormwater that may originate from non-highway sources such as pesticides and bacteria from natural sources. This campaign aims to help improve water quality in our streams, rivers, lakes and coastal waters, keeping them drinkable, swimmable and fishable.

Key Actions

Most Californians are unaware of stormwater runoff pollution and what they can do to reduce its effects. The campaign addresses key actions the public can take to stop pollution at its source, including:

- Recycle and properly dispose of trash and other items containing pollutants
- Cover and secure loads so items do not fall out or blow off onto the roadway
- Perform routine vehicle maintenance to reduce and eliminate leaks
- Properly inflate tires to reduce wear and emissions and help reduce pollution
- Wipe off wheel wells and tire rims to clean off brake dust and heavy metals
- Properly dispose of cigarettes so they don't end up on the roadway, highway or waterbodies
- Keep vehicles clean to prevent residue from washing off when it rains
- Only use ecofriendly fertilizers and pesticides when rain and wind is not in the forecast
- Pick up and properly dispose of pet waste

II. Resources

Campaign Materials

All campaign materials developed are available free of charge to partners and include a series of template materials.

Materials can be used “as is” or customized, with Caltrans approval, to address local or regional needs. This is available to any clean water, stormwater, solid waste or other relevant agency who share the same mission.

All campaign materials can be downloaded at <http://www.protecteverydrop.com/doing-your-part/public-materials-toolkit>

Logo



Infographic



Continued on the next page...

II. Resources Continued

Billboards

Northern California



Protect Every Drop
Clean Water Starts With Clean Highways.

 ProtectEveryDrop.com

Southern California



Protect Every Drop
Clean Water Starts With Clean Highways.

 ProtectEveryDrop.com

Alternate Messaging



Trash Your Trash
Clean Water Starts
With Clean Highways.

 ProtectEveryDrop.com



Recycle Your Recyclables
Clean Water Starts
With Clean Highways.

 ProtectEveryDrop.com

Continued on the next page...

II. Resources Continued

Digital Banner Ads



Monitor Your Tire Pressure
Clean Water Starts With Clean Highways.
[Learn More](#)



Don't Leave Your Load Behind
Clean Water Starts With Clean Highways.
[Learn More](#)



Protect Every Drop
Clean Water Starts With Clean Highways.
[Learn More](#)



Properly Dispose of Pet Waste
Clean Water Starts With Clean Highways.
[Learn More](#)



Properly Dispose of Your Cigarettes
Clean Water Starts With Clean Highways.
[Learn More](#)



Proteja Cada Gota
Agua Limpia Empez a con Autopistas Limpias.
[Learn More](#)



Protect Every Drop



Proteja Cada Gota



Continued on the next page...

II. Resources Continued

Mall Backlit Signs



Protect Every Drop

Streams, rivers, lakes and the ocean — We Californians love our water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Do your part by keeping your vehicle clean...inside and out. Protect what you love. Protect every drop. And remember...

Clean Water Starts With Clean Highways.

ProtectEveryDrop.com

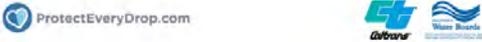



Protect Every Drop

Streams, rivers, lakes and the ocean — We Californians love our water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Do your part by keeping your vehicle clean...inside and out. Protect what you love. Protect every drop. And remember...

Clean Water Starts With Clean Highways.

ProtectEveryDrop.com




Check Your Vehicle For Fluid Leaks

Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! You can help keep our water bodies clean by checking your vehicle before you leave and before you return from your vacation. Whether you're on the highway headed to the beach, lake or river, be sure to always check your vehicle for fluid leaks and make sure your tires are properly inflated. Our highways drain to our waterways. Protect our water. Protect every drop.

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Don't Leave Your Load Behind

Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! You can help keep our water bodies clean by checking your vehicle before you leave and before you return from your vacation. Whether you're on the highway headed to the beach, lake or river, be sure to properly secure your travel gear so you don't leave something important on the highway. Our highways drain to our waterways. Protect our water. Protect every drop.

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Recycle Your Recyclables

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Summers in California are beautiful, and so are our waterways! Whether you're on the highway headed to the beach, lake or river, be sure to properly dispose of your recyclables in a public recycle bin or your recycle bin at home so they don't end up on the highway. Our highways drain to our waterways. Protect our water. Protect every drop.

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Trash Your Trash

Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! You can help keep our water bodies clean by checking your vehicle before you leave and before you return from your vacation. Whether you're on the highway headed to the beach, lake or river, be sure to dispose of your trash at a gas station, rest stop, or anywhere a proper garbage receptacle is located. Our highways drain to our waterways. Protect our water. Protect every drop.

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Continued on the next page...

II. Resources Continued

Posters

Northern California



Protect Every Drop

Streams, rivers, lakes and the ocean—We Californians love our water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Do your part by keeping your vehicle clean...inside and out. Protect what you love. Protect every drop. And remember...

Clean Water Starts With Clean Highways.



Proteja Cada Gota

Arroyos, ríos, lagos, y el océano—¡Nos encanta nuestra agua en California! ¿Pero sabía que cuando llueve, contaminantes como basura, líquidos del auto y mugre se lavan de nuestros autos y caen a las autopistas, terminando en nuestra agua? Haz su parte y mantenga su auto limpio...dentro y por fuera. Protege lo que amas. Proteja cada gota. Y recuerda...

Agua Limpia Empieza con Autopistas Limpias.

Southern California



Protect Every Drop

Streams, rivers, lakes and the ocean—We Californians love our water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Do your part by keeping your vehicle clean...inside and out. Protect what you love. Protect every drop. And remember...

Clean Water Starts With Clean Highways.



Proteja Cada Gota

Arroyos, ríos, lagos, y el océano—¡Nos encanta nuestra agua en California! ¿Pero sabía que cuando llueve, contaminantes como basura, líquidos del auto y mugre se lavan de nuestros autos y caen a las autopistas, terminando en nuestra agua? Haz su parte y mantenga su auto limpio...dentro y por fuera. Protege lo que amas. Proteja cada gota. Y recuerda...

Agua Limpia Empieza con Autopistas Limpias.

Continued on the next page...

II. Resources Continued

Tip Flyer

Simple Ways

To Reduce Stormwater Pollution

Streams, rivers, lakes and the ocean—Californians love their water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Here's how you can help prevent pollution!

-  Properly inflated tires decrease wear, improve gas mileage and make your tires less susceptible to blowouts which all decrease pollution.
-  Maintain your vehicle to fix any leaks quickly to prevent auto fluids from dripping on the road. One vehicle dripping may not seem like much but thousands of vehicles dripping on our highways add up quickly!
-  Swing by a car wash facility to get the dirt, grime and other residue washed off your vehicle to prevent polluted runoff during a rainstorm.
-  Properly dispose of trash and recycling into a receptacle at the gas station or at home before they fly from a window or truck bed into a storm drain.
-  When hauling loads, make sure that items are properly secured with tarps and tie downs so items don't fly out of the bed of your truck.

Do your part by maintaining your vehicle and keeping it clean...inside and out. Protect our water. Protect Every Drop! And remember...

Clean Water Starts With Clean Highways.

 ProtectEveryDrop.com   

Available Languages:

- English
- Spanish
- Chinese
- Hmong
- Russian
- Vietnamese
- Punjabi
- Korean

III. Behavior Focused

Behavior Focused Creative Elements

Billboards



Trash Your Trash
Clean Water Starts With Clean Highways.

ProtectEveryDrop.com




Recycle Your Recyclables
Clean Water Starts With Clean Highways.

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Mall Signs



Check Your Vehicle For Fluid Leaks
Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! You can help keep our waterbodies clean by checking your vehicle before you leave and before you return from your vacation. Whether you're on the highway headed to the beach, lake or river, be sure to always check your vehicle for fluid leaks and make sure your tires are properly inflated. Our highways drain to our waterways. Protect our water. Protect every drop.

ProtectEveryDrop.com




Don't Leave Your Load Behind
Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! You can help keep our waterbodies clean by checking your vehicle before you leave and before you return from your vacation. Whether you're on the highway headed to the beach, lake or river, be sure to properly secure your travel gear so you don't lose something important on the highway. Our highways drain to our waterways. Protect our water. Protect every drop.

ProtectEveryDrop.com




Recycle Your Recyclables
Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! Whether you're on the highway headed to the beach, lake or river, be sure to properly dispose of your recyclables in a public recycle bin or your recycle bin at home so they don't end up on the highway. Our highways drain to our waterways. Protect our water. Protect every drop.

ProtectEveryDrop.com




Trash Your Trash
Clean Water Starts With Clean Highways.

Summers in California are beautiful, and so are our waterways! You can help keep our waterbodies clean by checking your vehicle before you leave and before you return from your vacation. Whether you're on the highway headed to the beach, lake or river, be sure to dispose of your trash at a gas station, rest stop or wherever a proper garbage receptacle is located. Our highways drain to our waterways. Protect our water. Protect every drop.

ProtectEveryDrop.com



Online Banner Ads



Monitor Your Tire Pressure
Clean Water Starts With Clean Highways.

Learn More




Don't Leave Your Load Behind
Clean Water Starts With Clean Highways.

Learn More




Properly Dispose of Pet Waste
Clean Water Starts With Clean Highways.

Learn More




Properly Dispose of Your Cigarettes
Clean Water Starts With Clean Highways.

Learn More



IV. Adapting Materials

Add Your Logo

This is a guide for how and where you can display your logo on creative.



Protect Every Drop

Streams, rivers, lakes and the ocean — We Californians love our water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Do your part by keeping your vehicle clean...inside and out. Protect what you love. Protect every drop. And remember...

Clean Water Starts With Clean Highways.

ProtectEveryDrop.com   **DO NOT ALTER**

▲
Add Your Logo Here

Creative integrity must not be altered. However, the roadway/highway image and the water body image in the heart can be customized to fit your area.

The tone of the copy must stay the same to maintain the Caltrans Protect Every Drop campaign brand integrity, but the specific words can be altered to fit the needs of your area and must be presented to Caltrans contract manager for approval.

Can alter with one of the pre-approved taglines or a tagline approved by Caltrans contract manager.



Protect Every Drop

Clean Water Starts With Clean Highways.

ProtectEveryDrop.com   **DO NOT ALTER**

▲
Add Your Logo Here

V. Taglines

Tagline Options

Having a campaign tagline that fits your area is important. Below are some pre-approved tagline options. **Any other custom tagline must be approved by Caltrans.**

Clean Water Starts With Clean Highways

Clean Water Starts With Clean Roadways

Clean Water Starts With Clean Streets

Clean Water Starts With a Clean City

Clean Creeks Start With Clean Streets

Clean Rivers Start with Clean Roads

Clean Streams Start With Clean Streets

VI. Contact

Contact Us

For more information, or to request the use of these materials, please contact:

Ana Serrano

*Protect Every Drop Program Contract Manager
Senior Transportation Engineer
Office of Stormwater Program Implementation
Division of Environmental Analysis
(916) 653-2351*

Or

Shelley Cousineau

*Protect Every Drop Project Manager
Sagent
(916) 359-8316*



DECEMBER 15, 2018

**CALLEGUAS CREEK WATERSHED TMDL
COMPLIANCE MONITORING PROGRAM**

**10TH YEAR ANNUAL MONITORING REPORT
JULY 2017 TO JUNE 2018**

**Monitoring and Reporting Program for the Nitrogen and
Related Effects; Organochlorine Pesticides, Polychlorinated
Biphenyls and Siltation; Toxicity; Salts; and Metals and
Selenium Total Maximum Daily Loads**

SUBMITTED TO
LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

PREPARED BY

LARRY
WALKER



ASSOCIATES

ON BEHALF OF THE
STAKEHOLDERS IMPLEMENTING TMDLs IN THE CALLEGUAS CREEK
WATERSHED

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Table of Contents

Table of Contents	i
List of Tables	iii
List of Figures.....	v
Appendices – Text Documents.....	viii
Attachments – Electronic Documents	viii
Acronyms	ix
Executive Summary	ES-1
Introduction and Program Background.....	1
Introduction.....	1
Project Organization	2
Watershed Background.....	3
Monitoring Questions	5
Monitoring Program Description.....	6
Required Monitoring Elements.....	6
Optional Monitoring Elements	8
Special Studies	9
Monitoring Program Structure	10
Compliance Monitoring.....	10
Compliance Monitoring for Toxicity, OC Pesticides, Metals, Nitrogen, and Salts TMDLs	10
Investigation Monitoring	11
Land Use Discharge Investigation	11
Toxicity Investigation.....	11
Sampling Sites	12
Monitoring Data Summary	25
OC Pesticides TMDL Data Summary.....	28
Metals TMDL Data Summary	44
Toxicity TMDL.....	65
Nutrients TMDL	74

Salts TMDL	83
Tissue Data.....	95
Freshwater Tissue Data.....	95
Toxicity Data	100
Exceedance Evaluation and Discussion	105
Receiving Water Site Comparison.....	106
POTW Data Comparison	115
Exceedance Evaluation Discussion.....	120
OC Pesticides, Toxicity, Metals, Nutrients, and Salts	120
Revisions and Recommendations	128

List of Tables

Table 1. Description of Calleguas Creek Watershed Reaches.....	5
Table 2. Constituents and Monitoring Frequency for CCWTMP (varies by site).....	7
Table 3. Optional Constituents and Monitoring Frequency for CCWTMP (varies by site).....	9
Table 4. CCWTMP Compliance Monitoring and Nutrient Investigation Sites Annual Sampling Frequency.....	13
Table 5. CCWTMP Land Use Monitoring Sites and Sample Frequency.....	15
Table 6. Toxicity Investigation Monitoring Sites and Sampling Frequency.....	16
Table 7. Receiving Water Sites Color Coded by Subwatershed.....	26
Table 8. Land Use and POTW Sites Color Coded by Type.....	27
Table 9. Mugu Lagoon – Central Lagoon Tissue Data ¹	95
Table 10. Mugu Lagoon – Western Arm Tissue Data ¹	96
Table 11. Calleguas Creek – Camarillo Street CSUCI (03_UNIV) Fish Tissue Data ¹	97
Table 12. Conejo Creek – Adolfo Road (9B_ADOLF) Fish Tissue Data ¹	97
Table 13. Arroyo Simi – Hitch Boulevard (07_HITCH) Fish Tissue Data ¹	98
Table 14. Revolon Slough – Wood Road (04_WOOD) Fish Tissue Data Years 1 – 10 ¹	99
Table 15. Revolon Slough – Wood Road (04_WOOD) Metals Fish Tissue Data.....	99
Table 16. Mugu Lagoon Bird Egg Data Year 10.....	100
Table 17. Water Column Toxicity for All Monitoring Events and Sites.....	102
Table 18. Sediment Toxicity for All CCWTMP Freshwater Monitoring Events and Sites.....	104
Table 19. Sediment Toxicity for Mugu Lagoon Monitoring Events and Sites.....	104
Table 20. OC Pesticides, PCBs, & Siltation in Sediment.....	106
Table 21. Nitrogen Compounds in Water.....	110
Table 22. Toxicity, Diazinon, and Chlorpyrifos in Water.....	112
Table 23. Metals and Selenium in Water.....	113
Table 24. Monthly Mean Salts Concentrations.....	114
Table 25. Nitrogen Compounds – POTWs.....	115
Table 26. OC Pesticides, PCBs, and Siltation - POTWs.....	116
Table 27. Toxicity, Chlorpyrifos, and Diazinon - POTWs.....	117
Table 28. Metals - POTWs: Camarillo Water Reclamation Plant and Hill Canyon Wastewater Treatment Plant.....	118
Table 29. Salts - POTWs.....	119
Table 30. Exceedances of Nitrate-N Numeric TMDL Target of 10 mg/L.....	121

Table 31. Compliance and Land Use Sites Comparison to Determine MS4 Chlorpyrifos WLA Compliance	123
Table 32. Compliance and Land Use Sites Comparison to Determine Ag Chlorpyrifos LA Compliance	123
Table 33. Selenium Monitoring Data (ug/L) in the Revolon Slough Subwatershed	124
Table 34. Total Dissolved Solids Monitoring Data (mg/L) in Revolon Slough	126
Table 35. Sulfate Monitoring Data (mg/L) in Revolon Slough	126
Table 36. Boron Monitoring Data (mg/L) in Revolon Slough	126
Table 37. Chloride Monitoring Data (mg/L) in Conejo Creek	127

List of Figures

Figure 1. Calleguas Creek Watershed.....	4
Figure 2. CCWTMP Compliance Monitoring Sampling Sites – Receiving Water	17
Figure 3. CCWTMP Compliance Monitoring Receiving Water Sampling Sites – Freshwater Sediment.....	18
Figure 4. CCWTMP Compliance Monitoring Sampling Sites – Freshwater Fish Tissue	19
Figure 5. CCWTMP Compliance Monitoring Sampling Sites – POTW Effluent.....	20
Figure 6. CCWTMP Compliance Monitoring Sampling Zones – Mugu Lagoon Sediment	21
Figure 7. CCWTMP Compliance Monitoring Sampling Zones – Mugu Lagoon Tissue.....	22
Figure 8. CCWTMP Toxicity Investigation Receiving Water Sampling Sites – Water and Sediment.....	23
Figure 9. CCWTMP Land Use Sampling Sites	24
Figure 10. 4,4'-DDD Water Column Concentrations in Receiving Water Sites: 2008-2018.....	29
Figure 11. 4,4'-DDD Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018	30
Figure 12. 4,4'-DDE Water Column Concentrations in Receiving Water Sites: 2008-2018.....	31
Figure 13. 4,4'-DDE Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018	32
Figure 14. 4,4'-DDT Water Column Concentrations in Receiving Water Sites: 2008-2018.....	33
Figure 15. 4,4'-DDT Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018	34
Figure 16. Total Chlordane Water Column Concentrations in Receiving Water Sites: 2008-2018	35
Figure 17. Total Chlordane Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018	36
Figure 18. Toxaphene Water Column Concentrations in Receiving Water Sites: 2008-2018	37
Figure 19. Toxaphene Water Column Concentrations in Urban, Ag, and POTW Sites: 2008- 2018.....	38
Figure 20. 4,4'-DDD Sediment Concentrations in Receiving Water Sites: 2008-2018	39
Figure 21. 4,4'-DDE Sediment Concentrations in Receiving Water Sites: 2008-2018.....	40
Figure 22. 4,4'-DDT Sediment Concentrations in Receiving Water Sites: 2008-2018.....	41
Figure 23. Total Chlordane Sediment Concentrations in Receiving Water Sites: 2008-20182018	42
Figure 24. Toxaphene Sediment Concentrations in Receiving Water Sites: 2008-2018.....	43
Figure 25. Total Copper Dry Weather Concentrations in Receiving Water Sites: 2008-2018....	45

Figure 26. Total Copper Stormwater Concentrations in Receiving Water Sites: 2008-2018.....	46
Figure 27. Total Copper Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018.....	47
Figure 28. Total Copper Wet Weather Concentrations in Urban and Ag Sites: 2008-2018	48
Figure 29. Dissolved Copper Concentrations in Receiving Water Sites: 2008-2018.....	49
Figure 30. Dissolved Copper Concentrations in Urban, Ag, and POTW Sites: 2008-2018.....	50
Figure 31. Total Mercury Concentrations in Receiving Water Sites: 2008-2018	51
Figure 32. Total Mercury Concentrations in Urban and Ag Sites: 2008-2018.....	52
Figure 33. Total Nickel Dry Weather Concentrations in Receiving Water Sites: 2008-2018.....	53
Figure 34. Total Nickel Stormwater Concentrations in Receiving Water Sites: 2008-2018.....	54
Figure 35. Total Nickel Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018	55
Figure 36. Total Nickel Stormwater Concentrations in Urban and Ag Sites: 2008-2018	56
Figure 37. Dissolved Nickel Concentrations in Receiving Water Sites: 2008-2018.....	57
Figure 38. Dissolved Nickel Concentrations in Urban, Ag, and POTW Sites: 2008-2018.....	58
Figure 39. Total Selenium Dry Weather Concentrations in Receiving Water Sites: 2008-2018	59
Figure 40. Total Selenium Stormwater Concentration in Receiving Water Sites: 2008-2018....	60
Figure 41. Total Selenium Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018.....	61
Figure 42. Total Selenium Stormwater Concentrations in Urban and Ag Sites: 2008-2018.....	62
Figure 43. Dissolved Zinc Concentrations in Receiving Water Sites: 2008-2018	63
Figure 44. Dissolved Zinc Concentrations in Urban, Ag, and POTW Sites: 2008-2018	64
Figure 45. Chlorpyrifos Dry Weather Concentrations in Receiving Water Sites: 2008-2018	66
Figure 46. Chlorpyrifos Stormwater Concentrations in Receiving Water Sites: 2008-2018	67
Figure 47. Chlorpyrifos Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018.....	68
Figure 48. Chlorpyrifos Stormwater Concentrations in Urban and Ag Sites: 2008-2018.....	69
Figure 49. Diazinon Dry Weather Concentrations in Receiving Water Sites: 2008-2018	70
Figure 50. Diazinon Stormwater Concentrations in Receiving Water Sites: 2008-2018	71
Figure 51. Diazinon Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018	72
Figure 52. Diazinon Stormwater Concentrations in Urban and Ag Sites: 2008-2018.....	73
Figure 53. Ammonia-N Concentrations in Receiving Water Sites: 2008-2018	75
Figure 54. Ammonia-N Concentrations in Ag and POTW Sites: 2008-2018	76
Figure 55. Nitrate-N Concentrations in Receiving Water Sites: 2008-2018	77

Figure 56. Nitrate-N Concentrations in Ag and POTW Sites: 2008-2018	78
Figure 57. Nitrite-N Concentrations in Receiving Water Sites: 2008-2018	79
Figure 58. Nitrite-N Concentrations in Ag and POTW Sites: 2008-2018	80
Figure 59. Nitrate-N + Nitrite-N Concentrations in Receiving Water Sites: 2008-2018	81
Figure 60. Nitrate-N + Nitrite-N Concentrations in Ag and POTW Sites: 2008-2018	82
Figure 61. TDS Monthly Means for Receiving Water Sites Collected During Dry Weather	83
Figure 62. Chloride Monthly Means for Receiving Water Sites Collected During Dry Weather	84
Figure 63. Sulfate Monthly Means for Receiving Water Sites Collected During Dry Weather	85
Figure 64. Boron Monthly Means for Receiving Water Sites Collected During Dry Weather	86
Figure 65. Total Dissolved Solids in Water from Urban and Ag Sites: 2011-2018	87
Figure 66. Chloride in Water from Urban & Ag Sites: 2011-2018	88
Figure 67. Sulfate in Water from Urban & Ag Sites: 2011-2018	89
Figure 68. Boron in Water from Urban & Ag Sites: 2011-2018	90
Figure 69. Total Dissolved Solids in Water from POTW Sites: 2012-2018	91
Figure 70. Sulfate in Water from POTW Sites: 2012-2018	92
Figure 71. Chloride in Water from POTW Sites: 2012-2018	93
Figure 72. Boron in Water from POTW Sites: 2012-2018	94

Appendices – Text Documents

- Appendix A. Monitoring Event Summaries for Toxicity, OC Pesticides, Nutrients, Metals, and Salts TMDLs
- Appendix B. Salts Rating Curves and Surrogate Relationships
- Appendix C. Toxicity Testing and Toxicity Identification Evaluations Summary
- Appendix D. Laboratory QA/QC Results and Discussion
- Appendix E. Mugu Benthic Infauna Report

Attachments – Electronic Documents

- Attachment 1. Toxicity Data
- Attachment 2. Monitoring Data
- Attachment 3. Salts Mean Daily Flows: July 2017-June 2018
- Attachment 4. Chain-of-Custody Forms

Acronyms

Ag Waiver	Conditional Waiver for Irrigated Agricultural Lands
AMR	Annual Monitoring Report
AWQMP	Agriculture Water Quality Management Plan
BPA	Basin Plan Amendments
BMP	Best Management Practice
Caltrans	California Department of Transportation
CCW	Calleguas Creek Watershed
CCWTMP	Calleguas Creek Watershed TMDL Compliance Monitoring Program
DNQ	Detected Not Quantified
EC	Electrical Conductivity
EST	Estimated
GSQC	General Sediment Quality Constituents
GWQC	General Water Quality Constituents
LA	Load Allocation
MOA	Memorandum of Agreement
MDL	Method Detection Limit
NA	Not Applicable
ND	Not Detected
NR	Not Required
NS	Not Sampled
OC	Organochlorine
OP	Organophosphorus
PCBs	Polychlorinated Biphenyls
POTW	Publically-Owned Treatment Works
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
SOPs	Standard Operating Procedures
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TKN	Total Kjehdahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
VCAILG	Ventura County Agricultural Irrigated Lands Group
WLA	Wasteload Allocation

Executive Summary

The purpose of this annual report is to document the tenth-year monitoring efforts and results of the Calleguas Creek Watershed (CCW) Total Maximum Daily Load (TMDL) Compliance Monitoring Program (CCWTMP), conducted between July 2017 and June 2018. This annual report includes information for the sampling events completed per the current Quality Assurance Project Plan (QAPP), summaries of collected data, water quality data analysis, and TMDL waste load allocation (WLA)/load allocation (LA) compliance evaluation.

The Stakeholders Implementing TMDLs in the Calleguas Creek Watershed (Stakeholders) have been cooperatively working to implement the effective TMDLs in the CCW since 2007. Their cooperative efforts have resulted in effective implementation of the CCWTMP, successful development and completion of required special studies, implementation of actions outlined in the TMDLs, and initiation of planning of future actions towards upcoming TMDL compliance due dates. The combined result of the implementation actions taken thus far has been a significant improvement in the water quality in the watershed, as demonstrated by the monitoring results presented in this report. Successes include:

- Meeting final TMDL targets in the whole watershed for ammonia, nitrite, diazinon, zinc, all OC pesticides except chlordane, DDT compounds, and toxaphene.
- Meeting final TMDL targets in all reaches except for Revolon Slough for copper and nickel.
- Meeting final TMDL targets for fish tissue for mercury and bird eggs for selenium.
- Significant reduction in the number of samples with significant water and sediment toxicity and chlorpyrifos exceedances.
- Downward trends for chlordane, DDT compounds, and toxaphene in fish tissue.
- Investments in wastewater treatment plant upgrades, groundwater desalters, source control efforts, and non-structural best management practices.
- Well-attended on-going educational outreach programs offered by the stakeholders including recently offered EcoHero shows at schools, facilitating rain barrel sale events, support funding for Coastal Cleanup Day; numerous agricultural meetings related to management practices, monitoring results updates, Conditional Ag Waiver compliance requirements, nitrogen management plan certification, and many more.

While there is still some work to be done, the Stakeholders are committed to collaboratively working to continue the success they have achieved over the past ten years.

TOTAL MAXIMUM DAILY LOADS

There are six TMDLs currently effective and being implemented in the CCW. They include:

- Nitrogen Compounds and Related Effects in Calleguas Creek (Nitrogen or Nutrients TMDL)
- Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in Calleguas Creek, its Tributaries, and Mugu Lagoon (OC Pesticides TMDL)
- Toxicity, Chlorpyrifos, and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon (Toxicity TMDL)

- Metals and Selenium in Calleguas Creek, its Tributaries, and Mugu Lagoon (Metals TMDL)
- Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL)¹
- Boron, Chloride, Sulfate and TDS (Salts) in the Calleguas Creek, its Tributaries and Mugu Lagoon (Salts TMDL)

To address the monitoring requirements of the TMDLs, the CCWTMP was established and a QAPP developed and approved by the Los Angeles Regional Water Quality Control Board (Regional Water Board) Executive Officer. Over time the original QAPP has been revised to incorporate newly adopted TMDLs, reflect changing field conditions, and include changes recommended in previous annual monitoring reports. The QAPP currently addresses monitoring requirements for the Nitrogen, OC Pesticides, Toxicity, Metals, and Salts TMDLs. The Trash TMDL is addressed through a separate Trash Monitoring and Reporting Plan and annual reports submitted separately to the Regional Water Board.

PROJECT ORGANIZATION

The CCWTMP is a coordinated effort with the various responsible parties that make up the Stakeholders Implementing TMDLs in the Calleguas Creek Watershed (Stakeholders). Stakeholders identified in the TMDLs have developed a Memorandum of Agreement (MOA) that outlines an agreement to implement the CCWTMP.

The stakeholders to the MOA, for which this report fulfills the TMDL monitoring requirements, are as follows:

- **POTWs:** consisting of Camrosa Water District, Camarillo Sanitary District, Ventura County Waterworks District No. 1, and the Cities of Simi Valley and Thousand Oaks;
- **Urban Dischargers:** consisting of the Cities of Simi Valley, Thousand Oaks, Camarillo, Moorpark and Oxnard, Ventura County Watershed Protection District, and the Ventura County Public Works Agency;
- **Agricultural Dischargers:** consisting of the entities represented by the Ventura County Agricultural Irrigated Lands Group (VCAILG) within the Calleguas Creek Watershed, a subdivision of the Farm Bureau of Ventura County; and
- **Other Dischargers:** consisting of the U.S. Department of Navy and California Department of Transportation.

MONITORING EVENT SUMMARIES

Sampling events required by the Nitrogen, OC Pesticides, Toxicity, Metals, and Salts TMDLs during the tenth year of TMDL monitoring included four dry-weather events (Events 62, 63, 64, 67) and two wet weather events (Events 65 and 66). Grab samples for salts were obtained during

¹ Information related to the Revolon Slough and Beardsley Wash Trash TMDL is not part of this report. The Trash TMDL annual report is submitted separately to the Regional Water Board by January 28th, annually.

these events but were not used directly to determine compliance at receiving water sites.² A summary of Events 62 through 67 is included in **Table ES-1**.

Table ES-1. Summary of Year 10 Monitoring Events

Event	Type	Date	Mugu Lagoon			Freshwater Sites		
			Water Quality ¹	Sediment Quality & Toxicity ²	Tissue ²	Water Quality & Toxicity	Sediment Quality & Toxicity	Tissue
62	Dry	Aug 2017	X	X	X	X	X	
63	Dry	Nov 2017	X			X		
64	Dry	Feb 2018	X			X		
65	Wet	Mar 2018	X			X		
66	Wet	Mar 2018	X			X		
67	Dry	May 2018	X			X		X

1. Mugu Lagoon water quality testing is limited to monitoring site 01_RR_BR per CCWTMP QAPP Revision 3, submitted December 2014.
2. Mugu Lagoon sediment quality, sediment toxicity, and tissue samples are collected every three years. Samples were collected this year as part of Event 62.

RECEIVING WATERS STATUS BY TMDL

The CCW TMDLs were written so that compliance is evaluated on a reach basis (Nitrogen) or by subwatershed (OC Pesticides, Metals Toxicity, Salts), per receiving water compliance site data. The following table is provided as a way of looking at the various TMDLs and the status in attaining applicable load and wasteload allocations, with the goal of acknowledging where progress has been made and where additional focus is needed. Individual Stakeholders are working through their various permitting mechanisms with a focus on their individual compliance, however, this is a way to take a general view of the greater watershed and subwatersheds compared to progress expectations at this point in time.

The table expresses allocation achievement status in the following ways:

- ✓ Applicable allocation consistently met
- Applicable allocation typically exceeded
- Applicable allocation occasionally exceeded
- ❖ Load allocation met but wasteload allocation exceeded

 No applicable allocation for this subwatershed

² Grab samples for salts at receiving water compliance sites are used to develop statistical relationships between specific conductivity (EC) and salt constituents, which are in turn used to convert high-density EC data from continuous monitors in the field to time series of salt concentrations.

Table ES-2. TMDL Allocation Attainment Status by Subwatershed

TMDL	Constituent	Subwatershed					
		Mugu	Calleguas	Revolon	Las Posas	Arroyo Simi	Conejo
<i>Final Allocations Effective</i>							
Nitrogen	Ammonia-N	✓	✓	✓	✓	✓	✓
	Nitrate-N	•	•	○	✓	✓	✓
	Nitrite-N	✓	✓	✓	✓	✓	✓
	Nitrate-N + Nitrite-N	•	•	○	•	✓	✓
Toxicity	Chlorpyrifos (dry)	•	•	✓	✓	✓	✓
	Chlorpyrifos (storms)	✓	✓	○	✓	✓	✓
	Diazinon (dry)	✓	✓	✓	✓	✓	✓
	Diazinon (storms)	✓	✓	✓	✓	✓	✓
<i>Interim Allocations Effective</i>							
OC Pesticides (Final date 2026)	4,4'-DDD (sediment)	✓	✓	✓	✓	✓	✓
	4,4'-DDE (sediment)	✓	✓	✓	✓	✓	✓
	4,4'-DDT (sediment)	✓	✓	✓	✓	✓	✓
	Total Chlordane (sediment)	✓ ²					
	Toxaphene (sediment)	✓	✓	✓	✓	✓	✓
Metals (Final date 2022)	Total Copper (storms and dry)	(1)	✓ ¹	✓ ²	(1)	(1)	(1)
	Total Mercury (annual load)	(2)	✓ ²	✓ ²	(2)	(2)	(2)
	Total Nickel (dry)	(1)	✓ ¹	✓ ²	(1)	(1)	(1)
	Total Selenium (dry)			○			
Salts (Final date 2023)	Total Dissolved Solids (dry)		✓	❖		✓	✓
	Chloride (dry)		✓	✓		✓	✓
	Sulfate (dry)		✓	❖		✓	✓
	Boron (dry)			❖		✓	

1. Final TMDL targets are being attained in these reaches ahead of the TMDL schedule.
2. Final TMDL targets are only occasionally exceeded in these reaches.

MONITORING PROGRAM CHANGES

The QAPP specifies that upon the completion of each CCWTMP annual report, revisions to standard procedures will be made, including: site relocation, ceasing monitoring efforts and/or deleting certain constituents from sample collection. An updated QAPP was submitted in December 2014 that incorporated the proposed revisions and recommendations included in the previous six CCWTMP annual reports. Additional modifications that reflect the most current lab methods and procedures for the field conditions were also part of the QAPP update process. Monitoring for the 2017-2018 monitoring year was conducted per the revised QAPP.

In August 2018, during the first monitoring event of year 11, construction activities were observed at the monitoring site 04D_VENTURA. This is an urban land use site in the City of Camarillo. It was determined that a stretch of the stormwater channel is being enclosed directly up and downstream of the existing monitoring location. The site is being considered for relocation downstream, but still within the City's urban area. Once the site is selected, details will be provided to the Regional Water Board via separate submittal.

The Stakeholders will be submitting TMDL receiving water data to the California Environmental Data Exchange Network (CEDEN) going back to the beginning of the monitoring program in 2008. TMDL receiving water monitoring data will continue to be uploaded for future monitoring events, as well.

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Introduction and Program Background

INTRODUCTION

In the Calleguas Creek Watershed (CCW), the following six total maximum daily loads (TMDLs) are currently effective and include monitoring requirements in the implementation plans:

- Nitrogen Compounds and Related Effects in Calleguas Creek (Nitrogen or Nutrients TMDL)
- Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in Calleguas Creek, its Tributaries, and Mugu Lagoon (OC Pesticides TMDL)
- Toxicity, Chlorpyrifos, and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon (Toxicity TMDL)
- Metals and Selenium in Calleguas Creek, Its Tributaries, and Mugu Lagoon (Metals TMDL)
- Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL) ¹
- Boron, Chloride, Sulfate and TDS (Salts) in the Calleguas Creek, its Tributaries and Mugu Lagoon (Salts TMDL)

To address the monitoring requirements of the TMDLs, the responsible parties that make up the Stakeholders Implementing TMDLs in the CCW (Stakeholders) established a CCW TMDL Compliance Monitoring Program (CCWTMP) and developed a Quality Assurance Project Plan (QAPP) for approval by the Los Angeles Regional Water Quality Control Board (Regional Water Board) Executive Officer. The original QAPP covered monitoring for only the Nitrogen, OC Pesticides, Toxicity, and Metals TMDLs. A monitoring approach (Salts Plan) for the Salts TMDL was submitted by the Stakeholders to the Regional Water Board in June 2009, which was conditionally approved in September 2011. Compliance monitoring for the Salts TMDL was required starting September 9, 2012.

Over time, the original QAPP has been revised to incorporate newly adopted TMDLs, reflect changing field conditions, and include changes recommended in previous annual monitoring reports. The QAPP currently addresses monitoring requirements for the Nitrogen, OC Pesticides, Toxicity, Metals, and Salts TMDLs. The Trash TMDL is addressed through a separate monitoring plan and annual monitoring report.

The primary purpose of this report is to document the tenth year monitoring efforts (July 2017 to June 2018) and results of the CCWTMP for the five TMDLs included in the QAPP. The report includes summaries of the sampling events, data summaries, and a comparison to applicable TMDL allocations and targets. The report is divided into the following sections:

- Introduction and Program Background
- Monitoring Program Structure

¹ Information related to the Revolon Slough and Beardsley Wash Trash TMDL is not part of this report. The Trash TMDL annual report is submitted to the Regional Water Board annually by January 28th.

- Monitoring Data Summary
- Exceedance Evaluation and Discussion
- Revisions and Recommendations

In addition, there are several appendices included with this report and several attachments (electronic data files) associated with this report, including:

- Appendices (text documents)
 - Appendix A: Monitoring Event Summaries for Toxicity, OC Pesticides, Nutrients, Metals, and Salts TMDLs
 - Appendix B: Salts Rating Curves and Surrogate Relationships
 - Appendix C: Toxicity Testing and Toxicity Identification Evaluations Summary
 - Appendix D: Laboratory Quality Assurance/Quality Control Results and Discussion
 - Appendix E. Mugu Benthic Infauna Report
- Attachments (electronic data files)
 - Attachment 1: Toxicity Data
 - Attachment 2: Monitoring Data
 - Attachment 3: Salts Mean Daily Flows: July 2017 to June 2018
 - Attachment 4: Chain-of-Custody Forms

PROJECT ORGANIZATION

The CCWTMP is a coordinated effort where the various responsible parties identified in the TMDLs have developed a Memorandum of Agreement (MOA) that outlines an agreement to implement the CCWTMP. The responsible parties identified in the organizational structure have formally joined together to fulfill their monitoring requirements as outlined in the Basin Plan Amendments (BPAs) for the five TMDLs included in the QAPP.

The CCWTMP is intended to fulfill the monitoring requirements for only those stakeholders that are part of the MOA and/or identified by the participants of the MOA. The stakeholders to the MOA for which this report fulfills the TMDL monitoring requirements are as follows:

- **POTWs:** consisting of Camrosa Water District, Camarillo Sanitary District, Ventura County Waterworks District No. 1, and the Cities of Simi Valley and Thousand Oaks;
- **Urban Dischargers:** consisting of the Cities of Simi Valley, Thousand Oaks, Camarillo, Moorpark and Oxnard, Ventura County Watershed Protection District, and the County of Ventura Public Works Agency;
- **Agricultural Dischargers:** consisting of the entities represented by the Ventura County Agricultural Irrigated Lands Group (VCAILG) within the Calleguas Creek Watershed, a subdivision of the Farm Bureau of Ventura County; and
- **Other Dischargers:** consisting of the U.S. Department of the Navy and the California Department of Transportation (Caltrans).

Per the MOA, a Management Committee, consisting of one representative each from the POTWs, Urban Dischargers and Other Dischargers groups, and two representatives from the Agricultural Dischargers group, oversees the CCWTMP and makes decisions to assure the CCWTMP is carried out in a timely, accountable fashion.

The Stakeholders contracted implementation of the CCWTMP with the following contractors to perform the tenth year monitoring effort:

- **General Project Management** - Larry Walker Associates, Inc. (LWA)
- **Field Monitoring Activities**
 - **Freshwater Water Quality/Sediment Sampling** - Kinnetic Laboratories, Inc. (KLI), Fugro West, Inc. (Fugro), LWA
 - **Freshwater Fish Tissue** – ICF Jones and Stokes, Inc.
 - **Mugu Fish Tissue and Sediment Sampling** – MBC Aquatic Sciences (MBC)
 - **Bird Egg Collection** – Naval Base Ventura County environmental staff
- **Water, Sediment, and Tissue Chemistry Analysis** - Physis Environmental Laboratories, Inc. (Physis)
- **Salts Chemistry Analysis** - Fruit Growers Laboratory, Inc. (FGL) and Physis
- **Toxicity Analysis** - Pacific Eco Risk Laboratories (PacEco)

The aforementioned contractors performed all the management activities and sampling efforts covered by this annual report. This list of contractors will be amended in each report to reflect contractors used for the work performed.

WATERSHED BACKGROUND

Calleguas Creek drains an area of approximately 343 square miles from the Santa Susana Pass in the east to Mugu Lagoon in the southwest. The main surface water system drains from the mountains in the northeast part of the watershed toward the southwest where it flows through the Oxnard Plain before emptying into the Pacific Ocean through Mugu Lagoon. The watershed, which is elongated along an east-west axis, is approximately thirty miles long and fourteen miles wide. The Santa Susana Mountains, South Mountain, and Oak Ridge form the northern boundary of the watershed; the southern boundary is formed by the Simi Hills and Santa Monica Mountains. **Figure 1** depicts the CCW and **Table 1** presents the reaches of the CCW as identified in the TMDLs covered by the CCWTMP.

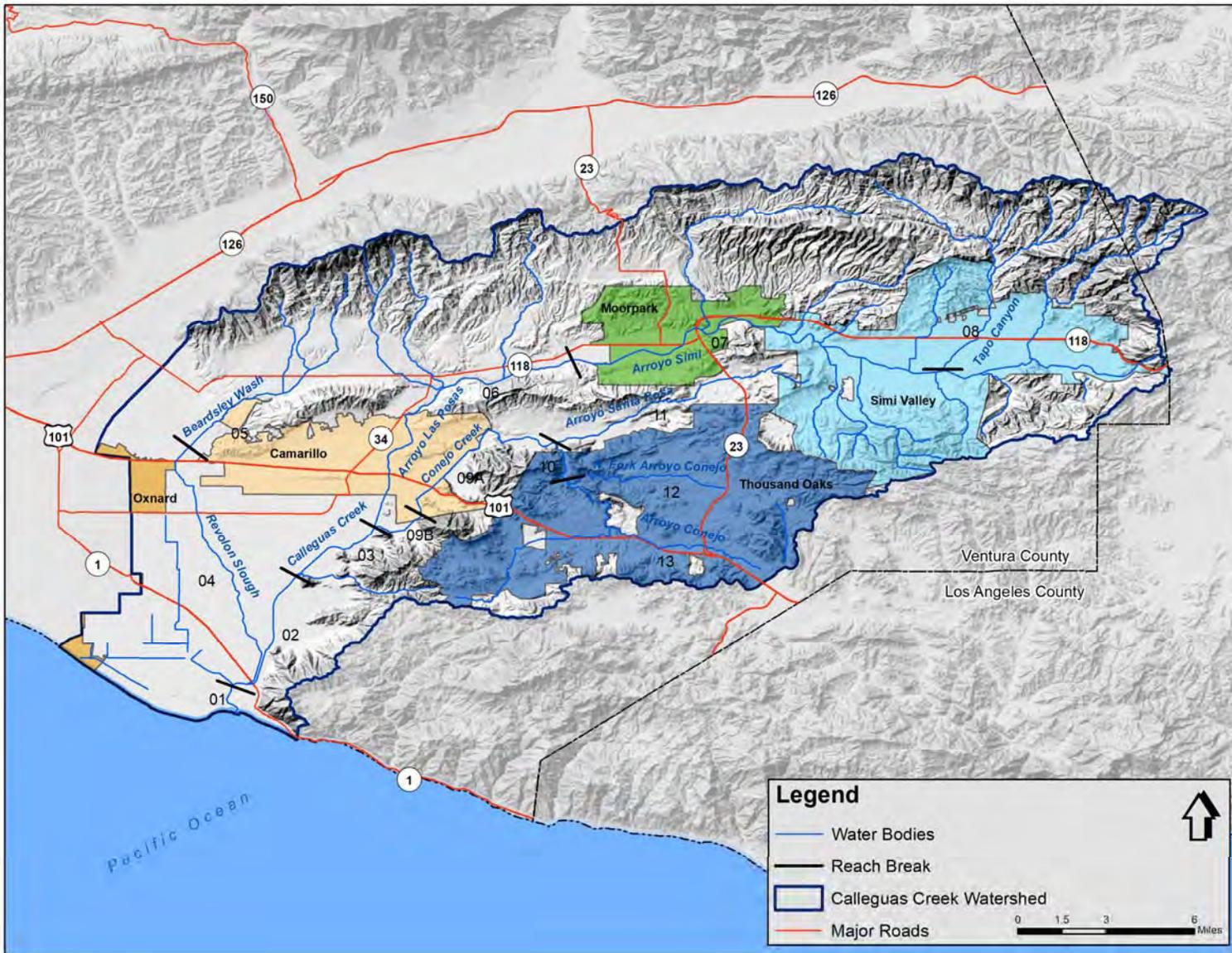


Figure 1. Calleguas Creek Watershed

Table 1. Description of Calleguas Creek Watershed Reaches

Reach No.	Reach Name	Subwatershed	Geographic Description
1	Mugu Lagoon	Mugu	Lagoon fed by Calleguas Creek
2	Calleguas Creek (Estuary to Potrero Rd.)	Calleguas	Downstream (south) of Potrero Rd
3	Calleguas Creek (Potrero Rd. to Conejo Creek)	Calleguas	Potrero Rd. upstream to confluence with Conejo Creek
4	Revolon Slough	Revolon	Revolon Slough from confluence with Calleguas Creek to Central Ave
5	Beardsley Channel	Revolon	Revolon Slough upstream of Central Ave.
6	Arroyo Las Posas	Las Posas	Confluence with Calleguas Creek to Hitch Road
7	Arroyo Simi	Arroyo Simi	End of Arroyo Las Posas (Hitch Rd) to headwaters in Simi Valley.
8	Tapo Canyon Creek	Arroyo Simi	Confluence w/ Arroyo Simi up Tapo Canyon to headwaters
9B ¹	Conejo Creek (Camrosa Diversion to Arroyo Santa Rosa)	Conejo	Extends from the confluence with Arroyo Santa Rosa downstream to the Conejo Creek Diversion.
9A ¹	Conejo Creek (Calleguas Creek to Camrosa Diversion)	Conejo	Extends from Conejo Creek Diversion to confluence with Calleguas Creek.
10	Hill Canyon reach of Conejo Creek	Conejo	Confluence with Arroyo Santa Rosa to confluence with N. Fork; and N. Fork to just above Hill Canyon WTP
11	Arroyo Santa Rosa	Conejo	Confluence with Conejo Creek to headwaters
12	North Fork Conejo Creek	Conejo	Confluence with Conejo Creek to headwaters
13	Arroyo Conejo (South Fork Conejo Creek)	Conejo	Confluence with N. Fork to headwaters—two channels

1. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched.

MONITORING QUESTIONS

The purpose of the CCWTMP is to direct the monitoring activities conducted to meet the requirements of the TMDLs effective for the CCW, excluding the Trash TMDL. The goals of the CCWTMP include:

- To determine compliance with numeric targets, wasteload and load allocations, and interim load reduction milestones.
- To test for sediment toxicity at sediment monitoring stations.
- To identify causes of unknown toxicity.
- To generate additional land use runoff data to better understand pollutant sources and proportional contributions from various land use types.

- To monitor the effect of implementation actions by urban, POTW, and agricultural dischargers on in-stream water, sediment, fish tissue quality, and watershed balances (salts).
- To implement the program consistent with other regulatory actions within the CCW.

In addition, the CCWTMP is intended to answer the following monitoring questions to meet the goals of the program:

- Are numeric targets and allocations met at the locations indicated in the TMDLs?
- Are conditions improving?
- What is the contribution of constituents of concern from various land use types?

MONITORING PROGRAM DESCRIPTION

The CCWTMP was developed to address all necessary TMDL monitoring requirements and answer the monitoring questions mentioned previously using the following monitoring elements.

Required Monitoring Elements

The following environmental monitoring elements are required by the TMDLs' BPAs and are included in the CCWTMP:

- General water and sediment quality constituents;
- Water column and sediment toxicity;
- Metals and selenium in water, sediment, fish tissue, and bird eggs;
- Organic compounds in water, sediment, and fish tissue; and,
- Nitrogen and phosphorus compounds in water.
- Salt compounds in water and continuous flow in dry weather (the latter only at Salts TMDL receiving water compliance sites)

Table 2 lists the constituents for which analyses are conducted. **Table 2** also provides a summary of sampled constituent groups and sampling frequency. The QAPP outlines, in detail, the justification of the process design, specific methodologies (both field and analytical), and quality assurance/quality control (QA/QC) procedures.

