Waste Discharge Requirements for Discharges from Irrigated Agricultural Lands within the Los Angeles Region

Review of Conditional Waiver Order No. R4-2016-0143/R4-2021-0045-A02 and Recommendations for Waste Discharge Requirements

California Regional Water Quality Control Board
Los Angeles Region

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1. Introduction

The Los Angeles Region has historically been a powerhouse agricultural region. While post-war urbanization resulted in a shift of land uses, the region still has approximately 93,000 acres of irrigated agricultural lands. Most of the current irrigated agricultural lands in the region are in Ventura County. There growers focus on crops such as strawberries, avocados, citrus, and tomatoes. In Los Angeles County, irrigated agriculture mostly consists of smaller nurseries that are more disbursed.

Agricultural activities can generate wastes, as defined in section 13050(d) of the California Water Code, such as displaced sediment, pesticides, and nutrients that upon discharge to receiving water bodies can degrade water quality, impair beneficial uses, and cause nuisance conditions. In the Los Angeles Region, agricultural activities have impacted water quality.

Since the late 1990s, the Clean Water Act Section 303(d) list of impaired water bodies has recognized agriculture as a major source of pollutants contributing to impairments in regional waterbodies (a more in-depth discussion of specific impacts from agricultural activities is detailed in Sections 6.1 and 6.2). These impairments are still being documented and local waterbodies subject to agricultural discharges are included on the 2020-2022 Clean Water Act Section 303(d) list for nutrients, pesticides, metals, and bacteria.

In 2005, the California Regional Water Quality Control Board Los Angeles Region (Los Angeles Water Board) developed the Irrigated Lands Regulatory Program (ILRP) to ensure that discharges from irrigated agricultural lands do not cause or contribute to an exceedance of applicable water quality objectives or impair beneficial uses of waters of the state within the Los Angeles Region. The ILRP does so by requiring monitoring of the water quality impacts caused by irrigated agricultural discharges and requiring control of those discharges as necessary to protect water quality. Specifically, the goal is to attain water quality objectives by regulating the discharges of waste from irrigated agricultural lands within the Los Angeles Region through the implementation of water quality benchmarks[1] and, where necessary, individual discharge limitations.

Additionally, the Los Angeles Water Board and the United States Environmental Protection Agency (USEPA) have established 17 Total Maximum Daily Loads (TMDLs) in the Los Angeles Region to address water bodies that are impaired due to sediment, pesticides, nutrients, bacteria, trash, and salts, and which identify irrigated agricultural lands as a source of pollutants and assign load allocations to discharges from irrigated agricultural lands.

[1] "Water quality benchmark" means narrative or numeric water quality objectives established in the Los Angeles Water Board Basin Plan, prohibitions established consistent with Water Code section 13243, a requirement established by an applicable Statewide plan or policy, criteria established by USEPA (including those in the California Toxics Rule and the applicable portions of the National Toxics Rule), and load allocations established pursuant to a total maximum daily load (whether established in the Basin Plan or other lawful means).

Over the course of the last eighteen years, the ILRP has developed through a series of general permitting actions pursuant to California Water Code section 13269. The Los Angeles Water Board adopted the first Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver) (Order No. R4-2005-0080) on November 3, 2005 (2005 Waiver). On October 7, 2010, the Los Angeles Water Board renewed the Conditional Waiver (Order No. R4-2010-0186) (2010 Waiver). On October 8, 2015, the Los Angeles Water Board adopted a temporary six-month Conditional Waiver (Order No. R4-2015-0202) that had the same requirements as Order No. R4-2010-0186. On April 14, 2016, the Los Angeles Water Board adopted a Conditional Waiver, Order No. R4-2016-0143 (2016 Waiver). On April 8, 2021, the Los Angeles Water Board adopted a one-year Conditional Waiver, Order No. R4-2021-0045 (2021 Waiver). The 2021 Waiver had the same findings and conditions as the 2016 Waiver without any substantial modification. On April 14, 2022, the Los Angeles Water Board adopted an Amendment to the 2021 Conditional Waiver, Order No. R4-2021-0045-A01, that changed the expiration date from April 14, 2022, to December 31, 2022. On December 8, 2022, the Los Angeles Water Board adopted a second Amendment to the 2021 Conditional Waiver, Order No. R4-2021-0045-A02, that changed the expiration date from December 31, 2022 to September 30, 2023. For the purposes of this report, the 2016 Waiver, 2021 Waiver, and 2021 Waiver addendums are collectively referred to as the 2016/2021 Waiver.

In accordance with California Water Code section 13269(a)(2), a Conditional Waiver for Irrigated Lands may not exceed five years in duration. To alleviate the administrative burden and focus more time and resources toward implementation of the program, staff are recommending that the Conditional Waiver program be replaced with General Waste Discharge Requirements (General WDRs) consistent with Water Code Section 13263 rather than a Conditional Waiver. Unlike Conditional Waivers, General WDRs do not have a maximum duration of five years.

This Staff Report presents a review of the ILRP over the last seventeen years and based on the review, provides recommendations for the proposed new General WDRs.

2. Laws and Policies

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within a regional water board's jurisdiction that could affect the quality of the waters of the state, shall file a Report of Waste Discharge (ROWD) with the regional water board (Cal. Wat. Code §13260(a)(1)). A regional water board may, in its discretion, issue Waste Discharge Requirements (WDRs) pursuant to Water Code section 13263. Water Code section 13269 authorizes regional water boards to conditionally waive the provisions of Water Code sections 13260(a)(1) and 13263(a).

Since the first Conditional Waiver in 2005, the Los Angeles Water Board complied with Water Code section 13269 for regulating discharge from irrigated lands in the region. Water Code section 13269 requires that any waiver of ROWDs and/or WDRs must (i) be

consistent with any applicable water quality control plans; (ii) be "in the public interest;" (iii) contain conditions; (iv) not exceed five years in duration but may be renewed in up to five-year increments; and (v) include monitoring provisions. In addition, Water Code section 13269(a)(4)(A) authorizes the State Water Resources Control Board (State Water Board) to adopt annual fees for recipients of waivers. Water Code section 13269(e) mandates that the regional water boards shall require compliance with the conditions of a waiver of waste discharge requirements.

The new proposed General WDRs for regulating discharge from irrigated lands in the region are issued pursuant to Water Code Section 13263. Water Code section 13263 authorizes reginal water boards to “prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge, except discharges into a community sewer system, with relation to the conditions existing in the disposal area or receiving waters upon, or into which, the discharge is made or proposed.” Any waste discharge requirements issued under Water Code 13263 must implement the Basin Plan and take into consideration (1) the beneficial uses to be protected, (2) the water quality objectives reasonably required for that purpose and (3) other waste discharges (4) the need to prevent nuisance, and (5) the provisions of Water Code section 13241.

In 2004, the State Water Board adopted the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (the Nonpoint Source Policy), which sets forth policies for the regulation of nonpoint sources that apply to irrigated agriculture subject to waste discharge requirements, a conditional waiver, or a discharge prohibition. The Nonpoint Source Policy requires any nonpoint source program to implement five key elements that include (1) the purpose of the program must be stated and the program must address nonpoint source pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements; (2) the program must describe the practices to be implemented and processes to be used to select and verify proper implementation of practices; (3) where it is necessary to allow time to achieve water quality requirements, the program must include a specific time schedule, and corresponding quantifiable milestones designed to measure progress toward reaching specified requirements; (4) the program must include feedback mechanisms to determine whether the program is achieving its purpose or whether additional or different practices are required; and (5) the program must state the consequences of failure to achieve the stated purpose.

On February 7, 2018, the State Water Board adopted Order WQ 2018-0002, which modified the Central Valley Water Board’s Order No. R5-2012-0116 for irrigated agricultural discharges in the Eastern San Joaquin River Watershed (ESJ Order). The State Water Board identified several requirements of the ESJ Order as being precedential for all irrigated lands regulatory programs throughout the state to be incorporated into their agricultural orders.

The proposed new General WDRs include conditions in compliance with Water Code section 13263 as well as the ESJ Order and are consistent with the Nonpoint Source Policy and other applicable requirements of the State and Los Angeles Water Board.

3. Summary of 2016/2021 Conditional Waiver Requirements

The 2016/2021 Waiver continued many of the requirements of the 2010 Waiver. Agricultural dischargers were required to (1) enroll in the program, (2) conduct surface water quality monitoring, and (3) if monitoring showed exceedances of water quality benchmarks, develop a water quality management plan (WQMP) to implement iterative management practices (MPs) to attain water quality benchmarks. Significant additions to the 2016/2021 Waiver included the incorporation of discharge limitations after TMDL compliance deadlines have passed, requirements for groundwater quality monitoring and reporting in Ventura County, and requirements for performing source investigations when constituents demonstrate increasing trends. The 2016/2021 Waiver also required more detailed WQMPs and specified that growers must implement the MPs identified in the WQMPs.

Sections 4–8 describe the status of implementation of the 2016/2021 Waiver requirements.

4. Current Enrollment Status

Under the 2016/2021 Waiver (and in the proposed General WDRs) a discharger can enroll as an individual discharger or as a member of a Discharger Group. A Discharger Group is any group of dischargers and/or organizations formed to comply with the 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. There are currently no individual dischargers enrolled in the 2016/2021 Waiver.

There are currently two approved Discharger Groups participating in the 2016/2021 Waiver. The Ventura County Agricultural Irrigated Lands Group (VCAILG) represents growers in Ventura County and the Los Angeles Irrigated Lands Group (LAILG)[2] represents growers in Los Angeles County.

VCAILG formed in 2006 with the express purpose of acting as a county-wide Discharger Group to comply with the Conditional Waiver. VCAILG is overseen by a Steering Committee and Executive Committee. These committees are comprised of agricultural organization representatives, agricultural water district representatives, and landowners and/or growers in Ventura County. VCAILG is an unincorporated organization, so the Farm Bureau of Ventura County acts as the responsible entity for the collection of funds, contracting, and other business and/or fiscal matters. As of December 2022, there are 1,451 members and 80,257 irrigated acres enrolled in the Conditional Waiver through membership in VCAILG (Table 1). According to VCAILG's 2022 Annual Monitoring Report

[2] Formerly known as the Nursery Growers Association – Los Angeles Irrigated Lands Group or "NGA."

(AMR) submitted in December 2022, 81% of the growers in Ventura County are enrolled in the Conditional Waiver covering 92% of the irrigated lands.

Table 1. Irrigated acres enrolled in VCAILG as of December 2022.

Watershed	Enrolled Irrigated Acres
Calleguas Creek	42,731
Oxnard Coastal	4,293
Santa Clara River	28,634
Ventura River	4,599
Total	**80,257**

LAILG was also formed in 2006 to act as a Discharger Group under the Conditional Waiver program and represents Los Angeles County growers within the Los Angeles Region. LAILG membership is mostly comprised of nursery growers but also includes orchards, vineyards, and farm owners and/or operators. As of December 2022, this group currently has 184 members representing 1,130 acres enrolled throughout Los Angeles County (Table 2). The total acreage of irrigated agriculture within Los Angeles County under the jurisdiction of the Los Angeles Water Board is unknown, but it is estimated to be approximately 2,500 acres. Thus, about 45% of the total irrigated acreage in Los Angeles County within the Los Angeles Region is enrolled in the Conditional Waiver.

Table 2. Irrigated acres enrolled in NGA-LAILG as of December 2022.

Watershed	Enrolled Irrigated Acres
Dominguez Channel LA/Long Beach Harbors WMA	129
Los Angeles River	485
Santa Clara River	94
San Gabriel River	285
Santa Monica WMA	137
Total	**1,130**

During the 2010 Waiver term, Los Angeles Water Board staff worked with representatives from the Department of Water and Power (DWP), who are one of the two major landowners of irrigated agricultural lands in Los Angeles County, to enroll growers who lease their property. In 2016, after several meetings with Los Angeles Water Board staff, DWP enrolled all their lessees that operate irrigated lands in the Conditional Waiver program. This partnership between the Los Angeles Water Board and DWP resulted in a 30% increase in the number of growers enrolled in 2016. During the 2016/2021 Waiver term, LAILG has been working with the DWP to help the growers comply with the requirements of the Conditional Waiver.

5. Education Requirement Completion

The 2016/2021 Waiver required that growers and/or farm managers participate in two hours of educational training each year. The educational training focused on typical agricultural practices, potential threats to water quality, and MPs designed to control those threats. VCAILG and LAILG frequently offer workshops (in both English and Spanish), providing growers opportunities to obtain the required education credits. Post-covid, many of the courses are now also being offered in hybrid form. According to VCAILG's 2022 AMR, 44% of VCAILG members completed at least one year of educational credit between 2016-2022 (specifically at least one year where the required two hours was completed in that year). In addition, VCAILG has provided workshops to their growers to enable them to certify their own nutrient management plans to comply with the 2016/2021 Waiver as well as the precedential requirement in the ESJ Order for all growers in Ventura County to implement nutrient management plans. Based on LAIG's December 2022 AMR during the 2021-2022 period, 21.88% LAILG members completed the required educational training.

6. Summary of Water Quality Monitoring

6.1. Ventura County Monitoring Results

Water quality data for Ventura County from the 2016/2021 Waiver and previous waiver terms demonstrates that, generally, water quality is not improving and water quality impairments from agricultural dischargers remain. This section presents the monitoring results for nitrate, DDT, chlorpyrifos, diazinon, bifenthrin and *E. coli* for Ventura County monitoring sites, including exceedance heat maps, exceedances tables and constituent time-series. Analysis of long-term data appear to show improvements for some constituents as concentrations decrease over time; however, some other constituent concentrations are stagnant or appear to be trending upwards. In general, constituent concentrations are lower during dry weather sampling events compared to wet weather events.

Monitoring was conducted annually from 2007 through 2022. The exception to this was 2011, as VCAILG suspended monitoring while waiting on approval for an updated monitoring and reporting plan (MRP). The 2016/2021 Waiver included a provision that required monitoring under the existing MRP to continue until the new MRP was approved.

6.1.1. Monitoring Site Locations

VCAILG conducts representative monitoring at fifteen locations throughout Ventura County; 6 sites are located in the Calleguas Creek Watershed, six in the Santa Clara River Watershed, two in the Ventura River Watershed, and one in the Oxnard Coastal Watershed (Table 2 and Figure 1). Sample locations were selected to characterize

agricultural inputs to surface waters, minimize contributions from other land uses, and are generally located at the lower end of agricultural drains and tributaries. Most of the agricultural drains and tributaries are waters of the U.S. and/or waters of the State. In addition, VCAILG conducts monitoring at 3 locations for only TMDL-related constituents addressed in the 2016/2021 Waiver. Therefore, the number of all monitoring locations is 18.

Samples have been consistently collected throughout the Waiver program at most of the VCAILG monitoring sites. However, the two sites in the Ventura River Watershed (VRT_THACH and VRT_SANTO) often lack sufficient flow to collect samples. During the 2010 Waiver term, no samples were collected due to these conditions.

Table 3. VCAILG sampling locations for 2016/2021 Waiver

Station ID	Station Location	Watershed
01T_ODD3_EDI (replacing 01T_ODD3_ARN)	Rio de Santa Clara / Oxnard Drain #3 downstream of Edison Dr.	Calleguas Creek
04D_ETTG	Revolon Slough at Etting Road	Calleguas Creek
04D_LAS	Revolon Slough at South Las Posas Road	Calleguas Creek
05D_LAVD	La Vista Drain at La Vista Avenue	Calleguas Creek
05T_HONDO	Hondo Barranca at Highway 118	Calleguas Creek
06T_LONG2	Long Canyon at Balcom Canyon Road	Calleguas Creek
OXD_CENTR	Central Ditch at Harbor Boulevard	Oxnard Coastal
CIHD_VICT	Discharge to Doris Drain at S. Victoria Ave.	Oxnard Coastal
S02T_ELLS	Ellsworth Barranca at Telegraph Road	Santa Clara River
S02T_TODD	Todd Barranca at Highway 126	Santa Clara River
S03D_BARDS	Agricultural drain along Bardsdale Avenue upstream of confluence with Santa Clara River	Santa Clara River
S03T_BOULD	Boulder Creek at Highway 126	Santa Clara River
S03T_TIMB	Timber Canyon at Highway 126	Santa Clara River
S04T_TAPO	Tapo Canyon Creek	Santa Clara River
S01D_MONAR	Drain entering SCR Estuary at Monarch Lane between Harbor Blvd. and Victoria Ave.	Santa Clara River
VRT_SANTO	San Antonio Creek at Grand Avenue	Ventura River
VRT_THACH	Thatcher Creek at Ojai Avenue	Ventura River
V02D_SPM	Drainage channel to Ventura River at SP Milling Rd. crossing	Ventura River

Constituent analyses have been grouped by watershed. For the purposes of this report, the one sampling site located in the Oxnard Coastal Watershed (OXD_CENTR) is grouped with the Calleguas Creek Watershed data.

Figure 1. VCAILG Sampling Locations for 2016/2021 Waiver

6.1.2. Monitoring Data Analysis Methodology

Monitoring results are presented as an assessment of existing water quality after four terms of the Conditional Waiver. Tables 3 through 21 and Figures 2 through 50 present the nitrate, pesticides, pyrethroids, bacteria and toxicity water quality data during the 2007-2022 period. Trend lines are included on the graphs where necessary to show trends in water quality data for each constituent at each monitoring location. They do not represent statistical trends or regression analysis but are included as a visual representation of increases and decreases in constituent concentrations.

Samples that were not collected in dry weather due to no flow or insufficient flow, as defined by the approved VCAILG Monitoring and Reporting Plan, are not represented for all analyzed constituents. If there is no dry-weather discharge, then attainment of benchmarks for that sample event is presumed. Also, for the completion of the analysis and trend lines, half the value of a constituent's method detection limit (MDL) was assigned to all non-detect samples. For example, the MDL for diazinon is 0.002 µg/L therefore all the non-detect samples for diazinon are assigned a concentration of 0.001

µg/L, which is half of the diazinon MDL. In addition, the DNQ values are presented as they are reported. The y axes of the lower graphs in some figures are split because of the wide range of data.

6.1.2.1. Nitrogen Data Analysis

The water quality benchmark for nitrate varies depending on the waterbody but is most commonly 10 mg/L (NO3-N), which is the value used here for comparison purposes.

6.1.2.1.1. Calleguas Creek Watershed

Nitrate exceedances are observed throughout the Calleguas Creek Watershed (Table 4) during both dry and wet weather (Figures 2, 3, and 4). For both wet and dry weather the highest percentage and highest number of nitrate exceedances are observed at the 04D_LAS site, followed by OXD_CENTR, 01T_ODD3_ARN_EDI, and 04D_ETTG. There have been no nitrate exceedances at 06T_LONG2 (Figure 4 and Table 4).

Table 4. Nitrate Exceedances at VCAILG Calleguas Creek Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
01T_ODD3_ARN_EDI	48	39	81
04D_ETTG	53	36	68
04D_LAS	49	48	98
05D_LAVD	28	7	25
05T_HONDO	15	3	20
06T_LONG2	8	0	0
OXD_CENTR	49	40	82

While 06T_LONG2 had no observed exceedances, 01T_ODD3_ARN_EDI, 04D_LAS and OXD_CENTR, exceeded the benchmark more than 80% of the sampling events. Higher percentages of exceedances are observed lower in the watershed.

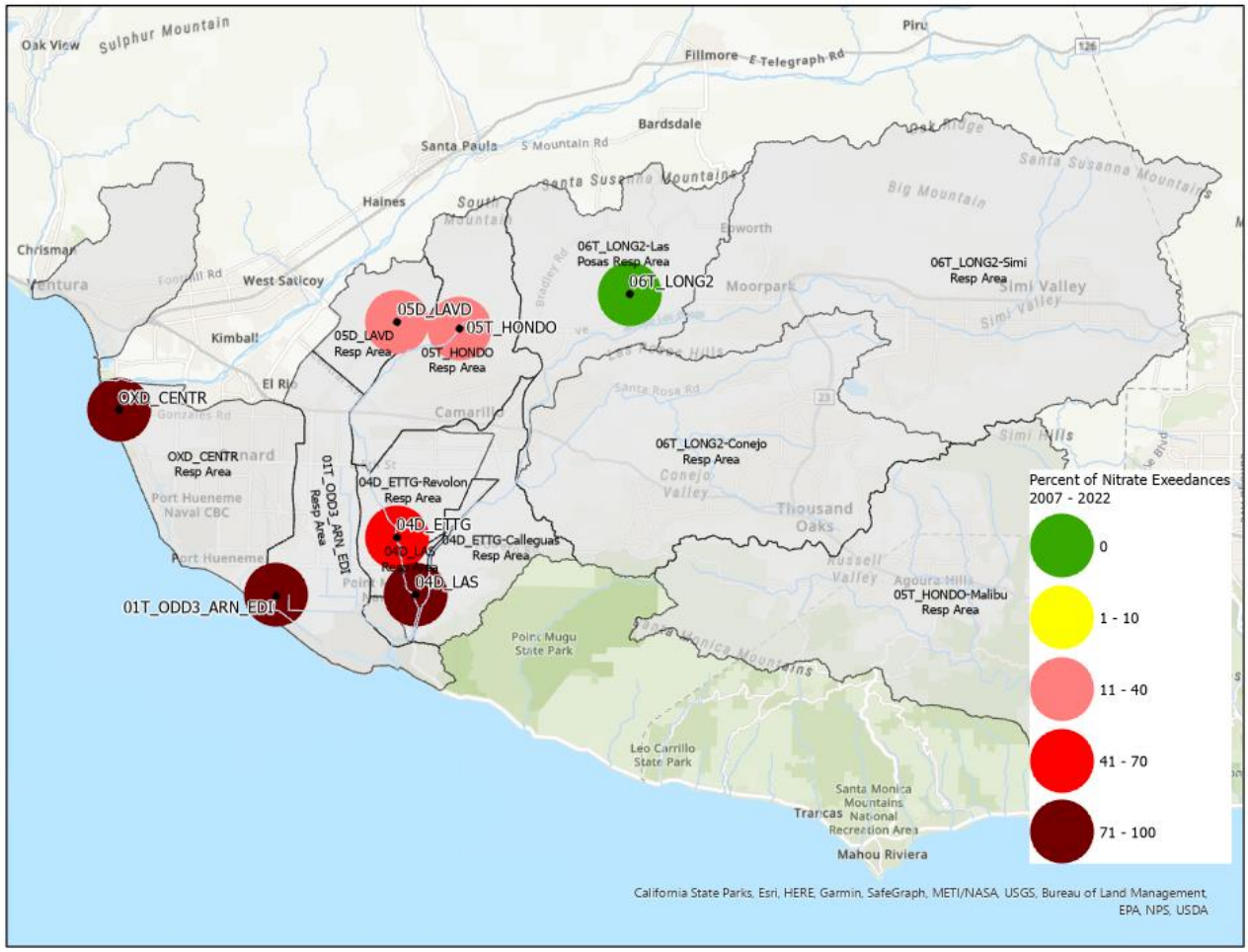

Figure 2. Nitrate Water Quality Benchmark Exceedances in Calleguas Creek 2007-2022.

Concentration trends are not consistent across the watershed; the trend lines show increases and decreases at different sampling locations. In dry weather (Figure 3), benchmark exceedances are consistently seen at 04D_ETTG, 04D_LAS, 01T_ODD3_ARN_EDI, and OXD_CENTR. Nitrate concentrations at 04D_ETTG have a decreasing trend, while nitrate concentrations at OXD_CENTR, 04D_LAS and 01T_ODD3_ARN_EDI are trending upward (Figure 3 and 4). No samples were collected at two stations in Calleguas Creek (05T_HONDO and 06T_LONG2) in dry weather due to no flow. Since 2015, no samples were collected at 05D_LAVD during dry weather due to lack of flow.

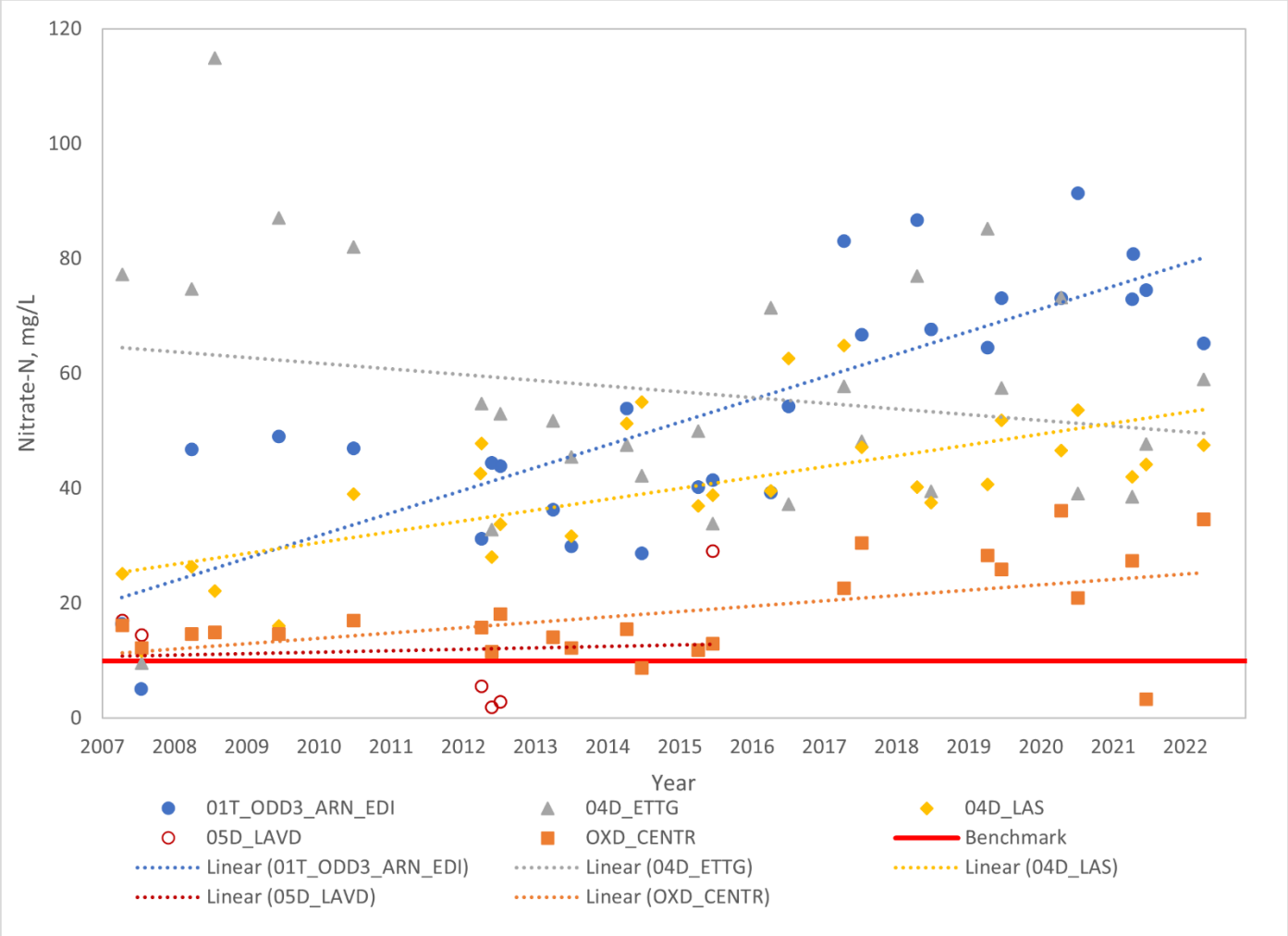

Figure 3. Nitrate Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Dry Weather

In wet weather (Figure 4), benchmark exceedances are consistently seen at 04D_ETTG, 04D_LAS, 01T_ODD3_ARN_EDI, and OXD_CENTR, similar to dry weather sampling events. Increasing trends of nitrate concentrations are seen at 01T_ODD3_ARN_EDI, OXD_CENTR, 05T_HONDO, and 06T_LONG2. Decreasing nitrate concentration trends are seen at 04D_ETTG, 04D_LAS, and 05D_LAVD.

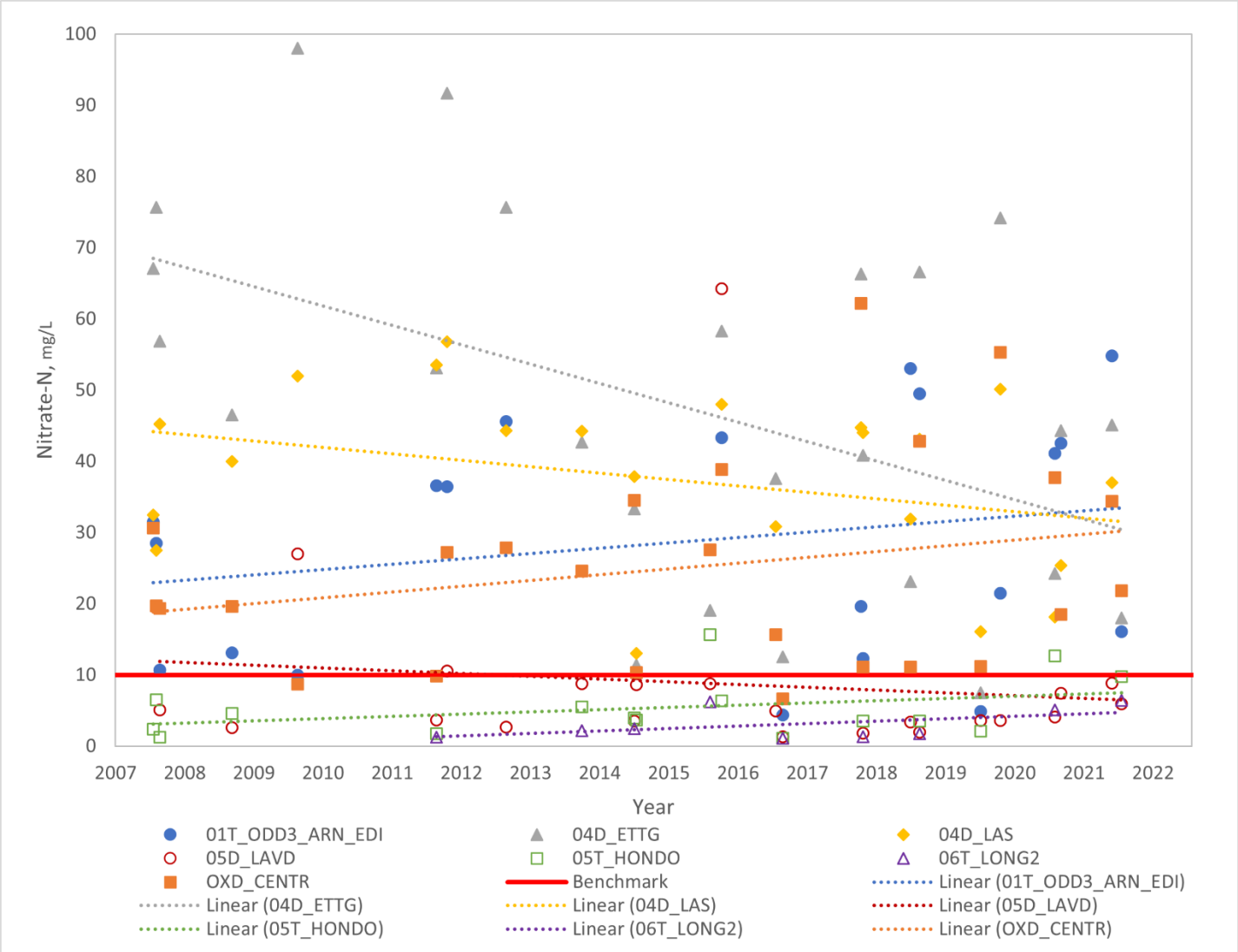

Figure 4. Nitrate Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Wet Weather

6.1.2.1.2. Santa Clara River Watershed

The concentrations of nitrate in the Santa Clara River Watershed are mostly below the benchmark (Table 5, Figures 5, 6 and 7). Samples collected from SO4T_TAPO have more often exceeded the benchmark but are trending downward. From 2009 onward, SO2_ELLS, SO3D_BARDS, and SO3T_TIMB have been below the benchmark. Samples collected from SO2T_TODD are mostly below the benchmark.

In the Santa Clara River Watershed, the highest percentage of nitrate exceedances is at S03T_BOULD, followed by S02T_TODD and S04T_TAPO. The highest number of exceedances is seen at S02T_TODD, followed by S04T_TAPO and S03T_BOULD (Figure 5 and Table 5).

Table 5. Nitrate Exceedances at VCAILG Santa Clara River Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
S02T_ELLS	31	2	6
S02T_TODD	52	14	27
S03D_BARDS	24	2	8
S03T_BOULD	26	10	38
S03T_TIMB	16	1	6
S04T_TAPO	49	12	24

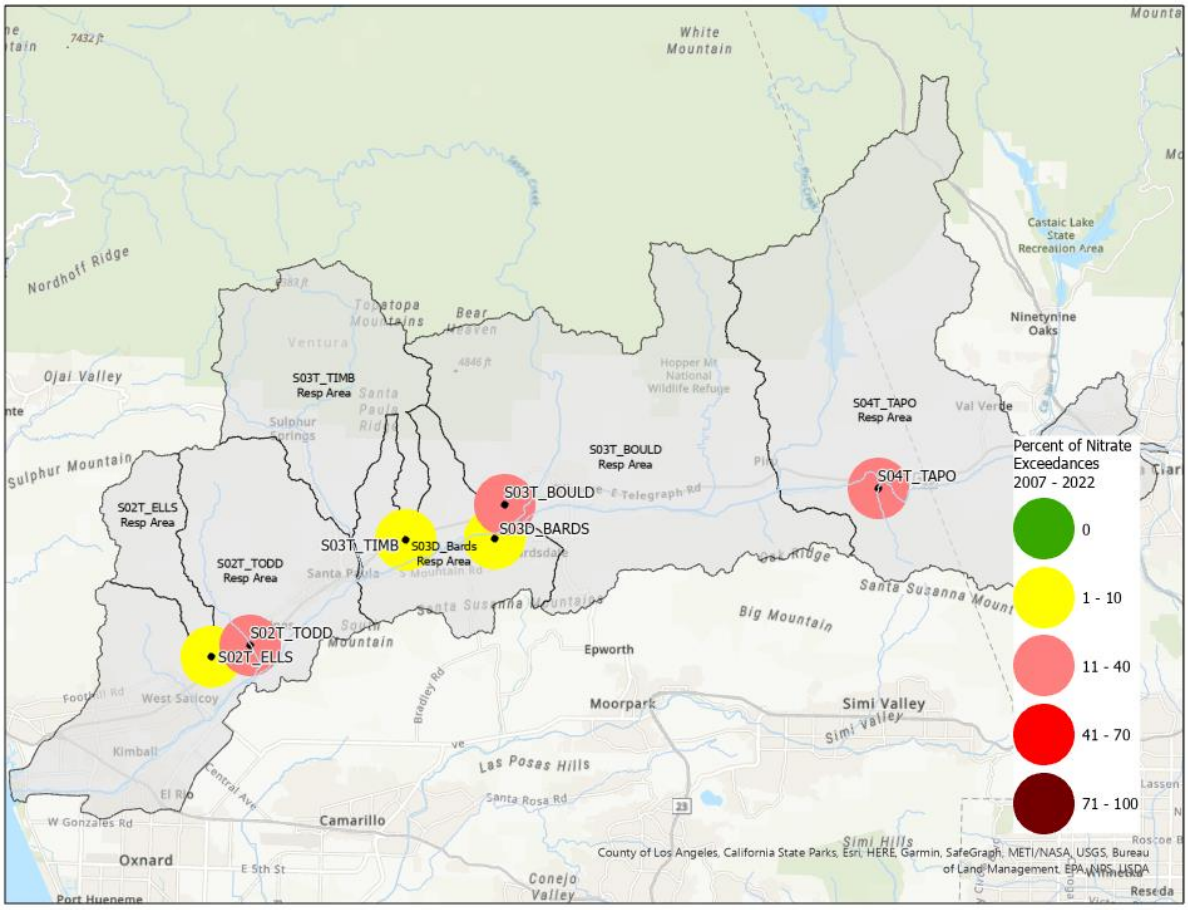

Figure 5. Nitrate Water Quality Benchmark Exceedances in Santa Clara River 2007-2022

In dry weather (Figure 6), samples are most consistently above the benchmark at S04_TAPO, although there have been no exceedances from 2020-2022 and there is a decreasing trendline for nitrate concentrations. Samples from S02_TODD have hovered over or near the benchmark and have a stable trendline. Nitrate concentrations at S03D_BARDS and S022_ELLS have increasing trends although samples have been

below the benchmark. No samples were collected at S03T_BOULD during dry weather after 2009 due to insufficient or no flow.

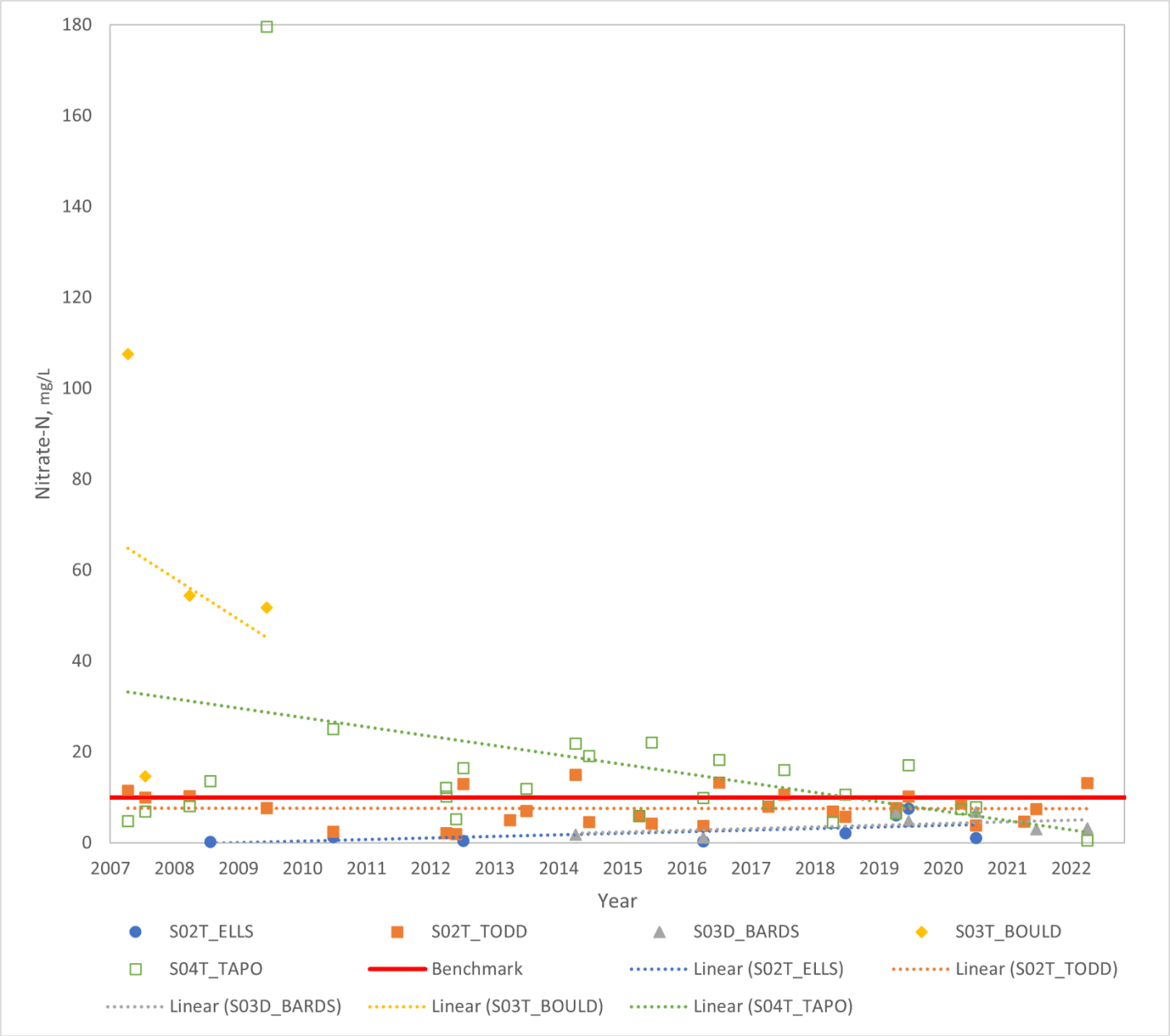

Figure 6. Nitrate Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring during Dry Weather

In wet weather (Figure 7), samples are generally below the benchmark with occasional exceedances. The trends are generally decreasing or stable and below the benchmark. The exceptions are SO3D_BARDS and S03T_BOULD, which appear to be increasing.

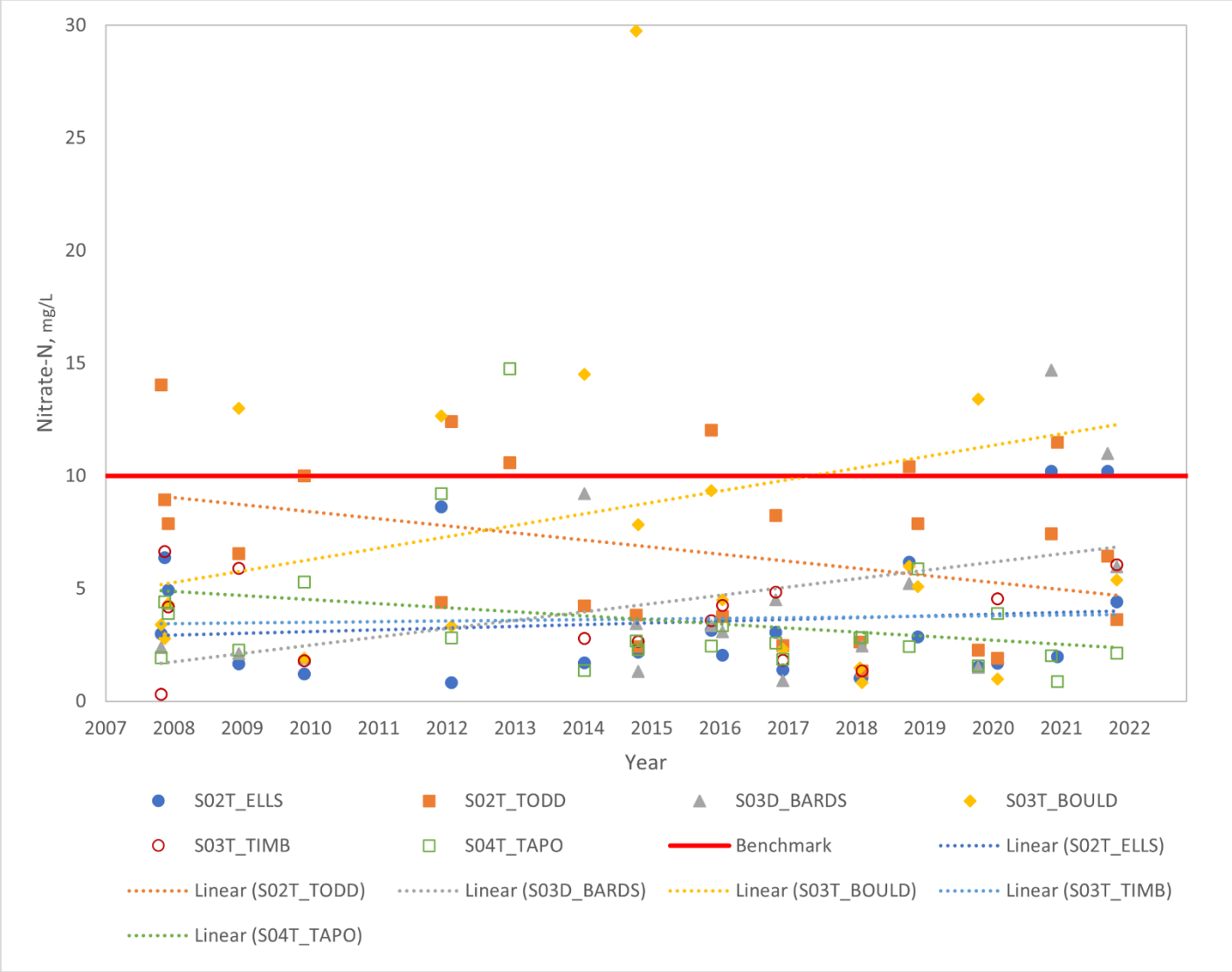

Figure 7 Nitrate Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring during Wet Weather

6.1.2.1.3. Ventura River Watershed

The highest number of exceedances for nitrate in the Ventura River Watershed is at V02D_SPM, which has been sampled for nitrate since 2017. The concentrations of nitrate are all below the water quality benchmark at VRT_THACH and VRT_SANTO, nitrate exceedances (Table 6, Figure 8).

Table 6. Nitrate Exceedances at VCAILG Ventura River Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
VRT_THACH	14	0	0
VRT_SANTO	12	0	0
V02D_SPM	8	1	12.5

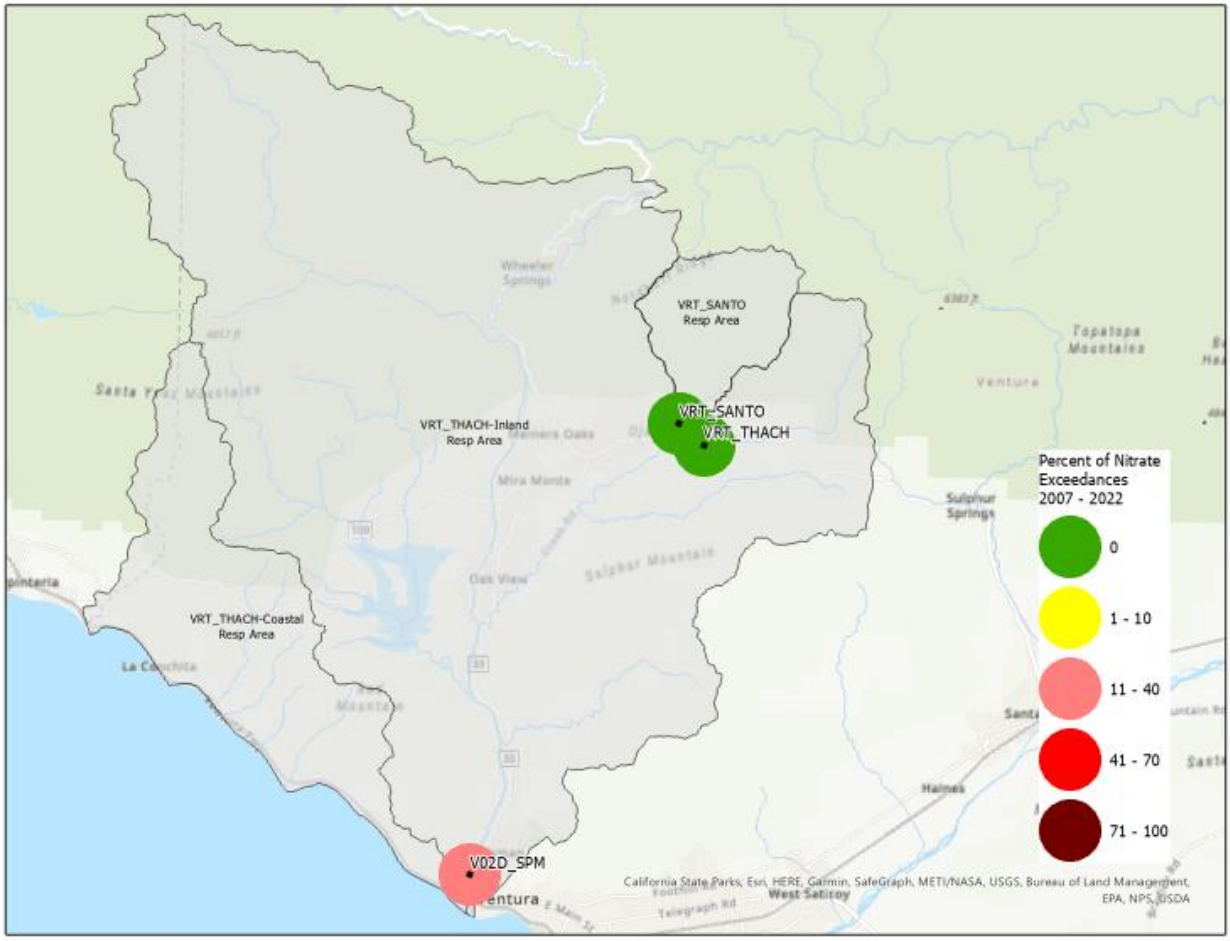

Figure 8 Nitrate Water Quality Benchmark Exceedances in Ventura River Watershed 2007-2022.

During dry weather, in the Ventura River Watershed, nitrate as nitrogen was not detected in the samples collected at VRT_SANTO and VRT_THACH locations in May 2019. Samples were not collected during the rest of the dry events due to lack of flow.

