DECEMBER 15, 2017

Calleguas Creek Watershed TMDL Compliance Monitoring Program

Ninth Year Annual Monitoring Report – July 2016 to June 2017

Monitoring and Reporting Program for the Nitrogen and Related Effects; Organochlorine Pesticides, Polychlorinated Biphenyls and Siltation; Toxicity; Salts; and Metals and Selenium Total Maximum Daily Loads

submitted to:

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

prepared by:

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on behalf of the:

STAKEHOLDERS IMPLEMENTING TMDLS IN THE CALLEGUAS CREEK WATERSHED

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Acronyms

Ag Waiver	Conditional Waiver for Irrigated Agricultural Lands
AMR	Annual Monitoring Report
AWQMP	Agriculture Water Quality Management Plan
BPAs	Basin Plan Amendments
BMP	Best Management Practice
Caltrans	California Department of Transportation
CCW	Calleguas Creek Watershed
CCWTMP	Calleguas Creek Watershed TMDL Compliance Monitoring Program
DNQ	Detected Not Quantified
EC	Electrical Conductivity
EST	Estimated
GSQC	General Sediment Quality Constituents
GWQC	General Water Quality Constituents
LA	Load Allocation
MOA	Memorandum of Agreement
MDL	Method Detection Limit
NA	Not Applicable
ND	Not Detected
NR	Not Required
NS	Not Sampled
OC	Organochlorine
OP	Organophosphorus
PCBs	Polychlorinated Biphenyls
POTWs	Publically-Owned Treatment Works
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
SOPs	Standard Operating Procedures
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TKN	Total Kjehdahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
VCAILG	Ventura County Agricultural Irrigated Lands Group
WLA	Wasteload Allocation

Executive Summary

The purpose of this annual report is to document the ninth-year monitoring (July 2016 to June 2017) efforts and results of the Calleguas Creek Watershed (CCW) Total Maximum Daily Load (TMDL) Compliance Monitoring Program (CCWTMP) for the five TMDLs covered by the Quality Assurance Project Plan (QAPP). This annual report includes summaries of the sampling events, data summaries, and a compliance comparison.

TOTAL MAXIMUM DAILY LOADS

There are six TMDLs currently effective and being implemented in the Calleguas Creek Watershed. They include:

- Nitrogen Compounds and Related Effects in Calleguas Creek (Nitrogen or Nutrients TMDL)
- Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in Calleguas Creek, its Tributaries, and Mugu Lagoon (OC Pesticides TMDL)
- Toxicity, Chlorpyrifos, and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon (Toxicity TMDL)
- Metals and Selenium in Calleguas Creek, its Tributaries, and Mugu Lagoon (Metals TMDL)
- Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL)[1]
- Boron, Chloride, Sulfate and TDS (Salts) in the Calleguas Creek, its Tributaries and Mugu Lagoon (Salts TMDL)

To address the monitoring requirements of the TMDLs, the CCWTMP was established and a QAPP developed and approved by the Los Angeles Regional Water Quality Control Board (Regional Water Board) Executive Officer. Over time the original QAPP has been revised to incorporate newly adopted TMDLs, reflect changing field conditions, and include changes recommended in previous annual monitoring reports. The QAPP currently addresses monitoring requirements for the Nitrogen, OC Pesticides, Toxicity, Metals, and Salts TMDLs. The Trash TMDL is addressed through a separate monitoring plan and annual monitoring report.

PROJECT ORGANIZATION

The CCWTMP is a coordinated effort with the various responsible parties that make up the Stakeholders Implementing TMDLs in the Calleguas Creek Watershed (Stakeholders). Stakeholders identified in the TMDLs have developed a Memorandum of Agreement (MOA) that outlines an agreement to implement the CCWTMP.

The stakeholders to the MOA, for which this report fulfills the TMDL monitoring requirements, are as follows:

[1] Information related to the Revolon Slough and Beardsley Wash Trash TMDL is not part of this report. The Trash TMDL annual report is also submitted to the Regional Water Board by January 28th, annually.

- **POTWs**: consisting of Camrosa Water District, Camarillo Sanitary District, Ventura County Waterworks District No. 1, and the Cities of Simi Valley and Thousand Oaks;
- **Urban Dischargers**: consisting of the Cities of Simi Valley, Thousand Oaks, Camarillo, Moorpark and Oxnard, Ventura County Watershed Protection District, and the County of Ventura Public Works Agency;
- **Agricultural Dischargers**: consisting of the entities represented by the Ventura County Agricultural Irrigated Lands Group (VCAILG) within the Calleguas Creek Watershed, a subdivision of the Farm Bureau of Ventura County; and
- **Other Dischargers**: consisting of the U.S. Department of Navy and Caltrans.

MONITORING EVENT SUMMARIES

Sampling events required by the Nitrogen, OC Pesticides, Toxicity, Metals, and Salts TMDLs during the ninth year of TMDL monitoring included four dry-weather events (Events 56, 57, 60, 61) and two wet weather events (Events 58 and 59). Grab samples for salts were obtained during these events, but were not used directly to determine compliance at receiving water sites.[2] A summary of Events 56 through 61 is included in Table ES-1.

Table ES - 1. Summary of Year 9 Monitoring Events

Event	Type	Date	Mugu Lagoon			Freshwater Sites		
			Water Quality	Sediment Quality & Toxicity[1]	Tissue[1]	Water Quality & Toxicity	Sediment Quality & Toxicity	Tissue
56	Dry	Aug 2016	X			X	X	
57	Dry	Nov 2016	X			X		
58	Wet	Dec 2016	X			X		
59	Wet	Jan 2017	X			X		
60	Dry	Feb 2017	X			X		
61	Dry	May 2017	X			X		X[2]

1. Mugu Lagoon sediment quality, sediment toxicity, and tissue samples are collected every three years. Year 10 is the next time these types of samples will be collected.
2. Fish tissue collected in May 2017 as part of Event 61.

SUMMARY OF COMPARISON TO TMDL ALLOCATIONS AND TARGETS

This report provides a comparison of water quality monitoring results to applicable TMDL allocations and targets, but does not reflect an assessment of compliance with individual permit or conditional waiver TMDL requirements for the responsible parties. For the most part, the CCW is meeting the applicable interim or final waste load allocations (WLAs) and load allocations (LAs) currently in effect for the Nutrients, OC Pesticides, Toxicity, Metals, and Salts TMDLs. The following observations summarize the comparison of monitoring results with applicable TMDL allocations:

[2] Grab samples for salts at receiving water compliance sites are used to develop statistical relationships between specific conductivity (EC) and salt constituents, which are in turn used to convert high-density EC data from continuous monitors in the field to time series of salt concentrations.

1. No exceedances of the interim wasteload allocations or load allocations for OCs or PCBs were observed at any location in the watershed. No exceedance of final wasteload allocations were observed at any POTW.
2. Exceedances of numeric targets for Nitrate-N and Nitrate-N + Nitrite-N were observed in Mugu Lagoon, Revolon Slough, Beardsley Wash, and Calleguas Creek. Most of the exceedances occurred during dry events, but there were eight wet weather exceedances in Mugu Lagoon, Calleguas Creek, and Beardsley Wash. No exceedances of final nutrient wasteload allocations were measured at any POTW compliance site.
3. There were 12 exceedances of the final MS4 chlorpyrifos wasteload allocation during wet weather, but no exceedances during dry weather. In addition, there were no instances where the diazinon final MS4 wasteload allocation was exceeded during wet weather or dry weather. These exceedances were considered in concert with MS4 outfall monitoring data and MS4 outfalls exceeded the final allocations during four of these monitoring events. There were no exceedances of the final wasteload allocations for chlorpyrifos or diazinon at any POTW.
4. There were four exceedances of the interim load allocation and interim wasteload allocation for total selenium measured during the dry weather sampling events at the 04_WOOD site. As discussed in the TMDL, a primary source of selenium in Revolon Slough is considered to be rising groundwater levels and the interim allocations were to be considered in this context. There were no exceedances of interim wasteload allocations of metals at any POTW. The metals final wasteload allocations became effective March 26, 2017. Event 61 was the first event to take place following the final wasteload allocations going into effect; mercury results from this event from Hill Canyon Wastewater Treatment Plant exceeded the final wasteload allocation.
5. Although no statistically significant reductions in survival were overserved during this monitoring year, a TIE targeted for organics was performed due to the observation of greater than 50 percent mortality in the 100 percent concentration of the ambient water sample at site 10_GATE. As a result, the Stakeholders are in compliance with the toxicity wasteload allocations and load allocations per the requirements of the TMDL.
6. In general, receiving water sites were in compliance with interim load allocations and wasteload allocations established by the Salts TMDL; the only exception being exceedances in TDS, sulfate, and boron measured at 04_WOOD in the Revolon Slough watershed, and six chloride exceedances at 03_UNIV and four chloride exceedances at 9A_HOWAR. POTW exceedances of interim salts wasteload allocations are as follows: Camarillo Water Reclamation Plant (WRP) exceedances of chloride, sulfate, and TDS as well as exceedances of sulfate and TDS in February 2017 at Simi Valley Water Quality Control Plant (WQCP). The exceedances of interim salts wasteload allocations for the Camarillo WRP have resulted from increased influent salt concentrations due to water conservation and a shift in the composition of the water supplied within the service area. Because the process for addressing salts is a watershed effort involving significant capital investments, the Camarillo WRP received an amended Time Schedule Order in December 2015 (R4-2011-0126-A03) to adjust the interim limits for TDS, sulfate and chloride (TSO limits: 1242 mg/L TDS, 359 mg/L sulfate, 351 mg/L chloride). As a

result, the interim limits in the TMDL are not the currently applicable interim limits for the Camarillo WRP discharge and the TSO limits were met the entire monitoring year.

MONITORING PROGRAM CHANGES

The QAPP specifies that upon the completion of each CCWTMP annual report, revisions to standard procedures will be made, including: site relocation, ceasing monitoring efforts and/or deleting certain constituents from sample collection. An updated QAPP was submitted in December 2014 that incorporated the proposed revisions and recommendations included in the previous six CCWTMP annual reports. Additional modifications that reflect the most current lab methods and procedures for the field conditions were also part of the QAPP update process. Monitoring for the 2016-2017 monitoring year was conducted per the revised QAPP.

In addition to the updates identified in the 2014 Revised QAPP, during Year 8, access to 06_SOMIS was revoked by the private landowner whom had previously given permission for monitoring. Due to this change, 06_SOMIS could only be visited during the first two monitoring events of the 2015-2016 monitoring year. In Year 9, monitoring took place at the 06_UPLAND monitoring site, which is still within Reach 6, but approximately one mile downstream. Access to the site is via County property, so there should not be any further access issues.

It is the intention of the Stakeholders to begin submitting the TMDL receiving water monitoring data to the California Environmental Data Exchange Network (CEDEN) format. Data will be submitted going back to the beginning of the TMDL monitoring program in 2008.

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Introduction and Program Background

INTRODUCTION

In the Calleguas Creek Watershed (CCW), the following six total maximum daily loads (TMDLs) are currently effective and include monitoring requirements in the implementation plans:

- Nitrogen Compounds and Related Effects in Calleguas Creek (Nitrogen or Nutrients TMDL)
- Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in Calleguas Creek, its Tributaries, and Mugu Lagoon (OC Pesticides TMDL)
- Toxicity, Chlorpyrifos, and Diazinon in the Calleguas Creek, its Tributaries and Mugu Lagoon (Toxicity TMDL)
- Metals and Selenium in Calleguas Creek, Its Tributaries, and Mugu Lagoon (Metals TMDL)
- Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL) [1]
- Boron, Chloride, Sulfate and TDS (Salts) in the Calleguas Creek, its Tributaries and Mugu Lagoon (Salts TMDL)

To address the monitoring requirements of the TMDLs, the responsible parties that make up the Stakeholders Implementing TMDLs in the CCW (Stakeholders) established a CCW TMDL Compliance Monitoring Program (CCWTMP) and developed a Quality Assurance Project Plan (QAPP) for approval by the Los Angeles Regional Water Quality Control Board (Regional Water Board) Executive Officer. The original QAPP covered monitoring for only the Nitrogen, OC Pesticides, Toxicity, and Metals TMDLs. A monitoring approach (Salts Plan) for the Salts TMDL was submitted by the Stakeholders to the Regional Water Board in June 2009, which was conditionally approved in September 2011. Compliance monitoring for the Salts TMDL was required starting September 9, 2012.

Over time, the original QAPP has been revised to incorporate newly adopted TMDLs, reflect changing field conditions, and include changes recommended in previous annual monitoring reports. The QAPP currently addresses monitoring requirements for the Nitrogen, OC Pesticides, Toxicity, Metals, and Salts TMDLs. The Trash TMDL is addressed through a separate monitoring plan and annual monitoring report.

The primary purpose of this report is to document the ninth year monitoring efforts (July 2016 to June 2017) and results of the CCWTMP for the five TMDLs included in the QAPP. The report includes summaries of the sampling events, data summaries, and a comparison to applicable TMDL allocations and targets. The report is divided into the following sections:

- Introduction and Program Background
- Monitoring Program Structure

[1] Information related to the Revolon Slough and Beardsley Wash Trash TMDL is not part of this report. The Trash TMDL annual report is submitted to the Regional Water Board annually by January 28th.

- Monitoring Data Summary
- Exceedance Evaluation and Discussion
- Revisions and Recommendations

In addition, there are several appendices included with this report and several attachments (electronic data files) associated with this report, including:

- Appendices (text documents)
    - Appendix A: Monitoring Event Summaries for Toxicity, OC Pesticides, Nutrients, Metals, and Salts TMDLs
    - Appendix B: Calibration Event Summary for Salts TMDL
    - Appendix C: Salts Rating Curves and Surrogate Relationships
    - Appendix D: Toxicity Testing and Toxicity Identification Evaluations Summary
    - Appendix E: Laboratory Quality Assurance/Quality Control Results and Discussion
- Attachments (electronic data files)
    - Attachment 1: Toxicity Data
    - Attachment 2: Monitoring Data
    - Attachment 3: Salts Mean Daily Flows: July 2016 to June 2017
    - Attachment 4: Chain-of-Custody Forms

PROJECT ORGANIZATION

The CCWTMP is a coordinated effort where the various responsible parties identified in the TMDLs have developed a Memorandum of Agreement (MOA) that outlines an agreement to implement the CCWTMP. The responsible parties identified in the organizational structure have formally joined together to fulfill their monitoring requirements as outlined in the Basin Plan Amendments (BPAs) for the five TMDLs included in the QAPP.

The CCWTMP is intended to fulfill the monitoring requirements for only those stakeholders that are part of the MOA and/or identified by the participants of the MOA. The stakeholders to the MOA for which this report fulfills the TMDL monitoring requirements are as follows:

- **POTWs**: consisting of Camrosa Water District, Camarillo Sanitary District, Ventura County Waterworks District No. 1, and the Cities of Simi Valley and Thousand Oaks;
- **Urban Dischargers**: consisting of the Cities of Simi Valley, Thousand Oaks, Camarillo, Moorpark and Oxnard, Ventura County Watershed Protection District, and the County of Ventura Public Works Agency;
- **Agricultural Dischargers**: consisting of the entities represented by the Ventura County Agricultural Irrigated Lands Group (VCAILG) within the Calleguas Creek Watershed, a subdivision of the Farm Bureau of Ventura County; and
- **Other Dischargers**: consisting of the U.S. Department of the Navy and the California Department of Transportation (Caltrans).

Per the MOA, a Management Committee, consisting of one representative each from the POTWs, Urban Dischargers and Other Dischargers groups, and two representatives from the Agricultural Dischargers group, oversees the CCWTMP and makes decisions to assure the CCWTMP is carried out in a timely, accountable fashion.

The Stakeholders contracted implementation of the CCWTMP with the following contractors to perform the ninth year monitoring effort:

- **General Project Management** - Larry Walker Associates, Inc. (LWA)
- **Field Monitoring Activities**
    - **Freshwater Water Quality/Sediment Sampling** - Kinnetic Laboratories, Inc. (KLI), Fugro West, Inc. (Fugro), LWA
    - **Freshwater Fish Tissue** – ICF Jones and Stokes, Inc.
- **Water, Sediment, and Tissue Chemistry Analysis** - Physis Environmental Laboratories, Inc. (Physis)
- **Salts Chemistry Analysis** - Fruit Growers Laboratory, Inc. (FGL) and Physis
- **Toxicity Analysis** - Pacific Eco Risk Laboratories (PacEco)

The aforementioned contractors performed all the management activities and sampling efforts covered by this annual report. This list of contractors will be amended in each report to reflect contractors used for the work performed.

WATERSHED BACKGROUND

Calleguas Creek drains an area of approximately 343 square miles from the Santa Susana Pass in the east to Mugu Lagoon in the southwest. The main surface water system drains from the mountains in the northeast part of the watershed toward the southwest where it flows through the Oxnard Plain before emptying into the Pacific Ocean through Mugu Lagoon. The watershed, which is elongated along an east-west axis, is approximately thirty miles long and fourteen miles wide. The Santa Susana Mountains, South Mountain, and Oak Ridge form the northern boundary of the watershed; the southern boundary is formed by the Simi Hills and Santa Monica Mountains. Figure 1 depicts the CCW and Table 1 presents the reaches of the CCW as identified in the TMDLs covered by the CCWTMP.

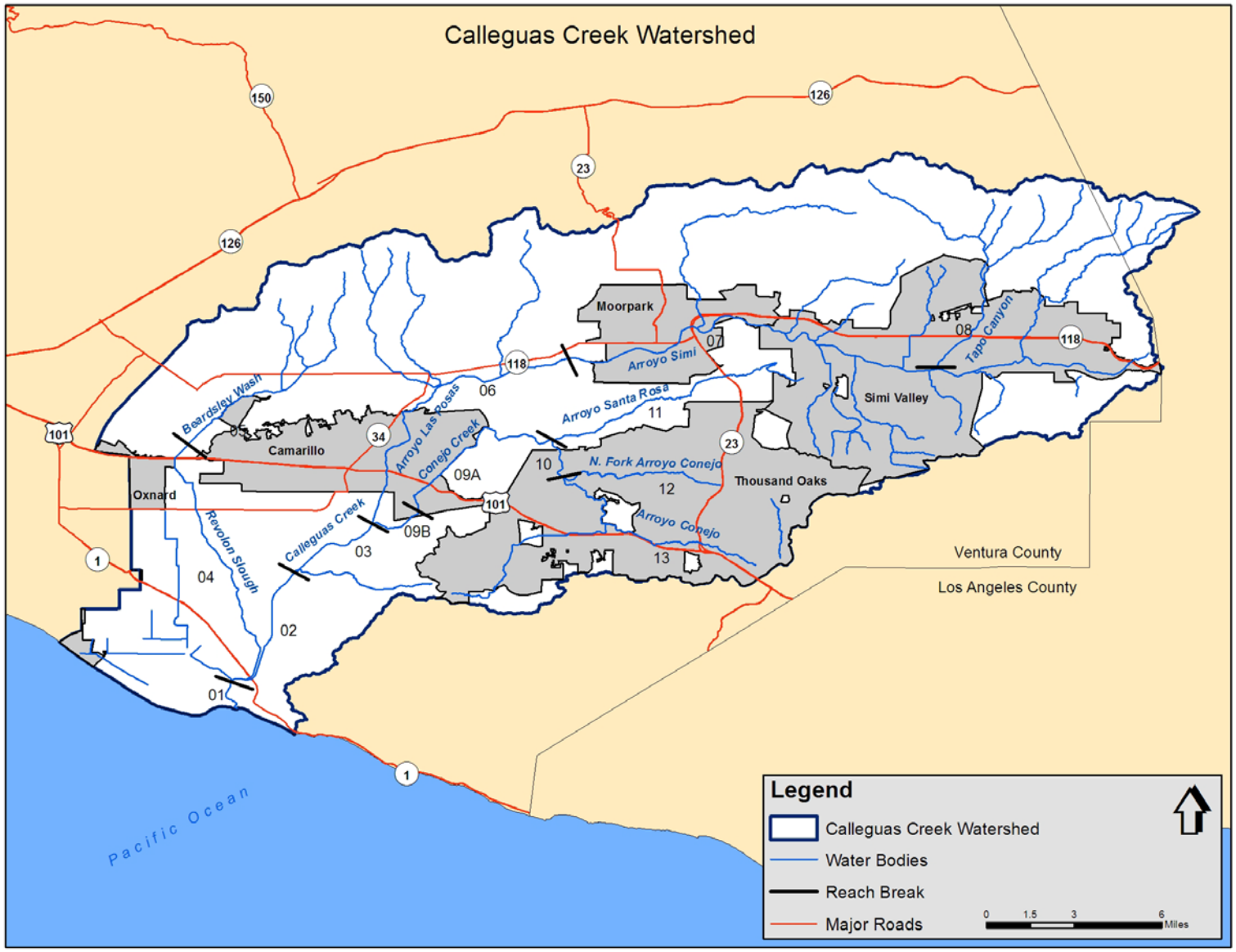


Figure 1. Calleguas Creek Watershed

Table 1. Description of Calleguas Creek Watershed Reaches

Reach No.	Reach Name	Subwatershed	Geographic Description
1	Mugu Lagoon	Mugu	Lagoon fed by Calleguas Creek
2	Calleguas Creek (Estuary to Potrero Rd.)	Calleguas	Downstream (south) of Potrero Rd
3	Calleguas Creek (Potrero Rd. to Conejo Creek)	Calleguas	Potrero Rd. upstream to confluence with Conejo Creek
4	Revolon Slough	Revolon	Revolon Slough from confluence with Calleguas Creek to Central Ave
5	Beardsley Channel	Revolon	Revolon Slough upstream of Central Ave.
6	Arroyo Las Posas	Las Posas	Confluence with Calleguas Creek to Hitch Road
7	Arroyo Simi	Arroyo Simi	End of Arroyo Las Posas (Hitch Rd) to headwaters in Simi Valley.
8	Tapo Canyon Creek	Arroyo Simi	Confluence w/ Arroyo Simi up Tapo Canyon to headwaters
9B [1]	Conejo Creek (Camrosa Diversion to Arroyo Santa Rosa)	Conejo	Extends from the confluence with Arroyo Santa Rosa downstream to the Conejo Creek Diversion.
9A [1]	Conejo Creek (Calleguas Creek to Camrosa Diversion)	Conejo	Extends from Conejo Creek Diversion to confluence with Calleguas Creek.
10	Hill Canyon reach of Conejo Creek	Conejo	Confluence with Arroyo Santa Rosa to confluence with N. Fork; and N. Fork to just above Hill Canyon WTP
11	Arroyo Santa Rosa	Conejo	Confluence with Conejo Creek to headwaters
12	North Fork Conejo Creek	Conejo	Confluence with Conejo Creek to headwaters
13	Arroyo Conejo (South Fork Conejo Creek)	Conejo	Confluence with N. Fork to headwaters —two channels

1. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched.

MONITORING QUESTIONS

The purpose of the CCWTMP is to direct the monitoring activities conducted to meet the requirements of the TMDLs effective for the CCW, excluding the Trash TMDL. The goals of the CCWTMP include:

- To determine compliance with numeric targets, waste load and load allocations, and interim load reduction milestones.
- To test for sediment toxicity at sediment monitoring stations.
- To identify causes of unknown toxicity.
- To generate additional land use runoff data to better understand pollutant sources and proportional contributions from various land use types.

- To monitor the effect of implementation actions by urban, POTW, and agricultural dischargers on in-stream water, sediment, fish tissue quality, and watershed balances (salts).
- To implement the program consistent with other regulatory actions within the CCW.

In addition, the CCWTMP is intended to answer the following monitoring questions to meet the goals of the program:

- Are numeric targets and allocations met at the locations indicated in the TMDLs?
- Are conditions improving?
- What is the contribution of constituents of concern from various land use types?

MONITORING PROGRAM DESCRIPTION

The CCWTMP was developed to address all necessary TMDL monitoring requirements and answer the monitoring questions mentioned previously using the following monitoring elements.

Required Monitoring Elements

The following environmental monitoring elements are required by the TMDLs' BPAs and are included in the CCWTMP:

- General water and sediment quality constituents;
- Water column and sediment toxicity;
- Metals and selenium in water, sediment, fish tissue, and bird eggs;
- Organic compounds in water, sediment, and fish tissue; and,
- Nitrogen and phosphorus compounds in water.
- Salt compounds in water and continuous flow in dry weather (the latter only at Salts TMDL receiving water compliance sites)

Table 2 lists the constituents for which analyses are conducted. Table 2 also provides a summary of sampled constituent groups and sampling frequency. The QAPP outlines, in detail, the justification of the process design, specific methodologies (both field and analytical), and quality assurance/quality control (QA/QC) procedures.

Table 2. Constituents and Monitoring Frequency for CCWTMP (varies by site)

Constituent	Frequency
Chronic Aquatic Toxicity	Quarterly + Two wet events
General Water Quality Constituents (GWQC)	Quarterly based on location + Two wet events
Flow, pH, Temperature, Dissolved Oxygen, Conductivity, Total Suspended Solids (TSS), Hardness (at freshwater sites where metals samples are collected), and Dissolved Organic Carbon (at saltwater sites where metals samples are collected)	
Nutrients	Quarterly + Two wet events
Ammonia Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen, Organic Nitrogen, Total Kjehdahl Nitrogen (TKN), Total Phosphorus, Orthophosphate-P	
Organic Constituents In Water	Quarterly + Two wet events
OC Pesticides [1] and PCBs [2], OP [3], Triazine [4], and Pyrethroid [5] Pesticides	
Metals and Selenium In Water [6]	Quarterly + Two wet events [7]
Copper, Mercury, Nickel, Zinc, and Selenium [8]	
Salts	
Electrical Conductivity (EC) and Discharge	Receiving water: Continuous (via in-situ sensors for EC and depth) plus monthly grabs for EC and discharge for sensor calibration
Total Dissolved Solids (TDS), Sulfate, Chloride, Boron	Receiving water: Continuous (derived from EC/salt relationships) Other sites: Quarterly + Two wet events
Chronic Sediment Toxicity	Annually (Every three years in Lagoon)
General Sediment Quality Constituents (GSQC)	Annually (Every three years in Lagoon)
Total Ammonia, Percent Moisture, Grain Size Analysis, Total Organic Carbon (TOC)	
Organic Constituents In Sediment	Annually (Every three years in Lagoon)
OC Pesticides[1] and PCBs[2], OP Pesticides[3], and Pyrethroids[5]	

Table 2. Constituents and Monitoring Frequency for CCWTMP (varies by site) - continued

Additional Constituents For Mugu Lagoon Sediment	Every three years
Metals[9]	
Tissue	Annually (Every three years in Lagoon)
Percent Lipids, OC Pesticides[1] and PCBs[10], OP Pesticides[3], and Metals[11]	

1. OC Pesticides considered: aldrin, alpha-BHC, beta-BHC, gamma-BHC (lindane), delta-BHC, chlordane-alpha, chlordane-gamma, 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, and toxaphene
2. PCBs in water and sediment considered: Aroclors identified in the CTR (1016, 1221, 1232, 1242, 1248, 1254, and 1260).
3. OP Pesticides considered: chlorpyrifos, diazinon, and malathion. Chlorpyrifos is the only OP pesticide that will be measured in tissue, as it is the only OP listed in tissue.
4. Triazine Pesticides considered: atrazine, prometryn, and simazine. Analysis of triazines ceased during year 3 following the recommendation being included in the Revisions and Recommendations section of both the year 1 and year 2 annual reports.
5. Pyrethroid Pesticides considered: bifenthrin, cyfluthrin, cypermethrin, deltamethrin, and permethrin
6. Copper, mercury, nickel, selenium and zinc will be measured as dissolved and total recoverable.
7. Per the Metals TMDL BPA requires that "In-stream water column samples will be collected monthly for analysis of general water quality constituents (GWQC) and, copper, mercury, nickel, selenium, and zinc for the first year. After the first year, the Executive Officer will review the monitoring report and revise the monitoring frequency as appropriate." Monthly monitoring will be suspended until such time as the Executive Officer has reviewed the monitoring report and considered revisions to the monitoring frequency. Until the Executive Officer has considered the frequency, metals will be collected quarterly in conjunction with the other TMDLs.
8. Monitoring at sites in Mugu Lagoon other than at the Ronald Reagan Street Bridge Site (01_RR_BR) for metals is an optional element.
9. Includes arsenic, cadmium, copper, lead, mercury, nickel, selenium and zinc. Arsenic, lead, and cadmium are included in addition to constituents required in the Metals TMDL as they have been found in previous sediment studies conducted in Mugu Lagoon to exceed guideline values used to interpret the relationship between sediment chemistry and biological impacts.
10. PCBs in tissue considered: individual congers.
11. Total mercury and selenium will be measured in bird eggs and methyl mercury and total selenium will be measured in fish tissue.

Optional Monitoring Elements

The QAPP outlines the optional monitoring efforts, all of which are considered above and beyond what is necessary to meet the requirements of the BPAs and answer the monitoring questions.

Table 3 lists the constituents and analyses that are considered optional for the CCWTMP. Monitoring for the constituents and conducting the analyses are not BPA requirements but can provide supplemental data to meet general program goals and in answering program questions. Table 3 also provides a general sampling frequency for each constituent group.

Table 3. Optional Constituents and Monitoring Frequency for CCWTMP (varies by site)

Constituent	Frequency[5]
Organic Constituents in Water – Grain Size Fractions [1]	One wet event annually
OC Pesticides and PCBs, OP, and Pyrethroid Pesticides	
Organic Constituents in Sediment – Grain Size Fractions [1]	Annually (Every three years in Mugu Lagoon)
OC Pesticides and PCBs, OP, and Pyrethroid Pesticides	
Additional Constituents for Mugu Lagoon Sediment	Every three years [2]
Macrobenthic community assessment	
Sediment Toxicity – *Eohaustorius estuaries and Mytilus galloprovincialis*	
PCBs[3] and PAHs[4]	

1. Please see Table 2 for a list of individual constituents in each suite.
2. Mugu Lagoon assessments were conducted during the first, fourth, and seventh monitoring years.
3. PCBs considered: 2,4'-Dichlorobiphenyl, 2,2',5-Trichlorobiphenyl, 2,4,4'-Trichlorobiphenyl, 2,2',3,5'-Tetrachlorobiphenyl, 2,2',5,5'-Tetrachlorobiphenyl, 2,3',4,4'-Tetrachlorobiphenyl, 2,2',4,5,5'-Pentachlorobiphenyl, 2,3,3',4,4-Pentachlorobiphenyl, 2,3',4,4',5-Pentachlorobiphenyl, 2,2',3,3',4,4'-Hexachlorobiphenyl, 2,2',3,4,4',5'-Hexachlorobiphenyl, 2,2',4,4',5,5'-Hexachlorobiphenyl, 2,2',3,3',4,4',5-Heptachlorobiphenyl, 2,2',3,4,4',5,5'-Heptachlorobiphenyl, 2,2',3,4',5,5',6-Heptachlorobiphenyl, 2,2',3,3',4,4',5,6-Octachlorobiphenyl, 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl, Decachlorobiphenyl
4. PAHs considered: 1-Methylnaphthalene, 1-Methylphenanthrene, 2,6-Dimethylnaphthalene, 2-Methylnaphthalene, Acenaphthene, Anthracene, Biphenyl, Fluorene, Naphthalene, Phenanthrene, Benz(a)anthracene, Benzo(a)pyrene, Benzo(e)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Perylene, Pyrene.
5. Optional monitoring was not performed during the 9th monitoring year.

Special Studies

The Nitrogen, Toxicity, OC Pesticides, Salts, and Metals TMDL Implementation Plans identify required and optional special studies to investigate a range of issues. No specific special studies results are incorporated into this annual report summary at this time as the results of all special studies conducted to date have been submitted as separate reports. Data gathered during special study specific sampling may also be utilized to further answer not only the special studies questions, but also be applied to the overall CCWTMP goals and questions identified previously in this report.

Monitoring Program Structure

As outlined previously, the CCWTMP covers a broad range of TMDL monitoring requirements, including both required and optional efforts. The overall structure of these requirements per each event can be broken down into two categories: (1) compliance monitoring and (2) investigation monitoring. Compliance monitoring sites are typically located in receiving water bodies where 303(d) listings occur, and are considered points of compliance measurements. The investigational sites are located throughout the watershed, and include monitoring of drain outfalls. The purpose of these sites is not to measure compliance, but to assist with evaluating land use-specific contributions of various constituents to the watershed.

The CCWTMP effort is also divided into two monitoring efforts: (1) dry weather monitoring and (2) wet weather storm water monitoring. The following sections describe, in detail, the basis for each monitoring effort, starting with the definitions of the compliance monitoring sites and investigation monitoring sites. Specific monitoring efforts associated with each sample site are included, including the frequency of sampling by site for both dry weather and wet weather events. The sampling frequency and the constituents analyzed at the sites covered by the CCWTMP vary. A more detailed description of each topic covered can be found in the appropriate element of the QAPP, including standard operating procedures (SOPs) for field collection and sample handing techniques, and analytical procedures and protocols including minimum detection limit (MDL) and reporting limit (RL) requirements.

COMPLIANCE MONITORING

Compliance Monitoring for Toxicity, OC Pesticides, Metals, Nitrogen, and Salts TMDLs

For compliance monitoring to address the Toxicity, OC Pesticides, Metals and Nitrogen TMDLs, dry weather in-stream water column samples were collected quarterly for water column toxicity, general water quality constituents (GWQC), target organic constituents, metals, and nutrients. The specific target constituents for each of the previously mentioned TMDLs are listed as footnotes in Table 2.

In-stream water column samples to measure compliance for the Toxicity, OC Pesticides, and Metals TMDLs are generally collected at the base of each of the subwatersheds used to assign waste load and load allocations, per the BPAs. In-stream water column samples to measure compliance for the Nitrogen TMDL are generally collected at the base of each listed reach. Toxicity Identification Evaluations (TIEs) are conducted on toxic samples as outlined in the Toxicity Testing and TIE section of the QAPP and results of these are discussed in the Toxicity Testing and TIE Evaluations Summary section of this report and Appendix D.

In-stream water column grab samples for salts were also collected quarterly during dry weather and twice during wet weather at the base of each of the subwatersheds specified in the Salts TMDL. The grab sample results are used to develop statistical relationships between salt constituents and EC. These relationships are used to convert high frequency EC-sensor data to time-series of salt concentrations. Compliance with interim dry weather salt allocations is determined using monthly mean salt concentrations for dry weather developed from the time-series of data.

Additionally, POTW effluent was monitored for compliance with the effluent limits presented in the Toxicity, OC Pesticides, Metals, and Salts TMDL BPAs. Currently, POTWs collect data required by each of their individual permits. For additional TMDL constituents not currently sampled by the plants, CCWTMP crews perform sampling as necessary (efforts vary by plant and constituent group). All CCWTMP-required data for POTWs are compiled in this report.

All efforts are made to include two wet weather water sampling events for compliance monitoring for the OC Pesticides, Toxicity, Metals, and Salts TMDLs during targeted storm events between October and April. Two wet weather events were completed in year nine, the first storm sampled in November 2016 and the second in January 2017.

Streambed sediment samples, collected annually in the freshwater portion of the watershed, were collected during the first event of this monitoring year and analyzed for sediment toxicity, general sediment quality constituents (GSQC), and target organics. Sediment samples in Mugu Lagoon are collected every three years per the approved QAPP, and were not collected during year nine.

Similar to the sediment sampling frequency, fish tissue samples were only collected in the freshwater portions of the watershed during year nine in May 2017, and will continue to be collected annually for the CCWTMP. As tissue samples are collected every three years in Mugu Lagoon, samples will be collected again in year ten.

INVESTIGATION MONITORING

Investigation monitoring focuses on identifying the contribution of constituents of concern from various land uses in the watershed and areas where toxicity has been observed to occur in the past that are not addressed by compliance monitoring. These sites are meant to compliment compliance monitoring efforts, fill data gaps where identified, and assist in identification of sources of constituents that may be leading to non-compliant conditions. The following describes the various types of investigation sites sampled during this reporting period.

Land Use Discharge Investigation

Land use discharge samples are generally collected concurrently (on the same day when possible) with compliance monitoring at representative agricultural and urban discharge sites generally located in each of the subwatersheds and analyzed for selected GWQC, metals, and target organic constituents (constituents monitored per site varies based upon sub-watershed).

Toxicity Investigation

As significant mortality had not occurred at the two sediment toxicity investigation sites during the first three years of the CCWTMP, ceasing investigation monitoring was recommended in the third year annual report. Toxicity testing at the investigation sites ceased until Event 38, when it was resumed to support delisting of the identified reaches. The normal annual sampling frequency for this investigation is provided in Table 6.

Sediment toxicity investigation monitoring for delisting occurred during Event 50. Water column toxicity sampling occurred during all events. As part of the optional toxicity investigation, samples are also tested for those constituents specified in Table 2 for the OC Pesticides TMDL and the Toxicity TMDL, as well as the general water quality parameters.

SAMPLING SITES

The QAPP details the justification and rationale for each of the sites sampled via the CCWTMP. Information on compliance monitoring sites and land use sites sample collection frequency is presented in Table 4 and Table 5, respectively. The general locations of the receiving water compliance monitoring sites (excluding Mugu Lagoon) for water, sediment, and fish tissue are presented in Figure 2 through Figure 4. The POTW effluent discharge sites are presented in Figure 5. The sampling sites in each figure are designated by sampled constituent group. The compliance monitoring sampling zones for sediment sampling and tissue sampling in Mugu Lagoon are shown in Figure 6 and Figure 7, respectively.

The non-Mugu Lagoon water and sediment toxicity investigation sampling sites coincide with current and previous sampling programs in the CCW. Water and sediment toxicity investigation sampling sites and sampling frequency are presented in Table 6, while the general locations of the water and sediment toxicity investigation sampling sites in the CCW are presented in Figure 8. Land use monitoring sites are shown in Figure 9.

The salt monitoring sites correspond with compliance sites or land use sites used for monitoring related to other TMDLs (Figure 2) with two exceptions:

1. One of the salt compliance points is only used for salt monitoring (Conejo Creek at Baron Brothers Nursery).
2. The continuous monitoring equipment (and the location of monthly salt grab samples) for the Simi subwatershed was installed just downstream of the Tierra Rejada bridge, and is referred to as “07_TIERRA”.

The CCWTMP efforts summarized in the annual report correspond to the sites and locations listed below. As this program progresses, the number and location of sites may be revised if existing sites become inaccessible, if it is determined that alternative locations are needed, or if the number of land use stations needed to appropriately characterize discharges needs modification.

Table 4. CCWTMP Compliance Monitoring and Nutrient Investigation Sites Annual Sampling Frequency

Sub-Wat.	Site Id	Reach	Site Location	GPS Coordinates		Water [1, 2]						Sediment			Tissue [3]	
				Lat	Long	Tox	Pests/ PCBs	Nut	Metal	Salts	GWQC	Tox	Pests /PCBs	Metal	Pests/ PCBs	Metal [4]
Mugu Lagoon	01_RR_BR	1	Ronald Reagan St Bridge	34.1090	-119.0916	6	6	6	6	NA	6	NA	NA	NA	NA	NA
	01_BPT_3	1	Located In Eastern Arm	General site locations are provided as each site represents a generalized sample collection zone in which a sample will be collected.		NA	NA	NA	NA	NA	NA	Once Every Three Years				
	01_BPT_6	1	Located In Eastern Part Of Western Arm			NA	NA	NA	NA	NA	NA					
	01_BPT_14	1	Located In The Central Part Of The Western Arm			NA	NA	NA	NA	NA	NA					
	01_BPT_15	1	Located Between Estuary and Mouth of Lagoon			NA	NA	NA	NA	NA	NA					
	01_SG_74	1	Located In Western Part of Central Lagoon			NA	NA	NA	NA	NA	NA					
	Central Lagoon	1	Sampled In Central Lagoon			NA	NA	NA	NA	NA	NA				Once Every Three Years	
	Western Arm	1	Sampled In Western Arm Of The Lagoon			NA	NA	NA	NA	NA	NA					
Revolon Slough	04_WOOD [5]	4	Revolon Slough East Side Of Wood Road	34.1698	-119.0958	6	6	6	6	6	6	1	1	NA	1	1
	05_CENTR	5	Beardsley Wash at Central Avenue	34.2300	-119.1128	NA	NA	6	NA	NA	6	NA	NA	NA	NA	NA
Calleguas	02_PCH	2	Calleguas Creek NE Side of Hwy 1 Bridge	34.1119	-119.0818	NA	NA	4	NA	NA	4	NA	NA	NA	NA	NA
	03_UNIV	3	Calleguas Creek At Camarillo Street	34.1795	-119.0399	6	6	6	6	6	6	1	1	NA	1	NA
	03D_CAMR [6]	3	Camrosa Water Reclamation Plant	34.1679	-119.0530	4	4	4	4	4	4	NA	NA	NA	NA	NA
	9A_HOWAR [7]	9B [7]	Conejo Creek At Howard Road Bridge	34.1931	-119.0025	NA	NA	6	NA	6	NA	NA	NA	NA	NA	NA
	9AD_CAMA [7]	9B [7]	Camarillo Water Reclamation Plant	34.1938	-119.0017	4	4	4	4	4	4	NA	NA	NA	NA	NA
Conejo	9B_ADOLF [7]	9A [7]	Conejo Creek At Adolfo Road	34.2137	-118.9894	6	6	6	NA	NA	6	NA	1	NA	1	NA
Conejo	10_GATE	10	Conejo Creek Hill Canyon Below N Fork	34.2178	-118.9281	NA	NA	6	NA	NA	6	NA	NA	NA	NA	NA

Sub-Wat.	Site Id	Reach	Site Location	GPS Coordinates		Water [1, 2]						Sediment			Tissue [3]	
				Lat	Long	Tox	Pests/ PCBs	Nut	Metal	Salts	GWQC	Tox	Pests /PCBs	Metal	Pests/ PCBs	Metal [4]
	10D_HILL	10	Hill Canyon Wastewater Treatment Plant	34.2113	-118.9218	4	4	4	4	4	4	NA	NA	NA	NA	NA
	12_PARK	12	Conejo Creek North Fork above Hill Canyon	34.2144	-118.915	NA	NA	4	NA	NA	4	NA	NA	NA	NA	NA
	13_BELT	13	Conejo Creek S Fork Behind Belt Press Building	34.2078	-118.9194	NA	NA	4	NA	NA	4	NA	NA	NA	NA	NA
	9B_BARON [7]	9A [7]	Conejo Creek at Baron Brothers Nursery	34.2365	-118.9643	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA
Las Posas	06_UPLAND[8]	6	Arroyo Las Posas upstream of Upland Road	34.2449	-118.0051	6	6	6	NA	NA	6	NA	1	NA	1	NA
	06D_MOOR [6]	6	Ventura County Wastewater Treatment Plant	34.2697	-118.9357	4	4	4	4	4	4	NA	NA	NA	NA	NA
Arroyo Simi	07_HITCH	7	Arroyo Simi East Of Hitch Boulevard	34.2716	-118.9234	6	6	6	NA	NA	6	NA	1	NA	1	NA
	07_TIERRA	7	Arroyo Simi downstream from Tierra Rejada Blvd.	34.2701	-118.9058	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA
	07_MADER	7	Arroyo Simi at Madera Ave.	34.2778	-118.7958	NA	NA	6	NA	NA	6	NA	NA	NA	NA	NA
	07D_SIMI	7	Simi Valley Water Quality Control Plant	34.2848	-118.8128	4	4	4	4	4	4	NA	NA	NA	NA	NA

NA – Not Analyzed

Tox – Samples will be analyzed for toxicity and OP and pyrethroid pesticides as listed in Table 2. Toxicity in water will not be analyzed at 01_RR_BR or at the POTWs.

Pests/PCBs – Samples will be analyzed for OC pesticides and PCBs as listed in Table 2. Chlorpyrifos will be analyzed in tissue at 04_WOOD as it is on the 303(d) list for this reach.

Nut – Samples will be analyzed for Nutrients as listed in Table 2.

Metal – Samples will be analyzed for Metals as listed in Table 2.

GWQC – Samples will be analyzed for General Water Quality Constituents as listed in Table 2.

1. Sites listed for 6 sampling events per monitoring year refers to 4 quarterly dry events and the attempt to sample 2 additional wet events.
2. Grab samples for salts at compliance sites are not directly used to determine compliance with salts WQOs, but are used to develop statistical relationships between EC and salt constituents (Appendix C).
3. Tissue samples will be collected in the same location as water and sediment samples. Samples may be collected elsewhere if no fish are found at pre-established sample stations.
4. Bird egg samples will be collected and analyzed for mercury and selenium in the Mugu Lagoon subwatershed.
5. TIEs will not be performed at 04_WOOD.
6. The Camrosa Water Reclamation Plant and the Ventura County Wastewater Treatment Plant are not currently discharging. However, these sites are included in case they must be sampled at a later date.
7. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
8. In Year 8, sampling crews were not able to access the 06_SOMIS site for the majority of the year. The 06_UPLAND site, which is approximately one mile downstream, was chosen as an alternative site to replace the 06_SOMIS site.

Table 5. CCWTMP Land Use Monitoring Sites and Sample Frequency

Sub-Wat.	Site ID	Reach	Site Type [1]	Site Location	GPS Coordinates Lat	GPS Coordinates Long	Pests/ PCBs	Nutrients	Metal	Salts	GWQC
Mugu Lagoon	01T_ODD2_DCH	1	Ag	Duck Pond/Mugu/Oxnard Drain #2 S. of Hueneme Rd	34.1395	-119.1185	6	6	6	NA	6
Revolon Slough	04D_WOOD	4	Ag	Agricultural Drain on E. Side of Wood Rd N. of Revolon	34.1708	-119.0963	6	6	6	6	6
	05D_SANT_ VCWPD	5	Ag	Santa Clara Drain at VCWPD Gage 781 prior to confluence with Beardsley Channel	34.2426	-119.1137	6	6	6	NA	6
	04D_VENTURA	4	Urban	Camarilo Hills Drain at Ventura Blvd and Las Posas Rd at VCWPD Gage 835	34.2162	-119.0685	6	NA	6	6	6
Calleguas	02D_BROOM	2	Ag	Discharge to Calleguas Creek at Broome Ranch Rd.	34.1433	-119.0713	6	6	6	NA	6
Conejo	9BD_GERRY [2]	9A [2]	Ag	Drainage ditch crossing Santa Rosa Rd at Gerry Rd	34.2358	-118.9446	6	6	6	6	6
	9BD_ADOLF [2]	9A [2]	Urban	Urban storm drain passing under N. side of Adolfo Rd approximately 300 meters from Reach 9B	34.2148	-118.9951	6	NA	6	6	6
	13_SB_HILL	13	Urban	South Branch Arroyo Conejo on S. Side of W Hillcrest	34.1849	-118.9075	6	NA	NA	6	6
Las Posas	06T_FC_BR	6	Ag	Fox Canyon at Bradley Rd - just north of Hwy 118	34.2646	-119.0111	6	6	NA	NA	6
Arroyo Simi	07D_HITCH_ LEVEE_2	7	Ag	2nd corrugated pipe discharging on north side of Arroyo Simi flood control levee off of Hitch Blvd just beyond 1st power pole.	34.2716	-118.9219	6	6	NA	6	6
	07D_MPK [3]	7	Urban	Gabbert Canyon Drain, N. side of 118	34.2790	-118.9056	6	NA	NA	6	6
	07D_SIM_BUS [4]	7	Urban	Bus Canyon Dr N. of 5th St and LA Ave intersection	34.2719	-118.7837	6	NA	NA	NA	6

Ag = Agricultural Land Use Site Urban = Urban Land Use Site NA – Not Analyzed

1. Specific constituents analyzed under each category are listed in Table 2.
2. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
3. Site 07D_MPK replaced 07D_CTP to correspond with the Moorpark MS4 outfall sampling location.
4. Site 07D_SIM_BUS replaced 07T_DC_H to correspond with the Simi Valley MS4 outfall sampling location.

