

DECEMBER 15, 2024

VENTURA COUNTY AGRICULTURAL IRRIGATED LANDS GROUP (VCAILG)

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## 2024 Annual Monitoring Report

PREPARED BY:



SUBMITTED BY:



SUBMITTED TO:

Los Angeles Regional Water Quality Control Board



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## ACRONYMS

AMR	Annual Monitoring Report
BMP	Best Management Practice
CC	Calleguas Creek
CCW	Calleguas Creek Watershed
CCWTMP	Calleguas Creek Watershed TMDL Monitoring Program
CEU	Continuing Education Unit
DNQ	Detected Not Quantified
EST	Estimated
LA	Load Allocation
LARWQCB	Los Angeles Regional Water Quality Control Board (Regional Board)
MDL	Method Detection Limit
MRP	Monitoring and Reporting Plan
NA	Not Applicable
ND	Not Detected
NM	Not Measured
NOA	Notice of Applicability
NOI	Notice of Intent
NR	Not Required
NS	Not Sampled
NV	Not Visited
OC	Organochlorine
OP	Organophosphorus
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
SCR	Santa Clara River
SCRW	Santa Clara River Watershed
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
VCAILG	Ventura County Agricultural Irrigated Lands Group
VR	Ventura River
VRW	Ventura River Watershed
WQMP	Water Quality Management Plan

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## INTRODUCTION

On September 28, 2023, the Los Angeles Regional Water Quality Control Board (Regional Board) adopted the *Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* (Order No. R4-2023-0353), referred to as *Ag Order* herein. The *Ag Order* replaces the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* (Order No. R4-2021-0045), referred to as *Conditional Waiver* herein, and subsequent extensions, most recently Order No. R4-2021-0045-A02, which extended the *Conditional Waiver* through September 30, 2023. For simplicity, the term “Conditional Waiver” herein refers to the 2016 *Conditional Waiver* and its subsequent extensions; the requirements in the 2016 *Conditional Waiver* were not substantially changed by subsequent extensions - particularly as they pertain to this Annual Monitoring Report (AMR). The reporting period of this AMR (July 1, 2023 through June 30, 2024) spans the transition from *Conditional Waiver* to *Ag Order*. The *Ag Order* is most referenced in this document as it is the effective order, however, in some instances it is important to reference the *Conditional Waiver* as being the effective order at the time of sampling. Furthermore, samples collected during this monitoring year were required to follow the existing approved Monitoring and Reporting Plan (MRP) and Quality Assurance Project Plan (QAPP), which were developed to implement the requirements of the *Conditional Waiver*. Until the 2024 VCAILG MRP and QAPP are approved, some monitoring components are in a transitional phase between the *Conditional Waiver* and *Ag Order* requirements. Per direction provided by Regional Board staff<sup>1</sup>, the trend analysis requirement in the *Ag Order* will be included in the 2025 Water Quality Management Plan and will not be included in this report.

The purpose of the *Ag Order* is to assess the effects of, and control discharges from, irrigated agricultural lands in Los Angeles and Ventura Counties to surface and groundwater. These discharges can affect water quality by transporting nutrients, pesticides, sediment, salts, and other pollutants from cultivated fields into surface waters, potentially impairing designated beneficial uses. Owners and operators of agricultural lands in Ventura and Los Angeles Counties must comply with provisions contained in the *Ag Order* or be regulated under other Regional Board programs.

The *Ag Order* allows individual landowners and growers to comply with its provisions by working collectively as a Discharger Group, or as an individual. A Discharger Group is defined by the *Ag Order* as “any group of dischargers and/or organizations that forms to comply with this Order. Discharger Groups can be, but are not limited to, organizations formed on a geographic basis or formed with other factors in common such as commodities.” The primary purpose of allowing Discharger Groups is to encourage collaboration on monitoring and reporting and to increase the effectiveness of management practices throughout a watershed to attain water quality standards. Those landowners and growers choosing to comply with the *Ag Order* as a Discharger Group must signify by submitting a Group Notice of Intent and by developing a Discharger Group monitoring program.

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<sup>1</sup> Per discussions with Regional Board staff on November 26, 2024.

To assist agricultural landowners and growers that farm within the boundaries of Ventura County, various agricultural organizations, water districts and individual farmers joined together in 2006 to form the Ventura County Agricultural Irrigated Lands Group (VCAILG), which is intended to act as one unified “Discharger Group” for those agricultural landowners and growers that wish to participate. A Notice of Intent (NOI) to comply with the *Ag Order* was submitted to the Regional Board by the VCAILG on March 28, 2024. The NOI included the VCAILG membership roster. The QAPP and MRP, which detail the water quality monitoring and reporting procedures being conducted in compliance with the new terms of the *Ag Order*, were submitted to the Regional Board on May 13, 2024.

As previously stated, this report covers the period from July 2023 through June 2024 during which monitoring was conducted according to the requirements and MRP approved under the 2016 *Conditional Waiver* and subsequent extensions.

## CONCLUSIONS

Submittal of this report fulfills the Annual Monitoring Report requirements specified in Appendix 3 of the *Ag Order*. All required elements are included in this narrative report and in the accompanying appendices.

This report presents monitoring data for evaluating agricultural discharges as compared to standard water quality benchmarks and load allocations (LAs) for irrigated agriculture in effective total maximum daily loads (TMDLs) that were incorporated in the *Ag Order*, Appendix 5. Monitoring during this reporting period was conducted in accordance with the 2017 VCAILG MRP, which was approved under the *Conditional Waiver*. Water quality results were compared to appropriate *Ag Order* water quality objectives where data was available.

## GROUP MEMBERSHIP AND SETTING

VCAILG was formed in 2006 to act as one unified “Discharger Group” in Ventura County for the purpose of compliance with the *Conditional Waiver*. VCAILG oversight is provided by a Steering Committee. Steering Committee membership consists of agricultural organization representatives, agricultural water district representatives, and landowners and growers from the three primary watersheds in Ventura County (Calleguas Creek, Santa Clara River, and Ventura River). Steering Committee membership also represents producers of the major commodities grown in Ventura County (strawberries, nursery stock, citrus, vegetables, and avocados). The Steering Committee roster is presented in Table 1.

Because VCAILG is an unincorporated organization, the Farm Bureau of Ventura County acts as the responsible entity for the collection of funds, contracting with consultants, and other fiscal and/or business matters that require an organization with some form of tax status; the Farm Bureau is a non-profit 501(c)(5) organization.

A list of all enrolled, non-enrolled, and exempt parcels, along with respective landowners, is included as Appendix A. This list includes the following information:

- Assessor Parcel Number
- Parcel Owner Name(s)

- Parcel Assessed Acres
- Parcel Irrigated Acres (for enrolled parcels only)
- Parcel enrollment status
- Parcel Owner Mailing Address

The list provided in Appendix A fulfills the requirements to provide an updated membership list and a list of enrolled and non-enrolled parcels. This list is current as of December 2, 2024. Information on Parcel Watershed and Responsibility Areas associated with enrolled and non-enrolled parcels can be found in Appendix G: Parcel List with Responsibility Area Designations of the Draft December 2024 MRP, submitted concurrently with this report.

Table 2 contains a summary of VCAILG membership statistics, including the number of landowners and parcels enrolled, as well as irrigated acreage enrolled in each watershed. All membership statistics in the text of this report represent group status on December 2, 2024. Per the December 2024 membership rolls, VCAILG represents 1,275 Ventura County agricultural landowners and 78,428 irrigated acres. According to the Ventura County Assessor's records, there are an estimated 685 landowners in the county with irrigated agricultural acreage not enrolled in VCAILG. Therefore, the current VCAILG membership represents 73.7 percent of agricultural landowners in Ventura County, accounting for approximately 86.9 percent of the estimated irrigated acreage.



**Table 1. VCAILG Steering Committee Membership**

<b>Member, Organization</b>	<b>Crop(s) Represented</b>	<b>Watershed(s) Represented</b>
Jesse Gomez, FivePoint (Committee Chair)	Citrus, Hay, Nursery, Vegetables, Sod	Santa Clara River
Jared Bouchard, Pleasant Valley Co. Water District	N/A	N/A
Jason Cole, Cole Ranch	Orchard	Santa Clara River
Paul DeBusschere, DeBusschere Ranch	Strawberries, Avocados	Calleguas Creek
Mike Friel, Laguna Grove Service	Citrus	Calleguas Creek
Jurgen Gramckow, Southland Sod Farms	Sod, Hay, Oats, Vegetables	Calleguas Creek, Santa Clara River, Ventura River
Edgar Gutiérrez, Limoneira Company	Avocado, Citrus	Santa Clara River
Craig Held, Rancho Gemelos/Held Ranches	Avocado, Citrus	Santa Clara River
Scott Klittich, Otto and Sons Nursery	Orchard, Nursery	Santa Clara River
Maureen McGuire, Farm Bureau of Ventura County	N/A	N/A
Doug O'Hara, Buena Farms	Orchard	Calleguas Creek, Santa Clara River
Kelle Pistone, Assoc. of Water Agencies of Ventura County	N/A	N/A
Rob Roy, Ventura County Agricultural Association	N/A	N/A
Mike Sullivan, Essick Farm Management	Avocado, Citrus	Ventura River
William Terry, Terry Farms, Inc.	Strawberries, Vegetables	Calleguas Creek, Santa Clara River
Craig Underwood, Underwood Ranches	Avocado, Citrus, Vegetables	Calleguas Creek, Santa Clara River
Larry Yee, Former Director, UC Cooperative Extension – Ventura	N/A	N/A

N/A = Not Applicable

**Table 2. VCAILG Membership Statistics as of December 2, 2024<sup>1</sup>**

<b>Watershed</b>	<b>Landowner Count<sup>2</sup></b>	<b>Parcel Count</b>	<b>Irrigated Acres</b>
Calleguas Creek	607	1,311	42,231
Santa Clara River	463	1,134	28,139
Oxnard Coastal	55	107	3,840
Ventura River	150	258	4,218
<i>Total</i>	<i>1,275</i>	<i>2,810</i>	<i>78,428</i>

1. Values in table only include parcels marked as 'Enrolled'

2. There are 1,229 unique landowners enrolled, a number of whom own property in more than one watershed.

## IRRIGATED AGRICULTURE IN VENTURA COUNTY

Ventura County covers 1,843 square miles (approximately 1.2 million acres) with 43 miles of coastline (Figure 1). The Pacific Ocean forms its southwestern boundary, with Los Angeles County to the southeast, Kern County to the north and Santa Barbara County to the west. The Los Padres National Forest accounts for the northern half of the county, with residential, agricultural and business uses in the southern portion. Of the estimated 164,684 acres of agricultural land in the county, there are approximately 85,846 acres of irrigated cropland. The Calleguas Creek Watershed contains the highest number of irrigated acres (approximately 46,206), followed by the Santa Clara River Watershed (approximately 30,661), Ventura River Watershed (approximately 4,871), and finally the Oxnard Plain and Coastal Watersheds (approximately 4,125).<sup>2</sup>

Agriculture is a major industry in Ventura County, generating over \$2.1 billion in gross sales for 2023, placing the county 10<sup>th</sup> in a statewide ranking of California's 58 counties.<sup>3</sup> This gross value is a 2% increase over 2022.<sup>4</sup> Strawberries remain the number one crop, while nursery stock replaced avocados as the second highest crop for the first time since 2009, and lemons remained the third highest crop in Ventura County in 2023. Table 3 lists the ten leading crops in the county by gross value for 2023. Characteristics of each of the three main watersheds in Ventura County are discussed in more detail in the following sections.

<sup>2</sup> Estimates of irrigated agricultural acreage by watershed are based on the VCAILG membership database and include estimated irrigated acreage for parcels not enrolled in VCAILG.

<sup>3</sup> California Department of Food and Agriculture. *California Agricultural Statistics Review 2022-2023*. Agricultural Statistics Overview.

<sup>4</sup> Ventura County Agricultural Commissioner. *Ventura County's Crop and Livestock Report 2023*. July 2024.

**Table 3. Ventura County's Leading Agricultural Commodities–2023**

Commodity	Gross Value (\$)
1. Strawberries	\$733,257,000
2. Nursery Stock	\$208,169,000
3. Lemons	\$207,542,000
4. Celery	\$167,950,000
5. Raspberries	\$167,008,000
6. Avocados	\$125,728,000
7. Blackberries	\$70,177,000
8. Peppers	\$58,046,000
9. Tomatoes	\$41,061,000
10. Lettuce	\$38,114,000

Source: Ventura County Agricultural Commissioner. *Ventura County's Crop and Livestock Report 2023* (July 2024)

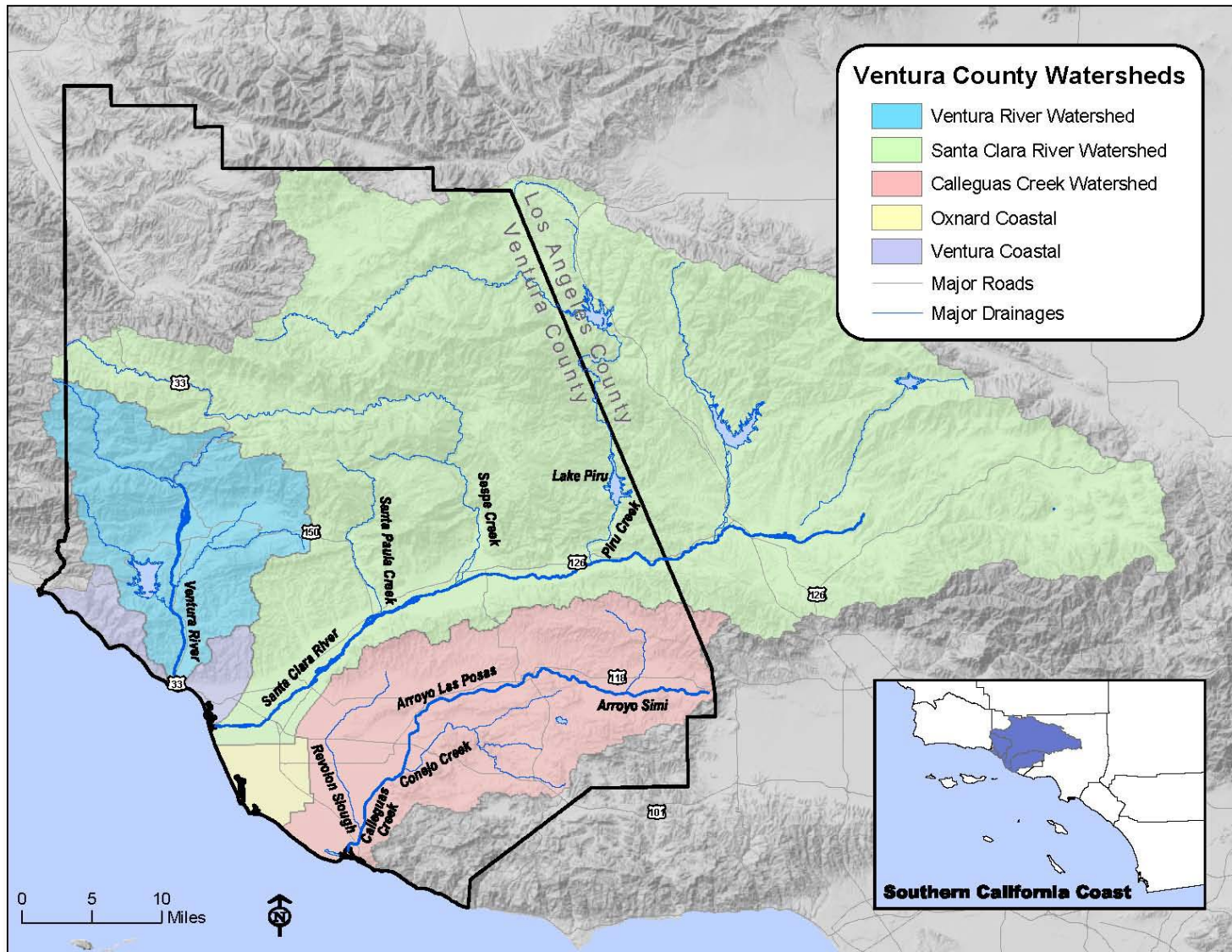


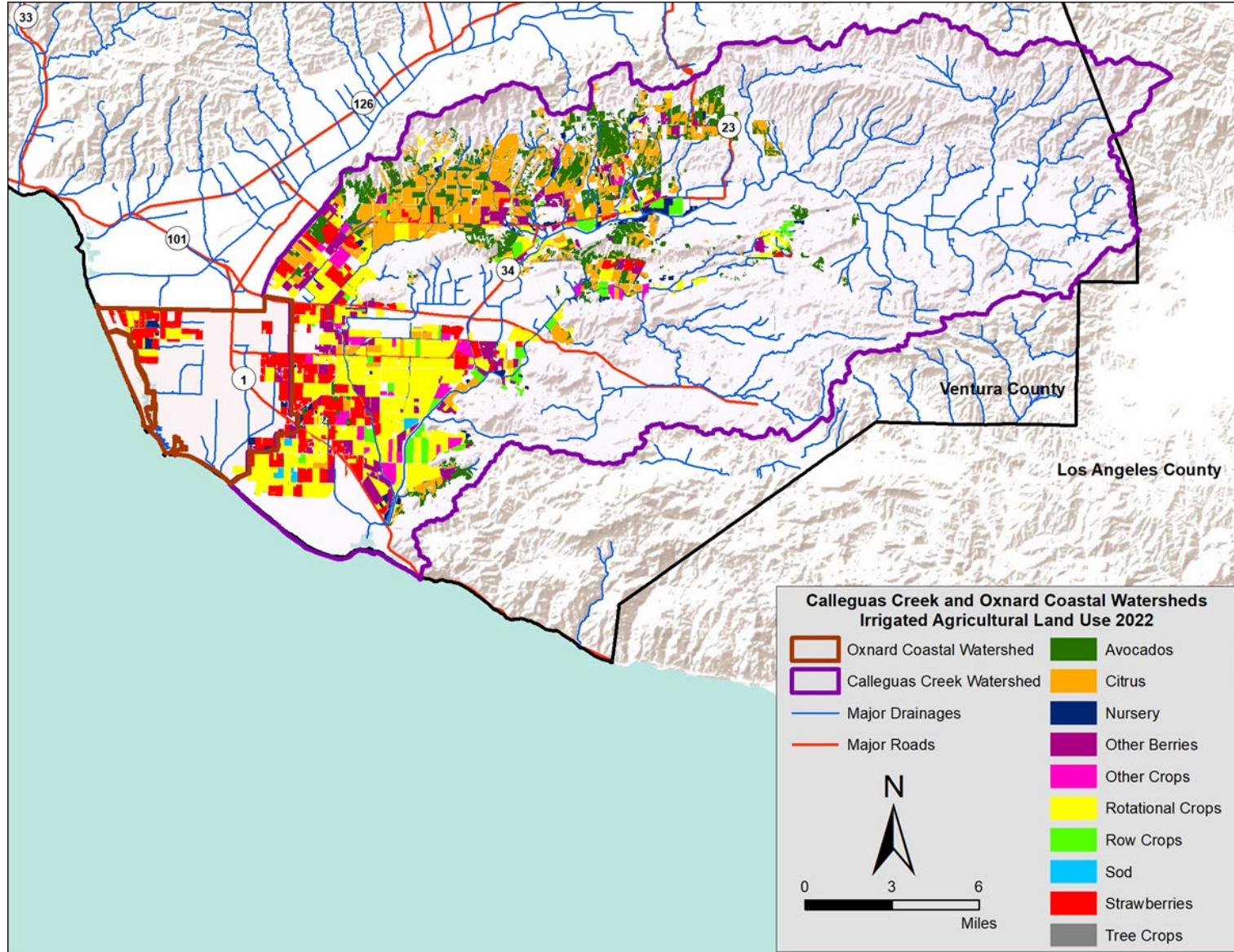
Figure 1. Ventura County Watersheds

## **Calleguas Creek Watershed and Oxnard Plain**

The Calleguas Creek Watershed (CCW; see Figure 2) is approximately 30 miles long, 14 miles wide, and drains an area of approximately 343 square miles or 219,520 acres. Cities within the watershed include Camarillo, Thousand Oaks, Moorpark, and Simi Valley. The main surface water system drains from the mountains in the northeast part of the watershed toward the southwest, where it flows through the Oxnard Plain before emptying into the Pacific Ocean through Mugu Lagoon. The main waterbodies in the watershed include Calleguas Creek, Revolon Slough, Beardsley Channel, Conejo Creek, Arroyo Santa Rosa, Arroyo Las Posas and Arroyo Simi.

Avocados and citrus crops such as lemons and oranges are typically grown in flat or gently sloping foothill areas in the watershed. Agricultural land located on the Oxnard Plain is planted predominantly in a wide variety of row crops, including strawberries, raspberries, peppers, celery, and onions, as well as sod farms and nurseries. Many farms located in the watershed grow multiple crops during a single calendar year. This multi-cropping technique is most common in the lower parts of the watershed, adjacent to Revolon Slough and Lower Calleguas Creek. Figure 2 shows the distribution of crop types throughout the Calleguas Creek and Oxnard Coastal Watersheds.



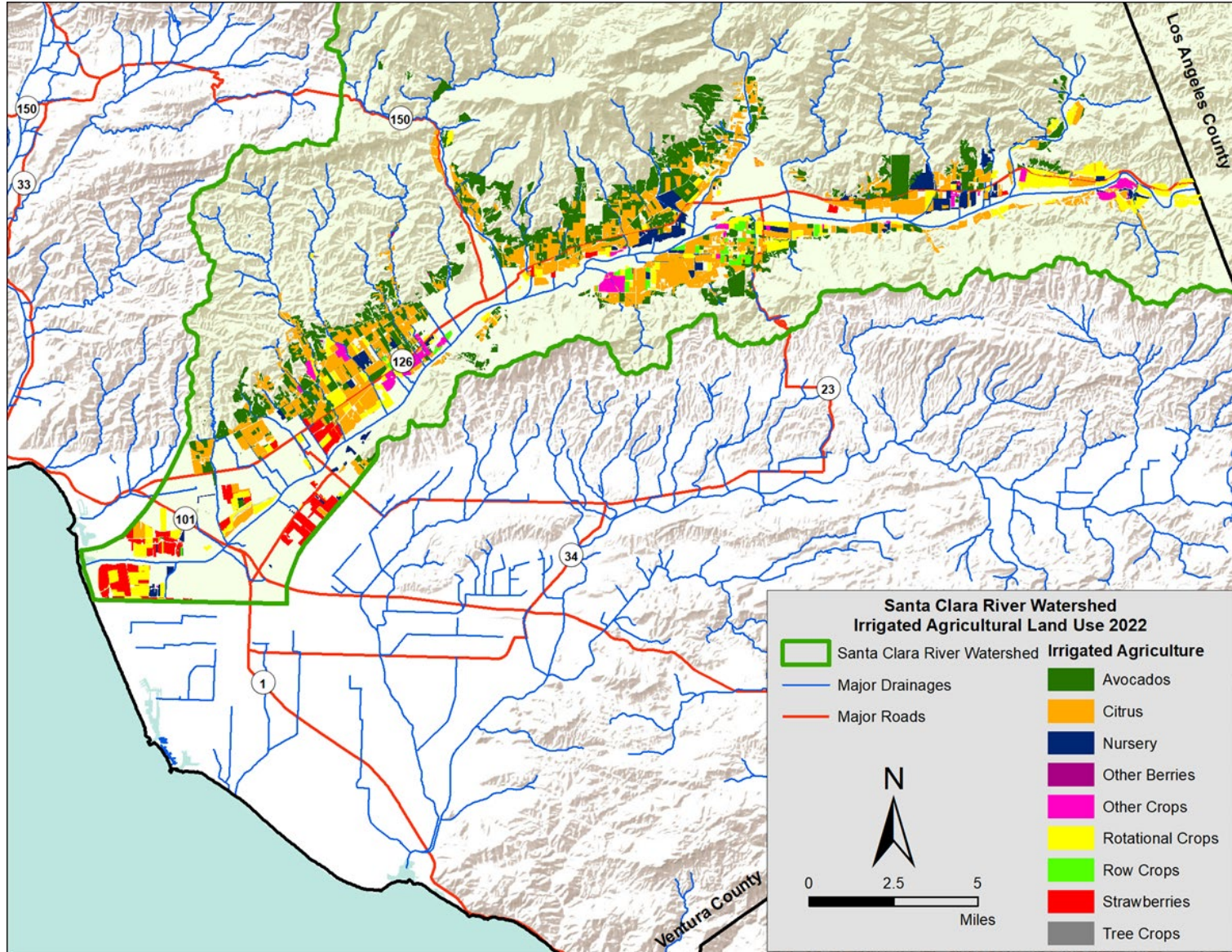


**Figure 2. Calleguas Creek and Oxnard Coastal Watersheds Agricultural Land Use**

## **Santa Clara River Watershed**

The Santa Clara River is the largest river system in southern California remaining in a relatively natural state. The river originates in the northern slope of the San Gabriel Mountains in Los Angeles County, traverses Ventura County, and flows into the Pacific Ocean halfway between the cities of San Buenaventura and Oxnard. The Santa Clara River and tributary system has a watershed area of about 1,634 square miles (Figure 3). Cities within the watershed include Ventura, Santa Paula, Fillmore, Piru, Santa Clarita, and Newhall. Within Ventura County, major tributaries include the Sespe, Piru, and Santa Paula Creeks. Approximately 60 percent of the watershed is in Ventura County. The most prevalent land use in the 500-year flood plain of the Santa Clara River is agriculture (62 percent), followed by industry (22 percent). Row crops and orchards are planted across the valley floor primarily in Ventura County and extend up adjacent slopes.



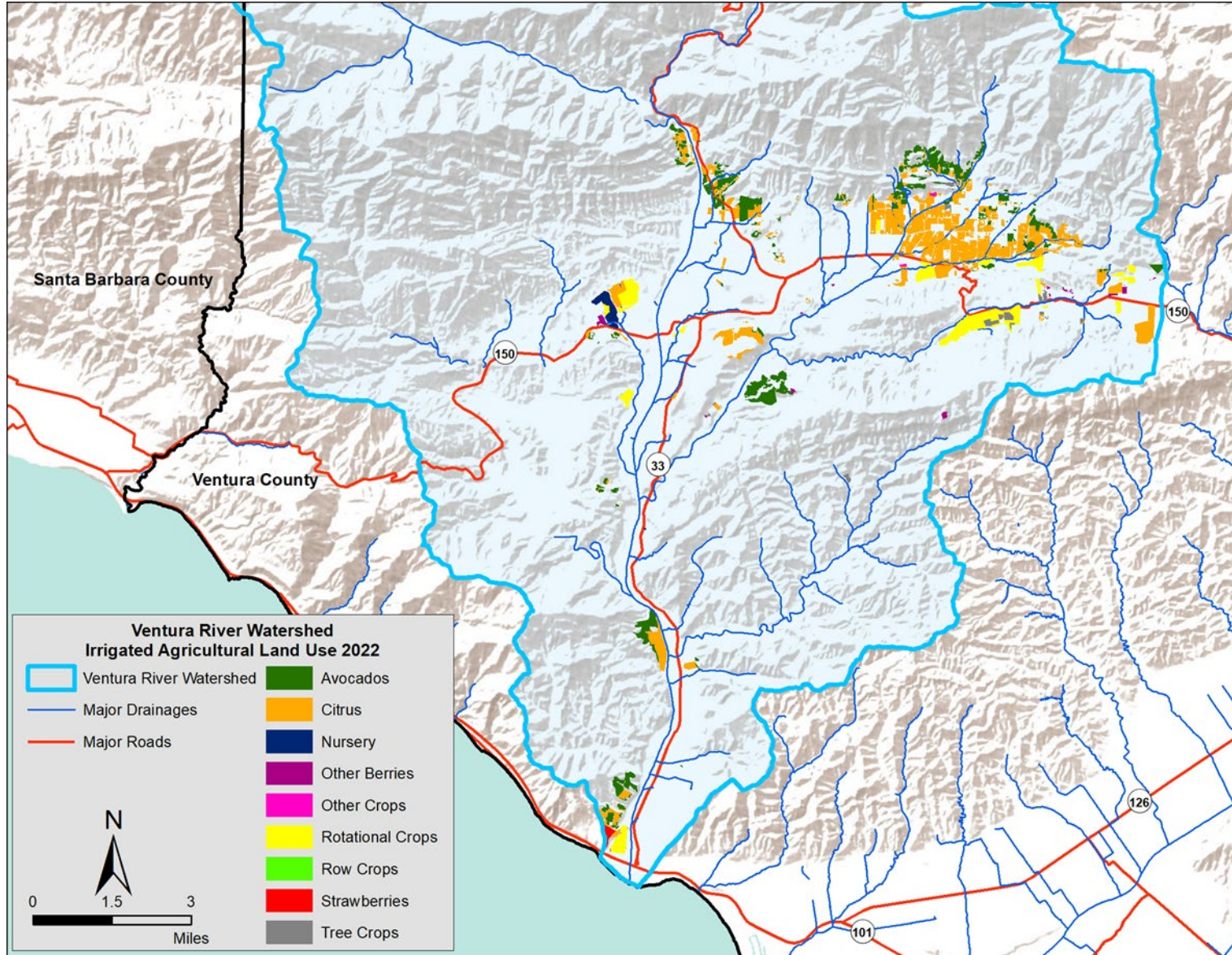


**Figure 3. Santa Clara River Watershed Agricultural Land Use**

## **Ventura River Watershed**

The Ventura River and its tributaries drain a coastal watershed in western Ventura County. The watershed covers a fan-shaped area of 235 square miles, which is located within the western Transverse Ranges and is 31 miles long from upper Matilija Canyon to the Pacific Ocean (Figure 4). From the upper slopes of the Transverse Ranges, the surface water system in the Ventura River Watershed generally flows in a southerly direction to the estuary, located at the mouth of the Ventura River. Major tributaries in the watershed include Matilija Creek, Coyote Creek and San Antonio Creek. The City of Ojai and the communities of Meiners Oaks, Oak View and Casitas Springs are in the watershed, with the surrounding suburban and agricultural areas comprising the Ventura River, Santa Ana, and Upper Ojai Valleys. Portions of the City of San Buenaventura border the lower reaches of the Ventura River. Irrigated agriculture constitutes approximately five percent of land uses in the watershed, with avocado and citrus being the predominant crops grown.





**Figure 4. Ventura River Watershed Agricultural Land Use**



## VCAILG PARTICIPATION IN TMDLS

Within Ventura County, VCAILG plays an active role in facilitating the participation of agriculture in TMDL development and implementation processes. Acting on behalf of its members, VCAILG representatives participate in stakeholder meetings, provide comments, and contribute to cooperative agreements. For example, VCAILG is a participant and funding partner of the Calleguas Creek Watershed TMDL implementation effort and collaborates with the other responsible parties in implementing the two effective trash TMDLs within the county.

Effective TMDL monitoring requirements have been incorporated into the 2010 *Conditional Waiver*, and all subsequent Orders (Order No. R4-2010-0186, R4-2016-0143, R4-2021-0045, R4-2021-0045-A01, R4-2021-0045-A02, and R4-2023-0353 respectively). VCAILG coordinates with stakeholder group TMDL monitoring programs or conducts additional monitoring where necessary in order to meet TMDL requirements for agriculture. Where coordinated efforts to meet TMDL requirements are not in place, this annual report includes information regarding agriculture's monitoring and compliance. Separate annual monitoring reports are produced for some TMDL monitoring programs; rather than duplicate these efforts those reports are incorporated herein by reference, where appropriate.

