Central Coast Water Quality Preservation, Inc.

Revision No. 1

Central Coast Cooperative Monitoring Program 2022 Annual Water Quality Report






Original: July 1, 2023
Revision: March 29, 2024

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EXECUTIVE SUMMARY

This report describes the results of monitoring conducted by Central Coast Water Quality Preservation, Inc. (CCWQP) in 2022 pursuant to the Central Coast Regional Water Quality Control Board's (CCRWQCB's) Agricultural Order (Order No. R3-2021-0040). CCWQP implements the Central Coast Cooperative Monitoring Program (CMP) under the cooperative surface water monitoring option provided in the Agricultural Order, and initiated monitoring in January 2005.

The objectives of the CMP, described in Order No. R3-2021-0040, Monitoring and Reporting Program, (CCRWQCB 2021), are to:

- Assess the impacts of waste discharges from irrigated lands to receiving water;
- Assess compliance with the numeric limits described in the Order;
- Assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by agricultural activity;
- Evaluate short-term patterns and long-term trends (five to 10 years or more) in receiving water quality;
- Evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges);
- Evaluate water quality impacts resulting from stormwater discharges from agricultural operations;
- Evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste; and
- Assist in the identification of specific sources of water quality problems.

An additional objective of the program is to provide feedback to growers in areas of concern in order to facilitate water quality improvements.

The CMP has traditionally included approximately 50 regularly monitored sites located in six hydrologic units (HUs) throughout the Central Coast Region. Monitoring was first performed in 2005 at 25 sites in the Santa Maria Region in Santa Barbara County and a small area of southern San Luis Obispo County and the Lower Salinas River Region in Monterey County. In 2006, monitoring was initiated at an additional 25 sites. In 2012 the CMP was modified to include a total of seven additional sites (five in the northern monitoring area and two in the southern monitoring area), with one northern site removed.

The CMP includes chemical, physical, toxicological, and biological monitoring elements. Samples are collected in a manner appropriate for the specific analytical methods used. Water samples are typically collected as mid-depth mid-channel grab samples. Standard operating procedures for collection and analysis of surface water, sediment, and bioassessment samples are provided in the CMP's Quality Assurance Project Plan, or QAPP (CCWQP 2013, 2017, 2018). The QAPP documents the sampling and analytical methods, procedures, and requirements, data management procedures, Quality Assurance sample requirements and frequency, the data quality objectives for the CMP, and corrective actions for quality assurance problems.

All 12 CMP water column and sediment monitoring events planned for 2022 were successfully conducted. Required field observations were made during 451 of 662 planned site visits. Water samples were not collected during 211 site visits because 141 site visits observed a dry channel and 70 site visits observed disconnected pools and/or discontinuous flows. All the collected samples were analyzed. The monitoring results were evaluated in accordance with the CMP QAPP (CCWQP 2013, 2017, 2018) and determined overall to be of high quality with few qualifications that would limit use.

The 2022 CMP monitoring results displayed some broad spatial patterns and statistically significant temporal trends:

- The two regions with sites located in the most intensively cropped drainages (Santa Maria Region and the Salinas Region) had the highest median turbidity and nitrate results.

- Dissolved oxygen exceedances were most frequent in the Estero Bay and Santa Ynez HUs. Trends in dissolved oxygen were mostly increasing in the Salinas and Santa Maria HUs and declining in the Pajaro River and Estero Bay HUs.
- Trends in flow have been decreasing across the Central Coast Region, especially in southern HUs. There were 33 trends in flow, which were primarily decreasing (four exceptions). The four increasing trends were observed in northern HUs.
- The majority of decreasing trends in pH have occurred in northern HUs (Pajaro River and Salinas), while the majority of increasing trends have occurred in southern HUs. The Santa Maria HU had the highest rate of pH exceedances relative to the number of samples collected, followed by the Pajaro River, Santa Ynez, and San Antonio HUs.
- Trends in salinity-related parameters were entirely increasing in the Pajaro River and South Coast HUs and mostly increasing in the Estero Bay. Trends in the Santa Ynez HU were entirely decreasing and trends in the Salinas HU were mostly decreasing. Santa Maria HU showed almost equal increasing and decreasing trends.
- Trends for unionized ammonia across the Central Coast Region were relatively evenly split, with a slight majority of detectable trends in the decreasing direction, and the majority of sites showing no significant trend. The Santa Maria HU had the highest percentage of Basin Plan water quality objective (WQO) exceedances in the Region for unionized ammonia. No HU in the region achieved all unionized ammonia TMDL limits.
- Trends in orthophosphate were entirely decreasing in the Salinas, Estero Bay, and Santa Ynez HUs, and mostly decreasing in the Pajaro River, Santa Maria, and South Coast HUs. The 2022 directional trends for orthophosphate were not consistent with the 2021 trend analysis, where the majority of trends were increasing. No HU in the region achieved all orthophosphate TMDL limits.
- Twenty-five trends in nitrate were observed across the Central Coast Region, of which 15 were decreasing. Of the increasing trends, most were observed in the Pajaro River and Salinas HUs. Five increasing trends in nitrate concentration had corresponding decreasing trends in nitrate loading, and one increasing trend in nitrate loading had corresponding decreasing trend in nitrate concentration. The Santa Maria HU had the highest percentage of Basin Plan WQO exceedances in the Region for nitrate. No HU in the Region achieved all nitrate TMDL limits.
- Six significant increasing trends (i.e., improving, reduced toxicity) for algae growth were observed in Pajaro River, Salinas, and Santa Ynez HUs. No significantly decreasing trends were observed.
- The highest frequency of toxicity to invertebrate test species in water was observed in the Salinas HU, followed by the Santa Maria HU. No significant mortality was observed in *Ceriodaphnia dubia* samples collected from the Estero Bay or Santa Ynez HUs. No significant toxicity was observed in *Chironomus dilutus* samples collected from the Estero Bay and South Coast HUs.
- The highest frequency of toxicity to invertebrate test species in sediment was observed in the Salinas HU, followed by the Santa Maria HU.
- Throughout the monitoring area, most *Ceriodaphnia dubia* bioassays showing significant toxicity in water had only sub-lethal effects with no significant effect to mortality, while most bioassays showing significant toxicity in sediment showed both sub-lethal and lethal effects.
- Only the Pajaro HU achieved the majority of applicable toxic effect TMDL limits.
- 34% of possible site/parameter combinations for conventional parameters showed statistically significant trends in water quality from 2005 through 2022. Most of the trends noted through 2022 were similar to those observed since 2017, with 22% statistically significant trends reversing direction.

The CMP results from 2022 continue to support the conclusion that low dissolved oxygen, elevated pH, elevated nitrate and ammonia, and water and sediment toxicity are parameters of concern in many waterbodies in the Central Coast Region. However, the presence of statistically significant trends indicates that some conditions may be changing.

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
%	percent
BV	Sample received after holding time expired
°C	degrees Celsius
CalDUCS	California Data Upload and Checking System
CCAMP	Central Coast Ambient Monitoring Program
CCRWQCB	Central Coast Regional Water Quality Control Board
CCWQP	Central Coast Water Quality Preservation, Inc.
CDC	(California) Department of Conservation
CDWR	California Department of Water Resources
CEDEN	California Environmental Data Exchange Network
CFS	cubic feet per second
CIMS	California Irrigation Management Information System
CJ	Analyte concentration is in excess of the instrument calibration; considered estimated
cm	centimeter(s)
CMP	Cooperative Monitoring Program
CT	QC criteria not met due to high level of analyte concentration
CVP	Central Valley Project
D	EPA Flag - Analytes analyzed at a secondary dilution
DF	Reporting limits elevated due to matrix interferences
DO	dissolved oxygen
DQO	data quality objective
d/s	downstream
EDD	Electronic Data Deliverable
°F	degrees Fahrenheit
FIA	Location was inaccessible to obtain a measurement
FTD	Location was too deep to obtain a measurement
FTT	Water too turbid to measure
HL	Analyte recovery above established limit
HT	Analytical value calculated using results from associated tests
HU	hydrologic unit
HUC	hydrologic unit code
mg/L	milligrams per liter
MRP	Monitoring and Reporting Program
µS/cm	microsiemens per centimeter
MS/MSD	matrix spike/matrix spike duplicate
NCL	North Coast Laboratories
NTU	nephelometric turbidity unit
NCL	North Coast Laboratory
P	Phosphorus

Acronyms/Abbreviations	Definition
PER	Pacific EcoRisk
Physis	Physis Environmental Laboratories
ppt	parts per thousand
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RPD	relative percent difference
SCRWA	South County Regional Wastewater Authority
SVWP	Salinas Valley Water Project
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TIE	Toxicity Identification Evaluation
TKN	total Kjeldahl nitrogen
TMDL	Total Maximum Daily Load
TSS	total suspended solid
u/s	upstream
USGS	United States Geological Survey
UCSC	University of California Santa Cruz
VBY	Sample received at improper temperature
VBZ	Sample preserved improperly, flagged by Quality Assurance Officer
VCJ	Analyte concentration is in excess of the instrument calibration; considered estimated
VFDP	Elevated field duplicate relative percent difference
VFIF	Instrument/Probe Failure, flagged by Quality Assurance Officer
VGB	Matrix spike/matrix spike duplicate percent recovery outside control limits
VGN	Surrogate recovery not within control limits
VH	Holding time violation occurred
VIL	Matrix spike/matrix spike duplicate relative percent differenced outside control limits
VIP	Analyte detected in field or lab generated blank
VJ	Estimated value – Environmental Protection Agency Flag, flagged by Quality Assurance Officer
VR	Data rejected
VEUM	Laboratory control sample is outside of control limits
WQO	Water Quality Objective
WWTP	Wastewater treatment plant

1.0 INTRODUCTION

1.1 BACKGROUND

In 1999, Senate Bill 923 amended the California Water Code §13269 to require all waivers of waste discharge requirements existing on January 1, 2000 to expire on January 1, 2003. Irrigated agriculture was covered by a broad waiver that expired in 2003. As amended, California WC §13269 allowed waivers for specific types of discharges if the waiver met five conditions and did not exceed five years in length.

In July 2004, the Central Coast Regional Water Quality Control Board (CCRWQCB) adopted an order for irrigated agriculture requiring irrigated agricultural operations to enroll under the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R3-2004-0117)* (hereinafter referred to as the 2004 Ag Order) or be regulated under other CCRWQCB discharge requirements. In March 2012, March 2017, and April 2021, the CCRWQCB adopted new Ag Orders, Order Numbers R3-2012-0011, R3-2017-0002, and R3-2021-0040, respectively. Prior to 2012, the 2004 Ag Order was renewed for one year each in 2009, 2010, and 2011.

The 2004 Ag Order required that farm operators with irrigated agricultural operations meet the following requirements to participate: 1) enroll with the CCRWQCB, 2) attend a minimum of 15 hours of approved farm water quality education, 3) complete a farm water quality management plan, 4) implement management practices to improve water quality in tailwater, stormwater runoff, and discharges to groundwater, and 5) perform individual surface water quality monitoring or participate in cooperative water quality monitoring. To provide guidance to facilitate meeting these requirements, the CCRWQCB developed a Monitoring and Reporting Program (MRP) that described the monitoring and reporting requirements for all farm operators. In response to the requirements, CCWQP, a non-profit corporation, was formed by the agriculture industry to implement and manage the Cooperative Monitoring Program (CMP). The CMP, operated by CCWQP from 2005 through the present, fulfilled the cooperative monitoring option provided in the 2004 Ag Order and initiated monitoring in January 2005.

For the purposes of the 2004 Ag Order, the CMP initially conducted water quality monitoring at 25 sites within two hydrologic units (HUs): the Santa Maria HU (including Oso Flaco Creek) in Santa Barbara and San Luis Obispo Counties, and the Salinas HU in Monterey County. This was expanded with an additional 25 sites in a second phase (beginning in 2006) to include four additional Central Coast HUs; Pajaro River, Estero Bay, Santa Ynez, and South Coast. In 2012, the CMP was updated to include reporting on several additional monitoring sites via collaboration with other programs, as well as several additional water quality parameters related to nutrients and toxicity to aquatic organisms. Pursuant to the 2017 Ag Order, the CMP was modified in 2017, 2021, and 2022 to repeat previous special studies related to supplemental toxicants and toxicity testing (CCRWQCB 2017).

The overall goals of monitoring are to characterize the water quality conditions in agricultural watersheds, to understand long-term water quality trends in agricultural areas, and to meet the requirements specified in the MRP. Though the overall goals of monitoring have not changed, adoption of Order No. R3-2021-0040 in 2021 (also known as Agricultural Order) marked a significant change relative to prior Orders. Agricultural Order included, for the first time, Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant a waterbody can assimilate and still attain water quality standards. The Central Coast Water Board adopts TMDLs and an associated implementation plan that identifies actions, both regulatory (e.g., waste discharge requirements, conditional waivers, etc.) and/or non-regulatory (e.g., voluntary actions and grant funded restoration and treatment projects), that should be taken to attain water quality standards within a reasonable time schedule. It is presumed that when the TMDL is implemented effectively, the waterbody will attain water quality standards and no longer be deemed impaired (CCRWQCB 2021). The practical effect of TMDLs being included in Agricultural Order is the need for CCWQP to annually compare water quality data for sites monitored by the CMP to relevant TMDL criteria (which are now numeric limits in the Ag Order) and report the results within the required annual reports.

Prior to 2006, funding for CMP was provided in part by a combination of the Non-Point Source Pollution Monitoring Fund for North Monterey County (PGE-SEP) and Guadalupe Oil Field Settlement funds. Funding for CMP water quality and bioassessment monitoring during 2006-2008 was provided in part by two Proposition 50 Agriculture

Water Quality Grant Program Grants administered by the Central Coast Regional Water Quality Control Board. Since its inception, the CMP has also been supported by participation fees from Central Coast irrigated growers and landowners enrolled in the Ag Order. Since 2010, grower participation fees have been the sole source of funding for the program. In-kind services have also been provided by many partner organizations and through the active and generous participation of numerous industry representatives on the CCWQP board of directors and CMP committees.

1.2 PROJECT OBJECTIVES

The objectives of the CMP, described in the Agricultural Order Monitoring and Reporting Program (CCRWQCB 2021), are to perform the following:

- Assess the impacts of waste discharges from irrigated lands to receiving water;
- Assess compliance with the numeric limits described in the Order;
- Assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by agricultural activity;
- Evaluate short-term patterns and long-term trends (five to 10 years or more) in receiving water quality;
- Evaluate water quality impacts resulting from agricultural discharges (including, but not limited to, tile drain discharges);
- Evaluate water quality impacts resulting from stormwater discharges from agricultural operations;
- Evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste; and
- Assist in the identification of specific sources of water quality problems.

An additional objective of the original program was, and still is, to provide feedback to growers in areas of concern in order to facilitate water quality improvements.

1.3 PROJECT AREA

The Central Coast Hydrologic Region extends from southern San Mateo County in the north to Santa Barbara County in the south (**Figure 1-1**). The Region includes all of Santa Cruz, Monterey, San Benito, San Luis Obispo, and Santa Barbara Counties and parts of San Mateo, Santa Clara, and Ventura Counties. Most of the Central Coast Region is within the Coast Range. The Region's interior boundary runs northeast to southwest along the hills bordering the San Andreas Fault Zone to the Kern County border. A few square miles of Kern County are included in the Region, and a few square miles of San Luis Obispo and Santa Barbara Counties are excluded. To the south, a small portion of Ventura County is also included in the Region.

Most of the Central Coast Region is drained by four large watersheds: the Pajaro River, the Salinas River and its tributaries, the Santa Maria River, and the Santa Ynez River. The mid-coastal portion (the Estero Bay Region) and extreme southern coastal portion of the Region are characterized by many short, steep, and relatively small watersheds.

The climate of the Central Coast Region is relatively temperate all year due to its location adjacent to the Pacific Ocean. The Central Coast has a Mediterranean climate characterized by mild, wet winters and warm, dry summers. Annual average precipitation in the Region ranges from 14 to 45 inches throughout most of the Region, but southern interior basins typically receive five to 10 inches per year, with the mountain areas receiving more rainfall than the valley floors. Most precipitation occurs between late November and mid-April. The average annual precipitation near Salinas is about 14 inches.

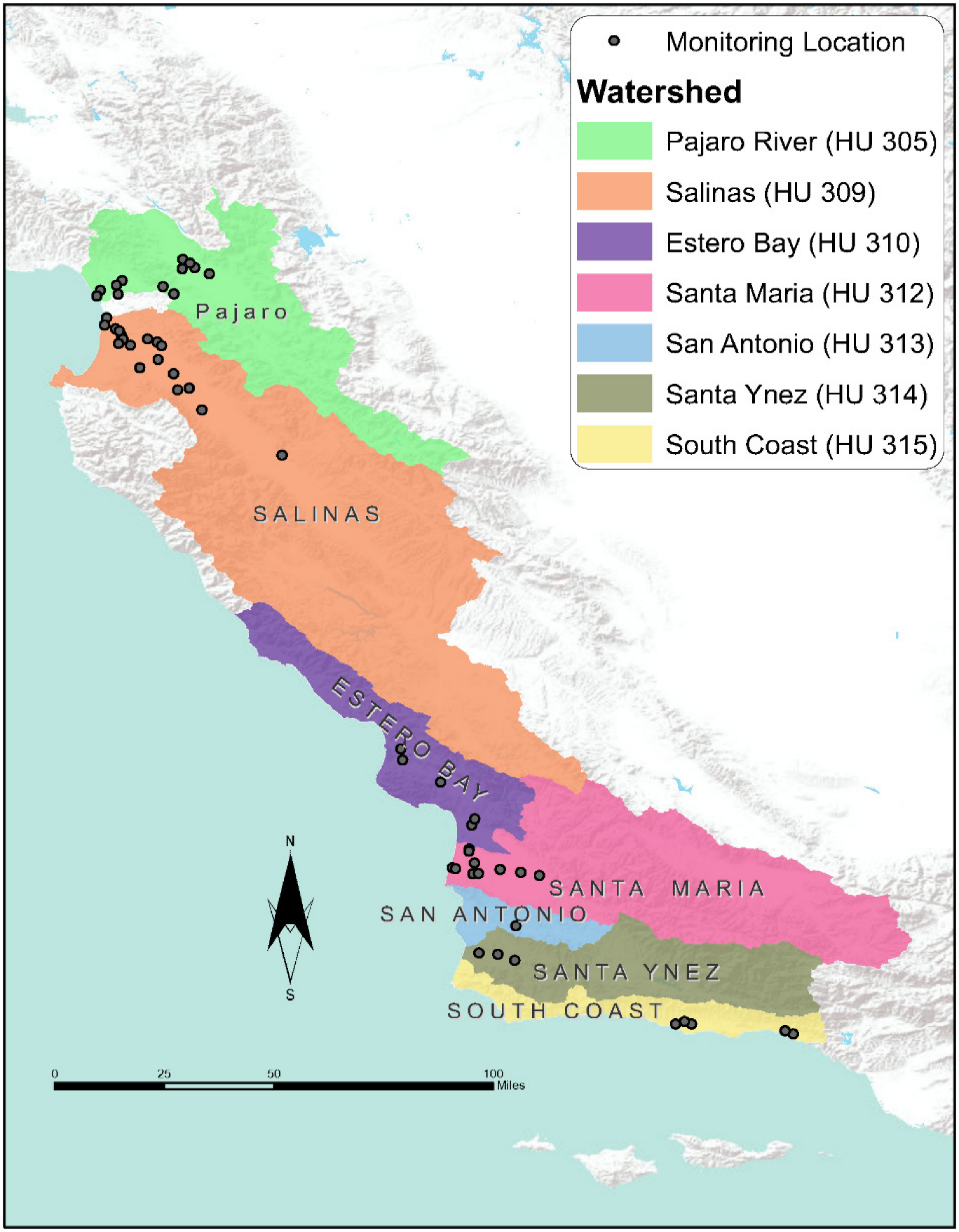


Figure 1-1. Cooperative Monitoring Program Project Area and Core Monitoring Sites

The Central Coast of California comprises six counties that run along the Pacific Ocean, and it is traditionally known for its beaches, agriculture and viticulture industries, and tourism. About 2.3 million people live in the six Central Coast counties, roughly 9 percent (%) of California's total area and about 6% of its population. The Central Coast comprises Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura counties (California 100 2023). About 65% of the Central Coast population lives in incorporated cities with populations greater than 20,000, including Salinas, Santa Barbara, Santa Maria, Santa Cruz, San Luis Obispo, Lompoc, Watsonville, Hollister, Seaside, Monterey, Atascadero, and Paso Robles. There are many additional small communities in the Region with populations fewer than 20,000. The topography of the Central Coast Region and its distance from California's major population centers results in a landscape that is largely pastoral and agricultural. Major economic activities include tourism, education, agriculture, and agriculture-related processing, and government and service-sector employment. Agriculture is the predominant land use in the Salinas Valley, Pajaro watershed, and San Luis Obispo County. There are over 600,000 acres of prime farmland, farmland of statewide importance, unique farmland, and farmland of local importance within the Region. Additionally, there are over 1.2 million acres of grazing land (California Department of Conservation [CDC] 2016).

Additional details are provided in Section 3 for the individual HUs within the Central Coast Region.

2.0 METHODS

2.1 MONITORING SITES

The CMP has traditionally included approximately 50 regularly monitored sites located in six HUs throughout the Central Coast Region (with one more recently added site from a separate seventh unit). The CMP initially included 25 sites in the Santa Maria Region in Santa Barbara County (including a small area of southern San Luis Obispo County) and the lower Salinas River Region of Monterey County. In 2006, the CMP was expanded to include an additional 25 sites, including 10 sites in the Pajaro River Watershed monitored by University of California Santa Cruz (UCSC). Monitoring by UCSC was part of the Pajaro River Monitoring Project, which ran from 2005 through 2008 with funding from the CCRWQCB (Grant ID #05-102-553-0: *Long-Term High-Resolution Nutrient & Sediment Monitoring*).

In 2012, the CMP was modified to include a total of seven additional sites (five in the northern monitoring area and two in the southern monitoring area), with two sites removed (one in the north and one in the south). These were added to the CMP to provide information about additional impaired waterbodies in watersheds with agricultural land use. The removed sites either did not convey sufficient amounts of water and/or did not reflect sufficient agricultural land use to merit continued monitoring efforts by the program.

Cooperative monitoring sites for 2022, 56 in total, are listed with brief descriptions in **Table 2-1**. Additional details for each HU and region are provided in Section 3 (Water Quality Monitoring Results).

Table 2-1. Monitoring Site Locations, 2022

Region	Site ID[1]	Site Description	Longitude	Latitude
Lower Pajaro	305COR	Salsipuedes Creek downstream of Corralitos Creek upstream from Highway 129	121.73183	36.92028
Lower Pajaro	305PJP	Pajaro River at Main St.	-121.75105	36.90533
Lower Pajaro	305WSA	Watsonville Slough at San Andreas Rd.	-121.80430	36.88793
Lower Pajaro	305BRS	Beach Road Ditch at Shell Rd.	-121.81516	36.86978
Lower Pajaro	305WCS	Watsonville Creek at Salinas Road/Hudson Landing	-121.74521	36.87385
Upper Pajaro	305CAN	Carnadero Creek upstream of Pajaro River	-121.53444	36.96002
Upper Pajaro	305CHI	Pajaro River at Chittenden	-121.59770	36.90033
Upper Pajaro	305FRA	Millers Canal at Frazier Lake Rd.	-121.49207	36.96344
Upper Pajaro	305LCS	Llagas Creek at Southside	-121.53213	36.99053
Upper Pajaro	305SJA	San Juan Creek at Anzar Rd.	-121.56144	36.87548
Upper Pajaro	305TSR	Tequisquita Slough u/s Pajaro River at Shore Rd.	-121.44437	36.94279
Upper Pajaro	305FUF	Furlong Creek at Frazier Lake Rd.	-121.50800	36.97900
Castroville & Blanco	309ASB	Alisal Slough at White Barn	-121.72968	36.72482
Castroville & Blanco	309BLA	Blanco Drain below Pump	-121.74393	36.71060
Castroville & Blanco	309ESP	Espinosa Slough upstream of Alisal Slough	-121.73372	36.73675

Region	Site ID[1]	Site Description	Longitude	Latitude
Castroville & Blanco	309GAB	Gabilan Creek at Boronda Rd.	-121.61641	36.71548
Castroville & Blanco	309JON	Salinas Reclamation Canal at San Jon Rd.	-121.70496	36.70493
Castroville & Blanco	309MER	Merritt Ditch upstream from Highway 183	-121.74208	36.75184
Castroville & Blanco	309MOR	Moro Cojo Slough at Highway 1	-121.78328	36.79646
Castroville & Blanco	309NAD	Natividad Creek u/s from Salinas Reclamation Canal	-121.60197	36.70254
Castroville & Blanco	309OLD	Old Salinas River at Monterey Dunes Wy.	-121.79008	36.77166
Castroville & Blanco	309TEH	Tembladero Slough at Haro St.	-121.75445	36.75952
Lower Salinas	309ALG	Salinas Reclamation Canal at La Guardia St.	-121.61297	36.65697
Lower Salinas	309CRR	Chualar Creek North Branch East of Highway 1	-121.50995	36.56142
Lower Salinas	309CCD	Chualar Creek West of Highway 1 on River Rd.	-121.51116	36.56130
Lower Salinas	309GRN	Salinas River at Elm Rd. in Greenfield	-121.20429	36.33797
Lower Salinas	309QUI	Quail Creek at Highway 101	-121.56211	36.60943
Lower Salinas	309RTA	Santa Rita Creek at Santa Rita Creek Park	-121.64800	36.72600
Lower Salinas	309SAC	Salinas River at Chualar Bridge on River Rd.	-121.54951	36.55598
Lower Salinas	309SAG	Salinas River at Gonzales River Rd. Bridge	-121.46854	36.48815
Lower Salinas	309SSP	Salinas River at Spreckels Gage	-121.67339	36.62967
Arroyo Grande	310LBC	Los Berros Creek at Century	-120.57837	35.10287
Arroyo Grande	310USG	Arroyo Grande Creek at old USGS Gage	-120.56907	35.12442
San Luis Obispo	310CCC	Chorro Creek upstream from Chorro Flats	-120.8124	35.35767
San Luis Obispo	310PRE	Prefumo Creek at Calle Joaquin	-120.68168	35.24732
San Luis Obispo	310SLD	Davenport Creek at Broad St.	-120.61824	35.21874
San Luis Obispo	310WRP	Warden Creek at Wetlands Restoration Preserve	-120.80647	35.32067
Santa Maria	312BCC	Bradley Canyon Creek	-120.35594	34.93526
Santa Maria	312BCJ	Bradley Channel at Jones St.	-120.41711	34.94561
Santa Maria	312GVS	Green Valley at Simas	-120.556457	34.942280
Santa Maria	312MSD	Main St. Canal u/s from Ray Rd. at Highway 166	-120.486578	34.955227
Santa Maria	312OFC	Oso Flaco Creek at Oso Flaco Lake Rd.	-120.586259	35.016388
Santa Maria	312OFN	Little Oso Flaco Creek	-120.586157	35.022795
Santa Maria	312ORC	Orcutt Solomon Creek u/s of Santa Maria River	-120.631454	34.957554
Santa Maria	312ORI	Orcutt Solomon Creek at Highway 1	-120.572882	34.941374
Santa Maria	312SMI	Santa Maria River at Highway 1	-120.569832	34.977207

Region	Site ID[1]	Site Description	Longitude	Latitude
Santa Maria	312SMA	Santa Maria River at Estuary	-120.641796	34.963774
San Antonio	313SAE	San Antonio Creek at San Antonio Rd. East	-120.43200	34.76700
Lompoc	314SYF	Santa Ynez River at Floradale Ave.	-120.49266	34.67192
Lompoc	314SYL	Santa Ynez River at River Park	-120.43698	34.65180
Lompoc	314SYN	Santa Ynez River at 13th St.	-120.55442	34.67677
Santa Barbara	315APF	Arroyo Paredon at Foothill Rd.	-119.54445	34.41676
Santa Barbara	315BEF	Bell Creek at Winchester Canyon Park	-119.90579	34.43926
Santa Barbara	315FMV	Franklin Creek at Mountain View Ln.	-119.51766	34.40678
Santa Barbara	315GAN	Glen Annie Creek upstream Cathedral Oaks	-119.87635	34.44772
Santa Barbara	315LCC	Los Carneros Creek at Calle Real	-119.85358	34.43949

Notes: 1 The first three digits of the Site ID correspond to the hydrologic unit code (HUC) for each region.
HUC Key: 305=Pajaro; 309=Salinas; 310=Estero Bay; 312=Santa Maria; 313= San Antonio; 314=Santa Ynez; 315=South Coast
u/s upstream

2.2 ROUTINE MONITORING PARAMETERS AND SCHEDULE

The CMP includes routine chemical, physical, toxicological, and biological monitoring elements. Samples are collected in a manner appropriate for the specific analytical methods used. Water samples were typically collected as grab samples and collected in the middle of the channel, just below the surface. Standard operating procedures for collection and analysis of surface water, sediment, and bioassessment samples are described briefly in Sections 2.3 through 2.7 of this report, and in more detail in the CMP's Quality Assurance Project Plan (QAPP) and associated amendments (CCWQP 2013, 2017, 2018). The standard operating procedures implemented in 2022 were consistent with the QAPP (2017) and Agricultural Order. The QAPP was updated in 2023 to reflect all requirements specified in the 2022 MRP to Agricultural Order.

The core CMP monitoring components and schedule consist of the following:

- Chemical and physical constituents measured monthly are as follows:
    - Nitrate+nitrite (as nitrogen)[1]
    - Total ammonia
    - Unionized ammonia
    - Total nitrogen (added in 2012)
    - Total Kjeldahl nitrogen (necessary to calculate total nitrogen)
    - Soluble orthophosphate
    - Total phosphorus (as P) (added in 2012)
    - Water column chlorophyll-*a*
    - Dissolved oxygen
    - Temperature
    - Total dissolved solids
    - Total suspended solids (added in 2012)
    - Electrical conductivity
    - Salinity (necessary to evaluate the need for alternative test species)

[1] Samples were collected for nitrate+nitrite analysis. This report discusses nitrate results as nitrite levels are assumed to be negligible.

  - pH
  - Turbidity
  - Flow
- Chemical constituents monitored quarterly:
  - Total alkalinity (as $CaCO_3$) (added in 2022)
  - Calcium (added in 2022)
  - Magnesium (added in 2022)
  - Sodium (added in 2022)
  - Potassium (added in 2022)
  - Sulfate (SO_4) (added in 2022)
  - Chloride (added in 2022)
- Chronic toxicity of ambient waters was historically assessed with three species (invertebrates, fish, and algae), four times a year (twice during the dry season and twice during the wet season). In 2017, the fish test species was removed, and an additional invertebrate species (*Chironomus dilutus*) was added.
- Sediment toxicity testing was historically conducted once each year in spring, but in 2017 the frequency of testing was increased to twice each year, once from April-June and once in from August-October. Then once per year in calendar quarter April-June.
- Benthic macroinvertebrate assessments will be conducted in 2023 and will continue on a five-year cycle.
- Assessments of aquatic habitat (filamentous algae and periphyton coverage, dominant substrate, bank vegetation and shading) are conducted monthly as part of the regularly scheduled monitoring, and in more detail for the macroinvertebrate bioassessment monitoring previously mentioned.
- Supplemental analyses of potential toxicants (i.e., pesticides, herbicides, metals) were conducted initially (2006-2011) as focused "follow-up" projects to address exceedances of narrative objectives related to aquatic toxicity, which were observed during core CMP monitoring. In the 2012-2016 Waiver period, supplemental analyses were conducted on a more comprehensive basis, at all sites during either the 2013 or 2014 monitoring year. Supplemental toxicant sampling was also conducted at all sites during the 2017 and 2018 monitoring years. Supplemental analyses for 2017 and 2018 are summarized in the context of concurrent toxicity testing results in the *Central Coast Region Conditional Waiver Cooperative Monitoring Program Supplemental Monitoring Report: Aquatic Toxicity and Potential Toxicants in Sediment and Water, 2017-2018* (CCWQP 2020). Supplemental toxicant sampling was conducted again in 2021 and 2022 and is discussed further in Section 2.3.

2.2.1 Water Quality Criteria

The parameters presented above were selected to evaluate whether water and habitat quality in agricultural regions support the beneficial uses designated for Central Coast waterbodies in the *Water Quality Control Plan for the Central Coast Basin* (Basin Plan) (CCRWQCB 2019). This evaluation requires a careful comparison of results to Basin Plan WQOs that are deemed protective of relevant beneficial uses. However, where a waterbody has been previously deemed impaired and a TMDL established, results must be compared to TMDL related numeric limits, as described in Agricultural Order. Additionally, Agricultural Order identifies non-TMDL area limits associated with nutrients, pesticide toxicity, and sediment for waterbodies without an associated TMDL limit. Additional discussion regarding the water quality criteria referenced in this report and used for comparison to sampling results is summarized in the following subsections. **Figure 2-1** describes the hierarchical approach used to determine applicable water quality criteria for a given site.

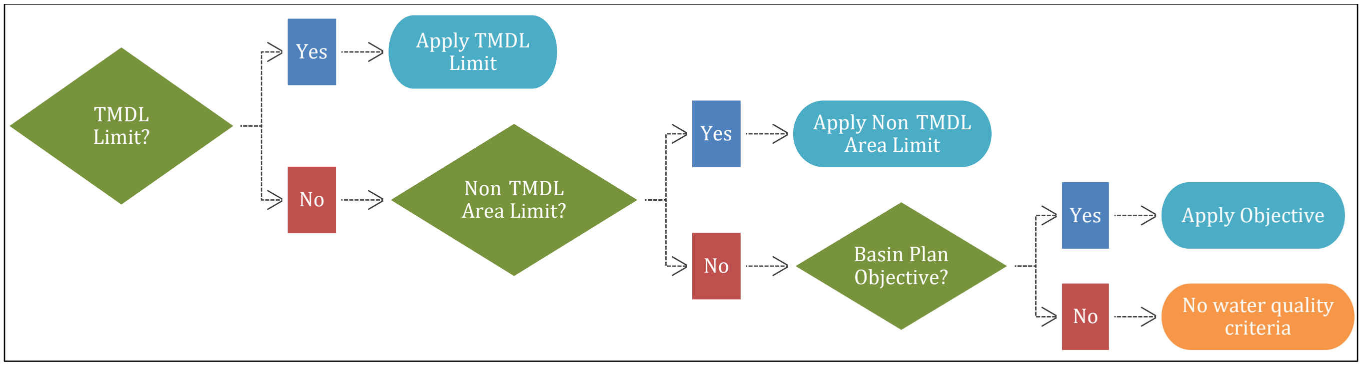


Figure 2-1. Hierarchical Approach Used to Determine Applicable Water Quality Criteria

2.2.1.1 Basin Plan Beneficial Uses and Water Quality Objectives

Table 2-1 of the Basin Plan contains a list of designated beneficial uses for many of the Central Coast Region's waterbodies (CCRWQCB 2019). For surface waterbodies within the Central Coast Region that do not have beneficial uses designated for them in Table 2-1 of the Basin Plan, the following designations are assigned: municipal and domestic supply, and protection of both recreation and aquatic life uses. The CCRWQCB staff interprets this to include, at a minimum, the following specific beneficial uses: Municipal and Domestic Supply (MUN), Water Contact Recreation (REC-1), Non-contact Recreation (REC-2), Cold Freshwater Habitat (COLD), and Warm Freshwater Habitat (WARM). The Basin Plan also assigns numeric water quality objectives (WQOs) for dissolved oxygen, oxygen saturation, pH, and unionized ammonia to all waterbodies unless other WQOs for these parameters are applicable based on the beneficial uses assigned in Table 2-1. These indicators of water quality and their relationship to beneficial uses defined in the Basin Plan have been used previously by the CCRWQCB to assess Central Coast waterbodies. **Table 2-2** presents a summary of the beneficial uses pertinent to CMP monitoring sites. Inland Saline Water Habitat (SAL) and Aquaculture (AQUA) beneficial uses are not included in Table 2-2 since none of the core CMP monitoring locations have SAL or AQUA beneficial uses according to the Table 2-1 Basin Plan. WQOs for specific monitoring parameters and their related beneficial uses are summarized in **Table 2-3** (CCRWQCB 2019).

The Basin Plan includes ranges of numeric objectives for ammonia, nitrate, and conductivity to protect agricultural beneficial uses (AGR). However, the method to implement and interpret the different ranges is not specified in the Basin Plan. For the purpose of this report, concentrations are compared conservatively to the low ends of these ranges but concentrations in excess of these numbers should not necessarily be interpreted as exceedances or violations.

In this report, dissolved oxygen is assessed relative to numeric WQOs defined in the Basin Plan. However, due to daytime photosynthesis and evening respiration of algae, aquatic plants, aquatic animals and microbes, the diurnal variation of dissolved oxygen within the water column can be significant and the measured concentration highly dependent on the time of day. In light of this natural cycle, a meaningful way to interpret dissolved oxygen results is based on its departure from a defined acceptable range. For certain water quality assessment purposes, the Central Coast Ambient Monitoring Program (CCAMP) measures the departure of dissolved oxygen results outside an acceptable range, which CCAMP defines as 7.0 to 13.0 milligrams per liter (mg/L), by its distance from the center point (10 mg/L) (CCAMP 2016).

A summary of numeric WQOs applicable to individual CMP sites is presented in **Table 2-4**.

Table 2-2. Designated Beneficial Uses[1] for Core CMP Monitoring Locations

CMP Site ID	CMP Site Description	Corresponding Basin Plan "Waterbody Names"	GENERAL OBJECTIVES	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	COMM	SHELL
305PJP	Pajaro River at Main St.	Pajaro River	X	X	X		X	X	X	X	X	X	X	X	X				X	X	
305CHI	Pajaro River at Chittenden	Pajaro River	X	X	X		X	X	X	X	X	X	X	X	X				X	X	
305FRA	Millers Canal at Frazier Lake Rd.[2]	Not Applicable	X	X					X	X		X	X								
305SJA	San Juan Creek at Anzar Rd.[2]	Not Applicable	X	X					X	X		X	X								
305TSR	Tequisquita Slough u/s Pajaro River at Shore Rd.	Tequisquita Slough	X					X	X	X	X		X		X					X	
305LCS	Llagas Creek at Southside	Llagas Creek (below Chesbro Res.)	X	X	X		X	X	X	X	X	X	X	X	X		X			X	
305CAN	Carnadero Creek upstream of Pajaro River	Carnadero Creek	X	X				X	X	X	X	X	X	X			X			X	
305COR	Salsipuedes Creek downstream of Corralitos Creek upstream from Highway 129	Salsipuedes Creek	X	X	X			X	X	X	X	X		X	X					X	
305WSA	Watsonville Slough at San Andreas Rd.	Watsonville Slough	X						X	X	X		X		X	X	X	X		X	
305BRS	Beach Road Ditch at Shell Rd.[2]	Not Applicable	X	X					X	X		X	X								

CMP Site ID	CMP Site Description	Corresponding Basin Plan "Waterbody Names"	GENERAL OBJECTIVES	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	COMM	SHELL
305WCS	Watsonville Creek at Salinas Road/ Hudson Landing[2]	Not Applicable	X	X					X	X		X	X								
305FUF	Furlong Creek at Frazier Lake Rd.[2]	Not Applicable	X	X					X	X		X	X								
309MOR	Moro Cojo Slough at Highway 1	Moro Cojo Slough	X					X	X	X	X	X	X		X	X	X	X		X	X
309OLD	Old Salinas River at Monterey Dunes Wy.	Old Salinas River	X						X	X	X	X	X	X	X	X	X	X		X	
309TEH	Tembladero Slough at Haro St.	Tembladero Slough	X						X	X	X		X	X	X		X	X		X	X
309MER	Merritt Ditch upstream from Highway 183[2]	Not Applicable	X	X					X	X		X	X								
309ESP	Espinosa Slough upstream of Alisal Slough	Espinosa Slough	X						X	X	X		X							X	
309JON	Salinas Reclamation Canal at San Jon Rd.	Salinas Reclamation Canal	X						X	X	X		X	X						X	
309ALG	Salinas Reclamation Canal at La Guardia St.	Salinas Reclamation Canal	X						X	X	X		X	X						X	
309NAD	Natividad Creek upstream from Salinas Reclamation Canal[2]	Not Applicable	X	X					X	X		X	X								
309GAB	Gabilan Creek at Boronda Rd.	Gabilan Creek	X	X	X			X	X	X	X	X	X	X	X		X			X	

CMP Site ID	CMP Site Description	Corresponding Basin Plan "Waterbody Names"	GENERAL OBJECTIVES	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	COMM	SHELL
309ASB	Alisal Slough at White Barn[2]	Not Applicable	X	X					X	X		X	X								
309BLA	Blanco Drain below Pump	Blanco Drain	X						X	X	X		X							X	
309SSP	Salinas River at Spreckels Gage	Salinas River, downstream of Spreckels Gage	X	X	X				X	X	X	X	X	X					X	X	
309SAC	Salinas River at Chualar Bridge on River Rd.	Salinas River, Spreckels Gage-Chualar	X	X	X	X	X	X	X	X	X	X	X	X						X	
309QUI	Quail Creek at Highway 101[2]	Not Applicable	X	X					X	X		X	X								
309GRN	Salinas River at Elm Rd. in Greenfield	Salinas Riv, Chualar-Nacimiento Riv	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X	
309SAG	Salinas River at Gonzales River Rd. Bridge	Salinas Riv, Chualar-Nacimiento Riv	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X	
309CCD	Chualar Creek West of Highway 1 on River Rd.[2]	Not Applicable	X	X					X	X		X	X								
309CRR	Chualar Creek North Branch East of Highway 1[2]	Not Applicable	X	X					X	X		X	X								
309RTA	Santa Rita Creek at Santa Rita Creek Park[2]	Not Applicable	X	X					X	X		X	X								

CMP Site ID	CMP Site Description	Corresponding Basin Plan "Waterbody Names"	GENERAL OBJECTIVES	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	COMM	SHELL
310CCC	Chorro Creek upstream from Chorro Flats	Chorro Creek	X	X	X			X	X	X	X	X	X	X	X	X	X		X	X	
310WRP	Warden Creek at Wetlands Restoration Preserve[2]	Not Applicable	X	X					X	X		X	X								
310PRE	Prefumo Creek at Calle Joaquin	Prefumo Creek	X	X	X			X	X	X	X	X		X	X		X		X	X	
310SLD	Davenport Creek at Broad Street	Davenport Creek	X	X	X			X	X	X	X	X					X			X	
310USG	Arroyo Grande Creek at old USGS Gage	Arroyo Grande Creek, downstream from Lopez Re.	X	X	X		X	X	X	X	X	X	X	X			X		X	X	
310LBC	Los Berros Creek at Century	Los Berros Creek	X	X	X			X	X	X	X	X		X			X			X	
312OFC	Oso Flaco Creek at Oso Flaco Lake Rd.	Oso Flaco Creek	X	X	X			X	X	X	X		X			X	X		X	X	
312OFN	Little Oso Flaco Creek[2]	Not Applicable	X	X					X	X		X	X								
312SMA	Santa Maria River at Estuary	Santa Maria River	X	X	X		X	X	X	X	X	X	X	X			X		X	X	
312SMI	Santa Maria River at Highway 1	Santa Maria River	X	X	X		X	X	X	X	X	X	X	X			X		X	X	
312BCC	Bradley Canyon Creek[2]	Not Applicable	X	X					X	X		X	X								
312BCJ	Bradley Channel at Jones Street[2]	Not Applicable	X	X					X	X		X	X								

CMP Site ID	CMP Site Description	Corresponding Basin Plan "Waterbody Names"	GENERAL OBJECTIVES	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	COMM	SHELL
312GVS	Green Valley at Simas[2]	Not Applicable	X	X					X	X		X	X								
312MSD	Main Street Canal u/s Ray Road at Highway 166[2]	Not Applicable	X	X					X	X		X	X								
312ORC	Orcutt Solomon Creek u/s of Santa Maria River	Orcutt Creek	X	X	X			X	X	X	X	X	X				X	X	X	X	
312ORI	Orcutt Solomon Creek at Highway 1	Orcutt Creek	X	X	X			X	X	X	X	X	X				X	X	X	X	
313SAE	San Antonio Creek at San Antonio Road East	San Antonio Creek	X	X	X			X	X	X	X	X	X	X	X		X		X	X	
314SYL	Santa Ynez River at River Park	Santa Ynez River, downstream Cachuma Res.	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	
314SYF	Santa Ynez River at Floradale Ave.	Santa Ynez River, downstream Cachuma Res.	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	
314SYN	Santa Ynez River at 13th St.	Santa Ynez River, downstream Cachuma Res.	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	
315GAN	Glen Annie Creek upstream Cathedral Oaks	Glenn Annie Creek	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	
315APF	Arroyo Paredon at Foothill Rd.	Arroyo Paredon	X	X	X			X	X	X	X	X	X	X	X		X	X	X	X	
315FMV	Franklin Creek at Mountain View Ln.	Franklin Creek	X	X	X			X	X	X	X	X	X	X	X		X		X	X	

CMP Site ID	CMP Site Description	Corresponding Basin Plan "Waterbody Names"	GENERAL OBJECTIVES	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	COMM	SHELL
315BEF	Bell Creek at Winchester Canyon Park[2]	Not Applicable	X	X					X	X		X	X								
315LCC	Los Carneros Creek at Calle Real	Carneros Creek	X	X	X			X	X	X	X	X	X						X	X	

Notes: 1 Key to Beneficial Use Codes:

Code	Beneficial Use	Code	Beneficial Use
MUN	Municipal and Domestic Supply	WARM	Warm Fresh Water Habitat
AGR	Agricultural Supply	MIGR	Migration of Aquatic Organisms
PROC	Industrial Process Supply	SPWN	Spawning, Reproduction, and/or Early Development
IND	Industrial Service Supply	BIOL	Preservation of Biological Habitats of Special Significance
GWR	Groundwater Recharge	RARE	Rare, Threatened, or Endangered Species
REC1	Water Contact Recreation	EST	Estuarine Habitat
REC2	Non-Contact Water Recreation	FRSH	Fresh Water Replenishment
WILD	Wildlife Habitat	COMM	Commercial and Sport Fishing
COLD	Cold Fresh Water Habitat	SHELL	Shellfish Harvesting

2 Table 2-1 of the Basin Plan does not designate beneficial uses for the water body, so the following have been assigned: Municipal and Domestic Supply (MUN), Water Contact Recreation (REC-1), Non-contact Recreation (REC-2), Cold Freshwater Habitat (COLD), and Warm Freshwater Habitat (WARM).

Table 2-3. Basin Plan General Objectives and Objectives for Specific Beneficial Uses Applicable to CMP Parameters

Parameters Monitored	General Objectives[1]	Municipal and Domestic Water Supply	Agricultural Water Supply	Water Contact Recreation	Non-Contact Water Recreation	Cold Fresh Water Habitat	Warm Fresh Water Habitat	Fish Spawning	Shellfish Harvesting
Nitrate, mg/L as N	—	< 10	Var	—	—	—	—	—	—
Ammonia (NH_4^+), mg/L as N	—	—	Var	—	—	—	—	—	—
Unionized ammonia (NH_3), mg/L as N	<0.025	—	—	—	—	—	—	—	—
Orthophosphate, mg/L as P	—	—	—	—	—	—	—	—	—
Total Dissolved Solids, mg/L[2]	—	—	—	—	—	—	—	—	—
Conductivity, µS/cm	—	—	Var	—	—	—	—	—	—
Turbidity, NTU	NatB	—	—	—	—	—	—	—	—
Temperature, Fahrenheit	NatB	—	—	—	—	NatB	NatB	—	—
Dissolved Oxygen, mg/L	≥5	—	≥2	—	—	≥7	≥5	≥7	—
Dissolved Oxygen Saturation (median), %	≥85%	—	—	—	—	—	—	—	—
pH, -log[H^+]	7-8.5	6.5-8.3	6.5-8.3	6.5-8.3	6.5-8.3	7-8.5	7-8.5	—	—
Chlorophyll-a, µg/L	—	—	—	—	—	—	—	—	—
Flow, CFS	—	—	—	—	—	—	—	—	—
Aquatic Toxicity, Invertebrate species (Mortality and Reproduction)	Narr	—	—	—	—	—	—	—	—
Algae species (Cell Density)	Narr	—	—	—	—	—	—	—	—
Sediment Toxicity, Invertebrate species (Mortality and Growth)	Narr	—	—	—	—	—	—	—	—

Notes:

- — The Basin Plan does not state a WQO for this parameter.
- 1 General Objectives apply to all sites. Where more protective beneficial use objectives are designated, those are used for the purpose of this report.
- 2 Objectives for TDS exist for specific CMP sites pursuant to Table 3-6 of the Basin Plan.
- Var Varies since the numeric WQOs for AGR are cited in the Basin Plan as concentrations corresponding to “no problems”, “increasing problems”, and “severe problems”.
- Narr. Indicates Basin Plan objective is narrative.
- NatB Indicates Basin Plan objective is based upon natural background conditions. The objective is defined as an acceptable increase in temperature/turbidity and the value of the objective varies based on the natural temperature/turbidity of the waterbody.

Table 2-4. Site-specific Basin Plan Objectives[1] for CMP Monitoring Sites

CMP Site ID	CMP Site Description	pH[2]	DO, mg/L[3]	DO Saturation, %[3]	TDS, mg/L	Ammonia as N, mg/L (NH_4^+)[4]	Unionized Ammonia as N, mg/L (NH_3)[5]	EC, µS/cm[4]	Nitrate as N, mg/L[4]
305PJP	Pajaro River at Main St.	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
305CHI	Pajaro River at Chittenden	7-8.3	≥7	none	1000	*Var*	<0.025	*Var*	*Var*, <10
305FRA	Millers Canal at Frazier Lake Rd.[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
305SJA	San Juan Creek at Anzar Rd.[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
305TSR	Tequisquita Slough u/s Pajaro River at Shore Rd.	7-8.3	≥7	none	none	none	<0.025	none	None
305LCS	Llagas Creek at Southside	7-8.3	≥7	none	200	*Var*	<0.025	*Var*	*Var*, <10
305CAN	Carnadero Creek upstream of Pajaro River	7-8.3	≥7	none	none	none	<0.025	none	<10
305COR	Salsipuedes Creek downstream of Corralitos Creek upstream from Highway 129	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
305WSA	Watsonville Slough at San Andreas Rd.	7-8.3	≥7	none	none	none	<0.025	none	none
305BRS	Beach Road Ditch at Shell Rd.[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
305WCS	Watsonville Creek at Salinas Road/Hudson Landing[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
305FUF	Furlong Creek at Frazier Lake Rd.[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
309MOR	Moro Cojo Slough at Highway 1	7-8.3	≥7	none	none	none	<0.025	none	none
309OLD	Old Salinas River at Monterey Dunes Wy.	7-8.3	≥7	none	none	none	<0.025	none	none
309TEH	Tembladero Slough at Haro St.	7-8.3	≥7	none	none	none	<0.025	none	none

CMP Site ID	CMP Site Description	pH[2]	DO, mg/L[3]	DO Saturation, %[3]	TDS, mg/L	Ammonia as N, mg/L (NH_4^+)[4]	Unionized Ammonia as N, mg/L (NH_3)[5]	EC, µS/cm[4]	Nitrate as N, mg/L[4]
309MER	Merritt Ditch upstream from Highway 183[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
309ESP	Espinosa Slough upstream of Alisal Slough	7-8.3	≥5	none	none	none	<0.025	none	none
309JON	Salinas Reclamation Canal at San Jon Rd.	7-8.3	≥5	none	none	none	<0.025	none	none
309ALG	Salinas Reclamation Canal at La Guardia St.	7-8.3	≥5	none	none	none	<0.025	none	none
309NAD	Natividad Creek upstream from Salinas Reclamation Canal[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
309GAB	Gabilan Creek at Boronda Rd.	7-8.3	≥7	none	300	*Var*	<0.025	*Var*	*Var*, <10
309ASB	Alisal Slough at White Barn[6]	7-8.3	≥5	≥85%	none	none	<0.025	*Var*	<10
309BLA	Blanco Drain below Pump	7-8.3	≥5	none	none	none	<0.025	none	none
309SSP	Salinas River at Spreckels Gage	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
309SAC	Salinas River at Chualar Bridge on River Rd.	7-8.3	≥7	none	600	*Var*	<0.025	*Var*	*Var*, <10
309QUI	Quail Creek at Highway 101[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
309GRN	Salinas River at Elm Rd. in Greenfield	7-8.3	≥7	none	600	*Var*	<0.025	*Var*	*Var*, <10
309SAG	Salinas River at Gonzales River Rd. Bridge	7-8.3	≥7	none	600	*Var*	<0.025	*Var*	*Var*, <10
309CRR	Chualar Creek West of Highway 1 on River Rd.[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
309CCD	Chualar Creek North Branch East of Highway 1[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10

CMP Site ID	CMP Site Description	pH[2]	DO, mg/L[3]	DO Saturation, %[3]	TDS, mg/L	Ammonia as N, mg/L (NH_4^+)[4]	Unionized Ammonia as N, mg/L (NH_3)[5]	EC, µS/cm[4]	Nitrate as N, mg/L[4]
309RTA	Santa Rita Creek at Santa Rita Creek Park[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
310CCC	Chorro Creek upstream from Chorro Flats	7-8.3	≥7	none	500	*Var*	<0.025	*Var*	*Var*, <10
310WRP	Warden Creek at Wetlands Restoration Preserve[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
310PRE	Prefumo Creek at Calle Joaquin	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
310SLD	Davenport Creek at Broad Street	7-8.3	≥7	none	none	*Var*	<0.025	Var	Var, <10
310USG	Arroyo Grande Creek at old USGS Gage	7-8.3	≥7	none	800	*Var*	<0.025	*Var*	*Var*, <10
310LBC	Los Berros Creek at Century	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
312OFC	Oso Flaco Creek at Oso Flaco Lake Rd.	7-8.3	≥5	none	none	*Var*	<0.025	*Var*	*Var*, <10
312OFN	Little Oso Flaco Creek[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
312SMA	Santa Maria River at Estuary	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
312SMI	Santa Maria River at Highway 1	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
312BCC	Bradley Canyon Creek[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
312BCJ	Bradley Channel at Jones Street[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
312GVS	Green Valley at Simas[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
312MSD	Main Street Canal u/s Ray Road at Highway 166[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
312ORC	Orcutt Solomon Creek u/s of Santa Maria River	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
312ORI	Orcutt Solomon Creek at Highway 1	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10

CMP Site ID	CMP Site Description	pH[2]	DO, mg/L[3]	DO Saturation, %[3]	TDS, mg/L	Ammonia as N, mg/L (NH_4^+)[4]	Unionized Ammonia as N, mg/L (NH_3)[5]	EC, µS/cm[4]	Nitrate as N, mg/L[4]
313SAE	San Antonio Creek at San	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
314SYL	Santa Ynez River at River Park	7-8.3	≥7	none	1000	*Var*	<0.025	*Var*	*Var*, <10
314SYF	Santa Ynez River at Floradale Ave.	7-8.3	≥7	none	1000	*Var*	<0.025	*Var*	*Var*, <10
314SYN	Santa Ynez River at 13th St.	7-8.3	≥7	none	1000	*Var*	<0.025	*Var*	*Var*, <10
315GAN	Glen Annie Creek upstream Cathedral Oaks	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
315APF	Arroyo Paredon at Foothill Rd.	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
315FMV	Franklin Creek at Mountain View Ln.	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10
315BEF	Bell Creek at Winchester Canyon Park[6]	7-8.3	≥5	≥85%	none	none	<0.025	none	<10
315LCC	Los Carneros Creek at Calle Real	7-8.3	≥7	none	none	*Var*	<0.025	*Var*	*Var*, <10

Notes:

1. WQOs presented in this table were derived from the Basin Plan, Sections 3.3.2 and 3.3.3 (CCRWQCB 2019).
2. pH objectives for sites with beneficial uses specified in Table 2-1 (of Basin Plan) are based on MUN, AGR, REC1, REC2, COLD, and/or WARM beneficial uses. pH objectives for sites without beneficial uses specified in Table 2-1 of the Basin Plan are based on the designation of the following beneficial uses and their associated objectives: MUN, REC1, REC2, COLD, and WARM. For these sites, the most conservative pH range is used (i.e., 7-8.3).
3. DO objectives for sites with beneficial uses specified in Table 2-1 (of Basin Plan) are based on COLD, WARM, and/or SPWN beneficial Uses. DO objectives for sites without Beneficial uses specified in Table 2-1 (of Basin Plan) are based on Basin Plan General Objectives. The General Objectives for DO is ≥5 mg/L and the General Objectives for median DO saturation is ≥85%, which is based on "*controllable water quality conditions*".
4. *Var* indicates that objective is variable and does not provide a definitive numeric exceedance threshold. Interpretations of objectives for EC, Nitrate-N and Ammonia-N are based on possible effects of constituents on crops and/or soils. Guidelines are flexible and should be modified when warranted by local experience or special conditions of crop, soil, and method of irrigation. Conductivity (EC) objective of 750 µS/cm is the most restrictive objective for AGR (<750, no problems; 750-3000, increasing problems; >3000, severe). Ammonia-N objective of 5 mg/L is most restrictive objective for AGR (5, no problems 5-30, increasing problems; >30, severe). NO3-N objective of 5 mg/L is the most restrictive objective for AGR (5, no problems 5-30, increasing problems; >30, severe). MUN objective for NO3-N is 10 mg/L.
5. Unionized ammonia WQO based on the Basin Plan General Objective for Toxicity, which states that "*discharge of wastes shall not cause concentrations of unionized ammonia (NH3) to exceed 0.025 mg/l (as N) in receiving waters*".
6. CMP site is not represented in the Basin Plan.

2.2.1.2 TMDL and Non-TMDL Area Limits

Surface waterbodies within the Central Coast Region are assessed regularly by the CCRWQCB and identified as "impaired" if they do not meet water quality standards. To address these impairments, the CCRWQCB has adopted TMDLs (or Total Maximum Daily Load allocations, with associated implementation plans) for many of these waterbodies. TMDLs that specify irrigated agriculture as a source have associated numeric limits included in Agricultural Order Tables C.3-2 and C.3-4 of Agricultural Order present the TMDL numeric limits and compliance schedules for parameters monitored by the CMP (i.e., nutrients, pesticides, and toxicity). For the purposes of this report, discussion is focused on TMDL numeric limits from Agricultural Order that directly correspond to routine CMP parameters. In addition to TMDL numeric limits, the 2021 Ag Order also includes numeric limits for waterbodies in non-TMDL areas. The Order also includes compliance dates for nutrients, pesticides and toxicity, and turbidity in non-TMDL areas, located in Tables C.3-3, C.3-5, and C.3-7 of the 2021 Ag Order, respectively. Refer to **Table 2-5** for a summary of hydrologic units monitored by the CMP and associated TMDL and non-TMDL area limits. See **Appendix A** for a detailed summary of annual, dry season (May 1 through September 30), and wet season (October 1 through April 30) TMDL limits and non-TMDL area limits applicable to routine CMP parameters. **Figure 2-1** describes the hierarchical approach used to determine applicable water quality criteria for a given site.

Table 2-5. Summary of Applicable TMDL(s) and Water Quality Limits for Non-TMDL Areas

Hydrologic Unit	Applicable TMDL(s) and Non-TMDL Area Water Quality Limits
305	• Pajaro River Watershed Nutrient TMDL • Pajaro River Watershed Chlorpyrifos and Diazinon TMDL[1] • Pajaro River Watershed Sediment TMDL[2] • Non-TMDL Area Turbidity Limits • Non-TMDL Area Nutrient Limits • Non-TMDL Area Toxicity Limits[1]
309	• Lower Salinas River Watershed Nutrient TMDL • Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL • Lower Salinas River Watershed Chlorpyrifos and Diazinon TMDL[1] • Non-TMDL Area Turbidity Limits • Non-TMDL Area Nutrient Limits • Non-TMDL Area Toxicity Limits[1]
310	• Los Berros Creek Nitrate TMDL • Los Osos Creek, Warden Creek, and Warden Lake Wetland Nutrient TMDL • San Luis Obispo Creek Nitrate TMDL • Morro Bay Sediment TMDL[2] • Non-TMDL Area Turbidity Limits • Non-TMDL Area Nutrient Limits • Non-TMDL Area Toxicity Limits[1]
312	• Santa Maria River Watershed Nutrients TMDL • Santa Maria River Watershed Toxicity and Pesticide TMDL • Non-TMDL Area Turbidity Limits • Non-TMDL Area Toxicity Limits[1]
313 and 314	• Non-TMDL Area Turbidity Limits • Non-TMDL Area Nutrient Limits • Non-TMDL Area Toxicity Limits[1]

Hydrologic Unit	Applicable TMDL(s) and Non-TMDL Area Water Quality Limits
315	• Arroyo Paredon Nitrate TMDL • Bell Creek Nitrate TMDL • Franklin Creek Nutrients TMDL • Glen Annie Creek, Tecolotito Creek, and Carneros Creek Nitrate TMDL • Non-TMDL Area Turbidity Limits • Arroyo Paredon Diazinon TMDL[1] • Non-TMDL Area Toxicity Limits[1]

Notes:

1 Pesticide concentration and toxic unit related TMDL and Non-TMDL area limit criteria are summarized in the report titled *Central Coast Cooperative Monitoring Program Supplemental Monitoring Report, 2021 and 2022 Aquatic Toxicity and Potential Toxicants (2023).*

2 The limits and units identified in Table C.3-6 of Agricultural Order are not applicable to the parameters monitored for the CMP and are not assessed in this annual report.

2.3 FIELD DATA COLLECTION

Water temperature, dissolved oxygen, oxygen saturation, pH, specific conductivity, salinity, and total dissolved solids (TDS) were measured in the field using a Hydrolab DS5 data sonde or similar field meter. Field meters were calibrated before and after each day of sampling. Field meters were most typically placed in the thalweg upstream of the field crew collecting samples. If a waterbody was not wadeable, the field meter was placed in the water near the stream bank/edge, in an area where the water was well mixed and flowing or placed in a bucket containing a recently collected and well-mixed water sample from the waterbody.

2.4 WATER AND SEDIMENT SAMPLE COLLECTION AND HANDLING

Water quality samples were collected using clean techniques that minimize sample contamination. Grab samples were generally collected by wading to mid-stream and filling bottles by direct submersion of the sample bottle or from a secondary clean container. Sample water collected with a secondary container (e.g., sample bucket) was continually mixed to prevent the settling of suspended material and ensure a homogenous sample was collected within the sample container. Sediment samples consisted of composite samples of the top 2 centimeters (cm) of fine-grained sediments, which is intended to ensure collection of relatively recent deposition (though not necessarily recent erosion from the surrounding watershed, as re-deposition of sediments already within the stream can also occur).

All water and sediment samples were immediately placed in an ice chest and preserved with ice. Samples were delivered to their respective labs the day following sample collection, so that method hold times were met. Additionally, all sample shipments were accompanied by a chain-of-custody form that identified the contents of the ice chest and met other QAPP chain-of-custody requirements.

Water column samples were analyzed for conventional and physical measures of water quality, nitrogen and phosphorus compounds, and aquatic toxicity (bioassay). These analyses were performed on filtered (dissolved) or unfiltered (total) samples, as appropriate for the analyte of concern. Analysis of sediment samples included toxicity (bioassay) testing with a single invertebrate species.

Chemical analyses were performed by Physis Environmental Laboratories (Physis) (Anaheim, California), North Coast Laboratories (NCL) (Arcata, California), and Silver State Analytical Laboratories (Reno, Nevada). Bioassays were performed by Pacific EcoRisk (PER) (Fairfield, California) and Enthalpy Analytical (San Diego, California).

Additional details of procedures for collecting water and sediment samples for chemical analyses and toxicity testing are provided in Section B.3 and Appendix A of the QAPP (CCWQP 2013, 2017, 2018). Laboratory SOPs for chemical analyses are included as appendices to the QAPP.

2.5 TOXICITY TESTING

Water quality samples were analyzed for toxicity to sensitive invertebrate species (*Ceriodaphnia dubia* [water flea] and *Chironomus dilutus* [midge fly larva]), and to aquatic algae (*Selenastrum capricornutum*). Determination of chronic toxicity was performed using *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition* (USEPA 2002). Determination of acute toxicity was performed following guidance in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition – Appendix B Supplemental List of Acute Toxicity Test Species* (USEPA 2002). Toxicity tests with *C. dubia* were conducted as seven-day static renewal tests (i.e., chronic bioassay) with sample renewals every 24 hours after test initiation; test endpoints included lethal (mortality) and sub-lethal (reproduction) endpoints. Toxicity tests with *C. dilutus* were conducted as 96-hour static renewal tests (i.e., chronic bioassay) with sample renewal occurring 48 hours after test initiation; the test endpoint was mortality. *For ambient water samples with conductivities >3000 µS/cm but <15ppt, the 10-day survival test with the amphipod Hyalella azteca was performed in place of the C. dunia and C. dilutus tests (SWAMP protocol modified)* (USEPA 2000). Toxicity tests with *S. capricornutum* were conducted as a 96-hour static non-renewal test (i.e., acute bioassay); the test endpoint was growth. *For ambient water samples with a conductivity >3000 µS/cm, the 96-hr algal growth test with the diatom Thalassiosira pseudonana was performed in place of the S. capricornutum test (ASTM E1218-100a).* Sediment samples were analyzed for toxicity to the amphipod *Hyalella azteca*. Determination of toxicity was performed as described in *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Organisms, 2nd Edition* (USEPA 2000). Toxicity tests with *H. azteca* were conducted as 10-day tests (i.e., static renewal chronic bioassay) with two daily intermittent volume additions of overlying water. The *H. azteca* sediment toxicity tests included lethal (mortality) and sub-lethal endpoints (growth). *For sediment samples with overlying water salinities >15ppt, the static 10-day survival test with the amphipod Eohaustorius estuarius was performed in place of the Hyalella azteca test* (USEPA 1994).

All toxicity testing was performed by PER (Fairfield, California) and Enthalpy Analytical (San Diego, California). Statistical analyses were performed using the CETIS® statistical package (Version 1.9.2.6, TidePool Scientific, McKinleyville, CA).

The salinity of the ambient waters sometimes exceeded the tolerance of the standard freshwater test species. In these cases, alternate salinity-tolerant test species were used for toxicity tests with invertebrate species (*H. azteca, Eohaustorius estuarius,* or *Americamysis bahia*), and algae species (*Thalassiosira pseudonana*):

- The *T. pseudonana* algal growth test was performed in place of the *S. capricornutum* test for water samples with conductivity greater than 3000 microsiemens per centimeter (µS/cm).
- The 10-day *H. azteca* test was performed in place of the *C. dubia* test for water samples with a conductivity greater than 3000 µS/cm but less than 15 parts per thousand (ppt) salinity. The chronic *A. bahia* test was performed in place of the *C. dubia* test for water samples with salinity more than 15 ppt.
- The *E. estuarius* sediment test was performed in place of the *H. azteca* test for sediment samples with interstitial water salinity greater than 15 ppt.
- The *C. dilutus* test was not performed for water samples with conductivity greater than 3000 µS/cm; in these cases, the same alternative test species apply as for the *C. dubia* tests.

Details of toxicity testing methods and procedures are provided in Appendix B of the QAPP (CCWQP 2013, 2017, 2018).

2.6 QUALITY ASSURANCE

Implementation of the CMP is conducted according to the approved QAPP (CCWQP 2013, 2017, 2018). The QAPP was initially approved in 2005 and has been revised or amended several times since, most recently in 2023. The QAPP documents the CMP's project management, assessment, and oversight structure, as well as the standard operating procedures and methods for sample collection and analysis, data quality objectives (DQOs), and data validation and reporting requirements.

2.7 DATA ANALYSIS

A variety of data analysis was performed to assess water quality at CMP monitoring stations. Each analysis is described in the following subsections.

2.7.1 Water Quality Status

A primary objective of the CMP is to assess the status of water quality in waterbodies located in agricultural watersheds of the Central Coast. To this end, monitoring results are tabulated by HU (and by site within each HU) and parameter, and summarized according to basic statistics such as minimum, maximum, mean, and median values. Results are displayed and evaluated relative to numeric WQOs, TMDL area limits, and non-TMDL area limits, so that exceedances can be identified. **Figure 2-1** is used to determine the hierarchy for applicable water quality criteria for a given site. Results are also compared between sites and HUs, relative to each other to assess spatial patterns throughout the study area.

Loading, or the mass of a substance that passes a particular point in a waterbody over time, was calculated for nitrate and total suspended solids by multiplying the instantaneous flow result measured in the field with the corresponding parameter concentration measured by a laboratory. All loading results were calculated as pounds per hour. Constant conversion factors were applied to express the instantaneous loading results in units of “mass per unit time” (pounds per hour). Since both flow and water chemistry are sampled by the CMP on an instantaneous, or grab sample basis, it was decided that temporal extrapolation beyond “hours” would not be appropriate for the CMP dataset. Instances of negative flows were omitted from these calculations and subsequent trend analyses. During instances of no flow (i.e., the site was dry), loading was presumed to be zero and included in subsequent trend analyses.

2.7.2 Water Quality Trends

Another main objective of the CMP is to detect trends in water quality over time, should changes occur. The seasonal Mann-Kendall test (Hirsch and Slack 1984) is the primary statistical test used for the CMP and discussed within this annual report. Briefly, the seasonal Mann-Kendall test is a non-parametric test that both identifies and quantifies monotonic trends (i.e., increasing or decreasing). Kendall’s tau is a non-parametric measure of correlation that ranges between -1 and 1, where positive values denote an increasing trend. The test computes the slope between each pair of points in the dataset; the median of these slopes is the estimate of the monotonic trend (i.e., tau). The number of positive or negative slopes are compared to a normal distribution based on the size of the dataset to form the test statistic. This test statistic provides for a hypothesis test with a two-tailed p-value for presence of a monotonic trend. A non-seasonal Mann-Kendall test (Mann 1945) was performed on site-by-parameter combinations with insufficient intra-annual data to account for seasonal patterns. Some important considerations related to the trend analyses reported herein, include:

- Historically, sediment sampling was performed once annually, early in the year. Recently, sampling efforts have increased to twice annually (early and late). For consistency in the sampling timeframe, only the first sample each year was used to calculate the Mann-Kendall results.
- Due to the varying measurement range of turbidity field equipment used since the inception of the CMP and the occasional employment of field dilutions, turbidity results were capped at 3,000 nephelometric turbidity units (NTU) to prevent erroneous turbidity trends. This upper limit turbidity threshold was also applied to flow-weighted turbidity calculations.

Due to the computational intensity of the seasonal and non-seasonal Mann-Kendall tests, the statistical computing software R version 3.6.1 (R Core Team 2020) with the “rkt” package (Marchetto 2017), was used on all site-by-parameter combinations with sufficient records in the CMP dataset from 2005 through 2022.

2.7.3 Wet and Dry Weather Comparison

To compare results for differing runoff conditions (i.e., wet weather and dry weather), a two-sample, unpaired t-test assuming unequal variance was used within individual hydrologic units. A t-test compares the means of two groups to determine if any differences are significant (two-sided test). Skewed data were log transformed.

3.0 WATER QUALITY MONITORING RESULTS

The results of 2022 CMP water quality monitoring discussed in this report include the following:

- Summary of field and laboratory quality assurance, including overall data quality, completeness, and qualified data.
- Standard summary statistics are provided for each site and parameter in **Appendix B**. For each water quality parameter evaluated, the following statistics were calculated: total number of measurements (*n*); minimum detected value (*min detected*); maximum detected value (*max detected*); arithmetic average (*mean*); median value (*median*); standard deviation (*Std Dev*).
- Box plots (also referred to as box and whisker diagrams) are provided for each site and parameter in **Appendix C**. These plots illustrate the distribution of results for a given parameter and site, and specifically depict the minimum detected value, first quartile of results, median, third quartile of results, and maximum detected value. Additional details are summarized in **Appendix C**.
- A two-sample, unpaired t-test used to compare the mean of individual parameters under different weather conditions (i.e., *dry* and *wet* events) is provided in **Appendix D**.
- Spatial patterns are assessed for each water quality parameter by HU. Temporal trends are quantified for each parameter at all sites. Results of the Mann-Kendall tests identifying monotonic trends are provided in **Appendix E**.
- Time series plots used to supplement statistical analysis of the data in order to evaluate temporal trends are provided in **Appendix F**.
- Compliance frequencies with relevant WQOs (**Table 2-4**), TMDL and non-TMDL area numeric limits (**Appendix A**) were calculated wherever possible. These are discussed by HU, and are provided for individual sites with the summary statistics in **Appendix B**.

Results are organized by surface water HUs, and significant spatial trends and comparisons to WQOs are discussed. Concentrations of monitored parameters were compared between sites and to applicable WQOs. Additionally, for sites without designated beneficial uses and parameters without relevant WQOs, results are also discussed relative to other CMP sites within the HU. Statistically significant changes over time ("trends"), based on monitoring results from 2005 through 2022, are discussed for each parameter group within the results section for each HU. Broad seasonal trends and regional spatial comparisons are discussed for all hydrologic regions in Section 4 (Discussion).

Field logs and photos for all monitoring events, laboratory analytical reports, and raw tabulated results can be found in **Appendices G**, **H**, **I**, and **J**, respectively.

3.1 QUALITY ASSURANCE SUMMARY

This report provides a summary of how well the 2022 CMP met the DQOs as presented in the *Quality Assurance Project Plan for the Region 3 Conditional Waiver Cooperative Monitoring Program*, dated April 1, 2015 (revised: April 12, 2018). To achieve analytical completeness, chemical, habitat, and field data were assessed monthly during 2022. Additionally, aquatic toxicological tests were assessed four times during the year (Events 208, 209, 214, and 216 or 217), and sediment toxicological tests were assessed once in April (Event 209), with a make-up site collected during Event 210.

Data collected for the CMP were evaluated for precision, accuracy, and completeness as required by the QAPP. The precision and accuracy for the majority of the results met the CMP DQOs. For those results that did fall outside the DQOs, the primary issues were related to sample matrix effects (i.e., matrix spike/matrix spike duplicate percent recoveries and relative percent differences [RPDs]) as well as field duplicate RPDs and toxicity test holding times. The primary field and habitat qualifiers were related to analyte concentrations exceeding instrument calibration and elevated stream turbidity which made observations of percent algal cover impossible. No data were rejected as unusable during 2022.

Physis used non-project samples to satisfy some of the laboratory QAQC requirements during analysis of samples collected during each quarter of 2022. While this practice is generally acceptable, the QAPP requirements for this project require that CMP samples be used for all QAQC tests. The lab was contacted and reminded of this QAPP requirement. Physis reported that the issue was a result of the CMP QAPP requirements not being carried over when they updated their laboratory information management system. Physis has resolved the issue.

Total Kjeldahl nitrogen (TKN) samples were not collected for Events 206, 207, and 208, which is inconsistent with the CMP QAPP. The root cause was determined to be human error and overreliance on the *Agricultural Order Monitoring and Reporting Program* requirements without consideration for the CMP QAPP. To minimize missing data, where extra sample volume was available, TKN analysis was performed outside the required holding time and reported.

The following summarizes the primary analytical issues that were addressed in 2022:

First Quarter:

1. **Event 206:**
    a. Physis reported multiple total phosphorous and dissolved orthophosphate concentration inversions. Tetra Tech requested that they confirm the reported values. Upon review by Physis, it was discovered that the concentrations were miscalculated. Physis submitted an amended report and Tetra Tech required and received a corrective action report.
2. **Event 208:**
    a. Physis reported multiple total phosphorous and dissolved orthophosphate concentration inversions. Tetra Tech requested that they confirm the reported values. Upon review by Physis, it was discovered that the concentrations were miscalculated. Physis submitted an amended report and Tetra Tech required and received a corrective action report.
    b. Due to a shortage of bottles in the field, Tetra Tech was unable to collect field blanks for paraquat and glyphosate at site 305PJP. Field blanks for those parameters were collected during the next supplemental chemistry event in order to achieve the targeted number of field QC samples.
    c. The associated lab control for the samples collected at 312OFN, 309ALG, 312ORC, 312SMA, and 312OFC chronic *Ceriodaphnia* tests failed to meet test acceptability criteria for survival (greater than 80% survival) on Day 1 of test observations. A retest was initiated for these samples after the 36-hour hold time.
    d. The chronic *Ceriodaphnia* test for 315APF had to be restarted due to a test handling error on Day 3 of the initial test. The retest of this sample was initiated outside of the 36-hour hold time.

Second Quarter:

1. **Event 209:**
    a. The 309JON sediment sample container broke during transit and the sample was compromised. As a result, the analytical chemistry samples were not submitted and the sediment toxicity test for this site could not be initiated. New sediment samples for analytical chemistry and toxicity were collected and analyzed from this site during the May (Event 210) sampling event.
    b. The one-liter amber glass bottle for samples collected at 310CCC arrived with the lid broken and sample spilled. A one-liter aliquot was collected from the toxicity bottle for the same site and shipped from PER to NCL for analysis.

c. The lab control for the chronic *Ceriodaphnia* tests initiated on April 19, 2022 (310CCC, 310WRP, 310PRE, 310USG, and 312OFN) failed to meet test acceptability criteria (i.e., a percent survival of greater than 80%). Retests were initiated on April 20, 2022. The lab control for the chronic *Ceriodaphnia* tests for 315FMV, 315APF, 315GAN, and 315LCC also failed to meet test acceptability criteria and retests were initiated on April 25, 2022. PER did not come to a conclusive root cause for this issue (the food, cultures, and staff training were reviewed) but in response to the issue PER replaced all disposable/consumable supplies used for the tests (pipettes, food, etc.) and refreshed training as a precaution.

d. The 309ASB pH-adjusted chronic *C. dubia* test accidentally had the adults discarded prior to test termination and PER was unable to interpret results from this test. This issue did not impact the non-pH-adjusted 309ASB test that was run concurrently, which did not exhibit any toxicity to either survival or reproduction at test termination. Therefore, PER presented the results of the completed test and noted the error in handling the pH-adjusted sample in the anomalies section of the final report.

e. The 315BEF *Thalassiosira* test was found to have foreign organisms present at test completion resulting in a test failure. This test was reinitiated and run beyond the 48-hour sample holding time.

f. The lab control associated with the *Hyalella* sediment tests for 310CCC, 310PRE, 310USG, 310WRP, 312MSD, and 312OFN failed to meet test acceptability criteria for survival (there was 77.5% survival in the lab control, which is one organism shy of the 80% required). The retest for these sites was initiated more than 14 days after sample, but less than eight weeks after sample collection (the two guidelines provided in the EPA manual). During loading of the sediments for the *Hyalella* retest, it was discovered that there was insufficient sediment volume to perform a retest on the 312OFN sample (approximately 300 milliliters remained, the test requires 800 milliliters). Therefore, a new sediment sample was collected and analyzed from this site during the May (Event 210) sampling event.

2. **Event 210:**
    a. During calibration for Event 210, PER found that the chlorophyll-a probe on the Hydrolab unit was not functioning correctly. The probe on the backup unit would not calibrate with the solid standard using the previous event's analytical chemistry values. The PER field team recorded values in the field log using the probe that was operating but could not be calibrated and collected subsamples of site water at all sampled locations and submitted them to Sierra Environmental for laboratory analysis. PER assessed the meters and made the required repairs to restore functionality.
    b. Physis reported multiple total phosphorous and dissolved orthophosphate concentration inversions. Tetra Tech requested that they confirm the reported values. Upon review by Physis, it was discovered that the concentrations were miscalculated. Physis submitted an amended report.

Third Quarter:

1. **Event 214:**
    a. At termination of the *S. capricornutum* test for 315FMV and 315GAN, a flocculant was observed in the test chambers. No live algal cells were observed in the test replicates under microscopic examination. These sites were retested using 0.22 micron filtration. The samples were >36 hours at time of retest initiation. No toxicity (or flocculant) was observed at termination of the retest.
    b. The lab control for the *H. azteca* 10-day water only tests associated with 305TSR and 309OLD had a survival rate of 88%, which is just below the Test Acceptability Criteria (TAC) of 90% survival. These sites were retested. The samples were >36 hours at time of retest initiation. These retests terminated on October 6, 2022.

Fourth Quarter:

No issues were observed for the fourth quarter.

There were no other significant deviations from CMP DQOs during 2022 and the data generated are adequate for the purposes of the CMP.

3.1.1 Chemistry Data

3.1.1.1 Water

Of the aqueous chemistry results, 21.9% (2,082 out of 9,511) required qualification of some type. Of the qualified results, 915 were greater than the method reporting limit. Of the 915 qualified chemistry results:

- 415 (45.4%) of the results were qualified “VFDP” due to field duplicate RPDs exceeding project DQOs. Field crews were required to review duplicate collection procedures.
- 210 (23%) of the results were qualified “VGB” due to matrix spike/matrix spike duplicate (MS/MSD) percent recoveries exceeding established laboratory limits. The laboratory was contacted and asked to recheck values. Any subsequent revisions resulted in the laboratory reissuing a corrected laboratory EDD and report.
- 211 (23%) of the results were qualified “VH” due to sample holding time exceedances. A primary reason for the number of holding time exceedances is due to TKN samples not being collected for Events 206, 207, and 208, which is inconsistent with the CMP QAPP. The root cause was determined to be human error and overreliance on the Agricultural Order Monitoring and Reporting Program requirements without consideration for the CMP QAPP. However, to achieve greater monitoring program completeness, where extra sample volume was available at the lab, TKN analysis was performed outside the required holding time and reported.
- 165 (18%) of the results were qualified “VIL” due to the RPD exceeding established laboratory control limits. The laboratory was contacted and asked to re-check values. Any subsequent revisions resulted in the laboratory reissuing a corrected laboratory EDD and report.
- 13 (1.4%) of the results were qualified “VEUM” due to the LCS/LCSD exceeding established laboratory control limits. The laboratory was contacted and asked to recheck values. Any subsequent revisions resulted in the laboratory reissuing a corrected laboratory EDD and report.

Several of the chemistry results received multiple qualifications and can be summarized as follows:

- 831 (90.8%) of the data received a single qualifier;
- 69 (7.5%) of the data received two qualifiers; and
- 15 (1.6%) of the data received three qualifiers.

These statistics exclude the informational qualifiers of “D” due to sample dilution and “HT” indicating that the result is calculated (i.e., unionized ammonia and total nitrogen). Most pairings were the result of analytical MS/MSD percent recoveries and RPDs, and field duplicate RPD issues.

No aqueous chemistry data were rejected as unusable during 2022.

Overall percent completeness for the data was 100%.

3.1.1.2 Sediment

None of the sediment chemistry results (0 out of 1,176) required qualification.

No sediment chemistry data were rejected as unusable during 2022.

Overall percent completeness for the data was 100%.

3.1.2 Toxicity Bioassay Data

Aquatic and sediment toxicity data were evaluated for precision, accuracy, and completeness as required in the CMP QAPP. The toxicity data generated are adequate for the purposes of the CMP. Of the 560 aqueous and 81 sediment toxicity tests, 35 of the aqueous data and none of the sediment data received qualifiers.

Of the 35 qualified aqueous toxicity bioassay data, 100% were "VH" due to holding time exceedances. No corrective action was taken since the primary issue was test failure and retesting after the sample holding time had expired.

No toxicity data received multiple data qualifiers.

No toxicity test data were rejected as unusable and overall percent completeness for the toxicity tests was 100%.

3.1.3 Habitat Data

Habitat data collected for the CMP were evaluated for completeness as required by the QAPP. Of the possible 6,706 habitat data records, there were 32 results (0.5%) that were qualified (excluding sites that were not sampled because they were either determined to be dry or had a lack of connectivity). Of the 32 results, 100% were qualified as "FTT" due to the water being too turbid to measure algal coverage. No corrective action was taken.

No habitat results received multiple data qualifiers.

No habitat data were rejected as unusable and overall percent completeness was determined to be 100%.

3.1.4 Field Data

Field data were evaluated for accuracy and completeness as required by the QAPP. Of the possible 4,700 field data records, eight results (0.2%) were qualified. Of the eight results qualified, 100% were qualified as "VCJ" due to the analyte concentration being greater than instrument calibration. No Corrective Action was taken.

No field data were rejected as unusable and overall percent completeness was determined to be 100%.

3.1.5 Monitoring Events

All 12 planned monitoring events were successfully fulfilled. 451 of 662 planned site visits resulted in sample collection, translating to a 68.1% sampling success rate.

Samples were not collected for 211 site visits because:

- 141 (67%) of the site visits observed a dry channel; and
- 70 (33%) of the site visits observed disconnected pools and/or discontinuous flows.

All collected samples were analyzed by a laboratory for an overall analytical completion rate of 100%.

3.1.6 Recommendations

1. Continue monitoring laboratory performance, especially regarding MS/MSD percent recoveries, RPDs, field sample RPDs, and laboratory blanks.
2. Continue to monitor shipping delays.
3. Perform regular field team training events.
4. Continue to monitor for non-project samples being used by the laboratories as laboratory QAQC for the CMP.

3.2 PAJARO RIVER HYDROLOGIC UNIT (HU 305)

Descriptions of the Pajaro River HU are summarized from the CCRWQCB's *Pajaro River Watershed Characterization Report* (CCRWQCB 2003). The Pajaro River Watershed encompasses over 1,300 square miles in parts of four counties of central coastal California: San Benito, Santa Clara, Santa Cruz, and Monterey Counties. There are five incorporated cities within the watershed: Watsonville, Gilroy, Morgan Hill, Hollister, and San Juan Bautista. Major tributaries to the Pajaro River include San Benito River, Tequisquita Slough, Pacheco Creek, San Juan Creek, Watsonville Slough, Llagas Creek, Uvas Creek, Millers Canal, and Corralitos Creek. Pajaro River Watershed flow patterns are generally characteristic of a Mediterranean climate, with higher flows during the wetter, cooler winter months and low flows during the warmer, drier summer months. Principal water sources for the Pajaro River and its tributaries are surface runoff, springs, subsurface flow into the channels, and reclaimed wastewater entering the watershed through percolation from water discharged by South County Regional Wastewater Authority (SCRWA). The first three water sources are subject to large flow variations due to climatic influences, while the discharge from the SCRWA tends to influence flow year-round. In past years, the Pajaro Watershed has also received water from the San Felipe Division of the Central Valley Project (CVP), which delivered CVP water to the San Justo Reservoir and directly to agricultural and rural users in San Benito County and to the Hollister and San Juan Bautista areas for municipal use. This water also makes its way indirectly into the Pajaro River and its tributaries as agricultural return flows and sub-surface drainage. The Pajaro River Watershed contains a wide variety of land uses, including row crop agriculture, livestock grazing, forestry, industrial, and rural/urban residential. The watershed also contains significant amounts of undeveloped natural vegetative cover, which provides habitat to numerous native bird and wildlife species.

There were originally 10 core CMP sites in the Pajaro River HU. These included the mainstem Pajaro River at Main St. in Watsonville (305PJP) and at Chittenden (305CHI), with the rest of the sites located on tributary waterbodies: Millers Canal (305FRA), San Juan Creek (305SJA), Tequisquita Slough (305TSR), Llagas Creek (305LCS), Carnadero Creek (305CAN), Salsipuedes Creek (305COR), Watsonville Slough (305WSA), and Struve Slough (305STL). In 2012, the Struve Slough (305STL) site was removed from the program due to lack of impairment and agricultural influence, and three additional sites were added: Watsonville Creek (305WCS), the Beach Road Ditch (305BRS), and Furlong Creek (305FUF). As depicted in **Figure 3-1**, Pajaro Watershed sites are grouped near the Watsonville area in the lower portion of the watershed (305WSA, 305WCS, 305BRS, 305PJP, and 305COR), and southeast of Gilroy in the upper watershed (305LCS, 305CAN, 305FRA, 305TSR, 305CHI, and 305FUF).

The beneficial uses designated by the Basin Plan for waterbodies monitored by the CMP in the Pajaro River Region include nearly every beneficial use, with the exceptions being industrial process supply and shellfish harvesting (**Table 2-2**). Three waterbodies monitored by the CMP do not have beneficial uses designated in Table 2-1 of the Basin Plan—Beach Road Ditch, Millers Canal, and San Juan Creek (305BRS, 305FRA, and 305SJA)—and are thus assigned the following designations: Municipal and Domestic Supply (MUN), Water Contact Recreation (REC-1), Non-contact Recreation (REC-2), Cold Freshwater Habitat (COLD), and Warm Freshwater Habitat (WARM).

Applicable TMDLs for sites within the Pajaro River HU include the Pajaro River Watershed Nutrient TMDL, Pajaro River Watershed Chlorpyrifos and Diazinon TMDL, and Pajaro River Sediment TMDL. Non-TMDL area limits applicable to sites within the Pajaro River HU include non-TMDL area turbidity limits, non-TMDL area nutrient limits, and non-TMDL area toxicity limits. See **Appendix A** for a summary of applicable routine parameter TMDL limits and non-TMDL area limits for sites in the Pajaro HU.

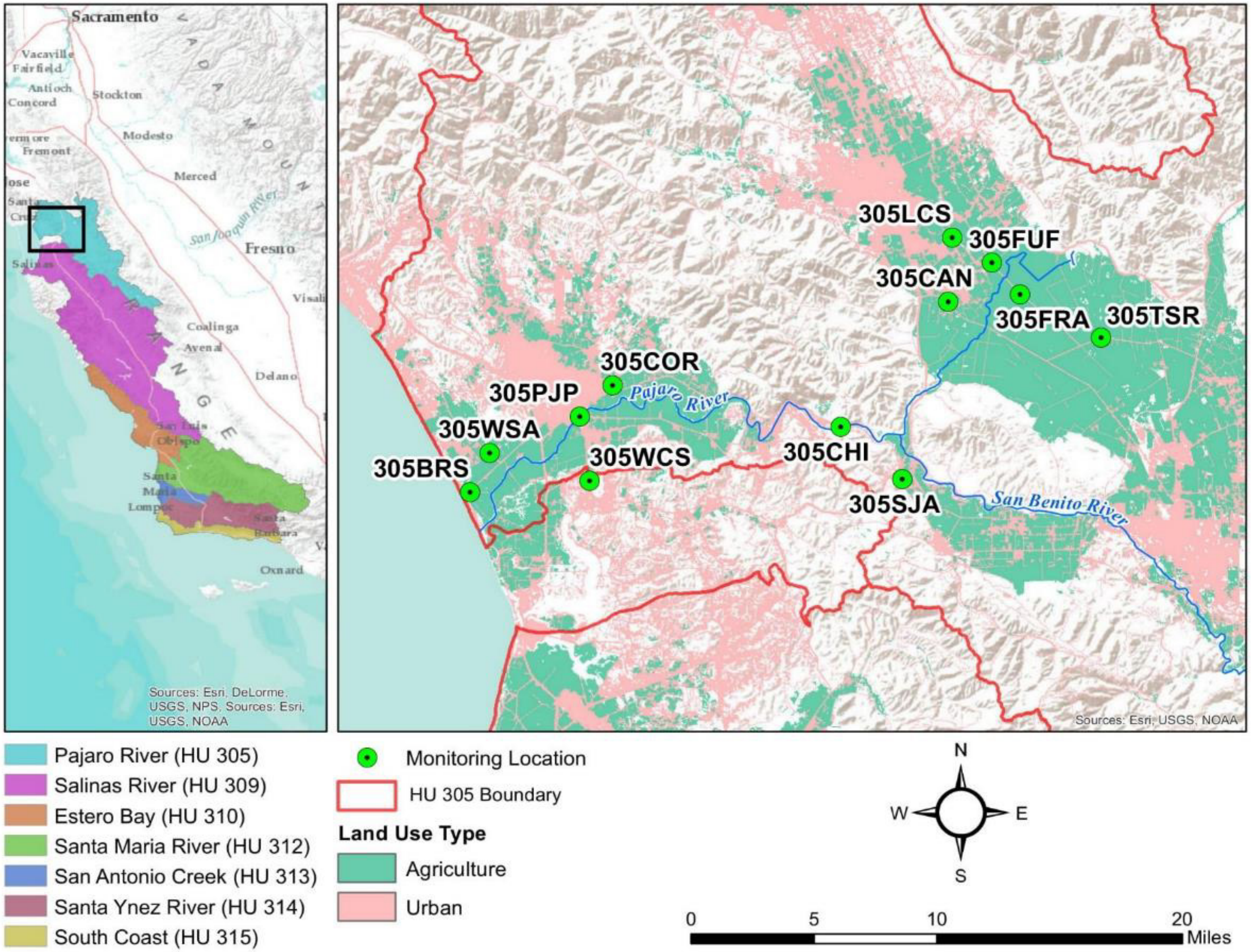


Figure 3-1. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Pajaro River Hydrologic Unit

3.2.1 Flow Results

The flow regime in the Pajaro River Watershed is characterized by seasonal precipitation that occurs primarily from November through April. In 2022, there were multiple occurrences of significant rainfall, one in early November and sporadically throughout December. Flows typically decrease rapidly from March through May. Historic average flows at Chittenden are less than 40 cubic feet per second (CFS) from June through November (United States Geological Survey [USGS] 2008). During the 2022 monitoring year, the annual average flow (28.5 CFS) at the *Pajaro River at Chittenden* stream gage was well below the historic annual average (158.3 CFS, 1940-2021) and ranged from 0.45 CFS (October 27, 2022) to 1,800 CFS (December 31, 2022) (USGS 2023)[1]. The 2022 cumulative annual rainfall (21.92") at the *Pajaro* rain gauge was higher than the historic average (16.9", 2006-2021) (**Figure 3-2**) (CDWR 2023). Below average flow and above average rain were likely caused by low flow in the spring that was followed by several atmospheric rivers late in the year, which were likely retained in the dry soils.

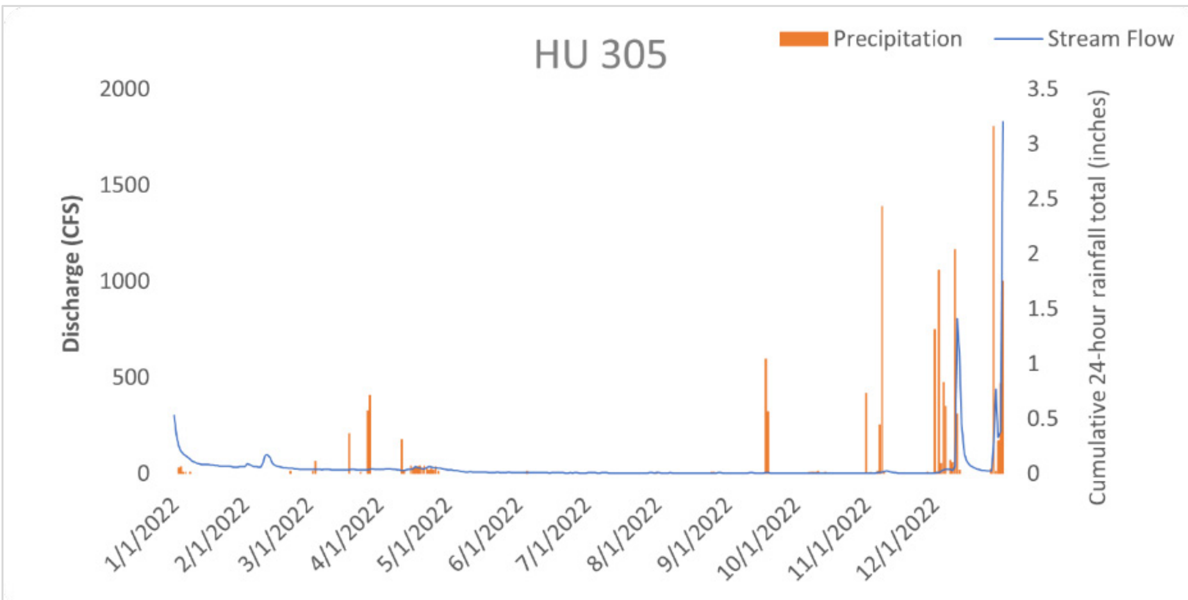


Figure 3-2. 2022 Hydrograph and Total Daily Precipitation Record for Pajaro River at Chittenden[1]

[1] USGS data contains provisional values, subject to revision; flow values may have been updated since the publishing of this report.

In 2022, flows measured at the 12 Pajaro River HU monitoring sites were generally influenced by wet season precipitation, with elevated flows occurring in mid to late December. During the dry season, surface water flows declined with many sites reaching dry conditions at least once. **Figure 3-3** depicts annual median flows for sites within the Pajaro River HU, and **Table 3-1** presents descriptive statistics.

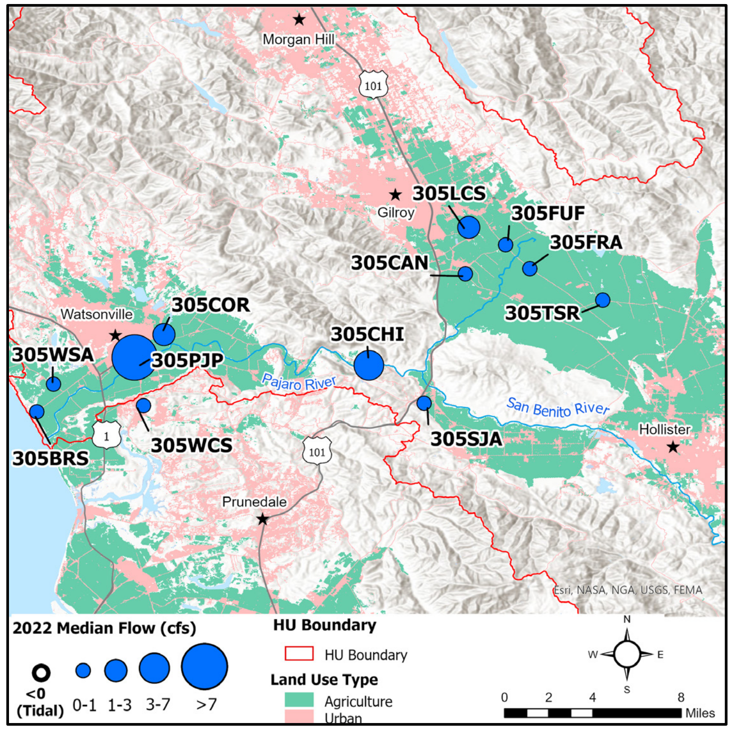


Figure 3-3. 2022 Median Flows for Sites in HU 305

- Measured flows during 2022 ranged from -2.12 CFS due to tidal influences (Beach Road Ditch [305BRS]) to 45.54 CFS (Pajaro River at Chittenden [305CHI]).
- Median flows in 2022 ranged from 0.01 CFS at Carnadero Creek (305CAN) to 7.13 CFS (Pajaro River at Main St. [305PJP]).
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in flow (Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Llagas Creek [305LCS], and San Juan Creek [305SJA]). Three sites showed statistically significant increasing trends (Furlong Creek [305FUF], Tequisquita Slough [305TSR], and Watsonville Slough [305WSA]).

Table 3-1. Descriptive Statistics for Flow in Hydrologic Unit 305 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	-2.12	0.59	-0.12	0.13	Increasing
305CAN	12	0.00	23.58	5.33	0.01	Decreasing
305CHI	12	0.37	45.54	13.92	6.85	**Decreasing**
305COR	12	0.11	27.65	5.65	2.33	Increasing
305FRA	12	0.00	2.80	0.61	0.23	**Decreasing**
305FUF	12	0.00	2.41	0.70	0.62	**Increasing**
305LCS	12	0.00	10.38	1.94	1.39	**Decreasing**
305PJP	12	0.38	44.57	15.02	7.13	Decreasing
305SJA	12	0.35	5.84	1.48	0.87	**Decreasing**
305TSR	12	-0.03	1.29	0.40	0.31	**Increasing**
305WCS	12	-0.01	2.35	0.54	0.28	Decreasing
305WSA	12	0.00	15.13	2.48	0.05	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.2.2 Water Temperature

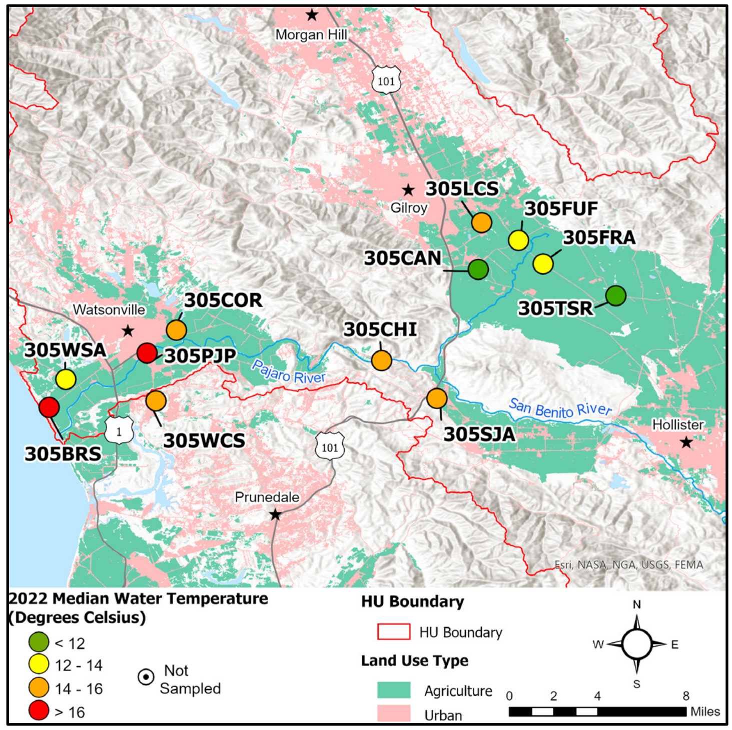


Figure 3-4. 2022 Median Water Temperature for Sites in HU 305

The Basin Plan contains a general WQO for temperature: natural receiving water temperature of intrastate waters shall not be altered. The Basin Plan also has specific objectives for cold and warm water habitats: At no time or place shall the temperature be increased by more than 5 degrees Fahrenheit (°F) above natural receiving water temperature. Water temperature can influence the results of other field measurements including dissolved oxygen, pH, and conductivity and therefore is an important factor to consider when interpreting results. The temperature of certain water bodies can also fluctuate greatly over a 24-hour period. This fluctuation means that results and trends should be interpreted with discretion, as they can be affected by the time of day at which the sample is collected.

Temperature of natural receiving waters has not been defined for waterbodies within the Pajaro River HU; therefore, the focus of this report is descriptive statistics. In 2022, water temperatures peaked at most sites in the Pajaro River HU during the months of May, July, and September and minimum temperatures at most sites were recorded during the month of December. **Figure 3-4** depicts annual median temperatures for sites in the Pajaro River HU for 2022, and **Table 3-2** presents descriptive statistics.

- Median water temperatures in the Pajaro River HU ranged from 11.4 degrees Celsius (°C) at Carnadero Creek (305CAN) to 17°C at Beach Road Ditch (305BRS) in 2022.
- The lowest water temperature (4.4 °C) was observed in Tequisquita Slough (305TSR). The highest water temperature (21.6 °C) was observed at Millers Canal (305FRA).
- For the period of 2005-2022, three sites showed statistically significant decreasing trends in water temperature (Millers Canal [305FRA], Llagas Creek [305LCS], and Tequisquita Slough [305TSR]). Two sites showed statistically significant increasing trends (Salsipuedes Creek [305COR] and Pajaro River at Main St. [305PJP]).

Table 3-2. Descriptive Statistics for Water Temperature in Hydrologic Unit 305 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	11.8	19.6	16.7	17.0	Decreasing
305CAN	6	8.8	15.3	11.9	11.4	Decreasing
305CHI	12	8.4	18.3	14.0	15.0	Decreasing
305COR	12	9.0	19.9	14.5	15.0	**Increasing**
305FRA	8	7.9	21.6	13.7	13.6	**Decreasing**
305FUF	11	6.8	16.7	12.6	14.0	Decreasing
305LCS	9	9.4	17.5	14.3	15.0	**Decreasing**
305PJP	12	9.5	18.0	14.7	16.5	**Increasing**
305SJA	12	6.7	17.3	13.1	14.6	Decreasing
305TSR	12	4.4	17.1	11.1	11.6	**Decreasing**
305WCS	12	10.4	19.6	15.4	15.2	Decreasing
305WSA	6	8.3	16.7	12.7	12.7	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.2.3 Turbidity and TSS Results

All sites within the Pajaro River HU have a non-TMDL area turbidity limit. Specifically, 10 sites have a cold water beneficial use, so a non-TMDL area turbidity limit of 25 NTU. The remaining two sites have a warm water beneficial use, which has a non-TMDL area turbidity limit of 40 NTU. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for turbidity in the Pajaro HU. Additionally, all but one site [Watsonville Creek (305WCS)] has a TMDL limit for sediment that is associated with the Pajaro River Watershed Sediment TMDL; however, the sediment limits and units identified in Table C.3-6 of Agricultural Order are not applicable to the parameters monitored for the CMP and are not assessed in this annual report. **Figure 3-5** depicts annual median turbidity results and total suspended solids (TSS) loading for sites within the Pajaro River HU, and **Table 3-3** and **Appendix B** present descriptive statistics and turbidity limit exceedances.

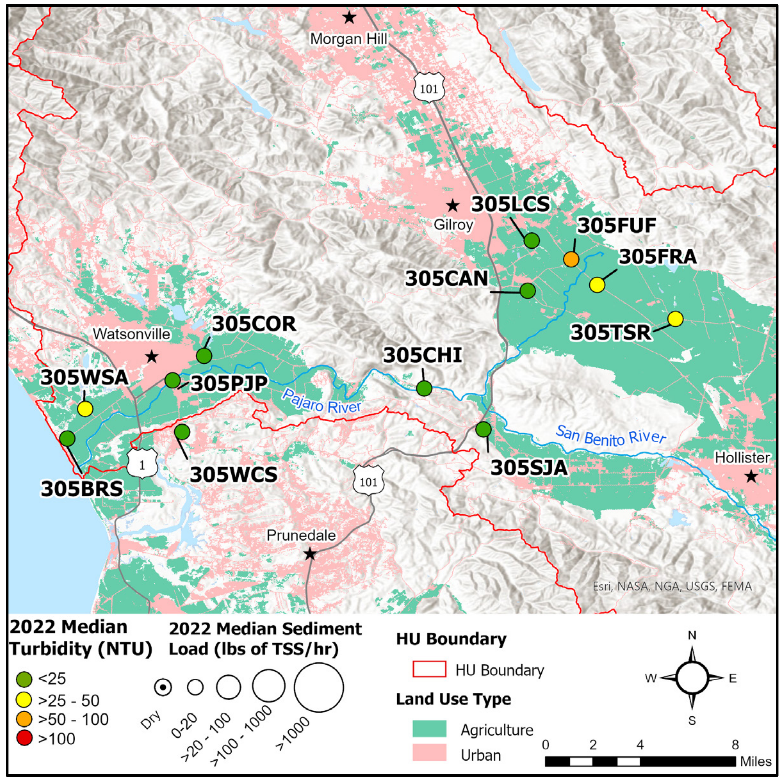


Figure 3-5. 2022 Median Turbidity and TSS Loading for Sites in HU 305

- Median turbidities in the Pajaro River HU ranged from 5 NTU (Llagas Creek [305LCS]) to 86 NTU (Furlong Creek [305FUF]) in 2022.
- Higher relative TSS loading (14.9 lbs. of TSS/hr) at Pajaro River at Main St. (305PJP) was due to higher median flows (7.13 CFS).
- One out of 12 sites achieved the respective non-TMDL Area Limits for turbidity (Pajaro River at Chittenden [305CHI], 25 NTU). Three sites (Millers Canal [305FRA], Furlong Creek [305FUF], and Watsonville Slough [305WSA]) exceeded their respective turbidity limits in at least 50% of samples.
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in turbidity (Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Pajaro River at Main St. [305PJP], and Tequisquita Slough [305TSR]). Three sites showed statistically significant increasing trends in turbidity (Llagas Creek [305LCS], San Juan Creek [305SJA], and Watsonville Creek [305WCS]).
- For the period of 2012-2022, seven out of the 12 sites within the Pajaro River HU showed statistically significant increasing trends in TSS loading. TSS was not monitored by the CMP prior to 2012, so the period of record for TSS trend analysis is shorter than that for turbidity and flow.

Table 3-3. Descriptive Statistics for Turbidity in Hydrologic Unit 305 (NTU)

Site ID[1]	N	Min	Max	Mean	Median	Non-TMDL Area Limit Percent Exceedance	Turbidity Trend[2,3]	TSS Loading Trend[2,3]
305BRS	12	4	70	23	19	25%[4]	Decreasing	Decreasing
305CAN	6	1	27	9	6	17%[4]	Decreasing	**Increasing**
305CHI	12	2	21	10	10	0%[4]	**Decreasing**	Increasing
305COR	12	2	162	24	13	8%[4]	Decreasing	**Increasing**
305FRA	8	4	63	30	29	63%[4]	**Decreasing**	**Increasing**
305FUF	11	11	999	176	86	91%[4]	Increasing	Increasing
305LCS	9	1	64	16	5	22%[4]	**Increasing**	**Increasing**
305PJP	12	3	121	20	10	8%[4]	**Decreasing**	Increasing
305SJA	12	6	72	24	20	42%[4]	**Increasing**	**Increasing**
305TSR	12	10	178	56	33	42%[5]	**Decreasing**	**Increasing**
305WCS	12	2	138	22	11	8%[4]	**Increasing**	Decreasing
305WSA	6	8	54	33	39	50%[5]	Decreasing	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Turbidity was monitored from 2005-2022 and TSS was monitored from 2012-2022.
4 The relevant numeric criterion is 25.0 NTU [COLD].
5 The relevant numeric criterion is 40.0 NTU [WARM].

3.2.4 Unionized and Total Ammonia

All but one site within the Pajaro River HU has a TMDL limit for unionized ammonia. All TMDL limits for unionized ammonia are associated with the Pajaro River Watershed Nutrient TMDL. Watsonville Creek (305WCS) is located outside of the Pajaro River Watershed Nutrient TMDL area and therefore has a non-TMDL area limit for unionized ammonia. See **Table 2-5** and **Appendix A** for a summary of applicable TMDL limits and non-TMDL area limits for unionized ammonia in the Pajaro HU. **Figure 3-6** depicts annual median unionized ammonia concentrations for sites in the Pajaro River HU, **Table 3-4** presents descriptive statistics, and **Table 3-5** and **Appendix B** present TMDL and non-TMDL area limit exceedances.

Samples were also collected and analyzed for total ammonia. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total ammonia applicable to CMP sites in the Pajaro River HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-6.**

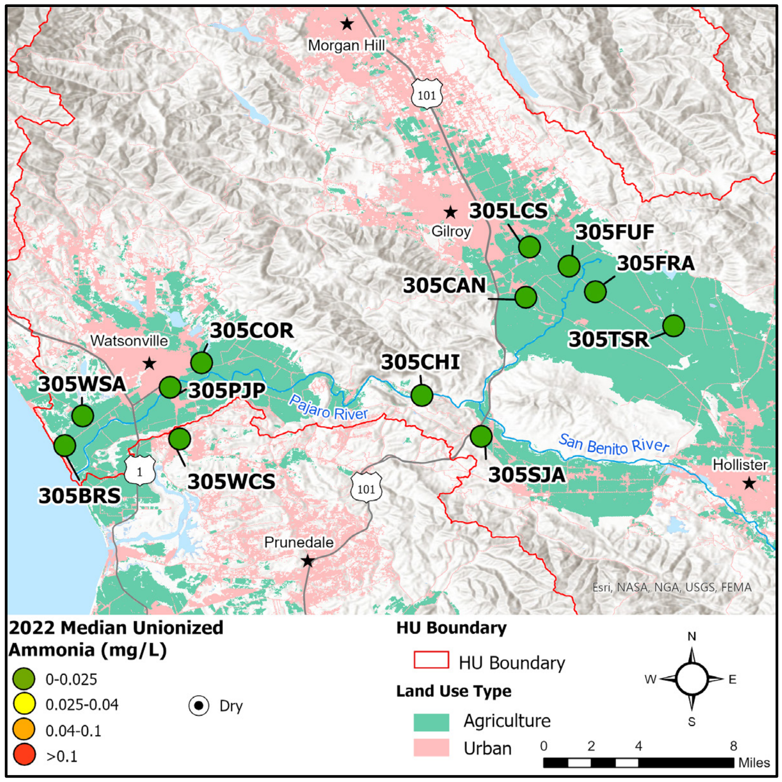


Figure 3-6. 2022 Median Unionized Ammonia for Sites in HU 305

- The highest unionized ammonia concentration was 0.1590 mg/L, measured in Millers Canal (305FRA).
- For the period of 2005-2022, two sites (Llagas Creek [305LCS] and Tequisquita Slough [305TSR]) showed statistically significant decreasing trends in unionized ammonia concentrations. Three sites showed a statistically significant increasing trend in unionized ammonia concentration (Salsipuedes Creek [305COR], Pajaro River at Main St. [305PJP], and San Juan Creek [305SJA]).

Table 3-4. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	0.0005	0.0070	0.0020	0.0014	Increasing
305CAN	6	0.0000	0.0005	0.0002	0.0002	Decreasing
305CHI	12	0.0003	0.0033	0.0013	0.0010	Increasing
305COR	12	0.0011	0.0047	0.0023	0.0016	**Increasing**
305FRA	8	0.0003	0.1590	0.0403	0.0116	Increasing
305FUF	11	0.0003	0.0101	0.0022	0.0015	Decreasing
305LCS	9	0.0000	0.0001	0.0001	0.0001	**Decreasing**
305PJP	12	0.0008	0.0051	0.0019	0.0016	**Increasing**
305SJA	12	0.0011	0.0200	0.0061	0.0040	**Increasing**
305TSR	12	0.0000	0.1085	0.0213	0.0007	**Decreasing**
305WCS	12	0.0007	0.1090	0.0110	0.0020	Increasing
305WSA	6	0.0004	0.0024	0.0010	0.0007	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Unionized ammonia concentrations exceeded the TMDL limit of 0.025 mg/L in 25% of samples at two respective sites (Millers Canal [305FRA] and Tequisquita Slough [305TSR]). Watsonville Creek [305WCS] exceeded its non-TMDL area limit in 8% of samples.

Table 3-5. Summary of Pajaro River Watershed Nutrient TMDL and Non-TMDL Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Unit 305

Site ID[1]	TMDL Annual Percent Exceedance[2]	Non TMDL Area Limit Percent Exceedance[2]
305BRS	0%	N/A
305CAN	0%	N/A
305CHI	0%	N/A
305COR	0%	N/A
305FRA	25%	N/A
305FUF	0%	N/A
305LCS	0%	N/A
305PJP	0%	N/A
305SJA	0%	N/A
305TSR	25%	N/A
305WCS	N/A	8%
305WSA	0%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2022*, for detailed site descriptions.
2 The relevant numeric criterion is 0.025 mg/L.
N/A There is no applicable Pajaro River Watershed Nutrient TMDL limit or non-TMDL area limit criterion for unionized ammonia at this site.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- The highest total ammonia concentration (7.540 mg/L) was measured in Watsonville Creek (305WCS).
- For the period of 2005-2022, six sites showed statistically significant increasing trends in total ammonia.

Table 3-6. Descriptive Statistics for Total Ammonia in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	0.038	0.324	0.137	0.128	Increasing
305CAN	6	0.004	0.097	0.037	0.026	Increasing
305CHI	12	0.028	0.137	0.061	0.064	**Increasing**
305COR	12	0.034	0.426	0.121	0.097	**Increasing**
305FRA	8	0.051	0.906	0.321	0.158	**Increasing**
305FUF	11	0.022	0.268	0.085	0.061	Increasing
305LCS	9	0.030	0.071	0.051	0.055	**Increasing**
305PJP	12	0.034	0.177	0.074	0.066	**Increasing**
305SJA	12	0.064	1.290	0.392	0.138	**Increasing**
305TSR	12	0.037	2.190	0.489	0.098	Decreasing
305WCS	12	0.017	7.540	0.690	0.064	Increasing
305WSA	6	0.159	0.315	0.195	0.165	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.2.5 Nitrate and Total Nitrogen

Samples were collected and analyzed for "nitrate + nitrite"; however, this report primarily refers to "nitrate" as nitrite levels are assumed to be very low. All but one site within the Pajaro River HU have a TMDL limit for nitrate. All TMDL limits for nitrate are associated with the Pajaro River Watershed Nutrient TMDL. Watsonville Creek (305WCS) is located outside of the Pajaro River Watershed Nutrient TMDL area and therefore has a non-TMDL area limit for nitrate. See **Table 2-5** and **Appendix A** for a summary of applicable annual, dry season, and wet season TMDL limits and non-TMDL area limits for nitrate in the Pajaro HU. **Figure 3-7** depicts annual median nitrate concentrations and loading for sites in the Pajaro River HU for 2022, **Table 3-7** presents descriptive statistics, and **Table 3-8** and **Appendix B** present TMDL and non-TMDL area limit exceedances.

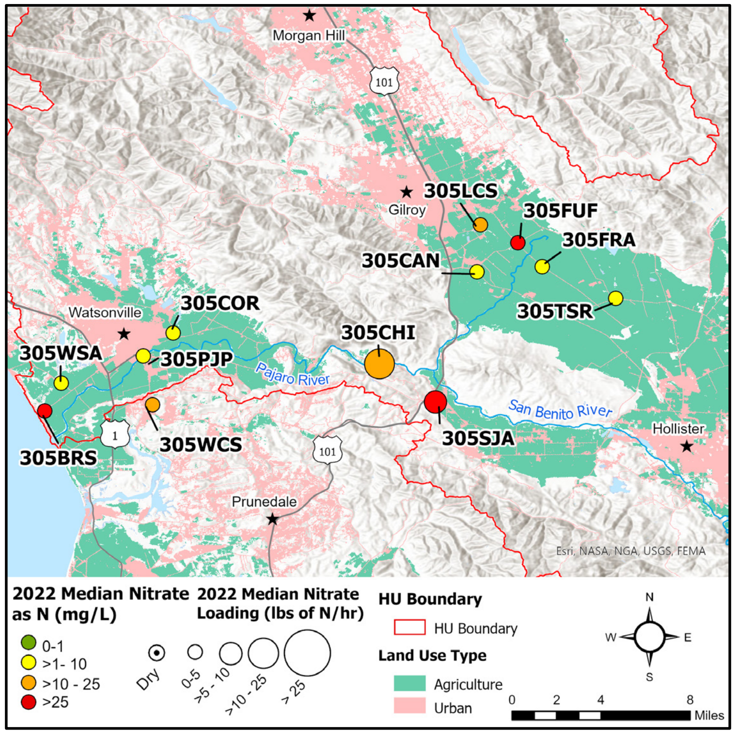


Figure 3-7. 2022 Median Nitrate for Sites in HU 305

Samples were also collected and analyzed for total nitrogen. Millers Canal (305FRA) has a total nitrogen TMDL limit for the wet and dry season, and Watsonville Slough (305WSA) has a TMDL limit for the dry season only. See **Table 2-5** and **Appendix A** for a summary of applicable dry season and wet season total nitrogen TMDL limits in the Pajaro River HU. There are currently no non-TMDL area limits or numeric WQO for total nitrogen in the Basin Plan applicable to the other 10 CMP sites in the Pajaro River HU. Descriptive statistics for total nitrogen are presented in **Table 3-9** and TMDL and non-TMDL area exceedances are presented in **Table 3-10** and **Appendix B**.

- In 2022, Furlong Creek (305FUF) had the highest median concentration of nitrate (32.30 mg/L).
- Moderate nitrate loading in San Juan Creek (305SJA) resulted from high nitrate concentrations, as flow was quite low. Moderately high loading in Pajaro River at Main St. (305PJP) and Pajaro River at Chittenden (305CHI) was due to high flows and moderate nitrate concentrations.
- For the period of 2005-2022, three sites showed statistically significant increasing trends in nitrate concentration (Pajaro River at Chittenden [305CHI], San Juan Creek [305SJA], and Tequisquita Slough [305TSR]), and three sites showed statistically significant decreasing trends in nitrate concentrations (Pajaro River at Main St. [305PJP], Watsonville Creek [305WCS], and Watsonville Slough [305WSA]).
- For the period of 2005-2022, four sites showed statistically significant increasing trends in nitrate loading (Salsipuedes Creek [305COR], Furlong Creek [305FUF], Tequisquita Slough [305TSR], and Watsonville Slough [305WSA]). Two sites displayed statistically significant decreasing trends in nitrate loading (Pajaro River at Chittenden [305CHI] and San Juan Creek [305SJA]).

Table 3-7. Descriptive Statistics for Nitrate in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Nitrate Trend[2]	Nitrate Loading Trend[2]
305BRS	12	12.60	41.80	26.63	25.80	Increasing	Decreasing
305CAN	6	0.43	29.00	6.09	1.54	Decreasing	Increasing
305CHI	12	3.00	27.70	13.95	11.03	**Increasing**	**Decreasing**
305COR	12	0.37	4.69	2.58	2.78	Decreasing	**Increasing**

Site ID[1]	N	Min	Max	Mean	Median	Nitrate Trend[2]	Nitrate Loading Trend[2]
305FRA	8	0.01	80.00	11.05	1.40	Increasing	Decreasing
305FUF	11	6.39	43.10	30.81	32.30	Increasing	**Increasing**
305LCS	9	0.27	24.20	14.92	16.60	Decreasing	Decreasing
305PJP	12	1.10	14.40	3.09	2.16	**Decreasing**	Decreasing
305SJA	12	9.87	71.90	32.46	27.05	**Increasing**	**Decreasing**
305TSR	12	0.01	44.70	12.06	9.25	**Increasing**	**Increasing**
305WCS	12	0.02	22.30	15.73	17.20	**Decreasing**	Decreasing
305WSA	6	0.93	7.75	3.46	2.89	**Decreasing**	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Two sites (Salsipuedes Creek [305COR] and Watsonville Slough [305WSA]) showed no exceedance of the 10 mg/L nitrate TMDL. Four sites exceeded the nitrate TMDL limit in at least 75% of samples (Beach Road Ditch [305BRS], Furlong Creek [305FUF], Llagas Creek [305LCS], and San Juan Creek [305SJA]).
- One out of nine sites (Pajaro River at Main St. [305PJP]) showed no exceedance of their respective dry season TMDL limits for nitrate. Seven sites exceeded the dry season TMDL limit in all samples.
- Three of 10 sites with a wet season TMDL limit for nitrate (8.0 mg/L) showed no exceedance (Carnadero Creek [305CAN], Salsipuedes Creek [305COR], and Watsonville Slough [305WSA]). Five sites exceeded the wet season TMDL limit in at least 60% of samples.

Table 3-8. Summary of Pajaro River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Nitrate in Hydrologic Unit 305

Site ID[1]	TMDL Annual Percent Exceedance[2]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance[3]	Non-TMDL Area Limit Percent Exceedance[2]
305BRS	100%	100%[4]	100%	N/A
305CAN	17%	100%[5]	0%	N/A
305CHI	50%	100%[6]	43%	N/A
305COR	0%	100%[5]	0%	N/A
305FRA	13%	N/A	N/A	N/A
305FUF	91%	100%[5]	83%	N/A
305LCS	78%	100%[5]	67%	N/A
305PJP	8%	0%[6]	14%	N/A
305SJA	92%	100%[4]	100%	N/A
305TSR	50%	60%[7]	71%	N/A
305WCS	N/A	N/A	N/A	83%
305WSA	0%	N/A	0%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The TMDL and Non-TMDL Areas numeric criterion is 10.0 mg/L.
3 The relevant wet season numeric criterion is 8.0 mg/L.
4 The relevant dry season numeric criterion is 3.3 mg/L.
5 The relevant dry season numeric criterion is 1.8 mg/L.
6 The relevant dry season numeric criterion is 3.9 mg/L.
7 The relevant dry season numeric criterion is 2.2 mg/L.
N/A There is no applicable Pajaro River Watershed Nutrient TMDL or non-TMDL area limit criterion for nitrate at this site.

- Median values for total nitrogen ranged from 1.7 mg/L (Carnadero Creek [305CAN]) to 32.8 mg/L (Furlong Creek [305FUF]).
- The highest total nitrogen concentration (82.9 mg/L) was observed at Millers Canal (305FRA).
- For the period of 2005-2022, three sites showed a statistically significant increasing trend in total nitrogen (Salsipuedes Creek [305COR], Millers Canal [305FRA], and Tequisquita Slough [305TSR]). Two sites (Pajaro River at Chittenden [305CHI] and Watsonville Creek [305WCS]) showed statistically significant decreasing trends in total nitrogen.

Table 3-9. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	10	13.9	41.8	26.8	25.5	Increasing
305CAN	4	0.4	3.2	1.7	1.7	Decreasing
305CHI	10	3.6	28.3	15.8	14.8	**Decreasing**
305COR	10	1.3	5.3	3.5	3.8	**Increasing**
305FRA	6	1.2	82.9	16.9	4.3	**Increasing**
305FUF	9	14.3	39.0	31.2	32.8	Increasing
305LCS	7	1.2	24.6	14.7	18.4	Increasing
305PJP	10	1.2	15.0	3.9	2.5	Decreasing
305SJA	10	12.3	73.2	34.0	26.2	Decreasing
305TSR	10	8.8	47.4	21.5	15.7	**Increasing**
305WCS	10	9.6	23.3	18.2	18.9	**Decreasing**
305WSA	4	2.6	9.4	5.6	5.1	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Millers Canal (305FRA) exceeded its total nitrogen dry season TMDL limit of 1.1 mg/L in all samples and exceeded its total nitrogen wet season TMDL limit of 8.0 mg/L in 20% of samples.

Table 3-10. Summary of Pajaro River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Total Nitrogen in Hydrologic Unit 305

Site ID[1]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance	Non-TMDL Area Limit Percent Exceedance
305BRS	N/A	N/A	N/A
305CAN	N/A	N/A	N/A
305CHI	N/A	N/A	N/A
305COR	N/A	N/A	N/A
305FRA	100%[2]	20%[3]	N/A
305FUF	N/A	N/A	N/A
305LCS	N/A	N/A	N/A
305PJP	N/A	N/A	N/A
305SJA	N/A	N/A	N/A
305TSR	N/A	N/A	N/A
305WCS	N/A	N/A	N/A
305WSA	NS^{Dry}	N/A	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The relevant dry season numeric criterion is 1.1 mg/L.
3 The relevant wet season numeric criterion is 8.0 mg/L.
4 The relevant dry season numeric criterion is 2.1 mg/L.
N/A There is no applicable Pajaro River Watershed Nutrient TMDL or non-TMDL area limit criterion for total nitrogen at this site.
NS^{Dry} Not sampled due to dry conditions.