Table 6. Toxicity Investigation Monitoring Sites and Sampling Frequency

Subwatershed	Site ID	Reach	Site Location	GPS Coordinates		Tox	Pests/PCBs	GWQC
				Lat	Long			
Sediment Toxicity Investigation [1]								
Calleguas	02_PCH	2	Calleguas Creek Northeast Side Of Highway 1 Bridge	34.1119	-119.0818	1	1	1
	9A_HOWAR [2]	9B [2]	Conejo Creek At Howard Road Bridge	34.1931	-119.0025	1	1	1
Water Toxicity Investigation [1, 3]								
Conejo	10_GATE	10	Conejo Creek Hill Canyon Below North Fork Of Conejo Creek	34.2178	-118.9281	6	6	6
	13_BELT	13	Conejo Creek South Fork Behind Hill Canyon Belt Press Building	34.2078	-118.9194	6	6	6

Tox – Samples will be analyzed for toxicity, OP, and pyrethroid pesticides in water and toxicity, OP, and pyrethroid pesticides in sediment as listed in Table 2.
Pests/PCBs – Samples will be analyzed for OC pesticides and PCBs as listed in Table 2.
GWQC – Samples will be analyzed for General Water Quality Constituents as listed in Table 2.

1. This table depicts the normal toxicity investigation sampling frequency. During year 5, this investigation was put on hold and then re-started as described in text.
2. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
3. Includes two wet events per site; except during years when there is insufficient rainfall to trigger sampling.

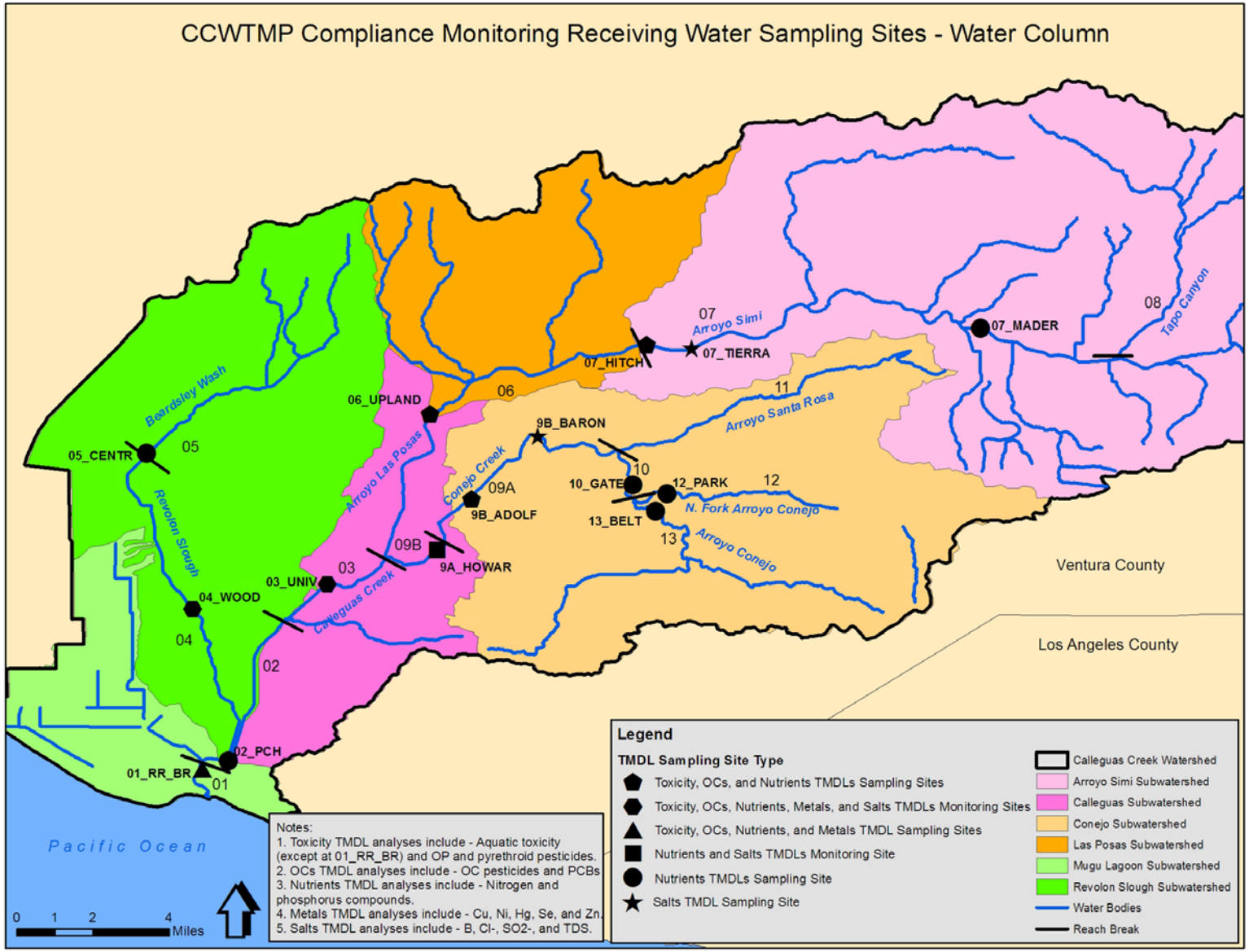


Figure 2. CCWTMP Compliance Monitoring Sampling Sites – Receiving Water

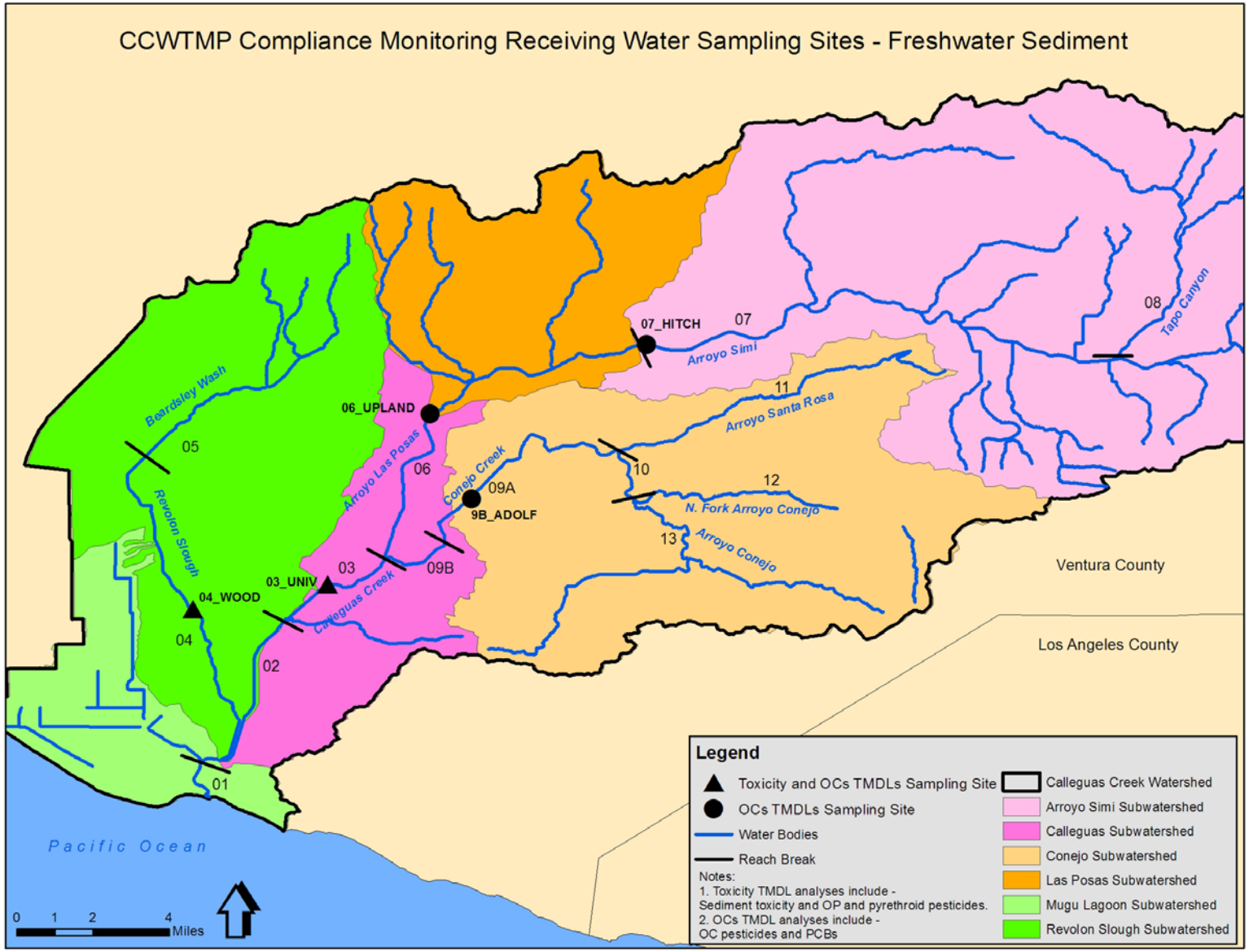


Figure 3. CCWMTP Compliance Monitoring Receiving Water Sampling Sites – Freshwater Sediment

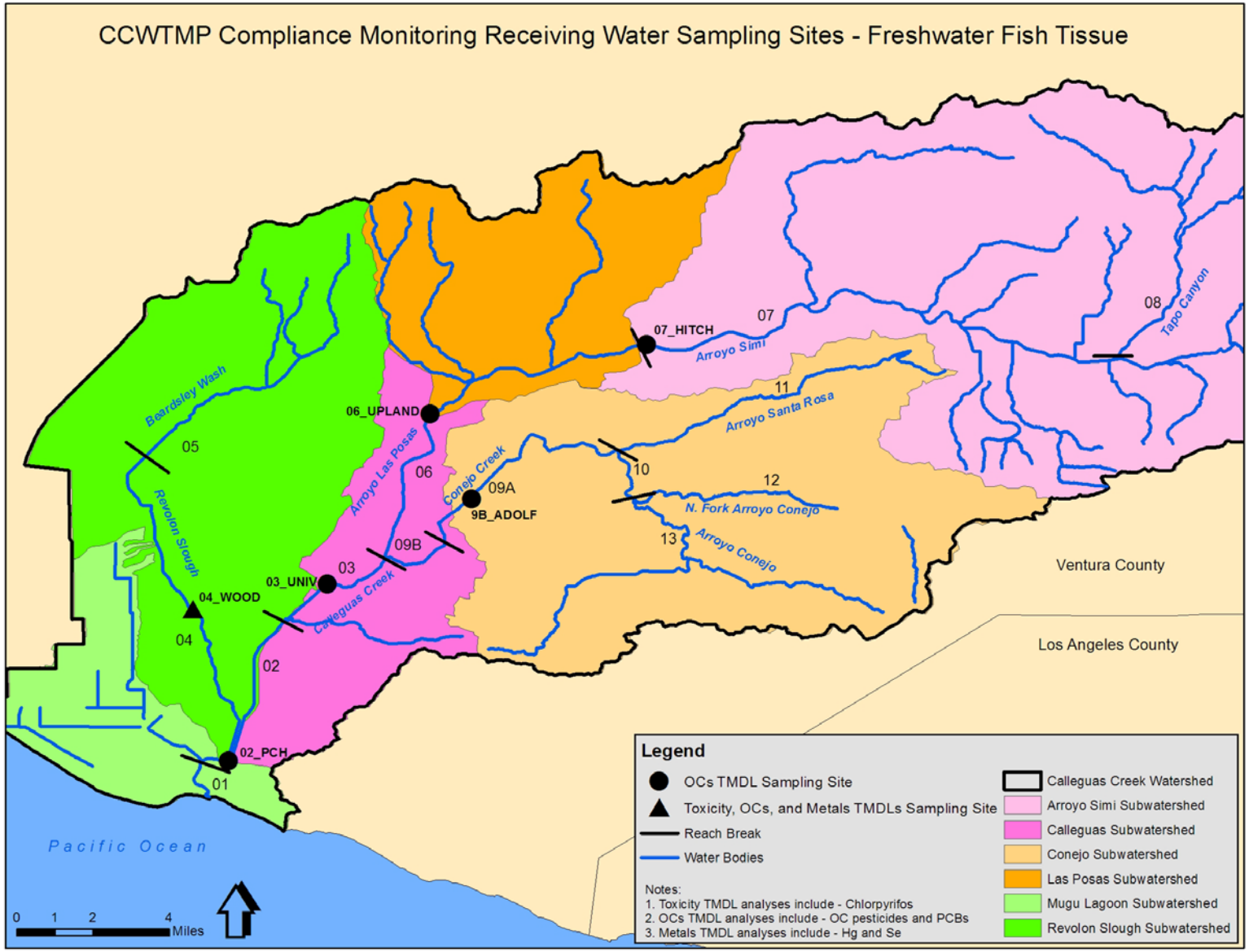


Figure 4. CCWMTP Compliance Monitoring Sampling Sites – Freshwater Fish Tissue

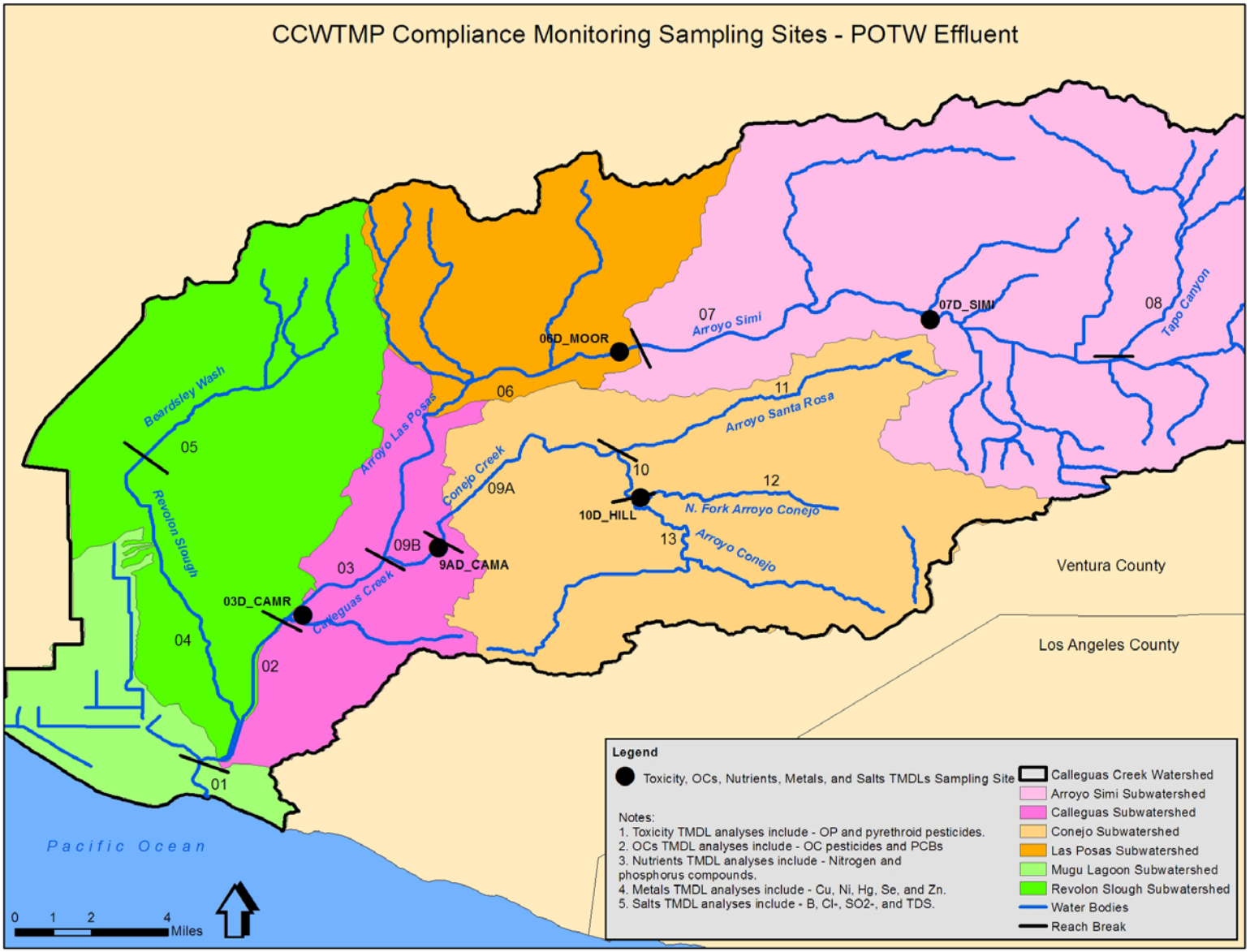


Figure 5. CCWMTP Compliance Monitoring Sampling Sites – POTW Effluent

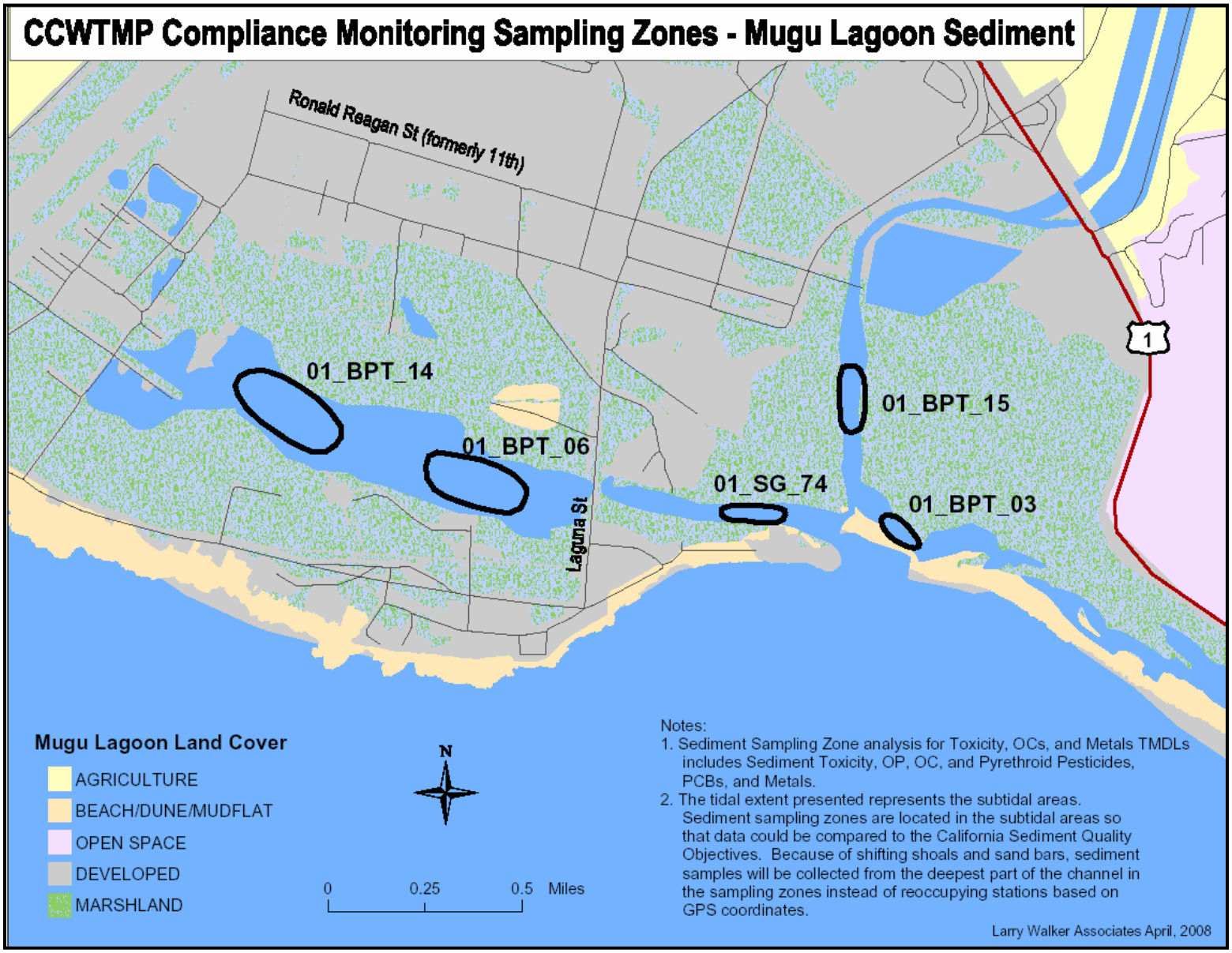


Figure 6. CCWMTP Compliance Monitoring Sampling Zones – Mugu Lagoon Sediment

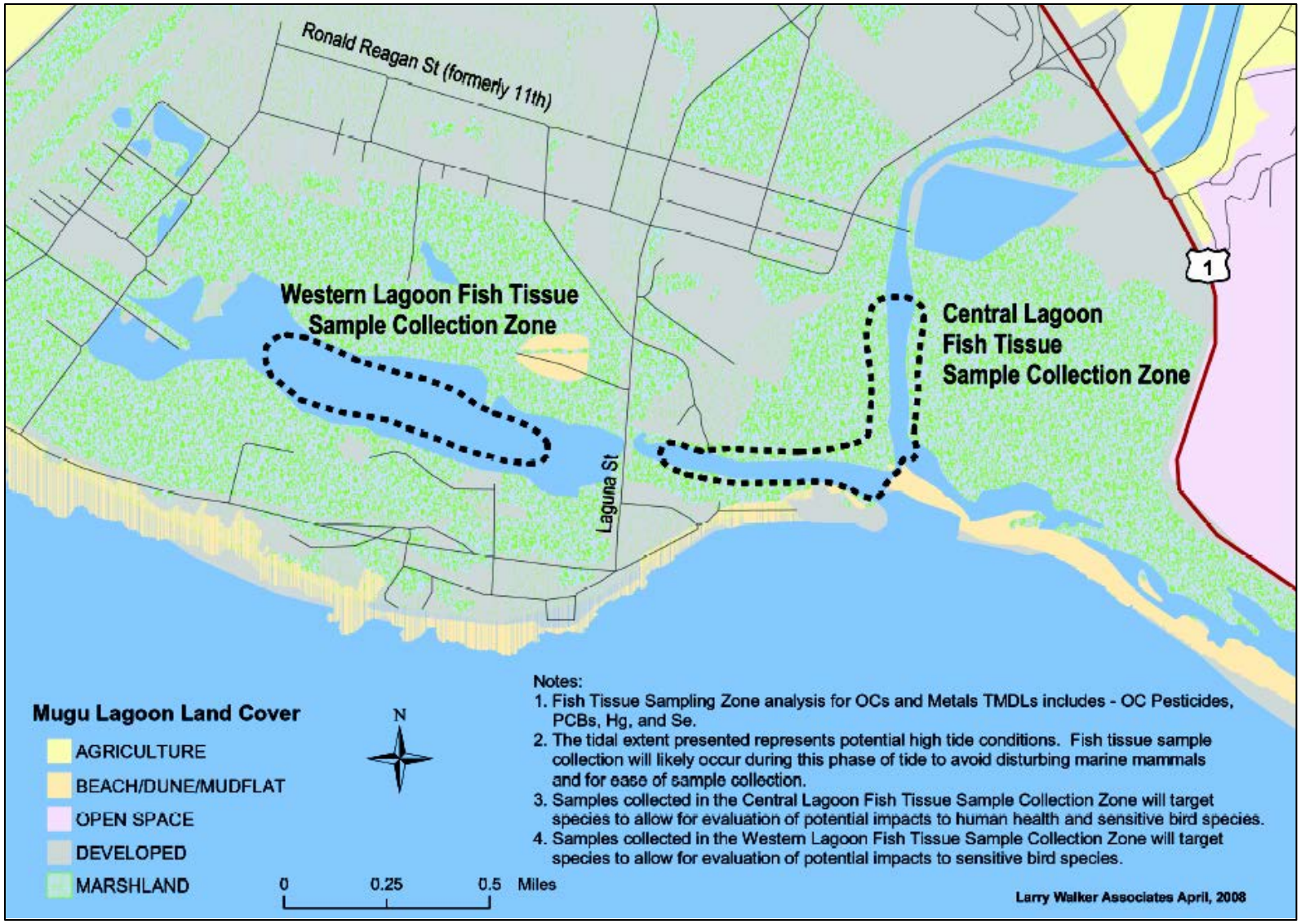


Figure 7. CCWTMP Compliance Monitoring Sampling Zones – Mugu Lagoon Tissue

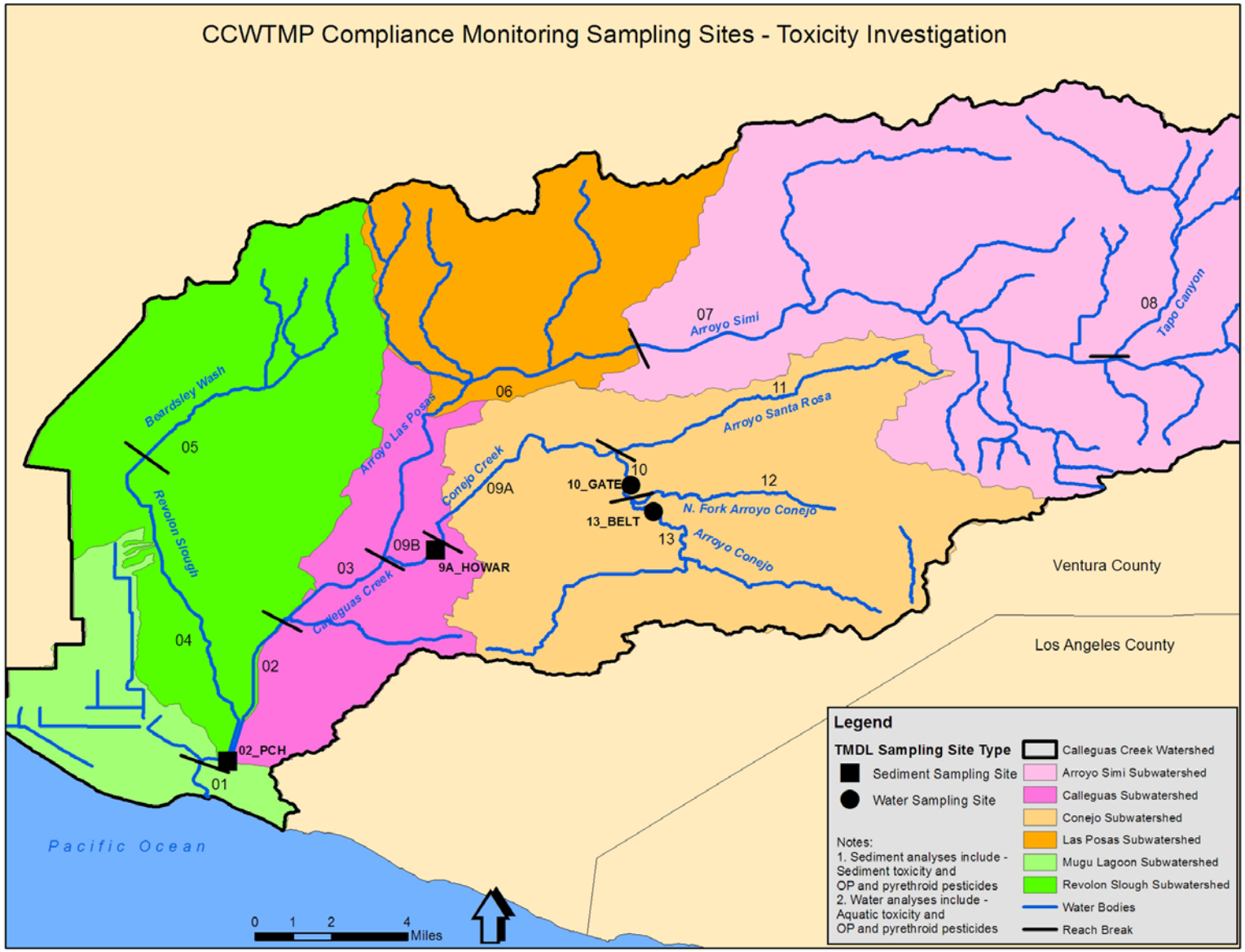


Figure 8. CCWTMP Toxicity Investigation Receiving Water Sampling Sites – Water and Sediment

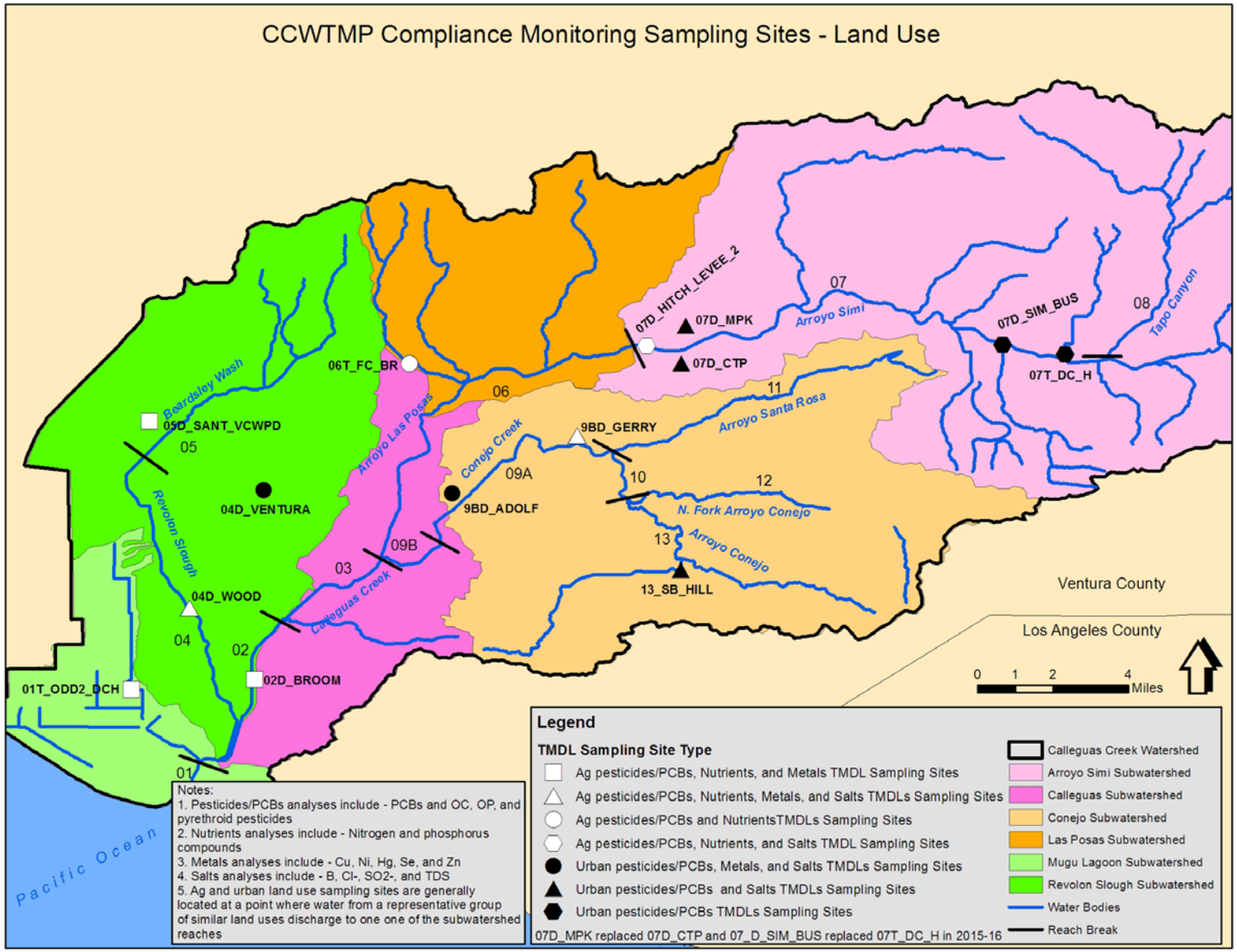


Figure 9. CCWTMP Land Use Sampling Sites

Monitoring Data Summary

To summarize the CCW TMDL monitoring data, box plots have been created for site and constituent combinations representing the data gathered over the entire monitoring program. The data presented includes all constituents with TMDL limits for water or sediment at the sites where the constituents were analyzed. Where TMDL limits are effective, those thresholds have been identified for the sites where they apply. As appropriate, data for constituents with specific dry or wet weather limits are presented separately. Data collected during year nine, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2017). This was done to allow for easy comparison between recent data and what have been collected overall. The ninth year data are presented in tabular form below each box plot. Each figure of box plots presents data from either receiving water sites or land use sites. The receiving water sites are color coded by subwatershed as shown in Table 7. Land use and POTW sites are displayed together and grouped by type as presented in Table 8.

Fish tissue data are not displayed as box plots. Fish tissue data are presented in tables due to the variable number of samples per site each monitoring year and to preserve the species information associated with each sample.

Toxicity data and TIE results are summarized in Appendix D. Summaries for each of the 2016-2017 monitoring events are included as Appendix A.

Some TMDL constituents were never, or are rarely detected and therefore, did not warrant a data summary. The constituents, which were never detected, include:

In Water:

- Endosulfan II
- Endrin

In Sediment:

- Endrin
- BHC, gamma

Rarely detected constituents in water are as follows:

- Aldrin (four detects, none this year)
- Dieldrin (eight detects, none this year)
- Endosulfan I (three detects, none this year)
- BHC, gamma (three detects, none this year)
- Total PCBs (five detects, none this year)

Rarely detected constituents in sediment are as follows:

- Dieldrin (one detect, none this year)

Table 7. Receiving Water Sites Color Coded by Subwatershed

Subwatershed	Reach	Site ID
Mugu Lagoon	Reach 1	01_BPT_14
		01_BPT_15
		01_BPT_3
		01_BPT_6
		01_RR_BR
		01_SG_74
Calleguas	Reach 2	02_PCH
	Reach 3	03_UNIV
	Reach 9B[1]	9A_HOWAR
Revolon Slough	Reach 4	04_WOOD
	Reach 5	05_CENTR
Las Posas	Reach 6[2]	06_UPLAND
Arroyo Simi	Reach 7	07_HITCH
		07_MADER
		07_TIERRA
Conejo	Reach 9A[1]	9B_ADOLF
	Reach 9A[1]	9B_BARON
	Reach 10	10_GATE
	Reach 12	12_PARK
	Reach 13	13_BELT

1. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.
2. In Year 8, sampling crews were denied access to the 06_SOMIS site for four out of six sampling events. The site has been moved approximately one mile downstream to the 06_UPLAND site where crews can access the receiving water without needing private landowner permissions.

Table 8. Land Use and POTW Sites Color Coded by Type

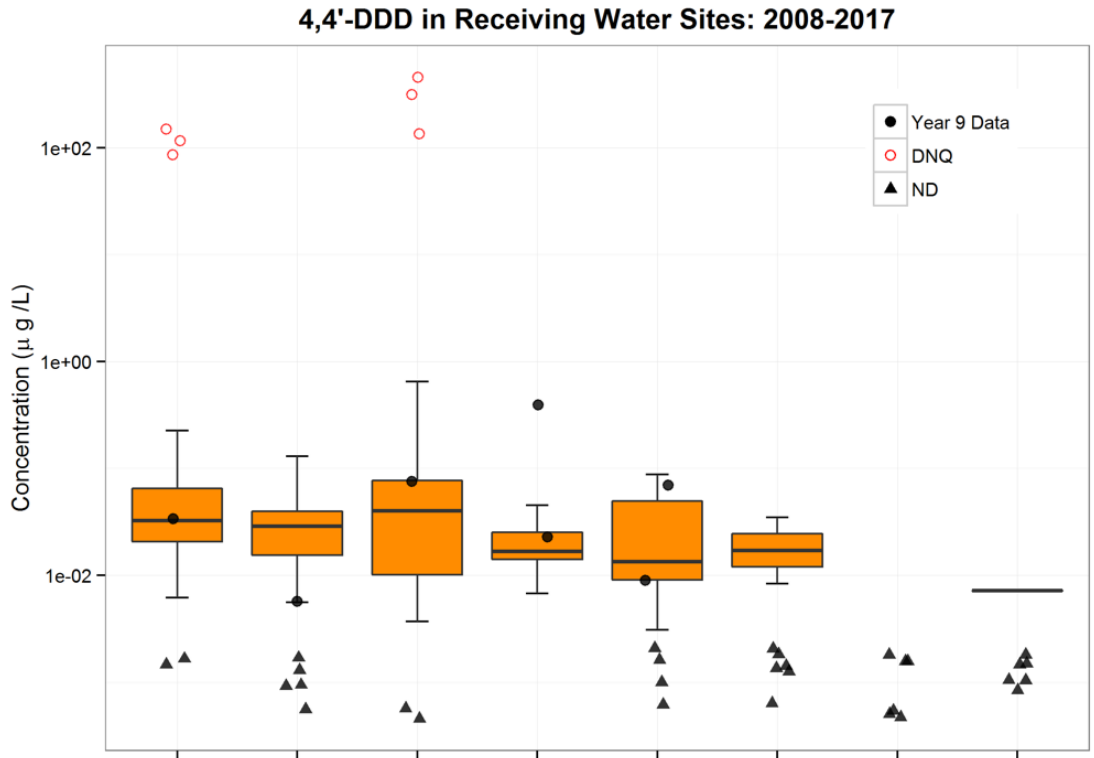
Urban Land Use (MS4) Sites:	
Reach 4	04D_VENTURA
Reach 7[1]	07D_MPK[1]
Reach 7[1]	07D_SIM_BUS[1]
Reach 9A [2]	9BD_ADOLF [2]
Reach 13	13_SB_HILL
Ag Land Use Sites:	
Reach 1	01T_ODD2_DCH
Reach 2	02D_BROOM
Reach 4	04D_WOOD
Reach 5	05D_SANT_VCWPD
Reach 6	06T_FC_BR
Reach 7	07D_HITCH_LEVEE_2
Reach 9A [2]	9BD_GERRY [2]
POTW Sites:	
Reach 7	07D_SIMI
Reach 9B [2]	9AD_CAMA [2]
Reach 10	10D_HILL

1. In the 2014 updates to the QAPP, the 07D_MPK replaced the 07D_CTP site to be consistent with the Moorpark MS4 monitoring site and the 07D_SIM_BUS site replaced the 07T_DC_H site to be consistent with the Simi Valley MS4 monitoring site. Past data from the original sites can be found in previous Annual Monitoring Reports, only current site data is provided in the following plots.
2. In the 2012 updates to the Los Angeles Region Basin Plan, the reach designations for 9A and 9B were switched. For consistency with the TMDLs and historic site naming conventions, the site names in the annual monitoring reports maintain the original reach designations.

OC PESTICIDES TMDL DATA SUMMARY

The following figures present OC pesticides data in both water and sediment. Presently, only the POTWs have effective final limits in water, but data for all sites is provided since the TMDL specifies final targets for OC pesticides in water. Effective interim allocations for agriculture and waste load allocations for urban dischargers are provided in the appropriate OC pesticides in sediment figures. Data collected during year nine, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2017). This was done to allow for easy comparison between recent data and what have been collected overall. The ninth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent; italicized values in the tables within each figure indicate the concentration was detected but not quantifiable (DNQ); values in the tables within each figure with a "<" preceding it, indicate the constituent was not detected

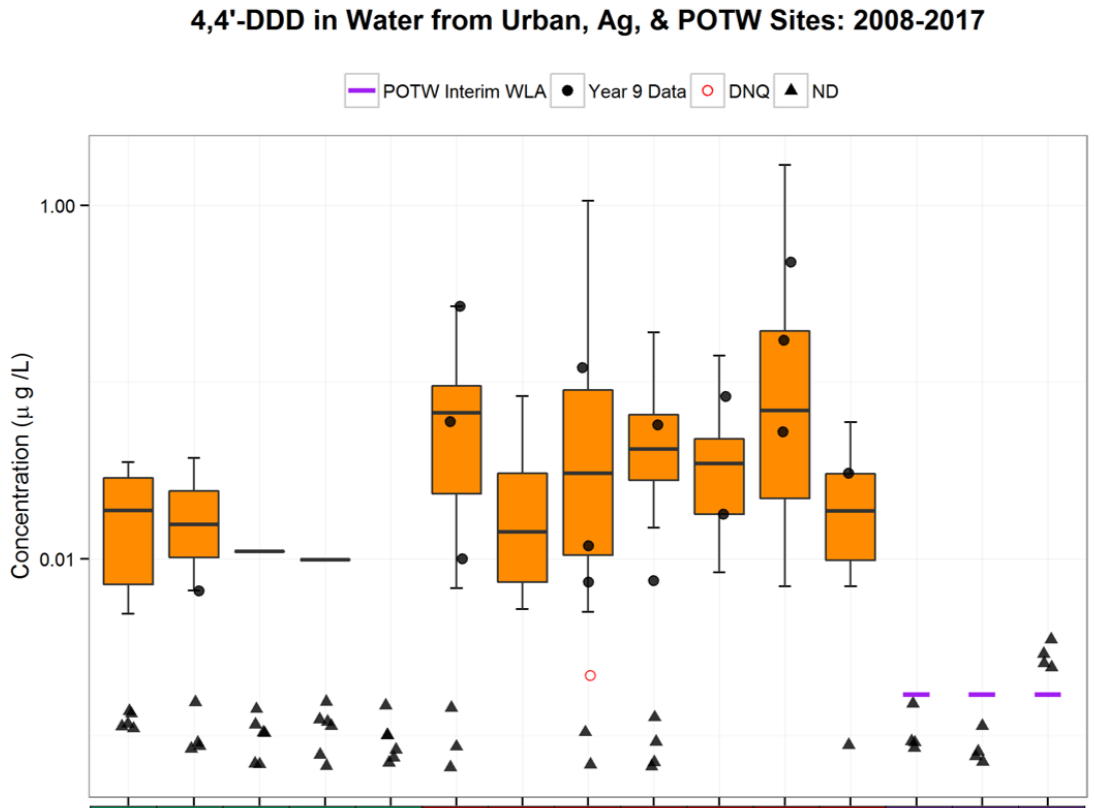
(ND) at MDL for that constituent; values identified as "--" in the tables indicate no samples were collected at those sites for those events.



Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND[1]	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	*0.0018*	<0.001	*0.0016*	--	<0.001	<0.001	<0.001	<0.001
Nov-16	Dry	57	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001
Dec-16	Storm	58	*0.0031*	<0.001	<0.001	0.0233	0.0091	<0.001	<0.001	<0.001
Jan-17	Storm	59	0.0326	0.0056	0.0741	0.3868	0.0678	<0.001	<0.001	<0.001
Feb-17	Dry	60	*0.0029*	<0.001	*0.0034*	--	<0.001	<0.001	<0.001	<0.001
May-17	Dry	61	<0.001	<0.001	*0.0019*	--	<0.001	<0.001	<0.001	<0.001

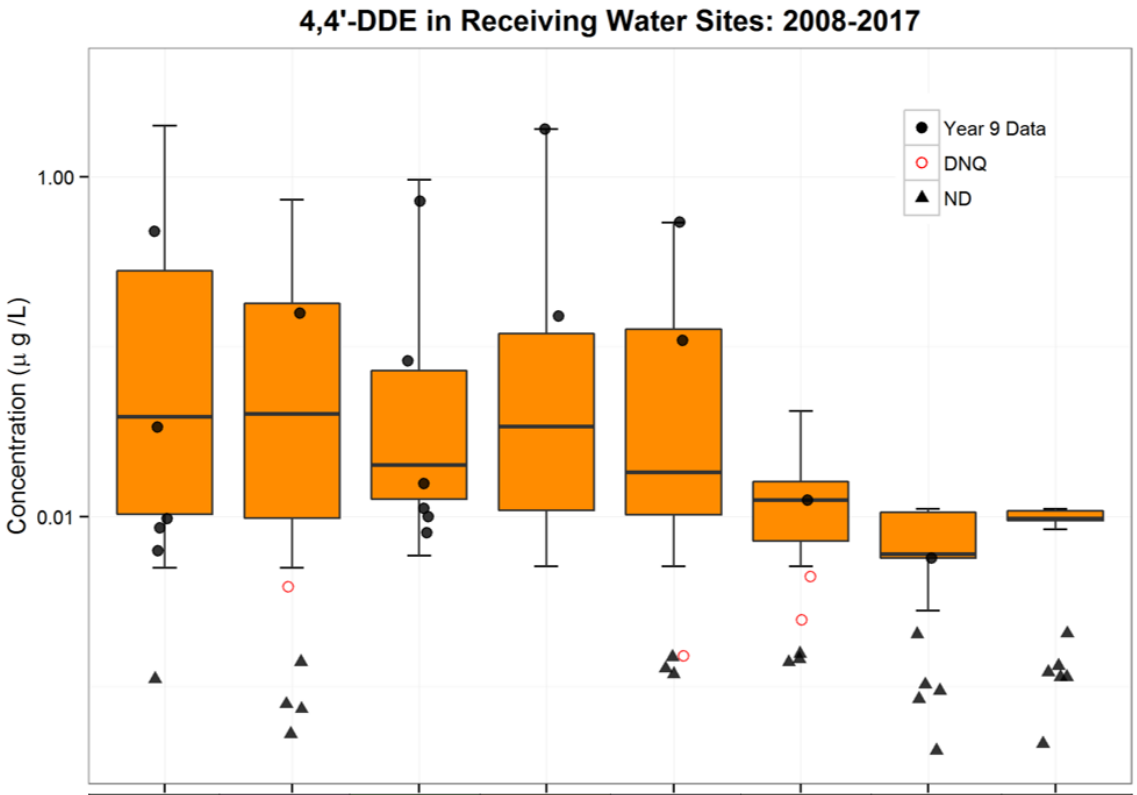
1. Access to 06_SOMIS was revoked during Year 8 and was replaced by 06_UPLAND in Year 9. All collected data prior to event 56 were obtained from 06_SOMIS. This footnote applies to all boxplots with 06_UPLAND.