Several TMDLs became effective during the 2010 waiver period and were added to the 2016 *Conditional Waiver*. Monitoring approaches to meet the requirements of these TMDLs are included in the 2016 VCAILG MRP and 2017 revision.

## WATER QUALITY MONITORING

### MONITORING OBJECTIVES

The objectives of the VCAILG Monitoring Program (VCAILGMP) required under the *Conditional Waiver* and *Ag Order* include the following:

- Assess the impacts of waste discharges from irrigated agricultural lands on waters of the state,
- Evaluate the effectiveness of management practices to control waste discharges,
- Track progress in reducing the amount of waste discharged to waters of the state to improve water quality and protect beneficial uses, and
- Assess compliance with discharge limitations, where applicable.

### MONITORING SITE SELECTION

The first step toward fulfilling monitoring program objectives was selecting appropriate monitoring sites. Because the focus of the program is on impacts to surface waterbodies from discharges from irrigated agricultural lands, monitoring sites were selected to best characterize agricultural inputs and are generally located at the lower ends of mainstem tributaries or agricultural drainages in areas associated primarily with agricultural activity. Sites selected for the VCAILGMP in the CCW supplement monitoring performed under the CCW TMDL Monitoring Program (CCWTMP) and retain consistency with previous VCAILG sampling. Monitoring sites in

the Santa Clara River and Ventura River Watersheds were selected to continue building on existing data previously collected by VCAILG and meet TMDL requirements, where applicable.

The specific criteria for selection of monitoring sites are as follows:

- Land use (primarily agricultural drainages);
- Subwatershed representation;
- Acres of agricultural irrigated lands represented;
- Proximity to agricultural operations;
- Previous or existing monitoring locations under the *2005 Conditional Waiver* or TMDL monitoring programs;
- Drainage into waterbodies included on or proposed for the federal Clean Water Act 303(d) list of impaired waterbodies;
- Size and complexity of watershed;
- Size and flow of waterbodies; and,
- Safe access during dry and wet weather.

Table 4 lists monitoring sites selected in each watershed and associated global positioning system (GPS) coordinates for sampling *Conditional Waiver* Appendix 3, Table 1 constituents. Table 5 lists monitoring sites and GPS coordinates for effective TMDL monitoring locations.

Figure 5 through Figure 10 show site locations for all monitoring sites within each watershed and include drainage areas and HUC-12 boundaries.<sup>5</sup> This 2024 Annual Monitoring Report outlines monitoring locations sampled under the currently approved 2017 VCAILG MRP, which was developed to meet the requirements of the *Conditional Waiver*. The 2025 Annual Monitoring Report will contain updated monitoring site information consistent with the 2024 VCAILG MRP to address requirements under the *Ag Order*.

The format for the monitoring site ID/code is XXXA\_YYYY\_ZZZZ, where:

- “XXX” is a 2- or 3-character code that identifies the mainstem receiving water reach (where applicable) into which the monitored waterbody drains;
- “A” identifies the monitored waterbody as an agricultural drain (D) or a tributary (T) to the receiving water;
- “YYYY” is a 3-, 4-, or 5-character abbreviation for the site location;
- “ZZZZ” is an optional 3-, 4-, or 5-character abbreviation that provides additional site location information (*e.g.*, “BKGD” indicates a background site).

Examples:

**S03D\_BARDS** signifies that the monitoring site is an agricultural drain that discharges to Santa Clara River Reach 3. The site is located along Bardsdale Avenue.

**S04T\_TAPO** signifies that the monitoring site is located on Tapo Creek, which is a tributary to the Santa Clara River, Reach 4.

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<sup>5</sup> In Figure 5, the drainage area for site OXD\_CENTR is based on the Regional Board developed boundary for the McGrath Lake OC Pesticides and PCBs TMDL. However, it is VCAILG’s understanding that some landowners in the area have provided additional drainage information to Regional Board staff as part of their discharge limitation compliance.

**Table 4. VCAILGMP Monitoring Locations for *Conditional Waiver* Constituents**

Watershed / Subwatershed	Station ID	Reach	Waterbody Type <sup>1</sup>	Station Location	GPS Coordinates <sup>2</sup>	
					Latitude	Longitude
Calleguas Creek / Mugu Lagoon	01T_ODD3_EDI	1	T	Rio de Santa Clara/Oxnard Drain #3 downstream of Edison Dr.	34.132631	-119.160666
Calleguas Creek / Revolon Slough	04D_ETTG <sup>3</sup>	4	D	Discharge to Revolon Slough at Etting Rd.	34.161797	-119.091419
	04D_LAS <sup>3</sup>	4	D	Discharge to Revolon Slough at S. Las Posas Rd.	34.134208	-119.079767
Calleguas Creek / Beardsley Channel	05D_LAVD	5	D	La Vista Drain at La Vista Ave.	34.265950	-119.093589
	05T_HONDO <sup>3</sup>	5	T	Hondo Barranca at Hwy. 118	34.263608	-119.057431
Calleguas Creek / Arroyo Las Posas	06T_LONG2 <sup>3</sup>	6	T	Long Canyon at Balcom Canyon Rd. crossing	34.281902	-118.958478
Oxnard Coastal	OXD_CENTR <sup>4</sup>	--	D	Central Ditch at Harbor Blvd.	34.220944	-119.254858
Santa Clara River	S02T_ELLS	2	T	Ellsworth Barranca at Telegraph Rd.	34.306805	-119.141275
	S02T_TODD <sup>3</sup>	2	T	Todd Barranca at Hwy. 126	34.313584	-119.117095
	S03T_TIMB <sup>3</sup>	3	T	Timber Canyon at Hwy. 126	34.370172	-119.020939
	S03T_BOULD	3	T	Boulder Creek at Hwy. 126	34.389578	-118.958738
	S03D_BARDS	3	D	Discharge along Bardsdale Ave. upstream of confluence with Santa Clara River	34.371535	-118.964470
	S04T_TAPO	4	T	Tapo Canyon Creek	34.401717	-118.723706
Ventura River	VRT_THACH	--	T	Thacher Creek at Ojai Avenue	34.446719	-119.210893
	VRT_SANTO	--	T	San Antonio Creek at Grand Avenue	34.454455	-119.221723

1. T = Tributary to receiving water; D = agricultural drain.

2. All GPS coordinates presented in decimal degrees latitude and longitude in North American Datum 1983 (NAD83).

3. This site will be replaced or relocated per the VCAILG 2024 MRP.

4. This site will only be used to evaluate the McGrath Lake OC Pesticides and PCBs TMDL in the VCAILG 2024 MRP.

**Table 5. Monitoring Locations for TMDL-related Constituents Addressed in the 2016 *Conditional Waiver* VCAILG MRP**

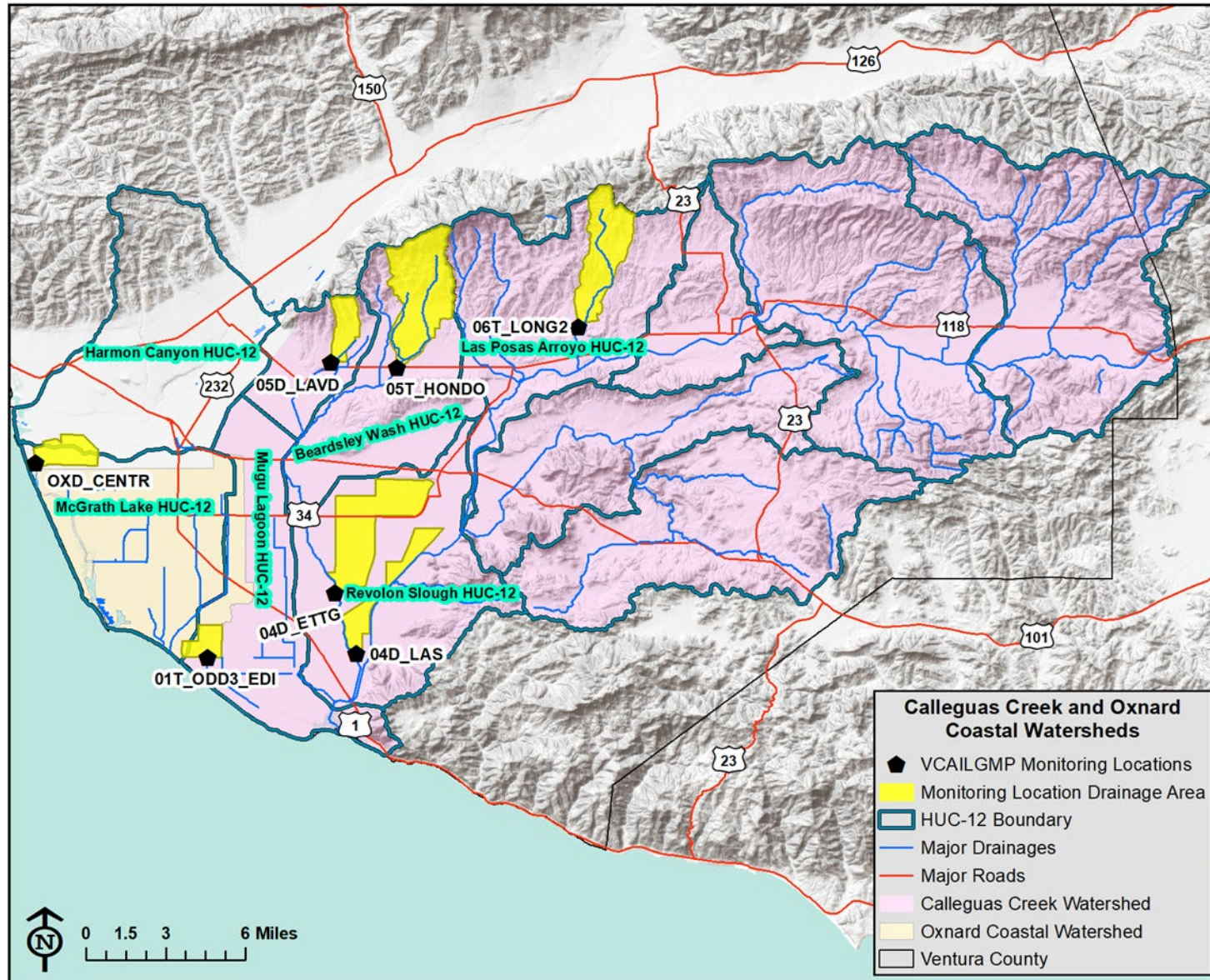
Watershed/ Subwatershed	Site ID	Reach	Waterbody Type <sup>1</sup>	Site Location	GPS Coordinates <sup>2</sup>	
					Latitude	Longitude
Calleguas Creek/ Mugu Lagoon	01T_ODD3_EDI	1	T	Rio de Santa Clara/Oxnard Drain #3 downstream of Edison Dr.	34.132631	-119.160666
Santa Clara River	S01D_MONAR <sup>3</sup>	1	D	Drain entering SCR Estuary at Monarch Lane between Harbor Blvd. and Victoria Ave.	34.2333	-119.2413
	S02T_ELLS	2	T	Ellsworth Barranca at Telegraph Rd.	34.306805	-119.141275
Oxnard Coastal/ McGrath Lake	OXD_CENTR	--	D	Central Ditch at Harbor Blvd.	34.220944	-119.254858
Oxnard Coastal/ Channel Islands Harbor	CIHD_VICT <sup>3</sup>	--	D	Discharge to Doris Drain at S. Victoria Ave.	34.2099	-119.2207
Ventura River	VRT_THACH	--	T	Thacher Creek at Ojai Avenue	34.446719	-119.210893
	VRT_SANTO	--	T	San Antonio Creek at Grand Avenue	34.454455	-119.221723
	V02D_SPM	2	D	Drainage channel to Ventura River at SP Milling Rd. crossing	34.289184	-119.308920

1. T = Tributary to receiving water; D = agricultural Drain

2. All GPS coordinates presented in decimal degrees latitude and longitude in North American Datum 1983 (NAD83).

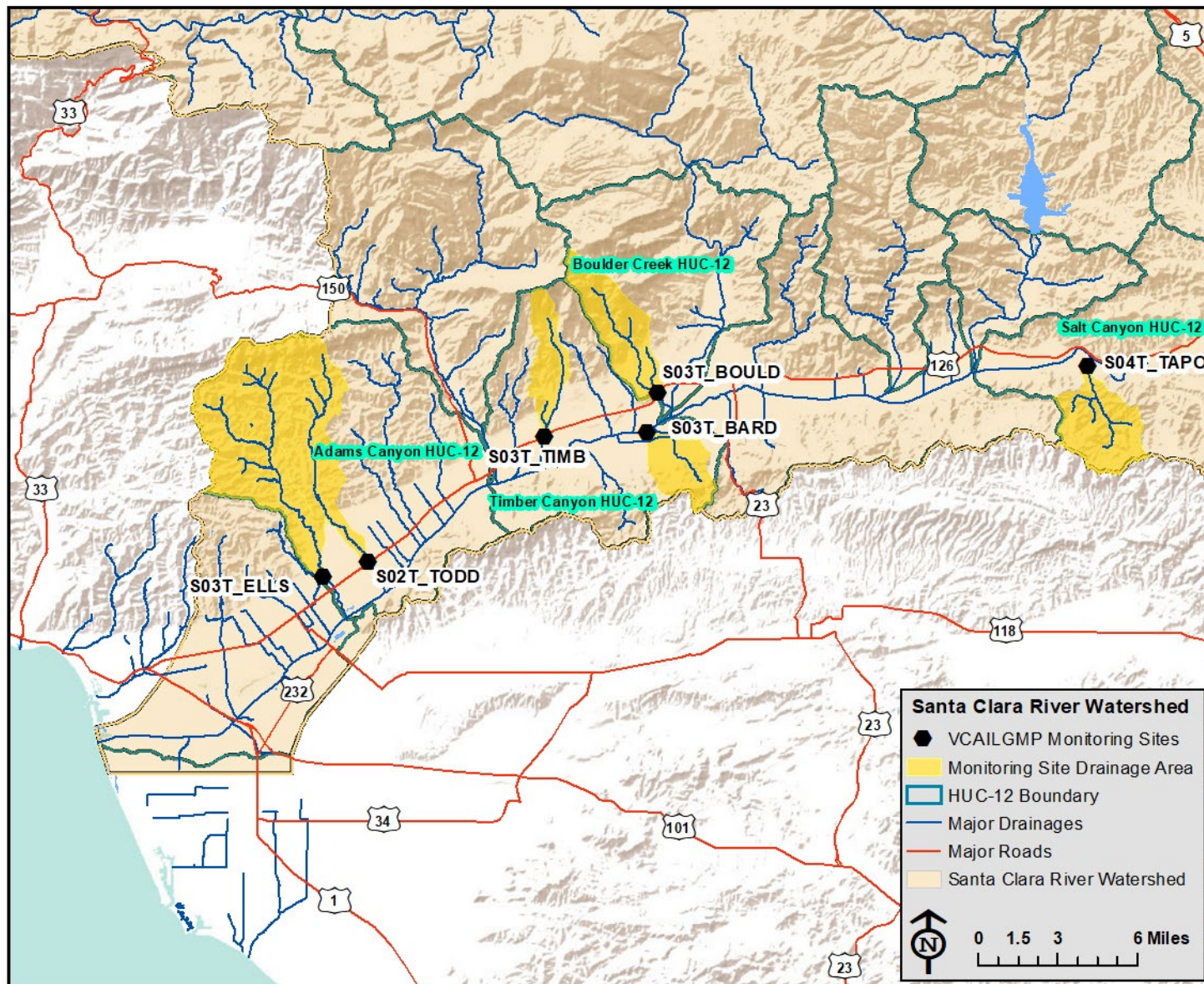
3. This site will be replaced or relocated per the VCAILG 2024 MRP.





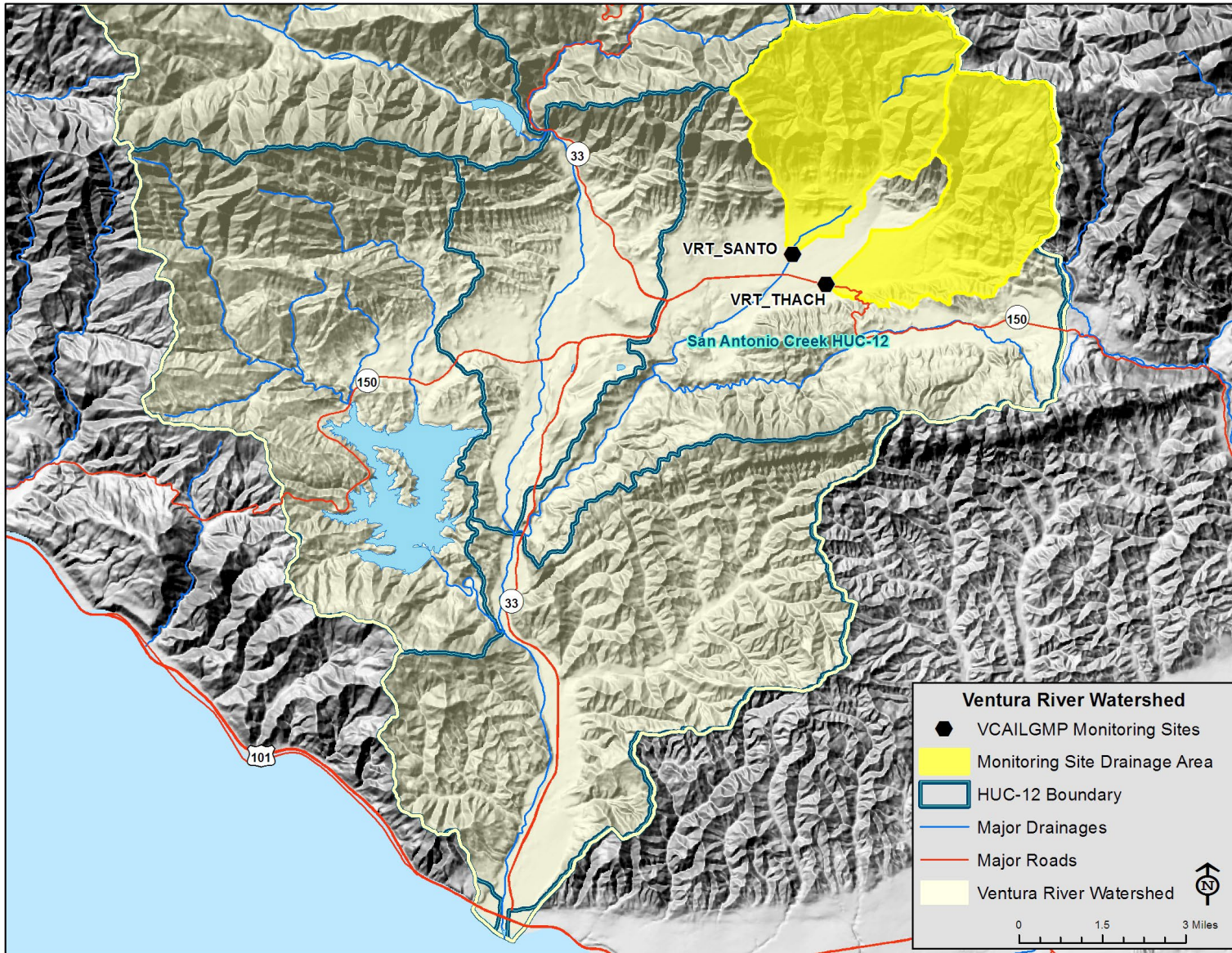
**Figure 5. VCAILG Monitoring Sites in the Calleguas Creek/Oxnard Coastal Watersheds**



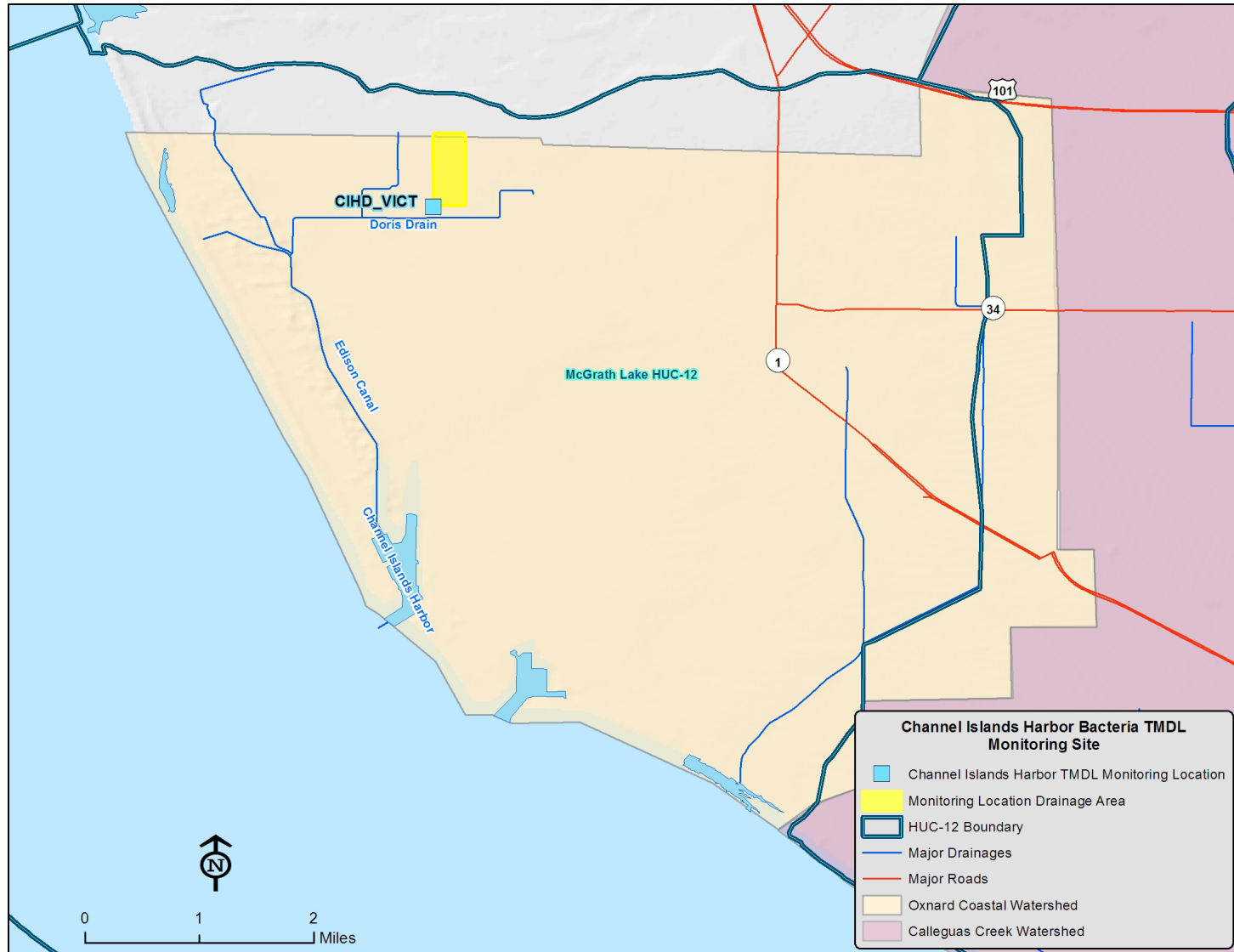


**Figure 6. VCAILG Monitoring Sites Located in the Santa Clara River Watershed**



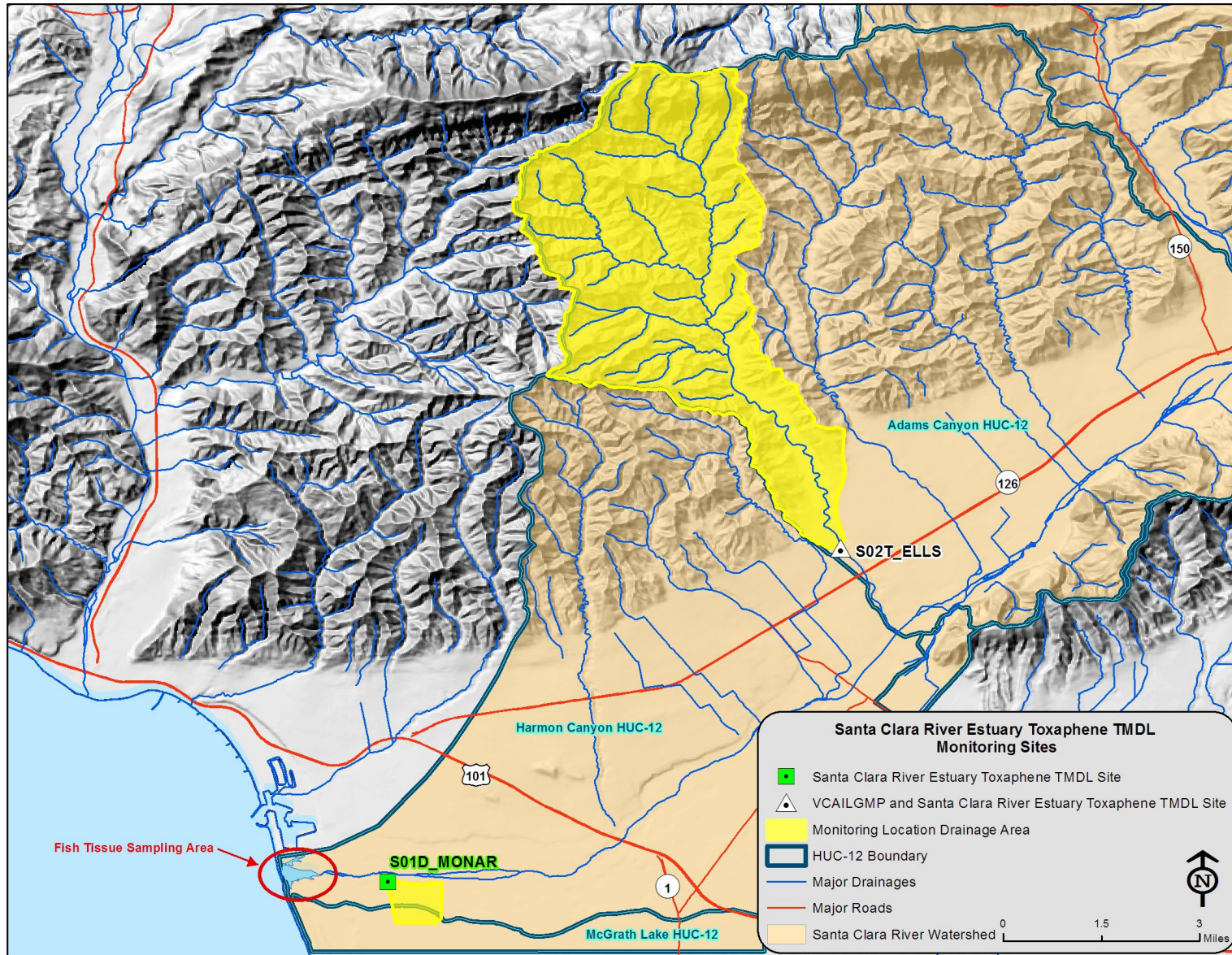


**Figure 7. VCAILG Monitoring Sites Located in the Ventura River Watershed**



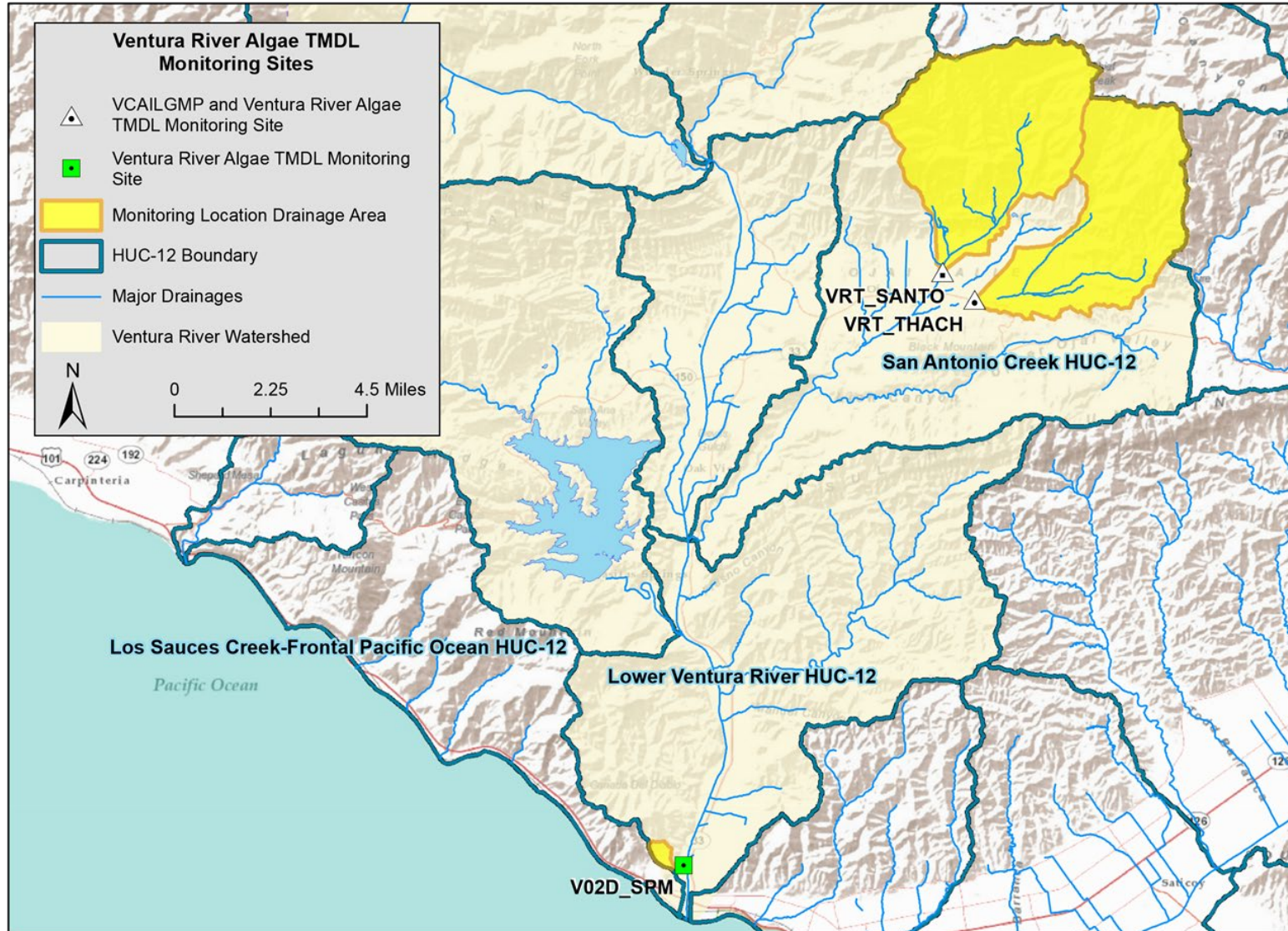
**Figure 8. Channel Islands Harbor Bacteria TMDL Monitoring Site**





**Figure 9. Santa Clara River Estuary Toxaphene TMDL Monitoring Sites**





**Figure 10. Ventura River Algae TMDL Monitoring Sites**

**Table 6. Estimated Irrigated Acreage Represented at *Conditional Waiver* VCAILG MRP Monitoring Sites**

Station ID	Irrigated Agricultural Acreage <sup>1, 2</sup>										Drainage Area Acres
	Row Crops	Rotational Crops	Citrus	Avocados	Tree Crops	Strawberries	Other Berries	Sod	Nursery	Other Crops	
01T_ODD3_EDI <sup>3</sup>		1,340				110		448			643
04D_ETTG <sup>5</sup>	554	5,508	327			508	425		17	1,221	3,377
04D_LAS <sup>5</sup>	348	2,052				339	194	2	14	456	1,339
05D_LAVD	45	137	312	304			118				877
05T_HONDO <sup>5</sup>		84	1,200	819		19	19		4		3,928
06T_LONG2 <sup>5</sup>		57	632	1,158		3	275		73		2,813
OXD_CENTR <sup>3</sup>	347	966				1,366			36		1,003
S02T_ELLS <sup>3</sup>		270	474	583	0		3			61	9,015
S02T_TODD <sup>5</sup>		260	369	197			88		46	94	5,748
S03D_BARDS	19	62	804	245					57		2,214
S03T_BOULD		8	282	948					172		3,764
S03T_TIMB <sup>5</sup>		14	112	476	1						2,183
S04T_TAPO		62	34				1			61	3,686
VRT_SANTO <sup>3</sup>			332	311	17						7,220
VRT_THACH <sup>3</sup>		17	585	211	9		1		2		6,003
V02D_SPM <sup>4</sup>			45	26		35					137
S01D_MONAR <sup>4,5</sup>	239					241					242
CIHD_VICT <sup>4,5</sup>		206				133					94

1. Data Source: Ventura County Agricultural Commissioner's Office, August 2024.

2. Some acreage is double- or triple counted due to multi-cropping practices.

3. This site is monitored for *Conditional Waiver* Appendix 3, Table 1 constituents and for an applicable TMDL. Drainage area acreage is based on the McGrath Lake TMDL boundary developed by the Regional Board. Supplemental information has been provided to Regional Board staff as part of individual discharge limitation compliance submittals, which may alter the drainage area in the future.