3.2.6 Orthophosphate and Total Phosphorus

All sites in the Pajaro River HU, except for Watsonville Creek (305WCS), have a dry season and wet season TMDL limit for orthophosphate. All TMDL limits for orthophosphate are associated with the Pajaro River Watershed Nutrient TMDL. See **Table 2-5** and **Appendix A** for a summary of applicable dry season and wet season TMDL limits for orthophosphate in the Pajaro HU. **Figure 3-8** depicts annual median orthophosphate concentrations for sites in the Pajaro River HU for 2022. **Table 3-11** presents descriptive statistics for orthophosphate, **Table 3-12** and **Appendix B** present TMDL and non-TMDL area limit exceedances for orthophosphate, and **Table 3-13** presents descriptive statistics for total phosphorus.

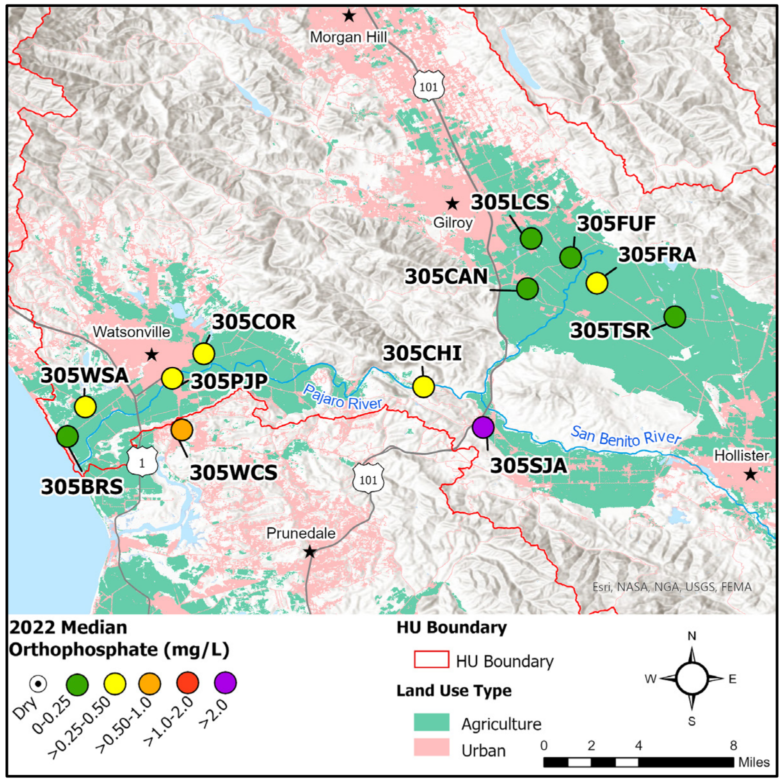


Figure 3-8. 2022 Median Orthophosphate as P for Sites in HU 305

- Median concentrations for orthophosphate in the Pajaro River HU ranged from 0.014 mg/L at Carnadero Creek (305CAN) to 2.085 mg/L at San Juan Creek (305SJA) in 2022.
- The highest concentration of orthophosphate observed at any Pajaro HU site in 2022 was in San Juan Creek (305SJA) (10.200 mg/L).
- For the period of 2005-2022, two sites (Salsipuedes Creek [305COR] and Watsonville Creek [305WCS]), showed statistically significant increasing trends in orthophosphate concentrations and one site (Llagas Creek [305LCS] showed a statistically significant decreasing trend.

Table 3-11. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	0.064	0.864	0.250	0.116	Increasing
305CAN	6	0.004	0.028	0.016	0.014	Decreasing
305CHI	12	0.031	2.430	0.590	0.423	Decreasing
305COR	12	0.061	0.377	0.255	0.284	**Increasing**
305FRA	8	0.004	0.902	0.353	0.343	Decreasing
305FUF	11	0.106	0.741	0.213	0.157	Decreasing
305LCS	9	0.027	0.281	0.066	0.032	**Decreasing**
305PJP	12	0.040	0.473	0.264	0.268	Decreasing
305SJA	12	0.188	10.200	3.448	2.085	Increasing
305TSR	12	0.009	0.609	0.216	0.162	Decreasing
305WCS	12	0.323	1.760	0.822	0.555	**Increasing**
305WSA	6	0.208	1.250	0.473	0.354	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- In 2022, eight of 11 sites with an applicable dry season TMDL limit for orthophosphate exceeded the limit in at least 50% of samples. Two sites showed no exceedance of the orthophosphate dry season TMDL limit (Carnadero Creek [305CAN] and Llagas Creek [305LCS]).
- Three of 11 sites with an applicable wet season TMDL limit for orthophosphate (0.3 mg/L) exceeded the limit in at least 50% of samples. Carnadero Creek (305CAN) and Llagas Creek (305LCS) showed no exceedance of the wet season TMDL limit.

Table 3-12. Summary of Pajaro River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Orthophosphate as P in Hydrologic Unit 305

Site ID[1]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance[2]	Non-TMDL Area Limit Percent Exceedance
305BRS	40%[3]	29%	N/A
305CAN	0%[4]	0%	N/A
305CHI	100%[3]	29%	N/A
305COR	80%[3]	43%	N/A
305FRA	100%[5]	50%	N/A
305FUF	100%[4]	17%	N/A
305LCS	0%[4]	0%	N/A
305PJP	100%[3]	29%	N/A
305SJA	100%[6]	71%	N/A
305TSR	60%[6]	14%	N/A
305WCS	N/A	N/A	N/A
305WSA	100%[3]	60%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The relevant wet season numeric criterion is 0.3 mg/L.
3 The relevant dry season numeric criterion is 0.14 mg/L.
4 The relevant dry season numeric criterion is 0.05 mg/L.
5 The relevant dry season numeric criterion is 0.04 mg/L.
6 The relevant dry season numeric criterion is 0.12 mg/L.
N/A There is no applicable Pajaro River Watershed Nutrient TMDL or non-TMDL area limit criterion for orthophosphate as P at this site.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations.
- Median concentrations for total phosphorus in the Pajaro River HU ranged from 0.018 at Carnadero Creek (305CAN) to 2.330 mg/L at San Juan Creek (305SJA) in 2022.
- The highest concentration for total phosphorus was observed at San Juan Creek (305SJA) (57.9 mg/L).
- For the period of 2005-2022, four sites showed a statistically significant increasing trend in total phosphorus (Pajaro River at Chittenden [305CHI], Salsipuedes Creek [305COR], San Juan Creek [305SJA], and Watsonville Creek [305WCS]).

Table 3-13. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	0.191	1.110	0.426	0.292	Decreasing
305CAN	6	0.005	0.079	0.031	0.018	Increasing
305CHI	12	0.108	2.720	0.740	0.456	**Increasing**
305COR	12	0.100	0.823	0.399	0.397	**Increasing**
305FRA	8	0.284	1.800	0.678	0.570	Increasing
305FUF	11	0.193	5.150	0.778	0.327	Decreasing
305LCS	9	0.005	0.480	0.100	0.049	Decreasing
305PJP	12	0.005	0.880	0.362	0.306	Increasing
305SJA	12	0.224	57.900	7.854	2.330	**Increasing**
305TSR	12	0.184	1.850	0.793	0.577	Increasing
305WCS	12	0.401	5.540	1.314	0.762	**Increasing**
305WSA	6	0.270	1.280	0.663	0.598	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.2.7 Specific Conductivity

A WQO for specific conductivity to protect agricultural uses applies to four Pajaro HU sites—Llagas Creek (305LCS), Salsipuedes Creek (305COR) and the Pajaro River at Main Street (305PJP) and Chittenden (305CHI). This agricultural objective does not define a numeric value to evaluate exceedance frequencies, but provides ranges:

- <750 µS/cm, "No Problem";
- 750-3,000 µS/cm, "Increasing Problems" and
- >3,000 µS/cm, "Severe".

Figure 3-9 depicts annual median conductivity for sites in the Pajaro River HU for 2022, and **Table 3-14** presents descriptive statistics.

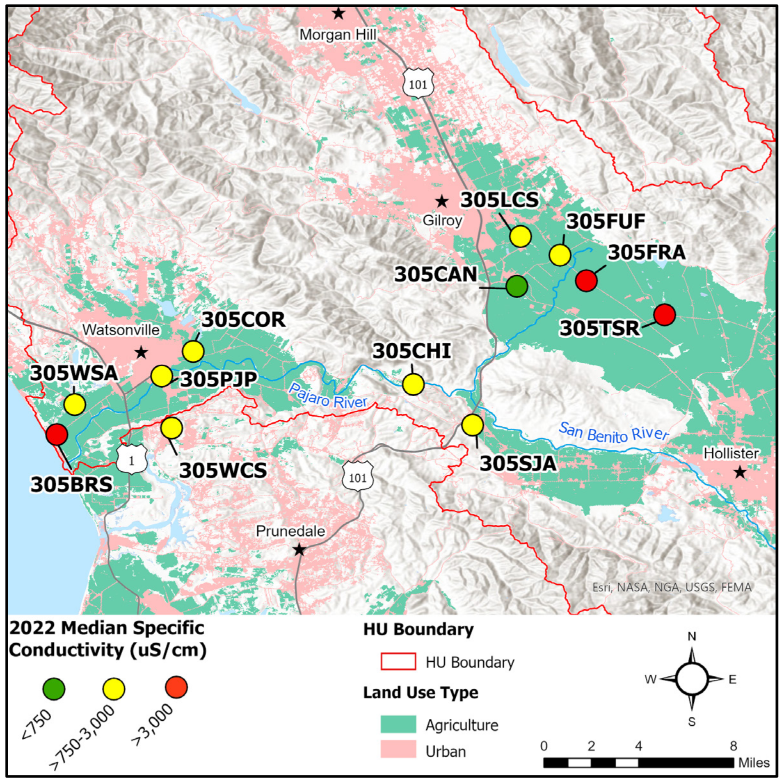


Figure 3-9. 2022 Median Conductivity for Sites in HU 305

- Median conductivity ranged from 443 µS/cm at Carnadero Creek (305CAN) to 6,955 µS/cm at Millers Canal (305FRA).
- Eight sites had median concentrations between 750 and 3,000 µS/cm indicating increasing problems. Three sites (Beach Road Ditch [305BRS], Millers Canal [305FRA], and Tequisquita Slough [305TSR]) had median concentrations above the high end of the listed ranges (3,000 µS/cm) indicating severe problems.
- The two highest maximum conductivities were recorded at Beach Road Ditch (305BRS) (28,270 µS/cm) where there is tidal influence, and Millers Canal (305FRA) (19,397 µS/cm).
- For the period of 2005-2022, six sites showed statistically significant increasing trends in conductivity (Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Llagas Creek [305LCS], Tequisquita Slough [305TSR], Watsonville Creek [305WCS], and Watsonville Slough [305WSA]).

Table 3-14. Descriptive Statistics for Specific Conductivity in Hydrologic Unit 305 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	1,783	28,270	5,686	3,174	Increasing
305CAN	6	357	1,782	662	443	Increasing
305CHI	12	1,079	2,636	1,946	2,042	**Increasing**
305COR	12	475	972	743	873	Increasing
305FRA	8	3,026	19,397	9,834	6,955	**Increasing**
305FUF	11	462	1,574	1,374	1,424	Decreasing
305LCS	9	62	1,270	978	1,048	**Increasing**
305PJP	12	531	1,559	1,252	1,397	Decreasing
305SJA	12	1,263	3,310	2,794	2,880	Increasing
305TSR	12	2,366	4,031	3,388	3,552	**Increasing**
305WCS	12	1,020	1,827	1,610	1,675	**Increasing**
305WSA	6	604	1,229	885	821	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.2.8 Total Dissolved Solids and Salinity

The Basin Plan contains TDS objectives for two sites in the Pajaro River HU: Pajaro River at Chittenden (305CHI) (1,000 mg/L) and Llagas Creek (305LCS) (200 mg/L). The objectives are applied as an annual average. The Basin Plan contains no numeric WQOs for the following analytes for CMP sites in the Pajaro River HU: salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride. No trend analyses were performed on the latter six analytes due to limited historical data associated with them. **Figure 3-10** depicts annual median TDS concentrations for sites in the Pajaro River HU for 2022.

Table 3-15, **Table 3-16**, **Table 3-17**, **Table 3-18**, **Table 3-19**, **Table 3-20**, **Table 3-21**, **Table 3-22**, and **Table 3-23** presents descriptive statistics for TDS, salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride, respectively.

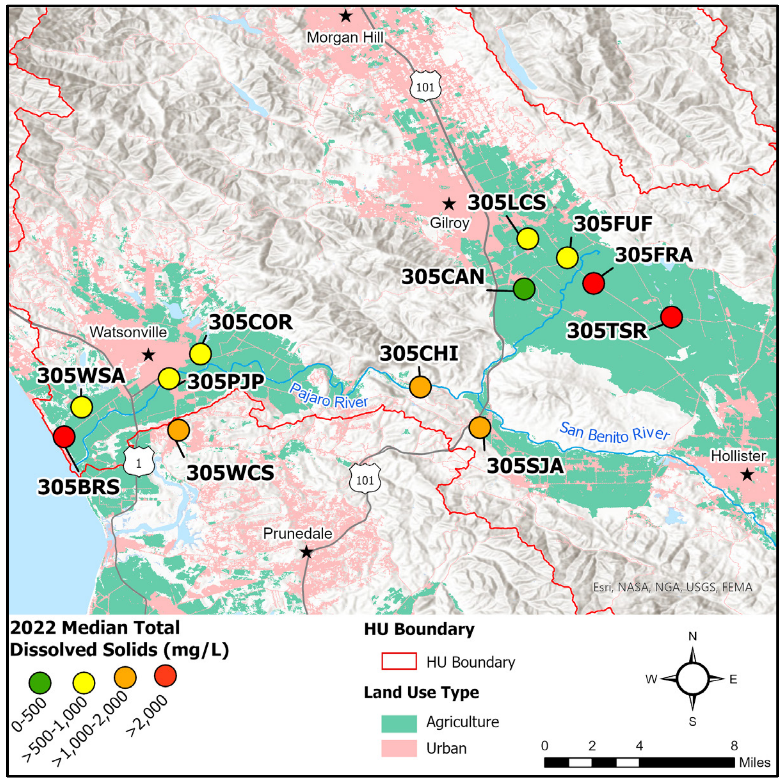


Figure 3-10. 2022 Median Total Dissolved Solids for Sites in HU 305

- Median TDS concentrations ranged from 279 mg/L at Carnadero Creek (305CAN) to 5,489 mg/L at Millers Canal (305FRA).
- TDS concentrations were highest in Beach Road Ditch (305BRS) (18,400 mg/L) and Millers Canal (305FRA) (12,804 mg/L).
- The annual mean for TDS at Llagas Creek (305LCS) (631 mg/L) and Pajaro River at Chittenden (305CHI) (1,267 mg/L) exceeded the WQO.
- For the period of 2005-2022, five sites showed statistically significant increasing trends in TDS concentrations (Beach Road Ditch [305BRS], Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Tequisquita Slough [305TSR], and Watsonville Creek [305WCS]).

Table 3-15. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
305BRS	12	1,159	18,400	3,709	2,062	N/A	**Increasing**
305CAN	6	232	1,159	426	279	N/A	Increasing
305CHI	12	701	1,713	1,267	1,328	Yes	**Increasing**
305COR	12	308	631	483	567	N/A	Decreasing
305FRA	8	1,967	12,804	6,660	5,489	N/A	**Increasing**
305FUF	11	301	1,022	892	925	N/A	Decreasing
305LCS	9	40	826	631	681	Yes	Increasing
305PJP	12	345	1,020	814	908	N/A	Decreasing
305SJA	12	821	2,151	1,823	1,871	N/A	Decreasing
305TSR	12	2,039	2,630	2,350	2,328	N/A	**Increasing**
305WCS	12	663	1,187	1,064	1,099	N/A	**Increasing**
305WSA	6	393	799	562	509	N/A	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- For the period of 2005-2022, five sites showed statistically significant increasing trends in salinity (Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Tequisquita Slough [305TSR], Watsonville Creek [305WCS], and Watsonville Slough [305WSA]).

Table 3-16. Descriptive Statistics for Salinity in Hydrologic Unit 305 (ppt)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	0.91	17.54	3.26	1.67	Increasing
305CAN	6	0.17	0.91	0.33	0.22	Increasing
305CHI	12	0.54	1.37	1.00	1.05	**Increasing**
305COR	12	0.23	0.48	0.37	0.43	Increasing
305FRA	8	1.59	11.67	5.77	4.27	**Increasing**
305FUF	11	0.22	0.80	0.69	0.72	Decreasing
305LCS	9	0.03	0.64	0.49	0.52	Increasing
305PJP	12	0.26	0.79	0.63	0.71	Decreasing
305SJA	12	0.63	1.74	1.46	1.51	Decreasing
305TSR	12	1.65	2.12	1.90	1.90	**Increasing**
305WCS	12	0.51	0.93	0.83	0.85	**Increasing**
305WSA	6	0.29	0.62	0.44	0.41	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05)

- Median alkalinity concentrations ranged from 151 mg/L at Carnadero Creek (305CAN) to 592 mg/L at Tequisquita Slough (305TSR).

Table 3-17. Descriptive Statistics for Alkalinity in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	268	480	424	475
305CAN	2	136	166	151	151
305CHI	4	252	464	380	402
305COR	4	110	236	179	185
305FRA	3	139	547	391	488
305FUF	4	100	466	341	400
305LCS	3	22	354	240	344
305PJP	4	131	259	213	230
305SJA	4	190	515	410	467
305TSR	4	566	629	595	592
305WCS	4	251	516	407	430
305WSA	2	236	313	275	275

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- The lowest concentration of calcium (7 mg/L) was measured at Llagas Creek (305LCS) and the highest concentration (192 mg/L) was measured at Millers Canal (305FRA).

Table 3-18. Descriptive Statistics for Calcium in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	100	190	135	125
305CAN	2	33	49	41	41
305CHI	4	61	101	88	95
305COR	4	8	90	48	47
305FRA	3	62	192	145	181
305FUF	4	47	122	96	107
305LCS	3	7	88	59	81
305PJP	4	43	75	63	66
305SJA	4	47	126	99	112
305TSR	4	113	134	125	126
305WCS	4	56	93	80	85
305WSA	2	47	62	55	55

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Median magnesium concentrations in the Pajaro River HU ranged from 3 mg/L at Llagas Creek (305LCS) to 211 mg/L at Tequisquita Slough (305TSR). The highest concentration of magnesium (544 mg/L) was recorded in Millers Canal (305FRA).

Table 3-19. Descriptive Statistics for Magnesium in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	51	145	104	110
305CAN	2	1	19	10	10
305CHI	4	2	131	74	82
305COR	4	6	36	24	26
305FRA	3	9	544	228	131
305FUF	4	2	93	48	48
305LCS	3	2	60	22	3
305PJP	4	5	51	33	38
305SJA	4	5	137	79	88
305TSR	4	5	254	170	211
305WCS	4	3	163	92	101
305WSA	2	4	41	22	22

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Median sodium concentrations ranged from 21 mg/L at Carnadero Creek (305CAN) to 1,310 mg/L at Millers Canal (305FRA). Millers Canal (305FRA) also had the highest recorded concentration of sodium (1,660 mg/L).

Table 3-20. Descriptive Statistics for Sodium in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	45	1590	516	215
305CAN	2	15	27	21	21
305CHI	4	78	226	174	197
305COR	4	26	54	38	37
305FRA	3	426	1660	1132	1310
305FUF	4	34	114	87	100
305LCS	3	3	49	34	49
305PJP	4	25	72	53	57
305SJA	4	127	401	298	333
305TSR	4	399	558	452	426
305WCS	4	54	102	81	84
305WSA	2	39	61	50	50

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Potassium concentrations ranged from 2.5 mg/L at nine sites to 414.0 mg/L at Millers Canal (305FRA).
- Watsonville Slough (305WSA) had the highest median potassium concentration (38.1 mg/L).

Table 3-21. Descriptive Statistics for Potassium in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	2.5	287.0	76.0	7.3
305CAN	2	2.5	28.5	15.5	15.5
305CHI	4	2.5	88.0	24.6	3.9
305COR	4	6.3	18.8	10.7	8.9
305FRA	3	5.4	414.0	142.4	7.7
305FUF	4	2.5	81.5	24.1	6.2
305LCS	3	2.5	57.9	21.0	2.5
305PJP	4	2.5	41.4	14.9	7.8
305SJA	4	2.5	151.0	42.0	7.2
305TSR	4	2.5	185.0	52.3	10.8
305WCS	4	2.5	134.0	36.1	4.0
305WSA	2	5.3	70.9	38.1	38.1

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Median sulfate concentrations ranged from 39 mg/L at Carnadero Creek (305CAN) to 2,750 mg/L at Millers Canal (305FRA). Millers Canal (305FRA) also had the highest recorded concentration of sulfate (3,900 mg/L).

Table 3-22. Descriptive Statistics for Sulfate in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	251	642	421	395
305CAN	2	32	47	39	39
305CHI	4	162	413	319	350
305COR	4	43	154	100	102
305FRA	3	745	3,900	2,465	2,750
305FUF	4	55	179	133	149
305LCS	3	5	89	60	85
305PJP	4	83	163	135	147
305SJA	4	196	681	491	544
305TSR	4	808	1,060	916	899
305WCS	4	173	348	285	310
305WSA	2	57	112	85	85

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- The lowest concentration of chloride (4 mg/L) was measured at Llagas Creek (305LCS) and the highest concentration (2,820 mg/L) was measured at Beach Road Ditch (305BRS).

Table 3-23. Descriptive Statistics for Chloride in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
305BRS	4	270	2,820	1,027	509
305CAN	2	15	43	29	29
305CHI	4	96	221	178	198
305COR	4	26	59	43	42
305FRA	3	466	1,570	1,022	1,030
305FUF	4	34	112	84	95
305LCS	3	4	63	42	61
305PJP	4	27	76	57	63
305SJA	4	136	362	301	353
305TSR	4	350	493	410	399
305WCS	4	59	116	90	93
305WSA	2	56	83	69	69

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

3.2.9 Dissolved Oxygen

The minimum dissolved oxygen (DO) WQO for protection of cold water or spawning aquatic life beneficial uses (7 mg/L) applies to seven of the 12 Pajaro River HU sites. For sites that do not have specifically assigned beneficial uses, the Basin Plan specifies the following general numeric objectives: 5 mg/L and 85% saturation. The 85% saturation objective is applied on a median basis. General WQOs apply to all waterbodies unless a more protective beneficial use and WQO are designated. **Figure 3-11** depicts annual median dissolved oxygen concentrations for sites in the Pajaro River HU for 2022. **Table 3-24** and **Table 3-25** present descriptive statistics for dissolved oxygen and oxygen saturation, respectively.

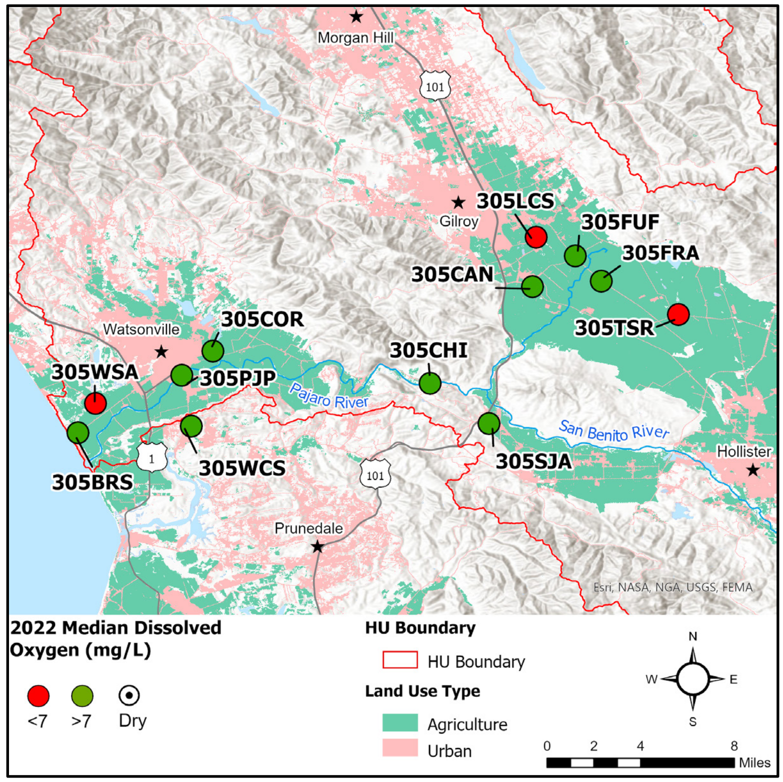


Figure 3-11. 2022 Median Dissolved Oxygen Concentrations for Sites in HU 305

- Median DO concentrations in the Pajaro HU ranged from 3.65 mg/L at Llagas Creek (305LCS) to 12.76 mg/L at Beach Road Ditch (305RS).
- None of the sites in the Pajaro River HU met the 5 mg/L or 7 mg/L minimum WQO in all samples.
- For the period of 2005-2022, five sites displayed statistically significant decreasing trends in dissolved oxygen concentrations (Carnadero Creek [305CAN], Millers Canal [305FRA], Llagas Creek [305LCS], Pajaro River at Main St. [305PJP], and Watsonville Creek [305WCS]), while one site displayed a statistically significant increasing trend (Beach Road Ditch [305BRS]). Trends in DO must be interpreted with caution, as diel patterns in DO can be influenced by temperature and biological activity depending on the time of day at which sampling occurs, and changes in DO can manifest as either depressed or very high concentrations.

Table 3-24. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
305BRS	12	0.35	15.31	10.97	12.76	8%[3]	**Increasing**
305CAN	6	3.81	11.02	9.17	10.10	17%	**Decreasing**
305CHI	12	5.39	11.17	7.96	7.38	33%	Decreasing
305COR	12	4.14	14.59	9.08	8.61	17%	Increasing
305FRA	8	3.49	13.06	7.51	7.16	13%[3]	**Decreasing**
305FUF	11	4.66	12.85	9.09	8.77	9%[3]	Increasing
305LCS	9	2.08	9.17	4.00	3.65	89%	**Decreasing**
305PJP	12	4.07	12.44	8.30	8.20	25%	**Decreasing**
305SJA	12	0.55	13.34	7.91	7.57	25%[3]	Increasing
305TSR	12	0.89	11.01	6.17	6.61	50%	Decreasing

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
305WCS	12	0.20	14.11	9.18	9.66	8%[3]	**Decreasing**
305WSA	6	3.19	38.40	9.91	4.15	83%	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 WQO is >5 mg/L; all other sites have a WQO of >7 mg/L.

- In 2022, two out of five sites with a WQO of 85% saturation exceeded the objective on a median basis (Millers Canal [305FRA] and San Juan Creek [305SJA]).
- For the period of 2005-2022, four sites exhibited statistically significant decreasing trends in oxygen saturation (Millers Canal [305FRA], Llagas Creek [305LCS], Tequisquita Slough [305TSR], and Watsonville Creek [305WCS]). One site (Beach Road Ditch [305BRS]) displayed a statistically significant increasing trend in oxygen saturation.

Table 3-25. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 305 (%)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
305BRS	12	4	168	114	134	No	**Increasing**
305CAN	6	38	98	84	92	N/A	Decreasing
305CHI	12	57	109	77	72	N/A	Decreasing
305COR	12	44	161	89	82	N/A	Increasing
305FRA	8	32	130	76	72	Yes	**Decreasing**
305FUF	11	46	114	85	87	No	Increasing
305LCS	9	22	84	39	34	N/A	**Decreasing**
305PJP	12	43	115	81	82	N/A	Decreasing
305SJA	12	6	131	75	73	Yes	Decreasing
305TSR	12	9	88	54	62	N/A	**Decreasing**
305WCS	12	2	127	92	98	No	**Decreasing**
305WSA	6	27	51	39	39	N/A	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.

3.2.10 pH

The WQO for all Pajaro River HU sites is 7-8.3 pH standard units. For sites with MUN or REC1/REC2 and WARM/COLD beneficial uses, the acceptable pH range is 7-8.3 standard pH units. For sites that are not included in Table 2-1 of the Basin Plan, the acceptable pH range is also 7-8.3 standard pH units, which includes the Basin Plan general and REC1/REC2 WQOs. **Figure 3-12** depicts annual median pH for sites in the Pajaro River HU for 2022, and **Table 3-26** presents descriptive statistics.

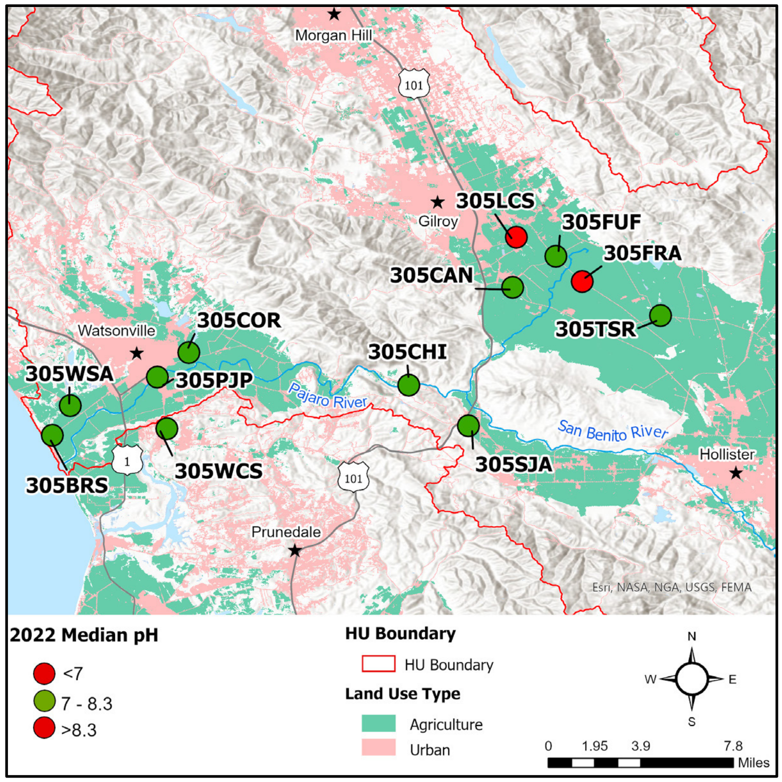


Figure 3-12. 2022 Median pH for Sites in HU 305

- Four sites met the applicable pH WQO in all samples in 2022 (Beach Road Ditch [305BRS], Carnadero Creek [305CAN], Furlong Creek [305FUF], and Watsonville Slough [305WSA]).
- Only two sites had pH levels below the minimum criterion of 7.0 standard pH units (Llagas Creek [305LCS] and Tequisquita Slough [305TSR]). All other exceedances pertained to the 8.3 standard pH units WQO.
- Llagas Creek (305LCS) and Millers Canal (305FRA) exceeded the pH WQO in 100% and 50% of samples collected, respectively.
- The highest pH in 2022 was recorded in Millers Canal (305FRA) (9.35 pH units) and the lowest was recorded in Tequisquita Slough (305TSR) (5.93 pH units).
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in pH (Carnadero Creek [305CAN], Millers Canal [305FRA], Llagas Creek [305LCS], and Tequisquita Slough [305TSR]).

Table 3-26. Descriptive Statistics for pH in Hydrologic Unit 305 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
305BRS	12	7.38	8.02	7.74	7.76	0%	Decreasing
305CAN	6	7.28	7.84	7.61	7.65	0%	**Decreasing**
305CHI	12	7.75	8.31	7.99	7.98	8%	Decreasing
305COR	12	7.52	8.33	7.96	7.96	8%	Decreasing
305FRA	8	7.47	9.35	8.42	8.38	50%	**Decreasing**
305FUF	11	7.68	8.29	8.05	8.14	0%	Increasing
305LCS	9	6.26	6.84	6.70	6.74	100%	**Decreasing**
305PJP	12	7.74	8.39	8.04	7.97	17%	Increasing
305SJA	12	7.65	8.31	8.02	8.04	8%	N/A[3]
305TSR	12	5.93	8.70	7.82	7.93	33%	**Decreasing**
305WCS	12	7.83	8.43	8.09	8.10	8%	Decreasing
305WSA	6	7.02	7.66	7.33	7.32	0%	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.

3.2.11 Aquatic Toxicity Results

The potential for toxic effects to aquatic and sediment-dwelling organisms is assessed by the CMP via bioassays for sensitive algal species in water (*S. capricornutum* growth), and for sensitive invertebrate species in water (*C. dubia* reproduction and *C. dubia and C. dilutus* survival) and sediment (*H. azteca* growth and survival). Test organism survival and reproduction or growth is measured in environmental samples as well as in non-toxic control samples. A statistical test is then applied to determine significant differences in organism performance between environmental and control samples. When test organism performance is significantly lower in the environmental sample than in the control, *and* the difference exceeds a 20% effect threshold, a sample is determined to be "toxic" and in exceedance of the narrative Basin Plan objective for "no toxic substances in toxic amounts."

Three sites within the Pajaro HU (Pajaro River at Chittenden [305CHI], Llagas Creek [305LCS], and Pajaro River at Main St. [305PJP]) have a significant toxic effect (*C. dubia* survival/reproduction in water and *H. azteca* survival/reproduction in sediment) TMDL limit associated with the Pajaro River Watershed Chlorpyrifos and Diazinon TMDL. Additionally, a significant toxic effect non-TMDL area limit for survival, growth, and reproduction in water and sediment apply to sites without a TMDL limit. *H. azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL and non-TMDL area limit exceedance discussion below. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect TMDL and non-TMDL area limits in the Pajaro River HU. Results from aquatic and sediment bioassays conducted on samples from the Pajaro River HU in 2022 are illustrated in **Figure 3-13** and tabulated in **Table 3-27**.

- Toxicity to algal growth in water was observed in one of four bioassays in water samples collected from San Juan Creek (305SJA) (**Figure 3-13 a**). All but one site (San Juan Creek [305SJA]) achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-13 a**).
- Significant mortality to *C. dilutus* in water was observed in five samples collected from four sites (Furlong Creek [305FUF], Pajaro River at Main St. [305PJP], Watsonville Creek [305WCS], and Watsonville Slough [305WSA]). Significant mortality to *C. dubia* was observed in one of three bioassays on water samples collected from Millers Canal (305FRA) (**Figure 3-13 b, d**). Of the 10 sites sampled, all but four sites (Furlong Creek [305FUF], Pajaro River at Main St. [305PJP], Watsonville Creek [305WCS], and Watsonville Slough [305WSA]) achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water. Of the nine sites with a non-TMDL area limit for *C. dubia* survival in water, one site (Millers Canal [305FRA]) showed no toxic effect. Of the 12 sites sampled (**Figure 3-13 b, d**). All three sites (Pajaro River at Chittenden [305CHI], Llagas Creek [305LCS], and Pajaro River at Main St. [305PJP]) with an applicable significant toxic effect TMDL limit for *C. dubia* survival in water achieved the TMDL limit (**Figure 3-13 d**).
- Toxicity to invertebrate reproduction in water was observed in seven samples collected from six sites (**Figure 3-13 c**). Of the seven sites that were sampled and have a significant toxic effect non-TMDL limit for reproduction in water, four sites (Beach Road Ditch [305BRS], Carnadero Creek [305CAN], Salsipuedes Creek [305COR], and Watsonville Slough [305WSA]) showed no toxic effect (**Figure 3-13 c**). None of the sites with an applicable significant toxic effect TMDL limit for *C. dubia* reproduction in water achieved the TMDL limit (Pajaro River at Chittenden [305CHI], Llagas Creek [305LCS], and Pajaro River at Main St. [305PJP]) (**Figure 3-13 c**).
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. Toxicity to invertebrate growth in sediment was observed in three of the 12 sites (Beach Road Ditch [305BSR], Llagas Creek [305LCS], and Watsonville Creek [305WCS] (**Figure 3-13 e**). The remaining nine sites achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-13 e**)
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. Toxicity to invertebrate survival in sediment was observed in one site (Watsonville Slough [305WSA]) (**Figure 3-13 f**). Of the eight sites with a significant toxic effect non-TMDL area limit for growth in sediment, seven sites showed no toxic effect. All three sites with a significant toxic effect TMDL limit for *H. azteca* survival in sediment achieved the TMDL limit (Pajaro River at Chittenden [305CHI], Llagas Creek [305LCS], and Pajaro River at Main St. [305PJP]) (**Figure 3-13 f**).
- For the period of 2005-2022, five statistically significant toxicity trends were observed in the Pajaro River HU.

Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-27**.

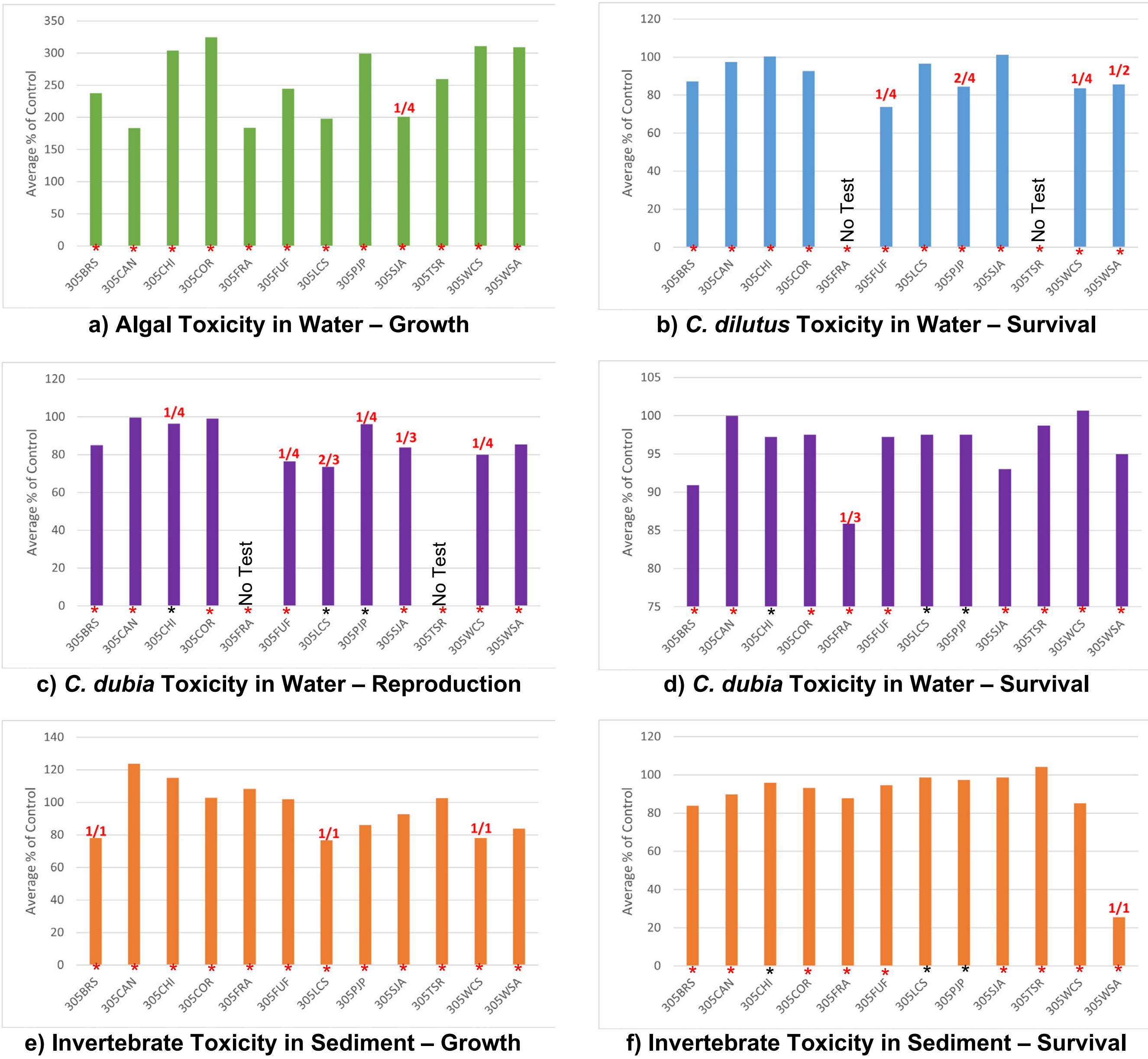
Table 3-27. Summary of Toxicity and Trends in Hydrologic Unit 305

Site ID[1]	Algal Growth		*C. dilutus* Survival		*C. dubia* Reproduction		*C. dubia* Survival		*H. azteca* Growth		*H. azteca* Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
305BRS	0/4	Increasing	0/2	Decreasing	0/2	Decreasing	0/4	**Decreasing**	1/1	Increasing	0/1	Decreasing
305CAN	0/2	Increasing	0/2	Decreasing	0/2	Increasing	0/2	Increasing	0/1	**Decreasing**	0/1	Decreasing
305CHI	0/4	Increasing	0/4	Increasing	1/4	Decreasing	0/4	Increasing	0/1	Decreasing	0/1	Decreasing
305COR	0/4	Increasing	0/4	Decreasing	0/4	Decreasing	0/4	Decreasing	0/1	Decreasing	0/1	Increasing
305FRA	0/3	Decreasing	0	Increasing	0	Decreasing	1/3	Decreasing	0/1	Increasing	0/1	Decreasing
305FUF	0/4	Decreasing	1/4	Increasing	1/4	Decreasing	0/4	Decreasing	0/1	Increasing	0/1	Increasing
305LCS	0/3	Increasing	0/4	Increasing	2/3	Increasing	0/3	Increasing	1/1	**Decreasing**	0/1	Increasing
305PJP	0/4	**Increasing**	2/4	Decreasing	1/4	Decreasing	0/4	Increasing	0/1	Decreasing	0/1	Increasing
305SJA	1/4	Increasing	0/3	Increasing	1/3	Decreasing	0/4	Decreasing	0/1	Increasing	0/1	Increasing
305TSR	0/4	**Increasing**	0	None[2]	0	Decreasing	0/4	Increasing	0/1	Decreasing	0/1	Increasing
305WCS	0/4	Increasing	1/4	Decreasing	1/4	Decreasing	0/4	Increasing	1/1	Decreasing	0/1	Decreasing
305WSA	0/2	Decreasing	1/2	Decreasing	0/2	Decreasing	0/2	Increasing	0/1	Decreasing	1/1	Decreasing

Notes:

1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant ($\alpha = 0.05$).

2 None = No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.



a) Algal Toxicity in Water – Growth

b) *C. dilutus* Toxicity in Water – Survival

c) *C. dubia* Toxicity in Water – Reproduction

d) *C. dubia* Toxicity in Water – Survival

e) Invertebrate Toxicity in Sediment – Growth

f) Invertebrate Toxicity in Sediment – Survival

Figure 3-13. Results for Aquatic Toxicity (water and sediment) Monitoring in the Pajaro Region

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, relative to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. "No Test" indicates sites where no toxicity samples were collected due to dry channel or ponded conditions.
4. Results >100% indicate growth rates greater than the control.
5. If a site experienced "significant toxicity" red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., ½ indicates the site had two samples collected, one of which was significantly toxic.)
6. *C. dubia* reproduction graphs generally reflect *C. dubia* tests, but in some cases reflect a salinity-tolerant alternate test species, which in some cases test for "growth" instead of "reproduction" as the sub-lethal endpoint.

* Site with an applicable TMDL limit for a given test species and endpoint.

* Site with an applicable non-TMDL area limit for a given test species and endpoint.

3.3 SALINAS HYDROLOGIC UNIT (HU 309)

Descriptions of the Salinas HU hydrology are summarized from the CCRWQCB's *Salinas River Watershed Characterization Report* (CCRWQCB 2000). The watershed of the Salinas River and its tributaries covers approximately 4,600 square miles (nearly three million acres) and lies within San Luis Obispo and Monterey Counties. The Salinas River, which originates in San Luis Obispo County, flows northwestward into Monterey County, through the entire length of the Salinas Valley and empties into the Monterey Bay.

The Salinas River drains a large area with many distinct tributaries, and although it is considered a single HU, geographic, political, land use and groundwater divisions facilitate discussion of the Salinas River Watershed in terms of an upper and a lower watershed. The upper watershed begins at the headwaters of the Salinas River in the La Panza Range southeast of Santa Margarita Lake in San Luis Obispo County and flows to the narrows area near Bradley, just inside Monterey County. The upper watershed includes drainages of the Estrella, Nacimiento, and San Antonio Rivers; overlies the Paso Robles Ground Water Basin; and lies mainly in San Luis Obispo County. The lower watershed extends from the Bradley narrows area to Monterey Bay and includes the drainage of the Arroyo Seco River, overlies the Salinas Ground Water Basin, and is entirely within Monterey County.

The Salinas Reclamation Canal parallels the Salinas River in the lower watershed, also ultimately draining to Monterey Bay. The Reclamation Canal incorporates drainage from the city of Salinas and surrounding agricultural areas, including several small tributaries which drain the Gabilan foothills to the east. Near Castroville, the Reclamation Canal meets Tembladero Slough and incorporates drainage from the city of Castroville and more western agricultural areas, ultimately flowing to Monterey Bay and the Elkhorn Slough via Moss Landing Harbor.

In addition to agriculture and urban development, other land uses in the Salinas River Watershed include two military facilities (Fort Hunter Liggett and Camp Roberts), exploitation of mineral and oil reserves in the San Ardo area and a few other locations throughout the watershed, and public land and open space.

Historically, there have been 18 core CMP sites in the Salinas HU. All the CMP sites are in the lower watershed below the Bradley Narrows of the Salinas River (**Figure 3-14**) and are within the Lower Salinas Valley Hydrologic Area. There are four sites on the mainstem Salinas River upstream from Salinas at Spreckels, Chualar, Gonzales, and Greenfield (309SSP, 309SAC, 309SAG, and 309GRN) and three sites on tributaries to the river upstream from the city of Salinas: Quail Creek (309QUI), Chualar Creek West of Highway 1 on River Road (309CCD), and Chualar Creek, North Branch (309CRR). There are seven sites on tributaries, creeks, and sloughs downstream of Salinas: Moro Cojo Slough (309MOR), Old Salinas River Estuary (309OLD), Tembladero Slough (309TEH), Merritt Ditch (309MER), Espinosa Slough (309ESP), Alisal Slough (309ASB), and Blanco Drain (309BLA). There are two sites on the Salinas Reclamation Canal: at San Jon Road (309JON) downstream of the city, and at La Guardia Road (309ALG) upstream of the city. There are also two sites east of Salinas on direct tributaries to the Reclamation Canal: Gabilan Creek (309GAB) and Natividad Creek (309NAD). Alisal Slough (309ASB) has a connection to the lower end of the Reclamation Canal but is not a tributary. In 2012, a 19th site, Santa Rita Creek (309RTA), was added.

The beneficial uses designated by the Basin Plan for waterbodies monitored by the CMP in the Salinas HU include all beneficial uses (Table 2-2).

Applicable TMDLs for sites within the Salinas HU include the Lower Salinas River Watershed Nutrient TMDL, Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL, and Lower Salinas River Watershed Chlorpyrifos and Diazinon TMDL. Non-TMDL area limits applicable to sites in the Salinas HU include non-TMDL area turbidity limits, non-TMDL area nutrient limits, and non-TMDL area toxicity limits. See **Appendix A** for a summary of applicable routine parameter TMDL limits and non-TMDL area limits for sites in the Salinas HU.

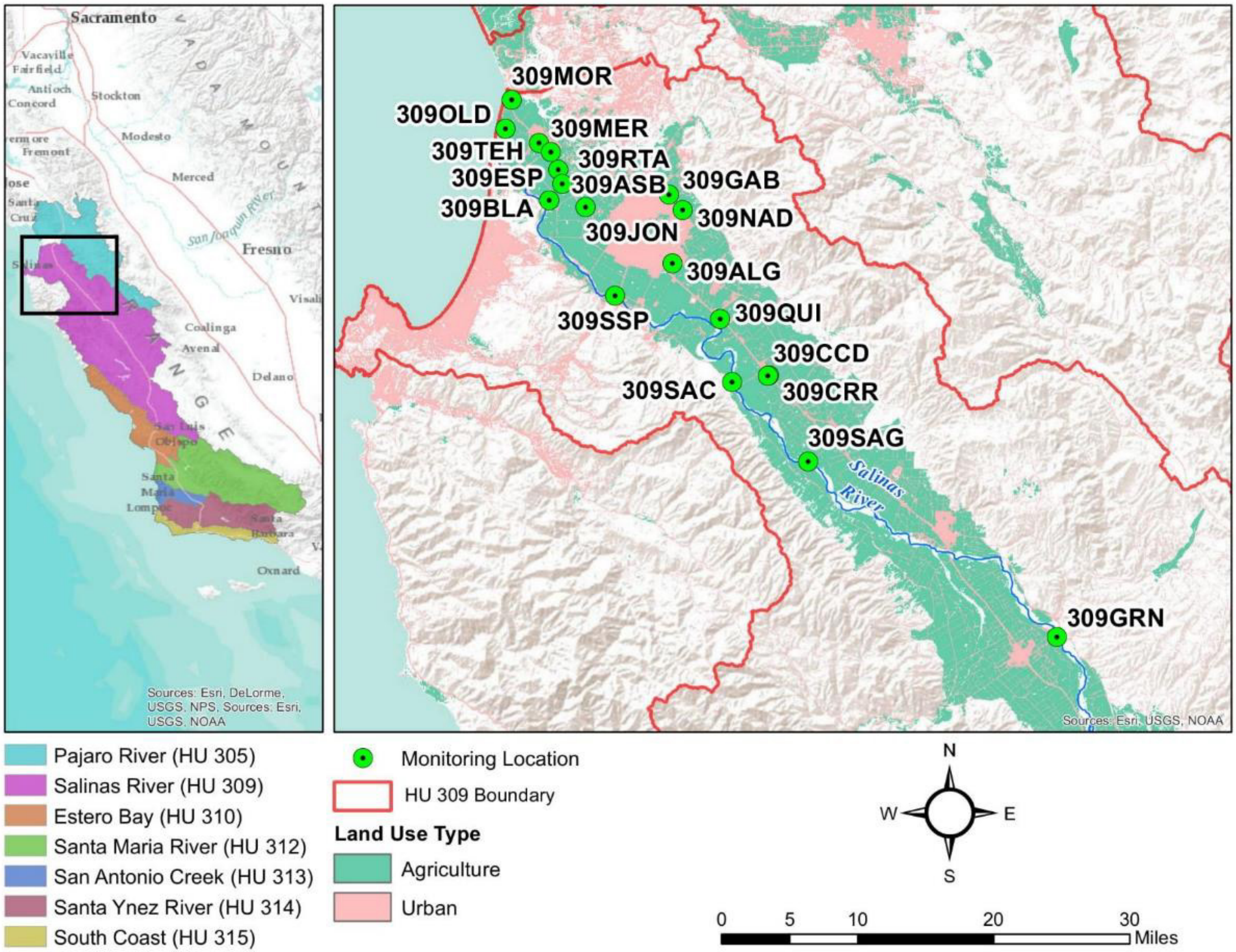


Figure 3-14. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Salinas Hydrologic Unit

3.3.1 Flow Results

The flow regime in the Salinas River Watershed is characterized by seasonal precipitation that occurs primarily from November through March. In 2022, there was minimal precipitation in January and February, but rather extended from March through late-April. There was also significant rainfall occurring throughout December. In the dry season, dam releases regulate instream flow for groundwater recharge and Salinas Valley Water Project (SVWP) operations. Near Bradley, flows are maintained near 450 CFS by releases from Nacimiento and San Antonio Reservoirs. During the 2022 monitoring year, the annual average flow (68.7 CFS) at the *Salinas River at Bradley* USGS stream gage was below the historic annual average (483 CFS, 1958-2021) and ranged from 49.7 CFS (September 6, 2022) to 370 CFS (January 1, 2022) (USGS 2023)[1]. The 2022 cumulative annual rainfall (13.67") at the *Salinas North* rain gauge was lower than the historic average (16.78", 1993-2021) (**Figure 3-15**) (CDWR 2023).

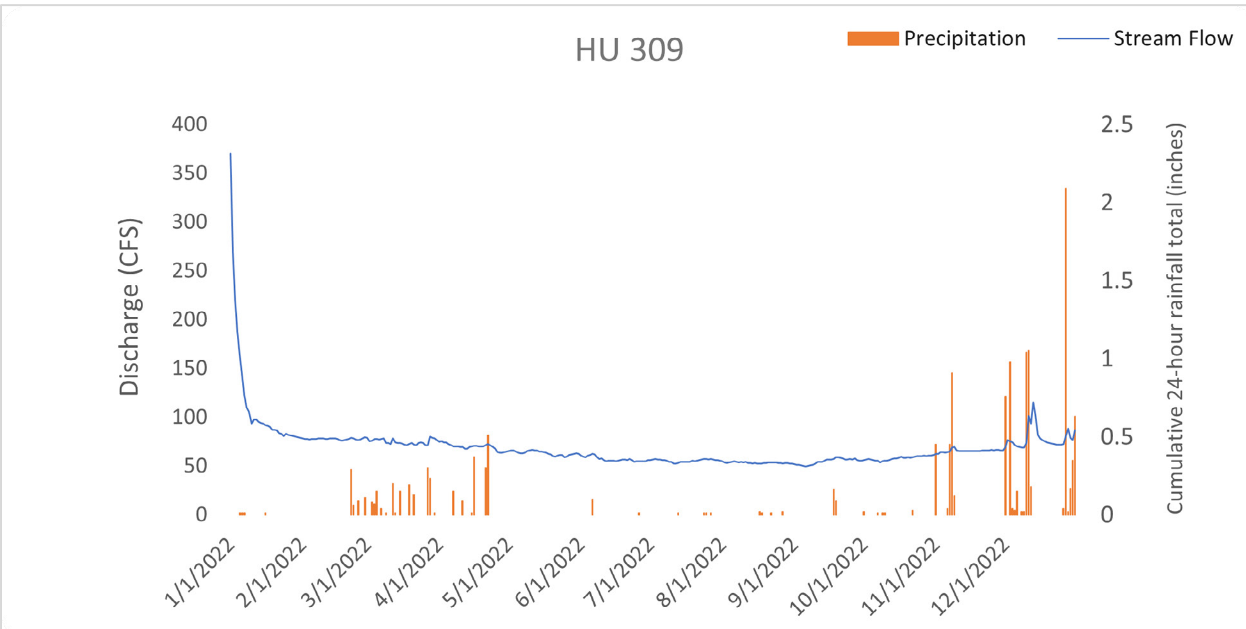


Figure 3-15. 2022 Salinas River at Bradley Hydrograph and Salinas North Precipitation Totals

[1] USGS data contains provisional values, subject to revision; flow values may have been updated since the publishing of this report.

In 2022, flows measured at the 19 Salinas HU monitoring sites were generally influenced by wet season precipitation with elevated flows observed in late December. During the dry season, much of the surface water flows were influenced by base flows, dam releases, and irrigation. **Figure 3-16** depicts annual median flow values for sites within the Salinas HU for 2022, and **Table 3-28** presents descriptive statistics.

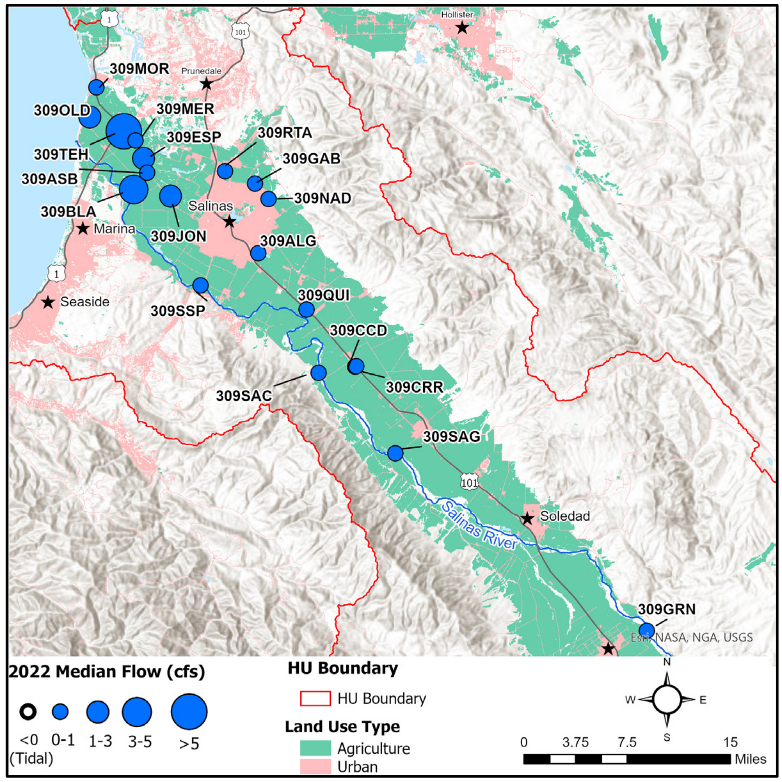


Figure 3-16. 2022 Median Flows for Sites in HU 309

- Measured flows ranged from negative flow due to tidal influences (Merritt Ditch [309MER], Moro Cojo Slough [309MOR], Old Salinas River [309OLD]) to 355.68 CFS (Tembladero Slough [309TEH]).
- Median flows ranged from 0 CFS (Chualar Creek West of Highway 1 on River Road [309CCD], Chualar Creek, North Branch [309CRR], Gabilan Creek [309GAB], Salinas River in Greenfield [309GRN], Quail Creek [309QUI], Santa Rita Creek [309RTA], Salinas River at Chualar Bridge [309SAC], Salinas River at Gonzales River Rd. Bridge [309SAG], Salinas River at Spreckels Gage [309SSP]) to 7.80 CFS (Tembladero Slough [309TEH]).
- For the period of 2005-2022, five sites show statistically significant decreasing trends in flow: (Alisal Slough [309ASB], Salinas River in Greenfield [309GRN], Salinas Reclamation Canal at San Jon Rd. [309JON], Natividad Creek [309NAD], and Quail Creek [309QUI]. One site (Merritt Ditch [309MER]) showed a statistically significant increasing trend in flow.

Table 3-28. Descriptive Statistics for flow in Hydrologic Unit 309 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.20	27.00	3.09	0.74	Increasing
309ASB	12	0.07	90.00	8.04	0.65	**Decreasing**
309BLA	12	0.58	140.00	14.76	4.04	Decreasing
309CCD	12	0.00	4.25	0.55	0.00	Increasing
309CRR	12	0.00	3.72	0.53	0.00	Decreasing
309ESP	12	0.04	250.00	23.62	1.58	Increasing
309GAB	12	0.00	0.16	0.01	0.00	Decreasing
309GRN	12	0.00	0.00	0.00	0.00	**Decreasing**
309JON	12	0.23	206.75	18.38	1.10	**Decreasing**
309MER	12	-8.00	120.00	13.31	0.81	**Increasing**
309MOR	12	-3.17	29.95	3.99	0.17	Increasing
309NAD	12	0.00	10.00	1.03	0.03	**Decreasing**
309OLD	12	-5.73	10.18	3.08	2.28	Increasing
309QUI	12	0.00	1.79	0.15	0.00	**Decreasing**
309RTA	12	0.00	7.58	0.65	0.00	Decreasing
309SAC	8	0.00	0.00	0.00	0.00	Decreasing
309SAG	8	0.00	0.00	0.00	0.00	Decreasing
309SSP	12	0.00	0.00	0.00	0.00	Decreasing
309TEH	12	3.33	355.68	36.86	7.80	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. Bold trends are statistically significant (α = 0.05).

3.3.2 Water Temperature

The Basin Plan contains a general WQO for temperature: natural receiving water temperature of intrastate waters shall not be altered. The Basin Plan also has specific objectives for cold and warm water habitats: At no time or place shall the temperature be increased by more than 5 °F above natural receiving water temperature. Water temperature can influence the results of other field measurements including dissolved oxygen, pH, and conductivity and therefore is an important factor to consider when interpreting results. The temperature of certain water bodies can also fluctuate greatly over a 24-hour period. This fluctuation means that results and trends should be interpreted with discretion, as they can be affected by the time of day at which the sample is collected.

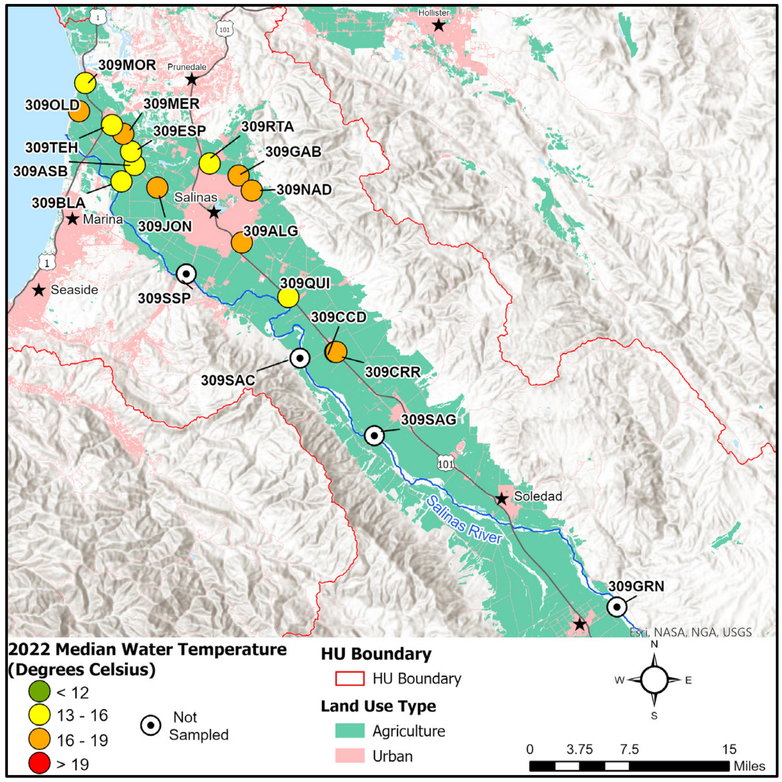


Figure 3-17. 2022 Median Water Temperature for Sites in HU 309

Temperature of natural receiving waters has not been defined for waterbodies within the Salinas HU; therefore, the focus of this report is descriptive statistics. In 2022, water temperatures peaked at most sites in the Salinas HU during the months of July and September; minimum temperatures at most sites were recorded during the months of December and February. **Figure 3-17** depicts annual median temperatures for sites in the Salinas HU for 2022, and **Table 3-29** presents descriptive statistics.

- Median water temperatures in the Salinas HU ranged from 12.3 °C (Santa Rita Creek [309RTA]) to 18.7 °C (Salinas Reclamation Canal at La Guardia St. [309ALG]) in 2022.
- The lowest water temperature (4.3 °C) was observed in Alisal Slough (309ASB); the highest water temperature (26.7 °C) was observed in Natividad Creek (309NAD).
- From 2005-2022, one site displayed a statistically significant decreasing trend in water temperature (Chualar Creek West of Highway 1 on River Road [309CCD]). Five sites displayed statistically significant increasing trends in water temperature: Blanco Drain (309BLA), Salinas River in Greenfield (309GRN), Natividad Creek (309NAD), Quail Creek (309QUI), and Tembladero Slough (309TEH).

Table 3-29. Descriptive Statistics for Water Temperature in Hydrologic Unit 309 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	10.8	25.6	19.1	18.7	Decreasing
309ASB	12	4.3	23.0	13.5	12.5	Decreasing
309BLA	12	10.2	20.5	15.2	15.2	**Increasing**
309CCD	6	10.9	21.7	16.1	15.8	**Decreasing**
309CRR	5	12.6	21.8	17.1	17.4	Decreasing
309ESP	12	6.3	25.0	13.8	13.4	Decreasing
309GAB	1	17.2	17.2	17.2	17.2	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Increasing**
309JON	12	10.6	20.2	15.8	16.3	Increasing
309MER	12	8.5	22.0	15.5	16.1	Increasing
309MOR	12	7.8	19.0	14.3	15.1	Decreasing
309NAD	10	10.6	26.7	18.1	16.4	**Increasing**
309OLD	12	8.7	19.6	15.6	17.6	Increasing
309QUI	1	13.0	13.0	13.0	13.0	**Increasing**
309RTA	3	11.7	13.2	12.4	12.3	Decreasing
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	None[3]
309TEH	12	5.3	23.6	14.9	15.2	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. Bold trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.3.3 Turbidity and TSS Results

All sites within the Salinas HU have a non-TMDL area turbidity limit. Five sites have a warm water beneficial use, which has a turbidity limit of 40 NTU. The remaining 14 sites have a cold water beneficial use, which has a turbidity limit of 25 NTU. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for turbidity in the Salinas HU. **Figure 3-18** depicts annual median turbidity concentrations and TSS loading for sites in the Salinas HU for 2022, and **Table 3-30** and **Appendix B** present descriptive statistics and turbidity limit exceedances.

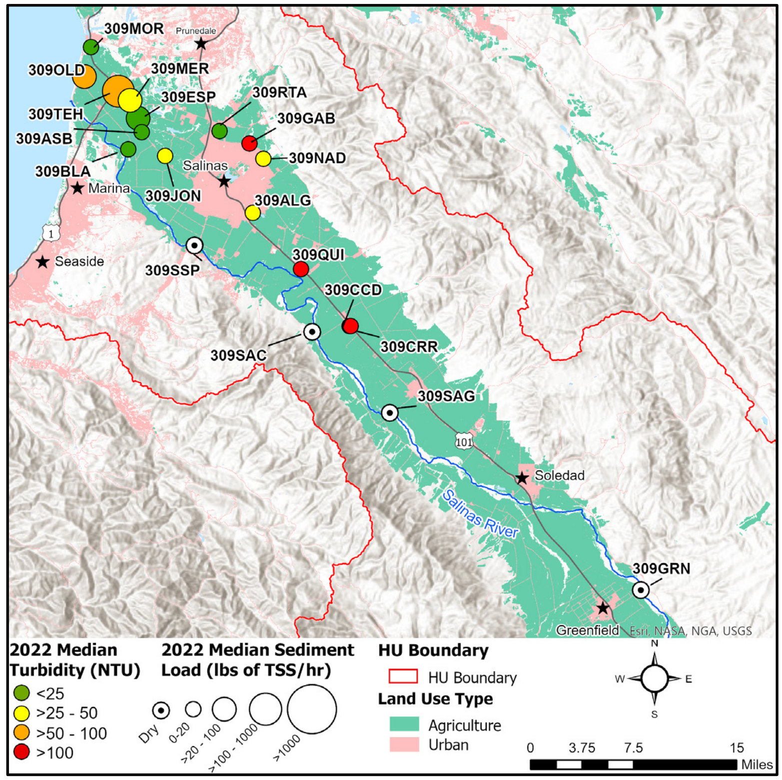


Figure 3-18. 2022 Median Turbidity and TSS Loading for Sites in HU 309

- Median turbidities during 2022 ranged from 6 NTU in Moro Cojo Slough (309MOR) to 1,141 NTU in Chualar Creek, North Branch (309CRR).
- Five sites in the Salinas HU had a maximum turbidity greater than 1,000 NTU: Chualar Creek West of Highway 1 on River Road (309CCD), Chualar Creek, North Branch (309CRR), Salinas Reclamation Canal at San Jon Rd. (309JON), Santa Rita Creek (309RTA), and Tembladero Slough (309TEH).
- Of the 15 sites sampled for a turbidity limit in the Salinas River HU, only one site (Blanco Drain [309BLA]) achieved the limit. One of the five sites exceeded the 40 NTU turbidity limit in at least 50% of samples. Seven of the 10 sites exceeded the 25 NTU turbidity limit in at least 50% of samples, four of which exceeded the limit in all samples.
- Although Chualar Creek, North Branch (309CRR), Chualar Creek West of Highway 1 on River Road (319CCD), Gabilan Creek (309GAB), and Quail Creek (309QUI) had relatively high median turbidity results, TSS loading was low due to very low flow conditions. High TSS loading observed at Tembladero Slough (309TEH) (122 lbs. of TSS/hr) was due to relatively high levels of flow and turbidity (**Appendix B**).
- For the period of 2005-2022, 14 sites showed statistically significant decreasing trends in turbidity, and one site (Salinas River at Spreckels Gage [309SSP]) showed a statistically significant increasing trend.
- For the period of 2012-2022, 11 sites showed statistically significant increasing trends in TSS loading. TSS was not monitored by CMP prior to 2012, so the period of record for TSS trend analysis is shorter than that for turbidity and flow.

Table 3-30. Descriptive Statistics for Turbidity in Hydrologic Unit 309 (NTU)

Site ID[1]	N	Min	Max	Mean	Median	Non TMDL Area Limit Percent Exceedance	Turbidity Trend[2,3]	TSS Loading Trend[2,3]
309ALG	12	8	723	123	28	33%[4]	**Decreasing**	**Increasing**
309ASB	12	7	68	27	22	33%[5]	**Decreasing**	**Increasing**
309BLA	12	1	32	11	7	0%[4]	**Decreasing**	Decreasing
309CCD	6	77	3,000	968	577	100%[5]	Decreasing	Increasing
309CRR	5	126	3,000	1,332	1,141	100%[5]	**Decreasing**	N/A[6]
309ESP	12	6	876	169	23	42%[4]	**Decreasing**	**Increasing**
309GAB	1	363	363	363	363	100%[5]	**Decreasing**	**Increasing**
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Decreasing**	Increasing
309JON	12	18	1,697	167	27	25%[4]	**Decreasing**	Decreasing
309MER	12	6	385	73	34	67%[5]	**Decreasing**	**Increasing**
309MOR	12	0	214	25	6	17%[5]	**Decreasing**	**Increasing**
309NAD	10	6	436	99	38	70%[5]	**Decreasing**	**Increasing**
309OLD	12	19	132	65	61	83%[5]	**Decreasing**	**Increasing**
309QUI	1	550	550	550	550	100%[5]	**Decreasing**	Increasing
309RTA	3	11	3,000	1,009	16	33%[5]	Decreasing	Decreasing
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing	Increasing
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing	**Increasing**
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Increasing**	**Increasing**
309TEH	12	27	1,336	174	59	58%[4]	**Decreasing**	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Turbidity was monitored from 2005-2022 and TSS was monitored from 2012-2022.
4 The relevant numeric criterion is 40.0 NTU [WARM].
5 The relevant numeric criterion is 25.0 NTU [COLD].
6 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.3.4 Unionized and Total Ammonia

All but one site (Salinas River in Greenfield [309GRN]) within the Salinas HU have a TMDL limit for unionized ammonia. All TMDL limits for unionized ammonia are associated with the Lower Salinas River Watershed Nutrient TMDL. Salinas River in Greenfield (309GRN) is located outside of the Lower Salinas River Watershed Nutrient TMDL and therefore has a non-TMDL area limit for unionized ammonia. See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL and non-TMDL area limits for unionized ammonia in the Salinas HU. **Figure 3-19** depicts annual median unionized ammonia concentrations for sites in the Salinas HU for 2022. **Table 3-31** presents descriptive statistics, and **Table 3-32** and **Appendix B** present TMDL and non-TMDL area limit exceedances.

Samples were also collected and analyzed for total ammonia. There is currently no TMDL, non-TMDL area limit, or Basin Plan numeric WQO for total ammonia applicable to CMP sites in the Salinas HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-33**.

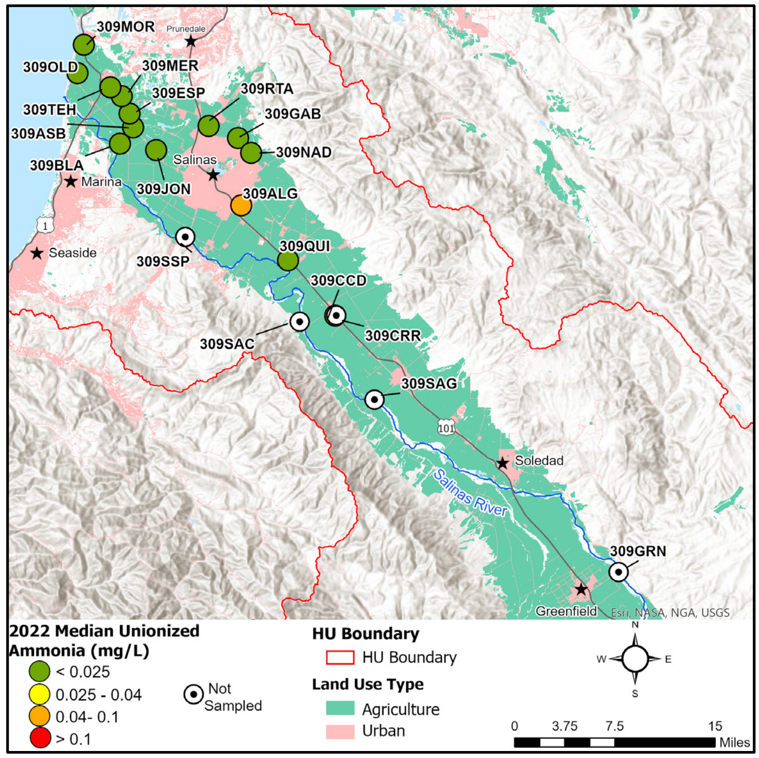


Figure 3-19. 2022 Median Unionized Ammonia for Sites in HU 309

- The lowest concentration of unionized ammonia (0.0002 mg/L) was measured at Chualar Creek West of Highway 1 on River Road (309CCD), and the highest concentration of unionized ammonia (0.2698 mg/L) was measured at Natividad Creek (309NAD).
- For the period of 2005-2022, two sites (Chualar Creek West of Highway 1 on River Road [309CCD] and Natividad Creek [309NAD]) displayed statistically significant increasing trends in unionized ammonia concentrations. One site (Moro Cojo Slough [309MOR]) displayed a statistically significant decreasing trend in unionized ammonia concentrations.

Table 3-31. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.0034	0.2027	0.0713	0.0624	Decreasing
309ASB	12	0.0006	0.0275	0.0045	0.0015	Decreasing
309BLA	12	0.0007	0.0091	0.0031	0.0023	Increasing
309CCD	6	0.0002	0.0768	0.0218	0.0116	**Increasing**
309CRR	0	NS	NS	NS	NS	Decreasing
309ESP	12	0.0007	0.0674	0.0088	0.0024	Decreasing
309GAB	1	0.0073	0.0073	0.0073	0.0073	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
309JON	12	0.0012	0.0450	0.0067	0.0031	Decreasing
309MER	12	0.0014	0.1240	0.0164	0.0054	Decreasing
309MOR	12	0.0003	0.0639	0.0088	0.0025	**Decreasing**

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309NAD	10	0.0015	0.2698	0.0588	0.0064	**Increasing**
309OLD	12	0.0006	0.0197	0.0052	0.0044	Decreasing
309QUI	1	0.0004	0.0004	0.0004	0.0004	Increasing
309RTA	3	0.0011	0.0342	0.0131	0.0039	Increasing
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing
309TEH	12	0.0013	0.0264	0.0067	0.0054	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α =0.05).
NS Not sampled for unionized ammonia.
NS^{Dry} Not sampled due to dry conditions.

- Four sites achieved the unionized ammonia TMDL limit of 0.025 mg/L in all samples (Blanco Drain [305BLA], Gabilan Creek [309GAB], Old Salinas River [309OLD], and Quail Creek [309QUI]). Of the 10 exceedances, only one site (Salinas Reclamation Canal at La Guardia St. [309ALG]) exceeded the TMDL limit in more than 50% of samples.

Table 3-32. Lower Salinas River Watershed Nutrient TMDL and Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Unit 309

Site ID[1]	TMDL Annual Percent Exceedance[2]	Non TMDL Area Limit Percent Exceedance[2]
309ALG	83%	N/A
309ASB	8%	N/A
309BLA	0%	N/A
309CCD	33%	N/A
309CRR	N/A	N/A
309ESP	8%	N/A
309GAB	0%	N/A
309GRN	N/A	NS^{Dry}
309JON	8%	N/A
309MER	8%	N/A
309MOR	8%	N/A
309NAD	20%	N/A
309OLD	0%	N/A
309QUI	0%	N/A
309RTA	33%	N/A
309SAC	NS^{Dry}	N/A
309SAG	NS^{Dry}	N/A
309SSP	NS^{Dry}	N/A
309TEH	8%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2022*, for detailed site descriptions.
2 The relevant numeric criterion is 0.025 mg/L.
N/A There is no applicable Lower Salinas River Watershed Nutrient TMDL or non-TMDL area limit criterion for unionized ammonia at this site.
NS^{Dry} Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2022, three sites (Chualar Creek West of Highway 1 on River Road [309CCD], Natividad Creek [309NAD], and Old Salinas River [309OLD]) showed statistically significant increasing trends in total ammonia.

Table 3-33. Descriptive Statistics for Total Ammonia in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.153	1.300	0.431	0.331	Increasing
309ASB	12	0.079	2.410	0.525	0.151	Increasing
309BLA	12	0.041	0.309	0.115	0.095	Increasing
309CCD	6	0.171	2.300	0.723	0.451	**Increasing**
309CRR	0	NS	NS	NS	NS	Decreasing
309ESP	12	0.101	3.700	0.592	0.176	Increasing
309GAB	1	0.506	0.506	0.506	0.506	Decreasing
309GRN	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing
309JON	12	0.044	1.190	0.227	0.119	Increasing
309MER	12	0.077	4.230	0.677	0.209	Increasing
309MOR	12	0.036	4.260	0.491	0.085	Decreasing
309NAD	10	0.197	61.300	6.589	0.332	**Increasing**
309OLD	12	0.082	0.332	0.189	0.193	**Increasing**
309QUI	1	0.448	0.448	0.448	0.448	Decreasing
309RTA	3	0.132	0.988	0.419	0.137	Increasing
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing
309TEH	12	0.070	0.639	0.278	0.192	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS Not sampled for total ammonia.
NS^{Dry} Not sampled due to dry conditions.

3.3.5 Nitrate and Total Nitrogen

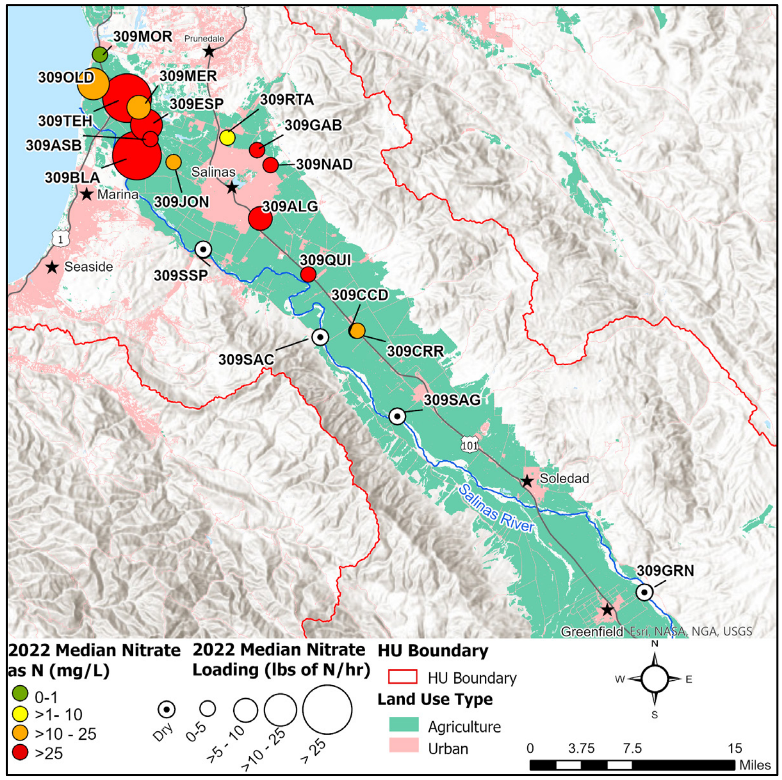


Figure 3-20. 2022 Median Nitrate as N for Sites in HU 309

Samples were collected and analyzed for “nitrate + nitrite”; however, this report primarily refers to “nitrate” as nitrite levels are assumed to be very low. All but two sites (Salinas River in Greenfield [309GRN] and Moro Cojo Slough [309MOR]) within the Salinas HU have a TMDL limit for nitrate. All TMDL limits for nitrate are associated with the Lower Salinas River Watershed Nutrient TMDL. Salinas River in Greenfield (309GRN) is located outside of the Lower Salinas River Watershed Nutrient TMDL area, and Moro Cojo Slough (309MOR) does not have an applicable TMDL nitrate limit. Therefore, Salinas River in Greenfield (309GRN) and Moro Cojo Slough (309MOR) have a non-TMDL area limit for nitrate. See **Table 2-5** and **Appendix A** for a summary of applicable annual, dry season, and wet season TMDL and non-TMDL area limits for nitrate in the Salinas HU. **Figure 3-20** depicts annual median nitrate concentrations and loading for sites in the Salinas HU for 2022, **Table 3-34** presents descriptive statistics, and **Table 3-35** and **Appendix B** present the TMDL and non-TMDL area limit exceedances.

Samples were also collected and analyzed for total nitrogen. One site (Moro Cojo Slough [309MOR]) has an applicable wet and dry season TMDL limit for total nitrogen. No other site in the Salinas HU has a TMDL or non-TMDL area limit applicable to it, nor is there a numeric WQO for total nitrogen in the Basin Plan. See **Table 2-5** and **Appendix A** for a summary of applicable dry season and wet season total nitrogen TMDL limits in the Salinas HU. The focus of this report for the remaining 18 sites is descriptive statistics, which are presented in **Table 3-36**. See **Table 3-37** for a summary for TMDL and non-TMDL area limit exceedances.

- Blanco Drain (309BLA) showed the highest median nitrate concentration (67.55 mg/L).
- High nitrate loading at Blanco Drain (309BLA) and Tembladero Slough (309TEH) was due primarily to elevated nitrate concentrations (**Appendix B**).
- For the period of 2005-2022, five sites (Salinas Reclamation Canal at La Guardia St. [309ALG], Alisal Slough [309ASB], Salinas River in Greenfield [309GRN], Salinas Reclamation Canal at San Jon Rd. [309JON], and Moro Cojo Slough [309MOR]) showed statistically significant increasing trends in nitrate concentrations, and one site showed a statistically significant decreasing trend (Quail Creek [309QUI]).
- For the period of 2005-2022, five sites (Salinas River in Greenfield [309GRN], Salinas Reclamation Canal at San Jon Rd. [309JON], Natividad Creek [309NAD], Quail Creek [309QUI], and Salinas River at Spreckels Gage [309SSP]) showed a statistically significant decreasing trend in nitrate loading, and one site showed a statistically significant increasing trend (Merritt Ditch [309MER]).

Table 3-34. Descriptive Statistics for Nitrate in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Nitrate Trend[2]	Nitrate Loading Trend[2]
309ALG	12	3.60	62.10	35.78	37.50	**Increasing**	Increasing
309ASB	12	19.60	69.20	43.43	43.70	**Increasing**	Decreasing
309BLA	12	52.70	102.00	70.30	67.55	Increasing	Increasing
309CCD	6	10.50	40.80	23.25	22.35	Increasing	Increasing
309CRR	5	10.30	41.40	22.70	16.70	Increasing	Decreasing
309ESP	12	8.25	44.60	30.21	36.25	Decreasing	Decreasing
309GAB	1	30.60	30.60	30.60	30.60	Decreasing	Decreasing
309GRN	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Increasing**	**Decreasing**
309JON	12	4.94	31.40	15.03	11.15	**Increasing**	**Decreasing**
309MER	12	3.89	28.50	18.67	20.90	Increasing	**Increasing**
309MOR	12	0.01	5.11	0.72	0.29	**Increasing**	Increasing
309NAD	10	15.70	105.00	32.95	26.55	Decreasing	**Decreasing**
309OLD	12	13.80	63.80	24.88	21.75	Increasing	Increasing
309QUI	1	48.30	48.30	48.30	48.30	**Decreasing**	**Decreasing**
309RTA	3	1.64	9.77	5.24	4.31	Decreasing	Decreasing
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing	Decreasing
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing	Decreasing
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing	**Decreasing**
309TEH	12	11.70	60.50	30.04	32.25	Increasing	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

NS^{Dry} Not sampled due to dry conditions.

- The three sites with an annual TMDL limit of 10 mg/L for nitrate exceeded the limit in all samples collected (Chualar Creek West of Highway 1 on River Road [309CCD], Chualar Creek, North Branch [309CRR], and Quail Creek [309QUI]).
- Moro Cojo Slough (309MOR) did not exceed the non-TMDL area limit of 10 mg/L in any sample.
- All nine sites sampled, with an applicable dry season TMDL limit for nitrate, exceeded the limit. Eight sites exceeded the dry season limit in all samples collected. All 11 sites sampled, with an applicable wet season TMDL limit for nitrate, exceeded the limit. Seven sites exceeded the wet season limit in all samples collected.

Table 3-35. Summary of Lower Salinas River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Nitrate in Hydrologic Unit 309

Site ID[1]	TMDL Annual Percent Exceedance[2]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance[3]	Non TMDL Area Limit Percent Exceedance[2]
309ALG	N/A	100%[4]	86%	N/A
309ASB	N/A	100%[4]	100%	N/A
309BLA	N/A	100%[4]	100%	N/A
309CCD	N/A	N/A	N/A	N/A
309CRR	N/A	N/A	N/A	N/A
309ESP	N/A	100%[4]	100%	N/A
309GAB	100%	NS	100%	N/A
309GRN	100%	N/A	N/A	NS[Dry]
309JON	N/A	100%[4]	71%	N/A
309MER	N/A	80%[4]	100%	N/A
309MOR	N/A	N/A	N/A	0%
309NAD	N/A	100%[5]	100%	N/A
309OLD	N/A	100%[6]	100%	N/A
309QUI	N/A	N/A	N/A	N/A
309RTA	N/A	NS	33%	N/A
309SAC	N/A	NS[Dry]	NS[Dry]	N/A
309SAG	100%	NS[Dry]	NS[Dry]	N/A
309SSP	N/A	NS[Dry]	NS[Dry]	N/A
309TEH	N/A	100%[4]	100%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The TMDL and Non-TMDL Areas numeric criterion is 10.0 mg/L.
3 The relevant wet season numeric criterion is 8.0 mg/L.
4 The relevant dry season numeric criterion is 6.4 mg/L.
5 The relevant dry season numeric criterion is 2.0 mg/L.
6 The relevant dry season numeric criterion is 3.1 mg/L.
7 The relevant dry season numeric criterion is 1.4 mg/L.
N/A There is no applicable Lower Salinas River Watershed Nutrient TMDL or non-TMDL area limit criterion for nitrate at this site.
NS Not sampled for nitrate.
NS[Dry] Not sampled due to dry conditions.

- Median total nitrogen concentrations ranged from 2.1 mg/L (Moro Cojo Slough [309MOR]) to 70.7 mg/L (Blanco Drain [309BLA]).
- For the period of 2012-2022, six sites showed a statistically significant increasing trend in total nitrogen concentrations: Salinas Reclamation Canal at La Guardia St. (309ALG), Chualar Creek West of Highway 1 on River Road (309CCD), Salinas River in Greenfield (309GRN), Salinas Reclamation Canal at San Jon Rd. [309JON], Old Salinas River (309OLD), and Salinas River at Spreckels Gage (309SSP). Two sites showed a statistically significant decreasing trend (Blanco Drain [309BLA] and Tembladero Slough [309TEH]).

Table 3-36. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Nitrogen Trend[2]
309ALG	10	6.9	62.1	35.4	36.9	**Increasing**
309ASB	10	22.1	72.6	45.6	44.5	Increasing
309BLA	10	54.2	102.9	72.4	70.7	**Decreasing**
309CCD	6	19.0	46.2	27.9	25.6	**Increasing**
309CRR	0	NS	NS	NS	NS	NA[3]
309ESP	10	15.6	46.5	36.6	40.8	Decreasing
309GAB	1	31.8	31.8	31.8	31.8	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Increasing**
309JON	10	5.6	28.6	15.9	12.9	**Increasing**
309MER	10	6.4	31.8	20.9	21.0	Decreasing
309MOR	10	0.4	8.6	3.2	2.1	Decreasing
309NAD	8	19.9	152.9	44.0	32.5	Decreasing
309OLD	10	15.6	67.3	26.1	22.1	**Increasing**
309QUI	1	51.4	51.4	51.4	51.4	Decreasing
309RTA	2	2.4	13.9	8.1	8.1	Increasing
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Increasing**
309TEH	10	16.6	62.0	32.2	31.3	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS Not sampled for total nitrogen.
NS[Dry] Not sampled due to dry conditions.

- Moro Cojo Slough (309MOR) exceeded its total nitrogen dry season TMDL limit of 1.7 mg/L in 50% of samples and its wet season TMDL limit of 8.0 mg/L in 17% of samples.

Table 3-37. Summary of Lower Salinas River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Total Nitrogen in Hydrologic Unit 309

Site ID[1]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance	Non TMDL Area Limit Percent Exceedance
309MOR[2]	50%[3]	17%[4]	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The total nitrogen TMDL and non-TMDL area limits are not appliable to any other site.
3 The relevant dry season numeric criterion is 1.7 mg/L.
4 The relevant wet season numeric criterion is 8.0 mg/L.
N/A There is no applicable Lower Salinas River Watershed Nutrient TMDL or non-TMDL area limit criterion for total nitrogen at this site.

3.3.6 Orthophosphate and Total Phosphorus

All but four sites (Chualar Creek West of Highway 1 on River Road [309CCD], Chualar Creek, North Branch [309CRR], Salinas River in Greenfield [309GRN], and Quail Creek [309QUI]) within the Salinas HU have a dry season and wet season TMDL limit for orthophosphate. See **Table 2-5** and **Appendix A** for a summary of applicable dry season and wet season TMDL limits for orthophosphate in the Salinas HU. **Figure 3-21** depicts annual median orthophosphate concentrations for sites in the Salinas HU for 2022. **Table 3-38** presents descriptive statistics for orthophosphate, **Table 3-39** and **Appendix B** present nutrient TMDL and non-TMDL area limit exceedances for orthophosphate, and **Table 3-40** presents descriptive statistics for total phosphorus.

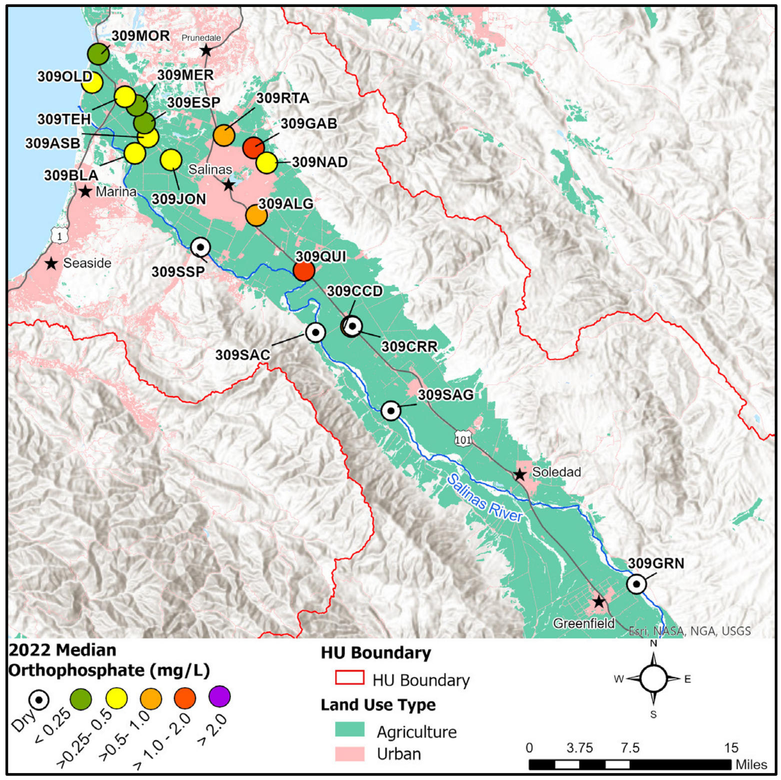


Figure 3-21. 2022 Median Orthophosphate as P for Sites in HU 309

- Median orthophosphate concentrations ranged from 0.054 mg/L in the Moro Cojo Slough (309MOR) to 1.810 mg/L in Quail Creek (309QUI).
- The maximum orthophosphate concentration observed at any Salinas HU site in 2022 occurred in Quail Creek (309QUI) (1.810 mg/L), which was the only sample taken at this site.
- During the period of 2005-2022, 13 sites showed statistically significant decreasing trends in orthophosphate concentrations, whereas there were no statistically significant increasing trends.

Table 3-38. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.164	0.967	0.557	0.573	Decreasing
309ASB	12	0.294	0.790	0.450	0.381	**Decreasing**
309BLA	12	0.220	0.637	0.390	0.358	**Decreasing**
309CCD	6	0.467	1.050	0.739	0.725	**Decreasing**
309CRR	0	NS	NS	NS	NS	Decreasing
309ESP	12	0.050	0.959	0.253	0.143	**Decreasing**
309GAB	1	1.090	1.090	1.090	1.090	Decreasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Decreasing**
309JON	12	0.105	0.729	0.391	0.335	**Decreasing**
309MER	12	0.004	0.634	0.211	0.153	**Decreasing**
309MOR	12	0.015	1.500	0.189	0.054	**Decreasing**
309NAD	10	0.147	1.600	0.505	0.336	**Decreasing**
309OLD	12	0.328	0.693	0.510	0.498	Decreasing
309QUI	1	1.810	1.810	1.810	1.810	Decreasing
309RTA	3	0.489	1.080	0.768	0.736	Increasing

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309TEH	12	0.138	0.691	0.358	0.371	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS Not sampled for orthophosphate as P.
NS^{Dry} Not sampled due to dry conditions.

- One site (Moro Cojo Slough [309MOR]) met the applicable dry season TMDL limit for orthophosphate in all samples. Seven of the 9 sites sampled, with an applicable dry season TMDL limit for orthophosphate, exceeded the limit in all samples collected.
- Nine of the 12 sites sampled, with an applicable wet season TMDL limit, exceeded the limit in more than 50% of samples, five of which exceeded in 100% of samples.

Table 3-39. Summary of Lower Salinas River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Orthophosphate as P in Hydrologic Unit 309

Site ID[1]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance[2]	Non TMDL Area Limit Percent Exceedance
309ALG	100%[3]	57%	N/A
309ASB	100%[3]	100%	N/A
309BLA	100%[3]	100%	N/A
309CCD	N/A	N/A	N/A
309CRR	N/A	N/A	N/A
309ESP	40%[3]	14%	N/A
309GAB	NS	100%	N/A
309GRN	N/A	N/A	N/A
309JON	100%[3]	57%	N/A
309MER	20%[3]	29%	N/A
309MOR	0%[3]	14%	N/A
309NAD	100%[4]	60%	N/A
309OLD	100%[4]	100%	N/A
309QUI	N/A	N/A	N/A
309RTA	NS	100%	N/A
309SAC	NS^{Dry}	NS^{Dry}	N/A
309SAG	NS^{Dry}	NS^{Dry}	N/A
309SSP	NS^{Dry}	NS^{Dry}	N/A
309TEH	100%[3]	57%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The relevant wet season numeric criterion is 0.3 mg/L.
3 The relevant dry season numeric criterion is 0.13 mg/L.
4 The relevant dry season numeric criterion is 0.07 mg/L.
N/A There is no applicable Lower Salinas River Watershed Nutrient TMDL or non-TMDL area limit criterion for orthophosphate as P at this site.
NS Not sampled for Orthophosphate as P.
NS^{Dry} Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations.
- Median total phosphorus concentrations ranged from 0.286 mg/L at Moro Cojo Slough (309MOR) to 2.950 mg/L at Quail Creek (309QUI).
- The maximum total phosphorus concentration observed at any Salinas HU site in 2022 was observed at Chualar Creek West of Highway 1 on River Road (309CCD) (6.910 mg/L).
- For the period of 2012-2022, one site (Old Salinas River [309OLD]) showed a statistically significant increasing trend in total phosphorus, and one site (Blanco Drain [309BLA]) showed a statistically significant decreasing trend in total phosphorus.

Table 3-40. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.578	1.930	1.086	1.065	Increasing
309ASB	12	0.430	2.920	1.011	0.918	Decreasing
309BLA	12	0.289	1.090	0.582	0.556	**Decreasing**
309CCD	6	1.170	6.910	2.770	2.260	Decreasing
309CRR	0	NS	NS	NS	NS	NA[3]
309ESP	12	0.239	5.010	0.960	0.456	Increasing
309GAB	1	2.580	2.580	2.580	2.580	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309JON	12	0.250	4.920	0.990	0.643	Decreasing
309MER	12	0.206	1.090	0.559	0.618	Increasing
309MOR	12	0.175	2.170	0.478	0.286	Increasing
309NAD	10	0.148	2.650	1.109	0.775	Increasing
309OLD	12	0.562	1.280	0.899	0.873	**Increasing**
309QUI	1	2.950	2.950	2.950	2.950	Increasing
309RTA	3	0.763	4.380	1.973	0.775	Decreasing
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309TEH	12	0.488	3.700	1.006	0.743	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS Not sampled for total phosphorus.
NS[Dry] Not sampled due to dry conditions.

3.3.7 Specific Conductivity

A conductivity WQO to protect agricultural uses applies to six sites (four mainstem Salinas River sites, Gabilan Creek [309GAB], and Alisal Slough [309ASB]) in the Salinas HU. This agricultural objective does not define a numeric value to evaluate exceedance frequencies, but provides ranges:

- <750 µS/cm, "No Problem";
- 750-3,000 µS/cm, "Increasing Problems" and
- >3,000 µS/cm, "Severe".

Figure 3-22 depicts annual median 2022 conductivity for sites in the Salinas HU and **Table 3-41** presents descriptive statistics.

- In 2022, median conductivities ranged from 706 µS/cm in the Santa Rita Creek (309RTA) to 47,794 µS/cm in Moro Cojo Slough (309MOR).
- Median conductivities at 14 out of 15 sites sampled were above the low end of the listed ranges (750 µS/cm) in 2022 indicating increasing or severe problems.

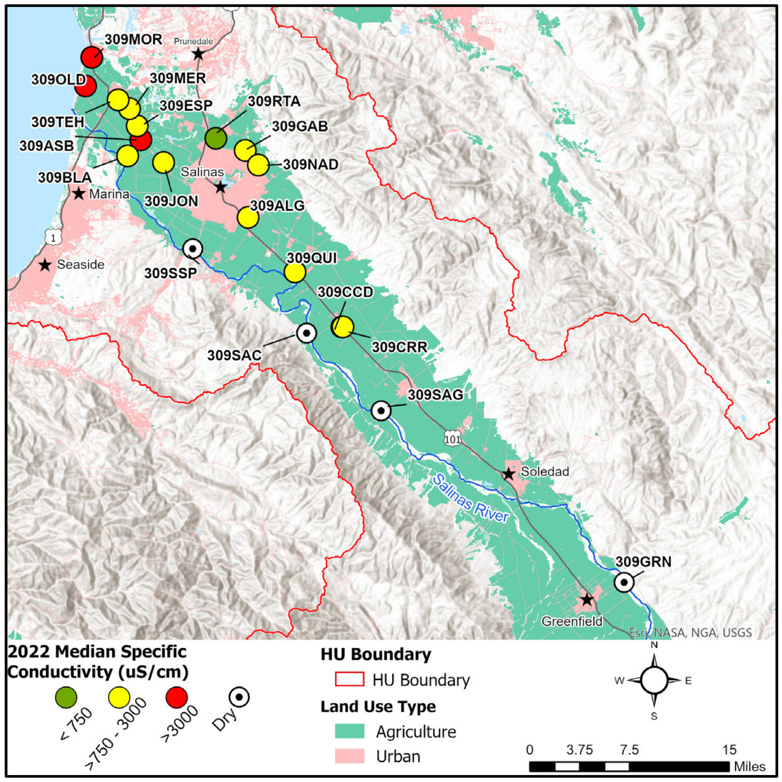


Figure 3-22. 2022 Median Conductivity for Sites in HU 309

- For the period of 2005-2022, one site (Alisal Slough [309ASB]) showed a statistically significant increasing trend in conductivity concentrations, while three sites showed statistically significant decreasing trends in conductivity concentrations (Blanco Drain [309BLA], Salinas River at Chualar Bridge [309SAC], and Salinas River at Spreckels Gage [309SSP]).

Table 3-41. Descriptive Statistics for Conductivity in Hydrologic Unit 309 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	430	1,517	1,074	1,204	Decreasing
309ASB	12	1,704	3,778	3,276	3,438	**Increasing**
309BLA	12	77	3,323	2,614	2,797	**Decreasing**
309CCD	6	370	2,000	1,310	1,377	Increasing
309CRR	5	358	2,020	1,385	1,544	Decreasing
309ESP	12	637	3,214	2,434	2,461	Increasing
309GAB	1	907	907	907	907	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
309JON	12	202	1,810	1,266	1,306	Increasing
309MER	12	166	2,297	1,751	1,954	Decreasing
309MOR	12	14,274	61,638	45,235	47,794	Decreasing
309NAD	10	866	2,616	1,484	1,357	Decreasing
309OLD	12	3,609	22,536	13,842	14,600	Increasing
309QUI	1	1,230	1,230	1,230	1,230	Increasing
309RTA	3	440	955	700	706	Decreasing
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Decreasing**
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Decreasing**
309TEH	12	575	2,813	2,037	2,293	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

NS[Dry] Not sampled due to dry conditions.

3.3.8 Total Dissolved Solids and Salinity

The Basin Plan contains TDS WQOs for four sites in the Salinas HU: Gabilan Creek (309GAB) (300 mg/L), and mainstem Salinas River sites except for the Salinas River at Spreckels site (309SSP) (600 mg/L). The objectives are applied as an annual average. The Basin Plan contains no numeric WQOs for the following analytes for CMP sites in the Salinas HU: salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride. No trend analyses were performed on the latter six analytes due to limited historical data associated with them. **Figure 3-23** depicts annual median TDS concentrations for sites in the Salinas HU for 2022. **Table 3-42**, **Table 3-43, Table 3-44, Table 3-45, Table 3-46, Table 3-47, Table 3-48, Table 3-49,** and **Table 3-50** present descriptive statistics for TDS, salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride, respectively.

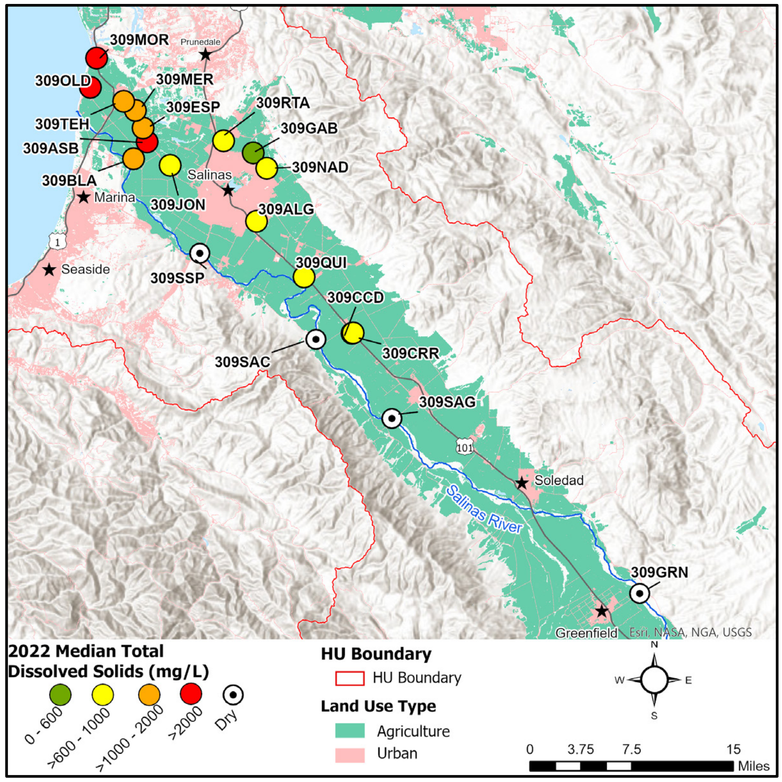


Figure 3-23. 2022 Median Total Dissolved Solids for Sites in HU 309

- Median TDS concentrations for 2022 ranged from 581 mg/L at Gabilan Creek (309GAB) to 30,590 mg/L (tidal influence) in the Moro Cojo Slough (309MOR).
- No applicable sites met their respective TDS WQOs on an average annual basis (Gabilan Creek [309GAB], Salinas River in Greenfield (309GRN), Salinas River at Chualar Bridge [309SAC], and Salinas River at Gonzales River Rd. Bridge [309SAG]).
- For the period of 2005-2022, one site (Alisal Slough [309ASB]) showed a statistically significant increasing trend in TDS concentrations, while three sites showed statistically significant decreasing trends in TDS concentrations (Blanco Drain [309BLA], Chualar Creek, North Branch [309CRR], and Salinas River at Spreckels Gage [309SSP]).

Table 3-42. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
309ALG	12	275	971	687	771	N/A	Increasing
309ASB	12	109	2,418	1,860	2,200	N/A	**Increasing**
309BLA	12	58	2,125	1,679	1,801	N/A	**Decreasing**
309CCD	6	237	1,280	838	880	N/A	Decreasing
309CRR	5	229	1,292	886	987	N/A	**Decreasing**
309ESP	12	156	2,058	1,434	1,522	N/A	Increasing
309GAB	1	581	581	581	581	Yes	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Yes	Increasing
309JON	12	129	1,158	806	835	N/A	Increasing
309MER	12	114	1,471	1,035	1,254	N/A	Decreasing
309MOR	12	332	36,460	26,188	30,590	N/A	Decreasing

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
309NAD	10	327	1,674	907	868	N/A	Increasing
309OLD	12	2,311	14,420	8,796	9,243	N/A	Increasing
309QUI	1	787	787	787	787	N/A	Increasing
309RTA	3	281	644	513	613	N/A	Increasing
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Yes	Decreasing
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Yes	Decreasing
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	N/A	**Decreasing**
309TEH	12	309	1,800	1,298	1,467	N/A	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.
NS^{Dry} Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in salinity (Blanco Drain [309BLA], Salinas River at Chualar Bridge [309SAC], Salinas River at Gonzales River Rd. Bridge [309SAG], and Salinas River at Spreckels Gage [309SSP]), while one site (Alisal Slough [309ASB]). Showed a statistically significant increasing trend in salinity.

Table 3-43. Descriptive Statistics for Salinity in Hydrologic Unit 309 (ppt)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.20	0.80	0.56	0.60	Increasing
309ASB	12	0.90	2.10	1.77	1.90	**Increasing**
309BLA	12	0.00	1.80	1.41	1.50	**Decreasing**
309CCD	6	0.20	1.10	0.72	0.75	Decreasing
309CRR	5	0.20	1.10	0.72	0.80	Decreasing
309ESP	12	0.30	1.70	1.31	1.30	Increasing
309GAB	1	0.50	0.50	0.50	0.50	Increasing
309GRN	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing
309JON	12	0.10	1.00	0.68	0.71	Increasing
309MER	12	0.10	1.23	0.93	1.06	Decreasing
309MOR	12	8.30	41.50	29.62	31.20	Decreasing
309NAD	10	0.50	752.20	75.94	0.75	Decreasing
309OLD	12	2.00	13.60	8.09	8.50	Decreasing
309QUI	1	0.70	0.70	0.70	0.70	Increasing
309RTA	3	0.20	0.50	0.37	0.40	Decreasing
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309TEH	12	0.20	1.50	1.08	1.23	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS^{Dry} Not sampled due to dry conditions.

- Median alkalinity concentrations ranged from 58 mg/L at Quail Creek (309QUI) to 343 mg/L at Blanco Drain (309BLA).

Table 3-44. Descriptive Statistics for Alkalinity in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	62	160	126	141
309ASB	4	227	364	302	309
309BLA	4	306	368	340	343
309CCD	2	77	182	130	130
309CRR	0	NS	NS	NS	NS
309ESP	4	99	477	313	339
309GAB	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309JON	4	44	193	131	144
309MER	4	123	420	302	333
309MOR	4	137	176	160	164
309NAD	4	98	212	168	182
309OLD	4	227	438	334	336
309QUI	1	58	58	58	58
309RTA	1	64	64	64	64
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309TEH	4	81	389	239	243

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- The lowest concentration of calcium (36 mg/L) was measured at Salinas Reclamation Canal at San Jon Rd. (309JON) and the highest concentration (445 mg/L) was measured at Moro Cojo Slough (309MOR).

Table 3-45. Descriptive Statistics for Calcium in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	42	84	63	63
309ASB	4	161	213	185	184
309BLA	4	145	226	173	160
309CCD	2	65	135	100	100
309CRR	0	NS	NS	NS	NS
309ESP	4	54	238	157	168
309GAB	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309JON	4	36	77	58	59
309MER	4	65	121	101	109
309MOR	4	169	445	355	403
309NAD	4	70	125	91	84
309OLD	4	89	198	150	158

Site ID[1]	N	Min	Max	Mean	Median
309QUI	1	141	141	141	141
309RTA	1	48	48	48	48
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309TEH	4	55	135	93	91

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

NS[Dry] Not sampled due to dry conditions.

- Magnesium concentrations in the Salinas HU ranged from 16 mg/L at Salinas Reclamation Canal at San Jon Rd. (309JON) to 1,260 mg/L at Moro Cojo Slough (309MOR).

Table 3-46. Descriptive Statistics for Magnesium in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	18	40	28	27
309ASB	4	128	207	173	178
309BLA	4	135	167	151	151
309CCD	2	32	50	41	41
309CRR	0	NS	NS	NS	NS
309ESP	4	24	138	80	79
309GAB	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309JON	4	16	51	30	27
309MER	4	30	85	59	61
309MOR	4	345	1,260	926	1,049
309NAD	4	29	50	40	41
309OLD	4	91	446	249	229
309QUI	1	37	37	37	37
309RTA	1	17	17	17	17
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309TEH	4	31	107	66	63

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

NS[Dry] Not sampled due to dry conditions.

- Median sodium concentrations ranged from 44 mg/L at Santa Rita Creek (309RTA) to 9,090 mg/L at Moro Cojo Slough (309MOR). Moro Cojo Slough (309MOR) also had the highest recorded concentration of sodium (10,800 mg/L).

Table 3-47. Descriptive Statistics for Sodium in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	30	114	83	94
309ASB	4	165	274	233	246
309BLA	4	223	257	236	231
309CCD	2	19	77	48	48
309CRR	0	NS	NS	NS	NS
309ESP	4	53	282	189	211
309GAB	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309JON	4	18	147	75	68
309MER	4	67	213	159	178
309MOR	4	2,740	10,800	7,930	9,090
309NAD	4	61	95	82	86
309OLD	4	527	3,450	1,703	1418
309QUI	1	75	75	75	75
309RTA	1	44	44	44	44
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309TEH	4	72	230	158	165

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Potassium concentrations ranged from 2.5 mg/L at four sites to 386.0 mg/L at Moro Cojo Slough (309MOR).

Table 3-48. Descriptive Statistics for Potassium in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	7.7	13.4	10.1	9.7
309ASB	4	2.5	7.0	4.3	3.8
309BLA	4	2.5	2.5	2.5	2.5
309CCD	2	7.9	26.5	17.2	17.2
309CRR	0	NS	NS	NS	NS
309ESP	4	5.5	10.5	6.8	5.7
309GAB	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309JON	4	6.2	10.3	8.5	8.7
309MER	4	2.5	10.2	6.5	6.6
309MOR	4	106.0	386.0	285.5	325.0
309NAD	4	5.4	23.9	11.1	7.6

Site ID[1]	N	Min	Max	Mean	Median
309OLD	4	21.3	122.0	58.2	7.6
309QUI	1	14.8	14.8	14.8	44.8
309RTA	1	12.1	12.1	12.1	14.8
309SAC	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309SAG	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309SSP	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309TEH	4	2.5	11.2	7.7	8.5

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS^Dry Not sampled due to dry conditions.

- Median sulfate concentrations ranged from 52 mg/L at Santa Rita Creek (309RTA) to 2,380 mg/L at Moro Cojo Slough (309MOR). Moro Cojo Slough (309MOR) also had the highest recorded concentration of sulfate (2,560 mg/L).

Table 3-49. Descriptive Statistics for Sulfate in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	46	124	79	72
309ASB	4	333	557	478	511
309BLA	4	456	584	524	528
309CCD	2	39	208	123	123
309CRR	0	NS	NS	NS	NS
309ESP	4	72	526	290	282
309GAB	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309GRN	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309JON	4	18	103	65	70
309MER	4	105	191	137	126
309MOR	4	712	2560	2008	2380
309NAD	4	60	154	102	97
309OLD	4	237	1070	622	590
309QUI	1	320	320	320	320
309RTA	1	52	52	52	52
309SAC	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309SAG	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309SSP	0	NS^Dry	NS^Dry	NS^Dry	NS^Dry
309TEH	4	63	274	165	162

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS^Dry Not sampled due to dry conditions.

- The lowest concentration of chloride (20 mg/L) was measured at Salinas Reclamation Canal at San Jon Rd. (309JON) and the highest concentration (18,600 mg/L) was measured at Moro Cojo Slough (309MOR).

Table 3-50. Descriptive Statistics for Chloride in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
309ALG	4	35	142	95	101
309ASB	4	363	693	534	540
309BLA	4	280	357	319	319
309CCD	2	35	211	123	123
309CRR	0	NS	NS	NS	NS
309ESP	4	77	466	295	319
309GAB	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309JON	4	20	191	108	110
309MER	4	99	341	245	270
309MOR	4	4,290	18,600	13,998	16,550
309NAD	4	95	172	146	158
309OLD	4	916	6,740	2,984	2140
309QUI	1	63	63	63	63
309RTA	1	52	52	52	52
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
309TEH	4	64	383	236	249

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

3.3.9 Dissolved Oxygen

The minimum DO objective for protection of cold water or spawning aquatic life beneficial uses (7 mg/L) applies to eight Salinas HU sites. For sites that do not have specifically assigned beneficial uses, the Basin Plan specifies the following general numeric objectives: 5 mg/L and 85% saturation. The 85% saturation objective is applied on a median basis. General WQOs apply to all waterbodies unless a more protective beneficial use and WQO are designated. **Figure 3-24** depicts annual median dissolved oxygen concentrations for sites in the Salinas HU for 2022, **Table 3-51** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-52** presents descriptive statistics for oxygen saturation.

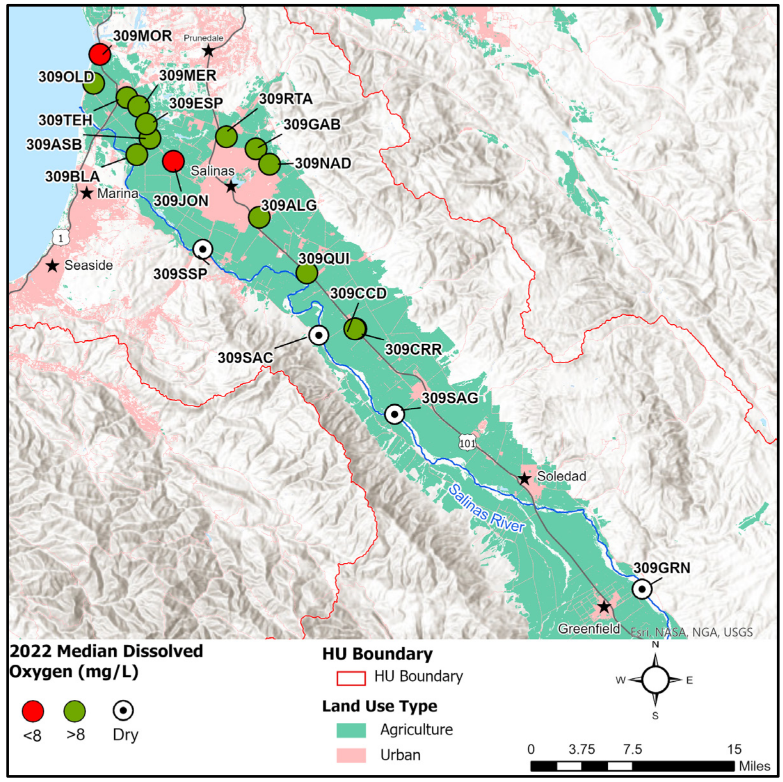


Figure 3-24. 2022 Median Dissolved Oxygen Concentrations for Sites in HU 309

- Three of the four sites sampled, having a beneficial use for protection of cold water or spawning aquatic life, fell short of the minimum 7 mg/L WQO in two or more samples.
- Eight of the 11 sites with a minimum WQO of 5 mg/L met the objective in all samples in 2022.
- For the period of 2005-2022, six sites showed statistically significant increasing trends in DO concentrations: Salinas Reclamation Canal at La Guardia St. (309ALG), Blanco Drain (309BLA), Moro Cojo Slough (309MOR), Old Salinas River (309OLD), and Quail Creek (309QUI), and Santa Rita Creek (309RTA). One site showed a statistically significant decreasing trend in DO concentrations (Alisal Slough [309ASB]). Trends in DO must be interpreted with caution, as diel patterns in DO can be influenced by temperature and biological activity depending on the time of day at which sampling occurs, and changes in DO can manifest as either depressed or very high concentrations.

Table 3-51. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
309ALG	12	8.40	17.00	12.59	13.55	0%[3]	**Increasing**
309ASB	12	7.00	14.60	9.65	9.20	0%[3]	**Decreasing**
309BLA	12	7.10	13.30	9.91	10.20	0%[3]	**Increasing**
309CCD	6	7.80	10.80	9.22	9.05	0%[3]	Decreasing
309CRR	5	7.80	11.70	9.40	8.80	0%[3]	Decreasing
309ESP	12	3.40	13.20	9.12	9.60	8%[3]	Decreasing
309GAB	1	8.90	8.90	8.90	8.90	0%	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
309JON	12	4.90	11.40	7.98	7.89	8%[3]	Decreasing
309MER	12	6.40	16.70	9.82	9.15	0%[3]	Decreasing
309MOR	12	4.60	10.80	7.67	7.90	42%	**Increasing**

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
309NAD	10	2.50	15.20	9.20	9.80	10%[3]	Increasing
309OLD	12	6.70	10.40	8.51	8.45	17%	**Increasing**
309QUI	1	9.44	9.44	9.44	9.44	0%[3]	**Increasing**
309RTA	3	10.70	13.70	12.47	13.00	0%[3]	**Increasing**
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
309TEH	12	4.63	13.70	9.33	8.90	25%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 WQO is >5 mg/L; all other sites have a WQO of >7 mg/L.
NS[Dry] Not sampled due to dry conditions.

- In 2022, one out of six sites with a WQO of 85% saturation exceeded the objective on a median basis (Alisal Slough [309ASB]).
- For the period of 2005-2022, six sites showed statistically significant increasing trends in oxygen saturation (Salinas Reclamation Canal at La Guardia St. [309ALG], Blanco Drain [309BLA], Moro Cojo Slough [309MOR], Natividad Creek [309NAD], Old Salinas River [309OLD], and Quail Creek [309QUI]). Two sites showed statistically significant decreasing trends in oxygen saturation (Alisal Slough [309ASB] and Chualar Creek West of Highway 1 on River Road [309CCD]).

Table 3-52. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 309 (%)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
309ALG	12	83	206	138	145	N/A	**Increasing**
309ASB	12	73	167	94	85	Yes	**Decreasing**
309BLA	12	80	130	99	96	N/A	**Increasing**
309CCD	6	89	101	94	93	No	**Decreasing**
309CRR	5	89	109	97	95	No	Decreasing
309ESP	12	36	111	87	92	N/A	Decreasing
309GAB	1	92	92	92	92	N/A	Increasing
309GRN	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Increasing
309JON	12	54	112	79	79	N/A	Decreasing
309MER	12	60	186	100	96	No	Increasing
309MOR	12	61	107	85	87	N/A	**Increasing**
309NAD	10	32	152	96	99	No	**Increasing**
309OLD	12	75	113	89	85	N/A	**Increasing**
309QUI	1	91	91	91	91	No	**Increasing**
309RTA	3	100	128	118	125	No	Increasing
309SAC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Decreasing
309SAG	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Increasing
309SSP	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Decreasing
309TEH	12	48	144	92	94	N/A	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.
NS[Dry] Not sampled due to dry conditions.

3.3.10 pH

The WQO for all Salinas HU sites is 7-8.3 pH standard units. For sites with MUN or REC1/REC2 and WARM/COLD beneficial uses, the acceptable pH range is 7-8.3 standard pH units. For sites that are not included in Table 2-1 of the Basin Plan, the acceptable pH range is also 7-8.3 standard pH units, which includes the Basin Plan general and REC1/REC2 WQOs. **Figure 3-25** depicts annual median pH for sites in the Salinas HU for 2022, and **Table 3-53** presents descriptive statistics.

- Only one of the 15 sites sampled met the applicable pH WQO in all samples in 2022.
- Four sites had pH levels below the minimum criterion of 7.0 standard pH units: (Alisal Slough [309ASB], Chualar Creek West of Highway 1 on River Road [309CCD], Chualar Creek, North Branch [309CRR], and Quail Creek [309QUI]. All other exceedances pertained to the 8.3 standard pH units WQO.
- For the period of 2005-2022, 10 sites showed statistically significant decreasing trends in pH. One site (Quail Creek [309QUI]) showed a statistically significant increasing trend in pH.

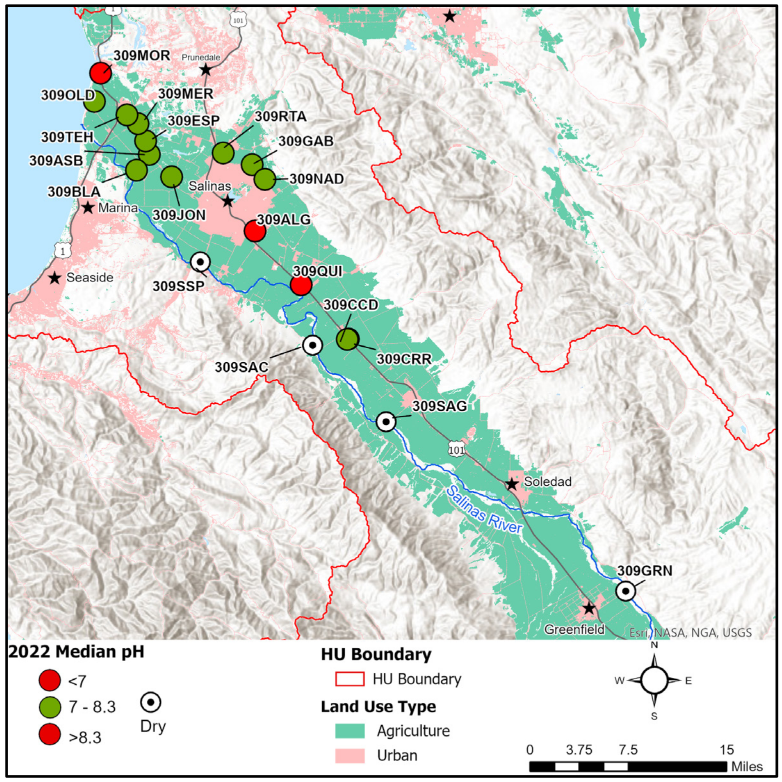


Figure 3-25. 2022 Median pH for Sites in HU 309

Table 3-53. Descriptive Statistics for pH in Hydrologic Unit 309 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
309ALG	12	7.93	9.32	8.71	8.76	83%	Decreasing
309ASB	12	6.96	8.09	7.65	7.66	8%	**Decreasing**
309BLA	12	7.76	8.55	8.00	7.93	8%	Decreasing
309CCD	6	6.35	8.55	7.76	7.92	33%	Increasing
309CRR	5	6.00	8.55	7.70	7.91	40%	Decreasing
309ESP	12	7.18	8.61	7.73	7.71	8%	**Decreasing**
309GAB	1	7.71	7.71	7.71	7.71	0%	Decreasing
309GRN	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309JON	12	7.34	8.65	8.01	8.02	8%	**Decreasing**
309MER	12	7.20	8.38	7.94	7.97	25%	**Decreasing**
309MOR	12	7.43	8.88	8.18	8.32	50%	**Decreasing**
309NAD	10	7.05	8.41	7.81	7.89	20%	Increasing
309OLD	12	7.41	8.97	8.03	8.02	33%	Decreasing
309QUI	1	6.68	6.68	6.68	6.68	100%	**Increasing**
309RTA	3	7.62	8.23	8.01	8.19	0%	Increasing
309SAC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
309SAG	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS	**Decreasing**
309SSP	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS	**Decreasing**
309TEH	12	7.60	8.33	8.01	8.15	8%	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS^{Dry} Not sampled due to dry conditions.

3.3.11 Aquatic Toxicity Results

The potential for toxic effects to aquatic and sediment-dwelling organisms is assessed by the CMP via bioassays for sensitive algal species (*S. capricornutum* growth) in water, and for sensitive invertebrate species in water (*C. dubia* reproduction and *C. dubia and C. dilutus* survival) and sediment (*H. azteca* growth and survival). Test organism survival and reproduction or growth is measured in environmental samples as well as in non-toxic control samples. A statistical test is then applied to determine significant differences in organism performance between environmental and control samples. When test organism performance is significantly lower in the environmental sample than in the control, *and* the difference exceeds a 20% effect threshold, a sample is determined to be “toxic” and in exceedance of the narrative Basin Plan objective for “no toxic substances in toxic amounts”.

All but four sites within the Salinas HU (Espinosa Slough [309ESP], Salinas River in Greenfield [309GRN], Moro Cojo Slough [309MOR], and Santa Rita Creek [309RTA]) have a significant toxic effect (*H. azteca* survival in sediment) TMDL limit associated with the Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL. Additionally, a significant toxic effect non-TMDL area limit for survival, growth, and reproduction in water and sediment apply to sites without a TMDL limit. *H. azteca* reproduction in sediment is not tested for by the CMP, so is not included in the non-TMDL area limit exceedance discussion. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect TMDL and non-TMDL area limits in the Salinas HU. Results from aquatic and sediment bioassays conducted on samples from the Salinas HU in 2022 are illustrated in **Figure 3-26** and tabulated in **Table 3-54**.