Table 2. Constituents and Monitoring Frequency for CCWTMP (varies by site)

Constituent	Frequency
<i>Chronic Aquatic Toxicity</i>	Quarterly + Two wet events
<i>General Water Quality Constituents (GWQC)</i>	
Flow, pH, Temperature, Dissolved Oxygen, Conductivity, Total Suspended Solids (TSS), Hardness (at freshwater sites where metals samples are collected), and Dissolved Organic Carbon (at saltwater sites where metals samples are collected)	Quarterly based on location + Two wet events
<i>Nutrients</i>	
Ammonia Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen, Organic Nitrogen, Total Kjeldahl Nitrogen (TKN), Total Phosphorus, Orthophosphate-P	Quarterly + Two wet events
<i>Organic Constituents In Water</i>	
OC Pesticides ¹ and PCBs ² , OP ³ , Triazine ⁴ , and Pyrethroid ⁵ Pesticides	Quarterly + Two wet events
<i>Metals and Selenium In Water</i> ⁶	
Copper, Mercury, Nickel, Zinc, and Selenium ⁸	Quarterly + Two wet events ⁷
<i>Salts</i>	
Electrical Conductivity (EC) and Discharge	Receiving water: Continuous (via in-situ sensors for EC and depth) plus monthly grabs for EC and discharge for sensor calibration
Total Dissolved Solids (TDS), Sulfate, Chloride, Boron	Receiving water: Continuous (derived from EC/salt relationships) Other sites: Quarterly + Two wet events
<i>Chronic Sediment Toxicity</i>	Annually (Every three years in Lagoon)
<i>General Sediment Quality Constituents (GSQC)</i>	
Total Ammonia, Percent Moisture, Grain Size Analysis, Total Organic Carbon (TOC)	Annually (Every three years in Lagoon)
<i>Organic Constituents In Sediment</i>	
OC Pesticides ¹ and PCBs ² , OP Pesticides ³ , and Pyrethroids ⁵	Annually (Every three years in Lagoon)

Table 2. Constituents and Monitoring Frequency for CCWTMP (varies by site) - continued

Constituent	Frequency
<i>Additional Constituents For Mugu Lagoon Sediment</i>	
Metals ⁹	Every three years
<i>Tissue</i>	Annually (Every three years in Lagoon)
Percent Lipids, OC Pesticides ¹ and PCBs ¹⁰ , OP Pesticides ³ , and Metals ¹¹	
<ol style="list-style-type: none"> 1. OC Pesticides considered: aldrin, alpha-BHC, beta-BHC, gamma-BHC (lindane), delta-BHC, chlordane-alpha, chlordane-gamma, 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, and toxaphene 2. PCBs in water and sediment considered: Aroclors identified in the CTR (1016, 1221, 1232, 1242, 1248, 1254, and 1260). 3. OP Pesticides considered: chlorpyrifos, diazinon, and malathion. Chlorpyrifos is the only OP pesticide that will be measured in tissue, as it is the only OP listed in tissue. 4. Triazine Pesticides considered: atrazine, prometryn, and simazine. Analysis of triazines ceased during year 3 following the recommendation being included in the Revisions and Recommendations section of both the year 1 and year 2 annual reports. 5. Pyrethroid Pesticides considered: bifenthrin, cyfluthrin, cypermethrin, deltamethrin, and permethrin 6. Copper, mercury, nickel, selenium and zinc will be measured as dissolved and total recoverable. 7. Per the Metals TMDL BPA requires that "In-stream water column samples will be collected monthly for analysis of general water quality constituents (GWQC) and, copper, mercury, nickel, selenium, and zinc for the first year. After the first year, the Executive Officer will review the monitoring report and revise the monitoring frequency as appropriate." Monthly monitoring will be suspended until such time as the Executive Officer has reviewed the monitoring report and considered revisions to the monitoring frequency. Until the Executive Officer has considered the frequency, metals will be collected quarterly in conjunction with the other TMDLs. 8. Monitoring at sites in Mugu Lagoon other than at the Ronald Reagan Street Bridge Site (01_RR_BR) for metals is an optional element. 9. Includes arsenic, cadmium, copper, lead, mercury, nickel, selenium and zinc. Arsenic, lead, and cadmium are included in addition to constituents required in the Metals TMDL as they have been found in previous sediment studies conducted in Mugu Lagoon to exceed guideline values used to interpret the relationship between sediment chemistry and biological impacts. 10. PCBs in tissue considered: individual congeners. 11. Total mercury and selenium will be measured in bird eggs and methyl mercury and total selenium will be measured in fish tissue. 	

Optional Monitoring Elements

The QAPP outlines the optional monitoring efforts, all of which are considered above and beyond what is necessary to meet the requirements of the BPAs and answer the monitoring questions.

Table 3 lists the constituents and analyses that are considered optional for the CCWTMP. Monitoring for the constituents and conducting the analyses are not BPA requirements but can provide supplemental data to meet general program goals and answer program questions. **Table 3** also provides a general sampling frequency for each constituent group.

Table 3. Optional Constituents and Monitoring Frequency for CCWTMP (varies by site)

Constituent	Frequency ⁵
Organic Constituents in Water – Grain Size Fractions ¹	
OC Pesticides and PCBs, OP, and Pyrethroid Pesticides	One wet event annually
Organic Constituents in Sediment – Grain Size Fractions ¹	
OC Pesticides and PCBs, OP, and Pyrethroid Pesticides	Annually (Every three years in Mugu Lagoon)
Additional Constituents for Mugu Lagoon Sediment	
Macrobenthic community assessment	Every three years ²
Sediment Toxicity – <i>Eohaustorius estuaries</i> and <i>Mytilus galloprovincialis</i>	
PCBs ³ and PAHs ⁴	

1. Please see Table 2 for a list of individual constituents in each suite.
2. Mugu Lagoon assessments were conducted during the first, fourth, seventh, and tenth monitoring years.
3. PCBs considered: 2,4'-Dichlorobiphenyl, 2,2',5-Trichlorobiphenyl, 2,4,4'-Trichlorobiphenyl, 2,2',3,5'-Tetrachlorobiphenyl, 2,2',5,5'-Tetrachlorobiphenyl, 2,3',4,4'-Tetrachlorobiphenyl, 2,2',4,5,5'-Pentachlorobiphenyl, 2,3,3',4,4'-Pentachlorobiphenyl, 2,3',4,4',5-Pentachlorobiphenyl, 2,2',3,3',4,4'-Hexachlorobiphenyl, 2,2',3,4,4',5'-Hexachlorobiphenyl, 2,2',4,4',5,5'-Hexachlorobiphenyl, 2,2',3,3',4,4',5-Heptachlorobiphenyl, 2,2',3,4,4',5,5'-Heptachlorobiphenyl, 2,2',3,4',5,5',6-Heptachlorobiphenyl, 2,2',3,3',4,4',5,6-Octachlorobiphenyl, 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl, Decachlorobiphenyl
4. PAHs considered: 1-Methylnaphthalene, 1-Methylphenanthrene, 2,6-Dimethylnaphthalene, 2-Methylnaphthalene, Acenaphthene, Anthracene, Biphenyl, Fluorene, Naphthalene, Phenanthrene, Benz(a)anthracene, Benzo(a)pyrene, Benzo(e)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Perylene, Pyrene.
5. Optional monitoring related to grain size fractions was not performed during the 10th monitoring year. Additional Mugu Lagoon Sediment monitoring was completed.

Special Studies

The Nitrogen, Toxicity, OC Pesticides, Salts, and Metals TMDL Implementation Plans identify required and optional special studies to investigate a range of issues. No specific special study results are incorporated into this annual report summary at this time as the results of all special studies conducted to date have been submitted as separate reports. Data gathered during special study specific sampling may also be utilized to further answer not only the special study questions, but also be applied to the overall CCWTMP goals and questions identified previously in this report.

Monitoring Program Structure

As outlined previously, the CCWTMP covers a broad range of TMDL monitoring requirements, including both required and optional efforts. The overall structure of these requirements per each event can be broken down into two categories: (1) compliance monitoring and (2) investigation monitoring. Compliance monitoring sites are typically located in receiving water bodies where 303(d) listings occur and are considered points of compliance measurements. The investigational sites are located throughout the watershed and include monitoring of drain outfalls. The purpose of these sites is not to measure compliance, but to assist with evaluating land use-specific contributions of various constituents to the watershed.

The CCWTMP effort is also divided into two monitoring efforts: (1) dry weather monitoring and (2) wet weather storm water monitoring. The following sections describe, in detail, the basis for each monitoring effort, starting with the definitions of the compliance monitoring sites and investigation monitoring sites. Specific monitoring efforts associated with each sample site are included, including the frequency of sampling by site for both dry weather and wet weather events. The sampling frequency and the constituents analyzed at the sites covered by the CCWTMP vary. A more detailed description of each topic covered can be found in the appropriate element of the QAPP, including standard operating procedures (SOPs) for field collection and sample handling techniques, and analytical procedures and protocols including minimum detection limit (MDL) and reporting limit (RL) requirements.

COMPLIANCE MONITORING

Compliance Monitoring for Toxicity, OC Pesticides, Metals, Nitrogen, and Salts TMDLs

For compliance monitoring to address the Toxicity, OC Pesticides, Metals and Nitrogen TMDLs, dry weather in-stream water column samples were collected quarterly for water column toxicity, general water quality constituents (GWQC), target organic constituents, metals, and nutrients. The specific target constituents for each of the previously mentioned TMDLs are listed as footnotes in **Table 2**.

In-stream water column samples to measure compliance for the Toxicity, OC Pesticides, and Metals TMDLs are generally collected at the base of each of the subwatersheds used to assign waste load and load allocations, per the BPAs. In-stream water column samples to measure compliance for the Nitrogen TMDL are generally collected at the base of each listed reach. Toxicity Identification Evaluations (TIEs) are conducted on toxic samples as outlined in the Toxicity Testing and TIE section of the QAPP and results of these are discussed in the Toxicity Testing and TIE Evaluations Summary section of this report and **Appendix C**.

In-stream water column grab samples for salts were also collected quarterly during dry weather and twice during wet weather at the base of each of the subwatersheds specified in the Salts TMDL. The grab sample results are used to develop statistical relationships between salt constituents and EC. These relationships are used to convert high frequency EC-sensor data to time-series of salt concentrations. Compliance with interim dry weather salt allocations is determined using monthly mean salt concentrations for dry weather developed from the time-series of data.

Additionally, POTW effluent was monitored for compliance with the effluent limits presented in the Toxicity, OC Pesticides, Metals, and Salts TMDL BPAs. Currently, POTWs collect data required by each of their individual permits. For additional TMDL constituents not currently sampled by the plants, CCWTMP crews perform sampling as necessary (efforts vary by plant and constituent group). All CCWTMP-required data for POTWs are compiled in this report.

All efforts are made to include two wet weather water sampling events for compliance monitoring for the OC Pesticides, Toxicity, Metals, and Salts TMDLs during targeted storm events between October and April. Two wet weather events were completed in year ten, the first storm sampled on March 11, 2018 and the second on March 22, 2018.

Streambed sediment samples, collected annually in the freshwater portion of the watershed, were collected during the first event of this monitoring year and analyzed for sediment toxicity, general sediment quality constituents (GSQC), and target organics. Sediment samples in Mugu Lagoon are collected every three years per the approved QAPP, and were collected during year ten.

Similar to the sediment sampling frequency, fish tissue samples were collected in the freshwater portions of the watershed during year ten in May 2018, and will continue to be collected annually for the CCWTMP. In addition, fish tissue was collected in Mugu Lagoon during year ten in August 2017 and the data are presented in this report.

INVESTIGATION MONITORING

Investigation monitoring focuses on identifying the contribution of constituents of concern from various land uses in the watershed and areas where toxicity has been observed to occur in the past that are not addressed by compliance monitoring. These sites are meant to compliment compliance monitoring efforts, fill data gaps where identified, and assist in identification of sources of constituents that may be leading to non-compliant conditions. The following describes the various types of investigation sites sampled during this reporting period.

Land Use Discharge Investigation

Land use discharge samples are generally collected concurrently (on the same day when possible) with compliance monitoring at representative agricultural and urban discharge sites generally located in each of the subwatersheds and analyzed for selected GWQC, metals, and target organic constituents (constituents monitored per site varies based upon sub-watershed).

Toxicity Investigation

As significant mortality had not occurred at the two sediment toxicity investigation sites during the first three years of the CCWTMP, ceasing investigation monitoring was recommended in the third year annual report. Toxicity testing at the investigation sites ceased until Event 38, when it was resumed to support delisting of the identified reaches. The normal annual sampling frequency for this investigation is provided in **Table 6**.

Sediment toxicity investigation monitoring for delisting occurred during Event 62. Water column toxicity sampling occurred during all events. As part of the optional toxicity investigation, samples are also tested for those constituents specified in **Table 2** for the OC Pesticides TMDL and the Toxicity TMDL, as well as the general water quality parameters.

SAMPLING SITES

The QAPP details the justification and rationale for each of the sites sampled via the CCWTMP. Information on compliance monitoring sites and land use sites sample collection frequency is presented in **Table 4** and **Table 5**, respectively. The general locations of the receiving water compliance monitoring sites (excluding Mugu Lagoon) for water, sediment, and fish tissue are presented in **Figure 2** through **Figure 4**. The POTW effluent discharge sites are presented in **Figure 5**. The sampling sites in each figure are designated by sampled constituent group. The compliance monitoring sampling zones for sediment sampling and tissue sampling in Mugu Lagoon are shown in **Figure 6** and **Figure 7**, respectively.

The non-Mugu Lagoon water and sediment toxicity investigation sampling sites coincide with current and previous sampling programs in the CCW. Water and sediment toxicity investigation sampling sites and sampling frequency are presented in **Table 6**, while the general locations of the water and sediment toxicity investigation sampling sites in the CCW are presented in **Figure 8**. Land use monitoring sites are shown in **Figure 9**.

The salt monitoring sites correspond with compliance sites or land use sites used for monitoring related to other TMDLs (**Figure 2**) with two exceptions:

1. One of the salt compliance points is only used for salt monitoring (Conejo Creek at Baron Brothers Nursery).
2. The continuous monitoring equipment (and the location of monthly salt grab samples) for the Simi subwatershed was installed just downstream of the Tierra Rejada bridge, and is referred to as "07_TIERRA".

The CCWTMP efforts summarized in the annual report correspond to the sites and locations listed below. As this program progresses, the number and location of sites may be revised if existing sites become inaccessible, if it is determined that alternative locations are needed, or if the number of land use stations needed to appropriately characterize discharges needs modification.

Table 4. CCWTMP Compliance Monitoring and Nutrient Investigation Sites Annual Sampling Frequency

Sub-Wat.	Site Id	Reach	Site Location	GPS Coordinates		Water ^{1,2}						Sediment			Tissue ³	
				Lat	Long	Tox	Pests/PCBs	Nut	Metal	Salts	GWQC	Tox	Pests/PCBs	Metal	Pests/PCBs	Metal ⁴
Mugu Lagoon	01_RR_BR	1	Ronald Reagan St Bridge	34.1090	-119.0916	6	6	6	6	NA	6	NA	NA	NA	NA	NA
	01_BPT_3	1	Located In Eastern Arm	General site locations are provided as each site represents a generalized sample collection zone in which a sample will be collected.	NA	NA	NA	NA	NA	NA	Once Every Three Years					
	01_BPT_6	1	Located In Eastern Part Of Western Arm		NA	NA	NA	NA	NA	NA						
	01_BPT_14	1	Located In The Central Part Of The Western Arm		NA	NA	NA	NA	NA	NA						
	01_BPT_15	1	Located Between Estuary and Mouth of Lagoon		NA	NA	NA	NA	NA	NA						
	01_SG_74	1	Located In Western Part of Central Lagoon		NA	NA	NA	NA	NA	NA						
	Central Lagoon	1	Sampled In Central Lagoon		NA	NA	NA	NA	NA	NA						Once Every Three Years
	Western Arm	1	Sampled In Western Arm Of The Lagoon		NA	NA	NA	NA	NA	NA						
Revolon Slough	04_WOOD ⁵	4	Revolon Slough East Side Of Wood Road		34.1698	-119.0958	6	6	6	6	6	6	1	1	NA	1
	05_CENTR	5	Beardsley Wash at Central Avenue	34.2300	-119.1128	NA	NA	6	NA	NA	6	NA	NA	NA	NA	NA
Calleguas	02_PCH	2	Calleguas Creek NE Side of Hwy 1 Bridge	34.1119	-119.0818	NA	NA	4	NA	NA	4	NA	NA	NA	NA	NA
	03_UNIV	3	Calleguas Creek At Camarillo Street	34.1795	-119.0399	6	6	6	6	6	6	1	1	NA	1	NA
	03D_CAMR ⁶	3	Camrosa Water Reclamation Plant	34.1679	-119.0530	4	4	4	4	4	4	NA	NA	NA	NA	NA
	9A_HOWAR ⁷	9B ⁷	Conejo Creek At Howard Road Bridge	34.1931	-119.0025	NA	NA	6	NA	6	NA	NA	NA	NA	NA	NA
	9AD_CAMA ⁷	9B ⁷	Camarillo Water Reclamation Plant	34.1938	-119.0017	4	4	4	4	4	4	NA	NA	NA	NA	NA
Conejo	9B_ADOLF ⁷	9A ⁷	Conejo Creek At Adolfo Road	34.2137	-118.9894	6	6	6	NA	NA	6	NA	1	NA	1	NA
Conejo	10_GATE	10	Conejo Creek Hill Canyon Below N Fork	34.2178	-118.9281	NA	NA	6	NA	NA	6	NA	NA	NA	NA	NA

Sub-Wat.	Site Id	Reach	Site Location	GPS Coordinates		Water ^{1,2}						Sediment		Tissue ³		
				Lat	Long	Tox	Pests/PCBs	Nut	Metal	Salts	GWQC	Tox	Pests/PCBs	Metal	Pests/PCBs	Metal ⁴
	10D_HILL	10	Hill Canyon Wastewater Treatment Plant	34.2113	-118.9218	4	4	4	4	4	4	NA	NA	NA	NA	NA
	12_PARK	12	Conejo Creek North Fork above Hill Canyon	34.2144	-118.915	NA	NA	4	NA	NA	4	NA	NA	NA	NA	NA
	13_BELT	13	Conejo Creek S Fork Behind Belt Press Building	34.2078	-118.9194	NA	NA	4	NA	NA	4	NA	NA	NA	NA	NA
	9B_BARON ⁷	9A ⁷	Conejo Creek at Baron Brothers Nursery	34.2365	-118.9643	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA
Las Posas	06_UPLAND ⁸	6	Arroyo Las Posas upstream of Upland Road	34.2449	-118.0051	6	6	6	NA	NA	6	NA	1	NA	1	NA
	06D_MOOR ⁶	6	Ventura County Wastewater Treatment Plant	34.2697	-118.9357	4	4	4	4	4	4	NA	NA	NA	NA	NA
Arroyo Simi	07_HITCH	7	Arroyo Simi East Of Hitch Boulevard	34.2716	-118.9234	6	6	6	NA	NA	6	NA	1	NA	1	NA
	07_TIERRA	7	Arroyo Simi downstream from Tierra Rejada Blvd.	34.2701	-118.9058	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA
	07D_SIMI	7	Simi Valley Water Quality Control Plant	34.2848	-118.8128	4	4	4	4	4	4	NA	NA	NA	NA	NA

NA – Not Analyzed

Tox – Samples will be analyzed for toxicity and OP and pyrethroid pesticides as listed in Table 2. Toxicity in water will not be analyzed at 01_RR_BR or at the POTWs.

Pests/PCBs – Samples will be analyzed for OC pesticides and PCBs as listed in Table 2. Chlorpyrifos will be analyzed in tissue at 04_WOOD as it is on the 303(d) list for this reach.

Nut – Samples will be analyzed for Nutrients as listed in Table 2.

Metal – Samples will be analyzed for Metals as listed in Table 2.

GWQC – Samples will be analyzed for General Water Quality Constituents as listed in Table 2.

1. Sites listed for 6 sampling events per monitoring year refers to 4 quarterly dry events and the attempt to sample 2 additional wet events.
2. Grab samples for salts at compliance sites are not directly used to determine compliance with salts WQOs, but are used to develop statistical relationships between EC and salt constituents (Appendix B).
3. Tissue samples will be collected in the same location as water and sediment samples. Samples may be collected elsewhere if no fish are found at pre-established sample stations.
4. Bird egg samples will be collected and analyzed for mercury and selenium in the Mugu Lagoon subwatershed.
5. TIEs will not be performed at 04_WOOD.
6. The Camrosa Water Reclamation Plant and the Ventura County Wastewater Treatment Plant are not currently discharging. However, these sites are included in case they must be sampled at a later date.
7. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
8. In Year 8, sampling crews were not able to access the 06_SOMIS site for the majority of the year. The 06_UPLAND site, which is approximately one mile downstream, was chosen to replace the 06_SOMIS site.

Table 5. CCWTMP Land Use Monitoring Sites and Sample Frequency

Sub-Wat.	Site ID	Reach	Site Type ¹	Site Location	GPS Coordinates		Pests/PCBs	Nutrients	Metal	Salts	GWQC
					Lat	Long					
Mugu Lagoon	01T_ODD2_DCH	1	Ag	Duck Pond/Mugu/Oxnard Drain #2 S. of Hueneme Rd	34.1395	-119.1185	6	6	6	NA	6
	04D_WOOD	4	Ag	Agricultural Drain on E. Side of Wood Rd N. of Revolon	34.1708	-119.0963	6	6	6	6	6
Revolon Slough	05D_SANT_VCWPD	5	Ag	Santa Clara Drain at VCWPD Gage 781 prior to confluence with Beardsley Channel	34.2426	-119.1137	6	6	6	NA	6
	04D_VENTURA	4	Urban	Camarilo Hills Drain at Ventura Blvd and Las Posas Rd at VCWPD Gage 835	34.2162	-119.0685	6	NA	6	6	6
Calleguas	02D_BROOM	2	Ag	Discharge to Calleguas Creek at Broome Ranch Rd.	34.1433	-119.0713	6	6	6	NA	6
	9BD_GERRY ²	9A ²	Ag	Drainage ditch crossing Santa Rosa Rd at Gerry Rd	34.2358	-118.9446	6	6	6	6	6
Conejo	9BD_ADOLF ²	9A ²	Urban	Urban storm drain passing under N. side of Adolfo Rd approximately 300 meters from Reach 9B	34.2148	-118.9951	6	NA	6	6	6
	13_SB_HILL	13	Urban	South Branch Arroyo Conejo on S. Side of W Hillcrest	34.1849	-118.9075	6	NA	NA	6	6
Las Posas	06T_FC_BR	6	Ag	Fox Canyon at Bradley Rd - just north of Hwy 118	34.2646	-119.0111	6	6	NA	NA	6
Arroyo Simi	07D_HITCH_LEVEE_2	7	Ag	2 nd corrugated pipe discharging on north side of Arroyo Simi flood control levee off of Hitch Blvd just beyond 1 st power pole.	34.2716	-118.9219	6	6	NA	6	6
	07D_MPK ³	7	Urban	Gabbert Canyon Drain, N. side of 118	34.2790	-118.9056	6	NA	NA	6	6
	07D_SIM_BUS ⁴	7	Urban	Bus Canyon Dr N. of 5 th St and LA Ave intersection	34.2719	-118.7837	6	NA	NA	NA	6

Ag = Agricultural Land Use Site Urban = Urban Land Use Site NA – Not Analyzed

1. Specific constituents analyzed under each category are listed in Table 2.
2. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
3. Site 07D_MPK replaced 07D_CTP to correspond with the Moorpark MS4 outfall sampling location.
4. Site 07D_SIM_BUS replaced 07T_DC_H to correspond with the Simi Valley MS4 outfall sampling location.

Table 6. Toxicity Investigation Monitoring Sites and Sampling Frequency

Subwatershed	Site ID	Reach	Site Location	GPS Coordinates		Tox	Pests/PCBs	GWQC
				Lat	Long			
<i>Sediment Toxicity Investigation</i> ¹								
Calleguas	02_PCH	2	Calleguas Creek Northeast Side Of Highway 1 Bridge	34.1119	-119.0818	1	1	1
	9A_HOWAR ²	9B ²	Conejo Creek At Howard Road Bridge	34.1931	-119.0025	1	1	1
<i>Water Toxicity Investigation</i> ^{1,3}								
Conejo	10_GATE	10	Conejo Creek Hill Canyon Below North Fork Of Conejo Creek	34.2178	-118.9281	6	6	6
	13_BELT	13	Conejo Creek South Fork Behind Hill Canyon Belt Press Building	34.2078	-118.9194	6	6	6

Tox – Samples will be analyzed for toxicity, OP, and pyrethroid pesticides in water and toxicity, OP, and pyrethroid pesticides in sediment as listed in Table 2.

Pests/PCBs – Samples will be analyzed for OC pesticides and PCBs as listed in Table 2.

GWQC – Samples will be analyzed for General Water Quality Constituents as listed in Table 2.

1. This table depicts the normal toxicity investigation sampling frequency. During year 5, this investigation was put on hold and then re-started as described in text.
2. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
3. Includes two wet events per site; except during years when there is insufficient rainfall to trigger sampling.

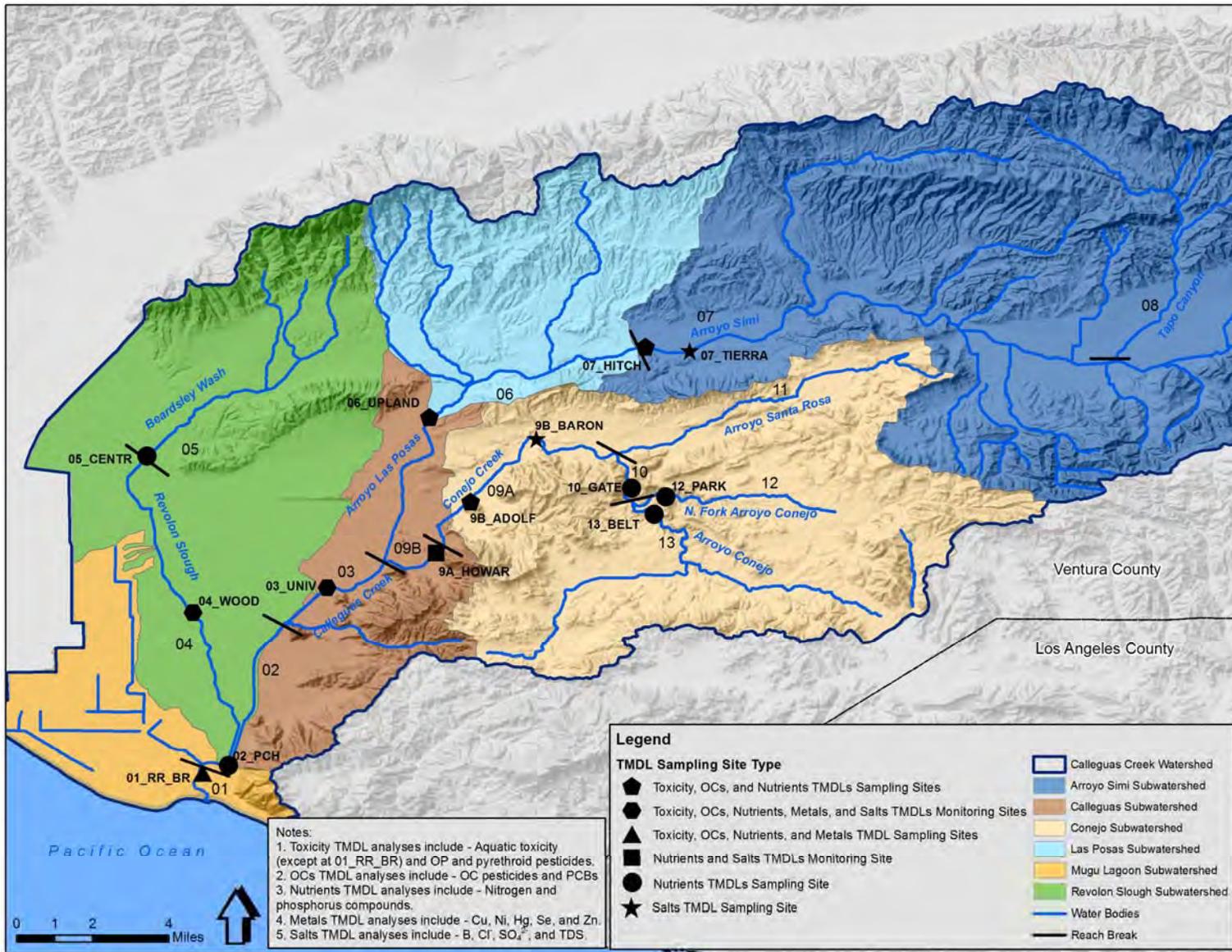


Figure 2. CCWTMP Compliance Monitoring Sampling Sites – Receiving Water

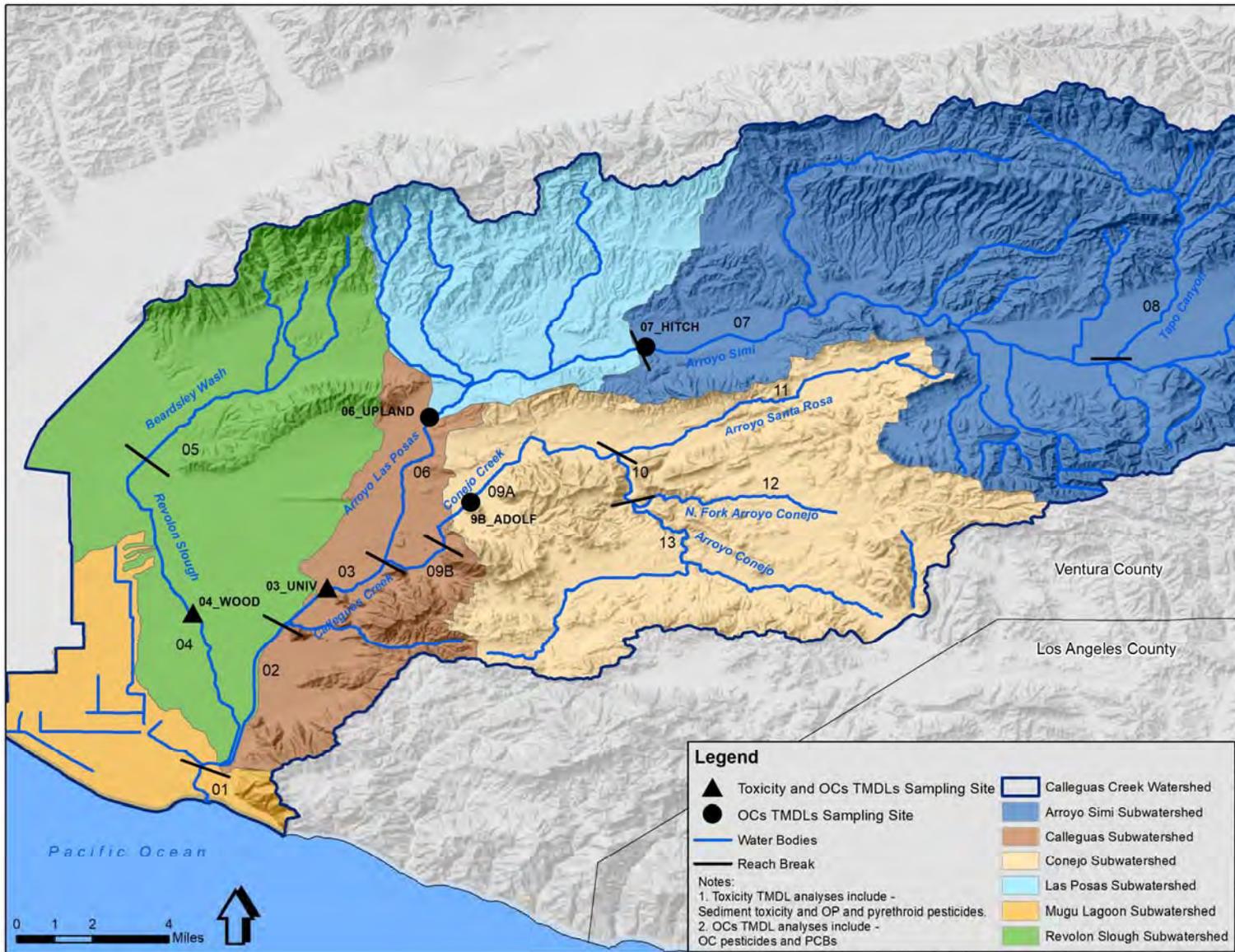


Figure 3. CCWMTTP Compliance Monitoring Receiving Water Sampling Sites – Freshwater Sediment

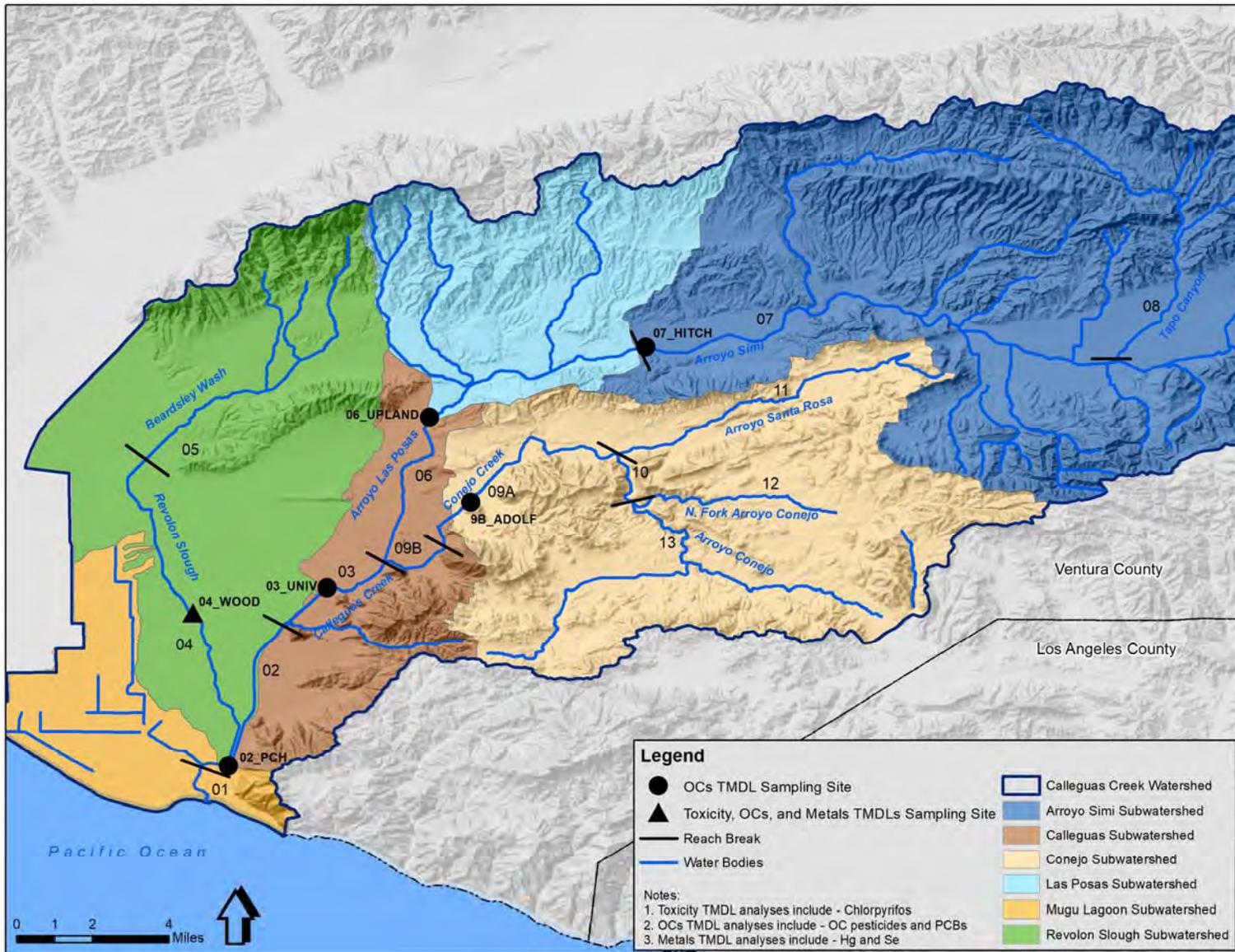


Figure 4. CCWMTMP Compliance Monitoring Sampling Sites – Freshwater Fish Tissue

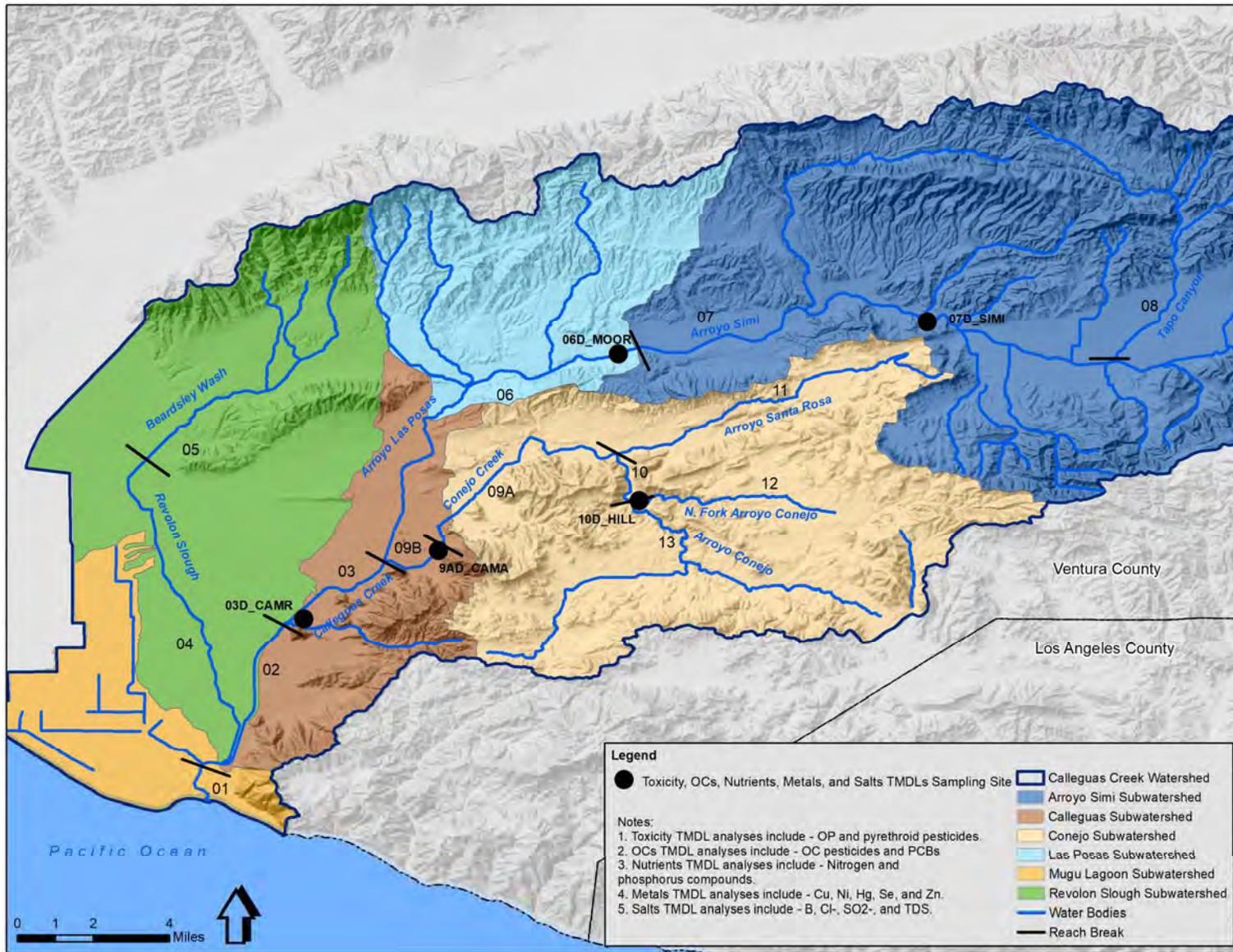


Figure 5. CCWMP Compliance Monitoring Sampling Sites – POTW Effluent

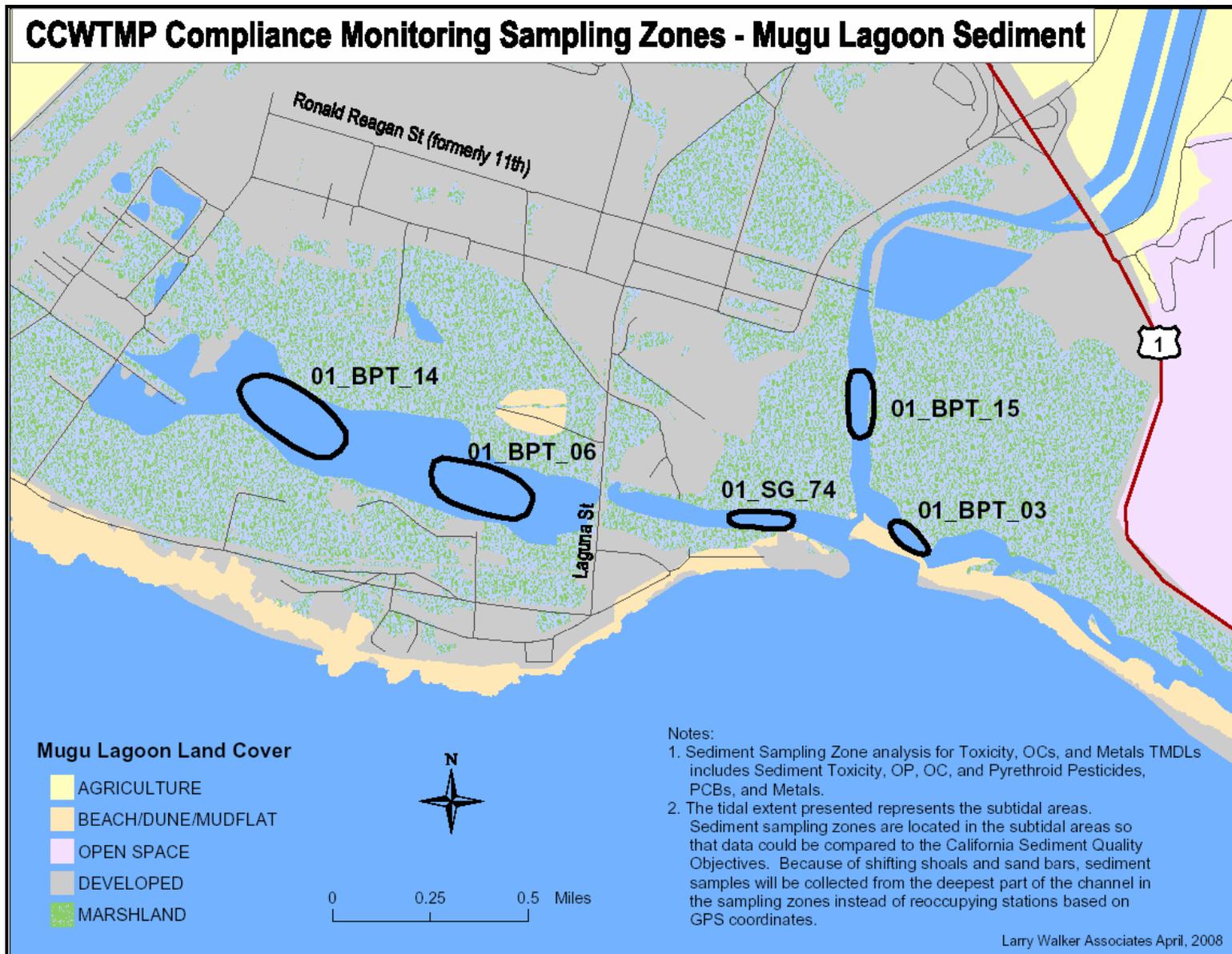


Figure 6. CCWTMP Compliance Monitoring Sampling Zones – Mugu Lagoon Sediment

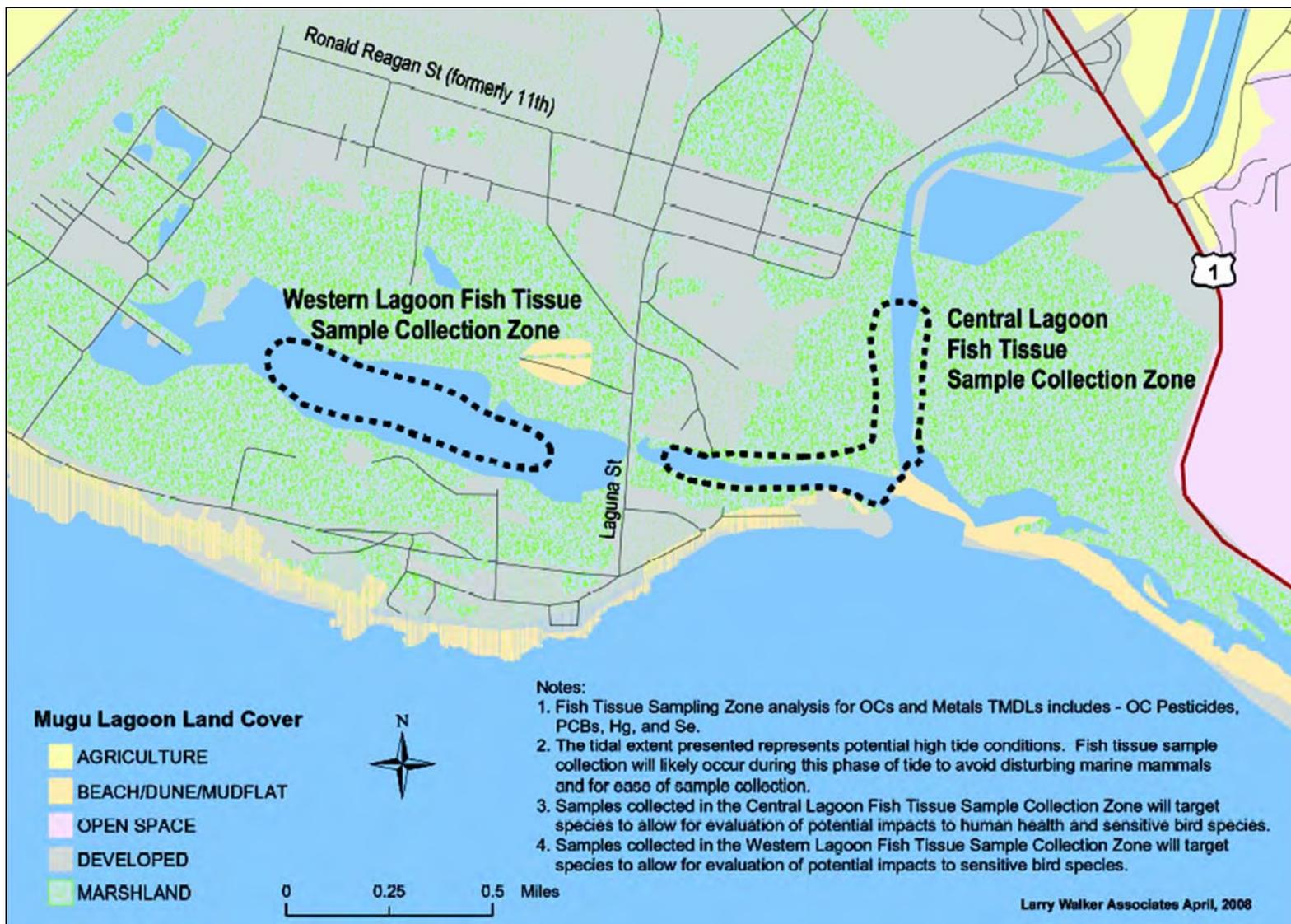


Figure 7. CCWTMP Compliance Monitoring Sampling Zones – Mugu Lagoon Tissue

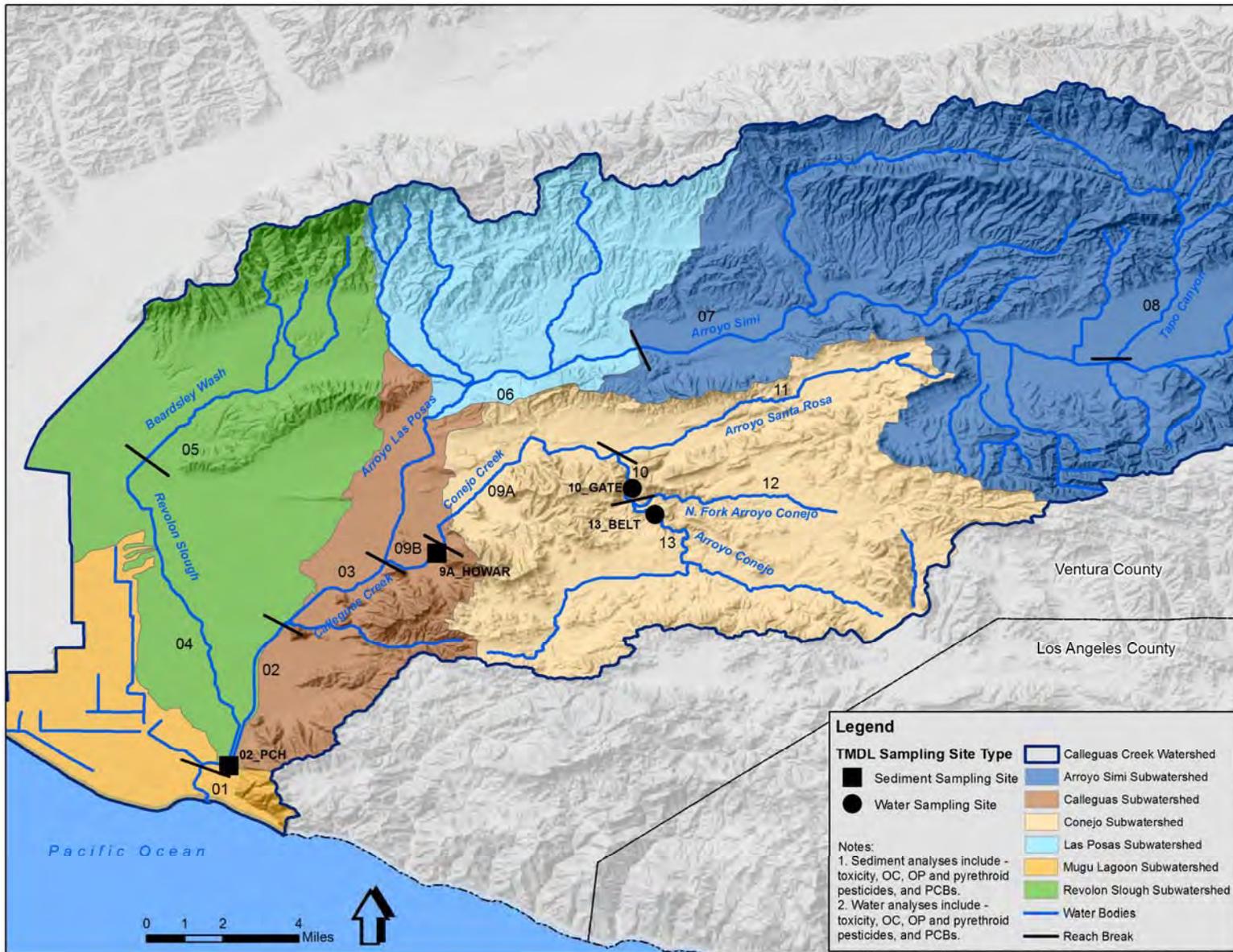


Figure 8. CCWTMP Toxicity Investigation Receiving Water Sampling Sites – Water and Sediment

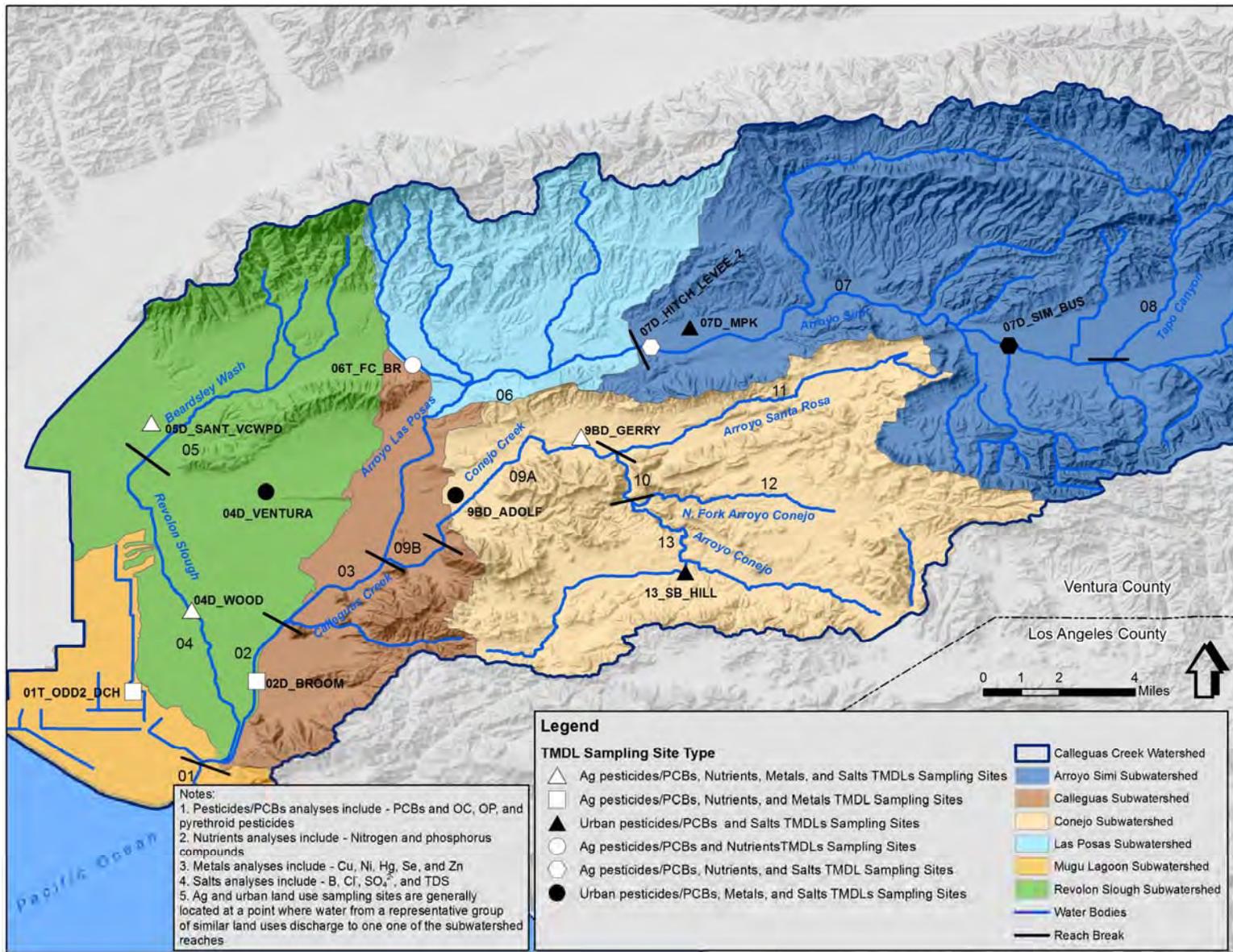


Figure 9. CCWTMP Land Use Sampling Sites

Monitoring Data Summary

To summarize the CCW TMDL monitoring data, box plots have been created for site and constituent combinations representing the data gathered over the entire monitoring program. The data presented includes all constituents with TMDL limits for water or sediment at the sites where the constituents were analyzed. Where TMDL limits are effective, those thresholds have been identified for the sites where they apply. As appropriate, data for constituents with specific dry or wet weather limits are presented separately. Data collected during year ten, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2018). This was done to allow for easy comparison between recent data and what have been collected overall. The tenth year data are presented in tabular form below each box plot. Each figure of box plots presents data from either receiving water sites or land use sites. The receiving water sites are color coded by subwatershed as shown in **Table 7**. Land use and POTW sites are displayed together and grouped by type as presented in **Table 8**.