4. This is a TMDL specific monitoring site that is sampled according to the 2017 VCAILG MRP approved under the *Conditional Waiver*.

5. This site will be removed or replaced per the 2024 VCAILG MRP.

## PARAMETERS MONITORED AND MONITORING FREQUENCY

### Conditional Waiver/Ag Order Monitoring Constituents and Frequency

The *Conditional Waiver* and *Ag Order* specify the constituents to be monitored during each monitoring event (Table 7) as well as the monitoring frequency. Monitoring is required twice during the wet season and twice during the dry season. In addition, toxicity monitoring is required during one wet event and once during the dry season each year. The wet season is October 15<sup>th</sup> through May 15<sup>th</sup>, and the dry season is from May 16<sup>th</sup> through October 14<sup>th</sup>. Per the *Conditional Waiver* and *Ag Order*, wet season samples are collected within 24 hours of a storm occurring with precipitation totals greater than 0.5 inch. The initial dry weather monitoring event is conducted after the application of pesticides or fertilizers during the period when irrigation is required.

In 2023-2024, storm monitoring occurred on January 22, 2024, and February 1, 2024. Dry weather monitoring occurred on September 25, 2023, and June 11, 2024. Wet weather toxicity samples were collected during Event 59 on January 22, 2024. Dry weather toxicity samples were collected during the second dry weather event on June 11, 2024.

Table 8 provides a summary of monitoring sites and constituents that were monitored during the wet and dry weather monitoring events in 2023 and 2024. Field measurements were also collected at the sites where samples were collected. During this reporting period, monitoring constituents and frequencies were conducted in accordance with the 2017 VCAILG MRP, which was approved to address requirements of the *Conditional Waiver*.

**Table 7. Constituents and Monitoring Frequency for the Conditional Waiver VCAILG-MP**

Constituent	Frequency <sup>1</sup>
<b>Field Measurements</b>	
Flow, pH, Temperature, Dissolved Oxygen, Conductivity, Turbidity	
<b>General Water Quality Constituents (GWQC)</b>	
Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Hardness, Chloride, Sulfate, Turbidity <sup>2</sup>	
<b>Nutrients</b>	
Total Ammonia-N, Nitrate-N, Nitrite-N <sup>3</sup> , Total Nitrogen, Orthophosphate, Total Phosphorus	
<b>Pesticides</b>	2 dry events; 2 wet events
Organochlorine Pesticides <sup>4,5</sup> , Organophosphorus Pesticides <sup>6</sup> , Pyrethroid Pesticides <sup>7</sup>	
<b>Metals</b>	
Total and Dissolved Copper	
<b>Trash</b>	
Trash observations	
<b>Bacteria</b>	
<i>E. coli</i>	
<b>Aquatic Chronic Toxicity</b>	First wet event; second dry event
<i>Ceriodaphnia dubia</i> <sup>8</sup>	

1. The "wet" season is defined as October 15<sup>th</sup> through May 15<sup>th</sup>; the "dry" season is defined as May 16<sup>th</sup> through October 14<sup>th</sup> each year.
2. Turbidity was reported as >1,000 NTU at some sites because the field meter range was exceeded during Events 59 and 60.
3. Nitrite-N is only collected during wet events at only selected sites.
4. Organochlorine pesticides include: 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, BHC-alpha, BHC-beta, BHC-delta, BHC-gamma, chlordane-cis, chlordane-trans, dieldrin, endosulfan sulfate, endosulfan I, endosulfan II, endrin, endrin aldehyde, endrin ketone, and toxaphene.
5. Total Chlordane is calculated as the sum of chlordane-alpha and chlordane-gamma
6. Organophosphorus pesticides include: bolstar, chlorpyrifos, demeton, diazinon, dichlorvos, dimethoate, disulfoton, ethoprop, fenchlorphos, fensulfathion, fenthion, malathion, methyl parathion, mevinphos, phorate, tetrachlorvinphos, tokuthion, and trichloronate.
7. Pyrethroid pesticides include: allethrin, bifenthrin, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, fenpropathrin, fenvalerate, lambda-cyhalothrin, permethrin, cis-, permethrin, trans-, and prallethrin.
8. If sample conductivity exceeded 3,000 µS/cm, *Hyalella azteca* was used for toxicity testing.

**Table 8. VCAILG Sites Monitored and Constituents Sampled in 2023-2024**

Watershed / Subwatershed	Site ID	Reach	Monitoring Events <sup>1</sup>			
			Dry 09/25/2023	Wet 1/22/2024	Wet 2/01/2024	Dry 06/11/2024
Calleguas Creek / Mugu Lagoon	01T_ODD3_EDI	1	WQ	-- <sup>2</sup>	WQ	WQ, TOX
Calleguas Creek / Revolon Slough	04D_ETTG <sup>5</sup>	4	WQ	WQ, TOX	WQ	WQ, TOX
	04D_LAS <sup>5</sup>	4	WQ	WQ, TOX	WQ	WQ, TOX
Calleguas Creek / Beardsley Channel	05D_LAVD	5	-- <sup>3</sup>	WQ, TOX	WQ	-- <sup>3</sup>
	05T_HONDO <sup>5</sup>	5	-- <sup>3</sup>	WQ, TOX	WQ	-- <sup>3</sup>
Calleguas Creek / Arroyo Las Posas	06T_LONG2 <sup>5</sup>	6	-- <sup>3</sup>	WQ, TOX	WQ	-- <sup>3</sup>
Oxnard Coastal	OXD_CENTR	--	-- <sup>3</sup>	WQ, TOX	WQ	-- <sup>4</sup>
Santa Clara River	S02T_ELLS	2	WQ	WQ, TOX	WQ	WQ, TOX
	S02T_TODD <sup>5</sup>	2	WQ	WQ, TOX	WQ	WQ, TOX
	S03T_TIMB <sup>5</sup>	3	-- <sup>3</sup>	WQ, TOX	WQ	-- <sup>3</sup>
	S03T_BOULD	3	WQ	WQ, TOX	WQ	WQ, TOX
	S03D_BARDS	3	-- <sup>3</sup>	WQ, TOX	WQ	-- <sup>3</sup>
	S04T_TAPO	4	WQ	WQ, TOX	WQ	WQ, TOX
Ventura River	VRT_THACH	--	-- <sup>3</sup>	-- <sup>3</sup>	WQ	-- <sup>3</sup>
	VRT_SANTO	--	-- <sup>3</sup>	-- <sup>3</sup>	WQ	-- <sup>3</sup>

TOX = Toxicity

WQ = All water quality constituents listed in Table 7, excluding toxicity, which is noted separately

1. Toxicity testing was performed during the first wet event and the second dry event.
2. The monitoring site was not accessible during this event.
3. No samples collected due to insufficient flow/dry conditions.
4. Reverse flow was observed, and no samples were collected.
5. This site will be removed or replaced per the VCAILG 2024 MRP.

## TMDL Monitoring Constituents and Frequency

Monitoring for TMDL compliance is either prescribed in the adopted Basin Plan Amendment, or performed according to a TMDL Monitoring Plan, approved by the Regional Board Executive Officer (Table 9). Table 10 summarizes the TMDL monitoring that was performed under the VCAILGMP. When appropriate, TMDL monitoring events were conducted at the same time as *Conditional Waiver* monitoring. As previously stated, TMDL monitoring for the current reporting period was conducted under the 2017 VCAILG MRP and QAPP, which was approved to address requirements of the *Conditional Waiver*. Once approved, TMDL monitoring will be conducted under the 2024 VCAILG MRP, addressing requirements of the *Ag Order*.

Calleguas Creek Watershed TMDL monitoring was completed per the 2020 revised CCWTMP QAPP. CCWTMP monitoring is conducted quarterly during dry conditions and during two storm events each year. The Calleguas Creek Watershed TMDL Compliance Monitoring Program Annual Monitoring Report describes the TMDL monitoring program and results in detail for the 2023-2024 monitoring year.<sup>6</sup>

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<sup>6</sup> Larry Walker Associates. 2024. Calleguas Creek Watershed TMDL Compliance Monitoring Program - Annual Monitoring Report - Year 16: July 2023 to June 2024. December 15, 2024



**Table 9. Constituents and Frequency for TMDL Monitoring Performed Under the *Conditional Waiver* VCAILGMP**

TMDL	SITE ID	CONSTITUENT <sup>1,2</sup>	FREQUENCY
Santa Clara River Estuary Toxaphene TMDL	S01D_MONAR <sup>3</sup> S02T_ELLS	TSS, toxaphene, chlordane, dieldrin (water)	2 dry events; 2 wet events
		Toxaphene, chlordane, dieldrin (filtered sediment)	2 wet events
Santa Clara River Bacteria TMDL	S01D_MONAR <sup>3</sup>	<i>E. coli</i> , enterococcus, total coliform, fecal coliform	2 dry events; 2 wet events
Channel Islands Harbor Bacteria TMDL	CIHD_VICT <sup>3</sup>	<i>E. coli</i> , enterococcus, total coliform, fecal coliform	2 dry events; 2 wet events
Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL	01T_ODD3_ED1	Bifenthrin, total chlordane, chlorpyrifos, 4,4'-DDT, 4,4'-DDE, 4,4'-DDD, dieldrin, total PCBs, toxaphene (water)	2 dry events; 2 wet events
		TOC, total chlordane, 4,4'-DDT, 4,4'-DDE, 4,4'-DDD, dieldrin, total PCBs, toxaphene, sediment toxicity <sup>4</sup> (sediment)	First Dry event of the year
Malibu Creek Watershed Sedimentation and Nutrients TMDLs	05T_HONDO <sup>5</sup>	Total nitrogen, total phosphorus	2 dry events; 2 wet events
		Nitrate-N and nitrite-N	2 wet events
Ventura River Algae TMDL	VRT_THACH VRT_SANTO V02D_SPM	Total nitrogen, total phosphorus	2 dry events
		Nitrate-N and nitrite-N	2 wet events
McGrath Lake Pesticides, PCBs, and Sediment Toxicity TMDL	OXD_CENTR	Total organic carbon (TOC), TSS, total PCBs, 4,4'-DDT, 4,4'-DDE, 4,4'-DDD, dieldrin, total chlordane (water)	2 dry events; 2 wet events
		TOC, Total PCBs, 4,4'-DDT, 4,4'-DDE, 4,4'-DDD, dieldrin, total chlordane (suspended sediment)	2 wet events

1. This table lists constituents necessary to evaluate compliance with TMDL load allocations for irrigated agriculture; some of the constituents are already required to be monitored region-wide under the *Conditional Waiver*.
2. Required TMDL constituents not listed in this table are accounted for in the VCAILGMP as part of the monitoring described in Table 7.
3. This site will be replaced or relocated per the VCAILG 2024 MRP.
4. Bulk sediment toxicity testing is performed on either *Hyalella azteca* or urchin fertilization, depending on sample conditions. Testing *Hyalella azteca* is appropriate when pore water is in the range of 0-15 ppt salinity. Urchin testing would be appropriate for higher salinities.
5. This site was selected as a proxy site to assess compliance with the Malibu Creek Watershed Nutrients TMDL and Malibu Creek and Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments. Data will only be compared to the LAs from these TMDLs if VCAILG has members farming within the Malibu Creek Watershed. This site will be replaced per the VCAILG 2024 MRP.



**Table 10. TMDL Sites Monitored and Constituents Sampled in 2023-2024**

TMDL	Site ID	Monitoring Events in 2023-2024			
		Event 58 Dry 09/25/2023	Event 59 Wet 01/22/2024	Event 60 Wet 02/01/2024	Event 61 Dry 06/11/2024
Santa Clara River Estuary Toxaphene TMDL	S01D_MONAR <sup>1</sup>	OC-W TSS <sup>2</sup>	OC-W OC-S TSS	OC-W OC-S TSS	OC-W TSS
	S02T_ELLS	OC-W TSS	OC-W OC-S TSS	OC-W OC-S TSS	OC-W TSS
Santa Clara River Bacteria TMDL	S01D_MONAR <sup>1</sup>	Bact <sup>2</sup>	Bact	Bact	Bact
Channel Islands Harbor Bacteria TMDL	CIHD_VICT <sup>1</sup>	Bact	Bact	Bact	Bact <sup>2</sup>
Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL	01T_ODD3_EDI	PP-W, PP-S	PP-W <sup>2</sup>	PP-W	PP-W
Malibu Creek Watershed Sedimentation and Nutrients TMDL	05T_HONDO <sup>1</sup>	TN, TP <sup>2</sup>	TN, TP, NO <sub>3</sub> , NO <sub>2</sub>	TN, TP, NO <sub>3</sub> , NO <sub>2</sub>	TN, TP <sup>2</sup>
McGrath Lake PCBs, Pesticides and Sediment Toxicity TMDL	OXD_CENTR	OC-PCB-W TOC TSS <sup>2</sup>	OC-PCB-W OC-PCB-S TOC TSS	OC-PCB-W OC-PCB-S TOC TSS	OC-PCB-W TOC TSS <sup>2</sup>
Ventura River Algae TMDL	VRT_THACH	TN, TP <sup>2</sup>	NO <sub>3</sub> , NO <sub>2</sub> <sup>2</sup>	NO <sub>3</sub> , NO <sub>2</sub>	TN, TP <sup>2</sup>
	VRT_SANTO	TN, TP <sup>2</sup>	NO <sub>3</sub> , NO <sub>2</sub> <sup>2</sup>	NO <sub>3</sub> , NO <sub>2</sub>	TN, TP <sup>2</sup>
	V02D_SPM	TN, TP <sup>2</sup>	NO <sub>3</sub> , NO <sub>2</sub>	NO <sub>3</sub> , NO <sub>2</sub>	TN, TP <sup>2</sup>

OC-W = OC pesticides toxaphene, chlordane, and dieldrin in water

OC-S = OC pesticides toxaphene, chlordane, and dieldrin in filtered sediment

Bact = *E. coli*, enterococcus, total coliform, fecal coliform

PP-W = Pesticides and PCBs bifenthrin, total chlordane, chlorpyrifos, DDT and derivatives, dieldrin, total PCBs, toxaphene in water

PP-S = Pesticides and PCBs TOC, total chlordane, DDT and derivatives, dieldrin, total PCBs, toxaphene, sediment toxicity in sediment

OC-PCB-W = OC pesticides chlordane, dieldrin, DDT and derivatives, total PCBs in water

OC-PCB-S = OC pesticides chlordane, dieldrin, DDT and derivatives, total PCBs, TOC in filtered sediment

TOC = Total Organic Carbon

TSS = Total Suspended Solids

TN, TP = Total nitrogen, Total phosphorus

NO<sub>3</sub>, NO<sub>2</sub> = Nitrate, Nitrite

1. This site will be replaced or relocated per the VCAILG 2024 MRP.

2. Site not sampled during the event due to insufficient or absent flow.

## SAMPLING METHODS

The 2017 VCAILG QAPP contains requirements for sampling procedures that are designed to ensure that high-quality data are generated through the VCAILGMP. Field crews are trained to adhere strictly to standard operating procedures for all aspects of monitoring, including use of sample containers that are appropriate for each constituent or constituent group analyzed, avoiding potential sources of contamination, and accurately completing field log sheets and chain-of-custody forms, among other procedures.

Samples were collected either by the direct immersion technique or by using a secondary container; filled sample containers were immediately put on ice in an ice chest. Notes regarding sample bottle fill method and sample collection depth for specific samples can be found in the field log sheets (Appendix B).

Flow measurements were performed according to the standard operating procedure included in Appendix C-1 of the QAPP using either current-meter, float measurements, or bucket fill techniques. During wet events, the float method of measuring flow is most practical and safe. At some sites, channel depth was estimated using a reference photo, painted gauge, or other appropriate tool. Estimated flows are qualified as such in the field data (Appendix C) and site summary tables. *Flow estimates made during wet events should be regarded as rough estimates and used with discretion.*

During all monitoring events, an In-Situ SmarTROLL MP Data Sonde, In-Situ SmarTROLL 400 Data Sonde, or YSI ProDSS meter was used to measure *in situ* field parameters, including temperature, pH, dissolved oxygen, and conductivity. A Hach Turbidimeter 2100Q was used to measure turbidity in the field. In cases where turbidity exceeded the meter's range (1,000 NTUs), turbidity is reported as '>1,000' NTU. Field data and information collected at each monitoring site were recorded on a field log sheet. The completed field log sheets for each event are included with this Annual Report as Appendix B. Information recorded on the field log sheet at each monitoring site includes the following:

- Field crew initials;
- Date and time samples were collected;
- Water quality results for constituents measured using field probes (pH, temperature, conductivity, etc.);
- Measurements supporting flow calculations (channel width, depth, water velocity);
- Observations regarding the weather, watercolor, and odor, contact and non-contact recreation, instream activity, the presence of foreign matter, trash counts and types, wildlife, connection to downstream flow, etc.; and
- Vegetation and channel substrate (*i.e.*, concrete, cobble, sand, etc.) observations.

Information entered on field log sheets is ultimately entered into the VCAILGMP database for reporting. Field data are included with this Annual Report in Appendix C. Photo documentation of each monitoring site for all four events is included as Appendix D.

Samples were transported to FGL Environmental Laboratory in Santa Paula, where chain-of-custody (COC) documentation was completed and toxicity samples were prepared for overnight

delivery to the toxicity testing laboratory, Pacific EcoRisk (PER). A courier picked up samples to be analyzed by Physis Environmental Laboratories and delivered them according to the requirements of the QAPP. The completed COC forms are included in this Annual Report as Appendix E.

## ANALYTICAL METHODS

Table 11 provides a summary of analytical methods used by contract laboratories for analyzing samples collected for *Conditional Waiver* constituents during the 2023-2024 monitoring year. Table 12 lists analytical methods for TMDL constituents monitored as part of the VCAILGMP. Refer to the CCWTMP QAPP for methods used on samples collected for that monitoring program.

**Table 11. Analytical Methods for Conditional Waiver Constituents**

Constituent	Analytical Method
<b>Aquatic Chronic Toxicity<sup>1</sup></b>	
<i>Ceriodaphnia dubia</i> (water flea) <sup>2</sup>	EPA-821-R-02-013
<b>General Water Quality Constituents (WQ)</b>	
Flow, pH, Temperature, Dissolved Oxygen, Conductivity, Turbidity	Field Measurement
TDS	SM 2540 C
TSS	SM 2540 D
Chloride	EPA 300.0
Sulfate	EPA 300.0
Hardness	SM 2340 B
<b>Nutrients</b>	
Total Ammonia-N	SM 4500-NH <sub>3</sub> D
Nitrate-N	EPA 300.0
Total Nitrogen	SM 5310 B-N Module
Phosphate (Total Orthophosphate as P)	SM 4500-P E
Total Phosphorus	SM 4500-P E
<b>Metals</b>	
Total and Dissolved Copper	EPA 200.8
<b>Organic Constituents<sup>3</sup></b>	
Organochlorine Pesticides <sup>4</sup>	EPA 625.1
Organophosphorus Pesticides	EPA 625.1
Pyrethroid Pesticides	EPA 625.1-MRM
PCB Congeners/Aroclors	EPA 625.1
<b>Bacteria</b>	
<i>E. coli</i>	SM 9223 B

1. The 2017 MRP/QAPP calls for use of *Ceriodaphnia dubia* for chronic toxicity testing at all sites.
2. If sample conductivity exceeded 3000 µS/cm, *Hyalella azteca* (EPA 821-R-02-012) was used for toxicity testing.
3. See Table 7 for the list of constituents in each pesticide group.
4. Toxaphene is analyzed using EPA 625.1-NCI.

**Table 12. Analytical Methods for TMDL Constituents**

Constituent <sup>1</sup>	Analytical Method
<b>General Water Quality Constituents</b>	
Total organic carbon (TOC) (water)	SM 5310 C
Total organic carbon (TOC) (sediment)	EPA 9060
<b>Nutrients</b>	
Nitrite-N	EPA 300.0
<b>PCB Aroclors and Organochlorine Pesticides</b>	
PCBs (water)	EPA 625.1
PCBs (sediment)	EPA 8270 E
OC Pesticides (filtered sediment) <sup>2</sup>	EPA 8270 E
OC Pesticides (sediment)	EPA 8270 E
<b>Bacteria</b>	
Enterococcus	SM 9230 D
Total coliform	SM 9223 B
Fecal coliform	SM 9223 B

1. Listed constituents are those that are required by a TMDL and not already listed in the previous table.

2. Toxaphene is analyzed using EPA 8270 E-NCI

## Data Quality

The VCAILG QAPP specifies monitoring program requirements and procedures designed to ensure that the quality of data generated through the VCAILGMP are such that data can be used to 1) accurately assess environmental conditions and 2) make environmentally-sound decisions. Appendix H provides a summary of the data quality evaluation performed on the data collected during the 2023-2024 monitoring year. An evaluation of the data quality for the CCWTMP is included as Appendix D as part of the sixteenth-year annual monitoring report for that program.<sup>7</sup>

## WATER QUALITY BENCHMARKS AND OTHER OBJECTIVES

This section presents the standard water quality benchmarks as specified in the *Conditional Waiver* and *Ag Order* used to evaluate monitoring data collected at VCAILG monitoring sites during the 2023-2024 monitoring year. Monitoring during this reporting period was conducted in accordance with the 2017 VCAILG MRP, which was approved under the Conditional Waiver. Water quality results were compared to appropriate *Ag Order* water quality objectives where data was available.

“Standard water quality benchmarks” in the *Conditional Waiver* and *Ag Order* include numeric and narrative water quality objectives and include several narrative and numeric Basin Plan objectives and water quality standards from the California Toxics Rule (CTR). In cases where

<sup>7</sup> Larry Walker Associates. 2024. Calleguas Creek Watershed TMDL Compliance Monitoring Program -Annual Monitoring Report - Year 16: July 2023 to June 2024. December 15, 2024

the *Conditional Waiver* or *Ag Order* reference the Basin Plan or CTR, without specifying a benchmark number, the lowest applicable standard was selected for each watershed. CTR water quality criteria are available for several OC pesticides that are analyzed as part of the VCAILGMP; although these criteria are not listed as benchmarks in the *Conditional Waiver* or *Ag Order*, they are provided in a separate table in this section of the AMR for reference. In addition to benchmarks, the *Conditional Waiver* and *Ag Order* also include water quality benchmarks based upon LAs from effective TMDLs. Due to the complexity of appropriately comparing TMDL LAs to data obtained for the proper locations, site types, sample media, and sampling conditions, TMDL-related benchmarks and the applicable monitoring results are presented and discussed separately in the report section titled “TMDL Load Allocations and Monitoring Results”.

Several of the narrative water quality objectives contained in the Basin Plan specify that discharges of wastes to receiving waters cannot alter “natural” or “ambient” conditions above or below a stated level. Many of the VCAILG monitoring sites are located on agricultural drains that discharge to receiving waters. Because “natural” and “ambient” conditions have not been established in receiving waters, or are non-existent in agricultural drains and ephemeral streams, monitoring data from sites located in agricultural drains are evaluated based on the assumption that if benchmarks are not exceeded in the agricultural drain, it is unlikely that the discharge from that drain will cause benchmark exceedances in the receiving water.

**Table 13. Conditional Waiver/Ag Order Standard Water Quality Benchmarks Derived from Narrative Objectives**

Constituent	Watershed <sup>1</sup>	Narrative Objective <sup>2</sup>	Applicable Benchmark
pH	CC, OXD, SCR, VR	The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed by more than 0.5 pH units from natural conditions as a result of waste discharges.	$6.5 \leq \text{pH} \leq 8.5$ Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
Temperature	CC, OXD, SCR, VR	For waters designated WARM, water temperature shall not be altered by more than 5°F above the natural temperature. At no time shall WARM-designated waters be raised above 80°F as a result of waste discharges.	WARM: $\leq 80^{\circ}\text{F}$ Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
	SCR, VR	For waters designated COLD, water temperature shall not be altered by more than 5°F above the natural temperature.	COLD: No numeric benchmark. Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
Dissolved Oxygen	OXD	No single dissolved oxygen determination shall be less than 5 mg/L, except when natural conditions cause lesser concentrations.	$\geq 5 \text{ mg/L}$
	CC, SCR, VR	The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges.	WARM: $\geq 5 \text{ mg/L}$
	SCR, VR	The dissolved oxygen content of all surface waters designated as COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.	COLD, SPWN: $\geq 7 \text{ mg/L}$
Turbidity	CC, OXD, SCR, VR	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits: Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%; and Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.	No numeric benchmarks. Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
Total Suspended Solids (TSS)	CC, OXD, SCR, VR	Wastes shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	No numeric benchmarks.
Toxicity	CC, OXD, SCR, VR	All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal or aquatic life. There shall be no chronic toxicity in ambient waters outside mixing zones.	$\leq 1.0 \text{ TUc}^3$ Benchmarks for specific potentially toxic constituents are listed in Tables 16 through 20.

1. CC = Calleguas Creek Watershed OXD = Oxnard Coastal Watershed SCR = Santa Clara River Watershed VR = Ventura River Watershed

2. Source: Water Quality Control Plan, Los Angeles Region (Basin Plan), 1994.

3. Source: “Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,” Order No. R4-2016-0143, Los Angeles Regional Water Quality Control Board, adopted April 14, 2016.

**Table 14. Conditional Waiver/Ag Order Standard Water Quality Benchmarks for Salts and Nutrients (Basin Plan Table 3-8 Numeric Water Quality Objectives)**

Watershed / Reach	Reach Description	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Nitrogen (mg/L)	Ammonia <sup>1</sup> (mg/L)	Phosphate (mg/L)
CC below Potrero Rd.	-----	-----	-----	-----	10 <sup>2</sup>	pH, temperature dependent	-----
CC above Potrero Rd.	-----	150	250	850	10 <sup>3</sup>	pH, temperature dependent	-----
OXD	-----	-----	-----	-----	10 <sup>2</sup>	pH, temperature dependent	-----
SCR Reach 1	Tidally influenced mouth of Santa Clara River upstream to 101 Bridge	-----	-----	-----	10 <sup>2</sup>	pH, temperature dependent	-----
SCR Reach 2	Upstream of Hwy 101 Bridge to Freeman Diversion	150	600	1200	10 <sup>2</sup>	pH, temperature dependent	-----
SCR Reach 3	Upstream of Freeman Diversion to A Street Bridge in Fillmore	100 <sup>4</sup>	650	1300	5 <sup>3</sup>	pH, temperature dependent	-----
SCR Reach 4	Upstream of A Street Bridge in Fillmore to Blue Cut Gaging Station	100	600	1300	5 <sup>3</sup>	pH, temperature dependent	-----
VR Reach 4	Between Camino Cielo Rd. and Casitas Vista Rd.	60	300	800	5 <sup>3</sup>	pH, temperature dependent	-----

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

1. Ammonia benchmarks are based on 1) freshwater ammonia objectives as calculated according to LARWQCB Resolutions 2002-011 and 2005-014, and 2) saltwater ammonia objectives as calculated according to LARWQCB Resolution 2004-022. Ammonia objectives are calculated based on the pH and temperature of the receiving water measured at the time of sample collection for ammonia analysis. Ammonia objectives used as benchmarks are chronic, 30-day averages.
2. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N was used for comparison with VCAILG data collected at monitoring sites in this reach.
3. The Nitrogen benchmark listed is for Nitrate-N plus Nitrite-N.
4. The 100 mg/L benchmark for chloride is the revised water quality objective adopted by the Regional Board in Resolution 2003-015.



