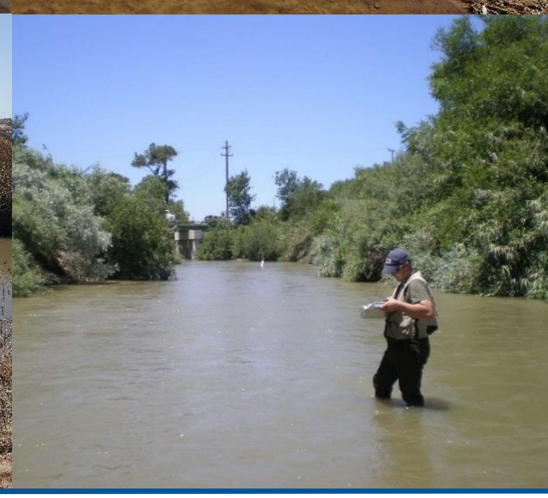
Central Coast Water Quality Preservation, Inc. **Revision No. 1**

Central Coast Cooperative Monitoring Program 2021 Annual Water Quality Report





Original: July 1, 2022
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EXECUTIVE SUMMARY

This report describes the results of monitoring conducted by Central Coast Water Quality Preservation, Inc. (CCWQP) in 2021 pursuant to the Central Coast Regional Water Quality Control Board's (CCRWQCB's) Agricultural Order (Order No. R3-2017-0002 and 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 2021 were successfully conducted. Required field observations were made during 657 of 657 planned site visits. Water samples were not collected during 178 site visits because 106 site visits observed a dry channel and 72 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 2021 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 Pajaro River and Estero Bay HUs. Trends in dissolved oxygen were mostly increasing in the Salinas, Santa Maria, and Santa Ynez HUs and declining in the Pajaro River, Estero Bay, and South Coast HUs.
- Trends in flow have been decreasing across the Central Coast Region, especially in southern HUs. There were 31 trends in flow, which were primarily decreasing (four exceptions). Three increasing trends were observed in northern HUs, and one increasing trend was observed in southern 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, San Antonio, and Santa Ynez HUs.
- Trends in salinity-related parameters were entirely increasing in the Pajaro River HU and mostly increasing in the Santa Maria and South Coast HUs. Trends in the Santa Ynez HU were entirely decreasing and trends in the Salinas HU were mostly decreasing. An equal number of increasing and decreasing trends were observed in the Estero Bay HU.
- Trends for both unionized ammonia and orthophosphate across the Central Coast Region were relatively evenly split, with a slight majority of detectable trends in the increasing 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, and only the Estero Bay HU achieved all unionized ammonia TMDL limits.
- Twenty-four trends in nitrate were observed across the Central Coast Region, of which 17 were decreasing. Of the increasing trends, most were observed in the Pajaro River and Salinas HUs. Two 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.
- Three 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 relatively infrequent in all HUs compared to invertebrate toxicity in water and sediment, and generally reduced from early years of the program.
- The highest frequency of toxicity to invertebrate test species in water was observed in the Santa Maria HU. No significant mortality was observed in *Ceriodaphnia dubia* samples collected from the San Antonio, Santa Ynez, and South Coast HUs. Significant mortality was observed in *Chironomus dilutus* samples collected from all HUs except Santa Ynez.
- 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.
- 35% of possible site/parameter combinations for conventional parameters showed statistically significant trends in water quality from 2005 through 2021. Most of the trends noted through 2021 were similar to those observed since 2015 with few trends reversing direction.

The CMP results from 2021 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.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

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
FGL	Fruit Growers Laboratory
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

Acronyms/Abbreviations	Definition
P	phosphorus
PER	Pacific EcoRisk
ppt	parts per trillion
PVWMA	Pajaro Valley Water Management Agency
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
TOQ	Number of organisms in a toxicity test do not meet the minimum quantity per replicate at test initiation or an unequal quantity of organisms per replicate is used
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

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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 of 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 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 Ag Order 4.0) marked a significant change relative to prior Orders. Ag Order 4.0 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 Ag Order 4.0 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 Ag Order 4.0 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.

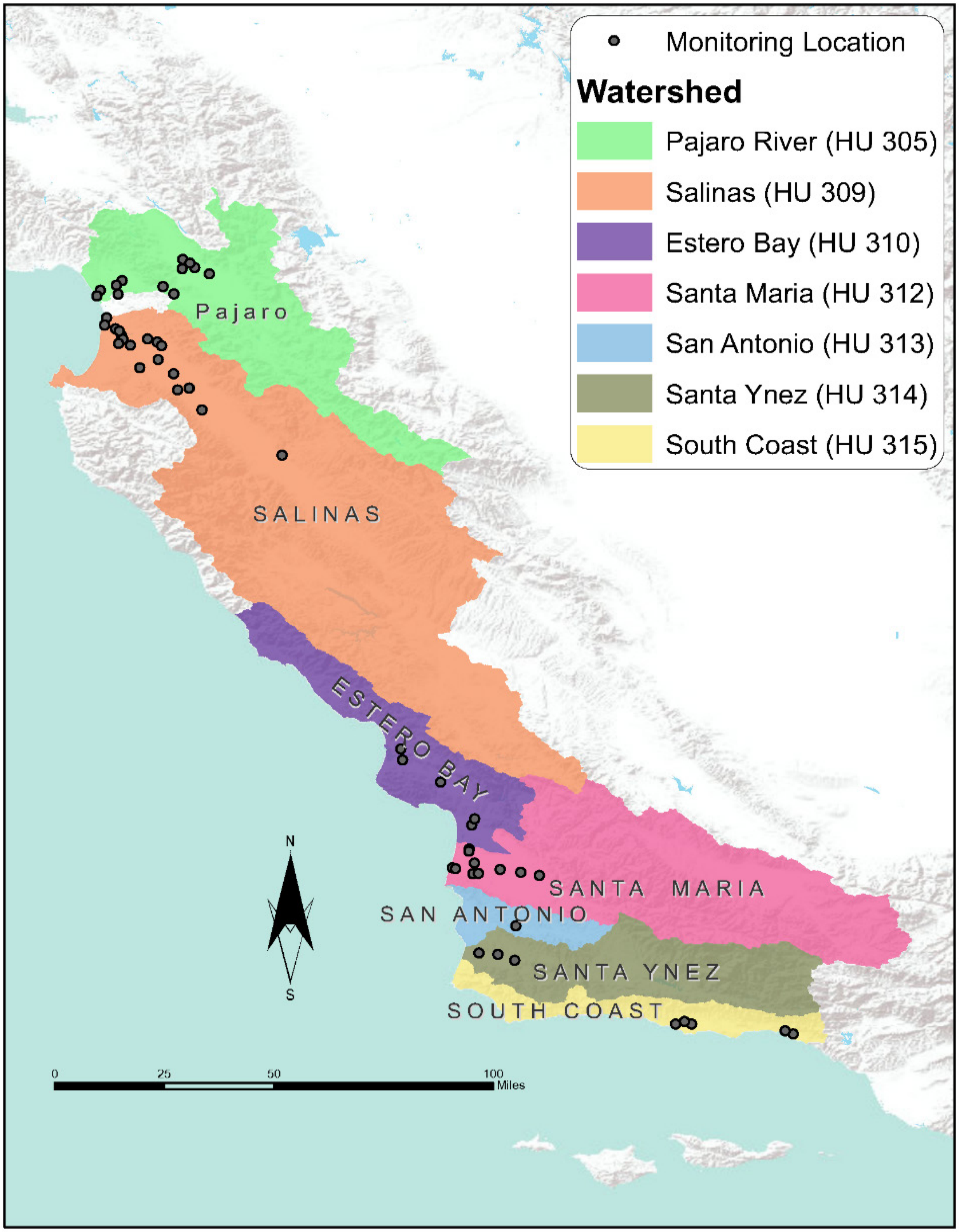


Figure 1-1. Cooperative Monitoring Program Project Area and Core Monitoring Sites

The population of the Central Coast Region was greater than 1.6 million in 2017. About 65 percent 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 Hydrologic Units 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 of Santa Barbara County (and including a small area of southern San Luis Obispo County) and the lower Salinas River Region in 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 2021, 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, 2021

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 Road 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 2021 reflect the requirements of the March 2017 Ag Order and will be updated subsequent to future QAPP updates. Future QAPP updates will reflect all requirements specified in the 2021 MRP.

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

- Chemical and physical constituents measured monthly are as follows:
  - Nitrate+nitrite[1],
  - Total ammonia,
  - Unionized ammonia,
  - Total nitrogen (added in 2012),
  - Total Kjeldahl nitrogen,
  - Dissolved orthophosphate,
  - Total phosphorus as P (added in 2012),
  - Chlorophyll-*a*,
  - Dissolved oxygen and oxygen saturation,
  - Temperature,
  - Total dissolved solids,
  - Total suspended solids (added in 2012),
  - Electrical conductivity,
  - Salinity,
  - pH,

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

- Turbidity, and
- Flow.

- 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 in spring (April-May) and once in fall (August-September).
- 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 mentioned above.
- 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 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 Ag Order 4.0. Additionally, Ag Order 4.0 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.

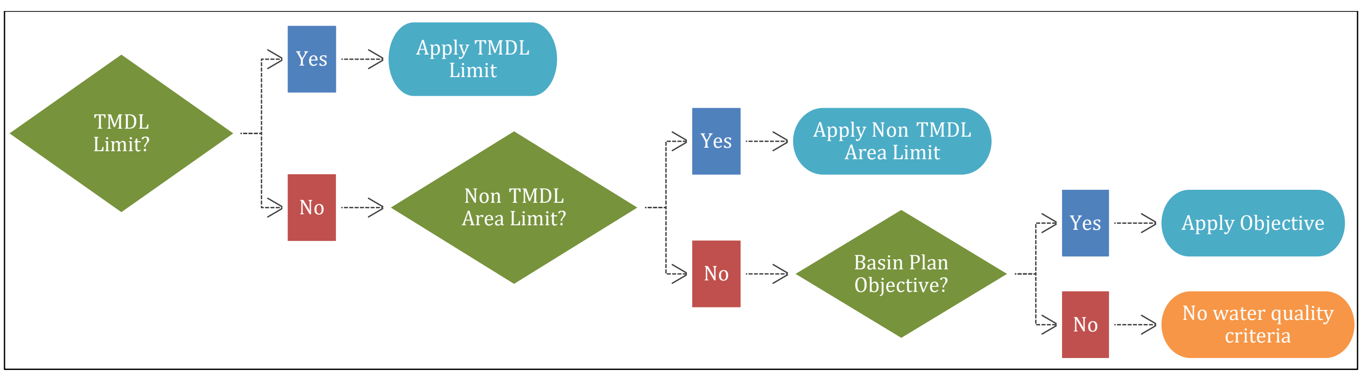


Figure 2-1. Hierarchical Approach Used to Determine Applicable Water Quality Criteria

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 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. 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								

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
309GAB	Gabilan Creek at Boronda Rd.	Gabilan Creek	X	X	X			X	X	X	X	X	X	X	X		X			X	
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 Hwy 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 St.	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 waterbody, 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 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 Hwy 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 St.	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 St.[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 Antonio Road East	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 Ag Order 4.0. Tables C.3-2 and C.3-4 of Ag Order 4.0 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 Ag Order 4.0 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 criteria to be evaluated following 2022 sampling efforts and summarized in subsequent *CMP Supplemental Monitoring Report.*

2 The limits and units identified in Table C.3-6 of Ag Order 4.0 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 6- to 8-day static renewal tests (i.e., chronic bioassay) with sample renewals every 24 hours after test initiation; test endpoints included lethal (mortality) and sublethal (reproduction) endpoints. Toxicity tests with *C. dilutus* were conducted as 4-day static renewal tests (i.e., acute bioassay) with sample renewal occurring 48 hours after test initiation; the test endpoint was mortality. Toxicity tests with *S. capricornutum* were conducted as a 96-hour static non-renewal test (i.e., acute bioassay); the test endpoint was growth. 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., chronic bioassay) with two intermittent volume additions of overlying water. The *H. azteca* sediment toxicity tests included lethal (mortality) and sublethal endpoints (growth).

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 2018. 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. Error! Reference source not found. 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 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 2021.

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 2021 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 2021, 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 2021 Central Coast 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 2021. Additionally, aquatic toxicological tests were assessed four times during the year, including two wet weather events (Events 194 and 205) and two dry weather events (Events 197 and 202). Lastly, sediment toxicological tests were assessed two times during dry weather: April (Event 197) and September (Event 202).

Data collected for the CMP were evaluated for precision, accuracy, and completeness as required by the QAPP. In general, the precision and accuracy for the majority of the results meet the CMP DQOs, with the primary issues being 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 instrument or probe failure. No data were rejected as unusable during 2021.

The following summarizes the primary analytical issues that were addressed in 2021:

First Quarter:

1. **Event 195:** Due to a shipping error by FedEx, the samples collected in the SMU on the first day of sampling were delivered to Physis a day late. All samples were ultimately delivered to Physis at temperature; however, nitrate+nitrite and dissolved orthophosphate samples collected at 310CCC and 310WRP were received slightly outside (< 1-hour) of method holding time. Based on past direction from CCWQP, Tetra Tech directed Physis to proceed with analyses for all samples.

Second Quarter:

1. **Event 197:**
    a. Total ammonia samples (310USG, 310CCC, 312MSD, 312BCJ, 312OFN-FD, and 312OFC) arrived at the laboratory without being in acidified sample containers. These samples were qualified as such. The field crews were reminded to check all sample bottles to assure proper sample preservation is taking place. These sample data, as well as unionized ammonia sample data, were qualified accordingly.
    b. Samples collected in the Pajaro River watershed on April 27, 2021 were delivered late to Physis due to a GLS shipping delay. Samples from 305LCS, 305CAN, 305TSR, 305FRA, 305FUF, 305SJA, and 305CHI arrived at the lab outside of the 48-hour hold time for nitrate+nitrite and orthophosphate as P. After coordination with CCWQP, the decision was made to proceed with all analyses. These sample data were qualified accordingly.
    c. The initial Lab Controls associated with the *Chironomus dilutus* tests of 312BCJ, 310WRP, 310PRE, 310CCC, 309ESP, 309MER, 309TEH, 309JON, 305COR, 305PJP, 305WSA, 305WCS, and 305BRS failed to meet test acceptability criteria (TAC) of >90% survival. Retests were performed on these samples. The lab controls associated with the retests of 312BCJ, 310WRP, 310PRE, 310CCC, 309ESP, 309MER, 309TEH, and 309JON met TAC. The lab controls associated with the retests of 305COR, 305PJP, 305WSA, 305WCS, and 305BRS failed to meet TAC. Per discussions with CCWQP, new ambient water samples were collected at 305COR, 305PJP, 305WSA, 305WCS, and 305BRS during sampling in May (Event 198) and new *Chironomus dilutus* tests were performed.
2. **Event 198:** *In situ* field parameters were unable to be quantified due to Hydrolab battery failure. The following sites were affected: 309MOR, 309OLD, 309TEH, 309MER, 309ESP, 309ASB, 309BLA, 309JON and 309SAG. The field parameters were measured by PER upon arrival at the laboratory. Since the sample quality could potentially change over time and because they were placed inside chilled coolers following collection, the reported results must be considered estimates and were qualified accordingly. The field crews were reminded to have back-up field equipment available.

Third Quarter:

1. **Event 202:**
    a. Dissolved orthophosphate samples collected from 310WRP, 310PRE, and 310USG on September 22, 2021, were received by Physis on September 24, 2021, approximately 1-4 hours outside of the 48-hour hold time. Root cause was determined to be shipping delays by GLS. The decision was made to analyze these samples outside of hold time based on past guidance from CCWQP. These sample data were qualified accordingly.
    b. All samples collected at 309TEH on September 22, 2021, were received by Physis on September 29, 2021. These samples exceeded all hold times and temperature preservation targets. Root cause was determined to be the loss of a cooler by FedEx. Analyses for all samples collected at 309TEH were canceled and the site was resampled on September 29, 2021 by PER.

c. All toxicity samples collected on September 21, 2021 (312ORI, 312ORC, 312SMA, 312MSD, 312OFC, and 312OFN) were received on October 1, 2021, outside of hold time and temperature targets. Root cause was determined to be a temporary loss of the coolers by GLS. The analysis of these samples, as well as all other toxicity-related samples collected on September 21, 2021, were canceled. All eight sites were resampled on October 4, 2021, with samples delivered to PER within established hold times and temperature targets. All other samples were also delivered within established hold times and with no deficiencies.
d. Pesticide and herbicide samples collected on September 30, 2021 from sites 309OLD, 309ESP, 309ASB, and 309BLA were delivered to NCL on October 4, 2021, outside of temperature preservation targets. Root cause was determined to be a delay of shipment by FedEx. The analyses for these samples were canceled. Subsamples were collected from toxicity samples in cold-storage at PER. The subsamples were shipped to NCL and were received within temperature and original hold time targets. All other samples were delivered within established hold times and with no deficiencies.

Fourth Quarter:

1. **Event 205:**
    a. Total phosphorus and dissolved orthophosphate concentration inversions were identified for 309BLA, 309MOR, and 309NAD. These data were not qualified but the laboratory has been notified and we are monitoring future results.
    b. *Hyalella azteca* bioassay for 315BEF: This sample arrived at elevated conductivity (>3,000 µS/cm) which required PER to use *H. azteca* as the test organism. However, the laboratory did not have time to order additional organisms without causing the test to be started beyond method holding times. The laboratory used organisms from their in-house culture which had only sufficient numbers to setup the test with five organisms per replicate vs. the method requirement of 10 organisms per replicate.
    c. *Ceriodaphnia dubia* toxicity tests for sites 309SSP and 309CCD were accidentally discarded by PER staff during test maintenance on December 30, 2021. PER staff immediately caught the error and initiated retests. The samples were >36 hours old at the time of retest initiation. These sample data were qualified accordingly.

There were no other significant deviations from CMP DQOs during 2021 and the data generated are adequate for the purposes of the CMP.

3.1.1 Chemistry Data

18.5% of the chemistry results (1,728 out of 9,324) required qualification of some type. 758 of the qualified results were greater than the method reporting limit. Of the 758 qualified chemistry results:

- 22 (2.8%) of the results were qualified as “BV” due to samples being received by the laboratories past sample holding times. Our shipping and courier procedures were reviewed and updated to account for COVID-related shipping issues.
- 12 (1.5%) of the results were qualified as “CT” due to the laboratory QC criteria not being met because of elevated analyte concentration. No corrective action was taken.
- 19 (2.4%) of the results were qualified as “HL” due to the analyte recoveries exceeding established limits. No corrective action was taken; laboratory performance will be continued to be monitored.
- 174 (22.4%) of the results were qualified “VFDP” due to field duplicate RPDs exceeding project DQOs. Field crews were required to review duplicate collection procedures.
- Four (0.5%) of the results were qualified “VBZ” due to improper sample preservation. Field crews were reminded to diligently check sample collection bottles for correct sample preservation.

- 463 (59.6%) of the results were qualified "VGB" due to MS/MSD % recoveries exceeding established laboratory limits. The laboratory was contacted and asked to re-check values. Any subsequent revisions resulted in the laboratory re-issuing a corrected laboratory EDD and report.
- 93 (12.0%) 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 re-issuing a corrected laboratory EDD and report.
- Four (0.5%) of the results were qualified "VEUM" due to the LCS/LCSD exceeding established laboratory control limits. The laboratory was contacted and asked to re-check values. Any subsequent revisions resulted in the laboratory re-issuing a corrected laboratory EDD and report.
- Three (0.04%) of the results were qualified "VGN" due to surrogate % recoveries exceeding established laboratory limits. The laboratory was contacted and asked to confirm the values. Any subsequent revisions resulted in the laboratory re-issuing a corrected laboratory EDDD and report.

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

- 761 (97.9%) of the data received a single qualifier;
- 15 (2%) of the data received two qualifiers and
- One (0.1%) 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.

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 795 aquatic and sediment toxicity tests, 16 received data qualifiers.

Of the 16 qualified toxicity bioassay data:

- 15 (93.8%) of the results were qualified as "VH" due to holding time exceedances. No Corrective Action was taken since the primary issue was test failure and re-testing after the sample holding time had expired.
- One (6.2%) of the results were qualified as "TOQ" due to the unexpected elevated conductivity of sample 315BEF (Event 205) that required the laboratory to use *H. azteca* as the test organism. However, the laboratory did not have time to order additional organisms without causing the test to be started beyond method holding times. The laboratory used organisms from their in-house culture which had only sufficient numbers to setup the test with 5 organisms per replicate vs. the method requirement of 10 organisms per replicate. No Corrective Actions were taken.

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 7,163 habitat data records, there were 74 results (1%) that were qualified (excluding sites that were not sampled because they were either determined to be dry or had a lack of connectivity):

- 72 (97.3%) of the results were qualified as "FTT" due to the water being too turbid to measure algal coverage. No Corrective Action was taken.
- Two (2.7%) of the results were qualified as "FTD" due to the site being too deep to obtain a measurement. 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 5,038 field data records, 127 results were qualified:

- 14 (11%) of the results were qualified as “CJ” due to the analyte concentration being greater than instrument calibration. No Corrective Action was taken.
- 113 (89%) of the results were qualified “VFIF” due to Hydrolab battery failure. The field parameters were measured by PER upon arrival at the laboratory. Since the sample quality could potentially change over time and because they were placed inside chilled coolers following collection, the reported results must be considered to be estimates and were qualified accordingly. The field crews were reminded to have back-up field equipment.
- 81 (63.8%) of the results were qualified “VJ” due to a potential Chl-a probe issue. The results are considered to be estimated. The field crews were reminded to have back-up field equipment.
- 81 (63.8%) of the results contained two qualifiers.

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. 479 of 657 planned site visits resulted in sample collection, translating to a 72.9% sampling success rate. Samples were not collected for 178 site visits because:

- 106 (60%) of the site visits observed a dry channel; and
- 72 (40%) 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.

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.

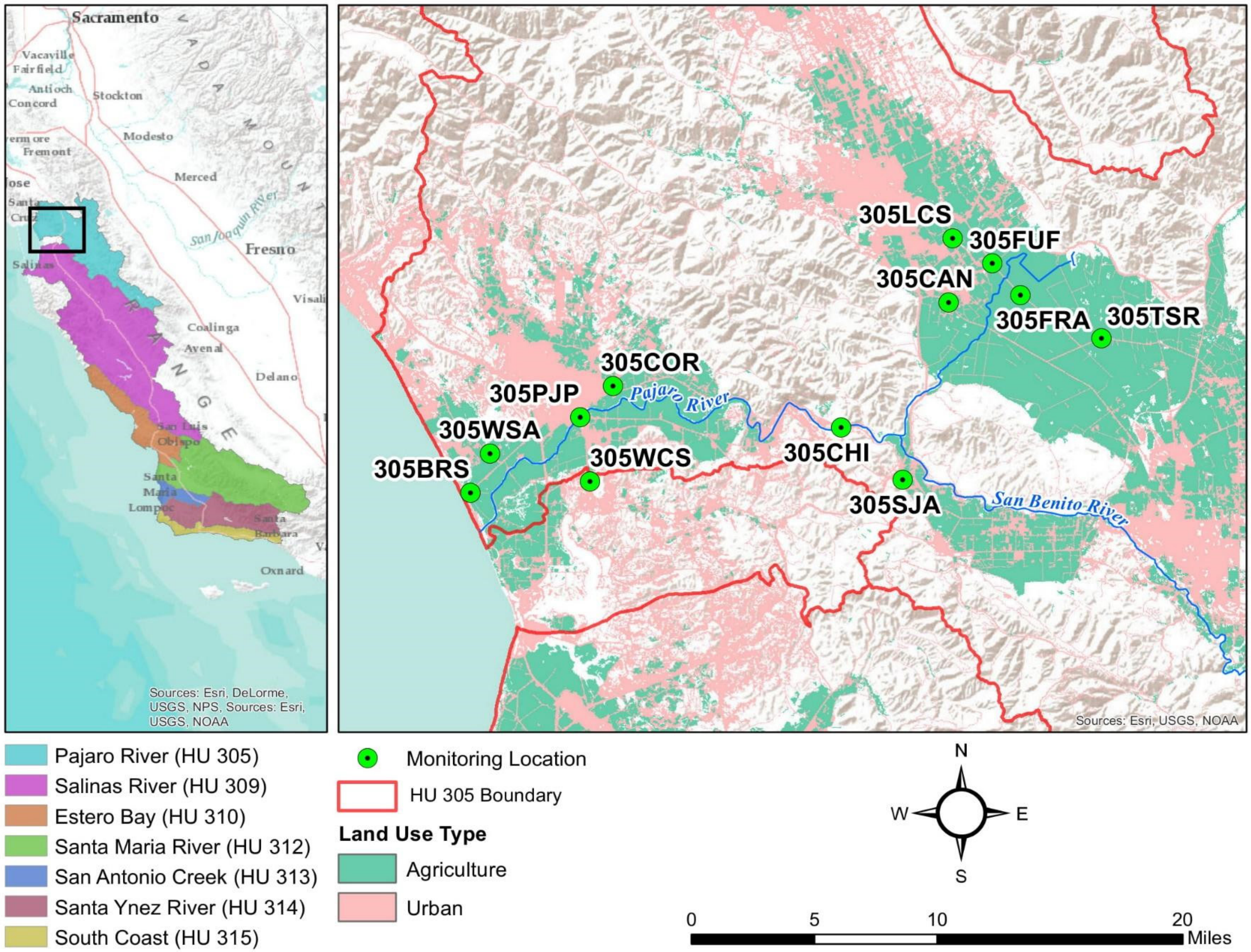


Figure 3-1. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Pajaro River Hydrologic Unit

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 2021, there were two occurrences of significant rainfall, one in late January and another in late October. Flows typically decrease rapidly in 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 2021 monitoring year, the annual average flow (33 CFS) at the *Pajaro River at Chittenden* stream gage was well below the historic annual average (160 CFS, 1940-2020) and ranged from 0.53 CFS (October 17, 2021) to 1050 CFS (January 29, 2021) (USGS 2022). The 2021 cumulative annual rainfall (19.44") at the *Pajaro* rain gauge was higher than the historic average (17.00", 2006-2020) (**Figure 3-2)** (California Department of Water Resources [CDWR] 2022).

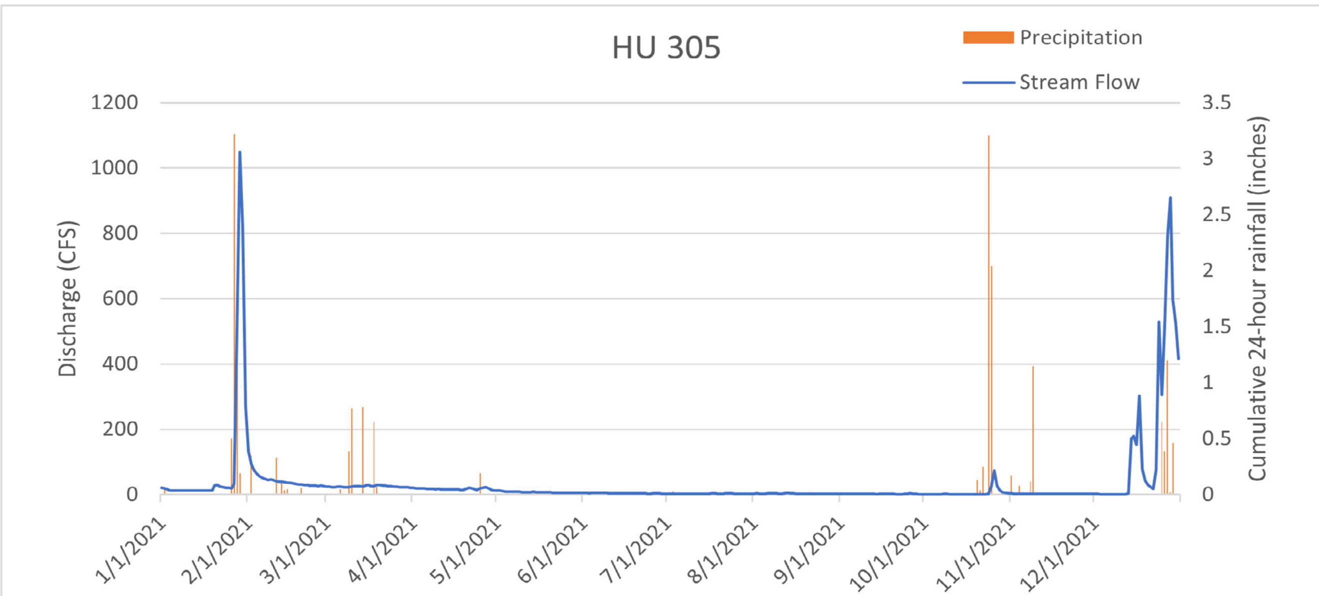


Figure 3-2. 2021 Hydrograph and Total Daily Precipitation Record for Pajaro River at Chittenden

In 2021, flows measured at the 12 Pajaro River HU monitoring sites were generally influenced by wet season precipitation, with elevated flows occurring in early February and late December. During the dry season, surface water flows declined with most 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.

- Measured flows during 2021 ranged from -0.01 CFS due to tidal influences (Beach Road Ditch [305BRS]) to 469 CFS (Pajaro River at Main Street [305PJP]) following a storm in January.
- Median flows in 2021 ranged from 0.00 CFS at Carnadero Creek (305CAN) to 6.92 CFS (Pajaro River at Main Street [305PJP]).
- For the period of 2005-2021, four sites showed statistically significant decreasing trends in flow and two sites showed statistically significant increasing trends.

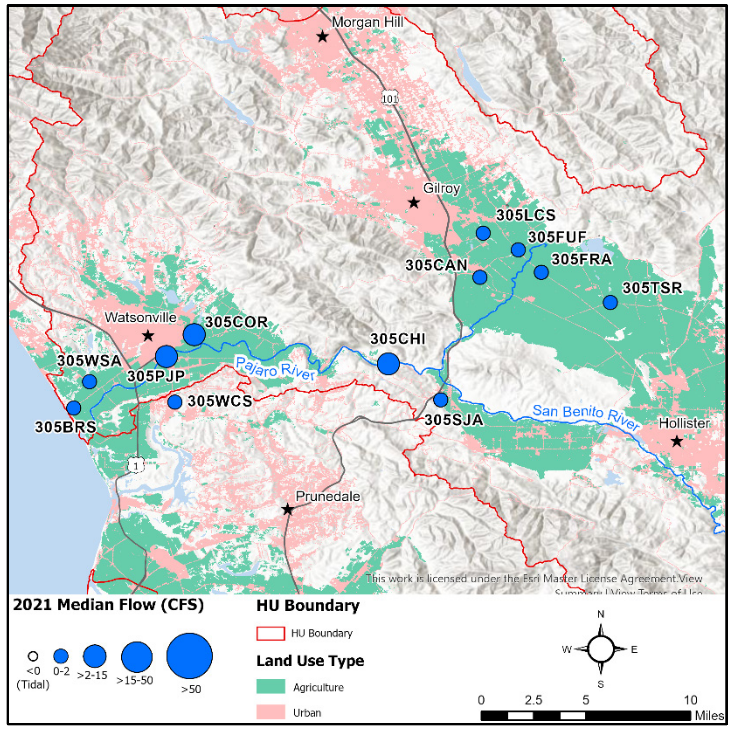


Figure 3-3. 2021 Median Flows for Sites in HU 305

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

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	-0.01	37.94	7.72	0.51	Increasing
305CAN	12	0.00	159.63	13.56	0.00	Decreasing
305CHI	12	1.50	32.85	11.16	5.01	**Decreasing**
305COR	12	0.00	220.98	23.19	2.74	Increasing
305FRA	12	0.00	7.00	1.52	0.07	**Decreasing**
305FUF	12	0.00	7.70	1.16	0.43	Increasing
305LCS	12	0.00	369.00	44.95	1.20	**Decreasing**
305PJP	12	0.48	469.00	51.14	6.92	Decreasing
305SJA	12	0.02	3.62	1.51	0.84	**Decreasing**
305TSR	12	0.01	1.52	0.57	0.46	**Increasing**
305WCS	12	0.11	12.23	2.28	0.41	Decreasing
305WSA	12	0.00	5.35	0.94	0.03	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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

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 is therefore 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.

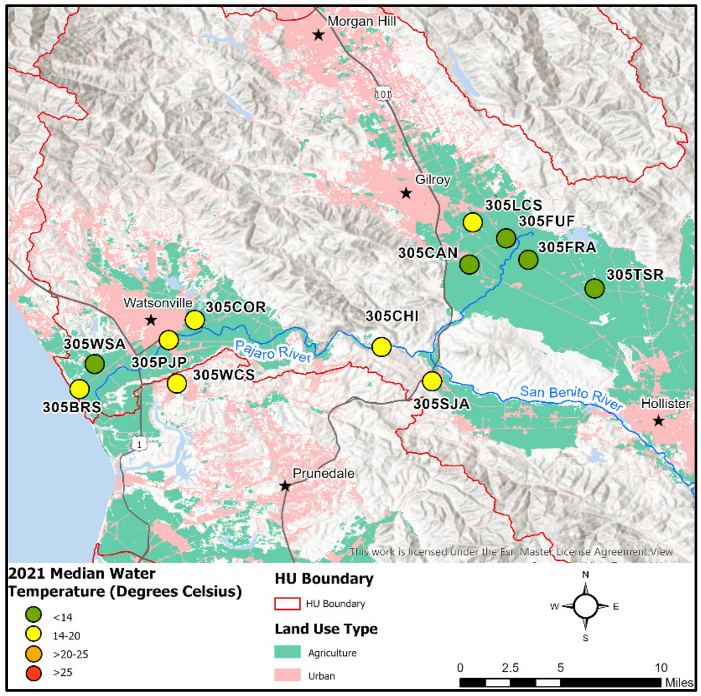


Figure 3-4. 2021 Median Water Temperature for Sites in HU 305

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 2021, water temperatures peaked at most sites in the Pajaro River HU during the month of June and minimum temperatures at most sites were recorded during the month of January. **Figure 3-4** depicts annual median temperatures for sites in the Pajaro River HU for 2021, and **Table 3-2** presents descriptive statistics.

- Median water temperatures in the Pajaro River HU ranged from 11.8 to 18.6 °C in 2021.
- The lowest water temperature (5.8 °C) was observed in Tequisquita Slough (305TSR). The highest water temperature (26.4 °C) was observed at Beach Road Ditch (305BRS).
- For the period of 2005-2021, three sites showed statistically significant decreasing trends in water temperature and two sites showed statistically significant increasing trends.

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	9.8	26.4	17.8	18.6	Decreasing
305CAN	6	10.9	15.8	13.5	13.6	Increasing
305CHI	12	8.6	18.6	14.5	14.8	Increasing
305COR	9	8.7	18.4	14.3	14.8	**Increasing**
305FRA	9	8.5	18.7	13.4	13.7	**Decreasing**
305FUF	10	9.1	17.7	13.3	13.8	Increasing
305LCS	9	9.5	18.4	14.7	15.2	**Decreasing**
305PJP	12	8.9	18.2	14.7	15.2	**Increasing**
305SJA	12	7.6	17.7	13.8	14.8	Decreasing
305TSR	12	5.8	17.4	11.7	11.8	**Decreasing**
305WCS	12	10.0	21.2	15.9	15.6	Increasing
305WSA	6	9.6	15.6	12.7	12.7	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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, which has 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 Ag Order 4.0 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 sediment (TSS) loading for sites within the Pajaro River HU, and **Table 3-3** and **Appendix B** presents descriptive statistics and turbidity limit exceedances.

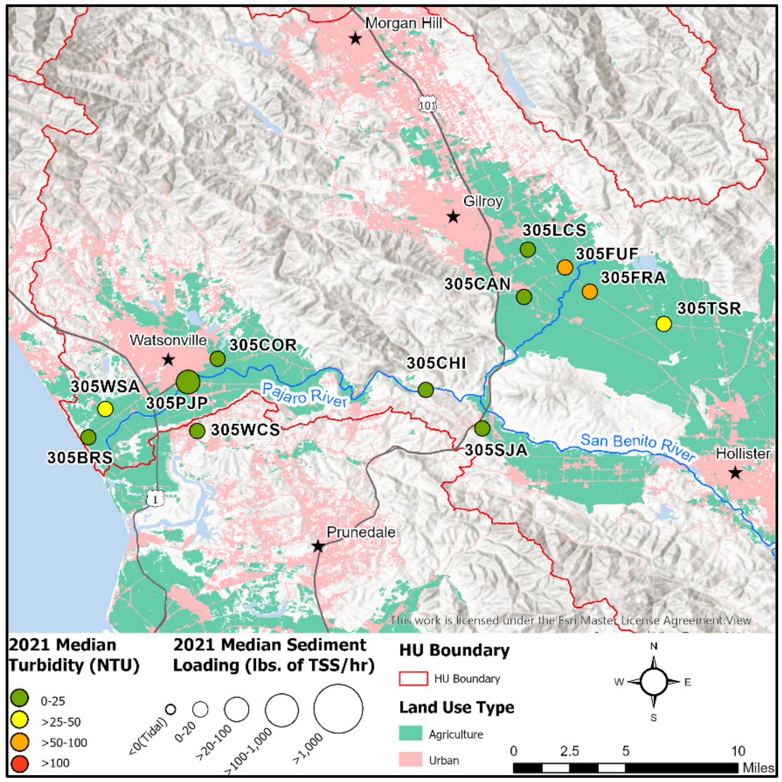


Figure 3-5. 2021 Median Turbidity and TSS Loading for Sites in HU 305

- Median turbidities ranged from 5 to 67 NTU in 2021.
- Although Furlong Creek (305FUF) and Millers Canal (305FRA) had relatively high median turbidity results, TSS loading from these sites was low due to low median flows.
- Higher relative TSS loading at Pajaro River at Main Street (305PJP) was due to higher flow conditions.
- All sites in the Pajaro River HU exceeded their respective turbidity limit. Two of 12 sites (Millers Canal [305FRA] and Furlong Creek [305FUF]) exceeded the turbidity limit in more than 50% of samples, both of which have a turbidity limit of 25 NTU.
- Four sites, Pajaro River at Chittenden (305CHI), Millers Canal (305FRA), Pajaro River at Main Street (305PJP), and Tequisquita Slough (305TSR) showed statistically significant decreasing trends in turbidity from 2005-2021. Three sites, Llagas Creek (305LCS), San Juan Creek (305SJA), and Watsonville Creek (305WCS) showed significant increasing trends in turbidity.
- Two sites, Tequisquita Slough (305TSR) and Watsonville Slough (305WSA) showed statistically significant decreasing trends in TSS loading from 2012-2021. Five sites, Carnadero Creek (305CAN), Pajaro River at Chittenden (305CHI), Salsipuedes Creek (305COR), Llagas Creek (305LCS), and San Juan Creek (305SJA) 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 of 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	6	222	39	15	33%[4]	Decreasing	Decreasing
305CAN	6	3	116	23	5	17%[4]	Decreasing	**Increasing**
305CHI	12	9	69	25	21	42%[4]	**Decreasing**	**Increasing**
305COR	9	9	501	136	16	33%[4]	Decreasing	**Increasing**
305FRA	9	15	322	94	62	67%[4]	**Decreasing**	Increasing
305FUF	10	9	1752	362	67	80%[4]	Increasing	Increasing
305LCS	9	2	259	38	7	22%[4]	**Increasing**	**Increasing**
305PJP	12	5	478	64	12	25%[4]	**Decreasing**	Increasing
305SJA	12	8	127	36	21	42%[4]	**Increasing**	**Increasing**
305TSR	12	7	163	38	25	25%[5]	**Decreasing**	**Decreasing**
305WCS	12	3	247	44	10	33%[4]	**Increasing**	Increasing
305WSA	6	6	78	42	45	50%[5]	Decreasing	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2005-2021 and TSS was monitored from 2012-2021.
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** presents 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**.

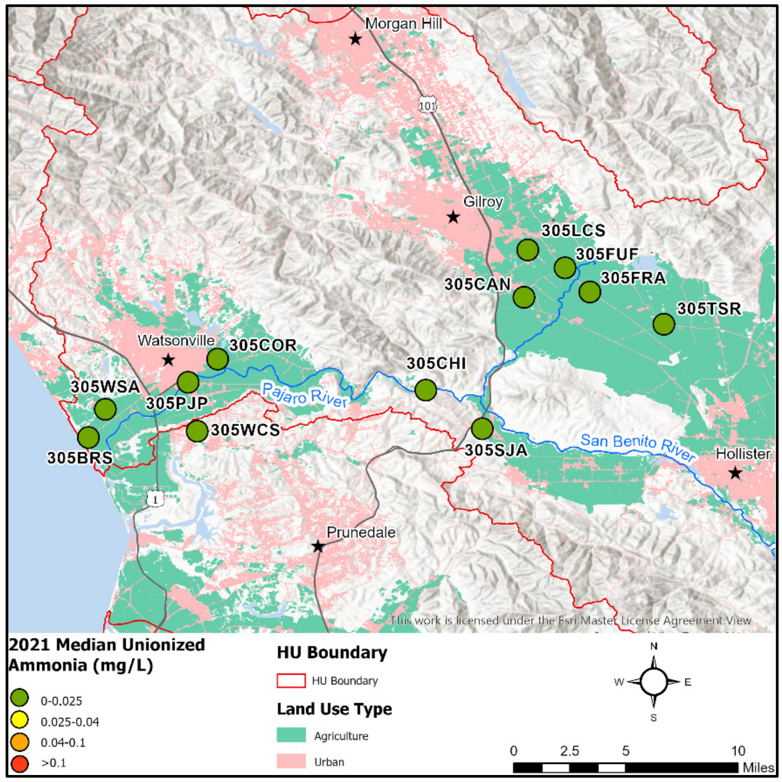


Figure 3-6. 2021 Median Unionized Ammonia for Sites in HU 305

- The highest unionized ammonia concentration was 0.1612 mg/L, measured in Tequisquita Slough (305TSR).
- Two sites, Llagas Creek (305LCS) and Tequisquita Slough (305TSR), showed a statistically significant decreasing trend in unionized ammonia concentrations from 2005-2021. Four sites showed a statistically significant increasing trend in unionized ammonia concentration—Pajaro River at Chittenden (305CHI), Salsipuedes Creek (305COR), Pajaro River at Main Street (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	0.0007	0.0660	0.0105	0.0012	Increasing
305CAN	6	0.0001	0.0002	0.0002	0.0002	Decreasing
305CHI	12	0.0006	0.0053	0.0024	0.0022	**Increasing**
305COR	9	0.0004	0.0469	0.0072	0.0020	**Increasing**
305FRA	9	0.0016	0.0440	0.0107	0.0053	Increasing
305FUF	10	0.0011	0.0087	0.0033	0.0027	Increasing
305LCS	9	0.0000	0.0002	0.0001	0.0001	**Decreasing**
305PJP	12	0.0004	0.0109	0.0022	0.0012	**Increasing**
305SJA	12	0.0009	0.0949	0.0307	0.0174	**Increasing**
305TSR	12	0.0005	0.1612	0.0155	0.0015	**Decreasing**
305WCS	12	0.0006	0.0052	0.0027	0.0027	Increasing
305WSA	6	0.0002	0.0033	0.0012	0.0008	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 at least one sample at five sites in 2021 (Beach Road Ditch [305BRS], Salsipuedes Creek [305COR], Miller Canal [305FRA], San Juan Creek [305SJA], and Tequisquita Slough [305TSR]). No other site had a TMDL or non-TMDL area exceedance for unionized ammonia.

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	8%	N/A
305CAN	0%	N/A
305CHI	0%	N/A
305COR	11%	N/A
305FRA	11%	N/A
305FUF	0%	N/A
305LCS	0%	N/A
305PJP	0%	N/A
305SJA	33%	N/A
305TSR	8%	N/A
305WCS	N/A	0%
305WSA	0%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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.
- 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	0.0468	0.8600	0.2331	0.1385	Increasing
305CAN	6	0.0134	0.0687	0.0431	0.0446	Increasing
305CHI	12	0.0329	0.2620	0.0784	0.0611	**Increasing**
305COR	9	0.0442	0.3000	0.1438	0.1130	**Increasing**
305FRA	9	0.0408	0.4210	0.1683	0.1290	**Increasing**
305FUF	10	0.0466	0.4940	0.1218	0.0776	Increasing
305LCS	9	0.0282	0.1850	0.0673	0.0373	**Increasing**
305PJP	12	0.0208	0.2510	0.1021	0.0707	**Increasing**
305SJA	12	0.0238	8.3200	1.5863	0.6660	**Increasing**
305TSR	12	0.0313	1.6000	0.2290	0.0864	Decreasing
305WCS	12	0.0233	0.2610	0.0953	0.0618	Increasing
305WSA	6	0.1010	0.4490	0.1997	0.1745	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021, **Table 3-7** presents descriptive statistics, and **Table 3-8** and **Appendix B** presents TMDL and non-TMDL area limit exceedances.

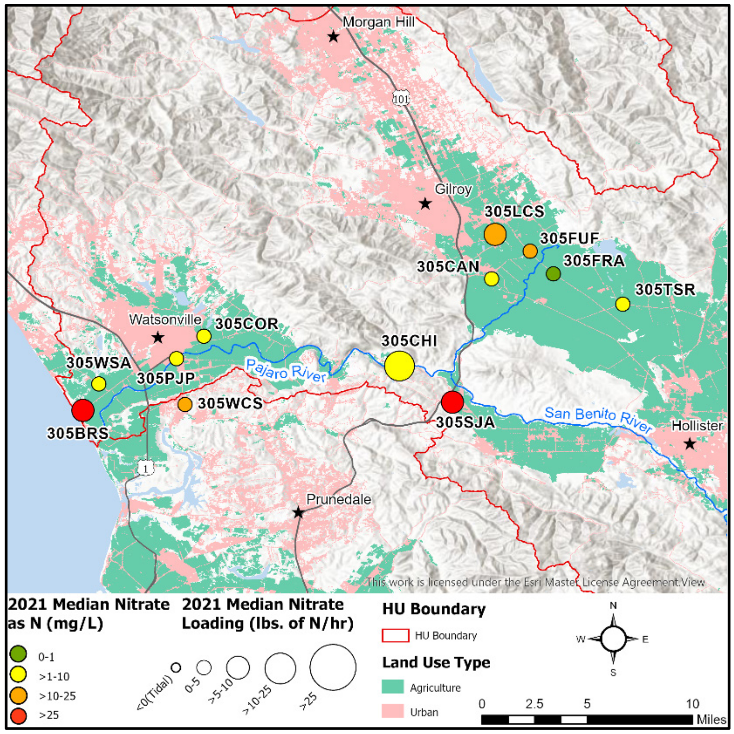


Figure 3-7. 2021 Median Nitrate for Sites in HU 305

Samples were also collected and analyzed for total nitrogen. Miller 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 is currently no non-TMDL area limits or numeric WQO for total nitrogen in the Basin Plan applicable to the other ten 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**.

- San Juan Creek (305SJA) had the highest median concentration in the Pajaro River HU (32.2 mg/L).
- Relatively moderate nitrate loading in Beach Road Ditch (305BRS) and San Juan Creek (305SJA) resulted from moderate flows and elevated nitrate concentrations. Higher loading in the Pajaro River at Chittenden (305CHI) and Llagas Creek (305LCS) was due to high flows as nitrate concentrations were more moderate.
- Two sites showed statistically significant increasing trends in nitrate concentration (San Juan Creek [305SJA] and Tequisquita Slough [305TSR]), while three sites showed statistically significant decreasing trends in nitrate concentrations (Pajaro River at Main Street [305PJP], Watsonville Creek [305WCS], and Watsonville Slough [305WSA]).
- Two sites showed a statistically significant increasing trend in nitrate loading (Tequisquita Slough [305TSR] and Watsonville Slough [305WSA]). Three sites displayed a statistically significant decreasing trend in nitrate loading (Pajaro River at Chittenden [305CHI], Miller Canal [305FRA], 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	16.8	42.2	29.9	29.8	Increasing	Increasing
305CAN	6	1.0	37.7	12.0	7.7	Increasing	Increasing
305CHI	12	1.2	14.5	9.4	9.4	Increasing	**Decreasing**
305COR	9	0.1	4.1	1.5	1.3	Decreasing	Increasing
305FRA	9	0.0	22.2	2.8	0.0	Increasing	**Decreasing**
305FUF	10	8.7	31.6	17.7	18.1	Decreasing	Increasing
305LCS	9	0.1	24.1	15.7	20.3	Decreasing	Decreasing
305PJP	12	0.4	6.0	3.5	3.7	**Decreasing**	Decreasing
305SJA	12	1.5	44.9	26.7	32.2	**Increasing**	**Decreasing**
305TSR	12	0.0	20.5	9.8	9.0	**Increasing**	**Increasing**
305WCS	12	1.9	28.3	16.9	18.5	**Decreasing**	Decreasing
305WSA	6	2.4	12.2	7.0	7.0	**Decreasing**	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 Pajaro River at Main Street [305PJP]) showed no exceedance of the 10 mg/L nitrate TMDL or non-TMDL area limit. Two sites (Beach Road Ditch [305BRS] and San Juan Creek [305SJA]) exceeded the nitrate TMDL limit in 75% or more of the samples.
- All nine sites with a dry season TMDL limit for nitrate exceeded the TMDL limit in at least 40% of samples. Six sites exceeded the dry season TMDL limit in all samples.
- Two of 10 sites (Salsipuedes Creek [305COR] and Pajaro River at Main Street [305PJP]) with a wet season TMDL limit for nitrate showed no exceedance of the wet season TMDL limit of 8.0 mg/L. Four sites exceeded the wet season TMDL limit in 50% or more of the samples (Beach Road Ditch [305BRS], Furlong Creek [305FUF], Llagas Creek [305LCS], and San Juan Creek [305SJA].

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	33%	100%[5]	20%	N/A
305CHI	50%	100%[6]	43%	N/A
305COR	0%	50%[5]	0%	N/A
305FRA	11%	N/A	N/A	N/A
305FUF	70%	100%[5]	100%	N/A
305LCS	67%	100%[5]	50%	N/A
305PJP	0%	40%[6]	0%	N/A
305SJA	75%	100%[4]	57%	N/A
305TSR	50%	80%[7]	43%	N/A
305WCS	N/A	N/A	N/A	67%
305WSA	33%	N/A	20%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 2.5 mg/L (Salsipuedes Creek [305COR]) to 36.0 mg/L (San Juan Creek [305SJA]).
- 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 a statistically significant decreasing trend 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	12	18.3	44.0	31.6	31.4	Increasing
305CAN	6	1.8	37.7	12.2	7.8	Increasing
305CHI	12	1.6	16.1	10.2	10.1	**Decreasin**
305COR	9	1.0	5.3	2.8	2.5	**Increasing**
305FRA	9	1.9	23.8	6.3	3.6	**Increasing**
305FUF	10	10.0	31.6	19.6	19.6	Decreasing
305LCS	9	0.5	24.1	16.0	20.6	Increasing
305PJP	12	1.1	7.4	4.4	4.1	Decreasing
305SJA	12	3.6	46.1	27.1	36.0	Decreasing
305TSR	12	5.7	21.4	12.8	11.0	**Increasing**
305WCS	12	3.1	29.2	17.8	19.3	**Decreasin**
305WSA	6	4.0	13.6	8.7	8.5	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

- Miller 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 at least one sample. Watsonville Slough (305WSA) exceeded its total nitrogen dry season TMDL limit of 2.1 mg/L in all 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]	14%[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	100%[4]	N/A	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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.

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 2021. **Table 3-11** presents descriptive statistics for orthophosphate, **Table 3-12** and **Appendix B** presents TMDL and non-TMDL area limit exceedances for orthophosphate, and **Table 3-13** presents descriptive statistics for total phosphorus.

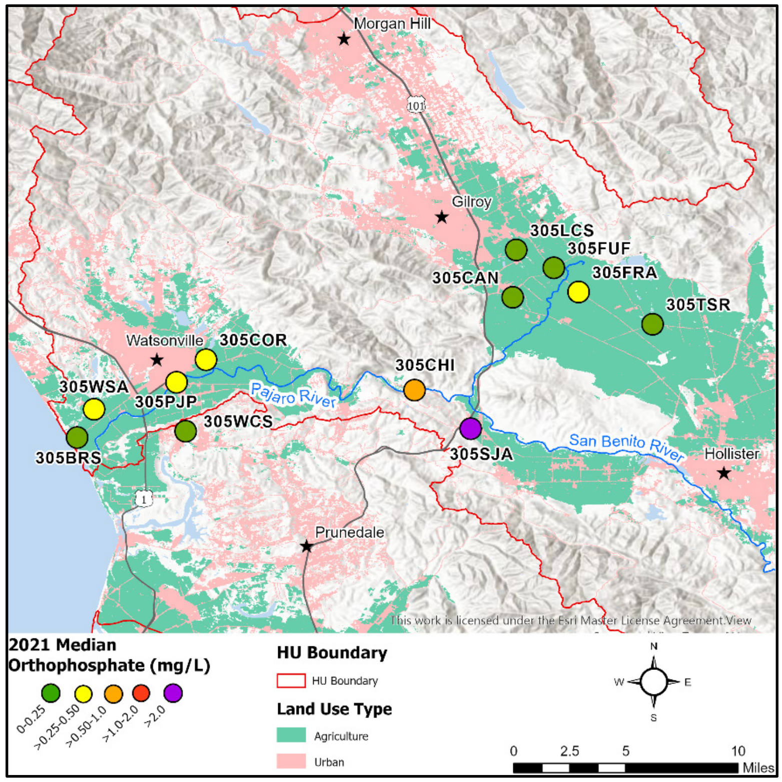


Figure 3-8. 2021 Median Orthophosphate as P for Sites in HU 305

- Median concentrations for orthophosphate in the Pajaro River HU ranged from 0.012 to 2.385 mg/L in 2021.
- The highest concentration of orthophosphate observed at any Pajaro HU site in 2021 was in San Juan Creek (305SJA) (25.3 mg/L).
- Five sites showed statistically significant increasing trends in orthophosphate concentrations from 2005-2021 (Pajaro River at Chittenden [305CHI], Salsipuedes Creek [305COR], Millers Canal [305FRA], Pajaro River at Main St. [305PJP], and San Juan Creek [305SJA]).

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	0.069	0.951	0.321	0.179	Increasing
305CAN	6	0.004	0.105	0.027	0.012	Decreasing
305CHI	12	0.015	4.240	0.854	0.515	**Increasing**
305COR	9	0.092	0.446	0.304	0.378	**Increasing**
305FRA	9	0.004	1.450	0.368	0.293	**Increasing**
305FUF	10	0.022	1.020	0.310	0.232	Decreasing
305LCS	9	0.021	0.320	0.090	0.036	Decreasing
305PJP	12	0.056	0.469	0.262	0.263	**Increasing**
305SJA	12	0.202	25.3	5.215	2.385	**Increasing**
305TSR	12	0.054	1.080	0.343	0.230	Decreasing
305WCS	12	0.042	1.100	0.322	0.142	Decreasing
305WSA	6	0.104	0.746	0.400	0.409	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021, eight of 11 sites with an applicable dry season TMDL limit for orthophosphate exceeded the limit in 50% or more samples. Two sites showed no exceedance of the orthophosphate dry season TMDL limit (Carnadero Creek [305CAN] and Llagas Creek [305LCS]).
- Four of 11 sites with an applicable wet season TMDL limit for orthophosphate (0.3 mg/L) exceeded the limit in 50% or more samples. Carnadero Creek (305CAN) 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	60%[3]	57%	N/A
305CAN	0%[4]	0%	N/A
305CHI	100%[3]	43%	N/A
305COR	50%[3]	71%	N/A
305FRA	100%[5]	29%	N/A
305FUF	100%[4]	33%	N/A
305LCS	0%[4]	17%	N/A
305PJP	100%[3]	29%	N/A
305SJA	100%[6]	86%	N/A
305TSR	40%[6]	43%	N/A
305WCS	N/A	N/A	N/A
305WSA	100%[3]	80%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 0.045 to 2.630 mg/L in 2021.
- The highest concentration for total phosphorus was observed at San Juan Creek (305SJA) (30.3 mg/L).
- Four sites showed a statistically significant increasing trend in total phosphorus (Pajaro River at Chittenden [305CHI], Salsipuedes Creek [305COR], Pajaro River at Main St. [305PJP], and San Juan Creek [305SJA]). One site showed a statistically significant decreasing trend in total phosphorus (Furlong Creek [305FUF]).

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	0.192	1.480	0.564	0.375	Increasing
305CAN	6	0.005	0.297	0.077	0.045	Increasing
305CHI	12	0.131	4.490	.954	0.599	**Increasing**
305COR	9	0.206	1.140	0.595	0.593	**Increasing**
305FRA	9	0.299	2.970	0.845	0.713	Increasing
305FUF	9	0.053	1.770	0.609	0.312	**Decreasing**
305LCS	9	0.023	0.515	0.153	0.093	Increasing
305PJP	12	0.199	1.160	0.464	0.404	**Increasing**
305SJA	12	0.298	30.300	5.963	2.630	**Increasing**
305TSR	12	0.192	4.120	0.780	0.359	Increasing
305WCS	12	0.129	1.740	0.468	0.217	Increasing
305WSA	5	0.267	0.982	0.637	0.696	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021 and **Table 3-14** presents descriptive statistics.

- Median conductivity ranged from 437 to 8,743 µS/cm. Median conductivity was highest in Millers Canal (305FRA) (8,743 µS/cm) and Tequisquita Slough (305TSR) (3,006 µS/cm).
- All but one site (Salsipuedes Creek [305COR]) had median concentrations above 750 µS/cm threshold indicating increasing or severe problems.

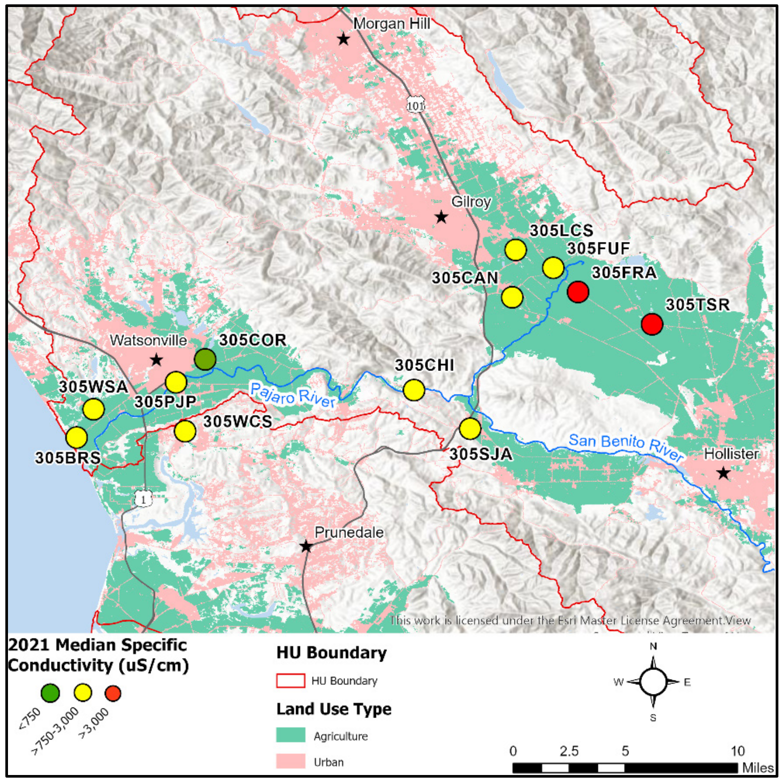


Figure 3-9. 2021 Median Conductivity for Sites in HU 305

- Maximum conductivity was highest at Beach Road Ditch (305BRS) (34,140 µS/cm) where there is tidal influence, and Miller Canal (305FRA) (35,678 µS/cm).
- Six sites showed statistically significant increasing trends in conductivity from 2005-2021 (Carnadero Creek [305CAN], Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Llagas Creek [305LCS], Tequisquita Slough [305TSR], 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	1,168	34,140	4,920	2,299	Increasing
305CAN	6	209	2,040	1,250	1,410	**Increasing**
305CHI	12	1,383	2,406	1,885	1,910	**Increasing**
305COR	9	267	1,070	557	437	Decreasing
305FRA	9	2,405	35,678	12,175	8,743	**Increasing**
305FUF	10	544	1,536	1,161	1,212	Decreasing
305LCS	9	187	1,200	867	966	**Increasing**
305PJP	12	97	4,253	1,448	1,479	Decreasing
305SJA	12	1,042	3,191	2,401	2,824	Decreasing
305TSR	12	1,301	3,830	2,910	3,006	**Increasing**
305WCS	12	271	2,052	1,398	1,697	Increasing
305WSA	6	637	3,952	1,525	1,150	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 salinity for CMP sites in the Pajaro River HU. **Figure 3-10** depicts annual median TDS concentrations for sites in the Pajaro River HU for 2021. **Table 3-15** presents descriptive statistics for TDS and **Table 3-16** presents descriptive statistics for salinity.

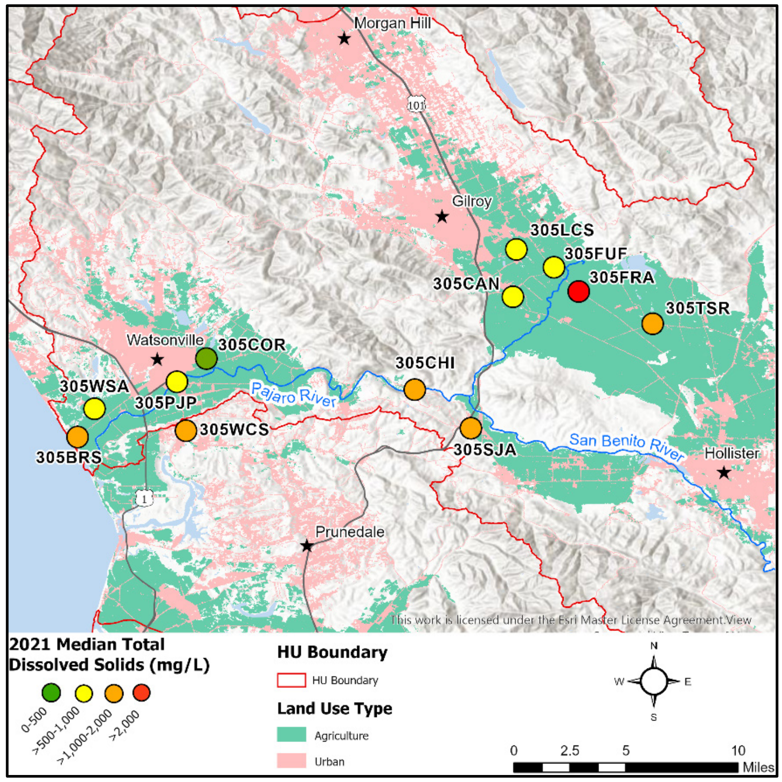


Figure 3-10. 2021 Median Total Dissolved Solids for Sites in HU 305

- Median TDS concentrations ranged from 311 mg/L at Salsipuedes Creek (305COR) to 5,682 mg/L at Millers Canal (305FRA).
- Maximum TDS concentrations were highest in Millers Canal (305FRA) (23,202 mg/L) and Beach Road Ditch (305BRS) (22,205 mg/L).
- The annual mean for TDS at Llagas Creek (305LCS) (574 mg/L) the Pajaro River at Chittenden (305CHI) (1,223 mg/L) exceeded the WQO.
- Five sites showed statistically significant increasing trends in TDS concentrations from 2005-2021 (Carnadero Creek [305CAN], Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Tequisquita Slough [305TSR], and Watsonville Slough [305WSA]). One site showed a statistically significant decreasing trend in TDS concentrations (San Juan Creek [305SJA]).

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

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
305BRS	12	759	22,205	3,176	1,319	N/A	Increasing
305CAN	6	135	1,325	806	832	N/A	**Increasing**
305CHI	12	983	1,564	1,223	1,214	Yes	**Increasing**
305COR	9	173	696	363	311	N/A	Decreasing
305FRA	9	1,758	23,202	7,915	5,682	N/A	**Increasing**
305FUF	10	353	998	756	761	N/A	Decreasing
305LCS	9	122	780	574	628	Yes	Increasing
305PJP	12	64	1,058	730	874	N/A	Decreasing
305SJA	12	650	2,074	1,558	1,820	N/A	**Decreasing**
305TSR	12	1,271	15,385	3,045	1,954	N/A	**Increasing**

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
305WCS	12	176	1,334	905	1,103	N/A	Increasing
305WSA	6	529	2,561	983	667	N/A	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 salinity were similar to TDS concentrations.
- Four sites showed statistically significant increasing trends in salinity (Pajaro River at Chittenden [305CHI], Millers Canal [305FRA], Tequisquita Slough [305TSR], and Watsonville Slough [305WSA]).

Table 3-16. Descriptive Statistics for Salinity in Hydrologic Unit 305 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
305BRS	12	0.58	21.52	2.87	1.19	Increasing
305CAN	6	0.10	1.05	0.65	0.71	Increasing
305CHI	12	0.77	1.25	0.98	0.98	**Increasing**
305COR	9	0.13	0.53	0.28	0.23	Decreasing
305FRA	9	1.41	22.54	7.31	4.90	**Increasing**
305FUF	10	0.26	0.78	0.60	0.61	Decreasing
305LCS	9	0.09	0.60	0.45	0.55	Increasing
305PJP	12	0.04	0.83	0.58	0.72	Decreasing
305SJA	12	0.50	1.68	1.27	1.47	Decreasing
305TSR	12	1.00	2.04	1.55	1.57	**Increasing**
305WCS	12	0.13	1.05	0.72	0.87	Increasing
305WSA	6	0.40	2.09	0.80	0.58	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.2.9 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 2021. **Table 3-17** and **Table 3-18** present descriptive statistics for dissolved oxygen and oxygen saturation, respectively.

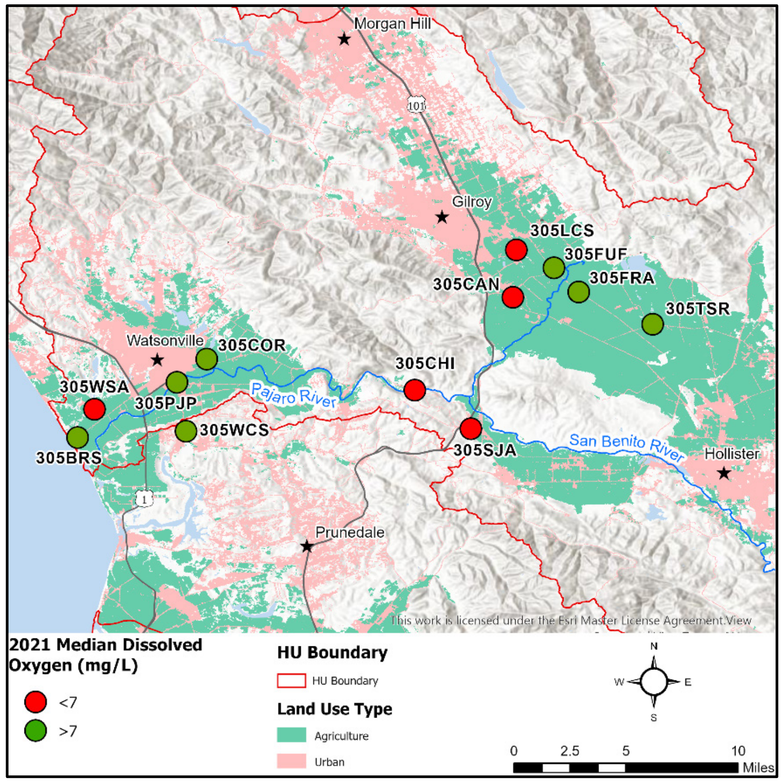


Figure 3-11. 2021 Median Dissolved Oxygen Concentrations for Sites in HU 305

- Only Watsonville Creek (305WCS) met the 5 mg/L minimum WQO in all samples.
- None of seven applicable sites met the WQO of 7 mg/L in all 2021 samples. In Carnadero Creek (305CAN) and Llagas Creek (305LCS), the 7 mg/L minimum WQO was not met in 83% and 79% of samples collected, respectively.
- Statistically significant decreasing trends in dissolved oxygen concentrations were exhibited at four sites (Carnadero Creek [305CAN], Miller Canal [305FRA], Llagas Creek [305LCS], Pajaro River at Main Street [305PJP]), while two sites showed statistically significant increasing trends (Beach Road Ditch [305BRS] and Furlong Creek [305FUF]). 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 3-17. 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	0.17	18.93	9.25	8.08	17%[3]	**Increasing**
305CAN	6	5.16	10.43	6.81	6.30	83%	**Decreasing**
305CHI	12	5.91	11.43	7.87	6.72	58%	Decreasing
305COR	9	6.34	15.43	9.58	8.70	22%	Increasing
305FRA	9	0.69	11.04	7.71	7.19	11%[3]	**Decreasing**
305FUF	10	4.77	15.06	9.72	9.34	10%[3]	**Increasing**
305LCS	9	1.32	9.52	5.83	6.18	78%	**Decreasing**
305PJP	12	4.57	13.02	7.97	7.13	50%	**Decreasing**
305SJA	12	2.28	16.09	7.59	5.82	42%[3]	Decreasing
305TSR	12	0.52	12.12	7.31	7.04	50%	Decreasing

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
305WCS	12	7.20	14.73	10.55	10.26	0%[3]	Decreasing
305WSA	6	3.88	9.52	6.25	6.30	67%	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- Only two sites with the 85% median oxygen saturation WQO met the objective (Furlong Creek [305FUF] and Watsonville Creek [305WCS]).
- Four sites exhibited statistically significant decreasing trends in oxygen saturation from 2005-2021 (Carnadero Creek [305CAN], Millers Canal [305FRA], Llagas Creek [305LCS], and Tequisquita Slough [305TSR]). One site (Furlong Creek [305FUF]) displayed a statistically significant increasing trend in oxygen saturation.

Table 3-18. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 305 (%)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
305BRS	12	2	237	100	73	Yes	Increasing
305CAN	6	52	95	65	62	N/A	**Decreasing**
305CHI	12	59	113	78	73	N/A	Decreasing
305COR	9	68	147	93	82	N/A	Increasing
305FRA	9	7	112	76	74	Yes	**Decreasing**
305FUF	10	42	135	93	91	No	**Increasing**
305LCS	9	13	85	56	61	N/A	**Decreasing**
305PJP	12	47	121	78	72	N/A	Decreasing
305SJA	12	24	162	72	59	Yes	Decreasing
305TSR	12	6	107	66	64	N/A	**Decreasing**
305WCS	12	73	167	108	97	No	Decreasing
305WSA	6	39	85	58	58	N/A	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.2.10 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 2021 and **Table 3-19** presents descriptive statistics.

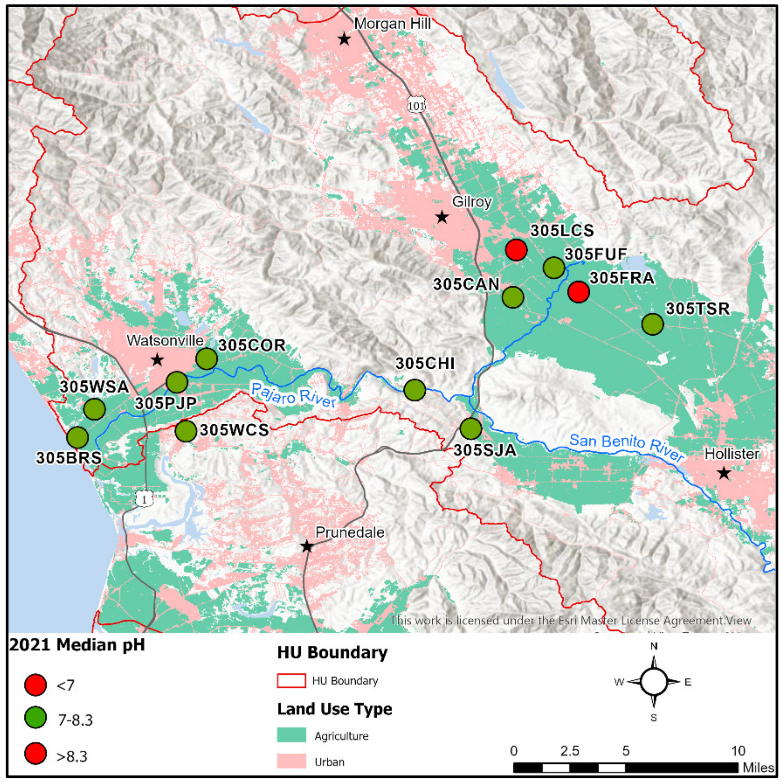


Figure 3-12. 2021 Median pH for Sites in HU 305

- In 2021, three sites (Carnadero Creek [305CAN], Llagas Creek [305LCS], and Watsonville Slough [305WSA]) showed no exceedances of the upper limit of the WQO (8.3) for pH.
- The remaining nine sites exceeded the upper limit of the pH WQO in at least one sample. The lower limit of the pH WQO (7.0) was met consistently at all sites except Llagas Creek (305LCS) and Watsonville Slough (305WSA).
- Miller Canal (305FRA) and Llagas Creek (305LCS) did not achieve the pH WQO in 78% and 67% of samples collected, respectively.
- The highest pH in 2021 was recorded in Salsipuedes Creek (305COR) (8.92 pH units) and the lowest was recorded in the Llagas Creek (305LCS) (6.47 pH units).
- For the period of 2005-2021, three sites showed significant decreasing trends in pH (Carnadero Creek [305CAN], Llagas Creek [305LCS], and Tequisquita Slough [305TSR]). One site showed significant increasing trends in pH (Furlong Creek [305FUF]).

Table 3-19. Descriptive Statistics for pH in Hydrologic Unit 305 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
305BRS	12	7.40	8.66	7.84	7.70	17%	Increasing
305CAN	6	7.12	7.38	7.26	7.28	0%	**Decreasing**
305CHI	12	7.74	8.74	8.14	8.14	17%	Increasing
305COR	9	7.23	8.92	7.93	8.00	11%	Decreasing
305FRA	9	7.97	8.89	8.49	8.57	78%	Decreasing
305FUF	10	7.87	8.48	8.20	8.27	40%	**Increasing**
305LCS	9	6.47	7.09	6.84	6.86	67%	**Decreasing**
305PJP	12	7.46	8.61	7.88	7.89	8%	Decreasing
305SJA	12	7.76	8.49	8.07	8.03	25%	Increasing
305TSR	12	7.54	8.64	8.09	8.17	17%	**Decreasing**
305WCS	12	7.44	8.53	8.13	8.27	42%	Decreasing
305WSA	6	6.94	7.88	7.42	7.44	17%	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.2.11 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 Street [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 2021 are illustrated in **Figure 3-13** and tabulated in **Table 3-20**.

