



*Ventura Countywide
Stormwater Quality
Management Program*

2017-2018
Permit Year

Ventura Countywide Stormwater Quality
Management Program Annual Report

Attachment E – TMDL Reports (2/3)



December 14, 2018

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



December 22, 2017

Jenny Newman, TMDL Section Chief
Regional Water Quality Control Board Los Angeles Region
320 W. 4th St., Suite 200
Los Angeles, CA 90013

Subject: **2017 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 2017 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, Ventura County Watershed Protection District, County of Ventura, 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

Jenny Newman, TMDL Section Chief

December 22, 2017

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cc: Renee Purdy, Regional Water Quality Control Board
Jeff Pratt, County of Ventura Public Works Agency
Glenn Shephard, Ventura County Watershed Protection District
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Joe Yahner, City of Ventura
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DECEMBER 2017

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

2017 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

December 22, 2017



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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 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 2017 – September 2017, including monthly checks for flow at the observations sites and the continuous data logging conducted in May and September 2017.

While the drought is not yet over for Ventura County, the county did receive above average rainfall in the start of 2017, which was sufficient 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, referred to as TMDL-CVB in previous reports) flowed through September, however TMDL-H150 (Ventura River at Hwy 150, referred to as TMDL-150 in previous reports) and TMDL-SAB (Ventura River at Santa Ana Blvd) were mostly dry by May and completely dry for the remainder of the dry season. All TMDL sample sites had sampleable flow for nutrients and algae sampling from May – July, however by August, TMDL-CL was completely dry and TMDL-SA was too dry for algae sampling. Flow variations between monitoring sites and events might be due to a combination of factors including geology, weather conditions, inputs, and extractions.

In contrast to previous years, all sampleable sites except the estuary 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-R4 and TMDL-CL 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 during the June monthly sampling. Levels of dissolved oxygen 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 0.44 mg/L – 4.7 mg/L and total phosphorus was 0.0068 (DNQ) mg/L – 0.54 mg/L .

Hydrolab HL4 water quality sondes are used for the quarterly two-week continuous monitoring requirement and were first deployed for this project in March 2015. As required by the TMDL, the sondes were deployed in May and September during the 2017 Dry Season. The sondes were calibrated by District staff before each event to ensure calibrations were accurate and 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 ten feet in order 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 not deployed at 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 10 and September 5, respectively. All required data was collected in May, however R2 had conductivity errors, and it is likely that flow ceased at SA mid-deployment resulting in changes in the readings. The Estuary sonde was missing (stolen) at the end of the September deployment period. There was insufficient time in September to redesign the placement (to prevent further theft) and redeploy the sonde so the next continuous monitoring for this site will be in the fourth quarter. Three sondes (TMDL-R1, TMDL-R3, and TMDL-SA) had conductivity measurement issues in September, but all required parameters were measured.

Sampling event data, including field data sheets and laboratory reports, will be provided with the 2018 Annual Report.

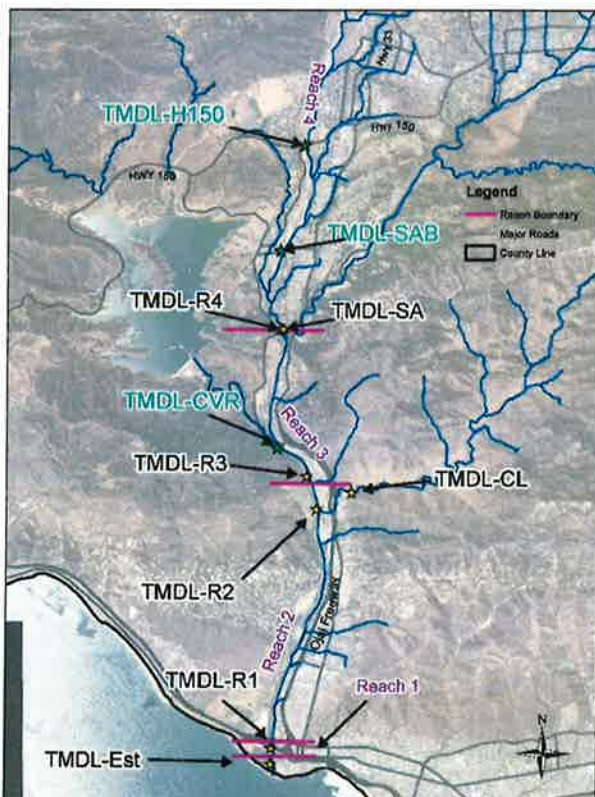
BACKGROUND

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 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 2017, 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, in order 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 upstream of the site listed in the CMP (downstream permission denied) and TMDL-SA directly above the confluence with the Ventura River.

MONTHLY MONITORING

The 2017 dry season sampling occurred monthly starting in May through September as required. There was no connectivity between the upper and lower watershed during this time, as shown in Table 1. All TMDL sample sites had sampleable flow for nutrients and algae sampling from May – July, however by August, TMDL-CL was completely dry and TMDL-SA was too dry for algae sampling. 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 2017 OBSERVATION SITES

Date	Ventura River at Hwy 150	Ventura River at Santa Ana Blvd	Ventura River at Casitas Vista Road
5/11/2017	Dry at bridge but ponds visible up and downstream	Small flow on west side, ponded upstream on east side, dry ~20m downstream of bridge	Flow on east and west end. East dominant ~ 15 -20 cfs
6/15/2017	DRY	DRY	Flow on east and west end. East dominant ~ 10 cfs
7/13/2017	DRY	DRY	Flow on east and west end. East dominant ~ 5-10 cfs
8/16/2017	DRY	DRY	Flow on east and west end. East dominant ~ 5-10 cfs
9/6/2017	DRY	DRY	~1.5 cfs

There was no connectivity with the upper watershed during the 2017 dry season.

TABLE 2. MAY - SEPTEMBER 2017 WATER QUALITY SAMPLE COLLECTION DATE AGENCY

Site	Collecting Agency	Sampling Date				
		May 2017	June 2017	July 2017	August 2017	September 2017
TMDL-Est	District/ABC	5/10/2017	6/15/2017	7/13/2017	8/16/2017	9/6/2017
TMDL-R1	District/ABC	5/10/2017	6/15/2017	7/13/2017	8/16/2017	9/6/2017
TMDL-R2	District/ABC	5/10/2017	6/15/2017	7/12/2017	8/15/2017	9/6/2017
TMDL-R3	District/ABC	5/9/2017	6/14/2017	7/12/2017	8/15/2017	9/5/2017
TMDL-R4	District/ABC	5/9/2017	6/14/2017	7/12/2017	8/15/2017	9/5/2017
TMDL-CL	District/ABC	5/9/2017	6/15/2017	7/13/2017	(DRY) 8/15/2017	(DRY) 9/5/2017
TMDL-SA	District/ABC	5/9/2017	6/14/2017	7/12/2017	(Mostly Dry) 8/15/2017	(Mostly Dry) 9/5/2017

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 2017 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	5/10/2017	12:20	Open-west end	NA	8.41	11.04	6080	3.3	20.2
TMDL-Est	6/15/2017	13:05	Open-west end	NA	8.64	11.37	3437	1.8	25.1
TMDL-Est	7/13/2017	10:00	Open-west end	NA	7.94	6.79	2857	1.5	24.4
TMDL-Est	8/16/2017	11:30	Open-west end	NA	8.08	Invalid	1630	0.8	22.9
TMDL-Est	9/6/2017	11:30	Open-west end	NA	7.98	7.36	1601	0.8	24.7
TMDL-R1	5/10/2017	10:25	NA	13.61	8.46	8.8	1365	0.7	18.9
TMDL-R1	6/15/2017	11:20	NA	7.35	8.17	9.3	1371	0.7	21.2
TMDL-R1	7/13/2017	8:15	NA	6.06	7.95	7.17	1462	0.7	22.4
TMDL-R1	8/16/2017	9:40	NA	4.19	7.97	Invalid	1541	0.8	20.7
TMDL-R1	9/6/2017	10:10	NA	3.11	7.94	7.78	1625	0.8	22.7
TMDL-R2	5/10/2017	8:10	NA	13.84	7.84	8.15	1164	NA	18.3
TMDL-R2	6/15/2017	9:10	NA	8.54	7.97	8.39	1205	NA	20.1
TMDL-R2	7/12/2017	13:10	NA	10.63	8.19	9.65	1226	NA	24.4
TMDL-R2	8/15/2017	12:15	NA	6.66	8.02	Invalid	1220	NA	23.3
TMDL-R2	9/6/2017	8:00	NA	3.96	7.62	6.82	1273	NA	22.8
TMDL-R3	5/9/2017	11:25	NA	8.05	8.08	11.87	1144	NA	18.8
TMDL-R3	6/14/2017	12:10	NA	6.91	8.02	10.46	1080	NA	20.5
TMDL-R3	7/12/2017	11:20	NA	6.13	7.93	8.62	1180	NA	22.1
TMDL-R3	8/15/2017	10:30	NA	4.53	7.92	Invalid	1180	NA	21.2
TMDL-R3	9/5/2017	11:20	NA	3.82	7.97	9.05	906	NA	24.1
TMDL-R4	5/9/2017	8:10	NA	8.53	7.34	6.5	1026	NA	17.6
TMDL-R4	6/14/2017	8:55	NA	6.1	7.4	6.4	921	NA	18.6
TMDL-R4	7/12/2017	8:00	NA	5.99	7.29	7.92	1029	NA	19.5
TMDL-R4	8/15/2017	7:55	NA	4.94	7.23	Invalid	1029	NA	19.6
TMDL-R4	9/5/2017	8:30	NA	2.46	7.12	6.55 ^	998 ^	NA	20.3/17.9 ^
TMDL-SA	5/9/2017	9:50	NA	0.13	7.58	9.71	1634	NA	17.8
TMDL-SA	6/14/2017	10:30	NA	0.07*	7.1	3.92	926	NA	17.7
TMDL-SA	7/12/2017	9:45	NA	0.07*	7.35	2.58	1014	NA	18.7
TMDL-SA	8/15/2017	9:40	NA	0.03*	7.28	Invalid	1018	NA	18.8
TMDL-SA	9/5/2017	10:20	NA	<0.01*	7.08	5.23 ^	997 ^	NA	19.8/16.8 ^
TMDL-CL	5/9/2017	13:10	NA	0.27	8.05	9.02	3121	NA	27.5
TMDL-CL	6/15/2017	7:40	NA	0.17	8.08	8.94	2272	NA	15.7
TMDL-CL	7/13/2017	11:15	NA	0.01*	8.32	11.56	4114	NA	2.2
TMDL-CL	8/15/2017	13:50	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	9/5/2017	10:57	NA	DRY	DRY	DRY	DRY	NA	DRY

* The flow during this event was below the threshold for accurate meter measurement. These results are estimated and subject to additional error.

^ R4 and SA were resampled for DO/EC/Temp on 9/26/2017 at 08:40 and 09:28 respectively, as a meter malfunction after they were sampled on 9/5/2017 caused doubt on the accuracy of the original measurements.

Invalid: meter malfunction

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 R4 and continued to the estuary, including through the typically perennial reaches of R3 and below. The flow at R2 is a combination of the flow in the Ventura River downstream of R3 and the discharge from the Ojai Valley Sanitary District's wastewater treatment plant. Flow decreased between R2 and 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. Pondered 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 measurements for pH were within the numeric target limits with the exception of the TMDL-Est on 6/15/17, which was marginally higher than the upper TMDL numeric target. Low levels of dissolved oxygen 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 2017 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	5/10/2017	12:20	0.043	0.0080 (DNQ)	0.65	0.26	1.8	1.4	1.1
TMDL-Est	6/15/2017	13:05	0.03	0.0099 (DNQ)	0.51	0.54	0.51	0.54	<0.041
TMDL-Est	7/13/2017	10:00	0.05	0.014	0.53	0.42	0.53	0.42	<0.041
TMDL-Est	8/16/2017	11:30	0.044	0.015	0.58	0.43	0.58	0.43	<0.083
TMDL-Est	9/6/2017	11:30	0.047	0.014	0.44	0.39	0.44	0.39	<0.083
TMDL-R1	5/10/2017	10:25	0.013	0.0091 (DNQ)	0.24	0.17	2.2	2.1	1.9
TMDL-R1	6/15/2017	11:20	0.038	0.022	0.35	0.27	1.3	1.2	0.91
TMDL-R1	7/13/2017	8:15	0.042	0.03	0.3	0.44	0.91	1.1	0.61
TMDL-R1	8/16/2017	9:40	0.16	0.15	0.36	0.33	1	1	0.67
TMDL-R1	9/6/2017	10:10	0.29	0.26	0.34	0.41	0.91	0.99	0.57
TMDL-R2	5/10/2017	8:10	0.064	0.059	0.078 (DNQ)	<0.05	3.3	3.2	3.2
TMDL-R2	6/15/2017	9:10	0.083	0.07	0.38	0.25	2.5	2.4	2.1
TMDL-R2	7/12/2017	13:10	0.095	0.08	0.36	0.37	2.1	2.1	1.8
TMDL-R2	8/15/2017	12:15	0.47	0.22	0.48	0.38	2.2	2.1	1.7
TMDL-R2	9/6/2017	8:00	0.54	0.54	0.25	0.47	2.1	2.3	1.8
TMDL-R3	5/9/2017	11:25	0.0070 (DNQ)	0.0054 (DNQ)	<0.050	0.068 (DNQ)	3.3	3.4	3.3
TMDL-R3	6/14/2017	12:10	0.011	0.0090 (DNQ)	<0.050	0.066 (DNQ)	2.1	2.2	2.1

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 duplicate	6/14/2017	12:10	0.011	0.0096 (DNQ)	<0.050	<0.050	2.2	2.2	2.2
TMDL-R3	7/12/2017	11:20	0.013	0.011	<0.050	0.079 (DNQ)	1.7	1.8	1.7
TMDL-R3	8/15/2017	10:30	0.015	0.01	0.22	0.13	1.3	1.2	1.1
TMDL-R3	9/5/2017	11:20	0.011	0.015	0.12	0.21	1	1.1	0.88
TMDL-R4	5/9/2017	8:10	0.0078 (DNQ)	0.0062 (DNQ)	<0.050	<0.050	4.7	4.7	4.7
TMDL-R4	6/14/2017	8:55	0.0081 (DNQ)	0.0069 (DNQ)	<0.050	<0.050	2.8	2.8	2.8
TMDL-R4	7/12/2017	8:00	0.0088 (DNQ)	0.0083 (DNQ)	<0.050	<0.050	2.3	2.3	2.3
TMDL-R4	8/15/2017	7:55	0.0091 (DNQ)	0.0066 (DNQ)	0.21	0.073 (DNQ)	2.0	1.8	1.8
TMDL-R4	9/5/2017	8:30	0.01	0.0054 (DNQ)	0.068 (DNQ)	<0.050	1.7	1.6	1.6
TMDL-SA	5/9/2017	9:50	0.054	0.047	0.3	0.27	1.6	1.5	1.3
TMDL-SA	6/14/2017	10:30	0.012	0.0085 (DNQ)	0.070 (DNQ)	<0.050	1	0.93	0.93
TMDL-SA	7/12/2017	9:45	0.023	0.017	0.14	<0.050	1.3	1.1	1.1
TMDL-SA	8/15/2017	9:40	0.016	0.013	0.13	0.072 (DNQ)	0.9	0.84	0.77
TMDL-SA	9/5/2017	10:20	0.037	0.024	0.089 (DNQ)	0.096 (DNQ)	0.7	0.7	0.61
TMDL-CL	5/9/2017	13:10	0.0068 (DNQ)	0.0083 (DNQ)	0.46	0.32	0.51	0.37	0.053 (DNQ)
TMDL-CL	6/15/2017	7:40	0.012	0.0073 (DNQ)	0.49	0.36	0.49	0.36	<0.041
TMDL-CL	7/13/2017	11:15	0.017	0.0085 (DNQ)	0.58	0.61	0.62	0.66	0.047 (DNQ)
TMDL-CL	8/15/2017	13:50	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	9/5/2017	10:57	DRY	DRY	DRY	DRY	DRY	DRY	DRY

TABLE 5. MAY – SEPTEMBER 2017 MONTHLY ALGAL BIOMASS (CHLOROPHYLL A) AND PERCENT MACROALGAL COVER (RIVER SITES)

Site	Date	Field Replicate	Number of Transects Collected	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> units	Percent Presence Macroalgae (%)
TMDL-R1	5/10/2017	1	11	160	mg/m ²	88.61
TMDL-R1	6/15/2017	1	11	440	mg/m ²	70.59
TMDL-R1	7/13/2017	1	11	280	mg/m ²	8.51
TMDL-R1	8/16/2017	1	11	410	mg/m ²	12.38
TMDL-R1	9/6/2017	1	11	220	mg/m ²	0.00
TMDL-R2	5/10/2017	1	11	350	mg/m ²	94.29
TMDL-R2	6/15/2017	1	11	520	mg/m ²	83.33

Site	Date	Field Replicate	Number of Transects Collected	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> units	Percent Presence Macroalgae (%)
TMDL-R2	7/12/2017	1	11	420	mg/m ²	19.05
TMDL-R2	8/15/2017	1	11	320	mg/m ²	24.04
TMDL-R2	9/6/2017	1	11	220	mg/m ²	2.86
TMDL-R3	5/9/2017	1	11	440	mg/m ²	80.95
TMDL-R3	6/14/2017	1	11	360	mg/m ²	91.43
TMDL-R3	6/14/2017	2	11	220	mg/m ²	NA
TMDL-R3	7/12/2017	1	11	100	mg/m ²	66.35
TMDL-R3	8/15/2017	1	11	200	mg/m ²	41.90
TMDL-R3	9/5/2017	1	11	160	mg/m ²	25.96
TMDL-R4	5/9/2017	1	11	110	mg/m ²	76.92
TMDL-R4	6/14/2017	1	11	240	mg/m ²	83.65
TMDL-R4	7/12/2017	1	11	110	mg/m ²	74.29
TMDL-R4	8/15/2017	1	11	100	mg/m ²	64.76
TMDL-R4	9/5/2017	1	11	170	mg/m ²	60.00
TMDL-SA	5/9/2017	1	11	260	mg/m ²	76.77
TMDL-SA	6/14/2017	1	9	450	mg/m ²	91.76
TMDL-SA	7/12/2017	1	4	190	mg/m ²	75.00
TMDL-SA	8/15/2017	1	Mostly Dry	Mostly Dry	mg/m ²	Mostly Dry
TMDL-SA	9/5/2017	1	Mostly Dry	Mostly Dry	mg/m ²	Mostly Dry
TMDL-CL	5/9/2017	1	11	36	mg/m ²	57.69
TMDL-CL	6/14/2017	1	11	22	mg/m ²	72.38
TMDL-CL	7/13/2017	1	11	110	mg/m ²	56.00
TMDL-CL	8/15/2017	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	9/5/2017	1	DRY	DRY	mg/m ²	DRY

TABLE 6. 2017 DRY SEASON AVERAGE MACROALGAL BIOMASS AND COVER_RIVER SITES

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	302	36.0
TMDL-R2	366	44.7
TMDL-R3	247	61.3
TMDL-R4	146	71.9
TMDL-SA	300	48.7
TMDL-CL	56	37.2

TMDL-R4 and TMDL-CL met the riverine seasonal average numeric target for chlorophyll *a*. The other riverine sites did not. None of the riverine sites met the seasonal average numeric target for macroalgal cover.

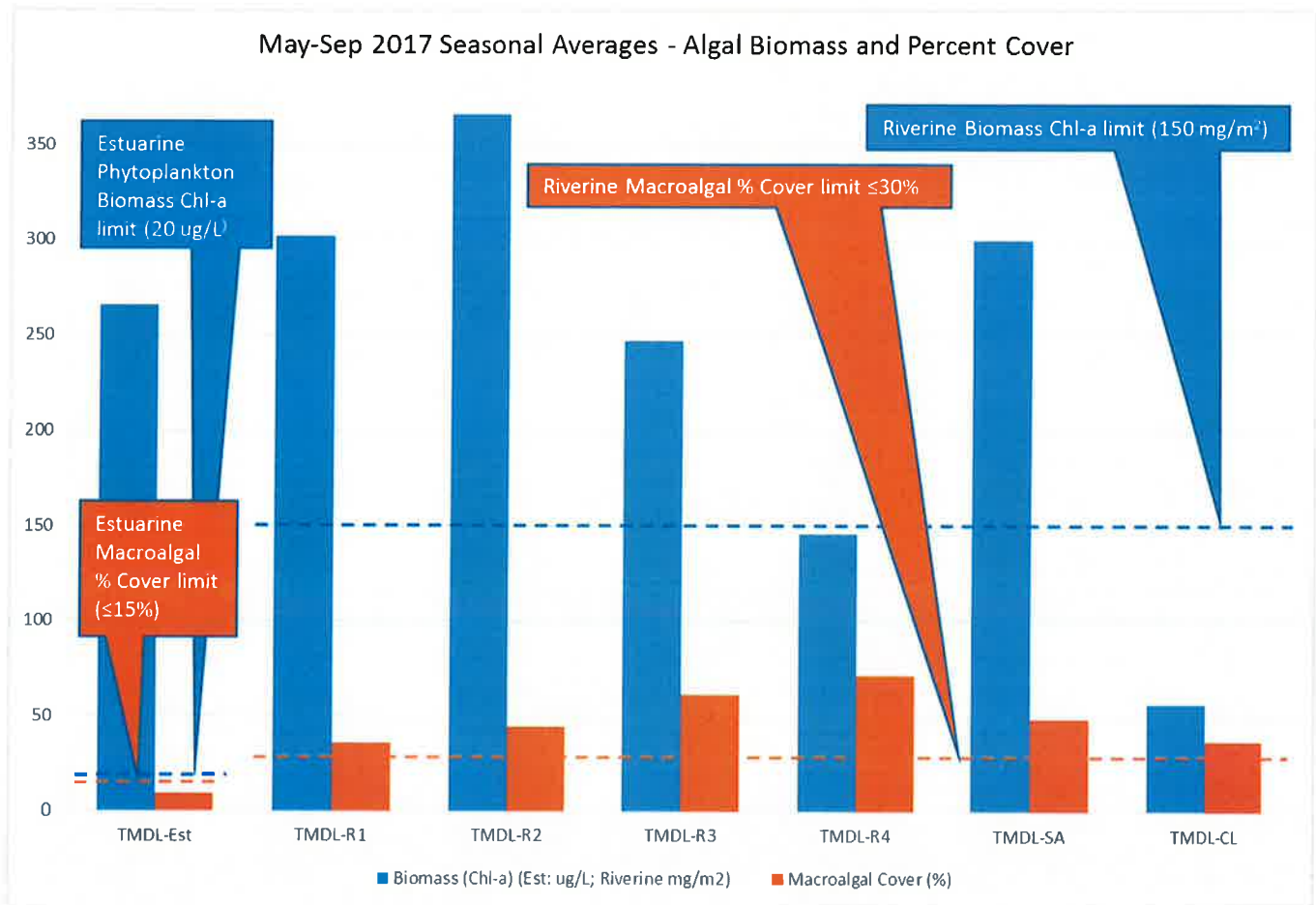
The SWAMP protocol for the riverine sites includes both suspended (floating) and attached (land-based) macroalgae when determining percent cover. The Bight '08 (estuarine) protocol includes measurements of floating algae at a depth of 0.3 meters for four quadrats per transect in addition to measuring algal cover on the shoreline. These variables are included in

Table 7. Site TMDL-Est met the seasonal average numeric target for percent cover in 2017 but exceeded the seasonal average numeric target for phytoplankton biomass (chlorophyll a).

TABLE 7. 2017 DRY SEASON AVERAGE MACROALGAL BIOMASS AND COVER_ESTUARY

Site	Date	Field Replicate	Phytoplankton Biomass Chlorophyll a (µg/L)	Land-Based Macroalgal Cover (%)	Floating Macroalgal Cover (%)
Seasonal Average Numeric Target			20 µg/L	≤ 15%	
TMDL-Est	5/10/2017	1	1,000	6.46	0.68
TMDL-Est	6/15/2017	1	160	7.21	0.17
TMDL-Est	6/15/2017	2	56	NA	NA
TMDL-Est	7/13/2017	1	270	19.12	0.00
TMDL-Est	8/16/2017	1	91	4.35	0.00
TMDL-Est	9/6/2017	1	19	7.89	0.00
TMDL-Est	Seasonal Average		266	9.01	0.17

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.

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 dissolved oxygen, 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.

FIGURE 3. HYDROLAB HL4 SONDE



Continuous monitoring for pH, specific conductivity, temperature, and dissolved oxygen was conducted for a two week period at all sites (except those that were dry) in May and September.

In May 2017, seven Hydrolab HL4 water quality data sondes were installed and programmed to log data beginning May 10, 2017 at 19:00. The sondes were programmed to log data 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). The TMDL-R2 conductivity sensor did not hold calibration through 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 data¹, so redeployment was unnecessary. It is likely that flow ceased at TMDL-SA mid-deployment, resulting in lower diurnal variation, dissolved oxygen, and conductivity levels. The field meter check at TMDL-SA measured DO at higher levels than the sonde, likely due to the stirring required to move the ponded water past the field meter's polarographic sensor at the speeds required for accurate measurement (> 1 foot per second). TMDL-SA conductivity readings may be in error for the second week of deployment based on the lower sonde readings than field meter readings at pickup.

In September 2017, sondes were installed at all TMDL monitoring sites for continuous data logging except TMDL-CL, which was dry. The sondes were installed before the logging program began on September 10, 2017 and removed after two weeks of logging, (Figure 5, Figure 6, and Figure 7). Three sondes would not allow conductivity calibrations prior to deployment but were working fine during post deployment checks. The difficulty in calibrating may have been caused by a temperature compensation issue within the sondes since temperatures were high (~ 35 degrees Celsius, 95 degrees Fahrenheit) on the

¹ The conductivity measurement is used by the sonde when calculating dissolved oxygen, however the influence of conductivity on dissolved oxygen measurements for conductivity levels at the TMDL riverine stations is negligible.

date of calibration. The sondes that calibrated for conductivity were used at sites with higher conductivities, to reduce the likelihood of affecting DO measurements, although all conductivities were low enough as measured by the field meter checks for negligible effects on the data. The TMDL-R3 DO sensor became fouled partway through its deployment. The TMDL-Est sonde was unable to be recovered and was likely stolen. The TMDL-Est sonde was deployed just upstream of the Southern Pacific railroad trestle on the west bank of the Ventura River on September 5th, 2017. The sonde was labeled with identifying information including a phone number, and was deployed within a floating housing with a 10 pound anchor that resulted in it being approximately 8 feet below the water surface and out of sight. The river velocity was low (3.11 cfs measured at TMDL-R1 on September 6, 2017). This is the same method that was used successfully for the last two years, even when river velocities were considerably higher. Sonde retrieval with a gaff was unsuccessfully attempted on September 20th. A second unsuccessful attempt was made with a pole and clamp on September 21st. On September 22nd, a diver searched within a 10-foot radius of the area of deployment but nothing was found. There is a large homeless population in the area and there are usually people around during sonde deployments and retrievals, however the actual placement is attempted to be done when nobody is watching. It seems likely that someone saw the deployment and swam out and stole the sonde. By the time the sonde was determined to be gone, it was too late to come up with a new system to secure the sonde and meet the two-week September deployment for the third quarter. The deployment method will be re-evaluated prior to the fourth quarter deployment to try to prevent additional loss of equipment/data. If vandalism or theft at this location continues, then the monitoring plan may need to be modified to reflect the realities of collecting continuous data in public spaces.

TABLE 8. 2017 DRY SEASON TWO-WEEK CONTINUOUS MONITORING PERIODS

Site	2017 Quarter 2 (May*)	2017 Quarter 3 (September*)
TMDL-Est	5/10/2017 – 5/24/2017	9/5/2017 - LOST
TMDL-R1	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017 ^a
TMDL-R2	5/10/2017 – 5/24/2017 ^a	9/5/2017 – 9/19/2017
TMDL-R3	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017 ^b
TMDL-R4	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017
TMDL-SA	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017
TMDL-CL	5/10/2017 – 5/24/2017	DRY

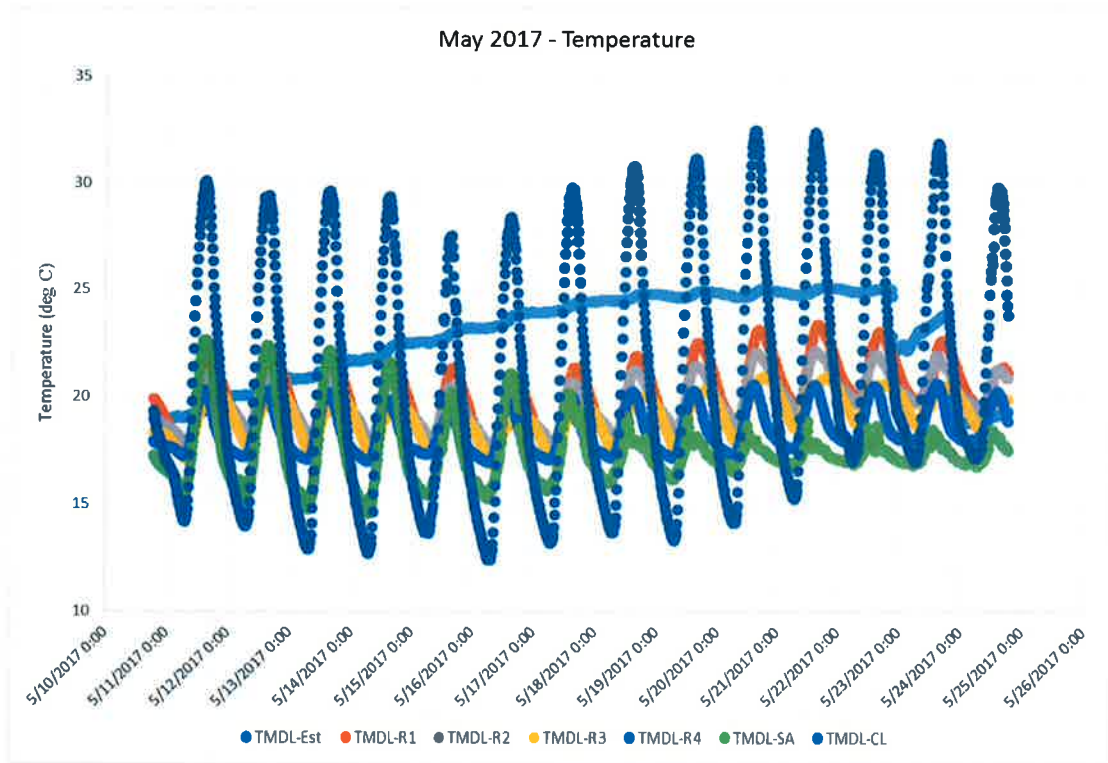
* Month required by TMDL

^a Conductivity in error but not a required parameter so not redeployed.

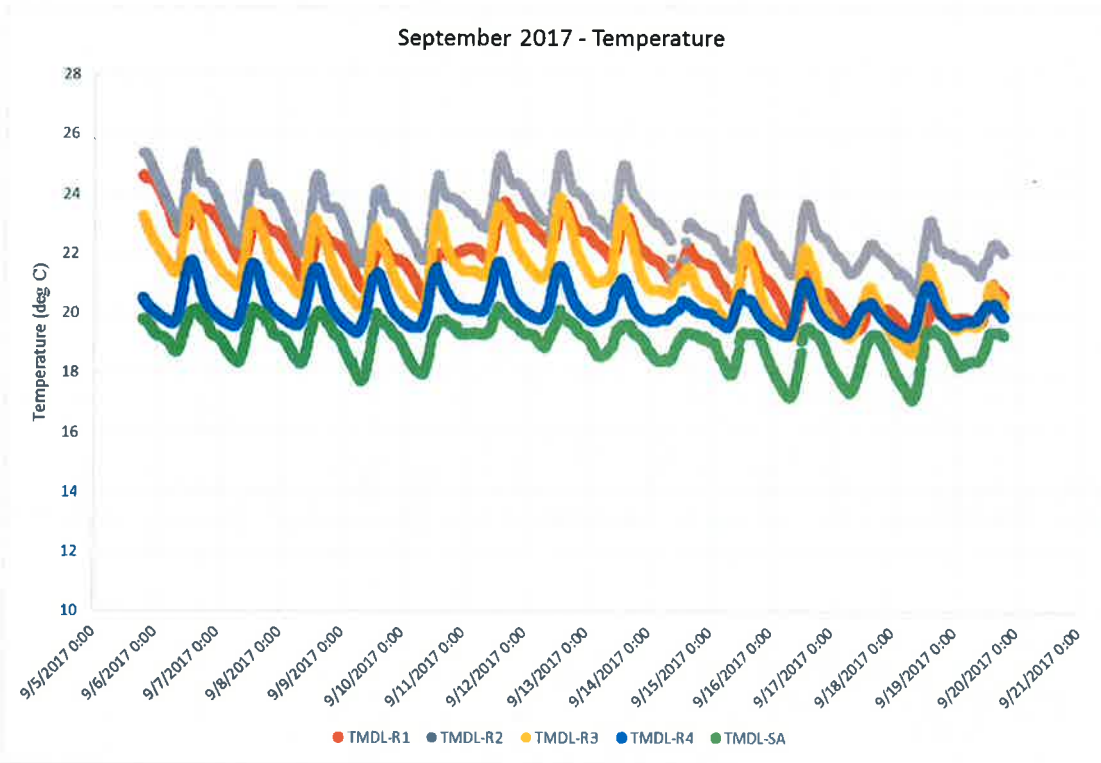
^b Dissolved oxygen sensor became fouled partway through deployment.

Graphical representations of the continuous monitoring data are presented below.

FIGURE 4. DRY SEASON 2017 - TEMPERATURE (CONTINUOUS DATA LOGGER)

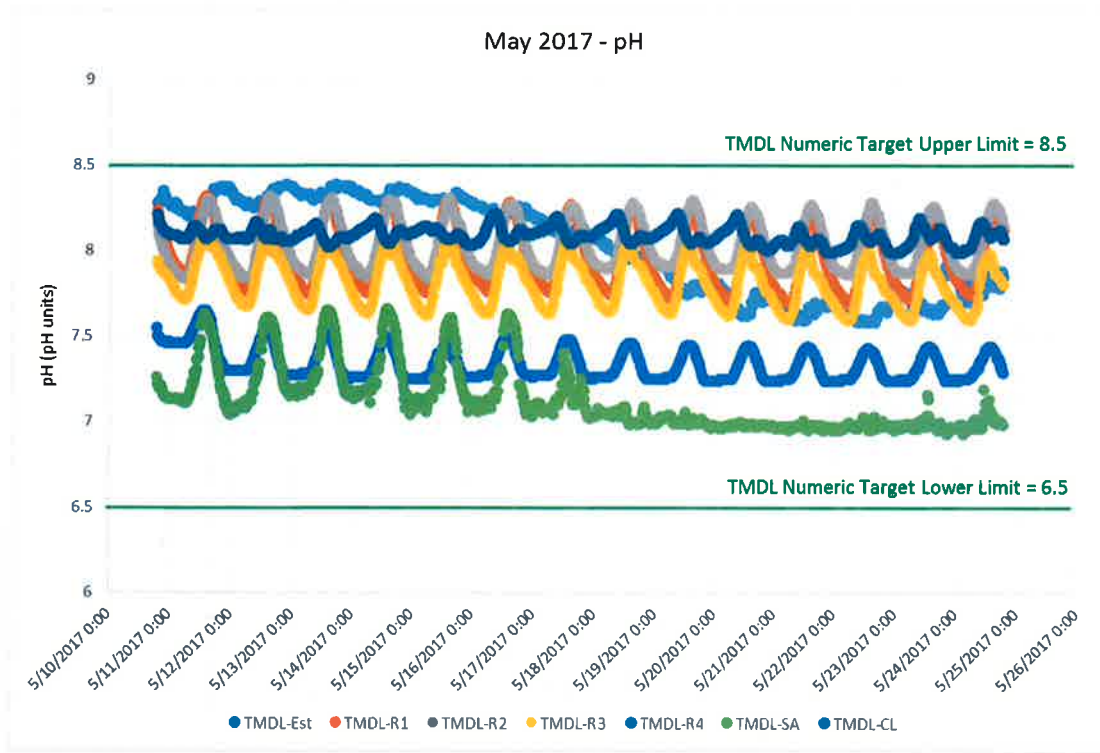


TMDL-SA: It is probable that the flow ceased mid-week, which caused changes in readings.

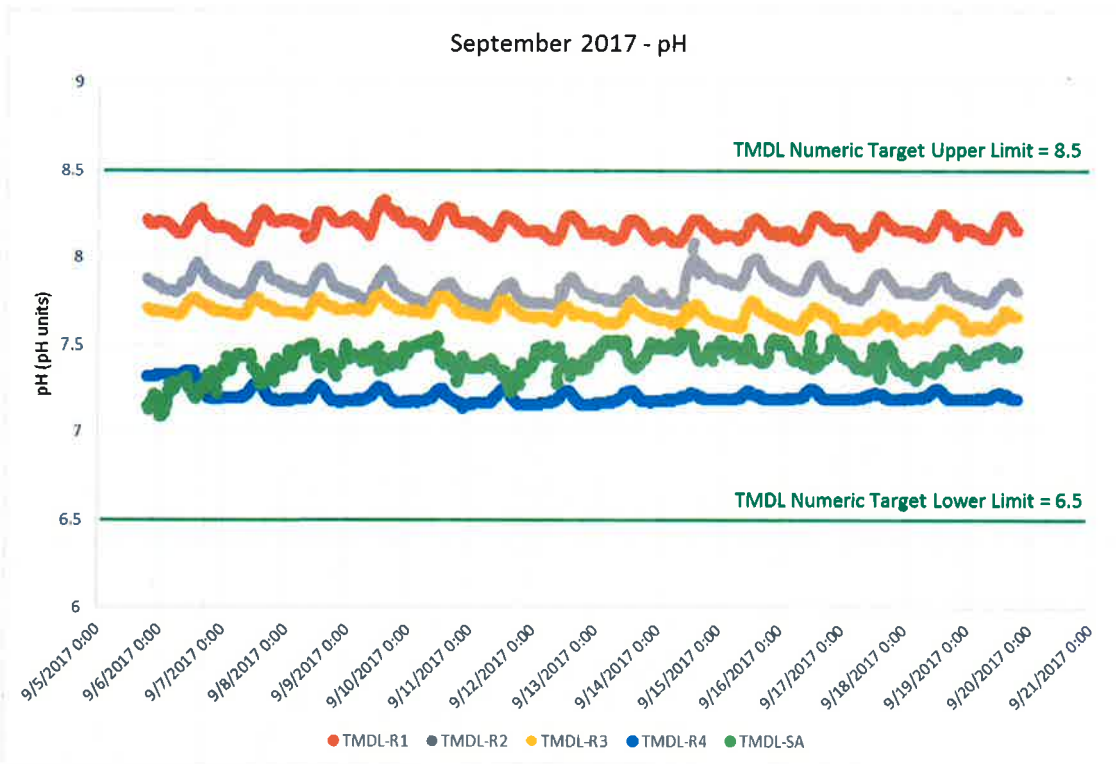


TMDL-Est: Sonde missing, likely stolen.

FIGURE 5. DRY SEASON 2017 - PH (CONTINUOUS DATA LOGGER)

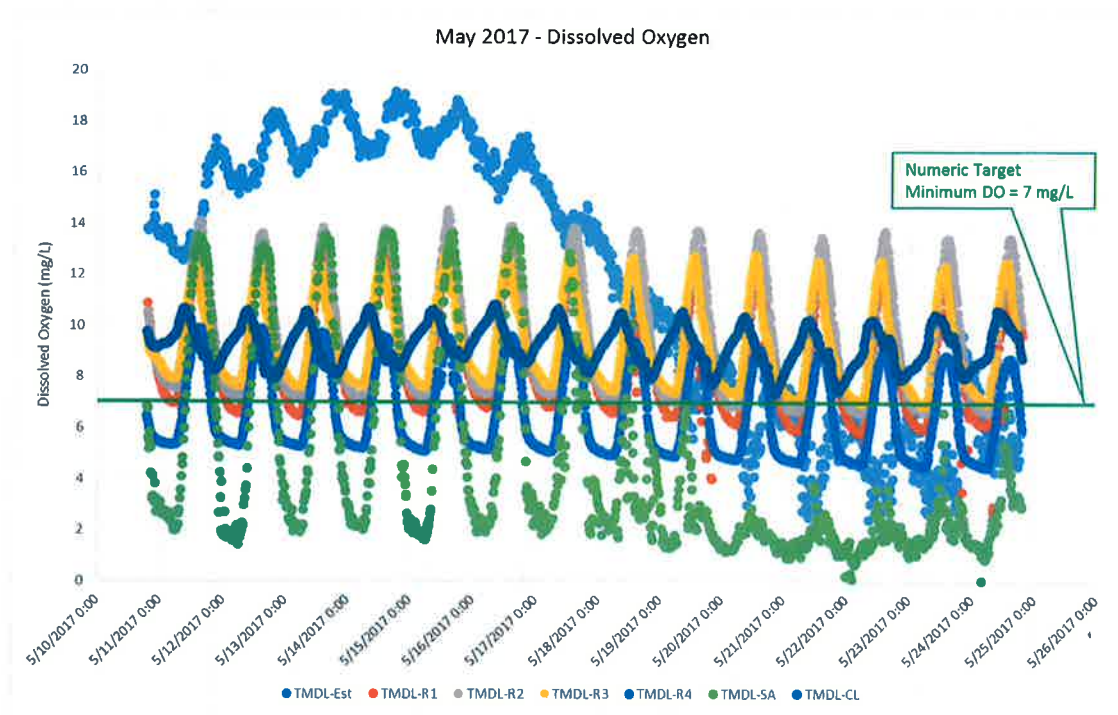


TMDL-SA: It is probable that the flow ceased mid-week, which caused changes in readings.

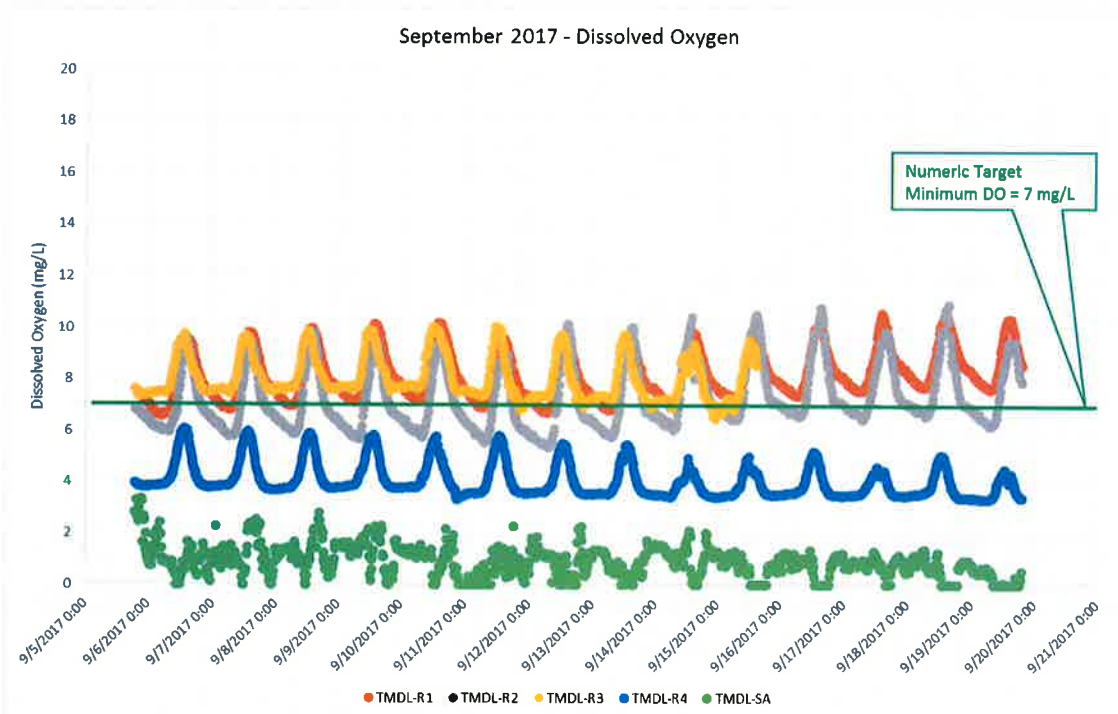


TMDL-Est: Sonde lost, likely stolen

FIGURE 6. DRY SEASON 2017 - DISSOLVED OXYGEN (CONTINUOUS DATA LOGGER)

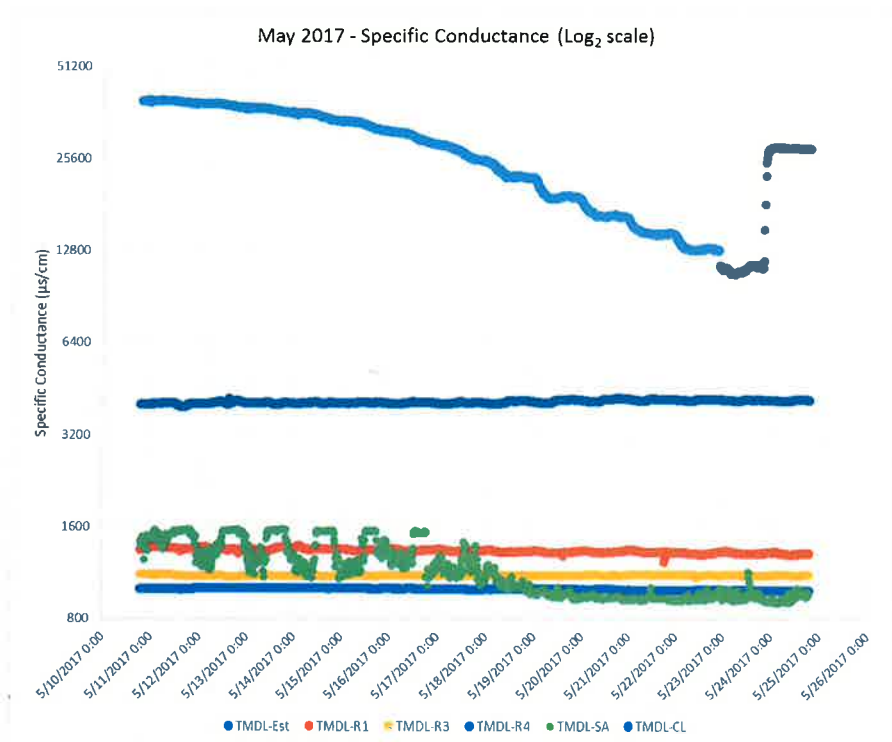


TMDL-SA: It is probable that the flow ceased mid-week, which caused changes in readings.

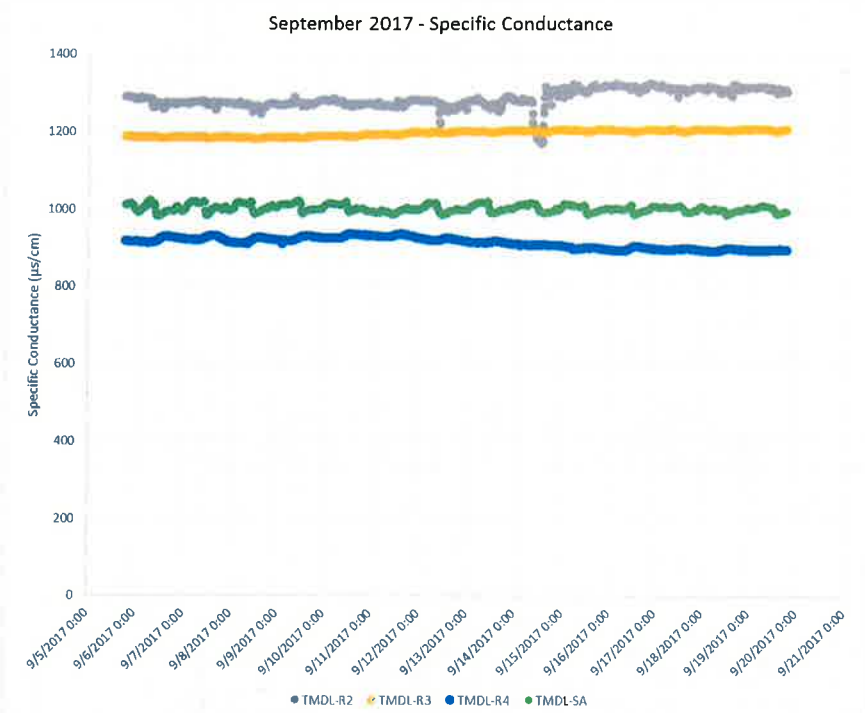


TMDL-Est: Sonde lost, likely stolen. TMDL-R3: Dissolved Oxygen sensor became fouled partway through deployment. TMDL-SA: Pooled, low flow.

FIGURE 7. DRY SEASON 2017 - SPECIFIC CONDUCTANCE (CONTINUOUS DATA LOGGER)



TMDL-R2: Conductivity readings are in error for this deployment but are not required at this site for the TMDL.
 TMDL-SA: It is probable that the flow ceased mid-week, which caused changes in readings. Conductivity readings may be in error for the second week of deployment (based on lower sonde readings than field meter readings at pickup).



TMDL-Est: Sonde lost, likely stolen. TMDL-R1: Conductivity readings are not stable. Fouled conductivity sensor likely. TMDL-R3 & TMDL-SA: Pre-deployment conductivity would not calibrate, therefore calibration date is

expired. However, calibration check post-deployment showed data was within specifications. Suspect that high ambient temperatures on calibration day (95 deg F) caused issues with conductivity calibrations.

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 were particularly dry, resulting in lost hydrological connectivity between the upper and lower watershed. A series of large storms moved through the area in February 2017 resulting in flows at all observation points and briefly reestablishing hydrologic connectivity between the upper and lower watershed, however by the time the 2017 dry season monitoring began in May, flow on the mainstem Ventura River at the two upper observation points (Santa Ana Bridge and Highway 150) had ceased, resulting in a loss of connectivity with that portion of the upper watershed, as occurred in 2015 and 2016.

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 and 2016) according to the field measurements, however the loss of the TMDL-Est sonde in September resulted in only one data point available for conductivity in September.

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. 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. A replacement sonde for TMDL-Est site will need to be purchased, and a new deployment strategy developed to further reduce the risk of theft.

All monthly grab and continuous monitoring pH measurements were within the numeric target limits of pH 6.5-8.5, with the exception of the June grab sample at TMDL-Est, which was 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 sites (except TMDL-CL in May) were below the DO daily minimum numeric target at all troughs of the diurnal variation. Low levels of dissolved oxygen appear to be associated with low flow, possibly due to the ponding of water upstream and/or at the measurement location.

Fewer sites met the seasonal average numeric target for percent macroalgal cover and algal biomass (chlorophyll a) than in previous years. Sites with 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	R4	R4, SA	Est, SA	Meter malfunction	R2, R4, SA
Continuous	Est, R1, R2, R3, R4, SA	Not Applicable	Not Applicable	Not Applicable	R1, R2, R3, R4, SA

Note: No Est sonde data for September (sonde stolen). R4 had low flow in September. SA was ponded and barely flowing June – September. CL was dry in August and September. A meter malfunction in August resulted in invalid DO data for all sampleable sites.

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, SA
Macroalgal Cover	R1, R2, R3, R4, SA, CL

Note: SA was barely flowing May – September, and dry for algae sampling in August and September. 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>	DO(c)	pH	DO(m)	Meter	No sonde data
TMDL-R1	Chl <i>a</i> / Cover	DO(c)			Meter	DO(c)
TMDL-R2	Chl <i>a</i> / Cover	DO(c)			Meter	DO(m) / DO(c)
TMDL-R3	Chl <i>a</i> / Cover	DO(c)			Meter	DO(c)
TMDL-R4	Cover	DO(m) / DO(c)	DO(m)		Meter	DO(m) / DO(c)
TMDL-SA	Chl <i>a</i> / Cover	DO(c)	DO(m)	DO(m)	Meter *	DO(m) / DO(c)*
TMDL-CL	Cover				DRY	DRY

Notes:

Meter: DO meter malfunction, no DO data.

*: site was too dry to meet protocol requirements for algae collection. Only water grab samples were collected.

DO(m) is the monthly grab sample measurement

Chl *a*: Chlorophyll *a*

DO(c) is the continuously monitored DO.

Cover: Percent macroalgal cover



June 26, 2018

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

Subject: **2018 ANNUAL REPORT FOR THE VENTURA RIVER ALGAE TMDL
(RESOLUTION NO. R12-011)**

Dear Ms. Newman:

Enclosed for your review and consideration is the 2018 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 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,
June 26, 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
Chien Pei, 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 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 1, 2018



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- Appendix A: Field Data Sheets (May 2017 – April 2018)
- Appendix B: Chain of Custodies and Laboratory Reports (May 2017 – April 2018)

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 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 monitoring from May 2017 – April 2018, including monthly checks for flow at the observation sites, field and laboratory results, and the quarterly continuous data logger monitoring results.

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 continued through January 9, 2018, becoming the largest recorded fire in California history to date. 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.

The first storm of the 2017-18 wet season occurred in January 2018, just after the January TMDL sampling event, and the heavy rain on the burned area resulted in higher than typical runoff and sediment loads and was sufficient to result in flow at all TMDL sites except TMDL-SA, which was dry from December 2017 event through February 2018. There was no hydrologic connectivity for this reporting period between the upper and lower watershed on the main stem of the Ventura River until February 2018, as observed at the TMDL-SAB and TMDL-H150 (Ventura River at Hwy 150, referred to as TMDL-150 prior to the June 2017 Annual Report) observation sites. Most of the rain for the 2017/18 wet season fell during March, when a series of large storms moved through the area.

As described in the June 2017 Dry Season Report, all TMDL sample sites had sampleable flow for nutrients and algae sampling from May – July, however by August, TMDL-CL was completely dry and TMDL-SA was too dry for algae sampling. Flow variations between monitoring sites and events might be due to a combination of factors including geology, weather conditions, inputs, and extractions.

Hydrolab HL4 water quality sondes are used for the quarterly two-week continuous monitoring and were first deployed for this project in March 2015. The sondes were calibrated by District staff before each event to ensure calibrations were accurate and 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 deployment configuration aims to avoid exposure of the sonde if/while the estuary is breached and to reduce the risk of potential vandalism, which results in varying depths of deployment. Sondes in areas with known siltation issues were deployed higher in the water column. The sondes were deployed in May and September during the 2017 Dry Season, as required by the TMDL. The wet season sonde deployments occurred in November 2017 and February 2018. The Estuary sonde was missing (presumed stolen) at the end of the September deployment period. There was insufficient time in September to redesign the placement (to prevent further theft) and redeploy the sonde so the next continuous monitoring deployment for TMDL-Est was the fourth quarter, November 2018. Sondes were not deployed at dry sites (CL in September and November 2017, SA in November 2017 and February 2018, and R4 in November 2017). The deployed sondes logged data for two week periods beginning on May 10, September 5, and November 22, 2017, and February 12, 2018. The conductivity sensors malfunctioned at TMDL-R2 in May; at TMDL-R1, TMDL-R3, and TMDL-SA in September; and at TMDL-CL in February. It is likely that flow ceased at TMDL-SA mid-deployment in May, resulting in changes in the readings.

All monthly grab measurements for pH during this reporting period were within the numeric target limits of 6.5-8.5 pH units, with the exception of TMDL-Est in June 2017 and February and April 2018. Similarly, all continuous data logger pH results were within limits with the exception of TMDL-Est in February 2018, which experienced multiple excursions over 8.5, with a maximum of 8.71. Low levels of dissolved oxygen (below the numeric target of 7 mg/L) were observed during the monthly grab monitoring at TMDL-SA and TMDL-CL several times, and once per site at TMDL-Est and TMDL-R2. They appear to be generally associated with low flow, possibly due to the ponding of water upstream and/or at the measurement location. Dissolved oxygen 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-Est and TMDL-R2 in November, however all monitored sites were above the target in February. The measured range for total nitrogen was 0.25 mg/L – 5.9 mg/L and total phosphorus was 0.0081 (DNQ) mg/L– 1.0 mg/L.

Two sites (TMDL-R4 and TMDL-CL) met the riverine seasonal average numeric target for chlorophyll *a* but none of the riverine sites met the seasonal average numeric target for macroalgal cover. TMDL-Est met the estuarine seasonal average numeric target for percent cover in 2017 but exceeded the seasonal average numeric target for phytoplankton biomass (chlorophyll *a*).

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

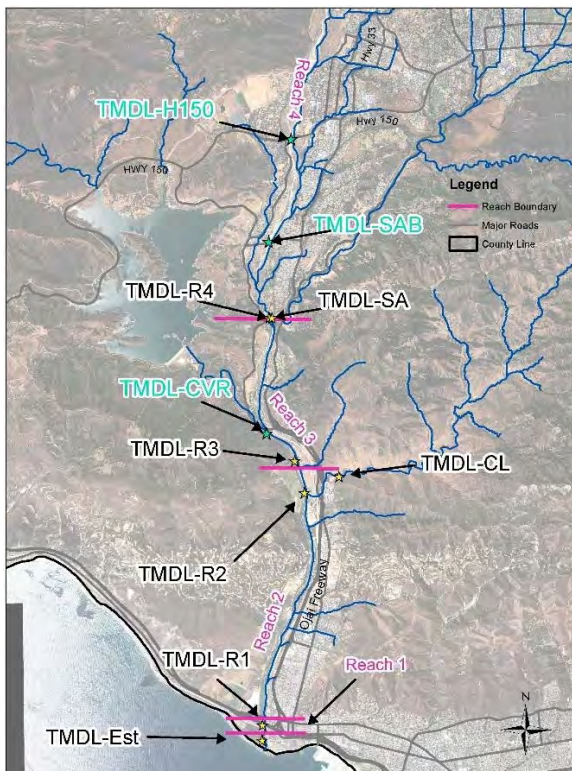
BACKGROUND

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 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 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 the monthly dry season monitoring data from May – September 2017, the monthly wet season monitoring data from October 2017 – April 2018, and the quarterly continuous data logging conducted in May, September, and November 2017, and February 2018.

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, in order 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 in order to be entirely on permitted property.

MONTHLY MONITORING

Monitoring occurred monthly as required. There was no connectivity between the upper and lower watershed on the observation dates until February 2018 (after a large storm in early January), 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 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 2017 Dry Season, May to September (Table 5, Table 6, and Table 7).