**Table 15. Conditional Waiver/Ag Order Standard Water Quality Benchmarks for Copper**

Constituent	Freshwater <sup>1, 2</sup>		Brackish or Saltwater <sup>1</sup>	
	Benchmark (µg/L)	Benchmark Source	Benchmark (µg/L)	Benchmark Source
Copper	= $0.96e^{[0.8545(\ln hardness) + (-1.702)]}$	CTR CCC <sup>3</sup>	3.1	CTR CCC <sup>3</sup>

1. Freshwater benchmark applies to discharges to waters with salinities <1 ppt at least 95% of the time. Saltwater benchmark applies when salinities are ≥10 ppt at least 95% of the time. For discharges between these categories, or tidally influenced freshwater that supports EST beneficial uses, the lower criterion of the two shall be used, which is the saltwater benchmark.
2. As per footnote “m” to the Table in Paragraph (b)(1) of the CTR; “The freshwater criteria for metals are expressed in terms of the dissolved fraction of the metal in the water column.” In instances where the measured hardness is >400 mg/L as CaCO<sub>3</sub>, a hardness of 400 is used to calculate the benchmark. This was done in accordance with CTR §31692, f. Hardness.
3. CTR = California Toxics Rule (USEPA, May 18, 2000).  
CCC = Criterion Continuous Concentration

**Table 16. Conditional Waiver/Ag Order Standard Water Quality Benchmarks for Organophosphorus Pesticides**

Constituent	CC, OXD, SCR, VR Watersheds
	Benchmark (µg/L)
Chlorpyrifos	0.025
Diazinon	0.10

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

**Table 17. Conditional Waiver/Ag Order Water Quality Benchmarks for Organochlorine Pesticides**

Constituent	CC Watershed		OXD, SCR Watersheds		VR Watershed	
	Benchmark (µg/L)	Benchmark Source <sup>1</sup>	Benchmark (µg/L)	Benchmark Source <sup>1</sup>	Benchmark (µg/L)	Benchmark Source <sup>1</sup>
Chlordane, sum	0.00059	CTR HHO	0.00059	CTR HHO	0.00059	CTR HHO
4,4'-DDD	0.00084	CTR HHO	0.00084	CTR HHO	0.00084	CTR HHO
4,4'-DDE	0.00059	CTR HHO	0.00059	CTR HHO	0.00059	CTR HHWO
4,4'-DDT	0.00059	CTR HHO	0.00059	CTR HHO	0.00059	CTR HHWO
Dieldrin	0.00014	CTR HHO	0.00014	CTR HHO	0.00014	CTR HHWO
Toxaphene	0.00075	CTR HHO	0.00075	CTR HHO	0.00075	CTR HHO

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

1. CTR = California Toxics Rule (USEPA, May 18, 2000).  
HHO = Human Health for Consumption of Organisms Only (30-day average)  
HHWO = Human Health for Consumption of Water and Organisms (MUN-designation) (30-day average)

**Table 18. Conditional Waiver/Ag Order Water Quality Benchmark for Bifenthrin**

Constituent	CC, OXD, SCR, VR Watersheds	
	Unit	Benchmark
Bifenthrin	µg/L	0.0006

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

**Table 19. Conditional Waiver/Ag Order Water Quality Benchmark for *E. coli* and Enterococci**

Constituent	CC, OXD, SCR, VR Watersheds	
	Unit	Benchmark
<i>E. coli</i> (Conditional Waiver)	MPN/100mL	235
<i>E. coli</i> (Ag Order)	cfu/100mL	320 (STV)
Enterococci	cfu/100mL	110 (STV)

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

**Table 20. Organochlorine Pesticides Monitored by the VCAILGMP with CTR Water Quality Criteria**

Constituent	CC Watershed		OXD, SCR Watersheds		VR Watershed	
	Benchmark (µg/L)	Benchmark Source <sup>1</sup>	Benchmark (µg/L)	Benchmark Source <sup>1</sup>	Benchmark (µg/L)	Benchmark Source <sup>1</sup>
Aldrin	0.00014	CTR HHO	0.00014	CTR HHO	0.00013	CTR HHWO
Alpha-BHC	0.013	CTR HHO	0.013	CTR HHO	0.0039	CTR HHWO
Beta-BHC	0.046	CTR HHO	0.046	CTR HHO	0.014	CTR HHWO
Gamma-BHC (Lindane)	0.063	CTR HHO	0.063	CTR HHO	0.019	CTR HHWO
Endosulfan I	0.056	CTR AFWC	0.056	CTR AFWC	0.056	CTR AFWC
Endosulfan II	0.056	CTR AFWC	0.056	CTR AFWC	0.056	CTR AFWC
Endosulfan Sulfate	240	CTR HHO	240	CTR HHO	110	CTR HHWO
Endrin	0.036	CTR AFWC	0.036	CTR AFWC	0.036	CTR AFWC
Endrin Aldehyde	0.81	CTR HHO	0.81	CTR HHO	0.76	CTR HHWO

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

1. CTR = California Toxics Rule (USEPA, May 18, 2000).

HHO = Human Health for Consumption of Organisms Only (30-day average)

HHWO = Human Health for Consumption of Water and Organisms (MUN-designation) (30-day average)

AFWC = Aquatic Life, Freshwater Chronic (4-day average)

## WATER QUALITY MONITORING RESULTS

This section contains a summary of water quality monitoring data collected at VCAILG sites where flow was present during the four monitoring events conducted in 2023-2024.

Information presented for each VCAILG monitoring site includes the corresponding receiving water for each drainage monitored, a site location map, a site photo, and a narrative summary describing which events were monitored. The predominant crop types potentially contributing to the flow at each monitoring site, previously listed in Table 6, are also described. Exceedances of standard water quality benchmarks and unusual occurrences, if observed, are noted.

Following the narrative description, results are presented in a tabular format for all constituents listed in Appendix 4 of the *Conditional Waiver*. Constituents not listed in Appendix 4 of the *Conditional Waiver* are listed only if they have been detected at a particular site. Non-detect results are included with all of the water quality monitoring data for 2023-2024 as

Appendix F – Monitoring Data. All hard copy laboratory reports are also provided. Water quality results presented in this section are compared with the water quality benchmarks from Appendix 4 of the *Conditional Waiver*, which were previously described in Table 13 through Table 20. Water quality results exceeding benchmarks are indicated with **bold type**. As previously mentioned, monitoring during this reporting period was conducted in accordance with the 2017 VCAILG MRP, which was approved under the *Conditional Waiver*. Water quality results were compared to appropriate *Ag Order* water quality objectives where data was available.

Results reported by the laboratory in units of ng/L were converted to µg/L for comparison with benchmarks expressed in units of µg/L. Results reported by the laboratory as “Total Orthophosphate as P” were converted to “Total Orthophosphate” by multiplying the result by the molecular weight of phosphate (95 g/mol) and dividing the product by the molecular weight of phosphorus (31 g/mol). The converted result is reported as “Total Orthophosphate” on data tables presented in this section. The electronic data file remains unconverted and is labeled “Total Orthophosphate-P.”

Results of toxicity tests conducted during the 2023-2024 monitoring year are discussed separately in a subsequent section of the report.

All analyses included in this report were conducted at a laboratory certified for such analyses by the California Department of Health Services – Environmental Laboratory Accreditation Program (ELAP) or the National Environmental Laboratory Accreditation Program (NELAP), and in accordance with current USEPA guidance procedures and/or the provisions of the VCAILG QAPP.

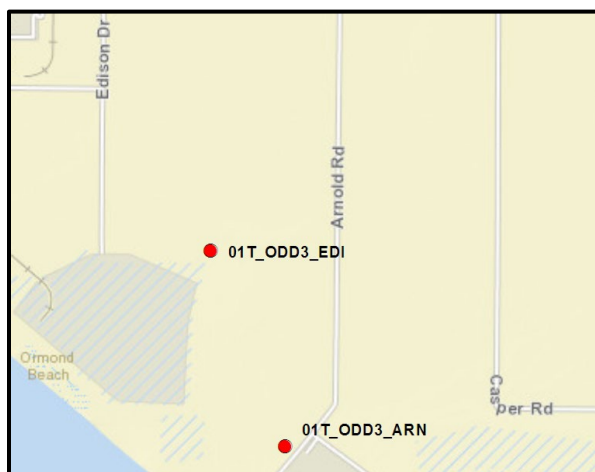
## Calleguas Creek Watershed

The CCW contains six VCAILG monitoring sites. Monitoring sites are discussed below in order of the Calleguas Creek reach into which they drain.

### 01T\_ODD3\_EDI

This site is located in Oxnard Drain No. 3. Per approval of the 2017 QAPP, monitoring site 01T\_ODD3\_EDI replaced 01T\_ODD3\_ARN following Event 31. The 01T\_ODD3\_ARN monitoring site was located on an agricultural drain just upstream from the Arnold Road Bridge. Relocation of monitoring upstream to 01T\_ODD3\_EDI ensures access during wet weather events and the ability to collect sediment samples required by the Oxnard Drain No. 3 TMDL. The 01T\_ODD3\_EDI site is located on an agricultural drain just downstream of Edison Drive. Flow from this drain eventually discharges into the western arm of Mugu Lagoon (Calleguas Creek Reach 1).

#### Site Map



#### View downstream at 01T\_ODD3\_EDI



Flow was observed and samples were collected at 01T\_ODD3\_EDI during three 2023-2024 monitoring events: wet weather Event 61 and dry weather Events 58 and 61. The site was inaccessible at 01T\_ODD3\_EDI during wet weather Event 59. Table 21 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The dissolved copper, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, toxaphene, and bifenthrin benchmarks were exceeded during wet weather monitoring Event 60 and dry weather Events 58 and 61. Exceedances of the benchmarks for nitrate-N were observed during the dry weather Events 58 and 61. Total chlordane and *E. coli* exceeded the benchmarks during wet weather Event 60 and dry weather Event 61.

The primary crops in the vicinity of this site are rotational crops. Table 22 summarizes the trash observations for each event.

Table 21. 2023-2024 VCAILG Monitoring Data v. Waiver Benchmarks: 01T\_ODD3\_ED1

			Event 58	Event 59	Event 60	Event 61	
			Dry	Wet	Wet	Dry	
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024	
Field Measurements							
Flow	CFS		0.8	NS <sup>4</sup>	15.8	1.5	
pH		6.5≤ pH ≤ 8.5	7.1		7.6	7.3	
Temperature	°C		22.1		12.6	18.1	
Dissolved Oxygen	mg/L	≥ 5	7.1		9.2	7.9	
Turbidity	NTU		9.7		315	15	
Conductivity	µS/cm		4,444.8		1,036.4	4,219.9	
General Water Quality							
TDS	mg/L		3,980		766	3,570	
TSS	mg/L		10		230	22.3	
Total Hardness as CaCO <sub>3</sub>	mg/L		1,590		401	1,910	
Chloride	mg/L		380		57.2	302	
Sulfate	mg/L		1,560		359	1,670	
Nutrients							
Ammonia-N	mg/L	5.17/ NS/ 3.30/ 4.11 <sup>1</sup>	0.264		0.635	0.718	
Nitrate-N	mg/L	10 <sup>2</sup>	57.1		9.53	63.2	
Nitrite-N	mg/L		NS <sup>3</sup>		0.15	0.30	
Total Nitrogen	mg/L		59.8		10.5	53.7	
Total Orthophosphate	mg/L		2.21		4.42	2.15	
Total Phosphorus	mg/L		0.9		2.3	0.93	
Metals							
Dissolved Copper	µg/L	3.1 <sup>5</sup>	3.68		3.45	3.39	
Total Copper	µg/L		4.16		16.5	4.27	
Organochlorine Pesticides							
Aldrin	µg/L	0.00014	ND		ND	ND	
BHC-alpha	µg/L	0.013	ND		ND	ND	
BHC-beta	µg/L	0.046	ND	ND	ND		
BHC-gamma	µg/L	0.063	ND	ND	ND		
cis-Nonachlor	µg/L		ND	0.00241	ND		
trans-Nonachlor	µg/L		ND	0.005	DNQ		
Chlordane-alpha	µg/L		DNQ	0.00737	0.00297		
Chlordane-gamma	µg/L		ND	0.00424	DNQ		
Total Chlordane	µg/L	0.00059	DNQ	0.01161	0.00297		
2,4'-DDD	µg/L		0.00203	0.0134	0.00295		
2,4'-DDE	µg/L		ND	0.00238	DNQ		
2,4'-DDT	µg/L		ND	0.0123	0.00353		



Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
4,4'-DDD	µg/L	0.00084	<b>0.00592</b>		<b>0.0561</b>	<b>0.0103</b>
4,4'-DDE	µg/L	0.00059	<b>0.00521</b>		<b>0.0946</b>	<b>0.027</b>
4,4'-DDT	µg/L	0.00059	<b>0.00209</b>		<b>0.0811</b>	<b>0.0142</b>
Dieldrin	µg/L	0.00014	ND		ND	ND
Endosulfan-I	µg/L	0.056	ND		ND	ND
Endosulfan-II	µg/L	0.056	ND		ND	ND
Endosulfan Sulfate	µg/L	240	ND		ND	ND
Endrin	µg/L	0.036	ND		ND	ND
Endrin Aldehyde	µg/L	0.81	ND		ND	ND
Toxaphene	µg/L	0.00075	<b>0.516</b>		<b>1.97</b>	<b>0.147</b>
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND		ND	ND
Diazinon	µg/L	0.1	ND		ND	ND
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	<b>0.00384</b>		<b>0.0495</b>	<b>0.00126</b>
Cyhalothrin, Total	µg/L		ND		0.00517	ND
Permethrin, cis-	µg/L		ND		0.0311	ND
Permethrin, trans-	µg/L		ND		0.041	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	125.9		N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A		<b>410</b>	<b>630</b>

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = Not sampled

1. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the Basin Plan Amendment to Update Saltwater Ammonia Objectives (LARWQCB Resolution No. 2004-022). The benchmarks are based on the chronic saltwater equation and are dependent upon the pH, temperature, and salinity of the water at the time of sample collection.
2. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L nitrate-N was used for comparison with VCAILG data for this site.
3. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
4. The monitoring site was not accessible during this event.
5. The copper benchmark for saltwater (shown in Table 15) applies at this site.

**Table 22. 2023-2024 Trash Observations for 01T\_ODD3\_EDI**

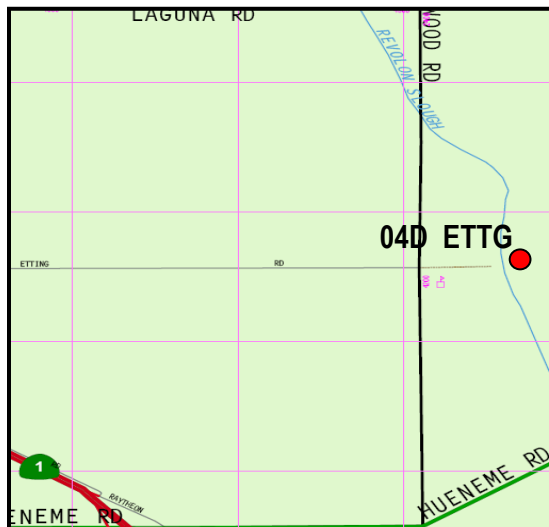
Event	Count	Types
58	3-4	Ag plastic, cups
59	N/A <sup>1</sup>	
60	2	Foam cup, plastic bottle
61	5	Plastic

1 - The monitoring site was not accessible during this event.

## 04D\_ETTG

This monitoring site is located on an agricultural drain just upstream from its confluence with Revolon Slough. The site is located just east of the intersection of Wood Road and Etting Road. Flow from this drain eventually discharges into Calleguas Creek Reach 4 (Revolon Slough).

### Site Map



### View toward SW looking downstream in the ag drain before its confluence with Revolon Slough



Flow was present and samples were collected at 04D\_ETTG during all four 2023-2024 monitoring events. Table 23 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

Exceedances of the benchmarks for nitrate-N, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, toxaphene, and dissolved copper occurred during all four monitoring events. The benchmarks for *E. coli* and total chlordane were exceeded during both wet weather Events 59 and 60. The bifenthrin benchmark was exceeded during both wet weather Events 59 and 60 and dry weather Event 61.

Rotational crops are the most common crops grown within this site drainage area. Additional crop types include strawberries, other berries (such as raspberries or blueberries), row crops, and citrus. The approximate amount and types of trash observed at this site are listed in Table 24.

**Table 23. 2023-2024 VCAILG Monitoring Data v. Waiver Benchmarks: 04D\_ETTG**

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements						
Flow	CFS		1.8	27.5	225.9	3.1
pH		6.5 < pH < 8.5	8.2	7.7	7.8	7.8
Temperature	°C	≤ 26.67°C <sup>1</sup>	17.8	15.0	13.5	18.5
Dissolved Oxygen	mg/L	≥ 5	12.5	8.3	9.1	9.1
Turbidity	NTU		4.8	NR	>1000	23.2
Conductivity	µS/cm		4,663.3	1,466.4	784.3	4,610.3
General Water Quality						
TDS	mg/L		4,270	1,090	553	4,120
TSS	mg/L		11	960	2,520	27
Total Hardness as CaCO <sub>3</sub>	mg/L		1,870	652	594	2,270
Chloride	mg/L		310	99	47	328
Sulfate	mg/L		1,690	433	192	1,880
Nutrients						
Ammonia-N	mg/L	1.43/ 3.47/ 3.44/ 2.47 <sup>2</sup>	0.11	0.25	0.27	0.13
Nitrate-N	mg/L	10 <sup>3</sup>	90.3	22.8	10.3	89.3
Nitrite-N	mg/L		NS <sup>4</sup>	0.33	0.16	0.33
Total Nitrogen	mg/L		92.5	26.0	10.2	76.9
Total Orthophosphate	mg/L		5.21	12.39	28.49	2.89
Total Phosphorus	mg/L		1.91	5.45	6.44	1.24
Metals						
Dissolved Copper	µg/L	3.1 <sup>5</sup>	8.69	3.14	4.1	8.62
Total Copper	µg/L		8.75	58.5	136	9.67
Organochlorine Pesticides						
Aldrin	µg/L	0.00014	ND	ND	ND	ND
BHC-alpha	µg/L	0.013	ND	ND	ND	ND
BHC-beta	µg/L	0.046	ND	ND	ND	ND
BHC-gamma	µg/L	0.063	ND	ND	ND	ND
cis-Nonachlor	µg/L		ND	0.00558	DNQ	ND
trans-Nonachlor	µg/L		ND	0.00811	0.00424	DNQ
Chlordane-alpha	µg/L		ND	0.0124	0.00658	ND
Chlordane-gamma	µg/L		ND	0.00788	0.00406	ND
Total Chlordane	µg/L	0.00059	ND	0.02028	0.01064	ND
2,4'-DDD	µg/L		0.00244	0.0198	0.0207	0.00348
2,4'-DDE	µg/L		ND	0.0127	0.00591	DNQ
2,4'-DDT	µg/L		ND	0.0295	0.0444	0.0041
4,4'-DDD	µg/L	0.00084	0.00674	0.0438	0.063	0.0054
4,4'-DDE	µg/L	0.00059	0.0086	0.343	0.376	0.0274

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
4,4'-DDT	µg/L	0.00059	<b>0.00228</b>	<b>0.166</b>	<b>0.323</b>	<b>0.0177</b>
Dieldrin	µg/L	0.00014	ND	ND	ND	ND
Endosulfan-I	µg/L	0.056	ND	ND	ND	ND
Endosulfan-II	µg/L	0.056	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	240	ND	0.358	ND	ND
Endrin	µg/L	0.036	ND	ND	ND	ND
Endrin Aldehyde	µg/L	0.81	ND	ND	ND	ND
Toxaphene	µg/L	0.00075	<b>0.337</b>	<b>1.85</b>	<b>1.94</b>	<b>0.147</b>
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND	ND	ND	ND
Diazinon	µg/L	0.10	ND	ND	ND	ND
Malathion	µg/L		ND	ND	0.558	0.00805
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	ND	<b>0.0317</b>	<b>0.0395</b>	<b>0.0011</b>
Cyfluthrin, total	µg/L		ND	DNQ	ND	ND
Cypermethrin, total	µg/L		ND	0.00184	DNQ	ND
Permethrin, cis-	µg/L		ND	0.00707	0.0251	ND
Permethrin, trans-	µg/L		ND	0.00819	0.0202	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	108	N/A	N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A	<b>2,410</b>	<b>1,970</b>	200

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified

ND = Not detected at the applicable reporting limit.

NR = Not recorded.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L nitrate-N was used for comparison with VCAILG data for this site.
4. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
5. The copper benchmark for saltwater (shown in Table 15) applies at this site.

**Table 24. 2023-2024 Trash Observations for 04D\_ETTG**

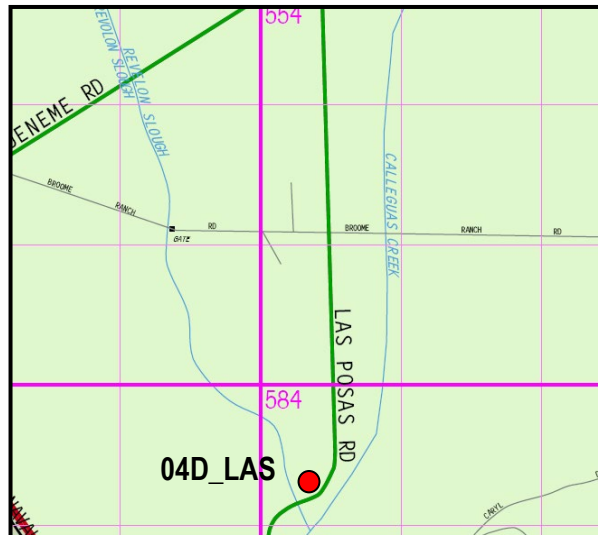
Event	Count	Types
58	0	
59	1	Bottle
60	0	
61	0	



## 04D\_LAS

This monitoring site is located on an agricultural drain just upstream of its confluence with Revolon Slough and just upstream of South Las Posas Road. A tile drain discharge is intermittently pumped into this agricultural drain upstream of the monitoring site. Flow from this drain eventually flows into Calleguas Creek Reach 4 (Revolon Slough).

### Site Map



### View toward S looking downstream in ag drain before the culvert draining into Revolon Slough



Flow was observed and samples were collected at this site during all four 2023-2024 monitoring events. Table 25 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

Exceedances of the benchmarks for nitrate-N, toxaphene, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT occurred during all four monitoring events. The benchmarks for dissolved copper, bifenthrin, and *E. coli* were exceeded during wet weather Events 59 and 60. The benchmarks for total chlordane were exceeded during wet weather Events 59 and 60 and dry weather Event 61.

Rotational crops are the primary crop type grown in the vicinity of this site. Table 26 quantifies and describes trash found at this site.

**Table 25. 2023-2024 VCAILG Monitoring Data v. Waiver Benchmarks: 04D\_LAS**

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements						
Flow	CFS	6.5 < pH < 8.5 ≤26.67°C <sup>1</sup> ≥ 5	3.1	9.2	98.8	3.9
pH			8.0	7.7	7.5	8.1
Temperature	°C		19.7	15.4	13.1	18.8
Dissolved Oxygen	mg/L		16.6	7.4	9.2	11.7
Turbidity	NTU		13.6	240	395	35.7
Conductivity	µS/cm		4,354.8	2,443.1	1,124.1	4,003.5
General Water Quality						
TDS	mg/L		3,670	1,900	737	3,040
TSS	mg/L		21	250	211	45
Total Hardness as CaCO <sub>3</sub>	mg/L		1,550	977	390	1,630
Chloride	mg/L		460	230	90.8	452
Sulfate	mg/L		1,260	711	267	1,150
Nutrients						
Ammonia-N	mg/L	1.74/ 3.31/ 4.65/ 1.66 <sup>2</sup>	0.05	0.18	0.22	0.07
Nitrate-N	mg/L	10 <sup>3</sup>	69.9	32.3	18	58
Nitrite-N	mg/L		NR <sup>4</sup>	ND	0.12	0.30
Total Nitrogen	mg/L		71.6	36.7	20.8	47.3
Total Orthophosphate	mg/L		1.13	5.95	3.71	1.55
Total Phosphorus	mg/L		0.47	2.78	1.73	0.63
Metals						
Dissolved Copper	µg/L	3.1 <sup>5</sup>	2.69	4.02	4.22	2.35
Total Copper	µg/L		2.95	16.1	21.4	4.39
Organochlorine Pesticides						
Aldrin	µg/L	0.00014	ND	ND	ND	ND
BHC-alpha	µg/L	0.013	ND	ND	ND	ND
BHC-beta	µg/L	0.046	ND	ND	ND	ND
BHC-gamma	µg/L	0.063	ND	ND	ND	ND
cis-Nonachlor	µg/L		ND	0.00374	DNQ	ND
trans-Nonachlor	µg/L		ND	0.00519	0.00401	DNQ
Chlordane-alpha	µg/L		DNQ	0.0108	0.00606	0.00243
Chlordane-gamma	µg/L		ND	0.00574	0.00427	DNQ
Total Chlordane	µg/L	0.00059	DNQ	0.01654	0.01033	0.00243
2,4'-DDD	µg/L		0.00238	0.00475	0.00884	0.0038
2,4'-DDE	µg/L		ND	0.00433	0.00458	DNQ
2,4'-DDT	µg/L		ND	0.00671	0.0123	0.00343
4,4'-DDD	µg/L	0.00084	0.00857	0.0118	0.0325	0.00948
4,4'-DDE	µg/L	0.00059	0.00716	0.0815	0.116	0.0275
4,4'-DDT	µg/L	0.00059	0.00252	0.0507	0.0879	0.0178

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry 9/25/2023	Wet 1/22/2024	Wet 2/1/2024	Dry 6/11/2024
Dieldrin	µg/L	0.00014	ND	ND	ND	ND
Endosulfan-I	µg/L	0.056	ND	ND	ND	ND
Endosulfan-II	µg/L	0.056	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	240	ND	ND	ND	ND
Endrin	µg/L	0.036	ND	ND	ND	ND
Endrin Aldehyde	µg/L	0.81	ND	ND	ND	ND
Toxaphene	µg/L	0.00075	<b>0.331</b>	<b>0.529</b>	<b>0.766</b>	<b>0.112</b>
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND	ND	ND	ND
Diazinon	µg/L	0.10	ND	0.00838	ND	ND
Malathion	µg/L		ND	ND	ND	0.00539
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	DNQ	<b>0.00276</b>	<b>0.00614</b>	DNQ
Cypermethrin	µg/L		ND	0.00124	ND	ND
Permethrin, cis-	µg/L		ND	0.00448	0.0224	ND
Permethrin, trans-	µg/L		ND	0.00568	0.0185	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	143.9	N/A	N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A	<b>4,790</b>	<b>1,080</b>	ND

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified

ND = Not detected at the applicable reporting limit.

NR = Not recorded.

NC = Not calculated.

NM = Not measured.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L nitrate-N was used for comparison with VCAILG data for this site.
4. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
5. The copper benchmark for saltwater (shown in Table 15) applies at this site.

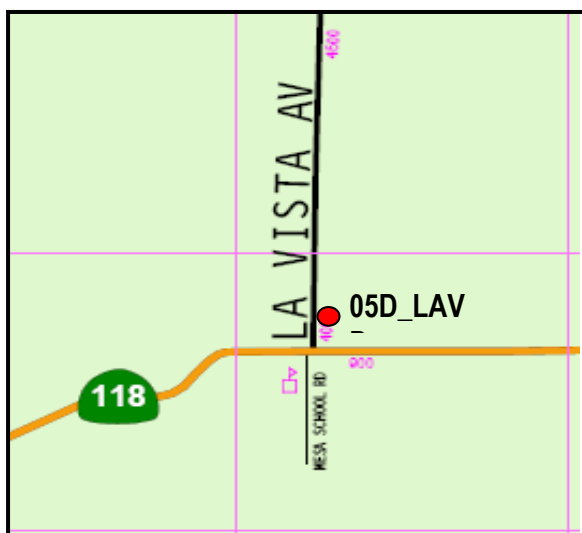
**Table 26. 2023–2024 Trash Observations for 04D\_LAS**

Event	Count	Types
58	10-15	Glass bottles
59	11	Pallet
60	0	
61	0	

## 05D\_LAVD

This monitoring site is located on the La Vista Drain just east of La Vista Avenue, north of Hwy 118. Flow from this drain eventually discharges into Calleguas Creek Reach 5 (Beardsley Channel). The Ventura County Watershed Protection District maintains a stormwater monitoring station just downstream of the VCAILG monitoring site.

### Site Map



### View upstream (NE) from sampling location



Flow was observed and samples were collected at 05D\_LAVD during 2023-2024 wet weather monitoring Events 59 and 60. The site was dry and no samples were collected during both dry weather monitoring Events 58 and 61. Table 27 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmarks for total chlordane, 4,4'-DDE, 4,4'-DDT, toxaphene, bifenthrin, and *E. coli* were exceeded during wet weather Events 59 and 60. The benchmark for 4,4'-DDD was exceeded during wet weather Event 60.

Citrus, avocados, rotational crops, and other berries are the major crop types that drain to this monitoring location. Table 28 quantifies and describes trash found at this site.

**Table 27. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: 05D\_LAVD**

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements			NS			
Flow	CFS			0.2	23.6	
pH		6.5≤ pH ≤ 8.5		8.1	8.1	
Temperature	°C	≤ 26.67°C <sup>1</sup>		13.6	10.6	
Dissolved Oxygen	mg/L	≥ 5		10.0	11.0	
Turbidity	NTU			2,900	700	
Conductivity	µS/cm			261	187	
General Water Quality						
TDS	mg/L	850		190	146	
TSS	mg/L			2,200	6,930	
Total Hardness as CaCO <sub>3</sub>	mg/L			312	468	
Chloride	mg/L	150		15	8	
Sulfate	mg/L	250		37	39	
Nutrients						
Ammonia-N	mg/L	NS/ 2.40/ 2.86 / NS <sup>2</sup>		0.25	0.22	
Nitrate-N	mg/L	10 <sup>3</sup>		3.6	2.9	
Nitrite-N	mg/L			0.19	0.08	
Total Nitrogen	mg/L			4.2	2.93	
Total Orthophosphate	mg/L			4.17	18.06	NS
Total Phosphorus	mg/L			4.31	5.17	
Metals						
Dissolved Copper	µg/L	NS/ 23.68/ 33.48/ NS <sup>4</sup>		8.49	14.9	
Total Copper	µg/L			56.3	208	
Organochlorine Pesticides						
Aldrin	µg/L	0.00014		ND	ND	
BHC-alpha	µg/L	0.013	ND	ND		
BHC-beta	µg/L	0.046	ND	ND		
BHC-gamma	µg/L	0.063	ND	ND		
Nonachlor, cis-	µg/L		ND	0.00452		
Nonachlor, trans-	µg/L		0.00429	0.0099		
Chlordane-alpha	µg/L		0.00341	0.013		
Chlordane-gamma	µg/L		0.00323	0.00768		
Total Chlordane	µg/L	0.00059	0.00664	0.02068		
2,4'-DDD	µg/L		ND	0.0158		
2,4'-DDE	µg/L		ND	0.00516		
2,4'-DDT	µg/L		ND	0.0414		
4,4'-DDD	µg/L	0.00084	ND	0.0699		



			Event 58	Event 59	Event 60	Event 61	
			Dry	Wet	Wet	Dry	
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024	
4,4'-DDE	µg/L	0.00059	NS	0.0204	0.506	NS	
4,4'-DDT	µg/L	0.00059		0.104	0.316		
Dieldrin	µg/L	0.00014		ND	ND		
Endosulfan-I	µg/L	0.056		ND	ND		
Endosulfan-II	µg/L	0.056		ND	ND		
Endosulfan Sulfate	µg/L	240		ND	ND		
Endrin	µg/L	0.036		ND	ND		
Endrin Aldehyde	µg/L	0.81		ND	ND		
Toxaphene	µg/L	0.00075		0.294	0.839		
Organophosphorus Pesticides							
Chlorpyrifos	µg/L	0.025		ND	0.0184		
Diazinon	µg/L	0.1		ND	0.0269		
Pyrethroid Pesticides							
Bifenthrin	µg/L	0.0006		0.00123	0.0309		
Cyhalothrin, Total				0.00108	0.00945		
Lambda-	µg/L						
Danitol	µg/L			ND	0.0222		
Cypermethrin, Total	µg/L			ND	0.057		
Permethrin, cis-	µg/L			ND	0.0262		
Permethrin, trans-	µg/L			ND	0.00905		
Bacteria							
	MPN/ 100 mL	235			N/A		N/A
E. coli	cfu/ 100 mL	320 (STV)			173,290		6,450

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

NR = Not recorded.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L nitrate-N was used for comparison with VCAILG data for this site.
4. The benchmarks for copper are listed in order of monitoring event and were calculated for freshwater using the formula in Table 15.