Figure 10. 4,4'-DDD Water Column Concentrations in Receiving Water Sites: 2008-2017



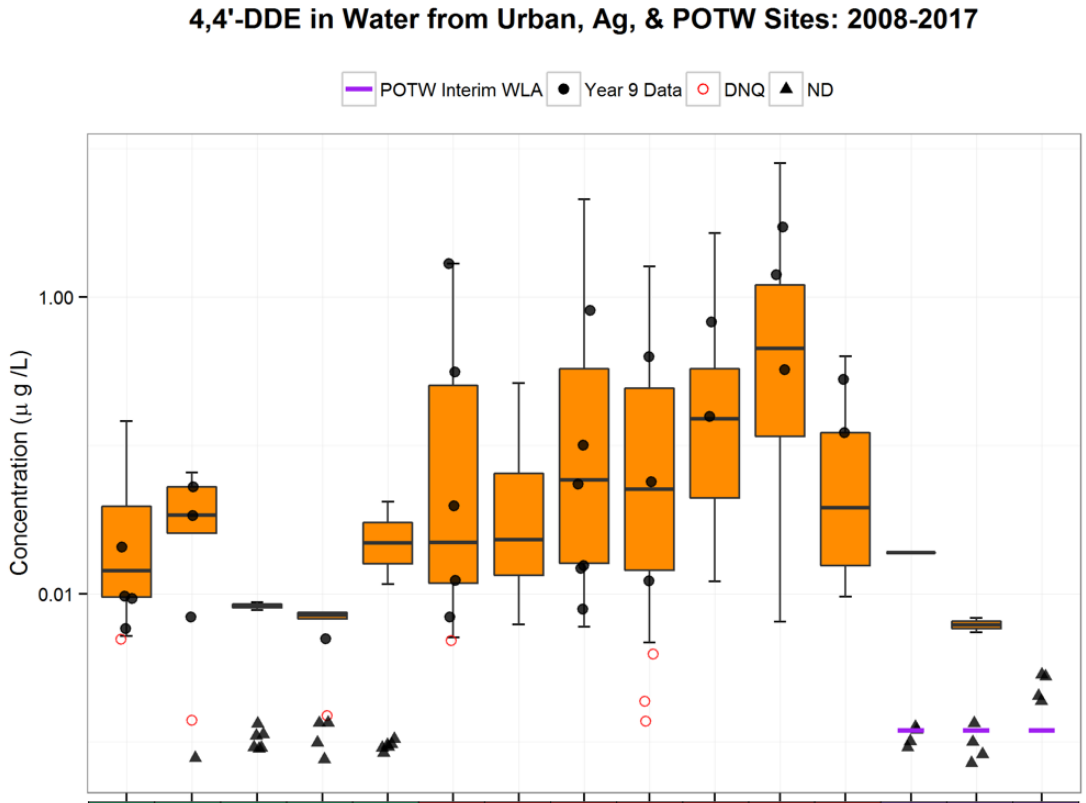
Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	<0.001	<0.001	<0.001	<0.001	0.0100	--	<0.001	<0.001	--	--	--	<0.001	<0.001	<0.003
Nov-16	Dry	57	<0.001	--	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--	--	--	<0.001	<0.001	<0.003
Dec-16	Storm	58	<0.001	<0.001	<0.001	<0.001	<0.001	0.0598	--	0.0118	0.0075	0.0825	0.1716	<0.001	NS	NS	NS
Jan-17	Storm	59	<0.001	0.0070	<0.001	<0.001	<0.001	0.2679	--	0.1210	0.0569	0.0178	0.4785	0.0303	NS	NS	NS
Feb-17	Dry	60	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	*0.0043*	<0.001	--	0.0520	--	<0.001	<0.001	<0.003
May-17	Dry	61	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	0.0074	<0.001	--	--	--	<0.001	<0.001	<0.003

Figure 11. 4,4'-DDD Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2017



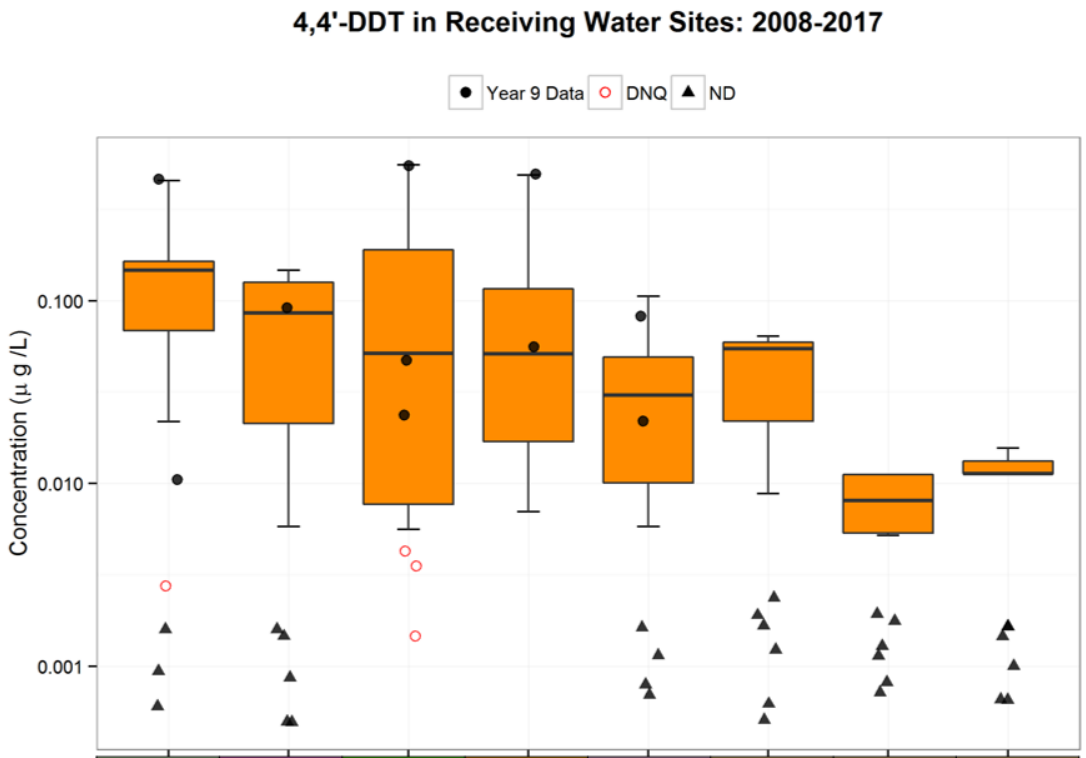
Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	0.0097	*0.0036*	0.0111	--	*0.0015*	*0.0044*	0.0057	<0.001
Nov-16	Dry	57	0.0063	<0.001	0.0080	--	<0.001	<0.001	<0.001	<0.001
Dec-16	Storm	58	0.0333	<0.001	0.0821	0.1525	0.1088	*0.0023*	<0.001	<0.001
Jan-17	Storm	59	0.4791	0.1586	0.7193	1.9045	0.5360	0.0125	<0.001	<0.001
Feb-17	Dry	60	0.0086	<0.001	0.0156	--	<0.001	<0.001	<0.001	<0.001
May-17	Dry	61	0.0010	<0.001	0.0100	--	<0.001	<0.001	<0.001	<0.001

Figure 12. 4,4'-DDE Water Column Concentrations in Receiving Water Sites: 2008-2017



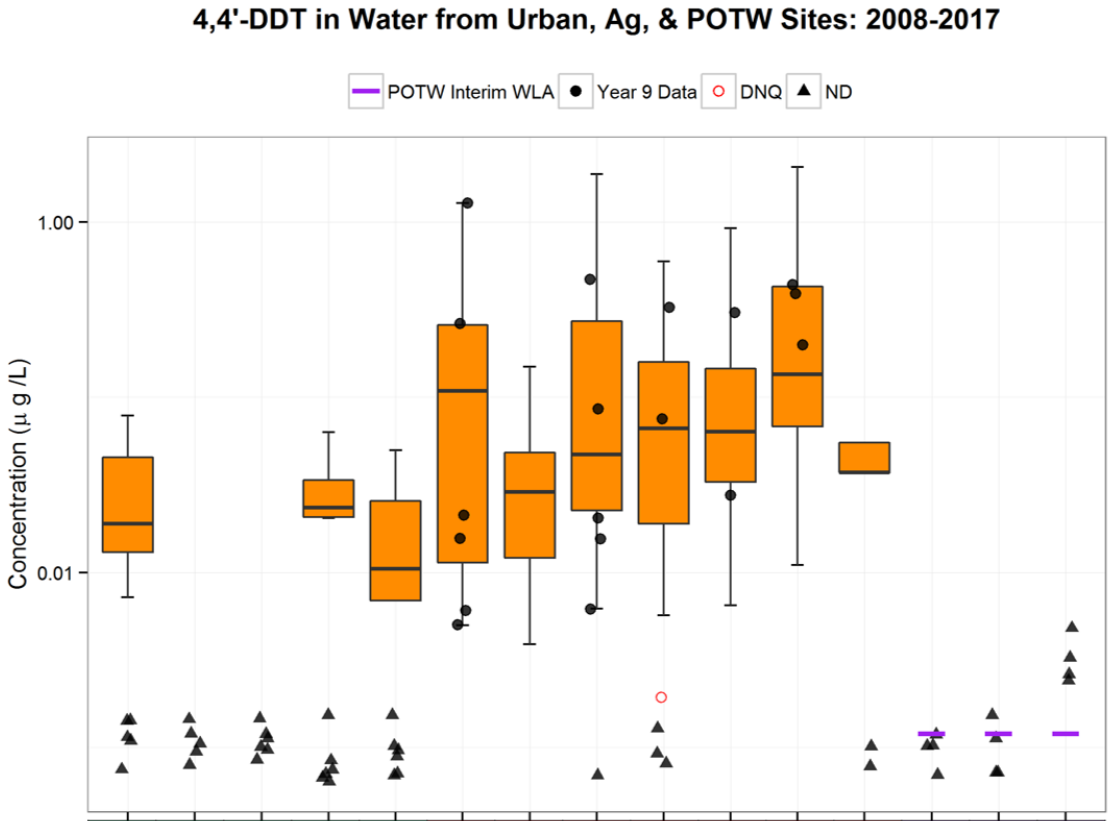
Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	*0.0014*	<0.001	*0.0015*	<0.001	0.0389	--	0.0155	0.0014	--	--	--	<0.001	<0.001	<0.002
Nov-16	Dry	57	0.0207	--	<0.001	<0.001	<0.001	0.0070	--	0.0079	0.0039	--	--	--	<0.001	<0.001	<0.002
Dec-16	Storm	58	*0.0049*	0.0338	<0.001	<0.001	<0.001	0.3118	--	0.1000	0.0569	0.6789	1.412	0.2781	NS	NS	NS
Jan-17	Storm	59	0.0096	0.0524	<0.001	0.005	<0.001	1.6777	--	0.8102	0.3945	0.1573	2.9702	0.1219	NS	NS	NS
Feb-17	Dry	60	0.0093	0.0070	<0.001	<0.001	<0.001	0.0123	--	0.0148	0.0019	--	0.3237	--	<0.001	<0.001	<0.002
May-17	Dry	61	0.0058	<0.001	<0.001	<0.001	<0.001	0.0048	--	0.0550	0.0122	--	--	--	<0.001	<0.001	<0.002

Figure 13. 4,4'-DDE Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2017



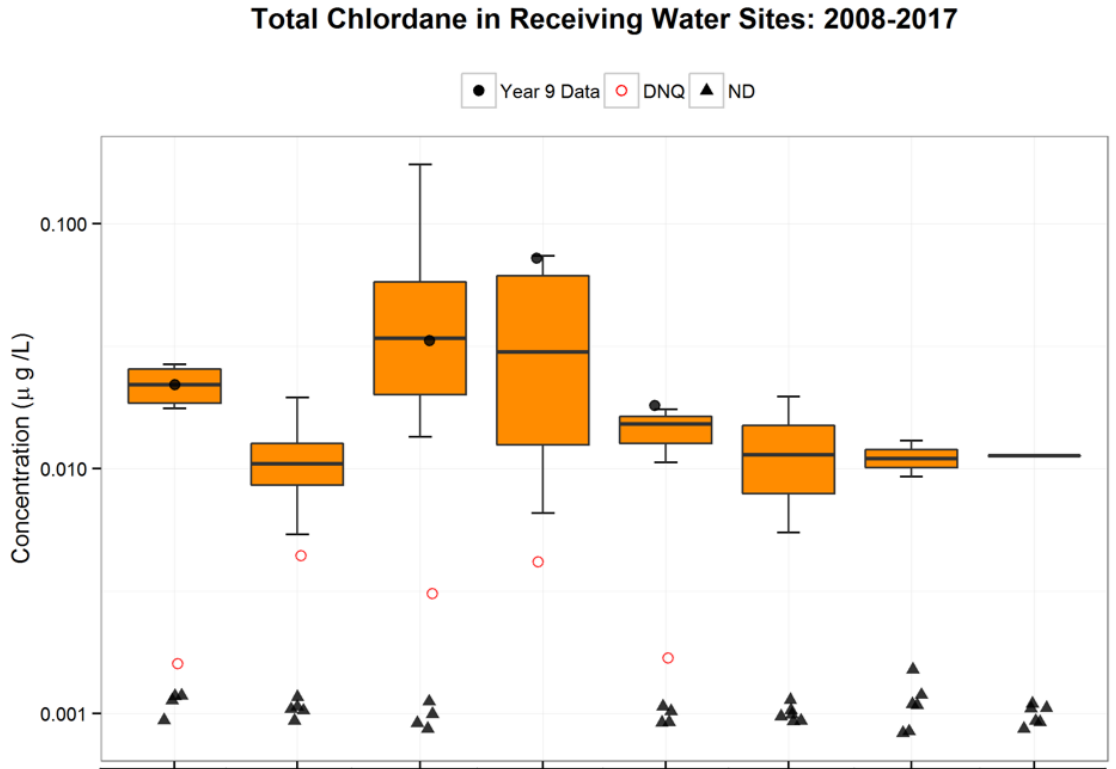
Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	*0.0025*	<0.001	*0.0014*	--	<0.001	<0.001	<0.001	<0.001
Nov-16	Dry	57	<0.001	<0.001	*0.0041*	--	<0.001	<0.001	<0.001	<0.001
Dec-16	Storm	58	<0.001	<0.001	0.0465	0.0554	0.0215	<0.001	<0.001	<0.001
Jan-17	Storm	59	0.4533	0.0920	0.5559	0.4875	0.0809	<0.001	<0.001	<0.001
Feb-17	Dry	60	0.0103	<0.001	0.0231	--	<0.001	<0.001	<0.001	<0.001
May-17	Dry	61	<0.001	<0.001	*0.0032*	--	<0.001	<0.001	<0.001	<0.001

Figure 14. 4,4'-DDT Water Column Concentrations in Receiving Water Sites: 2008-2017



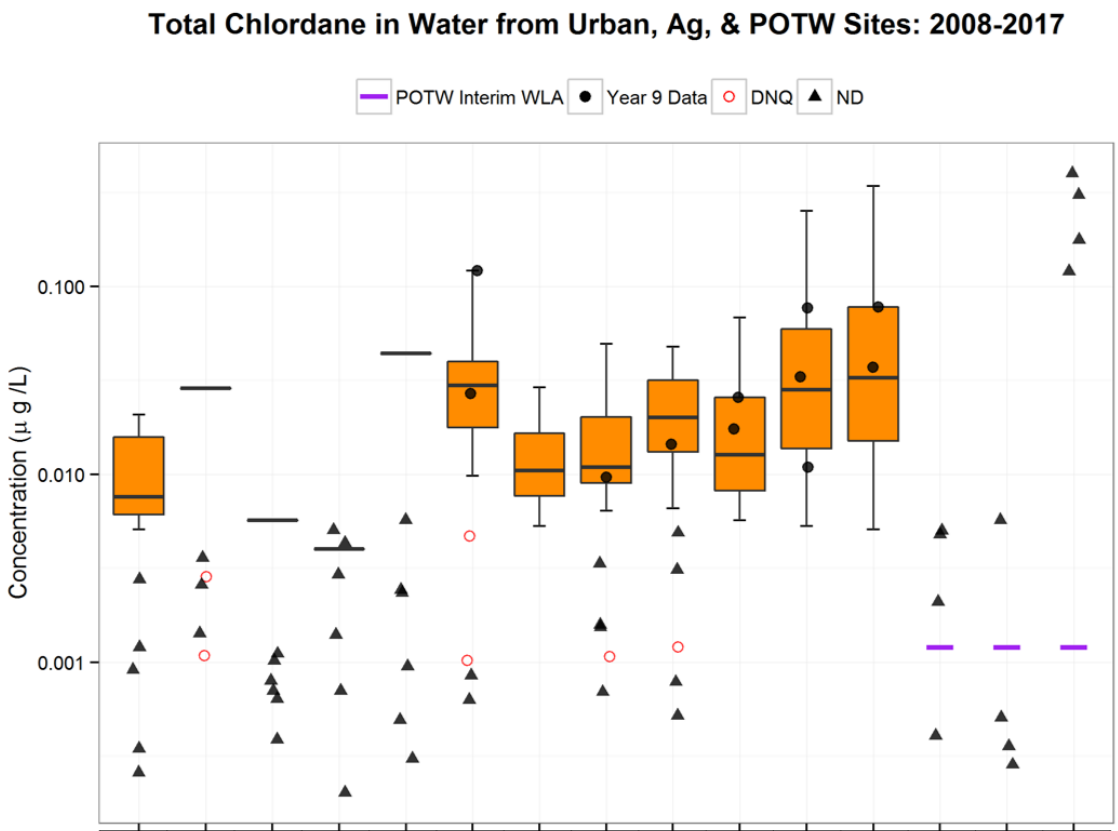
Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	<0.001	<0.001	<0.001	<0.001	0.0213	--	0.0062	*0.0039*	--	--	--	<0.001	<0.001	<0.003
Nov-16	Dry	57	<0.001	--	<0.001	<0.001	<0.001	0.005	--	<0.001	<0.001	--	--	--	<0.001	<0.001	<0.003
Dec-16	Storm	58	<0.001	<0.001	<0.001	<0.001	<0.001	0.2618	--	0.0862	0.0749	0.3041	0.3876	<0.001	NS	NS	NS
Jan-17	Storm	59	<0.001	<0.001	<0.001	<0.001	<0.001	1.2790	--	0.4686	0.3273	0.0274	0.4395	<0.001	NS	NS	NS
Feb-17	Dry	60	<0.001	<0.001	<0.001	<0.001	<0.001	0.0155	--	0.0155	<0.001	--	0.1996	--	<0.001	<0.001	<0.003
May-17	Dry	61	<0.001	<0.001	<0.001	<0.001	<0.001	0.0061	--	0.0205	<0.001	--	--	--	<0.001	<0.001	<0.003

Figure 15. 4,4'-DDT Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2017



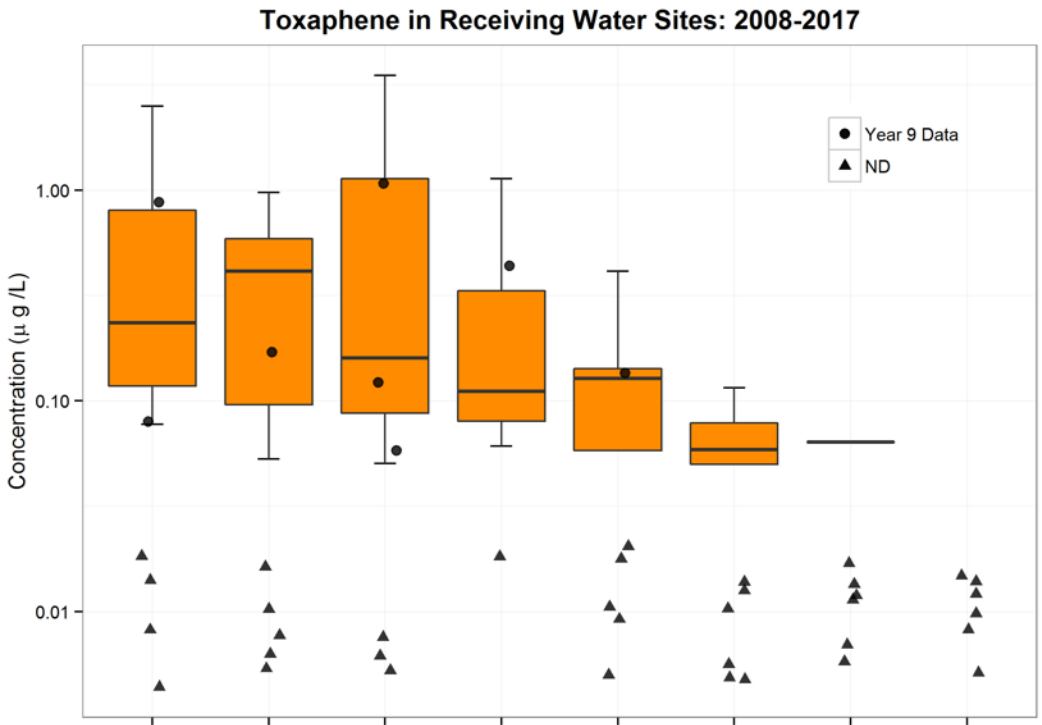
Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001
Nov-16	Dry	57	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001
Dec-16	Storm	58	*0.0016*	<0.001	*0.0031*	*0.0042*	*0.0017*	<0.001	<0.0016	<0.001
Jan-17	Storm	59	0.0218	*0.0045*	0.0340	0.0741	0.0175	<0.001	<0.001	<0.001
Feb-17	Dry	60	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001
May-17	Dry	61	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001

Figure 16. Total Chlordane Water Column Concentrations in Receiving Water Sites: 2008-2017



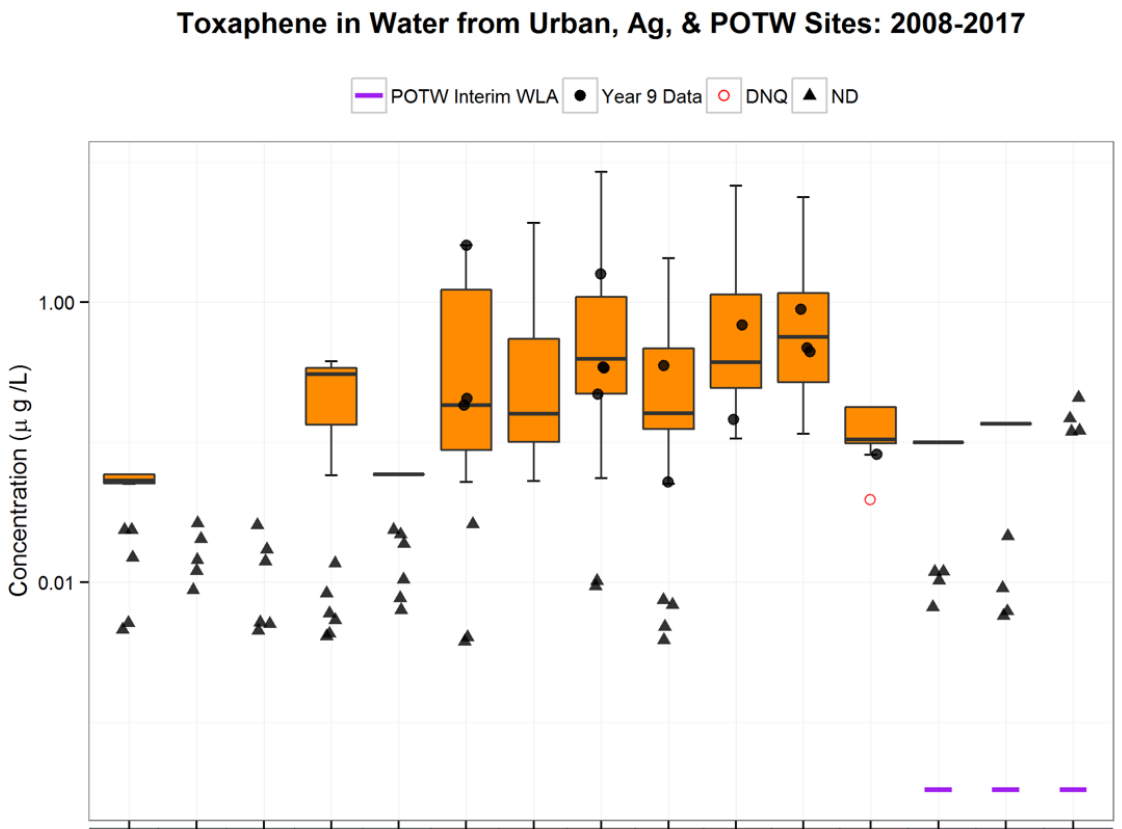
Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	<0.001	<0.001	<0.001	<0.001	*0.0047*	--	<0.001	<0.001	--	--	--	<0.001	<0.001	<0.08
Nov-16	Dry	57	<0.001	--	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--	--	--	<0.001	<0.001	<0.08
Dec-16	Storm	58	<0.001	*0.0029*	<0.001	<0.001	<0.001	*0.0271*	--	*0.0011*	*0.0012*	0.0174	0.0332	0.0776	NS	NS	NS
Jan-17	Storm	59	<0.001	*0.0022*	<0.001	<0.001	<0.001	0.1212	--	0.0096	0.0145	0.0257	0.0766	0.0371	NS	NS	NS
Feb-17	Dry	60	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--	0.0109	--	<0.001	<0.001	<0.08
May-17	Dry	61	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--	--	--	<0.001	<0.001	<0.08

Figure 17. Total Chlordane Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2017



Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01	<0.01
Nov-16	Dry	57	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01	<0.01
Dec-16	Storm	58	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Jan-17	Storm	59	0.8789	0.1806	1.1084	0.4683	0.1419	<0.01	<0.01	<0.01
Feb-17	Dry	60	0.0835	<0.01	0.1179	--	<0.01	<0.01	<0.01	<0.01
May-17	Dry	61	<0.01	<0.01	0.0615	--	<0.01	<0.01	<0.01	<0.01

Figure 18. Toxaphene Water Column Concentrations in Receiving Water Sites: 2008-2017



Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.12
Nov-16	Dry	57	<0.01	--	<0.01	<0.01	<0.01	<0.01	--	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.12
Dec-16	Storm	58	<0.01	<0.01	<0.01	<0.01	<0.01	0.1827	--	0.2219	<0.01	0.6914	0.4415	0.0813	NS	NS	NS
Jan-17	Storm	59	<0.01	<0.01	<0.01	<0.01	<0.01	2.5499	--	1.5831	0.354	0.1450	0.8927	*0.0163*	NS	NS	NS
Feb-17	Dry	60	<0.01	<0.01	<0.01	<0.01	<0.01	0.2058	--	0.345	0.0522	--	0.4724	--	<0.01	<0.01	<0.12
May-17	Dry	61	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	0.3363	<0.01	--	--	--	<0.01	<0.01	<0.12

Figure 19. Toxaphene Water Column Concentrations in Urban, Ag, and POTW Sites: 2008-2017

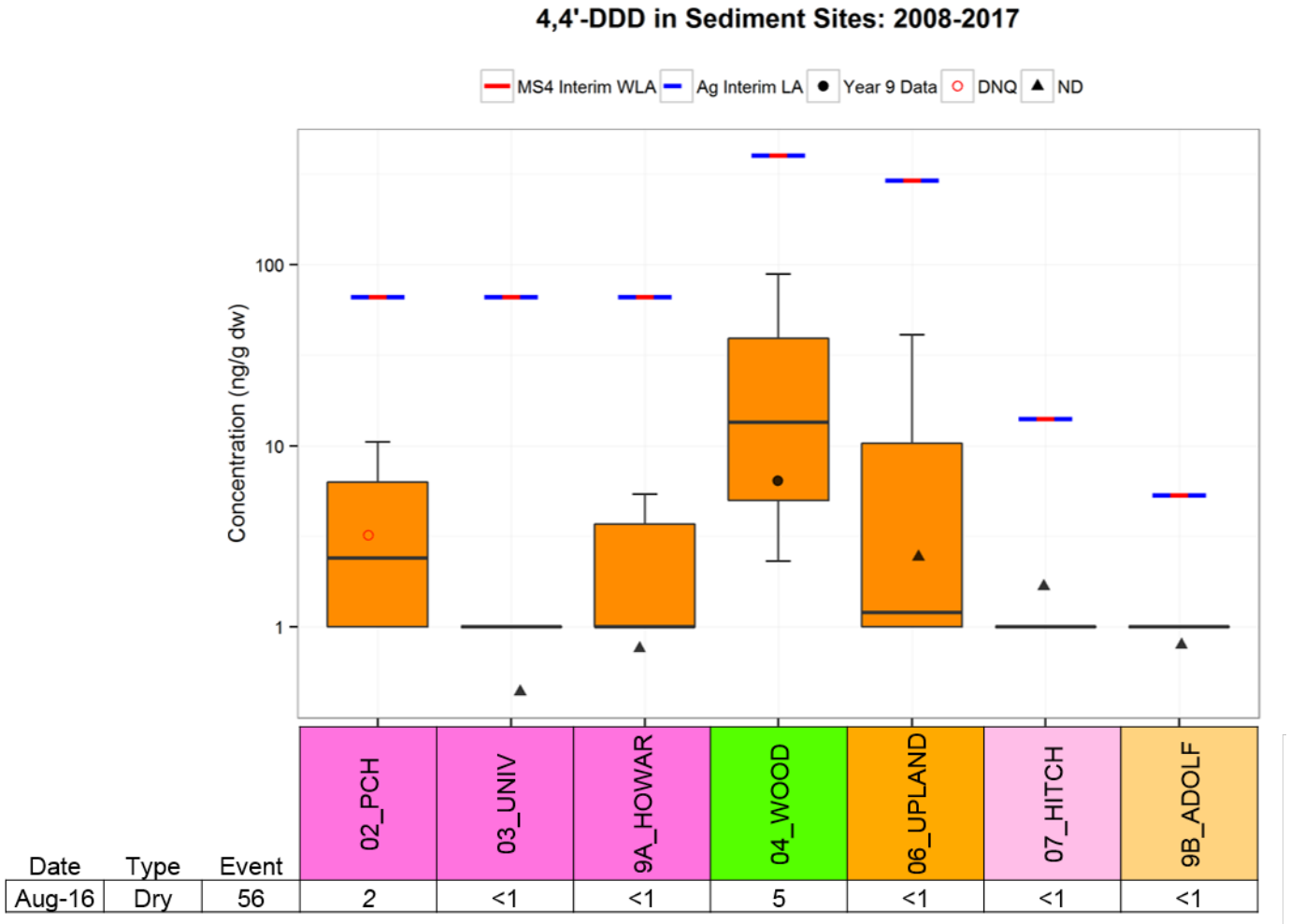


Figure 20. 4,4'-DDD Sediment Concentrations in Receiving Water Sites: 2008-2017

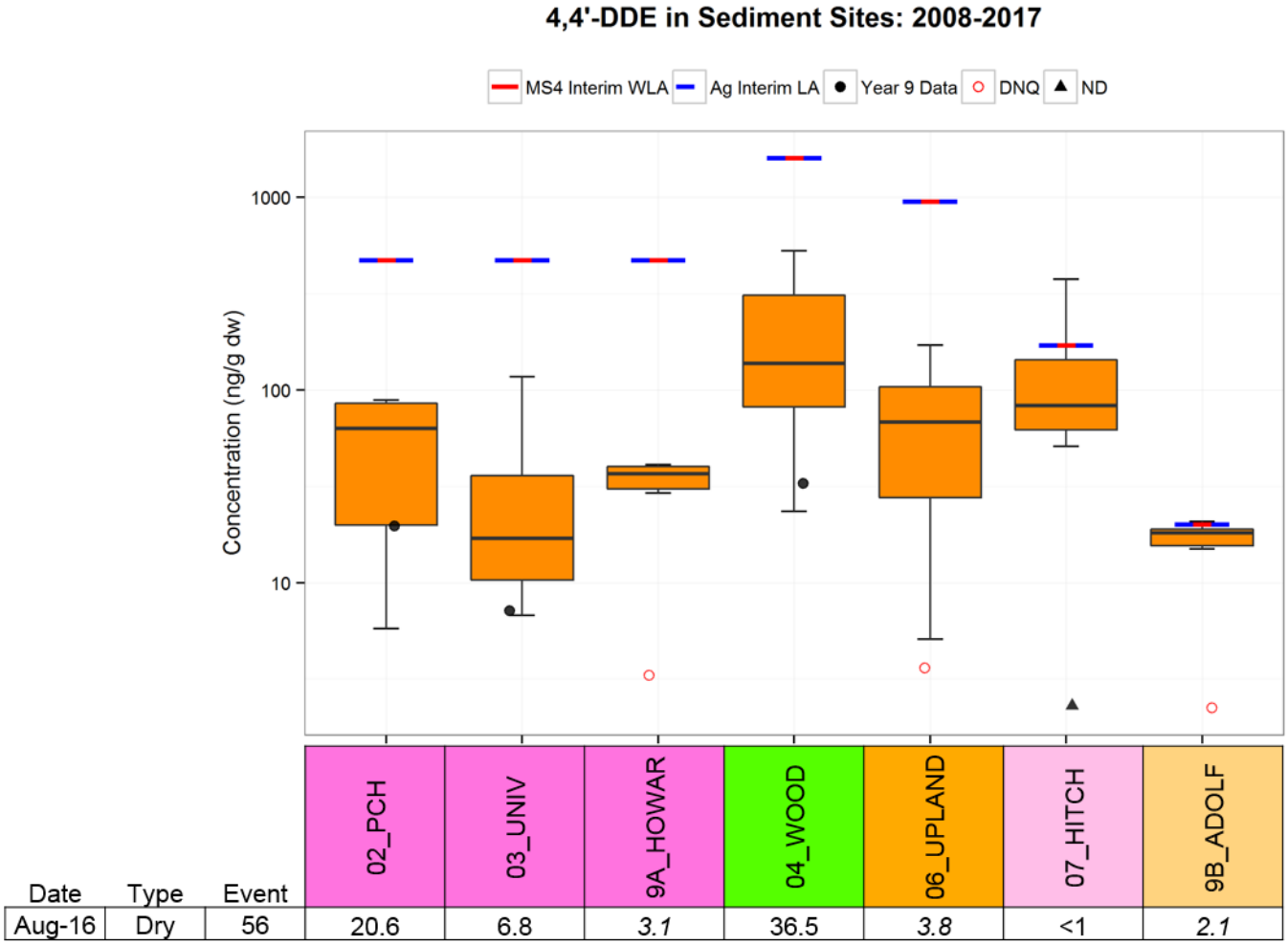


Figure 21. 4,4'-DDE Sediment Concentrations in Receiving Water Sites: 2008-2017

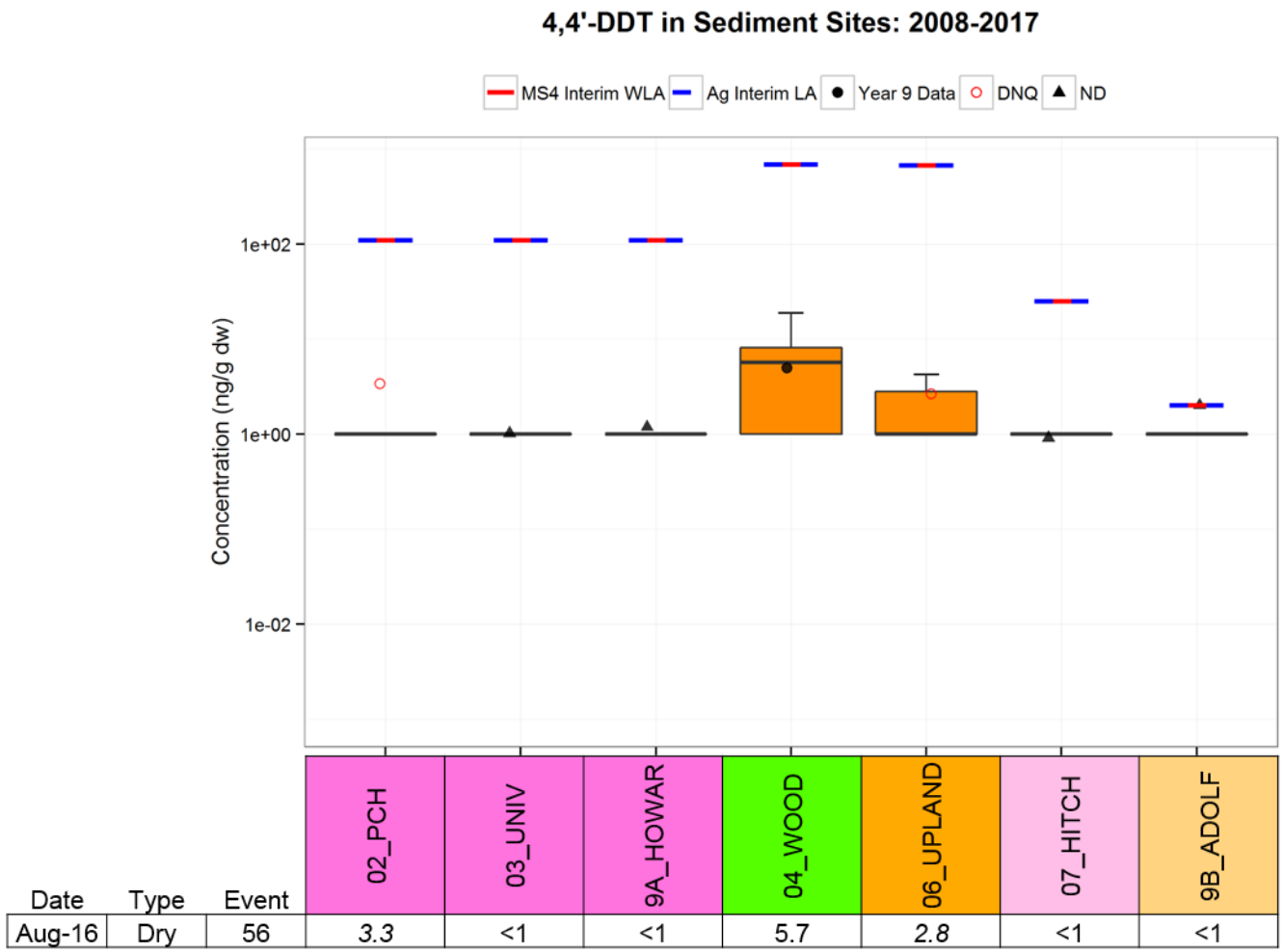


Figure 22. 4,4'-DDT Sediment Concentrations in Receiving Water Sites: 2008-2017

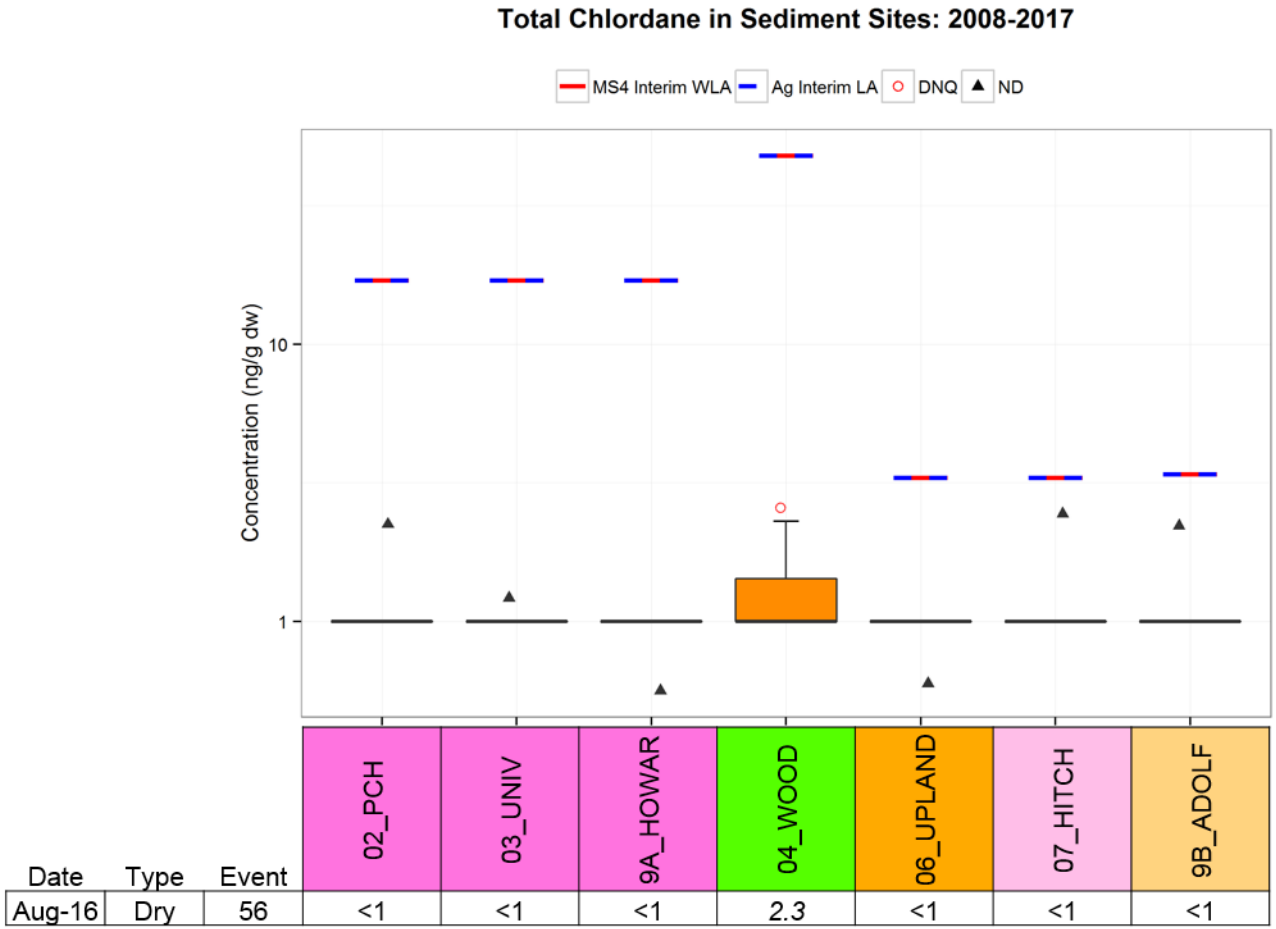


Figure 23. Total Chlordane Sediment Concentrations in Receiving Water Sites: 2008-20172017

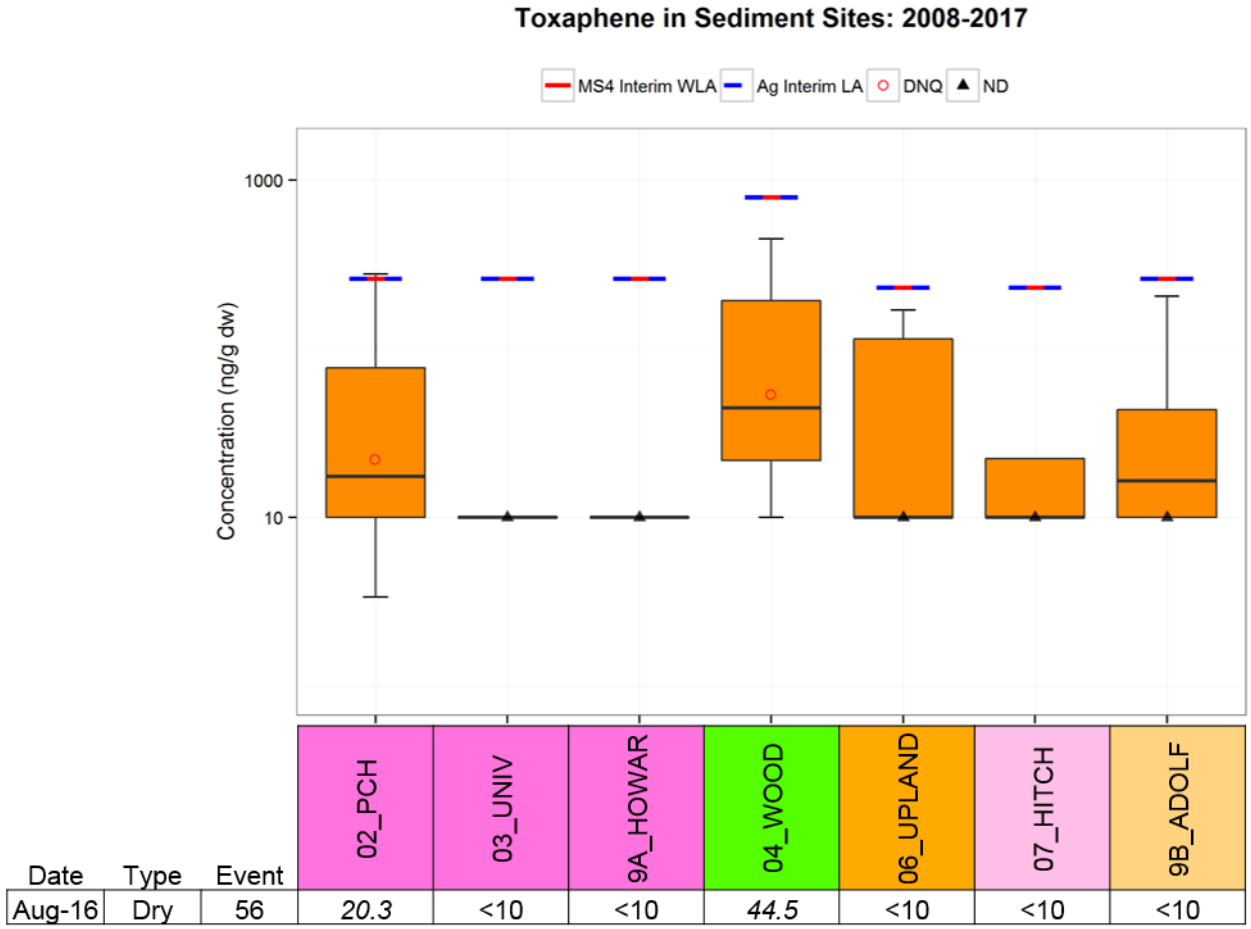
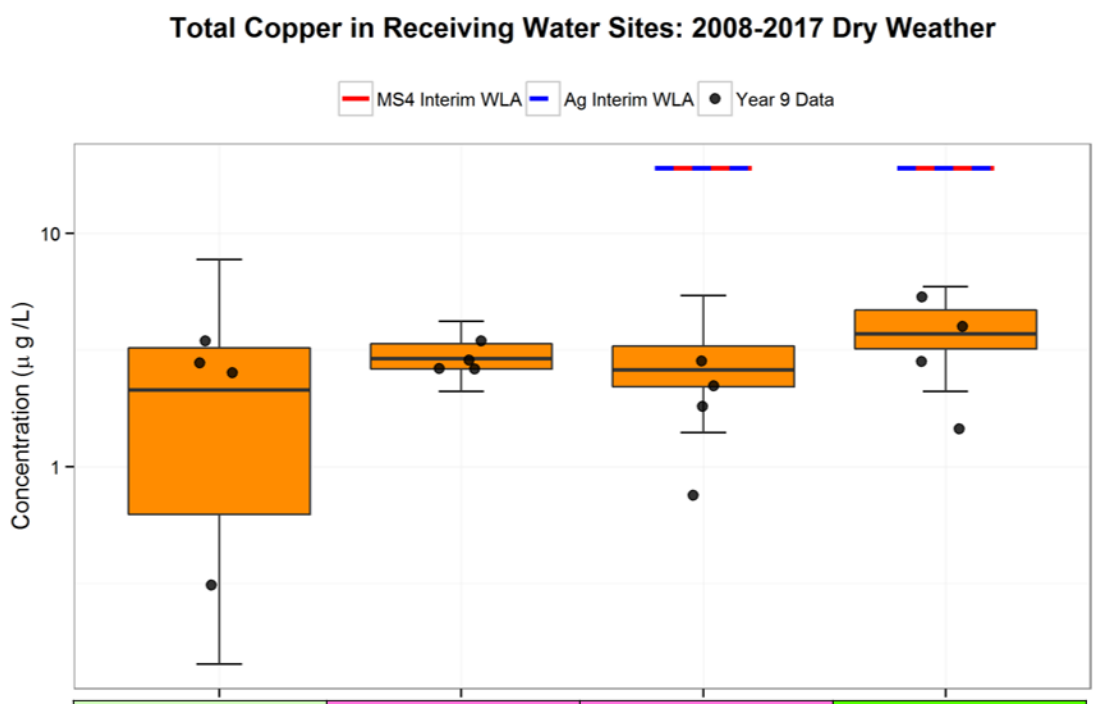


Figure 24. Toxaphene Sediment Concentrations in Receiving Water Sites: 2008-2017

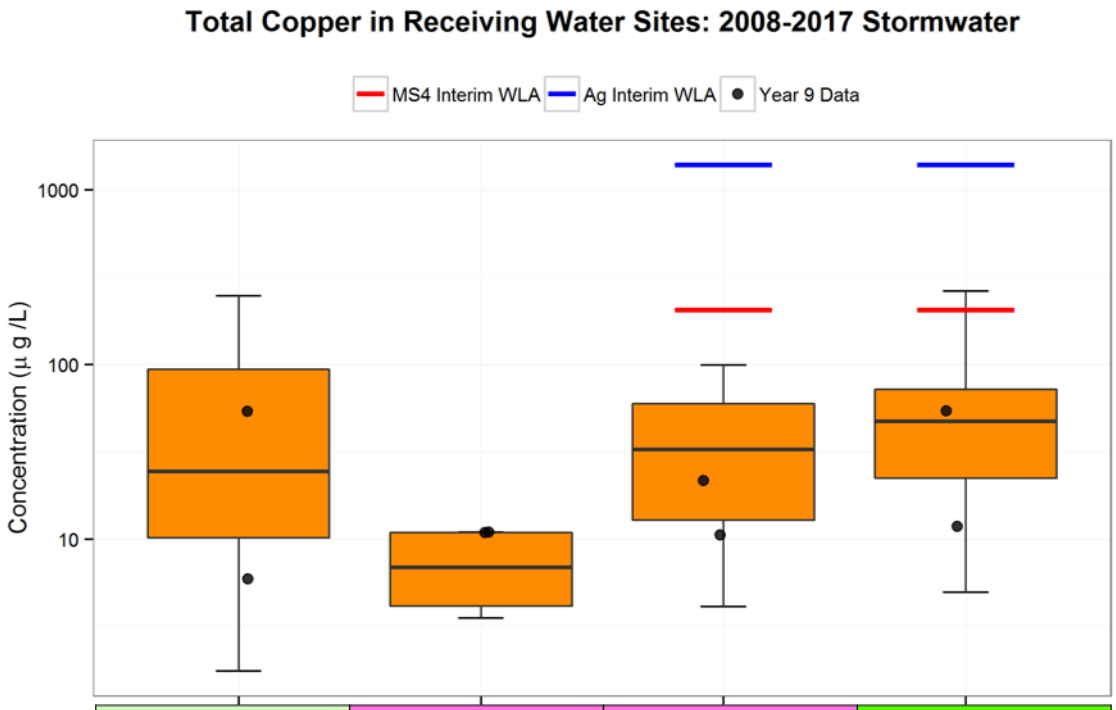
METALS TMDL DATA SUMMARY

The following figures present metals water quality data from receiving water, agricultural, urban, and POTW monitoring sites. Effective total metals interim load allocations and waste load allocations differ for wet and dry weather, therefore the data for each of these conditions is provided separately. Interim POTW waste load allocations for total mercury are in load form and are therefore calculated and presented in the exceedance evaluation section of the report. The Metals TMDL specifies final targets for both dissolved copper and zinc. Dissolved concentrations for these two metals have been plotted for reference. Data collected during year nine, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2017). This was done to allow for easy comparison between recent data and what have been collected overall. The ninth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent. Italicized values in the tables within each figure indicate the concentration was DNQ. Values in the tables within each figure with a "<" preceding them, indicate the constituent was ND at the MDL for that constituent. Values identified as "--" in the tables indicate no samples were collected at those sites for those events.