Fish tissue data are not displayed as box plots. Fish tissue data are presented in tables due to the variable number of samples per site each monitoring year and to preserve the species information associated with each sample.

Toxicity data and TIE results are summarized in **Appendix C**. Summaries for each of the 2017-2018 monitoring events are included as **Appendix A**.

Some TMDL constituents were never, or are rarely detected and therefore, did not warrant a data summary. The constituents, which were never detected, include:

In Water:

- Endosulfan II
- Endrin

In Sediment:

- Endrin
- BHC, gamma

Rarely detected constituents in water are as follows:

- Aldrin (four detects, none this year)
- Dieldrin (eight detects, none this year)
- Endosulfan I (three detects, none this year)
- BHC, gamma (three detects, none this year)
- Total PCBs (five detects, none this year)

Rarely detected constituents in sediment are as follows:

- Dieldrin (one detect, none this year)

Table 7. Receiving Water Sites Color Coded by Subwatershed

Subwatershed	Reach	Site ID
Mugu Lagoon	Reach 1	01_BPT_14
		01_BPT_15
		01_BPT_3
		01_BPT_6
		01_RR_BR
		01_SG_74
Calleguas	Reach 2	02_PCH
	Reach 3	03_UNIV
	Reach 9B ¹	9A_HOWAR
Revolon Slough	Reach 4	04_WOOD
	Reach 5	05_CENTR
Las Posas	Reach 6 ²	06_UPLAND
Arroyo Simi	Reach 7	07_HITCH
		07_TIERRA
Conejo	Reach 9A ¹	9B_ADOLF
	Reach 9A ¹	9B_BARON
	Reach 10	10_GATE
	Reach 12	12_PARK
	Reach 13	13_BELT

1. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
2. In Year 8, sampling crews were denied access to the 06_SOMIS site for four out of six sampling events. The site has been moved approximately one mile downstream to the 06_UPLAND site where crews can access the receiving water without needing private landowner permissions.

Table 8. Land Use and POTW Sites Color Coded by Type

Urban Land Use (MS4) Sites:	
Reach 4	04D_VENTURA
Reach 7 ¹	07D_MPK ¹
Reach 7 ¹	07D_SIM_BUS ¹
Reach 9A ²	9BD_ADOLF ²
Reach 13	13_SB_HILL

Ag Land Use Sites:	
Reach 1	01T_ODD2_DCH
Reach 2	02D_BROOM
Reach 4	04D_WOOD
Reach 5	05D_SANT_VCWPD
Reach 6	06T_FC_BR
Reach 7	07D_HITCH_LEVEE_2
Reach 9A ²	9BD_GERRY ²

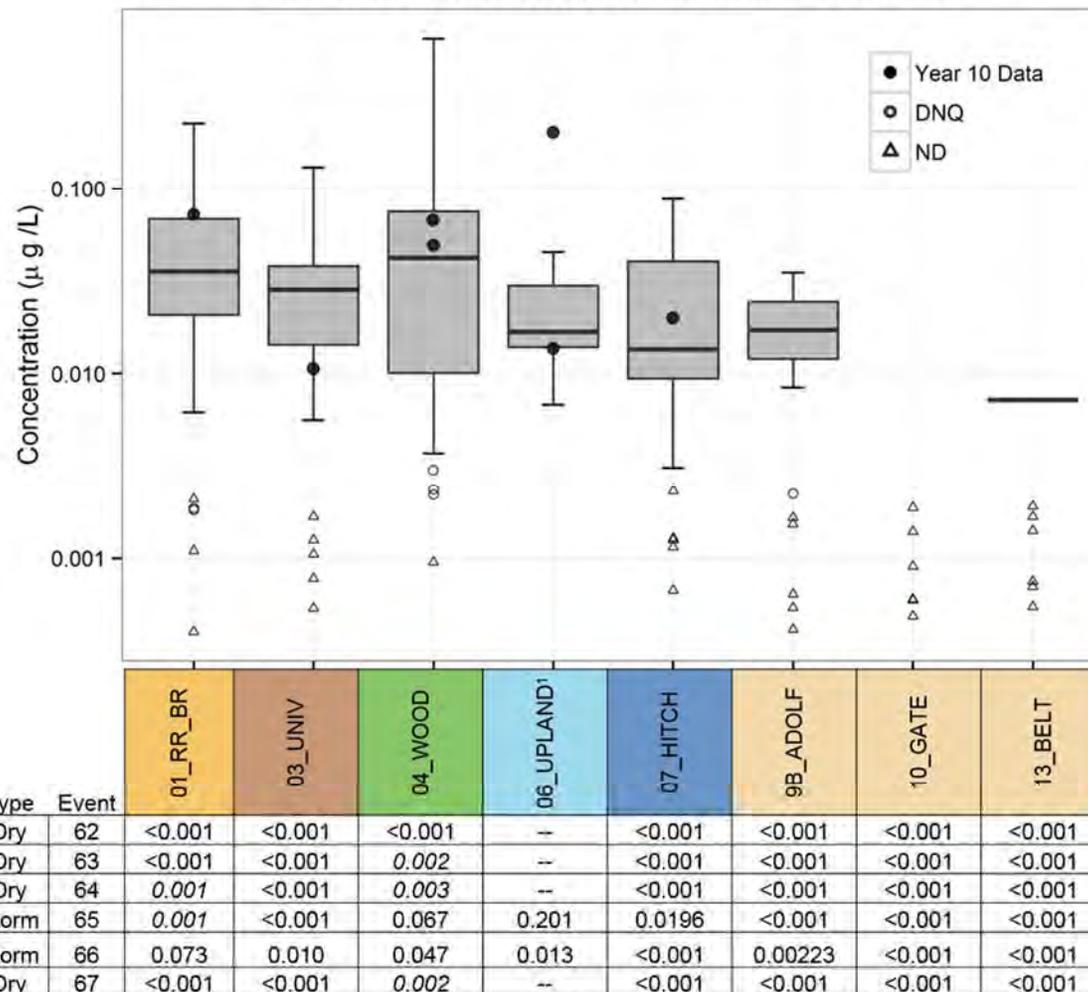
POTW Sites:	
Reach 7	07D_SIMI
Reach 9B ²	9AD_CAMA ²
Reach 10	10D_HILL

1. In the 2014 updates to the QAPP, the 07D_MPK replaced the 07D_CTP site to be consistent with the Moorpark MS4 monitoring site and the 07D_SIM_BUS site replaced the 07T_DC_H site to be consistent with the Simi Valley MS4 monitoring site. Past data from the original sites can be found in previous Annual Monitoring Reports, only current site data is provided in the following plots.
2. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.

OC PESTICIDES TMDL DATA SUMMARY

The following figures present OC pesticides data in both water and sediment. Presently, only the POTWs have effective final limits in water, but data for all sites is provided since the TMDL specifies final targets for OC pesticides in water. Effective interim allocations for agriculture and waste load allocations for urban dischargers are provided in the appropriate OC pesticides in sediment figures. Data collected during year ten, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2018). This was done to allow for easy comparison between recent data and what have been collected overall. The tenth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent; italicized values in the tables within each figure indicate the concentration was detected but not quantifiable (DNQ); values in the tables within each figure with a “<” preceding it, indicate the constituent was not detected (ND) at MDL for that constituent; values identified as “--” in the tables indicate no samples were collected at those sites for those events.

4,4'-DDD in Receiving Water Sites: 2008-2018



1. Access to 06_SOMIS was revoked during Year 8 and was replaced by 06_UPLAND in Year 9. All collected data prior to event 56 were obtained from 06_SOMIS. This footnote applies to all boxplots with 06_UPLAND.

Figure 10. 4,4'-DDD Water Column Concentrations in Receiving Water Sites: 2008-2018

4,4'-DDD in Water from Urban, Ag, & POTW Sites: 2008-2018

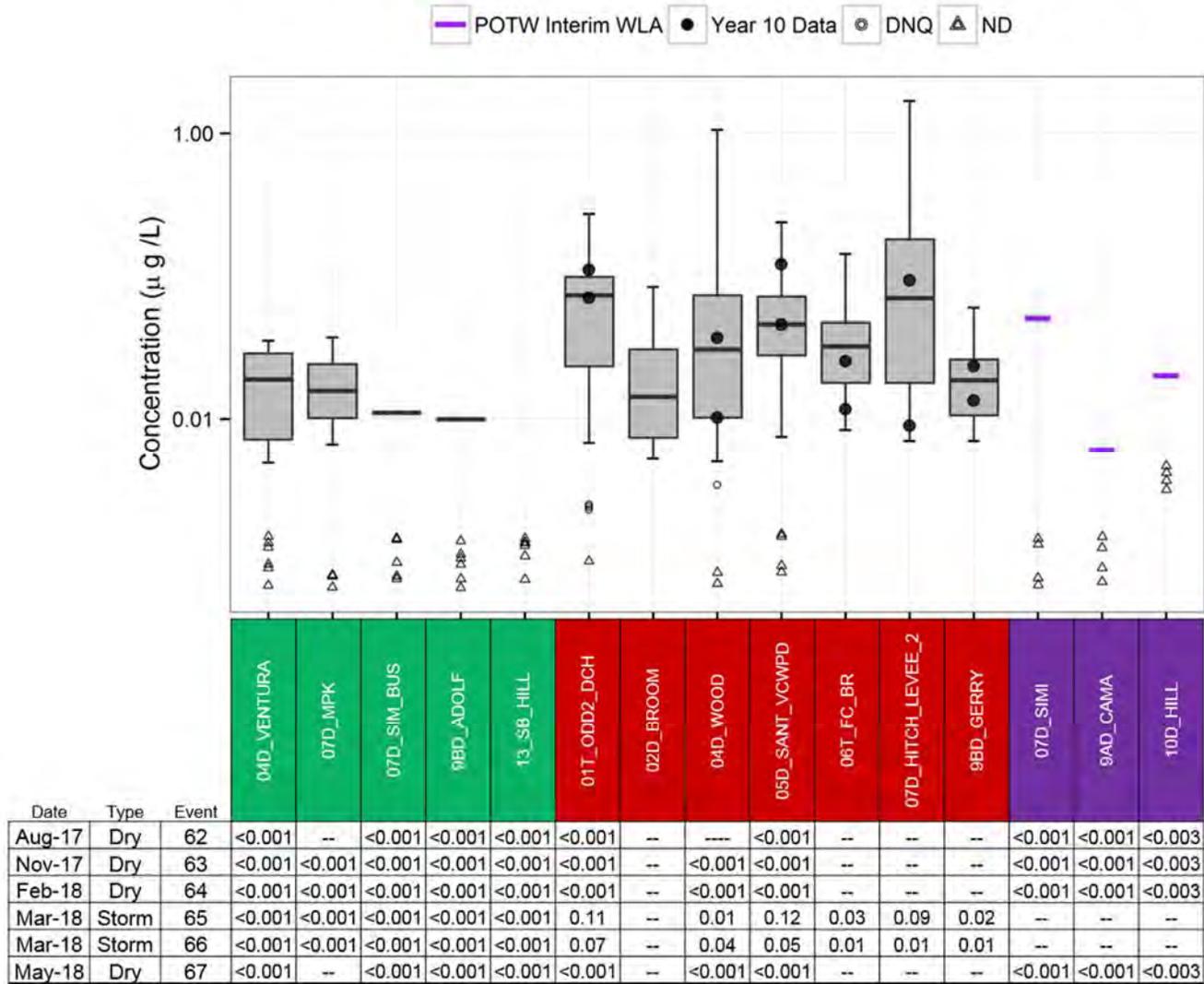


Figure 11. 4,4'-DDD Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018

4,4'-DDE in Receiving Water Sites: 2008-2018

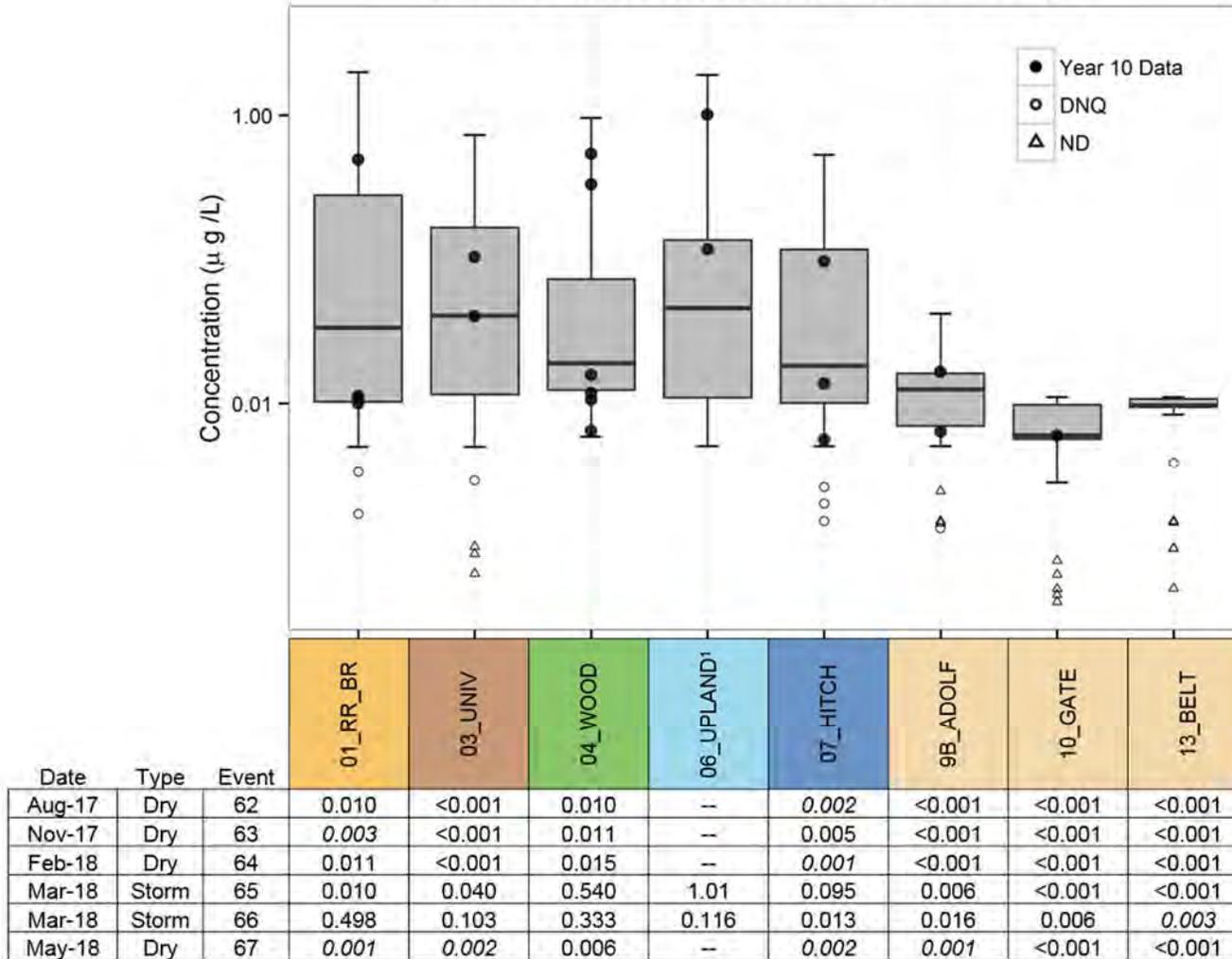


Figure 12. 4,4'-DDE Water Column Concentrations in Receiving Water Sites: 2008-2018

4,4'-DDE in Water from Urban, Ag, & POTW Sites: 2008-2018

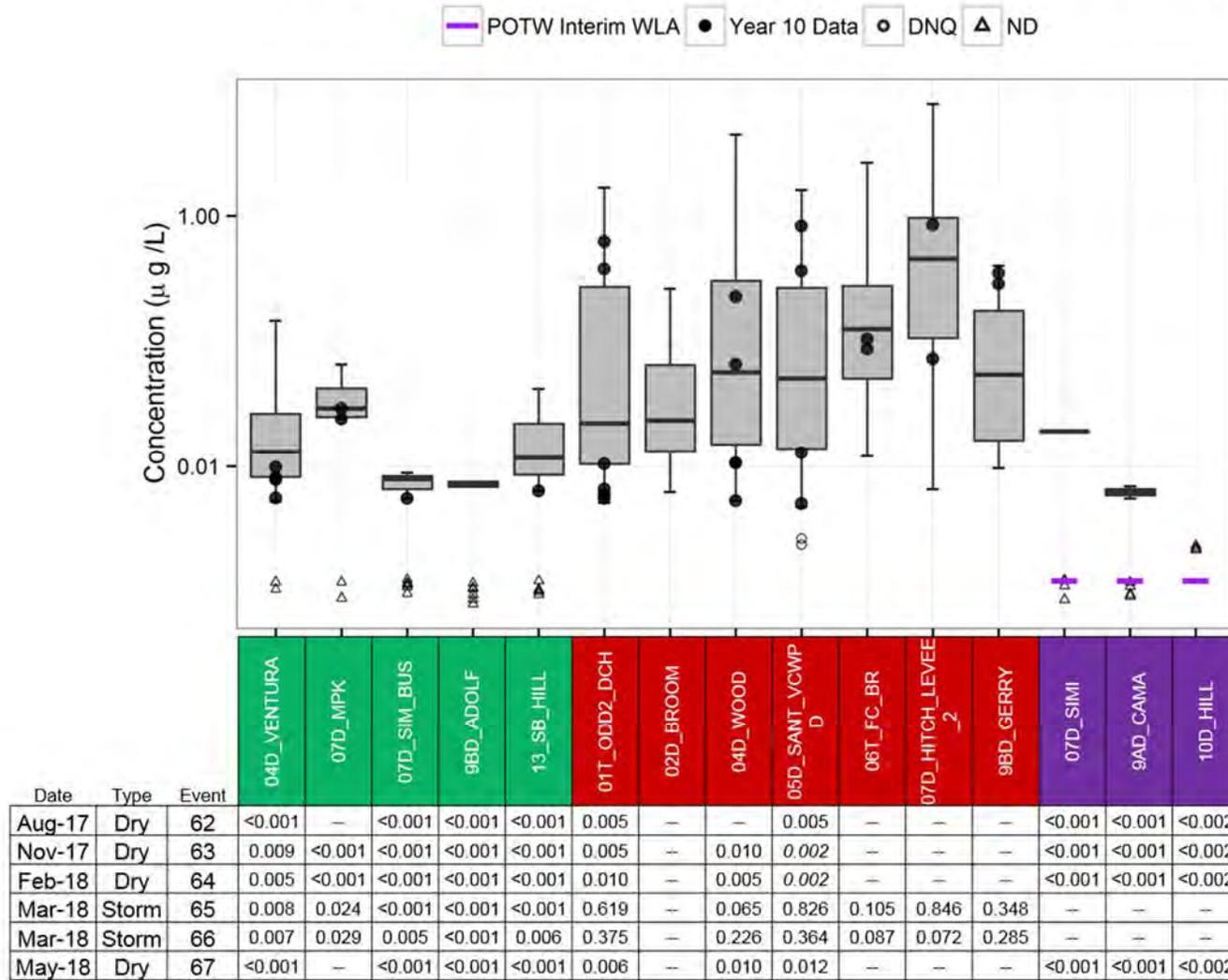


Figure 13. 4,4'-DDE Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018

4,4'-DDT in Receiving Water Sites: 2008-2018

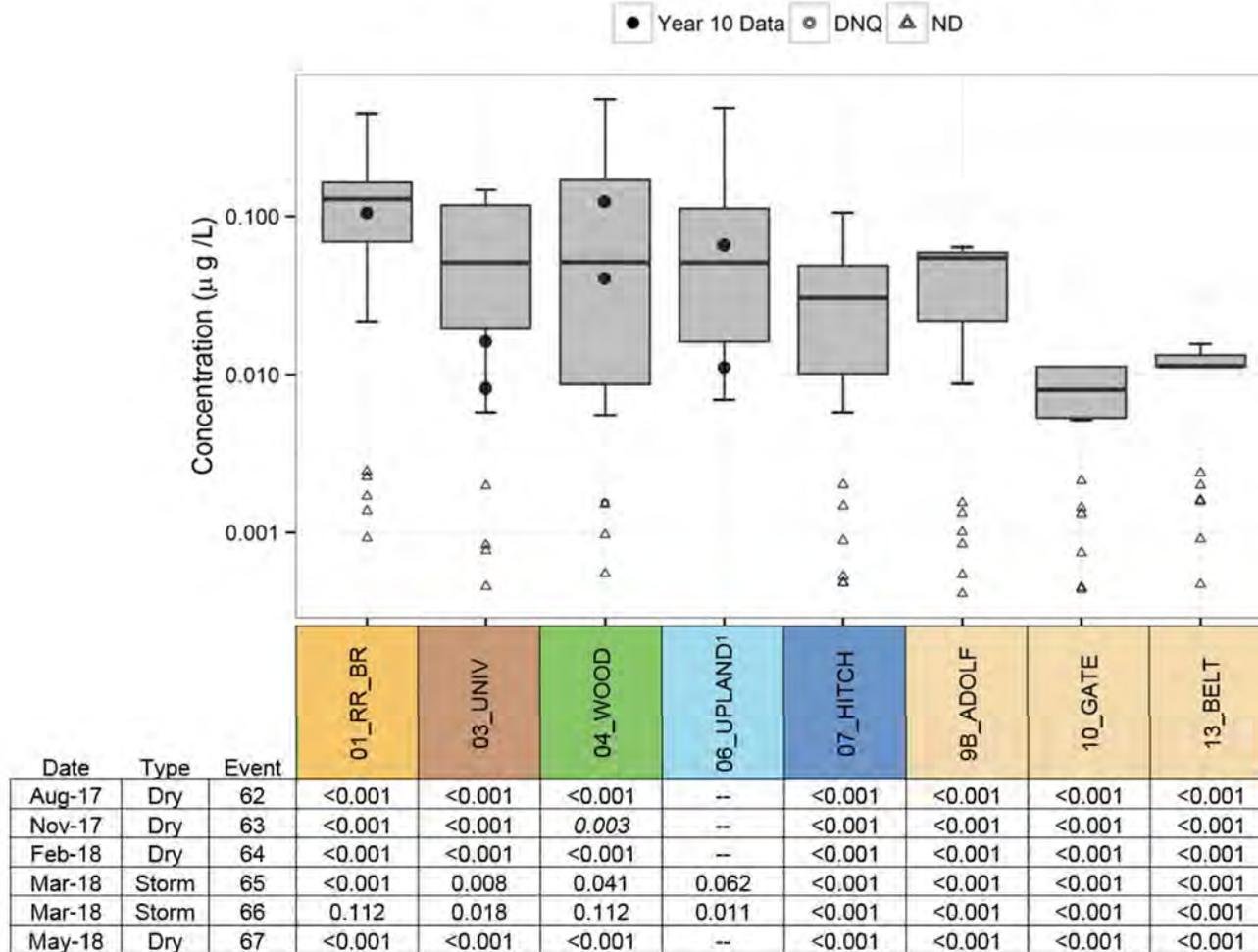


Figure 14. 4,4'-DDT Water Column Concentrations in Receiving Water Sites: 2008-2018

4,4'-DDT in Water from Urban, Ag, & POTW Sites: 2008-2018

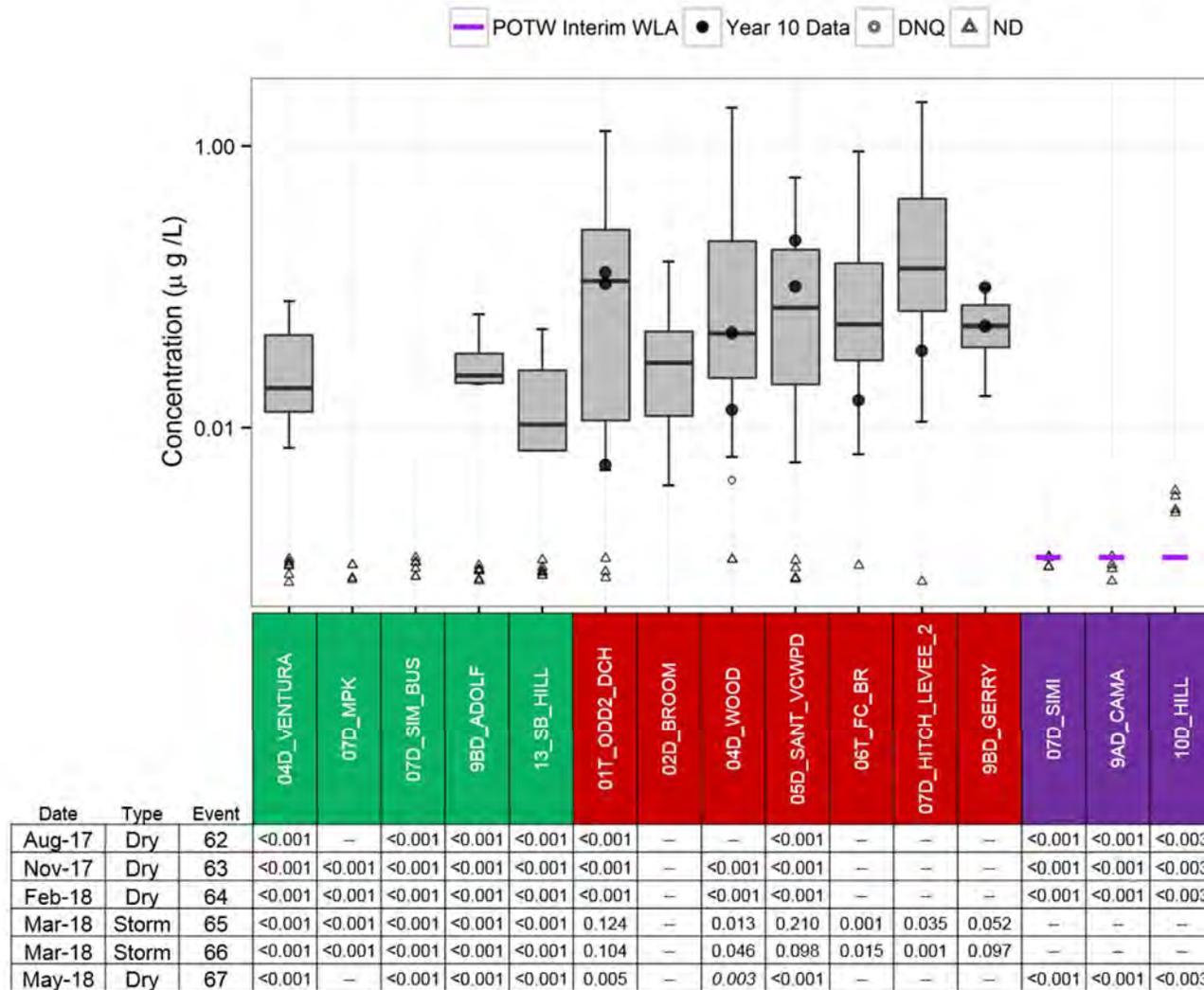


Figure 15. 4,4'-DDT Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Total Chlordane in Receiving Water Sites: 2008-2018

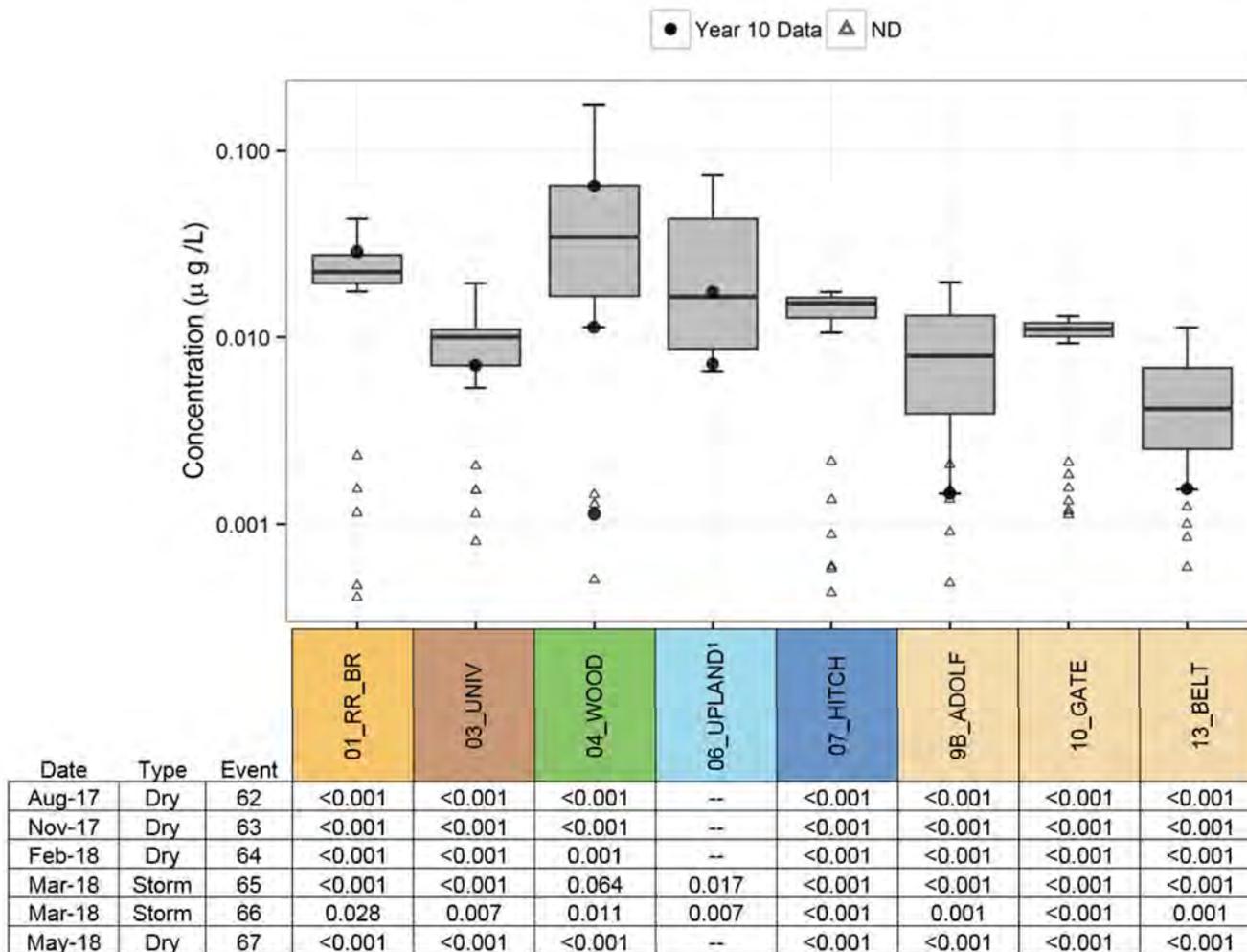


Figure 16. Total Chlordane Water Column Concentrations in Receiving Water Sites: 2008-2018

Total Chlordane in Water from Urban, Ag, & POTW Sites: 2008-2018

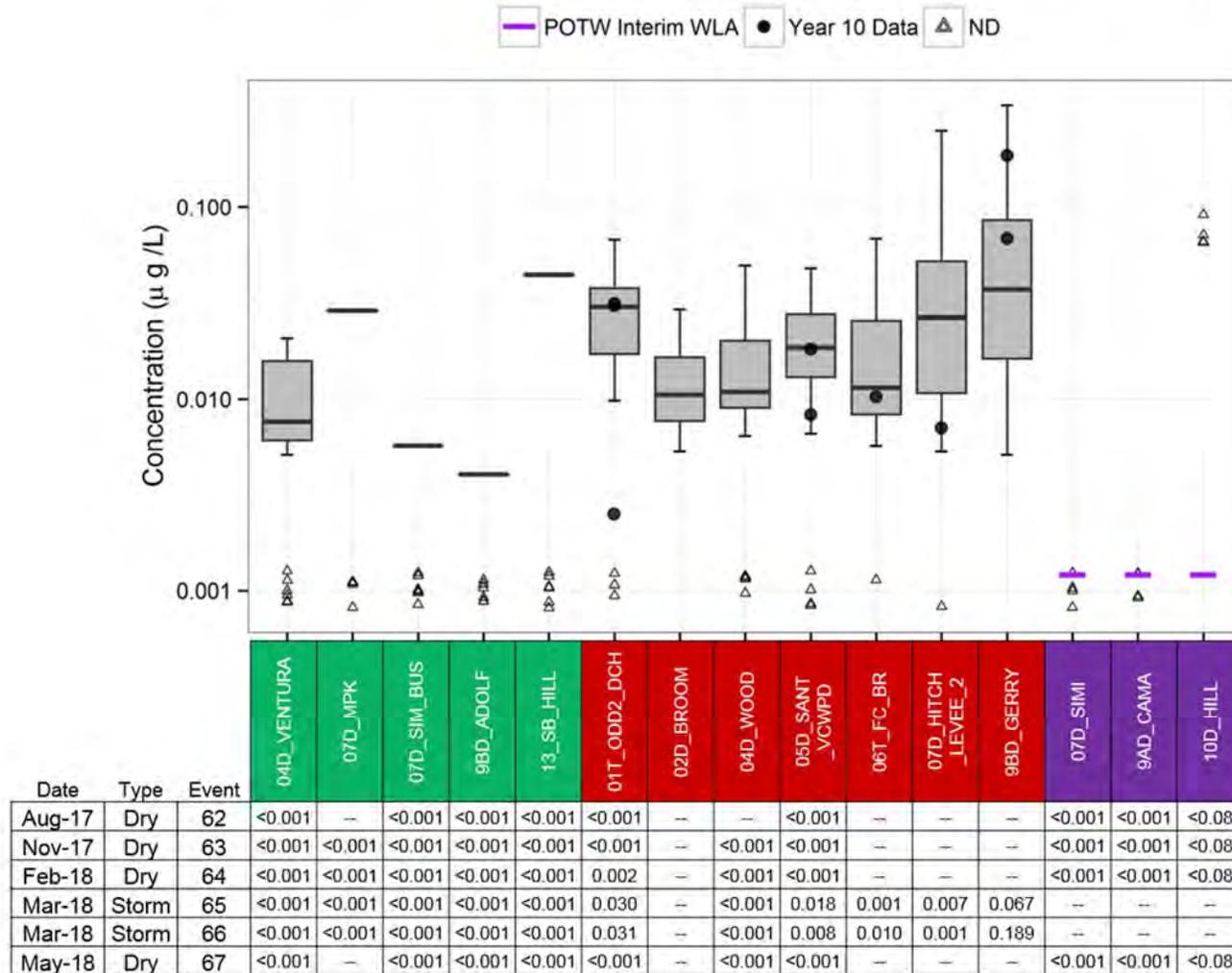


Figure 17. Total Chlordane Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Toxaphene in Receiving Water Sites: 2008-2018

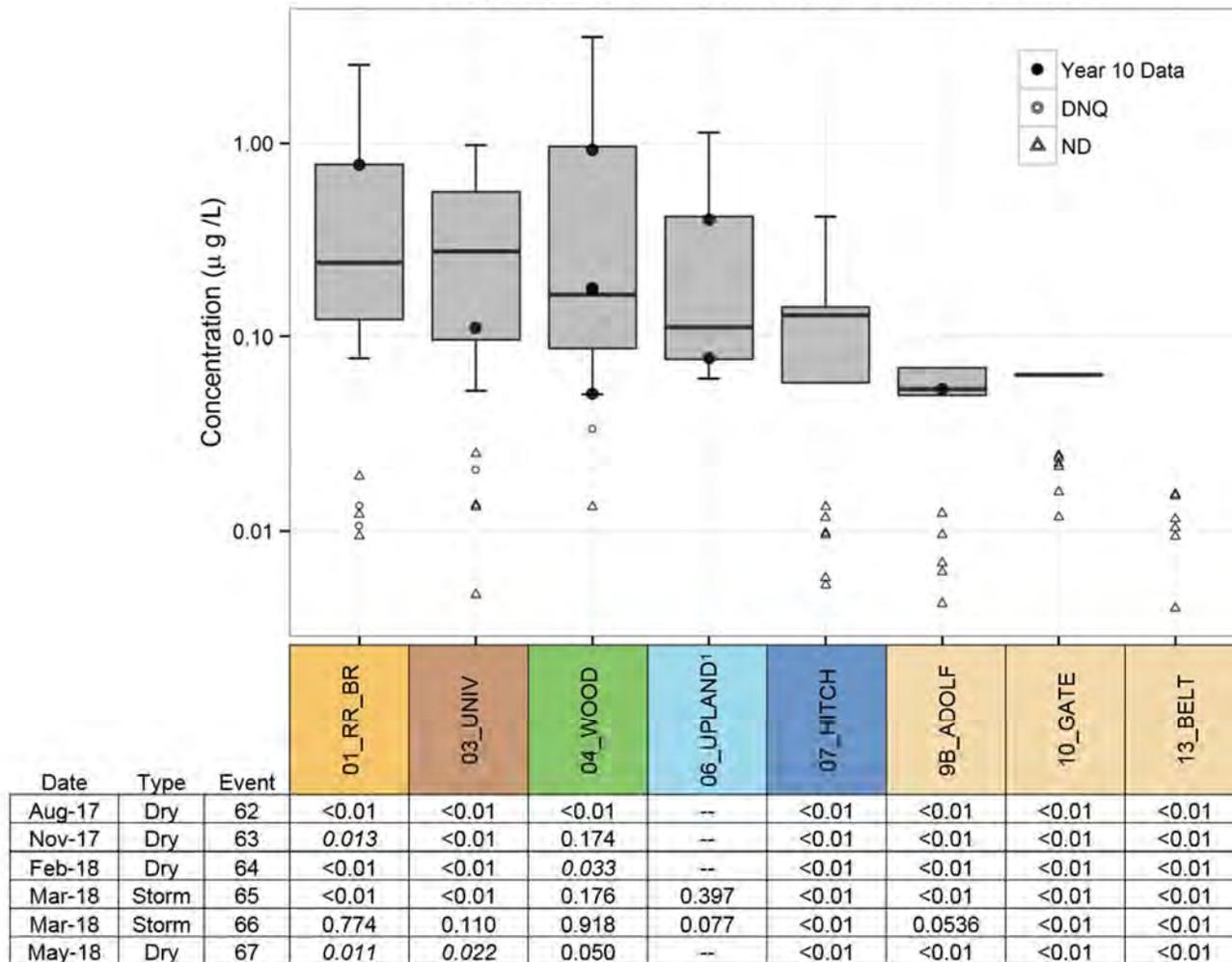


Figure 18. Toxaphene Water Column Concentrations in Receiving Water Sites: 2008-2018