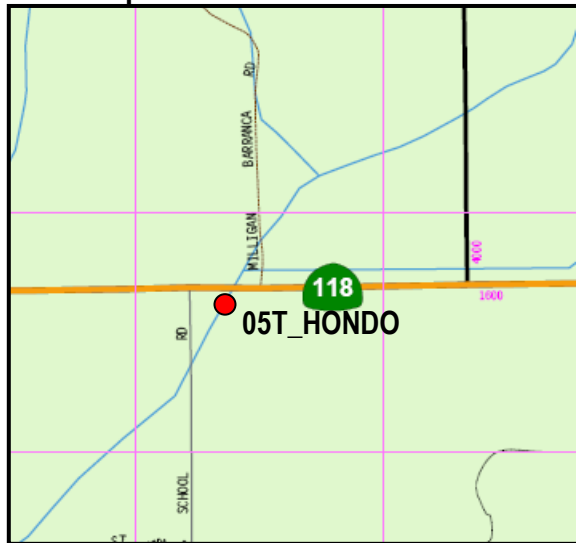
**Table 28. 2023–2024 Trash Observations for 05D\_LAVD**

<b>Event</b>	<b>Count</b>	<b>Types</b>
58	2	Glass bottle, aluminum can
59	0	
60	0	
61	0	

## 05T\_HONDO

This monitoring site is located on Hondo Barranca just downstream of the Hwy 118 Bridge. Hondo Barranca is a tributary to Calleguas Creek Reach 5 (Beardsley Channel). A portion of this monitoring site drainage area burned during the Maria fire. The event took place between October 31, 2019 and November 6, 2019.

Site Map



View downstream (S) at sampling location



Flow was observed and samples were collected at 05T\_HONDO during 2023-2024 wet weather monitoring Events 59 and 60. The site was dry and samples were not collected during both dry weather Events 58 and 61. Table 29 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmarks for total chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, toxaphene, bifenthrin, and *E. coli* were exceeded during wet weather Events 59 and 60.

The site is located directly adjacent to Hwy 118 and drains land planted primarily with citrus, avocados, and rotational crops. Table 30 quantifies and describes trash found at this site.

Table 29. 2023-2024 VCAILG Monitoring Data v. Waiver Benchmarks: 05T\_HONDO

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements			NS			NS
Flow	CFS			8.0	46.6	
pH		6.5≤ pH ≤8.5		8.0	8.1	
Temperature	°C	≤ 26.67°C <sup>1</sup>		12.8	10.7	
Dissolved Oxygen	mg/L	≥ 5		10.1	10.9	
Turbidity	NTU			4,500	1,200	
Conductivity	µS/cm			213.9	295.8	
General Water Quality						
TDS	mg/L	850		170	255	
TSS	mg/L			4,400	8,680	
Total Hardness as CaCO <sub>3</sub>	mg/L			636	1,010	
Chloride	mg/L	150		7	5.41	
Sulfate	mg/L	250		39	81.9	
Nutrients						
Ammonia-N	mg/L	NS/ 2.77/ 2.76/ NS <sup>2</sup>		0.33	0.17	
Nitrate-N	mg/L	10		3.6	3.3	
Nitrite-N	mg/L			0.08	0.08	
Total Nitrogen	mg/L			4.52	3.47	
Total Orthophosphate	mg/L			9.29	35.55	
Total Phosphorus	mg/L			11.2	4.79	
Metals						
Dissolved Copper	µg/L	NS/ 43.5 / 64.6 / NS <sup>3</sup>		10.6	9.6	
Total Copper	µg/L			230	228	
Organochlorine Pesticides						
Aldrin	µg/L	0.00014		ND	ND	
BHC-alpha	µg/L	0.013		ND	ND	
BHC-beta	µg/L	0.046		ND	ND	
BHC-gamma	µg/L	0.063		ND	ND	
cis-Nonachlor	µg/L			0.00508	0.00201	
trans-Nonachlor	µg/L			0.00936	0.00463	
Chlordane-alpha	µg/L			0.0147	0.00699	
Chlordane-gamma	µg/L			0.0141	0.005	
Total Chlordane	µg/L	0.00059		0.0288	0.01199	
2,4'-DDD	µg/L			0.0124	0.00923	
2,4'-DDE	µg/L			0.00577	DNQ	
2,4'-DDT	µg/L			0.0189	0.0172	
4,4'-DDD	µg/L	0.00084		0.031	0.0525	

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
4,4'-DDE	µg/L	0.00059		0.192	0.225	
4,4'-DDT	µg/L	0.00059		0.113	0.248	
Dieldrin	µg/L	0.00014		ND	ND	
Endosulfan-I	µg/L	0.056		ND	ND	
Endosulfan-II	µg/L	0.056		ND	ND	
Endosulfan Sulfate	µg/L	240		ND	ND	
Endrin	µg/L	0.036		ND	ND	
Endrin Aldehyde	µg/L	0.81		ND	ND	
Toxaphene	µg/L	0.00075		1.02	1.01	
Organophosphorus Pesticides						
Chlorpyrifos	µg/L	0.025		ND	ND	
Diazinon	µg/L	0.1		ND	ND	
Malathion	µg/L			ND	0.0709	
Pyrethroid Pesticides						
Bifenthrin	µg/L	0.0006		0.00239	0.00369	
Cyfluthrin, total	µg/L			0.00181	ND	
Cypermethrin, total	µg/L			0.0159	0.024	
Danitol	µg/L			0.00869	0.0249	
Permethrin, cis-	µg/L			0.0233	0.0185	
Bacteria						
E. coli	MPN/ 100 mL	235		N/A	N/A	
	cfu/ 100 mL	320 (STV)		92,080	10,710	

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

NR = Not recorded.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

NC = Not calculated.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. The benchmarks for copper are listed in order of monitoring event and were calculated for freshwater using the formula in Table 15.

**Table 30. 2023–2024 Trash Observations for 05T\_HONDO**

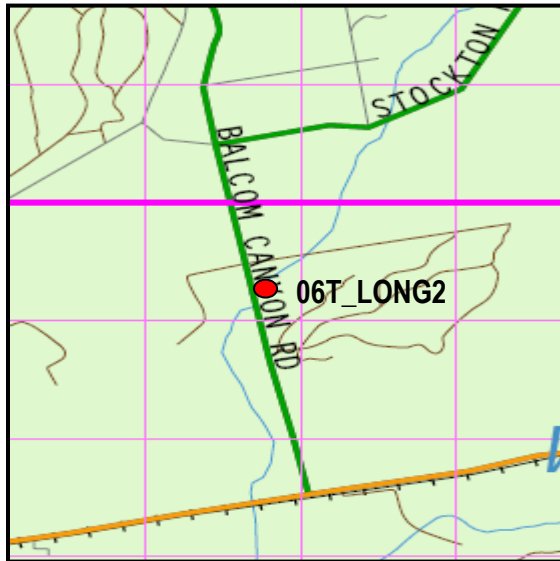
Event	Count	Types
58	8	Beverage containers, paper
59	1	Ag plastic
60	0	
61	0	



## 06T\_LONG2

This monitoring site is located on Long Canyon where it crosses Balcom Canyon Road north of Highway 118. Long Canyon is a tributary to Calleguas Creek Reach 6 (Arroyo Las Posas).

### Site Map



### View upstream from sampling location



Flow was observed and samples were collected at 06T\_LONG2 during 2023-2024 wet weather Events 59 and 60. The site was dry and samples were not collected during both dry weather Events 58 and 61. Table 31 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmarks for total chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, toxaphene, bifenthrin, and *E. coli* were exceeded during wet weather Events 59 and 60. The benchmark for diazinon was exceeded during wet weather Event 59.

Table 32 quantifies and describes trash found at this site. The drainage area for this monitoring site consists mostly of avocado and citrus orchards, with portions used for growing other berries, rotational crops, and nursery.

Table 31. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: 06T\_LONG2

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements			NS			NS
Flow	CFS			1.9	59.7	
pH		6.5≤ pH ≤8.5		8.0	8.2	
Temperature	°C	≤ 26.67°C <sup>1</sup>		13.1	11.1	
Dissolved Oxygen	mg/L	≥ 5		10.1	10.8	
Turbidity	NTU			700	3,600	
Conductivity	µS/cm			144.5	175.5	
General Water Quality						
TDS	mg/L	850		150	191	
TSS	mg/L			2,000	12,800	
Total Hardness as CaCO <sub>3</sub>	mg/L			240	1,110	
Chloride	mg/L	150		10	5	
Sulfate	mg/L	250		63.5	21.2	
Nutrients						
Ammonia-N	mg/L	NS/ 2.60/ 2.10/ NS <sup>2</sup>		0.19	0.30	
Nitrate-N	mg/L	10		3.2	2.45	
Nitrite-N	mg/L			ND	0.11	
Total Nitrogen	mg/L			3.71	1.86	
Total Orthophosphate	mg/L			4.66	40.17	
Total Phosphorus	mg/L			4.4	6.2	
Metals						
Dissolved Copper	µg/L	NS/ 18.92/ 70.04/ NS <sup>3</sup>		4.25	4.35	
Total Copper	µg/L			96.6	181	
Organochlorine Pesticides						
Aldrin	µg/L	0.00014		ND	ND	
BHC-alpha	µg/L	0.013		ND	ND	
BHC-beta	µg/L	0.046		ND	ND	
BHC-gamma	µg/L	0.063		ND	ND	
cis-Nonachlor	µg/L			0.00619	0.00556	
trans-Nonachlor	µg/L			0.0141	0.013	
Chlordane-alpha	µg/L			0.00947	0.0131	
Chlordane-gamma	µg/L			0.0069	0.00987	
Total Chlordane	µg/L	0.00059		0.01637	0.02297	
2,4'-DDD	µg/L			ND	0.00577	
2,4'-DDT				ND	0.0188	
4,4'-DDD	µg/L	0.00084		0.00891	0.0604	
4,4'-DDE	µg/L	0.00059		0.0356	0.0594	
4,4'-DDT	µg/L	0.00059		0.0607	0.196	

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Dieldrin	µg/L	0.00014		ND	ND	
Endosulfan-I	µg/L	0.056		ND	ND	
Endosulfan-II	µg/L	0.056		ND	ND	
Endosulfan Sulfate	µg/L	240		ND	ND	
Endrin	µg/L	0.036		ND	ND	
Endrin Aldehyde	µg/L	0.81		ND	ND	
Toxaphene	µg/L	0.00075		0.518	0.916	
Organophosphorus Pesticides						
Chlorpyrifos	µg/L	0.025		ND	ND	
Diazinon	µg/L	0.1		0.353	ND	
Pyrethroid Pesticides						
Bifenthrin	µg/L	0.0006		0.00289	0.00411	
Cypermethrin, total	µg/L			0.00826	0.0218	
Danitol	µg/L			0.00541	ND	
Permethrin, cis-	µg/L			ND	0.0188	
Permethrin, trans-	µg/L			ND	0.0194	
Bacteria						
E. coli	MPN/ 100 mL	235		N/A	N/A	
	cfu/ 100 mL	320 (STV)		48,840	104,620	

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

NR = Not recorded.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

NC = Not calculated.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. The benchmarks for copper are listed in order of monitoring event and were calculated for freshwater using the formula in Table 15.

**Table 32. 2023–2024 Trash Observations for 06T\_LONG2**

Event	Count	Types
58	0	Box
59	1	
60	0	
61	0	

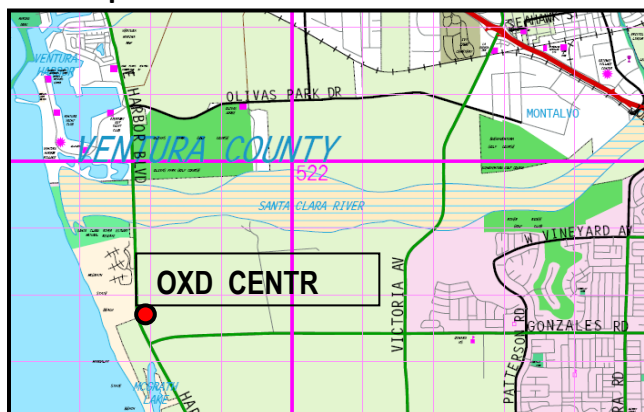
## Oxnard Coastal Watershed

The Oxnard Coastal Watershed contains only one VCAILG monitoring site. The site is located on a drain used primarily for irrigated agriculture.

### OXD\_CENTR

OXD\_CENTR is the only VCAILG monitoring site in the Oxnard Coastal Watershed. The site is located on the Central Ditch, which flows under Harbor Boulevard and into McGrath Lake. Water from McGrath Lake is pumped periodically into the ocean to prevent the Central Ditch from backing up and flooding Harbor Boulevard.

#### Site Map



#### View looking downstream



Flow was observed and samples were collected at OXD\_CENTR during both 2023-2024 wet weather Events 59 and 60. The site was ponded and stagnant with no measurable flow during both dry Events 58 and 61 and samples were not collected. Table 33 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmarks for total chlordane, 4,4'-DDD, 4,4'-DDE, toxaphene, bifenthrin, and *E. coli* were exceeded during both wet weather Events 59 and 60. The benchmark for dissolved oxygen was exceeded during wet weather Event 59. The benchmarks for dissolved copper and 4,4'-DDT were exceeded during wet weather Event 60.

Rotational crops and strawberries are the predominant crop types draining to this monitoring location. Table 34 quantifies and describes trash found at this site.

**Table 33. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: OXD\_CENTR**

			Event 58	Event 59	Event 60	Event 61	
			Dry	Wet	Wet	Dry	
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024	
Flow	CFS	6.5≤ pH ≤8.5	NS	9.6	26.7	NS	
pH				7.4	7.2		
Temperature	°C			14.5	17.4		
Dissolved Oxygen	mg/L	≥ 5		4.5	8.1		
Turbidity	NTU			243	820		
Conductivity	µS/cm			1,220.6	1,037.9		
General Water Quality							
TDS	mg/L			980	802		
TSS	mg/L			130	365		
Total Hardness as CaCO <sub>3</sub>	mg/L			532	499		
Chloride	mg/L			48	25.3		
Sulfate	mg/L			462	400		
Nutrients							
Ammonia-N	mg/L	NS / 4.81 / 4.54 / NS <sup>1</sup>		0.057	0.063		
Nitrate-N	mg/L	10 <sup>2</sup>		1.47	5.21		
Total Nitrogen	mg/L			5.89	6.48		
Total Orthophosphate	mg/L			8	12.20		
Total Phosphorus	mg/L			3.08	3.72		
Total Organic Carbon	mg/L		NS	31	13.8	NS	
Metals							
Dissolved Copper	µg/L	3.1 <sup>3</sup>		2.79	5.18		
Total Copper	µg/L			13.7	35.7		
Organochlorine Pesticides							
Aldrin	µg/L	0.00014		ND	ND		
BHC-alpha	µg/L	0.013		ND	ND		
BHC-beta	µg/L	0.046		ND	ND		
BHC-gamma	µg/L	0.063		ND	ND		
cis-Nonachlor	µg/L			ND	DNQ		
trans-Nonachlor	µg/L			0.00223	0.00284		
Chlordane-alpha	µg/L			0.00343	0.00598		
Chlordane-gamma	µg/L			0.0033	0.00505		
Total Chlordane	µg/L	0.00059		0.00673	0.01103		
2,4'-DDD	µg/L			0.00926	0.0665		
2,4'-DDE	µg/L			0.00283	0.00708		
2,4'-DDT	µg/L			ND	0.0476		
4,4'-DDD	µg/L	0.00084		0.0225	0.241		
4,4'-DDE	µg/L	0.00059		0.0882	0.344		
4,4'-DDT	µg/L	0.00059		ND	0.256		



			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Dieldrin	µg/L	0.00014	NS	ND	ND	NS
Endosulfan-I	µg/L	0.056		ND	ND	
Endosulfan-II	µg/L	0.056		ND	ND	
Endosulfan Sulfate	µg/L	240		ND	ND	
Endrin	µg/L	0.036		ND	ND	
Endrin Aldehyde	µg/L	0.81		ND	ND	
Toxaphene	µg/L	0.00075		1.71	3.36	
Organophosphorus Pesticides						
Chlorpyrifos	µg/L	0.025		ND	ND	
Diazinon	µg/L	0.1		ND	ND	
Malathion	µg/L			ND	0.0545	
Pyrethroid Pesticides						
Bifenthrin	µg/L	0.0006		0.225	0.65	
Bacteria						
E. coli	MPN/ 100 mL	235		N/A	N/A	
	cfu/ 100 mL	320 (STV)		2,620	410	

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

NR = Not recorded.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

1. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS absent) and are dependent upon the pH and temperature of the water at the time of sample collection.
2. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L nitrate-N was used for comparison with VCAILG data for this site.
3. The copper benchmark for saltwater (shown in Table 15) applies at this site.

**Table 34. 2023–2024 Trash Observations for OXD\_CENTR**

Event	Count	Types
58	0	
59	5-10	Strawberries, Styrofoam, plastic
60	5	Styrofoam cup, plastic
61	75-100	Plastic, metal, Ag

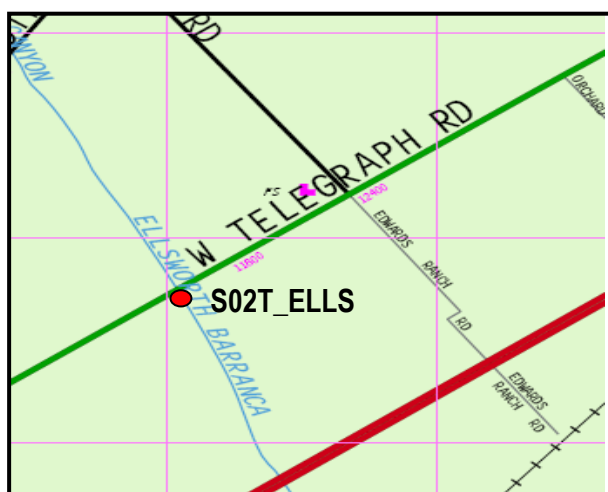
## Santa Clara River Watershed

The Santa Clara River Watershed contains six VCAILG monitoring sites. Five of the sites are located on tributaries to the Santa Clara River. S03D\_BARDS is the only monitoring site located on a drain used primarily for irrigated agriculture. Monitoring sites are discussed below in order of the Santa Clara River reach into which they drain.

### S02T\_ELLS

This monitoring site is located on Ellsworth Barranca just downstream of the Telegraph Road Bridge. Ellsworth Barranca drains the Aliso Canyon area and is a tributary to Santa Clara River Reach 2.

#### Site Map



#### View upstream at the bridge



Flow was observed and samples were collected at S02T\_ELLS during all four events. Table 35 summarizes concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmark for *E. coli* was exceeded during all four monitoring events. The benchmarks for total chlordane, 4,4' DDD, 4,4' DDE, and 4,4' DDT were exceeded during dry weather event 58. The benchmark for toxaphene was exceeded during wet weather event 59. The benchmark for aldrin was exceeded during wet weather event 60. The benchmarks for pH, TDS, chloride, and sulfate were exceeded during dry weather Event 61.

Citrus, avocados, and rotational crops are the primary crop types associated with this site. Table 36 describes trash found at this site.

Table 35. 2023– 2024 VCAILG Monitoring Data v. Waiver Benchmarks: S02T\_ELLS

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
9/25/20231/22/20242/1/20246/11/2024						
Field Measurements						
Flow	CFS		0.3	10.1	70.1	0.1
pH		6.5≤ pH ≤8.5	8.0	NR <sup>2</sup>	8.1	8.55
Temperature	°C	≤ 26.67°C <sup>1</sup>	20.4	14.0	14.8	18.23
Dissolved Oxygen	mg/L	≥ 5	9.3	10.3	10.0	10.7
Turbidity	NTU		181	2,000	500	0.66
Conductivity	µS/cm		1,508	1,721.5	1,402.9	2,403.6
General Water Quality						
TDS	mg/L	1,200	1,160	1,180	1,020	1,950
TSS	mg/L		310	4,400	6,320	ND
Total Hardness as CaCO <sub>3</sub>	mg/L		514	1,150	1,410	802
Chloride	mg/L	150	72	120	64	157
Sulfate	mg/L	600	469	516	465	900
Nutrients						
Ammonia-N	mg/L	1.60/ NR <sup>2</sup> / 2.10/ 0.79 <sup>3</sup>	0.111	0.199	0.167	0.07
Nitrate-N	mg/L	10	1.44	2.24	5.05	ND
Nitrite-N	mg/L		NR <sup>4</sup>	0.12	0.08	DNQ
Total Nitrogen	mg/L		1.17	2.65	4.67	ND
Total Orthophosphate	mg/L		2.26	11.99	20.09	0.10
Total Phosphorus	mg/L		0.66	8.25	3.81	0.02
Metals						
Dissolved Copper	µg/L	29.28/ 29.28/ 29.28/ 29.28 <sup>5</sup>	1.85	2.87	3.47	1.89
Total Copper	µg/L		14.7	108	130	2.2
Organochlorine Pesticides						
Aldrin	µg/L	0.00014	ND	ND	0.275	ND
BHC-alpha	µg/L	0.013	ND	ND	ND	ND
BHC-beta	µg/L	0.046	ND	ND	ND	ND
BHC-gamma	µg/L	0.063	ND	ND	ND	ND
cis-Nonachlor	µg/L		DNQ	ND	ND	ND
trans-Nonachlor	µg/L		0.00456	0.00346	ND	ND
Chlordane-alpha	µg/L		0.00361	ND	DNQ	ND
Chlordane-gamma	µg/L		DNQ	ND	ND	ND
Total Chlordane	µg/L	0.00059	0.00361	ND	DNQ	ND
2,4'-DDE	µg/L		ND	ND	ND	DNQ
2,4'-DDT	µg/L		ND	0.0168	ND	ND
4,4'-DDD	µg/L	0.00084	0.00625	ND	ND	ND
4,4'-DDE	µg/L	0.00059	0.0129	ND	ND	ND
4,4'-DDT	µg/L	0.00059	0.00603	ND	ND	ND

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry 9/25/2023	Wet 1/22/2024	Wet 2/1/2024	Dry 6/11/2024
Dieldrin	µg/L	0.00014	ND	ND	ND	ND
Endosulfan-I	µg/L	0.056	ND	ND	ND	ND
Endosulfan-II	µg/L	0.056	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	240	ND	ND	ND	ND
Endrin	µg/L	0.036	ND	ND	ND	ND
Endrin Aldehyde	µg/L	0.81	ND	ND	ND	ND
Toxaphene	µg/L	0.00075	ND	<b>0.773</b>	ND	ND
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
Malathion	µg/L		ND	ND	0.221	ND
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	ND	ND	ND	ND
Cypermethrin, total	µg/L		0.0027	ND	ND	ND
Fluvalinate	µg/L		DNQ	ND	ND	ND
Permethrin, cis-	µg/L		0.0236	ND	0.0231	ND
Permethrin, trans-	µg/L		0.0283	ND	ND	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	<b>2,420</b>	N/A	N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A	<b>104,620</b>	<b>13,140</b>	<b>410</b>

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = Not sampled due to site being dry.

NR = Not recorded

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. Water quality meter failed post-event calibration check for pH.
3. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
4. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
5. The freshwater copper benchmarks are listed in order of monitoring event and were calculated using the formula shown in Table 15.

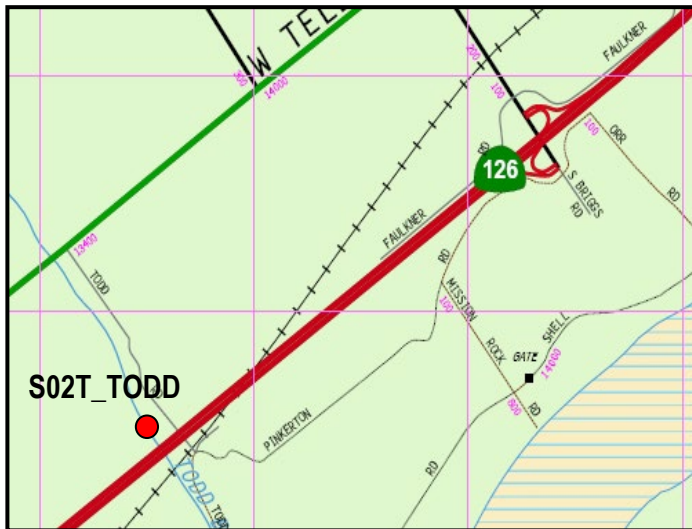
**Table 36. 2023–2024 Trash Observations for S02T\_ELLS**

Event	Count	Types
58	<10	Plastic, Styrofoam
59	1	Plastic film
60	1	Plastic cable
61	<5	Plastic wrappers

## S02T\_TODD

This monitoring site is located on Todd Barranca upstream of Hwy 126. Todd Barranca drains the Wheeler Canyon area and is a tributary to Santa Clara River Reach 2.

Site Map



View upstream of the sampling site



Flow was observed and samples were collected at S02T\_TODD during all four 2022-2023 monitoring events. Table 37 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmark for *E. coli* was exceeded during all four events. The benchmark for bifenthrin was exceeded during wet weather Event 59. The benchmark for total chlordane was exceeded during wet weather event 60. The benchmark for 4,4' DDT was exceeded during dry weather event 61. The benchmarks for TDS and sulfate were exceeded during dry weather events 58 and 61.

Citrus, rotational crops, and avocados are the primary crop types associated with this site, along with portions used for other berries and nurseries. Table 38 lists trash observations made at the site.



Table 37. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: S02T\_TODD

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements						
Flow	CFS		0.8	4.8	28.5	0.3
pH		6.5≤ pH ≤8.5	8.0	NR <sup>2</sup>	8.0	8.2
Temperature	°C	≤ 26.67°C <sup>1</sup>	19.5	13.9	14.2	18.6
Dissolved Oxygen	mg/L	≥ 5	8.5	9.0	9.7	9.3
Turbidity	NTU		3.19	550	1,600	1.06
Conductivity	µS/cm		2,502.4	1,430.9	1,225.7	2,239.1
General Water Quality						
TDS	mg/L	1,200	2,170	1,000	919	1,840
TSS	mg/L		7	2,300	6,710	2
Total Hardness as CaCO <sub>3</sub>	mg/L		981	594	1,180	948
Chloride	mg/L	150	100	90	46	114
Sulfate	mg/L	600	873	428	425	781
Nutrients						
Ammonia-N	mg/L	1.74/ NR <sup>2</sup> / 2.66/ 1.41 <sup>3</sup>	DNQ	0.206	0.263	DNQ
Nitrate-N	mg/L	10	5.9	2.9	3.5	3.3
Nitrite-N	mg/L		NR <sup>4</sup>	0.28	0.10	0.03
Total Nitrogen	mg/L		6.15	3.89	DNQ	2.87
Total Orthophosphate	mg/L		0.24	4.85	16.28	DNQ
Total Phosphorus	mg/L		0.14	7.4	3.43	ND
Metals						
Dissolved Copper	µg/L	29.28/ 29.28/ 29.28/ 29.28 <sup>5</sup>	2.33	4.17	3.31	1.69
Total Copper	µg/L		2.63	48.9	133	2.03
Organochlorine Pesticides						
Aldrin	µg/L	0.00014	ND	ND	ND	ND
BHC-alpha	µg/L	0.013	ND	ND	ND	ND
BHC-beta	µg/L	0.046	ND	ND	ND	ND
BHC-gamma	µg/L	0.063	ND	ND	ND	ND
trans-Nonachlor	µg/L		ND	ND	0.00341	ND
Chlordane-alpha	µg/L		ND	ND	0.00322	ND
Chlordane-gamma	µg/L		ND	ND	0.00337	ND
Total Chlordane	µg/L	0.00059	ND	ND	0.00659	ND
2,4'-DDE	µg/L		ND	ND	ND	0.00249
2,4'-DDT	µg/L		ND	ND	ND	0.00349
4,4'-DDD	µg/L	0.00084	ND	ND	ND	ND
4,4'-DDE	µg/L	0.00059	ND	ND	ND	ND
4,4'-DDT	µg/L	0.00059	ND	ND	ND	0.00627
Dieldrin	µg/L	0.00014	ND	ND	ND	ND

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Endosulfan-I	µg/L	0.056	ND	ND	ND	ND
Endosulfan-II	µg/L	0.056	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	240	ND	ND	ND	ND
Endrin	µg/L	0.036	ND	ND	ND	ND
Endrin Aldehyde	µg/L	0.81	ND	ND	ND	ND
Toxaphene	µg/L	0.00075	ND	ND	ND	DNQ
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
Malathion	µg/L		ND	ND	0.526	ND
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	ND	<b>0.121</b>	ND	ND
Cypermethrin, total	µg/L		0.00557	ND	ND	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	<b>1,300</b>	N/A	N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A	<b>241,960</b>	<b>27,550</b>	<b>520</b>

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NR = Not recorded

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. Water quality meter failed post-event calibration check for pH.
3. The benchmarks for Ammonia-N are listed in order of monitoring event, were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
4. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
5. The freshwater copper benchmark was calculated for this site using the formula in Table 15.

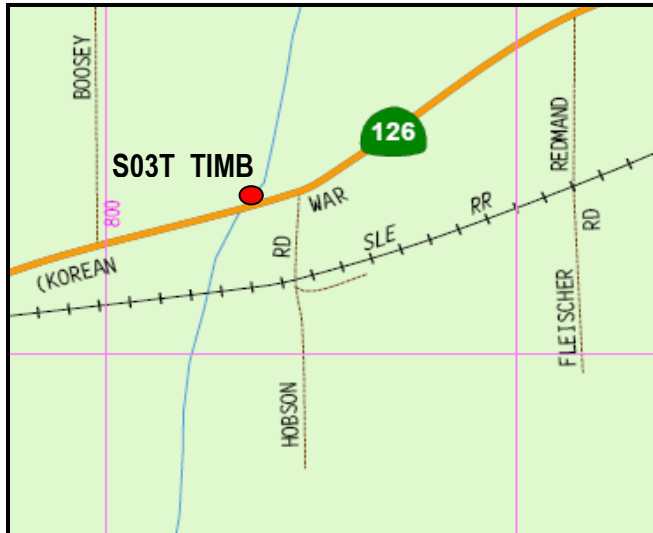
**Table 38. 2023–2024 Trash Observations for S02T\_TODD**

Event	Count	Types
58	<5	Ag equipment
59	1	Can
60	0	
61	<5	Styrofoam, plastic, glass bottle

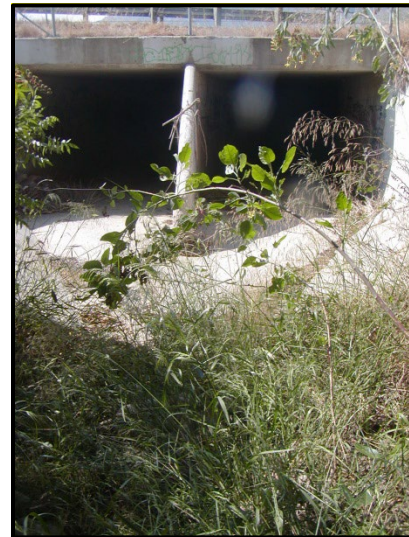
### S03T\_TIMB

This monitoring site is located on Timber Canyon Creek just upstream of Hwy 126, east of Santa Paula. Timber Creek is a tributary to Santa Clara River Reach 3.