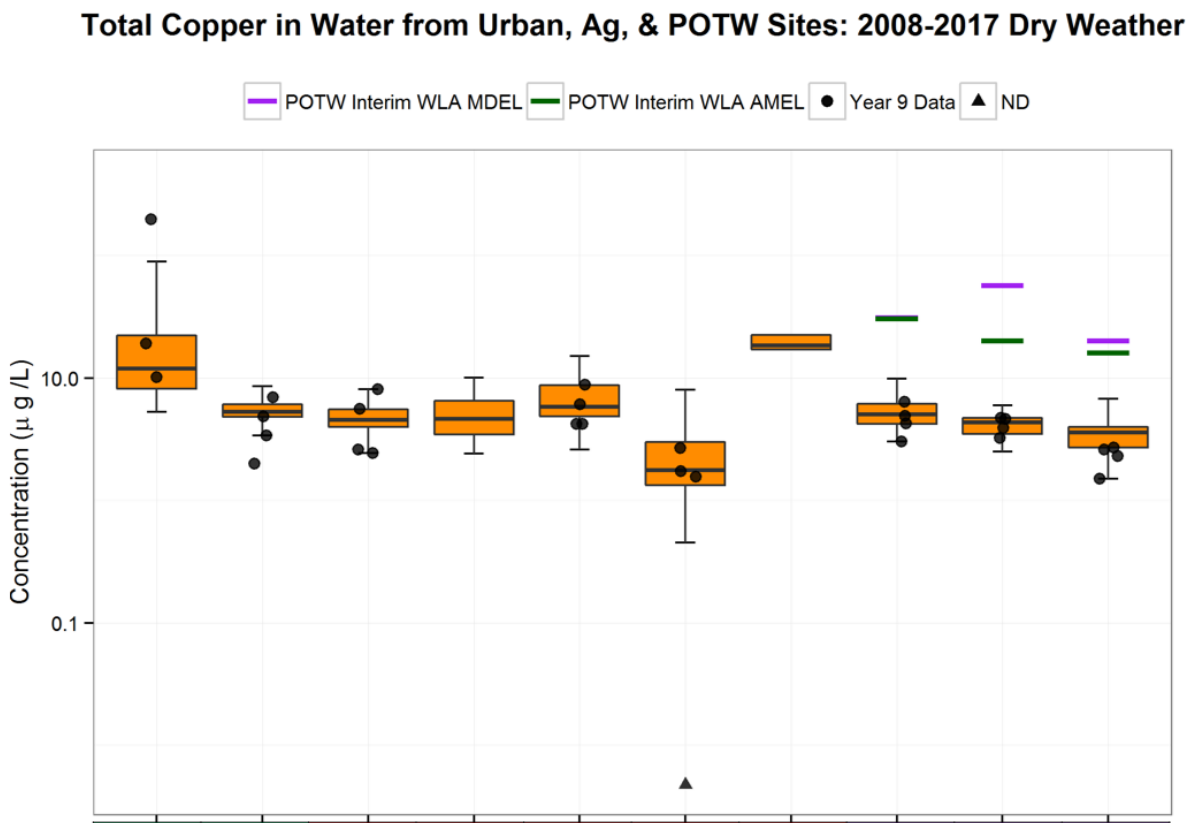
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	3.46	2.61	2.84	5.33
Nov-16	Dry	57	2.52	2.636	2.22	3.99
Feb-17	Dry	60	2.78	3.46	0.75	1.45
May-17	Dry	61	0.31	2.85	1.81	2.82

Figure 25. Total Copper Dry Weather Concentrations in Receiving Water Sites: 2008-2017



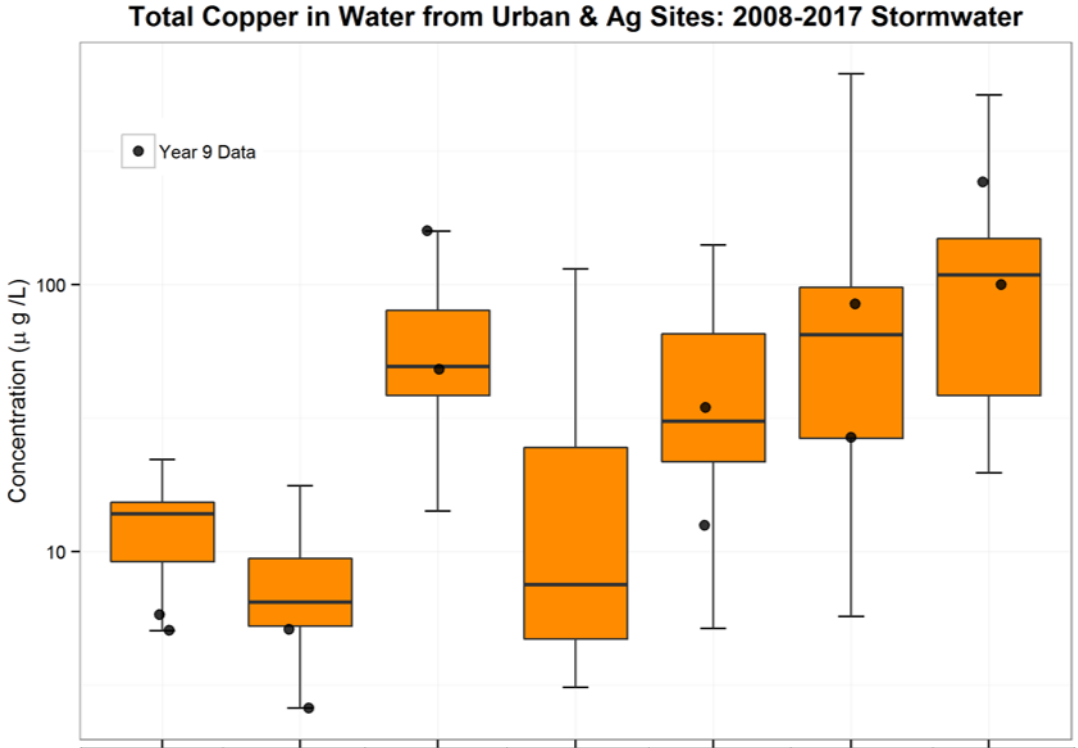
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Dec-16	Storm	58	5.91	10.88	10.57	11.83
Jan-17	Storm	59	53.74	10.94	21.66	54.09

Figure 26. Total Copper Stormwater Concentrations in Receiving Water Sites: 2008-2017



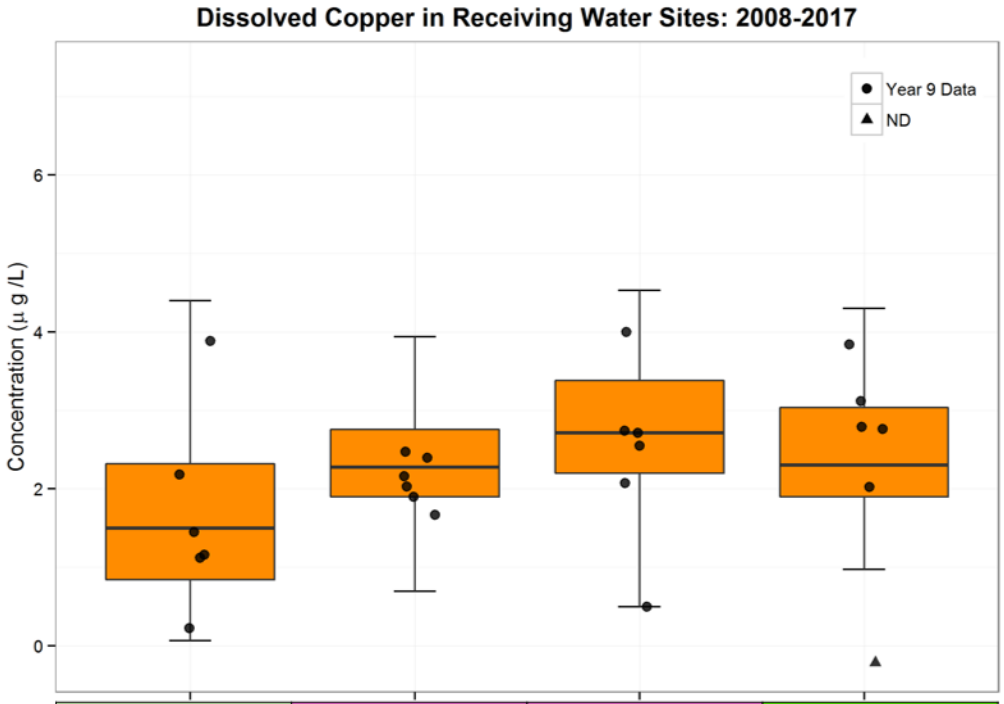
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	6.98	8.07	--	8.82	1.56	--	6.39	4.63	2.7
Nov-16	Dry	57	197.54	4.87	5.61	--	4.19	1.72	--	4.91	4.73	2.3
Feb-17	Dry	60	10.15	1.99	2.42	--	4.21	<0.005	--	3.04	3.92	1.5
May-17	Dry	61	19.07	3.40	2.59	--	6.10	2.68	--	4.25	3.24	2.6

Figure 27. Total Copper Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2017



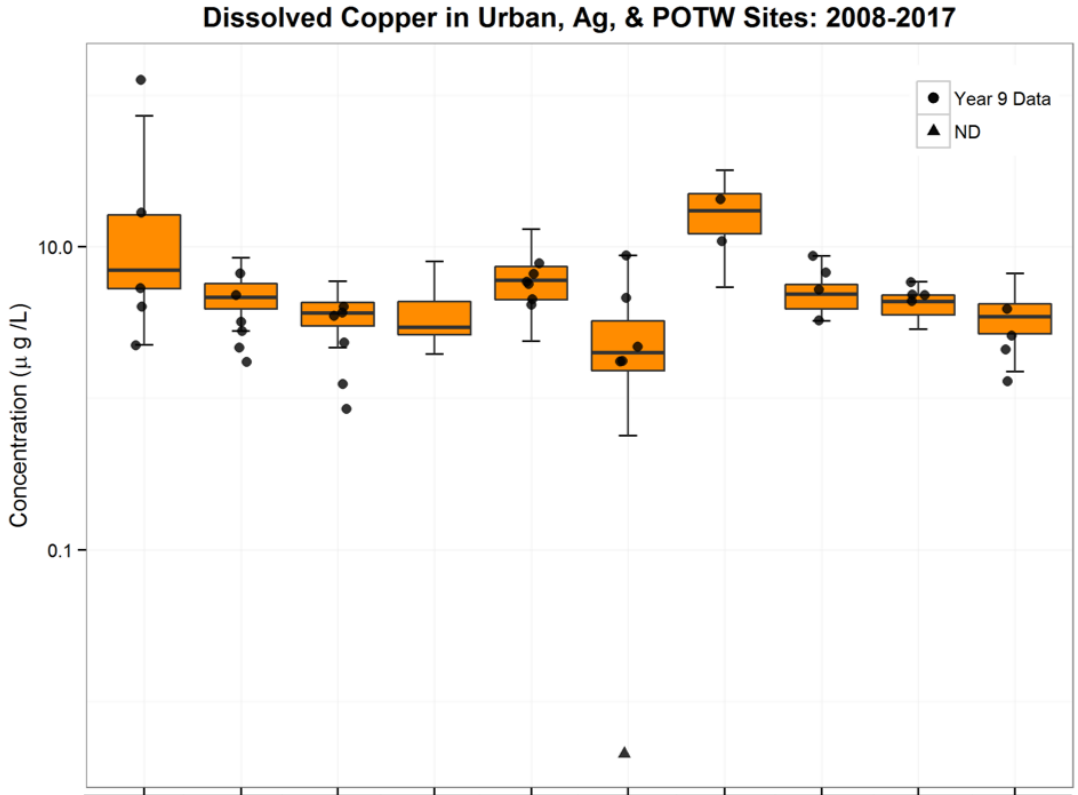
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY
Dec-16	Storm	58	5.80	2.59	48.12	--	12.57	26.78	242.15
Jan-17	Storm	59	5.05	5.13	158.35	--	34.53	84.59	100.65

Figure 28. Total Copper Wet Weather Concentrations in Urban and Ag Sites: 2008-2017



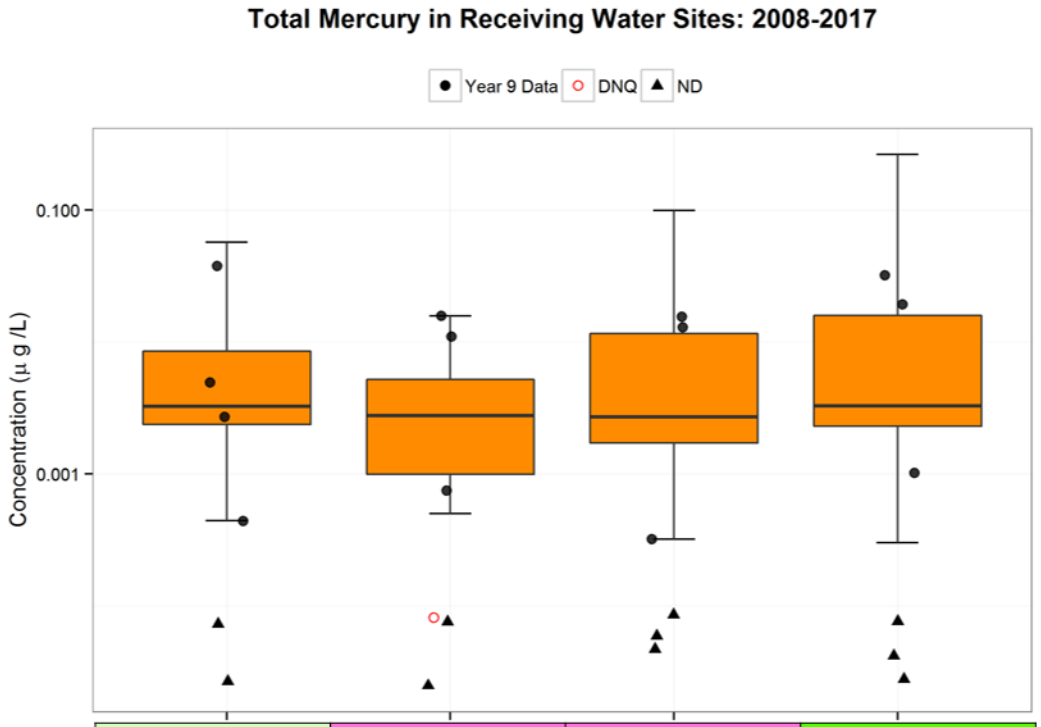
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	1.44	1.66	2.71	3.83
Nov-16	Dry	57	1.15	1.89	2.55	2.78
Dec-16	Storm	58	1.11	2.02	4.00	2.02
Jan-17	Storm	59	3.88	2.39	2.73	2.76
Feb-17	Dry	60	2.18	2.15	0.49	<0.005
May-17	Dry	61	0.22	2.47	2.07	3.11

Figure 29. Dissolved Copper Concentrations in Receiving Water Sites: 2008-2017



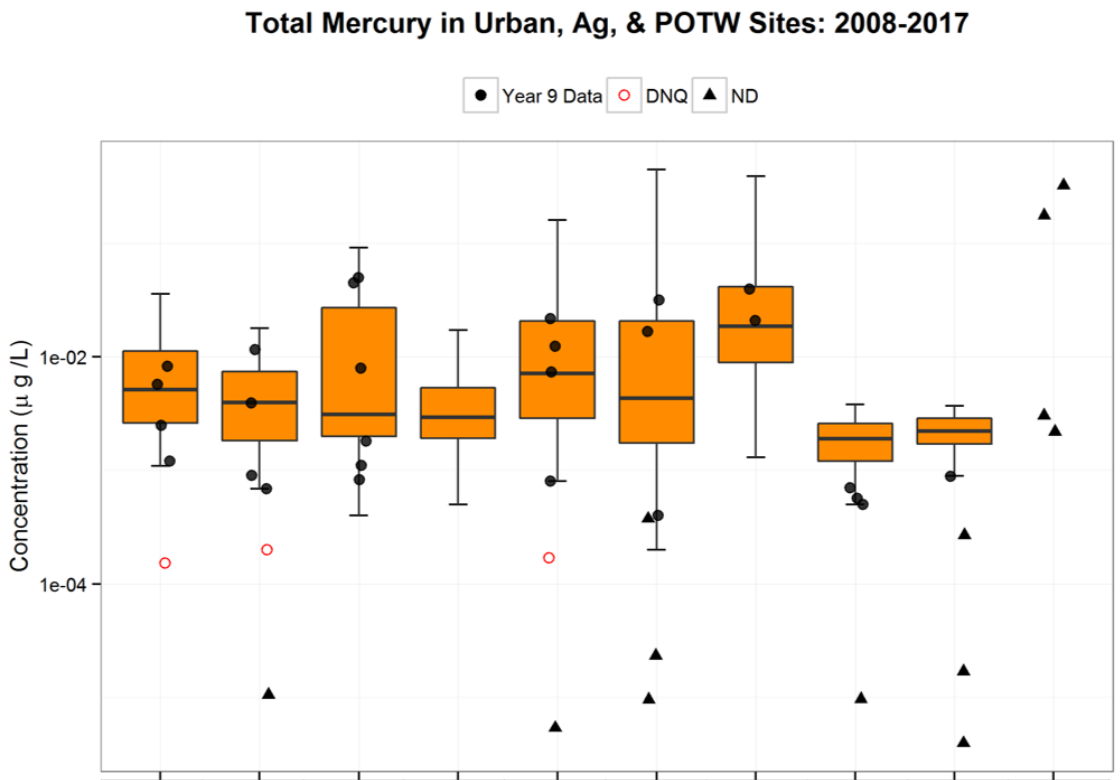
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	6.67	3.70	--	7.78	1.75	--	6.80	4.83	3.9
Nov-16	Dry	57	126.8	4.80	4.04	--	4.50	1.76	--	5.24	4.79	2.1
Dec-16	Storm	58	4.03	2.16	0.85	--	5.68	4.60	20.64	NS	NS	NS
Jan-17	Storm	59	2.25	2.78	3.50	--	6.65	8.76	10.92	NS	NS	NS
Feb-17	Dry	60	5.32	1.74	1.24	--	4.16	<0.005	--	3.26	4.38	1.3
May-17	Dry	61	16.81	3.19	2.33	--	5.89	2.19	--	8.71	5.87	2.6

Figure 30. Dissolved Copper Concentrations in Urban, Ag, and POTW Sites: 2008-2017



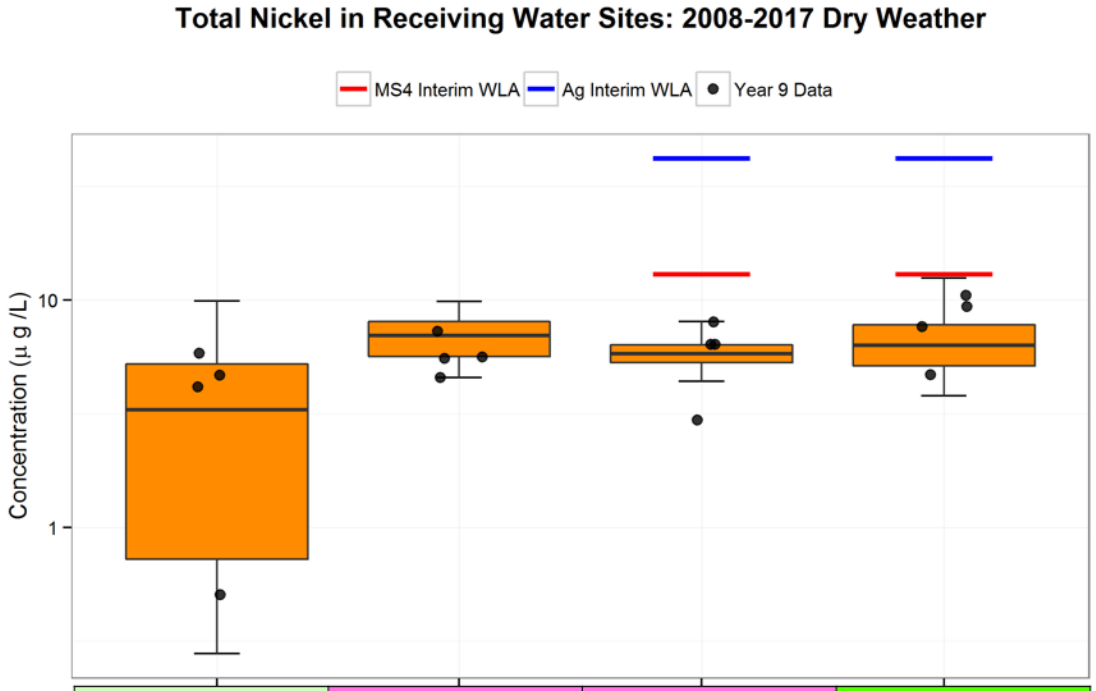
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	0.0027	<0.00004	<0.00004	<0.00004
Nov-16	Dry	57	<0.00004	*0.0001*	<0.00004	<0.00004
Dec-16	Storm	58	0.0049	0.0158	0.0156	0.0194
Jan-17	Storm	59	0.0377	0.0110	0.0129	0.0323
Feb-17	Dry	60	0.0004	0.0007	0.0003	0.0010
May-17	Dry	61	<0.00004	<0.00004	<0.00004	<0.00004

Figure 31. Total Mercury Concentrations in Receiving Water Sites: 2008-2017



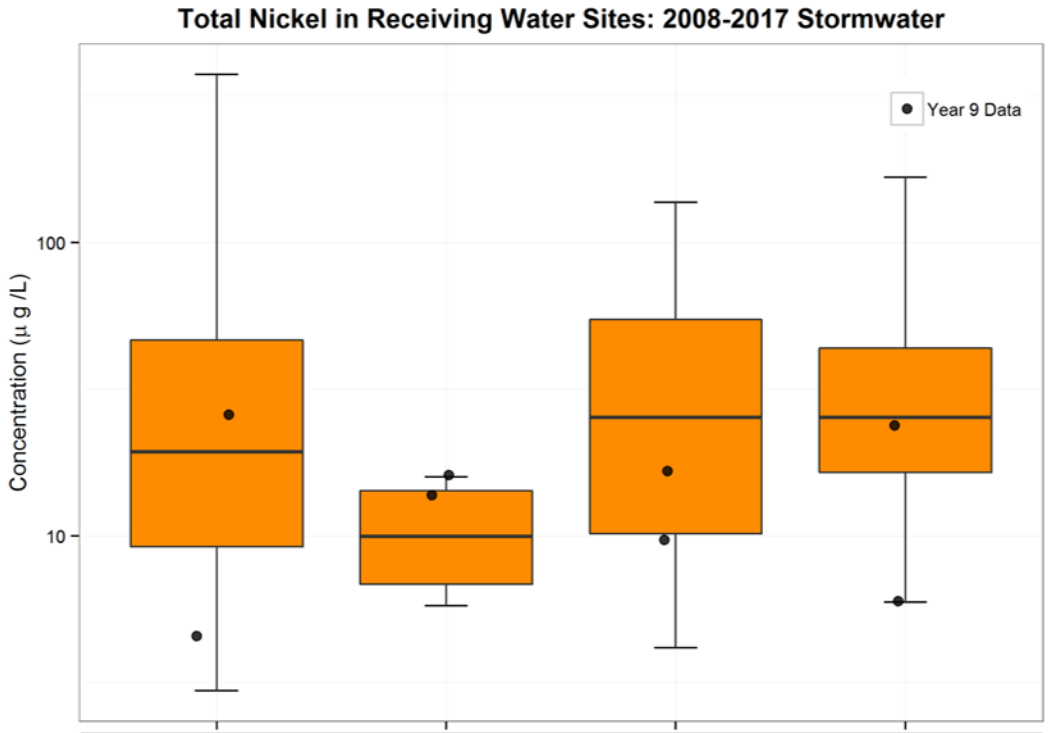
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	<0.00004	0.0079	--	0.0124	<0.00004	--	0.0005	<0.00004	<0.00004
Nov-16	Dry	57	0.0012	*0.0002*	0.0018	--	<0.00004	<0.00004	--	<0.00004	<0.00004	<0.00004
Dec-16	Storm	58	0.0082	0.0039	0.0448	--	0.0073	0.0167	0.0396	NS	NS	NS
Jan-17	Storm	59	0.0057	0.0116	0.0500	--	0.0216	0.0316	0.0208	NS	NS	NS
Feb-17	Dry	60	*0.0001*	0.0006	0.0008	--	*0.00017*	<0.00004	--	0.00057	0.00089	<0.00004
May-17	Dry	61	0.0025	0.0009	0.0011	--	0.0008	0.0004	--	0.0007	<0.00004	<0.00004

Figure 32. Total Mercury Concentrations in Urban and Ag Sites: 2008-2017



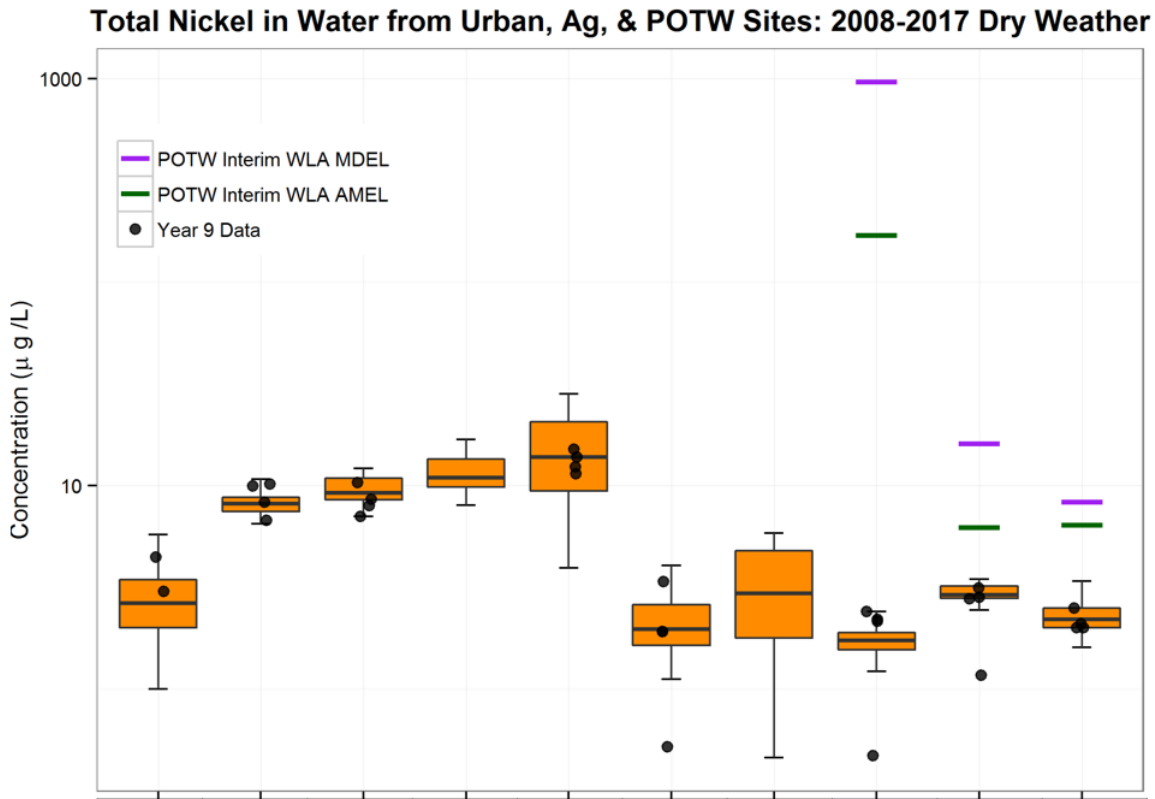
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	4.67	4.57	8.03	10.49
Nov-16	Dry	57	4.16	5.55	6.36	7.65
Feb-17	Dry	60	5.85	7.27	2.97	4.71
May-17	Dry	61	0.50	5.63	6.39	9.36

Figure 33. Total Nickel Dry Weather Concentrations in Receiving Water Sites: 2008-2017



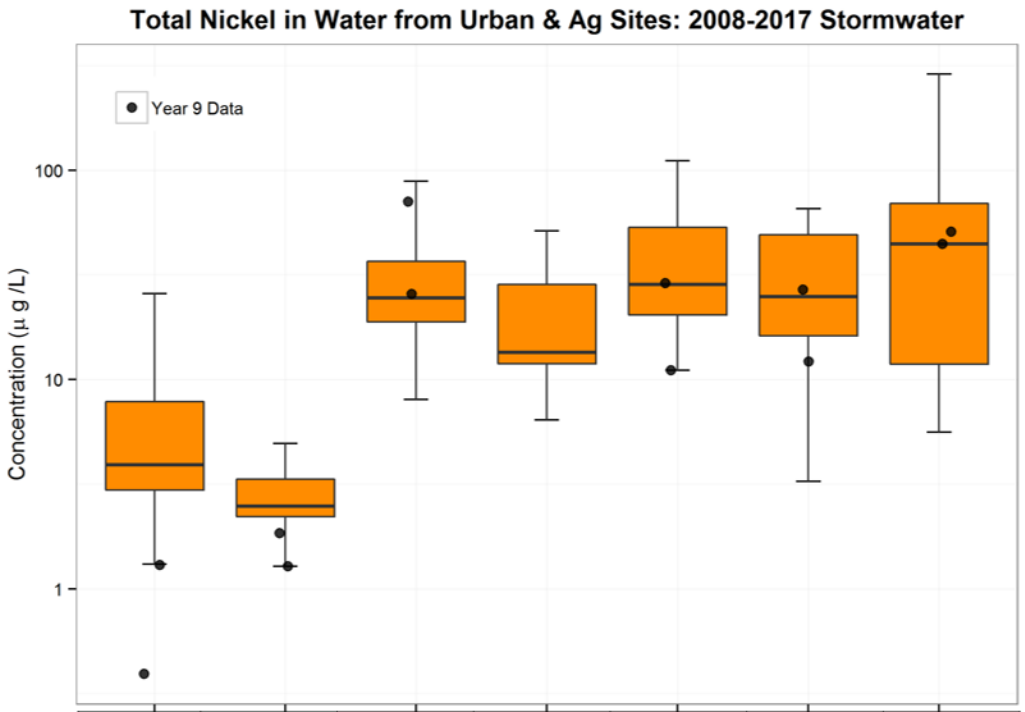
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Dec-16	Storm	58	4.56	15.90	9.75	5.95
Jan-17	Storm	59	25.56	13.74	16.51	23.45

Figure 34. Total Nickel Stormwater Concentrations in Receiving Water Sites: 2008-2017



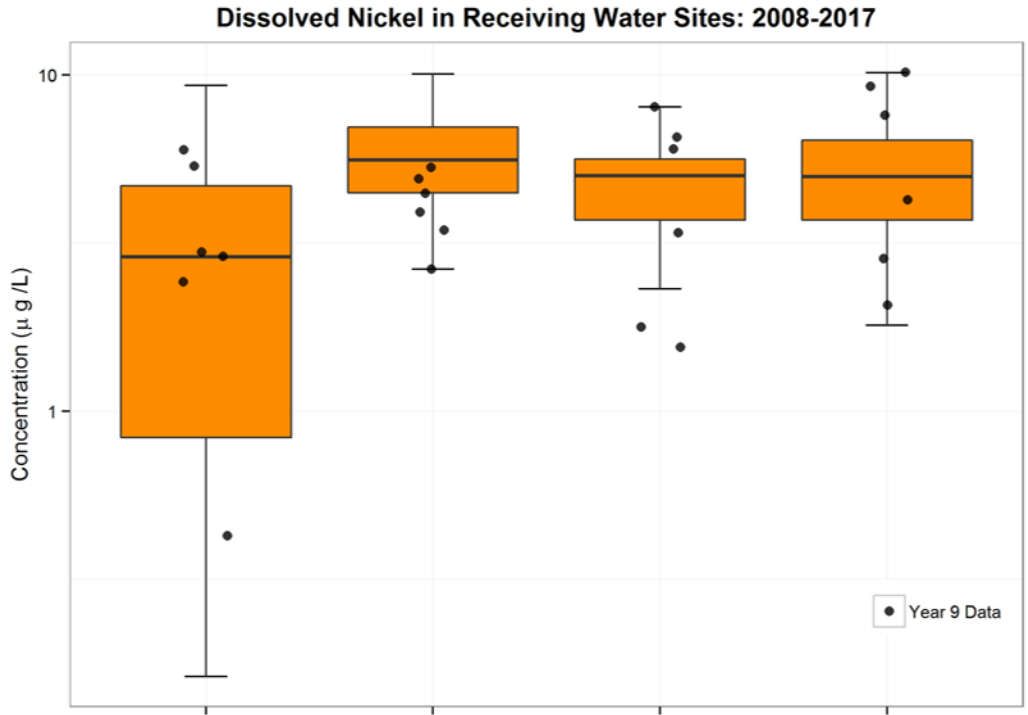
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	10.18	7.96	--	11.4	1.91	--	2.2	3.14	2.5
Nov-16	Dry	57	3.02	6.74	8.55	--	15.12	1.92	--	2.41	2.78	2.0
Feb-17	Dry	60	<0.01	8.31	7.04	--	13.78	0.52	--	0.47	1.17	2.1
May-17	Dry	61	4.448	9.974	10.363	--	12.317	3.378	--	2.147	2.819	2.0

Figure 35. Total Nickel Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2017



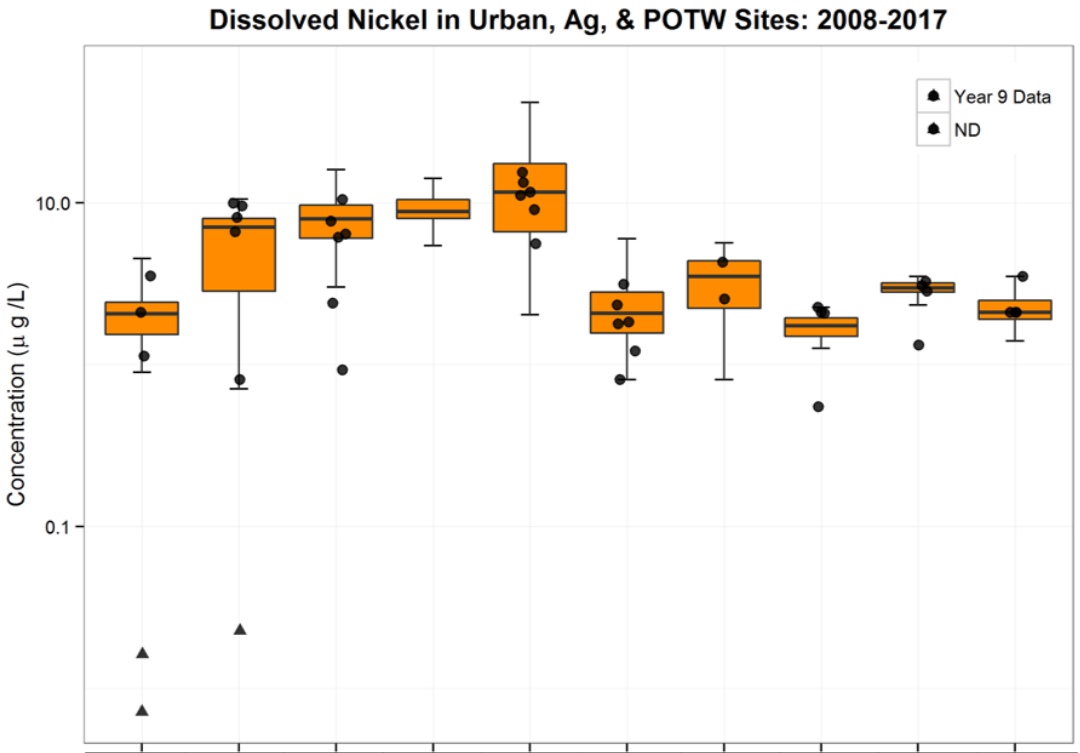
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY
Dec-16	Storm	58	1.31	1.28	25.55	--	11.05	12.17	44.4
Jan-17	Storm	59	0.39	1.83	70.82	--	28.94	27.01	50.42

Figure 36. Total Nickel Stormwater Concentrations in Urban and Ag Sites: 2008-2017



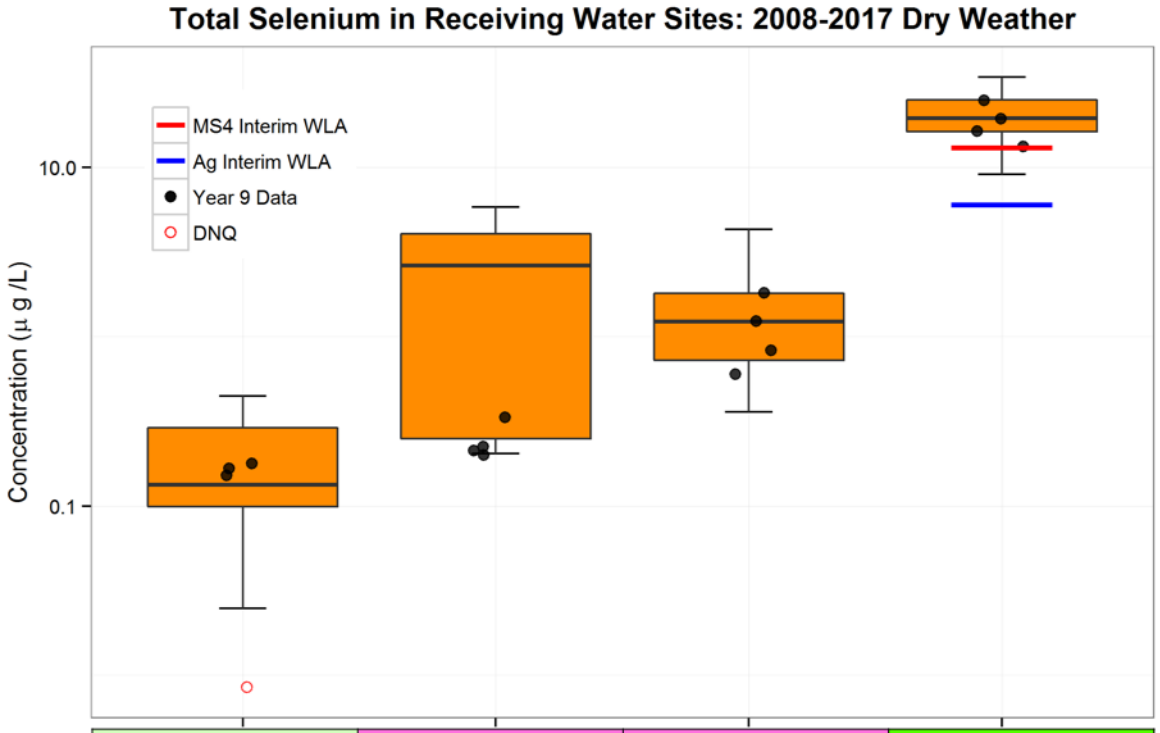
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	2.96	3.45	8.01	10.14
Nov-16	Dry	57	2.88	4.42	6.51	7.56
Dec-16	Storm	58	2.42	3.89	3.40	2.83
Jan-17	Storm	59	5.35	2.64	1.55	2.06
Feb-17	Dry	60	5.96	5.29	1.78	4.25
May-17	Dry	61	0.42	4.89	6.00	9.23

Figure 37. Dissolved Nickel Concentrations in Receiving Water Sites: 2008-2017



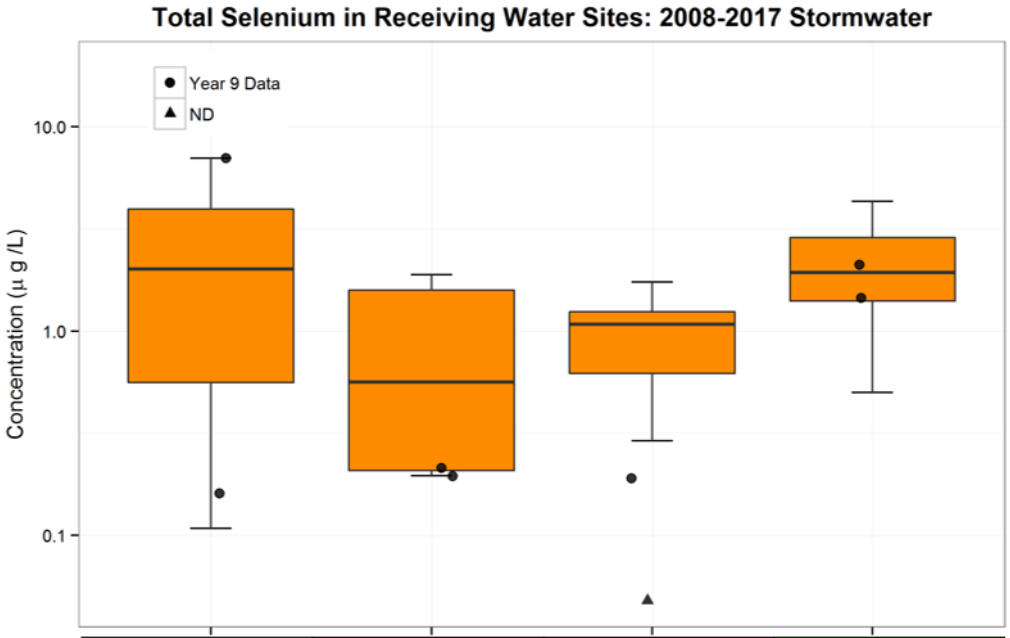
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	9.91	6.41	--	11.11	1.78	--	2.08	3.27	3.5
Nov-16	Dry	57	2.10	6.61	7.69	--	15.43	1.83	--	2.26	3.07	2.1
Dec-16	Storm	58	1.13	0.81	2.40	--	5.59	2.33	4.29	NS	NS	NS
Jan-17	Storm	59	<0.01	<0.01	0.93	--	9.05	1.21	2.55	NS	NS	NS
Feb-17	Dry	60	<0.01	8.11	6.11	--	13.34	0.81	--	0.55	1.32	2.1
May-17	Dry	61	3.53	9.55	10.46	--	11.62	3.14	--	2.10	2.83	2.1

Figure 38. Dissolved Nickel Concentrations in Urban, Ag, and POTW Sites: 2008-2017