Toxaphene in Water from Urban, Ag, & POTW Sites: 2008-2018

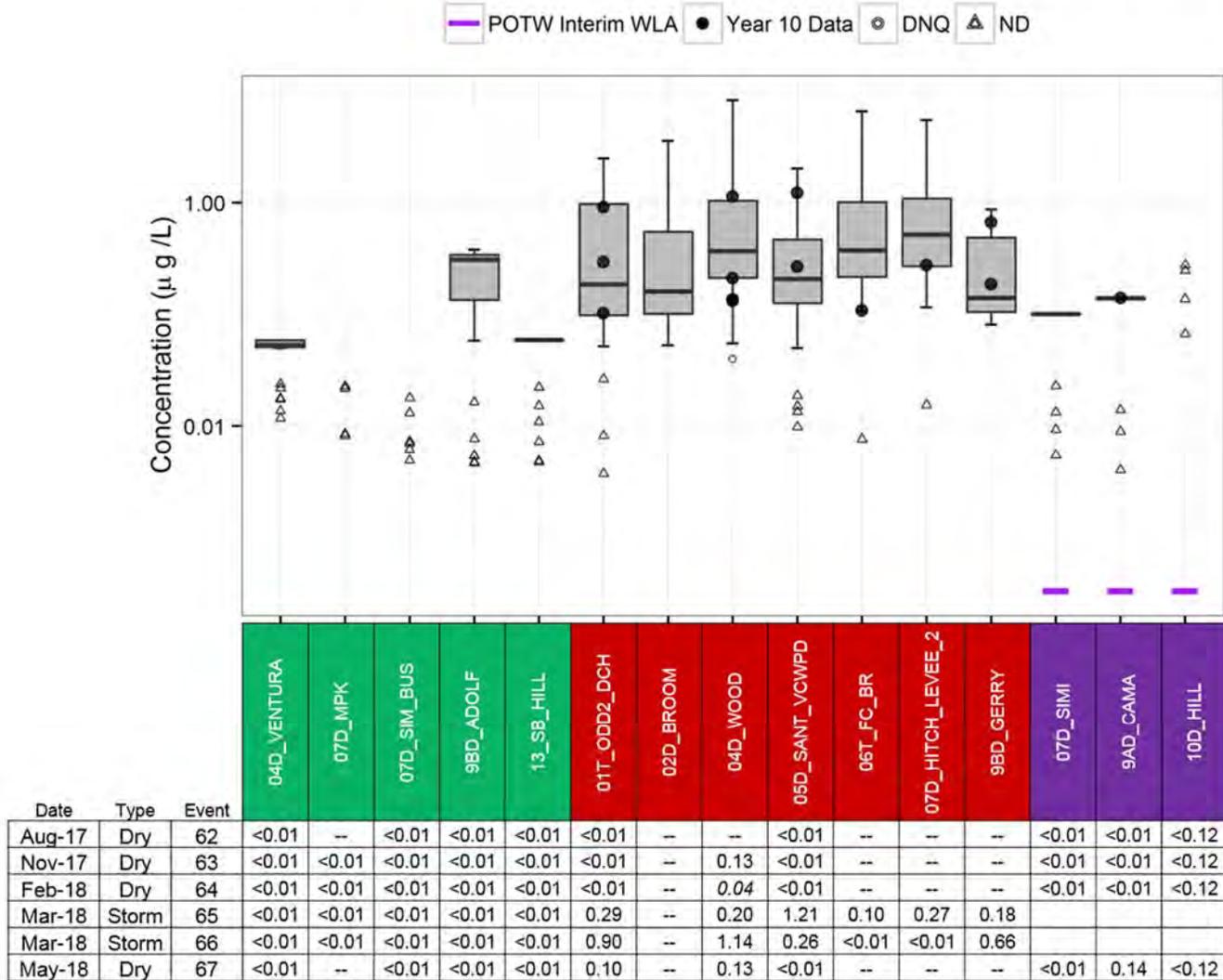


Figure 19. Toxaphene Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2018

4,4'-DDD in Sediment Sites: 2008-2018

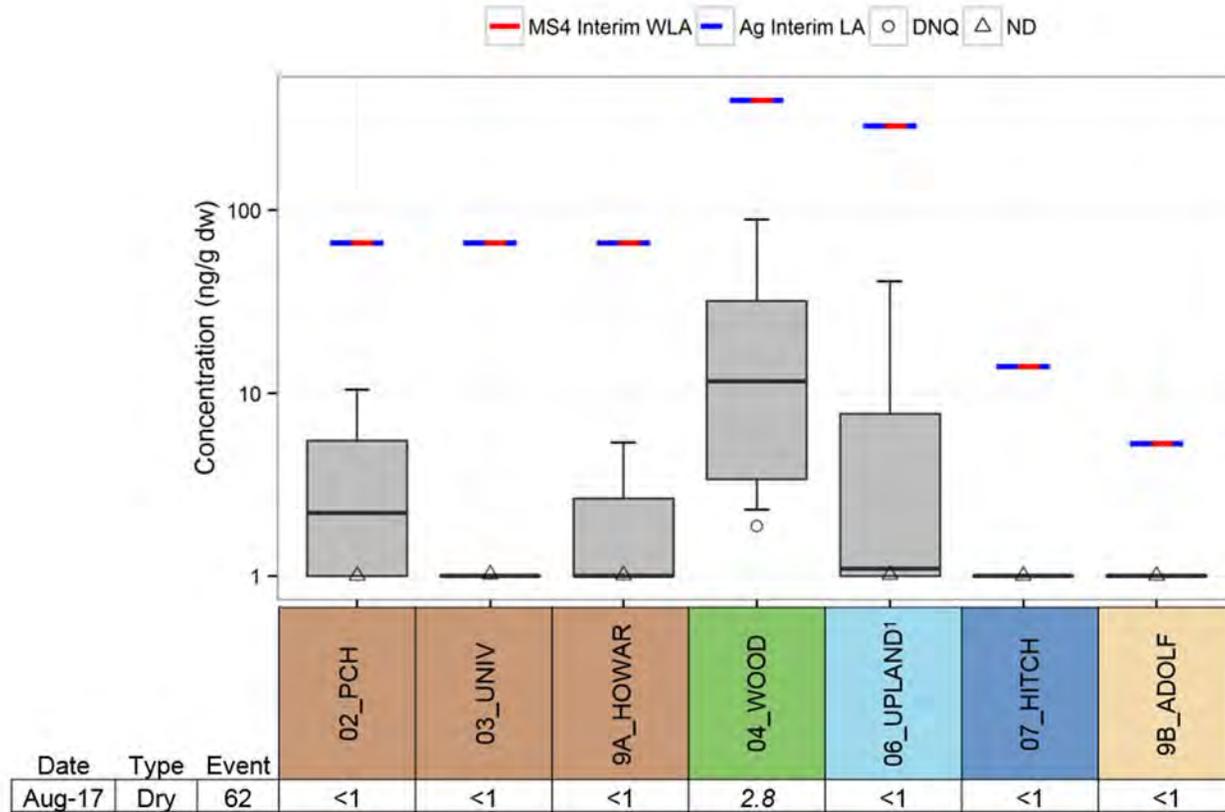


Figure 20. 4,4'-DDD Sediment Concentrations in Receiving Water Sites: 2008-2018

4,4'-DDE in Sediment Sites: 2008-2018

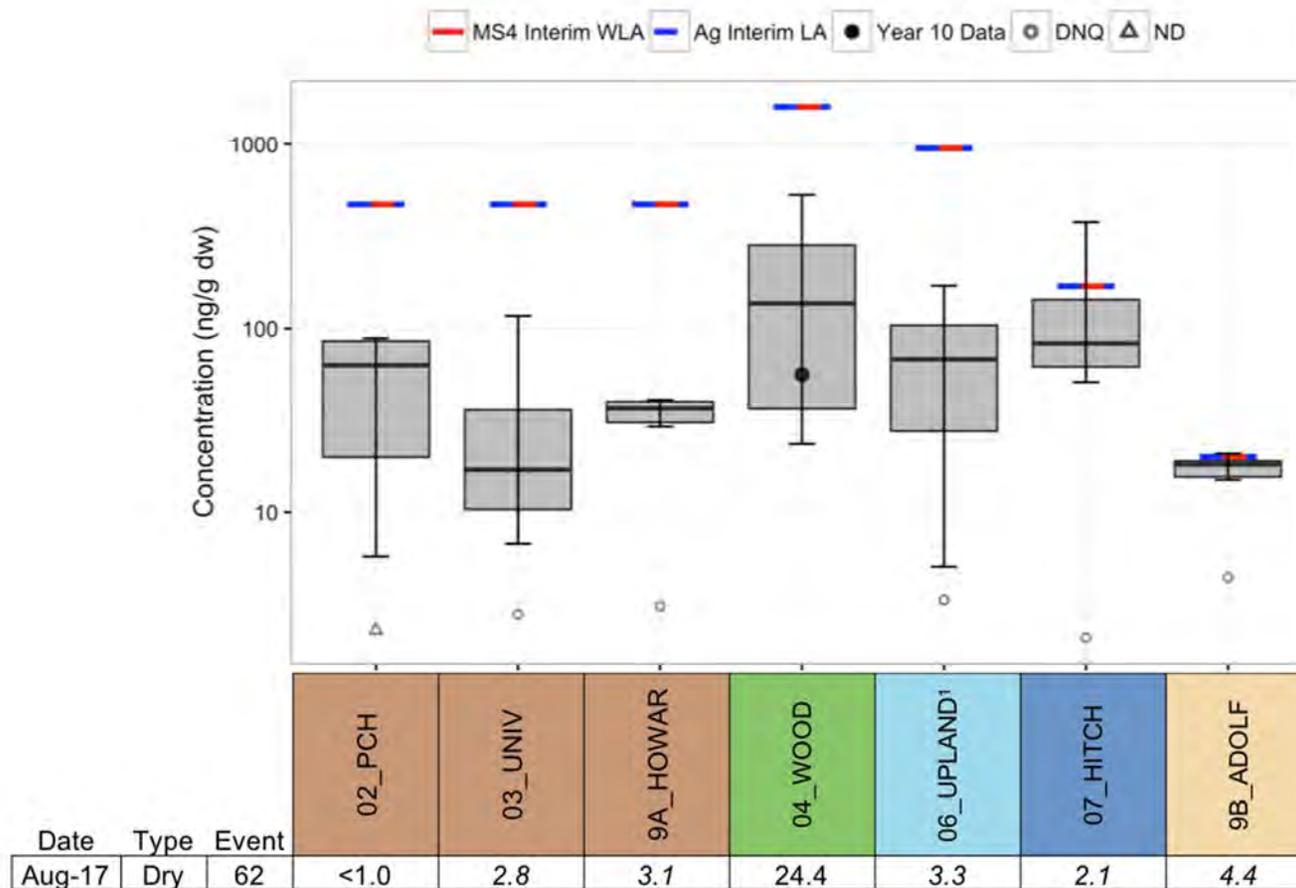


Figure 21. 4,4'-DDE Sediment Concentrations in Receiving Water Sites: 2008-2018

4,4'-DDT in Sediment Sites: 2008-2018

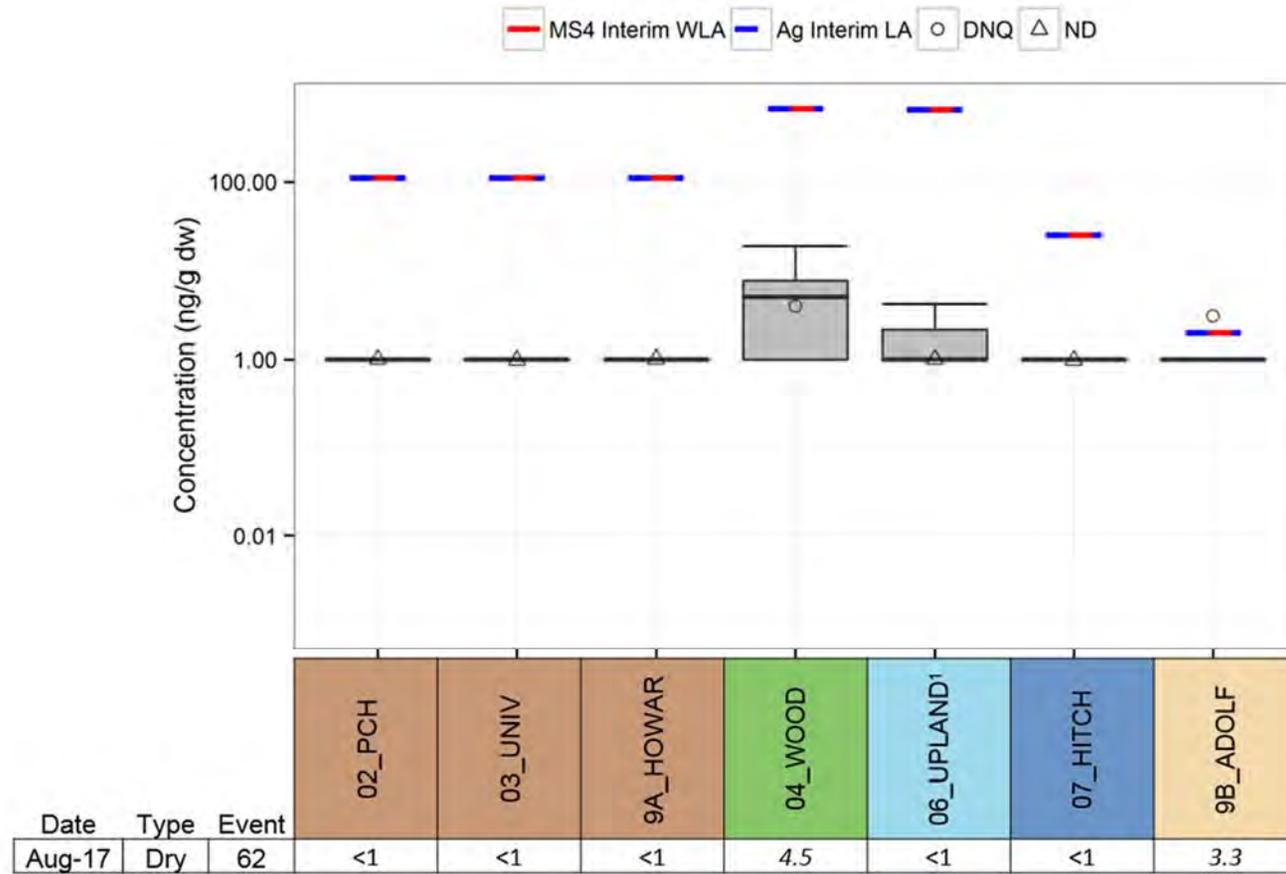


Figure 22. 4,4'-DDT Sediment Concentrations in Receiving Water Sites: 2008-2018

Total Chlordane in Sediment Sites: 2008-2018

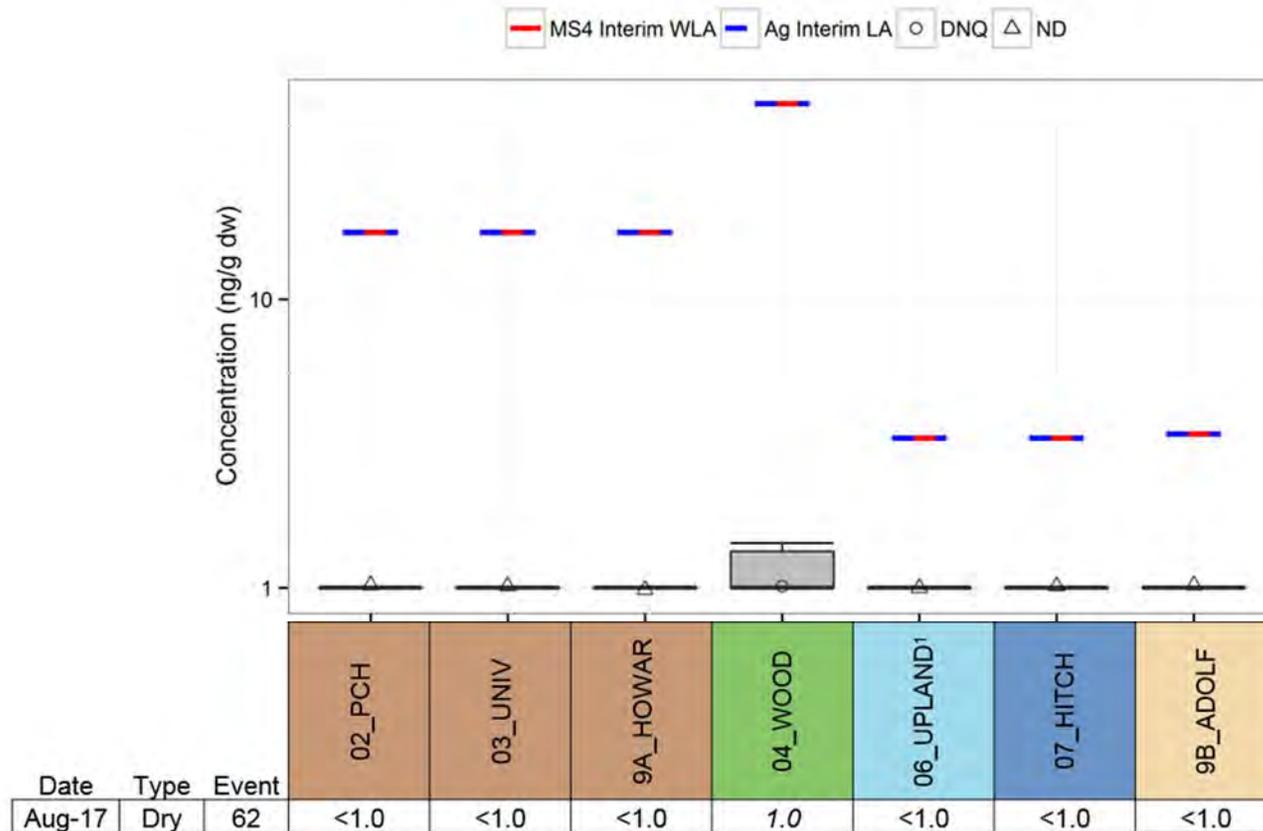


Figure 23. Total Chlordane Sediment Concentrations in Receiving Water Sites: 2008-2018

Toxaphene in Sediment Sites: 2008-2018

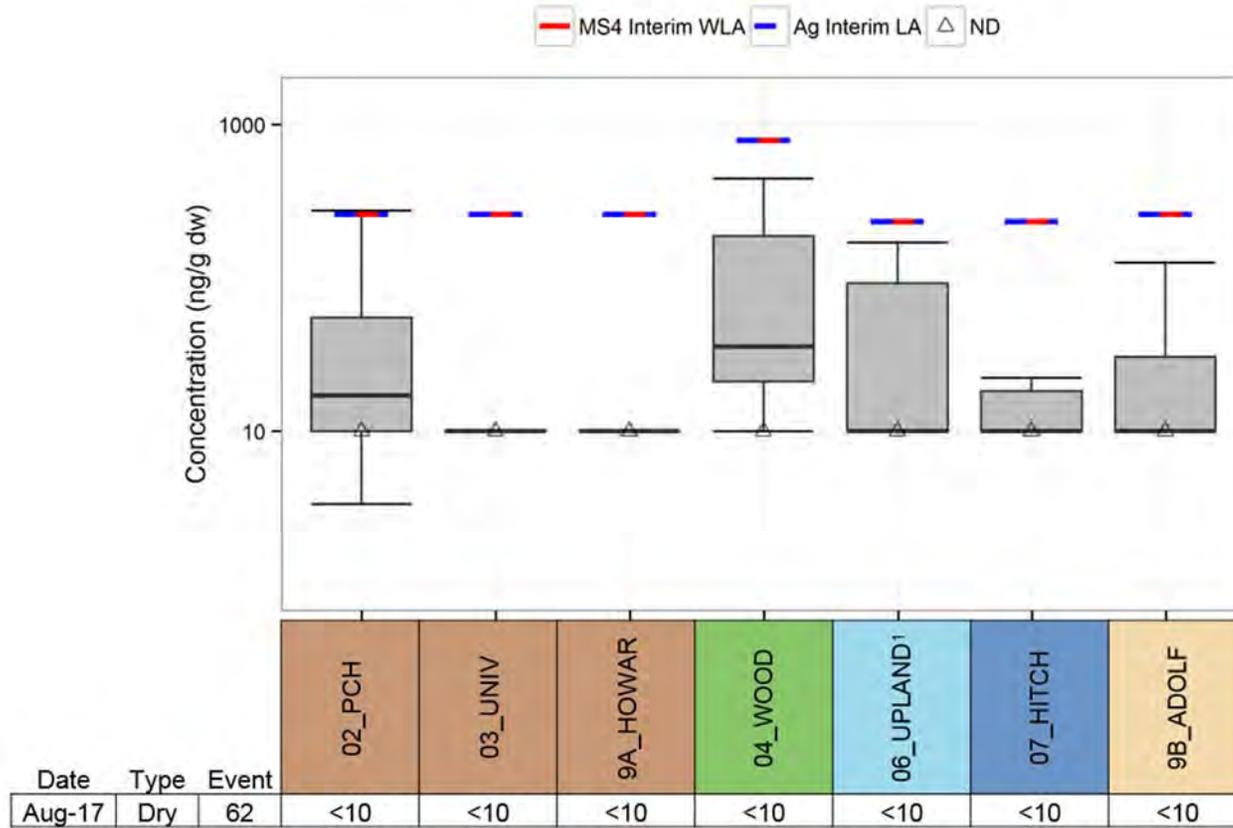


Figure 24. Toxaphene Sediment Concentrations in Receiving Water Sites: 2008-2018

METALS TMDL DATA SUMMARY

The following figures present metals water quality data from receiving water, agricultural, urban, and POTW monitoring sites. Effective total metals interim load allocations and waste load allocations differ for wet and dry weather, therefore the data for each of these conditions is provided separately. Interim POTW waste load allocations for total mercury are in load form and are therefore calculated and presented in the exceedance evaluation section of the report. The Metals TMDL specifies final targets for dissolved copper, nickel and zinc to correspond with the objectives which are expressed in dissolved form. Dissolved concentrations for these three metals have been plotted for reference. Data collected during year ten, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2018). This was done to allow for easy comparison between recent data and what have been collected overall. The tenth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent. Italicized values in the tables within each figure indicate the concentration was DNQ. Values in the tables within each figure with a “<” preceding them, indicate the constituent was ND at the MDL for that constituent. Values identified as “--” in the tables indicate no samples were collected at those sites for those events.

Total Copper in Receiving Water Sites: 2008-2018 Dry Weather

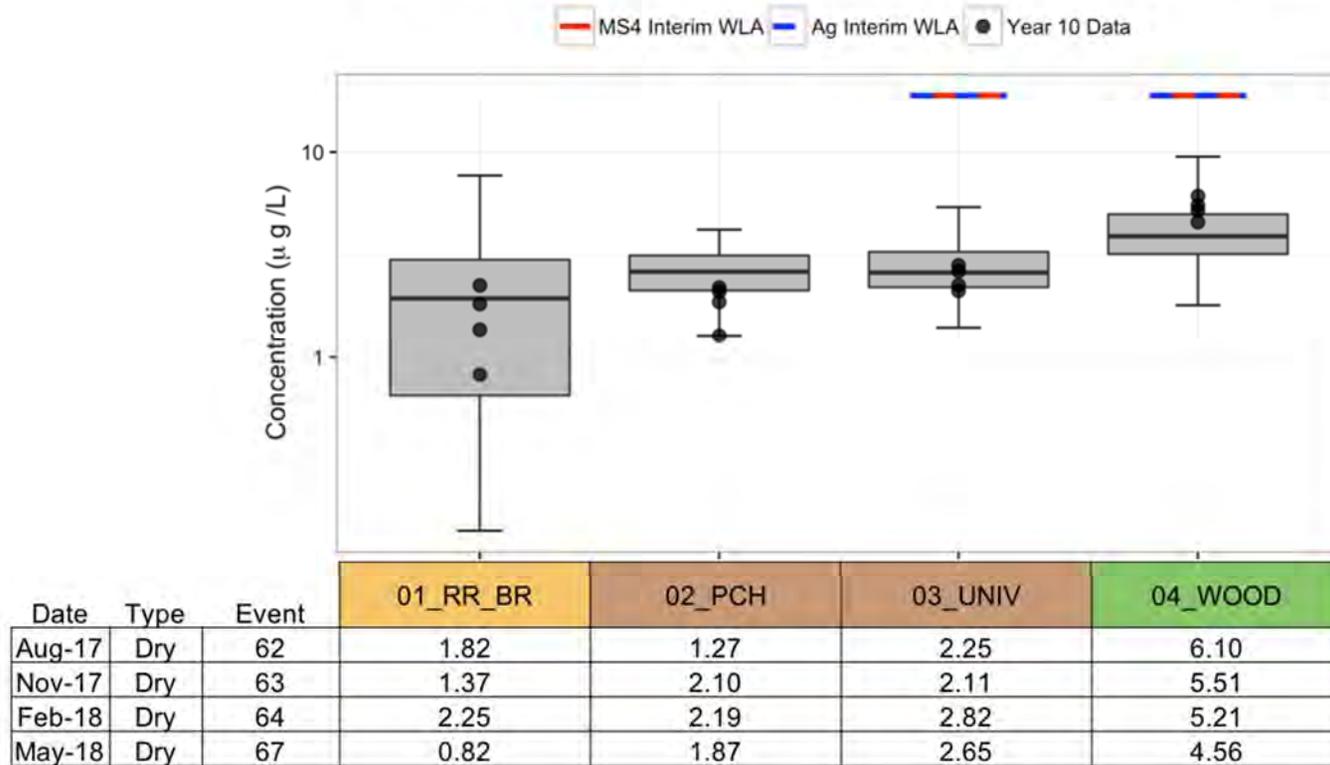


Figure 25. Total Copper Dry Weather Concentrations in Receiving Water Sites: 2008-2018

Total Copper in Receiving Water Sites: 2008-2018 Stormwater

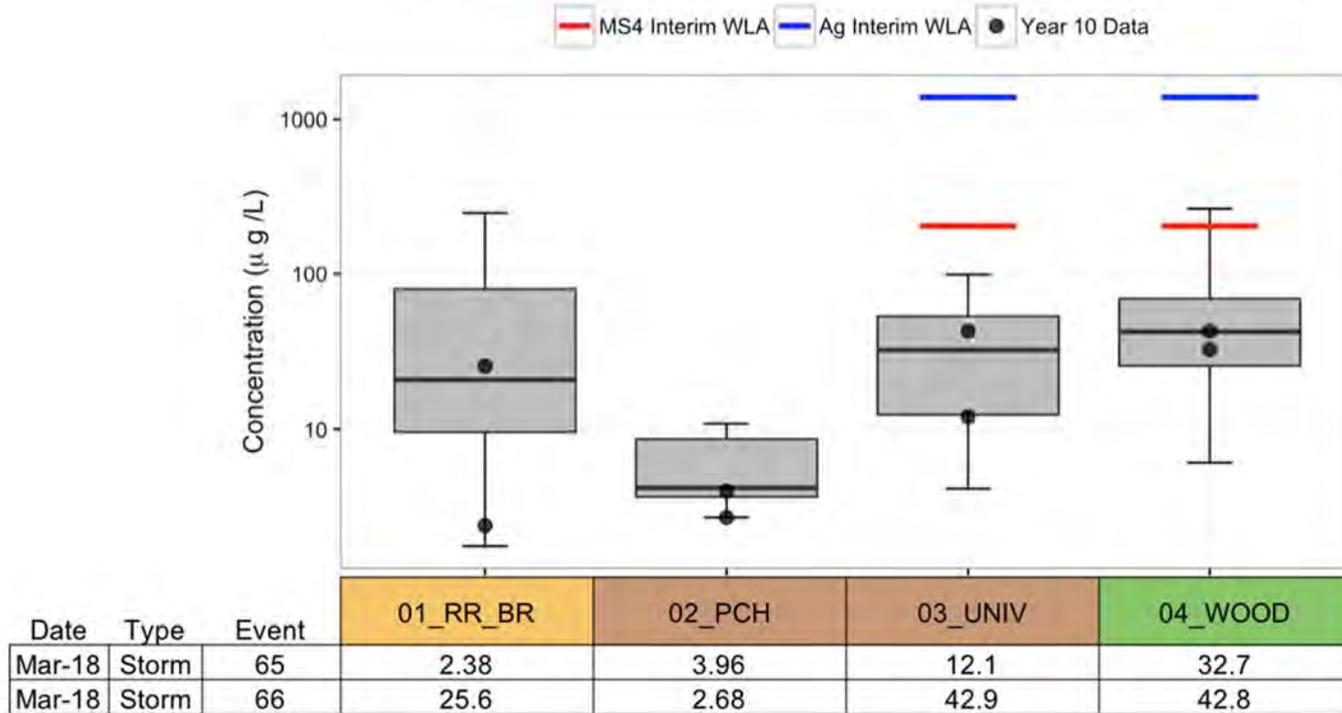


Figure 26. Total Copper Stormwater Concentrations in Receiving Water Sites: 2008-2018

Total Copper in Water from Urban, Ag, & POTW Sites: 2008-2018 Dry Weather

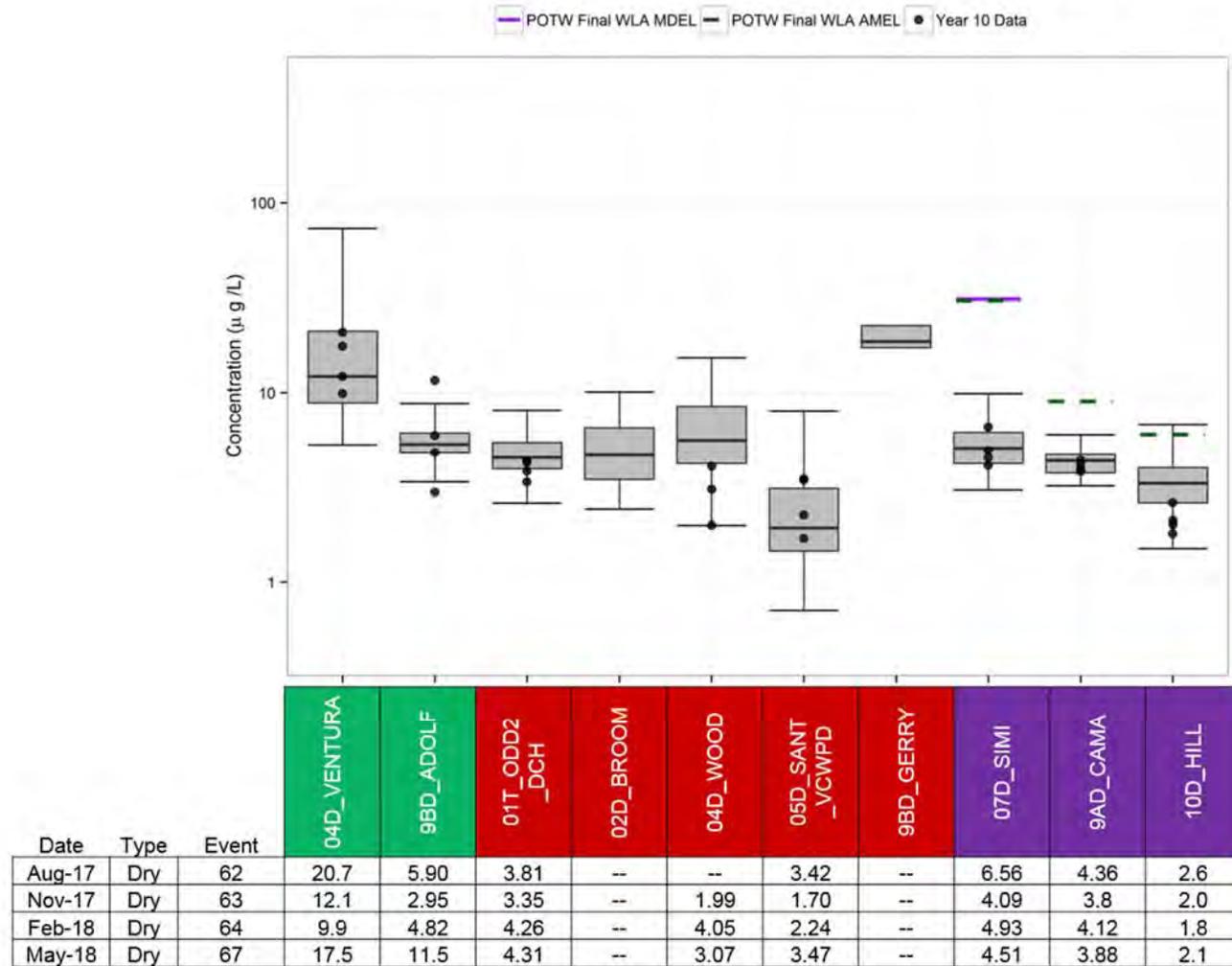


Figure 27. Total Copper Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018

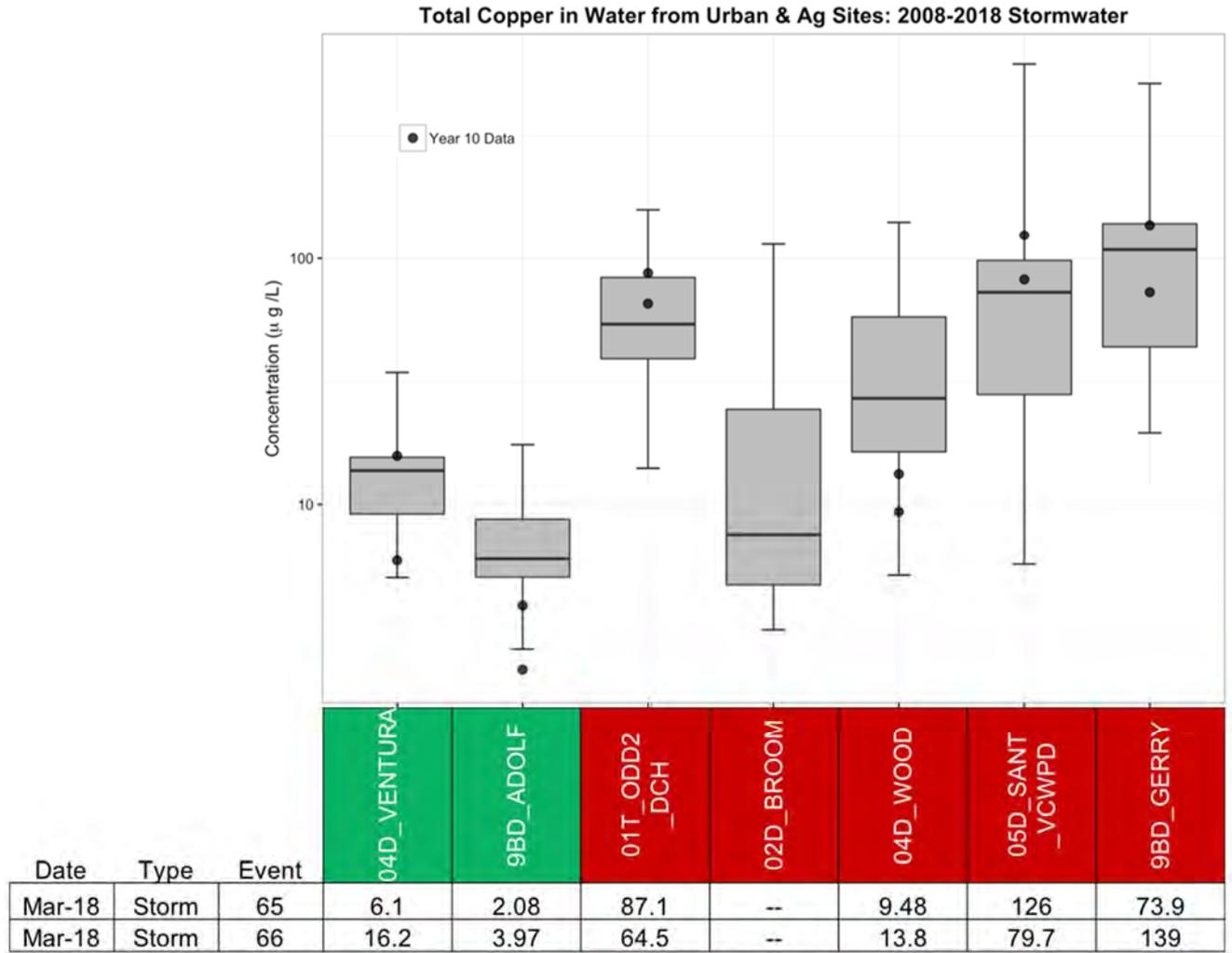


Figure 28. Total Copper Wet Weather Concentrations in Urban and Ag Sites: 2008-2018

Dissolved Copper in Receiving Water Sites: 2008-2018

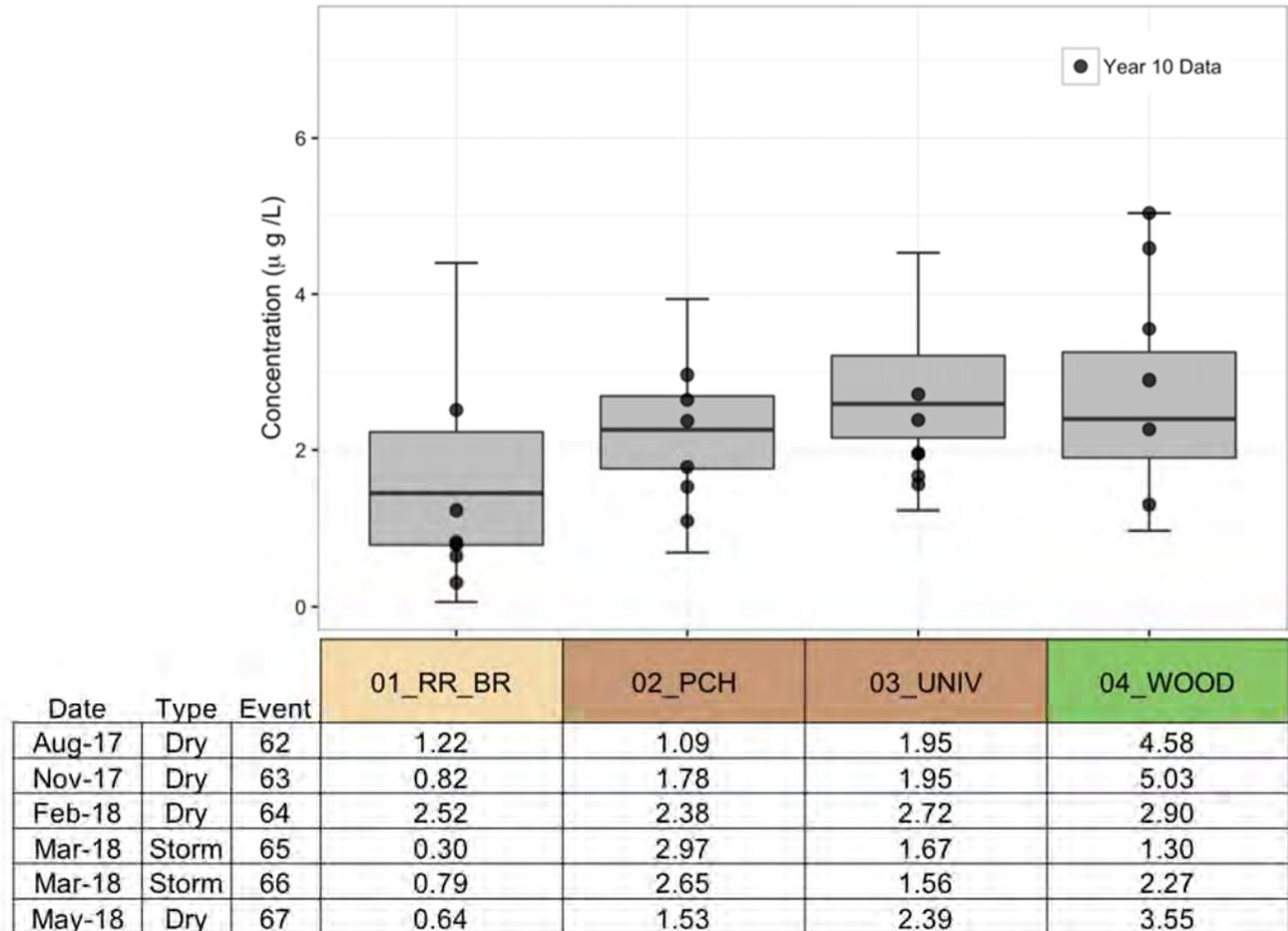


Figure 29. Dissolved Copper Concentrations in Receiving Water Sites: 2008-2018

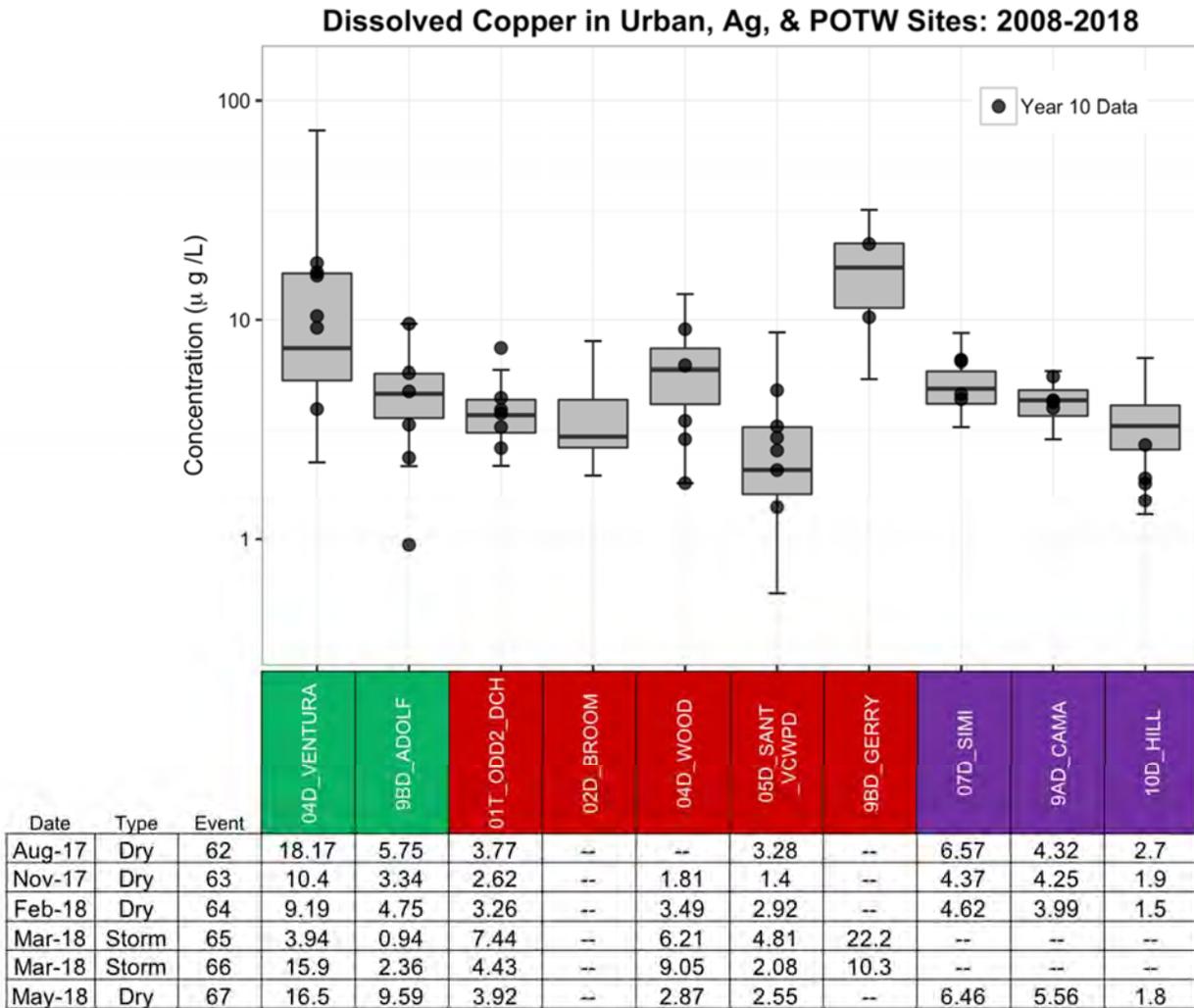


Figure 30. Dissolved Copper Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Total Mercury in Receiving Water Sites: 2008-2018

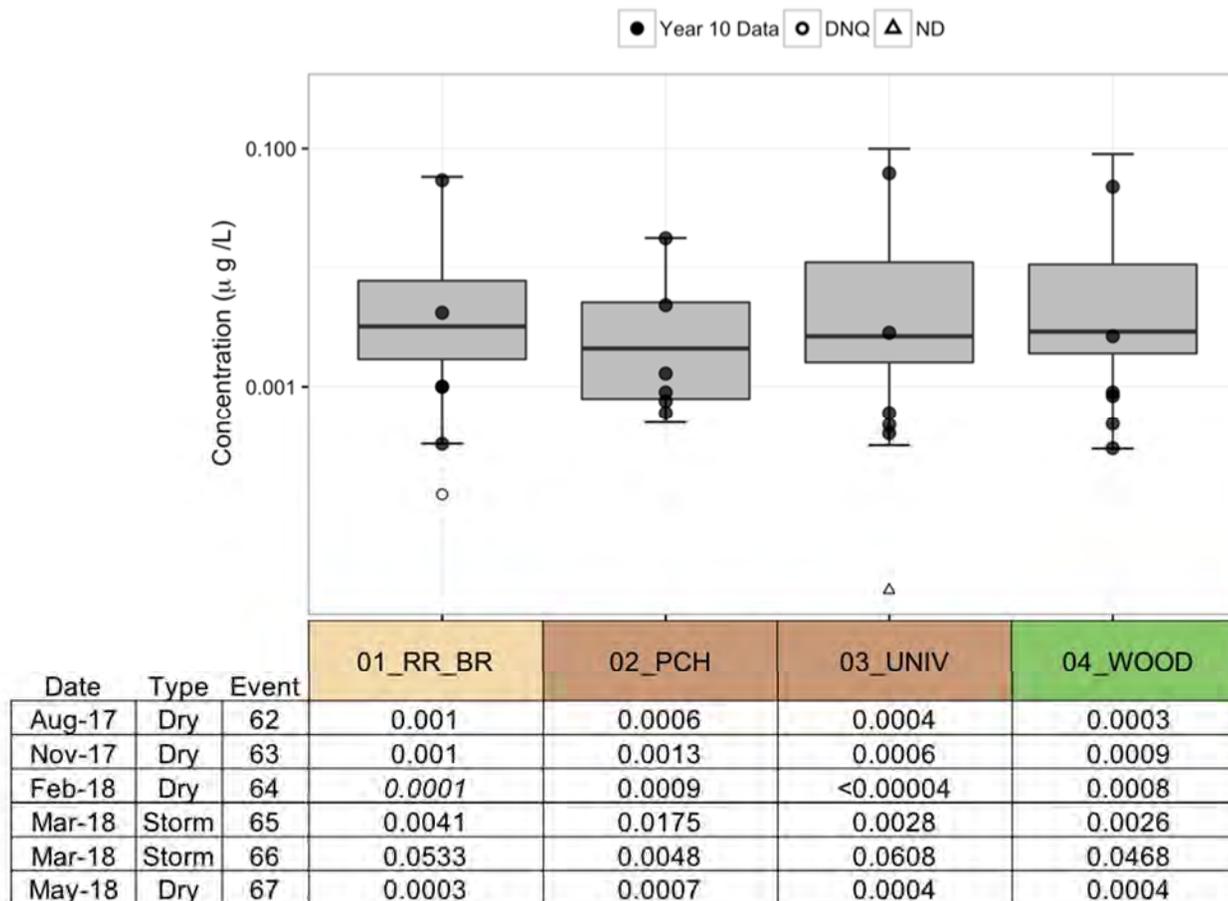


Figure 31. Total Mercury Concentrations in Receiving Water Sites: 2008-2018

Total Mercury in Urban, Ag, & POTW Sites: 2008-2018

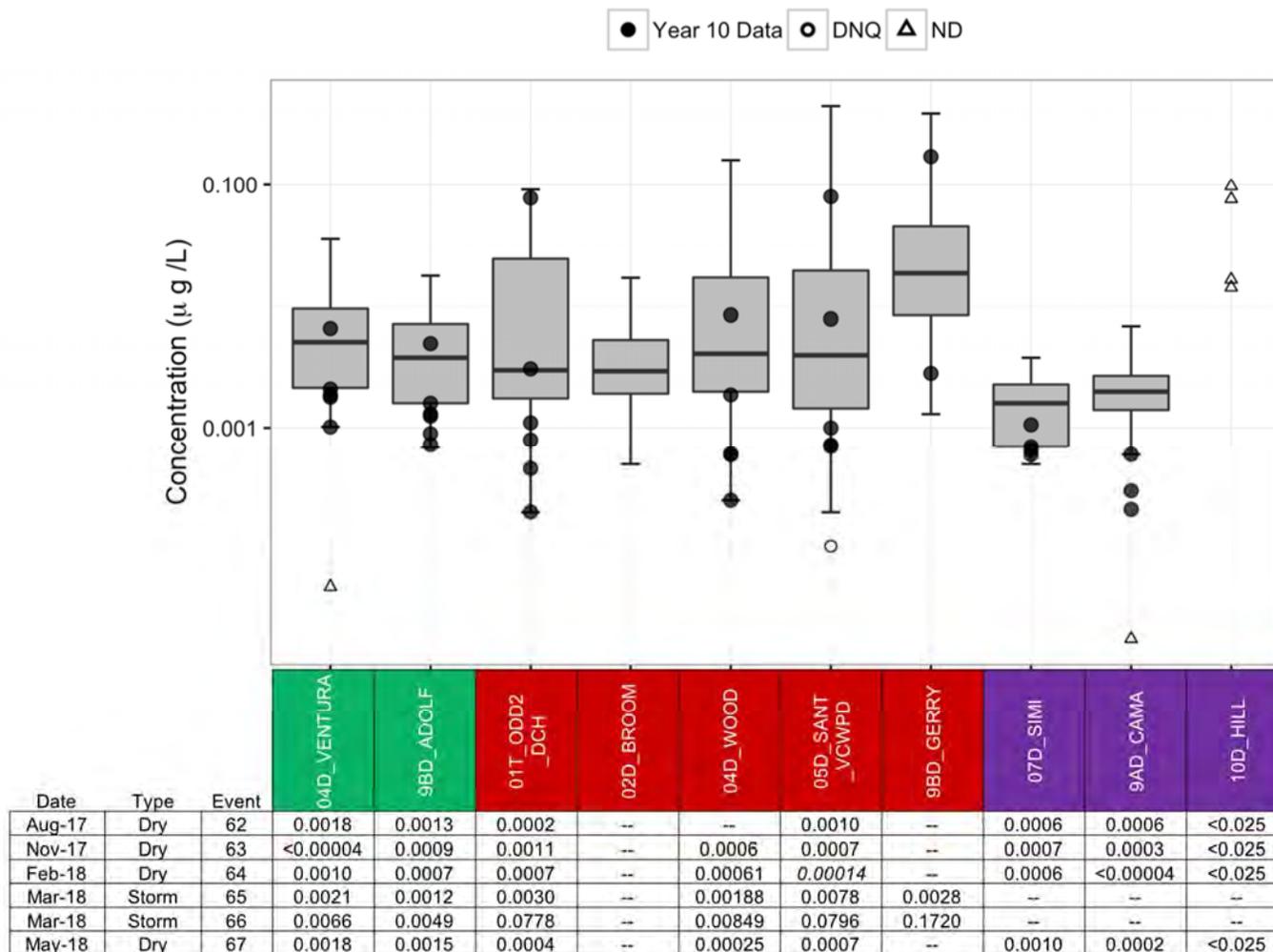


Figure 32. Total Mercury Concentrations in Urban and Ag Sites: 2008-2018

Total Nickel in Receiving Water Sites: 2008-2018 Dry Weather

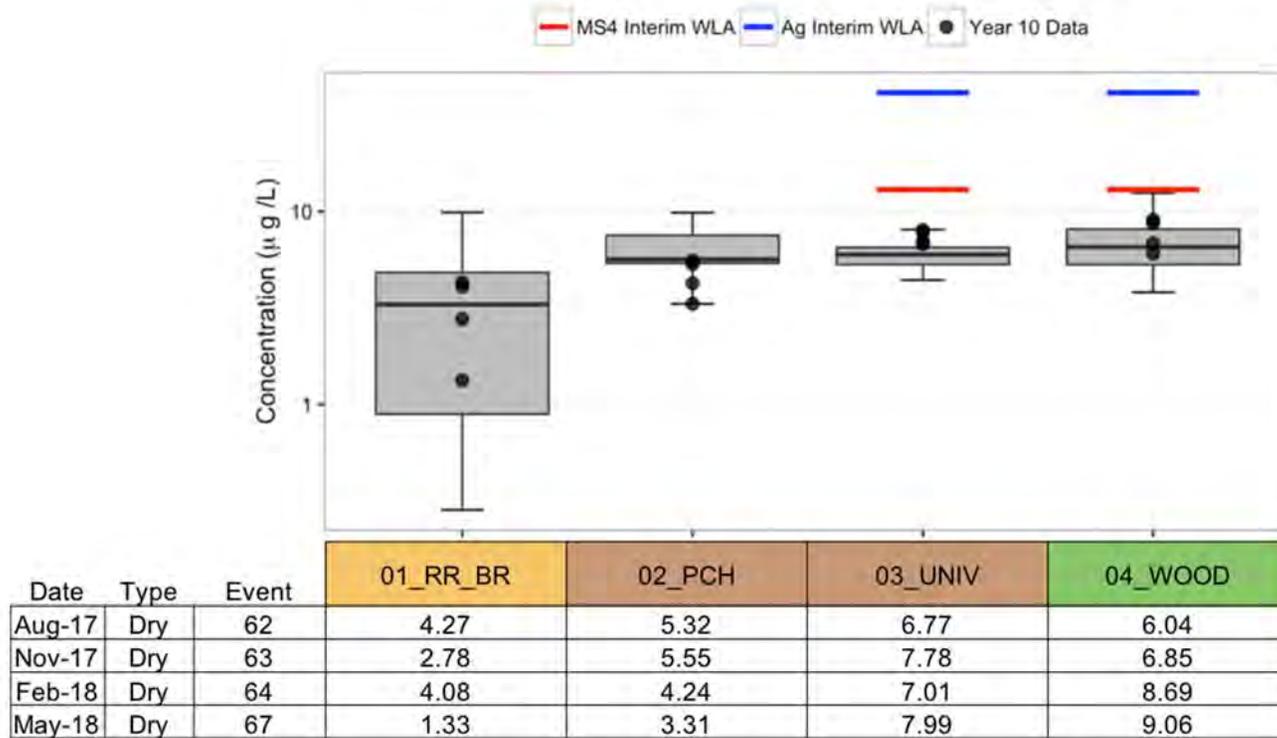


Figure 33. Total Nickel Dry Weather Concentrations in Receiving Water Sites: 2008-2018

Total Nickel in Receiving Water Sites: 2008-2018 Stormwater

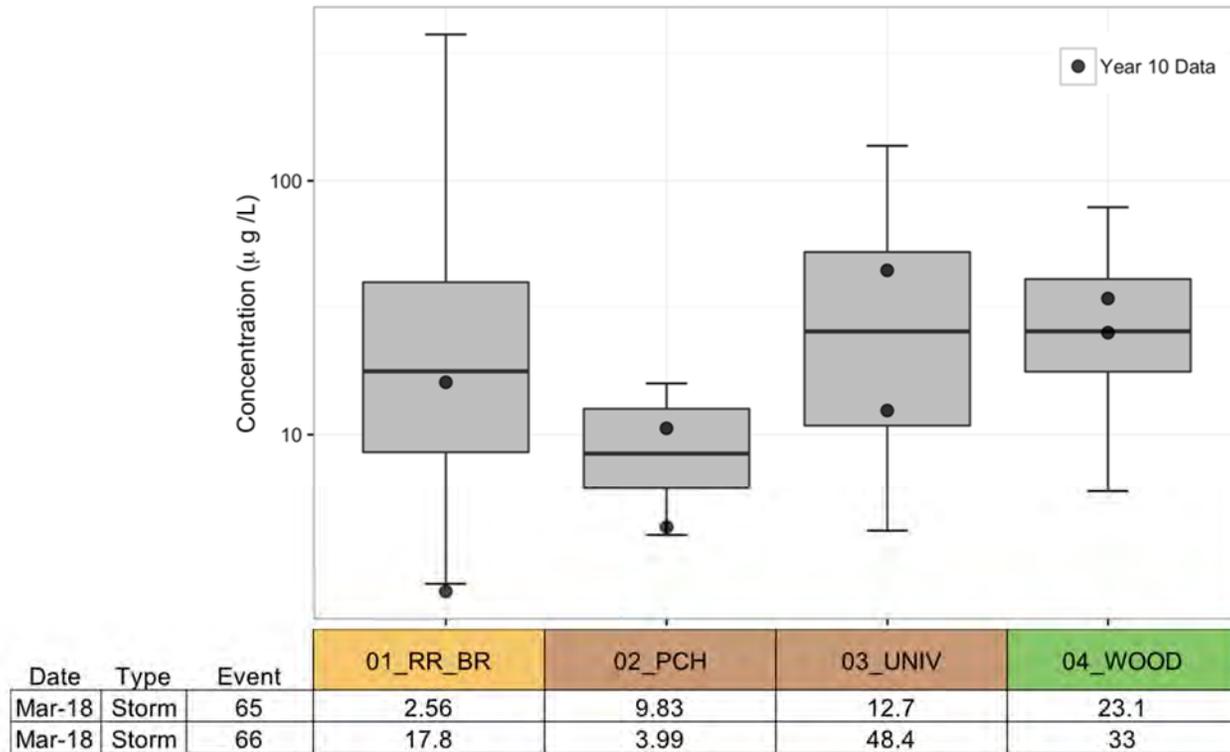


Figure 34. Total Nickel Stormwater Concentrations in Receiving Water Sites: 2008-2018