- In 2022, toxicity (reduced growth in sample water relative to a non-toxic control) to algae was observed in one of four bioassays collected from Espinosa Slough (309ESP) and one of four samples collected from Natividad Creek (309NAD) (**Figure 3-26 a**). Of the 13 sites sampled in the Salinas HU, all but these two sites achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-26 a**).
- Significant mortality to *C. dilutus* in water was observed in 15 samples collected from 10 sites (**Figure 3-26 b**). Significant mortality to *C. dubia* in water was observed in 13 samples collected from eight sites (**Figure 3-26 d**). Of the 11 sites sampled, only one site (Blanco Drain [309BLA]) achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-13 b**). Of the 13 sites sampled, five sites achieved the significant toxic effect non-TMDL area limit for *C. dubia* survival in water (**Figure 3-13 d**).
- Toxicity to invertebrate reproduction in water was observed in 18 samples collected from 10 sites. All bioassays on water samples collected from Blanco Drain (309BLA), Chualar Creek West of Highway 1 on River Road (309CCD), Espinosa Slough (309ESP), Quail Creek (309QUI), and Santa Rita Creek (309RTA) resulted in toxicity to invertebrate reproduction (**Figure 3-26 c**). Of the 11 sites sampled in the Salinas HU, only one site (Alisal Slough [309ASB]) achieved the significant toxic effect non-TMDL area limit for reproduction in water (**Figure 3-26 c**).
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. Of the nine sites sampled in the Salinas HU, two sites (Blanco Drain [309BLA] and Merritt Ditch [309MER]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-26 e**). Toxicity to invertebrate growth rates in sediment was observed at the other seven sites (**Figure 3-26 e**).
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. Toxicity to invertebrate survival in sediment was observed in seven of the 10 sites (Salinas Reclamation Canal at La Guardia St. [309ALG], Alisal Slough [309ASB], Espinosa Slough [309ESP], Salinas Reclamation Canal at San Jon Rd. [309JON], Natividad Creek [309NAD], Old Salinas River [309OLD], and Tembladero Slough [309TEH] (**Figure 3-26 f**). Six of 15 sites with a significant toxic effect (i.e., *H. azteca* survival in sediment) TMDL limit were not sampled due to dry conditions. Of the nine sites that were sampled and have a significant toxic effect TMDL limit, two sites (Blanco Drain [309BLA] and Merritt Ditch [309MER]) showed no toxic effect (**Figure 3-26 f**). One site (Moro Cojo Slough [309MOR] achieved the significant toxic effect non-TMDL area limit for *H. azteca* survival in sediment (**Figure 3-26 f**).

- For the period of 2005-2022, the following statistically significant trends were observed:
  - Three sites displayed increasing (improving, reduced toxicity) trends in toxicity to algae (Alisal Slough [309ASB], Blanco Drain [309BLA], and Tembladero Slough [309TEH]).
  - Two sites displayed increasing (improving, reduced toxicity) trends in invertebrate reproduction in water (Salinas Reclamation Canal at La Guardia St. [309ALG] and Salinas Reclamation Canal at San Jon Rd. [309JON]).
  - Three sites showed significant increasing trends (improving, reduced toxicity) in invertebrate survival in water (Salinas Reclamation Canal at La Guardia St. [309ALG], Salinas Reclamation Canal at San Jon Rd. [309JON], and Tembladero Slough [309TEH]).
  - Salinas River at Spreckels Gage (309SSP) displayed a statistically significant decreasing (worsening, increased toxicity) trend in invertebrate growth in sediment.
  - One site (Alisal Slough [309ASB]) displayed a statistically significant decreasing (worsening, increased toxicity) trend in invertebrate survival in sediment and one site (Moro Cojo Slough [309MOR]) displayed a statistically significant increasing (improving, reduced toxicity) trend in invertebrate survival in sediment.

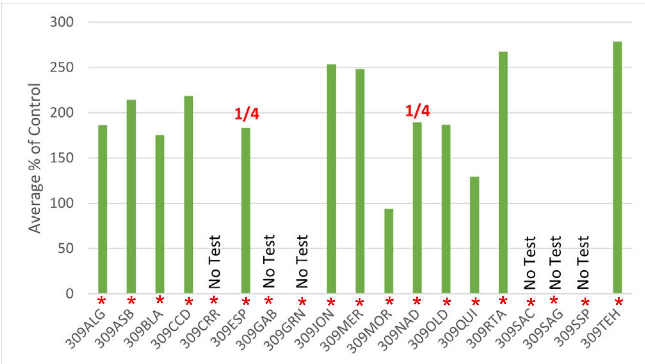
Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-39**.

Table 3-54. Summary of Toxicity and Trends in Hydrologic Unit 309

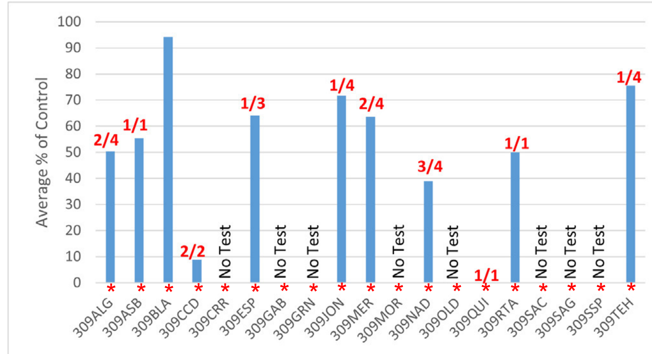
	Algal Growth		*C. dilutus* Survival		*C. dubia* Reproduction		*C. dubia* Survival		*H. azteca* Growth		*H. azteca* Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
309ALG	0/4	Increasing	2/4	Increasing	2/4	**Increasing**	1/4	**Increasing**	1/1	Decreasing	1/1	Increasing
309ASB	0/4	Increasing	1/1	Increasing	0/1	Increasing	3/4	Decreasing	1/1	Decreasing	1/1	**Decreasin**
309BLA	0/4	**Increasing**	0/3	Increasing	3/3	Decreasing	0/4	Increasing	0/1	Decreasing	0/1	Increasing
309CCD	0/2	Increasing	2/2	Increasing	2/2	Increasing	1/2	Increasing	1/1	Increasing	1/1	Increasing
309CRR	0/0	Increasing	0/0	Decreasing	0/0	Decreasing	0/0	Decreasing	0/0	Increasing	0/0	Increasing
309ESP	1/4	Increasing	1/3	Decreasing	3/3	Increasing	0/4	Increasing	1/1	Increasing	1/1	Increasing
309GAB	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	Increasing
309GRN	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	Decreasing	0/0	Decreasing
309JON	0/4	Increasing	1/4	Decreasing	1/4	**Increasing**	0/4	**Increasing**	1/1	Increasing	1/1	Decreasing
309MER	0/4	Increasing	2/4	Decreasing	1/4	Decreasing	0/4	Increasing	0/1	Increasing	0/1	Increasing
309MOR	0/4	Increasing	0/0	Increasing	0/0	None[2]	0/4	None[2]	0/0	Increasing	0/1	**Increasing**
309NAD	1/4	Decreasing	3/4	Decreasing	3/4	Decreasing	2/4	None[2]	1/1	Decreasing	1/1	Decreasing
309OLD	0/4	Increasing	0/0	Decreasing	0/0	Increasing	3/4	Decreasing	1/1	None[3]	1/1	Increasing
309QUI	0/1	Increasing	1/1	Increasing	1/1	Increasing	1/1	Increasing	0/0	Increasing	0/0	Increasing
309RTA	0/1	Increasing	1/1	Increasing	1/1	None[2]	1/1	None[2]	0/0	Decreasing	0/0	Decreasing
309SAC	0/0	Decreasing	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	Decreasing	0/0	Decreasing
309SAG	0/0	Decreasing	0/0	Increasing	0/0	Decreasing	0/0	Decreasing	0/0	Decreasing	0/0	Decreasing
309SSP	0/0	Decreasing	0/0	Increasing	0/0	Increasing	0/0	Increasing	0/0	**Decreasing**	0/0	Decreasing
309TEH	0/4	**Increasing**	1/4	Increasing	1/4	Increasing	1/4	**Increasing**	1/1	Increasing	1/1	Increasing

Notes:

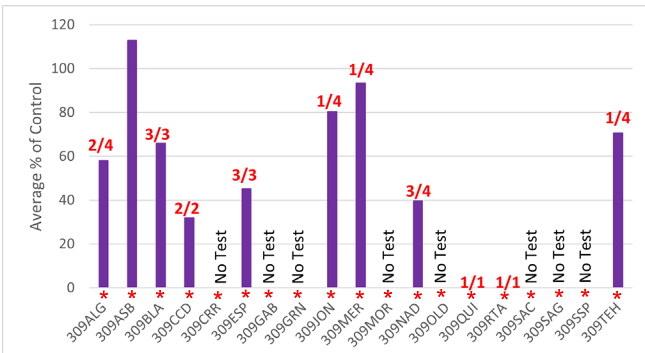
1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
2 None = No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
3 None = No monotonic trend (i.e., increasing or decreasing) was identified.



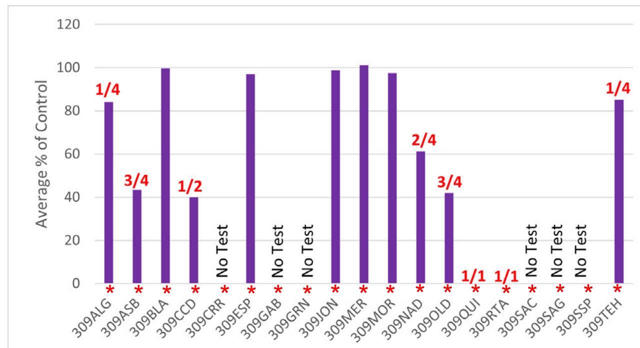
a) Algal Toxicity in Water – Growth



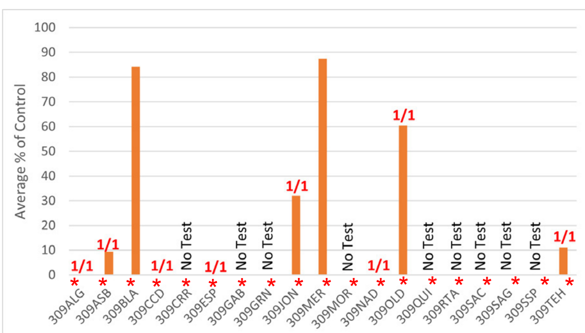
b) *C. dilutus* Toxicity in Water – Survival



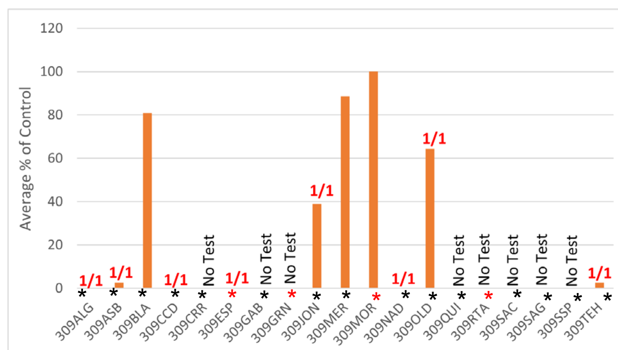
c) *C. dubia* Toxicity in Water – Reproduction



d) *C. dubia* Toxicity in Water – Survival



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-26. Results for Aquatic Toxicity (water and sediment) Monitoring in the Salinas HU

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, as compared to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. "No Test" indicates sites where no toxicity samples were collected due to dry channel or ponded conditions.
4. Results >100% indicate organism performance rates in the environmental sample were greater than in the control.
5. If a site experienced "significant toxicity" red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., ½ indicates the site had two samples collected, one of which was significantly toxic.)
6. *C. dubia* reproduction graphs generally reflect *C. dubia* tests, but in some cases reflect a salinity-tolerant alternate test species, which in some cases test for "growth" instead of "reproduction" as the sub-lethal endpoint.

* Site with an applicable TMDL limit for a given test species and endpoint.

* Site with an applicable non-TMDL area limit for a given test species and endpoint.

3.4 ESTERO BAY (HU 310)

Descriptions of the Estero Bay HU are summarized from the Central Coast Water Board's *Estero Hydrologic Unit Draft Assessment Report* (SWRCB 2003). The coastal watersheds of the Estero Bay HU (HU 310) are in western San Luis Obispo County. Sixteen of the larger watersheds in the HU were sampled by CCAMP during the 2002 sampling year.

Several urban areas, including San Simeon, Cambria, Cayucos, Morro Bay, Los Osos, San Luis Obispo, Pismo Beach, Arroyo Grande, and Oceano are found in the area. Major land uses in the area include grazing, agriculture and residential. In the watersheds of San Simeon, Santa Rosa, Villa, Cayucos, Old, Toro and Morro Creeks, the primary land uses are grazing, vineyards, and avocado and orange orchards on multiple ranch properties. In recent years, an increasing number of ranches are converting to vineyards and avocado orchards. Some areas include intensive agricultural cropping activities, particularly in the lower watersheds of Chorro Creek, Los Osos Creek, San Luis Obispo Creek, Pismo Creek, and Arroyo Grande Creek.

Monitoring for the CMP was initiated in the Estero Bay HU in January 2006. There were originally six core CMP sites in the Estero Bay HU. These sites are located on Chorro Creek (310CCC) and Warden Creek (310WRP) in the north of the watershed; Prefumo Creek (310PRE) and Davenport Creek (310SLD) near San Luis Obispo; and Arroyo Grande Creek (310USG) and Los Berros Creek (310LBC) upstream from Pismo Beach at the southern end of the watershed. The site on Davenport Creek has been sampled only twice by the CMP due to lack of flow at the site or apparent connections to other waterbodies upstream or downstream (**Figure 3-27**).

The beneficial uses designated by the Basin Plan for waterbodies monitored by the CMP in the Estero Bay Region include nearly every beneficial use, with the exceptions being industrial process supply, estuarine habitat, and shellfish harvesting (Table 2-2).

Applicable TMDLs for sites within the Estero Bay HU include the Los Berros Creek Nitrate TMDL, Los Osos Creek, Warden Creek, and Warden Lake Wetland Nutrient TMDL, San Luis Obispo Creek Nitrate TMDL, and Morro Bay Sediment TMDL. Non-TMDL area limits for sites within the Estero Bay HU include non-TMDL area turbidity limits, non-TMDL area nutrient limits, and non-TMDL Area Toxicity Limits. See **Appendix A** for a summary of applicable routine parameter TMDL limits and non-TMDL area limits for sites in the Estero Bay HU.

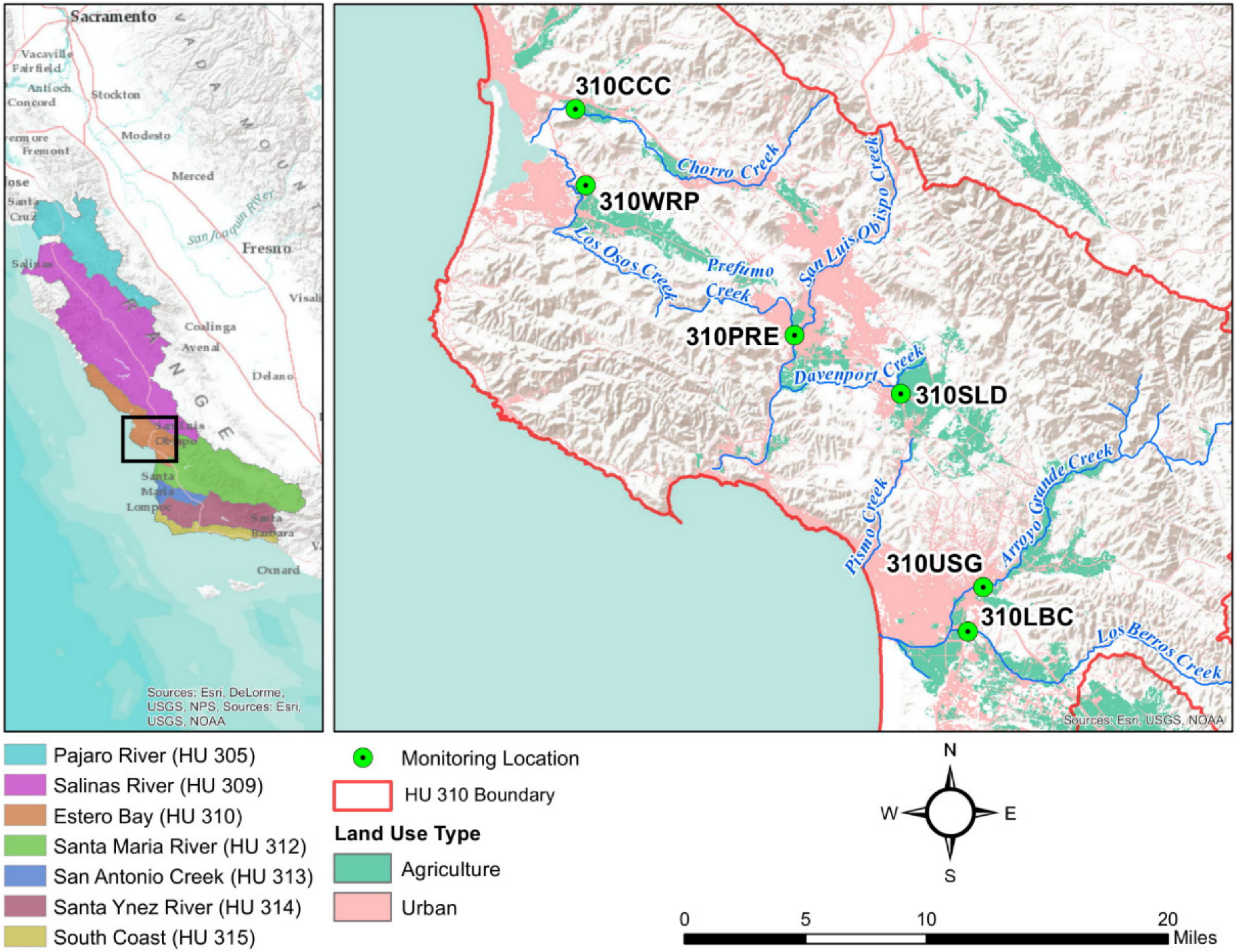


Figure 3-27. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Estero Bay Hydrologic Unit

3.4.1 Flow Results

Seasonal patterns for the Estero Bay Region are typical for the Central Coast and are characterized by precipitation and subsequent flows that occur primarily from November through April. During the 2022 monitoring year, the annual average flow (2.43 CFS) at the *Lopez Canyon near Arroyo Grande* USGS stream gage, was lower than the historic annual average (9.14 CFS, 1968-2021) and ranged from 0.47 (September 4, 2022) to 138 CFS (December 11, 2022) (USGS 2023)[1]. Although the *Lopez Canyon near Arroyo Grande* stream gage is above a reservoir, the timing and magnitude of flow are indicative of the Region. The 2022 cumulative annual rainfall (14.87") at the *San Luis Obispo* rain gauge was higher than the historic average (17.86", 2000-2021) (**Figure 3-28**) (CDWR 2023). Below average flow and above average rain were likely caused by low flow in the spring that was followed by several atmospheric rivers late in the year, which were likely retained in the dry soils.

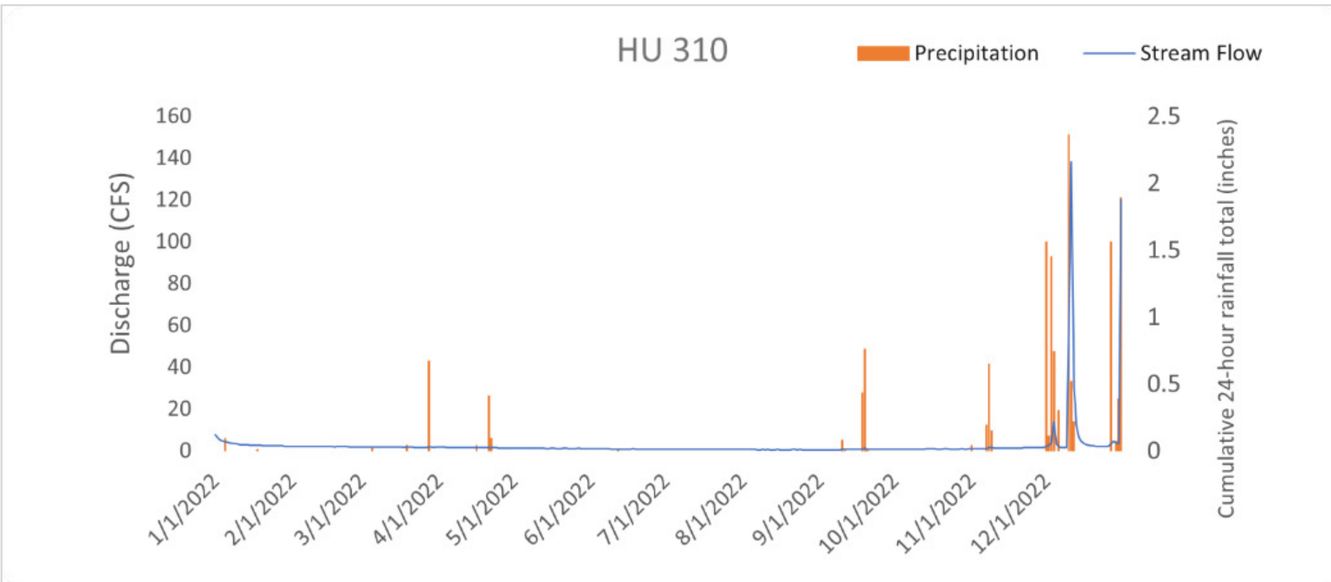


Figure 3-28. 2022 Hydrograph and Total Daily Precipitation Record for Lopez Canyon near Arroyo Grande

[1] USGS data contains provisional values, subject to revision; flow values may have been updated since the publishing of this report.

In 2022, flows measured at the five Estero Bay HU sites were primarily influenced by storms occurring throughout December, and irrigation during the dry season. **Figure 3-29** depicts annual median flows for sites within the Estero Bay HU for 2022, and **Table 3-55** presents descriptive statistics.

- Measured flows ranged from no flow at five sites to 33.51 CFS in Chorro Creek (310CCC).
- Median flows during 2022 ranged from no flow in Los Berros Creek (310LBC), Davenport Creek (310SLD), and Warden Creek (310WRP) to 1.71 CFS in Chorro Creek (310CCC).
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in flows (Los Berros Creek [310LBC], Prefumo Creek [310PRE], Arroyo Grande Creek [310USG], and Warden Creek [310WRP]).

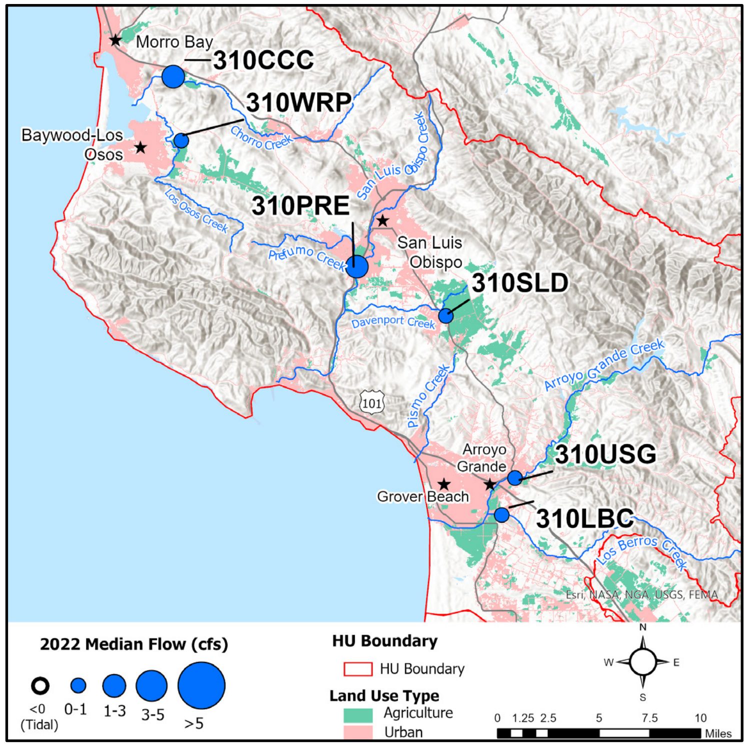


Figure 3-29. 2022 Median Flows for Sites in HU 310

Table 3-55. Descriptive Statistics for Flow in Hydrologic Unit 310 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	12	0.00	33.51	4.76	1.71	Decreasing
310LBC	12	0.00	0.00	0.00	0.00	**Decreasing**
310PRE	12	0.51	1.37	0.96	1.04	**Decreasing**
310SLD	12	0.00	0.00	0.00	0.00	Increasing
310USG	12	0.00	4.20	1.19	0.55	**Decreasing**
310WRP	12	0.00	0.75	0.14	0.00	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant ($\alpha = 0.05$).

3.4.2 Water Temperature

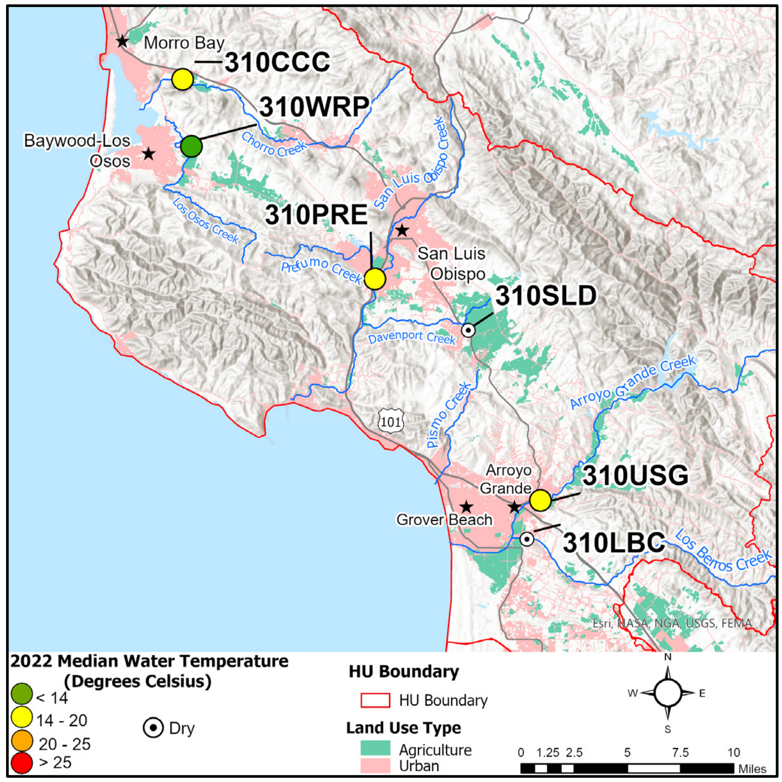


Figure 3-30. 2022 Median Water Temperature for Sites in HU 310

The Basin Plan contains a general WQO for temperature: natural receiving water temperature of intrastate waters shall not be altered. The Basin Plan also has specific objectives for cold and warm water habitats: At no time or place shall the temperature be increased by more than 5 °F above natural receiving water temperature. Water temperature can influence the results of other field measurements including dissolved oxygen, pH, and conductivity and therefore is an important factor to consider when interpreting results. The temperature of certain water bodies can also fluctuate greatly over a 24-hour period. This fluctuation means that results and trends should be interpreted with discretion, as they can be affected by the time of day at which the sample is collected.

Temperature of natural receiving waters has not been defined for waterbodies within the Estero Bay HU; therefore, the focus of this report is descriptive statistics. In 2022, water temperatures peaked at all sites sampled during the month of June and minimum temperatures at most sites were recorded during the month of November. **Figure 3-30** depicts annual median temperatures for sites in the Estero Bay HU for 2022, and **Table 3-56** presents descriptive statistics.

- Median water temperatures in the Estero Bay HU ranged from 12.4 °C in Warden Creek (310WRP) to 16.7 °C in Prefumo Creek (310PRE).
- Both the lowest (7.2 °C) and highest (19.0 °C) water temperatures were observed at Arroyo Grande Creek (310USG).
- For the period of 2005-2022, no sites in the Estero Bay HU showed significant trends in water temperature.

Table 3-56. Descriptive Statistics for Water Temperature in Hydrologic Unit 310 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	10	9.4	17.2	13.5	14.0	Decreasing
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
310PRE	12	13.7	18.7	16.4	16.7	Increasing
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]
310USG	12	7.2	19.0	14.1	14.6	Decreasing
310WRP	12	9.2	14.5	12.0	12.4	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.4.3 Turbidity and TSS Results

All sites in the Estero Bay HU have a cold water beneficial use, which has a non-TMDL area turbidity limit of 25 NTU. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for turbidity in the Estero Bay HU. Additionally, two sites [Chorro Creek (310CCC) and Warden Creek (310WRP)] have a TMDL limit for sediment that is associated with the Morro Bay Sediment TMDL; however, the sediment limits and units identified in Table C.3-6 of Agricultural Order are not applicable to the parameters monitored for the CMP and are not assessed in this annual report. **Figure 3-31** depicts annual median turbidity concentrations and TSS loading for sites in the Estero Bay HU for 2022, and **Table 3-57** and **Appendix B** present descriptive statistics and turbidity limit exceedances.

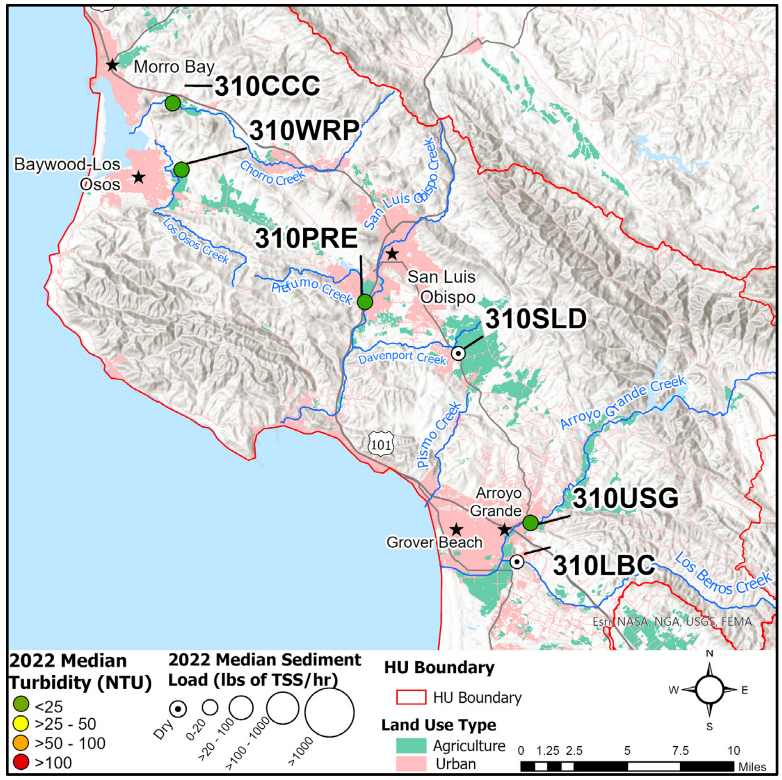


Figure 3-31. 2022 Median Turbidity and TSS Loading for Sites in HU 310

- Median turbidities ranged from 7 NTU in Arroyo Grande Creek (310USG) to 13 NTU in Prefumo Creek (310PRE).
- Of the four sites sampled for the non-TMDL turbidity limit of 25 NTU, all exceeded the limit in at least one sample.
- Low TSS loads throughout the Estero Bay HU were due to low median flows and TSS concentrations (**Appendix B**).
- For the period of 2005-2022, three sites (Chorro Creek [310CCC], Arroyo Grande Creek [310USG], and Warden Creek [310WRP]) showed statistically significant increasing trends in turbidity.
- For the period of 2012-2022, three sites showed statistically significant increasing trends for TSS loading (Chorro Creek [310CCC], Los Berros Creek [310LBC], and Prefumo Creek [310PRE]). TSS was not monitored prior to 2012, so the period of record for TSS trend analysis is shorter than that for turbidity and flow.

Table 3-57. Descriptive Statistics for Turbidity in Hydrologic Unit 310 (NTU)

Site ID[1]	N	Min	Max	Mean	Median	Non TMDL Area Limit Percent Exceedance[2]	Turbidity Trend[3,4]	TSS Loading Trend[3,4]
310CCC	10	2	48	13	8	20%	**Increasing**	**Increasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing	**Increasing**
310PRE	12	7	42	16	13	8%	Increasing	**Increasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[5]	Increasing
310USG	12	2	109	15	7	8%	**Increasing**	Increasing
310WRP	6	6	67	21	11	17%	**Increasing**	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 The relevant numeric criterion is 25.0 NTU [COLD].
3 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
4 Turbidity was monitored from 2005-2022 and TSS was monitored from 2012-2022.
5 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.4.4 Unionized and Total Ammonia

All sites within the Estero Bay HU have a non-TMDL area limit for unionized ammonia of 0.025 mg/L (**Appendix A**). See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL and non-TMDL area limits for unionized ammonia in the Estero Bay HU. **Figure 3-32** depicts annual median unionized ammonia concentrations for sites in the Estero Bay HU for 2022, **Table 3-58** presents descriptive statistics, and **Table 3-59** and **Appendix B** present non-TMDL area limit exceedances.

Samples were also collected and analyzed for total ammonia. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total ammonia applicable to CMP sites in the Estero Bay HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-60**.

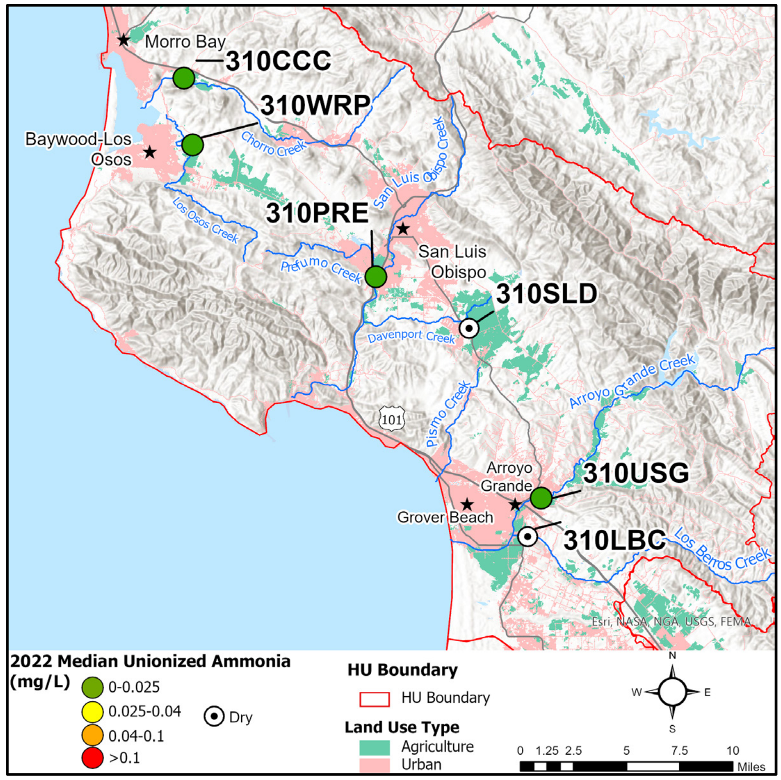


Figure 3-32. 2022 Median Unionized Ammonia for Sites in HU 310

- The lowest concentration of unionized ammonia (0.0001 mg/L) was measured at Chorro Creek (310CCC), and the highest concentration of unionized ammonia (0.0125 mg/L) was measured at Arroyo Grande Creek (310USG).
- For the period of 2005-2022, one site (Chorro Creek [310CCC]) displayed a statistically significant decreasing trend in unionized ammonia concentrations.

Table 3-58. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	10	0.0001	0.0018	0.0005	0.0003	**Decreasing**
310LBC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing
310PRE	12	0.0002	0.0011	0.0004	0.0003	Increasing
310SLD	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	N/A[3]
310USG	12	0.0002	0.0125	0.0021	0.0011	Decreasing
310WRP	6	0.0002	0.0085	0.0018	0.0005	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
N/A Site has applicable nutrient limit criterion.
NS^{Dry} Not sampled due to dry conditions.

- No exceedances of the non-TMDL area limit (0.025 mg/L) were observed in the Estero Bay HU in 2022. Unionized ammonia was less than 0.015 mg/L in all samples collected.

Table 3-59. Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Unit 310

Site ID[1]	Non TMDL Area Limit Percent Exceedance[2]
310CCC	0%
310LBC	N/A
310PRE	N/A
310SLD	NS^{Dry}
310USG	0%
310WRP	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 The relevant numeric criterion is 0.025 mg/L.
N/A There is no applicable non-TMDL area limit criterion for unionized ammonia at this site.
NS^{Dry} Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2022, three sites showed statistically significant decreasing trends in total ammonia (Chorro Creek [310CCC], Los Berros Creek [310LBC], and Arroyo Grande Creek [310USG]), and one site (Warden Creek [310WRP]) showed a statistically significant increasing trend.

Table 3-60. Descriptive Statistics for Total Ammonia in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	10	0.008	0.125	0.045	0.034	**Decreasing**
310LBC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	**Decreasing**
310PRE	12	0.025	0.093	0.045	0.037	Decreasing
310SLD	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	N/A[3]
310USG	12	0.022	0.212	0.066	0.058	**Decreasing**
310WRP	6	0.038	0.647	0.193	0.111	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS^{Dry} Not sampled due to dry conditions.

3.4.5 Nitrate and Total Nitrogen

Samples were collected and analyzed for "nitrate + nitrite"; however, this report primarily refers to "nitrate" as nitrite levels are assumed to be very low. Three of six sites within the Estero Bay HU have a TMDL limit. All TMDL limits for nitrate are associated with the Los Berros Creek Nitrate TMDL; San Luis Obispo Creek Nitrate TMDL; or Los Osos Creek, Warden Creek, and Warden Lake Wetland Nutrient TMDL. The other three sites have a non-TMDL area limit for nitrate. See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL and non-TMDL area limits for nitrate in the Estero Bay HU. **Figure 3-33** depicts annual median nitrate concentrations and loading for sites in the Estero Bay HU for 2022, **Table 3-61** presents descriptive statistics, and **Table 3-62** and **Appendix B** present TMDL and non-TMDL area limit exceedances.

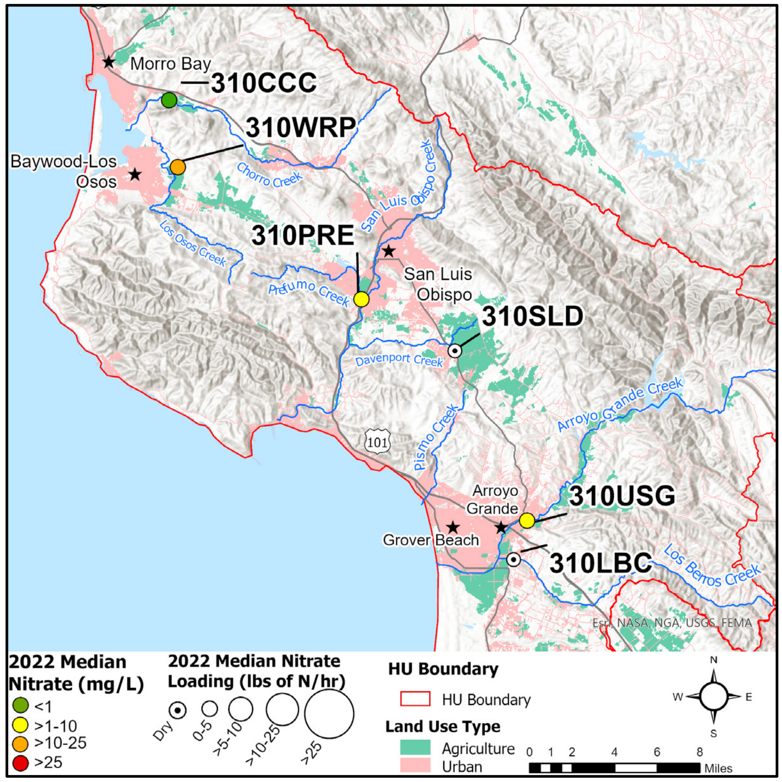


Figure 3-33. 2022 Median Nitrate as N for Sites in HU 310

Samples were also collected and analyzed for total nitrogen. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total nitrogen applicable to CMP sites in the Estero Bay HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-63**.

- In 2022, the maximum nitrate concentration (23.30 mg/L) was recorded in Warden Creek (310WRP) in April.
- Low nitrate loads throughout the Estero Bay HU were driven by low median flows and low to moderate nitrate concentrations (**Appendix B**).
- For the period of 2005-2022, three sites showed statistically significant decreasing trends in nitrate concentrations (Chorro Creek [310CCC], Los Berros Creek [310LBC], and Prefumo Creek [310PRE]).
- For the period of 2005-2022, five out of six sites showed a statistically significant decreasing trend in nitrate loading.

Table 3-61. Descriptive Statistics for Nitrate in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Nitrate Trend[2]	Nitrate Loading Trend[2]
310CCC	10	0.52	2.54	1.07	0.80	**Decreasing**	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	**Decreasing**	**Decreasing**
310PRE	12	1.43	2.89	2.37	2.49	**Decreasing**	**Decreasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]	Increasing
310USG	12	1.33	18.80	7.63	3.80	Increasing	**Decreasing**
310WRP	6	0.02	23.30	14.47	15.60	Increasing	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. Bold trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

- In 2022, two sites (Prefumo Creek [310PRE] and Chorro Creek [310CCC]) met the 10 mg/L TMDL or non-TMDL area limit for nitrate in all samples collected. Warden Creek (310WRP) exceeded the 10 mg/L TMDL limit area limit for nitrate in 83% of samples collected and Arroyo Grande Creek [310USG] exceeded the 10 mg/L non-TMDL limit in 33% of samples.

Table 3-62. Summary of TMDL and Non-TMDL Area Nutrient Limit Exceedances for Nitrate in Hydrologic Unit 310

Site ID[1]	Los Berros Creek Nitrate TMDL Percent Exceedance[2]	San Luis Obispo Nitrate TMDL Percent Exceedance[2]	Los Osos Creek, Warden Creek, and Warden Lake Wetland Nutrient TMDL Percent Exceedance[2]	Non TMDL Area Limit Percent Exceedance[2]
310CCC	N/A	N/A	N/A	0%
310LBC	NS[Dry]	N/A	N/A	N/A
310PRE	N/A	0%	N/A	N/A
310SLD	N/A	N/A	N/A	NS[Dry]
310USG	N/A	N/A	N/A	33%
310WRP	N/A	N/A	83%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The TMDL and Non-TMDL Areas numeric criterion is 10.0 mg/L.
N/A There is no applicable Nutrient TMDL or non-TMDL area limit criterion for nitrate at this site.
NS[Dry] Not sampled due to dry conditions.

- Median total nitrogen concentrations ranged from 1.2 mg/L in Chorro Creek (310CCC) to 17.4 mg/L in Warden Creek (310WRP).
- For the period of 2005-2022, two sites showed statistically significant decreasing trends in total nitrogen (Chorro Creek [310CCC] and Prefumo Creek [310PRE]), while one site (Arroyo Grande Creek [310USG])showed a statistically significant increasing trend in total nitrogen.

Table 3-63. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	0.9	3.1	1.5	1.2	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
310PRE	10	1.9	3.7	2.8	2.7	**Decreasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]
310USG	10	1.6	19.5	9.4	7.7	**Increasing**
310WRP	4	2.1	24.1	15.3	17.4	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. Bold trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.4.6 Orthophosphate and Total Phosphorus

There is currently no TMDL limit, non-TMDL Area limit, or numeric WQO for orthophosphate as P or total phosphorus in the Basin Plan applicable to CMP sites in the Estero Bay HU. **Figure 3-34** depicts annual median orthophosphate concentrations for sites in the Estero Bay HU for 2022. **Table 3-64** and **Table 3-65** present descriptive statistics for orthophosphate and total phosphorus, respectively.

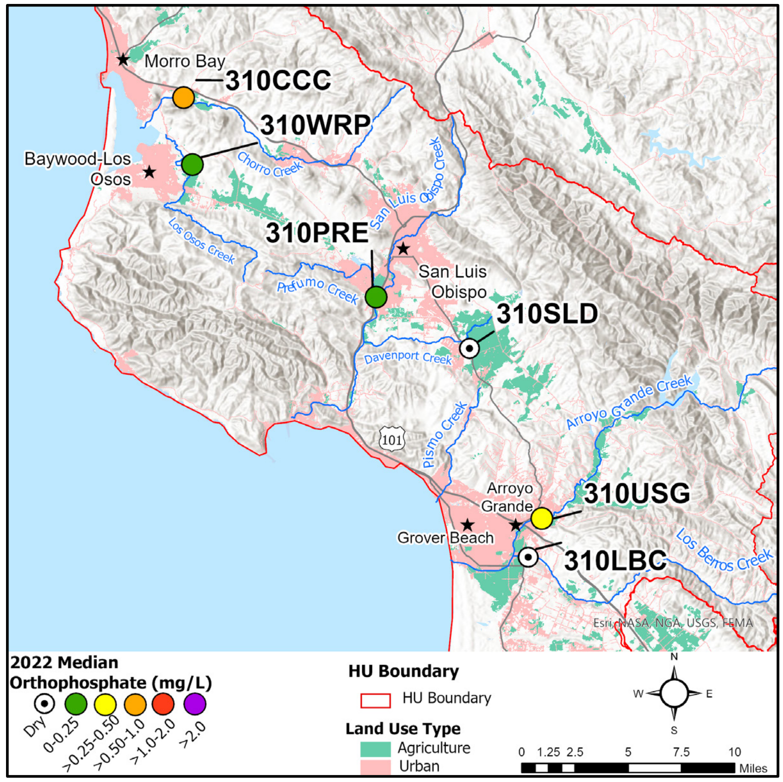


Figure 3-34. 2022 Median Orthophosphate as P for Sites in HU 310

- The highest median orthophosphate concentration for the Estero Bay HU in 2022 was in Chorro Creek (310CCC) (0.619 mg/L).
- The orthophosphate concentrations in 2022 ranged from 0.101 mg/L at Warden Creek (310WRP) to 0.941 mg/L at Chorro Creek (310CCC).
- For the period of 2005-2022, three of five sites with sufficient historical data (Chorro Creek [310PRE], Arroyo Grande Creek [310USG], and Warden Creek [310WRP]) showed statistically significant decreasing trends in orthophosphate concentrations.

Table 3-64. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	10	0.454	0.941	0.646	0.619	Increasing
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing
310PRE	12	0.149	0.483	0.189	0.159	**Decreasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]
310USG	12	0.229	0.580	0.379	0.334	**Decreasing**
310WRP	6	0.101	0.762	0.269	0.171	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations.
- Median total phosphorus concentrations ranged from 0.255 mg/L at Warden Creek (310WRP) to 0.764 mg/L at Chorro Creek (310CCC).
- The highest total phosphorus concentration at any Estero Bay site in 2022 was observed at Arroyo Grande Creek (310USG) (1.14 mg/L).
- For the period of 2005-2022, two sites showed statistically significant increasing trends in total phosphorus (Prefumo Creek [309PRE] and Arroyo Grande Creek [309USG]).

Table 3-65. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	10	0.510	0.946	0.761	0.764	Increasing
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
310PRE	12	0.156	0.922	0.399	0.317	**Increasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]
310USG	12	0.288	1.140	0.534	0.468	**Increasing**
310WRP	6	0.090	0.839	0.351	0.255	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.4.7 Specific Conductivity

A conductivity objective to protect agricultural uses applies to all Estero Bay HU sites except Warden Creek (310WRP). This agricultural objective does not define a numeric value to evaluate exceedance frequencies, but provides ranges:

- <750 µS/cm, "No Problem";
- 750-3,000 µS/cm, "Increasing Problems" and
- >3,000 µS/cm, "Severe".

Figure 3-35 depicts annual median 2022 conductivity for sites in the Estero Bay HU and **Table 3-66** presents descriptive statistics.

- In 2022, median conductivity concentrations ranged from 922 µS/cm at Chorro Creek (310CCC) to 1,793 µS/cm at Warden Creek (310WRP).
- The maximum conductivity was observed in Arroyo Grande Creek (310USG) (2,555 µS/cm).

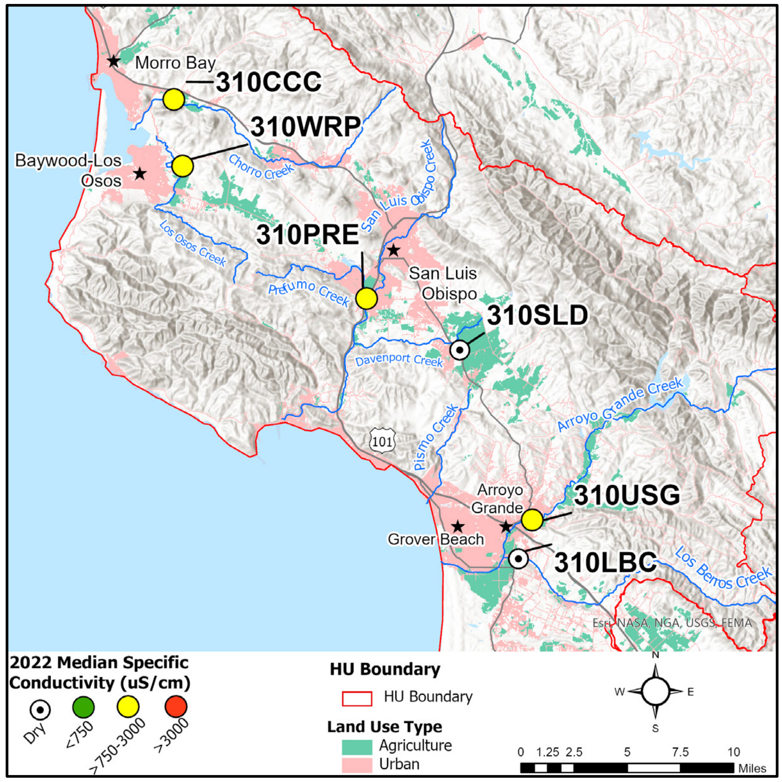


Figure 3-35. 2022 Median Conductivity for Sites in HU 310

- For the period of 2005-2022, two sites showed statistically significant increasing trends in conductivity (Arroyo Grande Creek [310USG] and Warden Creek [310WRP]), and one site (Chorro Creek [310CCC]) showed a statistically significant decreasing trend in conductivity.

Table 3-66. Descriptive Statistics for Conductivity in Hydrologic Unit 310 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[1]
310CCC	10	827	990	916	922	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
310PRE	12	545	1,043	909	996	Increasing
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]
310USG	12	1,156	2,555	1,716	1,602	**Increasing**
310WRP	6	1,325	2,062	1,750	1,793	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.4.8 Total Dissolved Solids and Salinity

The Basin Plan contains TDS WQOs for two sites in the Estero Bay unit: Chorro Creek (310CCC) (500 mg/L) and Arroyo Grande Creek (310USG) (800 mg/L). The objectives are applied as an annual average. The Basin Plan contains no numeric WQOs for the following analytes for CMP sites in the Estero Bay HU: salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride. No trend analyses were performed on the latter six analytes due to limited historical data associated with them. **Figure 3-36** depicts annual median TDS concentrations for sites in the Estero Bay HU for 2022. **Table 3-67**, **Table 3-68, Table 3-69, Table 3-70, Table 3-71, Table 3-72, Table 3-73, Table 3-74,** and **Table 3-75** present descriptive statistics for TDS, salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride, respectively.

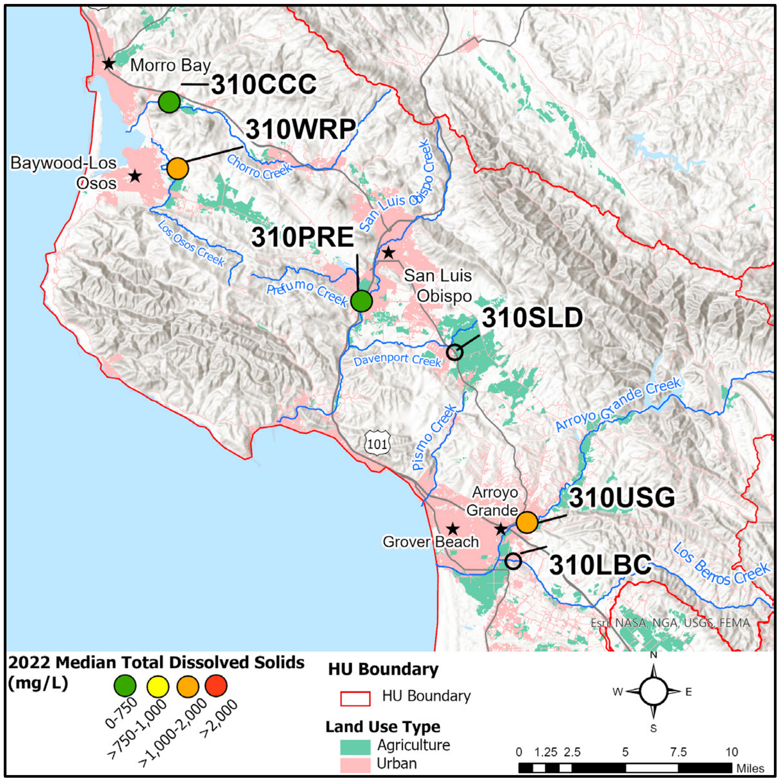


Figure 3-36. 2022 Median Total Dissolved Solids for Sites in HU 310

- In 2022, the mean concentration of TDS in Chorro Creek (310CCC)(621 mg/L) exceeded its WQO of 500 mg/L and the mean concentration in Arroyo Grande Creek (310USG)(1,124 mg/L) exceeded its WQO of 800 mg/L.
- For the period of 2005-2022, three sites showed statistically significant increasing trends in TDS concentrations (Prefumo Creek [310PRE], Arroyo Grande Creek [310USG], and Warden Creek [310WRP]).

Table 3-67. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
310CCC	10	528	854	621	607	Yes	Increasing
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Increasing
310PRE	12	354	678	594	648	N/A	**Increasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	N/A[3]
310USG	12	752	1,661	1,124	1,045	Yes	**Increasing**
310WRP	6	861	1,341	1,121	1,145	N/A	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
N/A There is no applicable WQO for this site.
NS[Dry] Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- For the period of 2005-2022, one site (Arroyo Grande Creek [310USG]) displayed a statistically significant increasing trend in salinity and one site (Chorro Creek [310CCC]) displayed a statistically significant decreasing trend in salinity.

Table 3-68. Descriptive Statistics for Salinity in Hydrologic Unit 310 (ppt)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	10	0.42	0.64	0.48	0.46	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing
310PRE	12	0.27	0.52	0.46	0.51	Decreasing
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A[3]
310USG	12	0.58	1.33	0.88	0.81	**Increasing**
310WRP	6	0.67	1.06	0.89	0.91	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

- Median alkalinity concentrations in the Estero Bay HU ranged from 338 mg/L in Chorro Creek (310CCC) to 590 mg/L in Warden Creek (310WRP).

Table 3-69. Descriptive Statistics for Alkalinity in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	313	352	334	338
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	220	454	338	339
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	322	391	352	348
310WRP	2	576	604	590	590

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Calcium concentrations ranged from 37 mg/L in Prefumo Creek (310PRE) to 230 mg/L in Arroyo Grande Creek (310USG).

Table 3-70. Descriptive Statistics for Calcium in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	38	38	38	38
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	37	70	53	53
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	141	230	171	156
310WRP	2	107	113	110	110

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Median magnesium concentrations ranged from 62 mg/L at Prefumo Creek (310PRE) to 133 mg/L at Warden Creek (310WRP).

Table 3-71. Descriptive Statistics for Magnesium in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	66	73	70	70
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	43	80	62	62
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	58	122	81	72
310WRP	2	133	133	133	133

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- The lowest concentration of sodium (23 mg/L) was measured at Prefumo Creek (310PRE), and the highest concentration (206 mg/L) was measured at Arroyo Grande Creek (310USG).

Table 3-72. Descriptive Statistics for Sodium in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	56	66	60	57
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	23	39	31	31
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	49	206	92	57
310WRP	2	96	106	101	101

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Potassium concentrations were low in the Estero Bay HU, ranging from a minimum of 2.5 mg/L at all four sites sampled to a maximum of 5.9 mg/L at Arroyo Grande Creek (310USG).

Table 3-73. Descriptive Statistics for Potassium in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	2.5	2.5	2.5	2.5
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	2.5	2.5	2.5	2.5
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	2.5	5.9	3.4	2.5
310WRP	2	2.5	2.5	2.5	2.5

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Median sulfate concentrations ranged from 57 mg/L at Prefumo Creek (310PRE) and Chorro Creek (310CCC) to 355 mg/L at Arroyo Grande Creek (310USG). Arroyo Grande Creek (310USG) also had the highest recorded concentration of sulfate (610 mg/L).

Table 3-74. Descriptive Statistics for Sulfate in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	48	68	58	57
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	40	78	58	57
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	280	610	400	355
310WRP	2	91	124	107	107

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- The lowest concentration of chloride (27 mg/L) was measured at Prefumo Creek (310PRE), and the highest concentration (289 mg/L) was measured at Arroyo Grande Creek (310USG).

Table 3-75. Descriptive Statistics for Chloride in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
310CCC	3	74	85	79	79
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310PRE	4	27	48	37	36
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
310USG	4	53	289	117	62
310WRP	2	212	217	215	215

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

3.4.9 Dissolved Oxygen

The minimum dissolved oxygen WQO for protection of cold water or spawning aquatic life beneficial uses (7 mg/L) applies to five Estero Bay HU sites. Warden Creek (310WRP) does not have specifically assigned beneficial uses in the Basin Plan, so the Basin Plan specifies the following general numeric objectives: 5 mg/L and 85% saturation. The 85% saturation objective is applied on a median basis. General WQOs apply to all waterbodies unless a more protective beneficial use and WQO are designated. **Figure 3-37** depicts annual median dissolved oxygen concentrations for sites in the Estero Bay HU for 2022, **Table 3-76** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-77** presents descriptive statistics for oxygen saturation.

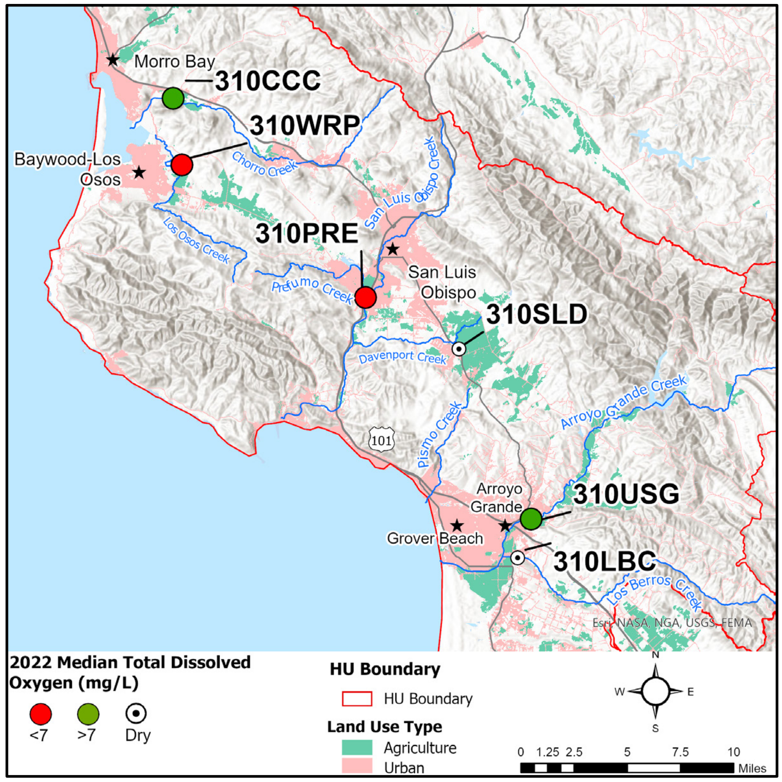


Figure 3-37. 2022 Median Dissolved Oxygen Concentrations for Sites in HU 310

- In 2022, Chorro Creek (310CCC) and Arroyo Grande Creek (310USG) met the 7 mg/L minimum WQO in all but one sample. Prefumo Creek (310PRE) failed to meet the 7 mg/L WQO in 67% of samples.
- Warden Creek (310WRP) failed to meet the 5 mg/L minimum WQO in 67% of samples.
- For the period of 2005-2022, three sites (Chorro Creek [310CCC], Prefumo Creek [310PRE], and Warden Creek [310WRP]) showed statistically significant decreasing trends in both DO concentrations and saturation. Trends in DO must be interpreted with caution, as diel patterns in DO can be influenced by temperature and biological activity depending on the time of day at which sampling occurs, and changes in DO can manifest as either depressed or very high concentrations.

Table 3-76. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
310CCC	10	6.11	10.17	8.54	8.60	10%	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Increasing
310PRE	12	4.32	7.68	6.35	6.33	67%	**Decreasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	N/A[4]
310USG	12	5.96	13.31	10.26	10.43	8%	Decreasing
310WRP	6	3.02	7.39	4.81	4.46	67%[3]	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 WQO is >5 mg/L; all other sites have a WQO of >7 mg/L.
4 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

- Samples collected from Warden Creek (310WRP) exceeded the 85% saturation WQO on a median basis.
- Median dissolved oxygen saturation concentration values ranged from 42% mg/L Warden Creek (310WRP) to 98% mg/L in Arroyo Grande Creek (310USG).

Table 3-77. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 310 (%)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
310CCC	10	62	91	81	82	N/A	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Increasing
310PRE	12	45	79	65	66	N/A	**Decreasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	N/A[3]
310USG	12	65	129	100	98	N/A	Decreasing
310WRP	6	30	64	44	42	Yes	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
N/A There is no applicable WQO for this site.
NS[Dry] Not sampled due to dry conditions.

3.4.10 pH

The WQO for all Estero Bay HU sites is 7-8.3 pH standard units. For sites with MUN or REC1/REC2 and WARM/COLD beneficial uses, the acceptable pH range is 7-8.3 standard pH units. For sites that are not included in Table 2-1 of the Basin Plan, the acceptable pH range is also 7-8.3 standard pH units, which includes the Basin Plan general and REC1/REC2 WQOs. **Figure 3-38** depicts annual median pH for sites in the Estero Bay HU for 2022, and **Table 3-78** presents descriptive statistics.

- In 2022, Arroyo Grande Creek (310USG) exceeded the 7-8.3 standard pH unit WQO in 8% of samples. All exceedances pertained to the 8.3 standard pH units WQO.
- For the period of 2005-2022, one site (Prefumo Creek [310PRE]) showed a statistically significant increasing trend in pH and one site (Chorro Creek [310CCC]) showed a statistically significant decreasing trend in pH.

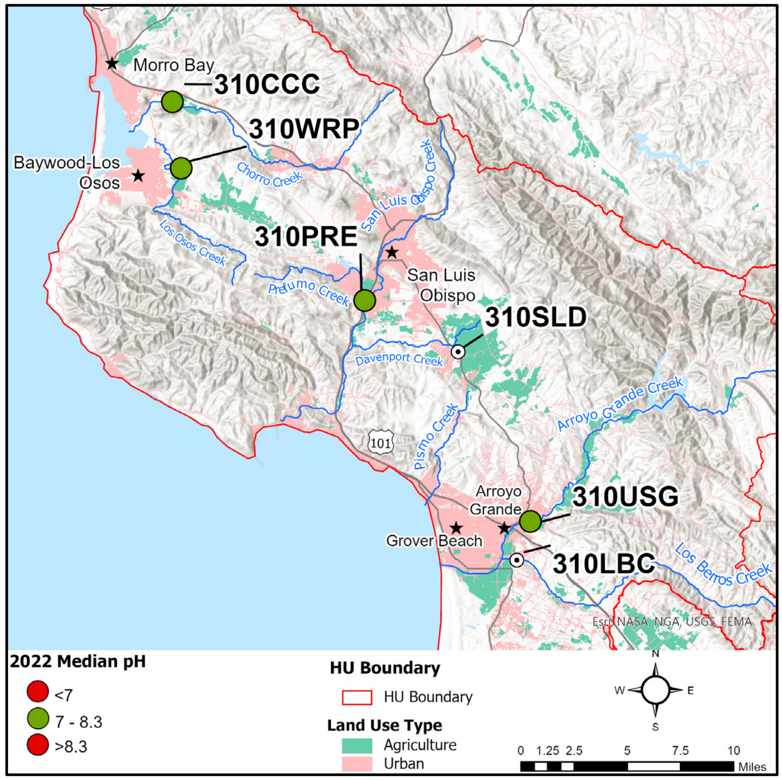


Figure 3-38. 2022 Median pH for Sites in HU 310

Table 3-78. Descriptive Statistics for pH in Hydrologic Unit 310 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
310CCC	10	7.12	8.02	7.60	7.74	0%	**Decreasing**
310LBC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Increasing
310PRE	12	7.04	7.84	7.50	7.49	0%	**Increasing**
310SLD	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	N/A[3]
310USG	12	7.69	9.00	8.02	7.92	8%	Decreasing
310WRP	6	7.28	7.78	7.48	7.41	0%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS[Dry] Not sampled due to dry conditions.

3.4.11 Aquatic Toxicity Results

The potential for toxic effects to aquatic and sediment-dwelling organisms is assessed by the CMP via bioassays for sensitive algal species (*S. capricornutum* growth) in water, and for sensitive invertebrate species in water (*C. dubia* reproduction and *C. dubia and C. dilutus* survival) and sediment (*H. azteca* growth and survival). Test organism survival and reproduction or growth is measured in environmental samples as well as in non-toxic control samples. A statistical test is then applied to determine significant differences in organism performance between environmental and control samples. When test organism performance is significantly lower in the environmental sample than in the control, *and* the difference exceeds a 20% effect threshold, a sample is determined to be "toxic" and in exceedance of the narrative Basin Plan objective for "no toxic substances in toxic amounts". All sites in the Estero Bay HU have a significant toxic effect non-TMDL area limit for survival, growth, and reproduction in water and sediment. *H. azteca* reproduction in sediment is not tested for by the CMP so is not included in the non-TMDL area limit exceedance discussion below. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect non-TMDL area limits in the Estero Bay HU. Results from aquatic and sediment bioassays conducted on samples from the Estero Bay HU in 2022 are illustrated in **Figure 3-39** and tabulated in **Table 3-79**.

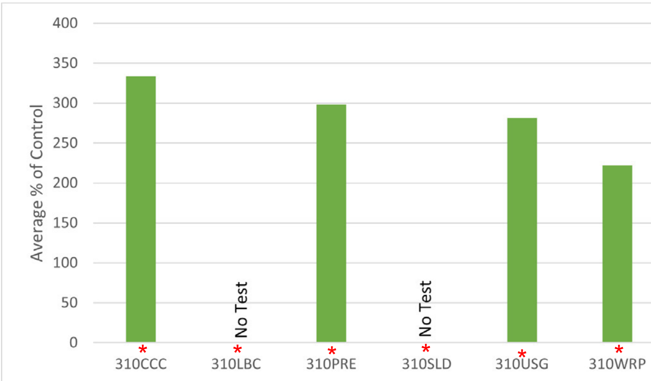
- In 2022, no significant toxicity to algal growth (i.e., reduced growth in sample water relative to a non-toxic control) in water was observed in the Estero Bay HU (**Figure 3-39 a**). Of the four sites sampled, all achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-29 a**).
- There was no significant mortality to *C. dilutus* in water in the Estero Bay HU. Significant mortality to *C. dubia* in water was observed in two of three bioassays on samples collected from Chorro Creek (310CCC) (**Figure 3-39 b, d**). All four sites sampled achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-39 b**). Of the four sites sampled, all but one site (Chorro Creek [310CCC]) achieved the significant toxic effect non-TMDL area limit for *C. dubia* survival in water (**Figure 3-39 d**).
- Toxicity to invertebrate reproduction or growth in water was not observed in any samples in the Estero Bay HU. (**Figure 3-39 c**). All four sites sampled Of the five sites sampled achieved the significant toxic effect non-TMDL area limit for reproduction or growth in water (**Figure 3-39 c**).
- In 2022, no significant toxicity to invertebrate growth or survival in sediment was observed in the Estero Bay HU (**Figure 3-39 e, f**). All four sites sampled achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-39 e**). All four sites sampled also achieved the significant toxic effect non-TMDL area limit for survival in sediment (**Figure 3-39 f**).
- For the period of 2005-2022, the following statistically significant trends were observed:
    - Two sites showed statistically significant increasing trends (improving, reduced toxicity) in invertebrate survival in water (Chorro Creek [310CCC] and Warden Creek [310WRP]).
    - One site (Warden Creek [310WRP]) displayed a statistically significant decreasing (worsening, increased toxicity) trend in invertebrate growth in sediment.

Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-79**.

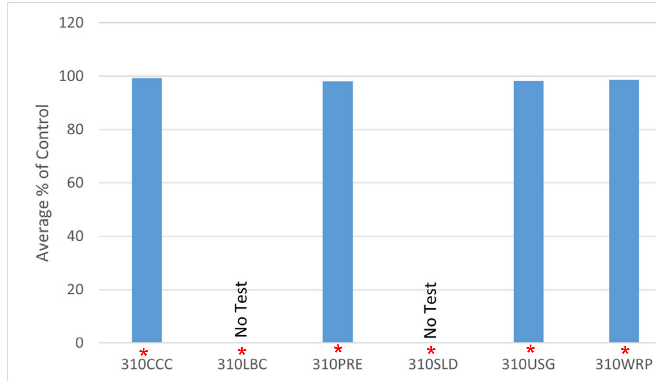
Table 3-79. Summary of Toxicity and Trends in Hydrologic Unit 310

Site ID[1]	Algal Growth		*C. dilutus* Survival		*C. dubia* Reproduction		*C. dubia* Survival		*H. azteca* Growth		*H. azteca* Growth	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
310CCC	0/3	Increasing	0/3	Decreasing	2/3	Decreasing	0/3	**Increasing**	0/1	Increasing	0/1	Increasing
310LBC	0	Increasing	0	Decreasing	0	Increasing	0	Increasing	0	Decreasing	0	Increasing
310PRE	0/4	Increasing	0/4	Increasing	0/4	Increasing	0/4	Increasing	0/1	Decreasing	0/1	Decreasing
310SLD	0	None[2]	0	None[2]	0	None[2]	0	None[2]	0	None[2]	0	None[2]
310USG	0/4	Decreasing	0/4	Increasing	0/4	Increasing	0/4	Increasing	0/1	Decreasing	0/1	Increasing
310WRP	0/2	Increasing	0/2	Increasing	0/2	Increasing	0/2	**Increasing**	0/1	**Decreasing**	0/1	Increasing

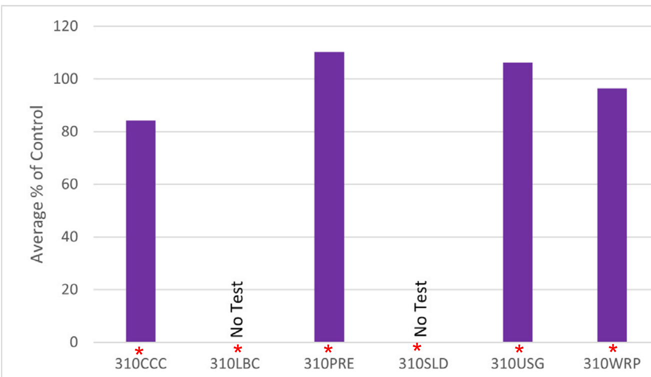
Notes:
1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
2 None = No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.



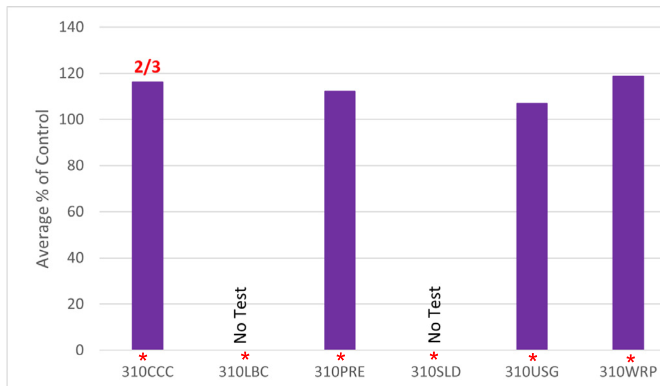
a) Algal Toxicity in Water – Growth



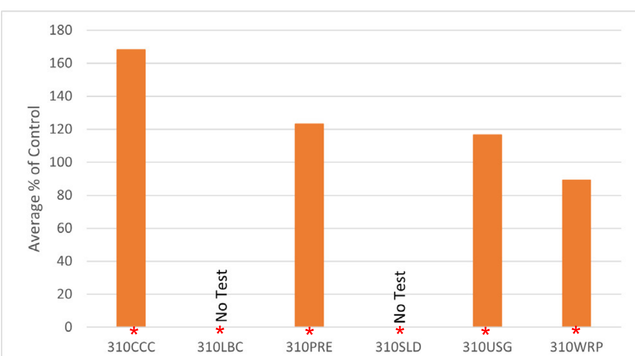
b) *C. dilutus* Toxicity in Water – Survival



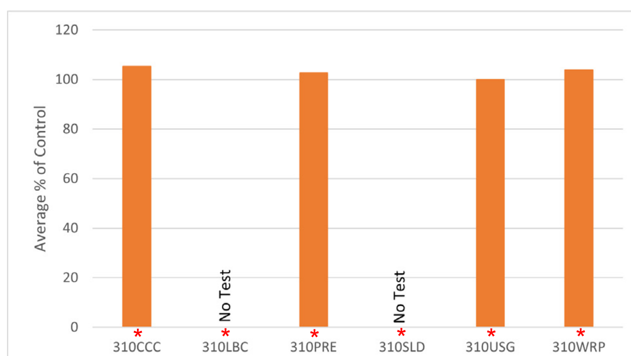
c) *C. dubia* Toxicity in Water – Reproduction



d) *C. dubia* Toxicity in Water – Survival



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-39. Results for Aquatic Toxicity (water and sediment) Monitoring in the Estero Bay HU

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, as compared to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. "No Test" indicates sites where no toxicity samples were collected due to dry channel or ponded conditions.
4. Results >100% indicate organism performance rates in the environmental sample were greater than in the control.
5. If a site experienced "significant toxicity" red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., ½ indicates the site had two samples collected, one of which was significantly toxic.)
6. *C. dubia* reproduction graphs generally reflect *C. dubia* tests, but in some cases reflect a salinity-tolerant alternate test species, which in some cases test for "growth" instead of "reproduction" as the sub-lethal endpoint.

* Site with an applicable non-TMDL area limit for a given test species and endpoint.

3.5 SANTA MARIA HYDROLOGIC UNIT (HU 312)

Descriptions of the Santa Maria HU are summarized from the CCRWQCB's *Santa Maria River Hydrologic Unit Assessment Report* (CCRWQCB 2007). The Santa Maria HU (HU 312) includes all areas tributary to the Cuyama River, Sisquoc River, and Santa Maria River. At 1,880 square miles (1.2 million acres), the Santa Maria River watershed is one of the larger coastal drainage basins in California. The Cuyama River and Sisquoc River originate in wilderness areas of the Los Padres National Forest. The Santa Maria River is formed by the confluence of the Cuyama and Sisquoc approximately seven miles southeast of Santa Maria. The Twitchell reservoir (completed in 1958) is located on the Cuyama River six miles above the confluence with the Sisquoc River. The Santa Maria valley is a broad, flat valley protected from flooding by levees and a series of flood control channels and basins. The river is the major source of recharge to the Santa Maria Groundwater Basin. The majority of storm water runoff infiltrates as storms generally do not produce continuous flows along major segments of the Santa Maria River.

Nipomo Creek drains the Nipomo Valley and joins the Santa Maria River just west of U.S. Highway 101. Orcutt-Solomon Creek drains the Orcutt area and joins the Santa Maria River near its outlet to the Pacific Ocean. Oso Flaco Lake and its drainage are within HU 312, but they are not part of the Santa Maria Watershed. Oso Flaco Lake is north of the Santa Maria Estuary. The outlet from Oso Flaco Lake flows directly to the ocean and is not tributary to the mainstem of the Santa Maria River.

Major land use activities in the Santa Maria Watershed include irrigated and dryland agriculture, oil production, and urban development. Nearly 90% of the contributing watershed is undeveloped land, but the Santa Maria Valley is where most of the monitoring sites are located, and its land uses are predominantly agricultural and urban. Twitchell Reservoir, which is located within the northern portion of the watershed, supports important flood control and groundwater recharge functions. Sedimentation of the reservoir is reducing its water storage capacity; however, little agricultural or urban development currently exists within the drainage area contributing to Twitchell Reservoir.

Monitoring for the CMP was initiated in the Santa Maria area in January of 2005. There are 10 core CMP sites in the Santa Maria HU. Most of these sites are located west of Santa Maria: in Oso Flaco and Little Oso Flaco Creeks (312OFC and 312OFN), the mainstem Santa Maria River (312SMA and 312SMI), its major tributary Orcutt-Solomon Creek (312ORC and 312ORI), and sub-tributary Green Valley (312GVS). Three other sites are tributaries of the mainstem of the Santa Maria River. These include Bradley Channel (312BCJ) and Bradley Canyon Creek (312BCC), which are located east of the City of Santa Maria and south of the Santa Maria River, and Main Street Canal (312MSD), which is located west of the City of Santa Maria and south of the Santa Maria River (**Figure 3-40**).

The beneficial uses designated by the Basin Plan for waterbodies monitored by the CMP in the Santa Maria Region include nearly every beneficial use, with the exceptions being industrial process supply, shellfish harvesting, and spawning, reproduction, and/or early development (Table 2-2).

Applicable TMDLs for sites within the Santa Maria HU include the Santa Maria River Watershed Nutrients TMDL and Santa Maria River Watershed Toxicity and Pesticide TMDL. Non-TMDL area limits for sites within the Santa Maria HU include non-TMDL area turbidity limits, and non-TMDL area toxicity limits. See **Appendix A** for a summary of applicable routine parameter TMDL limits and non-TMDL area limits for sites in the Santa Maria HU.

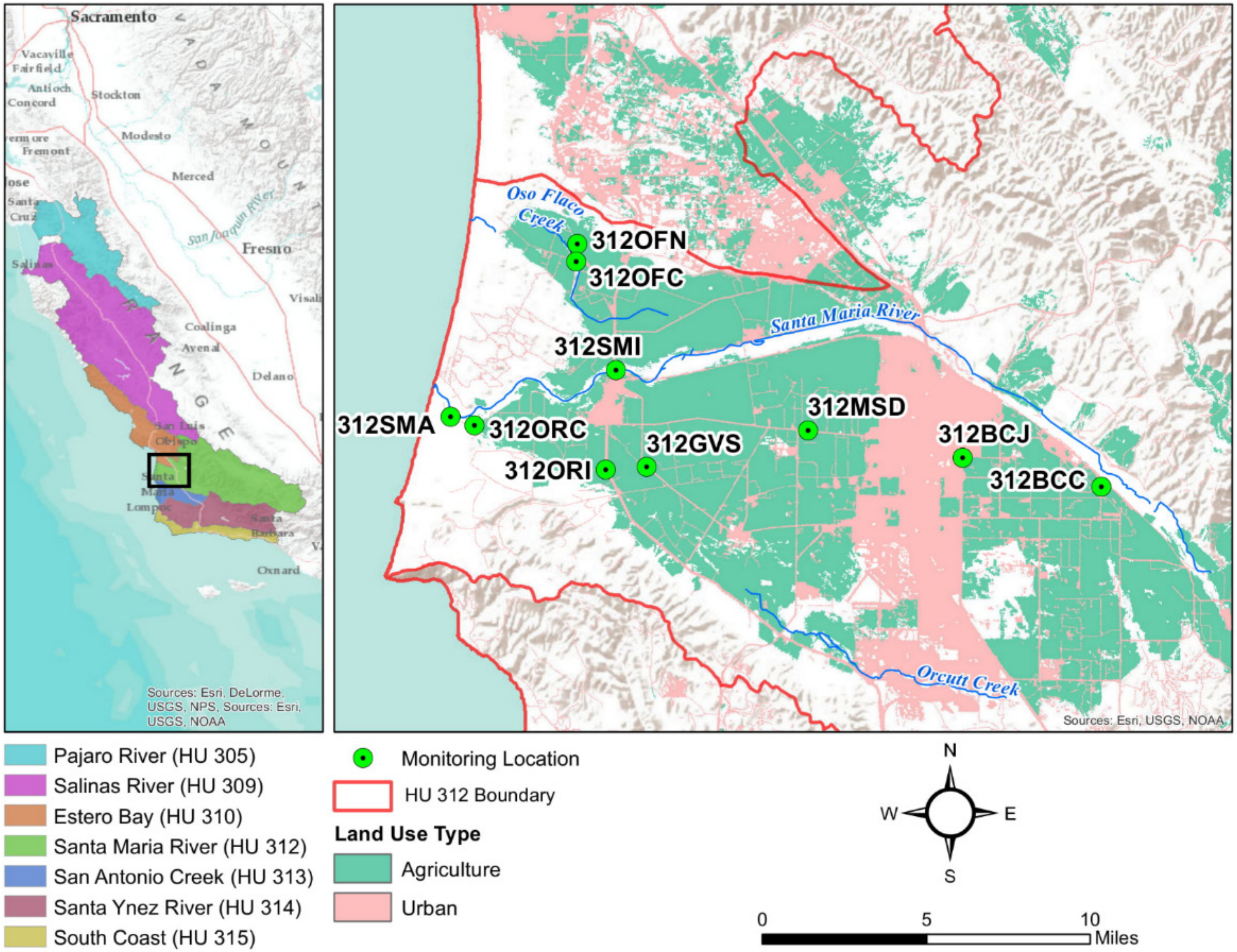


Figure 3-40. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Santa Maria Hydrologic Unit

3.5.1 Flow Results

The flow regime in the Santa Maria HU is characterized by seasonal precipitation that occurs primarily from November through April. During the 2022 monitoring year, the annual average flow (0.22 CFS) at the *Sisquoc River near Garey* USGS gaging station was considerably lower than the historic annual average (48.5 CFS, 1942-2021) and ranged from 0 CFS for most of the year to 81.1 CFS (December 11, 2022) (USGS 2023)[1]. The 2022 cumulative annual rainfall (5.02”) at the *Nipomo* rain gauge was lower than the historic average (11.35”, 2006-2021) (**Figure 3-42**) (CDWR 2023). Below average flow and above average rain were likely caused by low flow in the spring that was followed by several atmospheric rivers late in the year, which were likely retained in the dry soils.

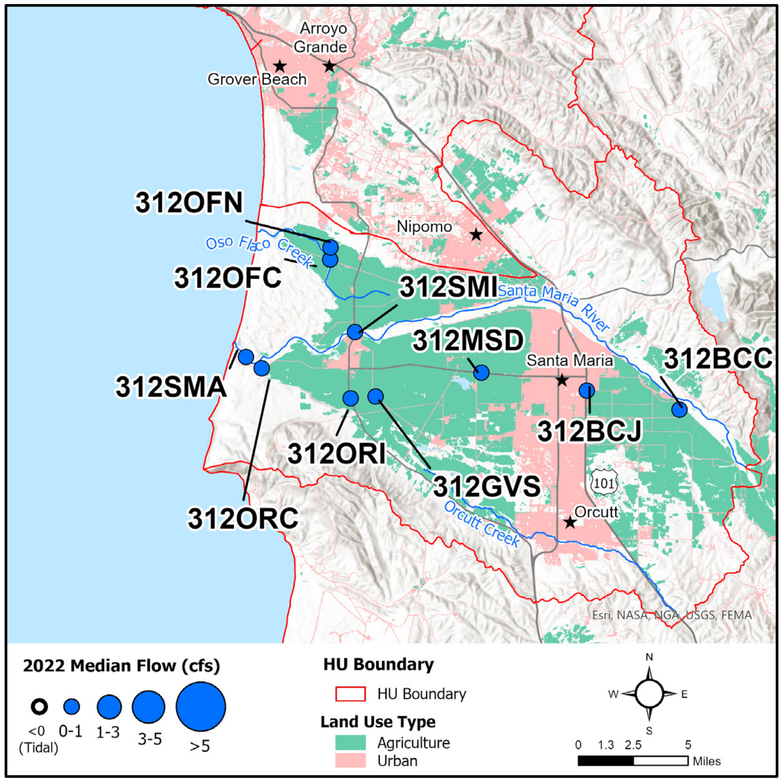


Figure 3-41. 2022 Median Flows for Sites in HU 312

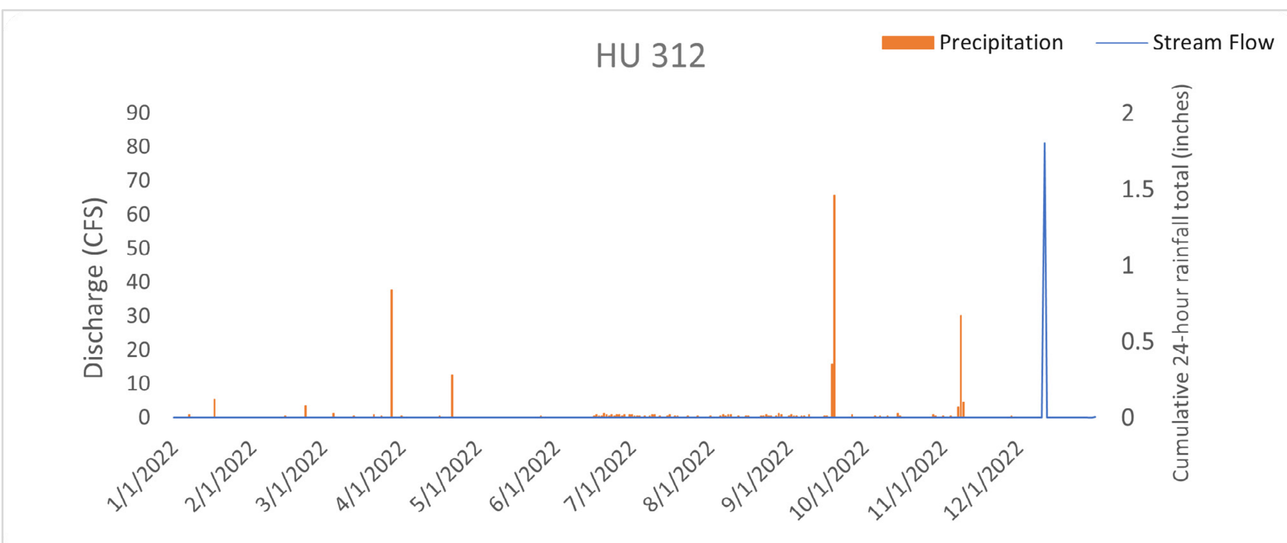


Figure 3-42. 2022 Hydrograph and Total Daily Precipitation Record for Sisquoc River near Garey

[1] USGS data contains provisional values, subject to revision; flow values may have been updated since the publishing of this report.

In 2022, flows measured at the 10 Santa Maria HU monitoring sites were elevated during late December, with lower flows and/or dry channel conditions the rest of the year. **Figure 3-41** depicts annual median flows for sites within the Santa Maria HU during 2022 and **Table 3-80** presents descriptive statistics.

- Measured flows in 2022 ranged from negative flow at three sites (Oso Flaco Creek [312OFC], Orcutt Solomon at Highway 1 [312ORI], and Santa Maria River at Estuary [312SMA]) to 14.64 CFS at Main Street Ditch (312MSD).
- Median flows ranged from no flow (three sites) to 0.71 CFS at Santa Maria River at Estuary (312SMA).
- For the period of 2005-2022, all 10 sites showed statistically significant decreasing trends in flow.

Table 3-80. Descriptive Statistics for Flow in Hydrologic Unit 312 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	12	0.00	0.80	0.07	0.00	**Decreasing**
312BCJ	12	0.00	1.77	0.45	0.31	**Decreasing**
312GVS	12	0.00	0.27	0.02	0.00	**Decreasing**
312MSD	12	0.00	14.64	1.35	0.07	**Decreasing**
312OFC	12	-0.03	6.76	1.30	0.44	**Decreasing**
312OFN	12	0.12	0.87	0.40	0.29	**Decreasing**
312ORC	12	0.11	10.14	2.04	0.61	**Decreasing**
312ORI	12	-0.01	8.61	1.18	0.47	**Decreasing**
312SMA	12	-3.12	8.59	1.64	0.71	**Decreasing**
312SMI	12	0.00	0.00	0.00	0.00	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.5.2 Water Temperature

The Basin Plan contains a general WQO for temperature: natural receiving water temperature of intrastate waters shall not be altered. The Basin Plan also has specific objectives for cold and warm water habitats: At no time or place shall the temperature be increased by more than 5 °F above natural receiving water temperature. Water temperature can influence the results of other field measurements including dissolved oxygen, pH, and conductivity and therefore is an important factor to consider when interpreting results. The temperature of certain water bodies can also fluctuate greatly over a 24-hour period. This fluctuation means that results and trends should be interpreted with discretion, as they can be affected by the time of day at which the sample is collected.

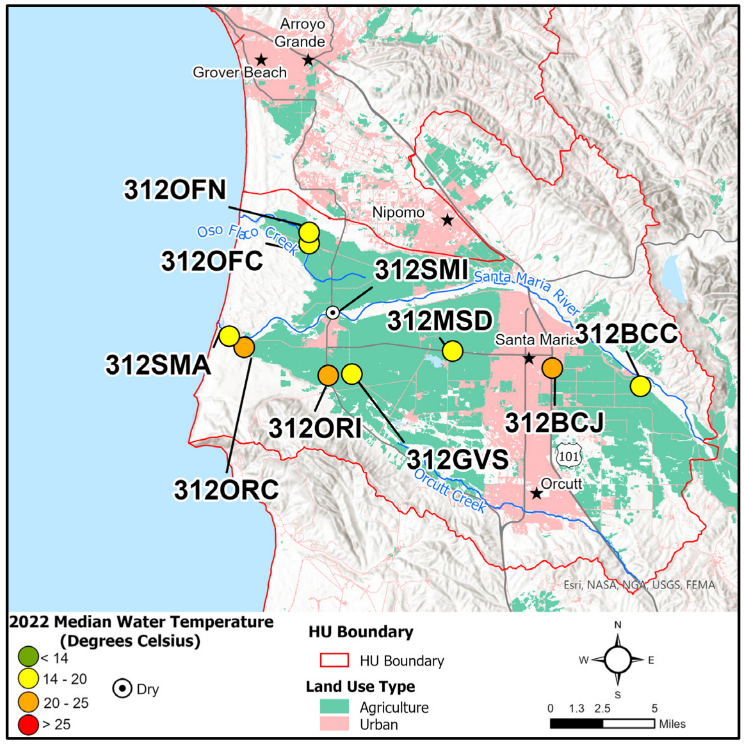


Figure 3-43. 2022 Median Water Temperature for Sites in HU 312

Temperature of natural receiving waters has not been defined for waterbodies within the Santa Maria HU; therefore, the focus of this report is descriptive statistics. In 2022, water temperatures peaked variably from June through October in the Santa Maria HU and minimum temperatures at all sites were recorded during the month of December. **Figure 3-43** depicts annual median temperatures for sites in the Santa Maria HU for 2022, and **Table 3-81** presents descriptive statistics.

- In 2022, median water temperatures in the Santa Maria HU ranged from 14.1 °C at Bradley Canyon Creek (312BCC) to 23.4 °C at Orcutt Solomon at Highway 1 (312ORI).
- The lowest water temperature (8.3 °C) was observed at Santa Maria River at Estuary (312SMA) and the highest water temperature (33.1 °C) was observed at Bradley Channel (312BCJ).
- For the period of 2005-2022, six sites showed statistically significant increasing trends in water temperature (Bradley Channel [312BCJ], Main Street Canal [312MSD], Oso Flaco Creek [312OFC], Orcutt Solomon Creek [312ORC], Orcutt Solomon at Highway 1 [312ORI], and Santa Maria River at Estuary [312SMA]).

Table 3-81. Descriptive Statistics for Water Temperature in Hydrologic Unit 312 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	14.1	14.1	14.1	14.1	Increasing
312BCJ	12	14.0	33.1	23.5	22.6	**Increasing**
312GVS	1	14.9	14.9	14.9	14.9	Increasing
312MSD	12	13.8	24.0	18.2	17.8	**Increasing**
312OFC	12	12.3	24.1	16.7	16.2	**Increasing**
312OFN	12	9.3	20.9	16.6	18.0	Increasing
312ORC	12	9.8	25.7	19.9	20.3	**Increasing**
312ORI	12	10.6	29.0	21.4	23.4	**Increasing**
312SMA	12	8.3	24.9	18.4	18.9	**Increasing**
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS^{Dry} Not sampled due to dry conditions.

3.5.3 Turbidity and TSS Results

All sites within the Santa Maria HU have a non-TMDL turbidity limit. One site in the Santa Maria HU (Oso Flaco Creek [312OFC]) has a warm water beneficial use, which has a turbidity limit of 40 NTU. All other sites in the HU have a cold water beneficial use, which has a turbidity limit of 25 NTU. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for turbidity in the Santa Maria HU. **Figure 3-44** depicts annual median turbidity concentrations and TSS loading for sites in the Santa Maria HU for 2022. **Table 3-82** and **Appendix B** present descriptive statistics and turbidity limit exceedances.

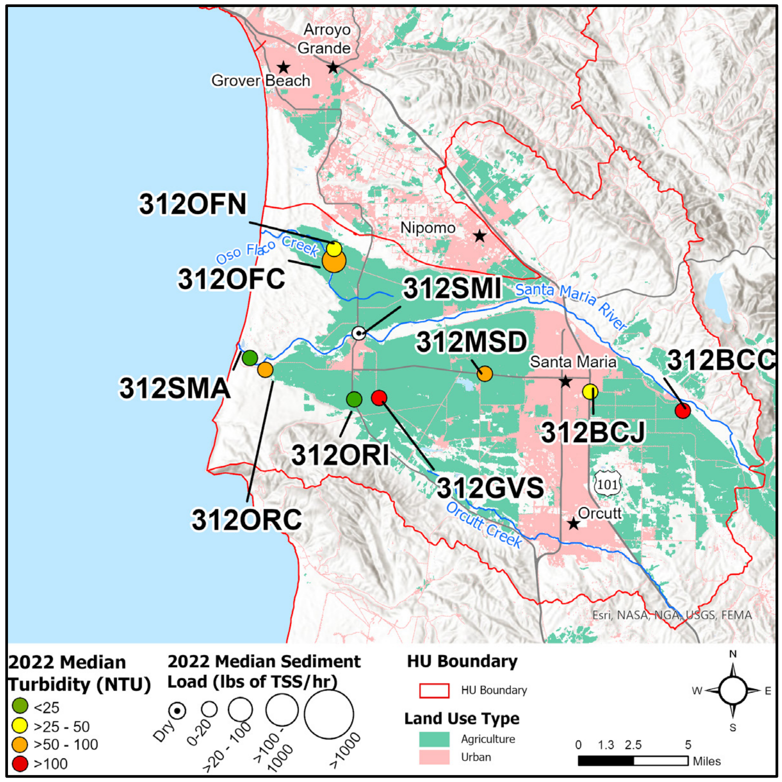


Figure 3-44. 2022 Median Turbidity and TSS Loading for Sites in HU 312

- Median turbidities ranged from 14 NTU (Santa Maria River at Estuary [312SMA]) to 999 NTU (Bradley Canyon Creek [312BCC] and Green Valley Creek [312GVS]) in 2022. The two sites with median turbidities greater than 500 NTU could only be sampled when flow was present after large storm events and were otherwise dry.
- All sites sampled exceeded the non-TMDL turbidity limit of 40 NTU or 25 NTU. Seven sites exceeded the limit in at least 50% of samples.
- Low to moderate TSS loads in the Santa Maria HU were due to low median flows and moderate TSS concentrations (**Appendix B**).
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in turbidity concentrations (Bradley Channel [312BCJ], Oso Flaco Creek [312OFC], Orcutt Solomon Creek [312ORC], and Santa Maria River at Estuary [312SMA].
- For the period of 2012-2022, three sites showed statistically significant decreasing trends in TSS loading and five sites showed statistically significant increasing trends in TSS loading. TSS was not monitored prior to 2012, so the period of record for TSS trend analysis is shorter than that for turbidity and flow.

Table 3-82. Descriptive Statistics for Turbidity in Hydrologic Unit 312 (NTU)

Site ID[1]	N	Min	Max	Mean	Median	Non TMDL Area Limit Percent Exceedance	Turbidity Trend[2,3]	TSS Loading Trend[2,3]
312BCC	1	999	999	999	999	100%[4]	Increasing	**Increasing**
312BCJ	12	16	766	136	48	92%[4]	**Decreasing**	**Increasing**
312GVS	1	999	999	999	999	100%[4]	Increasing	**Decreasing**
312MSD	12	13	894	160	78	75%[4]	Increasing	Increasing
312OFC	12	24	999	248	65	67%[5]	**Decreasing**	**Increasing**
312OFN	12	6	684	94	28	58%[4]	Decreasing	**Increasing**
312ORC	12	21	216	90	57	92%[4]	**Decreasing**	**Decreasing**
312ORI	12	8	210	42	17	25%[4]	Increasing	Increasing
312SMA	12	5	228	42	14	25%[4]	**Decreasing**	**Decreasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Turbidity was monitored from 2005-2022 and TSS was monitored from 2012-2022.
4 The relevant numeric criterion is 25.0 NTU [COLD].
5 The relevant numeric criterion is 40.0 NTU [WARM].
NS[Dry] Not sampled due to dry conditions.

3.5.4 Unionized and Total Ammonia

All sites within the Santa Maria HU have a TMDL limit for unionized ammonia. All TMDL limits for unionized ammonia are associated with the Santa Maria River Watershed Nutrients TMDL. See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL limits for nitrate in the Santa Maria HU. **Figure 3-45** depicts annual median unionized ammonia concentrations for sites in the Santa Maria HU for 2022, **Table 3-83** presents descriptive statistics, and **Table 3-84** and **Appendix B** present TMDL and non-TMDL area limit exceedances for unionized ammonia.

Samples were also collected and analyzed for total ammonia. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total ammonia applicable to CMP sites in the Santa Maria HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-85**.

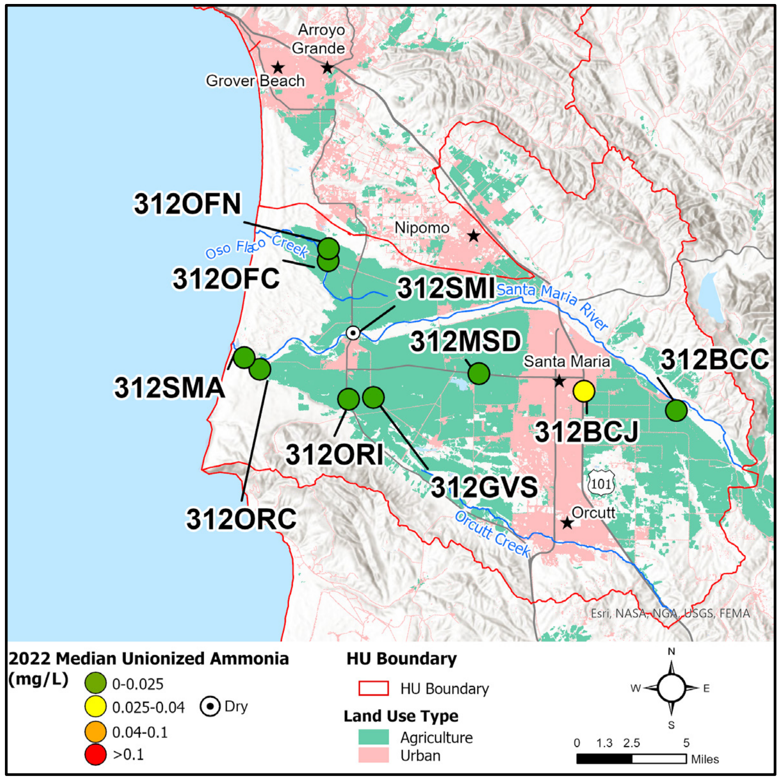


Figure 3-45. 2022 Median Unionized Ammonia for Sites in HU 312

- In 2022, median concentrations of unionized ammonia ranged from 0.0029 mg/L at Green Valley Creek (312GVS) to 0.0368 mg/L at Bradley Channel (312BCJ).
- For the period of 2005-2022, one site (Orcutt Solomon at Highway 1 [312ORI]) showed a statistically significant increasing trend in unionized ammonia concentrations.

Table 3-83. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	0.0158	0.0158	0.0158	0.0158	Increasing
312BCJ	12	0.0003	5.1485	0.6954	0.0368	Increasing
312GVS	1	0.0029	0.0029	0.0029	0.0029	Decreasing
312MSD	12	0.0013	0.1625	0.0316	0.0092	Decreasing
312OFC	12	0.0004	0.0751	0.0168	0.0057	Increasing
312OFN	12	0.0002	0.0082	0.0035	0.0034	Increasing
312ORC	12	0.0009	0.0224	0.0075	0.0059	Increasing
312ORI	12	0.0010	0.1451	0.0405	0.0200	**Increasing**
312SMA	12	0.0008	0.0141	0.0053	0.0049	Increasing
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS[Dry] Not sampled due to dry conditions.

- Out of the nine sites sampled with a unionized ammonia TMDL limit of 0.025 mg/L, five met the objective in all samples collected. Only one site (Bradley Channel [310BCJ]) exceeded the limit in more than 50% of samples.

Table 3-84. Summary of Santa Maria River Watershed Nutrients TMDL and Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Unit 312

Site ID[1]	TMDL Annual Percent Exceedance[2]	Non TMDL Area Limit Percent Exceedance
312BCC	0%	N/A
312BCJ	58%	N/A
312GVS	0%	N/A
312MSD	25%	N/A
312OFC	17%	N/A
312OFN	0%	N/A
312ORC	0%	N/A
312ORI	42%	N/A
312SMA	0%	N/A
312SMI	NS[Dry]	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 The relevant numeric criterion is 0.025 mg/L.
N/A There is no applicable non-TMDL area limit criterion for unionized ammonia at this site.
NS[Dry] Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2022, there were no statistically significant trends in total ammonia at any sites in the Santa Maria HU.

Table 3-85. Descriptive Statistics for Total Ammonia in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	0.185	0.185	0.185	0.185	Increasing
312BCJ	12	0.014	25.500	2.765	0.207	Increasing
312GVS	1	0.164	0.164	0.164	0.164	Decreasing
312MSD	12	0.076	6.780	1.074	0.181	Decreasing
312OFC	12	0.061	5.720	0.975	0.408	Increasing
312OFN	12	0.073	0.698	0.194	0.147	Increasing
312ORC	12	0.074	0.314	0.197	0.188	Decreasing
312ORI	12	0.126	1.800	0.485	0.371	Increasing
312SMA	12	0.046	0.479	0.200	0.163	Increasing
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS[Dry] Not sampled due to dry conditions.

3.5.5 Nitrate and Total Nitrogen

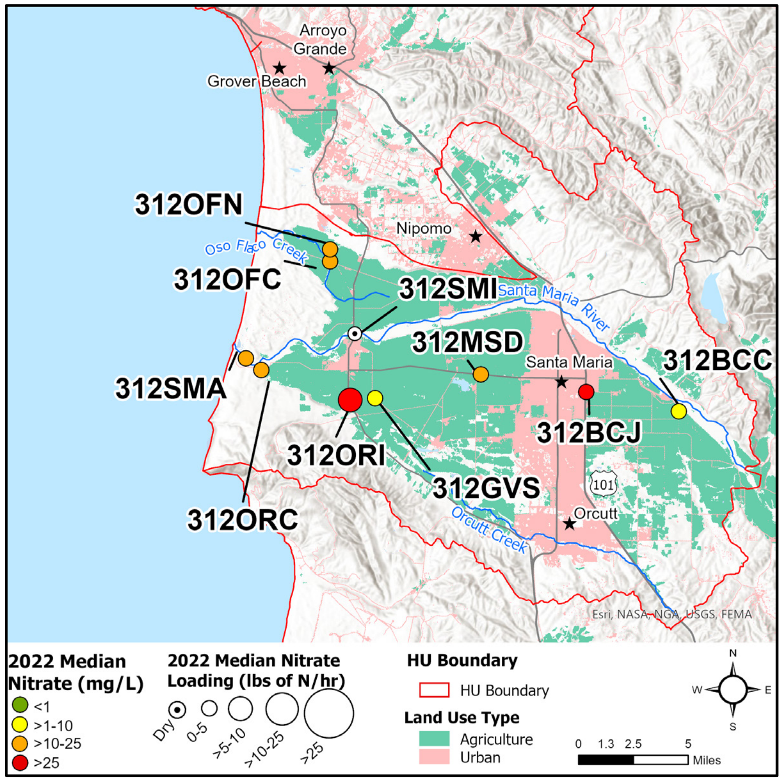


Figure 3-46. 2022 Median Nitrate as N for Sites in HU 312

Samples were collected and analyzed for "nitrate + nitrite"; however, this report primarily refers to "nitrate" as nitrite levels are assumed to be very low. All sites within the Santa Maria HU have a TMDL limit for nitrate. All TMDL limits for nitrate are associated with the Santa Maria River Watershed Nutrients TMDL. See **Table 2-5** and **Appendix A** for a summary of applicable annual, dry season, and wet season TMDL limits for nitrate in the Santa Maria HU. The 10 mg/L Basin Plan WQO for nitrate as N based on the municipal and domestic supply beneficial use applies to all 10 Santa Maria HU sites. A nitrate objective to protect agricultural uses also applies to Oso Flaco Creek (312OFC), both Orcutt Solomon Creek sites (312ORC and 312ORI), and both Santa Maria River sites (312SMA and 312SMI). The agricultural objective does not define a single numeric value from which to evaluate exceedance frequencies but does provide ranges defining "increasing problems" and "severe problems". Because the objective to protect municipal and domestic supply is more specific, it was used to assess exceedances. For the purposes of this report, TMDL and non-TMDL area limits supersede Basin Plan WQO criteria when both criteria are applicable to a given monitoring site. **Figure 3-46** depicts annual median nitrate concentrations and median loading for sites in the Santa Maria HU for 2022, **Table 3-86** presents descriptive statistics, and **Table 3-87** and **Appendix B** present TMDL and non-TMDL Area limit exceedances.

Samples were also collected and analyzed for total nitrogen. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total nitrogen applicable to CMP sites in the Santa Maria HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-88**.

- Median nitrate concentrations for 2022 ranged from 6.79 mg/L (Bradley Canyon Creek [312BCC]) to 55.95 mg/L (Orcutt Solomon at Highway 1 [312ORI]).
- For the period of 2005-2022, one site showed a statistically significant increasing trend in nitrate concentrations (Orcutt Solomon at Highway 1 [312ORI]). Four sites showed statistically significant decreasing trends in nitrate concentrations (Oso Flaco Creek [312OFC], Little Oso Flaco Creek [312OFN], Orcutt Solomon Creek [312ORC], and Santa Maria River at Estuary [312SMA]).
- For the period of 2005-2022, all 10 sites showed statistically significant decreasing trends in nitrate loading.

Table 3-86. Descriptive Statistics for Nitrate in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Basin Plan WQO Percent Exceedance	Nitrate Trend[2]	Nitrate Loading Trend[2]
312BCC	1	6.79	6.79	6.79	6.79	0%	Decreasing	**Decreasing**
312BCJ	12	4.36	53.50	33.09	33.10	92%	Increasing	**Decreasing**
312GVS	1	8.91	8.91	8.91	8.91	0%	Decreasing	**Decreasing**

Site ID[1]	N	Min	Max	Mean	Median	Basin Plan WQO Percent Exceedance	Nitrate Trend[2]	Nitrate Loading Trend[2]
312MSD	12	1.62	42.20	17.19	19.65	58%	Decreasing	**Decreasing**
312OFC	12	12.10	44.10	26.13	24.35	100%	**Decreasing**	**Decreasing**
312OFN	12	5.64	54.30	26.23	24.15	83%	**Decreasing**	**Decreasing**
312ORC	12	2.39	40.40	19.48	22.55	83%	**Decreasing**	**Decreasing**
312ORI	12	14.00	98.10	55.22	55.95	100%	**Increasing**	**Decreasing**
312SMA	12	0.82	28.60	16.84	17.90	75%	**Decreasing**	**Decreasing**
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	N/A	Decreasing	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A Site has an applicable Santa Maria River Watershed Nutrients TMDL criterion for nitrate.
NS^{Dry} Not sampled due to dry conditions.

- All four sites with an annual TMDL limit for nitrate exceeded the limit in at least 50% of samples.
- Of the sites with a dry season TMDL limit for nitrate, three were sampled (Orcutt Solomon Creek [312ORC], Orcutt Solomon at Highway 1 [312ORI], and Santa Maria River at Estuary [312SMA]). All three exceeded the dry season TMDL limit of 4.3 mg/L in at least 60% of samples.
- Of the six sites with a wet season TMDL limit for nitrate, five were sampled. Four of the five sites sampled exceeded the wet season TMDL limit of 8.0 mg/L in all samples collected. One site (Bradley Canyon Creek [312BCC]) achieved the wet season TMDL limit.

Table 3-87. Summary of Santa Maria River Watershed Nutrients TMDL and Non-TMDL Area Nutrient Limit Exceedances for Nitrate in Hydrologic Unit 312

Site ID[1]	TMDL Annual Percent Exceedance	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance[4]	Non TMDL Area Limit Percent Exceedance
312BCC	N/A	NS^{Dry}	0%	N/A
312BCJ	92%[2]	N/A	N/A	N/A
312GVS	N/A	NS^{Dry}	100%	N/A
312MSD	58%[2]	N/A	N/A	N/A
312OFC	100%[3]	N/A	N/A	N/A
312OFN	92%[3]	N/A	N/A	N/A
312ORC	N/A	80%[5]	100%	N/A
312ORI	N/A	100%[5]	100%	N/A
312SMA	N/A	60%[5]	100%	N/A
312SMI	N/A	NS^{Dry}	NS^{Dry}	N/A

Notes:
3 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
4 The TMDL numeric criterion is 10.0 mg/L.
5 The TMDL numeric criterion is 5.7 mg/L
6 The relevant wet season numeric criterion is 8.0 mg/L.
7 The relevant dry season numeric criterion is 4.3 mg/L.
N/A There is no applicable Santa Maria River Watershed Nutrient TMDL or non-TMDL area limit criterion for nitrate at this site.
NS^{Dry} Not sampled due to dry conditions.

- Median total nitrogen concentrations ranged from 9.4 mg/L at Bradley Canyon Creek (312BCC) to 55.4 mg/L at Orcutt Solomon at Highway 1 (312ORI).
- For the period of 2005-2022, one site (Main Street Canal [312MSD]) showed a statistically significant increasing trend in total nitrogen. Two sites showed statistically significant decreasing trends in total nitrogen (Oso Flaco Creek [312OFC] and Santa Maria River at Estuary [312SMA]).

Table 3-88. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	9.4	9.4	9.4	9.4	Increasing
312BCJ	10	7.4	75.6	40.5	40.4	Increasing
312GVS	1	11.5	11.5	11.5	11.5	Decreasing
312MSD	10	3.8	43.4	21.1	21.3	**Increasing**
312OFC	10	16.4	45.6	28.2	26.2	**Decreasing**
312OFN	10	7.1	54.5	27.8	25.0	Decreasing
312ORC	10	5.4	26.7	20.6	24.4	Increasing
312ORI	10	15.8	92.3	53.9	55.4	Increasing
312SMA	10	1.6	31.5	18.7	20.2	**Decreasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS[Dry] Not sampled due to dry conditions.

3.5.6 Orthophosphate and Total Phosphorus

All but two sites (Main Street Canal [312MSD] and Bradley Channel [312BCJ]) within the Santa Maria HU have a TMDL limit for orthophosphate as P. All TMDL limits for orthophosphate as P are associated with the Santa Maria River Watershed Nutrients TMDL. See **Table 2-5** and **Appendix A** for a summary of applicable annual, dry season, and wet season TMDL limits for orthophosphate as P in the Santa Maria HU. **Figure 3-47** depicts annual median orthophosphate concentrations for sites in the Santa Maria HU for 2022. **Table 3-89** presents descriptive statistics for orthophosphate, **Table 3-90** and **Appendix B** present TMDL and non-TMDL area limit exceedances for orthophosphate, and **Table 3-91** presents descriptive statistics for total phosphorus.

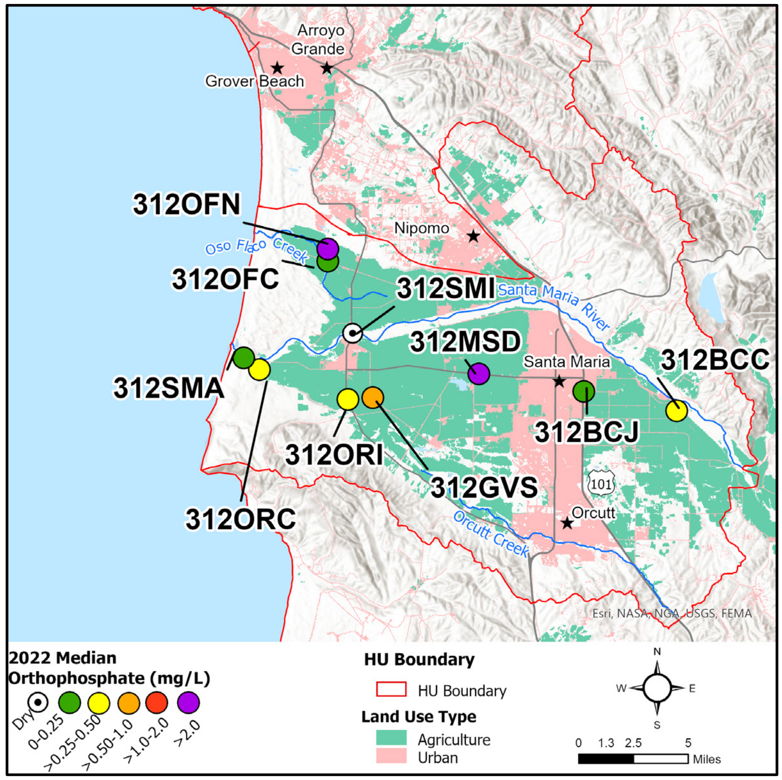


Figure 3-47. 2022 Median Orthophosphate as P for Sites in HU 312

- In 2022, median orthophosphate concentrations ranged from 0.115 mg/L to 0.577 mg/L at most Santa Maria HU sites. The two exceptions were Main Street Canal (312MSD) and Little Oso Flaco Creek (312OFN), which had median concentrations of 2.420 and 4.650 mg/L, respectively. These two sites also had the highest maximum orthophosphate concentrations of all sites in the HU (44.300 mg/L in 312MSD and 8.490 mg/L in 312OFN).
- For the period of 2005-2022, two sites showed statistically significant increasing trends in orthophosphate concentrations (Main Street Canal [312MSD] and Little Oso Flaco Creek [312OFN]). Four sites showed statistically significant decreasing trends in orthophosphate concentrations (Bradley Channel [312BCJ], Oso Flaco Creek [312OFC], Orcutt Solomon at Highway 1 [312ORI], and Santa Maria River at Estuary [SMA]).

Table 3-89. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	0.343	0.343	0.343	0.343	Increasing
312BCJ	12	0.004	1.110	0.379	0.115	**Decreasing**
312GVS	1	0.577	0.577	0.577	0.577	Increasing
312MSD	12	0.042	44.300	11.120	2.420	**Increasing**
312OFC	12	0.008	1.530	0.363	0.200	**Decreasing**
312OFN	12	1.110	8.490	4.693	4.650	**Increasing**
312ORC	12	0.109	0.963	0.390	0.258	Decreasing
312ORI	12	0.150	1.110	0.397	0.251	**Decreasing**
312SMA	12	0.084	1.010	0.293	0.176	**Decreasing**
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS^{Dry} Not sampled due to dry conditions.

- The two sites with an annual TMDL limit of 0.08 mg/L for orthophosphate (Oso Flaco Creek [312OFC] and Little Oso Flaco Creek [312OFN]), exceeded the limit in 58% of samples and 100% of samples, respectively.
- Of the six sites with a dry season TMDL limit, three were sampled. All three sites exceeded the limit in 60% of samples collected (Orcutt Solomon Creek [312ORC], Orcutt Solomon at Highway 1 [312ORI], and Santa Maria River at Estuary [312SMA]). The remaining three sites were not sampled in the dry season due to dry conditions.
- Of the six sites with a wet season TMDL limit, five were sampled. Two sites exceeded the wet season TMDL Limit in 100% of samples collected (Bradley Canyon Creek [312BCC] and Green Valley Creek [312GVS]).

Table 3-90. Summary of Santa Maria River Watershed Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Orthophosphate as P in Hydrologic Unit 312

Site ID[1]	TMDL Annual Percent Exceedance[2]	TMDL Dry Season Percent Exceedance[3]	TMDL Wet Season Percent Exceedance[4]	Non TMDL Area Limit Percent Exceedance
312BCC	N/A	NS[Dry]	100%	N/A
312BCJ	N/A	N/A	N/A	N/A
312GVS	N/A	NS[Dry]	100%	N/A
312MSD	N/A	N/A	N/A	N/A
312OFC	58%	N/A	N/A	N/A
312OFN	100%	N/A	N/A	N/A
312ORC	N/A	60%	57%	N/A
312ORI	N/A	60%	43%	N/A
312SMA	N/A	60%	29%	N/A
312SMI	N/A	NS[Dry]	NS[Dry]	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The TMDL numeric criterion is 0.08 mg/L.
3 The relevant dry season numeric criterion is 0.19 mg/L.
4 The relevant wet season numeric criterion is 0.3 mg/L.
N/A There is no applicable Santa Maria River Watershed Nutrients TMDL or non-TMDL area limit criterion for orthophosphate as P at this site.
NS[Dry] Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations. Main Street Canal (312MSD) had significantly higher maximum and mean concentrations for total phosphorus (64.100 mg/L and 14.460 mg/L, respectively) and orthophosphate (44.300 mg/L and 11.120 mg/L, respectively) relative to other sites in the Santa Maria HU.
- Median total phosphorus concentrations ranged from 0.340 mg/L at Santa Maria River at Estuary (312SMA) to 5.835 mg/L at Little Oso Flaco Creek (312OFN).
- For the period of 2005-2022, four sites showed a statistically significant increasing trend in total phosphorus (Main Street Canal [312MSD], Oso Flaco and Little Oso Flaco Creeks [312OFC and 312OFN], and Orcutt Solomon at Highway 1 [312ORI]). One site (Santa Maria River at Estuary [312SMA]) showed a statistically significant decreasing trend in total phosphorus.

Table 3-91. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	4.090	4.090	4.090	4.090	Increasing
312BCJ	12	0.386	3.220	1.008	0.606	Increasing
312GVS	1	1.920	1.920	1.920	1.920	Increasing
312MSD	12	0.935	64.100	14.460	2.920	**Increasing**
312OFC	12	0.230	3.750	1.363	0.691	**Increasing**
312OFN	12	2.210	9.660	6.031	5.835	**Increasing**
312ORC	12	0.274	1.960	0.821	0.700	Decreasing
312ORI	12	0.308	6.190	1.089	0.567	**Increasing**
312SMA	12	0.185	1.270	0.472	0.340	**Decreasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS[Dry] Not sampled due to dry conditions.

3.5.7 Specific Conductivity

A conductivity WQO to protect agricultural uses applies to Oso Flaco Creek (312OFC), both Orcutt-Solomon Creek sites (312ORC and 312 ORI), and both Santa Maria River sites (312SMA and 312SMI). This agricultural objective does not define a numeric value to evaluate exceedance frequencies, but provides ranges:

- <750 µS/cm, "No Problem";
- 750–3,000 µS/cm, "Increasing Problems" and
- >3,000 µS/cm, "Severe".

Figure 3-48 depicts annual median conductivities for sites in the Santa Maria HU for 2022, and **Table 3-92** presents descriptive statistics.

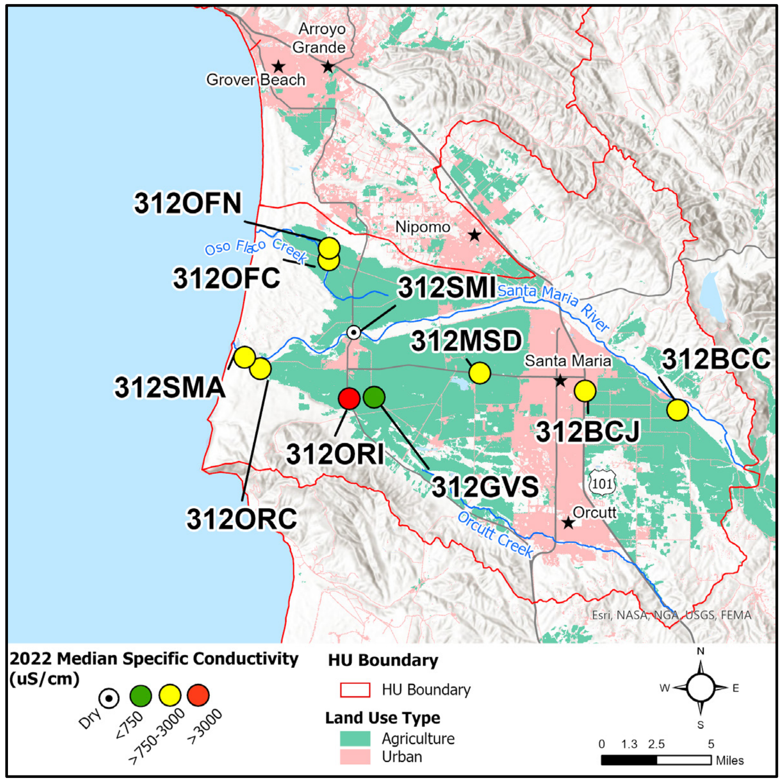


Figure 3-48. 2022 Median Conductivity for Sites in HU 312

- In 2022, all median conductivities were above the low-end of the listed ranges (750 µS/cm) indicating increasing or severe problems except for the one sample collected at Green Valley Creek (312GVS) (369 µS/cm).
- Three sites had conductivity measurements exceed 3,000 µS/cm: Orcutt Solomon Creek (312ORC), Orcutt Solomon at Highway 1 (312ORI), and Santa Maria River at Estuary (312SMA).
- For the period of 2005-2022, four sites showed statistically significant increasing trends in conductivity (Bradley Channel [312BCJ], both Orcutt Solomon Creek sites [312ORC and 312 ORI], and Santa Maria River at Estuary [312SMA]). One site showed a statistically significant decreasing trend in conductivity concentrations (Little Oso Flaco Creek [312OFN]).

Table 3-92. Descriptive Statistics for Conductivity in Hydrologic Unit 312 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	1,399	1,399	1,399	1,399	Increasing
312BCJ	12	485	2,885	1,902	1,934	**Increasing**
312GVS	1	369	369	369	369	Increasing
312MSD	12	181	2,913	1,340	1,359	Increasing
312OFC	12	575	2,546	1,850	1,929	Increasing
312OFN	12	609	2,199	1,668	1,832	**Decreasing**
312ORC	12	1,316	4,216	2,836	2,738	**Increasing**
312ORI	12	903	4,225	2,784	3,090	**Increasing**
312SMA	12	1,195	3,697	2,803	2,977	**Increasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS[Dry] Not sampled due to dry conditions.

3.5.8 Total Dissolved Solids and Salinity

The Basin Plan contains no numeric WQO for TDS or the following analytes applicable to CMP sites in the Santa Maria HU: salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride. No trend analyses were performed on the latter six analytes due to limited historical data associated with them. Therefore, the focus of this report is descriptive statistics. **Figure 3-49** depicts annual median TDS concentrations for sites in the Santa Maria HU for 2022. **Table 3-93**, **Table 3-94, Table 3-95, Table 3-96, Table 3-97, Table 3-98, Table 3-99, Table 3-100,** and **Table 3-101** present descriptive statistics for TDS, salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride, respectively.

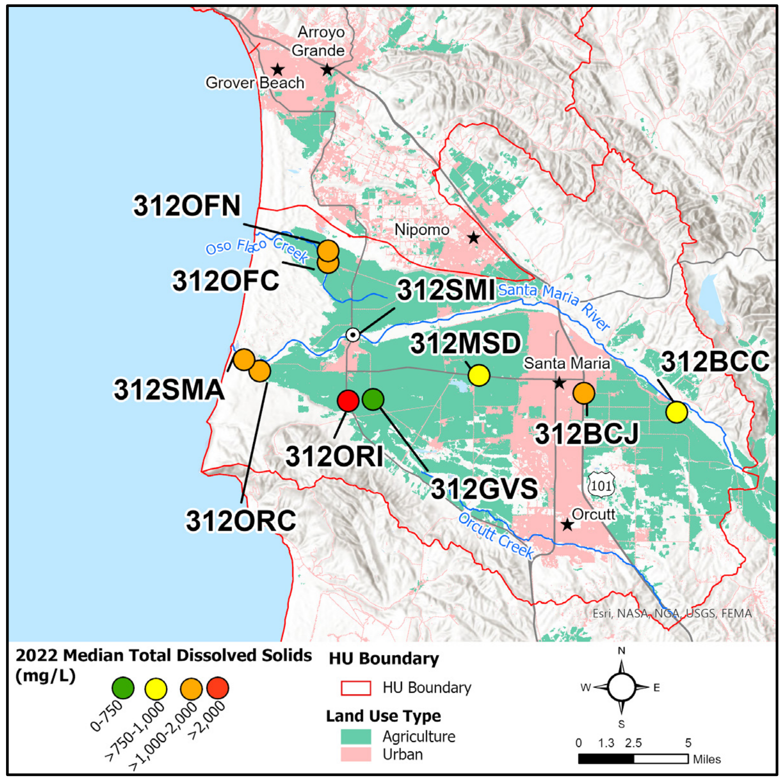


Figure 3-49. 2022 Median Total Dissolved Solids for Sites in HU 312

- Median TDS concentrations for 2022 ranged from 297 mg/L (n=1) in Green Valley Creek (312GVS) to 2,008 mg/L in Orcutt Solomon at Highway 1 (312ORI).
- The highest TDS concentration was measured in Orcutt Solomon at Highway 1 (312ORI) (3,420 mg/L).
- For the period of 2005-2022, four sites showed statistically significant decreasing trends in TDS concentrations (Santa Maria River at Estuary [312SMA], Orcutt Solomon at Highway 1 [312ORI], Oso Flaco Creek [312OFC], and Little Oso Flaco Creek [312OFN]).