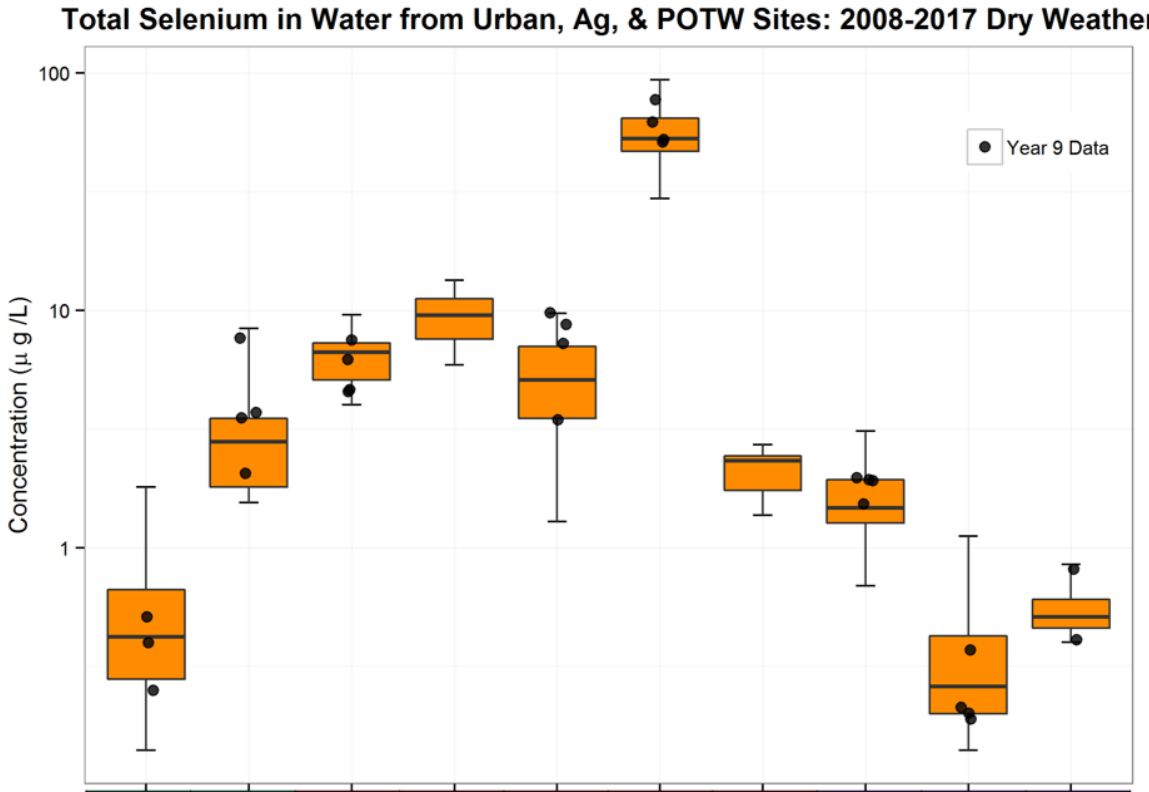
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	0.17	0.33	0.60	16.25
Nov-16	Dry	57	0.16	0.20	0.84	13.24
Feb-17	Dry	60	0.15	0.22	1.81	19.00
May-17	Dry	61	*0.01*	0.21	1.22	25.20

Figure 39. Total Selenium Dry Weather Concentrations in Receiving Water Sites: 2008-2017



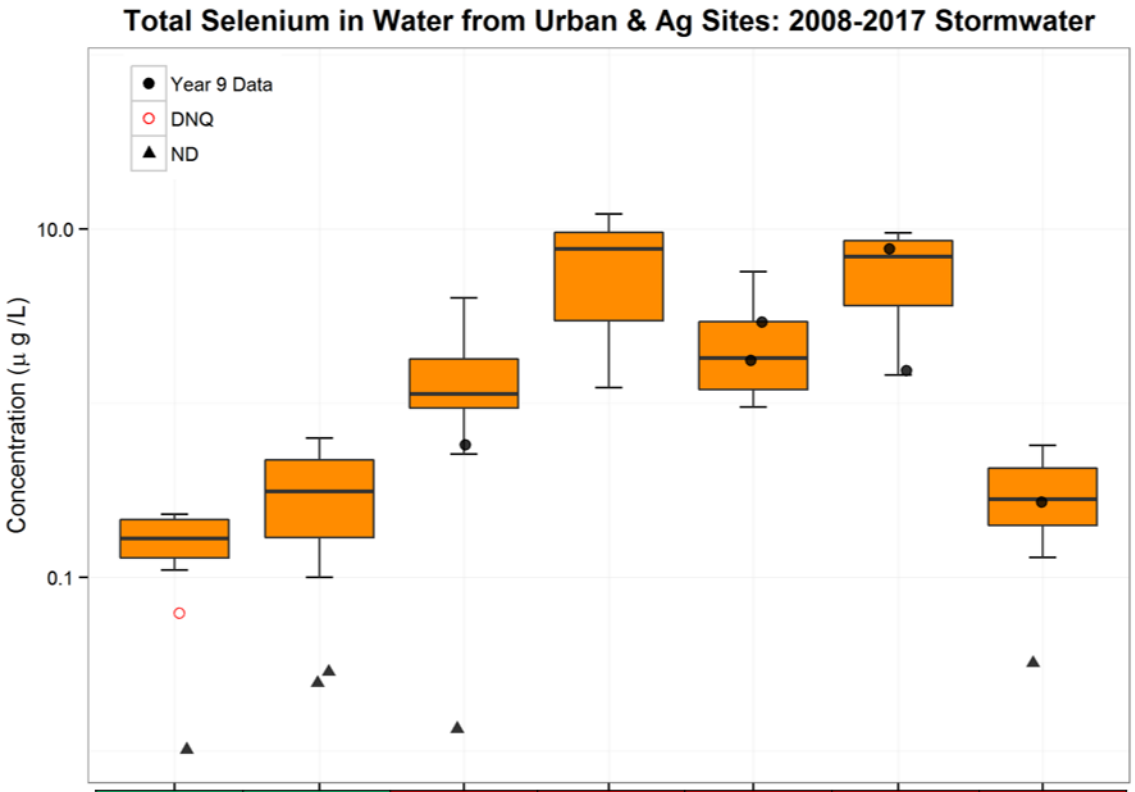
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Dec-16	Storm	58	0.15	0.21	0.19	2.09
Jan-17	Storm	59	7.03	0.19	<0.02	1.44

Figure 40. Total Selenium Stormwater Concentration in Receiving Water Sites: 2008-2017



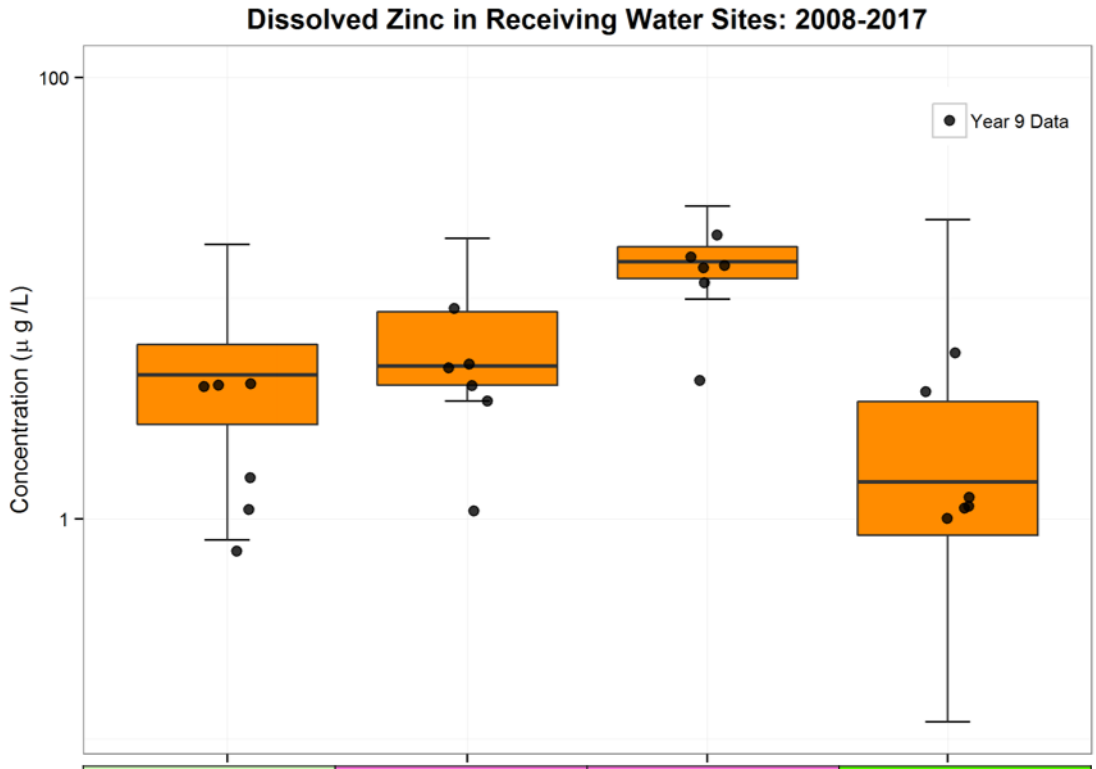
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	3.70	4.54	--	8.69	52.44	--	1.97	0.37	0.41
Nov-16	Dry	57	0.25	2.05	4.63	--	7.23	51.16	--	1.93	0.19	--
Feb-17	Dry	60	0.51	7.64	6.22	--	9.73	62.20	--	1.53	0.20	0.81
May-17	Dry	61	0.39	3.52	7.49	--	3.45	77.33	--	1.92	0.21	--

Figure 41. Total Selenium Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2017



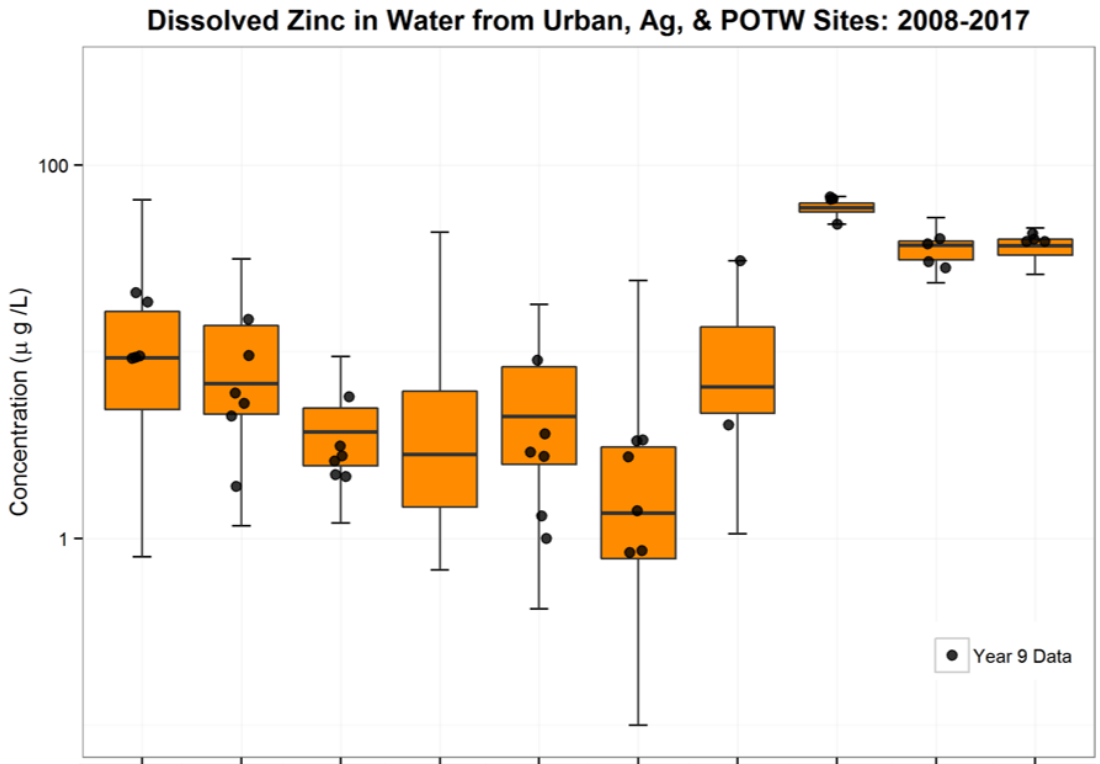
Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY
Dec-16	Storm	58	*0.03*	<0.02	0.60	--	1.82	8.27	0.28
Jan-17	Storm	59	<0.02	<0.02	<0.02	--	3.01	1.45	<0.02

Figure 42. Total Selenium Stormwater Concentrations in Urban and Ag Sites: 2008-2017



Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD
Aug-16	Dry	56	1.10	1.08	11.75	1.00
Nov-16	Dry	57	1.53	3.41	15.33	1.14
Dec-16	Storm	58	3.97	4.00	19.33	5.65
Jan-17	Storm	59	4.03	4.82	4.24	3.78
Feb-17	Dry	60	4.09	8.96	14.03	1.12
May-17	Dry	61	0.71	5.03	13.70	1.25

Figure 43. Dissolved Zinc Concentrations in Receiving Water Sites: 2008-2017

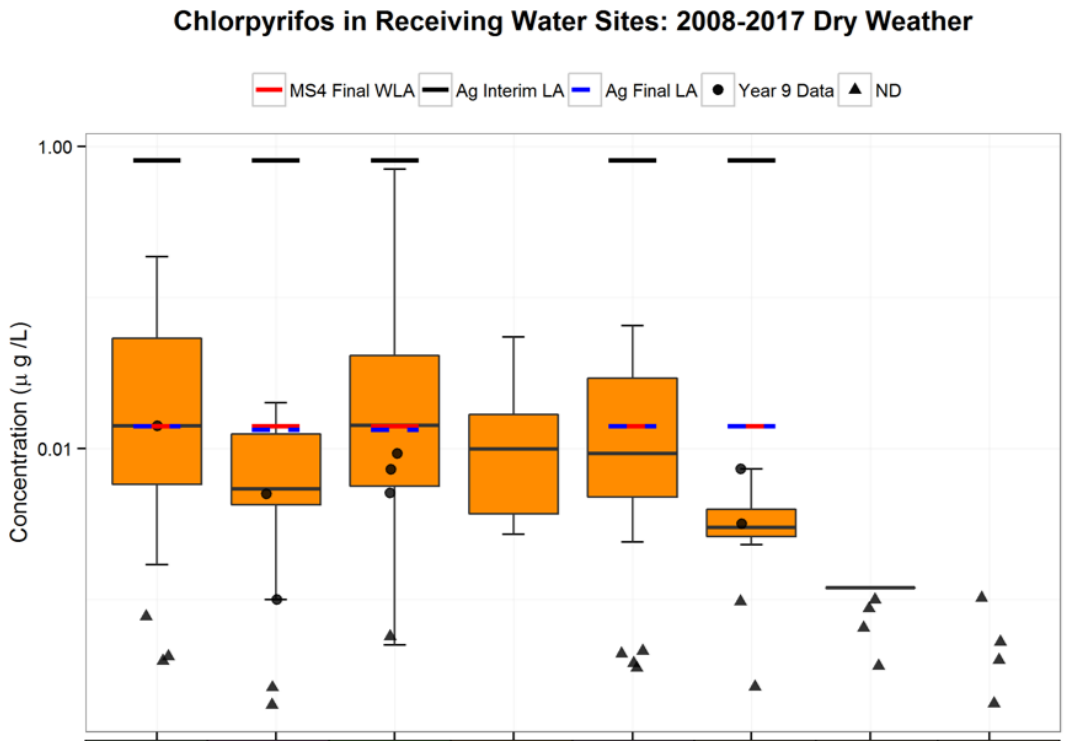


Date	Type	Event	04D_VENTURA	9BD_ADOLF	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	4.53	2.14	--	3.63	1.41	--	65.84	28.22	40
Nov-16	Dry	57	9.32	14.89	5.74	--	2.9	0.86	--	67.32	40.36	39
Dec-16	Storm	58	18.51	9.56	3.13	--	8.99	2.74	30.69	NS	NS	NS
Jan-17	Storm	59	9.51	6.02	2.19	--	2.75	3.36	4.06	NS	NS	NS
Feb-17	Dry	60	9.21	1.90	2.76	--	1	0.84	--	48.11	37.84	43
May-17	Dry	61	20.70	5.30	2.59	--	1.32	3.33	--	65.71	30.27	39

Figure 44. Dissolved Zinc Concentrations in Urban, Ag, and POTW Sites: 2008-2017

TOXICITY TMDL

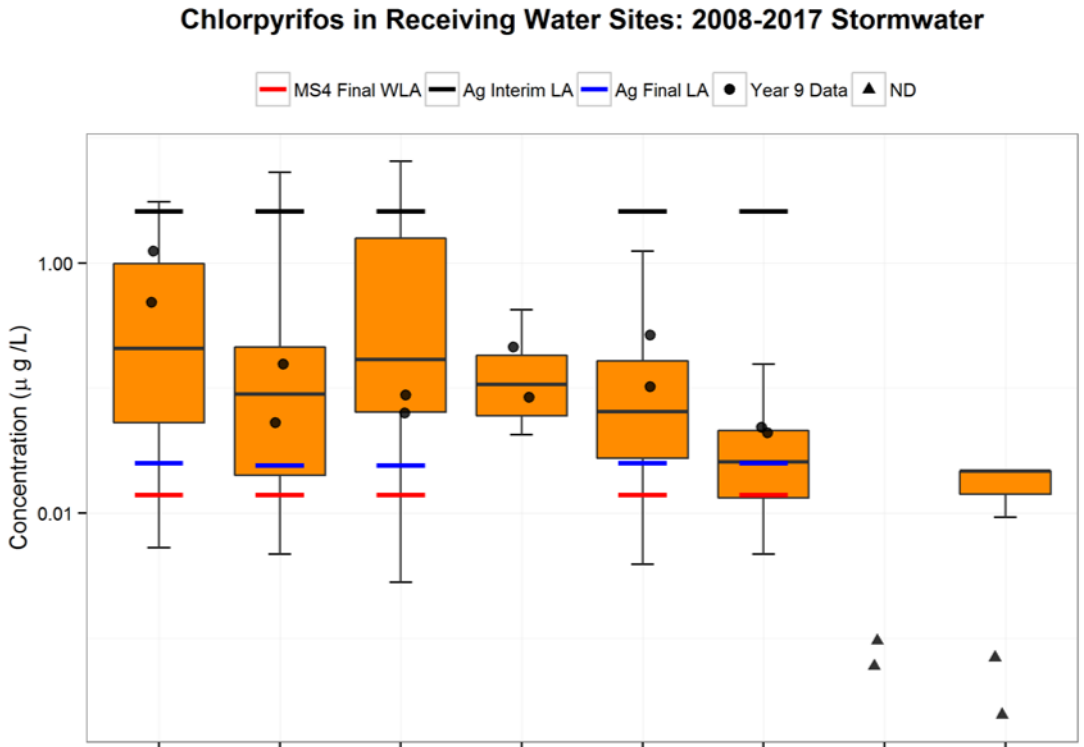
For the Toxicity TMDL, urban dischargers' and POTWs' final wasteload allocations are effective. For agricultural dischargers, interim load allocations were in effect until March 24, 2017, at which point final allocations became effective. The compliance points for these allocations are in the receiving waters at the base of the subwatersheds and are shown on the box plots for the appropriate site locations. Data for chlorpyrifos and diazinon have been separated into dry weather and stormwater since the allocations differ for the two conditions. Data collected during year nine, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2017). This was done to allow for easy comparison between recent data and what have been collected overall. The ninth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent. Italicized values in the tables within each figure indicate the concentration was DNQ. Values in the tables within each figure with a "<" preceding them, indicate the constituent was ND at the MDL for that constituent. Values identified as "--" in the tables indicate no samples were collected at those sites for those events.



Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	<0.0005	0.001	0.007	--	<0.0005	0.003	<0.0005	<0.0005
Nov-16	Dry	57	<0.0005	0.005	<0.0005	--	<0.0005	0.007	<0.0005	<0.0005
Feb-17	Dry	60	0.014	<0.0005	0.009	--	<0.0005	<0.0005	<0.0005	<0.0005
May-17	Dry	61[1]	<0.0005	<0.0005	0.005	--	<0.0005	<0.0005	<0.0005	<0.0005

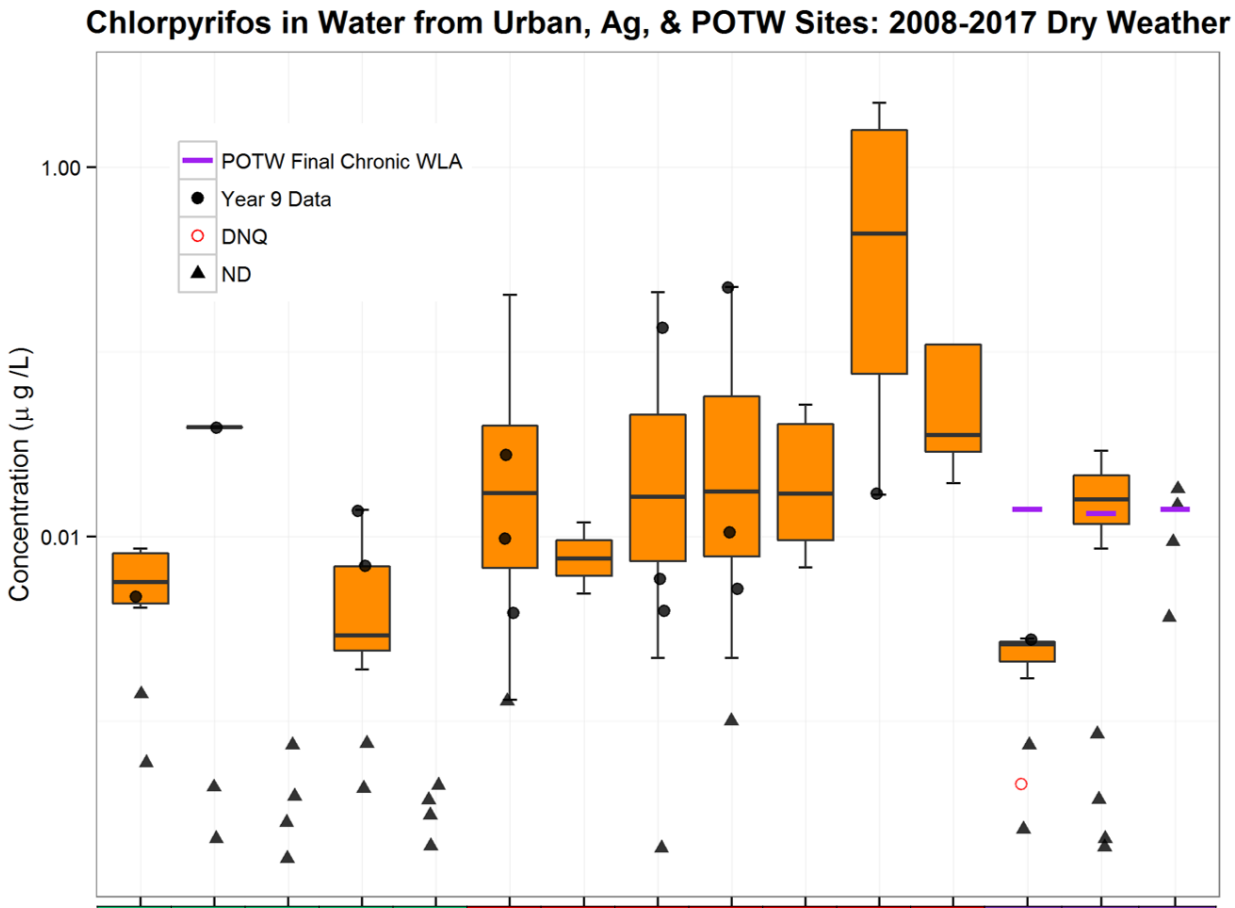
1. Final allocations for agricultural dischargers became effective after March 24, 2016. This note applies to all Toxicity TMDL boxplots with Final LAs for agricultural dischargers.

Figure 45. Chlorpyrifos Dry Weather Concentrations in Receiving Water Sites: 2008-2017



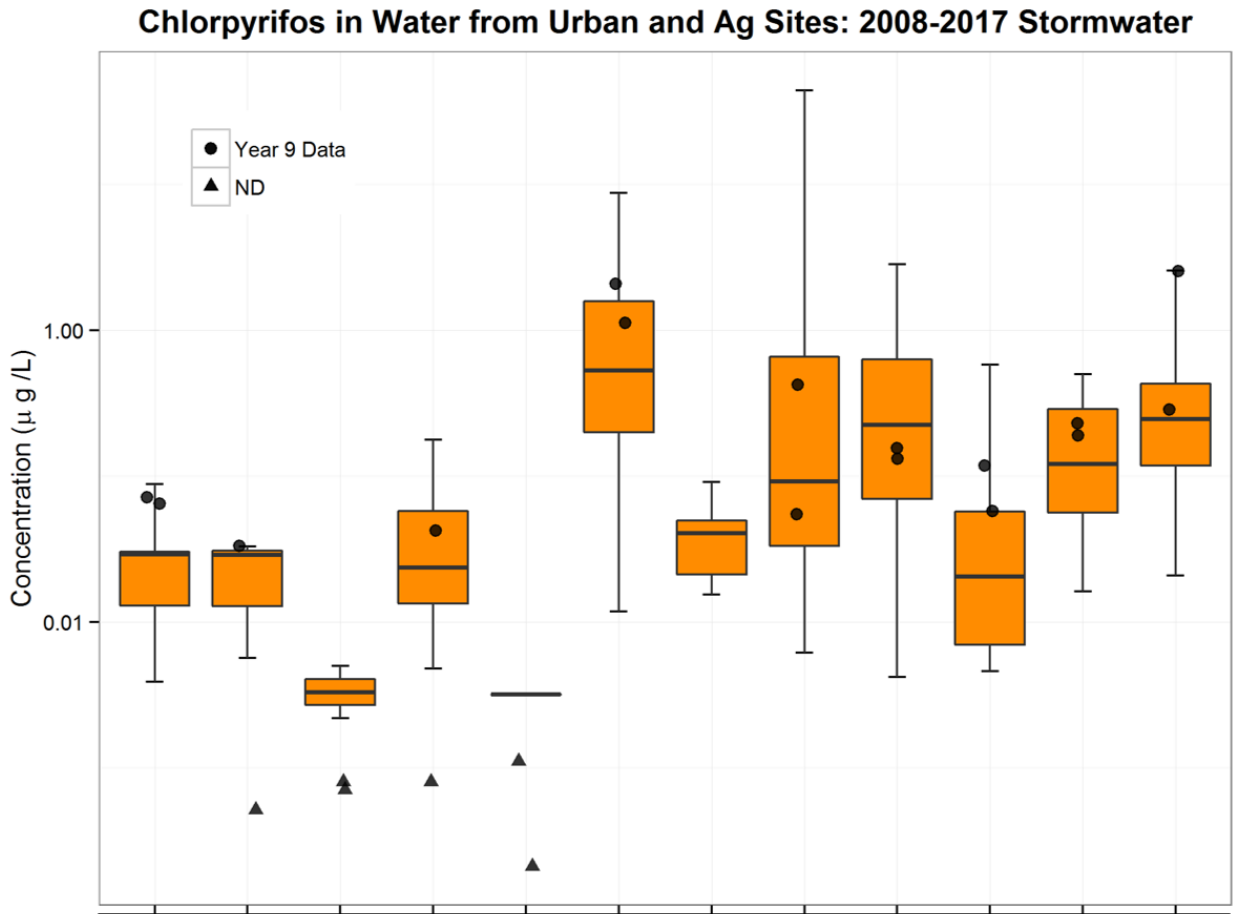
Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Dec-16	Storm	58	1.259	0.053	0.064	0.083	0.102	0.043	<0.0005	<0.0005
Jan-17	Storm	59	0.476	0.153	0.089	0.212	0.269	0.048	<0.0005	<0.0005

Figure 46. Chlorpyrifos Stormwater Concentrations in Receiving Water Sites: 2008-2017



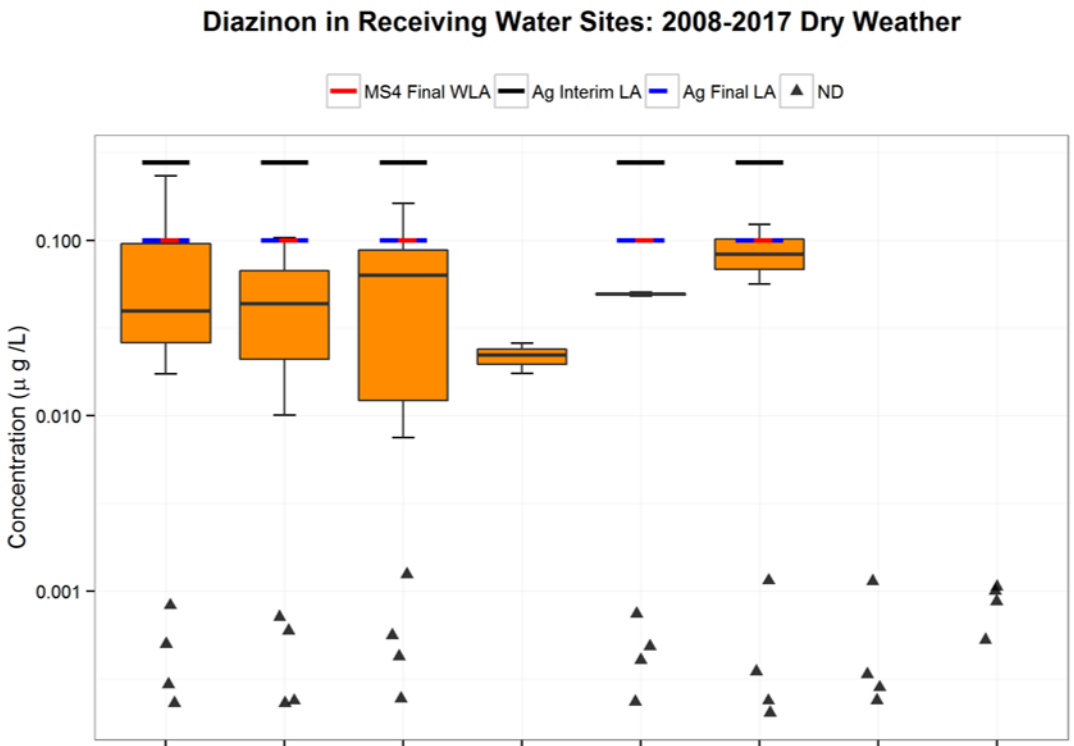
Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	0.039	<0.0005	<0.0005	<0.0005	0.003	--	0.004	0.005	--	--	--	<0.0005	<0.0005	<0.0005
Nov-16	Dry	57	0.004	--	<0.0005	0.013	<0.0005	<0.0005	--	<0.0005	0.224	--	--	--	0.002	<0.0005	<0.0005
Feb-17	Dry	60	<0.0005	<0.0005	<0.0005	0.006	<0.0005	0.027	--	0.136	0.010	--	0.016	--	*0.0005*	<0.0005	<0.0005
May-17	Dry	61	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.009	--	0.005	<0.0005	--	--	--	<0.0005	<0.0005	<0.0005

Figure 47. Chlorpyrifos Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2017



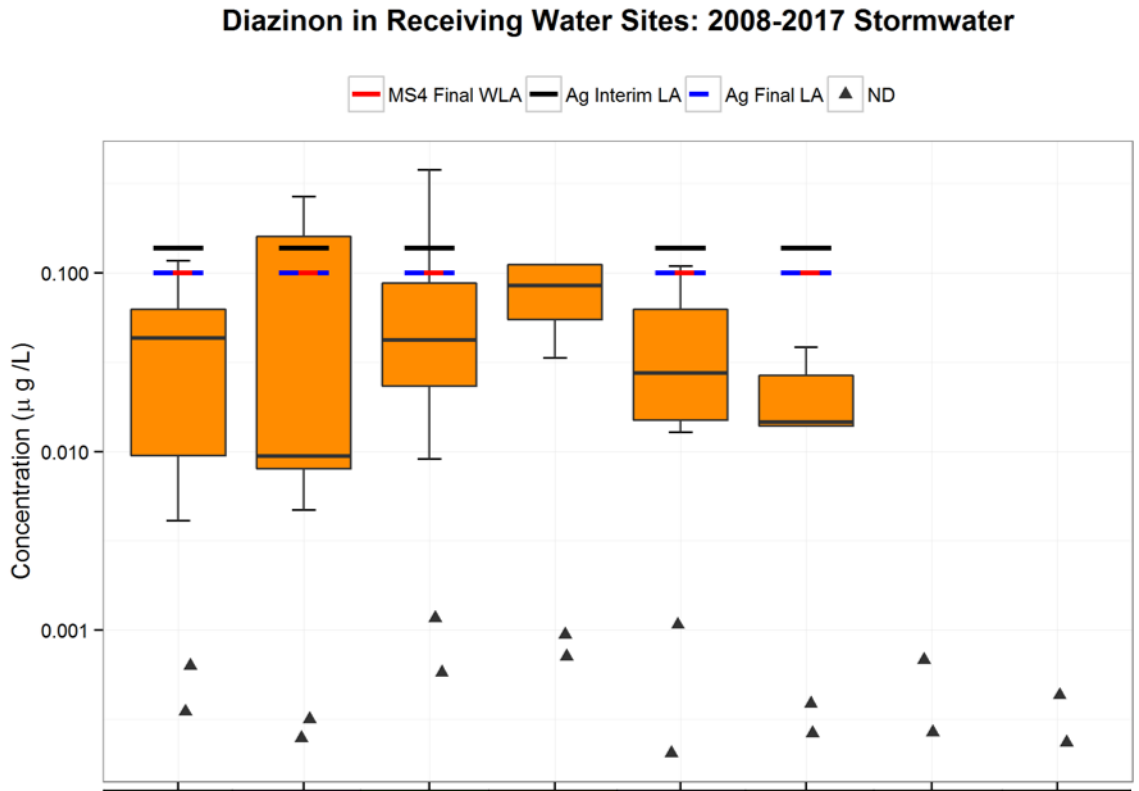
Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY
Dec-16	Storm	58	0.064	0.033	<0.0005	0.042	<0.0005	2.095	--	0.055	0.158	0.117	0.229	2.577
Jan-17	Storm	59	0.072	<0.0005	<0.0005	<0.0005	<0.0005	1.126	--	0.423	0.131	0.057	0.192	0.285

Figure 48. Chlorpyrifos Stormwater Concentrations in Urban and Ag Sites: 2008-2017



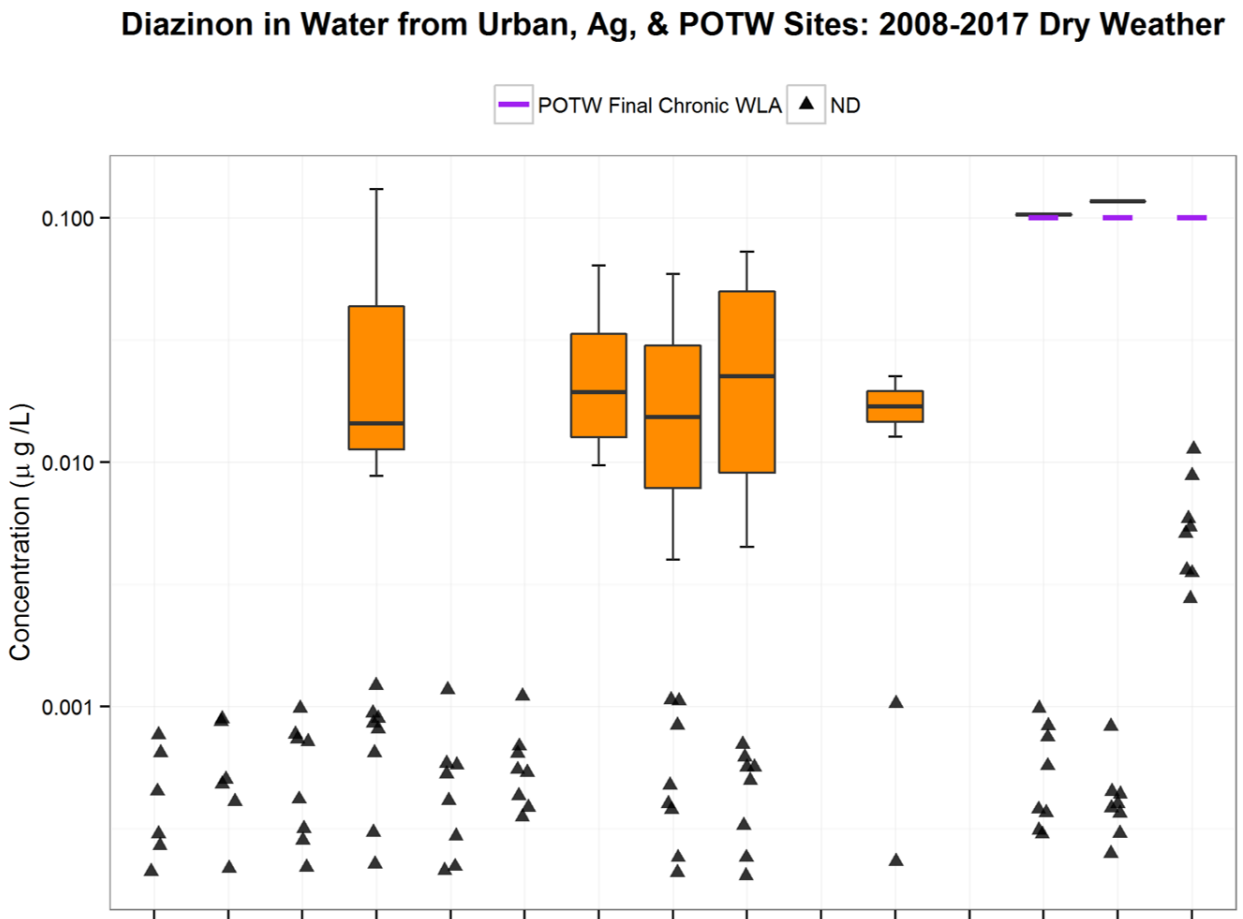
Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Aug-16	Dry	56	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005
Nov-16	Dry	57	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005
Feb-17	Dry	60	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005
May-17	Dry	61	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005

Figure 49. Diazinon Dry Weather Concentrations in Receiving Water Sites: 2008-2017



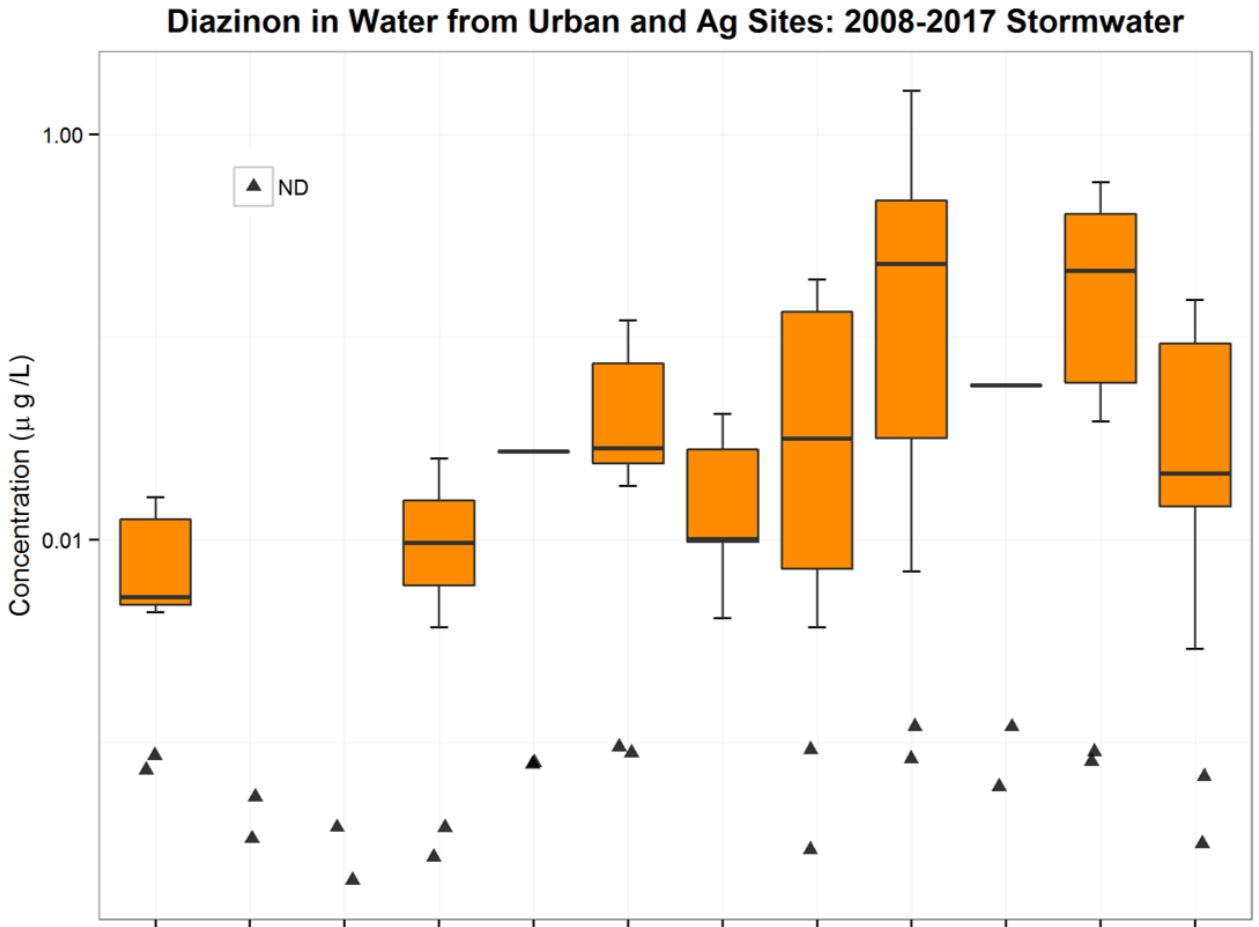
Date	Type	Event	01_RR_BR	03_UNIV	04_WOOD	06_UPLAND	07_HITCH	9B_ADOLF	10_GATE	13_BELT
Dec-16	Storm	58	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Jan-17	Storm	59	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Figure 50. Diazinon Stormwater Concentrations in Receiving Water Sites: 2008-2017



Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	--	--	--	<0.0005	<0.0005	<0.0052
Nov-16	Dry	57	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	--	--	--	<0.0005	<0.0005	<0.0052
Feb-17	Dry	60	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	--	<0.0005	--	<0.0005	<0.0005	<0.0052
May-17	Dry	61	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	--	--	--	<0.0005	<0.0005	<0.0052

Figure 51. Diazinon Dry Weather Concentrations in Urban, Ag, and POTW Sites: 2008-2017

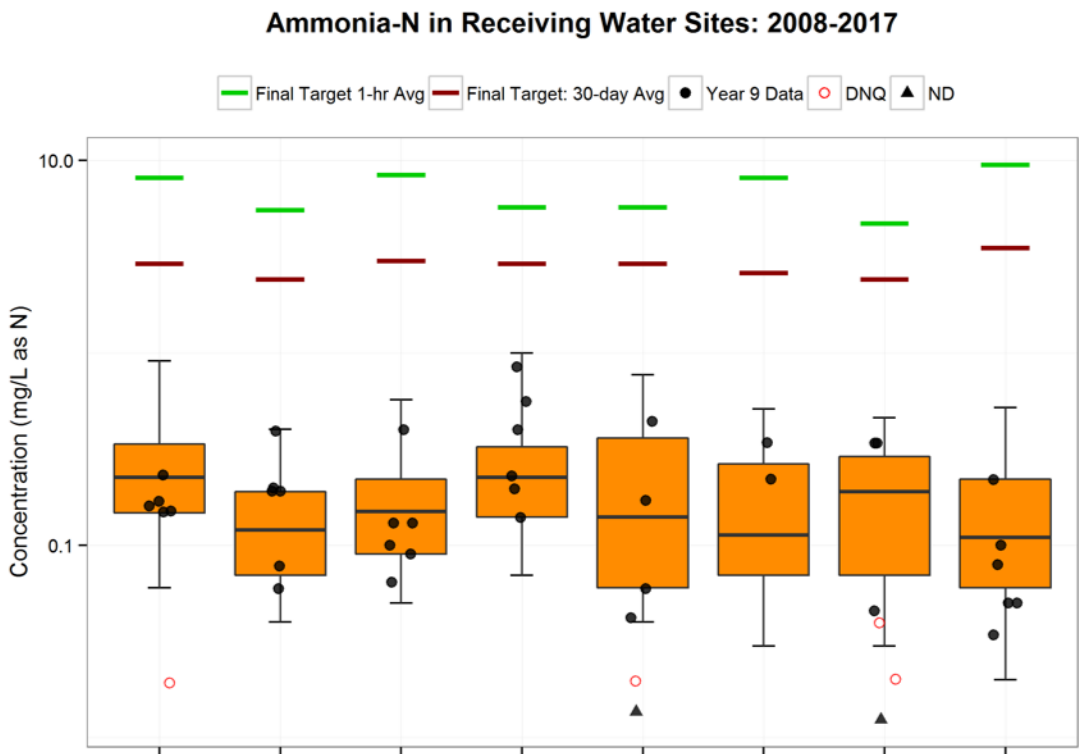


Date	Type	Event	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY
Dec-16	Storm	58	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Jan-17	Storm	59	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Figure 52. Diazinon Stormwater Concentrations in Urban and Ag Sites: 2008-2017

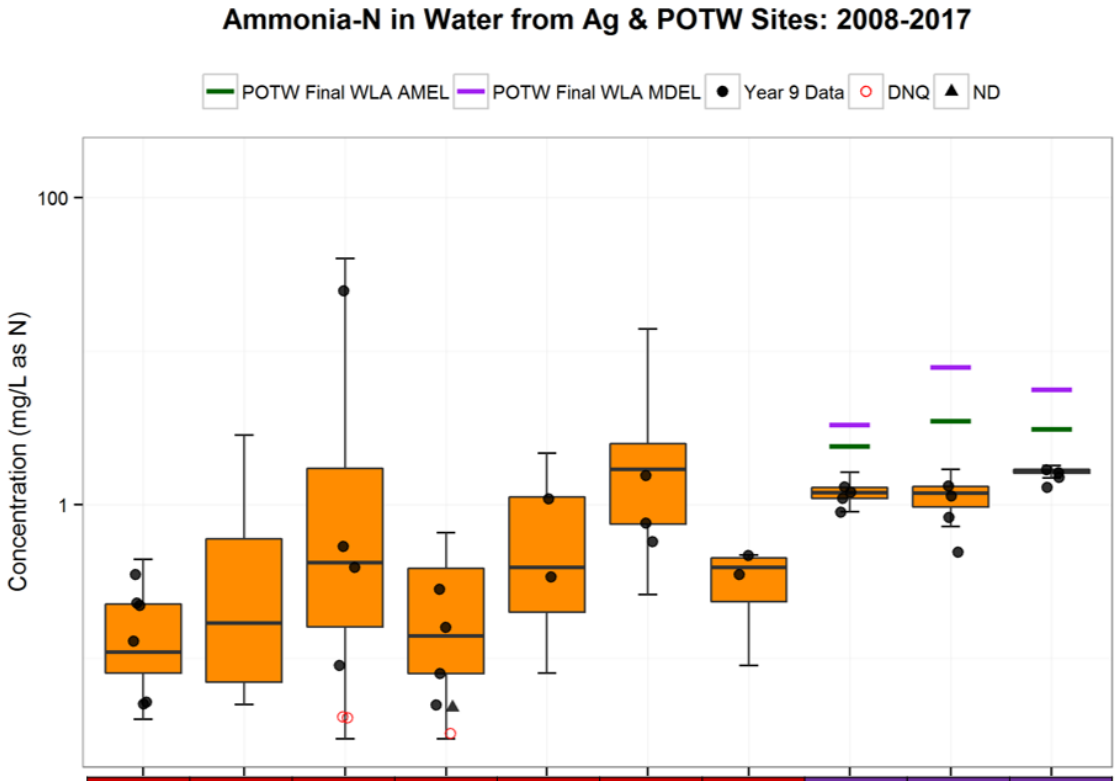
NUTRIENTS TMDL

Final targets and allocations are effective for the Nutrients TMDL. The applicable targets for each monitoring site are presented in the figures below. Data collected during year nine, which is the reporting period for this document, have been overlain on the box plots as circles. The box plots include all of the data collected during this program (2008-2017). This was done to allow for easy comparison between recent data and what have been collected overall. The ninth year data are presented in tabular form below each box plot. Bolded values in the tables within each figure indicate the concentration was above the applicable limits for that constituent. Italicized values in the tables within each figure indicate the concentration was DNQ. Values in the tables within each figure with a "<" preceding them, indicate the constituent was ND at the MDL for that constituent. Values identified as "--" in the tables indicate no samples were collected at those sites for those events.