In wet weather (Figure 9), all samples collected at both VRT_SANTO and VRT_THACH were below the water quality benchmark with relatively stagnant trendlines. Samples collected at V02_SPM show an increasing trend in nitrate concentrations. Due to field

conditions on December 28, 2020, the sampling for V02D_SPM occurred 640 feet upslope of the normal V02D_SPM site but, it is not confirmed if the discharge at that site made it to the Ventura River therefore it was not included in Table 6 exceedances or in the trend in Figure 9. However since there was water documented as flowing it was include in Figure 9 for informational purposes. No samples were collected in 2021 or 2022 at VRT_SANTO and VRT_THACH due to no flow or lack of flow.

Field conditions water flowing up from site and met QA/QC it was added for informational purposes.

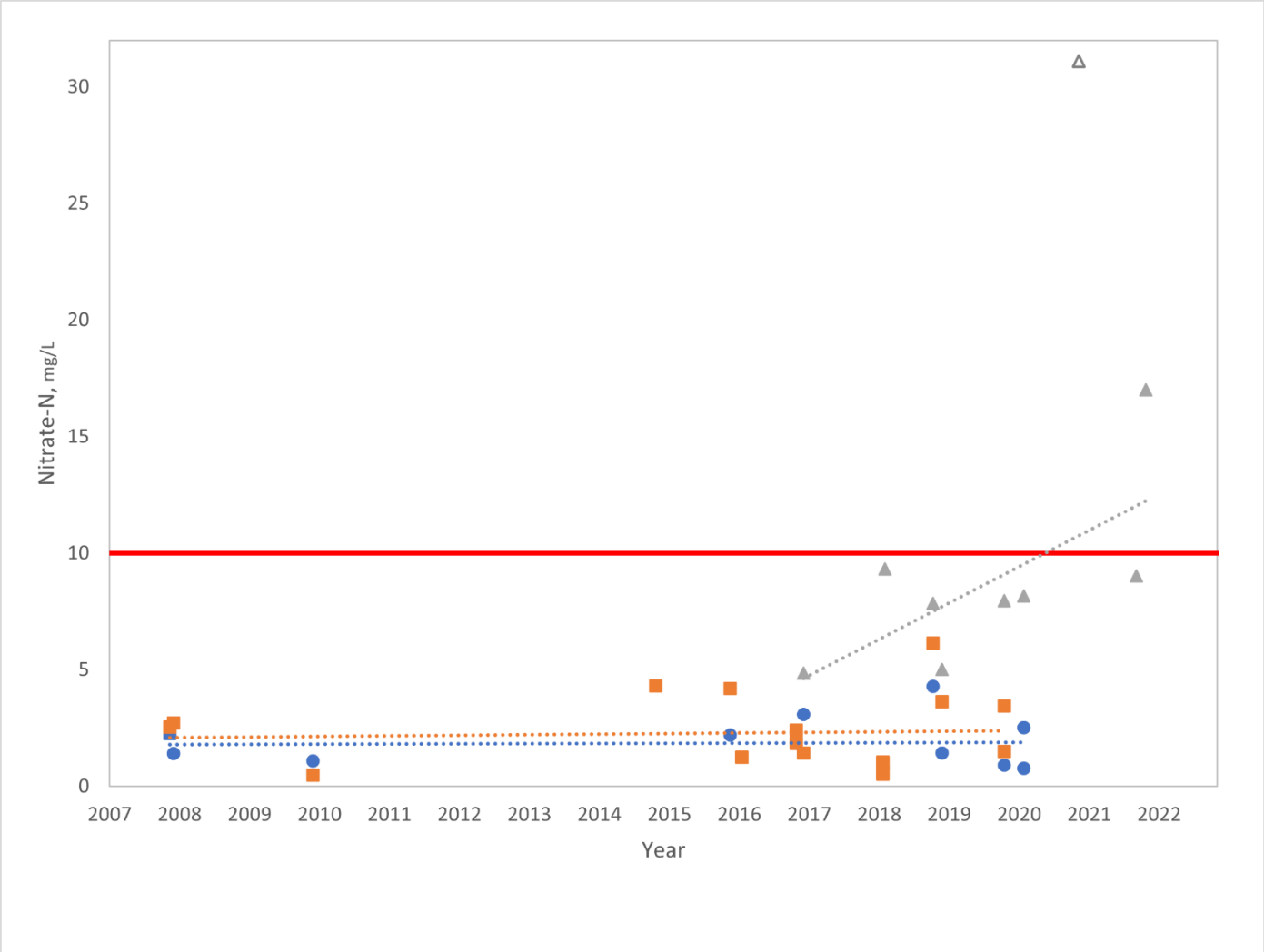

Figure 9. Nitrate Concentrations at VCAILG Ventura River Watershed Representative Monitoring Sites during Wet Weather.

6.1.2.2. DDT Data Analysis

Dichlorodiphenyltrichloroethane (DDT) is a common legacy organochlorine pesticide. While DDT has banned for use since the 1970s, DDT, and many of its breakdown products, remains in the soil of agricultural fields and in agricultural runoff. The

benchmark for DDT in water is 0.00059 µg/L. DDT exceedances are consistently present in wet and dry weather, but wet-weather monitoring results indicate higher concentrations, especially in the Calleguas Creek Watershed (Figures 6 and 7). For purpose of data analyses, 4,4' DDT results will be reviewed.

6.1.2.2.1. Calleguas Creek Watershed

Significant DDT exceedances are observed throughout the Calleguas Creek Watershed. The highest number of 4,4' DDT exceedances are at 01T_ODD3_ARN_EDI and 04D_LAS followed by OXD_CENTR (Figure 10 and Table 7) while the highest percentage of 4,4' DDT exceedances have been observed at 05T_HONDO followed by 06T_LONG2, 04D_LAS.

Table 7. 4,4' DDT Exceedances at VCAILG Calleguas Creek Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 – 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
01T_ODD3_ARN_EDI	47	27	57
04D_ETTG	53	18	34
04D_LAS	33	27	82
05D_LAVD	28	18	64
05T_HONDO	15	14	93
06T_LONG2	8	7	88
OXD_CENTR	53	23	43

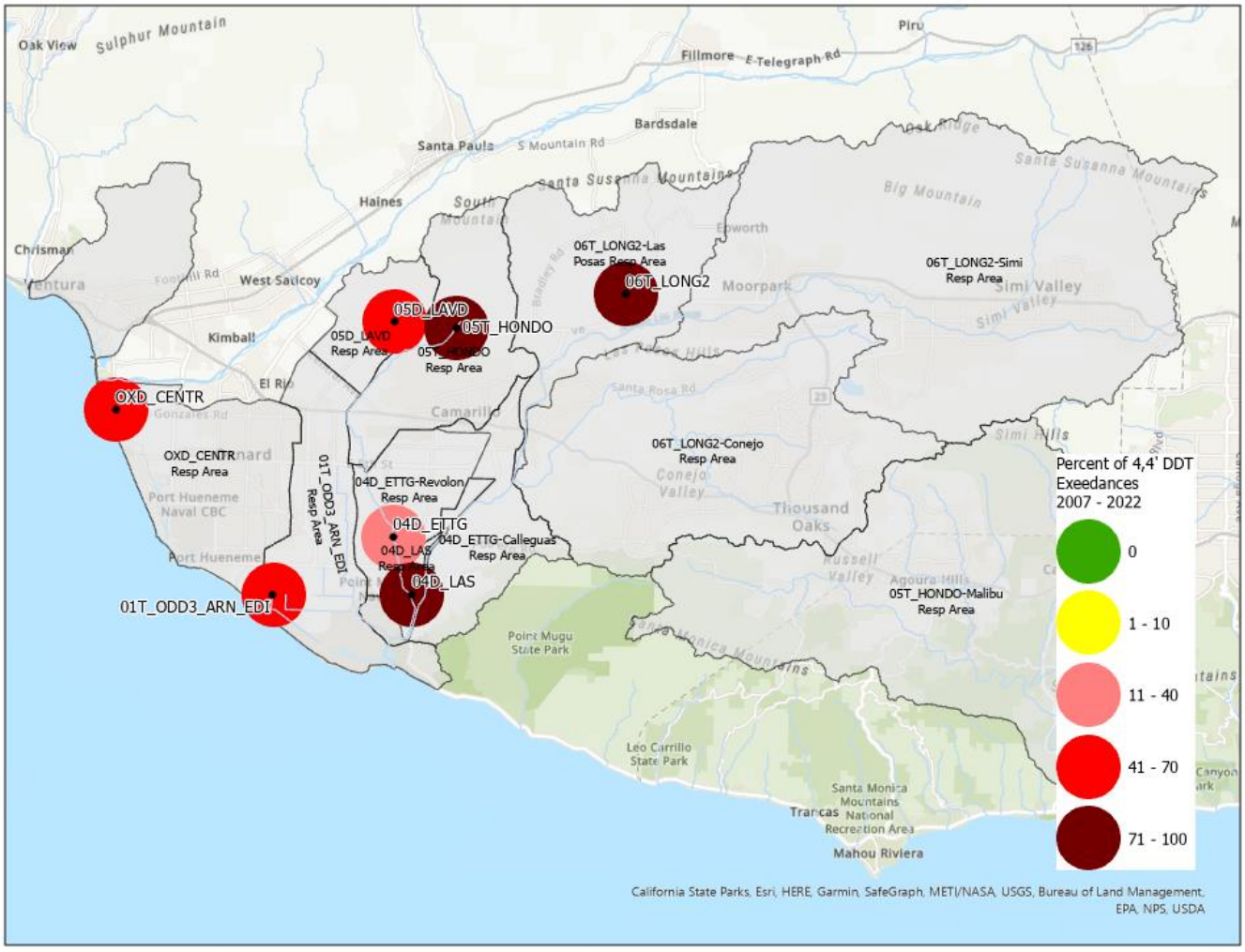

Figure 10. 4,4'DDT Water Quality Benchmark Exceedances in Calleguas Creek 2007-2022.

In dry weather (Figure 11), 4,4'DDT concentrations at sampling locations 01T_ODD3_ARN_EDI, 04D_LAS, OXD_CENTR, and 05D_LAVD) show increasing trendlines. 4,4'DDT concentrations at 04D_ETTG reflect a stable trendline, but still above the benchmark. No samples were collected at 05T_HONDO and 06T_LONG2 due to no flow.

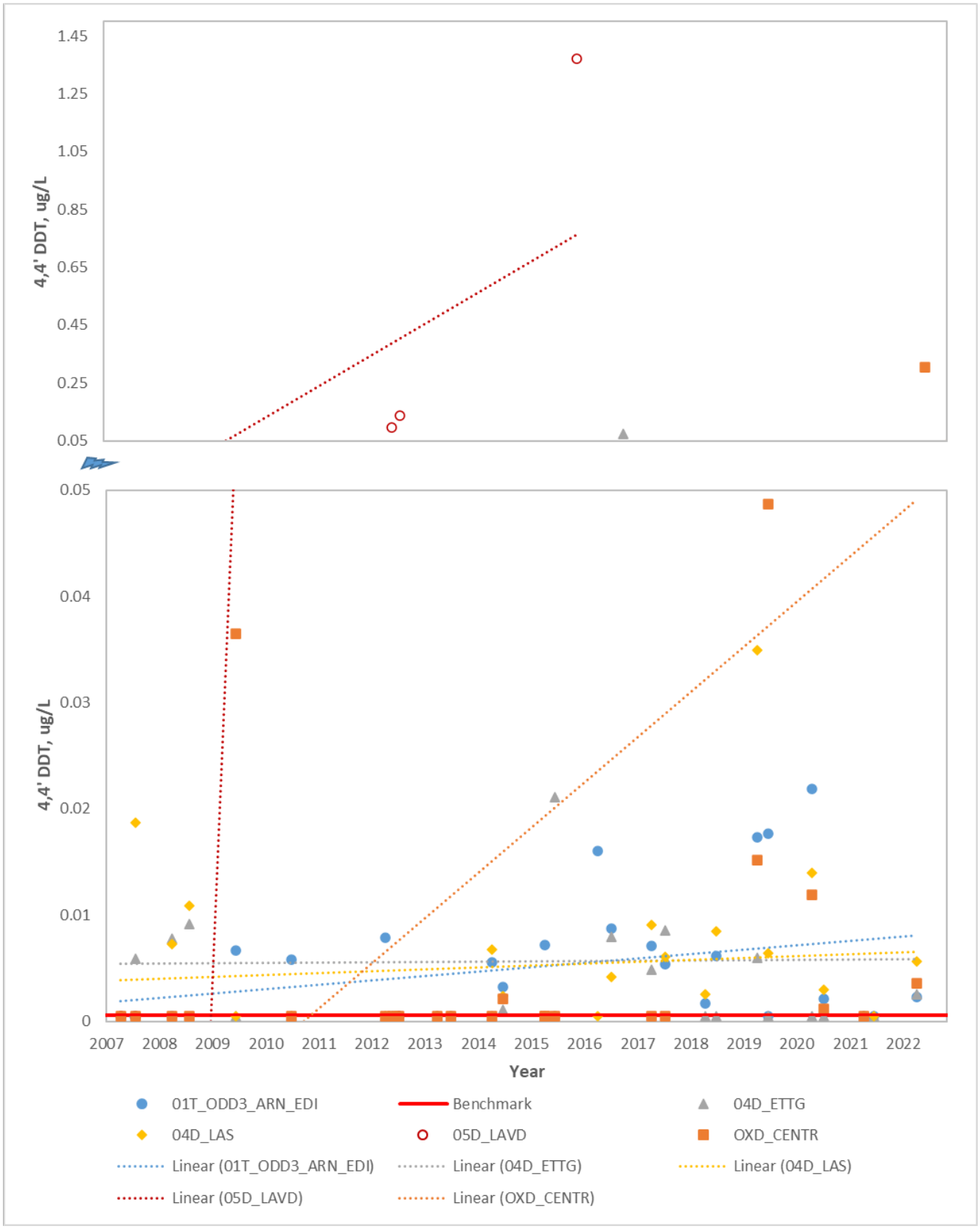

Figure 11. 4,4' DDT Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Dry Weather (note the y-axis scale change).

In wet weather (Figure 12), 4,4’DDT concentrations at sampling sites 05T_HONDO, OXD_CENTR, and 04D_LAS show decreasing trendlines, but remain significantly above the benchmark. 4,4’DDT concentrations at sampling sites 04D_ETTG, 06T_LONG2, 05D_LAVD, and 01T_ODD3_ARN_EDI show increasing trendlines.

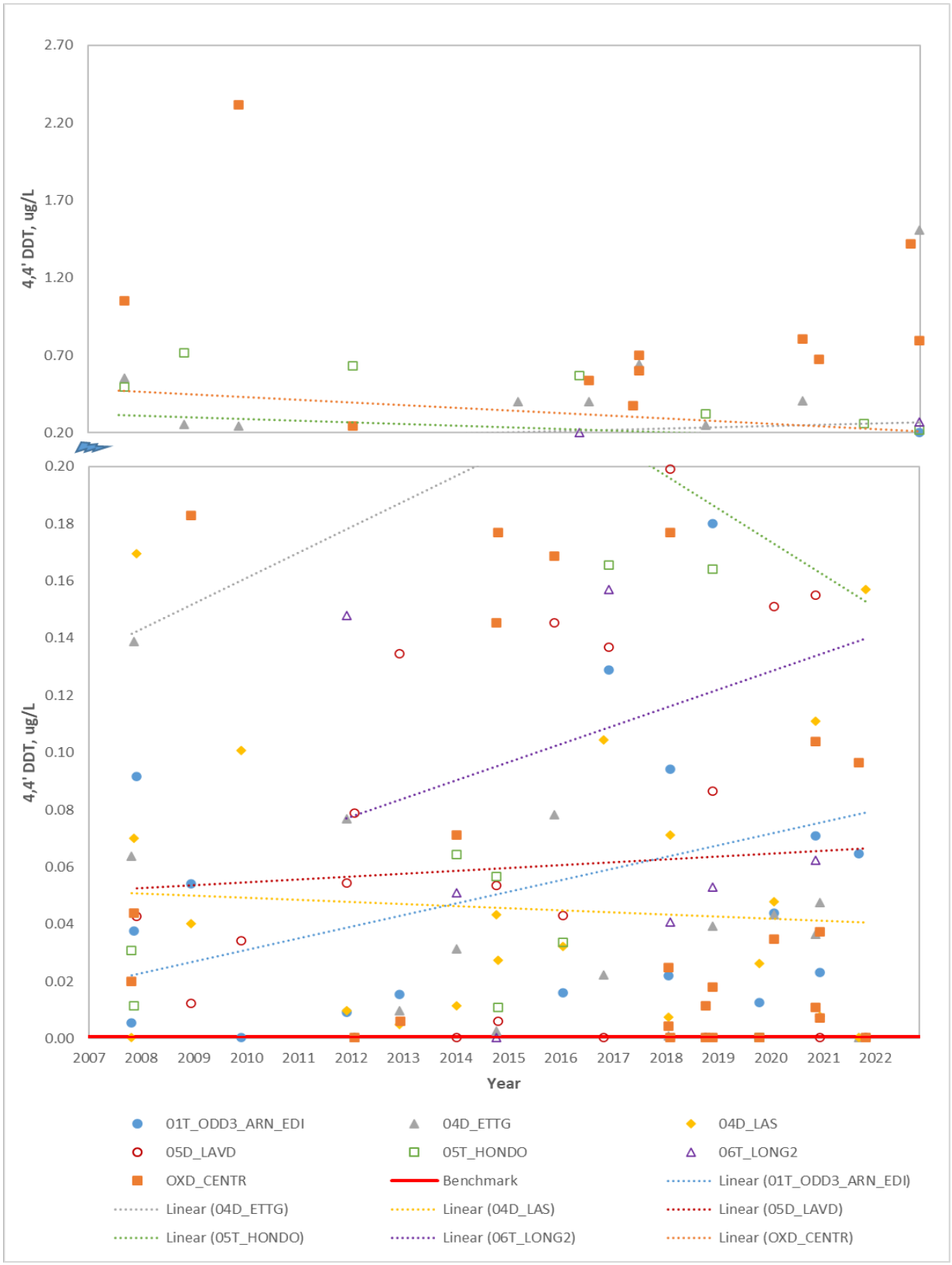

Figure 12. 4,4' DDT Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Wet Weather Monitoring Data (note the y-axis scale change).

6.1.2.2.2. Santa Clara River Watershed

In the Santa Clara River Watershed, overall exceedances are lower in total numbers and percentages (Table 8 and Figure 13). For both wet and dry weather, the site with the highest percentage of 4,4' DDT exceedances is S03D_BARDs, followed by S03T_TIMB and S02T_ELLS. The highest number of exceedances is seen at S02T_TODD, followed by S03D_BARDS, S02T_ELLS, and S04T_TAPO (Figure 13 and Table 8).

Table 8. 4,4' DDT Exceedances at VCAILG Santa Clara River Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
S02T_ELLS	30	7	23
S02T_TODD	52	10	19
S03D_BARDS	24	9	38
S03T_BOULD	26	4	15
S03T_TIMB	16	4	25
S04T_TAPO	50	7	14

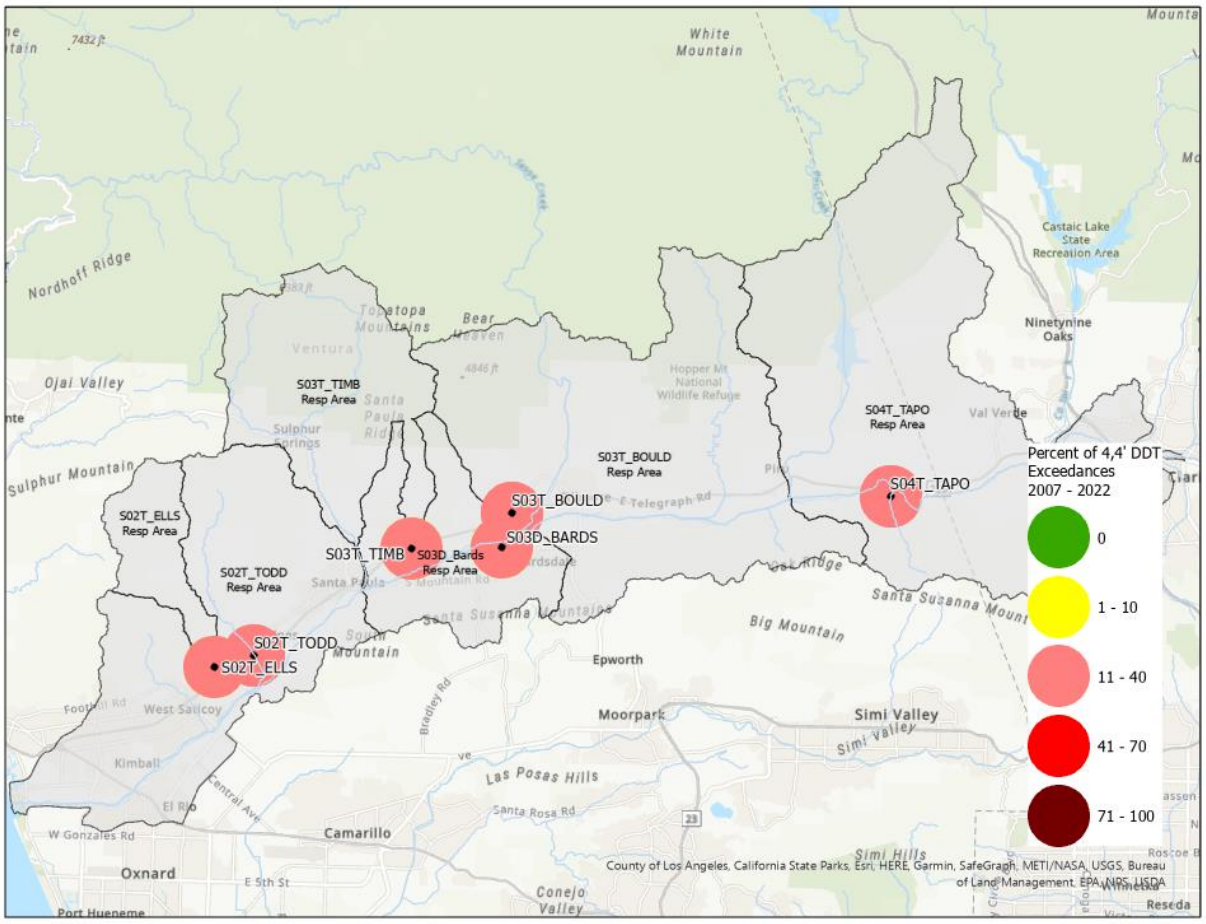

Figure 13. 4,4'DDT Water Quality Benchmark Exceedances in Santa Clara River Watershed 2007-2022.

In dry weather, there are increasing trends of 4,4'DDT concentrations at S02T_TODD and S02T_ELLS and decreasing trends of 4,4'DDT concentrations at S04T_TAPO and S03D_BARDS (Figure 14). At S03T_TIMB and S03_BOULD locations, DDT was non-detect or samples were not collected due to insufficient or no flow.

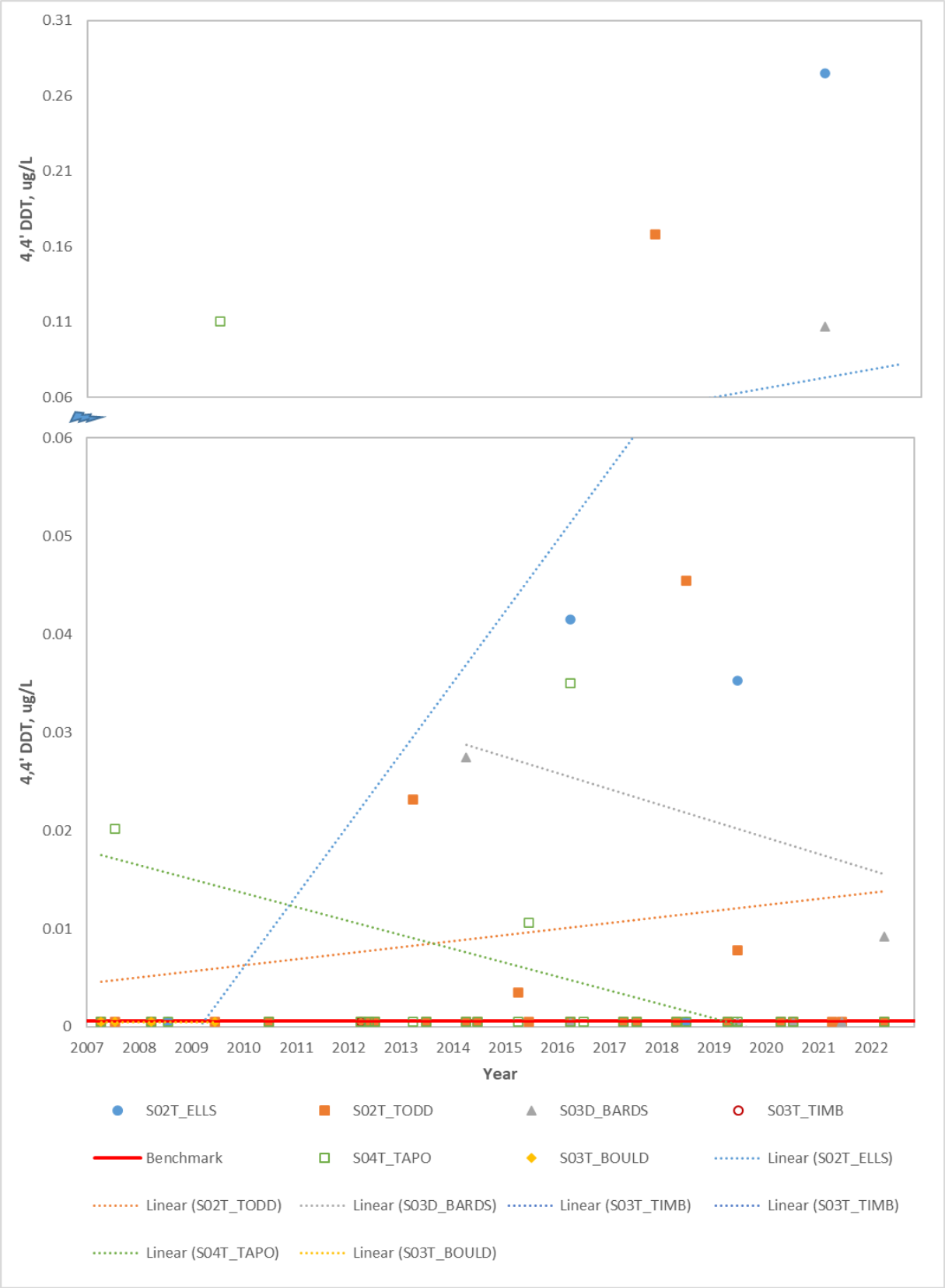

Figure 14. 4,4' DDT Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Dry Weather (note the y-axis scale change).

In wet weather, the trends show an increasing trendline in 4,4’DDT concentrations at S03_BOULD, S04T_TAPO S03T_TIMB, S02T_TODD, and S03_BARDS and a decreasing trendline in 4,4’DDT concentrations at S02T_ELLS.

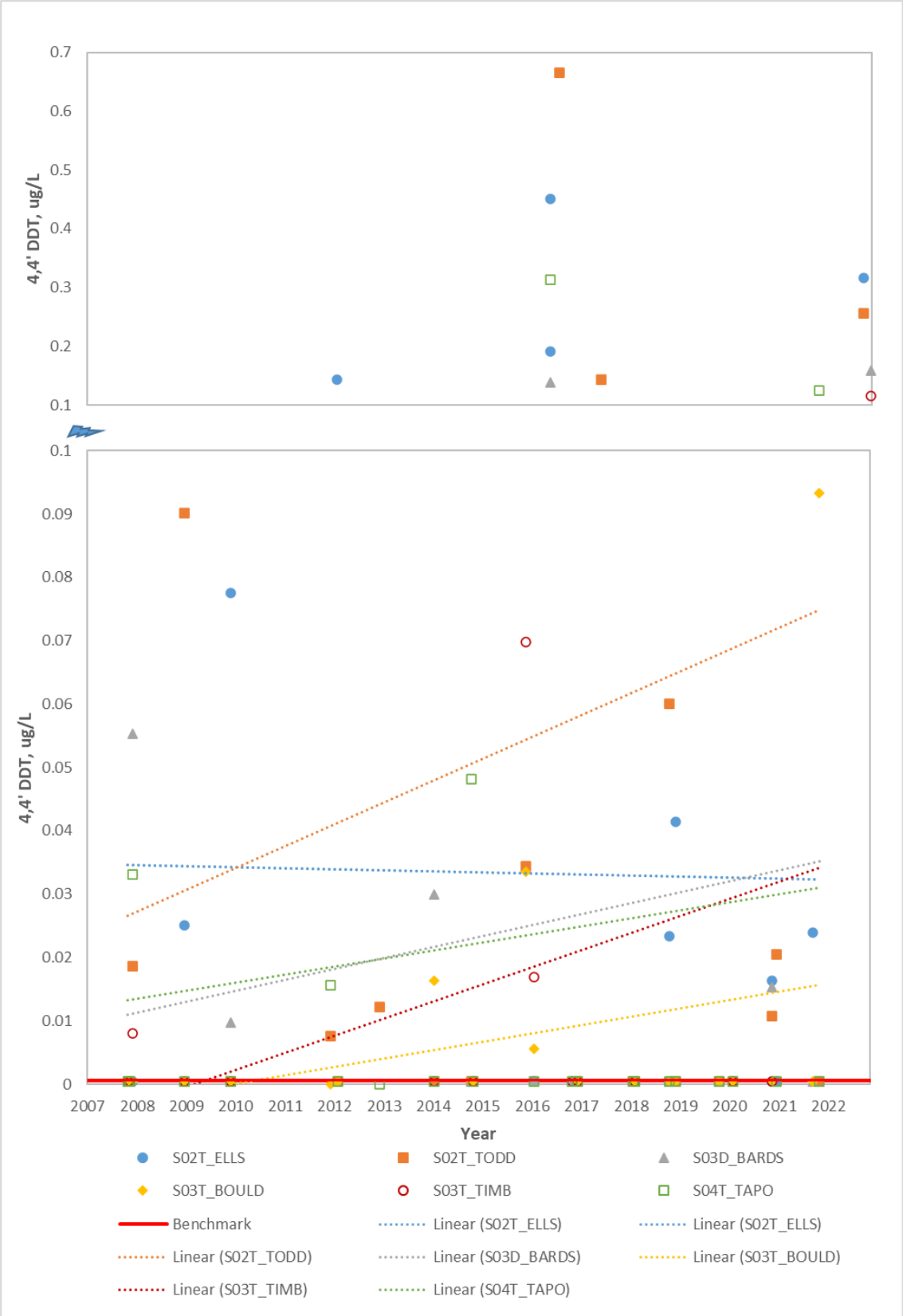

Figure 15. 4,4' DDT Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Wet Weather (note the y-axis scale change).

6.1.2.2.3 Ventura River Watershed

In the Ventura River Watershed, overall exceedances are lower in total numbers and percentages (Table 9 and Figure 16). For both wet and dry weather, the site with the highest percentage of 4,4' DDT exceedances is VRT_SANTO, followed by VRT_THACH.

Table 9. 4,4' DDT Exceedances at VCAILG Ventura River Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
VRT_THACH	14	4	29
VRT_SANTO	12	4	33

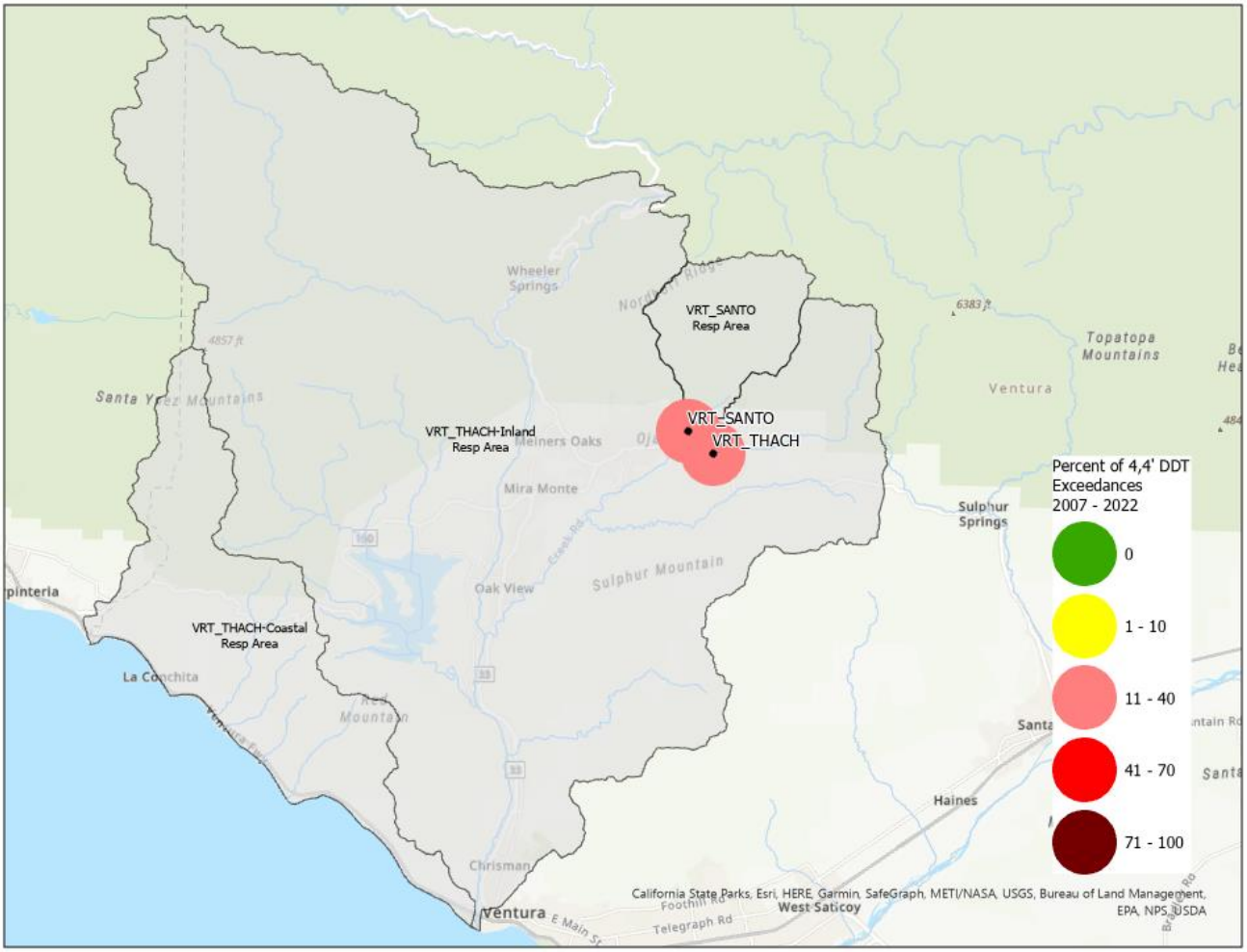

Figure 16. 4,4'DDT Water Quality Benchmark Exceedances in Ventura River Watershed 2007-2022.

During dry weather, in the Ventura River Watershed, the 4,4’ DDT was not detected in the samples collected at VRT_SANTO and VRT_THACH locations in May 2018. Samples were not collected during the rest of the dry events due to lack of flow.

In wet weather (Figure 17), trendlines show an increasing trend in 4,4’ DDT concentrations at both VRT_SANTO and VRT_THACH. There are water quality benchmark exceedances at both VRT_SANTO and VRT_THACH. No samples were collected in 2021 or 20222 at either site due to no flow or lack of flow.

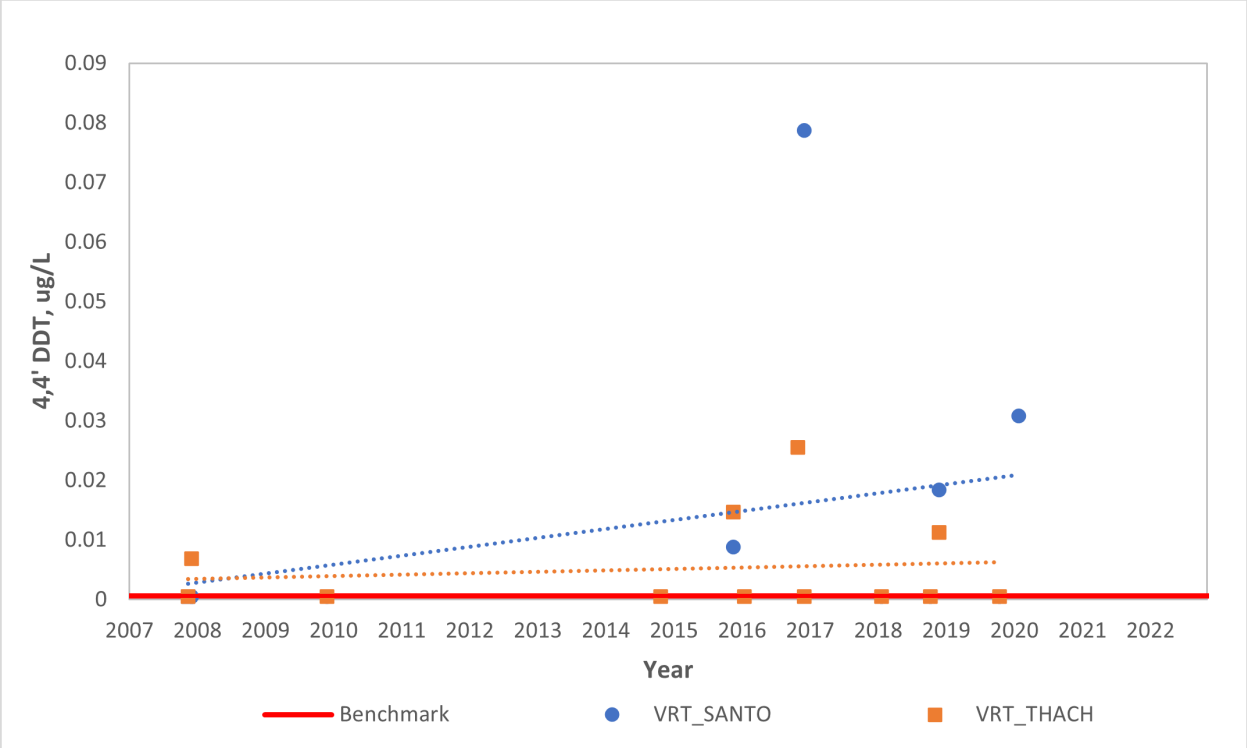

Figure 17. 4,4' DDT Concentrations at VCAILG Ventura River Watershed Representative Monitoring Sites during Wet Weather.

6.1.2.3. Chlorpyrifos and Diazinon Data Analysis

Figures 10 through 17 present the monitoring data analysis for chlorpyrifos and diazinon, which are organophosphate pesticides. The water quality benchmark for chlorpyrifos is 0.025 ug/L and is 0.10 ug/L for diazinon. The frequency and magnitude of chlorpyrifos exceedances are decreasing in both watersheds. This coincides with most chlorpyrifos products in California now banned (DPR, 2019 and USEPA, 2021).

6.1.2.3.1. Calleguas Creek Watershed

6.1.2.3.1.1. Chlorpyrifos

In the Calleguas Creek Watershed for both wet and dry weather the highest percentage of chlorpyrifos exceedances is at 05D_LAVD followed by 06T_LONG2, 05T_HONDO, and OXD_CENTR. The highest number of exceedances is seen at 05D_LAVD and there are no exceedances at 04D_LAS (Figure 18 and Table 10).

Table 10. Chlorpyrifos Exceedances at VCAILG Calleguas Creek Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
01T_ODD3_ARN_EDI	47	3	6
04D_ETTG	53	4	8
04D_LAS	27	0	0
05D_LAVD	28	11	39
05T_HONDO	15	2	13
06T_LONG2	8	2	25
OXD_CENTR	49	6	12

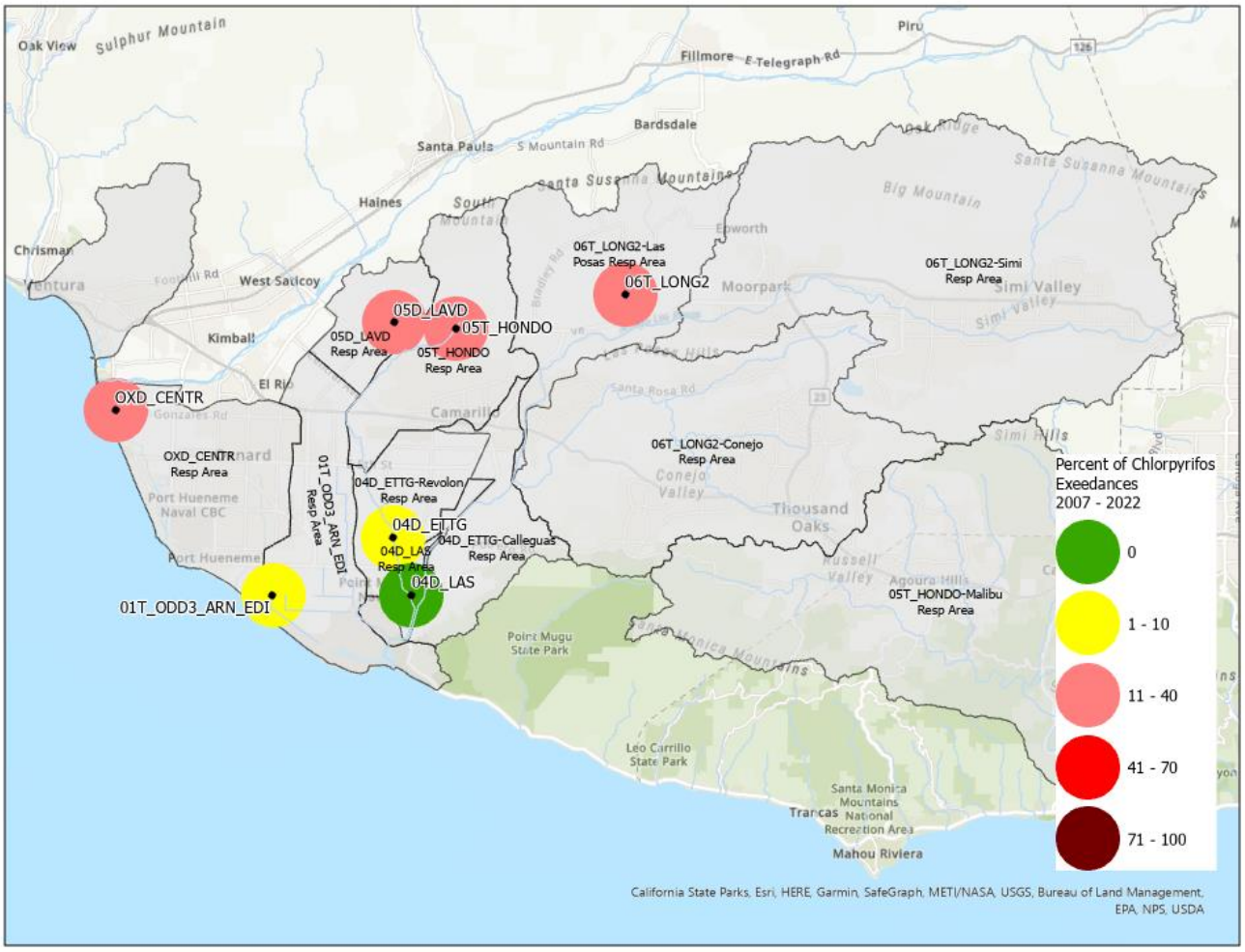

Figure 18. Chlorpyrifos Water Quality Benchmark Exceedances in Calleguas Creek 2007-2022.

In dry weather, there are decreasing trendlines at all sampling locations for chlorpyrifos concentrations and the last benchmark exceedance was in 2012.

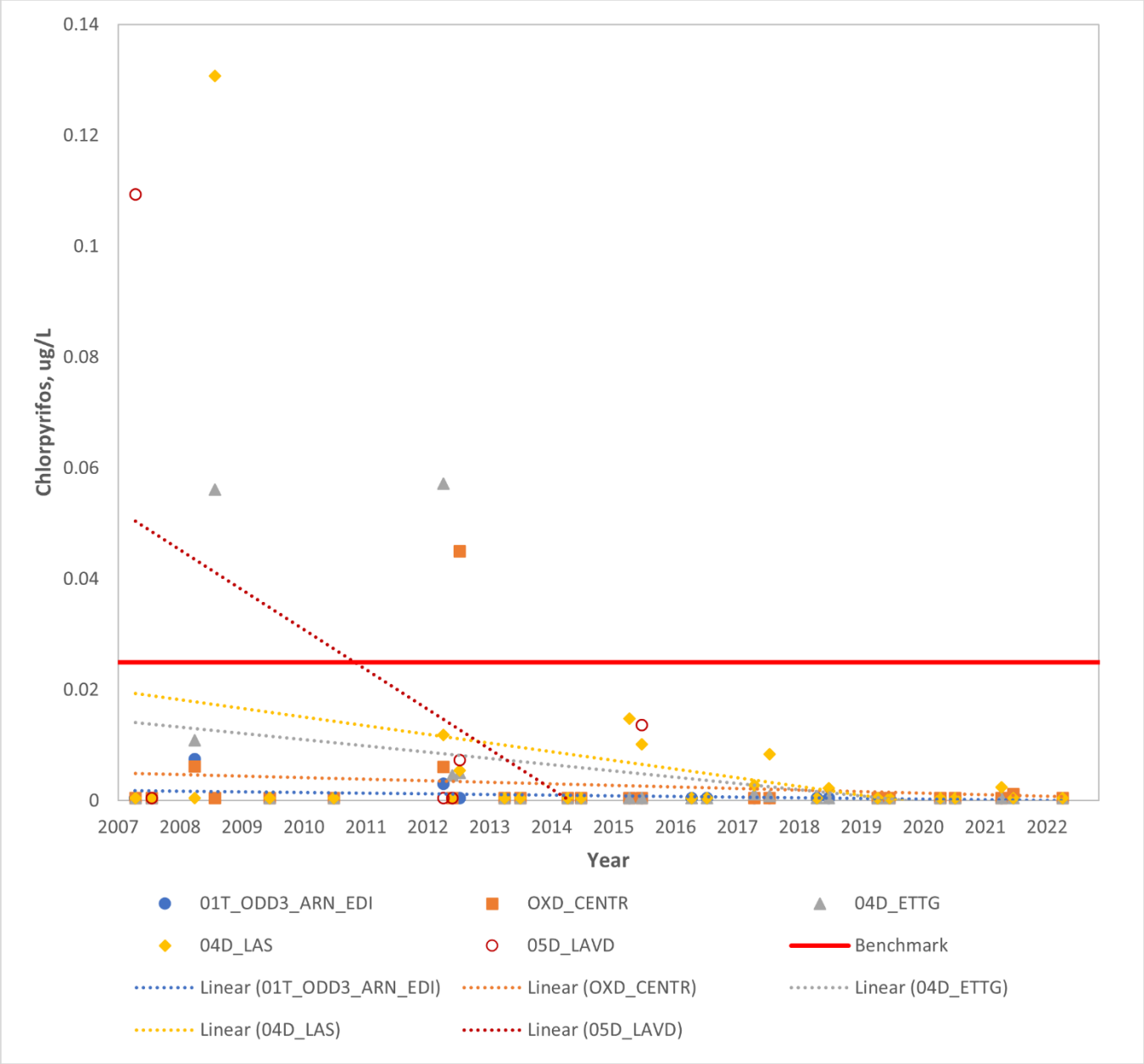

Figure 19. Chlorpyrifos Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Dry Weather.

In wet weather, there are decreasing trendlines at all sampling locations for chlorpyrifos concentrations and the last benchmark exceedance was in 2020.