- Toxicity to algal growth in water was observed in four samples collected from three sites. These included one of four bioassays in water samples collected from Pajaro River at Chittenden (305CHI), two of four bioassays in water samples collected from San Juan Creek (305SJA), and one of four bioassays in water samples collected from Tequisquita Slough (305TSR) (**Figure 3-13 a**). All but three sites (Pajaro River at Chittenden [305CHI], San Juan Creek [305SJA], and Tequisquita Slough [305TSR]) 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 four samples collected from three sites. These included two of three bioassays in water samples collected from Furlong Creek (305FUF) and one of three bioassays on water samples collected from San Juan Creek (305SJA) and Watsonville Slough (305WSA). Significant mortality to *C. dubia* was observed in one of three bioassays on water samples collected from Furlong Creek (305FUF) (**Figure 3-13 b, d**). All but three sites (Furlong Creek [305FUF], San Juan Creek [305SJA], and Watsonville Slough [305WSA]) achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water, and all but one site (Furlong Creek [305FUF]) achieved the non-TMDL area toxicity effect limit for *C. dubia* survival in water (**Figure 3-13 b, d**). All three sites (Pajaro River at Chittenden [305CHI], Llagas Creek [305LCS], and Pajaro River at Main Street [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 or growth in water was observed in six samples collected from four sites. One of four bioassays in water samples collected from Pajaro River at Chittenden (305CHI) and Watsonville Creek (305WCS), and two of three bioassays in water samples collected from Furlong Creek (305FUF) and San Juan Creek (305SJA) resulted in toxicity to reproduction or growth endpoints (**Figure 3-13 c**). All but three sites (Furlong Creek [305FUF], San Juan Creek [305SJA], and Watsonville Creek [305WCS]) in the Pajaro River HU with an applicable significant toxic effect non-TMDL area limit for reproduction or growth in water achieved the TMDL limit (**Figure 3-13 c**). Of the three sites with an applicable significant toxic effect TMDL limit for *C. dubia* reproduction or growth in water, two sites (Llagas Creek [305LCS] and Pajaro River at Main Street [305PJP]) achieved the TMDL limit (**Figure 3-13 c**).

- Toxicity to invertebrate growth in sediment was observed in four samples collected from four sites. One of two bioassays on sediment samples collected from Beach Road Ditch (305BSR) and Tequisquita Slough (305TSR), and the bioassay from the only sediment samples collected from Carnadero Creek (305CAN) and Furlong Creek (305FUF) showed reduced invertebrate growth rates (**Figure 3-13 e**). No Pajaro HU sediment samples showed significant mortality to test invertebrates in 2021 (**Figure 3-13 f**). In the Pajaro River HU, all but four sites (Beach Road Ditch [305BRS], Carnadero Creek [305CAN], Furlong Creek [305FUF], and Tequisquita Slough [305TSR]) did not achieve the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-13 e**). Of the three sites (Pajaro River at Chittenden [305CHI], Llagas Creek [305LCS], and Pajaro River at Main Street [305PJP]) with a significant toxic effect TMDL limit for *H. azteca* survival in sediment, all achieved the TMDL limit (**Figure 3-13 f**).
- For the period of 2005-2021, the following statistically significant toxicity trends were observed:
    - Carnadero Creek (305CAN) – decreasing trend (worsening, increased toxicity) in invertebrate growth in sediment.
    - Tequisquita Slough (305TSR) – decreasing trend (worsening, increased toxicity) in invertebrate growth in sediment and increasing (improving, decreased toxicity) trend to algal growth.

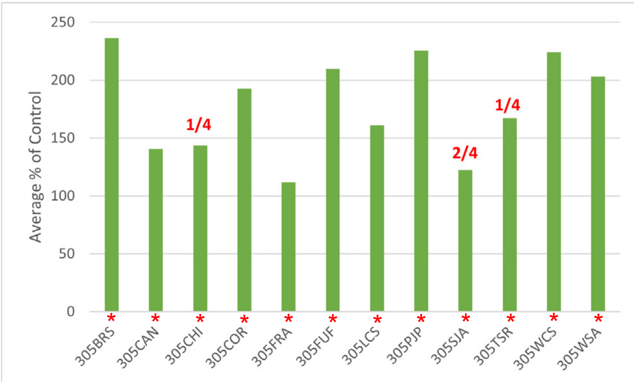
Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-20**.

Table 3-20. Summary of Toxicity and Trends (Water) in Hydrologic Unit 305

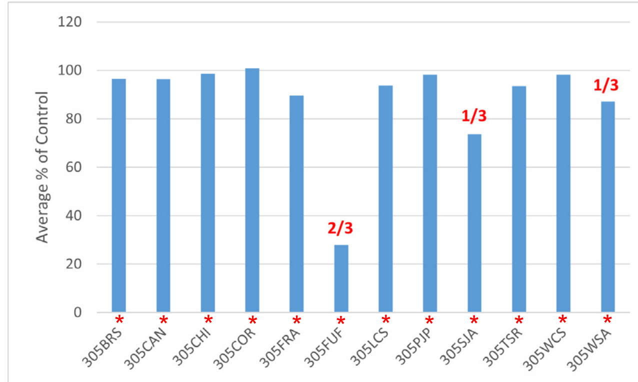
Site ID[1]	Algal Growth		*C. dilutus*– Survival		*C. dubia* – Reproduction		*C. dubia* – Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
305BRS	0/4	Increasing	0/3	Decreasing	0/3	Decreasing	0/4	Decreasing
305CAN	0/3	Increasing	0/3	Decreasing	0/3	Increasing	0/3	Increasing
305CHI	1/4	Decreasing	0/4	Decreasing	1/4	Decreasing	0/4	Increasing
305COR	0/3	Decreasing	0/3	Increasing	0/3	Increasing	0/3	Increasing
305FRA	0/3	Decreasing	0/1	Decreasing	0/1	Decreasing	0/3	Increasing
305FUF	0/3	Decreasing	2/3	Decreasing	2/3	Decreasing	1/3	Increasing
305LCS	0/3	Decreasing	0/3	Increasing	0/3	Increasing	0/3	Increasing
305PJP	0/4	Increasing	0/4	Increasing	0/4	Decreasing	0/4	Increasing
305SJA	2/4	Increasing	1/3	Decreasing	2/3	Decreasing	0/4	Decreasing
305TSR	1/4	Increasing	0/2	Decreasing	0/2	Decreasing	0/4	Increasing
305WCS	0/4	Decreasing	0/4	Decreasing	1/4	Increasing	0/4	Increasing
305WSA	0/3	Decreasing	1/3	Decreasing	0/3	Decreasing	0/3	Increasing

Notes:

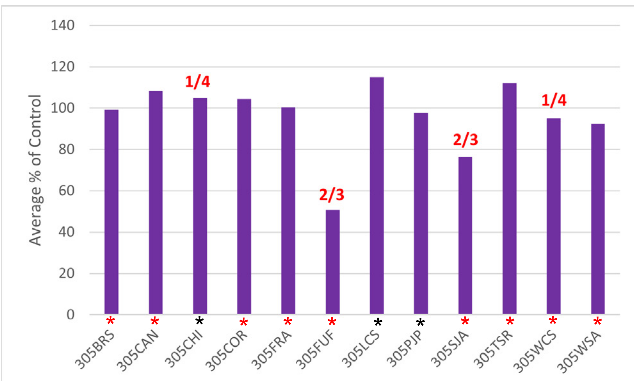
1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).



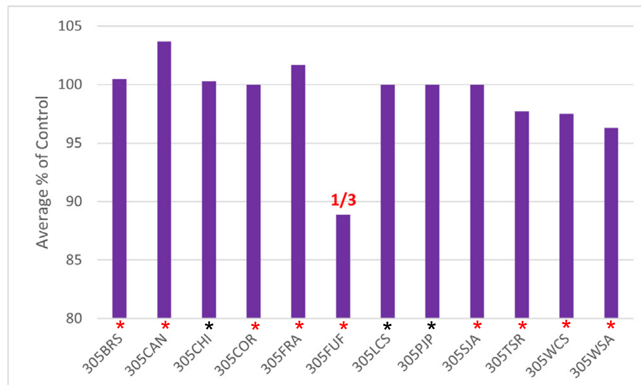
a) Algal Toxicity in Water – Growth



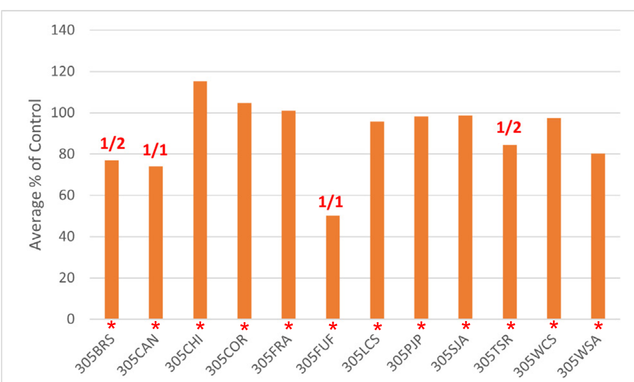
b) *C. dilutus* Toxicity in Water – Survival



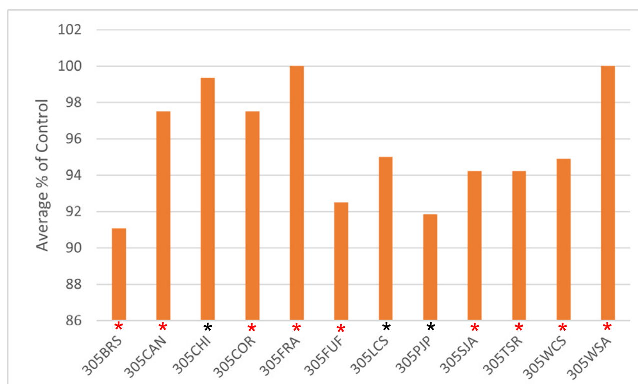
c) *C. dubia* Toxicity in Water – Reproduction



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 2021 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., 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.

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 3 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 17 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 two sites on tributaries to the river upstream from the city of Salinas: Quail Creek (309QUI) and Chualar Creek (309CRR). There are six 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, an 18th 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.

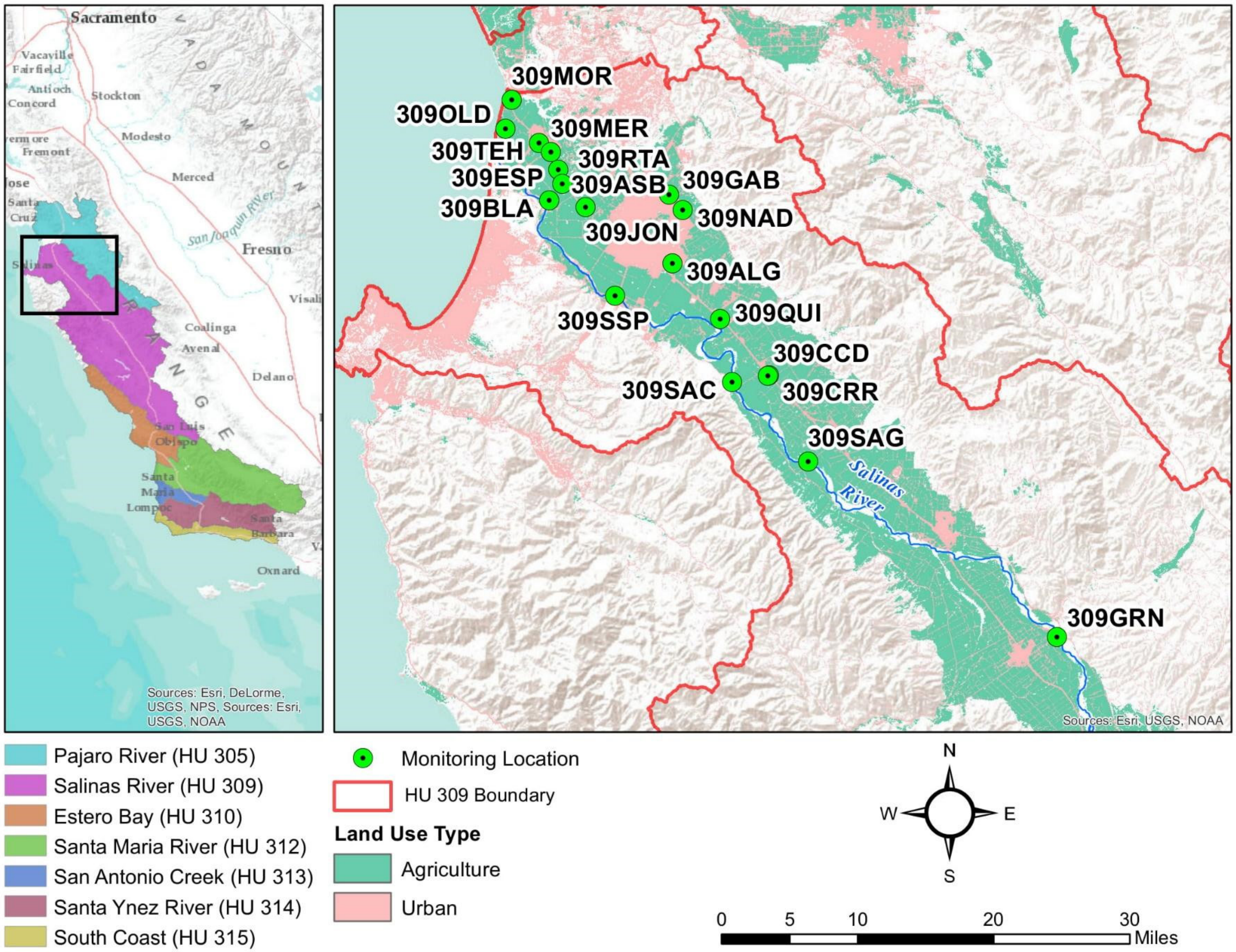


Figure 3-14. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Salinas Hydrologic Unit

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 2021, precipitation continued from late January through mid-March, with 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 2021 monitoring year, the annual average flow (237 CFS) at the *Salinas River at Bradley* USGS stream gage was below the historic annual average (487 CFS, 1958-2020) and ranged from 49 CFS (September 23, 2021) to 647 CFS (April 13, 2021) (USGS 2022). The 2021 cumulative annual rainfall (14.2”) at the *Salinas North* rain gauge was lower than the historic average (16.88”, 1993-2020) (**Figure 3-15**) (CDWR 2022).

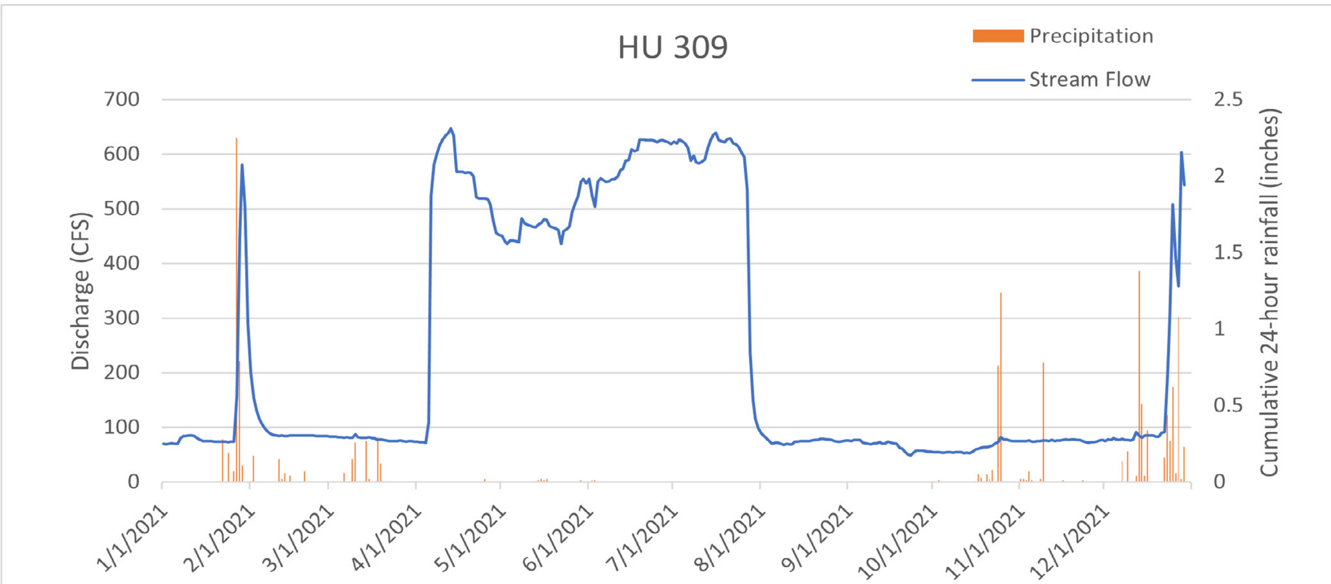


Figure 3-15. 2021 Salinas River at Bradley Hydrograph and Salinas North Precipitation Totals

In 2021, flows measured at the 19 Salinas HU monitoring sites were generally influenced by wet season precipitation with elevated flows observed in late January and 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 2021 and **Table 3-20** presents descriptive statistics.

- Measured flows ranged from negative flow due to tidal influences (Salinas Reclamation Canal, u/s Salinas [309ALG], Blanco Drain [309BLA], Moro Cojo Slough [309MOR], Old Salinas River [309OLD], and Quail Creek [309QUI]) to 12,978 CFS (Salinas River in Greenfield [309SAC]).
- Median flows ranged from 0 CFS (Chualar Creek [309CCD], Chualar Creek, North Branch [309CRR], Gabilan Creek [309GAB], Natividad Creek [309NAD], Quail Creek [309QUI], Santa Rita Creek [309RTA], Salinas R, Chualar [309SAC]) to 560 CFS (Salinas R, Greenfield [305GRN]).

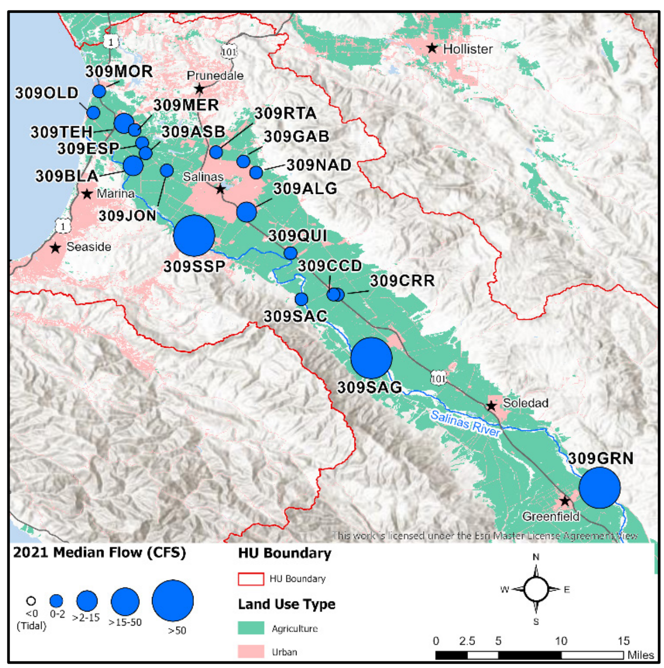


Figure 3-16. 2021 Median Flows for Sites in HU 309

- For the period of 2005-2021, four sites (Alisal Slough [309ASB], Salinas Reclamation Canal at Jon St. [309JON], Natividad Creek [309NAD], and Quail Creek [309QUI]) showed statistically significant decreasing trends in flow, and one site (Merritt Ditch [309MER]) showed a statistically significant increasing trend in flow.

Table 3-20. Descriptive Statistics for flow in Hydrologic Unit 309 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	-1.05	1,320.00	144.46	5.62	Increasing
309ASB	12	0.01	315.00	32.90	0.42	**Decreasing**
309BLA	12	-1.30	315.00	31.55	3.11	Decreasing
309CCD	12	0.00	173.25	26.95	0.00	Decreasing
309CRR	12	0.00	140.00	11.79	0.00	Decreasing
309ESP	12	0.01	300.00	36.32	0.45	Increasing
309GAB	12	0.00	9.56	0.81	0.00	Decreasing
309GRN	12	0.00	6,496.00	1,286.40	560.00	Decreasing
309JON	12	0.44	1,200.00	112.32	0.91	**Decreasing**
309MER	12	0.01	1,188.00	152.17	0.94	**Increasing**
309MOR	12	-7.92	10.34	0.28	0.13	Increasing
309NAD	12	0.00	16.00	1.67	0.00	**Decreasing**
309OLD	12	-7.11	163.35	16.02	2.00	Increasing
309QUI	12	-0.46	4.64	0.51	0.00	**Decreasing**
309RTA	12	0.00	200.00	16.78	0.00	Decreasing
309SAC	7	0.00	12,978.00	2,137.34	0.00	Decreasing
309SAG	7	0.00	5,985.00	1,214.71	196.00	Decreasing
309SSP	12	0.00	6,600.00	772.83	113.25	Increasing
309TEH	12	0.19	549.34	94.53	6.48	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

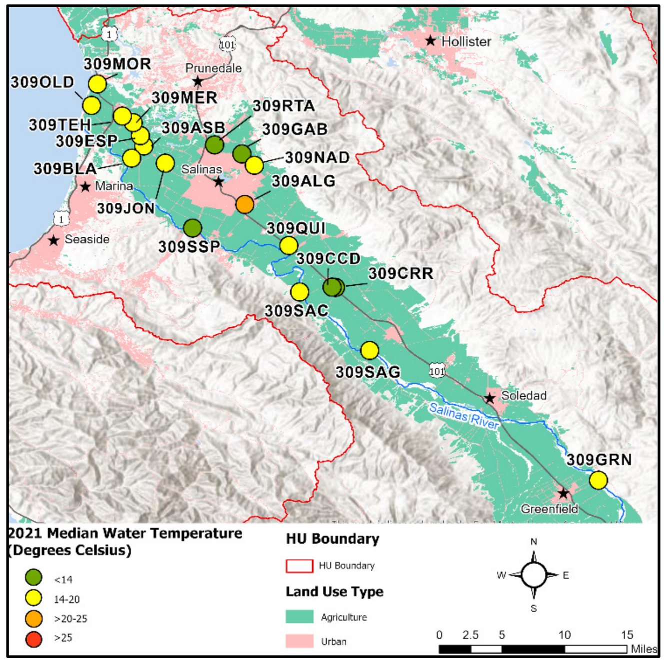


Figure 3-17. 2021 Median Water Temperature for Sites in HU 309

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 2021, water temperatures peaked at most sites in the Salinas HU during the months of May and July, minimum temperatures at most sites were recorded during the month of January. **Figure 3-17** depicts annual median temperatures for sites in the Salinas HU for 2021, and **Table 3-21** presents descriptive statistics.

- Median water temperatures in the Salinas HU ranged from 9.4 °C (Santa Rita Creek [309RTA]) to 20.7 °C (Salinas Reclamation Canal, u/s Salinas [309ALG]) in 2021.
- The lowest water temperature (2.9 °C) was observed in Chualar Creek, North Branch (309CRR) while the highest water temperature (29.5 °C) was observed in Quail Creek (309QUI).
- From 2005-2021, one site displayed a statistically significant decreasing trend in water temperature (Chualar Creek, South Branch [309CCD]). Four sites displayed statistically significant increasing trends in water temperature from 2005-2021: Blanco Drain (309BLA), Natividad Creek (309NAD), Quail Creek (309QUI), and Tembladero Slough (309TEH).

Table 3-21. Descriptive Statistics for Water Temperature in Hydrologic Unit 309 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	10.0	26.5	19.6	20.7	Decreasing
309ASB	12	8.8	22.3	15.2	16.1	Decreasing
309BLA	12	11.3	21.5	15.8	15.1	**Increasing**
309CCD	4	9.6	21.4	14.7	13.9	**Decreasing**
309CRR	4	2.9	17.3	10.1	10.1	Decreasing
309ESP	12	9.3	24.9	15.5	15.9	Decreasing
309GAB	2	8.9	11.1	10.0	10.0	Decreasing
309GRN	7	9.4	23.5	16.5	14.2	Increasing
309JON	12	8.5	21.8	16.3	17.7	Increasing
309MER	12	8.8	20.5	14.4	15.2	Increasing
309MOR	12	9.5	25.4	15.6	16.7	Increasing
309NAD	4	9.7	18.6	14.3	14.5	**Increasing**
309OLD	12	9.4	20.9	15.9	16.9	Increasing
309QUI	7	9.8	29.5	18.5	18.0	**Increasing**
309RTA	2	8.4	10.3	9.4	9.4	Decreasing
309SAC	3	9.6	21.7	16.5	18.3	Increasing
309SAG	4	10.1	24.7	17.8	18.2	Increasing
309SSP	8	8.8	21.1	14.6	13.4	Decreasing
309TEH	12	9.1	24.1	17.4	18.8	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.3.3 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 2021, and **Table 3-22** and **Appendix B** presents descriptive statistics and turbidity limit exceedances.

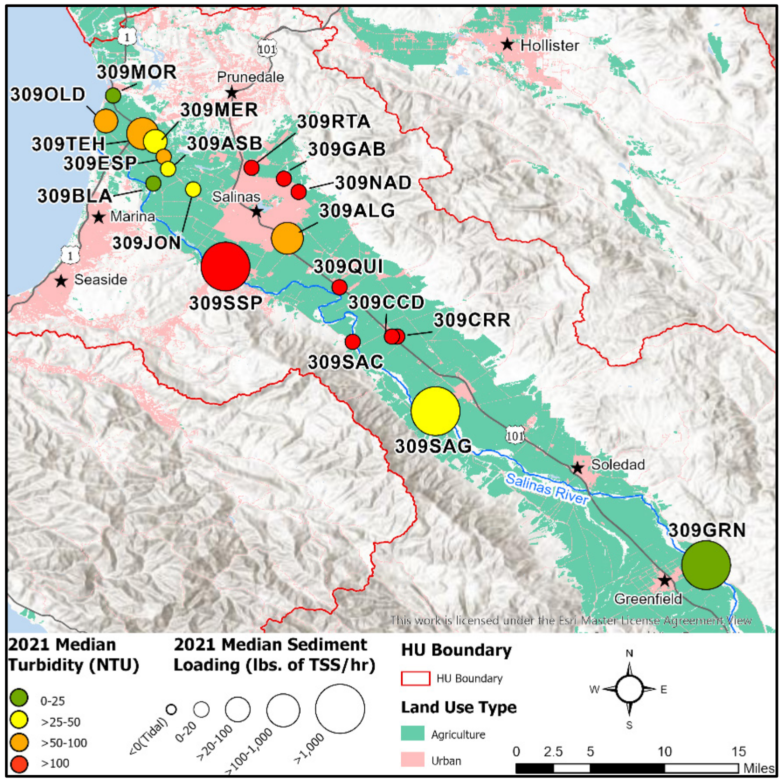


Figure 3-18. 2021 Median Turbidity and TSS Loading for Sites in HU 309

- Median turbidities during 2021 ranged from 5 NTU in Blanco Drain (309BLA) to 1,656 NTU in Santa Rita Creek (305RTA).
- All but five sites (Alisal Slough at White Barn [309ASB], Blanco Drain [909BLA], Merritt Ditch [309MER], Moro Cojo Slough [309MOR], and Old Salinas River [309OLD]) in the Salinas HU had a maximum turbidity greater than 1,000 NTU.
- All sites in the Salinas River HU exceeded their respective turbidity limit. Four of the five sites exceeded the 40 NTU turbidity limit in more than 50% of samples. Twelve of the 14 sites exceeded 25 NTU turbidity limit in more than 50% of samples, nine of which exceeded the limit in 100% of samples.
- Although Chualar Creek East of Highway 1 (309CRR), Chualar Creek West of Highway 1 (319CCD), Gabilan Creek (309GAB), Natividad Creek (309NAD), Quail Creek (309QUI), Santa Rita Creek (309RTA), and Salinas River at Chualar Bridge (309SAC) had relatively high median turbidity results, TSS loading was low due to very low flow conditions. High TSS loading observed Salinas River in Greenfield (309GRN) and Salinas River at Gonzales (309SAG) was due mostly to high flows, and high loading at Salinas River at Spreckels Gage (309SSP) was due to high levels of both flow and turbidity (**Appendix B**).
- For the period of 2005-2021, 13 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 2012-2021, 13 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 3-22. 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	4	2,430	436	71	58%[4]	**Decreasing**	**Increasing**
309ASB	12	9	55	30	28	58%[5]	**Decreasing**	**Increasing**
309BLA	12	0	107	20	5	17%[4]	**Decreasing**	Decreasing
309CCD	4	45	3,000	1,103	683	100%[5]	Decreasing	Decreasing
309CRR	4	40	10,200	3,323	1,525	100%[5]	**Decreasing**	N/A[6]
309ESP	12	16	11,304	1,126	88	75%[4]	Decreasing	**Increasing**
309GAB	2	229	1,535	882	882	100%[5]	**Decreasing**	**Increasing**
309GRN	7	10	7,540	1,098	18	43%[5]	**Decreasing**	**Increasing**
309JON	12	11	1,367	242	43	58%[4]	**Decreasing**	Increasing
309MER	12	6	321	66	31	75%[5]	**Decreasing**	**Increasing**
309MOR	12	0	658	64	8	17%[5]	**Decreasing**	**Increasing**
309NAD	4	33	1,226	421	212	100%[5]	**Decreasing**	Increasing
309OLD	12	5	190	73	63	83%[5]	**Decreasing**	**Increasing**
309QUI	7	53	2,706	1,090	1,144	100%[5]	**Decreasing**	**Increasing**
309RTA	2	447	2,865	1,656	1,656	100%[5]	Increasing	Decreasing
309SAC	3	57	1,635	615	152	100%[5]	Increasing	**Increasing**
309SAG	4	30	1,981	524	42	100%[5]	Decreasing	**Increasing**
309SSP	8	52	1,327	323	145	100%[5]	**Increasing**	**Increasing**
309TEH	12	30	1,310	264	79	83%[4]	**Decreasing**	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2005-2021 and TSS was monitored from 2012-2021.
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.

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 2021. **Table 3-23** presents descriptive statistics, and **Table 3-24** and **Appendix B** presents TMDL and non-TMDL area limit exceedances.

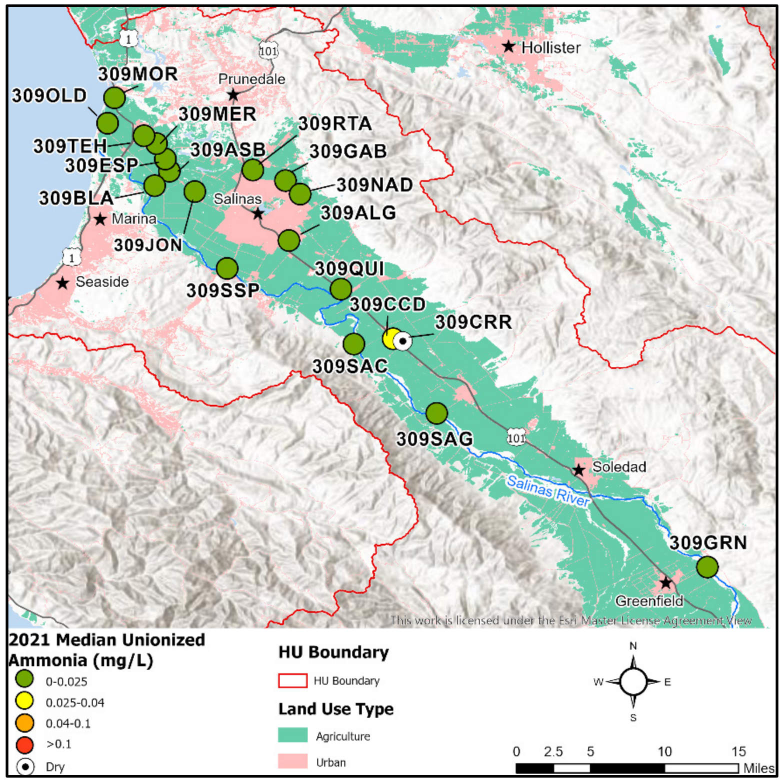


Figure 3-19. 2021 Median Unionized Ammonia for Sites in HU 309

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 3-25**.

- The highest concentration of unionized ammonia (0.5190 mg/L) was measured at Salinas Reclamation Canal, u/s Salinas (309ALG).
- For the period of 2005-2021, statistically significant increasing trends in unionized ammonia concentrations were observed at Chualar Creek West of Highway 1 (309CCD) and Natividad Creek (309NAD). Two sites (Alisal Slough at White Barn [309ASB] and Moro Cojo Slough [309MOR]) showed statistically significant decreasing trends in unionized ammonia concentrations.

Table 3-23. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.0009	0.5190	.0929	0.0231	Decreasing
309ASB	12	0.0002	0.0039	0.0012	0.0010	**Decreasing**
309BLA	12	0.0003	0.0042	0.0015	0.0014	Decreasing
309CCD	4	0.0033	0.1219	0.0455	0.0285	**Increasing**
309CRR	0	NS	NS	NS	NS	Decreasing
309ESP	12	0.0005	0.2311	0.0240	0.0026	Decreasing
309GAB	2	0.0010	0.0011	0.0010	0.0010	Increasing
309GRN	7	0.0003	0.0057	0.0015	0.0006	Decreasing
309JON	12	0.0003	0.0607	0.0087	0.0032	Decreasing
309MER	12	0.0007	0.0188	0.0048	0.0019	Decreasing
309MOR	12	0.0001	0.0023	0.0010	0.0009	**Decreasing**
309NAD	4	0.0004	0.0653	0.0170	0.0012	**Increasing**

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309OLD	12	0.0000	0.0209	0.0061	0.0026	Decreasing
309QUI	7	0.0022	0.0465	0.0172	0.0116	Increasing
309RTA	2	0.0000	0.0008	0.0004	0.0004	Decreasing
309SAC	3	0.0010	0.0037	0.0021	0.0018	Increasing
309SAG	4	0.0004	0.0061	0.0031	0.0030	Decreasing
309SSP	8	0.0000	0.0161	0.0036	0.0018	Increasing
309TEH	12	0.0008	0.0085	0.0039	0.0032	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- Unionized ammonia concentrations exceeded the TMDL limit of 0.025 mg/L in at least one sample at six sites in 2021. No other site had a TMDL or non-TMDL area exceedance for unionized ammonia.

Table 3-24. 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	42%	N/A
309ASB	0%	N/A
309BLA	0%	N/A
309CCD	75%	N/A
309CRR	NS	N/A
309ESP	8%	N/A
309GAB	0%	N/A
309GRN	N/A	0%
309JON	8%	N/A
309MER	0%	N/A
309MOR	0%	N/A
309NAD	25%	N/A
309OLD	0%	N/A
309QUI	29%	N/A
309RTA	0%	N/A
309SAC	0%	N/A
309SAG	0%	N/A
309SSP	0%	N/A
309TEH	0%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 Not sampled for unionized ammonia.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2021, four sites (Chualar Creek West of Highway 1 [309CCD]; Natividad Creek [309NAD]; Old Salinas River [309OLD]; and Salinas R, Spreckels [309SSP]) showed statistically significant increasing trends in total ammonia.

Table 3-25. Descriptive Statistics for Total Ammonia in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.0540	2.2000	0.6141	0.3265	Increasing
309ASB	12	0.0576	0.5200	0.2248	0.1875	Increasing
309BLA	12	0.0374	0.2370	0.1245	0.1044	Increasing
309CCD	4	0.7100	6.5200	2.3988	1.1825	**Increasing**
309CRR	0	NS	NS	NS	NS	Decreasing
309ESP	12	0.0649	2.7800	0.6562	0.3150	Increasing
309GAB	2	0.1850	0.2860	0.2355	0.2355	Decreasing
309GRN	7	0.0157	0.1910	0.0725	0.0353	Decreasing
309JON	12	0.0347	0.3950	0.1906	0.2140	Increasing
309MER	12	0.0773	2.0500	0.5444	0.2555	Increasing
309MOR	12	0.0368	0.6440	0.1702	0.0900	Decreasing
309NAD	4	0.0783	7.7100	2.0838	0.2735	**Increasing**
309OLD	12	0.0035	0.6940	0.2995	0.2590	**Increasing**
309QUI	7	0.0710	1.5300	0.6006	0.5030	Decreasing
309RTA	2	0.0112	0.2900	0.1506	0.1506	N/A[3]
309SAC	3	0.0537	0.1370	0.1049	0.1240	Increasing
309SAG	4	0.0234	0.3830	0.1395	0.0757	Decreasing
309SSP	8	0.0363	0.2400	0.1150	0.0934	**Increasing**
309TEH	12	0.0562	0.5410	0.2103	0.1605	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.
NS Not sampled for total ammonia.

3.3.5 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 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 2021, **Table 3-26** presents descriptive statistics, and **Table 3-27** and **Appendix B** presents the TMDL and non-TMDL area limit exceedances.

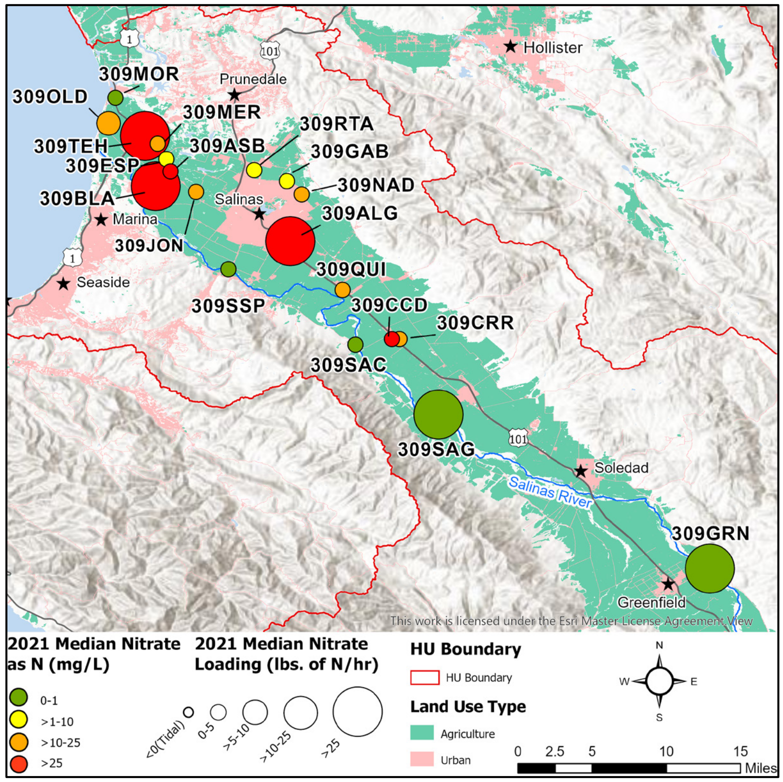


Figure 3-20. 2021 Median Nitrate as N for Sites in HU 309

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 3-28**. See **Table 3-29** for a summary for TMDL and non-TMDL area limit exceedances.

- Blanco Drain (309BLA) showed the highest median nitrate concentration (67.5 mg/L).
- High nitrate loading at the Salinas Reclamation Canal (309ALG), Blanco Drain (309BLA), and Tembladero Slough (309TEH) was due primarily to elevated nitrate concentrations, whereas the high nitrate loading in the Salinas River in Greenfield (309GRN) and Salinas River at Gonzales (309SAG) was due to high flows (**Appendix B**).
- For the period of 2005-2021, four sites (Salinas Reclamation Canal at La Guardia [309ALG], Alisal Slough [309ASB], Salinas River at Greenfield [309GRN], and Moro Cojo Slough [309MOR]) showed statistically significant increasing trends in nitrate concentrations, and two sites showed statistically significant decreasing trends (Espinosa Slough [309ESP] and Quail Creek [309QUI]).
- For the period of 2005-2021, three sites (Salinas Reclamation Canal at Jon St. [309JON], Natividad Creek [309NAD], and Quail Creek [309QUI]) showed a statistically significant decreasing trend in nitrate loading, and two sites (Salinas Reclamation Canal u/s Salinas [309ALG] and Merritt Ditch [309MER]) showed statistically significant increasing trends in nitrate loading.

Table 3-26. 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	7.3	52.7	32.7	36.4	**Increasing**	**Increasing**
309ASB	12	25.6	63.7	43.4	41.9	**Increasing**	Decreasing
309BLA	12	56.5	75.4	66.8	67.5	Increasing	Increasing
309CCD	4	8.1	55.6	28.7	25.5	Increasing	Increasing
309CRR	4	0.0	66.4	23.9	14.5	Increasing	Decreasing
309ESP	12	0.0	43.6	16.8	7.9	**Decreasing**	Decreasing
309GAB	2	1.8	2.2	2.0	2.0	Decreasing	Decreasing
309GRN	7	0.1	5.5	1.9	0.5	**Increasing**	Decreasing
309JON	12	2.1	22.2	11.4	11.5	Increasing	**Decreasing**
309MER	12	10.4	37.4	22.4	22.5	Increasing	**Increasing**
309MOR	12	0.0	7.1	2.3	0.2	**Increasing**	Increasing
309NAD	4	8.1	48.2	21.2	14.4	Decreasing	**Decreasing**
309OLD	12	5.6	30.0	14.2	13.0	Increasing	Increasing
309QUI	7	10.5	23.0	15.7	12.0	**Decreasing**	**Decreasing**
309RTA	2	7.2	8.8	8.0	8.0	Increasing	Decreasing
309SAC	3	0.0	0.5	0.3	0.4	Decreasing	Decreasing
309SAG	4	0.2	4.5	1.3	0.4	Increasing	Decreasing
309SSP	8	0.0	1.0	0.4	0.3	Decreasing	Decreasing
309TEH	12	3.6	52.6	29.3	32.7	Increasing	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 three sites with an annual TMDL limit of 10 mg/L for nitrate exceeded the limit in 50% or more samples (both Chualar Creek sites [309CCD] and [309CRR], and Quail Creek [309QUI]).
- Salinas River in Greenfield (309GRN) and Moro Cojo Slough (309MOR) did not exceed the non-TMDL area limit of 10 mg/L in any sample.
- Three of the mainstem Salinas River sites ([309SAC], [309SAG], and [309SSP]) met the applicable dry and wet season TMDL limit for nitrate in all samples. Nine of the 14 sites with applicable criterion exceeded their dry season TMDL limit in all samples. Gabilan Creek (309GAB] met the wet season TMDL limit in all samples. Eight of the 14 sites with an applicable wet season TMDL limit exceeded the limit in 50% or more samples.

Table 3-27. 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]	71%	N/A
309ASB	N/A	100%[4]	100%	N/A
309BLA	N/A	100%[4]	100%	N/A
309CCD	75%	N/A	N/A	N/A
309CRR	50%	N/A	N/A	N/A
309ESP	N/A	100%[4]	14%	N/A
309GAB	N/A	NS	0%	N/A
309GRN	N/A	N/A	N/A	0%
309JON	N/A	100%[4]	29%	N/A
309MER	N/A	100%[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]	86%	N/A
309QUI	100%	N/A	N/A	N/A
309RTA	N/A	NS	50%	N/A
309SAC	N/A	0%[7]	0%	N/A
309SAG	N/A	0%[7]	0%	N/A
309SSP	N/A	0%[7]	0%	N/A
309TEH	N/A	100%[4]	71%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 due to dry conditions.

- Median total nitrogen concentrations ranged from 1.6 mg/L (Salinas River at Spreckels Gage [309SSP]) to 68.0 mg/L (Blanco Drain [309BLA]).
- For the period of 2012-2021, six sites (Salinas Reclamation Canal at La Guardia [309ALG], Chualar Creek West of Highway 1 [309CCD], Salinas River at Greenfield [309GRN], Salinas Reclamation Canal, d/s Salinas [309JON], Salinas River at Gonzales [309SAG], Salinas R, Spreckels [309SSP]) showed a statistically significant increasing trend in total nitrogen concentrations and three sites showed a statistically significant decreasing trend (Blanco Drain [309BLA], Natividad Creek [309NAD], and Tembladero Slough [309TEH]).

Table 3-28. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	12.7	53.5	35.5	38.5	**Increasing**
309ASB	12	28.0	68.5	46.0	44.3	Increasing
309BLA	12	56.5	76.3	67.3	68.0	**Decreasing**
309CCD	4	25.5	60.0	36.2	29.6	**Increasing**
309CRR	0	NS	NS	NS	NS	N/A[3]
309ESP	12	5.1	44.9	22.7	17.3	Decreasing
309GAB	2	8.4	10.2	9.3	9.3	Increasing
309GRN	7	0.9	15.1	4.4	1.7	**Increasing**
309JON	12	4.8	27.0	13.6	12.6	**Increasing**
309MER	12	15.9	40.8	26.2	25.8	Increasing
309MOR	12	0.8	14.0	4.5	2.9	Decreasing
309NAD	4	10.5	59.9	25.8	16.3	**Decreasing**
309OLD	12	6.7	31.5	16.0	15.3	Increasing
309QUI	7	13.7	26.2	20.1	20.2	Decreasing
309RTA	2	13.2	15.7	14.5	14.5	Increasing
309SAC	3	1.7	5.0	2.9	2.0	Increasing
309SAG	4	1.6	11.0	4.8	3.4	**Increasing**
309SSP	8	0.9	7.7	2.5	1.6	**Increasing**
309TEH	12	10.7	54.8	32.3	34.4	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- Moro Cojo Slough (309MOR) exceeded its total nitrogen dry season TMDL limit of 1.7 mg/L in 60% of samples and its wet season TMDL limit of 8.0 mg/L in 14% of samples.

Table 3-29. 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]	60%[3]	14%[4]	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 North Branch East of Highway 1 [309CCD], Chualar Creek East of Highway 1 [309CRR], Salinas River at Greenfield [309GRN], 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 2021. **Table 3-30** presents descriptive statistics for orthophosphate, **Table 3-31** and **Appendix B** presents nutrient TMDL and non-TMDL area limit exceedances for orthophosphate, and **Table 3-32** presents descriptive statistics total phosphorus.

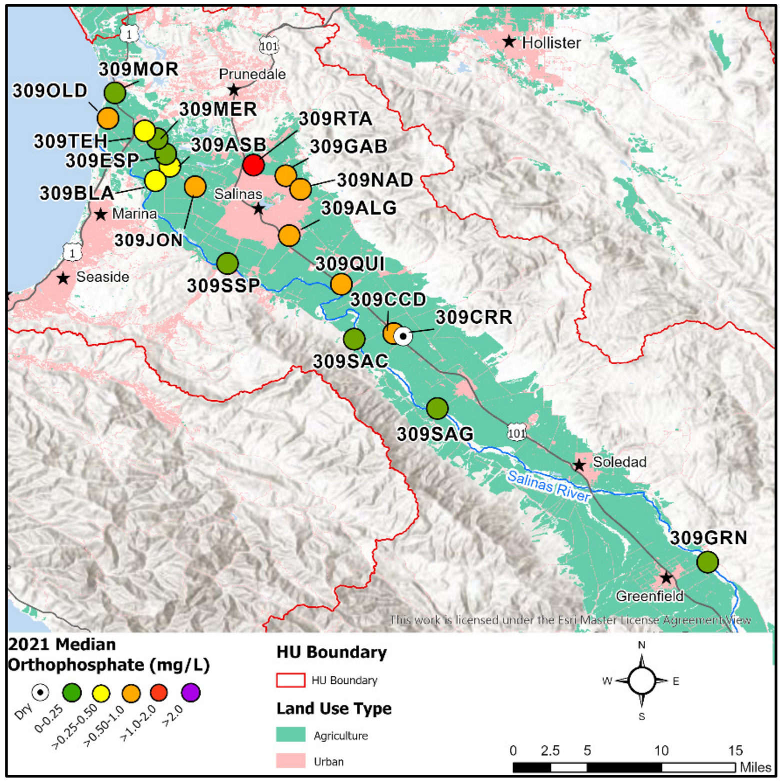


Figure 3-21. 2021 Median Orthophosphate as P for Sites in HU 309

- Median orthophosphate concentrations ranged from 0.051 mg/L in the Moro Cojo Slough (309MOR) to 1.199 mg/L in Santa Rita Creek (309RTA).
- The maximum orthophosphate concentration observed at any Salinas HU site in 2021 occurred in Merritt Ditch (309MER) (9.07 mg/L).
- During the period of 2005-2021, one site showed a statistically significant increasing trend in orthophosphate concentrations (Salinas River at Gonzales River Rd. Bridge [309SAG]), while five sites showed statistically significant decreasing trends (Alisal Slough [309ASB], Chualar Creek North Branch East of Highway 1 [309CCD], Espinosa Slough [309ESP], Gabilan Creek [309GAB], and Quail Creek [309QUI]).

Table 3-30. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.276	2.040	0.726	0.683	Decreasing
309ASB	12	0.163	0.975	0.402	0.323	**Decreasing**
309BLA	12	0.258	0.798	0.406	0.337	Decreasing
309CCD	4	0.822	1.880	1.152	0.953	**Decreasing**
309CRR	0	NS	NS	NS	NS	Decreasing
309ESP	12	0.004	0.777	0.249	0.088	**Decreasing**
309GAB	2	0.305	0.912	0.609	0.609	**Decreasing**
309GRN	7	0.049	0.107	0.078	0.075	Increasing
309JON	12	0.106	0.766	0.467	0.521	Increasing
309MER	12	0.004	9.070	.930	0.171	N/A[3]
309MOR	12	0.004	1.510	0.177	0.051	Increasing
309NAD	4	0.287	0.928	0.632	0.656	Increasing
309OLD	12	0.022	0.656	0.466	0.523	Decreasing
309QUI	7	0.471	2.19	1.044	0.767	**Decreasing**

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309RTA	2	0.808	1.590	1.199	1.199	Increasing
309SAC	3	0.035	0.142	0.080	0.062	Increasing
309SAG	4	0.043	0.214	0.101	0.074	**Increasing**
309SSP	8	0.004	0.285	0.097	0.071	Increasing
309TEH	12	0.032	0.673	0.387	0.397	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.
NS Not sampled for orthophosphate as P.

- Three of the mainstem Salinas River sites ([309SAC], [309SAG], and [309SSP]) met the applicable dry and wet season TMDL limit for orthophosphate in all samples, and Moro Cojo Slough (309MOR) met the applicable dry season TMDL limit in all samples. Seven of the 15 sites with applicable criterion exceeded the dry season TMDL limit for orthophosphate in 100% of samples. Ten of 15 sites with applicable criterion exceeded the wet season TMDL limit in more than 50% of samples, three of which exceeded in 100% of samples.

Table 3-31. 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]	86%	N/A
309ASB	100%[3]	57%	N/A
309BLA	100%[3]	71%	N/A
309CCD	N/A	N/A	N/A
309CRR	N/A	N/A	N/A
309ESP	40%[3]	57%	N/A
309GAB	NS	100%	N/A
309GRN	N/A	N/A	N/A
309JON	100%[3]	71%	N/A
309MER	40%[3]	29%	N/A
309MOR	0%[3]	14%	N/A
309NAD	100%[4]	100%	N/A
309OLD	100%[4]	86%	N/A
309QUI	N/A	N/A	N/A
309RTA	NS	100%	N/A
309SAC	0%[4]	0%	N/A
309SAG	0%[4]	0%	N/A
309SSP	0%[4]	0%	N/A
309TEH	100%[3]	86%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 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 0.21 mg/L at Moro Cojo Slough (309MOR) to 3.750 mg/L at Quail Creek (309QUI).
- The maximum total phosphorus concentration observed at any Salinas HU site in 2021 was observed at Chualar Creek North Branch East of Highway 1 (309CCD) (14.3 mg/L).
- From the period of 2012-2021, four sites (Salinas Reclamation Canal at La Guardia [309ALG], Old Salinas River [309OLD], Quail Creek [309QUI], and Salinas Road at Spreckels Gage [309SSP]) showed a statistically significant increasing trend in total phosphorus, while one site (Blanco Drain [309BLA]) showed a statistically significant decreasing trend in total phosphorus.

Table 3-32. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.487	6.300	1.827	1.195	**Increasing**
309ASB	12	0.519	1.590	0.910	0.769	Decreasing
309BLA	12	0.263	1.280	0.520	0.460	**Decreasing**
309CCD	4	1.630	14.300	5.755	3.545	Decreasing
309CRR	0	NS	NS	NS	NS	N/A[3]
309ESP	12	0.392	9.950	1.685	0.913	Increasing
309GAB	2	0.425	4.210	2.318	2.318	Increasing
309GRN	7	0.117	12.800	2.002	0.268	Increasing
309JON	12	0.470	3.570	1.069	0.803	Decreasing
309MER	12	0.264	9.960	1.532	0.499	Increasing
309MOR	12	0.120	0.533	0.237	0.210	Increasing
309NAD	4	0.540	2.590	1.387	1.208	Increasing
309OLD	12	0.516	1.090	0.768	0.754	**Increasing**
309QUI	7	1.250	12.100	4.374	3.750	**Increasing**
309RTA	2	1.380	4.790	3.085	3.085	Decreasing
309SAC	3	0.361	2.660	1.200	0.580	Increasing
309SAG	4	0.099	4.030	1.203	0.341	Increasing
309SSP	8	0.239	2.460	0.735	0.472	**Increasing**
309TEH	12	0.477	3.970	1.199	0.922	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

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 at White Barn [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 2021 conductivity for sites in the Salinas HU and **Table 3-33** presents descriptive statistics.

- In 2021, median conductivities ranged from 270 µS/cm in the Gabilan Creek (309GAB) to 49,750 µS/cm in Moro Cojo Slough (309MOR).
- Median conductivities at 12 sites were above the low end of the listed ranges (750 µS/cm) in 2021.

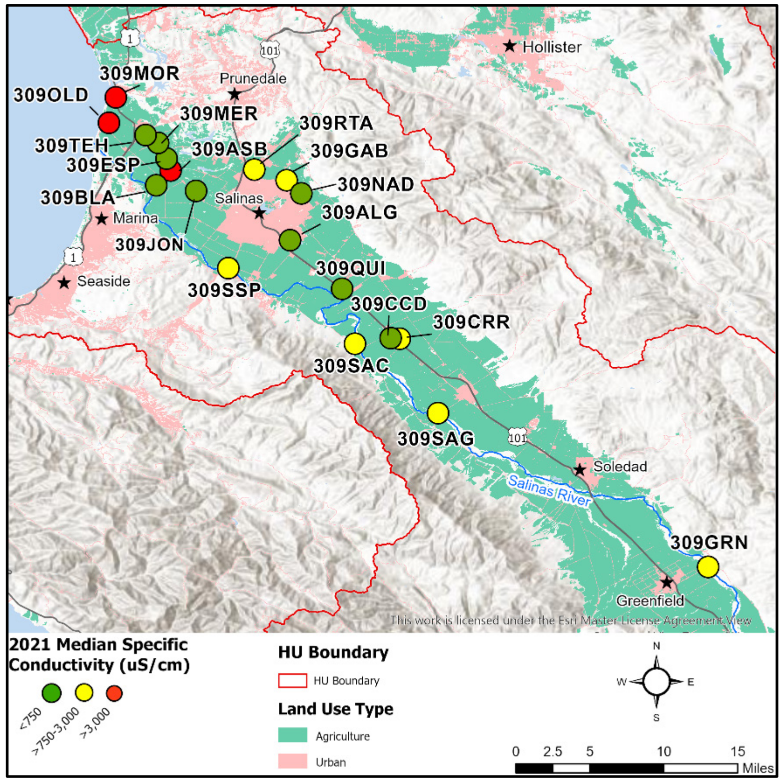


Figure 3-22. 2021 Median Conductivity for Sites in HU 309

- For the period of 2005-2021, one site, Alisal Slough (309ASB), showed a statistically significant increasing trend in conductivity while four sites showed statistically significant decreasing trends in conductivity concentrations (Blanco Drain [309BLA], Salinas River at Gonzales River Rd. Bridge [309SAG], Salinas River at Spreckels Gage [309SSP], and Salinas River at Chualar [309SAC]).

Table 3-33. Descriptive Statistics for Conductivity in Hydrologic Unit 309 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	356	2,925	1,210	1,140	Decreasing
309ASB	12	1,608	4,808	3,372	3,373	**Increasing**
309BLA	12	1,545	3,389	2,617	2,736	**Decreasing**
309CCD	4	334	1,680	989	971	N/A[3]
309CRR	4	184	1,675	803	676	Decreasing
309ESP	12	218	2,923	1,679	1,722	Decreasing
309GAB	2	153	386	270	270	Decreasing
309GRN	7	315	817	514	371	Decreasing
309JON	12	194	1,857	1,112	1,246	Increasing
309MER	12	907	2,697	2,148	2,367	Decreasing
309MOR	12	3,494	60,128	44,852	49,750	Decreasing
309NAD	4	728	1,287	941	875	Decreasing
309OLD	12	1,101	23,640	9,568	8,926	Decreasing
309QUI	7	218	1,428	902	1,123	Increasing
309RTA	2	558	701	629	629	Decreasing
309SAC	3	306	376	339	335	**Decreasing**
309SAG	4	177	780	425	372	**Decreasing**
309SSP	8	155	3,622	738	355	**Decreasing**
309TEH	12	409	2,723	2,096	2,540	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

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 applicable numeric WQO for salinity for CMP sites in the Salinas HU. **Figure 3-23** depicts annual median TDS concentrations for sites in the Salinas HU for 2021. **Table 3-34** and **Table 3-35** present descriptive statistics on TDS and salinity, respectively.

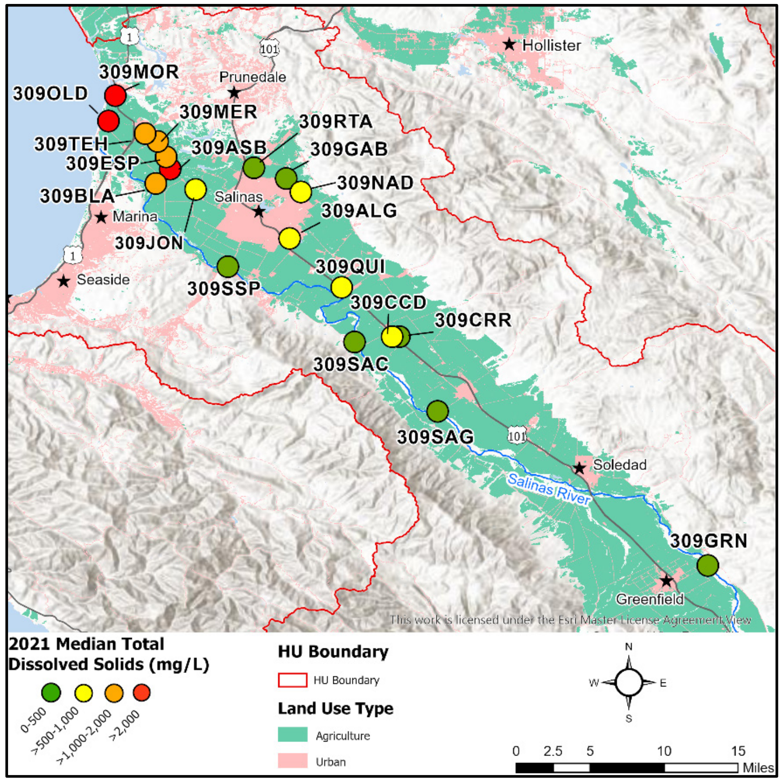


Figure 3-23. 2021 Median Total Dissolved Solids for Sites in HU 309

- Median TDS concentrations for 2021 ranged from 173 mg/L at Gabilan Creek (309GAB) to 31,855 mg/L (tidal influence) in the Moro Cojo Slough (309MOR).
- Three sites met their respective TDS WQOs on an average annual basis (Gabilan Creek [309GAB], Salinas River at Chualar Bridge [309SAC], and Salinas River at Gonzales [309SAG]), but Salinas River at Greenfield (309GRN) did not.
- For the period of 2005-2021, four sites showed statistically significant decreasing trends in TDS concentrations (Blanco Drain [309BLA], Chualar Creek East of Highway 1 [309CRR], Moro Cojo Slough [309MOR], and Salinas River at Spreckels Gage [309SSP]).

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

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
309ALG	12	187	844	634	701	N/A	Decreasing
309ASB	12	1	24,720	3,639	2,067	N/A	Increasing
309BLA	12	145	2,166	1,528	1,747	N/A	**Decreasing**
309CCD	4	214	1,075	633	621	N/A	Decreasing
309CRR	4	118	1,072	514	432	N/A	**Decreasing**
309ESP	12	138	1,869	956	1,059	N/A	Decreasing
309GAB	2	98	248	173	173	No	Decreasing
309GRN	7	202	2,128	603	430	Yes	Increasing
309JON	12	124	1,207	672	702	N/A	Increasing
309MER	12	152	1,726	1,260	1,459	N/A	Increasing
309MOR	12	2,245	38,520	28,704	31,855	N/A	**Decreasing**
309NAD	4	466	824	603	560	N/A	Decreasing
309OLD	12	704	15,130	6,125	5,715	N/A	Increasing
309QUI	7	140	914	577	720	N/A	Increasing

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
309RTA	2	357	449	403	403	N/A	Decreasing
309SAC	3	196	241	217	214	No	Decreasing
309SAG	4	114	498	272	238	No	Decreasing
309SSP	8	99	319	211	221	N/A	**Decreasing**
309TEH	12	262	1,746	1,341	1,624	N/A	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 salinity were similar to TDS concentrations.
- Fifteen sites showed decreasing trends in salinity, four of which were statistically significant (Blanco Drain [309BLA], Salinas River at Chualar Bridge [309SAC], Salinas River at Gonzales [309SAG], and Salinas River at Spreckels Gage [309SSP]). One site showed a statistically significant increasing trend in salinity, Alisal Slough (309ASB).

Table 3-35. Descriptive Statistics for Salinity in Hydrologic Unit 309 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
309ALG	12	0.14	0.70	0.52	0.58	Decreasing
309ASB	12	0.85	2.64	1.83	1.83	**Increasing**
309BLA	12	0.85	1.80	1.42	1.50	**Decreasing**
309CCD	4	0.20	0.89	0.53	0.51	Decreasing
309CRR	4	0.10	0.89	0.42	0.35	Decreasing
309ESP	12	0.10	1.58	0.90	0.90	Decreasing
309GAB	2	0.07	0.20	0.14	0.14	Increasing
309GRN	7	0.15	0.42	0.26	0.18	Decreasing
309JON	12	0.09	0.97	0.58	0.67	Decreasing
309MER	12	0.50	1.50	1.16	1.27	Decreasing
309MOR	12	1.90	40.40	29.24	32.23	Decreasing
309NAD	4	0.40	0.68	0.50	0.46	Decreasing
309OLD	12	0.60	14.27	5.49	5.03	Decreasing
309QUI	7	0.10	0.76	0.47	0.59	Increasing
309RTA	2	0.28	0.40	0.34	0.34	Decreasing
309SAC	3	0.15	0.19	0.17	0.16	**Decreasing**
309SAG	4	0.08	0.40	0.21	0.19	**Decreasing**
309SSP	8	0.09	0.25	0.17	0.17	**Decreasing**
309TEH	12	0.20	1.47	1.12	1.35	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.3.9 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 2021, **Table 3-36** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-37** presents descriptive statistics for oxygen saturation.

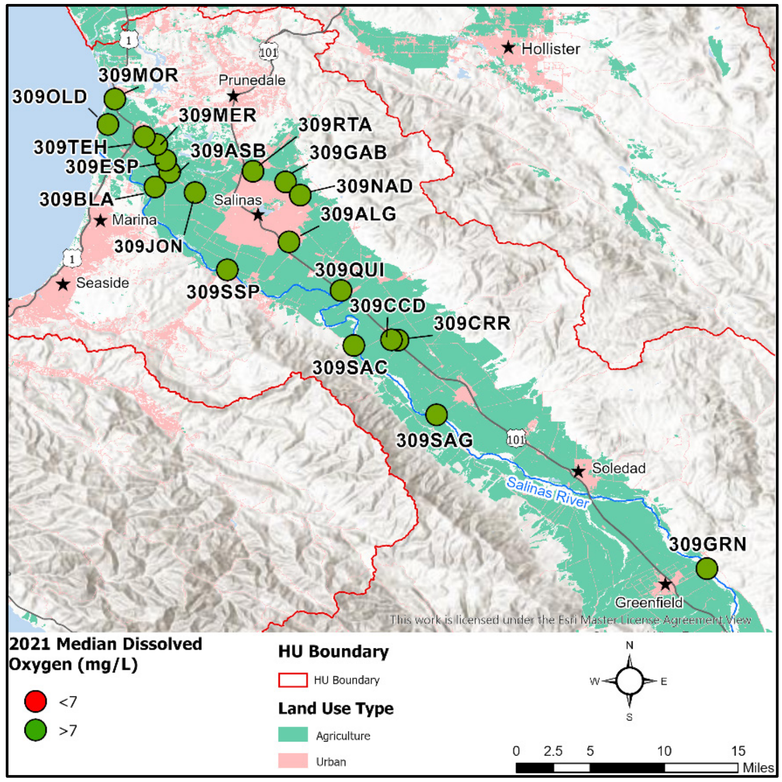


Figure 3-24. 2021 Median Dissolved Oxygen Concentrations for Sites in HU 309

- Three of the eight sites 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.
- Nine of the 11 sites with a minimum WQO of 5 mg/L met the objective in all samples in 2021.
- For the period of 2005-2021, four sites showed statistically significant increasing trends in DO concentrations (Salinas Reclamation Canal at La Guardia [309ALG], Blanco Drain [309BLA], Moro Cojo Slough [309MOR], and Quail Creek [309QUI]). 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 3-36. 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	8.60	20.01	12.58	11.80	0%[3]	**Increasing**
309ASB	12	5.70	15.27	9.03	8.60	0%[3]	**Decreasing**
309BLA	12	6.10	21.50	10.55	9.54	0%[3]	**Increasing**
309CCD	4	9.05	11.10	10.08	10.08	0%[3]	Decreasing
309CRR	4	7.08	11.35	9.46	9.70	0%[3]	Decreasing
309ESP	12	4.30	15.80	9.84	9.61	8%[3]	Decreasing
309GAB	2	10.90	16.00	13.45	13.45	0%	Increasing
309GRN	7	8.75	12.70	10.69	10.28	0%	Increasing
309JON	12	2.33	15.32	8.84	9.50	17%[3]	Decreasing
309MER	12	6.60	12.10	9.36	9.40	0%[3]	Decreasing
309MOR	12	2.81	14.20	7.70	7.51	25%	**Increasing**
309NAD	4	7.76	11.00	9.14	8.90	0%[3]	Increasing

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
309OLD	12	5.20	13.53	8.30	8.57	42%	Increasing
309QUI	7	8.47	10.92	9.53	9.40	0%[3]	**Increasing**
309RTA	2	10.50	11.00	10.75	10.75	0%[3]	Increasing
309SAC	3	9.39	11.69	10.26	9.69	0%	Decreasing
309SAG	4	9.06	10.81	10.14	10.34	0%	Increasing
309SSP	8	7.15	12.30	9.79	9.57	0%	Decreasing
309TEH	12	6.00	17.55	10.18	8.91	17%	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- Samples collected from Alisal Slough (309ASB) exceeded the 85% saturation WQO on a median basis.
- Six sites showed statistically significant increasing trends in oxygen saturation (Salinas Reclamation Canal at La Guardia [309ALG], Blanco Drain [309BLA], [309GRN], Moro Cojo Slough [309MOR], Quail Creek [309QUI], and Tembladero Slough [309TEH]). Two sites showed statistically significant decreasing trends in oxygen saturation (Alisal Slough [309ASB] and Chualar Creek West of Highway 1 [309CCD]).

Table 3-37. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 309 (%)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
309ALG	12	90	230	139	137	N/A	**Increasing**
309ASB	12	61	154	90	82	Yes	**Decreasing**
309BLA	12	63	228	109	89	N/A	**Increasing**
309CCD	4	96	104	99	98	No	**Decreasing**
309CRR	4	80	101	92	93	No	Decreasing
309ESP	12	44	150	99	95	N/A	Decreasing
309GAB	2	94	115	104	104	N/A	Increasing
309GRN	7	99	145	109	105	N/A	**Increasing**
309JON	12	2	151	81	83	N/A	Decreasing
309MER	12	68	115	91	86	No	Increasing
309MOR	12	26	182	91	85	N/A	**Increasing**
309NAD	4	80	103	89	86	No	Increasing
309OLD	12	53	152	87	79	N/A	Increasing
309QUI	7	83	139	103	97	No	**Increasing**
309RTA	2	90	99	94	94	No	Increasing
309SAC	3	103	107	104	103	N/A	Decreasing
309SAG	4	97	119	106	105	N/A	Increasing
309SSP	8	67	112	95	96	N/A	Decreasing
309TEH	12	64	179	107	94	N/A	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.3.10 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 2021 and **Table 3-38** presents descriptive statistics.

- Seven of the 19 sites met the applicable pH WQO in all samples.
- Five sites (Alisal Slough [309ASB], Salinas Reclamation Canal [309JON], Natividad Creek [309NAD], Santa Rita Creek [309RTA], and Salinas River at Spreckels Gage [309SSP]) had pH levels below the minimum criterion of 7.0 standard pH units; all other exceedances were of the 8.3 standard pH units WQO.
- For the period of 2005-2021, 12 sites showed statistically significant decreasing trends in pH. One site showed a statistically significant increasing trend in pH (Quail Creek [309QUI]).

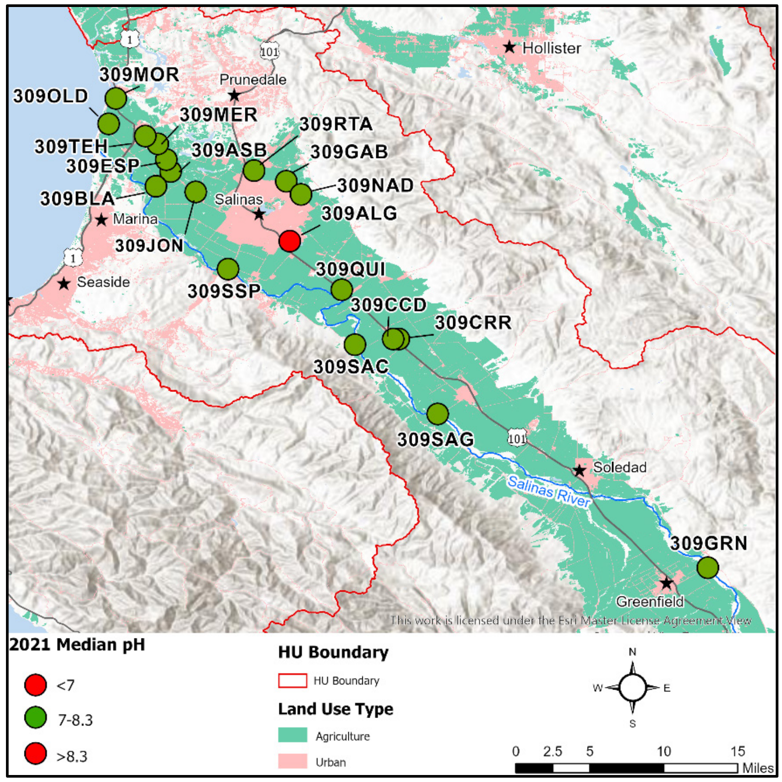


Figure 3-25. 2021 Median pH for Sites in HU 309

Table 3-38. Descriptive Statistics for pH in Hydrologic Unit 309 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
309ALG	12	7.23	9.83	8.41	8.48	67%	Decreasing
309ASB	12	6.93	7.93	7.39	7.40	8%	**Decreasing**
309BLA	12	7.32	8.10	7.71	7.72	0%	**Decreasing**
309CCD	4	7.45	8.35	7.83	7.76	25%	Increasing
309CRR	4	7.62	7.76	7.70	7.70	0%	**Decreasing**
309ESP	12	7.19	9.10	7.71	7.59	8%	**Decreasing**
309GAB	2	7.25	7.58	7.42	7.42	0%	Decreasing
309GRN	7	7.71	7.94	7.84	7.87	0%	**Decreasing**
309JON	12	6.76	9.12	7.97	8.08	33%	**Decreasing**
309MER	12	7.29	8.36	7.61	7.56	8%	**Decreasing**
309MOR	12	7.07	8.18	7.68	7.89	0%	**Decreasing**
309NAD	4	6.82	7.86	7.33	7.33	25%	Increasing
309OLD	12	7.25	8.47	7.87	7.74	25%	Decreasing
309QUI	7	7.44	8.94	7.93	7.77	14%	**Increasing**
309RTA	2	6.96	7.29	7.13	7.13	50%	Decreasing
309SAC	3	7.75	7.90	7.84	7.87	0%	**Decreasing**
309SAG	4	7.84	8.33	8.00	7.92	25%	**Decreasing**
309SSP	8	6.06	8.80	7.47	7.49	50%	**Decreasing**
309TEH	12	7.09	8.14	7.83	7.95	0%	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.3.11 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 below. 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 2021 are illustrated in **Figure 3-26** and tabulated in **Table 3-39**.