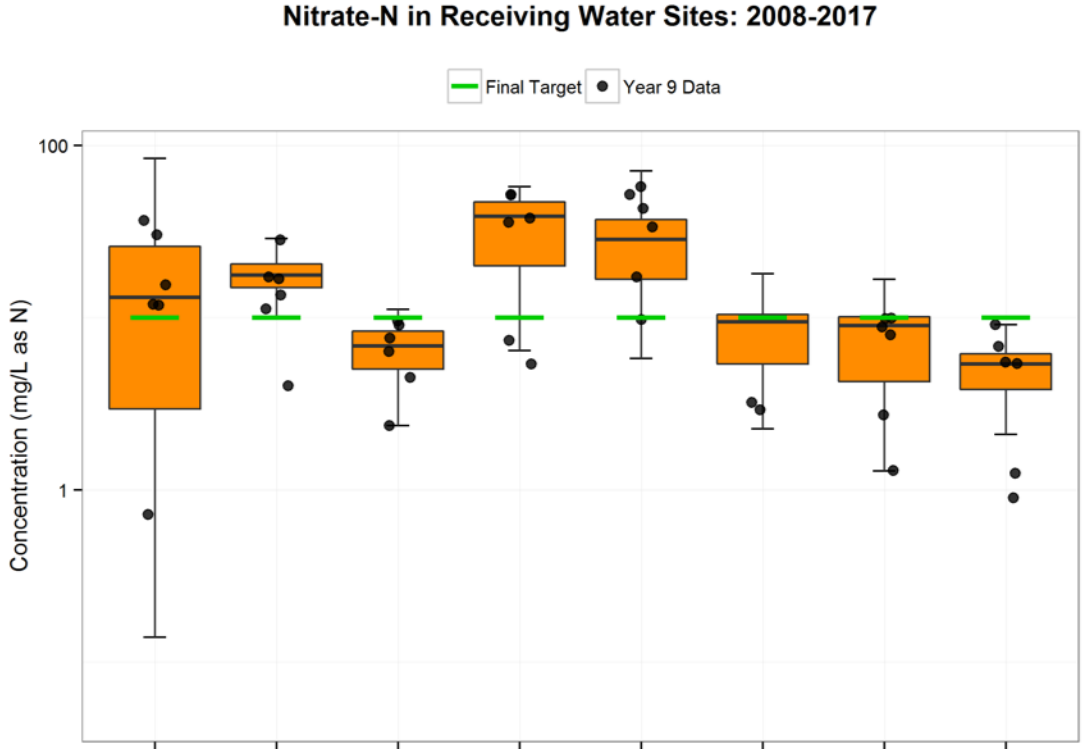
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD	05_CENTR	06_UPLAND	07_HITCH	9B_ADOLF
Aug-16	Dry	56	0.23	0.19	0.09	0.4	0.06	--	*0.02*	0.05
Nov-16	Dry	57	0.17	0.19	0.10	0.85	*0.02*	--	*0.04*	0.05
Dec-16	Storm	58	0.15	0.39	0.40	0.56	0.44	0.22	0.34	0.22
Jan-17	Storm	59	0.15	0.06	0.13	0.14	0.17	0.34	0.34	0.10
Feb-17	Dry	60	0.16	0.20	0.13	0.23	<0.02	--	<0.02	0.08
May-17	Dry	61	*0.01*	0.07	0.06	0.19	0.04	--	0.04	0.03

Figure 53. Ammonia-N Concentrations in Receiving Water Sites: 2008-2017



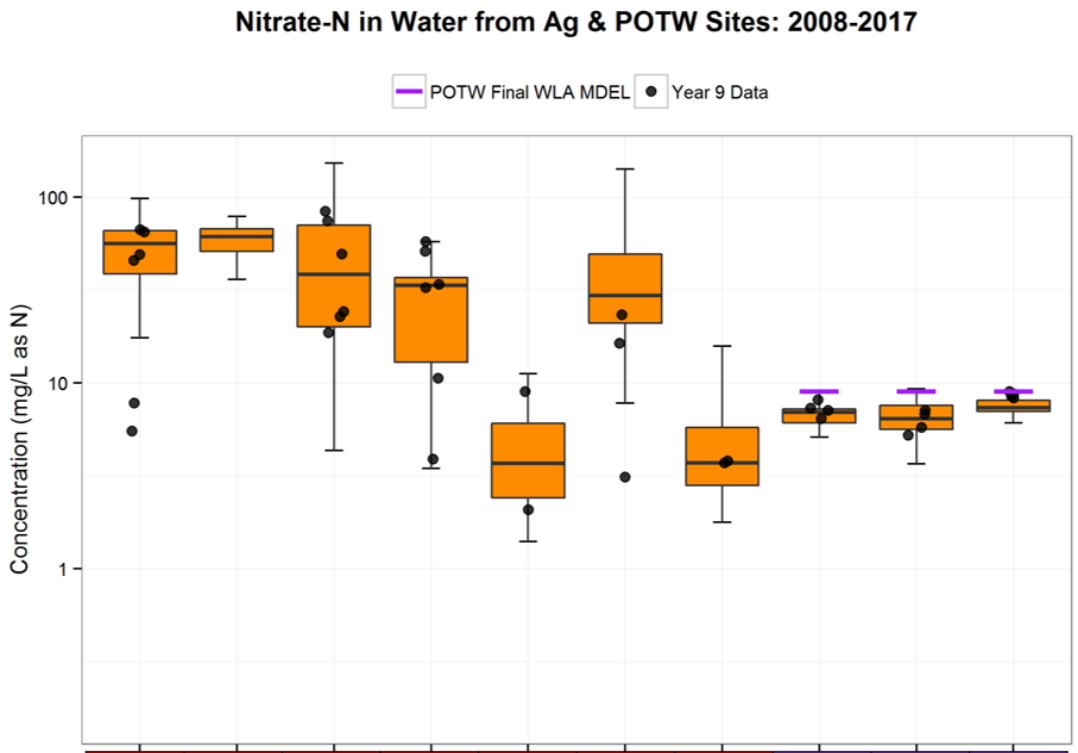
Date	Type	Event	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	0.35	--	0.09	0.05	--	--	--	1.1	1.13	1.7
Nov-16	Dry	57	0.05	--	24.80	*0.03*	--	--	--	1.3	1.33	1.6
Dec-16	Storm	58	0.22	--	0.53	0.16	1.10	1.56	0.47	NS	NS	NS
Jan-17	Storm	59	0.23	--	*0.04*	0.28	0.34	0.76	0.35	NS	NS	NS
Feb-17	Dry	60	0.13	--	*0.04*	<0.02	--	0.57	--	1.1	1.82	1.3
May-17	Dry	61	0.05	--	0.39	0.07	--	--	--	0.9	0.49	1.5

Figure 54. Ammonia-N Concentrations in Ag and POTW Sites: 2008-2017



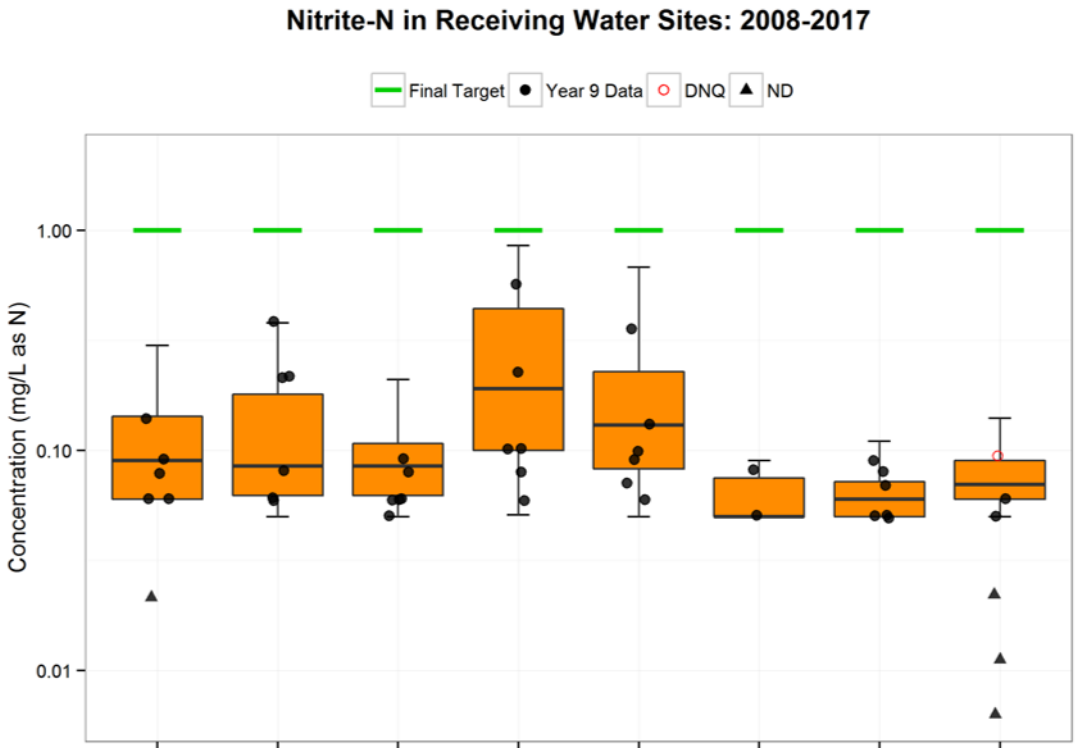
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD	05_CENTR	06_UPLAND	07_HITCH	9B_ADOLF
Aug-16	Dry	56	**11.82**	**11.26**	7.64	**37.78**	**33.72**	--	9.86	5.42
Nov-16	Dry	57	**15.49**	**17.25**	9.56	**35.78**	**43.12**	--	8.82	9.13
Dec-16	Storm	58	**11.93**	**16.78**	4.49	5.40	**17.22**	3.22	2.73	1.25
Jan-17	Storm	59	**30.36**	4.03	2.37	7.40	9.73	2.92	1.30	0.90
Feb-17	Dry	60	**36.70**	**13.53**	6.38	**51.8**	**57.65**	--	7.96	6.80
May-17	Dry	61	0.72	**28.34**	9.05	**51.75**	**52.05**	--	9.93	5.52

Figure 55. Nitrate-N Concentrations in Receiving Water Sites: 2008-2017



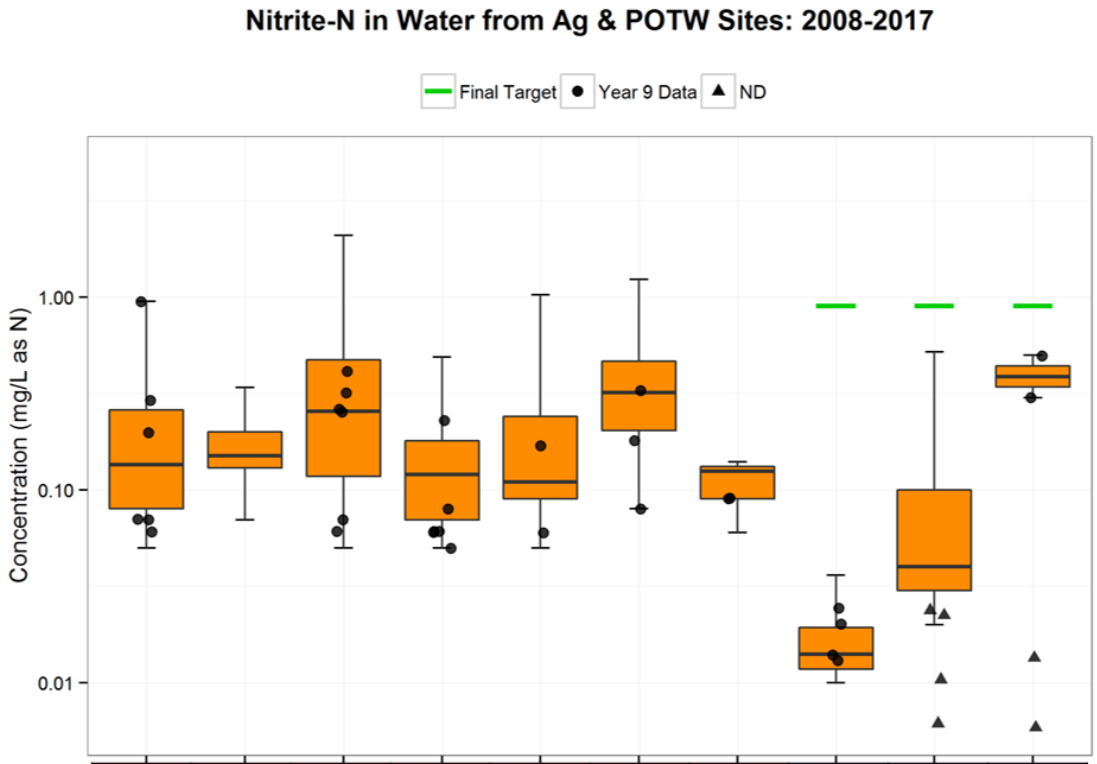
Date	Type	Event	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	45.58	--	49.30	32.47	--	--	--	7.3	6.80	8.3
Nov-16	Dry	57	49.15	--	83.55	33.84	--	--	--	7.1	5.21	**9.0**
Dec-16	Storm	58	7.79	--	18.58	10.61	8.99	23.20	3.80	NS	NS	NS
Jan-17	Storm	59	5.50	--	24.26	3.88	2.08	3.11	3.71	NS	NS	NS
Feb-17	Dry	60	65.00	--	74.30	50.90	--	16.35	--	6.4	5.75	8.5
May-17	Dry	61	66.65	--	22.66	57.40	--	--	--	8.1	7.12	8.7

Figure 56. Nitrate-N Concentrations in Ag and POTW Sites: 2008-2017



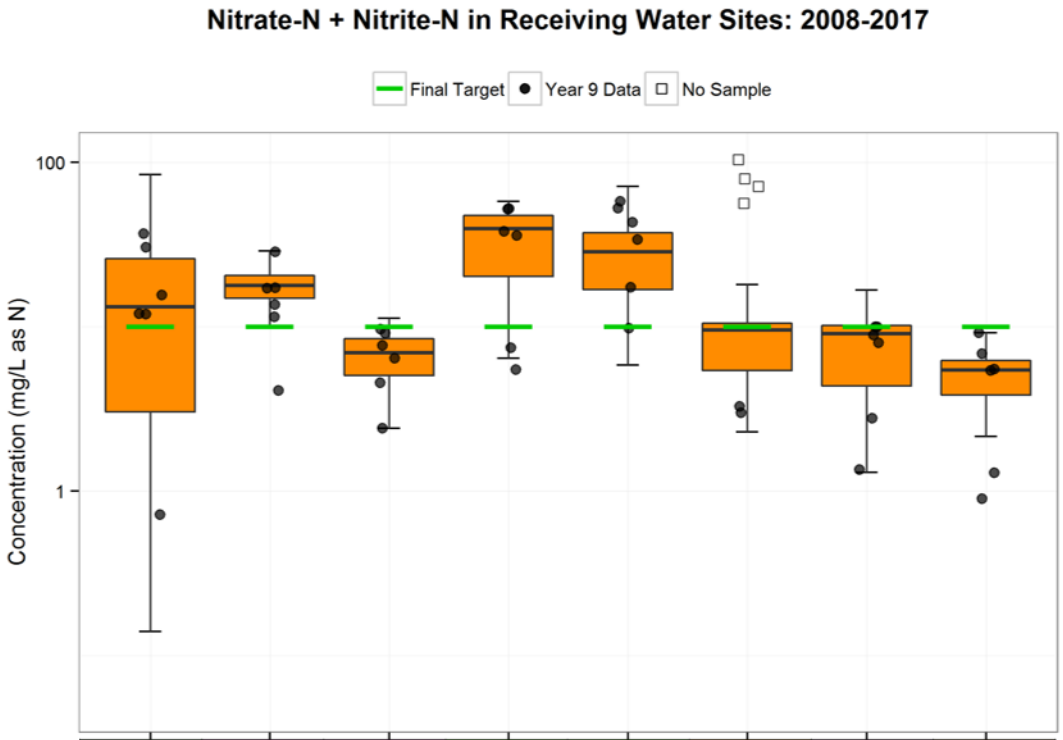
Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD	05_CENTR	06_UPLAND	07_HITCH	9B_ADOLF
Aug-16	Dry	56	0.14	0.22	0.06	0.23	0.10	--	0.09	<0.01
Nov-16	Dry	57	0.08	0.06	0.09	0.10	0.09	--	0.08	0.05
Dec-16	Storm	58	0.06	0.38	0.06	0.08	0.13	0.05	0.05	*0.04*
Jan-17	Storm	59	0.09	0.06	0.05	0.06	0.06	0.08	0.05	<0.01
Feb-17	Dry	60	0.06	0.08	0.06	0.10	0.07	--	0.05	0.06
May-17	Dry	61	<0.01	0.21	0.08	0.56	0.35	--	0.07	<0.01

Figure 57. Nitrite-N Concentrations in Receiving Water Sites: 2008-2017



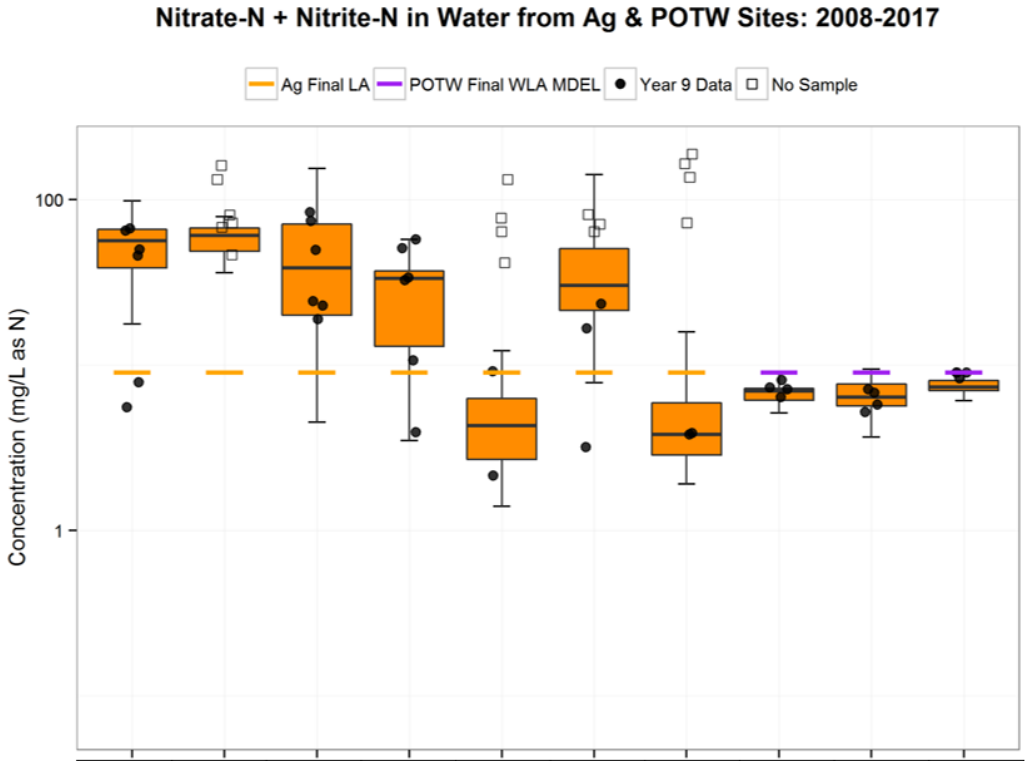
Date	Type	Event	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	0.20	--	0.25	0.06	--	--	--	0.020	<0.01	<0.01
Nov-16	Dry	57	0.95	--	0.41	0.06	--	--	--	0.024	<0.01	<0.01
Dec-16	Storm	58	0.07	--	0.32	0.06	0.17	0.18	0.09	NS	NS	NS
Jan-17	Storm	59	0.06	--	0.06	0.05	0.06	0.08	0.09	NS	NS	NS
Feb-17	Dry	60	0.07	--	0.07	0.08	--	0.33	--	0.013	<0.01	0.50
May-17	Dry	61	0.29	--	0.26	0.23	--	--	--	0.014	<0.01	0.30

Figure 58. Nitrite-N Concentrations in Ag and POTW Sites: 2008-2017



Date	Type	Event	01_RR_BR	02_PCH	03_UNIV	04_WOOD	05_CENTR	06_UPLAND	07_HITCH	9B_ADOLF
Aug-16	Dry	56	**11.96**	**11.48**	7.7	**38.01**	**33.82**	--	9.95	5.42
Nov-16	Dry	57	**15.57**	**17.31**	9.65	**35.88**	**43.21**	--	8.90	9.18
Dec-16	Storm	58	**11.99**	**17.16**	4.55	5.48	**17.35**	3.27	2.78	1.29
Jan-17	Storm	59	**30.45**	4.09	2.42	7.46	9.79	3.00	1.35	0.90
Feb-17	Dry	60	**36.76**	**13.61**	6.44	**51.90**	**57.72**	--	8.01	6.86
May-17	Dry	61	0.72	**28.55**	9.13	**52.31**	**52.4**	--	**10.00**	5.52

Figure 59. Nitrate-N + Nitrite-N Concentrations in Receiving Water Sites: 2008-2017

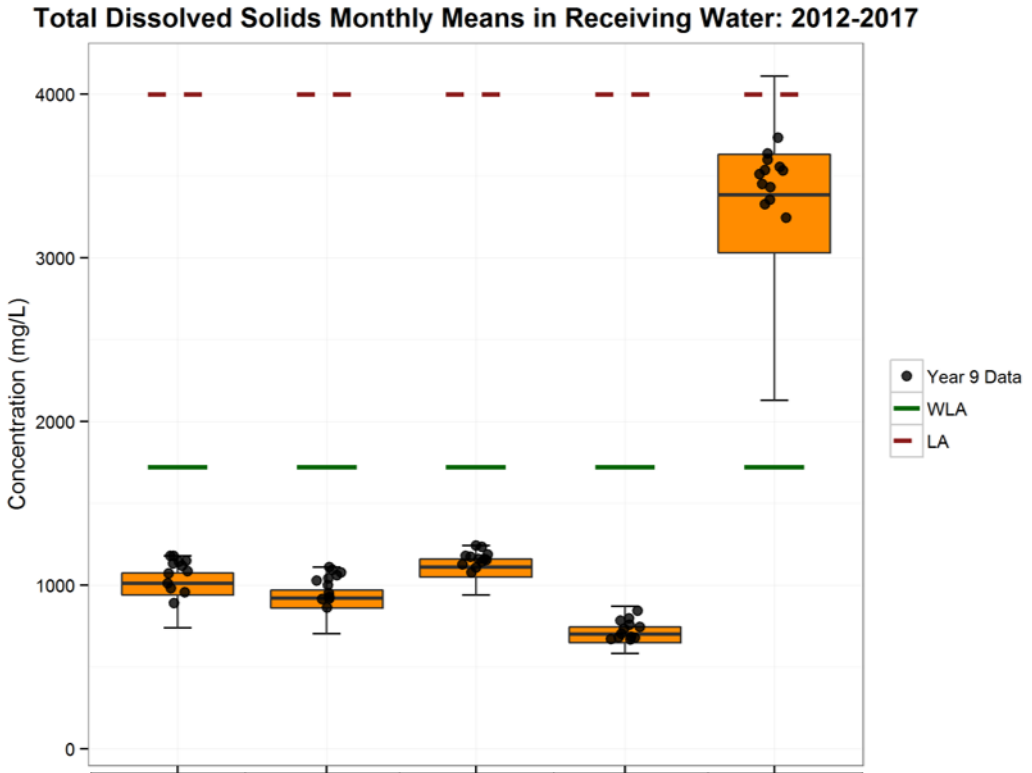


Date	Type	Event	01T_ODD2_DCH	02D_BROOM	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY	07D_SIMI	9AD_CAMA	10D_HILL
Aug-16	Dry	56	**45.78**	--	**49.55**	**32.53**	--	--	--	7.32	6.80	8.3
Nov-16	Dry	57	**50.10**	--	**83.96**	**33.90**	--	--	--	7.12	5.21	**9.0**
Dec-16	Storm	58	7.86	--	**18.90**	**10.67**	**9.16**	**23.38**	**3.89**	NS	NS	NS
Jan-17	Storm	59	5.56	--	**24.32**	3.93	2.14	3.19	3.80	NS	NS	NS
Feb-17	Dry	60	**65.07**	--	**74.37**	**50.98**	--	**16.68**	--	6.41	5.75	**9.0**
May-17	Dry	61	**66.94**	--	**22.92**	**57.63**	--	--	--	8.11	7.12	**9.0**

Figure 60. Nitrate-N + Nitrite-N Concentrations in Ag and POTW Sites: 2008-2017

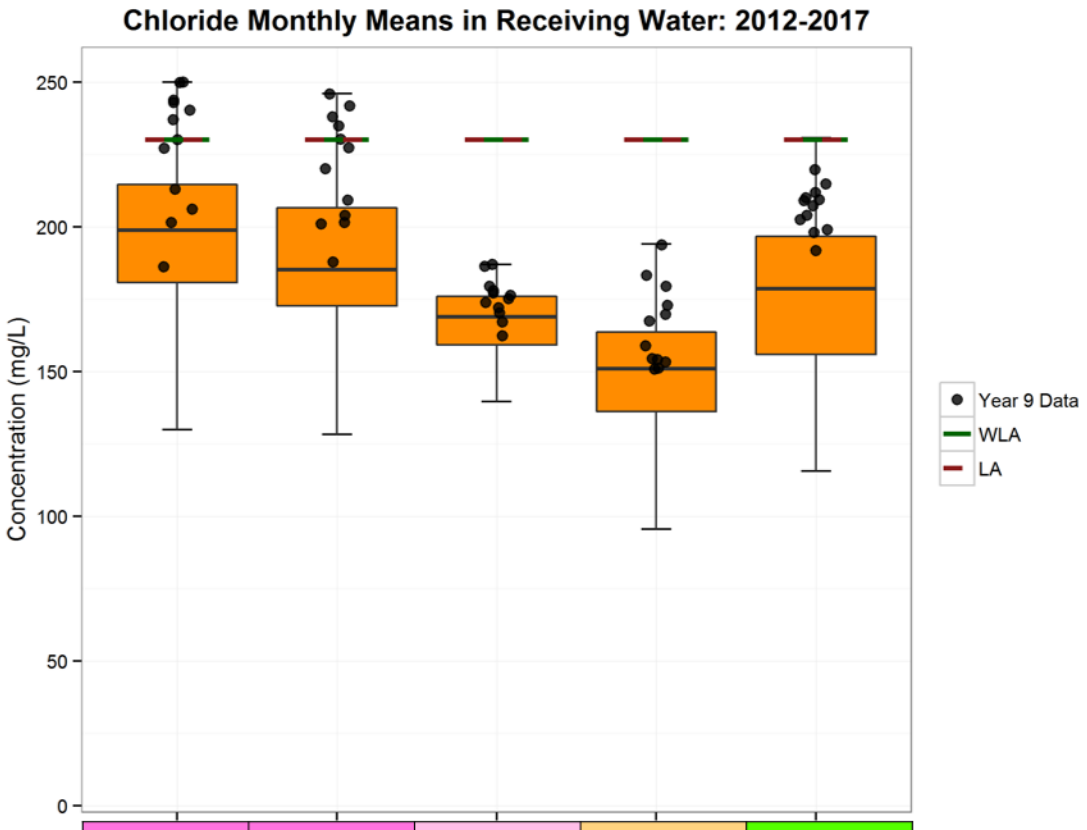
SALTS TMDL

For the Salts TMDL, compliance with interim dry weather salt allocations is determined using monthly mean salt concentrations for dry weather developed from the time-series of data collected at receiving water sites. Bolded values in the tables within each figure indicate the concentration was above the interim MS4 wasteload allocation and the interim load allocation for that constituent. Italicized values in the tables within each figure indicate the concentration was above the interim MS4 wasteload allocation for that constituent.



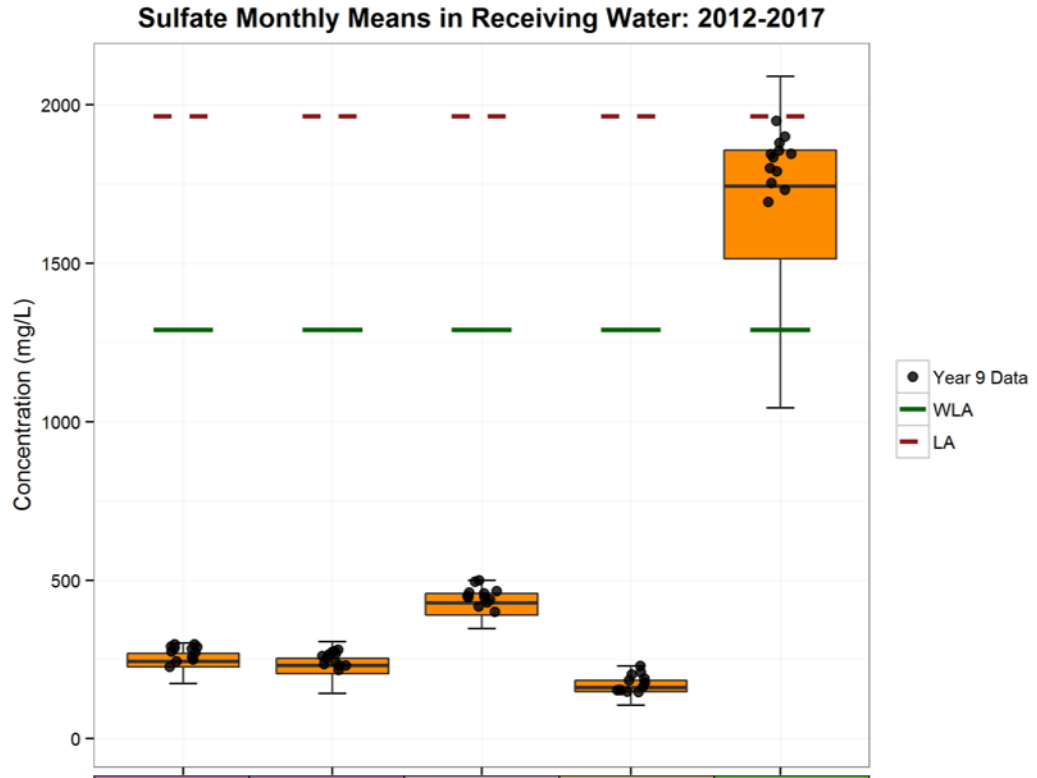
Date	03_UNIV	9A_HOWAR	07_TIERRA	9B_BARON	04_WOOD
Jul-16	1144	1093	1180	703	*3534*
Aug-16	1132	1077	1155	683	*3429*
Sep-16	1120	1028	1144	679	*3355*
Oct-16	1071	951	1127	681	*3243*
Nov-16	1011	930	1106	668	*3598*
Dec-16	980	915	1077	671	*3532*
Jan-17	891	862	1186	745	*3733*
Feb-17	957	917	1235	784	*3638*
Mar-17	1086	999	1241	843	*3553*
Apr-17	1178	1062	1174	798	*3511*
May-17	1149	1042	1160	758	*3449*
Jun-17	1179	1110	1158	734	*3326*

Figure 61. TDS Monthly Means for Receiving Water Sites Collected During Dry Weather



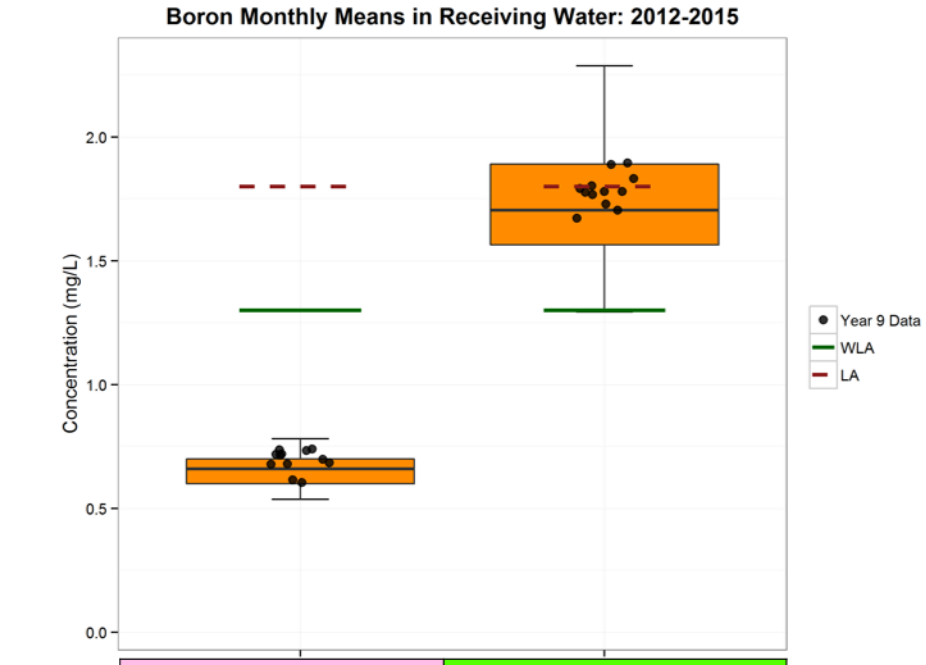
Date	03_UNIV	9A_HOWAR	07_TIERRA	9B_BARON	04_WOOD
Jul-16	**243**	**242**	178	159	209
Aug-16	**240**	**238**	174	154	202
Sep-16	**237**	227	172	153	198
Oct-16	227	209	170	154	192
Nov-16	213	204	167	151	212
Dec-16	206	201	162	151	209
Jan-17	186	188	179	170	220
Feb-17	201	201	186	179	215
Mar-17	**230**	220	187	194	210
Apr-17	**250**	**235**	177	183	207
May-17	**244**	**230**	175	173	204
Jun-17	**250**	**246**	176	167	199

Figure 62. Chloride Monthly Means for Receiving Water Sites Collected During Dry Weather



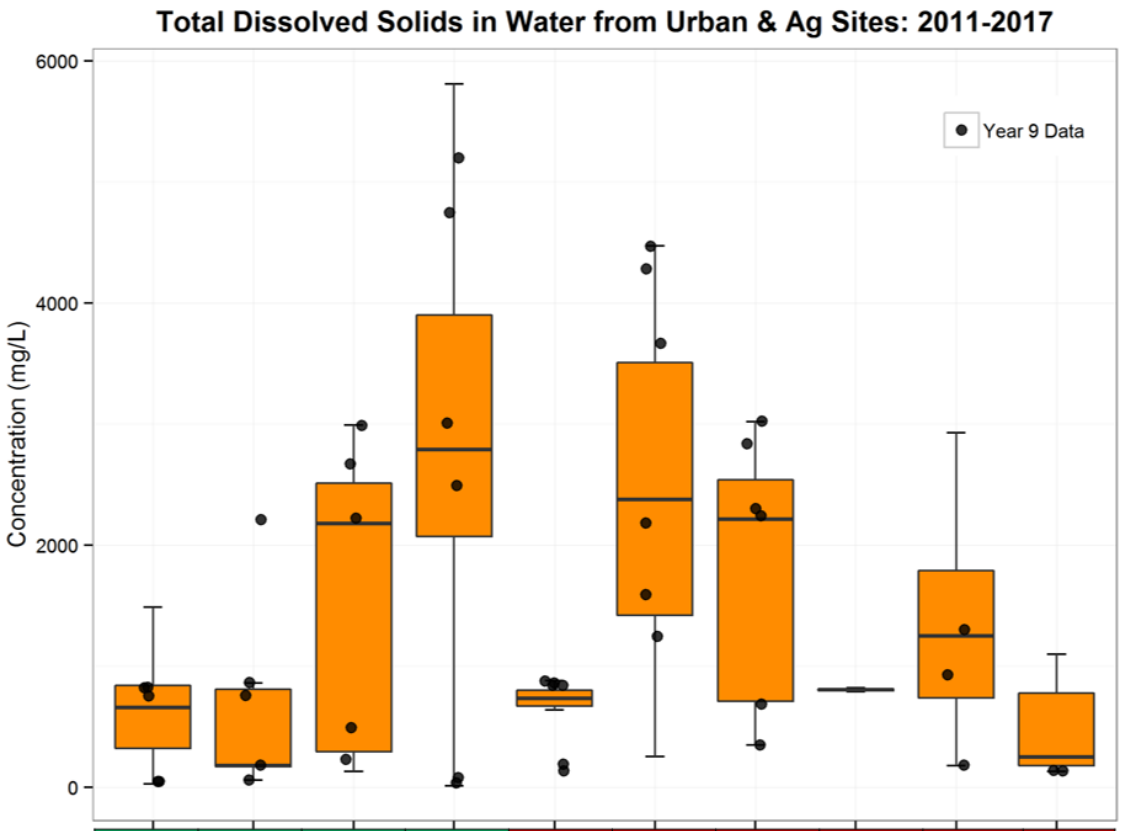
Date	03_UNIV	9A_HOWAR	07_TIERRA	9B_BARON	04_WOOD
Jul-16	289	277	461	164	*1845*
Aug-16	286	273	446	154	*1790*
Sep-16	283	260	439	152	*1752*
Oct-16	271	240	429	153	*1693*
Nov-16	256	235	416	147	*1878*
Dec-16	249	231	399	149	*1844*
Jan-17	227	217	466	183	*1948*
Feb-17	243	231	495	202	*1899*
Mar-17	275	253	499	230	*1855*
Apr-17	297	269	458	209	*1833*
May-17	290	264	449	190	*1800*
Jun-17	298	281	446	177	*1731*

Figure 63. Sulfate Monthly Means for Receiving Water Sites Collected During Dry Weather



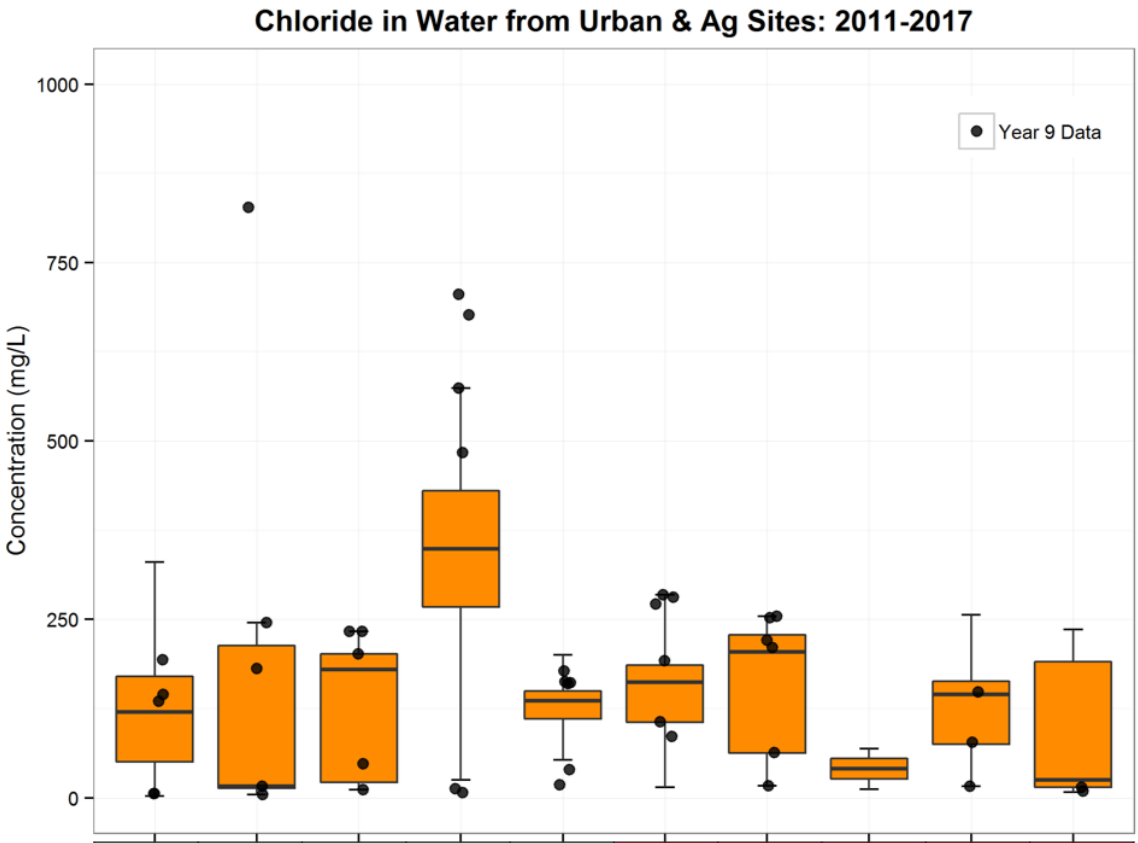
Date	07_TIERRA	04_WOOD
Jul-16	0.7	**1.8**
Aug-16	0.7	**1.8**
Sep-16	0.7	*1.7*
Oct-16	0.7	*1.7*
Nov-16	0.6	**1.8**
Dec-16	0.6	**1.8**
Jan-17	0.7	**1.9**
Feb-17	0.7	**1.9**
Mar-17	0.7	**1.8**
Apr-17	0.7	**1.8**
May-17	0.7	**1.8**
Jun-17	0.7	*1.7*

Figure 64. Boron Monthly Means for Receiving Water Sites Collected During Dry Weather



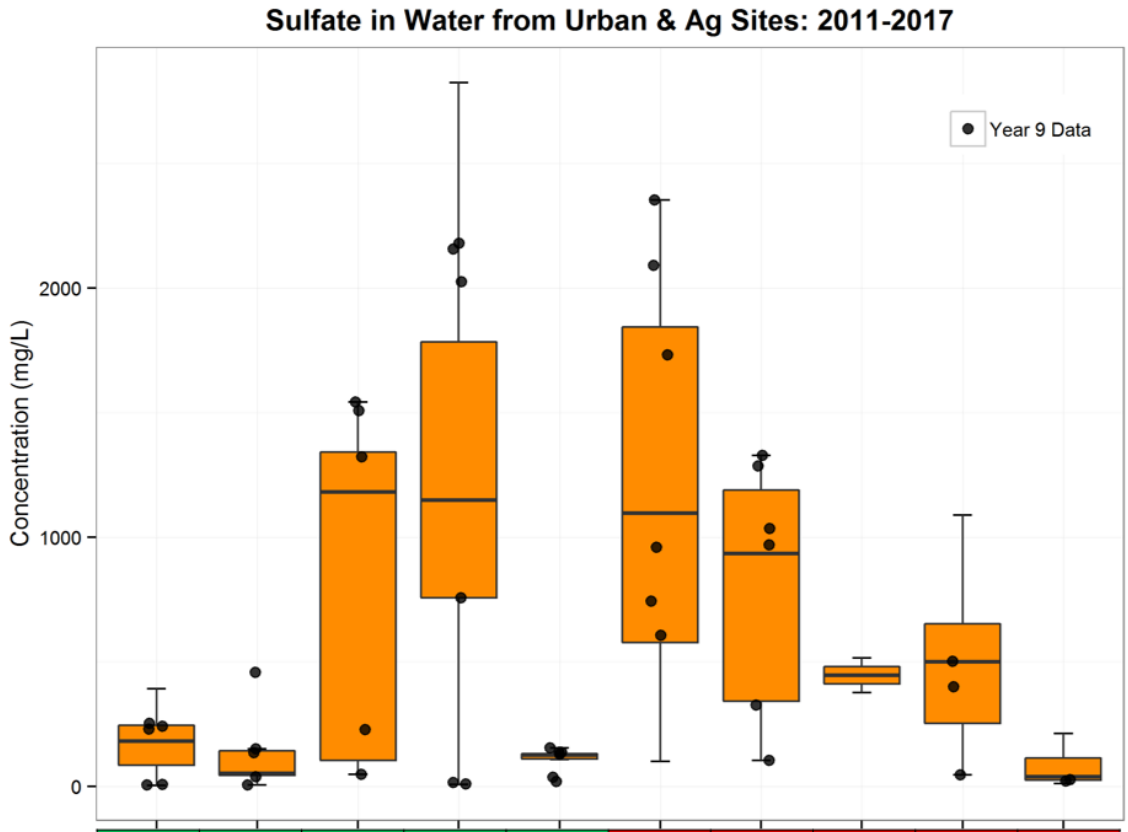
Date	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY
Aug-16	--	2210	--	4750	860	3670	2300	--	--	--
Nov-16	820	--	2220	2490	880	4280	2240	--	--	--
Dec-16	50	180	490	80	130	1250	690	--	930	140
Jan-17	50	60	230	40	190	1590	350	--	180	130
Feb-17	750	760	2990	5200	840	4470	3020	--	1300	--
May-17	820	860	2670	3010	840	2180	2840	--	--	--