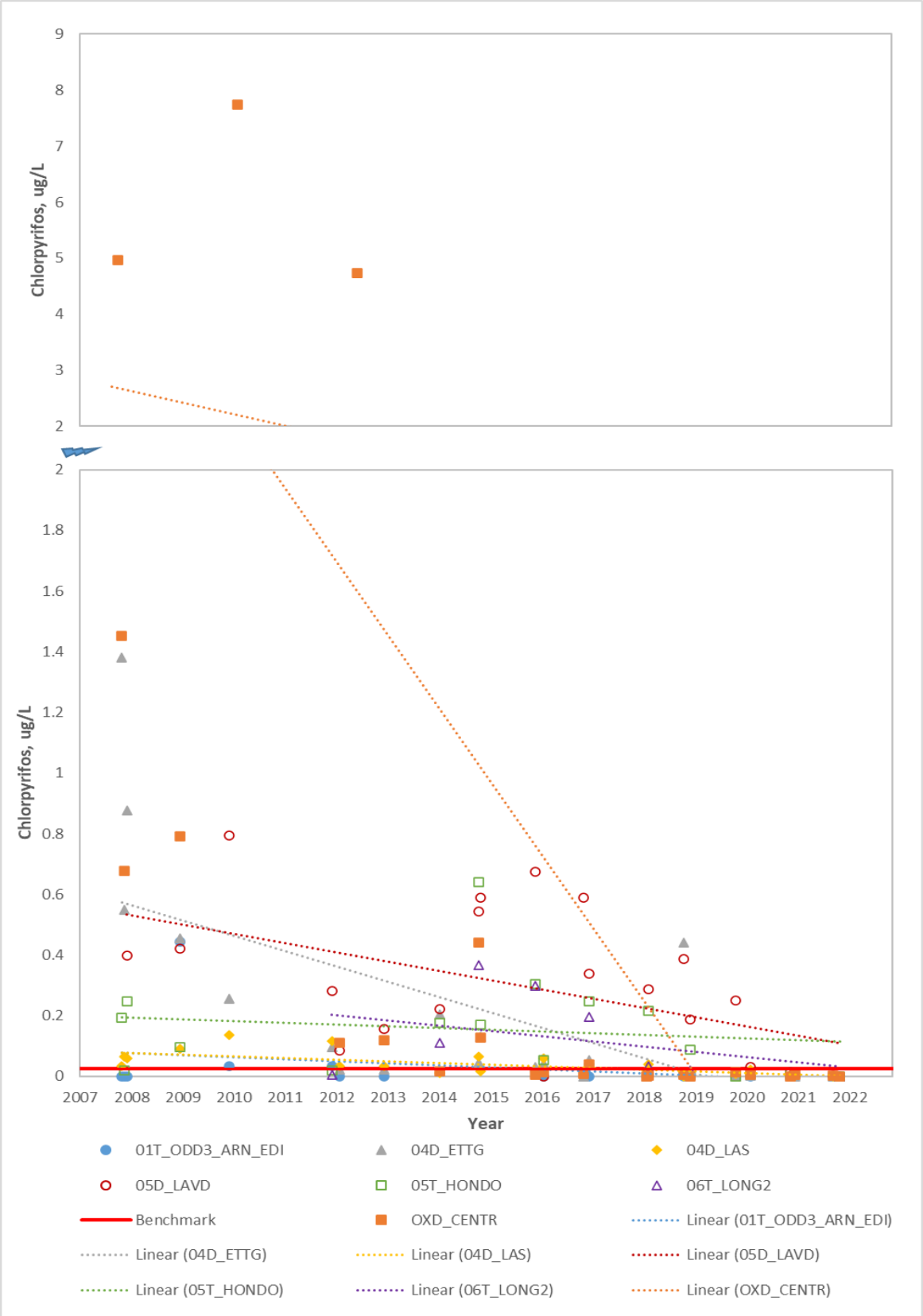

Figure 20. Chlorpyrifos Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Wet Weather (note the y-axis scale change).

6.1.2.3.1.2. Diazinon

In the Calleguas Creek Watershed, the highest percentage of diazinon exceedances is at 06T_LONG2 followed by 04D_LAS, 05T_HONDO, and 05D_LAVD. The highest number of exceedances is seen at 04D_LAS, 05D_LAVD, and 06T_LONG2. There are no exceedances at OXD_CENTR (Figure 21 and Table 11).

Table 11. Diazinon Exceedances at VCAILG Calleguas Creek Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
01T_ODD3_ARN_EDI	47	1	2
04D_ETTG	53	2	4
04D_LAS	23	3	13
05D_LAVD	28	3	11
05T_HONDO	15	2	13
06T_LONG2	8	3	38
OXD_CENTR	49	0	0

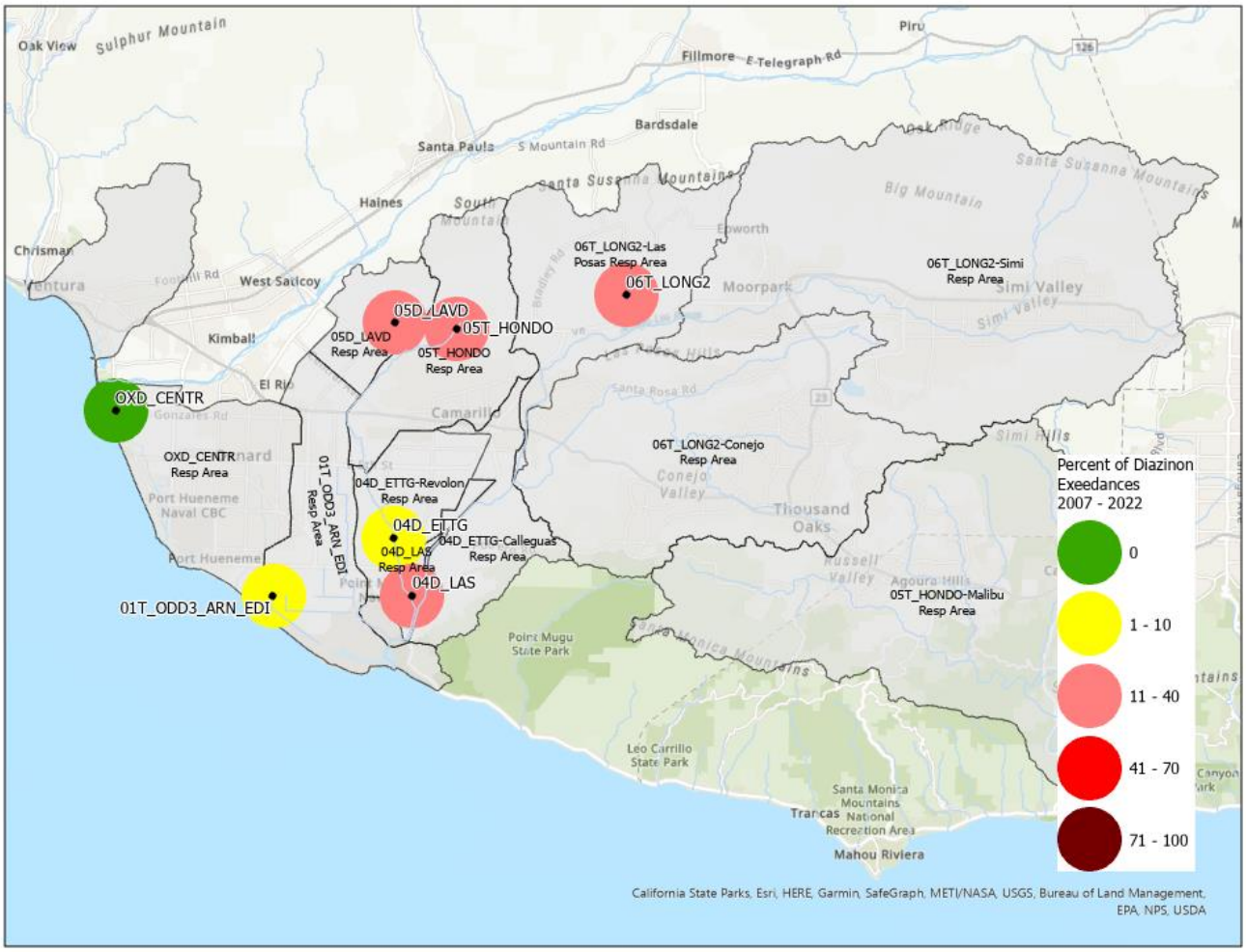

Figure 21. Diazinon Chlorpyrifos Water Quality Benchmark Exceedances in Calleguas Creek 2007-2022.

In dry weather, there are decreasing trendlines for diazinon concentrations at all sampling locations. There has been only one benchmark exceedance that was seen in 2008.

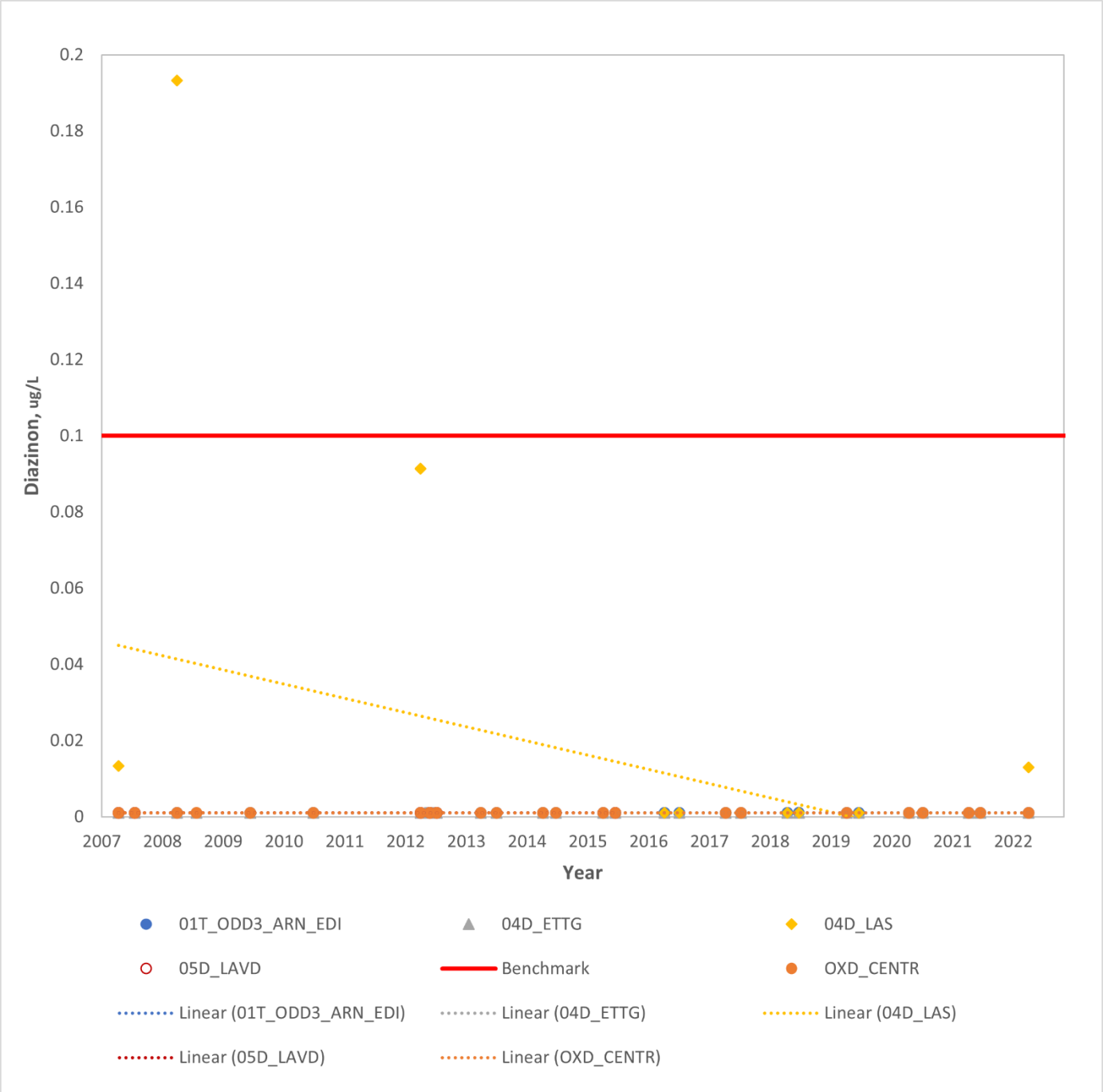

Figure 22. Diazinon Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Dry Weather.

In wet weather, there are decreasing trendlines for diazinon concentrations at 05T_HONDO, 04D_ETTG, 01T_ODD3_ARN_EDI, and OXD_CENTR. There is a strong increasing trendline for diazinon concentrations at 06T_LONG2 and a slight increasing trendlines for diazinon concentrations at 05D_LAVD and 04D_LAS.

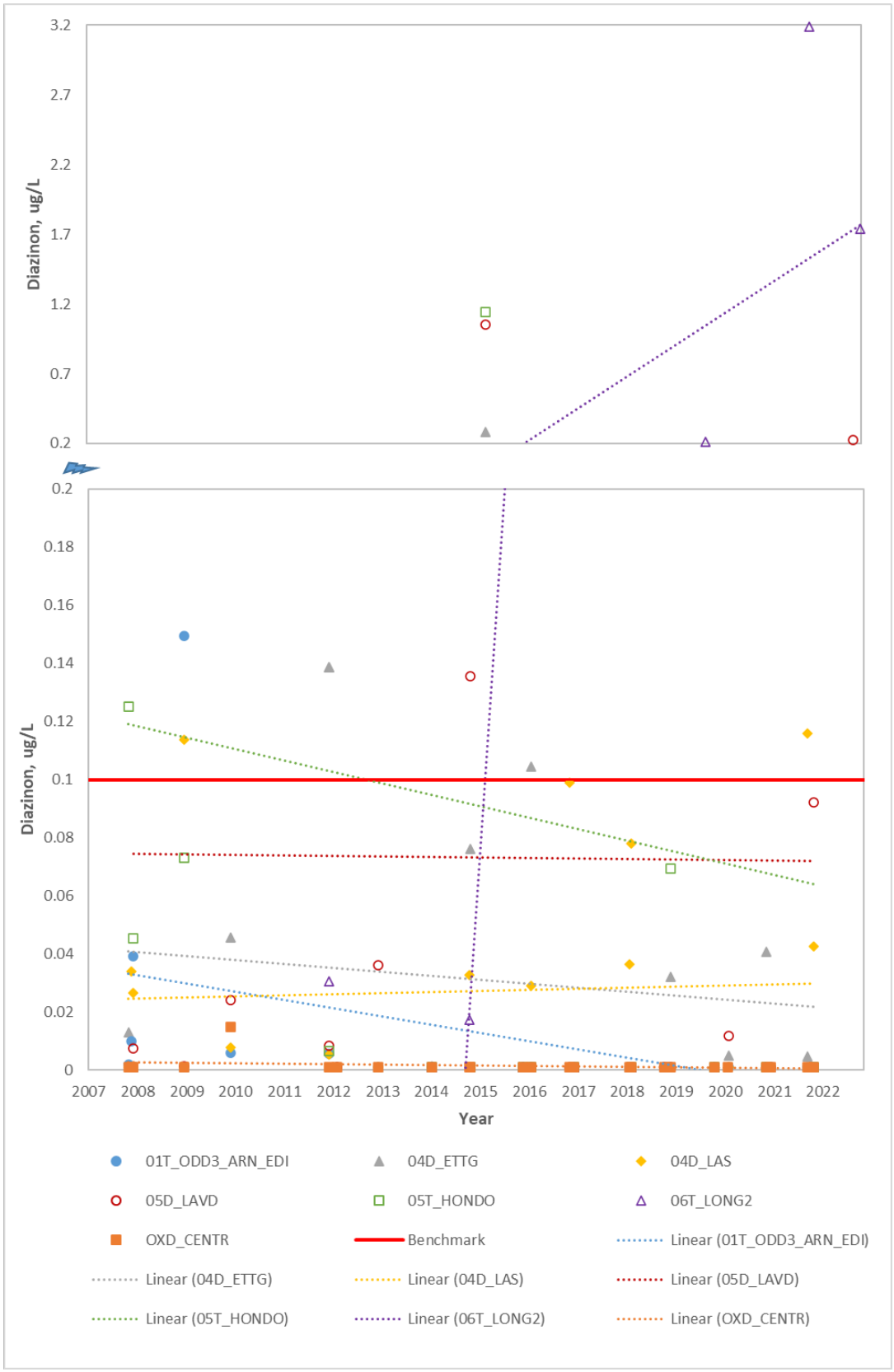

Figure 23. Diazinon Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Wet Weather (note the y-axis scale change).

6.1.2.3.2. Santa Clara River Watershed

6.1.2.3.2.1. Chlorpyrifos

In the Santa Clara River Watershed, the highest number and percentage of chlorpyrifos exceedances is at S03D_BARDs, followed by S02T_ELLS (Table 12). There have been no exceedances at S04T_TAPO (Figure 24 and Table 12).

Table 12. Chlorpyrifos Exceedances at VCAILG Santa Clara River Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
S02T_ELLS	30	10	33
S02T_TODD	52	6	12
S03D_BARDS	24	11	46
S03T_BOULD	26	1	4
S03T_TIMB	16	4	25
S04T_TAPO	50	0	0

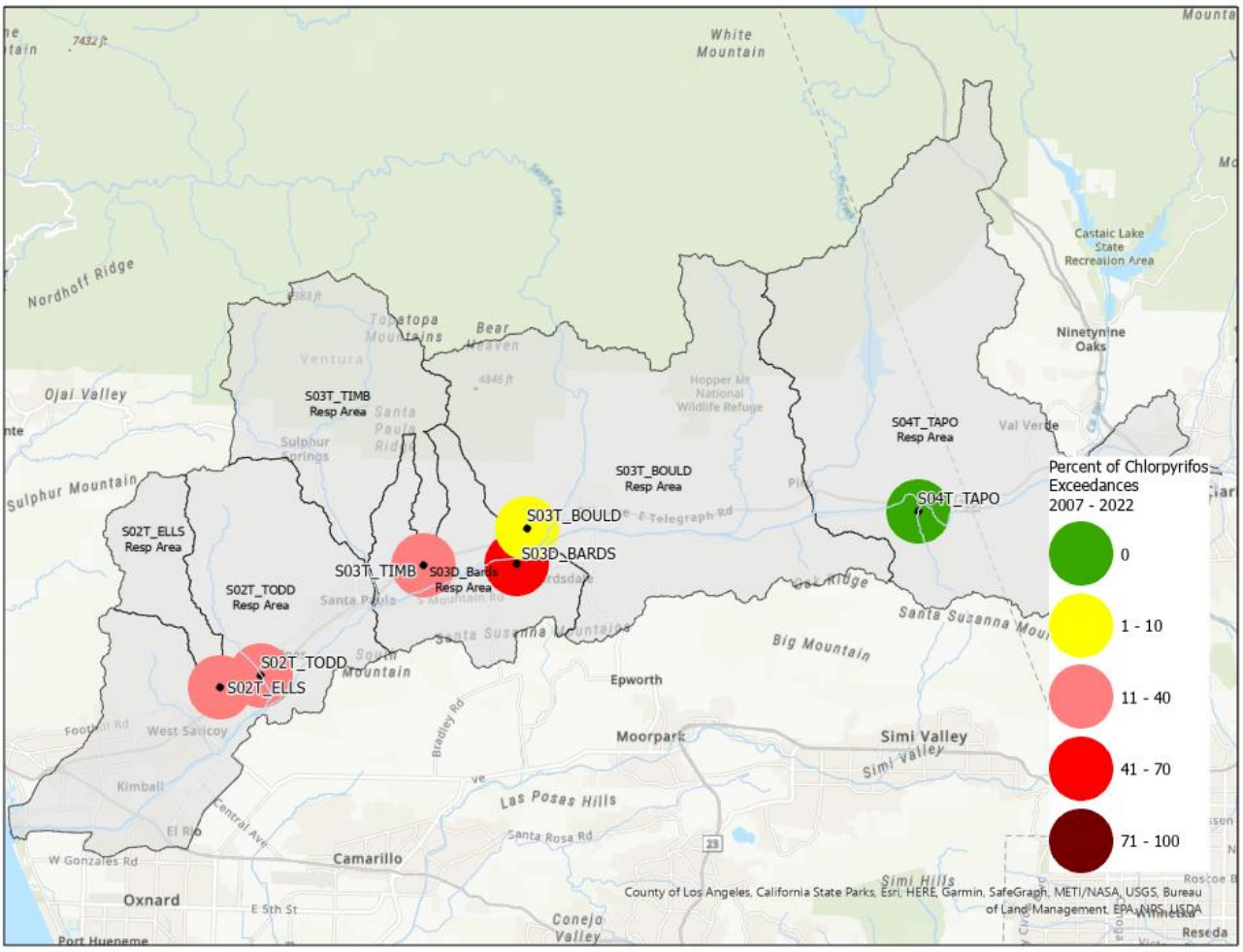

Figure 24. Chlorpyrifos Water Quality Benchmark Exceedances in Santa Clara River Watershed 2007-2022

In dry weather (Figure 25), the trendlines for chlorpyrifos concentrations indicate concentrations are decreasing at all locations except S03D_BARDS, which shows a slight increase. The last benchmark exceedance at any sampling location was 2019.

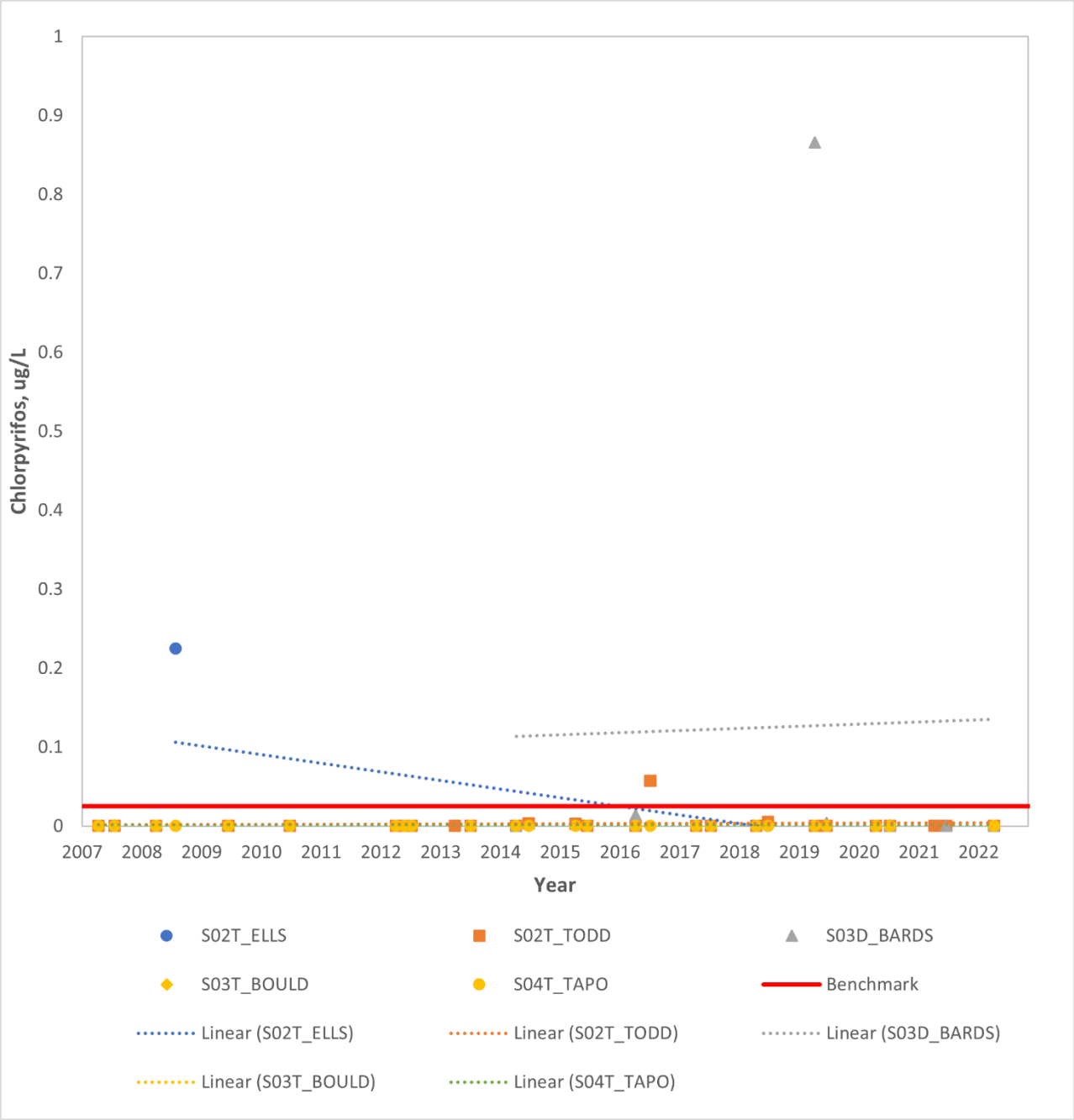

Figure 25. Chlorpyrifos Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Dry Weather

In wet weather (Figure 26), the trendlines for chlorpyrifos concentrations indicate decreases at all locations except a slight increase at S02T_ELLS. The last benchmark exceedance at any sampling location was 2020.

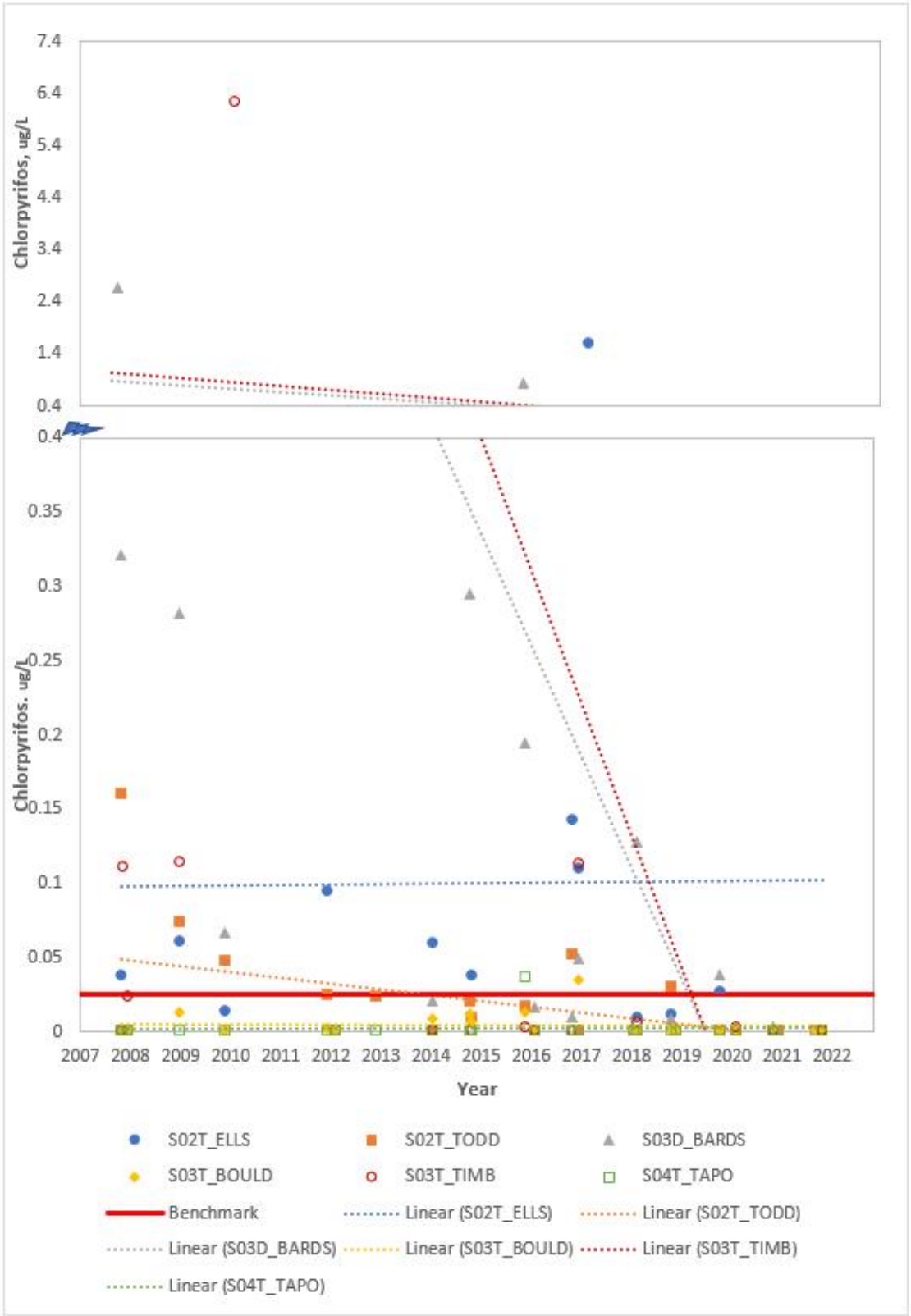

Figure 26. Chlorpyrifos Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Wet Weather Monitoring (note the y-axis scale change).

6.1.2.3.2.2. Diazinon

In the Santa Clara River Watershed, the highest percentage of exceedances of diazinon is at S03D_BARDS. The highest number of exceedances is seen at S03D_BARDs, there are no exceedances at S02T_ELLS, S03T_BOULD, and S04T_TAPO (Table 13 and Figure 27).

Table 13. Diazinon Exceedances at VCAILG Santa Clara River Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
S02T_ELLS	31	0	0
S02T_TODD	52	1	2
S03D_BARDS	24	3	13
S03T_BOULD	26	0	0
S03T_TIMB	16	1	6
S04T_TAPO	50	0	0

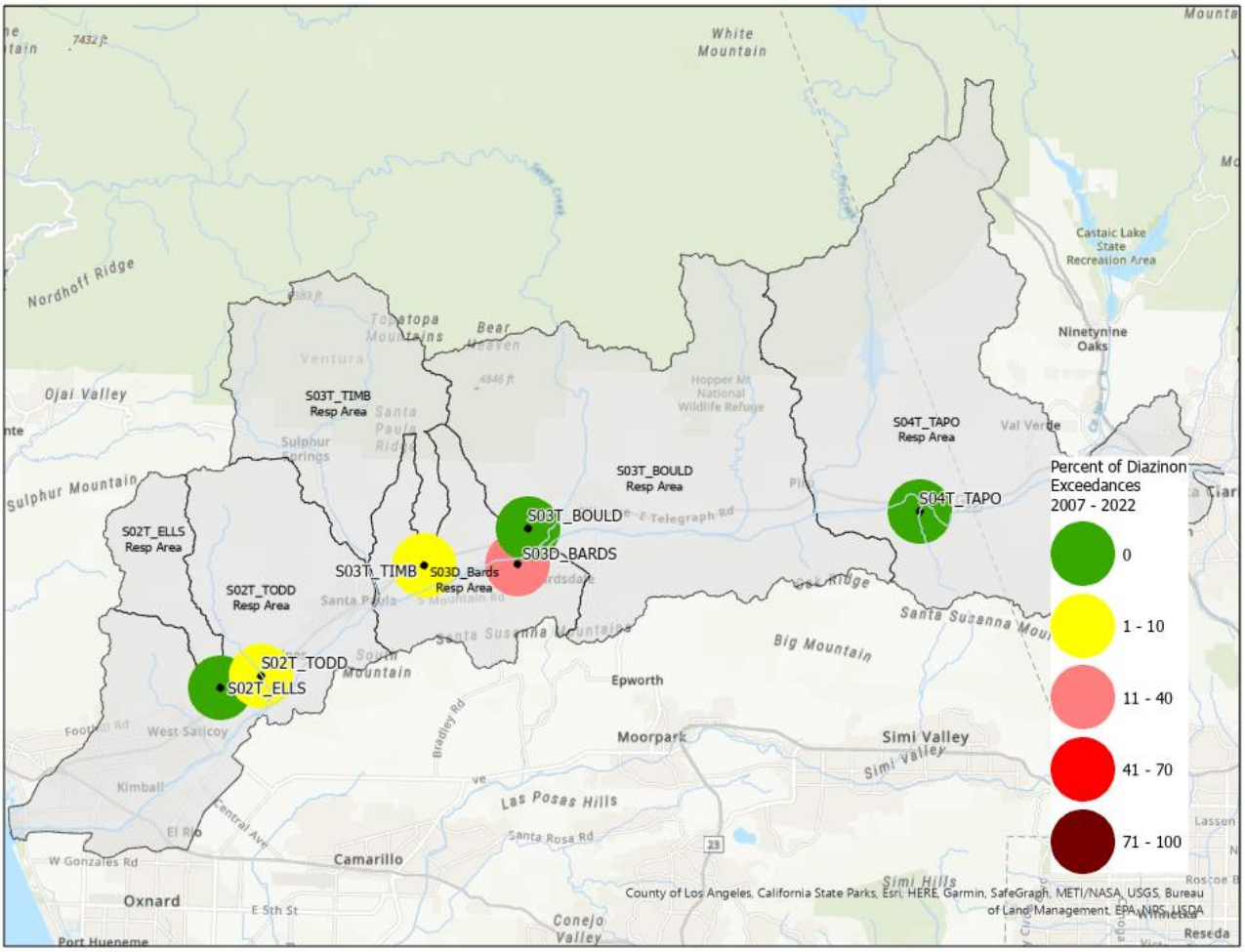

Figure 27. Diazinon Chlorpyrifos Water Quality Benchmark Exceedances in Santa Clara River Watershed 2007-2022

In dry weather (Figure 28), all sampling locations have a decreasing trendline for diazinon concentrations, except for S02_BARDS. All samples are below the benchmark in dry weather except for one collected in 2009 at the S02T_TODD sampling location and one collected in 2019 at S03D_BARDS sampling location.

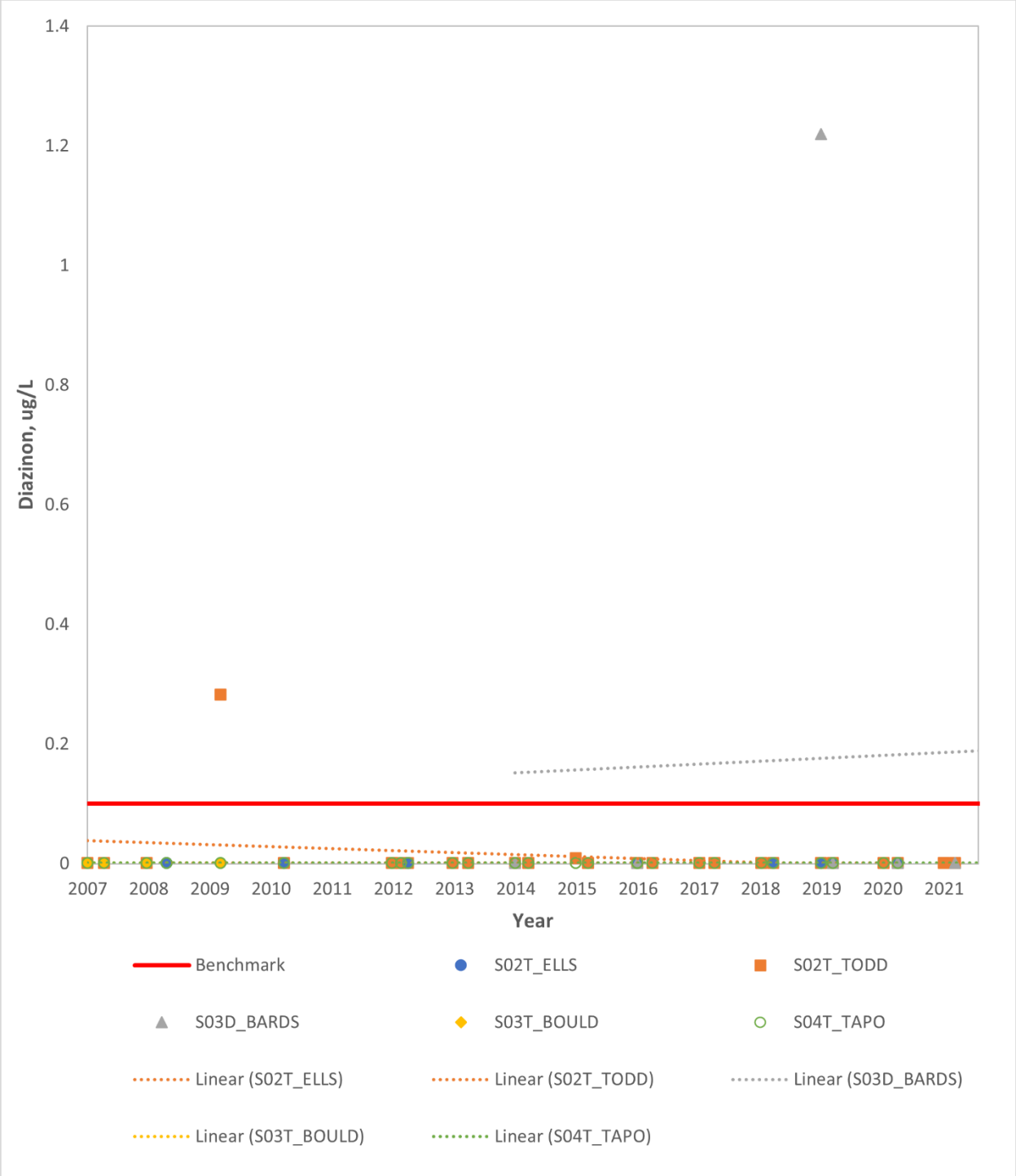

Figure 28. Diazinon Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Dry Weather

In wet weather (Figure 29), there are decreasing trendlines for diazinon concentrations at all sampling locations. There have been 4 benchmark exceedances, the last seen in 2016.

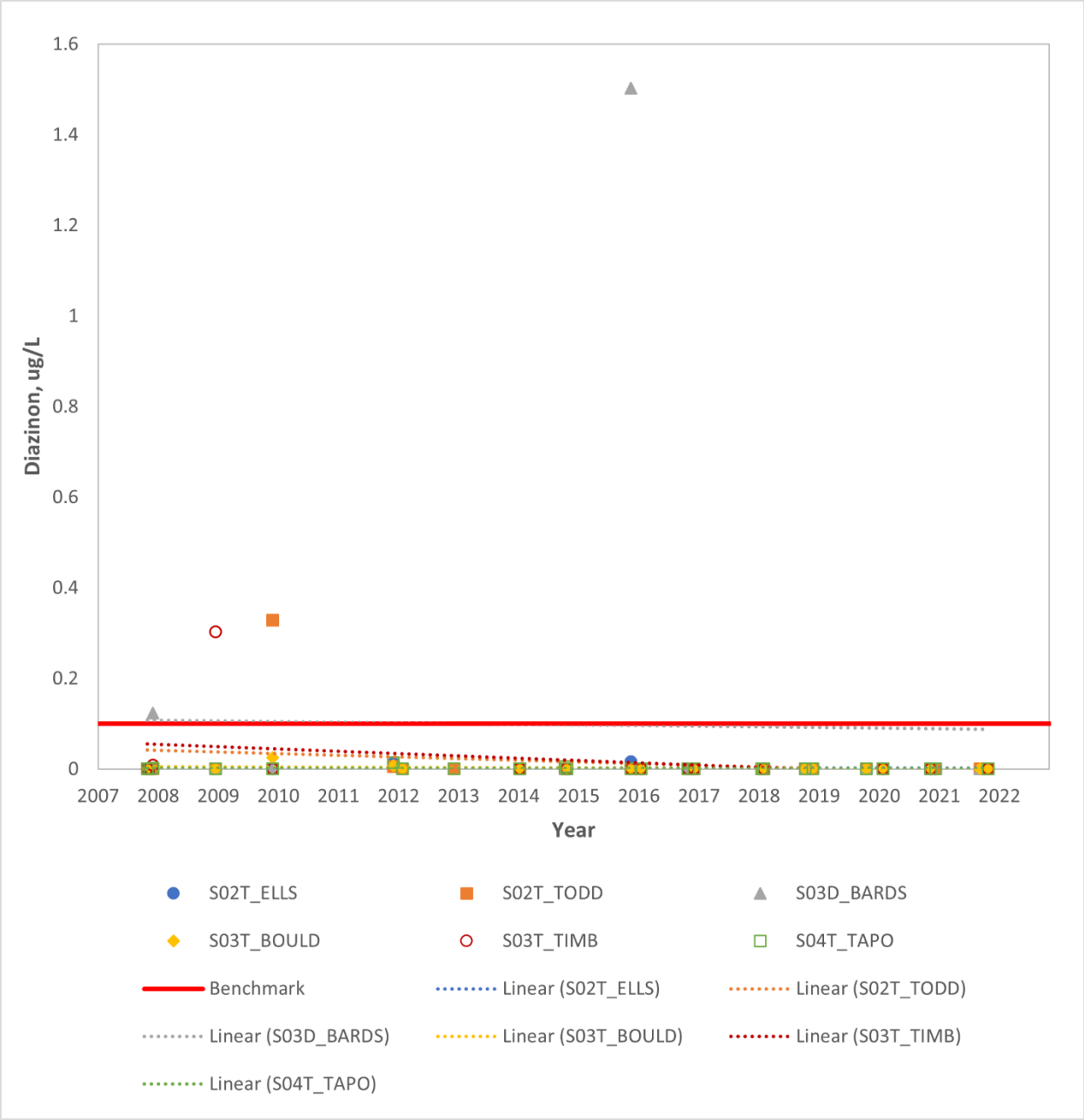

Figure 29. Diazinon Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Wet Weather

6.1.2.3.3. Ventura River Watershed

6.1.2.3.3.1 Chlorpyrifos

In the Ventura River Watershed, neither VRT_THACH nor VRT_SANTO had any water quality benchmark exceedances for chlorpyrifos (Figure 30, Table 14).

Table 14. Chlorpyrifos Exceedances at VCAILG Ventura River Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
VRT_THACH	14	0	0
VRT_SANTO	12	0	0

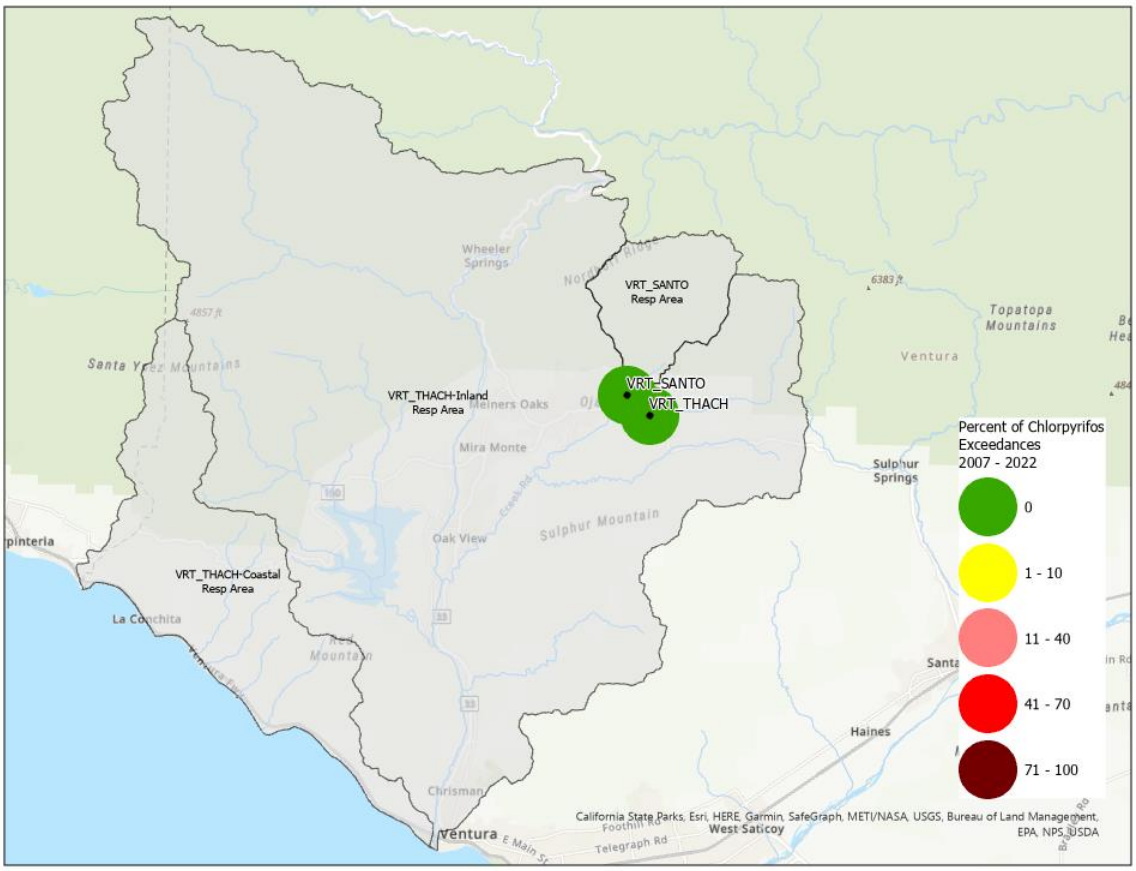

Figure 30. Chlorpyrifos Water Quality Benchmark Exceedances in Ventura River Watershed 2007-2022

During dry weather, in the Ventura River Watershed, chlorpyrifos was not detected in the samples collected at VRT_SANTO and VRT_THACH locations in May 2019. Samples were not collected during the rest of the dry events due to lack of flow.

During wet weather, all samples taken at both VRT_SANTO and VRT_THACH were below the water quality benchmark for chlorpyrifos. The trendline is slightly increasing for chlorpyrifos concentrations at VRT_THACH and is stagnant at VRT_SANTO.

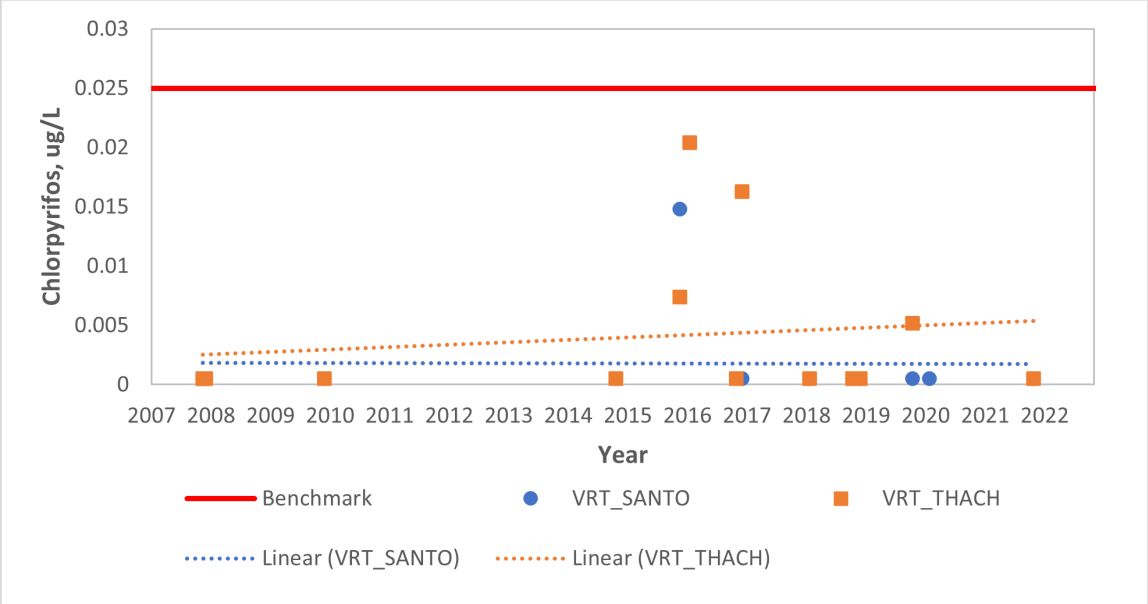

Figure 31. Chlorpyrifos Concentrations at VCAILG Ventura River Watershed Representative Monitoring Sites during Wet Weather

6.1.2.3.3.2. Diazinon

In the Ventura River Watershed, neither VRT_THACH nor VRT_SANTO had any water quality benchmark exceedances for diazinon (Figure 32, Table 15).

Table 15. Diazinon Exceedances at VCAILG Ventura River Watershed Representative Monitoring Sites 2007-2022

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
VRT_THACH	14	0	0
VRT_SANTO	12	0	0

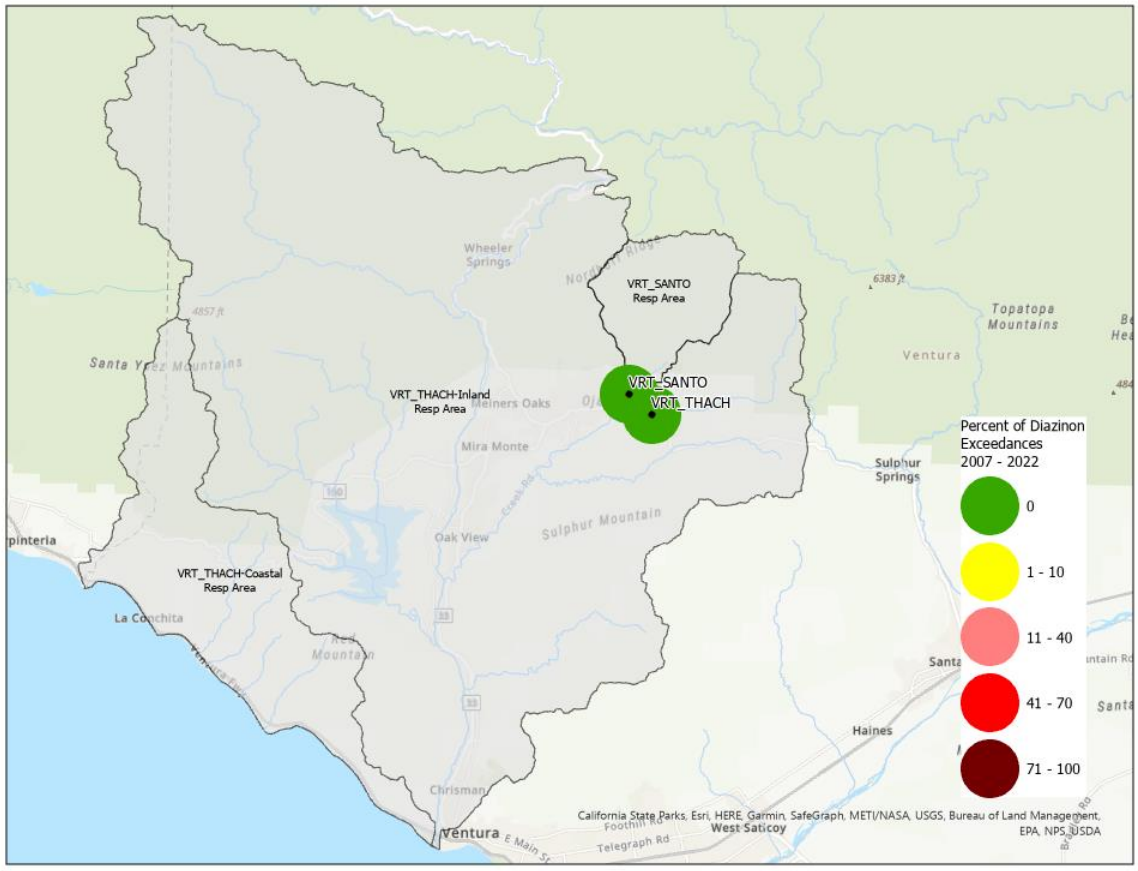

Figure 32. Diazinon Water Quality Benchmark Exceedances in Ventura River Watershed 2007-2022

During dry weather, in the Ventura River Watershed, diazinon was not detected in the samples collected at VRT_SANTO and VRT_THACH locations in May 2019. Samples were not collected during the rest of the dry events due to lack of flow.
During wet weather, diazinon was not detected in the samples collected at both VRT_SANTO and VRT_THACH (Figure 33).