#### Site Map



#### View of site (S) toward Hwy 126



Flow was observed and samples were collected during the 2023-2024 monitoring season only during wet weather Events 59 and 60. The site was dry and no samples were collected during Event 58 and no samples were collected during event 61 due to construction blocking access to the monitoring location. Table 39 summarizes concentrations recorded for each constituent during this event and provides a comparison of results to applicable water quality benchmarks.

The benchmarks were exceeded for *E. coli* during both wet weather monitoring Events 59 and 60. The benchmarks were exceeded for 4,4'-DDT, sulfate, chloride, and TDS during wet weather Event 59.

The drainage area for this site consists mostly of avocado and citrus orchards. Trash observations are provided in Table 40.

**Table 39. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: S03T\_TIMB**

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements			NS			NS <sup>5</sup>
Flow	CFS			0.3	7.2	
pH		6.5≤ pH ≤8.5		NR <sup>2</sup>	8.1	
Temperature	°C	≤ 26.67°C <sup>1</sup>		13.1	11.7	
Dissolved Oxygen	mg/L	≥ 5		10.3	10.6	
Turbidity	NTU			5,700	1,300	
Conductivity	µS/cm			2,183.4	1,309	
General Water Quality						
TDS	mg/L	1,300		1,510	947	
TSS	mg/L			5,700	39,100	
Total Hardness as CaCO <sub>3</sub>	mg/L			1,160	3,040	
Chloride	mg/L	100		210	42.6	
Sulfate	mg/L	650		757	500	
Nutrients						
Ammonia-N	mg/L	NS/ NR <sup>2</sup> / 2.56/ NS <sup>3</sup>		0.603	0.236	
Nitrate-N	mg/L	5		3.32	1.48	
Nitrite-N	mg/L			0.06	0.07	
Total Nitrogen	mg/L			4.74	ND	
Total Orthophosphate	mg/L			18.89	74.21	
Total Phosphorus	mg/L			8.37	7.93	
Metals						
Dissolved Copper	µg/L	NS/ 29.28/ 29.28/ NS <sup>4</sup>		4.28	3.9	
Total Copper	µg/L			165	133	
Organochlorine Pesticides						
Aldrin	µg/L	0.00014		ND	ND	
BHC-alpha	µg/L	0.013		ND	ND	
BHC-beta	µg/L	0.046		ND	ND	
BHC-gamma	µg/L	0.063		ND	ND	
Trans-Nonachlor				DNQ	ND	
Chlordane-alpha	µg/L			ND	ND	
Chlordane-gamma	µg/L			ND	ND	
Total Chlordane	µg/L	0.00059		ND	ND	
4,4'-DDD	µg/L	0.00084		ND	ND	
4,4'-DDE	µg/L	0.00059		ND	ND	
4,4'-DDT	µg/L	0.00059		0.0342	ND	
Dieldrin	µg/L	0.00014		ND	ND	
Endosulfan-I	µg/L	0.056		ND	ND	

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Endosulfan-II	µg/L	0.056		ND	ND	
Endosulfan Sulfate	µg/L	240		ND	ND	
Endrin	µg/L	0.036		ND	ND	
Endrin Aldehyde	µg/L	0.81		ND	ND	
Toxaphene	µg/L	0.00075		ND	ND	
Organophosphorus Pesticides						
Chlorpyrifos	µg/L	0.025		ND	ND	
Diazinon	µg/L	0.1		ND	ND	
Malathion	µg/L			ND	0.0868	
Pyrethroid Pesticides						
Bifenthrin	µg/L	0.0006		ND	ND	
Bacteria						
E. coli	MPN/ 100 mL	235		N/A	N/A	
	cfu/ 100 mL	320 (STV)		51,720	13,960	

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

NR = Not recorded

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. Water quality meter failed post-event calibration check for pH.
3. The benchmarks for Ammonia-N are listed in order of monitoring event, were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
4. The freshwater copper benchmark was calculated for this site using the formula in Table 15.
5. Monitoring site was not accessible due to construction activities.

**Table 40. 2023–2024 Trash Observations for S03T\_TIMB**

Event	Count	Types
58	>20	Plastic, metal, snack wrappers
59	0	
60	0	
61	NR	

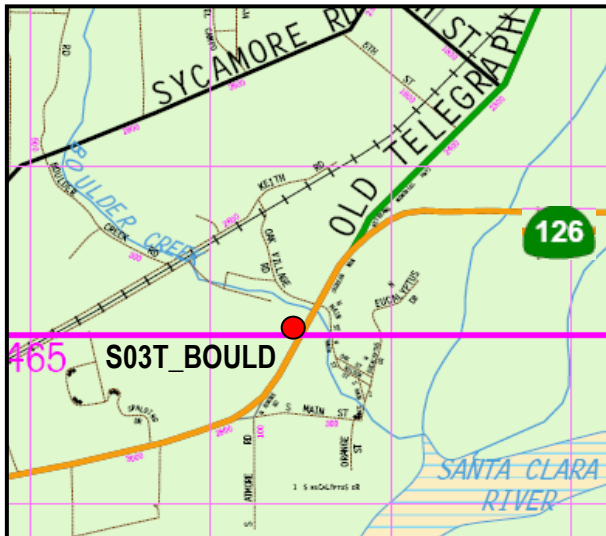
NR = Not recorded



## S03T\_BOULD

This monitoring site is located on Boulder Creek just upstream of Hwy 126, west of Fillmore. Boulder Creek is a tributary to Santa Clara River Reach 3.

Site Map



View of sampling location (upstream)



Flow was observed and samples were collected for all monitoring events. Flow was not measured during wet weather Event 60 due to high flow and unsafe site conditions. Table 41 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmark was exceeded for *E. coli* during both wet weather monitoring Events 59 and 60 and dry weather Event 61. The benchmark was exceeded for bifenthrin during both wet weather Events 59 and 60. The benchmark was exceeded for total chlordane during wet weather Event 60.

Avocados, citrus, and nurseries are the primary crop types associated with this site. Trash observations for this site can be found in Table 42.

**Table 41. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: S03T\_BOULD**

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements						
Flow	CFS		0.2	6.3	NM <sup>2</sup>	0.1
pH		6.5≤ pH ≤8.5	8.0	NR <sup>2</sup>	8.0	8.46
Temperature	°C	≤ 26.67°C <sup>1</sup>	17.5	12.9	11.7	17.6
Dissolved Oxygen	mg/L	≥ 5	10.7	10.5	10.7	10.0
Turbidity	NTU		3.5	>1,000	310	2.12
Conductivity	µS/cm		746.9	795.8	548.4	915.7
General Water Quality						
TDS	mg/L	1,300	520	570	383	611
TSS	mg/L		3	1,400	7,100	DNQ
Total Hardness as CaCO <sub>3</sub>	mg/L		256	425	769	410
Chloride	mg/L	100	12	25	9	21
Sulfate	mg/L	650	194	255	189	269
Nutrients						
Ammonia-N	mg/L	1.89/ NR <sup>3</sup> / 2.97/ 0.96 <sup>4</sup>	0.04	0.35	0.30	DNQ
Nitrate-N	mg/L	5	0.74	2.71	1.25	2.77
Nitrite-N	mg/L		NR <sup>5</sup>	0.13	0.08	DNQ
Total Nitrogen	mg/L		DNQ	3.37	ND	2.55
Total Orthophosphate	mg/L		ND	2.33	14.81	ND
Total Phosphorus	mg/L		0.057	1.66	4.18	ND
Metals						
Dissolved Copper	µg/L	20.00/ 29.28/ 29.28/ 29.28 <sup>6</sup>	0.74	3.67	2.92	0.69
Total Copper	µg/L		0.72	33.9	98.5	0.98
Organochlorine Pesticides						
Aldrin	µg/L	0.00014	ND	ND	ND	ND
BHC-alpha	µg/L	0.013	ND	ND	ND	ND
BHC-beta	µg/L	0.046	ND	ND	ND	ND
BHC-gamma	µg/L	0.063	ND	ND	ND	ND
Chlordane-alpha	µg/L		ND	ND	0.00224	ND
Chlordane-gamma	µg/L		ND	ND	ND	ND
Total Chlordane	µg/L	0.00059	ND	ND	0.00224	ND
4,4'-DDD	µg/L	0.00084	ND	ND	ND	ND
4,4'-DDE	µg/L	0.00059	ND	ND	ND	ND
4,4'-DDT	µg/L	0.00059	ND	ND	ND	ND
Dieldrin	µg/L	0.00014	ND	ND	ND	ND
Endosulfan-I	µg/L	0.056	ND	ND	ND	ND
Endosulfan-II	µg/L	0.056	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	240	ND	ND	ND	ND

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry 9/25/2023	Wet 1/22/2024	Wet 2/1/2024	Dry 6/11/2024
Endrin	µg/L	0.036	ND	ND	ND	ND
Endrin Aldehyde	µg/L	0.81	ND	ND	ND	ND
Toxaphene	µg/L	0.00075	ND	ND	ND	ND
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
Malathion	µg/L		ND	ND	0.0167	ND
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	ND	<b>0.00577</b>	<b>0.00459</b>	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	69	N/A	N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A	<b>12,460</b>	<b>3,050</b>	<b>840</b>

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NM = Not measured.

NS = No samples were collected due to lack of flow.

NR = Not recorded

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. Flow not measured due to unsafe conditions.
3. Water quality meter failed post-event calibration check for pH.
4. The benchmarks for Ammonia-N are listed in order of monitoring event, were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
5. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
6. The freshwater copper benchmark was calculated for this site using the formula in Table 15.

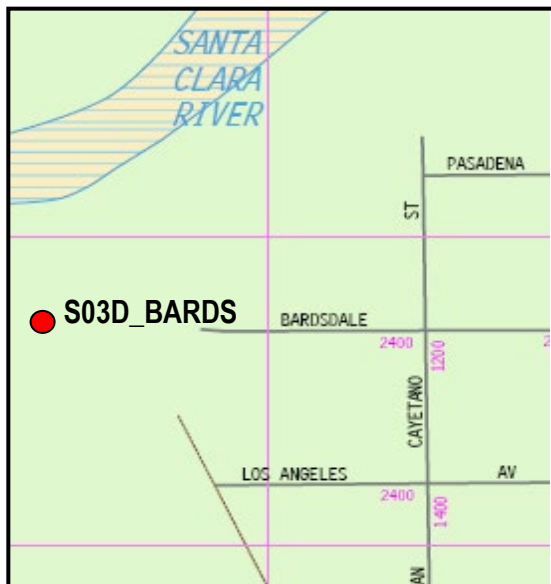
**Table 42. 2023–2024 Trash Observations for S03T\_BOULD**

Event	Count	Types
58	<5	Plastic, bottles
59	<5	Foil, paper, plastic
60	1	Plastic bag
61	0	

### S03D\_BARDS

This monitoring site is located near the end of the agricultural drain that runs parallel to Bardsdale Avenue in Bardsdale. The drain is located on the south side of the Santa Clara River and eventually discharges into Santa Clara River Reach 3.

Site Map



View of site looking upstream



Flow was observed and samples were collected during wet weather Events 59 and 60. The site was dry and no samples were collected during both dry weather Events 58 and 61. Table 43 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmarks for total chlordane, 4,4'-DDE, 4,4'-DDT, bifenthrin, and *E. coli* were exceeded during both wet weather Events 59 and 60. The benchmark for toxaphene was exceeded during wet weather Event 59. The benchmark for 4,4'-DDD was exceeded during wet weather Event 60.

The drainage area for this site consists mostly of citrus and avocado orchards. Trash observations for S03D\_BARDS are provided below in Table 44.

**Table 43. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: S03D\_BARDS**

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements			NS			NS
Flow	CFS			2.5	22.9	
pH		6.5≤ pH ≤8.5		NR <sup>2</sup>	8.48	
Temperature	°C	≤ 26.67°C <sup>1</sup>		13.0	11.7	
Dissolved Oxygen	mg/L	≥ 5		10.2	10.5	
Turbidity	NTU			>1,000	650	
Conductivity	µS/cm			305.2	219.7	
General Water Quality						
TDS	mg/L	1,300		340	182	
TSS	mg/L			4,200	8,540	
Total Hardness as CaCO <sub>3</sub>	mg/L			473	861	
Chloride	mg/L	100		10	5	
Sulfate	mg/L	650		64	48	
Nutrients						
Ammonia-N	mg/L	NS/ NR <sup>2</sup> / 1.35/ NS <sup>3</sup>		0.37	0.21	
Nitrate-N	mg/L	5		2.97	1.75	
Nitrite-N	mg/L			0.16	0.09	
Total Nitrogen	mg/L			3.75	ND	
Total Orthophosphate	mg/L			11.78	30.67	
Total Phosphorus	mg/L			5.76	5.75	
Metals						
Dissolved Copper	µg/L	NS/ 29.28/ 29.28/ NS <sup>4</sup>		4.43	4.23	
Total Copper	µg/L			87.8	120	
Organochlorine Pesticides						
Aldrin	µg/L	0.00014		ND	ND	
BHC-alpha	µg/L	0.013		ND	ND	
BHC-beta	µg/L	0.046		ND	ND	
BHC-gamma	µg/L	0.063		ND	ND	
cis-Nonachlor	µg/L			0.0053	0.00464	
trans-Nonachlor	µg/L			0.0118	0.0124	
Chlordane-alpha	µg/L			0.0064	0.0072	
Chlordane-gamma	µg/L			0.00339	0.00427	
Total Chlordane	µg/L	0.00059		0.00979	0.01147	
4,4'-DDD	µg/L	0.00084		ND	0.0195	
4,4'-DDE	µg/L	0.00059		0.0369	0.0446	
4,4'-DDT	µg/L	0.00059		0.0602	0.107	
Dieldrin	µg/L	0.00014		ND	ND	
Endosulfan-I	µg/L	0.056		ND	ND	



			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Endosulfan-II	µg/L	0.056		ND	ND	
Endosulfan Sulfate	µg/L	240		ND	ND	
Endrin	µg/L	0.036		ND	ND	
Endrin Aldehyde	µg/L	0.81		ND	ND	
Toxaphene	µg/L	0.00075		0.599	ND	
Organophosphorus Pesticides						
Chlorpyrifos	µg/L	0.025		ND	ND	
Diazinon	µg/L	0.1		ND	ND	
Pyrethroid Pesticides						
Bifenthrin	µg/L	0.0006		0.00292	0.0154	
Cyfluthrin, total	µg/L			0.181	0.15	
Cypermethrin, total	µg/L			0.00377	ND	
Esfenvalerate	µg/L			0.00142	ND	
Fenvalerate	µg/L			0.00245	ND	
Permethrin, cis-	µg/L			0.0373	0.0409	
Permethrin, trans-	µg/L			0.0463	0.0374	
Bacteria						
E. coli	MPN/ 100 mL	235		N/A	N/A	
	cfu/ 100 mL	320 (STV)		19,180	12,910	

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

NR = Not recorded

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).

2. Water quality meter failed post-event calibration check for pH.

3. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.

4. The freshwater copper benchmark was calculated for this site using the formula in Table 15.

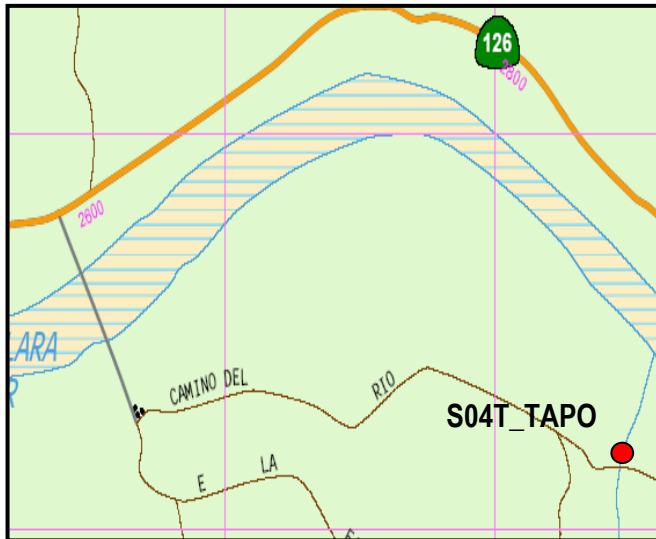
**Table 44. 2023–2024 Trash Observations for S03D\_BARDS**

Event	Count	Types
58	<10	Plastic bag, foil, cans
59	3	Styrofoam
60	1	Styrofoam
61	0	

## S04T\_TAPO

This monitoring site is located on Tapo Creek near the Ventura / Los Angeles County line, south of Hwy 126 and the Santa Clara River. Tapo Creek is a tributary to Santa Clara River Reach 4.

### Site Map



### View upstream toward the sample site (at culvert)



Flow was observed and samples were collected at S04T\_TAPO during all monitoring events. Table 45 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality benchmarks.

The benchmark for *E. coli* was exceeded during both wet weather Events 59 and 60 and during dry weather event 61. The benchmarks for sulfate and TDS were exceeded during both dry weather Events 58 and 61 and during wet weather event 59. The benchmark for bifenthrin was exceeded during both wet weather Events 59 and 60. The benchmark for chloride was exceeded during both dry weather Events 58 and 61.

Rotational crops, citrus, and nursery stock are grown in the vicinity of this monitoring site. Table 46 summarizes trash observations for this site.

**Table 45. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: S04T\_TAPO**

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements						
Flow	CFS		0.3	14.7	10.0	0.5
pH		6.5≤ pH ≤8.5	8.0	NR <sup>2</sup>	8.2	8.1
Temperature	°C	≤ 26.67°C <sup>1</sup>	16.4	13.0	11.5	17.7
Dissolved Oxygen	mg/L	≥ 5	9.1	9.8	10.5	8.7
Turbidity	NTU		0.84	>1,000	550	1.87
Conductivity	µS/cm		4,808.1	1,889.9	1,574.4	4,045.1
General Water Quality						
TDS	mg/L	1,300	3,770	1,430	1,160	3,320
TSS	mg/L		2	9,800	7,410	2
Total Hardness as CaCO <sub>3</sub>	mg/L		1,240	1,620	1,230	1,430
Chloride	mg/L	100	260	86	57	213
Sulfate	mg/L	600	1,620	666	533	1,640
Nutrients						
Ammonia-N	mg/L	2.09/ NR <sup>2</sup> / 2.11/ 1.71 <sup>3</sup>	DNQ	0.13	0.137	0.043
Nitrate-N	mg/L	5	1.10	1.03	1.21	1.22
Nitrite-N	mg/L		NR <sup>4</sup>	0.10	0.07	0.03
Total Nitrogen	mg/L		1.51	1.58	ND	1.54
Total Orthophosphate	mg/L		0.21	26.92	18.58	0.40
Total Phosphorus	mg/L		0.13	12.9	2.13	0.14
Metals						
Dissolved Copper	µg/L	29.28/ 29.28/ 29.28/ 29.28 <sup>5</sup>	2.07	2.74	2.88	1.65
Total Copper	µg/L		1.8	161	131	1.7
Organochlorine Pesticides						
Aldrin	µg/L	0.00014	ND	ND	ND	ND
BHC-alpha	µg/L	0.013	ND	ND	ND	ND
BHC-beta	µg/L	0.046	ND	ND	ND	ND
BHC-gamma	µg/L	0.063	ND	ND	ND	ND
BHC-delta	µg/L		ND	ND	ND	ND
trans-Nonachlor	µg/L		ND	ND	DNQ	ND
Chlordane-alpha	µg/L		ND	ND	DNQ	ND
Chlordane-gamma	µg/L		ND	ND	ND	ND
Total Chlordane	µg/L	0.00059	ND	ND	DNQ	ND
4,4'-DDD	µg/L	0.00084	ND	ND	ND	ND
4,4'-DDE	µg/L	0.00059	ND	ND	ND	ND
4,4'-DDT	µg/L	0.00059	ND	ND	ND	ND
Dieldrin	µg/L	0.00014	ND	ND	ND	ND
Endosulfan-I	µg/L	0.056	ND	ND	ND	ND

Constituent	Units	Benchmark	Event 58	Event 59	Event 60	Event 61
			Dry 9/25/2023	Wet 1/22/2024	Wet 2/1/2024	Dry 6/11/2024
Endosulfan-II	µg/L	0.056	ND	ND	ND	ND
Endosulfan Sulfate	µg/L	240	ND	ND	ND	ND
Endrin	µg/L	0.036	ND	ND	ND	ND
Endrin Aldehyde	µg/L	0.81	ND	ND	ND	ND
Toxaphene	µg/L	0.00075	ND	ND	ND	ND
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
Malathion	µg/L		ND	ND	0.987	ND
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006	ND	<b>0.0452</b>	<b>0.149</b>	ND
Permethrin, cis-	µg/L		ND	ND	0.205	ND
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235	98.5	N/A	N/A	N/A
	cfu/ 100 mL	320 (STV)	N/A	<b>16,070</b>	<b>30,760</b>	<b>630</b>

Concentrations in **bold** indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

NR = Not recorded

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. Water quality meter failed post-event calibration check for pH.
3. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
4. Nitrite was not sampled during Event 58, as this event was conducted prior to the adoption of the *Ag Order* on September 28, 2023.
5. The freshwater copper benchmark was calculated for this site using the formula in Table 15. It was the same for all four events.

**Table 46. 2023–2024 Trash Observations for S04T\_TAPO**

Event	Count	Types
58	0	
59	0	
60	0	
61	0	

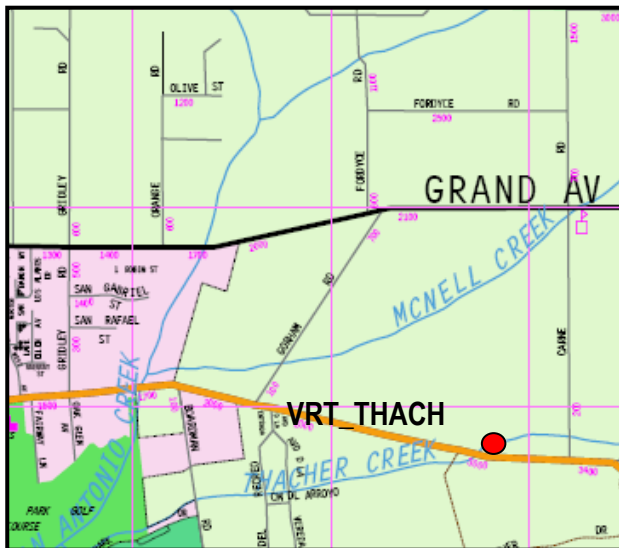
## Ventura River Watershed

There are two VCAILG monitoring sites located in this watershed, and both are located on tributaries to the Ventura River on the east end of the City of Ojai.

### VRT\_THACH

This monitoring site is located on Thacher Creek just upstream of Ojai Avenue in Ojai. Thacher Creek is a tributary of San Antonio Creek, which is a tributary of the Ventura River.

#### Site Map



#### View downstream from site looking towards Ojai Ave. bridge



Flow was observed and samples were collected only during wet weather Event 60. The site was dry and no samples were collected during both dry weather Events 58 and 61 and wet weather Event 59. Table 47 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality objectives.

The benchmarks for 4,4'-DDE, bifenthrin and *E. coli* were exceeded during wet weather Event 60.

Citrus and avocado are the predominant crop types associated with this site. The approximate amount and types of trash observed at this site is recorded in Table 48.



Table 47. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: VRT\_THACH

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements			NS	NS		NS
Flow	CFS				30	
pH		6.5≤ pH ≤8.5			8.1	
Temperature	°C	≤ 26.67°C <sup>1</sup>			12.2	
Dissolved Oxygen	mg/L	≥ 7			10.4	
Turbidity	NTU				561	
Conductivity	µS/cm				422.1	
General Water Quality						
TDS	mg/L	800			307	
TSS	mg/L				353	
Total Hardness as CaCO <sub>3</sub>	mg/L				233	
Chloride	mg/L	60			8	
Sulfate	mg/L	300			106	
Nutrients						
Ammonia-N	mg/L	NS/ NS/ 2.33/ NS <sup>2</sup>			0.12	
Nitrate-N	mg/L	5			1.47	
Nitrite-N	mg/L				0.07	
Total Nitrogen	mg/L				1.73	
Total Orthophosphate	mg/L				1.46	
Total Phosphorus	mg/L				1.04	
Metals						
Dissolved Copper	µg/L	NS/ NS/ 18.45/ NS <sup>3</sup>			1.8	
Total Copper	µg/L				10.9	
Organochlorine Pesticides						
Aldrin	µg/L	0.00013			ND	
BHC-alpha	µg/L	0.0039			ND	
BHC-beta	µg/L	0.014			ND	
BHC-gamma	µg/L	0.019			ND	
Chlordane-alpha	µg/L				ND	
Chlordane-gamma	µg/L				ND	
Total Chlordane	µg/L	0.00059			ND	
4,4'-DDD	µg/L	0.00084			ND	
4,4'-DDE	µg/L	0.00059			0.00402	
4,4'-DDT	µg/L	0.00059			ND	
Dieldrin	µg/L	0.00014			ND	
Endosulfan-I	µg/L	0.056			ND	
Endosulfan-II	µg/L	0.056			ND	
Endosulfan Sulfate	µg/L	110			ND	

			Event 58	Event 59	Event 60	Event 61
Constituent	Units	Benchmark	Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Endrin	µg/L	0.036			ND	
Endrin Aldehyde	µg/L	0.76			ND	
Toxaphene	µg/L	0.00075			ND	
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025			ND	
Diazinon	µg/L	0.1			ND	
Malathion	µg/L				0.0242	
Methidathion	µg/L				0.0522	
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006			<b>0.00113</b>	
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235			N/A	
	cfu/ 100 mL	320 (STV)			<b>10,920</b>	

Concentrations in bold indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. The freshwater copper benchmark was calculated for at this site using the formula in Table 15.

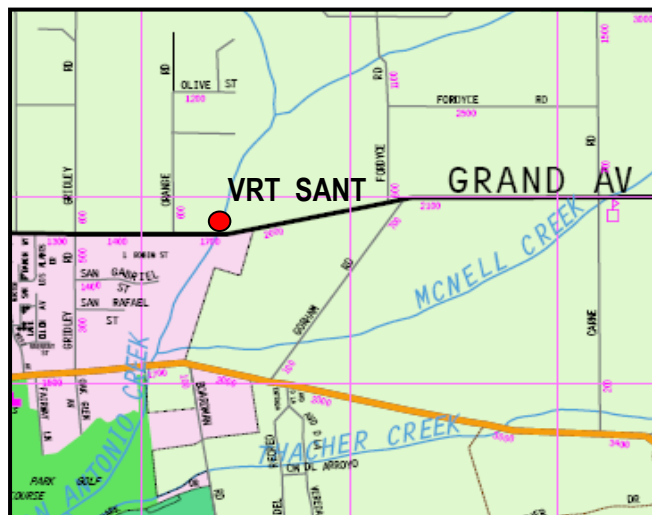
**Table 48. 2023–2024 Trash Observations for VRT\_THACH**

Event	Count	Types
58	1	Plastic bag
59	0	
60	0	
61	0	

## VRT\_SANTO

This monitoring site is located on San Antonio Creek just upstream of Grand Avenue in Ojai. San Antonio Creek is a tributary of the Ventura River.

### Site Map



### View downstream at the Grand Ave. bridge



Flow was observed and samples were collected at VRT\_SANTO in 2023-2024 during wet weather Event 60. The site was dry and no samples were collected during dry weather Event 58 and wet weather Event 59. Additional information is provided below regarding the conditions during dry weather Event 61.

Flow was observed at VRT\_SANTO during dry weather Event 61, but samples were not collected after field reconnaissance was performed in the site drainage area and determined that there were no surface water contributions from agriculture. Field staff observed two drainage channels that connect to San Antonio Creek, and both were found to be completely dry. San Antonio Creek was accessed at two additional locations upstream of the VRT\_SANTO monitoring site: at the upper end of where irrigated agriculture is located within the monitoring site drainage and approximately mid-way between the upper end location and the VRT\_SANTO site. The field crew observations confirmed significant natural creek flows in the open space area, above where agricultural land use begins. Active irrigation using microsprinklers was observed at a few orchard locations while scouting the monitoring site drainage area. No runoff from the orchards was observed. Flow during Event 61 was attributed to the unusually wet water year and late season rains occurring during the months of May and June, 2024<sup>8</sup>. Field observations and photo documentation of site reconnaissance relating to Event 61 are available in Appendix B and Appendix D.

Table 49 summarizes the concentrations recorded for each constituent and provides a comparison of results to applicable water quality objectives. The benchmark for *E. coli* was exceeded during wet weather Event 60.

<sup>8</sup> <https://www.vcwatershed.net/fws/reports/rain-season-report>

Citrus and avocado orchards are the primary crop types that drain to this monitoring site. Table 50 includes the number and types of trash observed at the monitoring site.

**Table 49. 2023–2024 VCAILG Monitoring Data v. Waiver Benchmarks: VRT\_SANTO**

			Event 58	Event 59	Event 60	Event 61
			Dry	Wet	Wet	Dry
Constituent	Units	Benchmark	9/25/2023	1/22/2024	2/1/2024	6/11/2024
Field Measurements						Nag
Flow	CFS				14.7	
pH		6.5≤ pH ≤8.5			8.22	
Temperature	°C	≤ 26.67°C <sup>1</sup>			12.8	
Dissolved Oxygen	mg/L	≥ 7			10.3	
Turbidity	NTU				42.1	
Conductivity	µS/cm				714.6	
General Water Quality						
TDS	mg/L	800			503	
TSS	mg/L				31	
Total Hardness as CaCO <sub>3</sub>	mg/L		344			
Chloride	mg/L	60	13			
Sulfate	mg/L	300	198			
Nutrients			NS			Nag
Ammonia-N	mg/L	NS/ NS/ 1.94/ NS <sup>2</sup>			DNQ	
Nitrate-N	mg/L	5			0.94	
Nitrite-N	mg/L				ND	
Total Nitrogen	mg/L				0.71	
Total Orthophosphate	mg/L				0.09	
Total Phosphorus	mg/L				0.15	
Metals						
Dissolved Copper	µg/L	NS/ NS/ 25.74/ NS <sup>3</sup>			0.61	
Total Copper	µg/L				2.49	
Organochlorine Pesticides						
Aldrin	µg/L	0.00013			ND	
BHC-alpha	µg/L	0.0039			ND	
BHC-beta	µg/L	0.014			ND	
BHC-gamma	µg/L	0.019			ND	
Chlordane-alpha	µg/L				ND	
Chlordane-gamma	µg/L				ND	
Total Chlordane	µg/L	0.00059			ND	
4,4'-DDD	µg/L	0.00084			ND	
4,4'-DDE	µg/L	0.00059			ND	
4,4'-DDT	µg/L	0.00059			ND	
Dieldrin	µg/L	0.00014			ND	

			Event 58	Event 59	Event 60	Event 61
Constituent	Units	Benchmark	Dry	Wet	Wet	Dry
			9/25/2023	1/22/2024	2/1/2024	6/11/2024
Endosulfan-I	µg/L	0.056			ND	
Endosulfan-II	µg/L	0.056			ND	
Endosulfan Sulfate	µg/L	110			ND	
Endrin	µg/L	0.036			ND	
Endrin Aldehyde	µg/L	0.76			ND	
Toxaphene	µg/L	0.00075			ND	
<b>Organophosphorus Pesticides</b>						
Chlorpyrifos	µg/L	0.025			ND	
Diazinon	µg/L	0.1			ND	
<b>Pyrethroid Pesticides</b>						
Bifenthrin	µg/L	0.0006			ND	
<b>Bacteria</b>						
<i>E. coli</i>	MPN/ 100 mL	235			N/A	
	cfu/ 100 mL	320 (STV)			<b>3,230</b>	

Concentrations in bold indicate an exceedance of a water quality benchmark applicable to this site for the specified constituent. See Table 13 through Table 20 for a list of benchmarks applicable to this site.