Figure 65. Total Dissolved Solids in Water from Urban and Ag Sites: 2011-2017



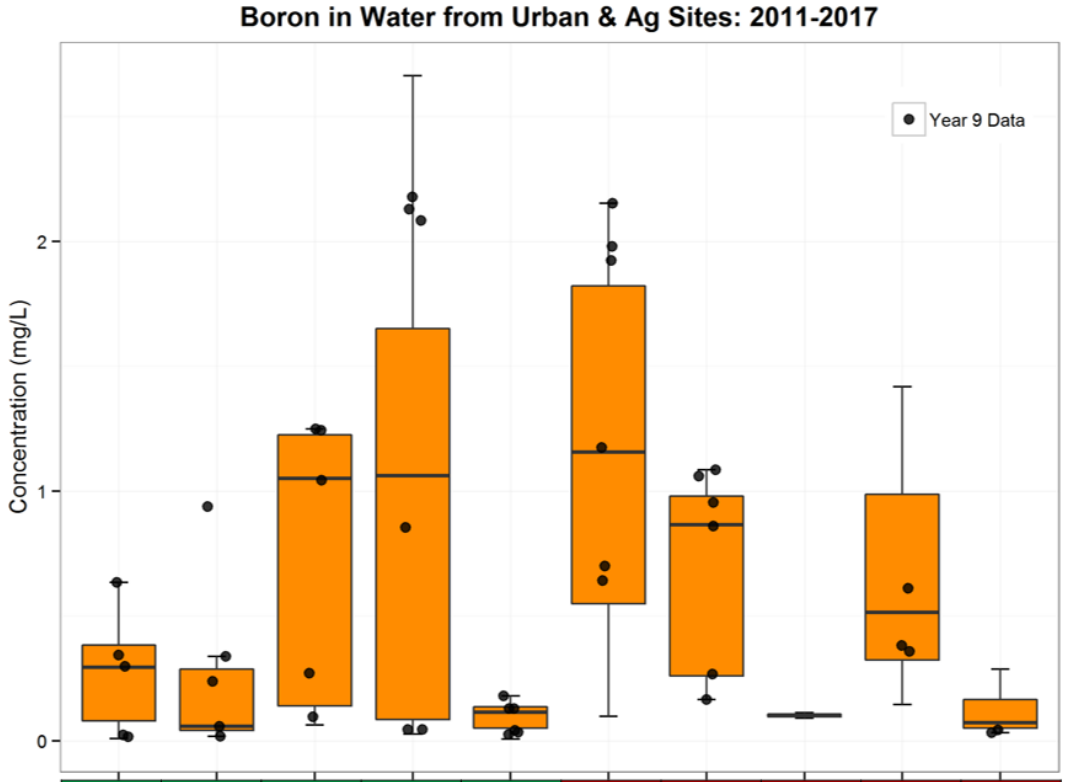
Date	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY
Aug-16	--	827.2	--	483.8	159.7	284.4	220.6	--	--	--
Nov-16	144.9	--	202	676.6	162.9	271.4	210.7	--	--	--
Dec-16	5.6	16.0	47.6	12.52	18.2	85.7	63.5	--	77.6	9.2
Jan-17	5.8	4.3	11.4	7.4	39.1	106.8	16.5	--	16.2	15.0
Feb-17	135.2	180.9	233	705.3	160.9	281.1	254.1	--	148.2	--
May-17	193.5	245.2	233.1	574	177.6	192.3	252.4	--	--	--

Figure 66. Chloride in Water from Urban & Ag Sites: 2011-2017



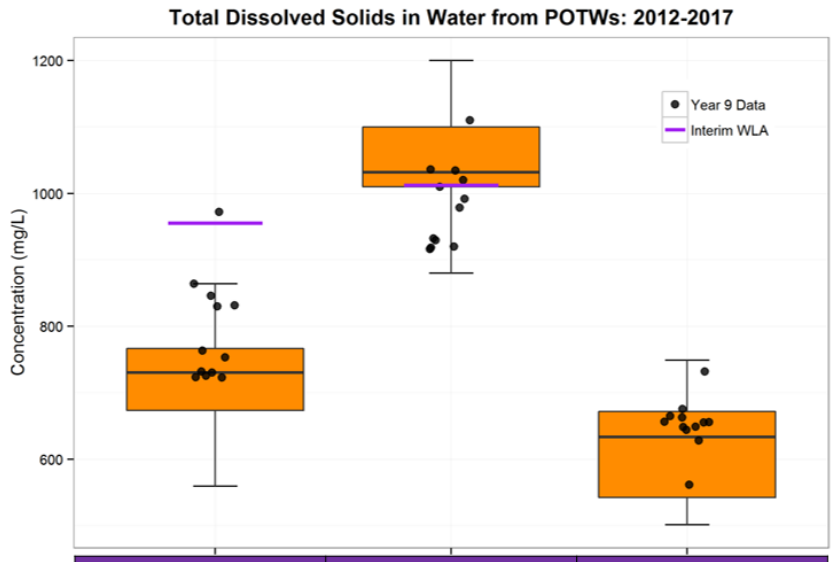
Date	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY
Aug-16	--	456.8	--	2179.6	137.3	1731.2	1034.1	--	--	--
Nov-16	252.1	--	1322.2	757.4	129.3	2091	969.5	--	--	--
Dec-16	5.6	37.8	227.6	14.5	19.02	605.9	325.0	--	399.6	19.9
Jan-17	6.4	6.1	48.0	8.73	36.3	743.4	104.6	--	45.5	27.0
Feb-17	240.5	151.1	1542.5	2156.3	153.5	2352.7	1328.1	--	502.4	--
May-17	228.7	134.3	1508.3	2025.2	136.24	959.3	1284.8	--	--	--

Figure 67. Sulfate in Water from Urban & Ag Sites: 2011-2017



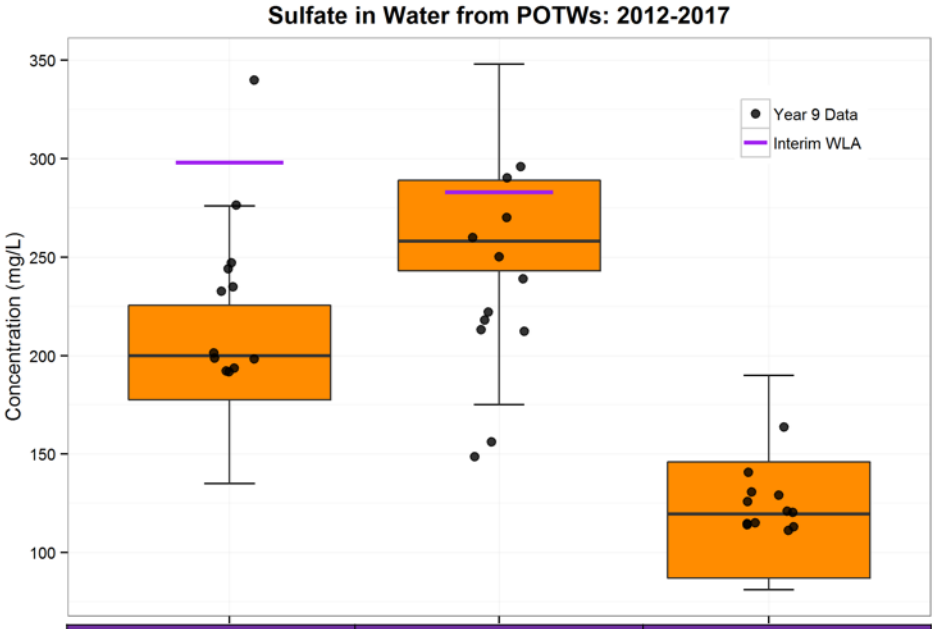
Date	04D_VENTURA	07D_MPK	07D_SIM_BUS	9BD_ADOLF	13_SB_HILL	04D_WOOD	05D_SANT_VCWPD	06T_FC_BR	07D_HITCH_LEVEE_2	9BD_GERRY
Aug-16	--	0.93	--	2.0	0.17	1.9	0.95	--	--	--
Nov-16	0.63	--	1.0	0.85	0.13	1.9	0.86	--	--	--
Dec-16	0.02	0.05	0.27	0.04	0.03	0.64	0.26	--	0.35	0.03
Jan-17	0.01	0.01	0.09	0.04	0.04	0.69	0.16	--	0.38	0.04
Feb-17	0.29	0.23	1.2	2.1	0.12	2.1	1.0	--	0.61	--
May-17	0.34	0.33	1.2	2.1	0.02	1.1	1.0	--	--	--

Figure 68. Boron in Water from Urban & Ag Sites: 2011-2017



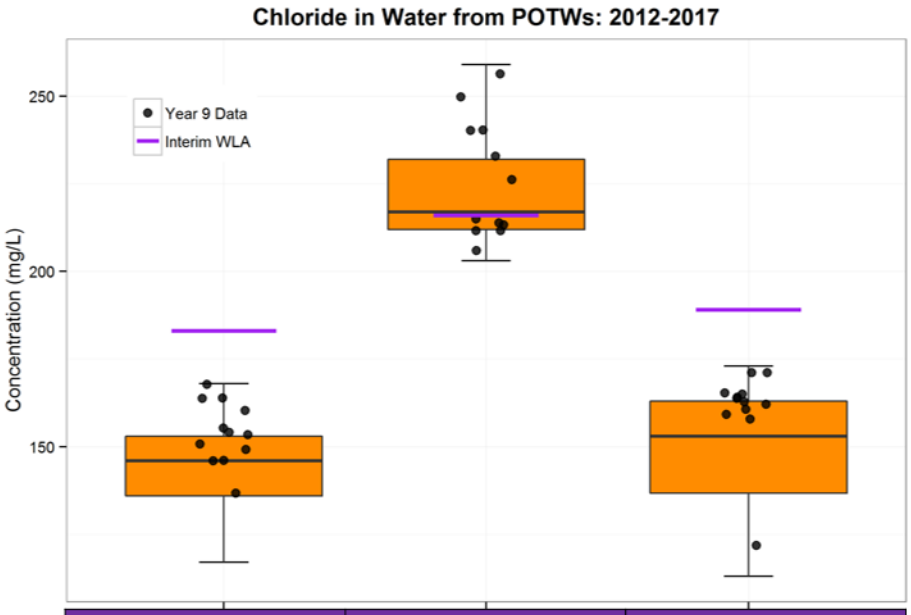
Date	07D_SIMI	9AD_CAMA	10D_HILL
Jul-16	830	1010	675
Aug-16	763	**1020**	655
Sep-16	723	**1034**	656
Oct-16	732	918	648
Nov-16	723	930	663
Dec-16	730	932	561
Jan-17	753	920	628
Feb-17	**972**	992	656
Mar-17	864	916	665
Apr-17	846	978	732
May-17	831	**1110**	649
Jun-17	725	**1036**	644

Figure 69. Total Dissolved Solids in Water from POTW Sites: 2012-2017



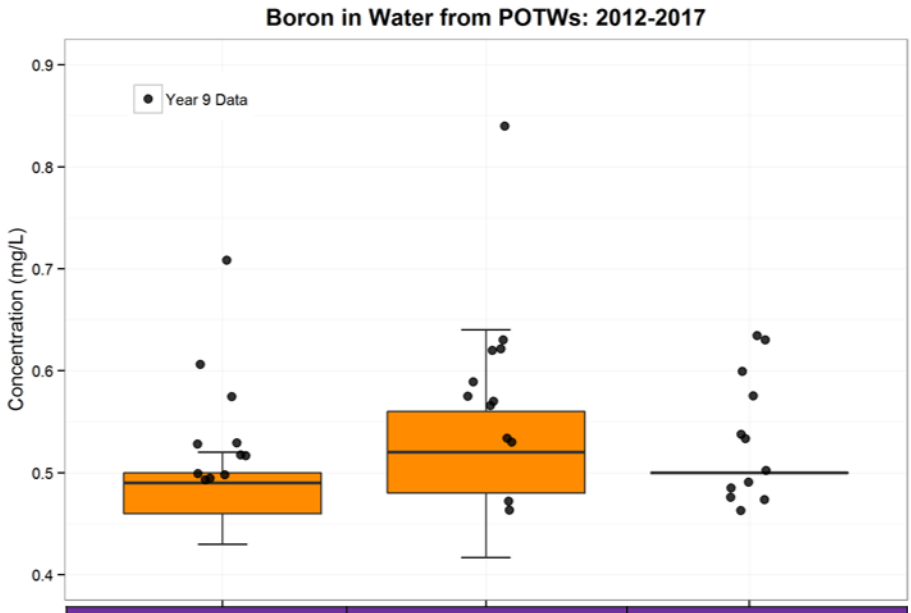
Date	07D_SIMI	9AD_CAMA	10D_HILL
Jul-16	235	250	131
Aug-16	194	**290**	164
Sep-16	192	222	111
Oct-16	192	156	113
Nov-16	199	149	126
Dec-16	201	213	129
Jan-17	233	212	120
Feb-17	**340**	218	115
Mar-17	276	239	121
Apr-17	244	270	141
May-17	247	**296**	114
Jun-17	198	260	115

Figure 70. Sulfate in Water from POTW Sites: 2012-2017



Date	07D_SIMI	9AD_CAMA	10D_HILL
Jul-16	164	**240**	171
Aug-16	154	**250**	122
Sep-16	153	**233**	171
Oct-16	146	206	165
Nov-16	146	213	159
Dec-16	151	214	158
Jan-17	149	215	161
Feb-17	168	212	163
Mar-17	160	212	165
Apr-17	137	**240**	164
May-17	164	**256**	164
Jun-17	155	**226**	162

Figure 71. Chloride in Water from POTW Sites: 2012-2017



Date	07D_SIMI	9AD_CAMA	10D_HILL
Jul-16	0.6	0.6	0.6
Aug-16	0.5	0.6	0.6
Sep-16	0.5	0.6	0.6
Oct-16	0.5	0.5	0.5
Nov-16	0.5	0.5	0.5
Dec-16	0.5	0.6	0.5
Jan-17	0.5	0.5	0.5
Feb-17	0.6	0.5	0.5
Mar-17	0.7	0.6	0.5
Apr-17	0.9	0.8	0.6
May-17	0.5	0.6	0.5
Jun-17	0.5	0.6	0.5

Figure 72. Boron in Water from POTW Sites: 2012-2017

TISSUE DATA

Tissue data is provided in the following tables for freshwater monitoring locations. Tissue samples are only collected in Mugu Lagoon every three years. The last tissue collection in the lagoon took place in Year 7 and the associated data can be found in that annual monitoring report. For all tables, only those constituents that have been detected in at least one sample are included.

Freshwater Tissue Data

Table 9. Calleguas Creek – Camarillo Street CSUCI (03_UNIV) Fish Tissue Data Years 1-9 [1, 2]

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Toxaphene	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
8/6/08	Arroyo Chub	Whole Fish	4.7	DNQ	ND	ND	6.6	ND	ND	373	ND	ND	ND
9/3/09		Comp. #1	4.2	25	11	24	38	97	127	2422	13	6397	98
9/3/09		Comp. #2	5.7	20	13	28	38	102	116	2782	20	5675	55
9/3/09		Comp. #3	6	32	15	31	45	117	175	2951	18	4300	56
9/3/09	Black Bullhead	Carcass	2.5	43	22	22	13	ND	184	6980	469	6469	55
9/3/09		Fillet w/ Skin	1.3	29	13	12	ND	ND	90	3603	233	3283	32
9/3/09	Common Carp	Carcass #1	4	32	15	25	17	29	100	2209	240	4805	ND
9/3/09		Carcass #2	4.3	37	19	24	DNQ	16	112	2492	328	8510	21
9/3/09		Carcass #3	4.7	47	25	26	22	31	119	2744	466	ND	ND
9/3/09		Fillet w/ Skin #1	1.5	5.5	ND	DNQ	ND	10	21	413	46	ND	ND
9/3/09		Fillet w/ Skin #2	1.6	12	DNQ	13	ND	21	25	708	115	ND	ND
9/3/09		Fillet w/ Skin #3	1.9	7.5	DNQ	18	ND	33	45	772	140	ND	ND
9/3/10	Arroyo Chub	0-85 mm	4.3	DNQ	DNQ	ND	DNQ	DNQ	DNQ	167	16	ND	ND
9/3/10		86-112 mm	7	DNQ	DNQ	DNQ	12	30	44	1300	20	646	DNQ
9/3/10	Common Carp		4.3	DNQ	DNQ	DNQ	ND	DNQ	21	247	32	403	ND

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g	Total PCBs ng/g
8/25/11	Common Carp		1.9	DNQ	ND	DNQ	ND	8.5	ND	125	ND	DNQ	ND
8/30/12	Common Carp		1.5	ND	ND	ND	ND	ND	ND	175	ND	ND	ND
8/27/13	Whole Fish Composite Fathead Minnow Green Sunfish Common Carp		3	ND	ND	ND	ND	ND	ND	200.5	ND	ND	ND
6/17/15	Common Carp	Whole Fish	5.1	12.5	3.2	6.5	6.9	35.0	77.1	2404.7	9.0	211.3	171.3
		Filet w/o skin #1	2.4	ND	ND	DNQ	DNQ	1.7	4.3	248.0	ND	35.4	DNQ
		Filet w/o skin #2	1.3	ND	ND	ND	ND	DNQ	DNQ	92.9	ND	26.2	ND
8/11/15	Fathead Minnow	Composite #1	12.6	20.0	7.6	ND	14.3	38.7	108.9	1959.1	ND	ND	35.4
		Composite #2	10.0	13.7	ND	ND	7.3	13.3	55.4	1009.4	ND	ND	23.4
		Composite #3	8.3	11.2	ND	ND	5.9	12.5	39.6	663.4	ND	ND	44.9
		Composite #4	10.9	36.1	9.0	13.0	18.4	21.3	56.0	1306.9	ND	156.8	29.7
5/25/17	Fathead Minnow	Composite #1	3.1	DNQ	DNQ	DNQ	ND	ND	10.0	129.0	ND	184.2	ND
		Composite #2	2.8	DNQ	DNQ	DNQ	ND	ND	10.0	127.0	ND	70.6	ND
		Composite #3	2.7	DNQ	DNQ	DNQ	ND	ND	10.0	137.0	ND	117.4	ND
		Composite #4	2.7	DNQ	DNQ	ND	ND	ND	ND	118.4	ND	115.6	ND

1. Only constituents with detected values are included in the table.
2. No fish were caught at this site during the two days of fish collection in summer 2016.

Table 10. Conejo Creek – Adolfo Road (9B_ADOLF) Fish Tissue Data Years 1 – 9 [1, 2]

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Toxaphene	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
8/6/08	Common Carp		3.5	ND	ND	ND	ND	ND	ND	111	54	ND	ND
9/3/09	Arroyo chub	Comp. #1	8.6	19	8.2	10	22	54	47	694	14	3611	ND
9/3/09		Comp. #2	9.5	18	5.2	15	15	40	37	646	21	3213	56
9/3/09		Comp. #3	8.4	18	6.8	16	21	43	61	629	ND	2766	67
9/3/09	Common Carp	Carcass #1	2.5	21	6.0	15	ND	ND	27	754	ND	ND	54
9/3/09		Fillet w/ Skin #1	0.8	ND	ND	ND	ND	ND	10	190	ND	ND	ND
9/3/09		Carcass #2	4.8	49	24	18	ND	ND	170	3643	99	3566	93
9/3/09		Fillet w/ Skin #2	1.6	10	5.4	8.6	ND	ND	43	1019	30	ND	26
9/3/09		Carcass Comp. #3	4	27	15	19	12	131	58	1019	190	2544	70
9/3/09		Fillet Comp. w/ Skin #3	1.8	DNQ	ND	25	ND	57	37	274	86	ND	ND
9/3/10	Arroyo chub	0-85 mm	4.9	DNQ	ND	DNQ	DNQ	11	21	626	17	487	ND
9/3/10		86-112 mm	6.6	DNQ	DNQ	ND	DNQ	DNQ	DNQ	137	14	ND	ND
8/25/11	Common carp		2.4	DNQ	DNQ	ND	ND	DNQ	ND	49	ND	DNQ	ND
8/27/13	Largemouth Bass		1.3	ND	ND	ND	ND	ND	ND	85.7	ND	ND	ND
6/17/15	Common Carp	Whole Fish	13.4	8.9	3.9	4.5	ND	5.9	10.1	193.9	DNQ	99.4	30.6
		Filet w/o skin #1	9.8	7.4	3.5	4.0	3.3	2.4	11.3	112.9	3.4	145.8	18.8
		Filet w/o skin #2	4.8	2.1	DNQ	DNQ	DNQ	1.3	3.1	164.0	ND	48.0	25.7

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Toxaphene	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
5/18/16	Common Carp	#1	5.68	7.7	DNQ	61.1	7.1	31.0	ND	226.4	DNQ	ND	46.8
		#2	3.88	9.8	DNQ	31.2	11.3	7.8	12.8	316.6	ND	DNQ	57.3
		#3	0.96	DNQ	ND	8.6	DNQ	DNQ	ND	79.9	ND	ND	31.0
5/25/17	Common Carp	Whole Fish #1	7.94	17.6	7.9	ND	ND	ND	ND	324.2	ND	142.3	31.9
		Whole Fish #2	3.56	DNQ	DNQ	DNQ	ND	ND	5.9	44.4	ND	DNQ	ND
		Whole Fish #3	6.11	6.3	DNQ	ND	ND	ND	ND	89.8	ND	DNQ	ND
	GRN Sunfish	Filet w/o skin #1	0.62	ND	ND	ND	ND	ND	ND	8.1	ND	DNQ	ND
		Filet w/o skin #2	0.81	ND	ND	ND	ND	ND	ND	DNQ	ND	DNQ	ND

1. Only constituents with detected values are included in the table.
2. No fish were caught at this site during year five.

Table 11. Arroyo Simi – Hitch Boulevard (07_HITCH) Fish Tissue Data Years 1 – 9 [1, 2]

Date	Fish			Lipids	OC Pesticides								PCBs
				Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Total PCBs
				%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
8/6/08	Arroyo Chub	Composite		8.3	ND	ND	ND	DNQ	ND	ND	521	ND	ND
9/3/09	Arroyo Chub	Composite #1	43-60mm	9.5	DNQ	ND	20	ND	52	233	955	ND	ND
9/3/09		Composite #1	65-90mm	10.6	ND	ND	5.3	DNQ	12	15.8	365	ND	ND
9/3/09		Composite #2	43-60mm	9.7	DNQ	ND	33	ND	749	437	1183	ND	ND
9/3/09		Composite #2	65-90mm	10.5	DNQ	ND	32	14.6	74	195	1648	26	28
9/3/09		Composite #3	43-60mm	8.3	DNQ	ND	26	ND	45	343	967	ND	ND
9/3/09		Composite #3	65-90mm	11.3	6.6	ND	27	ND	57	110	1275	38	ND
9/3/10	Arroyo Chub			7.8	ND	ND	DNQ	DNQ	19	19.2	673	DNQ	ND
8/28/13	Whole Fish Composite Largemouth Bass Goldfish			11.9	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/17/15	Largemouth Bass	Whole fish #1		14.5	5.4	DNQ	ND	ND	ND	ND	84.4	ND	23.0
		Whole fish #2		11.8	ND	ND	ND	ND	ND	ND	58.5	ND	5.1
		Whole fish #3		14.9	DNQ	ND	ND	ND	1.8	4.1	197.5	7.1	11.6
		Whole fish #4		7.8	DNQ	ND	ND	ND	ND	ND	78.9	ND	12.7
		Whole fish #5		14.7	1.8	ND	ND	ND	1.4	2.5	100.1	4.0	18.0
8/11/15	Goldfish	Composite		5.6	ND	ND	ND	ND	ND	ND	112.8	ND	ND
		Grab #1		4.2	ND	ND	ND	ND	ND	ND	184.1	ND	ND
		Grab #2		7.1	6.7	5.0	5.7	ND	ND	ND	101.3	ND	DNQ
		Grab #3		8.6	DNQ	DNQ	ND	ND	ND	ND	109.2	10.6	ND

Date	Fish		Lipids	OC Pesticides								PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
8/11/15	Fathead Minnow	Composite #1	17.2	6.6	DNQ	ND	ND	15.9	ND	360.8	8.1	ND
		Composite #2	14.2	5.5	DNQ	DNQ	ND	17.4	15.2	247.5	ND	ND
		Composite #3	11.0	DNQ	DNQ	ND	ND	15.7	22.8	323.5	ND	ND
		Composite #4	8.4	ND	ND	ND	ND	15.7	ND	191.7	ND	ND
		Composite #5	20.6	6.4	DNQ	ND	ND	30.5	ND	323.8	ND	DNQ
5/18/16	Fathead Minnow	#1	4.08	ND	ND	8.6	ND	6.1	ND	203	DNQ	33.1
		#2	4.51	ND	ND	16.4	ND	15.9	ND	365.6	12.9	54.3
		#3	4.49	ND	ND	15.5	ND	8.4	ND	548.7	16.9	50.4
		#4	4.4	DNQ	ND	26.4	ND	18.1	ND	442.8	15.5	67.5
		#5	4.37	ND	ND	19.4	ND	16.4	ND	542.9	DNQ	59.6
6/22/16[4]	Goldfish	Filet with Skin #1	8.9	DNQ	DNQ	ND	ND	ND	ND	68.5	ND	ND
		Filet with Skin #2	8.5	DNQ	DNQ	ND	ND	ND	ND	44.6	ND	ND
		Filet with Skin #3	4.4	DNQ	DNQ	ND	ND	ND	ND	41.0	ND	ND
		Filet with Skin #4	21.7	DNQ	DNQ	ND	ND	ND	ND	44.4	ND	ND

Date	Fish		Lipids	OC Pesticides								PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
5/25/17[4]	Fathead Minnow	Composite #1	4.69	ND	ND	ND	ND	ND	ND	10.3	ND	ND
		Composite #2	4.48	DNQ	ND	ND	ND	ND	ND	10.3	ND	ND
		Composite #3	5.07	ND	ND	ND	ND	ND	ND	8.3	ND	ND
		Composite #4	4.52	DNQ	ND	ND	ND	ND	ND	12.1	ND	ND
		Composite #5	4.63	ND	ND	ND	ND	ND	ND	11.5	ND	ND
		Composite #6	4.77	DNQ	ND	ND	ND	ND	ND	10.1	ND	ND
		Composite #7	4.00	DNQ	ND	DNQ	ND	ND	ND	10.0	ND	ND
	L.M. Bass	Whole Fish #1	2.81	DNQ	ND	ND	ND	ND	ND	12.6	ND	ND
		Whole Fish #2	3.85	ND	ND	ND	ND	ND	ND	7.8	ND	ND
		Whole Fish #3	3.47	ND	ND	ND	ND	ND	ND	10.4	ND	ND
		Whole Fish #4	3.08	ND	ND	ND	ND	ND	ND	9.9	ND	ND
		Whole Fish #5	3.05	ND	ND	ND	ND	ND	ND	11.7	ND	ND

1. Only constituents with detected values are included in the table.
2. No fish were caught at this site during years 4 or 5.
3. June 22, 2016 and May 25, 2017 samples were collected closer to the 07_TIERRA salts monitoring site and are labeled as such in the data files. However, the data is included here with the 07_HITCH data as the nearest fish tissue monitoring location.

Table 12. Arroyo Las Posas – Somis Road (06_SOMIS) and Upland Road (06_UPLAND) Fish Tissue Data Years 1 – 9 [1, 2]

Date	Fish			Lipids	OC Pesticides [3]								PCBs [4]
				Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	Toxaphene	Total PCBs
				%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
8/6/08	Arroyo Chub	Composite		2.7	ND	ND	ND	ND	ND	ND	492	ND	ND
9/3/09	Arroyo Chub	Composite #1	29-51mm	6.7	11	DNQ	37	ND	ND	646	1918	ND	34
9/3/09		Composite #1	53-97mm	4.6	DNQ	ND	62	ND	ND	535	1967	2821	36
9/3/09		Composite #2	29-51mm	6.8	9.0	DNQ	55	ND	ND	1158	2203	ND	31
9/3/09		Composite #2	53-97mm	6.2	12	5.9	28	16	43	128	2313	3054	44
9/3/09		Composite #3	29-51mm	5.7	10	DNQ	30	11	122	157	2124	ND	56
9/3/09		Composite #3	53-97mm	5.3	10	DNQ	12	ND	36	258	2258	2103	32

1. Only constituents with detected values are included in the table.
2. No fish were caught at this site during Years 3, 4, 5, 6, 7, 8, or 9.
3. Access to 06_SOMIS was revoked during year eight. 06_UPLAND replaces 06_SOMIS. No fish were caught at 06_UPLAND during year nine.
4. Units are wet weight.

Table 13. Revolon Slough – Wood Road (04_WOOD) Fish Tissue Data Years 1 – 9 [1, 2]

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Toxaphene	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
8/7/08	Common Carp	Comp. Fillet, no skin	3	ND	ND	27	ND	14	85	1194	21	349	ND
8/7/08		Comp. Fillet w/ skin	2.1	5.3	ND	18	7.4	DNQ	40	615	13	259	ND
9/3/09	Common Carp	Carcass	12.1	91	62	129	25	ND	1210	11100	904	25800	28
9/3/09		Fillet w/ Skin #1	2.8	35	21	55	17	ND	262	4210	328	6630	ND
9/3/09		Carcass	9.6	102	60	205	76	ND	1070	9590	367	17000	51
9/3/09		Fillet w/ Skin #2	3.3	47	31	110	31	ND	371	4790	168	5930	DNQ
9/3/09		Carcass	9	117	66	185	64	ND	1100	7750	411	14300	54
9/3/09		Fillet w/ Skin #3	2.7	54	33	77	39	50	378	4000	239	5480	20
9/3/09	Arroyo Chub	Comp. #1	8.7	41	27	133	77	191	878	6320	57	14700	24
9/3/09		Comp. #1	9	38	24	82	73	222	689	5630	36	19900	DNQ
9/3/09		Comp. #2	6.9	33	16	88	65	168	568	5580	52	17900	ND
8/25/11	Common carp		2.6	9.3	5.5	15	DNQ	67	ND	819	8.5	206	ND
8/30/12	Common carp		5.6	ND	ND	ND	ND	116	ND	1750	ND	ND	ND
8/27/13	Whole Fish Composite Common carp Fathead Minnow		6.3	ND	ND	ND	ND	ND	84.3	1984.1	ND	1611.1	ND

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids	Chlordane -alpha	Chlordane -gamma	2,4'-DDD	2,4'-DDE	2,4'-DDT	4,4'-DDD	4,4'-DDE	4,4'-DDT	Toxaphene	Total PCBs
			%	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g	ng/g
6/17/15	Common Carp	Whole Fish #1	13.6	10.6	5.1	16.2	7.4	13.0	58.7	948.6	62.4	749.3	12.2
		Whole Fish #2	15.6	30.7	15.0	31.3	9.2	20.6	136.8	2363.0	126.1	1057.4	26.8
		Whole Fish #3	16.9	21.7	10.2	13.9	ND	16.2	128.8	2080.8	76.3	999.6	17.5
		Fillet w/o skin #1	11.5	16.2	8.3	20.0	7.0	11.1	46.0	936.0	58.3	835.3	5.5
		Filet w/o skin #2	3.2	DNQ	DNQ	2.0	ND	3.6	9.8	166.4	10.8	191.5	ND
		Filet w/o skin #3	3.1	DNQ	DNQ	DNQ	ND	3.0	6.7	159.4	8.8	112.4	ND
		Filet w/o skin #4	2.6	DNQ	DNQ	2.4	1.7	3.6	7.5	184.0	4.7	120.1	ND
	Bullhead	Whole Fish	12.4	12.7	6.1	10.2	ND	18.2	61.0	877.1	81.5	1032.2	9.7
		Filet w/o skin #1	2.8	ND	ND	ND	ND	3.2	7.0	142.7	7.2	129.6	ND
		Filet w/o skin #2	6.2	ND	ND	ND	ND	4.1	7.3	134.9	5.5	114.5	ND
8/11/15	Fathead Minnow	Comp. #1	23.3	50.0	22.3	71.1	42.2	114.4	238.6	3816.7	22.9	1546.3	56.6
		Comp. #2	18.8	52.5	22.0	57.3	43.7	71.6	305.2	4110.5	40.5	1157.2	55.4
		Comp. #3	14.8	48.4	22.1	34.2	46.3	50.2	375.7	3921.3	19.8	852.5	58.8
		Comp. #4	28.5	85.9	47.6	109.8	78.3	113.1	466.5	5563.2	61.1	1094.6	48.7

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g	Total PCBs ng/g
5/18/16	Common Carp	#1	3.86	41	13.1	29.4	22.6	ND	346.1	4589.7	108.7	738.3	202.6
		#2	8.86	77	30.5	16.4	43.2	ND	617.5	7027.5	414.9	1871.6	120.7
		#3	1.11	19.3	9.1	DNQ	6.2	ND	174.1	1721.2	55.5	450.6	48.4
		#4	10.98	38.7	18.9	DNQ	ND	ND	157.4	2229.8	151.7	1602.9	31.2
		#5	3.93	33.3	11.3	17.3	21.2	ND	320.1	7042.7	91.4	537.1	111.6
		#6	6.36	57.2	17.1	24.2	11.3	ND	553.4	6460	110.1	1193.4	264.1
		#7	2.22	26.3	13.6	11.5	22.8	ND	275	3541.7	73	621.5	132.6
		#8	2.71	19.1	7.1	DNQ	DNQ	ND	198.7	3388.9	28.8	511.6	130.5
	Fathead Minnow	#1	3.89	25.5	9.9	12.6	37.6	ND	229.3	3058.8	ND	342.6	40.6
		#2	1.69	DNQ	DNQ	ND	7.8	ND	100	1508.3	ND	130.5	87.1
		#3	2.43	5.5	DNQ	ND	8.1	ND	66.7	1129.6	ND	ND	43.2
		#4	5.94	29.5	12	23.6	12.3	ND	132.6	1963.2	ND	775.3	88.1
		#5	2.02	11.9	8.7	33.7	13	15	105.5	1010.5	18.3	ND	62.9
		#6	1.41	7.1	DNQ	12	10.2	ND	46.9	516.3	ND	118.3	32
		#7	1.52	9.7	DNQ	10	10	ND	36.3	658.1	8	274.7	36.4
	Goldfish[3]	Filet w/ Skin #1	NA[4]	DNQ	DNQ	ND	ND	ND	18.4	258.4	11.3	ND	61.7
		Filet w/ Skin #2	NA[4]	DNQ	DNQ	DNQ	ND	ND	18.1	227.6	8.9	56	37.4
		Filet w/ Skin #3	NA[4]	DNQ	DNQ	ND	DNQ	ND	16.2	269.7	6.8	DNQ	33.0
		Filet w/ Skin #4	NA[4]	DNQ	DNQ	ND	DNQ	ND	14.7	242.2	5.4	DNQ	46.5

Date	Fish		Lipids	OC Pesticides									PCBs
			Percent Lipids %	Chlordane -alpha ng/g	Chlordane -gamma ng/g	2,4'-DDD ng/g	2,4'-DDE ng/g	2,4'-DDT ng/g	4,4'-DDD ng/g	4,4'-DDE ng/g	4,4'-DDT ng/g	Toxaphene ng/g	Total PCBs ng/g
5/25/17	Common Carp	Whole Fish #1	2.34	6.30	DNQ	8.7	DNQ	ND	45.80	602.6	24.6	292.4	ND
		Whole Fish #2	2.21	DNQ	DNQ	10.9	DNQ	ND	34.0	483.4	20.2	225.9	ND
		Whole Fish #3	2.30	DNQ	DNQ	7.8	ND	ND	37.3	496.6	21.3	233.9	ND
		Whole Fish #4	1.10	DNQ	DNQ	ND	ND	ND	15.4	310.1	7.0	DNQ	ND
		Whole Fish #5	3.66	32.30	15.90	49.2	16.1	ND	271.4	3,143.4	57.6	973.6	27.0
		Skinless Filet #1	4.0	38.9	17.8	25.2	6.0	ND	160.4	3,072.6	71.0	1,420.0	38.1
	Fathead Minnow	Whole Comp. #1	7.28	10.1	DNQ	22.8	8.8	ND	63.7	895.5	17.1	670.5	ND
		Whole Comp. #2	7.35	8.0	DNQ	23.9	8.3	ND	58.1	839.3	14.1	561.2	ND
		Whole Comp. #3	6.85	7.5	DNQ	20.8	7.4	ND	95.3	842.6	18.2	563.5	ND
		Whole Comp. #4	5.08	8.2	DNQ	25.2	7.6	ND	78.4	869.7	10.4	459.8	ND
		Whole Comp. #5	6.26	11.0	5.0	28.2	9.6	ND	105.7	1,028.3	18.3	631.9	ND

1. Only constituents with detected values are included in the table.
2. No fish were caught at this site during year 3.
3. Percent lipid data not available due to small fish size.

Table 14. Revolon Slough – Wood Road (04_WOOD) Metals Fish Tissue Data Years 1 – 9 [1, 2]

Date	Fish		Lipids	Metals	
			Percent Lipids	Total Mercury	Total Selenium
			%	µg/g	µg/g
8/7/08	Common Carp	Comp. Fillet, no skin	3	DNQ	1.3
8/7/08		Comp. Fillet w/ skin	2.1	DNQ	2.3
9/3/09	Common Carp	Carcass #1	12.1	DNQ	1.5
9/3/09		Fillet w/ Skin #1	2.8	DNQ	1.6
9/3/09		Carcass #2	9.6	DNQ	1.9
9/3/09		Fillet w/ Skin #2	3.3	DNQ	2.1
9/3/09		Carcass #3	9	DNQ	1.4
9/3/09		Fillet w/ Skin #3	2.7	0.02	1.7
9/3/09	Arroyo Chub	Comp. #1	8.7	0.02	1.6
9/3/09		Comp. #1	9	0.02	1.8
9/3/09		Comp. #2	6.9	0.02	1.4
8/25/11	Common carp		2.6	0.004	2.7
9/4/12	Common carp		5.6	0.011	1.9
8/27/13	Whole Fish Composite Common carp Fathead Minnow		6.3	0.01	1.9
6/17/15	Common Carp	Whole Fish #1	13.6	0.01	1.4
		Whole Fish #2	15.6	0.01	1.2
		Whole Fish #3	16.9	0.02	1.2
		Fillet w/o skin #1	11.5	0.03	1.3
		Filet w/o skin #2	3.2	0.02	1.4
		Filet w/o skin #3	3.1	0.02	1.4
		Filet w/o skin #4	2.6	0.02	1.4

Date	Fish		Lipids	Metals	
			Percent Lipids	Total Mercury	Total Selenium
			%	µg/g	µg/g
6/17/15	Bullhead	Whole Fish	12.4	0.02	1.8
		Filet w/o skin #1	2.8	0.02	1.1
		Filet w/o skin #2	6.2	0.03	0.9
8/11/15	Fathead Minnow	Comp. #1	23.3	0.1	9.6
		Comp. #2	18.8	0.1	11.2
		Comp. #3	14.8	0.7	10.0
		Comp. #4	28.5	0.7	10.5
5/18/16[3]	Common Carp	#1	3.86	0.03	1.3
		#2	8.86	0.04	1.6
		#3	1.11	0.02	1.4
		#4	10.98	0.02	1.6
		#5	3.93	0.03	1.6
		#6	6.36	0.03	1.9
		#7	2.22	0.02	1.1
		#8	2.71	0.02	1.0
	Fathead Minnow	#1	3.89	0.02	1.8
		#2	1.69	0.03	1.9
		#3	2.43	0.03	1.7
		#4	5.94	0.03	2.2
		#5	2.02	0.01	1.3
		#6	1.41	0.03	2.5
		#7	1.52	0.03	2.2
5/25/17	Common Carp	Whole Fish #1	2.34	ND	1.15
		Whole Fish #2	2.21	DNQ	1.16
		Whole Fish #3	2.30	ND	1.13
		Whole Fish #4	1.10	DNQ	1.19
		Whole Fish #5	3.66	0.019	0.98
		Skinless Filet #1	4.0	0.037	1.58

Date	Fish		Lipids	Metals	
			Percent Lipids %	Total Mercury µg/g	Total Selenium µg/g
5/25/17	Fathead Minnow	Whole Comp. #1	7.28	0.008	2.36
		Whole Comp. #2	7.35	DNQ	2.26
		Whole Comp. #3	6.85	0.006	2.44
		Whole Comp. #4	5.08	0.006	2.57
		Whole Comp. #5	6.26	DNQ	2.34

1. Only constituents with detected values are included in the table.
2. No fish were caught at this site during Year 3.
3. Goldfish tissue amounts collected on this date were insufficient to provide OC pesticides, PCBs, and metals analyses. It was determined that OC pesticides and PCBs results were most valuable to the monitoring program to support the long-term data evaluation related to natural attenuation of these constituents.

TOXICITY DATA

The following is a summary of the toxicity results to date for water column and sediment at the freshwater and estuarine sampling sites. Table 15 displays significant water column mortality test results for nine years of CCWTMP events, including both dry and storm (bolded text) events. Significant mortality found in freshwater sediments is shown in Table 16. Toxicity was frequently identified during the first two monitoring years in water column samples, but the occurrence of toxicity has generally been decreasing over the course of monitoring. For dry weather water column sampling, toxicity has been identified historically at all sampled sites except 13_BELT. For wet weather water column sampling, toxicity has been identified at all sites, except for 10_GATE and 13_BELT. Freshwater sediment toxicity is consistently found at the 04_WOOD site and occasionally at two of the three other freshwater toxicity monitoring sites: 02_PCH and 03_UNIV.

Water column TIEs were initiated as prescribed in the QAPP, and outcomes of these efforts had limited success in identifying the true cause of toxicity. While not identifying the specific constituents causing toxicity, the TIEs have identified:

- Organic compounds are likely contributors to ambient water toxicity.
- Compounds similar to organophosphorus (OP) pesticides are continually being identified as possible contributors to the observed toxicity.

Based on the toxicity found 04_WOOD during the first two years of monitoring and the results of the TIE studies, the Stakeholders chose to invest resources into source control efforts to address sources potentially contributing to the toxicity issue, rather than invest resources in continuing TIE studies at this monitoring site. This is being accomplished through the implementation of the Agricultural Water Quality Management Plan (AWQMP) developed by the Ventura County Agricultural Irrigated Lands Group (VCAILG) as part of the Conditional Waiver for Irrigated Agricultural Lands (Ag Waiver).

During the ninth year of monitoring, no sites had significant survival toxicity in the water column. Though survival was not statistically significant in relation to the control, the Event 61 water toxicity sample from 10_GATE exceeded the 50 percent mortality threshold triggering a TIE, which was performed to target organics as a potential cause of the observed toxicity. There was no reduction in survival or reproduction in the Baseline TIE treatment (= untreated sample) for the 10_GATE site water, indicating that the toxicity that had been observed in the initial test of this sample was not persistent. A reduction in toxicity can result from the toxicant undergoing natural degradation processes as the ambient water sample ages. Toxicity reduction can also result from reduced bioavailability of the toxicant due to increasing sorption of contaminant(s) to the sample container material and/or to particulates present in the sample as the sample ages. If the reduction in toxicity was, in fact, due to a contaminant whose toxicity is being reduced due to degradation processes or sorption of contaminant(s) to the sample container material and/or to particulates present in the sample as the sample ages, this would suggest an organic compound, as metals would be expected to be “conserved”.

Freshwater sediment toxicity was found at the 04_WOOD site at the 02_PCH site. No TIEs were initiated for these samples.

The results of future CCWTMP toxicity testing will continue to assist in the identification of when and where conditions are toxic in the Calleguas Creek watershed, and help the Stakeholders better target areas in the watershed that show continual toxicity and focus limited resources to address the problems.

Table 15. Water Column Toxicity for All Monitoring Events and Sites
(Significant mortality denoted by "X", bolded events are wet weather events)

CCWMTP Year	Event	Site ID						
		04_WOOD	9B_ADOLF	03_UNIV	10_GATE	06_SOMIS/ UPLAND	13_BELT	07_HITCH
Year 1	1	X						
	2	X						
	3	**X**	**X**	**X**				**X**
	4	X						
	5	**X**						**X**
	6							
Year 2	9							
	12	X						
	14	**X**		**X**		**X**		
	16	**X**		**X**				**X**
	17							
	20			X				
Year 3	22							
	23							
	24	**X**						
	25							
	26	**X**						**X**
	27							
Year 4	28					X		
	29		X		X			
	30	**X**						
	31							
	32			**X**				
	33							
Year 5 [1]	34							
	35							
	36	**X** [2]						
	37			X [3]				
	38							
Year 6	39	X [2]						
	40				[4]			
	41		[6]	[6]	[6]	[6]	[5]	[6]
	42							
	43							
Year 7	44	X [2]		[7]		[8]		
	45	X [2]					[9]	
	46	**X**[2]		**X**[10]		**X**[11]		**X**[10]
	47	**X**[2]						

CCWMTP Year	Event	Site ID						
		04_WOOD	9B_ADOLF	03_UNIV	10_GATE	06_SOMIS/ UPLAND	13_BELT	07_HITCH
	48							
	49	X [2]				[12]	[12]	
Year 8 [13]	50							
	51							
	52	**X[2]**						
	53	**X[2]**						
	54							
	55							
Year 9	56							
	57							
	58							
	59							
	60							
	61				[14]			

1. 10_GATE and 13_BELT are also toxicity investigation monitoring sites. During year 5 these sites were only sampled during Event 38.
2. A TIE was not initiated at this site. TIEs conducted during previous monitoring years identified organic compounds such as pesticides as the likely cause of the toxicity. TIEs have been suspended while efforts are taken to reduce the source of the toxicity.
3. A Phase I TIE was conducted for this site. While the TIE did not conclusively identify a source of toxicity, the results were indicative of organic compounds. The corresponding water quality sample detected the OP pesticide chlorpyrifos at a concentration of 0.083 µg/L. This level is above the wasteload allocation for stormwater discharges but below the agricultural discharger's interim load allocation and above the final numeric target.
4. Toxicity testing was not performed at the 10_GATE site for Event 40.
5. Toxicity testing was not performed at the 10_BELT site for Event 41.
6. Successful toxicity testing for sites with conductivity less than 3000 µS/cm could not be completed for Event 41 due to a decline in the *C. dubia* laboratory culture. Sites include: 9B_ADOLF, 03_UNIV, 10_GATE, 06_SOMIS, and 07_HITCH.
7. An initial and a follow-up Phase I TIE was conducted for this site. Though the acute and chronic results of the toxicity test was not significantly different than that of the laboratory, the testing of this site did result in a greater than 50% mortality, triggering the initial and follow-up Phase I TIE. The initial TIE did not conclusively determine the source of toxicity, but did suggest that multiple co-occurring contaminants may have been responsible for the toxicity. The follow-up TIE demonstrated that no additional reductions in survival or reproduction occurred after the initial Baseline treatment, suggesting that the toxicity observed in the initial test was not persistent. This result suggests that the toxicant may have undergone natural degradation processes as the sample water aged.
8. Toxicity testing was not performed at the 06_SOMIS site for Event 44.
9. Toxicity testing was not performed at the 13_BELT site for Event 45.
10. A Phase I TIE was initiated at this site. While the TIE did not conclusively identify a source of toxicity, the results suggest that compounds that are activated by the Cytochrome-P450 system (e.g. OP pesticides) are contributing to sample toxicity.
11. A Phase I TIE was initiated at this site. While the TIE did not conclusively identify a source of toxicity, the results suggest that non-polar organic compound(s) are contributing to the ambient toxicity.
12. Toxicity testing was not performed at the 06_SOMIS or 13_BELT sites for Event 49.
13. During year 8, toxicity testing was only performed at the 06_SOMIS site for Event 52.
14. There were no statistically significant reductions in survival in this sample as compared to the control. However, based on the observation of greater than 50 percent mortality in the 100 percent concentration of the 10_GATE ambient water sample, a TIE targeted for organics was performed on the sample.

Table 16. Sediment Toxicity for All CCWTMP Freshwater Monitoring Events and Sites
(Significant mortality denoted by "X")

CCWMTP Year	Event	Site ID			
		04_WOOD	02_PCH [1]	03_UNIV	9A_HOWAR [1]
Year 1	1	X			
Year 2	9	X			
Year 3	22	X			
Year 4	28	X	X	X	
Year 5	34	X		X	
Year 6	39	X		X [2]	
Year 7	44	X		X	
Year 8	50	X			
Year 9	56	X	X		

1. 02_PCH and 9A_HOWAR are toxicity investigation monitoring sites.
2. A TIE targeted for organics was performed for the 03_UNIV site due to a greater than 50 percent reduction in *H. azteca* survival.