- In 2021, toxicity (reduced growth in sample water relative to a non-toxic control) to algae was observed in one of four bioassays collected from the Salinas Reclamation Canal at La Guardia (309ALG) and two of four samples collected from Moro Cojo Slough (309MOR) (**Figure 3-26 a**). Of the 18 sites sampled in the Salinas HU, all but two sites (Salinas Reclamation Canal at La Guardia [309ALG] and Moro Cojo Slough [309MOR]) 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 29 samples collected from 16 sites. Significant mortality to *C. dubia* in water was observed in 11 samples collected from nine sites (**Figure 3-26 b, d**). Of the 17 sites sampled, all 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 18 sites sampled, nine 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 25 samples collected from 13 sites. All bioassays on water samples collected from Salinas Reclamation Canal at La Guardia (309ALG), Chualar Creek South Branch (309CCD), Quail Creek (309QUI), Salinas River at Chualar Bridge (309SAC), and Salinas River at Gonzalez River Road Bridge (309SAG) resulted in toxicity to invertebrate (**Figure 3-26 c**). Of the 17 sites sampled in the Salinas HU, four sites (Salinas River in Greenfield [309GRN], Natividad Creek [309NAD], Old Salinas River [309OLD], and Tembladero Slough [309TEH]) achieved the significant toxic effect non-TMDL area limit for reproduction in water (**Figure 3-26 c**).
- Toxicity to invertebrate growth rates in sediment was observed in 14 samples collected from 10 sites. All bioassays on sediment samples collected from Salinas Reclamation Canal at La Guardia (309ALG), Alisal Slough (309ASB), Espinosa Slough (309ESP), Natividad Creek (309NAD), Quail Creek (309QUI), Salinas River at Spreckels Gage (309SSP) and Tembladero Slough (309TEH) resulted in significant mortality (**Figure 3-26 e**). Of the 12 sites sampled in the Salinas HU, two sites (Salinas River in Greenfield [309GRN] and Merritt Ditch [309MER]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-26 e**).
- Toxicity to invertebrate survival in sediment was observed in 15 samples collected from nine sites. All bioassays on sediment samples collected from Salinas Reclamation Canal at La Guardia (309ALG), Alisal Slough (309ASB), Espinosa Slough (309ESP), Salinas Reclamation Canal at San Jon Road (309JON), Old Salinas River (309OLD), Quail Creek (309QUI) and Tembladero Slough (309TEH) resulted in significant mortality (**Figure 3-26 f**). Five 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 ten sites that were sampled and have a significant toxic effect TMDL limit, two sites (Natividad Creek [309NAD] and Salinas River at Spreckels

Gage [309SSP]) showed no toxic effect (**Figure 3-26 f**). Two sites (Salinas River in Greenfield [309GRN] and 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 2005-2021, the following statistically significant trends were observed:
  - Three sites displayed increasing (improving, reduced toxicity) trends in invertebrate survival in water (Salinas Reclamation Canal at La Guardia [309ALG], Salinas Reclamation Canal at San Jon Road [309JON], and Tembladero Slough [309TEH]).
  - One site displayed an increasing (improving, reduced toxicity) trend in invertebrate reproduction in water (Salinas Reclamation Canal at San Jon Road [309JON]).
  - Espinosa Slough (309ESP) displayed one statistically significant increasing (improving, reduced toxicity) trend in both invertebrate survival and growth in sediment. One statistically significant decreasing (worsening, increased toxicity) trend in invertebrate survival in sediment was observed at Alisal Slough (309ASB).
  - Salinas River at Spreckels Gage (309SSP) displayed one statistically significant decreasing (worsening, increased toxicity) trend in invertebrate growth in sediment.

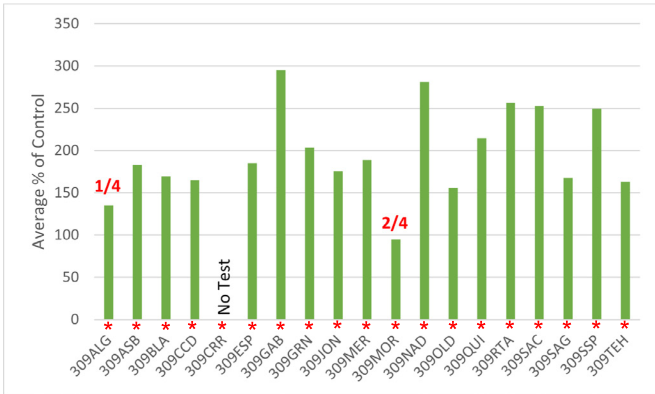
Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-39**.

Table 3-39. Summary of Toxicity and Trends (Water) in Hydrologic Unit 309

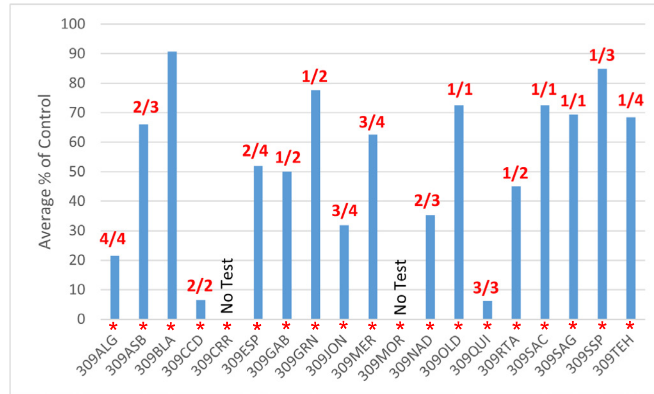
Site ID[1]	Algal Growth		*C. dilutus*– Survival		*C. dubia* – Reproduction		*C. dubia* – Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
309ALG	1/4	Decreasing	4/4	Decreasing	4/4	Increasing	2/4	**Increasing**
309ASB	0/4	Increasing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

Notes:

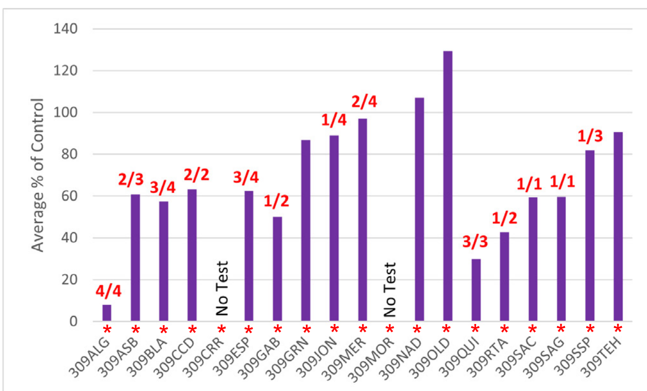
1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).
2 None = No monotonic trend (i.e., increasing or decreasing) was identified.
None = No Mann-Kendall trend analysis exists for this site due to the limited historical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



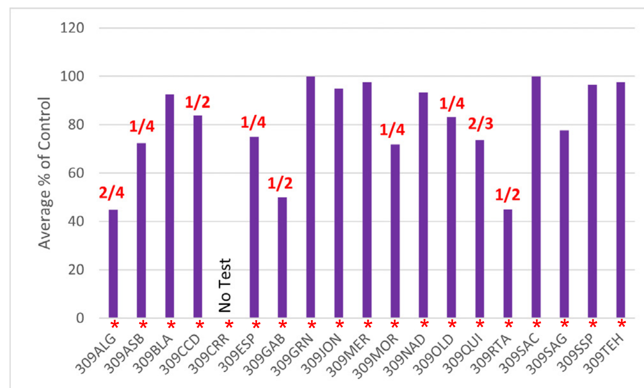
a) Algal Toxicity in Water – Growth



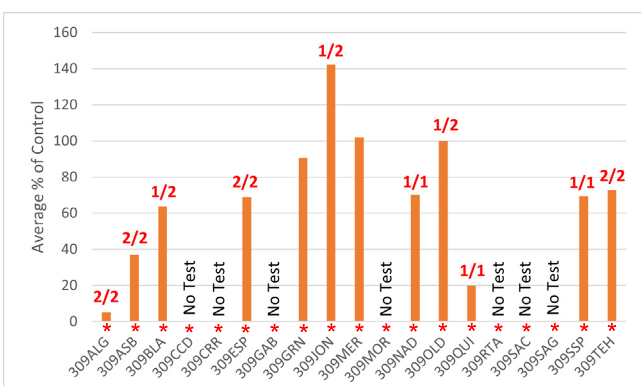
b) *C. dilutus* Toxicity in Water – Survival



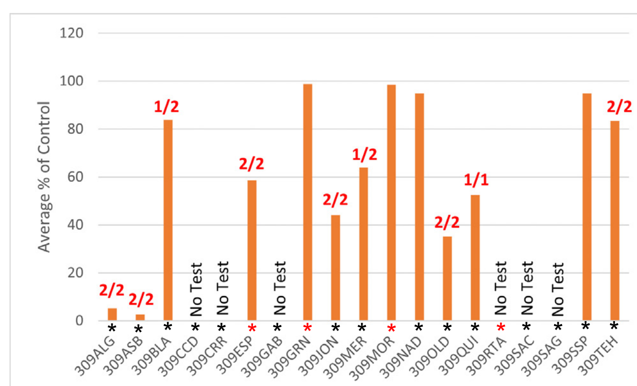
c) *C. dubia* Toxicity in Water – Reproduction



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



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-26. 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 2021 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.

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* (CCRWQCB 2006). 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, 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.

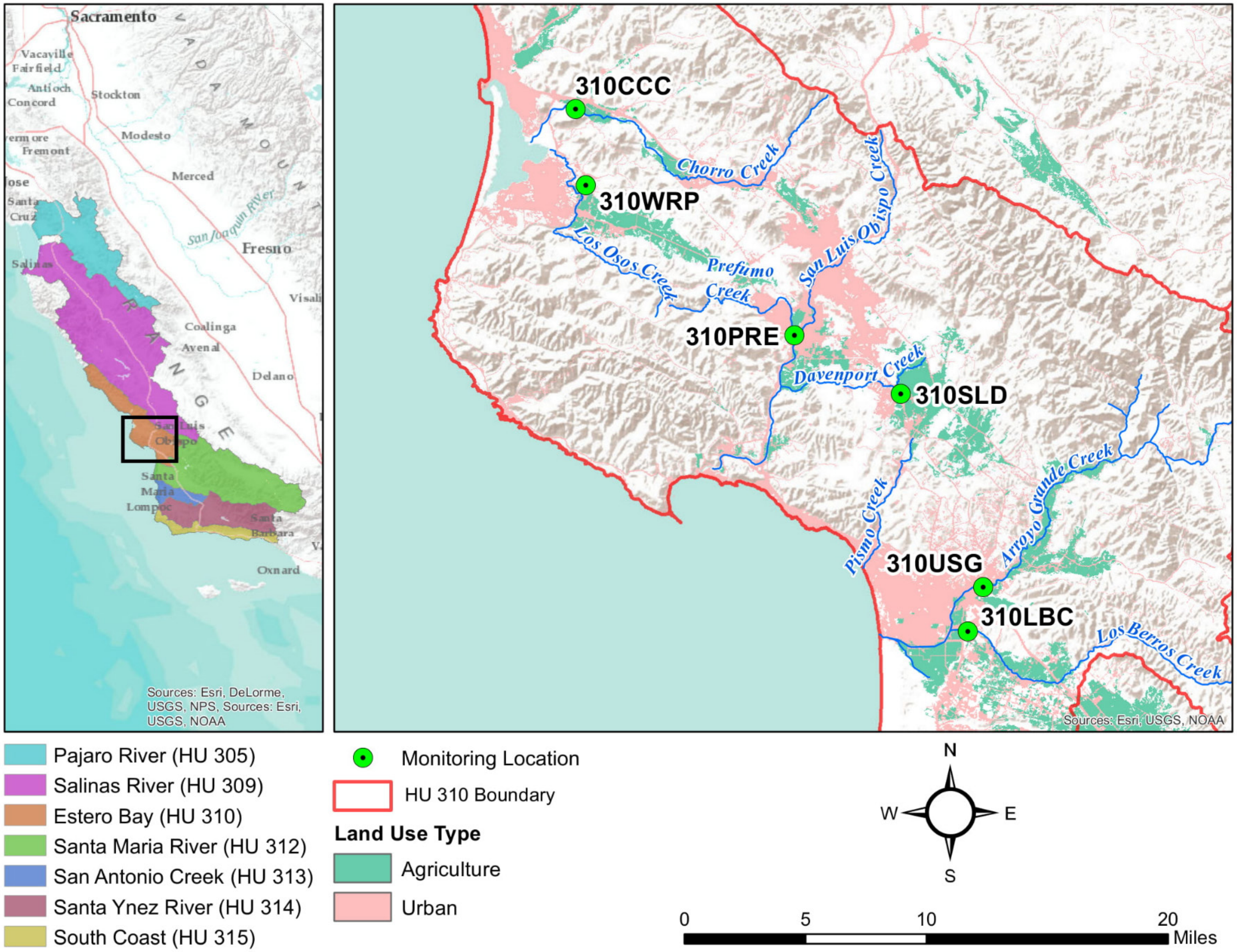


Figure 3-27. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Estero Bay Hydrologic Unit

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 2021 monitoring year, the annual average flow (2.76 CFS) at the *Lopez Canyon near Arroyo Grande* USGS stream gage, was lower than the historic annual average (9.26 CFS, 1968-2020) and ranged from 0.55 (August 3, 2021) to 83.6 CFS (December 24, 2021) (USGS 2022). 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 2021 cumulative annual rainfall (21.43") at the *San Luis Obispo* rain gauge was higher than the historic average (17.63", 2000-2020) (**Figure 3-28**) (CDWR 2022).

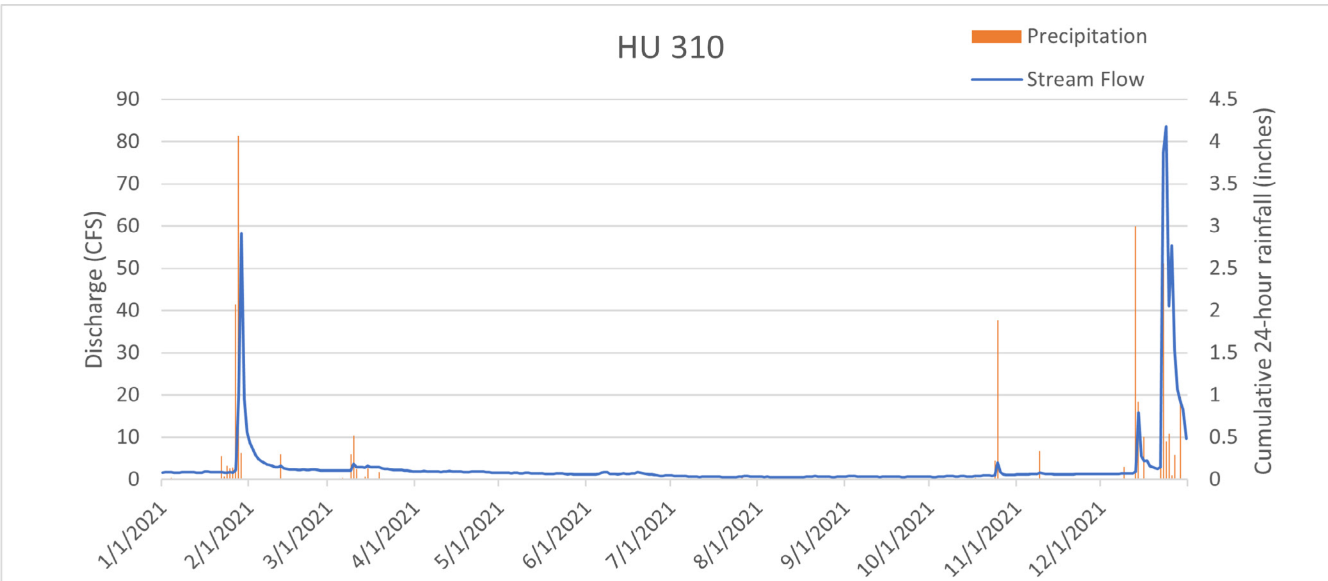


Figure 3-28. 2021 Hydrograph and Total Daily Precipitation Record for Lopez Canyon near Arroyo Grande

In 2021, flows measured at the five Estero Bay HU sites were influenced by storms occurring in late January 2021 and late December 2021, and irrigation during the dry season. **Figure 3-29** depicts annual median flows for sites within the Estero Bay HU for 2021 and **Table 3-40** presents descriptive statistics.

- Measured flows ranged from no flow in Chorro Creek (310CCC), Los Berros Creek (310LBC), Davenport Creek (310SLD), and Warden Creek (310WRP) to 99.94 CFS in Chorro Creek (310CCC).
- Median flows during 2021 ranged from no flow in Los Berros Creek (310LBC) and Davenport Creek (310SLD) to 2.17 CFS in Arroyo Grande (310USG).
- For the period of 2005-2021, three sites showed statistically significant decreasing trends in flows, Los Berros Creek (310LBC), Prefumo Creek (310PRE), and Arroyo Grande (310USG).

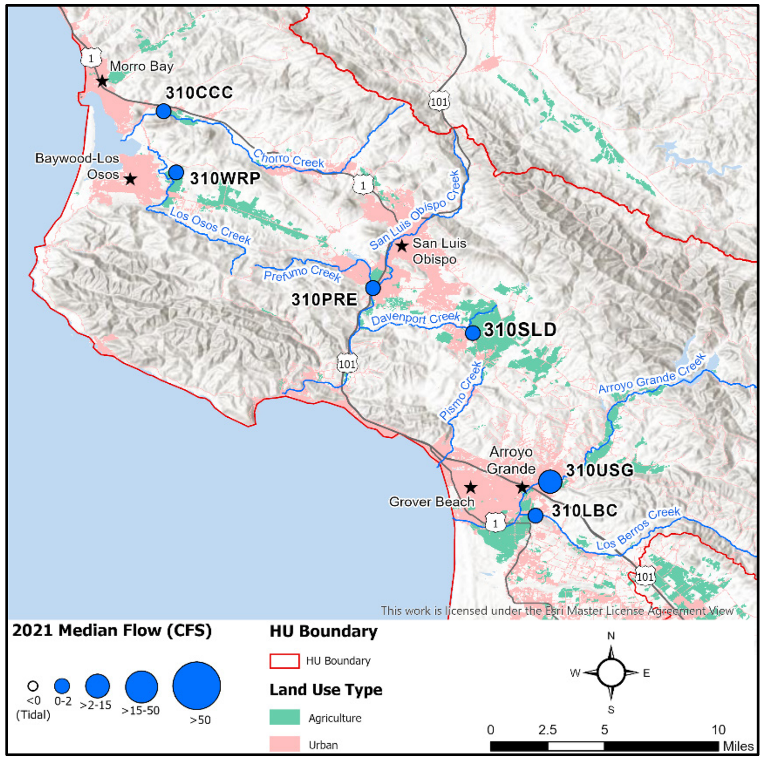


Figure 3-29. 2021 Median Flows for Sites in HU 310

Table 3-40. Descriptive Statistics for Flow in Hydrologic Unit 310 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	12	0.00	99.94	9.86	1.09	Decreasing
310LBC	12	0.00	0.57	0.05	0.00	**Decreasing**
310PRE	12	0.38	16.11	2.45	0.81	**Decreasing**
310SLD	0	0.00	0.00	0.00	0.00	Increasing
310USG	12	1.20	12.06	3.36	2.17	**Decreasing**
310WRP	12	0.00	4.96	0.74	0.08	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.4.2 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.

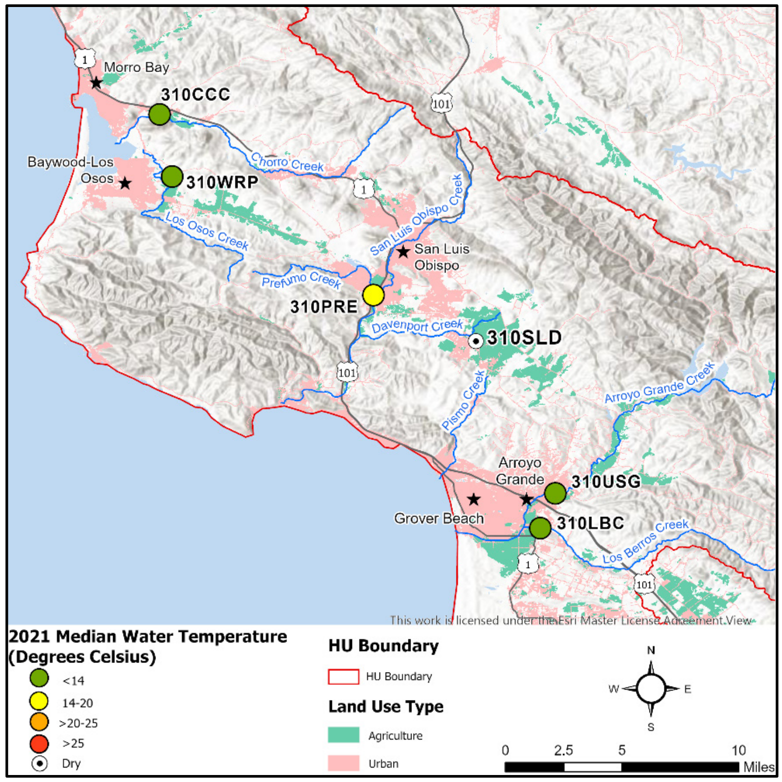


Figure 3-30. 2021 Median Water Temperature for Sites in HU 310

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 2021, water temperatures peaked at most sites in the Estero Bay HU during the month of June and minimum temperatures at most sites were recorded during the month of January. **Figure 3-30** depicts annual median temperatures for sites in the Estero Bay HU for 2021, and **Table 3-41** presents descriptive statistics.

- Median water temperatures in the Estero Bay HU ranged from 10.2 °C in Los Berros Creek (310LBC) to 15.6 °C in Prefumo Creek (310PRE).
- The lowest water temperature (8.6 °C) was observed at Warden Creek (310WRP) and the highest water temperature (17.9 °C) was observed at Prefumo Creek (310PRE).
- For the period of 2005-2021, no sites in the Estero Bay HU showed significant trends in water temperature.

Table 3-41. Descriptive Statistics for Water Temperature in Hydrologic Unit 310 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	9.4	17.7	12.5	11.9	Decreasing
310LBC	1	10.2	10.2	10.2	10.2	Increasing
310PRE	12	10.6	17.9	15.5	15.6	Increasing
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	9.9	16.6	13.7	13.9	Decreasing
310WRP	12	8.6	16.4	12.4	12.0	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 Ag Order 4.0 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 2021, and **Table 3-42** and **Appendix B** presents descriptive statistics and turbidity limit exceedances.

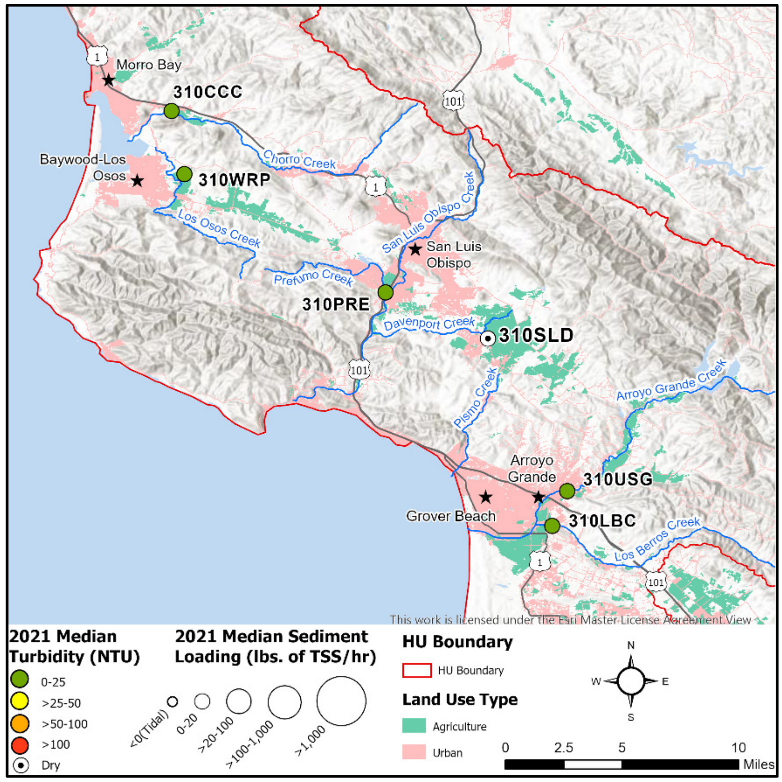


Figure 3-31. 2021 Median Turbidity and TSS Loading for Sites in HU 310

- Median turbidities ranged from 9 NTU in Arroyo Grande (310USG) to 25 NTU in Los Berros Creek (310LBC).
- All but one site (Los Berros Creek [310LBC]) were turbidity samples were collected exceeded the 25 NTU turbidity limit. No samples were collected at Davenport Creek (310SLD) due to dry conditions.
- Low TSS loads throughout the Estero Bay HU were due to low median flows and TSS concentrations (**Appendix B**).
- For the period of 2005-2021, three sites (Chorro Creek [310CCC], Arroyo Grande Creek [310USG], and Warden Creek [310WRP]) showed statistically significant increasing trends in turbidity.
- For the period of 2012-2021, five sites showed statistically significant increasing trends for TSS loading. No decreasing trends for TSS were observed. 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 3-42. 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	8	3	412	74	13	25%	**Increasing**	**Increasing**
310LBC	1	25	25	25	25	0%	Increasing	**Increasing**
310PRE	12	6	362	46	16	17%	Increasing	**Increasing**
310SLD	0	NS	NS	NS	NS	NS	N/A[5]	Increasing
310USG	12	6	378	58	9	17%	**Increasing**	**Increasing**
310WRP	12	3	782	126	20	50%	**Increasing**	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2005-2021 and TSS was monitored from 2012-2021.
5 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.
NS 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 2021, **Table 3-43** presents descriptive statistics, and **Table 3-44** and **Appendix B** presents 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 3-45**.

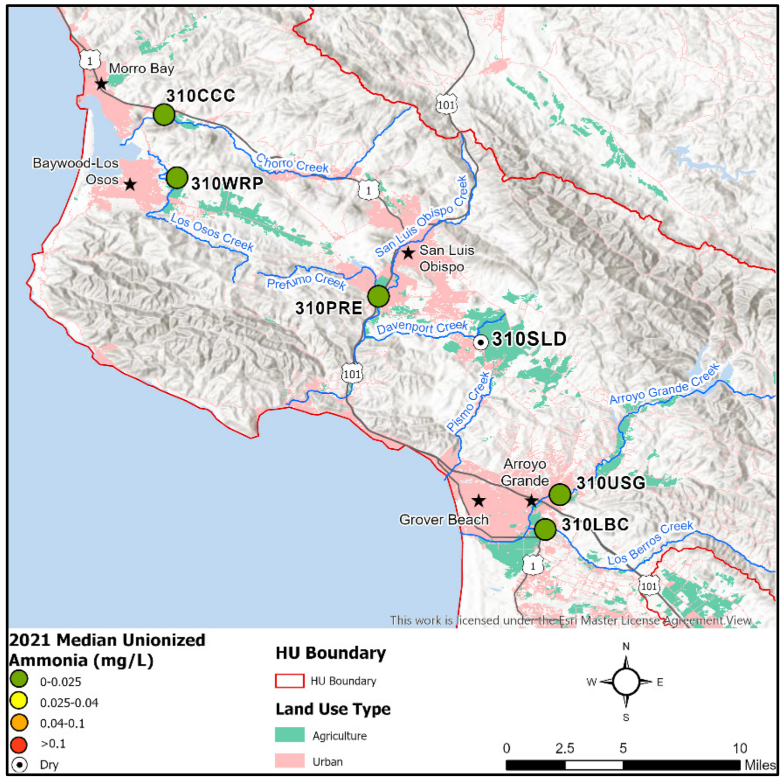


Figure 3-32. 2021 Median Unionized Ammonia for Sites in HU 310

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2021, two sites showed statistically significant decreasing trends in unionized ammonia concentrations (Chorro Creek [310CCC] and Arroyo Grande Creek [310USG]). One site, Warden Creek (310WRP) showed a statistically significant increasing trend in unionized ammonia concentrations.

Table 3-43. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	0.0001	0.0007	0.0004	0.0004	**Decreasing**
310LBC	1	0.0010	0.0010	0.0010	0.0010	Decreasing
310PRE	12	0.0001	0.0007	0.0004	0.0004	Increasing
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	0.0004	0.0026	0.0011	0.0010	**Decreasing**
310WRP	12	0.0002	0.0012	0.0006	0.0004	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021. Unionized ammonia was less than 0.01 mg/L at all sites.

Table 3-44. Nutrient Limit Exceedances for Unionized Ammonia in Hydrologic Unit 310

Site ID[1]	Non-TMDL Area Limit Percent Exceedance[2]
310CCC	0%
310LBC	0%
310PRE	0%
310SLD	NS
310USG	0%
310WRP	0%

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 Not sampled due to dry conditions.

- Three sites (Chorro Creek [310CCC] Los Berros Creek [310LBC], and Arroyo Grande Creek [310USG]) showed statistically significant decreasing trends in total ammonia and one site (Warden Creek [310WRP]) showed a statistically significant increasing trend. An additional decreasing trend was observed for total ammonia at Prefumo Creek (310PRE).

Table 3-45. Descriptive Statistics for Total Ammonia in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	0.0158	0.1370	0.0414	0.0229	**Decreasing**
310LBC	1	0.0706	0.0706	0.0706	0.0706	**Decreasing**
310PRE	12	0.0195	0.2370	0.0488	0.0303	Decreasing
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	0.0128	0.2560	0.0467	0.0283	**Decreasing**
310WRP	12	0.0345	0.2190	0.0897	0.0744	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021, **Table 3-46** presents descriptive statistics, and **Table 3-47** and **Appendix B** presents TMDL and non-TMDL area limit exceedances.

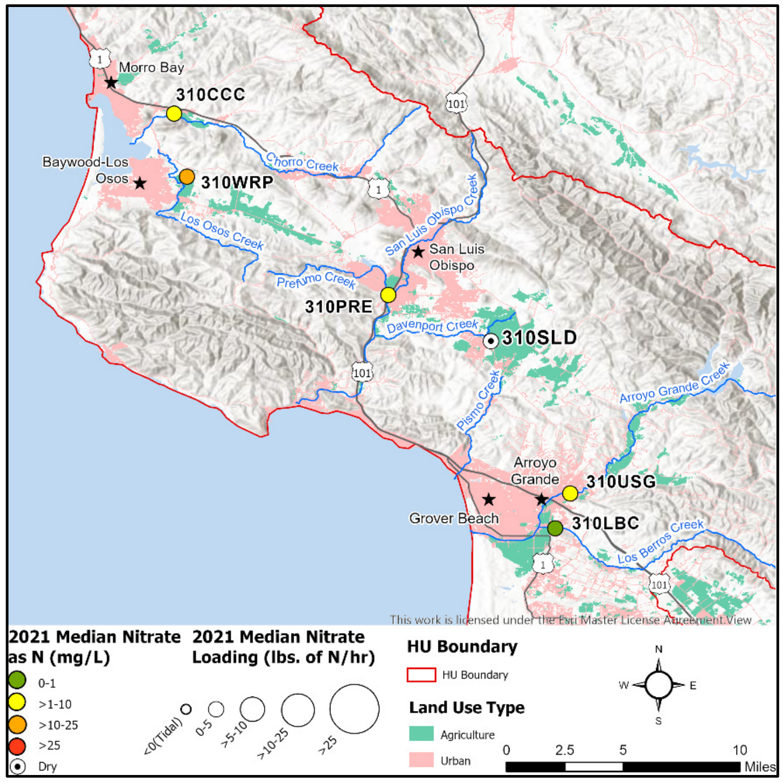


Figure 3-33. 2021 Median Nitrate as N for Sites in HU 310

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 3-48**.

- In 2021, the maximum nitrate concentration (39211.0 mg/L) was in Warden Creek (310WRP) in August.
- Low nitrate loads throughout the Estero Bay HU were driven by low median flows and low to moderately high nitrate concentrations (**Appendix B**).
- For the period of 2005-2021, three sites (Chorro Creek [310CCC], Los Berros Creek [310LBC], and Prefumo Creek [310PRE]) showed statistically significant decreasing trends in nitrate concentrations. These same three sites, as well as one other site (Arroyo Grande Creek [310USG]) showed statistically significant decreasing trends in nitrate loads.

Table 3-46. 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	8	1.0	1.5	1.2	1.1	**Decreasing**	**Decreasing**
310LBC	1	0.6	0.6	0.6	0.6	**Decreasing**	**Decreasing**
310PRE	12	0.5	3.9	2.9	3.3	**Decreasing**	**Decreasing**
310SLD	0	NS	NS	NS	NS	N/A[3]	Increasing
310USG	12	1.1	4.3	2.8	2.6	Increasing	**Decreasing**
310WRP	12	1.0	39.0	20.1	20.0	Increasing	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 due to dry conditions.

- In 2021, all but one site (Warden Creek [310WRP]) 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 in 75% of samples collected. No samples were collected at Davenport Creek (310SLD) due to dry conditions.

Table 3-47. 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	0%	N/A	N/A	N/A
310PRE	N/A	0%	N/A	N/A
310SLD	N/A	N/A	N/A	NS
310USG	N/A	N/A	N/A	0%
310WRP	N/A	N/A	75%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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 Not sampled due to dry conditions.

- Median total nitrogen concentrations ranged from 1.0 mg/L in Los Berros Creek (310LBC) to 21.3 mg/L in Warden Creek (310WRP).
- Arroyo Grande Creek (310USG) showed a statistically significant increasing trend in total nitrogen, while three sites (Chorro Creek [310CCC], Los Berros Creek [310LBC], and Prefumo Creek [310PRE]) showed statistically significant decreasing trends in total nitrogen from 2005-2021.

Table 3-48. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	1.2	3.2	1.8	1.7	**Decreasing**
310LBC	1	1.0	1.0	1.0	1.0	**Decreasing**
310PRE	12	0.9	4.3	3.3	3.6	**Decreasing**
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	1.5	5.0	3.5	3.7	**Increasing**
310WRP	12	3.7	39.6	21.5	21.3	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021. **Table 3-49** and **Table 3-50** present descriptive statistics for orthophosphate and total phosphorus, respectively.

- The highest median orthophosphate concentration for the Estero Bay HU in 2021 was in Chorro Creek (310CCC) (0.559 mg/L).
- The highest orthophosphate concentration in 2021 was at Warden Creek (310WRP) (1.570 mg/L).
- For the period of 2005-2021, two of five sites with sufficient historical data (Chorro Creek [310CCC] and Arroyo Grande Creek [310USG]) showed statistically significant increasing trends in orthophosphate concentrations.

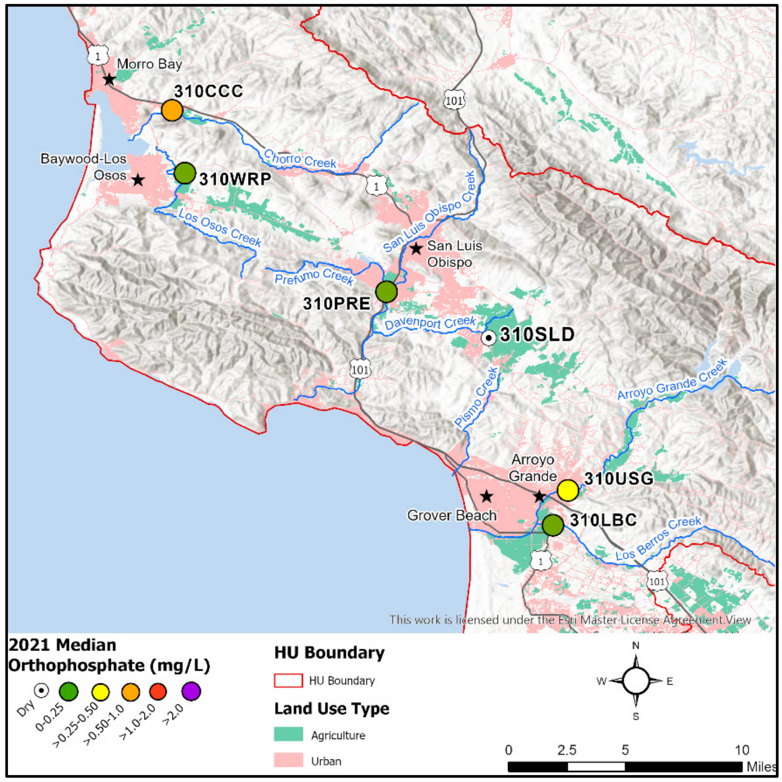


Figure 3-34. 2021 Median Orthophosphate as P for Sites in HU 310

Table 3-49. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	0.350	0.716	0.540	0.559	**Increasing**
310LBC	1	0.194	0.194	0.194	0.194	Increasing
310PRE	12	0.126	0.446	0.184	0.153	Increasing
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	0.253	0.631	0.326	0.309	**Increasing**
310WRP	12	0.124	1.570	0.414	0.217	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 0.227 mg/L at Prefumo Creek (310PRE) to 0.598 mg/L at Chorro Creek (310CCC).
- The highest total phosphorus concentration at any Estero Bay HU in 2021 was observed at Warden Creek (310WRP) (2.390 mg/L).
- From the period of 2005-2021, three sites (Prefumo Creek [309PRE], Arroyo Grande Creek [309USG], and Warden Creek [309WRP]) showed a statistically significant increasing trend in total phosphorus.

Table 3-50. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	0.491	0.824	0.627	0.598	Decreasing
310LBC	1	0.278	0.278	0.278	0.278	Increasing
310PRE	12	0.186	0.594	0.267	0.227	**Increasing**
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	0.275	2.140	0.534	0.394	**Increasing**
310WRP	12	0.179	2.390	0.622	0.354	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021 conductivity for sites for sites in the Estero Bay HU and **Table 3-51** presents descriptive statistics.

- In 2021, median conductivity concentrations ranged from 104 µS/cm at Los Berros Creek (310LBC) to 1,828 µS/cm at Warden Creek (310WRP).
- The maximum conductivity was observed in Warden Creek (310WRP) (1,987 µS/cm).
- For the period of 2005-2021, one site showed a statistically significant increasing trend in conductivity (Arroyo Grande [310USG]), and one site (Chorro Creek [310CCC]) showed a statistically significant decreasing trend in conductivity.

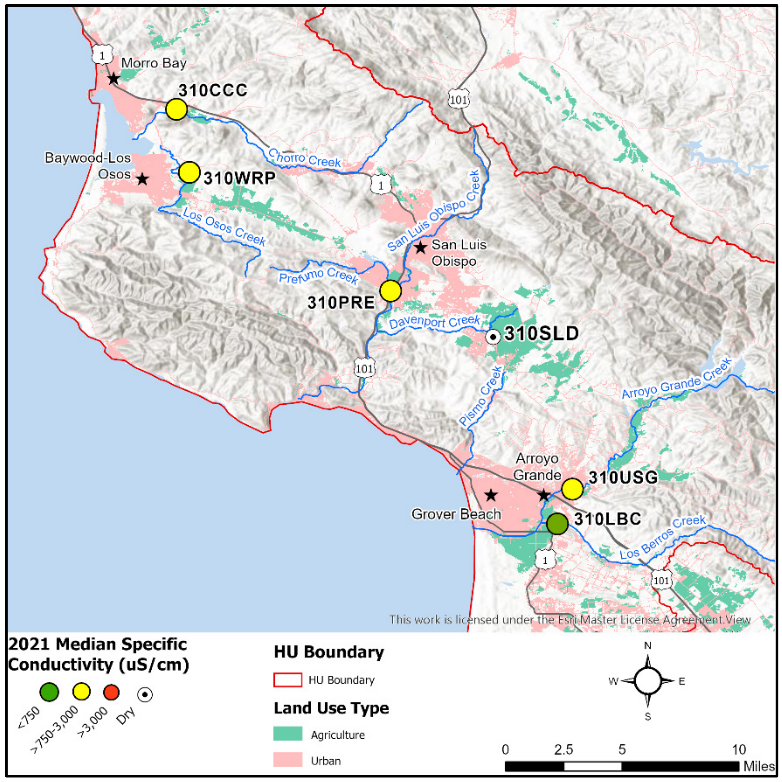


Figure 3-35. 2021 Median Conductivity for Sites in HU 310

Table 3-51. Descriptive Statistics for Conductivity in Hydrologic Unit 310 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[1]
310CCC	8	110	1,001	739	955	**Decreasing**
310LBC	1	104	104	104	104	Increasing
310PRE	12	239	1,059	871	1,026	Increasing
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	538	1,512	1,092	1,161	**Increasing**
310WRP	12	757	1,987	1,666	1,828	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 WQO for salinity applicable to CMP sites in the Estero Bay HU. **Figure 3-36** depicts annual median TDS concentrations for sites in the Estero Bay HU for 2021. **Table 3-52** and **Table 3-53** present descriptive statistics for TDS and salinity, respectively.

- In 2021, the mean concentration for TDS in Chorro Creek (310CCC) exceeded the WQO of 500 mg/L.
- For the period of 2005-2021, three sites with sufficient historical data to conduct a Mann-Kendall trend analysis showed statistically significant increasing trends in TDS concentrations (Prefumo [310PRE], Arroyo Grande [310USG], and Warden [310WRP] Creeks).

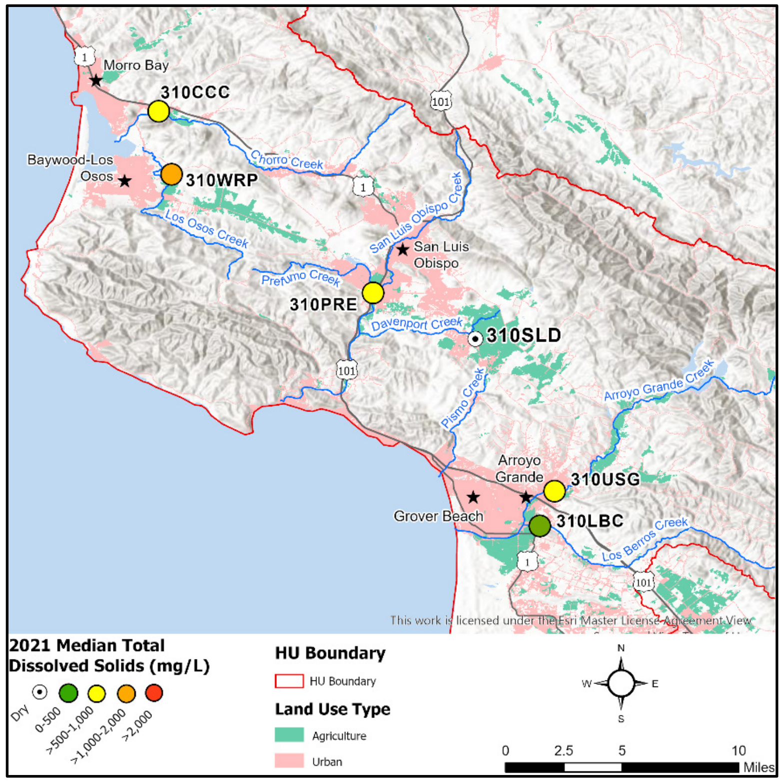


Figure 3-36. 2021 Median Total Dissolved Solids for Sites in HU 310

Table 3-52. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
310CCC	8	99	651	549	621	Yes	Increasing
310LBC	1	68	68	68	68	N/A	Decreasing
310PRE	12	2	689	563	667	N/A	**Increasing**
310SLD	0	NS	NS	NS	NS	N/A	N/A[3]
310USG	12	350	983	724	754	No	**Increasing**
310WRP	12	492	1,291	1,105	1,188	N/A	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 due to dry conditions.

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- One site showed a statistically significant increasing trend in salinity (Arroyo Grande Creek [310USG]) and one site (Chorro Creek [310CCC]) showed a statistically significant decreasing trend in salinity.

Table 3-53. Descriptive Statistics for Salinity in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
310CCC	8	0.08	0.50	0.42	0.48	**Decreasing**
310LBC	1	0.05	0.05	0.05	0.05	Increasing
310PRE	12	0.11	0.53	0.44	0.51	Decreasing
310SLD	0	NS	NS	NS	NS	N/A[3]
310USG	12	0.26	0.77	0.56	0.58	**Increasing**
310WRP	12	0.37	1.02	0.87	0.94	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021, **Table 3-54** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-55** presents descriptive statistics for oxygen saturation.

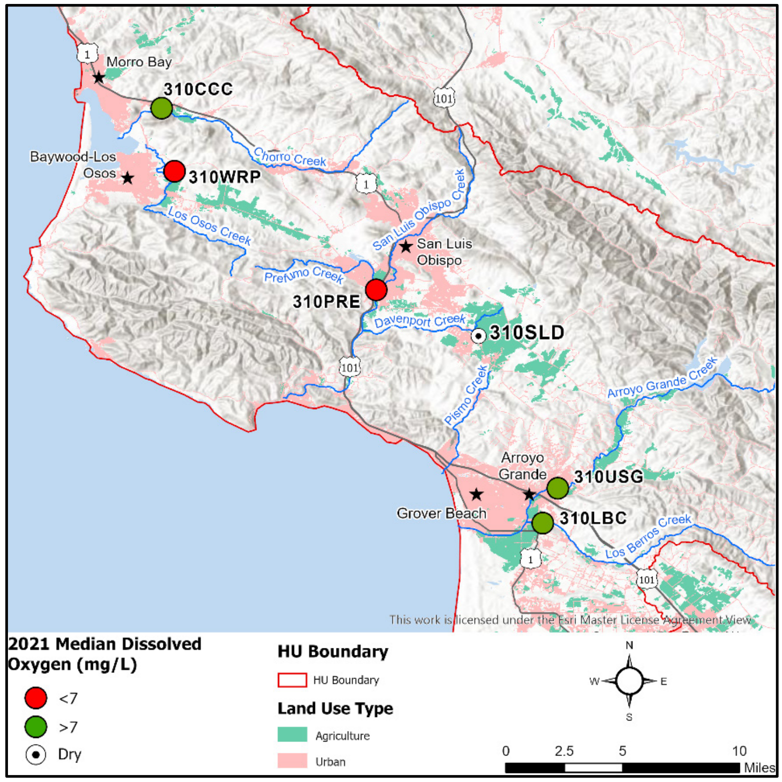


Figure 3-37. 2021 Median Dissolved Oxygen Concentrations for Sites in HU 310

- Chorro Creek (310CCC), Los Berros Creek (310LBC), and Arroyo Grande Creek (310USG) met the 7 mg/L minimum WQO in all 2021 samples.
- Prefumo Creek (310PRE) failed to meet the 7 mg/L minimum WQO in 75% of samples.
- Warden Creek (310WRP) failed to meet the 5 mg/L minimum WQO in 67% of samples.
- For the period of 2005-2021, three sites in the Estero Bay HU (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 3-54. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 310 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
310CCC	8	7.01	9.90	8.65	8.59	0%	**Decreasing**
310LBC	1	11.05	11.05	11.05	11.05	0%	Increasing
310PRE	12	5.23	9.35	6.63	6.21	75%	**Decreasing**
310SLD	0	NS	NS	NS	NS	N/A	N/A[4]
310USG	12	9.83	11.12	10.64	10.71	0%	Increasing
310WRP	12	2.36	7.09	4.31	3.80	67%[3]	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 Water quality objective is >5 mg/L; all other sites have a water quality objective of >7 mg/L.

4 No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.

NS Not sampled due to dry conditions.

- Samples collected from Warden Creek (310WRP) exceeded the 85% saturation Water Quality Objective on a median basis.
- Median dissolved oxygen saturation concentration values ranged from 3.80% mg/L Warden Creek (310WRP) to 11.05% mg/L in Los Berros Creek (310LBC).

Table 3-55. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 310 (%)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
310CCC	8	74	91	82	81	N/A	**Decreasing**
310LBC	1	98	98	98	98	N/A	Increasing
310PRE	12	55	84	66	64	N/A	**Decreasing**
310SLD	0	NS	NS	NS	NS	N/A	N/A[3]
310USG	12	95	110	102	101	N/A	Decreasing
310WRP	12	21	64	40	38	Yes	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021 and **Table 3-56** presents descriptive statistics.

- In 2021, 25% of samples from Arroyo Grande Creek (310USG) exceeded the 7-8.3 standard pH unit WQO. No samples were taken at Davenport Creek (310SLD). There were no exceedances of the WQOs at the other four sites.
- For the period of 2005-2021, 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.

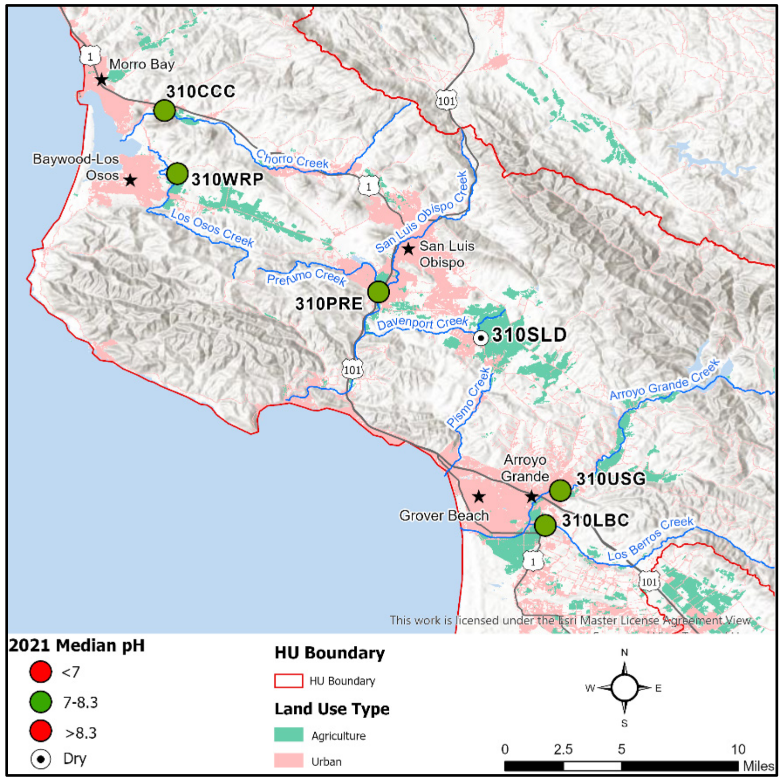


Figure 3-38. 2021 Median pH for Sites in HU 310

Table 3-56. Descriptive Statistics for pH in Hydrologic Unit 310 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
310CCC	8	7.30	8.24	7.79	7.81	0%	**Decreasing**
310LBC	1	7.88	7.88	7.88	7.88	0%	Increasing
310PRE	12	7.11	8.02	7.60	7.62	0%	**Increasing**
310SLD	0	NS	NS	NS	NS	N/A	N/A[3]
310USG	12	7.74	8.42	8.19	8.27	25%	Increasing
310WRP	12	7.00	7.87	7.52	7.56	0%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 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 2021 are illustrated in **Figure 3-39** and tabulated in **Table 3-57**.

- In 2021, 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 five sites sampled in the Estero Bay HU, all achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-29 a**).
- Significant mortality to *C. dilutus* in water was observed in two of four bioassays on samples collected from Arroyo Grande Creek (310USG) and one of four bioassays on samples collected from Warden Creek (310WRP). Significant mortality to *C. dubia* in water was observed in one of four bioassays on samples collected from Arroyo Grande Creek (310USG) (**Figure 3-39 b, d**). Of the five sites sampled, all but two sites (Arroyo Grande Creek [310USG] and Warden Creek [310WRP]) achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-39 b**). Of the five sites sampled, all but one site (Arroyo Grande Creek [310USG]) 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 observed in one of four bioassays for Arroyo Grande Creek (310USG) (**Figure 3-39 c**). Of the five sites sampled, all but one site (Arroyo Grande Creek [310USG]) achieved the significant toxic effect non-TMDL area limit for reproduction or growth in water (**Figure 3-39 c**).
- In 2021, significant toxicity to invertebrate growth in sediment was observed in one of two bioassays on samples collected from both Prefumo Creek (310PRE) and Arroyo Grande Creek (310USG). No significant toxicity to invertebrate survival in sediment was observed in the Estero Bay HU (**Figure 3-39 e, f**). Of the four sites sampled, two sites (Chorro Creek [310CCC] Warden Creek [310WRP]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-39 e**). All four sites sampled achieved the significant toxic effect non-TMDL area limit for survival in sediment (**Figure 3-39 f**).
- For the period of 2005-2021, there were no statistically significant trends in toxicity (**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 3-57**.

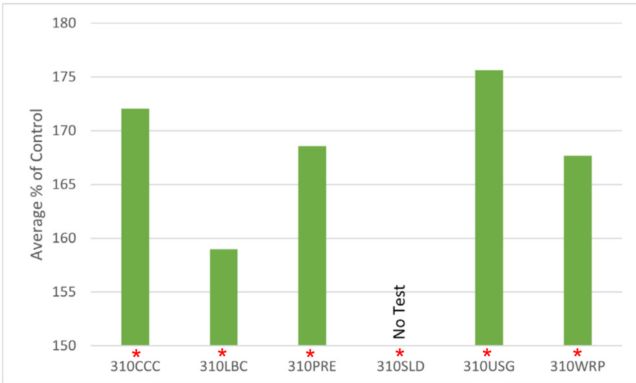
Table 3-57. Summary of Toxicity and Trends (Water) in Hydrologic Unit 310

Site ID[1]	Algal Growth		*C. dilutus*– Survival		*C. dubia* – Reproduction		*C. dubia* – Survival	
	# 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	0/3	Decreasing	0/3	Increasing
310LBC	0/1	Increasing	0/1	Decreasing	0/1	Increasing	0/1	Increasing
310PRE	0/4	Decreasing	0/4	Increasing	0/4	Increasing	0/4	Increasing
310SLD	0/0	None[2]	0/0	None[2]	0/0	None[2]	0/0	None[2]
310USG	0/4	Decreasing	2/4	Decreasing	1/4	Decreasing	1/4	Increasing
310WRP	0/4	Decreasing	1/4	Increasing	0/4	Increasing	0/4	Increasing

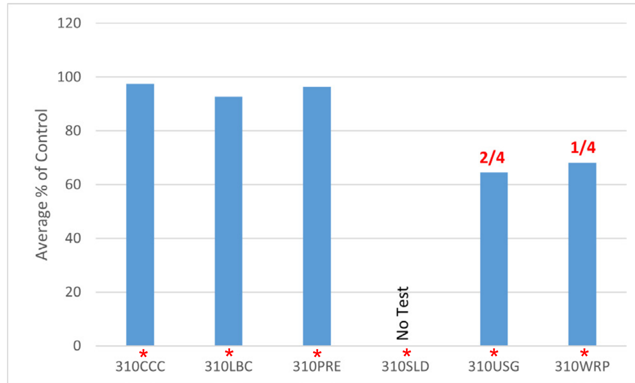
Notes:

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

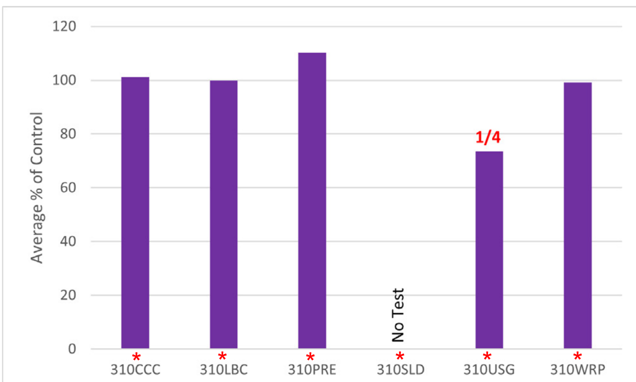
2 None = No Mann-Kendall trend analysis exists for this site due to the limited historical data associated with it.



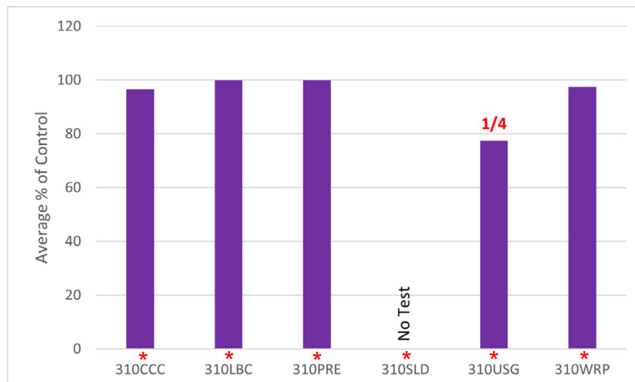
a) Algal Toxicity in Water – Growth



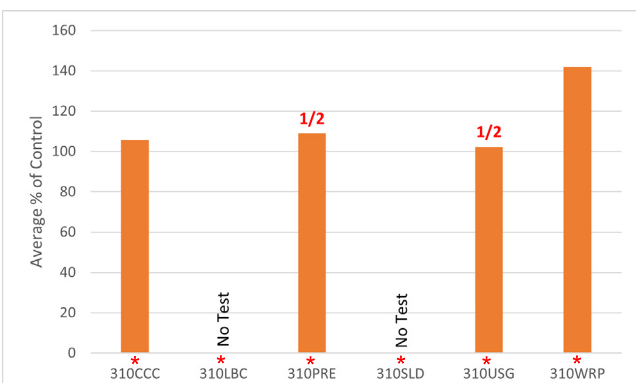
b) *C. dilutus* Toxicity in Water – Survival



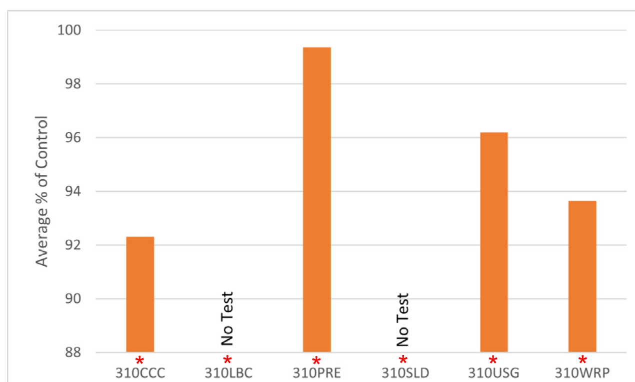
c) *C. dubia* Toxicity in Water – Reproduction



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 2021 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.

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 of 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.

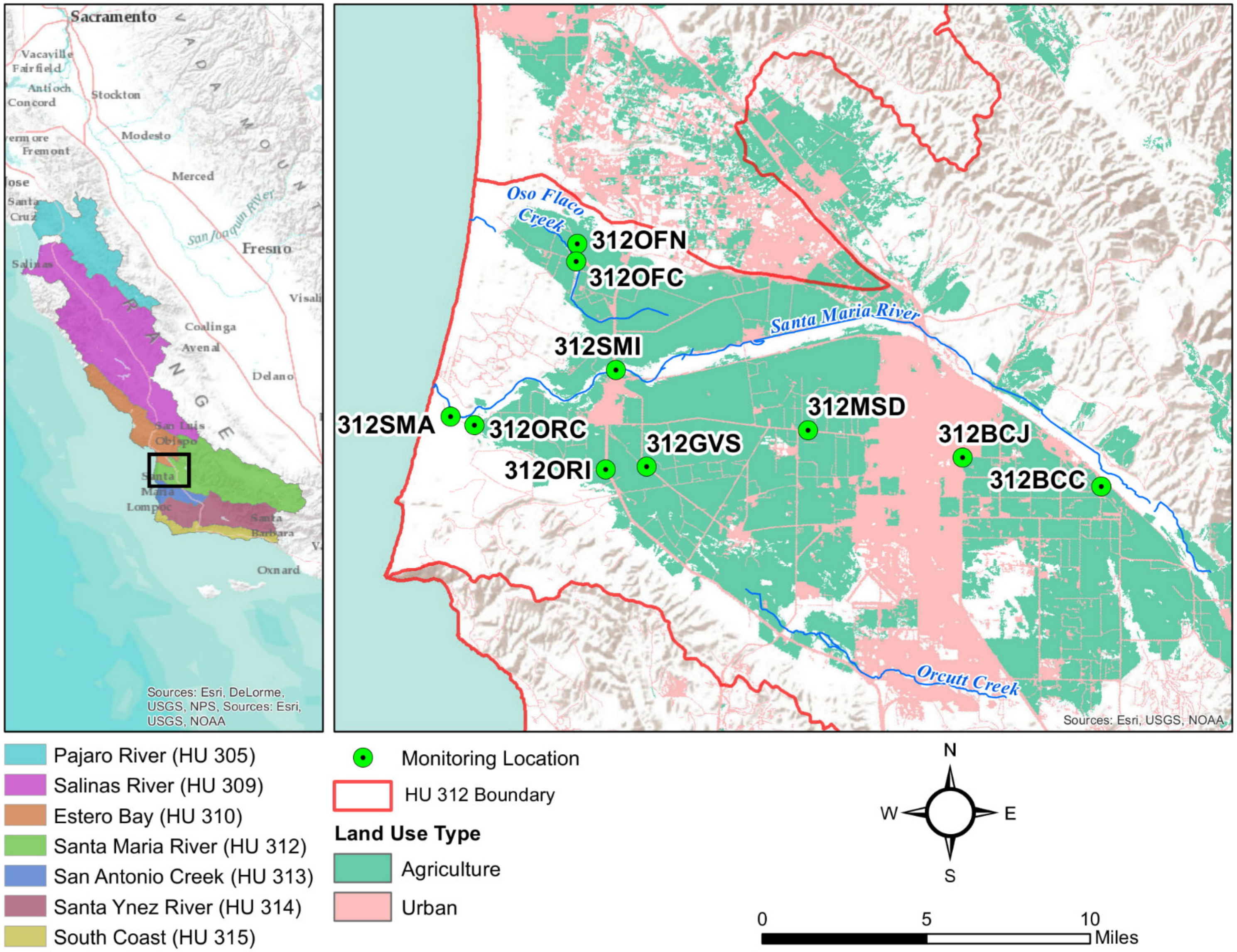


Figure 3-40. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Santa Maria Hydrologic Unit

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 2021 monitoring year, the annual average flow (0.09 CFS) at the *Sisquoc River near Garey* USGS gaging station was considerably lower than the historic annual average (49.1 CFS, 1942-2020) and ranged from 0 CFS for most of the year to 19.5 CFS (December 25, 2021) (USGS 2022). The 2021 cumulative annual rainfall (9.55") at the *Nipomo* rain gauge was lower than the historic average (11.47", 2006-2020) (**Figure 3-41**) (CDWR 2022).

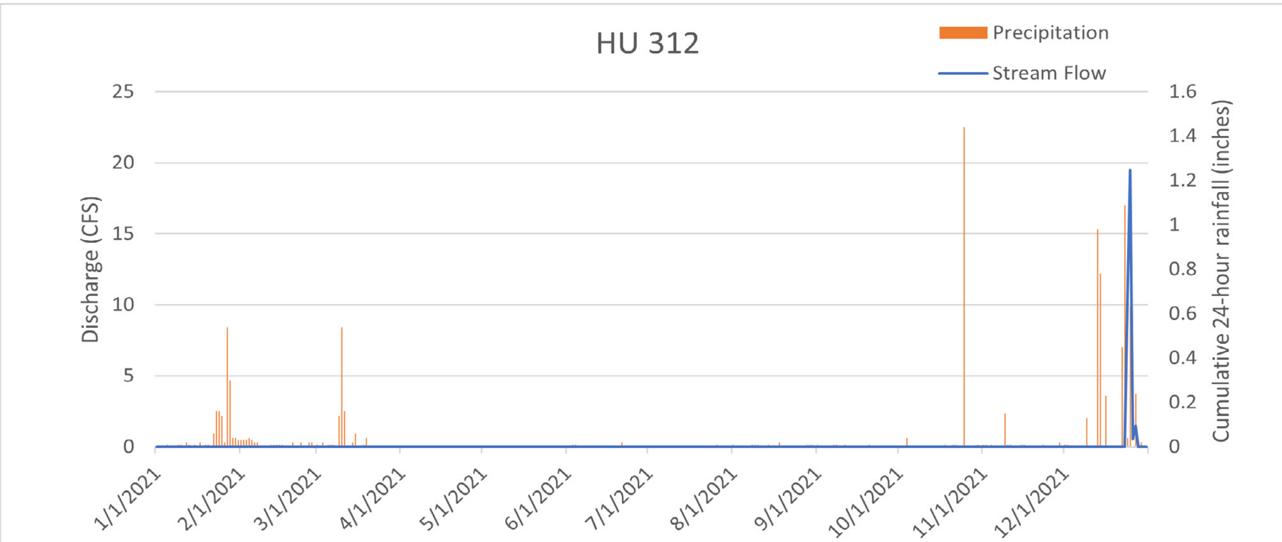


Figure 3-41. 2021 Hydrograph and Total Daily Precipitation Record for Sisquoc River near Garey

In 2021, 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 3-42** depicts annual median flows for sites within the Santa Maria HU during 2021 and **Table 3-58** presents descriptive statistics.

- Measured flows in 2021 ranged from no flow at four sites (Bradley Canyon Creek [312BCC], Green Valley Creek [312GVS], Orcutt Solomon at Highway 1 [312ORI], Santa Maria River at Highway 1 [312SMI]) to 203.52 CFS at Orcutt Solomon Creek near Sand Plant (312ORC).
- Median flows during 2021 ranged from no flow (three sites) to 0.53 CFS (Oso Flaco Creek [312OFC]).
- For the period of 2005-2021, all 10 sites showed statistically significant decreasing trends in flow.

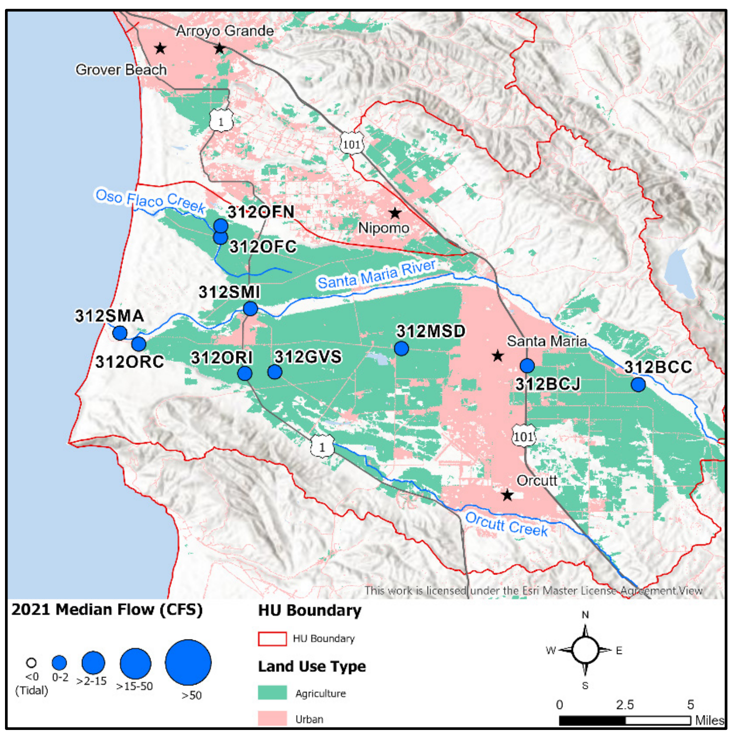


Figure 3-42. 2021 Median Flows for Sites in HU 312

Table 3-58. Descriptive Statistics for Flow in Hydrologic Unit 312 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	12	0.00	16.46	2.19	0.00	**Decreasing**
312BCJ	12	0.04	59.07	5.17	0.16	**Decreasing**
312GVS	12	0.00	21.49	1.79	0.00	**Decreasing**
312MSD	12	0.01	108.00	9.42	0.15	**Decreasing**
312OFC	12	0.01	48.00	4.79	0.53	**Decreasing**
312OFN	12	0.14	5.63	0.76	0.32	**Decreasing**
312ORC	12	0.01	203.52	17.32	0.44	**Decreasing**
312ORI	12	0.00	65.61	7.78	0.22	**Decreasing**
312SMA	12	0.05	109.08	9.65	0.40	**Decreasing**
312SMI	12	0.00	3.53	0.45	0.00	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

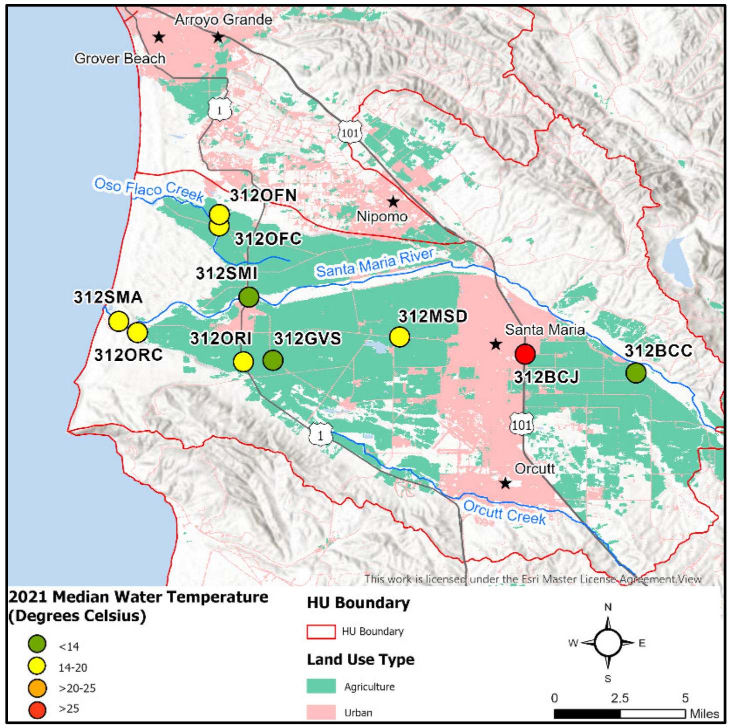


Figure 3-43. 2021 Median Water Temperature for Sites in HU 312

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 2021, water temperatures peaked at most sites in the Santa Maria HU during the month of June and minimum temperatures at most sites were recorded during the months of January and December. **Figure 3-43** depicts annual median temperatures for sites in the Santa Maria HU for 2021, and **Table 3-59** presents descriptive statistics.

- Median water temperatures in the Santa Maria HU ranged from 9.5 to 27.9 °C in 2021.
- The lowest water temperature (5.8 °C) and highest water temperature (34.9 °C) were both observed at Bradley Channel (312BCJ).
- For the period of 2005-2021, six sites showed statistically significant increasing trends in water temperature.

Table 3-59. Descriptive Statistics for Water Temperature in Hydrologic Unit 312 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	8.1	10.8	9.5	9.5	Increasing
312BCJ	12	5.8	34.9	25.3	27.9	**Increasing**
312GVS	1	12.7	12.7	12.7	12.7	Increasing
312MSD	12	9.9	26.1	18.1	19.1	**Increasing**
312OFC	12	9.6	26.3	18.7	19.8	**Increasing**
312OFN	12	9.6	21.8	16.6	16.9	Increasing
312ORC	12	9.5	29.3	18.8	18.4	**Increasing**
312ORI	11	9.3	30.0	20.0	19.7	**Increasing**
312SMA	12	10.9	30.2	19.9	19.2	**Increasing**
312SMI	2	9.7	11.6	10.7	10.7	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.5.3 Turbidity and TSS Results

All sites within the Salinas HU have a non-TMDL turbidity limit. One site in the Santa Maria HU (Oso Flaco Creek [312OFC]) has a warm water beneficial use, so 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 2021. **Table 3-60** and **Appendix B** presents descriptive statistics and turbidity limit exceedances.

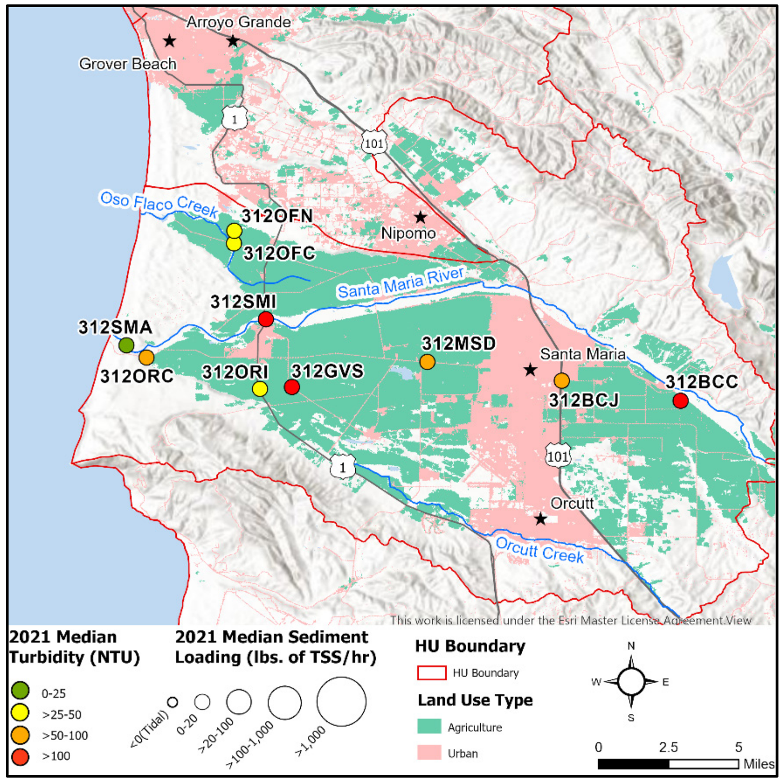


Figure 3-44. 2021 Median Turbidity and TSS Loading for Sites in HU 312

- Median turbidities ranged from 24 NTU (Santa Maria River at Estuary [312SMA]) to 1,000 NTU (Green Valley Creek [312GVS] and Santa Maria River at Highway 1 [312SMI]) in 2021. The three 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 exceeded the turbidity limit in at least 50% of samples, including all samples collected from Bradley Canyon Creek (312BCC), Green Valley Creek (312GVS), and Main Street Canal (312MSD).
- Although Santa Maria River at Highway 1 (312SMI) had relatively high turbidity and TSS results, TSS loading was low due to dry conditions for most of the monitoring year (**Appendix B**).
- For the period of 2005-2021, four sites showed statistically significant decreasing trends in turbidity concentrations (Bradley Channel [312BCJ], Oso Flaco Creek [312OFC], Orcutt Solomon Creek [312ORC], Santa Maria River at Estuary [312SMA].
- For the period of 2012-2021, 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 3-60. 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	2	734	1,000	867	867	100%[4]	Decreasing	**Increasing**
312BCJ	12	3	2,000	287	50	75%[4]	**Decreasing**	**Increasing**
312GVS	1	1,000	1,000	1,000	1,000	100%[4]	Increasing	**Decreasing**
312MSD	12	26	440	169	100	100%[4]	Increasing	Increasing
312OFC	12	20	1,000	154	41	50%[5]	**Decreasing**	**Increasing**
312OFN	12	10	1,000	130	25	50%[4]	Decreasing	**Increasing**
312ORC	12	15	713	143	54	83%[4]	**Decreasing**	**Decreasing**
312ORI	11	7	1,000	172	31	55%[4]	Increasing	Increasing
312SMA	12	8	820	99	24	50%[4]	**Decreasing**	**Decreasing**
312SMI	2	1,000	1,000	1,000	1,000	100%[4]	Increasing	**Increasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2005-2021 and TSS was monitored from 2012-2021.
4 The relevant numeric criterion is 25.0 NTU [COLD].
5 The relevant numeric criterion is 40.0 NTU [WARM].

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 2021, **Table 3-61** presents descriptive statistics, and **Table 3-62** and **Appendix B** presents 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 3-63**.