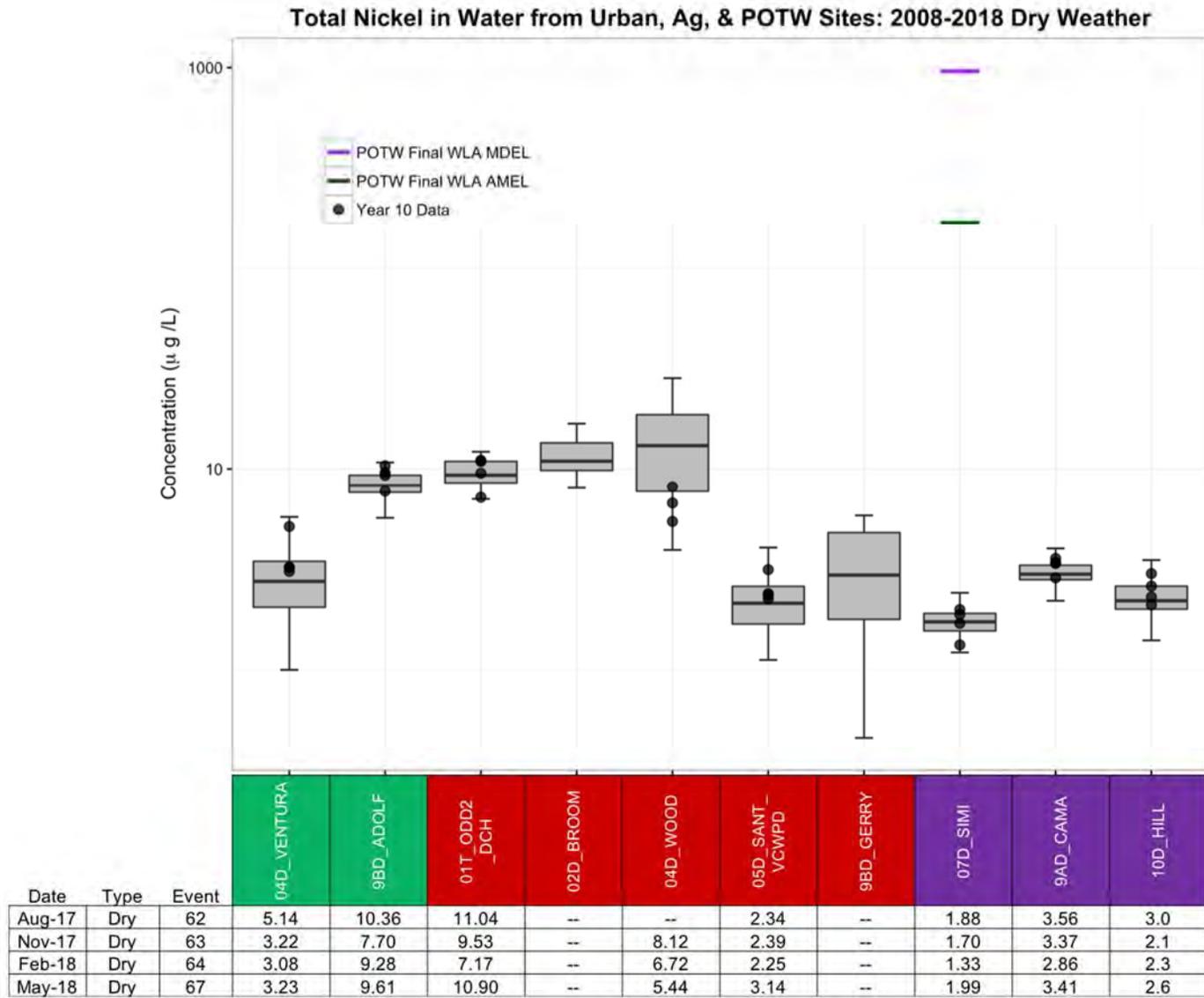


Figure 35. Total Nickel Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Total Nickel in Water from Urban & Ag Sites: 2008-2018 Stormwater

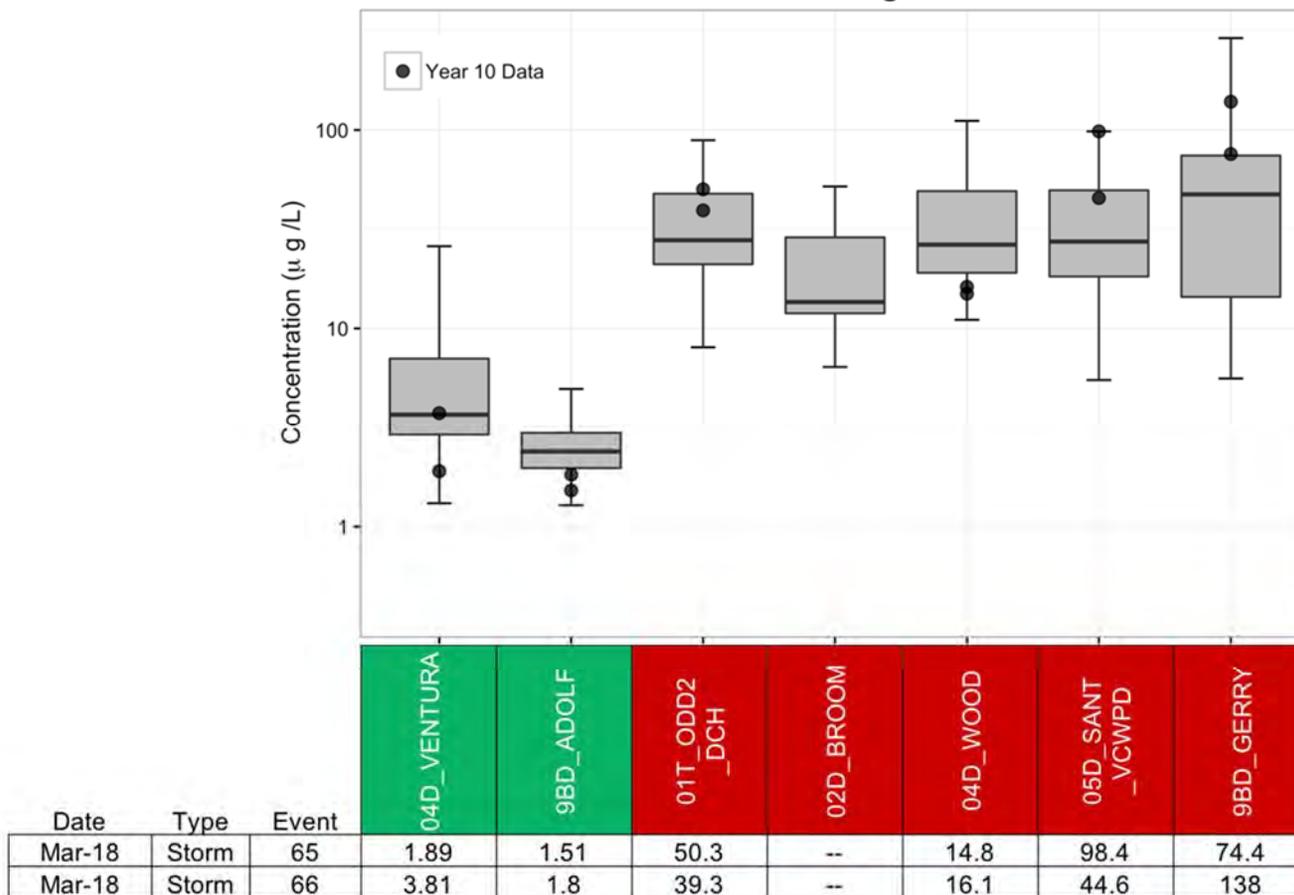
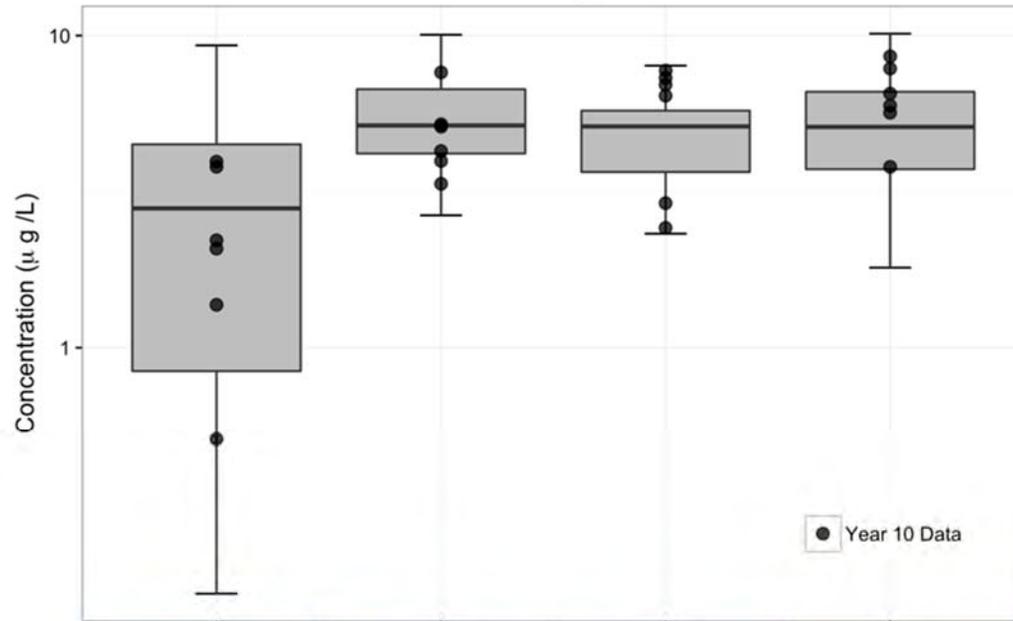


Figure 36. Total Nickel Stormwater Concentrations in Urban and Ag Sites: 2008-2018

Dissolved Nickel in Receiving Water Sites: 2008-2018



Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-17	Dry	62	3.80	5.19	6.41	5.96
Nov-17	Dry	63	2.20	5.11	7.32	6.52
Feb-18	Dry	64	3.95	3.97	6.96	7.84
Mar-18	Storm	65	0.50	7.62	2.89	5.66
Mar-18	Storm	66	2.07	4.27	2.41	3.80
May-18	Dry	67	1.37	3.33	7.73	8.58

Figure 37. Dissolved Nickel Concentrations in Receiving Water Sites: 2008-2018

Dissolved Nickel in Urban, Ag, & POTW Sites: 2008-2018

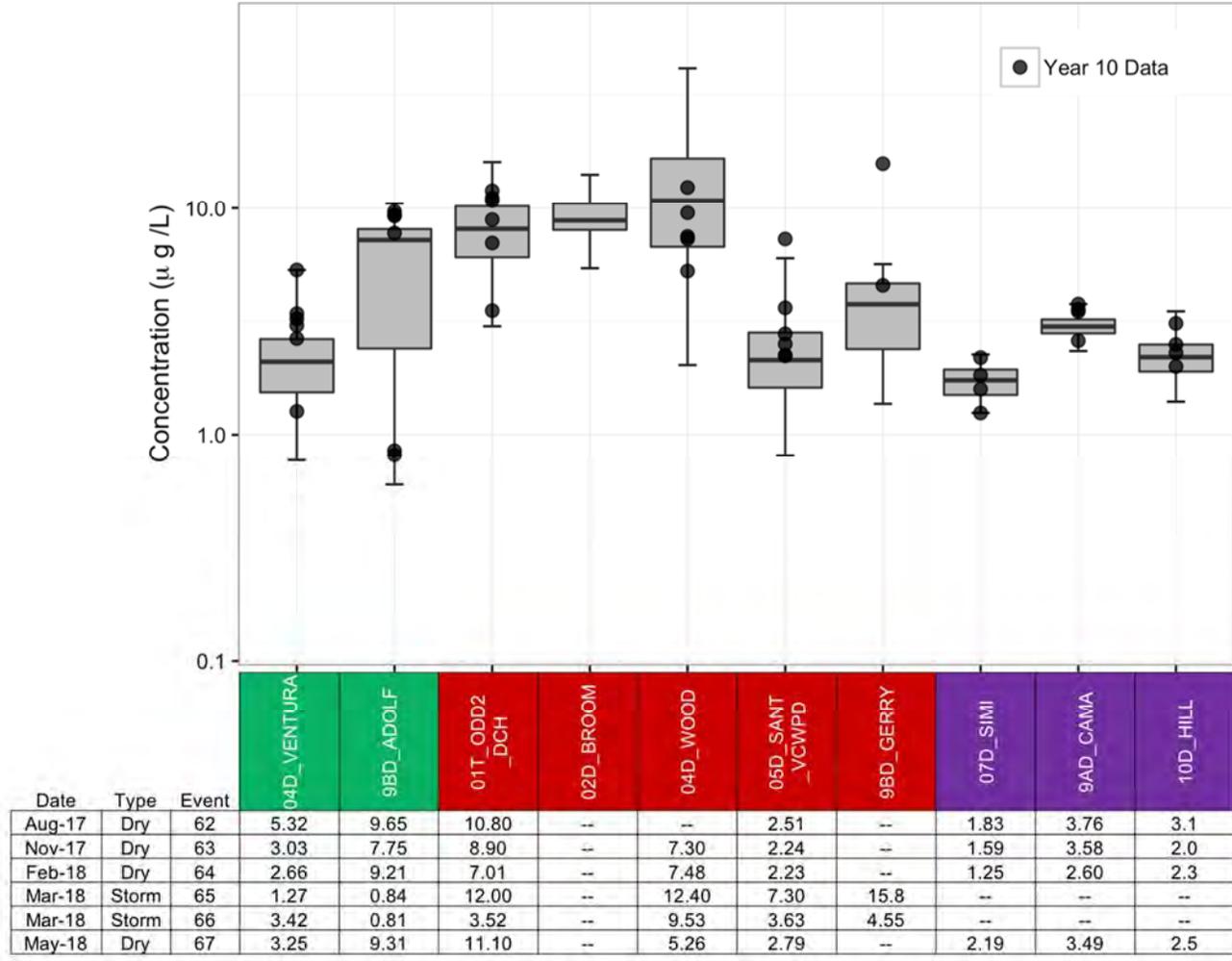
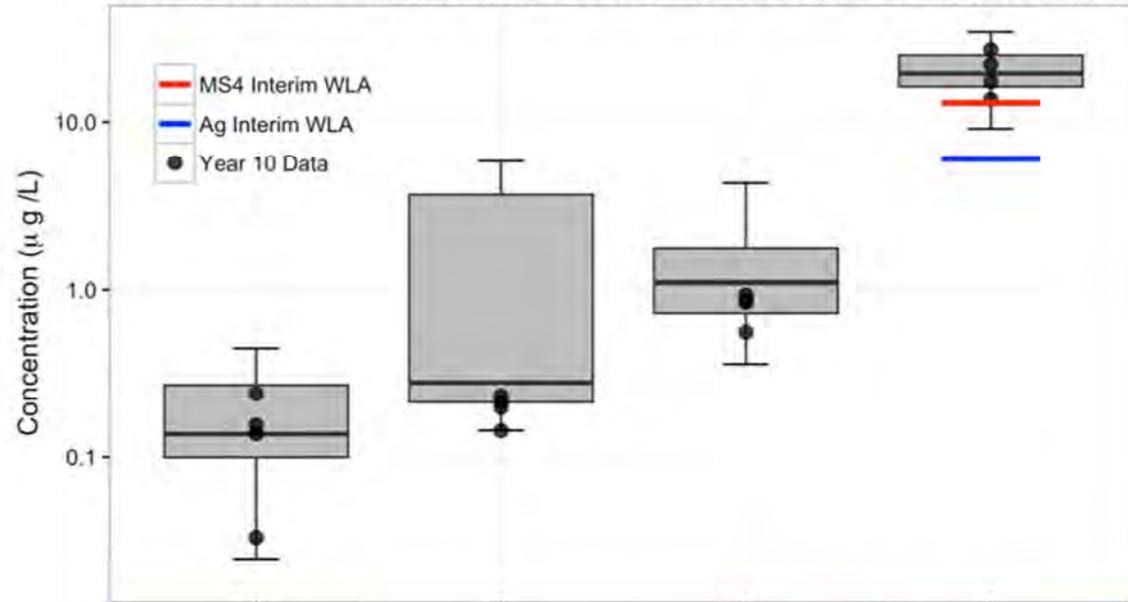


Figure 38. Dissolved Nickel Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Total Selenium in Receiving Water Sites: 2008-2018 Dry Weather



Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-17	Dry	62	0.238	0.213	0.930	26.8
Nov-17	Dry	63	0.137	0.233	0.557	22.0
Feb-18	Dry	64	0.156	0.197	0.856	13.7
May-18	Dry	67	0.033	0.144	0.843	17.4

Figure 39. Total Selenium Dry Weather Concentrations in Receiving Water Sites: 2008-2018

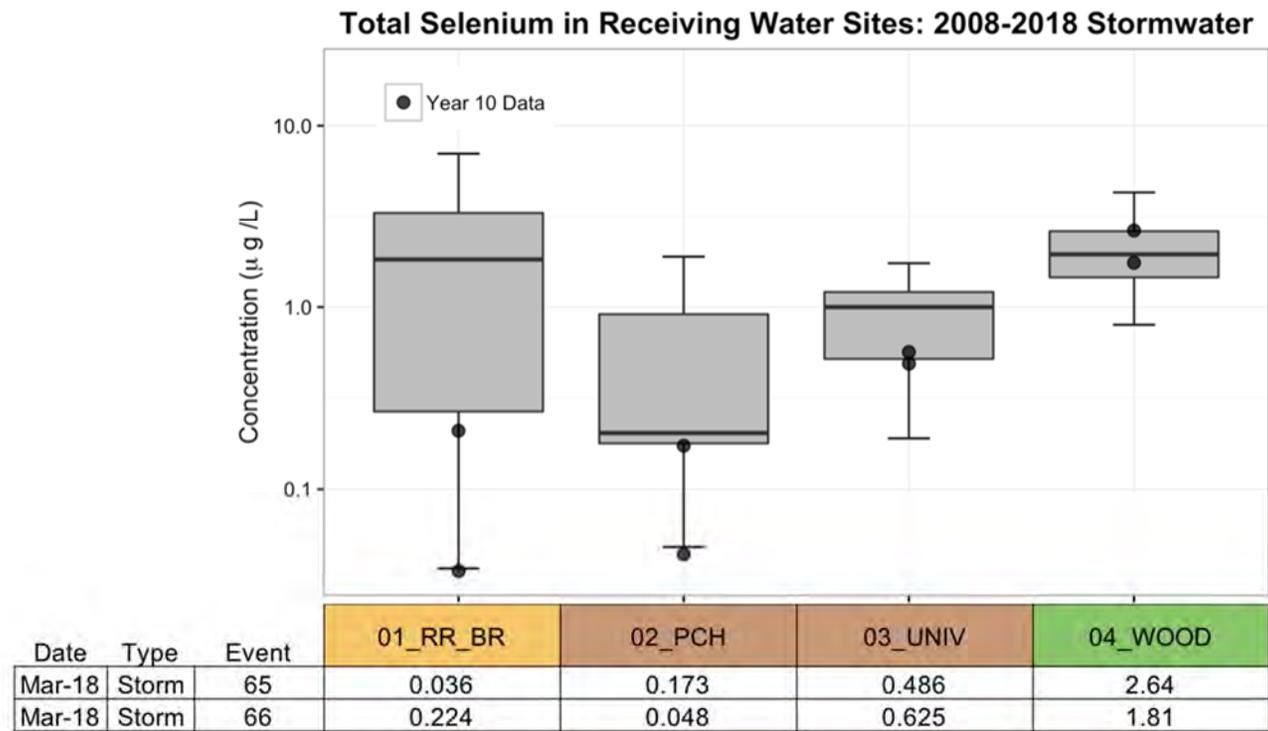


Figure 40. Total Selenium Stormwater Concentration in Receiving Water Sites: 2008-2018

Total Selenium in Water from Urban, Ag, & POTW Sites: 2008-2018 Dry Weather

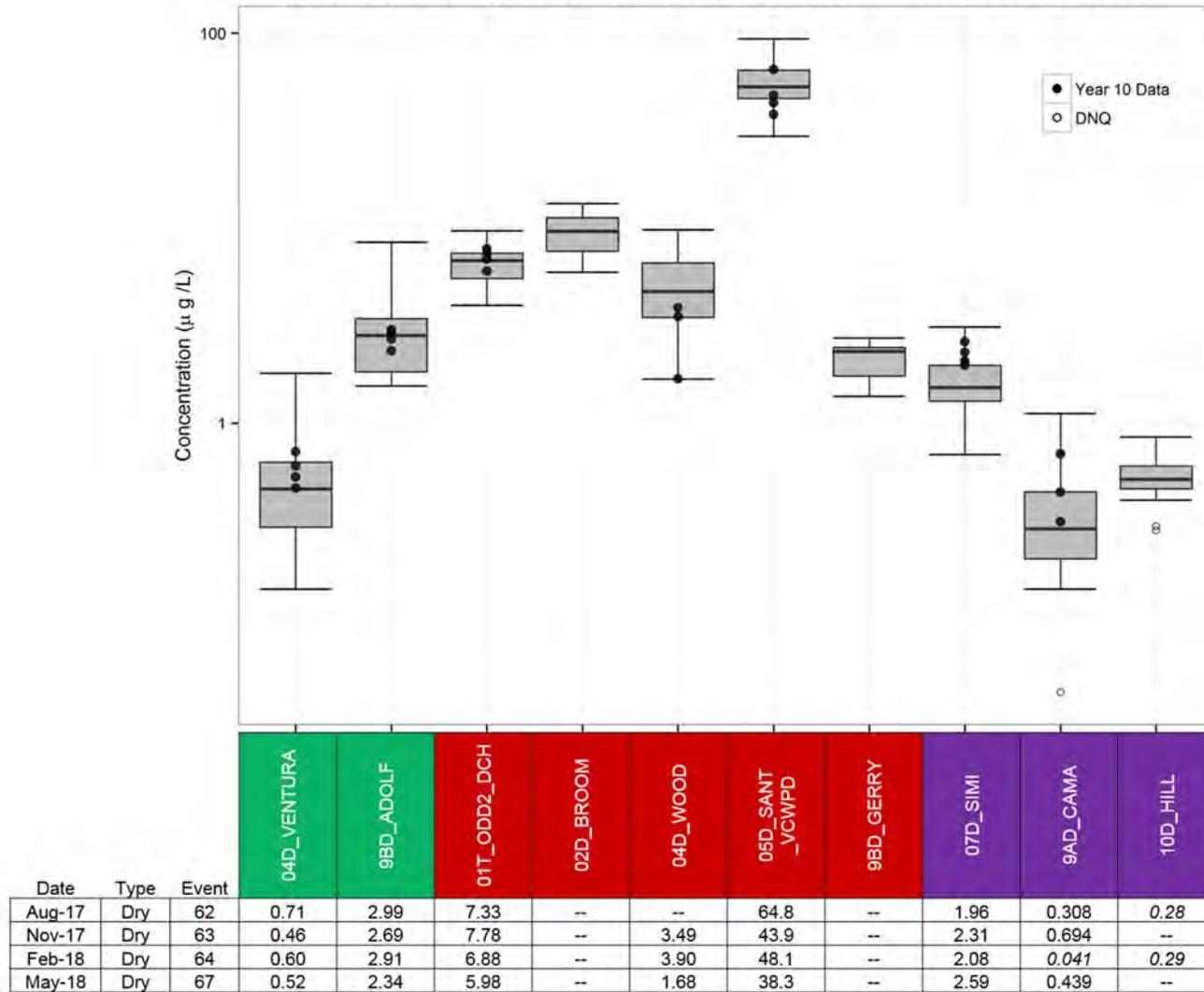


Figure 41. Total Selenium Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018

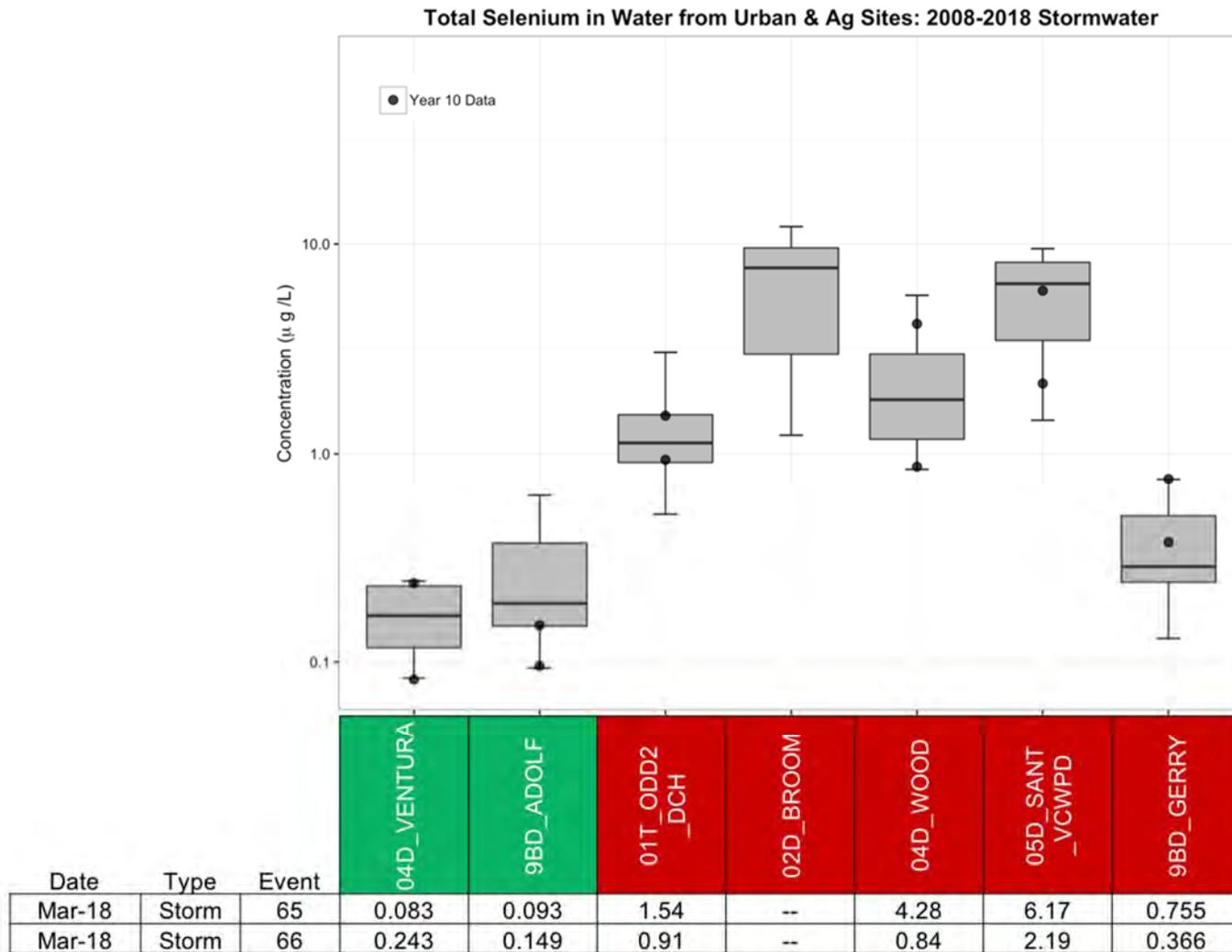


Figure 42. Total Selenium Stormwater Concentrations in Urban and Ag Sites: 2008-2018

Dissolved Zinc in Receiving Water Sites: 2008-2018

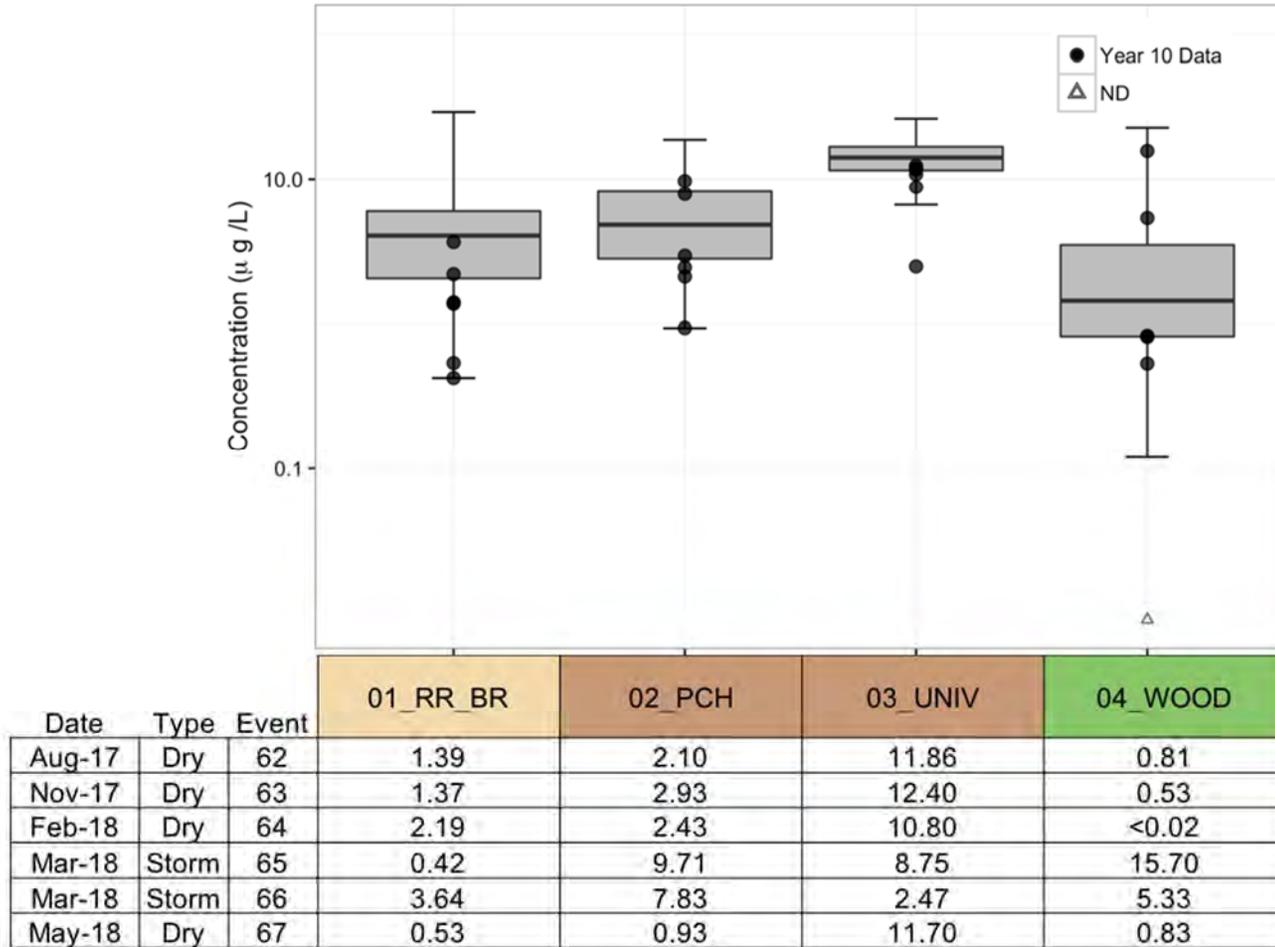


Figure 43. Dissolved Zinc Concentrations in Receiving Water Sites: 2008-2018

Dissolved Zinc in Water from Urban, Ag, & POTW Sites: 2008-2018

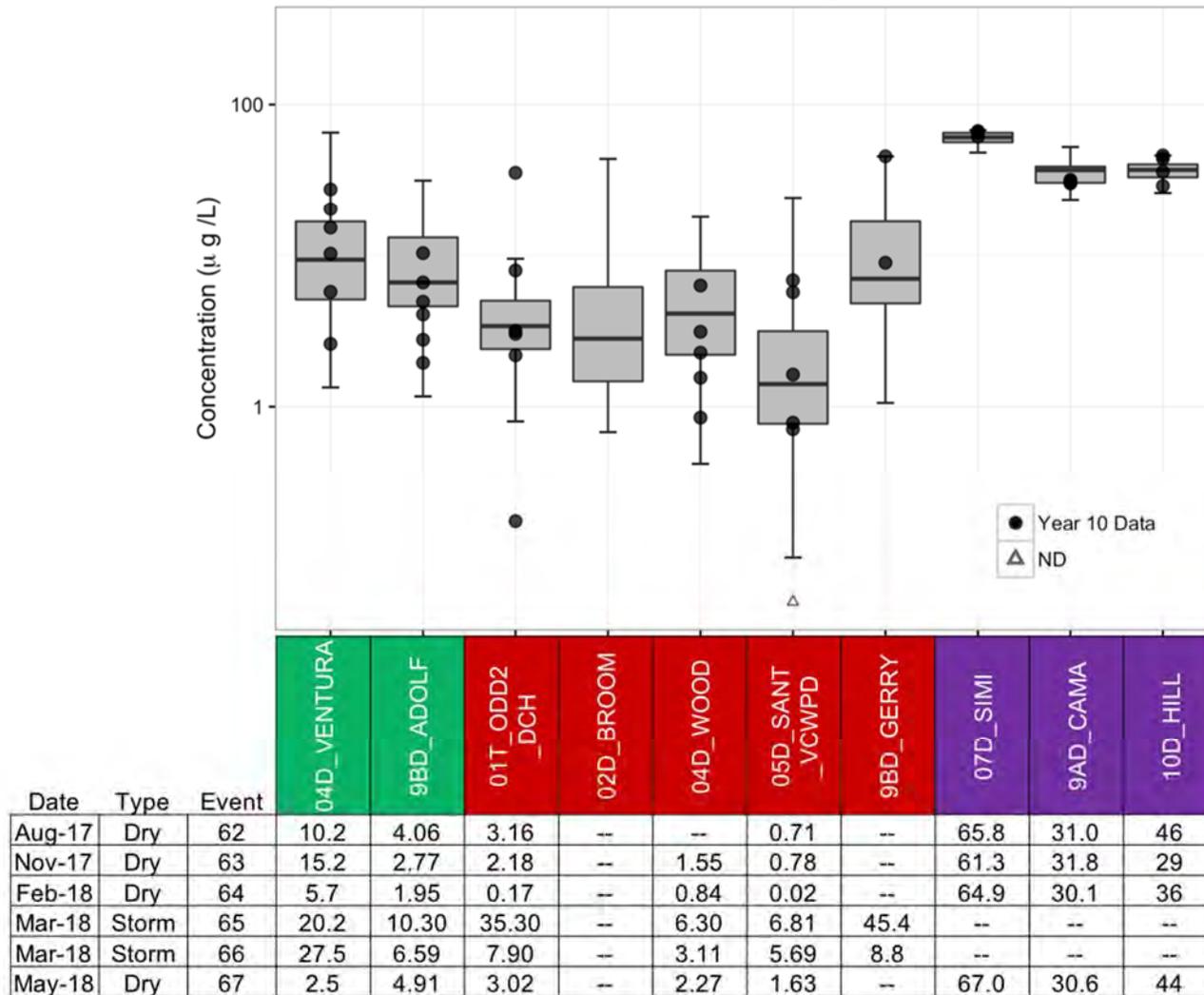


Figure 44. Dissolved Zinc Concentrations in Urban, Ag, and POTW Sites: 2008-2018

TOXICITY TMDL

For the Toxicity TMDL, urban dischargers' and POTWs' final wasteload allocations are effective. For agricultural dischargers, interim load allocations were in effect until March 24, 2017, at which point final allocations became effective. The compliance points for these allocations are in the receiving waters at the base of the subwatersheds and are shown on the box plots for the appropriate site locations. Data for chlorpyrifos and diazinon have been separated into dry weather and stormwater since the allocations differ for the two conditions. Data collected during year ten, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2018). This was done to allow for easy comparison between recent data and what have been collected overall. The tenth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent. Italicized values in the tables within each figure indicate the concentration was DNQ. Values in the tables within each figure with a "<" preceding them, indicate the constituent was ND at the MDL for that constituent. Values identified as "--" in the tables indicate no samples were collected at those sites for those events.

Chlorpyrifos in Receiving Water Sites: 2008-2018 Dry Weather

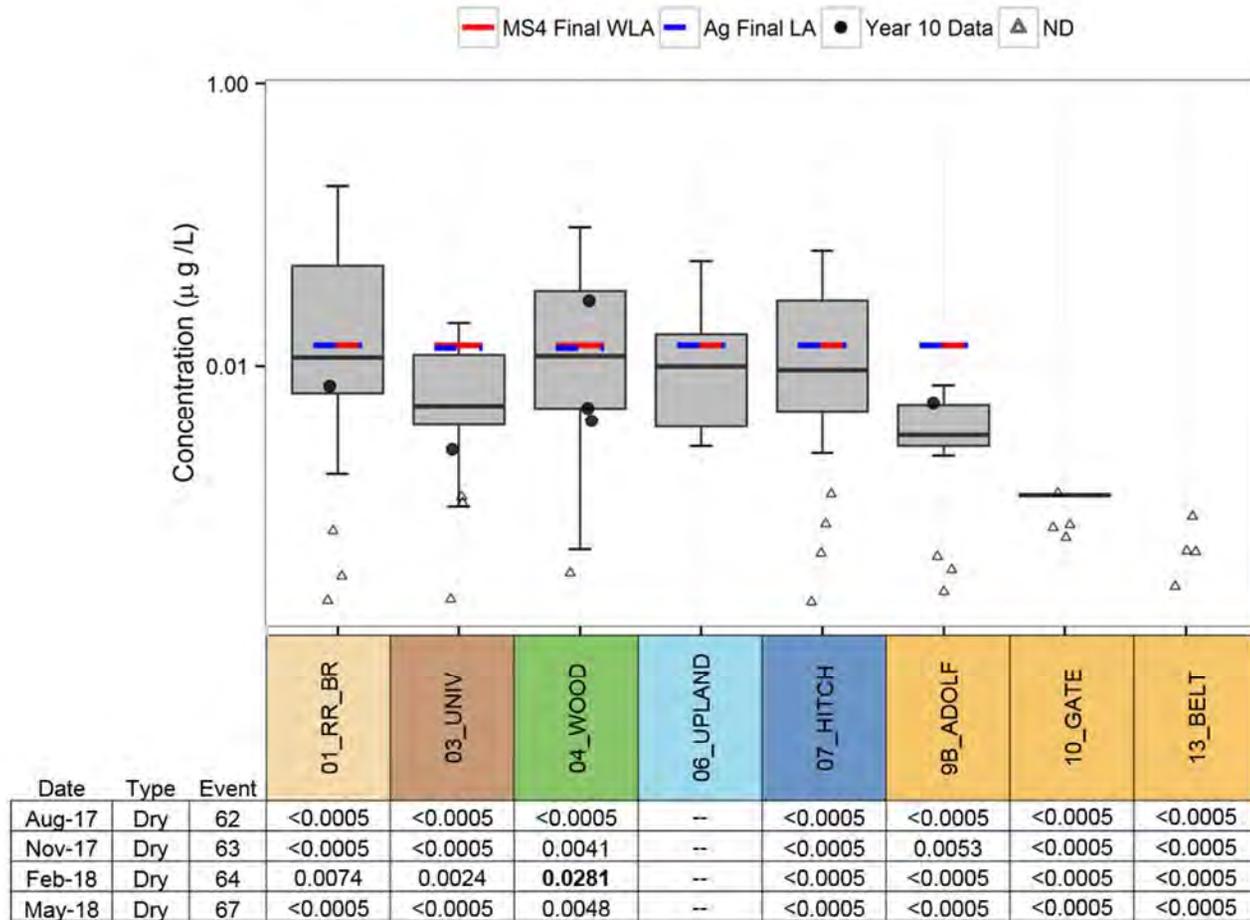


Figure 45. Chlorpyrifos Dry Weather Concentrations in Receiving Water Sites: 2008-2018

Chlorpyrifos in Receiving Water Sites: 2008-2018 Stormwater

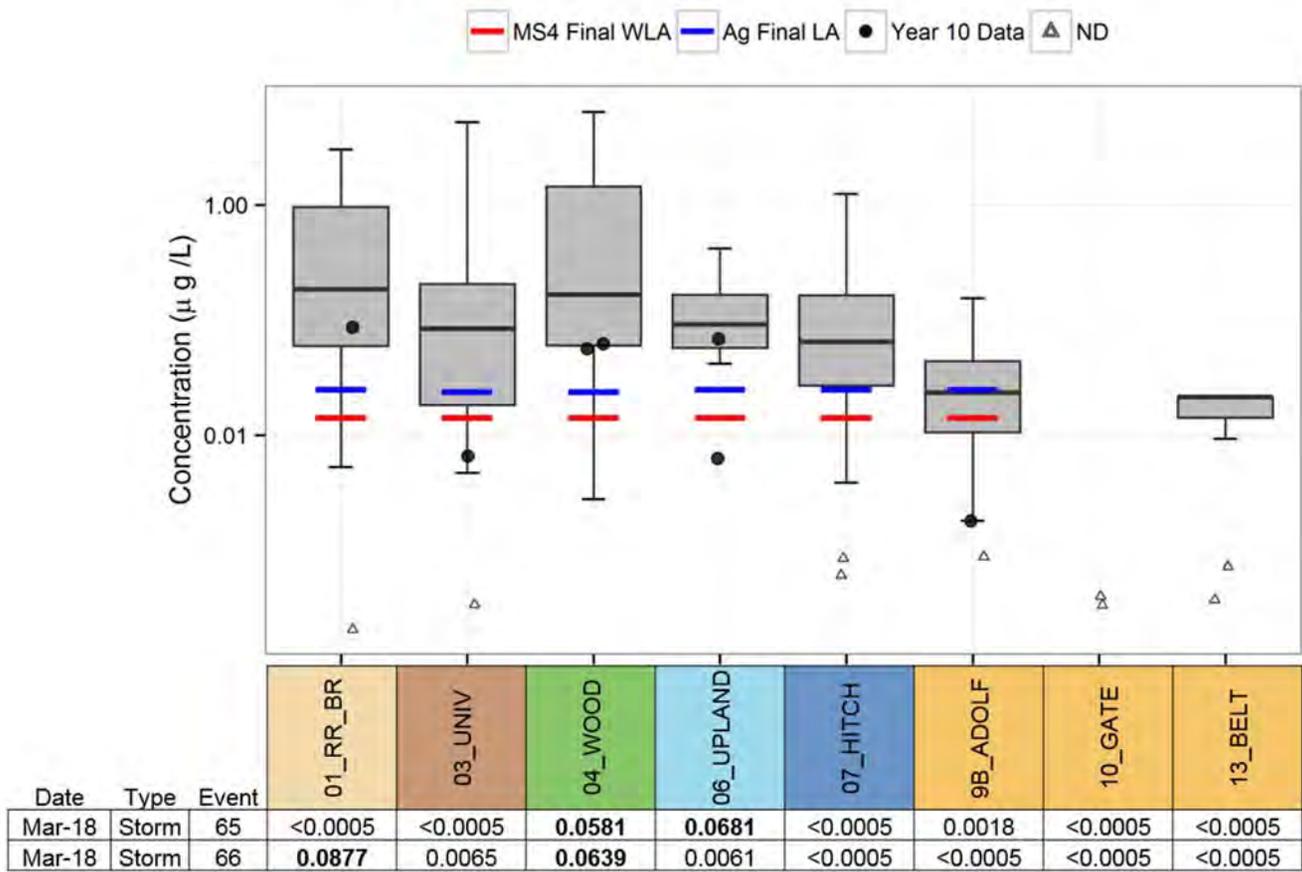


Figure 46. Chlorpyrifos Stormwater Concentrations in Receiving Water Sites: 2008-2018

Chlorpyrifos in Water from Urban, Ag, & POTW Sites: 2008-2018 Dry Weather

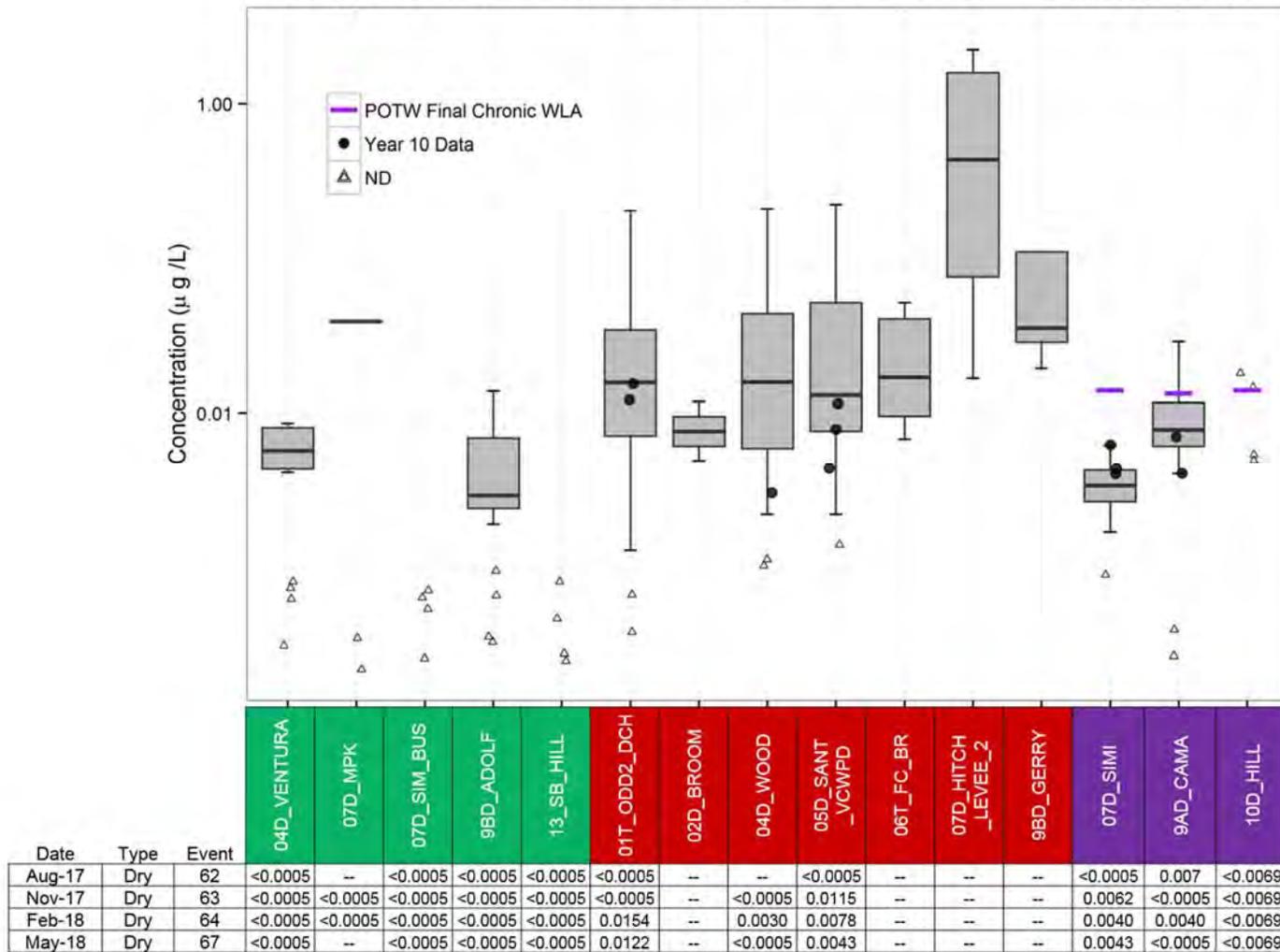


Figure 47. Chlorpyrifos Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Chlorpyrifos in Water from Urban and Ag Sites: 2008-2018 Stormwater

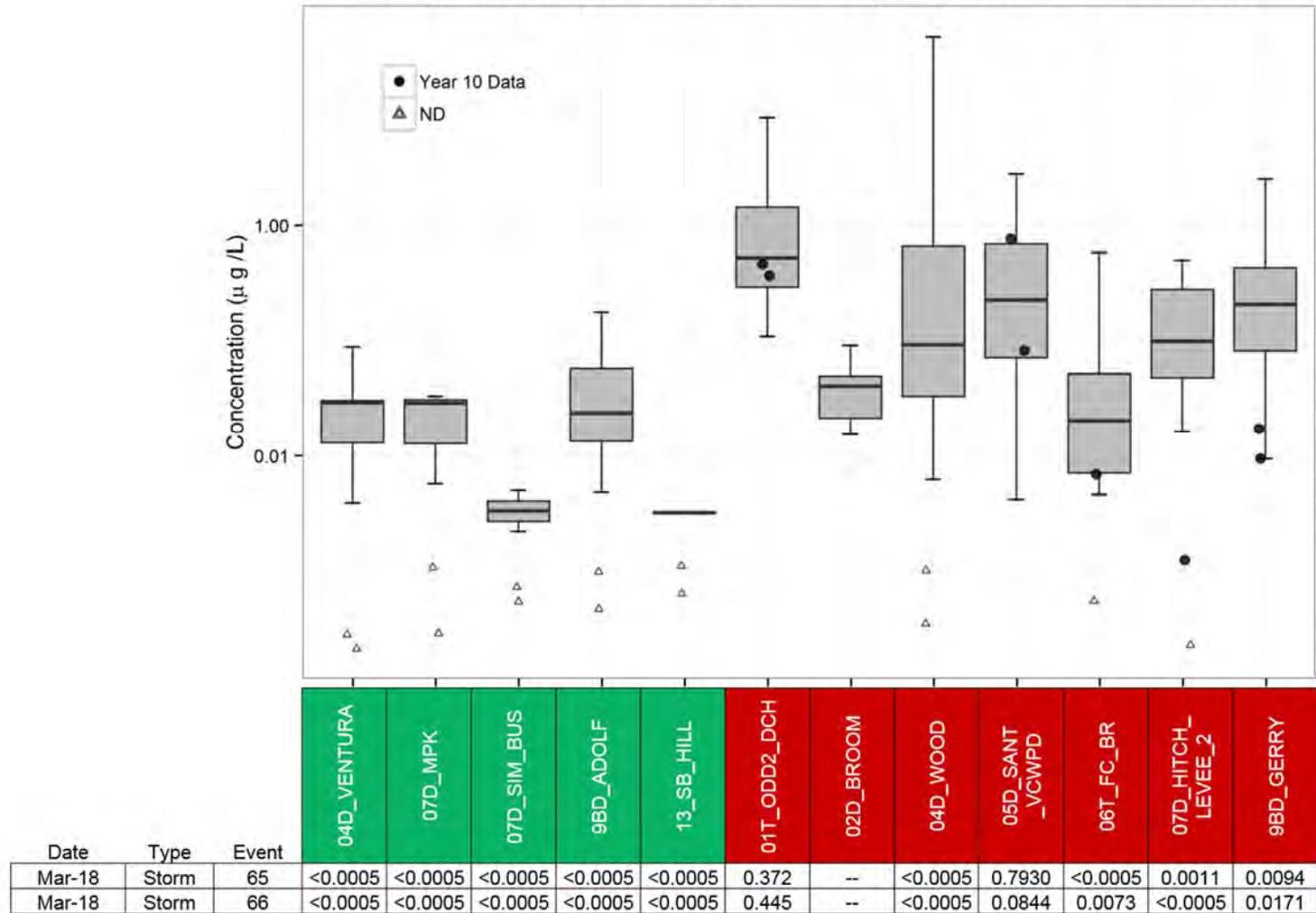


Figure 48. Chlorpyrifos Stormwater Concentrations in Urban and Ag Sites: 2008-2018