Exceedance Evaluation and Discussion

As outlined in the QAPP, data applicable to targets or allocations were reviewed for this report. The collected data were compared to the applicable targets or allocations and it is this comparison that the various agencies will use to determine necessary actions in accordance with their permit or conditional waiver. The comparison does not provide a determination of compliance with any TMDL provision of an individual permit or conditional waiver, as some permit/waiver conditions may vary from the comparisons provided in this section. For the comparison, various procedures were used depending on whether or not the final compliance dates for the TMDL were applicable during the monitoring year.

For TMDLs where final allocations or targets are not currently effective (OC Pesticides, Metals, and Salts TMDLs), the following compliance comparisons were conducted:

1. Applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the interim load allocations and waste load allocations.
2. If an exceedance of an interim load allocation and/or waste load allocation was observed, the contributing land use data were reviewed to evaluate the potential cause of the exceedance.
3. POTW effluent data were compared to the relevant interim waste load allocations.

For the Nitrogen TMDL the following comparisons were conducted:

1. For POTWs, the final waste load allocations are currently effective. As a result, effluent monitoring results were compared to the final allocations for the analysis.
2. For agricultural dischargers and other non-point sources, final load allocations are currently effective. Since agricultural dischargers are the only entities with allocations other than POTWs, compliance is evaluated by comparing receiving water results against TMDL numeric targets.

For the Toxicity TMDL, the following comparisons were conducted:

1. For POTWs, the final waste load allocations are currently effective. As a result, effluent monitoring results were compared to the final allocations for the comparison.
2. For MS4 dischargers, the final waste load allocations are currently effective. As a result, applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the final waste load allocations. If an exceedance of the final waste load allocation was found, the contributing urban land use data were reviewed to evaluate whether the MS4 was potentially causing the exceedance.
3. For agricultural dischargers, the final load allocations became effective in March 2016. As a result, applicable receiving water data at the compliance locations (base of each subwatershed) were compared to the final load allocation. If an exceedance of the applicable load allocation for a particular event was observed, the contributing agricultural land use data were reviewed to evaluate whether agricultural discharges were potentially causing the exceedance.
4. In cases where the applicable final load allocations or final waste load allocations have different values for acute (1-hour) toxicity and chronic (4-day) toxicity, the acute toxicity

allocations were used for comparing wet weather data and the chronic toxicity allocations were used for comparing dry-weather data.

The following tables compare the applicable allocations based on the procedure outlined above for each of the TMDLs. Some constituents sampled under the CCWTMP do not have applicable allocations and/or targets and are not included in the comparison.

RECEIVING WATER SITE COMPARISON

Table 17. OC Pesticides, PCBs, & Siltation in Sediment

Site & Constituent	Units	Interim WLA & LA [1]	Event 56 Aug-2016
Calleguas Creek – Hwy 1 Bridge (02_PCH)			
Total Chlordane [2]	ng/g dw	17	ND
4,4'-DDD	ng/g dw	66	DNQ
4,4'-DDE	ng/g dw	470	20.60
4,4'-DDT	ng/g dw	110	DNQ
Dieldrin	ng/g dw	3	ND
PCBs [3]	ng/g dw	3800	ND
Toxaphene	ng/g dw	260	DNQ
Revolon Slough – Wood Road (04_WOOD)			
Total Chlordane [2]	ng/g dw	48	DNQ
4,4'-DDD	ng/g dw	400	5.00
4,4'-DDE	ng/g dw	1600	36.50
4,4'-DDT	ng/g dw	690	5.70
Dieldrin	ng/g dw	5.7	ND
PCBs [3]	ng/g dw	7600	ND
Toxaphene	ng/g dw	790	DNQ
Calleguas Creek – Camarillo Street CSUCI (03_UNIV)			
Total Chlordane [2]	ng/g dw	17	ND
4,4'-DDD	ng/g dw	66	ND
4,4'-DDE	ng/g dw	470	6.80
4,4'-DDT	ng/g dw	110	ND
Dieldrin	ng/g dw	3	ND
PCBs [3]	ng/g dw	3800	ND
Toxaphene	ng/g dw	260	ND

Site & Constituent	Units	Interim WLA & LA [1]	Event 56 Aug-2016
Conejo Creek – Adolfo Road (9B_ADOLF)			
Total Chlordane [2]	ng/g dw	3.4	ND
4,4'-DDD	ng/g dw	5.3	ND
4,4'-DDE	ng/g dw	20	DNQ
4,4'-DDT	ng/g dw	2	ND
Dieldrin	ng/g dw	3	ND
PCBs [3]	ng/g dw	3800	ND
Toxaphene	ng/g dw	260	ND
Arroyo Las Posas – Upland Road (06_UPLAND) [4]			
Total Chlordane [2]	ng/g dw	3.3	ND
4,4'-DDD	ng/g dw	290	ND
4,4'-DDE	ng/g dw	950	DNQ
4,4'-DDT	ng/g dw	670	DNQ
Dieldrin	ng/g dw	1.1	ND
PCBs [3]	ng/g dw	25,700	ND
Toxaphene	ng/g dw	230	ND
Arroyo Simi – Hitch Boulevard (07_HITCH)			
Total Chlordane [2]	ng/g dw	3.3	ND
4,4'-DDD	ng/g dw	14	ND
4,4'-DDE	ng/g dw	170	ND
4,4'-DDT	ng/g dw	25	ND
Dieldrin	ng/g dw	1.1	ND
PCBs [3]	ng/g dw	25,700	ND
Toxaphene	ng/g dw	230	ND

ND=not detected; DNQ=detected not quantifiable

1. Interim waste load allocation for stormwater permittees and interim load allocations for agricultural dischargers; effective until March 24, 2026 (R4-2005-010).
2. Total chlordane is the sum of alpha and gamma-chlordane.
3. PCBs concentrations are the sum of the seven aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, and 1260).
4. 06_UPLAND replaced 06_SOMIS beginning with Event 56 as access to 06_SOMIS is no longer available.

Results in green type are below the applicable allocations.

Table 18. Nitrogen Compounds in Water

Site & Constituent	Units	Target [1]	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 58 Wet Dec-16	Event 59 Wet Jan-17	Event 60 Dry Feb-17	Event 61 Dry May-17
Mugu Lagoon - Ronald Reagan Bridge (01_RR_BR)								
Ammonia-N	mg/L	8.1	0.23	0.17	0.15	0.15	0.16	DNQ
Nitrate-N	mg/L	10	**11.82**	**15.49**	**11.93**	**30.36**	**36.70**	0.72
Nitrite-N	mg/L	1	0.14	0.08	0.06	0.09	0.06	ND
Nitrate-N + Nitrite-N	mg/L	10	**11.96**	**15.57**	**11.99**	**30.45**	**36.76**	0.72
Calleguas Creek – Hwy 1 Bridge (02_PCH)								
Ammonia-N	mg/L	5.5	0.19	0.19	0.39	0.06	0.20	0.08
Nitrate-N	mg/L	10	**11.26**	**17.25**	**16.78**	4.03	**13.53**	**28.34**
Nitrite-N	mg/L	1	0.22	0.06	0.38	0.06	0.08	0.21
Nitrate-N + Nitrite-N	mg/L	10	**11.48**	**17.31**	**17.16**	4.09	**13.61**	**28.55**
Calleguas Creek – Camarillo Street CSUCI (03_UNIV)								
Ammonia-N	mg/L	8.4	0.09	0.10	0.40	0.13	0.13	0.06
Nitrate-N	mg/L	10	7.64	9.56	4.49	2.37	6.38	9.05
Nitrite-N	mg/L	1	0.06	0.09	0.06	0.05	0.06	0.08
Nitrate-N + Nitrite-N	mg/L	10	7.70	9.65	4.55	2.42	6.44	9.13
Revolon Slough – Wood Road (04_WOOD)								
Ammonia-N	mg/L	5.7	0.40	0.85	0.56	0.14	0.23	0.20
Nitrate-N	mg/L	10	**37.78**	**35.78**	5.40	7.40	**51.80**	**51.75**
Nitrite-N	mg/L	1	0.23	0.10	0.08	0.06	0.10	0.56
Nitrate-N + Nitrite-N	mg/L	10	**38.01**	**35.88**	5.48	7.46	**51.90**	**52.31**
Beardsley Wash – Central Avenue (05_CENTR)								
Ammonia-N	mg/L	5.7	0.06	DNQ	0.44	0.17	ND	0.04
Nitrate-N	mg/L	10	**33.72**	**43.12**	**17.22**	9.73	**57.65**	**52.05**
Nitrite-N	mg/L	1	0.10	0.09	0.13	0.06	0.07	0.35
Nitrate-N + Nitrite-N	mg/L	10	**33.82**	**43.21**	**17.35**	9.79	**57.72**	**52.40**
Arroyo Las Posas – Upland Road (06_UPLAND) [3]								
Ammonia-N	mg/L	8.1	NS	NS	0.22	0.34	NS	NS
Nitrate-N	mg/L	10	NS	NS	3.22	2.92	NS	NS
Nitrite-N	mg/L	1	NS	NS	0.05	0.08	NS	NS
Nitrate-N + Nitrite-N	mg/L	10	NS	NS	3.27	3.00	NS	NS

Site & Constituent	Units	Target [1]	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 58 Wet Dec-16	Event 59 Wet Jan-17	Event 60 Dry Feb-17	Event 61 Dry May-17
Arroyo Simi – Hitch Boulevard (07_HITCH)								
Ammonia-N	mg/L	4.7	DNQ	DNQ	0.34	0.34	ND	0.05
Nitrate-N	mg/L	10	9.86	8.82	2.73	1.30	7.96	9.93
Nitrite-N	mg/L	1	0.09	0.08	0.05	0.05	0.05	0.07
Nitrate-N + Nitrite-N	mg/L	10	9.95	8.90	2.78	1.35	8.01	10.00
Conejo Creek – Adolfo Road (9B_ADOLF)								
Ammonia-N	mg/L	9.5	0.05	0.05	0.22	0.10	0.08	0.03
Nitrate-N	mg/L	10	5.42	9.13	1.25	0.90	6.80	5.52
Nitrite-N	mg/L	1	ND	0.05	DNQ	ND	0.06	ND
Nitrate-N + Nitrite-N	mg/L	10	5.42	9.18	1.25	0.90	6.86	5.52

NS=no sample, dry; NR=not required; ND=not detected; DNQ=detected not quantifiable; J=estimated DNQ values for Nitrite-N, shown for the purpose of calculating the Nitrite-N + Nitrate-N sum and comparing it against the Nitrate-N + Nitrite-N target.

1. Load allocations for Nitrate-N + Nitrite-N are in effect for agricultural and other non-point sources. For the comparison, monitoring results at receiving water compliance sites were compared against TMDL numeric targets (R4-2008-009).
2. One-hour average.
3. 06_UPLAND replaces 06_SOMIS beginning with Event 56. Access to 06_SOMIS no longer available.

Results in **bold red type** exceed numeric TMDL target.

Results in green type are below the applicable allocations.

Table 19. Toxicity, Diazinon, and Chlorpyrifos in Water

Site & Constituent	Units	Dry WLA [1]	Dry LA [2]	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 60 Dry Feb-17	Event 61 Dry May-17	Wet WLA [1]	Wet LA [2]	Event 58 Wet Dec-16	Event 59 Wet Jan-17
Mugu Lagoon – Ronald Reagan Bridge (01_RR_BR)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	0.014	ND	0.014	0.025	**1.259**	**0.476**
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Calleguas Creek – Camarillo Street CSUCI (03_UNIV)											
Chlorpyrifos	ug/L	0.014	0.0133	0.001	0.005	ND	ND	0.014	0.024	**0.053**	**0.154**
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Revolon Slough – Wood Road (04_WOOD)											
Chlorpyrifos	ug/L	0.014	0.0133	0.007	ND	0.009	0.005	0.014	0.024	**0.064**	**0.089**
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Arroyo Las Posas – Upland Road (06_UPLAND) [3]											
Chlorpyrifos	ug/L	0.014	0.014	NS	NS	NS	NS	0.014	0.025	**0.084**	**0.213**
Diazinon	ug/L	0.1	0.1	NS	NS	NS	NS	0.1	0.1	ND	ND
Arroyo Simi – Hitch Boulevard (07_HITCH)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	ND	ND	0.014	0.025	**0.102**	**0.269**
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Conejo Creek – Adolfo Road (9B_ADOLF)											
Chlorpyrifos	ug/L	0.014	0.014	0.003	0.007	ND	ND	0.014	0.025	**0.043**	**0.049**
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Conejo Creek – Hill Canyon Below N Fork (10_GATE)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	ND	ND	0.014	0.025	ND	ND
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND
Conejo Creek – S Fork Behind Belt Press Build (13_BELT)											
Chlorpyrifos	ug/L	0.014	0.014	ND	ND	ND	ND	0.014	0.025	ND	ND
Diazinon	ug/L	0.1	0.1	ND	ND	ND	ND	0.1	0.1	ND	ND

ND=not detected; NS=no sample collected due to site being dry.

1. Final Dry and Wet Weather wasteload allocations for Stormwater Dischargers effective as of March 24, 2008 (R4-2005-009).
2. Final Dry and Wet Weather load allocations for Irrigated Agriculture; effective as of March 24, 2016 (R4-2005-009).
3. 06_UPLAND replaces 06_SOMIS beginning with Event 56. Access to 06_SOMIS no longer available.

Results in **bold red type** exceed applicable final wasteload allocation and load allocation.

Results in green type are below the applicable allocations.

Table 20. Metals and Selenium in Water

Constituent	Units	Dry Interim WLA [1]	Dry Interim LA [2]	Event 56 Dry Aug-2016	Event 57 Dry Nov-2016	Event 60 Dry Feb-2017	Event 61 Dry May-2017	Wet Interim WLA [1]	Wet Interim LA [2]	Event 58 Wet Dec-2016	Event 59 Wet Jan-2017	Annual Average [3]
Revolon Slough – Wood Road (04_WOOD)												
Total Copper	µg/L	19	19	5.34	4.00	1.46	2.82	204	1390	11.84	54.10	
Total Nickel	µg/L	13	42	10.49	7.65	4.71	9.37	74 [4]	74 [4]	6.00	23.45	
Total Selenium	µg/L	13	6	**16.25**	**13.24**	**19.00**	**25.20**	290 [4]	290 [4]	2.09	1.44	
Total Mercury [5]	lbs/yr	1.7	2					--	--			0.27
Calleguas Creek – Camarillo Street CSUCI (03_UNIV)												
Total Copper	µg/L	19	19	2.84	2.23	0.75	1.82	204	1390	10.57	21.66	
Total Nickel	µg/L	13	42	8.03	6.36	2.97	6.39	74 [4]	74 [4]	9.75	16.51	
Total Selenium	µg/L	--	--	0.60	0.84	1.81	1.23	--	--	0.19	ND	
Total Mercury [5]	lbs/yr	3.3	3.9					--	--			0.48

1. Interim wasteload allocations for Stormwater Dischargers; effective until March 2022 (R4-2006-0012)
2. Interim load allocations for Irrigated Agriculture; effective until March 2022 (R4-2006-0012)
3. Mercury allocation is assessed as an annual load in suspended sediment. The water column mercury concentrations were used in calculating the loads, conservatively assuming that all mercury is on suspended sediment rather than being dissolved. The loads at each site are based on estimated annual concentrations (average of all monitored events at each site) and total annual flow calculated from preliminary streamflow data received from real time data loggers.
4. No wet weather exceedances of these constituents were observed in the TMDL analysis so no interim limits were assigned for the TMDL. For comparison purposes the wet weather targets are included in the table.
5. Interim wasteload allocations and load allocations are expressed as annual loads. Total annual flow for 07/01/16 to 06/30/17 into Mugu Lagoon from Calleguas Creek is calculated as 11,866 Mgal/yr. Total annual flow for 07/01/16 to 06/30/17 into Mugu Lagoon from Revolon Slough is calculated as 3,657 Mgal/yr. As such, the interim wasteload allocation and load allocation shown for both Calleguas Creek and Revolon Slough correspond to the flow range of 0 to 15,000 to Mgal/yr, per R4-2006-0012.

Results in **bold red type** exceed applicable interim wasteload allocation and load allocation.
Results in green type are below the applicable allocations.

Table 21. Monthly Mean Salts Concentrations

	Units	Interim Limit WLA	Interim Limit LA	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Revolon Slough – Wood Road (04_WOOD)															
TDS	mg/L	1720	3995	**3534**	**3429**	**3355**	**3243**	**3598**	**3532**	**3733**	**3638**	**3553**	**3511**	**3449**	**3326**
Chloride	mg/L	230	230	209	202	198	192	212	209	220	215	210	207	204	199
Sulfate	mg/L	1289	1962	**1845**	**1790**	**1752**	**1693**	**1878**	**1844**	**1948**	**1899**	**1855**	**1833**	**1800**	**1731**
Boron	mg/L	1.3	1.8	**1.8**	**1.8**	**1.7**	**1.7**	**1.8**	**1.8**	**1.9**	**1.9**	**1.8**	**1.8**	**1.8**	**1.7**
Calleguas Creek – University Drive CSUCI (03_UNIV)															
TDS	mg/L	1720	3995	1144	1132	1120	1071	1011	980	891	957	1086	1178	1149	1179
Chloride	mg/L	230	230	**243**	**240**	**237**	227	213	206	186	201	230	**250**	**244**	**250**
Sulfate	mg/L	1289	1962	289	286	283	271	256	249	227	243	275	297	290	298
Conejo Creek – Howard Road Bridge (9A_HOWAR)															
TDS	mg/L	1720	3995	1093	1077	1028	951	930	915	862	917	999	1062	1042	1110
Chloride	mg/L	230	230	**242**	**238**	227	209	204	201	188	201	220	**235**	230	**246**
Sulfate	mg/L	1289	1962	277	273	260	240	235	231	217	231	253	269	264	281
Conejo Creek – Baron Brothers Nursery (9B_BARON)															
TDS	mg/L	1720	3995	703	683	679	681	668	671	745	784	843	798	758	734
Chloride	mg/L	230	230	159	154	153	154	151	151	170	179	194	183	173	167
Sulfate	mg/L	1289	1962	164	154	152	153	147	149	183	202	230	209	190	177
Arroyo Simi – Tierra Rejada Road (07_TIERRA)															
TDS	mg/L	1720	3995	1180	1155	1144	1127	1106	1077	1186	1235	1241	1174	1160	1158
Chloride	mg/L	230	230	178	174	172	170	167	162	179	186	187	177	175	176
Sulfate	mg/L	1289	1962	461	446	439	429	416	399	466	495	499	458	449	446
Boron	mg/L	1.3	1.8	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7

Notes:

a. Monthly dry weather mean salt concentrations were generated using mean daily salt concentrations (from 5-min data) for days that met the definition of dry weather in the Salts TMDL (i.e., discharge < 86th percentile flow and no measureable rain in preceding 24 hrs). The 86th percentile of mean daily discharge at 03_Univ (generated using 5-min discharge data for the period July 1, 2016-June 30, 2017) was used as the flow-related threshold for distinguishing wet and dry days for all five compliance sites. Daily precipitation records for 24 gages in the CCW watershed (accessed via the VCWPD Hydrologic Data Server) were used to determine days with "measureable precipitation". Days were considered as having measureable precipitation if two or more rain gages in the watershed received 0.1 inch or more of precipitation.

Results in **bold red type** exceed both the applicable interim wasteload allocation and load allocation. Results in **bold purple type** exceed the interim wasteload allocation, but not the interim load allocation. Results in green type are below the applicable allocations.

POTW DATA COMPARISON

Table 22. Nitrogen Compounds – POTWs

Site & Constituent	Units	Final WLA [1]	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 60 Dry Feb-17	Event 61 Dry May-17
Simi Valley Water Quality Control Plant (07D_SIMI)						
Ammonia-N	mg/L	3.5 [2], 7.8 [3]	1.20	1.30	1.10	0.90
Nitrate-N	mg/L	9	7.30	7.10	6.40	8.10
Nitrite-N	mg/L	0.9	0.02	0.02	0.01	0.01
Nitrate-N + Nitrite-N	mg/L	9	7.32	7.12	6.41	8.11
Camarillo Water Reclamation Plan (9AD_CAMA)						
Ammonia-N	mg/L	3.1 [2], 5.6 [3]	1.13	1.33	0.82	0.49
Nitrate-N	mg/L	9	6.80	5.21	5.75	7.12
Nitrite-N	mg/L	0.9	ND	ND	ND	ND
Nitrate-N + Nitrite-N	mg/L	9	6.80	5.21	5.75	7.12
Hill Canyon Wastewater Treatment Plant (10D_HILL)						
Ammonia-N	mg/L	2.4 [2], 3.3 [3]	1.70	1.60	1.30	1.50
Nitrate-N	mg/L	9	8.30	9.00	8.50	8.70
Nitrite-N	mg/L	0.9	ND	ND	0.50	0.30
Nitrate-N + Nitrite-N	mg/L	9	8.30	9.00	9.00	9.00

ND=constituent not detected at the MDL.
1. The effective date for these wasteload allocations was July 16, 2007 (R4-2008-009)
2. Wasteload allocations as Average Monthly Effluent Limit
3. Wasteload allocations as Maximum Daily Effluent Limit
Results in green type are below the applicable allocations.

Table 23. OC Pesticides, PCBs, and Siltation - POTWs

POTW & Constituent	Units	Final WLA [1]	Event 56 Dry Aug-2016	Event 57 Dry Nov-2016	Event 60 Dry Feb-2017	Event 61 Dry May-2017
Camarillo Water Reclamation Plant (9AD_CAMA)						
Total Chlordane [2]	ng/L	1.2	ND	ND	ND	ND
4,4'-DDD	ng/L	1.7	ND	ND	ND	ND
4,4'-DDE	ng/L	1.2	ND	ND	ND	ND
4,4'-DDT	ng/L	1.2	ND	ND	ND	ND
Dieldrin	ng/L	0.28	ND	ND	ND	ND
PCBs [3]	ng/L	0.34	ND	ND	ND	ND
Toxaphene	ng/L	0.33	ND	ND	ND	ND
Hill Canyon Wastewater Treatment Plant (10D_HILL)						
Total Chlordane [2]	ng/L	1.2	ND	ND	ND	ND
4,4'-DDD	ng/L	1.7	ND	ND	ND	ND
4,4'-DDE	ng/L	1.2	ND	ND	ND	ND
4,4'-DDT	ng/L	1.2	ND	ND	ND	ND
Dieldrin	ng/L	0.28	ND	ND	ND	ND
PCBs [3]	ng/L	0.34	ND	ND	ND	ND
Toxaphene	ng/L	0.33	ND	ND	ND	ND
Simi Valley Water Quality Control Plant (07D_SIMI)						
Total Chlordane [2]	ng/L	1.2	ND	ND	ND	ND
4,4'-DDD	ng/L	1.7	ND	ND	ND	ND
4,4'-DDE	ng/L	1.2	ND	ND	ND	ND
4,4'-DDT	ng/L	1.2	ND	ND	ND	ND
Dieldrin	ng/L	0.28	ND	ND	ND	ND
PCBs [3]	ng/L	0.34	ND	ND	ND	ND
Toxaphene	ng/L	0.33	ND	ND	ND	ND

ND=constituent not detected at the MDL.

1. Final wasteload allocations were added to each of the POTWs' permits in 2015.
2. Total chlordane is the sum of alpha and gamma-chlordane.
3. PCBs concentrations are the sum of the seven aroclors identified in CTR (1016, 1221, 1232, 1242, 1248, 1254, and 1260).

Results in green type are below the applicable allocations.

Table 24. Toxicity, Chlorpyrifos, and Diazinon - POTWs

POTW & Constituent	Units	Final WLA	Event 56 Dry Aug-2016	Event 57 Dry Nov-2016	Event 60 Dry Feb-2017	Event 61 Dry May-2017
Camarillo Water Reclamation Plant (9AD_CAMA)						
Chlorpyrifos	µg/L	0.0133	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
Hill Canyon Wastewater Treatment Plant (10D_HILL)						
Chlorpyrifos	µg/L	0.014	ND	ND	ND	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND
Simi Valley Water Quality Control Plant (07D_SIMI)						
Chlorpyrifos	µg/L	0.014	ND	0.003	DNQ	ND
Diazinon	µg/L	0.1	ND	ND	ND	ND

ND=constituent not detected at MDL.
Results in green type are below the applicable allocations.

Table 25. Metals - POTWs: Camarillo Water Reclamation Plant and Hill Canyon Wastewater Treatment Plant

POTW & Constituent	Units	Interim Daily Max WLA [1]	Interim Monthly Avg WLA [1]	Interim WLA [1]	Event 56 Dry Aug-2016	Event 57 Dry Nov-2016	Event 60 Dry Feb-2017	Final Monthly Avg WLA [2]	Final WLA [2]	Event 61 Dry May-2017
Camarillo Water Reclamation Plant (9AD_CAMA)										
Total Copper	µg/L	57.0	20.0	--	4.63	4.73	3.93	9.0	--	3.24
	lbs/day [3]	--	--	--	--	--	--	--	0.54	0.097
Total Nickel	µg/L	16.0	6.2	--	3.14	2.78	1.17	--	--	--
	lbs/day [3]	--	--	--	--	--	--	--	0.2	0.085
Total Mercury [4]	lbs/month [5]	--	--	0.03	0.000017	0.000018	0.000782	--	0.015	0.000018
Hill Canyon Wastewater Treatment Plant (10D_HILL)										
Total Copper	µg/L	20.0	16.0	--	2.70	2.30	1.50	6.0	--	2.60
	lbs/day [3]	--	--	--	--	--	--	--	0.70	0.17
Total Nickel	µg/L	8.3	6.4	--	2.50	2.00	2.10	--	--	--
	lbs/day [3]	--	--	--	--	--	--	--	0.3	0.13
Total Mercury [4]	lbs/month [5]	--	--	0.23	0.025	0.024	0.030	--	0.022	**0.027**

1. Interim wasteload allocation; effective until March 26, 2017 (R4-2006-012) ; applicable for Events 56, 57, and 60
2. Final wasteload allocation; effective date was March 26, 2017 (R16-007); mass-based WLAs added for total copper and total nickel; applicable only to Event 61
3. During load calculation, the daily mean flow on the date of sampling was multiplied by the concentration of total copper or total nickel to yield the daily total copper or total nickel in pounds.
4. For total mercury concentrations reported as not detected (ND); one half of the method detection limit was used to calculate the monthly loads
5. During load calculation, the average monthly flow for each POTW was multiplied by the number of days in the month corresponding to when the sample was collected to get a total monthly flow. The total monthly flow was multiplied by the concentration of total mercury to yield the monthly total mercury load in pounds.

Results in green type are below the applicable allocations.
Results in **bold red type** exceed applicable wasteload allocation.

Table 26. Metals - POTW: Simi Valley Water Quality Control Plant

POTW & Constituent	Units	Final Daily Max WLA [1]	Final Monthly Avg WLA [1]	Interim WLA [2]	Final WLA [3]	Event 56 Dry Aug-2016	Event 57 Dry Nov-2016	Event 60 Dry Feb-2017	Event 61 Dry May-2017
Total Copper	µg/L	31.0	30.5	--	--	6.40	4.91	3.04	4.25
Total Nickel	µg/L	960	169	--	--	2.20	2.41	0.47	2.15
Total Mercury [4]	lbs/month [5]	--	--	0.18	--	0.00097	0.00004	0.00117	--
		--	--	--	0.031	--	--	--	0.0014

1. Final wasteload allocation; effective date was March 26, 2007 (R4-2006-012)
2. Interim wasteload allocation; effective until March 26, 2017 (R4-2006-012); applicable for Events 56, 57, and 60
3. Final wasteload allocation; effective data was March 26, 2017 (R16-007); applicable only for Event 61
4. For total mercury concentrations reported as not detected (ND); one half of the method detection limit was used to calculate the monthly loads
5. During load calculation, the average monthly flow for each POTW was multiplied by the number of days in the month corresponding to when the sample was collected to get a total monthly flow. The total monthly flow was multiplied by the concentration of total mercury to yield the monthly total mercury load in pounds.

Results in green type are below the applicable allocations.

Table 27. Salts - POTWs

POTW & Constituent	Units	Monthly Avg Interim WLA	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Camarillo Water Reclamation Plant (9AD_CAMA) [1]														
Boron	mg/L	N/A	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.6	0.8	0.6	0.6
Chloride	mg/L	216	**240**	**250**	**233**	206	213	214	215	212	212	**240**	**256**	**226**
Sulfate	mg/L	283	250	**290**	222	156	149	213	212	218	239	270	**296**	260
Total Dissolved Solids	mg/L	1012	1010	**1020**	**1034**	918	930	932	920	992	916	978	**1110**	**1036**
Hill Canyon Wastewater Treatment Plant (10D_HILL)														
Boron	mg/L	N/A	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5
Chloride	mg/L	189	171	122	171	165	159	158	161	163	165	164	164	162
Sulfate	mg/L	N/A	131	164	111	113	126	129	120	115	121	141	114	115
Total Dissolved Solids	mg/L	N/A	675	655	656	648	663	561	628	656	665	732	649	644
Simi Valley Water Quality Control Plant (07D_SIMI)														
Boron	mg/L	N/A	0.6	0. 5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.9	0.5	0.5
Chloride	mg/L	183	164	154	153	146	146	151	149	168	160	137	164	155
Sulfate	mg/L	298	235	194	192	192	199	201	233	**340**	276	244	247	198
Total Dissolved Solids	mg/L	955	830	763	723	732	723	730	753	**972**	864	846	831	725

N/A: "The 95th percentile concentration is below the Basin Plan objective so interim limits are not necessary."

Results in **bold red type** exceed applicable interim wasteload allocation.

Results in green type are below the applicable allocations.

1. Due to water conservation and alterations in the composition of the water supply available in the POTW service area, effluent salt concentrations have increased since the adoption of the TMDL. The increased salts concentrations are being addressed through a Time Schedule Order that provides for higher TDS and sulfate interim limits and a stay of interim limits for chloride (SWRCB WQO 2003-0019). TSO limits are as follows: TDS 1242 mg/L, sulfate 359 mg/L, and chloride 351 mg/L, all of which were met during the entire monitoring year.

EXCEEDANCE EVALUATION DISCUSSION

OC Pesticides, Toxicity, Metals, Nutrients, and Salts

The data comparisons shown in Table 17 through Table 27 above demonstrate that for the most part, the CCW is meeting the applicable interim or final wasteload allocations and load allocations currently in effect for the Nutrients, OC Pesticides, Toxicity, Salts, and Metals TMDLs. The following observations summarize the comparison:

1. No exceedances of the interim wasteload allocations or load allocations for OCs or PCBs were observed at any location in the watershed. No exceedance of final wasteload allocations were observed at any POTW.
2. Exceedances of numeric targets for Nitrate-N and Nitrate-N + Nitrite-N were observed in Mugu Lagoon, Revolon Slough, Beardsley Wash, and Calleguas Creek. Most of the exceedances occurred during dry events, but there were eight wet weather exceedances in Mugu Lagoon, Calleguas Creek, and Beardsley Wash. No exceedances of final nutrient wasteload allocations were measured at any POTW compliance site.
3. There were 12 exceedances of the final MS4 chlorpyrifos wasteload allocation during wet weather, but no exceedances during dry weather. In addition, there were no instances where the diazinon final MS4 wasteload allocation was exceeded during wet weather or dry weather. These exceedances were considered in concert with MS4 outfall monitoring data and MS4 outfalls exceeded the final allocations during four of these monitoring events. There were no exceedances of the final wasteload allocations for chlorpyrifos or diazinon at any POTW.
4. There were four exceedances of the interim load allocation and interim wasteload allocation for total selenium measured during the dry weather sampling events at the 04_WOOD site. As discussed in the TMDL, a primary source of selenium in Revolon Slough is considered to be rising groundwater levels and the interim allocations were to be considered in this context. There were no exceedances of interim wasteload allocations of metals at any POTW. The metals final wasteload allocations became effective March 26, 2017. Event 61 was the first event to take place following the final wasteload allocations going into effect; mercury results from this event from Hill Canyon Wastewater Treatment Plant exceeded the final wasteload allocation.
5. Although no toxicity was observed in the watershed, a TIE targeted for organics was performed due to the observation of greater than 50 percent mortality in the 100 percent concentration of the ambient water sample at 10_GATE. As a result, the Stakeholders are in compliance with the toxicity wasteload allocations and load allocations per the requirements of the TMDL.
6. In general, receiving water sites were in compliance with interim load allocations and MS4 wasteload allocations established by the Salts TMDL; the only exception being exceedances in TDS, sulfate, and boron measured at 04_WOOD in the Revolon Slough watershed, and six chloride exceedances at 03_UNIV and four chloride exceedances at 9A_HOWAR. POTWs are meeting interim salts wasteload allocations, with the exception of Camarillo Water Reclamation Plant (WRP), which experienced exceedances of chloride, sulfate, and TDS as well as the Simi Valley Water Quality Control Plant

(WQCP), which experienced exceedances of sulfate and TDS. The exceedances of interim salts wasteload allocations for the Camarillo WRP have resulted from increased influent salt concentrations due to water conservation and a shift in the composition of the water supplied within the service area. Because the process for addressing salts is a watershed effort involving significant capital investments, the Camarillo WRP received an amended Time Schedule Order in December 2015 (R4-2011-0126-A03) to adjust the interim limits for TDS, sulfate and chloride (TSO limits: 1242 mg/L TDS, 359 mg/L sulfate, 351 mg/L chloride). As a result, the interim limits in the TMDL are not the currently applicable interim limits for the Camarillo WRP discharge.

Nutrients

Exceedances of numeric targets for Nitrate-N and Nitrate-N + Nitrite-N were observed at sites in Mugu Lagoon, Calleguas Creek, Revolon Slough, and Beardsley Wash. Nitrate-N exceedances are summarized in Table 28 below. The table focuses on Nitrate-N results since Nitrate-N + Nitrite-N exceedances were caused by high Nitrate-N values. Nitrite-N was below the 1 mg/L target at all sites for every event.

Table 28. Exceedances of Nitrate-N Numeric TMDL Target of 10 mg/L

Nitrogen TMDL Compliance Sites	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 58 Wet Dec-16	Event 59 Wet Jan-17	Event 60 Dry Feb-17	Event 61 Dry May-17
01_RR_BR	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No
02_PCH	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**
03_UNIV	No	No	No	No	No	No
04_WOOD	**Yes**	**Yes**	No	No	**Yes**	**Yes**
05_CENTR	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**
06_UPLAND [1]	NS	NS	No	No	NS	NS
07_HITCH	No	No	No	No	No	No
9B_ADOLF	No	No	No	No	No	No

NR=not required, NS=no sample, dry

No signifies that monitoring results were below the Nitrate-N target during the monitoring event.

Yes signifies that monitoring results were above the Nitrate-N target during the monitoring event.

1. 06_UPLAND replaces 06_SOMIS beginning with Event 56.

Nitrogen exceedances occurred primarily in areas of the watershed with agricultural inputs. Reaches downstream of POTW discharges are generally in compliance with the TMDL requirements and urban discharges were determined to be negligible during the TMDL analysis and therefore do not have TMDL allocations. The final nitrogen load allocations for agriculture became effective in July 2010. Under the 2016 Conditional Waiver (Order No. R4-2016-0143), agricultural dischargers have until October 14, 2025 to comply with the nitrogen load allocations. The Water Quality Management Plans developed by VCAILG for compliance with the Conditional Waiver will specify steps and milestones that work towards achieving these load allocations through the implementation of management practices.

Chlorpyrifos

Further examination of the chlorpyrifos exceedances at receiving water sites was needed to determine whether urban dischargers were contributing. The final wasteload allocations for urban dischargers are in effect and per the TMDL compliance is to be assessed in the receiving waters.

Monitoring data at urban land use sites from each subwatershed for which an exceedance was observed in the receiving water was compared to the wasteload allocation to determine if MS4 discharges significantly contributed to the exceedance. If the urban land use data were below the wasteload allocation, the MS4 dischargers were considered to be meeting allocations. If the urban land use data were above the wasteload allocation, the MS4 could be contributing to the exceedance in the receiving water.

As shown in Table 19, there were twelve exceedances of chlorpyrifos targets at the receiving water sites. In two cases, urban land use data for the same event were less than the final MS4 wasteload allocation for chlorpyrifos (Table 29). In four cases, the urban land use data for the same event exceeded the final wasteload allocation, indicating that urban discharge may be a contributor to the exceedance in the receiving water.

In addition, further examination of the chlorpyrifos exceedances at receiving water sites was needed to determine whether agricultural dischargers were contributing. The final load allocations for urban dischargers are in effect and per the TMDL, compliance is to be assessed in the receiving waters. However, the final compliance deadline for agriculture is not until 2022.

Monitoring data at agricultural land use sites from each subwatershed for which an exceedance was observed in the receiving water was compared to the wasteload allocation to determine if agricultural discharges significantly contributed to the exceedance. If the agricultural land use data were below the load allocation, the agricultural dischargers were considered to be meeting allocations. If the agricultural land use data were above the load allocation, the agricultural dischargers could be contributing to the exceedance in the receiving water.

As shown in Table 29, there were twelve exceedances of chlorpyrifos targets at the receiving water sites. In ten cases, the agricultural land use data for the same event exceeded the final load allocation (Table 30), indicating that agricultural discharges may be a contributor to the exceedance in the receiving water.

The final wasteload and load allocations for diazinon were not exceeded during this reporting period.

Table 29. Compliance and Land Use Sites Comparison to Determine MS4 Chlorpyrifos WLA Compliance

Sites Exceeding WLAs	Constituent	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 58 Wet Dec-16	Event 59 Wet Jan-17	Event 60 Dry Feb-17	Event 61 Dry May-17
01_RR_BR	Chlorpyrifos			NA[1]	NA[1]		
03_UNIV	Chlorpyrifos			NA[1]	NA[1]		
04_WOOD	Chlorpyrifos			Yes	Yes		
06_UPLAND [2]	Chlorpyrifos			NA[1]	NA[1]		
07_HITCH	Chlorpyrifos			Yes	No		
9B_ADOLF	Chlorpyrifos			Yes	No		

No= none of the MS4 land use site for the subwatershed exceeded the MS4 wasteload allocation during the monitoring event.
Yes=the MS4 land use site for the subwatershed exceeded the MS4 wasteload allocation during the monitoring event.
1. There are no urban land use monitoring sites in these reaches.
2. 06_UPLAND replaced 06_SOMIS beginning with Event 56 as access to 06_SOMIS no longer available.
Blank cells indicate that a wasteload allocation exceedance did not occur at the compliance monitoring site during a particular event.

Table 30. Compliance and Land Use Sites Comparison to Determine Ag Chlorpyrifos LA Compliance

Sites Exceeding WLAs	Constituent	Event 56 Dry Aug-16	Event 57 Dry Nov-16	Event 58 Wet Dec-16	Event 59 Wet Jan-17	Event 60 Dry Feb-17	Event 61 Dry May-17
01_RR_BR	Chlorpyrifos			Yes	Yes		
03_UNIV	Chlorpyrifos			NA[1]	NA[1]		
04_WOOD	Chlorpyrifos			Yes	Yes		
06_UPLAND [2]	Chlorpyrifos			Yes	Yes		
07_HITCH	Chlorpyrifos			Yes	Yes		
9B_ADOLF	Chlorpyrifos			Yes	Yes		

Yes=the Ag land use site for the subwatershed exceeded the Ag load allocation during the monitoring event.
1. There are no urban land use monitoring sites in these reaches.
2. 06_UPLAND replaced 06_SOMIS beginning with Event 56 as access to 06_SOMIS is no longer available.
Blank cells indicate that a load allocation exceedance did not occur at the compliance monitoring site during a particular event.

Selenium

Selenium concentrations in Revolon Slough at 04_WOOD exceeded the urban dischargers interim wasteload allocation and the agricultural dischargers interim LA during all four dry weather monitoring events. A summary of monitoring results for total selenium at sites in the Revolon Slough subwatershed is shown in Table 31 below.

Table 31. Selenium Monitoring Data (ug/L) in the Revolon Slough Subwatershed

Site ID	Use	Dry Weather Events					
		Interim		56	57	60	61
		WLA [1]	LA [1]	Aug-16	Nov-16	Feb-17	May-17
04_WOOD	RW	13	6	**16.25**	**13.4**	**19.00**	**25.20**
04D_WOOD	Ag		6	**8.69**	**7.23**	**9.73**	3.45
05D_SANT_VCWPD	Ag		6	**52.44**	**51.16**	**62.20**	**77.33**
04D_VENTURA	Urban	13		NS	0.25	0.51	0.40

1. Interim WLAs for stormwater permittees and interim LAs for agricultural dischargers are effective until March 2022 (R4-2006-012).
2. No wet weather exceedances were observed in the TMDL analysis so no interim limits were assigned for the TMDL. For comparison purposes, the wet weather targets were included in this table.

RW – Receiving water compliance site; Ag – Agricultural; Urban – Urban
NS – Not sampled, dry
Results in **bold red type** exceed applicable interim WLA or interim LA.
Results in green type are below the applicable allocations.

As noted in the table above, high levels of selenium were also observed at 05D_SANT_VCWPD and 04D_WOOD, both agricultural land use sites in the Revolon Slough subwatershed. As discussed in the TMDL, a primary source of selenium in this area is considered to be rising groundwater levels and the interim allocations were to be considered in this context.

Salts

A summary of monitoring results for total dissolved solids, sulfate, and boron at sites in the Revolon Slough subwatershed are shown in Table 32 through Table 34 and chloride in the Conejo Creek watershed in Table 35 below.

Mean monthly dry weather TDS, sulfate, and boron concentrations in Revolon Slough at 04_WOOD exceeded their respective interim MS4 WLAs during all twelve months of the monitoring period. However, mean monthly dry weather TDS, chloride, boron, and sulfate concentrations in Revolon Slough at 04_WOOD did not exceed their respective LAs during the monitoring period. Site 04D_WOOD represents agricultural discharge water quality in the Revolon Slough subwatershed. At this site, exceedances of the interim LA occurred twice for both total dissolved solids and sulfate (in November 2016 and February 2017). Boron exceeded its interim LA at this site three times: August 2016, November 2016, and February 2017. Concentrations of salts at 04D_VENTURA, which is an urban land use site in the upper Revolon Slough watershed, were consistently below the interim MS4 WLAs for TDS, sulfate, and boron. No flow was present at the 04D_VENTURA site during the August 2016 sampling event.

Mean monthly dry weather chloride concentrations in Conejo Creek at 9A_HOWAR exceeded the interim LA and interim MS4 WLA during four months of the monitoring period. However, mean monthly dry weather TDS and sulfate concentrations in Conejo Creek at 9A_HOWAR did not exceed their respective LAs or WLAs during the monitoring period. Site 9BD_ADOLF

represents urban discharge water quality in the Conejo Creek subwatershed. At this site, exceedances of the interim LA occurred three times for chloride (in August 2016, November 2016, and May 2017). Concentrations of chloride collected at 9BD_GERRY, which is an agricultural land use site in the Conejo Creek subwatershed, were below the interim MS4 WLAs. Samples were not taken at 9BD_GERRY during August 2016, November 2016, and May 2017 sampling events due to no flow being present.

Mean monthly dry weather chloride concentrations in Calleguas Creek at 03_UNIV exceeded the interim LA and interim MS4 WLA during six months of the monitoring period. However, there are no land use monitoring sites located in Reach 3 of Calleguas Creek to compare land use water quality data to receiving water quality data.

Table 32. Total Dissolved Solids Monitoring Data (mg/L) in Revolon Slough

Site ID	Use	Interim Limits		Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
		WLA	LA												
04_WOOD [1]	RW	1720	3995	**3534**	**3429**	**3355**	**3243**	**3598**	**3532**	**3733**	**3638**	**3553**	**3511**	**3449**	**3326**
04D_WOOD [2]	Ag		3995		3670			**4280**			**4470**			2180	
04D_VENTURA [2]	Urban	1720			NS			820			750			820	

NS=no sample, dry
1. Data presented are monthly means
2. Data presented are quarterly dry weather grabs
Results in **bold type** exceed applicable interim wasteload allocation or interim load allocation.

Table 33. Sulfate Monitoring Data (mg/L) in Revolon Slough

Site ID	Use	Interim Limits		Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
		WLA	LA												
04_WOOD [1]	RW	1289	1962	**1845**	**1790**	**1752**	**1693**	**1878**	**1844**	**1948**	**1899**	**1855**	**1833**	**1800**	**1731**
04D_WOOD [2]	Ag		1962		1731			**2091**			743			959	
04D_VENTURA [2]	Urban	1289			NS			252			6.45			229	

NS=no sample, dry
1. Data presented are monthly means
2. Data presented are quarterly dry weather grabs
Results in **bold type** exceed applicable interim wasteload allocation or interim load allocation.

Table 34. Boron Monitoring Data (mg/L) in Revolon Slough

Site ID	Use	Interim Limits		Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
		WLA	LA												
04_WOOD [1]	RW	1.3	1.8	**1.8**	**1.8**	**1.7**	**1.7**	**1.8**	**1.8**	**1.9**	**1.9**	**1.8**	**1.8**	**1.8**	**1.7**
04D_WOOD [2]	Ag		1.8		**1.9**			**1.9**			**2.1**			1.2	
04D_VENTURA [2]	Urban	1.3			NS			0.6			0.3			0.3	

NS=no sample, dry
1. Data presented are monthly means
2. Data presented are quarterly dry weather grabs
Results in **bold type** exceed the applicable interim wasteload allocation or interim load allocation

Table 35. Chloride Monitoring Data (mg/L) in Conejo Creek

Site ID	Use	Interim Limits		Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
		WLA	LA												
9A_HOWAR [1]	RW	230		**242**	**238**	227	209	204	201	188	201	220	**235**	230	**246**
9BD_GERRY [2]	Ag	230			NS			NS			15			NS	
9BD_ADOLF [2]	Urban		230		**484**			**677**			7.5			**574**	

NS=no sample, dry
1. Data presented are monthly means
2. Data presented are quarterly dry weather grabs
Results in **bold type** exceed applicable interim wasteload allocation or interim load allocation.

Revisions and Recommendations

The QAPP specifies that upon the completion of each CCWTMP annual report, revisions to standard procedures will be made, including: site relocation, ceasing monitoring efforts and/or deleting certain constituents from sample collection. An updated QAPP was submitted in December 2014 that incorporated the proposed revisions and recommendations included in the previous six CCWTMP annual reports. Additional modifications that reflect the most current lab methods and procedures for the field conditions were also part of the QAPP update process. Monitoring for the 2016-2017 monitoring year was conducted per the revised QAPP.

In addition to the updates identified in the 2014 Revised QAPP, during Year 8, access to 06_SOMIS was revoked by the private landowner whom had previously given permission for monitoring. Due to this change, 06_SOMIS could only be visited during the first two monitoring events of the 2015-2016 monitoring year. In Year 9, monitoring took place at the 06_UPLAND monitoring site, which is still within Reach 6, but approximately one mile downstream. Access to the site is via County property, so there should not be any further access issues.

The Stakeholders will be submitting TMDL receiving water data to the California Environmental Data Exchange Network (CEDEN) going back to the beginning of the monitoring program in 2008. TMDL receiving water monitoring data will continue to be uploaded for future monitoring events, as well.