TABLE 1. MAY 2017 - APRIL 2018 OBSERVATION SITES

Date	Ventura River at Hwy 150	Ventura River at Santa Ana Blvd	Ventura River at Casitas Road
5/11/2017	Dry at bridge but ponds visible up and downstream	Small flow on west side, ponded upstream on east side, dry ~20m downstream of bridge	Flow on east and west end. East dominant ~ 15 -20 cfs
6/15/2017	DRY	DRY	Flow on east and west end. East dominant ~ 10 cfs
7/13/2017	DRY	DRY	Flow on east and west end. East dominant ~ 5-10 cfs
8/16/2017	DRY	DRY	Flow on east and west end. East dominant ~ 5-10 cfs
9/6/2017	DRY	DRY	~1.5 cfs
10/3/2017	DRY	DRY	Flow on east and west end. East dominant ~ 5 cfs
11/1/2017	DRY	DRY	Flow on east and west end. East dominant ~ 2 cfs
12/12/2017	DRY	DRY	Flow on east end. ~ 1 cfs
1/2/2018	DRY	DRY	~ 0.5 cfs
2/7/2018	Flowing ~5-10 cfs	Flowing mainly west channel ~5-7 cfs	Flowing east end ~3-5 cfs. Large pond west end.
3/28/2018	~ 6 cfs	Split in two flowing channels ~ 6 cfs	Flowing east end ~8 cfs. Large pond west end.
4/24/2018	10 cfs	7 cfs	7 cfs

TABLE 2. MAY 2017 – APRIL 2018 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 2017	Dry	District/ABC	5/10	5/10	5/10	5/9	5/9	5/9	5/9
JUN 2017	Dry	District/ABC	6/15	6/15	6/15	6/14	6/14	6/14	6/15
JUL 2017	Dry	District/ABC	7/13	7/13	7/12	7/12	7/12	7/12	7/13
AUG 2017	Dry	District/ABC	8/16	8/16	8/15	8/15	8/15	Mostly DRY (8/15)	DRY (8/15)
SEP 2017	Dry	District/ABC	9/6	9/6	9/6	9/5	9/5	Mostly DRY (9/5)	DRY (9/5)
OCT 2017	Wet	District	10/3	10/3	10/3	10/3	10/3	10/3	DRY (10/3)
NOV 2017	Wet	District	11/1	11/1	11/1	11/1	11/1	11/1	DRY (11/1)
DEC 2017	Wet	District	12/20	12/20	12/20	12/20	12/20	DRY (12/20)	DRY (12/12)
JAN 2018	Wet	District	1/3	1/3	1/3	1/3	1/3	DRY (1/3)	DRY (1/2)
FEB 2018	Wet	District	2/7	2/7	2/7	2/7	2/7	DRY (2/7)	2/7
MAR 2018	Wet	District	3/28	3/26	3/26	3/26	3/26	3/26	3/26
APR 2018	Wet	District	4/25	4/25	4/25	4/25	4/25	4/25	4/25

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. TMDL-CL was dry for much of the reporting period, and TMDL-SA and TMDL-R4 went dry for a shorter duration, with 6, 9, and 10 (out of 12) sampleable monitoring events, respectively.

MONTHLY FIELD DATA

TABLE 3. MAY 2017 – APRIL 2018 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)
					<i>Numeric Target 6.5 - 8.5</i>	<i>Numeric Target >7 mg/L</i>			
TMDL-Est	5/10/2017	12:20	Open-west end	NA	8.41	11.04	6080	3.3	20.2
TMDL-Est	6/15/2017	13:05	Open-west end	NA	8.64	11.37	3437	1.8	25.1
TMDL-Est	7/13/2017	10:00	Open-west end	NA	7.94	6.79	2857	1.5	24.4
TMDL-Est	8/16/2017	11:30	Open-west end	NA	8.08	Invalid	1630	0.8	22.9
TMDL-Est	9/6/2017	11:30	Open-west end	NA	7.98	7.36	1601	0.8	24.7
TMDL-Est	10/3/2017	12:15	Open-west end	NA	8.16	11.13	1668	0.8	20.4
TMDL-Est	11/1/2017	12:00	Closed	NA	8.46	10.12	2670	1.4	18.9

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	12/20/2017	11:00	Closed	NA	8.46	12.38	3074	1.6	10.8
TMDL-Est	1/3/2018	11:55	Closed	NA	8.37	14.74	2687	1.4	13.2
TMDL-Est	2/7/2018	13:15	Open-west end	NA	8.51	12.01	3998	2.1	16.6
TMDL-Est	3/28/2018	12:40	Open-west end	NA	7.9	9.35	3315	1.7	21.1
TMDL-Est	4/25/2018	14:10	Open-west end	NA	8.73	12.8	17000	10	22.6
TMDL-R1	5/10/2017	10:25	NA	13.61	8.46	8.8	1365	0.7	18.9
TMDL-R1	6/15/2017	11:20	NA	7.35	8.17	9.3	1371	0.7	21.2
TMDL-R1	7/13/2017	8:15	NA	6.06	7.95	7.17	1462	0.7	22.4
TMDL-R1	8/16/2017	9:40	NA	4.19	7.97	Invalid	1541	0.8	20.7
TMDL-R1	9/6/2017	10:10	NA	3.11	7.94	7.78	1625	0.8	22.7
TMDL-R1	10/3/2017	11:30	NA	1.77	8.27	10.83	1685	0.9	18.6
TMDL-R1	11/1/2017	11:20	NA	0.69	8.25	8.61	1863	1	18
TMDL-R1	12/20/2017	10:20	NA	0.47	8.29	11.18	1969	1	9.4
TMDL-R1	1/3/2018	11:05	NA	0.39	8.18	11.24	1973	1	11.8
TMDL-R1	2/7/2018	12:35	NA	3.97	8.37	11.44	1576	0.8	15.6
TMDL-R1	3/26/2018	16:21	NA	54.38	8.36	9.07	1202	0.6	16.4
TMDL-R1	4/25/2018	13:30	NA	7.06	8.23	10.39	1459	0.7	20.4
TMDL-R2	5/10/2017	8:10	NA	13.84	7.84	8.15	1164	NA	18.3
TMDL-R2	6/15/2017	9:10	NA	8.54	7.97	8.39	1205	NA	20.1
TMDL-R2	7/12/2017	13:10	NA	10.63	8.19	9.65	1226	NA	24.4
TMDL-R2	8/15/2017	12:15	NA	6.66	8.02	Invalid	1220	NA	23.3
TMDL-R2	9/6/2017	8:00	NA	3.96	7.62	6.82	1273	NA	22.8
TMDL-R2	10/3/2017	10:15	NA	3.56	7.92	8.6	1338	NA	19.7
TMDL-R2	11/1/2017	10:20	NA	2.64	7.96	7.75	1402	NA	20.7
TMDL-R2	12/20/2017	9:30	NA	1.71	8.05	8.96	1353	NA	14.1
TMDL-R2	1/3/2018	9:55	NA	1.96	7.92	8.37	1404	NA	16
TMDL-R2	2/7/2018	11:30	NA	3.21	8.12	10.89	1233	NA	17.5
TMDL-R2	3/26/2018	15:06	NA	48**	8.22	9.77	1056	NA	15.4
TMDL-R2	4/25/2018	11:20	NA	5.65	8.16	10.04	1177	NA	20.6
TMDL-R3	5/9/2017	11:25	NA	8.05	8.08	11.87	1144	NA	18.8
TMDL-R3	6/14/2017	12:10	NA	6.91	8.02	10.46	1080	NA	20.5
TMDL-R3	7/12/2017	11:20	NA	6.13	7.93	8.62	1180	NA	22.1
TMDL-R3	8/15/2017	10:30	NA	4.53	7.92	Invalid	1180	NA	21.2
TMDL-R3	9/5/2017	11:20	NA	3.82	7.97	9.05	906	NA	24.1
TMDL-R3	10/3/2017	9:15	NA	1.89	7.95	9.83	1205	NA	18.1
TMDL-R3	11/1/2017	9:25	NA	0.45	7.98	7.97	1268	NA	17.3
TMDL-R3	12/20/2017	8:15	NA	<1*	7.92	9.54	1305	NA	9.7
TMDL-R3	1/3/2018	8:35	NA	0.32	7.72	10.25	1301	NA	11.3

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	2/7/2018	10:15	NA	1.66	8.1	11.47	1145	NA	15.2
TMDL-R3	3/26/2018	13:00	NA	46**	8.3	10.11	1038	NA	14.3
TMDL-R3	4/25/2018	10:05	NA	5.04	8.06	9.93	1104	NA	19.3
TMDL-R4	5/9/2017	8:10	NA	8.53	7.34	6.5	1026	NA	17.6
TMDL-R4	6/14/2017	8:55	NA	6.1	7.4	6.4	921	NA	18.6
TMDL-R4	7/12/2017	8:00	NA	5.99	7.29	7.92	1029	NA	19.5
TMDL-R4	8/15/2017	7:55	NA	4.94	7.23	Invalid	1029	NA	19.6
TMDL-R4	9/5/2017	8:30	NA	2.46	7.12	^	^	^	20.3
TMDL-R4	9/26/2017	8:40	NA			6.55	998	NA	17.9
TMDL-R4	10/3/2017	7:45	NA	<1	7.05	5.93	1005	NA	17.6
TMDL-R4	11/1/2017	7:45	NA	<0.2	7.33	3.61	1003	NA	18.1
TMDL-R4	12/20/2017	7:45	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-R4	1/3/2018	8:00	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-R4	2/7/2018	9:00	NA	1.64	8.32	10.4	1121	NA	11
TMDL-R4	3/26/2018	10:55	NA	33**	8.48	9.97	911	NA	12.2
TMDL-R4	4/25/2018	8:20	NA	2.03	7.48	8.18	1014	NA	17.8
TMDL-SA	5/9/2017	9:50	NA	0.13	7.58	9.71	1634	NA	17.8
TMDL-SA	6/14/2017	10:30	NA	0.07	7.1	3.92	926	NA	17.7
TMDL-SA	7/12/2017	9:45	NA	0.07	7.35	2.58	1014	NA	18.7
TMDL-SA	8/15/2017	9:40	NA	0.03	7.28	Invalid	1018	NA	18.8
TMDL-SA	9/5/2017	10:20	NA	<0.01	7.08	^	^	^	19.8
TMDL-SA	9/26/2017	9:28	NA			5.23	997	NA	16.8
TMDL-SA	10/3/2017	8:30	NA	<0.01	7.22	4.2	1000	NA	16.4
TMDL-SA	11/1/2017	8:20	NA	0	7.26	0.87	1017	NA	17.6
TMDL-SA	12/20/2017	7:35	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-SA	1/3/2018	8:10	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-SA	2/7/2018	8:50	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-SA	3/26/2018	11:50	NA	12.45	8.29	9.89	1345	NA	14.3
TMDL-SA	4/25/2018	9:10	NA	0.34	7.96	9.23	1748	0.9	16
TMDL-CL	5/9/2017	13:10	NA	0.27	8.05	9.02	3121	NA	27.5
TMDL-CL	6/15/2017	7:40	NA	0.17	8.08	8.94	2272	NA	15.7
TMDL-CL	7/13/2017	11:15	NA	0.01	8.32	11.56	4114	NA	2.2
TMDL-CL	8/15/2017	13:50	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	9/5/2017	10:57	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	10/3/2017	7:19	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	11/1/2017	7:25	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	12/12/2017	13:34	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	1/2/2018	14:05	NA	DRY	DRY	DRY	DRY	NA	DRY
TMDL-CL	2/7/2018	7:30	NA	0.05	8.23	11.25	3388	NA	6.5

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	3/26/2018	9:45	NA	0.85	8.27	10.55	4268	NA	12.8
TMDL-CL	4/25/2018	12:20	NA	0.02	8.43	11.08	4164	NA	28.7

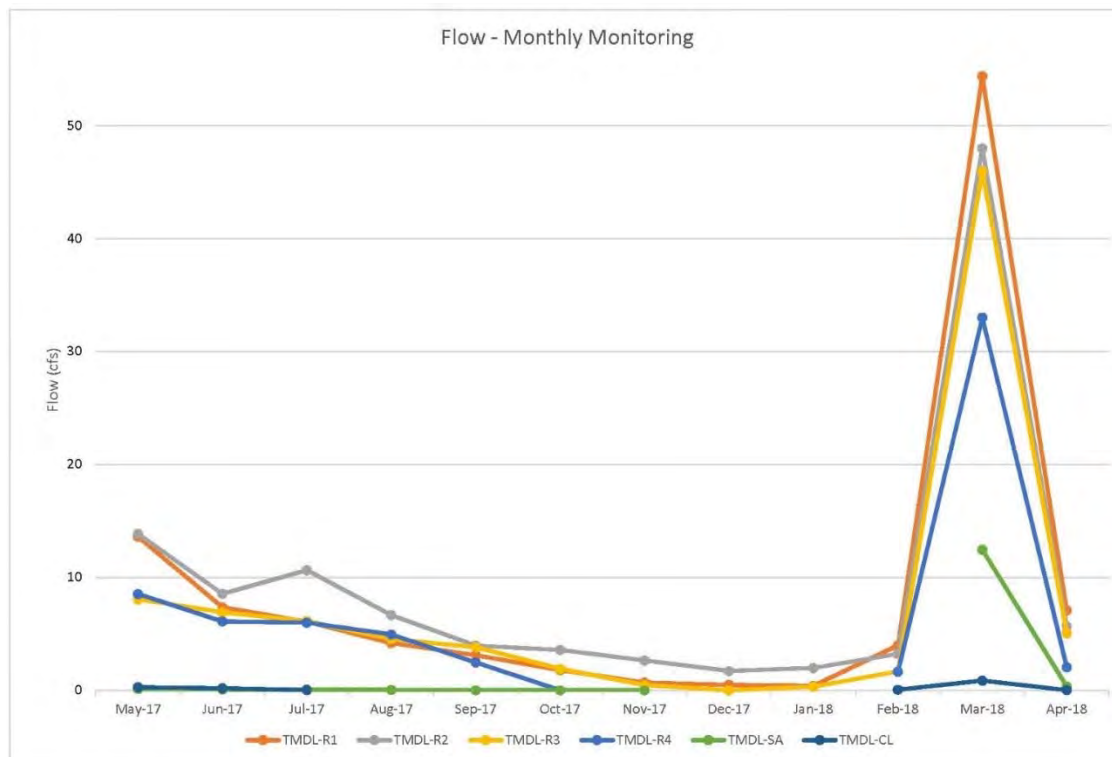
* The flow during this event was below the threshold for accurate meter measurement. These results are estimated.

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

^ DO/EC meter results at R4 and SA on 9/6/2017 are suspect due to possible meter malfunction. Re-measured parameters on 9/26/17 with the same meter used for the other TMDL sites in September. See error report in appendices for more details. 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. There was no ocean influence observed at TMDL-R1 during the reporting period.

Late season storms at the start of 2017 resulted in flow at all sites at the start of the dry season. An unusually dry storm season at the end of 2017 resulted in low flow at all sites, until storms in early 2018 resulted in flow at all sites. Year-round surface flow in the River starts around Foster Park (near the Casitas Vista Bridge observation point) and is typically perennial at 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 measurements taken during this reporting period typically decreased between TMDL-R2 and TMDL-R1 during drier periods, but increased during the wettest periods (March 2018). 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.

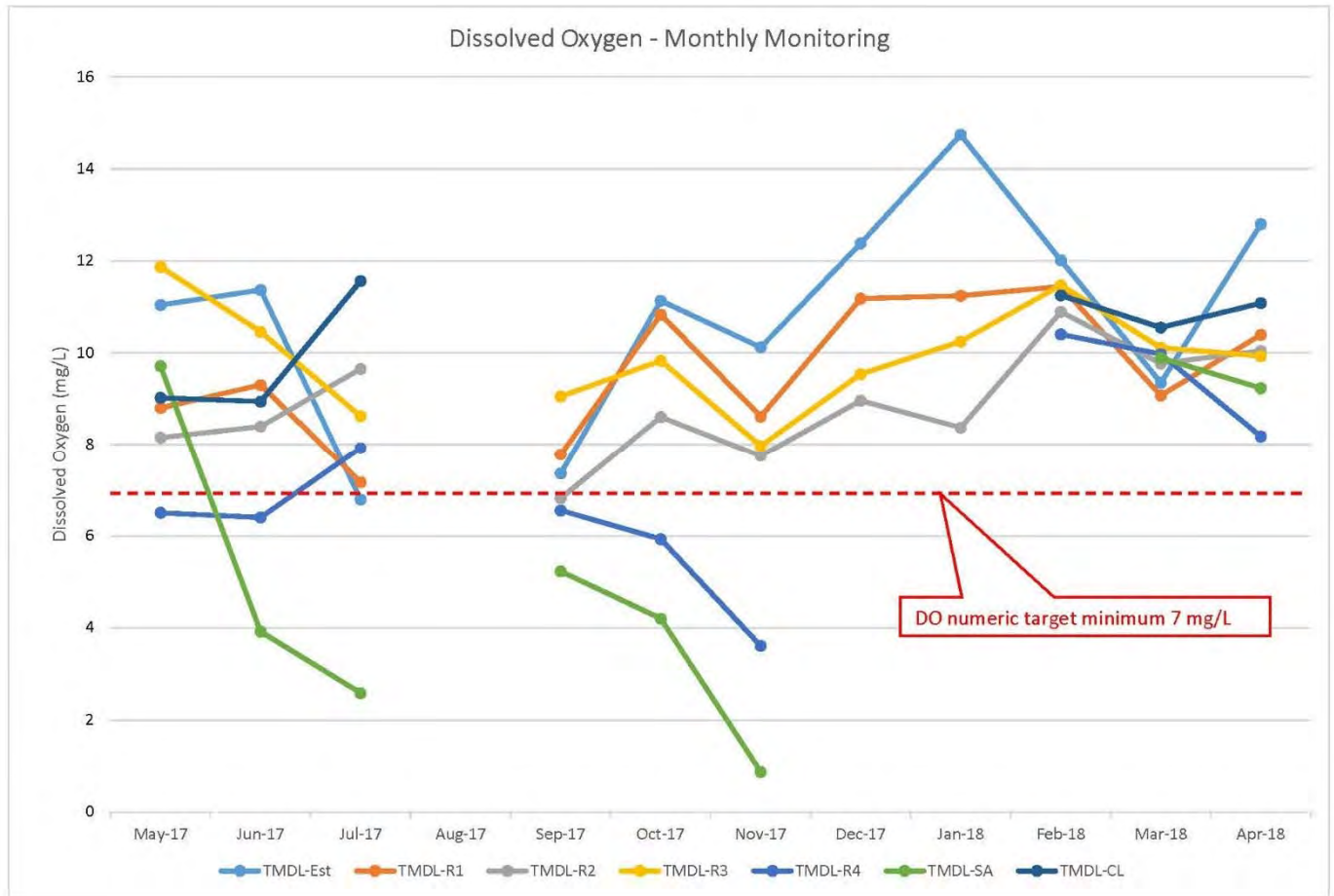
FIGURE 2. 2017 – 2018 MONTHLY MONITORING - FLOW



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

Low levels of dissolved oxygen 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. Malfunctioning DO meters in August 2017 resulted in invalid DO measurements for all sites for this event. A potentially malfunctioning meter in September 2017 resulted in questionable results for DO, conductivity, and salinity at TMDL-R4 and TMDL-SA, so these parameters were re-measured with a different meter on September 26, 2017 at these sites. These results are used for this report.

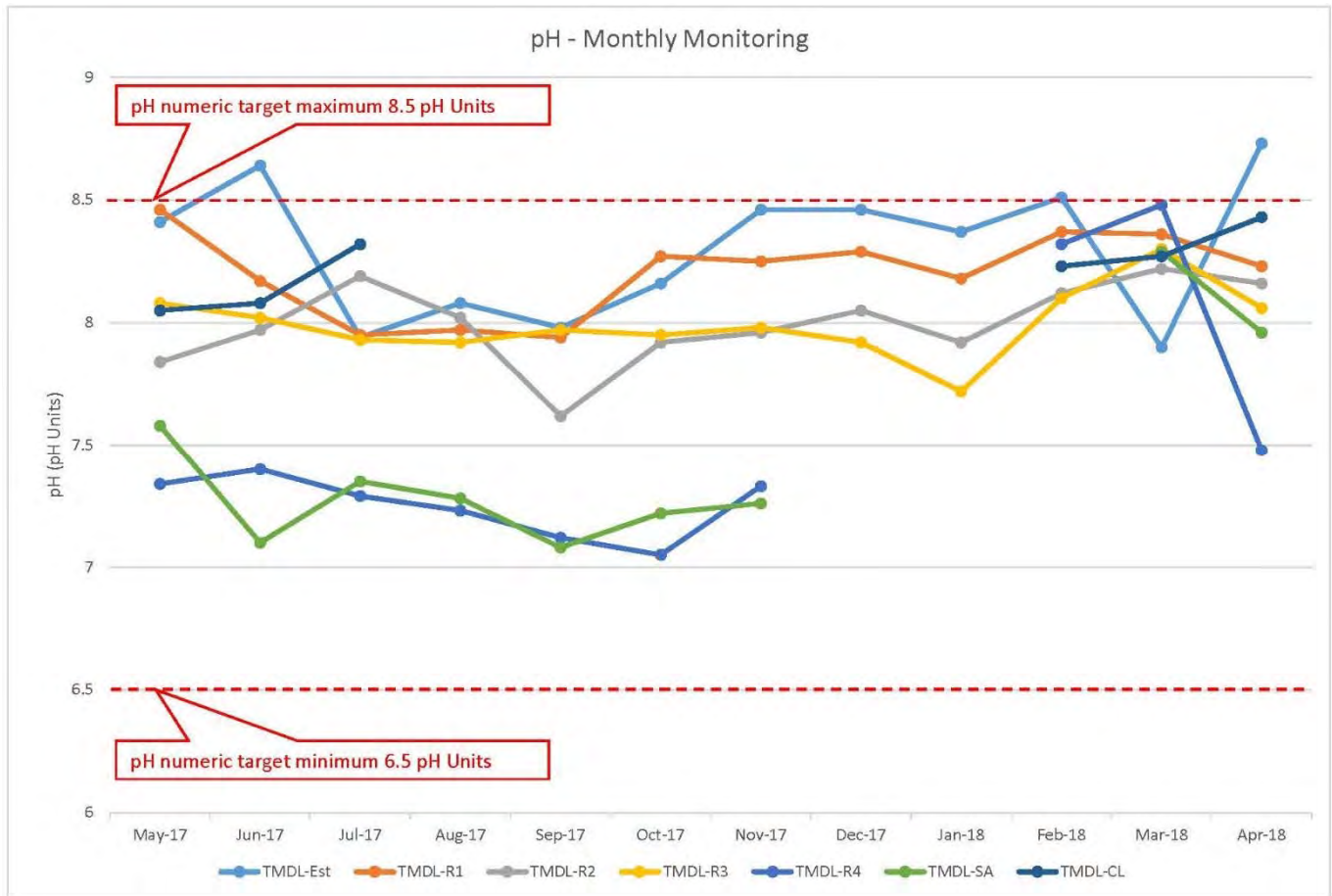
FIGURE 3. 2017 – 2018 MONTHLY MONITORING - DISSOLVED OXYGEN



Absent data points indicate that the measurement could not be taken, i.e. the site was dry, (meter malfunction in August).

All monthly field measurements for pH were within the numeric target limits, with the exception of TMDL-Est in June 2017 and February and April 2018.

FIGURE 4. 2017 – 2018 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 2017 – APRIL 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	5/10/2017	12:20	0.043	0.0080 (DNQ)	0.65	0.26	1.8	1.4	1.1
TMDL-Est	6/15/2017	13:05	0.03	0.0099 (DNQ)	0.51	0.54	0.51	0.54	<0.041
TMDL-Est	7/13/2017	10:00	0.05	0.014	0.53	0.42	0.53	0.42	<0.041
TMDL-Est	8/16/2017	11:30	0.044	0.015	0.58	0.43	0.58	0.43	<0.083
TMDL-Est	9/6/2017	11:30	0.047	0.014	0.44	0.39	0.44	0.39	<0.083
TMDL-Est	10/3/2017	12:15	0.046	0.020	0.41	0.38	0.41	0.38	<0.083
TMDL-Est	11/1/2017	12:00	0.15	0.026	1.3	0.58	1.3	0.58	<0.083

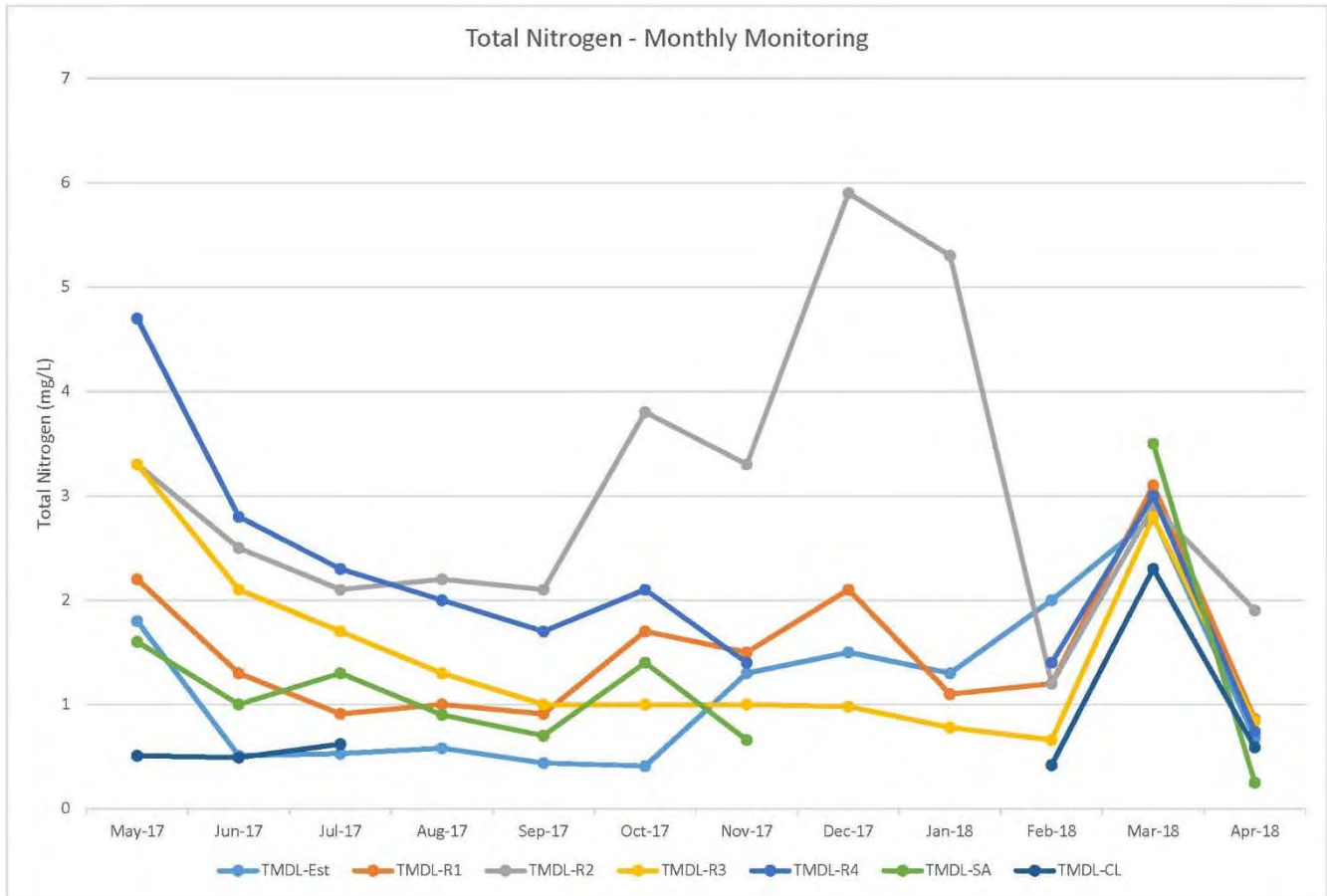
Site	Sample Date	Sample Time	P Total EPA 365.1 (mg/L)	P Diss EPA 365.1 (mg/L)	TKN Total EPA 351.2 (mg/L)	TKN Diss EPA 351.2 (mg/L)	N Total Calculated (mg/L)	N Diss Calculated (mg/L)	NO3+ NO2-N EPA 353.2 (mg/L)
TMDL-Est	12/20/2017	11:00	0.11	0.023	1.4	0.57	1.5	0.7	0.13 (DNQ)
TMDL-Est	1/3/2018	11:55	0.12	0.02	1.3	0.42	1.3	0.42	<0.083
TMDL-Est	2/7/2018	13:15	0.061	0.018	1.2	0.9	2	1.7	0.8
TMDL-Est	3/28/2018	12:40	0.24	0.12	0.84	0.61	2.8	2.6	2
TMDL-Est	4/25/2018	14:10	0.058	0.011	0.68	0.43	0.68	0.43	<0.083
TMDL-R1	5/10/2017	10:25	0.013	0.0091 (DNQ)	0.24	0.17	2.2	2.1	1.9
TMDL-R1	6/15/2017	11:20	0.038	0.022	0.35	0.27	1.3	1.2	0.91
TMDL-R1	7/13/2017	8:15	0.042	0.03	0.3	0.44	0.91	1.1	0.61
TMDL-R1	8/16/2017	9:40	0.16	0.15	0.36	0.33	1	1	0.67
TMDL-R1	9/6/2017	10:10	0.29	0.26	0.34	0.41	0.91	0.99	0.57
TMDL-R1	10/3/2017	11:30	0.24	0.22	0.42	0.39	1.7	1.6	1.2
TMDL-R1	11/1/2017	11:20	0.19	0.17	0.57	0.47	1.5	1.4	0.9
TMDL-R1	12/20/2017	10:20	0.054	0.048	0.61	0.5	2.1	2	1.5
TMDL-R1	1/3/2018	11:05	0.041	0.032	0.64	0.45	1.1	0.95	0.5
TMDL-R1	2/7/2018	12:35	0.059	0.022	1	0.93	1.2	1.1	0.17 (DNQ)
TMDL-R1	3/26/2018	16:21	0.41	0.079	0.89	0.41	3.1	2.6	2.2
TMDL-R1	4/25/2018	13:30	0.054	0.033	0.5	0.38	0.86	0.74	0.36
TMDL-R2	5/10/2017	8:10	0.064	0.059	0.078 (DNQ)	<0.05	3.3	3.2	3.2
TMDL-R2	6/15/2017	9:10	0.083	0.07	0.38	0.25	2.5	2.4	2.1
TMDL-R2	7/12/2017	13:10	0.095	0.08	0.36	0.37	2.1	2.1	1.8
TMDL-R2	8/15/2017	12:15	0.47	0.22	0.48	0.38	2.2	2.1	1.7
TMDL-R2	9/6/2017	8:00	0.54	0.54	0.25	0.47	2.1	2.3	1.8
TMDL-R2	10/3/2017	10:15	1	0.95	0.2	0.4	3.8	4	3.6
TMDL-R2	11/1/2017	10:20	0.36	0.33	0.91	0.86	3.3	3.2	2.4
TMDL-R2	12/20/2017	9:30	0.089	0.062	0.88	0.91	5.9	5.9	5
TMDL-R2	1/3/2018	9:55	0.088	0.063	0.9	0.7	5.3	5.1	4.4
TMDL-R2	2/7/2018	11:30	0.14	0.1	0.98	0.83	1.2	1	0.2
TMDL-R2	3/26/2018	15:06	0.29	0.11	0.74	0.45	2.9	2.6	2.2
TMDL-R2	4/25/2018	11:20	0.059	0.047	0.42	0.24	1.9	1.7	1.5
TMDL-R3	5/9/2017	11:25	0.0070 (DNQ)	0.0054 (DNQ)	<0.050	0.068 (DNQ)	3.3	3.4	3.3
TMDL-R3	6/14/2017	12:10	0.011	0.0090 (DNQ)	<0.050	0.066 (DNQ)	2.1	2.2	2.1
TMDL-R3	7/12/2017	11:20	0.013	0.011	<0.050	0.079 (DNQ)	1.7	1.8	1.7
TMDL-R3	8/15/2017	10:30	0.015	0.01	0.22	0.13	1.3	1.2	1.1
TMDL-R3	9/5/2017	11:20	0.011	0.015	0.12	0.21	1	1.1	0.88
TMDL-R3	10/3/2017	9:15	0.015	0.014	0.27	0.21	1	0.96	0.75
TMDL-R3	11/1/2017	9:25	0.02	0.017	0.3	0.18	1	0.9	0.73

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	12/20/2017	8:15	0.016	0.016	0.17	<0.050	0.98	0.81	0.81
TMDL-R3	1/3/2018	8:35	0.015	0.01	0.12	<0.050	0.78	0.66	0.66
TMDL-R3	2/7/2018	10:15	0.029	0.0089 (DNQ)	0.66	0.6	0.66	0.6	<0.083
TMDL-R3	3/26/2018	13:00	0.39	0.067	0.66	0.44	2.8	2.6	2.1
TMDL-R3	4/25/2018	10:05	0.019	0.01	0.27	0.15	0.84	0.72	0.57
TMDL-R4	5/9/2017	8:10	0.0078 (DNQ)	0.0062 (DNQ)	<0.050	<0.050	4.7	4.7	4.7
TMDL-R4	6/14/2017	8:55	0.0081 (DNQ)	0.0069 (DNQ)	<0.050	<0.050	2.8	2.8	2.8
TMDL-R4	7/12/2017	8:00	0.0088 (DNQ)	0.0083 (DNQ)	<0.050	<0.050	2.3	2.3	2.3
TMDL-R4	8/15/2017	7:55	0.0091 (DNQ)	0.0066 (DNQ)	0.21	0.073 (DNQ)	2.0	1.8	1.8
TMDL-R4	9/5/2017	8:30	0.01	0.0054 (DNQ)	0.068 (DNQ)	<0.050	1.7	1.6	1.6
TMDL-R4	10/3/2017	7:45	0.014	0.011	0.52	<0.050	2.1	1.6	1.6
TMDL-R4	11/1/2017	7:45	0.0075 (DNQ)	<0.0014	0.16	<0.050	1.4	1.3	1.3
TMDL-R4	12/20/2017	7:45	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	1/3/2018	8:00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-R4	2/7/2018	9:00	0.029	0.022	1.4	1.4	1.4	1.4	<0.083
TMDL-R4	3/26/2018	10:55	0.38	0.068	0.97	0.26	3	0.26	2
TMDL-R4	4/25/2018	8:20	0.013	0.0075	0.16	0.11	0.74	0.69	0.58
TMDL-SA	5/9/2017	9:50	0.054	0.047	0.3	0.27	1.6	1.5	1.3
TMDL-SA	6/14/2017	10:30	0.012	0.0085 (DNQ)	0.070 (DNQ)	<0.050	1	0.93	0.93
TMDL-SA	7/12/2017	9:45	0.023	0.017	0.14	<0.050	1.3	1.1	1.1
TMDL-SA	8/15/2017	9:40	0.016	0.013	0.13	0.072 (DNQ)	0.9	0.84	0.77
TMDL-SA	9/5/2017	10:20	0.037	0.024	0.089 (DNQ)	0.096 (DNQ)	0.7	0.7	0.61
TMDL-SA	10/3/2017	8:30	0.018	0.013	0.15	<0.050	1.4	1.3	1.3
TMDL-SA	11/1/2017	8:20	0.042	0.02	0.29	0.16	0.66	0.53	0.37
TMDL-SA	12/20/2017	7:35	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	1/3/2018	8:10	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	2/7/2018	8:50	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-SA	3/26/2018	11:50	0.61	0.093	1.1	0.39	3.5	2.8	2.4
TMDL-SA	4/25/2018	9:10	0.21	0.0094 (DNQ)	0.25	0.24	0.25	0.24	<0.083
TMDL-CL	5/9/2017	13:10	0.0068 (DNQ)	0.0083 (DNQ)	0.46	0.32	0.51	0.37	0.053 (DNQ)
TMDL-CL	6/15/2017	7:40	0.012	0.0073 (DNQ)	0.49	0.36	0.49	0.36	<0.041

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	7/13/2017	11:15	0.017	0.0085 (DNQ)	0.58	0.61	0.62	0.66	0.047 (DNQ)
TMDL-CL	8/15/2017	13:50	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	9/5/2017	10:57	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	10/3/2017	7:19	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	11/1/2017	7:25	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	12/12/2017	13:34	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	1/2/2018	14:05	DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMDL-CL	2/7/2018	7:30	0.0084 (DNQ)	0.0060 (DNQ)	0.42	0.45	0.42	0.45	<0.083
TMDL-CL	3/26/2018	9:45	0.71	0.086	1.4	1.1	2.3	2	0.95
TMDL-CL	4/25/2018	12:20	0.021	0.0074 (DNQ)	0.59	0.54	0.59	0.54	<0.083

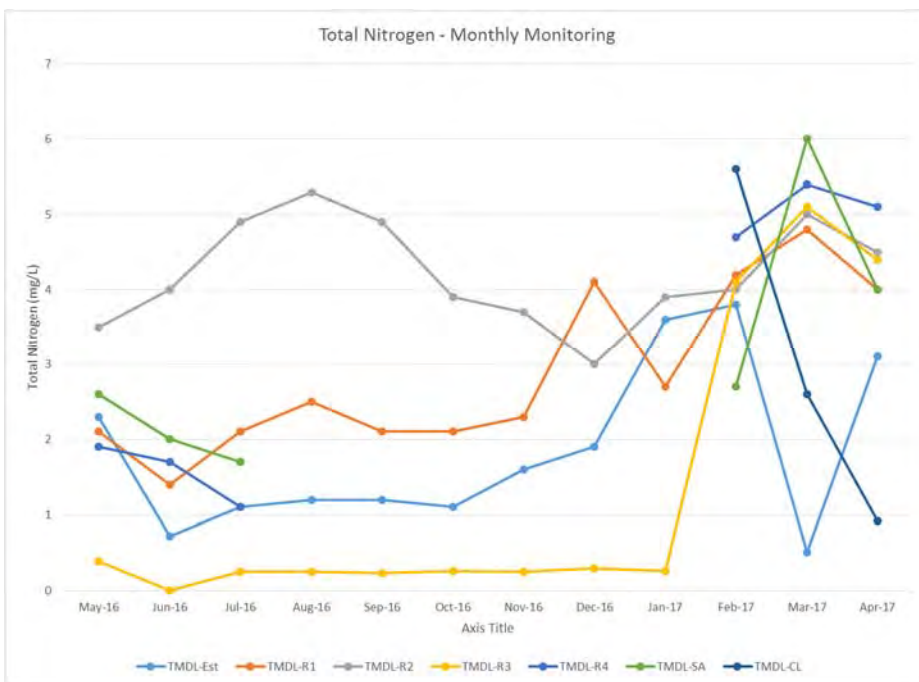
Nutrient levels show variation between sites, seasons, and years. The Thomas Fire in December – January did not produce noticeable changes in the TN or TP results in February, however it should be noted that monitoring was not conducted concurrently with storm sampling. The March event was conducted after a series of large storms when the water was heavily laden with sediment, which could help explain the brief increase in TN and TP during that event, however the TN amounts are similar to those seen in March in the previous year. Charts from the previous year are included below for comparison.

FIGURE 5. 2017 – 2018 MONTHLY MONITORING - TOTAL NITROGEN



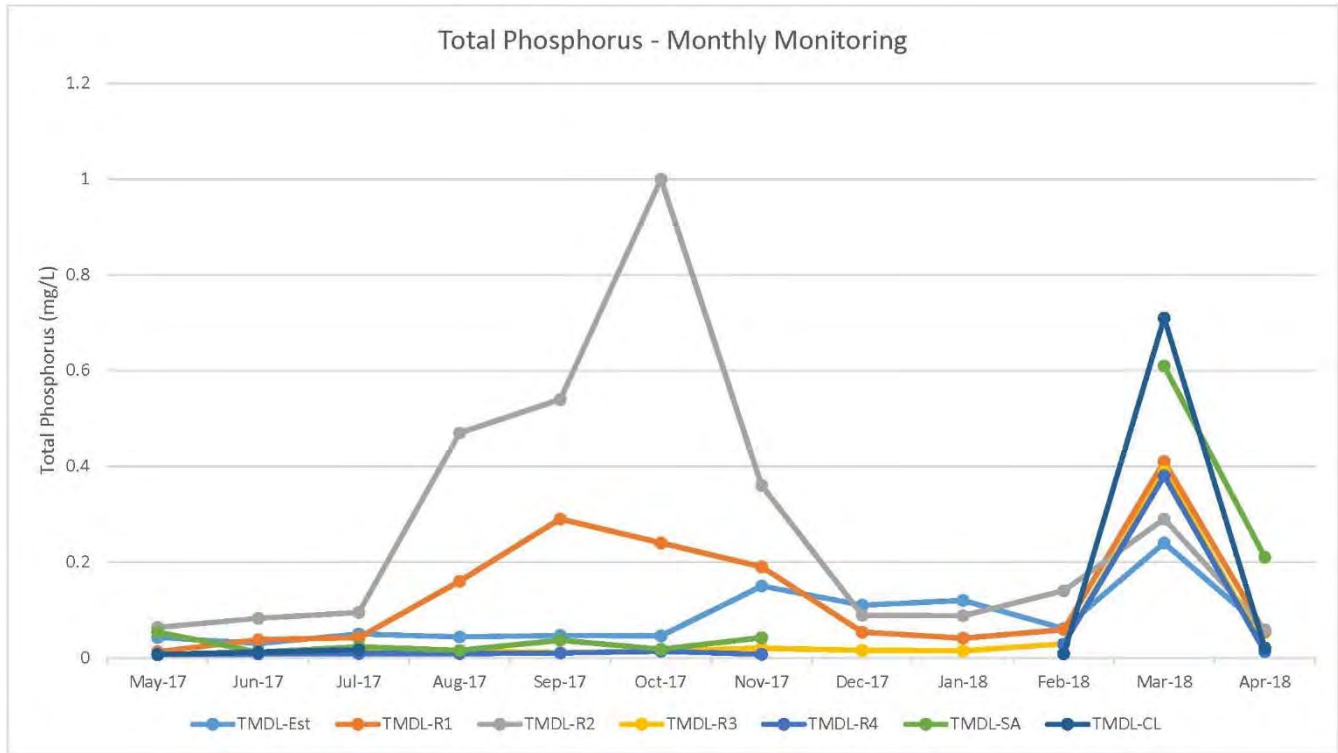
Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

FIGURE 6. 2016 – 2017 MONTHLY MONITORING – TOTAL NITROGEN



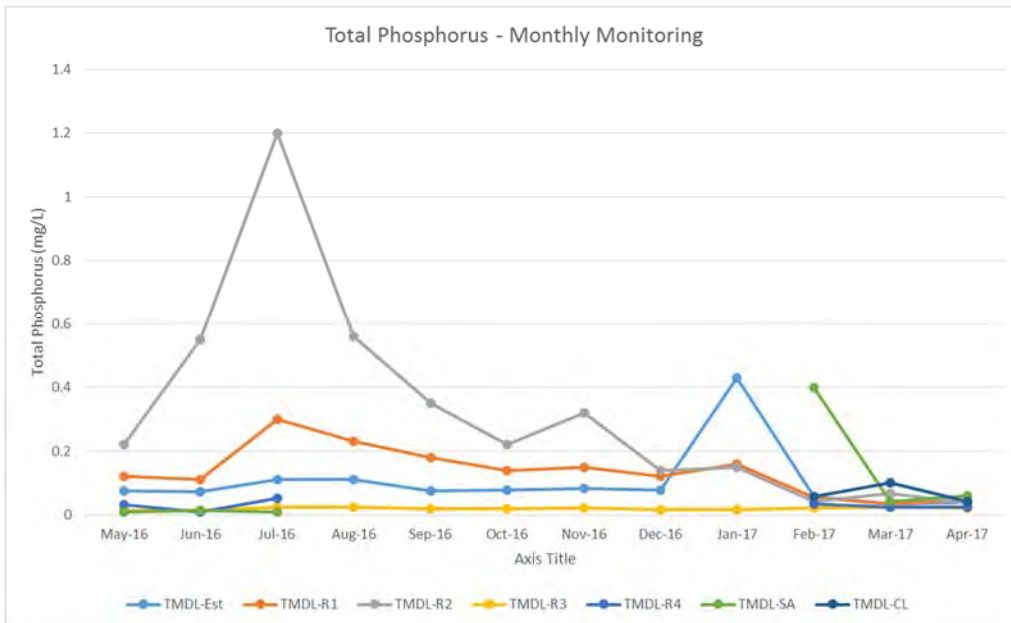
Absent data points indicate that the measurement could not be taken, i.e. the site was dry.

FIGURE 7. 2017 – 2018 MONTHLY MONITORING - TOTAL PHOSPHORUS



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

FIGURE 8. 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

The SWAMP protocol for the riverine sites includes both suspended (floating) and attached (land-based) macroalgae for chlorophyll *a*, and only considers alive algae when determining percent cover. The riverine results are shown in Table 5 and

Table 6. TMDL-R4 and TMDL-CL met the riverine seasonal average numeric target for chlorophyll *a*. The other riverine sites did not. None of the riverine sites met the seasonal average numeric target for macroalgal cover.

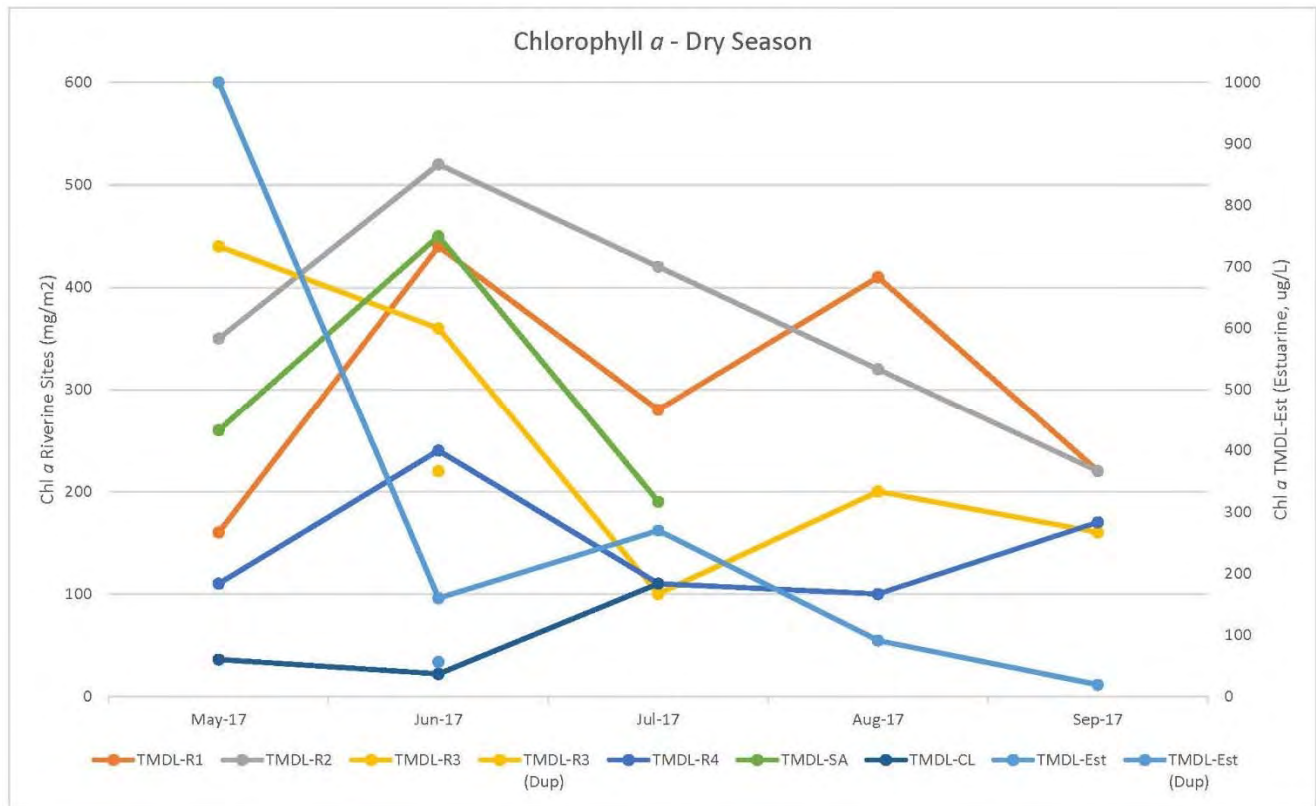
The Bight '08 (estuarine) protocol measures algal cover on the shoreline as well as floating algae at a depth of 0.3 meters, and includes dead, desiccated, fresh, and intermediate algae in the protocol. The estuarine chlorophyll *a* sample is collected from the water column. The estuarine results are in Table 7. Site TMDL-Est met the seasonal average numeric target for percent cover in 2017 but exceeded the seasonal average numeric target for phytoplankton biomass (chlorophyll *a*).

TABLE 5. 2017 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	5/10/2017	1	11	160	mg/m ²	88.61
TMDL-R1	6/15/2017	1	11	440	mg/m ²	70.59
TMDL-R1	7/13/2017	1	11	280	mg/m ²	8.51
TMDL-R1	8/16/2017	1	11	410	mg/m ²	12.38
TMDL-R1	9/6/2017	1	11	220	mg/m ²	0.00
TMDL-R2	5/10/2017	1	11	350	mg/m ²	94.29
TMDL-R2	6/15/2017	1	11	520	mg/m ²	83.33
TMDL-R2	7/12/2017	1	11	420	mg/m ²	19.05
TMDL-R2	8/15/2017	1	11	320	mg/m ²	24.04
TMDL-R2	9/6/2017	1	11	220	mg/m ²	2.86
TMDL-R3	5/9/2017	1	11	440	mg/m ²	80.95
TMDL-R3	6/14/2017	1	11	360	mg/m ²	91.43
TMDL-R3	6/14/2017	2	11	220	mg/m ²	NA
TMDL-R3	7/12/2017	1	11	100	mg/m ²	66.35
TMDL-R3	8/15/2017	1	11	200	mg/m ²	41.90
TMDL-R3	9/5/2017	1	11	160	mg/m ²	25.96
TMDL-R4	5/9/2017	1	11	110	mg/m ²	76.92
TMDL-R4	6/14/2017	1	11	240	mg/m ²	83.65
TMDL-R4	7/12/2017	1	11	110	mg/m ²	74.29
TMDL-R4	8/15/2017	1	11	100	mg/m ²	64.76
TMDL-R4	9/5/2017	1	11	170	mg/m ²	60.00
TMDL-SA	5/9/2017	1	11	260	mg/m ²	76.77
TMDL-SA	6/14/2017	1	9	450	mg/m ²	91.76
TMDL-SA	7/12/2017	1	4	190	mg/m ²	75.00
TMDL-SA	8/15/2017	1	Mostly Dry	Mostly Dry	mg/m ²	Mostly Dry
TMDL-SA	9/5/2017	1	Mostly Dry	Mostly Dry	mg/m ²	Mostly Dry
TMDL-CL	5/9/2017	1	11	36	mg/m ²	57.69
TMDL-CL	6/14/2017	1	11	22	mg/m ²	72.38

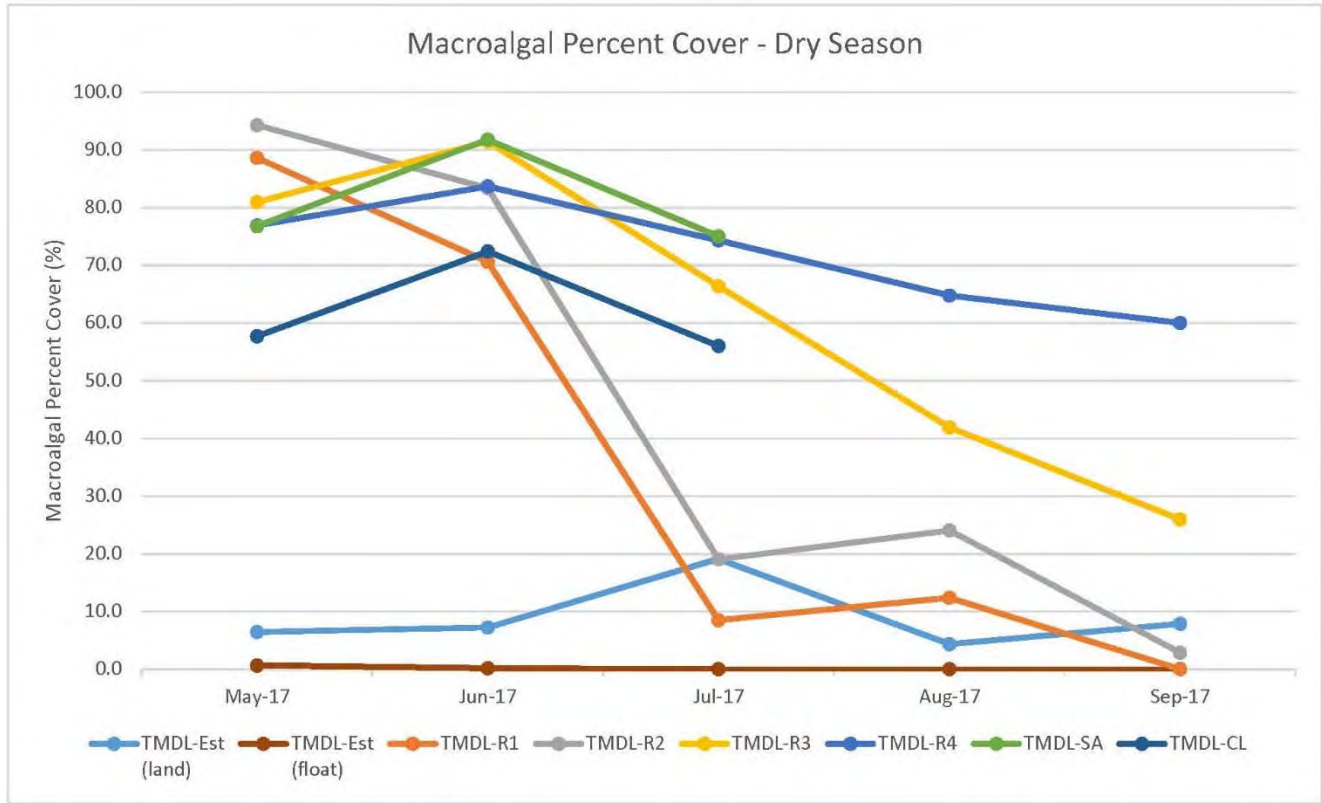
Site	Date	Field Replicate	Number of Transects Collected	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> units	Percent Presence Macroalgae (%)
TMDL-CL	7/13/2017	1	11	110	mg/m ²	56.00
TMDL-CL	8/15/2017	1	DRY	DRY	mg/m ²	DRY
TMDL-CL	9/5/2017	1	DRY	DRY	mg/m ²	DRY

FIGURE 9. 2017 DRY SEASON – CHLOROPHYLL A



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

FIGURE 10. 2017 DRY SEASON – MACROALGAL PERCENT COVER



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

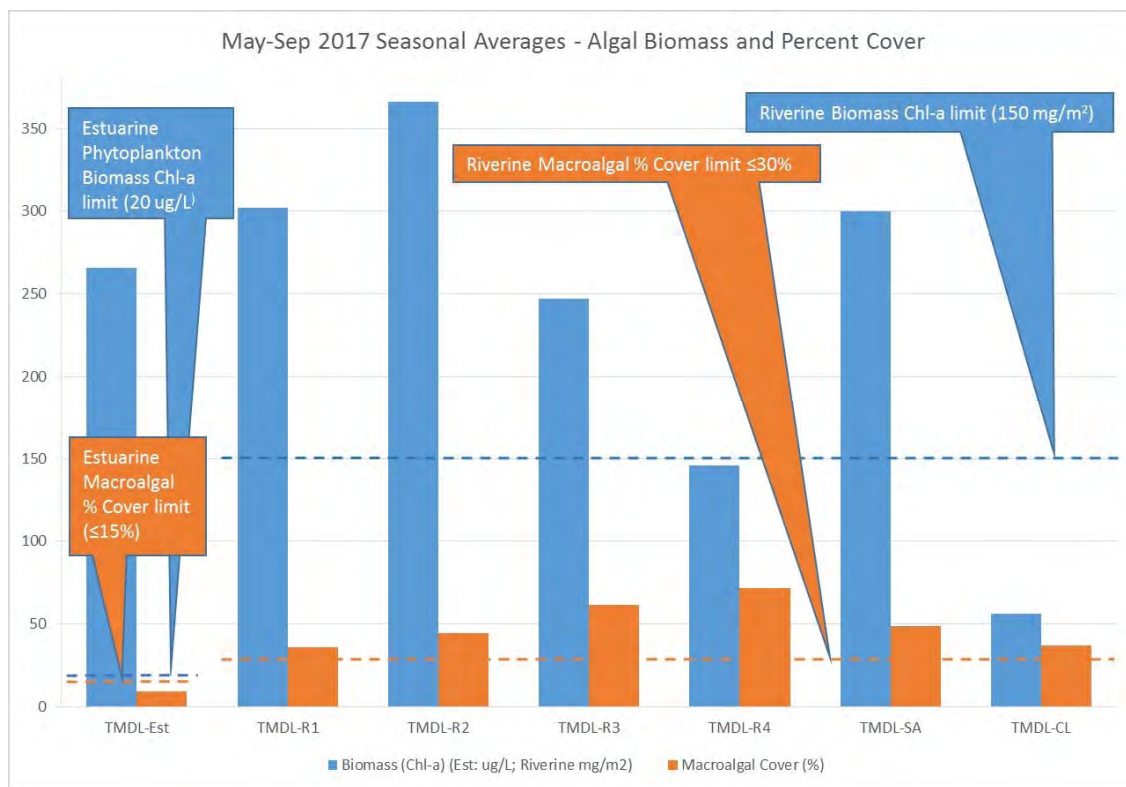
TABLE 6. 2017 DRY SEASON RIVERINE SEASONAL AVERAGES - MACROALGAL BIOMASS AND COVER

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	302	36.0
TMDL-R2	366	44.7
TMDL-R3	247	61.3
TMDL-R4	146	71.9
TMDL-SA	300	48.7
TMDL-CL	56	37.2

TABLE 7. 2017 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 (%)
Seasonal Average Numeric Target			20 µg/L	≤ 15%	
TMDL-Est	5/10/2017	1	1,000	6.46	0.68
TMDL-Est	6/15/2017	1	160	7.21	0.17
TMDL-Est	6/15/2017	2	56	NA	NA
TMDL-Est	7/13/2017	1	270	19.12	0.00
TMDL-Est	8/16/2017	1	91	4.35	0.00
TMDL-Est	9/6/2017	1	19	7.89	0.00
TMDL-Est	Seasonal Average		266	9.01	0.17

FIGURE 11. 2017 DRY SEASON SEASONAL AVERAGES - CHLOROPHYLL A AND MACROALGAL COVER



CONTINUOUS DATA LOGGING

Seven Hydrolab HL4 water quality data sondes (Figure 12) are used for this program. The HL4 has the ability to accurately measure and log dissolved oxygen, 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 12. HYDROLAB HL4 SONDE



Sondes were installed for continuous monitoring for pH, specific conductivity, temperature, and dissolved oxygen for a two week period at all wet sites in May, September, and November 2017, and February 2018¹. The sondes were programmed to log data 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. The estuary sonde deployment was redesigned for the quarter 4 (Q4) deployment. The deployment location for the TMDL-Est site was moved further south of the railroad bridge and was deployed inside a housing attached at one end to a 20 foot, 3/8 inch diameter chain. The housing has floatation foam at the other end so that it floats at approximately a 45 degree angle when weighted down by the chain, while remaining below the surface. The chain is secured to a cinder block that is dropped on the estuary floor to prevent the sonde from migrating too far with any currents. The weight of the chain is sufficient to keep the sonde submerged, although the depth of submersion varies with water depth. This deployment strategy will be used as standard for future deployments (beginning with 2017-Q4). Sonde data for this reporting period are shown in Figure 13, Figure 14, Figure 15, and Figure 16.