Table 3-93. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
312BCC	1	909	909	909	909	N/A	Increasing
312BCJ	12	316	1,946	1,303	1,292	N/A	Decreasing
312GVS	1	297	297	297	297	N/A	Decreasing
312MSD	12	119	1,894	905	978	N/A	Decreasing
312OFC	12	374	1,656	1,222	1,258	N/A	**Decreasing**
312OFN	12	395	1,429	1,099	1,205	N/A	**Decreasing**
312ORC	12	856	2,920	1,894	1,780	N/A	Decreasing
312ORI	12	587	3,420	1,866	2,008	N/A	**Decreasing**
312SMA	12	777	3,070	1,909	1,934	N/A	**Decreasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	N/A	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.
NS[Dr] Not sampled due to dry conditions.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- For the period of 2005-2022, three sites showed statistically significant increasing trends in salinity (Bradley Channel [312BCJ] and both Orcutt Solomon Creek sites [312ORC and 312ORI]). One site (Little Oso Flaco Creek [312OFN]) showed a statistically significant decreasing trend in salinity.

Table 3-94. Descriptive Statistics for Salinity in Hydrologic Unit 312 (ppt)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	1	0.71	0.71	0.71	0.71	Increasing
312BCJ	12	0.24	1.48	0.97	0.98	**Increasing**
312GVS	1	0.22	0.22	0.22	0.22	Decreasing
312MSD	12	0.09	1.53	0.70	0.76	Decreasing
312OFC	12	0.28	1.32	0.95	0.99	Decreasing
312OFN	12	0.30	1.13	0.85	0.94	**Decreasing**
312ORC	12	0.65	2.24	1.48	1.43	**Increasing**
312ORI	12	0.45	2.27	1.45	1.61	**Increasing**
312SMA	12	0.60	1.96	1.46	1.56	Increasing
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS^{Dry} Not sampled due to dry conditions.

- Median alkalinity concentrations ranged from 54 mg/L at Main Street Canal (312MSD) to 206 mg/L at Orcutt Solomon Creek (312ORC).

Table 3-95. Descriptive Statistics for Alkalinity in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}
312BCJ	4	78	203	151	161
312GVS	1	57	57	57	57
312MSD	4	31	91	58	54
312OFC	4	87	323	180	154
312OFN	4	66	234	170	189
312ORC	4	123	298	208	206
312ORI	4	97	263	181	182
312SMA	4	115	311	209	205
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS^{Dry} Not sampled due to dry conditions.

- The lowest concentration of calcium (18 mg/L) was measured at Main Street Canal (312MSD) and the highest concentration (370 mg/L) was measured at Orcutt Solomon at Highway 1 (312ORI).

Table 3-96. Descriptive Statistics for Calcium in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}
312BCJ	4	59	296	180	182
312GVS	1	55	55	55	55
312MSD	4	18	65	38	35
312OFC	4	75	252	165	168
312OFN	4	62	242	160	168
312ORC	4	133	325	224	220
312ORI	4	90	370	229	228
312SMA	4	116	302	217	224
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS^{Dry} Not sampled due to dry conditions.

- Median magnesium concentrations in the Santa Maria HU ranged from 12 mg/L at Main Street Canal (312MSD) to 99 mg/L at Santa Maria River at Estuary (312SMA) and Orcutt Solomon at Highway 1 (312ORI).

Table 3-97. Descriptive Statistics for Magnesium in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}
312BCJ	4	21	168	87	79
312GVS	1	21	21	21	21
312MSD	4	5	54	21	12
312OFC	4	27	114	67	63
312OFN	4	17	74	48	50
312ORC	4	59	146	100	98
312ORI	4	37	153	97	99
312SMA	4	51	137	97	99
312SMI	0	NS^{Dry}	NS^{Dry}	NS^{Dry}	NS^{Dry}

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS^{Dry} Not sampled due to dry conditions.

- Median sodium concentrations ranged from 14 mg/L at Main Street Canal (312MSD) to 157 mg/L at Orcutt Solomon at Highway 1 (312ORI).

Table 3-98. Descriptive Statistics for Sodium in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
312BCJ	4	22	227	110	96
312GVS	1	24	24	24	24
312MSD	4	8	73	27	14
312OFC	4	25	141	83	83
312OFN	4	31	158	91	88
312ORC	4	87	168	130	134
312ORI	4	65	261	160	157
312SMA	4	78	175	129	131
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Potassium concentrations ranged from 2.5 mg/L at two sites (Main Street Canal [312MSD] and Oso Flaco Creek [312OFC]) to 46.8 mg/L at Little Oso Flaco Creek (312OFN).
- Little Oso Flaco Creek (312OFN) had the highest median potassium concentration (21.3 mg/L).

Table 3-99. Descriptive Statistics for Potassium in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
312BCJ	4	5.6	12.5	10.0	11.0
312GVS	1	7.0	7.0	7.0	7.0
312MSD	4	2.5	7.6	4.5	4.0
312OFC	4	2.5	34.4	15.0	11.5
312OFN	4	12.0	46.8	25.3	21.3
312ORC	4	5.2	17.7	9.7	7.9
312ORI	4	6.7	24.4	11.6	7.6
312SMA	4	5.2	18.2	9.8	7.9
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Median sulfate concentrations in the Santa Maria HU ranged from 65 mg/L at Main Street Canal (312MSD) to 719 mg/L at Orcutt Solomon at Highway 1 (312ORI). Orcutt Solomon at Highway 1 (312ORI) also had the highest recorded concentration of sulfate (2,400 mg/L).

Table 3-100. Descriptive Statistics for Sulfate in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
312BCJ	4	133	698	371	327
312GVS	1	89	89	89	89
312MSD	4	36	405	143	65
312OFC	4	127	843	469	454
312OFN	4	154	635	424	454
312ORC	4	422	1,100	727	693
312ORI	4	249	2,400	1,022	719
312SMA	4	364	1,020	690	689
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- The lowest concentration of chloride (9 mg/L) was measured at Main Street Canal (312MSD) and the highest concentration (453 mg/L) was measured at Orcutt Solomon at Highway 1 (312ORI).

Table 3-101. Descriptive Statistics for Chloride in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
312BCC	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
312BCJ	4	24	119	75	80
312GVS	1	32	32	32	32
312MSD	4	9	54	23	15
312OFC	4	27	133	81	82
312OFN	4	26	107	69	71
312ORC	4	96	242	167	166
312ORI	4	68	453	241	222
312SMA	4	88	239	170	176
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

3.5.9 Dissolved Oxygen

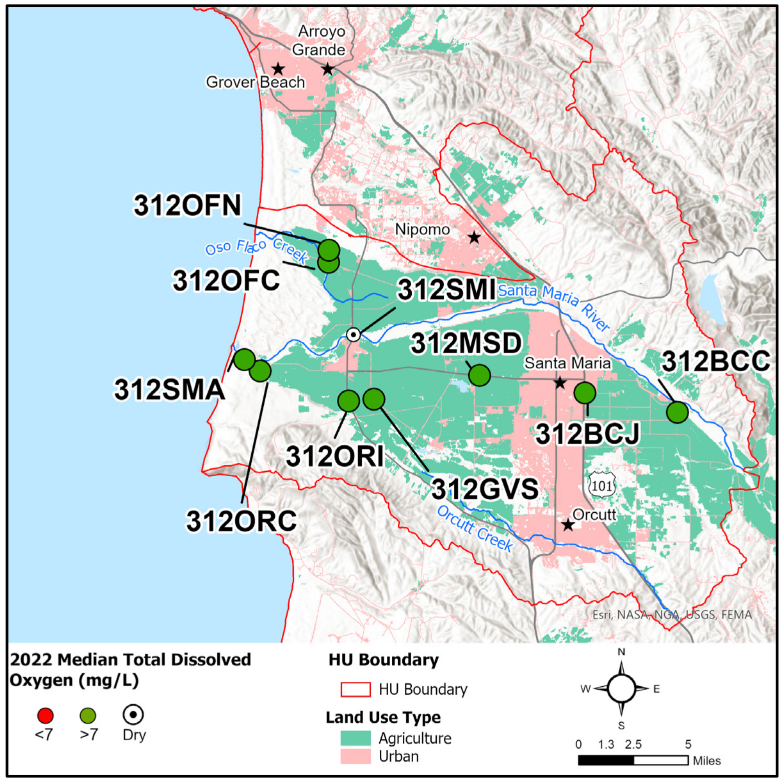


Figure 3-50. 2022 Median Dissolved Oxygen Concentrations for Sites in HU 312

The minimum dissolved oxygen WQO for protection of cold water or spawning aquatic life beneficial uses (7 mg/L) applies to four Santa Maria HU sites, including both Orcutt-Solomon Creek sites (312ORC and 312ORI) and both mainstem Santa Maria River sites (312SMA and 312SMI). The DO objective for protection of warm water beneficial uses (5 mg/L) applies to one Santa Maria HU site, Oso Flaco Creek (312OFC). For sites that do not have specifically assigned beneficial uses, the Basin Plan specifies the following general numeric objectives: 5 mg/L and 85% saturation. The 85% saturation objective is applied on a median basis. General WQOs apply to all waterbodies unless a more protective beneficial use and WQO are designated. The general numeric objectives apply to five sites: Bradley Canyon Creek (312BCC), Bradley Channel (312BCJ), Green Valley Creek (312GVS), Main Street Canal (312MSD) and Little Oso Flaco Creek (312OFN). **Figure 3-50** depicts annual median dissolved oxygen concentrations for sites in the Santa Maria HU for 2022. **Table 3-102** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-103** presents descriptive statistics for oxygen saturation.

- One of the three sites sampled (Orcutt Solomon at Highway 1 [312ORI]) with a minimum WQO of 7 mg/L met the objective in all samples collected.
- Three of the six sites with a minimum WQO of 5 mg/L met the objective in all samples in 2022 (Bradley Canyon Creek [312BCC], Green Valley Creek [312GVS] and Main Street Canal [312MSD]).
- For the period of 2005-2022, five sites showed statistically significant increasing trends in dissolved oxygen concentrations (Bradley Channel [312BCJ], Green Valley Creek [312GVS], Main Street Canal [312MSD], Orcutt Solomon Creek [312ORC], and Santa Maria River at Estuary [312SMA]). One site (Little Oso Flaco Creek [312OFN]) showed a statistically significant decreasing trend in dissolved oxygen concentrations. Trends in dissolved oxygen must be interpreted with caution, as diel patterns in dissolved oxygen can be influenced by temperature and biological activity depending on the time of day at which sampling occurs, and changes in dissolved oxygen can manifest as either depressed or very high concentrations.

Table 3-102. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
312BCC	1	9.38	9.38	9.38	9.38	0%[3]	Decreasing
312BCJ	12	4.99	23.15	16.84	18.66	8%[3]	**Increasing**
312GVS	1	9.86	9.86	9.86	9.86	0%[3]	**Increasing**
312MSD	12	7.23	16.57	10.41	9.85	0%[3]	**Increasing**
312OFC	12	0.83	13.44	8.05	8.61	17%[3]	Increasing
312OFN	12	3.39	11.81	8.28	8.67	25%[3]	**Decreasing**
312ORC	12	4.31	18.34	12.11	11.71	17%	**Increasing**
312ORI	12	7.86	20.32	12.02	11.80	0%	Increasing
312SMA	12	4.27	21.81	12.41	10.27	8%	**Increasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 WQO is >5 mg/L; all other sites have a WQO of >7 mg/L.
NS[Dry] Not sampled due to dry conditions.

- All five sites with the 85% saturation WQO met the objective in all samples collected.
- For the period of 2005-2022, seven sites showed statistically significant increasing trends in oxygen saturation. One site (Little Oso Flaco Creek [312OFN]) showed a statistically significant decreasing trend in oxygen saturation.

Table 3-103. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 312 (%)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
312BCC	1	92	92	92	92	No	Increasing
312BCJ	12	48	295	202	221	No	**Increasing**
312GVS	1	96	96	96	96	No	**Increasing**
312MSD	12	70	197	112	102	No	**Increasing**
312OFC	12	8	155	83	83	N/A	**Increasing**
312OFN	12	37	125	85	89	No	**Decreasing**
312ORC	12	47	211	134	136	N/A	**Increasing**
312ORI	12	85	267	140	126	N/A	**Increasing**
312SMA	12	46	266	134	115	N/A	**Increasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 No monotonic trend (i.e., increasing or decreasing) was identified.
N/A There is no applicable WQO for this site.
NS[Dry] Not sampled due to dry conditions.

3.5.10 pH

The WQO for all Santa Maria HU sites is 7-8.3 standard pH units. For sites with MUN or REC1/REC2 and WARM/COLD beneficial uses, the acceptable pH range is 7-8.3 standard pH units. For sites that are not included in Table 2-1 of the Basin Plan, the acceptable pH range is also 7-8.3 standard pH units, which includes the Basin Plan general and REC1/REC2 WQOs. **Figure 3-51** depicts annual median pH for sites in the Santa Maria HU for 2022, and **Table 3-104** presents descriptive statistics.

- Only two sites met the applicable pH WQO in all samples during 2022 (Green Valley Creek [312GVS] and Little Oso Flaco Creek [312OFN]).
- One sample from one site (Oso Flaco Creek [312OFC]) had a pH level below the minimum criterion of 7.0 standard pH units; all other exceedances pertained to the 8.3 standard pH units WQO.

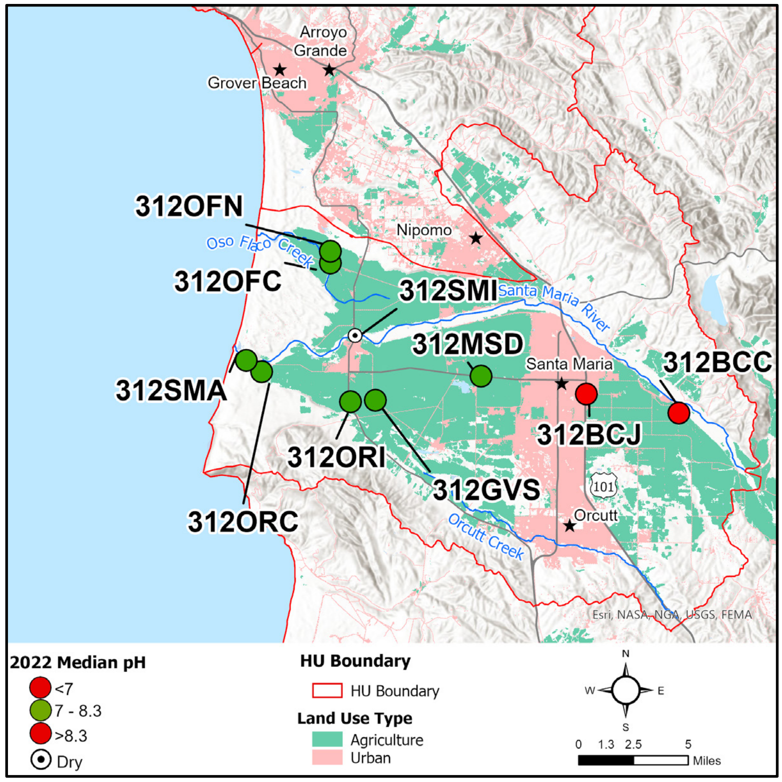


Figure 3-51. 2022 Median pH for Sites in HU 312

- The maximum pH (10.08 pH units) was measured in Main Street Canal (312MSD) in April.
- For the period of 2005-2022, five sites showed statistically significant increasing trends in pH (Green Valley Creek [312GVS], Main Street Canal [312MSD], Oso Flaco Creek [312OFC], Orcutt Solomon Creek [312ORC], and Santa Maria River at Estuary [312SMA]).

Table 3-104. Descriptive Statistics for pH in Hydrologic Unit 312 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
312BCC	1	8.63	8.63	8.63	8.63	100%	Increasing
312BCJ	12	7.26	9.35	8.71	8.87	83%	Increasing
312GVS	1	7.86	7.86	7.86	7.86	0%	**Increasing**
312MSD	12	7.40	10.08	8.14	7.95	42%	**Increasing**
312OFC	12	6.66	8.28	7.63	7.69	8%	**Increasing**
312OFN	12	7.16	8.18	7.77	7.76	0%	Increasing
312ORC	12	7.38	8.46	7.97	8.05	8%	**Increasing**
312ORI	12	7.33	9.33	8.18	8.10	33%	Increasing
312SMA	12	7.42	8.37	7.94	7.93	17%	**Increasing**
312SMI	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
NS[Dry] Not sampled due to dry conditions.

3.5.11 Aquatic Toxicity Results

The potential for toxic effects to aquatic and sediment-dwelling organisms is assessed by the CMP via bioassays for sensitive algal species (*S. capricornutum* growth) in water, and for sensitive invertebrate species in water (*C. dubia* reproduction and *C. dubia and C. dilutus* survival) and sediment (*H. azteca* growth and survival). Test organism survival and reproduction or growth is measured in environmental samples as well as in non-toxic control samples. A statistical test is then applied to determine significant differences in organism performance between environmental and control samples. When test organism performance is significantly lower in the environmental sample than in the control, *and* the difference exceeds a 20% effect threshold, a sample is determined to be "toxic" and in exceedance of the narrative Basin Plan objective for "no toxic substances in toxic amounts". All sites within the Santa Maria HU have a significant toxic effect (*C. dubia* survival/reproduction in water and *H. azteca* survival in sediment) TMDL limit associated with the Santa Maria River Watershed Toxicity and Pesticide TMDL. Additionally, a significant toxic effect non-TMDL area limit for survival, growth, and reproduction in water and sediment applies to sites without a TMDL limit. *H. azteca* reproduction in sediment is not tested for by the CMP so is not included in the non-TMDL area limit exceedance discussion as follows. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect TMDL and non-TMDL area limits in the Pajaro River HU. Results from aquatic and sediment bioassays conducted on samples from the Santa Maria HU in 2022 are illustrated in **Figure 3-52** and tabulated in **Table 3-105**.

- In 2022, toxicity (reduced growth in sample water relative to a non-toxic control) to algae was observed in one of four bioassays collected from Little Oso Flaco Creek (312OFN) (**Figure 3-52 a**). All but one site (Little Oso Flaco Creek [312OFN]) achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-52 a**).
- Significant mortality to *C. dilutus* in water was observed in 16 samples collected from all eight sites sampled. Significant mortality to *C. dubia* in water was observed in 10 samples collected from six sites (**Figure 3-52 b, d**). No site achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-52 b**). Two sites (Green Valley Creek [312GVS] and Main Street Ditch [312MSD]) achieved the significant toxic effect TMDL limit for *C. dubia* survival in water (**Figure 3-52 d**).
- Toxicity to invertebrate reproduction in water was observed in 17 samples collected from all eight sites sampled. All bioassays on water samples collected from Oso Flaco Creek (312OFC) resulted in reproductive toxicity (**Figure 3-52 c**). No site achieved the significant toxic effect TMDL limit for *C. dubia* reproduction in water **(Figure 3-52 c)**.
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. Toxicity to invertebrate growth in sediment was observed in six of the seven sites sampled (Bradley Channel [312BCJ], Main Street Ditch [312MSD], Oso Flaco Creek [312OFC], Little Oso Flaco Creek [312OFN], Orcutt Solomon Creek [312ORC], and Santa Maria River at Estuary [312SMA]). Toxicity to invertebrate survival in sediment was observed in five of the seven sites sampled (Bradley Channel [312BCJ], Main Street Ditch [312MSD], Oso Flaco Creek [312OFC], Little Oso Flaco Creek [312OFN], and Orcutt Solomon at Highway 1 [312ORI]) (**Figure 3-52 e, f**). Of the seven sites sampled in the Santa Maria HU, only one site (Orcutt Solomon at Highway 1 [312ORI]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-52 e**). Of the seven sites sampled, two sites (Orcutt Solomon Creek [312ORC] and Santa Maria River at Estuary [312SMA]) achieved the significant toxic effect TMDL limit for survival in sediment (**Figure 3-52 f**).
- For the period of 2005-2022, all statistically significant interannual trends in toxicity were increasing (improving, reduced toxicity). The following trends were observed:
    - Two sites showed statistically significant increasing trends (improving, reduced toxicity) in invertebrate survival in water (Orcutt Solomon Creek [312ORC] and Santa Maria River at Estuary [312SMA]).

- Two sites showed statistically significant increasing trends (improving, reduced toxicity) in invertebrate growth in sediment (Orcutt Solomon Creek [312ORC] and Orcutt Solomon at Highway 1 [312ORI]).
- Three sites showed statistically significant increasing trends (improving, reduced toxicity) in invertebrate survival in sediment (Orcutt Solomon Creek [312ORC], Orcutt Solomon at Highway 1 [312ORI] and Santa Maria River at Estuary [312SMA]).

Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-105**.

Table 3-105. Summary of Toxicity and Trends in Hydrologic Unit 312

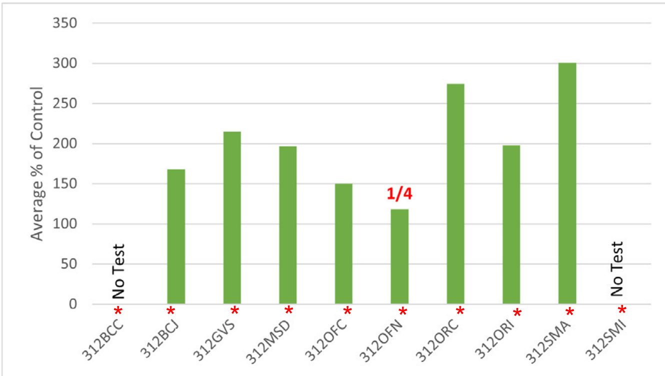
Site ID[1]	Algal Growth		*C. dilutus* Survival		*C. dubia* Reproduction		*C. dubia* Survival		*H. azteca* Growth		*H. azteca* Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
312BCC	0	Increasing	0	Increasing	0	Increasing	0	Increasing	0	Decreasing	0	Decreasing
312BCJ	0/4	Increasing	3/4	Decreasing	2/4	Increasing	2/4	Increasing	1/1	Increasing	1/1	Increasing
312GVS	0/1	Increasing	1/1	Increasing	1/1	Increasing	0/1	Increasing	0	Increasing	0	Increasing
312MSD	0/4	Decreasing	1/4	Increasing	3/4	None[2]	0/4	Increasing	1/1	Increasing	1/1	Increasing
312OFC	0/4	Increasing	3/4	Decreasing	4/4	Increasing	3/4	Decreasing	1/1	Decreasing	1/1	Decreasing
312OFN	1/4	Increasing	2/4	Decreasing	2/4	Decreasing	2/4	Decreasing	1/1	Increasing	1/1	Increasing
312ORC	0/4	Increasing	2/4	Decreasing	2/4	Increasing	1/4	**Increasing**	1/1	**Increasing**	0/1	**Increasing**
312ORI	0/4	Decreasing	1/2	Increasing	1/2	Increasing	1/4	Increasing	1/1	**Increasing**	1/1	**Increasing**
312SMA	0/4	Increasing	3/4	Increasing	2/4	Increasing	1/4	**Increasing**	1/1	Increasing	0/1	**Increasing**
312SMI	0	Increasing	0	Decreasing	0	Increasing	0	Increasing	0	None[3]	0	None[3]

Notes:

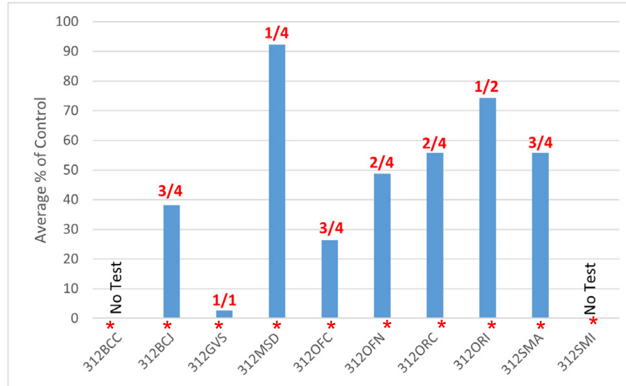
1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

2 None = No monotonic trend (i.e., increasing or decreasing) was identified.

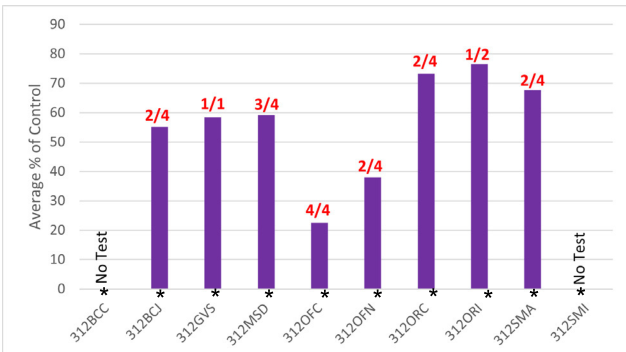
3 None = No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.



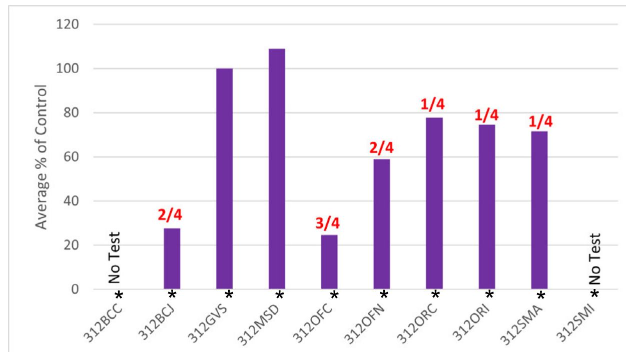
a) Algal Toxicity in Water – Growth



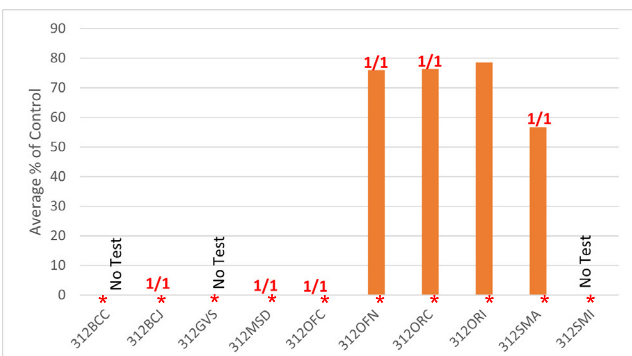
b) *C. dilutus* Toxicity in Water – Survival



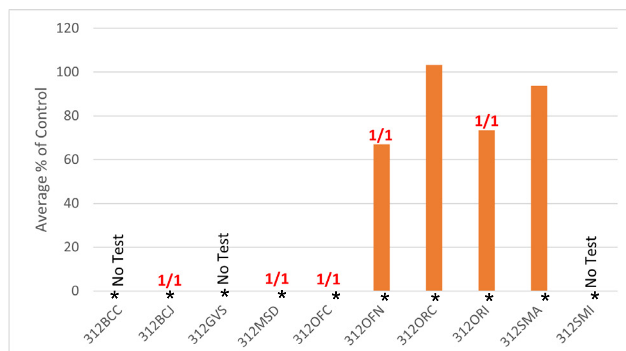
c) *C. dubia* Toxicity in Water – Reproduction



d) *C. dubia* Toxicity in Water – Survival



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-52. Results for Aquatic Toxicity (water and sediment) Monitoring in the Santa Maria Region

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, as compared to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. "No Test" indicates sites where no toxicity samples were collected due to dry channel or ponded conditions.
4. Results >100% indicate organism performance rates in the environmental sample were greater than in the control.
5. If a site experienced "significant toxicity" red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., 1/2 indicates the site had two samples collected, one of which was significantly toxic.)
6. *C. dubia* reproduction graphs generally reflect *C. dubia* tests, but in some cases reflect a salinity-tolerant alternate test species, which in some cases test for "growth" instead of "reproduction" as the sub-lethal endpoint.

* Site with an applicable TMDL limit for a given test species and endpoint.

* Site with an applicable non-TMDL area limit for a given test species and endpoint.

3.6 SAN ANTONIO (HU 313) AND SANTA YNEZ (HU 314) HYDROLOGIC UNIT

Descriptions of the Santa Ynez HU are summarized from the State Water Resources Control Board's (SWRCB) Surface Water Ambient Monitoring Program (SWAMP) *Assessment Report for the Central Coast Region* (SWRCB 2007a). Descriptions of the San Antonio HU are summarized from the *Santa Barbara County Integrated Regional Water Management Plan* (County of Santa Barbara 2019).

The Santa Ynez River Watershed drains approximately 574,885 acres originating in the Santa Ynez Mountains of Los Padres National Forest and is the only major watershed within the Santa Ynez HU. The Santa Ynez River Watershed is the largest drainage system wholly located in Santa Barbara County, draining about 40% of the mainland part of the County. The San Antonio Creek Watershed drains approximately 105,600 acres. The San Antonio Creek Watershed starts at a point approximately 10 miles east of Los Alamos, where it then traverses to the northwest through Los Alamos and Vandenberg Space Force Base to the ocean. The lower reaches of San Antonio Creek on Vandenberg Space Force Base have a perennial flow primarily due to surfacing of an impermeable geologic unit near Barka Slough, which forces groundwater into the creek.

The Santa Ynez River Watershed is the primary source of water for about two-thirds of Santa Barbara County residents. Three reservoirs have been created along the river course. The Jamison and Gibraltar Reservoirs are located within Los Padres National Forest. Major tributaries to the river above these reservoirs include North Fork Juncal Creek, Agua Caliente Canyon Creek, Mono Creek, and Indian Creek. Cachuma Reservoir is located along Highway 154. Major tributaries to the river between Gibraltar and Cachuma dam include Santa Cruz Creek and Cachuma Creek. The lower reaches of the river flow through Vandenberg Space Force Base property to the ocean at Surf Beach. Major tributaries below Cachuma Dam include Santa Agueda Creek, Alamo Pintado Creek, Zaca Creek, Santa Rosa Creek, and Salsipuedes Creek.

Land uses that may impact water quality in the Santa Ynez River Watershed include recreation (numerous campground and day use areas along the river in the National Forest and at Lake Cachuma), grazing, dry land agriculture, viticulture, and rural residential areas (including many horse facilities). Urban and residential areas in the watershed include Solvang, Buellton, and Lompoc. The City of Lompoc's wastewater treatment plant (WWTP) discharges to the river via San Miguelito Creek. The Santa Ynez River below Lompoc is dominated by the treated wastewater discharge during periods of low natural flow. The primary land uses in the San Antonio Creek Watershed include ranching and agricultural cultivation, with annual or vegetable crops in the flat areas, wine grapes in the transitional uplands, and dry farming. Irrigated crops depend on groundwater supply.

Monitoring for the CMP in the Santa Ynez HU was initiated in January 2006. There are three core CMP sites in the Santa Ynez HU, all of which are located on the Santa Ynez River. The most upstream site (314SYL) is located just upstream of Lompoc. This site is influenced by agricultural uses primarily concentrated along approximately 20 miles of river stretching upstream to the town of Santa Ynez. The middle site is located just downstream of Lompoc (314SYF) and the Lompoc WWTP discharge point. The most downstream site (314SYN) is located below an area dominated by approximately nine square miles of intensive agricultural use, downstream and west of Lompoc. Monitoring for the CMP in San Antonio HU was initiated in January 2006. The only core CMP site in the San Antonio HU is located on San Antonio Creek, upstream of Barka Slough and immediately above San Antonio Road East (**Figure 3-53**).

The beneficial uses designated by the Basin Plan for the Santa Ynez River and its estuary include nearly every beneficial use, with the only exceptions being preservation of biological habitats of special significance, estuarine habitat, and shellfish harvesting. The beneficial uses designated by the Basin Plan for San Antonio Creek include nearly every beneficial use except for industrial process and service supply, estuarine habitat, preservation of biological habitats of special significance, estuarine habitat, and shellfish harvesting (Table 2-2).

There are no TMDLs applicable to sites within the San Antonio and Santa Ynez HUs. However, non-TMDL area limits for turbidity, nutrients, and toxicity exist for sites within the San Antonio and Santa Ynez HUs. See **Appendix A** for a summary of applicable routine parameter non-TMDL area limits for sites in the San Antonio and Santa Ynez HUs.

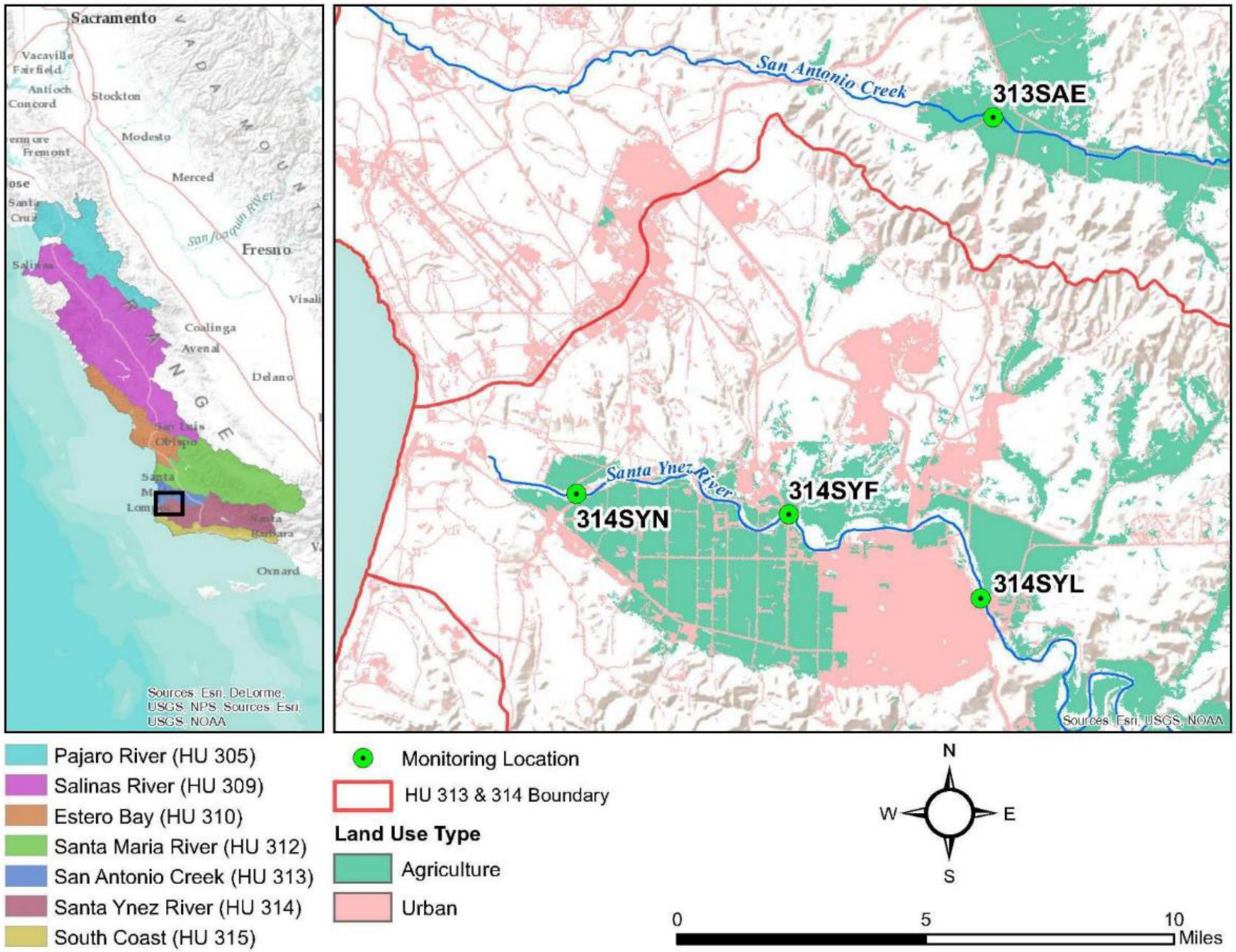


Figure 3-53. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Santa Ynez and San Antonio Hydrologic Units

3.6.1 Flow Results

The flow regime in the Santa Ynez River Watershed is characterized by precipitation that occurs primarily from November through April. Flows typically decrease rapidly in May and the riverbed is often dry between June and November. Dry season flows in the upper Santa Ynez mainstem are due to outflows from Lake Cachuma, which were historically around 40 to 60 CFS. During the 2022 monitoring year, the annual average flow (7.34 CFS) at the *Santa Ynez River near Narrows* USGS stream gage was considerably higher than the historic annual average (111.9 CFS, 1953-2021) and ranged from 0 CFS from May through August to 184 CFS (December 11, 2022) (USGS 2023)[1]. The 2022 cumulative annual rainfall (9.08”) at the *Santa Ynez* rain gauge was lower than the historic average (16.3”, 1986-2021) (**Figure 3-54**) (CDWR 2023). Above average flow and below average rain were potentially caused by increased releases from Lake Cachuma; over 9,000 acre-feet were released in October through December of 2022.

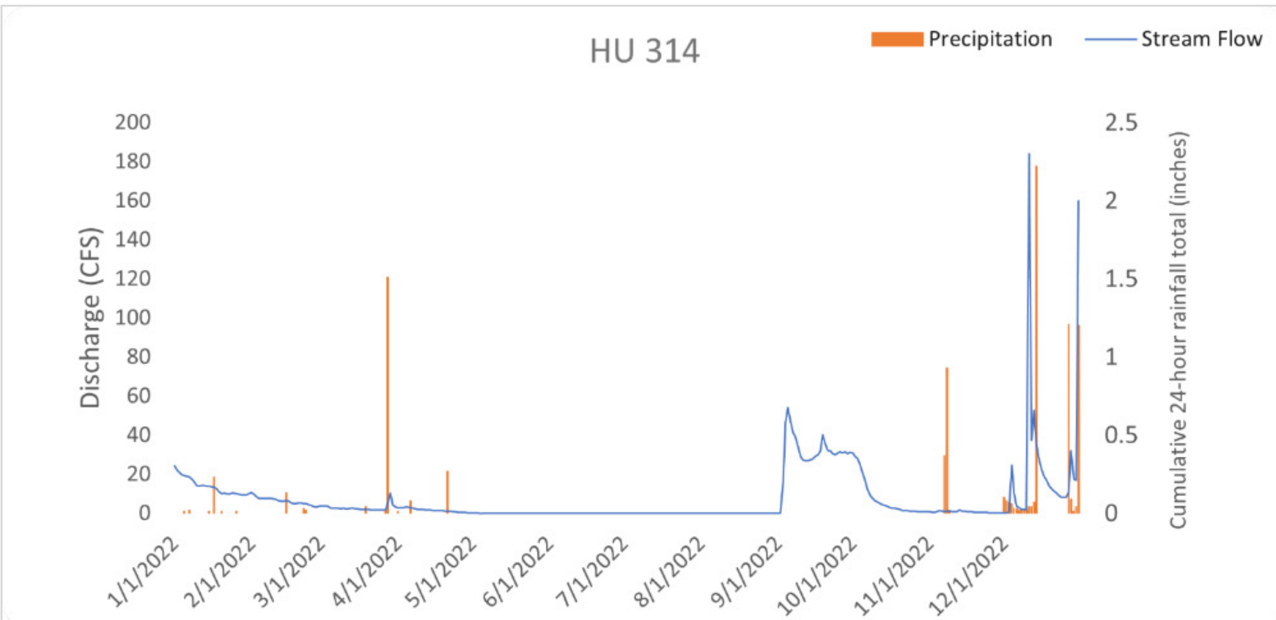


Figure 3-54. 2022 Hydrograph and Total Daily Precipitation Record for Santa Ynez River near Narrows

[1] USGS data contains provisional values, subject to revision; flow values may have been updated since the publishing of this report.

In 2022, flows measured at the four San Antonio and Santa Ynez HU monitoring sites were generally influenced by wet season precipitation with elevated flows occurring in October and December. **Figure 3-55** depicts annual median flow for sites within the San Antonio and Santa Ynez HUs for 2022, and **Table 3-106** presents descriptive statistics.

- During 2022, measured flows ranged from negative flow (-7.54 CFS) due to tidal influence, to 151.82 CFS at Santa Ynez River at 13th St. (314SYN).
- San Antonio Creek (313SAE) was dry for 10 months of the monitoring year and Santa Ynez River at River Park (314SYL) was dry for nine months of the monitoring year.
- Median flows during 2022 ranged from no flow at San Antonio Creek (313SAE) and Santa Ynez River at River Park (314SYL) to 2.94 CFS at Santa Ynez River at Floradale Ave. (314SYF).
- For the period of 2005-2022, all three Santa Ynez River sites showed statistically significant decreasing trends in flow.

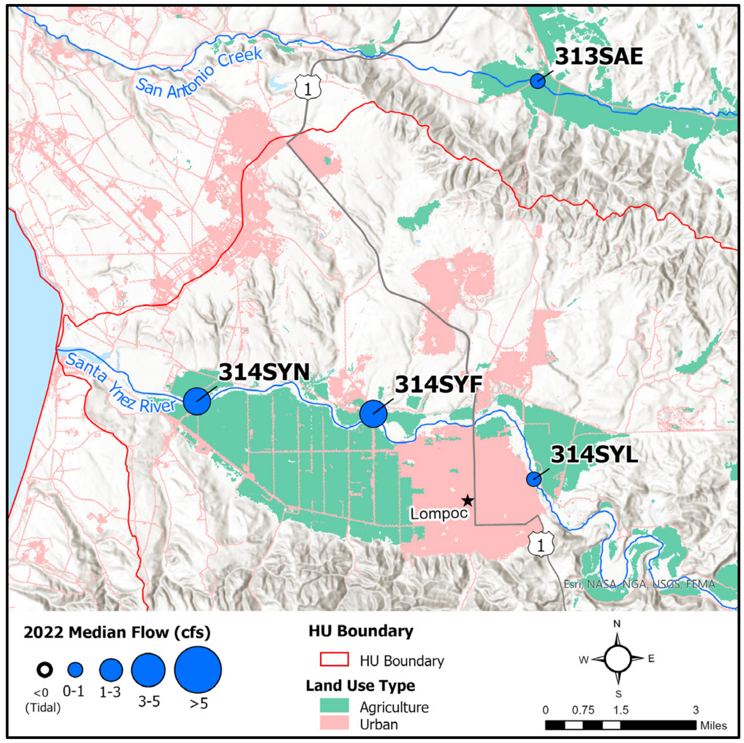


Figure 3-55. 2022 Median Flows for Sites in HUs 313 and 314

Table 3-106. Descriptive Statistics for Flow in Hydrologic Unit 313 and 314 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	12	0.00	0.03	0.00	0.00	Increasing
314SYF	7	1.52	4.05	3.02	2.94	**Decreasing**
314SYL	12	0.00	80.22	7.77	0.00	**Decreasing**
314SYN	12	-7.54	151.82	14.30	2.30	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.6.2 Water Temperature

The Basin Plan contains a general WQO for temperature: natural receiving water temperature of intrastate waters shall not be altered. The Basin Plan also has specific objectives for cold and warm water habitats: At no time or place shall the temperature be increased by more than 5 °F above natural receiving water temperature. Water temperature can influence the results of other field measurements including dissolved oxygen, pH, and conductivity and therefore is an important factor to consider when interpreting results. The temperature of certain water bodies can also fluctuate greatly over a 24-hour period. This fluctuation means that results and trends should be interpreted with discretion, as they can be affected by the time of day at which the sample is collected.

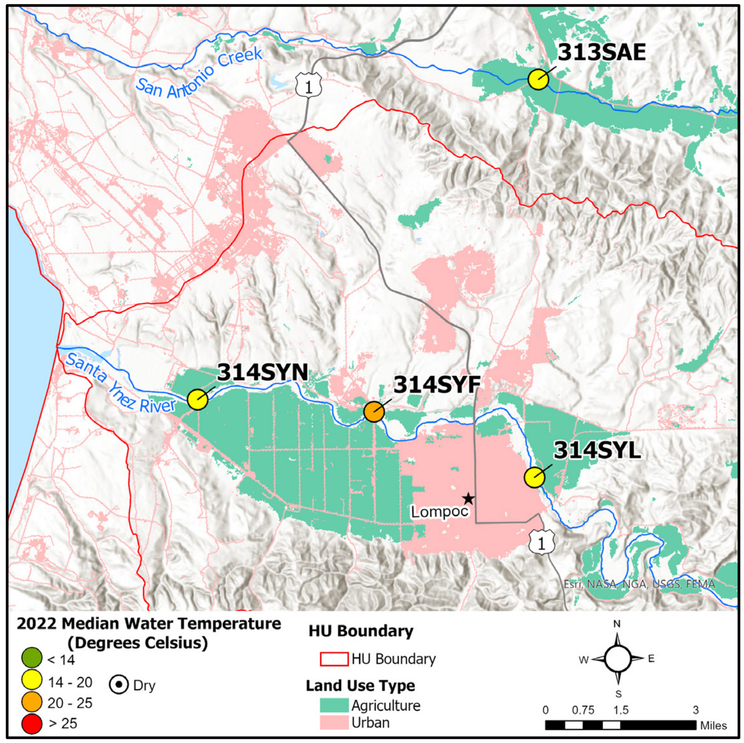


Figure 3-56. 2022 Median Water Temperature for Sites in HUs 313 and 314

Temperature of natural receiving waters has not been defined for waterbodies within the San Antonio and Santa Ynez HUs; therefore, the focus of this report is descriptive statistics. The maximum mean expected summer background temperature is 21.9 °C for the San Antonio HU and 23.7 °C for the Santa Ynez HU (Hill et al. 2013). In 2022, water temperatures peaked at most sites in the San Antonio and Santa Ynez HUs during the month of September and minimum temperatures at most sites were recorded during November through January. **Figure 3-56** depicts annual median temperatures for sites in the San Antonio and Santa Ynez HUs for 2022, and **Table 3-107** presents descriptive statistics.

- Median temperatures in the San Antonio and Santa Ynez HUs ranged from 15.0 °C to 21.2 °C in 2022.
- The lowest water temperature (11.4 °C) was measured at Santa Ynez River at 13th St. (314SYN) and the highest water temperature (23.4 °C) was observed at Santa Ynez River at River Park (314SYL).
- For the period of 2005-2022, one site (Santa Ynez River at Floradale [314SYF]) showed a statistically significant decreasing trend in water temperature.

Table 3-107. Descriptive Statistics for Water Temperature in Hydrologic Unit 313 and 314 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	15.0	15.1	15.1	15.1	Decreasing[3]
314SYF	7	17.8	22.8	20.3	21.2	**Decreasing**
314SYL	3	12.5	23.4	17.0	15.0	Decreasing
314SYN	12	11.4	22.8	17.1	17.4	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

3.6.3 Turbidity and TSS Results

All sites in the Santa Ynez and San Antonio HUs have a cold water beneficial use, which has a non-TMDL area turbidity limit of 25 NTU. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for turbidity in the San Antonio and Santa Ynez HUs. **Figure 3-57** depicts annual median turbidity concentrations and TSS loading for sites in the Santa Ynez and San Antonio HUs for 2022, and **Table 3-108** and **Appendix B** present descriptive statistics and turbidity limit exceedances for turbidity.

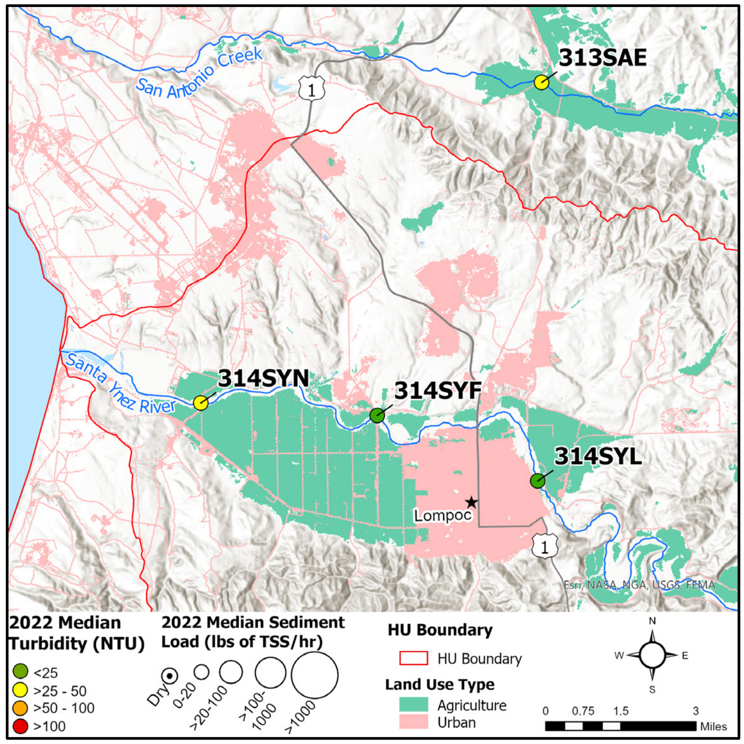


Figure 3-57. 2022 Median Turbidity and TSS Loading for Sites in HUs 313 and 314

- The minimum turbidity (3 NTU) was measured in the Santa Ynez River at River Park (314SYL) and the maximum turbidity (999 NTU) was observed at Santa Ynez River at River Park (314SYL) and Santa Ynez River at 13th St. (314SYN).
- In 2022, median turbidity levels in the San Antonio and Santa Ynez HUs ranged from 9 NTU (Santa Ynez River at River Park [314SYL]) to 40 NTU (Santa Ynez River at 13th St. [314SYN]).
- One site (Santa Ynez River at Floradale Ave. [314SYF]) achieved the 25 NTU turbidity limit in all samples collected. Two sites exceeded the turbidity limit in at least 50% of samples (San Antonio Creek [313SAE] and Santa Ynez River at 13th St. [314SYN]).
- Low median flows and TSS concentrations resulted in low TSS loadings throughout the Santa Ynez HU. (**Appendix B**).
- For the period of 2005-2022, one site showed a statistically significant increasing trend in turbidity (Santa Ynez River at 13th St. [314SYN]).
- For the period of 2012-2022, two sites showed statistically significant increasing trends in TSS loading (Santa Ynez River at River Park [314SYL] and Santa Ynez River at 13th St. [314SYN]). TSS was not monitored prior to 2012, so the period of record for TSS trend analysis is shorter than that for turbidity and flow.

Table 3-108. Descriptive Statistics for Turbidity in Hydrologic Unit 313 and 314 (NTU)

Site ID[1]	N	Min	Max	Mean	Median	Non TMDL Area Limit Percent Exceedance[2]	Turbidity Trend[3,4]	TSS Loading Trend[2,3]
313SAE	2	14	43	29	29	50%	Decreasing[5]	Increasing
314SYF	7	8	16	13	13	0%	Increasing	Increasing
314SYL	3	3	999	337	9	33%	Increasing	**Increasing**
314SYN	12	5	999	116	40	58%	**Increasing**	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 The relevant numeric criterion is 25.0 NTU [COLD].
3 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
4 Turbidity was monitored from 2005-2022 and TSS was monitored from 2012-2022.
5 Non-seasonal Mann-Kendall Analysis performed.
6 No monotonic trend (i.e., increasing or decreasing) was identified.

3.6.4 Unionized Ammonia and Total Ammonia

All sites within the San Antonio and Santa Ynez HUs have a non-TMDL area unionized ammonia limit of 0.025 mg/L (**Appendix A**). See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL and non-TMDL area limits for unionized ammonia in the San Antonio and Santa Ynez HUs. **Figure 3-58** depicts annual median unionized ammonia concentrations for sites in the Santa Ynez and San Antonio HUs for 2022, **Table 3-109** presents descriptive statistics, and **Table 3-110** and **Appendix B** present non-TMDL area limit exceedances.

Samples were also collected and analyzed for total ammonia. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total ammonia applicable to CMP sites in the Santa Ynez and San Antonio HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-111**.

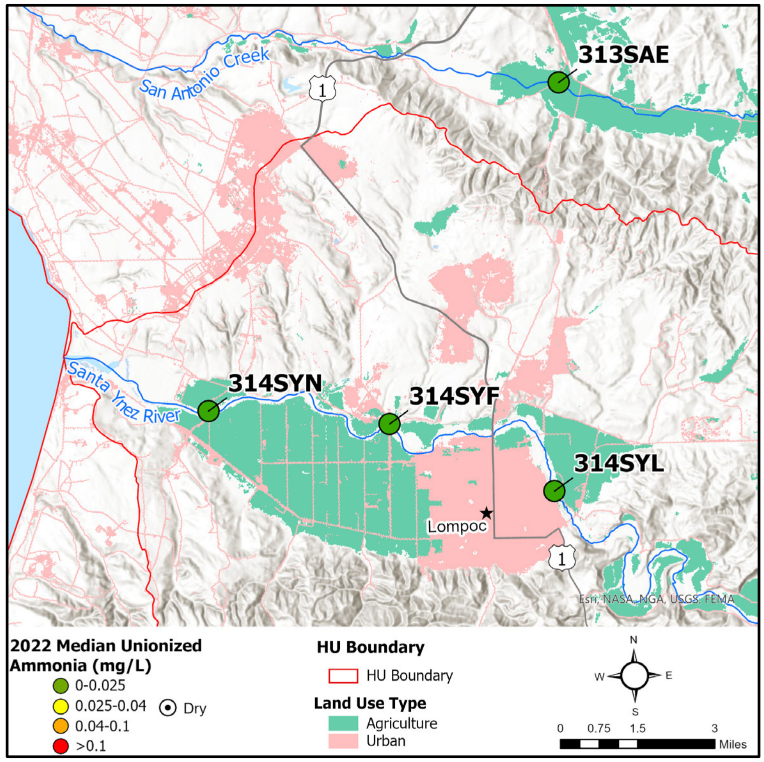


Figure 3-58. 2022 Median Unionized Ammonia for Sites in HUs 313 and 314

- In 2022, unionized ammonia concentrations in the San Antonio and Santa Ynez HUs ranged from 0.0004 mg/L at Santa Ynez River at Floradale Ave. (314SYF) to 0.0488 mg/L at the Santa Ynez River at 13th St. (314SYN).
- Median unionized ammonia concentrations in 2022 ranged from 0.0008 mg/L at the Santa Ynez River at Floradale Ave. (314SYF) to 0.0047 mg/L at Santa Ynez River at 13th St. (314SYN).
- For the period of 2005-2022, one site (Santa Ynez River at Floradale Ave. [314SYF]) showed a statistically significant decreasing trend in unionized ammonia concentrations.

Table 3-109. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	0.0017	0.0030	0.0024	0.0024	Decreasing[3]
314SYF	6	0.0004	0.0036	0.0013	0.0008	**Decreasing**
314SYL	3	0.0007	0.0016	0.0012	0.0012	Decreasing
314SYN	12	0.0005	0.0488	0.0117	0.0047	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

- All sites except for Santa Ynez River at 13th St. (314SYN) met the unionized ammonia non-TMDL Area limit of 0.025 mg/L for all sampling events in 2022. Santa Ynez River at 13th St. (314SYN) exceeded the non-TMDL area limit in 17% of samples collected.

Table 3-110. Summary of Non-TMDL Area Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Units 313 and 314

Site ID[1]	Non TMDL Area Limit Percent Exceedance[2]
313SAE	0%
314SYF	0%
314SYL	0%
314SYN	17%

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The relevant numeric criterion is 0.025 mg/L.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2022, two sites (Santa Ynez River at Floradale Ave. [314SYF] and River Park [314SYL]) showed statistically significant decreasing trends in total ammonia concentrations.

Table 3-111. Descriptive Statistics for Total Ammonia in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	0.022	0.076	0.049	0.049	Decreasing[3]
314SYF	6	0.061	0.152	0.113	0.127	**Decreasing**
314SYL	3	0.014	0.054	0.031	0.025	**Decreasing**
314SYN	12	0.051	1.480	0.486	0.311	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

3.6.5 Nitrate and Total Nitrogen

Samples were collected and analyzed for "nitrate + nitrite"; however, this report primarily refers to "nitrate" as nitrite levels are assumed to be very low. All sites within the San Antonio and Santa Ynez HUs are located outside of a nutrient TMDL area and therefore have a non-TMDL area limit for nitrate. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for nitrate in the San Antonio and Santa Ynez HUs. **Figure 3-59** depicts annual median nitrate concentrations and loading for sites in the Santa Ynez and San Antonio HUs for 2022,

Table 3-112 presents descriptive statistics, and **Table 3-113** and **Appendix B** present non-TMDL area limit exceedances for nitrate.

Samples were also collected and analyzed for total nitrogen. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total nitrogen applicable to CMP sites in the Santa Ynez and San Antonio HUs. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-114**.

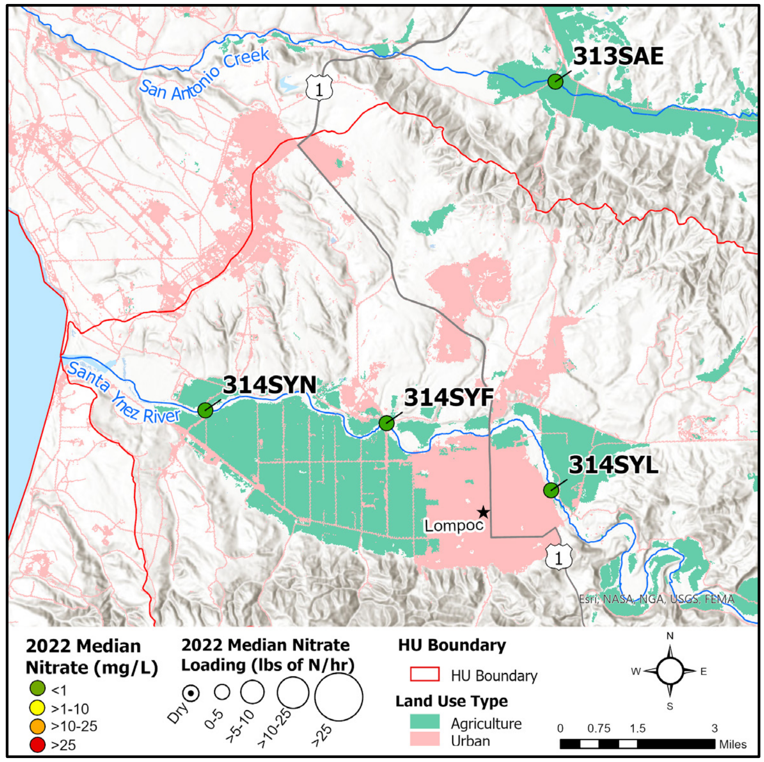


Figure 3-59. 2022 Median Nitrate as N for Sites in HUs 313 and 314

- Nitrate concentrations in the Santa Ynez and San Antonio HUs ranged from 0.01 mg/L at the River Park site (314SYL) to 8.68 mg/L at Santa Ynez River at Floradale Ave. (314SYF).
- Median nitrate concentrations in the Santa Ynez and San Antonio HUs for 2022 ranged from 0.10 mg/L at the Santa Ynez River at River Park (314SYL) to 5.87 mg/L in the Santa Ynez River at Floradale Ave. (314SYF).
- Low median flows and nitrate concentrations resulted in low nitrate loading throughout the Santa Ynez HU. (**Appendix B**).
- For the period of 2005-2022, two sites (Santa Ynez River at Floradale Ave. [314SYF] and 13th Street [314SYN]) showed statistically significant decreasing trends in both nitrate concentrations and nitrate loading.

Table 3-112. Descriptive Statistics for Nitrate in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Nitrate Trend[2]	Nitrate Loading Trend[2]
313SAE	2	0.12	1.40	0.76	0.76	Decreasing[3]	Increasing
314SYF	7	3.92	8.68	5.91	5.87	**Decreasing**	**Decreasing**
314SYL	3	0.01	0.39	0.16	0.10	Increasing	Decreasing
314SYN	12	0.09	1.84	0.63	0.45	**Decreasing**	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

- All sites met the 10 mg/L non-TMDL area limit for nitrate during 2022.

Table 3-113. Summary of Non-TMDL Area Nutrient Limit Exceedances for Nitrate in Hydrologic Units 313 and 314

Site ID[1]	Non TMDL Area Limit Percent Exceedance[2]
313SAE	0%
314SYF	0%
314SYL	0%
314SYN	0%

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The relevant numeric criterion is 10.0 mg/L.

- Median total nitrogen concentrations ranged from 0.5 mg/L at Santa Ynez River at River Park (314SYL) to 7.2 mg/L at Santa Ynez River at Floradale Ave. (314SYF).
- For the period of 2005-2022, no sites showed a statistically significant trend in total nitrogen.

Table 3-114. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	0	NS	NS	NS	NS	Decreasing[3]
314SYF	7	5.4	10.3	7.3	7.2	Increasing
314SYL	3	0.2	5.6	2.1	0.5	Increasing
314SYN	10	1.7	16.6	6.1	4.4	Increasing

Notes:
4 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
5 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
6 Non-seasonal Mann-Kendall Analysis performed.
NS Not sampled for total nitrogen.

3.6.6 Orthophosphate and Total Phosphorus

There is currently no applicable TMDL limit, non-TMDL Area limit, or numeric WQO for orthophosphate as P or total phosphorus in the Basin Plan applicable to CMP sites in the San Antonio and Santa Ynez HUs. **Figure 3-60** depicts annual median orthophosphate concentrations for sites in the Santa Ynez and San Antonio HUs in 2022. **Table 3-115** and **Table 3-116** present descriptive statistics for orthophosphate and total phosphorus, respectively.

- Orthophosphate concentrations in the Santa Ynez and San Antonio HUs for 2022 ranged from 0.044 mg/L at Santa Ynez River at River Park (314SYL) to 5.830 mg/L at the Floradale Ave. site (314SYF).
- In 2022, the median orthophosphate concentrations ranged from 0.078 mg/L at the River Park site (314SYL) to 5.090 mg/L at the Floradale Ave. site (314SYF).

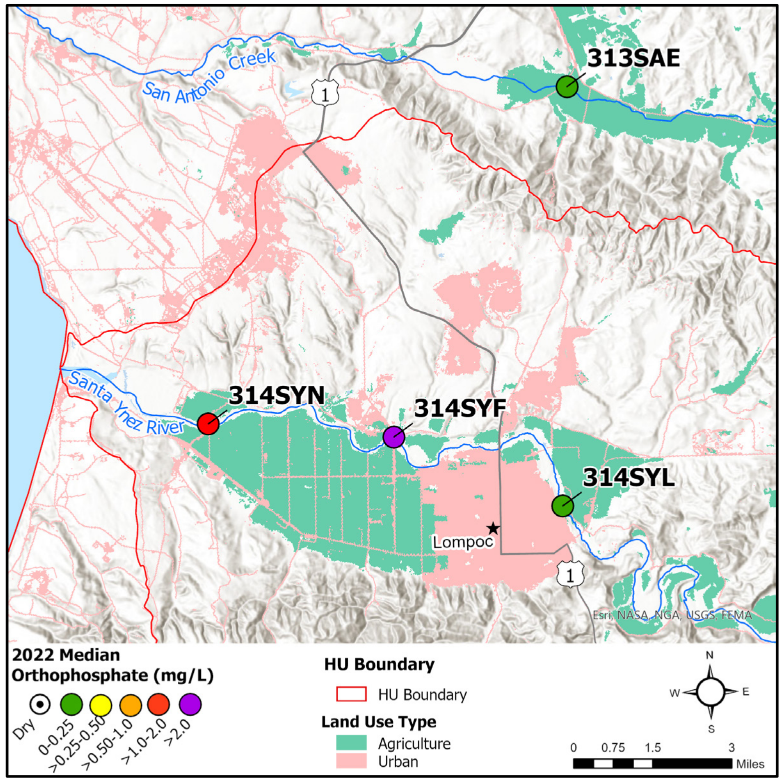


Figure 3-60. 2022 Median Orthophosphate as P for Sites in HUs 313 and 314

- For the period of 2005-2022, one site (Santa Ynez River at River Park [314SYL]) showed a statistically significant decreasing trend in orthophosphate concentrations.

Table 3-115. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	0.125	0.317	0.221	0.221	Decreasing[3]
314SYF	6	4.130	5.830	5.037	5.090	Increasing
314SYL	3	0.044	0.112	0.078	0.078	**Decreasing**
314SYN	12	0.385	2.680	1.608	1.525	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations.
- Median concentrations for total phosphorus ranged from 0.169 mg/L at the River Park site (314SYL) to 5.695 mg/L at the Floradale Ave. site (314SYF).
- The maximum total phosphorus concentration at any Santa Ynez HU site was observed at 13th St. (314SYN) (8.240 mg/L).
- For the period of 2005-2022, no sites showed statistically significant trends in total phosphorus concentrations.

Table 3-116. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	0.155	1.020	0.588	0.588	Decreasing[3]
314SYF	6	4.380	6.690	5.620	5.695	Decreasing
314SYL	3	0.043	2.030	0.747	0.169	Increasing
314SYN	12	1.200	8.240	2.630	1.945	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

3.6.7 Specific Conductivity

A conductivity objective to protect agricultural uses applies to all CMP monitoring sites in the Santa Ynez and San Antonio HUs. This agricultural objective does not define a numeric value to evaluate exceedance frequencies, but provides ranges:

- <750 µS/cm, "No Problem";
- 750-3,000 µS/cm, "Increasing Problems" and
- >3,000 µS/cm, "Severe".

Figure 3-61 depicts annual median conductivity for sites within the Santa Ynez and San Antonio Creek HUs in 2022 and **Table 3-117** presents descriptive statistics.

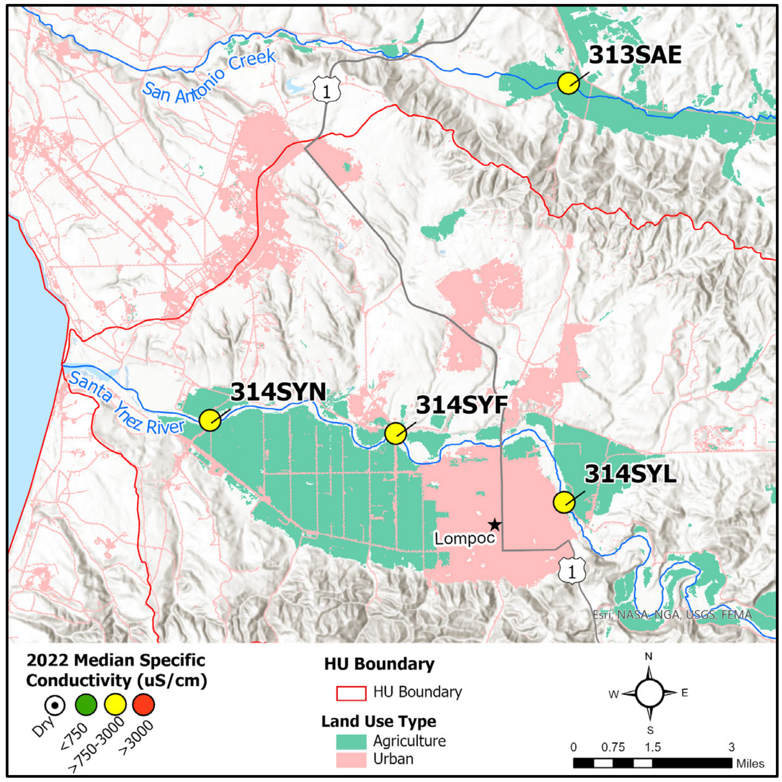


Figure 3-61. 2022 Median Conductivity for Sites in HUs 313 and 314

- Both the lowest (193 µS/cm) and highest (8,021 µS/cm) conductivity measurements in the Santa Ynez and San Antonio HUs were recorded at Santa Ynez River at 13th St. (314SYN).
- Median conductivities in the Santa Ynez and San Antonio HUs for 2022 ranged from 1,018 µS/cm at San Antonio Creek (313SAE) to 2,817 µS/cm at Santa Ynez River at 13th Street (314SYN).
- All sites had median conductivities above the low-end of the listed ranges (750 µS/cm) and below the high-end of the listed ranges (3,000 µS/cm) indicating increasing problems.
- For the period of 2005-2022, Santa Ynez River at Floradale Ave. (314SYF) showed a statistically significant decreasing trend in conductivity.

Table 3-117. Descriptive Statistics for Conductivity in Hydrologic Unit 313 and 314 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	677	1,359	1,018	1,018	Increasing[3]
314SYF	7	1,463	1,633	1,572	1,598	**Decreasing**
314SYL	3	396	1,504	1,042	1,225	Decreasing
314SYN	12	193	8,021	3,283	2,817	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3 Non-seasonal Mann-Kendall Analysis performed.

3.6.8 Total Dissolved Solids and Salinity

All three sites in the Santa Ynez HU have a TDS WQO of 1,000 mg/L. The objective is applied as an annual average. One CMP monitoring site in the San Antonio HU (San Antonio Creek at San Antonio Rd East [313SAE]) does not have an applicable TDS WQO. The Basin Plan contains no numeric WQOs for the following analytes for CMP sites in Santa Ynez and San Antonio HUs: salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride. No trend analyses were performed on the latter six analytes due to limited historical data associated with them. Therefore, the focus of this report is descriptive statistics. **Figure 3-62** depicts the median TDS concentrations for sites within the Santa Ynez and San Antonio HUs in 2022. **Table 3-118**, **Table 3-119, Table 3-120**, **Table 3-121**, **Table 3-122**, **Table 3-123**, **Table 3-124**, **Table 3-125**, and **Table 3-126** present descriptive statistics for TDS, salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride, respectively.

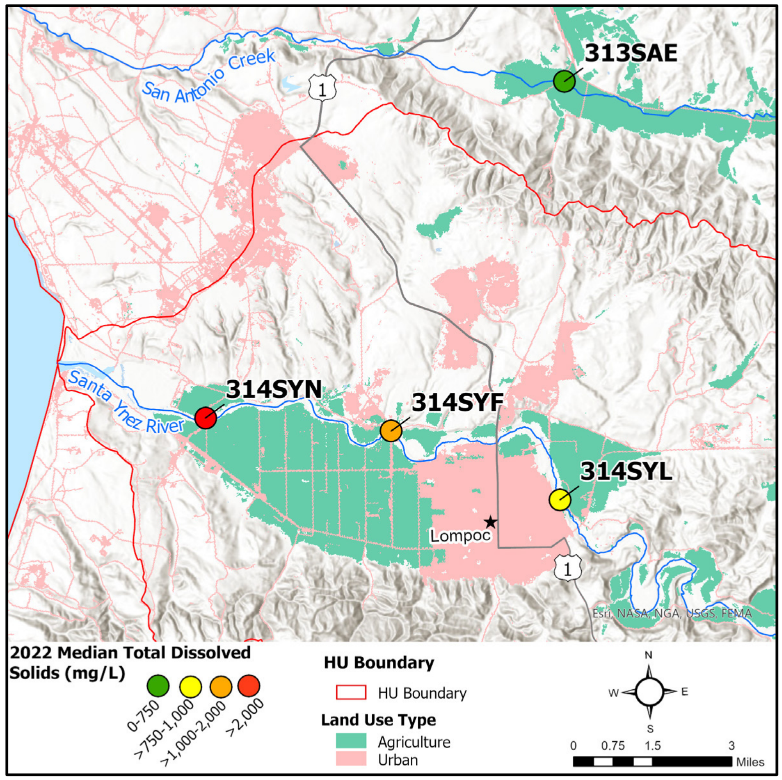


Figure 3-62. 2022 Median TDS for Sites in HUs 313 and 314

- Median TDS concentrations in the Santa Ynez and San Antonio HUs for 2022 ranged from 659 mg/L at Santa Antonio Creek (313SAE) to 2,467 mg/L at Santa Ynez River at 13th St. (314SYN).
- The maximum TDS measurement in the Santa Ynez and San Antonio HUs for 2022 was 5,190 mg/L at the 13th Street site (314SYN).
- One of the three Santa Ynez River sites (River Park [314SYL]) met the WQO of 1,000 mg/L on a mean basis (796 mg/L).
- For the period of 2005-2022, two Santa Ynez River sites (Floradale Ave. [314SYF] and River Park [314SYL]) showed statistically significant decreasing trends in TDS concentration. The same two sites showed decreasing trends in salinity.

Table 3-118. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
313SAE	2	434	883	659	659	N/A	Increasing[3]
314SYF	7	951	1,062	1,022	1,039	Yes	**Decreasing**
314SYL	3	257	978	677	796	No	**Decreasing**
314SYN	12	259	5,190	2,427	2,467	Yes	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.
N/A There is no applicable WQO for this site.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- For the period of 2005-2022, two Santa Ynez River sites (Floradale Ave. [314SYF] and River Park [314SYL]) showed statistically significant decreasing trends in salinity.

Table 3-119. Descriptive Statistics for Salinity in Hydrologic Unit 313 and 314 (ppt)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	2	0.33	0.68	0.51	0.51	Increasing[3]
314SYF	7	0.74	0.83	0.79	0.81	**Decreasing**
314SYL	3	0.19	0.76	0.52	0.61	**Decreasing**
314SYN	12	0.19	4.40	2.00	1.97	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

- Median alkalinity concentrations in the Santa Ynez HU ranged from 99 mg/L at Santa Ynez River at Floradale Ave. (314SYF) to 204 mg/L at Santa Ynez River at River Park (314SYL).

Table 3-120. Descriptive Statistics for Alkalinity in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	90	108	99	99
314SYL	2	117	290	204	204
314SYN	4	92	502	222	147

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- The lowest concentration of calcium (72 mg/L) was measured at Santa Ynez River at Floradale Ave. (314SYF), and the highest concentration (295 mg/L) was measured at Santa Ynez River at 13th St. (314SYN).
- Santa Ynez River at River Park (314SYL) had the highest median concentration (99 mg/L) in the Santa Ynez HU.

Table 3-121. Descriptive Statistics for Calcium in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	72	73	73	73
314SYL	2	74	124	99	99
314SYN	4	44	295	120	70

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Median magnesium concentrations in the Santa Ynez HU ranged from 32 mg/L at Santa Ynez River at Floradale Ave. (314SYF) to 50 mg/L at Santa Ynez River at River Park (314SYL).

Table 3-122. Descriptive Statistics for Magnesium in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	32	32	32	32
314SYL	2	35	64	50	50
314SYN	4	17	237	80	33

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Median sodium concentrations in the Santa Ynez HU ranged from 54 mg/L at Santa Ynez River at River Park (314SYL) to 194 mg/L at Santa Ynez River at Floradale Ave (314SYF).

Table 3-123. Descriptive Statistics for Sodium in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	180	207	194	194
314SYL	2	29	79	54	54
314SYN	4	35	1,090	357	151

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Potassium concentrations ranged from 2.5 mg/L at Santa Ynez River at River Park (314SYL) to 37.3 mg/L at Santa Ynez River at 13th St. (314SYN).

Table 3-124. Descriptive Statistics for Potassium in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	18.6	19.8	19.2	19.2
314SYL	2	2.5	8.4	5.4	5.4
314SYN	4	6.8	37.3	17.4	12.8

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- Median sulfate concentrations ranged from 196 mg/L at Santa Ynez River at River Park (314SYL) to 378 mg/L at Santa Ynez River at Floradale Ave. (314SYF). Santa Ynez River at 13th St. (314SYN) had the highest recorded concentration of sulfate (906 mg/L).

Table 3-125. Descriptive Statistics for Sulfate in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	336	420	378	378
314SYL	2	72	321	196	196
314SYN	4	69	906	384	280

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

- The lowest concentration of chloride (25 mg/L) was measured at Santa Ynez River at River Park (314SYL) and the highest concentration (1,970 mg/L) was measured at Santa Ynez River at 13th St. (314SYN).

Table 3-126. Descriptive Statistics for Chloride in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
313SAE	0	NS[Dry]	NS[Dry]	NS[Dry]	NS[Dry]
314SYF	2	180	224	202	202
314SYL	2	25	56	40	41
314SYN	4	30	1,970	595	190

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
NS[Dry] Not sampled due to dry conditions.

3.6.9 Dissolved Oxygen

The minimum DO WQO for protection of cold water or spawning aquatic life beneficial uses (7 mg/L) applies to all CMP sites in the Santa Ynez and San Antonio HUs. **Figure 3-63** depicts annual median dissolved oxygen concentrations for sites within the Santa Ynez and San Antonio HUs in 2022, **Table 3-127** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-128** presents descriptive statistics for oxygen saturation.

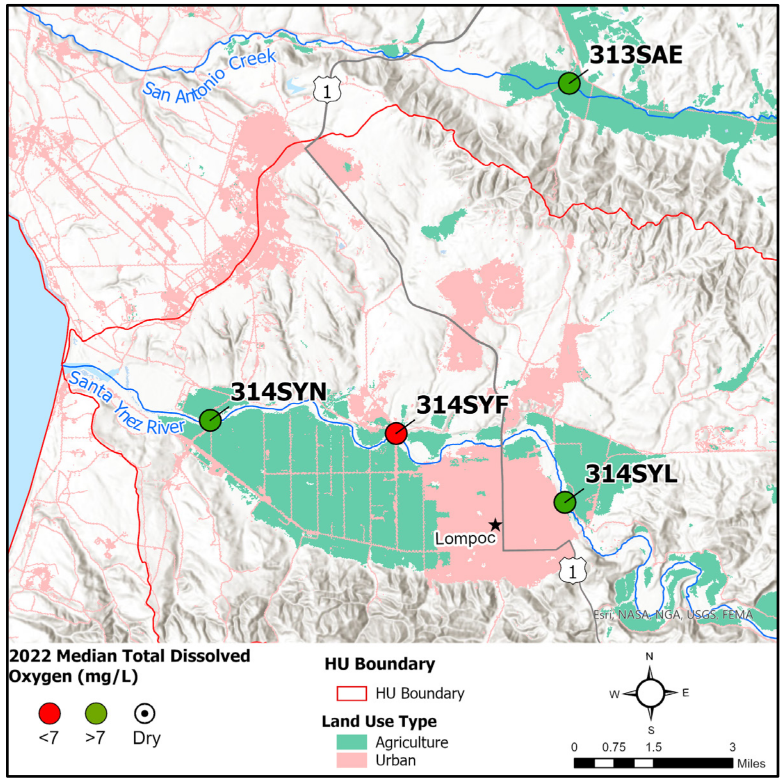


Figure 3-63. 2022 Median Dissolved Oxygen Concentrations for Sites in HUs 313 and 314

- Median DO concentrations in the Santa Ynez and San Antonio HUs for 2022 ranged from 5.4 mg/L at the Floradale Ave. site (314SYF) to 10.27 mg/L at Santa Ynez River at 13th St. (314SYN).
- The lowest DO concentration and percent saturation measured at the Santa Ynez River sites was at 13th Street (314SYN) – 4.75 mg/L and 47%, respectively.
- San Antonio Creek (313SAE) and Santa Ynez River at River Park (314SYL) both met the 7 mg/L minimum WQO in all samples for 2022. Santa Ynez River at Floradale Ave. (314SYF) exceeded the WQO in 100% of samples and Santa Ynez River at 13th St. (314SYN) exceeded the WQO in 33% of samples.
- For the period of 2005 to 2022, no sites showed statistically significant trends in DO concentrations.

Table 3-127. Descriptive Statistics for Dissolved Oxygen in Hydrologic Units 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
313SAE	2	7.89	11.67	9.78	9.78	0%	Decreasing[3]
314SYF	7	5.06	6.04	5.49	5.40	100%	Increasing
314SYL	3	9.65	12.23	10.68	10.15	0%	Increasing
314SYN	12	4.75	16.05	10.61	10.27	33%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

- For the period of 2005-2022, no sites showed statistically significant trends in oxygen saturation.

Table 3-128. Descriptive Statistics for Oxygen Saturation in Hydrologic Units 313 and 314 (%)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
313SAE	2	79	116	98	98	N/A	Decreasing[3]
314SYF	7	54	70	61	62	N/A	Increasing
314SYL	3	95	122	110	114	N/A	Increasing
314SYN	12	47	172	111	111	N/A	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3 Non-seasonal Mann-Kendall Analysis performed.

N/A There is no applicable WQO for this site.

3.6.10 pH

The Basin Plan pH objective applicable to all Santa Ynez River and San Antonio Creek HU sites is 7-8.3 standard pH units. **Figure 3-64** depicts annual median pH levels for sites within the Santa Ynez and San Antonio HUs in 2022 and **Table 3-129** presents descriptive statistics.

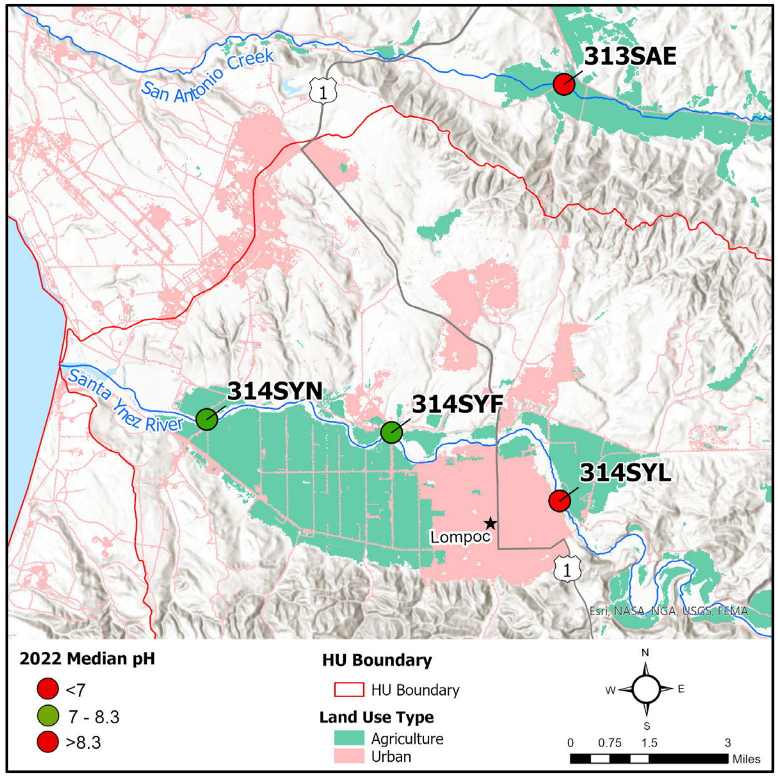


Figure 3-64. 2022 Median pH for Sites in HUs 313 and 314

- In 2022, one site in the Santa Ynez and San Antonio HUs met the applicable pH WQO in all samples (Santa Ynez River at Floradale Ave. [314SYF]). At the other sites, no samples were below 7 pH units, but rather exceeded the 8.3 standard pH units WQO.
- The minimum pH measured in 2022 was 7.00 standard pH units at Santa Ynez River at Floradale Ave. (314SYF) and the maximum was 8.62 standard pH units at Santa Ynez River at 13th St. (314SYN).
- Median pH for the Santa Ynez and San Antonio HU sites in 2022 ranged from 7.45 standard pH units at the Floradale Ave. site (314SYF) to 8.39 standard pH units at San Antonio Creek (313SAE).
- For the period of 2005-2022, two sites showed statistically significant increasing trends in pH (Santa Ynez River at Floradale Ave. [314SYF] and at 13th Street [314SYN]).

Table 3-129. Descriptive Statistics for pH in Hydrologic Units 313 and 314 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
313SAE	2	8.25	8.53	8.39	8.39	50%	Increasing[3]
314SYF	7	7.00	8.20	7.52	7.45	0%	**Increasing**
314SYL	3	7.81	8.46	8.20	8.34	67%	Increasing
314SYN	12	7.29	8.62	7.86	7.83	8%	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022 for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 Non-seasonal Mann-Kendall Analysis performed.

3.6.11 Aquatic Toxicity Results

The potential for toxic effects to aquatic and sediment-dwelling organisms is assessed by the CMP via bioassays for sensitive algal species (*S. capricornutum* growth) in water, and for sensitive invertebrate species in water (*C. dubia* reproduction and *C. dubia and C. dilutus* survival) and sediment (*H. azteca* growth and survival). Test organism survival and reproduction or growth is measured in environmental samples as well as in non-toxic control samples. A statistical test is then applied to determine significant differences in organism performance between environmental and control samples. When test organism performance is significantly lower in the environmental sample than in the control, *and* the difference exceeds a 20% effect threshold, a sample is determined to be "toxic" and in exceedance of the narrative Basin Plan objective for "no toxic substances in toxic amounts." All sites in the San Antonio and Santa Ynez HUs have a significant toxic effect non-TMDL area limit for survival, growth, and reproduction in water and sediment. *H. azteca* reproduction in sediment is not tested for by the CMP so is not included in the non-TMDL area limit exceedance discussion. No bioassays for the toxicity-related parameters were collected in the San Antonio HU due to dry conditions. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect non-TMDL area limits in the Santa Ynez HU. Results from aquatic and sediment bioassays conducted on samples from the Santa Ynez HU in 2022 are illustrated in **Figure 3-65** and tabulated in **Table 3-130**.

- There was no significant toxicity (reduced growth in sample water relative to a non-toxic control) to algae in the Santa Ynez HU in 2022 (**Figure 3-65 a**). All sites achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-65 a**).
- Significant mortality to *C. dilutus* in water was observed in one of two bioassays from Santa Ynez River at River Park (314SYL). No significant mortality in water to *C. dubia* was observed in the Santa Ynez HU in 2022 (**Figure 3-65 b, d**). All but one site (Santa Ynez River at River Park [314SYL]) achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-65 b**). All sites achieved the significant toxic effect non-TMDL area limit for *C. dubia* survival in water (**Figure 3-65 d**).
- Significant toxicity to invertebrate reproduction in water was observed in one of two bioassays collected from Santa Ynez River at Floradale Park (314SYF) and one of three bioassays from Santa Ynez River at 13th St. (314SYN) (**Figure 3-65 c**). One site (Santa Ynez River at River Park [314SYL]) achieved the significant toxic effect non-TMDL area limit for reproduction in water (**Figure 3-65 c**).
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. Toxicity to invertebrate growth in sediment was observed at one of two sites sampled (Santa Ynez River at Floradale Park [314SYF]). Toxicity to invertebrate survival in sediment was observed in both sites sampled (Santa Ynez River at Floradale Park [314SYF] and Santa Ynez River at 13th St. [314SYN]) (**Figure 3-65 e, f**). Due to dry conditions, there were no samples collected in San Antonio Creek (313SAE) or Santa Ynez River at River Park (314SYL). Only one site (Santa Ynez River at 13th St. [314SYN]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-65 e**). No sites achieved the significant toxic effect non-TMDL area limit for survival in sediment (**Figure 3-65 f**).
- For the period of 2005-2022, one statistically significant increasing (improving, decreased toxicity) trend in toxicity to algae was observed at the Santa Ynez River at River Park (314SYL) (**Appendix E**).

Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-130**.

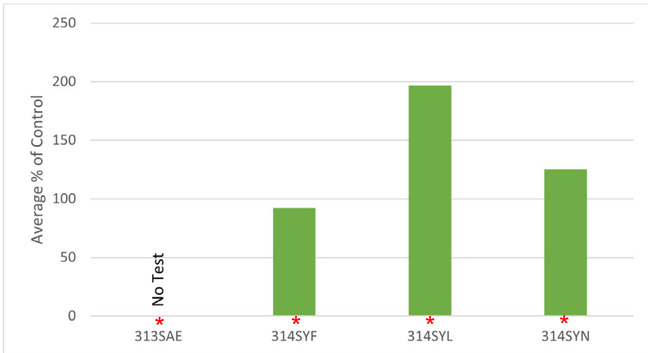
Table 3-130. Summary of Toxicity and Trends in Hydrologic Unit 313 and 314

Site ID[1]	Algal Growth		*C. dilutus* Survival		*C. dubia* Reproduction		*C. dubia* Survival		*H. azteca* Growth		*H. azteca* Growth	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
313SAE	0	Decreasing	0	Decreasing	0	Increasing	0	Increasing	0	None[2]	0	None[2]
314SYF	0/2	Decreasing	0/2	None[2]	1/2	Decreasing	0/2	Decreasing	1/1	Decreasing	1/1	Decreasing
314SYL	0/2	**Increasing**	1/2	Decreasing	0/2	Increasing	0/2	Increasing	0	Decreasing	0	Decreasing
314SYN	0/4	Increasing	0/3	Increasing	1/3	Increasing	0/4	Decreasing	0/1	Decreasing	1/1	Decreasing

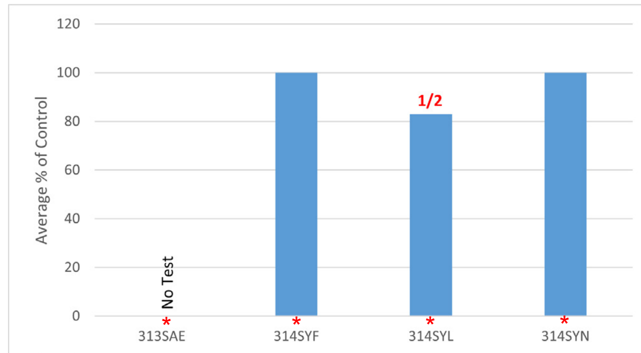
Notes:

1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant ($\alpha = 0.05$).

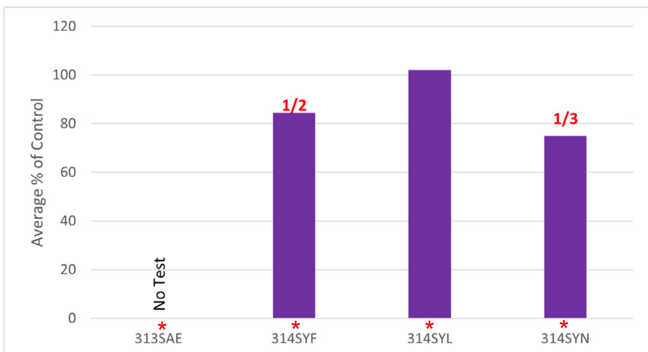
2 None = No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.



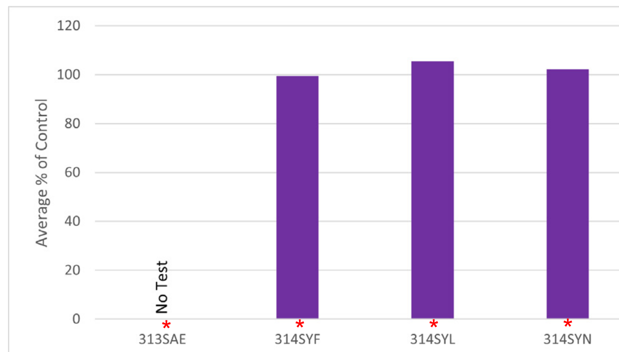
a) Algal Toxicity in Water – Growth



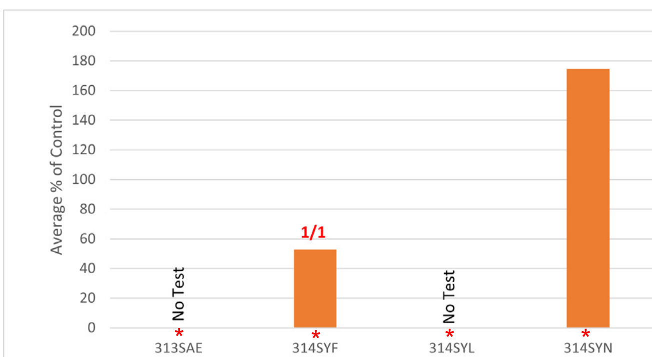
b) *C. dilutus* Toxicity in Water – Survival



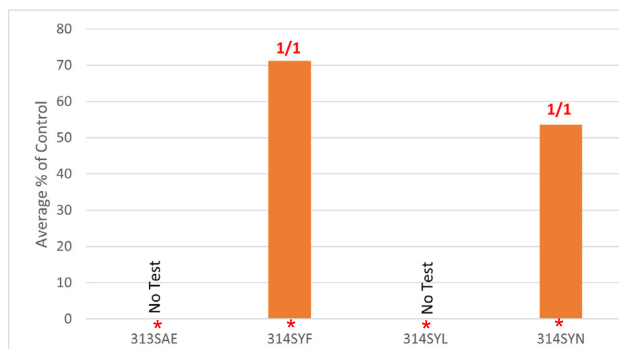
c) *C. dubia* Toxicity in Water – Reproduction



d) *C. dubia* Toxicity in Water – Survival



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-65. Results for Aquatic Toxicity (Water and Sediment) Monitoring in the San Antonio and Santa Ynez HUs

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, as compared to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. "No Test" indicates sites where no toxicity samples were collected due to dry channel or ponded conditions.
4. Results >100% indicate organism performance rates in the environmental sample were greater than in the control.
5. If a site experienced "significant toxicity" red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., 1/2 indicates the site had two samples collected, one of which was significantly toxic.)
6. *C. dubia* reproduction graphs generally reflect *C. dubia* tests, but in some cases reflect a salinity-tolerant alternate test species, which in some cases test for "growth" instead of "reproduction" as the sub-lethal endpoint.

* Site with an applicable non-TMDL area limit for a given test species and endpoint.

3.7 SOUTH COAST HYDROLOGIC UNIT (HU 315)

Descriptions of the South Coast HU are summarized from the SWRCB's SWAMP Assessment Report for the Central Coast Region (SWRCB 2007b). The South Coast HU is made up of small coastal watersheds originating in the southern Los Padres National Forest and draining to the Santa Barbara coast. All watersheds in this unit are completely within Santa Barbara County. The lowest reaches of several of these creeks flow through County and State Park campgrounds; these include Jalama County Park, Gaviota, Refugio, El Capitan and Carpinteria State Parks. Channelization is common in the HU, as many of these creeks flow through urbanized flood plains. In the Carpinteria and Santa Barbara area, channelized watersheds include Arroyo Burro, Mission, Sycamore, San Ysidro, Romero, Toro, Arroyo Paredon, Santa Monica, and Franklin Creeks. Franklin and Santa Monica Creeks are contained in cement box channels as they flow through intensive multi-use agriculture in the form of greenhouses and nurseries, as well as residential and light commercial development. Arroyo Paredon Creek is located just north of the city of Carpinteria and flows primarily through rural residential and greenhouse areas. The Goleta Slough watershed includes Los Carneros, Glen Annie, San Jose, San Pedro, Atascadero, and Maria Ygnacio Creeks. Each of these creeks is channelized to some extent as they flow through the urban areas of Goleta. Los Carneros, Glen Annie, San Pedro, and San Jose Creeks have been converted to cement box channels in the lowest reaches and sediment is mechanically removed annually. Gaviota Creek has been completely channelized as it flows along Highway 101.

Most of these creeks originate in steep chaparral, southern coastal scrub, and woodland habitat; then flow through mid-elevations that may support estate homes and rural residential uses; and then through flat coastal terraces to the ocean. In the northwestern part of the HU, coastal terraces are predominately used for grazing and agriculture. From Goleta southeast through the communities of Santa Barbara and Carpinteria, the terrace is largely urbanized. Several of the nurseries and greenhouses in these watersheds have direct discharge points to the creek channels.

Monitoring for the CMP was initiated in this HU in January 2006. There are four core sites monitored for the CMP in the Santa Barbara Coastal Creeks HU. These are in Bell Creek (315BEF), Glen Annie Creek (315GAN), Arroyo Paredon Creek (315APF), and Franklin Creek (315FMV). Bell Creek and Glen Annie Creek are located west of Goleta, and Arroyo Paredon and Franklin Creek are located east of Santa Barbara, just west of Carpinteria. Beginning in 2012, an additional site – Los Carneros Creek (315LCC) – was added to the program, to be addressed in part by CMP monitoring and in part via data collected by the existing monitoring conducted by the Santa Barbara Channel Keeper organization (**Figure 3-66**).

The beneficial uses designated by the Basin Plan for waterbodies monitored by the CMP in the South Coast Region include nearly every beneficial use, with the exceptions being preservation of biological habitats of special significance and shellfish harvesting (Table 2-2).

Applicable TMDLs for sites within the South Coast HU include the Arroyo Paredon Nitrate TMDL; Bell Creek Nitrate TMDL; Franklin Creek Nutrients TMDL; Glen Annie Creek, Tecolotito Creek, and Carneros Creek Nitrate TMDL; and Arroyo Paredon Diazinon TMDL. Non-TMDL area limits for sites within the South Coast HU include non-TMDL area turbidity limits and non-TMDL area toxicity limits. See **Appendix A** for a summary of applicable routine parameter TMDL limits and non-TMDL area limits for sites in the South Coast HU.

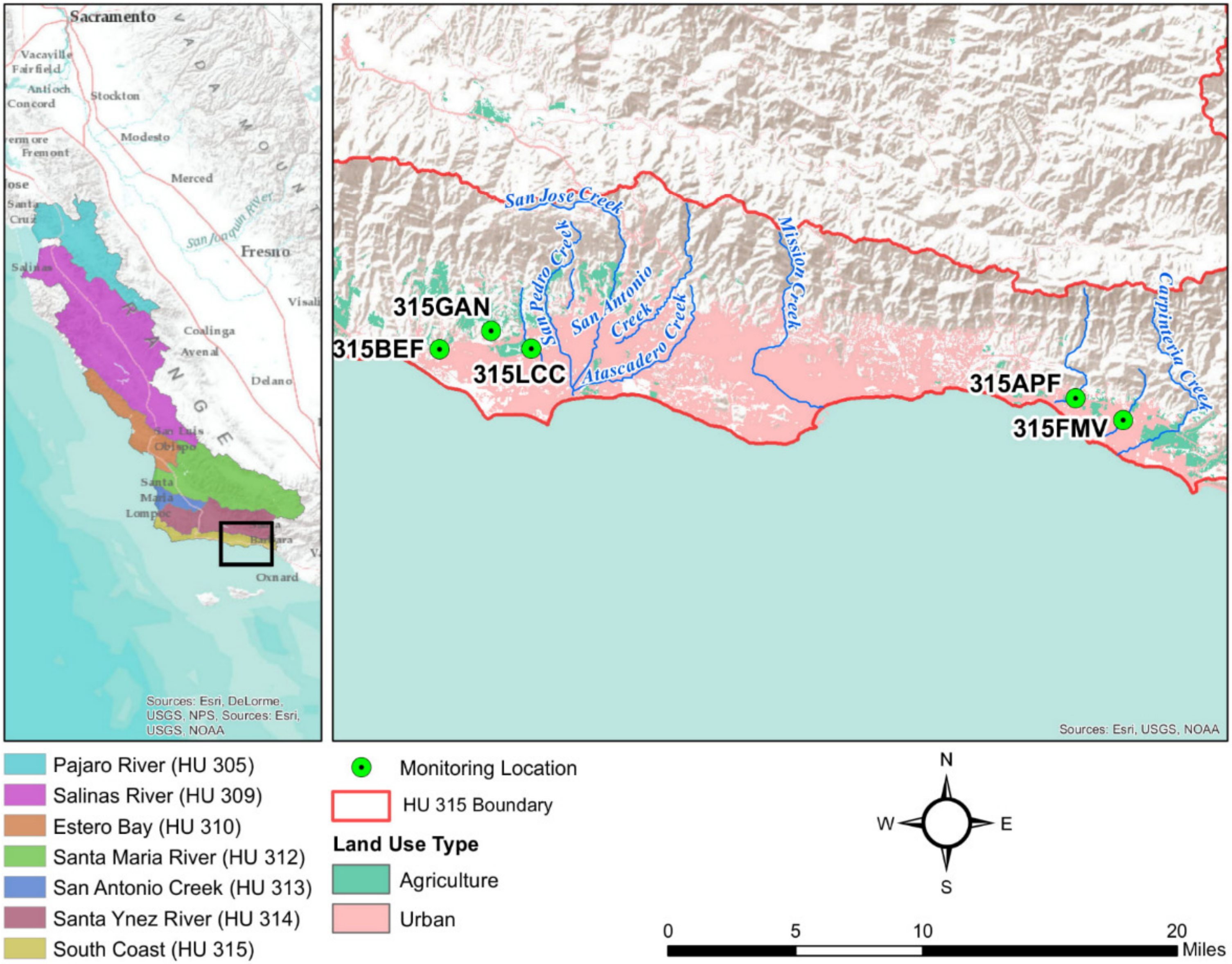


Figure 3-66. CMP Core Monitoring Sites and Distribution of Major Land Uses in the South Coast Hydrologic Unit

3.7.1 Flow Results

Seasonal patterns for the Santa Barbara Region are characterized by precipitation that occurs primarily from November through April, with the highest historical monthly average flows reported in February (46 CFS) and March (61 CFS) (USGS 2009). During the 2022 monitoring year, the annual average flow (0.77 CFS) at the *Carpinteria Creek* USGS stream gage was below the historic annual average (3.87 CFS, 1941-2021) and ranged from 0 CFS in February and April through October to 152 CFS (December 31, 2022) (USGS 2023)[1]. The 2022 cumulative annual rainfall (10.8”) at the *Santa Barbara* rain gauge was lower than the historic average (16.69”, 1994-2021) (**Figure 3-67**) (CDWR 2023).

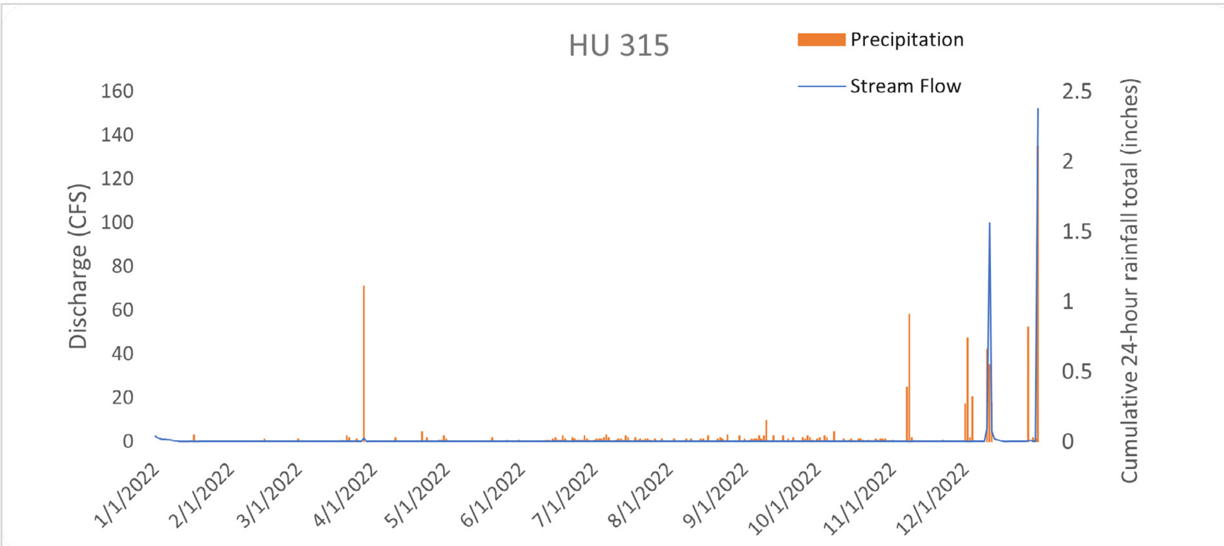


Figure 3-67. 2022 Carpinteria Creek Hydrograph and Downtown Santa Barbara Precipitation Totals

[1] USGS data contains provisional values, subject to revision; flow values may have been updated since the publishing of this report.

In 2022, flows measured at the five South Coast HU sites were elevated throughout December, with lower flows and/or dry channel conditions in the other months. **Figure 3-68** depicts annual median flow for sites within the South Coast HU for 2022, and **Table 3-131** presents descriptive statistics.

- During 2022, both the lowest and highest flows were recorded at Glen Annie Creek (315GAN), ranging from negative flow (- .05 CFS) to 0.85 CFS.
- Median flows ranged from 0 CFS at three sites (Arroyo Paredon [315APF], Bell Creek [315BEF], and Los Carneros Creek [315LCC]) to 0.09 CFS at Glen Annie Creek (315GAN).
- For the period of 2005-2022, three sites showed statistically significant decreasing trends in flow (Bell Creek [315BEF], Franklin Creek [315FMV], and Glen Annie Creek [315GAN]).

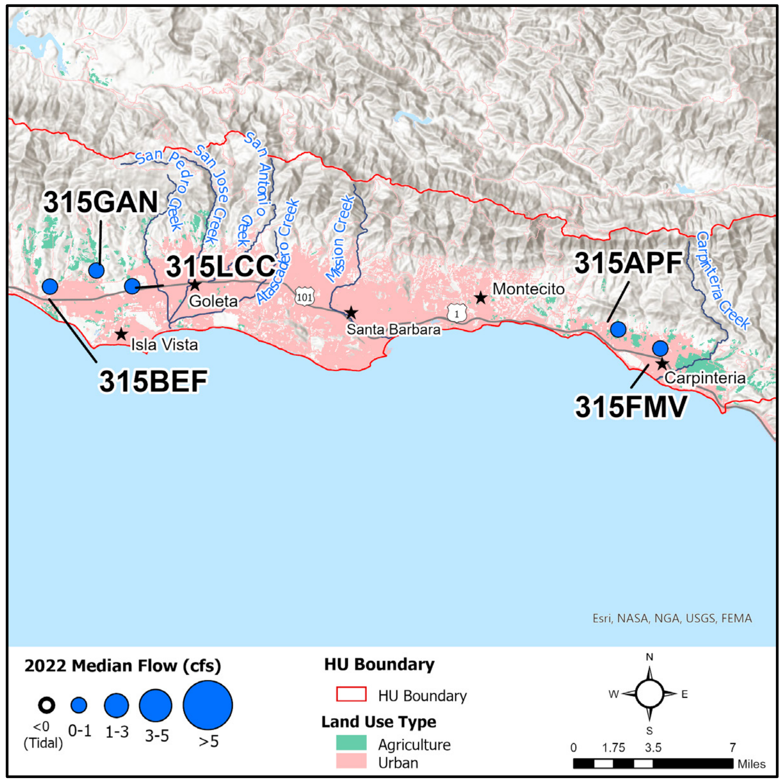


Figure 3-68. 2022 Median Flows for Sites in HU 315

Table 3-131. Descriptive Statistics for Flow in Hydrologic Unit 315 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	12	0.00	0.76	0.08	0.00	Increasing
315BEF	12	0.00	0.80	0.08	0.00	**Decreasing**
315FMV	12	0.01	0.36	0.07	0.04	**Decreasing**
315GAN	12	-0.05	0.85	0.14	0.09	**Decreasing**
315LCC	12	0.00	0.04	0.01	0.00	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.7.2 Water Temperature

The Basin Plan contains a general WQO for temperature: natural receiving water temperature of intrastate waters shall not be altered. The Basin Plan also has specific objectives for cold and warm water habitats: At no time or place shall the temperature be increased by more than 5 °F above natural receiving water temperature. Water temperature can influence the results of other field measurements including dissolved oxygen, pH, and conductivity and therefore is an important factor to consider when interpreting results. The temperature of certain water bodies can also fluctuate greatly over a 24-hour period. This fluctuation means that results and trends should be interpreted with discretion, as they can be affected by the time of day at which the sample is collected.

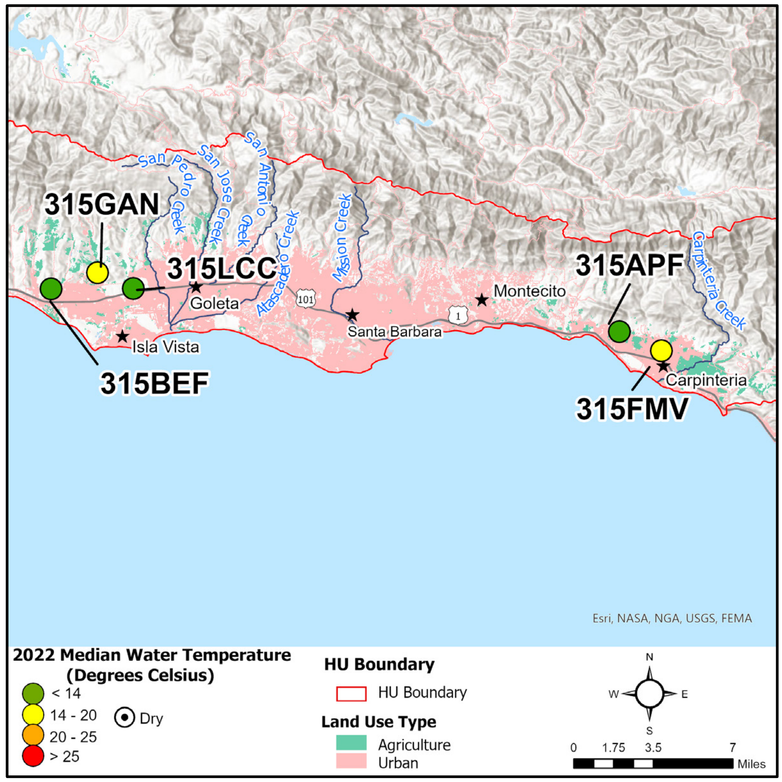


Figure 3-69. 2022 Median Water Temperature for Sites in HU 315

Temperature of natural receiving waters has not been defined for waterbodies within the South Coast HU; therefore, the focus of this report is descriptive statistics. In 2022, water temperatures peaked variably throughout the year in the South Coast HU, primarily during April through September, and minimum temperatures at most sites were recorded during the month of February. **Figure 3-69** depicts annual median temperatures for sites in the South Coast HU for 2022, and **Table 3-132** presents descriptive statistics.

- In 2022, median water temperatures in the South Coast HU ranged from 11.1 °C at Los Carneros Creek (315LCC) to 18.0 °C at Franklin Creek (315FMV).
- The lowest water temperature (6.5 °C) was observed at Arroyo Paredon Creek (315APF) and the highest water temperature (22.7 °C) was observed at Franklin Creek (315FMV).
- For the period of 2005-2022, two sites showed statistically significant increasing trends in water temperature (Arroyo Paredon [315APF] and Bell Creek [315BEF]).

Table 3-132. Descriptive Statistics for Water Temperature in Hydrologic Unit 315 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	6.5	16.7	12.0	12.1	**Increasing**
315BEF	6	9.3	20.4	13.3	12.4	**Increasing**
315FMV	12	8.9	22.7	17.1	18.0	Increasing
315GAN	12	8.7	18.3	14.0	15.4	Increasing
315LCC	5	10.0	15.9	11.9	11.1	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.7.3 Turbidity and TSS Results

All sites in the South Coast HU have a cold water beneficial use, which has a non-TMDL Area turbidity limit of 25 NTU. See **Table 2-5** and **Appendix A** for a summary of applicable non-TMDL area limits for turbidity in the South Coast HU. **Figure 3-70** depicts annual median turbidity concentrations and TSS loading for sites within the South Coast HU for 2022, and **Table 3-133** and **Appendix B** present descriptive statistics and turbidity limit exceedances.

- Median turbidities for 2022 ranged from 4 NTU in Arroyo Paredon Creek (315APF) to 17 NTU in Los Carneros Creek (315LCC).
- The highest turbidity (275 NTU) was measured in Glen Annie Creek (315GAN).
- One site (Arroyo Paredon [315APF]) did not exceed the 25 NTU turbidity limit in 2022. Each of the remaining sites exceeded the limit in one sample collected in December.

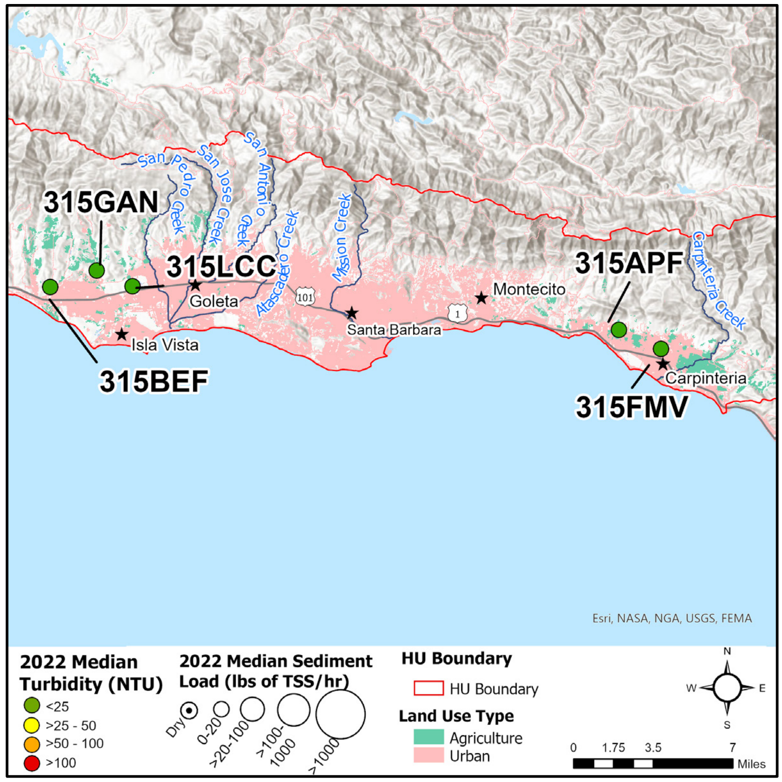


Figure 3-70. 2022 Median Turbidity and TSS Loading for Sites in HU 315

- Low median flows and TSS concentrations resulted in low TSS loading throughout the South Coast HU. (**Appendix B**).
- For the period of 2005-2022, three sites showed statistically significant increasing trends in turbidity (Arroyo Paredon [315APF], Bell Creek [315BEF], and Glen Annie Creek [315GAN]).
- For the period of 2012-2022, two sites (Arroyo Paredon [315APF] and Glen Annie Creek [315GAN]) showed statistically significant increasing trends in TSS loading. TSS was not monitored prior to 2012, so the period of record for TSS trend analysis is shorter than that for turbidity and flow.

Table 3-133. Descriptive Statistics for Turbidity in Hydrologic Unit 315 (NTU)

Site ID[1]	N	Min	Max	Mean	Median	Non TMDL Area Limit Percent Exceedance[2]	Turbidity Trend[3,4]	TSS Loading Trend[3,4]
315APF	6	3	13	6	4	0%	**Increasing**	**Increasing**
315BEF	6	5	168	38	14	17%	**Increasing**	Increasing
315FMV	12	2	28	9	7	8%	Increasing	Decreasing
315GAN	12	4	275	32	10	8%	**Increasing**	**Increasing**
315LCC	5	7	31	17	17	20%	Increasing	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 The relevant numeric criterion is 25.0 NTU [COLD].
3 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
4 Turbidity was monitored from 2005-2022 and TSS was monitored from 2012-2022.

3.7.4 Unionized Ammonia and Total Ammonia

All sites within the South Coast HU have a non-TMDL area unionized ammonia limit of 0.025 mg/L (**Appendix A**). **See Table 2-5** and **Appendix A** for a summary of applicable annual TMDL and non-TMDL area limits for unionized ammonia in the South Coast HU. **Figure 3-71** depicts annual median unionized ammonia concentrations for sites within the South Coast HU for 2022, **Table 3-134** presents descriptive statistics, and **Table 3-135** and **Appendix B** present non-TMDL area limit exceedances.

Samples were also collected and analyzed for total ammonia. There is currently no TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total ammonia applicable to CMP sites in the South Coast HU. Therefore, the focus of this report is descriptive statistics, which are presented in **Table 3-136**.

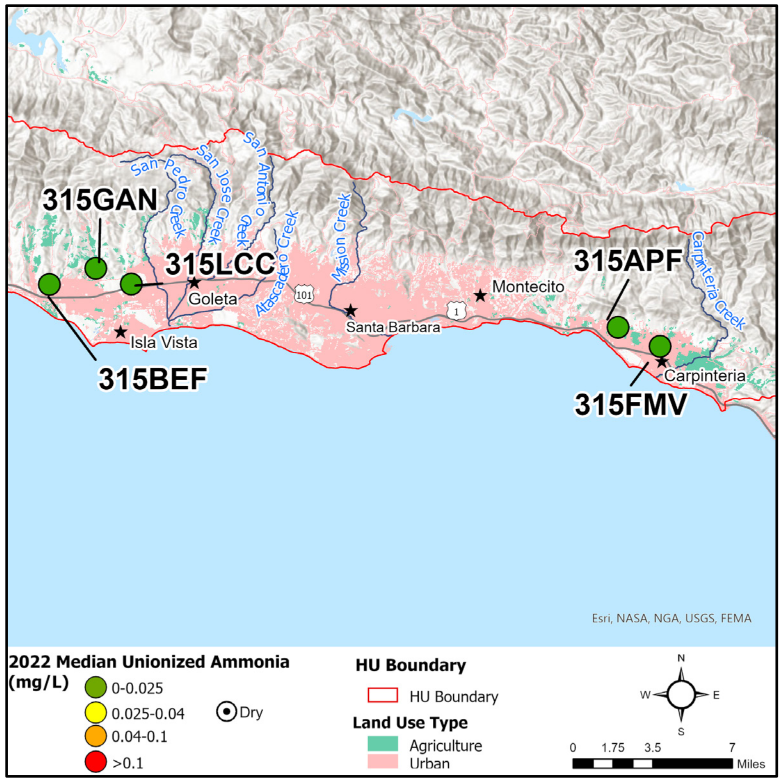


Figure 3-71. 2022 Median Unionized Ammonia for Sites in HU 315

- In 2022, unionized ammonia concentrations ranged from 0.0001 mg/L at Bell Creek (315BEF) and Los Carneros Creek (315LCC) to 0.0077 mg/L at Franklin Creek (315FMV).
- For the period of 2005-2022, two sites showed statistically significant decreasing trends in unionized ammonia concentrations (Bell Creek [315BEF] and Franklin Creek [315FMV]).

Table 3-134. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	0.0003	0.0033	0.0015	0.0013	Decreasing
315BEF	6	0.0001	0.0009	0.0005	0.0005	**Decreasing**
315FMV	12	0.0004	0.0077	0.0018	0.0012	**Decreasing**
315GAN	12	0.0002	0.0046	0.0014	0.0012	Increasing
315LCC	5	0.0001	0.0007	0.0004	0.0003	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- There were no samples in the South Coast HU that exceeded the non-TMDL area limit (0.025 mg/L) for unionized ammonia in 2022.

Table 3-135. Summary of Non-TMDL Area Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Unit 315

Site ID[1]	Non TMDL Area Limit Percent Exceedance[2]
315APF	0%
315BEF	0%
315FMV	0%
315GAN	0%
315LCC	0%

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The relevant numeric criterion is 0.025 mg/L.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2022, one site (Bell Creek [3155BEF]) showed a statistically significant decreasing trends in unionized ammonia concentrations.

Table 3-136. Descriptive Statistics for Total Ammonia in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	0.014	0.102	0.050	0.041	Decreasing
315BEF	6	0.010	0.034	0.026	0.027	**Decreasing**
315FMV	12	0.023	0.208	0.081	0.072	Decreasing
315GAN	12	0.043	0.397	0.123	0.098	Increasing
315LCC	5	0.012	0.066	0.043	0.053	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.7.5 Nitrate and Total Nitrogen

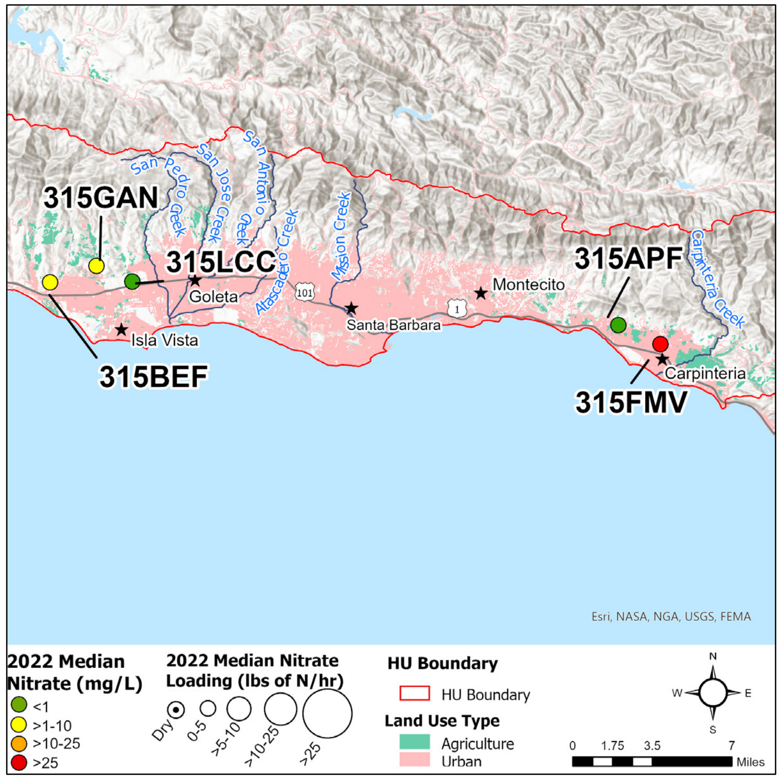


Figure 3-72. 2022 Median Nitrate as N for Sites in HU 315

Samples were collected and analyzed for "nitrate + nitrite"; however, this report primarily refers to "nitrate" as nitrite levels are assumed to be very low. All sites within the South Coast HU have a TMDL limit for nitrate. All TMDL limits for nitrate are associated with the Arroyo Paredon Nitrate TMDL; Bell Creek Nitrate TMDL; Franklin Creek Nitrate TMDL; or Glen Annie Creek, Tecolotito Creek, and Carneros Creek Nitrate TMDL. See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL limits for nitrate in the South Coast HU. **Figure 3-72** depicts annual median nitrate concentrations and loading for sites within the South Coast HU for 2022, **Table 3-137** presents descriptive statistics, and **Table 3-138** and **Appendix B** present TMDL and non-TMDL area limit exceedances.

Samples were also collected and analyzed for total nitrogen. One site (Franklin Creek [315FMV]) has applicable wet season and dry season TMDL limits for total nitrogen. No other site in the South Coast HU has a TMDL limit, non-TMDL area limit, or Basin Plan numeric WQO for total nitrogen applicable to it. See **Table 2-5** and **Appendix A** for a summary of applicable dry season and wet season total nitrogen TMDL limits in the South Coast. HU Descriptive statistics are presented in **Table 3-139** and TMDL and non-TMDL area limit exceedances are presented in **Table 3-140** and **Appendix B**.

- In 2022, median nitrate concentrations ranged from 0.01 mg/L in Arroyo Paredon Creek (315APF) to 30.35 mg/L in Franklin Creek (315FMV).
- Regardless of nitrate concentrations, low median flows resulted in low nitrate loading throughout the South Coast HU (**Appendix B**).
- For the period of 2005-2022, two sites showed statistically significant decreasing trends in nitrate concentrations (Bell Creek [315BEF] and Glen Annie Creek [315GAN]) and one site (Arroyo Paredon [315APF]) showed a statistically significant increasing trend in nitrate concentrations.
- For the period of 2005-2022, three sites showed statistically significant decreasing trends in nitrate concentrations (Bell Creek [315BEF], Franklin Creek [315FMV], and Glen Annie Creek [315GAN]).

Table 3-137. Descriptive Statistics for Nitrate in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Nitrate Trend[2]	Nitrate Loading Trend[2]
315APF	6	0.01	2.13	0.38	0.01	**Increasing**	Increasing
315BEF	6	0.33	5.04	2.51	2.34	**Decreasing**	**Decreasing**
315FMV	12	7.44	42.30	28.96	30.35	Decreasing	**Decreasing**
315GAN	12	2.67	12.70	7.24	7.18	**Decreasing**	**Decreasing**
315LCC	5	0.37	1.08	0.73	0.81	Decreasing	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Franklin Creek (315FMV) and Glen Annie Creek (315GAN) exceeded the 10 mg/L TMDL limit for nitrate in 92% and 8% of samples, respectively. The remaining three sites had no exceedances during 2022.

Table 3-138. Summary of TMDL and Non-TMDL Area Nutrient Limit Exceedances for Nitrate in Hydrologic Unit 315

Site ID[1]	Arroyo Paredon Nitrate Annual Percent Exceedance[2]	Bell Creek Nitrate TMDL Annual Percent Exceedance[2]	Franklin Creek Nutrients TMDL Annual Percent Exceedance[2]	Glen Annie Creek, Tecolotito Creek, and Carneros Creek Nitrate TMDL Annual Percent Exceedance[2]	Non TMDL Area Limit Percent Exceedance
315APF	0%	N/A	N/A	N/A	N/A
315BEF	N/A	0%	N/A	N/A	N/A
315FMV	N/A	N/A	92%	N/A	N/A
315GAN	N/A	N/A	N/A	8%	N/A
315LCC	N/A	N/A	N/A	0%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The TMDL numeric criterion is 10.0 mg/L.
N/A There is no applicable TMDL or non-TMDL area limit criterion for nitrate at this site.

- Median total nitrogen concentrations in 2022 ranged from 0.3 mg/L at Arroyo Paredon Creek (315APF) to 30.8 mg/L at Franklin Creek (315FMV).
- For the period of 2005-2022, two sites (Bell Creek [315BEF] and Glen Annie Creek [315GAN]) showed statistically significant decreasing trends in total nitrogen, and one site (Franklin Creek [315FMV]) showed a statistically significant increasing trend in total nitrogen.

Table 3-139. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	4	0.0	2.7	0.8	0.3	Decreasing
315BEF	4	1.9	5.4	3.6	3.5	**Decreasing**
315FMV	10	8.3	39.9	29.1	30.8	**Increasing**
315GAN	10	5.3	13.3	8.2	7.9	**Decreasing**
315LCC	4	0.9	1.8	1.4	1.5	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Franklin Creek (315FMV) exceeded its dry and wet season TMDL limit for total nitrogen in 100% of samples collected.

Table 3-140. Summary of Franklin Creek Nutrients TMDL and Non-TMDL Area Nutrient Limit Exceedances for Total Nitrogen in Hydrologic Unit 315

Site ID[1]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance	Non TMDL Area Limit Wet Season Percent Exceedance
315FMV[2]	100%[3]	100%[4]	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The total nitrogen TMDL limit is not applicable to any other site.
3 The relevant dry season numeric criterion is 1.1 mg/L.
4 The relevant wet season numeric criterion is 8.0 mg/L.
N/A There is no applicable non-TMDL area limit criterion for total Nitrogen at this site.

3.7.6 Orthophosphate and Total Phosphorus

One site (Franklin Creek [315FMV]) has an applicable wet and dry weather TMDL limit for total phosphorus. See **Table 2-5** and **Appendix A** for a summary of applicable annual TMDL limits for orthophosphate in the South Coast HU. **Figure 3-73** depicts annual median orthophosphate concentrations for sites within the South Coast HU for 2022. **Table 3-141** presents descriptive statistics for orthophosphate, **Table 3-142** presents descriptive statistics for total phosphorus, and **Table 3-143** and **Appendix B** present TMDL and non-TMDL area limit exceedances for total phosphorus.