Diazinon in Receiving Water Sites: 2008-2018 Dry Weather

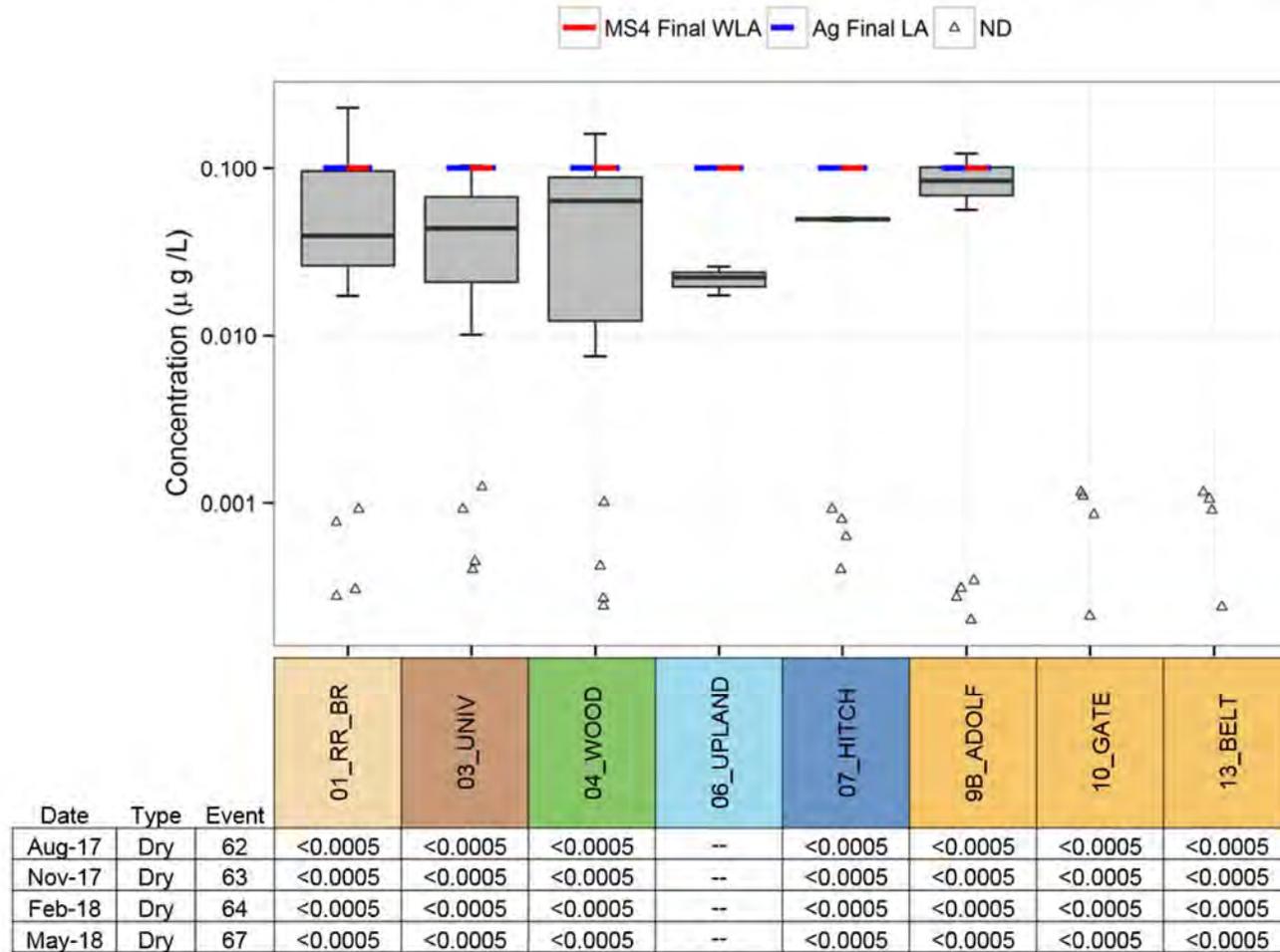


Figure 49. Diazinon Dry Weather Concentrations in Receiving Water Sites: 2008-2018

Diazinon in Receiving Water Sites: 2008-2018 Stormwater

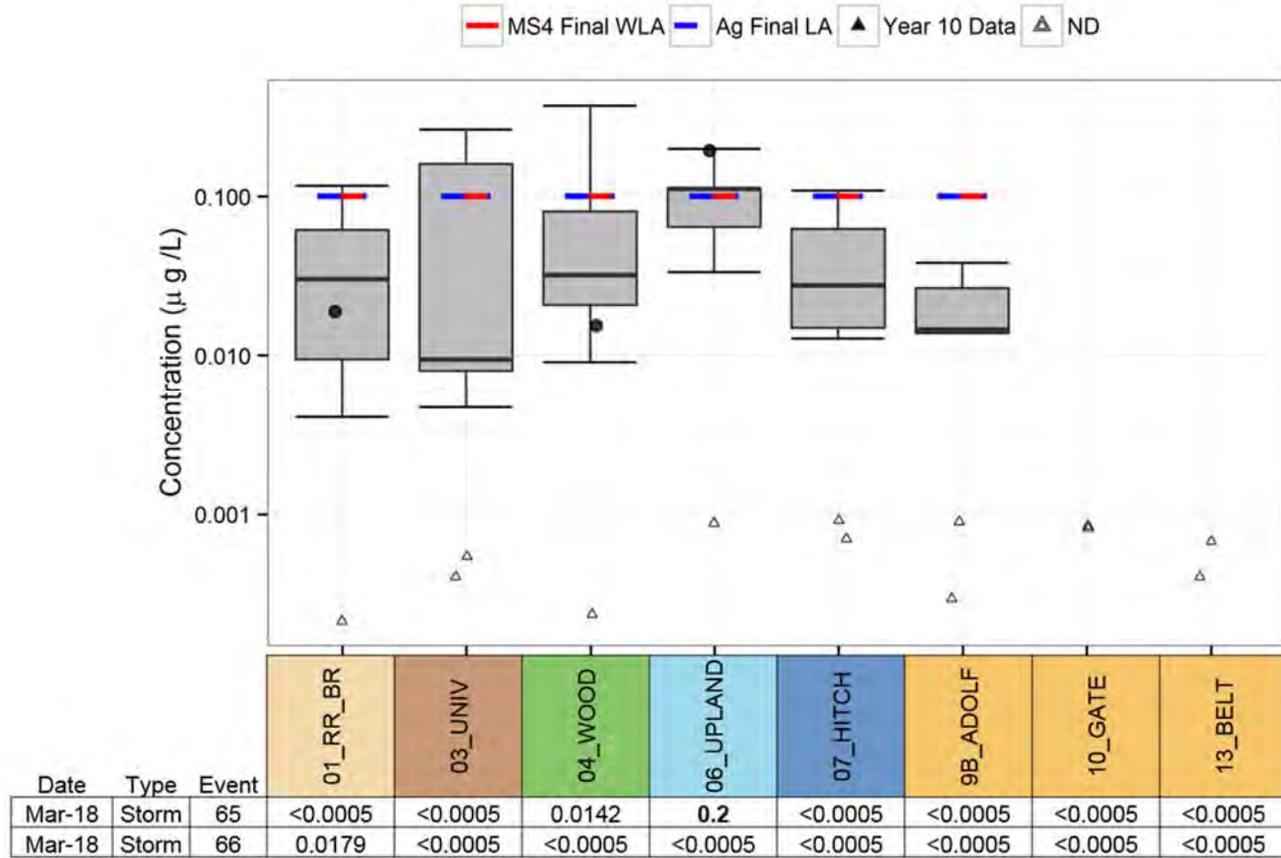


Figure 50. Diazinon Stormwater Concentrations in Receiving Water Sites: 2008-2018

Diazinon in Water from Urban, Ag, & POTW Sites: 2008-2018 Dry Weather

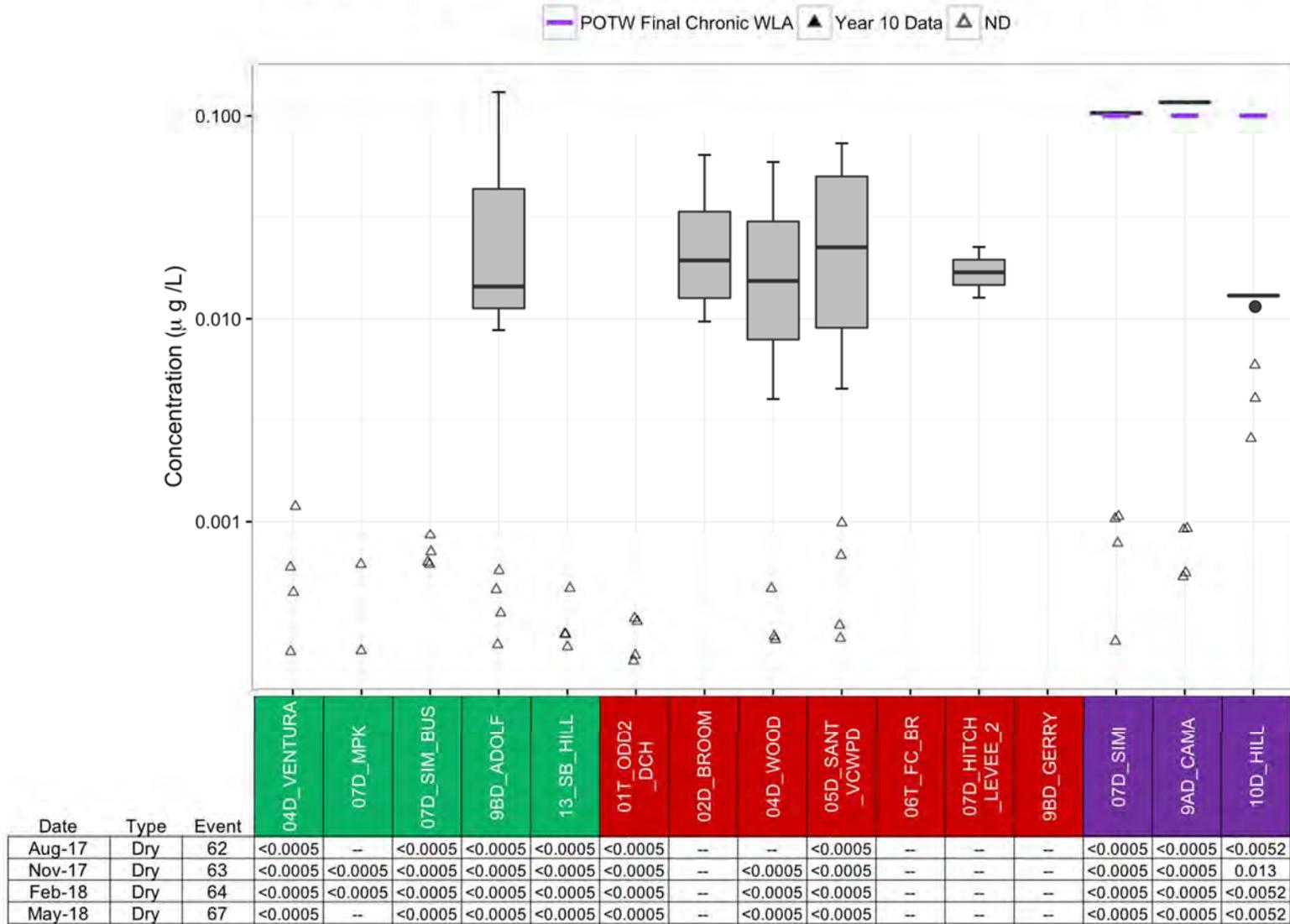


Figure 51. Diazinon Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2018

Diazinon in Water from Urban and Ag Sites: 2008-2018 Stormwater

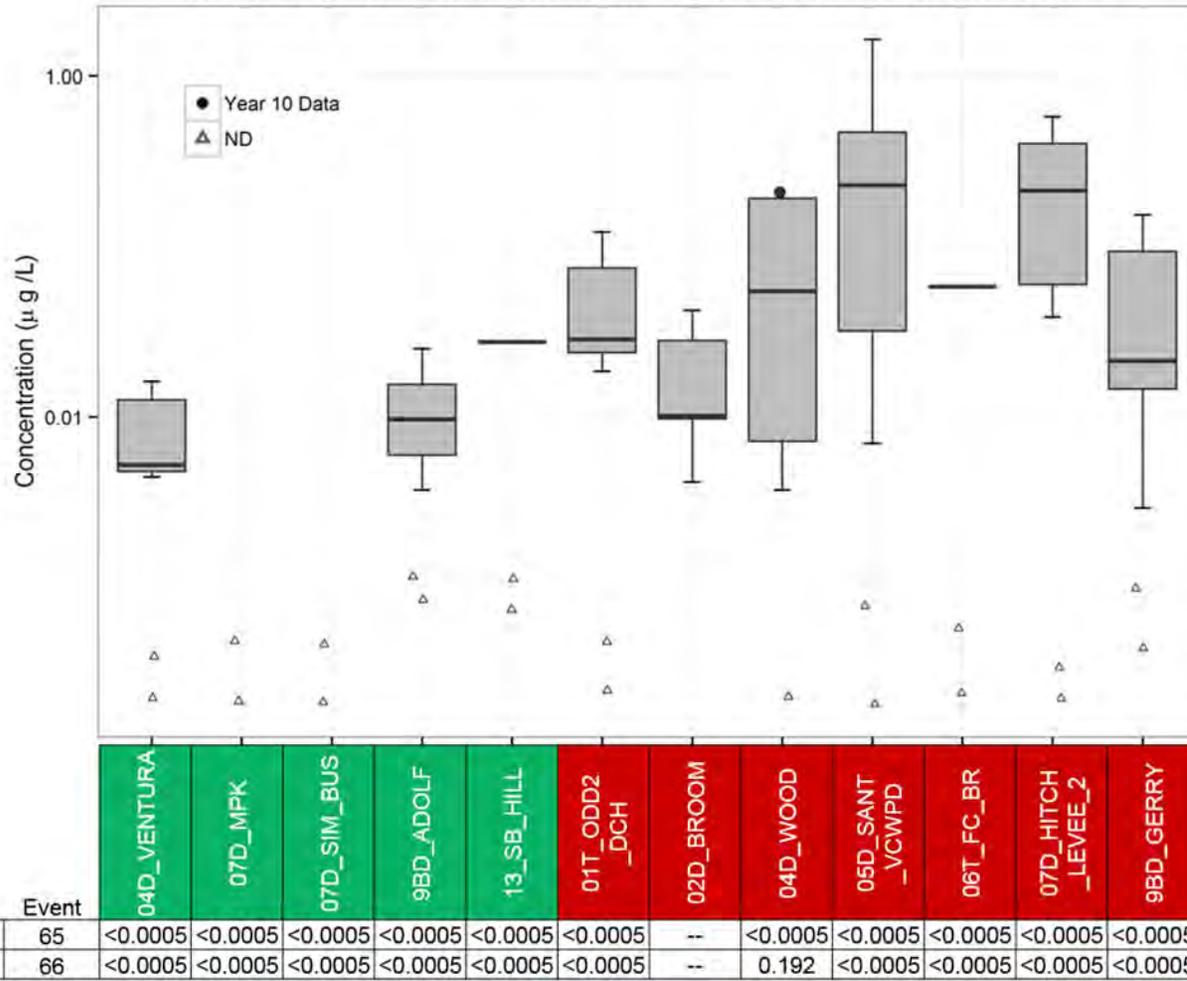


Figure 52. Diazinon Stormwater Concentrations in Urban and Ag Sites: 2008-2018

NUTRIENTS TMDL

Final targets and allocations are effective for the Nutrients TMDL. The applicable targets for each monitoring site are presented in the figures below. Data collected during year ten, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2018). This was done to allow for easy comparison between recent data and what have been collected overall. The tenth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent. Italicized values in the tables within each figure indicate the concentration was DNQ. Values in the tables within each figure with a “<” preceding them, indicate the constituent was ND at the MDL for that constituent. Values identified as “--” in the tables indicate no samples were collected at those sites for those events.

Ammonia-N in Receiving Water Sites: 2008-2018

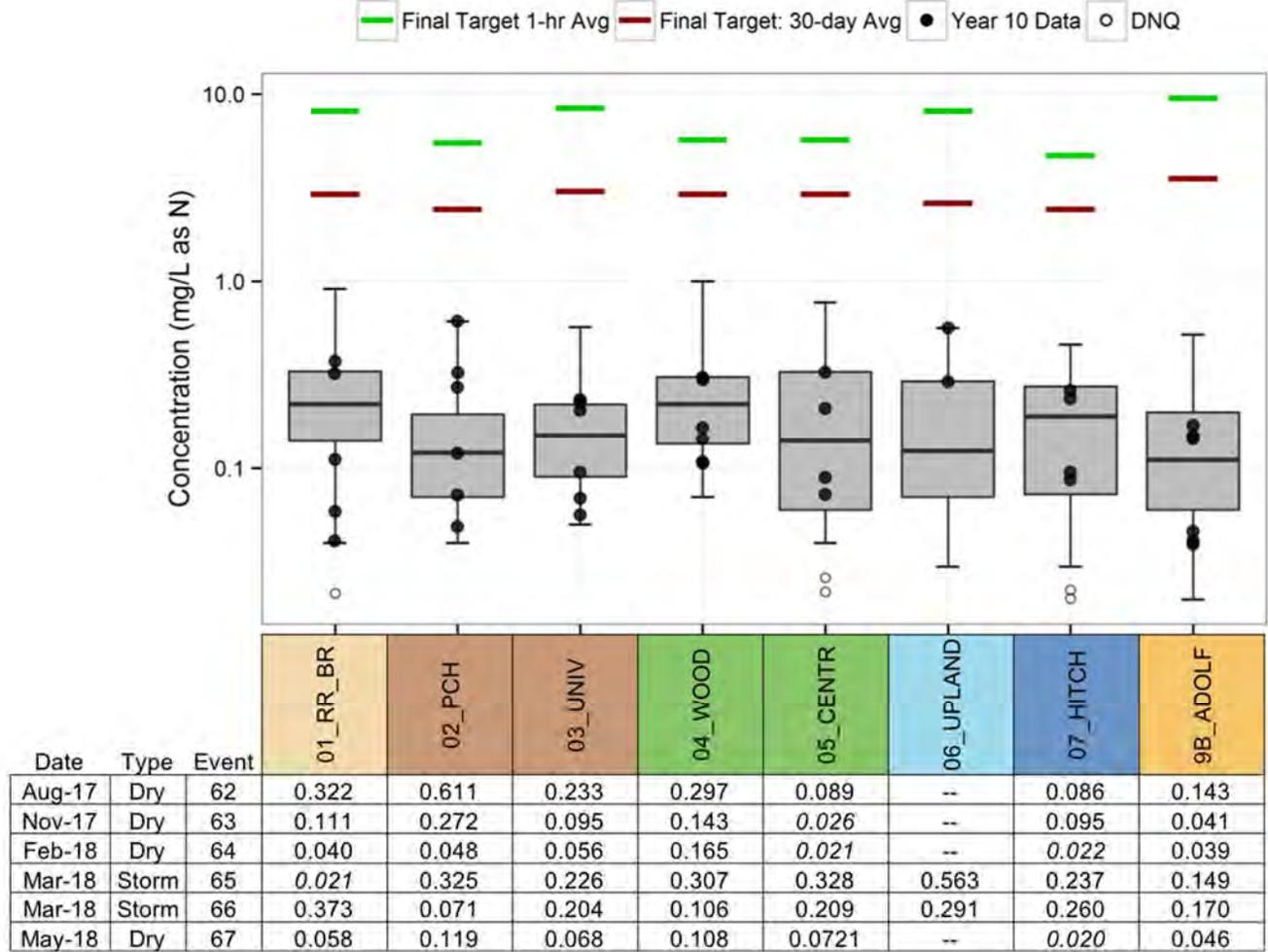


Figure 53. Ammonia-N Concentrations in Receiving Water Sites: 2008-2018

Ammonia-N in Water from Ag & POTW Sites: 2008-2018

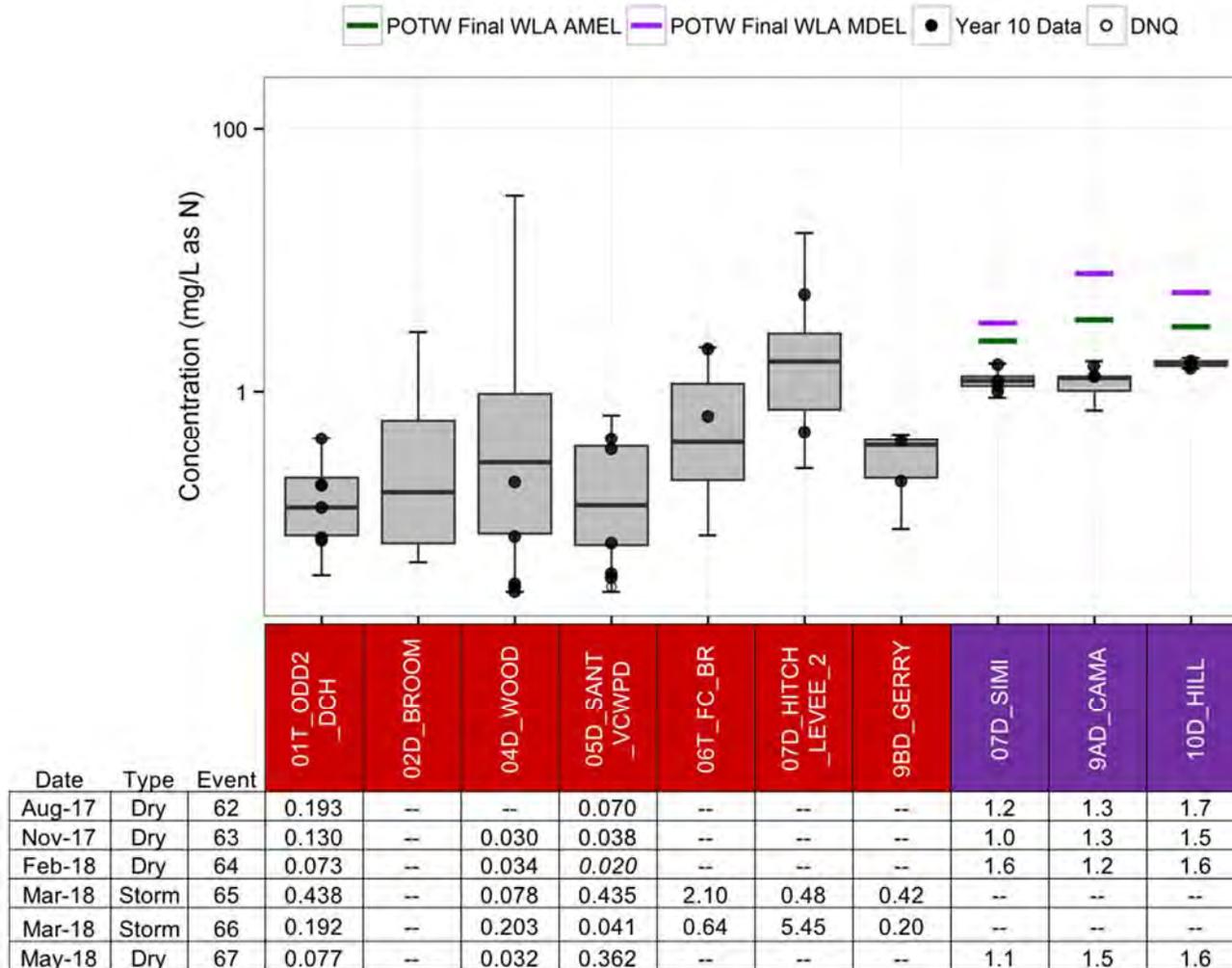


Figure 54. Ammonia-N Concentrations in Ag and POTW Sites: 2008-2018

Nitrate-N in Receiving Water Sites: 2008-2018

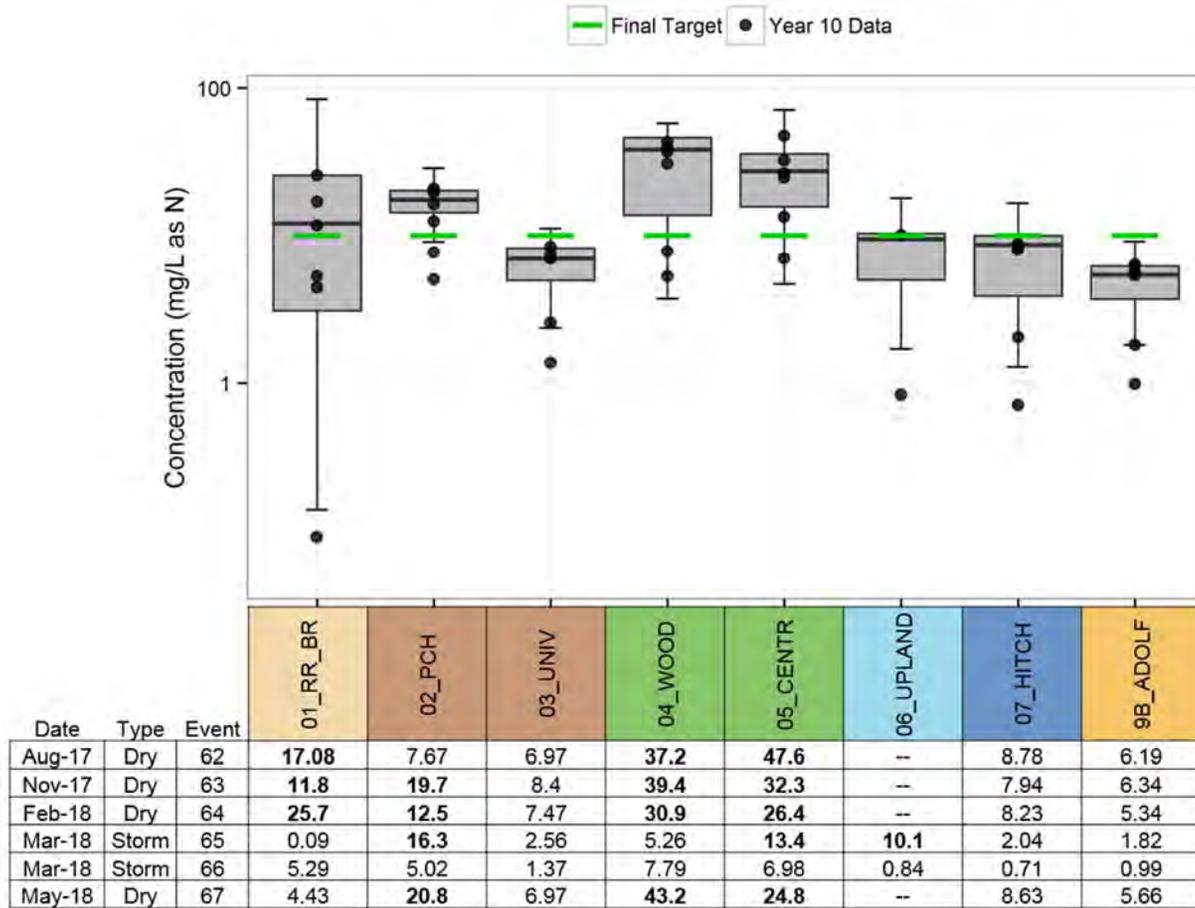


Figure 55. Nitrate-N Concentrations in Receiving Water Sites: 2008-2018

Nitrate-N in Water from Ag & POTW Sites: 2008-2018

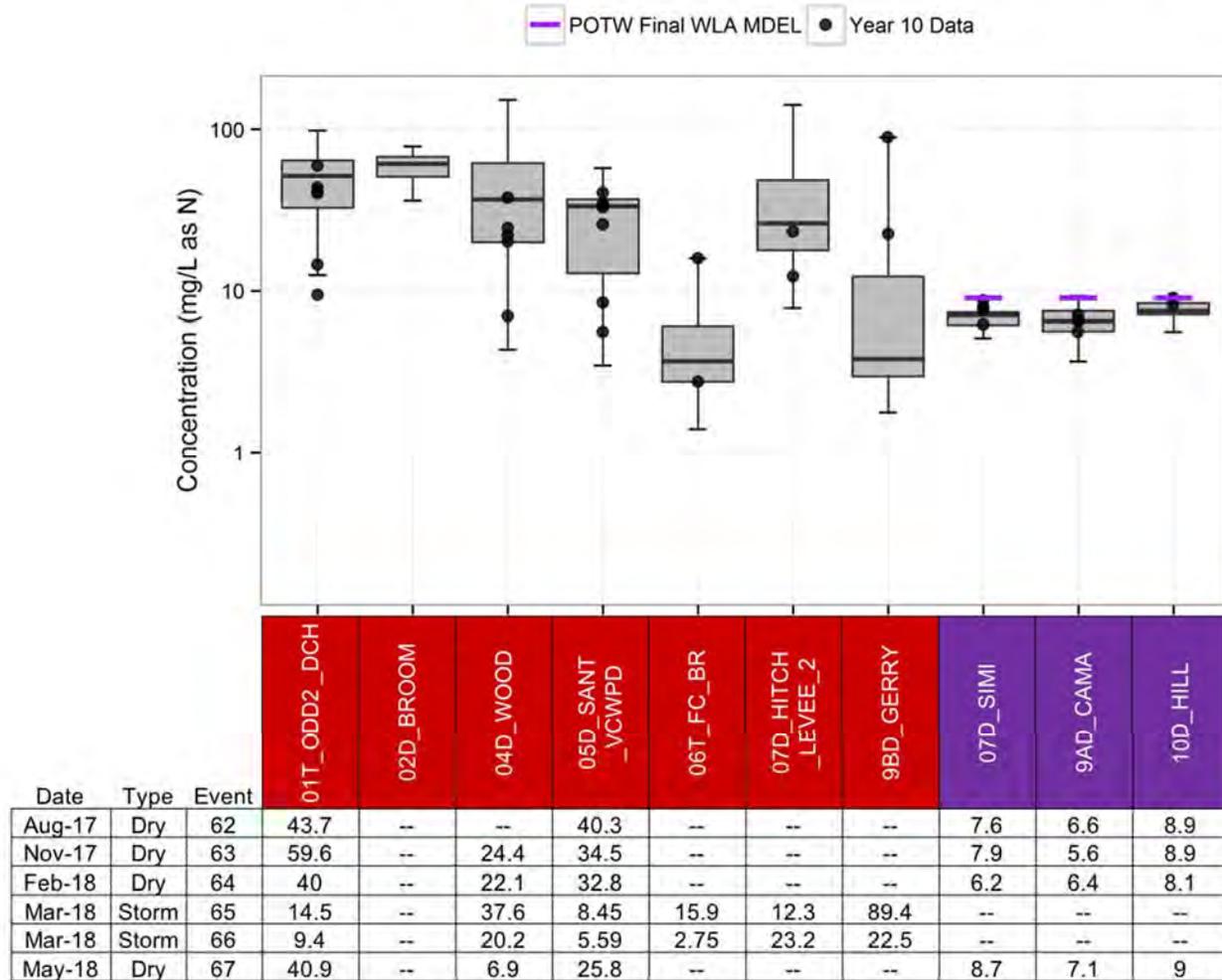


Figure 56. Nitrate-N Concentrations in Ag and POTW Sites: 2008-2018

Nitrite-N in Receiving Water Sites: 2008-2018

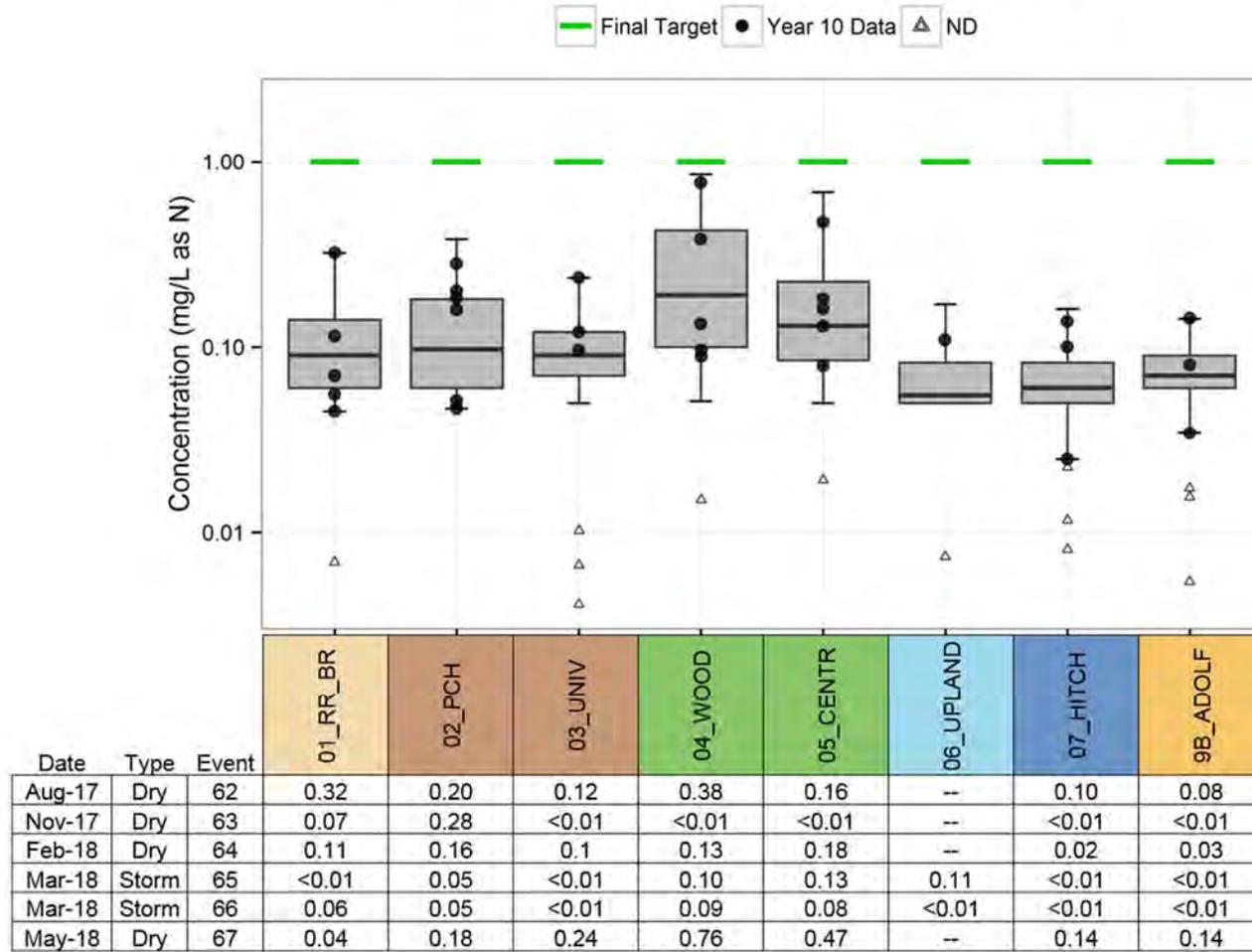


Figure 57. Nitrite-N Concentrations in Receiving Water Sites: 2008-2018

Nitrite-N in Water from Ag & POTW Sites: 2008-2018

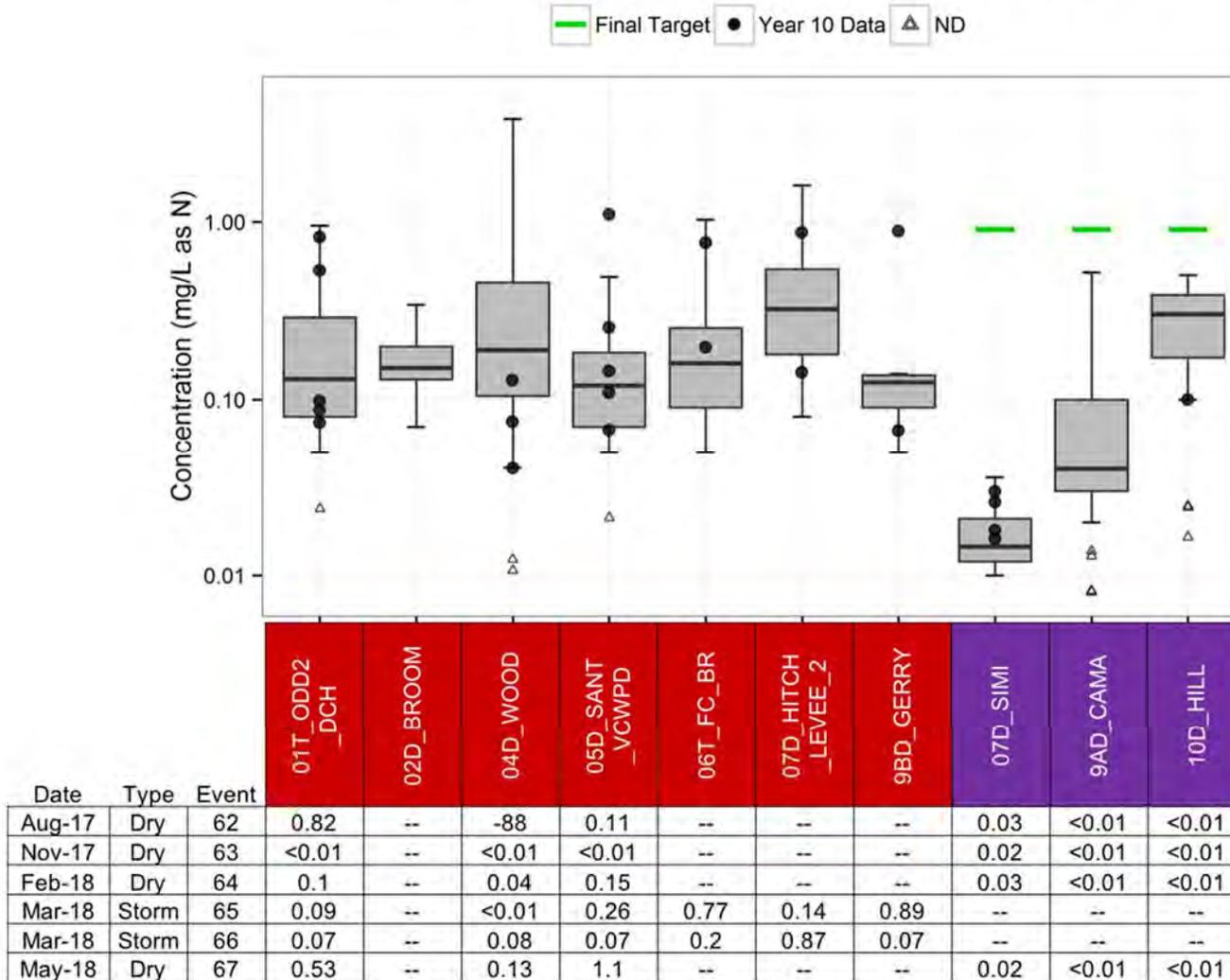


Figure 58. Nitrite-N Concentrations in Ag and POTW Sites: 2008-2018

Nitrate-N + Nitrite-N in Receiving Water Sites: 2008-2018

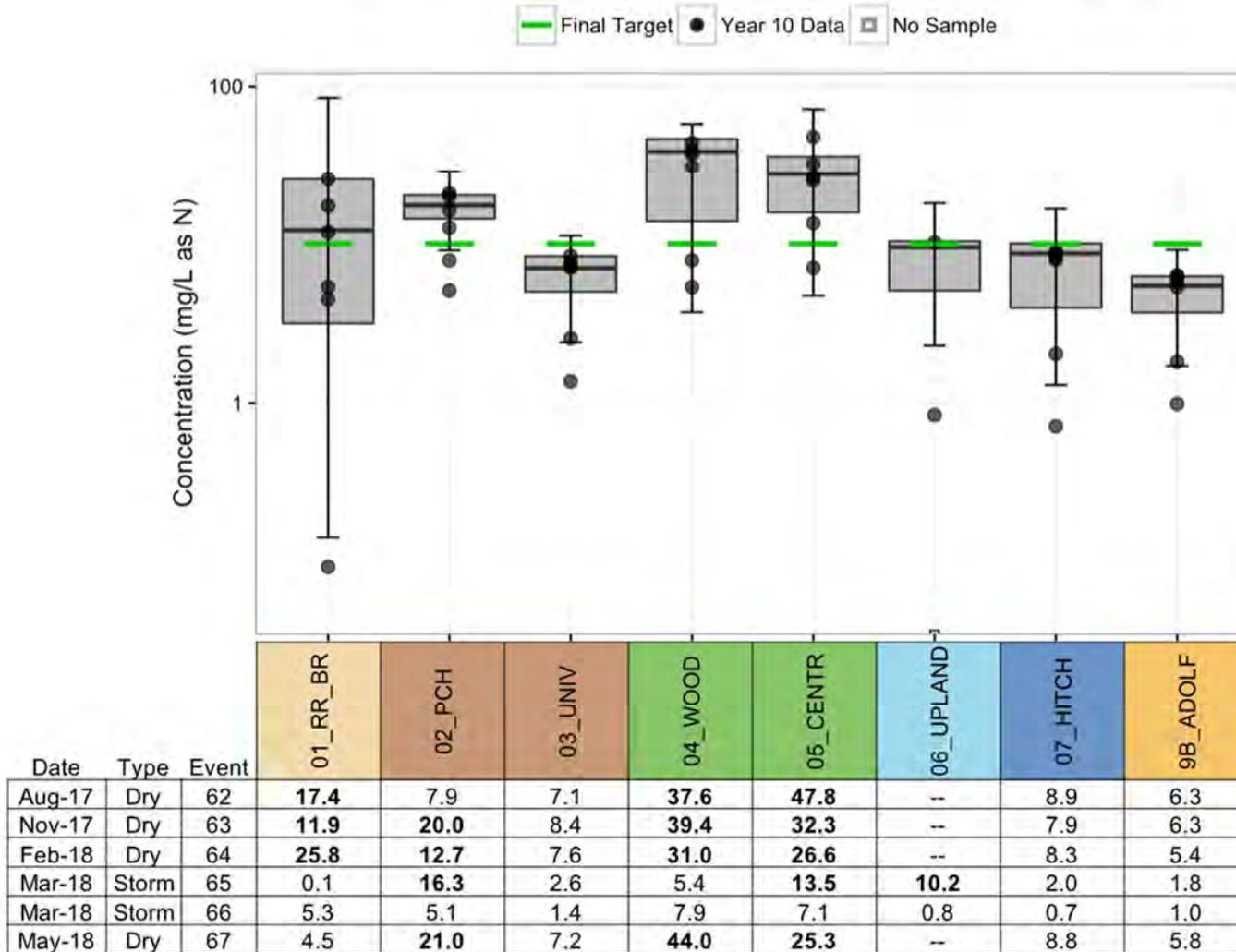


Figure 59. Nitrate-N + Nitrite-N Concentrations in Receiving Water Sites: 2008-2018

Nitrate-N + Nitrite-N in Water from Ag & POTW Sites: 2008-2018

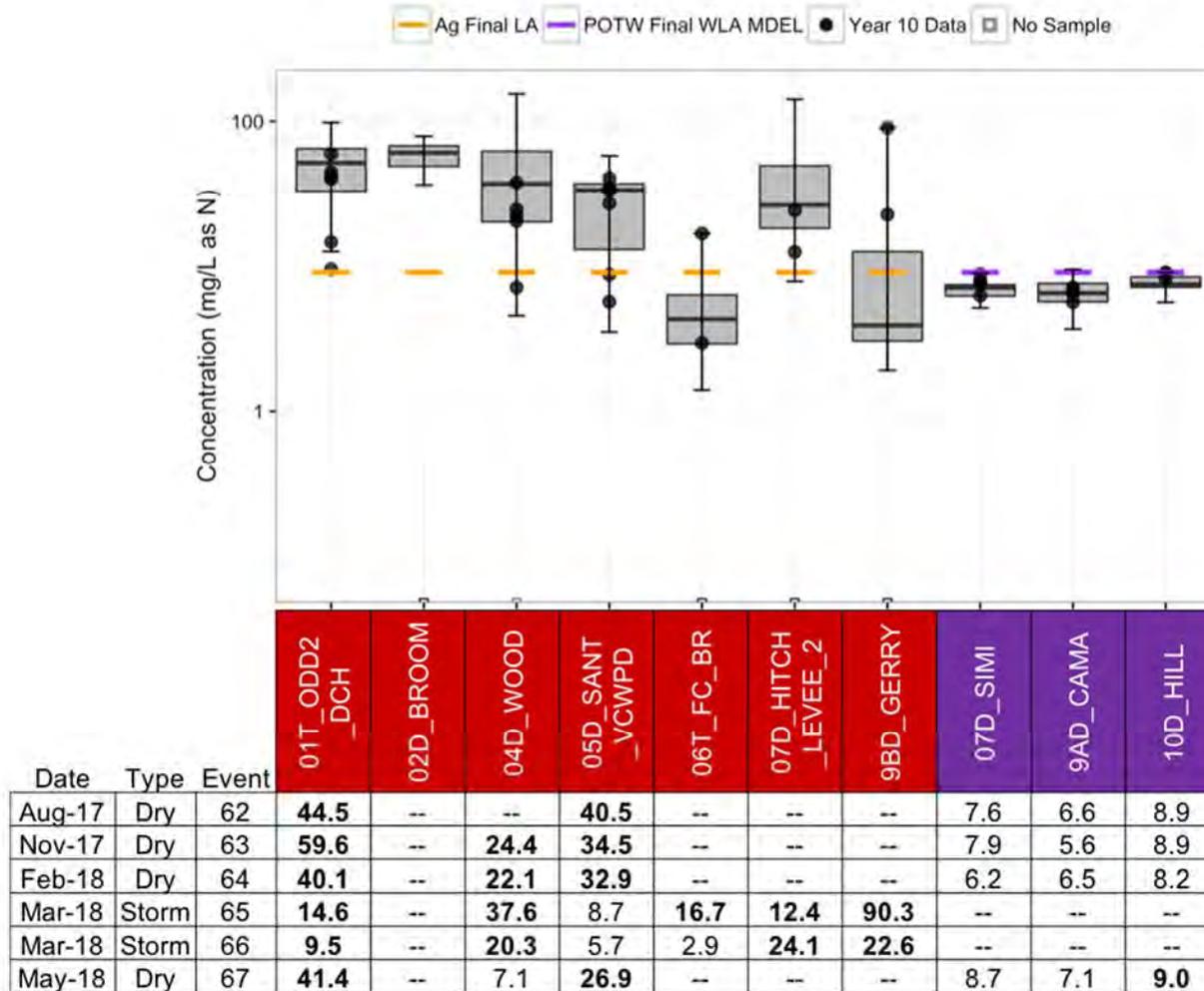


Figure 60. Nitrate-N + Nitrite-N Concentrations in Ag and POTW Sites: 2008-2018

SALTS TMDL

For the Salts TMDL, compliance with interim dry weather salt allocations is determined using monthly mean salt concentrations for dry weather developed from the time-series of data collected at receiving water sites. Bolded values in the tables within each figure indicate the concentration was above the interim MS4 wasteload allocation and the interim load allocation for that constituent. Italicized values in the tables within each figure indicate the concentration was above the interim MS4 wasteload allocation for that constituent.