2017-Q2 (May) 2017: Sondes were installed and programmed to log data beginning May 10, 2017 at 19:00 at all sites. The TMDL-R2 conductivity sensor did not hold calibration through 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 μ S) to not affect the other collected data², so redeployment was unnecessary. It is likely that flow ceased at TMDL-SA mid-deployment, resulting in lower diurnal variation, dissolved oxygen, and conductivity levels. The field meter check at TMDL-SA measured DO at higher levels than the sonde, likely due to the stirring required to move the ponded water past the field meter's polarographic sensor at the speeds required for accurate measurement (> 1 foot per second). TMDL-SA conductivity readings may be in error for the second week of deployment based on the lower sonde readings than field meter readings at pickup.

2017-Q3 (September) 2017: Sondes were installed at all TMDL monitoring sites for continuous data logging except TMDL-CL, which was dry. The sondes were installed before the logging program began on September 10, 2017 and removed after two

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.

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

weeks of logging. Three sondes would not allow conductivity calibrations prior to deployment but were working fine during post deployment checks. The difficulty in calibrating may have been caused by a temperature compensation issue within the sondes since temperatures were high (~35 degrees Celsius, 95 degrees Fahrenheit) on the date of calibration. The sondes that calibrated for conductivity were used at sites with higher conductivities, to reduce the likelihood of affecting DO measurements, although all conductivities were low enough as measured by the field meter checks for negligible effects on the data. The TMDL-R3 DO sensor became fouled partway through its deployment. The TMDL-Est sonde was unable to be recovered and was likely stolen. The TMDL-Est sonde was deployed just upstream of the Southern Pacific railroad trestle on the west bank of the Ventura River on September 5th, 2017. The sonde was labeled with identifying information including a phone number, and was deployed within a floating housing with a 10 pound anchor that resulted in it being approximately 8 feet below the water surface and out of sight. The river velocity was low (3.11 cfs measured at TMDL-R1 on September 6, 2017). This is the same method that was used successfully for the last two years, even when river velocities were considerably higher. Sonde retrieval with a gaff was unsuccessfully attempted on September 20th. A second unsuccessful attempt was made with a pole and clamp on September 21st. On September 22nd, a diver searched within a 10-foot radius of the area of deployment but nothing was found. There is a large homeless population in the area and there are usually people around during sonde deployments and retrievals, and while the actual placement is attempted to be done when nobody is watching, it seems likely that someone saw the deployment and swam out and stole the sonde. By the time the sonde was determined to be gone, it was too late to come up with a new system to secure the sonde and meet the two-week September deployment for the third quarter. Another deployment method will be tried for future deployments to try to prevent additional loss of equipment/data. If vandalism or theft at this location continues, then the monitoring plan may need to be modified to reflect the realities of collecting continuous data in public spaces.

2017-Q4 (November) 2017: Sondes were installed at the TMDL-Est, TMDL-R1, TMDL-R2, and TMDL-R3 sites. The deployment location for the TMDL-Est site was moved further south of the railroad bridge and was deployed inside a housing attached at one end to a 20 foot, 3/8 inch diameter chain. The housing has floatation foam at the other end so that it floats at approximately a 45 degree angle when weighted down by the chain, while remaining below the surface. The chain is secured to a cinder block that is dropped on the estuary floor to prevent the sonde from migrating too far with any currents. The weight of the chain is sufficient to keep the sonde submerged, although the depth of submersion varies with water depth. The sondes were programmed to log from November 22, 2017 at 18:00 through December 7, 2017 at 18:00. TMDL-R4, TMDL-SA, and TMDL-CL were dry so sondes were not installed at these locations.

2018-Q1 (February) 2018: Sondes were able to be deployed at all sites during this event except TMDL-SA, which was dry. The sondes began logging data on February 12, 2018 at 18:00 and continued through February 26, 2018. The sondes were pulled a few hours early due to a storm forecast for the area. 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 so the sonde was not redeployed.

TABLE 8. MAY 2017 – APRIL 2018 SONDE DEPLOYMENT DATES

Site	2017 Quarter 2 (May*)	2017 Quarter 3 (September*)	2017 Quarter 4	2018 Quarter 1
TMDL-Est	5/10/2017 – 5/24/2017	9/5/2017 - LOST	11/22/2017 – 12/6/2017	2/12/2018 – 2/26/2018
TMDL-R1	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017 ^a	11/22/2017 – 12/6/2017	2/12/2018 – 2/26/2018
TMDL-R2	5/10/2017 – 5/24/2017 ^a	9/5/2017 – 9/19/2017	11/22/2017 – 12/6/2017	2/12/2018 – 2/26/2018
TMDL-R3	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017 ^b	11/22/2017 – 12/6/2017	2/12/2018 – 2/26/2018
TMDL-R4	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017	DRY	2/12/2018 – 2/26/2018
TMDL-SA	5/10/2017 – 5/24/2017	9/5/2017 – 9/19/2017	DRY	DRY
TMDL-CL	5/10/2017 – 5/24/2017	DRY	DRY	2/12/2018 – 2/26/2018

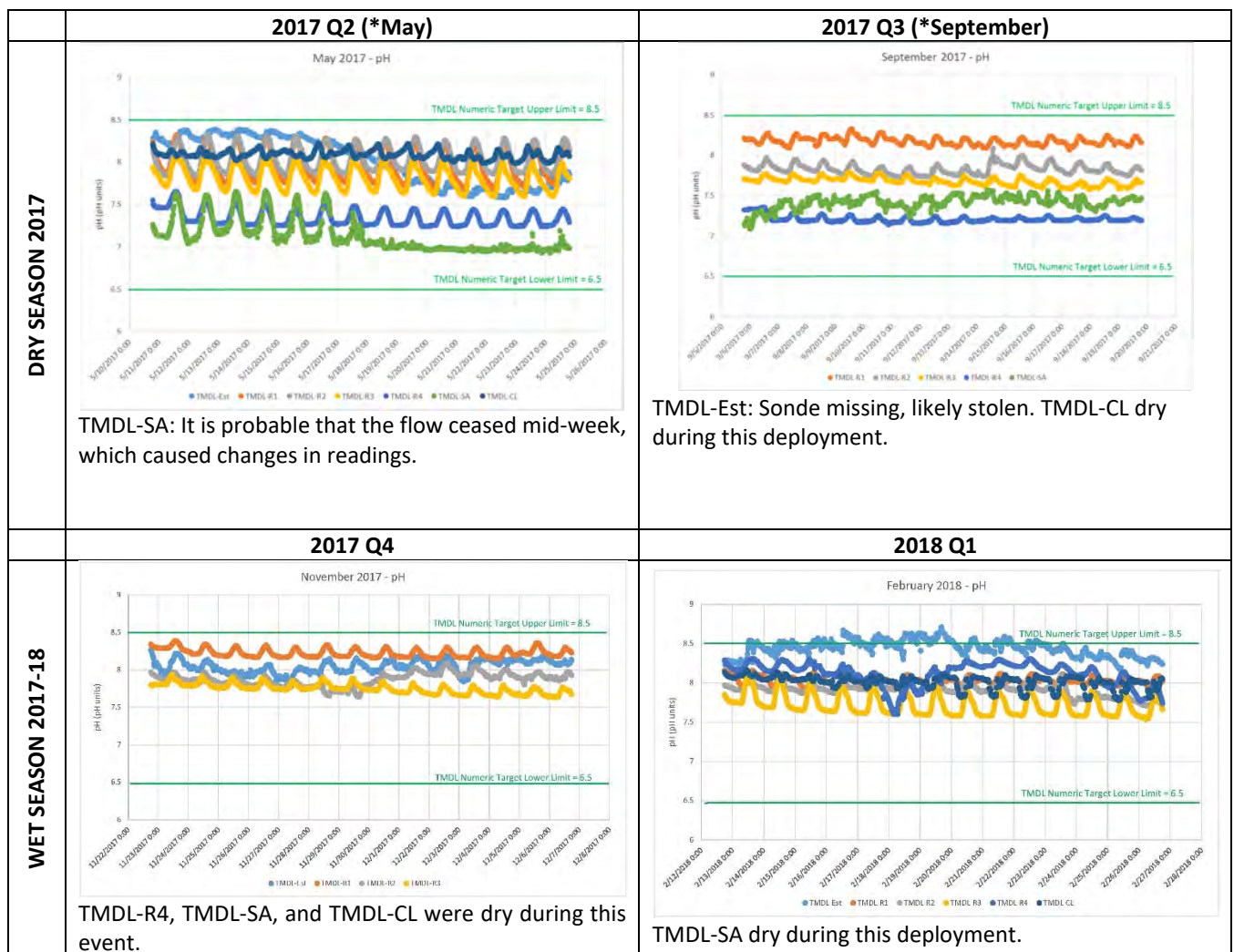
* Month required by TMDL

^a Conductivity in error but not a required parameter so not redeployed.

^b Dissolved oxygen sensor became fouled partway through deployment.

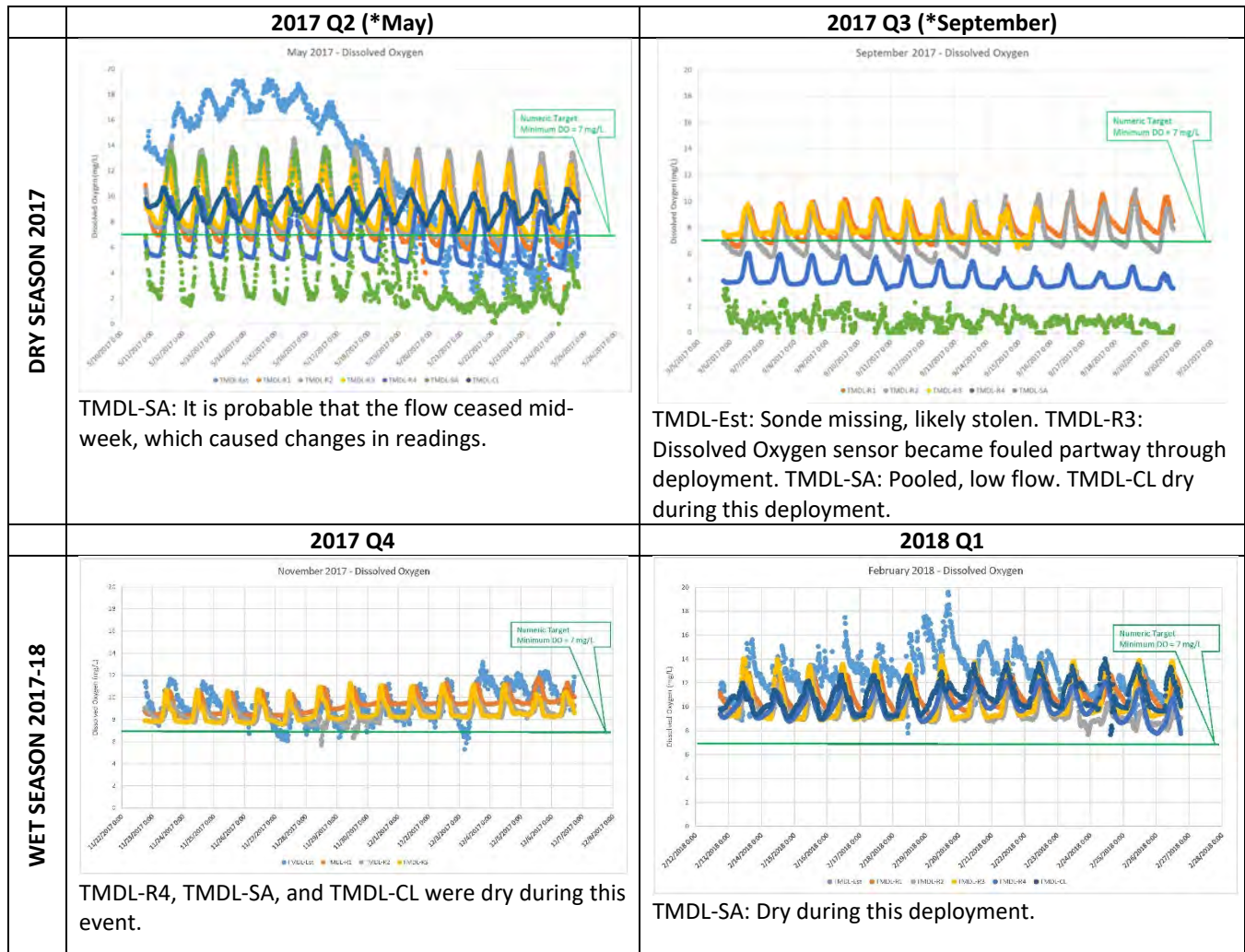
Graphical representations of the continuous monitoring data are presented below.

FIGURE 13. CONTINUOUS DEPLOYMENT SONDE DATA - PH



All continuous pH monitoring data for this reporting period was within the numeric target limits with the exception of TMDL-Est in February 2018, which hovered around the numeric target reached a maximum of 8.71 pH units.

FIGURE 14. CONTINUOUS DEPLOYMENT SONDE DATA - DISSOLVED OXYGEN



Low levels of dissolved oxygen (below the numeric target of 7 mg/L) were observed during the monthly grab monitoring at TMDL-SA and TMDL-CL several times, and once per site at TMDL-Est and TMDL-R2. They appear to be generally associated with low flow, possibly due to the ponding of water upstream and/or at the measurement location. Dissolved oxygen 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-Est and TMDL-R2 in November, however all monitored sites were above the target in February.

FIGURE 15. CONTINUOUS DEPLOYMENT SONDE DATA - TEMPERATURE

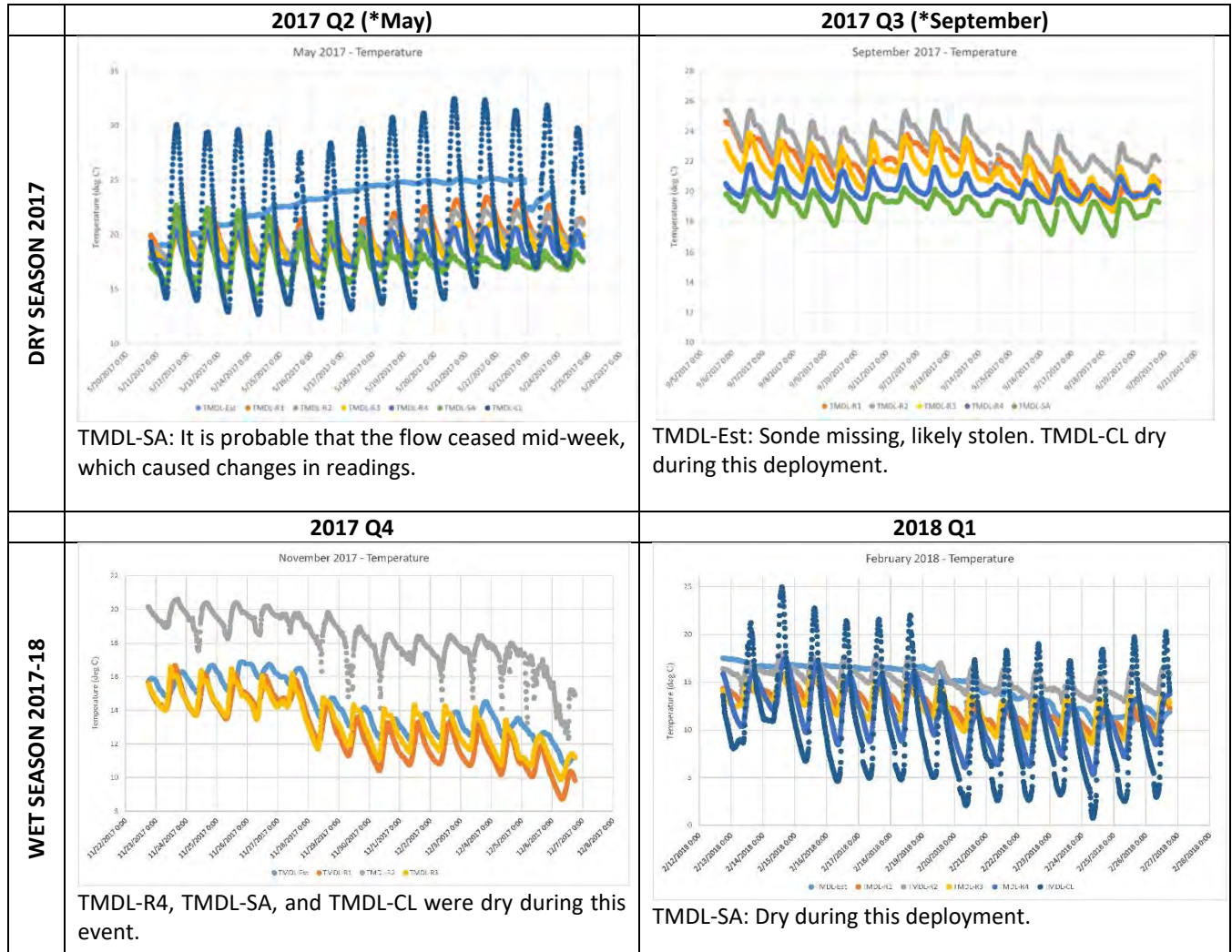


FIGURE 16. CONTINUOUS DEPLOYMENT SONDE DATA - SPECIFIC CONDUCTANCE

		2017 Q2 (*May)	2017 Q3 (*September)
DRY SEASON 2017	<p>May 2017 - Specific Conductance (Log, scale)</p>	<p>September 2017 - Specific Conductance</p>	
	<p>TMDL-R2: Conductivity readings are in error for this deployment but are not required at this site for the TMDL. TMDL-SA: It is probable that the flow ceased mid-week, which caused changes in readings. Conductivity readings may be in error for the second week of deployment (based on lower sonde readings than field meter readings at pickup).</p>	<p>TMDL-Est: Sonde missing, likely stolen. TMDL-R1: Conductivity readings are not stable. Fouled conductivity sensor likely. TMDL-R3 & TMDL-SA: Pre-deployment conductivity would not calibrate, therefore calibration date is expired. However, calibration check post-deployment showed data was within specifications. Suspect that high ambient temperatures on calibration day (95 deg F) caused issues with conductivity calibrations. TMDL-CL dry during this deployment.</p>	
WET SEASON 2017-18	<p>November 2017 - Specific Conductance</p>	<p>February 2018 - Specific Conductance</p>	
	<p>TMDL-R4, TMDL-SA, and TMDL-CL were dry during this event.</p>	<p>TMDL-SA: Dry during this deployment. TMDL-CL: Conductivity readings are too high (as compared to the field meter measurements during sonde retrieval) so are excluded from this chart.</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, as observed in the dry conditions at the Santa Ana Blvd and Highway 150 bridge crossings from May 2017 – January 2018. In addition to the ongoing severe drought, the watershed was heavily impacted by the Thomas Fire, which started on December 4, 2017 and continued through January 9, 2018, becoming the largest recorded fire in California history to date. 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. This resulted in greater runoff and sedimentation loads to the watershed in the storms following the fire. Areas that did not burn (mainly the Ojai Valley), were still subject to heavy ash deposition. Connectivity between the upper and lower watershed was reestablished in January, after a large storm passed through the area. 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. 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.

All monthly grab measurements for pH during this reporting period were within the numeric target limits of 6.5-8.5 pH units, with the exception of TMDL-Est in June 2017 and February and April 2018. Similarly, all continuous data logger pH results were within limits with the exception of TMDL-Est in February 2018, which experienced multiple excursions over 8.5, with a maximum of 8.71.

Low levels of dissolved oxygen (below the numeric target of 7 mg/L) were observed during the monthly grab monitoring at TMDL-SA and TMDL-CL several times, and once per site at TMDL-Est and TMDL-R2. They appear to be generally associated with low flow, possibly due to the ponding of water upstream and/or at the measurement location. Dissolved oxygen 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-Est and TMDL-R2 in November, however all monitored sites were above the target in February.

Temperature displayed a diurnal pattern at most sites but the pattern was muted at the estuary during some deployments, likely due to the deeper level of deployment.

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 2017	DO (c)	DO (c)	DO (c)	DO (c)	DO (m) * DO (c) *	DO (c)	
JUN 2017	> pH (m)				DO (m)	DO (m) *	
JUL 2017	DO (m)					DO (m) *	
AUG 2017			DO (m)		DO (m)	DO (m) *	DRY
SEP 2017	Sonde lost	DO (c)	DO (c)	DO (c)	DO (m) * DO (c)	DO (m) * DO (c)	DRY
OCT 2017					DO (m) *	DO (m) *	DRY
NOV 2017					DO (m) * DRY Sonde	DO (m) * DRY sonde	DRY
DEC 2017						DRY	DRY
JAN 2018						DRY	DRY
FEB 2018	> pH (m) > pH (c)					DRY	
MAR 2018							
APR 2018	> pH (m)						
Seasonal Average	Chl <i>a</i>	Chl <i>a</i> Macro cover	Chl <i>a</i> Macro cover	Chl <i>a</i> Macro cover	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)

2018 ANNUAL REPORT

APPENDIX A: FIELD DATA SHEETS (MAY 2017 - APRIL 2018)

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 Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): MAY 2017 Date: 5/9/17 + 5/10/17
 Crew Members: 5/9/17: KH, SC, WW 5/10/17: LM, SC, WW, JM
 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 # 110341139

OBSERVATION SITES (RIVER FLOW) 5/11/17

Ventura River at Highway 150 (Baldwin Road)
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
 Notes: Dry at bridge but ponded upstream + downstream ponding visible upstream + downstream.

Ventura River at Santa Ana Blvd
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: ~ 1 cfs) Photos Taken: Upstream / Downstream
 Notes: Flowing upstream - west side. Ponded upstream of bridge east side. All flow infiltrating on downstream side. Dry ~ 20m downstream of bridge.

Ventura River at Casitas Vista Road
 Flow Status: Dry / Ponded / Flowing (Estimated Flow: _____ cfs) Photos Taken: Upstream / Downstream
 Notes: Flow on east + west sides of river. East side dominant + faster paced
 15-20 cfs

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

UNSAMPLED TMDL SITES

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: _____

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 TMDL Field Data Sheet (Estuary) - Page 2 of 2

Ventura River Algae TMDL - Estuary Transect Measurements Date: 10/5/17 Crew: Lara Sean, Wendy, Jim

TRANSECT 2

Photos: Oceanward Landward Start Time: 12:30 End Time: 12:35
 Start Latitude: 34.77467 Start Longitude: -119.30765
 End Latitude: 34.27496 End Longitude: -119.30771
 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)	2.2	3	4.3	6.4	7.3	9.3	17.5	18.6	25.7	27.3	5	5	2	2
Water Depth (must be ≤ 0.3 m)	0.05	0.05	0.05	.1	.1	.1	.3	.3	.3	.2	1 FT	1 FT	1 FT	1 FT
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	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	1	1	1	0	0	0	1	0	0	0	1	3	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)	48	48	48	49	49	49	48	49	49	49	48	46	49	49

TRANSECT 3

Photos: Oceanward Landward Start Time: 12:38 End Time: 12:45
 Start Latitude: 34.27517 Start Longitude: -119.30785
 End Latitude: 34.27538 End Longitude: -119.30809
 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)	2.2	3	4.3	6.4	7.3	9.3	17.5	18.6	25.5	27.3	3	3	3	3
Water Depth (must be ≤ 0.3 m)	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1 FT	1 FT	1 FT	1 FT
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	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	2	2	0	9	16	1	2	3	3	25	0	0	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)														

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: VR1 Date: 5/10/17 Crew: Lara A & Sean C

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	4.0	OA	OP	43P	55P	OP	15	10	10	2	✓
AB	6.0	OP	17P	DM A	15P	OA					
B	6.5	OP	42P	50P	30P	OP	0	0	5	0	
BC	6.5	NA	NA	80P	35P	OP					
C	6.0	OP	67P	81P	45P	OP	5	5	10	0	
CD	5.5	OA	66P	72P	54P	OP					
D	6.5	OP	33P	63P	30P	OP	17	10	7	7	
DE	7	OP	37P	33A	34P	OP					
E	5.75	OP	20P	50P	42P	OP	12	2	10	2	
EF	6.0	OP	20P	57P	9P	OA					
F	5.0	OP	45P	75P	15P	OA	15	0	7	7	✓
FG	6.5	OP	72P	20P	2P	NA					
G	~10	OP	15P	NA	6P	OP	17	17	17	17	
GH	4.5-3.5 w/ 12	OP	45P	NA	16P	3A					
H	11.5	OP	40P	10P	29P	OP	2	7	17	17	
HI	12	OP	23P	67P	95P	OA					
I	11	OP	73P	25P	105P	OA	16	15	17	8	
II											
J											
JK											
K											

$105 - (6 + 20) = 79$
70

343 →
345
plus
PAC4

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 2017
 Site ID: R2
 Date/Time: 5/10/17
 Crew Members: LM, SC, WW, JA
 Latitude/Longitude: 34.33932, -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.): homeless camp at A

January—December Monthly In Situ Measurements:
 pH: 7.84 pH units EC: 1020 $\mu\text{S}/\text{cm}$
 DO: 8.15 mg/L SC: 1104 $\mu\text{S}/\text{cm}$
 DO: 87.5 % Salinity: 0.6 ppt
 Water Temp: 18.5 °C
 Flow (from discharge measurement): 13.84 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	0.4	0	0
2	0.8	0.4	2.88
3	1.2	0.4	0.11
4	1.6	0.2	0.60
5	2.2	0.3	0.88
6	2.4	0.9	1.81
7	2.8	0.6	1.43
8	3.2	0.4	0.66
9	3.6	1.0	1.10
10	4.0	1.1	0.06
11	4.4	1.1	-0.1
12	4.8	1.4	0.26
13	5.2	1.4	1.52
14	5.7	0.8	1.44
15	6.1	0.8	0.79
16	6.5	0.7	1.22
17	6.9	0.4	-0.01
18	7.2	0	0
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): 150

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	2
PVC Delimiter (Area=12.6cm ²)	9
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	444
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: VR2 Date: _____

Crew: Leah & Sean

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densiometer (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	OP	26P	45P	19A	OP	7	0	0	0	✓	
AB	7	OP	8P	33P	40P	20P						
B	8	OP	15P	30P	34P	14P	12	8	3	7		
BC	7	OP	33P	25P	15P	OP						
C	6.5	OP	18P	35P	36A	OP	17	15	5	12		
CD	8	OP	35P	5P	OP	OP						
D	7.5	OP	60P	53P	5P	OP	17	7	0	2		
DE	8	OP	60P	45P	45P	OP						
E	8	OP	45A	45P	11P	OP	17	0	0	7		
EF	8	OA	54P	56P	42P	19P						
F	8	OP	47P	50P	35A	OP	7	2	0	0	✓	
FG	10	OP	27P	15P	30P	OP						
G	9.5	OP	26P	25P	29P	OP	17	2	0	5		
GH	11	OP	23A	22P	16P	OP						
H	10	OP	56P	40P	7P	19P	10	5	17	5		
HI	8	OP	45P	48P	56P	OP						
I	8	OP	40P	43P	36P	OP	12	0	10	5		
U	7	OP	50P	41P	30P	OP						
J	8	OP	65P	65P	1P	OP	17	0	0	0		
JK	4	OP	27P	40P	17P	OP						
K	6	OP	30P	25P	10P	OP	10	0	0	0	✓	

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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 2017
 Site ID: TMDL-23
 Date/Time: 05/09/17 1125
 Crew Members: WW KH Sean
 Latitude/Longitude: 34.34592, -119.2997
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To W
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.):

January-December Monthly In Situ Measurements:
 pH: 8.08 pH units EC: 1008 $\mu\text{S}/\text{cm}$
 DO: 11.87 mg/L SC: 1144 $\mu\text{S}/\text{cm}$
 DO: 128.2 % Salinity: 0.6 ppt
 Water Temp: 18.8 °C
 Flow (from discharge measurement): 8.05 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)			Velocity (ft./sec)
No.	Distance from Left Bank (ft)	Depth (ft)	
1	11	0	0
2	11.5	0.5	0.34
3	12.5	1.25	0.35
4	13.5	1.1	0.49
5	14.5	1.15	0.50
6	15.5	0.9	0.47
7	16.5	1.4	0.10
8	17.5	0.9	0.84
9	18.5	1.0	1.00
10	19.5	0.65	1.18
11	20.5	1.1	0.95
12	21.5	1.0	1.30
13	22.5	1.0	0.26
14	23.5	0.95	0.19
15	24.5	0.4	0.31
16	25.5	0.5	0.35
17	26.5	0.6	0.06
18	27.5	0.2	0.18
19	28.5	0.5	0.10
20	29.5	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): 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)	370
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	125

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: 5/9/17 Crew: KH, SC, WW

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	10.0	OP	20P	40P	35P	OA	5	5	10	8	✓
AB	9.5	OP	OA	30P	37P	OP					
B	9.0	OP	29P	33P	25P	OA	15	7	15	2	
BC	11.0	OP	19P	27P	29P	OA					
C	9.5	OA	30P	43P	50P	OP	7	1	15	0	
CD	10.2	OA	22P	41P	42P	OP					
D	9.0	OP	11P	57P	55P	OP	8	3	14	0	
DE	8.0	OP	15P	53P	63P	OP					
E	9.5	OP	13P	25P	45P	OP	15	15	12	3	
EF	7.0	OP	1P	33A	30P	OA					
F	8.0	OA	1P	17P	15P	OP	0	2	10	5	✓
FG	8.5	OA	6P	15P	17P	OP					
G	8.0	OA	15P	25P	18P	OP	17	5	15	0	
GH	9.0	OA	17P	21P	10P	OP					
H	8.5	OA	5P	15P	4P	OP	5	0	5	2	
HI	6.5	OA	19P	25P	22P	OP					
I	4.8	OP	1P	30P	26P	OP	12	8	16	0	
II	6.0	OP	5P	15P	27P	OP					
J	9.0	OA	20P	15P	5A	OA	17	17	17	17	
JK	6.5	OP	34P	OP	30A	OA					
K	5.8	OP	1P	35P	25P	OA	17	7	15	5	✓

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20

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: B4 Date: 5/9/17 Crew: KH, SC, WW

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	7.4	OP	50P	56P	60P	OA	7	0	2	4	✓
AB	8.0	OP	10P	54P	67P	OA					
B	8.7	OA	23P	41P	66P	OA	3	0	5	1	
BC	8.0	OA	16P	12P	55P	OP					
C	9.0	OP	8P	25P	35P	OA	0	0	3	0	
CD	7.0	OA	7P	34P	55P	OP					
D	8.0	OA	7P	15A	65P	OA	10	15	17	15	
DE	6.5	OP	14P	15P	OA	OP					
E	8.0	OA	23P	13P	5A	OP	14	17	17	17	
EF	10.0	OA	DRY	1P	10P	OP					
F	12.0	OP	10P	30P	17P	OP	0	0	0	0	✓
FG	11.0	OP	28P	30P	20P	OP					
G	8.5	OP	26P	37P	33P	OA	0	0	0	0	
GH	8.0	OP	28P	48P	45P	OA					
H	8.0	OP	30P	43P	57P	OP	0	0	0	0	
HI	7.0	OP	38P	45P	43P	OA					
I	5.5	OP	51P	50P	40P	OP	0	0	0	0	
II	5.3	OA	33P	15A	22P	OA					
J	7.0	OP	20A	50P	45P	OP	0	0	0	0	
JK	8.5	OA	24P	42P	40P	OP					
K	11.5	OP	11A	32P	20P	OA	0	0	0	0	✓

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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): SA May 2017

Site ID: SA

Date/Time: 05/09/17 0950

Crew Members: Polly Scanlon

Latitude/Longitude: 34.38088 -119.30715

Flow (circle one): Flowing Ponded / Dry

Wind Strength:

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

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

Photos (check): Upstream Downstream

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

January-December Monthly In Situ Measurements:

pH: 7.58 pH units EC: 1409 $\mu\text{S/cm}$

DO: 9.71 mg/L SC: 1604 $\mu\text{S/cm}$

DO: 102.2 % Salinity: 0.8 ppt

Water Temp: 17.8 °C

Flow (from discharge measurement): 0.13 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	4.5	0	0
2	5.5	0.4	-0.03
3	6	0.5	0.03
4	6.5	0.6	0.02
5	7	0.6	0.24
6	7.5	0.75	0.01
7	8	0.6	0.05
8	8.5	0.7	0.07
9	9	0.75	0
10	9.5	0.6	-0.01
11	10	0.5	0.04
12	11	0.4	-0.01
13	12	0	0
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): 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 a 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: SA

Date: 5/9/17

Crew: KW SC WW

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	5.0	0 A	19P	20P	0A	0A	17	17	9	14	✓	
AB	6.0	0A	3P	12A	10P	4A						
B	5.0	0P	13P	12P	20P	0A	17	17	17	17		
BC	3.5	0A	8P	22P	12P	0A						
C	4.0	0A	21P	9P	2P	0P	17	17	17	17		
CD	3.3	0P	15A	7P	9P	0P						
D	3.7	0P	1P	1P	6P	0P	16	16	7	12		
DE	6.5	0P	7P	DRY	DRY	0P						
E	8.0	0P	DRY	DRY	19P	0P	17	12	15	12		
EF	7.0	0P	8P	7P	9P	0P						
F	10.0	0P	4P	8P	8P	35P	0	12	3	0	✓	
FG	8.0	0A	17P	15P	7P	0A						
G	9.5	0A	37P	5P	DRY	0A	0	0	15	5		
GH	8.0	0P	35P	17P	DRY	0P						
H	7.0	0A	63P	40P	25P	38P	0	7	5	0		
HI	6.6	0A	38P	63P	83P	0P						
I	4.5	0A	15A	25P	53P	0P	1	17	17	10		
J	5.0	0A	25A	35P	41P	0A						
J	4.0	0P	20P	34P	28P	0P	7	17	17	10		
JK	4.5	0P	16P	21P	25P	0A						
K	5.0	0P	1P	10P	17P	0P	0	7	7	7	✓	

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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: 5/9/17 Crew: KH, SC, WW

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)							Densiometer (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	3.7	OA	MSA 10P	10P	12P	1P	2	0	12	2		✓	
AB	3.0	OP	18P	8P	5P	OA							
B	3.6	OA	9P	8P	7P	OA	2	0	2	0			
BC	3.8	OP	3P	4P	3A	OA							
C	2.8	OP	6P	9P	8A	OP	0	0	2	0			
CD	1.7	OA	3P	5P	12P	OA							
D	2.5	OA	10P	4P	5P	OA	4	0	0	0			
DE	5.0	OP	7P	1P	1P	OP							
E	6.5 4.5	OA	3P 3P	10A 10A	10P 10P	OA	0	0	0	0			
EF	7.0	OP	OP	5A	4P	OP							
F	7.5	OA	3A	2A	10P	OA	5	0	0	0		✓	
FG	3.2	OA	4P	15P	8P	OA							
G	6.5 4.5	OA	8P 4A	5P	4P	OP	2	0	7	2			
GH	3.7	OA	7A	7A	5A	OA							
H	3.1	OA	14P	7P	3A	OA	4	0	0	0			
HI	2.3	OA	10P	8P	6A	OA							
I	1.8	OP	9P	10P	6A	OP	10	0	0	0			
II	2.8	OA	7P	8P	7P	OA							
J	2.0	OP	19P	15P	15P	OA	17	17	17	17			
JK	1.0	OA	10A	17P	13P	OA							
K	3.0	OA	10A 9P	9P	10P	OA	3	5	3	5		✓	

44
60
104

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): JUNE 2017 Date: 6/14/17 + 6/15/17
 Crew Members: 6/14/17 - Kelly Habs, Sean Casey, Jim Mann. 6/15/17 - Kelly Habs
 Weather (circle): Clear Partly Cloudy / Overcast / Showers / Rain / Other Sean Casey
 Event Type (check): Dry (<0.1" rain per day for the preceding three days) wendy willis
 Wet (days with ≥0.1" rain and the three days following)
 Notes: Take field dupes for chl a at Est + R3
" " " chemistry at R3
Field notes xsl 85 # ASE1126, Beckman 285 #2554

OBSERVATION SITES (RIVER FLOW) 6/15/17

Ventura River at Highway 150 (Baldwin Road)
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: ~10 cfs) Photos Taken: Upstream / Downstream
 Notes: Flow on east + west side of river. East dominant

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: _____ 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—Estuary Details

Site ID: TMDL-Est
 Event ID (Month Year): JUNE 2017 Date: 6/15/17 1305
 Crew Members: KU, MW, SC
 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): Field dup for chla. Biom described w/ red spots.
 Ocean Inlet (circle one): Open Restricted Closed
 Time of Low Tide: 0829 Time of High Tide: 1539
 Wind Direction: Blowing From / To W

TRANSECT 1

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)
 Monthly (Jan—Dec):
 pH: 8.61 pH units 8.66 EC: 3439 µS/cm Water Temp: 25.1 °C
 DO: 138.6 mg/L 138.6 SC: 3437 µS/cm
 DO: 11.37 % sat Salinity: 1.8 ppt

Photos: Oceanward Landward
 Start Latitude: 34.27466 Start Longitude: 120.187 Start Time: 1305 End Time: 1318
 End Latitude: -119.30726 End Longitude: -119.30757
 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)	0.6	3.9	5.6	6.1	9.6	11.7	13.0	22.1	23.7	29.9				
Water Depth (must be ≤ 0.3 m)											0.3			
Condition [F=Fresh, Int=Intermediate, Des=Desiccated, Dd=Dead]	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd
No. Crosshairs with Macroalgae Present	2	1	10	3	5	2	2	1	35	1	0	0	0	0
No. Crosshairs with Macroalgae Absent	47	48	39	46	44	47	47	48	14	48	49			
Crosshair Total (must equal 49)	49	49	49	49							49			

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 2017
 Site ID: R2
 Date/Time: 6/15/17 1120
 Crew Members: KH, SC, MW
 Latitude/Longitude: 34.28034 -119.30838
 Flow (circle one): Flowing / Pondered / 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.): Review sitting in water fully diked downstream of A JV 20m

January—December Monthly *In Situ* Measurements:
 pH: 8.17 pH units EC: 1270 $\mu\text{S}/\text{cm}$
 DO: 1.30 mg/L SC: 1331 $\mu\text{S}/\text{cm}$
 DO: 104.3 % Salinity: 0.7 ppt
 Water Temp: 21.2 °C
 Flow (from discharge measurement): 7.35 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):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.6	Ø	Ø
2	5.0	0.45	0.15
3	7.0	0.70	-0.04
4	9.0	1.15	0.32
5	11.0	1.10	0.33
6	13.0	0.70	0.82
7	15.0	1.2	0.52
8	17.0	0.8	0.86
9	19.0	0.6	0.72
10	21.0	0.7	0.75
11	23.0	0.65	-0.01
12	25.0	0.45	0.15
13	27.5	Ø	Ø
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)	3
PVC Delimiter (Area=12.6cm ²)	6
Syringe Scrubber (Area=5.3cm ²)	2
Other (Area=))
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	590
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: 6/15/17 Crew: KASC, WW

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	3.0	OA	25P	36P	30P	OA	3	14	17	15	✓	
AB	2.0	OA	22P	15P	20A	OA						
B	3.7	OA	18A	42P	20P	OP	5	7	17	15		
BC	3.2	OP	40P	35P	29P	OP						
C	5.0	OA	8A	DRY	35P	OP	17	17	17	17		
CD	4.8	OP	37A	46P	24P	OP						
D	5.7	OA	INACCESS	71P	46P	OP	17	17	16	17		
DE	6.5	OP	58P	77P	40P	OP						
E	5.0	OA	56A	76A	46P	OP	17	17	17	17		
EF	4.5	OA	55A	43P	30P	OP						
F	5.6	OP	43P	52P	37P	OP	17	5	9	13	✓	
FG	5.1	OP	24A	30P	17P	OP						
G	5.3	OP	10A	25P	31P	OP	11	7	10	5		
GH	4.5	OP	40P	36P	2P	OP						
H	4.6	OA	51A	50P	15P	OP	15	7	6	3		
HI	5.0	OA	39A	8P	17P	OP						
I	4.0	OA	41A	55P	31P	OP	11	5	17	9		
II	3.0	INACCESS	55A	25P	5P	OP						
J	5.5	OA	15A	31P	8P	OP	17	6	10	5		
JK	7.0	OA	14A	39P	3P	OP						
K	10.0	OA	24P	55P	49P	OP	1	10	17	3	✓	

13 13

72
102 7059%

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): R2 June 2017
 Site ID: 0910
 Date/Time: 06/19/17 0910
 Crew Members: KU WWS SC
 Latitude/Longitude: 34.3394 -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 S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.):

January—December Monthly *In Situ* Measurements:
 pH: 7.97 pH units EC: 1091 $\mu\text{S}/\text{cm}$
 DO: 8.99 mg/L SC: 1205 $\mu\text{S}/\text{cm}$
 DO: 92.7 % Salinity: 0.0 ppt
 Water Temp: 20.1 °C
 Flow (from discharge measurement): 8.54 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	\emptyset	\emptyset
2	5.0	1.25	0.02
3	7.0	1.0	0.10
4	9.0	1.8	0.06
5	11.0	1.5	0.48
6	13.0	1.8	0.23
7	15.0	1.05	0.29
8	17.0	1.3	0.87
9	19.0	1.3	0.78
10	21.0	0.7	0.92
11	22.0	\emptyset	\emptyset
12	22.5	0.0	0.34
13	24.0	\emptyset	\emptyset
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)	4
PVC Delimiter (Area=12.6cm ²)	7
Syringe Scrubber (Area=5.3cm ²)	\emptyset
Other (Area= _____)	
Number of Transects Sampled (0-11)	11
Composite Volume (ml)	528
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: 515/1702 Date: 6/15/17 Crew: KH SC, MW

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)						Densitometer (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	6.6	OP	34P	25P	23P	OA	10	2	9	5	✓	
AB	5.6	OP	11P	35P	26P	OP						
B	5.7	OP	17P	38P	30A	OP	15	1	7	2		
BC	5.0	OP	25P	45P	51P	OP						
C	4.15	OP	DRY	OA	25P	OP	16	6	7	6		
CD	4.6	OA	OP	25P	30P	OP						
D	5.0	OP	30A	20P	15P	OA	17	15	2	15		
DE	6.3	OP	18P	45P	32P	OP						
E	6.4	OP	15A	DRY	23P	OA	17	10	1	15		
EF	6.8	OP	37P	35P	24P	OP						
F	8.0	OP	55A	41P	51P	OP	15	5	4	7	✓	
FG	6.3	OP	20P	44P	50P	OP						
G	7.5	20P	7P	58P	26P	OP	13	1	5	5		
GH	8.0	OP	45P	38P	36P	OP						
H	7.8	OP	30A	43P	35P	OP	15	2	2	1		
HI	8.6	OP	30P	OP	17P	OA						
I	5.5	OP	25A	25P	32P	OP	10	2	7	0		
J	8.1	OA	15P	22A	27A	OP						
JK	12.0	INKGESS	30A	15P	10P	OP	12	4	7	0		
JK	9.0	OP	50A	17P	5P	OA						
K	7.0	OP	35P	46P	35P	OP	5	17	17	7	✓	

85 / 102 = 83.3%

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

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

Site: R3 Date: 6/13/17 Crew: KH, SC, JM

Transsect	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	7.5	OP	29P	20P	26P	OP	9	10	15	0		✓
AB	11.4	OP	15P	21P	25P	OP						
B	11.0	OP	20P	35P	39P	OP	5	7	17	0		
BC	11.2	OP	16P	29P	25P	OP						
C	9.1	OP	10P	53P	56P	OP	17	10	15	15		
CD	7.1	OP	5P	35P	65P	OP						
D	5.4	OP	4P	33P	26P	OP	7	5	17	5		
DE	8.5	OP	OP	OP	13P	15P	OP					
E	7.8	OP	1P	17P	5P	OP	17	4	16	5		
EF	8.0	OP	20P	15P	16P	OP						
F	8.7	OP	22P	26P	19P	OP	10	7	15	5		✓
FG	6.2	OP	15P	9P	12P	OP						
G	5.0	OP	1P	29P	20P	OP	9	8	17	17		
GH	6.1	OP	24P	10P	20P	OP						
H	9.0	OP	15A	5P	10A	OP	17	17	17	17		
HI	6.0	OP	24P	23P	10P	OP						
I	11.0	OP	9P	35P	60P	OP	15	5	17	17		
II	7.0	OP	25P	40P	65P	OP						
J	8.0	OP	15P	47P	45P	OP	17	1	15	5		
JK	7.0	OP	15P	21P	25P	OP						
K	8.4	OP	OP	27P	25P	OP	1	8	17	10		✓

96/105 91.43%

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 2017
 Site ID: R4
 Date/Time: 6/14/17 0855
 Crew Members: K.H., S.C., J.M.
 Latitude/Longitude: 34.38186 -119.30919
 Flow (circle one): Flowing / Poned / Dry
 Wind Strength: 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: 7.4 pH units EC: 803 $\mu\text{S}/\text{cm}$
 DO: 6.40 mg/L SC: 921 $\mu\text{S}/\text{cm}$
 DO: 68.9 % Salinity: 0.5 ppt
 Water Temp: 18.6 °C
 Flow (from discharge measurement): 6.10 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	2.2	0	0.0
2	4.0	1.0	0.0
3	6.0	1.7	0.09
4	8.0	1.8	0.19
5	10.0	1.8	0.33
6	12.0	1.8	0.25
7	14.0	1.7	0.34
8	16.0	1.9	0.35
9	18.0	1.7	0.13
10	20.0	1.2	0.03
11	23.0	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)	4
PVC Delimiter (Area=12.6cm ²)	10
Syringe Scrubber (Area=5.3cm ²)	10
Other (Area= _____)	1
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	292
Chlorophyll a 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: 6/29/17 Crew: KH, SC, 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 HOP	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream	
A	7.8	OP	OP	51P	53P	OP	8	0	0	3	✓
AB	7.0	OP	49P	53P	44P	OP					
B	8.0	OP	2P	50P	63P	OP	2	0	8	0	
BC	8.0	OP	15P	10P	56P	OP					
C	8.0	OP	2P	20P	43P	OP	0	2	5	0	
CD	8.0	OP	20P	42A	57P	OP					
D	4.5	OP	10P	11P	65P	OP	17	17	17	17	
DE	8.8	OP	15A	17P	3P	OP					
E	4.0	OP	10P	46P	35P	OP	17	14	17	17	
EF	12.0	OP	DRY	24P	23P	OP					
F	9.4	OP	20P	27P	31P	OP	0	0	0	0	✓
FG	8.6	OP	30P	35P	32P	OP					
G	7.5	OP	36P	55P	47P	OP	0	0	0	0	
GH	7.5	OP	20P	43P	41P	OP					
H	6.0	OP	44A	33P	36P	OP	0	0	2	0	
HI	5.0	OP	2A	40P	20P	OP					
I	5.5	OP	21P	45P	47P	OP	3	0	5	0	
II	7.8	OP	16A	35P	38P	OP					
J	9.1	OP	10P	23P	20P	OP	3	0	0	0	
JK	6.1	OP	23A	OP	11P	OP					
K	5.0	OP	2P	24A	10P	OP	7	8	17	12	✓

37
104

8365%

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 2017
 Site ID: SA
 Date/Time: 6/14/17 1030
 Crew Members: PH, SC, TM
 Latitude/Longitude: 34.38083 -119.30734
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To SW
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January—December Monthly In Situ Measurements:
 pH: 7.1 pH units EC: 823 $\mu\text{S}/\text{cm}$
 DO: 3.80 mg/L 4.0 SC: 926 $\mu\text{S}/\text{cm}$
 DO: 40.0 % 4.5 Salinity: 0.5 ppt
 Water Temp: 17.7 °C
 Flow (from discharge measurement): 0.07 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):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	0.4	0.0	0
2	4.1	0.2	0.13 0.24
3	4.2	0.2	0.17
4	4.3	0.2	0.29
5	4.4	0	0
6			
7		(+)	
8			
9	2.9	0	0
10	3.0	0.2	0.20
11	3.5	0.2	-0.09
12	4.0	0.2	0.07
13	4.5	0.5	0.51
14	4.9	0.2	-0.03
15	5.0	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)			
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)	8
PVC Delimiter (Area=12.6cm ²)	8
Syringe Scrubber (Area=5.3cm ²)	8
Other (Area=)	
Number of Transects Sampled (0-11)	8
Composite Volume (ml)	344
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: SA Date: 6/15/17 Crew: RA, SC, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)						Densitometer (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	4.9	OP	10P	14P	11P	OP	17	17	17	17	✓	
AB	6.1	OP	9P	17P	7P	OP						
B	4.5	OP	6P	19P	32P	OP	17	17	17	17		
BC	2.75	OP	13P	10P	13P	OP						
C	2.75	OP	OP	1P	1P	OP	17	17	17	17		
CD	3.0	OP	2P	2P	5P	6P						
D	1.1	OP	OP	OP	OP	OP	17	17	17	15		
DE			DRY									
E			DRY									
EF			DRY									
F			DRY								✓	
FG	1.5	OP	OP	OP	OP	OP						
G	2.02	OP	OP	1P	OP	OP	15	3	6	8		
GH	3.4	OP	OP	OP	OP	OP						
H	6.7	OP	20P	22P	5P	OP	2	12	7	2		
HI	6.3	OP	OP	31P	45P	OP						
I	3.8	OP	OP	13P	20P	OP	7	17	15	15		
II	4.2	OP	7P	8P	15P	OP						
J	4.0	OP	6P	3P	5P	OP	8	15	16	16		
JK	3.8	OP	1P	OP	OP	OP						
K	4.5	OP	5P	9P	3P	OP	6	15	17	3	✓	

78 MM / 85

91.76%

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

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

100m reach

Event ID (Month Year): JUNE 2017
 Site ID: CL
 Date/Time: 6/13/17 0740
 Crew Members: KH, SC, W, W
 Latitude/Longitude: 34.34202, -119.28642
 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.): 100m reach for algae/clia transects.

January—December Monthly In Situ Measurements:
 pH: 8.08 pH units EC: 808 µS/cm
 DO: 8.94 mg/L SC: 2222 µS/cm
 DO: 90.6 % Salinity: 1.2 ppt
 Water Temp: 15.7 °C
 Flow (from discharge measurement): 0.17 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)		
	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.0	Ø	Ø
2	5.2	-0.2	-0.01
3	6.0	0.2	0.01
4	7.0	0.2	0.37
5	8.0	0.2	0.39
6	8.9	0.15	0.20
7	9.0	Ø	Ø
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Distance (ft)	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 ≤ 10 m; 250 m if wetted width > 10 m): _____

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	6
PVC Delimiter (Area=12.6cm ²)	5
Syringe Scrubber (Area=5.3cm ²)	Ø
Other (Area= _____))
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	274
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: 6/15/17 Crew: KHSC WW

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)						Densitometer (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	OA	8P	5P	2P	OP	2	0	7	2	✓	
AB	3.5	OP	4P	7P	OP	OP						
B	3.0	OA	1P	7P	7A	OA	0	0	5	2		
BC	4.0	OP	3P	10P	2P	OP						
C	2.8	OP	5P	7P	5P	OP	2	0	7	0		
CD	2.0	OP	4P	5P	7P	OP						
D	1.8	OP	3P	5P	2P	OP	8	0	4	0		
DE	2.0	OP	4A	2P	4P	6P						
E	3.5	OP	6P	OP	OA	OP	5	0	7	0		
EF	4.2	OP	7A	OP	OA	OP						
F	5.7	OP	7A	1A	OP	OP	3	0	4	0	✓	
FG	6.6	OA	1P	2P	OP	OP						
G	5.0	OP	4P	6P	6P	OA	3	2	5	0		
GH	3.3	OA	1P	7P	8P	OP						
H	5.0	OP	2P	6P	3P	OP	2	0	9	5		
HI	3.4	OA	6A	7P	5A	OP						
I	3.0	OA	17A	8A	3P	OP	4	0	5	0		
II	1.8	OA	15P	16P	6A	OP						
J	1.6	OA	3P	10P	5P	OA	3	15	0	0		
JK	2.2	OP	11A	6A	4A	OP						
K	2.2	OA	6P	9A	5P	OA	17	2	0	2	✓	

76 / 105

72.4%

9
6

4

4

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): JULY 2017 Date: 7/12+13/17
Crew Members: K. HANS, S. CASEY, 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: meters XS185 # 05E1042
Beckman 255 # 2554

OBSERVATION SITES (RIVER FLOW)

7/13/17

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: 5-10 cfs) Photos Taken: Upstream / Downstream
Notes: East + west sides of river flow dominant on eastside

Additional Observation Site:

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

UNSAMPLED TMDL SITES

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: _____

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): JULY 2017

Date: 7/13/17 10:00

Crew Members: KH, SC, 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: 0706 Time of High Tide: 1345

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): Grass @ 34.27454, -119.30707. Brown spot at west end.

TRANSECT 1

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

Monthly (Jan—Dec): 6/formation

pH: 7.94 pH units EC: 2823 $\mu\text{S}/\text{cm}$

Water Temp: 24-4 °C

DO: 6.95 mg/L DO: 6.63 $\mu\text{S}/\text{cm}$

DO: 79.4 % Salinity: 1.5 ppt

Photos: Oceanward Landward

Start Time: 10:07 End Time: 10:14

Start Latitude: 34.27447

Start Longitude: -119.30698

End Latitude: 34.27448

End Longitude: -119.30727

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 mL

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	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	38	43	23	9	14	27	8	10	25	8	0	0	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)														

205/490 0/196

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

Ventura River Algae TMDL— Estuary Transect Measurements Date: 7/13/17 Crew: KH, SC, JM

TRANSECT 2

Photos: Oceanward Landward Start Time: 10:23 End Time: 10:28
 Start Latitude: 34.27450 Start Longitude: -119.30750
 End Latitude: 34.27463 End Longitude: -119.30758
 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)	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	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	7	3	3	4	3	8	2	0	0	0	0	0	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)														

30/490 0/196

TRANSECT 3

Photos: Oceanward Landward Start Time: 10:34 End Time: 10:37
 Start Latitude: 34.27461 Start Longitude: -119.30764
 End Latitude: 34.27486 End Longitude: -119.30772
 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)	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	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	39	3	0	3	0	0	0	0	0	1	0	0	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)														

46/490 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): July 2017
 Site ID: R1
 Date/Time: 7/13/17 0815
 Crew Members: KH, SC, JM
 Latitude/Longitude: 34.28027 - 119.30840
 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: 1389 $\mu\text{S}/\text{cm}$
 DO: 3.17 mg/L SC: 1462 $\mu\text{S}/\text{cm}$
 DO: 82.9 % Salinity: 0.70 ppt
 Water Temp: 22.4 °C
 Flow (from discharge measurement): 6.06 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	4.0	0.0	0.0
2	6.0	0.55	0.10
3	8.0	0.90	0.13
4	10.0	1.10	0.20
5	12.0	0.75	0.44
6	17.0	1.10	0.49
7	16.0	0.80	0.86
8	18.0	0.70	0.48
9	20.0	0.70	0.49
10	22.0	0.55	0.74
11	24.0	0.30	-0.02
12	26.3	0.0	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)				
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): 250 150m

Collection Device (sum # transects per Device)	Quantity
Rubber Delimiter (Area=12.6cm ²)	2
PVC Delimiter (Area=12.6cm ²)	8
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-11)	10
Composite Volume (mL)	419
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: R Date: 7/13/17 Crew: KH, SC, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densitometer (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	3-1	OA	42A	55A	45A	OA	3	10	17	17	✓	
AB	2-2.5	OA	21P	25A	10A	OA						
B	3-2	OA	33A	45A	25A	OA	7	15	17	15		
BC	3-8	OA	DRY	23A	37A	OA						
C	4-5	OA	20A	26A	40A	OA	7	15	17	15		
CD	6-2	OP	55A	65A	40A	OA						
D	5-8.5	OP	69A	77A	40A	OA	10	15	15	5		
DE	4-2	OA	60A	39A	31A	OP						
E	6-0	OA	45A	41A	21A	OA	17	17	15	17		
EF	5-5	OA	15A	27A	30A	OA						
F	4-5	OP	19A	40A	20A	OA	14	7	9	2	✓	
FG	3-5	OA	39A	35A	7A	OA						
G	3-8	OP	39A	57A	45A	OA	15	9	7	4		
GH	5-0	OA	39A	21A	7A	OA						
H	4-0	OA	36A	45A	17A	OA	13	15	17	15		
HI	3-0	OA	38A	22A	7A	OA						
I	4-5	OA	17A	55A	27A	OP	11	2	15	5		
II	6-5	OA	30A	OA	11A	OP						
J	10-5	OA	50A	90A	97A	OA	5	10	13	10		
JK		INACCESSIBLE										
K												

inaccessible JK + K; impenetrable vegetation to access JK+K.