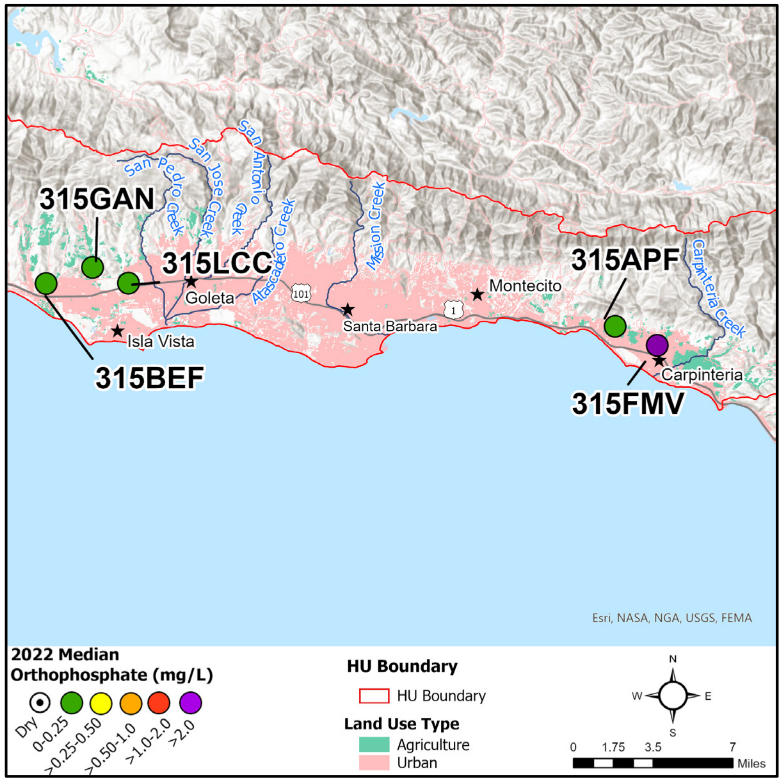


Figure 3-73. 2022 Median Orthophosphate as P for Sites in HU 305

- Orthophosphate concentrations in the South Coast HU ranged from 0.004 mg/L at Arroyo Paredon Creek (315APF) and Bell Creek (315BEF) to 18.300 mg/L at Franklin Creek (315FMV).
- In 2022, median orthophosphate concentrations ranged from 0.019 mg/L in Arroyo Paredon Creek (315APF) to 2.195 mg/L in Franklin Creek (315FMV).
- For the period of 2005-2022, one site (Franklin Creek [315FMV]) showed a statistically significant increasing trend in orthophosphate concentrations. Two sites showed statistically significant decreasing trends in orthophosphate concentrations (Bell Creek [315BEF] and Glen Annie Creek [315GAN]).

Table 3-141. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	0.004	0.050	0.022	0.019	Increasing
315BEF	6	0.004	0.176	0.049	0.022	**Decreasing**
315FMV	12	0.035	18.300	3.695	2.195	**Increasing**
315GAN	12	0.051	0.233	0.130	0.136	**Decreasing**
315LCC	5	0.026	0.154	0.087	0.067	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations.
- The maximum total phosphorus concentration at any South Coast HU site was observed at Franklin Creek (315FMV) (20.500 mg/L).
- Median total phosphorus concentrations ranged from 0.038 mg/L at Arroyo Paredon Creek (315APF) to 2.400 mg/L at Franklin Creek (315FMV).
- For the period of 2005-2022, one site (Franklin Creek [315FMV]) showed a statistically significant increasing trend in total phosphorus concentrations, and one site (Bell Creek [315BEF]) showed a statistically significant decreasing trend in total phosphorus concentrations.

Table 3-142. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	0.005	0.131	0.053	0.038	Decreasing
315BEF	6	0.005	0.249	0.112	0.105	**Decreasing**
315FMV	12	0.470	20.500	5.224	2.400	**Increasing**
315GAN	12	0.099	0.355	0.233	0.213	Increasing
315LCC	5	0.071	0.313	0.185	0.155	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Franklin Creek (315FMV) exceeded the wet and dry season total phosphorous TMDL limit in 100% of samples collected.

Table 3-143. Summary of Franklin Creek Nutrient TMDL and Non-TMDL Area Nutrient Limit Exceedances for Total Phosphorus in Hydrologic Unit 315

Site ID[1]	TMDL Dry Season Percent Exceedance	TMDL Wet Season Percent Exceedance	Non TMDL Area Limit Percent Exceedance
315FMV[2]	100%[3]	100%[4]	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations,* 2022, for detailed site descriptions.
2 The total phosphorus TMDL limit is not applicable to any other site.
3 The relevant dry season numeric criterion is 0.075 mg/L.
4 The relevant wet season numeric criterion is 0.3 mg/L.
N/A There is no applicable Lower Salinas River Watershed Nutrient TMDL or non-TMDL area limit criterion for Total Phosphorus at this site.

3.7.7 Specific Conductivity

A conductivity objective to protect agricultural uses applies to four South Coast HU sites, Arroyo Paredon Creek (315APF), Franklin Creek (315FMV), Glen Annie Creek (315GAN), Los Carneros Creek (315LCC). This agricultural objective does not define a numeric value to evaluate exceedance frequencies, but provides ranges:

- <750 µS/cm, “No Problem”;
- 750-3,000 µS/cm, “Increasing Problems” and
- >3,000 µS/cm, “Severe”.

Figure 3-74 depicts annual median conductivity for sites within the South Coast HU for 2022, and **Table 3-144** presents descriptive statistics.

- Median conductivities ranged from 1,783 µS/cm in Franklin Creek (315FMV) to 3,668 µS/cm in Bell Creek (315BEF).
- In 2022, the highest conductivity in the South Coast HU was measured at Bell Creek (315BEF) (5,486 µS/cm).
- Four sites, to which the objectives apply, exceeded the low-end of the listed ranges (750 µS/cm) on a mean and median basis indicating increasing problems.
- For the period of 2005-2022, three sites showed statistically significant increasing trends in conductivity (Bell Creek [315BEF], Franklin Creek [315FMV], and Glen Annie Creek [315GAN]).

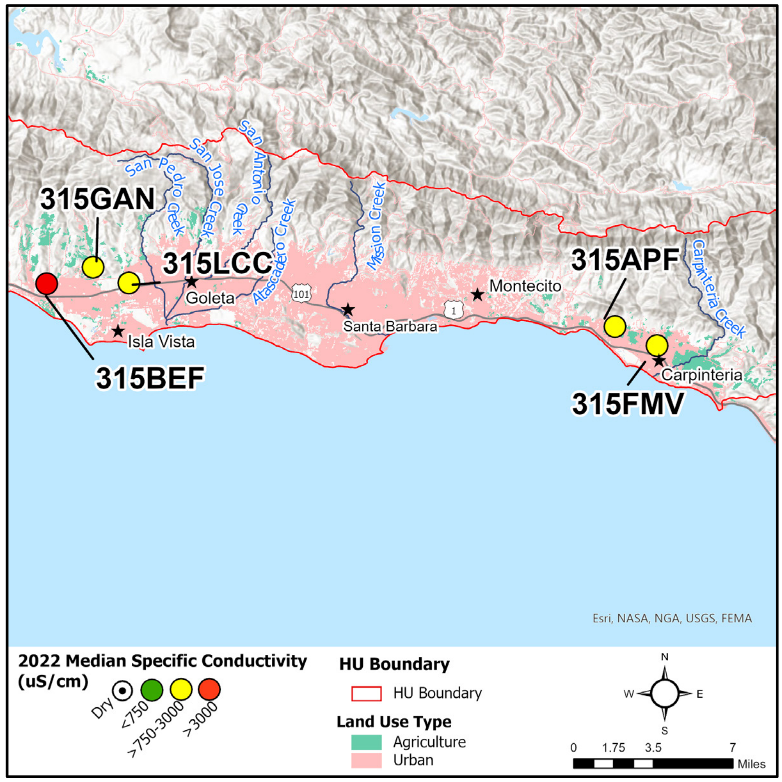


Figure 3-74. 2022 Median Conductivity for Sites in HU 315

Table 3-144. Descriptive Statistics for Conductivity in Hydrologic Unit 315 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	1,314	2,114	1,921	2,029	Increasing
315BEF	6	1,547	5,486	3,751	3,668	**Increasing**
315FMV	12	324	1,847	1,661	1,783	**Increasing**
315GAN	12	1,060	2,616	2,278	2,409	**Increasing**
315LCC	5	1,301	2,928	2,400	2,585	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.7.8 Total Dissolved Solids and Salinity

The Basin Plan contains no numeric WQO for TDS or the following analytes applicable to CMP sites in the South Coast HU: salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride. No trend analyses were performed on the latter six analytes due to limited historical data associated with them. **Figure 3-75** depicts annual median TDS concentrations for sites within the South Coast HU for 2022. **Table 3-145**, **Table 3-146**, **Table 3-147**, **Table 3-148**, **Table 3-149**, **Table 3-150**, **Table 3-151**, **Table 3-152**, and **Table 3-153** present descriptive statistics for TDS, salinity, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride, respectively.

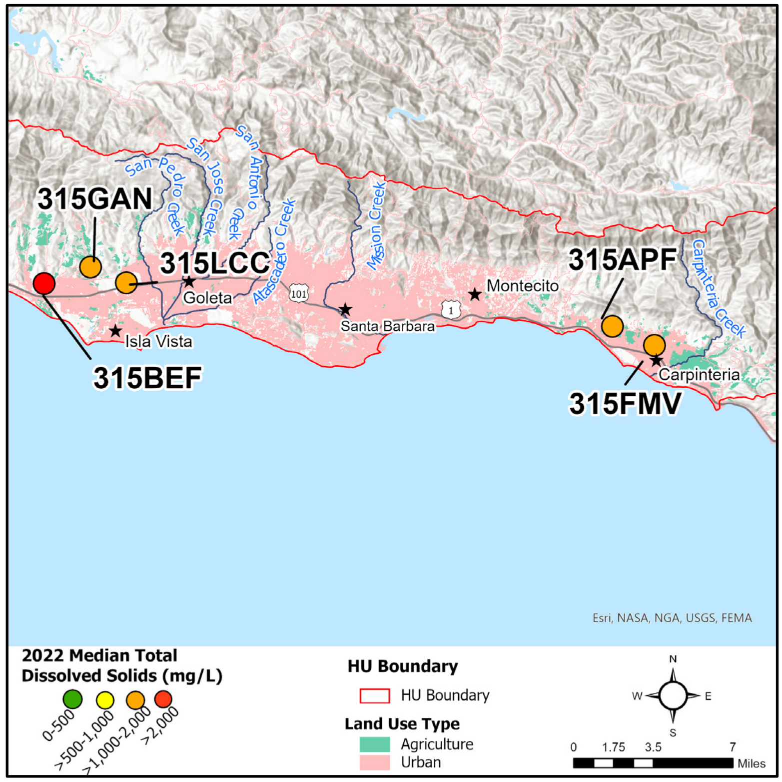


Figure 3-75. 2022 Median Total Dissolved Solids for Sites in HU 315

- Median TDS concentrations in 2022 ranged from 1,167 mg/L in Franklin Creek (315FMV) to 2,657 mg/L in Bell Creek (315BEF).
- The highest TDS concentration in 2022 was measured in Bell Creek (315BEF) (3,566 mg/L).
- For the period of 2005-2022, two sites showed statistically significant increasing trends in TDS concentrations (Arroyo Paredon [315APF] and Bell Creek [315BEF]).

Table 3-145. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
315APF	6	854	1,374	1,231	1,278	N/A	**Increasing**
315BEF	6	1,005	3,566	2,529	2,657	N/A	**Increasing**
315FMV	12	195	1,210	1,085	1,167	N/A	Decreasing
315GAN	12	703	1,820	1,506	1,574	N/A	Increasing
315LCC	5	845	2,270	1,636	1,680	N/A	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- For the period of 2005-2022, two sites showed statistically significant increasing trends in salinity (Bell Creek [315BEF] and Glen Annie Creek [315GAN]).

Table 3-146. Descriptive Statistics for Salinity in Hydrologic Unit 315 (ppt)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	6	0.66	1.09	0.99	1.04	Increasing
315BEF	6	0.78	2.98	2.00	1.94	**Increasing**
315FMV	12	0.14	0.94	0.84	0.91	Decreasing
315GAN	12	0.53	1.86	1.23	1.25	**Increasing**
315LCC	5	0.65	1.53	1.24	1.34	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

- Median alkalinity concentrations ranged from 355 mg/L at Arroyo Paredon Creek (315APF) to 473 mg/L at Bell Creek (315BEF). Franklin Creek (315FMV) had both the lowest (137 mg/L) and highest (507 mg/L) concentrations of alkalinity.

Table 3-147. Descriptive Statistics for Alkalinity in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	261	381	332	355
315BEF	3	261	476	403	473
315FMV	4	137	507	392	462
315GAN	4	170	485	394	460
315LCC	3	165	448	339	405

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- The lowest median concentration of calcium was 92 mg/L (Arroyo Paredon [315APF]) and the highest median concentration was 328 mg/L (Bell Creek [315BEF]).

Table 3-148. Descriptive Statistics for Calcium in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	90	110	97	92
315BEF	3	160	423	304	328
315FMV	4	46	135	108	126
315GAN	4	109	331	245	269
315LCC	3	115	218	183	215

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Magnesium concentrations in the South Coast HU ranged from 34 mg/L at Arroyo Paredon Creek (315APF) and Franklin Creek (315FMV) to 295 mg/L at Bell Creek (315BEF).

Table 3-149. Descriptive Statistics for Magnesium in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	34	41	38	40
315BEF	3	76	295	184	182
315FMV	4	34	112	85	97
315GAN	4	53	130	96	101
315LCC	3	57	104	85	94

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Median sodium concentrations ranged from 116.5 mg/L at Franklin Creek (315FMV) to 335 mg/L at Bell Creek (315BEF). Bell Creek (315BEF) also had the highest recorded concentration of sodium (553 mg/L).

Table 3-150. Descriptive Statistics for Sodium in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	178	303	251	273
315BEF	3	117	553	335	335
315FMV	4	41	125	100	117
315GAN	4	82	193	154	171
315LCC	3	126	244	195	214

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Median potassium concentrations ranged from 2.5 mg/L at three sites (Arroyo Paredon [315APF], Bell Creek [315BEF], and Glen Annie Creek [315GAN]) to 12.3 mg/L at Franklin Creek (315FMV).
- Franklin Creek (315FMV) had the highest recorded concentration of potassium (52.4 mg/L).

Table 3-151. Descriptive Statistics for Potassium in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	2.5	2.5	2.5	2.5
315BEF	3	2.5	2.5	2.5	2.5
315FMV	4	6.0	52.4	20.7	12.3
315GAN	4	2.5	5.5	3.3	2.5
315LCC	3	2.5	6.5	5.1	6.2

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- Median sulfate concentrations ranged from 136 mg/L at Arroyo Paredon Creek (315APF) to 1,200 mg/L at Bell Creek (315BEF).

Table 3-152. Descriptive Statistics for Sulfate in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	113	144	131	136
315BEF	3	484	1,790	1158	1,200
315FMV	4	80	321	238	275
315GAN	4	324	941	717	802
315LCC	3	437	764	643	729

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

- The lowest concentration of chloride (30 mg/L) was measured at Franklin Creek (315FMV) and the highest concentration (730 mg/L) was measured at Bell Creek (315BEF).

Table 3-153. Descriptive Statistics for Chloride in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median
315APF	3	216	417	340	386
315BEF	3	133	730	441	461
315FMV	4	30	111	85	99
315GAN	4	62	150	123	140
315LCC	3	98	232	168	174

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.

3.7.9 Dissolved Oxygen

The minimum DO objective for protection of cold water or spawning aquatic life beneficial uses (7 mg/L) applies to four South Coast HU sites: Franklin Creek (315FMV), Glen Annie Creek (315GAN), Arroyo Paredon Creek (315APF), and Los Carneros Creek (315LCC). Bell Creek (315BEF) does not have specifically assigned beneficial uses in the Basin Plan; therefore, the Basin Plan specifies a general numeric objective of at least 5 mg/L and 85% saturation. General WQOs apply to all waterbodies unless a more protective beneficial use and WQO are designated. **Figure 3-76** depicts annual median dissolved oxygen concentrations for sites within the South Coast HU for 2022, **Table 3-154** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-155** presents descriptive statistics for oxygen saturation.

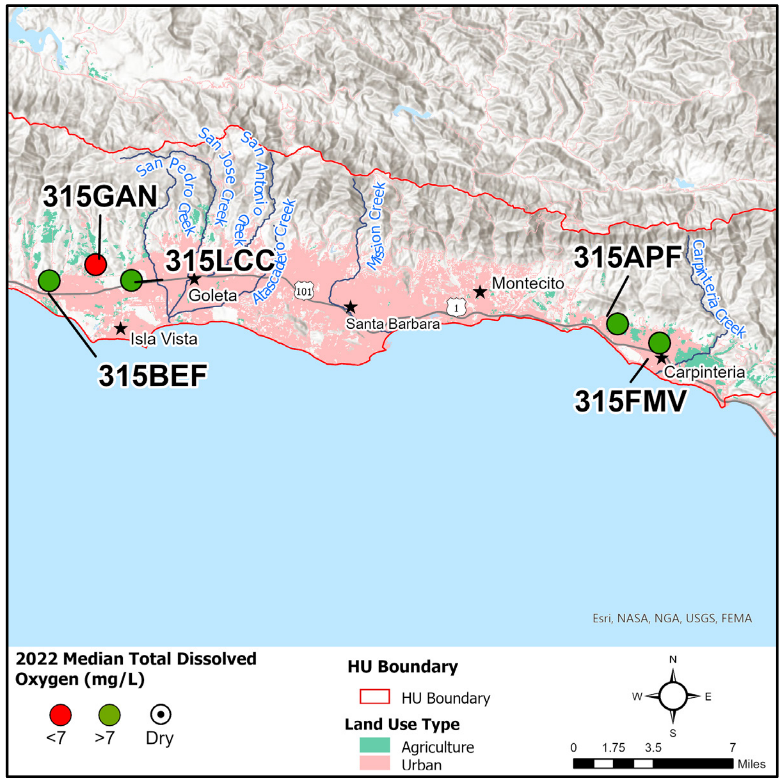


Figure 3-76. 2022 Median Dissolved Oxygen Concentrations for Sites in HU 315

- In 2022, median DO concentrations in the South Coast HU ranged from 6.63 mg/L at Glen Annie Creek (315GAN) to 11.89 mg/L at Franklin Creek (315FMV).
- Arroyo Paredon Creek (315APF) and Franklin Creek (315FMV) met the 7 mg/L minimum WQO in all 2022 samples. Glen Annie Creek (315GAN) exceeded the WQO in 58% of samples and Los Carneros Creek (315LCC) exceeded the Objective in 40% of samples.
- The one site with a minimum WQO of 5 mg/L (Bell Creek [315BEF]) met the objective in all samples in 2022.
- For the period of 2005-2022, one site (Glen Annie Creek [315GAN]) showed a statistically significant decreasing trend in DO concentrations, and one site (Arroyo Paredon [315APF]) showed a significantly increasing trend in DO concentrations. Trends in DO must be interpreted with caution, as diel patterns in DO can be influenced by temperature and biological activity depending on the time of day at which sampling occurs and changes in DO can manifest as either depressed or very high concentrations.

Table 3-154. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
315APF	6	8.53	12.78	10.68	10.37	0%	**Increasing**
315BEF	6	5.96	14.65	10.63	9.85	0%[3]	Decreasing
315FMV	12	9.11	22.23	13.74	11.89	0%	Increasing
315GAN	12	1.79	9.13	6.37	6.63	58%	**Decreasing**
315LCC	5	5.68	10.32	8.07	8.12	40%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
3 WQO is >5 mg/L; all other sites have a WQO of >7 mg/L.

- The one site with an 85% saturation WQO (Bell Creek [315BEF]) met the objective in all samples collected.
- For the period of 2005-2022, one site (Glen Annie Creek [315GAN]) showed a statistically significant decreasing trend in oxygen saturation, and one site (Arroyo Paredon [315APF]) showed a statistically significant increasing trend in oxygen saturation.

Table 3-155. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 315 (%)

Site ID[1]	N	Min	Max	Mean	Median	WQO Exceedance?	Trend[2]
315APF	6	88	112	99	98	N/A	**Increasing**
315BEF	6	60	131	101	98	No	Decreasing
315FMV	12	104	245	143	121	N/A	Increasing
315GAN	12	18	83	62	67	N/A	**Decreasing**
315LCC	5	58	92	75	77	N/A	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
N/A There is no applicable WQO for this site.

3.7.10 pH

The Basin Plan pH objective applicable to all South Coast HU sites is 7-8.3 standard pH units. **Figure 3-77** depicts annual median pH for sites within the South Coast HU for 2022, and **Table 3-156** presents descriptive statistics.

- In 2022, three sites in the South Coast HU met the applicable pH WQO in all samples (Bell Creek [315BEF], Glen Annie Creek [315GAN], and Los Carneros Creek [315LCC]).
- Arroyo Paredon Creek (315APF) exceeded the WQO in 17% of samples and Franklin Creek (315FMV) exceeded the Objective in 8% of samples. No samples were below 7 pH units, but rather exceeded the 8.3 standard pH units WQO.
- The highest pH (8.43 pH units) was measured in Arroyo Paredon Creek (315APF) and the lowest pH (7.31 pH units) was measured in Los Carneros Creek (315LCC).

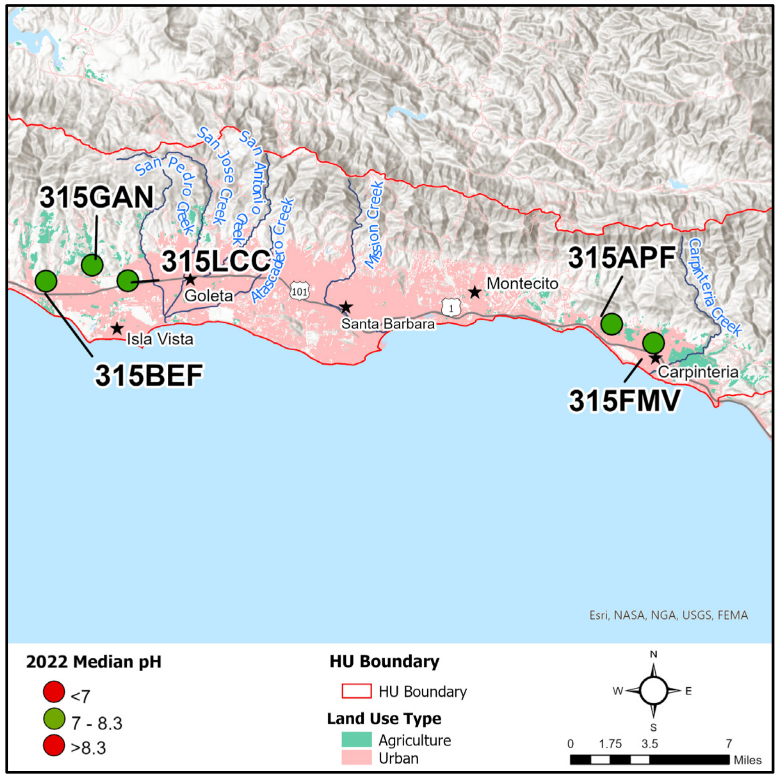


Figure 3-77. 2022 Median pH for Sites in HU 315

- For the period of 2005-2022, one site (Franklin Creek [315FMV]) showed a statistically significant decreasing trend in pH, and one site (Arroyo Paredon [315APF]) showed a statistically significant increasing trend in pH.

Table 3-156. Descriptive Statistics for pH in Hydrologic Unit 315 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
315APF	6	7.99	8.43	8.18	8.14	17%	**Increasing**
315BEF	6	7.68	8.12	7.98	8.03	0%	Decreasing
315FMV	12	7.40	8.35	7.82	7.85	8%	**Decreasing**
315GAN	12	7.47	8.10	7.69	7.67	0%	Increasing
315LCC	5	7.31	8.09	7.66	7.64	0%	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2022, for detailed site descriptions.
2 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).

3.7.11 Aquatic Toxicity Results

The potential for toxic effects to aquatic and sediment-dwelling organisms is assessed by the CMP via bioassays for sensitive algal species (*S. capricornutum*) in water, and for sensitive invertebrate species in water (*C. dubia* reproduction and *C. dubia and C. dilutus* survival) and sediment (*H. azteca* growth and survival). Test organism survival and reproduction or growth is measured in environmental samples as well as in non-toxic control samples. A statistical test is then applied to determine significant differences in organism performance between environmental and control samples. When test organism performance is significantly lower in the environmental sample than in the control, *and* the difference exceeds a 20% effect threshold, a sample is determined to be "toxic".

No site in the South Coast HU has a significant toxic effect TMDL; however, all sites in the San South Coast HU have a significant toxic effect non-TMDL area limit for survival, growth, and reproduction in water and sediment. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect non-TMDL area limits in the South Coast HU. Results from aquatic and sediment bioassays conducted on samples from the South Coast HU in 2022 are illustrated in **Figure 3-78** and tabulated in **Table 3-157**. *H. azteca* reproduction in sediment is not tested for by the CMP so is not included in the non-TMDL area limit exceedance discussion.

- In 2022, significant toxicity (reduced growth in sample water relative to a non-toxic control) to algae was observed in one of three bioassays collected from Arroyo Paredon Creek (315APF) and Bell Creek (315BEF) (**Figure 3-78 a**). Three sites (Franklin Creek [315FMV], Glen Annie Creek [315GAN], and Los Carneros Creek [315LCC]) achieved the significant toxic effect non-TMDL area limit for algal growth in water (**Figure 3-78 a**).
- No significant mortality to *C. dilutus* in water was observed in the South Coast HU; therefore, all sites achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-78 b**). Significant mortality to *C. dubia* in water was observed in one of four bioassays collected from Glen Annie Creek (315GAN) (**Figure 3-78 b, d**). Significant mortality to *C. dubia* in water wasn't observed at any other sites. As such, Glen Annie Creek (315GAN), was the only site to not achieve the significant toxic effect non-TMDL area limit for *C. dubia* survival in water (**Figure 3-78 d**).
- Toxicity to invertebrate reproduction in water was observed in six samples from three sites: two of three bioassays from Arroyo Paredon Creek (315APF); two of four bioassays from Franklin Creek (315FMV); and two of four samples from Glen Annie Creek (315GAN) (**Figure 3-78 c**). In the South Coast HU, two sites (Bell Creek [315BEF] and Los Carneros Creek [315LCC]) achieved the significant toxic effect non-TMDL area limit for reproduction in water (**Figure 3-78 c**).
- One sediment sample per site was collected in 2022 and analyzed for sediment toxicity. No toxicity to invertebrate growth in sediment was observed in any samples collected. Toxicity to invertebrate survival in sediment was observed in four of the five sites (Arroyo Paredon [315APF], Bell Creek [315BEF], Franklin Creek [315FMV], and Los Carneros Creek [315LCC]) (**Figure 3-78 e, f**). All sites achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-78 e**). Only one site (Glen Annie Creek [315GAN]) achieved the significant toxic effect non-TMDL area limit for survival in sediment (**Figure 3-78 f**).
- For the period of 2005-2022, the following statistically significant trends were observed:
    - One site (Bell Creek [315BEF]) showed a statistically significant decreasing (improving, decreased toxicity) trend in invertebrate survival in sediment.
    - Two sites showed statistically significant decreasing (worsening, increased toxicity) trends in invertebrate growth in sediment (Bell Creek [315BEF] and Glen Annie Creek [315GAN]).

Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-157**.

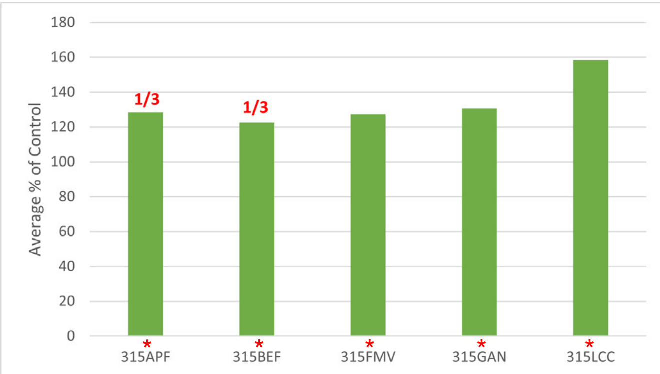
Table 3-157. Summary of Toxicity and Trends in Hydrologic Unit 315

Site ID[1]	Algal Growth		*C. dilutus* Survival		*C. dubia* Reproduction		*C. dubia* Survival		*H. azteca* Growth		*H. azteca* Growth	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
315APF	1/3	Increasing	0/3	Increasing	2/3	Increasing	0/3	Decreasing	0/1	Decreasing	1/1	Increasing
315BEF	1/3	Increasing	0/1	Increasing	0/1	Increasing	0/3	Decreasing	0/1	**Decreasing**	1/1	**Decreasing**
315FMV	0/4	Increasing	0/4	Increasing	2/4	Decreasing	0/4	Decreasing	0/1	Decreasing	1/1	Increasing
315GAN	0/4	Increasing	0/4	Increasing	2/4	Increasing	1/4	Decreasing	0/1	**Decreasing**	0/1	Decreasing
315LCC	0/3	Increasing	0/3	Increasing	0/3	Increasing	0/3	Decreasing	0/1	Decreasing	1/1	Decreasing

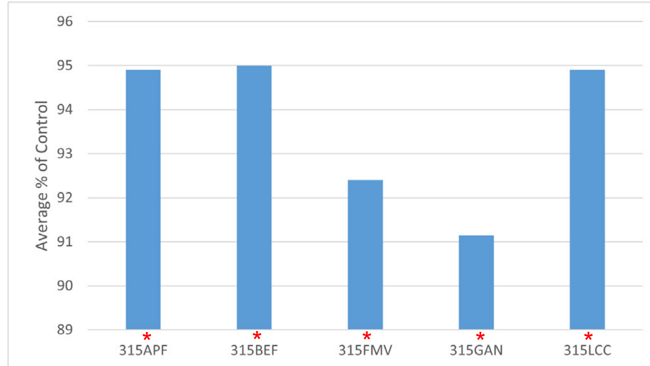
Notes:

1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant ($\alpha = 0.05$).

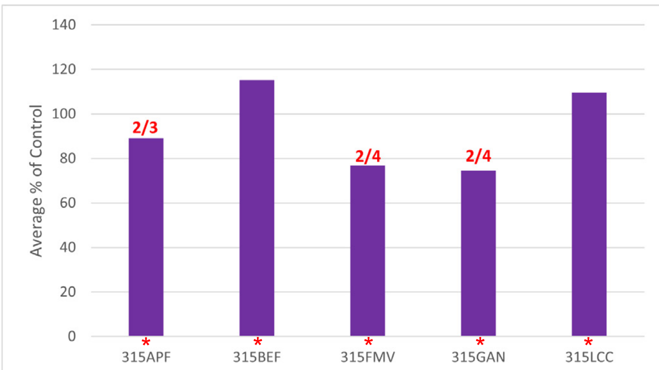
2 None = No monotonic trend (i.e., increasing or decreasing) was identified.



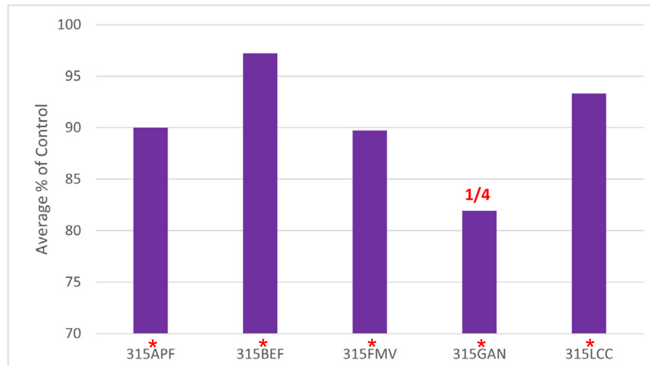
a) Algal Toxicity in Water – Growth



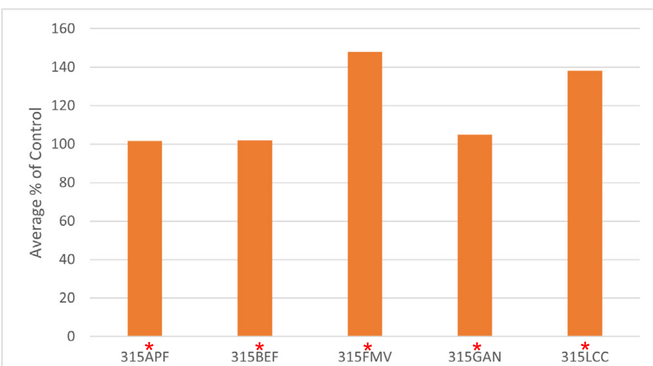
b) *C. dilutus* Toxicity in Water – Survival



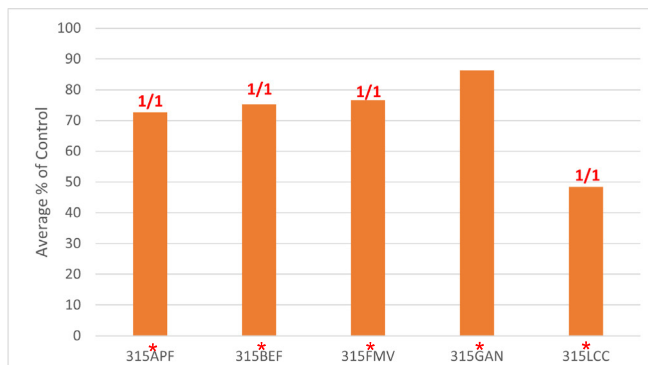
c) *C. dubia* Toxicity in Water – Reproduction



d) *C. dubia* Toxicity in Water – Survival



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-78. Results for Aquatic Toxicity (water and sediment) Monitoring in the South Region

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, as compared to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. “No Test” indicates sites where no toxicity samples were collected due to dry channel or ponded conditions.
4. Results >100% indicate organism performance rates in the environmental sample were greater than in the control.
5. If a site experienced “significant toxicity” red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., ½ indicates the site had two samples collected, one of which was significantly toxic.)

* Site with an applicable non-TMDL area limit for a given test species and endpoint

4.0 DISCUSSION

The results of CMP monitoring were evaluated for spatial patterns and temporal trends in water quality. Results from the 2022 monitoring year were compared between sites and sub-regions to evaluate differences in water quality across the Central Coast Region. Trend analysis was also performed for the period of record from each site (i.e., monthly data since either 2005 or 2006) to evaluate changes over time through 2022.

4.1 SPATIAL PATTERNS IN PARAMETERS OF CONCERN

Spatial patterns in monitoring results were evaluated broadly by HU. At this broad scale, there are important differences between areas of the Central Coast Region in which CMP sites are located. These broad regional patterns are often not reflective of water quality at every individual site within the Hus, nor do they necessarily represent water quality in areas of the Hus not monitored by the CMP.

4.1.1 Spatial Patterns in Select Routine Parameters

Monthly results and summary statistics for routine field and lab-analyzed parameters are summarized in **Appendix B**. "Aggregate median" results, which are summarized in **Table 4-1**, reflect the median value of all results for the relevant HU and parameters from 2022, and corresponding box plots are presented in **Appendix C**. **Table 4-2** summarizes Basin Plan WQO exceedances in a given HU regardless of whether there are TMDL or Non-TMDL limits that supersede the Basin WQOs for individual site-parameter combinations.

Table 4-1. Hydrologic Unit Aggregate Medians for Select Parameters

HU	Ammonia as N, Unionized (mg/L)	Nitrate (mg/L)	Oxygen, Dissolved (mg/L)	Oxygen, Saturation (%)	pH	Specific Conductivity (µS/cm)	Turbidity (NTU)	Orthophosphate as P (mg/L)
305	0.0014	11.4	7.8	76.4	7.9	1,655	16.5	0.27
309	0.0037	25.6	9.2	92.5	7.9	2,174	31.0	0.36
310	0.0005	2.50	7.6	77.1	7.7	1,037	10.1	0.31
312	0.0068	23.9	10.6	116.3	8.0	2,026	37.3	0.41
313/314	0.0021	0.94	8.7	86.5	7.8	1,599	16.3	1.68
315	0.0009	5.12	9.74	93.7	7.8	2,111	8.5	0.13

Notes: HU Key: 305=Pajaro; 309=Salinas; 310=Estero Bay; 312=Santa Maria; 313= San Antonio; 314=Santa Ynez; 315=South Coast

Table 4-2. Hydrologic Unit Water Quality Objective Exceedance Summary

	Ammonia as N, Unionized			Nitrate			Oxygen, Dissolved			pH		
HU	# of Exc.	N	% Exc.	# of Exc[1]	n[1]	% Exc.	# of Exc.	N	% Exc.	# of Exc.	N	% Exc.
305	6	124	5	59	124	48	36	124	29	24	124	19
309	21	129	16	44	122	34	13	134	10	38	134	28
310	0	40	0	9	40	23	14	40	35	1	40	3
312	17	86	20	71	86	83	9	86	10	24	86	28
313/314	2	23	9	0	22	0	11	24	46	5	24	21
315	0	41	0	12	41	29	9	41	22	3	41	7

Notes: HU Key: 305=Pajaro; 309=Salinas; 310=Estero Bay; 312=Santa Maria; 313= San Antonio; 314=Santa Ynez; 315=South Coast
Exc. Exceedances
n Sample count
1 Represents the number of exceedances and sample count for only those sites with a nitrate WQO.

- The Santa Maria HU had the highest aggregate median **Turbidity** concentration (37.3 NTU) in 2022, followed by the Salinas (31 NTU) and Pajaro (16.5 NTU) Hus.
- The Santa Maria HU had the highest percentage of samples (20%, 17 of 86 samples) exceeding the WQO and TMDL limit for **Unionized Ammonia** (0.025 mg/L) in 2022, followed by the Salinas (16%, 21 of 129 samples), San Antonio and Santa Ynez (9%, 2 of 23 samples), and Pajaro (5%, 6 of 124 samples) Hus. There were no samples from the Estero Bay and South Coast Hus that exceeded the WQO for unionized ammonia. The Santa Maria HU also had the highest aggregate median unionized ammonia concentration (0.0068 mg/L).
- The San Antonio and Santa Ynez HU had the highest aggregate median **Orthophosphate as P** concentration (1.68 mg/L) in 2022, followed by the Santa Maria HU (0.41 mg/L).
- The Salinas HU had the highest percent of samples (88%, 44 of 50 samples) exceeding the WQO and TMDL limit for **Nitrate** (10 mg/L), followed by the Santa Maria (83%, 71 of 86 samples), the Pajaro (56%, 59 of 106 samples), and the South Coast (29%, 12 of 41 samples) Hus. There were no samples from the San Antonio and Santa Ynez Hus that exceeded the WQO for Nitrate. The Salinas HU also had the highest aggregate median nitrate concentration (25.6 mg/L) for 2022, followed by the Santa Maria HU (23.9 mg/L).
- The Salinas HU had the highest aggregate median **Specific Conductivity** (2,174 µS/cm) in 2022, followed by the South Coast (2,111 µS/cm) and Santa Maria (2,026 µS/cm) Hus. All Hus had an aggregate median greater than the lowest of the suggested thresholds pertinent to the Central Coast Region (i.e., 750 µS/cm).
- The Estero Bay HU had the lowest aggregate median **Dissolved Oxygen** concentration (7.6 mg/L) in 2022, followed by the Pajaro (7.8 mg/L) and San Antonio and Santa Ynez Hus (8.7 mg/L). The San Antonio and Santa Ynez Hus had the highest percent of samples (46%, 11 of 24 samples) failing to meet the applicable Basin Plan dissolved oxygen WQO (i.e., >5 or 7 mg/L) in 2022, followed by the Estero Bay (35%, 14 of 40 samples) and the Pajaro (29%, 36 of 124 samples) Hus.
- The Santa Maria HU had the highest percent of samples (28%, 24 of 86 samples) exceeding the WQO for **pH** (7-8.3 pH units) in 2022, followed by the Salinas (26%, 35 of 134 samples) and Pajaro (19%, 23 of 124 samples) Hus. The highest aggregate median pH for 2022 was in the Santa Maria HU (8.0 pH units), while the lowest aggregate median pH was in the Estero Bay HU (7.7 pH units). Though both of these aggregate median pH values fall within the acceptable range per the Basin Plan, all Hus had exceedances on an individual site basis in 2022.

4.1.2 Spatial Patterns in Toxicity-Related Parameters

Differences in toxicity monitoring results between Hus are illustrated in **Figure 4-1**. As in prior years, toxicity to algae was less common on a regional basis compared to invertebrate toxicity in water and sediment:

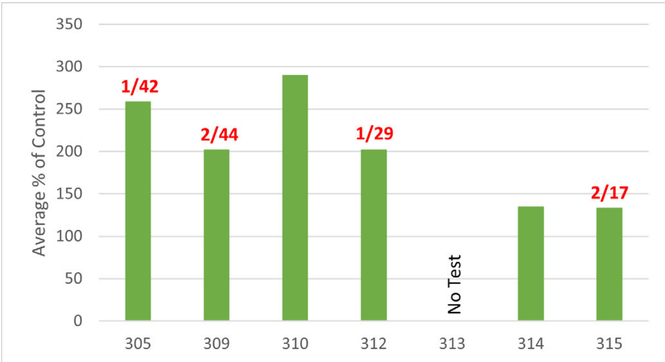
- **Toxicity to Algae** was rare overall and most frequent in samples collected from the South Coast HU (12%, 2 of 17 samples) and the Salinas HU (5%, 2 of 44 samples) (**Figure 4-1 a**). One sample from the Pajaro HU and Santa Maria HU also showed toxicity (2% and 3% of samples, respectively). The Estero Bay and Santa Ynez Hus showed no toxicity to algae during 2022.
- In 2022, **Toxicity to Invertebrates in Water** occurred more frequently than toxicity to algae. Toxicity to *C. dilutus* and *C. dubia* survival was observed most frequently in samples collected from the Santa Maria HU (59%, 16 of 27 samples and 34%, 10 of 29 samples, respectively) and the Salinas HU (48%, 15 of 31 samples and 30%, 13 of 44 samples, respectively) (**Figure 4-1 b, d**). Toxicity to sub-lethal endpoints (i.e., reproduction or growth) for *C. dubia* and alternate species was most frequent in samples collected from the Santa Maria HU (63%, 17 of 27 samples), Salinas HU (58%, 18 of 31 samples), and South Coast HU (40%, 6 of 15 samples) (**Figure 4-1 c)**. The Pajaro, Estero Bay, and Santa Ynez Hus also showed toxicity to invertebrate reproduction in water (22%, 15%, and 29% of samples, respectively). The following comparisons are based on results from bioassays with lethal *and* sub-lethal endpoints. The test protocol

for the alternative species *H. azteca* has only one endpoint, survival, so this small subset of results was not included.

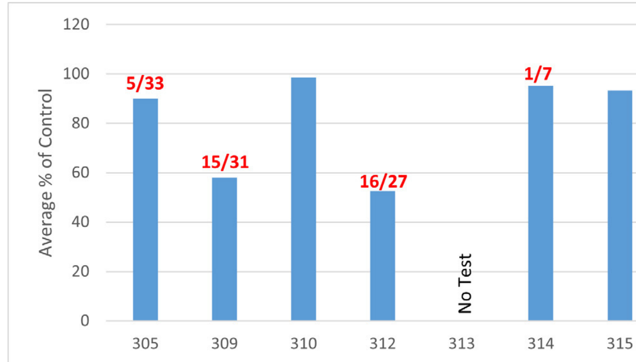
- Regionwide, 68% of samples for *C. dubia* and alternate species (52 of 77 samples) with significant toxicity showed only sub-lethal effects, with no significant mortality.
- In the Salinas HU, 23% of samples for *C. dubia* and alternate species (7 of 31 samples) with significant toxicity, showed both lethal and sub-lethal effects. Eighteen samples showed only sub-lethal effects and 13 samples showed only lethal effects.
- In the Santa Maria HU, 33% of samples (9 of 27 samples) with significant toxicity, showed both lethal and sub-lethal effects. The majority of samples showed only sublethal effects (63%, 17 of 27 samples).

- In 2022, **Toxicity to Invertebrates in Sediment** was observed everywhere in the Central Coast region except for the Estero Bay HU (**Figure 4-1 e, f**). Toxicity to invertebrate growth in sediment was observed most frequently in samples collected from Santa Maria (86%, 6 of 7 samples) and Salinas (80%, 8 of 10 samples) Hus (**Figure 4-1 e**). Toxicity to invertebrate survival in sediment was observed most frequently in samples collected from the Santa Ynez (100%, 2 of 2 samples) and South Coast (80%, 4 of 5 samples) Hus (**Figure 4-1 f**). The following comparisons are based only on results from bioassays with lethal and sub-lethal endpoints. The test protocol for the alternative species *H. azteca* has only one endpoint, survival, so this small subset of results was not included.
    - Regionwide, 47% of sediment samples (18 of 38 samples) with significant toxicity showed only sub-lethal effects, with no significant mortality.
    - Of the samples that showed lethal toxic effects, 45% (9 of 20 samples) occurred in northern Hus while 55% (11 of 20 samples) occurred in southern Hus.
    - In the Salinas HU, 50% of sediment samples (8 of 16 samples) with significant toxicity, showed both lethal and sub-lethal effects.
    - In the Santa Maria HU, 36% of sediment samples (4 of 11 samples) with significant toxicity, showed both lethal and sub-lethal effects.

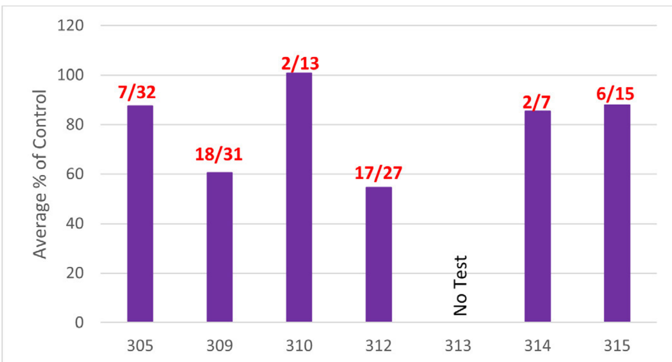
In some situations, it is difficult to determine the cause(s) of aquatic toxicity, and in these cases, it can be useful to perform a Toxicity Identification Evaluation (TIE). In a TIE, sample water known to be toxic to one or more aquatic species is manipulated in a variety of ways to assess the presence of various suspected toxicants, one or more of which can then be identified as responsible for causing the observed toxicity. The TIE approach is most helpful when a wide array of potential toxicants exists, in order to narrow the list of possible toxicants that need to be analyzed. However, in the case of the CMP, the list of most likely toxicants is relatively constrained to a few classes of pesticides and herbicides. Past monitoring efforts have generally confirmed that where aquatic toxicity is observed at CMP sites, sufficient concentrations of just a few materials (sampled concurrently) are present to explain most or all of the toxicity. Under these circumstances it is more efficient to sample concurrently for the few classes of probable toxicants than to perform TIEs. Since the approach of concurrent sampling for aquatic toxicity and probable toxicants (i.e., pesticides and herbicides) has proven relatively consistent throughout the history of the CMP, additional TIE studies are not recommended at this time. Further discussion is provided in the supplemental report titled *Central Coast Region Conditional Waiver Cooperative Monitoring Program Supplemental Monitoring Report: 2021 and 2022 Aquatic Toxicity and Potential Toxicants* (CCWQP 2023).



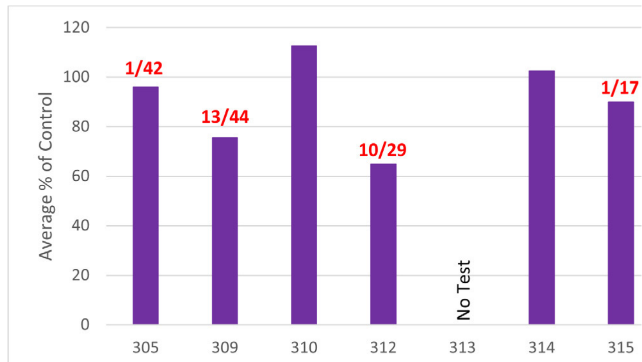
a) Algal Toxicity in Water – Growth



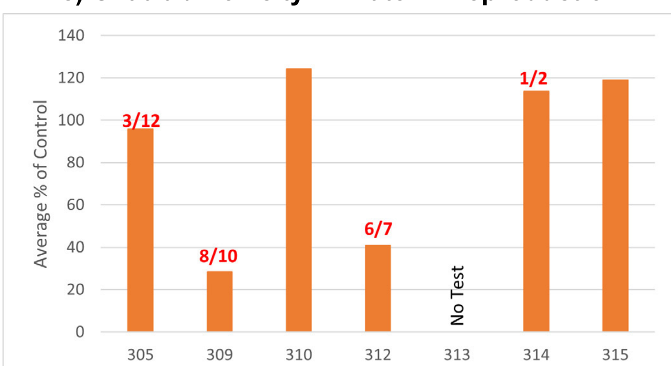
b) *C. dilutus* Toxicity in Water – Survival



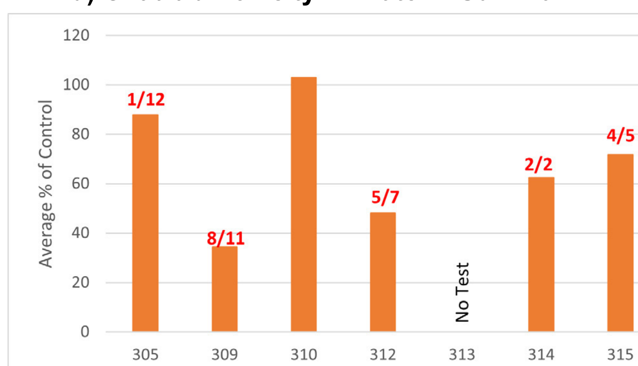
c) *C. dubia* Toxicity in Water – Reproduction



d) *C. dubia* Toxicity in Water – Survival



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 4-1. Summary of Toxicity in Water and Sediment Results from 2022

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2022 samples at each site, as compared to laboratory controls.
2. There are generally four water toxicity sampling events for algae and invertebrates and two sediment toxicity events scheduled for each site each year.
3. Results >100% indicate organism performance rates in the environmental sample were greater than in the control.
4. If a HU experienced "significant toxicity" red fractions indicate the number of significantly toxic samples relative to the total number of toxicity samples collected (e.g., ½ indicates the site had two samples collected, one of which was significantly toxic).
5. *C. dubia* reproduction graphs generally reflect *C. dubia* tests, but in some cases reflect a salinity-tolerant alternate test species, which in some cases test for "growth" instead of "reproduction" as the sub-lethal endpoint.
6. HU Key: 305=Pajaro; 309=Salinas; 310=Estero Bay; 312=Santa Maria; 313= San Antonio; 314=Santa Ynez; 315=South Coast

4.2 TEMPORAL PATTERNS – TRENDS OVER TIME

A primary objective of the CMP is to detect trends in water quality over time, should changes occur. In 2010, a power analysis was conducted which indicated varying levels of statistical power to detect trends with the seasonal Mann-Kendall test based upon the monthly monitoring schedule, observed variability in past CMP monitoring results, and test scenarios of five- to 20-year periods of record (CCWQP 2010). For example, high variability in turbidity monitoring results limits the CMP's power to detect trends such that in a five- to 10-year monitoring period, 50% reductions in turbidity levels would be needed to create a detectable trend at even 10% of the CMP sites (CCWQP 2010). In contrast, salinity-related parameters tend to be less variable such that 30% changes in conductivity (or salinity or TDS) can be reliably detected at 40% of CMP sites in just five years. Recent trend analyses have shown a better-than-expected ability to detect trends for some parameters; most notably, turbidity.

Trend analysis performed on the first five years of CMP results identified trends (i.e., statistically significant changes over time) in 21% of possible site-by-parameter combinations. Trend analysis in 2017, 2018, 2019, 2020, and 2021 identified trends in 33%, 32%, 33%, 36%, and 37% of possible site-by-parameter combinations, respectively. For this report, the "rkt" package for the R statistical computing software version 3.5.3 (https://CRAN.R-project.org/) was used to perform Mann-Kendall monotonic trend analysis on all site-by-parameter combinations with sufficient records in the CMP dataset from 2005 through 2022. An alpha value of 0.05 was used to determine significance for all trends. As discussed in Section 2.7, the seasonal Mann-Kendall test (Hirsch and Slack 1984) is the primary statistical test used for the CMP; however, where there was insufficient intra-annual data for site-by-parameter combinations, a non-seasonal Mann-Kendall test (Mann 1945) was performed. Trend direction and significance are depicted for each site/parameter in **Figure 4-2**. See **Appendix E** for a summary of all Mann-Kendall results, including p-values and Kendall's Tau, which describe the significance and directionality of trends, respectively.

4.2.1 Trends for Select Routine Parameters

Trends for the period of 2005-2022 are presented for all sites and routine parameters in Section 3 of this report (Water Quality Monitoring Results). The significant trends for select parameters were further evaluated for continuity or reversals relative to prior trend analyses presented in the 2021 Annual Report (CCWQP 2021). The results of this evaluation are discussed in this Section of the report with regard to location in the northern monitoring unit or HUs (i.e., Pajaro River and Salinas) versus southern monitoring unit or HUs (i.e., Estero Bay, Santa Maria, Santa Ynez, and South Coast). Unless otherwise specified, within this section the term "trends" refers only to statistically significant trends.

- Through 2022, trends in stream **Flow** were almost entirely decreasing (88%, 29 of 33 trends). All four increasing trends were observed in northern HUs. The general distribution and direction of trends for flow were consistent with the 2021 trend analysis. No reversals of trends were found. In the Estero Bay, Santa Maria, Santa Ynez, and South Coast HUs, all statistically significant trends in flow were decreasing.
- Trends in **pH** were observed throughout the Central Coast Region, but more commonly in the northern HUs. The majority of decreasing trends (88%, 14 of 16 decreasing trends) were observed in northern HUs, and the majority of increasing trends (90%, 9 of 10 increasing trends) were observed in southern HUs. Ninety-three percent (14 of 15) of all trends observed in the northern HUs and 18% (2 of 11) of all trends observed in the southern HUs were decreasing. The general distribution and direction of trends for pH were consistent with the 2015, 2016, 2017, 2018, 2019, and 2020 trend analyses that showed primarily decreasing trends in northern HUs and primarily increasing trends in southern HUs. No reversals of trends were found. In the Santa Maria and Santa Ynez HUs, all statistically significant trends in pH were increasing, and in Pajaro HU, all trends were decreasing.
- Through 2022, a slight majority of decreasing trends (57%, 13 of 23 decreasing trends) for **Salinity, Specific Conductivity, and TDS**, were observed in southern HUs. A slight majority of increasing trends (51%, 20 of 39 increasing trends) were also observed in southern HUs. Sixty-five percent (19 of 29) of all trends observed in the northern HUs and 61% (20 of 33) of all trends observed in the southern HUs were increasing. The general distribution and direction of trends for salinity-related parameters were consistent

with the 2021 trend analysis. No reversals of trends were found. In the Pajaro and South Coast HUs, all statistically significant trends in salinity, specific conductivity, and TDS were increasing. In the Santa Ynez HU, all statistically significant trends were decreasing.

- Decreasing trends in **Dissolved Oxygen** were observed at 11 sites throughout the monitoring area. Fifty-five percent (6 of 11 decreasing trends) were observed in the northern HUs and 45% (5 of 11 decreasing trends) were observed in the southern HUs. Of the 13 increasing trends in dissolved oxygen, seven were observed in the northern HUs and six in the southern HUs. Forty-six percent (6 of 13) of all trends observed in the northern HUs and 45% (5 of 11) of all trends observed in the southern HUs were decreasing. The distribution of trends in 2022 was generally consistent with the 2021 trend analysis. No reversal of trends was observed. Increasing dissolved oxygen levels are difficult to interpret, as they can indicate either improved or worsened water quality depending on the time of sampling and the relationship of photosynthesizer communities to biostimulatory substances in the water. Diel sampling would be required to fully establish dissolved oxygen conditions but is generally beyond the scope of this program.
- Trends in **Turbidity** were predominantly decreasing through 2022. Eighty-two percent (18 of 22) of all trends observed in the northern HUs, and 36% (4 of 11) of all trends observed in the southern HUs were decreasing. The majority of increasing trends were observed in southern HUs (64%, 7 of 11 increasing trends) and the majority of decreasing trends were observed in northern HUs (82%, 18 of 22 decreasing trends). In the Estero Bay, Santa Ynez, and South Coast HUs, all statistically significant trends in turbidity were increasing. In the Santa Maria HU, all statistically significant trends in turbidity were decreasing and all but one of the trends in the Salinas HU were decreasing. The distribution of trends in 2022 was generally consistent with the 2021 trend analysis. No reversals of trends were observed. Similar to Turbidity, **Flow-weighted Turbidity** was predominantly decreasing (89%, 25 of 28) through 2022. Eighty-two percent (9 of 11) of all trends observed in the northern HUs and 94% (16 of 17) of all trends observed in the southern HUs were decreasing.
- Throughout the Central Coast Region, a majority of trends in **Orthophosphate** through 2022 were decreasing (82%, 24 of 29 trends). The slight majority of decreasing trends were observed in the northern HUs (58%, 14 of 24 decreasing trends), and the majority of increasing trends were observed in the southern HUs (60%, 3 of 5 increasing trends). Eighty-eight percent (14 of 16) of trends observed in the northern HUs and 77% (10 of 13) of trends observed in the southern HUs were decreasing. These geographical and directional trends for orthophosphate were not consistent with the 2021 trend analysis. The majority of trends in orthophosphate through 2021 were increasing (58%, 11 of 19 trends). One Salinas HU site and one Estero Bay HU site displayed a reversal of statistically significant trends from increasing to decreasing.
- In 2022, the majority of trends in **Nitrate** concentration were decreasing (60%, 15 of 25 trends). Twenty-seven percent (4 of 15 decreasing trends) were found in northern HUs and 73% (11 of 15 decreasing trends) were found in southern HUs. Sixty-seven percent (8 of 12) of trends observed in northern HUs and 15% (2 of 13) of trends observed in southern HUs were increasing. In the Estero Bay and Santa Ynez HUs, all statistically significant trends in nitrate were decreasing.
- Trends in **Total Ammonia** were predominantly increasing through 2022. All trends (9 of 9) in northern HUs were increasing and 86% (6 of 7) of trends in southern HUs were decreasing. All decreasing trends (100%, 6 of 6 decreasing trends) were observed in the southern HUs. A slight majority of trends for **Unionized Ammonia** were decreasing (54%, 7 of 13 trends). The majority of decreasing trends were observed in southern HUs (57%, 4 of 7 decreasing trends) and the majority of decreasing trends were northern HUs (83%, 5 of 6 increasing trends). Of the nine sites that showed trends in both Ammonia-related parameters, one site had trends that did not match in terms of directionality (i.e., increasing vs. decreasing) for the two parameters (Llagas Creek [305LCS]). In the Santa Maria HU, all statistically significant trends in unionized ammonia were increasing. In the Estero Bay, Santa Ynez, and South Coast HUs, all statistically significant trends in unionized ammonia were decreasing.

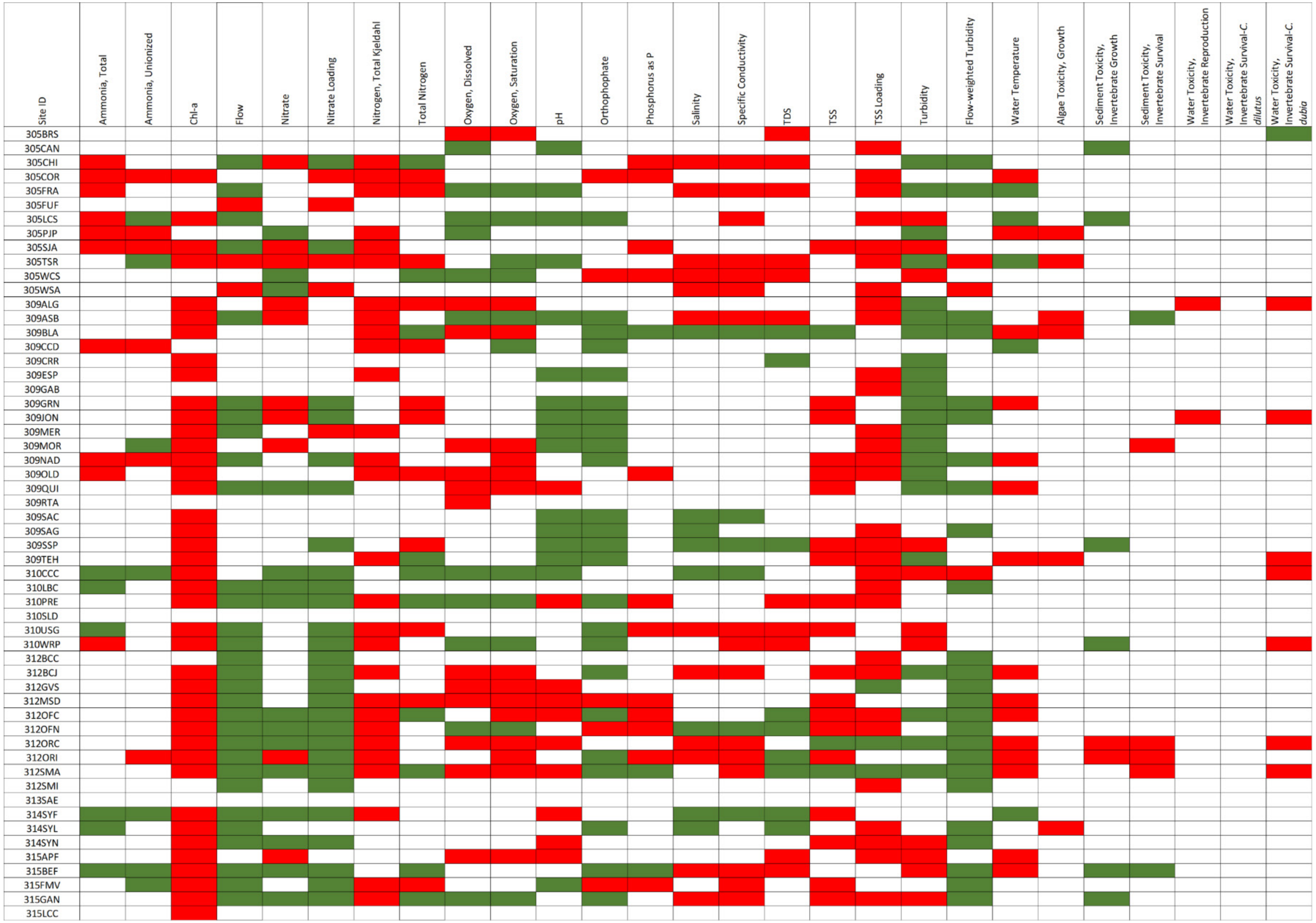


Figure 4-2. Summary of Significant Trends Detected in CMP Data with Mann-Kendall Analysis Using R, 2005-2022

Red blocks in the matrix indicate significant increasing trends, which usually indicate worsening water quality conditions (notable exceptions are dissolved oxygen and the toxicity related parameters, where increasing trends indicate improved test organism performance). Green blocks indicate significant decreasing trends, which usually indicate improved water quality (notable exceptions are dissolved oxygen and the toxicity-related parameters, where declining trends indicate reduced test organism performance).

4.2.2 Trends for Toxicity-Related Parameters

Monitoring for parameters related to aquatic toxicity occurs less frequently and as such this portion of the dataset does not lend itself as readily to formal trend analysis as the other parameters. Due to the length of monitoring history, it is now possible to perform statistical tests for trends on some CMP toxicity data. However, due to the variability of the data, the number of statistically significant trends in toxicity is low. To supplement this limited dataset and to further understand the general direction of toxicity trends in the monitoring area, temporal patterns in the data were also evaluated with time series plots. **Appendix F** includes two different types of time series plots. One type depicts all monitoring locations within a HU for each parameter—the time series is presented as a black line while the associated trend of the data (determined by the Mann-Kendall analysis) is denoted as a blue line. The blue line represents the Theil-Sen Slope which is a statistic that is produced during the Mann-Kendall analysis and approximates the strength of the trend and correlates with Kendall's Tau. A dashed blue line indicates a non-significant trend (p-value >0.05) and a solid blue line indicates a significant trend (p-value ≤ 0.05). The other type of time series plot represents results for each sample location and parameter combination (a total of 1655 plots). These plots include individual sample results denoted with a black line; a blue trend line based on the Theil-Sen Slope and having the same interpretive logic described above; and a locally estimated scatterplot smoothing (LOESS) line, which fits a smooth line to the data. LOESS is a "local" regression technique that gives more weight to nearby data than to data located further up or down the x-axis. LOESS is not a separate trend analysis method, but rather a visual tool to help see the relationship between localized subsets of data and to foresee potential trends. The results of water column toxicity trend analyses are presented below, as well as in Figure 4-2. With regard to aquatic toxicity, increasing trends generally indicate improvement (i.e., higher survival, reproduction, or growth rates over time). Unless otherwise specified, within this section the term "trends" refers only to statistically significant trends.

- Through 2022, six significant increasing trends (i.e., improvement) for **Algae Growth** were observed in the monitoring area. Five of the six increasing trends were observed in northern HUs. No significant decreasing trends were observed.
- Through 2022, two significant increasing trends (i.e., improvement) for **Invertebrate Reproduction Rates in Water** were observed. These trends were observed in the Salinas HU. No significant decreasing trends were observed.
- Through 2022, seven significant increasing trends (i.e., improvement) and one significant decreasing trend (i.e., worsening) for **Invertebrate Survival in Water** for *C. dubia* were observed. The only decreasing trend was observed in the Pajaro HU. No significant trends were observed in the monitoring area for *C. dilutus*.
- Through 2022, two significant increasing trends (i.e., improvement) and six significant decreasing trends (i.e., worsening) for **Invertebrate Growth in Sediment** were observed. Three of the decreasing trends occurred in northern HUs and three occurred in southern HUs. Both increasing trends occurred in the Santa Maria HU.
- Through 2022, four significant increasing trends (i.e., improvement) and two significant decreasing trends (i.e., worsening) for **Invertebrate Survival in Sediment** were observed in the monitoring area. Three of the four increasing trends and one of the two decreasing trends occurred in southern HUs.

4.3 STORMWATER QUALITY

The impact of stormwater at monitoring sites was assessed by documenting "wet events" (i.e., monitoring events performed during or within 18 hours following a rain event that is sufficient to cause runoff, ponding, erosion, or other water quality problems and generally produces more than 0.5 inch of rain within 24 hours) for each HU according to site-by-site field observations, including current weather conditions, increase in stage and stream flow velocity, and/or the presence of storm related agricultural field runoff. A wet/dry determination was applied to all applicable field and analytical data gathered from each site visit based upon the conditions at the time of monitoring. **Table 4-3** displays the wet/dry status of monitoring events conducted in 2022.

Table 4-3. Summary of Wet/Dry Monitoring Events for 2022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HU 305	Dry	Dry	Dry[T]	Dry[T]	Dry	Dry	Dry	Dry	Dry[T]	Dry	Wet[T,P]	Dry
HU 309	Dry	Dry	Dry[T]	Dry[T]	Dry[T]	Dry	Dry[P]	Dry	Dry[T]	Dry	Dry[P]	Wet[T,P]
HU 310	Dry	Dry	Wet[T,P]	Dry[T]	Dry	Dry	Dry	Dry[P]	Dry[T]	Dry	Dry	Wet[T,P]
HU 312	Dry	Dry	Wet[T,P]	Dry[T]	Dry[T]	Dry	Dry	Dry	Wet[T,P]	Dry	Dry	Wet[T,P]
HU 313	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	**Wet**	Dry	Dry	Dry
HU 314	Dry	Dry	Dry[T,P]	Dry[T]	Dry	Dry	Dry	Dry	Wet[T,P]	Dry	Dry	Wet[T,P]
HU 315	Dry	Dry	Dry[T]	Dry[T]	Dry	Dry	Dry	Dry	Dry[T]	Dry	Dry	**Wet[T]**

Notes:
P Mixed weather conditions were observed for a given HU and monitoring event; therefore, the predominant weather condition of the monitoring event (i.e., greater than 50% of monitoring locations) is noted.
T Toxicity samples collected and analyzed.
Wet Indicates if a HU was entirely (all sites) influenced by precipitation.

For this stormwater analysis, a two-sample, unpaired t-test assuming unequal variance was used to compare *wet* vs *dry* 2022 sample results. A t-test compares the average of the two groups to determine if any differences are significant (α=0.05). Below is a summary of all statistically significant results. See **Appendix D** for a summary of all test results.

4.3.1 Stormwater Analysis for Pajaro Hydrologic Unit

The results of the unpaired t-test for the Pajaro HU (HU305) showed the following:

- Algae growth was significantly higher during wet events.
- Unionized ammonia was significantly lower during wet events.
- Total nitrogen and nitrate levels were significantly lower during wet events.
- Salinity, potassium, and calcium levels were significantly lower during wet events.
- Water temperatures were significantly lower during wet events.

4.3.2 Stormwater Analysis for Salinas Hydrologic Unit

The results of the unpaired t-test for the Salinas HU (HU309) showed the following:

- Unionized ammonia was significantly lower during wet events.
- Survival in water for *C. dilutus* was significantly lower during wet events.
- Invertebrate reproduction in water for *C. dubia* was significantly lower during wet events.
- Orthophosphate levels were significantly higher during wet events.
- pH was significantly lower during wet events.
- Phosphorus levels were significantly higher during wet events.

- Specific conductivity was significantly lower during wet events.
- TDS, alkalinity, calcium, chloride, and sulfate levels were significantly lower during wet events.
- Turbidity levels were significantly higher during wet events.
- Water temperatures were significantly lower during wet events.

4.3.3 Stormwater Analysis for Estero Bay Hydrologic Unit

The results of the unpaired t-test for the Estero Bay HU (HU310) showed the following:

- Algae growth was significantly higher during wet events.
- Survival in water for *C. dilutus* was significantly higher during wet events.
- Nitrate loading was significantly higher during wet events.

4.3.4 Stormwater Analysis for Santa Maria Hydrologic Unit

The results of the unpaired t-test for the Santa Maria HU (HU312) showed the following:

- Algae growth was significantly higher during wet events.
- Survival in water for *C. dilutus* was significantly lower during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Flow was significantly higher during wet events.
- Nitrate loading was significantly higher during wet events.
- Oxygen saturation and dissolved oxygen levels were significantly lower during wet events.
- pH was significantly lower during wet events.
- Specific conductivity was significantly lower during wet events.
- TDS, salinity, and sulfate levels were significantly lower during wet events.
- Turbidity was significantly higher during wet events.
- Water temperatures were significantly lower during wet events.

4.3.5 Stormwater Analysis for Santa Ynez Hydrologic Unit

The results of the unpaired t-test for the Santa Ynez HU (HU314) showed the following:

- Total ammonia and unionized ammonia were significantly lower during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Nitrate levels were significantly lower during wet events.
- Orthophosphate and phosphorous levels were significantly lower during wet events.
- Specific conductivity was significantly lower during wet events.
- TDS, salinity, and sulfate levels were significantly lower during wet events.
- Turbidity was significantly higher during wet events.
- Water temperatures were significantly lower during wet events.

4.3.6 Stormwater Analysis for South Coast Hydrologic Unit

The results of the unpaired t-test for the South Coast HU (HU315) showed the following:

- Chlorophyll levels were significantly lower during wet events.
- Flow was significantly higher during wet events.
- Invertebrate survival and reproduction in water for *C. dubia* was significantly higher during wet events.
- Total nitrogen and nitrate levels were significantly lower during wet events.
- Specific conductivity was significantly lower during wet events.
- TDS, salinity, alkalinity, calcium, chloride, magnesium, and sulfate levels were all significantly lower during wet events.
- Water temperatures were significantly lower during wet events.

4.4 WATER QUALITY IMPACTS & EXCEEDANCES

Agricultural discharges may contain eroded soils, fertilizers and other amendments, and/or pest control materials. As an ambient monitoring program, the CMP is not designed to locate nor characterize individual agricultural discharges, but rather to assess the cumulative impact of multiple discharges at the bottom of watersheds. Monitoring sites for the CMP were selected to reflect substantial agricultural land use and known water quality impairments. Most CMP watersheds include other land uses in addition to agriculture (i.e., urban, rural residential, etc.). Therefore, monitoring results must be interpreted with caution and in the context of land uses specific to each watershed.

Water quality impacts and exceedances at CMP sites in 2022 included the following:

- Elevated turbidity from newly eroded soils and/or resuspension of stream-bottom sediments consisting of previously eroded soils and/or naturally occurring soft substrate. Turbidity levels were monitored monthly and reported quarterly in 2022, each time being submitted to the California Environmental Data Exchange Network (CEDEN) via the California Data Upload and Checking System (CalDUCS) maintained by Moss Landing Marine Laboratories. The WQO for turbidity is narrative and dependent on natural background levels, hence exceedances could not be enumerated in **Appendix B** of this report (Summary Statistics and Exceedance Frequencies). Elevated turbidity levels are reported and discussed in detail by HU in Sections 3.2.3, 3.3.3, 3.4.3, 3.5.3, 3.6.3, and 3.7.3 of this report, and summarized in Sections 4.1 and 4.2.

- Elevated nutrient levels from fertilizers or other amendments, and in some cases from wastewater treatment plant effluent and other urban sources. Nutrient levels were monitored monthly and reported quarterly in 2022, each time being submitted to the CEDEN via the CalDUCS maintained by Moss Landing Marine Laboratories. Exceedances of numeric WQOs for nitrate and unionized ammonia are also enumerated in **Appendix C** of this report. For other forms of nitrogen without numeric WQOs, as well as total phosphorus and orthophosphate, elevated concentrations are also reported and discussed in detail by HU in Sections 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7 of this report, and summarized in Sections 4.1 and 4.2.

- In 2022, water column toxicity from pest control materials was monitored four times and sediment toxicity monitored once. This monitoring reflects two summer/dry season events and two winter/wet season events for water, and a spring event for sediment. Bioassay results and statistical determinations of significant toxic effects were reported quarterly in 2022 via submittal to CEDEN via the CalDUCS maintained by Moss Landing Marine Laboratories. Significant toxic effects are reported and discussed in detail by HU in Sections 3.2.11, 3.3.11, 3.4.11, 3.5.11, 3.6.11, and 3.7.11 of this report, and summarized in Sections 4.1 and 4.2.

5.0 SUMMARY AND CONCLUSIONS

All 12 CMP monitoring events planned for 2022 were successfully conducted, with a total of 451 of 662 planned site visits (68.1%) resulting in samples being collected. Samples were not collected during 211 site visits because 141 site visits observed a dry channel and 70 site visits observed disconnected pools and/or discontinuous flows. All the collected samples were analyzed. The monitoring results were evaluated in accordance with the CMP QAPP (CCWQP 2013) and determined overall to be of high quality with few qualifications that would limit use.

There were some broad regional trends observed in the CMP monitoring results:

- Twenty-four trends in **dissolved oxygen** were observed across the Central Coast Region, 13 of which were increasing. Trends were primarily increasing in the Salinas and Santa Maria HUs, and primarily decreasing in the Pajaro and Estero Bay HUs. The South Coast HU had an equal number of increasing and decreasing trends, and no trends were observed within the San Antonio and Santa Ynez HUs. The increasing trends could indicate improvements, or conversely, could be part of a worsening trend involving reduced oxygen levels at night, caused by the same algal populations responsible for the daytime highs. The CMP does not monitor dissolved oxygen at night. The San Antonio and Santa Ynez HUs had the highest percentage of dissolved oxygen WQO exceedances in the Region.
- There were 33 statistically significant trends in **turbidity**, 22 decreasing and 11 increasing. The Salinas HU comprised the majority of the decreasing trends (87% of decreasing trends). In the Estero Bay, Santa Ynez, and South Coast HUs, all statistically significant trends in turbidity were increasing. In the Santa Maria HU, all statistically significant trends in turbidity were decreasing. There were 33 trends in **flow**, which were primarily decreasing (four exceptions). Three increasing trends were observed in the Pajaro HU and one increasing trend was observed in the Salinas HU. Twenty-six trends in **pH** were observed throughout the Region. These trends were most commonly decreasing in the Pajaro River and Salinas HUs and increasing in the Santa Maria and Santa Ynez HUs. The Salinas HU comprised 63% (10 of 16) of the decreasing trends in the Central Coast Region. The Santa Maria HU had the highest percentage of pH WQO exceedances in the Region.
- Trends for both **ammonia** and **unionized ammonia** were mostly increasing throughout the Central Coast Region, 10 of 16 trends, respectively. The Santa Maria HU had the highest percentage of unionized ammonia WQO (including WQOs that were superseded by TMDL or Non-TMDL limit criteria) exceedances in the Region, and the Estero Bay and South Coast HUs achieved all unionized ammonia TMDL and non-TMDL limits.
- Trends in **Orthophosphate** were primarily decreasing in 2022 (82%, 24 of 29 trends), compared to the primarily increasing trends in 2021 (58%, 11 of 19 trends).
- Trends in **salinity-related parameters** were primarily increasing throughout the Region (63% increasing). All trends throughout the Pajaro and South Coast HUs were entirely increasing and were mostly increasing in the Estero Bay HU. Trends were entirely decreasing in the Santa Ynez HU and mostly decreasing in the Salinas HU.
- Twenty-five trends in **nitrate** were observed across the Central Coast Region, 10 of which were increasing. Of the increasing trends, most were observed in the Pajaro River and Salinas HUs. Five increasing trends in nitrate concentration had a corresponding decreasing trend in nitrate loading, and one increasing trend in nitrate loading had a corresponding decreasing trend in nitrate concentration. The Salinas HU had the highest percentage of nitrate WQO (including WQOs that were superseded by TMDL or Non-TMDL limit criteria) exceedances in the Region. No HU in the Region achieved all nitrate TMDL limits.
- Six significant increasing trends (i.e., improving, reduced toxicity) for **Algae Growth** were observed throughout the Region. No significantly decreasing trends were observed.
    - Toxicity to algae was observed most frequently in the Estero Bay HU, followed by the Pajaro HU.

- Six significant increasing trends (i.e., improving, reduced toxicity) and one significant decreasing trend (i.e., worsening) for **Toxicity to *C. dubia* survival in water** were observed throughout the region.
    - Toxicity to *C. dubia* survival in water was observed most frequently in samples collected from the Estero Bay HU, followed by the Pajaro HU.
- **Toxicity to C. dilutus survival in water** was observed most frequently in samples collected from the Estero Bay HU, followed by the Santa Ynez and South Coast HUs.
- **Toxicity to invertebrate reproduction in water** was also most frequent in samples collected from the Estero Bay HU, followed by the South Coast and Pajaro HUs.
- Throughout the monitoring area, most *C. dubia* bioassays showing **significant toxicity** in water had only sub-lethal effects with no significant effect to mortality, while most bioassays showing significant toxicity in sediment showed both sub-lethal and lethal effects.
- No **significant mortality** was observed in *C. dubia* samples collected from the Estero Bay and Santa Ynez HUs. No significant mortality was observed in *C. dilutus* samples collected from the Estero Bay and South Coast HUs.
- **Toxicity to invertebrate survival and growth in sediment** occurred most frequently in samples collected in the Estero Bay HU, followed by the Pajaro and South Coast HUs, respectively.
- Only the Pajaro HU achieved the majority of applicable **toxic effect TMDL limits**.

The CMP results from 2022 continue to support the conclusion that low dissolved oxygen, elevated pH, elevated nitrate and ammonia, and water and sediment toxicity are parameters of concern in many waterbodies. However, the presence of statistically significant trends indicates that some conditions may be changing. Due to the ongoing drought conditions in the Central Coast Region, some of these changes are likely influenced by climatic factors; however, improved management by growers such as the implementation of more efficient irrigation technology (R. Taylor and D. Zilberman 2017) in conjunction with the implementation and improvement of erosion, nutrient, and pesticide best management practices reported by many regional growers (CCRWQCB 2020, Section 2.7.1), may also contribute to trends.

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APPENDIX A – TMDL AND NON-TMDL AREA LIMITS

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Summary of Annual, Dry Season, and Wet Season TMDL Limits and Non-TMDL Area Limits for Sites in Hydrologic Unit 305 (HU 305)

CMP Site ID	CMP Site Description	Pajaro River Watershed Nutrient TMDL								Pajaro River Watershed Chlorpyrifos and Diazinon TMDL		Non TMDL Area Limits[1]				
		Unionized Ammonia, mg/L	Nitrate as N, mg/L	Nitrate as N, mg/L (Dry Season)	Nitrate as N, mg/L (Wet Season)	Total Nitrogen, mg/L (Dry Season)	Total Nitrogen, mg/L (Wet Season)	Orthophosphate, mg/L (Dry Season)	Orthophosphate, mg/L (Wet Season)	No Significant Toxic Effect, 7 Day, Chronic Exposure with *C. dubia* in Water (Survival & Reproduction)	No Significant Toxic Effect, 10 Day, Chronic Exposure *with H. azteca* in Sediment (Survival& Reproduction[2])	Turbidity, NTU	Unionized Ammonia, mg/L	Nitrate as N, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
305BRS	Beach Road Ditch at Shell Rd.	<0.025	<10	<3.3	<8	-	-	<0.14	<0.3	-	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
305CAN	Carnadero Creek upstream of Pajaro River	<0.025	<10	<1.8	<8	-	-	<0.05	<0.3	-	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
305CHI	Pajaro River at Chittenden	<0.025	<10	<3.9	<8	-	-	<0.14	<0.3	Survival and Reproduction	Survival	<25	-	-	Growth	Growth
305COR	Salsipuedes Creek downstream of Corralitos Creek upstream from Highway 129	<0.025	<10	<1.8	<8	-	-	<0.14	<0.3	-	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
305FRA	Millers Canal at Frazier Lake Rd.	<0.025	<10	-	-	<1.1	<8.0	<0.04	<0.3	-	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
305FUF	Furlong Creek at Frazier Lake Rd.	<0.025	<10	<1.8	<8	-	-	<0.05	<0.3	-	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
305LCS	Llagas Creek at Southside	<0.025	<10	<1.8	<8	-	-	<0.05	<0.3	Survival and Reproduction	Survival	<25	-	-	Growth	Growth
305PJP	Pajaro River at Main St.	<0.025	<10	<3.9	<8	-	-	<0.14	<0.3	Survival and Reproduction	Survival	<25	-	-	Growth	Growth
305SJA	San Juan Creek at Anzar Rd.	<0.025	<10	<3.3	<8	-	-	<0.12	<0.3	-	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
305TSR	Tequisquita Slough u/s Pajaro River at Shore Rd.	<0.025	<10	<2.2	<8	-	-	<0.12	<0.3	-	-	<40	-	-	Survival, Growth, and Reproduction	Survival and Growth
305WCS	Watsonville Creek at Salinas Road/Hudson Landing	-	-	-	-	-	-	-	-	-	-	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
305WSA	Watsonville Slough at San Andreas Rd.	<0.025	<10	-	<8	<2.1	-	<0.14	<0.3	-	-	<40	-	-	Survival, Growth, and Reproduction	Survival and Growth

Note:

1. Dischargers in an area without an established TMDL for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Ag Order 4.0 Table C.3-3 for nutrients, Table C-3.5 for pesticides and toxicity, and Table C.3-7 for turbidity in accordance with the compliance dates specified in the applicable table (CCRWQCB 2021).
2. *H. Azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL limit and non-TMDL area limit discussions in this report.

\- No applicable TMDL or non-TMDL Area Limits.

Summary of Annual, Dry Season, and Wet Season TMDL Limits and Non-TMDL Area Limits for Sites in Hydrologic Unit 309 (HU 309)

CMP Site ID	CMP Site Description	Lower Salinas River Watershed Nutrient TMDL								Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL	Non TMDL Area Limits[1]				
		Unionized Ammonia, mg/L	Nitrate as N, mg/L	Nitrate as N, mg/L (Dry Season)	Nitrate as N, mg/L (Wet Season)	Total Nitrogen, mg/L (Dry Season)	Total Nitrogen, mg/L (Wet Season)	Orthophosphate, mg/L (Dry Season)	Orthophosphate, mg/L (Wet Season)	No Significant Toxic Effect, 10 Day, Chronic Exposure *with H. azteca* in Sediment (Survival)	Turbidity, NTU	Unionized Ammonia, mg/L	Nitrate as N, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
309ALG	Salinas Reclamation Canal at La Guardia St.	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	Survival	<40	-	-	Survival, Growth, and Reproduction	Growth
309ASB	Alisal Slough at White Barn	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309BLA	Blanco Drain below Pump	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	Survival	<40	-	--	Survival, Growth, and Reproduction	Growth
309CCD	Chualar Creek West of Highway 1 on River Rd.	<0.025	<10	-	-	-	-	-	-	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309CRR	Chualar Creek North Branch East of Hwy 1	<0.025	<10	-	-	-	-	-	-	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309ESP	Espinosa Slough upstream of Alisal Slough	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	-	<40	-	-	Survival, Growth, and Reproduction	Survival and Growth
309GAB	Gabilan Creek at Boronda Rd.	<0.025	-	<2	<8	-	-	<0.07	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309GRN	Salinas River at Elm Rd. in Greenfield	-	-	-	-	-	-	-	-	-	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
309JON	Salinas Reclamation Canal at San Jon Rd.	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	Survival	<40	-	-	Survival, Growth, and Reproduction	Growth
309MER	Merritt Ditch upstream from Highway 183	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309MOR	Moro Cojo Slough at Highway 1	<0.025	-	-	-	<1.7	<8	<0.13	<0.3	-	<25	-	<10	Survival, Growth, and Reproduction	Survival and Growth
309NAD	Natividad Creek upstream from Salinas Reclamation Canal	<0.025	-	<2	<8	-	-	<0.07	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309OLD	Old Salinas River at Monterey Dunes Wy.	<0.025	-	<3.1	<8	-	-	<0.07	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth

CMP Site ID	CMP Site Description	Lower Salinas River Watershed Nutrient TMDL								Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL	Non TMDL Area Limits[1]				
		Unionized Ammonia, mg/L	Nitrate as N, mg/L	Nitrate as N, mg/L (Dry Season)	Nitrate as N, mg/L (Wet Season)	Total Nitrogen, mg/L (Dry Season)	Total Nitrogen, mg/L (Wet Season)	Orthophosphate, mg/L (Dry Season)	Orthophosphate, mg/L (Wet Season)	No Significant Toxic Effect, 10 Day, Chronic Exposure *with H. azteca* in Sediment (Survival)	Turbidity, NTU	Unionized Ammonia, mg/L	Nitrate as N, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
309QUI	Quail Creek at Highway 101	<0.025	<10	-	-	-	-	-	-	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309RTA	Santa Rita Creek at Santa Rita Creek Park	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	-	<25	-	-	Survival, Growth, and Reproduction	Survival and Growth
309SAC	Salinas River at Chualar Bridge on River Rd.	<0.025	-	<1.4	<8	-	-	<0.07	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309SAG	Salinas River at Gonzales River Rd. Bridge	<0.025	-	<1.4	<8	-	-	<0.07	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309SSP	Salinas River at Spreckels Gage	<0.025	-	<1.4	<8	-	-	<0.07	<0.3	Survival	<25	-	-	Survival, Growth, and Reproduction	Growth
309TEH	Tembladero Slough at Haro St.	<0.025	-	<6.4	<8	-	-	<0.13	<0.3	Survival	<40	-	-	Survival, Growth, and Reproduction	Growth

Note:

1. Dischargers in an area without an established TMDL for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Ag Order 4.0 Table C.3-3 for nutrients, Table C-3.5 for pesticides and toxicity, and Table C.3-7 for turbidity in accordance with the compliance dates specified in the applicable table (CCRWQCB 2021).
2. *H. Azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL limit and non-TMDL area limit discussions in this report.

\- No applicable TMDL or non-TMDL Area Limits.

Summary of Annual, Dry Season, and Wet Season TMDL Limits and Non-TMDL Area Limits for Sites in Hydrologic Unit 310 (HU 310)

CMP Site ID	CMP Site Description	Los Berros Creek Nitrate TMDL	San Luis Obispo Creek Nitrate TMDL	Los Osos Creek, Warden Creek, and Warden Lake Wetland Nutrient TMDL	Non TMDL Area Limits[1]				
		Nitrate as N, mg/L	Nitrate as N, mg/L	Nitrate as N, mg/L	Turbidity, NTU	Unionized Ammonia, mg/L	Nitrate as N, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
310CCC	Chorro Creek upstream from Chorro Flats	-	-	-	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
310LBC	Los Berros Creek at Century	<10	-	-	<25	<0.025	-	Survival, Growth, and Reproduction	Survival and Growth
310PRE	Prefumo Creek at Calle Joaquin	-	<10	-	<25	<0.025	-	Survival, Growth, and Reproduction	Survival and Growth
310SLD	Davenport Creek at Broad Street	-	-	-	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
310USG	Arroyo Grande Creek at old USGS Gage	-	-	-	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
310WRP	Warden Creek at Wetlands Restoration Preserve	-	-	<10	<25	<0.025	-	Survival, Growth, and Reproduction	Survival and Growth

Note:

1. Dischargers in an area without an established TMDL for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Ag Order 4.0 Table C.3-3 for nutrients, Table C-3.5 for pesticides and toxicity, and Table C.3-7 for turbidity in accordance with the compliance dates specified in the applicable table (CCRWQCB 2021).
2. *H. Azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL limit and non-TMDL area limit discussions in this report.

\- No applicable TMDL or non-TMDL Area Limits.

Summary of Annual, Dry Season, and Wet Season TMDL Limits and Non-TMDL Area Limits for Sites in Hydrologic Unit 312 (HU 312)

CMP Site ID	CMP Site Description	Santa Maria River Watershed Nutrients TMDL							Santa Maria River Watershed Toxicity and Pesticide TMDL		Non TMDL Area Limits[1]				
		Unionized Ammonia, mg/L	Nitrate as N, mg/L	Nitrate as N, mg/L (Dry Season)	Nitrate as N, mg/L (Wet Season)	Orthophosphate, mg/L	Orthophosphate, mg/L (Dry Season)	Orthophosphate, mg/L (Wet Season)	No Significant Toxic Effect, 7 Day, Chronic Exposure with *C. dubia* in Water (Survival & Reproduction)	No Significant Toxic Effect, 10 Day, Chronic Exposure *with H. azteca* in Sediment (Survival)	Turbidity, NTU	Unionized Ammonia, mg/L	Nitrate as N, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
312BCC	Bradley Canyon Creek	<0.025	-	<4.3	<8	-	<0.19	<0.3	Survival and Reproduction	Survival	<25	-	<10	Growth	Growth
312BCJ	Bradley Channel at Jones Street	<0.025	<10	-	-	-	-	-	Survival and Reproduction	Survival	<25	-	-	Growth	Growth
312GVS	Green Valley at Simas	<0.025	-	<4.3	<8	-	<0.19	<0.3	Survival and Reproduction	Survival	<25	-	<10	Growth	Growth
312MSD	Main Street Canal u/s Ray Road at Highway 166	<0.025	<10	-	-	-	-	-	Survival and Reproduction	Survival	<25	-	-	Growth	Growth
312OFC	Oso Flaco Creek at Oso Flaco Lake Rd.	<0.025	<5.7	-	-	<0.08	-	-	Survival and Reproduction	Survival	<40	-	-	Growth	Growth
312OFN	Little Oso Flaco Creek	<0.025	<5.7	-	-	<0.08	-	-	Survival and Reproduction	Survival	<25	-	-	Growth	Growth
312ORC	Orcutt Solomon Creek u/s of Santa Maria River	<0.025	-	<4.3	<8	-	<0.19	<0.3	Survival and Reproduction	Survival	<25	-	<10	Growth	Growth
312ORI	Orcutt Solomon Creek at Highway 1	<0.025	-	<4.3	<8	-	<0.19	<0.3	Survival and Reproduction	Survival	<25	-	<10	Growth	Growth
312SMA	Santa Maria River at Estuary	<0.025	-	<4.3	<8	-	<0.19	<0.3	Survival and Reproduction	Survival	<25	-	<10	Growth	Growth
312SMI	Santa Maria River at Highway 1	<0.025	-	<4.3	<8	-	<0.19	<0.3	Survival and Reproduction	Survival	<25	-	<10	Growth	Growth

Note:

1. Dischargers in an area without an established TMDL for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Ag Order 4.0 Table C.3-3 for nutrients, Table C-3.5 for pesticides and toxicity, and Table C.3-7 for turbidity in accordance with the compliance dates specified in the applicable table (CCRWQCB 2021).
2. *H. Azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL limit and non-TMDL area limit discussions in this report.

\- No applicable TMDL or non-TMDL Area Limits.

Summary of Annual, Dry Season, and Wet Season TMDL Limits and Non-TMDL Area Limits for Sites in Hydrologic Unit 313 and 314 (HU 313 and 314)

CMP Site ID	CMP Site Description	Non TMDL Area Limits[1]				
		Turbidity, NTU	Unionized Ammonia, mg/L	Nitrate as N, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
313SAE	San Antonio Creek at San Antonio Road East	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
314SYF	Santa Ynez River at Floradale Ave.	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
314SYL	Santa Ynez River at River Park	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth
314SYN	Santa Ynez River at 13th St.	<25	<0.025	<10	Survival, Growth, and Reproduction	Survival and Growth

Note:

1. Dischargers in an area without an established TMDL for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Ag Order 4.0 Table C.3-3 for nutrients, Table C-3.5 for pesticides and toxicity, and Table C.3-7 for turbidity in accordance with the compliance dates specified in the applicable table (CCRWQCB 2021).
2. *H. Azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL limit and non-TMDL area limit discussions in this report.

\- No applicable TMDL or non-TMDL Area Limits.

Summary of Annual, Dry Season, and Wet Season TMDL Limits and Non-TMDL Area Limits for Sites in Hydrologic Unit 315 (HU 315)

CMP Site ID	CMP Site Description	Arroyo Paredon Nitrate TMDL	Bell Creek Nitrate TMDL	Franklin Creek Nutrients TMDL					Glen Annie Canyon, Tecolotito Creek, and Carneros Creek Nitrate TMDL	Non TMDL Area Limits[1]				
		Nitrate as N, mg/L	Nitrate as N, mg/L	Nitrate as N, mg/L	Total Nitrogen, mg/L (Dry Season)	Total Nitrogen, mg/L (Wet Season)	Total Phosphorus, mg/L (Dry Season)	Total Phosphorus, mg/L (Wet Season)	Nitrate as N, mg/L	Turbidity, NTU	Nitrate as N, mg/L	Unionized Ammonia, mg/L	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Water (Survival, Growth, & Reproduction)	No Significant Effect Based on Chronic or Acute Toxicity to Applicable Test Organism in Sediment (Survival, Growth, & Reproduction[2])
315APF	Arroyo Paredon at Foothill Rd.	<10	-	-	-	-	-	-	-	<25	-	<0.025	Survival, Growth, and Reproduction	Survival and Growth
315BEF	Bell Creek at Winchester Canyon Park	-	<10	-	-	-	-	-	-	<25	-	<0.025	Survival, Growth, and Reproduction	Survival and Growth
315FMV	Franklin Creek at Mountain View Ln.	-	-	<10	<1.1	<8.0	<0.075	<0.3	-	<25	-	<0.025	Survival, Growth, and Reproduction	Survival and Growth
315GAN	Glen Annie Creek upstream Cathedral Oaks	-	-	-	-	-	-	-	<10	<25	-	<0.025	Survival, Growth, and Reproduction	Survival and Growth
315LCC	Los Carneros Creek at Calle Real	-	-	-	-	-	-	-	<10	<25	-	<0.025	Survival, Growth, and Reproduction	Survival and Growth

Note:

1. Dischargers in an area without an established TMDL for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Table C.3-3 for nutrients, Table C-3.5 for pesticides and toxicity, and Table C.3-7 for turbidity in accordance with the compliance dates specified in the applicable table (CCRWQCB 2021).
2. *H. Azteca* reproduction in sediment is not tested for by the CMP so is not included in the TMDL limit and non-TMDL area limit discussions in this report.

\- No applicable TMDL or non-TMDL Area Limits.

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APPENDIX B – SUMMARY STATISTICS, LOADING ESTIMATES, BASIN PLAN WATER QUALITY OBJECTIVE EXCEEDANCES, AND TMDL EXCEEDANCES

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Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	WQO Percent Exceedance
Pajaro	305BRS	Beach Road Ditch	Air Temperature	Deg C	17	15	12	12	14	22	15	19	19	12	13	14	12	12.00	22.00	15.33	14.50	3.26		
Pajaro	305BRS	Beach Road Ditch	Algae Toxicity, Cell Growth	%Control Growth			206.1	195.6					313.6		236.2		4	195.60	313.60	237.88	221.15	53.34		
Pajaro	305BRS	Beach Road Ditch	Alkalinity as CaCO3	mg/L			469	480					480		268		4	268.00	480.00	424.25	474.50	104.30		
Pajaro	305BRS	Beach Road Ditch	Ammonia as N	mg/L	0.0629	0.062	0.139	0.0539	0.137	0.179	0.118	0.161	0.0723	0.299	0.324	0.0377	12	0.04	0.32	0.14	0.13	0.09		
Pajaro	305BRS	Beach Road Ditch	Ammonia as N, Unionized	mg/L	0.00107	0.00119	0.00082	0.00046	0.00247	0.00275	0.00251	0.00205	0.00092	0.00702	0.00155	0.00062	12	0.0005	0.0070	0.0020	0.0014	0.002	<0.025	0%
Pajaro	305BRS	Beach Road Ditch	Calcium	mg/L			190	116					134		100		4	100.00	190.00	135.00	125.00	39.21		
Pajaro	305BRS	Beach Road Ditch	Chloride	mg/L			2820	722					296		270		4	270.00	2820.00	1027.00	509.00	1213.16		
Pajaro	305BRS	Beach Road Ditch	Chlorophyll a, Field	ug/L	5	8	12	22	8	22	11	11	9	80	15	3	12	3.00	80.00	17.17	11.00	20.64		
Pajaro	305BRS	Beach Road Ditch	Discharge	cfs	0.32625	0.5852	0.1773	-0.4945	0.2408	-0.08276	0.0365	0.0801	0.444	-1.1615	-2.121	0.5496	12	-2.12	0.59	-0.12	0.13	0.80		
Pajaro	305BRS	Beach Road Ditch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival									92.5		82		2	82.00	92.50	87.25	87.25	7.42		
Pajaro	305BRS	Beach Road Ditch	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305BRS	Beach Road Ditch	Invertebrate Toxicity, Reproduction	%Control Repro									69.3		100.8		2	69.30	100.80	85.05	85.05	22.27		
Pajaro	305BRS	Beach Road Ditch	Invertebrate Toxicity, Survival	%Control Survival			102.1	91.5					70		100		4	70.00	102.10	90.90	95.75	14.67		
Pajaro	305BRS	Beach Road Ditch	Magnesium	mg/L			51.1	145					132		88.3		4	51.10	145.00	104.10	110.15	42.86		
Pajaro	305BRS	Beach Road Ditch	Nitrate + Nitrite as N	mg/L	37.2	38	22.8	28	25.4	15.1	26.2	12.6	30	21.5	21	41.8	12	12.6	41.8	26.6	25.8	8.99	<10	100%
Pajaro	305BRS	Beach Road Ditch	Nitrogen, Total	mg/L	37.895		23.84	30.06		16.64	27.2	13.87	31.33	23.05	22.79	41.8	10	13.87	41.80	26.85	25.52	8.75		
Pajaro	305BRS	Beach Road Ditch	Nitrogen, Total Kjeldahl	mg/L	0.695		1.04	2.06		1.54	1	1.27	1.33	1.55	1.79	0.065	10	0.07	2.06	1.23	1.30	0.57		
Pajaro	305BRS	Beach Road Ditch	OrthoPhosphate as P	mg/L	0.144	0.129	0.0963	0.1	0.103	0.0943	0.648	0.0726	0.346	0.0641	0.864	0.333	12	0.064	0.864	0.250	0.116	0.259		
Pajaro	305BRS	Beach Road Ditch	Oxygen, Dissolved	mg/L	12.42	15.27	9.73	14.89	14.22	15.31	13.27	13.1	7.78	0.35	5.4	9.94	12	0.35	15.31	10.97	12.76	4.59	>5	8%
Pajaro	305BRS	Beach Road Ditch	Oxygen, Saturation	%	125.8	153.2	99.5	152.1	152.9	168.4	145.2	141.8	85.3	3.7	51.7	92.2	12	3.70	168.40	114.32	133.80	49.45	>85	No
Pajaro	305BRS	Beach Road Ditch	pH	none	7.87	7.94	7.49	7.6	7.81	7.71	7.86	7.65	7.61	8.02	7.38	7.97	12	7.38	8.02	7.74	7.76	0.20	7-8.3	0%
Pajaro	305BRS	Beach Road Ditch	Phosphorus as P	mg/L	0.225	0.205	0.304	0.206	0.712	0.191	0.745	0.244	0.492	0.28	1.11	0.401	12	0.191	1.110	0.426	0.292	0.289		
Pajaro	305BRS	Beach Road Ditch	Potassium	mg/L			287	7.79					2.5		6.78		4	2.50	287.00	76.02	7.29	140.67		
Pajaro	305BRS	Beach Road Ditch	Salinity	ppt	1.34	1.49	5.87	2.87	1.63	1.73	1.7	1.76	1.26	17.54	0.99	0.91	12	0.91	17.54	3.26	1.67	4.69		
Pajaro	305BRS	Beach Road Ditch	Sediment Invertebrate Toxicity, Growth	%Control Growth				78									1	78.00	78.00	78.00	78.00	N/A		
Pajaro	305BRS	Beach Road Ditch	Sediment Invertebrate Toxicity, Survival	%Control Survival				83.8									1	83.80	83.80	83.80	83.80	N/A		
Pajaro	305BRS	Beach Road Ditch	Sodium	mg/L			1590	44.9					251		179		4	44.90	1590.00	516.23	215.00	720.93		
Pajaro	305BRS	Beach Road Ditch	Specific Conductivity	uS/cm	2583	2849	10329	5080	3113	3292	3235	3334	2435	28270	1930	1783	12	1,783	28,270	5,686	3,174	7,468		
Pajaro	305BRS	Beach Road Ditch	Sulfate	mg/L			642	409					380		251		4	251.00	642.00	420.50	394.50	162.85		
Pajaro	305BRS	Beach Road Ditch	Total Dissolved Solids	mg/L	1679	1860	6715	3418	2023	2141	2101	2171	1583	18400	1254	1159	12	1,159	18,400	3,709	2,062	4,860		
Pajaro	305BRS	Beach Road Ditch	Total Suspended Solids	mg/L	14.3	16.3	15.6	31.7	42.4	74.4	17.3	12.9	8.59	13	31.2	7.74	12	7.74	74.40	23.79	15.95	19.08		
Pajaro	305BRS	Beach Road Ditch	Turbidity, Field	NTU	18.9	23.3	12.2	19.6	10.4	70.2	8.23	29.7	4.28	19.6	48.3	13	12	4.28	70.20	23.14	19.25	18.82		
Pajaro	305BRS	Beach Road Ditch	Water Temperature	Deg C	15.6	15.1	14.8	15.5	18.4	19.4	19.2	18.7	19.6	19	13.2	11.8	12	11.80	19.60	16.69	17.00	2.68		
Pajaro	305CAN	Carnadero Creek	Air Temperature	Deg C	4	6	10	11	13	18	14	14	12	17	11	12	12	4.00	18.00	11.83	12.00	4.00		
Pajaro	305CAN	Carnadero Creek	Algae Toxicity, Cell Growth	%Control Growth			169.5	197.1									2	169.50	197.10	183.30	183.30	19.52		
Pajaro	305CAN	Carnadero Creek	Alkalinity as CaCO3	mg/L			166	136									2	136.00	166.00	151.00	151.00	21.21		
Pajaro	305CAN	Carnadero Creek	Ammonia as N	mg/L	0.0147	0.0965	0.0542	0.0192	0.0333							0.0035	6	0.00	0.10	0.04	0.03	0.03		
Pajaro	305CAN	Carnadero Creek	Ammonia as N, Unionized	mg/L	0.00016	0.00047	0.00021	0.00028	0.00026							0.00003	6	0.0000	0.0005	0.0002	0.0002	0.000	<0.025	0%
Pajaro	305CAN	Carnadero Creek	Calcium	mg/L			48.8	33.4									2	33.40	48.80	41.10	41.10	10.89		
Pajaro	305CAN	Carnadero Creek	Chloride	mg/L			43.1	14.9									2	14.90	43.10	29.00	29.00	19.94		
Pajaro	305CAN	Carnadero Creek	Chlorophyll a, Field	ug/L	70	2	3	3	4							3	6	2.00	70.00	14.17	3.00	27.36		
Pajaro	305CAN	Carnadero Creek	Discharge	cfs	16.061	14.405	3.74575	23.581	0.017	0	0	0	0	0	0	6.0914	12	0.00	23.58	5.33	0.01	8.16		
Pajaro	305CAN	Carnadero Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			95	100									2	95.00	100.00	97.50	97.50	3.54		
Pajaro	305CAN	Carnadero Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305CAN	Carnadero Creek	Invertebrate Toxicity, Reproduction	%Control Repro			112.2	86.9									2	86.90	112.20	99.55	99.55	17.89		
Pajaro	305CAN	Carnadero Creek	Invertebrate Toxicity, Survival	%Control Survival			100	100									2	100.00	100.00	100.00	100.00	0.00		
Pajaro	305CAN	Carnadero Creek	Magnesium	mg/L			1.23	18.8									2	1.23	18.80	10.02	10.02	12.42		
Pajaro	305CAN	Carnadero Creek	Nitrate + Nitrite as N	mg/L	1.66	1.2	2.85	0.425	29							1.41	6	0.4	29.0	6.1	1.5	11.25	<10	17%
Pajaro	305CAN	Carnadero Creek	Nitrogen, Total	mg/L	1.66		3.178	0.425								1.657	4	0.43	3.18	1.73	1.66	1.13		
Pajaro	305CAN	Carnadero Creek	Nitrogen, Total Kjeldahl	mg/L	0.065		0.328	0.065								0.247	4	0.07	0.33	0.18	0.16	0.13		
Pajaro	305CAN	Carnadero Creek	OrthoPhosphate as P	mg/L	0.0104	0.0133	0.0153	0.00375	0.0277							0.0276	6	0.004	0.028	0.016	0.014	0.010		
Pajaro	305CAN	Carnadero Creek	Oxygen, Dissolved	mg/L	10.57	10.41	9.39	9.79	3.81							11.02	6	3.81	11.02	9.17	10.10	2.69	>7	17%
Pajaro	305CAN	Carnadero Creek	Oxygen, Saturation	%	92.4	92.2	88.9	97.5	37.8							95	6	37.80	97.50	83.97	92.30	22.80	None	N/A
Pajaro	305CAN	Carnadero Creek	pH	none	7.84	7.46	7.28	7.76	7.53							7.77	6	7.28	7.84	7.61	7.65	0.22	7-8.3	0%
Pajaro	305CAN	Carnadero Creek	Phosphorus as P	mg/L	0.012	0.0648	0.0045	0.0045	0.0237							0.0786	6	0.005	0.079	0.031	0.018	0.032		
Pajaro	305CAN	Carnadero Creek	Potassium	mg/L			28.5	2.5									2	2.50	28.50	15.50	15.50	18.38		
Pajaro	305CAN	Carnadero Creek	Salinity	ppt	0.24	0.19	0.28	0.18	0.91							0.17	6	0.17	0.91	0.33	0.22	0.29		
Pajaro	305CAN	Carnadero Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				123.7									1	123.70	123.70	123.70	123.70	N/A		
Pajaro	305CAN	Carnadero Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				89.7									1	89.70	89.70	89.70	89.70	N/A		
Pajaro	305CAN	Carnadero Creek	Sodium	mg/L			26.7	15.4									2	15.40	26.70	21.05	21.05	7.99		
Pajaro	305CAN	Carnadero Creek	Specific Conductivity	uS/cm	486.4	400.1	573	372.6	1782							356.7	6	357	1,782	662	443	555		
Pajaro	305CAN	Carnadero Creek	Sulfate	mg/L			47.4	31.5									2	31.50	47.40	39.45	39.45	11.24		
Pajaro	305CAN	Carnadero Creek	Total Dissolved Solids	mg/L	316	234	372	242	1159							232	6	232	1,159	426	279	363		
Pajaro	305CAN	Carnadero Creek	Total Suspended Solids	mg/L	8.65	6.77	3.35	4.21	0.25							1.67	6	0.25	8.65	4.15	3.78	3.13		
Pajaro	305CAN	Carnadero Creek	Turbidity, Field	NTU	4.01	27.3	7.13	10.5	1.25							4.11	6	1.25	27.30	9.05	5.62	9.48		
Pajaro	305CAN	Carnadero Creek	Water Temperature	Deg C	9.3	10	12.8	15.1	15.3							8.8	6	8.80	15.30	11.88	11.40	2.92		
Pajaro	305CHI	Pajaro River at Chittenden	Air Temperature	Deg C	12	15	24	9	24	22	22	18	17	12	10	12	12	9.00	24.00	16.42	16.00	5.53		
Pajaro	305CHI	Pajaro River at Chittenden	Algae Toxicity, Cell Growth	%Control Growth			168.8	372					274.7		401.1		4	168.80	401.10	304.15	323.35	105.18		
Pajaro	305CHI	Pajaro River at Chittenden	Alkalinity as CaCO3	mg/L			350	252					454		464		4	252.00	464.00	380.00	402.00	99.69		
Pajaro	305CHI	Pajaro River at Chittenden	Ammonia as N	mg/L	0.0705	0.0318	0.0668	0.0619	0.0684	0.137	0.0355	0.0373	0.0431	0.0713	0.0283	0.0849	12	0.03	0.14	0.06	0.06	0.03		
Pajaro	305CHI	Pajaro River at Chittenden	Ammonia as N, Unionized	mg/L	0.00204	0.00062	0.00175	0.00082	0.00214	0.0033	0.00094	0.00092	0.001	0.00107	0.00027	0.00132	12	0.0003	0.0033	0.0013	0.0010	0.001	<0.025	0%

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	WQO Percent Exceedance
Pajaro	305CHI	Pajaro River at Chittenden	Calcium	mg/L			98.2	61.4					101		91.4		4	61.40	101.00	88.00	94.80	18.19		
Pajaro	305CHI	Pajaro River at Chittenden	Chloride	mg/L			184	95.5					221		211		4	95.50	221.00	177.88	197.50	57.10		
Pajaro	305CHI	Pajaro River at Chittenden	Chlorophyll a, Field	ug/L	64	40	4	5	4	5	9	7	6	6	9	5	12	4.00	64.00	13.67	6.00	18.70		
Pajaro	305CHI	Pajaro River at Chittenden	Discharge	cfs	45.541	37.066	18.6465	22.305	7.5565	1.8283	2.0938	2.43425	1.885	0.37425	6.1532	21.1785	12	0.37	45.54	13.92	6.85	15.16		
Pajaro	305CHI	Pajaro River at Chittenden	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			95.2	102.6					100		103.9		4	95.20	103.90	100.43	101.30	3.84		
Pajaro	305CHI	Pajaro River at Chittenden	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305CHI	Pajaro River at Chittenden	Invertebrate Toxicity, Reproduction	%Control Repro			63.9	111.9					100		109.4		4	63.90	111.90	96.30	104.70	22.20		
Pajaro	305CHI	Pajaro River at Chittenden	Invertebrate Toxicity, Survival	%Control Survival			100	100					88.9		100		4	88.90	100.00	97.23	100.00	5.55		
Pajaro	305CHI	Pajaro River at Chittenden	Magnesium	mg/L			2.41	50.8					131		113		4	2.41	131.00	74.30	81.90	58.97		
Pajaro	305CHI	Pajaro River at Chittenden	Nitrate + Nitrite as N	mg/L	7.39	3.95	7.97	3	12.8	19.3	22.6	22	23	9.26	8.48	27.7	12	3.0	27.7	14.0	11.0	8.48	<10	50%
Pajaro	305CHI	Pajaro River at Chittenden	Nitrogen, Total	mg/L	8.39		8.481	3.577		19.993	23.395	22.845	23.572	9.693	9.43	28.288	10	3.58	28.29	15.77	14.84	8.67		
Pajaro	305CHI	Pajaro River at Chittenden	Nitrogen, Total Kjeldahl	mg/L	1		0.511	0.577		0.693	0.795	0.845	0.572	0.433	0.95	0.588	10	0.43	1.00	0.70	0.64	0.19		
Pajaro	305CHI	Pajaro River at Chittenden	OrthoPhosphate as P	mg/L	0.036	0.0312	0.11	0.126	0.569	0.496	0.35	0.585	1.52	0.598	2.43	0.23	12	0.031	2.430	0.590	0.423	0.708		
Pajaro	305CHI	Pajaro River at Chittenden	Oxygen, Dissolved	mg/L	11.17	10.39	10.94	7.82	7.28	5.39	6.21	6.39	5.63	7.02	7.48	9.85	12	5.39	11.17	7.96	7.38	2.08	>7	33%
Pajaro	305CHI	Pajaro River at Chittenden	Oxygen, Saturation	%	97.1	94.6	108.8	77.8	76.3	56.8	66.4	66.8	58.3	64.7	68.3	84.7	12	56.80	108.80	76.72	72.30	16.47	None	N/A
Pajaro	305CHI	Pajaro River at Chittenden	pH	none	8.31	8.07	8.07	7.75	8.07	7.95	7.97	7.98	7.96	7.94	7.75	8.07	12	7.75	8.31	7.99	7.98	0.15	7-8.3	8%
Pajaro	305CHI	Pajaro River at Chittenden	Phosphorus as P	mg/L	0.108	0.125	0.36	0.172	0.551	0.559	0.352	0.842	2.1	0.696	2.72	0.294	12	0.108	2.720	0.740	0.456	0.823		
Pajaro	305CHI	Pajaro River at Chittenden	Potassium	mg/L			88	2.5					2.5		5.31		4	2.50	88.00	24.58	3.91	42.30		
Pajaro	305CHI	Pajaro River at Chittenden	Salinity	ppt	0.85	0.89	0.93	0.54	0.94	1.07	1.06	1.12	1.11	1.04	1.07	1.37	12	0.54	1.37	1.00	1.05	0.20		
Pajaro	305CHI	Pajaro River at Chittenden	Sediment Invertebrate Toxicity, Growth	%Control Growth				115									1	115.00	115.00	115.00	115.00	N/A		
Pajaro	305CHI	Pajaro River at Chittenden	Sediment Invertebrate Toxicity, Survival	%Control Survival				95.9									1	95.90	95.90	95.90	95.90	N/A		
Pajaro	305CHI	Pajaro River at Chittenden	Sodium	mg/L			171	78.3					222		226		4	78.30	226.00	174.33	196.50	68.74		
Pajaro	305CHI	Pajaro River at Chittenden	Specific Conductivity	uS/cm	1679	1732	1813	1079	1837	2075	2064	2179	2154	2020	2081	2636	12	1,079	2,636	1,946	2,042	372		
Pajaro	305CHI	Pajaro River at Chittenden	Sulfate	mg/L			347	162					413		353		4	162.00	413.00	318.75	350.00	108.67		
Pajaro	305CHI	Pajaro River at Chittenden	Total Dissolved Solids	mg/L	1091	1150	1178	701	1194	1349	1342	1416	1400	1313	1353	1713	12	701	1,713	1,267	1,328	241	<1000	yes
Pajaro	305CHI	Pajaro River at Chittenden	Total Suspended Solids	mg/L	10.2	11	4.55	8.89	3.3	3.88	1.58	2.26	2.04	1.13	38.7	2.05	12	1.13	38.70	7.47	3.59	10.43		
Pajaro	305CHI	Pajaro River at Chittenden	Turbidity, Field	NTU	9.76	13.9	10	20.5	15.3	12.6	2.23	10.5	2.19	4.62	6.01	12.3	12	2.19	20.50	9.99	10.25	5.49		
Pajaro	305CHI	Pajaro River at Chittenden	Water Temperature	Deg C	9	11	14.9	15	17.4	17.6	18.3	17.1	16.8	11.5	11.1	8.4	12	8.40	18.30	14.01	14.95	3.60		
Pajaro	305COR	Salsipuedes Creek	Air Temperature	Deg C	16	17	10	11	24	22	20	19	17	12	12	12	12	10.00	24.00	16.00	16.50	4.63		
Pajaro	305COR	Salsipuedes Creek	Algae Toxicity, Cell Growth	%Control Growth			236.8	393					276.6		391.5		4	236.80	393.00	324.48	334.05	79.93		
Pajaro	305COR	Salsipuedes Creek	Alkalinity as CaCO3	mg/L			167	236					202		110		4	110.00	236.00	178.75	184.50	53.80		
Pajaro	305COR	Salsipuedes Creek	Ammonia as N	mg/L	0.0738	0.138	0.088	0.426	0.0358	0.078	0.0466	0.0343	0.191	0.105	0.114	0.116	12	0.03	0.43	0.12	0.10	0.11		
Pajaro	305COR	Salsipuedes Creek	Ammonia as N, Unionized	mg/L	0.00118	0.00467	0.00118	0.00335	0.00246	0.00237	0.00114	0.00135	0.00468	0.00143	0.00183	0.00141	12	0.0011	0.0047	0.0023	0.0016	0.001	<0.025	0%
Pajaro	305COR	Salsipuedes Creek	Calcium	mg/L			49.6	8.2					89.8		44.9		4	8.20	89.80	48.13	47.25	33.38		
Pajaro	305COR	Salsipuedes Creek	Chloride	mg/L			31.1	53.8					59.2		25.9		4	25.90	59.20	42.50	42.45	16.45		
Pajaro	305COR	Salsipuedes Creek	Chlorophyll a, Field	ug/L	14	9	6	11	6	6	8	7	14	6	7	3	12	3.00	14.00	8.08	7.00	3.37		
Pajaro	305COR	Salsipuedes Creek	Discharge	cfs	13.5745	4.8711	27.648	5.443	0.73525	0.33065	0.310975	0.109975	0.9747	0.2965	9.7879	3.6865	12	0.11	27.65	5.65	2.33	8.15		
Pajaro	305COR	Salsipuedes Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			92.5	97.4					87.5		92.9		4	87.50	97.40	92.58	92.70	4.05		
Pajaro	305COR	Salsipuedes Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305COR	Salsipuedes Creek	Invertebrate Toxicity, Reproduction	%Control Repro			99.7	86.7					109.5		100.5		4	86.70	109.50	99.10	100.10	9.39		
Pajaro	305COR	Salsipuedes Creek	Invertebrate Toxicity, Survival	%Control Survival			100	100					90		100		4	90.00	100.00	97.50	100.00	5.00		
Pajaro	305COR	Salsipuedes Creek	Magnesium	mg/L			6.25	33.9					35.8		18.4		4	6.25	35.80	23.59	26.15	13.94		
Pajaro	305COR	Salsipuedes Creek	Nitrate + Nitrite as N	mg/L	1.14	1.01	0.365	3	4.69	3.61	3.36	2.26	3.94	1.82	3.2	2.55	12	0.4	4.7	2.6	2.8	1.30	<10	0%
Pajaro	305COR	Salsipuedes Creek	Nitrogen, Total	mg/L	1.95		1.277	4.57		4.309	4.039	2.999	5.34	2.376	4.26	3.47	10	1.28	5.34	3.46	3.75	1.29		
Pajaro	305COR	Salsipuedes Creek	Nitrogen, Total Kjeldahl	mg/L	0.81		0.912	1.57		0.699	0.679	0.739	1.4	0.556	1.06	0.92	10	0.56	1.57	0.93	0.86	0.33		
Pajaro	305COR	Salsipuedes Creek	OrthoPhosphate as P	mg/L	0.305	0.298	0.311	0.0614	0.131	0.318	0.269	0.26	0.377	0.229	0.363	0.133	12	0.061	0.377	0.255	0.284	0.098		
Pajaro	305COR	Salsipuedes Creek	Oxygen, Dissolved	mg/L	11.09	13.02	8.04	7.21	14.59	9.23	7.32	6.78	4.14	8.23	8.98	10.37	12	4.14	14.59	9.08	8.61	2.86	>7	17%
Pajaro	305COR	Salsipuedes Creek	Oxygen, Saturation	%	100	123.6	82.9	71.5	160.8	95.7	76.2	67.2	43.7	78	81	89.9	12	43.70	160.80	89.21	81.95	29.75	None	N/A
Pajaro	305COR	Salsipuedes Creek	pH	none	7.96	8.22	7.68	7.52	8.33	8.05	7.95	8.23	7.93	7.83	7.96	7.9	12	7.52	8.33	7.96	7.96	0.23	7-8.3	8%
Pajaro	305COR	Salsipuedes Creek	Phosphorus as P	mg/L	0.69	0.423	0.421	0.142	0.1	0.372	0.273	0.469	0.527	0.293	0.823	0.253	12	0.100	0.823	0.399	0.397	0.211		
Pajaro	305COR	Salsipuedes Creek	Potassium	mg/L			18.8	6.29					10.9		6.96		4	6.29	18.80	10.74	8.93	5.75		
Pajaro	305COR	Salsipuedes Creek	Salinity	ppt	0.23	0.25	0.25	0.43	0.48	0.46	0.45	0.45	0.43	0.45	0.24	0.27	12	0.23	0.48	0.37	0.43	0.11		
Pajaro	305COR	Salsipuedes Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				102.9									1	102.90	102.90	102.90	102.90	N/A		
Pajaro	305COR	Salsipuedes Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				93.2									1	93.20	93.20	93.20	93.20	N/A		
Pajaro	305COR	Salsipuedes Creek	Sodium	mg/L			29.5	44.4					53.5		25.5		4	25.50	53.50	38.23	36.95	13.03		
Pajaro	305COR	Salsipuedes Creek	Specific Conductivity	uS/cm	474.5	505	513	868	972	922	915	918	877	901	488.9	557	12	475	972	743	873	210		
Pajaro	305COR	Salsipuedes Creek	Sulfate	mg/L			42.8	126					154		77.6		4	42.80	154.00	100.10	101.80	49.55		
Pajaro	305COR	Salsipuedes Creek	Total Dissolved Solids	mg/L	308	328	334	564	631	600	594	597	570	586	318	362	12	308	631	483	567	136		
Pajaro	305COR	Salsipuedes Creek	Total Suspended Solids	mg/L	10.7	25.1	13.5	7.76	3.41	5.27	3.22	7.57	2.01	17.7	48.9	8.16	12	2.01	48.90	12.78	7.96	13.18		
Pajaro	305COR	Salsipuedes Creek	Turbidity, Field	NTU	13.7	23.2	9.23	11.1	14.9	13.7	2.02	11.8	3.28	4.07	162	19.6	12	2.02	162.00	24.05	12.75	43.90		
Pajaro	305COR	Salsipuedes Creek	Water Temperature	Deg C	10.7	12.9	16.8	14.9	19.9	17	17.1	15	17.7	12.8	10.7	9	12	9.00	19.90	14.54	14.95	3.34		
Pajaro	305FRA	Miller Canal	Air Temperature	Deg C	8	10	13	15	19	18	15	16	13	8	6	10	12	6.00	19.00	12.58	13.00	4.19		
Pajaro	305FRA	Miller Canal	Algae Toxicity, Cell Growth	%Control Growth			117.8	182.4							251.9		3	117.80	251.90	184.03	182.40	67.06		
Pajaro	305FRA	Miller Canal	Alkalinity as CaCO3	mg/L			488	547							139		3	139.00	547.00	391.33	488.00	220.51		
Pajaro	305FRA	Miller Canal	Ammonia as N	mg/L	0.746	0.906	0.214	0.101	0.102	0.353					0.0512	0.0941	8	0.05	0.91	0.32	0.16	0.33		
Pajaro	305FRA	Miller Canal	Ammonia as N, Unionized	mg/L	0.15895	0.11833	0.01505	0.00459	0.00811	0.01615					0.00026	0.00074	8	0.0003	0.1590	0.0403	0.0116	0.062	<0.025	25%
Pajaro	305FRA	Miller Canal	Calcium	mg/L			181	192							62.1		3	62.10	192.00	145.03	181.00	72.03		
Pajaro	305FRA	Miller Canal	Chloride	mg/L			1030	1570							466		3	466.00	1570.00	1022.00	1030.00	552.04		
Pajaro	305FRA	Miller Canal	Chlorophyll a, Field	ug/L	183	93	27	33	69	62					18	19	8	18.00	183.00	63.00	47.50	55.41		
Pajaro	305FRA	Miller Canal	Discharge	cfs	1.42375	2.7995	1.0368	0.32625	0.0005	0.2154	0	0	0	0	0.2423	1.27956	12	0.00	2.80	0.61	0.23	0.87		
Pajaro	305FRA	Miller Canal	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	WQO Percent Exceedance
Pajaro	305FRA	Miller Canal	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305FRA	Miller Canal	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305FRA	Miller Canal	Invertebrate Toxicity, Survival	%Control Survival			100	85.6							72		3	72.00	100.00	85.87	85.60	14.00		
Pajaro	305FRA	Miller Canal	Magnesium	mg/L			8.58	544							131		3	8.58	544.00	227.86	131.00	280.54		
Pajaro	305FRA	Miller Canal	Nitrate + Nitrite as N	mg/L	2.74	0.963	1.84	0.005	0.005	2.62					0.221	80	8	0.0	80.0	11.0	1.4	27.88	<10	13%
Pajaro	305FRA	Miller Canal	Nitrogen, Total	mg/L	6.25		4.43	2.09		4.24					1.231	82.94	6	1.23	82.94	16.86	4.34	32.42		
Pajaro	305FRA	Miller Canal	Nitrogen, Total Kjeldahl	mg/L	3.51		2.59	2.09		1.62					1.01	2.94	6	1.01	3.51	2.29	2.34	0.91		
Pajaro	305FRA	Miller Canal	OrthoPhosphate as P	mg/L	0.00375	0.0946	0.486	0.471	0.902	0.381					0.178	0.305	8	0.004	0.902	0.353	0.343	0.282		
Pajaro	305FRA	Miller Canal	Oxygen, Dissolved	mg/L	13.06	7.39	7.14	6.41	7.18	5.57					3.49	9.87	8	3.49	13.06	7.51	7.16	2.87	>5	13%
Pajaro	305FRA	Miller Canal	Oxygen, Saturation	%	130	66	73.6	70.7	87.6	59.1					32.4	89.9	8	32.40	130.00	76.16	72.15	28.19	>85	Yes
Pajaro	305FRA	Miller Canal	pH	none	9.35	9.06	8.56	8.28	8.47	8.29					7.47	7.88	8	7.47	9.35	8.42	8.38	0.60	7-8.3	50%
Pajaro	305FRA	Miller Canal	Phosphorus as P	mg/L	0.318	0.472	0.79	0.667	1.8	0.67					0.284	0.425	8	0.284	1.800	0.678	0.570	0.487		
Pajaro	305FRA	Miller Canal	Potassium	mg/L			414	7.72							5.39		3	5.39	414.00	142.37	7.72	235.24		
Pajaro	305FRA	Miller Canal	Salinity	ppt	3.46	4.05	4.48	6.06	11.28	3.53					1.59	11.67	8	1.59	11.67	5.77	4.27	3.74		
Pajaro	305FRA	Miller Canal	Sediment Invertebrate Toxicity, Growth	%Control Growth				108.2									1	108.20	108.20	108.20	108.20	N/A		
Pajaro	305FRA	Miller Canal	Sediment Invertebrate Toxicity, Survival	%Control Survival				87.7									1	87.70	87.70	87.70	87.70	N/A		
Pajaro	305FRA	Miller Canal	Sodium	mg/L			1310	1660							426		3	426.00	1660.00	1132.00	1310.00	635.97		
Pajaro	305FRA	Miller Canal	Specific Conductivity	uS/cm	6332	7334	6576	10652	18945	6408					3026	19397	8	3,026	19,397	9,834	6,955	6,122		
Pajaro	305FRA	Miller Canal	Sulfate	mg/L			2750	3900							745		3	745.00	3900.00	2465.00	2750.00	1596.69		
Pajaro	305FRA	Miller Canal	Total Dissolved Solids	mg/L	4116	5760	5218	6924	12318	4171					1967	12804	8	1,967	12,804	6,660	5,489	3,917		
Pajaro	305FRA	Miller Canal	Total Suspended Solids	mg/L	26	27.3	18.5	23.9	44.1	19.2					18.1	7.18	8	7.18	44.10	23.04	21.55	10.57		
Pajaro	305FRA	Miller Canal	Turbidity, Field	NTU	19.3	28.9	29.8	62.5	41.2	46.1					3.56	7.51	8	3.56	62.50	29.86	29.35	19.86		
Pajaro	305FRA	Miller Canal	Water Temperature	Deg C	8.1	9.3	15.5	18.4	21.6	17.4					11.7	7.9	8	7.90	21.60	13.74	13.60	5.21		
Pajaro	305FUF	Furlong Creek	Air Temperature	Deg C	10	12	15	18	21	19	17	14	14	10	6	10	12	6.00	21.00	13.83	14.00	4.43		
Pajaro	305FUF	Furlong Creek	Algae Toxicity, Cell Growth	%Control Growth			129.6	273					207.7		368.3		4	129.60	368.30	244.65	240.35	101.15		
Pajaro	305FUF	Furlong Creek	Alkalinity as CaCO3	mg/L			413	386					466		100		4	100.00	466.00	341.25	399.50	164.23		
Pajaro	305FUF	Furlong Creek	Ammonia as N	mg/L	0.0699	0.0612	0.0825	0.268	0.0435	0.0699	0.0601	0.0442	0.0215		0.158	0.0588	11	0.02	0.27	0.09	0.06	0.07		
Pajaro	305FUF	Furlong Creek	Ammonia as N, Unionized	mg/L	0.00138	0.0016	0.00227	0.01014	0.00154	0.00208	0.00247	0.00054	0.00034		0.00129	0.00065	11	0.0003	0.0101	0.0022	0.0015	0.003	<0.025	0%
Pajaro	305FUF	Furlong Creek	Calcium	mg/L			114	99.8					122		46.5		4	46.50	122.00	95.58	106.90	33.98		
Pajaro	305FUF	Furlong Creek	Chloride	mg/L			98.4	92.2					112		34		4	34.00	112.00	84.15	95.30	34.44		
Pajaro	305FUF	Furlong Creek	Chlorophyll a, Field	ug/L	14	8	6	4	6	7	5	4	10		4	8	11	4.00	14.00	6.91	6.00	3.05		
Pajaro	305FUF	Furlong Creek	Discharge	cfs	0.5586	0.7024	0.4991	0.4491	0.7399	0.8335	0.0178	0.685	0.4725	0	2.4082	1.010075	12	0.00	2.41	0.70	0.62	0.62		
Pajaro	305FUF	Furlong Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	100					86.7		10.9		4	10.90	100.00	73.78	92.10	42.31		
Pajaro	305FUF	Furlong Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305FUF	Furlong Creek	Invertebrate Toxicity, Reproduction	%Control Repro			103.3	85.2					96.4		20.9		4	20.90	103.30	76.45	90.80	37.78		
Pajaro	305FUF	Furlong Creek	Invertebrate Toxicity, Survival	%Control Survival			100	100					100		88.9		4	88.90	100.00	97.23	100.00	5.55		
Pajaro	305FUF	Furlong Creek	Magnesium	mg/L			1.62	72.5					93		23.6		4	1.62	93.00	47.68	48.05	42.31		
Pajaro	305FUF	Furlong Creek	Nitrate + Nitrite as N	mg/L	25.8	26.3	32.3	30.7	43.1	34.3	36.6	32.1	32.3		6.39	39	11	6.4	43.1	30.8	32.3	9.55	<10	91%
Pajaro	305FUF	Furlong Creek	Nitrogen, Total	mg/L	26.216		32.3	33.1		34.3	36.6	32.478	32.789		14.28	39	9	14.28	39.00	31.23	32.79	7.24		
Pajaro	305FUF	Furlong Creek	Nitrogen, Total Kjeldahl	mg/L	0.416		0.065	2.4		0.065	0.065	0.378	0.489		7.89	0.065	9	0.07	7.89	1.31	0.38	2.57		
Pajaro	305FUF	Furlong Creek	OrthoPhosphate as P	mg/L	0.188	0.165	0.147	0.163	0.131	0.142	0.152	0.106	0.157		0.741	0.256	11	0.106	0.741	0.213	0.157	0.179		
Pajaro	305FUF	Furlong Creek	Oxygen, Dissolved	mg/L	11.91	12.85	11.91	10.61	7.51	4.66	8.35	6.69	8.77		7.87	8.82	11	4.66	12.85	9.09	8.77	2.50	>5	9%
Pajaro	305FUF	Furlong Creek	Oxygen, Saturation	%	98	109.3	114.2	109.5	74	46.3	90	66.8	86.7		70.1	74.8	11	46.30	114.20	85.43	86.70	21.25	>85	No
Pajaro	305FUF	Furlong Creek	pH	none	8.21	8.29	8.14	8.17	8.23	8.11	8.23	7.72	7.85		7.68	7.91	11	7.68	8.29	8.05	8.14	0.22	7-8.3	0%
Pajaro	305FUF	Furlong Creek	Phosphorus as P	mg/L	0.235	0.327	0.629	0.582	0.193	0.215	0.206	0.342	0.37		5.15	0.307	11	0.193	5.150	0.778	0.327	1.457		
Pajaro	305FUF	Furlong Creek	Potassium	mg/L			81.5	2.5					2.5		9.93		4	2.50	81.50	24.11	6.22	38.42		
Pajaro	305FUF	Furlong Creek	Salinity	ppt	0.71	0.68	0.78	0.72	0.78	0.71	0.7	0.8	0.78		0.22	0.76	11	0.22	0.80	0.69	0.72	0.16		
Pajaro	305FUF	Furlong Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				101.9									1	101.90	101.90	101.90	101.90	N/A		
Pajaro	305FUF	Furlong Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				94.5									1	94.50	94.50	94.50	94.50	N/A		
Pajaro	305FUF	Furlong Creek	Sodium	mg/L			103	96.7					114		33.8		4	33.80	114.00	86.88	99.85	36.10		
Pajaro	305FUF	Furlong Creek	Specific Conductivity	uS/cm	1405	1352	1541	1424	1531	1398	1383	1574	1549		462.4	1499	11	462	1,574	1,374	1,424	312		
Pajaro	305FUF	Furlong Creek	Sulfate	mg/L			179	143					155		55		4	55.00	179.00	133.00	149.00	54.11		
Pajaro	305FUF	Furlong Creek	Total Dissolved Solids	mg/L	913	858	1002	925	996	909	899	1022	1007		301	975	11	301	1,022	892	925	203		
Pajaro	305FUF	Furlong Creek	Total Suspended Solids	mg/L	9.91	75.6	29.7	333	19.6	23.5	31.7	30.9	24.3		1850	5.68	11	5.68	1850.00	221.26	29.70	548.19		
Pajaro	305FUF	Furlong Creek	Turbidity, Field	NTU	27	99.5	63.4	86.3	333	46	96	138	32.6		999	11.1	11	11.10	999.00	175.63	86.30	286.92		
Pajaro	305FUF	Furlong Creek	Water Temperature	Deg C	6.8	8.1	13.3	16.7	14	15.2	16	15.2	14.7		10.2	8.1	11	6.80	16.70	12.57	14.00	3.59		
Pajaro	305LCS	Llagas Creek	Air Temperature	Deg C	3	2	8	9	10	18	13	12	12	17	11	11	12	2.00	18.00	10.50	11.00	4.74		
Pajaro	305LCS	Llagas Creek	Algae Toxicity, Cell Growth	%Control Growth			149.2	248							197.3		3	149.20	248.00	198.17	197.30	49.41		
Pajaro	305LCS	Llagas Creek	Alkalinity as CaCO3	mg/L			344	354							22		3	22.00	354.00	240.00	344.00	188.86		
Pajaro	305LCS	Llagas Creek	Ammonia as N	mg/L	0.03	0.03	0.0549	0.0603	0.0705	0.063	0.0306				0.0704	0.0512	9	0.03	0.07	0.05	0.05	0.02		
Pajaro	305LCS	Llagas Creek	Ammonia as N, Unionized	mg/L	0.00004	0.00004	0.00007	0.00007	0.0001	0.00012	0.00003				0.00003	0.00005	9	0.0000	0.0001	0.0001	0.0001	0.000	<0.025	0%
Pajaro	305LCS	Llagas Creek	Calcium	mg/L			87.6	81.3							6.85		3	6.85	87.60	58.58	81.30	44.91		
Pajaro	305LCS	Llagas Creek	Chloride	mg/L			60.5	62.5							3.52		3	3.52	62.50	42.17	60.50	33.49		
Pajaro	305LCS	Llagas Creek	Chlorophyll a, Field	ug/L	6	10	3	5	2	3	3				2	2	9	2.00	10.00	4.00	3.00	2.65		
Pajaro	305LCS	Llagas Creek	Discharge	cfs	2.59325	2.21675	2.63585	2.0263	2.14855	0.494	0.0449	0	0	0	10.382	0.75165	12	0.00	10.38	1.94	1.39	2.87		
Pajaro	305LCS	Llagas Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	95.8							100		3	95.80	100.00	97.77	97.50	2.11		
Pajaro	305LCS	Llagas Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305LCS	Llagas Creek	Invertebrate Toxicity, Reproduction	%Control Repro			36.4	79.3							104.9		3	36.40	104.90	73.53	79.30	34.61		
Pajaro	305LCS	Llagas Creek	Invertebrate Toxicity, Survival	%Control Survival			90	90							112.5		3	90.00	112.50	97.50	90.00	12.99		
Pajaro	305LCS	Llagas Creek	Magnesium	mg/L			1.72	59.8							3.3		3	1.72	59.80	21.61	3.30	33.09		
Pajaro	305LCS	Llagas Creek	Nitrate + Nitrite as N	mg/L	16.2	16.2	18.8	18.6	16.6	18.4	24.2				0.269	4.98	9	0.3	24.2	14.9	16.6	7.47	<10	78%