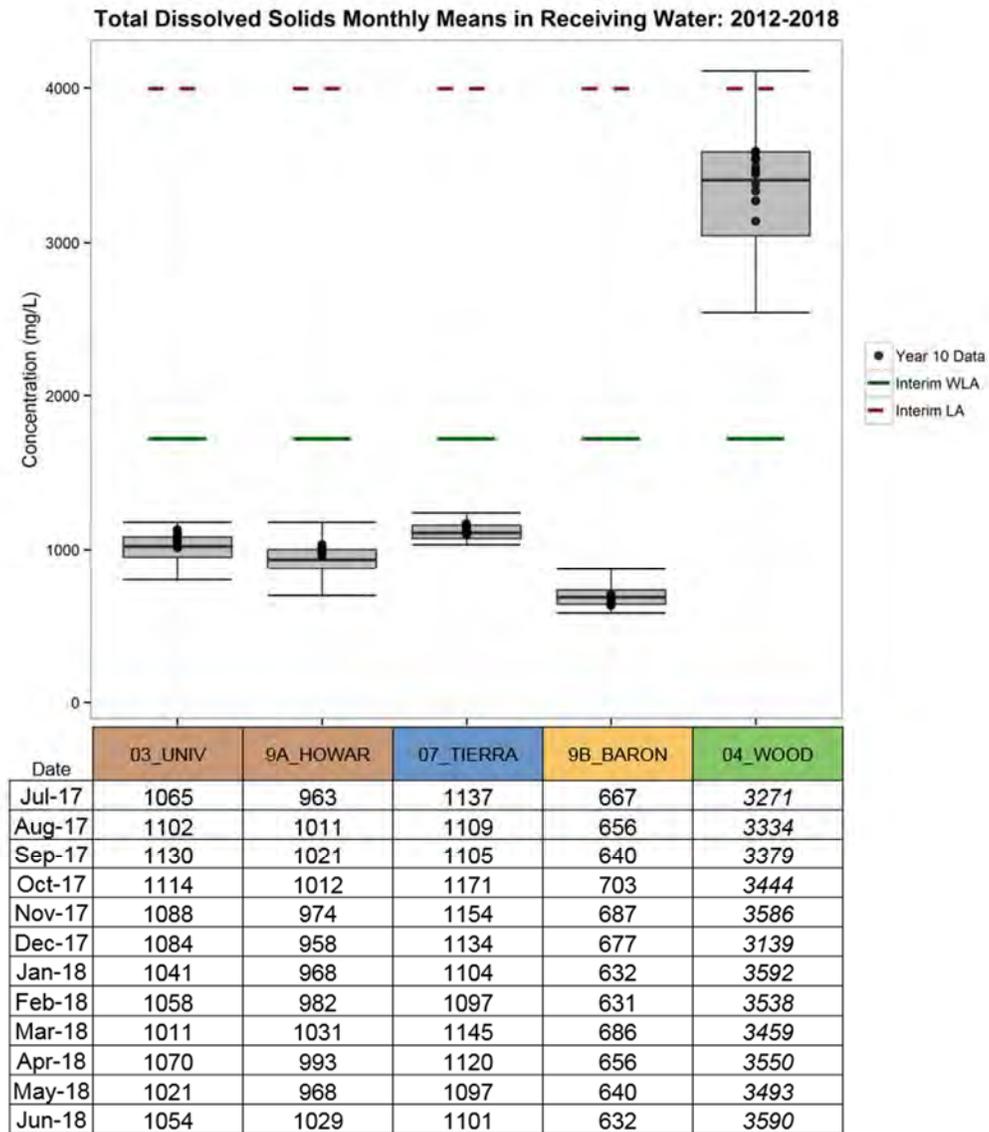


Figure 61. TDS Monthly Means for Receiving Water Sites Collected During Dry Weather

Chloride Monthly Means in Receiving Water: 2012-2018

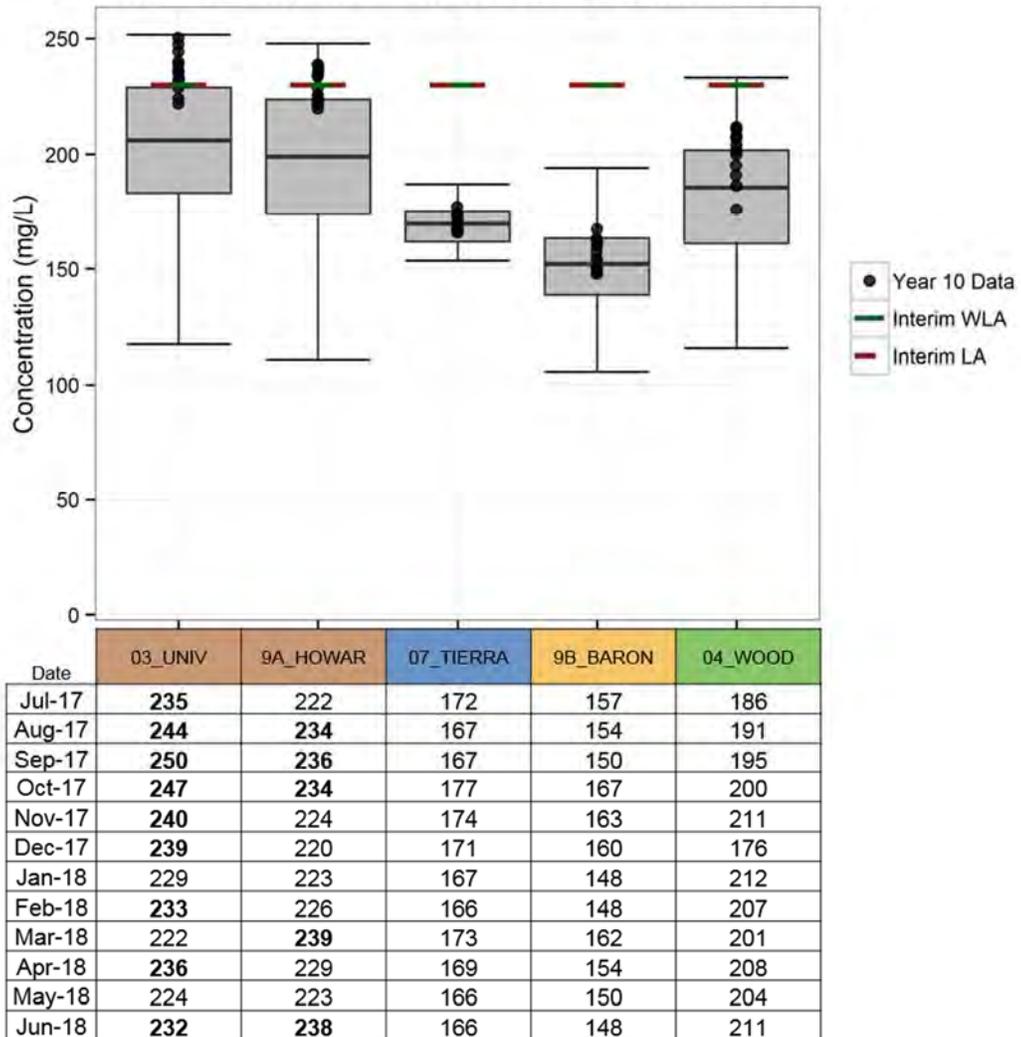


Figure 62. Chloride Monthly Means for Receiving Water Sites Collected During Dry Weather

Sulfate Monthly Means in Receiving Water: 2012-2018

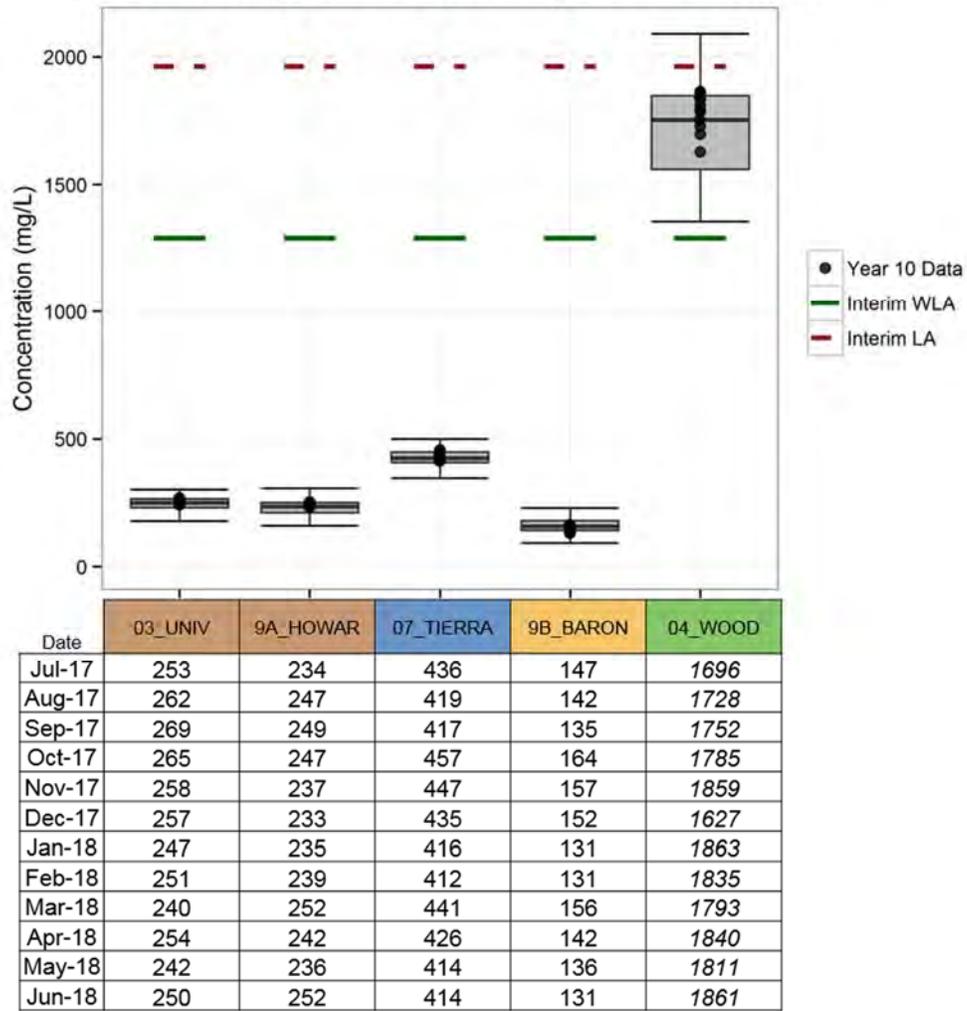


Figure 63. Sulfate Monthly Means for Receiving Water Sites Collected During Dry Weather

Boron Monthly Means in Receiving Water: 2012-2018

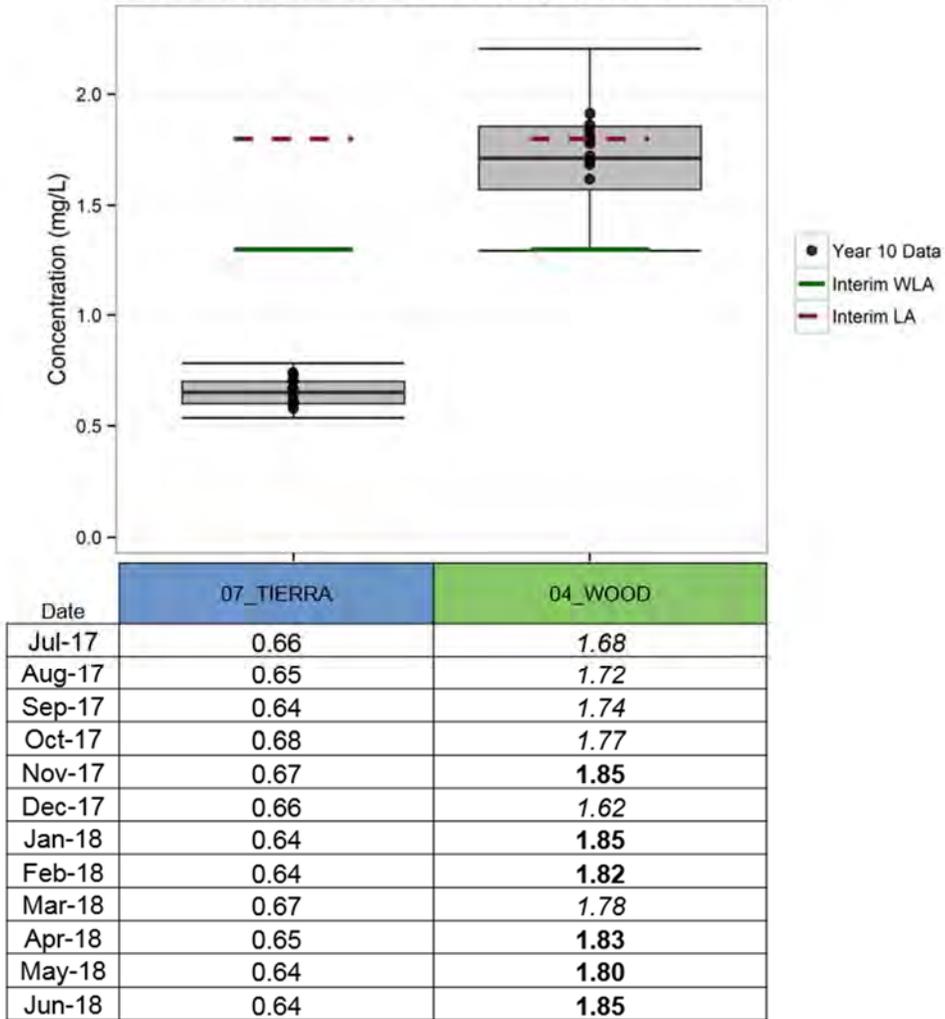


Figure 64. Boron Monthly Means for Receiving Water Sites Collected During Dry Weather

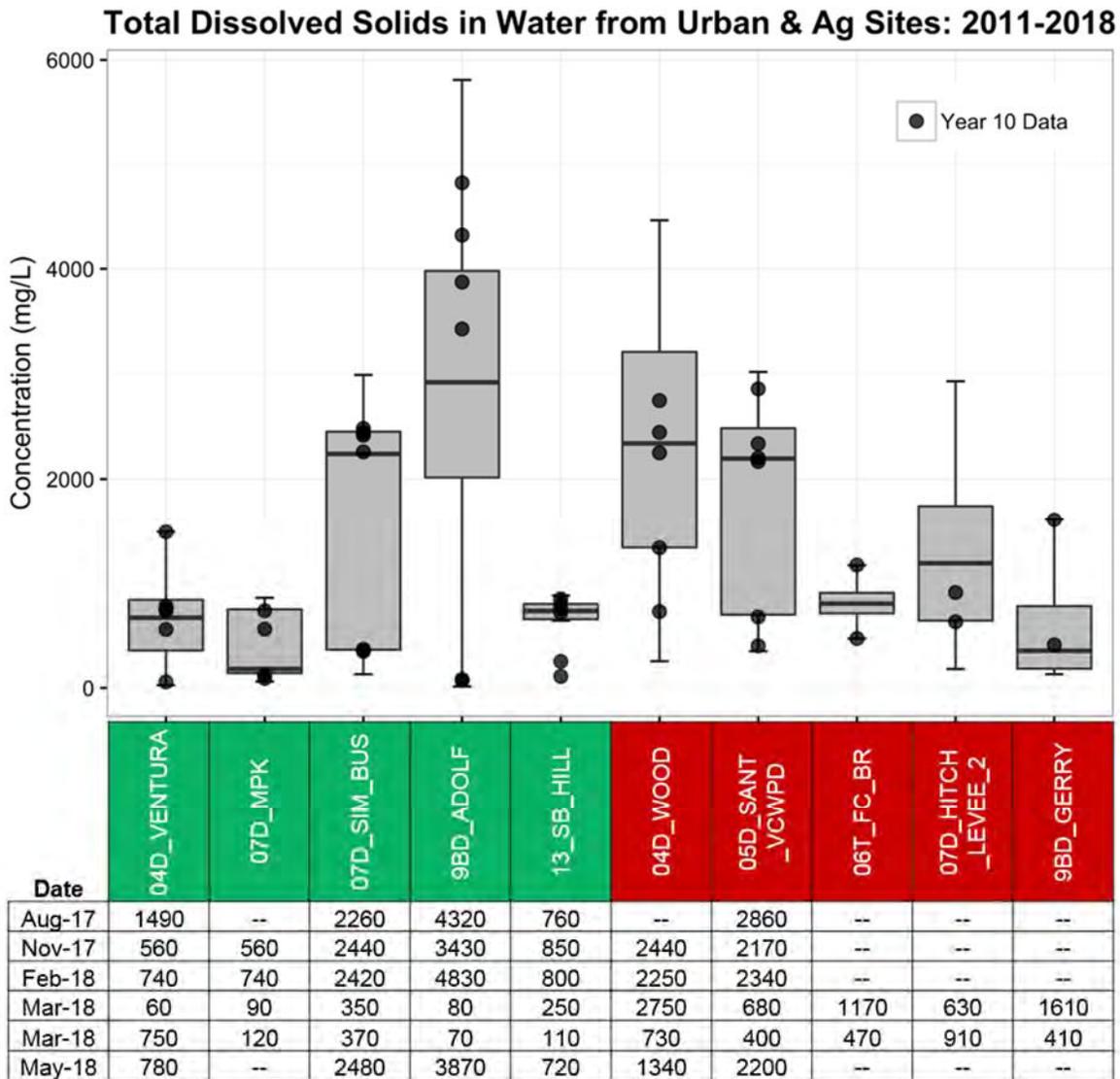


Figure 65. Total Dissolved Solids in Water from Urban and Ag Sites: 2011-2018

Chloride in Water from Urban & Ag Sites: 2011-2018

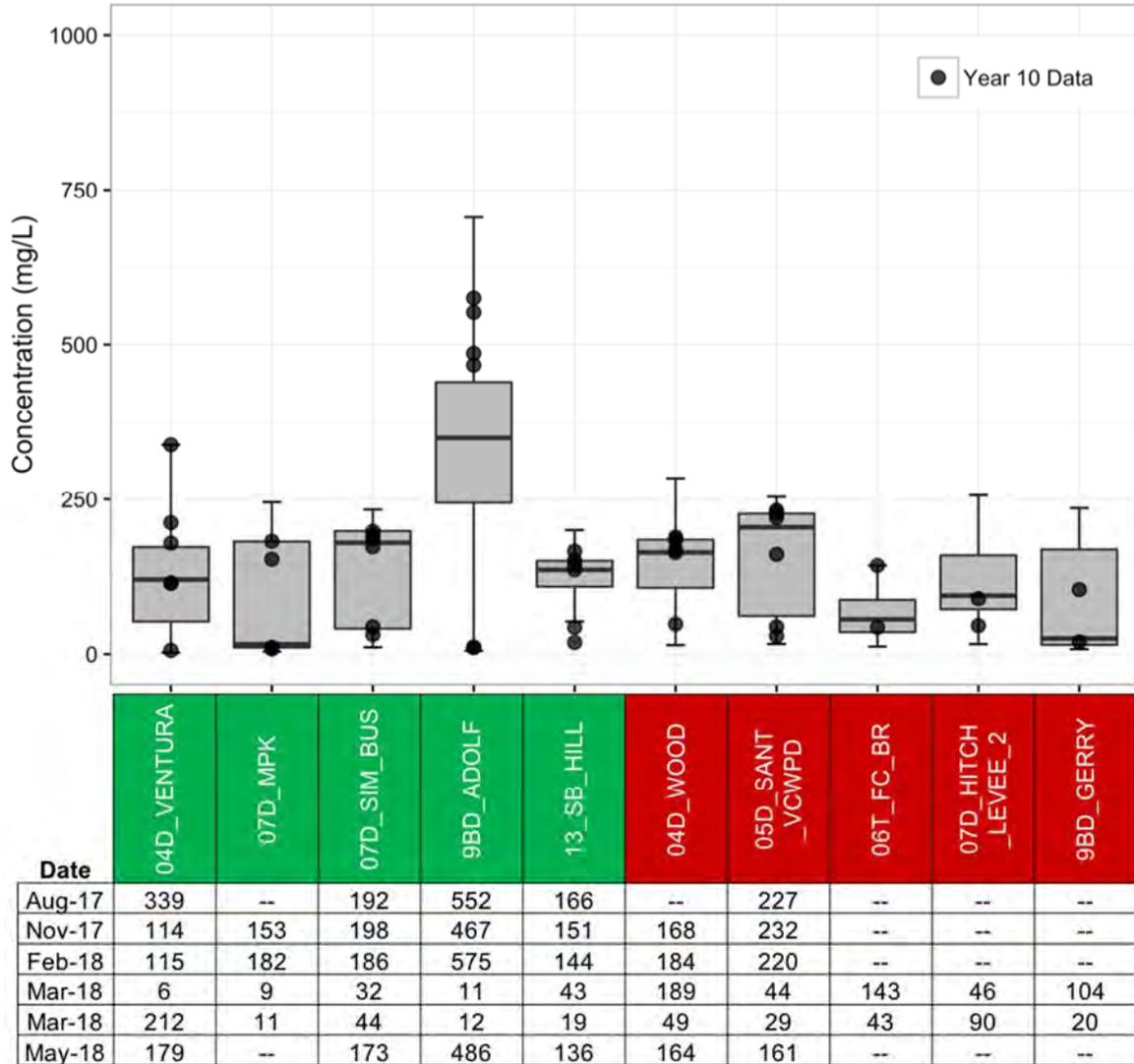


Figure 66. Chloride in Water from Urban & Ag Sites: 2011-2018

Sulfate in Water from Urban & Ag Sites: 2011-2018

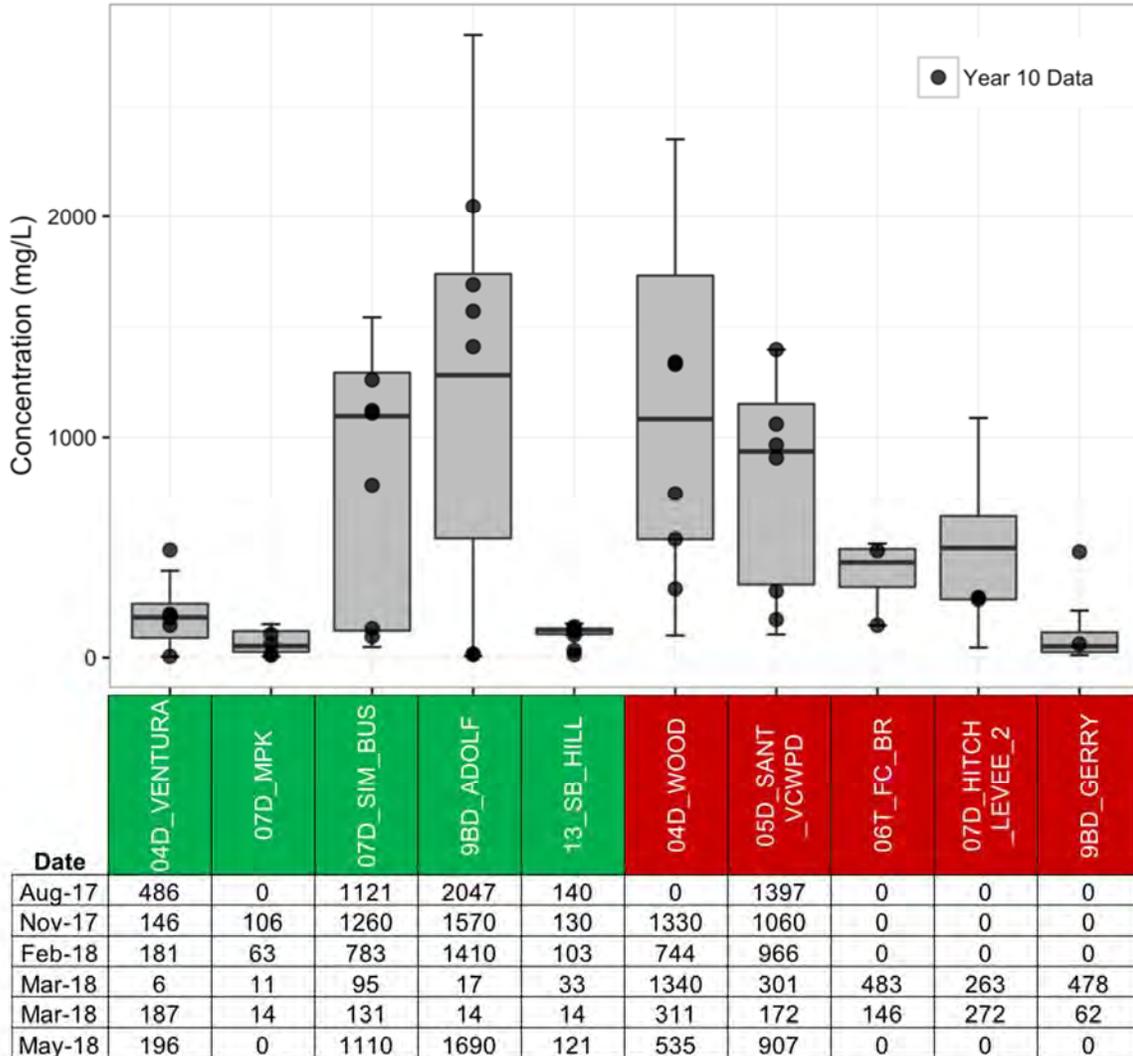


Figure 67. Sulfate in Water from Urban & Ag Sites: 2011-2018

Boron in Water from Urban & Ag Sites: 2011-2018

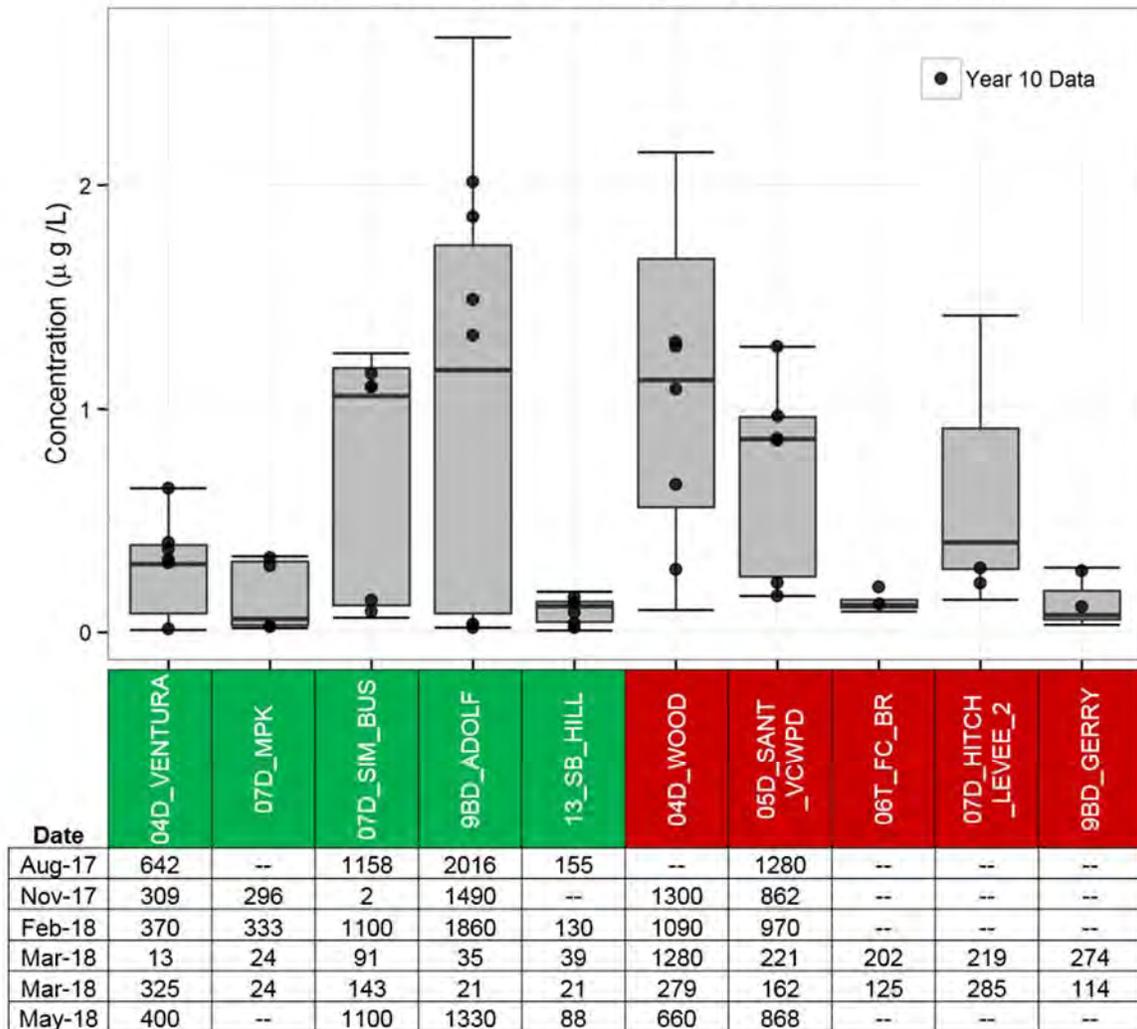


Figure 68. Boron in Water from Urban & Ag Sites: 2011-2018

Total Dissolved Solids in Water from POTWs: 2012-2018

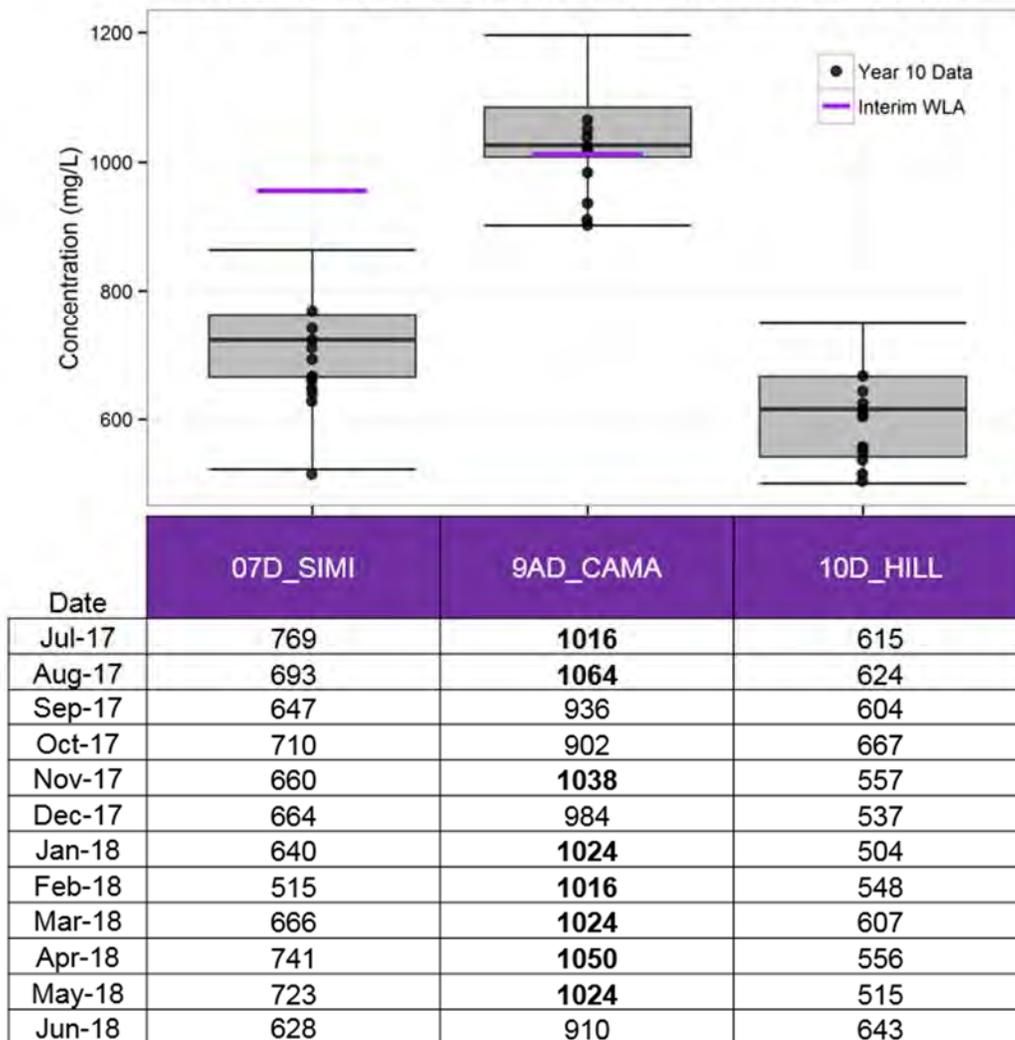


Figure 69. Total Dissolved Solids in Water from POTW Sites: 2012-2018

Sulfate in Water from POTWs: 2012-2018

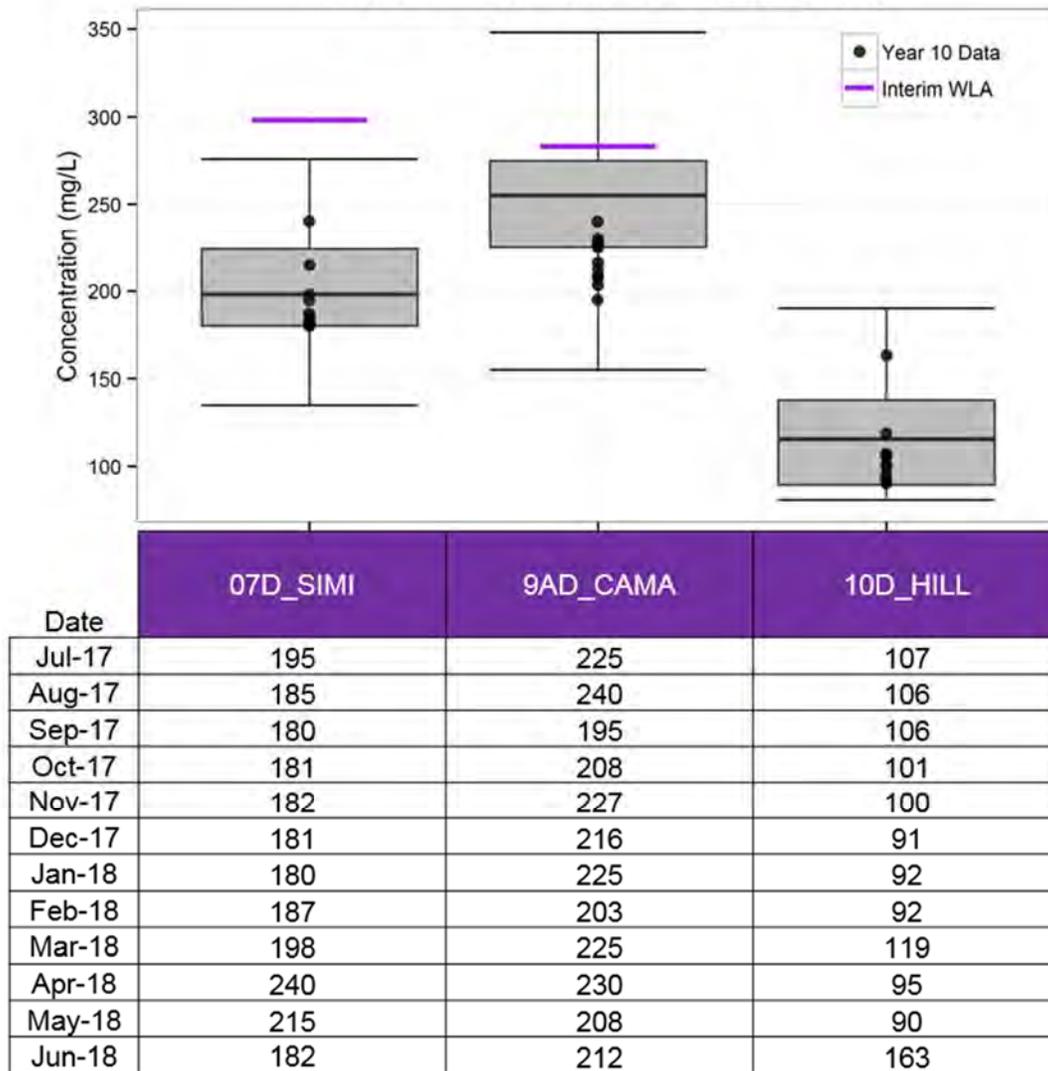


Figure 70. Sulfate in Water from POTW Sites: 2012-2018

Chloride in Water from POTWs: 2012-2018

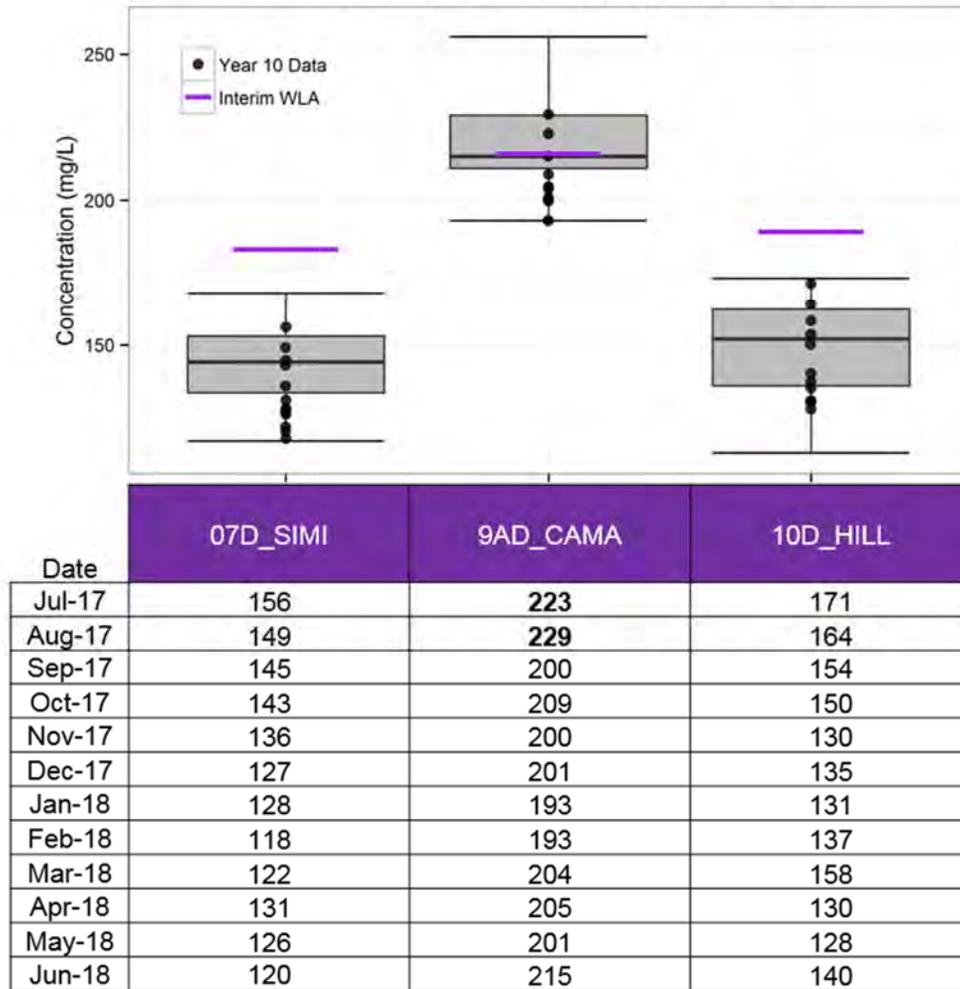


Figure 71. Chloride in Water from POTW Sites: 2012-2018

Boron in Water from POTWs: 2012-2018

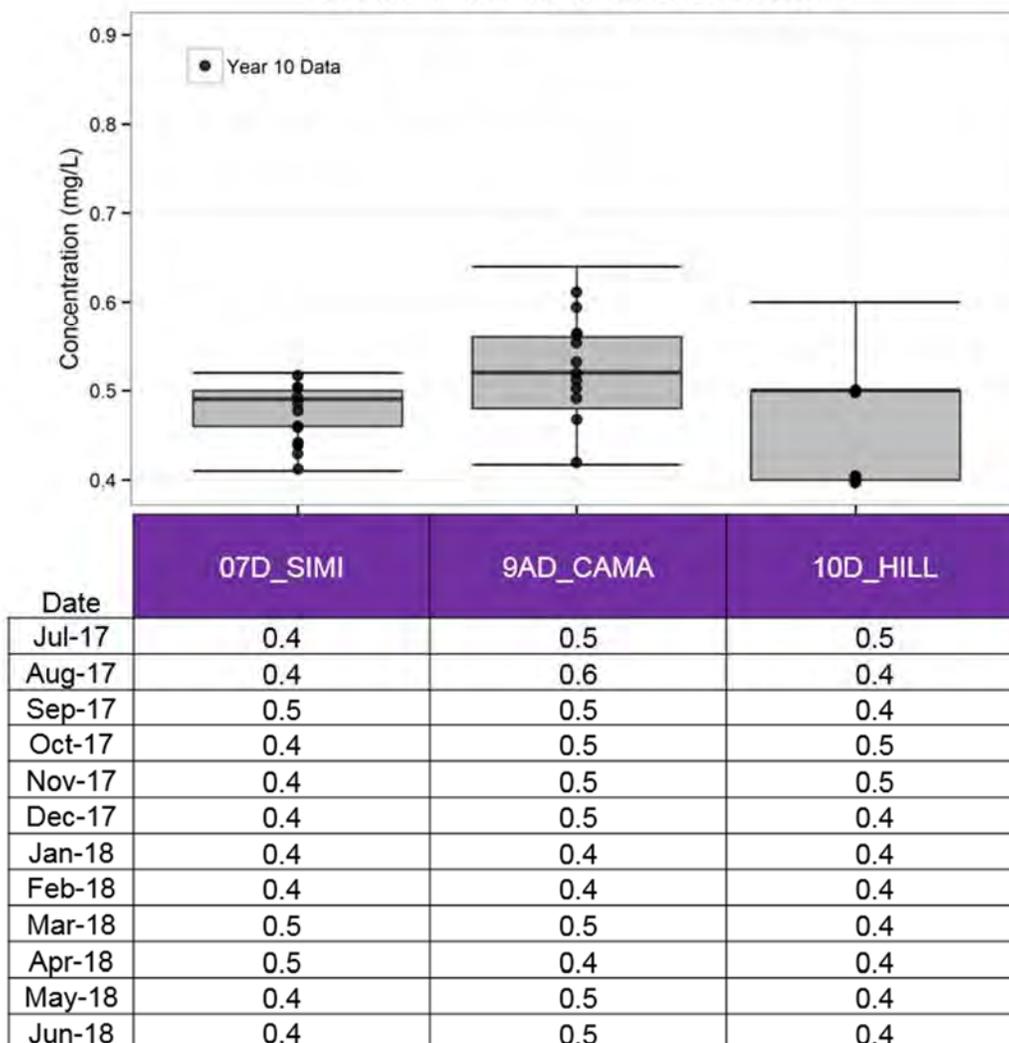


Figure 72. Boron in Water from POTW Sites: 2012-2018

FISH TISSUE DATA

Tissue data is provided in the following tables for both Mugu Lagoon and freshwater monitoring locations. Tissue samples are only collected in Mugu Lagoon every three years; samples were collected this monitoring year. For all tables, only those constituents that have been detected in at least one sample are included. No fish were caught at 06_UPLAND, therefore a table is not included for this site.

Mugu Lagoon Tissue Data

Table 9. Mugu Lagoon – Central Lagoon Tissue Data ¹

Date	Tissue Sample Type	Lipids Percent Lipids %	OC Pesticides									PCBs Arochlor 1260 ng/g	Metals		
			Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g		Methyl Mercury µg/g	Total Selenium µg/g	
8/29/2017	Whole Fish Sample #1	Opaleye	13.5	DNQ	ND	ND	ND	ND	ND	12.9	ND	120	39.5	0.009	0.23
	Whole Fish Sample #2	Opaleye	5.7	ND	ND	ND	ND	ND	ND	6.6	ND	DNQ	26.7	0.011	0.22
	Whole Fish Sample #3	Opaleye	14.7	DNQ	ND	ND	ND	ND	ND	9.6	ND	98.8	40.8	0.009	0.21
	Whole Fish Sample #4	Opaleye	5.6	DNQ	DNQ	ND	ND	ND	ND	8.6	ND	82.5	65.1	0.014	0.21
	Whole Fish Sample #5	Opaleye	7.7	ND	ND	ND	ND	ND	ND	10.9	ND	76.1	24	0.015	0.22
8/30/2017	Whole Fish Sample #6	Opaleye	6.6	DNQ	ND	ND	ND	ND	ND	DNQ	ND	69.4	36	0.014	0.23
	Composite Blue Bay Mussels #1		1.8	DNQ	DNQ	11.9	DNQ	ND	30.9	145	ND	54.7	26.9	0.002	0.43

1. Only constituents with detected values are included in the table.

Table 10. Mugu Lagoon – Western Arm Tissue Data ¹

Date	Tissue Sample Type		Lipids Percent Lipids %	OC Pesticides								PCBs Aroclor 1260 ng/g	Metals		
				Chlordane-alpha ng/g	Chlordane-gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g		Toxaphene ng/g	Methyl Mercury µg/g	Total Selenium µg/g
8/29/2017	Composite Blue Bay Mussels #1		1.8	ND	ND	9.6	DNQ	ND	20.7	129	ND	DNQ	31.9	0.004	0.38
	Whole Fish Sample #1	Opaleye	19.4	6.8	DNQ	ND	ND	ND	ND	17.6	ND	97.3	64.1	0.013	0.25
	Whole Fish Sample #2	Opaleye	5.3	ND	ND	ND	ND	ND	ND	7.5	ND	DNQ	DNQ	0.012	0.22
	Whole Fish Sample #3	Opaleye	3.7	ND	ND	ND	ND	ND	ND	6.1	ND	DNQ	ND	0.017	0.22
	Whole Fish Sample #4	Opaleye	4.5	ND	ND	ND	ND	ND	ND	DNQ	ND	DNQ	22.6	0.019	0.3
	Whole Fish Sample #5	Opaleye	2.6	ND	ND	ND	ND	ND	ND	DNQ	ND	DNQ	DNQ	0.017	0.33

1. Only constituents with detected values are included in the table.

Freshwater Tissue Data

Table 11. Calleguas Creek – Camarillo Street CSUCI (03_UNIV) Fish Tissue Data¹

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g	Total PCBs ng/g
5/8/18	Common Carp	# 1	1.4	DNQ	ND	DNQ	ND	ND	20	250	10	50	DNQ
		# 2	1.76	DNQ	DNQ	DNQ	DNQ	ND	20	250	10	ND	DNQ-

1. Only constituents with detected values are included in the table.

Table 12. Conejo Creek – Adolfo Road (9B_ADOLF) Fish Tissue Data¹

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g	Total PCBs ng/g
5/8/18	Common Carp	#1	3.82	10	DNQ	10	10	ND	20	150	ND	DNQ	30.6
		#2	1.01	DNQ	ND	DNQ	ND	ND	DNQ	70	DNQ	DNQ	ND

1. Only constituents with detected values are included in the table.

Table 13. Arroyo Simi – Hitch Boulevard (07_HITCH) Fish Tissue Data¹

Date	Fish	Lipids	OC Pesticides								PCBs	
		Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Total PCBs ng/g	
5/8/18	Goldfish	#1	1.17	ND	ND	DNQ	ND	ND	DNQ	20	ND	ND
		#2	1.49	ND	ND	DNQ	ND	ND	ND	20	ND	ND
		#3	1.22	ND	ND	ND	ND	ND	DNQ	10	ND	ND
		#4	1.36	ND	ND	DNQ	ND	ND	DNQ	20	ND	ND
		#5	2.25	ND	ND	DNQ	ND	ND	ND	20	ND	ND
		#6	1.67	ND	ND	DNQ	ND	ND	ND	20	ND	ND
		#7	2.15	ND	ND	DNQ	ND	ND	DNQ	80	ND	ND
		#8	2.36	ND	ND	DNQ	ND	ND	10	40	ND	ND
	Largemouth Bass	#9	4.47	DNQ	ND	DNQ	ND	ND	10	50	DNQ	DNQ
		#10	5.48	DNQ	ND	10	ND	ND	30	60	10	ND
		#11	5.35	DNQ	ND	10	ND	ND	10	110	DNQ	ND
		#12	5.28	DNQ	ND	10	ND	ND	10	50	DNQ	ND
		#13	3.38	DNQ	ND	DNQ	ND	ND	10	70	DNQ	ND
	Fathead Minnow	#14	4.8	DNQ	ND	10	ND	ND	20	510	ND	ND

1. Only constituents with detected values are included in the table.

Table 14. Revolon Slough – Wood Road (04_WOOD) Fish Tissue Data Years 1 – 10 ¹

Date	Fish		Lipids	OC Pesticides								PCBs	
			Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g	Total PCBs ng/g
5/8/18	Fathead Minnow	Comp. #1	3.60	10	DNQ	20	10	ND	70	1310	10	560	DNQ
	Common Carp	#1	4.71	50	10	70	20	ND	230	4030	120	1580	124
		#2	2.36	20	10	10	DNQ	ND	120	2190	40	570	65.7

1. Only constituents with detected values are included in the table.

Table 15. Revolon Slough – Wood Road (04_WOOD) Metals Fish Tissue Data

Date	Fish		Lipids	Metals	
			Percent Lipids %	Methyl Mercury µg/g	Total Selenium µg/g
5/8/18	Fathead Minnow	#1	3.6	0.008	2.28
	Common Carp	#1	4.71	0.009	1.14
		#2	2.36	0.023	1.37

MUGU LAGOON BIRD EGG DATA

As per the CCW TMP QAPP, mercury and selenium are to be measured in bird eggs collected from around Mugu Lagoon every three years. A total of ten eggs were collected by Naval Base Ventura County environmental staff between May 8th and June 18th, 2018. Results from this egg collection can be found in the table below.

Table 16. Mugu Lagoon Bird Egg Data Year 10

Date	Species	Total Mercury (µg/g wet weight)	Total Selenium (µg/g wet weight)
6/7/18	Least Tern	0.88	2.62
6/18/18	Least Tern	0.77	1.93
6/18/18	Least Tern	0.87	2.33
5/8/18	Snowy Plover	0.97	1.74
5/14/18	Snowy Plover	2.14	1.15
5/24/18	Snowy Plover	1.12	1.11
6/4/18	Snowy Plover	1.19	1.31
6/11/18	Snowy Plover	1.66	1.19
6/14/18	Snowy Plover	1.25	1.31
5/24/18	Snowy Plover	2.52	1.71

TOXICITY DATA

The following is a summary of the toxicity results to date for water column and sediment at the freshwater and estuarine sampling sites. Table 17 displays significant water column mortality test results for ten years of CCWTMP events, including both dry weather and storm (bolded text) events. Significant mortality found in freshwater sediments is shown in Table 18.

Toxicity was frequently identified during the first two monitoring years in water column samples, but the occurrence of toxicity has generally been decreasing over the course of monitoring. For dry weather water column sampling, toxicity has been identified historically at all sampled sites except 13_BELT. For wet weather water column sampling, toxicity has been identified at all sites, except for 10_GATE and 13_BELT. Freshwater sediment toxicity is consistently found at the 04_WOOD site and occasionally at two of the three other freshwater toxicity monitoring sites: 02_PCH and 03_UNIV.

Water column TIEs were initiated as prescribed in the QAPP, and outcomes of these efforts had limited success in identifying the true cause of toxicity. While not identifying the specific constituents causing toxicity, the TIEs have identified:

- Organic compounds are likely contributors to ambient water toxicity.
- Compounds similar to organophosphorus (OP) pesticides are continually being identified as possible contributors to the observed toxicity.

Based on the toxicity found at 04_WOOD during the first two years of monitoring and the results of the TIE studies, the Stakeholders chose to invest resources into source control efforts to address sources potentially contributing to the toxicity issue, rather than invest resources in continuing TIE studies at this monitoring site. This is being accomplished through the

implementation of the Agricultural Water Quality Management Plan (AWQMP) developed by the Ventura County Agricultural Irrigated Lands Group (VCAILG) as part of the Ag Waiver.

During the tenth year of monitoring, significant survival toxicity in the water column was observed at the 04_WOOD site.

Freshwater sediment toxicity was found at the 04_WOOD site and at the 02_PCH site. No TIEs were triggered for these samples.

Mugu Lagoon sediment toxicity testing was also conducted during Event 62 at the 01_BPT_03, 01_BPT_06, 01_BPT_14, 01_BPT_15, and 01_SG_74 sites. Survival toxicity was observed at the 01_BPT_14 and 01_SG_74 sites for *Eohaustorius estuaries* this monitoring year.

The results of future CCWTMP toxicity testing will continue to assist in the identification of when and where conditions are toxic in the Calleguas Creek watershed, and help the Stakeholders better target areas in the watershed that show continual toxicity and focus limited resources to address the problems.