DNQ = Detected, not qualified.

ND = Not detected at the applicable reporting limit.

NS = No samples were collected due to lack of flow.

Nag = Non-ag; flow was observed at the monitoring site but extensive field reconnaissance documented no discharge from agriculture to the tributary. Flow was present due to the significant rainfall during the water year and late season rains.

1. The temperature limit for waterbodies designated as WARM is 80°F (26.7°C).
2. The benchmarks for Ammonia-N are listed in order of monitoring event and were calculated based on the April 2002 Basin Plan Amendment chronic equation (ELS present) and are dependent upon the pH and temperature of the water at the time of sample collection.
3. The freshwater copper benchmark was calculated for at this site using the formula in Table 15.

**Table 50. 2023–2024 Trash Observations for VRT\_SANTO**

Event	Count	Types
58	0	
59	1	Aluminum can
60	0	
61	1	Wrapper

## CHRONIC TOXICITY TEST RESULTS

During the 2023-2024 monitoring year, PER performed single-species short-term chronic toxicity tests for samples collected during the first wet weather event (Event 59) and second dry weather event (Event 61).

Following the 2017 QAPP and MRP procedures, toxicity monitoring occurred at all VCAILGMP sites. Single-species toxicity testing was conducted using the appropriate invertebrate species, either *C. dubia* or *Hyalella azteca*, based on the conductivity of the sample. The *C. dubia* chronic test consisted of the 3-brood (6- to 8-day) survival and reproduction test, and the *Hyalella* test consisted of a 10-day survival test. Table 51 summarizes the chronic toxicity results from wet weather Event 59 and dry weather Event 61. PER submitted two types of reports, an electronic data deliverable (EDD), which has been configured to California Environmental Data Exchange Network (CEDEN) format, and a narrative report. The toxicity data are included as Appendix G and the narrative lab reports are also included in this report submittal.



**Table 51. Chronic Toxicity Results 2023-2024**

Event	Site	<i>Ceriodaphnia dubia</i> <sup>1</sup>			<i>Hyalella</i> <sup>2</sup>	TIE Triggered?
		Survival Toxicity	Reprod. Toxicity	Reprod. % Red.	Survival Toxicity	
59: 1/22/2024 (wet weather)	S02T_TODD	YES	YES	100% <sup>3</sup>		YES
	S02T_ELLS	NO	YES	67.3% <sup>3</sup>		--
	06T_LONG2 <sup>4</sup>	YES	YES	100% <sup>3</sup>		YES
	S04T_TAPO	NO	YES	44.3% <sup>3</sup>		--
	04D_ETTG <sup>4</sup>	NO	NO	--		--
	04D_LAS <sup>4</sup>	NO	NO	--		--
	OXD_CENTR <sup>4</sup>	YES	YES	100% <sup>3</sup>		YES
	S03T_TIMB	NO	YES	47.4% <sup>3</sup>		--
	S03D_BARDS	NO	YES	44.2% <sup>3</sup>		--
	S03T_BOULD	NO	YES	52.6% <sup>3</sup>		--
	05D_LAVD <sup>4</sup>	NO	YES	45.5% <sup>3</sup>		--
	05T_HONDO <sup>4</sup>	NO	YES	60.9% <sup>3</sup>		--
61: 6/11/2024 (dry weather)	01T_ODD3_EDI				YES <sup>5</sup>	--
	04D_LAS				NO	--
	04D_ETTG				NO	--
	S02T_TODD	NO	YES	56.1% <sup>3</sup>		--
	S04T_TAPO				NO	--
	S02T_ELLS	NO	YES	64.1% <sup>3</sup>		--
	S03T_BOULD	NO	YES	63.5% <sup>3</sup>		--

1. *Ceriodaphnia dubia* (invertebrate – water flea) is evaluated for the survival and reproduction endpoints.

2. *Hyalella azteca* (invertebrate – crustacean) is evaluated for the survival endpoint.

3. The response at this test treatment was significantly less than the Lab Control treatment response ( $p < 0.05$ ).

4. Samples retested. Lab Control concurrent with the initial test performed on 1/23/24 failed to meet TAC for Lab Control survival (>80%). The samples were re-tested; as a result, the samples were >36-hrs old at initiation of re-test.

5. Observed toxicity is likely due to high test precision.

## Event 59: TIE Results

Complete mortality of *Ceriodaphnia dubia* occurred in the 06T\_LONG2, and a TIE was performed. Survival toxicity was removed in the C<sub>18</sub>SPE and PBO treatments and partially removed in the LC-WCX treatment. Reproduction toxicity was removed in the C<sub>18</sub>SPE and LC-WCX treatments and partial reproduction toxicity was removed in the PBO treatments. These results suggest that a combination of a dissolved non-polar organic compound(s) and potentially metals were responsible for at least some of the toxicity, and that some of the toxicity is due to a metabolically activated substance (e.g., organophosphate pesticides). An alternative explanation for the toxicity removal for the LC-WCX columns is a highly non-polar organic could be sorbing onto column, rather than metals as being the cause.

Complete mortality of *Ceriodaphnia dubia* occurred in the OXD\_CENTR, and a TIE was performed. Survival and reproduction toxicity were removed in the C<sub>18</sub>SPE treatment; no other

treatment removed the toxicity. These results suggest that dissolved non-polar organic compound(s) were responsible for the toxicity.

Complete mortality of *Ceriodaphnia dubia* occurred in the S02T\_TODD, and a TIE was performed. Survival and reproduction toxicity were removed in the C<sub>18</sub>SPE and LC-WCX treatments; no other treatment removed the toxicity. These results suggest that a combination of a dissolved non-polar organic compound(s) and potentially metals were responsible for at least some of the toxicity. An alternative explanation for the toxicity removal for the LC-WCX columns is a highly non-polar organic could be sorbing onto column, rather than metals as being the cause.

## TMDL LOAD ALLOCATIONS AND MONITORING RESULTS

### Calleguas Creek Watershed

The Stakeholders Implementing TMDLs in the Calleguas Creek Watershed submit an annual monitoring report on December 15<sup>th</sup> of each year. This year's report, "Calleguas Creek Watershed TMDL Compliance Monitoring Program Annual Monitoring Report Year 16 – July 2023 to June 2024" (CCW TMDLs AMR) is being provided with the VCAILG AMR. The report includes summaries of the sampling events, data summaries, and progress towards meeting TMDL targets for five of the six of the currently effective TMDLs in the watershed:

- Nitrogen Compounds and Related Effects in Calleguas Creek (Nitrogen or Nutrients TMDL)
- Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in Calleguas Creek, its Tributaries, and Mugu Lagoon (OC Pesticides TMDL)
- Toxicity, Chlorpyrifos, and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon (Toxicity TMDL)
- Metals and Selenium in Calleguas Creek, its Tributaries, and Mugu Lagoon (Metals TMDL)
- Boron, Chloride, Sulfate and TDS (Salts) in the Calleguas Creek, its Tributaries and Mugu Lagoon (Salts TMDL)

The Revolon Slough and Beardsley Wash Trash TMDL is addressed through a separate monitoring and reporting program. For additional information, refer to the "2024 Revolon Slough/Beardsley Wash Trash TMDL TMRP/MFAC Annual Report", which is also submitted in December 2024.

Table 52 shows the results of the exceedance evaluation for the Metals TMDL. Final water quality benchmarks based upon TMDL LAs for Metals TMDL became effective on March 26, 2022. Only observed exceedances of final benchmarks are shown in the tables. Table 53 shows the summary of the results of the comparison to the Nitrogen TMDL benchmark. The water quality benchmark for the Nitrogen TMDL is to be met by July 16, 2010. Table 54 shows the summary of the results for the Salts TMDL compared to the final benchmarks. The water quality benchmark based upon TMDL LAs for the Salts TMDL shall be met no later than December 23, 2023. The Salts TMDL evaluation involves two steps, evaluating if the benchmark is met in the receiving water and if not, assessing the associated land use sites to determine if agricultural discharges were contributing to the exceedance at the receiving water site. Table 55 shows the summary of the results for the Toxicity TMDL compared to water quality benchmarks. The water quality benchmarks for the Toxicity TMDL are to be met no later than March 24, 2016. There were no exceedances observed for the OC Pesticides TMDL. Only constituents and events where exceedances were observed in receiving waters are shown in the tables. For complete results of CCW TMDLs monitoring, please refer to the CCW TMDLs AMR provided with this report. All constituents and sites not shown in the table met the applicable benchmarks based on load allocations.

**Table 52: Benchmark Evaluation Results for Metals TMDL**

RW Site	Date	Weather Condition	Constituent	Associated TMDL Agricultural Land Use Site	Associated TMDL Agricultural Land Use Site Daily Load	TMDL Agricultural Load to compare Benchmark	Applicable Benchmark to compare to Results
04_WOOD	8/2/2023	Dry	Selenium (Total Recoverable)	04D_WOOD	NS	0.125 lbs/day	0.008 lbs/day
				05D_SANT_VCWPD	0.125 lbs/day		
04_WOOD	11/7/2023	Dry	Selenium (Total Recoverable)	04D_WOOD	0.000009 lbs/day	0.365 lbs/day	0.008 lbs/day
				05D_SANT_VCWPD	0.365 lbs/day		
04_WOOD	3/19/2024	Dry	Selenium (Total Recoverable)	04D_WOOD	0.007 lbs/day	0.269 lbs/day	0.007 lbs/day
				05D_SANT_VCWPD	0.261 lbs/day		
04_WOOD	6/11/2024	Dry	Selenium (Total Recoverable)	04D_WOOD	NS	0.160 lbs/day	0.008 lbs/day
				05D_SANT_VCWPD	0.160 lbs/day		

NS = Not sampled due to lack of flow or site was dry.

**Table 53: Benchmark Evaluation Results for Nitrogen TMDL**

Step 1. TMDL Agricultural Land Use Site Concentration > Benchmark (only exceedances shown)					
TMDL Agricultural Land Use Site/VCAILG Site	Date	Weather Condition	Constituent	TMDL Agricultural Land Use Site Results	Applicable Benchmark to compare to Results
05D_SANT_VCWPD <sup>1</sup>	8/1/2023	Dry	Nitrate-N + Nitrite-N	38 mg/L	9 mg/L
01T_ODD2_DCH	8/2/2023	Dry	Nitrate-N + Nitrite-N	59.1 mg/L	9 mg/L
01T_ODD3 EDI	9/25/2023	Dry	Nitrate-N + Nitrite-N	57.1 mg/L	9 mg/L
01T_ODD2_DCH	11/7/2022	Dry	Nitrate-N + Nitrite-N	82.9 mg/L	9 mg/L
05D_SANT_VCWPD1	11/7/2023	Dry	Nitrate-N + Nitrite-N	50.8 mg/L	9 mg/L
9BD_GERRY	11/7/2023	Dry	Nitrate-N + Nitrite-N	12.0 mg/L	9 mg/L
01T_ODD2_DCH	1/22/2024	Wet	Nitrate-N + Nitrite-N	9.2 mg/L	9 mg/L
07D_HITCH_LEVEE_2	1/22/2024	Wet	Nitrate-N + Nitrite-N	36.1 mg/L	9 mg/L
01T_ODD2_DCH	2/1/2024	Wet	Nitrate-N + Nitrite-N	11.7 mg/L	9 mg/L
07D_HITCH_LEVEE_2	2/1/2024	Wet	Nitrate-N + Nitrite-N	22.8 mg/L	9 mg/L
9BD_GERRY	2/1/2024	Wet	Nitrate-N + Nitrite-N	12.9 mg/L	9 mg/L
01T_ODD3 EDI	2/1/2024	Wet	Nitrate-N + Nitrite-N	9.7 mg/L	9 mg/L
01T_ODD2_DCH	3/19/2024	Dry	Nitrate-N + Nitrite-N	90.3 mg/L	9 mg/L
04D_WOOD	3/19/2024	Dry	Nitrate-N + Nitrite-N	38.4 mg/L	9 mg/L
05D_SANT_VCWPD <sup>1</sup>	3/19/2024	Dry	Nitrate-N + Nitrite-N	49.3 mg/L	9 mg/L
01T_ODD2_DCH	6/11/2024	Dry	Nitrate-N + Nitrite-N	61.5 mg/L	9 mg/L
05D_SANT_VCWPD <sup>1</sup>	6/11/2024	Dry	Nitrate-N + Nitrite-N	34.8 mg/L	9 mg/L
01T_ODD3 EDI	6/11/2024	Dry	Nitrate-N + Nitrite-N	63.5 mg/L	9 mg/L

1 - Site 05D\_SANT\_VCWPD is being replaced by 05D\_LAVD per the 2024 VCAILG MRP and will be reflected in the updated CCW TMDLs Monitoring Program QAPP.

**Table 54: Benchmark Evaluation Results for Salts TMDL**

RW Site	Date	Weather Condition	Constituent	Associated TMDL Agricultural Land Use Site	TMDL Irrigated Agricultural Subwatershed Load to compare Benchmark	Applicable Irrigated Agricultural Subwatershed Benchmark to compare to Results
04_WOOD	3/19/2024	Dry	Total Dissolved Solids	04D_WOOD	175,144 lbs/day	41,105 lbs/day
04_WOOD	3/19/2024	Dry	Chloride	04D_WOOD	14,535 lbs/day	7,238 lbs/day
04_WOOD	3/19/2024	Dry	Sulfate	04D_WOOD	66,860 lbs/day	12,063 lbs/day
04_WOOD	3/19/2024	Dry	Boron	04D_WOOD	76 lbs/day	48 lbs/day



**Table 55. Benchmark Evaluation Results for Toxicity TMDL**

Step 1. TMDL Agricultural Land Use Site Concentration > Benchmark (only exceedances shown)					
TMDL Agricultural Land Use Site	Date	Weather Condition	Constituent	TMDL Agricultural Land Use Site Results	Applicable Benchmark to compare to Results
01T_ODD2_DCH	1/22/2024	Wet	Chlorpyrifos	0.322 µg/L	0.025 µg/L
07D_HITCH_LEVEE_2	1/22/2024	Wet	Chlorpyrifos	1.5 µg/L	0.025 µg/L
01T_ODD2_DCH	2/1/2024	Wet	Chlorpyrifos	0.142 µg/L	0.025 µg/L
01T_ODD3_EDI	6/11/2024	Dry	Toxicity	>1 TUc <sup>1</sup>	1 TUc

1. Observed toxicity likely due to high test precision (i.e., low inter-replicate variability)

## Santa Clara River Watershed

Effective TMDLs for the Santa Clara River Watershed are discussed below. Monitoring data and a comparison to the Santa Clara River TMDL benchmarks are included below as part of this AMR.

### Santa Clara River Nitrogen Compounds TMDL

#### Load Allocations

The LA for the Santa Clara River Nitrogen Compounds TMDL applicable to VCAILG monitoring sites is listed in Table 56. Levels of Nitrite-N are typically insignificant compared to the other nitrogen compounds that are measured and are not monitored as part of the VCAILGMP.

**Table 56. Load Allocations for Nitrogen Compounds**

Constituent	Load Allocation (mg/L) <sup>1</sup>
Ammonia-N + Nitrate-N + Nitrite-N	10

1. The specified load allocation applies to all Santa Clara River reaches within Ventura County.

#### Monitoring Results

Table 57 lists the data collected at the VCAILGMP monitoring sites located within the Santa Clara River Watershed for comparison to the nitrogen LA. No exceedances of the LA were observed during the four sampling events. S02T\_ELLS, S02T\_TODD, S03T\_BOULD, and S04T\_TAPO were sampled during all four events. At S03T\_TIMB and S03D\_BARDS, both dry weather events were not sampled due to lack of flow or construction present at the site.

**Table 57. Nitrogen Load Allocations Compared to SCR VCAILGMP Site Data**

Site	Constituent	LA <sup>1</sup> (mg/L)	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
S02T_ELLS	Ammonia-N + Nitrate-N	10	1.55	2.44	5.22	0.07
S02T_TODD	Ammonia-N + Nitrate-N	10	5.87	3.11	3.74	3.29
S03T_TIMB	Ammonia-N + Nitrate-N	10	NS <sup>2</sup>	3.92	1.72	NS <sup>3</sup>
S03T_BOULD	Ammonia-N + Nitrate-N	10	0.78	3.06	1.55	2.77
S03D_BARDS	Ammonia-N + Nitrate-N	10	NS <sup>2</sup>	3.34	1.96	NS <sup>2</sup>
S04T_TAPO	Ammonia-N + Nitrate-N	10	1.1	1.16	1.35	1.26

NS = Not Sampled

1. Nitrite-N concentrations are not monitored as part of the VCAILGMP, however, levels of nitrite are typically insignificant compared to the other nitrogen compounds that are measured.
2. Not sampled due to lack of flow or site was dry.
3. Monitoring site was not accessible due to construction activities.

## Revised Upper Santa Clara River Chloride TMDL

### Load Allocations

The chloride LA applies to reaches 4B, 5, and 6 of the Santa Clara River. There is one VCAILG monitoring site, S04T\_TAPO, which drains to reach 4B. The remaining reaches are located within Los Angeles County.

**Table 58. Load Allocation for Chloride**

Constituent	Load Allocation (mg/L) <sup>1</sup>
Chloride	100

1. Allocation applies as a 3-month rolling average.

### Monitoring Results

According to the Upper Santa Clara River Chloride TMDL source analysis, nonpoint sources are not a major chloride source. Additionally, in the 2020 AMR<sup>9</sup>, VCAILG submitted monitoring data and geologic evidence that elevated chloride levels at the S04T\_TAPO monitoring site are due to natural sources and not the result of irrigated agricultural discharges. The *Ag Order* compliance date for the Chloride TMDL was October 14, 2020. While site S04T\_TAPO exceeded the Chloride TMDL load allocation during two events conducted during the 2023-2024 monitoring year, the exceedances do not trigger discharge limitations due to irrigated agriculture not being the source of the exceeding chloride concentrations.

Table 58 includes the results for samples collected during VCAILG monitoring events. The site was sampled and had flow during all monitoring events.

**Table 59. Chloride Load Allocation Compared to S04T\_TAPO Site Data**

Site	Constituent	LA <sup>1</sup> (mg/L)	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
S04T_TAPO <sup>2</sup>	Chloride	100	<b>260</b>	86	57	<b>213</b>

**Bold** numbers indicate the value is greater than the Load Allocation.

1. While the load allocation is a 3-month rolling average, the data provided in this table consists of single samples.
2. Per discussion with Regional Board staff on June 24, 2024, elevated concentrations of chloride are caused by natural sources and do not trigger discharge limitations.

## Santa Clara River Estuary Toxaphene TMDL

The Santa Clara River Estuary Toxaphene TMDL was adopted as a single regulatory action in the 2010 *Conditional Waiver*. The *Conditional Waiver/Ag Order* and Appendix 3, Monitoring and Reporting Requirements, specify the following constituents be monitored as part of this TMDL: chlordane, dieldrin, and toxaphene. The constituents are also required to be analyzed in various media: fish tissue (every three years in the Estuary), water, and suspended sediment (during wet weather events). Under the 2017 MRP, two sites were selected to meet the TMDL

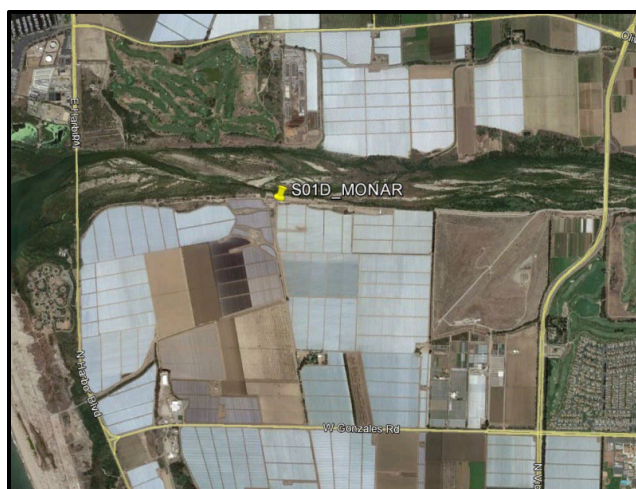
<sup>9</sup> Larry Walker Associates. 2020. Ventura County Agricultural Irrigated Lands Group (VCAILG) 2020 Annual Monitoring Report. Submitted to Los Angeles Regional Water Quality Control Board. December 15, 2020.

requirement, with one water quality monitoring site representing agricultural discharges directly to the Estuary, and one site representing discharge to the Santa Clara River upstream of the Estuary. The VCAILGMP site S02T\_ELLS is monitored as the upstream TMDL site by collecting additional sample volume for suspended sediment analysis, which is not part of normal *Ag Order* monitoring. Site S01D\_MONAR was selected to represent agricultural discharges to the Estuary. A description of S02T\_ELLS was provided previously. Analogous information regarding S01D\_MONAR is provided below.

### S01D\_MONAR

This monitoring site is located on an agricultural drain that discharges directly to the Santa Clara River Estuary between Harbor Boulevard and Victoria Avenue.

#### Site Map



#### View downstream towards Estuary



#### Load Allocations

The *Conditional Waiver* incorporated toxaphene LAs for suspended sediment and fish tissue as Water Quality Benchmarks, shown in the table below.

**Table 60. Load Allocations for Toxaphene**

Reach	Toxaphene in Fish Tissue (µg/kg)	Toxaphene in Suspended Sediment (µg/kg)
Santa Clara River Estuary	6.1	0.1

#### Monitoring Results

LAs for the Santa Clara River Estuary Toxaphene TMDL were established for toxaphene measured in fish tissue and suspended sediment. Additionally, monitoring of chlordane and dieldrin is required; however, these constituents do not have LAs. In the VCAILG QAPP, it was specified that, if possible, targeted fish should be those that are commonly consumed by humans but based on the results of other studies in the estuary, that may not be feasible. Fish

were previously collected in summer 2021 and results were reported in the 2020-21 AMR. Fish sampling was planned for completion during this reporting year. However, the approval of the California Department of Fish and Wildlife (CDFW) Scientific Collecting Permit Specific Use application was delayed due to technical issues with the CDFW online portal, preventing sampling from taking place as scheduled. Fish sampling occurred on September 23, 2024, and results will be reported in the 2024-2025 AMR.

The results of water and suspended sediment monitoring for the Santa Clara River Estuary Toxaphene TMDL are presented in Table 61, which lists exceedances of the toxaphene suspended sediment LA during Event 60 at site S02T\_ELLS and during Events 59 and 60 at site S01D\_MONAR.

**Table 61. Santa Clara River Estuary Toxaphene TMDL Monitoring Data: Water and Suspended Sediment**

Site	Constituent	Units	Load Allocation	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
S02T_ELLS	<b>Water</b>						
	TSS	mg/L	---	310	4,400	6,320	ND
	Chlordane <sup>1</sup>	µg/L	---	0.00361	ND	DNQ	ND
	Dieldrin	µg/L	---	ND	ND	ND	ND
	Toxaphene	µg/L	---	ND	0.773	ND	ND
	<b>Suspended Sediment</b>						
	Chlordane <sup>1</sup>	µg/dry kg	---	NR	ND	DNQ	NR
	Dieldrin	µg/dry kg	---	NR	ND	ND	NR
S01D_MONAR	Toxaphene	µg/dry kg	0.1	NR	ND	<b>196</b>	NR
	<b>Water</b>						
	TSS	mg/L	---	NS <sup>2</sup>	450	1,980	17.3
	Chlordane <sup>1</sup>	µg/L	---	NS <sup>2</sup>	0.01059	0.0558	DNQ
	Dieldrin	µg/L	---	NS <sup>2</sup>	ND	ND	ND
	Toxaphene	µg/L	---	NS <sup>2</sup>	2.03	4.97	0.0727
	<b>Suspended Sediment</b>						
	Chlordane <sup>1</sup>	µg/dry kg	---	NR	54.6	73.4	NR
	Dieldrin	µg/dry kg	---	NR	ND	7.42	NR
	Toxaphene	µg/dry kg	0.1	NR	<b>5,200</b>	<b>3,060</b>	NR

**Bold** numbers indicate the value is greater than the Load Allocation.

DNQ = Detected, not qualified

NS = Not Sampled.

ND = Not detected at the applicable reporting limit.

NR = Not Required; filtered sediment sampling is only required during wet weather sampling events.

1. Reported total chlordane is the sum of alpha- and gamma-chlordane.

2. Site not sampled due to site being dry.

## Santa Clara River Bacteria TMDL

The Santa Clara River Bacteria TMDL includes monitoring and reporting requirements as well as TMDL numeric targets and allowable exceedance days, which were included in the *Conditional Waiver/Ag Order* as water quality benchmarks. The TMDL identifies two different sets of targets: those applicable to the Santa Clara River Estuary which is monitored at site S01D\_MONAR under the 2017 MRP, and those for Reaches 3, 5, 6 & 7 which is monitored on Reach 3 at site S03D\_BARDS (Reaches 5, 6, & 7 are located in Los Angeles County).

### Load Allocations

Table 62 provides the numeric targets for bacteria. Table 63 provides the final allowable number of exceedance days.<sup>10</sup> On March 21, 2023, the final allowable exceedance dates for dry weather became effective.

**Table 62. Santa Clara River Bacteria TMDL, Numeric Targets**

Objective	Constituent	Numeric Target: S01D_MONAR <sup>1</sup>	Numeric Target: S03D_BARDS <sup>2</sup>
Single Sample	<i>E. coli</i>	NA	235/100 mL
	Fecal Coliform	400/100 mL	NA
	Enterococcus	104/100 mL	NA
	Total coliform <sup>3</sup>	10,000/100 mL	NA
Geometric Mean <sup>4</sup>	<i>E. coli</i>	NA	126/100 mL
	Fecal Coliform	200/100 mL	NA
	Enterococcus	35/100 mL	NA
	Total coliform	1,000/100 mL	NA

NA = Not Applicable

1. S01D\_MONAR sampling location discharges to the Santa Clara River Estuary.
2. S03D\_BARDS sampling location discharges to Santa Clara River Reach 3.
3. Total coliform density shall not exceed 1,000/100 mL, if the ratio of fecal-to-total coliform exceeds 0.1.
4. Geometric mean targets are not in effect for wet weather until 2029.

<sup>10</sup> As noted in Appendix 5 of the *Conditional Waiver and Ag Order*, the calculated number of exceedance days assumes that daily sampling is conducted. A ratio is used to determine the number of allowable exceedances for less frequent sampling.



**Table 63. Santa Clara River Bacteria TMDL, Final Allowable Exceedance Days<sup>1</sup>**

Time Period	Santa Clara River Estuary	Santa Clara River Reaches 3,5,6, & 7
	S01D_MONAR	S03D_BARDS
Dry Weather	Not Applicable	5 allowable exceedance days of single sample objectives
		0 allowable exceedance days of geometric mean objectives
Wet Weather <sup>2</sup>	25 allowable exceedance days of single sample objectives	16 allowable exceedance days of single sample objectives
	0 allowable exceedance days of geometric mean objectives	0 allowable exceedance days of geometric mean objectives
Summer Dry Weather (April 1 – October 31)	10 allowable exceedance days of single sample objectives	Not Applicable
	0 allowable exceedance days of geometric mean objectives	
Winter Dry Weather (November 1 – March 31)	12 allowable exceedance days of single sample objectives	Not Applicable
	0 allowable exceedance days of geometric mean objectives	

1. The calculated number of exceedance days assumes that daily sampling is conducted. To determine the number of allowable exceedances for less frequent sampling, a ratio is used.

2. Wet weather is defined as days of 0.1 inch of rain or more plus three days following the rain event.

### ***Monitoring Results***

In accordance with the MRP approved under the 2016 *Conditional Waiver*, the monitoring requirements for agriculture for the Santa Clara River Bacteria TMDL were addressed through baseline monitoring during the 2016-2017 and 2017-2018 monitoring years. Monitoring resumed during the 2022-23 reporting period. Table 64 presents results of monitoring conducted during the current reporting period. Table 65 presents the comparison of sample results to the final allowable exceedance days.

**Table 64. Santa Clara River Bacteria TMDL Monitoring Data**

	Objective Type	Numeric Target	Event 58 <sup>SD</sup> Dry Sep-2023	Event 59 <sup>W</sup> Wet Jan-2024	Event 60 <sup>W</sup> Wet Feb-2024	Event 60 <sup>SD</sup> Dry Jun-2024
<b>S01D_MONAR</b>						
Enterococcus (MPN/100 mL)	SSM	104	NS	<b>10,760</b>	<b>1,200</b>	<b>200</b>
	GM	35	NS	<b>10,760</b>	<b>3,593</b>	<b>200</b>
Fecal Coliform (MPN/100 mL)	SSM	400	NS	<b>3,300</b>	<b>2,300</b>	<b>3,300</b>
	GM	200	NS	<b>3,300</b>	<b>2,755</b>	<b>3,300</b>
Total Coliform (MPN/100 mL)	SSM	10,000 <sup>1</sup>	NS	<b>&gt;241,960</b>	<b>&gt;241,960</b>	<b>7,900</b>
	GM	1,000	NS	<b>&gt;241,960</b>	<b>&gt;241,960</b>	<b>7,900</b>
<b>S03D_BARDS</b>						
<i>E. coli</i> (MPN/100 mL)	SSM	235	NS	<b>19,180</b>	<b>12,910</b>	NS
	GM	126	NS	<b>19,180</b>	<b>15,736</b>	NS

**Bold** numbers indicate the value is greater than the Numeric Target.

NS = Not Sampled; site either dry or ponded.

SSM = Single sample maximum

GM = 30-day geometric mean

WD = Winter dry weather

W = Wet weather sample (days of 0.1 inch of rain or more plus three days following the rain event)

SD = Summer dry weather

1. Total coliform density shall not exceed 1,000/100 mL, if the ratio of fecal-to-total coliform exceeds 0.1.

**Table 65. SCR Bacteria TMDL Exceedance Days: Allowable Exceedance Days and Exceeded Days**

Events/Exceedances	Santa Clara River Reaches 3,5,6, & 7		Santa Clara River Estuary		
	S03D_BARDS		S01D_MONAR		
	Dry Weather	Wet Weather	Summer Dry Weather (April 1 – October 31) <sup>3</sup>	Winter Dry Weather (November 1 – March 31) <sup>4</sup>	Wet Weather
Single Sample Objectives					
Allowable Exceedance Days (ratio applied) <sup>1,2</sup>	0	0	0	NA	0
Days Exceeded	0	<b>2</b>	<b>1</b>	NA	<b>2</b>
30-day Geometric Mean Objectives					
Allowable Exceedance Days	0	0	0	NA	0
Days Exceeded	0	<b>2</b>	<b>1</b>	NA	<b>2</b>

**Bold** numbers indicate that the number of Allowable Exceedance Days has been exceeded.

- Allowable exceedance days are calculated by the following equation: Allowable Exceedance Days = (Number of sampling days conducted during time period / Number of days during 1995 time period) x Allowable exceedance days (interim/final)
  - Number of days during 1995: Wet days = 81; Dry days = 284
- Consistent with the Santa Monica Bay Beaches TMDL, where the fractional remainder for the calculated allowable exceedance days exceeds 1/10th then the number of days is rounded up (e.g., 4.12 is rounded up to 5). In instances where the tenth decimal place for the allowable exceedance days (or weeks or months) is lower than 1/10th then the number of days is rounded down (e.g., 4.02 is rounded down to 4).
- Summer Dry Weather (April 1 – October 31).
- Winter Dry Weather (November 1 – March 31).