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	WQO Percent Exceedance
Pajaro	305LCS	Llagas Creek	Nitrogen, Total	mg/L	16.2		18.8	18.6		18.4	24.616				1.213	5.404	7	1.21	24.62	14.75	18.40	8.31		
Pajaro	305LCS	Llagas Creek	Nitrogen, Total Kjeldahl	mg/L	0.065		0.065	0.065		0.065	0.416				0.944	0.424	7	0.07	0.94	0.29	0.07	0.33		
Pajaro	305LCS	Llagas Creek	OrthoPhosphate as P	mg/L	0.0311	0.0292	0.0321	0.0269	0.0293	0.0336	0.0475				0.281	0.0858	9	0.027	0.281	0.066	0.032	0.083		
Pajaro	305LCS	Llagas Creek	Oxygen, Dissolved	mg/L	3.65	4.21	4.72	4.21	2.28	2.08	2.23				9.17	3.44	9	2.08	9.17	4.00	3.65	2.17	>7	89%
Pajaro	305LCS	Llagas Creek	Oxygen, Saturation	%	34.4	40.1	47	43	23.5	21.8	23.2				83.6	30.1	9	21.80	83.60	38.52	34.40	19.22	None	N/A
Pajaro	305LCS	Llagas Creek	pH	none	6.84	6.83	6.74	6.67	6.72	6.84	6.59				6.26	6.8	9	6.26	6.84	6.70	6.74	0.19	7-8.3	100%
Pajaro	305LCS	Llagas Creek	Phosphorus as P	mg/L	0.0558	0.042	0.0045	0.0311	0.0665	0.0395	0.0485				0.48	0.136	9	0.005	0.480	0.100	0.049	0.147		
Pajaro	305LCS	Llagas Creek	Potassium	mg/L			57.9	2.5							2.5		3	2.50	57.90	20.97	2.50	31.99		
Pajaro	305LCS	Llagas Creek	Salinity	ppt	0.52	0.51	0.54	0.56	0.52	0.62	0.64				0.03	0.46	9	0.03	0.64	0.49	0.52	0.18		
Pajaro	305LCS	Llagas Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				76.6									1	76.60	76.60	76.60	76.60	N/A		
Pajaro	305LCS	Llagas Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				98.6									1	98.60	98.60	98.60	98.60	N/A		
Pajaro	305LCS	Llagas Creek	Sodium	mg/L			49.4	48.8							2.5		3	2.50	49.40	33.57	48.80	26.91		
Pajaro	305LCS	Llagas Creek	Specific Conductivity	uS/cm	1048	1018	1081	1125	1046	1232	1270				61.6	921	9	62	1,270	978	1,048	360		
Pajaro	305LCS	Llagas Creek	Sulfate	mg/L			84.8	89.3							4.83		3	4.83	89.30	59.64	84.80	47.52		
Pajaro	305LCS	Llagas Creek	Total Dissolved Solids	mg/L	681	620	703	731	676	801	826				40	599	9	40	826	631	681	234	<200	Yes
Pajaro	305LCS	Llagas Creek	Total Suspended Solids	mg/L	0.97	1.47	1.25	1.25	0.73	2.14	0.25				40	1.9	9	0.25	40.00	5.55	1.25	12.93		
Pajaro	305LCS	Llagas Creek	Turbidity, Field	NTU	5.24	15.9	22.3	25.5	1.35	2.52	2.8				63.5	2.27	9	1.35	63.50	15.71	5.24	20.19		
Pajaro	305LCS	Llagas Creek	Water Temperature	Deg C	12.6	13	15	16.3	16.6	17.5	17				11.2	9.4	9	9.40	17.50	14.29	15.00	2.86		
Pajaro	305PJP	Pajaro River at Main St.	Air Temperature	Deg C	19	16	15	13	21	23	20	21	19	12	12	14	12	12.00	23.00	17.08	17.50	3.87		
Pajaro	305PJP	Pajaro River at Main St.	Algae Toxicity, Cell Growth	%Control Growth			227.4	386					363.3		220.1		4	220.10	386.00	299.20	295.35	87.66		
Pajaro	305PJP	Pajaro River at Main St.	Alkalinity as CaCO3	mg/L			230	259					230		131		4	131.00	259.00	212.50	230.00	56.03		
Pajaro	305PJP	Pajaro River at Main St.	Ammonia as N	mg/L	0.0341	0.0517	0.0649	0.0734	0.0612	0.0831	0.0476	0.0375	0.119	0.177	0.0749	0.0668	12	0.03	0.18	0.07	0.07	0.04		
Pajaro	305PJP	Pajaro River at Main St.	Ammonia as N, Unionized	mg/L	0.00133	0.00203	0.00283	0.00186	0.00102	0.00126	0.00107	0.00078	0.00508	0.00221	0.00264	0.00088	12	0.0008	0.0051	0.0019	0.0016	0.001	<0.025	0%
Pajaro	305PJP	Pajaro River at Main St.	Calcium	mg/L			66.2	66.2					74.7		43.3		4	43.30	74.70	62.60	66.20	13.48		
Pajaro	305PJP	Pajaro River at Main St.	Chloride	mg/L			74.8	76.3					51.7		27.1		4	27.10	76.30	57.48	63.25	23.17		
Pajaro	305PJP	Pajaro River at Main St.	Chlorophyll a, Field	ug/L	55	78	6	4	10	5	3	4	8	8	7	4	12	3.00	78.00	16.00	6.50	24.18		
Pajaro	305PJP	Pajaro River at Main St.	Discharge	cfs	44.5745	41.316	39.7328	20.2715	2.6456	0.459175	0.434	0.4655	2.2725	0.378	11.618	16.1295	12	0.38	44.57	15.02	7.13	17.54		
Pajaro	305PJP	Pajaro River at Main St.	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			75	102.6					100		60.1		4	60.10	102.60	84.43	87.50	20.44		
Pajaro	305PJP	Pajaro River at Main St.	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305PJP	Pajaro River at Main St.	Invertebrate Toxicity, Reproduction	%Control Repro			67.6	89.5					132.6		94.8		4	67.60	132.60	96.13	92.15	27.02		
Pajaro	305PJP	Pajaro River at Main St.	Invertebrate Toxicity, Survival	%Control Survival			90	100					100		100		4	90.00	100.00	97.50	100.00	5.00		
Pajaro	305PJP	Pajaro River at Main St.	Magnesium	mg/L			5.21	51.2					50.1		26.5		4	5.21	51.20	33.25	38.30	21.89		
Pajaro	305PJP	Pajaro River at Main St.	Nitrate + Nitrite as N	mg/L	3.45	2.79	1.19	1.95	2.37	1.36	1.33	1.49	2.5	1.1	3.14	14.4	12	1.1	14.4	3.1	2.2	3.65	<10	8%
Pajaro	305PJP	Pajaro River at Main St.	Nitrogen, Total	mg/L	4.115		1.955	2.514		1.882	2.425	1.946	3.54	1.24	4.26	15.027	10	1.24	15.03	3.89	2.47	4.04		
Pajaro	305PJP	Pajaro River at Main St.	Nitrogen, Total Kjeldahl	mg/L	0.665		0.765	0.564		0.522	0.565	0.456	1.04	0.14	1.12	0.627	10	0.14	1.12	0.65	0.60	0.28		
Pajaro	305PJP	Pajaro River at Main St.	OrthoPhosphate as P	mg/L	0.129	0.0395	0.246	0.125	0.177	0.289	0.359	0.347	0.473	0.321	0.444	0.213	12	0.040	0.473	0.264	0.268	0.133		
Pajaro	305PJP	Pajaro River at Main St.	Oxygen, Dissolved	mg/L	12.07	12.44	9.91	8.53	8.17	6.1	8.21	7.02	4.07	5.83	8.19	9.09	12	4.07	12.44	8.30	8.20	2.43	>7	25%
Pajaro	305PJP	Pajaro River at Main St.	Oxygen, Saturation	%	108	115.4	103.1	86.8	84.5	64	87.4	72.9	43	56.3	74.4	79.8	12	43.00	115.40	81.30	82.15	21.19	None	N/A
Pajaro	305PJP	Pajaro River at Main St.	pH	none	8.39	8.35	8.21	8	7.8	7.74	7.9	7.9	8.17	7.78	8.3	7.94	12	7.74	8.39	8.04	7.97	0.23	7-8.3	17%
Pajaro	305PJP	Pajaro River at Main St.	Phosphorus as P	mg/L	0.225	0.133	0.0045	0.179	0.196	0.322	0.359	0.88	0.577	0.366	0.813	0.29	12	0.005	0.880	0.362	0.306	0.267		
Pajaro	305PJP	Pajaro River at Main St.	Potassium	mg/L			41.4	2.5					8.9		6.62		4	2.50	41.40	14.86	7.76	17.89		
Pajaro	305PJP	Pajaro River at Main St.	Salinity	ppt	0.62	0.79	0.47	0.5	0.67	0.74	0.74	0.79	0.44	0.78	0.26	0.77	12	0.26	0.79	0.63	0.71	0.17		
Pajaro	305PJP	Pajaro River at Main St.	Sediment Invertebrate Toxicity, Growth	%Control Growth				86.1									1	86.10	86.10	86.10	86.10	N/A		
Pajaro	305PJP	Pajaro River at Main St.	Sediment Invertebrate Toxicity, Survival	%Control Survival				97.3									1	97.30	97.30	97.30	97.30	N/A		
Pajaro	305PJP	Pajaro River at Main St.	Sodium	mg/L			72	64.8					49.8		24.9		4	24.90	72.00	52.88	57.30	20.82		
Pajaro	305PJP	Pajaro River at Main St.	Specific Conductivity	uS/cm	1230	1559	950	1007	1335	1461	1459	1557	884	1530	531	1515	12	531	1,559	1,252	1,397	335		
Pajaro	305PJP	Pajaro River at Main St.	Sulfate	mg/L			141	153					163		83		4	83.00	163.00	135.00	147.00	35.81		
Pajaro	305PJP	Pajaro River at Main St.	Total Dissolved Solids	mg/L	799	1020	618	655	868	950	948	1012	574	995	345	985	12	345	1,020	814	908	218		
Pajaro	305PJP	Pajaro River at Main St.	Total Suspended Solids	mg/L	12.4	13.3	8.09	9.12	5.82	5.27	1.4	0.54	2.06	1.86	49	7.28	12	0.54	49.00	9.68	6.55	13.08		
Pajaro	305PJP	Pajaro River at Main St.	Turbidity, Field	NTU	21.6	16.1	7.02	12.4	5.79	7.66	4.61	17.9	3.13	6.32	121	12.9	12	3.13	121.00	19.70	10.03	32.42		
Pajaro	305PJP	Pajaro River at Main St.	Water Temperature	Deg C	10.3	11.8	17.1	16.1	16.8	17.4	17.9	16.9	18	13.6	11.1	9.5	12	9.50	18.00	14.71	16.45	3.22		
Pajaro	305SJA	San Juan Creek	Air Temperature	Deg C	10	14	25	20	23	21	17	18	17	11	11	12	12	10.00	25.00	16.58	17.00	5.04		
Pajaro	305SJA	San Juan Creek	Algae Toxicity, Cell Growth	%Control Growth			226.9	213					22.3		342.5		4	22.30	342.50	201.18	219.95	132.63		
Pajaro	305SJA	San Juan Creek	Alkalinity as CaCO3	mg/L			471	515					462		190		4	190.00	515.00	409.50	466.50	148.15		
Pajaro	305SJA	San Juan Creek	Ammonia as N	mg/L	0.0735	0.0868	0.0803	0.163	0.314	1.12	0.113	0.097	0.0638	1.29	0.795	0.506	12	0.06	1.29	0.39	0.14	0.44		
Pajaro	305SJA	San Juan Creek	Ammonia as N, Unionized	mg/L	0.00158	0.00201	0.00275	0.00501	0.00939	0.01997	0.00292	0.00201	0.00105	0.0105	0.00594	0.00973	12	0.0011	0.0200	0.0061	0.0040	0.006	<0.025	0%
Pajaro	305SJA	San Juan Creek	Calcium	mg/L			126	104					120		46.7		4	46.70	126.00	99.18	112.00	36.19		
Pajaro	305SJA	San Juan Creek	Chloride	mg/L			347	359					362		136		4	136.00	362.00	301.00	353.00	110.19		
Pajaro	305SJA	San Juan Creek	Chlorophyll a, Field	ug/L	6	9	5	5	5	15	9	34	14	10	10	8	12	5.00	34.00	10.83	9.00	8.01		
Pajaro	305SJA	San Juan Creek	Discharge	cfs	1.513	0.4854	0.456	0.88825	0.66175	0.86115	0.425675	1.428	1.069725	0.34685	5.8429	3.744325	12	0.35	5.84	1.48	0.87	1.66		
Pajaro	305SJA	San Juan Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival				105.3					97.5		101.1		3	97.50	105.30	101.30	101.10	3.90		
Pajaro	305SJA	San Juan Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305SJA	San Juan Creek	Invertebrate Toxicity, Reproduction	%Control Repro				59.7					88.8		102.8		3	59.70	102.80	83.77	88.80	21.99		
Pajaro	305SJA	San Juan Creek	Invertebrate Toxicity, Survival	%Control Survival			102	80					90		100		4	80.00	102.00	93.00	95.00	10.13		
Pajaro	305SJA	San Juan Creek	Magnesium	mg/L			4.86	130					137		45.4		4	4.86	137.00	79.32	87.70	64.78		
Pajaro	305SJA	San Juan Creek	Nitrate + Nitrite as N	mg/L	54.2	40.8	50.9	26	28.1	22.6	31.5	20.9	22.3	10.5	9.87	71.9	12	9.9	71.9	32.5	27.1	18.65	<10	92%
Pajaro	305SJA	San Juan Creek	Nitrogen, Total	mg/L	54.761		50.9	26.879		25.62	32.72	22.01	24.65	17.38	12.28	73.23	10	12.28	73.23	34.04	26.25	19.31		
Pajaro	305SJA	San Juan Creek	Nitrogen, Total Kjeldahl	mg/L	0.561		0.065	0.879		3.02	1.22	1.11	2.35	6.88	2.41	1.33	10	0.07	6.88	1.98	1.28	1.95		
Pajaro	305SJA	San Juan Creek	OrthoPhosphate as P	mg/L	0.188	0.283	0.575	1.81	1.41	6.5	2.62	10.2	7.4	7.54	2.36	0.491	12	0.188	10.200	3.448	2.085	3.485		
Pajaro	305SJA	San Juan Creek	Oxygen, Dissolved	mg/L	11.54	12.8	13.34	10.69	7.41	0.55	6.83	6.43	2.71	4.76	7.72	10.19	12	0.55	13.34	7.91	7.57	3.98	>5	25%
Pajaro	305SJA	San Juan Creek	Oxygen, Saturation	%	96.8	105.8	130.7	112.1	74.5	5.6	71.8	66.6	27.5	42.3	69.7	90.9	12	5.60	130.70	74.53	73.15	36.19	>85	Yes

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	WQO Percent Exceedance
Pajaro	305SJA	San Juan Creek	pH	none	8.26	8.31	8.24	8.08	8.14	7.87	8	7.92	7.85	7.74	7.65	8.12	12	7.65	8.31	8.02	8.04	0.21	7-8.3	8%
Pajaro	305SJA	San Juan Creek	Phosphorus as P	mg/L	0.224	0.325	0.759	1.97	1.35	7.1	2.69	57.9	9.74	8.64	2.9	0.651	12	0.224	57.900	7.854	2.330	16.109		
Pajaro	305SJA	San Juan Creek	Potassium	mg/L			151	2.5					7.54		6.8		4	2.50	151.00	41.96	7.17	72.73		
Pajaro	305SJA	San Juan Creek	Salinity	ppt	1.74	1.53	1.71	1.51	1.54	1.5	1.4	1.36	1.44	1.45	0.63	1.69	12	0.63	1.74	1.46	1.51	0.29		
Pajaro	305SJA	San Juan Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				92.7									1	92.70	92.70	92.70	92.70	N/A		
Pajaro	305SJA	San Juan Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				98.6									1	98.60	98.60	98.60	98.60	N/A		
Pajaro	305SJA	San Juan Creek	Sodium	mg/L			401	310					355		127		4	127.00	401.00	298.25	332.50	120.06		
Pajaro	305SJA	San Juan Creek	Specific Conductivity	uS/cm	3310	2936	3255	2887	2941	2872	2687	2621	2757	2778	1263	3218	12	1,263	3,310	2,794	2,880	531		
Pajaro	305SJA	San Juan Creek	Sulfate	mg/L			681	526					562		196		4	196.00	681.00	491.25	544.00	207.68		
Pajaro	305SJA	San Juan Creek	Total Dissolved Solids	mg/L	2151	1990	2116	1877	1911	1865	1746	1704	1792	1806	821	2092	12	821	2,151	1,823	1,871	348		
Pajaro	305SJA	San Juan Creek	Total Suspended Solids	mg/L	6.76	12.2	30.2	15.6	7.02	11.6	11.2	12.9	27.9	12.7	76	28.4	12	6.76	76.00	21.04	12.80	19.15		
Pajaro	305SJA	San Juan Creek	Turbidity, Field	NTU	8.1	17.4	34.4	15.7	6.19	22.8	10.7	28.3	17.3	31.6	71.9	28.4	12	6.19	71.90	24.40	20.10	17.59		
Pajaro	305SJA	San Juan Creek	Water Temperature	Deg C	7.3	6.7	14	17.3	15.1	16.3	17.3	16.7	15.8	9.8	10.6	9.9	12	6.70	17.30	13.07	14.55	3.96		
Pajaro	305TSR	Tequisquita Slough	Air Temperature	Deg C	5	7	12	13	17	18	16	13	13	9	11	10	12	5.00	18.00	12.00	12.50	3.91		
Pajaro	305TSR	Tequisquita Slough	Algae Toxicity, Cell Growth	%Control Growth			237	233					281.4		288		4	233.00	288.00	259.85	259.20	28.87		
Pajaro	305TSR	Tequisquita Slough	Alkalinity as CaCO3	mg/L			596	588					566		629		4	566.00	629.00	594.75	592.00	26.12		
Pajaro	305TSR	Tequisquita Slough	Ammonia as N	mg/L	0.0369	0.0968	0.0595	0.0844	0.1	1.97	0.792	0.0905	0.201	2.19	0.175	0.0705	12	0.04	2.19	0.49	0.10	0.77		
Pajaro	305TSR	Tequisquita Slough	Ammonia as N, Unionized	mg/L	0.00057	0.00067	0.00069	0.00123	0.0091	0.10847	0.03792	0.00002	0.00048	0.09542	0.00042	0.00057	12	0.0000	0.1085	0.0213	0.0007	0.039	<0.025	25%
Pajaro	305TSR	Tequisquita Slough	Calcium	mg/L			126	126					134		113		4	113.00	134.00	124.75	126.00	8.69		
Pajaro	305TSR	Tequisquita Slough	Chloride	mg/L			350	370					428		493		4	350.00	493.00	410.25	399.00	64.32		
Pajaro	305TSR	Tequisquita Slough	Chlorophyll a, Field	ug/L	14	59	64	10	199	80	199	21	199	199	42	13	12	10.00	199.00	91.58	61.50	82.24		
Pajaro	305TSR	Tequisquita Slough	Discharge	cfs	1.291	0.7166	0.53775	0.3105	0.023	0.00611	0.318	0.30665	0.0692	-0.0292	0.2732	0.9255	12	-0.03	1.29	0.40	0.31	0.41		
Pajaro	305TSR	Tequisquita Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305TSR	Tequisquita Slough	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305TSR	Tequisquita Slough	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305TSR	Tequisquita Slough	Invertebrate Toxicity, Survival	%Control Survival			100.2	98.7					93.9		102		4	93.90	102.00	98.70	99.45	3.47		
Pajaro	305TSR	Tequisquita Slough	Magnesium	mg/L			4.86	188					233		254		4	4.86	254.00	169.97	210.50	113.46		
Pajaro	305TSR	Tequisquita Slough	Nitrate + Nitrite as N	mg/L	10.5	12.2	7.93	10.1	3.05	0.11	0.06	44.7	28.8	0.014	8.39	18.9	12	0.0	44.7	12.1	9.2	13.29	None	N/A
Pajaro	305TSR	Tequisquita Slough	Nitrogen, Total	mg/L	11.189		8.789	11.21		20.11	9.49	46.9	47.4	28.114	10.88	20.58	10	8.79	47.40	21.47	15.66	14.88		
Pajaro	305TSR	Tequisquita Slough	Nitrogen, Total Kjeldahl	mg/L	0.689		0.859	1.11		20	9.43	2.2	18.6	28.1	2.49	1.68	10	0.69	28.10	8.52	2.35	10.09		
Pajaro	305TSR	Tequisquita Slough	OrthoPhosphate as P	mg/L	0.198	0.132	0.112	0.19	0.0286	0.491	0.609	0.133	0.0648	0.0089	0.298	0.323	12	0.009	0.609	0.216	0.162	0.185		
Pajaro	305TSR	Tequisquita Slough	Oxygen, Dissolved	mg/L	10.9	11.01	6.12	7.73	5.37	1.05	0.89	7.09	3.55	2.84	7.58	9.91	12	0.89	11.01	6.17	6.61	3.54	>7	50%
Pajaro	305TSR	Tequisquita Slough	Oxygen, Saturation	%	85.3	87.6	54.3	71.9	52.5	10.4	9.1	70.5	35.4	25.2	71.2	78.2	12	9.10	87.60	54.30	62.40	28.08	None	N/A
Pajaro	305TSR	Tequisquita Slough	pH	none	8.22	7.84	7.91	7.94	8.7	8.39	8.29	5.93	7.05	8.5	7.16	7.92	12	5.93	8.70	7.82	7.93	0.77	7-8.3	33%
Pajaro	305TSR	Tequisquita Slough	Phosphorus as P	mg/L	0.239	0.431	0.184	0.298	0.609	1.69	1.43	1.07	0.704	1.85	0.545	0.471	12	0.184	1.850	0.793	0.577	0.577		
Pajaro	305TSR	Tequisquita Slough	Potassium	mg/L			185	2.5					6.6		15		4	2.50	185.00	52.28	10.80	88.64		
Pajaro	305TSR	Tequisquita Slough	Salinity	ppt	2.12	2.01	1.87	1.9	1.81	1.67	1.65	1.92	1.89	1.87	2.1	1.99	12	1.65	2.12	1.90	1.90	0.15		
Pajaro	305TSR	Tequisquita Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				102.6									1	102.60	102.60	102.60	102.60	N/A		
Pajaro	305TSR	Tequisquita Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				104.1									1	104.10	104.10	104.10	104.10	N/A		
Pajaro	305TSR	Tequisquita Slough	Sodium	mg/L			449	403					399		558		4	399.00	558.00	452.25	426.00	74.06		
Pajaro	305TSR	Tequisquita Slough	Specific Conductivity	uS/cm	4031	2366	2507	3590	3424	3169	3137	3622	3571	3532	3926	3779	12	2,366	4,031	3,388	3,552	517		
Pajaro	305TSR	Tequisquita Slough	Sulfate	mg/L			808	884					913		1060		4	808.00	1060.00	916.25	898.50	105.57		
Pajaro	305TSR	Tequisquita Slough	Total Dissolved Solids	mg/L	2621	2630	2305	2333	2226	2060	2039	2354	2322	2296	2556	2455	12	2,039	2,630	2,350	2,328	192		
Pajaro	305TSR	Tequisquita Slough	Total Suspended Solids	mg/L	3.7	86.4	10.2	30.6	182	875	70.8	139	63.4	1030	46.9	61.9	12	3.70	1030.00	216.66	67.10	348.93		
Pajaro	305TSR	Tequisquita Slough	Turbidity, Field	NTU	10.2	20.6	23.1	16.8	32.2	64.5	27.4	142	34	178	53.4	67.6	12	10.20	178.00	55.82	33.10	52.51		
Pajaro	305TSR	Tequisquita Slough	Water Temperature	Deg C	4.4	5.1	9.7	11.7	13.8	16	17.1	14.8	14.8	9.6	11.5	4.8	12	4.40	17.10	11.11	11.60	4.47		
Pajaro	305WCS	Watsonville Creek	Air Temperature	Deg C	20	16	20	16	21	23	20	22	22	14	12	14	12	12.00	23.00	18.33	20.00	3.73		
Pajaro	305WCS	Watsonville Creek	Algae Toxicity, Cell Growth	%Control Growth			224.6	358					413.6		247.3		4	224.60	413.60	310.88	302.65	89.92		
Pajaro	305WCS	Watsonville Creek	Alkalinity as CaCO3	mg/L			444	416					516		251		4	251.00	516.00	406.75	430.00	112.05		
Pajaro	305WCS	Watsonville Creek	Ammonia as N	mg/L	0.0174	0.0488	0.053	0.0516	0.0661	0.0812	0.0589	0.143	0.0886	7.54	0.0677	0.0627	12	0.02	7.54	0.69	0.06	2.16		
Pajaro	305WCS	Watsonville Creek	Ammonia as N, Unionized	mg/L	0.00073	0.00151	0.00208	0.00162	0.00183	0.00319	0.0023	0.00492	0.00244	0.10898	0.00145	0.00099	12	0.0007	0.1090	0.0110	0.0020	0.031	<0.025	8%
Pajaro	305WCS	Watsonville Creek	Calcium	mg/L			89.5	80.4					92.9		55.7		4	55.70	92.90	79.63	84.95	16.80		
Pajaro	305WCS	Watsonville Creek	Chloride	mg/L			92.5	94.4					116		58.7		4	58.70	116.00	90.40	93.45	23.67		
Pajaro	305WCS	Watsonville Creek	Chlorophyll a, Field	ug/L	4	9	4	5	4	11	3	8	12	17	8	1	12	1.00	17.00	7.17	6.50	4.57		
Pajaro	305WCS	Watsonville Creek	Discharge	cfs	0.36625	0.1775	0.4861	0.25125	0.271	0.29175	0.24825	-0.0094	0.7365	0.12145	1.18795	2.3472	12	-0.01	2.35	0.54	0.28	0.65		
Pajaro	305WCS	Watsonville Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	97.4					90		49.2		4	49.20	97.50	83.53	93.70	23.15		
Pajaro	305WCS	Watsonville Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305WCS	Watsonville Creek	Invertebrate Toxicity, Reproduction	%Control Repro			83.4	86.7					56.6		92.7		4	56.60	92.70	79.85	85.05	15.97		
Pajaro	305WCS	Watsonville Creek	Invertebrate Toxicity, Survival	%Control Survival			77.8	100					125		100		4	77.80	125.00	100.70	100.00	19.29		
Pajaro	305WCS	Watsonville Creek	Magnesium	mg/L			3.43	122					163		79.2		4	3.43	163.00	91.91	100.60	68.19		
Pajaro	305WCS	Watsonville Creek	Nitrate + Nitrite as N	mg/L	19.2	19.3	22.2	16.4	17	14.4	18.6	8.03	17.4	0.021	13.9	22.3	12	0.0	22.3	15.7	17.2	6.28	<10	83%
Pajaro	305WCS	Watsonville Creek	Nitrogen, Total	mg/L	19.458		22.42	16.964		15.386	19.523	9.57	18.44	23.321	14.725	22.3	10	9.57	23.32	18.21	18.95	4.22		
Pajaro	305WCS	Watsonville Creek	Nitrogen, Total Kjeldahl	mg/L	0.258		0.22	0.564		0.986	0.923	1.54	1.04	23.3	0.825	0.065	10	0.07	23.30	2.97	0.87	7.16		
Pajaro	305WCS	Watsonville Creek	OrthoPhosphate as P	mg/L	0.551	1.76	0.76	1.55	1.67	0.905	0.513	0.323	0.396	0.534	0.559	0.346	12	0.323	1.760	0.822	0.555	0.532		
Pajaro	305WCS	Watsonville Creek	Oxygen, Dissolved	mg/L	14.11	12.83	12.34	10.64	7.43	11.35	9.83	8.14	6	0.2	7.75	9.48	12	0.20	14.11	9.18	9.66	3.72	>5	8%
Pajaro	305WCS	Watsonville Creek	Oxygen, Saturation	%	126.8	119.6	124.3	106	76.5	122.2	106.9	86.4	65.7	1.9	74.1	89.4	12	1.90	126.80	91.65	97.70	35.36	>85	No
Pajaro	305WCS	Watsonville Creek	pH	none	8.43	8.24	8.23	8.15	8.04	8.13	8.11	8.09	7.94	7.83	8.02	7.92	12	7.83	8.43	8.09	8.10	0.16	7-8.3	8%
Pajaro	305WCS	Watsonville Creek	Phosphorus as P	mg/L	0.576	1.93	0.838	1.46	1.64	0.951	0.57	0.66	0.51	5.54	0.686	0.401	12	0.401	5.540	1.314	0.762	1.418		
Pajaro	305WCS	Watsonville Creek	Potassium	mg/L			134	5.48					2.5		2.5		4	2.50	134.00	36.12	3.99	65.27		
Pajaro	305WCS	Watsonville Creek	Salinity	ppt	0.84	0.86	0.86	0.84	0.84	0.93	0.83	0.86	0.89	0.92	0.51	0.76	12	0.51	0.93	0.83	0.85	0.11		
Pajaro	305WCS	Watsonville Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				78.1									1	78.10	78.10	78.10	78.10	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	WQO Percent Exceedance
Pajaro	305WCS	Watsonville Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				85.1									1	85.10	85.10	85.10	85.10	N/A		
Pajaro	305WCS	Watsonville Creek	Sodium	mg/L			81.6	85.5					102		54.3		4	54.30	102.00	80.85	83.55	19.79		
Pajaro	305WCS	Watsonville Creek	Specific Conductivity	uS/cm	1651	1693	1380	1652	1657	1827	1703	1692	1758	1789	1020	1492	12	1,020	1,827	1,610	1,675	222		
Pajaro	305WCS	Watsonville Creek	Sulfate	mg/L			311	348					308		173		4	173.00	348.00	285.00	309.50	76.85		
Pajaro	305WCS	Watsonville Creek	Total Dissolved Solids	mg/L	1073	1120	1097	1074	1077	1187	1107	1100	1142	1163	663	970	12	663	1,187	1,064	1,099	138		
Pajaro	305WCS	Watsonville Creek	Total Suspended Solids	mg/L	2.88	12	1.62	2.55	14.5	2.12	2.89	2.96	3.38	270	15.5	2.41	12	1.62	270.00	27.73	2.93	76.47		
Pajaro	305WCS	Watsonville Creek	Turbidity, Field	NTU	20.9	24.1	2.2	2.6	2.32	7.15	19.6	11.4	11.1	138	23	5.82	12	2.20	138.00	22.35	11.25	37.34		
Pajaro	305WCS	Watsonville Creek	Water Temperature	Deg C	10.4	12	15.5	14.9	16.5	18.7	19.2	18	19.6	14.2	13.2	12.5	12	10.40	19.60	15.39	15.20	3.05		
Pajaro	305WSA	Watsonville Slough	Air Temperature	Deg C	16	16	13	12	14	21	15	21	19	12	12	14	12	12.00	21.00	15.42	14.50	3.32		
Pajaro	305WSA	Watsonville Slough	Algae Toxicity, Cell Growth	%Control Growth			210.2	408									2	210.20	408.00	309.10	309.10	139.87		
Pajaro	305WSA	Watsonville Slough	Alkalinity as CaCO3	mg/L			313	236									2	236.00	313.00	274.50	274.50	54.45		
Pajaro	305WSA	Watsonville Slough	Ammonia as N	mg/L	0.315	0.163	0.166	0.162	0.159							0.204	6	0.16	0.32	0.19	0.16	0.06		
Pajaro	305WSA	Watsonville Slough	Ammonia as N, Unionized	mg/L	0.00237	0.00072	0.00071	0.00091	0.00041							0.00064	6	0.0004	0.0024	0.0010	0.0007	0.001	<0.025	0%
Pajaro	305WSA	Watsonville Slough	Calcium	mg/L			62.3	46.7									2	46.70	62.30	54.50	54.50	11.03		
Pajaro	305WSA	Watsonville Slough	Chloride	mg/L			82.7	55.6									2	55.60	82.70	69.15	69.15	19.16		
Pajaro	305WSA	Watsonville Slough	Chlorophyll a, Field	ug/L	53	40	15	16	5							19	6	5.00	53.00	24.67	17.50	18.03		
Pajaro	305WSA	Watsonville Slough	Discharge	cfs	9.3185	3.2165	0.4655	1.5387	0.105	0	0	0	0	0	0	15.12725	12	0.00	15.13	2.48	0.05	4.81		
Pajaro	305WSA	Watsonville Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			72.5	98.7									2	72.50	98.70	85.60	85.60	18.53		
Pajaro	305WSA	Watsonville Slough	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Pajaro	305WSA	Watsonville Slough	Invertebrate Toxicity, Reproduction	%Control Repro			79.8	91.1									2	79.80	91.10	85.45	85.45	7.99		
Pajaro	305WSA	Watsonville Slough	Invertebrate Toxicity, Survival	%Control Survival			90	100									2	90.00	100.00	95.00	95.00	7.07		
Pajaro	305WSA	Watsonville Slough	Magnesium	mg/L			3.67	41.2									2	3.67	41.20	22.44	22.44	26.54		
Pajaro	305WSA	Watsonville Slough	Nitrate + Nitrite as N	mg/L	0.932	1.17	7.75	2.15	5.13							3.63	6	0.9	7.8	3.5	2.9	2.63	None	N/A
Pajaro	305WSA	Watsonville Slough	Nitrogen, Total	mg/L	2.582		9.44	4.3								5.92	4	2.58	9.44	5.56	5.11	2.92		
Pajaro	305WSA	Watsonville Slough	Nitrogen, Total Kjeldahl	mg/L	1.65		1.69	2.15								2.29	4	1.65	2.29	1.95	1.92	0.32		
Pajaro	305WSA	Watsonville Slough	OrthoPhosphate as P	mg/L	0.263	0.372	0.208	1.25	0.408							0.335	6	0.208	1.250	0.473	0.354	0.388		
Pajaro	305WSA	Watsonville Slough	Oxygen, Dissolved	mg/L	5.73	4.39	3.91	38.4	3.84							3.19	6	3.19	38.40	9.91	4.15	13.98	>7	83%
Pajaro	305WSA	Watsonville Slough	Oxygen, Saturation	%	50.9	39.8	38.4	38.3	38.7							27.2	6	27.20	50.90	38.88	38.55	7.51	None	N/A
Pajaro	305WSA	Watsonville Slough	pH	none	7.66	7.39	7.28	7.31	7.02							7.33	6	7.02	7.66	7.33	7.32	0.21	7-8.3	0%
Pajaro	305WSA	Watsonville Slough	Phosphorus as P	mg/L	0.591	0.736	0.27	1.28	0.498							0.604	6	0.270	1.280	0.663	0.598	0.340		
Pajaro	305WSA	Watsonville Slough	Potassium	mg/L			70.9	5.29									2	5.29	70.90	38.10	38.10	46.39		
Pajaro	305WSA	Watsonville Slough	Salinity	ppt	0.41	0.4	0.54	0.37	0.62							0.29	6	0.29	0.62	0.44	0.41	0.12		
Pajaro	305WSA	Watsonville Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				83.9									1	83.90	83.90	83.90	83.90	N/A		
Pajaro	305WSA	Watsonville Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				25.6									1	25.60	25.60	25.60	25.60	N/A		
Pajaro	305WSA	Watsonville Slough	Sodium	mg/L			60.7	38.9									2	38.90	60.70	49.80	49.80	15.41		
Pajaro	305WSA	Watsonville Slough	Specific Conductivity	uS/cm	822	819	1091	743	1229							604	6	604	1,229	885	821	232		
Pajaro	305WSA	Watsonville Slough	Sulfate	mg/L			112	57.1									2	57.10	112.00	84.55	84.55	38.82		
Pajaro	305WSA	Watsonville Slough	Total Dissolved Solids	mg/L	535	454	710	483	799							393	6	393	799	562	509	158		
Pajaro	305WSA	Watsonville Slough	Total Suspended Solids	mg/L	41.7	67	34	15.7	9.18							28.5	6	9.18	67.00	32.68	31.25	20.59		
Pajaro	305WSA	Watsonville Slough	Turbidity, Field	NTU	40.9	54.4	36.5	13	7.79							47.5	6	7.79	54.40	33.35	38.70	18.86		
Pajaro	305WSA	Watsonville Slough	Water Temperature	Deg C	10.1	11.1	14.3	16.7	15.5							8.3	6	8.30	16.70	12.67	12.70	3.32		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Air Temperature	Deg C	19.2	15.9	16.2	20	15.9	20.4	22.6	26	26.7	19.2	18.5	15.5	12	15.50	26.70	19.68	19.2	3.8		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Algae Toxicity, Cell Growth	%Control Growth			187.4	151.3					223.7			182.5	4	151.30	223.70	186.23	185.0	29.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Alkalinity as CaCO3	mg/L			138	160					144			62	4	62.00	160.00	126.00	141.0	43.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Ammonia as N	mg/L	1.3	0.522	0.322	0.567	0.682	0.331	0.202	0.153	0.33	0.182	0.349	0.227	12	0.15	1.30	0.43	0.33	0.3		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Ammonia as N, Unionized	mg/L	0.08293	0.06404	0.00728	0.20266	0.03974	0.17109	0.08633	0.06673	0.03671	0.034	0.06076	0.00344	12	0.0034	0.2027	0.0713	0.0624	0.1	<0.025	83%
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Calcium	ug/L			54.1	72.4					84.3			42.4	4	42.40	84.30	63.30	63.3	18.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Chloride	mg/L			85.6	142					116			34.6	4	34.60	142.00	94.55	100.8	46.1		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Chlorophyll a, Field	ug/L	3.57	28.3	15.09	78.22	26.57	18.52	22.86	28.35	4.17	18.15	10.85	2.42	12	2.42	78.22	21.42	18.3	20.2		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Discharge	cfs	0.383	0.2515	1	0.196	0.3135	0.665	1.8	0.77625	1.92	0.7	2.085	27	12	0.20	27.00	3.09	0.74	7.6		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			18.9	95					87.5			0	4	0.00	95.00	50.35	53.2	48.0		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Invertebrate Toxicity, Reproduction	%Control Repro			0	108.4					94.1			29.4	4	0.00	108.40	57.98	61.8	51.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Invertebrate Toxicity, Survival	%Control Survival			0	100					125			111.1	4	0.00	125.00	84.03	105.6	56.9		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Magnesium	ug/L			21.6	33.3					39.8			17.5	4	17.50	39.80	28.05	27.5	10.3		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Nitrate + Nitrite as N	mg/L	37.5	41.6	20.4	31	56.9	37.5	62.1	38.3	56.5	3.6	30.3	13.6	12	3.6	62.1	35.8	37.5	17.66	None	N/A
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Nitrogen, Total	mg/L	40.76		22.62	34.11		39.73	62.1	39.99	58.05	6.91	32.91	16.98	10	6.91	62.10	35.42	36.9	17.1		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Nitrogen, Total Kjeldahl	mg/L	3.26		2.22	3.11		2.23	0.065	1.69	1.55	3.31	2.61	3.38	10	0.07	3.38	2.34	2.4	1.0		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	OrthoPhosphate as P	mg/L	0.164	0.766	0.749	0.205	0.622	0.524	0.47	0.623	0.772	0.296	0.524	0.967	12	0.164	0.967	0.557	0.573	0.2		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Oxygen, Dissolved	mg/L	14.7	13.6	9.8	17	9.1	13.8	14.8	16.8	8.7	13.5	8.4	10.9	12	8.40	17.00	12.59	13.55	3.1	>5	0%
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Oxygen, Saturation	%	150.1	142	100.2	188.6	89.5	168.6	176	205.5	102.4	148	83	98.5	12	83.00	205.50	137.70	145.00	42.0	None	N/A
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	pH	none	8.4	8.71	7.94	9.2	8.43	9.32	9.23	9.19	8.46	8.8	8.94	7.93	12	7.93	9.32	8.71	8.76	0.5	7-8.3	83%
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Phosphorus as P	mg/L	1.23	1.16	1.93	0.578	0.87	0.727	1.09	1.22	1.04	0.975	1.22	0.99	12	0.58	1.93	1.09	1.07	0.3		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Potassium	ug/L			7.66	10					13.4			9.38	4	7.66	13.40	10.11	9.7	2.4		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Salinity	ppt	0.6	0.7	0.4	0.6	0.8	0.6	0.2	0.7	0.7	0.5	0.7	0.2	12	0.20	0.80	0.56	0.60	0.2		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Sodium	ug/L			75.2	112					114			30	4	30.00	114.00	82.80	93.6	39.5		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Specific Conductivity	uS/cm	1194	1391	794	1195	1517	1213	435	1295	1272	928	1228	430	12	430	1,517	1,074	1,204	354		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Sulfate	mg/L			48.9	124					95.9			45.7	4	45.70	124.00	78.63	72.4	38.0		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Total Dissolved Solids	mg/L	764.1	884	508	766.3	970.8	776.6	282.6	826	813.5	595.3	786.2	275.1	12	275	971	687	771	225		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Total Suspended Solids	mg/L	508	67.7	308	43.4	36.2	36.7	33	14.1	50.2	88.5	186	538	12	14.10	538.00	159.15	59.0	189.2		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Turbidity, Field	NTU	76	34.2	396.2	25	18.3	20.2	30.1	8.4	7.8	19	113	723	12	8	723	123	28	217.8		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Water Temperature	Deg C	16.8	17	16.2	20.3	14.8	25.6	22.7	25.3	23.3	20.6	15.3	10.8	12	10.80	25.60	19.06	18.7	4.6		
Lower Salinas	309ASB	Alisal Slough	Air Temperature	Deg C	7.1	4	10.8	12.9	19	14.4	14.9	15	25.9	12.2	8.9	12.3	12	4.00	25.90	13.12	12.6	5.6		
Lower Salinas	309ASB	Alisal Slough	Algae Toxicity, Cell Growth	%Control Growth			186.3	92.7					284.6			293.6	4	92.70	293.60	214.30	235.5	94.5		
Lower Salinas	309ASB	Alisal Slough	Alkalinity as CaCO3	mg/L			330	288					364			227	4	227.00	364.00	302.25	309.0	59.0		
Lower Salinas	309ASB	Alisal Slough	Ammonia as N	mg/L	2.41	0.154	2.28	0.149	0.253	0.138	0.12	0.153	0.104	0.107	0.0794	0.352	12	0.08	2.41	0.52	0.15	0.9		
Lower Salinas	309ASB	Alisal Slough	Ammonia as N, Unionized	mg/L	0.00288	0.00059	0.02747	0.00068	0.01048	0.00145	0.0012	0.00152	0.00431	0.00175	0.0008	0.00098	12	0.0006	0.0275	0.0045	0.0015	0.0	<0.025	8%
Lower Salinas	309ASB	Alisal Slough	Calcium	ug/L			191	213					176			161	4	161.00	213.00	185.25	183.5	22.2		
Lower Salinas	309ASB	Alisal Slough	Chloride	mg/L			475	693					605			363	4	363.00	693.00	534.00	540.0	145.0		
Lower Salinas	309ASB	Alisal Slough	Chlorophyll a, Field	ug/L	83.28	7.16	30.41	10.3	94.23	10.1	10.05	8.41	11.64	7.03	5.26	5.63	12	5.26	94.23	23.63	10.1	31.2		
Lower Salinas	309ASB	Alisal Slough	Discharge	cfs	0.37675	0.19175	0.074	0.8925	1.39825	0.892	0.9345	0.6425	0.658	0.13375	0.2406	90	12	0.07	90.00	8.04	0.65	25.8		
Lower Salinas	309ASB	Alisal Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival												55.4	1	55.40	55.40	55.40	55.4	N/A		
Lower Salinas	309ASB	Alisal Slough	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309ASB	Alisal Slough	Invertebrate Toxicity, Reproduction	%Control Repro												112.8	1	112.80	112.80	112.80	112.8	N/A		
Lower Salinas	309ASB	Alisal Slough	Invertebrate Toxicity, Survival	%Control Survival			0	73.3					0			100	4	0.00	100.00	43.33	36.7	51.2		
Lower Salinas	309ASB	Alisal Slough	Magnesium	ug/L			161	194					207			128	4	128.00	207.00	172.50	177.5	35.4		
Lower Salinas	309ASB	Alisal Slough	Nitrate + Nitrite as N	mg/L	53.2	44.1	69.2	44.6	43.3	38	38	26.1	19.6	40.6	53.3	51.1	12	19.6	69.2	43.4	43.7	12.98	<10	100%
Lower Salinas	309ASB	Alisal Slough	Nitrogen, Total	mg/L	58.88		72.58	46.1		39.47	39.39	27.82	22.07	42.99	54.6	52.45	10	22.07	72.58	45.64	44.5	14.9		
Lower Salinas	309ASB	Alisal Slough	Nitrogen, Total Kjeldahl	mg/L	5.68		3.38	1.5		1.47	1.39	1.72	2.47	2.39	1.3	1.35	10	1.30	5.68	2.27	1.6	1.4		
Lower Salinas	309ASB	Alisal Slough	OrthoPhosphate as P	mg/L	0.311	0.305	0.727	0.429	0.294	0.374	0.356	0.368	0.387	0.543	0.51	0.79	12	0.294	0.790	0.450	0.381	0.2		
Lower Salinas	309ASB	Alisal Slough	Oxygen, Dissolved	mg/L	9.2	10.4	9.2	9.1	14.6	7.8	7	7.6	9.2	8.8	12.4	10.5	12	7.00	14.60	9.65	9.20	2.1	>5	0%
Lower Salinas	309ASB	Alisal Slough	Oxygen, Saturation	%	79.5	80.9	86.8	86.6	167	78.8	73.4	74.1	110	83	106	98.5	12	73.40	167.00	93.72	84.80	26.0	>85	Yes
Lower Salinas	309ASB	Alisal Slough	pH	none	6.96	7.61	7.77	7.4	8.09	7.67	7.61	7.64	8.04	7.9	7.9	7.2	12	6.96	8.09	7.65	7.66	0.3	7-8.3	8%
Lower Salinas	309ASB	Alisal Slough	Phosphorus as P	mg/L	2.92	0.43	0.891	0.565	1.05	0.678	0.576	0.926	0.91	1.18	0.953	1.05	12	0.43	2.92	1.01	0.92	0.6		
Lower Salinas	309ASB	Alisal Slough	Potassium	ug/L			5.03	2.5					2.5			6.98	4	2.50	6.98	4.25	3.8	2.2		
Lower Salinas	309ASB	Alisal Slough	Salinity	ppt	1.79	1.9	1.7	1.9	2	2.1	2	2	1.8	0.9	1.9	1.3	12	0.90	2.10	1.77	1.90	0.3		
Lower Salinas	309ASB	Alisal Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				9.4									1	9.40	9.40	9.40	9.4	N/A		
Lower Salinas	309ASB	Alisal Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				2.7									1	2.70	2.70	2.70	2.7	N/A		
Lower Salinas	309ASB	Alisal Slough	Sodium	ug/L			262	230					274			165	4	165.00	274.00	232.75	246.0	48.8		
Lower Salinas	309ASB	Alisal Slough	Specific Conductivity	uS/cm	3303	3602	3193	3439	3670	3778	3735	3701	3388	1704	3437	2365	12	1,704	3,778	3,276	3,438	624		
Lower Salinas	309ASB	Alisal Slough	Sulfate	mg/L			557	470					552			333	4	333.00	557.00	478.00	511.0	104.6		
Lower Salinas	309ASB	Alisal Slough	Total Dissolved Solids	mg/L	2114	2280	204.4	2200	2349	2418	2392	2369	2168	109	2199	1513	12	109	2,418	1,860	2,200	830		
Lower Salinas	309ASB	Alisal Slough	Total Suspended Solids	mg/L	762	41.3	37.7	12.1	104	57.1	71.2	61.3	132	167	117	19.4	12	12.10	762.00	131.84	66.3	204.0		
Lower Salinas	309ASB	Alisal Slough	Turbidity, Field	NTU	68.1	23.3	21.5	6.7	13.2	17.8	17.8	22.7	25.9	41.3	52.6	8.7	12	7	68	27	22	18.4		
Lower Salinas	309ASB	Alisal Slough	Water Temperature	Deg C	8.3	4.3	12.4	12.6	21.5	15.6	16.8	15.7	23	12.3	8.1	11.7	12	4.30	23.00	13.53	12.5	5.4		
Lower Salinas	309BLA	Blanco Drain	Air Temperature	Deg C	16.1	14.7	15.9	14.5	16.6	17	21.8	16.8	22.3	19.5	13	8.9	12	8.90	22.30	16.43	16.4	3.7		
Lower Salinas	309BLA	Blanco Drain	Algae Toxicity, Cell Growth	%Control Growth			103.3	238					220.1			139.1	4	103.30	238.00	175.13	179.6	64.4		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309BLA	Blanco Drain	Alkalinity as CaCO3	mg/L			357	329					368			306	4	306.00	368.00	340.00	343.0	28.0		
Lower Salinas	309BLA	Blanco Drain	Ammonia as N	mg/L	0.11	0.309	0.0914	0.0976	0.0877	0.173	0.108	0.093	0.0893	0.109	0.0412	0.0766	12	0.04	0.31	0.12	0.10	0.1		
Lower Salinas	309BLA	Blanco Drain	Ammonia as N, Unionized	mg/L	0.00209	0.00789	0.00113	0.00109	0.00122	0.00413	0.00306	0.00367	0.00252	0.00906	0.00101	0.00073	12	0.0007	0.0091	0.0031	0.0023	0.0	<0.025	0%
Lower Salinas	309BLA	Blanco Drain	Calcium	ug/L			150	145					170			226	4	145.00	226.00	172.75	160.0	37.1		
Lower Salinas	309BLA	Blanco Drain	Chloride	mg/L			307	330					280			357	4	280.00	357.00	318.50	318.5	32.8		
Lower Salinas	309BLA	Blanco Drain	Chlorophyll a, Field	ug/L	1.9	5.34	2.87	0	7.64	13.27	5.54	5.15	5.4	2.4	4.3	3.69	12	0.00	13.27	4.79	4.7	3.4		
Lower Salinas	309BLA	Blanco Drain	Discharge	cfs	2.2985	5.207	1.8468	5.5004	5.9935	3.292	4.792	4.9895	1.656	0.581	1.0141	140	12	0.58	140.00	14.76	4.04	39.5		
Lower Salinas	309BLA	Blanco Drain	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			85	97.4					100				3	85.00	100.00	94.13	97.4	8.0		
Lower Salinas	309BLA	Blanco Drain	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309BLA	Blanco Drain	Invertebrate Toxicity, Reproduction	%Control Repro			74.4	70.8					52.8				3	52.80	74.40	66.00	70.8	11.6		
Lower Salinas	309BLA	Blanco Drain	Invertebrate Toxicity, Survival	%Control Survival			100	100					112.5			86	4	86.00	112.50	99.63	100.0	10.8		
Lower Salinas	309BLA	Blanco Drain	Magnesium	ug/L			144	135					167			158	4	135.00	167.00	151.00	151.0	14.3		
Lower Salinas	309BLA	Blanco Drain	Nitrate + Nitrite as N	mg/L	59	60.7	67.9	75.2	66	61	73.1	67.2	72	52.7	86.8	102	12	52.7	102.0	70.3	67.6	13.35	None	N/A
Lower Salinas	309BLA	Blanco Drain	Nitrogen, Total	mg/L	59.675		68.515	76.33		61	73.1	68.186	72.816	54.21	87.025	102.893	10	54.21	102.89	72.38	70.7	14.2		
Lower Salinas	309BLA	Blanco Drain	Nitrogen, Total Kjeldahl	mg/L	0.675		0.615	1.13		0.065	0.065	0.986	0.816	1.51	0.225	0.893	10	0.07	1.51	0.70	0.7	0.5		
Lower Salinas	309BLA	Blanco Drain	OrthoPhosphate as P	mg/L	0.37	0.325	0.313	0.364	0.22	0.382	0.348	0.317	0.351	0.419	0.637	0.637	12	0.220	0.637	0.390	0.358	0.1		
Lower Salinas	309BLA	Blanco Drain	Oxygen, Dissolved	mg/L	11	13.3	10.6	8.7	8.2	10.3	7.1	12	7.31	9.4	10.1	10.9	12	7.10	13.30	9.91	10.20	1.9	>5	0%
Lower Salinas	309BLA	Blanco Drain	Oxygen, Saturation	%	118.6	119.1	103.4	80.5	83	111.6	79.7	129.6	80	93	93	99.9	12	79.70	129.60	99.28	96.45	17.3	None	N/A
Lower Salinas	309BLA	Blanco Drain	pH	none	7.92	8.23	7.78	7.81	7.76	7.91	7.94	8.15	7.97	8.55	8.19	7.76	12	7.76	8.55	8.00	7.93	0.2	7-8.3	8%
Lower Salinas	309BLA	Blanco Drain	Phosphorus as P	mg/L	0.508	0.356	0.475	0.611	0.289	0.632	0.529	0.446	0.583	0.759	0.703	1.09	12	0.29	1.09	0.58	0.56	0.2		
Lower Salinas	309BLA	Blanco Drain	Potassium	ug/L			2.5	2.5					2.5			2.5	4	2.50	2.50	2.50	2.5	0.0		
Lower Salinas	309BLA	Blanco Drain	Salinity	ppt	1.6	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.49	0	1.8	1.6	12	0.00	1.80	1.41	1.50	0.5		
Lower Salinas	309BLA	Blanco Drain	Sediment Invertebrate Toxicity, Growth	%Control Growth				84.2									1	84.20	84.20	84.20	84.2	N/A		
Lower Salinas	309BLA	Blanco Drain	Sediment Invertebrate Toxicity, Survival	%Control Survival				80.8									1	80.80	80.80	80.80	80.8	N/A		
Lower Salinas	309BLA	Blanco Drain	Sodium	ug/L			238	223					257			224	4	223.00	257.00	235.50	231.0	15.9		
Lower Salinas	309BLA	Blanco Drain	Specific Conductivity	uS/cm	2878	2807	2726	2676	2787	2708	2843	2845	2765	77	3323	2930	12	77	3,323	2,614	2,797	816		
Lower Salinas	309BLA	Blanco Drain	Sulfate	mg/L			524	456					584			531	4	456.00	584.00	523.75	527.5	52.5		
Lower Salinas	309BLA	Blanco Drain	Total Dissolved Solids	mg/L	1844	1860	1747	1712	1784	1732	1818	1821	1770	58.3	2125	1874	12	58	2,125	1,679	1,801	521		
Lower Salinas	309BLA	Blanco Drain	Total Suspended Solids	mg/L	42.3	42.3	27.8	30.2	10.8	16.8	14	17.1	67.3	95.9	7.74	90.4	12	7.74	95.90	38.55	29.0	30.6		
Lower Salinas	309BLA	Blanco Drain	Turbidity, Field	NTU	20.6	22.4	12.7	8	0.8	1.1	6.7	2.2	3.4	17.4	1	31.7	12	1	32	11	7	10.3		
Lower Salinas	309BLA	Blanco Drain	Water Temperature	Deg C	15.6	10.2	14	11.8	16.3	19	20.5	18.6	19.5	14.7	11.1	11.3	12	10.20	20.50	15.22	15.2	3.6		
Lower Salinas	309CCD	Chualar Creek, South Branch	Air Temperature	Deg C	17.8	12.9	16.8	17.9	20.1	21.7	22.5	24.2	20.2	22.8	16.7	14	12	12.90	24.20	18.97	19.0	3.6		
Lower Salinas	309CCD	Chualar Creek, South Branch	Algae Toxicity, Cell Growth	%Control Growth				181.2								256.2	2	181.20	256.20	218.70	218.7	53.0		
Lower Salinas	309CCD	Chualar Creek, South Branch	Alkalinity as CaCO3	mg/L				182								77	2	77.00	182.00	129.50	129.5	74.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Ammonia as N	mg/L				0.48		0.656	0.171	2.3			0.306	0.422	6	0.17	2.30	0.72	0.45	0.8		
Lower Salinas	309CCD	Chualar Creek, South Branch	Ammonia as N, Unionized	mg/L				0.00433		0.02627	0.01889	0.07683			0.004	0.00019	6	0.0002	0.0768	0.0218	0.0116	0.0	<0.025	33%
Lower Salinas	309CCD	Chualar Creek, South Branch	Calcium	ug/L				135								64.6	2	64.60	135.00	99.80	99.8	49.8		
Lower Salinas	309CCD	Chualar Creek, South Branch	Chloride	mg/L				211								34.9	2	34.90	211.00	122.95	123.0	124.5		
Lower Salinas	309CCD	Chualar Creek, South Branch	Chlorophyll a, Field	ug/L				37.2		23.48	34.18	11.47			6.02	3.29	6	3.29	37.20	19.27	17.5	14.5		
Lower Salinas	309CCD	Chualar Creek, South Branch	Discharge	cfs	0	0	0	0.484	0	0.165	0.588	1.111	0	0	0.002	4.246	12	0.00	4.25	0.55	0.00	1.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival				7.9								10	2	7.90	10.00	8.95	9.0	1.5		
Lower Salinas	309CCD	Chualar Creek, South Branch	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CCD	Chualar Creek, South Branch	Invertebrate Toxicity, Reproduction	%Control Repro				0								63.8	2	0.00	63.80	31.90	31.9	45.1		
Lower Salinas	309CCD	Chualar Creek, South Branch	Invertebrate Toxicity, Survival	%Control Survival				0								80	2	0.00	80.00	40.00	40.0	56.6		
Lower Salinas	309CCD	Chualar Creek, South Branch	Magnesium	ug/L				50.2								32.1	2	32.10	50.20	41.15	41.2	12.8		
Lower Salinas	309CCD	Chualar Creek, South Branch	Nitrate + Nitrite as N	mg/L				27.4		40.8	17.3	14.6			28.9	10.5	6	10.5	40.8	23.3	22.4	11.22	<10	100%
Lower Salinas	309CCD	Chualar Creek, South Branch	Nitrogen, Total	mg/L				30.26		46.2	21.02	18.98			30.48	20.7	6	18.98	46.20	27.94	25.6	10.3		
Lower Salinas	309CCD	Chualar Creek, South Branch	Nitrogen, Total Kjeldahl	mg/L				2.86		5.4	3.72	4.38			1.58	10.2	6	1.58	10.20	4.69	4.1	3.0		
Lower Salinas	309CCD	Chualar Creek, South Branch	OrthoPhosphate as P	mg/L				0.763		0.686	0.467	0.57			0.898	1.05	6	0.467	1.050	0.739	0.725	0.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Oxygen, Dissolved	mg/L				10.3		8.7	8.3	7.8			10.8	9.4	6	7.80	10.80	9.22	9.05	1.2	>5	0%
Lower Salinas	309CCD	Chualar Creek, South Branch	Oxygen, Saturation	%				99.1		92.1	92.9	89.8			100.6	88.8	6	88.80	100.60	93.88	92.50	4.9	>85	No
Lower Salinas	309CCD	Chualar Creek, South Branch	pH	none				7.63		8.17	8.55	7.95			7.89	6.35	6	6.35	8.55	7.76	7.92	0.8	7-8.3	33%
Lower Salinas	309CCD	Chualar Creek, South Branch	Phosphorus as P	mg/L				2.35		2.36	2.17	1.17			1.66	6.91	6	1.17	6.91	2.77	2.26	2.1		
Lower Salinas	309CCD	Chualar Creek, South Branch	Potassium	ug/L				7.9								26.5	2	7.90	26.50	17.20	17.2	13.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Salinity	ppt				0.8		1.1	0.7	0.7			0.8	0.2	6	0.20	1.10	0.72	0.75	0.3		
Lower Salinas	309CCD	Chualar Creek, South Branch	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309CCD	Chualar Creek, South Branch	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309CCD	Chualar Creek, South Branch	Sodium	ug/L				77.4								19.1	2	19.10	77.40	48.25	48.3	41.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Specific Conductivity	uS/cm				1504		2000	1251	1232			1502	370	6	370	2,000	1,310	1,377	537		
Lower Salinas	309CCD	Chualar Creek, South Branch	Sulfate	mg/L				208								38.8	2	38.80	208.00	123.40	123.4	119.6		
Lower Salinas	309CCD	Chualar Creek, South Branch	Total Dissolved Solids	mg/L				962.4		1280	800.1	787.4			959.7	237	6	237	1,280	838	880	344		
Lower Salinas	309CCD	Chualar Creek, South Branch	Total Suspended Solids	mg/L				502		1280	518	69.3			103	2270	6	69.30	2270.00	790.38	510.0	846.0		
Lower Salinas	309CCD	Chualar Creek, South Branch	Turbidity, Field	NTU				555		1496	599	81.5			77	3000	6	77	3,000	968	577	1122.0		
Lower Salinas	309CCD	Chualar Creek, South Branch	Water Temperature	Deg C				13.8		17.8	20.3	21.7			10.9	12.2	6	10.90	21.70	16.12	15.8	4.5		
Lower Salinas	309CRR	Chualar Creek, North Branch	Air Temperature	Deg C	18.7	13	16.1	16.8	19.2	20.4	23.5	24.4	20.8	21.2	17.8	14	12	13.00	24.40	18.83	19.0	3.5		
Lower Salinas	309CRR	Chualar Creek, North Branch	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025	N/A
Lower Salinas	309CRR	Chualar Creek, North Branch	Calcium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Chloride														0	N/A	N/A	N/A	N/A	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309CRR	Chualar Creek, North Branch	Chlorophyll a, Field	ug/L				46.6		22.77	31.97	1.1				2.78	5	1.10	46.60	21.04	22.8	19.4		
Lower Salinas	309CRR	Chualar Creek, North Branch	Discharge	cfs	0	0	0	0.055	0	1.56	0.522	0.46125	0	0	0	3.7245	12	0.00	3.72	0.53	0.00	1.1		
Lower Salinas	309CRR	Chualar Creek, North Branch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Magnesium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Nitrate + Nitrite as N	mg/L				10.3		41.4	16.7	34.4				10.7	5	10.3	41.4	22.7	16.7	14.3	<10	100%
Lower Salinas	309CRR	Chualar Creek, North Branch	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Oxygen, Dissolved	mg/L				10.3		8.8	8.4	7.8				11.7	5	7.80	11.70	9.40	8.80	1.6	>5	0%
Lower Salinas	309CRR	Chualar Creek, North Branch	Oxygen, Saturation	%				96.7		92.5	95.4	89.2				109.3	5	89.20	109.30	96.62	95.40	7.7	>85	No
Lower Salinas	309CRR	Chualar Creek, North Branch	pH	none				7.72		8.3	8.55	7.91				6	5	6.00	8.55	7.70	7.91	1.0	7-8.3	40%
Lower Salinas	309CRR	Chualar Creek, North Branch	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Potassium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Salinity	ppt				0.8		1.1	0.6	0.9				0.2	5	0.20	1.10	0.72	0.80	0.3		
Lower Salinas	309CRR	Chualar Creek, North Branch	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Sodium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Specific Conductivity	uS/cm				1544		2020	1213	1792				358	5	358	2,020	1,385	1,544	648		
Lower Salinas	309CRR	Chualar Creek, North Branch	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Total Dissolved Solids	mg/L				987.1		1292	775.8	1144				228.8	5	229	1,292	886	987	414		
Lower Salinas	309CRR	Chualar Creek, North Branch	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CRR	Chualar Creek, North Branch	Turbidity, Field	NTU				1141		1826	567	126.3				3000	5	126	3,000	1,332	1,141	1129.3		
Lower Salinas	309CRR	Chualar Creek, North Branch	Water Temperature	Deg C				12.6		17.4	21.8	21				12.8	5	12.60	21.80	17.12	17.4	4.4		
Lower Salinas	309ESP	Espinosa Slough	Air Temperature	Deg C	13	3.1	11.8	12	17.2	13.9	17.8	13.6	20.2	13.8	10.4	9.6	12	3.10	20.20	13.03	13.3	4.4		
Lower Salinas	309ESP	Espinosa Slough	Algae Toxicity, Cell Growth	%Control Growth			54.2	187.1					293.5			197.8	4	54.20	293.50	183.15	192.5	98.4		
Lower Salinas	309ESP	Espinosa Slough	Alkalinity as CaCO3	mg/L			385	477					292			99	4	99.00	477.00	313.25	338.5	161.6		
Lower Salinas	309ESP	Espinosa Slough	Ammonia as N	mg/L	1.73	0.101	0.352	0.2	3.7	0.106	0.158	0.108	0.113	0.134	0.207	0.193	12	0.10	3.70	0.59	0.18	1.1		
Lower Salinas	309ESP	Espinosa Slough	Ammonia as N, Unionized	mg/L	0.00422	0.00087	0.001	0.00074	0.06736	0.0009	0.0017	0.00077	0.01821	0.00376	0.00309	0.00315	12	0.0007	0.0674	0.0088	0.0024	0.0	<0.025	8%
Lower Salinas	309ESP	Espinosa Slough	Calcium	mg/L			191	238					144			54.3	4	54.30	238.00	156.83	167.5	78.4		
Lower Salinas	309ESP	Espinosa Slough	Chloride	mg/L			330	466					308			77.1	4	77.10	466.00	295.28	319.0	161.4		
Lower Salinas	309ESP	Espinosa Slough	Chlorophyll a, Field	ug/L	22.6	82.95	15.51	130.39	61.23	16.67	33.15	496.96	6.69	2.74	20	3.4	12	2.74	496.96	74.36	21.3	138.4		
Lower Salinas	309ESP	Espinosa Slough	Discharge	cfs	5	6.75	6	1.2	1.95	1.1	0.091	0.035	10	1	0.36	250	12	0.04	250.00	23.62	1.58	71.4		
Lower Salinas	309ESP	Espinosa Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			95						97.4			0	3	0.00	97.40	64.13	95.0	55.6		
Lower Salinas	309ESP	Espinosa Slough	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309ESP	Espinosa Slough	Invertebrate Toxicity, Reproduction	%Control Repro			67.2						60.7			7.4	3	7.40	67.20	45.10	60.7	32.8		
Lower Salinas	309ESP	Espinosa Slough	Invertebrate Toxicity, Survival	%Control Survival			90	87.2					100			111.1	4	87.20	111.10	97.08	95.0	10.8		
Lower Salinas	309ESP	Espinosa Slough	Magnesium	mg/L			91.8	138					65.2			23.6	4	23.60	138.00	79.65	78.5	48.0		
Lower Salinas	309ESP	Espinosa Slough	Nitrate + Nitrite as N	mg/L	9.33	13.5	34.1	42.5	18.8	38.7	38.4	33.4	41.3	44.6	39.6	8.25	12	8.3	44.6	30.2	36.3	13.69	None	N/A
Lower Salinas	309ESP	Espinosa Slough	Nitrogen, Total	mg/L	17.38		36.23	44.53		40.56	39.51	41.05	43.21	46.51	41.23	15.57	10	15.57	46.51	36.58	40.8	11.0		
Lower Salinas	309ESP	Espinosa Slough	Nitrogen, Total Kjeldahl	mg/L	8.05		2.13	2.03		1.86	1.11	7.65	1.91	1.91	1.63	7.32	10	1.11	8.05	3.56	2.0	2.9		
Lower Salinas	309ESP	Espinosa Slough	OrthoPhosphate as P	mg/L	0.173	0.0632	0.185	0.149	0.959	0.137	0.0986	0.0504	0.116	0.131	0.15	0.827	12	0.050	0.959	0.253	0.143	0.3		
Lower Salinas	309ESP	Espinosa Slough	Oxygen, Dissolved	mg/L	9.6	13.2	9.6	10.6	9.3	7.3	6.1	3.4	9.6	11.39	8.8	10.5	12	3.40	13.20	9.12	9.60	2.6	>5	8%
Lower Salinas	309ESP	Espinosa Slough	Oxygen, Saturation	%	82.6	107.7	90.5	100.5	96.1	74.1	67	35.6	111.3	110	74	93.6	12	35.60	111.30	86.92	92.05	21.9	None	N/A
Lower Salinas	309ESP	Espinosa Slough	pH	none	7.25	7.88	7.18	7.31	7.87	7.55	7.53	7.43	8.61	8.08	8.1	7.99	12	7.18	8.61	7.73	7.71	0.4	7-8.3	8%
Lower Salinas	309ESP	Espinosa Slough	Phosphorus as P	mg/L	5.01	0.635	0.47	0.315	1.5	0.372	0.244	0.973	0.239	0.441	0.415	0.91	12	0.24	5.01	0.96	0.46	1.3		
Lower Salinas	309ESP	Espinosa Slough	Potassium	mg/L			5.45	5.51					5.85			10.5	4	5.45	10.50	6.83	5.7	2.5		
Lower Salinas	309ESP	Espinosa Slough	Salinity	ppt	1	1.3	1.3	1.7	1.7	1.6	1.3	1.6	1.2	1.3	1.4	0.3	12	0.30	1.70	1.31	1.30	0.4		
Lower Salinas	309ESP	Espinosa Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309ESP	Espinosa Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309ESP	Espinosa Slough	Sodium	mg/L			198	282					223			53.1	4	53.10	282.00	189.03	210.5	97.2		
Lower Salinas	309ESP	Espinosa Slough	Specific Conductivity	uS/cm	1967	2489	2379	3139	3214	2908	2374	2874	2146	2433	2651	637	12	637	3,214	2,434	2,461	682		
Lower Salinas	309ESP	Espinosa Slough	Sulfate	mg/L			336	526					228			71.7	4	71.70	526.00	290.43	282.0	190.9		
Lower Salinas	309ESP	Espinosa Slough	Total Dissolved Solids	mg/L	1259	1510	1523	2010	2058	1861	1520	1838	1374	155.7	1696	408.3	12	156	2,058	1,434	1,522	594		
Lower Salinas	309ESP	Espinosa Slough	Total Suspended Solids	mg/L	3210	78.4	84.8	39.1	119	16.5	39.9	173	38.7	93	55.1	639	12	16.50	3210.00	382.21	81.6	906.2		
Lower Salinas	309ESP	Espinosa Slough	Turbidity, Field	NTU	876	62.6	48	23.7	79.1	5.6	6.4	19.7	22.4	15.6	17.4	853	12	6	876	169	23	325.6		
Lower Salinas	309ESP	Espinosa Slough	Water Temperature	Deg C	8.4	6.3	12.6	12.4	16.7	16.1	19.7	17.5	25	14.2	7	10.2	12	6.30	25.00	13.84	13.4	5.5		
Lower Salinas	309GAB	Gabilan Creek	Air Temperature	Deg C	16.8	17.4	10.8	22	31.3	20.4	20.9	23.6	16.5	19.4	15.9	12	12	10.80	31.30	18.92	18.4	5.4		
Lower Salinas	309GAB	Gabilan Creek	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Ammonia as N	mg/L	0.506												1	0.51	0.51	0.51	0.51	N/A		
Lower Salinas	309GAB	Gabilan Creek	Ammonia as N, Unionized	mg/L	0.00727												1	0.0073	0.0073	0.0073	0.0073	N/A	<0.025	0%
Lower Salinas	309GAB	Gabilan Creek	Calcium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Chlorophyll a, Field	ug/L	2.73												1	2.73	2.73	2.73	2.7	N/A		
Lower Salinas	309GAB	Gabilan Creek	Discharge	cfs	0.159	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.16	0.01	0.00	0.0		
Lower Salinas	309GAB	Gabilan Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309GAB	Gabilan Creek	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Magnesium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Nitrate + Nitrite as N	mg/L	30.6												1	30.6	30.6	30.6	30.6	N/A	<10	100%
Lower Salinas	309GAB	Gabilan Creek	Nitrogen, Total	mg/L	31.83												1	31.83	31.83	31.83	31.8	N/A		
Lower Salinas	309GAB	Gabilan Creek	Nitrogen, Total Kjeldahl	mg/L	1.23												1	1.23	1.23	1.23	1.2	N/A		
Lower Salinas	309GAB	Gabilan Creek	OrthoPhosphate as P	mg/L	1.09												1	1.090	1.090	1.090	1.090	N/A		
Lower Salinas	309GAB	Gabilan Creek	Oxygen, Dissolved	mg/L	8.9												1	8.90	8.90	8.90	8.90	N/A	>7	0%
Lower Salinas	309GAB	Gabilan Creek	Oxygen, Saturation	%	92.3												1	92.30	92.30	92.30	92.30	N/A	None	N/A
Lower Salinas	309GAB	Gabilan Creek	pH	none	7.71												1	7.71	7.71	7.71	7.71	N/A	7-8.3	0%
Lower Salinas	309GAB	Gabilan Creek	Phosphorus as P	mg/L	2.58												1	2.58	2.58	2.58	2.58	N/A		
Lower Salinas	309GAB	Gabilan Creek	Potassium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Salinity	ppt	0.5												1	0.50	0.50	0.50	0.50	N/A		
Lower Salinas	309GAB	Gabilan Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Sodium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Specific Conductivity	uS/cm	907												1	907	907	907	907	N/A		
Lower Salinas	309GAB	Gabilan Creek	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GAB	Gabilan Creek	Total Dissolved Solids	mg/L	580.6												1	581	581	581	581	N/A	<300	Yes
Lower Salinas	309GAB	Gabilan Creek	Total Suspended Solids	mg/L	287												1	287.00	287.00	287.00	287.0	N/A		
Lower Salinas	309GAB	Gabilan Creek	Turbidity, Field	NTU	362.8												1	363	363	363	363	N/A		
Lower Salinas	309GAB	Gabilan Creek	Water Temperature	Deg C	17.2												1	17.20	17.20	17.20	17.2	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Air Temperature	Deg C	17.4	13.7	16.2	12.1	20.5	22.8	22.1	24	16.3	22.2	15.4	11	12	11.00	24.00	17.81	16.9	4.4		
Lower Salinas	309GRN	Salinas R, Greenfield	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025	Not Sampled
Lower Salinas	309GRN	Salinas R, Greenfield	Calcium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.00	0.00	0.00	0.0		
Lower Salinas	309GRN	Salinas R, Greenfield	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Magnesium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10	Not Sampled
Lower Salinas	309GRN	Salinas R, Greenfield	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7	Not Sampled
Lower Salinas	309GRN	Salinas R, Greenfield	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None	N/A
Lower Salinas	309GRN	Salinas R, Greenfield	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3	Not Sampled
Lower Salinas	309GRN	Salinas R, Greenfield	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Potassium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Sodium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	<600	Yes
Lower Salinas	309GRN	Salinas R, Greenfield	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Turbidity, Field	NTU													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Air Temperature	Deg C	18.1	17.4	12.8	18.4	18.2	19.8	18.8	18.8	22.6	19	13.5	9.5	12	9.50	22.60	17.24	18.3	3.6		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Algae Toxicity, Cell Growth	%Control Growth			144.8	360					294.6			214.5	4	144.80	360.00	253.48	254.6	93.8		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Alkalinity as CaCO3	mg/L			130	193					158			44	4	44.00	193.00	131.25	144.0	63.6		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Ammonia as N	mg/L	0.223	0.0996	0.284	0.0442	0.114	0.111	0.143	0.0457	1.19	0.0611	0.123	0.291	12	0.04	1.19	0.23	0.12	0.3		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Ammonia as N, Unionized	mg/L	0.00388	0.0018	0.00122	0.00199	0.0032	0.0035	0.00307	0.0015	0.04498	0.00236	0.00862	0.00417	12	0.0012	0.0450	0.0067	0.0031	0.0	<0.025	8%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Calcium	ug/L			52.8	77.4					65.4			35.8	4	35.80	77.40	57.85	59.1	17.8		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Chloride	mg/L			108	191					112			20	4	20.00	191.00	107.75	110.0	69.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Chlorophyll a, Field	ug/L	10.89	15.39	38.22	0	12.18	9.65	11.8	35.95	9.03	3.6	4.04	3.22	12	0.00	38.22	12.83	10.3	12.2		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Discharge	cfs	0.805	0.854	3.656	2.556	1.246	0.39	1.253	1.246	0.959	0.231	0.574	206.754	12	0.23	206.75	18.38	1.10	59.3		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	89.5					100			0	4	0.00	100.00	71.75	93.5	48.0		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Invertebrate Toxicity, Reproduction	%Control Repro			97.8	80.8					134.4			8.8	4	8.80	134.40	80.45	89.3	52.7		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Invertebrate Toxicity, Survival	%Control Survival			100	100					125			70	4	70.00	125.00	98.75	100.0	22.5		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Magnesium	ug/L			26.1	50.5					28.8			15.9	4	15.90	50.50	30.33	27.5	14.6		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Nitrate + Nitrite as N	mg/L	19.2	10.7	8.93	11.6	31.4	19.1	27.3	9.91	7.34	4.94	24.8	5.14	12	4.9	31.4	15.0	11.2	9.05	None	N/A
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Nitrogen, Total	mg/L	20.086		11.53	13.23		20.16	28.61	11.24	12.64	5.603	25.689	10.31	10	5.60	28.61	15.91	12.9	7.4		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Nitrogen, Total Kjeldahl	mg/L	0.886		2.6	1.63		1.06	1.31	1.33	5.3	0.663	0.889	5.17	10	0.66	5.30	2.08	1.3	1.7		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	OrthoPhosphate as P	mg/L	0.548	0.273	0.276	0.338	0.379	0.37	0.331	0.32	0.692	0.105	0.326	0.729	12	0.105	0.729	0.391	0.335	0.2		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Oxygen, Dissolved	mg/L	11.4	6.91	8.7	10.37	6.7	6.6	4.9	7.07	5.62	9.2	9.3	9	12	4.90	11.40	7.98	7.89	2.0	>5	8%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Oxygen, Saturation	%	111.6	62.2	80.5	103.3	68.5	71	54	77	57.6	100	84	83.5	12	54.00	111.60	79.43	78.75	18.3	None	N/A
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	pH	none	7.89	8.02	7.34	8.28	8.03	8	7.81	8.02	8.06	8.1	8.65	7.9	12	7.34	8.65	8.01	8.02	0.3	7-8.3	8%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Phosphorus as P	mg/L	0.699	0.64	0.583	0.742	0.58	0.642	0.744	0.643	0.929	0.25	0.51	4.92	12	0.25	4.92	0.99	0.64	1.2		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Potassium	ug/L			6.21	7.62					9.81			10.3	4	6.21	10.30	8.49	8.7	1.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Salinity	ppt	0.6	0.59	0.4	0.62	0.9	0.91	0.9	0.8	0.5	1	0.8	0.1	12	0.10	1.00	0.68	0.71	0.3		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Sediment Invertebrate Toxicity, Growth	%Control Growth					32								1	32.00	32.00	32.00	32.0	N/A		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Sediment Invertebrate Toxicity, Survival	%Control Survival					39								1	39.00	39.00	39.00	39.0	N/A		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Sodium	ug/L			58.6	147					78.3			17.9	4	17.90	147.00	75.45	68.5	53.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Specific Conductivity	uS/cm	1199	1125	766	1188	1661	1710	1718	1525	880	1810	1413	202	12	202	1,810	1,266	1,306	477		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Sulfate	mg/L			63.1	103					77			17.7	4	17.70	103.00	65.20	70.1	35.7		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Total Dissolved Solids	mg/L	767	672	490.3	760.3	1064	1096	1100	976	562.1	1158	903	129.2	12	129	1,158	806	835	307		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Total Suspended Solids	mg/L	39.3	51.7	59.3	72.4	36.4	27.8	30	31.5	41.2	48.9	29	952	12	27.80	952.00	118.29	40.3	262.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Turbidity, Field	NTU	27.6	32.1	45.4	34.9	25.6	19.4	22.6	17.9	21	42.1	20.9	1697	12	18	1,697	167	27	481.8		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Water Temperature	Deg C	14.5	11.02	12.3	15.56	17	19.6	20.2	19.4	19.7	19.4	10.7	10.6	12	10.60	20.20	15.83	16.3	3.9		
Lower Salinas	309MER	Merrit Ditch	Air Temperature	Deg C	12.3	8.5	15.7	18.8	19.6	15.2	16.5	15.2	24	20.4	12	14	12	8.50	24.00	16.02	15.5	4.2		
Lower Salinas	309MER	Merrit Ditch	Algae Toxicity, Cell Growth	%Control Growth			128.1	217					321			327.8	4	128.10	327.80	248.48	269.0	94.9		
Lower Salinas	309MER	Merrit Ditch	Alkalinity as CaCO3	mg/L			345	420					320			123	4	123.00	420.00	302.00	332.5	126.7		
Lower Salinas	309MER	Merrit Ditch	Ammonia as N	mg/L	0.321	0.571	0.266	0.13	0.117	0.151	0.129	1.48	0.0765	4.23	0.148	0.506	12	0.08	4.23	0.68	0.21	1.2		
Lower Salinas	309MER	Merrit Ditch	Ammonia as N, Unionized	mg/L	0.00142	0.01248	0.00306	0.00252	0.00792	0.009	0.00226	0.0221	0.00712	0.12401	0.00369	0.00155	12	0.0014	0.1240	0.0164	0.0054	0.0	<0.025	8%
Lower Salinas	309MER	Merrit Ditch	Calcium	ug/L			110	121					107			64.5	4	64.50	121.00	100.63	108.5	24.8		
Lower Salinas	309MER	Merrit Ditch	Chloride	mg/L			258	341					281			99.1	4	99.10	341.00	244.78	269.5	103.2		
Lower Salinas	309MER	Merrit Ditch	Chlorophyll a, Field	ug/L	5.26	31.02	15.33	40.07	67.03	21.45	23.74	10.67	0.1134	6.86	8.06	0.863	12	0.11	67.03	19.21	13.0	19.4		
Lower Salinas	309MER	Merrit Ditch	Discharge	cfs	0.08025	21	18.75	-1.975	-8	0.132	4.32	1.2	3.75	0.4155	0.0772	120	12	-8.00	120.00	13.31	0.81	34.6		
Lower Salinas	309MER	Merrit Ditch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			72.5	92.3					89.7			0	4	0.00	92.30	63.63	81.1	43.3		
Lower Salinas	309MER	Merrit Ditch	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309MER	Merrit Ditch	Invertebrate Toxicity, Reproduction	%Control Repro			86.2	86.9					147.5			53	4	53.00	147.50	93.40	86.6	39.4		
Lower Salinas	309MER	Merrit Ditch	Invertebrate Toxicity, Survival	%Control Survival			100	100					125			80	4	80.00	125.00	101.25	100.0	18.4		
Lower Salinas	309MER	Merrit Ditch	Magnesium	ug/L			63.7	84.7					58.6			30.3	4	30.30	84.70	59.33	61.2	22.4		
Lower Salinas	309MER	Merrit Ditch	Nitrate + Nitrite as N	mg/L	27.6	23.9	28	28.5	21.5	20.3	17.7	3.89	8.3	9.73	21.7	12.9	12	3.9	28.5	18.7	20.9	8.26	<10	75%
Lower Salinas	309MER	Merrit Ditch	Nitrogen, Total	mg/L	29.41		30.79	31.83		22.15	19.85	6.41	10.54	18.78	23.29	15.55	10	6.41	31.83	20.86	21.0	8.5		
Lower Salinas	309MER	Merrit Ditch	Nitrogen, Total Kjeldahl	mg/L	1.81		2.79	3.33		1.85	2.15	2.52	2.24	9.05	1.59	2.65	10	1.59	9.05	3.00	2.4	2.2		
Lower Salinas	309MER	Merrit Ditch	OrthoPhosphate as P	mg/L	0.129	0.2	0.271	0.105	0.00375	0.0491	0.0696	0.288	0.0815	0.524	0.177	0.634	12	0.004	0.634	0.211	0.153	0.2		
Lower Salinas	309MER	Merrit Ditch	Oxygen, Dissolved	mg/L	12.2	11.84	10.2	10.9	16.7	12.8	6.4	6.6	7.58	8.1	6.6	7.9	12	6.40	16.70	9.82	9.15	3.2	>5	0%
Lower Salinas	309MER	Merrit Ditch	Oxygen, Saturation	%	108.5	101.6	102.6	111.5	185.6	137.3	69.9	70.7	89.5	83	60	76.5	12	60.00	185.60	99.73	95.55	34.7	>85	No
Lower Salinas	309MER	Merrit Ditch	pH	none	7.48	8.21	7.68	7.89	8.35	8.34	7.76	7.7	8.38	8.05	8.21	7.2	12	7.20	8.38	7.94	7.97	0.4	7-8.3	25%
Lower Salinas	309MER	Merrit Ditch	Phosphorus as P	mg/L	0.269	0.632	0.62	0.616	0.794	0.274	0.206	0.624	0.314	0.95	0.321	1.09	12	0.21	1.09	0.56	0.62	0.3		
Lower Salinas	309MER	Merrit Ditch	Potassium	ug/L			7.17	2.5					5.94			10.2	4	2.50	10.20	6.45	6.6	3.2		
Lower Salinas	309MER	Merrit Ditch	Salinity	ppt	1.23	1.15	1	1.2	1.1	1.2	1.2	0.7	0.1	0.9	1.01	0.4	12	0.10	1.23	0.93	1.06	0.4		
Lower Salinas	309MER	Merrit Ditch	Sediment Invertebrate Toxicity, Growth	%Control Growth				87.4									1	87.40	87.40	87.40	87.4	N/A		
Lower Salinas	309MER	Merrit Ditch	Sediment Invertebrate Toxicity, Survival	%Control Survival				88.6									1	88.60	88.60	88.60	88.6	N/A		
Lower Salinas	309MER	Merrit Ditch	Sodium	ug/L			172	213					183			66.6	4	66.60	213.00	158.65	177.5	63.8		
Lower Salinas	309MER	Merrit Ditch	Specific Conductivity	uS/cm	2288	2159	1802	2188	2007	2297	2204	1393	166	1778	1901	829	12	166	2,297	1,751	1,954	656		
Lower Salinas	309MER	Merrit Ditch	Sulfate	mg/L			141	191					110			105	4	105.00	191.00	136.75	125.5	39.5		
Lower Salinas	309MER	Merrit Ditch	Total Dissolved Solids	mg/L	1466	1330	1153	1401	1291	1471	1413	891.7	146.9	113.9	1216	529.1	12	114	1,471	1,035	1,254	501		
Lower Salinas	309MER	Merrit Ditch	Total Suspended Solids	mg/L	39.2	86	92.3	124	198	10.3	49.4	32.9	69.1	144	21.1	204	12	10.30	204.00	89.19	77.6	65.9		
Lower Salinas	309MER	Merrit Ditch	Turbidity, Field	NTU	27	48.1	79.1	89.6	113.7	6.1	21.9	16.7	29.1	39	18.9	384.7	12	6	385	73	34	103.6		
Lower Salinas	309MER	Merrit Ditch	Water Temperature	Deg C	9.4	8.5	15.7	16.5	19.7	18.3	19.2	18.4	22	15.6	10.1	12.1	12	8.50	22.00	15.46	16.1	4.4		
Lower Salinas	309MOR	Moro Cojo Slough	Air Temperature	Deg C	14.5	7.2	14.2	12.5	18.5	15.6	15.8	14.4	19.9	19.9	13.8	14	12	7.20	19.90	15.03	14.5	3.5		
Lower Salinas	309MOR	Moro Cojo Slough	Algae Toxicity, Cell Growth	%Control Growth			99.7	87.2					94.4			94	4	87.20	99.70	93.83	94.2	5.1		
Lower Salinas	309MOR	Moro Cojo Slough	Alkalinity as CaCO3	mg/L			176	137					156			172	4	137.00	176.00	160.25	164.0	17.7		
Lower Salinas	309MOR	Moro Cojo Slough	Ammonia as N	mg/L	4.26	0.0577	0.316	0.226	0.146	0.476	0.0646	0.0665	0.0356	0.069	0.0987	0.0707	12	0.04	4.26	0.49	0.08	1.2		
Lower Salinas	309MOR	Moro Cojo Slough	Ammonia as N, Unionized	mg/L	0.01254	0.00178	0.00297	0.00196	0.00104	0.06391	0.00238	0.00736	0.00256	0.0064	0.0024	0.00031	12	0.0003	0.0639	0.0088	0.0025	0.0	<0.025	8%
Lower Salinas	309MOR	Moro Cojo Slough	Calcium	ug/L			383	423					445			169	4	169.00	445.00	355.00	403.0	126.6		
Lower Salinas	309MOR	Moro Cojo Slough	Chloride	mg/L			15800	18600					17300			4290	4	4290.00	18600.00	13997.50	16550.0	6572.0		
Lower Salinas	309MOR	Moro Cojo Slough	Chlorophyll a, Field	ug/L	26.39	23.97	14.22	39.22	2.19	18.41	5.52	6.57	3.24	0.59	5.26	119.88	12	0.59	119.88	22.12	10.4	33.0		
Lower Salinas	309MOR	Moro Cojo Slough	Discharge	cfs	10.5016	29.9524	7.8626	-3.1748	3.828	0.1312	0.1273	-0.60715	0.1612	0.1791	1.2177	-2.2393	12	-3.17	29.95	3.99	0.17	9.1		
Lower Salinas	309MOR	Moro Cojo Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309MOR	Moro Cojo Slough	Invertebrate Toxicity, Growth	%Control Growth			143	89.1					139.4				3	89.10	143.00	123.83	139.4	30.1		
Lower Salinas	309MOR	Moro Cojo Slough	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309MOR	Moro Cojo Slough	Invertebrate Toxicity, Survival	%Control Survival			100	95.4					94.9			100	4	94.90	100.00	97.58	97.7	2.8		
Lower Salinas	309MOR	Moro Cojo Slough	Magnesium	ug/L			957	1140					1260			345	4	345.00	1260.00	925.50	1048.5	406.6		
Lower Salinas	309MOR	Moro Cojo Slough	Nitrate + Nitrite as N	mg/L	0.275	0.305	1.25	0.005	0.558	0.2	0.31	0.13	0.124	0.049	0.35	5.11	12	0.0	5.1	0.7	0.3	1.42	None	N/A
Lower Salinas	309MOR	Moro Cojo Slough	Nitrogen, Total	mg/L	7.215		3.27	0.363		2.67	1.236	1.37	4.364	0.918	1.47	8.63	10	0.36	8.63	3.15	2.1	2.8		
Lower Salinas	309MOR	Moro Cojo Slough	Nitrogen, Total Kjeldahl	mg/L	6.94		2.02	0.363		2.47	0.926	1.24	4.24	0.869	1.12	3.52	10	0.36	6.94	2.37	1.6	2.0		
Lower Salinas	309MOR	Moro Cojo Slough	OrthoPhosphate as P	mg/L	1.5	0.015	0.0378	0.128	0.104	0.0756	0.0694	0.0155	0.0242	0.0372	0.0245	0.231	12	0.015	1.500	0.189	0.054	0.4		
Lower Salinas	309MOR	Moro Cojo Slough	Oxygen, Dissolved	mg/L	10.8	10.5	9.1	8.1	5.5	5.7	5.7	4.9	4.6	9.89	7.7	9.5	12	4.60	10.80	7.67	7.90	2.3	>7	42%
Lower Salinas	309MOR	Moro Cojo Slough	Oxygen, Saturation	%	101.8	106.9	103.6	92	66.2	75.8	74.4	67	60.6	98.6	82.8	91.5	12	60.60	106.90	85.10	87.15	16.1	None	N/A
Lower Salinas	309MOR	Moro Cojo Slough	pH	none	7.43	8.54	7.8	7.78	7.62	8.88	8.3	8.78	8.56	8.58	8.34	7.53	12	7.43	8.88	8.18	8.32	0.5	7-8.3	50%
Lower Salinas	309MOR	Moro Cojo Slough	Phosphorus as P	mg/L	2.17	0.303	0.212	0.205	0.255	0.462	0.42	0.323	0.268	0.201	0.175	0.747	12	0.18	2.17	0.48	0.29	0.6		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309MOR	Moro Cojo Slough	Potassium	ug/L			299	351					386			106	4	106.00	386.00	285.50	325.0	124.9		
Lower Salinas	309MOR	Moro Cojo Slough	Salinity	ppt	14.5	29.9	27	31.1	33.1	36.8	36.7	41.5	31.1	34.1	31.3	8.3	12	8.30	41.50	29.62	31.20	9.4		
Lower Salinas	309MOR	Moro Cojo Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309MOR	Moro Cojo Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				100									1	100.00	100.00	100.00	100.0	N/A		
Lower Salinas	309MOR	Moro Cojo Slough	Sodium	ug/L			8400	9780					10800			2740	4	2740.00	10800.00	7930.00	9090.0	3597.1		
Lower Salinas	309MOR	Moro Cojo Slough	Specific Conductivity	uS/cm	24064	46016	41950	47606	50277	55350	55179	61638	46584	51900	47981	14274	12	14,274	61,638	45,235	47,794	13,394		
Lower Salinas	309MOR	Moro Cojo Slough	Sulfate	mg/L			2560	2450					2310			712	4	712.00	2560.00	2008.00	2380.0	870.0		
Lower Salinas	309MOR	Moro Cojo Slough	Total Dissolved Solids	mg/L	15400	31500	26840	30470	32180	35430	35330	36460	30470	332	30710	9135	12	332	36,460	26,188	30,590	11,568		
Lower Salinas	309MOR	Moro Cojo Slough	Total Suspended Solids	mg/L	22.6	14.8	29.1	8.21	5.09	31.8	10.4	4.26	45.4	6.68	28.4	37.5	12	4.26	45.40	20.35	18.7	14.0		
Lower Salinas	309MOR	Moro Cojo Slough	Turbidity, Field	NTU	10.9	213.6	7.8	8.5	2.2	15.3	3.3	4	2.8	0	4.3	25.2	12	0	214	25	6	59.9		
Lower Salinas	309MOR	Moro Cojo Slough	Water Temperature	Deg C	8.9	7.8	14	13.8	16.2	18.7	17.8	18.9	19	16.1	10.6	10.2	12	7.80	19.00	14.33	15.1	4.1		
Lower Salinas	309NAD	Natividad Creek	Air Temperature	Deg C	20.1	15.1	12	23.4	21.5	20.8	24.8	24.2	15.6	18.6	16.2	12.2	12	12.00	24.80	18.71	19.4	4.5		
Lower Salinas	309NAD	Natividad Creek	Algae Toxicity, Cell Growth	%Control Growth			195.7	55.5					280.5			225.4	4	55.50	280.50	189.28	210.6	95.9		
Lower Salinas	309NAD	Natividad Creek	Alkalinity as CaCO3	mg/L			186	177					212			98	4	98.00	212.00	168.25	181.5	49.1		
Lower Salinas	309NAD	Natividad Creek	Ammonia as N	mg/L	0.35	0.197	0.233	61.3	0.218	2.19	0.318	0.346	0.299			0.437	10	0.20	61.30	6.59	0.33	19.2		
Lower Salinas	309NAD	Natividad Creek	Ammonia as N, Unionized	mg/L	0.02078	0.00355	0.00149	0.25556	0.00405	0.26983	0.00298	0.01891	0.00209			0.00867	10	0.0015	0.2698	0.0588	0.0064	0.1	<0.025	20%
Lower Salinas	309NAD	Natividad Creek	Calcium	ug/L			125	81					87.5			70	4	70.00	125.00	90.88	84.3	23.9		
Lower Salinas	309NAD	Natividad Creek	Chloride	mg/L			172	146					170			95.4	4	95.40	172.00	145.85	158.0	35.6		
Lower Salinas	309NAD	Natividad Creek	Chlorophyll a, Field	ug/L	19.5	290.4	230.08	269.72	2.84	13.14	21.82	3.25	8.45			8.33	10	2.84	290.40	86.75	16.3	122.9		
Lower Salinas	309NAD	Natividad Creek	Discharge	cfs	0.006	2.1	0.06	0.03	0.066	0.017	0.039	0.03	0.048	0	0	10	12	0.00	10.00	1.03	0.03	2.9		
Lower Salinas	309NAD	Natividad Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			0	68.4					87.5			0	4	0.00	87.50	38.98	34.2	45.7		
Lower Salinas	309NAD	Natividad Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309NAD	Natividad Creek	Invertebrate Toxicity, Reproduction	%Control Repro			45.5	0					103.8			8.8	4	0.00	103.80	39.53	27.2	47.2		
Lower Salinas	309NAD	Natividad Creek	Invertebrate Toxicity, Survival	%Control Survival			100	0					125			20	4	0.00	125.00	61.25	60.0	60.6		
Lower Salinas	309NAD	Natividad Creek	Magnesium	ug/L			49.8	39.5					41.7			28.5	4	28.50	49.80	39.88	40.6	8.8		
Lower Salinas	309NAD	Natividad Creek	Nitrate + Nitrite as N	mg/L	36.7	23.7	31.2	105	29.4	16.7	23.2	31.4	15.7			16.5	10	15.7	105.0	33.0	26.6	26.32	<10	100%
Lower Salinas	309NAD	Natividad Creek	Nitrogen, Total	mg/L	38.1		33.13	152.9		21.16	31.91	33.64	19.93			21.07	8	19.93	152.90	43.98	32.5	44.5		
Lower Salinas	309NAD	Natividad Creek	Nitrogen, Total Kjeldahl	mg/L	1.4		1.93	47.9		4.46	8.71	2.24	4.23			4.57	8	1.40	47.90	9.43	4.3	15.7		
Lower Salinas	309NAD	Natividad Creek	OrthoPhosphate as P	mg/L	0.247	0.389	0.332	0.34	0.147	0.232	1.6	0.977	0.503			0.279	10	0.147	1.600	0.505	0.336	0.4		
Lower Salinas	309NAD	Natividad Creek	Oxygen, Dissolved	mg/L	15.2	10.4	7.6	6.71	9.8	10.8	2.5	9.8	8.7			10.5	10	2.50	15.20	9.20	9.80	3.3	>5	10%
Lower Salinas	309NAD	Natividad Creek	Oxygen, Saturation	%	152	100.5	71.5	76.1	101	135.1	31.5	116.3	84.2			96.5	10	31.50	152.00	96.47	98.50	34.0	>85	No
Lower Salinas	309NAD	Natividad Creek	pH	none	8.41	7.93	7.51	7.05	7.84	8.4	7.3	8.14	7.47			8.07	10	7.05	8.41	7.81	7.89	0.5	7-8.3	20%
Lower Salinas	309NAD	Natividad Creek	Phosphorus as P	mg/L	0.484	1.51	0.558	0.792	0.148	0.758	2.54	1	0.651			2.65	10	0.15	2.65	1.11	0.78	0.9		
Lower Salinas	309NAD	Natividad Creek	Potassium	ug/L			5.35	6.04					9.15			23.9	4	5.35	23.90	11.11	7.6	8.7		
Lower Salinas	309NAD	Natividad Creek	Salinity	ppt	0.8	0.7	0.7	0.9	0.7	0.5	1.4	1	752.2			0.5	10	0.50	752.20	75.94	0.75	237.6		
Lower Salinas	309NAD	Natividad Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309NAD	Natividad Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309NAD	Natividad Creek	Sodium	ug/L			93.7	79					94.9			60.7	4	60.70	94.90	82.08	86.4	16.0		
Lower Salinas	309NAD	Natividad Creek	Specific Conductivity	uS/cm	1541	1251	1373	1757	1340	1006	2616	1912	1177			866	10	866	2,616	1,484	1,357	509		
Lower Salinas	309NAD	Natividad Creek	Sulfate	mg/L			154	59.6					78.1			115	4	59.60	154.00	101.68	96.6	41.8		
Lower Salinas	309NAD	Natividad Creek	Total Dissolved Solids	mg/L	993.9	796	878.3	1124	857.5	643.8	1674	1223	327.2			554.6	10	327	1,674	907	868	378		
Lower Salinas	309NAD	Natividad Creek	Total Suspended Solids	mg/L	83.5	187	93.1	115	27.8	364	62.1	15.6	529			512	10	15.60	529.00	198.91	104.1	196.5		
Lower Salinas	309NAD	Natividad Creek	Turbidity, Field	NTU	6	42.3	31.6	90.5	19	76.7	34.5	9.1	242.4			436	10	6	436	99	38	137.3		
Lower Salinas	309NAD	Natividad Creek	Water Temperature	Deg C	15.7	13.8	12.8	21.5	17	26.7	25.3	23.2	14.5			10.6	10	10.60	26.70	18.11	16.4	5.6		
Lower Salinas	309OLD	Old Salinas River	Air Temperature	Deg C	19	11	13.1	18.8	21.1	19	19.3	17.2	22.6	19.7	11.9	4	12	4.00	22.60	16.39	18.9	5.3		
Lower Salinas	309OLD	Old Salinas River	Algae Toxicity, Cell Growth	%Control Growth			187.4	145.6					185.7			228.9	4	145.60	228.90	186.90	186.6	34.0		
Lower Salinas	309OLD	Old Salinas River	Alkalinity as CaCO3	mg/L			227	302					438			370	4	227.00	438.00	334.25	336.0	90.5		
Lower Salinas	309OLD	Old Salinas River	Ammonia as N	mg/L	0.244	0.332	0.231	0.222	0.195	0.19	0.0824	0.09	0.19	0.118	0.256	0.116	12	0.08	0.33	0.19	0.19	0.1		
Lower Salinas	309OLD	Old Salinas River	Ammonia as N, Unionized	mg/L	0.00135	0.0044	0.00119	0.00195	0.00457	0.00957	0.00668	0.00519	0.00318	0.01969	0.00445	0.00064	12	0.0006	0.0197	0.0052	0.0044	0.0	<0.025	0%
Lower Salinas	309OLD	Old Salinas River	Calcium	ug/L			88.5	198					193			122	4	88.50	198.00	150.38	157.5	53.9		
Lower Salinas	309OLD	Old Salinas River	Chloride	mg/L			916	6740					3230			1050	4	916.00	6740.00	2984.00	2140.0	2719.4		
Lower Salinas	309OLD	Old Salinas River	Chlorophyll a, Field	ug/L	2.49	30.79	36.07	0	7.44	8.9	11.81	9.64	18.84	2	7.96	5.25	12	0.00	36.07	11.77	8.4	11.3		
Lower Salinas	309OLD	Old Salinas River	Discharge	cfs	6.3977	8.3269	2.1641	4.6741	10.1832	2.3917	3.0818	1.75755	0.8799	1.3665	1.4588	-5.7266	12	-5.73	10.18	3.08	2.28	4.1		
Lower Salinas	309OLD	Old Salinas River	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309OLD	Old Salinas River	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309OLD	Old Salinas River	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309OLD	Old Salinas River	Invertebrate Toxicity, Survival	%Control Survival			0	68.1					0			100	4	0.00	100.00	42.03	34.1	50.2		
Lower Salinas	309OLD	Old Salinas River	Magnesium	ug/L			91.4	446					290			167	4	91.40	446.00	248.60	228.5	155.0		
Lower Salinas	309OLD	Old Salinas River	Nitrate + Nitrite as N	mg/L	19.2	34.3	15.7	13.8	20.9	22.6	25	23	63.8	14.5	14.6	31.1	12	13.8	63.8	24.9	21.8	13.88	None	N/A
Lower Salinas	309OLD	Old Salinas River	Nitrogen, Total	mg/L	20.33		17.95	15.6		23.89	26.25	24.54	67.34	15.99	16.25	32.51	10	15.60	67.34	26.07	22.1	15.5		
Lower Salinas	309OLD	Old Salinas River	Nitrogen, Total Kjeldahl	mg/L	1.13		2.25	1.8		1.29	1.25	1.54	3.54	1.49	1.65	1.41	10	1.13	3.54	1.74	1.5	0.7		
Lower Salinas	309OLD	Old Salinas River	OrthoPhosphate as P	mg/L	0.557	0.504	0.328	0.43	0.416	0.439	0.487	0.538	0.693	0.492	0.579	0.661	12	0.328	0.693	0.510	0.498	0.1		
Lower Salinas	309OLD	Old Salinas River	Oxygen, Dissolved	mg/L	9.09	10.4	8	6.9	7	9.8	9.9	7.4	6.7	8.9	7.97	10.1	12	6.70	10.40	8.51	8.45	1.4	>7	17%
Lower Salinas	309OLD	Old Salinas River	Oxygen, Saturation	%	96.5	92.4	78.3	78.2	79.2	109.7	112.6	82.1	74.9	98	76	88.6	12	74.90	112.60	88.88	85.35	13.1	None	N/A
Lower Salinas	309OLD	Old Salinas River	pH	none	7.51	8.05	7.41	7.58	7.98	8.35	8.52	8.4	7.83	8.97	8.12	7.62	12	7.41	8.97	8.03	8.02	0.5	7-8.3	33%
Lower Salinas	309OLD	Old Salinas River	Phosphorus as P	mg/L	1.03	0.86	0.814	0.904	0.815	0.562	0.659	1.01	1.27	0.695	1.28	0.885	12	0.56	1.28	0.90	0.87	0.2		
Lower Salinas	309OLD	Old Salinas River	Potassium	ug/L			21.3	122					67			22.5	4	21.30	122.00	58.20	44.8	47.6		
Lower Salinas	309OLD	Old Salinas River	Salinity	ppt	13.6	6.1	2	11.9	9.7	8.9	7.6	8.2	6.5	8.8	11.3	2.5	12	2.00	13.60	8.09	8.50	3.5		
Lower Salinas	309OLD	Old Salinas River	Sediment Invertebrate Toxicity, Growth	%Control Growth				60.4									1	60.40	60.40	60.40	60.4	N/A		
Lower Salinas	309OLD	Old Salinas River	Sediment Invertebrate Toxicity, Survival	%Control Survival				64.4									1	64.40	64.40	64.40	64.4	N/A		
Lower Salinas	309OLD	Old Salinas River	Sodium	ug/L			527	3450					2140			696	4	527.00	3450.00	1703.25	1418.0	1371.1		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309OLD	Old Salinas River	Specific Conductivity	uS/cm	22536	10666	3609	20059	16571	15219	13145	14090	11394	15109	19074	4626	12	3,609	22,536	13,842	14,600	5,712		
Lower Salinas	309OLD	Old Salinas River	Sulfate	mg/L			237	1070					681			498	4	237.00	1070.00	621.50	589.5	350.1		
Lower Salinas	309OLD	Old Salinas River	Total Dissolved Solids	mg/L	14420	6370	2311	12840	10610	9470	8413	9016	7291	9650	12200	2964	12	2,311	14,420	8,796	9,243	3,674		
Lower Salinas	309OLD	Old Salinas River	Total Suspended Solids	mg/L	169	67	121	155	149	25.1	26.8	102	93.6	39.6	212	34.3	12	25.10	212.00	99.53	97.8	62.7		
Lower Salinas	309OLD	Old Salinas River	Turbidity, Field	NTU	97.6	62.7	132.3	71.8	89.4	20.4	19.2	45	58.4	34.8	115.7	30.4	12	19	132	65	61	37.5		
Lower Salinas	309OLD	Old Salinas River	Water Temperature	Deg C	14.6	8.7	14	18.5	19.2	18.2	19.6	18.5	18.6	16.9	11.1	8.9	12	8.70	19.60	15.57	17.6	4.0		
Lower Salinas	309QUI	Quail Creek	Air Temperature	Deg C	18.8	13.5	17.1	17.8	24.6	20.1	22.2	24	17.9	18.2	17.5	13.9	12	13.50	24.60	18.80	18.1	3.5		
Lower Salinas	309QUI	Quail Creek	Algae Toxicity, Cell Growth	%Control Growth												129.5	1	129.50	129.50	129.50	129.5	N/A		
Lower Salinas	309QUI	Quail Creek	Alkalinity as CaCO3	mg/L												58	1	58.00	58.00	58.00	58.0	N/A		
Lower Salinas	309QUI	Quail Creek	Ammonia as N	mg/L												0.448	1	0.45	0.45	0.45	0.45	N/A		
Lower Salinas	309QUI	Quail Creek	Ammonia as N, Unionized	mg/L												0.00044	1	0.0004	0.0004	0.0004	0.0004	N/A	<0.025	0%
Lower Salinas	309QUI	Quail Creek	Calcium	ug/L												141	1	141.00	141.00	141.00	141.0	N/A		
Lower Salinas	309QUI	Quail Creek	Chloride	mg/L												63.3	1	63.30	63.30	63.30	63.3	N/A		
Lower Salinas	309QUI	Quail Creek	Chlorophyll a, Field	ug/L												5.77	1	5.77	5.77	5.77	5.8	N/A		
Lower Salinas	309QUI	Quail Creek	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	1.79	12	0.00	1.79	0.15	0.00	0.5		
Lower Salinas	309QUI	Quail Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival												0	1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309QUI	Quail Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309QUI	Quail Creek	Invertebrate Toxicity, Reproduction	%Control Repro												0	1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309QUI	Quail Creek	Invertebrate Toxicity, Survival	%Control Survival												0	1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309QUI	Quail Creek	Magnesium	ug/L												36.9	1	36.90	36.90	36.90	36.9	N/A		
Lower Salinas	309QUI	Quail Creek	Nitrate + Nitrite as N	mg/L												48.3	1	48.3	48.3	48.3	48.3	N/A	<10	100%
Lower Salinas	309QUI	Quail Creek	Nitrogen, Total	mg/L												51.42	1	51.42	51.42	51.42	51.4	N/A		
Lower Salinas	309QUI	Quail Creek	Nitrogen, Total Kjeldahl	mg/L												3.12	1	3.12	3.12	3.12	3.1	N/A		
Lower Salinas	309QUI	Quail Creek	OrthoPhosphate as P	mg/L												1.81	1	1.810	1.810	1.810	1.810	N/A		
Lower Salinas	309QUI	Quail Creek	Oxygen, Dissolved	mg/L												9.44	1	9.44	9.44	9.44	9.44	N/A	>5	0%
Lower Salinas	309QUI	Quail Creek	Oxygen, Saturation	%												90.8	1	90.80	90.80	90.80	90.80	N/A	>85	No
Lower Salinas	309QUI	Quail Creek	pH	none												6.68	1	6.68	6.68	6.68	6.68	N/A	7-8.3	100%
Lower Salinas	309QUI	Quail Creek	Phosphorus as P	mg/L												2.95	1	2.95	2.95	2.95	2.95	N/A		
Lower Salinas	309QUI	Quail Creek	Potassium	ug/L												14.8	1	14.80	14.80	14.80	14.8	N/A		
Lower Salinas	309QUI	Quail Creek	Salinity	ppt												0.7	1	0.70	0.70	0.70	0.70	N/A		
Lower Salinas	309QUI	Quail Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309QUI	Quail Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309QUI	Quail Creek	Sodium	ug/L												74.5	1	74.50	74.50	74.50	74.5	N/A		
Lower Salinas	309QUI	Quail Creek	Specific Conductivity	uS/cm												1230	1	1,230	1,230	1,230	1,230	N/A		
Lower Salinas	309QUI	Quail Creek	Sulfate	mg/L												320	1	320.00	320.00	320.00	320.0	N/A		
Lower Salinas	309QUI	Quail Creek	Total Dissolved Solids	mg/L												787.2	1	787	787	787	787	N/A		
Lower Salinas	309QUI	Quail Creek	Total Suspended Solids	mg/L												256	1	256.00	256.00	256.00	256.0	N/A		
Lower Salinas	309QUI	Quail Creek	Turbidity, Field	NTU												550	1	550	550	550	550	N/A		
Lower Salinas	309QUI	Quail Creek	Water Temperature	Deg C												13	1	13.00	13.00	13.00	13.0	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Air Temperature	Deg C	18.4	18.6	10.5	10.3	24.9	20.8	20.9	21	19.9	17	16.6	14.9	12	10.30	24.90	17.82	18.5	4.3		
Lower Salinas	309RTA	Santa Rita Creek	Algae Toxicity, Cell Growth	%Control Growth												267.3	1	267.30	267.30	267.30	267.3	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Alkalinity as CaCO3	mg/L												64	1	64.00	64.00	64.00	64.0	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Ammonia as N	mg/L	0.132	0.988										0.137	3	0.13	0.99	0.42	0.14	0.5		
Lower Salinas	309RTA	Santa Rita Creek	Ammonia as N, Unionized	mg/L	0.00388	0.0342										0.0011	3	0.0011	0.0342	0.0131	0.0039	0.0	<0.025	33%
Lower Salinas	309RTA	Santa Rita Creek	Calcium	ug/L												48.4	1	48.40	48.40	48.40	48.4	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Chloride	mg/L												51.5	1	51.50	51.50	51.50	51.5	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Chlorophyll a, Field	ug/L	3.85	52.56										5.27	3	3.85	52.56	20.56	5.3	27.7		
Lower Salinas	309RTA	Santa Rita Creek	Discharge	cfs	0.016	0.219	0	0	0	0	0	0	0	0	0	7.578	12	0.00	7.58	0.65	0.00	2.2		
Lower Salinas	309RTA	Santa Rita Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival												50	1	50.00	50.00	50.00	50.0	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Invertebrate Toxicity, Reproduction	%Control Repro												0	1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Invertebrate Toxicity, Survival	%Control Survival												0	1	0.00	0.00	0.00	0.0	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Magnesium	ug/L												17.3	1	17.30	17.30	17.30	17.3	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Nitrate + Nitrite as N	mg/L	1.64	9.77										4.31	3	1.6	9.8	5.2	4.3	4.14	<10	0%
Lower Salinas	309RTA	Santa Rita Creek	Nitrogen, Total	mg/L	2.391											13.88	2	2.39	13.88	8.14	8.1	8.1		
Lower Salinas	309RTA	Santa Rita Creek	Nitrogen, Total Kjeldahl	mg/L	0.751											9.57	2	0.75	9.57	5.16	5.2	6.2		
Lower Salinas	309RTA	Santa Rita Creek	OrthoPhosphate as P	mg/L	0.736	0.489										1.08	3	0.489	1.080	0.768	0.736	0.3		
Lower Salinas	309RTA	Santa Rita Creek	Oxygen, Dissolved	mg/L	13.7	13										10.7	3	10.70	13.70	12.47	13.00	1.6	>5	0%
Lower Salinas	309RTA	Santa Rita Creek	Oxygen, Saturation	%	127.7	125										100.2	3	100.20	127.70	117.63	125.00	15.2	>85	No
Lower Salinas	309RTA	Santa Rita Creek	pH	none	8.19	8.23										7.62	3	7.62	8.23	8.01	8.19	0.3	7-8.3	0%
Lower Salinas	309RTA	Santa Rita Creek	Phosphorus as P	mg/L	0.763	0.775										4.38	3	0.76	4.38	1.97	0.78	2.1		
Lower Salinas	309RTA	Santa Rita Creek	Potassium	ug/L												12.1	1	12.10	12.10	12.10	12.1	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Salinity	ppt	0.5	0.4										0.2	3	0.20	0.50	0.37	0.40	0.2		
Lower Salinas	309RTA	Santa Rita Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Sodium	ug/L												44.2	1	44.20	44.20	44.20	44.2	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Specific Conductivity	uS/cm	955	706										440	3	440	955	700	706	258		
Lower Salinas	309RTA	Santa Rita Creek	Sulfate	mg/L												52.3	1	52.30	52.30	52.30	52.3	N/A		
Lower Salinas	309RTA	Santa Rita Creek	Total Dissolved Solids	mg/L	613.3	644										281.1	3	281	644	513	613	201		
Lower Salinas	309RTA	Santa Rita Creek	Total Suspended Solids	mg/L	19.3	49.9										2720	3	19.30	2720.00	929.73	49.9	1550.5		
Lower Salinas	309RTA	Santa Rita Creek	Turbidity, Field	NTU	15.9	10.7										3000	3	11	3,000	1,009	16	1724.4		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309RTA	Santa Rita Creek	Water Temperature	Deg C	12.3	13.2										11.7	3	11.70	13.20	12.40	12.3	0.8		
Lower Salinas	309SAC	Salinas R, Chualar	Air Temperature	Deg C	14		16	12.1		19.2		23.2	17.6	20	14.2		8	12.10	23.20	17.04	16.8	3.7		
Lower Salinas	309SAC	Salinas R, Chualar	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025	Not Sampled
Lower Salinas	309SAC	Salinas R, Chualar	Calcium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Discharge	cfs	0		0	0		0		0	0	0	0		8	0.00	0.00	0.00	0.00	0.0		
Lower Salinas	309SAC	Salinas R, Chualar	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Magnesium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10	Not Sampled
Lower Salinas	309SAC	Salinas R, Chualar	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7	Not Sampled
Lower Salinas	309SAC	Salinas R, Chualar	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None	N/A
Lower Salinas	309SAC	Salinas R, Chualar	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3	Not Sampled
Lower Salinas	309SAC	Salinas R, Chualar	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Potassium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Sodium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	<600	Yes
Lower Salinas	309SAC	Salinas R, Chualar	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Turbidity, Field	NTU													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Air Temperature	Deg C	14.6		15.5	14.8		19.2		26	18	17.5	14.3		8	14.30	26.00	17.49	16.5	3.9		
Lower Salinas	309SAG	Salinas R, Gonzales	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025	Not Sampled
Lower Salinas	309SAG	Salinas R, Gonzales	Calcium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Discharge	cfs	0		0	0		0		0	0	0	0		8	0.00	0.00	0.00	0.00	0.0		
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Magnesium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10	Not Sampled
Lower Salinas	309SAG	Salinas R, Gonzales	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7	Not Sampled
Lower Salinas	309SAG	Salinas R, Gonzales	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None	N/A
Lower Salinas	309SAG	Salinas R, Gonzales	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3	Not Sampled
Lower Salinas	309SAG	Salinas R, Gonzales	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Potassium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Sodium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	<600	Yes
Lower Salinas	309SAG	Salinas R, Gonzales	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Turbidity, Field	NTU													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Air Temperature	Deg C	17.9	17.4	14.9	16.2	11.4	20.1	18.1	22.4	22.6	19.9	15.2	12.5	12	11.40	22.60	17.38	17.7	3.6		
Lower Salinas	309SSP	Salinas R, Spreckles	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Lower Salinas	309SSP	Salinas R, Spreckles	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025	Not Sampled
Lower Salinas	309SSP	Salinas R, Spreckles	Calcium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.00	0.00	0.00	0.0		
Lower Salinas	309SSP	Salinas R, Spreckles	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Magnesium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10	Not Sampled
Lower Salinas	309SSP	Salinas R, Spreckles	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7	Not Sampled
Lower Salinas	309SSP	Salinas R, Spreckles	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None	N/A
Lower Salinas	309SSP	Salinas R, Spreckles	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3	Not Sampled
Lower Salinas	309SSP	Salinas R, Spreckles	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Potassium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Sodium	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Turbidity, Field	NTU													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309TEH	Tembladero Slough	Air Temperature	Deg C	16.8	14.5	15.4	15.6	15.3	12.8	16.2	20.5	21.9	10.7	6	11	12	6.00	21.90	14.73	15.4	4.3		
Lower Salinas	309TEH	Tembladero Slough	Algae Toxicity, Cell Growth	%Control Growth			204.3	279					326.3			305	4	204.30	326.30	278.65	292.0	53.2		
Lower Salinas	309TEH	Tembladero Slough	Alkalinity as CaCO3	mg/L			236	389					250			81	4	81.00	389.00	239.00	243.0	126.0		
Lower Salinas	309TEH	Tembladero Slough	Ammonia as N	mg/L	0.602	0.167	0.131	0.639	0.567	0.0737	0.0704	0.127	0.33	0.199	0.184	0.248	12	0.07	0.64	0.28	0.19	0.2		
Lower Salinas	309TEH	Tembladero Slough	Ammonia as N, Unionized	mg/L	0.00659	0.00531	0.00135	0.00602	0.00548	0.003	0.00127	0.00972	0.02642	0.0054	0.00262	0.00699	12	0.0013	0.0264	0.0067	0.0054	0.0	<0.025	8%
Lower Salinas	309TEH	Tembladero Slough	Calcium	ug/L			82.1	135					99.3			54.7	4	54.70	135.00	92.78	90.7	33.6		
Lower Salinas	309TEH	Tembladero Slough	Chloride	mg/L			271	383					226			64.4	4	64.40	383.00	236.10	248.5	132.1		
Lower Salinas	309TEH	Tembladero Slough	Chlorophyll a, Field	ug/L	8.02	43	112.22	15.99	103.33	11.13	29.1	44.11	10.19	8.7	11.7	4.34	12	4.34	112.22	33.49	13.8	37.2		
Lower Salinas	309TEH	Tembladero Slough	Discharge	cfs	10.41525	7.512	16.9536	5.30175	7.7987	7.92375	5.6399	5.9235	8.0895	3.3292	7.8022	355.6751	12	3.33	355.68	36.86	7.80	100.5		
Lower Salinas	309TEH	Tembladero Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			82.1	102.6					100			17.5	4	17.50	102.60	75.55	91.1	39.8		
Lower Salinas	309TEH	Tembladero Slough	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309TEH	Tembladero Slough	Invertebrate Toxicity, Reproduction	%Control Repro			74.1	81.1					114.6			12.8	4	12.80	114.60	70.65	77.6	42.4		
Lower Salinas	309TEH	Tembladero Slough	Invertebrate Toxicity, Survival	%Control Survival			90	90					100			60	4	60.00	100.00	85.00	90.0	17.3		
Lower Salinas	309TEH	Tembladero Slough	Magnesium	ug/L			59	107					66.9			31.1	4	31.10	107.00	66.00	63.0	31.4		
Lower Salinas	309TEH	Tembladero Slough	Nitrate + Nitrite as N	mg/L	32.5	32	14.8	35.9	33.5	41.3	33	18.2	22.2	24.9	60.5	11.7	12	11.7	60.5	30.0	32.3	13.20	None	N/A
Lower Salinas	309TEH	Tembladero Slough	Nitrogen, Total	mg/L	34.65		17.95	38.75		42.52	35.06	20.59	25.71	28.03	61.98	16.62	10	16.62	61.98	32.19	31.3	13.7		
Lower Salinas	309TEH	Tembladero Slough	Nitrogen, Total Kjeldahl	mg/L	2.15		3.15	2.85		1.22	2.06	2.39	3.51	3.13	1.48	4.92	10	1.22	4.92	2.69	2.6	1.1		
Lower Salinas	309TEH	Tembladero Slough	OrthoPhosphate as P	mg/L	0.286	0.138	0.227	0.4	0.267	0.456	0.341	0.165	0.428	0.444	0.456	0.691	12	0.138	0.691	0.358	0.371	0.2		
Lower Salinas	309TEH	Tembladero Slough	Oxygen, Dissolved	mg/L	11.42	13.1	10.4	8.2	6.55	4.9	4.63	12.6	8.64	9.1	13.7	8.7	12	4.63	13.70	9.33	8.90	3.0	>7	25%
Lower Salinas	309TEH	Tembladero Slough	Oxygen, Saturation	%	113.7	121.5	106.5	78.2	64.5	48.5	48.3	144.4	103.4	85	109	81.6	12	48.30	144.40	92.05	94.20	29.6	None	N/A
Lower Salinas	309TEH	Tembladero Slough	pH	none	7.69	8.26	7.6	7.69	7.63	8.27	7.83	8.33	8.3	8.15	8.14	8.2	12	7.60	8.33	8.01	8.15	0.3	7-8.3	8%
Lower Salinas	309TEH	Tembladero Slough	Phosphorus as P	mg/L	0.746	0.595	0.859	1.06	0.787	0.557	0.488	0.613	0.725	1.2	0.739	3.7	12	0.49	3.70	1.01	0.74	0.9		
Lower Salinas	309TEH	Tembladero Slough	Potassium	ug/L			8.87	2.5					8.1			11.2	4	2.50	11.20	7.67	8.5	3.7		
Lower Salinas	309TEH	Tembladero Slough	Salinity	ppt	1.26	1.2	0.9	1.4	1.46	1.5	1.4	1.1	0.7	0.2	1.5	0.3	12	0.20	1.50	1.08	1.23	0.5		
Lower Salinas	309TEH	Tembladero Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				11.1									1	11.10	11.10	11.10	11.1	N/A		
Lower Salinas	309TEH	Tembladero Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				2.7									1	2.70	2.70	2.70	2.7	N/A		
Lower Salinas	309TEH	Tembladero Slough	Sodium	ug/L			170	230					159			71.9	4	71.90	230.00	157.73	164.5	65.2		
Lower Salinas	309TEH	Tembladero Slough	Specific Conductivity	uS/cm	2351	2235	1616	2581	2704	2813	2550	2061	1617	597	2748	575	12	575	2,813	2,037	2,293	787		
Lower Salinas	309TEH	Tembladero Slough	Sulfate	mg/L			138	274					186			62.9	4	62.90	274.00	165.23	162.0	88.5		
Lower Salinas	309TEH	Tembladero Slough	Total Dissolved Solids	mg/L	1504	1430	1033	1651	1731	1800	1633	1319	1037	309.4	1758	367.5	12	309	1,800	1,298	1,467	516		
Lower Salinas	309TEH	Tembladero Slough	Total Suspended Solids	mg/L	158	58.1	122	215	56.9	19.7	24	61	62.9	304	74.3	1050	12	19.70	1050.00	183.83	68.6	285.4		
Lower Salinas	309TEH	Tembladero Slough	Turbidity, Field	NTU	86.8	40	91.6	106.7	47.3	70.1	27.1	35.3	38.8	177	36.4	1336	12	27	1,336	174	59	368.3		
Lower Salinas	309TEH	Tembladero Slough	Water Temperature	Deg C	15	12	16.6	13.1	15.3	15.3	17.5	22.2	23.6	12	5.3	11.1	12	5.30	23.60	14.92	15.2	4.9		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO
Estero Bay	310CCC	Chorro Creek	Air Temperature	Deg C	12	8	13	10	13	18	18	15	14	23	12	12	12	8.00	23.00	14.00	13.0	4.0	
Estero Bay	310CCC	Chorro Creek	Algae Toxicity, Cell Growth	%Control Growth			243.1	250								508.2	3	243.10	508.20	333.77	250.0	151.1	
Estero Bay	310CCC	Chorro Creek	Alkalinity as CaCO3	mg/L			338	352								313	3	313.00	352.00	334.33	338.0	19.8	
Estero Bay	310CCC	Chorro Creek	Ammonia as N	mg/L	0.0246	0.0242	0.0322	0.035	0.0654	0.015	0.0487	0.0748			0.0082	0.125	10	0.01	0.13	0.05	0.0	0.0	
Estero Bay	310CCC	Chorro Creek	Ammonia as N, Unionized	mg/L	0.00028	0.0001	0.00039	0.00047	0.00158	0.00007	0.00018	0.00026			0.0001	0.00177	10	0.0001	0.0018	0.0005	0.0003	0.001	<0.025
Estero Bay	310CCC	Chorro Creek	Calcium	mg/L			38.4	37.5								37.6	3	37.50	38.40	37.83	37.6	0.5	
Estero Bay	310CCC	Chorro Creek	Chloride	mg/L			73.6	84.9								79.1	3	73.60	84.90	79.20	79.1	5.7	
Estero Bay	310CCC	Chorro Creek	Chlorophyll a, Field	ug/L	3	3	10	3	5	2	9	10			6	4	10	2.00	10.00	5.50	4.5	3.1	
Estero Bay	310CCC	Chorro Creek	Discharge	cfs	8.923	3.9272	33.509	2.688	2.0228	1.3976	0.1071	0.00555	0	0	0.622075	3.926	12	0.00	33.51	4.76	1.71	9.41	
Estero Bay	310CCC	Chorro Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	97.4								102.8	3	97.40	102.80	99.23	97.5	3.1	
Estero Bay	310CCC	Chorro Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310CCC	Chorro Creek	Invertebrate Toxicity, Reproduction	%Control Repro			67.4	62.2								122.9	3	62.20	122.90	84.17	67.4	33.6	
Estero Bay	310CCC	Chorro Creek	Invertebrate Toxicity, Survival	%Control Survival			125	112.5								111.1	3	111.10	125.00	116.20	112.5	7.7	
Estero Bay	310CCC	Chorro Creek	Magnesium	mg/L			66.2	69.9								72.8	3	66.20	72.80	69.63	69.9	3.3	
Estero Bay	310CCC	Chorro Creek	Nitrate + Nitrite as N	mg/L	0.862	0.95	0.729	1.14	0.56	0.52	0.55	0.57			2.27	2.54	10	0.5	2.5	1.1	0.8	0.7	<10
Estero Bay	310CCC	Chorro Creek	Nitrogen, Total	mg/L	1.043		1.312	1.498		0.941	1.025	0.867			2.534	3.098	8	0.87	3.10	1.54	1.2	0.8	
Estero Bay	310CCC	Chorro Creek	Nitrogen, Total Kjeldahl	mg/L	0.181		0.583	0.358		0.421	0.475	0.297			0.264	0.558	8	0.18	0.58	0.39	0.4	0.1	
Estero Bay	310CCC	Chorro Creek	OrthoPhosphate as P	mg/L	0.454	0.552	0.718	0.618	0.691	0.62	0.617	0.6			0.652	0.941	10	0.45	0.94	0.65	0.62	0.1	
Estero Bay	310CCC	Chorro Creek	Oxygen, Dissolved	mg/L	8.86	10.17	8.9	8.33	7.57	7.91	6.11	7.94			9.6	10.04	10	6.11	10.17	8.54	8.60	1.2	>7
Estero Bay	310CCC	Chorro Creek	Oxygen, Saturation	%	83.8	90.4	87.4	80.2	75	79.2	62.2	81			83.7	90.8	10	62.20	90.80	81.37	82.35	8.38	None
Estero Bay	310CCC	Chorro Creek	pH	none	7.75	7.4	7.73	7.8	8.02	7.22	7.16	7.12			7.92	7.92	10	7.12	8.02	7.60	7.74	0.34	7-8.3
Estero Bay	310CCC	Chorro Creek	Phosphorus as P	mg/L	0.51	0.588	0.894	0.752	0.722	0.658	0.827	0.932			0.776	0.946	10	0.51	0.95	0.76	0.8	0.1	
Estero Bay	310CCC	Chorro Creek	Potassium	mg/L			2.5	2.5								2.5	3	2.50	2.50	2.50	2.5	0.0	
Estero Bay	310CCC	Chorro Creek	Salinity	ppt	0.45	0.45	0.43	0.42	0.49	0.64	0.46	0.48			0.49	0.46	10	0.42	0.64	0.48	0.5	0.1	
Estero Bay	310CCC	Chorro Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				168.1									1	168.10	168.10	168.10	168.1	N/A	
Estero Bay	310CCC	Chorro Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				105.3									1	105.30	105.30	105.30	105.3	N/A	
Estero Bay	310CCC	Chorro Creek	Sodium	mg/L			56.7	55.8								66.3	3	55.80	66.30	59.60	56.7	5.8	
Estero Bay	310CCC	Chorro Creek	Specific Conductivity	uS/cm	903	913	867	850	978	827	935	967			990	930	10	827	990	916	922	55	
Estero Bay	310CCC	Chorro Creek	Sulfate	mg/L			48.1	57.4								68	3	48.10	68.00	57.83	57.4	10.0	
Estero Bay	310CCC	Chorro Creek	Total Dissolved Solids	mg/L	587	528	564	553	635	854	608	629			643	605	10	528	854	621	607	90	<500
Estero Bay	310CCC	Chorro Creek	Total Suspended Solids	mg/L	1.2	1.92	29.8	3.62	4.55	2.95	21	42.9			3.62	55.4	10	1.20	55.40	16.70	4.1	19.8	
Estero Bay	310CCC	Chorro Creek	Turbidity, FIeld	NTU	9.12	9.53	5.31	3.11	25.8	7.21	5.29	20			1.96	47.6	10	2	48	13	8	14	
Estero Bay	310CCC	Chorro Creek	Water Temperature	Deg C	12.7	10	14.4	13.5	14.8	17.2	16	16.2			9.4	10.7	10	9.40	17.20	13.49	14.0	2.7	
Estero Bay	310LBC	Los Berros Creek	Air Temperature	Deg C	18	10	9	18	18	18	20	19	20	32	16	13	12	9.00	32.00	17.58	18.0	5.9	
Estero Bay	310LBC	Los Berros Creek	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025
Estero Bay	310LBC	Los Berros Creek	Calcium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.00	0.00	0.00	0.00	
Estero Bay	310LBC	Los Berros Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Magnesium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10
Estero Bay	310LBC	Los Berros Creek	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7
Estero Bay	310LBC	Los Berros Creek	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None
Estero Bay	310LBC	Los Berros Creek	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3
Estero Bay	310LBC	Los Berros Creek	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Potassium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Sodium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A	