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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: 7/12/17

Crew: KH, SC, JMA

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	OA	31A	27A	13A	OA	8	2	10	5	✓
AB	5.7	OP	5A	OP	32A	OP					
B	5.5	OA	20A	25A	15A	OP	17	17	17	17	
BC	5.0	OA	15A	32A	20A	OA					
C	6.8	OA	10P	20A	20A	OP	15	10	5	3	
CD	5.0	OA	30A	25A	17A	OP					
D	7.5	OA	40A	29A	20A	OP	17	10	0	5	
DE	7.2	OA	20P	15A	22A	OP					
E	7.0	OA	43A	48A	15A	OA	15	5	8	2	
EF	5.0	OA	55A	5A	48P	OA					
F	8.1	OA	25A	40A	25A	OA	10	2	0	2	✓
FG	7.0	OP	57P	43A	30A	OA					
G	7.0	OP	50A	35A	30A	OP	15	0	2	0	
GH	8.0	OP	32A	23A	25A	OA					
H	7.5	OA	17A	21A	33A	OA	13	7	0	2	
HI	10.0	OA	30A	22A	10A	OA					
I	11.0	OA	45A	21A	15P	OA	7	5	12	2	
U	7.3	OA	50A	41A	37A	OP					
J	6.6	OA	51A	29A	29A	OA	12	13	2	5	
JK	8.3	OA	33A	39A	25A	OA					
K	8.5	OA	47A	40A	21P	OP	17	11	10	4	✓

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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 2017
 Site ID: R3
 Date/Time: 7/12/17 1120
 Crew Members: KH, SC, JM
 Latitude/Longitude: 34-31585, -119-29968
 Flow (circle one): (Flowing) Ponded / Dry
 Wind Strength:
 Calm Light Breeze Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) (From) To SOUTH
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January-December Monthly In Situ Measurements:
 pH: 7.93 pH units EC: 1115 $\mu\text{S}/\text{cm}$
 DO: 5.62 mg/L SC: 1180 $\mu\text{S}/\text{cm}$
 DO: 99.2 % Salinity: 0.60 ppt
 Water Temp: 22.1 °C
 Flow (from discharge measurement): 6.13 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)				
	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)	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)	502
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

No.	Velocity Area Method (preferred)		Velocity (ft/sec)
	Distance from Left Bank (ft)	Depth (ft)	
1	9.2	0.0	0.0
2	9.7	0.80	0.23
3	10.2	0.90	0.24
4	11.0	0.40	0.38
5	12.0	0.50	-0.08
6	13.0	1.10	0.24
7	14.0	1.25	0.73
8	15.0	0.40	0.47
9	16.0	1.00	0.71
10	17.0	1.00	0.47
11	18.0	1.20	0.29
12	19.0	0.30	0.33
13	20.0	0.0	0.0
14	21.0	0.80	0.63
15	22.0	1.30	0.49
16	23.0	0.95	0.49
17	24.0	0.85	0.83
18	25.0	0.70	0.41
19	25.5	0.0	0.0
20			

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: 7/2/17 Crew: KH, SCJM

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	5.9	OA	DRY	26A	37P	OP	2	5	15	10	✓
AB	8.5	OP	22P	22P	22P	OA					
B	9.5	OP	5P	6P	36P	OP	7	1	13	15	
BC	10.5	OP	22A	27P	12P	OP					
C	11.0	OA	14P	27A	24A	OP	13	10	7	2	
CD	10.0	OP	2P	45P	46A	OP					
D	7.9	OP	3P	35P	50A	OP	7	2	13	2	
DE	6.4	OA	2A	18P	25A	OP					
E	6.6	OP	7A	20A	12A	OP	3	7	13	5	
EF	7.5	OA	227P	10P	6P	OP					
F	8.0	OA	18P	15P	10P	OA	17	7	15	2	✓
FG	7.5	OA	15P	25P	20P	OA					
G	8.0	OA	1P	27P	11A	OP	17	7	13	2	
GH	6.0	OA	OP	25P	20P	OA					
H	6.0	OP	2P	15P	22A	OP	7	10	17	13	
HI	8.7	OP	25A	8A	7P	OA					
I	7.0	OP	OP	13A	10P	OA	17	17	17	17	
II	6.5	OP	15P	31P	20P	OA					
J	6.5	OP	11P	11P	55P	OA	13	17	17	17	
JK	8.1	OP	OP	42P	65A	OP					
K	6.0	OP	18A	42P	55P	OA	15	5	17	5	✓

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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): 24 JULY 2017

Site ID: R4

Date/Time: 7/12/17 0800

Crew Members: KH, SC, JM

Latitude/Longitude: 34.38194 -119.30922

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.): Small loggs installed in stream - non-TMDL.

January—December Monthly In Situ Measurements:

pH: 7.29 pH units EC: 921 $\mu\text{S}/\text{cm}$

DO: 7.92 mg/L SC: 1029 $\mu\text{S}/\text{cm}$

DO: 86.1 % Salinity: 0.50 ppt

Water Temp: 19.5 $^{\circ}\text{C}$

Flow (from discharge measurement): 5.99 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			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)	Float 1	Float 2	Float 3
1	1.5	0.0	0.0			
2	2.5	0.60	0.06			
3	3.5	1.50	0.26			
4	4.5	1.50	0.08			
5	5.5	1.55	0.22			
6	6.5	1.45	0.44			
7	7.5	1.65	0.45			
8	8.5	1.75	0.30			
9	9.5	1.75	0.21			
10	10.5	1.75	0.21			
11	12.0	1.70	0.10			
12	13.5	1.80	0.18			
13	15.0	1.35	0.22			
14	16.5	1.30	0.33			
15	18.0	1.00	0.14			
16	19.5	1.10	0.15			
17	20.3	1.00	0.12			
18	20.4	0.0	0.0			
19						
20						

Float Reach Cross Section (ft)						
Distance (ft)	Float 1	Float 2	Float 3	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)	6
PVC Delimiter (Area=12.6cm ²)	5
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	
Number of Transects Sampled (0-1.1)	11
Composite Volume (mL)	348 → 348
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

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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: 24 Date: 7/12/17 Crew: KH, SC, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)					Densitometer (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	5.0	OP	46P	56P	62P	OP	0	0	5	0	✓
AB	6.0	OA	18P	42P	50P	OP					
B	11.0	OP	3P	10P	30P	OA	0	2	2	0	
BC	7.0	OP	52P	30P	4P	OA					
C	5.0	OP	3P	15A	70P	OA	17	17	17	17	
CD	6.0	OA	18A	11P	15P	OA					
D	4.5	OA	10A	10A	22P	OA	17	17	17	17	
DE	9.1	OP	4P	11P	7P	OP					
E	9.0	OP	20P	15P	17A	OP	0	0	0	0	
EF	8.3	OP	15P	30P	15P	OP					
F	8.0	OP	25P	30P	34P	OP	0	0	0	0	✓
FG	6.5	OP	40P	45P	41P	OA					
G	6.5	OP	35P	35P	40P	OP	0	0	0	0	
GH	5.0	OP	33A	32P	30P	OP					
H	5.5	OP	10A	20A	2A	OP	17	17	17	17	
HI	6.3	OP	17P	41P	48P	OP					
I	7.5	OP	15A	37A	15P	OP	0	0	5	0	
U	8.8	OP	15A	17A	15P	OP					
J	10.1	OP	29A	8P	25P	OP	0	1	5	7	
JK	5.7	OP	4P	20A	15P	OA					
K	15.0	OA	10P	15P	16A	OP	17	10	7	17	✓

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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): SA JULY 2017
 Site ID: SA
 Date/Time: 7/12/17 0945
 Crew Members: KH, SC, JM
 Latitude/Longitude: 34.38077 - 119.30734
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength:
 Calm / light breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To W
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): _____

January-December Monthly In Situ Measurements:
 pH: 7.35 pH units EC: 892 $\mu\text{S}/\text{cm}$ conf DO
 DO: 2.56 mg/L SC: 1014 $\mu\text{S}/\text{cm}$ 2.59 mg/l
 DO: 30.5 % Salinity: 0.5 ppt 21.7%
 Water Temp: 18.7 °C
 Flow (from discharge measurement): 0.07 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):

Velocity Area Method (preferred)		Velocity	
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0	0
2	1.0	0.2	0.10
3	1.5	0.2	0.34
4	2.5	0	0
5		(+)	
6	0	0	0
7	0.5	0.2	0.04
8	1	0	0
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): 150

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)	0
Other (Area=)	
Number of Transects Sampled (0-11)	4
Composite Volume (mL)	180
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: SA Date: 7/12/17 Crew: KH, SC, 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	4.6	OP	10P	13P	15P	OP	17	17	17	14	✓	
AB	5.1	OP	OP	(15A)	10P	OP						
B	5.0	OP	5P	2P	8P	8P	17	17	17			
BC	2.8	(OA)	25P	15P	5P	OP						
C	2.5	(OA)	(OA)	DRY	8P	OP	17	17	17			
CD	1.2	OP	3P	DRY	12P	(1A)						
D				DRY								
DE				"								
E				"								
EF				"								
F				"								
FG				"								
G				"								
GH				"								
H	3-2	OP	OP	3P	8P	OP	7	17	15	5		
HI	1.7	OP	OP	OP	OP	OP						
I	1.5	(OA)	(OA)	OP	OP	OP	13	17	17	17		
II				DRY								
J	1.1	(OA)	(OA)	(OA)	(OA)	(OA)	0	12	10	5		
JK				DRY								
K				DRY							✓	

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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 2017
 Site ID: CL
 Date/Time: 7/13/17 11:15
 Crew Members: KH, SC, JM
 Latitude/Longitude: 34.34201 -119.28635
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Calm / light Breeze / Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To N
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Low water was due to 0740 but flow was starting near end of reach so decided to come back (stronger flow) by 0712 also showed flow (water print)

January—December Monthly In Situ Measurements:
 pH: 8.32 pH units EC: 4460 $\mu\text{S}/\text{cm}$
 DO: 11.56 mg/L SC: 4114 $\mu\text{S}/\text{cm}$
 DO: 152.7 % Salinity: 2.20 ppt
 Water Temp: 29.4 °C
 Flow (from discharge measurement): 0.01 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	3.70	0.0	0.0
2	4.00	0.20	-0.06
3	4.50	0.20	-0.03
4	5.00	0.20	0.10
5	5.50	0.20	0.07
6	6.00	0.20	0.01
7	6.20	0.0	0.0
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): 150

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)	360
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: A, C, L

Date: 7/13/17

Crew: KH, SC, 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	1.2	OA	5P	4P	1A	OA	0	0	3	0	0	✓
AB	4.0	OA	5P	OP	6A	OA						
B	3-35	OP	4A	3P	3P	OA	0	0	7	0		
BC	2.45	OP	2A	4A	1P	OA						
C	1.35	OP	5P	3P	1P	OA	3	0	3	0		
CD	1.45	OA	2A	2P	3A	OA						
D	3-1	OP	1P	DRY 1P	1P	OA	2	0	0	0		
DE	4.3	OA	OP	DRY	4P	OA						
E	5.3	OP	2P	1P	3P	OA	0	0	0	0		
EF	4.5	OP	2P	5A	6P	OA						
F	4.8	OP	OA	3A	OA	OA	0	0	6	4		✓
FG	2.5	OA	8A	7A	7P	OA						
G	1.8	OA	9A	7P	6A	OA	0	0	0	0		
GH	1.45	OP	8P	8P	5P	OA						
H	1.25	OP	6P	7P	6P	OA	15	0	0	3		
HI	0.85	10A	11P	DRY	5P	OP						
I	2.7	OA	3P	5P	7P	OA	3	0	12	0		
II	3.2	OP	5P	DRY	1P	OA						
J	2.5	OP	3P	3P	5P	OA	12	2	7	0		
JK	2.3	OA	4A	DRY	1A	OA						
K	2.0	OP	6P	5P	3P	OP	7	2	0	2		✓

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Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est
 Event ID (Month Year): AUGUST 2017 Date: 8/16/17 1130
 Crew Members: KLSC, JM
 Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy Ocean Inlet (circle one): Open / Restricted / Closed open west end!
 Direction of Tide: Ebb / Flood / Slack / N/A Time of Low Tide: 11:09 Time of High Tide: 1739
 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): 05E1126 Conductivity readings high. Sample collected and to take to Nu shop
34.27456°N 119.30701°W to boat

TRANSECT 1

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)
 Monthly (Jan—Dec): YS185 05E1042 Water Temp: 22.9 °C
 pH: 8.08 pH units EC: 1565 µS/cm
 DO: 7.91 mg/L SC: 1630 µS/cm
 DO: 92.1 % Salinity: 2.8 ppt
 Photos: Oceanward Landward Start Time: 1130 End Time: 1137
 Start Latitude: 34.27446 Start Longitude: -119.30701
 End Latitude: 34.27451 End Longitude: -119.30730
 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)	5.4	6.9	9.6	12.3	17.3	18.2	20.3	22.4	23.9	28.6				
Water Depth (must be ≤ 0.3 m)											0.3			
Condition [Frsh=Fresh, Int=Intermediate, Des=Desiccated, 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	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	5	4	4	3	1	0	0	2	1	27	0	0	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)	49										49			

47/490

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): AVS 2017
 Site ID: TMDL R-1
 Date/Time: AVS 10/17 0940
 Crew Members: KH SCGM
 Latitude/Longitude: 34.2803¹⁹ -119.30835
 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: 7.97 pH units EC: 1413 $\mu\text{S}/\text{cm}$ YSI (DO) _____
 DO: 7.28 mg/L SC: 154 $\mu\text{S}/\text{cm}$ 05E1126 _____
 DO: 81.8 % Salinity: 0.80 ppt 86.17 _____
 Water Temp: 20.7 °C _____
 Flow (from discharge measurement): 419 cfs 7.08 mg/L
YS185 05E1042

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	7.00	0.0	0.0
2	11.00	0.60	0.04
3	13.00	0.65	0.35
4	15.00	0.70	0.46
5	17.00	0.85	0.59
6	19.00	1.10	0.41
7	21.00	0.60	0.44
8	23.00	0.90	0.21
9	25.00	0.95	0.09
10	27.00	0.40	0.01
11	29.00	0.0	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 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)	11
PVC Delimiter (Area=12.6cm ²)	11
Syringe Scrubber (Area=5.3cm ²)	11
Other (Area= _____)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	470
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: R1 Date: 8/16/17 Crew: KL, SC, JM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)						Densimeter (0-17) <small>Count covered dots</small>				Photo <small>(✓ when Taken)</small>
		Left Bank	Left Center	Center	Right Center	Right Bank	Center Left	Center Upstream	Center Right	Center Downstream		
A	5.5	OP	49A	52A	45A	OA	3	2	6	3	✓	
AB	4.8	OA	51A	15P	53A	OA						
B	3.85	OA	51A	47P	45A	OA	3	10	3	2		
BC	3.2	34A	3P	27A	21A	OA						
C	2.1	OA	OP	15A	23A	OA	13	16	5 17	15		
CD	2.6	OA	6A	5P	25A	OA						
D	2.8	OA	20A	42A	29A	OA	17	17	17	17		
DE	4.2	OA	23A	11A	30A	OA						
E	5.0	OA	50A	63A	42A	OA	17	17	17	17		
EF	6.0	OA	64A	72A	25A	OA						
F	5.0	OA	66A	65A	23A	OA	17	16	17	13	✓	
FG	4.4	OA	50A	50A	40A	OA						
G	5.3	OP	36A	40A	35A	OA	17	18 13	15	17		
GH	4.7	OP	29A	36A	27A	OA						
H	6.2	OP	18P	47A	23A	OA	5	7	10	2		
HI	4.5	OA	34A	31A	15P	OA						
I	3.2	OP	39A	45A	40A	OA	15	10	13	12		
II	2.85	OA	39A	45A	31P	OA						
J	3.4	OA	35A	27A	45A	OA	15	15	15	12		
JK	3.3	OA	40A	13A	2A	OA						
K	2.8	OA	30A	40A	33A	OA	16 17	17	17	17	✓	

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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): Aug 2017
 Site ID: R2
 Date/Time: 8/15/17 12:15
 Crew Members: KH, SC, JM
 Latitude/Longitude: 34.33946 -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.): _____

January—December Monthly In Situ Measurements:
 pH: 8.02 pH units EC: 181 $\mu\text{S}/\text{cm}$
 DO: 5.15 mg/L SC: 1220 $\mu\text{S}/\text{cm}$
 DO: 5.17 % Salinity: 0.40 ppt
 Water Temp: 23.3 °C
 Flow (from discharge measurement): 6.66 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	8.6	0.0	0.0
2	12.0	1.00	-0.09
3	15.0	1.50	0.11
4	17.0	1.60	0.34
5	19.0	1.30	0.45
6	21.0	1.70	0.38
7	23.0	1.50	0.54
8	25.0	1.50	0.24
9	27.0	1.20	0.27
10	29.0	0.90	0.0
11	30.5	0.0	0.0
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 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)	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)	374
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: 8/5/17 Crew: KH, SC, DM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/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	6.5	OP	32P	23A	20A	OA	5	2	7	12	✓	
AB	6.5	OA	OP	30P	25A	OA						
B	5.5	OA	37A	OP	35A	OA	15	5	7	2		
BC	4.2	OA	Deq	17A	15A	OA						
C	6.0	OA	10A	30A	22P	OA	17	12	5	7		
CD	5.8	OA	18A	17A	26A	OA						
D	6.0	OA	OA	15A	26A	OA	17	17	5	17		
DE	7.8	OA	10A	7P	25A	OP						
E	5.5	40A	17A	37A	20A	OA	17	12	5	10		
EF	6.6	OA	50A	25P	12A	OP						
F	7.2	OA	35A	36A	24P	OP	15	3	7	5	✓	
FG	7.5	OA	48A	41A	33A	OP						
G	3.7	OP	29P	15P	25A	OA	10	3	2	2		
GH	6.0	OA	47A	18P	26A	OA						
H	7.5	OA	20A	23P	16P	OA	15	2	5	0		
HI	7.2	OA	28A	10A	OP	OA						
I	7.5	OA	45A	5P	21A	OP	17	8	15	8		
U	6.8	OA	45A	50A	40A	OP						
J	7.8	OA	43A	47A	45A	OP	16	3	15	2		
JK	8.0	OA	26A	30A	32A	OA						
K	5.5	OA	55A	60P	50A	OA	17	17	10	17	✓	

25
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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): Aug 2017
 Site ID: R3
 Date/Time: 8/15/17 1030
 Crew Members: KH SC SM
 Latitude/Longitude: 34.34587 -119.29987
 Flow (circle one): Flowing / Pondered / 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: 7.92 pH units EC: 1096 $\mu\text{S}/\text{cm}$
 DO: 5.016 mg/L SC: 780 $\mu\text{S}/\text{cm}$
 DO: 87.5 % Salinity: 0.60 ppt
 Water Temp: 21.2 °C
 Flow (from discharge measurement): 4.53 cfs
05E1042 8/15/17

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):

8/16/17
 KH SC
 DO % 84.7 86.5
 DO mg/L 9.67 7.17
 Temp °C 20.2 20.1
05E1126 05E1042
812 825
7.38 7.44

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	7.0	0.0	0.0
2	7.5	0.45	0.58
3	8.5	0.0	0.0
4	9.5	0.50	0.82
5	11.0	0.65	0.0
6	13.0	1.00	0.21
7	14.5	0.90	0.94
8	16.0	0.80	0.65
9	17.5	0.90	0.25
10	19.0	0.90	0.50
11	20.5	0.80	0.23
12	22.0	0.60	0.16
13	23.0	0.0	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 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=)	
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	344
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: P2 Date: 8/5/17 Crew: KHSCSM

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	OA	3OA	25A	35A	OA	7	3	15	10	✓	
AB	8.2	OP	15A	16P	21P	OA						
B	8.3	OP	4P	11A	25A	OA	12	2	16	8		
BC	9.3	OP	17P	26A	27A	OP						
C	11.0	OP	13P	28A	17A	OP	17	15	10	11		
CD	6.5	OP	8P	42A	65A	OP						
D	4.9	OP	34P	37A	45A	OP	7	7	14	2		
DE	4.85	OA	9A	20A	23A	OA						
E	5.5	OA	6A	6A	10P	OA	0	3	11	5		
EF	7.2	OA	16A	5A	5P	OA						
F	7.1	OA	8A	17P	15P	OA	17	7	10	8	✓	
FG	6.8	OA	10A	13P	17P	OA						
G	5.0	OA	2P	24P	22P	OA	13	12	17	7		
GH	4.15	OP	16P	27A	14P	OA						
H	7.0	OA	15P	4P	10P	GA	5	13	17	12		
HI	8.3	OP	25A	12A	2A	OA						
I	6.0	OP	5A	30A	21A	OA	15	17	17	17		
II	6.0	OP	20A	OP	43A	OA						
J	6.2	OP	24P	29A	43A	OA	17	10	17	17		
JK	6.3	OP	30A	45A	50A	OA						
K	5.6	OP	18P	15P	17P	OP	5	8	15	10	✓	

4445
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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): 241 AUG 2017

Site ID: R4

Date/Time: 8/15/17 0755

Crew Members: KH, SC, JM

Latitude/Longitude: 34.38179 -119.30910

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: 7.23 pH units EC: 903 $\mu\text{S}/\text{cm}$

DO: 8.87 mg/L SC: 1029 $\mu\text{S}/\text{cm}$

DO: 8.44 % Salinity: 0.50 ppt

Water Temp: 19.6 °C

Flow (from discharge measurement): 4.94 cfs

YS1 05E1042 8/15/17

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):

DO check 8/16/17 05E1126 % 53.2

0810 % 4.47 mg/L

KH/SC temp 19.2

05E1042 % 57.8

5.76 mg/L

19.2

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.5	0.0	0.0
2	5.0	0.90	0.10
3	7.0	0.90	0.16
4	9.0	1.00	0.25
5	11.0	1.10	0.28
6	13.0	1.30	0.30
7	15.0	1.40	0.16
8	17.0	1.70	0.05
9	19.0	1.90	0.17
10	21.0	1.80	0.23
11	23.0	1.80	0.08
12	25.0	1.10	0.10
13	27.0	0.0	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)			
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 (μm # 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= _____)	1
Number of Transects Sampled (0-11)	11
Composite Volume (mL)	320
Chlorophyll <i>a</i> Volume (use GF/F filter, 25 mL preferred volume)	25

Fish present actively swimming

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: 8/15/17 Crew: KH SC

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	8.0	OP	43P	51P	62P	OP	10	0	1	2	✓	
AB	6.6	OP	45P	54P	60P	OP						
B	8.5	OP	15P	40P	53P	OP	12	2	8	0		
BC	9.0	OP	3P	15P	55P	OP						
C	8.1	OP	OP	17P	53P	OP	5	13	10	0		
CD	6.6	OP	14P	30P	55P	OP						
D	3.2	OP	10A	4A	5A	OP	17	17	17	17		
DE	8.2	OP	15A	1A	5A	OP						
E	3.0	OP	7A	34A	25A	OP	17	17	17	17		
EF	10.1	OP	OP	15P	20A	OP						
F	8.3	OP	16A	6A	7A	OP	0	0	2	0	✓	
FG	8.6	OP	24P	18A	23P	OP						
G	7.0	OP	30P	31A	33P	OP	0	0	0	0		
GH	6.3	OP	20P	45P	39P	OP						
H	6.5	OP	31P	33P	31P	OP	0	0	0	0		
HI	4.3	OP	40P	27A	30A	OP						
I	5.7	OP	OP	5P	42P	OP	17	7	8	17		
II	6.8	OP	5P	33A	37P	OP						
J	7.7	OP	8A	13A	27P	OP	13	17	10	17		
JK	11.8	OP	OP	24P	7A	OP						
K	3.7	OP	14P	20P	10A	OP	2	0	0	0	✓	

$$\frac{105 - 37}{105} = \frac{68}{105}$$

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): Aug 2017
 Site ID: SA
 Date/Time: 8/15/17 0940
 Crew Members: KH, SC, JM
 Latitude/Longitude: 34.38077, -119.30734
 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.): Algae/chl a sample data not collected b/c site did not meet protocol requirements - sites D-K dry (24 ~~sites~~ transects dry)

January—December Monthly In Situ Measurements:
 pH: 7.28 pH units EC: 878 $\mu\text{S}/\text{cm}$
 DO: 2.52 mg/L SC: 1018 $\mu\text{S}/\text{cm}$
 DO: 28.1 % Salinity: 0.5 ppt
 Water Temp: 18.8 °C
 Flow (from discharge measurement): 20.03 cfs
 VSI 05E1042 8/15/17

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):

8/16/17 00% DO mg/L 17.8 Temp °C
 0530 DO mg/L 17.8
 05E1126 05E1042
 85.9 32.8
 2.06 3.4

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	1.0	0.2	0.03
2	2.5	0.2	0.03
3	0	0	0
4	0.4	0.15	0.03
5	0.8	0.15	0.03
6	1.2	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			

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)	

with 2 depth 0.1' vel 0.1 fs
 1-2'
 0.03

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: 8/15/17 Crew: KASCJM

Transect	Wetted Width (ft)	Macroalgae Presence/Absence (P/A) and Water Depth (mm/ft/in)						Densimeter (0-17) <small>Count covered dots</small>				Photo <small>(✓ when Taken)</small>	
		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				DRY									
DE													
E				DRY									
EF													
F													✓
FG													
G													
GH													
H													
HI													
I													
II													
J													
JK													
K													✓

2A

Ventura River Algae TMDL—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): SEPTEMBER 2017

Date: 9/6/2017 1130

Crew Members: Lara, Sean, Tim

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: 1610 Time of High Tide: 1026

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

Wind Direction: Blowing From / To from offshore to N.E.

Notes (e.g. homeless, wildlife, dogs, swimming/recreation): open west end

TRANSECT 1

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

Monthly (Jan—Dec):

pH: 7.98 pH units

EC: 591 μ S/cm

Water Temp: 24.7 °C

DO: 7.36 mg/L

SC: 1601 μ S/cm

34.1628, -119.1825

DO: 91.3 %

Salinity: 0.8 ppt

Photos: Oceanward Landward

Start Time: 11:42 End Time: 12:00

Start Latitude: 34.1647

Start Longitude: -119.1842

End Latitude: 34.2744

End Longitude: -119.3072

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: _____

MACROALGAE—LAND BASED

FLOATING MACROALGAE

Quadrat	MACROALGAE—LAND BASED										FLOATING MACROALGAE			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4
Distance (m)	0.7	7.1	8.9	13.3	17.4	20.7	23.8	26.3	26.7	28.2				
Water Depth (must be \leq 0.3 m)	.1	.2	.1	.1	.2	.2	.1	.1	.1	.1				
Condition [F=Fresh, Int=Intermediate, Des=Dessicated, Dd=Dead]	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd	Fish Int Des Dd				
No. Crosshairs with Macroalgae Present	22	20	0	2	2	9	0	0	0	10	0	0	0	0
No. Crosshairs with Macroalgae Absent														
Crosshair Total (must equal 49)	49										49	49		

65/490

0/196

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

Ventura River Algae TMDL - Estuary Transect Measurements Date: 9/6/2017 Crew: LM, Sc. Jim

TRANSECT 2

Photos: Oceanward Landward

Start Time: 12:09 End Time: 12:18

Start Latitude: 34.2746, -119.3074 Start Longitude:

End Latitude: 34.2749, -119.3076 End Longitude:

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)	0.7	7.1	8.9	13.3	17.4	20.7	23.8	25.3	26.7	28.2				
Water Depth (must be ≤ 0.3 m)	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2				
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	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	0	0	0	0	6	5	7	9	0	10	0	0	0	0
No. Crosshairs with Macroalgae Absent	49	49	49	49	43	45	47	40	49	39	49	49	49	49
Crosshair Total (must equal 49)	49	49	49	49	49	49	49	49	49	49	49	49	49	49

37/490

6/196

TRANSECT 3

Photos: Oceanward Landward

Start Time: 12:19 End Time: 12:27

Start Latitude: 34.2749 Start Longitude: -119.3077

End Latitude: 34.2751 End Longitude: -119.3079

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)	0.7	7.1	8.9	13.3	17.4	20.7	23.8	25.3	26.7	28.2				
Water Depth (must be ≤ 0.3 m)	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2				
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	Frsh Int Des Dd
No. Crosshairs with Macroalgae Present	12	1	1	0	0	0	0	0	0	0	0	0	0	0
No. Crosshairs with Macroalgae Absent	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Crosshair Total (must equal 49)	49	49	49	49	49	49	49	49	49	49	49	49	49	49

14/490

0/196

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

Discharge Measurement
 1st Measurement = left bank (looking downstream) 9/15 1/2 9/16 - pH: 5.11203

9/16 - DO: 0.300379

9/15 - DO: 0.5E1042

Event ID (Month Year): September 2017
 Site ID: VR1
 Date/Time: 9/16/2017 10:10
 Crew Members: LM, SC, SW
 Latitude/Longitude: 34.33938, -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.): homeless

January—December Monthly In Situ Measurements:
 pH: 7.94 pH units EC: 1554 µS/cm
 DO: 7.78 mg/L SC: 4225 µS/cm
 DO: 90.8 % Salinity: 0.80 ppt
 Water Temp: 22.7 °C
 Flow (from discharge measurement): 3.11 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	19.5	0.0	0.0
2	17.0	0.30	0.39
3	15.0	0.50	0.26
4	13.0	0.80	0.17
5	11.0	0.85	0.20
6	9.0	0.90	0.33
7	7.0	1.0	0.36
8	5.0	1.1	0.21
9	3.5	0.85	0.30
10	3.0	0.0	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)			
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)	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)	324
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: VR1 Date: 9/6/2017 Crew: LM & SC & Jim

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	4.5	0A	45A	45A	45A	0A	3	7	3	2	X		
AB	4.6	0A	33A	57A	0A	46A							
B	3.6	0A	26A	50A	42A	0A	3	0	2	0			
BC	3.0	0A	29A	21A	2A	0A							
C	2.6	0A	16A	25A	36A	0A	17	15	17	14			
CD	2.2	0A	14A	17A	40A	0A							
D	2.5	0A	35A	42A	17A	0A	17	17	17	17			
DE	4.3	0A	25A	29A	15A	0A							
E	5.0	0A	51A	58A	31A	0A	17	17	17	17			
EF	5.3	0A	53A	70A	50A	0A							
F	4.5	0A	55A	50A	34A	0A	17	17	17	17	X		
FG	5.0	0A	30A	35A	22A	0A							
G	4.8	0A	30A	30A	27A	0A	16	3	15	12			
GH	6.0	0A	45A	49A	15A	0A							
H	4.1	0A	35A	29A	25A	0A	16	17	17	15			
HI	2.5	0A	35A	45A	22A	0A							
I	2.5	22A	21A	40A	15A	0A	17	17	17	17			
II	2.3	0A	31A	43A	19A	0A							
J	3.3	0A	30A	41A	10A	0A	15	10	17	12			
JK	2.5	0A	30A	15A	11A	0A							
K	2.0	0A	45A	30A	11A	0A	17	17	11	17	X		

%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): September 2017
 Site ID: VR2
 Date/Time: 9/6/2017 8:00
 Crew Members: LEM, SC, Jim
 Latitude/Longitude: 34.33935, -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: 7.62 pH units EC: 1219 $\mu\text{S}/\text{cm}$
 DO: 6.82 mg/L SC: 1273 $\mu\text{S}/\text{cm}$
 DO: 73.5% Salinity: 0.60 ppt
 Water Temp: 22.8 °C
 Flow (from discharge measurement): 3.96 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	28.5	.20	-0.11
2	27.0	.45	-0.06
3	25.5	.70	-0.09
4	23.00	1.00	-0.05
5	21.0	1.30	0.13
6	19.0	1.70	0.22
7	17.0	0.90	0.44
8	16.0	1.54	0.25
9	13.0	1.70	0.25
10	11.0	1.40	0.21
11	9.0	0.80	0.10
12	7.0	0.30	-0.02
13	6.5	0.0	0.0
14			
15			
16			
17			
18			
19			
20			

* 6.5 DEP

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			
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)	1
PVC Delimiter (Area=12.6cm ²)	0
Syringe Scrubber (Area=5.3cm ²)	0
Other (Area=)	1
Number of Transects Sampled (0-11)	1
Composite Volume (ml)	320
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: VR2 Date: 9/6/17 Crew: LM SSC & Tim

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	7.2	0A	2GA	17A	10A	0A	2	8	12	5		X
AB	6.6	0A	15A 15A	21A	32A	0A						
B	4.5	0A	15A	35A	30A	0A	17	10 10	15	17		
BC	3.8	0A	20A	45A	25A	0A						
C	6.2	20A	20A	25A	17A	0A	17	10	5	8		
CD	6.3	20A	34A	17A	20A	0A						
D	8.5	0A	36A	30A	10A	0A	17	10	5	15		
DE	5.7	0A	15A	25A	20A	0A						
E	9.5	0A	43A	35A	48A	0A	9	2	0	3		
EF	7.2	0A	19A	33A	41A	0A						
F	6.2	0A	<u>26P</u>	44A	19A	0A	15	3	7	5		
FG	8.0	0A	46A	45A	38A	0A						
G	7.0	0A	35A	31A	<u>30P</u>	0A	12	10 10	0	0		
GH	7.8	0A	11A	15A	17A	0A						
H	5.5	0A	10A	25A	30A	0A	6	9	17	12		
HI	5.7	0A	25A	20A	19A	0A						
I	9.2	0A	45A	14A	10A	0A	8	5	7	5		
J	7.9	0A	50A	40A	21A	0A						
JK	7.1	0A	14A	52A	45A	0A	14	7	13	6		
JK	10.5	0A	2A	22A	27A	0A						
K	7.0	0A	47A	58A	15A	0A	17	8	4	12		

3/105

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): DRPT 2017
 Site ID: TRD R-3
 Date/Time: 9/5/17 1920
 Crew Members: EC LM JM
 Latitude/Longitude: 34.34577, -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: 7.91 pH units EC: 88 $\mu\text{S}/\text{cm}$ 902 $\mu\text{S}/\text{cm}$
 DO: 9.05 mg/L SC: 88 $\mu\text{S}/\text{cm}$ 906 $\mu\text{S}/\text{cm}$
 DO: 108.2 % Salinity: 0.4 ppt
 Water Temp: 24.1 °C
 Flow (from discharge measurement): 3.82 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	4.5	0.0	0.0
2	7.5	0.40	0.07
3	9.0	0.40	1.56
4	10.0	0.40	0.19
5	12.0	0.0	0.0
6	13.0	0.30	1.09
7	14.0	0.60	0.81
8	15.0	0.60	1.43
9	16.0	0.50	1.06
10	17.0	0.35	1.05
11	18.0	0.30	0.26
12	19.0	0.30	0.10
13	21.0	0.50	0.25
14	23.0	0.50	0.10
15	25.0	0.20	0.11
16	26.5	0.0	0.0
17			
18			
19			
20			

0249 @ 12 + 24.5

Buoyant Object Method
 (Use only if Velocity area method not possible)
 Distance (ft) _____
 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) _____
 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 2 of 2

Ventura River Algae TMDL Transect Measurements (for percent cover, May-September)
 Site: VR3 Date: 9/5/2017 Crew: Lana Seaman

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	6.1	0A	10A	23P	5P	6P	0	3	12	5		
AB	6.0	0A	2A	16A	21A	0A						
B	6.0	2A	22P	23A	32A	0A	2	5	16	7		
BC	6.2	0P	19A	15A	11A	0A						
C	6.9	0P	2P	17A	25A	0A	5	2	13	15		
CD	8.8	6P	25A	20A	22A	0P						
D	10.8	0A	17A	24A	17A	0A	17	17	17	15		
DE	7.7	0A	31A	35A	50A	0A						
E	4.4	0P	25A	38A	55A	0P	3	5	15	5		
EF	3.7	0A	5A	24A	30A	0A						
F	5.2	0P	5P	5A	15A	0A	2	4	17	5		
FG	5.0	0A	15A	5P	10A	0A						
G	7.1	0A	20P	10P	2P	0A	12	5	15	0		
GH	7.1	0A	15P	11P	15P	0A						
H	6.3	0A	5P	15P	10A	0P	7	10	15	2		
HI	5.5	0A	0P	23A	10A	0A						
I	5.0	0A	22A	7A	10A	0A	15	16	17	12		
II	6.0	0A	15A	1A	2A	0A						
J	5.4	0A	30A	25A	8A	0A	17	17	17	17		
JK	5.5	0P	div	22A	45A	0A						
K	6.0	0P	15P	37A	50A	0A	13	7	10	15		

1 8 5 3 4

27/104

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: VR4 Date: 9/5/17 Crew: Loa & Sean

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	7.2	OP	33P	41P	62P	OP	16	6	0	0	0	✓
AB	6.2	(0A)	42P	51P	60P	OP						
B	8.4	(0A)	12P	42P	62P	(0A)	3	0	7	0		
BC	4.7	OP	10P	25P	30P	(0A)						
C	6.25	(0A)	25P	30P	43P	(20A)	12	17	7	15		
CD	5.0	OP	3P	(17A)	65P	OP						
D	7.9	(0A)	(5A)	(16A)	Dry	(0A)	17	17	17	17		
DE	10	(0A)	(19A)	Dry	Dry	(0A)						
E	9.5	(0A)	(15A)	Dry	Dry	(6A)	17	17	17	17		
EF	9.0	OP	9P	(13A)	17P	(0A)						
F	8.5	OP	5P	15P	(23A)	OP	0	0	0	0	✓	
FG	8.0	OP	20P	33P	19P	OP						
G	6.0	OP	33P	35P	35P	(0A)	0	0	0	0		
GH	6.3	OP	35P	31P	33P	6P						
H	4.7	OP	30P	26P	29P	OP	0	0	0	0		
HI	4.3	(0A)	(10A)	(15A)	(15A)	(0A)						
I	4.5	(0A)	3P	26P	29P	OP	0	0	0	0		
II	5.8	(0A)	(7A)	17P	(20A)	OP						
J	8	(0A)	12P	(8A)	(10A)	(0A)	6	30	0	3		
JK	11.8	(0A)	(8A)	(5A)	8P	OP						
K	5.5	OP	(15A)	7P	(22A)	(0A)	17	17	17	17		

100-40
 11 7 6 5
 60/100

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): VA September 2017
 Site ID: SA
 Date/Time: 9/5/2017 10:20
 Crew Members: Lea, Sean, Tim
 Latitude/Longitude: 34.38070, -119.30742
 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.): Algae delta not collected
1/2 rd transect is wet
so don't put protocols

January—December Monthly *In Situ* Measurements:
 pH: 7.08 pH units EC: 901 μ S/cm *possible malfunction*
 DO: 4.8 mg/L SC: 1000 μ S/cm *max*
 DO: 21.2 % Salinity: 0.5 ppt *see report*
 Water Temp: 19.8 °C
 Flow (from discharge measurement): 4001 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	1.9	0.1	0.01
2	2.0	0	0
3	0.3	0.2	0.02
4	↑		
5	(out of pond)		
6	5000		
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 Event Details

EVENT DETAILS

Event ID (Month Year): OCTOBER 2017 Date: 10/3/2017
Crew Members: K. HAYS S. CASEY
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 03D0379
Bedman 410 #110341139

OBSERVATION SITES (RIVER FLOW)

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: _____ cfs) Photos Taken: Upstream / Downstream
Notes: _____

Additional Observation Site:
Flow Status: Dry / Pondered / Flowing (Estimated Flow: 5 cfs) Photos Taken: Upstream / Downstream
Notes: Flow west side ~1 cfs. Flow east side dominant ~5 cfs

UNSAMPLED TMDL SITES

Site ID: CL Time: 0719 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): KA, SC OCT 2017 **Date/Time:** 10/3/17 1215
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:** 1449 **Time of High Tide:** 0851 *open water*
Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind **Wind Direction:** Blowing From S
 Notes (e.g. homeless, wildlife, dogs, swimming/recreation): ~ 80 birds in water (mostly gulls)

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)
Monthly (Jan—Dec):
 pH: 8.16 pH units **EC:** 1522 $\mu\text{S}/\text{cm}$ **Water Temp:** 20.4 °C
 DO: 11.13 mg/L **SC:** 1668 $\mu\text{S}/\text{cm}$
 DO: 123.7 % **Salinity:** 0.8 ppt

Photos: <input checked="" type="checkbox"/> Oceanward	
Sample Latitude: <u>34-27477</u>	
Sample Longitude: <u>-119-30765</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 Field Data Sheet (Reaches 1-4) - Page 1 of 1

Discharge Measurement

1st Measurement = left bank (looking downstream)

Event ID (Month Year): Oct 2017

Site ID: R1

Date/Time: 10/3/17 130

Crew Members: _____

Latitude/Longitude: 34° 25' 19" N - 119° 30' 16" W

Flow (circle one): Flowing / Ponded / Dry

Wind Strength: _____

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

Wind Direction: Blowing (circle one) From N To N

Photos (check): Upstream Downstream

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

January—December Monthly In Situ Measurements:

pH: 8.27 pH units EC: 177 µS/cm

DO: 10.83 mg/L SC: 1.005 µS/cm

DO: 100.2 % Salinity: 0.09 ppt

Water Temp: 18.6 °C

Flow (from discharge measurement): 177 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	5.0	0.2	0.03
3	7.0	0.8	0.05
4	9.0	0.75	0.14
5	11.0	0.4	0.39
6	13.0	0.8	0.24
7	15.0	0.45	0.36
8	17.0	0.6	0.15
9	19.0	0.4	0.34
10	21.0	0	0
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 ≤ 10 m; 250 m if wetted width > 10 m): _____

Collection Device	Quantity
(sum # transects per Device)	
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 <u>a</u> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL: River Site

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

Event ID (Month Year): OCT 2017
 Site ID: R3
 Date/Time: 10/3/17 0915
 Crew Members: RH SC
 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.): _____

Measurements:
 pH: 7.95 pH units EC: 1040 $\mu\text{S/cm}$
 DO: 9.25 mg/L SC: 105 $\mu\text{S/cm}$
 DO: 104.1 % Salinity: 0.6 ppt
 Water Temp: 18.1 °C
 Flow (from discharge measurement): 1.89 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll a (filters=algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	6.0	0	0
2	7.5	0.3	0.25
3	9.0	0.6	0.23
4	10.5	0	0
5	11.0	0.7	0.10
6	12.5	0.5	0.33
7	14.0	0.75	0.30
8	15.5	0.75	0.30
9	15.5	0.50	0.35
10	17.0	0.6	0.29
11	18.5	0.65	0.08
12	20.0	0.4	0.25
13	21.5	0.8	0.15
14	22.5	0	0
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			

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: River Site

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

Event ID (Month Year): OCT 2017
 Site ID: R4
 Date/Time: 10/3/17 0745
 Crew Members: KH, SC
 Latitude/Longitude: 34.38184 -119.30927
 Flow (circle one): Flowing / Pounded / 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.): Floating algae mat. If flow too slow to collect at end of pond that disperse. Active small fish swimming under algae layer.

Measurements:
 pH: 7.05 pH units EC: 862 $\mu\text{S}/\text{cm}$
 DO: 5.93 mg/L SC: 1005 $\mu\text{S}/\text{cm}$
 Salinity: 0.5 ppt
 Water Temp: 17.6 °C
 Flow (from discharge measurement): <1 cfs
 Est: <0.01

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll *a* (filters ← algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	4.0	0	0
2	6.0	1.05	0.03
3	8.0	1.25	0.01
4	10.0	1.25	0.01
5	12.0	1.25	0.01
6	14.0	1.10	0.00
7	16.0	1.10	0.02
8	18.0	1.2	0.02
9	20.0	0.3	0.05
10	22.0	0.4	0.06
11	22.8	0	0
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			

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: River Site

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

Event ID (Month Year): OCT 2017
 Site ID: 50
 Date/Time: 10/13/17 0830
 Crew Members: KH SC
 Latitude/Longitude: 34.38076 -119.30737
 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 towards base

Measurements:
 pH: 7.23 pH units EC: 830 $\mu\text{S}/\text{cm}$
 DO: 4.20 mg/L SC: 1000 $\mu\text{S}/\text{cm}$
 Salinity: 0.5 ppt
 Water Temp: 16.4 °C
 Flow (from discharge measurement): 40.0 cfs
Estimated

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

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 <u>a</u> Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): NOVEMBER 2017 Date: 11/1/17
Crew Members: K. HAYS, S. CASEY
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: meters YSI 85 S/N 05E1042 (new cable/sonde/probe)
Beckman 410 # 2554

OBSERVATION SITES (RIVER FLOW)

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: east side flowing, west side barely flowing

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

UNSAMPLED TMDL SITES

Site ID: CL Time: 0725 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): NDN 2017 **Date/Time:** 11/17 1200
Crew Members: KH, SC
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:** 1432 **Time of High Tide:** 0808
Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind **Wind Direction:** Blowing From N To NW
Notes (e.g. homeless, wildlife, dogs, swimming/recreation): shoreline/beach/sunbathers + ~60 over shorebirds + ~30 cows on

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)
Monthly (Jan-Dec): 8.2 **EC:** 2361 $\mu\text{S/cm}$ **Water Temp:** 18.9 $^{\circ}\text{C}$
pH: 8.46 **pH units:** 8.47 **SC:** 2670 $\mu\text{S/cm}$
DO: 10.12 mg/L **Salinity:** 1.4 ppt
DO: 110.1 %

Photos: <input checked="" type="checkbox"/> Oceanward	
Sample Latitude: <u>34.27463</u>	
Sample Longitude: <u>-119.30743</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:

YSI 85 05E1042
 Beckman 255 # 2554

Ventura River Algae TMDL: River Site

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

Event ID (Month Year): NOV 2017
 Site ID: 83
 Date/Time: 11/17 0925
 Crew Members: KH, SC
 Latitude/Longitude: 34.31581 -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.): _____

Measurements:
 pH: 7.96 pH units EC: 1082 μ S/cm
 DO: 7.97 mg/L SC: 1268 μ S/cm
 DO: 813 % Salinity: 0.6 ppt
 Water Temp: 17.3 °C
 Flow (from discharge measurement): 0.45 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll α (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	9.0	0	0
2	10.0	0.4	0.13
3	11.0	0.5	0.05
4	12.0	0.5	0.21
5	13.0	0.5	0.07
6	14.0	0	0
7	15.0	0.65	0.12
8	16.0	0.70	0.11
9	17.0	0.80	0.03
10	18.0	0.80	0.03
11	19.0	0.70	0.07
12	20.0	0.7	0.01
13	21.0	0.7	0.09
14	22.0	0.6	0.08
15	22.6	0.4	0.07
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			

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: River Site

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

Event ID (Month Year): 24 NOV 2017
 Site ID: 24
 Date/Time: 11/17 0745
 Crew Members: KASC
 Latitude/Longitude: 34-3079 -119-30765
 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.): Location w/ San Antonio dry season reach not flowing/dry

Measurements:
 pH: 7.33 pH units EC: 871 $\mu\text{S/cm}$
 DO: 3.61 mg/L SC: 1003 $\mu\text{S/cm}$
 DO: 38.4 % Salinity: 0.5 ppt
 Water Temp: 18.1 °C EST 20.2 cfs
 Flow (from discharge measurement): 2000 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	7-8	0	0
2	Too low to measure		
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			

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: River Site

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

Event ID (Month Year): Nov 2017
 Site ID: 509
 Date/Time: 11/17 0820
 Crew Members: EA, SC
 Latitude/Longitude: 34-2088 -119-30726
 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.): Water level pond near Venturaville
sample deployment location

Measurements:
 pH: 7.26 pH units EC: 275 $\mu\text{S}/\text{cm}$
 DO: 0.87 mg/L SC: 1017 $\mu\text{S}/\text{cm}$
 DO: 0.1 % Salinity: 0.5 ppt
 Water Temp: 17.6 °C
 Flow (from discharge measurement): 0 cfs

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

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): DEC 2017

Date/Time: 12/20/17 1100

Crew Members: KH, SC

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: 1704 Time of High Tide: 0936

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): gulls + ^{mostly on shore} grebes in water + on shoreline ~ 50 crows on shoreline + 15 nees

2 white pelicans ~ 20 cormorants / phalaropes on snags in water egress

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

Monthly (Jan—Dec):

pH: 8.46 pH units

EC: 2237 μ S/cm

Water Temp: 10.8 °C

DO: 12.38 mg/L

SC: 3074 μ S/cm

DO: 108.3 %

Salinity: 1.6 ppt

Photos: Oceanward Landward

Sample Latitude: 30-27467

Sample Longitude: -119-30753

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:

YSI 85 # 05E1042

Beckman 255 # 2554

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): DECEMBER 2017
 Site ID: 21
 Date/Time: 12/20/17 10:20
 Crew Members: K.M. S.C.
 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: 8.29 pH units EC: 1381 $\mu\text{S}/\text{cm}$
 DO: 11.18 mg/L SC: 1969 $\mu\text{S}/\text{cm}$
 DO: 98.6 % Salinity: 1.0 ppt
 Water Temp: 9.4 °C
 Flow (from discharge measurement): 0.67 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	7.8	0	0
2	8.0	0.5	0.10
3	9.0	0.5	0.04
4	11.0	0.65	0.05
5	13.0	0.65	0.08
6	16.0	0.6	0.07
7	17.0	0.6	0.10
8	19.0	0.2	0.03
9	21.0	0.55	0.04
10	23.0	0	0
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: River Site

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

Event ID (Month Year): DEC 2017
 Site ID: R3
 Date/Time: 12/20/17 0815
 Crew Members: RH, SC
 Latitude/Longitude: 34-34590 -119-29982
 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.): Thames Fire burned this area in early-mid Dec. River not burnt but area east of river did. Flowmeter malfunction

Measurements:
 pH: 7.92 pH units EC: 921 $\mu\text{S}/\text{cm}$
 DO: 9.54 mg/L SC: 1305 $\mu\text{S}/\text{cm}$
 DO: 84.5 % Salinity: 0.7 ppt
 Water Temp: 9.7 $^{\circ}\text{C}$
 Flow (from discharge measurement): 410 cfs
Flowmeter malfunction *Calcect 4 cfs*

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			Velocity (ft/sec)
No.	Distance from Left Bank (ft)	Depth (ft)	
1	13.2	0	0
2	13.5	0.5	
3	13.9	0.55	
4	14.3	0.55	
5	14.7	0.5	
6	15.1	0.35	
7	15.4	0.1	
8	15.7	0	0
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
	1	1	1
Float Time (sec)	5.0	2.26	1.6
Float Reach Cross Section (ft)			
	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

2.24 3.56
 1.40
 2.05
 1.29
 1.43
 1.84
 1.49
 2.19 Average

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)		

Reach Length (150 m if wetted width \leq 10 m; 250 m if wetted width $>$ 10 m):
 Average
 0.54

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 2018

Date/Time: 1/3/18 1:55

Crew Members: K. L. Kim

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

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

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

Time of High Tide: 0935

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): 2100 birds in water, mainly gulls, some grebes, Pelicans west end of estuary (samples taken east end)

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

Monthly (Jan-Dec):

pH: 8.37 pH units

EC: 2082 μ S/cm

Water Temp: 13.2 °C

DO: 14.74 mg/L

SC: 268 μ S/cm

DO: 141.8 %

Salinity: 1.4 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27465 N

Sample Longitude: 119.30753 W

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:

YS1 85 # 05E1126

Bedmon 255 #2151

Ventura River Algae TMDL: River Site

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

Event ID (Month Year): R2 JAN 2018 0955

Site ID: R2

Date/Time: 1/3/18 0955

Crew Members: KH LM

Latitude/Longitude: 34.33936, -119.2972

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.): _____

Measurements:

pH: 7.92 pH units EC: 1162 $\mu\text{S}/\text{cm}$

DO: 8.37 mg/L SC: 1404 $\mu\text{S}/\text{cm}$

DO: 85.0 % Salinity: 0.7 ppt

Water Temp: 15.9 °C 16.0

Flow (from discharge measurement): 1.96 cfs

Samples Collected (check box)

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

Dissolved Phosphorus and Nitrogen (field filtered):

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	5.0	0.8	0.17
3	7.0	1.0	0.24
4	9.0	1.1	0.19
5	11.0	1.5	0.17
6	13.0	1.6	0.05
7	15.0	0.2	0.04
8	17.0	0.5	0.10
9	19.0	1.1	0.01
10	23.0	0	0
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			

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

Collection Device (sum # transects per Device)

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 Event Details

EVENT DETAILS

Event ID (Month Year): FEBRUARY 2018 Date: 2/7/18


Crew Members: K. HAAS, A. SPYRKA

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: Large rain event w/ high flows occurred since January monitoring event (Jan 8-9th storm date)
YS185 # 05E1042 Beckman 255 # 2554

OBSERVATION SITES (RIVER FLOW)

Ventura River at Highway 150 (Baldwin Road) 
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 5-10 cfs) Photos Taken: Upstream / Downstream
 Notes: _____

Ventura River at Santa Ana Blvd
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 5-7 cfs) Photos Taken: Upstream / Downstream
 Notes: Flowing east + west channels. west channel dominant

Ventura River at Casitas Vista Road 
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 3-5 cfs) Photos Taken: Upstream / Downstream
 Notes: Pondered west side. Flowing east side

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

UNSAMPLED TMDL SITES

Site ID: SA Time: 0850 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 2018 Date/Time: 2/7/18 1315
 Crew Members: KHAS Ocean Inlet (circle one): Open / Restricted / Closed
 Weather (circle one): Clear / Partly Cloudy / Overcast / Rainy / Foggy Time of Low Tide: 10:18 Time of High Tide: 1609
 Direction of Tide: Ebb / Flood / Slack / N/A Wind Direction: Blowing From / To W
 Wind Strength: Calm / Slight Breeze / Moderate Breeze / Strong Breeze / Windy / Strong Wind
 Notes (e.g. homeless, wildlife, dogs, swimming/recreation): ~100gulls + ~20 other birds

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

Monthly (Jan—Dec): 28.51 EC: 3350 $\mu\text{S}/\text{cm}$ Water Temp: 16.6 $^{\circ}\text{C}$
 pH: 8.51 pH units SC: 3998 $\mu\text{S}/\text{cm}$
 DO: 12.28 mg/L Salinity: 2.1 ppt
 DO: 12.8 %
 Photos: Oceanward Landward
 Sample Latitude: 34.27965
 Sample Longitude: -119.30756

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): FEB 2018
 Site ID: R1
 Date/Time: 2/7/18 12:35
 Crew Members: KH AS
 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: 8.37 pH units EC: 1295 $\mu\text{S}/\text{cm}$
 DO: 11.44 mg/L SC: 1576 $\mu\text{S}/\text{cm}$
 DO: 15.8 % Salinity: 0.8 ppt
 Water Temp: 15.6 °C
 Flow (from discharge measurement): 3.97 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	4.7	0	0
2	6.0	0.5	0.07
3	8.0	0.95	0.06
4	10.0	0.95	0.32
5	12.0	1.05	0.33
6	14.0	0.75	0.59
7	16.0	3.70	0.45
8	18.0	0.50	0.58
9	20.0	0.30	0.52
10	22.0	0.35	0.14
11	23.5	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 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): R2 FEB 2018
 Site ID: R2
 Date/Time: 2/7/18 / 1130
 Crew Members: KH/BAW/AS
 Latitude/Longitude: 34.33936, -119.29721
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: _____
 Wind Direction: Calm / Light Breeze / Moderate Breeze / Strong Breeze / Windy
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): Bedman 2554

January—December Monthly *In Situ* Measurements:
 pH: 8.12 pH units EC: 1057 $\mu\text{S}/\text{cm}$
 DO: 10.89 mg/L SC: 1233 $\mu\text{S}/\text{cm}$
 DO: 114.5 % Salinity: 0.6 ppt
 Water Temp: 17.5 °C
 Flow (from discharge measurement): 3.21 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	0.9	-0.01
2	6.0	1.4	-0.02
3	8.0	0.6	-0.01
4	10.0	1.3	0.10
5	12.0	1.2	0.45
6	14.0	0.7	1.15
7	16.0	0.8	0.50
8	18.0	0.8	0.18
9	22.0	0	0
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): FEB 2018

Site ID: R3

Date/Time: 2/7/18 / 10:15

Crew Members: KH, AS

Latitude/Longitude: 34.3459, -119.29982

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: 8.10 pH units EC: 930 $\mu\text{S}/\text{cm}$

DO: 11.47 mg/L SC: 1145 $\mu\text{S}/\text{cm}$

DO: 14.6 % Salinity: 0.6 ppt

Water Temp: 15.2 °C

Flow (from discharge measurement): 1.66 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	13.4	0	0
2	15.0	0.75	0.28
3	16.5	1.05	0.18
4	18.0	1.0	0.22
5	19.5	1.0	0.33
6	21.0	0.6	0.06
7	22.5	0.85	0.10
8	24.0	0.45	-0.61
9	25.5	0.30	0.12
10	27.0	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 ≤ 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: River Site

Event ID (Month Year): Feb 2018

Site ID: 24

Date/Time: 2/7/18 0900

Crew Members: KH, AS

Latitude/Longitude: 34.38183 -119.30920

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.):

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

Velocity Area Method (preferred)

No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	5.5	0	0
2	7.0	0.6	0.07
3	9.0	1.15	0.02
4	11.0	1.45	0.05
5	13.0	1.6	0.10
6	15.0	1.4	0.11
7	17.0	1.35	0.09
8	19.0	1.40	0.10
9	21.0	1.20	0.06
10	23.0	0.9	0.04
11	25.5	0	0
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			

Measurements:

pH: 8.32 pH units EC: 821 $\mu\text{S}/\text{cm}$
 DO: 10.40 mg/L SC: 121 $\mu\text{S}/\text{cm}$
 DO: 04.6 % Salinity: 0.6 ppt
 Water Temp: 11.0 $^{\circ}\text{C}$
 Flow (from discharge measurement): 164 cfs

Samples Collected (check box)

Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll a (filters—algae):

Location for Chlorophyll

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 (0-10)	
Composite Volume (mL)	
Chlorophyll a Volume (use GF/F filter, 25 mL preferred volume)	

Ventura River Algae TMDL: River Site

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

Event ID (Month Year): FEB 2018
 Site ID: CL
 Date/Time: 2/7/18 / 0730
 Crew Members: KH, AS
 Latitude/Longitude: 34.34205 -119.286467
 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.): _____

Measurements:
 pH: 8.43 pH units EC: 2193 $\mu\text{S}/\text{cm}$
 DO: 11.05 mg/L SC: 3386 $\mu\text{S}/\text{cm}$
 DO: 93.3 % Salinity: 1.8 ppt
 Water Temp: 6.5 °C 63.2 °F
 Flow (from discharge measurement): 0.01 cfs 0.05 cfs
measured

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 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)	<u>2</u>	<u>2</u>	<u>2</u>
Float Time (sec)	<u>5.9</u>	<u>6.6</u>	<u>5.0</u>
Float Reach Cross Section (ft)			
Width	<u>~3</u>	<u>~3</u>	<u>~3</u>
Depth 1	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>
Depth 2			
Depth 3			
Depth 4			
Depth 5			

tion for Chlorophyll
 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)	

Handwritten notes:
 2.1 sec
 5.9 sec
 6.6 sec
 5.0 sec

Ventura River Algae TMDL Event Details

EVENT DETAILS

Event ID (Month Year): MARCH 2018 Date: 3/28/18

Crew Members: Lara Meeker

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: _____

OBSERVATION SITES (RIVER FLOW)

Ventura River at Highway 150 (Baldwin Road) CVB

Flow Status: Dry / Pondered / Flowing (Estimated Flow: 8 cfs) Photos Taken: Upstream / Downstream

Notes: Split in two channels. Right side ponded. Left flowing (looking downstream)

Ventura River at Santa Ana Blvd

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

Notes: Split in two flowing channels.