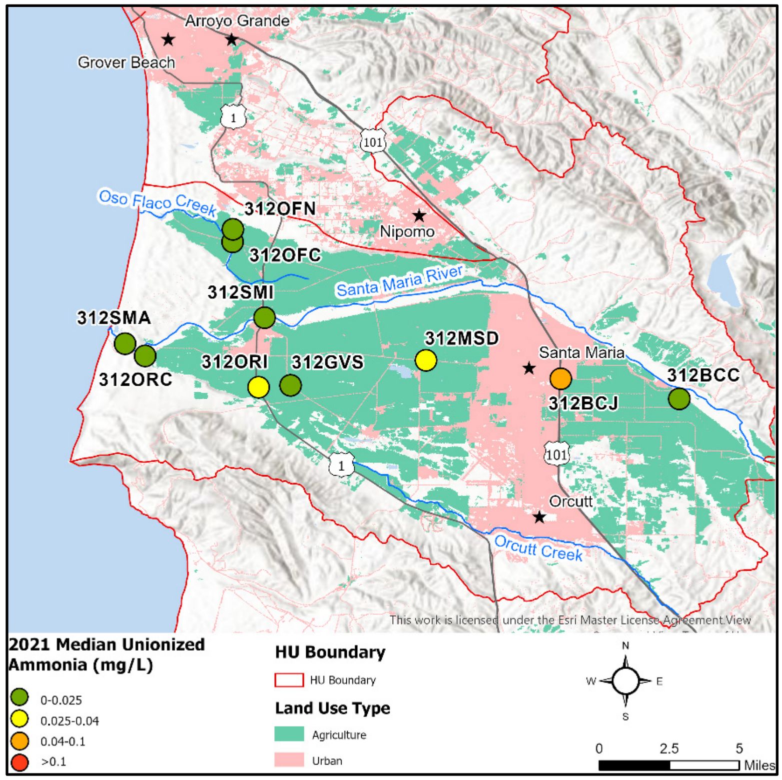


Figure 3-45. 2021 Median Unionized Ammonia for Sites in HU 312

- In 2021, median concentrations of unionized ammonia ranged from 0.0029 mg/L (Little Oso Flaco [312OFN]) to 0.0725 mg/L (Bradley Channel [312BCJ]).
- For the period of 2005-2021, two sites showed statistically significant increasing trends in unionized ammonia concentrations (Oso Flaco Creek [312OFC] and Orcutt Solomon at Highway 1 [312ORI]). There were no statistically significant trends in total ammonia at any sites in the Santa Maria HU.

Table 3-61. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	0.0061	0.0307	0.0184	0.0184	Increasing
312BCJ	12	0.0017	1.2113	0.2345	0.0725	Increasing
312GVS	1	0.0065	0.0065	0.0065	0.0065	Decreasing
312MSD	12	0.0013	2.6539	0.2878	0.0351	Increasing
312OFC	12	0.0019	0.1763	0.0421	0.0124	**Increasing**
312OFN	12	0.0005	0.2715	0.0619	0.0029	Increasing
312ORC	12	0.0010	0.0290	0.0068	0.0033	Increasing
312ORI	11	0.0011	0.4371	0.0911	0.0264	**Increasing**
312SMA	12	0.0007	0.0188	0.0077	0.0058	Increasing
312SMI	2	0.0026	0.0048	0.0037	0.0037	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

- Seven of the eight sites with an unionized ammonia TMDL limit of 0.025 mg/L exceeded the objective. Exceedances at these sites ranged from 8% to 83% of samples with the fewest occurrences in Orcutt Solomon Creek (312ORC) and the most in Bradley Channel (312BCJ).
- No TMDL limit exceedances were measured in Green Valley at Simis (312GVS), Santa Maria River at Highway 1 (312SMA), or Santa Maria River at Highway 1 (312SMI) during 2021.

Table 3-62. 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	50%	N/A
312BCJ	83%	N/A
312GVS	0%	N/A
312MSD	58%	N/A
312OFC	42%	N/A
312OFN	25%	N/A
312ORC	8%	N/A
312ORI	55%	N/A
312SMA	0%	N/A
312SMI	0%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- The spatial distribution and relative magnitudes of total ammonia concentrations were similar to unionized ammonia concentrations.
- For the period of 2005-2021, there were no statistically significant trends in total ammonia at any sites in the Santa Maria HU.

Table 3-63. Descriptive Statistics for Total Ammonia in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	0.4690	0.6800	0.5745	0.5745	Increasing
312BCJ	12	0.0663	2.6800	0.6459	0.2120	Increasing
312GVS	1	0.1900	0.1900	0.1900	0.1900	Decreasing
312MSD	12	0.1880	15.5000	2.6032	0.6835	Decreasing
312OFC	12	0.0401	2.8000	0.6872	0.2975	Increasing
312OFN	12	0.0230	4.2400	0.7580	0.1040	Increasing
312ORC	12	0.0268	0.8680	0.2042	0.1315	Decreasing
312ORI	11	0.1060	5.0800	1.1241	0.5290	Increasing
312SMA	12	0.0477	0.6630	0.2634	0.2350	Increasing
312SMI	2	0.2290	0.5710	0.4000	0.4000	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.5.5 Nitrate and Total Nitrogen

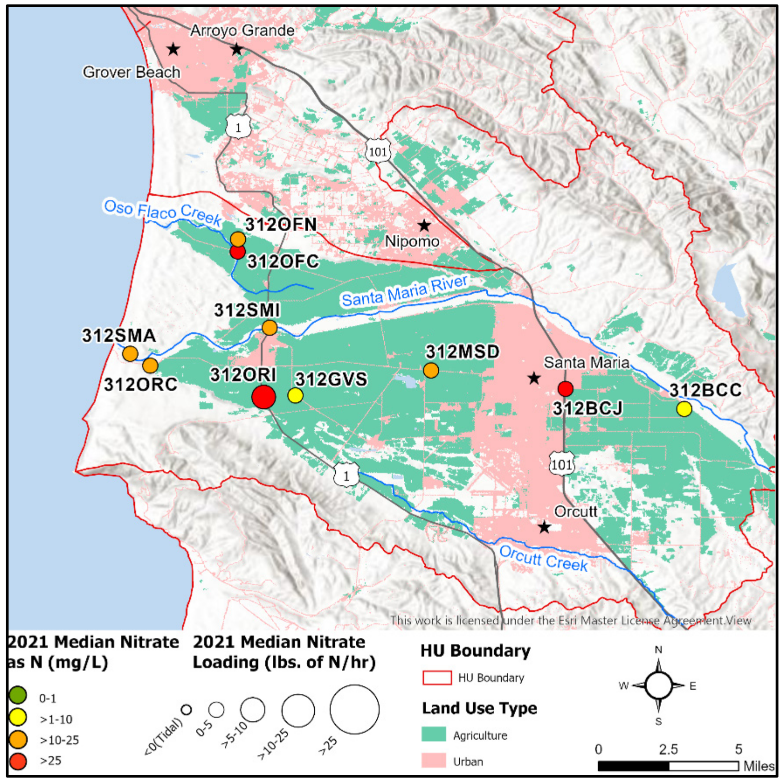


Figure 3-46. 2021 Median Nitrate as N for Sites in HU 312

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 2021, **Table 3-64** presents descriptive statistics, and **Table 3-65** and **Appendix B** presents 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 3-66**.

- Median nitrate concentrations for 2021 ranged from 5.4 mg/L (Green Valley at Simas [312GVS]) to 69.3 mg/L (Orcutt Solomon Creek at Highway 1 [312ORI]).
- Elevated nitrate loading at Orcutt Solomon at Highway 1 (312ORI) is a result of elevated flows in January and December (**Appendix B**).
- For the period of 2005-2021, one site showed a statistically significant increasing trend in nitrate concentrations (Orcutt Solomon Creek at Highway 1 [312ORI]). Four sites showed statistically significant decreasing trends in nitrate concentrations (Oso Flaco [312OFC], Little Oso Flaco [312OFN], Orcutt Solomon Creek upstream of Santa Maria River [312ORC], and the Santa Maria River Estuary [312SMA]).
- For the period of 2005-2021, all 10 sites showed statistically significant decreasing trends in nitrate loading.

Table 3-64. 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	2	6.1	12.7	9.4	9.4	50%	Decreasing	**Decreasing**
312BCJ	12	4.5	50.1	29.3	31.6	N/A	Increasing	**Decreasing**
312GVS	1	5.4	5.4	5.4	5.4	0%	Decreasing	**Decreasing**
312MSD	12	1.5	41.5	21.7	21.7	N/A	Decreasing	**Decreasing**
312OFC	12	5.7	67.9	26.1	26.4	N/A	**Decreasing**	**Decreasing**
312OFN	12	3.8	30.7	18.0	18.5	N/A	**Decreasing**	**Decreasing**
312ORC	12	0.5	48.2	21.7	19.0	92%	**Decreasing**	**Decreasing**
312ORI	11	19.1	105.0	60.6	69.3	100%	**Increasing**	**Decreasing**
312SMA	12	0.0	37.1	13.6	13.2	50%	**Decreasing**	**Decreasing**
312SMI	2	4.1	22.0	13.1	13.1	50%	Decreasing	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 applicable Santa Maria River Watershed Nutrients TMDL criterion for nitrate.

- One site (Green Valley at Simas [312GVS]) without an annual TMDL limit for nitrate did not exceed the 10 mg/L Basin Plan WQO in 2021. WQO exceedances occurred in 50% or more samples collected from the other five without an annual TMDL limit (Bradley Creek Canyon [312BCC], Orcutt Solomon Creek upstream of Santa Maria River [312ORC], Orcutt Solomon at Highway 1 [312ORI], Santa Maria River at Estuary [312SMA], and Santa Maria River at Highway 1 [312SMI]).
- All four sites with an annual TMDL limit for nitrate exceeded the limit in 80% or more samples.
- All three sites with a dry season TMDL limit exceeded the limit of 4.3 mg/L in 60% or more samples (Orcutt Solomon Creek upstream of Santa Maria River [312ORC], Orcutt Solomon at Highway 1 [312ORI], and Santa Maria River at Estuary [312SMA]. Five of the six sites with a wet season TMDL limit exceeded the limits in 50% or more samples (Bradley Canyon Creek [312BCC], Orcutt Solomon Creek upstream of Santa Maria River [312ORC], Orcutt Solomon at Highway 1 [312ORI], Santa Maria River at Estuary [312SMA], and Santa Maria River at Highway 1 [312SMI]).

Table 3-65. 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	50%	N/A
312BCJ	92%[2]	N/A	N/A	N/A
312GVS	N/A	NS	0%	N/A
312MSD	83%[2]	N/A	N/A	N/A
312OFC	92%[3]	N/A	N/A	N/A
312OFN	83%[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]	71%	N/A
312SMI	N/A	NS	50%	N/A

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, for detailed site descriptions.
2 The TMDL numeric criterion is 10.0 mg/L.
3 The TMDL numeric criterion is 5.7 mg/L
4 The relevant wet season numeric criterion is 8.0 mg/L.
5 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 Not sampled due to dry conditions.

- Median total nitrogen concentrations ranged from 11.8 mg/L at Green Valley Creek (312GVS) to 715.1 at Orcutt Solomon Creek at Highway 1 (312ORI).
- For the period of 2005-2021, two sites showed statistically significant increasing trends in total nitrogen (Main Street Canal [312MSD] and Orcutt Solomon Creek at Highway 1 [312ORI]). Two sites showed statistically significant decreasing trends in total nitrogen (Oso Flaco Creek [312OFC] and Santa Maria River at Estuary [312SMA]).

Table 3-66. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	15.5	16.4	16.0	16.0	Increasing
312BCJ	12	11.7	50.1	31.6	33.3	Increasing
312GVS	1	11.8	11.8	11.8	11.8	Decreasing
312MSD	12	3.3	51.9	26.0	24.8	**Increasing**
312OFC	12	6.7	73.3	28.3	28.7	**Decreasing**
312OFN	12	5.9	44.3	21.9	22.0	Decreasing
312ORC	12	2.7	49.2	23.5	20.1	Increasing
312ORI	11	22.1	107.4	63.7	71.1	**Increasing**
312SMA	12	1.3	38.5	15.8	14.7	**Decreasing**
312SMI	2	9.0	28.1	18.6	18.6	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.5.6 Orthophosphate and Total Phosphorus

All but two sites (Main Street Canal [312MSD] and Bradley Channel at Jones Street [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 2021. **Table 3-67** presents descriptive statistics for orthophosphate, **Table 3-68** and **Appendix B** presents TMDL and non-TMDL area limit exceedances for orthophosphate, and **Table 3-69** presents descriptive statistics for total phosphorus.

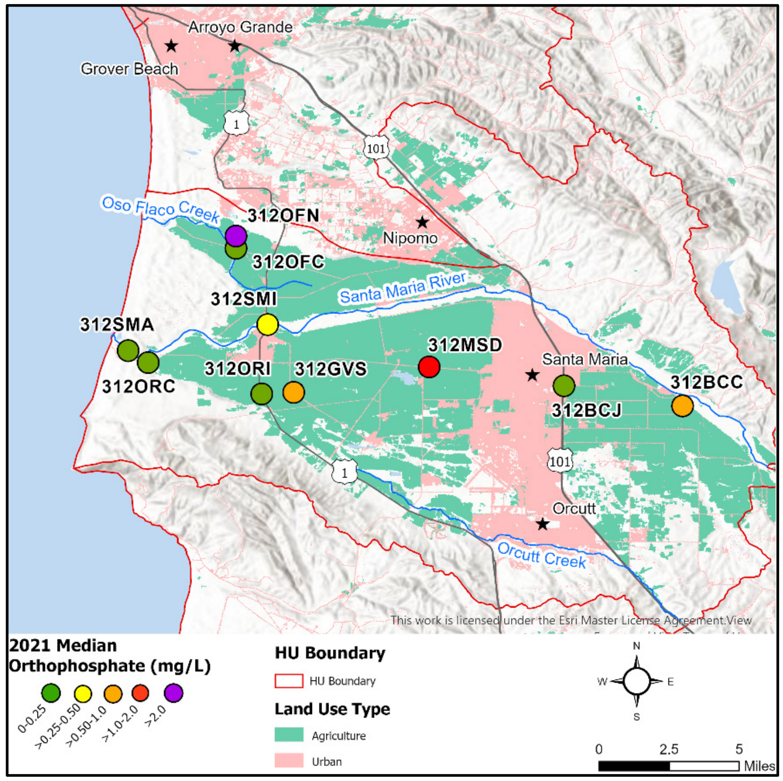


Figure 3-47. 2021 Median Orthophosphate as P for Sites in HU 312

- In 2021, median orthophosphate concentrations ranged from 0.057 to 0.802 mg/L at most Santa Maria HU sites. Two exceptions were Main Street Canal (312MSD) and Little Oso Flaco Creek (312OFN), which had median concentrations of 1.855 and 3.025 mg/L, respectively. These two sites also had the highest maximum orthophosphate concentrations of all sites in the HU (45.4 mg/L in 312MSD and 5.14 mg/L in 312OFN).
- For the period of 2005-2021, two sites showed statistically significant increasing trends in orthophosphate concentrations (Green Valley at Simis [312GVS] and Little Oso Flaco [312OFN]). Two sites showed statistically significant decreasing trends in orthophosphate concentrations (Bradley Channel [312BCJ] and Oso Flaco Creek [312OFC]).

Table 3-67. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	0.677	0.926	0.802	0.802	Decreasing
312BCJ	12	0.009	1.170	0.200	0.090	**Decreasing**
312GVS	1	0.607	0.607	0.607	0.607	**Increasing**
312MSD	12	0.196	45.400	9.462	1.855	Increasing
312OFC	12	0.004	0.601	0.152	0.057	**Decreasing**
312OFN	12	0.479	5.140	2.730	3.025	**Increasing**
312ORC	12	0.077	0.836	0.291	0.229	Increasing
312ORI	11	0.066	0.848	0.339	0.243	Increasing
312SMA	12	0.055	0.701	0.214	0.152	Decreasing
312SMI	2	0.432	0.527	0.480	0.480	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 two sites with an annual TMDL limit of 0.08 mg/L for orthophosphate (Oso Flaco Creek [312OFC] and Little Oso Flaco [312OFN]), exceeded the limit in 33% of samples and 100% of samples, respectively.
- Three of the six sites with a dry season TMDL limit of 0.19 mg/L exceeded the limit in 40% of samples (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.
- All six sites with a wet season TMDL limit of 0.3 mg/L exceeded the limit in in at least 29% of samples. Three sites exceeded the criterion in 100% of samples (Bradley Canyon Creek [312BCC], Green Valley Creek [312GVS], and Santa Maria River at Highway 1 [312SMI]).

Table 3-68. 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	100%	N/A
312BCJ	N/A	N/A	N/A	N/A
312GVS	N/A	NS	100%	N/A
312MSD	N/A	N/A	N/A	N/A
312OFC	33%	N/A	N/A	N/A
312OFN	100%	N/A	N/A	N/A
312ORC	N/A	40%	43%	N/A
312ORI	N/A	40%	50%	N/A
312SMA	N/A	40%	29%	N/A
312SMI	N/A	NS	100%	N/A

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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.
NS Not sampled due to dry conditions.
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.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations. Main Street Canal (312MSD) had significantly higher concentrations than all other sites for total phosphorus (48.6 mg/L) and orthophosphate (45.4 mg/L), both measurements occurred in May.
- Median total phosphorus concentrations ranged from 0.405 mg/L at Santa Maria River at Estuary (312SMA) to 4.485 mg/L at Santa Maria River at Highway 1 (312SMI).
- The maximum total phosphorus concentration at any Santa Maria HU site in 2021 was observed at Main Street Canal (312MSD) (48.6 mg/L).
- From the period of 2005-2021, 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 Creek at Highway 1 [312ORI]). No sites showed a statistically significant decreasing trend in total phosphorus.

Table 3-69. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	2.520	3.850	3.185	3.185	Increasing
312BCJ	11	0.249	5.050	0.991	0.423	Increasing
312GVS	1	4.480	4.480	4.480	4.480	Increasing
312MSD	12	0.346	48.600	11.324	4.020	**Increasing**
312OFC	12	0.094	5.930	1.014	0.609	**Increasing**
312OFN	12	0.648	18.000	4.704	4.215	**Increasing**
312ORC	11	0.184	2.990	0.642	0.416	Decreasing
312ORI	11	0.315	2.460	0.781	0.598	**Increasing**
312SMA	11	0.151	1.690	0.513	0.405	Decreasing
312SMI	2	4.430	4.540	4.485	4.485	N/A[3]

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

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 2021 and **Table 3-70** presents descriptive statistics.

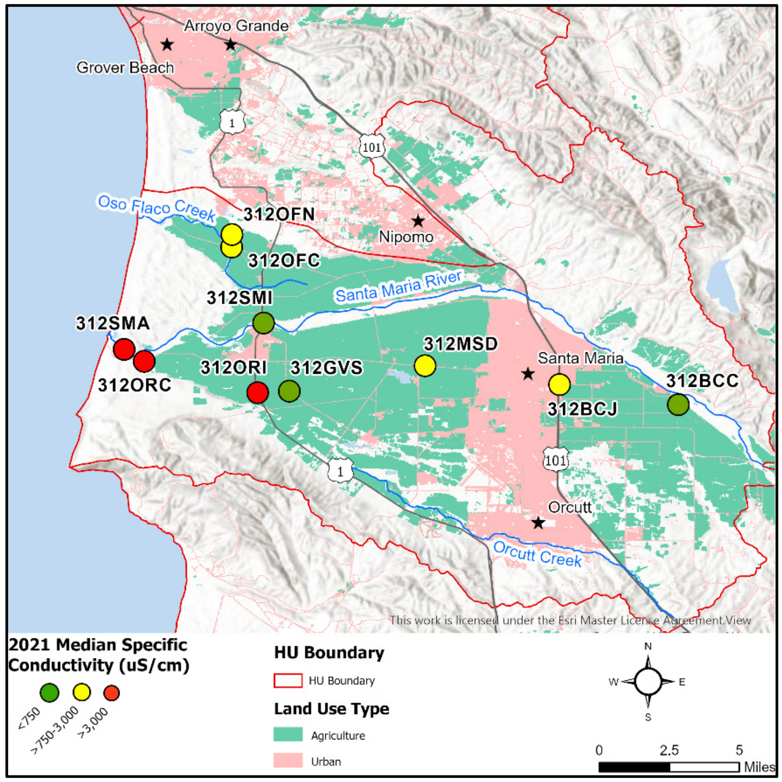


Figure 3-48. 2021 Median Conductivity for Sites in HU 312

- Median conductivities were above the low-end of the listed ranges (750 µS/cm) at all sites sampled except for Bradley Creek Canyon (312BCC), Green Valley Creek (312GVS), and Santa Maria River at Highway 1 (312SMI).
- Three sites had conductivity measurements exceed 4,000 µS/cm: Orcutt Solomon Creek Upstream of Santa Maria River (312ORC), Orcutt Solomon Creek at Highway 1 (312ORI), and Santa Maria River at Estuary (312SMA).
- For the period of 2005-2021, four sites showed statistically significant increasing trends in conductivity (Bradley Channel [312BCJ], both Orcutt Solomon Creek sites [312ORC and 312 ORI], and the Santa Maria River Estuary [312SMA]). One site showed a statistically significant decreasing trend in conductivity concentrations (Little Oso Flaco Creek [312OFN]).

Table 3-70. Descriptive Statistics for Conductivity in Hydrologic Unit 312 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	614	781	698	698	Increasing
312BCJ	12	381	2,157	1,686	1,824	**Increasing**
312GVS	1	327	327	327	327	Increasing
312MSD	12	196	2,976	1,498	1,466	Increasing
312OFC	12	404	3,099	1,743	1,786	Increasing
312OFN	12	401	2,064	1,495	1,805	**Decreasing**
312ORC	12	1,452	4,632	3,300	3,334	**Increasing**
312ORI	11	786	4,164	3,002	3,274	**Increasing**
312SMA	12	1,461	4,049	3,207	3,494	**Increasing**
312SMI	2	290	725	507	507	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.5.8 Total Dissolved Solids and Salinity

There are currently no TDS or salinity objectives in the Basin Plan for sites in the Santa Maria HU. 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 2021. **Table 3-71** and **Table 3-72** present descriptive statistics for TDS and salinity, respectively.

- Median TDS concentrations for 2021 ranged from 212 mg/L (n=1) in Green Valley Creek (312GVS) to 2,271 mg/L in Santa Maria River at Estuary (312SMA).
- The highest TDS concentration was measured in Orcutt Solomon Creek Upstream of Santa Maria River (312ORC) (3,010 mg/L).
- For the period of 2005-2021, four sites showed statistically significant decreasing trends in TDS concentrations (Bradley Channel at Jones St. [312BCJ], Green Valley Creek [312GVS], Oso Flaco Creek [312OFC], and Little Oso Flaco Creek [312OFN]).

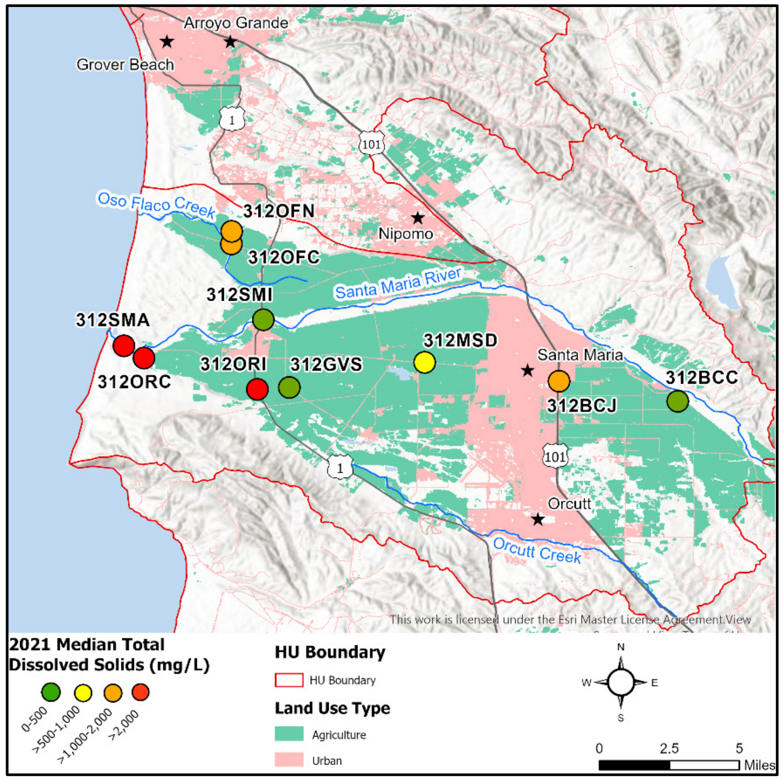


Figure 3-49. 2021 Median Total Dissolved Solids for Sites in HU 312

Table 3-71. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
312BCC	2	399	508	454	454	N/A	Increasing
312BCJ	12	248	1,395	1,097	1,186	N/A	**Decreasing**
312GVS	1	212	212	212	212	N/A	**Decreasing**
312MSD	12	128	1,933	888	928	N/A	Decreasing
312OFC	12	263	2,014	1,143	1,222	N/A	**Decreasing**
312OFN	12	260	1,342	1,018	1,173	N/A	**Decreasing**
312ORC	12	944	3,010	2,151	2,201	N/A	Decreasing
312ORI	11	511	2,707	1,958	2,129	N/A	Decreasing
312SMA	12	950	2,632	2,090	2,271	N/A	Decreasing
312SMI	2	188	471	330	330	N/A	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, for detailed site descriptions.

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

- The spatial distribution and relative magnitudes of salinity were similar to TDS concentrations.
- Three sites showed statistically significant increasing trends in salinity (both Orcutt Solomon Creek sites [312ORC and 312ORI] and Santa Maria River at Estuary [312SMA]). One site showed a statistically significant decreasing trend in salinity (Little Oso Flaco [312OFN]).

Table 3-72. Descriptive Statistics for Salinity in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
312BCC	2	0.30	0.39	0.35	0.35	Increasing
312BCJ	12	0.18	1.09	0.85	0.92	Increasing
312GVS	1	0.16	0.16	0.16	0.16	Decreasing
312MSD	12	0.09	1.55	0.77	0.74	Increasing
312OFC	12	0.20	1.63	0.90	0.96	Decreasing
312OFN	12	0.19	1.07	0.80	0.92	**Decreasing**
312ORC	12	0.73	2.48	1.74	1.78	**Increasing**
312ORI	11	0.39	2.22	1.58	1.71	**Increasing**
312SMA	12	0.74	2.16	1.69	1.84	**Increasing**
312SMI	2	0.14	0.36	0.25	0.25	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.5.9 Dissolved Oxygen

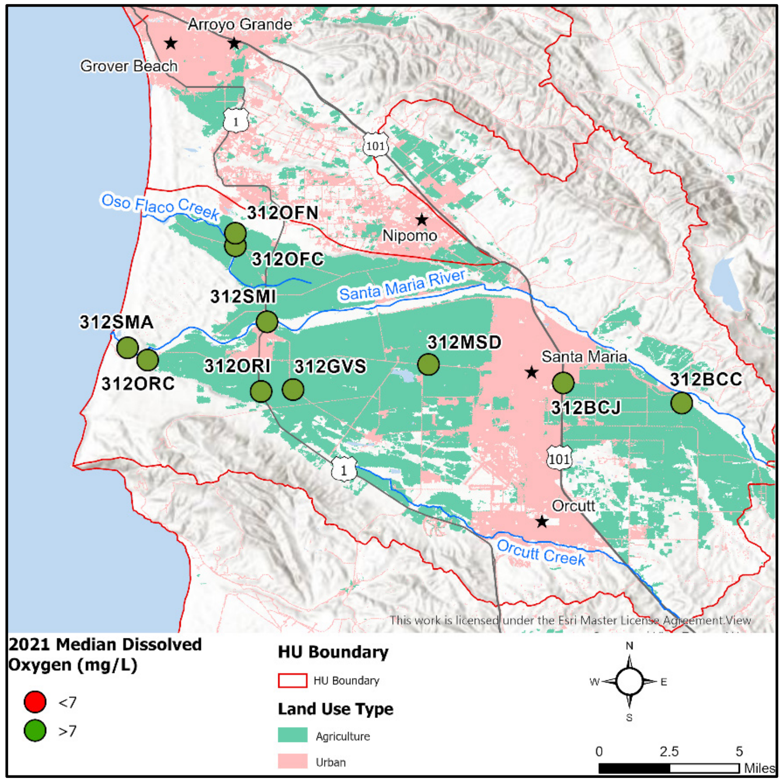


Figure 3-50. 2021 Median Dissolved Oxygen Concentrations for Sites in HU 312

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 Salinas 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 (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 2021. **Table 3-73** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-74** presents descriptive statistics for oxygen saturation.

- For the period of 2005-2021, six sites showed statistically significant increasing trends in dissolved oxygen concentrations (Bradley Channel [312BCJ], Green Valley at Simas [312GVS], Main Street Canal [312MSD], Oso Flaco Creek [312OFC], Orcutt Solomon Creek Upstream of Highway 1 [312ORC], and the Santa Maria River Estuary [312SMA]. No sites 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.
- Santa Maria River at Highway 1 met the 7 mg/L minimum WQO in all samples. The other three sites did not meet the objective in at least on sample.
- All six sites with the 5 mg/L minimum WQO met the objective in all samples collected.

Table 3-73. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 312 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
312BCC	2	9.42	10.09	9.76	9.76	0%[3]	Increasing
312BCJ	12	9.40	21.15	16.46	17.34	0%[3]	**Increasing**
312GVS	1	10.55	10.55	10.55	10.55	0%[3]	**Increasing**
312MSD	12	7.72	13.71	10.65	10.66	0%[3]	**Increasing**
312OFC	12	8.07	19.88	13.10	13.57	0%[3]	**Increasing**
312OFN	12	6.87	20.76	11.54	10.34	0%[3]	Decreasing
312ORC	12	5.51	17.63	11.92	11.28	8%	**Increasing**
312ORI	11	6.85	15.15	11.99	12.04	9%	Increasing
312SMA	12	1.31	19.58	10.59	9.98	25%	**Increasing**
312SMI	2	10.48	11.25	10.87	10.87	0%	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- For the period of 2005-2021, seven sites showed statistically significant increasing trends in oxygen saturation (Bradley Channel [312BCJ], Green Valley at Simas [312GVS], Main Street Canal [312MSD], Oso Flaco Creek [312OFC], Orcutt Solomon Creek upstream of Santa Maria River [312ORC], and Orcutt-Solomon Creek at Highway 1 [312ORI], and the Santa Maria River Estuary [312SMA]). No sites showed a statistically significant decreasing trend in oxygen saturation.
- All six sites with the 85% median saturation WQO met the objective in all samples collected.

Table 3-74. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 312 (%)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
312BCC	2	86	780	433	433	No	Increasing
312BCJ	12	93	296	209	219	No	**Increasing**
312GVS	1	100	100	100	100	No	**Increasing**
312MSD	12	88	152	114	113	No	**Increasing**
312OFC	12	10	221	136	155	N/A	**Increasing**
312OFN	12	76	207	118	104	No	Decreasing
312ORC	12	54	232	133	118	N/A	**Increasing**
312ORI	11	87	173	134	160	N/A	**Increasing**
312SMA	12	18	220	116	111	N/A	**Increasing**
312SMI	2	97	99	98	98	N/A	N/A[3]

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

3.5.10 pH

The WQO for all Santa Maria 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 3-51** depicts annual median pH for sites in the Santa Maria HU for 2021 and **Table 3-75** presents descriptive statistics.

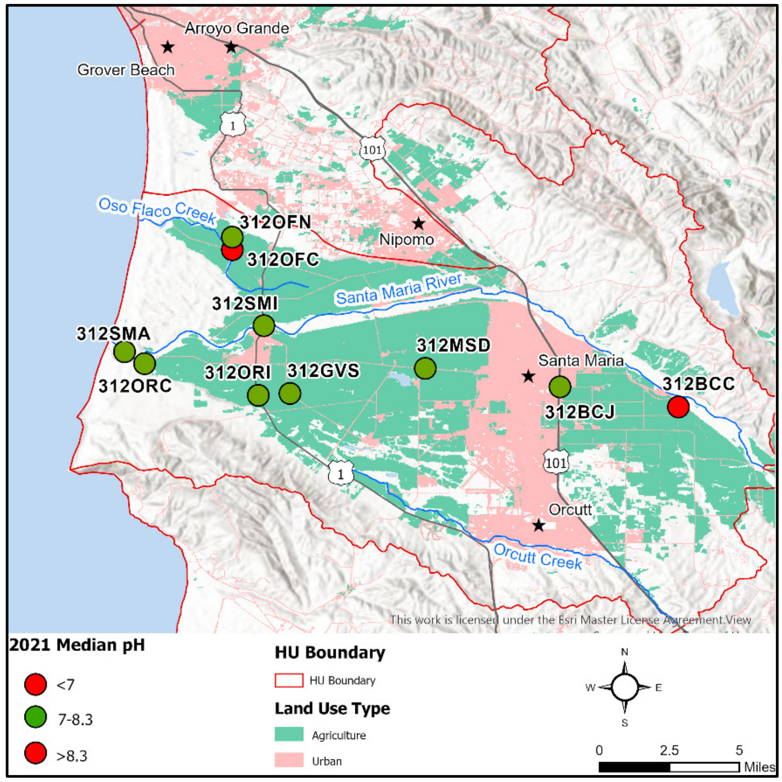


Figure 3-51. 2021 Median pH for Sites in HU 312

- Only two sites met the applicable pH WQO in all samples during 2021 (Green Valley Creek [312GVS] and Santa Maria River at Highway 1 [312SMI]). No measurements were below 7, all exceedances were above 8.3 standard pH units.
- The maximum pH (9.60 standard pH units) was measured in Bradley Channel (312BCJ) in April.
- For the period of 2005-2021, seven sites showed statistically significant increasing trends in pH (Green Valley at Simas [312GVS], Main Street Canal [312MSD], Oso Flaco Creek [312OFC], Little Oso Flaco [312OFN], Orcutt Solomon Creek [312ORC], Orcutt Solomon at Highway 1 [312ORI], and the Santa Maria River Estuary [312SMA]).

Table 3-75. Descriptive Statistics for pH in Hydrologic Unit 312 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
312BCC	2	7.80	8.60	8.20	8.20	50%	N/A[3]
312BCJ	12	7.79	9.60	8.90	9.06	83%	Increasing
312GVS	1	8.22	8.22	8.22	8.22	0%	**Increasing**
312MSD	12	7.57	8.63	8.15	8.26	42%	**Increasing**
312OFC	12	7.35	8.59	8.22	8.31	50%	**Increasing**
312OFN	12	7.49	8.90	8.09	8.04	25%	**Increasing**
312ORC	12	7.58	8.39	7.97	8.02	25%	**Increasing**
312ORI	11	7.25	8.60	8.08	8.19	27%	**Increasing**
312SMA	12	7.46	8.52	7.96	7.99	8%	**Increasing**
312SMI	2	7.65	7.83	7.74	7.74	0%	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

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 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 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 2021 are illustrated in **Figure 3-52** and tabulated in **Table 3-76**.

- In 2021, toxicity (reduced growth in sample water relative to a non-toxic control) to algae was observed in two of four bioassays collected from Main Street Canal (312MSD) and one of four bioassays from Little Oso Flaco Creek (312OFN) (**Figure 3-52 a**). All but two sites (Main Street Canal [312MSD] and 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 23 samples collected from all 10 sites. Significant mortality to *C. dubia* in water was observed in 10 samples collected from seven sites. All bioassays on water samples collected from Green Valley at Simis (312GVS) for both *C. dilutus* and *C. dubia* resulted in significant mortality (**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**). Three sites (Bradley Channel [312BCJ], Orcutt Solomon Creek [312ORC] and Santa Maria River at Estuary [312SMA]) 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 16 samples collected from all 10 sites. All bioassays on water samples collected from Green Valley at Simas (312GVS), Orcutt Solomon Creek at Highway 1 (312ORI), and Santa Maria River at Highway 1 (312SMI) 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)**.
- Toxicity to invertebrate growth in sediment was observed in eight samples collected from five sites (Bradley Channel [312BCJ], Main Street Ditch [312MSD], both Orcutt Solomon Creek sites [312ORC and 312ORI], and the Santa Maria River Estuary [312SMA]). Toxicity to invertebrate survival in sediment was observed in nine samples collected from five sites (Bradley Channel [312BCJ], Main Street Ditch [312MSD], Oso Flaco Creek [312OFC], Orcutt Solomon Creek at Highway 1 [312ORI], and the Santa Maria River Estuary [312SMA]) (**Figure 3-52 e, f**). Of the seven sites sampled in the Santa Maria HU, only two sites (Oso Flaco Creek [312OFC] and Little Oso Flaco [312OFN]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-52 e**). Of the seven sites sampled, only two sites (Little Oso Flaco [312OFN] and Orcutt Solomon Creek [312ORC]) achieved the significant toxic effect TMDL limit for survival in sediment (**Figure 3-52 f**).
- For the period of 2005-2021, all statistically significant interannual trends in toxicity were increasing (improving, reduced toxicity).
  - Three significant increasing trends (improving, reduced toxicity) in invertebrate growth in sediment were observed at Bradley Channel (312BCJ), Orcutt Solomon Creek (312ORC), and Orcutt Solomon at Highway 1 (312ORI).

- Three significant increasing trends (improving, reduced toxicity) in invertebrate survival in sediment were observed at Bradley Channel (312BCJ), Orcutt Solomon Creek (312ORC), and Santa Maria River at Estuary (312SMA).
- Two sites showed significant increasing trends (improving, reduced toxicity) in invertebrate survival in water (Bradley Channel [312BCJ] 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 3-76**.

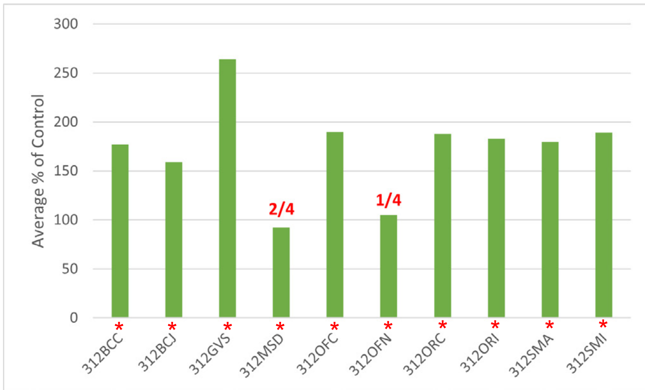
Table 3-76. Summary of Toxicity and Trends (Water) in Hydrologic Unit 312

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

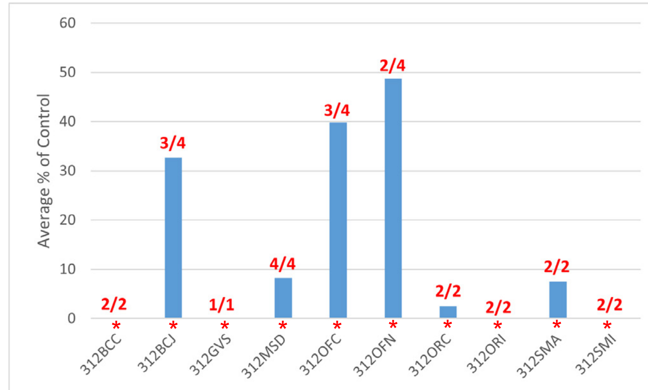
Notes:

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

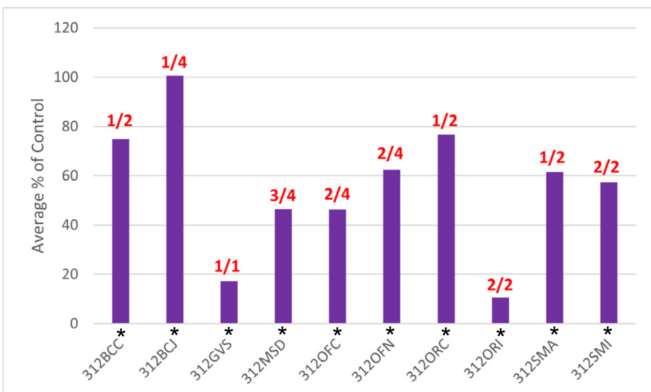
2 None = No monotonic trend (i.e., increasing or decreasing) was identified.



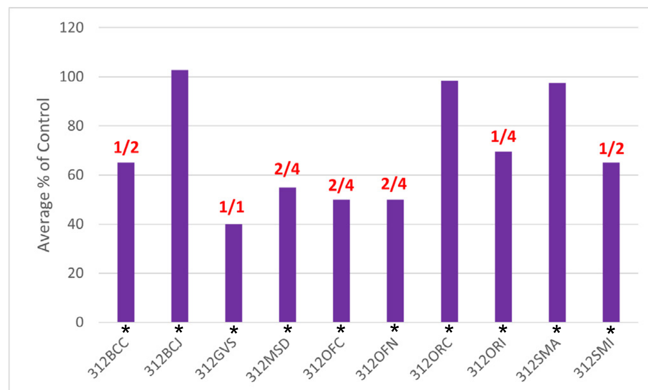
a) Algal Toxicity in Water – Growth



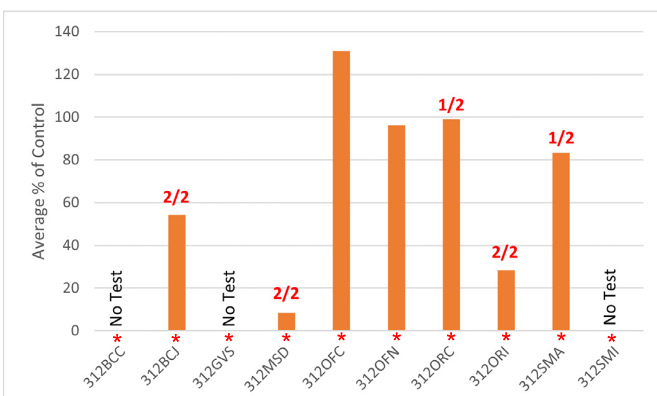
b) *C. dilutus* Toxicity in Water – Survival



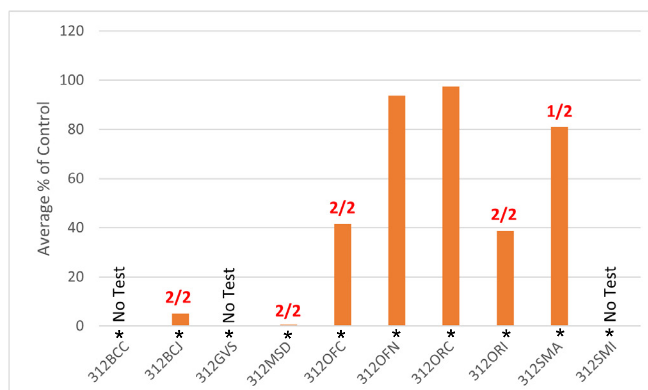
c) *C. dubia* Toxicity in Water – Reproduction



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



e) Invertebrate Toxicity in Sediment – Growth



f) Invertebrate Toxicity in Sediment – Survival

Figure 3-52. 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 2021 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.

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. 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 Aguenda 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.

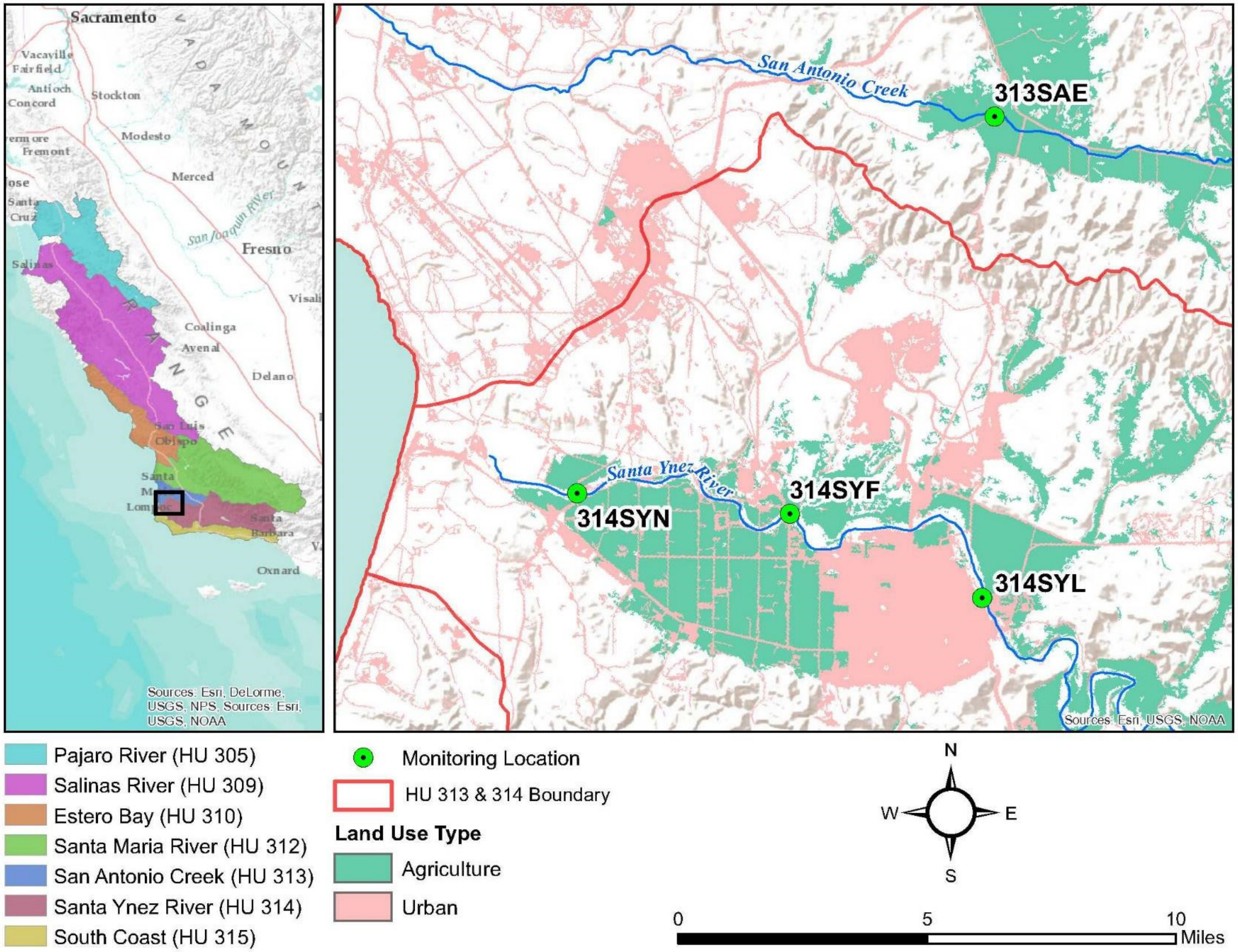


Figure 3-53. CMP Core Monitoring Sites and Distribution of Major Land Uses in the Santa Ynez and San Antonio Hydrologic Units

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 2021 monitoring year, the annual average flow (14.07 CFS) at the *Santa Ynez River near Narrows* USGS stream gage was considerably lower than the historic annual average (113.42 CFS, 1953-2020) and ranged from 0 CFS to 1010 CFS (January 28, 2021) (USGS 2022). The 2021 cumulative annual rainfall (15.77”) at the *Santa Ynez* rain gauge was lower than the historic average (16.3”, 1986-2020) (**Figure 3-54**) (CDWR 2022).

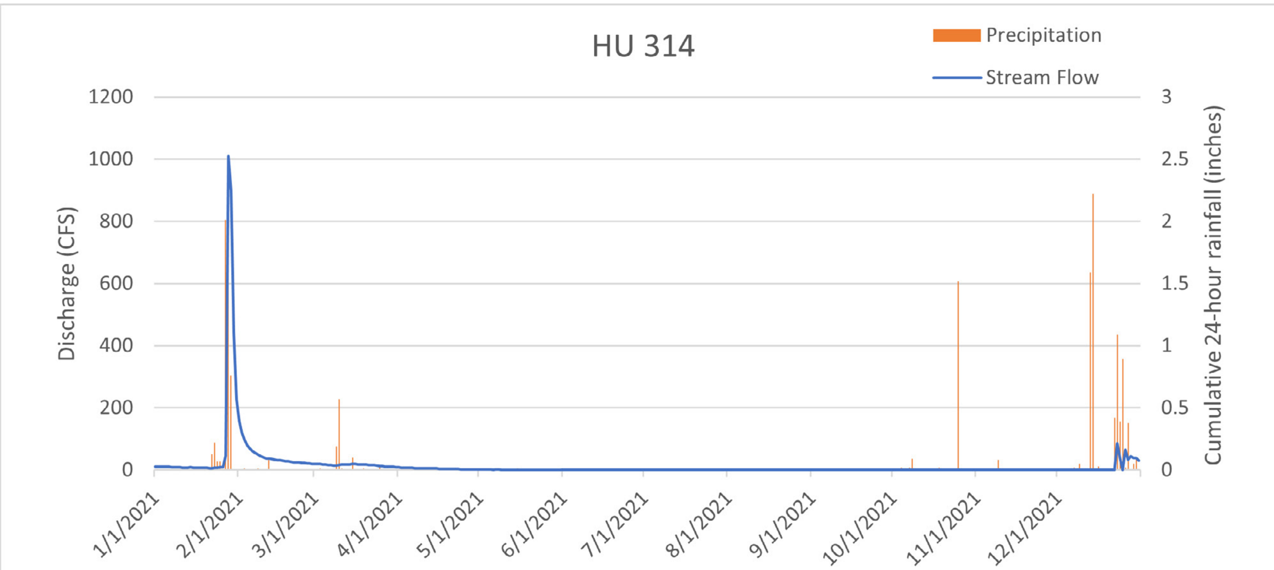


Figure 3-54. 2021 Hydrograph and Total Daily Precipitation Record for Santa Ynez River near Narrows

In 2021, flows measured at the four San Antonio Creek and Santa Ynez HU monitoring sites were generally influenced by wet season precipitation with elevated flows occurring in early February and late December. **Figure 3-55** depicts annual median flow for sites within the San Antonio and Santa Ynez HUs for 2021 and **Table 3-77** presents descriptive statistics.

- During 2021, measured flows ranged from -0.53 CFS at Santa Ynez River (314SYN), due to tidal influence, to 2250 CFS at Santa Ynez River at 13th Street (314SYN).
- San Antonio Creek (313SAE) was dry for six months of the monitoring year.
- Median flows during 2021 ranged from 0.00 CFS at Santa Ynez River at River Park (314SYL) to 3.63 CFS at Santa Ynez River at Floradale Ave. (314SYF).
- For the period of 2005-2021, all three Santa Ynez River sites showed statistically significant decreasing trends in flow. San Antonio Creek (313SAE) showed a statistically significant increasing trend in flow.

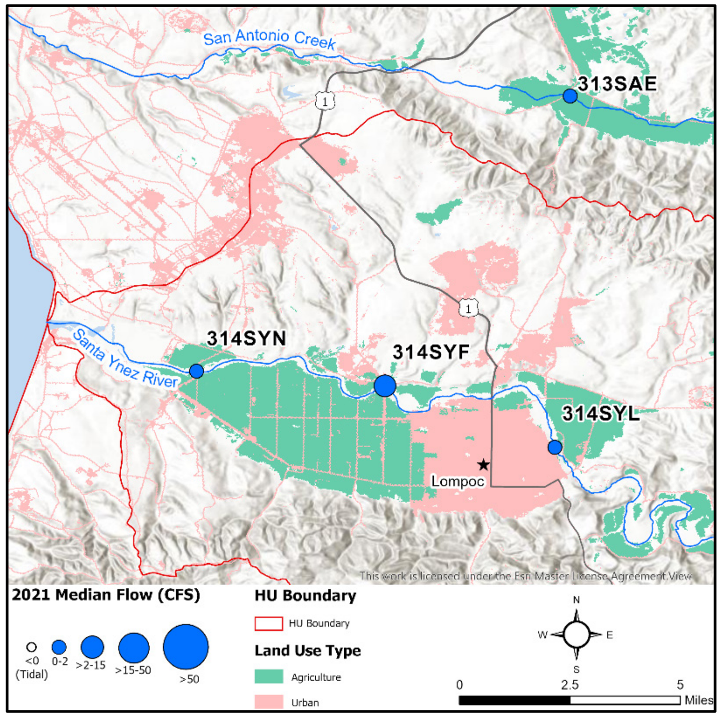


Figure 3-55. 2021 Median Flows for Sites in HUs 313 and 314

Table 3-77. 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	14.97	1.28	0.01	**Increasing**
314SYF	7	1.74	900.00	132.02	3.63	**Decreasing**
314SYL	12	0.00	1260.00	107.38	0.00	**Decreasing**
314SYN	12	-0.53	2250.00	190.25	0.69	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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

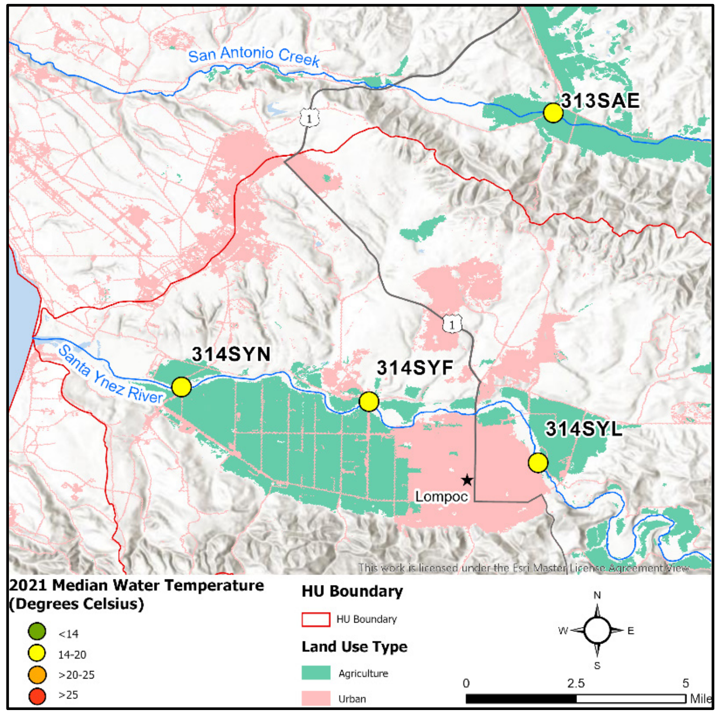


Figure 3-56. 2021 Median Water Temperature for Sites in HUs 313 and 314

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 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 2021, water temperatures peaked at most sites in the San Antonio and Santa Ynez HUs during the month of August and minimum temperatures at most sites were recorded during the month of January. **Figure 3-56** depicts annual median temperatures for sites in the San Antonio and Santa Ynez HUs for 2021, and **Table 3-78** presents descriptive statistics.

- Median temperatures in the San Antonio and Santa Ynez HUs ranged from 15.0 to 19.0 °C in 2021.
- The lowest water temperature (10.1 °C) was measured at San Antonio Creek (313SAE) and the highest water temperature (23.3 °C) was observed at Santa Ynez River at 13th Street (314SYN).
- For the period of 2005-2021, one site (Santa Ynez River at Floradale [314SYF]) showed statistically significant decreasing trends in water temperature.

Table 3-78. Descriptive Statistics for Water Temperature in Hydrologic Unit 313 and 314 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	10.1	17.5	15.7	16.9	Increasing[3]
314SYF	7	10.7	22.1	17.8	19.0	**Decreasing**
314SYL	3	10.3	16.2	13.8	15.0	Decreasing
314SYN	12	11.0	23.3	17.5	17.4	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021, and **Table 3-79** and **Appendix B** presents descriptive statistics and turbidity limit exceedances for turbidity.

- The minimum turbidity (4 NTU) was measured in the Santa Ynez River at River Park (314SYL) and the maximum turbidity (1000 NTU) was observed at all four sites.
- Median turbidity levels in the San Antonio and Santa Ynez HUs ranged from 7 NTU (Santa Ynez River at River Park [314SYL]) to 120 NTU (San Antonio Creek [313SAE]).

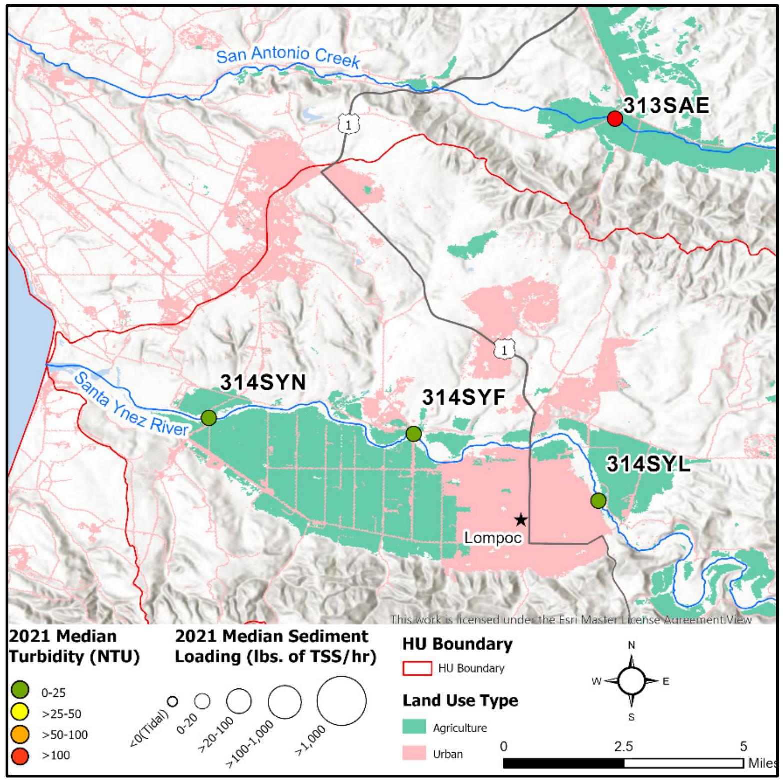


Figure 3-57. 2021 Median Turbidity and TSS Loading for Sites in HUs 313 and 314

- All four sites exceeded the turbidity limit of 25 NTU in at least one sample. San Antonio Creek (313SAE) exceeded the turbidity limit in 100% of samples.
- Low median flows and TSS concentrations resulted in low TSS loadings throughout the Santa Ynez HU. (**Appendix B**).
- For the period of 2005-2021, one site showed statistically significant increasing trends in turbidity (Santa Ynez River at 13th Street [314SYN]).
- For the period of 2012-2021, all four 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 3-79. 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	6	26	1000	256	120	100%	Decreasing[5]	**Increasing**
314SYF	7	8	1000	155	16	14%	Increasing	**Increasing**
314SYL	3	4	1000	337	7	33%	N/A[6]	**Increasing**
314SYN	12	5	1000	124	21	42%	**Increasing**	**Increasing**

Notes:

1. Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2005-2021 and TSS was monitored from 2012-2021.
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 2021, **Table 3-80** presents descriptive statistics, and **Table 3-81** and **Appendix B** presents 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 3-82**.

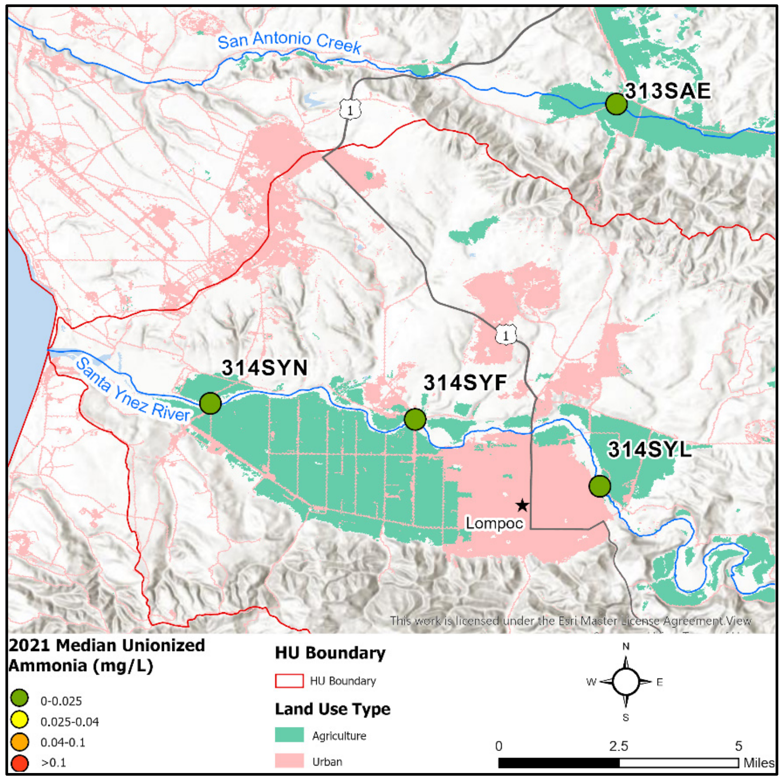


Figure 3-58. 2021 Median Unionized Ammonia for Sites in HUs 313 and 314

- In 2021, unionized ammonia concentrations in the San Antonio and Santa Ynez HUs ranged from 0.0007 at San Antonio Creek (313SAE) and Santa Ynez River at River Park (314SYL) to 0.0521 mg/L at the Santa Ynez River at Floradale Ave. (314SYF).
- Median unionized ammonia concentrations in 2021 ranged from 0.0018 at the Santa Ynez River at Floradale Ave. (314SYF) to 0.0070 mg/L at San Antonio Creek (313SAE).
- For the period of 2005-2021, one site (Santa Ynez River at Floradale Ave. [314SYF]) showed a statistically significant decreasing trend in unionized ammonia concentrations.

Table 3-80. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	0.0007	0.0096	0.0059	0.0070	Decreasing[3]
314SYF	7	0.0008	0.0521	0.0093	0.0018	**Decreasing**
314SYL	3	0.0007	0.0036	0.0020	0.0019	Decreasing
314SYN	12	0.0010	0.0109	0.0043	0.0042	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 Floradale Ave. (314SYF) met the unionized ammonia non-TMDL Area limit of 0.025 mg/L for all sampling events in 2021. Santa Ynez River at Floradale Ave. (314SYF) exceeded the non-TMDL area limit in one sample.

Table 3-81. 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	14%
314SYL	0%
314SYN	0%

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, 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.
- Two sites (Santa Ynez River at Floradale Ave. [314SYF] and River Park [314SYL]) showed statistically significant decreasing trends in total ammonia concentrations.

Table 3-82. Descriptive Statistics for Total Ammonia in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	0.0234	0.1980	0.1141	0.1150	Decreasing[3]
314SYF	7	0.0814	0.2170	0.1342	0.1220	**Decreasing**
314SYL	3	0.0170	0.1350	0.0598	0.0274	**Decreasing**
314SYN	12	0.0257	0.7440	0.2735	0.2270	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021, **Table 3-83** presents descriptive statistics, and **Table 3-84** and **Appendix B** presents 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 3-85**.

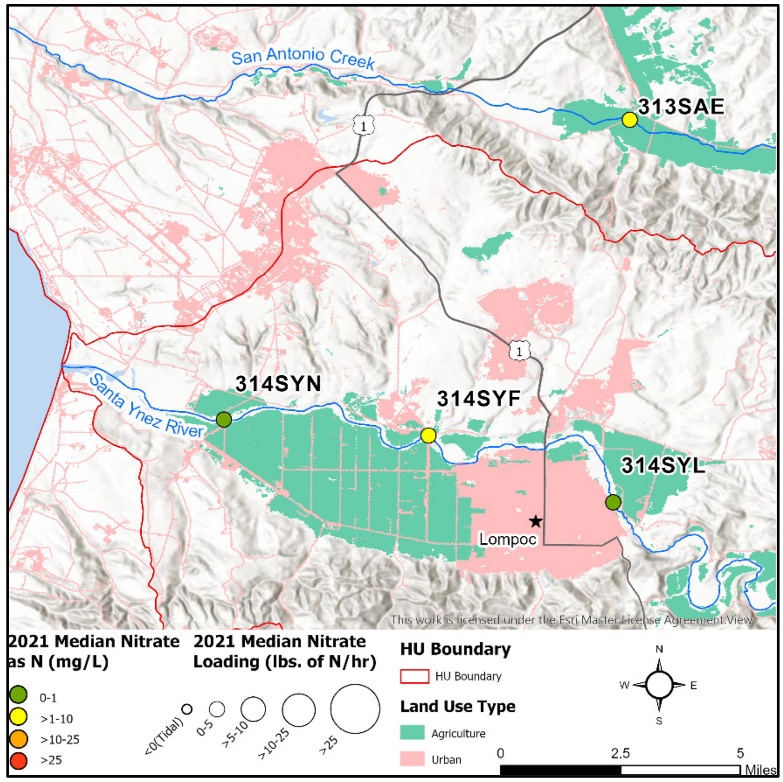


Figure 3-59. 2021 Median Nitrate as N for Sites in HUs 313 and 314

- Nitrate concentrations in the Santa Ynez and San Antonio HUs ranged from 0.0 mg/L at the River Park (314SYL) and 13th Street (314SYN) sites to 12.8 mg/L at San Antonio Creek (313SAE).
- Median nitrate concentrations in the Santa Ynez and San Antonio HUs for 2021 ranged from 0.0 mg/L at the Santa Ynez River at River Park (314SYL) to 4.4 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 2005-2021, two sites, the Santa Ynez River at Floradale Ave. (314SYF) and at 13th Street (314SYN), showed statistically significant decreasing trends in nitrate concentrations.
- For the period of 2005-2021, all three Santa Ynez River sites showed statistically significant decreasing trends in nitrate loading while San Antonio Creek (313SAE) showed a significantly significant increasing trend in nitrate loading.

Table 3-83. 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	6	0.7	12.8	3.8	1.8	Decreasing[3]	**Increasing**
314SYF	7	1.3	4.9	3.7	4.4	**Decreasing**	**Decreasing**
314SYL	3	0.0	2.2	0.7	0.0	Increasing	**Decreasing**
314SYN	12	0.0	6.6	1.2	0.6	**Decreasing**	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- San Antonio Creek (313SAE) was the only site to exceed the 10 mg/L non-TMDL area limit for nitrate during 2021 and did so in one sample.

Table 3-84. 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	17%
314SYF	0%
314SYL	0%
314SYN	0%

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations, 2021*, for detailed site descriptions.
2 The relevant numeric criterion is 10.0 mg/L.

- Median total nitrogen concentrations ranged from 0.1 mg/L at Santa Ynez River at River Park (314SYL) to 5.8 mg/L at Santa Ynez River at Floradale Ave. (314SYF).
- For the period of 2005-2021, no sites showed a statistically significant trend in total nitrogen.

Table 3-85. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	1.8	15.3	6.4	3.1	Decreasing[3]
314SYF	7	3.3	6.2	5.3	5.8	Increasing
314SYL	3	0.0	13.3	4.5	0.1	Decreasing
314SYN	12	1.4	9.6	3.5	2.4	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

3.6.6 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 2021. **Table 3-86** and **Table 3-87** present descriptive statistics for orthophosphate and total phosphorus, respectively.

- Orthophosphate concentrations in the Santa Ynez River for 2021 ranged from 0.024 mg/L at River Park (314SYL) to 5.2 mg/L at the Floradale Ave. site (314SYF).
- In 2021, median orthophosphate concentrations in the Santa Ynez and San Antonio HUs ranged from 0.04 mg/L at the River Park site (314SYL) to 4.74 mg/L at the Floradale Ave. site (314SYF).
- For the period of 2005-2021, no sites showed statistically significant trends in orthophosphate concentrations.

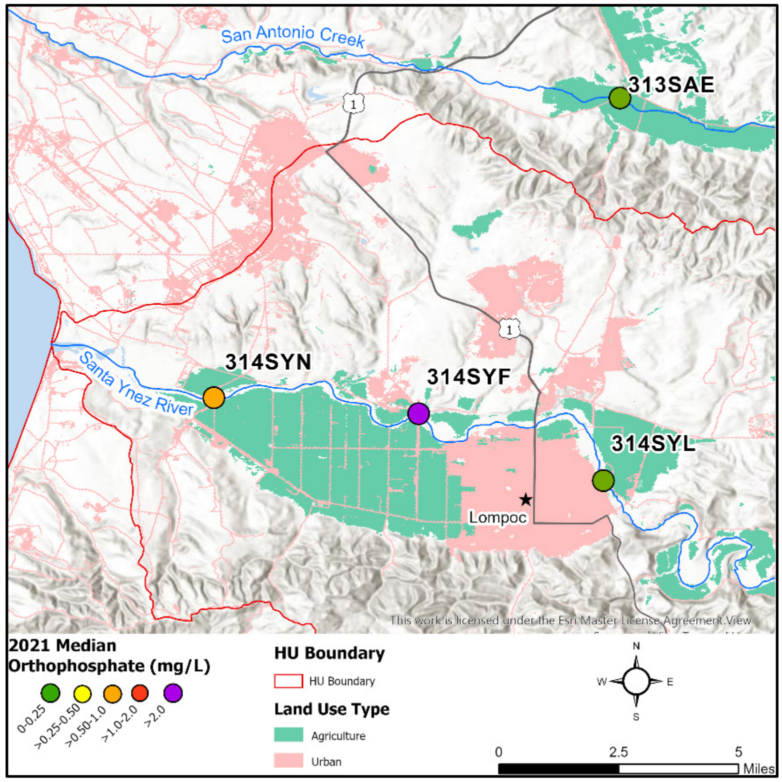


Figure 3-60. 2021 Median Orthophosphate as P for Sites in HUs 313 and 314

Table 3-86. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	0.112	1.030	0.341	0.210	Decreasing[3]
314SYF	7	0.278	5.200	3.728	4.740	Increasing
314SYL	3	0.024	0.235	0.100	0.040	Decreasing
314SYN	12	0.338	2.420	1.012	0.798	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 0.05 mg/L at the River Park site (314SYL) to 4.32 mg/L at the Floradale Ave. site (314SYF).
- The maximum total phosphorus concentration at any Santa Ynez HU site was observed at River Park (314SYL) (8.76 mg/L).
- For the period of 2005-2021, no sites showed statistically significant trends in total phosphorus concentrations.

Table 3-87. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	0.233	6.500	1.524	0.379	Decreasing[3]
314SYF	7	1.650	5.420	3.957	4.320	Decreasing
314SYL	3	0.047	8.760	2.952	0.050	Decreasing
314SYN	12	0.730	2.570	1.485	1.210	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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".

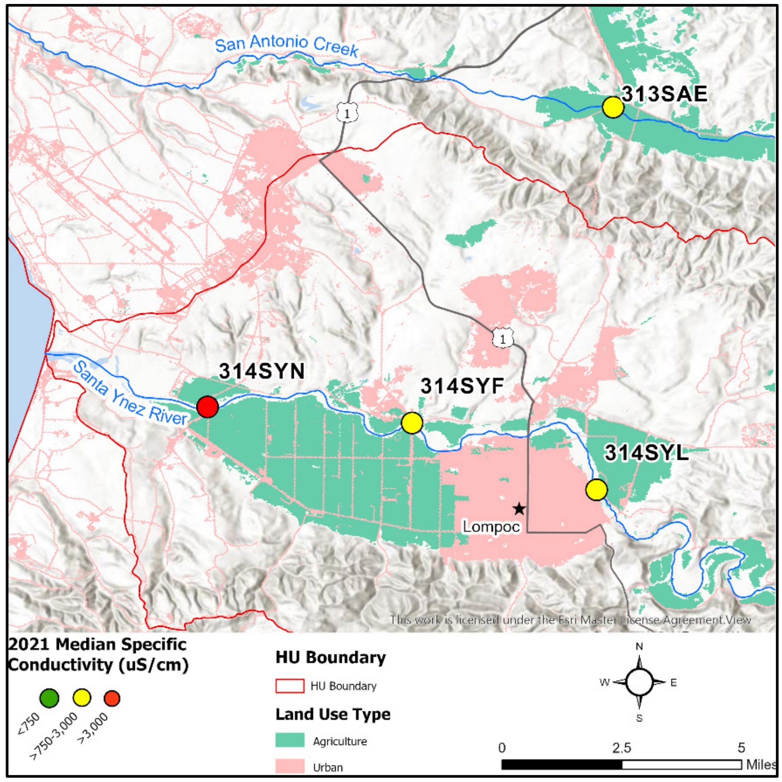


Figure 3-61. 2021 Median Conductivity for Sites in HUs 313 and 314

Figure 3-61 depicts annual median conductivity for sites within the Santa Ynez and San Antonio Creek HUs in 2021 and **Table 3-88** presents descriptive statistics.

- Conductivity measurements in the Santa Ynez and San Antonio HUs for 2021 ranged from 221 µS/cm at Santa Ynez River at Floradale Ave. (314SYF) to 21,073 µS/cm at Santa Ynez River at 13th Street (314SYN).
- Median conductivities in the Santa Ynez and San Antonio HUs for 2021 ranged from 1,071 µS/cm at Santa Ynez River at River Park (314SYL) to 3,380 µS/cm at the 13th Street site (314SYN).
- All sites had median conductivities above the low-end of the listed ranges (750 µS/cm), and Santa Ynez River at 13th Street exceeded 3,000 µS/cm on a median basis.
- For the period of 2005-2021, Santa Ynez River at Floradale Ave. (314SYF) showed a statistically significant decreasing trend in conductivity.

Table 3-88. Descriptive Statistics for Conductivity in Hydrologic Unit 313 and 314 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	304	1,447	1,029	1,165	Increasing[3]
314SYF	7	221	1,614	1,314	1,550	**Decreasing**
314SYL	3	339	1,493	968	1,071	Decreasing
314SYN	12	185	21,073	5,001	3,380	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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. The 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 salinity for CMP sites in the Santa Ynez and San Antonio HUs. 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 2021. **Table 3-89** and **Table 3-90** present descriptive statistics for TDS and salinity, respectively.