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO
Estero Bay	310LBC	Los Berros Creek	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Turbidity, FIeld	NTU													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310LBC	Los Berros Creek	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310PRE	Prefumo Creek	Air Temperature	Deg C	14	11	16	17	18	21	21	21	19	27	14	13	12	11.00	27.00	17.67	17.5	4.5	
Estero Bay	310PRE	Prefumo Creek	Algae Toxicity, Cell Growth	%Control Growth			258.7	251					198.3			485.1	4	198.30	485.10	298.28	254.9	127.4	
Estero Bay	310PRE	Prefumo Creek	Alkalinity as CaCO3	mg/L			228	454					449			220	4	220.00	454.00	337.75	338.5	131.4	
Estero Bay	310PRE	Prefumo Creek	Ammonia as N	mg/L	0.0361	0.0246	0.0931	0.0263	0.0459	0.059	0.0463	0.0366	0.0731	0.0353	0.0308	0.0364	12	0.02	0.09	0.05	0.0	0.0	
Estero Bay	310PRE	Prefumo Creek	Ammonia as N, Unionized	mg/L	0.00029	0.00027	0.00109	0.0004	0.00053	0.00054	0.00033	0.0003	0.00025	0.00021	0.00046	0.00015	12	0.0002	0.0011	0.0004	0.0003	0.000	<0.025
Estero Bay	310PRE	Prefumo Creek	Calcium	mg/L			38.9	67.7					70.1			37.2	4	37.20	70.10	53.48	53.3	17.9	
Estero Bay	310PRE	Prefumo Creek	Chloride	mg/L			28.6	47.8					44.1			26.7	4	26.70	47.80	36.80	36.4	10.7	
Estero Bay	310PRE	Prefumo Creek	Chlorophyll a, Field	ug/L	8	2	9	2	4	6	3	4	6	4	4	16	12	2.00	16.00	5.67	4.0	3.9	
Estero Bay	310PRE	Prefumo Creek	Discharge	cfs	1.3742	1.1916	1.1992	1.2138	1.279075	1.09875	0.50985	0.7566	0.56725	0.9798	0.6876	0.6345	12	0.51	1.37	0.96	1.04	0.31	
Estero Bay	310PRE	Prefumo Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			100	89.7					100			102.8	4	89.70	102.80	98.13	100.0	5.8	
Estero Bay	310PRE	Prefumo Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310PRE	Prefumo Creek	Invertebrate Toxicity, Reproduction	%Control Repro			119.2	92.6					118.5			110.4	4	92.60	119.20	110.18	114.5	12.4	
Estero Bay	310PRE	Prefumo Creek	Invertebrate Toxicity, Survival	%Control Survival			125	112.5					100			111.1	4	100.00	125.00	112.15	111.8	10.2	
Estero Bay	310PRE	Prefumo Creek	Magnesium	mg/L			44.5	79.9					79			42.6	4	42.60	79.90	61.50	61.8	20.7	
Estero Bay	310PRE	Prefumo Creek	Nitrate + Nitrite as N	mg/L	1.43	2.38	2.54	2.73	2.21	2.89	2.58	2.43	2.67	2.43	2.65	1.5	12	1.4	2.9	2.4	2.5	0.5	<10
Estero Bay	310PRE	Prefumo Creek	Nitrogen, Total	mg/L	1.891		3.69	3.103		3.087	2.58	2.706	3.636	2.757	2.65	1.954	10	1.89	3.69	2.81	2.7	0.6	
Estero Bay	310PRE	Prefumo Creek	Nitrogen, Total Kjeldahl	mg/L	0.461		1.15	0.373		0.197	0.065	0.276	0.966	0.327	0.065	0.454	10	0.07	1.15	0.43	0.4	0.4	
Estero Bay	310PRE	Prefumo Creek	OrthoPhosphate as P	mg/L	0.156	0.161	0.483	0.157	0.156	0.16	0.16	0.149	0.153	0.167	0.158	0.212	12	0.15	0.48	0.19	0.16	0.1	
Estero Bay	310PRE	Prefumo Creek	Oxygen, Dissolved	mg/L	5.19	7.41	5.91	7.68	6.6	6.14	6.3	7.48	5.56	4.32	7.22	6.35	12	4.32	7.68	6.35	6.33	1.0	>7
Estero Bay	310PRE	Prefumo Creek	Oxygen, Saturation	%	52.8	73	60.3	78.7	68.9	65.4	66	78.7	60.8	44.9	70.1	61.3	12	44.90	78.70	65.08	65.70	9.95	None
Estero Bay	310PRE	Prefumo Creek	pH	none	7.5	7.68	7.64	7.76	7.62	7.48	7.4	7.46	7.04	7.34	7.84	7.26	12	7.04	7.84	7.50	7.49	0.22	7-8.3
Estero Bay	310PRE	Prefumo Creek	Phosphorus as P	mg/L	0.226	0.242	0.606	0.23	0.156	0.787	0.306	0.376	0.922	0.328	0.254	0.349	12	0.16	0.92	0.40	0.3	0.2	
Estero Bay	310PRE	Prefumo Creek	Potassium	mg/L			2.5	2.5					2.5			2.5	4	2.50	2.50	2.50	2.5	0.0	
Estero Bay	310PRE	Prefumo Creek	Salinity	ppt	0.42	0.52	0.27	0.47	0.51	0.52	0.49	0.5	0.51	0.51	0.52	0.27	12	0.27	0.52	0.46	0.5	0.1	
Estero Bay	310PRE	Prefumo Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				123.1									1	123.10	123.10	123.10	123.1	N/A	
Estero Bay	310PRE	Prefumo Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				102.6									1	102.60	102.60	102.60	102.6	N/A	
Estero Bay	310PRE	Prefumo Creek	Sodium	mg/L			25.4	37.3					38.6			23.3	4	23.30	38.60	31.15	31.4	7.9	
Estero Bay	310PRE	Prefumo Creek	Specific Conductivity	uS/cm	841	1035	550	938	1034	1038	987	1004	1036	862	1043	545	12	545	1,043	909	996	183	
Estero Bay	310PRE	Prefumo Creek	Sulfate	mg/L			39.8	77.7					70.9			43.5	4	39.80	77.70	57.98	57.2	19.1	
Estero Bay	310PRE	Prefumo Creek	Total Dissolved Solids	mg/L	547	610	357	610	672	675	642	653	674	661	678	354	12	354	678	594	648	118	
Estero Bay	310PRE	Prefumo Creek	Total Suspended Solids	mg/L	7.09	3.55	10.8	9.78	10	12.4	11	13.7	34.8	13.9	13.8	24.3	12	3.55	34.80	13.76	11.7	8.3	
Estero Bay	310PRE	Prefumo Creek	Turbidity, FIeld	NTU	11.7	13.3	21.1	7.3	13.1	18.4	10.2	10.5	21.2	9.93	11.9	41.5	12	7	42	16	13	9	
Estero Bay	310PRE	Prefumo Creek	Water Temperature	Deg C	15.9	14.6	16.2	16.4	17.2	18.3	17.4	17.6	18.7	17	13.9	13.7	12	13.70	18.70	16.41	16.7	1.6	
Estero Bay	310SLD	Davenport Creek	Air Temperature	Deg C	16	13	17	16	16	20	19	22	19	30	12	13	12	12.00	30.00	17.75	16.5	4.9	
Estero Bay	310SLD	Davenport Creek	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025
Estero Bay	310SLD	Davenport Creek	Calcium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.00	0.00	0.0	0.0	
Estero Bay	310SLD	Davenport Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Magnesium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10
Estero Bay	310SLD	Davenport Creek	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7
Estero Bay	310SLD	Davenport Creek	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None
Estero Bay	310SLD	Davenport Creek	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3
Estero Bay	310SLD	Davenport Creek	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Potassium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A	

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO
Estero Bay	310SLD	Davenport Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Sodium	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Turbidity, FIeld	NTU													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310SLD	Davenport Creek	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310USG	Arroyo Grande	Air Temperature	Deg C	17	10	16	16	20	21	22	22	20	31	13	14	12	10.00	31.00	18.50	18.5	5.5	
Estero Bay	310USG	Arroyo Grande	Algae Toxicity, Cell Growth	%Control Growth			257.4	239					140.5			490.9	4	140.50	490.90	281.95	248.2	148.5	
Estero Bay	310USG	Arroyo Grande	Alkalinity as CaCO3	mg/L			322	391					358			338	4	322.00	391.00	352.25	348.0	29.7	
Estero Bay	310USG	Arroyo Grande	Ammonia as N	mg/L	0.0274	0.0217	0.0587	0.0572	0.0597	0.0578	0.0338	0.131	0.212	0.0668	0.0228	0.0382	12	0.02	0.21	0.07	0.1	0.1	
Estero Bay	310USG	Arroyo Grande	Ammonia as N, Unionized	mg/L	0.00063	0.00058	0.00108	0.00177	0.01246	0.00152	0.00046	0.00213	0.0031	0.00104	0.0002	0.00052	12	0.0002	0.0125	0.0021	0.0011	0.003	<0.025
Estero Bay	310USG	Arroyo Grande	Calcium	mg/L			141	154					230			157	4	141.00	230.00	170.50	155.5	40.3	
Estero Bay	310USG	Arroyo Grande	Chloride	mg/L			52.5	61.4					289			63.4	4	52.50	289.00	116.58	62.4	115.0	
Estero Bay	310USG	Arroyo Grande	Chlorophyll a, Field	ug/L	4	4	30	4	3	3	18	8	2	8	5	0	12	0.00	30.00	7.42	4.0	8.5	
Estero Bay	310USG	Arroyo Grande	Discharge	cfs	3.62025	2.136875	1.75475	1.34675	0.849375	0.0965	0.0336	0.00645	0.007225	0.002275	0.2606	4.1982	12	0.00	4.20	1.19	0.55	1.47	
Estero Bay	310USG	Arroyo Grande	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			100	89.7					97.5			105.8	4	89.70	105.80	98.25	98.8	6.7	
Estero Bay	310USG	Arroyo Grande	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310USG	Arroyo Grande	Invertebrate Toxicity, Reproduction	%Control Repro			103.9	93.3					107.7			120	4	93.30	120.00	106.23	105.8	11.0	
Estero Bay	310USG	Arroyo Grande	Invertebrate Toxicity, Survival	%Control Survival			125	112.5					90			100	4	90.00	125.00	106.88	106.3	15.2	
Estero Bay	310USG	Arroyo Grande	Magnesium	mg/L			57.5	69.7					122			73.4	4	57.50	122.00	80.65	71.6	28.4	
Estero Bay	310USG	Arroyo Grande	Nitrate + Nitrite as N	mg/L	1.33	2.69	3.81	3.79	2.52	9.79	11.1	18.8	15.8	16.2	3.21	2.47	12	1.3	18.8	7.6	3.8	6.4	<10
Estero Bay	310USG	Arroyo Grande	Nitrogen, Total	mg/L	1.631		4.695	4.435		10.8	11.673	19.522	17.07	16.995	3.98	3.28	10	1.63	19.52	9.41	7.7	6.7	
Estero Bay	310USG	Arroyo Grande	Nitrogen, Total Kjeldahl	mg/L	0.301		0.885	0.645		1.01	0.573	0.722	1.27	0.795	0.77	0.81	10	0.30	1.27	0.78	0.8	0.3	
Estero Bay	310USG	Arroyo Grande	OrthoPhosphate as P	mg/L	0.259	0.229	0.298	0.291	0.318	0.428	0.432	0.473	0.578	0.58	0.342	0.325	12	0.23	0.58	0.38	0.33	0.1	
Estero Bay	310USG	Arroyo Grande	Oxygen, Dissolved	mg/L	10.45	12.2	9.99	13.31	12.25	10.37	8.7	10.83	5.96	7.55	11.07	10.41	12	5.96	13.31	10.26	10.43	2.1	>7
Estero Bay	310USG	Arroyo Grande	Oxygen, Saturation	%	97.5	106.8	98	129.1	126.2	109.7	89.6	113.4	64.6	75.4	92.3	94.3	12	64.60	129.10	99.74	97.75	18.88	None
Estero Bay	310USG	Arroyo Grande	pH	none	8.1	8.26	7.92	8.17	9	7.98	7.73	7.79	7.69	7.85	7.85	7.91	12	7.69	9.00	8.02	7.92	0.35	7-8.3
Estero Bay	310USG	Arroyo Grande	Phosphorus as P	mg/L	0.288	0.302	0.506	0.39	0.38	0.548	0.589	0.71	1.14	0.699	0.429	0.425	12	0.29	1.14	0.53	0.5	0.2	
Estero Bay	310USG	Arroyo Grande	Potassium	mg/L			2.5	2.5					5.92			2.5	4	2.50	5.92	3.36	2.5	1.7	
Estero Bay	310USG	Arroyo Grande	Salinity	ppt	0.61	0.65	0.58	0.63	0.73	0.95	0.91	1.24	1.28	1.33	0.89	0.7	12	0.58	1.33	0.88	0.8	0.3	
Estero Bay	310USG	Arroyo Grande	Sediment Invertebrate Toxicity, Growth	%Control Growth				116.7									1	116.70	116.70	116.70	116.7	N/A	
Estero Bay	310USG	Arroyo Grande	Sediment Invertebrate Toxicity, Survival	%Control Survival				100									1	100.00	100.00	100.00	100.0	N/A	
Estero Bay	310USG	Arroyo Grande	Sodium	mg/L			48.6	54.8					206			58.9	4	48.60	206.00	92.08	56.9	76.1	
Estero Bay	310USG	Arroyo Grande	Specific Conductivity	uS/cm	1221	1286	1156	1245	1443	1869	1788	2395	2479	2555	1761	1388	12	1,156	2,555	1,716	1,602	516	
Estero Bay	310USG	Arroyo Grande	Sulfate	mg/L			280	341					610			368	4	280.00	610.00	399.75	354.5	144.9	
Estero Bay	310USG	Arroyo Grande	Total Dissolved Solids	mg/L	793	944	752	810	938	1215	1161	1557	1611	1661	1145	902	12	752	1,661	1,124	1,045	328	<800
Estero Bay	310USG	Arroyo Grande	Total Suspended Solids	mg/L	6.73	3.04	15.8	8.11	2.23	27.1	3.26	37.5	4	3.09	1.62	2.5	12	1.62	37.50	9.58	3.6	11.5	
Estero Bay	310USG	Arroyo Grande	Turbidity, FIeld	NTU	8.55	12.2	7.8	10.2	3.53	4.25	6.8	3.96	6.56	10.2	2.03	109	12	2	109	15	7	30	
Estero Bay	310USG	Arroyo Grande	Water Temperature	Deg C	12	9.3	14.3	13.8	16.6	17.8	16.5	17.3	19	14.9	7.2	10.8	12	7.20	19.00	14.13	14.6	3.7	
Estero Bay	310WRP	Warden Creek	Air Temperature	Deg C	13	10	14	11	15	18	18	16	15	27	12	13	12	10.00	27.00	15.17	14.5	4.5	
Estero Bay	310WRP	Warden Creek	Algae Toxicity, Cell Growth	%Control Growth			242.6	202									2	202.00	242.60	222.30	222.3	28.7	
Estero Bay	310WRP	Warden Creek	Alkalinity as CaCO3	mg/L			604	576									2	576.00	604.00	590.00	590.0	19.8	
Estero Bay	310WRP	Warden Creek	Ammonia as N	mg/L	0.176	0.0383	0.124	0.0723	0.0983	0.647							6	0.04	0.65	0.19	0.1	0.2	
Estero Bay	310WRP	Warden Creek	Ammonia as N, Unionized	mg/L	0.00058	0.00015	0.00048	0.00033	0.00085	0.00845							6	0.0002	0.0085	0.0018	0.0005	0.003	<0.025
Estero Bay	310WRP	Warden Creek	Calcium	mg/L			113	107									2	107.00	113.00	110.00	110.0	4.2	
Estero Bay	310WRP	Warden Creek	Chloride	mg/L			217	212									2	212.00	217.00	214.50	214.5	3.5	
Estero Bay	310WRP	Warden Creek	Chlorophyll a, Field	ug/L	6	28	22	12	15	8							6	6.00	28.00	15.17	13.5	8.4	
Estero Bay	310WRP	Warden Creek	Discharge	cfs	0.7521	0.3405	0.5159	0.039335	0.028625	-0.0047	0	0	0	0	0	0	12	0.00	0.75	0.14	0.00	0.26	
Estero Bay	310WRP	Warden Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			100	97.4									2	97.40	100.00	98.70	98.7	1.8	
Estero Bay	310WRP	Warden Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A	
Estero Bay	310WRP	Warden Creek	Invertebrate Toxicity, Reproduction	%Control Repro			92	100.7									2	92.00	100.70	96.35	96.4	6.2	
Estero Bay	310WRP	Warden Creek	Invertebrate Toxicity, Survival	%Control Survival			125	112.5									2	112.50	125.00	118.75	118.8	8.8	
Estero Bay	310WRP	Warden Creek	Magnesium	mg/L			133	133									2	133.00	133.00	133.00	133.0	0.0	
Estero Bay	310WRP	Warden Creek	Nitrate + Nitrite as N	mg/L	12.4	16	19.9	23.3	15.2	0.023							6	0.0	23.3	14.5	15.6	8.0	<10
Estero Bay	310WRP	Warden Creek	Nitrogen, Total	mg/L	13.253		21.58	24.109		2.053							4	2.05	24.11	15.25	17.4	9.9	
Estero Bay	310WRP	Warden Creek	Nitrogen, Total Kjeldahl	mg/L	0.853		1.68	0.809		2.03							4	0.81	2.03	1.34	1.3	0.6	
Estero Bay	310WRP	Warden Creek	OrthoPhosphate as P	mg/L	0.198	0.102	0.307	0.144	0.101	0.762							6	0.10	0.76	0.27	0.17	0.3	
Estero Bay	310WRP	Warden Creek	Oxygen, Dissolved	mg/L	5.33	7.39	4.67	4.24	4.19	3.02							6	3.02	7.39	4.81	4.46	1.5	>5
Estero Bay	310WRP	Warden Creek	Oxygen, Saturation	%	47.5	64.4	44.9	39.9	39	30							6	30.00	64.40	44.28	42.40	11.55	>85
Estero Bay	310WRP	Warden Creek	pH	none	7.31	7.43	7.28	7.38	7.67	7.78							6	7.28	7.78	7.48	7.41	0.20	7-8.3

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO
Estero Bay	310WRP	Warden Creek	Phosphorus as P	mg/L	0.263	0.166	0.502	0.247	0.0895	0.839							6	0.09	0.84	0.35	0.3	0.3	
Estero Bay	310WRP	Warden Creek	Potassium	mg/L			2.5	2.5									2	2.50	2.50	2.50	2.5	0.0	
Estero Bay	310WRP	Warden Creek	Salinity	ppt	0.67	0.88	0.95	0.85	0.94	1.06							6	0.67	1.06	0.89	0.9	0.1	
Estero Bay	310WRP	Warden Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				89.2									1	89.20	89.20	89.20	89.2	N/A	
Estero Bay	310WRP	Warden Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				103.9									1	103.90	103.90	103.90	103.9	N/A	
Estero Bay	310WRP	Warden Creek	Sodium	mg/L			106	95.8									2	95.80	106.00	100.90	100.9	7.2	
Estero Bay	310WRP	Warden Creek	Specific Conductivity	uS/cm	1325	1738	1851	1676	1848	2062							6	1,325	2,062	1,750	1,793	246	
Estero Bay	310WRP	Warden Creek	Sulfate	mg/L			90.7	124									2	90.70	124.00	107.35	107.4	23.5	
Estero Bay	310WRP	Warden Creek	Total Dissolved Solids	mg/L	861	1030	1203	1089	1201	1341							6	861	1,341	1,121	1,145	166	
Estero Bay	310WRP	Warden Creek	Total Suspended Solids	mg/L	3.07	2.06	5.98	1.64	2.31	145							6	1.64	145.00	26.68	2.7	58.0	
Estero Bay	310WRP	Warden Creek	Turbidity, FIeld	NTU	6.48	8.6	21.3	13.9	6.8	66.8							6	6	67	21	11	23	
Estero Bay	310WRP	Warden Creek	Water Temperature	Deg C	10.1	9.2	13.3	12.5	12.3	14.5							6	9.20	14.50	11.98	12.4	2.0	

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Maria	312BCC	Bradley Canyon Creek	Air Temperature	Deg C	18	15	10	21	12	26	21	27	20	29	13	14	12	10.00	29.00	18.83	19.0	6.2		
Santa Maria	312BCC	Bradley Canyon Creek	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Ammonia as N	mg/L											0.185		1	0.19	0.19	0.19	0.2	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Ammonia as N, Unionized	mg/L											0.0158		1	0.0158	0.0158	0.0158	0.0158	N/A	<0.025	0%
Santa Maria	312BCC	Bradley Canyon Creek	Calcium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Chlorophyll a, Field	ug/L											4		1	4.00	4.00	4.00	4.0	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0.7998	0	12	0.00	0.80	0.07	0.00	0.2		
Santa Maria	312BCC	Bradley Canyon Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Magnesium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Nitrate + Nitrite as N	mg/L											6.79		1	6.8	6.8	6.8	6.79	N/A	<10	0%
Santa Maria	312BCC	Bradley Canyon Creek	Nitrogen, Total	mg/L											9.36		1	9.36	9.36	9.36	9.4	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Nitrogen, Total Kjeldahl	mg/L											2.57		1	2.57	2.57	2.57	2.6	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	OrthoPhosphate as P	mg/L											0.343		1	0.34	0.34	0.34	0.34	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Oxygen, Dissolved	mg/L											9.38		1	9.38	9.38	9.38	9.38	N/A	>5	0%
Santa Maria	312BCC	Bradley Canyon Creek	Oxygen, Saturation	%											91.7		1	91.70	91.70	91.70	91.70	N/A	>85	No
Santa Maria	312BCC	Bradley Canyon Creek	pH	none											8.63		1	8.63	8.63	8.63	8.63	N/A	7-8.3	100%
Santa Maria	312BCC	Bradley Canyon Creek	Phosphorus as P	mg/L											4.09		1	4.09	4.09	4.09	4.1	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Potassium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Salinity	ppt											0.71		1	0.71	0.71	0.71	0.7	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Sodium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Specific Conductivity	uS/cm											1399		1	1,399	1,399	1,399	1,399	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Total Dissolved Solids	mg/L											909		1	909	909	909	909	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Total Suspended Solids	mg/L											774		1	774.00	774.00	774.00	774.0	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Turbidity, Field	NTU											999		1	999	999	999	999	N/A		
Santa Maria	312BCC	Bradley Canyon Creek	Water Temperature	Deg C											14.1		1	14.10	14.10	14.10	14.1	N/A		
Santa Maria	312BCJ	Bradley Channel	Air Temperature	Deg C	20	13	11	13	10	26	21	25	21	29	13	14	12	10.00	29.00	18.00	17.0	6.5		
Santa Maria	312BCJ	Bradley Channel	Algae Toxicity, Cell Growth	%Control Growth			147.3	165.2					161.9			198.4	4	147.30	198.40	168.20	163.6	21.6		
Santa Maria	312BCJ	Bradley Channel	Alkalinity as CaCO3	mg/L			203	122					200			78	4	78.00	203.00	150.75	161.0	61.3		
Santa Maria	312BCJ	Bradley Channel	Ammonia as N	mg/L	5.69	0.0505	0.0914	0.124	0.208	25.5	0.1	0.206	0.326	0.232	0.638	0.0141	12	0.01	25.50	2.77	0.2	7.3		
Santa Maria	312BCJ	Bradley Channel	Ammonia as N, Unionized	mg/L	2.66263	0.01819	0.0005	0.03703	0.0131	5.14848	0.03647	0.12941	0.11903	0.02333	0.15637	0.00032	12	0.0003	5.1485	0.6954	0.0368	1.6	<0.025	58%
Santa Maria	312BCJ	Bradley Channel	Calcium	mg/L			177	186					296			59.2	4	59.20	296.00	179.55	181.5	96.8		
Santa Maria	312BCJ	Bradley Channel	Chloride	mg/L			50.1	109					119			23.7	4	23.70	119.00	75.45	79.6	46.0		
Santa Maria	312BCJ	Bradley Channel	Chlorophyll a, Field	ug/L	42	13	5	45	15	23	9	15	15	8	48	6	12	5.00	48.00	20.33	15.0	15.7		
Santa Maria	312BCJ	Bradley Channel	Discharge	cfs	0.26475	0.359625	0.001665	0.08016	0.581	0.41315	1.7655	0.054	0.1461	0.7587	0.002695	0.93519	12	0.00	1.77	0.45	0.31	0.5		
Santa Maria	312BCJ	Bradley Channel	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			5.1	60					85			2.5	4	2.50	85.00	38.15	32.6	41.0		
Santa Maria	312BCJ	Bradley Channel	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312BCJ	Bradley Channel	Invertebrate Toxicity, Reproduction	%Control Repro			0	108.7					111.8			0	4	0.00	111.80	55.13	54.4	63.7		
Santa Maria	312BCJ	Bradley Channel	Invertebrate Toxicity, Survival	%Control Survival			0	11.1					100			0	4	0.00	100.00	27.78	5.6	48.4		
Santa Maria	312BCJ	Bradley Channel	Magnesium	mg/L			57.8	99.2					168			21.2	4	21.20	168.00	86.55	78.5	63.0		
Santa Maria	312BCJ	Bradley Channel	Nitrate + Nitrite as N	mg/L	53.5	13.2	14.7	48.5	49.1	32	30.5	43	47	27	34.2	4.36	12	4.4	53.5	33.1	33.10	16.0	<10	92%
Santa Maria	312BCJ	Bradley Channel	Nitrogen, Total	mg/L	75.6		17.6	51.12		60.5	32.01	45.21	50.47	29.51	35.51	7.39	10	7.39	75.60	40.49	40.4	20.3		
Santa Maria	312BCJ	Bradley Channel	Nitrogen, Total Kjeldahl	mg/L	22.1		2.9	2.62		28.5	1.51	2.21	3.47	2.51	1.31	3.03	10	1.31	28.50	7.02	2.8	9.8		
Santa Maria	312BCJ	Bradley Channel	OrthoPhosphate as P	mg/L	0.0958	0.0773	0.939	0.00375	0.502	0.916	0.105	0.0518	0.118	0.517	0.112	1.11	12	0.00	1.11	0.38	0.12	0.4		
Santa Maria	312BCJ	Bradley Channel	Oxygen, Dissolved	mg/L	22.69	18.73	4.99	22.37	13.69	14.9	20.3	18.58	21.32	9.97	23.15	11.37	12	4.99	23.15	16.84	18.66	5.8	>5	8%
Santa Maria	312BCJ	Bradley Channel	Oxygen, Saturation	%	265	202.4	48.1	259.2	135.5	208.2	284	257	295.1	123.2	233.1	110.5	12	48.10	295.10	201.78	220.65	79.4	>85	No
Santa Maria	312BCJ	Bradley Channel	pH	none	9.34	9.25	7.26	9.03	8.49	8.5	8.84	9.35	8.9	8.36	9.15	8	12	7.26	9.35	8.71	8.87	0.62	7-8.3	83%
Santa Maria	312BCJ	Bradley Channel	Phosphorus as P	mg/L	0.418	0.386	1.84	0.555	1	0.813	0.447	0.436	0.656	1.88	0.45	3.22	12	0.39	3.22	1.01	0.6	0.9		
Santa Maria	312BCJ	Bradley Channel	Potassium	mg/L			11.3	5.62					12.5			10.6	4	5.62	12.50	10.01	11.0	3.0		
Santa Maria	312BCJ	Bradley Channel	Salinity	ppt	1.03	0.67	0.73	0.99	1.21	1.16	0.93	1.34	1.48	0.97	0.85	0.24	12	0.24	1.48	0.97	1.0	0.3		
Santa Maria	312BCJ	Bradley Channel	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Santa Maria	312BCJ	Bradley Channel	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Santa Maria	312BCJ	Bradley Channel	Sodium	mg/L			77.4	115					227			22.1	4	22.10	227.00	110.38	96.2	86.6		
Santa Maria	312BCJ	Bradley Channel	Specific Conductivity	uS/cm	2020	1332	1450	1954	2346	2291	1851	2630	2885	1914	1668	485.3	12	485	2,885	1,902	1,934	636.4		
Santa Maria	312BCJ	Bradley Channel	Sulfate	mg/L			512	698					141			133	4	133.00	698.00	371.00	326.5	280.7		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Maria	312BCJ	Bradley Channel	Total Dissolved Solids	mg/L	1314	968	942	1269	1525	1489	1203	1709	1875	1946	1085	316	12	316	1,946	1,303	1,292	453.8		
Santa Maria	312BCJ	Bradley Channel	Total Suspended Solids	mg/L	62.1	144	140	89.1	72.3	35	32.1	32.7	36.3	284	53.3	342	12	32.10	342.00	110.24	67.2	103.0		
Santa Maria	312BCJ	Bradley Channel	Turbidity, Field	NTU	52.6	38	43.3	36.6	128	27.2	43.3	16.2	54.3	364	66.1	766	12	16	766	136	48	220		
Santa Maria	312BCJ	Bradley Channel	Water Temperature	Deg C	22.7	19	18.4	22.5	14.5	32.8	33.1	32.1	31.6	25.9	14.9	14	12	14.00	33.10	23.46	22.6	7.5		
Santa Maria	312GVS	Green Valley Creek	Air Temperature	Deg C	18	13	17	19	16	19	19	21	19	31	14	14	12	13.00	31.00	18.33	18.5	4.7		
Santa Maria	312GVS	Green Valley Creek	Algae Toxicity, Cell Growth	%Control Growth												215.1	1	215.10	215.10	215.10	215.1	N/A		
Santa Maria	312GVS	Green Valley Creek	Alkalinity as CaCO3	mg/L												57	1	57.00	57.00	57.00	57.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Ammonia as N	mg/L												0.164	1	0.16	0.16	0.16	0.2	N/A		
Santa Maria	312GVS	Green Valley Creek	Ammonia as N, Unionized	mg/L												0.00288	1	0.0029	0.0029	0.0029	0.0029	N/A	<0.025	0%
Santa Maria	312GVS	Green Valley Creek	Calcium	mg/L												54.5	1	54.50	54.50	54.50	54.5	N/A		
Santa Maria	312GVS	Green Valley Creek	Chloride	mg/L												32	1	32.00	32.00	32.00	32.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Chlorophyll a, Field	ug/L												7	1	7.00	7.00	7.00	7.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	0.2695	12	0.00	0.27	0.02	0.00	0.1		
Santa Maria	312GVS	Green Valley Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival												2.6	1	2.60	2.60	2.60	2.6	N/A		
Santa Maria	312GVS	Green Valley Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312GVS	Green Valley Creek	Invertebrate Toxicity, Reproduction	%Control Repro												58.4	1	58.40	58.40	58.40	58.4	N/A		
Santa Maria	312GVS	Green Valley Creek	Invertebrate Toxicity, Survival	%Control Survival												100	1	100.00	100.00	100.00	100.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Magnesium	mg/L												20.8	1	20.80	20.80	20.80	20.8	N/A		
Santa Maria	312GVS	Green Valley Creek	Nitrate + Nitrite as N	mg/L												8.91	1	8.9	8.9	8.9	8.91	N/A	<10	0%
Santa Maria	312GVS	Green Valley Creek	Nitrogen, Total	mg/L												11.45	1	11.45	11.45	11.45	11.5	N/A		
Santa Maria	312GVS	Green Valley Creek	Nitrogen, Total Kjeldahl	mg/L												2.54	1	2.54	2.54	2.54	2.5	N/A		
Santa Maria	312GVS	Green Valley Creek	OrthoPhosphate as P	mg/L												0.577	1	0.58	0.58	0.58	0.58	N/A		
Santa Maria	312GVS	Green Valley Creek	Oxygen, Dissolved	mg/L												9.86	1	9.86	9.86	9.86	9.86	N/A	>5	0%
Santa Maria	312GVS	Green Valley Creek	Oxygen, Saturation	%												95.8	1	95.80	95.80	95.80	95.80	N/A	>85	No
Santa Maria	312GVS	Green Valley Creek	pH	none												7.86	1	7.86	7.86	7.86	7.86	N/A	7-8.3	0%
Santa Maria	312GVS	Green Valley Creek	Phosphorus as P	mg/L												1.92	1	1.92	1.92	1.92	1.9	N/A		
Santa Maria	312GVS	Green Valley Creek	Potassium	mg/L												7.04	1	7.04	7.04	7.04	7.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Salinity	ppt												0.22	1	0.22	0.22	0.22	0.2	N/A		
Santa Maria	312GVS	Green Valley Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312GVS	Green Valley Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312GVS	Green Valley Creek	Sodium	mg/L												24.2	1	24.20	24.20	24.20	24.2	N/A		
Santa Maria	312GVS	Green Valley Creek	Specific Conductivity	uS/cm												368.7	1	369	369	369	369	N/A		
Santa Maria	312GVS	Green Valley Creek	Sulfate	mg/L												89.4	1	89.40	89.40	89.40	89.4	N/A		
Santa Maria	312GVS	Green Valley Creek	Total Dissolved Solids	mg/L												297	1	297	297	297	297	N/A		
Santa Maria	312GVS	Green Valley Creek	Total Suspended Solids	mg/L												405	1	405.00	405.00	405.00	405.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Turbidity, Field	NTU												999	1	999	999	999	999	N/A		
Santa Maria	312GVS	Green Valley Creek	Water Temperature	Deg C												14.9	1	14.90	14.90	14.90	14.9	N/A		
Santa Maria	312MSD	Main Street Ditch	Air Temperature	Deg C	18	13	11	17	10	25	19	21	17	31	13	12	12	10.00	31.00	17.25	17.0	6.2		
Santa Maria	312MSD	Main Street Ditch	Algae Toxicity, Cell Growth	%Control Growth			176.6	141					258.9			209.2	4	141.00	258.90	196.43	192.9	50.1		
Santa Maria	312MSD	Main Street Ditch	Alkalinity as CaCO3	mg/L			72	91					31			36	4	31.00	91.00	57.50	54.0	28.9		
Santa Maria	312MSD	Main Street Ditch	Ammonia as N	mg/L	3.29	0.135	0.394	0.131	0.572	0.876	0.112	6.78	0.176	0.0758	0.185	0.164	12	0.08	6.78	1.07	0.2	2.0		
Santa Maria	312MSD	Main Street Ditch	Ammonia as N, Unionized	mg/L	0.0184	0.00735	0.00609	0.11095	0.00679	0.0345	0.01092	0.16248	0.00221	0.00843	0.00988	0.00134	12	0.0013	0.1625	0.0316	0.0092	0.1	<0.025	25%
Santa Maria	312MSD	Main Street Ditch	Calcium	mg/L			40.5	64.9					18.2			29.8	4	18.20	64.90	38.35	35.2	19.9		
Santa Maria	312MSD	Main Street Ditch	Chloride	mg/L			16.8	53.7					8.52			12.7	4	8.52	53.70	22.93	14.8	20.8		
Santa Maria	312MSD	Main Street Ditch	Chlorophyll a, Field	ug/L	27	24	7	20	15	5	70	50	9	17	8	2	12	2.00	70.00	21.17	16.0	20.1		
Santa Maria	312MSD	Main Street Ditch	Discharge	cfs	0.0081125	0.2582	0.0035003	0.2364	0.0000875	0.01495	0.119	0.0175	0.4846	0.00158	0.4594	14.6441	12	0.00	14.64	1.35	0.07	4.2		
Santa Maria	312MSD	Main Street Ditch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	95					100			76.3	4	76.30	100.00	92.20	96.3	10.8		
Santa Maria	312MSD	Main Street Ditch	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312MSD	Main Street Ditch	Invertebrate Toxicity, Reproduction	%Control Repro			58.6	117.1					40.9			19.8	4	19.80	117.10	59.10	49.8	41.8		
Santa Maria	312MSD	Main Street Ditch	Invertebrate Toxicity, Survival	%Control Survival			100	111.1					125			100	4	100.00	125.00	109.03	105.6	11.9		
Santa Maria	312MSD	Main Street Ditch	Magnesium	mg/L			13.1	54.4					5.39			10.7	4	5.39	54.40	20.90	11.9	22.6		
Santa Maria	312MSD	Main Street Ditch	Nitrate + Nitrite as N	mg/L	31.5	4.04	3.16	4.01	22.8	25.9	16.5	29.5	1.62	23.3	42.2	1.72	12	1.6	42.2	17.2	19.65	14.0	<10	58%
Santa Maria	312MSD	Main Street Ditch	Nitrogen, Total	mg/L	41.2		5.18	6.72		27.79	17.72	36.43	3.84	24.82	43.42	3.91	10	3.84	43.42	21.10	21.3	15.8		
Santa Maria	312MSD	Main Street Ditch	Nitrogen, Total Kjeldahl	mg/L	9.7		2.02	2.71		1.89	1.22	6.93	2.22	1.52	1.22	2.19	10	1.22	9.70	3.16	2.1	2.8		
Santa Maria	312MSD	Main Street Ditch	OrthoPhosphate as P	mg/L	44.3	0.924	1.59	0.0422	19	12.2	3.25	44.2	1.4	5.4	0.594	0.541	12	0.04	44.30	11.12	2.42	16.5		
Santa Maria	312MSD	Main Street Ditch	Oxygen, Dissolved	mg/L	9.86	7.23	8.38	16.57	11.37	9.36	11.65	11.29	7.89	11.86	9.84	9.61	12	7.23	16.57	10.41	9.85	2.5	>5	0%
Santa Maria	312MSD	Main Street Ditch	Oxygen, Saturation	%	98	70	82	197.3	111.9	105.1	135	129.9	87	139	98.7	92.8	12	70.00	197.30	112.23	101.90	34.3	>85	No
Santa Maria	312MSD	Main Street Ditch	pH	none	7.4	8.4	7.82	10.08	7.76	8.07	8.42	7.81	7.53	8.48	8.37	7.55	12	7.40	10.08	8.14	7.95	0.72	7-8.3	42%
Santa Maria	312MSD	Main Street Ditch	Phosphorus as P	mg/L	49.4	2.21	1.93	0.935	20.8	18.1	3.63	64.1	1.88	7.47	1.66	1.41	12	0.94	64.10	14.46	2.9	21.1		
Santa Maria	312MSD	Main Street Ditch	Potassium	mg/L			7.55	2.5					5.44			2.5	4	2.50	7.55	4.50	4.0	2.5		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Maria	312MSD	Main Street Ditch	Salinity	ppt	1.11	0.21	0.19	0.53	1.53	1	0.68	1.11	0.09	0.92	0.84	0.13	12	0.09	1.53	0.70	0.8	0.5		
Santa Maria	312MSD	Main Street Ditch	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Santa Maria	312MSD	Main Street Ditch	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Santa Maria	312MSD	Main Street Ditch	Sodium	mg/L			17.6	72.5					7.8			10.9	4	7.80	72.50	27.20	14.3	30.5		
Santa Maria	312MSD	Main Street Ditch	Specific Conductivity	uS/cm	2153	441.3	389	1077	2913	1960	1363	2171	181.1	1808	1355	269.3	12	181	2,913	1,340	1,359	889.4		
Santa Maria	312MSD	Main Street Ditch	Sulfate	mg/L			68.6	405					36			61.5	4	36.00	405.00	142.78	65.1	175.4		
Santa Maria	312MSD	Main Street Ditch	Total Dissolved Solids	mg/L	1400	502	253	700	1894	1272	882	1410	119	1175	1074	175	12	119	1,894	905	978	563.7		
Santa Maria	312MSD	Main Street Ditch	Total Suspended Solids	mg/L	65.8	39.8	37	156	7.55	29.3	29.9	41.8	49.4	187	185	196	12	7.55	196.00	85.38	45.6	72.5		
Santa Maria	312MSD	Main Street Ditch	Turbidity, Field	NTU	102	65.2	89.7	32.1	88	23.3	13.5	67.3	190	13.1	346	894	12	13	894	160	78	249		
Santa Maria	312MSD	Main Street Ditch	Water Temperature	Deg C	14.8	13.9	14.3	24	14.2	20.7	22.6	22	20.1	23	15.5	13.8	12	13.80	24.00	18.24	17.8	4.1		
Santa Maria	312OFC	Oso Flaco Creek	Air Temperature	Deg C	19	12	16	16	12	18	19	19	16	31	16	15	12	12.00	31.00	17.42	16.0	4.9		
Santa Maria	312OFC	Oso Flaco Creek	Algae Toxicity, Cell Growth	%Control Growth			164.1	80.6					202.7			152.1	4	80.60	202.70	149.88	158.1	51.0		
Santa Maria	312OFC	Oso Flaco Creek	Alkalinity as CaCO3	mg/L			94	323					214			87	4	87.00	323.00	179.50	154.0	112.0		
Santa Maria	312OFC	Oso Flaco Creek	Ammonia as N	mg/L	0.222	0.49	0.326	1.7	0.193	0.755	0.785	0.905	0.321	5.72	0.0607	0.223	12	0.06	5.72	0.98	0.4	1.6		
Santa Maria	312OFC	Oso Flaco Creek	Ammonia as N, Unionized	mg/L	0.00309	0.01824	0.00097	0.0083	0.00194	0.05952	0.0099	0.02209	0.00038	0.0751	0.00122	0.00112	12	0.0004	0.0751	0.0168	0.0057	0.0	<0.025	17%
Santa Maria	312OFC	Oso Flaco Creek	Calcium	mg/L			122	252					213			74.5	4	74.50	252.00	165.38	167.5	81.5		
Santa Maria	312OFC	Oso Flaco Creek	Chloride	mg/L			37.6	127					133			26.5	4	26.50	133.00	81.03	82.3	56.8		
Santa Maria	312OFC	Oso Flaco Creek	Chlorophyll a, Field	ug/L	6	9	3	30	10	12	30	25	28	13	4	8	12	3.00	30.00	14.83	11.0	10.4		
Santa Maria	312OFC	Oso Flaco Creek	Discharge	cfs	0.45775	1.3845	4.0771	0.322	1.66965	0.41465	-0.0115	0.0215	0.0085	-0.028	0.501	6.761	12	-0.03	6.76	1.30	0.44	2.1		
Santa Maria	312OFC	Oso Flaco Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			2.7	102.6					0			0	4	0.00	102.60	26.33	1.4	50.9		
Santa Maria	312OFC	Oso Flaco Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312OFC	Oso Flaco Creek	Invertebrate Toxicity, Reproduction	%Control Repro			21	69.2					0			0	4	0.00	69.20	22.55	10.5	32.6		
Santa Maria	312OFC	Oso Flaco Creek	Invertebrate Toxicity, Survival	%Control Survival			0	98.8					0			0	4	0.00	98.80	24.70	0.0	49.4		
Santa Maria	312OFC	Oso Flaco Creek	Magnesium	mg/L			38.5	114					87.4			26.7	4	26.70	114.00	66.65	63.0	41.1		
Santa Maria	312OFC	Oso Flaco Creek	Nitrate + Nitrite as N	mg/L	27.8	41	21.5	14.7	31.2	44.1	15.6	13.6	24.9	23.8	43.2	12.1	12	12.1	44.1	26.1	24.35	11.6	<10	100%
Santa Maria	312OFC	Oso Flaco Creek	Nitrogen, Total	mg/L	27.8		24.55	18.89		45.58	17.76	16.36	31.4	37.9	44.77	16.56	10	16.36	45.58	28.16	26.2	11.4		
Santa Maria	312OFC	Oso Flaco Creek	Nitrogen, Total Kjeldahl	mg/L	0.065		3.05	4.19		1.48	2.16	2.76	6.5	14.1	1.57	4.46	10	0.07	14.10	4.03	2.9	4.0		
Santa Maria	312OFC	Oso Flaco Creek	OrthoPhosphate as P	mg/L	0.0174	0.193	0.808	0.0133	0.31	0.206	0.0427	0.0076	1.53	0.0468	0.274	0.913	12	0.01	1.53	0.36	0.20	0.5		
Santa Maria	312OFC	Oso Flaco Creek	Oxygen, Dissolved	mg/L	12.38	12	6.34	8.45	8.76	9.79	6.28	13.44	0.83	1.69	8.82	7.76	12	0.83	13.44	8.05	8.61	3.9	>5	17%
Santa Maria	312OFC	Oso Flaco Creek	Oxygen, Saturation	%	125.2	122.4	61.8	82.6	83	117.1	69.1	154.5	8.2	17.5	84.4	72.6	12	8.20	154.50	83.20	82.80	42.9	None	N/A
Santa Maria	312OFC	Oso Flaco Creek	pH	none	7.78	8.13	7.13	7.37	7.72	8.28	7.61	7.83	6.66	7.66	8.01	7.4	12	6.66	8.28	7.63	7.69	0.45	7-8.3	8%
Santa Maria	312OFC	Oso Flaco Creek	Phosphorus as P	mg/L	0.23	0.718	2.67	0.447	1.09	0.337	0.663	0.611	2.84	0.285	2.71	3.75	12	0.23	3.75	1.36	0.7	1.3		
Santa Maria	312OFC	Oso Flaco Creek	Potassium	mg/L			10.9	2.5					34.4			12	4	2.50	34.40	14.95	11.5	13.6		
Santa Maria	312OFC	Oso Flaco Creek	Salinity	ppt	1.2	0.99	0.48	1.21	0.92	0.88	1.31	1.32	1	0.98	0.8	0.28	12	0.28	1.32	0.95	1.0	0.3		
Santa Maria	312OFC	Oso Flaco Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				0									1	0.00	0.00	0.00	0.0	N/A		
Santa Maria	312OFC	Oso Flaco Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				0									1	0.00	0.00	0.00	0.0	N/A		
Santa Maria	312OFC	Oso Flaco Creek	Sodium	mg/L			37.8	141					129			25.2	4	25.20	141.00	83.25	83.4	60.2		
Santa Maria	312OFC	Oso Flaco Creek	Specific Conductivity	uS/cm	2324	1934	969	2339	1806	1738	2523	2546	1945	1923	1579	575	12	575	2,546	1,850	1,929	596.4		
Santa Maria	312OFC	Oso Flaco Creek	Sulfate	mg/L			287	843					620			127	4	127.00	843.00	469.25	453.5	322.9		
Santa Maria	312OFC	Oso Flaco Creek	Total Dissolved Solids	mg/L	1511	1480	630	1520	1176	1130	1641	1656	1265	1250	1026	374	12	374	1,656	1,222	1,258	395.9		
Santa Maria	312OFC	Oso Flaco Creek	Total Suspended Solids	mg/L	38.9	107	220	148	161	106	34.5	55.9	47.3	75.4	353	750	12	34.50	750.00	174.75	106.5	203.0		
Santa Maria	312OFC	Oso Flaco Creek	Turbidity, Field	NTU	25.8	157	534	56.9	289	23.6	25.1	63.5	66.7	26.9	705	999	12	24	999	248	65	326		
Santa Maria	312OFC	Oso Flaco Creek	Water Temperature	Deg C	15.5	18	14	14	12.7	24.1	19.5	21.8	16.8	18.2	13.1	12.3	12	12.30	24.10	16.67	16.2	3.8		
Santa Maria	312OFN	Little Oso Flaco	Air Temperature	Deg C	18	12	14	20	13	18	19	19	20	32	16	12	12	12.00	32.00	17.75	18.0	5.4		
Santa Maria	312OFN	Little Oso Flaco	Algae Toxicity, Cell Growth	%Control Growth			140.3	97.6					45.2			190.5	4	45.20	190.50	118.40	119.0	61.8		
Santa Maria	312OFN	Little Oso Flaco	Alkalinity as CaCO3	mg/L			66	218					234			160	4	66.00	234.00	169.50	189.0	76.0		
Santa Maria	312OFN	Little Oso Flaco	Ammonia as N	mg/L	0.211	0.239	0.0733	0.0992	0.163	0.148	0.103	0.242	0.145	0.698	0.12	0.0877	12	0.07	0.70	0.19	0.1	0.2		
Santa Maria	312OFN	Little Oso Flaco	Ammonia as N, Unionized	mg/L	0.00323	0.00678	0.00024	0.00177	0.00508	0.00508	0.00143	0.00393	0.00224	0.00818	0.00355	0.00042	12	0.0002	0.0082	0.0035	0.0034	0.0	<0.025	0%
Santa Maria	312OFN	Little Oso Flaco	Calcium	mg/L			62.2	201					242			135	4	62.20	242.00	160.05	168.0	78.7		
Santa Maria	312OFN	Little Oso Flaco	Chloride	mg/L			26.1	80.9					107			61.7	4	26.10	107.00	68.93	71.3	34.1		
Santa Maria	312OFN	Little Oso Flaco	Chlorophyll a, Field	ug/L	22	9	3	9	9	7	5	15	11	16	4	9	12	3.00	22.00	9.92	9.0	5.5		
Santa Maria	312OFN	Little Oso Flaco	Discharge	cfs	0.1485	0.281	0.648	0.782	0.37075	0.86925	0.1297	0.1209	0.12465	0.305975	0.7313	0.2616	12	0.12	0.87	0.40	0.29	0.3		
Santa Maria	312OFN	Little Oso Flaco	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			0	94.9					97.7			2.5	4	0.00	97.70	48.78	48.7	54.9		
Santa Maria	312OFN	Little Oso Flaco	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312OFN	Little Oso Flaco	Invertebrate Toxicity, Reproduction	%Control Repro			0	71.3					78.1			2.5	4	0.00	78.10	37.98	36.9	42.5		
Santa Maria	312OFN	Little Oso Flaco	Invertebrate Toxicity, Survival	%Control Survival			0	112.5					90			33.3	4	0.00	112.50	58.95	61.7	51.5		
Santa Maria	312OFN	Little Oso Flaco	Magnesium	mg/L			17.1	60.1					73.5			39.5	4	17.10	73.50	47.55	49.8	24.7		
Santa Maria	312OFN	Little Oso Flaco	Nitrate + Nitrite as N	mg/L	36.4	22	5.64	48.7	28	24.6	22.3	24	54.3	24.3	9.66	14.8	12	5.6	54.3	26.2	24.15	14.4	<10	83%
Santa Maria	312OFN	Little Oso Flaco	Nitrogen, Total	mg/L	36.4		7.14	49.483		24.898	22.911	25.2	54.539	30.58	11.18	15.93	10	7.14	54.54	27.83	25.0	15.5		
Santa Maria	312OFN	Little Oso Flaco	Nitrogen, Total Kjeldahl	mg/L	0.065		1.5	0.783		0.298	0.611	1.2	0.239	6.28	1.52	1.13	10	0.07	6.28	1.36	1.0	1.8		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Maria	312OFN	Little Oso Flaco	OrthoPhosphate as P	mg/L	4.85	4.11	1.42	8.49	6.35	4.45	6.05	3.71	7.33	7.14	1.3	1.11	12	1.11	8.49	4.69	4.65	2.5		
Santa Maria	312OFN	Little Oso Flaco	Oxygen, Dissolved	mg/L	11.81	9.71	7.06	11.66	8.48	10.71	4.2	3.39	4.92	8.09	10.45	8.85	12	3.39	11.81	8.28	8.67	2.9	>5	25%
Santa Maria	312OFN	Little Oso Flaco	Oxygen, Saturation	%	118.6	93.6	68.6	125	89.5	119.3	44.7	36.5	55.4	89	100.8	77.3	12	36.50	125.00	84.86	89.25	29.3	>85	No
Santa Maria	312OFN	Little Oso Flaco	pH	none	7.82	8.15	7.16	7.78	8.06	8.02	7.68	7.74	7.65	7.55	8.18	7.5	12	7.16	8.18	7.77	7.76	0.30	7-8.3	0%
Santa Maria	312OFN	Little Oso Flaco	Phosphorus as P	mg/L	5.22	6.19	2.21	9.66	7.11	5.08	6.43	5.48	8.7	8.77	3.64	3.88	12	2.21	9.66	6.03	5.8	2.3		
Santa Maria	312OFN	Little Oso Flaco	Potassium	mg/L			12.9	29.6					46.8			12	4	12.00	46.80	25.33	21.3	16.4		
Santa Maria	312OFN	Little Oso Flaco	Salinity	ppt	0.93	0.94	0.3	0.82	0.99	0.99	0.96	1.04	1.13	0.72	0.79	0.58	12	0.30	1.13	0.85	0.9	0.2		
Santa Maria	312OFN	Little Oso Flaco	Sediment Invertebrate Toxicity, Growth	%Control Growth					76								1	76.00	76.00	76.00	76.0	N/A		
Santa Maria	312OFN	Little Oso Flaco	Sediment Invertebrate Toxicity, Survival	%Control Survival					67								1	67.00	67.00	67.00	67.0	N/A		
Santa Maria	312OFN	Little Oso Flaco	Sodium	mg/L			30.7	97.9					158			77.8	4	30.70	158.00	91.10	87.9	52.7		
Santa Maria	312OFN	Little Oso Flaco	Specific Conductivity	uS/cm	1820	1843	609	1612	1939	1933	1886	2031	2199	1431	1554	1162	12	609	2,199	1,668	1,832	437.8		
Santa Maria	312OFN	Little Oso Flaco	Sulfate	mg/L			154	550					635			357	4	154.00	635.00	424.00	453.5	214.3		
Santa Maria	312OFN	Little Oso Flaco	Total Dissolved Solids	mg/L	1183	1370	395	1047	1260	1257	1226	1320	1429	930	1017	755	12	395	1,429	1,099	1,205	295.0		
Santa Maria	312OFN	Little Oso Flaco	Total Suspended Solids	mg/L	30	67	67.5	20	13.1	4.55	9.52	34.2	12.2	63.8	369	35.4	12	4.55	369.00	60.52	32.1	99.8		
Santa Maria	312OFN	Little Oso Flaco	Turbidity, Field	NTU	13.9	77.7	147	31.1	26.5	5.9	8.12	6.85	16.1	30.3	684	79.6	12	6	684	94	28	190		
Santa Maria	312OFN	Little Oso Flaco	Water Temperature	Deg C	15.3	13.6	13.9	18.5	17.7	20.3	18.3	18.7	20.9	19.8	13.1	9.3	12	9.30	20.90	16.62	18.0	3.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Air Temperature	Deg C	16	12	16	17	15	18	19	19	20	28	16	14	12	12.00	28.00	17.50	16.5	4.0		
Santa Maria	312ORC	Orcutt Solomon Creek	Algae Toxicity, Cell Growth	%Control Growth			171.4	177.3					549.1			199.8	4	171.40	549.10	274.40	188.6	183.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Alkalinity as CaCO3	mg/L			127	285					298			123	4	123.00	298.00	208.25	206.0	96.3		
Santa Maria	312ORC	Orcutt Solomon Creek	Ammonia as N	mg/L	0.0743	0.305	0.301	0.194	0.275	0.142	0.314	0.107	0.219	0.127	0.182	0.128	12	0.07	0.31	0.20	0.2	0.1		
Santa Maria	312ORC	Orcutt Solomon Creek	Ammonia as N, Unionized	mg/L	0.00241	0.02238	0.00769	0.00942	0.01856	0.00306	0.00604	0.0051	0.00164	0.00582	0.00714	0.00086	12	0.0009	0.0224	0.0075	0.0059	0.0	<0.025	0%
Santa Maria	312ORC	Orcutt Solomon Creek	Calcium	mg/L			166	325					273			133	4	133.00	325.00	224.25	219.5	89.9		
Santa Maria	312ORC	Orcutt Solomon Creek	Chloride	mg/L			126	205					242			95.7	4	95.70	242.00	167.18	165.5	67.9		
Santa Maria	312ORC	Orcutt Solomon Creek	Chlorophyll a, Field	ug/L	59	15	14	45	18	16	14	11	11	25	12	10	12	10.00	59.00	20.83	14.5	15.4		
Santa Maria	312ORC	Orcutt Solomon Creek	Discharge	cfs	0.221375	0.761	3.5792	3.03135	0.3115	0.4689	0.20595	0.15725	2.4575	3.032	0.11175	10.1375	12	0.11	10.14	2.04	0.61	2.9		
Santa Maria	312ORC	Orcutt Solomon Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			0	102.6					83.2			37.5	4	0.00	102.60	55.83	60.4	46.2		
Santa Maria	312ORC	Orcutt Solomon Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312ORC	Orcutt Solomon Creek	Invertebrate Toxicity, Reproduction	%Control Repro			0	74.9					136.5			81.6	4	0.00	136.50	73.25	78.3	56.1		
Santa Maria	312ORC	Orcutt Solomon Creek	Invertebrate Toxicity, Survival	%Control Survival			0	111.1					100			100	4	0.00	111.10	77.78	100.0	52.1		
Santa Maria	312ORC	Orcutt Solomon Creek	Magnesium	mg/L			65.4	146					130			58.7	4	58.70	146.00	100.03	97.7	44.4		
Santa Maria	312ORC	Orcutt Solomon Creek	Nitrate + Nitrite as N	mg/L	22.9	40.4	24	23	7.39	13.1	2.39	16	22.5	22.6	23.9	15.6	12	2.4	40.4	19.5	22.55	9.7	<10	83%
Santa Maria	312ORC	Orcutt Solomon Creek	Nitrogen, Total	mg/L	24.06		26.7	24.72		14.16	5.44	16.841	25.97	25	25.55	17.32	10	5.44	26.70	20.58	24.4	7.0		
Santa Maria	312ORC	Orcutt Solomon Creek	Nitrogen, Total Kjeldahl	mg/L	1.16		2.7	1.72		1.06	3.05	0.841	3.47	2.4	1.65	1.72	10	0.84	3.47	1.98	1.7	0.9		
Santa Maria	312ORC	Orcutt Solomon Creek	OrthoPhosphate as P	mg/L	0.109	0.311	0.639	0.461	0.11	0.488	0.205	0.129	0.963	0.192	0.178	0.893	12	0.11	0.96	0.39	0.26	0.3		
Santa Maria	312ORC	Orcutt Solomon Creek	Oxygen, Dissolved	mg/L	15.33	18.34	11.32	15.43	17.13	10.25	6.21	11	4.31	12.09	13.4	10.51	12	4.31	18.34	12.11	11.71	4.2	>7	17%
Santa Maria	312ORC	Orcutt Solomon Creek	Oxygen, Saturation	%	164.9	191.6	126.2	172.8	211.3	119.9	72.7	135.7	47.4	135.5	136.9	93.1	12	47.40	211.30	134.00	135.60	47.6	None	N/A
Santa Maria	312ORC	Orcutt Solomon Creek	pH	none	8.09	8.46	7.89	8.19	8.2	7.75	7.7	8.01	7.38	8.16	8.23	7.63	12	7.38	8.46	7.97	8.05	0.31	7-8.3	8%
Santa Maria	312ORC	Orcutt Solomon Creek	Phosphorus as P	mg/L	0.274	0.577	1.19	0.804	0.281	0.678	0.823	0.436	1.96	0.722	0.621	1.49	12	0.27	1.96	0.82	0.7	0.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Potassium	mg/L			8.43	5.19					17.7			7.35	4	5.19	17.70	9.67	7.9	5.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Salinity	ppt	2.24	1.88	1.05	1.45	2.23	1.44	1.62	1.27	1.34	1.18	1.41	0.65	12	0.65	2.24	1.48	1.4	0.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				76.4									1	76.40	76.40	76.40	76.4	N/A		
Santa Maria	312ORC	Orcutt Solomon Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				103.1									1	103.10	103.10	103.10	103.1	N/A		
Santa Maria	312ORC	Orcutt Solomon Creek	Sodium	mg/L			109	158					168			86.5	4	86.50	168.00	130.38	133.5	39.0		
Santa Maria	312ORC	Orcutt Solomon Creek	Specific Conductivity	uS/cm	4197	3558	2045	2782	4216	2771	3095	2465	2580	2302	2704	1316	12	1,316	4,216	2,836	2,738	841.8		
Santa Maria	312ORC	Orcutt Solomon Creek	Sulfate	mg/L			533	1100					853			422	4	422.00	1100.00	727.00	693.0	308.6		
Santa Maria	312ORC	Orcutt Solomon Creek	Total Dissolved Solids	mg/L	2728	2920	1330	1809	2740	1801	2012	1602	1677	1496	1758	856	12	856	2,920	1,894	1,780	617.8		
Santa Maria	312ORC	Orcutt Solomon Creek	Total Suspended Solids	mg/L	80.9	32.5	147	57.7	20	28.1	105	21	240	95.2	124	91.7	12	20.00	240.00	86.93	86.3	63.9		
Santa Maria	312ORC	Orcutt Solomon Creek	Turbidity, Field	NTU	31.3	45.6	67	99	32.5	31.2	145	20.8	190	46.9	149	216	12	21	216	90	57	69		
Santa Maria	312ORC	Orcutt Solomon Creek	Water Temperature	Deg C	18.2	18.1	20.3	20.3	25.4	22.7	22.8	25.7	19.6	20.2	16	9.8	12	9.80	25.70	19.93	20.3	4.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Air Temperature	Deg C	17	12	12	17	15	25	19	19	19	32	16	14	12	12.00	32.00	18.08	17.0	5.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Algae Toxicity, Cell Growth	%Control Growth			226.1	211					167.4			186.3	4	167.40	226.10	197.70	198.7	26.0		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Alkalinity as CaCO3	mg/L			157	263					207			97	4	97.00	263.00	181.00	182.0	70.8		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Ammonia as N	mg/L	0.371	0.847	0.135	1.8	0.667	0.371	0.126	0.38	0.67	0.141	0.165	0.146	12	0.13	1.80	0.48	0.4	0.5		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Ammonia as N, Unionized	mg/L	0.01711	0.00414	0.00108	0.12589	0.02292	0.03847	0.00609	0.14512	0.00746	0.07926	0.03805	0.00097	12	0.0010	0.1451	0.0405	0.0200	0.0	<0.025	42%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Calcium	mg/L			159	296					370			90	4	90.00	370.00	228.75	227.5	127.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Chloride	mg/L			136	307					453			68.3	4	68.30	453.00	241.08	221.5	173.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Chlorophyll a, Field	ug/L	61	11	8	22	37	37	90	18	24	77	13	11	12	8.00	90.00	34.08	23.0	27.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Discharge	cfs	0.5698	0.3996	1.4832	1.20465	0.7332	0.244	0.2448	0.012475	0.5432	0.1586	-0.009975	8.607	12	-0.01	8.61	1.18	0.47	2.4		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			95									53.6	2	53.60	95.00	74.30	74.3	29.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity, Reproduction	%Control Repro			64.6									88.3	2	64.60	88.30	76.45	76.5	16.8		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity, Survival	%Control Survival			100	98.3					0			100	4	0.00	100.00	74.58	99.2	49.7		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Magnesium	mg/L			61.1	137					153			36.7	4	36.70	153.00	96.95	99.1	56.7		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Nitrate + Nitrite as N	mg/L	32.1	98.1	26.3	54.6	62.2	46.6	84.8	50.1	78.9	57.6	57.3	14	12	14.0	98.1	55.2	55.95	24.3	<10	100%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Nitrogen, Total	mg/L	35.51		28.29	59.16		48.4	87.58	52.24	92.3	60.71	58.63	15.8	10	15.80	92.30	53.86	55.4	24.0		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Nitrogen, Total Kjeldahl	mg/L	3.41		1.99	4.56		1.8	2.78	2.14	13.4	3.11	1.33	1.8	10	1.33	13.40	3.63	2.5	3.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	OrthoPhosphate as P	mg/L	0.339	0.237	0.706	0.2	0.342	0.265	0.175	0.151	1.11	0.15	0.184	0.906	12	0.15	1.11	0.40	0.25	0.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Oxygen, Dissolved	mg/L	7.86	11.28	9.17	12.55	10.76	12.45	13.68	15.16	8.4	20.32	12.31	10.26	12	7.86	20.32	12.02	11.80	3.4	>7	0%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Oxygen, Saturation	%	84.8	115.5	91.3	149.5	127	158.1	171.9	195.8	100.4	266.8	124.8	92.5	12	84.80	266.80	139.87	125.90	53.0	None	N/A
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	pH	none	8.2	7.33	7.54	8.26	7.95	8.34	8	9.03	7.44	9.33	9.11	7.59	12	7.33	9.33	8.18	8.10	0.68	7-8.3	33%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Phosphorus as P	mg/L	0.719	0.308	1.14	0.353	0.647	0.433	0.501	0.632	1.36	0.354	0.434	6.19	12	0.31	6.19	1.09	0.6	1.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Potassium	mg/L			8.01	7.25					24.4			6.68	4	6.68	24.40	11.59	7.6	8.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Salinity	ppt	0.94	2.27	0.81	1.65	1.63	1.62	1.59	1.42	1.87	1.69	1.47	0.45	12	0.45	2.27	1.45	1.6	0.5		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Sediment Invertebrate Toxicity, Growth	%Control Growth				78.6									1	78.60	78.60	78.60	78.6	N/A		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Sediment Invertebrate Toxicity, Survival	%Control Survival				73.4									1	73.40	73.40	73.40	73.4	N/A		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Sodium	mg/L			107	207					261			65.1	4	65.10	261.00	160.03	157.0	89.9		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Specific Conductivity	uS/cm	1846	4225	1602	3153	3116	3115	3064	2761	3549	3255	2819	903	12	903	4,225	2,784	3,090	911.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Sulfate	mg/L			450	2400					987			249	4	249.00	2400.00	1021.50	718.5	970.4		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Total Dissolved Solids	mg/L	1199	3420	1041	2050	2026	2025	1991	1795	2307	2116	1832	587	12	587	3,420	1,866	2,008	709.7		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Total Suspended Solids	mg/L	36.9	20.8	101	51.9	25.6	16.2	14.2	29.2	80.3	30.8	88.2	83.3	12	14.20	101.00	48.20	33.9	31.5		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Turbidity, Field	NTU	35.8	21.3	210	23.1	20.5	11.1	13.8	7.9	11.24	7.94	11.3	128	12	8	210	42	17	62		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Water Temperature	Deg C	18.8	15.9	15	23.6	23.1	27.1	26.5	28.2	23.6	29	15.6	10.6	12	10.60	29.00	21.42	23.4	6.1		
Santa Maria	312SMA	Santa Maria R, estuary	Air Temperature	Deg C	19	13	16	19	16	18	19	19	21	30	16	14	12	13.00	30.00	18.33	18.5	4.4		
Santa Maria	312SMA	Santa Maria R, estuary	Algae Toxicity, Cell Growth	%Control Growth			168.2	229					613.5			192.1	4	168.20	613.50	300.70	210.6	210.0		
Santa Maria	312SMA	Santa Maria R, estuary	Alkalinity as CaCO3	mg/L			115	311					292			117	4	115.00	311.00	208.75	204.5	107.4		
Santa Maria	312SMA	Santa Maria R, estuary	Ammonia as N	mg/L	0.407	0.219	0.479	0.286	0.064	0.195	0.126	0.115	0.145	0.0455	0.18	0.139	12	0.05	0.48	0.20	0.2	0.1		
Santa Maria	312SMA	Santa Maria R, estuary	Ammonia as N, Unionized	mg/L	0.01405	0.00868	0.00597	0.00606	0.00105	0.00142	0.00433	0.00987	0.00326	0.00323	0.00537	0.00081	12	0.0008	0.0141	0.0053	0.0049	0.0	<0.025	0%
Santa Maria	312SMA	Santa Maria R, estuary	Calcium	mg/L			166	302					282			116	4	116.00	302.00	216.50	224.0	89.9		
Santa Maria	312SMA	Santa Maria R, estuary	Chloride	mg/L			130	222					239			87.5	4	87.50	239.00	169.63	176.0	72.7		
Santa Maria	312SMA	Santa Maria R, estuary	Chlorophyll a, Field	ug/L	17	10	11	8	8	15	9	51	17	47	38	9	12	8.00	51.00	20.00	13.0	15.9		
Santa Maria	312SMA	Santa Maria R, estuary	Discharge	cfs	0.54581	0.86575	5.8449	1.55745	0.321875	-0.318	0.0441	0.166125	4.25625	0.886	-3.1179	8.5872	12	-3.12	8.59	1.64	0.71	3.1		
Santa Maria	312SMA	Santa Maria R, estuary	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			0	76.6					97.5			48.9	4	0.00	97.50	55.75	62.8	42.2		
Santa Maria	312SMA	Santa Maria R, estuary	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMA	Santa Maria R, estuary	Invertebrate Toxicity, Reproduction	%Control Repro			0	58.2					120.6			91.6	4	0.00	120.60	67.60	74.9	51.8		
Santa Maria	312SMA	Santa Maria R, estuary	Invertebrate Toxicity, Survival	%Control Survival			0	86.4					100			100	4	0.00	100.00	71.60	93.2	48.2		
Santa Maria	312SMA	Santa Maria R, estuary	Magnesium	mg/L			62.5	137					136			51	4	51.00	137.00	96.63	99.3	46.3		
Santa Maria	312SMA	Santa Maria R, estuary	Nitrate + Nitrite as N	mg/L	9.87	28.6	28.6	23.1	3.34	14.8	0.82	11	21	21.9	25.5	13.6	12	0.8	28.6	16.8	17.90	9.4	<10	75%
Santa Maria	312SMA	Santa Maria R, estuary	Nitrogen, Total	mg/L	10.848		31.47	24.34		17.1	1.633	12.36	23.63	23.28	27.04	15.77	10	1.63	31.47	18.75	20.2	8.9		
Santa Maria	312SMA	Santa Maria R, estuary	Nitrogen, Total Kjeldahl	mg/L	0.978		2.87	1.24		2.3	0.813	1.36	2.63	1.38	1.54	2.17	10	0.81	2.87	1.73	1.5	0.7		
Santa Maria	312SMA	Santa Maria R, estuary	OrthoPhosphate as P	mg/L	0.116	0.157	0.56	0.364	0.0904	0.452	0.262	0.084	1.01	0.0961	0.128	0.195	12	0.08	1.01	0.29	0.18	0.3		
Santa Maria	312SMA	Santa Maria R, estuary	Oxygen, Dissolved	mg/L	16.19	13.95	8.22	10.61	9.8	4.27	9.93	21.81	8.21	16.34	20.61	8.93	12	4.27	21.81	12.41	10.27	5.4	>7	8%
Santa Maria	312SMA	Santa Maria R, estuary	Oxygen, Saturation	%	177.3	144.6	91.9	109.8	106.2	45.8	120.6	265.6	93.4	182	192.5	76.1	12	45.80	265.60	133.82	115.20	61.1	None	N/A
Santa Maria	312SMA	Santa Maria R, estuary	pH	none	8.08	8.22	7.56	7.94	7.77	7.42	7.91	8.31	7.81	8.37	8.25	7.62	12	7.42	8.37	7.94	7.93	0.31	7-8.3	17%
Santa Maria	312SMA	Santa Maria R, estuary	Phosphorus as P	mg/L	0.23	0.32	1.13	0.502	0.185	0.554	0.375	0.359	1.27	0.289	0.221	0.232	12	0.19	1.27	0.47	0.3	0.4		
Santa Maria	312SMA	Santa Maria R, estuary	Potassium	mg/L			8.41	5.22					18.2			7.36	4	5.22	18.20	9.80	7.9	5.8		
Santa Maria	312SMA	Santa Maria R, estuary	Salinity	ppt	1.91	1.64	0.85	1.5	1.96	1.73	1.76	1.36	1.37	1.25	1.61	0.6	12	0.60	1.96	1.46	1.6	0.4		
Santa Maria	312SMA	Santa Maria R, estuary	Sediment Invertebrate Toxicity, Growth	%Control Growth				56.6									1	56.60	56.60	56.60	56.6	N/A		
Santa Maria	312SMA	Santa Maria R, estuary	Sediment Invertebrate Toxicity, Survival	%Control Survival				93.8									1	93.80	93.80	93.80	93.8	N/A		
Santa Maria	312SMA	Santa Maria R, estuary	Sodium	mg/L			103	158					175			78.3	4	78.30	175.00	128.58	130.5	45.5		
Santa Maria	312SMA	Santa Maria R, estuary	Specific Conductivity	uS/cm	3612	3112	1686	2877	3697	3297	3359	2643	2657	2427	3077	1195	12	1,195	3,697	2,803	2,977	751.0		
Santa Maria	312SMA	Santa Maria R, estuary	Sulfate	mg/L			493	1020					884			364	4	364.00	1020.00	690.25	688.5	311.8		
Santa Maria	312SMA	Santa Maria R, estuary	Total Dissolved Solids	mg/L	2346	3070	1096	1868	2403	2143	2184	1718	1727	1578	2000	777	12	777	3,070	1,909	1,934	606.4		
Santa Maria	312SMA	Santa Maria R, estuary	Total Suspended Solids	mg/L	6.83	16	99.1	16.3	0.25	87.1	16	20.4	11.2	34.2	22.1	84.6	12	0.25	99.10	34.51	18.4	34.8		
Santa Maria	312SMA	Santa Maria R, estuary	Turbidity, Field	NTU	7.38	15.5	153	15.5	7.09	4.52	5.78	8.49	28.6	15.6	12.8	228	12	5	228	42	14	72		
Santa Maria	312SMA	Santa Maria R, estuary	Water Temperature	Deg C	19.2	16.6	20.5	16.5	18.6	18.2	24.5	24.9	21.3	20	11.8	8.3	12	8.30	24.90	18.37	18.9	4.7		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Air Temperature	Deg C	19	12	10	19	16	20	19	20	22	32	16	13	12	10.00	32.00	18.17	19.0	5.7		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Ammonia as N	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Ammonia as N, Unionized	mg/L													0	N/A	N/A	N/A	N/A	N/A	<0.025	Not Sampled
Santa Maria	312SMI	Santa Maria R, Hwy 1	Calcium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Chlorophyll a, Field	ug/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Discharge	cfs	0	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.00	0.00	0.00	0.0		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Maria	312SMI	Santa Maria R, Hwy 1	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Magnesium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10	Not Sampled
Santa Maria	312SMI	Santa Maria R, Hwy 1	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	OrthoPhosphate as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Oxygen, Dissolved	mg/L													0	N/A	N/A	N/A	N/A	N/A	>7	Not Sampled
Santa Maria	312SMI	Santa Maria R, Hwy 1	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None	N/A
Santa Maria	312SMI	Santa Maria R, Hwy 1	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3	Not Sampled
Santa Maria	312SMI	Santa Maria R, Hwy 1	Phosphorus as P	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Potassium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Sodium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Specific Conductivity	uS/cm													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Total Dissolved Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Total Suspended Solids	mg/L													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Turbidity, Field	NTU													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Water Temperature	Deg C													0	N/A	N/A	N/A	N/A	N/A		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Air Temperature	Deg C	19	13	14	12	19	28	20	25	21	26	16	13	12	12.00	28.00	18.8	19.0	5.4		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Algae Toxicity, Cell Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Alkalinity as CaCO3	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Ammonia as N	mg/L		0.0224			0.0756								2	0.02	0.08	0.0	0.0	0.0		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Ammonia as N, Unionized	mg/L		0.00173			0.00303								2	0.00	0.00	0.0	0.0	0.0	<0.025	0%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Calcium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Chloride	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Chlorophyll a, Field	ug/L		12			11								2	11.00	12.00	11.5	11.5	0.7		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Discharge	cfs	0	0.032	0	0	0.003375	0	0	0	0	0	0	0	12	0.00	0.03	0.00	0.00	0.0		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Invertebrate Toxicity (Chironomus), Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Invertebrate Toxicity, Reproduction	%Control Repro													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Magnesium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Nitrate + Nitrite as N	mg/L		0.119			1.4								2	0.12	1.40	0.8	0.8	0.9	<10	0%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Nitrogen, Total	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Nitrogen, Total Kjeldahl	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	OrthoPhosphate as P	mg/L		0.317			0.125								2	0.13	0.32	0.2	0.2	0.1		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Oxygen, Dissolved	mg/L		11.67			7.89								2	7.89	11.67	9.8	9.8	2.7	>7	0%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Oxygen, Saturation	%		116.4			78.6								2	78.60	116.40	97.5	97.5	26.7	None	N/A
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	pH	none		8.53			8.25								2	8.25	8.53	8.4	8.4	0.2	7-8.3	50%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Phosphorus as P	mg/L		1.02			0.155								2	0.16	1.02	0.6	0.6	0.6		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Potassium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Salinity	ppt		0.33			0.68								2	0.33	0.68	0.5	0.5	0.2		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Sodium	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Specific Conductivity	uS/cm		677			1359								2	677.00	1359.00	1018.0	1018.0	482.2		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Sulfate	mg/L													0	N/A	N/A	N/A	N/A	N/A		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Total Dissolved Solids	mg/L		434			883								2	434.00	883.00	658.5	658.5	317.5		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Total Suspended Solids	mg/L		263			59.9								2	59.90	263.00	161.5	161.5	143.6		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Turbidity, Field	NTU		42.6			14.4								2	14.40	42.60	28.5	28.5	19.9		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Water Temperature	Deg C		15.1			15								2	15.00	15.10	15.1	15.1	0.1		

					1	2	3	4	5	6	7	8	9	10	11	12								
Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Ynez	314SYF	Santa Ynez R, Floradale	Air Temperature	Deg C	20		14	12		25		20	20	27			7	12.00	27.00	19.71	20.0	5.4		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Algae Toxicity, Cell Growth	%Control Growth			102.9	81.4									2	81.40	102.90	92.15	92.2	15.2		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Ammonia as N	mg/L	0.152		0.12	0.14		0.133		0.0605		0.0712			6	0.06	0.15	0.11	0.1	0.0		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Ammonia as N, Unionized	mg/L	0.00153		0.00084	0.00041		0.00071		0.00361		0.00073			6	0.0004	0.0036	0.0013	0.0008	0.001	<0.025	0%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Chloride	mg/L			180	224									2	180.00	224.00	202.00	202.0	31.1		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Chlorophyll a, Field	ug/L	4		4	4		3		7	5	8			7	3.00	8.00	5.00	4.0	1.8		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Discharge	cfs	3.684		3.4308	4.0546		2.746		2.751	1.521	2.93575			7	1.52	4.05	3.02	2.94	0.82		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	102.6									2	97.50	102.60	100.05	100.1	3.6		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Invertebrate Toxicity, Reproduction	%Control Repro			72.6	96.3									2	72.60	96.30	84.45	84.5	16.8		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Invertebrate Toxicity, Survival	%Control Survival			100	98.8									2	98.80	100.00	99.40	99.4	0.8		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Nitrate + Nitrite as N	mg/L	4.7		3.92	8.68		6.72		6.01	5.87	5.47			7	3.9	8.7	5.9	5.9	1.53	<10	0%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Nitrogen, Total	mg/L	6.04		5.4	10.29		8.21		6.795	7.38	7.16			7	5.40	10.29	7.33	7.2	1.6		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Nitrogen, Total Kjeldahl	mg/L	1.34		1.48	1.61		1.49		0.785	1.51	1.69			7	0.79	1.69	1.42	1.5	0.3		
Santa Ynez	314SYF	Santa Ynez R, Floradale	OrthoPhosphate as P	mg/L	4.13		4.36	4.83		5.83		5.35		5.72			6	4.13	5.83	5.04	5.09	0.71		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Oxygen, Dissolved	mg/L	5.4		5.15	5.06		5.56		6.04	5.27	5.93			7	5.06	6.04	5.49	5.40	0.38	>7	100%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Oxygen, Saturation	%	57		55	53.9		63		70	61.6	67.1			7	53.90	70.00	61.09	61.60	6.12	None	NA
Santa Ynez	314SYF	Santa Ynez R, Floradale	pH	none	7.55		7.37	7		7.16		8.2	7.9	7.45			7	7.00	8.20	7.52	7.45	0.42	7-8.3	0%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Phosphorus as P	mg/L	4.38		4.6	5.4		5.99		6.69		6.66			6	4.38	6.69	5.62	5.7	1.0		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Salinity	ppt	0.77		0.74	0.83		0.81		0.79	0.81	0.81			7	0.74	0.83	0.79	0.8	0.0		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Sediment Invertebrate Toxicity, Growth	%Control Growth				52.9									1	52.90	52.90	52.90	52.9	N/A		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Sediment Invertebrate Toxicity, Survival	%Control Survival				71.2									1	71.20	71.20	71.20	71.2	N/A		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Specific Conductivity	uS/cm	1522		1463	1633		1598		1575	1600	1611			7	1,463	1,633	1,572	1,598	59		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Sulfate	mg/L			336	420									2	336.00	420.00	378.00	378.0	59.4		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Total Dissolved Solids	mg/L	989		951	1062		1039		1024	1040	1047			7	951	1,062	1,022	1,039	39	<1000	Yes
Santa Ynez	314SYF	Santa Ynez R, Floradale	Total Suspended Solids	mg/L	15.5		12.7	17.6		19.1		17.4		9.38			6	9.38	19.10	15.28	16.5	3.6		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Turbidity, Field	NTU	16.4		12.7	15.9		10.5		15.9	10.7	7.72			7	8	16	13	13	3.4		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Water Temperature	Deg C	17.8		18.3	18.1		21.4		22.4	22.8	21.2			7	17.80	22.80	20.29	21.2	2.2		
Santa Ynez	314SYL	Santa Ynez R, River Park	Air Temperature	Deg C	20	13	14	11	20	25	21	22	20	27	13	14	12	11.00	27.00	18.33	20.0	5.2		
Santa Ynez	314SYL	Santa Ynez R, River Park	Algae Toxicity, Cell Growth	%Control Growth									197.7			195.7	2	195.70	197.70	196.70	196.7	1.4		
Santa Ynez	314SYL	Santa Ynez R, River Park	Ammonia as N	mg/L	0.0249								0.0144			0.0544	3	0.01	0.05	0.03	0.0	0.0		
Santa Ynez	314SYL	Santa Ynez R, River Park	Ammonia as N, Unionized	mg/L	0.00121								0.00161			0.00072	3	0.0007	0.0016	0.0012	0.0012	0.000	<0.025	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	Chloride	mg/L									56.1			25.2	2	25.20	56.10	40.65	40.7	21.8		
Santa Ynez	314SYL	Santa Ynez R, River Park	Chlorophyll a, Field	ug/L	3								4			7	3	3.00	7.00	4.67	4.0	2.1		
Santa Ynez	314SYL	Santa Ynez R, River Park	Discharge	cfs	2.62328	0	0	0	0	0	0	0	10.389	0	0	80.21925	12	0.00	80.22	7.77	0.00	23.01		
Santa Ynez	314SYL	Santa Ynez R, River Park	Invertebrate Toxicity (Chironomus), Survival	%Control Survival									100			65.8	2	65.80	100.00	82.90	82.9	24.2		
Santa Ynez	314SYL	Santa Ynez R, River Park	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Ynez	314SYL	Santa Ynez R, River Park	Invertebrate Toxicity, Reproduction	%Control Repro									119.7			84.2	2	84.20	119.70	101.95	102.0	25.1		
Santa Ynez	314SYL	Santa Ynez R, River Park	Invertebrate Toxicity, Survival	%Control Survival									111.1			100	2	100.00	111.10	105.55	105.6	7.8		
Santa Ynez	314SYL	Santa Ynez R, River Park	Nitrate + Nitrite as N	mg/L	0.005								0.096			0.39	3	0.0	0.4	0.2	0.1	0.20	<10	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	Nitrogen, Total	mg/L	0.193								0.476			5.61	3	0.19	5.61	2.09	0.5	3.0		
Santa Ynez	314SYL	Santa Ynez R, River Park	Nitrogen, Total Kjeldahl	mg/L	0.193								0.38			5.22	3	0.19	5.22	1.93	0.4	2.8		
Santa Ynez	314SYL	Santa Ynez R, River Park	OrthoPhosphate as P	mg/L	0.0441								0.0776			0.112	3	0.04	0.11	0.08	0.08	0.03		
Santa Ynez	314SYL	Santa Ynez R, River Park	Oxygen, Dissolved	mg/L	12.23								9.65			10.15	3	9.65	12.23	10.68	10.15	1.37	>7	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	Oxygen, Saturation	%	121.9								113.9			95.4	3	95.40	121.90	110.40	113.90	13.59	None	N/A
Santa Ynez	314SYL	Santa Ynez R, River Park	pH	none	8.34								8.46			7.81	3	7.81	8.46	8.20	8.34	0.35	7-8.3	67%
Santa Ynez	314SYL	Santa Ynez R, River Park	Phosphorus as P	mg/L	0.0427								0.169			2.03	3	0.04	2.03	0.75	0.2	1.1		
Santa Ynez	314SYL	Santa Ynez R, River Park	Salinity	ppt	0.76								0.61			0.19	3	0.19	0.76	0.52	0.6	0.3		
Santa Ynez	314SYL	Santa Ynez R, River Park	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Ynez	314SYL	Santa Ynez R, River Park	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Santa Ynez	314SYL	Santa Ynez R, River Park	Specific Conductivity	uS/cm	1504								1225			395.8	3	396	1,504	1,042	1,225	576		
Santa Ynez	314SYL	Santa Ynez R, River Park	Sulfate	mg/L									321			71.7	2	71.70	321.00	196.35	196.4	176.3		
Santa Ynez	314SYL	Santa Ynez R, River Park	Total Dissolved Solids	mg/L	978								796			257	3	257	978	677	796	375	<1000	No
Santa Ynez	314SYL	Santa Ynez R, River Park	Total Suspended Solids	mg/L	2.09								0.96			2570	3	0.96	2570.00	857.68	2.1	1482.9		
Santa Ynez	314SYL	Santa Ynez R, River Park	Turbidity, Field	NTU	9.36								3.36			999	3	3	999	337	9	573.1		
Santa Ynez	314SYL	Santa Ynez R, River Park	Water Temperature	Deg C	15								23.4			12.5	3	12.50	23.40	16.97	15.0	5.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Air Temperature	Deg C	19	13	14	13	17	25	19	20	22	27	13	14	12	13.00	27.00	18.00	18.0	4.9		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Algae Toxicity, Cell Growth	%Control Growth			163.8	115.2					86.4			134.79	4	86.40	163.80	125.05	125.0	32.6		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Ammonia as N	mg/L	0.0743	0.0894	0.117	0.415	1.15	0.4	0.433	0.134	1.48	0.221	1.27	0.0508	12	0.05	1.48	0.49	0.3	0.5		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Ammonia as N, Unionized	mg/L	0.00064	0.0063	0.00228	0.00207	0.04875	0.00319	0.01982	0.0021	0.03138	0.00784	0.01552	0.0005	12	0.0005	0.0488	0.0117	0.0047	0.015	<0.025	17%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Chloride	mg/L			84.3	296					1970			29.7	4	29.70	1970.00	595.00	190.2	923.8		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Chlorophyll a, Field	ug/L	10	31	9	34	19	9	199	167	99	199	199	7	12	7.00	199.00	81.83	32.5	84.7		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Discharge	cfs	3	3.5	9	10.8	1.60905	9.192	-2.981	0.458325	-0.8895	-6.372	-7.5392	151.82262	12	-7.54	151.82	14.30	2.30	43.70		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			97.5	105.3								97.5	3	97.50	105.30	100.10	97.5	4.5		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Invertebrate Toxicity, Reproduction	%Control Repro			78.1	94.1								52.94	3	52.94	94.10	75.05	78.1	20.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Invertebrate Toxicity, Survival	%Control Survival			100	111.1					98			100	4	98.00	111.10	102.28	100.0	6.0		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Nitrate + Nitrite as N	mg/L	0.949	0.937	1	1.84	0.093	0.403	0.14	0.99	0.185	0.162	0.45	0.45	12	0.1	1.8	0.6	0.5	0.52	<10	0%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Nitrogen, Total	mg/L	1.715		2.1	6.62		1.743	5.52	4.68	4.105	16.562	15.55	2.46	10	1.72	16.56	6.11	4.4	5.5		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Nitrogen, Total Kjeldahl	mg/L	0.766		1.1	4.78		1.34	5.38	3.69	3.92	16.4	15.1	2.01	10	0.77	16.40	5.45	3.8	5.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	OrthoPhosphate as P	mg/L	2.63	2.68	1.72	2.64	2.03	1.68	1.25	0.993	1.37	0.991	0.922	0.385	12	0.39	2.68	1.61	1.53	0.76		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Oxygen, Dissolved	mg/L	13.85	15.88	4.75	5.79	9.55	5.22	16.05	13.85	10	15.02	10.53	6.79	12	4.75	16.05	10.61	10.27	4.27	>7	33%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Oxygen, Saturation	%	136.5	147.9	47	59.6	101.7	58.1	171.9	158.3	120.3	170	94.4	63.5	12	47.00	171.90	110.77	111.00	46.40	None	N/A
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	pH	none	7.63	8.62	7.92	7.29	8.18	7.4	8.16	7.68	7.78	8.09	7.88	7.68	12	7.29	8.62	7.86	7.83	0.37	7-8.3	8%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Phosphorus as P	mg/L	2.9	2.8	1.94	3.49	2.64	1.95	1.55	1.48	1.84	1.2	8.24	1.53	12	1.20	8.24	2.63	1.9	1.9		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Salinity	ppt	1.92	0.91	0.39	0.95	0.92	2.02	3.02	3.1	3.97	4.4	2.24	0.19	12	0.19	4.40	2.00	2.0	1.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Sediment Invertebrate Toxicity, Growth	%Control Growth				174.6									1	174.60	174.60	174.60	174.6	N/A		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Sediment Invertebrate Toxicity, Survival	%Control Survival				53.7									1	53.70	53.70	53.70	53.7	N/A		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Specific Conductivity	uS/cm	3778	1787	783	1855	1789	3819	193	5715	7175	8021	4080	398.4	12	193	8,021	3,283	2,817	2,616		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Sulfate	mg/L			139	421					906			69.4	4	69.40	906.00	383.85	280.0	379.8		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Total Dissolved Solids	mg/L	2452	1110	509	1206	1169	2482	3623	3714	4677	5190	2729	259	12	259	5,190	2,427	2,467	1,626	<1000	Yes
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Total Suspended Solids	mg/L	22.7	3.82	9.14	30.9	35.8	11.8	72	73.6	23.1	190	125	852	12	3.82	852.00	120.82	33.4	236.8		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Turbidity, Field	NTU	17.1	14.5	16.2	46	44.2	4.82	42.2	38.3	21.2	96.4	51.6	999	12	5	999	116	40	279.1		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Water Temperature	Deg C	14.1	11.9	14.8	16.5	18.2	20.3	21.3	21.4	22.8	20.4	11.4	12.5	12	11.40	22.80	17.13	17.4	4.1		
South Coast	315APF	Arroyo Paredon	Air Temperature	Deg C	18	12	13	15	14	19	20	20	20	20	15	15	12	12.00	20.00	16.75	16.5	3.0		
South Coast	315APF	Arroyo Paredon	Algae Toxicity, Cell Growth	%Control Growth			78.3	188.3								118.87	3	78.30	188.30	128.49	118.9	55.6		
South Coast	315APF	Arroyo Paredon	Alkalinity as CaCO3	mg/L			381	355								261	3	261.00	381.00	332.33	355.0	63.1		
South Coast	315APF	Arroyo Paredon	Ammonia as N	mg/L	0.0138	0.091	0.0269	0.0139	0.102							0.0551	6	0.01	0.10	0.0505	0.0	0.0		
South Coast	315APF	Arroyo Paredon	Ammonia as N, Unionized	mg/L	0.00026	0.00149	0.00111	0.00031	0.00329							0.00226	6	0.0003	0.0033	0.0015	0.0013	0.001	<0.025	0%
South Coast	315APF	Arroyo Paredon	Calcium	mg/L			110	89.6								92	3	89.60	110.00	97.20	92.0	11.1		
South Coast	315APF	Arroyo Paredon	Chloride	mg/L			386	417								216	3	216.00	417.00	339.67	386.0	108.2		
South Coast	315APF	Arroyo Paredon	Chlorophyll a, Field	ug/L	9	5	5	5	5							7	6	5.00	9.00	6.00	5.0	1.7		
South Coast	315APF	Arroyo Paredon	Discharge	cfs	0.13505	0.023525	0.04995	0.0083	0.0012	0	0	0	0	0	0	0.7551	12	0.00	0.76	0.08	0.00	0.22		
South Coast	315APF	Arroyo Paredon	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			87.2	100								97.5	3	87.20	100.00	94.90	97.5	6.8		
South Coast	315APF	Arroyo Paredon	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
South Coast	315APF	Arroyo Paredon	Invertebrate Toxicity, Reproduction	%Control Repro			40.1	79.4								147.65	3	40.10	147.65	89.05	79.4	54.4		
South Coast	315APF	Arroyo Paredon	Invertebrate Toxicity, Survival	%Control Survival			80	90								100	3	80.00	100.00	90.00	90.0	10.0		
South Coast	315APF	Arroyo Paredon	Magnesium	mg/L			41	39.5								33.7	3	33.70	41.00	38.07	39.5	3.9		
South Coast	315APF	Arroyo Paredon	Nitrate + Nitrite as N	mg/L	0.005	0.1	0.012	0.005	0.005							2.13	6	0.0	2.1	0.4	0.0	0.86	<10	0%
South Coast	315APF	Arroyo Paredon	Nitrogen, Total	mg/L	0.208		0.012	0.354								2.672	4	0.01	2.67	0.81	0.3	1.2		
South Coast	315APF	Arroyo Paredon	Nitrogen, Total Kjeldahl	mg/L	0.208		0.065	0.354								0.542	4	0.07	0.54	0.29	0.3	0.2		
South Coast	315APF	Arroyo Paredon	OrthoPhosphate as P	mg/L	0.00375	0.034	0.0271	0.0108	0.008							0.0502	6	0.004	0.050	0.022	0.019	0.018		
South Coast	315APF	Arroyo Paredon	Oxygen, Dissolved	mg/L	12.78	12.21	9.83	10.08	8.53							10.66	6	8.53	12.78	10.68	10.37	1.58	>7	0%
South Coast	315APF	Arroyo Paredon	Oxygen, Saturation	%	112.2	100	96.4	101.3	88.3							94.6	6	88.30	112.20	98.80	98.20	8.01	None	N/A
South Coast	315APF	Arroyo Paredon	pH	none	8.12	8.15	8.3	7.99	8.11							8.43	6	7.99	8.43	8.18	8.14	0.16	7-8.3	17%
South Coast	315APF	Arroyo Paredon	Phosphorus as P	mg/L	0.0045	0.0667	0.0045	0.131	0.0093							0.102	6	0.005	0.13	0.05	0.0	0.1		
South Coast	315APF	Arroyo Paredon	Potassium	mg/L			2.5	2.5								2.5	3	2.50	2.50	2.50	2.5	0.0		
South Coast	315APF	Arroyo Paredon	Salinity	ppt	1.03	1.05	0.99	1.09	1.09							0.66	6	0.66	1.09	0.99	1.0	0.2		
South Coast	315APF	Arroyo Paredon	Sediment Invertebrate Toxicity, Growth	%Control Growth				101.7									1	101.70	101.70	101.70	101.7	N/A		
South Coast	315APF	Arroyo Paredon	Sediment Invertebrate Toxicity, Survival	%Control Survival				72.6									1	72.60	72.60	72.60	72.6	N/A		
South Coast	315APF	Arroyo Paredon	Sodium	mg/L			273	303								178	3	178.00	303.00	251.33	273.0	65.3		
South Coast	315APF	Arroyo Paredon	Specific Conductivity	uS/cm	2001	2056	1930	2111	2114							1314	6	1,314	2,114	1,921	2,029	305		
South Coast	315APF	Arroyo Paredon	Sulfate	mg/L			136	113								144	3	113.00	144.00	131.00	136.0	16.1		
South Coast	315APF	Arroyo Paredon	Total Dissolved Solids	mg/L	1301	1230	1255	1372	1374							854	6	854	1,374	1,231	1,278	194		
South Coast	315APF	Arroyo Paredon	Total Suspended Solids	mg/L	0.25	1.21	6.62	15.4	4							12.4	6	0.25	15.40	6.65	5.3	6.1		
South Coast	315APF	Arroyo Paredon	Turbidity, Field	NTU	3.22	13	3.66	3.4	5.28							8.17	6	3	13	6	4	4		
South Coast	315APF	Arroyo Paredon	Water Temperature	Deg C	9.3	6.5	14.2	15.3	16.7							9.9	6	6.50	16.70	11.98	12.1	4.0		
South Coast	315BEF	Bell Creek	Air Temperature	Deg C	19	13	14	18	14	20	20	22	21	27	16	14	12	13.00	27.00	18.17	18.5	4.2		
South Coast	315BEF	Bell Creek	Algae Toxicity, Cell Growth	%Control Growth			168	77.3								122.43	3	77.30	168.00	122.58	122.4	45.4		
South Coast	315BEF	Bell Creek	Alkalinity as CaCO3	mg/L			476	473								261	3	261.00	476.00	403.33	473.0	123.3		
South Coast	315BEF	Bell Creek	Ammonia as N	mg/L	0.0228	0.0241	0.0318	0.0343	0.0099							0.0303	6	0.01	0.03	0.0255	0.0	0.0		
South Coast	315BEF	Bell Creek	Ammonia as N, Unionized	mg/L	0.00048	0.00037	0.00062	0.00085	0.0001							0.00061	6	0.0001	0.0009	0.0005	0.0005	0.000	<0.025	0%
South Coast	315BEF	Bell Creek	Calcium	mg/L			328	423								160	3	160.00	423.00	303.67	328.0	133.2		
South Coast	315BEF	Bell Creek	Chloride	mg/L			461	730								133	3	133.00	730.00	441.33	461.0	299.0		
South Coast	315BEF	Bell Creek	Chlorophyll a, Field	ug/L	54	35	21	60	8							8	6	8.00	60.00	31.00	28.0	22.6		
South Coast	315BEF	Bell Creek	Discharge	cfs	0.0215	0.04725	0.0944	0.009575	0.00182	0	0	0	0	0	0	0.798	12	0.00	0.80	0.08	0.00	0.23		
South Coast	315BEF	Bell Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival												95	1	95.00	95.00	95.00	95.0	N/A		
South Coast	315BEF	Bell Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
South Coast	315BEF	Bell Creek	Invertebrate Toxicity, Reproduction	%Control Repro												115.29	1	115.29	115.29	115.29	115.3	N/A		
South Coast	315BEF	Bell Creek	Invertebrate Toxicity, Survival	%Control Survival			93.9	97.8								100	3	93.90	100.00	97.23	97.8	3.1		
South Coast	315BEF	Bell Creek	Magnesium	mg/L			182	295								76.1	3	76.10	295.00	184.37	182.0	109.5		
South Coast	315BEF	Bell Creek	Nitrate + Nitrite as N	mg/L	5.04	2.78	1.89	1.2	0.326							3.8	6	0.3	5.0	2.5	2.3	1.73	<10	0%
South Coast	315BEF	Bell Creek	Nitrogen, Total	mg/L	5.379		2.614	1.941								4.451	4	1.94	5.38	3.60	3.5	1.6		

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
South Coast	315BEF	Bell Creek	Nitrogen, Total Kjeldahl	mg/L	0.339		0.724	0.741								0.651	4	0.34	0.74	0.61	0.7	0.2		
South Coast	315BEF	Bell Creek	OrthoPhosphate as P	mg/L	0.0331	0.0099	0.0612	0.0075	0.00375							0.176	6	0.004	0.176	0.049	0.022	0.066		
South Coast	315BEF	Bell Creek	Oxygen, Dissolved	mg/L	14.35	14.65	9.61	9.15	5.96							10.08	6	5.96	14.65	10.63	9.85	3.33	>5	0%
South Coast	315BEF	Bell Creek	Oxygen, Saturation	%	131.2	129.4	93.7	103.1	59.8							91.2	6	59.80	131.20	101.40	98.40	26.72	>85	No
South Coast	315BEF	Bell Creek	pH	none	8.12	8.05	8	7.91	7.68							8.09	6	7.68	8.12	7.98	8.03	0.16	7-8.3	0%
South Coast	315BEF	Bell Creek	Phosphorus as P	mg/L	0.0408	0.167	0.13	0.0806	0.0045							0.249	6	0.005	0.25	0.11	0.1	0.1		
South Coast	315BEF	Bell Creek	Potassium	mg/L			2.5	2.5								2.5	3	2.50	2.50	2.50	2.5	0.0		
South Coast	315BEF	Bell Creek	Salinity	ppt	1.53	1.98	1.9	2.82	2.98							0.78	6	0.78	2.98	2.00	1.9	0.8		
South Coast	315BEF	Bell Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				101.8									1	101.80	101.80	101.80	101.8	N/A		
South Coast	315BEF	Bell Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				75.3									1	75.30	75.30	75.30	75.3	N/A		
South Coast	315BEF	Bell Creek	Sodium	mg/L			335	553								117	3	117.00	553.00	335.00	335.0	218.0		
South Coast	315BEF	Bell Creek	Specific Conductivity	uS/cm	2925	3745	3591	5212	5486							1547	6	1,547	5,486	3,751	3,668	1,464		
South Coast	315BEF	Bell Creek	Sulfate	mg/L			1200	1790								484	3	484.00	1790.00	1158.00	1200.0	654.0		
South Coast	315BEF	Bell Creek	Total Dissolved Solids	mg/L	1901	2980	2334	3388	3566							1005	6	1,005	3,566	2,529	2,657	977		
South Coast	315BEF	Bell Creek	Total Suspended Solids	mg/L	1.16	19.8	27.7	36.7	1.62							15.6	6	1.16	36.70	17.10	17.7	14.1		
South Coast	315BEF	Bell Creek	Turbidity, Field	NTU	5.61	4.93	21.3	23.6	5.99							168	6	5	168	38	14	64		
South Coast	315BEF	Bell Creek	Water Temperature	Deg C	11	9.3	13.7	20.4	14.9							10.7	6	9.30	20.40	13.33	12.4	4.0		
South Coast	315FMV	Franklin Creek	Air Temperature	Deg C	19	12	13	16	14	18	20	20	18	20	13	15	12	12.00	20.00	16.50	17.0	3.0		
South Coast	315FMV	Franklin Creek	Algae Toxicity, Cell Growth	%Control Growth			108.7	156.5					97.7			146.1	4	97.70	156.50	127.25	127.4	28.4		
South Coast	315FMV	Franklin Creek	Alkalinity as CaCO3	mg/L			507	484					440			137	4	137.00	507.00	392.00	462.0	172.3		
South Coast	315FMV	Franklin Creek	Ammonia as N	mg/L	0.0584	0.065	0.023	0.0992	0.13	0.0947	0.0262	0.0864	0.208	0.0531	0.0791	0.0429	12	0.02	0.21	0.0805	0.1	0.1		
South Coast	315FMV	Franklin Creek	Ammonia as N, Unionized	mg/L	0.00105	0.00047	0.00038	0.00364	0.00135	0.00773	0.00102	0.00129	0.00251	0.00146	0.00039	0.00058	12	0.0004	0.0077	0.0018	0.0012	0.002	<0.025	0%
South Coast	315FMV	Franklin Creek	Calcium	mg/L			135	121					130			46.3	4	46.30	135.00	108.08	125.5	41.6		
South Coast	315FMV	Franklin Creek	Chloride	mg/L			95.2	102					111			30	4	30.00	111.00	84.55	98.6	36.9		
South Coast	315FMV	Franklin Creek	Chlorophyll a, Field	ug/L	7	32	4	128	199	16	12	10	8	14	18	10	12	4.00	199.00	38.17	13.0	60.9		
South Coast	315FMV	Franklin Creek	Discharge	cfs	0.0862	0.041265	0.02625	0.00785	0.02715	0.03735	0.0682	0.01815	0.0575	0.0244	0.03615	0.35565	12	0.01	0.36	0.07	0.04	0.09		
South Coast	315FMV	Franklin Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			76.9	97.7					100			95	4	76.90	100.00	92.40	96.4	10.5		
South Coast	315FMV	Franklin Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
South Coast	315FMV	Franklin Creek	Invertebrate Toxicity, Reproduction	%Control Repro			33.2	96.9					1.6			175.88	4	1.60	175.88	76.90	65.1	77.0		
South Coast	315FMV	Franklin Creek	Invertebrate Toxicity, Survival	%Control Survival			70	100					88.9			100	4	70.00	100.00	89.73	94.5	14.2		
South Coast	315FMV	Franklin Creek	Magnesium	mg/L			94.8	112					100			33.5	4	33.50	112.00	85.08	97.4	35.1		
South Coast	315FMV	Franklin Creek	Nitrate + Nitrite as N	mg/L	36.2	22.7	23.9	31.4	42.3	23.2	34.5	29.5	38	27.2	31.2	7.44	12	7.4	42.3	29.0	30.4	9.14	<10	92%
South Coast	315FMV	Franklin Creek	Nitrogen, Total	mg/L	36.2		24.125	33.88		23.478	35.419	29.886	39.92	27.793	31.72	8.322	10	8.32	39.92	29.07	30.8	9.0		
South Coast	315FMV	Franklin Creek	Nitrogen, Total Kjeldahl	mg/L	0.065		0.225	2.48		0.278	0.919	0.386	1.92	0.593	0.52	0.882	10	0.07	2.48	0.83	0.6	0.8		
South Coast	315FMV	Franklin Creek	OrthoPhosphate as P	mg/L	2.9	3.43	0.63	0.0352	18.3	2.07	2.41	8.44	0.843	1.5	2.32	1.46	12	0.035	18.300	3.695	2.195	5.076		
South Coast	315FMV	Franklin Creek	Oxygen, Dissolved	mg/L	19.34	12.05	11.07	22.23	11.72	15.07	14.08	9.11	10.28	10.59	17.92	11.46	12	9.11	22.23	13.74	11.89	4.11	>7	0%
South Coast	315FMV	Franklin Creek	Oxygen, Saturation	%	181.7	104.6	112.4	245.4	124.2	174.6	163.1	105.2	116.9	112.9	171.9	103.6	12	103.60	245.40	143.04	120.55	44.27	None	N/A
South Coast	315FMV	Franklin Creek	pH	none	7.99	7.7	7.83	8.06	7.57	8.35	8	7.59	7.52	7.99	7.4	7.86	12	7.40	8.35	7.82	7.85	0.27	7-8.3	8%
South Coast	315FMV	Franklin Creek	Phosphorus as P	mg/L	3.23	5.94	0.606	0.47	20.5	2.04	2.47	12.9	8.46	2.25	2.33	1.49	12	0.47	20.50	5.22	2.4	6.0		
South Coast	315FMV	Franklin Creek	Potassium	mg/L			5.99	15.1					52.4			9.41	4	5.99	52.40	20.73	12.3	21.4		
South Coast	315FMV	Franklin Creek	Salinity	ppt	0.91	0.88	0.85	0.9	0.94	0.91	0.9	0.94	0.92	0.93	0.89	0.14	12	0.14	0.94	0.84	0.9	0.2		
South Coast	315FMV	Franklin Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				148									1	148.00	148.00	148.00	148.0	N/A		
South Coast	315FMV	Franklin Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				76.7									1	76.70	76.70	76.70	76.7	N/A		
South Coast	315FMV	Franklin Creek	Sodium	mg/L			115	125					118			41.1	4	41.10	125.00	99.78	116.5	39.3		
South Coast	315FMV	Franklin Creek	Specific Conductivity	uS/cm	1792	1738	1676	1767	1846	1799	1774	1847	1805	1820	1739	324.4	12	324	1,847	1,661	1,783	424		
South Coast	315FMV	Franklin Creek	Sulfate	mg/L			282	321					268			80.4	4	80.40	321.00	237.85	275.0	107.3		
South Coast	315FMV	Franklin Creek	Total Dissolved Solids	mg/L	1165	1210	1091	1148	1200	1169	1154	1200	1173	1183	1133	195	12	195	1,210	1,085	1,167	282		
South Coast	315FMV	Franklin Creek	Total Suspended Solids	mg/L	1.21	9.95	2.05	29.8	7.06	7.65	5.64	2.55	6.12	6.16	3.25	9.73	12	1.21	29.80	7.60	6.1	7.6		
South Coast	315FMV	Franklin Creek	Turbidity, Field	NTU	4.28	10.3	13.1	9.09	15.6	1.92	3.02	8.76	5.87	3.88	3.04	28.4	12	2	28	9	7	7		
South Coast	315FMV	Franklin Creek	Water Temperature	Deg C	12.3	8.9	15.8	19.9	17.8	22.4	22.7	22.2	21.4	18.1	13	11.1	12	8.90	22.70	17.13	18.0	4.8		
South Coast	315GAN	Glen Annie	Air Temperature	Deg C	18	12	16	18	14	19	20	22	20	20	16	15	12	12.00	22.00	17.50	18.0	2.9		
South Coast	315GAN	Glen Annie	Algae Toxicity, Cell Growth	%Control Growth			84.1	97.5					221			120.4	4	84.10	221.00	130.75	109.0	62.0		
South Coast	315GAN	Glen Annie	Alkalinity as CaCO3	mg/L			473	446					485			170	4	170.00	485.00	393.50	459.5	149.9		
South Coast	315GAN	Glen Annie	Ammonia as N	mg/L	0.189	0.0432	0.118	0.397	0.137	0.1	0.0767	0.0823	0.15	0.044	0.0432	0.0963	12	0.04	0.40	0.1231	0.1	0.1		
South Coast	315GAN	Glen Annie	Ammonia as N, Unionized	mg/L	0.00134	0.0003	0.00093	0.00456	0.00146	0.00102	0.0016	0.00264	0.00158	0.00042	0.00019	0.00086	12	0.0002	0.0046	0.0014	0.0012	0.001	<0.025	0%
South Coast	315GAN	Glen Annie	Calcium	mg/L			271	267					331			109	4	109.00	331.00	244.50	269.0	95.0		
South Coast	315GAN	Glen Annie	Chloride	mg/L			132	150					147			61.9	4	61.90	150.00	122.73	139.5	41.3		
South Coast	315GAN	Glen Annie	Chlorophyll a, Field	ug/L	17	97	4	7	4	6	19	14	33	15	19	8	12	4.00	97.00	20.25	14.5	25.6		
South Coast	315GAN	Glen Annie	Discharge	cfs	0.126375	0.1338	0.184	0.1007	0.0255	0.1227	0.05015	0.0886	0.02725	0.01605	-0.05325	0.8544	12	-0.05	0.85	0.14	0.09	0.23		
South Coast	315GAN	Glen Annie	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			84.6	87.5					95			97.5	4	84.60	97.50	91.15	91.3	6.1		
South Coast	315GAN	Glen Annie	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
South Coast	315GAN	Glen Annie	Invertebrate Toxicity, Reproduction	%Control Repro			4.15	69					86.7			138.82	4	4.15	138.82	74.67	77.9	55.6		
South Coast	315GAN	Glen Annie	Invertebrate Toxicity, Survival	%Control Survival			60	90					77.8			100	4	60.00	100.00	81.95	83.9	17.2		
South Coast	315GAN	Glen Annie	Magnesium	mg/L			97.9	105					130			52.8	4	52.80	130.00	96.43	101.5	32.2		
South Coast	315GAN	Glen Annie	Nitrate + Nitrite as N	mg/L	12.7	9.92	6.94	9.74	8.14	4.69	8.49	5.12	4.42	2.67	6.58	7.41	12	2.7	12.7	7.2	7.2	2.80	<10	8%
South Coast	315GAN	Glen Annie	Nitrogen, Total	mg/L	13.323		8.53	10.495		5.334	9.53	5.569	5.55	6.47	7.345	9.37	10	5.33	13.32	8.15	7.9	2.6		
South Coast	315GAN	Glen Annie	Nitrogen, Total Kjeldahl	mg/L	0.623		1.59	0.755		0.644	1.04	0.449	1.13	3.8	0.765	1.96	10	0.45	3.80	1.28	0.9	1.0		
South Coast	315GAN	Glen Annie	OrthoPhosphate as P	mg/L	0.0766	0.0578	0.206	0.17	0.153	0.144	0.133	0.138	0.233	0.0892	0.0511	0.103	12	0.051	0.233	0.130	0.136	0.057		
South Coast	315GAN	Glen Annie	Oxygen, Dissolved	mg/L	9.01	7.46	4.66	6.11	7.15	7.11	6.75	6.51	4.45	1.79	6.31	9.13	12	1.79	9.13	6.37	6.63	2.02	>7	58%
South Coast	315GAN	Glen Annie	Oxygen, Saturation	%	81.4	64.7	44.4	62	71.4	74.2	69.9	68.8	47.6	17.9	55	82.6	12	17.90	82.60	61.66	66.75	18.25	None	N/A
South Coast	315GAN	Glen Annie	pH	none	7.65	7.7	7.61	7.69	7.68	7.59	7.92	8.1	7.57	7.6	7.47	7.72	12	7.47	8.10	7.69	7.67	0.17	7-8.3	0%