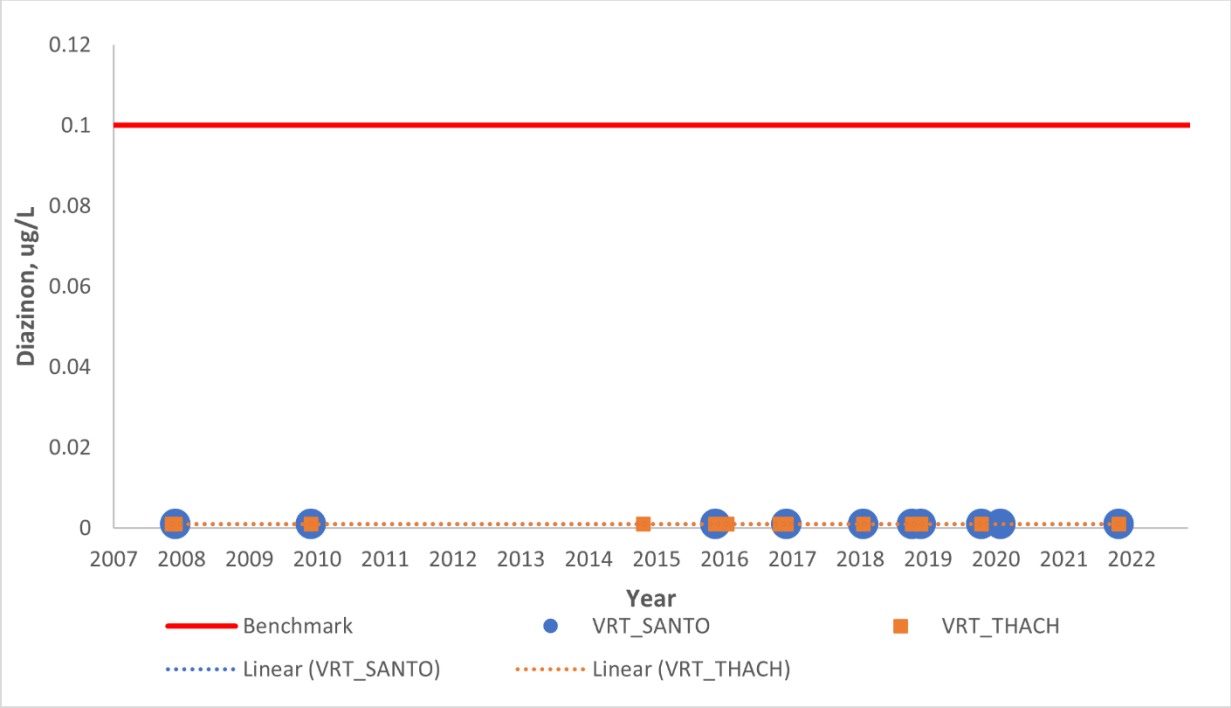

Figure 33. Diazinon Concentrations at VCAILG Ventura River Watershed Representative Monitoring Sites during Wet Weather

6.1.2.4. Pyrethroids Data Analysis

Bifenthrin is a common pyrethroid pesticide. The benchmark for bifenthrin in water is 0.0006 ug/L.

6.1.2.4.1. Calleguas Creek Watershed

In the Calleguas Creek Watershed, the highest percentage of bifenthrin exceedances is at 05D_LAVD, followed by 04D_LAS, 05T_HONDO, and OXD_CENTR. The highest number of exceedances is seen at OXD_CENTR and 05D_LAVD (Table 16 and Figure 34).

Table 16. Bifenthrin Exceedances at VCAILG Calleguas Creek Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
01T_ODD3_ARN_EDI	47	12	26
04D_ETTG	53	12	23
04D_LAS	17	9	53
05D_LAVD	27	19	70
05T_HONDO	14	7	50
06T_LONG2	8	3	38
OXD_CENTR	47	22	47

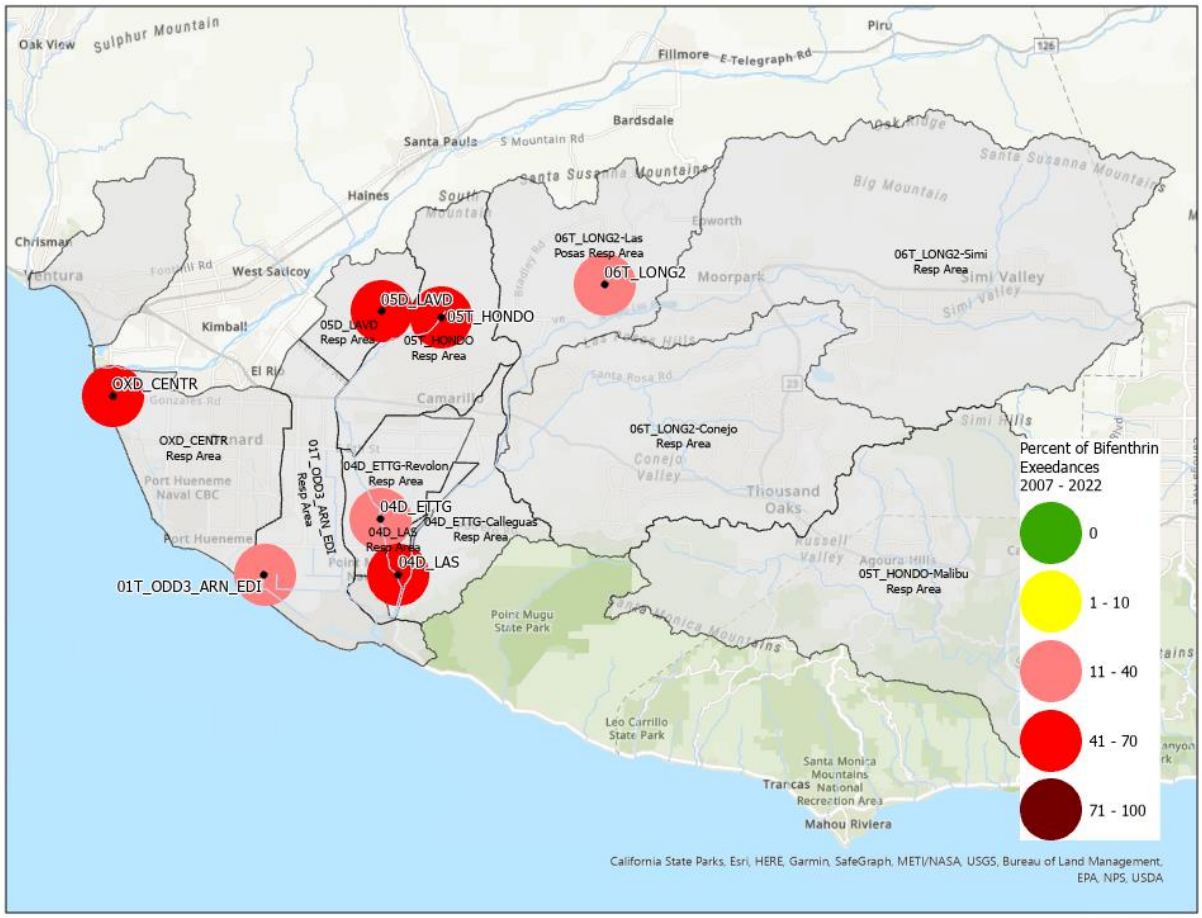

Figure 34. Bifenthrin Water Quality Benchmark Exceedances in Calleguas Creek Watershed 2007-2022

In the Calleguas Creek Watershed, samples collected during dry weather events show bifenthrin concentrations increased at the 05D_LAVD sampling location and decreased at the rest of the locations. Most of the detections are below the benchmark (Figure 35).

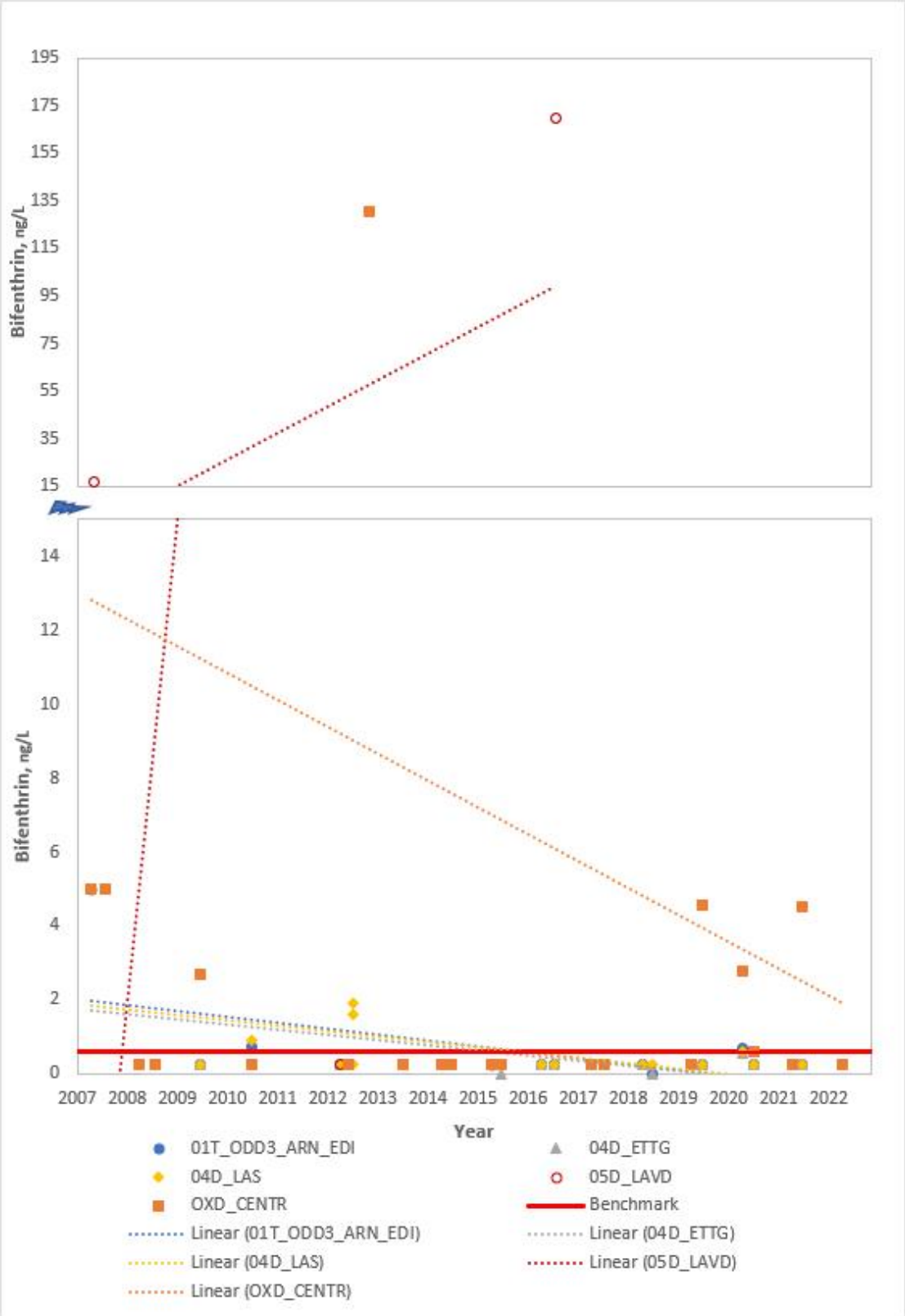

Figure 35. Bifenthrin Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Dry Weather, note the y-axis scale change.

The analysis of bifenthrin data collected during wet weather indicates increasing trends at three sampling locations (OXD_CENTR, 04D_ETTG, and 01T_ODD3_ARN_EDI). There is a stable trend at 04D_LAS. At monitoring locations 06T_LONG2, 05T_HONDO, and 06T_LONG2 the concentrations are decreasing, but are higher than the benchmark (Figure 36).

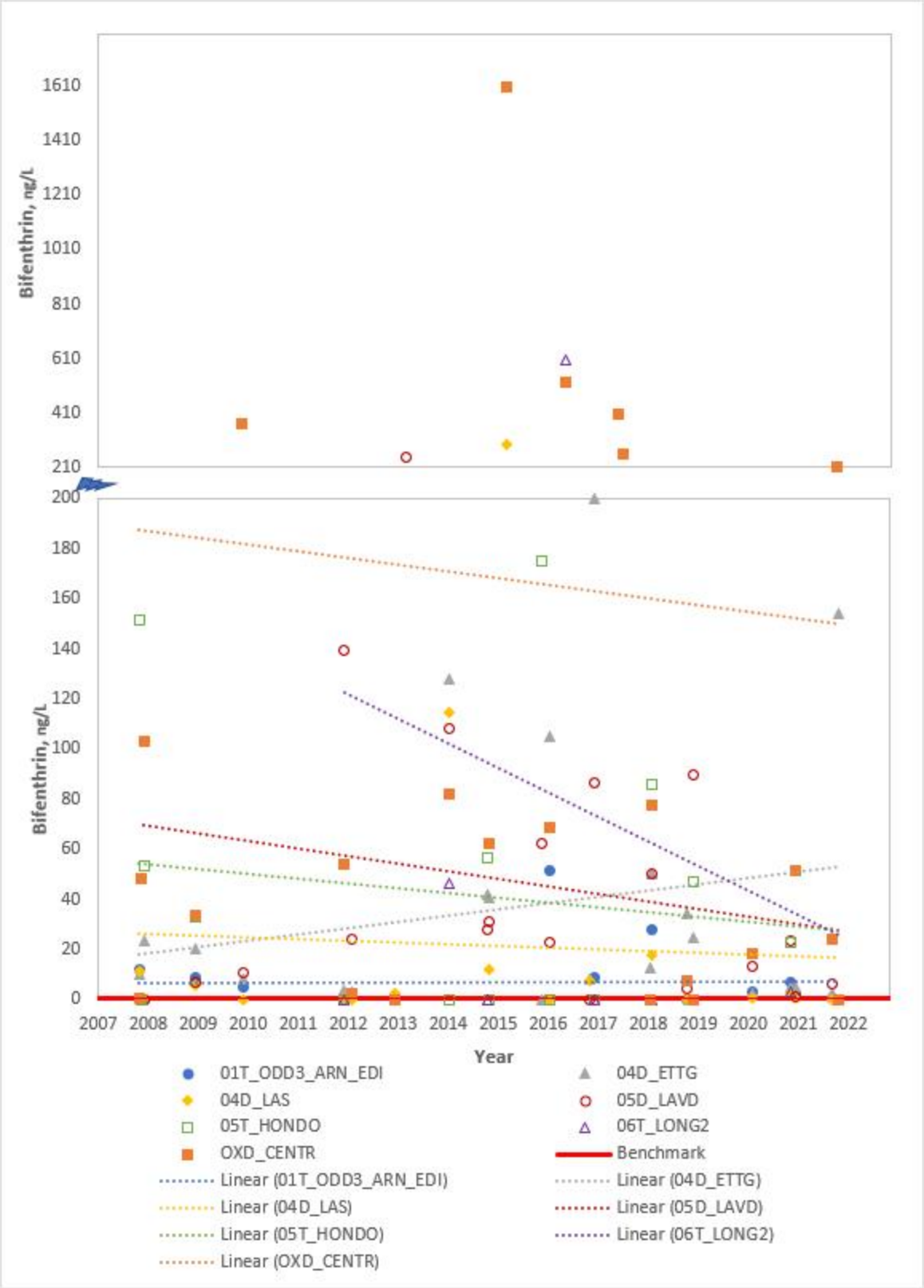

Figure 2 Bifenthrin Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Wet Weather, note the y-axis scale change

6.1.2.4.2. Santa Clara River Watershed

In the Santa Clara River Watershed, the highest percentage of bifenthrin exceedances is S03T_BOULD followed by S03D_BARDS and S02T_ELLS. The highest number of exceedances is at S03T_BOULD and S02T_ELLS (Table 17 and Figure 37).

Table 17. Bifenthrin Exceedances at VCAILG Santa Clara River Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
S02T_ELLS	31	14	45
S02T_TODD	52	10	19
S03D_BARDS	24	11	46
S03T_BOULD	26	16	62
S03T_TIMB	16	4	25
S04T_TAPO	37	5	14

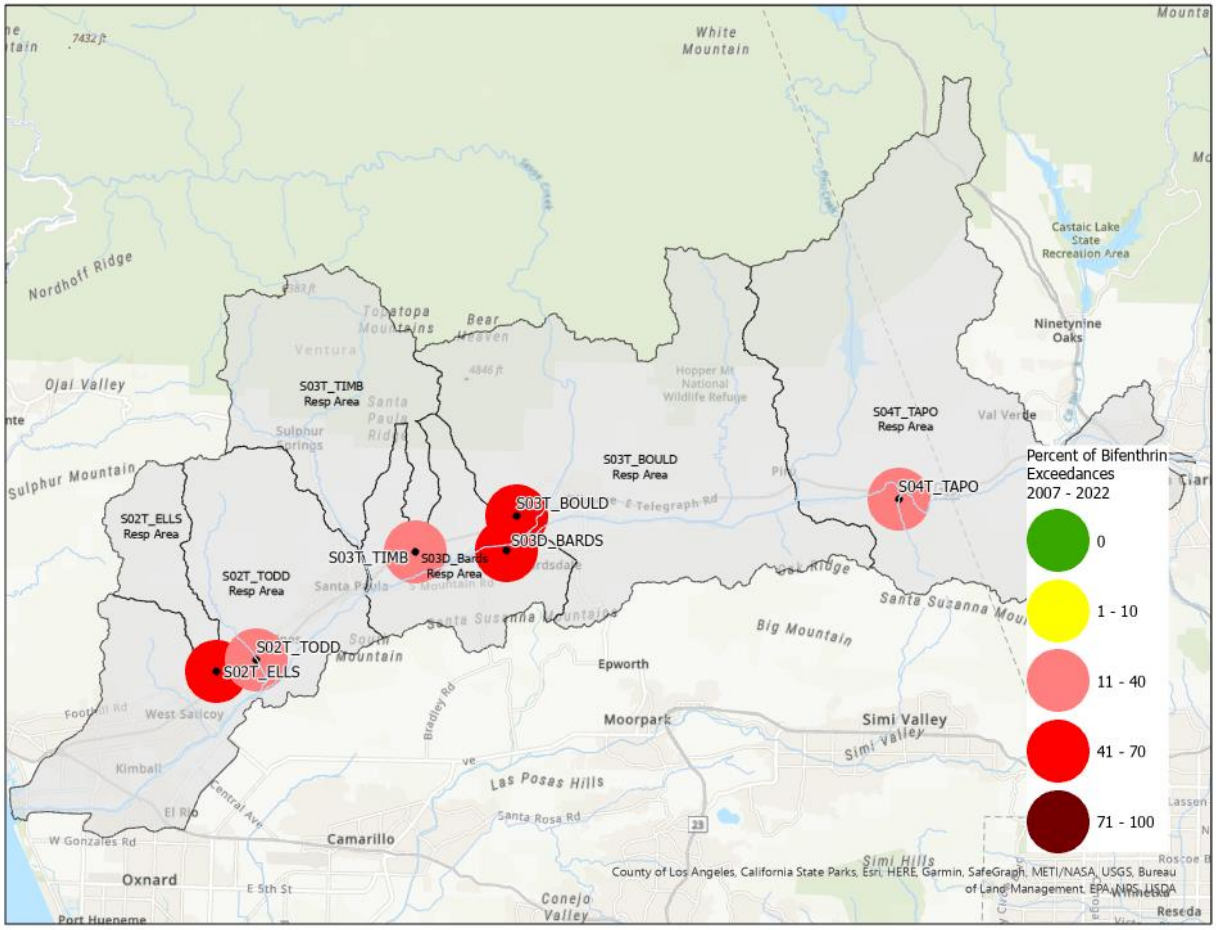

Figure 37. Bifenthrin Water Quality Benchmark Exceedances in Santa Clara River Watershed 2007-2022

In the Santa Clara River Watershed during dry weather, the bifenthrin water quality trend line increased at four sampling locations (S03D_BARDS, S02T_TODD, S03T_BOULD, and S02T_ELLS) and decreased at one location (S04T_TAPO) (Figure 38). Samples were not collected at S03T_BOULD sampling location since 2009 due to lack of flow. A number of more recently collected samples were much higher than the benchmark.

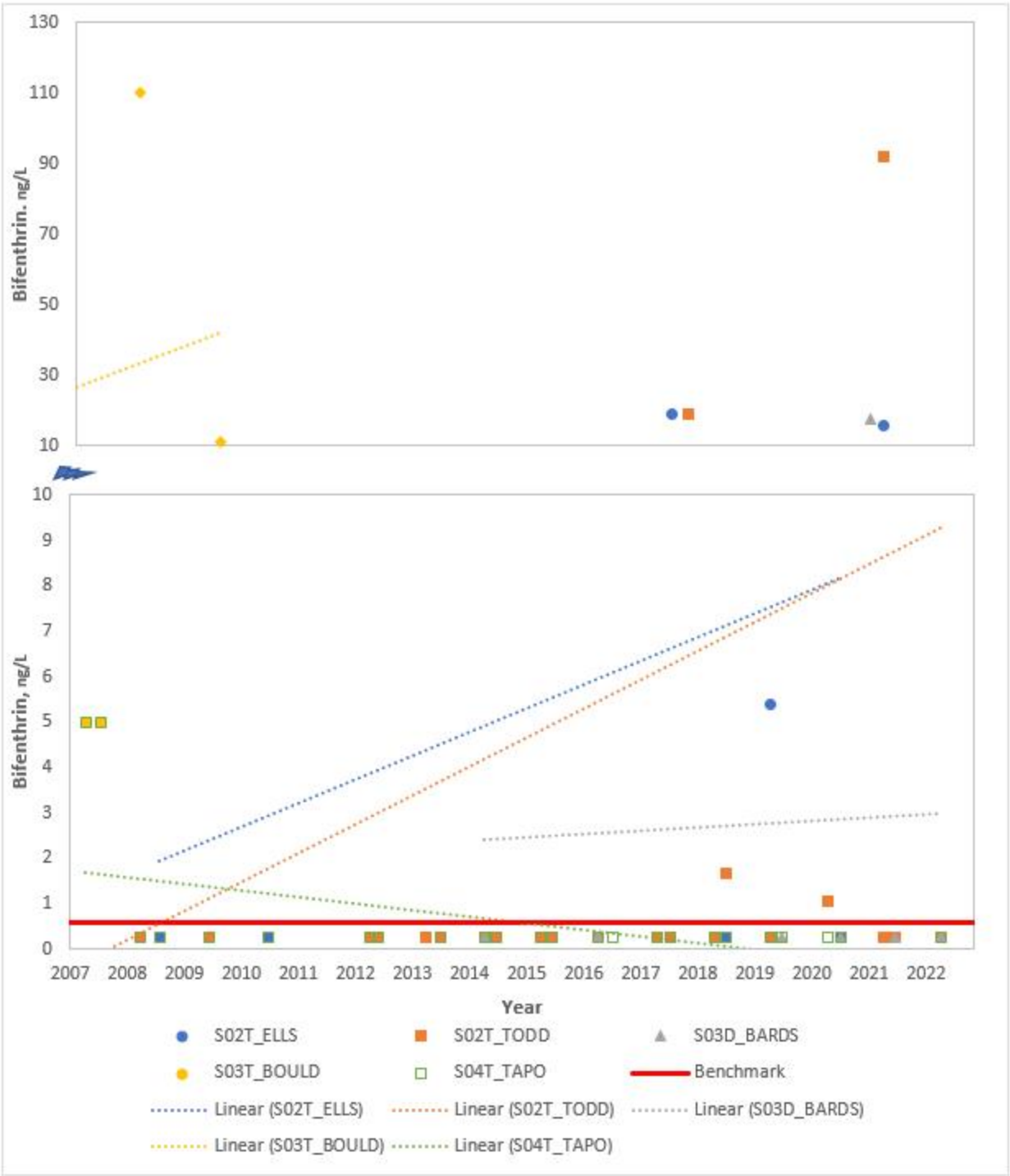

Figure 38. Bifenthrin Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Dry Weather, note the y-axis scale change

In wet weather in the Santa Clara River Watershed, the trend lines show an increase at three sampling locations (S02T_ELLS, S02T_TODD, and S03D_BARDS) and relatively stable trends at three locations (S03T_BOULD, S04T_TAPO and S03T_TIMB) (Figure 39).

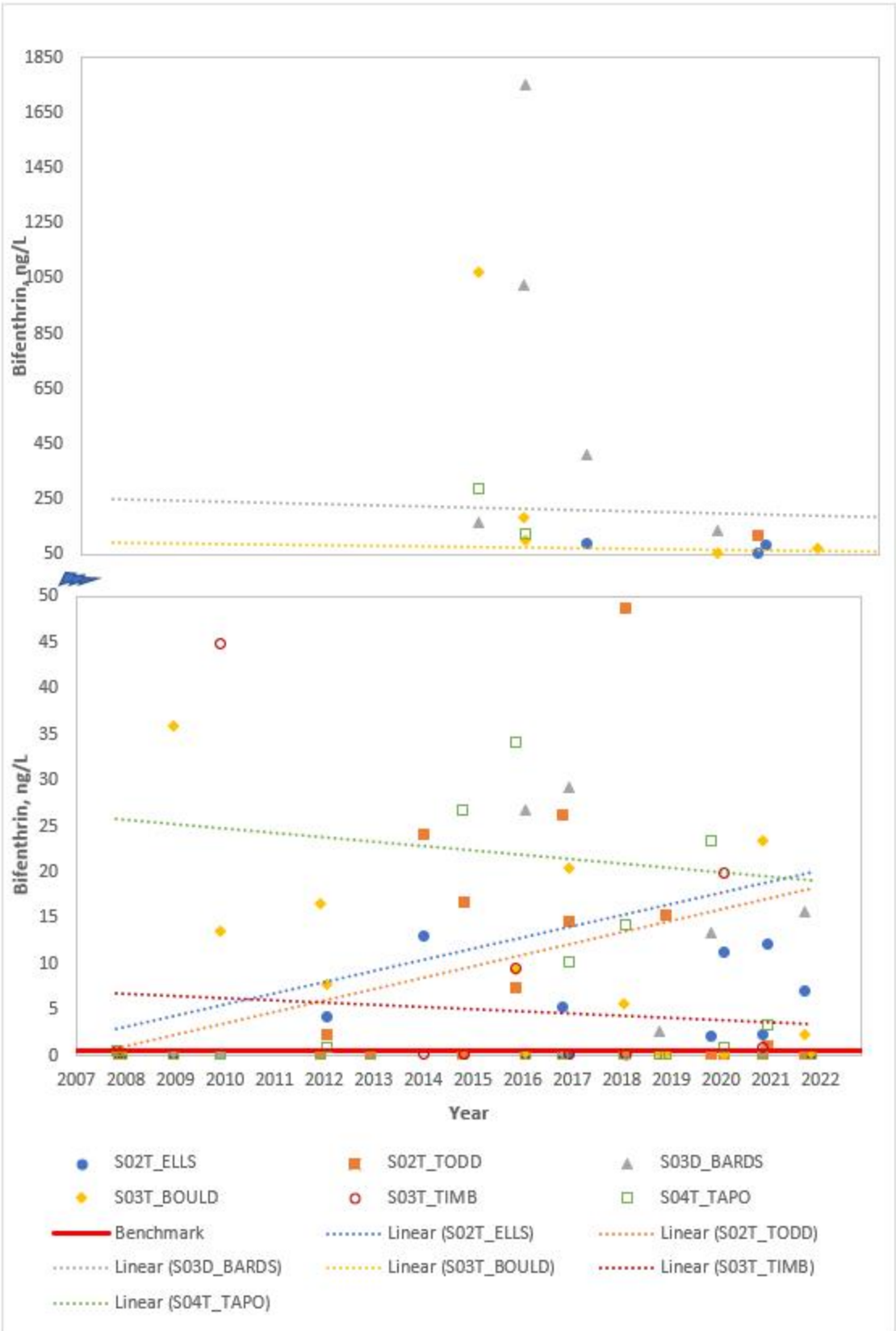

Figure 39. Bifenthrin Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Wet Weather, note the y-axis scale change

6.1.2.4.3. Ventura River Watershed

In the Ventura River Watershed, the highest percentage and total number of bifenthrin exceedances is VRT_THACH (Table 18 and Figure 40).

Table 18. Bifenthrin Exceedances at VCAILG Ventura River Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2007 - 2022	Exceedances 2007 – 2022, Count	Exceeded 2007 – 2022, Percent
VRT_THACH	14	1	7
VRT_SANTO	12	0	0

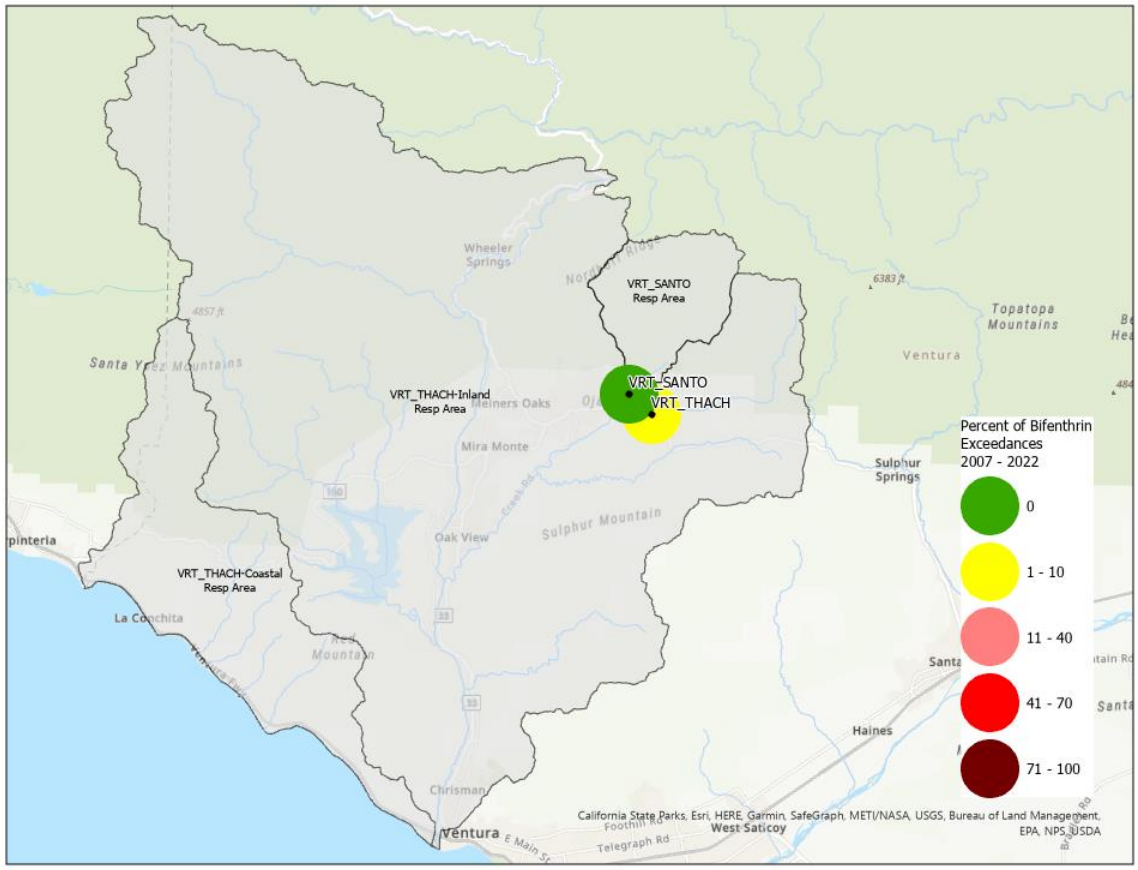

Figure 40. Bifenthrin Water Quality Benchmark Exceedances in Ventura River Watershed 2007-2022

During dry weather, in the Ventura River Watershed, bifenthrin was not detected in the samples collected at VRT_SANTO and VRT_THACH locations in May 2019. Samples were not collected during the rest of the dry events due to lack of flow.
During wet weather, bifenthrin was not detected in the samples collected at both VRT_SANTO and VRT_THACH, except on January 20, 2010, when it exceeded the

water quality benchmark. The trendline for bifenthrin concentrations at VRT_SANTO is stagnant and at VRT_THACH is decreasing (Figure 41).

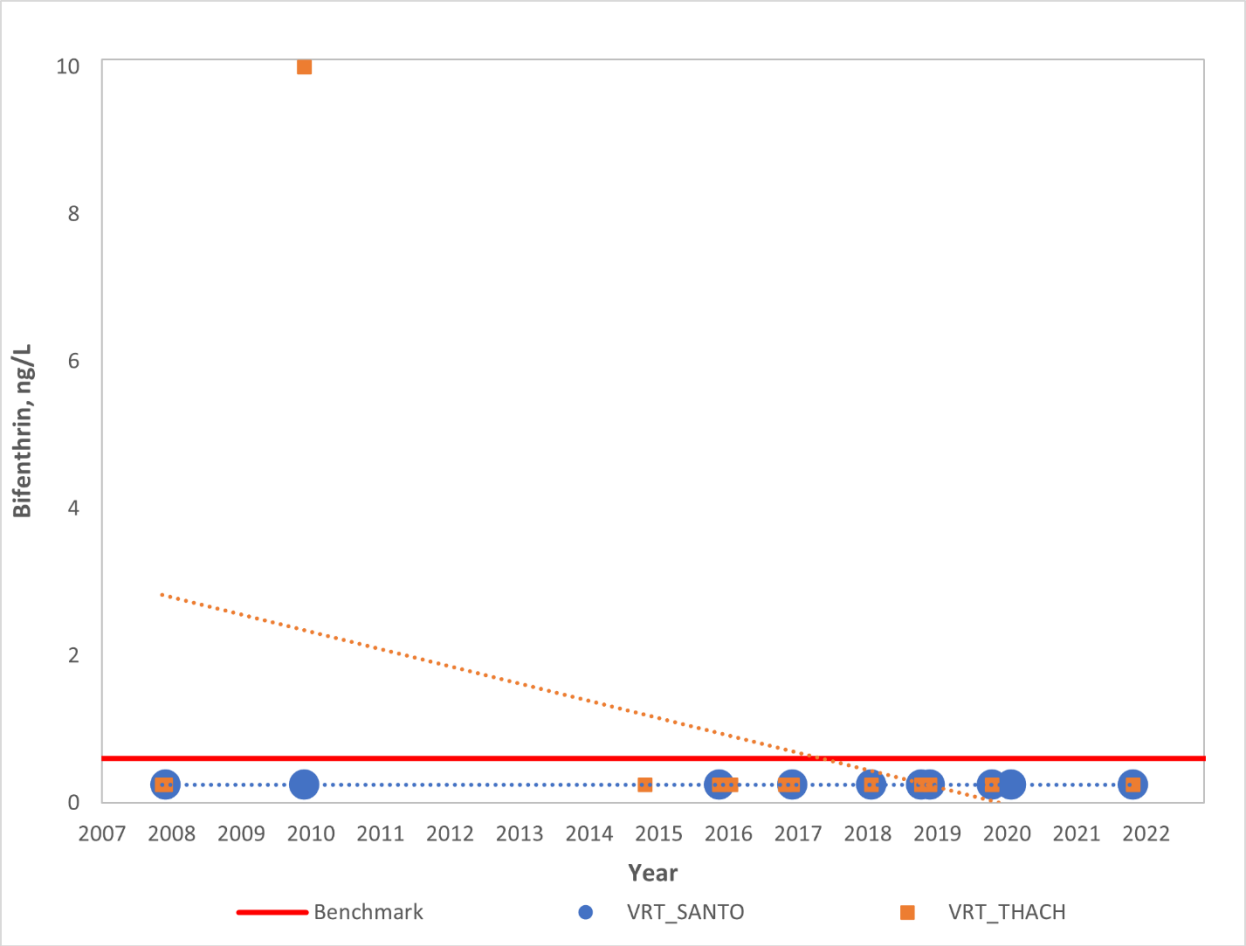

Figure 41. Bifenthrin Concentrations at VCAILG Ventura River Watershed Representative Monitoring Sites during Wet Weather

6.1.2.5. Bacteria Monitoring Data Results

The 2010 Waiver required a Bacteria Special Study to characterize potential discharges of bacteria from irrigated agricultural lands. VCAILG conducted studies to comply with the Conditional Waiver and submitted the report in March 2016. The 2016/2021 Waiver requires monitoring for bacteria (*E. coli*) with a water quality benchmark of 235 MPN/100 mL (single sample limits). VCAILG initiated sampling for bacteria in 2017 and the data set analyzed is for the 2017-2022 period.

6.1.2.5.1. Calleguas Creek Watershed

In the Calleguas Creek Watershed, the highest percentage of E. Coli exceedances was observed at 05D_LAVD, 05T_HONDO, and 06T_LONG2. The highest number of exceedances is seen at 01T_ODD3_ARN_EDI, 04D_ETTG, and 04D_LAS (Table 19 and Figure 42).

Table 19. *E. Coli* Exceedances at VCAILG Calleguas Creek Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2017 - 2022	Exceedances 20017 – 2022, Count	Exceeded 2017 – 2022, Percent
01T_ODD3_ARN_EDI	22	14	64
04D_ETTG	22	11	50
04D_LAS	20	11	55
05D_LAVD	9	9	100
05T_HONDO	6	6	100
06T_LONG2	5	5	100
OXD_CENTR	20	8	40

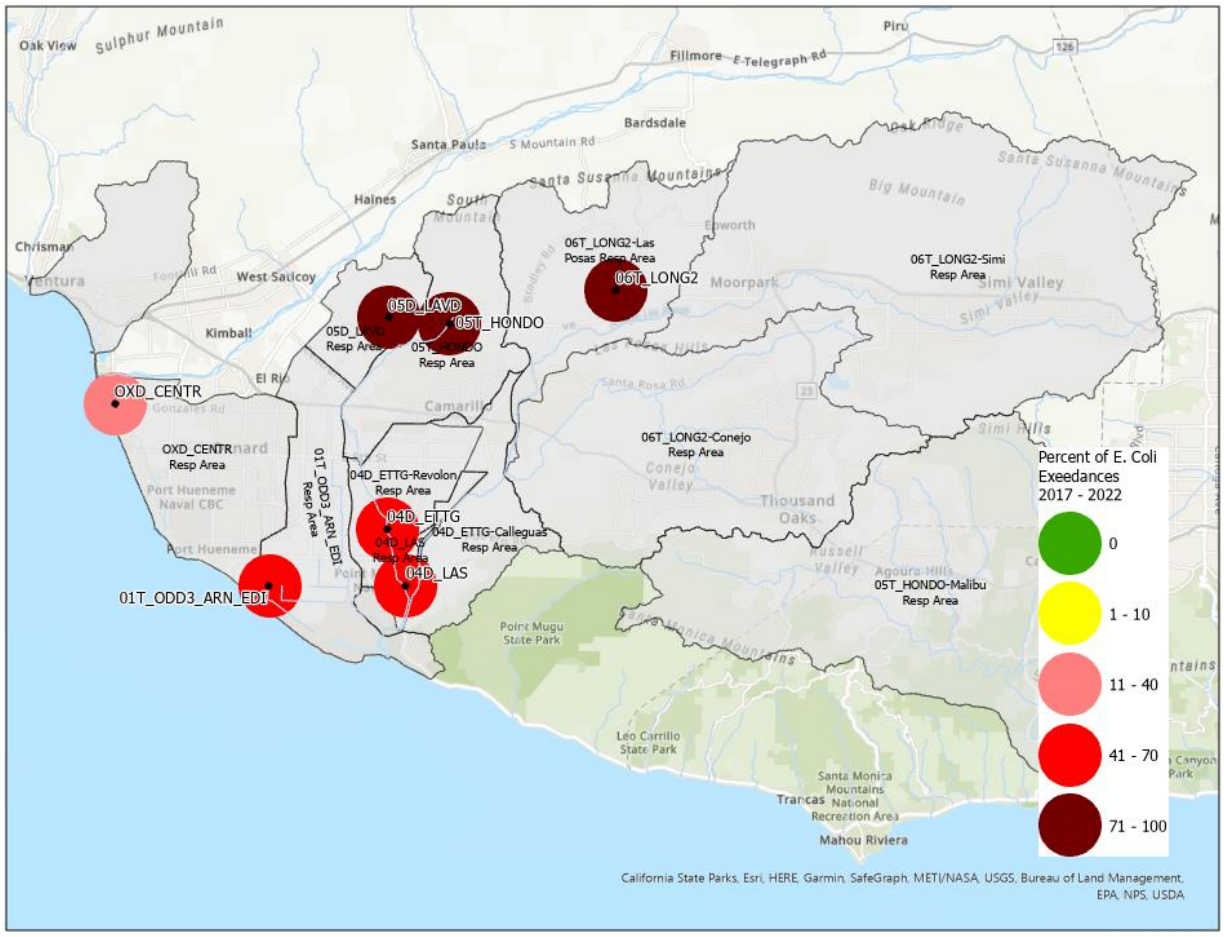

Figure 42. *E. coli* Water Quality Benchmark Exceedances Calleguas Creek Watershed 2017-2022

During dry weather in the Calleguas Creek Watershed, the water quality benchmark was exceeded in 15 out of 34 samples with a highest concentration of 1,019 MPN/100mL in a sample collected at OXD_CENTR location in May 2017 (Figure 43).

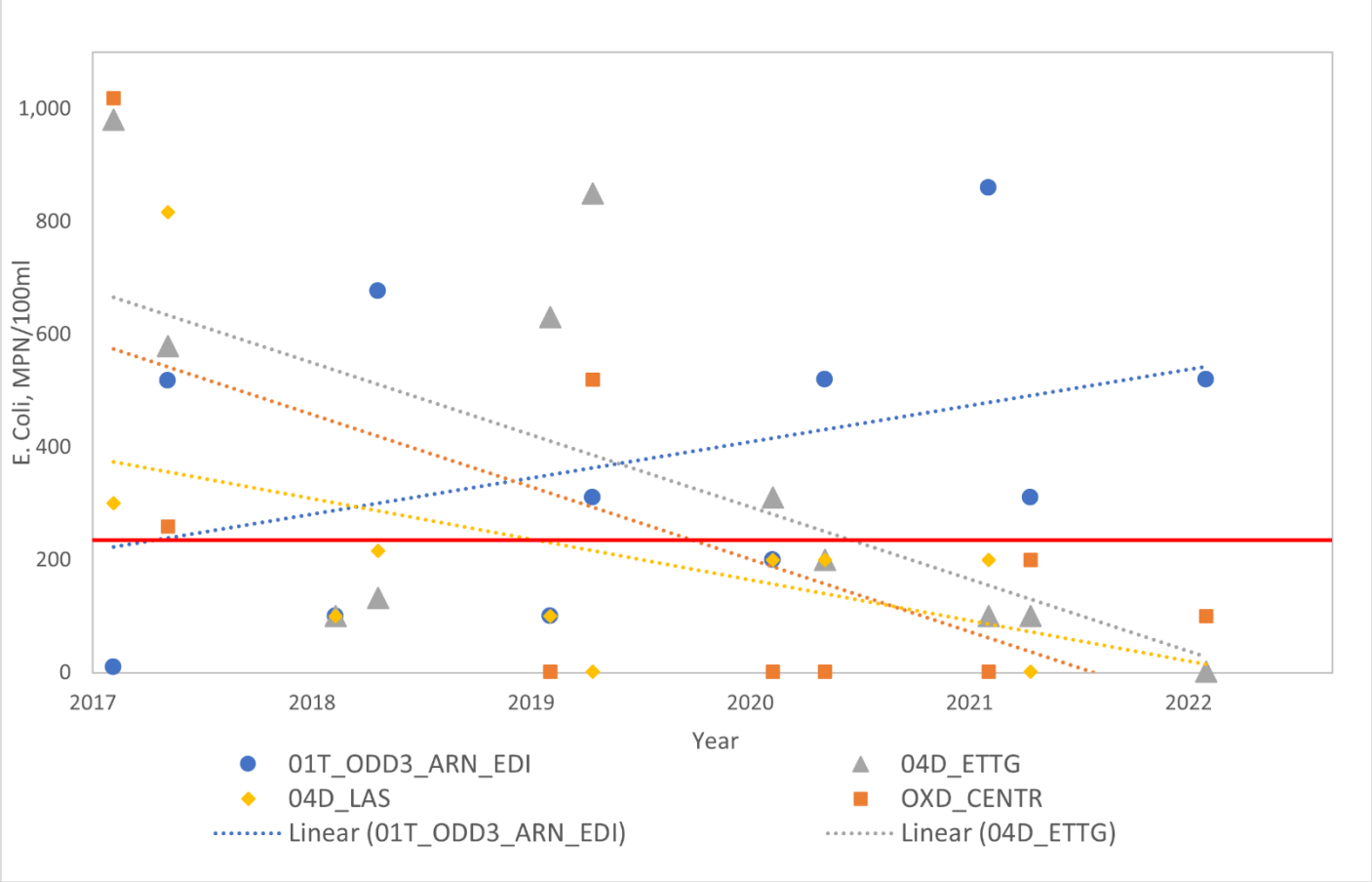

Figure 43. *E. coli* Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Dry Weather

During wet weather, 45 out of 51 samples exceeded the water quality benchmark for *E. coli* and the concentrations were multiple times higher than the benchmark. The highest concentration of 198,630 MPN/100mL was observed in a sample collected at 01T_ODD3_ARN_EDI in March 2018 and 05D_LAVD in October 2021 (Figure 44).

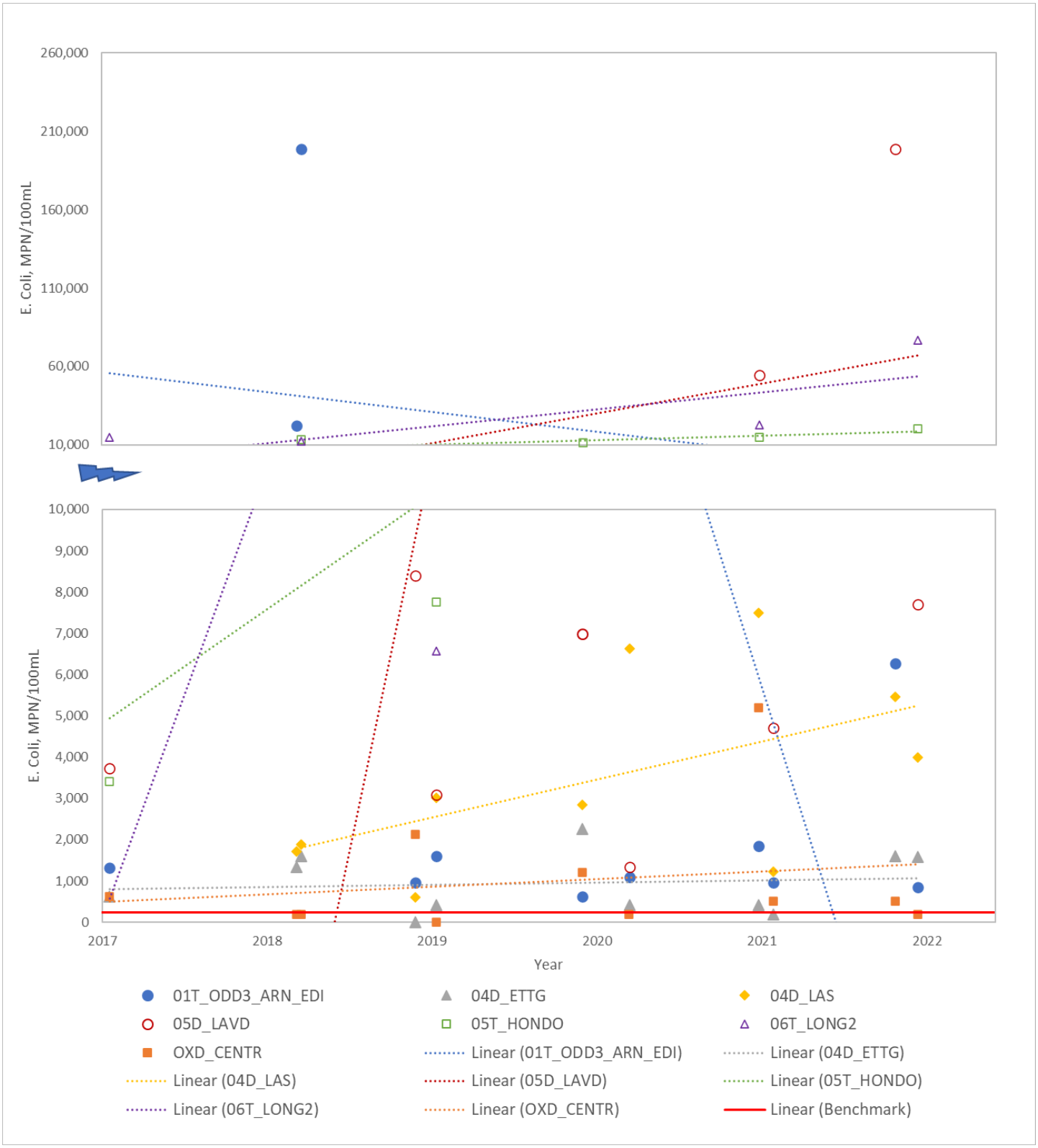

Figure 44. E. Coli Concentrations at VCAILG Calleguas Creek Watershed Representative Monitoring Sites during Wet Weather, note the y-axis scale change.