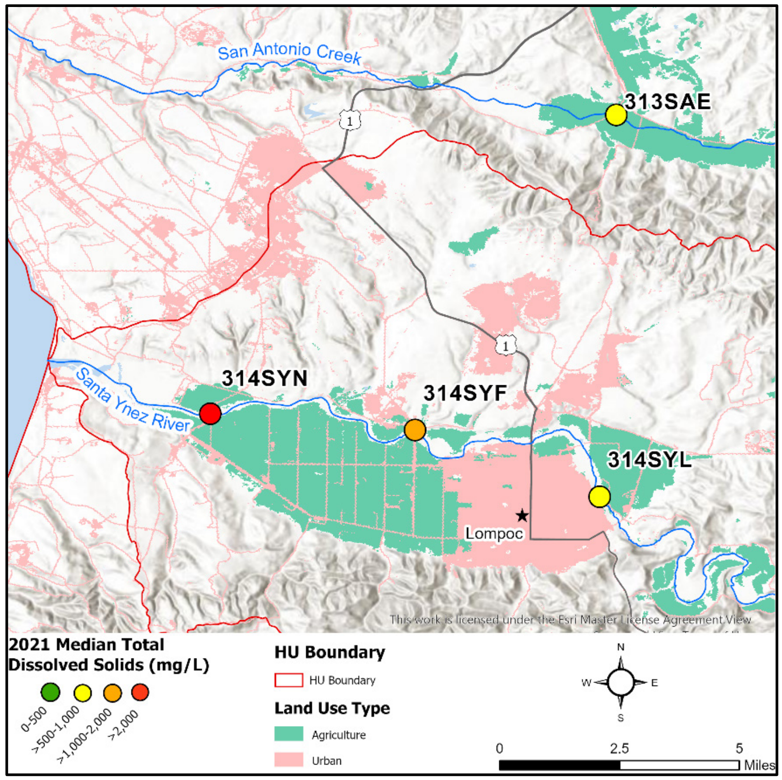


Figure 3-62. 2021 Median TDS for Sites in HUs 313 and 314

- Median TDS concentrations in the Santa Ynez and San Antonio HUs for 2021 ranged from 757 mg/L at Santa Antonio Creek (313SAE) to 2,197 mg/L at Santa Ynez River at 13th Street (314SYN).
- The maximum TDS measurement in the Santa Ynez and San Antonio HUs for 2021 was 13,699 mg/L at the 13th Street site (314SYN). The mean TDS concentration at this site (3,274 mg/L) also exceeded the site-specific TDS WQO of 1,000 mg/L.
- Two of the three Santa Ynez River sites (Floradale Ave. [314SYF] and River Park [314SYL]) met the WQO of 1,000 mg/L on a mean basis. Santa Ynez River at 13th Street. (314SYN) did not meet the objective.
- For the period of 2005-2021, two Santa Ynez River sites (Floradale Ave. [314SYF] and River Park [314SYL]) showed statistically significant decreasing trends in TDS concentrations. The same two sites showed decreasing trends in salinity.

Table 3-89. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
313SAE	6	197	940	688	757	N/A	Increasing[3]
314SYF	7	198	1,049	881	1,007	No	**Decreasing**
314SYL	3	220	971	684	860	No	**Decreasing**
314SYN	12	120	13,699	3,274	2,197	Yes	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 salinity were similar to TDS concentrations.
- For the period of 2005-2021, two Santa Ynez River sites (Floradale Ave. [314SYF] and River Park [314SYL]) showed statistically significant decreasing trends in salinity.

Table 3-90. Descriptive Statistics for Salinity in Hydrologic Unit 313 and 314 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
313SAE	6	0.15	0.73	0.53	0.59	Increasing[3]
314SYF	7	0.12	0.81	0.64	0.77	**Decreasing**
314SYL	3	0.16	0.76	0.53	0.66	**Decreasing**
314SYN	12	0.09	12.68	2.83	1.79	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

3.6.9 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 2021, **Table 3-91** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-92** presents descriptive statistics for oxygen saturation.

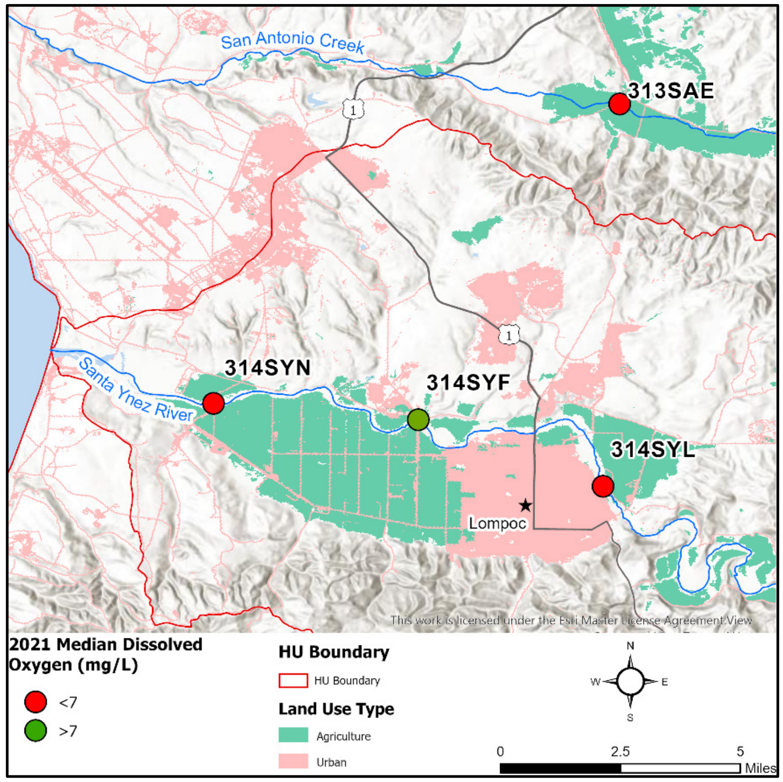


Figure 3-63. 2021 Median Dissolved Oxygen Concentrations for Sites in HUs 313 and 314

- Median DO concentrations in the Santa Ynez and San Antonio HUs for 2021 ranged from 5.33 mg/L at the Floradale Ave. site (314SYF) to 11.06 mg/L at Santa Ynez River at River Park (314SYL).
- The lowest DO concentration and percent saturation measured at the Santa Ynez River sites was at 13th Street (314SYN)—2.55 mg/L and 27%, respectively.
- Santa Ynez River at River Park (314SYL) was the only site to meet the 7 mg/L minimum WQO in all samples for 2021. The three other sites had one to five samples below the 7 mg/L WQO for dissolved oxygen.
- For the period of 2005 to 2021, Santa Ynez River at River Park (314SYL) showed a statistically significant 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 sampling occurs and changes in DO can manifest as either depressed or very high concentrations.

Table 3-91. 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	6	6.10	12.48	9.22	8.96	17%	Increasing[3]
314SYF	7	4.83	8.38	6.03	5.33	71%	Increasing
314SYL	3	10.39	11.09	10.85	11.06	0%	**Increasing**
314SYN	12	2.55	25.08	10.86	9.80	17%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 to 2021, no sites showed a statistically significant trend in oxygen saturation.

Table 3-92. Descriptive Statistics for Oxygen Saturation in Hydrologic Units 313 and 314 (%)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
313SAE	6	63	128	93	91	N/A	Increasing[3]
314SYF	7	54	89	65	60	N/A	Increasing
314SYL	3	93	113	106	111	N/A	Increasing
314SYN	12	27	276	116	111	N/A	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

3.6.10 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 2021 and **Table 3-93** presents descriptive statistics.

- In 2021, all sites in the Santa Ynez and San Antonio HUs had at least one exceedance of the pH WQO. No samples were below 7 pH. All exceedances were greater than 8.3 pH.
- The minimum pH measured in 2021 was 7.13 standard pH units at the 13th Street site (314SYN), and the maximum was 9.99 standard pH units at the Floradale Ave. site (314SYF).
- Median pH for the Santa Ynez and San Antonio HU sites in 2021 ranged from 7.66 standard pH units at the Floradale Ave. site (314SYF) to 8.35 standard pH units at San Antonio Creek (313SAE).

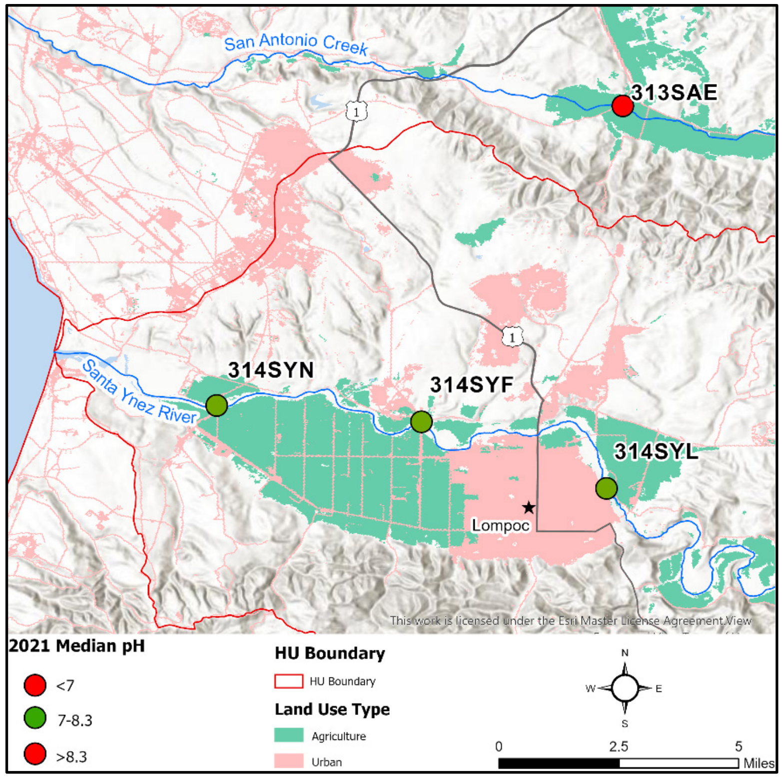


Figure 3-64. 2021 Median pH for Sites in HUs 313 and 314

- For the period of 2005-2021, two sites, Santa Ynez River at Floradale Ave. (314SYF) and at 13th Street (314SYN), showed a statistically significant increasing trend in pH.

Table 3-93. 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	6	7.57	8.65	8.26	8.35	50%	Increasing[3]
314SYF	7	7.34	9.99	7.94	7.66	14%	**Increasing**
314SYL	3	8.19	8.46	8.30	8.25	33%	Increasing
314SYN	12	7.13	8.73	7.88	7.89	17%	**Increasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 below. See **Table 2-5** and **Appendix A** for a summary of applicable toxic effect non-TMDL area limits in the San Antonio and Santa Ynez HUs. Results from aquatic and sediment bioassays conducted on samples from the San Antonio and Santa Ynez HUs in 2021 are illustrated in **Figure 3-65** and tabulated in **Table 3-94**.

- In 2021, significant toxicity (reduced growth in sample water relative to a non-toxic control) to algae was observed in one of three bioassays collected from San Antonio Creek (313SAE) (**Figure 3-65 a**). In the San Antonia and Santa Ynez HUs, all but one site (San Antonio Creek [313SAE]) 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 two of three bioassays from San Antonio Creek (313SAE). No significant mortality in water to *C. dubia* was observed in the Santa Ynez or San Antonio HU in 2021 (**Figure 3-65 b, d**). In the San Antonia and Santa Ynez HUs, all but one site (San Antonio Creek [313SAE]) 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 five samples from all four sites (**Figure 3-65 c**). In the San Antonia and Santa Ynez HUs, no site achieved the significant toxic effect non-TMDL area limit for reproduction in water (**Figure 3-65 c**).
- Toxicity to invertebrate growth in sediment was observed in one of two bioassays collected at San Antonio Creek (313SAE). No toxicity to invertebrate survival in sediment was observed in the Santa Ynez or San Antonio HU in 2021 (**Figure 3-65 e, f**). Of the three sites sampled in the San Antonia and Santa Ynez HUs, all but one site (San Antonio Creek [313SAE]) achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-65 e**). All three sites sampled achieved the significant toxic effect non-TMDL area limit for survival in sediment (**Figure 3-65 f**).
- For the period of 2005-2021, 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**).

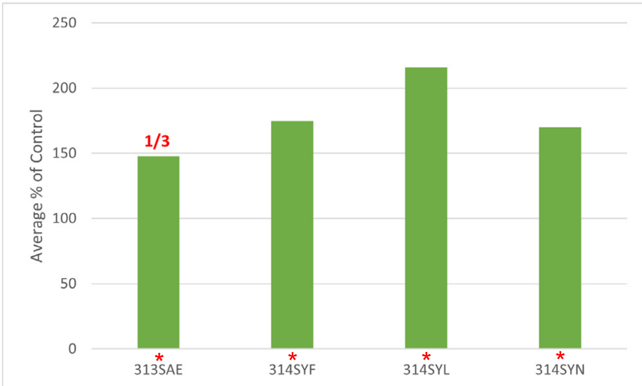
Detailed trend analysis results, including trend directions and statistical significance, can be found in **Appendix E**. A summary of these results is presented in **Table 3-94**.

Table 3-94. Summary of Toxicity and Trends (Water) in Hydrologic Unit 313 and 314

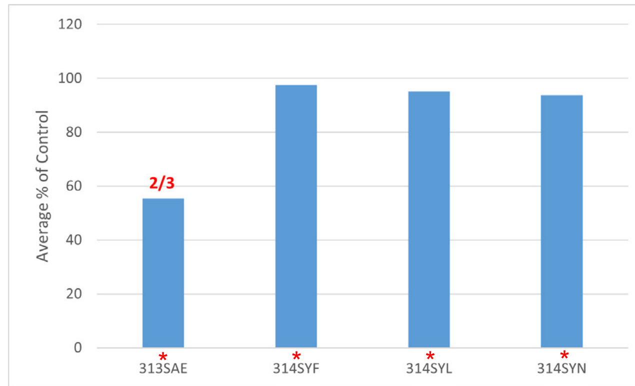
Site ID[1]	Algal Growth		*C. dilutus*– Survival		*C. dubia* – Reproduction		*C. dubia* – Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
313SAE	1/3	Decreasing	2/3	Increasing	2/3	Increasing	0/3	Decreasing
314SYF	0/2	Decreasing	0/2	Increasing	1/2	Increasing	0/2	Increasing
314SYL	0/1	**Increasing**	0/1	Increasing	1/1	Increasing	0/1	Increasing
314SYN	0/4	Increasing	0/3	Decreasing	1/3	Increasing	0/4	Increasing

Notes:

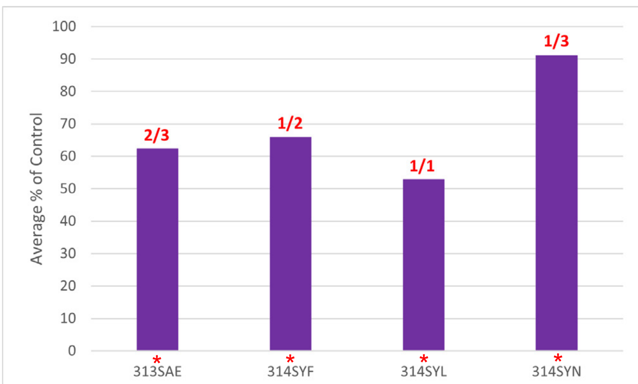
1 Increasing/decreasing trends pursuant to the results of a Mann-Kendall Analysis. **Bold** trends are statistically significant (α = 0.05).



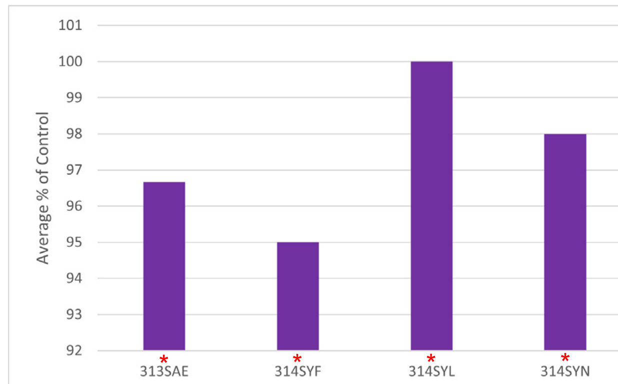
a) Algal Toxicity in Water – Growth



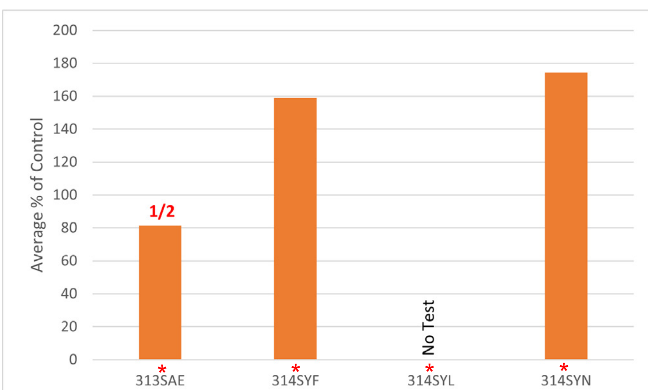
b) *C. dilutus* Toxicity in Water – Survival



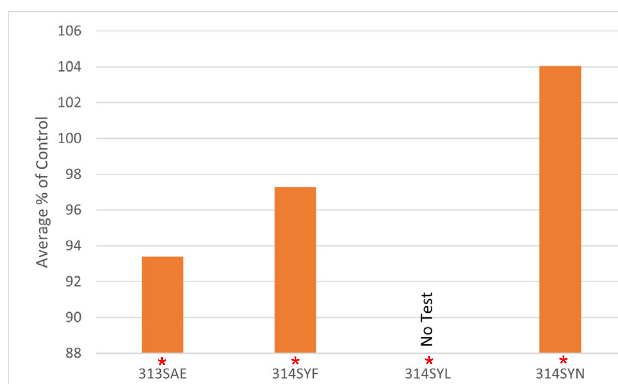
c) *C. dubia* Toxicity in Water – Reproduction



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 2021 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.

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 Creek 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 Creek 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.

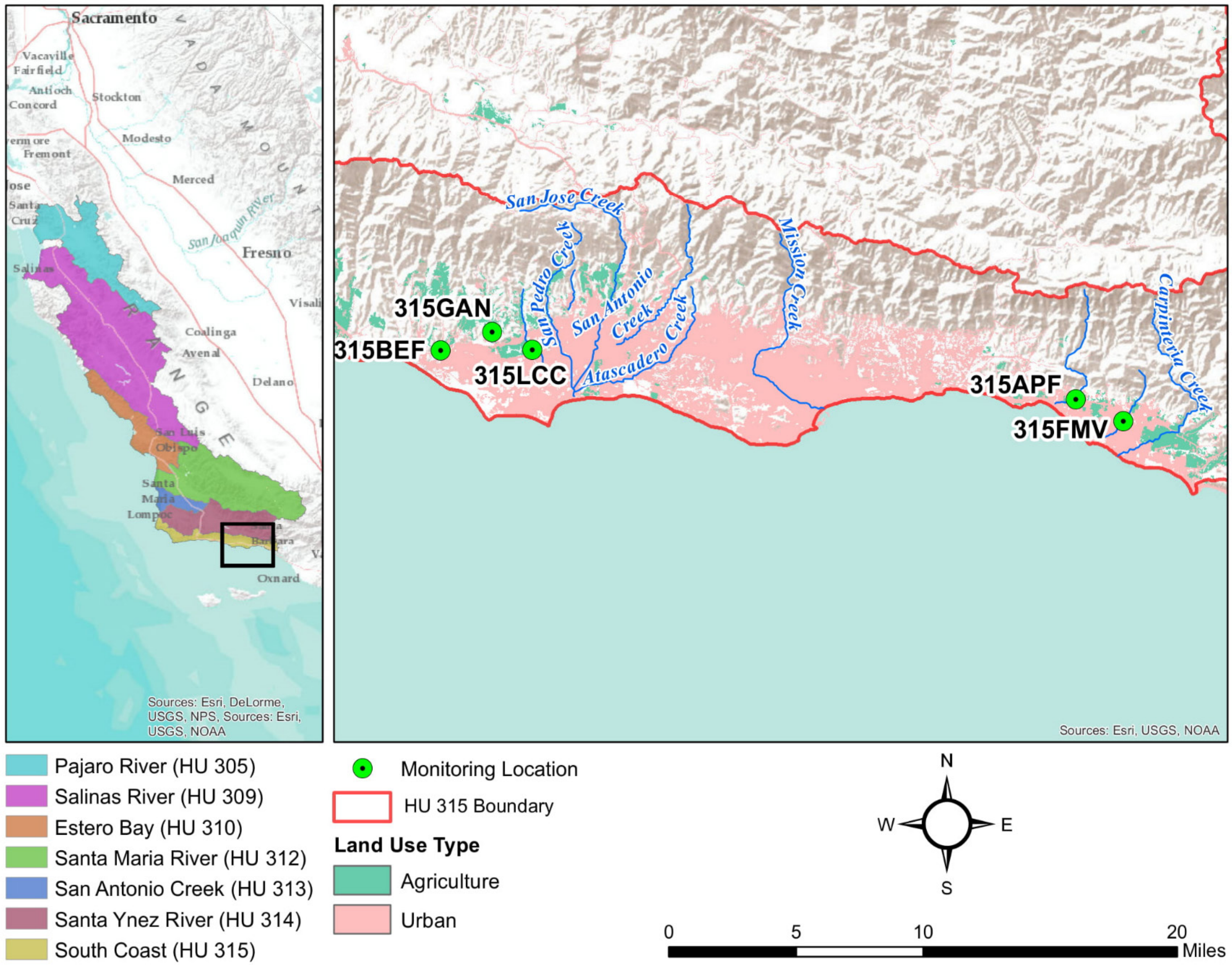


Figure 3-66. CMP Core Monitoring Sites and Distribution of Major Land Uses in the South Coast Hydrologic Unit

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 2021 monitoring year, the annual average flow (0.59 CFS) at the *Carpinteria Creek* USGS stream gage was below the historic annual average (3.91 CFS, 1941-2020) and ranged from 0 CFS for most of the year to 59.4 CFS (December 23, 2021) (USGS 2022). The 2021 cumulative annual rainfall (17.51") at the *Santa Barbara* rain gauge was higher than the historic average (16.66", 1994-2020) (**Figure 3-67**) (CDWR 2022).

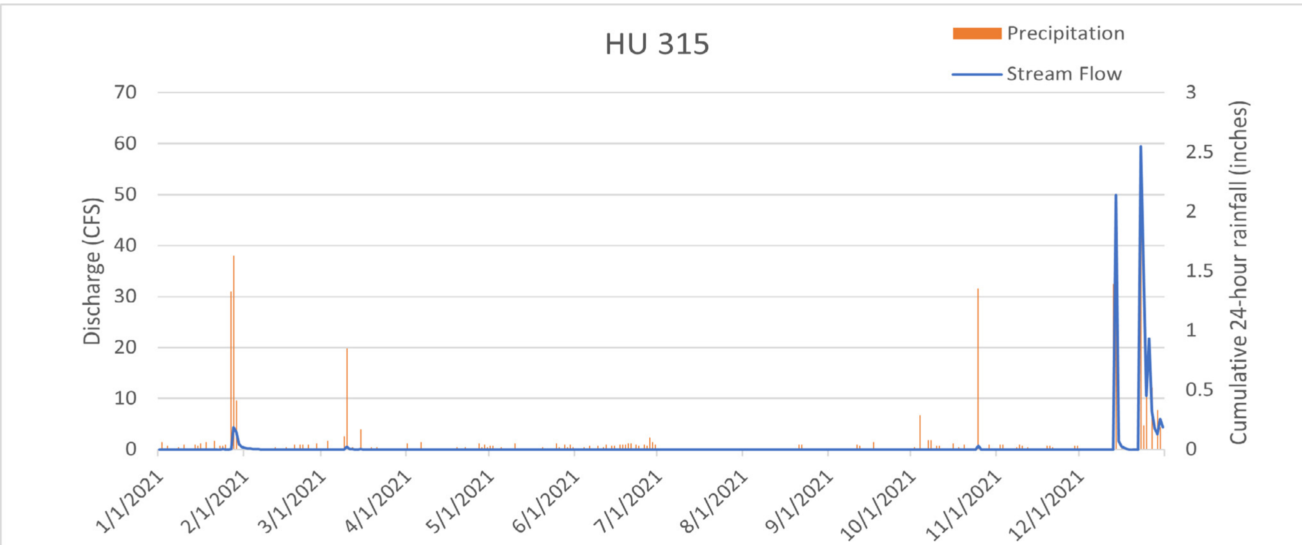


Figure 3-67. 2021 Carpinteria Creek Hydrograph and Downtown Santa Barbara Precipitation Totals

In 2021, 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 2021 and **Table 3-95** presents descriptive statistics.

- During 2021, measured flows ranged from no flow at three sites (Arroyo Paredon Creek [315APF], Bell Creek [315BEF], and Los Carneros Creek [315LCC] to 7 CFS, also at Bell Creek [315BEF].
- Median flows for all sites within the South Coast HU were less than 0.07 CFS.
- Three sites in the South Coast HU showed statistically significant decreasing trends in flow (Bell Creek [315BEF], Franklin Creek [315FMV], and Glen Annie Creek [315GAN]).

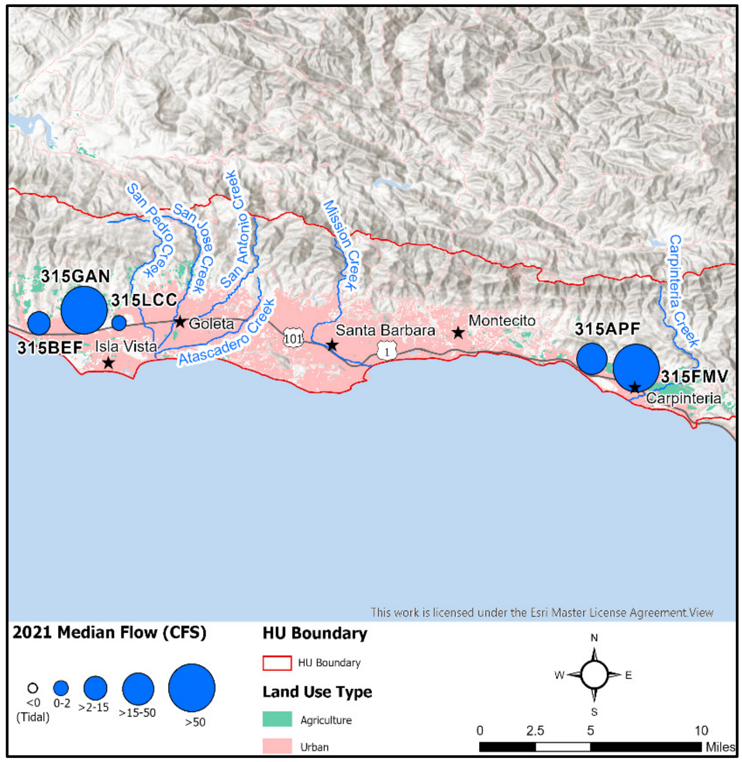


Figure 3-68. 2021 Median Flows for Sites in HU 315

Table 3-95. Descriptive Statistics for Flow in Hydrologic Unit 315 (CFS)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	12	0.00	0.04	0.01	0.01	Decreasing
315BEF	12	0.00	7.00	0.60	0.01	**Decreasing**
315FMV	12	0.01	0.28	0.07	0.05	**Decreasing**
315GAN	12	0.02	3.98	0.40	0.07	**Decreasing**
315LCC	12	0.00	0.36	0.04	0.00	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

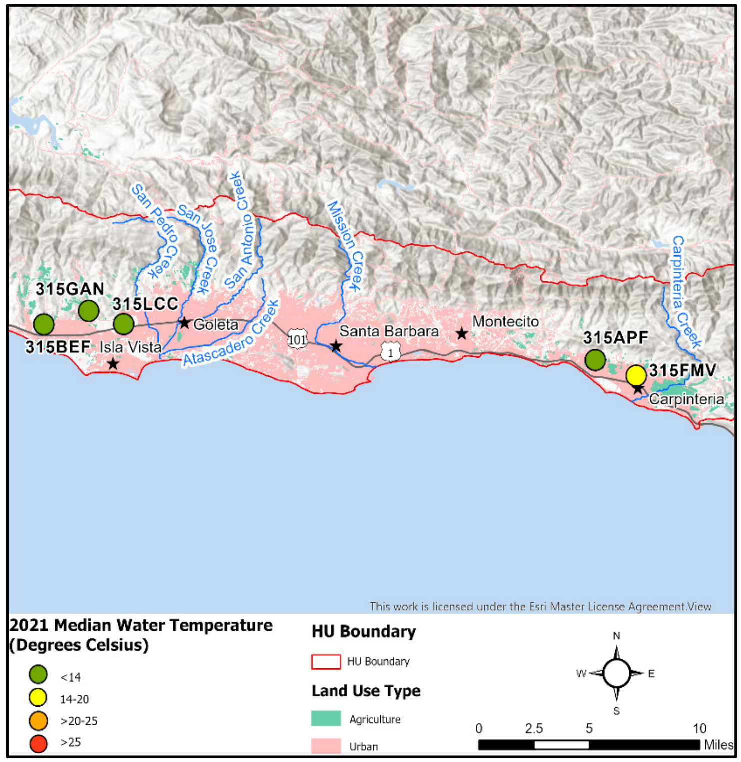


Figure 3-69. 2021 Median Water Temperature for Sites in HU 315

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 2021, water temperatures peaked at most sites in the South Coast HU during the months of May and July, and minimum temperatures at most sites were recorded during the month of January. **Figure 3-69** depicts annual median temperatures for sites in the South Coast HU for 2021, and **Table 3-96** presents descriptive statistics.

- Median water temperatures in the South Coast HU ranged from 11.0 at Arroyo Paredon Creek (315APF) to 15.3 °C at Franklin Creek (315FMV) in 2021.
- The lowest water temperature (8.5 °C) was observed at Arroyo Paredon Creek (315APF). The highest water temperature (21.7 °C) was observed at Franklin Creek (315FMV).
- From 2005-2021, one site showed a statistically significant increasing trend in water temperature (Arroyo Paredon Creek [315APF]).

Table 3-96. Descriptive Statistics for Water Temperature in Hydrologic Unit 315 (°C)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	8.5	15.7	11.8	11.0	**Increasing**
315BEF	8	9.9	16.5	12.4	11.8	Increasing
315FMV	12	11.7	21.7	15.7	15.3	Increasing
315GAN	12	10.1	17.9	13.3	12.9	Increasing
315LCC	5	10.1	13.9	11.8	11.3	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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, so have 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 2021, and **Table 3-97** and **Appendix B** presents descriptive statistics and turbidity limit exceedances.

- Median turbidities for 2021 ranged from 3 NTU in Arroyo Paredon Creek (315APF) to 17 NTU in Bell Creek (315BEF).
- The highest turbidity (367 NTU) was measured in Bell Creek (315BEF).
- All sites exceeded the turbidity limit of 25 NTU in at least one sample.
- Low median flows and TSS concentrations resulted in low TSS loading throughout the South Coast HU. (**Appendix B**).

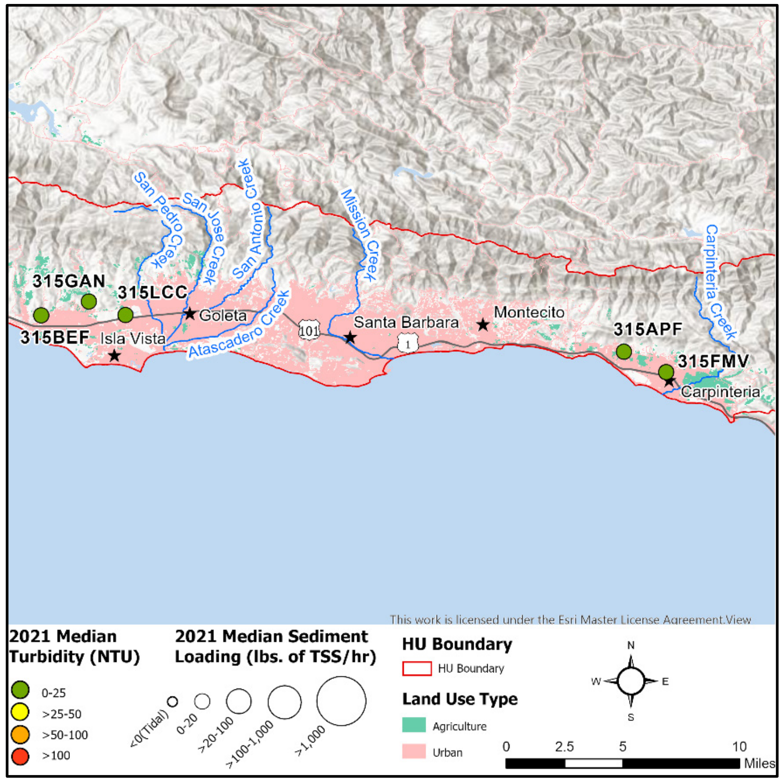


Figure 3-70. 2021 Median Turbidity and TSS Loading for Sites in HU 315

- For the period of 2005-2021, three sites showed statistically significant increasing trends in turbidity (Arroyo Paredon Creek [315APF], Bell Creek [315BEF], and Glen Annie Creek [315GAN]).
- For the period of 2012-2021, one site (Arroyo Paredon Creek [315APF]) showed a statistically significant increasing trend 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 3-97. 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	7	2	27	7	3	14%	**Increasing**	**Increasing**
315BEF	8	2	367	61	17	50%	**Increasing**	Increasing
315FMV	12	3	165	23	7	17%	Increasing	Decreasing
315GAN	12	2	64	11	6	8%	**Increasing**	Increasing
315LCC	5	3	63	18	6	20%	Decreasing	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2005-2021 and TSS was monitored from 2012-2021.

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 2021, **Table 3-98** presents descriptive statistics, and **Table 3-99** and **Appendix B** presents non-TMDL area limit exceedances.

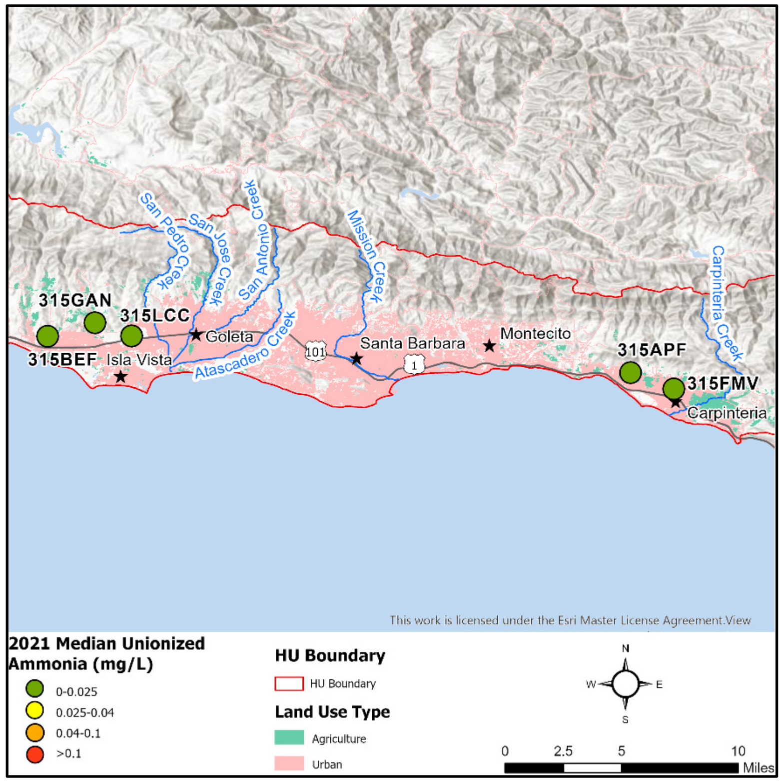


Figure 3-71. 2021 Median Unionized Ammonia for Sites in HU 315

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 3-100**.

- The highest concentration of unionized ammonia (0.0061 mg/L) was measured in Franklin Creek (315FMV).
- For the period of 2005-2021, one site showed a statistically significant decreasing trend in unionized ammonia concentrations (Bell Creek [315BEF]).

Table 3-98. Descriptive Statistics for Unionized Ammonia in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	0.0003	0.0051	0.0013	0.0006	Decreasing
315BEF	8	0.0001	0.0009	0.0004	0.0004	**Decreasing**
315FMV	12	0.0005	0.0061	0.0026	0.0021	Decreasing
315GAN	12	0.0000	0.0029	0.0009	0.0006	Increasing
315LCC	5	0.0001	0.0007	0.0003	0.0004	Decreasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021.

Table 3-99. 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, 2021*, 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.
- From 2005-2021, Bell Creek (3155BEF) showed statistically significant decreasing trends in unionized ammonia and total ammonia. Arroyo Paredon Creek (315APF) showed a statistically significant decreasing trend in total ammonia only.

Table 3-100. Descriptive Statistics for Total Ammonia in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	0.0094	0.1420	0.0370	0.0190	**Decreasing**
315BEF	8	0.0121	0.0828	0.0295	0.0230	**Decreasing**
315FMV	12	0.0282	0.1820	0.0944	0.0856	Decreasing
315GAN	12	0.0035	0.3680	0.1032	0.0673	Decreasing
315LCC	5	0.0123	0.0361	0.0269	0.0293	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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

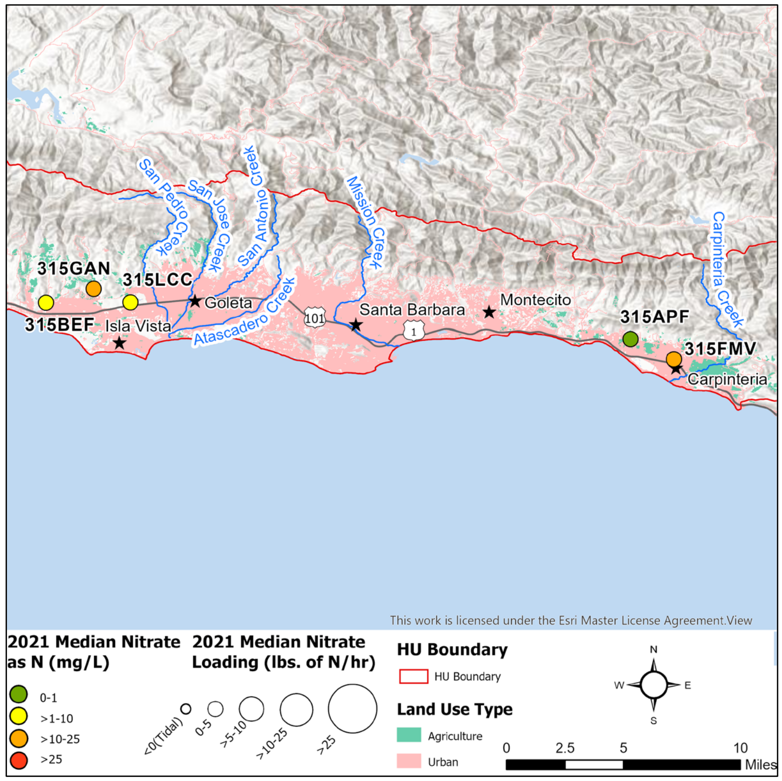


Figure 3-72. 2021 Median Nitrate as N for Sites in HU 315

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 Creek 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 2021, **Table 3-101** presents descriptive statistics, and **Table 3-102** and **Appendix B** presents 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 3-103** and TMDL and non-TMDL area limit exceedances are presented in **Table 3-104** and **Appendix B**.

- In 2021, the median nitrate concentrations were highest in Franklin Creek (315FMV) (24.9 mg/L).
- Regardless of nitrate concentrations, low median flows resulted in low nitrate loading throughout the South Coast HU (**Appendix B**).
- For the period of 2005-2021, three sites showed statistically significant decreasing trends in nitrate concentrations (Bell Creek [315BEF], Franklin Creek [315FMV], and Glen Annie Creek [315GAN]). The same three sites showed statistically significant decreasing trends in nitrate loading.

Table 3-101. 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	7	0.0	0.9	0.1	0.0	Increasing	Increasing
315BEF	8	1.4	5.9	3.6	3.8	**Decreasing**	**Decreasing**
315FMV	12	12.1	28.6	24.0	24.9	**Decreasing**	**Decreasing**
315GAN	12	3.8	15.4	8.5	9.3	**Decreasing**	**Decreasing**
315LCC	5	0.0	2.1	1.2	1.9	Decreasing	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

- 100% of samples at Franklin Creek (315FMV) and 42% of samples at Glen Annie Creek (315GAN) exceeded the 10 mg/L TMDL limit for nitrate. The other sites had no exceedances during 2021.

Table 3-102. 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	100%	N/A	N/A
315GAN	N/A	N/A	N/A	42%	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, 2021*, 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 ranged from 0.3 mg/L at Arroyo Paredon Creek (315APF) to 25.7 mg/L at Franklin Creek (315FMV).
- From the period of 2005-2021, two sites (Bell Creek [315BEF] Glen Annie Creek [315GAN]) showed statistically significant decreasing trends in total nitrogen. Franklin Creek (315FMV) showed a statistically significant increasing trend in total nitrogen.

Table 3-103. Descriptive Statistics for Total Nitrogen in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	0.1	1.4	0.4	0.3	Decreasing
315BEF	8	2.3	6.7	4.5	4.5	**Decreasing**
315FMV	12	13.1	31.3	25.2	25.7	**Increasing**
315GAN	12	4.2	16.6	9.3	10.1	**Decreasing**
315LCC	5	0.3	2.6	1.6	2.2	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 3-104. 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, 2021*, 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 2021. **Table 3-105** presents descriptive statistics for orthophosphate, **Table 3-106** present descriptive statistics for total phosphorus, and **Table 3-107** and **Appendix B** presents TMDL and non-TMDL area limit exceedances for total phosphorus.

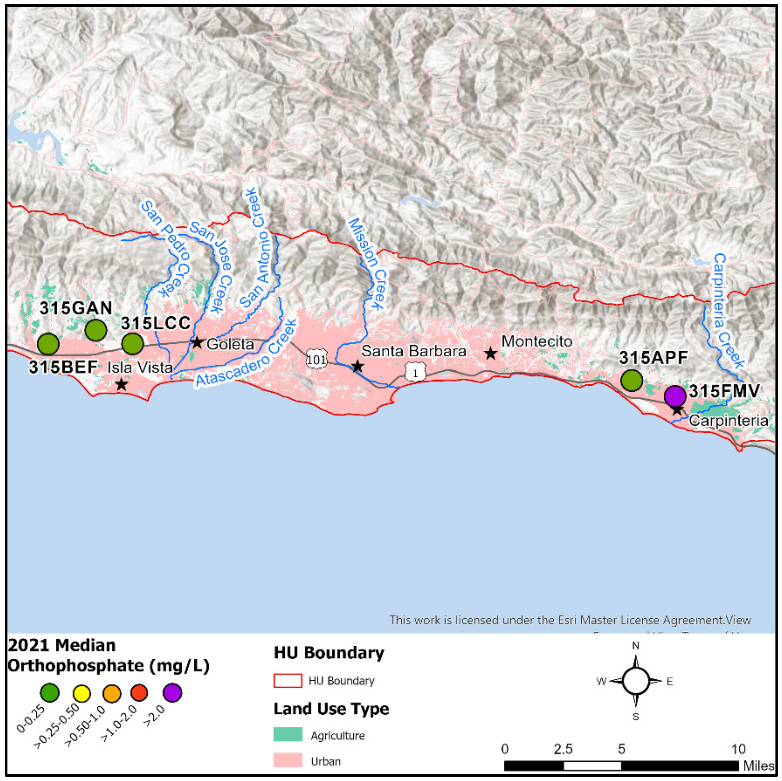


Figure 3-73. 2021 Median Orthophosphate as P for Sites in HU 305

- Orthophosphate concentrations in the South Coast HU ranged from 0.004 mg/L at Arroyo Paredon Creek (315APF) and Bell Creek (315BEF) to 6.62 mg/L at Franklin Creek (315FMV).
- In 2021, median orthophosphate concentrations ranged from 0.004 mg/L in Arroyo Paredon Creek (315APF) and Bell Creek (315BEF) to 4.495 mg/L in Franklin Creek (315FMV).
- From the period of 2005-2021, Franklin Creek (315FMV) showed a statistically significant increasing trend in orthophosphate concentrations. Bell Creek (315BEF) showed a statistically significant decreasing trend in orthophosphate concentrations.

Table 3-105. Descriptive Statistics for Orthophosphate as P in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	0.004	0.038	0.012	0.004	Decreasing
315BEF	8	0.004	0.285	0.056	0.004	**Decreasing**
315FMV	12	0.534	6.620	3.952	4.495	**Increasing**
315GAN	12	0.025	0.218	0.094	0.096	Decreasing
315LCC	5	0.022	0.227	0.072	0.037	N/A[3]

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- The spatial distribution and relative magnitudes of total phosphorus concentrations were similar to orthophosphate concentrations. Median total phosphorus concentrations ranged from 0.027 mg/L at Arroyo Paredon Creek (315APF) to 5.185 mg/L at Franklin Creek (315FMV).
- The maximum total phosphorus concentration at any South Coast HU site was observed at Franklin Creek (315FMV) (7.1 mg/L).

- From the period of 2005-2021, Franklin Creek (315FMV) showed a statistically significant increasing trend in total phosphorus concentrations. Bell Creek (315BEF) showed a statistically significant decreasing trend in total phosphorus concentrations.

Table 3-106. Descriptive Statistics for Total Phosphorus in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	0.012	0.046	0.025	0.027	Decreasing
315BEF	8	0.005	0.663	0.124	0.038	**Decreasing**
315FMV	12	0.629	7.100	4.359	5.185	**Increasing**
315GAN	12	0.081	0.474	0.170	0.150	Increasing
315LCC	5	0.074	0.302	0.173	0.200	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 phosphorus TMDL limit in 100% of samples collected.

Table 3-107. 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, 2021*, 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 2021 and **Table 3-108** presents descriptive statistics.

- Median conductivities ranged from 1,731 µS/cm in Franklin Creek (315FMV) to 4,231 µS/cm in Bell Creek (315BEF).
- In 2021, the highest conductivity in the South Coast HU was measured at Bell Creek (315BEF) (5,916 µS/cm).

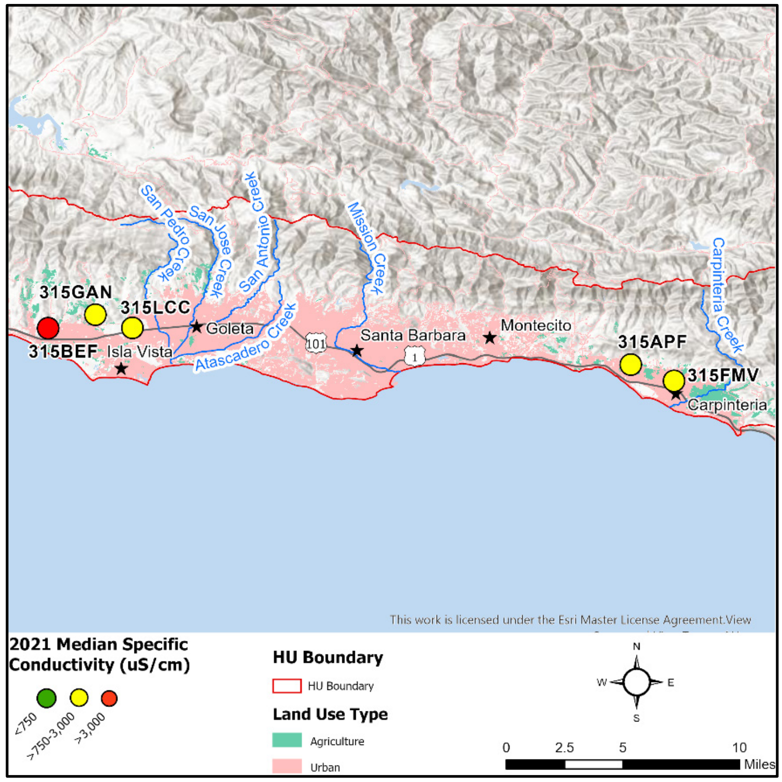


Figure 3-74. 2021 Median Conductivity for Sites in HU 315

- All four sites to which the objective applies exceeded the low-end of the listed ranges (750 µS/cm) on a mean and median basis.
- For the period of 2005-2021, Los Carneros Creek (315LCC) showed a statistically significant decreasing trend in conductivity. Two sites showed statistically significant increasing trends in conductivity (Bell Creek [315BEF] and Glen Annie Creek [315GAN]).

Table 3-108. Descriptive Statistics for Conductivity in Hydrologic Unit 315 (µS/cm)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	1,237	2,189	1,860	2,060	Increasing
315BEF	8	1,011	5,916	3,948	4,231	**Increasing**
315FMV	12	975	1,851	1,638	1,731	Increasing
315GAN	12	1,004	2,650	2,228	2,424	**Increasing**
315LCC	5	1,342	3,011	2,326	2,787	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 salinity applicable to CMP sites in the South Coast HU. **Figure 3-75** depicts annual median TDS concentrations for sites within the South Coast HU for 2021. **Table 3-109** and **Table 3-110** present descriptive statistics for TDS and salinity, respectively.

- Median TDS concentrations in 2021 ranged from 1,125 mg/L in Franklin Creek (315FMV) to 2,750 mg/L in Bell Creek (315BEF).
- The highest TDS concentration in 2021 was measured in Bell Creek (315BEF) (3,845 mg/L).
- For the period of 2005-2021, two sites showed statistically significant increasing trends in TDS concentrations (Arroyo Paredon Creek [315APF] and Bell Creek [315BEF]). Los Carneros Creek (315LCC) displayed a statistically significant decreasing trend in TDS concentrations.

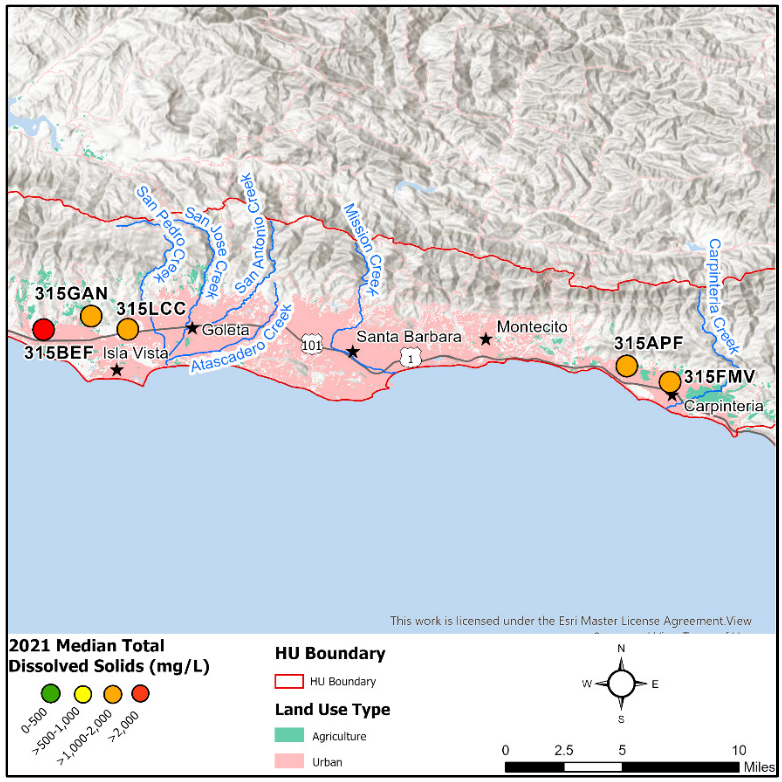


Figure 3-75. 2021 Median Total Dissolved Solids for Sites in HU 315

Table 3-109. Descriptive Statistics for Total Dissolved Solids in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
315APF	7	1,100	1,423	1,325	1,339	N/A	**Increasing**
315BEF	8	657	3,845	2,622	2,750	N/A	**Increasing**
315FMV	12	672	1,203	1,088	1,125	N/A	Decreasing
315GAN	12	652	1,722	1,467	1,575	N/A	Increasing
315LCC	5	1,085	1,951	1,577	1,808	N/A	**Decreasing**

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 salinity were similar to TDS concentrations.
- For the period of 2005-2021, two sites showed statistically significant increasing trends in salinity (Bell Creek [315BEF] and Glen Annie Creek [315GAN]). Los Carneros Creek (315LCC) showed statistically significant decreasing trends in salinity.

Table 3-110. Descriptive Statistics for Salinity in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Trend[2]
315APF	7	0.86	1.13	1.05	1.06	Increasing
315BEF	8	0.50	3.22	2.16	2.27	**Increasing**
315FMV	12	0.54	0.94	0.85	0.89	Decreasing
315GAN	12	0.50	1.38	1.17	1.26	**Increasing**
315LCC	5	0.85	1.58	1.26	1.46	**Decreasing**

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.7.9 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 2021, **Table 3-111** presents descriptive statistics for dissolved oxygen concentration, and **Table 3-112** presents descriptive statistics for oxygen saturation.

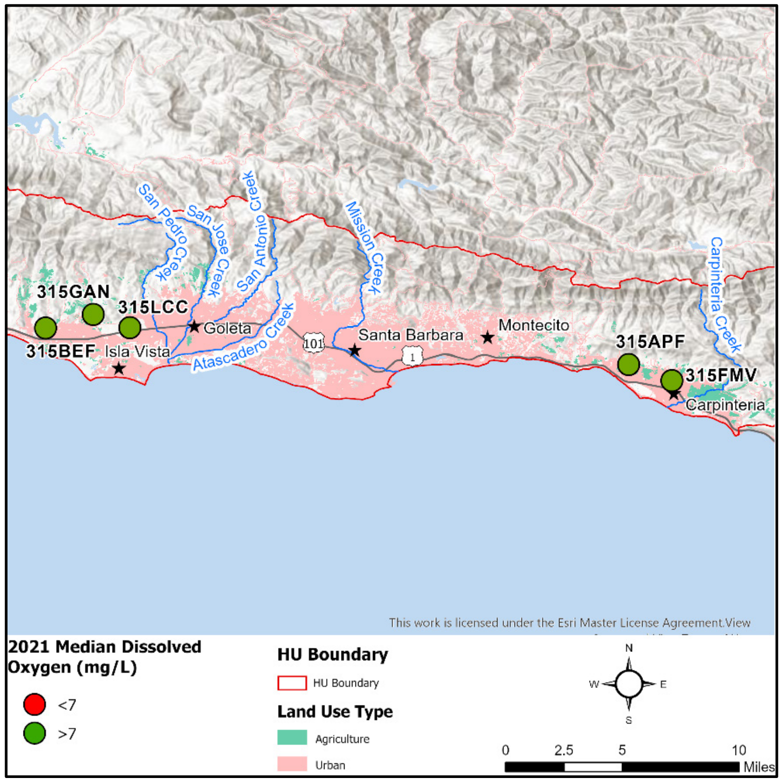


Figure 3-76. 2021 Median Dissolved Oxygen Concentrations for Sites in HU 315

- Arroyo Paredon Creek (315APF) and Franklin Creek (315FMV) met the 7 mg/L minimum WQO in all 2021 samples.
- For the period of 2005-2021, two sites showed statistically significant decreasing trends in DO concentrations (Bell Creek [315BEF] and Glen Annie Creek [315GAN]). No sites showed significantly increasing trends in DO. 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 3-111. Descriptive Statistics for Dissolved Oxygen in Hydrologic Unit 315 (mg/L)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
315APF	7	8.86	11.18	10.18	10.35	0%	Increasing
315BEF	8	7.27	14.98	9.36	8.42	0%[3]	**Decreasing**
315FMV	12	9.53	14.84	12.62	12.68	0%	Increasing
315GAN	12	5.58	10.02	7.50	7.36	42%	**Decreasing**
315LCC	5	2.29	9.91	6.80	9.24	40%	Increasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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.

- At Bell Creek (315BEF), the 85% median threshold for oxygen saturation was not met.
- For the period of 2005-2021, Glen Annie Creek (315GAN) showed a statistically significant decreasing trend in oxygen saturation and Arroyo Paredon Creek (315APF) showed a statistically significant increasing trend in oxygen saturation.

Table 3-112. Descriptive Statistics for Oxygen Saturation in Hydrologic Unit 315 (%)

Site ID[1]	N	Min	Max	Mean	Median	Water Quality Objective Exceedance?	Trend[2]
315APF	7	82	103	94	96	N/A	**Increasing**
315BEF	8	68	142	88	80	Yes	Decreasing
315FMV	12	104	164	128	124	N/A	Increasing
315GAN	12	55	90	72	71	N/A	**Decreasing**
315LCC	5	22	89	62	83	N/A	Decreasing

Notes:
1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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).

3.7.10 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 2021 and **Table 3-113** presents descriptive statistics.

- In 2021, there were no pH exceedances in Glen Annie Creek (315GAN) or Los Carneros Creek (315LCC). 71% of samples at Arroyo Paredon Creek (315APF), 13% of samples at Bell Creek (315BEF), and 92% of samples at Franklin Creek (315FMV) exceeded the upper limit of the pH WQO (8.3 pH units). No samples in the South Coast HU were lower than 7 pH units.
- The highest pH was recorded in Arroyo Paredon Creek (315APF) (8.43 pH units) and the lowest was recorded in Los Carneros Creek (315LCC) (7.23 pH units).
- For the period of 2005-2021, Franklin Creek (315FMV) showed a statistically significant decreasing trend in pH, while Arroyo Paredon Creek (315APF) showed a statistically significant increasing trend in pH.

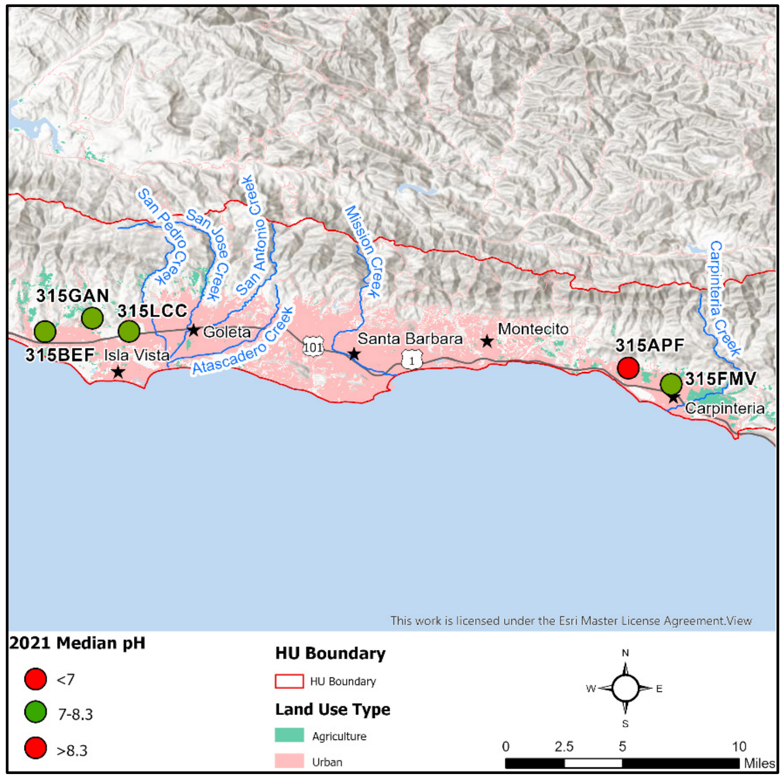


Figure 3-77. 2021 Median pH for Sites in HU 315

Table 3-113. Descriptive Statistics for pH in Hydrologic Unit 315 (pH units)

Site ID[1]	N	Min	Max	Mean	Median	Percent Exceedance	Trend[2]
315APF	7	8.11	8.43	8.30	8.34	71%	**Increasing**
315BEF	8	7.68	8.37	7.89	7.85	13%	Decreasing
315FMV	12	7.69	8.41	8.00	7.98	17%	**Decreasing**
315GAN	12	7.58	7.80	7.66	7.63	0%	Increasing
315LCC	5	7.23	8.09	7.71	7.97	0%	Increasing

Notes:

1 Refer to Section 2.1, Table 2-1, *Core Monitoring Locations*, 2021, 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 2021 are illustrated in **Figure 3-78** and tabulated in **Table 3-114**. *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.

- No samples showed toxicity to algae in 2021 (**Figure 3-78 a**). All sites achieved the significant toxic effect non-TMDL area limit for growth in water (**Figure 3-78 a**).
- Significant mortality to *C. dilutus* in water was observed in three samples collected from three sites (Arroyo Paredon Creek [315APF], Glen Annie Creek [315GAN], and Los Carneros Creek [315LCC]). No significant mortality to *C. dubia* in water was observed. (**Figure 3-78 b, d**). Two sites (Bell Creek [315BEF] and Franklin Creek [315FMV]) achieved the significant toxic effect non-TMDL area limit for *C. dilutus* survival in water (**Figure 3-78 b**). All sites achieved 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 four sites: one of three bioassays from Arroyo Paredon Creek (315APF); three of four samples from Franklin Creek (315FMV); one of four samples from Glen Annie Creek (315GAN); and one of two samples from Los Carneros Creek (315LCC) (**Figure 3-78 c**). In the South Coast HU, one site (Bell Creek [315BEF]) achieved the significant toxic effect non-TMDL area limit for reproduction in water (**Figure 3-78 c**).
- No toxicity to invertebrate growth in sediment was observed in any collected samples. Toxicity to invertebrate survival in sediment was observed in one of two bioassays collected from Franklin Creek (315FMV) (**Figure 3-78 e, f**). All sites achieved the significant toxic effect non-TMDL area limit for growth in sediment (**Figure 3-78 e**). All but one site (Franklin Creek [315FMV]) achieved the significant toxic effect non-TMDL area limit for survival in sediment (**Figure 3-78 f**).
- For the period of 2005-2021, one statistically significant increasing (improving, decreased toxicity) trend in algae growth was observed at Bell Creek (315BEF). Statistically significant decreasing (worsening, increased toxicity) trends in invertebrate growth in sediment were observed at Bell Creek (315BEF) and Glen Annie Creek (315GAN) (**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 3-114**.

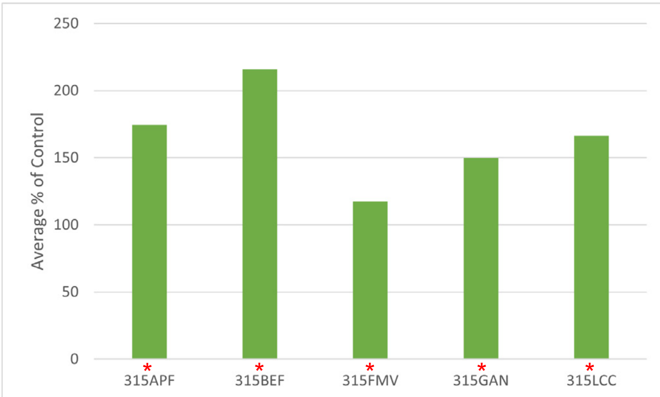
Table 3-114. Summary of Toxicity and Trends (Water) in Hydrologic Unit 315

Site ID[1]	Algal Growth		*C. dilutus*– Survival		*C. dubia* – Reproduction		*C. dubia* – Survival	
	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]	# of Toxic Samples	Trend[1]
315APF	0/3	Increasing	1/3	Decreasing	1/3	Increasing	0/3	None[2]
315BEF	0/3	**Increasing**	0/1	Increasing	0/1	Increasing	0/3	Decreasing
315FMV	0/4	Increasing	0/4	Increasing	2/4	Decreasing	0/4	Decreasing
315GAN	0/4	Increasing	¼	Increasing	0/4	Increasing	0/4	Increasing
315LCC	0/2	Increasing	½	Decreasing	½	Increasing	0/2	Decreasing

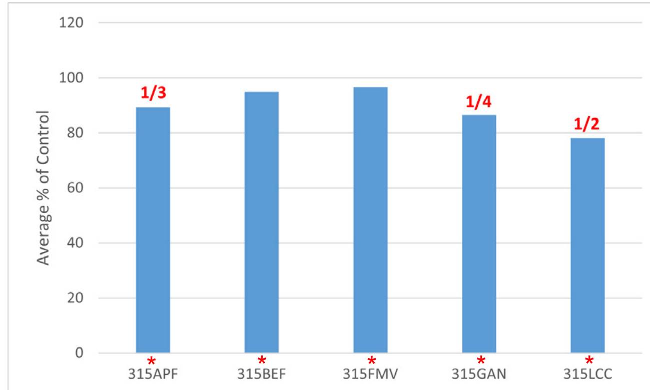
Notes:

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

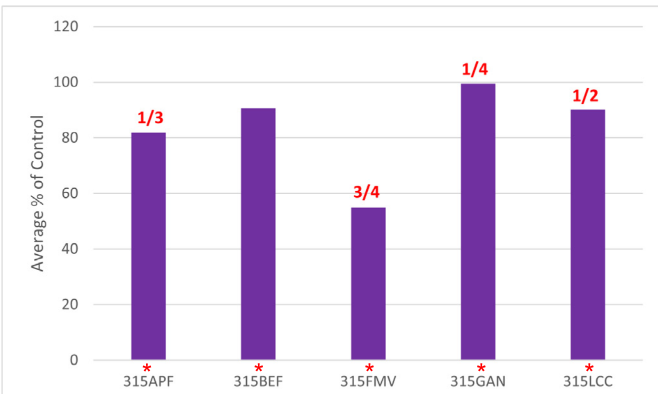
2 None = No monotonic trend (i.e., increasing or decreasing) was identified.



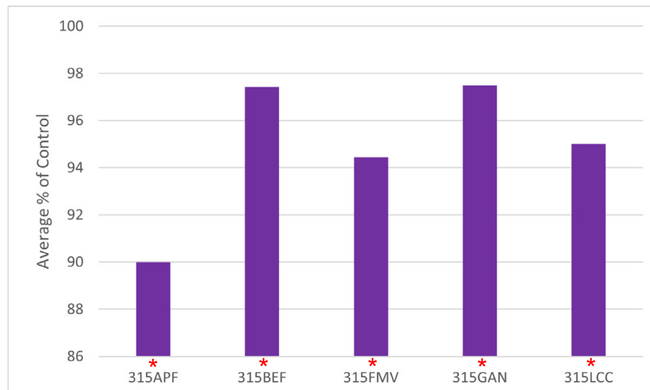
a) Algal Toxicity in Water – Growth



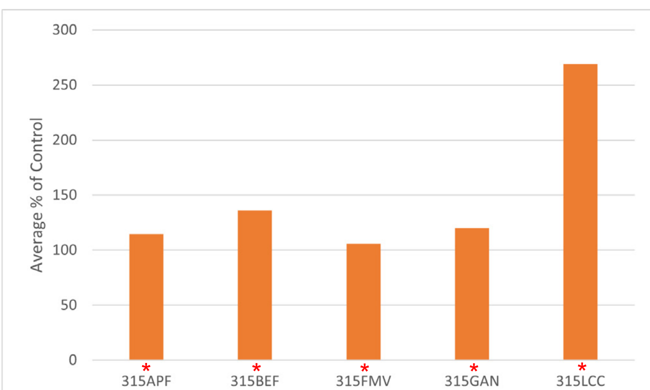
b) *C. dilutus* Toxicity in Water – Survival



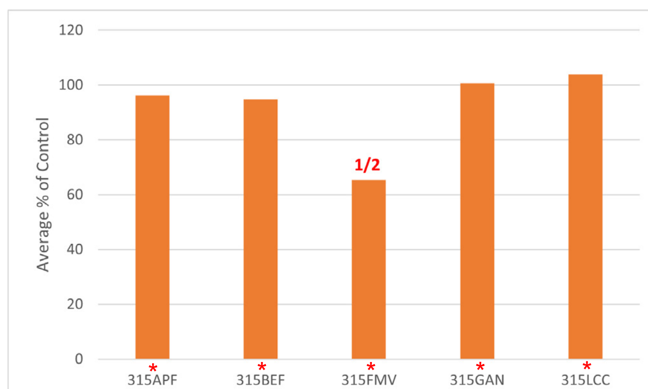
c) *C. dubia* Toxicity in Water – Reproduction



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 2021 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.)

4.0 DISCUSSION

The results of CMP monitoring were evaluated for spatial patterns and temporal trends in water quality. Results from the 2021 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 2021.

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 2021, 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	0.0019	8.9	7.6	74.6	8.0	1,628	19.4	0.24
309	0.0019	14.0	9.5	96.8	7.8	1,675	50.8	0.31
310	0.0005	3.2	7.1	73.5	7.7	1,034	13.4	0.30
312	0.0085	22.4	11.4	119.7	8.2	1,909	48.0	0.27
313/314	0.0033	1.4	9.0	90.9	8.0	1,514	20.8	0.72
315	0.0006	4.5	9.6	89.5	7.9	2,059	6.7	0.09

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	8	121	7	51	103	50	46	121	38	34	121	28
309	13	149	9	39	69	57	13	153	8	27	153	18
310	0	45	0	9	45	20	17	45	38	3	45	7
312	33	88	38	68	88	77	5	88	6	32	88	36
313/314	1	28	4	1	28	4	8	28	29	7	28	25
315	0	44	0	17	44	39	7	44	16	8	44	18

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 Salinas HU had the highest aggregate median **Turbidity** concentration (50.8 NTU) in 2021, followed by the Santa Maria (48.0 NTU) and San Antonio and Santa Ynez (20.8 NTU) HUs.
- The Santa Maria HU had the highest percentage of samples (38%, 33 of 88 samples) exceeding the WQO and TMDL limit for **Unionized Ammonia** (0.025 mg/L) in 2021, followed by the Salinas (9%, 13 of 149 samples), the Pajaro (7%, 8 of 121 samples), and the San Antonio and Santa Ynez (4%, one of 28 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 (0.0085 mg/L).
- The San Antonio and Santa Ynez HU had the highest aggregate median **Orthophosphate as P** concentration (0.72 mg/L).
- The Santa Maria HU had the highest percent of samples (77%, 68 of 88 samples) exceeding the WQO and TMDL limit for **Nitrate** (10 mg/L), followed by the Salinas (57%, 39 of 69 samples), the Pajaro (50%, 51 of 103 samples), and the South Coast (39%, 17 of 44 samples) HUs. The Santa Maria HU also had the highest aggregate median nitrate concentration (22.4 mg/L) for 2021, followed by the Salinas HU (14.0 mg/L).
- The South Coast HU had the highest aggregate median **Specific Conductivity** (2,059 µS/cm) in 2021, followed by the Santa Maria HU (1,909 µS/cm). 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 (7.1 mg/L) in 2021, followed by the Pajaro (7.6 mg/L) and San Antonio and Santa Ynez HUs (9.0 mg/L). The Pajaro and Estero Bay HUs had the highest percent of samples (38%, 46 of 121 samples and 17 of 45 samples, respectively) failing to meet the applicable Basin Plan dissolved oxygen WQO (i.e., >5 or 7 mg/L) in 2021, followed by the San Antonio and Santa Ynez HUs (29%, eight of 28 samples).
- The Santa Maria HU had the highest percent of samples (36%, 32 of 88 samples) exceeding the WQO for **pH** (7-8.3 pH units) in 2021, followed by the Pajaro (28%, 34 of 121 samples) and San Antonio and Santa Ynez HUs (25%, seven of 28 samples). The highest aggregate median pH for 2021 was in the Santa Maria HU (8.2 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 2021.

4.1.2 Spatial Patterns in Toxicity-Related Parameters

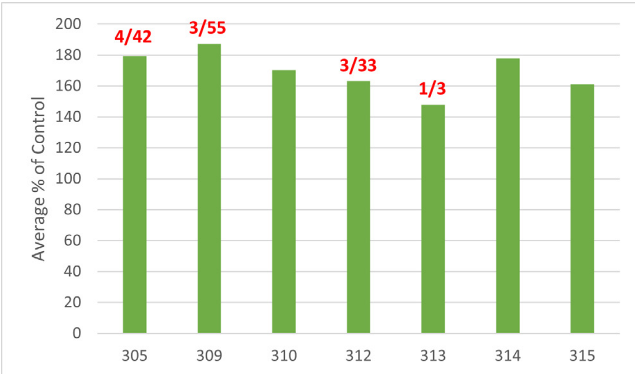
Differences in toxicity monitoring results between HUs are illustrated in **Figure 4-1**. As in prior years, toxicity to algae was less common on a regional basis compared to invertebrate toxicity in water and sediment:

- **Toxicity to Algae** was rare overall and most frequent in samples collected from the Pajaro River HU (10%, four of 42 samples) and the Santa Maria HU (9%, 3 of 33 samples) (**Figure 4-1 a**). One of the three samples collected from the San Antonio HU also showed toxicity. The Estero Bay, Santa Ynez, and South Coast HUs showed no toxicity to algae during 2021.
- In 2021, **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 (85%, 23 of 27 samples and 30%, 10 of 33 samples, respectively) and the Salinas HU (62%, 29 of 47 samples and 20%, 11 of 55 samples, respectively) (**Figure 4-1 b, d**). Toxicity to sublethal endpoints (i.e., reproduction or growth) for *C. dubia* and alternate species was most frequent in samples collected from the Santa Maria HU (59%, 16 of 27 samples), Salinas HU (50%, 25 of 50 samples), and Santa Ynez (50%, three of six samples) (**Figure 4-1 c)**. Two of the three samples collected from the San Antonio HU also showed toxicity. The following comparisons are based on results from bioassays with lethal *and* sublethal endpoints. The test protocol for the alternative species *H. azteca* has only one endpoint, survival, so this small subset of results was not included.

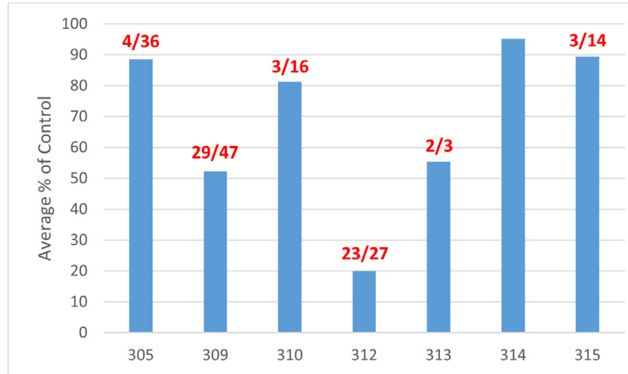
  - Regionwide, 63% of samples for *C. dubia* and alternate species (40 of 63 samples) with significant toxicity showed only sub-lethal effects, with no significant mortality.
  - In the Salinas HU, 29% of samples for *C. dubia* and alternate species (eight of 28 samples) with significant toxicity, showed both lethal and sub-lethal effects. The majority (20 samples) showed only sub-lethal effects.
  - In the Santa Maria HU, 53% of toxic samples (nine of 17 samples) with significant toxicity, showed both lethal and sub-lethal effects.