Ventura River at Casitas Vista Road H150

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—Estuary Details

Site ID: TMDL-Est

Event ID (Month Year): March 2018 Date/Time: 3/25/18 1240 PDT

Crew Members: Eric Meeker

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): shore birds, kids playing in estuary & shore. Beachwestward

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

Time of Low Tide: 1441 Time of High Tide: 0751

Wind Direction: Blowing From/To west/east

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

Monthly (Jan—Dec):

pH: 7.9 pH units EC: 3040 $\mu\text{S/cm}$ Water Temp: 21.1 $^{\circ}\text{C}$

DO: 9.35 mg/L SC: 3315 $\mu\text{S/cm}$

DO: 103.5 % Salinity: 1.7 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27478

Sample Longitude: -119.30733

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:

103.5
9.35

Ventura River Algae TMDL: River Site

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

Event ID (Month Year): March 2018
 Site ID: VR2
 Date/Time: 3/26/18 3:06 pm
 Crew Members: LM AS
 Latitude/longitude: 34.33933, -119.29716
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: Flowing
 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 high and swift to wade

Measurements:
 pH: 8.22 pH units EC: 961 $\mu\text{S}/\text{cm}$
 DO: 9.77 mg/L SC: 1056 $\mu\text{S}/\text{cm}$
 DO: 97.9 % Salinity: 0.5 ppt
 Water Temp: 15.4 °C
 Flow (from discharge measurement): 248 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 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
	10	10	10
Float Time (sec)	5	6	5
Float Reach Cross Section (ft)			
Width	Upper Section	Middle Section	Lower Section
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

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=12.6cm²) _____
 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: River Site

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

Event ID (Month Year): March 2018
 Site ID: VR1
 Date/Time: 3/26/18 1621
 Crew Members: LM, AS
 Latitude/Longitude: 34.28189, -119.30904
 Flow (circle one): Flowing / Ponded / Dry
 Wind Strength: 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.): _____

Measurements:
 pH: 8.36 pH units EC: 1004 $\mu\text{S}/\text{cm}$
 DO: 9.07 mg/L SC: 1202 $\mu\text{S}/\text{cm}$
 DO: 93.0 % Salinity: 0.6 ppt
 Water Temp: 16.4 °C
 Flow (from discharge measurement): 54.38 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll *a* (filters—algae):

No.	Distance from left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	11.0	2.40	1.89
2	12.5	2.10	2.13
3	14.0	2.20	1.61
4	15.5	1.80	1.25
5	17.0	1.90	1.31
6	18.5	1.80	1.15
7	19.5	2.20	1.55
8	20.5	2.3	1.36
9	5.5	2.2	1.08
10	4.5	1.5	0.97
11	3.5	1.0	0.92
12	2.5	1.10	0.94
13	1.5	0.70	0.77
14	0.5	0.40	0.20
15	0.0	0	0
16			
17	23.5	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			

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

tion for Chlorophyll

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)	

Wetted with (∞)
 approx = 23.5 ft (bank is undercut)

Ventura River Algae TMDL: River Site

Event ID (Month Year): March 2018

Site ID: R3

Date/Time: 3/26/18 1300

Crew Members: LMA, AS

Latitude/Longitude: 34.39589, -119.29945

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.):

River is split in two channels immediately above park flow measurement and samples from 1st channel. (minor)

Measurements:

pH: 8.30 pH units EC: 826 $\mu\text{S/cm}$

DO: 9.9.3 mg/L SC: 1038 $\mu\text{S/cm}$

DO: 10.11 % Salinity: 0.5 ppt

Water Temp: 14.3 °C

Flow (from discharge measurement): 4846 cfs from 0505 FISH

Samples Collected (check box)

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

Dissolved Phosphorus and Nitrogen (field filtered):

Chlorophyll *a* (filters—algae):

Discharge Measurement

1st Measurement = left bank (looking downstream)

Velocity Area Method (preferred)

No.	Distance from left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	3.5	0	0
2	4.5	0.2	0.35
3	5.5	0.6	1.49
4	6.5	1.1	1.37
5	7.5	1.0	1.57
6	8.5	0.9	1.95
7	9.5	0.9	1.99
8	10.5	1.0	1.71
9	11.5	1.0	1.32
10	12.5	0.9	1.24
11	13.5	0.6	1.06
12	14.5	0.6	1.01
13	15.5	0.6	1.32
14	16.5	0.45	0.72
15	17.6	0	0
16			
17	18.5 16.0		1.48
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			

tion for Chlorophyll

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: River Site

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

Event ID (Month Year): March 2018
 Site ID: San Antonio Creek
 Date/Time: 3/26/18 11:50
 Crew Members: LM & Andrew S.
 Latitude/Longitude: 34.38081, -119.30719
 Flow (circle one): Flowing, Ponded / Dry
 Wind Strength: Calm / light breeze, Moderate Breeze / Strong Breeze / Windy
 Wind Direction: Blowing (circle one) From / To: Unknown
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): in area on bank below bridge, bikers, walkers.

Measurements:
 pH: 8.29 pH units EC: 1070 $\mu\text{S}/\text{cm}$
 DO: 9.89 mg/L SC: 1345 $\mu\text{S}/\text{cm}$
 DO: 96.5 % Salinity: 0.7 ppt
 Water Temp: 14.3 °C
 Flow (from discharge measurement): 12.45 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll a (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft./sec)
1	17.7	0	0
2	17.2	0.6	0.11
3	16.0	1.0	0.49
4	15.0	0.9	1.05
5	14.0	0.9	1.49
6	13.0	1.4	1.36
7	12.0	1.4	1.99
8	11.0	1.0	1.74
9	10.0	1.0	1.16
10	9.0	0.9	1.10
11	8.0	0.8	0.91
12	7.0	0.6	0.46
13	6.0	0.5	0.08
14	5.0	0.3	-0.26
15	4.5	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			

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

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: River Site

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

Event ID (Month Year): March 2018
 Site ID: Canada Levee
 Date/Time: 3/26 9:50 AM
 Crew Members: LM, A. Spyrka
 Latitude/Longitude: 34.34205, -119.28645
 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.): _____

Measurements:
 pH: 8.27 pH units EC: 3272 $\mu\text{S}/\text{cm}$
 DO: 10.55 mg/L SC: 468 $\mu\text{S}/\text{cm}$
 DO: 100.7 % Salinity: 2.3 ppt
 Water Temp: 12.8 °C
 Flow (from discharge measurement): 0-85 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll *a* (filters—algae):

Velocity Area Method (preferred)			
No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0	0
2	2.4	0.15	0.55
3	3.0	0.2	1.02
4	3.5	0.3	1.04
5	4.0	0.3	1.16
6	4.5	0.3	0.98
7	5.0	0.35	0.68
8	5.8	0.5	0.6
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			

Chlorophyll *a* Collection for Chlorophyll
 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=12.6cm²)
 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 Event Details

EVENT DETAILS

Event ID (Month Year): APRIL 2018 Date: 4/25/18
 Crew Members: K. HAHS, 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: Beckman 255 # 2151
 VSI 85 # 05E1042

OBSERVATION SITES (RIVER FLOW) 4/24/18

Ventura River at Highway 150 (Baldwin Road)
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 10 cfs) Photos Taken: Upstream / Downstream
 Notes: _____

Ventura River at Santa Ana Blvd
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 7 cfs) Photos Taken: Upstream / Downstream
 Notes: _____

Ventura River at Casitas Vista Road
 Flow Status: Dry / Pondered / Flowing (Estimated Flow: 7 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—Estuary Details

Site ID: TMDL-Est
 Event ID (Month Year): APRIL 2018 Date/Time: 4/25/18 / 1410
 Crew Members: KH, BS
 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: 1409 Time of High Tide: 2025
 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): openwest end water level low, ~30 birds in water for snags.

In Situ Measurements (Measure at Floating Macroalgae Quadrat 1, Transect 1)
 Monthly (Jan—Dec):
 pH: 8.73 pH units 8.74 EC: 16200 $\mu\text{S}/\text{cm}$ Water Temp: 22.6 $^{\circ}\text{C}$
 DO: 12.80 mg/L SC: 16999 $\mu\text{S}/\text{cm}$ 17,000
 DO: 157.1 % Salinity: 10.0 ppt

Photos: Oceanward Landward

Sample Latitude: 34.27482

Sample Longitude: -119.30731

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: River Site

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

Event ID (Month Year): APRIL 2018
 Site ID: TMDL-R1
 Date/Time: 4/25/18 1330
 Crew Members: KM, BS, 94
 Latitude/Longitude: 34.281894 -119.309066
 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.): 05E1042 Y51

Measurements:
 pH: 8.23 pH units EC: 1332 μ S/cm
 DO: 10.39 mg/L SC: 1459 μ S/cm
 DO: 11.5 % Salinity: 0.7 ppt
 Water Temp: 20.4 °C
 Flow (from discharge measurement): 7.06 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 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	5.0	0.10	0.19
3	7.0	0.16	0.30
4	9.0	0.16	0.49
5	11.0	1.1	0.53
6	13.0	1.0	0.86
7	15.0	0.8	0.82
8	17.0	0.7	0.61
9	19.0	1.15	0.33
10	21.0	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			

tion for Chlorophyll
 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: River Site

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

Event ID (Month Year): APRIL 2018
 Site ID: 4125118
 Date/Time: 4/25/18 1220
 Crew Members: KH 65
 Latitude/Longitude: 34.34205 - 119.28645
 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
 Note: g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.

Measurements:
 pH: 8.43 pH units EC: 4459 $\mu\text{S}/\text{cm}$
 DO: 11.08 mg/L SC: 4164 $\mu\text{S}/\text{cm}$
 Salinity: 2.2 ppt
 Water Temp: 28.7 °C
 Flow (from discharge measurement): 0.67 cfs

Samples Collected (check box)
 Total Phosphorus, Total Nitrogen, and Nitrate + Nitrite as Nitrogen (unfiltered):
 Dissolved Phosphorus and Nitrogen (field filtered):
 Chlorophyll *a* (filters—algae):

No.	Distance from Left Bank (ft)	Depth (ft)	Velocity (ft/sec)
1	0.0	0	0
2	0.0	0.2	0.11
3	0.0	0.25	0.07
4	0.2	0.2	0.11
5	0.5	0	0
6	0.5		
7	1.3		
8	1.3		
9	1.3		
10	4.5		
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

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

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): APRIL 2018
 Site ID: R2
 Date/Time: 4/25/18 1120
 Crew Members: KH, BT
 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 S
 Photos (check): Upstream Downstream
 Notes (e.g. homeless, wildlife, horses, swimming/recreation, discharge comments, etc.): 34-33936

January—December Monthly *In Situ* Measurements:
 pH: 8.16 pH units EC: 1038 $\mu\text{S}/\text{cm}$
 DO: 10.04 mg/L SC: 1177 $\mu\text{S}/\text{cm}$
 DO: 11.60 % Salinity: 0.10 ppt
 Water Temp: 20.10 °C
 Flow (from discharge measurement): 5.65 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	1.5	1.7	0.04
2	3.5	1.4	-0.03
3	5.5	1.3	0.14
4	7.5	1.4	0.59
5	9.5	1.2	0.90
6	11.5	0.65	0.90
7	13.5	0.75	0.37
8	15.5	0.35	-0.10
9	17.5	0.40	-0.04
10	19.0	0	0
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=9.3cm 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): APRIL 2018

Site ID: TMDL-R4

Date/Time: 4/25/18 0820

Crew Members: K.H. B.J.

Latitude/Longitude: 34 38 58 -119-30926

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: 300

pH: 7.48 pH units EC: 874 $\mu\text{S}/\text{cm}$

DO: 8.18 mg/L SC: 1014 $\mu\text{S}/\text{cm}$

DO: 86.1 % Salinity: 0.5 ppt

Water Temp: 17.8 °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	2.4	0	0
2	4.4	0.5	-0.03
3	6.4	0.7	0.06
4	8.4	1.0	0.10
5	10.4	1.25	0.12
6	12.4	1.6	0.14
7	14.4	1.7	0.10
8	16.4	1.8	0.10
9	18.4	0.8	0.13
10	20.4	1.1	0.06
11	22.4	0.5	-0.01
12	24.2	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Buoyant Object Method <small>(Use only if velocity area method not possible)</small>			
	Float 1	Float 2	Float 3
Distance (ft)			
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)	

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): APRIL 2018
 Site ID: TMDL-SA
 Date/Time: 4/25/18 0910
 Crew Members: KH BS
 Latitude/Longitude: 34-38081-119-20737
 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: 1448 $\mu\text{S}/\text{cm}$
 DO: 9.23 mg/L SC: 1748 $\mu\text{S}/\text{cm}$
 DO: 94.4 % Salinity: 0.9 ppt
 Water Temp: 16.0 °C
 Flow (from discharge measurement): 0-34 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
2	0.6	0.15	0.15
3	3.2	0.15	0.100
4	3.8	0.20	0.34
5	4.4	0.20	0.66
6	5.0	0.20	0.46
7	5.6	0.25	-0.02
8	6.2	0.20	0.67
9	6.8	0.20	0.15
10	8.0	0	0
11	8.0	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)	

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

2018 ANNUAL REPORT

**APPENDIX B: CHAIN OF CUSTODIES AND LABORATORY
REPORTS (MAY 2017 - APRIL 2018)**

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)**

7E10095

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY17MA01, Project P6040555)

SAMPLING EVENT: MAY 2017

SAMPLING DATE: 5/9/17 + 5/10/17

SAMPLERS: S. CASEY

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED					NOTES
TMDL-Est	5/10/17 12:20	X	X	X						
TMDL-R1	5/10/17 10:25	X	X	X						
TMDL-R2	5/10/17 8:10	X	X	X						
TMDL-R3	5/9/17 1125	X	X	X						
TMDL-R4	5/9/17 0810	X	X	X						
TMDL-CL	5/9/17 1310	X	X	X						
TMDL-SA	5/9/17 0950	X	X	X						
TMDL-FD		X	X	X						(Note which site)

Signature: [Signature]
 Print Name: Lara Meeker
 Affiliation: VC WPP
 Date/Time Received: 5/10/17 14:16
 Date/Time Relinquished: " "

Signature: [Signature]
 Print Name: Bruce Markovitch
 Affiliation: Week courier
 Date/Time Received: 5/10/17 14:18
 Date/Time Relinquished: 5/10/17 1555

Signature: [Signature]
 Print Name: Carlos da Silva
 Affiliation: Week feds
 Date/Time Received: 5/10/17 955
 Date/Time Relinquished: 5/10/17 505

Signature: [Signature]
 Print Name: Abdullah H.
 Affiliation: Week
 Date/Time Received: 5/10/17 1705
 Date/Time Relinquished:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

150



Certificate of Analysis

FINAL REPORT

Work Orders: 7E10095

Report Date: 6/06/2017

Project: TMDL Study May 2017 P6040555

Received Date: 5/10/2017

Turnaround Time: Normal

Phones: (805) 654-3942

Fax: (805) 654-3350

Attn: Arne Anselm

P.O. #: WECKLABORATORY1
7MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

DoD-ELAP #L2457 • ELAP-CA #1132 • 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.

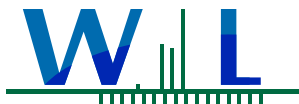
Dear Arne Anselm,

Enclosed are the results of analyses for samples received 5/10/17 with the Chain-of-Custody document. The samples were received in good condition, at 1.5 °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:

Hai Van Nguyen
Senior Project Manager





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

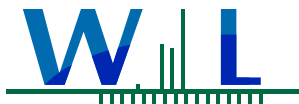
Project Number: TMDL Study May 2017 P6040555

Reported:
06/06/2017 17:30

Project Manager: Arne Anselm

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7E10095-01	Water	05/10/17 12:20	
TMDL-R1	S. Casey	7E10095-02	Water	05/10/17 10:25	
TMDL-R2	S. Casey	7E10095-03	Water	05/10/17 08:10	
TMDL-R3	S. Casey	7E10095-04	Water	05/09/17 11:25	
TMDL-R4	S. Casey	7E10095-05	Water	05/09/17 08:10	
TMDL-CL	S. Casey	7E10095-06	Water	05/09/17 13:10	
TMDL-SA	S. Casey	7E10095-07	Water	05/09/17 09:50	



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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 May 2017 P6040555

Reported:
06/06/2017 17:30

Project Manager: Arne Anselm

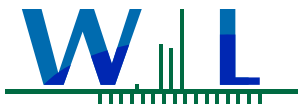
Sample Results

Sample: TMDL-Est

Sampled: 05/10/17 12:20 by S. Casey

7E10095-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 05/17/17 13:42			Analyst: mnq
Dissolved Nitrogen	1.4		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various	Batch ID: [CALC]			Prepared: 05/15/17 16:50			Analyst: mnq
Nitrogen, Total	1.8		0.20	mg/l	1x1	05/17/17 15:15	
Method: EPA 351.2	Batch ID: W7E0897			Prepared: 05/15/17 16:50			Analyst: mnq
TKN	0.65	0.050	0.10	mg/l	1x1	05/17/17 15:15	
Method: EPA 351.2	Batch ID: W7E1036			Prepared: 05/17/17 13:42			Analyst: mnq
TKN, Soluble	0.26	0.050	0.10	mg/l	1x1	05/18/17 20:35	
Method: EPA 353.2	Batch ID: W7E0862			Prepared: 05/15/17 12:30			Analyst: AJK
NO2+NO3 as N	1.1	0.041	0.10	mg/l	1x1	05/16/17 11:48	
Method: EPA 365.1	Batch ID: W7E0757			Prepared: 05/12/17 11:01			Analyst: nat
Phosphorus as P, Total	0.043	0.0014	0.010	mg/l	1x1	05/15/17 14:23	
Method: EPA 365.1	Batch ID: W7E0758			Prepared: 05/12/17 11:02			Analyst: nat
Phosphorus, Dissolved	0.0080	0.0014	0.010	mg/l	1x1	05/15/17 14:46	J



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Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2017 P6040555

Reported:
06/06/2017 17:30

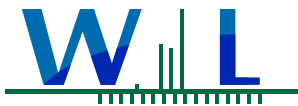
Project Manager: Arne Anselm

Sample Results

(Continued)

Sample: TMDL-R1
7E10095-02 (Water) Sampled: 05/10/17 10:25 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]						Analyst: mnq
Dissolved Nitrogen	2.1		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various	Batch ID: [CALC]						Analyst: mnq
Nitrogen, Total	2.2		0.20	mg/l	1x1	05/17/17 15:15	
Method: EPA 351.2	Batch ID: W7E0897						Analyst: mnq
TKN	0.24	0.050	0.10	mg/l	1x1	05/17/17 15:15	
Method: EPA 351.2	Batch ID: W7E1036						Analyst: mnq
TKN, Soluble	0.17	0.050	0.10	mg/l	1x1	05/18/17 20:35	
Method: EPA 353.2	Batch ID: W7E0862						Analyst: AJK
NO2+NO3 as N	1.9	0.041	0.10	mg/l	1x1	05/16/17 12:15	
Method: EPA 365.1	Batch ID: W7E0757						Analyst: nat
Phosphorus as P, Total	0.013	0.0014	0.010	mg/l	1x1	05/15/17 14:27	
Method: EPA 365.1	Batch ID: W7E0758						Analyst: nat
Phosphorus, Dissolved	0.0091	0.0014	0.010	mg/l	1x1	05/15/17 14:51	J



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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 May 2017 P6040555

Reported:
06/06/2017 17:30

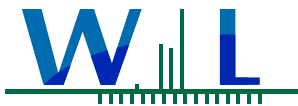
Project Manager: Arne Anselm

Sample Results

(Continued)

Sample: TMDL-R2
7E10095-03 (Water) Sampled: 05/10/17 8:10 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]						Analyst: mnq
Dissolved Nitrogen	3.2		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various	Batch ID: [CALC]						Analyst: mnq
Nitrogen, Total	3.3		0.20	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E0955						Analyst: mnq
TKN	0.078	0.050	0.10	mg/l	1x1	05/18/17 18:51	J
Method: EPA 351.2	Batch ID: W7E1036						Analyst: mnq
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	05/18/17 20:35	
Method: EPA 353.2	Batch ID: W7E0862						Analyst: AJK
NO2+NO3 as N	3.2	0.041	0.10	mg/l	1x1	05/16/17 12:17	
Method: EPA 365.1	Batch ID: W7E0757						Analyst: nat
Phosphorus as P, Total	0.064	0.0014	0.010	mg/l	1x1	05/15/17 14:29	
Method: EPA 365.1	Batch ID: W7E0758						Analyst: nat
Phosphorus, Dissolved	0.059	0.0014	0.010	mg/l	1x1	05/15/17 14:52	



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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 May 2017 P6040555

Reported:
06/06/2017 17:30

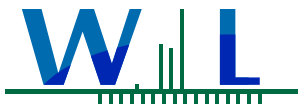
Project Manager: Arne Anselm

Sample Results

(Continued)

Sample: TMDL-R3
7E10095-04 (Water) Sampled: 05/09/17 11:25 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]						Analyst: mnq
Dissolved Nitrogen	3.4		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various	Batch ID: [CALC]						Analyst: mnq
Nitrogen, Total	3.3		0.20	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E0955						Analyst: mnq
TKN	ND	0.050	0.10	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E1036						Analyst: mnq
TKN, Soluble	0.068	0.050	0.10	mg/l	1x1	05/18/17 20:35	J
Method: EPA 353.2	Batch ID: W7E0862						Analyst: AJK
NO2+NO3 as N	3.3	0.041	0.10	mg/l	1x1	05/16/17 12:19	
Method: EPA 365.1	Batch ID: W7E0757						Analyst: nat
Phosphorus as P, Total	0.0070	0.0014	0.010	mg/l	1x1	05/15/17 14:30	J
Method: EPA 365.1	Batch ID: W7E0758						Analyst: nat
Phosphorus, Dissolved	0.0054	0.0014	0.010	mg/l	1x1	05/15/17 14:53	J



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study May 2017 P6040555

Reported:
06/06/2017 17:30

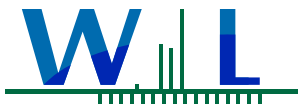
Project Manager: Arne Anselm

Sample Results

(Continued)

Sample: TMDL-R4
7E10095-05 (Water) Sampled: 05/09/17 8:10 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]					Prepared: 05/17/17 13:42	Analyst: mnq
Dissolved Nitrogen	4.7		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various	Batch ID: [CALC]					Prepared: 05/16/17 13:27	Analyst: mnq
Nitrogen, Total	4.7		0.20	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E0955					Prepared: 05/16/17 13:27	Analyst: mnq
TKN	ND	0.050	0.10	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E1036					Prepared: 05/17/17 13:42	Analyst: mnq
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	05/18/17 20:35	
Method: EPA 353.2	Batch ID: W7E0862					Prepared: 05/15/17 12:30	Analyst: AJK
NO2+NO3 as N	4.7	0.041	0.10	mg/l	1x1	05/16/17 12:20	
Method: EPA 365.1	Batch ID: W7E0757					Prepared: 05/12/17 11:01	Analyst: nat
Phosphorus as P, Total	0.0078	0.0014	0.010	mg/l	1x1	05/15/17 14:33	J
Method: EPA 365.1	Batch ID: W7E0758					Prepared: 05/12/17 11:02	Analyst: nat
Phosphorus, Dissolved	0.0062	0.0014	0.010	mg/l	1x1	05/15/17 14:55	J



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 2017 P6040555

Reported:
06/06/2017 17:30

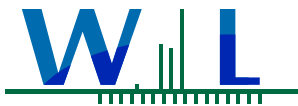
Project Manager: Arne Anselm

Sample Results

(Continued)

Sample: TMDL-CL
7E10095-06 (Water) Sampled: 05/09/17 13:10 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***							Analyst: mnq
Batch ID: [CALC]							
Prepared: 05/17/17 13:42							
Dissolved Nitrogen	0.37		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various							Analyst: mnq
Batch ID: [CALC]							
Prepared: 05/16/17 13:27							
Nitrogen, Total	0.51		0.20	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2							Analyst: mnq
Batch ID: W7E0955							
Prepared: 05/16/17 13:27							
TKN	0.46	0.050	0.10	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2							Analyst: mnq
Batch ID: W7E1036							
Prepared: 05/17/17 13:42							
TKN, Soluble	0.32	0.050	0.10	mg/l	1x1	05/18/17 20:35	
Method: EPA 353.2							Analyst: AJK
Batch ID: W7E0862							
Prepared: 05/15/17 12:30							
NO2+NO3 as N	0.053	0.041	0.10	mg/l	1x1	05/16/17 12:22	J
Method: EPA 365.1							Analyst: nat
Batch ID: W7E0757							
Prepared: 05/12/17 11:01							
Phosphorus as P, Total	0.0068	0.0014	0.010	mg/l	1x1	05/15/17 14:35	J
Method: EPA 365.1							Analyst: nat
Batch ID: W7E0758							
Prepared: 05/12/17 11:02							
Phosphorus, Dissolved	0.0083	0.0014	0.010	mg/l	1x1	05/15/17 15:01	J



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 2017 P6040555

Reported:
06/06/2017 17:30

Project Manager: Arne Anselm

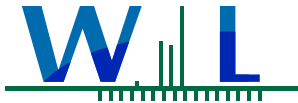
Sample Results

(Continued)

Sample: TMDL-SA
7E10095-07 (Water)

Sampled: 05/09/17 9:50 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]						Analyst: mnq
Dissolved Nitrogen	1.5		0.20	mg/l	1x1	05/18/17 20:35	
Method: _Various	Batch ID: [CALC]						Analyst: mnq
Nitrogen, Total	1.6		0.20	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E0955						Analyst: mnq
TKN	0.30	0.050	0.10	mg/l	1x1	05/18/17 18:51	
Method: EPA 351.2	Batch ID: W7E1036						Analyst: mnq
TKN, Soluble	0.27	0.050	0.10	mg/l	1x1	05/18/17 20:35	
Method: EPA 353.2	Batch ID: W7E0862						Analyst: AJK
NO2+NO3 as N	1.3	0.041	0.10	mg/l	1x1	05/16/17 12:24	
Method: EPA 365.1	Batch ID: W7E0757						Analyst: nat
Phosphorus as P, Total	0.054	0.0014	0.010	mg/l	1x1	05/15/17 14:36	
Method: EPA 365.1	Batch ID: W7E0758						Analyst: nat
Phosphorus, Dissolved	0.047	0.0014	0.010	mg/l	1x1	05/15/17 14:58	



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Reported:

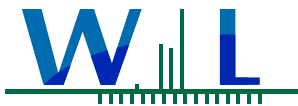
06/06/2017 17:30

Project Manager: Arne Anselm

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W7E0757 - EPA 365.1										
Blank (W7E0757-BLK1) Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus as P, Total	ND	0.0014	mg/l							
LCS (W7E0757-BS1) Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus as P, Total	0.0485	0.0014	mg/l	0.0500		97	90-110			
Matrix Spike (W7E0757-MS1) Source: 7E10095-01 Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus as P, Total	0.0981	0.0014	mg/l	0.0500	0.0430	110	90-110			
Matrix Spike Dup (W7E0757-MSD1) Source: 7E10095-01 Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus as P, Total	0.0972	0.0014	mg/l	0.0500	0.0430	108	90-110	0.9	20	
Batch: W7E0758 - EPA 365.1										
Blank (W7E0758-BLK1) Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus, Dissolved	ND	0.0014	mg/l							
LCS (W7E0758-BS1) Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus, Dissolved	0.0489	0.0014	mg/l	0.0500		98	90-110			
Matrix Spike (W7E0758-MS1) Source: 7E10095-01 Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus, Dissolved	0.0587	0.0014	mg/l	0.0500	0.00801	101	90-110			
Matrix Spike Dup (W7E0758-MSD1) Source: 7E10095-01 Prepared: 05/12/17 Analyzed: 05/15/17										
Phosphorus, Dissolved	0.0589	0.0014	mg/l	0.0500	0.00801	102	90-110	0.3	20	
Batch: W7E0862 - EPA 353.2										
Blank (W7E0862-BLK1) Prepared: 05/15/17 Analyzed: 05/16/17										
NO2+NO3 as N	ND	0.041	mg/l							



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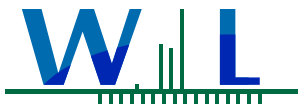
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7E0862 - EPA 353.2 (Continued)										
LCS (W7E0862-BS1)										
NO2+NO3 as N	1.02	0.041	mg/l	1.00		102	90-110			
				Prepared: 05/15/17 Analyzed: 05/16/17						
Matrix Spike (W7E0862-MS1)										
NO2+NO3 as N	3.50	0.041	mg/l	2.00	1.61	95	90-110			
				Source: 7E05007-01 Prepared: 05/15/17 Analyzed: 05/16/17						
Matrix Spike (W7E0862-MS2)										
NO2+NO3 as N	2.98	0.041	mg/l	2.00	1.14	92	90-110			
				Source: 7E10095-01 Prepared: 05/15/17 Analyzed: 05/16/17						
Matrix Spike Dup (W7E0862-MSD1)										
NO2+NO3 as N	3.47	0.041	mg/l	2.00	1.61	93	90-110	0.8	20	
				Source: 7E05007-01 Prepared: 05/15/17 Analyzed: 05/16/17						
Matrix Spike Dup (W7E0862-MSD2)										
NO2+NO3 as N	3.00	0.041	mg/l	2.00	1.14	93	90-110	0.5	20	
				Source: 7E10095-01 Prepared: 05/15/17 Analyzed: 05/16/17						
Batch: W7E0897 - EPA 351.2										
Blank (W7E0897-BLK1)										
TKN	ND	0.050	mg/l							
				Prepared: 05/15/17 Analyzed: 05/17/17						
Blank (W7E0897-BLK2)										
TKN	ND	0.050	mg/l							
				Prepared: 05/15/17 Analyzed: 05/17/17						
LCS (W7E0897-BS1)										
TKN	1.02	0.050	mg/l	1.00		102	90-110			
				Prepared: 05/15/17 Analyzed: 05/17/17						
LCS (W7E0897-BS2)										
TKN	1.03	0.050	mg/l	1.00		103	90-110			
				Prepared: 05/15/17 Analyzed: 05/17/17						



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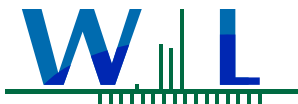
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7E0897 - EPA 351.2 (Continued)										
Matrix Spike (W7E0897-MS1)	Source: 7E09092-04		Prepared: 05/15/17		Analyzed: 05/17/17					
TKN	1.20	0.050	mg/l	1.00	0.210	99	90-110			
Matrix Spike (W7E0897-MS2)	Source: 7E09092-05		Prepared: 05/15/17		Analyzed: 05/17/17					
TKN	1.28	0.050	mg/l	1.00	0.223	106	90-110			
Matrix Spike Dup (W7E0897-MSD1)	Source: 7E09092-04		Prepared: 05/15/17		Analyzed: 05/17/17					
TKN	1.25	0.050	mg/l	1.00	0.210	104	90-110	4	10	
Matrix Spike Dup (W7E0897-MSD2)	Source: 7E09092-05		Prepared: 05/15/17		Analyzed: 05/17/17					
TKN	1.25	0.050	mg/l	1.00	0.223	102	90-110	3	10	
Batch: W7E0955 - EPA 351.2										
Blank (W7E0955-BLK1)	Source: 7E09092-04		Prepared: 05/16/17		Analyzed: 05/18/17					
TKN	ND	0.050	mg/l							
Blank (W7E0955-BLK2)	Source: 7E09092-05		Prepared: 05/16/17		Analyzed: 05/18/17					
TKN	ND	0.050	mg/l							
LCS (W7E0955-BS1)	Source: 7E09092-04		Prepared: 05/16/17		Analyzed: 05/18/17					
TKN	0.979	0.050	mg/l	1.00		98	90-110			
LCS (W7E0955-BS2)	Source: 7E09092-05		Prepared: 05/16/17		Analyzed: 05/18/17					
TKN	0.961	0.050	mg/l	1.00		96	90-110			
Matrix Spike (W7E0955-MS1)	Source: 7E12087-05		Prepared: 05/16/17		Analyzed: 05/18/17					
TKN	0.902	0.050	mg/l	1.00	ND	90	90-110			



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06/06/2017 17:30

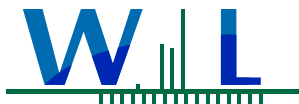
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7E0955 - EPA 351.2 (Continued)										
Matrix Spike (W7E0955-MS2) Source: 7E12087-47 Prepared: 05/16/17 Analyzed: 05/18/17										
TKN	0.925	0.050	mg/l	1.00	ND	92	90-110			
Matrix Spike Dup (W7E0955-MSD1) Source: 7E12087-05 Prepared: 05/16/17 Analyzed: 05/18/17										
TKN	0.965	0.050	mg/l	1.00	ND	96	90-110	7	10	
Matrix Spike Dup (W7E0955-MSD2) Source: 7E12087-47 Prepared: 05/16/17 Analyzed: 05/18/17										
TKN	0.920	0.050	mg/l	1.00	ND	92	90-110	0.5	10	
Batch: W7E1036 - EPA 351.2										
Blank (W7E1036-BLK1) Prepared: 05/17/17 Analyzed: 05/18/17										
TKN, Soluble	ND	0.050	mg/l							
LCS (W7E1036-BS1) Prepared: 05/17/17 Analyzed: 05/18/17										
TKN, Soluble	0.902	0.050	mg/l	1.00		90	90-110			
Matrix Spike (W7E1036-MS1) Source: 7E10095-01 Prepared: 05/17/17 Analyzed: 05/18/17										
TKN, Soluble	1.34	0.050	mg/l	1.00	0.260	108	90-110			
Matrix Spike Dup (W7E1036-MSD1) Source: 7E10095-01 Prepared: 05/17/17 Analyzed: 05/18/17										
TKN, Soluble	1.38	0.050	mg/l	1.00	0.260	112	90-110	3	10	MS-01



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800 South Victoria Avenue
Ventura, CA 93009

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FINAL REPORT

Project Number: TMDL Study May 2017 P6040555

Reported:
06/06/2017 17:30

Project Manager: Arne Anselm

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.



July 5th, 2017

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 May 9th-10th, 2017

Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	16	ug/cm2
TMDL-R2	1	11	35	ug/cm2
TMDL-R3	1	11	44	ug/cm2
TMDL-R4	1	11	11	ug/cm2
TMDL-CL	1	11	3.6	ug/cm2
TMDL-SA	1	11	26.0	ug/cm2
TMDL-Est	1	NA	1000	ug/L

Chain of 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	Address: Phone:
--	--	--	----------------------------------

Sample I.D. No.	Sample Date	Time	Matrix	Composite Volume/ No.	Reps	ANALYSIS													
						Chl-a													
TMDL-R4	05/09/17	0810	FW	412	1	X													
TMDL-SA	05/09/17	0950	FW	390	1	X													
TMDL-R3	05/09/17	1125	FW	370	1	X													
TMDL-CL	05/09/17	1310	FW	310	1	X													

Special Instructions:


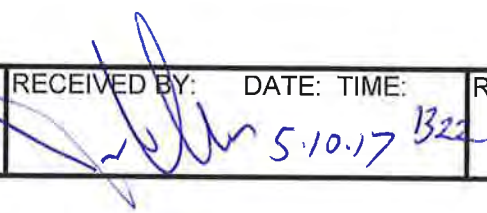
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	05/09/17	1415		5.9.17	1415						

Chain of 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	Address: Phone:
--	--	--	----------------------------------

Sample I.D. No.	Sample Date	Time	Matrix	Volume/ No.	Reps	ANALYSIS													
						Chl-a													
TMDL-R2	05/10/17	0810	FW	444	1	X													
TMDL-R1	05/10/17	1025	FW	459	1	X													
TMDL-EST	05/10/17	1200	FW	1000 1000	1	X													

Special Instructions:

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
	05/10/17	1322		5.10.17	1322						



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

June 20, 2017
Workorder 17060212

Karin
Aquatic Bioassay & Consulting
29 North Olive St.
Ventura, CA 93001

Project: VCWPD

Dear Karin:

It is the policy of Silver State Analytical Laboratory - Reno to strictly adhere to a comprehensive Quality Assurance Plan that ensures the data presented in this report are both accurate and precise. Silver State Analytical Laboratory - Reno maintains accreditation in the State of Nevada (NV-00015) and the State of California (ELAP 2990).

The data presented in this report was obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged with an appropriate explanation in the Analysis Report section of the Laboratory Report.

Sincerely,

Carly Wood
Laboratory Director
1135 Financial Blvd
Reno, NV 89502



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17060212

Date Reported: 6/20/2017

Client: Aquatic Bioassay & Consulting

Sampled By: Client

Project Name: VCWPD

PO #:

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-01	408M03047	05/30/2017 9:35	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	50	g/m ²	1	KL	06/16/2017 11:04	
Chlorophyll a	SM 10200 H	180	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-02	408M03052	05/30/2017 11:35	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	95	g/m ²	1	KL	06/16/2017 11:04	
Chlorophyll a	SM 10200 H	280	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-03	ME-CC	05/30/2017 7:30	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	88	g/m ²	1	KL	06/16/2017 11:04	
Chlorophyll a	SM 10200 H	210	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-04	403M01538	05/25/2017 7:30	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	47	g/m ²	1	KL	06/16/2017 11:04	
Chlorophyll a	SM 10200 H	230	mg/m ²	1	AM	06/20/2017 13:21	



Silver State Labs-Reno
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 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17060212
 Date Reported: 6/20/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-05	403M01553	05/25/2017 10:05	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	56	g/m ²	1	KL	06/16/2017 11:04	
Chlorophyll a	SM 10200 H	270	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-06	ME-SCR	05/25/2017 13:30	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	47	g/m ²	1	KL	06/16/2017 11:04	
Chlorophyll a	SM 10200 H	54	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-07	TMDL-CL	05/09/2017 13:10	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	36	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-08	TMDL-R4	05/09/2017 8:10	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	110	mg/m ²	1	AM	06/20/2017 13:21	



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17060212
 Date Reported: 6/20/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-09	TMDL-R3	05/09/2017 11:25	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	440	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-10	TMDL-SA	05/09/2017 9:50	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	260	mg/m ²	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-11	TMDL-Estuary	05/10/2017 12:00	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	1000	ug/L	1	AM	06/20/2017 13:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-12	TMDL-R1	05/10/2017 10:25	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	160	mg/m ²	1	AM	06/20/2017 13:21	



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17060212
 Date Reported: 6/20/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17060212-13	TMDL-R2	05/10/2017 8:10	6/6/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	350	mg/m ²	1	AM	06/20/2017 13:21	



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Quality Control Report

WO#: 17060212
6/20/2017

Analysis: Chlorophyll-a
Method: SM 10200 H

Batch ID: R7918

Method Blank

RunID: 7918 SeqNo 148096 Units: µg/L
Analysis Date: 6/20/2017 1:21:27 PM Analyst: AM

Analyte	Result	Rep Limit	Rep Qual
Chlorophyll a	< 1	1	

Laboratory Control Sample (LCS)

RunID: 7918 SeqNo 148097 Units: µg/L
Analysis Date: 6/20/2017 1:21:27 PM Analyst: AM

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chlorophyll a	1.000	1.17	117	1.000	1.17	117	0	20	70	130	

17060212
Chain of custody


From: Aquatic Bioassay and Consulting Labs.
29 N. Olive St.
Ventura, CA 93001

Phone: (805) 643-5621
Fax: (805) 643-2930
Project ID: VCWPP


To: Sierra Environmental
1135 Financial Blvd
Reno, NV 89502
Address:
Phone: (775) 857-2400

Sample I.D. No.	Sample Date	Time	Matrix	Volume/ No.	Filter Volume (mL)	Composite Volume (mL)	Area (cm ²)	ANALYSIS			
								Chl-a	AFDM		
408M03047	30-May-17	9:35	FW	2-petri	25	426	138.6	X	X		
408M03052	30-May-17	11:35	FW	2-petri	25	349	138.6	X	X		
ME-CC	30-May-17	7:30	FW	2-petri	25	374	138.6	X	X		
403M01538	25-May-17	7:30	FW	2-petri	25	480	138.6	X	X		
403M01553	25-May-17	10:05	FW	2-petri	25	462	138.6	X	X		
ME-SCR	25-May-17	13:30	FW	2-petri	25	516	138.6	X	X		
TMDL-CL	9-May-17	13:10	FW	2-petri	25	316	138.6	X			
TMDL-R4	9-May-17	8:10	FW	2-petri	25	412	138.6	X			
TMDL-R3	9-May-17	11:25	FW	2-petri	25	370	138.6	X			
TMDL-SA	9-May-17	9:50	FW	2-petri	25	390	138.6	X			
TMDL-Estuary	10-May-17	12:00	FW	2-petri	25	1000	N/A	X			
TMDL-R1	10-May-17	10:25	FW	2-petri	25	459	124	X			
TMDL-R2	10-May-17	8:10	FW	2-petri	25	444	138.6	X			

Special Instructions: Please email report to: karin@aquaticbio.org; No hard copy required
Please return cooler to Aquatic Bioassay aquaticbioassay.com

RELINQUISHED BY:  DATE: TIME: 05/17 0800

RELINQUISHED BY: _____ DATE: TIME: _____

RECEIVED BY:  DATE: TIME: 05/17 1200



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

Definitions & Qualifiers

WO#: 17060212
Date: 6/20/2017

Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.



Ventura River and Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL (VR Algae TMDL)

Comprehensive Monitoring Program

7716091

CHAIN-OF-CUSTODY RECORD

_____ 1 OF _____ 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY17MA01, Project P6040555)

SAMPLING EVENT: JUNE 2017

SAMPLING DATE: 6/14/17 + 6/15/17

SAMPLERS: S. CASEY

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen			No. Bottles	FIELD FILTERED
								NOTES
TMDL-Est	6/15/17 13:05	X	X	X			2	
TMDL-R1	↓ 11:20	X	X	X			2	
TMDL-R2	↓ 09:10	X	X	X			2	
TMDL-R3	6/14/17 12:10	X	X	X			2	
TMDL-R4	↓ 08:55	X	X	X			2	
TMDL-CL	6/15/17 07:40	X	X	X			2	
TMDL-SA	6/14/17 10:30	X	X	X			2	
TMDL-FD	↓ 12:10	X	X	X			2	(Note which site)

Signature: <i>Kelly Haas</i>	Signature: <i>Carlos Navarro</i>
Print Name: KELLY HAAS	Print Name: CARLOS NAVARRO
Affiliation: VCWPD	Affiliation: WECK LABS
Date/Time Received: _____	Date/Time Received: 6/16/17 / 1135
Date/Time Relinquished: 6/16/17 / 1135	Date/Time Relinquished: _____

Signature: <i>Carlos Navarro</i>	Signature: <i>Jayne Gomez</i>
Print Name: Carlos Navarro	Print Name: JAYNE GOMEZ
Affiliation: Weck Labs	Affiliation: Weck Labs
Date/Time Received: 6/16/17 323	Date/Time Received: 6/16/17 1523
Date/Time Relinquished: _____	Date/Time Relinquished: _____

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

Work Orders: 7F16091

Report Date: 7/05/2017

Project: TMDL Study June 2017 P6040555

Received Date: 6/16/2017

Turnaround Time: Normal

Phones: (805) 654-3942

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
7MA01

Attn: Arne Anselm

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 • 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 Arne Anselm,

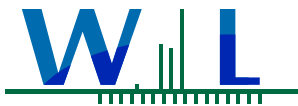
Enclosed are the results of analyses for samples received 6/16/17 with the Chain-of-Custody document. The samples were received in good condition, at 2.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:



Hai Van Nguyen
Senior Project Manager





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

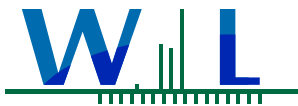
Project Number: TMDL Study June 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7F16091-01	Water	06/15/17 13:05	
TMDL-R1	S. Casey	7F16091-02	Water	06/15/17 11:20	
TMDL-R2	S. Casey	7F16091-03	Water	06/15/17 09:10	
TMDL-R3	S. Casey	7F16091-04	Water	06/14/17 12:10	
TMDL-R4	S. Casey	7F16091-05	Water	06/14/17 08:55	
TMDL-CL	S. Casey	7F16091-06	Water	06/15/17 07:40	
TMDL-SA	S. Casey	7F16091-07	Water	06/14/17 10:30	
TMDL-FD	S. Casey	7F16091-08	Water	06/14/17 12:10	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
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FINAL REPORT

Project Number: TMDL Study June 2017 P6040555

Reported:
07/05/2017 10:35

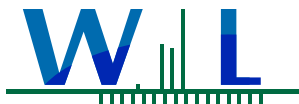
Project Manager: Arne Anselm

Sample Results

Sample: TMDL-Est
7F16091-01 (Water)

Sampled: 06/15/17 13:05 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]						Analyst: mnq
Dissolved Nitrogen	0.54		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]						Analyst: mnq
Nitrogen, Total	0.51		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327						Analyst: mnq
TKN	0.51	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468						Analyst: mnq
TKN, Soluble	0.54	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022						Analyst: AJK
NO2+NO3 as N	ND	0.041	0.10	mg/l	1x1	06/19/17 13:22	
Method: EPA 365.1	Batch ID: W7F1112						Analyst: nat
Phosphorus as P, Total	0.030	0.0014	0.010	mg/l	1x1	06/26/17 20:27	
Method: EPA 365.1	Batch ID: W7F1113						Analyst: nat
Phosphorus, Dissolved	0.0099	0.0014	0.010	mg/l	1x1	06/26/17 20:51	J



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study June 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

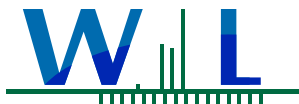
(Continued)

Sample: TMDL-R1

Sampled: 06/15/17 11:20 by S. Casey

7F16091-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	1.2		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	1.3		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	0.35	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	0.27	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	0.91	0.041	0.10	mg/l	1x1	06/19/17 13:24	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.038	0.0014	0.010	mg/l	1x1	06/26/17 20:34	
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.022	0.0014	0.010	mg/l	1x1	06/26/17 20:59	



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 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

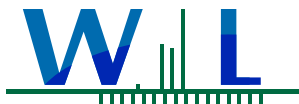
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Sample: TMDL-R2

Sampled: 06/15/17 9:10 by S. Casey

7F16091-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	2.4		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	2.5		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	0.38	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	0.25	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	2.1	0.041	0.10	mg/l	1x1	06/19/17 13:25	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.083	0.0014	0.010	mg/l	1x1	06/26/17 20:36	
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.070	0.0014	0.010	mg/l	1x1	06/26/17 21:00	



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 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

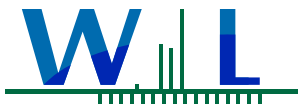
(Continued)

Sample: TMDL-R3

Sampled: 06/14/17 12:10 by S. Casey

7F16091-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	2.2		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	2.1		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	ND	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	0.066	0.050	0.10	mg/l	1x1	06/29/17 13:41	J
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	2.1	0.041	0.10	mg/l	1x1	06/19/17 13:27	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.011	0.0014	0.010	mg/l	1x1	06/26/17 20:37	
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.0090	0.0014	0.010	mg/l	1x1	06/26/17 21:02	J



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 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

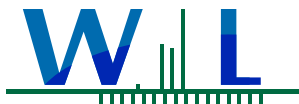
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Sample: TMDL-R4

Sampled: 06/14/17 8:55 by S. Casey

7F16091-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	2.8		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	2.8		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	ND	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	2.8	0.041	0.10	mg/l	1x1	06/19/17 13:29	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.0081	0.0014	0.010	mg/l	1x1	06/26/17 20:38	J
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.0069	0.0014	0.010	mg/l	1x1	06/26/17 21:03	J



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 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

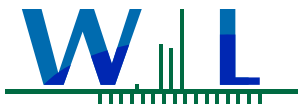
(Continued)

Sample: TMDL-CL

Sampled: 06/15/17 7:40 by S. Casey

7F16091-06 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	0.36		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	0.49		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	0.49	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	0.36	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	ND	0.041	0.10	mg/l	1x1	06/19/17 13:31	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.012	0.0014	0.010	mg/l	1x1	06/26/17 20:40	
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.0073	0.0014	0.010	mg/l	1x1	06/26/17 21:04	J



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 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

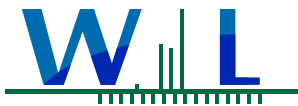
(Continued)

Sample: TMDL-SA

Sampled: 06/14/17 10:30 by S. Casey

7F16091-07 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	0.93		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	1		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	0.070	0.050	0.10	mg/l	1x1	06/26/17 18:23	J
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	0.93	0.041	0.10	mg/l	1x1	06/19/17 13:33	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.012	0.0014	0.010	mg/l	1x1	06/26/17 20:41	
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.0085	0.0014	0.010	mg/l	1x1	06/26/17 21:06	J



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 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Sample Results

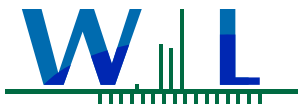
(Continued)

Sample: TMDL-FD

Sampled: 06/14/17 12:10 by S. Casey

7F16091-08 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 06/25/17 08:09			Analyst: mnq
Dissolved Nitrogen	2.2		0.20	mg/l	1x1	06/29/17 13:41	
Method: _Various	Batch ID: [CALC]			Prepared: 06/22/17 13:02			Analyst: mnq
Nitrogen, Total	2.2		0.20	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1327			Prepared: 06/22/17 13:02			Analyst: mnq
TKN	ND	0.050	0.10	mg/l	1x1	06/26/17 18:23	
Method: EPA 351.2	Batch ID: W7F1468			Prepared: 06/25/17 08:09			Analyst: mnq
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	06/29/17 13:41	
Method: EPA 353.2	Batch ID: W7F1022			Prepared: 06/19/17 11:52			Analyst: AJK
NO2+NO3 as N	2.2	0.041	0.10	mg/l	1x1	06/19/17 13:38	
Method: EPA 365.1	Batch ID: W7F1112			Prepared: 06/20/17 10:53			Analyst: nat
Phosphorus as P, Total	0.011	0.0014	0.010	mg/l	1x1	06/26/17 20:47	
Method: EPA 365.1	Batch ID: W7F1113			Prepared: 06/20/17 10:55			Analyst: nat
Phosphorus, Dissolved	0.0096	0.0014	0.010	mg/l	1x1	06/26/17 21:07	J



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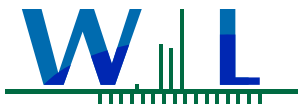
Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W7F1022 - EPA 353.2										
Blank (W7F1022-BLK1)				Prepared & Analyzed: 06/19/17						
NO2+NO3 as N	ND	0.041	mg/l							
LCS (W7F1022-BS1)				Prepared & Analyzed: 06/19/17						
NO2+NO3 as N	0.915	0.041	mg/l	1.00		92	90-110			
Matrix Spike (W7F1022-MS1)				Prepared & Analyzed: 06/19/17						
		Source: 7F19018-01								
NO2+NO3 as N	9.60	0.041	mg/l	2.00	7.55	102	90-110			
Matrix Spike (W7F1022-MS2)				Prepared & Analyzed: 06/19/17						
		Source: 7F19021-03								
NO2+NO3 as N	2.16	0.041	mg/l	2.00	0.296	93	90-110			
Matrix Spike Dup (W7F1022-MSD1)				Prepared & Analyzed: 06/19/17						
		Source: 7F19018-01								
NO2+NO3 as N	9.41	0.041	mg/l	2.00	7.55	93	90-110	2	20	
Matrix Spike Dup (W7F1022-MSD2)				Prepared & Analyzed: 06/19/17						
		Source: 7F19021-03								
NO2+NO3 as N	2.15	0.041	mg/l	2.00	0.296	93	90-110	0.5	20	
Batch: W7F1112 - EPA 365.1										
Blank (W7F1112-BLK1)				Prepared: 06/20/17 Analyzed: 06/26/17						
Phosphorus as P, Total	ND	0.0014	mg/l							
LCS (W7F1112-BS1)				Prepared: 06/20/17 Analyzed: 06/26/17						
Phosphorus as P, Total	0.0527	0.0014	mg/l	0.0500		105	90-110			
Matrix Spike (W7F1112-MS1)				Prepared: 06/20/17 Analyzed: 06/26/17						
		Source: 7F14103-01								
Phosphorus as P, Total	0.0619	0.0014	mg/l	0.0500	0.0100	104	90-110			



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FINAL REPORT

Ventura County Watershed Protection District
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Project Number: TMDL Study June 2017 P6040555

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07/05/2017 10:35

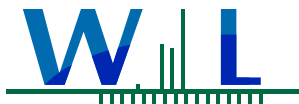
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7F1112 - EPA 365.1 (Continued)										
Matrix Spike (W7F1112-MS2)			Source: 7F16091-01		Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus as P, Total	0.0831	0.0014	mg/l	0.0500	0.0299	106	90-110			
Matrix Spike Dup (W7F1112-MSD1)			Source: 7F14103-01		Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus as P, Total	0.0610	0.0014	mg/l	0.0500	0.0100	102	90-110	1	20	
Matrix Spike Dup (W7F1112-MSD2)			Source: 7F16091-01		Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus as P, Total	0.0863	0.0014	mg/l	0.0500	0.0299	113	90-110	4	20	MS-01
Batch: W7F1113 - EPA 365.1										
Blank (W7F1113-BLK1)					Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus, Dissolved	ND	0.0014	mg/l							
LCS (W7F1113-BS1)					Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus, Dissolved	0.0517	0.0014	mg/l	0.0500		103	90-110			
Matrix Spike (W7F1113-MS1)			Source: 7F16091-01		Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus, Dissolved	0.0612	0.0014	mg/l	0.0500	0.00994	103	90-110			
Matrix Spike Dup (W7F1113-MSD1)			Source: 7F16091-01		Prepared: 06/20/17 Analyzed: 06/26/17					
Phosphorus, Dissolved	0.0612	0.0014	mg/l	0.0500	0.00994	103	90-110	0	20	
Batch: W7F1327 - EPA 351.2										
Blank (W7F1327-BLK1)					Prepared: 06/22/17 Analyzed: 06/26/17					
TKN	ND	0.050	mg/l							



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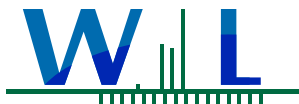
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7F1327 - EPA 351.2 (Continued)										
Blank (W7F1327-BLK2)										
TKN	ND	0.050	mg/l							
				Prepared: 06/22/17 Analyzed: 06/26/17						
LCS (W7F1327-BS1)										
TKN	0.966	0.050	mg/l	1.00		97	90-110			
				Prepared: 06/22/17 Analyzed: 06/26/17						
LCS (W7F1327-BS2)										
TKN	0.957	0.050	mg/l	1.00		96	90-110			
				Prepared: 06/22/17 Analyzed: 06/26/17						
Duplicate (W7F1327-DUP1)										
TKN	0.217	0.050	mg/l		0.212			2	10	
				Source: 7F20074-05 Prepared: 06/22/17 Analyzed: 06/26/17						
Matrix Spike (W7F1327-MS1)										
TKN	1.28	0.050	mg/l	1.00	0.281	99	90-110			
				Source: 7F20074-03 Prepared: 06/22/17 Analyzed: 06/26/17						
Matrix Spike (W7F1327-MS2)										
TKN	1.27	0.050	mg/l	1.00	0.186	108	90-110			
				Source: 7F20074-04 Prepared: 06/22/17 Analyzed: 06/26/17						
Matrix Spike Dup (W7F1327-MSD1)										
TKN	1.21	0.050	mg/l	1.00	0.281	93	90-110	5	10	
				Source: 7F20074-03 Prepared: 06/22/17 Analyzed: 06/26/17						
Matrix Spike Dup (W7F1327-MSD2)										
TKN	1.24	0.050	mg/l	1.00	0.186	106	90-110	2	10	
				Source: 7F20074-04 Prepared: 06/22/17 Analyzed: 06/26/17						
Batch: W7F1468 - EPA 351.2										
Blank (W7F1468-BLK1)										
TKN, Soluble	ND	0.050	mg/l							
				Prepared: 06/25/17 Analyzed: 06/29/17						



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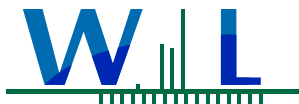
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7F1468 - EPA 351.2 (Continued)										
Blank (W7F1468-BLK2)										
TKN, Soluble	ND	0.050	mg/l							
				Prepared: 06/25/17 Analyzed: 06/29/17						
LCS (W7F1468-BS1)										
TKN, Soluble	0.951	0.050	mg/l	1.00		95	90-110			
				Prepared: 06/25/17 Analyzed: 06/29/17						
LCS (W7F1468-BS2)										
TKN, Soluble	1.04	0.050	mg/l	1.00		104	90-110			
				Prepared: 06/25/17 Analyzed: 06/29/17						
Matrix Spike (W7F1468-MS1)										
TKN, Soluble	1.47	0.050	mg/l	1.00	0.540	93	90-110			
				Source: 7F16091-01 Prepared: 06/25/17 Analyzed: 06/29/17						
Matrix Spike (W7F1468-MS2)										
TKN, Soluble	1.55	0.050	mg/l	1.00	0.540	101	90-110			
				Source: 7F16091-01 Prepared: 06/25/17 Analyzed: 06/29/17						
Matrix Spike Dup (W7F1468-MSD1)										
TKN, Soluble	1.51	0.050	mg/l	1.00	0.540	97	90-110	2	10	
				Source: 7F16091-01 Prepared: 06/25/17 Analyzed: 06/29/17						
Matrix Spike Dup (W7F1468-MSD2)										
TKN, Soluble	1.51	0.050	mg/l	1.00	0.540	97	90-110	3	10	
				Source: 7F16091-01 Prepared: 06/25/17 Analyzed: 06/29/17						



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Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study June 2017 P6040555

Reported:
07/05/2017 10:35

Project Manager: Arne Anselm

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.



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

July 10, 2017
Workorder 17061086

Karin
Aquatic Bioassay & Consulting
29 North Olive St.
Ventura, CA 93001

Project: VCWPD

Dear Karin:

It is the policy of Silver State Analytical Laboratory - Reno to strictly adhere to a comprehensive Quality Assurance Plan that ensures the data presented in this report are both accurate and precise. Silver State Analytical Laboratory - Reno maintains accreditation in the State of Nevada (NV-00015) and the State of California (ELAP 2990).

The data presented in this report was obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged with an appropriate explanation in the Analysis Report section of the Laboratory Report.

Sincerely,

A handwritten signature in black ink that reads 'Carly Wood'.

Carly Wood
Laboratory Director
1135 Financial Blvd
Reno, NV 89502



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17061086
 Date Reported: 7/10/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-01	TMDL-R4	06/14/2017 8:55	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	240	mg/m ²	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-02	TMDL-SA	06/14/2017 10:30	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	450	mg/m ²	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-03	TMDL-R3	06/14/2017 12:10	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	360	mg/m ²	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-04	TMDL-R3 Dup	06/14/2017 12:10	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	220	mg/m ²	1	AM	07/06/2017 20:54	



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Analytical Report

Workorder#: 17061086
Date Reported: 7/10/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-05	TMDL-CL	06/15/2017 7:40	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	22	mg/m ²	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-06	TMDL-R2	06/15/2017 9:10	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	520	mg/m ²	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-07	TMDL-R1	06/15/2017 11:20	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	440	mg/m ²	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-08	TMDL-Est	06/15/2017 12:40	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	160	µg/L	1	AM	07/06/2017 20:54	



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Analytical Report

Workorder#: 17061086
 Date Reported: 7/10/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-09	TMDL-Est Dup	06/15/2017 12:40	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	56	µg/L	1	AM	07/06/2017 20:54	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17061086-10	SMC00027	06/13/2017 11:05	6/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Ash Free Dry Mass	SM 2540G	25	g/m ²	1	KL	06/29/2017 9:29	
Chlorophyll a	SM 10200 H	11	mg/m ²	1	AM	07/06/2017 20:54	

Analysis: Chlorophyll-a

Method: SM 10200 H

Batch ID: R8453

Method Blank

RunID: 8453 SeqNo 159738 Units: µg/L

Analysis Date: 7/6/2017 8:54:00 PM Analyst: AM

Analyte	Result	Rep Limit	Rep Qual
Chlorophyll a	< 1.0	1.0	

Laboratory Control Sample (LCS)

RunID: 8453 SeqNo 159739 Units: µg/L

Analysis Date: 7/6/2017 8:54:00 PM Analyst: AM

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chlorophyll a	1.000	1.04	104								

Laboratory Control Sample (LCS)

RunID: 8453 SeqNo 159740 Units: µg/L

Analysis Date: 7/6/2017 8:54:00 PM Analyst: AM

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chlorophyll a	1.000	1.04	104								



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Definitions & Qualifiers

WO#: 17061086

Date: 7/10/2017

Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.