6.1.2.5.2. Santa Clara River Watershed

In the Santa Clara River Watershed, the highest percentage of *E. coli* exceedances is at S02T_ELLS and S03T_TIMB followed by S03D_BARDS, S02T_TODD, and S03T_BOULD. The highest number of exceedances is at S02T_TODD followed by S02T_ELLS, S04T_TAPO, and S03D_BARDS (Figure 45 and Table 20).

Table 20. *E. Coli* Exceedances at VCAILG Santa Clara River Watershed Representative Monitoring Sites

Site ID	Total Sample Number 2017 - 2022	Exceedances 2017 – 2022, Count	Exceeded 2017 – 2022, Percent
S02T_ELLS	14	14	100
S02T_TODD	20	16	80
S03D_BARDS	11	10	91
S03T_BOULD	10	8	80
S03T_TIMB	5	5	100
S04T_TAPO	19	12	63

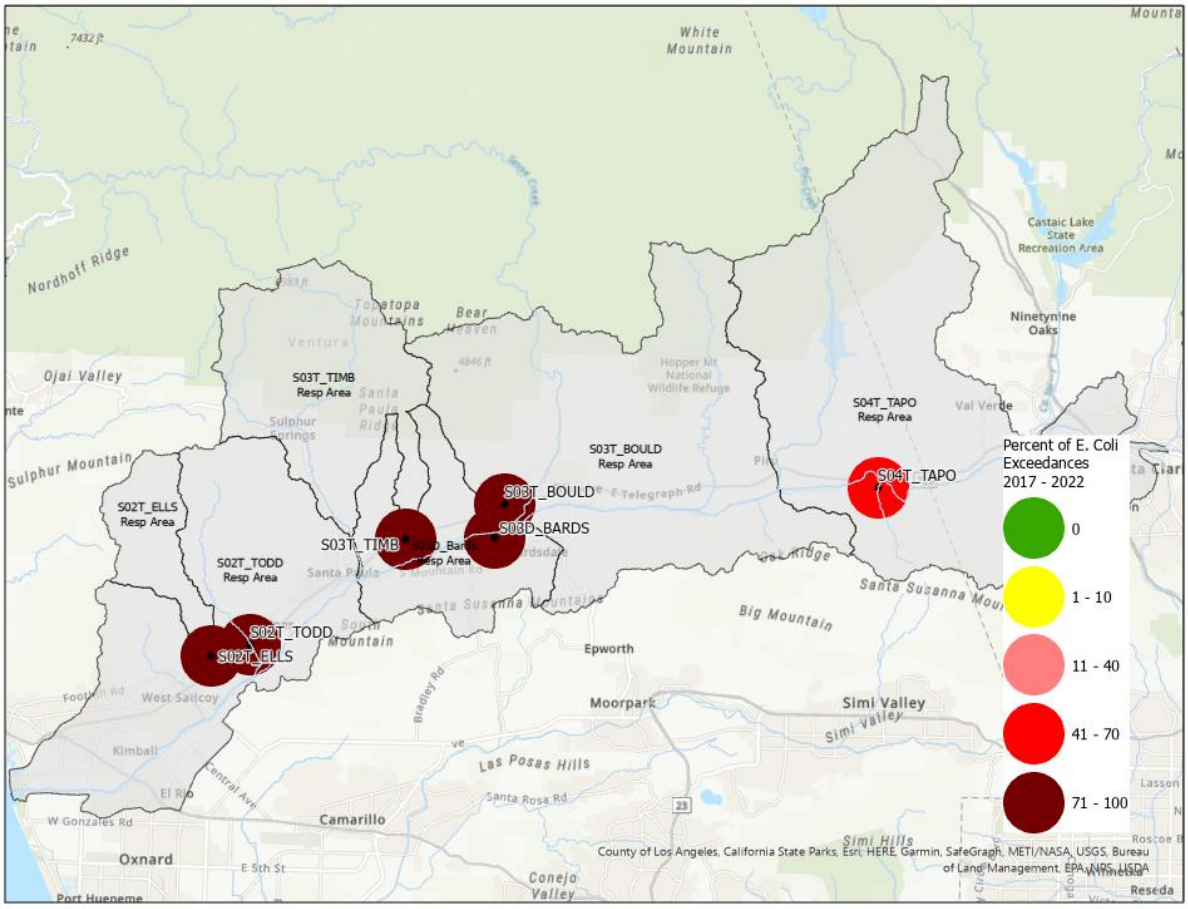

Figure 45. *E. coli* Water Quality Benchmark Exceedances in Santa Clara River Watershed 2017-2022

During dry weather, in the Santa Clara River Watershed, the water quality benchmark for *E. Coli* was exceeded in 17 out of 24 samples with a highest concentration of 72,700/100mL in a sample collected at S03D_BARDS in May 2019 (Figure 46).

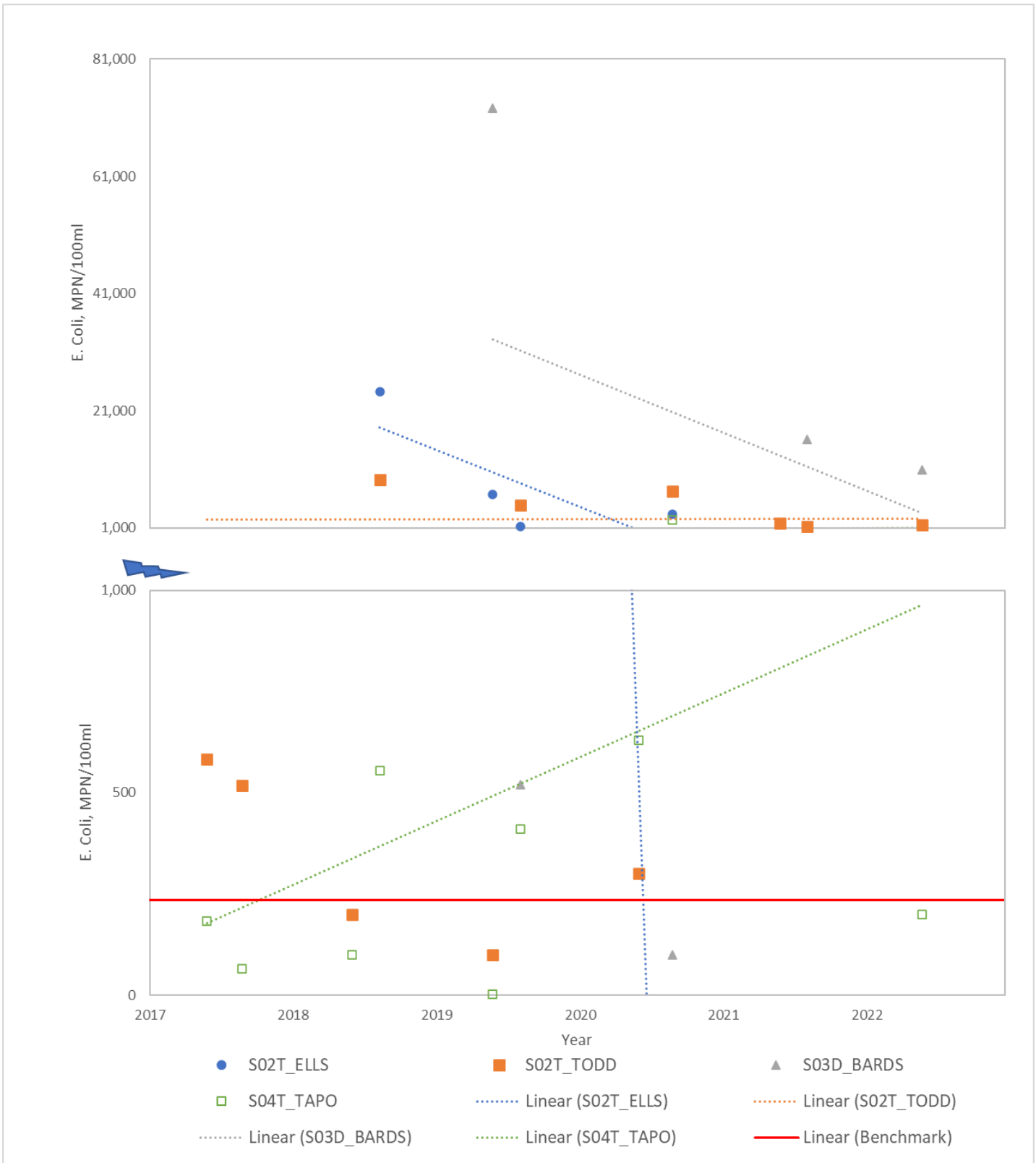

Figure 46. E. Coli Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Dry Weather, note the y-axis scale change

During wet weather, 41 out of 43 samples exceeded the water quality benchmark and the concentrations were multiple times higher than the benchmark. The highest concentration of 241,960/100mL was observed in a sample collected at S02T_TODD in March 2018 and December 2019 (Figure 47).

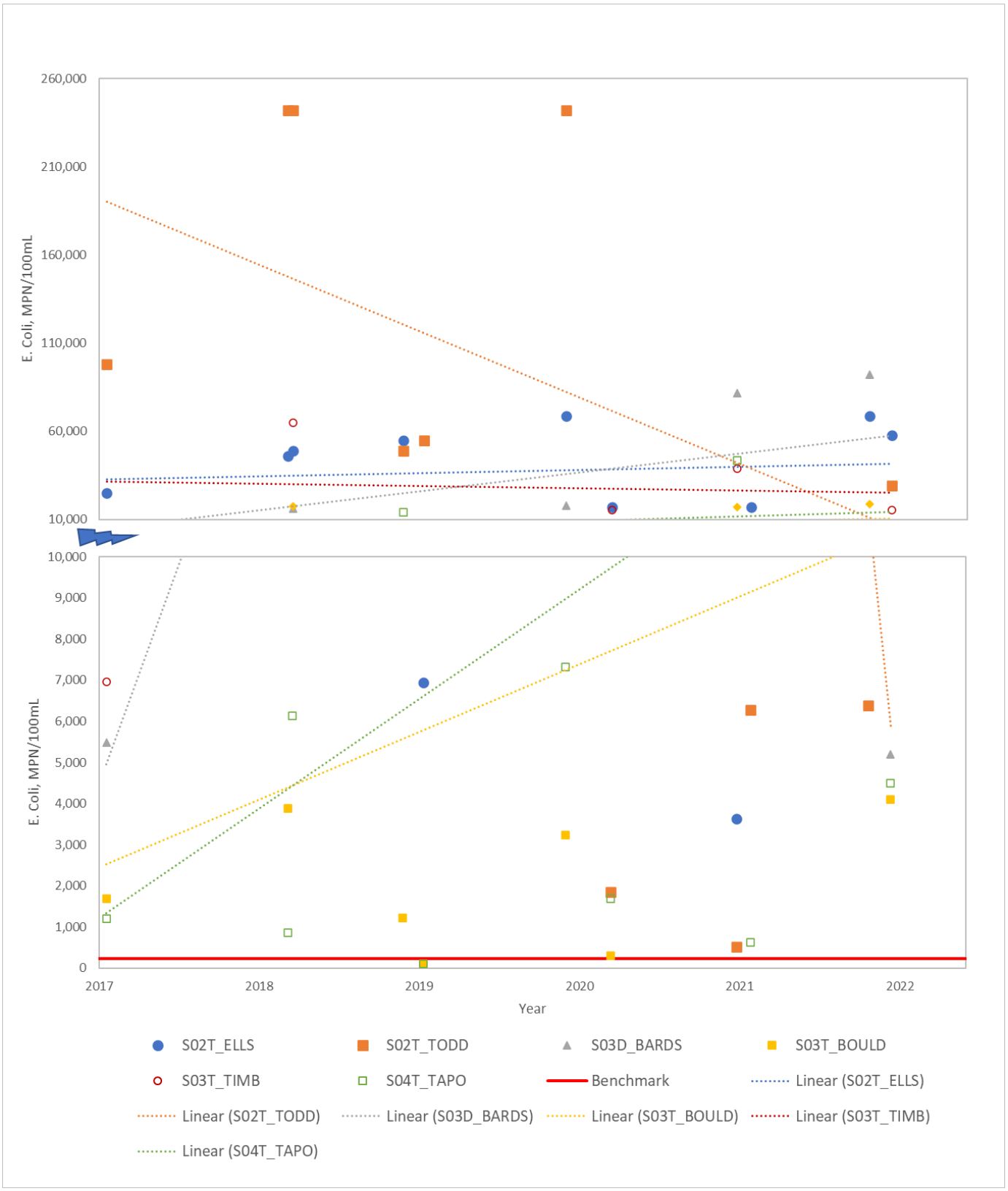

Figure 47. E. Coli Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Wet Weather Monitoring Data (note the y-axis scale change).

6.1.2.5.3. Ventura River Watershed

In the Ventura River Watershed for both wet and dry sampling events, the highest percentage of E. Coli exceedances and highest number is at VRT_SANTO (Figure 48 and Table 21). No samples were collected at VRT_THACH and VRT_SANTO from July 2020 to June 2021 due to lack of flow.

Table 21. *E. Coli* Exceedances at VCAILG Ventura River Watershed Representative Monitoring Sites.

Site ID	Total Sample Number 2017 - 2022	Exceedances 2017 – 2022, Count	Exceeded 2017 – 2022, Percent
VRT_THACH	7	5	71
VRT_SANTO	8	7	88

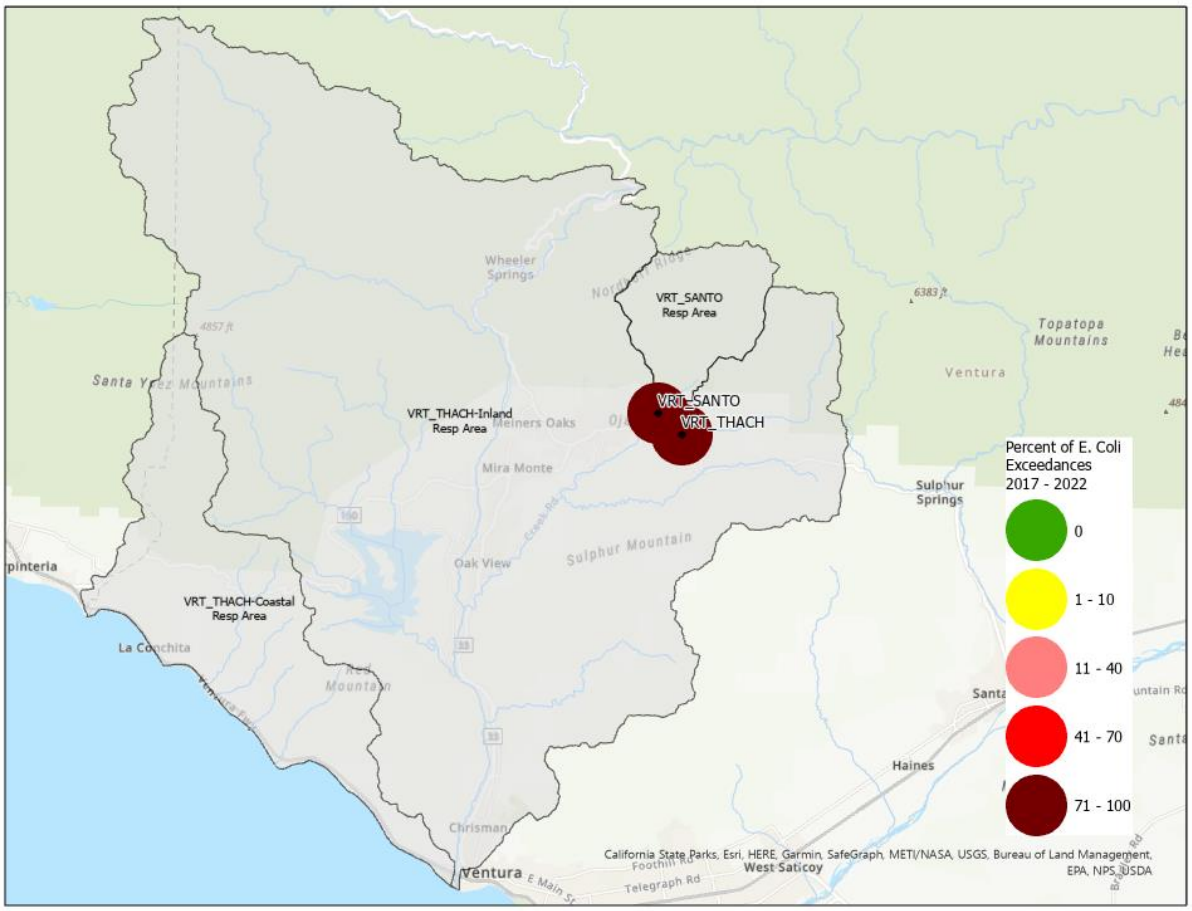

Figure 48. *E. coli* Water Quality Benchmark Exceedances in Ventura River Watershed 2017-2022.

During dry weather, in the Ventura River Watershed, the E. Coli was not detected in the samples collected at VRT_SANTO and VRT_THACH locations in May 2019. Samples were not collected during the rest of the dry events due to lack of flow.

During wet weather, 10 out of 11 samples exceeded the water quality benchmark and some of the concentrations were multiple times higher than the benchmark. The highest concentration of 22,240/100mL was observed in a sample collected at VRT_THACH in December 2018 (Figure 49).

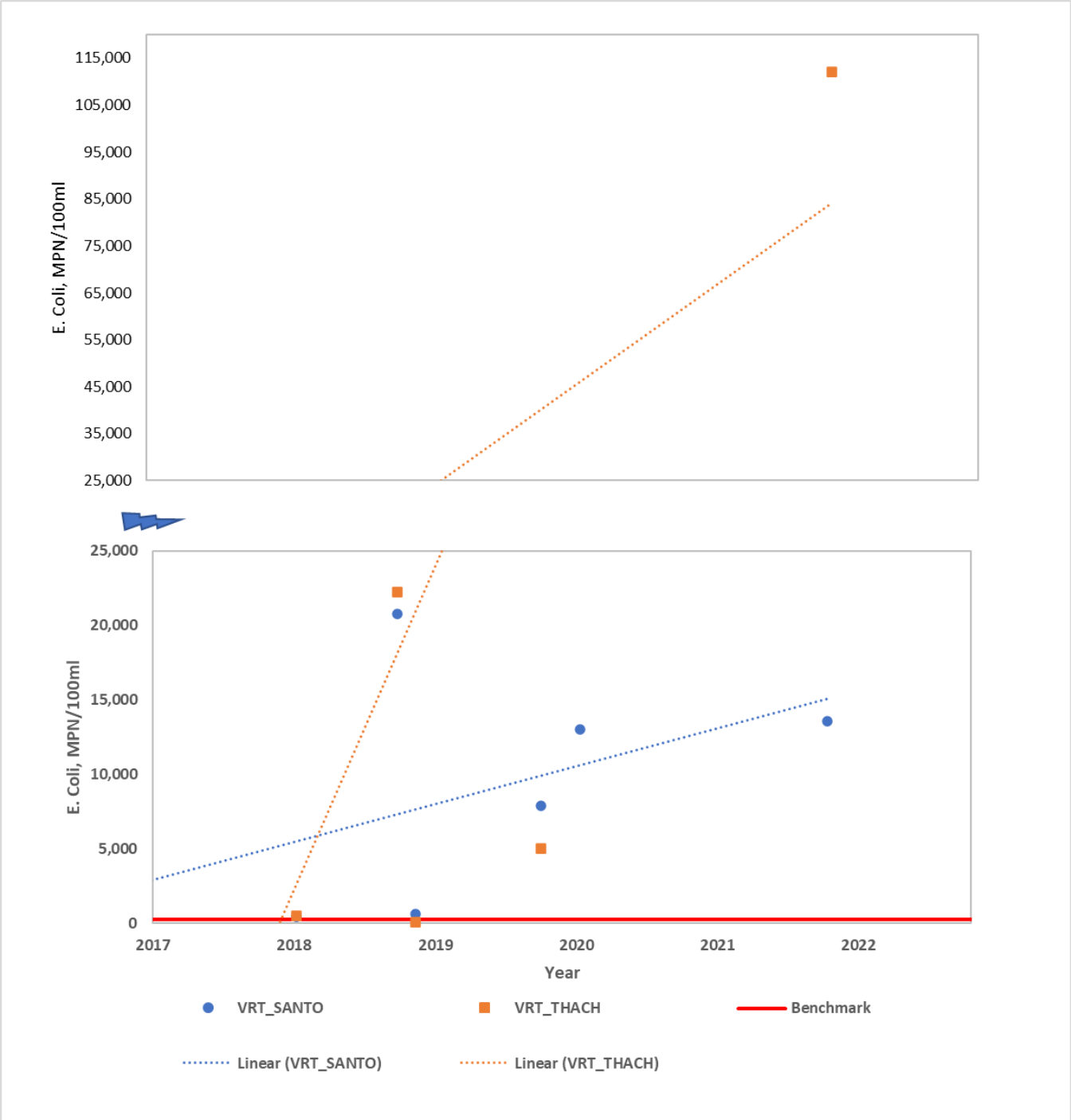

Figure 49. E. Coli Concentrations at VCAILG Santa Clara River Watershed Representative Monitoring Sites during Wet Weather (note the y-axis scale change).

6.1.2.6. Toxicity Data Analysis

Monitoring for toxicity is required during one wet-season and one dry-season sampling event per storm year. Chronic toxicity testing is conducted for three test species: *Pimephales promelas* (fathead minnow), *Ceriodaphnia dubia* (water flea) and

Selenastrum capricornutum (green algae). The Discharger Groups select the most sensitive species for subsequent toxicity monitoring and document the rationale in their annual monitoring reports.

The toxicity data analysis shows the percent exceedance at each watershed for each year (Figure 50). The percentages were calculated using the number of exceedances per number of tests performed in each year. For example, in 2016, five samples were collected at four monitoring locations in the Calleguas Creek Watershed. At one of the four monitoring locations, samples were collected in January and December of the same year. Single-species toxicity testing was conducted using *Ceriodaphnia dubia* for survival toxicity and reproductive toxicity for four out of the five collected samples, and therefore eight tests were performed. Single-species toxicity testing was conducted using *Hyalella* for survival toxicity for one sample for which one test was performed. In summary, there were nine tests performed, of which, three resulted in exceedance of the water quality benchmark, showing 33% exceedance in 2016 at the Calleguas Creek Watershed.

During the 2005, 2010, 2016, and 2021 Waiver terms (2007-2022), in the Calleguas Creek Watershed, 133 tests were performed for chronic toxicity showing and 46 exceeded the water quality benchmarks, indicating 35% average exceedance. During same period, in the Santa Clara River Watershed 196 tests were performed for chronic toxicity, showing 76 exceedances of the water quality benchmarks, resulting in 39% average exceedance. However, the trendlines on Figure 22 show an increase in exceedances in the Calleguas Creek Watershed and a decrease in the Santa Clara River Watershed.

In the Ventura River Watershed, during 2007-2022 period, 34 tests were performed resulting in 8 exceedances of the water quality benchmark. Due to recurrent conditions of insufficient flow, there have not been enough samples tested to produce a meaningful toxicity exceedance trendline.

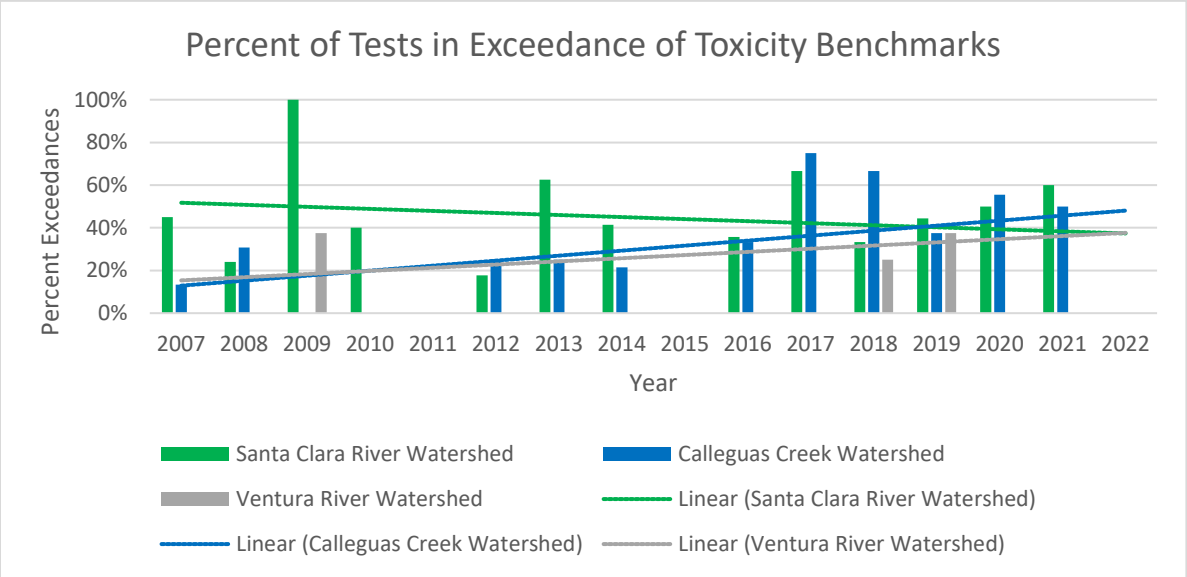

Figure 50. Percent of Tests in Exceedance of Toxicity Benchmarks in Ventura County

6.1.3. Groundwater Trends Analysis for Nitrate

In addition to surface water sampling, the 2016/2021 Waiver requires groundwater monitoring in Ventura County to assess trends in groundwater quality beneath irrigated agricultural lands and to confirm the effectiveness of the management practices implemented to improve groundwater quality. VCAILG submitted their Groundwater Quality Trend Monitoring Plan (GQTMP) which was approved in June 2017. The monitoring results of the GQTMP are reported annually. VCAILG analyzed existing monitoring data for nitrate from groundwater basins below irrigated agricultural lands. VCAILG reported trends and concentrations for five periods: 2015-2017, 2016-2019, 2017-2020, 2018-2021, and 2019-2022. According to the 2022 GQTMP, submitted on December 15, 2022, four wells have mean Nitrate-N concentration of 5-10 mg/L and increasing trends. Two of these wells are located Fillmore Basin, one in Upper Ventura River Basin, and one in Ojai Valley Basin. There are ten wells (Figure 51) with mean Nitrate-N concentration greater than 10 mg/L located in five groundwater basins (Ojai Valley Basin, Oxnard Basin, Filmore Basin, Arroyo Santa Rosa Valley Basin, and Tierra Rejada Basin).

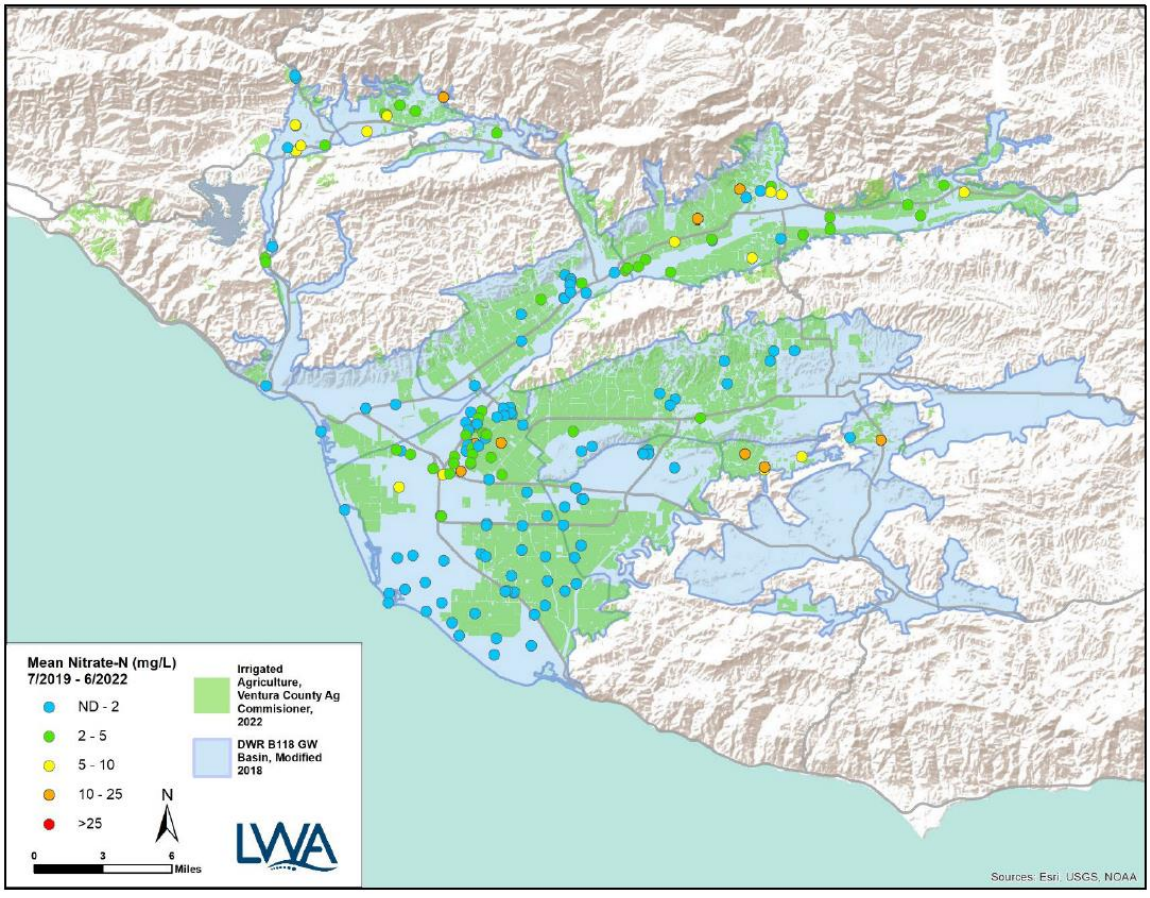

Figure 51. Groundwater Wells Nitrate-N concentration trends (from FBVC, 2023).

6.1.4. Groundwater Management Practice Evaluation

The 2016 Waiver required the Ventura Discharger Group to assess the effectiveness of management practices in protecting groundwater quality. VCAILG submitted a work plan to monitor areas where:

1. irrigated agricultural lands have the potential to impact groundwater basins;
2. exceedances of nitrate have been confirmed; and
3. groundwater is a significant drinking water source.

The Los Angeles Water Board staff reviewed the plan and sent a comment letter in May 2018. VCAILG submitted the revised Groundwater Management Practice Evaluation Plan (GMPEP) in May 2019 (VCAILG, 2019) which was conditionally approved by the Los Angeles Water Board in October 2019. The annual Groundwater Management Practice Evaluation Report (GMPER) was submitted in December 2020 (VCAILG, 2020c) and again in December 2021 (VCAILG, 2021c).

VCAILG sampled thirteen wells within Fillmore Groundwater basin. For this study VCAILG used the dual isotope signatures for nitrate source analysis. This method uses the isotopic composition of N and O in nitrate in an effort to determine the original source. In some situations, this method can be used to differentiate between nitrate from synthetic fertilizers and nitrate from manure and septic waste.

Sampling results indicate that none of the wells has dual signatures indicating only nitrate from fertilizers as a source of nitrate contamination in groundwater. Six of the wells show evidence of all three sources of nitrate from soil, manure, and septic waste. According to December 2021 GMPER, the results of the sampling indicated that there is no strong evidence identifying fertilizers as a contributor to nitrate contamination in the Filmore Groundwater Basin. The report divided the basin into three zones A, B and C. Zone A is the area northwest of Sespe Creek and B zone is south of the Santa Clara River. Zone C is an area that was historically considered part of Fillmore Basin but is not in the current boundary lines. In addition to the isotope results, an analysis of BMPs implementation, crop types, irrigation methods used, hydrologic factors, and enrollment status of the growers within the Filmore Groundwater Basin was completed and did not indicate any strong correlation with the isotope analysis findings. For example, zone B is largely agricultural, however, the isotope analysis did not indicate evidence of synthetic fertilizer as a nitrate source in either of the 2020 or 2021 sampling. By contrast, samples collected from zone A wells showed results that point to fertilizers as one of the sources of nitrate in groundwater. Irrigation and nutrient management BMPs adoption rates were similar in both zones and enrollment status did not show any correlation with the isotope analysis result as the enrollment was higher in zone A. Therefore, VCAILG did not propose any specific outreach based on the findings of the study.

6.2. Los Angeles County Monitoring Results

Overall, it is difficult to assess whether water quality is improving in Los Angeles County due to lack of data. LAILG has not been able to sample in dry weather since 2008 due to lack of flow and did not sample in the last 3 reported storm years due to lack of flow. Prior to the period of lack of flow there were exceedances of constituents such as Nitrogen and DDT. Due to the dispersed and small-sized nature of irrigated agriculture in Los Angeles County, water quality impairments associated with agricultural dischargers in Los Angeles County appear to be less in magnitude when compared to Ventura County.

Originally, sampling sites were selected to represent LAILG groups based on various crop types, water practices, fertilizer and pesticide use, management practices and nursery/farm locations. Monitoring has been conducted from 2007-onward. Samples are collected at the edge of field to exclude contributions from other discharges to the storm drain system. Reasonable efforts are made to collect dry-weather samples during irrigation events at the sampling sites. However, LAILG has not encountered irrigated runoff in the dry season since 2008. Most of the samples were collected during the first two years of the Conditional Waiver. Samples were primarily from storm water runoff during the wet season, but in 2013, no samples were collected in dry or wet weather due to no runoff. No samples were collected in 2020, 2021 and 2022 due to insufficient or no flow conditions.

The 2016/2021 Waiver requires growers to submit farm evaluation plans or surveys to their discharger group. LAILG proposed to group their growers using the information collected from the surveys. During the first year of the 2016/2021 Waiver term, survey submission rate was very low and did not allow efficient grouping of the growers. In March 2018, the Los Angeles Water Board sent letters to growers requiring them to submit the surveys. Almost 60% of the members submitted the survey and LAILG was able to group their growers into 4 different categories using criteria such as size of operations, shipping patterns, fertilizers and pesticides use patterns, and irrigation practices. In their Monitoring and Reporting Plan, LAILG proposed new monitoring locations based on the growers grouping. During the first three years of the 2016/2021 Waiver term, LAILG monitored 20 sampling sites throughout Los Angeles County (Table 22). There were sixteen fixed sites and four additional revolving sites selected randomly on a yearly basis. Samples were collected from these 20 sites on a rotating schedule.

Table 22. Sampling sites in Los Angeles County watersheds.

Watershed	Number of Sampling Sites
Los Angeles River	5
San Gabriel River	7
Dominguez Channel	1
Santa Monica Bay	2
Los Cerritos Channel	1
Annual Rotating Sites	4

Since no data was collected in 2020, 2021, or 2022, the following data analysis is based on the samples collected from 2007 through 2019.

6.2.1. Nitrogen Data Analysis

Nitrate-nitrogen water quality benchmark exceedances are observed during dry and wet weather primarily in the Los Angeles River and San Gabriel River Watersheds. The highest nitrate-nitrogen concentrations have been identified during dry weather in the San Gabriel River Watershed in 2008 and there was no runoff observed after 2008 during dry weather. Trend lines for the wet-weather monitoring indicate a decrease in nitrate-nitrogen concentrations in all watersheds except the Los Angeles River (where the trend is stable), but concentrations are above the water quality benchmark. The trends are decreasing in the Santa Monica, Los Cerritos Channel and Dominquez Channel watersheds and generally have nitrate-nitrogen concentrations below the water quality benchmark (Figure 52).

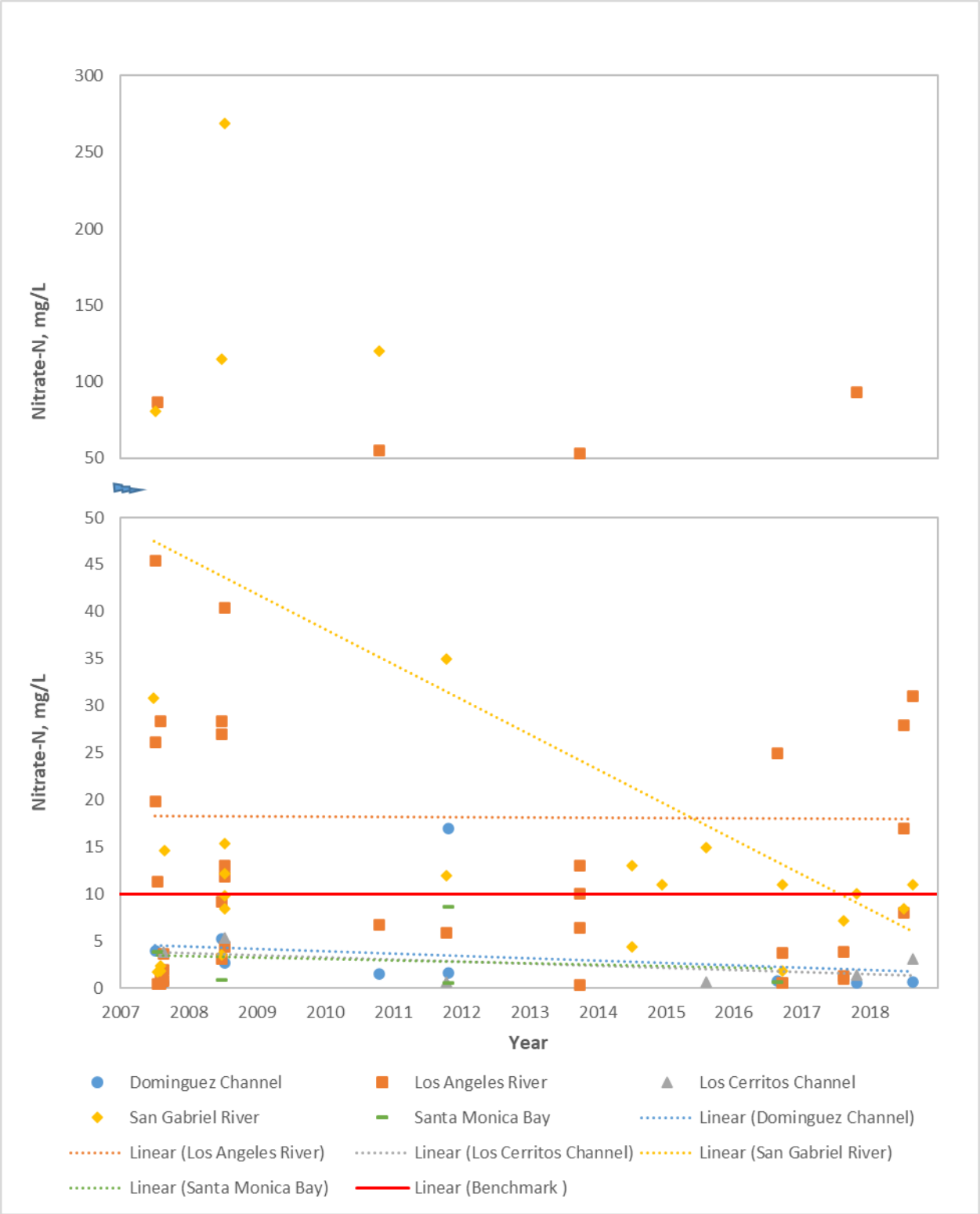

Figure 52. Los Angeles County Nitrate Concentrations in Wet Weather Sampling Events (note the y-axis scale change).

6.2.2. Pesticide Data Analysis

Organophosphate pesticides, diazinon and chlorpyrifos, have not been detected in dry weather during any Conditional Waiver term, with the exception of a single exceedance of diazinon in the Dominguez Channel in 2008. In wet weather, diazinon benchmark exceedances occurred in 2007, 2008, and 2011 in the Dominguez Channel and more recently, in 2018, in the Los Angeles River Watershed. (Figures 53 and 54). The trend lines for the Dominguez Channel show a decrease in diazinon concentrations. The majority of the chlorpyrifos exceedances were observed in the Dominguez Channel and San Gabriel Watershed. The trend lines indicate a decrease in concentrations of chlorpyrifos in all watersheds. The concentrations of chlorpyrifos have been below the benchmark since 2011, with the exception of one sample collected in 2018 in the Dominguez Channel.

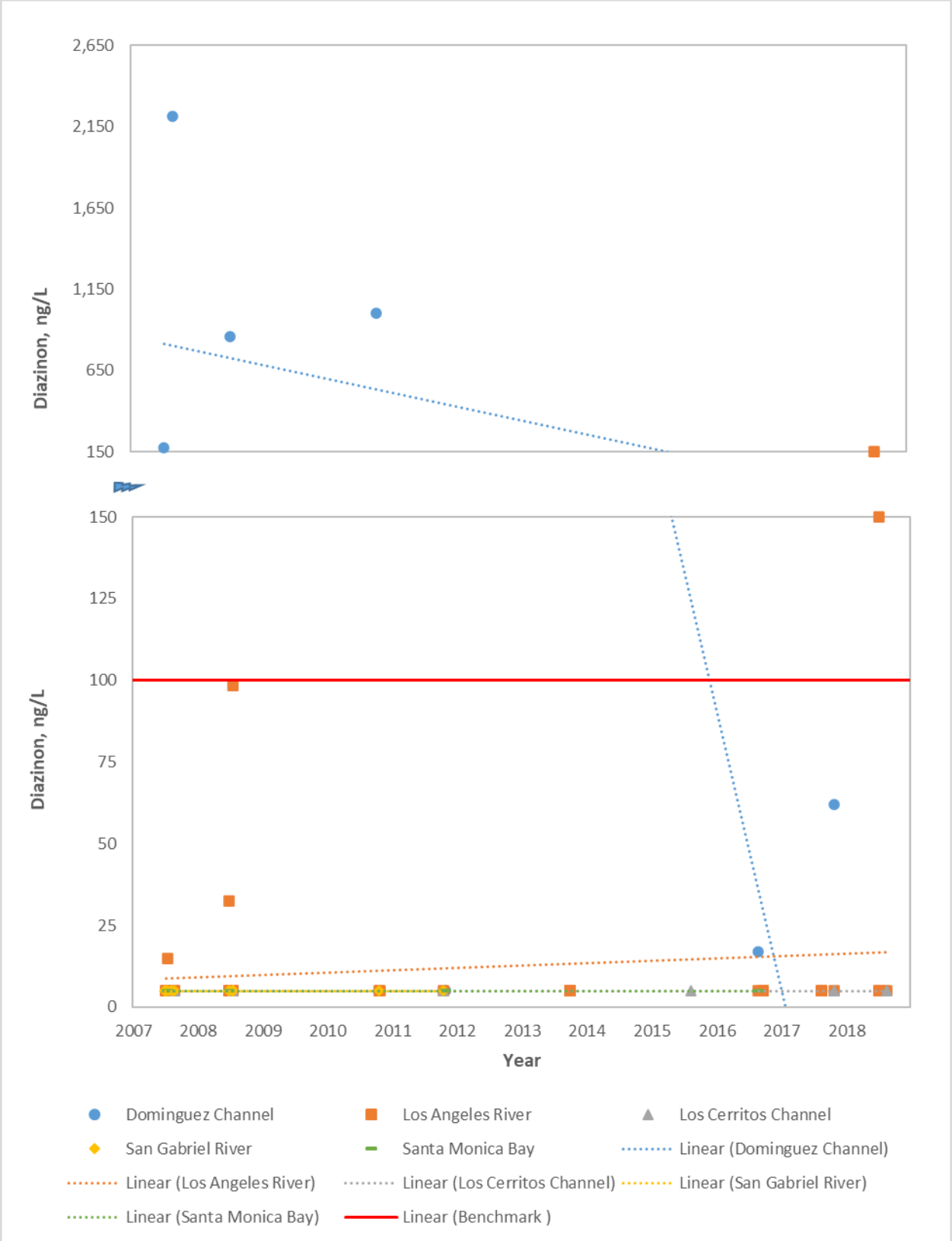

Figure 53. Los Angeles County Diazinon Concentrations in Wet Weather Sampling Events (note the y-axis scale change).

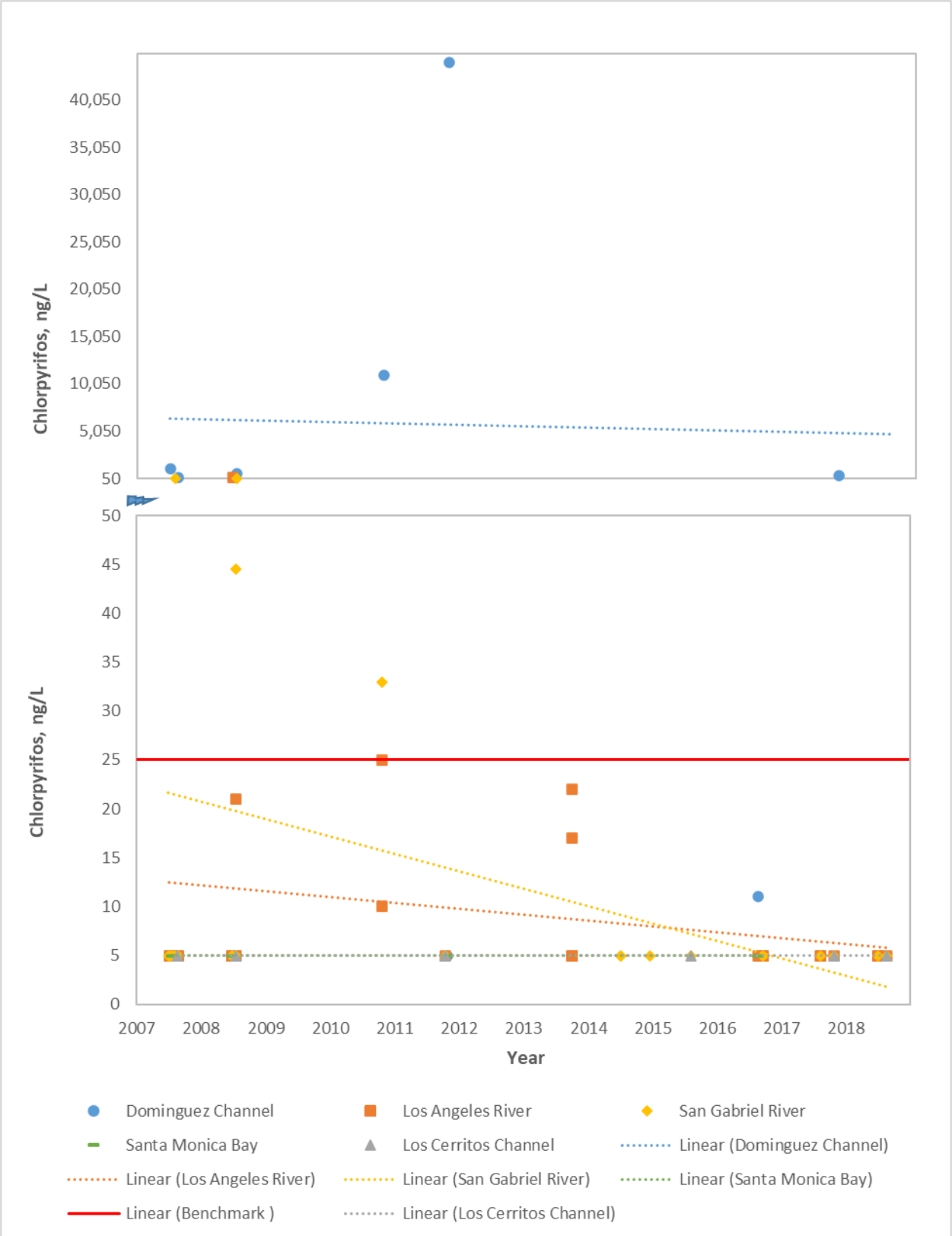

Figure 54. Los Angeles County Chlorpyrifos Concentrations in Wet Weather Sampling Events (note the y-axis scale change).