- In 2021, **Toxicity to Invertebrates in Sediment** was observed everywhere in the Central Coast Region except for the Santa Ynez HU (**Figure 4-1 e, f**). Toxicity to invertebrate survival was observed most frequently in samples collected from the Salinas HU (68%, 15 of 22 samples) and Santa Maria HU (64%, nine of 14 samples). Toxicity to invertebrate growth in sediment was also observed most frequently in samples collected from the Salinas HU (70%, 14 of 20 samples) and the Santa Maria HU (57%, eight of 14 samples). Toxicity to invertebrates in sediment was not observed in any samples from the Santa Ynez HU. The following comparisons are based only on results from bioassays with lethal and sublethal 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, 32% of sediment samples (12 of 37 samples) with significant toxicity showed only sub-lethal effects, with no significant effect to mortality. The majority of sediment samples with toxicity showed lethal effects as well.
  - Of the samples that showed only sub-lethal toxic effects, 58% (seven of 12 samples) occurred in northern HUs while 42% (five of 12 samples) occurred in southern HUs.
  - In the Santa Maria HU 55% (six of 11 samples) with significant toxicity, showed both lethal and sub-lethal effects.
  - In the Salinas HU 61% (11 of 18 samples) with significant toxicity, showed both lethal and sub-lethal effects.

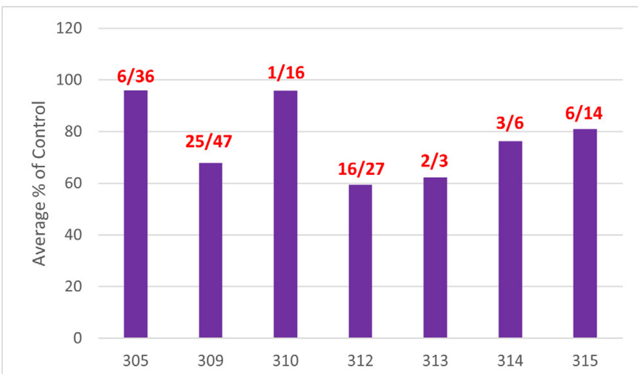
In some situations, it is difficult to determine the cause(s) of aquatic toxicity, and in these cases, it can be useful to perform a Toxicity Identification Evaluation (TIE). In a TIE, sample water known to be toxic to one or more aquatic species is manipulated in a variety of ways to assess the presence 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: Aquatic Toxicity and Potential Toxicants in Sediment and Water, 2017-2018* (CCWQP 2020).



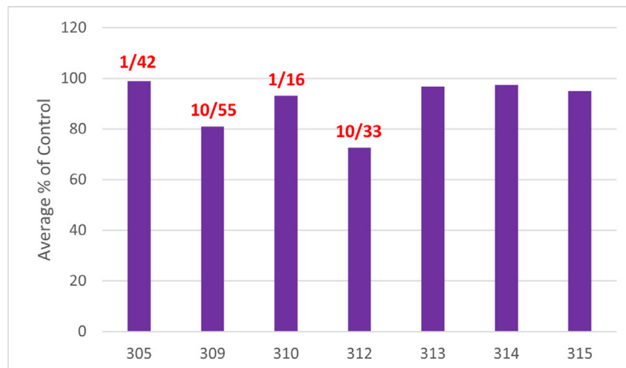
a) Algal Toxicity in Water – Growth



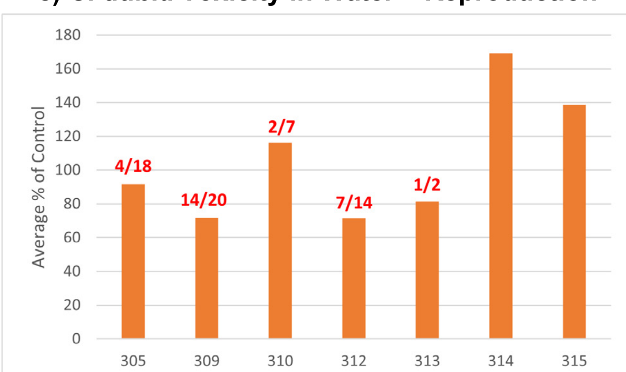
b) *C. dilutus* Toxicity in Water – Survival



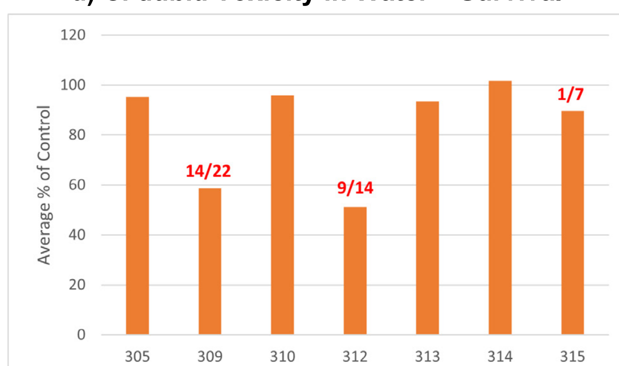
c) *C. dubia* Toxicity in Water – Reproduction



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 2021

Notes:

1. Bars represent the mean survival, reproduction, or growth rate for all 2021 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 2021. 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 2005-2021 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 2020 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 2021, trends in stream **Flow** were almost entirely decreasing. Twenty-seven of 31 statistically significant trends were decreasing. Three increasing trends were observed in northern HUs, and one increasing trend was observed in southern HUs. The general distribution and direction of trends for flow were consistent with the 2020 trend analysis. No reversal of trends was found.
- Trends in **pH** were observed throughout the Central Coast Region, but more commonly in the northern HUs. The majority of decreasing trends (88%, 15 of 17 decreasing trends) were observed in northern HUs, and the majority of increasing trends (85%, 11 of 13 increasing trends) were observed in southern HUs. Eighty-eight percent (15 of 17) of all trends observed in the northern HUs and 15% (2 of 13) 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, and 2019 trend analyses that showed primarily decreasing trends in northern HUs and primarily increasing trends in southern HUs. No reversal of trends was found.
- Through 2021, a slight majority of decreasing trends (55%, 16 of 29 decreasing trends) for **Salinity, Specific Conductivity, and TDS**, were observed in southern HUs. A slight majority of increasing trends (51%, 18 of 35 increasing trends) were also observed in southern HUs. Fifty-seven percent (17 of 30) of all trends observed in the northern HUs and 53% (18 of 34) 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 2020 trend analysis. No reversal of trends was found.

- Decreasing trends in **Dissolved Oxygen** were observed at 10 sites throughout the monitoring area, which were observed equally in northern and southern HUs with 50% (five of 10 decreasing trends) in each. Of the 13 increasing trends in dissolved oxygen, six were observed in the northern HUs and seven in the southern HUs. Forty-five percent (five of 11) of all trends observed in the northern HUs and 42% (five of 12) observed in the southern HUs were decreasing. The distribution of trends in 2021 was generally consistent with the 2020 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 2021. The majority of increasing trends were observed in southern HUs (64%, seven of 11 increasing trends) and the majority of decreasing trends were observed in northern HUs (81%, 17 of 21 decreasing trends). Eighty-one percent (17 of 21) of all trends observed in the northern HUs, and 36% (four of 11) of all trends observed in the southern HUs were decreasing. In the Estero Bay, San Antonio, Santa Ynez, and South Coast HUs, all statistically significant trends in turbidity were increasing. In the Salinas HU, all but one of the statistically significant trends were decreasing. The distribution of trends in 2021 was generally consistent with the 2020 trend analysis. No reversal of trends was observed. Similar to Turbidity, **Flow-weighted Turbidity** was predominantly decreasing (86%, 24 of 28) through 2021. Eighty percent (eight of 10) of all trends observed in the northern HUs and 89% (16 of 18) of all trends observed in the southern HUs were decreasing.
- Throughout the Central Coast Region, a majority of trends in **Orthophosphate** through 2021 were increasing (58%, 11 of 19 trends). The majority of increasing and decreasing trends were observed in the northern HUs (55%, six of 11 increasing trends and 63%, five of eight decreasing trends). Fifty-five percent (six of 11) of trends observed in the northern HUs and 63% (five of eight) of trends observed in the southern HUs were increasing. These geographical and directional trends for orthophosphate were generally consistent with the 2020 trend analysis. No reversal of trends was observed.
- In 2021, the majority of trends in **Nitrate** concentration were decreasing (71%, 17 of 24 trends). Twenty-nine percent (five of 17 decreasing trends) were found in northern HUs and 71% (12 of 17 decreasing trends) were found in southern HUs. Fifty-five percent (six of 11) of trends observed in northern HUs were increasing and 8% (one of 13) of trends observed in southern HUs were decreasing. In the Estero Bay, San Antonio, Santa Ynez, and South Coast HUs, all statistically significant trends in nitrate were decreasing.
- Trends in **Total Ammonia** were predominantly increasing through 2021. All trends (10 of 10) in northern HUs were increasing and 88% (seven of eight) of trends in southern HUs were decreasing. A slight majority of trends for **Unionized Ammonia** were increasing (53%, nine of 17 trends). The majority of increasing trends were observed in northern HUs (67%, six of nine increasing trends) and the decreasing trends were split equally between northern and southern HUs with 50% (four of eight decreasing trends) in each. Five of the 17 trends for unionized ammonia occurred at sites that did not show significant trends in total ammonia through 2021. Of the 12 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 Santa Ynez and South Coast HUs, all statistically significant trends in unionized ammonia were decreasing.

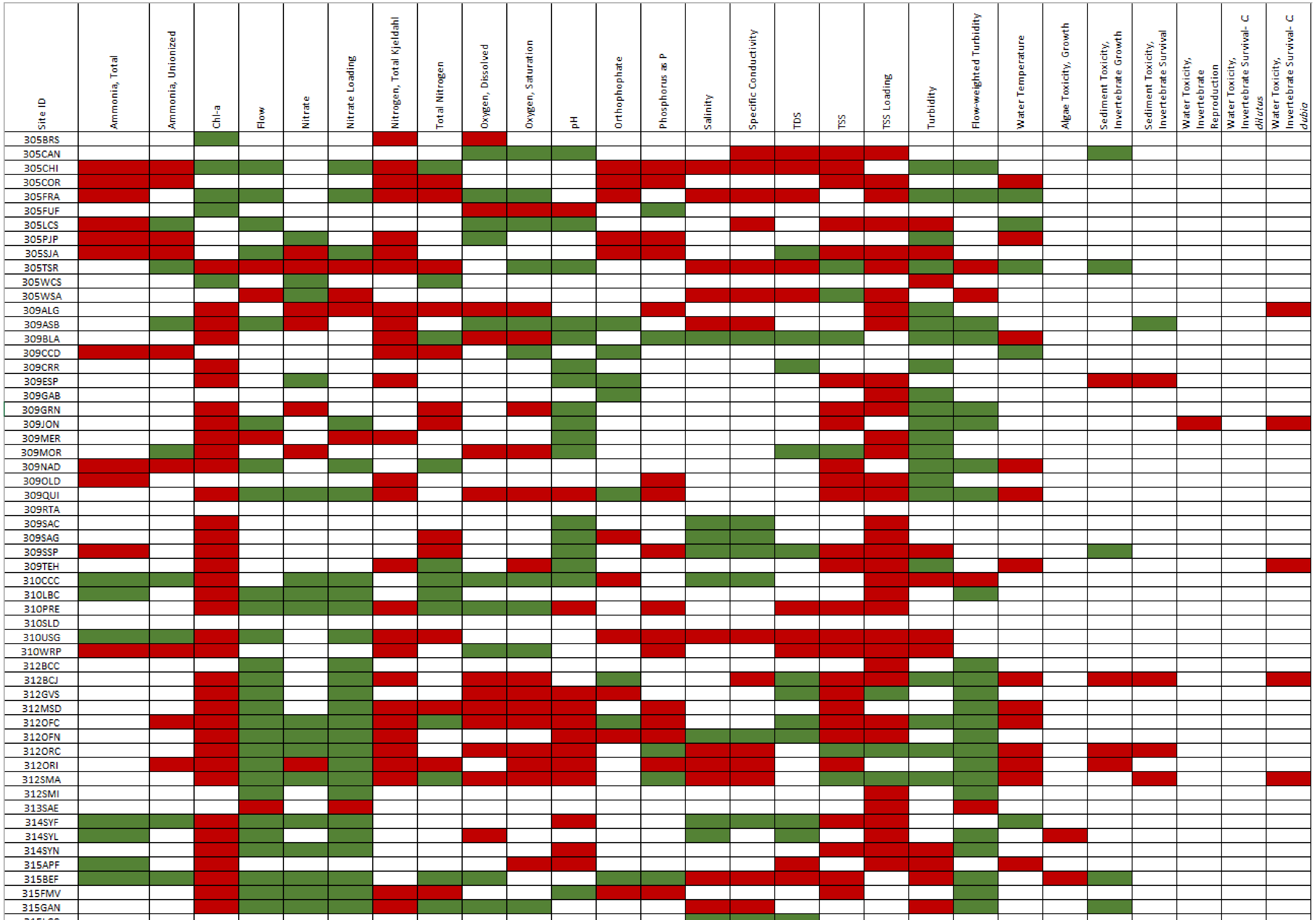


Figure 4-2. Summary of Significant Trends Detected in CMP Data with Mann-Kendall Analysis Using R, 2005-2021

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 data set 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 (p-value >0.05) trend, and a solid blue line indicates a significant trend (p-value ≤ 0.05). The other type of time series plots represent 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 2021, three significant increasing trends (i.e., improvement) for **Algae Growth** were observed in the monitoring area. No significant decreasing trends were observed. Two of the three increasing trends were observed in southern HUs.
- Through 2021, only one significant increasing trend (i.e., improvement) for **Invertebrate Reproduction Rates in Water** was observed. This trend was associated with a site in the Salinas HU. No significant decreasing trends were observed.
- Through 2021, significant increasing trends (i.e., improvement) for **Invertebrate Survival in Water** for *C. dubia* were observed at five sites: three in the Salinas HU and two in the Santa Maria HU. No significant decreasing trends were observed. No significant trends were observed in the monitoring area for *C. dilutus*.
- Through 2021, significant trends for **Invertebrate Growth in Sediment** were split evenly (four and four) between increasing (i.e., improvement) and decreasing (i.e., worsening). Three of the four significant increasing/improving trends were observed in the Santa Maria HU and one was in the Salinas HU.
- Through 2021, 80% (four of five) of significant trends for **Invertebrate Survival in Sediment** were increasing (i.e., improving, reduced toxicity). Fifty percent (one of two) of significant trends in northern HUs and 100% (three of three) of significant trends in southern HUs were increasing/improving.

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 after 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 2021.

Table 4-3. Summary of Wet/Dry Monitoring Events for 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HU 305	**Wet**[T]	Dry	Dry	Dry[T]	Dry[T]	Dry	Dry	Dry	Dry[T]	Dry	Dry[P]	Wet[T,P]
HU 309	**Wet**[T]	Dry	Dry	Dry[T]	Dry[T]	Dry	Dry[P]	Dry	Dry[T]	**Wet**	Dry	Wet[T,P]
HU 310	Wet[T,P]	Dry	Dry	Dry[T]	Dry	Dry	Dry	Dry[P]	Dry[T]	Dry	Dry	Wet[T,P]
HU 312	**Wet**[T]	Dry	Dry	Dry[T]	Dry	Dry	Dry	Dry	Dry[T]	Dry	Dry	**Wet**[T]
HU 313	**Wet**[T]	Dry	Dry	Dry[T]	Dry	Dry	Dry	Dry	Dry[T]	Dry	Dry	Dry
HU 314	**Wet**[T]	Dry	Dry	Dry[T]	Dry	Dry	Dry	Dry	Dry[T]	Dry	Dry	Dry[T]
HU 315	**Wet**[T]	Dry	Dry	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* 2021 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:

- Water temperatures were significantly lower during wet events.
- Flow was significantly higher during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Nitrate was significantly lower during wet events, while nitrate loading was significantly higher during wet events.
- pH was significantly lower during wet events.
- Salinity was significantly lower during wet events.
- TDS was significantly lower during wet events.
- Total nitrogen was significantly lower during wet events.
- TSS was significantly higher during wet events.
- Turbidity was significantly higher 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:

- Water temperatures were significantly lower during wet events.
- Flow was significantly higher during wet events.
- Unionized ammonia was significantly lower during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Nitrate levels were significantly lower during wet events, while nitrate loading was significantly higher during wet events.
- Total Kjeldahl nitrogen (TKN) was significantly higher during wet events.
- Oxygen saturation was significantly lower during wet events.
- pH was significantly lower during wet events.
- Total nitrogen was significantly lower during wet events.
- TSS was significantly higher during wet events.
- Turbidity levels were significantly higher during wet events.
- Survival in water for *C. dilutus* was 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:

- Water temperatures were significantly lower during wet events.
- Unionized ammonia was significantly lower during wet events, but total ammonia was significantly higher during wet events.
- Dissolved oxygen was significantly higher during wet events.
- Phosphorus levels were significantly higher during wet events.
- Salinity was significantly higher during wet events.
- Specific conductivity was significantly lower during wet events.
- TDS was significantly lower during wet events.
- Turbidity was significantly higher during wet events.
- Algae growth was significantly lower 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:

- Water temperatures were significantly lower during wet events.
- Flow was significantly higher during wet events.
- Total ammonia and unionized ammonia levels were significantly lower during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Dissolved oxygen was significantly lower during wet events.
- Salinity was significantly lower during wet events.
- Specific conductivity was significantly lower during wet events.
- TDS was significantly lower during wet events.

- Total nitrogen and nitrate levels were significantly lower during wet events.
- TSS levels and TSS loading were significantly higher during wet events.
- Turbidity was significantly higher during wet events.
- Survival in water for *C. dilutus* was significantly higher 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:

- Water temperatures were significantly lower during wet events.
- Total ammonia was significantly lower during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Orthophosphate was significantly lower during wet events.
- Specific conductivity, TDS, and salinity were significantly lower during wet events.
- Turbidity was significantly higher during wet events.
- Toxicity to invertebrate reproduction was 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:

- Water temperatures were significantly lower during wet events.
- Chlorophyll levels were significantly lower during wet events.
- Salinity, specific conductivity, and TDS were significantly lower during wet events.
- Toxicity to invertebrate reproduction was 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 2021 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 2021, 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 3.2.2, 3.3.2, 3.4.2, 3.5.2, 3.6.2, and 3.7.2 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 2021, 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 Section 4.1 and 4.2.
- Aquatic toxicity from pest control materials. In 2021, water column toxicity 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 2021 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 3.2.10, 3.3.10, 3.4.10, 3.5.10, 3.6.10, and 3.7.10 of this report, and summarized in Sections 4.1 and 4.2.

5.0 SUMMARY AND CONCLUSIONS

All 12 CMP monitoring events planned for 2021 were successfully conducted, with a total of 498 of 672 planned site visits (74.1%) resulting in samples being collected. Samples were not collected during 174 site visits because 94 site visits observed a dry channel and 80 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:

- Trends in **dissolved oxygen** were increasing at more than 50% of sites in the Salinas, Santa Maria, and Santa Ynez HUs, and declining in the Pajaro River, Estero Bay, and South Coast HUs. There were no trends observed within the San Antonio HU. 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.
- There were 32 trends in **turbidity**, which were primarily decreasing (11 sites displayed increasing 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 31 trends in **flow**, which were primarily decreasing (four exceptions). Three increasing trends were observed in northern HUs, and one increasing trend was observed in southern HUs. Thirty 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.
- Trends for both **unionized ammonia** and **orthophosphate** were mostly increasing throughout the Central Coast Region, 9 of 17 trends and 11 of 19 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 only the Estero Bay HU achieved all unionized ammonia TMDL limits.
- Trends in **salinity-related parameters** were entirely increasing in the Pajaro River HU and were mostly increasing in the Santa Maria and South Coast HUs. Trends were entirely decreasing in the Santa Ynez HU, and mostly decreasing in the Salinas HU. An equal number of increasing and decreasing trends were observed in the Estero Bay HU.
- Twenty-four trends in **nitrate** were observed across the Central Coast Region, eleven of which were increasing. Of the increasing trends, most were observed in the Pajaro River and Salinas HUs. Two 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 Santa Maria 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.
- Three 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 relatively infrequent in all regions compared to invertebrate toxicity in water and sediment, and generally reduced from early years of the program.
- **Toxicity to *C. dilutus* and *C. dubia* survival in water** was observed most frequently in samples collected from the Santa Maria HU followed by the Salinas HU.
- **Toxicity to invertebrate reproduction or growth in water** was also most frequent in samples collected from the San Antonio HU followed by the Santa Maria HU.

- 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 San Antonio, Santa Ynez, and South Coast HUs. Significant mortality was observed in *C. dilutus* samples collected from every HU except for Santa Ynez.
- **Toxicity to invertebrate survival and growth in sediment** occurred most frequently in samples collected in the Salinas HU, followed by the Santa Maria HU.
- Only the Pajaro HU achieved the majority of applicable **toxic effect TMDL limits**.

The CMP results from 2021 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 (Taylor and 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.

6.0 REFERENCES

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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

Notes:

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

Notes:

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

Notes:

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

Notes:

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

Notes:

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

Notes:

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, AND BASIN PLAN WATER QUALITY OBJECTIVE COMPARISONS

Appendix B.1. Summary Statistics and Water Quality Exceedances

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	8	14	19	12	17	16	20	14	14	27	15	12	12	8.00	27.00	15.67	14.50	4.81		
Pajaro	305BRS	Beach Road Ditch	Algae Toxicity, Cell Growth	%Control Growth	165.6			219.8					378.8			180.46	4	165.60	378.80	236.17	200.13	97.80		
Pajaro	305BRS	Beach Road Ditch	Ammonia as N	mg/L	0.189	0.193	0.86	0.0468	0.103	0.706	0.0708	0.103	0.141	0.136	0.0939	0.155	12	0.05	0.86	0.23	0.14	0.26		
Pajaro	305BRS	Beach Road Ditch	Ammonia as N, Unionized	mg/L	0.00082	0.01111	0.02073	0.00136	0.01946	0.06601	0.00071	0.00101	0.00095	0.00235	0.00065	0.00065	12	0.0007	0.0660	0.0105	0.0012	0.019	<0.025	8%
Pajaro	305BRS	Beach Road Ditch	Chlorophyll a, Field	ug/L	24	2	3	3	5	31	3	22	26	1	16	19	12	1.00	31.00	12.92	10.50	11.16		
Pajaro	305BRS	Beach Road Ditch	Discharge	cfs	37.9375	0.6171	0.4125	0.218	0.29925	0.028	0.729	0.1512	-0.0145	1.2663	15.12	35.85	12	-0.01	37.94	7.72	0.51	14.27		
Pajaro	305BRS	Beach Road Ditch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	100				94.87							94.74	3	94.74	100.00	96.54	94.87	3.00		
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	85.2			105.4								106.95	3	85.20	106.95	99.18	105.40	12.13		
Pajaro	305BRS	Beach Road Ditch	Invertebrate Toxicity, Survival	%Control Survival	100			100					102			100	4	100.00	102.00	100.50	100.00	1.00		
Pajaro	305BRS	Beach Road Ditch	Nitrate + Nitrite as N	mg/L	30.2	41.4	40.7	42.2	29.8	18.2	38.2	29.8	21.9	26.7	22.5	16.8	12	16.8	42.2	29.9	29.8	9.08	<10	100%
Pajaro	305BRS	Beach Road Ditch	Nitrogen, Total	mg/L	31.97	44.04	42.78	42.956	31.34	21.59	39.54	31.36	23.77	27.86	23.52	18.34	12	18.34	44.04	31.59	31.35	8.99		
Pajaro	305BRS	Beach Road Ditch	Nitrogen, Total Kjeldahl	mg/L	1.77	2.64	2.08	0.756	1.54	3.39	1.34	1.56	1.87	1.16	1.02	1.54	12	0.76	3.39	1.72	1.55	0.72		
Pajaro	305BRS	Beach Road Ditch	OrthoPhosphate as P	mg/L	0.951	0.108	0.185	0.122	0.155	0.0685	0.192	0.172	0.132	0.445	0.576	0.75	12	0.069	0.951	0.321	0.179	0.291		
Pajaro	305BRS	Beach Road Ditch	Oxygen, Dissolved	mg/L	9.13	16.23	9.75	11.64	18.93	18.21	0.17	6.04	1.82	5.46	6.64	7.03	12	0.17	18.93	9.25	8.08	6.05	>5	17%
Pajaro	305BRS	Beach Road Ditch	Oxygen, Saturation	%	80.8	175.6	110	123.1	236.5	203.6	2.1	64.1	18.7	60	65.4	63.2	12	2.10	236.50	100.26	73.10	72.44	>85	Yes
Pajaro	305BRS	Beach Road Ditch	pH	none	7.44	8.29	7.82	8.04	8.66	8.47	7.65	7.55	7.46	7.74	7.5	7.4	12	7.40	8.66	7.84	7.70	0.43	7-8.3	17%
Pajaro	305BRS	Beach Road Ditch	Phosphorus as P	mg/L	1.48	0.351	0.399	0.192	0.262	0.739	0.341	0.346	0.321	0.577	0.757	1	12	0.192	1.480	0.564	0.375	0.376		
Pajaro	305BRS	Beach Road Ditch	Salinity	ppt	0.58	1.27	0.94	1.39	1.4	0.88	21.52	1.64	2.14	1.1	0.91	0.66	12	0.58	21.52	2.87	1.19	5.89		
Pajaro	305BRS	Beach Road Ditch	Sediment Invertebrate Toxicity, Growth	%Control Growth				64.2					89.7				2	64.20	89.70	76.95	76.95	18.03		
Pajaro	305BRS	Beach Road Ditch	Sediment Invertebrate Toxicity, Survival	%Control Survival				96.25					85.9				2	85.90	96.25	91.08	91.08	7.32		
Pajaro	305BRS	Beach Road Ditch	Specific Conductivity	uS/cm	1168	2455	1735	2677	2727	1739	34140	3134	4021	2143	1789	1314	12	1,168	34,140	4,920	2,299	9,237		
Pajaro	305BRS	Beach Road Ditch	Total Dissolved Solids	mg/L	759	1244.1	1207.39	1738	1769	1130	22205	2036	2614	1393	1163	854	12	759	22,205	3,176	1,319	6,015		
Pajaro	305BRS	Beach Road Ditch	Total Suspended Solids	mg/L	160	25.8	54	12.6	25.7	9.1	7.73	28.6	24.8	7.06	17.3	35.8	12	7.06	160.00	34.04	25.25	41.89		
Pajaro	305BRS	Beach Road Ditch	Turbidity, Field	NTU	222	10.5	38.2	20.7	13.8	10.6	6.02	9.87	15.9	11.3	35.3	68.4	12	6	222	39	15	60		
Pajaro	305BRS	Beach Road Ditch	Water Temperature	Deg C	9.8	19.2	21.6	17.7	26.4	20.6	19.1	18.1	16.2	19.6	14.5	10.5	12	9.80	26.40	17.78	18.60	4.61		
Pajaro	305CAN	Carnadero Creek	Air Temperature	Deg C	9	8	8	10	15	16	18	13	13	14	11	14	12	8.00	18.00	12.42	13.00	3.23		
Pajaro	305CAN	Carnadero Creek	Algae Toxicity, Cell Growth	%Control Growth	143.3			175.1								103.74	3	103.74	175.10	140.71	143.30	35.75		
Pajaro	305CAN	Carnadero Creek	Ammonia as N	mg/L	0.0687	0.0465	0.0283	0.0427	0.0134							0.0591	6	0.01	0.07	0.04	0.04	0.02		
Pajaro	305CAN	Carnadero Creek	Ammonia as N, Unionized	mg/L	0.00018	0.0002	0.0001	0.00018	0.00008							0.00021	6	0.0001	0.0002	0.0002	0.0002	0.000	<0.025	0%
Pajaro	305CAN	Carnadero Creek	Chlorophyll a, Field	ug/L	4	1	3	1	2							0.05	6	0.05	4.00	1.84	1.50	1.46		
Pajaro	305CAN	Carnadero Creek	Discharge	cfs	0.847	1.0295	0.9645	0.18975	0.0096	0	0	0	0	0	0	159.625	12	0.00	159.63	13.56	0.00	46.00		
Pajaro	305CAN	Carnadero Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	94.9			91.9								102.56	3	91.90	102.56	96.45	94.90	5.50		
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	108.3			74.8								141.33	3	74.80	141.33	108.14	108.30	33.27		
Pajaro	305CAN	Carnadero Creek	Invertebrate Toxicity, Survival	%Control Survival	111.1			100								100	3	100.00	111.10	103.70	100.00	6.41		
Pajaro	305CAN	Carnadero Creek	Nitrate + Nitrite as N	mg/L	7.59	7.74	7.45	10.6	37.7							0.957	6	1.0	37.7	12.0	7.7	12.98	<10	33%
Pajaro	305CAN	Carnadero Creek	Nitrogen, Total	mg/L	7.691	7.908	7.45	10.767	37.7							1.781	6	1.78	37.70	12.22	7.80	12.82		
Pajaro	305CAN	Carnadero Creek	Nitrogen, Total Kjeldahl	mg/L	0.101	0.168	0.025	0.167	0.025							0.824	6	0.03	0.82	0.22	0.13	0.30		
Pajaro	305CAN	Carnadero Creek	OrthoPhosphate as P	mg/L	0.009	0.00375	0.00375	0.015	0.0282							0.105	6	0.004	0.105	0.027	0.012	0.039		
Pajaro	305CAN	Carnadero Creek	Oxygen, Dissolved	mg/L	5.7	6.95	6.22	6.37	5.16							10.43	6	5.16	10.43	6.81	6.30	1.88	>7	83%
Pajaro	305CAN	Carnadero Creek	Oxygen, Saturation	%	54.4	65.5	60.5	62.7	52							95.2	6	52.00	95.20	65.05	61.60	15.62	None	N/A
Pajaro	305CAN	Carnadero Creek	pH	none	7.12	7.33	7.19	7.27	7.38							7.28	6	7.12	7.38	7.26	7.28	0.09	7-8.3	0%
Pajaro	305CAN	Carnadero Creek	Phosphorus as P	mg/L	0.0651	0.0045	0.0045	0.0386	0.0508							0.297	6	0.005	0.297	0.077	0.045	0.111		
Pajaro	305CAN	Carnadero Creek	Salinity	ppt	0.73	0.69	0.56	0.79	1.05							0.1	6	0.10	1.05	0.65	0.71	0.32		
Pajaro	305CAN	Carnadero Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				73.89									1	73.89	73.89	73.89	73.89	N/A		
Pajaro	305CAN	Carnadero Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				97.5									1	97.50	97.50	97.50	97.50	N/A		
Pajaro	305CAN	Carnadero Creek	Specific Conductivity	uS/cm	1441	1379	881	1553	2040							208.5	6	209	2,040	1,250	1,410	631		
Pajaro	305CAN	Carnadero Creek	Total Dissolved Solids	mg/L	937	698.1	727	1011	1325							135	6	135	1,325	806	832	399		
Pajaro	305CAN	Carnadero Creek	Total Suspended Solids	mg/L	5.22	4.45	3.51	6.23	1.65							51.9	6	1.65	51.90	12.16	4.84	19.53		
Pajaro	305CAN	Carnadero Creek	Turbidity, Field	NTU	3.27	4.38	5.8	4.88	3.16							116	6	3	116	23	5	46		
Pajaro	305CAN	Carnadero Creek	Water Temperature	Deg C	13.1	12.7	14	14.5	15.8							10.9	6	10.90	15.80	13.50	13.55	1.68		
Pajaro	305CHI	Pajaro River at Chittenden	Air Temperature	Deg C	9	14	18	18	21	17	23	14	23	17	14	15	12	9.00	23.00	16.92	17.00	4.10		
Pajaro	305CHI	Pajaro River at Chittenden	Algae Toxicity, Cell Growth	%Control Growth	186.4			185.9					26.8			174.94	4	26.80	186.40	143.51	180.42	77.99		
Pajaro	305CHI	Pajaro River at Chittenden	Ammonia as N	mg/L	0.0329	0.0707	0.0574	0.0478	0.0626	0.0588	0.0667	0.0595	0.0364	0.262	0.106	0.0795	12	0.03	0.26	0.08	0.06	0.06		
Pajaro	305CHI	Pajaro River at Chittenden	Ammonia as N, Unionized	mg/L	0.00055	0.00306	0.00191	0.00152	0.00208	0.00224	0.00244	0.00242	0.00476	0.00529	0.00111	0.00085	12	0.0006	0.0053	0.0024	0.0022	0.001	<0.025	0%
Pajaro	305CHI	Pajaro River at Chittenden	Chlorophyll a, Field	ug/L	210	12	6	2	1	2	2	2	2	3	2	0.05	12	0.05	210.00	20.34	2.00	59.81		
Pajaro	305CHI	Pajaro River at Chittenden	Discharge	cfs	32.849	24.6405	20.941	21.2939	5.9995	3.004	1.725	1.7448	1.5042	13.7485	4.0229	2.41	12	1.50	32.85	11.16	5.01	11.07		
Pajaro	305CHI	Pajaro River at Chittenden	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	97.4			94.6					100			102.63	4	94.60	102.63	98.66	98.70	3.45		
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	100.7			122.1					76.3			120.53	4	76.30	122.10	104.91	110.62	21.41		
Pajaro	305CHI	Pajaro River at Chittenden	Invertebrate Toxicity, Survival	%Control Survival	100			111.1					90			100	4	90.00	111.10	100.28	100.00	8.62		
Pajaro	305CHI	Pajaro River at Chittenden	Nitrate + Nitrite as N	mg/L	4.4	8.16	7.9	6.75	11.9	10.7	13.7	14.2	11.6	14.5	8.05	1.19	12	1.2	14.5	9.4	9.4	4.10	<10	50%
Pajaro	305CHI	Pajaro River at Chittenden	Nitrogen, Total	mg/L	5.276	9.138	8.613	7.295	12.527	10.954	14.533	15.011	12.191	16.07	8.984	1.565	12	1.57	16.07	10.18	10.05	4.25		
Pajaro	305CHI	Pajaro River at Chittenden	Nitrogen, Total Kjeldahl	mg/L	0.876	0.978	0.713	0.545	0.627	0.254	0.833	0.811	0.591	1.57	0.934	0.375	12	0.25	1.57	0.76	0.76	0.34		
Pajaro	305CHI	Pajaro River at Chittenden	OrthoPhosphate as P	mg/L	0.085	0.0153	0.0877	0.0946	0.264	0.951	1.3	1.2	0.979	0.667	4.24	0.362	12	0.015	4.240	0.854	0.515	1.164		
Pajaro	305CHI	Pajaro River at Chittenden	Oxygen, Dissolved	mg/L	10.5	11.29	9.12	11.43	7.58	6.42	6.2	6.25	6.27	5.91	6.45	6.99	12	5.91	11.43	7.87	6.72	2.12	>7	58%
Pajaro	305CHI	Pajaro River at Chittenden	Oxygen, Saturation	%	90.5	103.1	88.3	113.3	77.3	69.1	65.7	65.9	78.8	58.7	61.4	62.1	12	58.70	113.30	77.85	73.20	17.63	None	N/A
Pajaro	305CHI	Pajaro River at Chittenden	pH	none	8.08	8.41	8.22	8.16	8.14	8.12	8.13	8.18	8.74	7.95	7.74	7.85	12	7.74	8.74	8.14	8.14	0.26	7-8.3	17%
Pajaro	305CHI	Pajaro River at Chittenden	Phosphorus as P	mg/L	0.202	0.131	0.167	0.185	0.348	1.02	1.4	1.32	0.986	0.809	4.49	0.388	12	0.131	4.490	0.954	0.599	1.206		
Pajaro	305CHI	Pajaro River at Chittenden	Salinity	ppt	0.91	0.99	0.9	0.82	0.96	0.95	1.03	1.01	1.01	0.77	1.25	1.18	12	0.77	1.25	0.98	0.98	0.13		
Pajaro	305CHI	Pajaro River at Chittenden	Sediment Invertebrate Toxicity, Growth	%Control Growth				115.3					115				2	115.00	115.30	115.15	115.15	0.21		
Pajaro	305CHI	Pajaro River at Chittenden	Sediment Invertebrate Toxicity, Survival	%Control Survival				98.73					100				2	98.73	100.00	99.37	99.37	0.90		

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	Specific Conductivity	uS/cm	1785	1939	1383	1609	1881	1854	2016	1972	1967	1515	2406	2291	12	1,383	2,406	1,885	1,910	293		
Pajaro	305CHI	Pajaro River at Chittenden	Total Dissolved Solids	mg/L	1161	983.3	1147.68	1046	1223	1205	1311	1281	1280	985	1564	1489	12	983	1,564	1,223	1,214	180	<1000	yes
Pajaro	305CHI	Pajaro River at Chittenden	Total Suspended Solids	mg/L	25.6	30.2	37.7	25.2	14.9	12.3	11.2	9.29	5.12	13.9	4.27	1.96	12	1.96	37.70	15.97	13.10	11.24		
Pajaro	305CHI	Pajaro River at Chittenden	Turbidity, Field	NTU	68.9	29.9	40.9	28.2	23.9	17.7	16.8	12.9	10.7	26.7	9.37	9.66	12	9	69	25	21	17		
Pajaro	305CHI	Pajaro River at Chittenden	Water Temperature	Deg C	8.6	11.3	13.6	14.7	16.1	18.6	17.8	17.7	17.4	14.9	12.9	9.9	12	8.60	18.60	14.46	14.80	3.28		
Pajaro	305COR	Salsipuedes Creek	Air Temperature	Deg C	9	15	21	12	21	17	22	14	23	18	16	15	12	9.00	23.00	16.92	16.50	4.27		
Pajaro	305COR	Salsipuedes Creek	Algae Toxicity, Cell Growth	%Control Growth	163.5			243.6								170.99	3	163.50	243.60	192.70	170.99	44.24		
Pajaro	305COR	Salsipuedes Creek	Ammonia as N	mg/L	0.0633	0.3	0.0442	0.113	0.0736	0.164				0.112	0.194	0.23	9	0.04	0.30	0.14	0.11	0.09		
Pajaro	305COR	Salsipuedes Creek	Ammonia as N, Unionized	mg/L	0.00037	0.04693	0.00148	0.00105	0.00204	0.00491				0.00198	0.00574	0.00069	9	0.0004	0.0469	0.0072	0.0020	0.015	<0.025	11%
Pajaro	305COR	Salsipuedes Creek	Chlorophyll a, Field	ug/L	7	7	5	3	3	4				0.05	3	10	9	0.05	10.00	4.67	4.00	2.95		
Pajaro	305COR	Salsipuedes Creek	Discharge	cfs	220.984	4.09455	4.0523	24.2515	1.5114	0.097875	0	0	0	0.065	3.965	19.2725	12	0.00	220.98	23.19	2.74	62.81		
Pajaro	305COR	Salsipuedes Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	102.7				102.56							97.37	3	97.37	102.70	100.88	102.56	3.04		
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	94.8			92.7								126.2	3	92.70	126.20	104.57	94.80	18.76		
Pajaro	305COR	Salsipuedes Creek	Invertebrate Toxicity, Survival	%Control Survival	100			100								100	3	100.00	100.00	100.00	100.00	0.00		
Pajaro	305COR	Salsipuedes Creek	Nitrate + Nitrite as N	mg/L	1.1	0.629	0.684	0.098	4.09	1.3				1.79	1.79	1.71	9	0.1	4.1	1.5	1.3	1.15	<10	0%
Pajaro	305COR	Salsipuedes Creek	Nitrogen, Total	mg/L	2.98	2.329	1.435	1.012	5.34	2.34				2.445	3.45	3.62	9	1.01	5.34	2.77	2.45	1.28		
Pajaro	305COR	Salsipuedes Creek	Nitrogen, Total Kjeldahl	mg/L	1.88	1.7	0.751	0.914	1.25	1.04				0.655	1.66	1.91	9	0.66	1.91	1.31	1.25	0.49		
Pajaro	305COR	Salsipuedes Creek	OrthoPhosphate as P	mg/L	0.202	0.379	0.421	0.446	0.0918	0.221				0.209	0.384	0.378	9	0.092	0.446	0.304	0.378	0.124		
Pajaro	305COR	Salsipuedes Creek	Oxygen, Dissolved	mg/L	10.73	15.43	11.5	7.76	10.12	6.34				6.93	8.7	8.68	9	6.34	15.43	9.58	8.70	2.78	>7	22%
Pajaro	305COR	Salsipuedes Creek	Oxygen, Saturation	%	92.1	147.2	113.6	79	104.6	67.7				71.8	81.5	77.9	9	67.70	147.20	92.82	81.50	25.35	None	N/A
Pajaro	305COR	Salsipuedes Creek	pH	none	7.58	8.92	8.15	7.54	8.02	8				7.8	8.15	7.23	9	7.23	8.92	7.93	8.00	0.48	7-8.3	11%
Pajaro	305COR	Salsipuedes Creek	Phosphorus as P	mg/L	0.808	0.593	0.526	0.623	0.206	0.29				0.307	1.14	0.863	9	0.206	1.140	0.595	0.593	0.306		
Pajaro	305COR	Salsipuedes Creek	Salinity	ppt	0.13	0.21	0.23	0.28	0.53	0.49				0.31	0.14	0.19	9	0.13	0.53	0.28	0.23	0.14		
Pajaro	305COR	Salsipuedes Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				104.7									1	104.70	104.70	104.70	104.70	N/A		
Pajaro	305COR	Salsipuedes Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				97.5									1	97.50	97.50	97.50	97.50	N/A		
Pajaro	305COR	Salsipuedes Creek	Specific Conductivity	uS/cm	266.5	437.2	386.1	556	1070	985				642	282.5	388.6	9	267	1,070	557	437	293		
Pajaro	305COR	Salsipuedes Creek	Total Dissolved Solids	mg/L	173	221.8	311.4	368	696	640				418	184	252	9	173	696	363	311	192		
Pajaro	305COR	Salsipuedes Creek	Total Suspended Solids	mg/L	265	22.2	7.41	12.5	11.8	10.6				22.9	188	171	9	7.41	265.00	79.05	22.20	100.04		
Pajaro	305COR	Salsipuedes Creek	Turbidity, Field	NTU	384	18.5	8.79	13.6	15.6	8.56				12.8	501	257	9	9	501	136	16	194		
Pajaro	305COR	Salsipuedes Creek	Water Temperature	Deg C	8.7	13.4	14.8	16.2	16.8	18.4				17	12.9	10.5	9	8.70	18.40	14.30	14.80	3.22		
Pajaro	305FRA	Miller Canal	Air Temperature	Deg C	10	13	11	15	17	16	20	14	16	16	12	14	12	10.00	20.00	14.50	14.50	2.78		
Pajaro	305FRA	Miller Canal	Algae Toxicity, Cell Growth	%Control Growth	92.4			104.1								139	3	92.40	139.00	111.83	104.10	24.24		
Pajaro	305FRA	Miller Canal	Ammonia as N	mg/L	0.0441	0.421	0.0456	0.0408	0.129		0.127			0.175	0.264	0.268	9	0.04	0.42	0.17	0.13	0.13		
Pajaro	305FRA	Miller Canal	Ammonia as N, Unionized	mg/L	0.00158	0.04401	0.00293	0.00292	0.00944		0.01248			0.00291	0.00527	0.01513	9	0.0016	0.0440	0.0107	0.0053	0.013	<0.025	11%
Pajaro	305FRA	Miller Canal	Chlorophyll a, Field	ug/L	62	22	29	27	9		195			61	54	10	9	9.00	195.00	52.11	29.00	57.34		
Pajaro	305FRA	Miller Canal	Discharge	cfs	6.9965	5.301	3.3558	2.1275	0.08965	0	0.000375	0	0	0.0525	0.024375	0.32535	12	0.00	7.00	1.52	0.07	2.43		
Pajaro	305FRA	Miller Canal	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	89.7												1	89.70	89.70	89.70	89.70	N/A		
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	100.3												1	100.30	100.30	100.30	100.30	N/A		
Pajaro	305FRA	Miller Canal	Invertebrate Toxicity, Survival	%Control Survival	111.1			100								94	3	94.00	111.10	101.70	100.00	8.68		
Pajaro	305FRA	Miller Canal	Nitrate + Nitrite as N	mg/L	0.047	0.678	0.005	0.005	0.005		0.005			2.6	0.005	22.2	9	0.0	22.2	2.8	0.0	7.31	<10	11%
Pajaro	305FRA	Miller Canal	Nitrogen, Total	mg/L	1.907	3.638	2.18	2.42	1.95		9.56			6.07	5.56	23.76	9	1.91	23.76	6.34	3.64	7.01		
Pajaro	305FRA	Miller Canal	Nitrogen, Total Kjeldahl	mg/L	1.86	2.96	2.18	2.42	1.95		9.56			3.47	5.56	1.56	9	1.56	9.56	3.50	2.42	2.57		
Pajaro	305FRA	Miller Canal	OrthoPhosphate as P	mg/L	0.0824	0.00375	0.0148	0.0689	0.304		1.45			0.524	0.293	0.575	9	0.004	1.450	0.368	0.293	0.458		
Pajaro	305FRA	Miller Canal	Oxygen, Dissolved	mg/L	10.66	11.04	6.47	7.19	6.27		0.69			7.14	10.05	9.88	9	0.69	11.04	7.71	7.19	3.23	>5	11%
Pajaro	305FRA	Miller Canal	Oxygen, Saturation	%	97.1	98.3	61.7	70.1	69.1		7.4			74.3	111.7	92.6	9	7.40	111.70	75.81	74.30	30.59	>85	Yes
Pajaro	305FRA	Miller Canal	pH	none	8.44	8.89	8.57	8.6	8.48		8.71			7.97	8.13	8.64	9	7.97	8.89	8.49	8.57	0.29	7-8.3	78%
Pajaro	305FRA	Miller Canal	Phosphorus as P	mg/L	0.364	0.299	0.757	0.432	0.478		2.97			0.828	0.768	0.713	9	0.299	2.970	0.845	0.713	0.820		
Pajaro	305FRA	Miller Canal	Salinity	ppt	1.41	1.91	1.68	2.32	4.9		15.22			9.04	22.54	6.74	9	1.41	22.54	7.31	4.90	7.28		
Pajaro	305FRA	Miller Canal	Sediment Invertebrate Toxicity, Growth	%Control Growth				100.91									1	100.91	100.91	100.91	100.91	N/A		
Pajaro	305FRA	Miller Canal	Sediment Invertebrate Toxicity, Survival	%Control Survival				100									1	100.00	100.00	100.00	100.00	N/A		
Pajaro	305FRA	Miller Canal	Specific Conductivity	uS/cm	2705	3611	2405	4332	8743		24926			15425	35678	11754	9	2,405	35,678	12,175	8,743	11,497		
Pajaro	305FRA	Miller Canal	Total Dissolved Solids	mg/L	1758	1830.7	2069.9	2816	5682		16203			10028	23202	7647	9	1,758	23,202	7,915	5,682	7,475		
Pajaro	305FRA	Miller Canal	Total Suspended Solids	mg/L	61.7	88.4	163	78.6	25.5		159			7.42	131	14.8	9	7.42	163.00	81.05	78.60	59.81		
Pajaro	305FRA	Miller Canal	Turbidity, Field	NTU	62	121	322	86.8	41.9		151			14.5	24.9	18.6	9	15	322	94	62	98		
Pajaro	305FRA	Miller Canal	Water Temperature	Deg C	8.5	9.9	12.7	13.7	18.7		17.7			14.7	13.8	10.6	9	8.50	18.70	13.37	13.70	3.41		
Pajaro	305FUF	Furlong Creek	Air Temperature	Deg C	9	14	11	18	18	18	21	14	16	16	12	16	12	9.00	21.00	15.25	16.00	3.41		
Pajaro	305FUF	Furlong Creek	Algae Toxicity, Cell Growth	%Control Growth	181.8			122.4								325	3	122.40	325.00	209.73	181.80	104.15		
Pajaro	305FUF	Furlong Creek	Ammonia as N	mg/L	0.163	0.0519	0.0668	0.0619	0.0479	0.0883	0.0466	0.0932		0.104		0.494	10	0.05	0.49	0.12	0.08	0.14		
Pajaro	305FUF	Furlong Creek	Ammonia as N, Unionized	mg/L	0.00181	0.00249	0.00114	0.00281	0.00211	0.0042	0.00292	0.005		0.00192		0.00868	10	0.0011	0.0087	0.0033	0.0027	0.002	<0.025	0%
Pajaro	305FUF	Furlong Creek	Chlorophyll a, Field	ug/L	16	2	3	1	6	2	3	12		4		0.05	10	0.05	16.00	4.91	3.00	5.15		
Pajaro	305FUF	Furlong Creek	Discharge	cfs	2.456	0.7485	0.9741	0.338875	0.446	0.522	0.40975	0.17975	0	0.094	0	7.7045	12	0.00	7.70	1.16	0.43	2.17		
Pajaro	305FUF	Furlong Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			83.8								0	3	0.00	83.80	27.93	0.00	48.38		
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	0.3			63.9								88.1	3	0.30	88.10	50.77	63.90	45.35		
Pajaro	305FUF	Furlong Creek	Invertebrate Toxicity, Survival	%Control Survival	44.4			111.1								111.1	3	44.40	111.10	88.87	111.10	38.51		
Pajaro	305FUF	Furlong Creek	Nitrate + Nitrite as N	mg/L	17.2	31.6	21.3	28.9	13	18.9	19.3	8.74		9.31		8.86	10	8.7	31.6	17.7	18.1	8.07	<10	70%
Pajaro	305FUF	Furlong Creek	Nitrogen, Total	mg/L	20.23	31.6	21.565	29.548	14.64	19.94	19.3	9.96		10.69		18.41	10	9.96	31.60	19.59	19.62	7.04		
Pajaro	305FUF	Furlong Creek	Nitrogen, Total Kjeldahl	mg/L	3.03	0.025	0.265	0.648	1.64	1.04	0.065	1.22		1.38		9.55	10	0.03	9.55	1.89	1.13	2.84		
Pajaro	305FUF	Furlong Creek	OrthoPhosphate as P	mg/L	0.565	0.0217	0.247	0.0641	0.433	0.113	0.154	0.216		0.267		1.02	10	0.022	1.020	0.310	0.232	0.299		
Pajaro	305FUF	Furlong Creek	Oxygen, Dissolved	mg/L	9.42	15.06	10.16	13.36	9.89	9.26	8.7	8.86		7.76		4.77	10	4.77	15.06	9.72	9.34	2.84	>5	10%
Pajaro	305FUF	Furlong Creek	Oxygen, Saturation	%	81.9	134.9	89.9	130.6	97.8	97.6	91.2	90.1		74.6		42.4	10	42.40	134.90	93.10	90.65	26.37	>85	No

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	305FUF	Furlong Creek	pH	none	7.87	8.48	8.04	8.34	8.3	8.24	8.37	8.34		7.96		8.03	10	7.87	8.48	8.20	8.27	0.21	7-8.3	40%
Pajaro	305FUF	Furlong Creek	Phosphorus as P	mg/L	1.51	0.0527	0.312	0.237	0.621	0.207	0.256	0.515		1.77			9	0.053	1.770	0.609	0.312	0.611		
Pajaro	305FUF	Furlong Creek	Salinity	ppt	0.52	0.72	0.57	0.78	0.62	0.69	0.6	0.45		0.77		0.26	10	0.26	0.78	0.60	0.61	0.16		
Pajaro	305FUF	Furlong Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				50.12									1	50.12	50.12	50.12	50.12	N/A		
Pajaro	305FUF	Furlong Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				92.5									1	92.50	92.50	92.50	92.50	N/A		
Pajaro	305FUF	Furlong Creek	Specific Conductivity	uS/cm	1035	1435	816	1536	1232	1378	1191	917		1529		544	10	544	1,536	1,161	1,212	330		
Pajaro	305FUF	Furlong Creek	Total Dissolved Solids	mg/L	673	727.45	748	998	800	896	774	596		994		353	10	353	998	756	761	192		
Pajaro	305FUF	Furlong Creek	Total Suspended Solids	mg/L	532	8.16	38.5	64.6	36.6	26.1	36.3	184		4.55		416	10	4.55	532.00	134.68	37.55	187.86		
Pajaro	305FUF	Furlong Creek	Turbidity, Field	NTU	1258	12.2	49.6	84.8	47.2	47.9	90.5	266		9.36		1752	10	9	1752	362	67	618		
Pajaro	305FUF	Furlong Creek	Water Temperature	Deg C	9.1	10.4	9.7	14.1	14.7	17.7	17.5	16		13.4		9.9	10	9.10	17.70	13.25	13.75	3.29		
Pajaro	305LCS	Llagas Creek	Air Temperature	Deg C	9	3	4	6	12	16	16	14	13	13	11	12	12	3.00	16.00	10.75	12.00	4.37		
Pajaro	305LCS	Llagas Creek	Algae Toxicity, Cell Growth	%Control Growth	183.4			179.1								120.25	3	120.25	183.40	160.92	179.10	35.28		
Pajaro	305LCS	Llagas Creek	Ammonia as N	mg/L	0.1	0.0291	0.0282	0.0386	0.0356	0.0373	0.0315			0.12		0.185	9	0.03	0.19	0.07	0.04	0.06		
Pajaro	305LCS	Llagas Creek	Ammonia as N, Unionized	mg/L	0.00018	0.00008	0.00003	0.00009	0.00007	0.00008	0.000092			0.00009		0.00014	9	0.0000	0.0002	0.0001	0.0001	0.000	<0.025	0%
Pajaro	305LCS	Llagas Creek	Chlorophyll a, Field	ug/L	3	1	1	1	1	1	1			6		6	9	1.00	6.00	2.33	1.00	2.18		
Pajaro	305LCS	Llagas Creek	Discharge	cfs	157	3.08865	4.01205	3.6508	1.6485	0.7527	0.26655	0	0	0.0235	0	369	12	0.00	369.00	44.95	1.20	111.44		
Pajaro	305LCS	Llagas Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	97.3			83.8								100	3	83.80	100.00	93.70	97.30	8.68		
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	108.6			98.6								137.67	3	98.60	137.67	114.96	108.60	20.30		
Pajaro	305LCS	Llagas Creek	Invertebrate Toxicity, Survival	%Control Survival	100			100								100	3	100.00	100.00	100.00	100.00	0.00		
Pajaro	305LCS	Llagas Creek	Nitrate + Nitrite as N	mg/L	7.91	23.9	24.1	23.4	21.3	18.8	20.3			0.066		1.75	9	0.1	24.1	15.7	20.3	9.74	<10	67%
Pajaro	305LCS	Llagas Creek	Nitrogen, Total	mg/L	8.644	23.9	24.1	23.4	21.3	18.885	20.613			0.501		2.81	9	0.50	24.10	16.02	20.61	9.41		
Pajaro	305LCS	Llagas Creek	Nitrogen, Total Kjeldahl	mg/L	0.734	0.025	0.025	0.025	0.025	0.085	0.313			0.435		1.06	9	0.03	1.06	0.30	0.09	0.38		
Pajaro	305LCS	Llagas Creek	OrthoPhosphate as P	mg/L	0.234	0.0206	0.0258	0.0299	0.0355	0.0437	0.0287			0.0742		0.32	9	0.021	0.320	0.090	0.036	0.109		
Pajaro	305LCS	Llagas Creek	Oxygen, Dissolved	mg/L	8.92	6.03	6.18	6.54	6.4	3.81	3.78			1.32		9.52	9	1.32	9.52	5.83	6.18	2.57	>7	78%
Pajaro	305LCS	Llagas Creek	Oxygen, Saturation	%	78.1	58.1	61.3	65.3	66.3	40.8	39.5			13.3		85.2	9	13.30	85.20	56.43	61.30	22.05	None	N/A
Pajaro	305LCS	Llagas Creek	pH	none	7.05	7.09	6.65	6.99	6.85	6.86	7.02			6.47		6.61	9	6.47	7.09	6.84	6.86	0.22	7-8.3	67%
Pajaro	305LCS	Llagas Creek	Phosphorus as P	mg/L	0.331	0.0563	0.0228	0.0926	0.0579	0.112	0.0515			0.14		0.515	9	0.023	0.515	0.153	0.093	0.164		
Pajaro	305LCS	Llagas Creek	Salinity	ppt	0.24	0.58	0.42	0.55	0.55	0.58	0.6			0.48		0.09	9	0.09	0.60	0.45	0.55	0.18		
Pajaro	305LCS	Llagas Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				95.65									1	95.65	95.65	95.65	95.65	N/A		
Pajaro	305LCS	Llagas Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				95									1	95.00	95.00	95.00	95.00	N/A		
Pajaro	305LCS	Llagas Creek	Specific Conductivity	uS/cm	497.6	906	677	1110	1100	1157	1200			966		187.4	9	187	1,200	867	966	345		
Pajaro	305LCS	Llagas Creek	Total Dissolved Solids	mg/L	318	583.8	547.9	721	715	752	780			628		122	9	122	780	574	628	221	<200	Yes
Pajaro	305LCS	Llagas Creek	Total Suspended Solids	mg/L	31.4	1.9	2.12	1.42	2.6	1.53	1.96			0.98		79.7	9	0.98	79.70	13.73	1.96	26.61		
Pajaro	305LCS	Llagas Creek	Turbidity, Field	NTU	27.2	3.01	5.58	1.8	4.73	9.58	20.6			7.1		259	9	2	259	38	7	83		
Pajaro	305LCS	Llagas Creek	Water Temperature	Deg C	9.5	13.8	14.9	15.2	16.9	18.4	17.2			15.6		10.5	9	9.50	18.40	14.67	15.20	2.99		
Pajaro	305PJP	Pajaro River at Main St.	Air Temperature	Deg C	9	15	23	19	22	18	20	14	19	23	15	15	12	9.00	23.00	17.67	18.50	4.21		
Pajaro	305PJP	Pajaro River at Main St.	Algae Toxicity, Cell Growth	%Control Growth	237			267					267.5			130.27	4	130.27	267.50	225.44	252.00	65.03		
Pajaro	305PJP	Pajaro River at Main St.	Ammonia as N	mg/L	0.0697	0.154	0.0687	0.0556	0.163	0.0717	0.0548	0.0208	0.0244	0.19	0.101	0.251	12	0.02	0.25	0.10	0.07	0.07		
Pajaro	305PJP	Pajaro River at Main St.	Ammonia as N, Unionized	mg/L	0.00087	0.01085	0.0021	0.00123	0.00315	0.00123	0.00108	0.00043	0.00043	0.00248	0.00075	0.00147	12	0.0004	0.0109	0.0022	0.0012	0.003	<0.025	0%
Pajaro	305PJP	Pajaro River at Main St.	Chlorophyll a, Field	ug/L	14	26	7	3	3	2	1	2	2	0.05	4	3	12	0.05	26.00	5.59	3.00	7.40		
Pajaro	305PJP	Pajaro River at Main St.	Discharge	cfs	469	23.5855	20.3915	33.742	2.33125	1.65875	0.5125	0.567	0.48005	2.8833	10.9545	47.575	12	0.48	469.00	51.14	6.92	132.49		
Pajaro	305PJP	Pajaro River at Main St.	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	95				97.44				100			100	4	95.00	100.00	98.11	98.72	2.40		
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	91.1			99.7					83			117.37	4	83.00	117.37	97.79	95.40	14.73		
Pajaro	305PJP	Pajaro River at Main St.	Invertebrate Toxicity, Survival	%Control Survival	100			100					100			100	4	100.00	100.00	100.00	100.00	0.00		
Pajaro	305PJP	Pajaro River at Main St.	Nitrate + Nitrite as N	mg/L	1.45	5.95	5.28	3.02	4.46	2.75	3.77	4.36	3.54	5.98	1.16	0.356	12	0.4	6.0	3.5	3.7	1.84	<10	0%
Pajaro	305PJP	Pajaro River at Main St.	Nitrogen, Total	mg/L	3.87	7.36	6.272	3.934	5.55	3.286	4.347	4.869	3.888	6.825	1.795	1.051	12	1.05	7.36	4.42	4.14	1.90		
Pajaro	305PJP	Pajaro River at Main St.	Nitrogen, Total Kjeldahl	mg/L	2.42	1.41	0.992	0.914	1.09	0.536	0.577	0.509	0.348	0.845	0.635	0.695	12	0.35	2.42	0.91	0.77	0.56		
Pajaro	305PJP	Pajaro River at Main St.	OrthoPhosphate as P	mg/L	0.229	0.0559	0.168	0.321	0.327	0.255	0.241	0.314	0.326	0.469	0.271	0.173	12	0.056	0.469	0.262	0.263	0.104		
Pajaro	305PJP	Pajaro River at Main St.	Oxygen, Dissolved	mg/L	10.25	13.02	10.24	8.05	6.89	5.83	5.98	6.7	6.75	4.57	7.37	9.99	12	4.57	13.02	7.97	7.13	2.42	>7	50%
Pajaro	305PJP	Pajaro River at Main St.	Oxygen, Saturation	%	88.5	120.7	100.6	81.4	72.5	62.1	62.1	69	66.7	47	70.9	91.2	12	47.00	120.70	77.73	71.70	19.97	None	N/A
Pajaro	305PJP	Pajaro River at Main St.	pH	none	7.91	8.61	8.15	7.95	7.84	7.77	7.87	7.91	7.9	7.69	7.52	7.46	12	7.46	8.61	7.88	7.89	0.30	7-8.3	8%
Pajaro	305PJP	Pajaro River at Main St.	Phosphorus as P	mg/L	1.16	0.199	0.275	0.45	0.421	0.328	0.266	0.354	0.578	0.587	0.558	0.386	12	0.199	1.160	0.464	0.404	0.253		
Pajaro	305PJP	Pajaro River at Main St.	Salinity	ppt	0.21	0.83	0.73	0.54	0.71	0.78	0.8	0.83	0.8	0.5	0.18	0.04	12	0.04	0.83	0.58	0.72	0.29		
Pajaro	305PJP	Pajaro River at Main St.	Sediment Invertebrate Toxicity, Growth	%Control Growth				92.63					103.8				2	92.63	103.80	98.22	98.22	7.90		
Pajaro	305PJP	Pajaro River at Main St.	Sediment Invertebrate Toxicity, Survival	%Control Survival				85					98.7				2	85.00	98.70	91.85	91.85	9.69		
Pajaro	305PJP	Pajaro River at Main St.	Specific Conductivity	uS/cm	4253	1641	1154	1090	1409	1549	1588	1628	1573	1013	378.2	96.9	12	97	4,253	1,448	1,479	1,016		
Pajaro	305PJP	Pajaro River at Main St.	Total Dissolved Solids	mg/L	276	831.91	940.2	709	917	1007	1032	1058	1022	659	246	64	12	64	1,058	730	874	349		
Pajaro	305PJP	Pajaro River at Main St.	Total Suspended Solids	mg/L	435	26.3	72.5	10.4	6.18	2.81	1.96	1.13	1.36	3.36	32.3	95.3	12	1.13	435.00	57.38	8.29	122.83		
Pajaro	305PJP	Pajaro River at Main St.	Turbidity, Field	NTU	478	21.7	19.4	14.6	7.84	4.71	4.86	5.73	6.94	9.17	71.3	121	12	5	478	64	12	135		
Pajaro	305PJP	Pajaro River at Main St.	Water Temperature	Deg C	8.9	11.9	14.4	15.8	17.6	18.2	17	16.5	14.6	16.6	13.6	11.8	12	8.90	18.20	14.74	15.20	2.78		
Pajaro	305SJA	San Juan Creek	Air Temperature	Deg C	9	14	16	18	21	17	22	14	21	17	13	14	12	9.00	22.00	16.33	16.50	3.82		
Pajaro	305SJA	San Juan Creek	Algae Toxicity, Cell Growth	%Control Growth	8.7			242.7					238			0.33	4	0.33	242.70	122.43	123.35	136.22		
Pajaro	305SJA	San Juan Creek	Ammonia as N	mg/L	0.135	0.0238	0.066	0.0522	1.77	2.24	3.58	0.567	0.765	1.41	0.106	8.32	12	0.02	8.32	1.59	0.67	2.39		
Pajaro	305SJA	San Juan Creek	Ammonia as N, Unionized	mg/L	0.00166	0.0009	0.00206	0.00305	0.0503	0.06619	0.09488	0.01491	0.01991	0.02111	0.00161	0.0922	12	0.0009	0.0949	0.0307	0.0174	0.036	<0.025	33%
Pajaro	305SJA	San Juan Creek	Chlorophyll a, Field	ug/L	0.05	1	3	2	3	4	6	4	5	7	4	3	12	0.05	7.00	3.50	3.50	1.97		
Pajaro	305SJA	San Juan Creek	Discharge	cfs	3.4377	0.535	1.0815	0.7748	0.0226	0.8225	0.832	0.8385	0.393	3.6189	3.4365	2.2815	12	0.02	3.62	1.51	0.84	1.31		
Pajaro	305SJA	San Juan Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	100								100			21.05	3	21.05	100.00	73.68	100.00	45.58		
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	113								47.4			68.8	3	47.40	113.00	76.40	68.80	33.45		
Pajaro	305SJA	San Juan Creek	Invertebrate Toxicity, Survival	%Control Survival	111.1			100					100			88.89	4	88.89	111.10	100.00	100.00	9.07		
Pajaro	305SJA	San Juan Creek	Nitrate + Nitrite as N	mg/L	6.61	37.2	36.7	44.9	42.2	30.9	33.4	28.7	15.2	37.4	5.41	1.54	12	1.5	44.9	26.7	32.2	15.33	<10	75%

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	Nitrogen, Total	mg/L	7.67	37.2	37.558	46.13	43.46	34.8	37.84	3.597	17.02	39.53	7.85	11.94	12	3.60	46.13	27.05	36.00	15.96		
Pajaro	305SJA	San Juan Creek	Nitrogen, Total Kjeldahl	mg/L	1.06	0.025	0.858	1.23	1.26	3.9	4.44	3.03	1.82	2.13	2.44	10.4	12	0.03	10.40	2.72	1.98	2.74		
Pajaro	305SJA	San Juan Creek	OrthoPhosphate as P	mg/L	0.534	0.395	1.3	0.202	0.529	10.2	5.97	9.1	4.28	1.97	2.8	25.3	12	0.202	25.300	5.215	2.385	7.190		
Pajaro	305SJA	San Juan Creek	Oxygen, Dissolved	mg/L	9.68	14.28	10.53	16.09	7.95	2.28	5.31	4.56	4.29	6.32	4.88	4.96	12	2.28	16.09	7.59	5.82	4.26	>5	42%
Pajaro	305SJA	San Juan Creek	Oxygen, Saturation	%	85	120.2	92.4	162	78.7	23.8	55.2	47.9	43.7	63.6	46.9	47.1	12	23.80	162.00	72.21	59.40	38.57	>85	Yes
Pajaro	305SJA	San Juan Creek	pH	none	7.9	8.49	8.34	8.44	8.14	8.06	8	8.01	8.05	7.83	7.86	7.76	12	7.76	8.49	8.07	8.03	0.24	7-8.3	25%
Pajaro	305SJA	San Juan Creek	Phosphorus as P	mg/L	0.729	0.453	1.31	0.298	0.652	11.4	6.78	9.67	4.7	2.17	3.09	30.3	12	0.298	30.300	5.963	2.630	8.529		
Pajaro	305SJA	San Juan Creek	Salinity	ppt	0.5	1.48	1.14	1.68	1.54	1.54	1.45	1.48	1.46	1.55	0.52	0.93	12	0.50	1.68	1.27	1.47	0.41		
Pajaro	305SJA	San Juan Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				96.96					100.4				2	96.96	100.40	98.68	98.68	2.43		
Pajaro	305SJA	San Juan Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				97.47					91				2	91.00	97.47	94.24	94.24	4.57		
Pajaro	305SJA	San Juan Creek	Specific Conductivity	uS/cm	1088	2845	1550	3191	2930	2937	2804	2844	2797	2961	1042	1821	12	1,042	3,191	2,401	2,824	789		
Pajaro	305SJA	San Juan Creek	Total Dissolved Solids	mg/L	650	1442.7	1445.02	2074	1905	1909	1822	1848	1817	1925	677	1182	12	650	2,074	1,558	1,820	489		
Pajaro	305SJA	San Juan Creek	Total Suspended Solids	mg/L	72.3	8.67	36.2	7.32	27.4	15	12.3	8.96	23.8	10.9	35.7	71.4	12	7.32	72.30	27.50	19.40	23.08		
Pajaro	305SJA	San Juan Creek	Turbidity, Field	NTU	92.9	8.08	27.5	8.93	19.3	46.6	18.4	23.6	7.5	15.6	35.6	127	12	8	127	36	21	37		
Pajaro	305SJA	San Juan Creek	Water Temperature	Deg C	9.5	7.6	9.4	15.3	14.4	17.4	17.7	17.3	15.9	15.2	13.5	12.8	12	7.60	17.70	13.83	14.80	3.39		
Pajaro	305TSR	Tequisquita Slough	Air Temperature	Deg C	10	9	7	12	16	16	18	14	13	15	11	14	12	7.00	18.00	12.92	13.50	3.23		
Pajaro	305TSR	Tequisquita Slough	Algae Toxicity, Cell Growth	%Control Growth	172.8			248.5					177.6			70.66	4	70.66	248.50	167.39	175.20	73.19		
Pajaro	305TSR	Tequisquita Slough	Ammonia as N	mg/L	0.0552	0.0345	0.0313	0.079	0.053	0.232	1.6	0.108	0.0804	0.143	0.0923	0.239	12	0.03	1.60	0.23	0.09	0.44		
Pajaro	305TSR	Tequisquita Slough	Ammonia as N, Unionized	mg/L	0.0008	0.00057	0.00051	0.0016	0.00148	0.00902	0.16122	0.0048	0.0031	0.00094	0.00058	0.00167	12	0.0005	0.1612	0.0155	0.0015	0.046	<0.025	8%
Pajaro	305TSR	Tequisquita Slough	Chlorophyll a, Field	ug/L	6	8	4	2	3	36	195	163	6	11	2	3	12	2.00	195.00	36.58	6.00	67.51		
Pajaro	305TSR	Tequisquita Slough	Discharge	cfs	1.5165	0.649	0.7628	0.7748	0.185	0.205	0.014125	0.09425	0.081	1.0795	0.26975	1.1755	12	0.01	1.52	0.57	0.46	0.50		
Pajaro	305TSR	Tequisquita Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	84.6											102.56	2	84.60	102.56	93.58	93.58	12.70		
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	104.4											120	2	104.40	120.00	112.20	112.20	11.03		
Pajaro	305TSR	Tequisquita Slough	Invertebrate Toxicity, Survival	%Control Survival	111.1			98					81.8			100	4	81.80	111.10	97.73	99.00	12.08		
Pajaro	305TSR	Tequisquita Slough	Nitrate + Nitrite as N	mg/L	7.61	10.6	10.1	20.5	17.9	7.91	0.005	12.4	18.9	2.99	5.03	3.27	12	0.0	20.5	9.8	9.0	6.65	None	N/A
Pajaro	305TSR	Tequisquita Slough	Nitrogen, Total	mg/L	8.67	11.352	10.633	21.422	19.1	9.61	19.4	14.69	19.9	5.74	6.53	6.13	12	5.74	21.42	12.76	10.99	5.87		
Pajaro	305TSR	Tequisquita Slough	Nitrogen, Total Kjeldahl	mg/L	1.06	0.752	0.533	0.922	1.2	1.7	19.4	2.29	1	2.75	1.5	2.86	12	0.53	19.40	3.00	1.35	5.22		
Pajaro	305TSR	Tequisquita Slough	OrthoPhosphate as P	mg/L	0.453	0.13	0.166	0.235	0.224	0.11	0.328	0.0538	0.105	1.08	0.242	0.987	12	0.054	1.080	0.343	0.230	0.341		
Pajaro	305TSR	Tequisquita Slough	Oxygen, Dissolved	mg/L	10.03	11.48	10.18	12.12	5.85	5.46	0.52	4.07	5.96	6.32	8.01	7.76	12	0.52	12.12	7.31	7.04	3.33	>7	50%
Pajaro	305TSR	Tequisquita Slough	Oxygen, Saturation	%	84.4	92.2	85.7	106.7	56.2	57.5	5.5	40.8	58.9	60.1	73.1	68.1	12	5.50	106.70	65.77	64.10	26.41	None	N/A
Pajaro	305TSR	Tequisquita Slough	pH	none	8.07	8.29	8.11	8.16	8.17	8.18	8.64	8.32	8.29	7.54	7.6	7.69	12	7.54	8.64	8.09	8.17	0.32	7-8.3	17%
Pajaro	305TSR	Tequisquita Slough	Phosphorus as P	mg/L	0.524	0.192	0.207	0.352	0.324	0.246	4.12	0.388	0.217	1.17	0.365	1.26	12	0.192	4.120	0.780	0.359	1.112		
Pajaro	305TSR	Tequisquita Slough	Salinity	ppt	1.42	1.58	1	1.56	1.97	1.39	1.59	1.59	2.04	1.27	1.77	1.45	12	1.00	2.04	1.55	1.57	0.29		
Pajaro	305TSR	Tequisquita Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				90.27					78.8				2	78.80	90.27	84.54	84.54	8.11		
Pajaro	305TSR	Tequisquita Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				101.27					87.2				2	87.20	101.27	94.24	94.24	9.95		
Pajaro	305TSR	Tequisquita Slough	Specific Conductivity	uS/cm	2733	3034	1301	2984	3707	2671	3037	3027	3830	2454	3353	2785	12	1,301	3,830	2,910	3,006	649		
Pajaro	305TSR	Tequisquita Slough	Total Dissolved Solids	mg/L	1776	15385	1270.5	1940	2411	1736	1975	1968	2489	1595	2179	1810	12	1,271	15,385	3,045	1,954	3,901		
Pajaro	305TSR	Tequisquita Slough	Total Suspended Solids	mg/L	11	18.5	14.1	30.6	19.6	104	263	44.3	14.5	19.5	22.8	31.7	12	11.00	263.00	49.47	21.20	71.78		
Pajaro	305TSR	Tequisquita Slough	Turbidity, Field	NTU	7.39	15.6	13.9	25.3	25.1	10.8	163	20.3	52.7	31	25.4	66.1	12	7	163	38	25	43		
Pajaro	305TSR	Tequisquita Slough	Water Temperature	Deg C	7.5	5.8	7.5	9.3	13.5	17.4	17	15.1	14.3	12.8	10.8	9.3	12	5.80	17.40	11.69	11.80	3.88		
Pajaro	305WCS	Watsonville Creek	Air Temperature	Deg C	9	14	23	19	20	19	20	16	21	24	17	15	12	9.00	24.00	18.08	19.00	4.17		
Pajaro	305WCS	Watsonville Creek	Algae Toxicity, Cell Growth	%Control Growth	204			267.3					254.7			171.07	4	171.07	267.30	224.27	229.35	44.79		
Pajaro	305WCS	Watsonville Creek	Ammonia as N	mg/L	0.173	0.0628	0.0608	0.0532	0.0521	0.0474	0.0279	0.0233	0.0929	0.204	0.0856	0.261	12	0.02	0.26	0.10	0.06	0.08		
Pajaro	305WCS	Watsonville Creek	Ammonia as N, Unionized	mg/L	0.00227	0.00367	0.0032	0.0023	0.00351	0.00245	0.00294	0.00115	0.00518	0.00397	0.00058	0.0015	12	0.0006	0.0052	0.0027	0.0027	0.001	<0.025	0%
Pajaro	305WCS	Watsonville Creek	Chlorophyll a, Field	ug/L	0.05	3	7	2	4	3	3	2	2	2	1	1	12	0.05	7.00	2.50	2.00	1.78		
Pajaro	305WCS	Watsonville Creek	Discharge	cfs	12.2301	0.44975	0.5124	0.2403	0.1775	0.369	0.111	0.365	0.1455	1.642	2.043	9.1315	12	0.11	12.23	2.28	0.41	4.02		
Pajaro	305WCS	Watsonville Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	97.2				97.44				100			98.25	4	97.20	100.00	98.22	97.85	1.27		
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	79.7			101.7					85			113.91	4	79.70	113.91	95.08	93.35	15.67		
Pajaro	305WCS	Watsonville Creek	Invertebrate Toxicity, Survival	%Control Survival	90			100					100			100	4	90.00	100.00	97.50	100.00	5.00		
Pajaro	305WCS	Watsonville Creek	Nitrate + Nitrite as N	mg/L	5.7	28.3	25.2	16.4	25.4	27.3	19.1	17.8	2.2	24.3	8.76	1.91	12	1.9	28.3	16.9	18.5	9.87	<10	67%
Pajaro	305WCS	Watsonville Creek	Nitrogen, Total	mg/L	6.77	29.244	25.2	17.011	26.284	28.14	19.815	18.716	4.7	25.186	9.556	3.11	12	3.11	29.24	17.81	19.27	9.54		
Pajaro	305WCS	Watsonville Creek	Nitrogen, Total Kjeldahl	mg/L	1.07	0.944	0.025	0.611	0.884	0.84	0.715	0.916	2.5	0.886	0.796	1.2	12	0.03	2.50	0.95	0.89	0.57		
Pajaro	305WCS	Watsonville Creek	OrthoPhosphate as P	mg/L	0.485	0.16	0.122	0.0932	0.0419	0.0987	0.123	0.0978	1.1	0.606	0.503	0.435	12	0.042	1.100	0.322	0.142	0.315		
Pajaro	305WCS	Watsonville Creek	Oxygen, Dissolved	mg/L	9.99	12.93	10.53	12	13.6	12.55	14.73	8.3	8.33	7.2	7.34	9.07	12	7.20	14.73	10.55	10.26	2.57	>5	0%
Pajaro	305WCS	Watsonville Creek	Oxygen, Saturation	%	88	119.2	104.6	119.9	148	139.1	166.7	88.5	84.9	76.2	73.3	84	12	73.30	166.70	107.70	96.55	30.74	>85	No
Pajaro	305WCS	Watsonville Creek	pH	none	7.89	8.53	8.38	8.29	8.36	8.21	8.51	8.25	8.38	7.84	7.44	7.46	12	7.44	8.53	8.13	8.27	0.38	7-8.3	42%
Pajaro	305WCS	Watsonville Creek	Phosphorus as P	mg/L	0.721	0.244	0.129	0.153	0.167	0.145	0.149	0.19	1.74	0.717	0.609	0.646	12	0.129	1.740	0.468	0.217	0.470		
Pajaro	305WCS	Watsonville Creek	Salinity	ppt	0.17	0.84	0.75	0.85	0.88	0.91	0.89	0.91	1.05	0.89	0.38	0.13	12	0.13	1.05	0.72	0.87	0.31		
Pajaro	305WCS	Watsonville Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				81.96					113				2	81.96	113.00	97.48	97.48	21.95		
Pajaro	305WCS	Watsonville Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				97.5					92.3				2	92.30	97.50	94.90	94.90	3.68		
Pajaro	305WCS	Watsonville Creek	Specific Conductivity	uS/cm	355	1648	1196	1667	1726	1795	1761	1784	2052	1748	778	271.1	12	271	2,052	1,398	1,697	604		
Pajaro	305WCS	Watsonville Creek	Total Dissolved Solids	mg/L	231	835.7	961.1	1083	1122	1167	1144	1160	1334	1136	506	176	12	176	1,334	905	1,103	388		
Pajaro	305WCS	Watsonville Creek	Total Suspended Solids	mg/L	130	62.8	11.3	0.74	51.3	30.5	2.33	22.3	28.4	2.5	14.5	114	12	0.74	130.00	39.22	25.35	43.27		
Pajaro	305WCS	Watsonville Creek	Turbidity, Field	NTU	154	37.8	8.69	2.84	12.8	4.02	9.23	5.73	11.6	2.59	25.8	247	12	3	247	44	10	77		
Pajaro	305WCS	Watsonville Creek	Water Temperature	Deg C	9.99	11.7	14.9	15	19.2	20.1	21.2	18.2	16	17.9	15.2	11.9	12	9.99	21.20	15.94	15.60	3.53		
Pajaro	305WSA	Watsonville Slough	Air Temperature	Deg C	9	15	21	12	19	18	22	14	11	27	14	17	12	9.00	27.00	16.58	16.00	5.14		
Pajaro	305WSA	Watsonville Slough	Algae Toxicity, Cell Growth	%Control Growth	187.2			252.4								169.7	3	169.70	252.40	203.10	187.20	43.58		
Pajaro	305WSA	Watsonville Slough	Ammonia as N	mg/L	0.196	0.449	0.103	0.159	0.19							0.101	6	0.10	0.45	0.20	0.17	0.13		
Pajaro	305WSA	Watsonville Slough	Ammonia as N, Unionized	mg/L	0.00024	0.0033	0.00166	0.00084	0.00079							0.00059	6	0.0002	0.0033	0.0012	0.0008	0.001	<0.025	0%
Pajaro	305WSA	Watsonville Slough	Chlorophyll a, Field	ug/L	3	29	13	27	4							1	6	1.00	29.00	12.83	8.50	12.46		
Pajaro	305WSA	Watsonville Slough	Discharge	cfs	0.13125	5.346	3.9715	1.2708	0.0505	0	0	0	0	0	0	0.4599	12	0.00	5.35	0.94	0.03	1.80		