July 12th, 2017

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 14th-15th, 2017



Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	44	ug/cm2
TMDL-R2	1	11	52	ug/cm2
TMDL-R3	1	11	36	ug/cm2
TMDL-R3	2	11	22	ug/cm2
TMDL-R4	1	11	24	ug/cm2
TMDL-CL	1	11	2.2	ug/cm2
TMDL-SA	1	9	45	ug/cm2
TMDL-Est	1	NA	160	ug/L
TMDL-Est	2	NA	56	ug/L

Chain of 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	Address: Phone:
--	--	--	----------------------------------

Sample I.D. No.	Sample Date	Time	Matrix	Composite Volume/ No.	Reps	ANALYSIS														
						Chl-a														
TMDL-R4	06/14/17	0855	FW	292	1	X														
TMDL-SA	06/14/17	1030	FW	344	1	X														
TMDL-R3	06/14/17	1210	FW	370	1	X														
TMDL-R3	06/14/17	1210	FW	350	2	X														
TMDL-CL	06/15/17	0740	FW	274	1	X														
TMDL-R2	06/15/17	0910	FW	528	1	X														
TMDL-R1	06/15/17	1120	FW	590	1	X														
TMDL-Est	06/15/17	1240	FW	1000	1	X														
TMDL-Est	06/15/17	1240	FW	1000	2	X														

Special Instructions:

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
	06/15/17	1425		6/15/17	1425						



Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)

7614069

Comprehensive Monitoring Program

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: JULY 2017

SAMPLING DATE: 7/12/2017 7/13/2017

SAMPLERS: S. CASEY

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Nutrients			FIELD FILTERED
		Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	
TMDL-Est	7/13/2017 1000	X	X	X	
TMDL-R1	↓ 0815	X	X	X	
TMDL-R2	7/12/2017 1310	X	X	X	
TMDL-R3	↓ 1120	X	X	X	
TMDL-R4	↓ 0800	X	X	X	
TMDL-CL	7/13/2017 1115	X	X	X	
TMDL-SA	7/12/2017 0948	X	X	X	
TMDL-FD		X	X	X	(Note which site)

Signature: <u>Kelly Hahs</u>	Signature: <u>[Signature]</u>
Print Name: <u>KELLY HAHS</u>	Print Name: <u>CARLOS NAVARRO</u>
Affiliation: <u>VCWPD</u>	Affiliation: <u>WECK LABS</u>
Date/Time Received: <u>7/14/17 1135</u>	Date/Time Received: <u>7/14/17 1135</u>
Date/Time Relinquished: <u>7/14/17 1135</u>	Date/Time Relinquished: <u>1135</u>

Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>
Print Name: <u>Carlos Navarro</u>	Print Name: <u>Jane Gorel</u>
Affiliation: <u>WECK LABS</u>	Affiliation: <u>WECK LABS</u>
Date/Time Received: <u>7/14/17 310</u>	Date/Time Received: <u>7/14/17 1510</u>
Date/Time Relinquished:	Date/Time Relinquished:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

1.7c



Certificate of Analysis

FINAL REPORT

Work Orders: 7G14069

Report Date: 8/28/2017

Project: TMDL Study July 2017 P6040555

Received Date: 7/14/2017

Turnaround Time: Normal

Phones: (805) 654-3942

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
8MA01

Attn: Arne Anselm

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-OR #4047 • NJ-DEP #CA015 • 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.

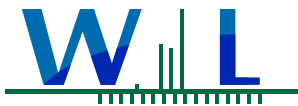
Dear Arne Anselm,

Enclosed are the results of analyses for samples received 7/14/17 with the Chain-of-Custody document. The samples were received in good condition, at 1.7 °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:

Hai Van Nguyen
Senior Project Manager





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

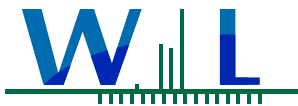
Project Number: TMDL Study July 2017 P6040555

Reported:
08/28/2017 09:42

Project Manager: Arne Anselm

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7G14069-01	Water	07/13/17 10:00	
TMDL-R1	S. Casey	7G14069-02	Water	07/13/17 08:15	
TMDL-R2	S. Casey	7G14069-03	Water	07/12/17 13:10	
TMDL-R3	S. Casey	7G14069-04	Water	07/12/17 11:20	
TMDL-R4	S. Casey	7G14069-05	Water	07/12/17 08:00	
TMDL-CL	S. Casey	7G14069-06	Water	07/13/17 11:15	
TMDL-SA	S. Casey	7G14069-07	Water	07/12/17 09:45	



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study July 2017 P6040555

Reported:
08/28/2017 09:42

Project Manager: Arne Anselm

Sample Results

Sample: TMDL-Est

Sampled: 07/13/17 10:00 by S. Casey

7G14069-01 (Water)

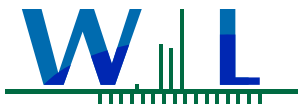
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 07/24/17 10:16			Analyst: mnq
Dissolved Nitrogen	0.42		0.20	mg/l	1x1	07/25/17 17:28	
Method: _Various	Batch ID: [CALC]			Prepared: 07/24/17 10:16			Analyst: mnq
Nitrogen, Total	0.53		0.20	mg/l	1x1	07/24/17 15:17	
Method: EPA 351.2	Batch ID: W7G0894			Prepared: 07/16/17 09:15			Analyst: mnq
TKN	0.53	0.050	0.10	mg/l	1x1	07/19/17 15:31	
Method: EPA 351.2	Batch ID: W7G1332			Prepared: 07/23/17 08:21			Analyst: mnq
TKN, Soluble	0.42	0.050	0.10	mg/l	1x1	07/25/17 17:28	
Method: EPA 353.2	Batch ID: W7G1357			Prepared: 07/24/17 10:16			Analyst: AJK
NO2+NO3 as N	ND	0.041	0.10	mg/l	1x1	07/24/17 15:17	
Method: EPA 365.1	Batch ID: W7G1021			Prepared: 07/18/17 11:22			Analyst: nat
Phosphorus as P, Total	0.050	0.0014	0.010	mg/l	1x1	07/22/17 11:57	
Method: EPA 365.1	Batch ID: W7G1022			Prepared: 07/18/17 11:24			Analyst: nat
Phosphorus, Dissolved	0.014	0.0014	0.010	mg/l	1x1	07/22/17 11:32	

Sample: TMDL-R1

Sampled: 07/13/17 8:15 by S. Casey

7G14069-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 07/24/17 10:16			Analyst: mnq
Dissolved Nitrogen	1.1		0.20	mg/l	1x1	07/25/17 17:28	
Method: _Various	Batch ID: [CALC]			Prepared: 07/24/17 10:16			Analyst: mnq
Nitrogen, Total	0.91		0.20	mg/l	1x1	07/24/17 15:24	
Method: EPA 351.2	Batch ID: W7G0894			Prepared: 07/16/17 09:15			Analyst: mnq
TKN	0.30	0.050	0.10	mg/l	1x1	07/19/17 15:31	
Method: EPA 351.2	Batch ID: W7G1332			Prepared: 07/23/17 08:21			Analyst: mnq
TKN, Soluble	0.44	0.050	0.10	mg/l	1x1	07/25/17 17:28	
Method: EPA 353.2	Batch ID: W7G1357			Prepared: 07/24/17 10:16			Analyst: AJK
NO2+NO3 as N	0.61	0.041	0.10	mg/l	1x1	07/24/17 15:24	
Method: EPA 365.1	Batch ID: W7G1021			Prepared: 07/18/17 11:22			Analyst: nat
Phosphorus as P, Total	0.042	0.0014	0.010	mg/l	1x1	07/22/17 12:04	
Method: EPA 365.1	Batch ID: W7G1022			Prepared: 07/18/17 11:24			Analyst: nat
Phosphorus, Dissolved	0.030	0.0014	0.010	mg/l	1x1	07/22/17 11:34	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study July 2017 P6040555

Reported:
08/28/2017 09:42

Project Manager: Arne Anselm

Sample Results

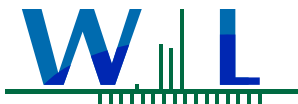
(Continued)

Sample: TMDL-R2
7G14069-03 (Water) Sampled: 07/12/17 13:10 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	2.1		0.20	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: _Various Nitrogen, Total	2.1		0.20	mg/l	1x1	07/24/17 15:37	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: EPA 351.2 TKN	0.36	0.050	0.10	mg/l	1x1	07/19/17 15:31	Analyst: mnq
Batch ID: W7G0894							
Prepared: 07/16/17 09:15							
Method: EPA 351.2 TKN, Soluble	0.37	0.050	0.10	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: W7G1332							
Prepared: 07/23/17 08:21							
Method: EPA 353.2 NO2+NO3 as N	1.8	0.041	0.10	mg/l	1x1	07/24/17 15:37	Analyst: AJK
Batch ID: W7G1357							
Prepared: 07/24/17 10:16							
Method: EPA 365.1 Phosphorus as P, Total	0.095	0.0014	0.010	mg/l	1x1	07/22/17 12:06	Analyst: nat
Batch ID: W7G1021							
Prepared: 07/18/17 11:22							
Method: EPA 365.1 Phosphorus, Dissolved	0.080	0.0014	0.010	mg/l	1x1	07/22/17 11:35	Analyst: nat
Batch ID: W7G1022							
Prepared: 07/18/17 11:24							

Sample: TMDL-R3
7G14069-04 (Water) Sampled: 07/12/17 11:20 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.8		0.20	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: _Various Nitrogen, Total	1.7		0.20	mg/l	1x1	07/24/17 15:40	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: EPA 351.2 TKN	ND	0.050	0.10	mg/l	1x1	07/19/17 15:31	Analyst: mnq
Batch ID: W7G0894							
Prepared: 07/16/17 09:15							
Method: EPA 351.2 TKN, Soluble	0.079	0.050	0.10	mg/l	1x1	07/25/17 17:28	Analyst: mnq J
Batch ID: W7G1332							
Prepared: 07/23/17 08:21							
Method: EPA 353.2 NO2+NO3 as N	1.7	0.041	0.10	mg/l	1x1	07/24/17 15:40	Analyst: AJK
Batch ID: W7G1357							
Prepared: 07/24/17 10:16							
Method: EPA 365.1 Phosphorus as P, Total	0.013	0.0014	0.010	mg/l	1x1	07/22/17 12:07	Analyst: nat
Batch ID: W7G1021							
Prepared: 07/18/17 11:22							
Method: EPA 365.1 Phosphorus, Dissolved	0.011	0.0014	0.010	mg/l	1x1	07/22/17 11:37	Analyst: nat
Batch ID: W7G1022							
Prepared: 07/18/17 11:24							



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study July 2017 P6040555

Reported:
08/28/2017 09:42

Project Manager: Arne Anselm

Sample Results

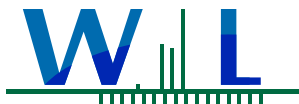
(Continued)

Sample: TMDL-R4
7G14069-05 (Water) Sampled: 07/12/17 8:00 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	2.3		0.20	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: _Various Nitrogen, Total	2.3		0.20	mg/l	1x1	07/24/17 15:42	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: EPA 351.2 TKN	ND	0.050	0.10	mg/l	1x1	07/19/17 15:31	Analyst: mnq
Batch ID: W7G0894							
Prepared: 07/16/17 09:15							
Method: EPA 351.2 TKN, Soluble	ND	0.050	0.10	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: W7G1332							
Prepared: 07/23/17 08:21							
Method: EPA 353.2 NO2+NO3 as N	2.3	0.041	0.10	mg/l	1x1	07/24/17 15:42	Analyst: AJK
Batch ID: W7G1357							
Prepared: 07/24/17 10:16							
Method: EPA 365.1 Phosphorus as P, Total	0.0088	0.0014	0.010	mg/l	1x1	07/22/17 12:08	Analyst: nat J
Batch ID: W7G1021							
Prepared: 07/18/17 11:22							
Method: EPA 365.1 Phosphorus, Dissolved	0.0083	0.0014	0.010	mg/l	1x1	07/22/17 11:38	Analyst: nat J
Batch ID: W7G1022							
Prepared: 07/18/17 11:24							

Sample: TMDL-CL
7G14069-06 (Water) Sampled: 07/13/17 11:15 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.66		0.20	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: _Various Nitrogen, Total	0.62		0.20	mg/l	1x1	07/24/17 15:44	Analyst: mnq
Batch ID: [CALC]							
Prepared: 07/24/17 10:16							
Method: EPA 351.2 TKN	0.58	0.050	0.10	mg/l	1x1	07/19/17 15:31	Analyst: mnq
Batch ID: W7G0894							
Prepared: 07/16/17 09:15							
Method: EPA 351.2 TKN, Soluble	0.61	0.050	0.10	mg/l	1x1	07/25/17 17:28	Analyst: mnq
Batch ID: W7G1332							
Prepared: 07/23/17 08:21							
Method: EPA 353.2 NO2+NO3 as N	0.047	0.041	0.10	mg/l	1x1	07/24/17 15:44	Analyst: AJK J
Batch ID: W7G1357							
Prepared: 07/24/17 10:16							
Method: EPA 365.1 Phosphorus as P, Total	0.017	0.0014	0.010	mg/l	1x1	07/22/17 12:10	Analyst: nat
Batch ID: W7G1021							
Prepared: 07/18/17 11:22							
Method: EPA 365.1 Phosphorus, Dissolved	0.0085	0.0014	0.010	mg/l	1x1	07/22/17 11:40	Analyst: nat J
Batch ID: W7G1022							
Prepared: 07/18/17 11:24							



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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08/28/2017 09:42

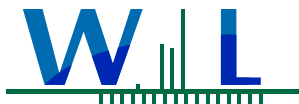
Project Manager: Arne Anselm

Sample Results

(Continued)

Sample: TMDL-SA
7G14069-07 (Water) Sampled: 07/12/17 9:45 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Prepared: 07/24/17 10:16			Analyst: mnq	
Dissolved Nitrogen	1.1		0.20	mg/l	1x1	07/25/17 17:28	
Method: _Various	Batch ID: [CALC]		Prepared: 07/24/17 10:16			Analyst: mnq	
Nitrogen, Total	1.3		0.20	mg/l	1x1	07/24/17 15:47	
Method: EPA 351.2	Batch ID: W7G0894		Prepared: 07/16/17 09:15			Analyst: mnq	
TKN	0.14	0.050	0.10	mg/l	1x1	07/19/17 15:31	
Method: EPA 351.2	Batch ID: W7G1332		Prepared: 07/23/17 08:21			Analyst: mnq	
TKN, Soluble	ND	0.050	0.10	mg/l	1x1	07/25/17 17:28	
Method: EPA 353.2	Batch ID: W7G1357		Prepared: 07/24/17 10:16			Analyst: AJK	
NO2+NO3 as N	1.1	0.041	0.10	mg/l	1x1	07/24/17 15:47	
Method: EPA 365.1	Batch ID: W7G1021		Prepared: 07/18/17 11:22			Analyst: nat	
Phosphorus as P, Total	0.023	0.0014	0.010	mg/l	1x1	07/22/17 12:11	
Method: EPA 365.1	Batch ID: W7G1022		Prepared: 07/18/17 11:24			Analyst: nat	
Phosphorus, Dissolved	0.017	0.0014	0.010	mg/l	1x1	07/22/17 11:41	



WECK LABORATORIES, INC.

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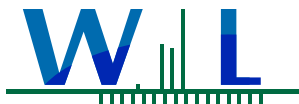
Reported:
08/28/2017 09:42

Project Manager: Arne Anselm

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7G0894 - EPA 351.2										
Blank (W7G0894-BLK1) Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	ND	0.050	mg/l							
Blank (W7G0894-BLK2) Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	ND	0.050	mg/l							
LCS (W7G0894-BS1) Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	0.988	0.050	mg/l	1.00		99	90-110			
LCS (W7G0894-BS2) Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	0.994	0.050	mg/l	1.00		99	90-110			
Matrix Spike (W7G0894-MS1) Source: 7G14100-03 Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	1.33	0.050	mg/l	1.00	0.271	106	90-110			
Matrix Spike (W7G0894-MS2) Source: 7G14100-04 Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	1.65	0.050	mg/l	1.00	0.609	104	90-110			
Matrix Spike Dup (W7G0894-MSD1) Source: 7G14100-03 Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	1.29	0.050	mg/l	1.00	0.271	102	90-110	3	10	
Matrix Spike Dup (W7G0894-MSD2) Source: 7G14100-04 Prepared: 07/16/17 Analyzed: 07/19/17										
TKN	1.67	0.050	mg/l	1.00	0.609	107	90-110	2	10	
Batch: W7G1021 - EPA 365.1										
Blank (W7G1021-BLK1) Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus as P, Total	ND	0.0014	mg/l							
LCS (W7G1021-BS1) Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus as P, Total	0.0510	0.0014	mg/l	0.0500		102	90-110			
Matrix Spike (W7G1021-MS1) Source: 7G14069-01 Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus as P, Total	0.104	0.0014	mg/l	0.0500	0.0502	108	90-110			
Matrix Spike Dup (W7G1021-MSD1) Source: 7G14069-01 Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus as P, Total	0.104	0.0014	mg/l	0.0500	0.0502	108	90-110	0	20	
Batch: W7G1022 - EPA 365.1										
Blank (W7G1022-BLK1) Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus, Dissolved	0.00206	0.0014	mg/l							J
LCS (W7G1022-BS1) Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus, Dissolved	0.0549	0.0014	mg/l	0.0500		110	90-110			
Matrix Spike (W7G1022-MS1) Source: 7G14069-01 Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus, Dissolved	0.0687	0.0014	mg/l	0.0500	0.0145	108	90-110			
Matrix Spike Dup (W7G1022-MSD1) Source: 7G14069-01 Prepared: 07/18/17 Analyzed: 07/22/17										
Phosphorus, Dissolved	0.0689	0.0014	mg/l	0.0500	0.0145	109	90-110	0.3	20	
Batch: W7G1332 - EPA 351.2										
Blank (W7G1332-BLK1) Prepared: 07/23/17 Analyzed: 07/25/17										
TKN, Soluble	ND	0.050	mg/l							



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study July 2017 P6040555

Reported:
08/28/2017 09:42

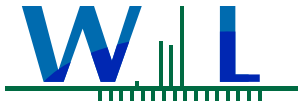
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7G1332 - EPA 351.2 (Continued)										
LCS (W7G1332-BS1)										
TKN, Soluble	1.01	0.050	mg/l	1.00		101	90-110			
				Prepared: 07/23/17 Analyzed: 07/25/17						
Matrix Spike (W7G1332-MS1)										
TKN, Soluble	1.40	0.050	mg/l	1.00	0.442	96	90-110			
				Source: 7G14069-02 Prepared: 07/23/17 Analyzed: 07/25/17						
Matrix Spike Dup (W7G1332-MSD1)										
TKN, Soluble	1.34	0.050	mg/l	1.00	0.442	90	90-110	4	10	
Batch: W7G1357 - EPA 353.2										
Blank (W7G1357-BLK1)										
NO2+NO3 as N	ND	0.041	mg/l							
				Prepared & Analyzed: 07/24/17						
LCS (W7G1357-BS1)										
NO2+NO3 as N	1.06	0.041	mg/l	1.00		106	90-110			
				Prepared & Analyzed: 07/24/17						
Matrix Spike (W7G1357-MS1)										
NO2+NO3 as N	2.02	0.041	mg/l	2.00	ND	101	90-110			
				Source: 7G14069-01 Prepared & Analyzed: 07/24/17						
Matrix Spike (W7G1357-MS2)										
NO2+NO3 as N	2.56	0.041	mg/l	2.00	0.612	97	90-110			
				Source: 7G14069-02 Prepared & Analyzed: 07/24/17						
Matrix Spike Dup (W7G1357-MSD1)										
NO2+NO3 as N	2.07	0.041	mg/l	2.00	ND	103	90-110	3	20	
				Source: 7G14069-01 Prepared & Analyzed: 07/24/17						
Matrix Spike Dup (W7G1357-MSD2)										
NO2+NO3 as N	2.57	0.041	mg/l	2.00	0.612	98	90-110	0.6	20	
				Source: 7G14069-02 Prepared & Analyzed: 07/24/17						



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study July 2017 P6040555

Reported:
08/28/2017 09:42

Project Manager: Arne Anselm



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.



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

August 08, 2017
Workorder 17071101

Karin
Aquatic Bioassay & Consulting
29 North Olive St.
Ventura, CA 93001

Project: VCWPD TMDL

Dear Karin:

It is the policy of Silver State Analytical Laboratory - Reno to strictly adhere to a comprehensive Quality Assurance Plan that ensures the data presented in this report are both accurate and precise. Silver State Analytical Laboratory - Reno maintains accreditation in the State of Nevada (NV-00015) and the State of California (ELAP 2990).

The data presented in this report was obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged with an appropriate explanation in the Analysis Report section of the Laboratory Report.

Sincerely,

Carly Wood
Laboratory Director
1135 Financial Blvd
Reno, NV 89502



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17071101
 Date Reported: 8/8/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD TMDL
PO #:

Sampled By: client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-01	TMDL-R4	07/12/2017 8:00	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	110	mg/m ²	1	AM	08/06/2017 16:00	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-02	TMDL-SA	07/12/2017 9:45	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	190	mg/m ²	1	AM	08/06/2017 16:00	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-03	TMDL-R3	07/12/2017 11:20	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	100	mg/m ²	1	AM	08/06/2017 16:00	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-04	TMDL-R2	07/12/2017 13:10	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	420	mg/m ²	1	AM	08/06/2017 16:00	



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www.ssalabs.com

Analytical Report

Workorder#: 17071101
Date Reported: 8/8/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD TMDL
PO #:

Sampled By: client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-05	TMDL-R1	07/13/2017 8:15	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	280	mg/m ²	1	AM	08/06/2017 16:00	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-06	TMDL-Est	07/13/2017 10:00	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	270	µg/L	1	AM	08/06/2017 16:00	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17071101-07	TMDL-CL	07/13/2017 11:15	7/25/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	110	mg/m ²	1	AM	08/06/2017 16:00	



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Reno, NV 89502
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www.ssalabs.com

Quality Control Report

WO#: 17071101
8/8/2017

Analysis: Chlorophyll-a
Method: SM 10200 H

Batch ID: R9382

Method Blank

RunID: 9382 SeqNo 179761 Units: µg/L
Analysis Date: 8/6/2017 4:00:00 PM Analyst: AM

Analyte	Result	Rep Limit	Rep Qual
Chlorophyll a	< 1	1	

Laboratory Control Sample (LCS)

RunID: 9382 SeqNo 179762 Units: µg/L
Analysis Date: 8/6/2017 4:00:00 PM Analyst: AM

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chlorophyll a	1.000	1.06	106	1.000	1.1	106	0	20	70	130	

17071101
Chain of Custody

From: Aquatic Bioassay and Consulting Labs.
29 N. Olive St.
Ventura, CA 93001

Phone: (805) 643-5621
Fax: (805) 643-2930
Project ID: VCWPPD TMDL

To: Company: Sierra Environmental
Address: 1135 Financial Blvd
Reno, NV 89502
Phone: (775) 857-2400

ANALYSIS

Sample I.D. No.	Sample Date	Time	Matrix	Volume/ No.	Filter Volume (mL)	Composite Volume (mL)	Area (cm ²)	Chl-a										
TMDL-R4	12-Jul-17	8:00	FW	2-petri	25	348	138.6	X										
TMDL-SA	12-Jul-17	9:45	FW	2-petri	25	180	50.4*	X										
TMDL-R3	12-Jul-17	11:20	FW	2-petri	25	502	138.6	X										
TMDL-R2	12-Jul-17	13:10	FW	2-petri	25	490	138.6	X										
TMDL-R1	13-Jul-17	8:15	FW	2-petri	25	419	136**	X										
TMDL-Est	13-Jul-17	10:00	FW	2-petri	250	1000	NA	X										
TMDL-CL	13-Jul-17	11:15	FW	2-petri	25	360	138.6	X										

Special Instructions: Please email report to: karin@aquaticbioassay.com; No hard copy required
Please return cooler to Aquatic Bioassay
*only 4 of 11 transects were sampled ** only 10 of 11 transects were sampled

RELINQUISHED BY: *Karin Johnson* **DATE:** 07/24/17, 1300 **RECEIVED BY:** *[Signature]* **DATE:** 7/25/17 10:25A

RELINQUISHED BY: **DATE:** **RELINQUISHED BY:** **DATE:** **RECEIVED BY:** **DATE:** **RECEIVED BY:** **DATE:**



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

Definitions & Qualifiers

WO#: 17071101

Date: 8/8/2017

Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.



August 9th, 2017

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 July 12th-13th, 2017

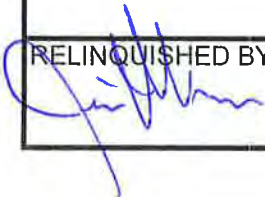
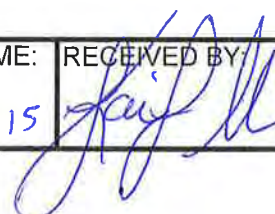
Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	28	ug/cm2
TMDL-R2	1	11	42	ug/cm2
TMDL-R3	1	11	10	ug/cm2
TMDL-R4	1	11	11	ug/cm2
TMDL-CL	1	11	11	ug/cm2
TMDL-SA	1	4	19	ug/cm2
TMDL-Est	1	NA	270	ug/L

Chain of custody

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 Address: 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														
TMDL R4	7-12-17	0800	H ₂ O	348		X														
TMDL SA	7-12-17	0945	H ₂ O	180		X														
TMDL R3	7-12-17	1120	H ₂ O	502		X														
TMDL R2	7-12-17	1310	H ₂ O	490		X														

Special Instructions:

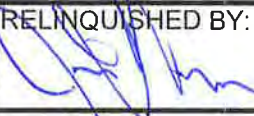
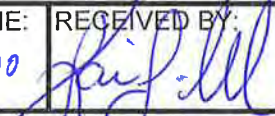
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
	7-12-17	1515		7-13-17	1310						

Chain of custody

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:
---	---	--

						ANALYSIS												
Sample I.D. No.	Sample Date	Time	Matrix	Composite Volume/ No.	Reps	Chl-a												
TMDL R-1	7-13-17	0815	H ₂ O	419		X												
TMDL EST	7-13-17	1000	H ₂ O	1000		X												
TMDL CL	7-13-17	1115	H ₂ O	360		X												

Special Instructions:

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
	7-13-17	1310		7-13-17	1310						



**Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)**

Comprehensive Monitoring Program

7H16080

CHAIN-OF-CUSTODY RECORD

_____ 1 OF _____ 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: AUGUST 2017

SAMPLING DATE: 8/15/17 + 8/16/17

SAMPLERS: S. CASEY

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	FIELD FILTERED			NOTES
TMDL-Est	8/16/17 11:30	X	X	X				
TMDL-R1	↓ 09:40	X	X	X				
TMDL-R2	8/15/17 12:15	X	X	X				
TMDL-R3	↓ 10:30	X	X	X				
TMDL-R4	↓ 07:55	X	X	X				
TMDL-CL	_____	X	X	X				(DRY)
TMDL-SA	8/15/17 09:40	X	X	X				
TMDL-FD	_____	X	X	X				(Note which site)

Signature: <u>Kelly Haas</u>	Signature: <u>Carlos Navarro</u>
Print Name: <u>KELLY HAAS</u>	Print Name: <u>CARLOS NAVARRO</u>
Affiliation: <u>VCWPP</u>	Affiliation: <u>WECK LABS</u>
Date/Time Received: _____	Date/Time Received: <u>8/16/17</u>
Date/Time Relinquished: <u>8/16/17 1415</u>	Date/Time Relinquished: _____

Signature: <u>Carlos Navarro</u>	Signature: <u>Jaime Gomez</u>
Print Name: <u>Carlos Navarro</u>	Print Name: <u>JAIME GOMEZ</u>
Affiliation: <u>Wack Labs</u>	Affiliation: <u>Wack Labs</u>
Date/Time Received: <u>8/16/17</u>	Date/Time Received: <u>8/16/17 1737</u>
Date/Time Relinquished: <u>9:37</u>	Date/Time Relinquished: _____

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.): Dissolved samples were field filtered L80

Work Orders: 7H16080

Report Date: 9/19/2017

Received Date: 8/16/2017

Project: TMDL Study August 2017 P6040555

Turnaround Time: Normal

Phones: (805) 654-3942

Fax: (805) 654-3350

Attn: Arne Anselm

P.O. #: WECKLABORATORYFY1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

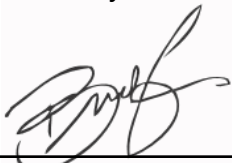
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

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 Arne Anselm,

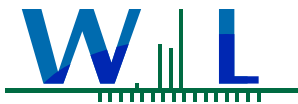
Enclosed are the results of analyses for samples received 8/16/17 with the Chain-of-Custody document. The samples were received in good condition, at 1.8 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

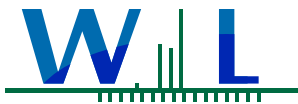
Project Number: TMDL Study August 2017 P6040555

Reported:
09/19/2017 17:01

Project Manager: Arne Anselm

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7H16080-01	Water	08/16/17 11:30	
TMDL-R1	S. Casey	7H16080-02	Water	08/16/17 09:40	
TMDL-R2	S. Casey	7H16080-03	Water	08/15/17 12:15	
TMDL-R3	S. Casey	7H16080-04	Water	08/15/17 10:30	
TMDL-R4	S. Casey	7H16080-05	Water	08/15/17 07:55	
TMDL-SA	S. Casey	7H16080-06	Water	08/15/17 09:40	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study August 2017 P6040555

Reported:
09/19/2017 17:01

Project Manager: Arne Anselm

Sample Results

Sample: TMDL-Est

Sampled: 08/16/17 11:30 by S. Casey

7H16080-01 (Water)

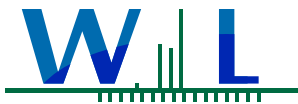
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Prepared: 08/24/17 13:17				Analyst: mnq
Dissolved Nitrogen	0.43		0.30	mg/l	1x1	08/28/17 13:57	
Method: _Various	Batch ID: [CALC]		Prepared: 08/22/17 13:06				Analyst: mnq
Nitrogen, Total	0.58		0.30	mg/l	1x1	08/25/17 15:50	
Method: EPA 351.2	Batch ID: W7H1347		Prepared: 08/22/17 13:06				Analyst: mnq
TKN	0.58	0.050	0.10	mg/l	1x1	08/25/17 15:50	
Method: EPA 351.2	Batch ID: W7H1517		Prepared: 08/24/17 13:17				Analyst: mnq
TKN, Soluble	0.43	0.050	0.10	mg/l	1x1	08/28/17 13:57	
Method: EPA 353.2	Batch ID: W7H1272		Prepared: 08/21/17 14:13				Analyst: AJK
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	08/21/17 15:16	
Method: EPA 365.1	Batch ID: W7H1149		Prepared: 08/18/17 10:51				Analyst: nat
Phosphorus as P, Total	0.044	0.0014	0.010	mg/l	1x1	08/24/17 13:05	
Method: EPA 365.1	Batch ID: W7H1265		Prepared: 08/21/17 13:13				Analyst: nat
Phosphorus, Dissolved	0.015	0.0014	0.010	mg/l	1x1	08/24/17 13:57	

Sample: TMDL-R1

Sampled: 08/16/17 9:40 by S. Casey

7H16080-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Prepared: 08/24/17 13:17				Analyst: mnq
Dissolved Nitrogen	1		0.30	mg/l	1x1	08/28/17 13:57	
Method: _Various	Batch ID: [CALC]		Prepared: 08/22/17 13:06				Analyst: mnq
Nitrogen, Total	1		0.30	mg/l	1x1	08/25/17 15:50	
Method: EPA 351.2	Batch ID: W7H1347		Prepared: 08/22/17 13:06				Analyst: mnq
TKN	0.36	0.050	0.10	mg/l	1x1	08/25/17 15:50	
Method: EPA 351.2	Batch ID: W7H1517		Prepared: 08/24/17 13:17				Analyst: mnq
TKN, Soluble	0.33	0.050	0.10	mg/l	1x1	08/28/17 13:57	
Method: EPA 353.2	Batch ID: W7H1272		Prepared: 08/21/17 14:13				Analyst: AJK
NO2+NO3 as N	0.67	0.083	0.20	mg/l	1x1	08/21/17 15:23	
Method: EPA 365.1	Batch ID: W7H1149		Prepared: 08/18/17 10:51				Analyst: nat
Phosphorus as P, Total	0.16	0.0014	0.010	mg/l	1x1	08/24/17 13:06	
Method: EPA 365.1	Batch ID: W7H1265		Prepared: 08/21/17 13:13				Analyst: nat
Phosphorus, Dissolved	0.15	0.0014	0.010	mg/l	1x1	08/24/17 13:58	



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Project Manager: Arne Anselm

Sample Results

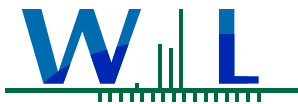
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Sample: TMDL-R2
7H16080-03 (Water) Sampled: 08/15/17 12:15 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	2.1		0.30	mg/l	1x1	08/28/17 13:57	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/24/17 13:17							
Method: _Various Nitrogen, Total	2.2		0.30	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN	0.48	0.050	0.10	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: W7H1347							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN, Soluble	0.38	0.050	0.10	mg/l	1x1	08/28/17 13:57	Analyst: mnq
Batch ID: W7H1517							
Prepared: 08/24/17 13:17							
Method: EPA 353.2 NO2+NO3 as N	1.7	0.083	0.20	mg/l	1x1	08/21/17 15:43	Analyst: AJK
Batch ID: W7H1272							
Prepared: 08/21/17 14:13							
Method: EPA 365.1 Phosphorus as P, Total	0.47	0.0056	0.040	mg/l	2x2	08/24/17 13:18	Analyst: nat M-06
Batch ID: W7H1149							
Prepared: 08/18/17 10:51							
Method: EPA 365.1 Phosphorus, Dissolved	0.22	0.0028	0.020	mg/l	2x1	08/24/17 13:52	Analyst: nat M-06
Batch ID: W7H1265							
Prepared: 08/21/17 13:13							

Sample: TMDL-R3
7H16080-04 (Water) Sampled: 08/15/17 10:30 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.2		0.30	mg/l	1x1	08/28/17 13:57	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/24/17 13:17							
Method: _Various Nitrogen, Total	1.3		0.30	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN	0.22	0.050	0.10	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: W7H1347							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN, Soluble	0.13	0.050	0.10	mg/l	1x1	08/28/17 13:57	Analyst: mnq
Batch ID: W7H1517							
Prepared: 08/24/17 13:17							
Method: EPA 353.2 NO2+NO3 as N	1.1	0.083	0.20	mg/l	1x1	08/21/17 15:46	Analyst: AJK
Batch ID: W7H1272							
Prepared: 08/21/17 14:13							
Method: EPA 365.1 Phosphorus as P, Total	0.015	0.0014	0.010	mg/l	1x1	08/24/17 13:15	Analyst: nat
Batch ID: W7H1149							
Prepared: 08/18/17 10:51							
Method: EPA 365.1 Phosphorus, Dissolved	0.010	0.0014	0.010	mg/l	1x1	08/24/17 13:44	Analyst: nat
Batch ID: W7H1265							
Prepared: 08/21/17 13:13							



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Project Manager: Arne Anselm

Sample Results

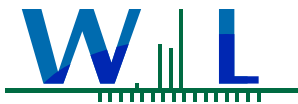
(Continued)

Sample: TMDL-R4
7H16080-05 (Water) Sampled: 08/15/17 7:55 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.8		0.30	mg/l	1x1	08/28/17 13:57	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/24/17 13:17							
Method: _Various Nitrogen, Total	2		0.30	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN	0.21	0.050	0.10	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: W7H1347							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN, Soluble	0.073	0.050	0.10	mg/l	1x1	08/28/17 13:57	Analyst: mnq J
Batch ID: W7H1517							
Prepared: 08/24/17 13:17							
Method: EPA 353.2 NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	08/21/17 15:52	Analyst: AJK
Batch ID: W7H1272							
Prepared: 08/21/17 14:13							
Method: EPA 365.1 Phosphorus as P, Total	0.0091	0.0014	0.010	mg/l	1x1	08/24/17 13:16	Analyst: nat J
Batch ID: W7H1149							
Prepared: 08/18/17 10:51							
Method: EPA 365.1 Phosphorus, Dissolved	0.0066	0.0014	0.010	mg/l	1x1	08/24/17 13:54	Analyst: nat J
Batch ID: W7H1265							
Prepared: 08/21/17 13:13							

Sample: TMDL-SA
7H16080-06 (Water) Sampled: 08/15/17 9:40 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.84		0.30	mg/l	1x1	08/28/17 13:57	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/24/17 13:17							
Method: _Various Nitrogen, Total	0.9		0.30	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: [CALC]							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN	0.13	0.050	0.10	mg/l	1x1	08/25/17 15:50	Analyst: mnq
Batch ID: W7H1347							
Prepared: 08/22/17 13:06							
Method: EPA 351.2 TKN, Soluble	0.072	0.050	0.10	mg/l	1x1	08/28/17 13:57	Analyst: mnq J
Batch ID: W7H1517							
Prepared: 08/24/17 13:17							
Method: EPA 353.2 NO2+NO3 as N	0.77	0.083	0.20	mg/l	1x1	08/21/17 15:55	Analyst: AJK
Batch ID: W7H1272							
Prepared: 08/21/17 14:13							
Method: EPA 365.1 Phosphorus as P, Total	0.016	0.0014	0.010	mg/l	1x1	09/01/17 16:40	Analyst: nat
Batch ID: W7H1534							
Prepared: 08/24/17 15:30							
Method: EPA 365.1 Phosphorus, Dissolved	0.013	0.0014	0.010	mg/l	1x1	08/26/17 11:20	Analyst: nat
Batch ID: W7H1541							
Prepared: 08/24/17 16:16							



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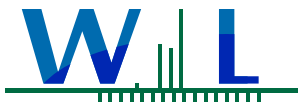
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09/19/2017 17:01

Project Manager: Arne Anselm

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7H1149 - EPA 365.1										
Blank (W7H1149-BLK1) Prepared: 08/18/17 Analyzed: 08/24/17										
Phosphorus as P, Total	ND	0.0014	mg/l							
LCS (W7H1149-BS1) Prepared: 08/18/17 Analyzed: 08/24/17										
Phosphorus as P, Total	0.0511	0.0014	mg/l	0.0500		102	90-110			
Matrix Spike (W7H1149-MS1) Source: 7H15004-02 Prepared: 08/18/17 Analyzed: 08/24/17										
Phosphorus as P, Total	0.0718	0.0014	mg/l	0.0500	0.0180	108	90-110			
Matrix Spike (W7H1149-MS2) Source: 7H15019-03 Prepared: 08/18/17 Analyzed: 08/24/17										
Phosphorus as P, Total	0.0524	0.0014	mg/l	0.0500	ND	105	90-110			
Matrix Spike Dup (W7H1149-MSD1) Source: 7H15004-02 Prepared: 08/18/17 Analyzed: 08/24/17										
Phosphorus as P, Total	0.0703	0.0014	mg/l	0.0500	0.0180	105	90-110	2	20	
Matrix Spike Dup (W7H1149-MSD2) Source: 7H15019-03 Prepared: 08/18/17 Analyzed: 08/24/17										
Phosphorus as P, Total	0.0512	0.0014	mg/l	0.0500	ND	102	90-110	2	20	
Batch: W7H1265 - EPA 365.1										
Blank (W7H1265-BLK1) Prepared: 08/21/17 Analyzed: 08/24/17										
Phosphorus, Dissolved	ND	0.0014	mg/l							
LCS (W7H1265-BS1) Prepared: 08/21/17 Analyzed: 08/24/17										
Phosphorus, Dissolved	0.0519	0.0014	mg/l	0.0500		104	90-110			
Matrix Spike (W7H1265-MS1) Source: 7H16076-03 Prepared: 08/21/17 Analyzed: 08/24/17										
Phosphorus, Dissolved	0.0535	0.0014	mg/l	0.0500	ND	107	90-110			
Matrix Spike Dup (W7H1265-MSD1) Source: 7H16076-03 Prepared: 08/21/17 Analyzed: 08/24/17										
Phosphorus, Dissolved	0.0533	0.0014	mg/l	0.0500	ND	107	90-110	0.4	20	
Batch: W7H1272 - EPA 353.2										
Blank (W7H1272-BLK1) Prepared & Analyzed: 08/21/17										
NO2+NO3 as N	ND	0.083	mg/l							
LCS (W7H1272-BS1) Prepared & Analyzed: 08/21/17										
NO2+NO3 as N	1.03	0.083	mg/l	1.00		103	90-110			
Matrix Spike (W7H1272-MS1) Source: 7H16080-01 Prepared & Analyzed: 08/21/17										
NO2+NO3 as N	2.02	0.083	mg/l	2.00	ND	101	90-110			
Matrix Spike (W7H1272-MS2) Source: 7H16080-02 Prepared & Analyzed: 08/21/17										
NO2+NO3 as N	2.47	0.083	mg/l	2.00	0.674	90	90-110			
Matrix Spike Dup (W7H1272-MSD1) Source: 7H16080-01 Prepared & Analyzed: 08/21/17										
NO2+NO3 as N	2.03	0.083	mg/l	2.00	ND	101	90-110	0.3	20	
Matrix Spike Dup (W7H1272-MSD2) Source: 7H16080-02 Prepared & Analyzed: 08/21/17										
NO2+NO3 as N	2.50	0.083	mg/l	2.00	0.674	91	90-110	1	20	
Batch: W7H1347 - EPA 351.2										
Blank (W7H1347-BLK1) Prepared: 08/22/17 Analyzed: 08/25/17										
TKN	ND	0.050	mg/l							



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Quality Control Results

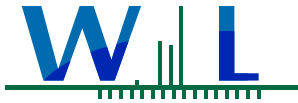
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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W7H1347 - EPA 351.2 (Continued)										
LCS (W7H1347-BS1)										
TKN	0.958	0.050	mg/l	1.00		96	90-110			
Prepared: 08/22/17 Analyzed: 08/25/17										
Matrix Spike (W7H1347-MS1)										
TKN	1.10	0.050	mg/l	1.00	0.142	96	90-110			
Source: 7H17030-01 Prepared: 08/22/17 Analyzed: 08/25/17										
Matrix Spike Dup (W7H1347-MSD1)										
TKN	1.11	0.050	mg/l	1.00	0.142	97	90-110	1	10	
Source: 7H17030-01 Prepared: 08/22/17 Analyzed: 08/25/17										
Batch: W7H1517 - EPA 351.2										
Blank (W7H1517-BLK1)										
TKN, Soluble	ND	0.050	mg/l							
Prepared: 08/24/17 Analyzed: 08/28/17										
LCS (W7H1517-BS1)										
TKN, Soluble	0.943	0.050	mg/l	1.00		94	90-110			
Prepared: 08/24/17 Analyzed: 08/28/17										
Matrix Spike (W7H1517-MS1)										
TKN, Soluble	1.44	0.050	mg/l	1.00	0.426	101	90-110			
Source: 7H16080-01 Prepared: 08/24/17 Analyzed: 08/28/17										
Matrix Spike Dup (W7H1517-MSD1)										
TKN, Soluble	1.37	0.050	mg/l	1.00	0.426	94	90-110	5	10	
Source: 7H16080-01 Prepared: 08/24/17 Analyzed: 08/28/17										
Batch: W7H1534 - EPA 365.1										
Blank (W7H1534-BLK1)										
Phosphorus as P, Total	ND	0.0014	mg/l							
Prepared: 08/24/17 Analyzed: 08/26/17										
Blank (W7H1534-BLK2)										
Phosphorus as P, Total	ND	0.0014	mg/l							
Prepared: 08/24/17 Analyzed: 09/01/17										
LCS (W7H1534-BS1)										
Phosphorus as P, Total	0.0503	0.0014	mg/l	0.0500		101	90-110			
Prepared: 08/24/17 Analyzed: 08/26/17										
LCS (W7H1534-BS2)										
Phosphorus as P, Total	0.0531	0.0014	mg/l	0.0500		106	90-110			
Prepared: 08/24/17 Analyzed: 09/01/17										
Matrix Spike (W7H1534-MS1)										
Phosphorus as P, Total	0.0483	0.0014	mg/l	0.0500	ND	97	90-110			
Source: 7H22031-11 Prepared: 08/24/17 Analyzed: 08/26/17										
Matrix Spike (W7H1534-MS2)										
Phosphorus as P, Total	0.0498	0.0014	mg/l	0.0500	ND	100	90-110			
Source: 7H22031-11 Prepared: 08/24/17 Analyzed: 09/01/17										
Matrix Spike Dup (W7H1534-MSD1)										
Phosphorus as P, Total	0.0492	0.0014	mg/l	0.0500	ND	98	90-110	2	20	
Source: 7H22031-11 Prepared: 08/24/17 Analyzed: 08/26/17										
Matrix Spike Dup (W7H1534-MSD2)										
Phosphorus as P, Total	0.0507	0.0014	mg/l	0.0500	ND	101	90-110	2	20	
Source: 7H22031-11 Prepared: 08/24/17 Analyzed: 09/01/17										
Batch: W7H1541 - EPA 365.1										
Blank (W7H1541-BLK1)										
Phosphorus, Dissolved	ND	0.0014	mg/l							
Prepared: 08/24/17 Analyzed: 08/26/17										
LCS (W7H1541-BS1)										
Phosphorus, Dissolved	0.0498	0.0014	mg/l	0.0500		100	90-110			
Prepared: 08/24/17 Analyzed: 08/26/17										
Matrix Spike (W7H1541-MS1)										
Source: 7H23092-01 Prepared: 08/24/17 Analyzed: 08/26/17										

7H16080

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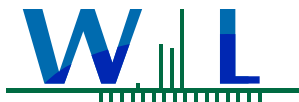
Project Manager: Arne Anselm

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W7H1541 - EPA 365.1 (Continued)										
Matrix Spike (W7H1541-MS1)			Source: 7H23092-01		Prepared: 08/24/17 Analyzed: 08/26/17					
Phosphorus, Dissolved	0.260	0.0028	mg/l	0.0500	0.212	96	90-110			
Matrix Spike Dup (W7H1541-MSD1)			Source: 7H23092-01		Prepared: 08/24/17 Analyzed: 08/26/17					
Phosphorus, Dissolved	0.266	0.0028	mg/l	0.0500	0.212	108	90-110	2	20	



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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.



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

September 06, 2017
Workorder **17081035**

Karin
Aquatic Bioassay & Consulting
29 North Olive St.
Ventura, CA 93001

Project: VCWPD TMDL

Dear Karin:

It is the policy of Silver State Analytical Laboratory - Reno to strictly adhere to a comprehensive Quality Assurance Plan that ensures the data presented in this report are both accurate and precise. Silver State Analytical Laboratory - Reno maintains accreditation in the State of Nevada (NV-00015) and the State of California (ELAP 2990).

The data presented in this report was obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged with an appropriate explanation in the Analysis Report section of the Laboratory Report.

Sincerely,

Carly Wood
Laboratory Director
1135 Financial Blvd
Reno, NV 89502



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17081035
 Date Reported: 9/6/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD TMDL
PO #:

Sampled By: Client.

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17081035-01	TMDL-R4	08/15/2017 7:55	8/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	100	mg/m2	1	KL	09/06/2017 11:37	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17081035-02	TMDL-R3	08/15/2017 10:30	8/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	200	mg/m2	1	KL	09/06/2017 11:37	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17081035-03	TMDL-R2	08/15/2017 12:15	8/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	320	mg/m2	1	KL	09/06/2017 11:37	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17081035-04	TMDL-R1	08/15/2017 9:40	8/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	410	mg/m2	1	KL	09/06/2017 11:37	



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17081035
 Date Reported: 9/6/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD TMDL
PO #:

Sampled By: Client.

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17081035-05	TMDL-Est	08/15/2017 11:30	8/22/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	91	µg/L	1	KL	09/06/2017 11:37	



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Quality Control Report

WO#: 17081035
9/6/2017

Analysis: Chlorophyll-a
Method: SM 10200 H

Batch ID: R10273

Method Blank

RunID: 10273 SeqNo 197116 Units: µg/L
Analysis Date: 9/6/2017 11:37:00 AM Analyst: KL

Analyte	Result	Rep Limit	Rep Qual
Chlorophyll a	< 1	1	

Laboratory Control Sample (LCS)

RunID: 10273 SeqNo 197117 Units: µg/L
Analysis Date: 9/6/2017 11:37:00 AM Analyst: KL

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chlorophyll a	1.000	1.04	104	1.000	1.1	106	1.90	20	70	130	



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Reno, NV 89502
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Definitions & Qualifiers

WO#: 17081035

Date: 9/6/2017

Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.



September 7th, 2017

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 15th-16th, 2017

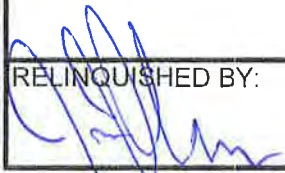
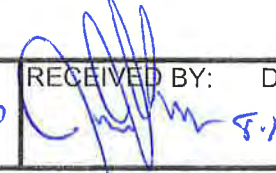
Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	41	ug/cm2
TMDL-R2	1	11	32	ug/cm2
TMDL-R3	1	11	20	ug/cm2
TMDL-R4	1	11	10	ug/cm2
TMDL-CL	1	0	DRY	ug/cm2
TMDL-SA	1	0	DRY	ug/cm2
TMDL-Est	1	NA	91	ug/L

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:
---	---	--

						ANALYSIS												
Sample I.D. No.	Sample Date	Time	Matrix	Composite Volume/ No.	Reps	Chl-a												
TMDL R-4	8.15.17	0755		25ml		X												
TMDL R-3	8.15.17	1030		25ml		X												
TMDL R-2	8.15.17	1215		25ml		X												

Special Instructions:

RELINQUISHED BY: 	DATE: 8.15.17	TIME: 1420	RECEIVED BY: 	DATE: 8.15.17	TIME: 1420	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
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Work Orders: 7107064

Project: TMDL Study September 2017 P6040555

Attn: Kelly Hahs

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Report Date: 9/26/2017

Received Date: 9/7/2017

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
8MA01

Billing Code:

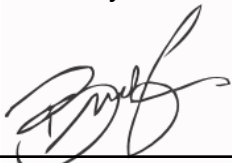
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

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,

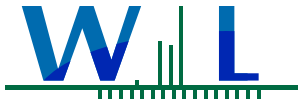
Enclosed are the results of analyses for samples received 9/07/17 with the Chain-of-Custody document. The samples were received in good condition, at 1.7 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

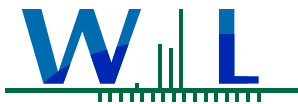
Project Number: TMDL Study September 2017 P6040555

Reported:
09/26/2017 12:44

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7107064-01	Water	09/06/17 11:30	
TMDL-R1	S. Casey	7107064-02	Water	09/06/17 10:10	
TMDL-R2	S. Casey	7107064-03	Water	09/06/17 08:00	
TMDL-R3	S. Casey	7107064-04	Water	09/05/17 11:20	
TMDL-R4	S. Casey	7107064-05	Water	09/05/17 08:30	
TMDL-SA	S. Casey	7107064-06	Water	09/05/17 10:20	



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study September 2017 P6040555

Reported:
09/26/2017 12:44

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 09/06/17 11:30 by S. Casey

7107064-01 (Water)

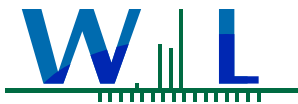
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.39		0.30	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: _Various Nitrogen, Total	0.44		0.30	mg/l	1x1	09/14/17 13:27	Analyst: ymt
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: EPA 351.2 TKN	0.44	0.050	0.10	mg/l	1x1	09/13/17 14:45	Analyst: ymt
Batch ID: W710486							
Prepared: 09/11/17 10:30							
Method: EPA 351.2 TKN, Soluble	0.39	0.050	0.10	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: W710665							
Prepared: 09/13/17 09:23							
Method: EPA 353.2 NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	09/14/17 13:27	Analyst: AJK
Batch ID: W710764							
Prepared: 09/14/17 10:48							
Method: EPA 365.1 Phosphorus, Dissolved	0.014	0.0014	0.010	mg/l	1x1	09/15/17 13:07	Analyst: nat
Batch ID: W710519							
Prepared: 09/11/17 14:38							
Method: EPA 365.1 Phosphorus as P, Total	0.047	0.0014	0.010	mg/l	1x1	09/15/17 12:15	Analyst: nat
Batch ID: W710520							
Prepared: 09/11/17 14:40							

Sample: TMDL-R1

Sampled: 09/06/17 10:10 by S. Casey

7107064-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.99		0.30	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: _Various Nitrogen, Total	0.91		0.30	mg/l	1x1	09/14/17 15:19	Analyst: ymt
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: EPA 351.2 TKN	0.34	0.050	0.10	mg/l	1x1	09/13/17 14:45	Analyst: ymt
Batch ID: W710486							
Prepared: 09/11/17 10:30							
Method: EPA 351.2 TKN, Soluble	0.41	0.050	0.10	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: W710665							
Prepared: 09/13/17 09:23							
Method: EPA 353.2 NO2+NO3 as N	0.57	0.083	0.20	mg/l	1x1	09/14/17 15:19	Analyst: AJK
Batch ID: W710764							
Prepared: 09/14/17 10:48							
Method: EPA 365.1 Phosphorus, Dissolved	0.26	0.0028	0.020	mg/l	1x2	09/15/17 13:12	Analyst: nat
Batch ID: W710519							
Prepared: 09/11/17 14:38							
Method: EPA 365.1 Phosphorus as P, Total	0.29	0.0028	0.020	mg/l	1x2	09/15/17 12:31	Analyst: nat
Batch ID: W710520							
Prepared: 09/11/17 14:40							



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 2017 P6040555

Reported:
09/26/2017 12:44

Project Manager: Kelly Hahs

Sample Results

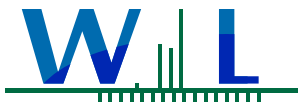
(Continued)

Sample: TMDL-R2
7107064-03 (Water) Sampled: 09/06/17 8:00 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	2.3		0.30	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: _Various Nitrogen, Total	2.1		0.30	mg/l	1x1	09/14/17 14:05	Analyst: ymt
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: EPA 351.2 TKN	0.25	0.050	0.10	mg/l	1x1	09/13/17 14:45	Analyst: ymt
Batch ID: W710486							
Prepared: 09/11/17 10:30							
Method: EPA 351.2 TKN, Soluble	0.47	0.050	0.10	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: W710665							
Prepared: 09/13/17 09:23							
Method: EPA 353.2 NO2+NO3 as N	1.8	0.083	0.20	mg/l	1x1	09/14/17 14:05	Analyst: AJK
Batch ID: W710764							
Prepared: 09/14/17 10:48							
Method: EPA 365.1 Phosphorus, Dissolved	0.54	0.0056	0.040	mg/l	2x2	09/15/17 13:13	Analyst: nat M-06
Batch ID: W710519							
Prepared: 09/11/17 14:38							
Method: EPA 365.1 Phosphorus as P, Total	0.54	0.0056	0.040	mg/l	2x2	09/15/17 12:32	Analyst: nat M-06
Batch ID: W710520							
Prepared: 09/11/17 14:40							

Sample: TMDL-R3
7107064-04 (Water) Sampled: 09/05/17 11:20 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.1		0.30	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: _Various Nitrogen, Total	1		0.30	mg/l	1x1	09/14/17 14:07	Analyst: ymt
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: EPA 351.2 TKN	0.12	0.050	0.10	mg/l	1x1	09/13/17 14:45	Analyst: ymt
Batch ID: W710486							
Prepared: 09/11/17 10:30							
Method: EPA 351.2 TKN, Soluble	0.21	0.050	0.10	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: W710665							
Prepared: 09/13/17 09:23							
Method: EPA 353.2 NO2+NO3 as N	0.88	0.083	0.20	mg/l	1x1	09/14/17 14:07	Analyst: AJK
Batch ID: W710764							
Prepared: 09/14/17 10:48							
Method: EPA 365.1 Phosphorus, Dissolved	0.015	0.0014	0.010	mg/l	1x1	09/15/17 13:09	Analyst: nat
Batch ID: W710519							
Prepared: 09/11/17 14:38							
Method: EPA 365.1 Phosphorus as P, Total	0.011	0.0014	0.010	mg/l	1x1	09/15/17 12:25	Analyst: nat
Batch ID: W710520							
Prepared: 09/11/17 14:40							



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 2017 P6040555

Reported:
09/26/2017 12:44

Project Manager: Kelly Hahs

Sample Results

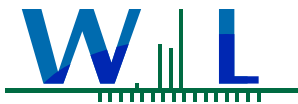
(Continued)

Sample: TMDL-R4
7107064-05 (Water) Sampled: 09/05/17 8:30 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.6		0.30	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: _Various Nitrogen, Total	1.7		0.30	mg/l	1x1	09/14/17 14:09	Analyst: ymt
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: EPA 351.2 TKN	0.068	0.050	0.10	mg/l	1x1	09/13/17 14:45	Analyst: ymt J
Batch ID: W710486							
Prepared: 09/11/17 10:30							
Method: EPA 351.2 TKN, Soluble	ND	0.050	0.10	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: W710665							
Prepared: 09/13/17 09:23							
Method: EPA 353.2 NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	09/14/17 14:09	Analyst: AJK
Batch ID: W710764							
Prepared: 09/14/17 10:48							
Method: EPA 365.1 Phosphorus, Dissolved	0.0056	0.0014	0.010	mg/l	1x1	09/15/17 13:10	Analyst: nat J
Batch ID: W710519							
Prepared: 09/11/17 14:38							
Method: EPA 365.1 Phosphorus as P, Total	0.010	0.0014	0.010	mg/l	1x1	09/15/17 12:27	Analyst: nat
Batch ID: W710520							
Prepared: 09/11/17 14:40							

Sample: TMDL-SA
7107064-06 (Water) Sampled: 09/05/17 10:20 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.7		0.30	mg/l	1x1	09/19/17 13:05	Analyst: mnq
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: _Various Nitrogen, Total	0.7		0.30	mg/l	1x1	09/14/17 15:24	Analyst: ymt
Batch ID: [CALC]							
Prepared: 09/14/17 10:48							
Method: EPA 351.2 TKN	0.089	0.050	0.10	mg/l	1x1	09/13/17 14:45	Analyst: ymt J
Batch ID: W710486							
Prepared: 09/11/17 10:30							
Method: EPA 351.2 TKN, Soluble	0.096	0.050	0.10	mg/l	1x1	09/19/17 13:05	Analyst: mnq J
Batch ID: W710665							
Prepared: 09/13/17 09:23							
Method: EPA 353.2 NO2+NO3 as N	0.61	0.083	0.20	mg/l	1x1	09/14/17 15:24	Analyst: AJK
Batch ID: W710764							
Prepared: 09/14/17 10:48							
Method: EPA 365.1 Phosphorus, Dissolved	0.024	0.0014	0.010	mg/l	1x1	09/15/17 12:41	Analyst: nat
Batch ID: W710519							
Prepared: 09/11/17 14:38							
Method: EPA 365.1 Phosphorus as P, Total	0.037	0.0014	0.010	mg/l	1x1	09/15/17 12:01	Analyst: nat
Batch ID: W710520							
Prepared: 09/11/17 14:40							



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 2017 P6040555

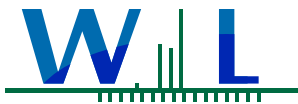
Reported:
09/26/2017 12:44

Project Manager: Kelly Hahs

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W710486 - EPA 351.2										
Blank (W710486-BLK1) Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	ND	0.050	mg/l							
Blank (W710486-BLK2) Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	ND	0.050	mg/l							
LCS (W710486-BS1) Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	1.03	0.050	mg/l	1.00		103	90-110			
LCS (W710486-BS2) Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	0.993	0.050	mg/l	1.00		99	90-110			
Matrix Spike (W710486-MS1) Source: 7108063-01 Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	1.25	0.050	mg/l	1.00	0.266	98	90-110			
Matrix Spike (W710486-MS2) Source: 7108063-02 Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	1.24	0.050	mg/l	1.00	0.305	93	90-110			
Matrix Spike Dup (W710486-MSD1) Source: 7108063-01 Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	1.30	0.050	mg/l	1.00	0.266	103	90-110	4	10	
Matrix Spike Dup (W710486-MSD2) Source: 7108063-02 Prepared: 09/11/17 Analyzed: 09/13/17										
TKN	1.19	0.050	mg/l	1.00	0.305	89	90-110	4	10	MS-01
Batch: W710519 - EPA 365.1										
Blank (W710519-BLK1) Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus, Dissolved	ND	0.0014	mg/l							
LCS (W710519-BS1) Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus, Dissolved	0.0514	0.0014	mg/l	0.0500		103	90-110			
Matrix Spike (W710519-MS1) Source: 7107064-06 Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus, Dissolved	0.0775	0.0014	mg/l	0.0500	0.0235	108	90-110			
Matrix Spike Dup (W710519-MSD1) Source: 7107064-06 Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus, Dissolved	0.0759	0.0014	mg/l	0.0500	0.0235	105	90-110	2	20	
Batch: W710520 - EPA 365.1										
Blank (W710520-BLK1) Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus as P, Total	ND	0.0014	mg/l							
LCS (W710520-BS1) Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus as P, Total	0.0511	0.0014	mg/l	0.0500		102	90-110			
Matrix Spike (W710520-MS1) Source: 7107044-07 Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus as P, Total	0.0541	0.0014	mg/l	0.0500	ND	108	90-110			
Matrix Spike (W710520-MS2) Source: 7107064-06 Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus as P, Total	0.0884	0.0014	mg/l	0.0500	0.0368	103	90-110			
Matrix Spike Dup (W710520-MSD1) Source: 7107044-07 Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus as P, Total	0.0493	0.0014	mg/l	0.0500	ND	99	90-110	9	20	
Matrix Spike Dup (W710520-MSD2) Source: 7107064-06 Prepared: 09/11/17 Analyzed: 09/15/17										
Phosphorus as P, Total	0.0886	0.0014	mg/l	0.0500	0.0368	104	90-110	0.2	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 2017 P6040555

Reported:
09/26/2017 12:44

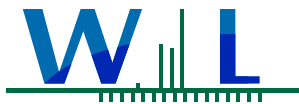
Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W710665 - EPA 351.2										
Blank (W710665-BLK1)										
TKN, Soluble	ND	0.050	mg/l							
				Prepared: 09/13/17 Analyzed: 09/19/17						
LCS (W710665-BS1)										
TKN, Soluble	0.983	0.050	mg/l	1.00		98	90-110			
				Prepared: 09/13/17 Analyzed: 09/19/17						
Matrix Spike (W710665-MS1)										
TKN, Soluble	1.38	0.050	mg/l	1.00	0.394	99	90-110			
				Prepared: 09/13/17 Analyzed: 09/19/17						
Matrix Spike Dup (W710665-MSD1)										
TKN, Soluble	1.45	0.050	mg/l	1.00	0.394	106	90-110	5	10	
Batch: W710764 - EPA 353.2										
Blank (W710764-BLK1)										
NO2+NO3 as N	ND	0.083	mg/l							
				Prepared & Analyzed: 09/14/17						
LCS (W710764-BS1)										
NO2+NO3 as N	1.00	0.083	mg/l	1.00		100	90-110			
				Prepared & Analyzed: 09/14/17						
Matrix Spike (W710764-MS1)										
NO2+NO3 as N	1.95	0.083	mg/l	2.00	ND	97	90-110			
				Prepared & Analyzed: 09/14/17						
Matrix Spike (W710764-MS2)										
NO2+NO3 as N	2.37	0.083	mg/l	2.00	0.573	90	90-110			
				Prepared & Analyzed: 09/14/17						
Matrix Spike Dup (W710764-MSD1)										
NO2+NO3 as N	1.93	0.083	mg/l	2.00	ND	96	90-110	1	20	
				Prepared & Analyzed: 09/14/17						
Matrix Spike Dup (W710764-MSD2)										
NO2+NO3 as N	2.45	0.083	mg/l	2.00	0.573	94	90-110	3	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 2017 P6040555

Reported:
09/26/2017 12:44

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.
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.