6.2.3. Toxicity Data Analysis

During the 2005 Waiver term, a total of 42 samples were collected at 27 sampling locations in all watersheds (Dominguez Channel, Los Angeles River, San Gabriel River, Santa Monica Bay, and Los Cerritos Channel) in 2007 and/or 2008. Each of these 42 samples was tested for five toxicity criteria; thus, one sample could show multiple toxicity exceedances. For example, in March 2011, one sample was collected at sample site #4 located in the Dominguez Channel and for the purpose of toxicity analysis, *Ceriodaphnia dubia* was tested for survival, *Fathead Minnow* was tested for reproduction, survival, and growth, and *Selenastrum* was tested for growth. This sample result shows exceedances for each criteria/test (two tests for survival, two for growth and one for reproduction). Thus, five exceedances are counted for this sample. During the 2010 Waiver term, a total of 16 samples collected at 16 sites showed 17 toxicity exceedances out of 80 tests performed. During the 2016/2021 Waiver term, 24 samples were collected from 21 sampling sites, 72 tests were performed indicating 15 toxicity benchmark exceedances.

Figure 56 shows the percentage of toxicity benchmark exceedances in each watershed for each year when samples were collected during 2005, 2010, and 2016/2021 Waiver terms. There is a decrease in toxicity exceedances in all watersheds, with the exception of Dominguez Channel.

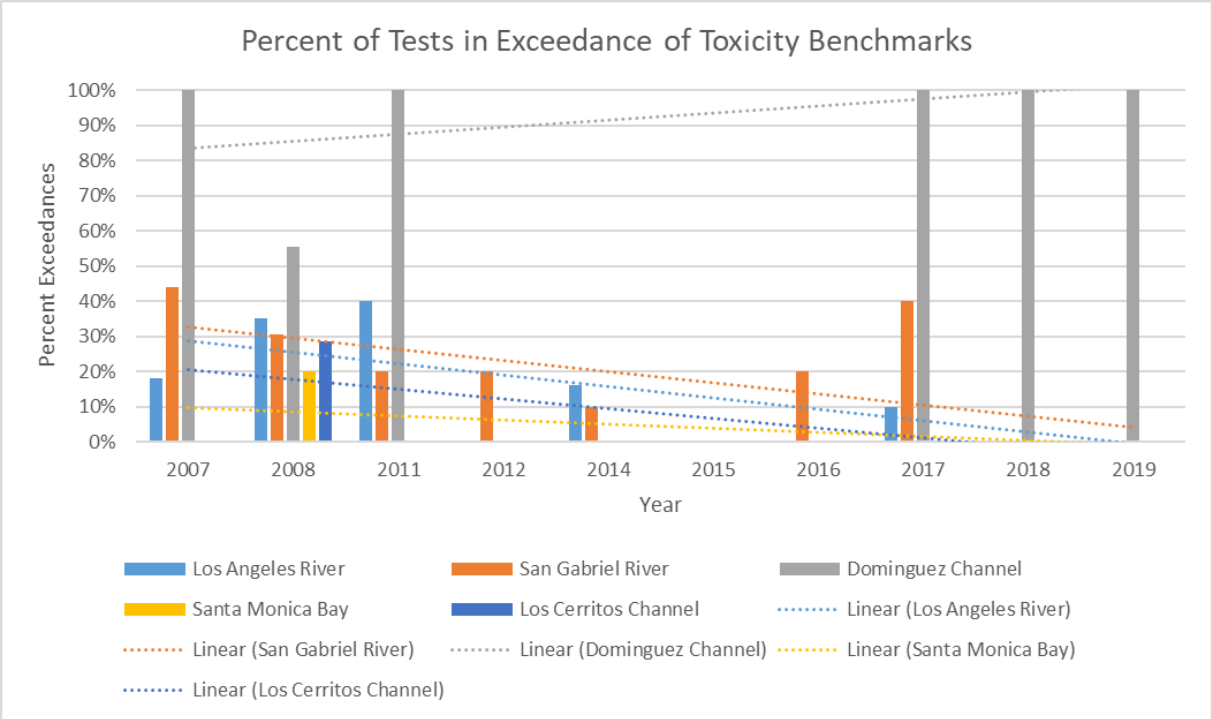

Figure 55. Percent of Tests in Exceedance of Toxicity Benchmarks in Los Angeles County.

7. Summary of WQMPs

The 2016/2021 Waiver specified that discharger groups are required to develop a WQMP if the results from the monitoring programs indicate that applicable water quality benchmarks are exceeded. The WQMP requires improved management practices and additional monitoring, wherever necessary, to achieve and document compliance with water quality benchmarks. Furthermore, if the water quality benchmarks of TMDL-associated constituents are not attained by the deadlines specified in the 2016/2021 Waiver, then dischargers must comply with discharge limitations. The main elements of the WQMP include a summary of existing conditions, proposed additional or upgraded management practices, and an outreach plan. Under The 2016/2021 Waiver, a source investigation plan was also required in some areas (see Section 7.1.2.). Monitoring conducted under the 2005, 2010 and 2016/2021 Waiver terms documented water quality benchmark exceedances at Discharger Group monitoring sites. Therefore, both VCAILG and LAILG developed WQMPs. The sections below provide a summary of each discharger group's WQMP.

7.1. Ventura County

7.1.1. VCAILG WQMPs

Throughout the history of the of the Conditional Waiver programs, VCAILG's approach for its WQMPs focused on surveying members about the management practices (MPs) they had already implemented, in combination with outreach and educational classes about MPs needed to address water quality benchmark exceedances.

During the 2005 Waiver term, VCAILG developed the MP survey and surveyed its members once. The 2010 Waiver required reporting of more quantifiable MP information, such as area addressed by MPs for each monitoring site, in order to correlate MP implementation with water quality data and to determine if additional or upgraded MPs were necessary. VCAILG revised the MP survey and surveyed its members in 2014 and 2015 to track changes in MP implementation both prior to 2010 and within the 2010 Waiver term. Over the term of the 2010 Waiver, VCAILG submitted four WQMPs. As such, the WQMPs evolved over the term of the 2010 Waiver. By the 2014 WQMP, VCAILG was able to report MP adoption rates by monitoring site drainage area.

In comparison to the 2005 and 2010 Waivers, the 2016/2021 Waiver includes specific and detailed WQMP requirements that clarify what type of MP information needs to be collected, how the MP information must be reported, and the process for ensuring that growers implement additional MPs in order to attain water quality benchmarks within a reasonable timeframe. The 2016/2021 Waiver also contains a schedule for attainment of water quality benchmarks specifically associated with TMDL load allocations assigned to irrigated agricultural discharges. For these TMDL-associated water quality benchmarks, the 2016/2021 Waiver includes a provision that the TMDL-associated water quality

benchmarks may be converted to discharge limitations if the water quality benchmarks are not attained by the compliance deadline set forth in the Waiver.

During 2016/2021 Waiver term, VCAILG submitted three WQMPs. The WQMPs were publicly noticed. Stakeholders and the Los Angeles Water Board staff provided written comments on the WQMPs and VCAILG revised the WQMPs in response. Using the water quality monitoring results and the survey analysis, VCAILG updated their WQMPs to include an outreach plan to recommend MPs to their growers within each Responsibility Area. By the 2017, 2018 and 2020 WQMPs, VCAILG stated that it would provide regular communication (a minimum of twice per year) to their growers alerting them of additional and upgraded MPs specific to their Responsibility Area.

In 2016, the Los Angeles Water Board approved a template for the grower survey of best management practices that had been submitted by VCAILG. Over the term of 2016/2021 Waiver, VCAILG then utilized the template to survey members three times with varying levels of grower participation. According to the 2017 AMR submitted (VCAILG, 2017), the survey was completed by 731 growers, only half of the 1,433 members at the time. In their October 2020 WQMP (VCAILG, 2020), VCAILG stated that members completed surveys covered 69,667 acres, which at that time represented 83.5% of the irrigated acres enrolled. In 2020, the third survey covered 65,924 irrigated acres which accounts for 79% of the irrigated acres enrolled.

7.1.2. VCAILG Source Investigation Work Plan and Report

The Source Investigation Work Plan (SIWP) is an element of the Water Quality management Plan (WQMP) process required by the 2016/2021 Waiver. Since the WQMP process had been in place for two waiver terms and water quality benchmarks were still not attained at many monitoring sites, the 2016/2021 Waiver requires additional actions for growers in the areas represented by discharger group monitoring sites that do not show decreasing trends in concentrations of constituents that exceed water quality benchmarks. For these sites, the Conditional Waiver requires a SIWP to investigate the source(s) of the exceedances, including edge of field monitoring at member sites that drain to the group monitoring sites. VCAILG submitted their SIWP on October 1, 2018. On December 11, 2018, the Los Angeles Water Board sent a comment letter to the VCAILG on their SIWP. VCAILG submitted a revised SIWP on January 3, 2019 based on the Los Angeles Water Board comments. In January 2019, the Los Angeles Water Board staff reviewed and concluded that the revised SIWP met the Conditional Waiver requirements. In September 2019, VCAILG submitted their draft Source Investigation Report (SIR). Los Angeles Water Board staff reviewed and approved the report in February 2020.

VCAILG conducted source investigations in three different responsibility areas, South Revolon Slough, Mugu Lagoon, and Etting-Wood. The areas selected have increasing dry weather concentration trends for specified constituents. The South Revolon Slough responsibility area (represented by 04D_LAS) was monitored for nitrate, the Mugu Lagoon responsibility area (represented by 01T_ODD3_ARN_EDI) was monitored for

nitrate and copper, and the Etting-Wood responsibility area (represented by 04D_ETTG) was monitored for toxaphene,

At the South Revolon Slough and Mugu Lagoon responsibility areas, VCAILG conducted field sampling. Prior to sampling, VCAILG used GIS/desktop tools to evaluate areas of the highest potential of discharge and selected pre-established sampling locations. Additionally, when in the field, they sampled edge-of-field discharges and other flows when they saw them.

The SIR identified agricultural irrigation runoff as the primary source of nitrate in the South Revolon Slough responsibility area and nitrate and copper in the Mugu Lagoon responsibility area. The SIR reported that the only management practice linked to nitrate in Revolon Sough and nitrate and discolved copper in Mugu Lagoon were overhead sprinklers. When comparing the 2018 field survey data, there did not appear to be an association between other management practices and the level of nitrate in the discharges.

Rather than conducting field sampling for the the Etting-Wood responsibility area, VCAILG conducted a review of available resources, such as special studies, and a GIS/desktop evaluation. Toxaphene is a legacy pesticide that is no longer used in agriculture and the main source of toxaphene in water is through movement with sedmiment. Therefore, sediment management is necessary, particularly for farms with high potential of mobility. The goal of VCAILG's review was to determine where the implementation of sediment management practices would most likely improve water quality.

The review found that non-tree crops had the highest mobility potential. It also found that there is very little sloped cropped acreage in the Etting-Wood responsibility area and that all sloped cropped acreage has erosion control measures already in place and therefore these measures were not a priority for management practice implementation. The review concluded that the management practices to be implemented were avoiding bare soil and increasing the amount of ditch eroson protection measures, grassed waterways, and vegetated filter strips.

VCAILG identified several ways of outreach through communication, education, and targeted outreach to communicate to growers the need of actions toward improving the water quality in the SIWP identified areas (SIR, 2019). VCAILG conducted targeted outreach to growers in the Revolon Slough, Mugu Lagoon, and Etting-Wood responsibility areas based on the source investigation and recommended additional management practices to be implemented based on the constituents looked at in the source investigation.

Although VCAILG completed the SIWP, SIR, and required communication, there are still water quality benchmark exceedances of nitrate at 04D_LAS, nitrate and dissolved copper at 01T_ODD3_ARN_EDI, and toxaphene at 04D_ETTG reported in the 2022 AMR. This suggests that a more enforceable implementation requirement is necessary;

therefore, staff recommends the incorporation of discharge limitations equal to the water quality benchmarks in the proposed General WDRs.

7.2. Los Angeles County

7.2.1. LAILG WQMP

LAILG is a smaller group and monitoring is conducted at the edge of field, rather than at representative sites in receiving waters. The LAILG WQMP follows a different approach than the VCAILG WQMP. Using the MP questionnaire/survey results, the LAILG WQMP separates members into various groups based on their operational patterns and prescribes WQMP implementation guidelines specific to each group. Due to the low survey response rate, during the 2016 Waiver term, LAILG began implementing a more user-friendly web-based questionnaire that also accepts text message answers for growers who do not have internet access (the questionnaire is also available in Spanish). In addition, to encourage more survey responses, the 2016/2021 Waiver contains more specific requirements for outreach by discharger groups and includes enforceable requirements for discharger group members to respond to questionnaires and submit other information that the group requires to develop and implement WQMPs. The increased effort has resulted in improved survey responses. As of May 2017, only 43.2% of the growers (60.5% of the irrigated land) responded to the survey. In February 2018, the Los Angeles Water Board sent notices to 111 growers that did not previously respond, to complete the survey. The WQMP, submitted in February 2019, stated that 57.7% of the growers (74.7% of the irrigated land) enrolled in the program submitted their surveys. As of November 2020, 73.6% of the growers (82.5% of the irrigated land) enrolled in the program submitted their surveys.

During the 2010 and 2016/2021 Waiver terms, the LAILG Directors of Member Relations, working with consultants and partners, conducted outreach to members and provided training for members to ensure that members would implement the required MPs. However, many necessary actions have not yet been completed as shown in section 8.

8. Summary of Management Practice Implementation

8.1. VCAILG

To comply with the WQMP requirements for reporting existing conditions and to propose additional or upgraded management practices, VCAILG identified twenty Responsibility Areas in Ventura County that represent the land area draining to each monitoring site, the HUC-12[3] watershed in which the monitoring site is located, any adjacent HUC-12

[3] A HUC 12 is a local subwatershed level hydrologic unit that captures tributary systems (USGS, 2023).

watersheds that do not include a monitoring site. The 2016/2021 Waiver required comparison of existing management practice implementation (type of management practices, adoption rates, and degree of implementation) in order to assess management practice effectiveness and determine if additional or upgraded management practices are necessary to meet the water quality benchmarks. VCAILG reported the existing conditions by the Responsibility Areas and, according to the water quality results, was able to recommend additional or upgraded management practices to members in each responsibility area. VCAILG prepared Responsibility Area Compliance Summary handouts for members within each responsibility area to convey the information about water quality and the need of additional management practice implementation. VCAILG posted the handouts to its website (Water Quality Management Plan - Farm Bureau of Ventura County) and notified members via newsletters of the availaibility to download the handouts. The handouts contained a list of specific "required" and "optional" management practices for members in a given Responsibilty Area based on the water quality issues identified for that area. The "required" management practices mostly consisted of source control practices such as improved irrigation efficiency, nutrient management, and pesticide management. The "optional" management practices often included erosion control measures such as mulching, grassed waterways, and filter strips. For responsibility areas with fast approaching TMDL deadlines, runoff treatment such as sediment traps, detention/retention basins, bioreactors, or constructed wetlands, were "strongly recommended." VCAILG also frequently informed its members of training opportunities for certifying nutrient mananagement plans. Historically, VCAILG education and outreach primarliy focused on Waiver regulatory requirements, and irrigation and nutrient management. More recently, VCAILG has incorporated more focus on erosion control, sediment retention or runoff treatment. However, given the continued water quality benchmark exceedances observed, additional educational focus on these topics is necessary. Language in the 2016/2021 Waiver may have inadvertently impeded wider focus on these topics. This was due to language in the 2016/2021 Waiver that source control and non-structural MPs needed to be fully implemented by all member sites in a Responsibility Area before the WQMP had to recommend structural or treatment MPs. The language was intended to describe the process for upgrading MPs over time, but an unintended consequence was that it may have incentivized slow implementation of source control and non-structural MPs such that structural and treatment MPs would not be triggered. This is evidenced in the VCAILG MP implementation survey results discussed below.

The VCAILG member survey has evolved over the course of the Irrigated Lands program. Early surveys focused on assessing and mitigating runoff for greenhouses and nurseries and reported the results by watershed. Later versions of the surveys were sent to all growers and focused the questions on different MP types (such as sediment management, pesticide management, nutrient & irrigation management). The more recent results have presented the results of MP implementation for Responsibility Areas and site drainage areas rather than watershed-wide. The results of the newer surveys allow for a more refined and detailed analysis of the practices occurring on-site.

In general, the responses of the most recent VCAILG member survey, compared to past results, show that there was a general increase of MP implementation by all management categories such as irrigation and nutrient management, salinity management, sediment and erosion management, pesticide management, and runoff management. However, the magnitude of these increases is relatively small and many of the MPs are still not widely employed throughout the region. The surveys also indicate there are increasing number of acres producing runoff (VCAILG, 2020).

The most widely adopted MPs tend to be low-cost, low-tech and non-structural. For example, in most Responsibility Areas, leaf/petiole tests (a nutrient MP) have been employed by more than 50% of growers since the earliest surveys. The most recent survey indicated 70% or more of growers utilize the leaf/petiole test MP (Figure 56).

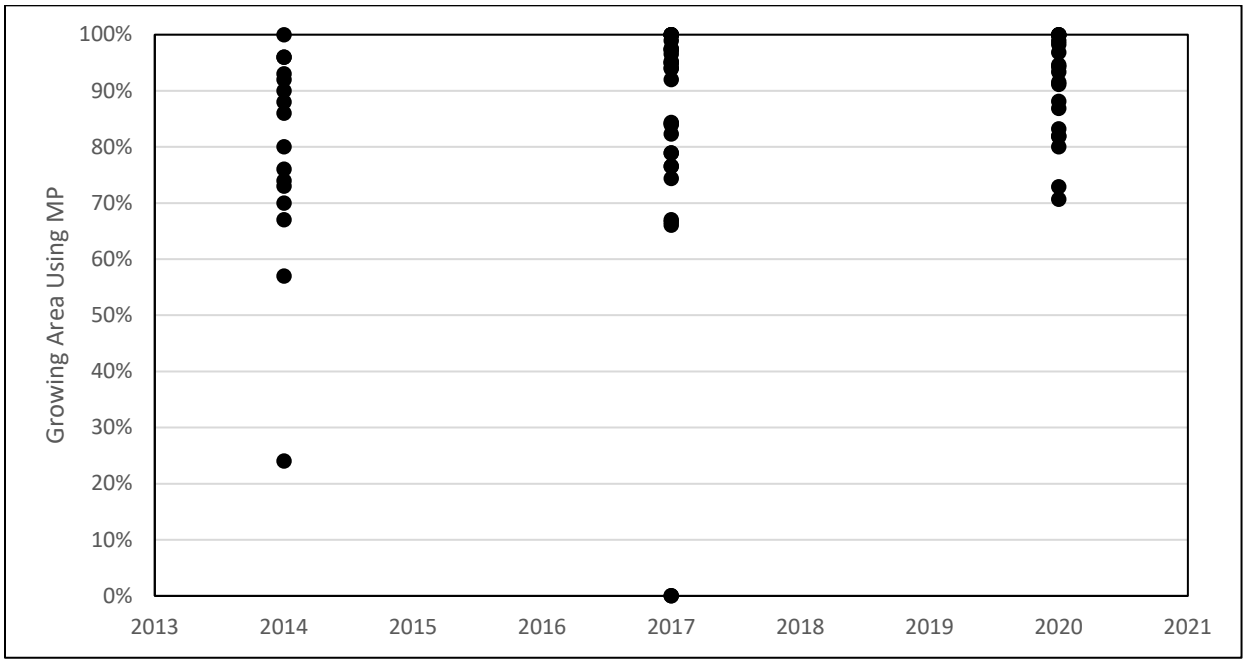

Figure 56. Percent of Agricultural area utilizing the Leaf/Petiole Test as a Nutrient MP.

However, structural MPs like grassed waterways (a sediment MP) are much less likely to be utilized (Figure 57). The most recent survey shows the usage of filter strips has actually declined over time.

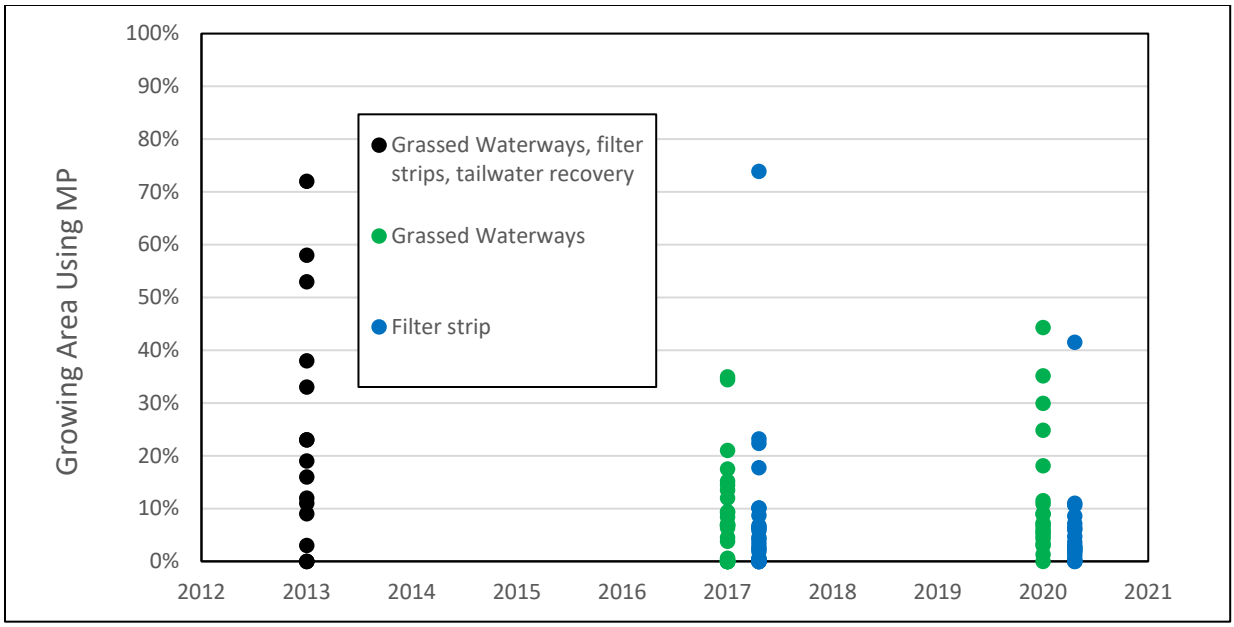

Figure 57. Percent of Agricultural areas using grassed waterways and filter strips as MPs (Note the 2014 survey results did not break out results for filter strips and grassed waterways separately. The combined result is included for comparison).

Given the continued widespread water quality issues from agricultural discharges (reflected in the data analysis in Section 6) and slow adoption by VCAILG members of structural and treatment MPs to address those discharges (as reflected by examining the VCAILG historical and recent member surveys), it is necessary to refine the Irrigated Lands Program to include discharge limitations in order to achieve needed water quality improvements.

8.2. LAILG

In Los Angeles County, implementation of MPs was presented in the WQMP as the percentage of growers fully implementing, partially implementing, and not implementing a particular MP category. Table 23 shows the fully and partially implemented MPs reported by the LAILG members.

Table 23. MPs implementation by LAILG members.

Type of Management Practices (MP)	Growers fully implemented MPs, %	Growers partially implemented MPs, %
Erosion and Sediment Management	12.5	4.8
Nutrient Management	22.2	4.4
Pest Management	29.8	5.1
Irrigation Management	25.7	6.5
Non-Production Area Management	43.0	3.0

LAILG stated that under the new MRP, after the baseline conditions are established and based on comparison to existing MPs, the group will be able to propose additional or upgraded MPs (LAILG, WQMP 2020). Given the continued widespread water quality issues from agricultural discharges (reflected in the data analysis in Section 6) and slow adoption of MPs to address those discharges (as reflected by examining the LAILG's most recent member survey), it is necessary to refine the Irrigated Lands Program to include discharge limitations in order to achieve needed water quality improvements.

9. Enforcement History

Compliance with regulatory programs is essential and enforcement actions have been taken against dischargers who have not enrolled in the Conditional Waiver. The objective of the enforcement actions is to encourage compliance with the ILRP and ensure that irrigated agricultural operations meet their legal responsibilities to protect water quality. Moreover, to preserve the long-term success of the program, it is necessary to respect the compliance of currently enrolled growers and discourage noncompliance by properly exercising enforcement authorities. In conducting enforcement actions, the Los Angeles Water Board takes actions consistent with the Water Board's Water Quality Enforcement Policy.

9.1. Ventura County

Enforcement actions since the 2016/2021 Waiver:

- On March 8, 2017, the Los Angeles Water Board staff sent to Ventura County growers seven hundred and thirty-one Notices of Violation for failure to enroll in the 2016 Waiver.
- On February 26, 2018, staff sent notices to re-enroll to members of VCAILG who were terminated by the group due to non-payment.
- On May 15, 2018, the Los Angeles Water Board sent Notices of Violation for failure to enroll in the Conditional Waiver to 24 growers in Ventura County.
- On May 31, 2018, the Board sent Notices of Violation for failure to enroll in the Conditional Waiver to 28 growers in Ventura County.
- In 2018, the Los Angeles Water Board staff prepared six enforcement cases for issuing Administrative Civil Liability (ACL).

9.2. Los Angeles County

Enforcement actions since the 2016/2021 Waiver:

- On March 1, 2018, staff sent notices to complete the questionnaire to the members of LAILG that did not comply with this requirement.
- On May 15, 2017, staff sent 23 notices to re-enroll to Los Angeles County growers who were previously enrolled in the Conditional Waiver, but who had let their enrollment lapse.

- On May 17, 2018, the Los Angeles Water Board sent notices to enroll in the Conditional Waiver to 187 growers in Los Angeles County.
- On May 28, 2019, the Los Angeles Water Board sent Notices of Violation for failure to enroll under the Conditional Waiver to 30 growers in Los Angeles County that received a Notice to Enroll in May 2018 but never responded.
- On August 21, 2019, the Los Angeles Water Board sent Notices of Violation for failure to enroll under the Conditional Waiver to 30 growers in Los Angeles County that previously received a Notice to Enroll in May 2018.

There has been a drop off in enforcement activities since 2019 due to staff turnover, management changes, and a shift in focus from enforcement of the 2016/2021 Waiver to development of the proposed new WDRs to replace the 2016/2021 Waiver.

10. Cost Considerations

This Section presents an analysis of costs resulting from the proposed General WDRs, and includes costs borne by VCAILG and LAILG members, including costs of monitoring and reporting and MP implementation. The cost analysis begins with a summary of baseline industry conditions in the Los Angeles Region; followed by discharger group member costs, which include membership fees, group MRP preparation costs, group monitoring costs, and group WQMP preparation costs; then individual member MRP preparation costs, discharge monitoring costs, farm-level management practice plan costs, drinking water well testing costs, and MP implementation costs; and finally countywide and crop-level costs.

10.1. Agriculture in the Los Angeles Region

Agriculture in the Los Angeles Water Board Region occurs primarily in Ventura County. There are about 93,000 irrigated acres in the Los Angeles Region, with the vast majority in Ventura County. Gross crop value from Ventura County ranks 10th in California (California Department of Food and Agriculture, 2021), and agriculture ranks 11th in terms of contribution to Ventura County's GDP. Industries that rank higher than agriculture include manufacturing, government, education and healthcare, retail, and hospitality. However, agricultural employment in Ventura County is significantly higher than the national average, and the industry holds historic and cultural significance in the county (VCCCD Economic and Workforce Development Division, 2019). The majority of agricultural activities comprise of growing fruits and nuts (specifically berries, avocados, and citrus), which generates about 67% of agricultural sales in Ventura County. This is followed by vegetable crops, which generate about 19% of sales, and nurseries, which generate about 10% of sales (County of Ventura Agricultural Commissioner, 2021). Growers face increasing challenges from climate change, including increased extremes in temperatures, drought, and natural disasters.

United States Department of Agriculture (USDA) Census of Agriculture (AgCensus) is a complete count of U.S. farms and ranches and the people who operate them. AgCensus

data from 2017 indicates that farming is the primary occupation of about 43% of growers in Ventura County, while 53% of growers have a primary occupation that is not farming (USDA, 2017).

Trends and magnitudes of agricultural gross domestic product (GDP), i.e. value added, in Ventura County are shown in Figure 58, and specific values are shown in Table 24. The GDP of agricultural production in Ventura County in general declined from 2012-2020. However, most recently from 2020-2021, GDP increased by 6.8% to $1.6_billion despite the COVID-19 pandemic, similar to GDP in 2011 after adjusting to 2021 dollars.

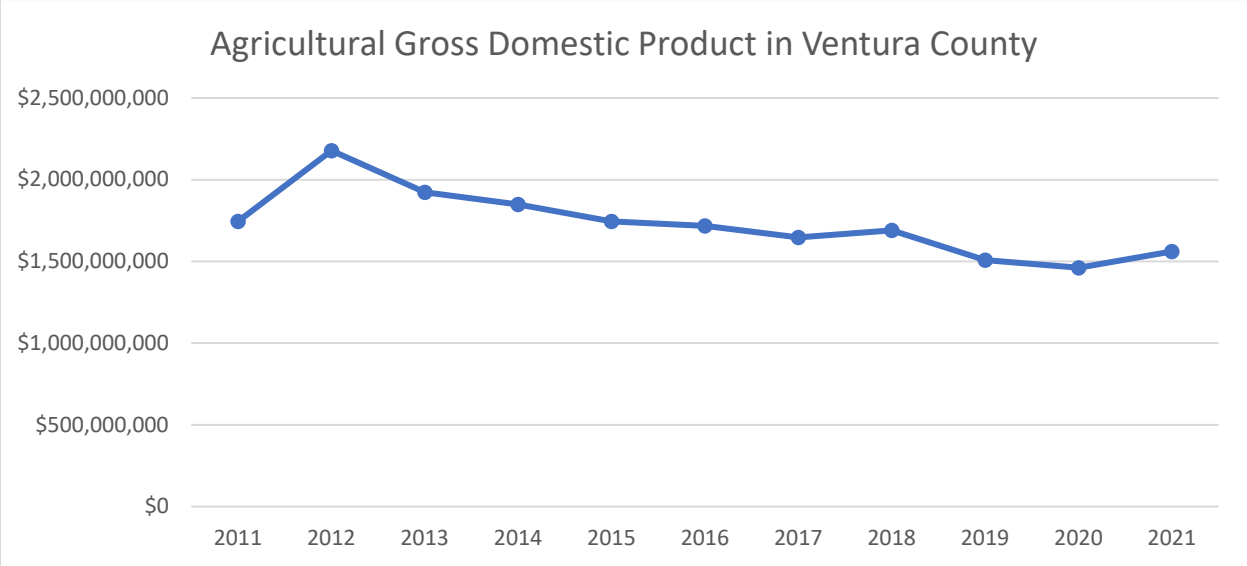

Figure 58. Gross Domestic Product of Agricultural Production in Ventura County (2021 dollars; data from U.S. Bureau of Economic Analysis, 2022).

Note: *Prices were adjusted to 2021 dollars using Producer Price Index for farm products – fruits and melons, fresh/dry vegetables and nuts, not seasonally adjusted.*

Table 24. Gross Domestic Product of Agricultural Production in Ventura County (2021 dollars; County of Ventura Agricultural Commissioner, 2021).

Year	Ventura County GDP (2021$)	Ventura County percent year-on-year change
2011	$1,745,621,163	-
2012	$2,178,119,716	24.8%
2013	$1,923,940,343	-11.7%
2014	$1,848,507,444	-3.9%
2015	$1,744,344,006	-5.6%
2016	$1,717,744,316	-1.5%
2017	$1,646,392,030	-4.2%
2018	$1,690,457,205	2.7%
2019	$1,507,608,268	-10.8%
2020	$1,461,636,552	-3.0%
2021	$1,561,223,000	6.8%

Note: *Prices were adjusted to 2021 dollars using Producer Price Index for farm products – fruits and melons, fresh/dry vegetables and nuts, not seasonally adjusted.*

Staff analyzed overall county-level agricultural profit margins using publicly available data from USDA's AgCensus and the Ventura County Agricultural Commissioner. The data available indicates that county-level operating profit margins are at low to medium financial risk. The AgCensus estimates that agricultural production expenses were $1.1 billion and $1.2 billion in 2012 and 2017 in nominal dollars, respectively. Total agricultural sales were $1.4 billion and $1.6 billion in 2012 and 2017, respectively. This yields overall operating profit margins of 20.8%-24.0%, shown in Table 25. Sales data from the Ventura County Agricultural Commissioner differs from AgCensus data and indicates that total agricultural sales were $2.0 billion and $2.1 billion in 2012 and 2017 in nominal dollars, respectively. Because Agricultural Commissioner data does not include data on production costs, and the AgCensus has the only publicly available figures on countywide production costs, AgCensus production costs were subtracted from Agricultural Commissioner sales values to estimate a second set of operating profit margins. This yields operating profit margins of 40.9%-42.0%. The USDA classifies operating profit margins of over 25% to be at low financial risk, and operating profit margins between

10%-25% to be at medium financial risk. The distribution of profits across farms cannot be estimated, as detailed farm-level data is not available.

Table 25. Operating profit margin estimates of agriculture in Ventura County (nominal dollars; USDA, 2017 and County of Ventura Agricultural Commissioner, 2021).

Year	Production expenses[a]	Total Agricultural Sales[a] (Low)	Operating profit margin (Low)	Total Agricultural Sales[b] (High)	Operating profit margin (High)
2012	$1,139,944,000	$1,440,132,000	20.8%	$1,963,798,000	42.0%
2017	$1,241,471,000	$1,633,293,000	24.0%	$2,099,889,000	40.9%

a. Note: Interest was subtracted from production expenses to calculate operating profit margin. Source: 2017 USDA Census of Agriculture; Table 2. Market Value of Agricultural Products Sold Including Food Marketing Practices and Value-Added Products: 2017 and 2012b.

Staff analyzed the distribution of farm sizes and irrigated acreage in Ventura County. Staff utilized 2022 parcel data obtained from VCAILG and summed irrigated and assessed acreage by landowner. Specific grower data was not available, but AgCensus data from 2017 indicates that most farms are operated by the landowner. About 92% of farms are operated by the landowner and about 70% of farm acres are operated by the landowner (USDA, 2017). As shown in Figure 59 and Table 26, the vast majority of farms in Ventura County are small farms, with about 75.5% of farms less than 50 acres. However, these farms only hold about 19% of all irrigated land in Ventura County. On the other end of the distribution, farms greater than 500 acres comprise about 1.4% of all farms but hold about 23% of irrigated lands.

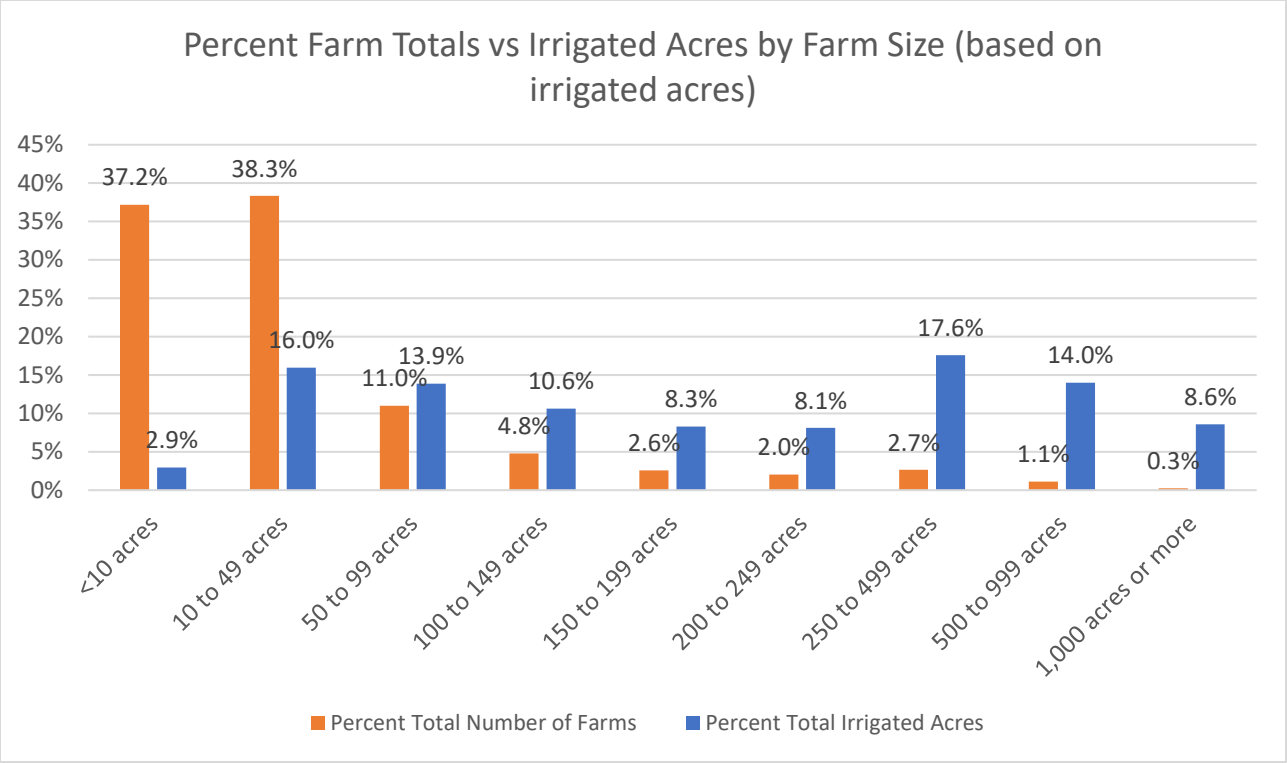

Figure 59. Percent Farm Totals and Irrigated Acres by Farm Size in Ventura County (VCAILG, 2022).

Table 26. Number of Farms and Irrigated Acres in Ventura County (VCAILG, 2022).

Farm size (based on irrigated acres)	Number of Farms	Percent of Total Farms	Irrigated Acres	Percent of Total Irrigated Acres
<10 acres	588.0	37.2%	2,566.5	2.9%
10 to 49 acres	606.0	38.3%	13,964.6	16.0%
50 to 99 acres	174.0	11.0%	12,126.2	13.9%
100 to 149 acres	76.0	4.8%	9,307.1	10.6%
150 to 199 acres	41.0	2.6%	7,255.1	8.3%
200 to 249 acres	32.0	2.0%	7,112.0	8.1%
250 to 499 acres	42.0	2.7%	15,393.5	17.6%
500 to 999 acres	18.0	1.1%	12,245.4	14.0%
1,000 acres or more	4.0	0.3%	7,491.6	8.6%
Total	**1,581.0**	**100%**	**87,462.1**	**100%**

Agriculture has much less of an economic and cultural presence in Los Angeles County. Data on growers in LA County that only lie within the Los Angeles Water Board region boundaries was not available. Figures for agricultural sales in Los Angeles County, which also include areas outside of the Los Angeles Water Board region boundaries, show that agricultural activities comprise primarily of nurseries, which generate about 55% of agricultural sales, followed by vegetable crops (21% of sales), dairy and livestock (7.4%

of sales), and field crops (7.1% of sales) (Los Angeles County Agricultural Commissioner, 2019).

10.2. VCAILG Cost

VCAILG administers the enrollment (permitting fees), monitoring, and reporting requirements for its landowner members. Landowners are billed for services on a per acre basis. Average costs per acre are presented in Table 9. Administrative costs, such as report processing and overhead, are shared equally among all VCAILG members, whereas monitoring costs vary between watersheds due to differences in the number of monitoring sites and analysis required. In addition to administering the Conditional Waiver, VCAILG is also the mechanism by which TMDL coordinated monitoring and reporting costs for all dischargers in TMDL watersheds are recovered from agriculture landowners specifically. Table 27 summarizes the total VCAILG program costs over the last ten years. Costs were adjusted to 2021 dollars using the Producer Price Index for management, scientific, and technical consulting services (U.S. Bureau of Labor Statistics, 2022).

Table 27. Summary of Annual VCAILG Budget and Cost per Acre for Enrolled Acreage (2021 dollars).

Fiscal Year	VCAILG Budget	Enrolled Acreage	Average Cost per Acre for VCAILG Members
2010-2011	$2,231,406	88,002	$25.35
2011-2012	$1,855,811	83,661	$22.18
2012-2013	$1,749,405	79,003	$22.14
2013-2014	$1,429,973	77,019	$18.57
2014-2015	$1,902,593	78,664	$24.18
2015-2016	$1,741,205	82,189	$21.18
2016-2017	$1,656,794	72,571	$22.83
2017-2018	$1,835,384	81,807	$22.44
2018-2019	$1,792,349	83,259	$21.53
2019-2020	$2,249,455	83,212	$27.03
2020-2021	$1,569,929	80,227	$19.13

10.3. LAILG cost

Similarly, LAILG administers the enrollment (permitting fees), monitoring, and reporting requirements for its members. All members of LAILG are also required to be members of Plant California Alliance and must pay annual Plant California Alliance dues. Annual Plant California Alliance dues are $750 for growers grossing greater than $2 million per year and $375 for growers grossing less than $2 million per year. In addition to Plant California Alliance dues, members are billed a base fee of $150 per site and a per acre fee of $170

to cover the costs of monitoring, reporting, and administration of the program. All new enrollees must pay a one-time enrollment fee of $975 for less than 5 acres or $1475 for 5 acres or more.

Table 28 summarizes the LAILG budget over the 2010 and 2016/2021 Conditional Waiver terms. Conditional Waiver monitoring and reporting costs are assessed approximately once per year. Costs were adjusted to 2021 dollars using the Producer Price Index for management, scientific, and technical consulting services (U.S. Bureau of Labor Statistics, 2022).

Table 28 Summary of Annual LAILG Budget (2021 dollars).

Fiscal Year	LAILG Budget
2010-11	$92,448
2011-12	$192,293
2012-13	$139,380
2013-14	$169,240
2014-15	$100,748
2015-2016	$104,551
2016-2017	$303,707
2017-2018	$207,174
2018-2019	$266,635
2019-2020	$208,300
2020-2021	$146,958

10.4. Estimated Monitoring and Reporting Plan Costs

For VCAILG or LAILG members who drain to a waterbody for which a TMDL deadline has not passed (or are in a Responsibility Area associated with that waterbody), it is not expected that this order will increase costs for creating monitoring and reporting plans (MRPs), since their membership dues already currently cover costs for creating group MRPs.

For members who drain to a waterbody for which a TMDL deadline has passed, they can either create an Individual Monitoring and Reporting Plan (individual MRP)[4] that involves edge-of-field sampling or an Individual Farm-Level Management Practice Plan (farm-level MPP)[5]. For those that choose to create an individual MRP, staff assumes that the farm will hire a consultant who is an environmental scientist. The mean hourly wage for an environmental scientist in the Oxnard-Thousand Oaks-Ventura, CA area is $45.73 (U.S. Bureau of Labor Statistics, 2021). Wages on average comprise about 70.5% of total compensation in the Pacific West region; therefore, the total assumed wage is $64.87 (U.S. Bureau of Labor Statistics, 2022). In addition, based on an analysis by the Central

[4] The individual MRP is included in Appendix 3 as Track 1
[5] The farm-level MPP is included in Appendix 3 as Track 2

Coast Water Board, staff assumes a multiplier of 2.97 to account for consultant's overhead, administrative costs, and profit, resulting in a wage of $192.65 per hour (PG Environmental and Eastern Research Group, 2021). It is estimated that it will take about 80 hours to create an MRP, yielding a cost of about $15,412 to prepare an MRP.

A Quality Assurance Project Plan (QAPP) is required to be included in the MRP. In some cases it may take about the same amount of time to prepare a QAPP as the rest of the MRP, but the level of effort varies by site and in most cases, it will take less time. Therefore, the conservative estimate for the cost of preparing an MRP including the QAPP is $30,824, but the cost for most farms will likely be less.

It is not possible to estimate the number of individual MRPs that will be created, as dischargers have to decide on which implementation pathway to pursue, and will then submit plans for each contiguous farm, and this level of data is not available.

10.5. Estimated Monitoring Costs

The proposed General WDRs require VCAILG to add an additional monitoring site to its existing 16 monitoring sites. If adopted, the monitoring costs under the proposed General WDRs will slightly increase for the group as a result. This may result in increased fees for members, though this increase is not expected to be substantial as the cost of monitoring an additional site will be spread across enrollees. For VCAILG members that drain to a waterbody for which a TMDL deadline has not passed, this will likely be the only potential increase in monitoring costs. For VCAILG members that drain to a waterbody for which a TMDL deadline has passed (or are in a Responsibility Area associated with that waterbody), they can either conduct individual edge-of-field monitoring or create and implement a farm-level MPP.

For those that do individual monitoring, costs will vary, but staff provides an illustrative example of the average grower in the McGrath Lake Coastal Responsibility Area. According to the individual monitoring requirements in Section 3.3 of Appendix 3 of the Proposed General WDRs, two samples shall be collected from each discharge point per year in wet weather and/or dry weather, depending on the nature of the exceedance at the Discharger Group monitoring site. Assuming one exceedance in wet weather and one exceedance in dry weather and two discharge points per farm, each grower will need to collect eight samples per year.

According to VCAILG's 2021 Annual Report, the Central Ditch site exceeds benchmarks for chlordane, DDT, DDE, and DDE. Each grower will need to analyze the four samples collected per year for these constituents. Because these constituents are all organochlorine pesticides, there is one lab method that analyzes for all constituents at a cost of $300-$450 per sample.[3]

Based on U.S. Bureau of Labor Statistics data and Central Coast Water Board analysis that yields $192.65 for the average hourly wage for an environmental scientist in the Oxnard-Thousand Oaks-Ventura, CA area, and assuming that it takes one hour per sample, this yields a total sampling and analysis cost of about $493-$643 per sample.

Multiplying eight samples per year by these costs results in a total cost for individual monitoring of $3,944-$5,144 per year per grower in the McGrath Lake Coastal Responsibility Area. Depending on protocols included in the QAPP, QA/QC samples would add additional costs.

10.6. Estimated Costs for Creating Farm-level Management Practice Plans (Ventura County, Track 2 compliance path only)

As discussed in section 11, under the proposed General WDRs, growers in Ventura County will have an additional compliance path available to them – Track 2 – in which they may complete a farm-level management practice plan (MPP) to demonstrate compliance with individual discharge limitations. Growers in Ventura County whose applicable TMDL deadline has passed and have chosen Track 2, will have separate costs for the preparation of farm-level MPPs.

Based on data and assumptions from U.S. Bureau of Labor Statistics and the Central Coast Water Board, as detailed in the section on creating MRPs, staff assumes an hourly wage of $192.65 for an environmental scientist including consultant's overhead, administrative costs, and profit. It is estimated that it will take about 200 hours to write the initial farm-level MPP and 40 hours for any subsequent revisions farm-level MPP. This translates to about $38,530 for the first farm-level MPP and $7,706 for revisions.

It is not possible to estimate the number of farm-level MPPs that will be created, as dischargers have to decide on which implementation pathway to pursue and will then submit plans for each contiguous farm, and this level of data is not available.

10.7. Drinking Water Wells Testing

All growers will be required to conduct sampling for nitrate of all domestic drinking water wells on their irrigated agricultural lands. The dischargers may sample their wells themselves using guidance and following the required procedures. The dischargers may also use the services of designated laboratories within the Environmental Laboratory Accreditation Program (ELAP) and have a professional perform the sampling. In addition, the results of the sampling must be entered in GeoTracker by the laboratories. Therefore, the cost estimates are for the sample only, sampling performed by a professional, and the cost of entering the results in GeoTracker. The cost of analyzing a sample for nitrate is about $30. The cost for a professional to collect a sample within Ventura County is at least $85, with higher costs if the professional needs to travel outside of the laboratory’s primary coverage area. Entering the result in the GeoTracker database costs an additional $45 (Fruit Growers Laboratory, 2023).

10.8. Estimated MP Implementation Costs

In order to estimate the implementation costs of the Conditional Waiver program, the staff report supporting the 2016/2021 Waiver renewal estimated the costs of four MP

categories (nutrient management, pesticide management, erosion management, and irrigation management). MP cost information was based on the most recent estimates from the NRCS Environmental Quality Incentives Program (EQIP) fiscal year 2023 list of unit costs (NRCS, 2022). Under the proposed General WDRs, growers will continue to implement MPs from these four categories. Thus, the MP cost estimates are included in this staff report as well and have been updated with the most recent NRCS cost information. Annual operations and maintenance costs were accounted for in this current analysis and assumed to be 2% of NRCS per-acre costs. Additionally, costs for bioreactors and sediment basins are added to this current analysis to account for the increased level of structural MP implementation that will occur under the General WDRs. This section will detail cost estimates of the six MP categories, then provide overall county-level MP implementation cost estimates and estimates for popular crops.