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	305WSA	Watsonville Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	102.8				100							58.4	3	58.40	102.80	87.07	100.00	24.87		
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	100.3			99.2								77.9	3	77.90	100.30	92.47	99.20	12.63		
Pajaro	305WSA	Watsonville Slough	Invertebrate Toxicity, Survival	%Control Survival	100			100								88.9	3	88.90	100.00	96.30	100.00	6.41		
Pajaro	305WSA	Watsonville Slough	Nitrate + Nitrite as N	mg/L	6.24	3	2.38	7.74	12.2							10.6	6	2.4	12.2	7.0	7.0	3.96	None	N/A
Pajaro	305WSA	Watsonville Slough	Nitrogen, Total	mg/L	7.25	5.98	4.01	9.83	13.62							11.351	6	4.01	13.62	8.67	8.54	3.58		
Pajaro	305WSA	Watsonville Slough	Nitrogen, Total Kjeldahl	mg/L	1.01	2.98	1.63	2.09	1.42							0.751	6	0.75	2.98	1.65	1.53	0.80		
Pajaro	305WSA	Watsonville Slough	OrthoPhosphate as P	mg/L	0.746	0.104	0.471	0.346	0.206							0.528	6	0.104	0.746	0.400	0.409	0.232		
Pajaro	305WSA	Watsonville Slough	Oxygen, Dissolved	mg/L	6.43	7.4	6.16	4.13	3.88							9.52	6	3.88	9.52	6.25	6.30	2.11	>7	67%
Pajaro	305WSA	Watsonville Slough	Oxygen, Saturation	%	56.5	68.2	58.5	41.5	38.7							85.3	6	38.70	85.30	58.12	57.50	17.30	None	N/A
Pajaro	305WSA	Watsonville Slough	pH	none	6.94	7.59	7.88	7.33	7.24							7.54	6	6.94	7.88	7.42	7.44	0.32	7-8.3	17%
Pajaro	305WSA	Watsonville Slough	Phosphorus as P	mg/L	0.982	0.522	0.696	0.72	0.267								5	0.267	0.982	0.637	0.696	0.264		
Pajaro	305WSA	Watsonville Slough	Salinity	ppt	2.09	0.56	0.4	0.59	0.74							0.4	6	0.40	2.09	0.80	0.58	0.65		
Pajaro	305WSA	Watsonville Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				80.15									1	80.15	80.15	80.15	80.15	N/A		
Pajaro	305WSA	Watsonville Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				100									1	100.00	100.00	100.00	100.00	N/A		
Pajaro	305WSA	Watsonville Slough	Specific Conductivity	uS/cm	3952	1116	637	1183	1451							812	6	637	3,952	1,525	1,150	1,223		
Pajaro	305WSA	Watsonville Slough	Total Dissolved Solids	mg/L	2561	565	530.1	769	944							529	6	529	2,561	983	667	790		
Pajaro	305WSA	Watsonville Slough	Total Suspended Solids	mg/L	29	57	22.3	40.2	2.87							29.3	6	2.87	57.00	30.11	29.15	18.05		
Pajaro	305WSA	Watsonville Slough	Turbidity, Field	NTU	50.8	53.9	20.7	39.5	6.22							78.3	6	6	78	42	45	26		
Pajaro	305WSA	Watsonville Slough	Water Temperature	Deg C	9.6	11.9	13.5	15.6	15.4							10.4	6	9.60	15.60	12.73	12.70	2.52		

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	10.9	21.7	21.1	23.4	17.8	23.1	21.8	24.4	22.9	19.8	23.2	18.2	12	10.90	24.40	20.69	21.8	3.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Algae Toxicity, Cell Growth	%Control Growth	133.8			142.7					23.7			241.4	4	23.70	241.40	135.40	138.3	89.0		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Ammonia as N	mg/L	0.32	0.115	0.606	2.2	0.142	0.883	0.0867	1.16	0.054	1.15	0.325	0.328	12	0.05	2.20	0.61	0.33	0.6		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Ammonia as N, Unionized	mg/L	0.00094	0.08484	0.09863	0.28577	0.01784	0.51902	0.02255	0.04623	0.00393	0.00921	0.02357	0.00179	12	0.0009	0.5190	0.0929	0.0231	0.2	<0.025	42%
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Chlorophyll a, Field	ug/L	2.2	16.72	14.05	34.73	10.62	4.6	9.47	4.61	0.76	0.63	0.24	0.4	12	0.24	34.73	8.25	4.6	10.1		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Discharge	cfs	1320	0.00025	0.286	0.67615	-1.0456	0.5184	-0.137	10.56	48	128.7	51	175	12	-1.05	1,320.00	144.46	5.62	374.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			18.4					67.5			0	4	0.00	67.50	21.48	9.2	31.9		
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	14.6			0					15.5			1.9	4	0.00	15.50	8.00	8.3	8.2		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Invertebrate Toxicity, Survival	%Control Survival	88.9			0					90			0	4	0.00	90.00	44.73	44.5	51.6		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Nitrate + Nitrite as N	mg/L	7.31	20.2	30.5	46.3	41	37.7	38.6	35	46.7	28.6	52.7	7.68	12	7.3	52.7	32.7	36.4	14.66	None	N/A
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Nitrogen, Total	mg/L	13.32	21.62	35.58	49.14	42.88	39.86	40.22	37.17	47.086	33.09	53.512	12.73	12	12.73	53.51	35.52	38.5	13.3		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Nitrogen, Total Kjeldahl	mg/L	6.01	1.42	5.08	2.84	1.88	2.16	1.62	2.17	0.386	4.49	0.812	5.05	12	0.39	6.01	2.83	2.2	1.9		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	OrthoPhosphate as P	mg/L	0.948	0.287	0.776	0.638	0.662	0.289	0.452	0.276	0.703	2.04	0.765	0.877	12	0.276	2.040	0.726	0.683	0.5		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Oxygen, Dissolved	mg/L	11.48	20.01	14.17	12	9.41	12.6	15.76	11.57	11.6	8.6	13.5	10.2	12	8.60	20.01	12.58	11.80	3.1	>5	0%
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Oxygen, Saturation	%	102.2	229.9	155.7	136.2	102.7	150	196.5	136.8	132	90.4	147	92.1	12	90.40	229.90	139.29	136.50	41.9	None	N/A
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	pH	none	7.23	9.83	8.87	8.59	8.63	9.45	8.81	7.97	8.31	7.43	8.36	7.49	12	7.23	9.83	8.41	8.48	0.8	7-8.3	67%
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Phosphorus as P	mg/L	6.3	0.698	1.49	1.16	1.24	0.487	0.589	1.23	0.841	3.05	0.985	3.85	12	0.49	6.30	1.83	1.20	1.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Salinity	ppt	0.14	0.46	0.58	0.57	0.53	0.62	0.67	0.62	0.7	0.48	0.7	0.2	12	0.14	0.70	0.52	0.58	0.2		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Sediment Invertebrate Toxicity, Growth	%Control Growth				0					10.4				2	0.00	10.40	5.20	5.2	7.4		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Sediment Invertebrate Toxicity, Survival	%Control Survival				0					10.3				2	0.00	10.30	5.15	5.2	7.3		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Specific Conductivity	uS/cm	2925	887.9	1102	1087	1015	1178	1270	1178	1282	923	1319	356	12	356	2,925	1,210	1,140	599		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Total Dissolved Solids	mg/L	186.9	568.2	705.5	696	649.5	753	812.7	754.3	820.7	590.8	844.3	228.1	12	187	844	634	701	217		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Total Suspended Solids	mg/L	1600	80.3	644	154	181	19.5	33.3	62.5	15.2	538	31.6	1570	12	15.20	1600.00	410.78	117.2	585.7		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Turbidity, Field	NTU	2430	95.1	139.3	122.3	29.4	4.5	17.8	3.9	3.9	416	47.2	1926	12	4	2,430	436	71	828.5		
Lower Salinas	309ALG	Salinas Rec Canal, u/s Salinas	Water Temperature	Deg C	10.02	22.41	16.28	21.45	19.6	25.4	26.52	23.58	21.6	17.95	20	10.5	12	10.02	26.52	19.61	20.7	5.2		
Lower Salinas	309ASB	Alisal Slough	Air Temperature	Deg C	12.1	7.8	20.1	21.3	11.3	18	19.5	16	23.5	20.4	8	8.9	12	7.80	23.50	15.58	17.0	5.7		
Lower Salinas	309ASB	Alisal Slough	Algae Toxicity, Cell Growth	%Control Growth	161.7			213.5					216			141	4	141.00	216.00	183.05	187.6	37.6		
Lower Salinas	309ASB	Alisal Slough	Ammonia as N	mg/L	0.383	0.105	0.52	0.0635	0.126	0.17	0.205	0.0576	0.118	0.326	0.395	0.228	12	0.06	0.52	0.22	0.19	0.1		
Lower Salinas	309ASB	Alisal Slough	Ammonia as N, Unionized	mg/L	0.00054	0.00086	0.00392	0.00147	0.00109	0.00098	0.00075	0.00018	0.00124	0.00106	0.00199	0.0008	12	0.0002	0.0039	0.0012	0.0010	0.0	<0.025	0%
Lower Salinas	309ASB	Alisal Slough	Chlorophyll a, Field	ug/L	4.08	10.35	20.69	7.82	9.23	9.42	32.57	9.26	0.53	1.56	0.14	0.43	12	0.14	32.57	8.84	8.5	9.5		
Lower Salinas	309ASB	Alisal Slough	Discharge	cfs	315	0.0375	0.201	1.19365	0.10095	1.0481	0.01375	1.221	0.385	0.44625	0.149	75	12	0.01	315.00	32.90	0.42	91.4		
Lower Salinas	309ASB	Alisal Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	20.6								97.4			80	3	20.60	97.40	66.00	80.0	40.3		
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	104.7								46.8			30.8	3	30.80	104.70	60.77	46.8	38.9		
Lower Salinas	309ASB	Alisal Slough	Invertebrate Toxicity, Survival	%Control Survival	111.1			8.5					70			100	4	8.50	111.10	72.40	85.0	46.0		
Lower Salinas	309ASB	Alisal Slough	Nitrate + Nitrite as N	mg/L	41.6	55.8	44.7	40.4	48.5	41.5	40.2	48.2	28.5	25.6	42.2	63.7	12	25.6	63.7	43.4	41.9	10.37	<10	100%
Lower Salinas	309ASB	Alisal Slough	Nitrogen, Total	mg/L	42.094	68.5	45.304	41.63	49.339	43.34	44.7	50	29.55	27.98	43.87	65.47	12	27.98	68.50	45.98	44.3	11.9		
Lower Salinas	309ASB	Alisal Slough	Nitrogen, Total Kjeldahl	mg/L	0.494	12.7	0.604	1.23	0.839	1.84	4.5	1.8	1.05	2.38	1.67	1.77	12	0.49	12.70	2.57	1.7	3.4		
Lower Salinas	309ASB	Alisal Slough	OrthoPhosphate as P	mg/L	0.975	0.163	0.301	0.27	0.171	0.306	0.339	0.384	0.37	0.207	0.509	0.827	12	0.163	0.975	0.402	0.323	0.3		
Lower Salinas	309ASB	Alisal Slough	Oxygen, Dissolved	mg/L	10.9	10.94	15.27	10.9	8.94	5.7	6.27	6.5	8.5	7.26	8.5	8.7	12	5.70	15.27	9.03	8.60	2.7	>5	0%
Lower Salinas	309ASB	Alisal Slough	Oxygen, Saturation	%	99	94.9	154.4	126.4	101.5	60.9	65.6	66.3	86.3	74.2	78	78.1	12	60.90	154.40	90.47	82.20	27.4	>85	Yes
Lower Salinas	309ASB	Alisal Slough	pH	none	6.93	7.79	7.52	7.93	7.43	7.29	7.13	7.03	7.64	7.13	7.49	7.37	12	6.93	7.93	7.39	7.40	0.3	7-8.3	8%
Lower Salinas	309ASB	Alisal Slough	Phosphorus as P	mg/L	1.37	0.656	0.653	0.579	0.522	0.519	1.59	0.733	0.805	1.32	1.02	1.15	12	0.52	1.59	0.91	0.77	0.4		
Lower Salinas	309ASB	Alisal Slough	Salinity	ppt	0.85	2.29	1.78	2.1	2.64	2.11	1.8	1.9	1.4	1.85	1.7	1.5	12	0.85	2.64	1.83	1.83	0.5		
Lower Salinas	309ASB	Alisal Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				0					74				2	0.00	74.00	37.00	37.0	52.3		
Lower Salinas	309ASB	Alisal Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				0					5.1				2	0.00	5.10	2.55	2.6	3.6		
Lower Salinas	309ASB	Alisal Slough	Specific Conductivity	uS/cm	1608	4196	3286	3866	4808	3876	3330	3502	2655	3416	3177	2741	12	1,608	4,808	3,372	3,373	816		
Lower Salinas	309ASB	Alisal Slough	Total Dissolved Solids	mg/L	1029	2686	2103	24720	3077	248	2131	1.2	1700	2186	2031	1753	12	1	24,720	3,639	2,067	6,700		
Lower Salinas	309ASB	Alisal Slough	Total Suspended Solids	mg/L	59.2	574	60.5	67.7	29.9	44.6	986	23.9	89.4	149	152	81.9	12	23.90	986.00	193.18	74.8	290.6		
Lower Salinas	309ASB	Alisal Slough	Turbidity, Field	NTU	26.9	32.1	20.2	13.7	18.4	8.8	44.4	28.3	42.2	50.8	54.5	21.6	12	9	55	30	28	14.8		
Lower Salinas	309ASB	Alisal Slough	Water Temperature	Deg C	10.6	8.84	15.57	22.27	20.8	17.24	17.9	16.1	16.1	16.3	11.1	9.8	12	8.84	22.27	15.22	16.1	4.3		
Lower Salinas	309BLA	Blanco Drain	Air Temperature	Deg C	11.4	11	24.1	14.6	13.8	18.5	23.2	22.1	17	20	18.1	12.9	12	11.00	24.10	17.23	17.6	4.5		
Lower Salinas	309BLA	Blanco Drain	Algae Toxicity, Cell Growth	%Control Growth	153.5			176.7					196.6			150.5	4	150.50	196.60	169.33	165.1	21.6		
Lower Salinas	309BLA	Blanco Drain	Ammonia as N	mg/L	0.23	0.119	0.0487	0.168	0.079	0.237	0.08	0.0374	0.0676	0.112	0.0967	0.218	12	0.04	0.24	0.12	0.10	0.1		
Lower Salinas	309BLA	Blanco Drain	Ammonia as N, Unionized	mg/L	0.0011	0.00102	0.00165	0.00143	0.00145	0.00416	0.00153	0.00025	0.00119	0.00097	0.00142	0.0021	12	0.0003	0.0042	0.0015	0.0014	0.0	<0.025	0%
Lower Salinas	309BLA	Blanco Drain	Chlorophyll a, Field	ug/L	2.54	1.25	3.29	4.23	10.73	6.73	4.04	0.5	0.62	0.12	0.05	0.43	12	0.05	10.73	2.88	1.9	3.2		
Lower Salinas	309BLA	Blanco Drain	Discharge	cfs	315	3.1975	-1.302	3.5476	8.265	3.01275	13.0795	2.1835	1.5925	0.857	1.2825	27.918	12	-1.30	315.00	31.55	3.11	89.6		
Lower Salinas	309BLA	Blanco Drain	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	78.4			89.19					102.6			92.5	4	78.40	102.60	90.67	90.8	10.0		
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	85			33.2					46.3			65.2	4	33.20	85.00	57.43	55.8	22.6		
Lower Salinas	309BLA	Blanco Drain	Invertebrate Toxicity, Survival	%Control Survival	100			90					80			100	4	80.00	100.00	92.50	95.0	9.6		
Lower Salinas	309BLA	Blanco Drain	Nitrate + Nitrite as N	mg/L	68.1	66.8	70.8	75.4	60.5	70.5	66.2	69.9	61.8	63.2	56.5	71.6	12	56.5	75.4	66.8	67.5	5.41	None	N/A
Lower Salinas	309BLA	Blanco Drain	Nitrogen, Total	mg/L	68.728	67.305	70.8	76.322	60.5	71.093	66.2	70.91	61.8	63.892	56.5	73.12	12	56.50	76.32	67.26	68.0	5.7		
Lower Salinas	309BLA	Blanco Drain	Nitrogen, Total Kjeldahl	mg/L	0.628	0.505	0.025	0.922	0.025	0.593	0.065	1.01	0.065	0.692	0.065	1.52	12	0.03	1.52	0.51	0.5	0.5		
Lower Salinas	309BLA	Blanco Drain	OrthoPhosphate as P	mg/L	0.764	0.337	0.258	0.283	0.27	0.296	0.337	0.349	0.284	0.471	0.42	0.798	12	0.258	0.798	0.406	0.337	0.2		
Lower Salinas	309BLA	Blanco Drain	Oxygen, Dissolved	mg/L	10.6	9.67	21.5	8.71	10.91	8.24	14.3	11.9	7	6.1	8.27	9.4	12	6.10	21.50	10.55	9.54	4.1	>5	0%
Lower Salinas	309BLA	Blanco Drain	Oxygen, Saturation	%	99.1	88.3	228.1	83.9	121.8	85.7	164.3	136.9	67.6	62.6	80	89.6	12	62.60	228.10	108.99	88.95	47.6	None	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	309BLA	Blanco Drain	pH	none	7.38	7.71	8.1	7.63	7.76	7.81	7.73	7.32	7.95	7.55	7.87	7.7	12	7.32	8.10	7.71	7.72	0.2	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
Lower Salinas	309BLA	Blanco Drain	Phosphorus as P	mg/L	1.28	0.478	0.432	0.434	0.401	0.476	0.468	0.452	0.435	0.598	0.522	0.263	12	0.26	1.28	0.52	0.46	0.3		
Lower Salinas	309BLA	Blanco Drain	Salinity	ppt	1.21	1.41	1.52	1.51	1.53	0.85	1.28	1.49	1.5	1.8	1.5	1.4	12	0.85	1.80	1.42	1.50	0.2		
Lower Salinas	309BLA	Blanco Drain	Sediment Invertebrate Toxicity, Growth	%Control Growth				68.62					58.9				2	58.90	68.62	63.76	63.8	6.9		
Lower Salinas	309BLA	Blanco Drain	Sediment Invertebrate Toxicity, Survival	%Control Survival				67.53					100				2	67.53	100.00	83.77	83.8	23.0		
Lower Salinas	309BLA	Blanco Drain	Specific Conductivity	uS/cm	2260	2623	2824	2807	2826	1545	2259	2764	2708	3389	2857	2541	12	1,545	3,389	2,617	2,736	449		
Lower Salinas	309BLA	Blanco Drain	Total Dissolved Solids	mg/L	144.6	1678	1806	1796	1810	465.3	1532	1760	1733	2166	1824	1626	12	145	2,166	1,528	1,747	595		
Lower Salinas	309BLA	Blanco Drain	Total Suspended Solids	mg/L	191	53	32.6	19.9	16.9	17.4	12	10.4	7.87	9	15.5	163	12	7.87	191.00	45.71	17.2	62.9		
Lower Salinas	309BLA	Blanco Drain	Turbidity, Field	NTU	107.3	22.5	8.8	4.7	3.7	1.2	0	1.3	1.4	4.4	8.5	76.8	12	0	107	20	5	34.8		
Lower Salinas	309BLA	Blanco Drain	Water Temperature	Deg C	11.8	11.29	18	13.69	20.13	16.69	21.46	20	13.6	16.5	13.7	13.1	12	11.29	21.46	15.83	15.1	3.5		
Lower Salinas	309CCD	Chualar Creek, South Branch	Air Temperature	Deg C	10.7	23.2	6.2	12.6	18.8	23.7	24.9	18.2	20.3	10.5	18.3	12.1	12	6.20	24.90	16.63	18.3	6.1		
Lower Salinas	309CCD	Chualar Creek, South Branch	Algae Toxicity, Cell Growth	%Control Growth	128.9											201.2	2	128.90	201.20	165.05	165.1	51.1		
Lower Salinas	309CCD	Chualar Creek, South Branch	Ammonia as N	mg/L	0.805				1.56	6.52						0.71	4	0.71	6.52	2.40	1.18	2.8		
Lower Salinas	309CCD	Chualar Creek, South Branch	Ammonia as N, Unionized	mg/L	0.02895				0.02801	0.12185						0.00331	4	0.0033	0.1219	0.0455	0.0285	0.1	<0.025	75%
Lower Salinas	309CCD	Chualar Creek, South Branch	Chlorophyll a, Field	ug/L	2.83				7.44	5.89						0.32	4	0.32	7.44	4.12	4.4	3.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Discharge	cfs	150	0	0	0	0.1065	0.002	0	0	0	0	0	173.25	12	0.00	173.25	26.95	0.00	63.1		
Lower Salinas	309CCD	Chualar Creek, South Branch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											12.8	2	0.00	12.80	6.40	6.4	9.1		
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	78											48.5	2	48.50	78.00	63.25	63.3	20.9		
Lower Salinas	309CCD	Chualar Creek, South Branch	Invertebrate Toxicity, Survival	%Control Survival	77.8											90	2	77.80	90.00	83.90	83.9	8.6		
Lower Salinas	309CCD	Chualar Creek, South Branch	Nitrate + Nitrite as N	mg/L	28.5				22.4	55.6						8.12	4	8.1	55.6	28.7	25.5	19.89	<10	75%
Lower Salinas	309CCD	Chualar Creek, South Branch	Nitrogen, Total	mg/L	32.36				26.88	60.01						25.52	4	25.52	60.01	36.19	29.6	16.2		
Lower Salinas	309CCD	Chualar Creek, South Branch	Nitrogen, Total Kjeldahl	mg/L	3.86				4.48	4.41						17.4	4	3.86	17.40	7.54	4.4	6.6		
Lower Salinas	309CCD	Chualar Creek, South Branch	OrthoPhosphate as P	mg/L	0.926				0.98	1.88						0.822	4	0.822	1.880	1.152	0.953	0.5		
Lower Salinas	309CCD	Chualar Creek, South Branch	Oxygen, Dissolved	mg/L	11.06				9.05	9.09						11.1	4	9.05	11.10	10.08	10.08	1.2	>5	0%
Lower Salinas	309CCD	Chualar Creek, South Branch	Oxygen, Saturation	%	99.3				96.1	104						97.6	4	96.10	104.00	99.25	98.45	3.4	>85	No
Lower Salinas	309CCD	Chualar Creek, South Branch	pH	none	8.35				7.8	7.71						7.45	4	7.45	8.35	7.83	7.76	0.4	7-8.3	25%
Lower Salinas	309CCD	Chualar Creek, South Branch	Phosphorus as P	mg/L	4.78				1.63	2.31						14.3	4	1.63	14.30	5.76	3.55	5.9		
Lower Salinas	309CCD	Chualar Creek, South Branch	Salinity	ppt	0.44				0.57	0.89						0.2	4	0.20	0.89	0.53	0.51	0.3		
Lower Salinas	309CCD	Chualar Creek, South Branch	Sediment Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CCD	Chualar Creek, South Branch	Sediment Invertebrate Toxicity, Survival	%Control Survival													0	N/A	N/A	N/A	N/A	N/A		
Lower Salinas	309CCD	Chualar Creek, South Branch	Specific Conductivity	uS/cm	855				1087	1680						334	4	334	1,680	989	971	558		
Lower Salinas	309CCD	Chualar Creek, South Branch	Total Dissolved Solids	mg/L	547.6				694.6	1075						213.9	4	214	1,075	633	621	357		
Lower Salinas	309CCD	Chualar Creek, South Branch	Total Suspended Solids	mg/L	1220				63.5	31.8						6020	4	31.80	6020.00	1833.83	641.8	2845.0		
Lower Salinas	309CCD	Chualar Creek, South Branch	Turbidity, Field	NTU	1295				71.7	44.6						3000	4	45	3,000	1,103	683	1392.8		
Lower Salinas	309CCD	Chualar Creek, South Branch	Water Temperature	Deg C	10.16				17.61	21.39						9.6	4	9.60	21.39	14.69	13.9	5.8		
Lower Salinas	309CRR	Chualar Creek, North Branch	Air Temperature	Deg C	11	24.6	5	16.5	18.8	24	25.8	24.4	21.1	10	20.2	11.9	12	5.00	25.80	17.78	19.5	6.9		
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	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	Chlorophyll a, Field	ug/L	1.21				8.19			10.87				0.22	4	0.22	10.87	5.12	4.7	5.2		
Lower Salinas	309CRR	Chualar Creek, North Branch	Discharge	cfs	1.1717	0	0	0	0.015	0	0	0.246	0	0	0	140	12	0.00	140.00	11.79	0.00	40.4		
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	Nitrate + Nitrite as N	mg/L	5.78				23.3			66.4				0.005	4	0.0	66.4	23.9	14.5	30.0	<10	50%
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	11.35				8.3			7.08				11.1	4	7.08	11.35	9.46	9.70	2.1	>5	0%
Lower Salinas	309CRR	Chualar Creek, North Branch	Oxygen, Saturation	%	101.3				86.4			79.6				98.9	4	79.60	101.30	91.55	92.65	10.3	>85	No
Lower Salinas	309CRR	Chualar Creek, North Branch	pH	none	7.62				7.76			7.66				7.74	4	7.62	7.76	7.70	7.70	0.1	7-8.3	0%
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	Salinity	ppt	0.13				0.57			0.89				0.1	4	0.10	0.89	0.42	0.35	0.4		
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	Specific Conductivity	uS/cm	271				1080			1675				184	4	184	1,675	803	676	708		
Lower Salinas	309CRR	Chualar Creek, North Branch	Total Dissolved Solids	mg/L	173.6				691			1072				117.8	4	118	1,072	514	432	453		
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	10200				50.9			39.8				3000	4	40	10,200	3,323	1,525	4791.8		
Lower Salinas	309CRR	Chualar Creek, North Branch	Water Temperature	Deg C	10.05				17.32			2.94				10.1	4	2.94	17.32	10.10	10.1	5.9		
Lower Salinas	309ESP	Espinosa Slough	Air Temperature	Deg C	10.1	18.3	18.9	12.7	13.2	17.7	17.8	15.9	18.9	13.3	9	13.3	12	9.00	18.90	14.93	14.6	3.5		
Lower Salinas	309ESP	Espinosa Slough	Algae Toxicity, Cell Growth	%Control Growth	153.4			150.6					260.1			176.5	4	150.60	260.10	185.15	165.0	51.3		
Lower Salinas	309ESP	Espinosa Slough	Ammonia as N	mg/L	0.266	0.895	0.0694	0.0649	1.37	1.08	0.0729	0.65	0.0731	0.189	2.78	0.364	12	0.06	2.78	0.66	0.32	0.8		
Lower Salinas	309ESP	Espinosa Slough	Ammonia as N, Unionized	mg/L	0.00141	0.23114	0.00052	0.00087	0.01948	0.00608	0.00172	0.00249	0.00318	0.00076	0.01828	0.00264	12	0.0005	0.2311	0.0240	0.0026	0.1	<0.025	8%
Lower Salinas	309ESP	Espinosa Slough	Chlorophyll a, Field	ug/L	2.38	59.11	91.26	103.96	16.09	109.25	162.57	24.03	1.72	3.06	0.13	0.52	12	0.13	162.57	47.84	20.1	55.9		
Lower Salinas	309ESP	Espinosa Slough	Discharge	cfs	300	5.629	0.01425	1.0728	0.09345	0.2015	0.0725	0.393	0.508	15.2595	0.121	112.5	12	0.01	300.00	36.32	0.45	89.0		
Lower Salinas	309ESP	Espinosa Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	2.7			82.5					92.3			30	4	2.70	92.30	51.88	56.3	42.7		
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	0			58.4					76.1			115.1	4	0.00	115.10	62.40	67.3	47.9		
Lower Salinas	309ESP	Espinosa Slough	Invertebrate Toxicity, Survival	%Control Survival	0			100					100			100	4	0.00	100.00	75.00	100.0	50.0		

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
Lower Salinas	309ESP	Espinosa Slough	Nitrate + Nitrite as N	mg/L	6.15	0.005	5.68	14	8.33	40.2	34.5	34.3	43.6	2.32	5.16	7.55	12	0.0	43.6	16.8	7.9	16.28	None	N/A
Lower Salinas	309ESP	Espinosa Slough	Nitrogen, Total	mg/L	25.45	5.07	11.57	19.5	12.32	43.75	38.25	40.04	44.85	7.09	9.66	15.18	12	5.07	44.85	22.73	17.3	15.1		
Lower Salinas	309ESP	Espinosa Slough	Nitrogen, Total Kjeldahl	mg/L	19.3	5.07	5.89	5.5	3.99	3.55	3.75	5.74	1.25	4.77	4.5	7.63	12	1.25	19.30	5.91	4.9	4.5		
Lower Salinas	309ESP	Espinosa Slough	OrthoPhosphate as P	mg/L	0.777	0.00375	0.00375	0.0172	0.338	0.00375	0.00375	0.0237	0.152	0.676	0.393	0.598	12	0.004	0.777	0.249	0.088	0.3		
Lower Salinas	309ESP	Espinosa Slough	Oxygen, Dissolved	mg/L	9.62	14.45	15.8	6.75	8.06	6.29	11.07	4.3	14.2	6.5	11.4	9.6	12	4.30	15.80	9.84	9.61	3.7	>5	8%
Lower Salinas	309ESP	Espinosa Slough	Oxygen, Saturation	%	84.3	150.4	148.3	66.4	98.8	68.4	118.8	43.8	150	65	100	90.3	12	43.80	150.40	98.71	94.55	36.4	None	N/A
Lower Salinas	309ESP	Espinosa Slough	pH	none	7.53	9.1	7.61	7.77	7.5	7.28	7.85	7.19	8.22	7.22	7.64	7.57	12	7.19	9.10	7.71	7.59	0.5	7-8.3	8%
Lower Salinas	309ESP	Espinosa Slough	Phosphorus as P	mg/L	9.95	0.795	1.11	1.03	0.75	0.552	0.656	1.42	0.392	1.67	0.657	1.24	12	0.39	9.95	1.69	0.91	2.6		
Lower Salinas	309ESP	Espinosa Slough	Salinity	ppt	0.36	0.85	0.99	1.34	1.54	1.58	0.1	1.23	0.56	0.9	0.9	0.4	12	0.10	1.58	0.90	0.90	0.5		
Lower Salinas	309ESP	Espinosa Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				68.52					69.3				2	68.52	69.30	68.91	68.9	0.6		
Lower Salinas	309ESP	Espinosa Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				59.49					57.7				2	57.70	59.49	58.60	58.6	1.3		
Lower Salinas	309ESP	Espinosa Slough	Specific Conductivity	uS/cm	700.2	1605	1864	2493	2836	2923	218	2289	1056	1742	1701	725	12	218	2,923	1,679	1,722	872		
Lower Salinas	309ESP	Espinosa Slough	Total Dissolved Solids	mg/L	448.1	1027	1194	159.8	1819	1869	138.4	1463	683.6	1115	1090	464.1	12	138	1,869	956	1,059	589		
Lower Salinas	309ESP	Espinosa Slough	Total Suspended Solids	mg/L	8480	162	206	175	105	87.1	122	290	45.9	330	41.7	669	12	41.70	8480.00	892.81	168.5	2395.5		
Lower Salinas	309ESP	Espinosa Slough	Turbidity, Field	NTU	11304	74.7	169.9	142.3	75.7	56.6	101	16.3	27	595	29.1	920	12	16	11,304	1,126	88	3217.0		
Lower Salinas	309ESP	Espinosa Slough	Water Temperature	Deg C	9.27	17.32	12.1	13.77	24.85	18.91	18.9	16.2	16.84	15.6	9.5	12.2	12	9.27	24.85	15.46	15.9	4.4		
Lower Salinas	309GAB	Gabilan Creek	Air Temperature	Deg C	12.5	10.5	20.7	17.1	10	23.2	20.5	25	23.7	25	23.2	9.9	12	9.90	25.00	18.44	20.6	6.1		
Lower Salinas	309GAB	Gabilan Creek	Algae Toxicity, Cell Growth	%Control Growth	224											366.1	2	224.00	366.10	295.05	295.1	100.5		
Lower Salinas	309GAB	Gabilan Creek	Ammonia as N	mg/L	0.286											0.185	2	0.19	0.29	0.24	0.24	0.1		
Lower Salinas	309GAB	Gabilan Creek	Ammonia as N, Unionized	mg/L	0.00097											0.00109	2	0.0010	0.0011	0.0010	0.0010	0.0	<0.025	0%
Lower Salinas	309GAB	Gabilan Creek	Chlorophyll a, Field	ug/L	1.64											0.51	2	0.51	1.64	1.08	1.1	0.8		
Lower Salinas	309GAB	Gabilan Creek	Discharge	cfs	0.1074	0	0	0	0	0	0	0	0	0	0	9.559	12	0.00	9.56	0.81	0.00	2.8		
Lower Salinas	309GAB	Gabilan Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											100	2	0.00	100.00	50.00	50.0	70.7		
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											100	2	0.00	100.00	50.00	50.0	70.7		
Lower Salinas	309GAB	Gabilan Creek	Invertebrate Toxicity, Survival	%Control Survival	0											100	2	0.00	100.00	50.00	50.0	70.7		
Lower Salinas	309GAB	Gabilan Creek	Nitrate + Nitrite as N	mg/L	2.22											1.81	2	1.8	2.2	2.0	2.0	0.29	<10	0%
Lower Salinas	309GAB	Gabilan Creek	Nitrogen, Total	mg/L	10.18											8.39	2	8.39	10.18	9.29	9.3	1.3		
Lower Salinas	309GAB	Gabilan Creek	Nitrogen, Total Kjeldahl	mg/L	7.96											6.58	2	6.58	7.96	7.27	7.3	1.0		
Lower Salinas	309GAB	Gabilan Creek	OrthoPhosphate as P	mg/L	0.912											0.305	2	0.305	0.912	0.609	0.609	0.4		
Lower Salinas	309GAB	Gabilan Creek	Oxygen, Dissolved	mg/L	16											10.9	2	10.90	16.00	13.45	13.45	3.6	>7	0%
Lower Salinas	309GAB	Gabilan Creek	Oxygen, Saturation	%	115											93.5	2	93.50	115.00	104.25	104.25	15.2	None	N/A
Lower Salinas	309GAB	Gabilan Creek	pH	none	7.25											7.58	2	7.25	7.58	7.42	7.42	0.2	7-8.3	0%
Lower Salinas	309GAB	Gabilan Creek	Phosphorus as P	mg/L	4.21											0.425	2	0.43	4.21	2.32	2.32	2.7		
Lower Salinas	309GAB	Gabilan Creek	Salinity	ppt	0.07											0.2	2	0.07	0.20	0.14	0.14	0.1		
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	Specific Conductivity	uS/cm	153.3											386	2	153	386	270	270	165		
Lower Salinas	309GAB	Gabilan Creek	Total Dissolved Solids	mg/L	98.1											247.8	2	98	248	173	173	106	<300	No
Lower Salinas	309GAB	Gabilan Creek	Total Suspended Solids	mg/L	1650											272	2	272.00	1650.00	961.00	961.0	974.4		
Lower Salinas	309GAB	Gabilan Creek	Turbidity, Field	NTU	1535											229.2	2	229	1,535	882	882	923.3		
Lower Salinas	309GAB	Gabilan Creek	Water Temperature	Deg C	11.1											8.9	2	8.90	11.10	10.00	10.0	1.6		
Lower Salinas	309GRN	Salinas R, Greenfield	Air Temperature	Deg C	11	20.2	16.4	11.6	15.5	24.2	26.1	26	16.7	10.2	18.4	15.8	12	10.20	26.10	17.68	16.6	5.5		
Lower Salinas	309GRN	Salinas R, Greenfield	Algae Toxicity, Cell Growth	%Control Growth	208			198.9									2	198.90	208.00	203.45	203.5	6.4		
Lower Salinas	309GRN	Salinas R, Greenfield	Ammonia as N	mg/L	0.191	0.0353	0.0157	0.029	0.0504	0.163	0.023						7	0.02	0.19	0.07	0.04	0.1		
Lower Salinas	309GRN	Salinas R, Greenfield	Ammonia as N, Unionized	mg/L	0.00193	0.00059	0.00028	0.00049	0.00076	0.00565	0.00059						7	0.0003	0.0057	0.0015	0.0006	0.0	<0.025	0%
Lower Salinas	309GRN	Salinas R, Greenfield	Chlorophyll a, Field	ug/L	2.58	0.39	0.43	2.28	1.72	6.14	6.87						7	0.39	6.87	2.92	2.3	2.6		
Lower Salinas	309GRN	Salinas R, Greenfield	Discharge	cfs	6496	1840	130	1908	990	1955.25	2117.5	0	0	0	0	0	12	0.00	6,496.00	1,286.40	560.00	1875.0		
Lower Salinas	309GRN	Salinas R, Greenfield	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	50			105.3									2	50.00	105.30	77.65	77.7	39.1		
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	80.3			93.1									2	80.30	93.10	86.70	86.7	9.1		
Lower Salinas	309GRN	Salinas R, Greenfield	Invertebrate Toxicity, Survival	%Control Survival	100			100									2	100.00	100.00	100.00	100.0	0.0		
Lower Salinas	309GRN	Salinas R, Greenfield	Nitrate + Nitrite as N	mg/L	1.88	4.59	5.46	0.449	0.513	0.257	0.089						7	0.1	5.5	1.9	0.5	2.23	<10	0%
Lower Salinas	309GRN	Salinas R, Greenfield	Nitrogen, Total	mg/L	15.08	5.113	5.971	1.043	1.693	1.244	0.902						7	0.90	15.08	4.44	1.7	5.1		
Lower Salinas	309GRN	Salinas R, Greenfield	Nitrogen, Total Kjeldahl	mg/L	13.2	0.523	0.511	0.594	1.18	0.987	0.813						7	0.51	13.20	2.54	0.8	4.7		
Lower Salinas	309GRN	Salinas R, Greenfield	OrthoPhosphate as P	mg/L	0.107	0.0752	0.0699	0.0845	0.0684	0.0932	0.049						7	0.049	0.107	0.078	0.075	0.0		
Lower Salinas	309GRN	Salinas R, Greenfield	Oxygen, Dissolved	mg/L	12.4	10.77	10.28	10.28	9.68	12.7	8.75						7	8.75	12.70	10.69	10.28	1.4	>7	0%
Lower Salinas	309GRN	Salinas R, Greenfield	Oxygen, Saturation	%	108.9	104.8	100.3	98.8	105.2	144.5	103.4						7	98.80	144.50	109.41	104.80	15.8	None	N/A
Lower Salinas	309GRN	Salinas R, Greenfield	pH	none	7.81	7.87	7.91	7.89	7.71	7.94	7.75						7	7.71	7.94	7.84	7.87	0.1	7-8.3	0%
Lower Salinas	309GRN	Salinas R, Greenfield	Phosphorus as P	mg/L	12.8	0.117	0.13	0.279	0.268	0.286	0.131						7	0.12	12.80	2.00	0.27	4.8		
Lower Salinas	309GRN	Salinas R, Greenfield	Salinity	ppt	0.35	0.39	0.42	0.15	0.16	0.17	0.18						7	0.15	0.42	0.26	0.18	0.1		
Lower Salinas	309GRN	Salinas R, Greenfield	Sediment Invertebrate Toxicity, Growth	%Control Growth				90.52									1	90.52	90.52	90.52	90.5	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Sediment Invertebrate Toxicity, Survival	%Control Survival				98.75									1	98.75	98.75	98.75	98.8	N/A		
Lower Salinas	309GRN	Salinas R, Greenfield	Specific Conductivity	uS/cm	671.9	749.1	817	315	333	344	371.2						7	315	817	514	371	221		
Lower Salinas	309GRN	Salinas R, Greenfield	Total Dissolved Solids	mg/L	430.4	479.8	521.6	201.5	2128	220.1	237.3						7	202	2,128	603	430	685	<600	Yes
Lower Salinas	309GRN	Salinas R, Greenfield	Total Suspended Solids	mg/L	12500	34.8	22.9	118	95.8	128	72.2						7	22.90	12500.00	1853.10	95.8	4695.0		
Lower Salinas	309GRN	Salinas R, Greenfield	Turbidity, Field	NTU	7540	12.5	10.2	56.4	33.7	17.6	14.2						7	10	7,540	1,098	18	2840.8		
Lower Salinas	309GRN	Salinas R, Greenfield	Water Temperature	Deg C	9.36	14.16	13.98	13.34	19.16	21.68	23.47						7	9.36	23.47	16.45	14.2	5.1		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Air Temperature	Deg C	11.6	13	21.6	21.3	16.1	20	23.5	24	16	20.7	19.7	9	12	9.00	24.00	18.04	19.9	4.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Algae Toxicity, Cell Growth	%Control Growth	140.5			204.3					237.8			120.61	4	120.61	237.80	175.80	172.4	54.6		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Ammonia as N	mg/L	0.264	0.288	0.0402	0.041	0.0347	0.25	0.0956	0.178	0.0595	0.372	0.395	0.269	12	0.03	0.40	0.19	0.21	0.1		

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	309JON	Salinas Rec Canal, d/s Salinas	Ammonia as N, Unionized	mg/L	0.00295	0.06066	0.00345	0.00207	0.00317	0.00827	0.00069	0.00033	0.00067	0.00326	0.01142	0.0069	12	0.0003	0.0607	0.0087	0.0032	0.0	<0.025	8%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Chlorophyll a, Field	ug/L	2.28	43.19	37.31	22.62	70.85	14.54	7.35	0.47	30	0.19	0.06	2	12	0.06	70.85	19.24	10.9	22.4		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Discharge	cfs	1200	0.8771	0.90125	2.7936	1.9376	0.924	0.7469	0.5222	0.44292	12.0285	0.61425	126	12	0.44	1,200.00	112.32	0.91	344.4		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			27.5					100			0	4	0.00	100.00	31.88	13.8	47.2		
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	32.3			107.8					110.8			105	4	32.30	110.80	88.98	106.4	37.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Invertebrate Toxicity, Survival	%Control Survival	80			100					100			100	4	80.00	100.00	95.00	100.0	10.0		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Nitrate + Nitrite as N	mg/L	4.02	7.9	7.04	15	22.2	13.6	18	10.7	12.3	4.49	19.9	2.09	12	2.1	22.2	11.4	11.5	6.55	None	N/A
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Nitrogen, Total	mg/L	8.21	10.62	9.31	16.75	27.03	15.06	19.31	11.89	13.34	6.17	20.816	4.76	12	4.76	27.03	13.61	12.6	6.5		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Nitrogen, Total Kjeldahl	mg/L	4.19	2.72	2.27	1.75	4.83	1.46	1.31	1.19	1.04	1.68	0.916	2.67	12	0.92	4.83	2.17	1.7	1.3		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	OrthoPhosphate as P	mg/L	0.674	0.115	0.106	0.64	0.392	0.598	0.414	0.554	0.488	0.766	0.303	0.554	12	0.106	0.766	0.467	0.521	0.2		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Oxygen, Dissolved	mg/L	11.1	13.13	15.32	10.05	9.39	6.22	6.37	6.5	2.33	4.5	11.5	9.61	12	2.33	15.32	8.84	9.50	3.7	>5	17%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Oxygen, Saturation	%	98.8	123.4	151	110.1	104.4	69.1	72.6	84.7	24.7	46.1	1.8	82.1	12	1.80	151.00	80.73	83.40	41.9	None	N/A
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	pH	none	7.81	9.12	8.6	8.19	8.46	7.98	7.28	6.76	7.59	7.48	8.17	8.23	12	6.76	9.12	7.97	8.08	0.6	7-8.3	33%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Phosphorus as P	mg/L	3.57	0.47	0.623	0.959	1.07	0.886	0.603	0.72	0.608	1.06	0.54	1.72	12	0.47	3.57	1.07	0.80	0.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Salinity	ppt	0.09	0.51	0.42	0.64	0.69	0.8	0.97	0.88	0.95	0.25	0.7	0.1	12	0.09	0.97	0.58	0.67	0.3		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Sediment Invertebrate Toxicity, Growth	%Control Growth				207					77.39				2	77.39	207.00	142.20	142.2	91.6		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Sediment Invertebrate Toxicity, Survival	%Control Survival				21.52					66.67				2	21.52	66.67	44.10	44.1	31.9		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Specific Conductivity	uS/cm	193.8	980	805.2	1215	1316	1510	1821	1660	1857	500	1277	204.7	12	194	1,857	1,112	1,246	584		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Total Dissolved Solids	mg/L	124.1	627.2	515.3	776.2	842.3	465.8	1166	1063	1207.38	321	817	133	12	124	1,207	672	702	373		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Total Suspended Solids	mg/L	1200	71.3	56	47	92	67.4	31.2	19.6	11.8	23.2	46.8	535	12	11.80	1200.00	183.44	51.5	350.3		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Turbidity, Field	NTU	1367	42.7	44.2	30.7	83.7	45.5	20.2	14.1	10.7	110	27.5	1110	12	11	1,367	242	43	469.5		
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	Water Temperature	Deg C	10.02	12.77	14.64	19.98	20.28	20.19	21.76	19.6	18.2	17.2	12.9	8.5	12	8.50	21.76	16.34	17.7	4.4		
Lower Salinas	309MER	Merrit Ditch	Air Temperature	Deg C	10.1	21.7	18.4	15.9	11.1	17.4	19.6	16.3	14.4	13.7	13.1	8.4	12	8.40	21.70	15.01	15.2	4.0		
Lower Salinas	309MER	Merrit Ditch	Algae Toxicity, Cell Growth	%Control Growth	188.7			136.6					256.7			173.5	4	136.60	256.70	188.88	181.1	50.2		
Lower Salinas	309MER	Merrit Ditch	Ammonia as N	mg/L	0.295	2.05	0.847	0.0773	0.106	0.373	1.67	0.128	0.159	0.459	0.152	0.216	12	0.08	2.05	0.54	0.26	0.7		
Lower Salinas	309MER	Merrit Ditch	Ammonia as N, Unionized	mg/L	0.00088	0.01258	0.00417	0.00179	0.00189	0.00685	0.01876	0.00069	0.00145	0.00195	0.00525	0.00091	12	0.0007	0.0188	0.0048	0.0019	0.0	<0.025	0%
Lower Salinas	309MER	Merrit Ditch	Chlorophyll a, Field	ug/L	6.2	6.49	6.82	43.3	25.3	35.15	33.54	1.15	3.37	0.26	0.21	0.79	12	0.21	43.30	13.55	6.3	16.0		
Lower Salinas	309MER	Merrit Ditch	Discharge	cfs	1188	6	0.006	0.0216	0.2025	0.1485	0.99	1.235	0.89775	40.5	0.0205	588	12	0.01	1,188.00	152.17	0.94	366.9		
Lower Salinas	309MER	Merrit Ditch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			80					100			70	4	0.00	100.00	62.50	75.0	43.5		
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	79.7			111.6					67			130.2	4	67.00	130.20	97.13	95.7	29.0		
Lower Salinas	309MER	Merrit Ditch	Invertebrate Toxicity, Survival	%Control Survival	100			100					90			100	4	90.00	100.00	97.50	100.0	5.0		
Lower Salinas	309MER	Merrit Ditch	Nitrate + Nitrite as N	mg/L	15.2	29.7	22.2	30	37.4	26.3	22.7	16	13.7	20.1	24.5	10.4	12	10.4	37.4	22.4	22.5	7.83	<10	100%
Lower Salinas	309MER	Merrit Ditch	Nitrogen, Total	mg/L	17.13	33.75	25.23	33.08	40.8	29.25	31.7	21.54	16.83	23.29	26.38	15.85	12	15.85	40.80	26.24	25.8	7.8		
Lower Salinas	309MER	Merrit Ditch	Nitrogen, Total Kjeldahl	mg/L	1.93	4.05	3.03	3.08	3.4	2.95	9	5.54	3.13	3.19	1.88	5.45	12	1.88	9.00	3.89	3.2	2.0		
Lower Salinas	309MER	Merrit Ditch	OrthoPhosphate as P	mg/L	0.293	0.159	0.116	0.00375	0.0946	0.0569	0.0398	9.07	0.183	0.363	0.196	0.588	12	0.004	9.070	0.930	0.171	2.6		
Lower Salinas	309MER	Merrit Ditch	Oxygen, Dissolved	mg/L	9.59	9.51	11.59	11.29	9.28	7.63	9.08	8.6	6.6	7.4	12.1	9.6	12	6.60	12.10	9.36	9.40	1.7	>5	0%
Lower Salinas	309MER	Merrit Ditch	Oxygen, Saturation	%	83.1	83.7	115.2	113.1	104.6	81.5	96.1	89.1	67.8	72.3	107	82.7	12	67.80	115.20	91.35	86.40	15.7	>85	No
Lower Salinas	309MER	Merrit Ditch	pH	none	7.31	7.56	7.33	8.01	7.73	7.82	7.61	7.31	7.56	7.29	8.36	7.45	12	7.29	8.36	7.61	7.56	0.3	7-8.3	8%
Lower Salinas	309MER	Merrit Ditch	Phosphorus as P	mg/L	0.753	0.264	0.292	0.298	0.315	0.286	3.31	9.96	0.65	0.692	0.347	1.22	12	0.26	9.96	1.53	0.50	2.8		
Lower Salinas	309MER	Merrit Ditch	Salinity	ppt	0.7	1.28	1.02	1.26	1.38	1.28	1.29	1.18	1.3	1.5	1.2	0.5	12	0.50	1.50	1.16	1.27	0.3		
Lower Salinas	309MER	Merrit Ditch	Sediment Invertebrate Toxicity, Growth	%Control Growth				116.2					87.9				2	87.90	116.20	102.05	102.1	20.0		
Lower Salinas	309MER	Merrit Ditch	Sediment Invertebrate Toxicity, Survival	%Control Survival				32.91					94.9				2	32.91	94.90	63.91	63.9	43.8		
Lower Salinas	309MER	Merrit Ditch	Specific Conductivity	uS/cm	1321	2379	1908	2355	2561	2385	2410	2203	2494	2697	2155	907	12	907	2,697	2,148	2,367	531		
Lower Salinas	309MER	Merrit Ditch	Total Dissolved Solids	mg/L	844.5	152.3	1225	1508	1639	1525	1539	1410	1598	1726	1377	580.6	12	152	1,726	1,260	1,459	485		
Lower Salinas	309MER	Merrit Ditch	Total Suspended Solids	mg/L	305	40.3	51.5	65.9	65.2	42.8	1150	75.6	489	32.9	20.7	148	12	20.70	1150.00	207.24	65.6	328.0		
Lower Salinas	309MER	Merrit Ditch	Turbidity, Field	NTU	190.7	33.9	43	52.5	27.9	23.5	25.1	5.7	26.8	37.8	9.2	321.1	12	6	321	66	31	93.7		
Lower Salinas	309MER	Merrit Ditch	Water Temperature	Deg C	8.84	9.74	15.1	15.35	20.52	18.04	17.84	17	16.6	14.7	10.1	8.9	12	8.84	20.52	14.39	15.2	4.0		
Lower Salinas	309MOR	Moro Cojo Slough	Air Temperature	Deg C	9.4	21	20	19.9	13.5	16.9	20.1	17.3	20.1	14.4	16	9.4	12	9.40	21.00	16.50	17.1	4.1		
Lower Salinas	309MOR	Moro Cojo Slough	Algae Toxicity, Cell Growth	%Control Growth	111.4			90.24					78.8			97.6	4	78.80	111.40	94.51	93.9	13.7		
Lower Salinas	309MOR	Moro Cojo Slough	Ammonia as N	mg/L	0.0936	0.046	0.0422	0.0368	0.0676	0.179	0.087	0.129	0.0506	0.093	0.644	0.574	12	0.04	0.64	0.17	0.09	0.2		
Lower Salinas	309MOR	Moro Cojo Slough	Ammonia as N, Unionized	mg/L	0.00012	0.00056	0.00066	0.00096	0.00233	0.00076	0.00133	0.0004	0.00084	0.00142	0.00174	0.00146	12	0.0001	0.0023	0.0010	0.0009	0.0	<0.025	0%
Lower Salinas	309MOR	Moro Cojo Slough	Chlorophyll a, Field	ug/L	5.18	12.69	13.01	6.53	1.58	1.8	2.63	0.28	0.28	2.25	0.03	1.59	12	0.03	13.01	3.99	2.0	4.6		
Lower Salinas	309MOR	Moro Cojo Slough	Discharge	cfs	-7.9231	3.7224	-2.8335	-0.1814	0.1	-6.4968	2.0101	5.463	10.3444	-1.31925	0.1637	0.2733	12	-7.92	10.34	0.28	0.13	4.9		
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	115.9			103.3					88.1				3	88.10	115.90	102.43	103.3	13.9		
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			94.9					92.5			0	4	0.00	100.00	71.85	93.7	48.0		
Lower Salinas	309MOR	Moro Cojo Slough	Nitrate + Nitrite as N	mg/L	0.158	0.005	0.015	0.005	0.005	0.261	6.32	7.13	0.02	4.36	4.14	4.98	12	0.0	7.1	2.3	0.2	2.85	None	N/A
Lower Salinas	309MOR	Moro Cojo Slough	Nitrogen, Total	mg/L	0.792	2.58	3.255	1.53	1.77	0.879	7.38	8.15	0.882	6.68	5.57	13.97	12	0.79	13.97	4.45	2.9	4.0		
Lower Salinas	309MOR	Moro Cojo Slough	Nitrogen, Total Kjeldahl	mg/L	0.634	2.58	3.24	1.53	1.77	0.618	1.06	1.02	0.862	2.32	1.43	8.99	12	0.62	8.99	2.17	1.5	2.3		
Lower Salinas	309MOR	Moro Cojo Slough	OrthoPhosphate as P	mg/L	0.0627	0.0082	0.00375	0.0135	0.104	0.0531	0.0372	0.0651	0.0259	0.188	0.0492	1.51	12	0.004	1.510	0.177	0.051	0.4		
Lower Salinas	309MOR	Moro Cojo Slough	Oxygen, Dissolved	mg/L	7.87	7.82	10.99	7.98	7.16	2.81	6.11	5.4	7	14.2	7.36	7.66	12	2.81	14.20	7.70	7.51	2.8	>7	25%
Lower Salinas	309MOR	Moro Cojo Slough	Oxygen, Saturation	%	82.5	85.3	120.7	100.9	110.7	25.6	78	68	89.7	182	85.6	67.4	12	25.60	182.00	91.37	85.45	37.3	None	N/A
Lower Salinas	309MOR	Moro Cojo Slough	pH	none	7.07	7.99	8.05	8.18	8.04	7.36	7.86	7.22	7.92	7.94	7.31	7.25	12	7.07	8.18	7.68	7.89	0.4	7-8.3	0%
Lower Salinas	309MOR	Moro Cojo Slough	Phosphorus as P	mg/L	0.189	0.255	0.294	0.23	0.231	0.131	0.152	0.131	0.12	0.533	0.18	0.398	12	0.12	0.53	0.24	0.21	0.1		
Lower Salinas	309MOR	Moro Cojo Slough	Salinity	ppt	26.54	27.6	24.36	34.98	40.4	31.86	29.84	32.6	34.1	34	32.7	1.9	12	1.90	40.40	29.24	32.23	9.6		
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				99					98				2	98.00	99.00	98.50	98.5	0.7		
Lower Salinas	309MOR	Moro Cojo Slough	Specific Conductivity	uS/cm	41388	42878	38305	52949	60128	49779	46027	49721	51612	51540	50408	3494	12	3,494	60,128	44,852	49,750	14,266		