Table 17. Water Column Toxicity for All Monitoring Events and Sites
 (Significant mortality denoted by "X", bolded events are wet weather events)

CCWMTP Year	Event	Site ID						
		04_WOOD	9B_ADOLF	03_UNIV	10_GATE	06_SOMIS/ UPLAND	13_BELT	07_HITCH
Year 1	1	X						
	2	X						
	3	X	X	X				X
	4	X						
	5	X						X
	6							
Year 2	9							
	12	X						
	14	X		X		X		
	16	X		X				X
	17							
Year 3	20			X				
	22							
	23							
	24	X						
	26	X						X
Year 4	27							
	28					X		
	29		X		X			
	30	X						
	32			X				
Year 5 ¹	31							
	33							
	36	X²						
	37			X ³				
Year 6	38							
	39	X ²						
	40				4			
	41		6	6	6	6	5	6
	42							
Year 7	43							
	44	X ²		7		8		
	45	X ²					9	
	46	X²		X¹⁰		X¹¹		X¹⁰
	47	X²						
	48							
Year 8 ¹³	49	X ²				12	12	
	50							
	52	X²						

CCWMTP Year	Event	Site ID					
		04_WOOD	9B_ADOLF	03_UNIV	10_GATE	06_SOMIS/ UPLAND	13_BELT
	53	X ²					
	54						
	55						
	56						
	57						
Year 9	58						
	59						
	60						
	61				14		
	62						
Year 10	63						
	64						
	65	X ²					
	66						
	67						

- 10_GATE and 13_BELT are also toxicity investigation monitoring sites. During year 5 these sites were only sampled during Event 38.
- A TIE was not initiated at this site. TIEs conducted during previous monitoring years identified organic compounds such as pesticides as the likely cause of the toxicity. TIEs have been suspended while efforts are taken to reduce the source of the toxicity.
- A Phase I TIE was conducted for this site. While the TIE did not conclusively identify a source of toxicity, the results were indicative of organic compounds. The corresponding water quality sample detected the OP pesticide chlorpyrifos at a concentration of 0.083 µg/L. This level is above the wasteload allocation for stormwater discharges but below the agricultural discharger's interim load allocation and above the final numeric target.
- Toxicity testing was not performed at the 10_GATE site for Event 40.
- Toxicity testing was not performed at the 10_BELT site for Event 41.
- Successful toxicity testing for sites with conductivity less than 3000 µS/cm could not be completed for Event 41 due to a decline in the *C. dubia* laboratory culture. Sites include: 9B_ADOLF, 03_UNIV, 10_GATE, 06_SOMIS, and 07_HITCH.
- An initial and a follow-up Phase I TIE was conducted for this site. Though the acute and chronic results of the toxicity test was not significantly different than that of the laboratory, the testing of this site did result in a greater than 50% mortality, triggering the initial and follow-up Phase I TIE. The initial TIE did not conclusively determine the source of toxicity, but did suggest that multiple co-occurring contaminants may have been responsible for the toxicity. The follow-up TIE demonstrated that no additional reductions in survival or reproduction occurred after the initial Baseline treatment, suggesting that the toxicity observed in the initial test was not persistent. This result suggests that the toxicant may have undergone natural degradation processes as the sample water aged.
- Toxicity testing was not performed at the 06_SOMIS site for Event 44.
- Toxicity testing was not performed at the 13_BELT site for Event 45.
- A Phase I TIE was initiated at this site. While the TIE did not conclusively identify a source of toxicity, the results suggest that compounds that are activated by the Cytochrome-P450 system (e.g. OP pesticides) are contributing to sample toxicity.
- A Phase I TIE was initiated at this site. While the TIE did not conclusively identify a source of toxicity, the results suggest that non-polar organic compound(s) are contributing to the ambient toxicity.
- Toxicity testing was not performed at the 06_SOMIS or 13_BELT sites for Event 49.
- During year 8, toxicity testing was only performed at the 06_SOMIS site for Event 52.
- There were no statistically significant reductions in survival in this sample as compared to the control. However, based on the observation of greater than 50 percent mortality in the 100 percent concentration of the 10_GATE ambient water sample, a TIE targeted for organics was performed on the sample.

Table 18. Sediment Toxicity for All CCWMTP Freshwater Monitoring Events and Sites
(Significant mortality denoted by "X")

CCWMTP Year	Event	Site ID			
		04_WOOD	02_PCH ¹	03_UNIV	9A_HOWAR ¹
Year 1	1	X			
Year 2	9	X			
Year 3	22	X			
Year 4	28	X	X	X	
Year 5	34	X		X	
Year 6	39	X		X ²	
Year 7	44	X		X	
Year 8	50	X			
Year 9	56	X	X		
Year 10	62	X	X		

1. 02_PCH and 9A_HOWAR are toxicity investigation monitoring sites.
2. A TIE targeted for organics was performed for the 03_UNIV site due to a greater than 50 percent reduction in *H. azteca* survival.

Table 19. Sediment Toxicity for Mugu Lagoon Monitoring Events and Sites
(Significant mortality denoted by "X")

CCWMTP Year	Event	Site ID				
		01_BPT_3	01_BPT_6	01_BPT_14	01_BPT_15	01_SG_74
Year 1	1		X ¹	X ¹	X ¹	X ¹
Year 4	28					
Year 7	44					
Year 10	62			X ¹		X ¹

1. Survival toxicity for *Eohaustorius estuaries*.

Exceedance Evaluation and Discussion

As outlined in the QAPP, data applicable to targets or allocations were reviewed for this report. The collected data were compared to the applicable targets or allocations and it is this comparison that the various agencies will use to determine necessary actions in accordance with their permit or Ag Waiver. The comparison does not provide a determination of compliance with any TMDL provision of an individual permit or Ag Waiver, as some permit/waiver conditions may vary from the comparisons provided in this section. For the comparison, various procedures were used depending on whether or not the final compliance dates for the TMDL were applicable during the monitoring year.

For TMDLs where final allocations or targets are not currently effective (OC Pesticides, Metals, and Salts TMDLs), the following compliance comparisons were conducted:

1. Applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the interim load allocations and waste load allocations.
2. If an exceedance of an interim load allocation and/or waste load allocation was observed, the contributing land use data were reviewed to evaluate the potential cause of the exceedance.

POTW effluent data were compared to the relevant waste load allocations (interim or final, as appropriate).

For the Metals TMDL, the following comparisons were conducted:

1. For POTWs, the final waste load allocations became currently effective in March 2017. As a result, effluent monitoring results were compared to the final allocations for the analysis.
2. For agricultural dischargers and MS4 dischargers, final load allocations and wasteload allocations are not yet effective. As such, applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the interim load allocations and wasteload allocations.

For the Nitrogen TMDL, the following comparisons were conducted:

1. For POTWs, the final waste load allocations are currently effective. As a result, effluent monitoring results were compared to the final allocations for the analysis.
2. For agricultural dischargers and other non-point sources, final load allocations are currently effective. Since agricultural dischargers are the only entities with allocations other than POTWs, compliance is evaluated by comparing receiving water results against TMDL numeric targets.

For the Toxicity TMDL, the following comparisons were conducted:

1. For POTWs, the final waste load allocations are currently effective. As a result, effluent monitoring results were compared to the final allocations for the comparison.
2. For MS4 dischargers, the final waste load allocations are currently effective. As a result, applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the final waste load allocations. If an exceedance of the final waste

load allocation was found, the contributing urban land use data were reviewed to evaluate whether the MS4 was potentially causing the exceedance.

3. For agricultural dischargers, the final load allocations are currently effective. As a result, applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the final load allocation. If an exceedance of the applicable load allocation for a particular event was observed, the contributing agricultural land use data were reviewed to evaluate whether agricultural discharges were potentially causing the exceedance.
4. In cases where the applicable final load allocations or final waste load allocations have different values for acute (1-hour) toxicity and chronic (4-day) toxicity, the acute toxicity allocations were used for comparing wet weather data and the chronic toxicity allocations were used for comparing dry-weather data.

For the Salts TMDL, the following comparisons were conducted:

1. For POTWs, interim wasteload allocations are currently effective. As a result, effluent concentrations were compared to the interim wasteload allocations.
2. For agricultural and MS4 dischargers, final load allocations and wasteload allocations are not yet effective. As such, monthly dry weather mean salt concentrations at the Salts TMDL receiving water compliance sites were compared to the interim load and wasteload allocations. Appropriate land use data was evaluated in the instance of an exceedance to assess potential cause and contribution.

The following tables compare the applicable allocations based on the procedure outlined above for each of the TMDLs. Some constituents sampled under the CCWTMP do not have applicable allocations and/or targets and are not included in the comparison.

RECEIVING WATER SITE COMPARISON

Table 20. OC Pesticides, PCBs, & Siltation in Sediment

Site & Constituent	Units	Interim WLA & LA ¹	Event 62 Aug-2017
<i>Mugu Lagoon – Eastern Arm (01_BPT_3)</i>			
Total Chlordane ²	ng/g dw	25	DNQ
4,4'-DDD	ng/g dw	69	DNQ
4,4'-DDE	ng/g dw	300	22.3
4,4'-DDT	ng/g dw	39	DNQ
Dieldrin	ng/g dw	19	ND
PCBs ³	ng/g dw	180	DNQ
Toxaphene	ng/g dw	22900	ND

Site & Constituent	Units	Interim WLA & LA ¹	Event 62 Aug-2017
<i>Mugu Lagoon – Eastern Part of Western Arm (01_BPT_6)</i>			
Total Chlordane ²	ng/g dw	25	ND
4,4'-DDD	ng/g dw	69	ND
4,4'-DDE	ng/g dw	300	DNQ
4,4'-DDT	ng/g dw	39	ND
Dieldrin	ng/g dw	19	ND
PCBs ³	ng/g dw	180	ND
Toxaphene	ng/g dw	22900	ND
<i>Mugu Lagoon – Central Part of Western Arm (01_BPT_14)</i>			
Total Chlordane ²	ng/g dw	25	ND
4,4'-DDD	ng/g dw	69	ND
4,4'-DDE	ng/g dw	300	6.5
4,4'-DDT	ng/g dw	39	ND
Dieldrin	ng/g dw	19	ND
PCBs ³	ng/g dw	180	ND
Toxaphene	ng/g dw	22900	ND
<i>Mugu Lagoon – Central Lagoon (01_BPT_15)</i>			
Total Chlordane ²	ng/g dw	25	ND
4,4'-DDD	ng/g dw	69	ND
4,4'-DDE	ng/g dw	300	DNQ
4,4'-DDT	ng/g dw	39	ND
Dieldrin	ng/g dw	19	ND
PCBs ³	ng/g dw	180	ND
Toxaphene	ng/g dw	22900	ND
<i>Mugu Lagoon – Central Lagoon, South of Drain #7 (01_SG_74)</i>			
Total Chlordane ²	ng/g dw	25	ND
4,4'-DDD	ng/g dw	69	ND
4,4'-DDE	ng/g dw	300	DNQ
4,4'-DDT	ng/g dw	39	ND
Dieldrin	ng/g dw	19	ND
PCBs ³	ng/g dw	180	ND
Toxaphene	ng/g dw	22900	ND

Site & Constituent	Units	Interim WLA & LA ¹	Event 62 Aug-2017
<i>Calleguas Creek – Hwy 1 Bridge (02_PCH)</i>			
Total Chlordane ²	ng/g dw	17	ND
4,4'-DDD	ng/g dw	66	ND
4,4'-DDE	ng/g dw	470	ND
4,4'-DDT	ng/g dw	110	ND
Dieldrin	ng/g dw	3	ND
PCBs ³	ng/g dw	3800	ND
Toxaphene	ng/g dw	260	ND
<i>Revolon Slough – Wood Road (04_WOOD)</i>			
Total Chlordane ²	ng/g dw	48	DNQ
4,4'-DDD	ng/g dw	400	DNQ
4,4'-DDE	ng/g dw	1600	24.40
4,4'-DDT	ng/g dw	690	DNQ
Dieldrin	ng/g dw	5.7	ND
PCBs ³	ng/g dw	7600	ND
Toxaphene	ng/g dw	790	ND
<i>Calleguas Creek – Camarillo Street CSUCI (03_UNIV)</i>			
Total Chlordane ²	ng/g dw	17	ND
4,4'-DDD	ng/g dw	66	ND
4,4'-DDE	ng/g dw	470	DNQ
4,4'-DDT	ng/g dw	110	ND
Dieldrin	ng/g dw	3	ND
PCBs ³	ng/g dw	3800	ND
Toxaphene	ng/g dw	260	ND
<i>Conejo Creek – Adolfo Road (9B_ADOLF)</i>			
Total Chlordane ²	ng/g dw	3.4	ND
4,4'-DDD	ng/g dw	5.3	ND
4,4'-DDE	ng/g dw	20	DNQ
4,4'-DDT	ng/g dw	2	DNQ
Dieldrin	ng/g dw	3	ND
PCBs ³	ng/g dw	3800	ND
Toxaphene	ng/g dw	260	ND

Site & Constituent	Units	Interim WLA & LA ¹	Event 62 Aug-2017
Arroyo Las Posas – Upland Road (06_UPLAND)			
Total Chlordane ²	ng/g dw	3.3	ND
4,4'-DDD	ng/g dw	290	ND
4,4'-DDE	ng/g dw	950	DNQ
4,4'-DDT	ng/g dw	670	ND
Dieldrin	ng/g dw	1.1	ND
PCBs ³	ng/g dw	25,700	ND
Toxaphene	ng/g dw	230	ND
Arroyo Simi – Hitch Boulevard (07_HITCH)			
Total Chlordane ²	ng/g dw	3.3	ND
4,4'-DDD	ng/g dw	14	ND
4,4'-DDE	ng/g dw	170	DNQ
4,4'-DDT	ng/g dw	25	ND
Dieldrin	ng/g dw	1.1	ND
PCBs ³	ng/g dw	25,700	ND
Toxaphene	ng/g dw	230	ND

ND=not detected; DNQ=detected not quantifiable

1. Interim waste load allocation for stormwater permittees and interim load allocations for agricultural dischargers; effective until March 24, 2026 (R4-2005-010).
2. Total chlordane is the sum of alpha and gamma-chlordane.
3. PCBs concentrations are the sum of the seven aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, and 1260). Results in **green type** are below the applicable allocations.

Table 21. Nitrogen Compounds in Water

Site & Constituent	Units	Target ¹	Event 62 Dry Aug-17	Event 63 Dry Nov-17	Event 64 Dry Feb-18	Event 65 Wet Mar-18	Event 66 Wet Mar-18	Event 67 Dry May-18
<i>Mugu Lagoon - Ronald Reagan Bridge (01_RR_BR)</i>								
Ammonia-N	mg/L	8.1	0.32	0.11	0.041	DNQ	0.37	0.06
Nitrate-N	mg/L	10	17.08	11.80	25.70	0.091	5.29	4.43
Nitrite-N	mg/L	1	0.32	0.07	0.11	ND	0.055	0.04
Nitrate-N + Nitrite-N	mg/L	10	17.40	11.87	25.81	0.091	5.35	4.47
<i>Calleguas Creek – Hwy 1 Bridge (02_PCH)</i>								
Ammonia-N	mg/L	5.5	0.61	0.27	0.049	0.33	0.07	0.12
Nitrate-N	mg/L	10	7.67	19.70	12.50	16.30	5.02	20.80
Nitrite-N	mg/L	1	0.20	0.28	0.16	0.047	0.051	0.18
Nitrate-N + Nitrite-N	mg/L	10	7.87	19.98	12.66	16.35	5.07	20.98
<i>Calleguas Creek – Camarillo Street CSUCI (03_UNIV)</i>								
Ammonia-N	mg/L	8.4	0.23	0.10	0.06	0.23	0.20	0.07
Nitrate-N	mg/L	10	6.97	8.40	7.47	2.56	1.37	6.97
Nitrite-N	mg/L	1	0.12	ND	0.10	ND	ND	0.24
Nitrate-N + Nitrite-N	mg/L	10	7.09	8.40	7.57	2.56	1.37	7.21
<i>Revolon Slough – Wood Road (04_WOOD)</i>								
Ammonia-N	mg/L	5.7	0.30	0.14	0.17	0.31	0.11	0.11
Nitrate-N	mg/L	10	37.20	39.40	30.90	5.26	7.79	43.20
Nitrite-N	mg/L	1	0.38	ND	0.13	0.10	0.09	0.76
Nitrate-N + Nitrite-N	mg/L	10	37.58	39.40	31.03	5.36	7.88	43.96
<i>Beardsley Wash – Central Avenue (05_CENTR)</i>								
Ammonia-N	mg/L	5.7	0.09	DNQ	DNQ	0.33	0.21	0.07
Nitrate-N	mg/L	10	47.60	32.30	26.40	13.40	6.98	24.80
Nitrite-N	mg/L	1	0.16	ND	0.18	0.13	0.08	0.47
Nitrate-N + Nitrite-N	mg/L	10	47.76	32.30	26.58	13.53	7.06	25.27
<i>Arroyo Las Posas – Upland Road (06_UPLAND)</i>								
Ammonia-N	mg/L	8.1	NS	NS	NS	0.56	0.29	NS
Nitrate-N	mg/L	10	NS	NS	NS	10.10	0.84	NS
Nitrite-N	mg/L	1	NS	NS	NS	0.11	ND	NS
Nitrate-N + Nitrite-N	mg/L	10	NS	NS	NS	10.21	0.84	NS

Site & Constituent	Units	Target ¹	Event 62 Dry Aug-17	Event 63 Dry Nov-17	Event 64 Dry Feb-18	Event 65 Wet Mar-18	Event 66 Wet Mar-18	Event 67 Dry May-18
Arroyo Simi – Hitch Boulevard (07_HITCH)								
Ammonia-N	mg/L	4.7	0.09	0.10	DNQ	0.24	0.26	DNQ
Nitrate-N	mg/L	10	8.78	7.94	8.23	2.04	0.71	8.63
Nitrite-N	mg/L	1	0.10	ND	0.02	ND	ND	0.14
Nitrate-N + Nitrite-N	mg/L	10	8.88	7.94	8.25	2.04	0.71	8.77
Conejo Creek – Adolfo Road (9B_ADOLF)								
Ammonia-N	mg/L	9.5	0.14	0.04	0.04	0.15	0.17	0.04
Nitrate-N	mg/L	10	6.19	6.34	5.34	1.82	0.99	5.66
Nitrite-N	mg/L	1	0.08	ND	0.03	ND	ND	0.14
Nitrate-N + Nitrite-N	mg/L	10	6.27	6.34	5.37	1.82	0.99	5.80

NS=no sample, dry; NR=not required; ND=not detected; DNQ=detected not quantifiable; J=estimated DNQ values for Nitrite-N, shown for the purpose of calculating the Nitrite-N + Nitrate-N sum and comparing it against the Nitrate-N + Nitrite-N target.

1. Load allocations for Nitrate-N + Nitrite-N are in effect for agricultural and other non-point sources. For the comparison, monitoring results at receiving water compliance sites were compared against TMDL numeric targets (R4-2008-009).
2. One-hour average.

Results in **bold red type** exceed numeric TMDL target.

Results in **green type** are below the applicable allocations.

Table 22. Toxicity, Diazinon, and Chlorpyrifos in Water

Site & Constituent	Units	Dry WLA ¹	Dry LA ²	Event 62 Dry Aug-17	Event 63 Dry Nov-17	Event 64 Dry Feb-18	Event 67 Dry May-18	Wet WLA ¹	Wet LA ²	Event 65 Wet Mar-18	Event 66 Wet Mar-18
Mugu Lagoon – Ronald Reagan Bridge (01_RR_BR)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	0.0074	ND	0.014	0.025	ND	0.0877
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	0.0179
Calleguas Creek – Camarillo Street CSUCI (03_UNIV)											
Chlorpyrifos	ug/L	0.014	0.0133	ND	ND	0.0025	ND	0.014	0.024	ND	0.0066
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Revolon Slough – Wood Road (04_WOOD)											
Chlorpyrifos	ug/L	0.014	0.0133	ND	0.0041	0.0281	0.0049	0.014	0.024	0.0581	0.0639
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	0.0142	ND
Arroyo Las Posas – Upland Road (06_UPLAND)											
Chlorpyrifos	ug/L	0.014	0.014	NS	NS	NS	NS	0.014	0.025	0.0681	0.0062
Diazinon	ug/L	0.1	0.1	NS	NS	NS	NS	0.1	0.1	0.2	ND
Arroyo Simi – Hitch Boulevard (07_HITCH)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	ND	ND	0.014	0.025	ND	ND
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Conejo Creek – Adolfo Road (9B_ADOLF)											
Chlorpyrifos	ug/L	0.014	0.014	ND	0.0053	ND	ND	0.014	0.025	0.0018	ND
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Conejo Creek – Hill Canyon Below N Fork (10_GATE)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	ND	ND	0.014	0.025	ND	ND
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Conejo Creek – S Fork Behind Belt Press Build (13_BELT)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	ND	ND	0.014	0.025	ND	ND
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND

ND=not detected; NS=no sample collected due to site being dry.

1. Final Dry and Wet Weather wasteload allocations for Stormwater Dischargers effective as of March 24, 2008 (R4-2005-009).

2. Final Dry and Wet Weather load allocations for Irrigated Agriculture; effective as of March 24, 2016 (R4-2005-009).

Results in **bold red type** exceed applicable final wasteload allocation and load allocation.

Results in **green type** are below the applicable allocations.

Table 23. Metals and Selenium in Water

Constituent	Units	Dry	Dry	Event 62	Event 63	Event 64	Event 67	Wet	Wet	Event 65	Event 66	Annual Average ³
		Interim WLA ¹	Interim LA ²	Dry Aug-2017	Dry Nov-2017	Dry Feb-2018	Dry May-2018	Interim WLA ¹	Interim LA ²	Wet Mar-2018	Wet Mar-2018	
<i>Revolon Slough – Wood Road (04_WOOD)</i>												
Total Copper	µg/L	19	19	6.11	5.51	5.21	4.56	204	1390	32.7	42.8	
Total Nickel	µg/L	13	42	6.04	6.85	8.69	9.06	74 ⁴	74 ⁴	23.1	33.0	
Total Selenium	µg/L	13	6	26.9	22	13.7	17.4	290 ⁴	290 ⁴	2.64	1.81	
Total Mercury ⁵	lbs/yr	1.7	2					--	--			0.13 ⁶
<i>Calleguas Creek – Camarillo Street CSUCI (03_UNIV)</i>												
Total Copper	µg/L	19	19	2.25	2.11	2.82	2.65	204	1390	12.1	42.9	
Total Nickel	µg/L	13	42	6.78	7.78	7.01	7.99	74 ⁴	74 ⁴	12.7	48.4	
Total Selenium	µg/L	--	--	0.93	0.56	0.856	0.84	--	--	0.49	0.63	
Total Mercury ⁵	lbs/yr	3.3	3.9					--	--			0.31

1. Interim wasteload allocations for Stormwater Dischargers; effective until March 2022 (R4-2006-0012)
2. Interim load allocations for Irrigated Agriculture; effective until March 2022 (R4-2006-0012)
3. Mercury allocation is assessed as an annual load in suspended sediment. The water column mercury concentrations were used in calculating the loads, conservatively assuming that all mercury is on suspended sediment rather than being dissolved. The loads at each site are based on estimated annual concentrations (average of all monitored events at each site) and total annual flow calculated from preliminary streamflow data received from real time data loggers.
4. No wet weather exceedances of these constituents were observed in the TMDL analysis so no interim limits were assigned for the TMDL. For comparison purposes the wet weather targets are included in the table.
5. Interim wasteload allocations and load allocations are expressed as annual loads. Total annual flow for 07/01/17 to 06/30/18 into Mugu Lagoon from Calleguas Creek is calculated as 3,417 Mgal/yr. Total annual flow for 07/01/17 to 06/30/18 into Mugu Lagoon from Revolon Slough is calculated as 1,813 Mgal/yr. As such, the interim wasteload allocation and load allocation shown for both Calleguas Creek and Revolon Slough correspond to the flow range of 0 to 15,000 to Mgal/yr, per R4-2006-0012.
6. Daily flow measurements were not available from 12/16/2017 to 12/20/2017 due to an outage. Therefore, total annual flow used in the calculation of this value do not include flow measurements from these dates.

Results in **bold red type** exceed applicable interim wasteload allocation and load allocation.

Results in **green type** are below the applicable allocations.

Table 24. Monthly Mean Salts Concentrations

	Units	Interim Limit		Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
		WLA	LA												
Revolon Slough – Wood Road (04_WOOD)															
TDS	mg/L	1720	3995	3444	3586	3139	3271	3334	3379	3592	3538	3459	3550	3493	3590
Chloride	mg/L	230	230	200	211	176	186	191	195	212	207	201	208	204	211
Sulfate	mg/L	1289	1962	1785	1859	1627	1696	1728	1752	1863	1835	1793	1840	1811	1861
Boron	mg/L	1.3	1.8	1.8	1.8	1.6	1.7	1.7	1.7	1.9	1.8	1.8	1.8	1.8	1.9
Calleguas Creek – University Drive CSUCI (03_UNIV)															
TDS	mg/L	1720	3995	1114	1088	1084	1065	1102	1130	1041	1058	1011	1070	1021	1054
Chloride	mg/L	230	230	247	240	239	235	244	250	229	233	222	236	224	232
Sulfate	mg/L	1289	1962	265	258	257	253	262	269	247	251	240	254	242	250
Conejo Creek – Howard Road Bridge (9A_HOWAR)															
TDS	mg/L	1720	3995	1012	974	958	963	1011	1021	968	982	1031	993	968	1029
Chloride	mg/L	230	230	234	224	220	222	234	236	223	226	239	229	223	238
Sulfate	mg/L	1289	1962	247	237	233	234	247	249	235	239	252	242	236	252
Conejo Creek – Baron Brothers Nursery (9B_BARON)															
TDS	mg/L	1720	3995	703	687	677	667	656	640	632	631	686	656	640	632
Chloride	mg/L	230	230	167	163	160	157	154	150	148	148	162	154	150	148
Sulfate	mg/L	1289	1962	164	157	152	147	142	135	131	131	156	142	136	131
Arroyo Simi – Tierra Rejada Road (07_TIERRA)															
TDS	mg/L	1720	3995	1171	1154	1134	1137	1109	1105	1104	1097	1145	1120	1097	1101
Chloride	mg/L	230	230	177	174	171	172	167	167	167	166	173	169	166	166
Sulfate	mg/L	1289	1962	457	447	435	436	419	417	416	412	441	426	414	414
Boron	mg/L	1.3	1.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6

Notes:

- a. Monthly dry weather mean salt concentrations were generated using mean daily salt concentrations (from 5-min data) for days that met the definition of dry weather in the Salts TMDL (i.e., discharge < 86th percentile flow and no measureable rain in preceding 24 hrs). The 86th percentile of mean daily discharge at 03_Univ (generated using 5-min discharge data for the period July 1, 2017-June 30, 2018) was used as the flow-related threshold for distinguishing wet and dry days for all five compliance sites. Daily precipitation records for 24 gages in the CCW watershed (accessed via the VCWPD Hydrologic Data Server) were used to determine days with "measureable precipitation". Days were considered as having measureable precipitation if two or more rain gages in the watershed received 0.1 inch or more of precipitation.

Results in **bold red type** exceed both the applicable interim wasteload allocation and load allocation. Results in **bold purple type** exceed the interim wasteload allocation, but not the interim load allocation. Results in **green type** are below the applicable allocations.

POTW DATA COMPARISON

Table 25. Nitrogen Compounds – POTWs

Site & Constituent	Units	Final WLA ¹	Event 62 Dry Aug-17	Event 63 Dry Nov-17	Event 64 Dry Feb-18	Event 67 Dry May-18
<i>Simi Valley Water Quality Control Plant (07D_SIMI)</i>						
Ammonia-N	mg/L	3.5 ² , 7.8 ³	1.20	1	1.60	1.10
Nitrate-N	mg/L	9	7.60	7.90	6.20	8.70
Nitrite-N	mg/L	0.9	0.03	0.02	0.03	0.02
Nitrate-N + Nitrite-N	mg/L	9	7.63	7.92	6.23	8.72
<i>Camarillo Water Reclamation Plan (9AD_CAMA)</i>						
Ammonia-N	mg/L	3.1 ² , 5.6 ³	1.30	1.30	1.29	1.56
Nitrate-N	mg/L	9	6.60	5.60	6.48	7.11
Nitrite-N	mg/L	0.9	ND	ND	ND	ND
Nitrate-N + Nitrite-N	mg/L	9	6.60	5.6	6.48	7.11
<i>Hill Canyon Wastewater Treatment Plant (10D_HILL)</i>						
Ammonia-N	mg/L	2.4 ² , 3.3 ³	1.70	1.50	1.60	1.60
Nitrate-N	mg/L	9	8.90	8.90	8.10	9.00
Nitrite-N	mg/L	0.9	ND	ND	0.10	ND
Nitrate-N + Nitrite-N	mg/L	9	8.90	8.90	8.20	9.00

ND=constituent not detected at the MDL.

1. The effective date for these wasteload allocations was July 16, 2007 (R4-2008-009)

2. Wasteload allocations as Average Monthly Effluent Limit

3. Wasteload allocations as Maximum Daily Effluent Limit

Results in green type are below the applicable allocations.

Table 26. OC Pesticides, PCBs, and Siltation - POTWs

POTW & Constituent	Units	Final WLA ¹	Event 62 Dry Aug-2017	Event 63 Dry Nov-2017	Event 64 Dry Feb-2018	Event 67 Dry May-2018
<i>Camarillo Water Reclamation Plant (9AD_CAMA)</i>						
Total Chlordane ²	ng/L	1.2	ND	ND	ND	ND
4,4'-DDD	ng/L	1.7	ND	ND	ND	ND
4,4'-DDE	ng/L	1.2	ND	ND	ND	ND
4,4'-DDT	ng/L	1.2	ND	ND	ND	ND
Dieldrin	ng/L	0.28	ND	ND	ND	ND
PCBs ³	ng/L	0.34	ND	ND	-	-
Toxaphene	ng/L	0.33	ND	ND	ND	141
<i>Hill Canyon Wastewater Treatment Plant (10D_HILL)</i>						
Total Chlordane ²	ng/L	1.2	ND	ND	ND	ND
4,4'-DDD	ng/L	1.7	ND	ND	ND	ND
4,4'-DDE	ng/L	1.2	ND	ND	ND	ND
4,4'-DDT	ng/L	1.2	ND	ND	ND	ND
Dieldrin	ng/L	0.28	ND	ND	ND	ND
PCBs ³	ng/L	0.34	ND	ND	ND	ND
Toxaphene	ng/L	0.33	ND	ND	ND	ND
<i>Simi Valley Water Quality Control Plant (07D_SIMI)</i>						
Total Chlordane ²	ng/L	1.2	ND	ND	ND	ND
4,4'-DDD	ng/L	1.7	ND	ND	ND	ND
4,4'-DDE	ng/L	1.2	ND	ND	ND	ND
4,4'-DDT	ng/L	1.2	ND	ND	ND	ND
Dieldrin	ng/L	0.28	ND	ND	ND	ND
PCBs ³	ng/L	0.34	ND	ND	ND	ND
Toxaphene	ng/L	0.33	ND	ND	ND	ND

ND=constituent not detected at the MDL.

1. Final wasteload allocations were added to each of the POTWs' permits in 2015.

2. Total chlordane is the sum of alpha and gamma-chlordane.

3. PCBs concentrations are the sum of the seven aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, and 1260).

Results in green type are below the applicable allocations.

Results in bold red type exceed applicable wasteload allocation.

Table 27. Toxicity, Chlorpyrifos, and Diazinon - POTWs

POTW & Constituent	Units	Final WLA	Event 62 Dry Aug-2017	Event 63 Dry Nov-2017	Event 64 Dry Feb-2018	Event 67 Dry May-2018
<i>Camarillo Water Reclamation Plant (9AD_CAMA)</i>						
Chlorpyrifos	µg/L	0.0133	0.007	ND	0.004	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
<i>Hill Canyon Wastewater Treatment Plant (10D_HILL)</i>						
Chlorpyrifos	µg/L	0.014	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	0.013	ND	ND
<i>Simi Valley Water Quality Control Plant (07D_SIMI)</i>						
Chlorpyrifos	µg/L	0.014	ND	0.006	0.004	0.004
Diazinon	µg/L	0.1	ND	ND	ND	ND

ND=constituent not detected at MDL.
 Results in green type are below the applicable allocations.

Table 28. Metals - POTWs: Camarillo Water Reclamation Plant and Hill Canyon Wastewater Treatment Plant

POTW & Constituent	Units	Final Daily Max WLA ¹	Final Monthly Avg WLA ¹	Final WLA ¹	Event 62 Dry Aug-20 17	Event 63 Dry Nov-2017	Event 64 Dry Feb-2018	Event 67 Dry May-2018
<i>Camarillo Water Reclamation Plant (9AD_CAMA)</i>								
Total Copper	µg/L	--	9.0	--	4.37	3.80	4.12	3.88
	lbs/day ²	--	--	0.54	0.13	0.10	0.12	0.11
Total Nickel	µg/L	--	--	--	3.57	3.37	2.86	3.41
	lbs/day ²	--	--	0.2	0.10	0.09	0.09	0.09
Total Mercury ³	lbs/month ⁴	--	--	0.015	0.0005	0.0003	0.00002	0.0002
<i>Hill Canyon Wastewater Treatment Plant (10D_HILL)</i>								
Total Copper	µg/L	--	6.0	--	2.60	2.0	1.8	2.1
	lbs/day ²	--	--	0.7	0.17	0.12	0.11	0.15
Total Nickel	µg/L	--	--	--	3.0	2.1	2.3	2.6
	lbs/day ²	--	--	0.3	0.19	0.13	0.14	0.18
Total Mercury ³	lbs/month ⁴	--	--	0.022	0.026	0.025	0.022	0.028
<i>Simi Valley Water Quality Control Plant (07D_SIMI)</i>								
Total Copper	µg/L	31.0	30.5	--	6.6	4.1	4.9	4.5
Total Nickel	µg/L	960	169	--	1.9	1.7	1.3	2.0
Total Mercury ²	lbs/month ³	--	--	0.031	0.0012	0.0013	0.0012	0.0021

1. Final wasteload allocations effective as of March 26, 2017 (R16-007).

2. During load calculation, the daily mean flow on the date of sampling was multiplied by the concentration of total copper or total nickel to yield the daily total copper or total nickel in pounds.

3. For total mercury concentrations reported as not detected (ND); one half of the method detection limit was used to calculate the monthly loads

4. During load calculation, the average monthly flow for each POTW was multiplied by the number of days in the month corresponding to when the sample was collected to get a total monthly flow. The total monthly flow was multiplied by the concentration of total mercury to yield the monthly total mercury load in pounds.

Results in **green type** are below the applicable allocations.

Results in **bold red type** exceed applicable wasteload allocation.

Table 29. Salts - POTWs

POTW & Constituent	Units	Monthly Avg Interim WLA	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
<i>Camarrillo Water Reclamation Plant (9AD_CAMA) ¹</i>														
Boron	mg/L	N/A	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.6	0.5	0.5	0.5
Chloride	mg/L	216	223	229	200	209	200	201	193	193	204	205	201	215
Sulfate	mg/L	283	225	240	195	208	227	216	225	203	225	230	208	212
Total Dissolved Solids	mg/L	1012	1016	1064	936	902	1038	984	1024	1016	1024	1050	1024	910
<i>Hill Canyon Wastewater Treatment Plant (10D_HILL)</i>														
Boron	mg/L	N/A	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Chloride	mg/L	189	171	164	154	150	130	135	131	137	158	130	128	140
Sulfate	mg/L	N/A	107	106	106	101	100	91	92	92	119	95	90	163
Total Dissolved Solids	mg/L	N/A	615	624	604	667	557	537	504	548	607	556	515	643
<i>Simi Valley Water Quality Control Plant (07D_SIMI)</i>														
Boron	mg/L	N/A	0.48	0.44	0.5	0.49	0.49	0.43	0.46	0.41	0.52	0.5	0.46	0.44
Chloride	mg/L	183	156	149	145	143	136	127	128	118	122	131	126	120
Sulfate	mg/L	298	195	185	180	181	182	181	180	187	198	240	215	182
Total Dissolved Solids	mg/L	955	769	693	647	710	660	664	640	515	666	741	723	628

N/A: "The 95th percentile concentration is below the Basin Plan objective so interim limits are not necessary."

Results in **bold red type** exceed applicable interim wasteload allocation.

Results in **green type** are below the applicable allocations.

1. Due to water conservation and alterations in the composition of the water supply available in the POTW service area, effluent salt concentrations have increased since the adoption of the TMDL. The increased salts concentrations are being addressed through a Time Schedule Order that provides for higher TDS and sulfate interim limits and a stay of interim limits for chloride (SWRCB WQO 2003-0019). TSO limits are as follows: TDS 1242 mg/L, sulfate 359 mg/L, and chloride 351 mg/L, all of which were met during the entire monitoring year.

EXCEEDANCE EVALUATION DISCUSSION

OC Pesticides, Toxicity, Metals, Nutrients, and Salts

The data comparisons shown in **Table 20** through **Table 29** above demonstrate that for the most part, the CCW is meeting the applicable interim or final wasteload allocations and load allocations currently in effect for the Nutrients, OC Pesticides, Toxicity, Salts, and Metals TMDLs. While this report provides a comparison of water quality monitoring results to applicable TMDL allocations and targets, it does not reflect an assessment of compliance with individual permit or Conditional Waiver for Irrigated Agricultural Lands (Ag Waiver) TMDL requirements for the responsible parties. The following observations summarize the comparison of monitoring results with applicable TMDL allocations:

1. No exceedances of the interim wasteload allocations or load allocations for OCs or PCBs were observed at any location in the watershed. One exceedance of final wasteload allocations for toxaphene was observed at Camarillo Water Reclamation Plant.
2. Exceedances of numeric targets for Nitrate-N and Nitrate-N + Nitrite-N were observed at compliance sites in the following subwatersheds: Mugu Lagoon, Calleguas Creek, Revolon Slough, and Las Posas. Most of the exceedances occurred during dry events, but there were a total of six wet weather exceedances in Calleguas Creek, Revolon Slough, and Las Posas. No exceedances of final nutrient wasteload allocations were measured at any POTW compliance site.
3. There were four exceedances of the final chlorpyrifos allocations during wet weather, and one exceedance during dry weather. One exceedance of the diazinon final allocations occurred during wet weather. No exceedances of the final diazinon allocations were observed during dry weather. These exceedances were considered in concert with urban and agricultural land use data. There were no exceedances of the final wasteload allocations for chlorpyrifos or diazinon at any POTW.
4. There were four exceedances of the interim load allocation and interim wasteload allocation for total selenium measured during the dry weather sampling events at the 04_WOOD site. As discussed in the TMDL, a primary source of selenium in Revolon Slough is considered to be rising groundwater levels and the interim allocations were to be considered in this context. There were no exceedances of final wasteload allocations for metals or selenium at any POTW.
5. This monitoring year only one site exhibited significant survival toxicity in water. This occurred during a storm event at the Revolon Slough receiving water site. In regards to sediment toxicity, samples collected at 04_WOOD, 02_PCH, and two of the Mugu Lagoon sites (01_BPT_14 and 01_SG_74) exhibited survival toxicity in relation to the control.
6. Two Salts TMDL compliance sites met interim wasteload and load allocations for all salts constituents, 9B_BARON and 07_TIERRA. Another two sites met all interim allocations except for chloride, those were 03_UNIV and 9A_HOWAR. One final compliance site, 04_WOOD, had exceedances for all the salts constituents except for chloride. This site generally met the interim load allocations but exceeded the interim wasteload allocations. POTWs are meeting interim salts wasteload allocations, with the

exception of Camarillo Water Reclamation Plant (WRP), which experienced exceedances of chloride and TDS. The exceedances of interim salts wasteload allocations for the Camarillo WRP have resulted from increased influent salt concentrations due to water conservation and a shift in the composition of the water supplied within the service area. Because the process for addressing salts is a watershed effort involving significant capital investments, the Camarillo WRP received an amended Time Schedule Order in December 2015 (R4-2011-0126-A03) to adjust the interim limits for TDS, sulfate and chloride (TSO limits: 1242 mg/L TDS, 359 mg/L sulfate, 351 mg/L chloride). As a result, the interim limits in the TMDL are not the currently applicable interim limits for the Camarillo WRP discharge and the TSO limits were met the entire monitoring year.

Nutrients

Exceedances of numeric targets for Nitrate-N and Nitrate-N + Nitrite-N were observed in Mugu Lagoon, Revolon Slough, Beardsley Wash, Arroyo Las Posas, and Calleguas Creek. Nitrate-N exceedances are summarized in **Table 30** below. The table focuses on Nitrate-N results since Nitrate-N + Nitrite-N exceedances were caused by high Nitrate-N values. Nitrite-N was below the 1 mg/L target at all sites for every event.

Table 30. Exceedances of Nitrate-N Numeric TMDL Target of 10 mg/L

Nitrogen TMDL Compliance Sites	Event 62	Event 63	Event 64	Event 65	Event 66	Event 67
	Dry Aug-17	Dry Nov-17	Dry Feb-18	Wet Mar-18	Wet Mar-18	Dry May-18
01_RR_BR	Yes	Yes	Yes	No	No	No
02_PCH	No	Yes	Yes	Yes	No	Yes
03_UNIV	No	No	No	No	No	No
04_WOOD	Yes	Yes	Yes	No	No	Yes
05_CENTR	Yes	Yes	Yes	Yes	No	Yes
06_UPLAND	NS	NS	NS	Yes	No	NS
07_HITCH	No	No	No	No	No	No
9B_ADOLF	No	No	No	No	No	No

NR=not required, NS=no sample, dry

No signifies that monitoring results were below the Nitrate-N target during the monitoring event.

Yes signifies that monitoring results were above the Nitrate-N target during the monitoring event.

Nitrogen exceedances occurred primarily in areas of the watershed with agricultural inputs. Reaches downstream of POTW discharges are generally in compliance with the TMDL requirements and urban discharges were determined to be negligible during the TMDL analysis and therefore do not have TMDL allocations. The final nitrogen load allocations for agriculture became effective in July 2010. Under the 2016 Conditional Waiver (Order No. R4-2016-0143), agricultural dischargers have until October 14, 2025 to comply with the nitrogen load allocations. The Water Quality Management Plans developed by VCAILG for compliance with the Ag Waiver will specify steps and milestones that work towards achieving these load allocations through the implementation of management practices.

Chlorpyrifos

Further examination of the chlorpyrifos exceedances at receiving water sites was needed to determine whether urban or agricultural dischargers were contributing. The final wasteload allocations for urban dischargers and final load allocations for agriculture are in effect and per the TMDL compliance is to be assessed in the receiving waters.

Monitoring data at urban land use sites from each subwatershed for which an exceedance was observed in the receiving water was compared to the wasteload allocation to determine if MS4 discharges significantly contributed to the exceedance. If the urban land use data were below the wasteload allocation, the MS4 dischargers were considered to be meeting allocations. If the urban land use data were above the wasteload allocation, the MS4 could be contributing to the exceedance in the receiving water.

As shown in **Table 22**, there were five exceedances of chlorpyrifos targets and one exceedance of diazinon targets at the receiving water sites. In three cases, urban land use data for the same event were less than the final MS4 wasteload allocation for chlorpyrifos (**Table 31**). In addition, further examination of the chlorpyrifos exceedances at receiving water sites was needed to determine whether agricultural dischargers were contributing. The final load allocations for urban dischargers are in effect and per the TMDL, compliance is to be assessed in the receiving waters.

Monitoring data at agricultural land use sites from each subwatershed for which an exceedance was observed in the receiving water was compared to the wasteload allocation to determine if agricultural discharges significantly contributed to the exceedance. If the agricultural land use data were below the load allocation, the agricultural dischargers were considered to be meeting allocations. If the agricultural land use data were above the load allocation, the agricultural dischargers could be contributing to the exceedance in the receiving water.

Table 31. Compliance and Land Use Sites Comparison to Determine MS4 Chlorpyrifos WLA Compliance

Sites Exceeding WLAs	Constituent	Event 62 Dry Aug-17	Event 63 Dry Nov-17	Event 64 Dry Feb-18	Event 65 Wet Mar-18	Event 66 Wet Mar-18	Event 67 Dry May-18
01_RR_BR	Chlorpyrifos					NA ¹	
04_WOOD	Chlorpyrifos			No	No	No	
06_UPLAND	Chlorpyrifos				NA ¹		
06_UPLAND	Diazinon				NA ¹		

No= none of the MS4 land use site for the subwatershed exceeded the MS4 wasteload allocation during the monitoring event.

Yes=the MS4 land use site for the subwatershed exceeded the MS4 wasteload allocation during the monitoring event.

1. There are no urban land use monitoring sites in these reaches.

Blank cells indicate that a wasteload allocation exceedance did not occur at the compliance monitoring site during a particular event.

Table 32. Compliance and Land Use Sites Comparison to Determine Ag Chlorpyrifos LA Compliance

Sites Exceeding WLAs	Constituent	Event 62 Dry Aug-17	Event 63 Dry Nov-17	Event 64 Dry Feb-18	Event 65 Wet Mar-18	Event 66 Wet Mar-18	Event 67 Dry May-18
01_RR_BR	Chlorpyrifos					Yes	
04_WOOD	Chlorpyrifos			No	No	No	
06_UPLAND	Chlorpyrifos				No		
06_UPLAND	Diazinon				No		

Yes=the Ag land use site for the subwatershed exceeded the Ag load allocation during the monitoring event.

1. There are no urban land use monitoring sites in these reaches.

Blank cells indicate that a load allocation exceedance did not occur at the compliance monitoring site during a particular event.

Selenium

Selenium concentrations in Revolon Slough at 04_WOOD exceeded the urban dischargers interim wasteload allocation and the agricultural dischargers interim LA during all four dry weather monitoring events. A summary of monitoring results for total selenium at sites in the Revolon Slough subwatershed is shown in **Table 33** below.

Table 33. Selenium Monitoring Data (ug/L) in the Revolon Slough Subwatershed

Site ID	Use	Dry Weather Events					
		Interim	62	63	64	67	
		WLA ¹	Aug-17	Nov-17	Feb-18	May-18	May-17
04_WOOD	RW	13	6	26.87	22	13.7	17.4
04D_WOOD	Ag		6	NS	3.49	3.90	1.68
05D_SANT_VCWPD	Ag		6	64.85	43.9	48.1	38.3
04D_VENTURA	Urban	13		0.71	0.46	0.61	0.53

1. Interim WLAs for stormwater permittees and interim LAs for agricultural dischargers are effective until March 2022 (R4-2006-012).

2. No wet weather exceedances were observed in the TMDL analysis so no interim limits were assigned for the TMDL. For comparison purposes, the wet weather targets were included in this table.

RW – Receiving water compliance site; Ag – Agricultural; Urban – Urban

NS – Not sampled, dry

As noted in the table above, high levels of selenium were also observed at 05D_SANT_VCWPD, one of the agricultural land use sites in the Revolon Slough subwatershed. As discussed in the TMDL, a primary source of selenium in this area is considered to be rising groundwater levels and the interim allocations were to be considered in this context.

Salts

A summary of monitoring results for total dissolved solids, sulfate, and boron at sites in the Revolon Slough subwatershed are shown in **Table 34** through **Table 36** and chloride in the Conejo Creek watershed in **Table 37** below.

Mean monthly dry weather TDS, sulfate, and boron concentrations in Revolon Slough at 04_WOOD exceeded their respective interim MS4 WLAs during all twelve months of the monitoring period. However, mean monthly dry weather TDS, chloride, and sulfate concentrations in Revolon Slough at 04_WOOD did not exceed their respective LAs during the monitoring period. Mean monthly dry weather boron concentrations exceeded load allocations in Revolon Slough at 04_WOOD on two occasions. Site 04D_WOOD represents agricultural discharge water quality in the Revolon Slough subwatershed. At this site, no exceedances of the interim LAs occurred. Concentrations of salts at 04D_VENTURA, which is an urban land use site in the upper Revolon Slough watershed, were consistently below the interim MS4 WLAs for TDS, sulfate, and boron.

Mean monthly dry weather chloride concentrations in Conejo Creek at 9A_HOWAR exceeded the interim LA and interim MS4 WLA during five months of the monitoring period. However, mean monthly dry weather TDS and sulfate concentrations in Conejo Creek at 9A_HOWAR did not exceed their respective LAs or WLAs during the monitoring period. Site 9BD_ADOLF

represents urban discharge water quality in the Conejo Creek subwatershed. At this site, exceedances of the interim LA occurred during all four sampling events. The agricultural site 9BD_GERRY for this subwatershed had no flow during the four dry weather sampling events.

Mean monthly dry weather chloride concentrations in Calleguas Creek at 03_UNIV exceeded the interim LA and interim MS4 WLA during nine months of the monitoring period. However, there are no land use monitoring sites located in Reach 3 of Calleguas Creek to compare land use water quality data to receiving water quality data.

Table 34. Total Dissolved Solids Monitoring Data (mg/L) in Revolon Slough

Site ID	Use	Interim Limits		Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
		WLA	LA												
04_WOOD ¹	RW	1720	3995	3444	3586	3139	3271	3334	3379	3592	3538	3459	3550	3493	3590
04D_WOOD ²	Ag		3995		NS			2440			2250			1340	
04D_VENTURA ²	Urban	1720			1490			560			740			780	

NS=no sample, dry

1. Data presented are monthly means

2. Data presented are quarterly dry weather grabs

Results in **bold type** exceed applicable interim wasteload allocation or interim load allocation.

Table 35. Sulfate Monitoring Data (mg/L) in Revolon Slough

Site ID	Use	Interim Limits		Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
		WLA	LA												
04_WOOD ¹	RW	1289	1962	1785	1859	1627	1696	1728	1752	1863	1835	1793	1840	1811	1861
04D_WOOD ²	Ag		1962		NS			1330			744			535	
04D_VENTURA ²	Urban	1289			486			146			181			196	

NS=no sample, dry

1. Data presented are monthly means

2. Data presented are quarterly dry weather grabs

Results in **bold type** exceed applicable interim wasteload allocation or interim load allocation.

Table 36. Boron Monitoring Data (mg/L) in Revolon Slough

Site ID	Use	Interim Limits		Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
		WLA	LA												
04_WOOD ¹	RW	1.3	1.8	1.8	1.8	1.6	1.7	1.7	1.7	1.9	1.8	1.8	1.8	1.8	1.9
04D_WOOD ²	Ag		1.8		NS			1.3			1.1			0.66	
04D_VENTURA ²	Urban	1.3			0.64			0.31			0.37			0.4	

NS=no sample, dry

1. Data presented are monthly means

2. Data presented are quarterly dry weather grabs

Results in **bold type** exceed the applicable interim wasteload allocation or interim load allocation

Table 37. Chloride Monitoring Data (mg/L) in Conejo Creek

Site ID	Use	Interim Limits		Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
		WLA	LA												
9A_HOWAR ¹	RW	230	230	234	224	220	222	234	236	223	226	239	229	223	238
9BD_GERRY ²	Ag	230			NS			NS			NS				NS
9BD_ADOLF ²	Urban		230		552			467			575				486

NS=no sample, dry

1. Data presented are monthly means

2. Data presented are quarterly dry weather grabs

Results in **bold type** exceed applicable interim wasteload allocation or interim load allocation.

Revisions and Recommendations

The QAPP specifies that upon the completion of each CCWTMP annual report, revisions to standard procedures will be made, including: site relocation, ceasing monitoring efforts and/or deleting certain constituents from sample collection. An updated QAPP was submitted in December 2014 that incorporated the proposed revisions and recommendations included in the previous six CCWTMP annual reports. Additional modifications that reflect the most current lab methods and procedures for the field conditions were also part of the QAPP update process. Monitoring for the 2017-2018 monitoring year was conducted per the revised QAPP.

In August 2018, during the first monitoring event of year 11, construction activities were observed at the monitoring site 04D_VENTURA. This is an urban land use site in the City of Camarillo. It was determined that a stretch of the stormwater channel is being enclosed directly up and downstream of the existing monitoring location. The site is being considered for relocation downstream, but still within the City's urban area. Once the site is selected, details will be provided to the Regional Water Board via separate submittal.

The Stakeholders will be submitting TMDL receiving water data to the California Environmental Data Exchange Network (CEDEN) going back to the beginning of the monitoring program in 2008. TMDL receiving water monitoring data will continue to be uploaded for future monitoring events, as well.