10.8.1. MP Unit Costs

Summaries of MP per-acre unit costs and approximate lifespans for non-orchard and orchard crops are shown in Table 29 and Table 30. Unit costs were obtained from NRCS data and MP lifespans were reasonable assumptions made by Board staff. The same nutrient and pesticide management practices are applicable to all crops, whereas erosion and irrigation management practices differ between orchard (e.g., lemons, avocados) and non-orchard crops (e.g. strawberries, celery, nursery stock). For non-orchard crops, total MP unit costs range from $643-$2,551 per acre. For orchard crops, the range is wider, at $316-$2,755 per acre.

Table 29: MP Unit Costs for Non-Orchard Crops (2021 dollars; NRCS 2023)

MP	Cost Per Acre (Low)	Cost Per Acre (High)	MP Lifespan (Years)
Nutrient Management	$19	$64	1
Pesticide Management	$38	$60	1
Erosion Management	$204	$245	10
Irrigation Management	$382	$382	15
Total MP Cost Per Acre	$643	$2,551	

Table 30: MP Unit Costs for Orchard Crops (2021 dollars;NRCS, 2023)

MP	Cost Per Acre (Low)	Cost Per Acre (High)	MP Lifespan (Years)
Nutrient Management	$19	$64	1
Pesticide Management	$38	$60	1
Erosion Management	$259	$2,631	3
Irrigation Management[a]	-	-	-
Total MP Cost Per Acre	$316	$2,755	

a. Irrigation management practice is the same as erosion management practice (mulching).

10.8.1.1 Nutrient Management

To obtain certification to self-certify their nutrient management plans, growers may attend a California Department of Food and Agriculture-approved training. This training is currently free. In addition, a certified nutrient management plan costs approximately $80 per management unit (FLG, 2020). A management unit in this case is a parcel or a group of parcels that have same characteristics such as crop type, irrigation, and fertilization methods.

Nutrient management practices (NRCS Practice Code 590) are applicable to diverse crop types. The NRCS cost estimate for nutrient management is $18.66-$63.66 per acre (NRCS, 2022). Nutrient management practices occur approximately every year.

Combined with nutrient management practices, denitrifying bioreactors (NRCS Practice Code 605, 2022) and other large-scale nutrient treatment systems can be effective to reduce nitrate discharging from fields (NRCS, 2020). Bioreactor size is dependent on the volume of water to be treated, NRCS estimates that the cost of in-ground bioreactors is $70.49 to $86.40 per cubic yard excavated. Depending on size, containerized denitrifying bioreactors may run $50,000 and up. The estimated life span of the bioreactors is 10-20 years but may be extended through the replacement of the internal media.

10.8.1.2. Pesticide Management

Pesticide management practices (NRCS Practice Code 595) are applicable to all crop types. The NRCS cost estimate for water quality pesticide mitigation is $38.06-$79.56 per acre (NRCS, 2020). Pesticide management practices occur approximately every year.

10.8.1.3. Sediment and Erosion Management

Staff assumed two types of erosion management MPs to estimate costs: mulching and filter strips. These MPs were selected because they are effective MPs to address sediment and erosion management and are reasonably expected to be implemented by growers. For orchard crops (avocado and lemon), the most applicable erosion control MP is mulching. For strawberry, celery, and nursery crops, the most applicable erosion control MP is filter strips. NRCS estimates that filter strips (NRCS Practice Code 393) planted with native plant material cost $203.96-$244.75 per acre of filter strip. The lifespan of filter strips is approximately 10 years. The NRCS Conservation Practice Standard for Mulching (Code 484) estimates that mulching costs $259.19-$751.56 per acre of natural mulching material (not heavy) and $2,191.72-$2,631.27 per acre of wood chips material applied (NRCS, 2022). The lifespan of mulch can vary between 2 to 5 years, but staff assumes a lifespan of 3 years for analysis in this report.

In addition to mulching and filter strips, sediment basins (NRCS Practice Code 638) may aid in erosion management. Depending on volume of runoff to be treated, NRCS estimates the costs to be $9.79 to $11.74 per cubic yard (NRCS, 2022) excavated.

10.8.1.4. Irrigation Management

Staff assumed two types of irrigation management practices to estimate costs: mulching and irrigation tailwater recovery (NRCS Practice Code 447). For orchard crops, such as lemons, mulching is an effective irrigation management practice in addition to being an effective erosion control practice. For non-orchard crops, such as strawberry, nursery crops, celery, and raspberry, the most applicable irrigation management MP is tailwater recovery. NRCS estimated that tailwater recovery systems for cropland less than 100 acres cost $382 per acre of cropland treated in 2021 dollars (NRCS, 2010). The approximate lifespan of tailwater recovery systems is 15 years.

10.8.2. Annualized MP Unit Costs

MP costs were annualized to account for varying MP lifespans for non-orchard crops and orchard crops in Table 13 and Table 14, respectively. For MPs that are not installed every year (erosion management and irrigation management), staff assumed annual operations and maintenance costs to be 2% of overall per-acre unit costs shown in Table 32 and Table 33. Staff annualized costs over a timespan of 20 years and used 3% and 7% discount rates according to U.S. Office of Management and Budget Circular A-4. Staff assumed that costs for all MPs would begin at the same time, one year after permit implementation.

MP costs were annualized to account for varying MP lifespans for non-orchard crops and orchard crops in Table 31 and Table 32, respectively. For MPs that are not installed every year (erosion management and irrigation management), staff assumed annual operations and maintenance costs to be 2% of overall per-acre unit costs shown in Table 29 and Table 30. Staff annualized costs over a timespan of 20 years and used 3% and 7% discount rates according to U.S. Office of Management and Budget Circular A-4. Staff assumed that costs for all MPs would begin at the same time, one year after permit implementation.

Table 31. Annualized costs over 20 years for non-orchard crops (2021 dollars).

MP	Annualized Cost Per Acre (Low, 7% disc. rate)	Annualized Cost Per Acre (High, 7% disc. rate)	Annualized Cost Per Acre (Low, 3% disc. rate)	Annualized Cost Per Acre (High, 3% disc. rate)
Nutrient Management	$19.00	$64.00	$19.00	$64.00
Pesticide Management	$38.00	$80.00	$38.00	$80.00
Erosion Management	$30.68	$36.85	$26.83	$32.23
Irrigation Management	$52.64	$52.64	$47.75	$47.75
Total	**$140.32**	**$233.48**	**$131.58**	**$223.98**

Table 32. Annualized costs over 20 years for orchard crops (2021 dollars).

MP	Annualized Cost Per Acre (Low, 7% disc. rate)	Annualized Cost Per Acre (High, 7% disc. rate)	Annualized Cost Per Acre (Low, 3% disc. rate)	Annualized Cost Per Acre (High, 3% disc. rate)
Nutrient Management	$19.00	$64.00	$19.00	$64.00
Pesticide Management	$38.00	$80.00	$38.00	$80.00
Erosion Management	$97.63	$991.77	$95.45	$969.58
Irrigation Management[a]	-	-	-	-
Total	**$154.63**	**$1,135.77**	**$152.45**	**$1,113.58**

a. The irrigation management MP is the same as the erosion management MP for these crop types.

Annualized cost ranges for non-orchard crops are lower and much narrower than for orchard crops. Total annualized per-acre costs for non-orchard crops range from $140.32-$233.48 at a 7% discount rate and $131.58-$223.98 at a 3% discount rate. For orchard crops, total annualized per-acre costs range from $154.64-$1,135.77 at a 7% discount rate and $152.45-$1,113.58 at a 3% discount rate.

10.8.3. Countywide Costs

County-level cost estimates focus on Ventura County due to limited data on Los Angeles County agriculture that lies within Los Angeles Water Board boundaries. While some farms have implemented MPs, it is unclear how many acres of irrigated lands have sufficient runoff controls. Therefore, conservative estimates of total MP implementation costs across all irrigated lands are provided in Table 33. Estimates were calculated by multiplying the lowest and highest total per-acre MP costs by the average number of irrigated acres over the most recent five years reported in VCAILG Annual Monitoring Reports 2017-2021. For Ventura County, this yields total annualized MP costs of about $13.0-$105.4 million when discounted at 7%, and $12.2-$103.4 million when discounted at 3%.

Upper range estimates are derived from the high per-acre cost estimate for orchard crops, which is several orders of magnitude higher than the high per-acre cost estimate for non-orchard crops. Ventura County's agricultural activities comprise a mix of orchard and non-orchard crops. Therefore, upper-range county-level costs further represent conservative estimates.

Table 33. Total Annualized MP Costs over 20 years for Ventura County (2021 dollars).

County	Irrigated Acres (5-year avg.)	Total Annualized MP Cost (Low, 7% disc. rate)	Total Annualized MP Cost (High, 7% disc. rate)	Total Annualized MP Cost (Low, 3% disc. rate)	Total Annualized MP Cost (High, 3% disc. rate)
Ventura	92,843	$13,027,422	$105,448,378	$12,216,696	$103,388,084

In addition, staff compared estimated countywide MP costs to annual gross crop values, which were adjusted to 2021 dollars and averaged over the most recent five years reported in Ventura County Agricultural Commissioner Crop Reports (Table 34). The five-year average annual gross crop value is $2.0 billion for Ventura County. Total annualized MP costs represent 0.6%-5.2% of annual gross crop value at a discount rate of 7%, and 0.6%-5.1% at a discount rate of 3%.

Table 34. Total Annualized MP Costs as Percentages of Annual Crop Value (2021 dollars).

County	Annual Gross Crop Value (5-year avg.)	MP Cost/Crop Value (Low, 7% disc. rate)	MP Cost/Crop Value (High, 7% disc. rate)	MP Cost/Crop Value (Low, 3% disc. rate)	MP Cost/Crop Value (High, 3% disc. rate)
Ventura	$2,046,440,578	0.6%	5.2%	0.6%	5.1%

10.8.4. Crop-level Costs

Board staff also conducted a cost analysis for the five highest-grossing crops in Ventura County over the past five years, shown in Table 35. These crops are strawberry, lemon, nursery stock, celery and raspberry. They represent about 69% of Ventura County's gross crop value and about 49% of the County's irrigated acreage. The annualized costs for each MP category and their values as percentages of crop values are shown in Table 36 and Table 37 discounted at 7% and 3%, respectively.

The range of estimated MP costs as percentages of crop values is wider than the county-level range for Ventura County. The crop-level range spans a low of 0.2% for raspberries and a high of over 7% for lemons. Ranges of costs as percentages of crop values are the lowest and narrowest for crops with the highest crop value per acre (above $40,000/acre) – strawberries (0.2%-0.3%), nursery stock (0.2%-0.4%), and raspberries (0.3%-0.5%). Lemons require different erosion and irrigation management MPs than the other crops, and overall estimated MP costs as percentages of lemon crop value span a range of 1.0% to 7.5%.

Table 35. Crop and Acreage Values for Top 5 Highest-Grossing Crops in Ventura County, (2021 dollars (County of Ventura Agricultural Commissioner Crop Reports 2017-2021).

Crop	Crop Value (5-year average)	Acreage (5-year average)	Crop Value Per Acre (5-year average)
Strawberry	$622,969,378	9,248	$67,239
Lemon	$236,224,760	15,697	$15,218
Nursery Stock	$196,736,766	3,119	$63,089
Celery	$178,125,879	13,532	$13,326
Raspberry	$171,903,874	3,736	$46,154

Table 36. Annualized MP Costs and Percent of Crop Value for Top Highest-Grossing Crops in Ventura County, annualized over 20 years at 7% discount rate, 2021 dollars (County of Ventura Agricultural Commissioner Crop Reports 2017-2021; NRCS 2021).

Crop	Nutrient Manage-ment (per acre)	Pesticide Manage-ment (per acre)	Erosion Manage-ment (per acre)	Irrigation Manage-ment (per acre)	Total MP Cost (per acre)	MP Cost/ Crop Value
Strawberry	$19- $64	$38- $80	$31-37	$53	$141-$234	0.2%-0.3%
Lemon	$19- $64	$38- $80	$98-992	*	$155-$1,136	1.0%-7.5%
Nursery Stock	$19- $64	$38- $80	$31-37	$53	$141-$234	0.2%-0.4%
Celery	$19- $64	$38- $80	$31-37	$53	$141-$234	1.1%-1.8%
Raspberry	$19- $64	$38- $80	$31-37	$53	$141-$234	0.3%-0.5%

*The irrigation management MP is the same as the erosion management MP for these crop types.

Table 37. Annualized MP Costs and Percent of Crop Value for Top Highest-Grossing Crops in Ventura County, annualized over 20 years at 3% discount rate, 2021 dollars (County of Ventura Agricultural Commissioner Crop Reports 2017-2021; NRCS 2021).

Crop	Nutrient Manage-ment (per acre)	Pesticide Manage-ment (per acre)	Erosion Manage-ment (per acre)	Irrigation Manage-ment (per acre)	Total MP Cost (per acre)	MP Cost/ Crop Value	
Strawberry	$19- $64	$38- $80	$27-$32	$48	$132-$224	0.2%-0.3%	
Lemon	$19- $64	$38- $80	$95-$970	*	$152-$1114	1.0%-7.3%	
Nursery Stock	$19- $64	$38- $80	$27-$32	$48	$132-$224	0.2%-0.4%	
Celery	$19- $64	$38- $80	$27-$32	$48	$132-$224	1.1%-1.7%	
Raspberry	$19- $64	$38- $80	$27-$32	$48	$132-$224	0.3%-0.5%	

*The irrigation management MP is the same as the erosion management MP for these crop types.

10.9. Discussion

Based on the results of this cost analysis, in general the financial impact of this Order on the agricultural industry in Ventura County will not be overly burdensome. Operating profit margins for the industry at the county level range from 20.8%-42.0%, as shown in Table 26. County-level annual MP costs range from 0.6%-5.2% of annual crop revenues. Estimates are conservative, as some farms have implemented MPs and estimates presented were calculated for all irrigated lands in Ventura County. Upper-range county-level costs further represent conservative estimates because upper range estimates were derived from the high per-acre cost estimate for orchard crops, which is several orders of magnitude higher than the high non-orchard crop per-acre cost estimate, and Ventura County's agricultural activities comprise a mix of orchard and non-orchard crops. Moreover, crop-level annual MP cost ranges for the top five highest grossing crops as percentages of annual crop revenues are below 2%, with the exception of lemons, which ranges from 1.0%-7.5%.

In addition, as presented in Figure 59 and Table 26, a relative few large farms comprise significant portions of irrigated lands. While farm-level financial data is unavailable, it is reasonable to assume that larger farms in general have higher incomes than smaller farms and would less likely face heavy financial impacts resulting from this Order. Furthermore, ensuring compliance from the larger farms would result in reduced runoff from a large percentage of irrigated lands.

While the agricultural industry faces growing pressures from climate change, these pressures likely loom larger than the financial impacts resulting from this Order. Moreover,

the Order would curb polluting runoff that exacerbates climate change. Staff acknowledges that it is possible that costs for some farms resulting from this Order may be higher or lower than the estimates presented in this analysis. For farms seeking financial assistance, federal funding sources have been made available, as detailed in Section 11.1 and 11.2.

11. Benefits Considerations

A wide range of health, economic, and environmental benefits will result from the proposed General WDRs to residents and visitors of the Los Angeles Region. There was insufficient data to conduct a quantitative benefits analysis for the Los Angeles Region. However, to the extent possible, benefits that will occur during the progression of meeting the General WDRs are discussed qualitatively below.

11.1. General estimates of agricultural nitrogen reduction

Nitrogen leaching into the environment from agriculture imposes costs on society, and based on the literature, the benefits that come from the reduction of nitrogen in the Los Angeles Region would likely outweigh the costs. Sobota et al. (2015) examined a wide range of damages coming from the leakage of agricultural nitrogen, with their estimates yielding national damages of $193-204 billion in 2021 dollars. The calculation was based on estimates from a range of studies that quantified values of loss of recreational use, loss of endangered species, increased eutrophication, nitrate contamination in drinking water, increased colon cancer risk, decline in fisheries and aquatic habitat, and declining property values. Mandrini et al. (2022) built on the findings of Sobota et al. (2015) and conducted a benefit-cost analysis of reducing nitrogen leakage by 20% in Illinois. They found that the benefits far outweigh the costs. They estimated that the reduction of nitrogen by 20% in Illinois would incur an annual cost of about $74-91 per acre, or about $147 million for the state, but the benefits from improved water quality would equate to about $377 million. This yielded a return on investment of about 260%.

The following sections discuss potential monetized benefits of the proposed General WDRs by some of the categories considered in the aforementioned national and state-level estimates.

11.2. Recreation

Improved water quality resulting from the General WDRs can improve recreational opportunities at waterbodies, particularly in Ventura County, where outdoor water recreation is important to the local economy. In 2021, visitors to the county spent a total of $1.6 billion, which generated about 14,000 jobs and $59 million in local taxes (Dean Runyan Associates, 2021). For reference, agriculture in Ventura County generated about $2.1 billion in sales in 2021 (County of Ventura Agricultural Commissioner, 2021). In a survey regarding the economic impacts of tourism for the city of Ventura, words most

mentioned by visitors regarding Ventura were “beach/beachy”, “beautiful”, and “ocean/water” (Lauren Schlau Consulting, 2018). In addition to attracting visitors from outside the County, clean waterbodies can also provide local residents with low-cost recreational opportunities and benefits to physical and mental health, which is especially important to disadvantaged communities. Visitation data for Ventura County waterbodies is limited, but beach surveys conducted by Christensen and King (2017) found that at Port Hueneme, the majority of visitors were people of color and roughly one-third had a household income of less than $50,000. At Ventura Pier, about 40% of visitors were people of color, and about a quarter had a household income of less than $50,000. Locals and visitors can already enjoy high water quality at the vast majority of beaches in Ventura County (Heal the Bay, 2022), but there are other waterbodies where compliance with this order would bring improvements to water quality along with increased recreational benefits.

Environmental economics literature utilizing travel cost methods finds that people are willing to pay more in time and money to travel to waterbodies with higher water quality (Phaneuf, 2002; Egan, Herriges, Kling, & Downing, 2009; Keeler, et al., 2015). Agricultural runoff diminishes water quality and can cause recreational users to limit or avoid interaction with waterbodies. Nutrient-rich runoff causes algae to quickly bloom, and when the algae die, bacteria involved with decomposition consume dissolved oxygen in the water. Without enough dissolved oxygen, fish and other aquatic wildlife die (USDA, 2021).

A prominent fish kill example is a 2018 event in Channel Islands Harbor, though larger incidents have occurred at Ventura Harbor and Redondo Beach in 2011 (Barboza, 2011). Channel Islands Harbor is a popular location for people to engage in boating, kayaking, paddleboarding, dining at restaurants, walking, biking, and enjoying aquatic views. Many of these activities generate revenues at the harbor. In 2018, after the closing of the Mandalay Generating Station, which had circulated water in the harbor as part of its operations, water in the harbor became brown and odorous, with dead fish and fish gasping for air at the surface. This resulted from a lack of oxygen in the water caused by excessive nutrients in the water, resulting in algae blooms (Leung, 2018a).

The situation has since improved after the city of Oxnard installed aerators in the harbor (Leung, 2018b), but reducing pollutant inputs to the harbor including agricultural runoff would be a more effective long-term solution in ensuring the 2018 event does not occur again. It would also shift the costs of water quality improvement from the city to one of the pollution sources. The full costs of maintaining water quality at the harbor is unknown, but in 2018 local media reported $14,000 for aerator costs and $72,650 for water quality sampling and analysis (Leung, 2018b; Rohit, 2018).

Two beaches, Hobie Beach and Kiddie Beach Park, are also located at the southern portion of the harbor. Both beaches are locations for launching watercraft, and Kiddie Beach Park is a dedicated swim beach. Poor water quality at these beaches would likely deter visitors, and those that interact directly with the water could be subject to health problems, such as gastrointestinal illnesses or skin rashes. While Hobie Beach received

an A grade in dry weather from Heal the Bay, Kiddie Beach Park received a C. Both received F grades in wet weather (Heal the Bay, 2022).

Improved water quality from the General WDRs would also contribute to the restoration of McGrath Lake, Santa Clara River and Estuary, and nearby wetlands, woodlands, and campground. McGrath Lake and Santa Clara River are subject to TMDLs in which agricultural operations have been identified as a source of pollutants causing or contributing to the water quality impairment and assigned load allocations. The area is also a destination for birdwatchers (Conejo Valley Audubon Society, n.d.). Wildlife viewing generates economic activity. In 2016, wildlife-watchers 16 years or older spent on average $1,341 per person in 2021 dollars, which includes costs for travel, lodging, and equipment (U.S. Fish and Wildlife Service, 2016). While the McGrath Campground is currently closed, when the campground is fully open, clean water quality in McGrath Lake and the Santa Clara River Estuary will be important in attracting visitors and sustaining the local wildlife and ecosystem.

11.3. Drinking Water

Drinking water in the Los Angeles Region primarily comes from a mix of imported surface water and local groundwater (WaterTalks, n.d.). Agricultural runoff can pollute local groundwater sources with high levels of nutrients, which can result in increased health risks and drinking water treatment costs. Health problems associated with excess nitrates in drinking water include blue baby syndrome, birth defects, thyroid disease, and colon cancer (Wisconsin Department of Health Services, 2022). Increased nutrient concentrations can result in higher drinking water treatment costs because treatment plants may need to install additional controls or increase chemical addition to target nutrients (U.S. EPA, 2015). Drinking water treatment capital costs for removing nitrates range from $210-$705 in 2021 dollars per person served in a community water system (State-EPA Nutrient Innovations Task Group, 2009). It can also result in substitution costs when affected water systems need to connect to other systems with clean drinking water in order to continue supplying customers, which has happened in El Rio, Ventura County, an area that has had a long running problem with nitrates, likely from agricultural fertilizers and septic tanks, in its drinking water (Martin, 1990; Childs, 2019). El Rio is considered a disadvantaged community. About 84% of its residents are Latino. Its per capita annual income is about $21,000, and about 20% of its residents live in poverty (Census QuickFacts, 2021). Residents also incur additional costs of purchasing bottled water when they learn that drinking water is unsafe, and often even after the problem is resolved, as the perception of unsafe drinking water can persist. The difference in drinking water costs for those who drink tap water versus those who do not can be substantial. Annual per capital drinking costs for those who only drink from tap water is $0.36-$1.50. Annual per capita costs for those who drink from water jug refills, water jugs, and bottled water are about $67, $364-$910, and $1,400, respectively (WaterTalks, n.d.).

11.4. Wildlife

Wildlife is not only valued by wildlife viewers, but also those who do not directly view or interact with them. The environmental economics literature finds that people are willing to pay for habitat improvement for wildlife. Loomis et al. (1991) found from their survey that the average California household would be willing to pay about $566 in 2021 dollars to reduce the percentage of resident waterfowl in San Joaquin Valley wetlands exposed to contaminated agricultural drainage water from 70% to 20%. Loomis and White (1996) also find positive willingness-to-pay values of threatened and endangered species in their meta-analysis. While none of the species in the study are found in Ventura County, it can reasonably be assumed that there are positive willingness-to-pay values for the endangered species that do live in Ventura County, such as the western snowy plover and California least tern.

Reduced agricultural runoff by implementing the Oxnard Drain #3 Pesticides and PCBs TMDL will also contribute to efforts to restore Ormond Beach. The wetlands at Ormond Beach, one of the few remaining coastal wetlands in California, is an important stopover for more than 200 migratory birds along the Pacific Flyway (California Department of Fish and Wildlife, 2022). The importance of California wetlands to migratory birds has especially been highlighted during drought, when there are fewer wetlands for birds to rest and feed, forcing them to have longer and more stressed migrations (Cart, 2021).

11.5. Property Values

Property values would likely increase for homes near waterbodies affected by this order. The literature has found that home buyers are willing to pay more for reduced nutrients and harmful algal blooms in nearby waterbodies (Liu, Opaluch, & Uchida, 2017; Bechard, 2021).

Just north of Channel Islands Harbor is the Channel Islands, a neighborhood of many waterfront homes which can be used as an illustrative example of potential increases in property values resulting from the WDR. Residents here experienced the 2018 fish kill event caused by algae blooms just outside their homes. Afterwards in 2019, the Channel Islands Neighborhood Council expressed that they wanted the reduction of nutrients discharged into Channel Islands Harbor (Channel Islands Neighborhood Council, 2019).

A meta-analysis by Guignet et al. (2022) estimated the effect of chlorophyll, an indicator of algae in surface waters, on nearby home prices. According to the results of their study, a decrease in chlorophyll by 10% would translate to an increase in waterfront home prices by 0.2%. The median home price in Channel Islands was about $1.4 million in 2022 (Redfin, 2023). This would mean an average increase in home value of $2,800. Staff conservatively estimates that there are roughly 1,000 waterfront homes in Channel Islands Harbor, which results in an overall increase in home values of $2.8 million, an indication of how much people are willing to pay for improved water quality, or a 10% reduction in chlorophyll in this scenario.

12. Funding for Implementation

12.1. National Water Quality Initiative (NWQI)

The National Water Quality Initiative is a partnership of the Natural Resources Conservation Service (NRCS), state water quality agencies (in California, the Water Boards), and US EPA to improve impaired waters through voluntary, in-farm, conservation practices. Started in 2012, NRCS has partnered with growers to adopt conservation practices in priority watersheds.

Parts of Calleugas Creek (Las Posas Arroyo, Revolon Slough-Calleguas Creek, and Mugu Lagoon subwatersheds) were the first regional waters to be included in the program. In 2017, the McGrath Lake and Lower Conejo Arroyo subwatersheds were added to the regional list of NWQI designated waters. In 2019, the Calleguas Creek was approved for additional funds and, in 2020, the Ventura River watershed was also approved for NWQI funds. NRCS, the Los Angeles Water Board, Ventura County Resource Conservation District (VCRCD), and VCAILG have all partnered to issue these funds to growers in the selected watersheds.

NWQI has obligated $4,723,361.26 for MPs in these watersheds from 2012 to 2022 and many of the funds have been spent, resulting in the implementations of many MPs throughout the region (Table 38).

Table 38. MPs funded by NWQI.

Year	Count of Contracts	Contracted Acres	Funds
2012	7	386.65	$402,000.00
2013	13	1,649.8	$856,000.00
2014	20	1,991.12	$844,000.00
2015	10	974.8	$514,000.00
2016	6	398.4	$531,009.00
2017	3	130.8	$228,374.00
2018	14	285.1	$547,501.00
2019	12	428.9	$523,095.00
2020	6	114.0	$74,442.99
2021	0	0	0
2022	4	526.4	$202,939.27
Total	**95**	**6,885.97**	**$4,723,361.26**

12.2. Summary of the 319(h) and other grants

Clean Water Act Section 319(h) Grant Program funds are provided by US EPA to states to implement nonpoint source control activities, with a focus on impaired waterbodies. States submit their proposed funding plans to US EPA. If a state's funding plan is consistent with grant eligibility requirements and procedures, US EPA then awards the funds to the state (USEPA, 319 Grant, 2023). Numerous projects in the region have been awarded Clean Water Act Section 319(h) Grant Program funds to implement nonpoint source control activities. Over $4,000,000 in grant funds have been awarded for implementation projects in the region since the start of the ILRP.

Over $5,000,000 in additional grant money has been awarded to agricultural projects from Prop 13 (Costa-Machado Water Act OF 2000), Prop 50 (The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002) and Prop 84 (Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006) programs. Table 39 lists the grant awards made for agricultural improvement projects under 319 and other sources.

Table 39. Grant Awards for Agricultural Improvement Projects

Award Type	Grantee	Award Amount	Project
319(h)	VCRCD	$297,400	Calleguas Creek Sediment Reduction Project
Prop 13	UCCE	$2,678,765	Los Angeles and Ventura County Nursery MPs
Prop 13	VCSD	$96,500	McGrath Drainage Study
Prop 13	UWCD	$288,282	Nitrate Groundwater Loading Study
Prop 13	UWCD	$820,239	Calleguas Creek and Santa Clara River Groundwater MPs
Prop 50	UCCE	$977,500	Calleguas Creek and Santa Clara River MPs
319 (h)	UCR	$723,000	Develop VCAILG MP survey
Prop 84	VCRCD	$660,000	Mobile Irrigation Lab
319 (h)	UCCE	$125,000	Los Angeles County Nursery MPs
319 (h)	VCRCD	$600,000	Agriculture MPs reimbursement
319 (h)	VCRCD	$600,558	Interactive Irrigation Management
319 (h)	VCRCD	$799,989*	Interactive Irrigation Management
319(h)	VCRCD	$260,003*	Agriculture MPs reimbursement
Total		$8,927,236	

13. Conclusions and Recommendations for General WDRs

The implementation of the ILRP over the last eighteen years has resulted in extensive water quality monitoring, ongoing grower education and outreach, and implementation of new and improved MPs.

In 2016, several additional requirements were incorporated into 2016/2021 Waiver, including:

- Representative group monitoring to assess compliance with water quality benchmarks;
- Compliance with TMDL load allocations as water quality benchmarks;
- Reporting more detailed and specific WQMPs and implementing more tailored management practices in response to specific water quality data;
- Investigation of potential sources where water quality benchmarks were exceeded, and water quality trends were not decreasing; and
- Implementation of nutrient management practices and confirmation that management practices effectively improve groundwater quality.

Significantly, the 2016/2021 Waiver also incorporated:

- Conversion of TMDL-associated water quality benchmarks into discharge limitations when discharges do not attain the benchmarks within a reasonable time. This provision means that discharger group members, who had previously been subject to representative group monitoring and iterative MP implementation, would now be subject to individual monitoring and compliance with individual discharge limitations.

For the new General WDRs, staff recommends a continuation of the requirements of the 2016/2021 Waiver with some modifications, inclusion of additional requirements to comply with the precedential requirements of the ESJ Order, and, for Ventura County growers, an option of implementation of a farm-level MP plan in lieu of individual monitoring to demonstrate compliance with TMDL-based discharge limitations.

13.1. TMDL Load Allocations and Compliance

A significant component of the 2016/2021 Waiver is the inclusion of TMDL load allocations that have been assigned as water quality benchmarks. Like all other water quality benchmarks in the waiver, if TMDL load allocation benchmarks are exceeded, MPs must be implemented to address the exceedances. The 2016/2021 Waiver includes seventeen TMDLs and contains a schedule for attainment of TMDL-associated water quality benchmarks. This includes a provision that converts the water quality benchmarks to discharge limitations for purposes of compliance determination if water quality benchmarks are not achieved by specified compliance deadlines. The schedule is

consistent with the State Water Board's Nonpoint Source Enforcement Policy, which requires that a nonpoint source program, such as the ILRP, include a specific time schedule and corresponding quantifiable milestones designed to measure progress toward attaining water quality objectives.

The water quality benchmark compliance schedules in the 2016/2021 Waiver (Table 39) took into consideration the relative difficulty in achieving water quality benchmarks for different constituents and are based on TMDL compliance dates, where applicable. As such, some of the earlier adopted TMDLs had load allocation compliance dates in the Basin Plan that were sooner than the compliance dates in the 2016/2021 Waiver.

The proposed General WDRs do not carry over all compliance deadlines from the 2016/2021 Waiver. Instead, the proposed General WDRs updates all water quality benchmark compliance deadlines (Table 40) to align with the compliance dates in the Basin Plan. In some cases this will result in individual discharge limitations under the 2023 WDRs being triggered several years earlier than they would have been under the Water Quality Benchmark Compliance Deadlines included in the 2016/2021 Waiver. This change is being made in light of pertinent discussion in the State Water Board's draft order reviewing the Central Coast Water Board's Agricultural Order 4.0 related to TMDL deadlines.[6] As discussed in the draft order, Water Code section 13263 requires that regional board waste discharge requirements "implement any relevant water quality control plans that have been adopted," including TMDL implementation schedules adopted through a Basin Plan amendment. While section 13263(c) authorizes regional boards to include time schedules in waste discharge permits, the Los Angeles Water Board agrees with the draft Order that the appropriate regulatory mechanism to extend compliance dates for existing TMDLs is to revise the basin plan rather than a permit adoption.[7] In addition, dischargers can request a time schedule order (TSO) pusuant to Water Code section 13000 on a case by case basis. The TSO request shall be noticed for 30 days per Water Code section 13167.5. To mitigate the impact of the changed deadlines to Dishchargers and Staff, the proposed General WDRs phase in certain monitoring and reporting requirements as discussed in this section of this Staff Report.

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[6]The State Water Board received two petitions for review of the Central Coast Regional Water Quality Control Board's "Agricultural Order 4.0" (Order No. R3-2021-0040) On April 19, 2022, the State Water Board took up the matter for own motion review. On June 16, 2023, State Board circulated a draft order for public comment. The hearing to consider adoption of the draft order is currently scheduled for September 19, 2023.

[7] See *Monterey Coastkeeper v. State Water Res. Control Bd*., 28 Cal. App. 5th 342, 370, 239 Cal. Rptr. 3d 140, 161 (2018) ("In State Water Resources Control Bd. Cases (2006) 136 Cal.App.4th 674, 39 Cal.Rptr.3d 189, this court found the State Board failed to implement certain salinity objectives of the 1995 Bay-Delta Plan at three locations. The State Board delayed implementation at these three locations by several years. We found this delay was not an adequate implementation because nothing in the 1995 Bay Delta Plan allowed for such delay. *The State Board was in effect amending the 1995 Bay-Delta Plan without complying with the procedural requirements for an amendment*. (Id. at p. 735, 39 Cal.Rptr.3d 189.)" [Emphasis added.]) Note that the permitting process would be an appropriate mechanism to extend a TMDL deadline adopted through a single regulatory action such a permit.

Table 40. Water Quality Benchmark Compliance Deadlines.

TMDL Constituents	Compliance Date
Malibu Creek Watershed Nutrients TMDL*	October 14, 2022
Santa Clara River Nitrogen Compounds TMDL	March 23, 2004
Ventura River Estuary Trash TMDL	March 6, 2010
Calleguas Creek Nitrogen Compounds and Related Effects TMDL	July 16, 2010
Revolon Slough and Beardsley Wash Trash TMDL	March 6, 2010
Upper Santa Clara River Chloride TMDL	April 6, 2010
Calleguas Creek Watershed and Mugu Lagoon Siltation TMDL	March 24, 2015
Calleguas Creek Watershed and Mugu Lagoon Toxicity, Chlorpyrifos, and Diazinon TMDL	March 24, 2016
Ventura River Algae TMDL	June 28, 2019
McGrath Lake OC Pesticides and PCBs TMDL	June 30, 2021
Malibu Creek Watershed Sedimentation and Nutrients TMDL*	October 14, 2022
Calleguas Creek Watershed and Mugu Lagoon Metals and Selenium TMDL	March 26, 2022
Calleguas Creek Watershed Boron, Chloride, Sulfate and TDS (Salts) TMDL	Dec. 23, 2023
Santa Clara River Estuary Toxaphene TMDL**	October 7, 2025
Calleguas Creek Watershed and Mugu Lagoon OC Pesticides & PCBs TMDL	March 24, 2026
Oxnard Drain No. 3 Pesticides, PCBs, and Sediment Toxicity TMDL*	April 14, 2026
Santa Clara River Bacteria TMDL	March 21, 2023 dry
	March 21, 2029 wet

* This was an EPA-promulgated TMDL and has no implementation schedule; thus, the benchmark compliance deadline from the 2016/2021 Waiver is carried over to the proposed General WDRs.

** This TMDL was adopted as a single regulatory action through the adoption of the 2010 Conditional Waiver, Order No. R4-2010-0186, which had no implementation schedule; thus, the benchmark compliance deadline from the 2016/2021 Waiver is carried over to the proposed General WDRs.

13.2. Benchmark Exceedances and Individual Monitoring or Field-level MP Plans

The 2016/2021 Waiver provided for the conversion of TMDL-associated water quality benchmarks into discharge limitations, when discharges do not attain the benchmarks by TMDL-based deadlines.

For VCAILG members, Appendix 3 of the 2016/2021 Waiver required that once the TMDL Compliance deadline specified in the waiver had past and there was a water quality benchmark exceedance, VCAILG members represented by the monitoring location where the exceedance occurred would be required to conduct individual edge of field sampling. This requirement was slightly different for Los Angeles County as the representative monitoring conducted by LAILG was already edge of field. The inclusion of individual monitoring in the 2016/2021 Waiver would provide additional detail and clarity as to the location and magnitude of discharges from specific agricultural operations. In some cases, individual monitoring would also provide some growers with compliance reassurances because the edge-of-field monitoring could be used track effectiveness on-farm MPs directly. However, individual monitoring may also require additional grower resources (administrative and financial) to successfully implement as well as significant staff resources to review monitoring results and complete follow-up regulatory actions. Moreover, while individual monitoring would provide a finer determination of where exceedances occur, monitoring alone does not remediate causes of exceedances. Additional enforcement and/or implementation actions may still be required to meet water quality benchmarks. After extensive public outreach and in response to Board direction, Staff recommends an additional, alternative compliance path to individual monitoring to allow VCAILG members to select the compliance path best suited to their resources and farm-specific conditions. As such, the General WDRs propose updating Appendix 3 to give VCAILG members the option of demonstrating compliance with any applicable discharge limitations through individual edge of field sampling or by implementing a field-level Management Practice Plan (MPP). The individual monitoring path would be known as Track 1 and the MPP path would be known as Track 2.

MPPs are focused on field-specific MPs that will reasonably assure discharges coming off fields will not exceed the water quality benchmarks. MPPs are required to be certified by Technical Service Providers such as RCD or NRCS or equivalent professional staff that have experience in the management of constituent(s) being addressed by the MPP and must be approved by the Los Angeles Water Board.

Once the MPP is approved, the farm-level MPP must be implemented in accordance with the following time schedules, unless a longer time schedule is justified and approved as part of the farm-level MPP submittal:

1. Vegetated management practices (i.e., filter strips, grassed waterways) within three months of Executive Officer Approval of the farm-level MPP;
2. Structural non-treatment management practices (e.g., sedimentation basins, etc.) within six months of Executive Officer Approval of the farm-level MPP;
3. Treatment management practices (engineered wetlands, in-ground bioreactor, modular bioreactor, etc.) and Regional Projects within one year of Executive Officer Approval of the farm-level MPP.
4. Management practices that are installed as part of a conversion from conventional farming practices to regenerative farming practices would also have to one year from Executive Officer Approval to implement.

In general, it is anticipated most farm-level MPPs will be implemented within one year of MPP approval. See Table 41 for anticipated implementation tasks and timeline.

Table 41. Anticipated Implementation timeline and tasks.

Task		Responsibility	Duration	Months Since Documented Exceedance (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36)
1	Exceedance Identified	VCAILG		X
	a. Notification of Exceedance to Water Board (WB)	VCAILG	3 months	
	b. Notification of Exceedance to Grower (Go to Task 2)	VCAILG	12 months	
2	Intent Notice - Notify WB of path (also too include i.BMPs already onsite; ii Farmlevel or Regional)	Grower	2 months	
	a. Track 1 (Go to Task 3)			X
	b. Track 2 (Go to Task 9)			X
Track 1				
3	Develop MRP (Go to Task 4)	Grower	2 Months	x x
4	Individual MRP Submitted to WB (Go to Task 5)	Grower		
5	WB Review MRP	WB		
	a. MRP Approved (Go to Task 6)			
	b. MRP Not Approved (Go back to Task 3)			
6	MRP Implementation (Go to Task 7)	Grower		x x x x x x x x x x x x x x x x x x x x x x
7	Prepare AMR (Go to Task 8)	Grower		x x x x x x x x x
8	AMR Submitted to Waterboards	Grower	Annually	
Track 2				
9	Develop Farm Level MPP (To Include: BMPs Proposed; TSP to be worked with; Notice of Permits Necessary; Go to Task 10)	Grower	6 months	x x x x x x
10	Submit Farm Level MPP to WB (go to Task 11)	Grower		
11	Farm Level MPP Reviewed by WB (Go to Task 12)	WB		
12	Farm Level MPP Approved by WB	WB		
13	Farm Level MPP Implementation Begins	Grower	10 days	x
14	Project Installation, Completion and inspection Timelines dependent on type and scope of MPP			
	A. Vegetated management practices (e.g. drip irrigation, filter strips, grassed waterways)			
	1. Installation	Grower	3 months	x x x
	2. Notice of Projection Completion	Grower		
	3. Inspection of Completed Project	WB		
	a. Project Deemed Compliant	WB		
	b.Project Deemed incomplete/ noncommpliant, Additional actions needed	WB		
	B. Structural non-treatment management practices (e.g detention/retention basins, tailwater recovery systems)			
	1. Installation	Grower	6 months	x x x x x x
	2. Notice of Projection Completion	Grower		
	3. Inspection of Completed Project	WB		
	a. Project Deemed Compliant	WB		
	b.Project Deemed incomplete/ noncommpliant, Additional actions needed	WB		
	C. Treatment management practices (engineered wetlands, in-ground bioreactor, modular bioreactor, etc.) and Regional Projects			
	1. Installation	Grower	12 months	x x x x x x x x x x x x
	2. Notice of Projection Completion	Grower		
	3. Inspection of Completed Project	WB		
	a. Project Deemed Compliant	WB		
	b.Project Deemed incomplete/ noncommpliant, Additional actions needed	WB		

x — Task in progress

x — Task in progress, if Waterboard review complete

Task complete/includes a deliverable

Waterboard Task, time period indeterminated, grower process pauses until complete

Task incomplete, additional activity required

Deemed Compliant

The results of the individual field-level MPPs will be subject to inspection to verify the entire MPP is being implemented and that additional MPs are not necessary. VCAILG members could be required to update their individual field-level MPPs pending the outcome of the inspections and group-based receiving water monitoring. Provided the member is implementing an approved MPP, including updating MPs as needed, the member would not be subject to enforcement for any violations but may need to update the MPP.

Successful implementation of Farm-level MPPs will result in on-the-ground changes that will improve water quality and aid in meeting water quality benchmarks but will not help determine more specific discharge information (specific cause and location of discharges). This compliance option will require investment of time and financial resources by growers, including some that may not be contributing to the observed

exceedances. This compliance path also allows for regional projects that may be more cost effective. Depending on the magnitude of the MPPs implemented, some projects may require up to one year to complete (due to permitting and other requirements). During the three months to one year that VCAILG members are allowed to implement an approved MPP, they would still be expected to comply with all other aspects of the General WDRs, including engaging the in the WQMP process for group monitoring sites within their Responsibility Area.

Both implementation options address the continued water quality impairments from agricultural activities and provide accountability for discharges from irrigated agricultural lands.

At the time the 2022 VCAILG AMR was completed, the original compliance deadlines for twelve of the seventeen TMDLs in the 2016/2021 Waiver had passed. The data from the 2022 AMR shows widespread water quality benchmark exceedances at representative monitoring locations. Due to the magnitude of the proposed effort and the limited staff resources at the Los Angeles Water Board, staff recommends a phased implementation of the individual MPP requirements in Appendix 3. This will allow for more efficient use of staff resources and account for the limited availability of professional experts to certify the MPPs, while also providing VCAILG members and stakeholders a transparent timeline for the roll-out of these requirements.

VCAILG had recommended utilizing a low priority and high priority framework with parcels assigned to each category based on field and operational characteristics related to the exceeding pollutant under consideration. Staff considered prioritizing and phasing implementation based on a number of different approaches, including:

1. TMDL compliance and/or adoption date, focusing on the oldest TMDLs first;
2. Number of parcels within a subwatershed (or Responsibility Area);
3. Number of exceedances within a subwatershed;
4. Magnitude of exceedances (focusing on the higher exceedances first);
5. Geography;
6. Seasonality of exceedances (focusing on subwatersheds with the most dry-weather exceedances); or
7. Type of contaminant (focusing on legacy contaminant and/or highly toxic contaminants first).

Each approach presented different challenges and benefits. Staff recommends MPP submission be prioritized based primarily on geography and landscape locations of the monitoring stations and associated Responsibility Areas and follow a set, rolling submission schedule.

Starting in May 2024, the first farm-level MPPs will be due to the Los Angeles Water Board for review and submissions will continue through May 2028 (or May 2029 for diversified socially disadvantaged growers). Table 42 includes a proposed schedule of MPP submission due dates by Responsibility Area, for those growers subject to TMDLs and exceeding water quality benchmarks post TMDL compliance deadlines. Following submission of MPPs for sites associated with the OXD-CENTR and V02_SPM monitoring

locations, focus will shift to upstream drainages first and proceed downstream toward the coast. Additional time of one year for MPP submittal was given to diversified socially disadvantaged growers to ensure they have adequate time to access technical and financial assistance to complete their plans.

Table 42. Track 2 - MPP Submission Due Dates based on Geographical Prioritization if water quality benchmarks are exceeded after the TMDL Compliance Deadline.

Priority	Responsibility Area or Subwatershed	Associated VCAILG Monitoring Site	Date MPP Due (all, except Diversified Socially Disadvantaged Growers)	Date MPP Due (Diversified Socially Disadvantaged Growers)
1	McGrath Lake Drainage	OXD_CENTR	5/15/2024	5/15/2025
2	Lower Ventura Tapo Canyon	V02D_SPM S04T_TAPO	9/15/2024	9/15/2025
3	Boulder Creek	S03T_BOULD	1/15/2025	1/15/2026
4	Bardsdale	S03D_BARDS	5/15/2025	5/15/2026
5	Arroyo Simi	06T_LONG2	9/15/2025	9/15/2026
6	Arroyo Conejo	06T_LONG2	1/15/2026	1/15/2027
7	Bearsdley Malibu	05T_HONDO	5/15/2026	5/15/2027
8	Las Posas	06T_LONG2	9/15/2026	9/15/2027
9	Ventura River Inland	VRT_THACH	1/15/2027	1/15/2028
10	San Antonio Creek LaVista Drain Santa Paula Creek	VRT_SANTO 05D_LAVD S03T_TIMB	5/15/2027	5/15/2028
11	Todd Barranca	S02T_TODD	9/15/2027	9/15/2028
12	Lower Calleguas Creek Etting-Wood Ellsworth Barranca South Revolon	04D_ETTG 04D_ETTG S02T_ELLS 04D_LAS	1/15/2028	1/15/2029
13	Mugu Lagoon	01T_ODD3_EDI	5/15/2028	5/15/2029

The schedule starts with McGrath Coastal Responsibility Area and Lower Ventura River subwatershed, and then proceeds to the monitoring stations (and the associated Responsibility Areas) located the furthest upstream, moving downstream, rotating through the three main watersheds. While the OXD_CENTR and V02SPM monitoring sites are lower on the coastal plain compared to many, these two sites were subject to discharge limitation requirements in the 2016/2021 Conditional Waiver, the areal coverage is small compared to the rest of the watersheds and relatively hydrologically contained, and the number of parcels is low compared to many of the other Responsibility Areas. In addition, the growers in the OXD_CENTR are actively engaged in developing plans with erosion control and treatment MPs and have already developed several draft plans. Thus, they are best positioned to be the first group to submit farm level MPPs. Following the submittal dates for growers associated with the OXD_CENTR monitoring

site, MPPs should be submitted for those growers in the Lower Ventura River subwatershed (V02_SPM monitoring site) and the Tapo Canyon RA, reflecting that S04T_TAPO is the monitoring site located highest in the Santa Clara River Watershed, followed by the responsibility areas associated with the S03T_BOULD monitoring site which is the next highest monitoring site. Calleguas Creek Watershed monitoring site begin submitting plans in September 2025 with the 06T_LONG2 monitoring site (located furthest upstream in the Calleguas Creek Watershed). The MPP submittal due date begins later in the Calleguas Creek Watershed because the Calleguas Creek TMDLs have later TMDL compliance deadlines, and it is likely that the growers being represented by the Calleguas Creek Watershed monitoring sites will not be subject to individual discharge limitations prior to September 2025.

This approach addresses several of the concerns expressed by stakeholders throughout the WDR development process. First, parcels of irrigated agriculture located in the upper reaches tend to be orchards. BMPs for these types of operations may be more straightforward and require less detailed plans and installation. Second, growers expressed concern that downstream operations were being penalized for discharges that occur upstream. By focusing on the upstream reaches first, these concerns should be lessoned because implementation of upstream MPPs should help minimize the impacts of agricultural related run-off to downstream farms before the downstream farms are required to create farm-specific MPPs. Third, operations in areas in closer proximity to the coast are more intensively farmed and will require more complex solutions to address exceedances. Focusing upstream first will provide additional opportunities for regional projects on the coastal plain.

Once approved, the MPP must be implemented according to the time schedules previously discussed. Staff asserts this phasing approach is a realistic reflection of the work that can be completed given resources both within and outside the Los Angeles Water Board. Note, some subwatersheds and responsibility areas are subject to multiple TMDLs. As much as feasible, growers should be cognizant of any future TMDL compliance dates when developing an MPP. Many management practices will address multiple constituents. Selecting and locating management practices in a manner that address multiple constituents of concerns may streamline costs and resources in the long-run. Additionally, VCAILG members should still be implementing the MPs recommended by VCAILG as part of the WQMP process as necessary and appropriate. As such, members are encouraged to include MPs in the farm-level MPPs that will address all TMDL based constituents irrespective of the MPP submittal deadline, as appropriate and feasible.