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

September 20, 2017
Workorder **17090292**

Karin
Aquatic Bioassay & Consulting
29 North Olive St.
Ventura, CA 93001

Project: VCWPD TMDL

Dear Karin:

It is the policy of Silver State Analytical Laboratory - Reno to strictly adhere to a comprehensive Quality Assurance Plan that ensures the data presented in this report are both accurate and precise. Silver State Analytical Laboratory - Reno maintains accreditation in the State of Nevada (NV-00015) and the State of California (ELAP 2990).

The data presented in this report was obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged with an appropriate explanation in the Analysis Report section of the Laboratory Report.

Sincerely,

Carly Wood
Laboratory Director
1135 Financial Blvd
Reno, NV 89502



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 17090292

Date Reported: 9/20/2017

Client: Aquatic Bioassay & Consulting

Sampled By: Client

Project Name: VCWPD TMDL

PO #:

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17090292-01	TMDL-R4	09/05/2017 8:30	9/7/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	170	mg/m ²	1	RM	09/15/2017 15:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17090292-02	TMDL-R3	09/05/2017 11:20	9/7/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	160	mg/m ²	1	RM	09/15/2017 15:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17090292-03	TMDL-R2	09/06/2017 8:00	9/7/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	220	mg/m ²	1	RM	09/15/2017 15:21	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17090292-04	TMDL-R1	09/06/2017 10:10	9/7/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	220	mg/m ²	1	RM	09/15/2017 15:21	



Silver State Labs-Reno
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 Reno, NV 89502
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 www.ssalabs.com

Analytical Report

Workorder#: 17090292
 Date Reported: 9/20/2017

Client: Aquatic Bioassay & Consulting
Project Name: VCWPD TMDL
PO #:

Sampled By: Client

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
17090292-05	TMDL-Est	09/06/2017 11:50	9/7/2017

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chlorophyll a	SM 10200 H	19	µg/L	1	RM	09/15/2017 15:21	



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Quality Control Report

WO#: 17090292
9/20/2017

Analysis: Chlorophyll-a
Method: SM 10200 H

Batch ID: R10581

Method Blank

RunID: 10581 SeqNo 203454 Units: µg/L
Analysis Date: 9/15/2017 3:21:00 PM Analyst: RM

Analyte	Result	Rep Limit	Rep Qual
Chlorophyll a	< 1	1	

Laboratory Control Sample (LCS)

RunID: 10581 SeqNo 203455 Units: µg/L
Analysis Date: 9/15/2017 3:21:00 PM Analyst: RM

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chlorophyll a	1.000	1.01	101	1.000	1.0	104	2.93	20	70	130	



Silver State Labs-Reno
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Reno, NV 89502
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Definitions & Qualifiers

WO#: 17090292

Date: 9/20/2017

Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.



September 25th, 2017

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-6th, 2017

Station	Field Replicate	Number of Transects Collected	Chlorophyll a	Units
TMDL-R1	1	11	22	ug/cm2
TMDL-R2	1	11	22	ug/cm2
TMDL-R3	1	11	16	ug/cm2
TMDL-R4	1	11	17	ug/cm2
TMDL-CL	1	0	DRY	ug/cm2
TMDL-SA	1	0	DRY	ug/cm2
TMDL-Est	1	NA	19	ug/L



Ventura River and Tributaries
 Algae, Eutrophic Conditions, and Nutrients TMDL
 (VR Algae TMDL)

Comprehensive Monitoring Program

U03116

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: OCTOBER 2017

SAMPLING DATE: 10/3/2017

SAMPLERS: S. CASEY

GRAB SAMPLES

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	** FIELD FILTERED	
						NOTES
TMDL-Est	10/3/17 1215	X X	X			
TMDL-R1	↓	X X	X			
TMDL-R2		X X	X			
TMDL-R3		X X	X			
TMDL-R4		X X	X			
TMDL-CL		X X	X			
TMDL-SA	10/3/17 0830	X X	X			
TMDL- FD R3-2	↓ 0915	X X	X			HALF TO BE FILTERED (Note which site) IN LAB

Signature: <i>Kelly Haas</i>	Signature: <i>Carlos Navarro</i>
Print Name: KELLY HAAS	Print Name: CARLOS NAVARRO
Affiliation: VCWPD	Affiliation: WECK LABS
Date/Time Received: _____	Date/Time Received: 10/3/17 / 1400
Date/Time Relinquished: 10/3/17 / 1400	Date/Time Relinquished: _____

Signature: <i>Angela Dominguez</i>	Signature: <i>Angela Dominguez</i>
Print Name: Carlos Navarro	Print Name: Angela Dominguez
Affiliation: Weck Labs	Affiliation: Weck
Date/Time Received: 10/3/17 508	Date/Time Received: 10/3/17 18:08
Date/Time Relinquished: _____	Date/Time Relinquished: _____

2-3

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

R3-2 is to be lab filtered

Dissolved samples were field filtered

Work Orders: 7J03116

Report Date: 10/25/2017

Received Date: 10/3/2017

Project: TMDL Study October 2017 P6040555

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

Attn: Kelly Hahs

P.O. #: WECKLABORATORYFY1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

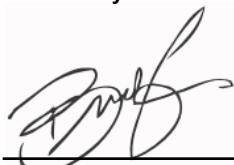
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

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,

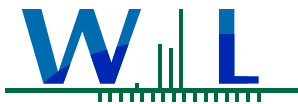
Enclosed are the results of analyses for samples received 10/03/17 with the Chain-of-Custody document. The samples were received in good condition, at 2.3 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

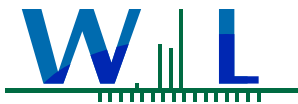
Project Number: TMDL Study October 2017 P6040555

Reported:
10/25/2017 11:38

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7J03116-01	Water	10/03/17 12:15	
TMDL-R1	S. Casey	7J03116-02	Water	10/03/17 11:30	
TMDL-R2	S. Casey	7J03116-03	Water	10/03/17 10:15	
TMDL-R3	S. Casey	7J03116-04	Water	10/03/17 09:15	
TMDL-R4	S. Casey	7J03116-05	Water	10/03/17 07:45	
TMDL-SA	S. Casey	7J03116-06	Water	10/03/17 08:30	
TMDL-R3-2		7J03116-07	Water	10/03/17 09:15	



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 2017 P6040555

Reported:
10/25/2017 11:38

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 10/03/17 12:15 by S. Casey

7J03116-01 (Water)

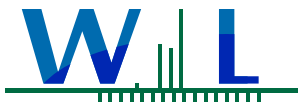
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 10/12/17 09:36			Analyst: ymt
Dissolved Nitrogen	0.38		0.30	mg/l	1x1	10/20/17 11:37	
Method: _Various	Batch ID: [CALC]			Prepared: 10/12/17 09:36			Analyst: ymt
Nitrogen, Total	0.41		0.30	mg/l	1x1	10/12/17 12:38	
Method: EPA 351.2	Batch ID: W7J0262			Prepared: 10/05/17 09:46			Analyst: ymt
TKN	0.41	0.050	0.10	mg/l	1x1	10/10/17 13:11	
Method: EPA 351.2	Batch ID: W7J0420			Prepared: 10/08/17 09:16			Analyst: ymt
TKN, Soluble	0.38	0.050	0.10	mg/l	1x1	10/20/17 11:37	
Method: EPA 353.2	Batch ID: W7J0687			Prepared: 10/12/17 09:36			Analyst: AJK
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	10/12/17 12:38	
Method: EPA 365.1	Batch ID: W7J0286			Prepared: 10/05/17 11:54			Analyst: nat
Phosphorus as P, Total	0.046	0.0014	0.010	mg/l	1x1	10/09/17 15:55	
Method: EPA 365.1	Batch ID: W7J0289			Prepared: 10/05/17 11:55			Analyst: nat
Phosphorus, Dissolved	0.020	0.0014	0.010	mg/l	1x1	10/09/17 16:17	

Sample: TMDL-R1

Sampled: 10/03/17 11:30 by S. Casey

7J03116-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 10/12/17 09:36			Analyst: ymt
Dissolved Nitrogen	1.6		0.30	mg/l	1x1	10/20/17 11:37	
Method: _Various	Batch ID: [CALC]			Prepared: 10/12/17 09:36			Analyst: ymt
Nitrogen, Total	1.7		0.30	mg/l	1x1	10/12/17 12:39	
Method: EPA 351.2	Batch ID: W7J0262			Prepared: 10/05/17 09:46			Analyst: ymt
TKN	0.42	0.050	0.10	mg/l	1x1	10/10/17 13:11	
Method: EPA 351.2	Batch ID: W7J0420			Prepared: 10/08/17 09:16			Analyst: ymt
TKN, Soluble	0.39	0.050	0.10	mg/l	1x1	10/20/17 11:37	
Method: EPA 353.2	Batch ID: W7J0687			Prepared: 10/12/17 09:36			Analyst: AJK
NO2+NO3 as N	1.2	0.083	0.20	mg/l	1x1	10/12/17 12:39	
Method: EPA 365.1	Batch ID: W7J0286			Prepared: 10/05/17 11:54			Analyst: nat
Phosphorus as P, Total	0.24	0.0028	0.020	mg/l	1x2	10/09/17 16:09	
Method: EPA 365.1	Batch ID: W7J0289			Prepared: 10/05/17 11:55			Analyst: nat
Phosphorus, Dissolved	0.22	0.0028	0.020	mg/l	1x2	10/09/17 16:31	



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study October 2017 P6040555

Reported:
10/25/2017 11:38

Project Manager: Kelly Hahs

Sample Results

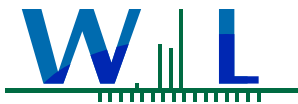
(Continued)

Sample: TMDL-R2
7J03116-03 (Water) Sampled: 10/03/17 10:15 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	4		0.30	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: _Various Nitrogen, Total	3.8		0.30	mg/l	1x1	10/12/17 12:41	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: EPA 351.2 TKN	0.20	0.050	0.10	mg/l	1x1	10/10/17 13:11	Analyst: ymt A-01
Batch ID: W7J0262							
Prepared: 10/05/17 09:46							
Method: EPA 351.2 TKN, Soluble	0.40	0.050	0.10	mg/l	1x1	10/20/17 11:37	Analyst: ymt A-01
Batch ID: W7J0420							
Prepared: 10/08/17 09:16							
Method: EPA 353.2 NO2+NO3 as N	3.6	0.083	0.20	mg/l	1x1	10/12/17 12:41	Analyst: AJK
Batch ID: W7J0687							
Prepared: 10/12/17 09:36							
Method: EPA 365.1 Phosphorus as P, Total	1.0	0.014	0.10	mg/l	10x1	10/09/17 16:02	Analyst: nat M-06
Batch ID: W7J0286							
Prepared: 10/05/17 11:54							
Method: EPA 365.1 Phosphorus, Dissolved	0.95	0.014	0.10	mg/l	10x1	10/09/17 16:22	Analyst: nat M-06
Batch ID: W7J0289							
Prepared: 10/05/17 11:55							

Sample: TMDL-R3
7J03116-04 (Water) Sampled: 10/03/17 9:15 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.96		0.30	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: _Various Nitrogen, Total	1		0.30	mg/l	1x1	10/12/17 13:32	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: EPA 351.2 TKN	0.27	0.050	0.10	mg/l	1x1	10/10/17 13:11	Analyst: ymt
Batch ID: W7J0262							
Prepared: 10/05/17 09:46							
Method: EPA 351.2 TKN, Soluble	0.21	0.050	0.10	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: W7J0420							
Prepared: 10/08/17 09:16							
Method: EPA 353.2 NO2+NO3 as N	0.75	0.083	0.20	mg/l	1x1	10/12/17 13:32	Analyst: AJK
Batch ID: W7J0687							
Prepared: 10/12/17 09:36							
Method: EPA 365.1 Phosphorus as P, Total	0.015	0.0014	0.010	mg/l	1x1	10/09/17 16:04	Analyst: nat
Batch ID: W7J0286							
Prepared: 10/05/17 11:54							
Method: EPA 365.1 Phosphorus, Dissolved	0.014	0.0014	0.010	mg/l	1x1	10/09/17 16:27	Analyst: nat
Batch ID: W7J0289							
Prepared: 10/05/17 11:55							



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study October 2017 P6040555

Reported:
10/25/2017 11:38

Project Manager: Kelly Hahs

Sample Results

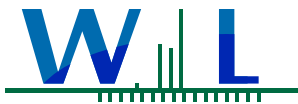
(Continued)

Sample: TMDL-R4
7J03116-05 (Water) Sampled: 10/03/17 7:45 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.6		0.30	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: _Various Nitrogen, Total	2.1		0.30	mg/l	1x1	10/12/17 13:34	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: EPA 351.2 TKN	0.52	0.050	0.10	mg/l	1x1	10/10/17 13:11	Analyst: ymt
Batch ID: W7J0262							
Prepared: 10/05/17 09:46							
Method: EPA 351.2 TKN, Soluble	ND	0.050	0.10	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: W7J0420							
Prepared: 10/08/17 09:16							
Method: EPA 353.2 NO2+NO3 as N	1.6	0.083	0.20	mg/l	1x1	10/12/17 13:34	Analyst: AJK
Batch ID: W7J0687							
Prepared: 10/12/17 09:36							
Method: EPA 365.1 Phosphorus as P, Total	0.014	0.0014	0.010	mg/l	1x1	10/09/17 16:05	Analyst: nat
Batch ID: W7J0286							
Prepared: 10/05/17 11:54							
Method: EPA 365.1 Phosphorus, Dissolved	0.011	0.0014	0.010	mg/l	1x1	10/09/17 16:25	Analyst: nat
Batch ID: W7J0289							
Prepared: 10/05/17 11:55							

Sample: TMDL-SA
7J03116-06 (Water) Sampled: 10/03/17 8:30 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.3		0.30	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: _Various Nitrogen, Total	1.4		0.30	mg/l	1x1	10/12/17 13:36	Analyst: ymt
Batch ID: [CALC]							
Prepared: 10/12/17 09:36							
Method: EPA 351.2 TKN	0.15	0.050	0.10	mg/l	1x1	10/10/17 13:11	Analyst: ymt
Batch ID: W7J0262							
Prepared: 10/05/17 09:46							
Method: EPA 351.2 TKN, Soluble	ND	0.050	0.10	mg/l	1x1	10/20/17 11:37	Analyst: ymt
Batch ID: W7J0420							
Prepared: 10/08/17 09:16							
Method: EPA 353.2 NO2+NO3 as N	1.3	0.083	0.20	mg/l	1x1	10/12/17 13:36	Analyst: AJK
Batch ID: W7J0687							
Prepared: 10/12/17 09:36							
Method: EPA 365.1 Phosphorus as P, Total	0.018	0.0014	0.010	mg/l	1x1	10/09/17 16:06	Analyst: nat
Batch ID: W7J0286							
Prepared: 10/05/17 11:54							
Method: EPA 365.1 Phosphorus, Dissolved	0.013	0.0014	0.010	mg/l	1x1	10/09/17 16:28	Analyst: nat
Batch ID: W7J0289							
Prepared: 10/05/17 11:55							



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10/25/2017 11:38

Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-R3-2
7J03116-07 (Water) Sampled: 10/03/17 9:15 by

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]					Prepared: 10/12/17 09:36	Analyst: ymt
Dissolved Nitrogen	0.84		0.30	mg/l	1x1	10/20/17 11:37	
Method: _Various	Batch ID: [CALC]					Prepared: 10/12/17 09:36	Analyst: ymt
Nitrogen, Total	1.2		0.30	mg/l	1x1	10/12/17 13:38	
Method: EPA 351.2	Batch ID: W7J0262					Prepared: 10/05/17 09:46	Analyst: ymt
TKN	0.41	0.050	0.10	mg/l	1x1	10/10/17 13:11	
Method: EPA 351.2	Batch ID: W7J0420					Prepared: 10/08/17 09:16	Analyst: ymt
TKN, Soluble	0.073	0.050	0.10	mg/l	1x1	10/20/17 11:37	J
Method: EPA 353.2	Batch ID: W7J0687					Prepared: 10/12/17 09:36	Analyst: AJK
NO2+NO3 as N	0.77	0.083	0.20	mg/l	1x1	10/12/17 13:38	
Method: EPA 365.1	Batch ID: W7J0286					Prepared: 10/05/17 11:54	Analyst: nat
Phosphorus as P, Total	0.016	0.0014	0.010	mg/l	1x1	10/09/17 16:08	
Method: EPA 365.1	Batch ID: W7J0289					Prepared: 10/05/17 11:55	Analyst: nat
Phosphorus, Dissolved	0.012	0.0014	0.010	mg/l	1x1	10/09/17 16:30	



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Ventura County Watershed Protection District
800 South Victoria Avenue
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Project Number: TMDL Study October 2017 P6040555

Reported:
10/25/2017 11:38

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: W7J0262 - EPA 351.2											
Blank (W7J0262-BLK1)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 10/05/17 Analyzed: 10/10/17					
Blank (W7J0262-BLK2)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 10/05/17 Analyzed: 10/10/17					
LCS (W7J0262-BS1)											
TKN	0.991	0.050	0.10	mg/l	1.00		99	90-110			
						Prepared: 10/05/17 Analyzed: 10/10/17					
LCS (W7J0262-BS2)											
TKN	0.983	0.050	0.10	mg/l	1.00		98	90-110			
						Prepared: 10/05/17 Analyzed: 10/10/17					
Matrix Spike (W7J0262-MS1)											
TKN	1.25	0.050	0.10	mg/l	1.00	0.233	102	90-110			
						Source: 7J06078-01 Prepared: 10/05/17 Analyzed: 10/10/17					
Matrix Spike (W7J0262-MS2)											
TKN	1.27	0.050	0.10	mg/l	1.00	0.258	101	90-110			
						Source: 7J06078-02 Prepared: 10/05/17 Analyzed: 10/10/17					
Matrix Spike Dup (W7J0262-MSD1)											
TKN	1.27	0.050	0.10	mg/l	1.00	0.233	104	90-110	2	10	
						Source: 7J06078-01 Prepared: 10/05/17 Analyzed: 10/10/17					
Matrix Spike Dup (W7J0262-MSD2)											
TKN	1.24	0.050	0.10	mg/l	1.00	0.258	98	90-110	2	10	
						Source: 7J06078-02 Prepared: 10/05/17 Analyzed: 10/10/17					
Batch: W7J0286 - EPA 365.1											
Blank (W7J0286-BLK1)											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
						Prepared: 10/05/17 Analyzed: 10/09/17					
LCS (W7J0286-BS1)											
Phosphorus as P, Total	0.0501	0.0014	0.010	mg/l	0.0500		100	90-110			
						Prepared: 10/05/17 Analyzed: 10/09/17					
Matrix Spike (W7J0286-MS1)											
Phosphorus as P, Total	0.0985	0.0014	0.010	mg/l	0.0500	0.0464	104	90-110			
						Source: 7J03116-01 Prepared: 10/05/17 Analyzed: 10/09/17					
Matrix Spike Dup (W7J0286-MSD1)											
Phosphorus as P, Total	0.0988	0.0014	0.010	mg/l	0.0500	0.0464	105	90-110	0.3	20	
						Source: 7J03116-01 Prepared: 10/05/17 Analyzed: 10/09/17					
Batch: W7J0289 - EPA 365.1											
Blank (W7J0289-BLK1)											
Phosphorus, Dissolved	0.00154	0.0014	0.010	mg/l							J
						Prepared: 10/05/17 Analyzed: 10/09/17					
LCS (W7J0289-BS1)											
Phosphorus, Dissolved	0.0491	0.0014	0.010	mg/l	0.0500		98	90-110			
						Prepared: 10/05/17 Analyzed: 10/09/17					
Matrix Spike (W7J0289-MS1)											
Phosphorus, Dissolved	0.0728	0.0014	0.010	mg/l	0.0500	0.0204	105	90-110			
						Source: 7J03116-01 Prepared: 10/05/17 Analyzed: 10/09/17					
Matrix Spike Dup (W7J0289-MSD1)											
Phosphorus, Dissolved	0.0727	0.0014	0.010	mg/l	0.0500	0.0204	105	90-110	0.1	20	
						Source: 7J03116-01 Prepared: 10/05/17 Analyzed: 10/09/17					
Batch: W7J0420 - EPA 351.2											
Blank (W7J0420-BLK1)											
TKN, Soluble	ND	0.050	0.10	mg/l							
						Prepared: 10/08/17 Analyzed: 10/20/17					



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FINAL REPORT

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10/25/2017 11:38

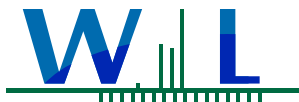
Project Manager: Kelly Hahs

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: W7J0420 - EPA 351.2 (Continued)											
LCS (W7J0420-BS1)											
TKN, Soluble	0.902	0.050	0.10	mg/l	1.00		90	90-110			
						Prepared: 10/08/17 Analyzed: 10/20/17					
Matrix Spike (W7J0420-MS1)											
TKN, Soluble	1.43	0.050	0.10	mg/l	1.00	0.381	105	90-110			
						Source: 7J03116-01 Prepared: 10/08/17 Analyzed: 10/20/17					
Matrix Spike Dup (W7J0420-MSD1)											
TKN, Soluble	1.43	0.050	0.10	mg/l	1.00	0.381	105	90-110	0.1	10	
						Source: 7J03116-01 Prepared: 10/08/17 Analyzed: 10/20/17					
Batch: W7J0687 - EPA 353.2											
Blank (W7J0687-BLK1)											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
						Prepared & Analyzed: 10/12/17					
LCS (W7J0687-BS1)											
NO2+NO3 as N	1.06	0.083	0.20	mg/l	1.00		106	90-110			
						Prepared & Analyzed: 10/12/17					
Matrix Spike (W7J0687-MS1)											
NO2+NO3 as N	2.08	0.083	0.20	mg/l	2.00	ND	104	90-110			
						Source: 7J03105-01 Prepared & Analyzed: 10/12/17					
Matrix Spike (W7J0687-MS2)											
NO2+NO3 as N	1.95	0.083	0.20	mg/l	2.00	ND	98	90-110			
						Source: 7J03105-02 Prepared & Analyzed: 10/12/17					
Matrix Spike Dup (W7J0687-MSD1)											
NO2+NO3 as N	2.07	0.083	0.20	mg/l	2.00	ND	104	90-110	0.1	20	
						Source: 7J03105-01 Prepared & Analyzed: 10/12/17					
Matrix Spike Dup (W7J0687-MSD2)											
NO2+NO3 as N	1.97	0.083	0.20	mg/l	2.00	ND	98	90-110	0.7	20	
						Source: 7J03105-02 Prepared & Analyzed: 10/12/17					



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10/25/2017 11:38

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
A-01	Suspected total result less than dissolve result, it was possibly due to different container.
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)
Comprehensive Monitoring Program

71201074

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: NOVEMBER 2017

SAMPLING DATE: 11/17

SAMPLERS: S. CASEY

GRAB SAMPLES

SAMPLE ID	DATE/TIME	** FIELD FILTERED			NOTES
		Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	
TMDL-Est	11/1/17 1200	X	X	X	
TMDL-R1	1120	X	X	X	
TMDL-R2	1020	X	X	X	
TMDL-R3	0925	X	X	X	
TMDL-R4	0745	X	X	X	
TMDL-CL		X	X	X	DRY
TMDL-SA	11/1/17 0820	X	X	X	
TMDL-FD		X	X	X	(Photo which site)

Signature: *[Signature]*
 Print Name: KELLY WALK
 Affiliation: WUSD
 Date/Time Received: 11/17/1405
 Date/Time Relinquished: 11/17/1405

Signature: *[Signature]*
 Print Name: CARLOS NAVARRO
 Affiliation: WECTUAS,
 Date/Time Received: 11/17/1405
 Date/Time Relinquished: 11/17/1405

Signature: *[Signature]*
 Print Name: JAINBONE
 Affiliation: Waulabj
 Date/Time Received: 11/17/1710
 Date/Time Relinquished:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Disolved samples were field filtered

Work Orders: 7K01074

Report Date: 11/17/2017

Received Date: 11/1/2017

Project: TMDL Study November 2017 P6040555

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

Attn: Kelly Hahs

P.O. #: WECKLABORATORYFY1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

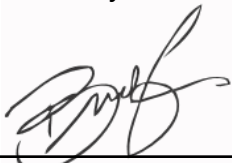
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015

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,

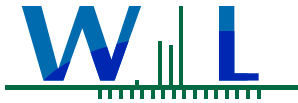
Enclosed are the results of analyses for samples received 11/01/17 with the Chain-of-Custody document. The samples were received in good condition, at 2.3 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:



Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

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FINAL REPORT

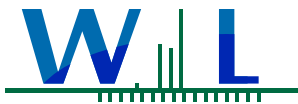
Project Number: TMDL Study November 2017 P6040555

Reported:
11/17/2017 14:33

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7K01074-01	Water	11/01/17 12:00	
TMDL-R1	S. Casey	7K01074-02	Water	11/01/17 11:20	
TMDL-R2	S. Casey	7K01074-03	Water	11/01/17 10:20	
TMDL-R3	S. Casey	7K01074-04	Water	11/01/17 09:25	
TMDL-R4	S. Casey	7K01074-05	Water	11/01/17 07:45	
TMDL-SA	S. Casey	7K01074-06	Water	11/01/17 08:20	



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FINAL REPORT

Project Number: TMDL Study November 2017 P6040555

Reported:
11/17/2017 14:33

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 11/01/17 12:00 by S. Casey

7K01074-01 (Water)

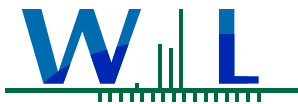
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 11/08/17 10:13			Analyst: mnq
Dissolved Nitrogen	0.58		0.30	mg/l	1x1	11/10/17 18:19	
Method: _Various	Batch ID: [CALC]			Prepared: 11/09/17 11:05			Analyst: mnq
Nitrogen, Total	1.3		0.30	mg/l	1x1	11/10/17 18:19	
Method: EPA 351.2	Batch ID: W7K0432			Prepared: 11/08/17 10:13			Analyst: mnq
TKN, Soluble	0.58	0.050	0.10	mg/l	1x1	11/10/17 18:19	
Method: EPA 351.2	Batch ID: W7K0704			Prepared: 11/09/17 11:05			Analyst: mnq
TKN	1.3	0.050	0.10	mg/l	1x1	11/10/17 18:19	
Method: EPA 353.2	Batch ID: W7K0092			Prepared: 11/02/17 09:07			Analyst: AJK
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	11/02/17 12:32	
Method: EPA 365.1	Batch ID: W7K0106			Prepared: 11/02/17 10:01			Analyst: nat
Phosphorus as P, Total	0.15	0.0014	0.010	mg/l	1x1	11/06/17 12:21	
Method: EPA 365.1	Batch ID: W7K0108			Prepared: 11/02/17 10:03			Analyst: nat
Phosphorus, Dissolved	0.026	0.0014	0.010	mg/l	1x1	11/06/17 12:58	

Sample: TMDL-R1

Sampled: 11/01/17 11:20 by S. Casey

7K01074-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 11/08/17 10:13			Analyst: mnq
Dissolved Nitrogen	1.4		0.30	mg/l	1x1	11/10/17 18:19	
Method: _Various	Batch ID: [CALC]			Prepared: 11/09/17 11:05			Analyst: mnq
Nitrogen, Total	1.5		0.30	mg/l	1x1	11/10/17 18:19	
Method: EPA 351.2	Batch ID: W7K0432			Prepared: 11/08/17 10:13			Analyst: mnq
TKN, Soluble	0.47	0.050	0.10	mg/l	1x1	11/10/17 18:19	
Method: EPA 351.2	Batch ID: W7K0704			Prepared: 11/09/17 11:05			Analyst: mnq
TKN	0.57	0.050	0.10	mg/l	1x1	11/10/17 18:19	
Method: EPA 353.2	Batch ID: W7K0092			Prepared: 11/02/17 09:07			Analyst: AJK
NO2+NO3 as N	0.90	0.083	0.20	mg/l	1x1	11/02/17 12:34	
Method: EPA 365.1	Batch ID: W7K0106			Prepared: 11/02/17 10:01			Analyst: nat
Phosphorus as P, Total	0.19	0.0014	0.010	mg/l	1x1	11/06/17 12:19	
Method: EPA 365.1	Batch ID: W7K0108			Prepared: 11/02/17 10:03			Analyst: nat
Phosphorus, Dissolved	0.17	0.0014	0.010	mg/l	1x1	11/06/17 13:03	



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 2017 P6040555

Reported:
11/17/2017 14:33

Project Manager: Kelly Hahs

Sample Results

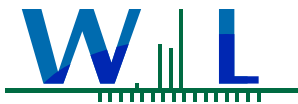
(Continued)

Sample: TMDL-R2
7K01074-03 (Water) Sampled: 11/01/17 10:20 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	3.2		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							Prepared: 11/08/17 10:13
Method: _Various Nitrogen, Total	3.3		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							Prepared: 11/09/17 11:05
Method: EPA 351.2 TKN, Soluble	0.86	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0432							Prepared: 11/08/17 10:13
Method: EPA 351.2 TKN	0.91	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0704							Prepared: 11/09/17 11:05
Method: EPA 353.2 NO2+NO3 as N	2.4	0.083	0.20	mg/l	1x1	11/02/17 12:36	Analyst: AJK
Batch ID: W7K0092							Prepared: 11/02/17 09:07
Method: EPA 365.1 Phosphorus as P, Total	0.36	0.0028	0.020	mg/l	2x1	11/06/17 12:27	Analyst: nat M-06
Batch ID: W7K0106							Prepared: 11/02/17 10:01
Method: EPA 365.1 Phosphorus, Dissolved	0.33	0.0028	0.020	mg/l	2x1	11/06/17 13:04	Analyst: nat M-06
Batch ID: W7K0108							Prepared: 11/02/17 10:03

Sample: TMDL-R3
7K01074-04 (Water) Sampled: 11/01/17 9:25 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.9		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							Prepared: 11/08/17 10:13
Method: _Various Nitrogen, Total	1		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							Prepared: 11/09/17 11:05
Method: EPA 351.2 TKN, Soluble	0.18	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0432							Prepared: 11/08/17 10:13
Method: EPA 351.2 TKN	0.30	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0704							Prepared: 11/09/17 11:05
Method: EPA 353.2 NO2+NO3 as N	0.73	0.083	0.20	mg/l	1x1	11/02/17 12:38	Analyst: AJK
Batch ID: W7K0092							Prepared: 11/02/17 09:07
Method: EPA 365.1 Phosphorus as P, Total	0.020	0.0014	0.010	mg/l	1x1	11/06/17 12:28	Analyst: nat
Batch ID: W7K0106							Prepared: 11/02/17 10:01
Method: EPA 365.1 Phosphorus, Dissolved	0.017	0.0014	0.010	mg/l	1x1	11/06/17 13:06	Analyst: nat
Batch ID: W7K0108							Prepared: 11/02/17 10:03



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Reported:
11/17/2017 14:33

Project Manager: Kelly Hahs

Sample Results

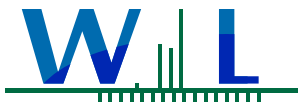
(Continued)

Sample: TMDL-R4
7K01074-05 (Water) Sampled: 11/01/17 7:45 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	1.3		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							
Prepared: 11/08/17 10:13							
Method: _Various Nitrogen, Total	1.4		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							
Prepared: 11/09/17 11:05							
Method: EPA 351.2 TKN, Soluble	ND	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0432							
Prepared: 11/08/17 10:13							
Method: EPA 351.2 TKN	0.16	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0704							
Prepared: 11/09/17 11:05							
Method: EPA 353.2 NO2+NO3 as N	1.3	0.083	0.20	mg/l	1x1	11/02/17 12:40	Analyst: AJK
Batch ID: W7K0092							
Prepared: 11/02/17 09:07							
Method: EPA 365.1 Phosphorus as P, Total	0.0075	0.0014	0.010	mg/l	1x1	11/06/17 12:29	Analyst: nat J
Batch ID: W7K0106							
Prepared: 11/02/17 10:01							
Method: EPA 365.1 Phosphorus, Dissolved	ND	0.0014	0.010	mg/l	1x1	11/06/17 13:07	Analyst: nat
Batch ID: W7K0108							
Prepared: 11/02/17 10:03							

Sample: TMDL-SA
7K01074-06 (Water) Sampled: 11/01/17 8:20 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.53		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							
Prepared: 11/08/17 10:13							
Method: _Various Nitrogen, Total	0.66		0.30	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: [CALC]							
Prepared: 11/09/17 11:05							
Method: EPA 351.2 TKN, Soluble	0.16	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0432							
Prepared: 11/08/17 10:13							
Method: EPA 351.2 TKN	0.29	0.050	0.10	mg/l	1x1	11/10/17 18:19	Analyst: mnq
Batch ID: W7K0704							
Prepared: 11/09/17 11:05							
Method: EPA 353.2 NO2+NO3 as N	0.37	0.083	0.20	mg/l	1x1	11/02/17 12:42	Analyst: AJK
Batch ID: W7K0092							
Prepared: 11/02/17 09:07							
Method: EPA 365.1 Phosphorus as P, Total	0.042	0.0014	0.010	mg/l	1x1	11/06/17 12:34	Analyst: nat
Batch ID: W7K0106							
Prepared: 11/02/17 10:01							
Method: EPA 365.1 Phosphorus, Dissolved	0.020	0.0014	0.010	mg/l	1x1	11/06/17 13:11	Analyst: nat
Batch ID: W7K0108							
Prepared: 11/02/17 10:03							



WECK LABORATORIES, INC.

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FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study November 2017 P6040555

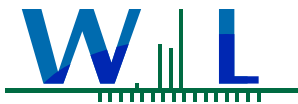
Reported:
11/17/2017 14:33

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: W7K0092 - EPA 353.2											
Blank (W7K0092-BLK1)					Prepared & Analyzed: 11/02/17						
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W7K0092-BS1)					Prepared & Analyzed: 11/02/17						
NO2+NO3 as N	0.980	0.083	0.20	mg/l	1.00		98	90-110			
Matrix Spike (W7K0092-MS1)					Source: 7K01036-09 Prepared & Analyzed: 11/02/17						
NO2+NO3 as N	5.42	0.083	0.20	mg/l	2.00	3.45	99	90-110			
Matrix Spike (W7K0092-MS2)					Source: 7J23018-01 Prepared & Analyzed: 11/02/17						
NO2+NO3 as N	8.83	0.083	0.20	mg/l	2.00	6.80	102	90-110			
Matrix Spike Dup (W7K0092-MSD1)					Source: 7K01036-09 Prepared & Analyzed: 11/02/17						
NO2+NO3 as N	5.47	0.083	0.20	mg/l	2.00	3.45	101	90-110	0.9	20	
Matrix Spike Dup (W7K0092-MSD2)					Source: 7J23018-01 Prepared & Analyzed: 11/02/17						
NO2+NO3 as N	8.91	0.083	0.20	mg/l	2.00	6.80	106	90-110	0.9	20	
Batch: W7K0106 - EPA 365.1											
Blank (W7K0106-BLK1)					Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W7K0106-BS1)					Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus as P, Total	0.0500	0.0014	0.010	mg/l	0.0500		100	90-110			
Matrix Spike (W7K0106-MS1)					Source: 7K01074-01 Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus as P, Total	0.204	0.0028	0.020	mg/l	0.0500	0.146	116	90-110			MS-02
Matrix Spike Dup (W7K0106-MSD1)					Source: 7K01074-01 Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus as P, Total	0.202	0.0028	0.020	mg/l	0.0500	0.146	112	90-110	1	20	MS-02
Batch: W7K0108 - EPA 365.1											
Blank (W7K0108-BLK1)					Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus, Dissolved	0.00140	0.0014	0.010	mg/l							J
LCS (W7K0108-BS1)					Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus, Dissolved	0.0511	0.0014	0.010	mg/l	0.0500		102	90-110			
Matrix Spike (W7K0108-MS1)					Source: 7K01074-01 Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus, Dissolved	0.0785	0.0014	0.010	mg/l	0.0500	0.0261	105	90-110			
Matrix Spike Dup (W7K0108-MSD1)					Source: 7K01074-01 Prepared: 11/02/17 Analyzed: 11/06/17						
Phosphorus, Dissolved	0.0785	0.0014	0.010	mg/l	0.0500	0.0261	105	90-110	0	20	
Batch: W7K0432 - EPA 351.2											
Blank (W7K0432-BLK1)					Prepared: 11/08/17 Analyzed: 11/10/17						
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W7K0432-BS1)					Prepared: 11/08/17 Analyzed: 11/10/17						
TKN, Soluble	0.962	0.050	0.10	mg/l	1.00		96	90-110			
Matrix Spike (W7K0432-MS1)					Source: 7K01074-01 Prepared: 11/08/17 Analyzed: 11/10/17						
TKN, Soluble	1.66	0.050	0.10	mg/l	1.00	0.583	108	90-110			



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11/17/2017 14:33

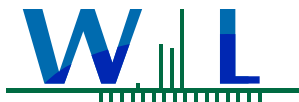
Project Manager: Kelly Hahs

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: W7K0432 - EPA 351.2 (Continued)											
Matrix Spike Dup (W7K0432-MSD1)											
Source: 7K01074-01 Prepared: 11/08/17 Analyzed: 11/10/17											
TKN, Soluble	1.85	0.050	0.10	mg/l	1.00	0.583	127	90-110	11	10	MS-01
Batch: W7K0704 - EPA 351.2											
Blank (W7K0704-BLK1)											
Prepared: 11/09/17 Analyzed: 11/10/17											
TKN	ND	0.050	0.10	mg/l							
LCS (W7K0704-BS1)											
Prepared: 11/09/17 Analyzed: 11/10/17											
TKN	0.972	0.050	0.10	mg/l	1.00		97	90-110			
Matrix Spike (W7K0704-MS1)											
Source: 7K01074-01 Prepared: 11/09/17 Analyzed: 11/10/17											
TKN	2.29	0.050	0.10	mg/l	1.00	1.34	95	90-110			
Matrix Spike Dup (W7K0704-MSD1)											
Source: 7K01074-01 Prepared: 11/09/17 Analyzed: 11/10/17											
TKN	2.34	0.050	0.10	mg/l	1.00	1.34	100	90-110	2	10	



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11/17/2017 14:33

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.
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

FL20102

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: DECEMBER 2017

SAMPLING DATE: 12/20/17

SAMPLERS: S. CASEY

GRAB SAMPLES

**FIELD FILTERED

SAMPLE ID	DATE/TIME	Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	NOTES
TMDL-Est	12/20/17 1100	X	X	X	
TMDL-R1	1020	X	X	X	
TMDL-R2	0930	X	X	X	
TMDL-R3	0815	X	X	X	
TMDL-R4	DRY	X	X	X	DRY
TMDL-CL		X	X	X	DRY
TMDL-SA		X	X	X	DRY
TMDL-FB		X	X	X	(note which site)

Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: KELLY WAITS	Print Name: Bruce Winkler
Affiliation: VCSWD	Affiliation: WECKLABS
Date/Time Received: 12/20/17 1400	Date/Time Received: 12/20/17 1400
Date/Time Relinquished: 12/20/17 1400	Date/Time Relinquished: 12/20/17 1400
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Carlos Navarro	Print Name: Lester Abel
Affiliation: WECKLABS	Affiliation: Wecklab
Date/Time Received: 12/20/17 430	Date/Time Received: 12/20/17 18:10
Date/Time Relinquished: 12/20/17 610	Date/Time Relinquished:

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

1.8c

Work Orders: 7L20102

Report Date: 1/09/2018

Received Date: 12/20/2017

Project: TMDL Study December 2017 P6040555

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

Attn: Kelly Hahs

P.O. #: WECKLABORATORYFY1
8MA01

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Billing Code:

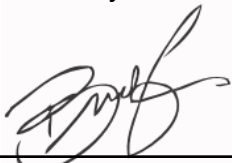
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015

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,

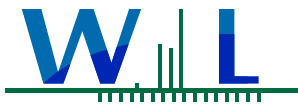
Enclosed are the results of analyses for samples received 12/20/17 with the Chain-of-Custody document. The samples were received in good condition, at 1.8 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

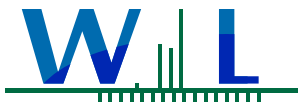
Project Number: TMDL Study December 2017 P6040555

Reported:
01/09/2018 12:42

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	S. Casey	7L20102-01	Water	12/20/17 11:00	
TMDL-R1	S. Casey	7L20102-02	Water	12/20/17 10:20	
TMDL-R2	S. Casey	7L20102-03	Water	12/20/17 09:30	
TMDL-R3	S. Casey	7L20102-04	Water	12/20/17 08:15	



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Reported:
01/09/2018 12:42

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 12/20/17 11:00 by S. Casey

7L20102-01 (Water)

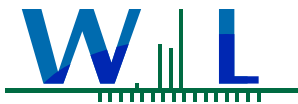
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 12/29/17 09:48			Analyst: mnq
Dissolved Nitrogen	0.7		0.30	mg/l	1x1	12/29/17 13:37	
Method: _Various	Batch ID: [CALC]			Prepared: 12/29/17 09:48			Analyst: ymt
Nitrogen, Total	1.5		0.30	mg/l	1x1	12/29/17 12:50	
Method: EPA 351.2	Batch ID: W7L1259			Prepared: 12/26/17 10:24			Analyst: ymt
TKN	1.4	0.050	0.10	mg/l	1x1	12/28/17 13:28	
Method: EPA 351.2	Batch ID: W7L1332			Prepared: 12/27/17 10:15			Analyst: mnq
TKN, Soluble	0.57		0.10	mg/l	1x1	12/29/17 13:37	
Method: EPA 353.2	Batch ID: W7L1463			Prepared: 12/29/17 09:48			Analyst: ajk
NO2+NO3 as N	0.13	0.083	0.20	mg/l	1x1	12/29/17 12:50	J
Method: EPA 365.1	Batch ID: W7L1265			Prepared: 12/26/17 11:06			Analyst: nat
Phosphorus as P, Total	0.11	0.0014	0.010	mg/l	1x1	12/28/17 11:19	
Method: EPA 365.1	Batch ID: W7L1267			Prepared: 12/26/17 11:07			Analyst: nat
Phosphorus, Dissolved	0.023	0.0014	0.010	mg/l	1x1	12/28/17 12:07	

Sample: TMDL-R1

Sampled: 12/20/17 10:20 by S. Casey

7L20102-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]			Prepared: 12/29/17 09:48			Analyst: mnq
Dissolved Nitrogen	2		0.30	mg/l	1x1	12/29/17 13:37	
Method: _Various	Batch ID: [CALC]			Prepared: 12/29/17 09:48			Analyst: ymt
Nitrogen, Total	2.1		0.30	mg/l	1x1	12/29/17 12:50	
Method: EPA 351.2	Batch ID: W7L1259			Prepared: 12/26/17 10:24			Analyst: ymt
TKN	0.61	0.050	0.10	mg/l	1x1	12/28/17 13:28	
Method: EPA 351.2	Batch ID: W7L1332			Prepared: 12/27/17 10:15			Analyst: mnq
TKN, Soluble	0.50		0.10	mg/l	1x1	12/29/17 13:37	
Method: EPA 353.2	Batch ID: W7L1463			Prepared: 12/29/17 09:48			Analyst: ajk
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	12/29/17 12:50	
Method: EPA 365.1	Batch ID: W7L1265			Prepared: 12/26/17 11:06			Analyst: nat
Phosphorus as P, Total	0.054	0.0014	0.010	mg/l	1x1	12/28/17 11:24	
Method: EPA 365.1	Batch ID: W7L1267			Prepared: 12/26/17 11:07			Analyst: nat
Phosphorus, Dissolved	0.048	0.0014	0.010	mg/l	1x1	12/28/17 12:11	



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 2017 P6040555

Reported:
01/09/2018 12:42

Project Manager: Kelly Hahs

Sample Results

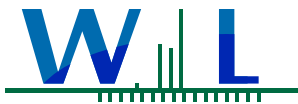
(Continued)

Sample: TMDL-R2
7L20102-03 (Water) Sampled: 12/20/17 9:30 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	5.9		0.30	mg/l	1x1	12/29/17 13:37	Analyst: mnq
Batch ID: [CALC]							Prepared: 12/29/17 09:48
Method: _Various Nitrogen, Total	5.9		0.30	mg/l	1x1	12/29/17 12:50	Analyst: ymt
Batch ID: [CALC]							Prepared: 12/29/17 09:48
Method: EPA 351.2 TKN	0.88	0.050	0.10	mg/l	1x1	12/28/17 13:28	Analyst: ymt
Batch ID: W7L1259							Prepared: 12/26/17 10:24
Method: EPA 351.2 TKN, Soluble	0.91		0.10	mg/l	1x1	12/29/17 13:37	Analyst: mnq
Batch ID: W7L1332							Prepared: 12/27/17 10:15
Method: EPA 353.2 NO2+NO3 as N	5.0	0.083	0.20	mg/l	1x1	12/29/17 12:50	Analyst: ajk
Batch ID: W7L1463							Prepared: 12/29/17 09:48
Method: EPA 365.1 Phosphorus as P, Total	0.089	0.0014	0.010	mg/l	1x1	12/28/17 11:25	Analyst: nat
Batch ID: W7L1265							Prepared: 12/26/17 11:06
Method: EPA 365.1 Phosphorus, Dissolved	0.062	0.0014	0.010	mg/l	1x1	12/28/17 12:13	Analyst: nat
Batch ID: W7L1267							Prepared: 12/26/17 11:07

Sample: TMDL-R3
7L20102-04 (Water) Sampled: 12/20/17 8:15 by S. Casey

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.81		0.30	mg/l	1x1	12/29/17 13:37	Analyst: mnq
Batch ID: [CALC]							Prepared: 12/29/17 09:48
Method: _Various Nitrogen, Total	0.98		0.30	mg/l	1x1	12/29/17 12:50	Analyst: ymt
Batch ID: [CALC]							Prepared: 12/29/17 09:48
Method: EPA 351.2 TKN	0.17	0.050	0.10	mg/l	1x1	12/28/17 13:28	Analyst: ymt
Batch ID: W7L1259							Prepared: 12/26/17 10:24
Method: EPA 351.2 TKN, Soluble	ND		0.10	mg/l	1x1	12/29/17 13:37	Analyst: mnq
Batch ID: W7L1332							Prepared: 12/27/17 10:15
Method: EPA 353.2 NO2+NO3 as N	0.81	0.083	0.20	mg/l	1x1	12/29/17 12:50	Analyst: ajk
Batch ID: W7L1463							Prepared: 12/29/17 09:48
Method: EPA 365.1 Phosphorus, Dissolved	0.016	0.0014	0.010	mg/l	1x1	12/28/17 12:14	Analyst: nat
Batch ID: W7L1267							Prepared: 12/26/17 11:07
Method: EPA 365.1 Phosphorus as P, Total	0.016	0.0014	0.010	mg/l	1x1	01/02/18 11:57	Analyst: nat
Batch ID: W7L1431							Prepared: 12/28/17 13:16



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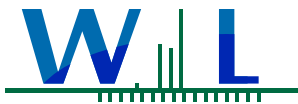
Reported:
01/09/2018 12:42

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	RPD Limit	Qualifier
Batch: W7L1259 - EPA 351.2											
Blank (W7L1259-BLK1)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 12/26/17 Analyzed: 12/28/17					
Blank (W7L1259-BLK2)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 12/26/17 Analyzed: 12/28/17					
LCS (W7L1259-BS1)											
TKN	1.02	0.050	0.10	mg/l	1.00		102	90-110			
						Prepared: 12/26/17 Analyzed: 12/28/17					
LCS (W7L1259-BS2)											
TKN	0.971	0.050	0.10	mg/l	1.00		97	90-110			
						Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike (W7L1259-MS1)											
TKN	1.28	0.050	0.10	mg/l	1.00	0.232	105	90-110			
						Source: 7L21045-07 Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike (W7L1259-MS2)											
TKN	1.23	0.050	0.10	mg/l	1.00	0.262	97	90-110			
						Source: 7L21045-08 Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike Dup (W7L1259-MSD1)											
TKN	1.29	0.050	0.10	mg/l	1.00	0.232	106	90-110	0.7	10	
						Source: 7L21045-07 Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike Dup (W7L1259-MSD2)											
TKN	1.34	0.050	0.10	mg/l	1.00	0.262	108	90-110	9	10	
						Source: 7L21045-08 Prepared: 12/26/17 Analyzed: 12/28/17					
Batch: W7L1265 - EPA 365.1											
Blank (W7L1265-BLK1)											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
						Prepared: 12/26/17 Analyzed: 12/28/17					
LCS (W7L1265-BS1)											
Phosphorus as P, Total	0.0515	0.0014	0.010	mg/l	0.0500		103	90-110			
						Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike (W7L1265-MS1)											
Phosphorus as P, Total	0.158	0.0014	0.010	mg/l	0.0500	0.107	102	90-110			
						Source: 7L20102-01 Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike Dup (W7L1265-MSD1)											
Phosphorus as P, Total	0.156	0.0014	0.010	mg/l	0.0500	0.107	98	90-110	1	20	
						Source: 7L20102-01 Prepared: 12/26/17 Analyzed: 12/28/17					
Batch: W7L1267 - EPA 365.1											
Blank (W7L1267-BLK1)											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
						Prepared: 12/26/17 Analyzed: 12/28/17					
LCS (W7L1267-BS1)											
Phosphorus, Dissolved	0.0528	0.0014	0.010	mg/l	0.0500		106	90-110			
						Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike (W7L1267-MS1)											
Phosphorus, Dissolved	0.0736	0.0014	0.010	mg/l	0.0500	0.0234	100	90-110			
						Source: 7L20102-01 Prepared: 12/26/17 Analyzed: 12/28/17					
Matrix Spike Dup (W7L1267-MSD1)											
Phosphorus, Dissolved	0.0731	0.0014	0.010	mg/l	0.0500	0.0234	99	90-110	0.7	20	
						Source: 7L20102-01 Prepared: 12/26/17 Analyzed: 12/28/17					
Batch: W7L1332 - EPA 351.2											
Blank (W7L1332-BLK1)											
TKN, Soluble	ND		0.10	mg/l							
						Prepared: 12/27/17 Analyzed: 12/29/17					



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Reported:
01/09/2018 12:42

Project Manager: Kelly Hahs

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W7L1332 - EPA 351.2 (Continued)										
LCS (W7L1332-BS1)										
TKN, Soluble	0.964	0.10	mg/l	1.00		96	90-110			
				Prepared: 12/27/17 Analyzed: 12/29/17						
Matrix Spike (W7L1332-MS1)										
TKN, Soluble	1.46	0.10	mg/l	1.00	0.500	96	90-110			
				Source: 7L20102-02 Prepared: 12/27/17 Analyzed: 12/29/17						
Matrix Spike Dup (W7L1332-MSD1)										
TKN, Soluble	1.49	0.10	mg/l	1.00	0.500	99	90-110	2	10	
				Source: 7L20102-02 Prepared: 12/27/17 Analyzed: 12/29/17						
Batch: W7L1431 - EPA 365.1										
Blank (W7L1431-BLK1)										
Phosphorus as P, Total	ND	0.0014	0.010	mg/l						
				Prepared: 12/28/17 Analyzed: 01/02/18						
LCS (W7L1431-BS1)										
Phosphorus as P, Total	0.0481	0.0014	0.010	mg/l	0.0500	96	90-110			
				Prepared: 12/28/17 Analyzed: 01/02/18						
Matrix Spike (W7L1431-MS1)										
Phosphorus as P, Total	0.0664	0.0014	0.010	mg/l	0.0500	0.0162	100	90-110		
				Source: 7L20102-04 Prepared: 12/28/17 Analyzed: 01/02/18						
Matrix Spike Dup (W7L1431-MSD1)										
Phosphorus as P, Total	0.0661	0.0014	0.010	mg/l	0.0500	0.0162	100	90-110	0.5	20
				Source: 7L20102-04 Prepared: 12/28/17 Analyzed: 01/02/18						
Batch: W7L1463 - EPA 353.2										
Blank (W7L1463-BLK1)										
NO2+NO3 as N	ND	0.083	0.20	mg/l						
				Prepared & Analyzed: 12/29/17						
LCS (W7L1463-BS1)										
NO2+NO3 as N	1.00	0.083	0.20	mg/l	1.00	100	90-110			
				Prepared & Analyzed: 12/29/17						
Matrix Spike (W7L1463-MS1)										
NO2+NO3 as N	7.10	0.083	0.20	mg/l	2.00	5.03	103	90-110		
				Source: 7L20102-03 Prepared & Analyzed: 12/29/17						
Matrix Spike (W7L1463-MS2)										
NO2+NO3 as N	2.73	0.083	0.20	mg/l	2.00	0.813	96	90-110		
				Source: 7L20102-04 Prepared & Analyzed: 12/29/17						
Matrix Spike Dup (W7L1463-MSD1)										
NO2+NO3 as N	7.02	0.083	0.20	mg/l	2.00	5.03	99	90-110	1	20
				Source: 7L20102-03 Prepared & Analyzed: 12/29/17						
Matrix Spike Dup (W7L1463-MSD2)										
NO2+NO3 as N	2.72	0.083	0.20	mg/l	2.00	0.813	95	90-110	0.3	20
				Source: 7L20102-04 Prepared & Analyzed: 12/29/17						



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01/09/2018 12:42

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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.