## Ventura River Watershed

Effective TMDLs for the Ventura River Watershed are discussed below.

### Ventura River Algae TMDL

The Ventura River Algae TMDL became effective on June 28, 2013. Load allocations for this TMDL were added to the 2016 *Conditional Waiver* as water quality benchmarks. Monitoring is performed to evaluate compliance with the Algae TMDL at the two VCAILGMP sites located in the upper watershed (VRT\_SANTO and VRT\_THACH; both drain to Reach 4 of the Ventura River) in conjunction with the *Ag Order* Appendix 3, Table 1 constituents monitored regionwide. Site descriptions and images were provided above for VRT\_SANTO and VRT\_THACH. Additionally, the Algae TMDL required that the VCAILG monitoring program include an additional location to represent agricultural discharges in the lower watershed, which also represents crop types not included in the drainage areas to VRT\_SANTO and VRT\_THACH. This directive was incorporated into the 2016 *Conditional Waiver*. To meet this requirement, site V02D\_SPM was added to the 2017 VCAILG MRP to be sampled for Algae TMDL constituents. This site is located in a drainage channel that discharges to a riparian forest adjacent to Reach 2 of the Ventura River.<sup>11</sup> V02D\_SPM site information is provided below.

Flow was observed at VRT\_SANTO during dry weather Event 61, but samples were not collected after site investigation was performed in the site drainage area and determined that there were no surface water contributions from agriculture. Field staff observed two drainage channels that connect to the San Antonio Creek and both were found to be completely dry further confirming no irrigation discharges. San Antonio Creek was accessed at two additional locations upstream of the VRT\_SANTO monitoring site: at the upper end of where irrigated agriculture is located within the monitoring site drainage and approximately mid-way between the upper end location and the VRT\_SANTO site. The observations confirmed significant flow entering the monitoring site drainage area from open space and upstream of any agricultural influence. Flow during Event 61 was attributed to the unusually wet water year and late season rains occurring during the months of May and June, 2024<sup>12</sup>. Field observations and photo documentation of site recon relating to Event 61 are available in Appendix B and Appendix D.

### V02D\_SPM

This site is an agricultural drainage channel that crosses SP Milling Road.

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<sup>11</sup> Receiving water monitoring for the Algae TMDL is conducted separately by the TMDL responsible parties (of which VCAILG is a member) in accordance with the Oct. 20, 2014, Algae TMDL Comprehensive Monitoring Plan.

<sup>12</sup> <https://www.vcwatershed.net/fws/reports/rain-season-report>

## Site Map

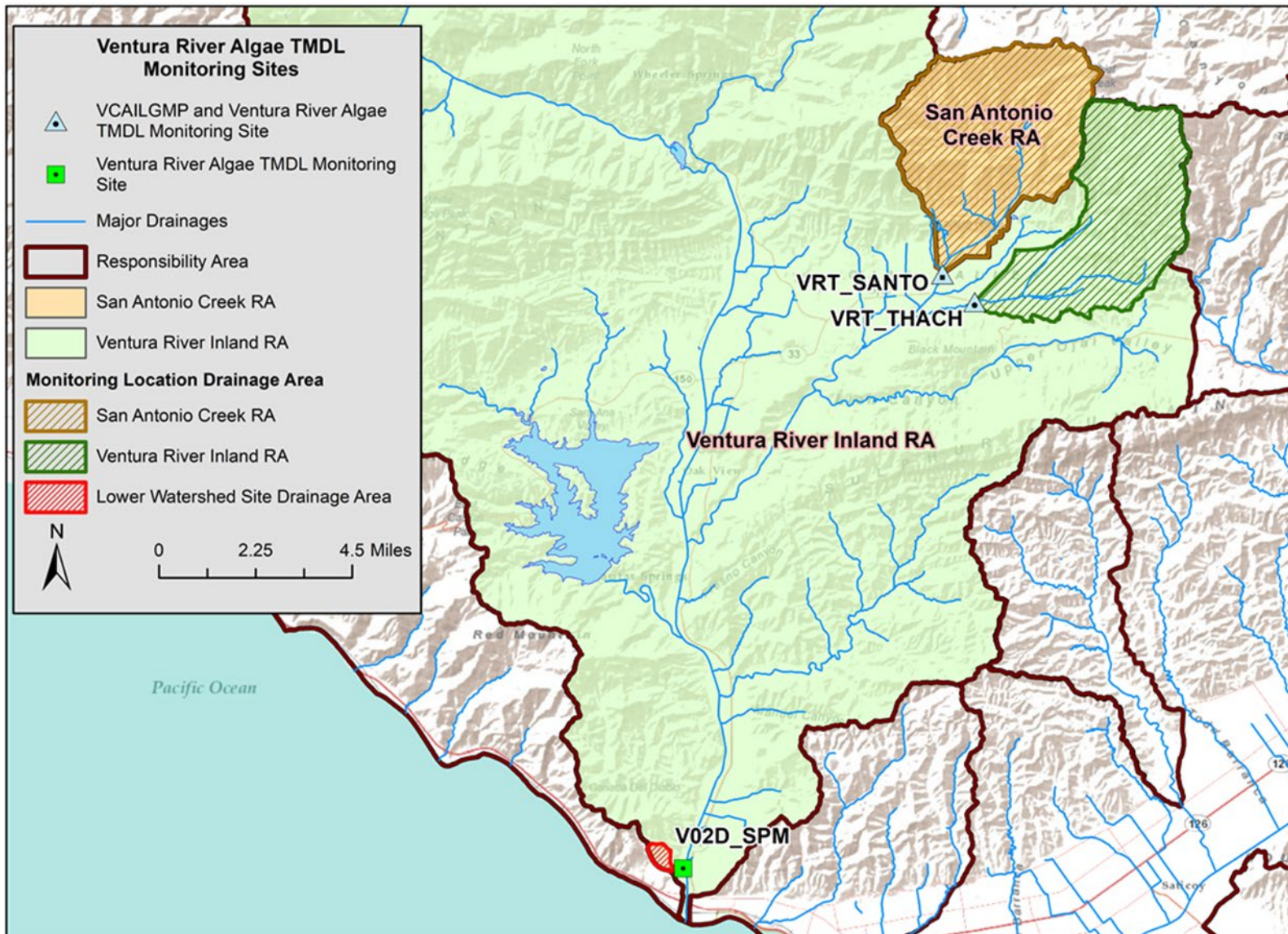


## View Upslope



The figure below presents the site drainage areas for each of the three monitoring locations where data are compared to the Algae TMDL LAs. The drainage area for sites VRT\_SANTO and V02D\_SPM are their own responsibility areas. The crop type distribution in the drainage area for VRT\_THACH is more representative of the greater Ventura River Watershed. Therefore, VRT\_THACH is the site used to evaluate TMDL compliance for the Ventura River Inland Responsibility Area (RA) which encompasses the Ventura River Watershed, except for the drainage areas of VRT\_SANTO and V02D\_SPM.





**Figure 11. Ventura River TMDL Monitoring Sites with Associated Drainage and Responsibility Areas**



The Algae TMDL compliance date specified in the *Ag Order* is June 28, 2019. Dry weather LAs are provided in Table 66, and wet weather LAs are provided in Table 67. Monitoring results for the Ventura River Algae TMDL are presented in Table 68 and Table 69.

### Load Allocations

**Table 66. Dry Weather Load Allocations for the Ventura River Algae TMDL**

Constituent	Load Allocation	
	(lbs/day) <sup>1</sup>	(lbs/day/acre) <sup>2</sup>
Total Nitrogen	16	0.008
Total Phosphorus	0.12	0.000063

1. Daily load applies to the aggregate irrigated agricultural acreage in the watershed.
2. Values are translators provided on p. 12 of the Algae TMDL BPA. Monitoring results are weighted by irrigated agricultural acreage draining to a monitoring site.

**Table 67. Wet Weather Load Allocations for the Ventura River Algae TMDL**

Site	Constituent	Load Allocation (mg/L)
VRT_THACH <sup>1</sup>	Nitrate-N + Nitrite-N	5
VRT_SANTO <sup>1</sup>	Nitrate-N + Nitrite-N	5
V02D_SPM <sup>2</sup>	Nitrate-N + Nitrite-N	10

1. Sampling site drains to Reach 4
2. Sampling site drains to Reach 2

### Monitoring Results

Flow was not present at any of the three TMDL monitoring sites during the dry weather sampling Events 58 and 61. Sites VRT\_SANTO and VRT\_THACH also had no flow during wet weather Event 59. Site V02D\_SPM had flow and was sampled during wet weather Events 59 and 60. No exceedances were recorded during the current monitoring year.

**Table 68. Dry Weather Ventura River Algae TMDL Site Data**

Site	Constituent	Load Allocation (lbs/day/acre)	Event 58 Dry Sep-2023	Event 61 Dry Jun-2024
VRT_THACH	Total Nitrogen	0.008	NS	NS
	Total Phosphorus	0.000063		
VRT_SANTO	Total Nitrogen	0.008	NS	Nag
	Total Phosphorus	0.000063		
V02D_SPM	Total Nitrogen	0.008	NS	NS
	Total Phosphorus	0.000063		

**Bold** numbers indicate the value is greater than the Load Allocation.

NS = Not sampled, site dry.

Nag = Non-ag; flow was observed at the monitoring site but extensive field reconnaissance documented no discharge from agriculture to the tributary. Flow was present due to the significant rainfall during the water year and late season rains.

**Table 69. Wet Weather Ventura River Algae TMDL Site Data**

Site	Constituent	Units	Load Allocation	Event 59 Wet Jan-2023	Event 60 Wet Feb-2024
VRT_THACH	Nitrate-N + Nitrite-N	mg/L	5	NS	1.5
VRT_SANTO	Nitrate-N + Nitrite-N	mg/L	5	NS	0.94
V02D_SPM	Nitrate-N + Nitrite-N	mg/L	10	3.62	7.38

NS = Not sampled, site dry

### ***Ventura River Estuary Trash TMDL***

The Ventura River Estuary Trash TMDL is addressed through a separate monitoring and reporting program, with the annual report submitted on December 15<sup>th</sup>. For additional information, please refer to the “2023-2024 Ventura River Estuary Trash TMDL TMRP/MFAC Annual Report”. The next annual report is due December 15, 2024.

## Oxnard Plain

### Harbor Beaches of Ventura County Bacteria TMDL

The Harbor Beaches of Ventura County Bacteria TMDL does not specify LAs for agricultural dischargers but does include a provision for monitoring. The 2017 QAPP specified a site, monitoring frequency, and constituents to comply with the implementation actions specified for agricultural dischargers in the TMDL. A site description, map, and photo are provided below for the site used to evaluate agricultural discharges upstream of the Channel Islands Harbor.

#### CIHD\_VICT

The monitoring site is located along Victoria Avenue, just north of Doris Avenue and the Doris Drain.

#### Site Map



#### View at sampling point looking upstream



#### Monitoring Data

As specified in the 2016 QAPP, the CIHD\_VICT site is visited at the same frequency as *Conditional Waiver/Ag Order* monitoring sites. During each event, flow and field meter parameters are measured in addition to water samples collected for bacteria testing. Flow was present at this site during Events 58, 59, and 60. Table 70 provides monitoring information results.

**Table 70. Harbor Beaches of Ventura County Bacteria TMDL Monitoring Data**

Event	Bacteria Concentrations (MPN/100mL)			
	<i>E. coli</i>	Fecal Coliform	Total Coliform	<i>Enterococcus</i>
58: 9/25/2023	1,300	1,300	24,000	2,420
59: 1/22/2024	1,600	1,100	>241,960	10,760
60: 2/1/2024	1,600	1,700	>241,960	2,460
61: 6/11/2024	NS <sup>1</sup>			

1. NS = Site not sampled due to site being dry.

### **McGrath Lake PCBs, Pesticides, and Sediment Toxicity TMDL**

The TMDL for PCBs, Pesticides, and Sediment Toxicity in McGrath Lake became effective June 30, 2011; after the adoption of the 2010 *Conditional Waiver*. To comply with the 2016 *Conditional Waiver* and subsequent extensions, the 2017 VCAILG QAPP and MRP were written to include the Phase 1 Central Ditch monitoring specified in the McGrath Lake TMDL. Inclusion of monitoring data within this AMR also fulfills the TMDL requirement for annual reporting. The existing VCAILGMP site, OXD\_CENTR, is located at the Central Ditch, which drains into McGrath Lake. Information and *Conditional Waiver/Ag Order* monitoring results related to this site can be found in the Water Quality Monitoring Results section. Water quality data collected at the OXD\_CENTR site that pertains to this TMDL is summarized below and compared to the load allocation benchmarks. The final compliance date for the McGrath Lake TMDL in the *Ag Order* is June 30, 2021.

#### ***TMDL Monitoring and Load Allocations***

The McGrath Lake PCBs, Pesticides, and Sediment Toxicity TMDL includes the following LAs (Table 71).

**Table 71. McGrath Lake Central Ditch Load Allocations**

<b>Constituent</b>	<b>Water Column Load Allocation (µg/L)</b>	<b>Suspended Sediment Load Allocation (µg/dry kg)</b>
Chlordane	0.00059	0.5
Dieldrin	0.00014	0.02
4,4'-DDD	0.00084	2
4,4'-DDE	0.00059	2.2
4,4'-DDT	0.00059	1
Total DDT	---	1.58
Total PCBs	0.00017	22.7

#### ***Monitoring Results***

Water sampling occurred concurrently with VCAILG monitoring and included the addition of total organic carbon (TOC) and PCBs. Water quality data and suspended sediment data are presented in Table 72 and Table 73, respectively. Per the QAPP, water column sampling is to occur during every monitoring event and sampling for suspended sediment is to take place during wet weather.

No flow was observed during dry weather Events 58 and 61, therefore no samples were collected during these Events. Exceedances of the 4,4'-DDD; 4,4'-DDE; and total chlordane water column LAs occurred during Events 59 and 60. An exceedance of the 4,4'-DDT water column LA occurred during Event 60. Exceedances of the 4,4'-DDD; 4,4'-DDE; 4,4'-DDT, dieldrin,

total chlordane; and total DDT suspended sediment LAs were observed during Events 59 and 60.

**Table 72. McGrath Lake TMDL Central Ditch Monitoring Data in Water: OXD\_CENTR**

Constituents in Water	Units	Water LA	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
TOC	mg/L	---	NS	31	13.8	NS
TSS	mg/L	---	NS	130	365	NS
Total PCBs <sup>1</sup>	µg/L	0.00017	NS	ND	ND	NS
4,4'-DDD	µg/L	0.00084	NS	<b>0.0225</b>	<b>0.241</b>	NS
4,4'-DDE	µg/L	0.00059	NS	<b>0.0882</b>	<b>0.344</b>	NS
4,4'-DDT	µg/L	0.00059	NS	ND	<b>0.256</b>	NS
Dieldrin	µg/L	0.00014	NS	ND	ND	NS
Total Chlordane <sup>2</sup>	µg/L	0.00059	NS	<b>0.00673</b>	<b>0.01103</b>	NS

**Bold** numbers indicate the value is greater than the Load Allocation.

ND = Not detected at the applicable reporting limit.

NS = Not sampled due to no flow and stagnate conditions.

1. Total PCBs include the 7 aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, 1260).

2. Total chlordane is considered the sum of alpha- and gamma-chlordane.

**Table 73. McGrath Lake TMDL Central Ditch Monitoring Data in Suspended Sediment: OXD\_CENTR**

Constituents in Sediment	Units	Sediment LA	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
TOC	% Dry Weight	---	NR <sup>3</sup>	3.07	1.97	NR <sup>3</sup>
Total PCBs <sup>1</sup>	µg/dry kg	22.7		ND	ND	
4,4'-DDD	µg/dry kg	2		<b>373</b>	<b>696</b>	
4,4'-DDE	µg/dry kg	2.2		<b>1,250</b>	<b>1,780</b>	
4,4'-DDT	µg/dry kg	1		<b>517</b>	<b>593</b>	
Dieldrin	µg/dry kg	0.02		<b>32.4</b>	<b>17</b>	
Total Chlordane <sup>2</sup>	µg/dry kg	0.5		<b>21.8</b>	<b>27.1</b>	
Total DDT	µg/dry kg	1.58		<b>2,419</b>	<b>3420</b>	

NR = Not Required

ND = Not detected at the applicable reporting limit.

1. Total PCBs include the 7 aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, 1260).

2. Total chlordane is considered the sum of alpha- and gamma-chlordane.

3. Sampling for suspended sediments is only required during wet weather.

### Oxnard Drain #3 Pesticides, PCBs and Sediment Toxicity TMDL

The USEPA established the Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL, which became effective October 6, 2011. The final compliance date for load allocations is April 14, 2026. TMDL load allocations were incorporated into the 2016 *Conditional Waiver* as water quality benchmarks. To evaluate agricultural discharges progress in attaining this TMDL, the 2017 MRP and QAPP include a monitoring site as well as specifics regarding monitoring frequency and constituents for comparison to the LAs. This TMDL includes LAs for water and sediment, which are presented in Table 74. Sampling is conducted during four monitoring events for comparison to the water allocations, and during one dry weather event for the sediment allocations.

**Table 74. Oxnard Drain No. 3 TMDL Load Allocations**

Constituents	Water Allocations (µg/L)	Sediment (µg/dry kg) <sup>1</sup>	Alternate Sediment (µg/dry kg) <sup>2</sup>
Bifenthrin <sup>3</sup>	0.0006	-	-
Chlordane, total <sup>5</sup>	0.00059	0.5	3.3
Chlorpyrifos <sup>4</sup>	0.0056	-	-
4,4'-DDT	0.00059	1	0.3
4,4'-DDE	0.00059	2.2	2.2
4,4'-DDD	0.00084	2	2
Dieldrin	0.00014	0.02	4.3
PCBs, total <sup>6</sup>	0.00017	22.7	180
Toxaphene	0.0002	0.1	360
Sediment Toxicity	-	No significant chronic sediment toxicity	-

Note: Footnotes 1 through 4 are taken directly from Appendix 5 of the *Ag Order*. Fish monitoring was not required of VCAILG and has not been performed in Oxnard Drain #3; therefore, it is the “sediment” allocations that apply to the VCAILG monitoring data.

1. Sediment concentrations associated with suspended sediment and Oxnard Drain #3 bottom sediment. Sediment allocations apply if there are fish tissue or sediment toxicity exceedances. All sediment allocations are Effects Range Low (ERL), except toxaphene. Toxaphene does not have an ERL, so the Threshold Effects Level (TEL) concentration was selected.
2. Sediment concentrations associated with suspended sediment and Oxnard Drain #3 bottom sediment. The alternate sediment allocation applies when the fish tissue target and the sediment toxicity allocation are achieved in Oxnard Drain 3. The alternate sediment allocation concentrations match the Mugu Lagoon TMDL allocations.
3. Bifenthrin allocations included to address the sediment toxicity impairment.
4. Chlorpyrifos allocations included to address the sediment toxicity impairment.
5. Total chlordane is considered the sum of alpha- and gamma-chlordane.
6. Total PCBs include the 7 aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, 1260).

### Monitoring Results

Monitoring data for water quality is provided in Table 75. Water LA exceedances of bifenthrin, 4,4'-DDT, 4,4'-DDE, and 4,4'-DDD, and toxaphene were observed during Events 58, 60, and 61. Exceedances of water LAs for total chlordane occurred during Events 60 and 61. Sediment monitoring results are provided in Table 76, with the results showing an exceedance of



Toxaphene. With regards to sediment toxicity, there was significant reduction in survival, and no significant reduction in growth for *Hyalella*.

**Table 75. Oxnard Drain No. 3 TMDL Monitoring Data in Water: 01T\_ODD3\_EDI**

Constituents	Water Allocations (µg/L)	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
Bifenthrin	0.0006	<b>0.00384</b>	NS	<b>0.0495</b>	<b>0.00126</b>
Chlordane, total <sup>2</sup>	0.00059	DNQ	NS	<b>0.01161</b>	<b>0.00297</b>
Chlorpyrifos	0.0056	ND	NS	ND	ND
4,4'-DDT	0.00059	<b>0.00209</b>	NS	<b>0.0811</b>	<b>0.0142</b>
4,4'-DDE	0.00059	<b>0.00521</b>	NS	<b>0.0946</b>	<b>0.027</b>
4,4'-DDD	0.00084	<b>0.00592</b>	NS	<b>0.0561</b>	<b>0.0103</b>
Dieldrin	0.00014	ND	NS	ND	ND
PCBs, total <sup>1</sup>	0.00017	ND	NS	ND	ND
Toxaphene	0.0002	<b>0.516</b>	NS	<b>1.97</b>	<b>0.147</b>

**Bold** numbers indicate the value is greater than the Load Allocation.

ND = Not Detected at the applicable reporting limit.

NS = Not sampled. The monitoring site was not accessible during this event.

DNQ = Detected, not qualified.

1. Total PCBs include the 7 aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, 1260).

2. Total chlordane is considered the sum of alpha- and gamma-chlordane.

**Table 76. Oxnard Drain No. 3 TMDL Monitoring Data in Sediment: 01T\_ODD3\_EDI**

Constituents	Sediment Allocations (µg/dry kg)	Event 58 Dry Sep-2023	Event 59 Wet Jan-2024	Event 60 Wet Feb-2024	Event 61 Dry Jun-2024
Chlordane, total <sup>2</sup>	0.5	11.48	NR	NR	NR
4,4'-DDT	1	ND			
4,4'-DDE	2.2	91.3			
4,4'-DDD	2	27.4			
Dieldrin	0.02	ND			
PCBs, total <sup>1</sup>	22.7	ND			
Toxaphene	0.1	230			
Sediment Toxicity	No significant chronic sediment toxicity	Significant reduction in survival, and no significant reduction in growth.			

**Bold** numbers indicate the value is greater than the Load Allocation.

ND = Not Detected at the applicable reporting limit.

NR = Not Required; sediment monitoring is done annually.

1. Total PCBs include the 7 aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, 1260).

2. Total chlordane is considered the sum of alpha- and gamma-chlordane.

## Malibu Creek Watershed

Two TMDLs exist for the Malibu Creek Watershed: the 2013 Malibu Creek and Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments (2013 Benthic TMDL), and the 2003 Malibu Creek Watershed Nutrients TMDL (2003 Nutrient TMDL).

### *TMDL Monitoring and Load Allocations*

Load allocations for the Malibu Creek Watershed TMDLs were incorporated into the 2016 *Conditional Waiver*. At this time, a very small number of Ventura County farmers operate in the Malibu Creek Watershed, and no monitoring site for VCAILG purposes has been designated in the watershed. Instead, monitoring results from site 05T\_HONDO are used as “proxy” results to compare with Malibu Creek Watershed TMDLs LAs. LAs for the Benthic and Nutrients TMDLs are provided in Table 77 and Table 78, respectively. The summer season is defined from April 15<sup>th</sup> to November 15<sup>th</sup> and the winter season is defined from November 16<sup>th</sup> to April 14<sup>th</sup>.

**Table 77. 2013 Benthic TMDL Load Allocations**

Constituent	Season	Load Allocation (mg/L)
Total Nitrogen	Summer	0.65
	Winter	1.00
Total Phosphorus	Summer	0.10
	Winter	0.10

**Table 78. 2003 Nutrient TMDL Load Allocations**

Constituent	Season	Load Allocation	Units
Total Nitrogen	Summer	3	lbs/day
Total Phosphorus		0.2	lbs/day
Nitrogen (nitrate-N + nitrite-N)	Winter	8	mg/L

### *Monitoring Results*

Monitoring results for the Benthic TMDL are provided in Table 79. No samples were collected during dry weather Events 58 and 61 due to dry conditions. Exceedances of the concentration-based total nitrogen and total phosphorus Benthic TMDL LAs occurred during wet weather Events 59 and 60. Monitoring results for the Nutrients TMDL are presented in Table 80. No exceedances were observed for the Nutrients TMDL during the current monitoring period.

**Table 79. 2013 Benthic TMDL Monitoring Data: 05T\_HONDO**

Constituent	Event	Season	Load Allocation (mg/L)	Result (mg/L)
Total Nitrogen	58: 9/25/2023	Summer	0.65	NS <sup>1</sup>
	59: 1/22/2024	Winter	1.00	<b>4.52</b>
	60: 2/1/2024	Winter	1.00	<b>3.47</b>
	61: 6/11/2024	Summer	0.65	NS <sup>1</sup>
Total Phosphorus	58: 9/25/2023	Summer	0.10	NS <sup>1</sup>
	59: 1/22/2024	Winter	0.10	<b>11.2</b>
	60: 2/1/2024	Winter	0.10	<b>4.79</b>
	61: 6/11/2024	Summer	0.10	NS <sup>1</sup>

**Bold** numbers indicate the value is greater than the Load Allocation.

NS = Not Sampled

1. Site dry

**Table 80. 2003 Nutrient TMDL Monitoring Data: 05T\_HONDO**

Constituent	Event	Season	Load Allocation	Units	Result
Total Nitrogen	58: 9/25/2023	Summer	3	lbs/day	NS <sup>1</sup>
	61: 6/11/2024	Summer	3	lbs/day	NS <sup>1</sup>
Total Phosphorus	58: 9/25/2023	Summer	0.2	lbs/day	NS <sup>1</sup>
	61: 6/11/2024	Summer	0.2	lbs/day	NS <sup>1</sup>
Nitrogen (nitrate-N + nitrite-N)	59: 1/22/2024	Winter	8	mg/L	3.65
	60: 2/1/2024	Winter	8	mg/L	3.40

NS = Not Sampled

1. Site dry

## WQMP PROGRESS REPORT

The *Ag Order* specifies that a WQMP Progress Report include the following components for each responsibility area:

- List of enrolled and non-enrolled parcels (refer to Appendix A – VCAILG Parcel Enrollment Summary)
- Copies of outreach materials (mailings, handouts from education classes)
- Report on members who have and have not completed:
  - Field-level reports (Farm Evaluation Surveys)
  - Education requirements
  - ~~INMP or certified INMP~~ (as INMPs are intended to be kept on-farm and not required to be submitted to either VCAILG or the Regional Board, completion of INMPs can only be determined through a request from the Regional Board to the enrolled member, therefore a completion list cannot be produced by VCAILG)

- INMR (first due March 1, 2026; therefore, producing a completion list is not applicable at this time)

## OUTREACH MATERIALS

During the reporting period for this annual report, VCAILG members have been sent mailed and electronic communications informing them of their responsibilities to comply with the *Conditional Waiver/Ag Order* and keep them apprised of the overall program activities including the adoption of the waiver extension. Communications can be summarized as follows:

- Education meeting notices and handouts
- VCAILG newsletters
- Website updates
- Updates regarding the waiver renewal process and opportunities to comment
- TMDL exceedance notifications, where applicable

VCAILG has been implementing the Outreach Plan outlined in the 2018 Water Quality Management Plan (WQMP) and updated in the 2020 WQMP. Copies of the mailings and emails are included as Appendix I. Detailed information regarding VCAILG, links to past reports, and program compliance resources can be accessed from the Farm Bureau website here:

[www.farmbureauvc.com/vcailg/](http://www.farmbureauvc.com/vcailg/). The website also includes a special section dedicated to the WQMP, detailing the responsibility areas and including maps and a lookup file for farmers to determine the correct responsibility area for their farm: [www.farmbureauvc.com/vcailg/water-quality-management-plan/](http://www.farmbureauvc.com/vcailg/water-quality-management-plan/). This is also where VCAILG members may download or print the compliance summary for their specific responsibility area. The compliance summaries have been updated to include the 2020 WQMP versions. The rest of the WQMP content will be updated from the 2018 WQMP upon approval of the 2020 WQMP. Education opportunities have their own dedicated section of the website here:

[www.farmbureauvc.com/vcailg/education/](http://www.farmbureauvc.com/vcailg/education/). This page is continuously updated as additional classes become available. Additionally, VCAILG has developed a BMP Resources page with videos in English and Spanish covering topics important for training farm staff on regulatory requirements and best practices: [www.farmbureauvc.com/vcailg/bmp-resources/](http://www.farmbureauvc.com/vcailg/bmp-resources/).

In an effort to enhance the program interface with enrolled landowners and growers, as well as meet the new requirements of the Ag Order, VCAILG began development of an improved data management system. This new system, called Clearwater, is a comprehensive platform designed for agricultural landowners, operators, and their designated partners. Clearwater will facilitate compliance tracking; submission of surveys, plans, and reports; invoice payment to VCAILG; and maintenance of account and parcel information.

Clearwater itself has been developed and launched in phases, with the initial phase focused on confirming enrollees account and parcel information, viewing and paying annual program assessments, and completing a Farm Evaluation Survey for each enrolled parcel. Future phases will introduce modules for TMDL-Driven Requirements and Irrigation, Nutrient Management Report submissions, and Continuing Education Units. All enrolled landowners and grower operators were provided with unique login credentials to access their enrollment profiles.

Finally, the Farm Bureau YouTube channel includes recordings of past education meetings, instructional videos for using the new Clearwater platform, and other useful resources.

## SURVEY COMPLETION

Farm Evaluation Surveys were completed in September and early October 2024, providing the implementation information necessary for the upcoming VCAILG WQMP to be submitted May 1, 2025, per verbal approval from the Regional Board staff during reoccurring meetings with VCAILG. A list of VCAILG members that did, or did not complete that survey will be included as an appendix to the upcoming VCAILG WQMP.

## EDUCATION REQUIREMENTS

The *Ag Order* requires that dischargers obtain a minimum of two hours of educational training every year. Appendix J lists the attendees of each education class and the credit hours obtained by each VCAILG member between January 1, 2024, and December 15, 2024. Due to the mid-year launch of the Clearwater portal in 2024, significant updates were made to VCAILG IDs to align them with updated landowner and grower information. These updates included account merges and replacements, resulting in changes to many VCAILG IDs. As a result, some of the VCAILG IDs enrolled in the program did not exist earlier in the year when CEU requirements were completed by the corresponding landowner representatives. This is expected to be a one-time issue due to the transition to the new portal. For the year 2024 only, the list in Appendix J should not be used to determine compliance with the CEU requirement.

Seven education classes were offered during 2024. Table 81 lists the education classes and the hours of credit for each class.

**Table 81. Courses for Education Credit – January 1, 2024 through December 15, 2024**

Date	Course Title	Education Hours
3/15/2024	Ventura County Local Working Group Meeting for Growers	2
8/14/2024	2024 Irrigation and Nutrient Management Meeting for Vegetable and Berry Crops	3
8/19/2024	VCAILG Workshop: TMDLs 101	2
8/29/2024	Irrigation and Nutrient Management Plan (INMP) Self-Certification Webinar	6
9/10/2024	2024 Ventura County Agri-Tech Fair	2
10/16/2024	Avocado Irrigation Workshop	2.5
11/12/2024	Irrigation and Nutrient Management Plan (INMP) REFRESHER Training	2