13.3. WQMP requirements and recommendations

13.3.1 WQMP Progress Reporting

The current WQMP requirements for Discharger Groups in Appendices 2 and 3 of the 2016/2021 Conditional Waiver specify that MP data be organized by monitoring site, and that the data include, in addition to adoption rates, the degree of MP implementation (e.g., size of area treated), for each type of MP. The WQMP contains a time-certain schedule

that is as short as possible for implementation of additional or upgraded management practices to ultimately attain water quality benchmarks, as well as specific requirements for outreach by discharger groups to ensure that members are informed of the newly required MPs. The current monitoring and reporting requirements resulted in collecting MP data that allowed tracking of MP implementation progress and proposing additional MP to improve water quality. Therefore, staff recommends continuing the current monitoring and reporting requirements but modify the frequency of WQMP reporting to every three (3) years to allow adequate time for grower survey participation, evaluation of results and formulating revised recommendations. The frequency of group monitoring site data reporting will remain as annual.

In Los Angeles County, the current requirement to report all information in a CEDEN compatible format is not applicable because of the dispersed, edge-of field, representative monitoring conducted by LAILG. Therefore, staff recommends removing this requirement from the MRP requirements in Attachment 2.

13.3.2 WQMP Source Investigations

Review of the water quality data collected under the first two Waiver terms demonstrated that not all constituent concentrations were trending in the same direction. While there were some decreasing trends in waste concentrations, and several instances of specific monitoring sites attaining water quality benchmarks, this was not observed at all sites and across all constituents. To ensure that water quality benchmarks are ultimately attained, the 2016/2021 Waiver included a requirement for dischargers in Ventura County that if a monitoring site does not show a decreasing trend in waste concentrations that exceed water quality benchmarks, then the Discharger Group shall investigate the sources of the waste concentrations that exceed water quality benchmarks[8]. After performing a source investigation at three monitoring locations, VCAILG concluded that using the county-wide member MP implementation survey results would have the same level of effectiveness as the source investigation. For this reason, VCAILG recommended removing the requirement for the source investigations. For the proposed General WDRs, staff recommends removing the source investigation component. Water quality benchmarks will be converted to discharge limitations by TMDL deadlines, which will be attained through the implementation of individual monitoring or farm-level MPPs; therefore, the source investigation is now redundant.

13.3.3 Groundwater Management Practice Evaluation Plans

The 2016/2021 Waiver requires implementation of nutrient management practices and a groundwater management practice evaluation plan (GMPEP) to confirm that the management practices effectively improve groundwater quality. The purpose of the Groundwater Management Practice Evaluation Plan and Report was to assess real-time effectiveness of management practices on groundwater quality. However, as discussed

[8] No source investigation is required in Los Angeles County when representative monitoring sites do not show a decreasing trend. Instead, water quality benchmarks are automatically converted to individual discharge limitations.

in section 5.2.8 the GMPEP completed under the 2016/2021 Waiver have provided useful information, but not the type of evaluation contemplated by the requirements. In addition, to comply with the precedential requirement in the ESJ Order, the proposed General WDRs must include field-level reporting of nitrogen applied/nitrogen removed (A/R ratio), and annual and multi-year (or multi-rotation) nitrogen applied-nitrogen removed (A-R difference). This reporting is intended to evaluate the effectiveness of the implementation of nutrient management practices at protecting groundwater quality and will partially achieve the purpose of the GMPEP. Therefore, staff recommends that the General WDRs include the specific A/R ratio and A-R difference reporting as specified in the ESJ Order, but not continue the GMPEP requirements.

13.4. ESJ Order Precedential Requirements

On February 7, 2018, the State Water Board adopted Order WQ 2018-0002, waste discharge requirements for agricultural discharges in the eastern San Joaquin River watershed (ESJ Order) that modified the Central Valley Water Board's Order No. R5-2012-0116 and identified precedential requirements for all regional boards and their irrigated lands regulatory programs throughout the state.

The ESJ Order includes flexibility given to the regional boards through portions of the precedential requirements. This section discusses the staff recommendation for incorporation of the precedential requirements using the given flexibilities. These discussions follow the same order of the requirements as they are presented in the ESJ Order.

13.4.1. Requirements to Participate in Outreach Events

Precedential Requirement 1: *"The requirement for participation by all growers in outreach events shall be precedential for irrigated lands regulatory programs statewide. The regional boards have the discretion over the precise form and frequency of the outreach events, as long as they are designed to reach all growers in the irrigated lands regulatory program"* (ESJ Order, p. 28).

The 2016/2021 Conditional Waiver requires all dischargers to complete 2 hours of educational training each year on water quality impairments related to irrigated agricultural discharges, regulatory requirements, and management practices. In addition, the Discharger Groups are required to include an outreach plan in their WQMPs. The Discharger Groups are required to provide regular communication to members regarding the need to implement additional or upgraded management practices. These communications are required at a minimum of twice per year. The Discharger Groups are also required to provide education classes, referrals to technical assistance providers, and notices of available funding to their members.

Staff recommends maintaining the existing requirements in the proposed General Order (Sections X.A, X.B and X.C). In addition, dischargers who will be required to have a

certified Irrigation and Nutrient Management Plan and choose to self-certify their plans, will have to attend required classes which would be additional education provided to the dischargers. Staff recommends that completion of these classes be considered as meeting the requirement of 2 hours of educational training for the same year that the self-certified class is completed.

13.4.2. Farm Evaluation

13.4.2.1. Farm Evaluation Update Frequency

Precedential Requirement 2: *"The requirement for submission by all growers of management practice implementation information shall be precedential for irrigated lands regulatory programs statewide, however, the regional water boards shall continue to have discretion as to the form and frequency of such submissions"* (ESJ Order, p. 29).

The current Conditional Waiver requires all dischargers to complete a farm evaluation plan or respond to the survey/questionnaire developed by the Discharger Group for the purpose of assessing management practice implementation. Both Los Angeles and Ventura County Discharger Groups meet this requirement by conducting surveys.

Staff recommends changing the requirement language from all dischargers must "complete a farm evaluation plan or respond to the survey/questionnaire" to all dischargers must "complete a Farm Evaluation Survey" in Sections X.B and X.C of the proposed General Order. This change will comply with the ESJ Order and be consistent with current practice by the Discharger Groups.

Staff also recommends the Discharger Groups be required to propose a new or modified Farm Evaluation Survey template to be consistent with the precedential requirements in the ESJ Order, such as adding questions related to sediment and erosion control practices and removing irrigation and nutrient management sections (irrigation and nutrient management will now be incorporated into the Irrigation and Nutrient Management Plan as discussed in section 13.4.2 below). The form will be subject to Executive Officer review and approval prior to its implementation.

13.4.2.2. Submission of Farm Evaluations

Precedential Requirement 3: *"The requirement to submit grower-specific field-level management practice implementation data to the regional water board shall be precedential statewide. For third-party programs only, the data shall be submitted with Anonymous Member IDs"* (ESJ Order, p. 32).

The 2016/2021 Conditional Waiver requires all dischargers to complete a farm evaluation plan or respond to the survey/questionnaire about management practice implementation. Dischargers currently meet this requirement through completion of a survey sent out by the Discharger Group. The current survey reporting is performed on a parcel-level.

A parcel is an area of land with a particular ownership, land use, or other characteristic, often used in the tracking of ownership of land (UN definition). A field refers to an area of land on which a crop is grown. A parcel can include multiple fields and a field can span across multiple parcels. Management practices can vary field-to-field depending on a variety of factors, such as the crop being grown. Effective management practices are highly dependent on the specific crop being grown and geography of the land. By requiring field-level reporting rather than parcel-level reporting we can capture this information and eventually make more specific recommendations.

Staff recommends modifying the Farm Evaluation Survey reporting requirement by requiring it to submitted on a field-level with an field+anonymous ID , Farm Evaluation Surveys (unless member is not enrolled with a Discharger Group, in which case the member will need to submit field-level reporting). This change will comply with the ESJ Order.

13.4.3. Sediment and Erosion Control Plan

Precedential Requirement 4: *"The requirement for implementation of sediment and erosion control practices by growers with the potential to cause erosion and discharge sediment that may degrade surface waters shall be precedential for irrigated lands regulatory programs statewide; however, the regional water boards shall continue to have discretion as to how these practices are documented and reported"* (ESJ Order, p. 32).

The 2016/2021 Conditional Waiver requires implementation of additional or upgraded management practices to address specific exceedances. For example, implementation of management practices to reduce sediment in runoff is required to address exceedances of water quality benchmarks for historic pesticides and their degradation products, such as DDT, DDE, chlordane, and dieldrin.

All dischargers regulated by the ILRP have potential to cause erosion and discharge sediment. Therefore, for the proposed General WDRs, staff recommends continuing with the requirements for all dischargers to implement sediment and erosion control practices to reduce sediment in runoff through implementation management practices requirement in the WQMP (Sections X.A, X.B and X.C of the Order). Sediment and erosion control practices will continue to be reported by members in the Farm Evaluation Survey.

13.4.4. Nitrogen Management Plans

Precedential Requirement 5: *"We recognize that there may be categories of uniquely-situated growers for whom the specific nitrogen management requirements made precedential in the following sections of this order are unnecessary because applied nitrogen is not expected to seep below the root zone in amounts that could impact groundwater and is further not expected to discharge to surface water. Any category of Members (such as growers of a particular crop or growers in a particular area) seeking to be exempted from the precedential nitrogen management requirements in the following*

sections of this order shall make a demonstration, for approval by the relevant regional water board, that nitrogen applied to the fields does not percolate below the root zone in an amount that could impact groundwater and does not migrate to surface water through discharges, including drainage, runoff, or sediment erosion. These criteria for determining categories of growers that may be exempted from the nitrogen management requirements shall also be precedential statewide" (ESJ Order, pp. 34-35).

In the ESJ Order, the State Board also acknowledged that the nitrogen management reporting requirements might not be applicable to all growers: *"We recognize that there are some circumstances in which the burden of reporting R [Nitrogen Removed] may not be justified or may pose unique challenges because of difficulties in measuring yield, or where specialized outreach activities in multiple languages are warranted. It may be appropriate to allow additional time in these circumstances for development of alternatives and multilingual outreach. The regional water boards shall have discretion to determine that some or all growers in the following categories will have alternative requirements as specified:*

- *Growers that (1) operate in areas with evidence of no or very limited nitrogen impacts to surface water or groundwater, (2) have minimal nitrogen inputs, and (3) have difficulty measuring yield, may report the A [Nitrogen Applied] value only. The regional water board may exercise its discretion as to when, if at all, these growers will begin reporting R. An example of this grower category could be irrigated pastures.*
- *Diversified socially disadvantaged growers, as defined by the Farmer Equity Act of 2017, with (1) a maximum total acreage of 45 acres, (2) gross annual sales of less than $350,000, and (3) a crop diversity greater than 0.5 crops per acre (one crop for every two acres), may initially report the A value only. The regional water board may exercise its discretion as to when these growers will begin reporting R and may accept alternative methodologies for estimating R. The regional water board may exercise its discretion as to whether these growers must receive targeted self- certification training.*
- *Growers with (1) a maximum total acreage of 20 acres, and (2) a crop diversity greater than 0.5 crops per acre (one crop for every two acres), may initially report the A value only. The regional water board may exercise its discretion as to when these growers will begin reporting R and may accept alternative methodologies for estimating R. This category would include, for example, small growers with multiple crops that sell their crops primarily at farmers' markets"* (ESJ Order, p. 40-41).

Staff recommends incorporating the exemption to the nitrogen management requirements for irrigated agricultural parcels where nitrogen is not expected to seep below the root zone in amounts that could impact groundwater and is also not expected to discharge to surface water if the dischargers can demonstrate compliance with the exemption criteria. Additionally, staff recommends that the Discharger Group identify which growers qualify for the delayed R reporting criteria above and submit that list in the WQMP for approval by the Executive Officer. These reporting exemptions are located in Appendix 1, 2, and 3 of the proposed General WDRs.

13.4.4.1. Consideration of Irrigation Practices

Precedential Requirement 6: *"The requirement for incorporation of irrigation management elements into nitrogen management planning shall be precedential for irrigated lands regulatory programs statewide"* (ESJ Order, p. 35).

The current Conditional Waiver requires reporting of existing irrigation and nutrient management practices implementation in the Farm Evaluation Survey.

Staff recommends that Sections X.A and X.C and Appendix 2 and 3 of the proposed General WDRs require dischargers to implement an Irrigation and Nutrient Management Plan (INMP) and report implementation of irrigation and nutrient management practices (INMR) by removing the irrigation and nutrient reporting sections from the Farm Evaluation Survey and creating a new irrigation and nutrient reporting template consistent with the precedential direction in the ESJ Order.

13.4.4.2. INMP Certification and Summary Reporting Requirements

Precedential Requirement 7: *"The requirement for all growers to submit summary data from the plans shall be precedential statewide. The regional water boards have discretion as to whether to require certification of all growers or just a subset of growers based on a risk categorization… For those INMPs that the regional water boards require to be certified, the certification language [that the ESJ Order specifies] shall be precedential statewide"* (ESJ Order, p. 36).

The current Conditional Waiver requires implementation of certified nutrient management plans, including a consideration of crop-specific applied/removed ratios for nitrogen, if there are exceedances of water quality benchmarks for nutrients. In addition, all dischargers in the Ventura River watershed addressed by Ventura River Algae TMDL, are required to implement certified nutrient management plans.

A nutrient management plan can be self- certified by the Discharger Group member after either attending a California Department of Food and Agriculture or other Executive Officer approved training program for nutrient plan certification or certifying that it adheres to a site-specific recommendation from NRCS or the UC Cooperative Extension. Additionally, a nutrient management plan can be certified by a Crop Advisor certified by the American Society of Agronomy, or Technical Service Providers certified in nutrient management by NRCS.

To comply with the precedential requirements in the ESJ Order, staff proposes to include requirements for all dischargers to prepare an INMP. Using the flexibility given by the ESJ Order, for Ventura County and Los Angeles County, staff recommends requiring that all INMPs must be certified unless the Members' total farming operation consists of less than 10 acres and the Member has not been designated as an outlier by its Discharger Group.

An outlier is a grower that applies excess nitrogen. Outlier will be identified by the Discharger Group, as discussed further in Section 11.3.4.6 of this Staff Report.

13.4.4.3. New Metric for Nitrogen Application Management

Precedential Requirement 8: *"The requirement for calculation of annual and multi-year A/R ratio and A-R difference parameters for each grower by field shall be precedential for irrigated lands regulatory programs statewide, except as described below. The regional water boards shall retain discretion as to the division of responsibilities among the growers, third parties, and regional water boards for determination of the values, provided that the values are known to both the growers and the third parties"* (ESJ Order, p. 40).

To comply with the Precedential Requirements, staff recommends requiring dischargers to report Nitrogen Applied in the INMR and to calculate the Nitrogen Removed using crop coefficients and report the annual and multi-year (when able) A/R ratio and A-R difference when submitting the INMRs.

13.4.4.4. Requirements for Third Party to Determine Nitrogen Removed Coefficients

Precedential Requirement 9: *"The requirement for use of coefficients for conversion of yield to nitrogen removed values shall be precedential for irrigated lands regulatory programs statewide. The regional water boards will have discretion to determine the number of crops to be analyzed and the timeline for development of the coefficients. The regional water boards must approve the coefficients in consultation with State Water Board staff, following an opportunity for public review and comment. In developing the coefficients, the regional water boards may rely on their own research, on published values, on the research of other entities, and on coefficients approved by other regional water boards. The regional water boards may also require the third parties to develop the coefficients in the first instance" (ESJ Order, p. 42-43).*

The current waiver does not require developing and approving of crop coefficients.

Staff recommends requiring the Discharger Group to develop coefficients and collect other data of available crop coefficients and present the findings and recommended crop coefficients to the Los Angeles Water Board for Executive Officer approval. Specific dates on when crop coefficients need to be submitted to the Los Angeles Water Board can be found in Appendix 2 and 3. In recognition of the fact that it will take time to develop crop coefficients for all crops under cultivation in Ventura and Los Angeles County, staff recommends delaying certain irrigation and nutrient reporting values until a specific crop coefficient is approved.

13.4.4.5. Expansion of Reporting Requirements for AR Data

Precedential Requirement 10: *"The requirement for field-level AR data submission to the regional water board consistent with the data sets and analysis of those data sets*

described in this section shall be precedential for irrigated lands regulatory programs statewide. The regional water boards have the discretion to require additional data related to irrigation and nitrogen management. For third-party programs only, the AR data shall be submitted with anonymous identifiers" (ESJ Order, p. 51).

The current Conditional Waiver does not require field-level AR data submission to the Los Angeles Water Board. The current management practice implementation data reporting is performed on a parcel-level.

Staff proposes to require reporting Nitrogen applied (A), removed (R), annual and multi-year A/R ratio, and annual and multi-year A-R difference at the field-level in the proposed WDRs, as this is a precedential requirement. Dischargers will be required to report crop yield, nitrogen applied in irrigation water, synthetic fertilizers, and organic amendments. The Discharger Group will be required to calculate nitrogen removed for each field based on crop yield and a coefficient, annual and multi-year (or multi-rotation) Nitrogen Applied/Nitrogen Removed (A/R Ratio) for each field, annual and multi-year (or multi-rotation) Nitrogen Applied-Nitrogen Removed (A-R Difference) for each field. The Discharger Group will be required to develop coefficients for approval. Coefficients to be approved by the Los Angeles Water Board Executive Officer after public review and comment. The Discharger Group will report the field-level nitrogen data to the Los Angeles Water Board with anonymous name and location identifiers. Staff may request names or locations on case-by-case basis.

13.4.4.6. Required Follow-up on AR Data

Precedential Requirement 11: *"The requirement for the third party to follow up with and provide training for AR data outliers and for identification of repeated outliers as set out above shall be precedential for irrigated lands regulatory programs statewide, except that the regional water boards will be responsible for the follow up and training for irrigated lands regulatory programs that directly regulate growers without a third-party intermediary"* (ESJ Order, p. 53).

An outlier is a discharger who has applied nitrogen in excess of the application limits or discharged nitrogen in excess of the annual discharge limits, wherever these limits are established.

The current waiver does not require Discharger Groups to identify outliers based on reported AR data. Instead, the current waiver requires source investigation of nitrate exceedances at locations with increasing trends of nitrate to identify responsible dischargers and update the WQMP upon the source investigation report.

Staff recommends that the Discharger Groups identify outliers and provide additional targeted training and education on nutrient management practices consistent with the precedential direction in the ESJ Orders. Under the proposed General WDRs, discharger groups are required to develop a methodology for determining outliers. This methodology

must be approved by the Executive Officer. Additionally, all outliers must implement a certified INMP.

13.4.5. Recordkeeping Requirements

Precedential Requirement 12: *"This recordkeeping requirement [for third-party programs to maintain required reports and records for ten years and to back up certain information in a secure offsite location managed by an independent entity] shall be precedential statewide for all third-party irrigated lands regulatory programs"* (ESJ Order, p. 53).

The current Conditional Waiver requires the Discharger Groups to collect and maintain enrollment information, financial records, monitoring data.

To comply with the precedential requirements, staff recommends requiring Discharger Groups to maintain enrollment data, financial records, and monitoring data for a minimum of 10 years and keep back-up files of these reports and records in a secure, off-site location.

13.4.6. Groundwater Quality Monitoring

13.4.6.1. Drinking Water Well Monitoring

Precedential Requirement 13: *"The requirement for on-farm drinking water supply well monitoring, in accordance with the provisions described above, shall be precedential for irrigated lands regulatory programs statewide. The regional water boards have the discretion to require sampling at a frequency that is similar, but not identical, to the frequency specified above"* (ESJ Order, p. 62).

The current Conditional Waiver requires direct sampling for nitrate of all private on-farm drinking water supply wells on the discharger's irrigated agricultural lands.

Staff recommends the proposed General Order continue this requirement and require sampling for nitrate of all drinking water supply wells on the discharger's irrigated agricultural lands within the Los Angeles Region. Staff recommends that consistent with the Central Valley Water Board's Irrigated Lands Program, that private on-farm drinking water well monitoring be imposed directly on the dischargers, without oversight of the Discharger Groups because the Discharger Groups have indicated that they do not have capacity to undertake this sampling. Nonetheless, Staff expects that the Discharger Groups will work the Los Angeles Water Board to determine which Dischargers have drinking water supply wells on farm. Because sampling will be undertaken directly by the Dischargers, staff recommends sampling to begin within a year after the adoption of the proposed order. If the nitrate concentration is below 8 mg/L nitrate+nitrite as N in three consecutive annual samples, members may conduct sampling every five years going forward. However, an alternative sampling schedule based on trending data for the well may be required by the Executive Officer at any time. Sampling may cease if a drinking water well is taken out of service or no longer provides drinking water, including where

the well is taken out of service because sufficient replacement water is being supplied. The Dischargers must keep any records (e.g., photos, bottle water receipts) establishing the well is not used for drinking water.

In order to ensure quality data, groundwater samples must be collected using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems. Drinking Water Well Monitoring Requirements are included in Appendix 8 of the proposed General Order.

If groundwater monitoring determines that water in any well that is used for drinking water exceeds 10 mg/L of nitrate+nitrite as N, the Discharger must provide notice to the users within 10 days of learning of the exceedance and send a copy of the notice to the Los Angeles Water Board. If the Discharger is not the owner of the irrigated lands, the Discharger may provide notice instead to the owner within 24 hours of learning of the exceedance, and the owner must provide notice to the users within nine days and send a copy of the notice to the Los Angeles Water Board.

Notice shall be given to users by providing them a copy of a Drinking Water Notification Template approved by the Executive Officer. The template shall be signed by the Discharger (or landowner if the Discharger is not the owner) certifying notice has been provided to the users. A copy of the signed template shall be sent to the Los Angeles Water Board and retained by the Discharger or non-enrolled landowner.

13.4.6.2. Groundwater Quality Trend Monitoring

Precedential Requirement 14: *"The requirement for groundwater quality trend monitoring shall be precedential for irrigated lands regulatory programs statewide; however, the specific requirements and the monitored constituents specified in the [Central Valley Water Board's Easter San Joaquin Agricultural] General WDRs shall not be precedential"* (ESJ Order, p. 64).

The current Conditional Waiver requires groundwater monitoring in Ventura County for nitrate to assess trends in groundwater quality beneath irrigated agricultural lands and to confirm that management practices implemented to improve groundwater quality are effective.

For the proposed General Order, staff recommends Discharger Groups in Ventura County shall continue assessing groundwater as required under the current Conditional Waiver. Groundwater Quality Trend Monitoring Report shall be submitted every three years following the last report submitted under the current Conditional Waiver.

The current Conditional Waiver does not require groundwater monitoring in Los Angeles County. It is estimated that approximately 2,500 acres of Los Angeles County irrigated

agricultural lands lie within the Los Angeles Region. These areas are dispersed, non-contiguous, and interspersed with other land uses, such as urban and industrial land uses. Therefore, staff recommends allowing Discharger Groups in Los Angeles County to submit a groundwater quality trend monitoring report examining the relationship between agricultural land use and ground water quality that analyzes publicly available groundwater data rather than new monitoring data.

13.4.6.3. The Multi-Year A/R Ratio and A-R Difference as Indicators of Nitrogen Loading to Groundwater - Groundwater Protection Formula, Values and Targets

Precedential Requirement 15: *"The development of the Groundwater Protection Formula, Values, and Targets shall be precedential for the third parties that proposed the methodology. Even if the programs do not require [groundwater quality monitoring plans], all of the regional water boards shall apply this methodology or a similar methodology, designed to determine targets for nitrogen loading within high priority townships or other geographic areas, for the remaining irrigated lands regulatory programs in the state"* (ESJ Order, p. 66).

"The Groundwater Protection Formula, Values, and Targets are subject to Executive Officer approval following public review and comment" (ESJ Order, p. 66).

The current Conditional Waiver does not include requirements for development of groundwater protection formula, values, and targets. Instead, the current waiver requires assessing management practices in protecting groundwater quality.

The purpose of the Groundwater Protection Formula is to generate a value expressed as either a nitrogen loading number or a concentration of nitrate in water, reflecting the total applied nitrogen, total removed nitrogen, recharge conditions, and other relevant and scientifically supported variables that influence the potential average concentration of nitrate in water expected to reach groundwater in a given high priority area over a given time period. A high priority area is an area where the Executive Officer determines irrigated agriculture may be causing or contributing to exceedances of water quality objectives or a trend of degradation of groundwater that may threaten applicable basin plan beneficial uses.

Staff recommends that by September 1, 2026, the Discharger Groups shall propose a Groundwater Protection Formula to the Executive Officer for approval after opportunity for public review and comment.

Additionally, the Discharger Group shall use the Groundwater Protection Formula to compute Groundwater Protection Values and further generate Groundwater Protection Targets. The Groundwater Protection Values shall be subject to public review and comment and Executive Officer approval. Groundwater Protection Values shall be developed six months from Executive Officer approval of the Groundwater Protection Formula. The Discharger Group shall develop Groundwater Protection Targets for each high priority area for which a Groundwater Protection Values was computed the prior

year. The Groundwater Protection Targets shall be reviewed and subject to approval by the Executive Officer after an opportunity for public review and comment. The Groundwater Protection Targets shall be reviewed and revised as necessary every five years.

14. Legal Considerations related to the proposed General WDRs

14.1. California Water Code sections 13263 and 13241

California Water Code section 13263 requires that the Los Angeles Water Board to consider the provisions of section 13241, when considering adoption of WDRs. Section 13241 sets forth the following factors for the Board's consideration:

(a) Past, present, and probable future beneficial uses of water.

(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.

(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.

(d) Economic considerations.

The Los Angeles Water Board's consideration of each of these factors is provided below. The Board has also considered any the evidence that has been presented to the Board regarding the section 13241 factors in issuing the Proposed General WDRs. This includes specific costs of compliance information presented by interested persons and stakeholders, as well as specific cost information developed by the Board itself.

14.1.1. Past, present, and probable future beneficial uses of water.

The Los Angeles Basin Plan identifies applicable beneficial uses or surface and groundwater within the Los Angeles Basin. The General WDRs protect the beneficial uses identified in the Los Angeles Basin Plan. Applicable past, present, and probable future uses of the Los Angeles Basin waters were considered by the Los Angeles Water Board as part of the Basin Planning process and are reflected in the Basin Plan itself. The General WDRs are applicable to a wide geographic area. Therefore, it is appropriate to consider beneficial uses as identified in the Basin Plan and applicable policies, rather than a site-specific evaluation that might be appropriate for WDRs applicable to a single discharger.

The beneficial uses identified in the Basin Plan for the Los Angeles Region include water contact and non-contact recreation (REC-1 and REC-2), commercial and sport fishing (e.g., COMM), various types of aquatic life and wildlife habitats (e.g., WARM, COLD, WILD), groundwater recharge (GWR), drinking water supply (MUN), agricultural water supply (AGR), various types of industrial water supply (IND, PROC, POW), and

navigation (NAV). Beneficial uses of inland surface waters in the region generally include water contact recreation (REC-1) and WARM, COLD and/or COMM. In addition, inland waters are usually designated as IND, PROC, REC-2, and WILD, and are sometimes designated as waters “that support habitats necessary, at least in part for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered” (RARE). Furthermore, many regional streams are primary sources of replenishment for major groundwater basins that supply water for drinking and other uses, and as such must be protected as waters used for recharge of groundwater (GWR). Beneficial uses of coastal waters in the Los Angeles Region, including bays, estuaries, lagoons, harbors, beaches, and the Pacific Ocean, include habitat for marine life and recreation, boating, shipping, and commercial and sport fishing. Beneficial uses of wetlands include many of the same uses designated for the rivers, lakes, and coastal water to which they are connected.

As discussed in Section 6, agricultural discharges convey pollutants to surface waters and groundwater in the Los Angeles Region. These pollutants have damaging effects on both human health and aquatic and riparian ecosystems. Water quality assessments conducted by the Los Angeles Water Board have identified a number of surface water impairments of beneficial uses of water bodies in the Los Angeles Region caused or contributed by the pollutants in agricultural discharges. As a result of these impairments, there are beach postings, fish consumption advisories, excessive algal growth and eutrophication, ecosystem and recreational impacts from trash and debris, and toxic conditions for aquatic life, among others. Seventeen TMDLs established by the Los Angeles Water Board and U.S. EPA identify agricultural discharges as one of the pollutant sources causing or contributing to impairments of beneficial uses. The requirements of the Proposed General WDRs are therefore necessary to protect and restore the past, present, and probable future beneficial uses of surface and groundwaters in the region.

14.1.2. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.

Environmental characteristics of the Los Angeles Basin have been considered in the development of the General WDRs. The quality of receiving waters impacted by agricultural discharges has been collected since the inception of the ILRP in the Los Angeles Region. As discussed in section 6 of this Staff report, water quality data collected since 2007 indicate that contaminants are mobilizing from agricultural operations into surface waters and exceeding water quality benchmarks. Exceedances are seen throughout the region. Therefore, the General WDRs include numeric water quality benchmarks, discharge limitations and other requirements to protect both inland and coastal areas.

14.1.3. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.

The General WDRs implement “water quality benchmarks”. As defined in the General WDRs, water quality benchmarks include discharge prohibitions, narrative or numeric water quality objectives, criteria established by USEPA (including those in the California Toxics Rule and the applicable portions of the National Toxics Rule), and load allocations established pursuant to TMDL (whether established in the Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan) or other lawful means). These water quality benchmarks were deemed reasonable and achievable to protect beneficial uses when they were promulgated. Additionally, the Los Angeles Water Board considered all sources contributing to the impairment addressed by that TMDL when the waste load and load allocations in the TMDL and the implementation plan for the TMDL, including the TMDL compliance schedules, at the time of adopting the TMDL. As such, when considering this factor, the Los Angeles Water Board focused on the water quality conditions that could reasonably be achieved by the General WDRs from a technical or scientific standpoint and not the reasonableness of the water quality benchmarks and associated schedules.

Water quality benchmarks as incorporated into the General WDRs are reasonably achievable. The General WDRs establish a framework that ensures that waste discharges from irrigated lands do not cause or contribute to an exceedance of a water quality benchmarks while also providing regulatory flexibility appropriate for agricultural operations. To that end, the General WDRs provide multiple enrollment options and compliance alternatives. Dischargers can enroll as an individual or as a member of a third-party Discharger Group. Discharger Groups undertake significant monitoring and reporting and education and outreach while also centralizing fee collection and, where appropriate, management practice implementation. The proposed General WDRs also provide regulatory flexibility with the compliance options. For example, the monitoring and reporting requirements are tailored to the unique characteristics of the agricultural industries in Ventura and Los Angeles County. As discussed in section 4 of this Staff Report, agriculture in the Los Angeles County is dispersed. Therefore, the compliance with the General Order for these Dischargers is determined through primarily through representative edge-of-field monitoring (where samples are to be collected at the edge of one field and the results applied to all fields of a similar type) rather than receiving water monitoring, which would be unlikely to capture the influence of agricultural discharges on surface waters. The proposed General WDRs also provide multiple compliance tracks to address exceedances of water quality benchmarks in Ventura County.

Where water quality benchmarks are not being met and where irrigated lands are a potential source of the concern, a Discharger, or a Discharger Group acting on their behalf, is required to develop a WQMP. The WQMPs must be designed to ensure that waste discharges from irrigated lands do not cause or contribute to an exceedance of a water quality benchmark and meet other applicable requirements of the General WDRs, including, but not limited to the TMDL-based load allocations in Appendix 5. Once a compliance deadline specified the General WDRs has passed and monitoring indicates

the applicable load allocations are still not being met notwithstanding implementation of a WQMP, the General WDRs require certain Dischargers to comply with individual discharge limitations. In recognition of the fact that non-point source discharges are typically addressed through the implementation of management practices; however, the General WDRs provide two compliance tracks for individual discharge limits. Track 1 allows Dischargers to comply through edge-of-field monitoring. This compliance track focuses on the quality of the discharge leaving a specific farm and can be used to provide immediate feedback on the efficacy of on-farm MPs. Track 2 allows Dischargers to prepare farm-level MPPs that are developed with the oversight of qualified industry professionals and the Los Angeles Water Board staff. These farm-specific plans allow the Discharger to tailor MP implementation to the pollutants of concern on their specific farm, and to develop and implement MPs that take into account the size of the operation, the types of crops, farming method, and other site-specific considerations as well as water quality (in contrast to a WQMP, which typically addresses a large number of farms and provides MP recommendations at a general level). Under either compliance track, Dischargers will be required to implement MPs to make the necessary water quality gains to reduce and/or eliminate pollutants from agricultural discharges and achieve applicable water quality benchmarks. The types of MPs that are likely to be implemented are discussed in section 8 of this Staff Report and are technically and scientifically feasible to implement.

In light of all of the above, the Los Angeles Water Board has determined that water quality conditions implemented through the requirements of the General WDRs can reasonably be achieved.

14.1.4. Economic considerations.

The Los Angeles Water Board considered the economic impacts of this action, including estimated compliance costs as well as other relevant economic factors such as the societal and environmental costs savings associated with adequately controlling agricultural discharges (see detailed discussion in Section 10 of this Staff Report). In addition, the Los Angeles Water Board has considered costs of implementation of agricultural water quality control programs in numerous TMDLs adopted as Basin Plan amendments that assign load allocations to irrigated agricultural discharges. The Los Angeles Water Board recognizes that the costs of compliance with the General WDRs and TMDLs may be significant and that many Dischargers have limited resources to implement actions to address their agricultural discharges. However, as discussed in section 11 of this Staff Report, the General WDRs are as flexible as possible to give Dischargers the opportunity to collaborate and pool their resources, to customize monitoring, and to select the compliance options that are most appropriate for their situation. Additionally, the Los Angeles Water Board has identified potential sources of funding in the Basin Plan, Chapter 4, and as described in section 12 of this staff report, that may be available to help defray costs.

14.1.5. The need for developing housing within the region.

The General WDRs for irrigated lands in the Los Angeles Basin regulate lands that are currently or will be put into agricultural production. The General WDRs are not intended to establish requirements for any facilities that accept wastewater from residences or stormwater runoff from residential areas. The General Order will not affect the development of housing within the region.

14.1.6. The need to develop and use recycled water.

The General Order does not establish any requirements for the use or purveyance of recycled water. However, some MPs that may be implemented, such as tailwater recovery systems, would allow growers to capture irrigation water and reuse on site.

14.2. Nonpoint Source Policy

The proposed General WDRs to regulate agricultural discharges constitute a Nonpoint Source Implementation Program as required by the Nonpoint Source Policy. The Nonpoint Source Policy requires a Nonpoint Source Implementation Program to include the following five key elements:

(1) the purpose of the program must be stated, and the program must address nonpoint source pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements;

(2) the program must describe the practices to be implemented and processes to be used to select and verify proper implementation of practices;

(3) where it is necessary to allow time to achieve water quality requirements, the program must include a specific time schedule, and corresponding quantifiable milestones designed to measure progress toward reaching specified requirements;

(4) the program must include feedback mechanisms to determine whether the program is achieving its purpose or whether additional or different practices are required; and

(5) the program must state the consequences of failure to achieve the stated purpose.

The General WDRs are consistent with key elements of the Nonpoint Source Policy. The purpose of the program is to prevent and address water quality impacts to waters of the state from irrigated agriculture. This purpose is accomplished through implementation of the General WDRs. Specifically, the General WDRs include water quality benchmarks set equal to applicable water quality standards, discharge prohibitions, and TMDL load allocations as well as individual discharge limitations when TMDL compliance deadlines have passed, and exceedances persist. This establishes a robust framework to assess compliance with water quality benchmarks, to monitor and report on water quality impacts from agricultural discharges and to trigger specific response actions for Dischargers that may be causing or contributing to exceedances of applicable water quality objectives.. Dischargers comply with the General WDRs by implementing and improving

management practices and complying with the other conditions, including monitoring and reporting requirements. The General WDRs require Dischargers to address impacts to water quality by evaluating the effectiveness of management practices and take action to improve management practices to reduce discharges. The General WDRs and associated MRPs describe the type of MPs that are necessary to achieve compliance with water quality objectives and provide a framework for implementing these MPs, including feedback mechanisms that trigger additional MPs where necessary to meet water quality objectives. If a Discharger fails to address impacts to water quality by taking the actions required by the General WDRs, including evaluating the effectiveness of their management practices and improving water quality in accordance with the schedules in the General WDRs, the Discharger is subject to individual discharge limitations. Dischargers must directly comply with discharge limitations unless otherwise authorized by the General WDRs to demonstrate compliance via an alternative compliance pathway. Where an alternative compliance pathway is allowed, Dischargers may develop and implement an individual field-level MP plan to meet the requirements of the General WDRs. Dischargers that fail to comply with the discharge limitations or to implement an individual MP plan as required by the General WDRs are subject to progressive enforcement, including potential monetary liability. Furthermore, the General WDRs adds new reporting requirements, such as increased nitrogen reporting, that enable the Los Angeles Water Board to better track actual application and removal of nitrogen, including which Dischargers are outliers that require additional training in nitrogen management. The added reporting in conjunction with individual discharge monitoring and MP plans, augment the feedback mechanisms in the General WDRs and will improve the ability of the Los Angeles Water Board to track compliance with the General WDRs and the water quality benchmarks contained therein. Therefore, there is a high likelihood that the General WDRs will attain their ultimate purpose of attaining water quality objectives and protecting beneficial uses as required by the Nonpoint Source Policy.

14.3. Antidegradation Policy

State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (Antidegradation Policy) requires the Los Angeles Water Board, in regulating the discharge of waste, to maintain high quality waters of the state unless it is demonstrated that any degradation will be consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality worse than that described in the Regional Board or State Water Board policies. In addition, the WDRs must require that discharges to high quality waters result in the best practicable treatment or control necessary to assure that no pollution or nuisance will occur and the highest water quality consistent with the maximum benefit to the people of the State will be maintained.

By its terms, the Antidegradation Policy applies only to waters that are high quality. High quality waters are those surface waters or areas of groundwater that have a baseline water quality better than required by water quality control plans and policies. In the ESJ Order, the State Water Board provided specific direction to the regional boards on how to

apply the Antidegradation Policy to nonpoint sources. (ESJ Order at pp 78-80). The antidegradation discussion that follows is consistent with the direction in the ESJ Order.

14.3.1. Potential for Degradation of High Quality Waters

In order to determine whether a water body is a high quality water with regard to a given constituent, the background quality of the water body must be compared to the applicable water quality objectives. The baseline water quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of the Antidegradation Policy, or a lower level if that lower level was allowed through a permitting action that was consistent with applicable antidegradation policies. (*Id*. at p.78.) When assessing baseline water quality for a general order issued to a nonpoint source, the State Water Board has indicated that a "general review and analysis of readily available data is sufficient." (*Id*.) The Los Angeles Water Board has reviewed the available data and determined that at least some water bodies in the region are of high quality for constituents expected to be found in agricultural discharges.

To the extent the General WDRs may authorize discharges to at least some surface and ground waters that are high quality with regard to some pollutants, the Los Angeles Water Board has determined that the conditions and performance standards in the General WDRs are consistent with the Antidegradation Policy.

14.3.2. Maximum Benefit

The Antidegradation Policy requires that any degradation allowed by the General WDRs is consistent with the maximum benefit to the people of the state. The Antidegradation Policy does not define "maximum benefit to the people of the state." However, in general, the Water Boards have considered both "economic and social costs, tangible and intangible, of the proposed discharge compared to the benefits" when conducting this analysis (see Env't L. Found. v. State Water Res. Control Bd., 89 Cal. App. 5th 451, 495, 305 Cal. Rptr. 3d 862, 897 (2023), as modified (Apr. 13, 2023).) As previously discussed, agriculture ranks 11th in terms of contribution to Ventura County's GDP. Agriculture is a significant employer in Ventura County and is important to its cultural identity. While agriculture has less of an economic and cultural presence in Los Angeles County, it is still a generator of economic activity and employment. Agricultural activities in the Ventura and Los Angeles Counties also provide food and nursery stock in the region and beyond. Nevertheless, the Los Angeles Water Board recognizes that there are significant societal costs associated with agricultural activity, particularly where water bodies have been allowed to degrade below water quality objectives through historic agricultural practices. As discussed in sections 1 and 5 of this Staff Report, many of the receiving waters within the area covered by the General WDRs are not meeting water quality objectives for multiple pollutants associated with irrigated agriculture and surface waterbodies that receive discharges from irrigated lands are listed as impaired on the State's Clean Water Act section 303(d) List of impaired waters for pollutants associated with irrigated agriculture.

The conditions and performance standards in the General WDRs are designed to minimize any degradation to waters of the state and to halt any further degradation of impaired water bodies and improvement of the quality of such waters to a level protective of existing uses over a time schedule that is as short as possible. To that end, the General WDRs require a Discharger who obtains coverage to protect beneficial uses and prevent nuisance by implementing monitoring and reporting programs and management practices to attain water quality benchmarks. If the water quality benchmarks are not attained by the compliance deadline in the WDRs, then Dischargers are subject to individual discharge limitations. The General WDRs do not authorize further degradation of waters of the state. Further, the General WDRs are likely to improve the quality of existing waters by establishing conditions on discharges from irrigated agricultural lands, including those to implement load allocations assigned to discharges from irrigated agricultural lands to restore impaired waters, and including monitoring of such discharges that are designed to determine compliance with the conditions.

14.3.3. Impact on Beneficial Uses and Water Quality

The Antidegradation Policy also requires that any degradation allowed by the General WDRs will not unreasonably affect beneficial uses and will not result in water quality less than that prescribed in state and regional policies. The General WDRs require compliance with water quality benchmarks. The water quality benchmarks (as listed in Appendices 4 and 5) are set at level consistent with applicable state and federal water quality standards, discharge prohibitions, and TMDL-based load allocations. The General WDRs assess compliance with water quality benchmarks through either receiving water monitoring or edge-of field monitoring. Where benchmarks are exceeded, the Discharger are expected to do source investigation and implement management practices as necessary to achieve the water quality benchmarks. If Dischargers are unable to meet the benchmarks by the deadline in the General WDRs, the water quality benchmarks become enforceable as individual limitations. Whether the water quality benchmarks, or individual discharge limitations are in effect, the General WDRs require extensive monitoring and reporting to detect exceedances and implement appropriate management practices. The General WDRs also introduce significant requirements related to nitrogen reporting and sampling, including but not limited to the implementation of irrigation and nitrogen management plans and use of the multi-year A/R ratio, the development of groundwater targets, and sampling of on-farm drinking water wells to ensure that users of the wells are not drinking water exceeding nitrate contamination health levels. Collectively, the conditions and requirements in the General WDRs ensure that any degradation that occurs in surface or ground waters covered by this order will not unreasonably affect beneficial uses and will not result in water quality less than that prescribed in state and regional policies. The fact that exceedances and degradation may continue for a finite period of time consistent with a the time schedules authorized in the General WDRs or in any plans prepared to comply with the General WDRs (e.g., a Management Practice Plan), is consistent with Water Code section 13263's allowance for a time schedule for dischargers to achieve water quality objectives and is not a violation of the Antidegradation Policy.

14.4.4. Best Practicable Treatment and Control

Finally, the Antidegradation Policy requires that where degradation of high quality waters is permitted, the activity will be required to meet waste discharge requirements which will result in the best practicable treatment or control (BPTC). The General WDRs implement BPTC by requiring a combination of upfront planning and implementation at the regional and farm level; regional monitoring and assessments to determine whether trends in degradation are occurring; and regional planning and on-farm implementation when trends in degradation are identified. Dischargers are required to implement on-farm sampling or MP evaluation to determine whether their management practices are protective of water quality. Dischargers must also prepare and implement a farm-specific irrigation and nitrogen management plan. Through the process of learning about effective management practices, evaluating their own practices, and implementing improved practices, Dischargers are expected to achieve BPTC, where applicable. The State Water Board determined in the Eastern San Joaquin Order that the types of requirements that have been incorporated into this Order constitute BPTC.

14.4. California Water Code Sections 189.7 and 13149.2(c)

This General Order regulates an activity that may impact a disadvantaged and/or tribal community. Water Code section 189.7 requires the Water Boards to engage in equitable, culturally relevant community outreach with tribal and disadvantaged communities that may experience disproportionate water quality impacts from a proposed discharge of waste. The Los Angeles Water Board has satisfied the outreach requirements set forth in Water Code section 189.7.

The Los Angeles Waterboard conducted outreach to tribal communities in Ventura and Los Angeles County. Additionally, the Los Angeles Water Board conducted outreach with the following farmworker interest groups: Central Coast Alliance for a Sustainable Economy (CAUSE), Ventura County Farmworker Resource Program, Mixteco/Indigena Community Organizing Project (MICOP), and Lideras Campesinas. Staff have also reached out to environmental NGOs such as Santa Barbara Channel Keeper, Wishtoyo Foundation, Ventura Coastkeeper, Ventura Surfrider, and Heal the Bay in an effort to reach tribal and disadvantaged communities.

When issuing regional waste discharge requirements, Water Code section 13149.2 also requires the Water Boards to make a concise, programmatic finding on potential environmental justice, tribal impact, and racial equity considerations. Pursuant to Water Code section 13149.2, the Los Angeles Water Board reviewed readily available information and information raised to the Board by interested persons concerning anticipated water quality impacts in disadvantaged and/or tribal communities resulting from the adoption of the General Order. The Los Angeles Water Board also considered environmental justice concerns within the Board’s authority and raised by interested persons with regard to those impacts.

The Los Angeles Water Board anticipates that the issuance of these General WDRs will result in water quality impacts and environmental justice concerns within the scope of the Board's authority. Agricultural activities can and do cause degradation of water quality as discussed in section 12.3 of this Staff Report. Disadvantaged communities in and around farms are more susceptible to multiple pollutant exposure pathways, such as air quality and drinking water impacts. Tribes face greater impacts due to their unique subsistence and cultural uses of waters impacted by agricultural discharges. Reducing impacts to water quality will result in waters that are safer to drink, recreate in and eat from, among other benefits, for tribal and disadvantaged communities. To addresses the water quality impacts associated with agricultural discharges to surface and groundwaters, the Los Angeles Water Board has identified the following measures available and within the scope of its authority to address the impacts of the permitted discharges from irrigated lands. The General WDRs require permitted dischargers to meet water quality benchmarks and/or individual discharge limitations to protect public health and the environment. Where exceedances are detected in surface waters, the General WDRs require Dischargers to improve MPs. To address exceedances in areas with impaired surface waters, the General WDRs further require Dischargers to target MP implementation and compliance actions at the farm level through the development and implementation of individual monitoring plans or individual management practice plans. Implementation of MPs is expected to protect public health and the environment. Specifically, requiring Dischargers to meet water quality benchmarks for bacteria and toxic pollutants will ensure that public recreational areas such as beaches are safe for swimming and fishing. Likely, by reducing sediment and erosion, the General WDRs minimize transport of legacy pesticides and other contaminants to surface waters, thereby making it less likely that farmworkers and communities surrounding irrigated lands are exposed to these pollutants through the consumption of contaminated fish.

For groundwater, the General WDRs require all Dischargers to implement nutrient management practices and nitrogen reporting to prevent the contamination of groundwater by nitrogen. In addition, all Dischargers with on-farm drinking water wells to sample the drinking water and notify well users if there is an exceedance of nitrate within 10 days. On-farm drinking water wells, when in place, are largely used by the farmworkers. Requiring the testing and notification of the results in a quick manner ensures safe, clean drinking water for the farmworker community that may use and rely on these wells for drinking water.

15. California Environmental Quality Control Act

Adoption of these General WDRs constitutes a "project" pursuant to the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq. The Los Angeles Water Board is the lead agency for this project under CEQA. On April 14, 2016, the Los Angeles Water Board adopted a conditional waiver, waiving WDRs for discharges of waste from irrigated agricultural lands in the Los Angeles Region. When the waiver was adopted, the Los Angeles Water Board adopted an initial study and Mitigated Negative Declaration (2016 Mitigated Negative Declaration). The 2016 Mitigated Negative Declaration described the potential environment impacts associated with implementation of the terms and conditions of the 2016 Waiver, including but limited

implementation of water quality management practices and monitoring provisions, and determined that the adoption of a waiver of WDRs for discharges from irrigated agricultural lands, as mitigated, would not have a significant adverse effect on the environment.

The General WDRs continue the regulatory framework for the irrigated lands program in the Los Angeles Region that has been in place since the adoption of the Conditional Waiver in 2016, and as amended in 2021, 2022, and 2023. The General WDRs include substantially similar requirements for dischargers in the Ventura and Los Angeles Counties, with the only difference being the addition of new or revised monitoring and reporting requirements and an alternative compliance pathway for some discharge limitations. Where a prior environmental review document has been prepared, subsequent environmental review is only required if one of the conditions in CEQA Guidelines section 15162 is met. The new or revised requirements will neither result in any new significant environmental impacts nor substantially increase the severity of previously disclosed impacts. Nor are there substantial changes in the surrounding circumstances which would require major revisions to the 2016 Mitigated Negative Declaration or new information of "substantial importance", as that term is used in the CEQA Guidelines. Therefore, the 2016 Mitigated Negative Declaration constitutes the environmental analysis under CEQA for the General WDRs and no subsequent environmental document is required pursuant to California Code of Regulations, title 14, section 15162.

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