Hydrologic Unit	Site ID	Site Description	Analyte	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	N	Min	Max	Mean	Median	Std Dev	WQO	Percent Exceedance
South Coast	315GAN	Glen Annie	Phosphorus as P	mg/L	0.296	0.13	0.355	0.229	0.178	0.16	0.168	0.322	0.33	0.0988	0.196	0.339	12	0.10	0.36	0.23	0.2	0.1		
South Coast	315GAN	Glen Annie	Potassium	mg/L			5.5	2.5					2.5			2.5	4	2.50	5.50	3.25	2.5	1.5		
South Coast	315GAN	Glen Annie	Salinity	ppt	1.86	1.21	1.07	1.28	1.26	1.11	1.24	1.25	1.36	1.31	1.24	0.53	12	0.53	1.86	1.23	1.2	0.3		
South Coast	315GAN	Glen Annie	Sediment Invertebrate Toxicity, Growth	%Control Growth				104.9									1	104.90	104.90	104.90	104.9	N/A		
South Coast	315GAN	Glen Annie	Sediment Invertebrate Toxicity, Survival	%Control Survival				86.3									1	86.30	86.30	86.30	86.3	N/A		
South Coast	315GAN	Glen Annie	Sodium	mg/L			168	174					193			82.2	4	82.20	193.00	154.30	171.0	49.2		
South Coast	315GAN	Glen Annie	Specific Conductivity	uS/cm	2440	2353	2082	2461	2427	2158	2400	2418	2616	2519	2398	1060	12	1,060	2,616	2,278	2,409	410		
South Coast	315GAN	Glen Annie	Sulfate	mg/L			776	828					941			324	4	324.00	941.00	717.25	802.0	271.1		
South Coast	315GAN	Glen Annie	Total Dissolved Solids	mg/L	1586	1820	1354	1600	1577	1403	1560	1571	1700	1637	1559	703	12	703	1,820	1,506	1,574	280		
South Coast	315GAN	Glen Annie	Total Suspended Solids	mg/L	1.79	3.79	41.7	15.1	9.49	4.6	32.6	2.28	27.6	44	33.4	145	12	1.79	145.00	30.11	21.4	39.5		
South Coast	315GAN	Glen Annie	Turbidity, Field	NTU	5.77	4.66	15.9	11.2	7.51	5.44	4.24	9.48	13.2	19.3	14.8	275	12	4	275	32	10	77		
South Coast	315GAN	Glen Annie	Water Temperature	Deg C	10.5	8.7	12.9	15.7	15	17.1	16.7	17.1	18.3	15.9	9.4	10.8	12	8.70	18.30	14.01	15.4	3.4		
South Coast	315LCC	Los Carneros Creek	Air Temperature	Deg C	18	12	14	18	14	19	20	20	21	20	15	15	12	12.00	21.00	17.17	18.0	3.0		
South Coast	315LCC	Los Carneros Creek	Algae Toxicity, Cell Growth	%Control Growth			137.2	215								122.7	3	122.70	215.00	158.30	137.2	49.6		
South Coast	315LCC	Los Carneros Creek	Alkalinity as CaCO3	mg/L			405	448								165	3	165.00	448.00	339.33	405.0	152.5		
South Coast	315LCC	Los Carneros Creek	Ammonia as N	mg/L	0.0578	0.0273	0.0533	0.0664								0.012	5	0.01	0.07	0.0434	0.1	0.0		
South Coast	315LCC	Los Carneros Creek	Ammonia as N, Unionized	mg/L	0.00041	0.00011	0.00068	0.00032								0.00023	5	0.0001	0.0007	0.0004	0.0003	0.000	<0.025	0%
South Coast	315LCC	Los Carneros Creek	Calcium	mg/L			218	215								115	3	115.00	218.00	182.67	215.0	58.6		
South Coast	315LCC	Los Carneros Creek	Chloride	mg/L			174	232								97.5	3	97.50	232.00	167.83	174.0	67.5		
South Coast	315LCC	Los Carneros Creek	Chlorophyll a, Field	ug/L	199	55	14	12								12	5	12.00	199.00	58.40	14.0	80.7		
South Coast	315LCC	Los Carneros Creek	Discharge	cfs	0.029875	0.0123	0.00144	0.00213	0	0	0	0	0	0	0	0.03955	12	0.00	0.04	0.01	0.00	0.01		
South Coast	315LCC	Los Carneros Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival			87.2	97.5								100	3	87.20	100.00	94.90	97.5	6.8		
South Coast	315LCC	Los Carneros Creek	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
South Coast	315LCC	Los Carneros Creek	Invertebrate Toxicity, Reproduction	%Control Repro			81.4	84.1								163.53	3	81.40	163.53	109.68	84.1	46.7		
South Coast	315LCC	Los Carneros Creek	Invertebrate Toxicity, Survival	%Control Survival			100	80								100	3	80.00	100.00	93.33	100.0	11.5		
South Coast	315LCC	Los Carneros Creek	Magnesium	mg/L			93.9	104								57.3	3	57.30	104.00	85.07	93.9	24.6		
South Coast	315LCC	Los Carneros Creek	Nitrate + Nitrite as N	mg/L	1.08	0.37	0.811	0.373								1.02	5	0.4	1.1	0.7	0.8	0.34	<10	0%
South Coast	315LCC	Los Carneros Creek	Nitrogen, Total	mg/L	1.497		1.471	0.929								1.836	4	0.93	1.84	1.43	1.5	0.4		
South Coast	315LCC	Los Carneros Creek	Nitrogen, Total Kjeldahl	mg/L	0.417		0.66	0.556								0.816	4	0.42	0.82	0.61	0.6	0.2		
South Coast	315LCC	Los Carneros Creek	OrthoPhosphate as P	mg/L	0.0569	0.0256	0.132	0.0669								0.154	5	0.026	0.154	0.087	0.067	0.054		
South Coast	315LCC	Los Carneros Creek	Oxygen, Dissolved	mg/L	9.74	6.47	8.12	5.68								10.32	5	5.68	10.32	8.07	8.12	2.01	>7	40%
South Coast	315LCC	Los Carneros Creek	Oxygen, Saturation	%	89.3	57.5	76.6	57.9								91.8	5	57.50	91.80	74.62	76.60	16.49	None	N/A
South Coast	315LCC	Los Carneros Creek	pH	none	7.64	7.43	7.84	7.31								8.09	5	7.31	8.09	7.66	7.64	0.31	7-8.3	0%
South Coast	315LCC	Los Carneros Creek	Phosphorus as P	mg/L	0.0705	0.259	0.127	0.313								0.155	5	0.07	0.31	0.18	0.2	0.1		
South Coast	315LCC	Los Carneros Creek	Potassium	mg/L			6.15	6.52								2.5	3	2.50	6.52	5.06	6.2	2.2		
South Coast	315LCC	Los Carneros Creek	Salinity	ppt	1.53	1.52	1.18	1.34								0.65	5	0.65	1.53	1.24	1.3	0.4		
South Coast	315LCC	Los Carneros Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				138.1									1	138.10	138.10	138.10	138.1	N/A		
South Coast	315LCC	Los Carneros Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				48.4									1	48.40	48.40	48.40	48.4	N/A		
South Coast	315LCC	Los Carneros Creek	Sodium	mg/L			214	244								126	3	126.00	244.00	194.67	214.0	61.3		
South Coast	315LCC	Los Carneros Creek	Specific Conductivity	uS/cm	2928	2909	2278	2585								1301	5	1,301	2,928	2,400	2,585	670		
South Coast	315LCC	Los Carneros Creek	Sulfate	mg/L			764	729								437	3	437.00	764.00	643.33	729.0	179.5		
South Coast	315LCC	Los Carneros Creek	Total Dissolved Solids	mg/L	1903	2270	1481	1680								845	5	845	2,270	1,636	1,680	530		
South Coast	315LCC	Los Carneros Creek	Total Suspended Solids	mg/L	1.55	56.2	4.02	11.7								18	5	1.55	56.20	18.29	11.7	22.2		
South Coast	315LCC	Los Carneros Creek	Turbidity, Field	NTU	6.5	16.5	8.5	23.4								30.6	5	7	31	17	17	10		
South Coast	315LCC	Los Carneros Creek	Water Temperature	Deg C	11.1	10.3	12.4	15.9								10	5	10.00	15.90	11.94	11.1	2.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Alkalinity as CaCO3	mg/L			92	201					502			92	4	92.00	502.00	221.75	146.5	193.8		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Calcium	mg/L			46	94.9					295			43.9	4	43.90	295.00	119.95	70.5	119.1		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Magnesium	mg/L			17.4	47.7					237			18.8	4	17.40	237.00	80.23	33.3	105.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Sodium	mg/L			81.6	221					1090			35.1	4	35.10	1090.00	356.93	151.3	495.1		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Potassium	mg/L			10.5	15					37.3			6.75	4	6.75	37.30	17.39	12.8	13.7		
Santa Ynez	314SYL	Santa Ynez R, River Park	Alkalinity as CaCO3	mg/L									290			117	2	117.00	290.00	203.50	203.5	122.3		
Santa Ynez	314SYL	Santa Ynez R, River Park	Calcium	mg/L									124			73.9	2	73.90	124.00	98.95	99.0	35.4		
Santa Ynez	314SYL	Santa Ynez R, River Park	Magnesium	mg/L									64.3			35.4	2	35.40	64.30	49.85	49.9	20.4		
Santa Ynez	314SYL	Santa Ynez R, River Park	Sodium	mg/L									79.3			28.7	2	28.70	79.30	54.00	54.0	35.8		
Santa Ynez	314SYL	Santa Ynez R, River Park	Potassium	mg/L									2.5			8.37	2	2.50	8.37	5.44	5.4	4.2		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Alkalinity as CaCO3	mg/L			108	90									2	90.00	108.00	99.00	99.0	12.7		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Calcium	mg/L			73	72.2									2	72.20	73.00	72.60	72.6	0.6		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Magnesium	mg/L			32.3	31.7									2	31.70	32.30	32.00	32.0	0.4		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Sodium	mg/L			180	207									2	180.00	207.00	193.50	193.5	19.1		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Potassium	mg/L			18.6	19.8									2	18.60	19.80	19.20	19.2	0.8		

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
305BRS	1/26/2022	2.73	1.05	6.17
305BRS	2/16/2022	5.00	2.14	13.64
305BRS	3/23/2022	0.91	0.62	2.16
305BRS	4/27/2022			
305BRS	5/24/2022	1.37	2.29	2.50
305BRS	6/30/2022			
305BRS	7/20/2022	0.21	0.14	0.30
305BRS	8/31/2022	0.23	0.23	2.38
305BRS	9/21/2022	2.99	0.86	1.90
305BRS	10/26/2022			
305BRS	11/9/2022			
305BRS	12/21/2022	5.16	0.96	7.14
305CAN	1/26/2022	5.99	31.22	64.40
305CAN	2/16/2022	3.88	21.92	393.26
305CAN	3/22/2022	2.40	2.82	26.71
305CAN	4/26/2022	2.25	22.31	247.60
305CAN	5/23/2022	0.11	0.00	0.02
305CAN	6/30/2022	0.00	0.00	0.00
305CAN	7/20/2022	0.00	0.00	0.00
305CAN	8/31/2022	0.00	0.00	0.00
305CAN	9/21/2022	0.00	0.00	0.00
305CAN	10/26/2022	0.00	0.00	0.00
305CAN	11/8/2022	0.00	0.00	0.00
305CAN	12/21/2022	1.93	2.29	25.04
305CHI	1/26/2022	75.64	104.40	444.48
305CHI	2/16/2022	32.90	91.63	515.22
305CHI	3/22/2022	33.40	19.07	186.47
305CHI	4/27/2022	15.04	44.56	457.25
305CHI	5/23/2022	21.74	5.60	115.61
305CHI	6/30/2022	7.93	1.59	23.04
305CHI	7/20/2022	10.63	0.74	4.67
305CHI	8/31/2022	12.04	1.24	25.56
305CHI	9/21/2022	9.74	0.86	4.13
305CHI	10/26/2022	0.78	0.10	1.73
305CHI	11/9/2022	11.73	53.52	36.98
305CHI	12/21/2022	131.84	9.76	260.50
305COR	1/26/2022	3.48	32.64	185.97
305COR	2/16/2022	1.11	27.48	113.01
305COR	3/23/2022	2.27	83.88	255.19
305COR	4/27/2022	3.67	9.49	60.42
305COR	5/23/2022	0.77	0.56	10.96
305COR	6/30/2022	0.27	0.39	4.53
305COR	7/20/2022	0.23	0.23	0.63
305COR	8/31/2022	0.06	0.19	1.30

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
305COR	9/21/2022	0.86	0.44	3.20
305COR	10/26/2022	0.12	1.18	1.21
305COR	11/9/2022	7.04	107.57	1585.64
305COR	12/21/2022	2.11	6.76	72.26
305FRA	1/26/2022	0.88	8.32	27.48
305FRA	2/16/2022	0.61	17.18	80.91
305FRA	3/22/2022	0.43	4.31	30.90
305FRA	4/26/2022	0.00	1.75	20.39
305FRA	5/23/2022	0.00	0.00	0.02
305FRA	6/30/2022	0.13	0.93	9.93
305FRA	7/20/2022	0.00	0.00	0.00
305FRA	8/31/2022	0.00	0.00	0.00
305FRA	9/21/2022	0.00	0.00	0.00
305FRA	10/26/2022	0.00	0.00	0.00
305FRA	11/9/2022	0.01	0.99	0.86
305FRA	12/21/2022	23.01	2.06	9.61
305FUF	1/26/2022	3.24	1.24	15.08
305FUF	2/16/2022	4.15	11.93	69.89
305FUF	3/22/2022	3.62	3.33	31.64
305FUF	4/26/2022	3.10	33.61	38.76
305FUF	5/23/2022	7.17	3.26	246.39
305FUF	6/30/2022	6.43	4.40	38.34
305FUF	7/20/2022	0.15	0.13	1.71
305FUF	8/31/2022	4.94	4.76	94.53
305FUF	9/21/2022	3.43	2.58	15.40
305FUF	10/26/2022	0.00	0.00	0.00
305FUF	11/9/2022	3.46	1001.26	2405.79
305FUF	12/21/2022	8.85	1.29	11.21
305LCS	1/26/2022	9.44	0.57	13.59
305LCS	2/16/2022	8.07	0.73	35.25
305LCS	3/22/2022	11.14	0.74	58.78
305LCS	4/26/2022	8.47	0.57	51.67
305LCS	5/23/2022	8.02	0.35	2.90
305LCS	6/30/2022	2.04	0.24	1.24
305LCS	7/20/2022	0.24	0.00	0.13
305LCS	8/31/2022	0.00	0.00	0.00
305LCS	9/21/2022	0.00	0.00	0.00
305LCS	10/26/2022	0.00	0.00	0.00
305LCS	11/8/2022	0.63	93.33	659.26
305LCS	12/21/2022	0.84	0.32	1.71
305PJP	1/26/2022	34.56	124.22	962.81
305PJP	2/16/2022	25.91	123.50	665.19
305PJP	3/23/2022	10.63	72.24	278.92
305PJP	4/27/2022	8.88	41.55	251.37

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
305PJP	5/24/2022	1.41	3.46	15.32
305PJP	6/30/2022	0.14	0.54	3.52
305PJP	7/20/2022	0.13	0.14	2.00
305PJP	8/31/2022	0.16	0.06	8.33
305PJP	9/21/2022	1.28	1.05	7.11
305PJP	10/26/2022	0.09	0.16	2.39
305PJP	11/9/2022	8.20	127.94	1405.78
305PJP	12/21/2022	52.20	26.39	208.07
305SJA	1/26/2022	18.43	2.30	12.26
305SJA	2/16/2022	4.45	1.33	8.45
305SJA	3/22/2022	5.22	3.09	15.69
305SJA	4/26/2022	5.19	3.11	13.95
305SJA	5/23/2022	4.18	1.04	4.10
305SJA	6/30/2022	4.37	2.25	19.63
305SJA	7/20/2022	3.01	1.07	4.55
305SJA	8/31/2022	6.71	4.14	40.41
305SJA	9/21/2022	5.36	6.71	18.51
305SJA	10/26/2022	0.82	0.99	10.96
305SJA	11/9/2022	12.96	99.80	420.10
305SJA	12/21/2022	60.50	23.90	106.34
305TSR	1/26/2022	3.05	1.07	13.17
305TSR	2/16/2022	1.96	13.91	14.76
305TSR	3/22/2022	0.96	1.23	12.42
305TSR	4/26/2022	0.70	2.14	5.22
305TSR	5/23/2022	0.02	0.94	0.74
305TSR	6/30/2022	0.00	1.20	0.39
305TSR	7/20/2022	0.00	5.06	8.71
305TSR	8/31/2022	3.08	9.58	43.54
305TSR	9/21/2022	0.45	0.99	2.35
305TSR	10/26/2022			
305TSR	11/8/2022	0.52	2.88	14.59
305TSR	12/21/2022	3.93	12.88	62.56
305WCS	1/26/2022	1.58	0.24	7.65
305WCS	2/16/2022	0.77	0.48	4.28
305WCS	3/23/2022	2.43	0.18	1.07
305WCS	4/27/2022	0.93	0.14	0.65
305WCS	5/24/2022	1.04	0.88	0.63
305WCS	6/30/2022	0.94	0.14	2.09
305WCS	7/20/2022	1.04	0.16	4.87
305WCS	8/31/2022			
305WCS	9/21/2022	2.88	0.56	8.18
305WCS	10/26/2022	0.00	7.37	16.76
305WCS	11/9/2022	3.71	4.14	27.32
305WCS	12/21/2022	11.76	1.27	13.66

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
305WSA	1/26/2022	1.95	87.33	381.13
305WSA	2/16/2022	0.85	48.43	174.98
305WSA	3/23/2022	0.81	3.56	16.99
305WSA	4/27/2022	0.74	5.43	20.00
305WSA	5/24/2022	0.12	0.22	0.82
305WSA	6/30/2022	0.00	0.00	0.00
305WSA	7/20/2022	0.00	0.00	0.00
305WSA	8/31/2022	0.00	0.00	0.00
305WSA	9/21/2022	0.00	0.00	0.00
305WSA	10/26/2022	0.00	0.00	0.00
305WSA	11/9/2022	0.00	0.00	0.00
305WSA	12/21/2022	12.34	96.89	718.54
309ALG	1/25/2022	3.23	43.73	29.11
309ALG	2/23/2022	2.35	3.83	8.60
309ALG	3/29/2022	4.58	69.22	396.20
309ALG	4/26/2022	1.37	1.91	4.90
309ALG	5/25/2022	4.01	2.55	5.74
309ALG	6/29/2022	5.60	5.48	13.43
309ALG	7/26/2022	25.12	13.35	54.18
309ALG	8/24/2022	6.68	2.46	6.52
309ALG	9/21/2022	24.38	21.66	14.98
309ALG	10/25/2022	0.57	13.92	13.30
309ALG	11/29/2022	14.20	87.16	235.61
309ALG	12/13/2022	82.52	3264.58	19521.00
309ASB	1/26/2022	4.50	64.52	25.66
309ASB	2/24/2022	1.90	1.78	4.47
309ASB	3/31/2022	1.15	0.63	1.59
309ASB	4/28/2022	8.95	2.43	5.98
309ASB	5/25/2022	13.61	32.68	18.46
309ASB	6/29/2022			15.88
309ASB	6/30/2022			
309ASB	7/27/2022	7.98	14.95	16.63
309ASB	8/25/2022	3.77	8.85	14.58
309ASB	9/20/2022	2.90	19.52	17.04
309ASB	10/26/2022	1.22	5.02	5.52
309ASB	11/30/2022	2.88	6.33	12.66
309ASB	12/11/2022	1033.58	392.40	783.00
309BLA	1/2/2022			
309BLA	1/26/2022	30.48	21.85	
309BLA	2/24/2022	71.03	49.50	116.64
309BLA	3/31/2022	28.18	11.54	23.45
309BLA	4/28/2022	92.96	37.33	44.00
309BLA	5/26/2022	88.90	14.55	4.79
309BLA	6/29/2022			3.62

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
309BLA	6/30/2022			
309BLA	7/27/2022	78.73	15.08	32.11
309BLA	8/25/2022	75.35	19.17	10.98
309BLA	9/21/2022	26.80	25.05	5.63
309BLA	10/26/2022	6.88	12.52	10.11
309BLA	11/30/2022	19.78	1.76	1.01
309BLA	12/13/2022	3209.30	2844.32	4438.00
309CCD	1/25/2022	0.00	0.00	0.00
309CCD	2/23/2022	0.00	0.00	0.00
309CCD	3/29/2022	0.00	0.00	0.00
309CCD	4/26/2022	2.98	54.60	268.62
309CCD	5/24/2022	0.00	0.00	0.00
309CCD	6/29/2022	1.51	47.47	246.84
309CCD	7/26/2022	2.29	68.45	352.21
309CCD	8/24/2022	3.65	17.30	90.55
309CCD	9/20/2022	0.00	0.00	0.00
309CCD	10/25/2022	0.00	0.00	0.00
309CCD	11/29/2022	0.01	0.05	0.15
309CCD	12/11/2022	10.02	2166.14	12738.00
309CRR	1/25/2022	0.00	0.00	0.00
309CRR	2/23/2022	0.00	0.00	0.00
309CRR	3/29/2022	0.00	0.00	0.00
309CRR	4/26/2022	0.13		62.76
309CRR	5/24/2022	0.00	0.00	0.00
309CRR	6/29/2022	14.51		2848.56
309CRR	7/26/2022	1.96		295.97
309CRR	8/24/2022	3.57		58.26
309CRR	9/20/2022	0.00	0.00	0.00
309CRR	10/25/2022	0.00	0.00	0.00
309CRR	11/29/2022	0.00	0.00	0.00
309CRR	12/11/2022	8.96		11173.50
309ESP	1/26/2022	10.48	3607.09	4380.00
309ESP	2/24/2022	20.48	118.93	422.55
309ESP	3/31/2022	45.98	114.35	288.00
309ESP	4/27/2022	11.46	10.54	28.44
309ESP	5/26/2022	8.24	52.15	154.25
309ESP	6/29/2022			6.16
309ESP	6/30/2022			
309ESP	7/27/2022	0.79	0.82	0.58
309ESP	8/25/2022	0.26	1.36	0.69
309ESP	9/20/2022	92.82	86.97	224.00
309ESP	10/26/2022	10.02	20.90	15.60
309ESP	11/30/2022	3.20	4.46	6.26
309ESP	12/13/2022	463.53	35902.32	213250.00

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
309GAB	1/25/2022	1.09	10.26	57.69
309GAB	2/23/2022	0.00	0.00	0.00
309GAB	3/30/2022	0.00	0.00	0.00
309GAB	4/26/2022	0.00	0.00	0.00
309GAB	5/24/2022	0.00	0.00	0.00
309GAB	6/29/2022	0.00	0.00	0.00
309GAB	7/26/2022	0.00	0.00	0.00
309GAB	8/24/2022	0.00	0.00	0.00
309GAB	9/21/2022	0.00	0.00	0.00
309GAB	10/25/2022	0.00	0.00	0.00
309GAB	11/29/2022	0.00	0.00	0.00
309GAB	12/12/2022	0.00	0.00	0.00
309GRN	1/25/2022	0.00	0.00	0.00
309GRN	2/23/2022	0.00	0.00	0.00
309GRN	3/29/2022	0.00	0.00	0.00
309GRN	4/26/2022	0.00	0.00	0.00
309GRN	5/23/2022	0.00	0.00	0.00
309GRN	6/29/2022	0.00	0.00	0.00
309GRN	7/26/2022	0.00	0.00	0.00
309GRN	8/24/2022	0.00	0.00	0.00
309GRN	9/22/2022	0.00	0.00	0.00
309GRN	10/25/2022	0.00	0.00	0.00
309GRN	11/29/2022	0.00	0.00	0.00
309GRN	12/11/2022	0.00	0.00	0.00
309JON	1/26/2022	3.47	7.11	22.22
309JON	2/24/2022	2.05	9.92	27.41
309JON	3/31/2022	7.34	48.72	165.98
309JON	4/27/2022	6.66	41.59	89.20
309JON	5/26/2022	8.79	10.19	31.90
309JON	6/29/2022			7.57
309JON	6/30/2022			
309JON	7/27/2022	7.69	8.45	28.32
309JON	8/25/2022	2.78	8.82	22.30
309JON	9/21/2022	1.58	8.88	20.14
309JON	10/26/2022	0.26	2.54	9.73
309JON	11/30/2022	3.20	3.74	12.00
309JON	12/12/2022	238.84	44235.66	350861.54
309MER	1/26/2022	0.50	0.71	2.17
309MER	2/24/2022	112.80	405.88	1010.10
309MER	3/31/2022	117.99	388.94	1483.13
309MER	4/28/2022			
309MER	5/25/2022			
309MER	6/29/2022			0.81
309MER	6/30/2022			

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
309MER	7/27/2022	17.18	47.96	94.61
309MER	8/25/2022	1.05	8.87	20.04
309MER	9/20/2022	7.00	58.24	109.13
309MER	10/26/2022	0.91	13.45	16.20
309MER	11/30/2022	0.38	0.37	1.46
309MER	12/11/2022	347.90	5501.65	46164.00
309MOR	1/26/2022	0.65	53.34	114.47
309MOR	2/24/2022	2.05	99.63	6397.83
309MOR	3/30/2022	2.21	51.42	61.33
309MOR	4/27/2022			
309MOR	5/25/2022	0.48	4.38	8.42
309MOR	6/29/2022			2.01
309MOR	6/30/2022			
309MOR	7/27/2022	0.01	0.30	0.42
309MOR	8/25/2022			
309MOR	9/21/2022	0.00	1.64	0.45
309MOR	10/26/2022	0.00	0.27	0.07
309MOR	11/30/2022	0.10	7.77	5.24
309MOR	12/12/2022			
309NAD	1/25/2022	0.05	0.11	0.04
309NAD	2/23/2022	11.19	88.26	88.83
309NAD	3/30/2022	0.42	1.26	1.90
309NAD	4/26/2022	0.71	0.78	2.72
309NAD	5/25/2022	0.44	0.41	1.25
309NAD	6/29/2022			
309NAD	6/30/2022			1.30
309NAD	7/26/2022	0.20	0.54	1.35
309NAD	8/24/2022	0.21	0.11	0.27
309NAD	9/21/2022	0.17	5.71	11.64
309NAD	10/25/2022	0.00	0.00	0.00
309NAD	11/29/2022	0.00	0.00	0.00
309NAD	12/12/2022	37.08	1150.67	4360.00
309OLD	1/26/2022	27.61	242.99	624.42
309OLD	2/24/2022	64.19	125.38	522.10
309OLD	3/30/2022	7.64	58.85	286.31
309OLD	4/27/2022	14.50	162.82	335.60
309OLD	5/25/2022	47.83	341.00	910.38
309OLD	6/30/2022	12.15	13.49	48.79
309OLD	7/27/2022	17.32	18.56	59.17
309OLD	8/25/2022	9.08	40.29	79.09
309OLD	9/21/2022	12.62	18.51	51.39
309OLD	10/26/2022	4.45	12.16	47.55
309OLD	11/30/2022	4.79	69.50	168.78
309OLD	12/13/2022			

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
309QUI	1/25/2022	0.00	0.00	0.00
309QUI	2/23/2022	0.00	0.00	0.00
309QUI	3/29/2022	0.00	0.00	0.00
309QUI	4/26/2022	0.00	0.00	0.00
309QUI	5/24/2022	0.00	0.00	0.00
309QUI	6/30/2022	0.00	0.00	0.00
309QUI	7/26/2022	0.00	0.00	0.00
309QUI	8/24/2022	0.00	0.00	0.00
309QUI	9/22/2022	0.00	0.00	0.00
309QUI	10/25/2022	0.00	0.00	0.00
309QUI	11/29/2022	0.00	0.00	0.00
309QUI	12/11/2022	19.43	102.99	984.50
309RTA	1/26/2022	0.01	0.07	0.25
309RTA	2/23/2022	0.48	2.46	2.34
309RTA	3/30/2022	0.00	0.00	0.00
309RTA	4/27/2022	0.00	0.00	0.00
309RTA	5/24/2022	0.00	0.00	0.00
309RTA	6/30/2022	0.00	0.00	0.00
309RTA	7/26/2022	0.00	0.00	0.00
309RTA	8/24/2022	0.00	0.00	0.00
309RTA	9/22/2022	0.00	0.00	0.00
309RTA	10/25/2022	0.00	0.00	0.00
309RTA	11/29/2022	0.00	0.00	0.00
309RTA	12/11/2022	7.34	4632.39	22734.00
309SAC	1/25/2022	0.00	0.00	0.00
309SAC	3/29/2022	0.00	0.00	0.00
309SAC	4/26/2022	0.00	0.00	0.00
309SAC	6/30/2022	0.00	0.00	0.00
309SAC	8/24/2022	0.00	0.00	0.00
309SAC	9/22/2022	0.00	0.00	0.00
309SAC	10/25/2022	0.00	0.00	0.00
309SAC	11/29/2022	0.00	0.00	0.00
309SAG	1/25/2022	0.00	0.00	0.00
309SAG	3/29/2022	0.00	0.00	0.00
309SAG	4/26/2022	0.00	0.00	0.00
309SAG	6/30/2022	0.00	0.00	0.00
309SAG	8/24/2022	0.00	0.00	0.00
309SAG	9/22/2022	0.00	0.00	0.00
309SAG	10/25/2022	0.00	0.00	0.00
309SAG	11/29/2022	0.00	0.00	0.00
309SSP	1/25/2022	0.00	0.00	0.00
309SSP	2/23/2022	0.00	0.00	0.00
309SSP	3/29/2022	0.00	0.00	0.00
309SSP	4/26/2022	0.00	0.00	0.00

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
309SSP	5/24/2022	0.00	0.00	0.00
309SSP	6/30/2022	0.00	0.00	0.00
309SSP	7/26/2022	0.00	0.00	0.00
309SSP	8/24/2022	0.00	0.00	0.00
309SSP	9/20/2022	0.00	0.00	0.00
309SSP	10/25/2022	0.00	0.00	0.00
309SSP	11/29/2022	0.00	0.00	0.00
309SSP	12/12/2022	0.00	0.00	0.00
309TEH	1/26/2022	76.07	369.84	904.04
309TEH	2/24/2022	54.02	98.09	300.48
309TEH	3/30/2022	56.39	464.84	1552.95
309TEH	4/28/2022	42.78	256.18	565.70
309TEH	5/26/2022	58.71	99.73	368.88
309TEH	6/30/2022	73.55	35.08	555.45
309TEH	7/27/2022	41.83	30.42	152.84
309TEH	8/25/2022	24.23	81.21	209.10
309TEH	9/21/2022	40.36	114.35	313.87
309TEH	10/26/2022	18.63	227.45	589.27
309TEH	11/30/2022	106.09	130.28	284.00
309TEH	12/11/2022	935.24	83931.39	475181.93
310CCC	1/19/2022	1.73	2.41	81.38
310CCC	2/23/2022	0.84	1.69	37.43
310CCC	3/28/2022	5.49	224.42	177.93
310CCC	4/18/2022	0.69	2.19	8.36
310CCC	5/16/2022	0.25	2.07	52.19
310CCC	6/22/2022	0.16	0.93	10.08
310CCC	7/27/2022	0.01	0.51	0.57
310CCC	8/24/2022	0.00	0.05	0.11
310CCC	9/13/2022	0.00	0.00	0.00
310CCC	10/19/2022	0.00	0.00	0.00
310CCC	11/29/2022	0.32	0.51	1.22
310CCC	12/2/2022	2.24	48.88	186.88
310LBC	1/19/2022	0.00	0.00	0.00
310LBC	2/23/2022	0.00	0.00	0.00
310LBC	3/29/2022	0.00	0.00	0.00
310LBC	4/18/2022	0.00	0.00	0.00
310LBC	5/16/2022	0.00	0.00	0.00
310LBC	6/22/2022	0.00	0.00	0.00
310LBC	7/27/2022	0.00	0.00	0.00
310LBC	8/24/2022	0.00	0.00	0.00
310LBC	9/13/2022	0.00	0.00	0.00
310LBC	10/19/2022	0.00	0.00	0.00
310LBC	11/29/2022	0.00	0.00	0.00
310LBC	12/2/2022	0.00	0.00	0.00

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
310PRE	1/19/2022	0.44	2.19	16.08
310PRE	2/23/2022	0.64	0.95	15.85
310PRE	3/28/2022	0.68	2.91	25.30
310PRE	4/18/2022	0.74	2.67	8.86
310PRE	5/16/2022	0.64	2.87	16.76
310PRE	6/22/2022	0.71	3.06	20.22
310PRE	7/27/2022	0.30	1.26	5.20
310PRE	8/24/2022	0.41	2.33	7.94
310PRE	9/13/2022	0.34	4.44	12.03
310PRE	10/19/2022	0.54	3.06	9.73
310PRE	11/29/2022	0.41	2.13	8.18
310PRE	12/2/2022	0.21	3.47	26.33
310SLD	1/19/2022	0.00	0.00	0.00
310SLD	2/23/2022	0.00	0.00	0.00
310SLD	3/28/2022	0.00	0.00	0.00
310SLD	4/18/2022	0.00	0.00	0.00
310SLD	5/16/2022	0.00	0.00	0.00
310SLD	6/22/2022	0.00	0.00	0.00
310SLD	7/27/2022	0.00	0.00	0.00
310SLD	8/24/2022	0.00	0.00	0.00
310SLD	9/13/2022	0.00	0.00	0.00
310SLD	10/19/2022	0.00	0.00	0.00
310SLD	11/29/2022	0.00	0.00	0.00
310SLD	12/2/2022	0.00	0.00	0.00
310USG	1/19/2022	1.08	5.48	30.95
310USG	2/23/2022	1.29	1.46	26.07
310USG	3/28/2022	1.50	6.23	13.69
310USG	4/18/2022	1.15	2.45	13.74
310USG	5/16/2022	0.48	0.43	3.00
310USG	6/22/2022	0.21	0.59	0.41
310USG	7/27/2022	0.08	0.02	0.23
310USG	8/24/2022	0.03	0.05	0.03
310USG	9/13/2022	0.03	0.01	0.05
310USG	10/19/2022	0.01	0.00	0.02
310USG	11/29/2022	0.19	0.09	0.53
310USG	12/2/2022	2.33	2.36	457.60
310WRP	1/19/2022	2.10	0.52	4.87
310WRP	2/23/2022	1.22	0.16	2.93
310WRP	3/28/2022	2.31	0.69	10.99
310WRP	4/18/2022	0.21	0.01	0.55
310WRP	5/16/2022	0.10	0.01	0.19
310WRP	6/22/2022			
310WRP	7/27/2022	0.00	0.00	0.00
310WRP	8/24/2022	0.00	0.00	0.00

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
310WRP	9/13/2022	0.00	0.00	0.00
310WRP	10/19/2022	0.00	0.00	0.00
310WRP	11/29/2022	0.00	0.00	0.00
310WRP	12/2/2022	0.00	0.00	0.00
312BCC	1/19/2022	0.00	0.00	0.00
312BCC	2/24/2022	0.00	0.00	0.00
312BCC	3/30/2022	0.00	0.00	0.00
312BCC	4/19/2022	0.00	0.00	0.00
312BCC	5/18/2022	0.00	0.00	0.00
312BCC	6/23/2022	0.00	0.00	0.00
312BCC	7/27/2022	0.00	0.00	0.00
312BCC	8/24/2022	0.00	0.00	0.00
312BCC	9/13/2022	0.00	0.00	0.00
312BCC	10/19/2022	0.00	0.00	0.00
312BCC	11/30/2022	1.22	139.12	799.00
312BCC	12/13/2022	0.00	0.00	0.00
312BCJ	1/20/2022	3.18	3.69	13.93
312BCJ	2/24/2022	1.07	11.64	13.67
312BCJ	3/30/2022	0.01	0.05	0.07
312BCJ	4/21/2022	0.87	1.61	2.93
312BCJ	5/18/2022	6.41	9.44	74.37
312BCJ	6/23/2022	2.97	3.25	11.24
312BCJ	7/28/2022	12.10	12.74	76.45
312BCJ	8/25/2022	0.52	0.40	0.87
312BCJ	9/13/2022	1.54	1.19	7.93
312BCJ	10/19/2022	4.60	48.43	276.17
312BCJ	11/30/2022	0.02	0.03	0.18
312BCJ	12/13/2022	0.92	71.88	716.36
312GVS	1/19/2022	0.00	0.00	0.00
312GVS	2/23/2022	0.00	0.00	0.00
312GVS	3/29/2022	0.00	0.00	0.00
312GVS	4/19/2022	0.00	0.00	0.00
312GVS	5/16/2022	0.00	0.00	0.00
312GVS	6/22/2022	0.00	0.00	0.00
312GVS	7/27/2022	0.00	0.00	0.00
312GVS	8/24/2022	0.00	0.00	0.00
312GVS	9/13/2022	0.00	0.00	0.00
312GVS	10/19/2022	0.00	0.00	0.00
312GVS	11/29/2022	0.00	0.00	0.00
312GVS	12/11/2022	0.54	24.53	269.23
312MSD	1/19/2022	0.06	0.12	0.83
312MSD	2/24/2022	0.23	2.31	16.83
312MSD	3/30/2022	0.00	0.03	0.31
312MSD	4/19/2022	0.21	8.29	7.59

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
312MSD	5/18/2022	0.00	0.00	0.01
312MSD	6/23/2022	0.09	0.10	0.35
312MSD	7/27/2022	0.44	0.80	1.61
312MSD	8/24/2022	0.12	0.16	1.18
312MSD	9/20/2022	0.18	5.38	92.07
312MSD	10/19/2022	0.01	0.07	0.02
312MSD	11/30/2022	4.36	19.10	158.95
312MSD	12/11/2022	5.66	645.06	13091.83
312OFC	1/19/2022	2.86	4.00	11.81
312OFC	2/23/2022	12.76	33.29	217.37
312OFC	3/29/2022	19.70	201.58	2177.17
312OFC	4/19/2022	1.06	10.71	18.32
312OFC	5/17/2022	11.71	60.41	482.53
312OFC	6/22/2022	4.11	9.88	9.79
312OFC	7/27/2022			
312OFC	8/24/2022	0.07	0.27	1.37
312OFC	9/20/2022	0.05	0.09	0.57
312OFC	10/19/2022			
312OFC	11/29/2022	4.86	39.75	353.21
312OFC	12/11/2022	18.39	1139.60	6754.24
312OFN	1/19/2022	1.21	1.00	2.06
312OFN	2/23/2022	1.39	4.23	21.83
312OFN	3/29/2022	0.82	9.83	95.26
312OFN	4/18/2022	8.56	3.51	24.32
312OFN	5/17/2022	2.33	1.09	9.82
312OFN	5/31/2022			
312OFN	6/22/2022	4.81	0.89	5.13
312OFN	7/27/2022	0.65	0.28	1.05
312OFN	8/24/2022	0.65	0.93	0.83
312OFN	9/13/2022	1.52	0.34	2.01
312OFN	10/19/2022	1.67	4.39	9.27
312OFN	11/29/2022	1.59	60.65	500.21
312OFN	12/13/2022	0.87	2.08	20.82
312ORC	1/19/2022	1.14	4.02	6.93
312ORC	2/23/2022	6.91	5.56	34.70
312ORC	3/29/2022	19.31	118.25	239.81
312ORC	4/19/2022	15.67	39.31	300.10
312ORC	5/17/2022	0.52	1.40	10.12
312ORC	6/22/2022	1.38	2.96	14.63
312ORC	7/27/2022	0.11	4.86	29.86
312ORC	8/24/2022	0.57	0.74	3.27
312ORC	9/20/2022	12.43	132.55	466.93
312ORC	10/19/2022	15.40	64.87	142.20
312ORC	11/29/2022	0.60	3.11	16.65

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
312ORC	12/13/2022	35.54	208.92	2189.70
312ORI	1/19/2022	4.11	4.73	20.40
312ORI	2/23/2022	8.81	1.87	8.51
312ORI	3/30/2022	8.77	33.67	311.47
312ORI	4/19/2022	14.78	14.05	27.83
312ORI	5/17/2022	10.25	4.22	15.03
312ORI	6/23/2022	2.56	0.89	2.71
312ORI	7/27/2022	4.67	0.78	3.38
312ORI	8/24/2022	0.14	0.08	0.10
312ORI	9/20/2022	9.63	9.80	6.11
312ORI	10/19/2022	2.05	1.10	1.26
312ORI	11/29/2022			
312ORI	12/13/2022	27.08	161.13	1101.70
312SMA	1/19/2022	1.21	0.84	4.03
312SMA	2/23/2022	5.56	3.11	13.42
312SMA	3/29/2022	37.57	130.18	894.27
312SMA	4/19/2022	8.09	5.71	24.14
312SMA	5/17/2022	0.24	0.02	2.28
312SMA	6/22/2022			
312SMA	7/27/2022	0.01	0.16	0.25
312SMA	8/24/2022	0.41	0.76	1.41
312SMA	9/20/2022	20.09	10.71	121.73
312SMA	10/19/2022	4.36	6.81	13.82
312SMA	11/29/2022			
312SMA	12/13/2022	26.25	163.27	1957.88
312SMI	1/19/2022	0.00	0.00	0.00
312SMI	2/23/2022	0.00	0.00	0.00
312SMI	3/30/2022	0.00	0.00	0.00
312SMI	4/19/2022	0.00	0.00	0.00
312SMI	5/17/2022	0.00	0.00	0.00
312SMI	6/22/2022	0.00	0.00	0.00
312SMI	7/27/2022	0.00	0.00	0.00
312SMI	8/24/2022	0.00	0.00	0.00
312SMI	9/13/2022	0.00	0.00	0.00
312SMI	10/19/2022	0.00	0.00	0.00
312SMI	11/29/2022	0.00	0.00	0.00
312SMI	12/11/2022	0.00	0.00	0.00
313SAE	1/20/2022	0.00	0.00	0.00
313SAE	2/24/2022	0.00	1.89	1.36
313SAE	3/30/2022	0.00	0.00	0.00
313SAE	4/21/2022	0.00	0.00	0.00
313SAE	5/18/2022	0.00	0.05	0.05
313SAE	6/23/2022	0.00	0.00	0.00
313SAE	7/28/2022	0.00	0.00	0.00

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
313SAE	8/25/2022	0.00	0.00	0.00
313SAE	9/14/2022	0.00	0.00	0.00
313SAE	10/20/2022	0.00	0.00	0.00
313SAE	11/30/2022	0.00	0.00	0.00
313SAE	12/11/2022	0.00	0.00	0.00
314SYF	1/20/2022	3.89	12.83	60.42
314SYF	3/30/2022	3.02	9.79	43.57
314SYF	4/21/2022	7.91	16.04	64.47
314SYF	6/22/2022			
314SYF	6/23/2022			28.83
314SYF	8/25/2022	3.72	10.76	43.74
314SYF	9/14/2022	2.01		16.27
314SYF	10/20/2022	3.61	6.19	22.66
314SYL	1/20/2022	0.00	1.23	24.55
314SYL	2/24/2022	0.00	0.00	0.00
314SYL	3/30/2022	0.00	0.00	0.00
314SYL	4/21/2022	0.00	0.00	0.00
314SYL	5/18/2022	0.00	0.00	0.00
314SYL	6/23/2022	0.00	0.00	0.00
314SYL	7/28/2022	0.00	0.00	0.00
314SYL	8/25/2022	0.00	0.00	0.00
314SYL	9/14/2022	0.22	2.24	34.91
314SYL	10/20/2022	0.00	0.00	0.00
314SYL	11/30/2022	0.00	0.00	0.00
314SYL	12/11/2022	7.03	46333.31	80139.03
314SYN	1/20/2022	0.64	15.30	51.30
314SYN	2/24/2022	0.74	3.00	50.75
314SYN	3/30/2022	2.02	18.49	145.80
314SYN	4/21/2022	4.47	75.00	496.80
314SYN	5/18/2022	0.03	12.95	71.12
314SYN	6/23/2022	0.83	24.38	44.31
314SYN	7/28/2022			
314SYN	8/25/2022	0.10	7.58	17.55
314SYN	9/14/2022			
314SYN	10/20/2022			
314SYN	11/30/2022			
314SYN	12/12/2022	15.35	29070.85	151670.80
315APF	1/20/2022	0.00	0.01	0.43
315APF	2/24/2022	0.00	0.01	0.31
315APF	3/31/2022	0.00	0.07	0.18
315APF	4/20/2022	0.00	0.03	0.03
315APF	5/19/2022	0.00	0.00	0.01
315APF	6/23/2022	0.00	0.00	0.00
315APF	7/28/2022	0.00	0.00	0.00

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
315APF	8/25/2022	0.00	0.00	0.00
315APF	9/14/2022	0.00	0.00	0.00
315APF	10/20/2022	0.00	0.00	0.00
315APF	11/30/2022	0.00	0.00	0.00
315APF	12/12/2022	0.36	2.10	6.17
315BEF	1/20/2022	0.02	0.01	0.12
315BEF	2/24/2022	0.03	0.21	0.23
315BEF	3/31/2022	0.04	0.59	2.01
315BEF	4/20/2022	0.00	0.08	0.23
315BEF	5/19/2022	0.00	0.00	0.01
315BEF	6/23/2022	0.00	0.00	0.00
315BEF	7/27/2022	0.00	0.00	0.00
315BEF	8/25/2022	0.00	0.00	0.00
315BEF	9/14/2022	0.00	0.00	0.00
315BEF	10/20/2022	0.00	0.00	0.00
315BEF	11/30/2022	0.00	0.00	0.00
315BEF	12/12/2022	0.68	2.80	134.06
315FMV	1/20/2022	0.70	0.02	0.37
315FMV	2/24/2022	0.21	0.09	0.43
315FMV	3/31/2022	0.14	0.01	0.34
315FMV	4/20/2022	0.06	0.05	0.07
315FMV	5/19/2022	0.26	0.04	0.42
315FMV	6/23/2022	0.19	0.06	0.07
315FMV	7/28/2022	0.53	0.09	0.21
315FMV	8/25/2022	0.12	0.01	0.16
315FMV	9/14/2022	0.49	0.08	0.34
315FMV	10/20/2022	0.15	0.03	0.09
315FMV	11/30/2022	0.25	0.03	0.11
315FMV	12/12/2022	0.59	0.78	10.10
315GAN	1/20/2022	0.36	0.05	0.73
315GAN	2/24/2022	0.30	0.11	0.62
315GAN	3/31/2022	0.29	1.72	2.93
315GAN	4/20/2022	0.22	0.34	1.13
315GAN	5/19/2022	0.05	0.05	0.19
315GAN	6/23/2022	0.13	0.13	0.67
315GAN	7/28/2022	0.10	0.37	0.21
315GAN	8/25/2022	0.10	0.05	0.84
315GAN	9/14/2022	0.03	0.17	0.36
315GAN	10/20/2022	0.01	0.16	0.31
315GAN	11/30/2022			
315GAN	12/12/2022	1.42	27.84	234.96
315LCC	1/20/2022	0.01	0.01	0.19
315LCC	2/24/2022	0.00	0.16	0.20
315LCC	3/31/2022	0.00	0.00	0.01

SiteID	Date	Nitrate Loading (lb/Hr)	TSS Loading (lb/Hr)	Turbidity Loading (NTU/CFS)
315LCC	4/20/2022	0.00	0.01	0.05
315LCC	5/19/2022	0.00	0.00	0.00
315LCC	6/23/2022	0.00	0.00	0.00
315LCC	7/28/2022	0.00	0.00	0.00
315LCC	8/25/2022	0.00	0.00	0.00
315LCC	9/14/2022	0.00	0.00	0.00
315LCC	10/20/2022	0.00	0.00	0.00
315LCC	11/30/2022	0.00	0.00	0.00
315LCC	12/12/2022	0.01	0.16	1.21

			Pajaro River Basin Nutrient TMDL Percent Exceedance															Pajaro River Watershed Chlorpyrifos and Diazinon TMDL Exceedances			Non TMDL Area Limit Percent Exceedance			
Hydrologic Unit	Site ID	Site Description	Unionized Ammonia, 0.025 mg/L	Nitrate as N, 10 mg/L	Nitrate as N, 1.8 mg/L (Dry Season)	Nitrate as N, 2.2 mg/L (Dry Season)	Nitrate as N, 3.3 mg/L (Dry Season)	Nitrate as N, 3.9 mg/L (Dry Season)	Nitrate as N, 8.0 mg/L (Wet Season)	Total Nitrogen, 2.1 mg/L (Dry Season)	Total Nitrogen, 1.1 mg/L (Dry Season)	Total Nitrogen, 8.0 mg/L (Wet Season)	Orthophosphate, 0.04 mg/L (Dry Season)	Orthophosphate, 0.05 mg/L (Dry Season)	Orthophosphate, 0.12 mg/L (Dry Season)	Orthophosphate, 0.14 mg/L (Dry Season)	Orthophosphate, 0.3 mg/L (Wet Season)	No Significant Toxic Effect, 10 Day, Chronic Exposure with H. azteca in Sediment (Survival)?	No Significant Toxic Effect, 7 Day, Chronic Exposure with C. dubia in Water (Survival)?	No Significant Toxic Effect, 7 Day, Chronic Exposure with C. dubia in Water (Reproduction)?	Turbidity, 25.0 NTU (Cold)	Turbidity, 40.0 NTU (Warm)	Nitrate as N, 10 mg/L	Unionized Ammonia, 0.025 mg/L
Pajaro	305BRS	Beach Road Ditch	0%	100%	N/A	N/A	100%	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	40%	29%	N/A	N/A	N/A	25%	N/A	N/A	N/A
Pajaro	305CAN	Carnadero Creek	0%	17%	100%	N/A	N/A	N/A	0%	N/A	N/A	N/A	N/A	0%	N/A	N/A	0%	N/A	N/A	N/A	17%	N/A	N/A	N/A
Pajaro	305CHI	Pajaro River at Chittenden	0%	50%	N/A	N/A	N/A	100%	43%	N/A	N/A	N/A	N/A	N/A	N/A	100%	29%	Yes	Yes	No	0%	N/A	N/A	N/A
Pajaro	305COR	Salsipuedes Creek	0%	0%	100%	N/A	N/A	N/A	0%	N/A	N/A	N/A	N/A	N/A	N/A	80%	43%	N/A	N/A	N/A	8%	N/A	N/A	N/A
Pajaro	305FRA	Miller Canal	25%	13%	N/A	N/A	N/A	N/A	N/A	N/A	100%	20%	100%	N/A	N/A	N/A	50%	N/A	N/A	N/A	63%	N/A	N/A	N/A
Pajaro	305FUF	Furlong Creek	0%	91%	100%	N/A	N/A	N/A	83%	N/A	N/A	N/A	N/A	100%	N/A	N/A	17%	N/A	N/A	N/A	91%	N/A	N/A	N/A
Pajaro	305LCS	Llagas Creek	0%	78%	100%	N/A	N/A	N/A	67%	N/A	N/A	N/A	N/A	0%	N/A	N/A	0%	Yes	Yes	No	22%	N/A	N/A	N/A
Pajaro	305PJP	Pajaro River at Main St.	0%	8%	N/A	N/A	N/A	0%	14%	N/A	N/A	N/A	N/A	N/A	N/A	100%	29%	Yes	Yes	No	8%	N/A	N/A	N/A
Pajaro	305SJA	San Juan Creek	0%	92%	N/A	N/A	100%	N/A	100%	N/A	N/A	N/A	N/A	N/A	100%	N/A	71%	N/A	N/A	N/A	42%	N/A	N/A	N/A
Pajaro	305TSR	Tequisquita Slough	25%	50%	N/A	60%	N/A	N/A	71%	N/A	N/A	N/A	N/A	N/A	60%	N/A	14%	N/A	N/A	N/A	N/A	42%	N/A	N/A
Pajaro	305WCS	Watsonville Creek	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8%	N/A	83%	8%
Pajaro	305WSA	Watsonville Slough	0%	0%	N/A	N/A	N/A	N/A	0%	Not Sampled	N/A	N/A	N/A	N/A	N/A	100%	60%	N/A	N/A	N/A	N/A	50%	N/A	N/A

			Lower Salinas River Watershed Nutrient TMDL Percent Exceedance												Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL Exceedances	Non TMDL Area Limit Percent Exceedance			
Hydrologic Unit	Site ID	Site Description	Unionized Ammonia, 0.025 mg/L	Nitrate as N, 10 mg/L	Nitrate as N, 1.4 mg/L (Dry Season)	Nitrate as N, 2.0 mg/L (Dry Season)	Nitrate as N, 3.1 mg/L (Dry Season)	Nitrate as N, 6.4 mg/L (Dry Season)	Nitrate as N, 8.0 mg/L (Wet Season)	Total Nitrogen, 1.7 mg/L (Dry Season)	Total Nitrogen, 8.0 mg/L (Wet Season)2	Orthophosphate, 0.07 mg/L (Dry Season)	Orthophosphate, 0.13 mg/L (Dry Season)	Orthophosphate, 0.3 mg/L (Wet Season)	No Significant Toxic Effect, 10 Day, Chronic Exposure with H. azteca in Sediment (Survival)?	Turbidity, 40.0 NTU (Warm)	Turbidity, 25.0 NTU (Cold)	Nitrate as N, 10 mg/L	Unionized Ammonia, 0.025 mg/L 2
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	83%	N/A	N/A	N/A	N/A	100%	86%	N/A	N/A	N/A	100%	57%	No	33%	N/A	N/A	N/A
Lower Salinas	309ASB	Alisal Slough	8%	N/A	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A	100%	100%	No	N/A	33%	N/A	N/A
Lower Salinas	309BLA	Blanco Drain	0%	N/A	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A	100%	100%	Yes	0%	N/A	N/A	N/A
Lower Salinas	309CCD	Chualar Creek, South Branch	33%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	100%	N/A	N/A
Lower Salinas	309CRR	Chualar Creek, North Branch	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Sampled	N/A	100%	N/A	N/A
Lower Salinas	309ESP	Espinosa Slough	8%	N/A	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A	40%	14%	N/A	42%	N/A	N/A	N/A
Lower Salinas	309GAB	Gabilan Creek	0%	N/A	N/A	Not Sampled	N/A	N/A	100%	N/A	N/A	Not Sampled	N/A	100%	Not Sampled	N/A	100%	N/A	N/A
Lower Salinas	309GRN	Salinas R, Greenfield	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Sampled	Not Sampled	Not Sampled
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	8%	N/A	N/A	N/A	N/A	100%	71%	N/A	N/A	N/A	100%	57%	No	25%	N/A	N/A	N/A
Lower Salinas	309MER	Merrit Ditch	8%	N/A	N/A	N/A	N/A	80%	100%	N/A	N/A	N/A	20%	29%	Yes	N/A	67%	N/A	N/A
Lower Salinas	309MOR	Moro Cojo Slough	8%	N/A	N/A	N/A	N/A	N/A	N/A	50%	17%	N/A	0%	14%	N/A	N/A	17%	0%	N/A
Lower Salinas	309NAD	Natividad Creek	20%	N/A	N/A	100%	N/A	N/A	100%	N/A	N/A	100%	N/A	60%	No	N/A	70%	N/A	N/A
Lower Salinas	309OLD	Old Salinas River	0%	N/A	N/A	N/A	100%	N/A	100%	N/A	N/A	100%	N/A	100%	No	N/A	83%	N/A	N/A
Lower Salinas	309QUI	Quail Creek	0%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Sampled	N/A	100%	N/A	N/A
Lower Salinas	309RTA	Santa Rita Creek	33%	N/A	N/A	N/A	N/A	Not Sampled	33%	N/A	N/A	N/A	Not Sampled	100%	N/A	N/A	33%	N/A	N/A
Lower Salinas	309SAC	Salinas R, Chualar	Not Sampled	N/A	Not Sampled	N/A	N/A	N/A	Not Sampled	N/A	N/A	Not Sampled	N/A	Not Sampled	Not Sampled	N/A	Not Sampled	N/A	N/A
Lower Salinas	309SAG	Salinas R, Gonzales	Not Sampled	N/A	Not Sampled	N/A	N/A	N/A	Not Sampled	N/A	N/A	Not Sampled	N/A	Not Sampled	Not Sampled	N/A	Not Sampled	N/A	N/A
Lower Salinas	309SSP	Salinas R, Spreckles	Not Sampled	N/A	Not Sampled	N/A	N/A	N/A	Not Sampled	N/A	N/A	Not Sampled	N/A	Not Sampled	Not Sampled	N/A	Not Sampled	N/A	N/A
Lower Salinas	309TEH	Tembladero Slough	8%	N/A	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A	100%	57%	No	58%	N/A	N/A	N/A

			Los Berros Creek TMDL for Nitrate Percent Exceedance	Los Osos Creek, Warden Creek, and Warden Lake Wetland TMDL for Nutrients Percent Exceedance	San Luis Obispo Nitrate TMDL Percent Exceedance	Non TMDL Area Limit Percent Exceedance		
Hydrologic Unit	Site ID	Site Description	Nitrate as N, 10 mg/L	Nitrate as N, 10 mg/L	Nitrate as N, 10 mg/L	Turbidity, 25.0 NTU (Cold)	Nitrate as N, 10 mg/L	Unionized Ammonia, 0.025 mg/L
Estero Bay	310CCC	Chorro Creek	N/A	N/A	N/A	20%	0%	0%
Estero Bay	310LBC	Los Berros Creek	Not Sampled	N/A	N/A	Not sampled	N/A	N/A
Estero Bay	310PRE	Prefumo Creek	N/A	N/A	0%	8%	N/A	N/A
Estero Bay	310SLD	Davenport Creek	N/A	N/A	N/A	Not Sampled	Not Sampled	Not Sampled
Estero Bay	310USG	Arroyo Grande	N/A	N/A	N/A	8%	33%	0%
Estero Bay	310WRP	Warden Creek	N/A	83%	N/A	17%	N/A	N/A

			Santa Maria River Watershed Nutrients TMDL Percent Exceedance								Santa Maria River Watershed Toxicity and Pesticide TMDL Exceedances			Turbidity Limits (Non TMDL Areas) Percent Exceedance	
Hydrologic Unit	Site ID	Site Description	Unionized Ammonia, 0.025 mg/L	Nitrate as N, 5.7 mg/L	Nitrate 10 mg/L N	Nitrate as N, 4.3 mg/L (Dry Season)	Nitrate as N, 8.0 mg/L (Wet Season)	Orthophosphate, 0.19 mg/L (Dry Season)	Orthophosphate, 0.08 mg/L	Orthophosphate, 0.3 mg/L (Wet Season)	No Significant Toxic Effect, 10 Day, Chronic Exposure with H. azteca in Sediment (Survival)?	No Significant Toxic Effect, 7 Day, Chronic Exposure with C. dubia in Water (Survival)?	No Significant Toxic Effect, 7 Day, Chronic Exposure with C. dubia in Water (Reproduction)?	Turbidity, 40.0 NTU (Warm)	Turbidity, 25.0 NTU (Cold)
Santa Maria	312BCC	Bradley Canyon Creek	0%	N/A	N/A	Not Sampled	0%	Not Sampled	N/A	100%	Not Sampled	Not Sampled	Not Sampled	N/A	100%
Santa Maria	312BCJ	Bradley Channel	58%	N/A	92%	N/A	N/A	N/A	N/A	N/A	No	No	No	N/A	92%
Santa Maria	312GVS	Green Valley Creek	0%	N/A	N/A	Not Sampled	100%	Not Sampled	N/A	100%	Not Sampled	Yes	No	N/A	100%
Santa Maria	312MSD	Main Street Ditch	25%	N/A	58%	N/A	N/A	N/A	N/A	N/A	No	Yes	No	N/A	75%
Santa Maria	312OFC	Oso Flaco Creek	17%	100%	N/A	N/A	N/A	N/A	58%	N/A	No	No	No	67%	N/A
Santa Maria	312OFN	Little Oso Flaco	0%	92%	N/A	N/A	N/A	N/A	100%	N/A	No	No	No	N/A	58%
Santa Maria	312ORC	Orcutt Solomon Creek	0%	N/A	N/A	80%	100%	60%	N/A	57%	Yes	No	No	N/A	92%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	42%	N/A	N/A	100%	100%	60%	N/A	43%	No	No	No	N/A	25%
Santa Maria	312SMA	Santa Maria R, estuary	0%	N/A	N/A	60%	100%	60%	N/A	29%	Yes	No	No	N/A	25%
Santa Maria	312SMI	Santa Maria R, Hwy 1	Not Sampled	N/A	N/A	Not Sampled	Not Sampled	Not Sampled	N/A	Not Sampled	Not Sampled	Not Sampled	Not Sampled	N/A	Not Sampled

			Non TMDL Areas Limit Percent Exceedance		
Hydrologic Unit	Site ID	Site Description	Turbidity, 25.0 NTU (Cold)	Nitrate as N, 10 mg/L	Unionized Ammonia, 0.025 mg/L
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	50%	0%	0%

			Arroyo Paredon Nitrate TMDL	Bell Creek Nitrate TMDL	Franklin Creek Nutrients TMDL Percent Exceedance					Glen Annie Canyon, Tecolotito Creek, and Carneros Creek Nitrate TMDL Percent Exceedance	Non TMDL Areas Limit Percent Exceedance		
Hydrologic Unit	Site ID	Site Description	Nitrate as N, 10 mg/L	Nitrate as N, 10 mg/L	Nitrate as N, 10 mg/L	Total Nitrogen, 1.1 mg/L (Dry Season)	Total Nitrogen, 8.0 mg/L (Wet Season)	Total Phosphorus, 0.075 mg/L (Dry Season)	Total Phosphorus, 0.3 mg/L (Wet Season)	Nitrate as N, 10 mg/L	Turbidity, 25.0 NTU (Cold)	Nitrate as N, 10 mg/L	Unionized Ammonia, 0.025 mg/L
Santa Ynez	314SYF	Santa Ynez R, Floradale	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%	0%	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33%	0%	0%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58%	0%	17%
South Coast	315APF	Arroyo Paredon	0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%	N/A	0%
South Coast	315BEF	Bell Creek	N/A	0%	N/A	N/A	N/A	N/A	N/A	N/A	17%	N/A	0%
South Coast	315FMV	Franklin Creek	N/A	N/A	92%	100%	100%	100%	100%	N/A	8%	N/A	0%
South Coast	315GAN	Glen Annie	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8%	8%	N/A	0%
South Coast	315LCC	Los Carneros Creek	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%	20%	N/A	0%

APPENDIX C – BOX PLOTS

Box plots reports associated with the collection of water and sediment samples in 2022 are provided on the attached USB flash drive.

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Appendix C. Box Plots of Water Quality Data

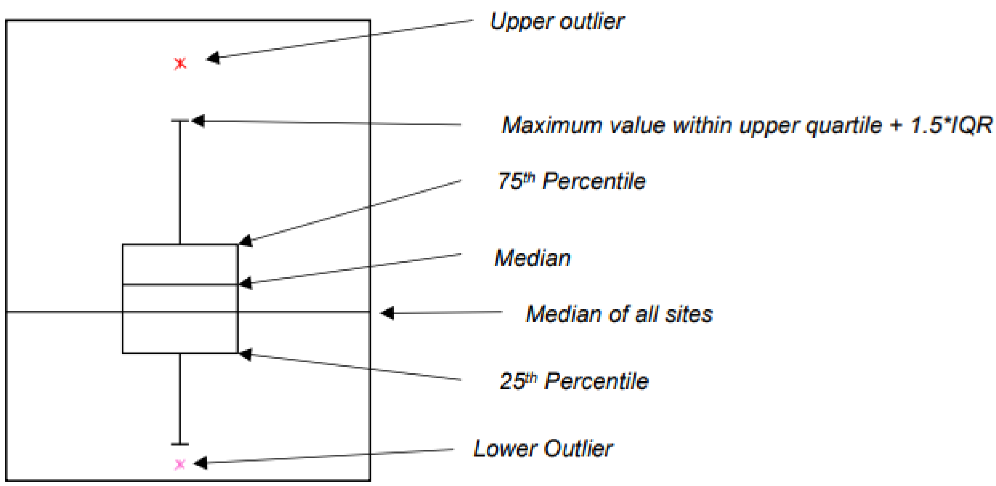
Box and whisker plots are provided for all CMP water quality parameters with results. Box plots illustrate the distribution of results for core sites within a hydrologic unit. Any data below detection are represented at the detection limit for the analyte. Plots are organized by Hydrologic Unit and Analyte.

The box plots summarize the distribution of points for each site. The ends of the box are the 25th and 75th quantiles. The difference between the quartiles is the *interquartile range*. The line across the middle of the box identifies the median sample value. Each box has lines, sometimes called *whiskers*, which extend from each end. The whiskers extend from the ends of the box to the outermost data point that falls within the distances computed as:

upper quartile + 1.5*(*interquartile range*)

lower quartile - 1.5*(*interquartile range*).

If the Minimum or Maximum values are outside this range, they are shown as outliers.



Notes:

- Some extreme values are not displayed to allow comparison between sites and more clear illustration of broad differences in distributions in an untransformed scale for most parameters.
- Some parameters are displayed in log-scale to allow adequate visualization of distributions and comparisons between sites. Negative or zero values will not plot correctly in log-scale plots; however, log-scale plots were still used in instances where it provided the best possible visualization.
- Some plots have insufficient data to construct proper box plots. These plots may lack “whiskers” or other box components. They are included for completeness.
- “NS” denotes sites that had no samples collected for a given parameter.

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APPENDIX D – WET-DRY WEATHER COMPARISON

Wet-dry weather comparison associated with the collection of water and sediment samples in 2022 are provided on the attached USB flash drive.

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Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Alkalinity as CaCO3	305	26	9	363.423	241.444	140.721	193.361	1.740	0.110
	309	31	9	266.645	104.889	102.773	59.913	5.948	0.000
	310	6	7	430.000	337.571	83.716	127.580	1.564	0.148
	312	13	14	190.231	137.214	94.588	85.037	1.527	0.140
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	270.750	104.500	174.531	17.678	1.886	0.152
	315	7	5	447.286	198.800	44.728	58.157	8.011	0.000
Algae Toxicity, Growth	305	26	9	230.977	302.678	91.008	74.877	-2.337	0.032
	309	31	9	193.877	234.811	83.076	79.027	-1.352	0.198
	310	6	7	213.467	355.143	42.617	130.907	-2.701	0.029
	312	13	14	154.623	245.021	53.213	145.901	-2.168	0.045
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	120.175	165.245	53.787	43.070	-1.109	0.358
	315	7	5	150.471	126.100	59.931	11.289	1.050	0.331
Ammonia, Total	305	108	9	0.244	0.198	0.783	0.241	0.420	0.678
	309	116	9	0.959	0.324	5.701	0.149	1.195	0.235
	310	33	7	0.074	0.073	0.112	0.041	0.047	0.962
	312	70	14	0.968	0.202	3.231	0.160	1.971	0.053
	313	2	0	0.049	NP	0.038	NP	NP	NP
	314	17	2	0.368	0.053	0.467	0.003	2.788	0.013
	315	31	5	0.085	0.047	0.076	0.032	1.897	0.080
Ammonia, Unionized	305	108	9	0.008	0.001	0.025	0.002	2.664	0.009
	309	116	9	0.020	0.003	0.045	0.003	3.999	0.000
	310	33	7	0.001	0.001	0.003	0.001	0.936	0.355
	312	70	14	0.137	0.002	0.686	0.002	1.652	0.103
	313	2	0	0.002	NP	0.001	NP	NP	NP
	314	17	2	0.009	0.001	0.013	0.000	2.486	0.024
	315	31	5	0.001	0.001	0.002	0.001	1.122	0.287
Calcium	305	26	9	92.996	63.017	46.914	33.068	2.088	0.050
	309	31	9	156.058	89.889	100.246	51.832	2.652	0.013
	310	6	7	111.050	80.443	70.677	54.447	0.864	0.409
	312	13	14	198.323	143.043	101.421	103.196	1.403	0.173
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	146.525	58.900	101.228	21.213	1.660	0.183
	315	7	5	225.229	104.460	122.799	41.092	2.419	0.043
Chloride	305	52	18	352.669	188.680	610.999	181.823	1.727	0.089
	309	62	18	2244.955	564.622	5114.712	1358.980	2.320	0.023
	310	12	14	123.200	77.271	97.797	62.355	1.401	0.178
	312	26	28	118.477	109.616	82.940	121.750	0.314	0.755
	313	0	0	NP	NP	NP	NP	NP	NP
	314	8	4	636.525	27.450	828.283	2.598	2.080	0.076
	315	14	10	269.857	107.680	221.077	67.672	2.581	0.020
Chl-a	305	108	9	22.690	12.780	39.690	12.030	1.789	0.085
	309	120	10	30.560	15.940	62.250	36.580	1.135	0.276
	310	33	7	6.424	13.000	5.385	10.440	-1.621	0.151
	312	70	14	21.828	11.071	18.890	7.258	3.613	0.001
	313	2	0	11.500	NP	0.707	NP	NP	NP
	314	18	2	55.780	7.000	77.973	0.000	2.654	0.017
	315	31	5	36.190	9.000	51.735	2.000	2.913	0.007
Flow	305	128	9	4.174	3.795	9.376	4.441	0.223	0.826
	309	203	12	1.616	66.461	3.833	112.389	-1.999	0.071
	310	65	7	0.598	6.534	1.350	11.988	-1.309	0.238
	312	103	15	0.412	3.592	1.554	3.582	-3.392	0.004
	313	12	0	0.003	NP	0.009	NP	NP	NP
	314	27	2	1.536	116.021	4.111	50.631	-3.197	0.193
	315	50	5	0.027	0.561	0.041	0.351	-3.394	0.027
Magnesium	305	26	9	65.986	84.022	111.431	77.416	-0.533	0.600
	309	31	9	203.503	73.900	319.644	107.180	1.917	0.063
	310	6	7	92.250	70.000	27.863	30.441	1.375	0.197
	312	13	14	87.177	58.714	50.517	48.464	1.492	0.148
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	95.175	27.100	95.482	11.738	1.405	0.250
	315	7	5	126.500	50.680	79.430	17.874	2.440	0.046

Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Nitrate	305	108	9	15.623	7.969	15.803	6.648	2.848	0.011
	309	120	10	29.787	17.626	20.954	17.349	2.093	0.060
	310	33	7	5.575	4.784	6.502	6.734	0.284	0.783
	312	70	14	29.086	18.531	19.094	18.749	1.917	0.071
	313	2	0	0.760	NP	0.906	NP	NP	NP
	314	18	2	2.428	0.420	2.906	0.042	2.928	0.009
	315	31	5	12.902	4.360	13.957	2.968	3.011	0.005
Nitrate Loading	305	108	9	7.460	3.338	17.051	6.904	1.458	0.162
	309	120	10	17.039	263.581	27.930	398.369	-1.957	0.082
	310	33	7	0.526	2.110	0.517	1.709	-2.429	0.050
	312	69	15	2.867	14.003	4.857	13.457	-3.161	0.007
	313	0	0	NP	NP	NP	NP	NP	NP
	314	18	2	1.733	11.193	2.352	5.885	-2.253	0.259
	315	31	5	0.137	0.614	0.183	0.522	-2.025	0.110
Nitrogen, Total Kjeldahl	305	84	9	1.930	2.152	4.493	2.247	-0.248	0.807
	309	95	9	2.817	5.008	5.005	3.015	-1.942	0.075
	310	25	7	0.580	0.874	0.435	0.426	-1.606	0.140
	312	56	14	3.213	3.544	4.904	3.151	-0.311	0.758
	313	0	0	NP	NP	NP	NP	NP	NP
	314	16	2	3.773	3.615	4.932	2.270	0.078	0.944
	315	22	5	0.863	0.970	0.857	0.569	-0.343	0.740
OrthoPhosphate as P	305	108	9	0.624	0.897	1.521	0.878	-0.834	0.420
	309	116	9	0.379	0.810	0.277	0.474	-2.691	0.026
	310	33	7	0.352	0.469	0.211	0.267	-1.091	0.308
	312	70	14	2.818	0.996	7.846	0.345	1.933	0.057
	313	2	0	0.221	NP	0.136	NP	NP	NP
	314	17	2	2.539	0.249	1.943	0.193	4.670	0.000
	315	31	5	1.411	0.389	3.574	0.601	1.470	0.151
Oxygen, Dissolved	305	108	9	8.520	7.271	4.654	1.777	1.681	0.109
	309	120	10	9.377	9.734	2.789	1.115	-0.822	0.421
	310	33	7	7.795	8.039	2.539	2.342	-0.246	0.811
	312	70	14	12.134	7.899	4.917	2.726	4.525	0.000
	313	2	0	9.780	NP	2.673	NP	NP	NP
	314	18	2	9.493	8.470	4.112	2.376	0.528	0.657
	315	31	5	10.150	10.330	4.571	0.850	-0.199	0.843
Oxygen, Saturation	305	108	9	79.600	66.900	36.135	15.769	2.015	0.061
	309	120	10	96.691	91.720	29.833	9.780	1.206	0.238
	310	33	7	76.370	76.714	23.865	20.793	-0.039	0.970
	312	70	14	136.603	77.479	63.410	26.047	5.745	0.000
	313	2	0	97.500	NP	26.729	NP	NP	NP
	314	18	2	101.506	79.450	42.261	22.557	1.173	0.366
	315	31	5	101.400	92.760	47.928	7.541	0.935	0.357
pH	305	108	9	7.889	7.481	0.506	0.532	2.216	0.053
	309	120	10	8.038	7.275	0.465	0.739	3.213	0.010
	310	33	7	7.682	7.666	0.387	0.291	0.125	0.903
	312	70	14	8.178	7.479	0.564	0.339	6.185	0.000
	313	2	0	8.390	NP	0.198	NP	NP	NP
	314	18	2	7.821	7.745	0.462	0.092	0.596	0.565
	315	31	5	7.795	8.038	0.270	0.270	-1.865	0.117
Potassium	305	26	9	62.393	6.797	100.705	3.845	2.809	0.009
	309	31	9	45.125	24.664	103.189	31.193	0.963	0.342
	310	6	7	3.070	2.500	1.396	0.000	1.000	0.363
	312	13	14	11.303	13.355	12.827	8.057	-0.493	0.627
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	18.650	7.560	14.414	1.146	1.529	0.222
	315	7	5	12.003	3.882	18.407	3.090	1.145	0.293
Phosphorus	305	108	9	1.312	1.633	5.695	1.632	-0.415	0.681
	309	116	9	0.843	3.155	0.663	2.056	-3.362	0.010
	310	33	7	0.505	0.604	0.273	0.230	-0.996	0.343
	312	70	14	3.882	2.491	9.968	1.463	1.110	0.271
	313	2	0	0.588	NP	0.612	NP	NP	NP
	314	17	2	3.378	1.780	2.449	0.354	2.480	0.026
	315	31	5	2.060	0.467	4.450	0.579	1.895	0.067

Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Salinity	305	108	9	1.499	0.820	2.329	0.687	2.118	0.043
	309	120	10	10.818	1.220	68.859	2.513	1.515	0.132
	310	33	7	0.681	0.523	0.264	0.244	1.533	0.159
	312	70	14	1.197	0.676	0.454	0.526	3.456	0.003
	313	2	0	0.505	NP	0.247	NP	NP	NP
	314	18	2	1.647	0.190	1.218	0.000	5.073	0.000
	315	31	5	1.297	0.552	0.512	0.247	5.186	0.000
Sediment Toxicity, Invertebrate Growth	305	12	0	95.808	NP	15.605	NP	NP	NP
	309	10	0	28.450	NP	35.774	NP	NP	NP
	310	4	0	124.275	NP	32.709	NP	NP	NP
	312	7	0	41.086	NP	39.111	NP	NP	NP
	313	0	0	NP	NP	NP	NP	NP	NP
	314	2	0	113.750	NP	86.055	NP	NP	NP
	315	5	0	118.900	NP	22.359	NP	NP	NP
Sediment Toxicity, Invertebrate Survival	305	12	0	87.842	NP	20.504	NP	NP	NP
	309	11	0	34.382	NP	41.302	NP	NP	NP
	310	4	0	102.950	NP	2.255	NP	NP	NP
	312	7	0	48.186	NP	46.640	NP	NP	NP
	313	0	0	NP	NP	NP	NP	NP	NP
	314	2	0	62.450	NP	12.374	NP	NP	NP
	315	5	0	71.860	NP	14.095	NP	NP	NP
Sodium	305	26	9	292.865	181.344	473.787	193.927	0.985	0.332
	309	31	9	1269.068	362.211	2889.793	892.716	1.516	0.138
	310	6	7	81.383	55.029	64.610	27.895	0.928	0.386
	312	13	14	118.715	84.893	65.212	73.778	1.264	0.218
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	399.325	31.900	464.843	4.525	1.581	0.212
	315	7	5	244.286	108.860	150.831	51.094	2.205	0.059
Specific Conductivity	305	108	9	2716.549	1584.322	3815.833	1280.972	2.011	0.056
	309	120	10	7384.067	2150.900	13867.302	4305.769	2.815	0.009
	310	33	7	1329.455	1041.000	512.244	468.940	1.454	0.179
	312	70	14	2311.866	1321.079	845.399	1001.201	3.464	0.003
	313	2	0	1018.000	NP	482.247	NP	NP	NP
	314	18	2	2804.444	397.100	2185.809	1.838	4.673	0.000
	315	31	5	2457.710	1109.280	899.200	471.363	5.078	0.001
Sulfate	305	52	18	523.842	323.937	868.330	342.866	1.378	0.173
	309	62	18	502.987	195.189	680.800	219.653	3.054	0.003
	310	12	14	213.500	134.014	210.895	128.150	1.138	0.270
	312	26	28	686.700	397.314	598.750	311.130	2.204	0.034
	313	0	0	NP	NP	NP	NP	NP	NP
	314	8	4	517.000	70.550	243.992	1.328	5.175	0.001
	315	14	10	712.857	293.880	545.905	167.049	2.700	0.016
TDS	305	120	9	1765.342	1030.333	2418.886	833.517	2.071	0.051
	309	131	10	4391.447	1376.250	8445.630	2755.666	2.641	0.014
	310	37	7	866.162	676.714	316.252	304.852	1.499	0.170
	312	77	14	1555.961	863.000	628.035	646.687	3.704	0.002
	313	3	0	585.667	NP	257.516	NP	NP	NP
	314	19	2	1973.105	258.000	1390.164	1.414	5.378	0.000
	315	36	5	1639.833	720.400	606.626	312.538	5.330	0.000
Total Organic Carbon	305	24	0	8.699	NP	5.468	NP	NP	NP
	309	21	0	9.650	NP	4.554	NP	NP	NP
	310	4	4	5.295	7.785	2.700	4.144	-1.007	0.359
	312	10	2	9.948	10.090	4.919	4.822	-0.038	0.974
	313	0	0	NP	NP	NP	NP	NP	NP
	314	2	0	21.550	NP	14.354	NP	NP	NP
	315	5	0	9.122	NP	3.749	NP	NP	NP
	305	84	9	17.833	10.121	16.096	7.048	2.629	0.017
	309	95	9	32.865	23.403	23.590	16.694	1.559	0.147
	310	25	7	6.234	5.658	6.828	7.108	0.191	0.853

Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Total Nitrogen	312	56	14	31.507	22.075	18.630	21.655	1.497	0.152
	313	0	0	NP	NP	NP	NP	NP	NP
	314	16	2	6.440	4.035	4.715	2.227	1.222	0.329
	315	22	5	15.101	5.330	13.995	3.366	2.924	0.007
TSS	305	108	9	41.182	240.589	134.600	603.796	-0.989	0.352
	309	116	9	132.900	891.211	331.704	986.336	-2.296	0.050
	310	33	7	14.016	20.654	25.936	18.119	-0.809	0.434
	312	70	14	80.423	179.121	112.442	203.786	-1.759	0.099
	313	2	0	161.450	NP	143.613	NP	NP	NP
	314	17	2	39.456	1711.000	50.380	1214.809	-1.946	0.302
	315	31	5	13.020	40.146	14.719	58.699	-1.028	0.361
TSS Loading	305	108	9	13.771	149.845	28.903	322.837	-1.264	0.242
	309	116	9	76.426	15788.269	344.475	29188.516	-1.615	0.145
	310	33	7	1.408	41.280	1.412	82.553	-1.278	0.249
	312	69	15	18.735	151.436	79.631	284.383	-1.792	0.094
	313	0	0	NP	NP	NP	NP	NP	NP
	314	17	2	-19.850	37702.083	87.303	12206.406	-4.370	0.143
	315	31	5	0.066	6.736	0.126	11.845	-1.259	0.276
Turbidity	305	108	9	29.618	158.963	43.962	318.548	-1.217	0.258
	309	120	10	102.650	1343.760	259.889	1258.266	-3.114	0.012
	310	33	7	11.528	36.230	11.342	35.751	-1.809	0.118
	312	70	14	98.225	327.367	195.070	349.517	-2.380	0.031
	313	2	0	28.500	NP	19.940	NP	NP	NP
	314	18	2	25.898	999.000	23.431	0.000	-176.196	0.000
	315	31	5	8.800	102.034	5.966	115.763	-1.801	0.146
Water Temperature	305	108	9	13.831	11.489	3.814	1.073	4.570	0.000
	309	120	10	16.055	11.600	4.656	0.957	8.538	0.000
	310	33	7	14.539	13.343	3.179	1.991	1.281	0.222
	312	70	14	20.021	14.893	5.160	4.790	3.610	0.002
	313	2	0	15.050	NP	0.071	NP	NP	NP
	314	18	2	18.911	12.500	3.775	0.000	7.205	0.000
	315	31	5	14.961	10.500	4.602	0.524	5.192	0.000
Water Toxicity, Invertebrate Reproduction	305	19	7	84.574	90.286	18.258	31.012	-0.459	0.659
	309	21	8	75.290	32.500	40.025	40.483	2.552	0.025
	310	6	7	95.833	105.114	19.112	19.833	-0.858	0.410
	312	12	13	63.975	49.338	40.124	49.923	0.811	0.426
	313	0	0	NP	NP	NP	NP	NP	NP
	314	3	2	103.367	68.570	14.188	22.104	1.972	0.221
	315	6	5	69.617	148.234	34.550	23.305	-4.483	0.002
Water Toxicity, Invertebrate Survival - *C. dilutus*	305	19	8	93.689	79.113	11.596	32.668	1.230	0.255
	309	21	8	79.343	16.613	30.873	23.200	5.910	0.000
	310	6	7	95.283	101.271	4.438	2.716	-2.876	0.021
	312	12	13	74.442	33.154	35.901	39.619	2.733	0.012
	313	0	0	NP	NP	NP	NP	NP	NP
	314	3	2	102.633	81.650	2.650	22.415	1.318	0.410
	315	6	5	96.283	97.000	4.688	2.092	-0.336	0.746
Water Toxicity, Invertebrate Survival - *C. dubia*	305	26	9	95.690	97.270	6.930	11.180	-0.398	0.699
	309	31	9	77.460	56.670	44.410	40.000	1.339	0.202
	310	6	7	106.670	117.460	9.574	10.109	-1.974	0.074
	312	13	14	78.407	54.164	43.330	52.375	1.314	0.201
	313	0	0	NP	NP	NP	NP	NP	NP
	314	4	2	104.750	100.000	7.339	0.000	1.294	0.286
	315	7	5	89.214	100.000	8.231	0.000	-3.467	0.013

APPENDIX E – MANN-KENDALL TREND TEST SUMMARY

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Site ID	Ammonia as N, Total		Ammonia as N, Unionized		Chlorophyll a		Chloride		Specific Conductivity (uS)		Dissolved Solids, Total		Flow	
	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau
305BRS	0.100	0.187	0.668	0.053	0.713	-0.047	0.089	-1.000	0.078	0.200	0.006	0.307	0.883	0.028
305CAN	0.157	0.100	0.466	-0.052	0.191	0.091	0.000	0.000	0.138	0.100	0.230	0.093	0.657	-0.022
305CHI	0.009	0.140	0.075	0.097	0.687	-0.022	0.734	0.333	0.000	0.188	0.006	0.159	0.000	-0.194
305COR	0.000	0.208	0.015	0.146	0.014	0.142	1.000	0.000	0.413	0.048	0.923	-0.007	0.137	0.079
305FRA	0.017	0.143	0.974	0.003	0.121	-0.089	0.000	0.000	0.000	0.404	0.000	0.402	0.000	-0.223
305FUF	0.733	0.048	0.891	-0.024	0.170	-0.165	0.734	-0.333	1.000	-0.008	1.000	-0.008	0.027	0.245
305LCS	0.000	0.229	0.010	-0.147	0.000	0.197	0.000	0.000	0.002	0.169	0.187	0.082	0.005	-0.146
305PJP	0.000	0.225	0.000	0.209	0.625	0.026	0.308	-0.667	0.328	-0.052	0.127	-0.090	0.078	-0.095
305SJA	0.001	0.174	0.019	0.126	0.013	0.128	1.000	0.000	0.880	0.008	0.106	-0.093	0.000	-0.220
305TSR	0.770	-0.017	0.000	-0.244	0.000	0.252	0.089	1.000	0.000	0.486	0.000	0.440	0.000	0.377
305WCS	0.106	0.186	0.755	0.041	0.801	-0.034	1.000	0.000	0.029	0.248	0.018	0.269	0.426	-0.099
305WSA	0.184	0.095	0.103	0.116	0.069	0.123	0.000	0.000	0.002	0.211	0.237	0.096	0.000	0.191
309ALG	0.922	0.006	0.600	-0.028	0.000	0.351	0.734	-0.333	0.942	-0.004	0.669	0.024	0.539	0.032
309ASB	0.332	0.051	0.066	-0.097	0.000	0.403	0.734	-0.333	0.029	0.115	0.041	0.112	0.018	-0.124
309BLA	0.078	0.091	0.858	0.010	0.000	0.327	0.734	0.333	0.000	-0.226	0.000	-0.463	0.067	-0.095
309CCD	0.039	0.184	0.023	0.202	0.184	0.119	0.000	0.000	1.000	0.003	0.753	-0.030	0.727	0.026
309CRR	0.090	-0.389	0.240	-0.278	0.001	0.495	NP	NP	0.182	-0.193	0.047	-0.329	0.426	-0.037
309ESP	0.447	0.040	0.071	-0.094	0.000	0.310	0.308	-0.667	0.915	0.006	0.824	0.013	0.498	0.036
309GAB	0.949	-0.018	0.563	0.090	0.096	0.243	NP	NP	0.522	0.099	0.823	0.044	0.401	-0.032
309GRN	0.186	-0.095	0.247	-0.083	0.000	0.380	NP	NP	0.346	-0.068	0.635	0.037	0.004	-0.148
309JON	0.163	0.072	0.093	-0.087	0.000	0.262	0.734	-0.333	0.472	0.038	0.056	0.104	0.000	-0.220
309MER	0.140	0.077	0.398	-0.044	0.000	0.316	0.734	-0.333	0.131	-0.078	0.640	-0.026	0.008	0.140
309MOR	0.185	-0.071	0.000	-0.200	0.000	0.186	0.734	-0.333	0.202	-0.066	0.052	-0.104	0.348	0.061
309NAD	0.005	0.179	0.002	0.196	0.000	0.352	0.308	-0.667	0.630	-0.032	0.765	0.021	0.000	-0.204
309OLD	0.006	0.198	0.938	-0.007	0.049	0.122	1.000	0.000	0.972	0.003	0.128	0.111	0.299	0.071
309QUI	0.535	-0.042	0.719	0.025	0.000	0.370	0.000	0.000	0.622	0.034	0.363	0.065	0.000	-0.310
309RTA	0.329	0.235	0.485	0.176	0.485	-0.176	0.000	0.000	0.889	-0.059	1.000	0.000	0.205	-0.116
309SAC	0.616	-0.044	0.767	0.027	0.001	0.283	NP	NP	0.005	-0.235	0.079	-0.158	0.134	-0.091
309SAG	0.092	-0.154	0.256	-0.105	0.001	0.312	NP	NP	0.059	-0.174	0.147	-0.147	0.125	-0.101
309SSP	0.212	0.100	0.977	0.005	0.000	0.335	NP	NP	0.000	-0.307	0.000	-0.335	0.066	-0.091
309TEH	0.943	-0.004	0.168	-0.072	0.000	0.258	0.308	-0.667	0.409	0.043	0.110	0.086	0.618	0.026
310CCC	0.014	-0.143	0.002	-0.183	0.000	0.371	0.000	0.000	0.032	-0.124	0.404	0.051	0.390	-0.046
310LBC	0.025	-0.303	0.374	-0.124	0.001	0.430	NP	NP	0.410	0.113	0.952	0.017	0.000	-0.163
310PRE	0.192	-0.070	0.744	0.018	0.000	0.363	0.734	-0.333	0.248	0.062	0.002	0.175	0.034	-0.114
310SLD	0.000	0.000	0.000	0.000	0.000	0.000	NP	NP	0.000	0.000	0.000	0.000	0.724	0.014
310USG	0.010	-0.138	0.058	-0.102	0.000	0.437	0.308	0.667	0.000	0.350	0.000	0.226	0.000	-0.342
310WRP	0.008	0.186	0.072	0.126	0.000	0.396	0.000	0.000	0.034	0.149	0.001	0.246	0.004	-0.151
312BCC	0.563	0.074	0.327	0.122	0.052	0.235	NP	NP	0.779	0.039	0.672	0.068	0.000	-0.182
312BCJ	0.780	0.015	0.252	0.062	0.000	0.290	1.000	0.000	0.000	0.208	0.185	-0.073	0.005	-0.145
312GVS	0.144	-0.106	0.656	-0.033	0.000	0.330	0.000	0.000	0.863	0.014	0.052	-0.151	0.000	-0.611
312MSD	0.266	-0.061	0.832	-0.012	0.000	0.330	0.734	-0.333	0.959	0.003	0.538	-0.035	0.000	-0.200
312OFC	0.667	0.023	0.168	0.072	0.000	0.270	1.000	0.000	0.517	0.034	0.000	-0.212	0.000	-0.445
312OFN	0.474	0.038	0.232	0.063	0.000	0.453	0.734	0.333	0.001	-0.166	0.000	-0.418	0.000	-0.294
312ORC	0.719	-0.019	0.260	0.059	0.000	0.375	1.000	0.000	0.001	0.169	0.087	-0.092	0.000	-0.582
312ORI	0.284	0.056	0.030	0.113	0.000	0.395	1.000	0.000	0.004	0.150	0.031	-0.115	0.000	-0.474
312SMA	0.747	0.018	0.701	0.021	0.000	0.421	1.000	0.000	0.004	0.153	0.011	-0.137	0.000	-0.564
312SMI	0.287	0.239	0.164	0.304	0.751	-0.087	NP	NP	0.113	-0.348	0.101	-0.419	0.000	-0.147
313SAE	0.451	-0.182	0.304	-0.242	0.443	0.182	NP	NP	0.631	0.121	0.631	0.121	0.124	0.113
314SYF	0.000	-0.272	0.004	-0.199	0.000	0.392	0.000	0.000	0.006	-0.189	0.006	-0.200	0.001	-0.236
314SYL	0.042	-0.218	0.385	-0.095	0.000	0.411	0.000	0.000	0.153	-0.155	0.014	-0.293	0.029	-0.097
314SYN	0.474	0.052	0.076	0.128	0.000	0.321	1.000	0.000	0.197	0.093	0.097	0.128	0.001	-0.190
315APF	0.050	-0.155	0.254	-0.091	0.000	0.583	0.000	0.000	0.094	0.131	0.000	0.354	0.942	0.005
315BEF	0.000	-0.248	0.000	-0.232	0.000	0.424	0.000	0.000	0.000	0.337	0.000	0.270	0.000	-0.395
315FMV	0.522	-0.035	0.042	-0.109	0.000	0.264	1.000	0.000	0.010	0.137	0.710	-0.021	0.000	-0.375
315GAN	0.657	0.024	0.328	0.053	0.000	0.481	0.734	-0.333	0.000	0.342	0.197	0.072	0.000	-0.382
315LCC	0.172	-0.333	0.876	-0.067	0.006	0.633	0.000	0.000	0.172	-0.333	0.288	-0.267	0.643	0.056

Site ID	Nitrate/Nitrite as N		Nitrate Loading		Nitrogen, Total		Nitrogen, Total Kjeldahl		Orthophosphate as P		Oxygen, Dissolved		Oxygen, Saturation	
	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau
305BRS	0.360	0.107	0.769	-0.047	0.950	0.014	0.167	0.162	0.951	0.013	0.009	0.293	0.018	0.267
305CAN	0.559	-0.043	0.810	0.013	0.565	-0.062	0.269	-0.116	0.735	-0.034	0.030	-0.147	0.095	-0.114
305CHI	0.035	0.115	0.034	-0.117	0.032	-0.157	0.000	0.294	0.787	-0.020	0.067	-0.095	0.109	-0.084
305COR	0.650	-0.028	0.025	0.123	0.028	0.185	0.001	0.268	0.015	0.186	0.625	0.029	0.543	0.036
305FRA	0.087	0.103	0.070	-0.100	0.000	0.407	0.000	0.318	0.329	-0.080	0.026	-0.128	0.011	-0.146
305FUF	0.152	0.175	0.048	0.226	0.178	0.169	1.000	-0.008	0.066	-0.222	1.000	0.008	0.232	0.145
305LCS	0.205	-0.073	0.053	-0.105	0.141	0.118	0.591	-0.044	0.004	-0.211	0.000	-0.203	0.000	-0.209
305PJP	0.000	-0.228	0.182	-0.076	0.682	-0.032	0.021	0.172	0.643	-0.033	0.046	-0.105	0.446	-0.041
305SJA	0.005	0.150	0.016	-0.131	0.979	-0.004	0.000	0.298	0.092	0.115	0.935	0.005	0.479	-0.037
305TSR	0.000	0.195	0.000	0.532	0.000	0.456	0.001	0.260	0.070	-0.129	0.104	-0.086	0.007	-0.145
305WCS	0.000	-0.393	0.144	-0.176	0.021	-0.270	0.139	0.175	0.034	0.241	0.009	-0.297	0.013	-0.283
305WSA	0.001	-0.241	0.000	0.253	0.482	-0.087	0.561	0.074	1.000	0.000	0.391	-0.058	0.481	-0.049
309ALG	0.001	0.175	0.053	0.100	0.000	0.405	0.011	0.191	0.337	-0.068	0.020	0.122	0.009	0.136
309ASB	0.016	0.127	0.403	-0.045	0.843	0.017	0.000	0.260	0.002	-0.213	0.019	-0.123	0.011	-0.132
309BLA	0.379	0.046	0.990	0.001	0.048	-0.146	0.000	0.249	0.000	-0.255	0.000	0.203	0.000	0.220
309CCD	0.227	0.109	0.348	0.068	0.047	0.178	0.001	0.280	0.000	-0.324	0.361	-0.082	0.005	-0.246
309CRR	0.586	0.087	0.395	-0.039	NP	NP	NP	NP	0.221	-0.600	0.789	-0.046	0.547	-0.092
309ESP	0.071	-0.094	0.883	-0.008	0.935	-0.008	0.000	0.298	0.003	-0.205	0.738	-0.018	0.553	-0.031
309GAB	0.653	-0.072	0.421	-0.030	1.000	0.037	1.000	0.037	0.233	-0.268	0.440	0.117	0.522	0.099
309GRN	0.000	0.274	0.032	-0.112	0.049	0.248	0.895	0.024	0.000	-0.585	0.818	-0.018	0.182	0.095
309JON	0.042	0.106	0.025	-0.117	0.002	0.228	0.442	0.057	0.007	-0.183	0.254	-0.059	0.288	-0.055
309MER	0.259	0.059	0.004	0.150	0.979	-0.004	0.010	0.190	0.010	-0.176	0.944	-0.004	0.612	0.027
309MOR	0.000	0.253	0.120	0.102	0.937	-0.008	0.730	-0.027	0.029	-0.148	0.000	0.226	0.000	0.218
309NAD	0.252	-0.074	0.000	-0.199	0.330	-0.105	0.041	0.215	0.012	-0.233	0.153	0.091	0.050	0.125
309OLD	0.088	0.124	0.090	0.132	0.037	0.153	0.000	0.268	0.141	-0.107	0.039	0.128	0.016	0.149
309QUI	0.042	-0.137	0.000	-0.294	0.564	-0.065	0.061	0.196	0.181	-0.136	0.003	0.200	0.000	0.283
309RTA	0.889	-0.059	0.205	-0.116	0.646	0.143	0.757	-0.107	0.329	0.235	0.048	0.441	0.209	0.294
309SAC	0.725	0.031	0.108	-0.097	0.823	0.061	0.073	-0.347	0.001	-0.526	0.706	-0.033	0.622	-0.043
309SAG	0.191	0.121	0.082	-0.115	0.206	0.313	0.673	-0.125	0.002	-0.600	0.291	0.098	0.156	0.131
309SSP	0.931	0.009	0.014	-0.123	0.013	0.408	0.594	-0.099	0.000	-0.512	0.087	-0.135	0.056	-0.150
309TEH	0.748	0.017	0.590	0.028	0.039	-0.151	0.000	0.328	0.000	-0.247	0.443	0.040	0.092	0.088
310CCC	0.000	-0.490	0.007	-0.145	0.003	-0.241	0.705	0.033	0.774	0.023	0.000	-0.331	0.000	-0.372
310LBC	0.048	-0.269	0.000	-0.167	0.225	-0.400	0.386	-0.300	0.907	-0.048	0.837	0.033	0.410	0.113
310PRE	0.000	-0.245	0.000	-0.356	0.007	-0.197	0.037	0.151	0.000	-0.496	0.001	-0.172	0.005	-0.148
310SLD	0.000	0.000	0.724	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
310USG	0.169	0.074	0.000	-0.248	0.000	0.449	0.001	0.249	0.000	-0.286	0.818	-0.013	0.231	-0.064
310WRP	0.715	0.027	0.005	-0.147	0.121	-0.168	0.019	0.252	0.003	-0.273	0.020	-0.163	0.009	-0.182
312BCC	0.563	-0.074	0.000	-0.176	0.734	0.333	0.308	0.667	0.093	0.667	0.955	-0.013	0.574	0.071
312BCJ	0.407	0.044	0.041	-0.108	0.246	0.088	0.000	0.343	0.001	-0.230	0.000	0.251	0.000	0.261
312GVS	0.902	-0.011	0.000	-0.613	0.056	-0.484	0.491	0.194	0.117	0.250	0.001	0.236	0.001	0.246
312MSD	0.450	-0.041	0.000	-0.212	0.002	0.227	0.000	0.367	0.038	0.143	0.035	0.113	0.007	0.145
312OFC	0.001	-0.177	0.000	-0.431	0.004	-0.212	0.000	0.304	0.010	-0.174	0.458	0.039	0.048	0.102
312OFN	0.000	-0.336	0.000	-0.362	0.935	-0.008	0.000	0.363	0.000	0.490	0.014	-0.129	0.023	-0.119
312ORC	0.001	-0.165	0.000	-0.555	0.873	0.014	0.000	0.264	0.128	-0.104	0.001	0.174	0.000	0.220
312ORI	0.027	0.115	0.000	-0.412	0.069	0.134	0.000	0.424	0.023	-0.154	0.168	0.071	0.006	0.142
312SMA	0.000	-0.269	0.000	-0.544	0.046	-0.148	0.000	0.301	0.001	-0.227	0.004	0.151	0.000	0.191
312SMI	1.000	-0.022	0.000	-0.155	0.806	0.200	1.000	0.000	0.548	0.238	0.751	-0.087	0.916	-0.043
313SAE	0.115	-0.364	0.124	0.113	0.371	-0.244	1.000	0.022	0.631	-0.121	0.631	-0.121	0.837	-0.061
314SYF	0.000	-0.302	0.000	-0.448	0.061	0.239	0.023	0.289	0.301	0.116	0.173	0.094	0.202	0.089
314SYL	0.082	0.186	0.072	-0.080	0.391	0.273	0.864	0.091	0.014	-0.469	0.100	0.177	0.411	0.091
314SYN	0.000	-0.266	0.000	-0.260	0.198	0.140	0.107	0.174	0.884	0.017	0.222	0.088	0.322	0.072
315APF	0.030	0.170	0.809	0.016	0.732	-0.080	0.304	-0.200	0.777	0.042	0.027	0.172	0.001	0.255
315BEF	0.000	-0.614	0.000	-0.490	0.000	-0.527	0.250	0.111	0.000	-0.384	0.095	-0.102	0.273	-0.067
315FMV	0.149	-0.078	0.000	-0.413	0.001	0.251	0.001	0.236	0.000	0.306	0.671	0.023	0.388	0.047
315GAN	0.000	-0.288	0.000	-0.449	0.002	-0.230	0.000	0.310	0.000	-0.361	0.000	-0.244	0.000	-0.243
315LCC	0.649	-0.133	0.643	0.056	0.865	-0.083	0.062	0.500	0.649	-0.133	0.879	0.067	0.649	-0.133

	pH		Phosphorus as P		Salinity		Sulfate		Sediment Toxicity, Growth		Sediment Toxicity, Survival		Suspended Solids		Total Organic Carbon, Percent		Total Organic Carbon, mg/L		Toxicity, Algae Growth		Toxicity, Invertebrate Reproduction		Toxicity, Invertebrate Survival		Toxicity, Invertebrate Survival-Chiron		TSS Loading	
Site ID	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau
305BRS	0.903	-0.020	0.670	-0.053	0.106	0.186	0.089	-1.000	0.917	0.056	0.175	-0.389	0.248	-0.133	0.086	-0.800	0.858	-0.067	0.230	0.364	0.300	-0.231	0.003	-0.769	0.127	-0.400	0.304	-0.140
305CAN	0.001	-0.227	0.292	0.109	0.579	0.040	0.000	0.000	0.034	-0.485	0.130	-0.348	0.209	0.130	0.086	-0.333	0.035	0.714	0.461	0.167	0.452	0.124	0.819	0.038	0.734	-0.333	0.000	0.215
305CHI	0.972	-0.002	0.003	0.213	0.000	0.205	0.734	0.333	0.322	-0.200	0.804	-0.057	0.433	0.058	0.734	-0.733	0.119	0.382	0.366	0.138	0.445	-0.091	0.919	0.014	0.551	0.250	0.412	0.063
305COR	0.909	-0.007	0.005	0.236	0.765	0.018	0.734	0.333	0.624	-0.088	0.401	0.146	0.148	0.122	0.060	-0.067	0.251	0.333	0.574	0.105	0.958	-0.013	0.701	-0.046	0.551	-0.250	0.000	0.346
305FRA	0.032	-0.123	0.831	0.022	0.000	0.414	0.000	0.000	0.880	0.033	0.529	-0.111	0.214	-0.111	1.000	0.333	0.076	0.500	0.604	-0.095	0.833	-0.044	0.735	-0.043	0.610	0.179	0.036	0.148
305FUF	0.232	0.145	0.172	-0.167	0.790	-0.038	0.308	-0.667	0.251	0.333	0.466	0.222	1.000	0.000	0.452	-0.200	0.602	0.167	0.843	-0.125	0.607	-0.182	0.752	-0.091	0.462	0.400	0.137	0.171
305LCS	0.000	-0.334	0.833	-0.019	0.140	0.083	0.000	0.000	0.030	-0.368	0.381	0.152	0.097	0.132	0.806	-0.200	0.043	0.491	0.941	0.022	0.558	0.075	0.771	0.035	0.621	0.250	0.014	0.174
305PJP	0.763	0.016	0.105	0.121	0.221	-0.065	1.000	0.000	0.142	-0.251	0.674	0.076	0.358	-0.069	0.707	-0.333	0.119	0.382	0.003	0.431	0.835	-0.028	0.373	0.079	0.843	-0.125	0.661	0.034
305SJA	1.000	0.000	0.004	0.209	0.262	-0.059	0.308	-0.667	0.115	0.269	0.172	0.234	0.005	0.203	0.452	-0.733	0.119	0.382	0.625	0.058	0.779	-0.069	0.167	-0.148	0.350	0.198	0.042	0.150
305TSR	0.000	-0.243	0.239	0.091	0.000	0.493	0.089	1.000	0.162	-0.240	0.834	0.041	0.228	-0.093	0.060	-0.467	0.074	0.467	0.005	0.324	0.746	-0.063	0.113	0.176	0.000	0.000	0.000	0.490
305WCS	0.092	-0.193	0.040	0.234	0.015	0.276	0.308	-0.667	0.711	-0.143	0.536	-0.214	0.709	0.048	0.260	0.200	0.928	0.044	0.123	0.455	0.864	-0.091	0.211	0.318	0.221	-0.600	0.426	-0.099
305WSA	0.207	0.085	0.490	-0.084	0.008	0.181	0.000	0.000	0.298	-0.220	0.956	-0.022	0.073	-0.211	0.806	0.000	0.707	0.200	1.000	-0.009	0.612	-0.087	0.411	0.113	0.734	-0.333	0.000	0.265
309ALG	0.707	-0.020	0.224	0.091	0.875	0.009	0.734	-0.333	1.000	-0.005	0.932	0.016	0.570	0.044	0.000	-0.200	0.876	0.055	0.660	0.051	0.010	0.265	0.001	0.329	1.000	0.045	0.000	0.428
309ASB	0.000	-0.315	0.846	-0.016	0.020	0.122	0.308	-0.667	0.184	-0.228	0.004	-0.491	0.978	0.004	0.707	0.600	0.371	0.244	0.045	0.222	0.643	0.148	0.299	-0.109	0.221	0.600	0.000	0.261
309BLA	0.083	-0.089	0.025	-0.163	0.000	-0.241	0.734	0.333	0.381	-0.147	0.897	0.026	0.000	-0.320	0.221	0.067	0.276	0.273	0.023	0.243	0.864	-0.026	0.969	0.007	0.390	0.313	0.127	-0.113
309CCD	0.115	0.140	1.000	-0.003	0.861	-0.018	0.000	0.000	0.944	0.030	0.834	0.061	0.102	0.146	1.000	0.000	0.348	0.278	0.087	0.321	0.378	0.176	0.103	0.294	0.734	0.333	0.437	0.056
309CRR	0.060	-0.266	NP	NP	0.229	-0.174	NP	NP	0.452	0.333	0.707	0.200	NP	NP	1.000	0.000	NP	NP	0.732	0.091	0.815	-0.055	1.000	-0.018	NP	NP	0.000	0.000
309ESP	0.000	-0.182	0.413	0.061	0.972	0.002	0.308	-0.667	0.267	0.179	0.313	0.163	0.132	0.111	0.000	-0.333	0.276	0.273	0.139	0.163	0.519	0.077	0.095	0.167	0.685	-0.188	0.000	0.414
309GAB	0.442	-0.117	0.767	0.111	0.305	0.153	NP	NP	1.000	0.167	1.000	0.167	0.767	0.111	0.452	0.000	0.000	0.000	0.089	1.000	0.667	0.188	0.147	0.500	0.649	-0.190	0.003	0.096
309GRN	0.000	-0.267	0.793	0.040	0.430	-0.056	NP	NP	0.360	-0.205	0.161	-0.308	0.015	0.304	0.000	-0.400	1.000	0.000	0.498	0.138	0.346	0.159	0.239	0.148	1.000	0.100	0.872	0.012
309JON	0.000	-0.255	0.206	-0.093	0.831	0.012	0.734	-0.333	0.733	0.065	0.790	-0.052	0.020	0.169	0.462	0.000	0.119	0.382	0.072	0.194	0.019	0.247	0.001	0.324	0.728	0.136	0.937	-0.008
309MER	0.004	-0.148	0.109	0.117	0.062	-0.096	0.308	-0.667	0.415	0.137	0.514	0.111	0.141	0.107	1.000	-0.800	0.436	0.200	0.121	0.167	0.905	-0.017	0.512	0.065	0.728	-0.136	0.000	0.576
309MOR	0.001	-0.176	0.063	0.135	0.210	-0.065	0.089	-1.000	0.452	0.333	0.030	0.368	0.121	-0.113	0.035	-0.067	1.000	0.018	0.328	0.113	0.000	0.000	1.000	0.000	NP	NP	0.000	0.548
309NAD	0.425	0.051	0.555	0.064	0.934	-0.006	1.000	0.000	0.123	-0.275	0.157	-0.253	0.035	0.217	1.000	0.000	1.000	-0.048	0.705	-0.059	0.556	-0.084	1.000	0.000	0.413	-0.179	0.034	0.122
309OLD	0.221	-0.076	0.012	0.181	0.809	-0.016	1.000	0.000	1.000	0.000	0.893	0.026	0.006	0.200	1.000	-0.467	0.213	0.309	0.792	0.031	0.868	0.095	0.417	-0.087	0.462	0.400	0.001	0.269
309QUI	0.006	0.181	0.336	0.106	0.578	0.038	0.000	0.000	0.408	0.154	0.498	0.128	0.021	0.246	0.260	0.000	0.260	0.467	0.527	0.096	0.337	0.113	0.155	0.157	0.616	-0.139	0.288	0.059
309RTA	0.485	0.176	0.209	-0.294	1.000	0.000	0.000	0.000	0.558	-0.200	0.558	-0.200	0.889	-0.059	0.000	0.333	0.806	-0.200	0.089	1.000	1.000	0.000	1.000	0.000	0.054	-0.439	0.157	-0.129
309SAC	0.000	-0.423	1.000	0.020	0.004	-0.235	NP	NP	0.276	-0.273	0.276	-0.273	0.823	0.061	0.734	0.000	0.000	0.000	0.673	-0.125	0.287	0.207	0.473	0.138	1.000	0.067	0.064	0.137
309SAG	0.000	-0.508	1.000	0.000	0.044	-0.184	NP	NP	0.474	-0.200	0.088	-0.444	0.325	0.250	0.000	0.000	0.000	0.000	0.673	-0.125	0.627	-0.111	0.457	-0.148	0.548	0.238	0.029	0.190
309SSP	0.000	-0.285	0.076	0.296	0.000	-0.335	NP	NP	0.048	-0.390	0.275	-0.219	0.001	0.549	0.000	-0.800	0.000	0.000	1.000	-0.024	0.258	0.224	0.288	0.179	0.613	0.300	0.000	0.217
309TEH	0.001	-0.164	0.314	0.074	0.351	0.048	0.734	-0.333	0.795	0.047	0.795	0.047	0.000	0.265	0.086	0.333	0.119	0.382	0.004	0.309	0.177	0.146	0.010	0.248	0.607	0.182	0.000	0.505
310CCC	0.000	-0.316	0.879	0.014	0.000	-0.254	0.000	0.000	1.000	0.006	0.860	0.035	0.094	0.134	0.452	-0.333	0.062	0.455	0.357	0.156	0.610	-0.064	0.031	0.229	1.000	0.000	0.000	0.317
310LBC	1.000	0.007	0.603	0.200	0.438	0.106	NP	NP	0.711	-0.143	0.711	0.143	0.603	0.200	0.452	0.000	0.000	0.000	1.000	0.067	0.452	0.333	0.247	0.400	0.368	-0.333	0.046	0.055
310PRE	0.004	0.152	0.000	0.361	0.293	-0.056	1.000	0.000	0.162	-0.240	0.172	-0.234	0.035	0.153	0.000	-0.333	0.213	0.309	0.386	0.130	0.568	0.065	0.100	0.153	0.280	0.308	0.000	0.325
310SLD	0.000	0.000	0.000	0.000	0.000	0.000	NP	NP	0.000	0.000	0.000	0.000	0.000	0.000	0.452	NP	NP	NP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.724	0.014
310USG	0.343	-0.051	0.000	0.365	0.000	0.256	0.308	0.667	0.363	-0.158	0.525	0.111	0.000	0.266	NP	-0.467	0.533	0.164	0.665	-0.069	0.469	0.081	0.397	0.085	0.877	0.077	0.895	0.011
310WRP	0.361	0.065	0.153	0.152	0.396	0.060	0.000	0.000	0.029	-0.527	0.184	0.327	0.246	0.124	0.260	0.000	0.108	0.500	0.589	0.095	0.765	0.056	0.012	0.360	0.734	0.333	0.063	0.113
312BCC	0.955	0.013	0.308	0.667	0.464	0.091	NP	NP	0.649	-0.190	0.879	-0.095	0.089	1.000	0.000	0.000	0.000	0.000	0.877	0.077	0.184	0.346	0.097	0.385	0.367	0.333	0.024	0.070
312BCJ	0.273	0.058	0.393	0.064	0.016	0.127	0.308	-0.667	0.105	0.228	0.105	0.228	0.025	0.167	0.000	-0.200	0.152	0.378	0.735	0.039	0.521	0.067	0.090	0.161	1.000	-0.045	0.026	0.161
312GVS	0.001	0.248	0.101	0.419	0.553	-0.044	0.000	0.000	0.161	0.345	0.876	0.055	0.101	0.419	0.806	0.000	0.089	1.000	0.263	0.173	0.303	0.180	0.113	0.223	0.652	0.200	0.000	-0.255
312MSD	0.024	0.121	0.002	0.229	0.897	-0.008	0.734	-0.333	0.069	0.268	0.102	0.242	0.009	0.192	0.000	-0.333	0.029	0.527	0.779	-0.034	1.000	0.000	0.259	0.114	0.836	0.125	0.376	0.066
312OFC	0.002	0.158	0.000	0.279	0.563	-0.030	0.734	-0.333	0.506	-0.111	0.550	-0.100	0.000	0.403	0.452	0.067	0.350	0.236	0.192	0.138	0.773	0.033	0.624	-0.051	0.212	-0.346	0.019	0.172
312OFN	0.354	0.049	0.000	0.685	0.000	-0.259	0.734	0.333	0.298	0.170	0.334	0.158	0.000	0.355	1.000	-0.600	0.210	0.333	0.666	0.049	0.313	-0.109	0.650	-0.049	0.643	-0.154	0.037	0.157
312ORC	0.000	0.251	0.111	-0.116	0.026	0.116	0.734	-0.333	0.006	0.447	0.000	0.605	0.002	-0.229	0.133	-0.200	0.029	0.527	0.318	0.108	0.809	0.035	0.044	0.192	0.891	-0.045	0.000	-0.270
312ORI	0.062	0.096	0.000	0.258	0.031	0.111	0.734	-0.333	0.003	0.484	0.028	0.358	0.000	0.272	0.707	-0.067	0.161	0.345	1.000	-0.004	0.628	0.105	1.000	0.004	0.831	0.083	0.159	0.106
312SMA	0.024	0.119	0.040	-0.149	0.088	0.090	0.734	-0.333	0.151	0.246	0.033	0.363	0.000	-0.280	1.000	-0.667	0.020	0.564	0.660	0.050	0.124	0.184	0.027	0.218	0.734	0.333	0.000	-0.328
312SMI	0.202	0.283	1.000	0.000	0.113	-0.348	NP	NP	0.000	0.000	0.000	0.000	0.806	0.200	0.085	NP	0.000	0.000	0.233	0.360	0.079	0.550	0.306	0.280	0.089	-1.000	0.045	0.026
313SAE	0.891	0.045	0.631	-0.121	0.631	0.121	NP	NP	0.000	0.000	0.000	0.000	0.193	-0.303	NP	NP	NP	NP	1.000	0.000	0.734	0.333	1.000	0.167	0.308	-0.667	0.124	0.113
314SYF	0.000	0.298	0.411	-0.111	0.000	-0.271	0.000	0.000	0.743	-0.077	0.701	-0.088	0.005	0.363	NP	0.000	0.048	0.556	0.089	-0.231	0.866	-0.030	1.000	-0.008	1.000	0.000	0.072	0.257
314SYL	0.897	0.018	0.230	0.364	0.012	-0.268	0.000	0.000	0.266	-0.357	0.108	-0.500	0.391	0.273	1.000	0.000	0.000	0.000	0.026	0.478	0.256	0.268	0.112	0.268	0.675	-0.139	0.003	0.120
314SYN	0.027	0.159	0.793	0.032	0.258	0.082	1.000	0.000	0.754	-0.111	0.295	-0.306	0.001	0.351	0.000	0.000	0.016	0.810	1.000	0.011	0.929	0.030	1.000	-0.011	0.734	0.333	0.000	0.258
315APF	0.004	0.225	0.350	-0.172	0.690	0.033	0.000	0.000	0.059	-0.410	0.951	0.026	0.603	-0.103	0.000	-1.000	0.221	-0.600	1.000	0.000	0.554	0.105	1.000	-0.013	1.000	0.000	0.000	0.377
315BEF	0.488	-0.043	0.049	-0.184	0.000	0.326	0.000	0.000	0.001	-0.692	0.042	-0.418	0.222	0.116	0.089	0.400	0.049	0.511	0.123	0.190	0.667	0.106	0.681	-0.055	0.272	0.381	0.933	0.008
315FMV	0.000	-0.212	0.000	0.441	0.438	-0.042	0.308	-0.667	0.650	-0.088	0.186	0.243	0.010	0.187	0.462	-0.600	0.138	0.364	0.329	0.145	0.551	-0.068	0.539	-0.064	0.440	0.231	0.123	-0.115
315GAN	0.434	0.042	0.059	0.137	0.000	0.288	1.000	0.000	0.006	-0.560	0.189	-0.275	0.014	0.178	0.133	0.200	0.029	0.527	0.205	0.138	0.662	0.051	0.891	-0.017	0.643	0.154	0.007	0.208
315LCC	0.448	-0.200	1.000	-0.033	0.172	-0.333	0.000	0.000	0.368	-0.333	0.764	-0.143	1.000	0.000	0.707	0.000	0.806	0.200	0.652	0.092	0.100	0.359	0.780	-0.058	0.269	0.244	0.128	0.169

	Turbidity (NTU)		Turbidity Loading		Water Temperature	
Site ID	p-value	Kendall's tau	p-value	Kendall's tau	p-value	Kendall's tau
305BRS	0.761	-0.040	0.304	-0.140	0.761	-0.040
305CAN	0.264	-0.077	0.871	0.009	0.789	-0.019
305CHI	0.000	-0.312	0.000	-0.254	0.805	-0.013
305COR	0.126	-0.089	0.303	0.056	0.023	0.130
305FRA	0.000	-0.425	0.000	-0.275	0.001	-0.188
305FUF	0.464	0.092	0.064	0.206	0.690	-0.053
305LCS	0.018	0.131	0.949	0.004	0.007	-0.149
305PJP	0.001	-0.170	0.160	-0.077	0.014	0.128
305SJA	0.003	0.155	0.541	0.032	0.141	-0.076
305TSR	0.000	-0.303	0.000	0.362	0.000	-0.370
305WCS	0.018	0.269	0.353	0.115	0.318	-0.117
305WSA	0.057	-0.129	0.000	0.182	0.078	0.118
309ALG	0.014	-0.129	0.557	-0.031	0.875	-0.009
309ASB	0.000	-0.286	0.000	-0.235	0.092	-0.089
309BLA	0.000	-0.422	0.000	-0.362	0.020	0.120
309CCD	0.463	-0.067	0.437	-0.056	0.021	-0.204
309CRR	0.050	-0.275	0.330	-0.044	0.504	-0.101
309ESP	0.003	-0.156	0.791	0.014	0.286	-0.056
309GAB	0.029	-0.315	0.237	-0.044	0.370	0.135
309GRN	0.000	-0.280	0.000	-0.245	0.020	0.164
309JON	0.001	-0.166	0.000	-0.244	0.777	0.015
309MER	0.001	-0.171	0.057	0.100	0.087	0.088
309MOR	0.000	-0.226	0.853	0.013	0.871	-0.009
309NAD	0.001	-0.214	0.000	-0.216	0.027	0.141
309OLD	0.000	-0.225	0.376	-0.061	0.823	0.015
309QUI	0.000	-0.287	0.000	-0.300	0.001	0.225
309RTA	0.562	-0.147	0.118	-0.142	0.070	-0.412
309SAC	0.551	-0.052	0.146	-0.089	0.165	0.116
309SAG	0.105	-0.154	0.020	-0.156	0.942	0.010
309SSP	0.043	0.160	0.053	-0.097	1.000	0.000
309TEH	0.000	-0.190	0.924	-0.006	0.030	0.112
310CCC	0.000	0.271	0.002	0.171	0.163	-0.081
310LBC	0.579	0.085	0.001	-0.133	0.064	0.245
310PRE	0.848	0.011	0.762	-0.017	0.122	0.083
310SLD	0.000	0.000	0.724	0.014	0.000	0.000
310USG	0.000	0.250	0.643	-0.026	0.531	-0.034
310WRP	0.003	0.211	0.119	-0.084	0.799	0.019
312BCC	1.000	0.007	0.000	-0.173	0.465	0.091
312BCJ	0.016	-0.129	0.041	-0.109	0.000	0.243
312GVS	0.859	0.015	0.000	-0.555	0.429	0.058
312MSD	0.627	0.027	0.003	-0.159	0.037	0.112
312OFC	0.017	-0.124	0.000	-0.285	0.000	0.234
312OFN	0.175	-0.071	0.001	-0.184	0.190	0.069
312ORC	0.000	-0.223	0.000	-0.402	0.000	0.228
312ORI	0.727	0.019	0.000	-0.246	0.000	0.293
312SMA	0.000	-0.232	0.000	-0.459	0.003	0.154
312SMI	0.182	0.293	0.000	-0.125	0.459	0.174
313SAE	0.064	-0.424	0.124	0.113	1.000	-0.015
314SYF	0.063	0.134	0.842	0.016	0.024	-0.155
314SYL	0.424	0.091	0.039	-0.092	0.180	-0.145
314SYN	0.002	0.236	0.023	-0.137	0.908	-0.010
315APF	0.009	0.215	0.275	0.068	0.036	0.164
315BEF	0.012	0.159	0.000	-0.229	0.032	0.131
315FMV	0.669	0.024	0.000	-0.200	0.053	0.104
315GAN	0.006	0.150	0.020	-0.132	0.096	0.089
315LCC	0.172	0.333	0.128	0.169	0.448	-0.200

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APPENDIX F – TIME SERIES PLOTS

Time series plots are provided on the attached USB flash drive. Two different types of time series plots are provided. One type depicts all monitoring locations within a HU for each parameter to allow for easy comparison of results and trends amongst sites. This time series is presented as a black line while the associated trend of the data (determined by the Mann-Kendall analysis) is denoted as a blue line. The blue line represents the Theil-Sen Slope which is a statistic that is produced during the Mann-Kendall analysis and approximates the strength of the trend and correlates with Kendall's Tau. A dashed blue line indicates a non-significant trend (p-value >0.05), and a solid blue line indicates a significant trend (p-value ≤ 0.05). The other type of time series plots represents results for each sample location and parameter combination. These plots include individual sample results denoted with a black line; a blue trend line based on the Theil-Sen Slope and having the same interpretive logic described above; and a locally estimated scatterplot smoothing (LOESS) line, which fits a smooth line to the data. LOESS is a "local" regression technique that gives more weight to nearby data than to data located further up or down the x-axis. LOESS is not a separate trend analysis method, but rather a visual tool to help see the relationship between localized subsets of data and to foresee potential trends.

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APPENDIX G – FIELD LOGS FOR COLLECTION OF WATER AND SEDIMENT SAMPLES

Field logs associated with the collection of water and sediment samples in 2022 are provided on the attached USB flash drive.

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APPENDIX H – PHOTOS FROM INDIVIDUAL MONITORING EVENTS

Photographs of monitoring sites taken during the collection of water and sediment samples in 2022 are provided on the attached USB flash drive.

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APPENDIX I – LABORATORY REPORTS FOR ANALYSES OF WATER QUALITY AND SEDIMENT SAMPLES

Laboratory reports associated with the collection of water and sediment samples in 2022 are provided on the attached USB flash drive.

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APPENDIX J – DATA USED FOR EVALUATION OF MONITORING RESULTS

Raw data associated with water and sediment samples collected in 2022 is provided on the attached USB flash drive.

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