Ventura River and Tributaries
Algae, Eutrophic Conditions, and Nutrients TMDL
(VR Algae TMDL)
Comprehensive Monitoring Program

2A03092

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: JANUARY 2018

SAMPLING DATE: 1/3/18

SAMPLERS: K. HAYS, L. WEEKER

GRAB SAMPLES

SAMPLE ID	DATE/TIME	** FIELD FILTERED			NOTES
		Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	
TMDL-Est	1/3/18 1155	X	X	X	
TMDL-R1	1105	X	X	X	
TMDL-R2	0955	X	X	X	
TMDL-R3	0835	X	X	X	
TMDL-R4		X	X	X	DAY
TMDL-CL		X	X	X	
TMDL-SA		X	X	X	
TMDL-FB		X	X	X	(Note which sites)

Signature: Kelly Hays

Print Name: KELLY HAYS

Affiliation: VCWPPD

Date/Time Received: 1/3/18 1415

Date/Time Relinquished: 1/3/18 1415

Signature: [Signature]

Print Name: [Name]

Affiliation: VCWPPD

Date/Time Received: 1/3/18 1415

Date/Time Relinquished: 1/3/18 1415

Signature: [Signature]

Print Name: [Name]

Affiliation: VCWPPD

Date/Time Received: 1/3/18 1415

Date/Time Relinquished: 1/3/18 1415

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

1.1 c

Work Orders: 8A03092

Report Date: 1/22/2018

Project: TMDL Study January 2018 P6040555

Received Date: 1/3/2018

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

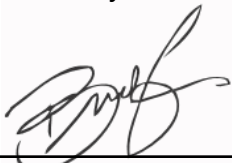
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015

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,

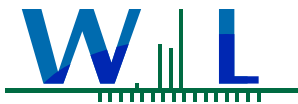
Enclosed are the results of analyses for samples received 1/03/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

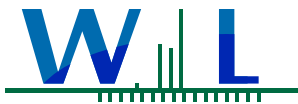
Project Number: TMDL Study January 2018 P6040555

Reported:
01/22/2018 12:15

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs, L. Meeker	8A03092-01	Water	01/03/18 11:55	
TMDL-R1	K. Hahs, L. Meeker	8A03092-02	Water	01/03/18 11:05	
TMDL-R2	K. Hahs, L. Meeker	8A03092-03	Water	01/03/18 09:55	
TMDL-R3	K. Hahs, L. Meeker	8A03092-04	Water	01/03/18 08:35	



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FINAL REPORT

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01/22/2018 12:15

Project Manager: Kelly Hahs

Sample Results

Sample: TMDL-Est

Sampled: 01/03/18 11:55 by K. Hahs, L. Meeker

8A03092-01 (Water)

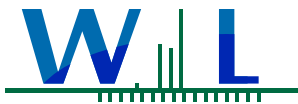
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Prepared: 01/15/18 09:31				Analyst: ymt
Dissolved Nitrogen	0.42		0.30	mg/l	1x1	01/16/18 15:55	
Method: _Various	Batch ID: [CALC]		Prepared: 01/18/18 20:16				Analyst: ymt
Nitrogen, Total	1.3		0.30	mg/l	1x1	01/21/18 16:12	
Method: EPA 351.2	Batch ID: W8A0809		Prepared: 01/14/18 09:10				Analyst: ymt
TKN, Soluble	0.42		0.10	mg/l	1x1	01/16/18 15:55	
Method: EPA 351.2	Batch ID: W8A1162		Prepared: 01/18/18 20:16				Analyst: ymt
TKN	1.3	0.050	0.10	mg/l	1x1	01/21/18 16:12	
Method: EPA 353.2	Batch ID: W8A0833		Prepared: 01/15/18 09:31				Analyst: ajk
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	01/15/18 11:55	
Method: EPA 365.1	Batch ID: W8A0270		Prepared: 01/05/18 13:15				Analyst: nat
Phosphorus as P, Total	0.12	0.0014	0.010	mg/l	1x1	01/08/18 12:07	
Method: EPA 365.1	Batch ID: W8A0271		Prepared: 01/05/18 13:16				Analyst: nat
Phosphorus, Dissolved	0.020	0.0014	0.010	mg/l	1x1	01/08/18 12:21	

Sample: TMDL-R1

Sampled: 01/03/18 11:05 by K. Hahs, L. Meeker

8A03092-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD ***	Batch ID: [CALC]		Prepared: 01/15/18 09:31				Analyst: ymt
Dissolved Nitrogen	0.95		0.30	mg/l	1x1	01/16/18 15:55	
Method: _Various	Batch ID: [CALC]		Prepared: 01/18/18 20:16				Analyst: ymt
Nitrogen, Total	1.1		0.30	mg/l	1x1	01/21/18 16:12	
Method: EPA 351.2	Batch ID: W8A0809		Prepared: 01/14/18 09:10				Analyst: ymt
TKN, Soluble	0.45		0.10	mg/l	1x1	01/16/18 15:55	
Method: EPA 351.2	Batch ID: W8A1162		Prepared: 01/18/18 20:16				Analyst: ymt
TKN	0.64	0.050	0.10	mg/l	1x1	01/21/18 16:12	
Method: EPA 353.2	Batch ID: W8A0833		Prepared: 01/15/18 09:31				Analyst: ajk
NO2+NO3 as N	0.50	0.083	0.20	mg/l	1x1	01/15/18 12:00	
Method: EPA 365.1	Batch ID: W8A0270		Prepared: 01/05/18 13:15				Analyst: nat
Phosphorus as P, Total	0.041	0.0014	0.010	mg/l	1x1	01/08/18 12:11	
Method: EPA 365.1	Batch ID: W8A0271		Prepared: 01/05/18 13:16				Analyst: nat
Phosphorus, Dissolved	0.032	0.0014	0.010	mg/l	1x1	01/08/18 12:26	



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800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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Reported:
01/22/2018 12:15

Project Manager: Kelly Hahs

Sample Results

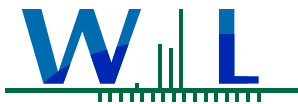
(Continued)

Sample: TMDL-R2
8A03092-03 (Water) Sampled: 01/03/18 9:55 by K. Hahs, L. Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	5.1		0.30	mg/l	1x1	01/16/18 15:55	Analyst: ymt
Batch ID: [CALC]							
Prepared: 01/15/18 09:31							
Method: _Various Nitrogen, Total	5.3		0.30	mg/l	1x1	01/21/18 16:12	Analyst: ymt
Batch ID: [CALC]							
Prepared: 01/18/18 20:16							
Method: EPA 351.2 TKN, Soluble	0.70		0.10	mg/l	1x1	01/16/18 15:55	Analyst: ymt
Batch ID: W8A0809							
Prepared: 01/14/18 09:10							
Method: EPA 351.2 TKN	0.90	0.050	0.10	mg/l	1x1	01/21/18 16:12	Analyst: ymt
Batch ID: W8A1162							
Prepared: 01/18/18 20:16							
Method: EPA 353.2 NO2+NO3 as N	4.4	0.083	0.20	mg/l	1x1	01/15/18 12:06	Analyst: ajk
Batch ID: W8A0833							
Prepared: 01/15/18 09:31							
Method: EPA 365.1 Phosphorus as P, Total	0.088	0.0014	0.010	mg/l	1x1	01/08/18 12:13	Analyst: nat
Batch ID: W8A0270							
Prepared: 01/05/18 13:15							
Method: EPA 365.1 Phosphorus, Dissolved	0.063	0.0014	0.010	mg/l	1x1	01/08/18 12:27	Analyst: nat
Batch ID: W8A0271							
Prepared: 01/05/18 13:16							

Sample: TMDL-R3
8A03092-04 (Water) Sampled: 01/03/18 8:35 by K. Hahs, L. Meeker

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: *** DEFAULT SPECIFIC METHOD *** Dissolved Nitrogen	0.66		0.30	mg/l	1x1	01/16/18 15:55	Analyst: ymt
Batch ID: [CALC]							
Prepared: 01/15/18 09:31							
Method: _Various Nitrogen, Total	0.78		0.30	mg/l	1x1	01/21/18 16:12	Analyst: ymt
Batch ID: [CALC]							
Prepared: 01/18/18 20:16							
Method: EPA 351.2 TKN, Soluble	ND		0.10	mg/l	1x1	01/16/18 15:55	Analyst: ymt
Batch ID: W8A0809							
Prepared: 01/14/18 09:10							
Method: EPA 351.2 TKN	0.12	0.050	0.10	mg/l	1x1	01/21/18 16:12	Analyst: ymt
Batch ID: W8A1162							
Prepared: 01/18/18 20:16							
Method: EPA 353.2 NO2+NO3 as N	0.66	0.083	0.20	mg/l	1x1	01/15/18 12:07	Analyst: ajk
Batch ID: W8A0833							
Prepared: 01/15/18 09:31							
Method: EPA 365.1 Phosphorus as P, Total	0.015	0.0014	0.010	mg/l	1x1	01/08/18 12:14	Analyst: nat
Batch ID: W8A0270							
Prepared: 01/05/18 13:15							
Method: EPA 365.1 Phosphorus, Dissolved	0.010	0.0014	0.010	mg/l	1x1	01/08/18 12:29	Analyst: nat
Batch ID: W8A0271							
Prepared: 01/05/18 13:16							



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FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study January 2018 P6040555

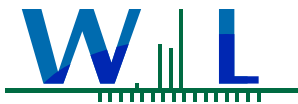
Reported:
01/22/2018 12:15

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: W8A0270 - EPA 365.1											
Blank (W8A0270-BLK1) Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8A0270-BS1) Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus as P, Total	0.0507	0.0014	0.010	mg/l	0.0500		101	90-110			
Matrix Spike (W8A0270-MS1) Source: 8A03092-01 Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus as P, Total	0.172	0.0014	0.010	mg/l	0.0500	0.125	94	90-110			
Matrix Spike Dup (W8A0270-MSD1) Source: 8A03092-01 Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus as P, Total	0.175	0.0014	0.010	mg/l	0.0500	0.125	100	90-110	2	20	
Batch: W8A0271 - EPA 365.1											
Blank (W8A0271-BLK1) Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8A0271-BS1) Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus, Dissolved	0.0490	0.0014	0.010	mg/l	0.0500		98	90-110			
Matrix Spike (W8A0271-MS1) Source: 8A03092-01 Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus, Dissolved	0.0701	0.0014	0.010	mg/l	0.0500	0.0195	101	90-110			
Matrix Spike Dup (W8A0271-MSD1) Source: 8A03092-01 Prepared: 01/05/18 Analyzed: 01/08/18											
Phosphorus, Dissolved	0.0705	0.0014	0.010	mg/l	0.0500	0.0195	102	90-110	0.6	20	
Batch: W8A0809 - EPA 351.2											
Blank (W8A0809-BLK1) Prepared: 01/14/18 Analyzed: 01/16/18											
TKN, Soluble	ND		0.10	mg/l							
LCS (W8A0809-BS1) Prepared: 01/14/18 Analyzed: 01/16/18											
TKN, Soluble	1.08		0.10	mg/l	1.00		108	90-110			
Matrix Spike (W8A0809-MS1) Source: 8A03092-02 Prepared: 01/14/18 Analyzed: 01/16/18											
TKN, Soluble	1.41		0.10	mg/l	1.00	0.452	96	90-110			
Matrix Spike Dup (W8A0809-MSD1) Source: 8A03092-02 Prepared: 01/14/18 Analyzed: 01/16/18											
TKN, Soluble	1.52		0.10	mg/l	1.00	0.452	106	90-110	7	10	
Batch: W8A0833 - EPA 353.2											
Blank (W8A0833-BLK1) Prepared & Analyzed: 01/15/18											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8A0833-BS1) Prepared & Analyzed: 01/15/18											
NO2+NO3 as N	0.978	0.083	0.20	mg/l	1.00		98	90-110			
Matrix Spike (W8A0833-MS1) Source: 8A03092-01 Prepared & Analyzed: 01/15/18											
NO2+NO3 as N	1.97	0.083	0.20	mg/l	2.00	ND	99	90-110			
Matrix Spike (W8A0833-MS2) Source: 8A03092-02 Prepared & Analyzed: 01/15/18											
NO2+NO3 as N	2.43	0.083	0.20	mg/l	2.00	0.501	96	90-110			
Matrix Spike Dup (W8A0833-MSD1) Source: 8A03092-01 Prepared & Analyzed: 01/15/18											
NO2+NO3 as N	2.01	0.083	0.20	mg/l	2.00	ND	100	90-110	2	20	



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FINAL REPORT

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Reported:
01/22/2018 12:15

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: W8A0833 - EPA 353.2 (Continued)											
Matrix Spike Dup (W8A0833-MSD2)			Source: 8A03092-02			Prepared & Analyzed: 01/15/18					
NO2+NO3 as N	2.51	0.083	0.20	mg/l	2.00	0.501	101	90-110	3	20	
Batch: W8A1162 - EPA 351.2											
Blank (W8A1162-BLK1)						Prepared: 01/18/18 Analyzed: 01/21/18					
TKN	ND	0.050	0.10	mg/l							
LCS (W8A1162-BS1)						Prepared: 01/18/18 Analyzed: 01/21/18					
TKN	1.06	0.050	0.10	mg/l	1.00		106	90-110			
Matrix Spike (W8A1162-MS1)			Source: 8A05020-01			Prepared: 01/18/18 Analyzed: 01/21/18					
TKN	1.34	0.050	0.10	mg/l	1.00	0.257	109	90-110			
Matrix Spike Dup (W8A1162-MSD1)			Source: 8A05020-01			Prepared: 01/18/18 Analyzed: 01/21/18					
TKN	1.31	0.050	0.10	mg/l	1.00	0.257	105	90-110	3	10	



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Notes and Definitions

Item	Definition
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

8B04016

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)
 SAMPLING EVENT: ~~February~~ FEBRUARY 2018
 SAMPLING DATE: 2/7/18
 SAMPLERS: A. SPYRKA
 GRAB SAMPLES

SAMPLE ID	DATE/TIME	** FIELD FILTERED			NOTES
		Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	
TMDL-Est	2/7/18 1315	X	X	X	
TMDL-R1	1235	X	X	X	
TMDL-R2	1130	X	X	X	
TMDL-R3	1015	X	X	X	
TMDL-R4	0900	X	X	X	
TMDL-CL	0730	X	X	X	
TMDL-SA		X	X	X	
TMDL-FD		X	X	X	DRY

Signature: *[Signature]* Kelly Hahs
 Print Name: KELLY HAHS
 Affiliation: VCSPP
 Date/Time Received: 2/9/18 / 1032
 Date/Time Relinquished: 2/9/18 / 1032

Signature: *[Signature]* Carlos Navarro
 Print Name: CARLOS NAVARRO
 Affiliation: Weck Labs
 Date/Time Received: 2/9/18 / 1032
 Date/Time Relinquished: 2/9/18 / 1032

Signature: *[Signature]* Angela
 Print Name: ANGELA
 Affiliation: Weck Labs
 Date/Time Received: 2/9/18 / 1032
 Date/Time Relinquished: 2/9/18 / 1032

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):
 Dissolved samples were field filtered

CA

4.0

Work Orders: 8B09016

Report Date: 3/06/2018

Project: TMDL Study February 2018 P6040555

Received Date: 2/9/2018

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

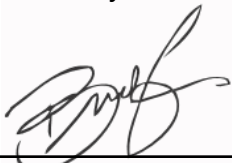
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • ISO 17025 #L2457.01 • LACSD #10143 •
NJ-DEP #CA015

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,

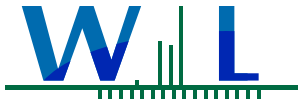
Enclosed are the results of analyses for samples received 2/09/18 with the Chain-of-Custody document. The samples were received in good condition, at 4.0 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:



Brandon Gee
Operations Manager/Senior PM





WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

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FINAL REPORT

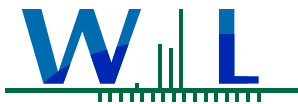
Project Number: TMDL Study February 2018 P6040555

Reported:
03/06/2018 12:02

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	A. Spyrka	8B09016-01	Water	02/07/18 13:15	
TMDL-R1	A. Spyrka	8B09016-02	Water	02/07/18 12:35	
TMDL-R2	A. Spyrka	8B09016-03	Water	02/07/18 11:30	
TMDL-R3	A. Spyrka	8B09016-04	Water	02/07/18 10:15	
TMDL-R4	A. Spyrka	8B09016-05	Water	02/07/18 09:00	
TMDL-CL	A. Spyrka	8B09016-06	Water	02/07/18 07:30	



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03/06/2018 12:02

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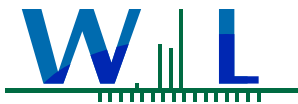
Sample Results

Sample: TMDL-Est
8B09016-01 (Water) Sampled: 02/07/18 13:15 by A. Spyрка

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: 02/13/18 09:13		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	1.7		0.30	mg/l	1x1	02/14/18 15:29	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 02/13/18 09:13		Analyst: ymt
Nitrogen, Total	2		0.20	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0549		Instr: AA06		Prepared: 02/12/18 13:40		Analyst: ymt
TKN	1.2	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0550		Instr: AA06		Prepared: 02/12/18 13:42		Analyst: ymt
TKN, Soluble	0.90	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 353.2	Batch ID: W8B0596		Instr: AA03		Prepared: 02/13/18 09:13		Analyst: YMT
NO2+NO3 as N	0.80	0.083	0.20	mg/l	1x1	02/13/18 12:17	
Method: EPA 365.1	Batch ID: W8B0757		Instr: AA01		Prepared: 02/14/18 18:24		Analyst: nat
Phosphorus as P, Total	0.061	0.0014	0.010	mg/l	1x1	02/20/18 13:30	
Method: EPA 365.1	Batch ID: W8B0758		Instr: AA01		Prepared: 02/14/18 18:26		Analyst: nat
Phosphorus, Dissolved	0.018	0.0014	0.010	mg/l	1x1	02/20/18 14:56	

Sample: TMDL-R1
8B09016-02 (Water) Sampled: 02/07/18 12:35 by A. Spyрка

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: 02/13/18 09:13		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	1.1		0.30	mg/l	1x1	02/14/18 15:29	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 02/13/18 09:13		Analyst: ymt
Nitrogen, Total	1.2		0.20	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0549		Instr: AA06		Prepared: 02/12/18 13:40		Analyst: ymt
TKN	1.0	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0550		Instr: AA06		Prepared: 02/12/18 13:42		Analyst: ymt
TKN, Soluble	0.93	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 353.2	Batch ID: W8B0596		Instr: AA03		Prepared: 02/13/18 09:13		Analyst: YMT
NO2+NO3 as N	0.17	0.083	0.20	mg/l	1x1	02/13/18 12:19	J
Method: EPA 365.1	Batch ID: W8B0757		Instr: AA01		Prepared: 02/14/18 18:24		Analyst: nat
Phosphorus as P, Total	0.059	0.0014	0.010	mg/l	1x1	02/20/18 13:34	
Method: EPA 365.1	Batch ID: W8B0758		Instr: AA01		Prepared: 02/14/18 18:26		Analyst: nat
Phosphorus, Dissolved	0.022	0.0014	0.010	mg/l	1x1	02/20/18 15:00	



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Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

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Reported:
03/06/2018 12:02

Project Manager: Kelly Hahs

Sample Results

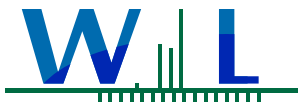
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Sample: TMDL-R2
8B09016-03 (Water) Sampled: 02/07/18 11:30 by A. Spyрка

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: 02/13/18 09:13		Analyst: ymt	
Dissolved Nitrogen	1		0.30	mg/l	1x1	02/14/18 15:29	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 02/13/18 09:13		Analyst: ymt	
Nitrogen, Total	1.2		0.20	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0549	Instr: AA06		Prepared: 02/12/18 13:40		Analyst: ymt	
TKN	0.98	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0550	Instr: AA06		Prepared: 02/12/18 13:42		Analyst: ymt	
TKN, Soluble	0.83	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 353.2	Batch ID: W8B0596	Instr: AA03		Prepared: 02/13/18 09:13		Analyst: YMT	
NO2+NO3 as N	0.20	0.083	0.20	mg/l	1x1	02/13/18 12:20	
Method: EPA 365.1	Batch ID: W8B0757	Instr: AA01		Prepared: 02/14/18 18:24		Analyst: nat	
Phosphorus as P, Total	0.14	0.0014	0.010	mg/l	1x1	02/20/18 13:39	
Method: EPA 365.1	Batch ID: W8B0758	Instr: AA01		Prepared: 02/14/18 18:26		Analyst: nat	
Phosphorus, Dissolved	0.10	0.0014	0.010	mg/l	1x1	02/20/18 15:01	

Sample: TMDL-R3
8B09016-04 (Water) Sampled: 02/07/18 10:15 by A. Spyрка

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: 02/13/18 09:13		Analyst: ymt	
Dissolved Nitrogen	0.6		0.30	mg/l	1x1	02/14/18 15:29	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 02/13/18 09:13		Analyst: ymt	
Nitrogen, Total	0.66		0.20	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0549	Instr: AA06		Prepared: 02/12/18 13:40		Analyst: ymt	
TKN	0.66	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0550	Instr: AA06		Prepared: 02/12/18 13:42		Analyst: ymt	
TKN, Soluble	0.60	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 353.2	Batch ID: W8B0596	Instr: AA03		Prepared: 02/13/18 09:13		Analyst: YMT	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	02/13/18 12:22	
Method: EPA 365.1	Batch ID: W8B0757	Instr: AA01		Prepared: 02/14/18 18:24		Analyst: nat	
Phosphorus as P, Total	0.029	0.0014	0.010	mg/l	1x1	02/20/18 13:40	
Method: EPA 365.1	Batch ID: W8B0758	Instr: AA01		Prepared: 02/14/18 18:26		Analyst: nat	
Phosphorus, Dissolved	0.0089	0.0014	0.010	mg/l	1x1	02/20/18 15:03	J



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03/06/2018 12:02

Project Manager: Kelly Hahs

Sample Results

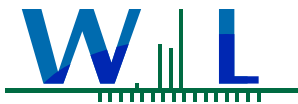
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Sample: TMDL-R4
8B09016-05 (Water) Sampled: 02/07/18 9:00 by A. Spyрка

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: 02/13/18 09:13		Analyst: ymt	
Dissolved Nitrogen	1.4		0.30	mg/l	1x1	02/14/18 15:29	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 02/13/18 09:13		Analyst: ymt	
Nitrogen, Total	1.4		0.20	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0549	Instr: AA06		Prepared: 02/12/18 13:40		Analyst: ymt	
TKN	1.4	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0550	Instr: AA06		Prepared: 02/12/18 13:42		Analyst: ymt	
TKN, Soluble	1.4	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 353.2	Batch ID: W8B0596	Instr: AA03		Prepared: 02/13/18 09:13		Analyst: YMT	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	02/13/18 12:24	
Method: EPA 365.1	Batch ID: W8B0757	Instr: AA01		Prepared: 02/14/18 18:24		Analyst: nat	
Phosphorus as P, Total	0.029	0.0014	0.010	mg/l	1x1	02/20/18 13:42	
Method: EPA 365.1	Batch ID: W8B0758	Instr: AA01		Prepared: 02/14/18 18:26		Analyst: nat	
Phosphorus, Dissolved	0.022	0.0014	0.010	mg/l	1x1	02/20/18 15:04	

Sample: TMDL-CL
8B09016-06 (Water) Sampled: 02/07/18 7:30 by A. Spyрка

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: 02/13/18 09:13		Analyst: ymt	
Dissolved Nitrogen	0.45		0.30	mg/l	1x1	02/14/18 15:29	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 02/13/18 09:13		Analyst: ymt	
Nitrogen, Total	0.42		0.20	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0549	Instr: AA06		Prepared: 02/12/18 13:40		Analyst: ymt	
TKN	0.42	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 351.2	Batch ID: W8B0550	Instr: AA06		Prepared: 02/12/18 13:42		Analyst: ymt	
TKN, Soluble	0.45	0.050	0.10	mg/l	1x1	02/14/18 15:29	
Method: EPA 353.2	Batch ID: W8B0596	Instr: AA03		Prepared: 02/13/18 09:13		Analyst: YMT	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	02/13/18 12:26	
Method: EPA 365.1	Batch ID: W8B0757	Instr: AA01		Prepared: 02/14/18 18:24		Analyst: nat	
Phosphorus as P, Total	0.0084	0.0014	0.010	mg/l	1x1	02/20/18 13:43	J
Method: EPA 365.1	Batch ID: W8B0758	Instr: AA01		Prepared: 02/14/18 18:26		Analyst: nat	
Phosphorus, Dissolved	0.0060	0.0014	0.010	mg/l	1x1	02/20/18 15:06	J



WECK LABORATORIES, INC.

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FINAL REPORT

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Project Number: TMDL Study February 2018 P6040555

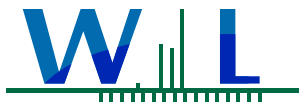
Reported:
03/06/2018 12:02

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: W8B0549 - EPA 351.2											
Blank (W8B0549-BLK1)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 02/12/18 Analyzed: 02/14/18					
LCS (W8B0549-BS1)											
TKN	1.04	0.050	0.10	mg/l	1.00		104	90-110			
						Prepared: 02/12/18 Analyzed: 02/14/18					
Matrix Spike (W8B0549-MS1)											
TKN	2.01	0.050	0.10	mg/l	1.00	1.04	97	90-110			
						Source: 8B09016-02					
						Prepared: 02/12/18 Analyzed: 02/14/18					
Matrix Spike Dup (W8B0549-MSD1)											
TKN	1.99	0.050	0.10	mg/l	1.00	1.04	95	90-110	0.9	10	
						Source: 8B09016-02					
						Prepared: 02/12/18 Analyzed: 02/14/18					
Batch: W8B0550 - EPA 351.2											
Blank (W8B0550-BLK1)											
TKN, Soluble	ND	0.050	0.10	mg/l							
						Prepared: 02/12/18 Analyzed: 02/14/18					
LCS (W8B0550-BS1)											
TKN, Soluble	0.999	0.050	0.10	mg/l	1.00		100	90-110			
						Prepared: 02/12/18 Analyzed: 02/14/18					
Matrix Spike (W8B0550-MS1)											
TKN, Soluble	1.93	0.050	0.10	mg/l	1.00	0.933	99	90-110			
						Source: 8B09016-02					
						Prepared: 02/12/18 Analyzed: 02/14/18					
Matrix Spike Dup (W8B0550-MSD1)											
TKN, Soluble	2.96	0.050	0.10	mg/l	2.00	0.933	101	90-110	42	10	A-01
						Source: 8B09016-02					
						Prepared: 02/12/18 Analyzed: 02/14/18					
Batch: W8B0596 - EPA 353.2											
Blank (W8B0596-BLK1)											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
						Prepared & Analyzed: 02/13/18					
LCS (W8B0596-BS1)											
NO2+NO3 as N	1.03	0.083	0.20	mg/l	1.00		103	90-110			
						Prepared & Analyzed: 02/13/18					
Matrix Spike (W8B0596-MS1)											
NO2+NO3 as N	9.99	0.083	0.20	mg/l	2.00	7.87	106	90-110			
						Source: 8B12048-01					
						Prepared & Analyzed: 02/13/18					
Matrix Spike (W8B0596-MS2)											
NO2+NO3 as N	2.68	0.083	0.20	mg/l	2.00	0.822	93	90-110			
						Source: 8B12112-01					
						Prepared & Analyzed: 02/13/18					
Matrix Spike Dup (W8B0596-MSD1)											
NO2+NO3 as N	9.82	0.083	0.20	mg/l	2.00	7.87	97	90-110	2	20	
						Source: 8B12048-01					
						Prepared & Analyzed: 02/13/18					
Matrix Spike Dup (W8B0596-MSD2)											
NO2+NO3 as N	2.76	0.083	0.20	mg/l	2.00	0.822	97	90-110	3	20	
						Source: 8B12112-01					
						Prepared & Analyzed: 02/13/18					
Batch: W8B0757 - EPA 365.1											
Blank (W8B0757-BLK1)											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
						Prepared: 02/14/18 Analyzed: 02/20/18					
LCS (W8B0757-BS1)											
Phosphorus as P, Total	0.0475	0.0014	0.010	mg/l	0.0500		95	90-110			
						Prepared: 02/14/18 Analyzed: 02/20/18					
Matrix Spike (W8B0757-MS1)											
Phosphorus as P, Total	0.110	0.0014	0.010	mg/l	0.0500	0.0607	99	90-110			
						Source: 8B09016-01					
						Prepared: 02/14/18 Analyzed: 02/20/18					



WECK LABORATORIES, INC.

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

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FINAL REPORT

Project Number: TMDL Study February 2018 P6040555

Reported:
03/06/2018 12:02

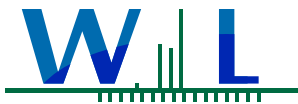
Project Manager: Kelly Hahs

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: W8B0757 - EPA 365.1 (Continued)											
Matrix Spike (W8B0757-MS2)			Source: 8B09016-02			Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus as P, Total	0.112	0.0014	0.010	mg/l	0.0500	0.0594	105	90-110			
Matrix Spike Dup (W8B0757-MSD1)			Source: 8B09016-01			Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus as P, Total	0.110	0.0014	0.010	mg/l	0.0500	0.0607	99	90-110	0	20	
Matrix Spike Dup (W8B0757-MSD2)			Source: 8B09016-02			Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus as P, Total	0.112	0.0014	0.010	mg/l	0.0500	0.0594	105	90-110	0	20	
Batch: W8B0758 - EPA 365.1											
Blank (W8B0758-BLK1)						Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8B0758-BS1)						Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus, Dissolved	0.0460	0.0014	0.010	mg/l	0.0500		92	90-110			
Matrix Spike (W8B0758-MS1)			Source: 8B09016-01			Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus, Dissolved	0.0677	0.0014	0.010	mg/l	0.0500	0.0183	99	90-110			
Matrix Spike Dup (W8B0758-MSD1)			Source: 8B09016-01			Prepared: 02/14/18 Analyzed: 02/20/18					
Phosphorus, Dissolved	0.0691	0.0014	0.010	mg/l	0.0500	0.0183	102	90-110	2	20	



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Reported:
03/06/2018 12:02

Project Manager: Kelly Hahs



Notes and Definitions

Item	Definition
A-01	Unattentionally double spiked the analytes. Therefore, RPD wont apply.
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.



Ventura River and Tributaries
 Algae, Eutrophic Conditions, and Nutrients TMDL
 (VR Algae TMDL)
 Comprehensive Monitoring Program
 8C 29031

CHAIN-OF-CUSTODY RECORD

1 OF 1

CLIENT: Ventura County Watershed Protection District (Master Agreement WECKLABORATORY18MA01, Project P6040555)

SAMPLING EVENT: MARCH 2018

SAMPLING DATE: 3/26/18

SAMPLERS: Lana Mester, Andrew S.

GRAB SAMPLES

SAMPLE ID	DATE/TIME	** FIELD FILTERED			NOTES
		Total Nitrogen, Total Phosphorus	Dissolved Nitrogen, Dissolved Phosphorus **	Nitrate + Nitrite as Nitrogen	
TMDL-Est	3/28/18 1240	X	X	X	LM
TMDL-R1	3/26/18 1621	X	X	X	LM, AS
TMDL-R2	3/26/18 1506	X	X	X	LM, AS
TMDL-R3	3/26/18 1300	X	X	X	LM, AS
TMDL-R4	3/26/18 1055	X	X	X	LM, AS
TMDL-CL	3/26/18 0945	X	X	X	LM, AS
TMDL-SA	3/26/18 1150 1300 ¹³⁰⁰ 1300 ¹³⁰⁰	X	X	X	LM, AS
TMDL-FB		X	X	X	(Note which site)

Signature: *[Signature]* Print Name: *David Leach*
 Affiliation: *VCUPP*
 Date/Time Received: *3/29/18* Date/Time Relinquished: *11:35*
 Signature: *[Signature]* Print Name: *Andrew Mester*
 Affiliation: *WVCK Labs*
 Date/Time Received: *3/29/18* Date/Time Relinquished: *11:35*

Signature: *[Signature]* Print Name: *Andrew Mester*
 Affiliation: *WVCK Labs*
 Date/Time Received: *3/29/18* Date/Time Relinquished: *15:24*

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.):

Dissolved samples were field filtered

1.2.c

Work Orders: 8C29031

Project: TMDL Study March 2018 P6040555

Attn: Kelly Hahs

Client: Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Report Date: 4/20/2018

Received Date: 3/29/2018

Turnaround Time: Normal

Phones: (805) 658-4375

Fax: (805) 654-3350

P.O. #: WECKLABORATORYFY1
8MA01

Billing Code:

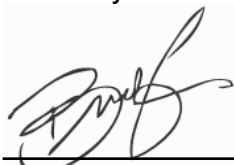
DoD-ELAP #L2457 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • ISO 17025 #L2457.01 • LACSD #10143 • NJ-DEP #CA015

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,

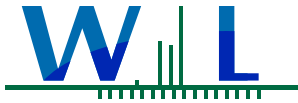
Enclosed are the results of analyses for samples received 3/29/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.2 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

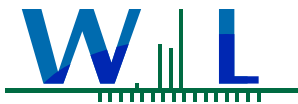
Project Number: TMDL Study March 2018 P6040555

Reported:
04/20/2018 13:12

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	Lara Meeker	8C29031-01	Water	03/28/18 12:40	
TMDL-R1	Iara Meeker, Andrew S.	8C29031-02	Water	03/26/18 16:21	
TMDL-R2	Iara Meeker, Andrew S.	8C29031-03	Water	03/24/18 15:06	
TMDL-R3	Iara Meeker, Andrew S.	8C29031-04	Water	03/26/18 13:00	
TMDL-R4	Iara Meeker, Andrew S.	8C29031-05	Water	03/26/18 10:55	
TMDL-CL	Iara Meeker, Andrew S.	8C29031-06	Water	03/26/18 09:45	
TMDL-SA	Iara Meeker, Andrew S.	8C29031-07	Water	03/26/18 11:50	



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:
04/20/2018 13:12

Project Manager: Kelly Hahs

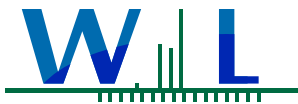
Sample Results

Sample: TMDL-Est
8C29031-01 (Water) Sampled: 03/28/18 12:40 by Lara 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: 04/06/18 08:35		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	2.6		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt	
Nitrogen, Total	2.8		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367	Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt	
TKN	0.84	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368	Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt	
TKN, Soluble	0.61	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855	Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK	
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	03/30/18 16:10	
Method: EPA 365.1	Batch ID: W8C1780	Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK	
Phosphorus as P, Total	0.24	0.0028	0.020	mg/l	1x2	04/06/18 12:22	
Method: EPA 365.1	Batch ID: W8C1810	Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK	
Phosphorus, Dissolved	0.12	0.0014	0.010	mg/l	1x1	04/09/18 12:23	

Sample: TMDL-R1
8C29031-02 (Water) Sampled: 03/26/18 16:21 by lara Meeker, Andrew S.

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: 04/06/18 08:35		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	2.6		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt	
Nitrogen, Total	3.1		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367	Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt	
TKN	0.89	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368	Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt	
TKN, Soluble	0.41	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855	Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK	
NO2+NO3 as N	2.2	0.083	0.20	mg/l	1x1	03/30/18 16:11	
Method: EPA 365.1	Batch ID: W8C1780	Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK	
Phosphorus as P, Total	0.41	0.0070	0.050	mg/l	1x5	04/06/18 12:23	
Method: EPA 365.1	Batch ID: W8C1810	Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK	
Phosphorus, Dissolved	0.079	0.0014	0.010	mg/l	1x1	04/09/18 12:28	



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 2018 P6040555

Reported:
04/20/2018 13:12

Project Manager: Kelly Hahs

Sample Results

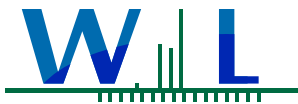
(Continued)

Sample: TMDL-R2
8C29031-03 (Water) Sampled: 03/24/18 15:06 by lara Meeker, Andrew S.

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: 04/06/18 08:35		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	2.6		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt
Nitrogen, Total	2.9		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367		Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt
TKN	0.74	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368		Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt
TKN, Soluble	0.45	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855		Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK
NO2+NO3 as N	2.2	0.083	0.20	mg/l	1x1	03/30/18 16:12	
Method: EPA 365.1	Batch ID: W8C1780		Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK
Phosphorus as P, Total	0.29	0.0028	0.020	mg/l	2x1	04/06/18 12:04	M-06
Method: EPA 365.1	Batch ID: W8C1810		Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK
Phosphorus, Dissolved	0.11	0.0028	0.020	mg/l	2x1	04/09/18 12:29	

Sample: TMDL-R3
8C29031-04 (Water) Sampled: 03/26/18 13:00 by lara Meeker, Andrew S.

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: 04/06/18 08:35		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	2.6		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt
Nitrogen, Total	2.8		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367		Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt
TKN	0.66	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368		Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt
TKN, Soluble	0.44	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855		Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK
NO2+NO3 as N	2.1	0.083	0.20	mg/l	1x1	03/30/18 16:13	
Method: EPA 365.1	Batch ID: W8C1780		Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK
Phosphorus as P, Total	0.39	0.0070	0.050	mg/l	1x5	04/06/18 12:24	
Method: EPA 365.1	Batch ID: W8C1810		Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK
Phosphorus, Dissolved	0.067	0.0014	0.010	mg/l	1x1	04/09/18 12:30	



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Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study March 2018 P6040555

Reported:
04/20/2018 13:12

Project Manager: Kelly Hahs

Sample Results

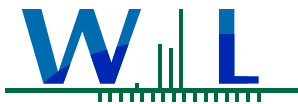
(Continued)

Sample: TMDL-R4
8C29031-05 (Water) Sampled: 03/26/18 10:55 by lara Meeker, Andrew S.

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: 04/06/18 08:35		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	2.3		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt
Nitrogen, Total	3		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367		Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt
TKN	0.97	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368		Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt
TKN, Soluble	0.26	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855		Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK
NO2+NO3 as N	2.0	0.083	0.20	mg/l	1x1	03/30/18 16:14	
Method: EPA 365.1	Batch ID: W8C1780		Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK
Phosphorus as P, Total	0.38	0.0070	0.050	mg/l	1x5	04/06/18 12:26	
Method: EPA 365.1	Batch ID: W8C1810		Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK
Phosphorus, Dissolved	0.068	0.0014	0.010	mg/l	1x1	04/09/18 12:32	

Sample: TMDL-CL
8C29031-06 (Water) Sampled: 03/26/18 9:45 by lara Meeker, Andrew S.

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: 04/06/18 08:35		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	2		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt
Nitrogen, Total	2.3		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367		Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt
TKN	1.4	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368		Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt
TKN, Soluble	1.1	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855		Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK
NO2+NO3 as N	0.95	0.083	0.20	mg/l	1x1	03/30/18 16:15	
Method: EPA 365.1	Batch ID: W8C1780		Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK
Phosphorus as P, Total	0.71	0.014	0.10	mg/l	1x10	04/06/18 12:27	
Method: EPA 365.1	Batch ID: W8C1810		Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK
Phosphorus, Dissolved	0.086	0.0014	0.010	mg/l	1x1	04/09/18 12:33	



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Reported:
04/20/2018 13:12

Project Manager: Kelly Hahs

Sample Results

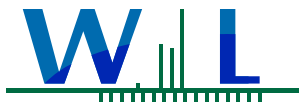
(Continued)

Sample: TMDL-SA

Sampled: 03/26/18 11:50 by lara Meeker, Andrew S.

8C29031-07 (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: 04/06/18 08:35		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	2.8		0.30	mg/l	1x1	04/10/18 14:03	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 04/06/18 08:33		Analyst: ymt
Nitrogen, Total	3.5		0.20	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0367		Instr: AA06		Prepared: 04/06/18 08:33		Analyst: ymt
TKN	1.1	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 351.2	Batch ID: W8D0368		Instr: AA06		Prepared: 04/06/18 08:35		Analyst: ymt
TKN, Soluble	0.39	0.050	0.10	mg/l	1x1	04/10/18 14:03	
Method: EPA 353.2	Batch ID: W8C1855		Instr: AA01		Prepared: 03/30/18 10:22		Analyst: AJK
NO2+NO3 as N	2.4	0.083	0.20	mg/l	1x1	03/30/18 16:17	
Method: EPA 365.1	Batch ID: W8C1780		Instr: AA01		Prepared: 03/29/18 08:22		Analyst: AJK
Phosphorus as P, Total	0.61	0.014	0.10	mg/l	1x10	04/06/18 12:29	
Method: EPA 365.1	Batch ID: W8C1810		Instr: AA01		Prepared: 03/29/18 14:20		Analyst: AJK
Phosphorus, Dissolved	0.093	0.0014	0.010	mg/l	1x1	04/09/18 12:35	



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FINAL REPORT

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Ventura, CA 93009

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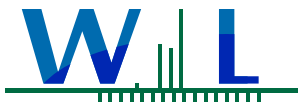
Reported:
04/20/2018 13:12

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: W8C1780 - EPA 365.1											
Blank (W8C1780-BLK1) Prepared: 03/29/18 Analyzed: 04/06/18											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
LCS (W8C1780-BS1) Prepared: 03/29/18 Analyzed: 04/06/18											
Phosphorus as P, Total	0.0496	0.0014	0.010	mg/l	0.0500		99	90-110			
Matrix Spike (W8C1780-MS1) Source: 8C23017-01 Prepared: 03/29/18 Analyzed: 04/06/18											
Phosphorus as P, Total	0.656	0.0056	0.040	mg/l	0.200	0.395	130	90-110			MS-02
Matrix Spike Dup (W8C1780-MSD1) Source: 8C23017-01 Prepared: 03/29/18 Analyzed: 04/06/18											
Phosphorus as P, Total	0.672	0.0056	0.040	mg/l	0.200	0.395	138	90-110	2	20	MS-02
Batch: W8C1810 - EPA 365.1											
Blank (W8C1810-BLK1) Prepared: 03/29/18 Analyzed: 04/09/18											
Phosphorus, Dissolved	ND	0.0014	0.010	mg/l							
LCS (W8C1810-BS1) Prepared: 03/29/18 Analyzed: 04/09/18											
Phosphorus, Dissolved	0.0503	0.0014	0.010	mg/l	0.0500		101	90-110			
Matrix Spike (W8C1810-MS1) Source: 8C29031-01 Prepared: 03/29/18 Analyzed: 04/09/18											
Phosphorus, Dissolved	0.164	0.0014	0.010	mg/l	0.0500	0.121	86	90-110			MS-02
Matrix Spike Dup (W8C1810-MSD1) Source: 8C29031-01 Prepared: 03/29/18 Analyzed: 04/09/18											
Phosphorus, Dissolved	0.165	0.0014	0.010	mg/l	0.0500	0.121	88	90-110	0.6	20	MS-02
Batch: W8C1855 - EPA 353.2											
Blank (W8C1855-BLK1) Prepared & Analyzed: 03/30/18											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
LCS (W8C1855-BS1) Prepared & Analyzed: 03/30/18											
NO2+NO3 as N	1.04	0.083	0.20	mg/l	1.00		104	90-110			
Matrix Spike (W8C1855-MS1) Source: 8C29060-01 Prepared & Analyzed: 03/30/18											
NO2+NO3 as N	5.30	0.083	0.20	mg/l	2.00	3.24	103	90-110			
Matrix Spike (W8C1855-MS2) Source: 8C29063-01 Prepared & Analyzed: 03/30/18											
NO2+NO3 as N	5.19	0.083	0.20	mg/l	2.00	3.22	98	90-110			
Matrix Spike Dup (W8C1855-MSD1) Source: 8C29060-01 Prepared & Analyzed: 03/30/18											
NO2+NO3 as N	5.29	0.083	0.20	mg/l	2.00	3.24	102	90-110	0.2	20	
Matrix Spike Dup (W8C1855-MSD2) Source: 8C29063-01 Prepared & Analyzed: 03/30/18											
NO2+NO3 as N	5.20	0.083	0.20	mg/l	2.00	3.22	99	90-110	0.2	20	
Batch: W8D0367 - EPA 351.2											
Blank (W8D0367-BLK1) Prepared: 04/06/18 Analyzed: 04/10/18											
TKN	ND	0.050	0.10	mg/l							
LCS (W8D0367-BS1) Prepared: 04/06/18 Analyzed: 04/10/18											
TKN	1.02	0.050	0.10	mg/l	1.00		102	90-110			
Matrix Spike (W8D0367-MS1) Source: 8C29031-01 Prepared: 04/06/18 Analyzed: 04/10/18											
TKN	1.85	0.050	0.10	mg/l	1.00	0.835	102	90-110			



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04/20/2018 13:12

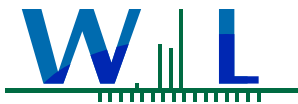
Project Manager: Kelly Hahs

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: W8D0367 - EPA 351.2 (Continued)											
Matrix Spike Dup (W8D0367-MSD1)											
TKN	1.80	0.050	0.10	mg/l	1.00	0.835	96	90-110	3	10	
Batch: W8D0368 - EPA 351.2											
Blank (W8D0368-BLK1)											
TKN, Soluble	ND	0.050	0.10	mg/l							
LCS (W8D0368-BS1)											
TKN, Soluble	1.01	0.050	0.10	mg/l	1.00		101	90-110			
Matrix Spike (W8D0368-MS1)											
TKN, Soluble	1.56	0.050	0.10	mg/l	1.00	0.615	95	90-110			
Matrix Spike Dup (W8D0368-MSD1)											
TKN, Soluble	1.68	0.050	0.10	mg/l	1.00	0.615	107	90-110	8	10	



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04/20/2018 13:12

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-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.

Work Orders: 8D26094

Report Date: 5/23/2018

Received Date: 4/26/2018

Project: TMDL Study April 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:

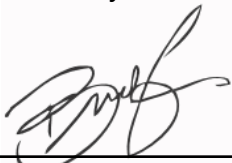
DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 •
LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015

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,

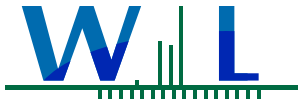
Enclosed are the results of analyses for samples received 4/26/18 with the Chain-of-Custody document. The samples were received in good condition, at 1.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

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

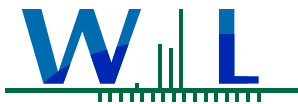
Project Number: TMDL Study April 2018 P6040555

Reported:
05/23/2018 15:34

Project Manager: Kelly Hahs

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
TMDL-Est	K. Hahs/ B. Jones	8D26094-01	Water	04/25/18 14:10	
TMDL-R1	K. Hahs/ B. Jones	8D26094-02	Water	04/26/18 13:30	
TMDL-R2	K. Hahs/ B. Jones	8D26094-03	Water	04/25/18 11:20	
TMDL-R3	K. Hahs/ B. Jones	8D26094-04	Water	04/25/18 10:05	
TMDL-R4	K. Hahs/ B. Jones	8D26094-05	Water	04/25/18 08:20	
TMDL-CL	K. Hahs/ B. Jones	8D26094-06	Water	04/25/18 12:20	
TMDL-SA	K. Hahs/ B. Jones	8D26094-07	Water	04/25/18 09:10	



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Reported:
05/23/2018 15:34

Project Manager: Kelly Hahs

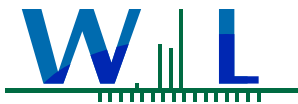
Sample Results

Sample: TMDL-Est
8D26094-01 (Water) Sampled: 04/25/18 14:10 by K. Hahs/ 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: 05/02/18 08:44		Analyst: ymt
Dissolved Nitrogen	0.43		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt
Nitrogen, Total	0.68		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031		Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt
TKN	0.68	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032		Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt
TKN, Soluble	0.43	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101		Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	05/02/18 16:27	
Method: EPA 365.1	Batch ID: W8E0092		Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM
Phosphorus as P, Total	0.058	0.0014	0.010	mg/l	1x1	05/07/18 14:13	
Method: EPA 365.1	Batch ID: W8E0240		Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK
Phosphorus, Dissolved	0.011	0.0014	0.010	mg/l	1x1	05/23/18 11:48	

Sample: TMDL-R1
8D26094-02 (Water) Sampled: 04/26/18 13:30 by K. Hahs/ 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: 05/02/18 08:44		Analyst: ymt
Dissolved Nitrogen	0.74		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt
Nitrogen, Total	0.86		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031		Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt
TKN	0.50	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032		Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt
TKN, Soluble	0.38	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101		Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK
NO2+NO3 as N	0.36	0.083	0.20	mg/l	1x1	05/02/18 16:28	
Method: EPA 365.1	Batch ID: W8E0092		Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM
Phosphorus as P, Total	0.054	0.0014	0.010	mg/l	1x1	05/07/18 14:17	
Method: EPA 365.1	Batch ID: W8E0240		Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK
Phosphorus, Dissolved	0.033	0.0014	0.010	mg/l	1x1	05/23/18 11:49	



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Certificate of Analysis

FINAL REPORT

Project Number: TMDL Study April 2018 P6040555

Reported:
05/23/2018 15:34

Project Manager: Kelly Hahs

Sample Results

(Continued)

Sample: TMDL-R2
8D26094-03 (Water) Sampled: 04/25/18 11:20 by K. Hahs/ B. Jones

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: 05/02/18 08:44		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	1.7		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt
Nitrogen, Total	1.9		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031		Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt
TKN	0.42	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032		Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt
TKN, Soluble	0.24	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101		Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK
NO2+NO3 as N	1.5	0.083	0.20	mg/l	1x1	05/02/18 16:29	
Method: EPA 365.1	Batch ID: W8E0092		Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM
Phosphorus as P, Total	0.059	0.0014	0.010	mg/l	1x1	05/07/18 14:18	
Method: EPA 365.1	Batch ID: W8E0240		Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK
Phosphorus, Dissolved	0.047	0.0014	0.010	mg/l	1x1	05/23/18 11:43	

Sample: TMDL-R3
8D26094-04 (Water) Sampled: 04/25/18 10:05 by K. Hahs/ B. Jones

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: 05/02/18 08:44		Analyst: ymt
METHOD ***							
Dissolved Nitrogen	0.72		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]		Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt
Nitrogen, Total	0.84		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031		Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt
TKN	0.27	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032		Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt
TKN, Soluble	0.15	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101		Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK
NO2+NO3 as N	0.57	0.083	0.20	mg/l	1x1	05/02/18 16:30	
Method: EPA 365.1	Batch ID: W8E0092		Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM
Phosphorus as P, Total	0.019	0.0014	0.010	mg/l	1x1	05/07/18 14:20	
Method: EPA 365.1	Batch ID: W8E0240		Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK
Phosphorus, Dissolved	0.010	0.0014	0.010	mg/l	1x1	05/23/18 11:56	



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05/23/2018 15:34

Project Manager: Kelly Hahs

Sample Results

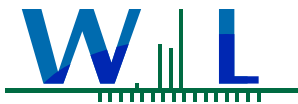
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Sample: TMDL-R4
8D26094-05 (Water) Sampled: 04/25/18 8:20 by K. Hahs/ B. Jones

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: 05/02/18 08:44		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.69		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt	
Nitrogen, Total	0.74		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031	Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt	
TKN	0.16	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032	Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt	
TKN, Soluble	0.11	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101	Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK	
NO2+NO3 as N	0.58	0.083	0.20	mg/l	1x1	05/02/18 16:31	
Method: EPA 365.1	Batch ID: W8E0092	Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM	
Phosphorus as P, Total	0.013	0.0014	0.010	mg/l	1x1	05/07/18 14:21	
Method: EPA 365.1	Batch ID: W8E0240	Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK	
Phosphorus, Dissolved	0.0075	0.0014	0.010	mg/l	1x1	05/23/18 11:52	J

Sample: TMDL-CL
8D26094-06 (Water) Sampled: 04/25/18 12:20 by K. Hahs/ B. Jones

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: 05/02/18 08:44		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	0.54		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt	
Nitrogen, Total	0.59		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031	Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt	
TKN	0.59	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032	Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt	
TKN, Soluble	0.54	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101	Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	05/02/18 16:33	
Method: EPA 365.1	Batch ID: W8E0092	Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM	
Phosphorus as P, Total	0.021	0.0014	0.010	mg/l	1x1	05/07/18 14:23	
Method: EPA 365.1	Batch ID: W8E0240	Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK	
Phosphorus, Dissolved	0.0074	0.0014	0.010	mg/l	1x1	05/23/18 11:53	J



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Sample Results

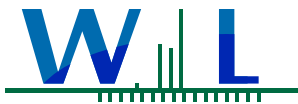
(Continued)

Sample: TMDL-SA

Sampled: 04/25/18 9:10 by K. Hahs/ B. Jones

8D26094-07 (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: 05/02/18 08:44		Analyst: ymt	
METHOD ***							
Dissolved Nitrogen	ND		0.30	mg/l	1x1	05/03/18 14:40	
Method: _Various	Batch ID: [CALC]	Instr: [CALC]		Prepared: 05/02/18 08:44		Analyst: ymt	
Nitrogen, Total	0.25		0.20	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0031	Instr: AA06		Prepared: 05/01/18 10:18		Analyst: ymt	
TKN	0.25	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 351.2	Batch ID: W8E0032	Instr: AA06		Prepared: 05/01/18 10:25		Analyst: ymt	
TKN, Soluble	0.24	0.050	0.10	mg/l	1x1	05/03/18 14:40	
Method: EPA 353.2	Batch ID: W8E0101	Instr: AA01		Prepared: 05/02/18 08:44		Analyst: AJK	
NO2+NO3 as N	ND	0.083	0.20	mg/l	1x1	05/02/18 16:34	
Method: EPA 365.1	Batch ID: W8E0092	Instr: AA01		Prepared: 05/01/18 18:04		Analyst: BDM	
Phosphorus as P, Total	0.021	0.0014	0.010	mg/l	1x1	05/07/18 14:24	
Method: EPA 365.1	Batch ID: W8E0240	Instr: AA01		Prepared: 05/21/18 18:04		Analyst: AJK	
Phosphorus, Dissolved	0.0094	0.0014	0.010	mg/l	1x1	05/23/18 11:55	J



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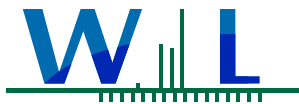
Reported:
05/23/2018 15:34

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: W8E0031 - EPA 351.2											
Blank (W8E0031-BLK1)											
TKN	ND	0.050	0.10	mg/l							
						Prepared: 05/01/18 Analyzed: 05/03/18					
LCS (W8E0031-BS1)											
TKN	0.962	0.050	0.10	mg/l	1.00		96	90-110			
						Prepared: 05/01/18 Analyzed: 05/03/18					
Matrix Spike (W8E0031-MS1)											
TKN	0.992	0.050	0.10	mg/l	1.00	ND	99	90-110			
						Source: 8D25038-01					
						Prepared: 05/01/18 Analyzed: 05/03/18					
Matrix Spike Dup (W8E0031-MSD1)											
TKN	0.994	0.050	0.10	mg/l	1.00	ND	99	90-110	0.2	10	
						Source: 8D25038-01					
						Prepared: 05/01/18 Analyzed: 05/03/18					
Batch: W8E0032 - EPA 351.2											
Blank (W8E0032-BLK1)											
TKN, Soluble	ND	0.050	0.10	mg/l							
						Prepared: 05/01/18 Analyzed: 05/03/18					
LCS (W8E0032-BS1)											
TKN, Soluble	0.950	0.050	0.10	mg/l	1.00		95	90-110			
						Prepared: 05/01/18 Analyzed: 05/03/18					
Matrix Spike (W8E0032-MS1)											
TKN, Soluble	1.42	0.050	0.10	mg/l	1.00	0.425	100	90-110			
						Source: 8D26094-01					
						Prepared: 05/01/18 Analyzed: 05/03/18					
Matrix Spike Dup (W8E0032-MSD1)											
TKN, Soluble	1.37	0.050	0.10	mg/l	1.00	0.425	95	90-110	3	10	
						Source: 8D26094-01					
						Prepared: 05/01/18 Analyzed: 05/03/18					
Batch: W8E0092 - EPA 365.1											
Blank (W8E0092-BLK1)											
Phosphorus as P, Total	ND	0.0014	0.010	mg/l							
						Prepared: 05/01/18 Analyzed: 05/07/18					
LCS (W8E0092-BS1)											
Phosphorus as P, Total	0.0532	0.0014	0.010	mg/l	0.0500		106	90-110			
						Prepared: 05/01/18 Analyzed: 05/07/18					
Matrix Spike (W8E0092-MS1)											
Phosphorus as P, Total	0.112	0.0014	0.010	mg/l	0.0500	0.0581	108	90-110			
						Source: 8D26094-01					
						Prepared: 05/01/18 Analyzed: 05/07/18					
Matrix Spike Dup (W8E0092-MSD1)											
Phosphorus as P, Total	0.110	0.0014	0.010	mg/l	0.0500	0.0581	104	90-110	2	20	
						Source: 8D26094-01					
						Prepared: 05/01/18 Analyzed: 05/07/18					
Batch: W8E0101 - EPA 353.2											
Blank (W8E0101-BLK1)											
NO2+NO3 as N	ND	0.083	0.20	mg/l							
						Prepared & Analyzed: 05/02/18					
LCS (W8E0101-BS1)											
NO2+NO3 as N	1.02	0.083	0.20	mg/l	1.00		102	90-110			
						Prepared & Analyzed: 05/02/18					
Matrix Spike (W8E0101-MS1)											
NO2+NO3 as N	9.24	0.083	0.20	mg/l	2.00	7.39	92	90-110			
						Source: 8E01048-19					
						Prepared & Analyzed: 05/02/18					
Matrix Spike (W8E0101-MS2)											
NO2+NO3 as N	6.97	0.083	0.20	mg/l	2.00	5.04	96	90-110			
						Source: 8E01085-01					
						Prepared & Analyzed: 05/02/18					
Matrix Spike Dup (W8E0101-MSD1)											
NO2+NO3 as N	9.23	0.083	0.20	mg/l	2.00	7.39	92	90-110	0.1	20	
						Source: 8E01048-19					
						Prepared & Analyzed: 05/02/18					



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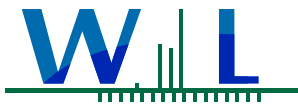
Project Manager: Kelly Hahs

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: W8E0101 - EPA 353.2 (Continued)											
Matrix Spike Dup (W8E0101-MSD2)			Source: 8E01085-01			Prepared & Analyzed: 05/02/18					
NO2+NO3 as N	6.99	0.083	0.20	mg/l	2.00	5.04	97	90-110	0.3	20	
Batch: W8E0240 - EPA 365.1											
Blank (W8E0240-BLK1)						Prepared: 05/21/18 Analyzed: 05/23/18					
Phosphorus, Dissolved	0.00176	0.0014	0.010	mg/l							J
LCS (W8E0240-BS1)						Prepared: 05/21/18 Analyzed: 05/23/18					
Phosphorus, Dissolved	0.0514	0.0014	0.010	mg/l	0.0500		103	90-110			
Matrix Spike (W8E0240-MS1)			Source: 8D26094-03			Prepared: 05/21/18 Analyzed: 05/23/18					
Phosphorus, Dissolved	0.102	0.0014	0.010	mg/l	0.0500	0.0472	110	90-110			
Matrix Spike Dup (W8E0240-MSD1)			Source: 8D26094-03			Prepared: 05/21/18 Analyzed: 05/23/18					
Phosphorus, Dissolved	0.105	0.0014	0.010	mg/l	0.0500	0.0472	116	90-110	3	20	MS-01



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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.