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	Total Dissolved Solids	mg/L	26490	27440	24520	33880	38520	31850	29560	31860	33070	33010	32000	2245	12	2,245	38,520	28,704	31,855	9,127		
Lower Salinas	309MOR	Moro Cojo Slough	Total Suspended Solids	mg/L	23.9	42.4	36.9	6.56	8.38	13.3	15.5	6.68	3.68	8.15	10.9	20.8	12	3.68	42.40	16.43	12.1	12.4		
Lower Salinas	309MOR	Moro Cojo Slough	Turbidity, Field	NTU	9.9	13.6	19.2	1.9	5.9	0	0.4	0.3	3	10.9	658	39.8	12	0	658	64	8	187.5		
Lower Salinas	309MOR	Moro Cojo Slough	Water Temperature	Deg C	9.74	11.72	13	16.63	25.43	17.23	19.03	17.2	18.4	16.7	12.7	9.5	12	9.50	25.43	15.61	16.7	4.5		
Lower Salinas	309NAD	Natividad Creek	Air Temperature	Deg C	15	10	23	19.9	12.2	20.7	18.5	20.8	22.3	25.3	23.5	10.2	12	10.00	25.30	18.45	20.3	5.3		
Lower Salinas	309NAD	Natividad Creek	Algae Toxicity, Cell Growth	%Control Growth	213			255.5								374.1	3	213.00	374.10	280.87	255.5	83.5		
Lower Salinas	309NAD	Natividad Creek	Ammonia as N	mg/L	0.288			0.0783			7.71					0.259	4	0.08	7.71	2.08	0.27	3.8		
Lower Salinas	309NAD	Natividad Creek	Ammonia as N, Unionized	mg/L	0.00037			0.00174			0.06527					0.00059	4	0.0004	0.0653	0.0170	0.0012	0.0	<0.025	25%
Lower Salinas	309NAD	Natividad Creek	Chlorophyll a, Field	ug/L	4.53			3.8			17.58					0.56	4	0.56	17.58	6.62	4.2	7.5		
Lower Salinas	309NAD	Natividad Creek	Discharge	cfs	3.711	0	0	0.009	0	0	0.3	0	0	0	0	16	12	0.00	16.00	1.67	0.00	4.6		
Lower Salinas	309NAD	Natividad Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			15.8								90	3	0.00	90.00	35.27	15.8	48.1		
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	80.3			117.1								123.8	3	80.30	123.80	107.07	117.1	23.4		
Lower Salinas	309NAD	Natividad Creek	Invertebrate Toxicity, Survival	%Control Survival	100			100								80	3	80.00	100.00	93.33	100.0	11.5		
Lower Salinas	309NAD	Natividad Creek	Nitrate + Nitrite as N	mg/L	15.2			13.5			48.2					8.08	4	8.1	48.2	21.2	14.4	18.22	<10	75%
Lower Salinas	309NAD	Natividad Creek	Nitrogen, Total	mg/L	18.41			14.285			59.9					10.47	4	10.47	59.90	25.77	16.3	23.0		
Lower Salinas	309NAD	Natividad Creek	Nitrogen, Total Kjeldahl	mg/L	3.21			0.785			11.7					2.39	4	0.79	11.70	4.52	2.8	4.9		
Lower Salinas	309NAD	Natividad Creek	OrthoPhosphate as P	mg/L	0.928			0.62			0.287					0.691	4	0.287	0.928	0.632	0.656	0.3		
Lower Salinas	309NAD	Natividad Creek	Oxygen, Dissolved	mg/L	11			7.9			7.76					9.9	4	7.76	11.00	9.14	8.90	1.6	>5	0%
Lower Salinas	309NAD	Natividad Creek	Oxygen, Saturation	%	103.3			84.6			80.1					87.5	4	80.10	103.30	88.88	86.05	10.1	>85	No
Lower Salinas	309NAD	Natividad Creek	pH	none	6.82			7.86			7.5					7.15	4	6.82	7.86	7.33	7.33	0.4	7-8.3	25%
Lower Salinas	309NAD	Natividad Creek	Phosphorus as P	mg/L	1.61			0.806			2.59					0.54	4	0.54	2.59	1.39	1.21	0.9		
Lower Salinas	309NAD	Natividad Creek	Salinity	ppt	0.42			0.5			0.68					0.4	4	0.40	0.68	0.50	0.46	0.1		
Lower Salinas	309NAD	Natividad Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				70.32									1	70.32	70.32	70.32	70.3	N/A		
Lower Salinas	309NAD	Natividad Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				95									1	95.00	95.00	95.00	95.0	N/A		
Lower Salinas	309NAD	Natividad Creek	Specific Conductivity	uS/cm	800.6			950			1287					728	4	728	1,287	941	875	248		
Lower Salinas	309NAD	Natividad Creek	Total Dissolved Solids	mg/L	512.4			608.4			824.1					466.3	4	466	824	603	560	159		
Lower Salinas	309NAD	Natividad Creek	Total Suspended Solids	mg/L	375			47.7			361					60.4	4	47.70	375.00	211.03	210.7	181.4		
Lower Salinas	309NAD	Natividad Creek	Turbidity, Field	NTU	351			33			1226					73.5	4	33	1,226	421	212	555.0		
Lower Salinas	309NAD	Natividad Creek	Water Temperature	Deg C	12.2			18.56			16.8					9.7	4	9.70	18.56	14.32	14.5	4.1		
Lower Salinas	309OLD	Old Salinas River	Air Temperature	Deg C	9.4	20.1	19	14.6	12.8	17.6	21.5	18.4	13.6	16.1	16	9.5	12	9.40	21.50	15.72	16.1	3.9		
Lower Salinas	309OLD	Old Salinas River	Algae Toxicity, Cell Growth	%Control Growth	151.2			127.25					189.3			154.9	4	127.25	189.30	155.66	153.1	25.6		
Lower Salinas	309OLD	Old Salinas River	Ammonia as N	mg/L	0.0602	0.694	0.318	0.0035	0.181	0.278	0.057	0.113	0.515	0.456	0.678	0.24	12	0.00	0.69	0.30	0.26	0.2		
Lower Salinas	309OLD	Old Salinas River	Ammonia as N, Unionized	mg/L	0.00024	0.00236	0.00121	0	0.00289	0.01922	0.00425	0.00155	0.01458	0.00516	0.02094	0.00128	12	0.0000	0.0209	0.0061	0.0026	0.0	<0.025	0%
Lower Salinas	309OLD	Old Salinas River	Chlorophyll a, Field	ug/L	39.39	4.16	11.53	135.06	4.13	20.02	3.24	0.56	1.83	2.49	0.07	0.44	12	0.07	135.06	18.58	3.7	38.4		
Lower Salinas	309OLD	Old Salinas River	Discharge	cfs	-0.59915	2.0292	0.3502	19.7101	-2.9837	8.6522	4.6626	2.1948	1.9705	-7.1127	0.06155	163.35	12	-7.11	163.35	16.02	2.00	46.9		
Lower Salinas	309OLD	Old Salinas River	Invertebrate Toxicity (Chironomus), Survival	%Control Survival												72.5	1	72.50	72.50	72.50	72.5	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												129.2	1	129.20	129.20	129.20	129.2	N/A		
Lower Salinas	309OLD	Old Salinas River	Invertebrate Toxicity, Survival	%Control Survival	93.3				100				39.6			100	4	39.60	100.00	83.23	96.7	29.3		
Lower Salinas	309OLD	Old Salinas River	Nitrate + Nitrite as N	mg/L	18.7	18.4	30	14	7.98	5.63	10.1	8.99	13.6	12.3	5.87	25.2	12	5.6	30.0	14.2	13.0	7.62	None	N/A
Lower Salinas	309OLD	Old Salinas River	Nitrogen, Total	mg/L	20.61	20.04	31.52	16.33	9.31	6.74	11.16	10.14	15.43	15.12	7.09	28.99	12	6.74	31.52	16.04	15.3	8.1		
Lower Salinas	309OLD	Old Salinas River	Nitrogen, Total Kjeldahl	mg/L	1.91	1.64	1.52	2.33	1.33	1.11	1.06	1.15	1.83	2.82	1.22	3.79	12	1.06	3.79	1.81	1.6	0.8		
Lower Salinas	309OLD	Old Salinas River	OrthoPhosphate as P	mg/L	0.306	0.656	0.522	0.022	0.39	0.374	0.544	0.524	0.573	0.609	0.437	0.631	12	0.022	0.656	0.466	0.523	0.2		
Lower Salinas	309OLD	Old Salinas River	Oxygen, Dissolved	mg/L	8.41	5.59	8.99	13.53	8.73	6.33	10.63	6.3	5.2	5.7	10.9	9.3	12	5.20	13.53	8.30	8.57	2.6	>7	42%
Lower Salinas	309OLD	Old Salinas River	Oxygen, Saturation	%	75.8	57.4	93.2	151.9	102.3	71	122.1	67.7	53	59.7	104.9	82.4	12	53.00	151.90	86.78	79.10	29.5	None	N/A
Lower Salinas	309OLD	Old Salinas River	pH	none	7.48	7.36	7.25	8.47	7.74	8.44	8.42	7.74	8.16	7.61	8.27	7.52	12	7.25	8.47	7.87	7.74	0.5	7-8.3	25%
Lower Salinas	309OLD	Old Salinas River	Phosphorus as P	mg/L	0.764	0.9	0.747	0.76	0.706	0.516	0.583	0.649	0.837	1.09	0.644	1.02	12	0.52	1.09	0.77	0.75	0.2		
Lower Salinas	309OLD	Old Salinas River	Salinity	ppt	3.89	14.27	5.35	10.04	7.07	5.57	4.07	4.7	5.7	1	3.67	0.6	12	0.60	14.27	5.49	5.03	3.7		
Lower Salinas	309OLD	Old Salinas River	Sediment Invertebrate Toxicity, Growth	%Control Growth				151.5					48.4				2	48.40	151.50	99.95	100.0	72.9		
Lower Salinas	309OLD	Old Salinas River	Sediment Invertebrate Toxicity, Survival	%Control Survival				6.33					64.1				2	6.33	64.10	35.22	35.2	40.8		
Lower Salinas	309OLD	Old Salinas River	Specific Conductivity	uS/cm	7006	23640	9481	17098	12336	9857	7317	8370	10105	1908	6600	1101	12	1,101	23,640	9,568	8,926	6,142		
Lower Salinas	309OLD	Old Salinas River	Total Dissolved Solids	mg/L	4481	15130	6069	10950	7896	6307	4678	5360	6478	1220	4224	704.1	12	704	15,130	6,125	5,715	3,932		
Lower Salinas	309OLD	Old Salinas River	Total Suspended Solids	mg/L	120	133	59.3	140	135	17.6	24.3	21	59.6	89.2	44.2	116	12	17.60	140.00	79.93	74.4	47.7		
Lower Salinas	309OLD	Old Salinas River	Turbidity, Field	NTU	93.5	84.8	46.4	73.6	78.4	5	37.3	19.2	52.4	161.9	38.2	190.2	12	5	190	73	63	55.1		
Lower Salinas	309OLD	Old Salinas River	Water Temperature	Deg C	9.41	12.81	16.11	18.08	20.93	19.29	20.56	18.2	15.4	17.7	12.6	10	12	9.41	20.93	15.92	16.9	3.9		
Lower Salinas	309QUI	Quail Creek	Air Temperature	Deg C	10.9	21.3	19.5	19.2	17	26	23.7	25.5	19.4	17.8	24	12.6	12	10.90	26.00	19.74	19.5	4.8		
Lower Salinas	309QUI	Quail Creek	Algae Toxicity, Cell Growth	%Control Growth	119.3			230								294.5	3	119.30	294.50	214.60	230.0	88.6		
Lower Salinas	309QUI	Quail Creek	Ammonia as N	mg/L	0.292	0.503	0.794	1.53		0.552		0.071				0.462	7	0.07	1.53	0.60	0.50	0.5		
Lower Salinas	309QUI	Quail Creek	Ammonia as N, Unionized	mg/L	0.0022	0.01023	0.0116	0.0465		0.02142		0.02627				0.0024	7	0.0022	0.0465	0.0172	0.0116	0.0	<0.025	29%
Lower Salinas	309QUI	Quail Creek	Chlorophyll a, Field	ug/L	2.46	2.26	2.73	7.75		7.86		6.02				0.4	7	0.40	7.86	4.21	2.7	3.0		
Lower Salinas	309QUI	Quail Creek	Discharge	cfs	4.637	0.4225	0.66725	0.63025	0	-0.4565	0	0.00085	0	0	0	0.275	12	-0.46	4.64	0.51	0.00	1.3		
Lower Salinas	309QUI	Quail Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			18.4								0	3	0.00	18.40	6.13	0.0	10.6		
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	57.5			1.2								30.8	3	1.20	57.50	29.83	30.8	28.2		
Lower Salinas	309QUI	Quail Creek	Invertebrate Toxicity, Survival	%Control Survival	111.1			50								60	3	50.00	111.10	73.70	60.0	32.8		
Lower Salinas	309QUI	Quail Creek	Nitrate + Nitrite as N	mg/L	12	20.8	11.1	23		10.5		21.6				11.1	7	10.5	23.0	15.7	12.0	5.73	<10	100%
Lower Salinas	309QUI	Quail Creek	Nitrogen, Total	mg/L	15.58	24.88	20.15	26.21		13.73		24.13				15.99	7	13.73	26.21	20.10	20.2	5.1		
Lower Salinas	309QUI	Quail Creek	Nitrogen, Total Kjeldahl	mg/L	3.58	4.08	9.05	3.21		3.23		2.53				4.89	7	2.53	9.05	4.37	3.6	2.2		
Lower Salinas	309QUI	Quail Creek	OrthoPhosphate as P	mg/L	1.29	0.767	0.708	0.471		0.641		2.19				1.24	7	0.471	2.190	1.044	0.767	0.6		
Lower Salinas	309QUI	Quail Creek	Oxygen, Dissolved	mg/L	10.92	8.47	9.4	9.68		8.53		10.6				9.1	7	8.47	10.92	9.53	9.40	1.0	>5	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
Lower Salinas	309QUI	Quail Creek	Oxygen, Saturation	%	96.8	93.9	95.1	104.9		106.2		138.9				82.5	7	82.50	138.90	102.61	96.80	17.8	>85	No
Lower Salinas	309QUI	Quail Creek	pH	none	7.66	7.77	7.76	8.03		7.9		8.94				7.44	7	7.44	8.94	7.93	7.77	0.5	7-8.3	14%
Lower Salinas	309QUI	Quail Creek	Phosphorus as P	mg/L	4.48	2.92	3.75	1.33		1.25		12.1				4.79	7	1.25	12.10	4.37	3.75	3.7		
Lower Salinas	309QUI	Quail Creek	Salinity	ppt	0.23	0.66	0.3	0.76		0.65		0.59				0.1	7	0.10	0.76	0.47	0.59	0.3		
Lower Salinas	309QUI	Quail Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				19.92									1	19.92	19.92	19.92	19.9	N/A		
Lower Salinas	309QUI	Quail Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				52.5									1	52.50	52.50	52.50	52.5	N/A		
Lower Salinas	309QUI	Quail Creek	Specific Conductivity	uS/cm	465.2	1258	595.6	1428		1226		1123				218	7	218	1,428	902	1,123	467		
Lower Salinas	309QUI	Quail Creek	Total Dissolved Solids	mg/L	298.1	805.5	378.2	914.2		784.4		719.5				139.6	7	140	914	577	720	299		
Lower Salinas	309QUI	Quail Creek	Total Suspended Solids	mg/L	856	713	2600	545		248		253				885	7	248.00	2600.00	871.43	713.0	805.3		
Lower Salinas	309QUI	Quail Creek	Turbidity, Field	NTU	1193	1144	2706	456		154		53.1				1923	7	53	2,706	1,090	1,144	972.3		
Lower Salinas	309QUI	Quail Creek	Water Temperature	Deg C	9.75	20.4	15.6	17.97		25.5		29.5				11.1	7	9.75	29.50	18.55	18.0	7.2		
Lower Salinas	309RTA	Santa Rita Creek	Air Temperature	Deg C	11.5	15.3	13.6	22	10.8	20.1	17.2	12.2	22.8	23	23.8	8.5	12	8.50	23.80	16.73	16.3	5.5		
Lower Salinas	309RTA	Santa Rita Creek	Algae Toxicity, Cell Growth	%Control Growth	106.1											406.7	2	106.10	406.70	256.40	256.4	212.6		
Lower Salinas	309RTA	Santa Rita Creek	Ammonia as N	mg/L	0.0112											0.29	2	0.01	0.29	0.15	0.15	0.2		
Lower Salinas	309RTA	Santa Rita Creek	Ammonia as N, Unionized	mg/L	0.00002											0.00083	2	0.0000	0.0008	0.0004	0.0004	0.0	<0.025	0%
Lower Salinas	309RTA	Santa Rita Creek	Chlorophyll a, Field	ug/L	4											0.5	2	0.50	4.00	2.25	2.3	2.5		
Lower Salinas	309RTA	Santa Rita Creek	Discharge	cfs	200	0	0	0	0	0	0	0	0	0	0	1.337	12	0.00	200.00	16.78	0.00	57.7		
Lower Salinas	309RTA	Santa Rita Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											90	2	0.00	90.00	45.00	45.0	63.6		
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											85.4	2	0.00	85.40	42.70	42.7	60.4		
Lower Salinas	309RTA	Santa Rita Creek	Invertebrate Toxicity, Survival	%Control Survival	0											90	2	0.00	90.00	45.00	45.0	63.6		
Lower Salinas	309RTA	Santa Rita Creek	Nitrate + Nitrite as N	mg/L	8.79											7.15	2	7.2	8.8	8.0	8.0	1.16	<10	0%
Lower Salinas	309RTA	Santa Rita Creek	Nitrogen, Total	mg/L	15.74											13.21	2	13.21	15.74	14.48	14.5	1.8		
Lower Salinas	309RTA	Santa Rita Creek	Nitrogen, Total Kjeldahl	mg/L	6.95											6.06	2	6.06	6.95	6.51	6.5	0.6		
Lower Salinas	309RTA	Santa Rita Creek	OrthoPhosphate as P	mg/L	1.59											0.808	2	0.808	1.590	1.199	1.199	0.6		
Lower Salinas	309RTA	Santa Rita Creek	Oxygen, Dissolved	mg/L	11											10.5	2	10.50	11.00	10.75	10.75	0.4	>5	0%
Lower Salinas	309RTA	Santa Rita Creek	Oxygen, Saturation	%	98.9											89.9	2	89.90	98.90	94.40	94.40	6.4	>85	No
Lower Salinas	309RTA	Santa Rita Creek	pH	none	6.96											7.29	2	6.96	7.29	7.13	7.13	0.2	7-8.3	50%
Lower Salinas	309RTA	Santa Rita Creek	Phosphorus as P	mg/L	4.79											1.38	2	1.38	4.79	3.09	3.09	2.4		
Lower Salinas	309RTA	Santa Rita Creek	Salinity	ppt	0.28											0.4	2	0.28	0.40	0.34	0.34	0.1		
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	Specific Conductivity	uS/cm	557.5											701	2	558	701	629	629	101		
Lower Salinas	309RTA	Santa Rita Creek	Total Dissolved Solids	mg/L	356.7											449.2	2	357	449	403	403	65		
Lower Salinas	309RTA	Santa Rita Creek	Total Suspended Solids	mg/L	2500											191	2	191.00	2500.00	1345.50	1345.5	1632.7		
Lower Salinas	309RTA	Santa Rita Creek	Turbidity, Field	NTU	2865											447	2	447	2,865	1,656	1,656	1709.8		
Lower Salinas	309RTA	Santa Rita Creek	Water Temperature	Deg C	10.3											8.4	2	8.40	10.30	9.35	9.4	1.3		
Lower Salinas	309SAC	Salinas R, Chualar	Air Temperature	Deg C	9.4	17.7	13.1		15		24.3		16.1	9.4			7	9.40	24.30	15.00	15.0	5.2		
Lower Salinas	309SAC	Salinas R, Chualar	Algae Toxicity, Cell Growth	%Control Growth	253												1	253.00	253.00	253.00	253.0	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Ammonia as N	mg/L	0.137				0.0537		0.124						3	0.05	0.14	0.10	0.12	0.0		
Lower Salinas	309SAC	Salinas R, Chualar	Ammonia as N, Unionized	mg/L	0.00179				0.00096		0.00367						3	0.0010	0.0037	0.0021	0.0018	0.0	<0.025	0%
Lower Salinas	309SAC	Salinas R, Chualar	Chlorophyll a, Field	ug/L	3.16				7.3		21.63						3	3.16	21.63	10.70	7.3	9.7		
Lower Salinas	309SAC	Salinas R, Chualar	Discharge	cfs	12978	0	0		736		1247.4		0	0			7	0.00	12,978.00	2,137.34	0.00	4805.4		
Lower Salinas	309SAC	Salinas R, Chualar	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	72.5												1	72.50	72.50	72.50	72.5	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	59.5												1	59.50	59.50	59.50	59.5	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Invertebrate Toxicity, Survival	%Control Survival	100												1	100.00	100.00	100.00	100.0	N/A		
Lower Salinas	309SAC	Salinas R, Chualar	Nitrate + Nitrite as N	mg/L	0.46				0.373		0.011						3	0.0	0.5	0.3	0.4	0.24	<10	0%
Lower Salinas	309SAC	Salinas R, Chualar	Nitrogen, Total	mg/L	5				1.983		1.681						3	1.68	5.00	2.89	2.0	1.8		
Lower Salinas	309SAC	Salinas R, Chualar	Nitrogen, Total Kjeldahl	mg/L	4.54				1.61		1.67						3	1.61	4.54	2.61	1.7	1.7		
Lower Salinas	309SAC	Salinas R, Chualar	OrthoPhosphate as P	mg/L	0.142				0.0615		0.035						3	0.035	0.142	0.080	0.062	0.1		
Lower Salinas	309SAC	Salinas R, Chualar	Oxygen, Dissolved	mg/L	11.69				9.69		9.39						3	9.39	11.69	10.26	9.69	1.3	>7	0%
Lower Salinas	309SAC	Salinas R, Chualar	Oxygen, Saturation	%	103.2				102.8		106.9						3	102.80	106.90	104.30	103.20	2.3	None	N/A
Lower Salinas	309SAC	Salinas R, Chualar	pH	none	7.9				7.75		7.87						3	7.75	7.90	7.84	7.87	0.1	7-8.3	0%
Lower Salinas	309SAC	Salinas R, Chualar	Phosphorus as P	mg/L	2.66				0.58		0.361						3	0.36	2.66	1.20	0.58	1.3		
Lower Salinas	309SAC	Salinas R, Chualar	Salinity	ppt	0.15				0.16		0.19						3	0.15	0.19	0.17	0.16	0.0		
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	Specific Conductivity	uS/cm	306				335		376						3	306	376	339	335	35		
Lower Salinas	309SAC	Salinas R, Chualar	Total Dissolved Solids	mg/L	196.3				213.9		240.6						3	196	241	217	214	22	<600	No
Lower Salinas	309SAC	Salinas R, Chualar	Total Suspended Solids	mg/L	2090				317		197						3	197.00	2090.00	868.00	317.0	1060.0		
Lower Salinas	309SAC	Salinas R, Chualar	Turbidity, Field	NTU	1635				152.2		57.3						3	57	1,635	615	152	884.8		
Lower Salinas	309SAC	Salinas R, Chualar	Water Temperature	Deg C	9.6				18.32		21.7						3	9.60	21.70	16.54	18.3	6.2		
Lower Salinas	309SAG	Salinas R, Gonzales	Air Temperature	Deg C	10.9	19.3	14.3		13		25.3		15.7	9.4			7	9.40	25.30	15.41	14.3	5.4		
Lower Salinas	309SAG	Salinas R, Gonzales	Algae Toxicity, Cell Growth	%Control Growth	167.6												1	167.60	167.60	167.60	167.6	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Ammonia as N	mg/L	0.383	0.0264			0.0234		0.125						4	0.02	0.38	0.14	0.08	0.2		
Lower Salinas	309SAG	Salinas R, Gonzales	Ammonia as N, Unionized	mg/L	0.00606	0.00044			0.0023		0.00362						4	0.0004	0.0061	0.0031	0.0030	0.0	<0.025	0%
Lower Salinas	309SAG	Salinas R, Gonzales	Chlorophyll a, Field	ug/L	1.62	0.82			3.67		13.15						4	0.82	13.15	4.82	2.6	5.7		
Lower Salinas	309SAG	Salinas R, Gonzales	Discharge	cfs	5985	196	0		810		1512		0	0			7	0.00	5,985.00	1,214.71	196.00	2178.4		
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	69.4												1	69.40	69.40	69.40	69.4	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	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
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity, Reproduction	%Control Repro	59.6												1	59.60	59.60	59.60	59.6	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Invertebrate Toxicity, Survival	%Control Survival	77.8												1	77.80	77.80	77.80	77.8	N/A		
Lower Salinas	309SAG	Salinas R, Gonzales	Nitrate + Nitrite as N	mg/L	0.283	4.5			0.422		0.163						4	0.2	4.5	1.3	0.4	2.11	<10	0%
Lower Salinas	309SAG	Salinas R, Gonzales	Nitrogen, Total	mg/L	10.983	5.134			1.582		1.683						4	1.58	10.98	4.85	3.4	4.4		
Lower Salinas	309SAG	Salinas R, Gonzales	Nitrogen, Total Kjeldahl	mg/L	10.7	0.634			1.16		1.52						4	0.63	10.70	3.50	1.3	4.8		
Lower Salinas	309SAG	Salinas R, Gonzales	OrthoPhosphate as P	mg/L	0.214	0.0828			0.0648		0.0434						4	0.043	0.214	0.101	0.074	0.1		
Lower Salinas	309SAG	Salinas R, Gonzales	Oxygen, Dissolved	mg/L	10.81	10.79			9.89		9.06						4	9.06	10.81	10.14	10.34	0.8	>7	0%
Lower Salinas	309SAG	Salinas R, Gonzales	Oxygen, Saturation	%	96.8	104.9			119.4		104.1						4	96.80	119.40	106.30	104.50	9.5	None	N/A
Lower Salinas	309SAG	Salinas R, Gonzales	pH	none	7.96	7.87			8.33		7.84						4	7.84	8.33	8.00	7.92	0.2	7-8.3	25%
Lower Salinas	309SAG	Salinas R, Gonzales	Phosphorus as P	mg/L	4.03	0.0985			0.421		0.261						4	0.10	4.03	1.20	0.34	1.9		
Lower Salinas	309SAG	Salinas R, Gonzales	Salinity	ppt	0.08	0.4			0.18		0.19						4	0.08	0.40	0.21	0.19	0.1		
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	Specific Conductivity	uS/cm	177	780			367		376						4	177	780	425	372	254		
Lower Salinas	309SAG	Salinas R, Gonzales	Total Dissolved Solids	mg/L	113.5	497.6			235		240.8						4	114	498	272	238	162	<600	No
Lower Salinas	309SAG	Salinas R, Gonzales	Total Suspended Solids	mg/L	1420	62.9			212		230						4	62.90	1420.00	481.23	221.0	630.3		
Lower Salinas	309SAG	Salinas R, Gonzales	Turbidity, Field	NTU	1981	33.5			50.3		29.7						4	30	1,981	524	42	971.6		
Lower Salinas	309SAG	Salinas R, Gonzales	Water Temperature	Deg C	10.09	14.07			24.65		22.36						4	10.09	24.65	17.79	18.2	6.9		
Lower Salinas	309SSP	Salinas R, Spreckles	Air Temperature	Deg C	7.5	18	15.8	7.7	12.8	22.2	24.3	19.4	12	9.4	12.8	9.8	12	7.50	24.30	14.31	12.8	5.6		
Lower Salinas	309SSP	Salinas R, Spreckles	Algae Toxicity, Cell Growth	%Control Growth	268			201.9								278.9	3	201.90	278.90	249.60	268.0	41.7		
Lower Salinas	309SSP	Salinas R, Spreckles	Ammonia as N	mg/L	0.177	0.0857	0.101	0.0363	0.0489	0.166	0.24					0.0654	8	0.04	0.24	0.12	0.09	0.1		
Lower Salinas	309SSP	Salinas R, Spreckles	Ammonia as N, Unionized	mg/L	0.01605	0.00348	0.00046	0.00001	0.00039	0.00538	0.00322					0.00003	8	0.0000	0.0161	0.0036	0.0018	0.0	<0.025	0%
Lower Salinas	309SSP	Salinas R, Spreckles	Chlorophyll a, Field	ug/L	1.96	20.6	4.09	5.38	7.03	16.53	33.56					0.3	8	0.30	33.56	11.18	6.2	11.5		
Lower Salinas	309SSP	Salinas R, Spreckles	Discharge	cfs	6600	136.5	0.57	280	90	177	206.25	0	0	0	0	1783.65	12	0.00	6,600.00	772.83	113.25	1901.0		
Lower Salinas	309SSP	Salinas R, Spreckles	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	60			97.4								97.4	3	60.00	97.40	84.93	97.4	21.6		
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	78.4			83.8								83.1	3	78.40	83.80	81.77	83.1	2.9		
Lower Salinas	309SSP	Salinas R, Spreckles	Invertebrate Toxicity, Survival	%Control Survival	100			90								100	3	90.00	100.00	96.67	100.0	5.8		
Lower Salinas	309SSP	Salinas R, Spreckles	Nitrate + Nitrite as N	mg/L	0.77	0.005	1.03	0.429	0.848	0.108	0.109					0.046	8	0.0	1.0	0.4	0.3	0.41	<10	0%
Lower Salinas	309SSP	Salinas R, Spreckles	Nitrogen, Total	mg/L	7.7	1.63	3.57	1.479	2.128	0.923	1.419					1.056	8	0.92	7.70	2.49	1.6	2.3		
Lower Salinas	309SSP	Salinas R, Spreckles	Nitrogen, Total Kjeldahl	mg/L	6.93	1.63	2.54	1.05	1.28	0.815	1.31					1.01	8	0.82	6.93	2.07	1.3	2.0		
Lower Salinas	309SSP	Salinas R, Spreckles	OrthoPhosphate as P	mg/L	0.285	0.00375	0.179	0.085	0.0614	0.0523	0.0318					0.081	8	0.004	0.285	0.097	0.071	0.1		
Lower Salinas	309SSP	Salinas R, Spreckles	Oxygen, Dissolved	mg/L	12.3	12.09	7.15	10.09	9.05	8.31	8.41					10.9	8	7.15	12.30	9.79	9.57	1.9	>7	0%
Lower Salinas	309SSP	Salinas R, Spreckles	Oxygen, Saturation	%	106	112.3	67.3	97.3	95.2	93.9	93					96.8	8	67.30	112.30	95.23	96.00	13.1	None	N/A
Lower Salinas	309SSP	Salinas R, Spreckles	pH	none	8.8	8.33	7.32	6.06	7.41	7.93	7.57					6.34	8	6.06	8.80	7.47	7.49	0.9	7-8.3	50%
Lower Salinas	309SSP	Salinas R, Spreckles	Phosphorus as P	mg/L	2.46	0.327	1.07	0.561	0.382	0.239	0.268					0.572	8	0.24	2.46	0.73	0.47	0.7		
Lower Salinas	309SSP	Salinas R, Spreckles	Salinity	ppt	0.09	0.25	0.16	0.16	0.19	0.18	0.19					0.1	8	0.09	0.25	0.17	0.17	0.1		
Lower Salinas	309SSP	Salinas R, Spreckles	Sediment Invertebrate Toxicity, Growth	%Control Growth				69.47									1	69.47	69.47	69.47	69.5	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Sediment Invertebrate Toxicity, Survival	%Control Survival				95									1	95.00	95.00	95.00	95.0	N/A		
Lower Salinas	309SSP	Salinas R, Spreckles	Specific Conductivity	uS/cm	204	500.1	329.1	326	380	3622	384.9					155	8	155	3,622	738	355	1,170		
Lower Salinas	309SSP	Salinas R, Spreckles	Total Dissolved Solids	mg/L	130.5	319	210.3	208.3	243	232	246					99.1	8	99	319	211	221	69		
Lower Salinas	309SSP	Salinas R, Spreckles	Total Suspended Solids	mg/L	1030	129	262	257	97.4	81.8	104					329	8	81.80	1030.00	286.28	193.0	314.4		
Lower Salinas	309SSP	Salinas R, Spreckles	Turbidity, Field	NTU	1327	119.2	449	171.5	94.8	52.4	105.1					268	8	52	1,327	323	145	425.0		
Lower Salinas	309SSP	Salinas R, Spreckles	Water Temperature	Deg C	8.75	12.04	13.07	13.74	17.84	21.07	20.1					10	8	8.75	21.07	14.58	13.4	4.6		
Lower Salinas	309TEH	Tembladero Slough	Air Temperature	Deg C	10	25.6	19	20.3	13.8	17.9	22.5	23.2	22.8	21.2	20.1	10	12	10.00	25.60	18.87	20.2	5.1		
Lower Salinas	309TEH	Tembladero Slough	Algae Toxicity, Cell Growth	%Control Growth	173.9			190.2					167.1			121.27	4	121.27	190.20	163.12	170.5	29.5		
Lower Salinas	309TEH	Tembladero Slough	Ammonia as N	mg/L	0.541	0.198	0.0562	0.0616	0.101	0.23	0.123	0.0861	0.0983	0.272	0.352	0.404	12	0.06	0.54	0.21	0.16	0.2		
Lower Salinas	309TEH	Tembladero Slough	Ammonia as N, Unionized	mg/L	0.00656	0.00412	0.00157	0.00305	0.00184	0.00853	0.00342	0.00079	0.0046	0.00274	0.00829	0.00078	12	0.0008	0.0085	0.0039	0.0032	0.0	<0.025	0%
Lower Salinas	309TEH	Tembladero Slough	Chlorophyll a, Field	ug/L	9.44	11.63	82.99	46.85	53.44	19.55	9.35	1.79	2.23	2.21	0.09	0.05	12	0.05	82.99	19.97	9.4	26.7		
Lower Salinas	309TEH	Tembladero Slough	Discharge	cfs	127.9726	7.9509	1.5075	5.0805	5.3326	5.9085	7.057	0.193	0.2055	403.8795	19.9452	549.3405	12	0.19	549.34	94.53	6.48	184.5		
Lower Salinas	309TEH	Tembladero Slough	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	86.5			87.5					100			0	4	0.00	100.00	68.50	87.0	46.1		
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	91.4			82.8					88.8			99.67	4	82.80	99.67	90.67	90.1	7.0		
Lower Salinas	309TEH	Tembladero Slough	Invertebrate Toxicity, Survival	%Control Survival	100			100					100			90	4	90.00	100.00	97.50	100.0	5.0		
Lower Salinas	309TEH	Tembladero Slough	Nitrate + Nitrite as N	mg/L	3.56	52.6	20.5	41.1	42.4	40.8	35.7	40.6	27.5	7.51	29.7	10.1	12	3.6	52.6	29.3	32.7	15.79	None	N/A
Lower Salinas	309TEH	Tembladero Slough	Nitrogen, Total	mg/L	10.69	54.75	25.14	43.83	46.65	42.48	37.21	42.1	29.14	11.32	31.62	12.78	12	10.69	54.75	32.31	34.4	14.8		
Lower Salinas	309TEH	Tembladero Slough	Nitrogen, Total Kjeldahl	mg/L	7.13	2.15	4.64	2.73	4.25	1.68	1.51	1.5	1.64	3.81	1.92	2.68	12	1.50	7.13	2.97	2.4	1.7		
Lower Salinas	309TEH	Tembladero Slough	OrthoPhosphate as P	mg/L	0.391	0.303	0.0316	0.402	0.262	0.309	0.259	0.441	0.457	0.673	0.552	0.565	12	0.032	0.673	0.387	0.397	0.2		
Lower Salinas	309TEH	Tembladero Slough	Oxygen, Dissolved	mg/L	8.11	11.31	17.55	11.63	8.36	6.9	11.33	8.8	15	6	8.16	9.01	12	6.00	17.55	10.18	8.91	3.4	>7	17%
Lower Salinas	309TEH	Tembladero Slough	Oxygen, Saturation	%	70.4	110.6	178.5	133.6	92.1	76	129.3	96.3	174	64.1	82.8	78.5	12	64.10	178.50	107.18	94.20	39.0	None	N/A
Lower Salinas	309TEH	Tembladero Slough	pH	none	7.89	8.01	8.07	8.14	7.77	8.09	7.9	7.47	8.05	7.54	7.99	7.09	12	7.09	8.14	7.83	7.95	0.3	7-8.3	0%
Lower Salinas	309TEH	Tembladero Slough	Phosphorus as P	mg/L	3.97	0.707	0.945	0.977	0.976	0.514	0.477	0.695	0.735	1.4	0.899	2.09	12	0.48	3.97	1.20	0.92	1.0		
Lower Salinas	309TEH	Tembladero Slough	Salinity	ppt	0.2	1.4	1.05	1.4	1.46	1.47	1.39	1.45	1.3	0.84	1.19	0.27	12	0.20	1.47	1.12	1.35	0.5		
Lower Salinas	309TEH	Tembladero Slough	Sediment Invertebrate Toxicity, Growth	%Control Growth				77.14					68.1				2	68.10	77.14	72.62	72.6	6.4		
Lower Salinas	309TEH	Tembladero Slough	Sediment Invertebrate Toxicity, Survival	%Control Survival				74.68					92.3				2	74.68	92.30	83.49	83.5	12.5		
Lower Salinas	309TEH	Tembladero Slough	Specific Conductivity	uS/cm	409	2603	1966	2615	2707	2723	2582	2688	2497	1582	2231	548	12	409	2,723	2,096	2,540	830		
Lower Salinas	309TEH	Tembladero Slough	Total Dissolved Solids	mg/L	261.5	1666	1258	1671	1733	1746	1651	1719	1597	1014	1425	356	12	262	1,746	1,341	1,624	530		
Lower Salinas	309TEH	Tembladero Slough	Total Suspended Solids	mg/L	1550	135	192	188	217	68	51.5	68.1	118	302	99.8	581	12	51.50	1550.00	297.53	161.5	420.2		
Lower Salinas	309TEH	Tembladero Slough	Turbidity, Field	NTU	834	74.2	140.9	123.5	60.4	31	47.3	29.9	52	384.7	84.2	1310	12	30	1,310	264	79	402.2		
Lower Salinas	309TEH	Tembladero Slough	Water Temperature	Deg C	9.05	13.98	15.9	22.08	19.6	19.55	21.4	19.6	24.1	18.1	16.12	9.2	12	9.05	24.10	17.39	18.8	4.8		

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
Estero Bay	310CCC	Chorro Creek	Air Temperature	Deg C	11	12	11	9	14	16	18	16	15	13	17	9	12	9.00	18.00	13.42	13.5	3.1		
Estero Bay	310CCC	Chorro Creek	Algae Toxicity, Cell Growth	%Control Growth	194.1			202.2								119.88	3	119.88	202.20	172.06	194.1	45.4		
Estero Bay	310CCC	Chorro Creek	Ammonia as N	mg/L	0.022	0.0201	0.0237	0.0158	0.0171	0.0676					0.0275	0.137	8	0.02	0.14	0.04	0.0	0.0		
Estero Bay	310CCC	Chorro Creek	Ammonia as N, Unionized	mg/L	0.00039	0.00009	0.00071	0.00058	0.00043	0.00061					0.0002	0.00046	8	0.0001	0.0007	0.0004	0.0004	0.000	<0.025	0%
Estero Bay	310CCC	Chorro Creek	Chlorophyll a, Field	ug/L	3	2	2	4	2	36					2	11	8	2.00	36.00	7.75	2.5	11.8		
Estero Bay	310CCC	Chorro Creek	Discharge	cfs	5.74275	5.468	3.029	1.749	1.646	0.205875	0	0	0	0	0.54075	99.941	12	0.00	99.94	9.86	1.09	28.44		
Estero Bay	310CCC	Chorro Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	102.5			92.5								97.5	3	92.50	102.50	97.50	97.5	5.0		
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	93.6			98.2								111.45	3	93.60	111.45	101.08	98.2	9.3		
Estero Bay	310CCC	Chorro Creek	Invertebrate Toxicity, Survival	%Control Survival	90			100								100	3	90.00	100.00	96.67	100.0	5.8		
Estero Bay	310CCC	Chorro Creek	Nitrate + Nitrite as N	mg/L	1.12	0.997	1.3	1.01	1.33	1.54					1	0.959	8	1.0	1.5	1.2	1.1	0.2	<10	0%
Estero Bay	310CCC	Chorro Creek	Nitrogen, Total	mg/L	1.737	1.203	1.94	1.264	1.702	1.919					1.29	3.189	8	1.20	3.19	1.78	1.7	0.6		
Estero Bay	310CCC	Chorro Creek	Nitrogen, Total Kjeldahl	mg/L	0.617	0.206	0.64	0.254	0.372	0.379					0.29	2.23	8	0.21	2.23	0.62	0.4	0.7		
Estero Bay	310CCC	Chorro Creek	OrthoPhosphate as P	mg/L	0.716	0.465	0.534	0.566	0.562	0.573					0.556	0.35	8	0.35	0.72	0.54	0.56	0.1		
Estero Bay	310CCC	Chorro Creek	Oxygen, Dissolved	mg/L	9.35	9.87	8.75	8.43	7.94	7.01					7.96	9.9	8	7.01	9.90	8.65	8.59	1.0	>7	0%
Estero Bay	310CCC	Chorro Creek	Oxygen, Saturation	%	86.9	90.6	79.7	81.8	78.4	73.8					74.6	87.5	8	73.80	90.60	81.66	80.75	6.18	None	N/A
Estero Bay	310CCC	Chorro Creek	pH	none	8.06	7.38	8.23	8.24	8.04	7.49					7.57	7.3	8	7.30	8.24	7.79	7.81	0.39	7-8.3	0%
Estero Bay	310CCC	Chorro Creek	Phosphorus as P	mg/L	0.824	0.491	0.598	0.583	0.64	0.73					0.597	0.55	8	0.49	0.82	0.63	0.6	0.1		
Estero Bay	310CCC	Chorro Creek	Salinity	ppt	0.39	0.47	0.45	0.48	0.49	0.5					0.49	0.08	8	0.08	0.50	0.42	0.5	0.1		
Estero Bay	310CCC	Chorro Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				105.8									1	105.80	105.80	105.80	105.8	N/A		
Estero Bay	310CCC	Chorro Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				92.31									1	92.31	92.31	92.31	92.3	N/A		
Estero Bay	310CCC	Chorro Creek	Specific Conductivity	uS/cm	235.5	946	681	964	980	1001					994	109.8	8	110	1,001	739	955	366		
Estero Bay	310CCC	Chorro Creek	Total Dissolved Solids	mg/L	520	615	594.5	627	637	651					646	99	8	99	651	549	621	186	<500	Yes
Estero Bay	310CCC	Chorro Creek	Total Suspended Solids	mg/L	89.1	0.981	6.95	4.77	4.8	118					1.55	132	8	0.98	132.00	44.77	5.9	57.8		
Estero Bay	310CCC	Chorro Creek	Turbidity, Field	NTU	15.2	23.1	10.3	5.58	2.6	5.55					121	412	8	3	412	74	13	142		
Estero Bay	310CCC	Chorro Creek	Water Temperature	Deg C	9.4	11.4	11.3	13.9	14.9	17.7					12.3	9.4	8	9.40	17.70	12.54	11.9	2.8		
Estero Bay	310LBC	Los Berros Creek	Air Temperature	Deg C	9	21	19	15	18	19	21	19	20	19	22	8	12	8.00	22.00	17.50	19.0	4.6		
Estero Bay	310LBC	Los Berros Creek	Algae Toxicity, Cell Growth	%Control Growth	159												1	159.00	159.00	159.00	159.0	N/A		
Estero Bay	310LBC	Los Berros Creek	Ammonia as N	mg/L	0.0706												1	0.07	0.07	0.07	0.1	N/A		
Estero Bay	310LBC	Los Berros Creek	Ammonia as N, Unionized	mg/L	0.00095												1	0.0010	0.0010	0.0010	0.0010	N/A	<0.025	0%
Estero Bay	310LBC	Los Berros Creek	Chlorophyll a, Field	ug/L	3												1	3.00	3.00	3.00	3.0	N/A		
Estero Bay	310LBC	Los Berros Creek	Discharge	cfs	0.571	0	0	0	0	0	0	0	0	0	0	0	12	0.00	0.57	0.05	0.00	0.16		
Estero Bay	310LBC	Los Berros Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	92.8												1	92.80	92.80	92.80	92.8	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	99.8												1	99.80	99.80	99.80	99.8	N/A		
Estero Bay	310LBC	Los Berros Creek	Invertebrate Toxicity, Survival	%Control Survival	100												1	100.00	100.00	100.00	100.0	N/A		
Estero Bay	310LBC	Los Berros Creek	Nitrate + Nitrite as N	mg/L	0.611												1	0.6	0.6	0.6	0.6	N/A	<10	0%
Estero Bay	310LBC	Los Berros Creek	Nitrogen, Total	mg/L	0.952												1	0.95	0.95	0.95	1.0	N/A		
Estero Bay	310LBC	Los Berros Creek	Nitrogen, Total Kjeldahl	mg/L	0.341												1	0.34	0.34	0.34	0.3	N/A		
Estero Bay	310LBC	Los Berros Creek	OrthoPhosphate as P	mg/L	0.194												1	0.19	0.19	0.19	0.19	N/A		
Estero Bay	310LBC	Los Berros Creek	Oxygen, Dissolved	mg/L	11.05												1	11.05	11.05	11.05	11.05	N/A	>7	0%
Estero Bay	310LBC	Los Berros Creek	Oxygen, Saturation	%	98.4												1	98.40	98.40	98.40	98.40	N/A	None	N/A
Estero Bay	310LBC	Los Berros Creek	pH	none	7.88												1	7.88	7.88	7.88	7.88	N/A	7-8.3	0%
Estero Bay	310LBC	Los Berros Creek	Phosphorus as P	mg/L	0.278												1	0.28	0.28	0.28	0.3	N/A		
Estero Bay	310LBC	Los Berros Creek	Salinity	ppt	0.05												1	0.05	0.05	0.05	0.1	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	Specific Conductivity	uS/cm	104.4												1	104	104	104	104	N/A		
Estero Bay	310LBC	Los Berros Creek	Total Dissolved Solids	mg/L	68												1	68	68	68	68	N/A		
Estero Bay	310LBC	Los Berros Creek	Total Suspended Solids	mg/L	35.4												1	35.40	35.40	35.40	35.4	N/A		
Estero Bay	310LBC	Los Berros Creek	Turbidity, Field	NTU	24.7												1	25	25	25	25	N/A		
Estero Bay	310LBC	Los Berros Creek	Water Temperature	Deg C	10.2												1	10.20	10.20	10.20	10.2	N/A		
Estero Bay	310PRE	Prefumo Creek	Air Temperature	Deg C	9	21	16	12	18	17	20	18	19	14	18	10	12	9.00	21.00	16.00	17.5	3.9		
Estero Bay	310PRE	Prefumo Creek	Algae Toxicity, Cell Growth	%Control Growth	178.7			190.1					183.8			121.75	4	121.75	190.10	168.59	181.3	31.6		
Estero Bay	310PRE	Prefumo Creek	Ammonia as N	mg/L	0.0233	0.0249	0.027	0.0397	0.0195	0.0345	0.0263	0.0278	0.0381	0.0328	0.0547	0.237	12	0.02	0.24	0.05	0.0	0.1		
Estero Bay	310PRE	Prefumo Creek	Ammonia as N, Unionized	mg/L	0.00012	0.00063	0.00029	0.00043	0.00022	0.00029	0.00028	0.00031	0.00044	0.00052	0.00063	0.00065	12	0.0001	0.0007	0.0004	0.0004	0.000	<0.025	0%
Estero Bay	310PRE	Prefumo Creek	Chlorophyll a, Field	ug/L	3	1	2	3	1	1	15	2	3	1	2	7	12	1.00	15.00	3.42	2.0	4.0		
Estero Bay	310PRE	Prefumo Creek	Discharge	cfs	6.0873	1.14835	0.88925	0.8628	0.9611	0.543675	0.47775	0.7587	0.3766	0.58465	0.5786	16.1096	12	0.38	16.11	2.45	0.81	4.58		
Estero Bay	310PRE	Prefumo Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	100.2			95					97.5			92.5	4	92.50	100.20	96.30	96.3	3.3		
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	107.4			99.7					110.5			123.17	4	99.70	123.17	110.19	109.0	9.8		
Estero Bay	310PRE	Prefumo Creek	Invertebrate Toxicity, Survival	%Control Survival	100			100					100			100	4	100.00	100.00	100.00	100.0	0.0		
Estero Bay	310PRE	Prefumo Creek	Nitrate + Nitrite as N	mg/L	0.496	3.48	3.88	3.56	3.48	3.43	3.34	3.34	2.89	2.82	2.48	1.62	12	0.5	3.9	2.9	3.3	1.0	<10	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
Estero Bay	310PRE	Prefumo Creek	Nitrogen, Total	mg/L	0.854	4.005	4.31	3.863	3.783	3.751	3.631	3.633	3.242	3.007	2.48	2.551	12	0.85	4.31	3.26	3.6	0.9		
Estero Bay	310PRE	Prefumo Creek	Nitrogen, Total Kjeldahl	mg/L	0.358	0.525	0.43	0.303	0.303	0.321	0.291	0.293	0.352	0.187	0.065	0.931	12	0.07	0.93	0.36	0.3	0.2		
Estero Bay	310PRE	Prefumo Creek	OrthoPhosphate as P	mg/L	0.218	0.201	0.149	0.161	0.151	0.149	0.126	0.152	0.145	0.158	0.154	0.446	12	0.13	0.45	0.18	0.15	0.1		
Estero Bay	310PRE	Prefumo Creek	Oxygen, Dissolved	mg/L	9.35	5.96	7.09	6.18	6.82	5.23	5.99	5.85	6.21	6.2	6.98	7.74	12	5.23	9.35	6.63	6.21	1.1	>7	75%
Estero Bay	310PRE	Prefumo Creek	Oxygen, Saturation	%	84.2	60.2	70	62.6	69.6	55.3	63	61.6	65.5	60.8	69.7	73.5	12	55.30	84.20	66.33	64.25	7.65	None	N/A
Estero Bay	310PRE	Prefumo Creek	pH	none	7.42	8.02	7.66	7.63	7.63	7.45	7.57	7.59	7.6	7.85	7.68	7.11	12	7.11	8.02	7.60	7.62	0.22	7-8.3	0%
Estero Bay	310PRE	Prefumo Creek	Phosphorus as P	mg/L	0.287	0.235	0.186	0.214	0.271	0.222	0.223	0.23	0.196	0.326	0.217	0.594	12	0.19	0.59	0.27	0.2	0.1		
Estero Bay	310PRE	Prefumo Creek	Salinity	ppt	0.11	0.43	0.43	0.51	0.51	0.51	0.51	0.53	0.51	0.53	0.51	0.18	12	0.11	0.53	0.44	0.5	0.1		
Estero Bay	310PRE	Prefumo Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				51.47					166.33				2	51.47	166.33	108.90	108.9	81.2		
Estero Bay	310PRE	Prefumo Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				100					98.73				2	98.73	100.00	99.37	99.4	0.9		
Estero Bay	310PRE	Prefumo Creek	Specific Conductivity	uS/cm	239.1	867	697	1026	1032	1017	1034	1056	1026	1059	1030	371.5	12	239	1,059	871	1,026	285		
Estero Bay	310PRE	Prefumo Creek	Total Dissolved Solids	mg/L	1.55	566	565.3	667	671	661	672	687	667	689	670	241	12	2	689	563	667	217		
Estero Bay	310PRE	Prefumo Creek	Total Suspended Solids	mg/L	26.8	15.9	5.98	4.32	6.2	13.4	11.9	13.5	20.2	10.3	15.7	30.5	12	4.32	30.50	14.56	13.5	8.1		
Estero Bay	310PRE	Prefumo Creek	Turbidity, Field	NTU	362	19.5	19.1	9.15	6	12	11.3	17.7	18.7	13.4	14.4	49.6	12	6	362	46	16	100		
Estero Bay	310PRE	Prefumo Creek	Water Temperature	Deg C	10.6	15.4	14.6	15.8	16.2	17.9	17.7	17.7	17.7	14.3	15.2	12.8	12	10.60	17.90	15.49	15.6	2.2		
Estero Bay	310SLD	Davenport Creek	Air Temperature	Deg C	8	21	18	14	19	20	23	19	22	17	24	9	12	8.00	24.00	17.83	19.0	5.1		
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	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	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	Nitrate + Nitrite as N	mg/L													0	N/A	N/A	N/A	N/A	N/A	<10	N/A
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	N/A
Estero Bay	310SLD	Davenport Creek	Oxygen, Saturation	%													0	N/A	N/A	N/A	N/A	N/A	None	N/A
Estero Bay	310SLD	Davenport Creek	pH	none													0	N/A	N/A	N/A	N/A	N/A	7-8.3	N/A
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	Salinity	ppt													0	N/A	N/A	N/A	N/A	N/A		
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	Specific Conductivity	uS/cm													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	9	21	19	14	18	20	22	18	20	18	24	8	12	8.00	24.00	17.58	18.5	4.9		
Estero Bay	310USG	Arroyo Grande	Algae Toxicity, Cell Growth	%Control Growth	178.3			184.7					241.2			98.38	4	98.38	241.20	175.65	181.5	58.8		
Estero Bay	310USG	Arroyo Grande	Ammonia as N	mg/L	0.047	0.0337	0.0173	0.0293	0.0233	0.0398	0.0298	0.0128	0.0273	0.0216	0.0225	0.256	12	0.01	0.26	0.05	0.0	0.1		
Estero Bay	310USG	Arroyo Grande	Ammonia as N, Unionized	mg/L	0.00101	0.00066	0.00072	0.00105	0.00104	0.00181	0.001082	0.00073	0.0014	0.00095	0.00043	0.00257	12	0.0004	0.0026	0.0011	0.0010	0.001	<0.025	0%
Estero Bay	310USG	Arroyo Grande	Chlorophyll a, Field	ug/L	2	2	3	4	1	2	4	2	4	5	3	4	12	1.00	5.00	3.00	3.0	1.2		
Estero Bay	310USG	Arroyo Grande	Discharge	cfs	12.0575	2.211	3.2892	1.196	1.7521	2.1224	2.3646	3.13425	1.4607	1.870975	1.3	7.6134	12	1.20	12.06	3.36	2.17	3.23		
Estero Bay	310USG	Arroyo Grande	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	78.4			87.2					92.5			0	4	0.00	92.50	64.53	82.8	43.4		
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	91.4			108.9					87			6.71	4	6.71	108.90	73.50	89.2	45.5		
Estero Bay	310USG	Arroyo Grande	Invertebrate Toxicity, Survival	%Control Survival	90			100					100			20	4	20.00	100.00	77.50	95.0	38.6		
Estero Bay	310USG	Arroyo Grande	Nitrate + Nitrite as N	mg/L	1.08	4.33	4.23	4.3	3.65	3.87	2.74	1.54	1.45	2.02	2.07	2.4	12	1.1	4.3	2.8	2.6	1.2	<10	0%
Estero Bay	310USG	Arroyo Grande	Nitrogen, Total	mg/L	1.491	4.955	5.034	4.82	4.198	4.315	3.193	2.132	2.018	2.451	2.37	4.55	12	1.49	5.03	3.46	3.7	1.3		
Estero Bay	310USG	Arroyo Grande	Nitrogen, Total Kjeldahl	mg/L	0.411	0.625	0.804	0.52	0.548	0.445	0.453	0.592	0.568	0.431	0.3	2.15	12	0.30	2.15	0.65	0.5	0.5		
Estero Bay	310USG	Arroyo Grande	OrthoPhosphate as P	mg/L	0.295	0.253	0.263	0.312	0.317	0.306	0.291	0.306	0.313	0.317	0.313	0.631	12	0.25	0.63	0.33	0.31	0.1		
Estero Bay	310USG	Arroyo Grande	Oxygen, Dissolved	mg/L	11.12	10.99	10.35	11.04	11.09	10.67	10.06	10.5	9.83	11.02	10.26	10.74	12	9.83	11.12	10.64	10.71	0.4	>7	0%
Estero Bay	310USG	Arroyo Grande	Oxygen, Saturation	%	98.4	102.3	95.3	105.7	110.1	108.9	103.6	108	100.2	100.3	97.9	98.4	12	95.30	110.10	102.43	101.30	4.83	None	N/A
Estero Bay	310USG	Arroyo Grande	pH	none	8.12	8.03	8.28	8.26	8.3	8.29	8.15	8.35	8.32	8.42	7.98	7.74	12	7.74	8.42	8.19	8.27	0.19	7-8.3	25%
Estero Bay	310USG	Arroyo Grande	Phosphorus as P	mg/L	0.428	0.275	0.32	0.4	0.481	0.402	0.381	0.387	0.357	0.463	0.379	2.14	12	0.28	2.14	0.53	0.4	0.5		
Estero Bay	310USG	Arroyo Grande	Salinity	ppt	0.3	0.67	0.55	0.77	0.67	0.65	0.61	0.55	0.52	0.56	0.6	0.26	12	0.26	0.77	0.56	0.6	0.1		
Estero Bay	310USG	Arroyo Grande	Sediment Invertebrate Toxicity, Growth	%Control Growth				62.57					142.05				2	62.57	142.05	102.31	102.3	56.2		
Estero Bay	310USG	Arroyo Grande	Sediment Invertebrate Toxicity, Survival	%Control Survival				98.72					93.67				2	93.67	98.72	96.20	96.2	3.6		
Estero Bay	310USG	Arroyo Grande	Specific Conductivity	uS/cm	612	1334	814	1512	1329	1290	1211	1100	1044	1124	1198	538	12	538	1,512	1,092	1,161	298		
Estero Bay	310USG	Arroyo Grande	Total Dissolved Solids	mg/L	398	867	713.2	983	864	827	787	715	679	730	778	350	12	350	983	724	754	184	<800	No
Estero Bay	310USG	Arroyo Grande	Total Suspended Solids	mg/L	48.8	9.56	39	9.77	6	8.9	6.28	4.19	5.62	7.41	14.7	319	12	4.19	319.00	39.94	9.2	89.0		

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
Estero Bay	310USG	Arroyo Grande	Turbidity, Field	NTU	221	5.73	7.83	9.56	7.34	12.4	17.1	7.52	8.19	6.98	8.84	378	12	6	378	58	9	118		
Estero Bay	310USG	Arroyo Grande	Water Temperature	Deg C	9.9	12	14.5	13.3	14.9	15.5	16.6	16.6	16.1	11	13.1	11.2	12	9.90	16.60	13.73	13.9	2.3		
Estero Bay	310WRP	Warden Creek	Air Temperature	Deg C	9	18	12	10	15	16	18	16	15	13	17	8	12	8.00	18.00	13.92	15.0	3.5		
Estero Bay	310WRP	Warden Creek	Algae Toxicity, Cell Growth	%Control Growth	182.4			184.6					194.8			108.91	4	108.91	194.80	167.68	183.5	39.5		
Estero Bay	310WRP	Warden Creek	Ammonia as N	mg/L	0.106	0.0345	0.064	0.0738	0.0396	0.0559	0.075	0.0845	0.0713	0.14	0.113	0.219	12	0.03	0.22	0.09	0.1	0.1		
Estero Bay	310WRP	Warden Creek	Ammonia as N, Unionized	mg/L	0.00029	0.00017	0.00042	0.00052	0.00028	0.00033	0.00035	0.00102	0.00117	0.00107	0.00124	0.00039	12	0.0002	0.0012	0.0006	0.0004	0.000	<0.025	0%
Estero Bay	310WRP	Warden Creek	Chlorophyll a, Field	ug/L	6	2	7	3	3	6	4	8	7	4	3	8	12	2.00	8.00	5.08	5.0	2.2		
Estero Bay	310WRP	Warden Creek	Discharge	cfs	4.95565	0.71475	0.352875	0.1536	0.07475	0.06175	0.01495	0.07775	0.021875	0.030725	0.002	2.4465	12	0.00	4.96	0.74	0.08	1.50		
Estero Bay	310WRP	Warden Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	99.8			85					87.5			0	4	0.00	99.80	68.08	86.3	45.8		
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	100.7			93.4					99.2			103.35	4	93.40	103.35	99.16	100.0	4.2		
Estero Bay	310WRP	Warden Creek	Invertebrate Toxicity, Survival	%Control Survival	100			90					100			100	4	90.00	100.00	97.50	100.0	5.0		
Estero Bay	310WRP	Warden Creek	Nitrate + Nitrite as N	mg/L	3.23	19.4	20.5	35.7	39	33.7	29.8	21.1	15.5	9.98	1.04	12.5	12	1.0	39.0	20.1	20.0	12.5	<10	75%
Estero Bay	310WRP	Warden Creek	Nitrogen, Total	mg/L	6.19	20.59	21.93	36.508	39.589	34.369	30.066	22.68	16.66	10.872	3.68	15.12	12	3.68	39.59	21.52	21.3	11.8		
Estero Bay	310WRP	Warden Creek	Nitrogen, Total Kjeldahl	mg/L	2.96	1.19	1.43	0.808	0.589	0.669	0.266	1.58	1.16	0.892	2.64	2.62	12	0.27	2.96	1.40	1.2	0.9		
Estero Bay	310WRP	Warden Creek	OrthoPhosphate as P	mg/L	1.18	0.212	0.141	0.152	0.143	0.137	0.124	0.31	0.297	0.222	0.475	1.57	12	0.12	1.57	0.41	0.22	0.5		
Estero Bay	310WRP	Warden Creek	Oxygen, Dissolved	mg/L	6.02	6.81	7.09	4.16	3.98	3.34	3.62	3.45	2.43	2.68	2.36	5.74	12	2.36	7.09	4.31	3.80	1.7	>5	67%
Estero Bay	310WRP	Warden Creek	Oxygen, Saturation	%	51.9	58.6	64	39.6	38.5	34.2	36.7	35	24	23.8	21.3	52.1	12	21.30	64.00	39.98	37.60	13.98	>85	Yes
Estero Bay	310WRP	Warden Creek	pH	none	7.29	7.55	7.59	7.56	7.54	7.36	7.28	7.7	7.87	7.7	7.82	7	12	7.00	7.87	7.52	7.56	0.25	7-8.3	0%
Estero Bay	310WRP	Warden Creek	Phosphorus as P	mg/L	1.8	0.251	0.455	0.179	0.299	0.21	0.207	0.421	0.368	0.34	0.544	2.39	12	0.18	2.39	0.62	0.4	0.7		
Estero Bay	310WRP	Warden Creek	Salinity	ppt	1.02	0.77	0.74	0.96	0.94	0.89	0.9	0.97	0.93	0.96	0.94	0.37	12	0.37	1.02	0.87	0.9	0.2		
Estero Bay	310WRP	Warden Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				110.2					173.68				2	110.20	173.68	141.94	141.9	44.9		
Estero Bay	310WRP	Warden Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				96.15					91.14				2	91.14	96.15	93.65	93.6	3.5		
Estero Bay	310WRP	Warden Creek	Specific Conductivity	uS/cm	1987	1526	1058	1883	1840	1740	1759	1894	1816	1882	1845	757	12	757	1,987	1,666	1,828	377		
Estero Bay	310WRP	Warden Creek	Total Dissolved Solids	mg/L	1291	992	946.7	1224	1196	1141	1143	1231	1180	1223	1200	492	12	492	1,291	1,105	1,188	217		
Estero Bay	310WRP	Warden Creek	Total Suspended Solids	mg/L	90.8	5.14	6	1.86	3.5	1.75	381	14.6	17.7	44.3	22.2	89.2	12	1.75	381.00	56.50	16.2	107.1		
Estero Bay	310WRP	Warden Creek	Turbidity, Field	NTU	248	782	5.28	9.02	6.31	2.68	26.8	11.6	13.9	47.2	124	240	12	3	782	126	20	225		
Estero Bay	310WRP	Warden Creek	Water Temperature	Deg C	8.6	8.6	10.7	13	13.7	16.4	15.8	15.8	14.7	9.8	10.9	10.9	12	8.60	16.40	12.41	12.0	2.9		

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	Percent Exceedance
Santa Maria	312BCC	Bradley Canyon Creek	Air Temperature	Deg C	8	24	15	18	18	23	23	24	25	22	21	7	12	7.00	25.00	19.00	21.5	6.1		
Santa Maria	312BCC	Bradley Canyon Creek	Algae Toxicity, Cell Growth	%Control Growth	251											102.64	2	102.64	251.00	176.82	176.8	104.9		
Santa Maria	312BCC	Bradley Canyon Creek	Ammonia as N	mg/L	0.68											0.469	2	0.47	0.68	0.57	0.6	0.1		
Santa Maria	312BCC	Bradley Canyon Creek	Ammonia as N, Unionized	mg/L	0.00612											0.03068	2	0.0061	0.0307	0.0184	0.0184	0.0	<0.025	50%
Santa Maria	312BCC	Bradley Canyon Creek	Chlorophyll a, Field	ug/L	1											5	2	1.00	5.00	3.00	3.0	2.8		
Santa Maria	312BCC	Bradley Canyon Creek	Discharge	cfs	16.456	0	0	0	0	0	0	0	0	0	0	9.7985	12	0.00	16.46	2.19	0.00	5.3		
Santa Maria	312BCC	Bradley Canyon Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											0	2	0.00	0.00	0.00	0.0	0.0		
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	89.8											60.06	2	60.06	89.80	74.93	74.9	21.0		
Santa Maria	312BCC	Bradley Canyon Creek	Invertebrate Toxicity, Survival	%Control Survival	100											30	2	30.00	100.00	65.00	65.0	49.5		
Santa Maria	312BCC	Bradley Canyon Creek	Nitrate + Nitrite as N	mg/L	6.14											12.7	2	6.1	12.7	9.4	9.42	4.6	<10	50%
Santa Maria	312BCC	Bradley Canyon Creek	Nitrogen, Total	mg/L	15.48											16.43	2	15.48	16.43	15.96	16.0	0.7		
Santa Maria	312BCC	Bradley Canyon Creek	Nitrogen, Total Kjeldahl	mg/L	9.34											3.73	2	3.73	9.34	6.54	6.5	4.0		
Santa Maria	312BCC	Bradley Canyon Creek	OrthoPhosphate as P	mg/L	0.926											0.677	2	0.68	0.93	0.80	0.80	0.2		
Santa Maria	312BCC	Bradley Canyon Creek	Oxygen, Dissolved	mg/L	10.09											9.42	2	9.42	10.09	9.76	9.76	0.5	>5	0%
Santa Maria	312BCC	Bradley Canyon Creek	Oxygen, Saturation	%	85.6											780	2	85.60	780.00	432.80	432.80	491.0	>85	No
Santa Maria	312BCC	Bradley Canyon Creek	pH	none	7.8											86	2	7.80	86.00	46.90	46.90	55.30	7-8.3	50%
Santa Maria	312BCC	Bradley Canyon Creek	Phosphorus as P	mg/L	3.85											2.52	2	2.52	3.85	3.19	3.2	0.9		
Santa Maria	312BCC	Bradley Canyon Creek	Salinity	ppt	0.3											0.39	2	0.30	0.39	0.35	0.3	0.1		
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	Specific Conductivity	uS/cm	614											781	2	614	781	698	698	118.1		
Santa Maria	312BCC	Bradley Canyon Creek	Total Dissolved Solids	mg/L	399											508	2	399	508	454	454	77.1		
Santa Maria	312BCC	Bradley Canyon Creek	Total Suspended Solids	mg/L	1860											661	2	661.00	1860.00	1260.50	1260.5	847.8		
Santa Maria	312BCC	Bradley Canyon Creek	Turbidity, Field	NTU	1000											734	2	734	1,000	867	867	188		
Santa Maria	312BCC	Bradley Canyon Creek	Water Temperature	Deg C	8.1											10.8	2	8.10	10.80	9.45	9.5	1.9		
Santa Maria	312BCJ	Bradley Channel	Air Temperature	Deg C	7	24	15	16	17	23	22	23	22	21	21	8	12	7.00	24.00	18.25	21.0	5.8		
Santa Maria	312BCJ	Bradley Channel	Algae Toxicity, Cell Growth	%Control Growth	225			108					165.1			138.22	4	108.00	225.00	159.08	151.7	49.8		
Santa Maria	312BCJ	Bradley Channel	Ammonia as N	mg/L	0.198	0.0663	0.131	0.394	0.11	1.16	0.067	0.127	2.68	0.681	1.91	0.226	12	0.07	2.68	0.65	0.2	0.8		
Santa Maria	312BCJ	Bradley Channel	Ammonia as N, Unionized	mg/L	0.00183	0.03234	0.08099	0.29275	0.04966	0.70821	0.02991	0.06391	1.21132	0.19166	0.14996	0.00168	12	0.0017	1.2113	0.2345	0.0725	0.4	<0.025	83%
Santa Maria	312BCJ	Bradley Channel	Chlorophyll a, Field	ug/L	1	65	30	41	11	5	6	8	19	3	4	2	12	1.00	65.00	16.25	7.0	19.7		
Santa Maria	312BCJ	Bradley Channel	Discharge	cfs	59.07	0.246075	0.03515	0.1272	0.132485	0.11197	0.6075	0.1937	0.08925	0.22925	1.04935	0.093825	12	0.04	59.07	5.17	0.16	17.0		
Santa Maria	312BCJ	Bradley Channel	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			33.3					5			92.5	4	0.00	92.50	32.70	19.2	42.5		
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	78.7			113.5					105.3			105.05	4	78.70	113.50	100.64	105.2	15.1		
Santa Maria	312BCJ	Bradley Channel	Invertebrate Toxicity, Survival	%Control Survival	100			100					111.1			100	4	100.00	111.10	102.78	100.0	5.6		
Santa Maria	312BCJ	Bradley Channel	Nitrate + Nitrite as N	mg/L	4.52	50.1	22.5	31.1	32.1	17	41.7	36.4	34.4	28.1	19.3	34.7	12	4.5	50.1	29.3	31.60	12.1	<10	92%
Santa Maria	312BCJ	Bradley Channel	Nitrogen, Total	mg/L	11.67	50.1	23.86	32.48	34.16	19.61	43.53	36.716	38.02	30.22	24.2	34.7	12	11.67	50.10	31.61	33.3	10.6		
Santa Maria	312BCJ	Bradley Channel	Nitrogen, Total Kjeldahl	mg/L	7.15	0.025	1.36	1.38	2.06	2.61	1.83	0.316	3.62	2.12	4.9	0.065	12	0.03	7.15	2.29	1.9	2.1		
Santa Maria	312BCJ	Bradley Channel	OrthoPhosphate as P	mg/L	1.17	0.0461	0.0104	0.0085	0.0182	0.0689	0.0301	0.19	0.111	0.265	0.295	0.183	12	0.01	1.17	0.20	0.09	0.3		
Santa Maria	312BCJ	Bradley Channel	Oxygen, Dissolved	mg/L	10.87	21.15	17.31	20.61	17.37	20.07	19.18	20.81	15.71	12.5	9.4	12.5	12	9.40	21.15	16.46	17.34	4.2	>5	0%
Santa Maria	312BCJ	Bradley Channel	Oxygen, Saturation	%	92.9	267	207.3	281.3	223.3	290	274.4	296.4	214.6	158.4	98.9	100.5	12	92.90	296.40	208.75	218.95	78.2	>85	No
Santa Maria	312BCJ	Bradley Channel	pH	none	7.79	9.26	9.56	9.6	9.14	9.22	8.95	9.07	9.05	8.84	8.48	7.82	12	7.79	9.60	8.90	9.06	0.59	7-8.3	83%
Santa Maria	312BCJ	Bradley Channel	Phosphorus as P	mg/L	5.05	0.249	0.834	0.305	0.422	0.326	0.347	0.439	0.423	0.634	1.87		11	0.25	5.05	0.99	0.4	1.4		
Santa Maria	312BCJ	Bradley Channel	Salinity	ppt	0.18	1.09	0.71	0.92	0.92	0.8	1.01	1.04	0.93	0.96	0.81	0.82	12	0.18	1.09	0.85	0.9	0.2		
Santa Maria	312BCJ	Bradley Channel	Sediment Invertebrate Toxicity, Growth	%Control Growth				14.53					93.99				2	14.53	93.99	54.26	54.3	56.2		
Santa Maria	312BCJ	Bradley Channel	Sediment Invertebrate Toxicity, Survival	%Control Survival				6.25					3.8				2	3.80	6.25	5.03	5.0	1.7		
Santa Maria	312BCJ	Bradley Channel	Specific Conductivity	uS/cm	381	2157	1384	1829	1819	1614	1999	2065	1868	1901	1599	1617	12	381	2,157	1,686	1,824	466.4		
Santa Maria	312BCJ	Bradley Channel	Total Dissolved Solids	mg/L	248	1395	921.7	1189	1182	1049	1304	1342	1212	1235	1039	1051	12	248	1,395	1,097	1,186	301.4		
Santa Maria	312BCJ	Bradley Channel	Total Suspended Solids	mg/L	2130	52.9	480	56.2	144	68.7	61	40.9	66.7	62.5	618	29	12	29.00	2130.00	317.49	64.6	601.9		
Santa Maria	312BCJ	Bradley Channel	Turbidity, Field	NTU	1000	3.16	20.9	36.4	82.9	47.3	66.5	52.2	48.2	8.88	2000	83.2	12	3	2,000	287	50	606		
Santa Maria	312BCJ	Bradley Channel	Water Temperature	Deg C	8.5	26.5	23.8	31.1	28.2	34.9	34.5	33.8	31.3	27.5	17.6	5.8	12	5.80	34.90	25.29	27.9	9.8		
Santa Maria	312GVS	Green Valley Creek	Air Temperature	Deg C	9	24	15	11	15	22	21	19	22	19	23	14	12	9.00	24.00	17.83	19.0	4.9		
Santa Maria	312GVS	Green Valley Creek	Algae Toxicity, Cell Growth	%Control Growth	264												1	264.00	264.00	264.00	264.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Ammonia as N	mg/L	0.19												1	0.19	0.19	0.19	0.2	N/A		
Santa Maria	312GVS	Green Valley Creek	Ammonia as N, Unionized	mg/L	0.00645												1	0.0065	0.0065	0.0065	0.0065	N/A	<0.025	0%
Santa Maria	312GVS	Green Valley Creek	Chlorophyll a, Field	ug/L	1												1	1.00	1.00	1.00	1.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Discharge	cfs	21.489	0	0	0	0	0	0	0	0	0	0	0	12	0.00	21.49	1.79	0.00	6.2		
Santa Maria	312GVS	Green Valley Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0												1	0.00	0.00	0.00	0.0	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	17.2												1	17.20	17.20	17.20	17.2	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	312GVS	Green Valley Creek	Invertebrate Toxicity, Survival	%Control Survival	40												1	40.00	40.00	40.00	40.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Nitrate + Nitrite as N	mg/L	5.44												1	5.4	5.4	5.4	5.44	N/A	<10	0%
Santa Maria	312GVS	Green Valley Creek	Nitrogen, Total	mg/L	11.78												1	11.78	11.78	11.78	11.8	N/A		
Santa Maria	312GVS	Green Valley Creek	Nitrogen, Total Kjeldahl	mg/L	6.34												1	6.34	6.34	6.34	6.3	N/A		
Santa Maria	312GVS	Green Valley Creek	OrthoPhosphate as P	mg/L	0.607												1	0.61	0.61	0.61	0.61	N/A		
Santa Maria	312GVS	Green Valley Creek	Oxygen, Dissolved	mg/L	10.55												1	10.55	10.55	10.55	10.55	N/A	>5	0%
Santa Maria	312GVS	Green Valley Creek	Oxygen, Saturation	%	99.7												1	99.70	99.70	99.70	99.70	N/A	>85	No
Santa Maria	312GVS	Green Valley Creek	pH	none	8.22												1	8.22	8.22	8.22	8.22	N/A	7-8.3	0%
Santa Maria	312GVS	Green Valley Creek	Phosphorus as P	mg/L	4.48												1	4.48	4.48	4.48	4.5	N/A		
Santa Maria	312GVS	Green Valley Creek	Salinity	ppt	0.16												1	0.16	0.16	0.16	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	Specific Conductivity	uS/cm	326.7												1	327	327	327	327	N/A		
Santa Maria	312GVS	Green Valley Creek	Total Dissolved Solids	mg/L	212												1	212	212	212	212	N/A		
Santa Maria	312GVS	Green Valley Creek	Total Suspended Solids	mg/L	1650												1	1650.00	1650.00	1650.00	1650.0	N/A		
Santa Maria	312GVS	Green Valley Creek	Turbidity, Field	NTU	1000												1	1,000	1,000	1,000	1,000	N/A		
Santa Maria	312GVS	Green Valley Creek	Water Temperature	Deg C	12.7												1	12.70	12.70	12.70	12.7	N/A		
Santa Maria	312MSD	Main Street Ditch	Air Temperature	Deg C	8	24	15	16	16	22	19	22	22	19	20	13	12	8.00	24.00	18.00	19.0	4.6		
Santa Maria	312MSD	Main Street Ditch	Algae Toxicity, Cell Growth	%Control Growth	201			58.6					11.4			98.11	4	11.40	201.00	92.28	78.4	80.7		
Santa Maria	312MSD	Main Street Ditch	Ammonia as N	mg/L	0.198	1.06	0.201	0.288	5.69	5	1.13	1.47	15.5	0.206	0.188	0.307	12	0.19	15.50	2.60	0.7	4.5		
Santa Maria	312MSD	Main Street Ditch	Ammonia as N, Unionized	mg/L	0.00132	0.03312	0.01194	0.03702	0.12511	0.4545	0.07404	0.03765	2.65389	0.01324	0.00942	0.00214	12	0.0013	2.6539	0.2878	0.0351	0.8	<0.025	58%
Santa Maria	312MSD	Main Street Ditch	Chlorophyll a, Field	ug/L	2	2	3	1	5	3	5	5	1	6	3	5	12	1.00	6.00	3.42	3.0	1.7		
Santa Maria	312MSD	Main Street Ditch	Discharge	cfs	108	0.134995	0.0735	0.08916	0.0097588	0.1719	0.068	0.04332	0.776	1.0401	0.7995	1.885	12	0.01	108.00	9.42	0.15	31.0		
Santa Maria	312MSD	Main Street Ditch	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	20			2.6					0			10.53	4	0.00	20.00	8.28	6.6	9.0		
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	42.1			45.7					0			97.98	4	0.00	97.98	46.45	43.9	40.1		
Santa Maria	312MSD	Main Street Ditch	Invertebrate Toxicity, Survival	%Control Survival	20			100					0			100	4	0.00	100.00	55.00	60.0	52.6		
Santa Maria	312MSD	Main Street Ditch	Nitrate + Nitrite as N	mg/L	1.48	30	18.6	23.4	41.5	16.2	22.7	27.4	37	20.6	17.3	4.54	12	1.5	41.5	21.7	21.65	11.7	<10	83%
Santa Maria	312MSD	Main Street Ditch	Nitrogen, Total	mg/L	3.28	33.69	19.287	24.248	48.7	28	25.32	31.21	51.9	20.746	19.54	6.29	12	3.28	51.90	26.02	24.8	14.5		
Santa Maria	312MSD	Main Street Ditch	Nitrogen, Total Kjeldahl	mg/L	1.8	3.69	0.687	0.848	7.2	11.8	2.62	3.81	14.9	0.146	2.24	1.75	12	0.15	14.90	4.29	2.4	4.7		
Santa Maria	312MSD	Main Street Ditch	OrthoPhosphate as P	mg/L	0.428	27.7	1.24	0.375	45.4	1.94	4.99	17.2	12.1	0.196	0.209	1.77	12	0.20	45.40	9.46	1.86	14.2		
Santa Maria	312MSD	Main Street Ditch	Oxygen, Dissolved	mg/L	10.32	10.12	11.84	13.71	10.21	11.04	8.84	7.72	11.54	11.41	11	10.02	12	7.72	13.71	10.65	10.66	1.5	>5	0%
Santa Maria	312MSD	Main Street Ditch	Oxygen, Saturation	%	91.2	102.4	121.3	152.3	115.5	137.1	103.2	88.2	127.5	121.7	110.7	91.1	12	88.20	152.30	113.52	113.10	19.7	>85	No
Santa Maria	312MSD	Main Street Ditch	pH	none	7.59	8.08	8.4	8.63	7.83	8.28	8.23	7.86	8.57	8.37	8.34	7.57	12	7.57	8.63	8.15	8.26	0.36	7-8.3	42%
Santa Maria	312MSD	Main Street Ditch	Phosphorus as P	mg/L	1.09	35.3	1.54	0.821	48.6	5.71	5.74	20.1	13.7	0.346	0.607	2.33	12	0.35	48.60	11.32	4.0	15.8		
Santa Maria	312MSD	Main Street Ditch	Salinity	ppt	0.09	1.01	0.6	0.75	1.55	0.7	0.87	1.41	0.59	0.8	0.73	0.14	12	0.09	1.55	0.77	0.7	0.4		
Santa Maria	312MSD	Main Street Ditch	Sediment Invertebrate Toxicity, Growth	%Control Growth				0					16.8				2	0.00	16.80	8.40	8.4	11.9		
Santa Maria	312MSD	Main Street Ditch	Sediment Invertebrate Toxicity, Survival	%Control Survival				0					1.3				2	0.00	1.30	0.65	0.7	0.9		
Santa Maria	312MSD	Main Street Ditch	Specific Conductivity	uS/cm	196	1977	996	1482	2976	1407	1712	2717	1188	1585	1450	292.6	12	196	2,976	1,498	1,466	823.5		
Santa Maria	312MSD	Main Street Ditch	Total Dissolved Solids	mg/L	128	128.3	784.2	963	1933	914	1113	1763	772	1030	942	190	12	128	1,933	888	928	572.4		
Santa Maria	312MSD	Main Street Ditch	Total Suspended Solids	mg/L	333	260	28	31.6	24.5	23.6	156	39.2	30.7	24.6	88.7	139	12	23.60	333.00	98.24	35.4	104.5		
Santa Maria	312MSD	Main Street Ditch	Turbidity, Field	NTU	440	279	44.3	48.9	123	35.6	131	38.8	26.3	76.7	350	430	12	26	440	169	100	161		
Santa Maria	312MSD	Main Street Ditch	Water Temperature	Deg C	9.9	15.6	15.8	20.3	20.5	26.1	22.9	21.6	20.1	18.1	15.4	11.2	12	9.90	26.10	18.13	19.1	4.7		
Santa Maria	312OFC	Oso Flaco Creek	Air Temperature	Deg C	9	21	21	14	17	19	21	21	23	22	26	13	12	9.00	26.00	18.92	21.0	4.8		
Santa Maria	312OFC	Oso Flaco Creek	Algae Toxicity, Cell Growth	%Control Growth	166.4			194.6					282.9			115.65	4	115.65	282.90	189.89	180.5	70.1		
Santa Maria	312OFC	Oso Flaco Creek	Ammonia as N	mg/L	0.265	0.479	2.37	2.8	0.225	0.33	0.0401	0.731	0.177	0.186	0.121	0.522	12	0.04	2.80	0.69	0.3	0.9		
Santa Maria	312OFC	Oso Flaco Creek	Ammonia as N, Unionized	mg/L	0.00354	0.03731	0.17628	0.14342	0.02859	0.01875	0.00597	0.07528	0.00549	0.00398	0.00472	0.00186	12	0.0019	0.1763	0.0421	0.0124	0.1	<0.025	42%
Santa Maria	312OFC	Oso Flaco Creek	Chlorophyll a, Field	ug/L	2	7	10	8	6	3	6	8	4	11	5	7	12	2.00	11.00	6.42	6.5	2.7		
Santa Maria	312OFC	Oso Flaco Creek	Discharge	cfs	48	0.144625	0.2425	0.41425	0.78465	0.4274	0.624	0.95575	0.176875	0.00975	2.01858	3.6775	12	0.01	48.00	4.79	0.53	13.6		
Santa Maria	312OFC	Oso Flaco Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	2.6			59					97.5			0	4	0.00	97.50	39.78	30.8	47.1		
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	0			96.4					88.6			0	4	0.00	96.40	46.25	44.3	53.5		
Santa Maria	312OFC	Oso Flaco Creek	Invertebrate Toxicity, Survival	%Control Survival	0			100					100			0	4	0.00	100.00	50.00	50.0	57.7		
Santa Maria	312OFC	Oso Flaco Creek	Nitrate + Nitrite as N	mg/L	7.93	31.6	67.9	24.5	24	28.2	34.4	42.1	6.06	5.7	28.4	12.1	12	5.7	67.9	26.1	26.35	17.7	<10	75%
Santa Maria	312OFC	Oso Flaco Creek	Nitrogen, Total	mg/L	12.67	33.95	73.27	30.08	25.86	28.466	34.4	43.3	7.83	6.668	28.933	14.07	12	6.67	73.27	28.29	28.7	18.2		
Santa Maria	312OFC	Oso Flaco Creek	Nitrogen, Total Kjeldahl	mg/L	4.74	2.35	5.37	5.58	1.86	0.266	0.065	1.2	1.77	0.968	0.533	1.97	12	0.07	5.58	2.22	1.8	2.0		
Santa Maria	312OFC	Oso Flaco Creek	OrthoPhosphate as P	mg/L	0.597	0.0273	0.102	0.0658	0.0549	0.0398	0.00375	0.00375	0.0588	0.028	0.24	0.601	12	0.00	0.60	0.15	0.06	0.2		
Santa Maria	312OFC	Oso Flaco Creek	Oxygen, Dissolved	mg/L	10.34	19.88	16.33	14.68	14.05	13.51	13.7	13.62	11.47	11.41	10.17	8.07	12	8.07	19.88	13.10	13.57	3.1	>5	0%
Santa Maria	312OFC	Oso Flaco Creek	Oxygen, Saturation	%	9.68	220.7	179.8	168.2	160.2	162.5	170	149.8	126.2	114.7	102.3	70.2	12	9.68	220.70	136.19	155.00	56.2	None	N/A
Santa Maria	312OFC	Oso Flaco Creek	pH	none	7.89	8.4	8.39	8.16	8.59	8.13	8.52	8.54	8.44	7.99	8.23	7.35	12	7.35	8.59	8.22	8.31	0.35	7-8.3	50%
Santa Maria	312OFC	Oso Flaco Creek	Phosphorus as P	mg/L	5.93	0.308	0.766	0.45	0.912	0.494	0.166	0.14	0.724	0.0938	0.841	1.34	12	0.09	5.93	1.01	0.6	1.6		
Santa Maria	312OFC	Oso Flaco Creek	Salinity	ppt	0.2	1.01	0.98	1.06	0.94	1.16	0.79	0.83	0.98	1.63	0.82	0.39	12	0.20	1.63	0.90	1.0	0.4		

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
Santa Maria	312OFC	Oso Flaco Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				91.92					170				2	91.92	170.00	130.96	131.0	55.2		
Santa Maria	312OFC	Oso Flaco Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				48.75					34.2				2	34.20	48.75	41.48	41.5	10.3		
Santa Maria	312OFC	Oso Flaco Creek	Specific Conductivity	uS/cm	404.2	1972	1727	2072	1844	2256	1568	1638	1917	3099	1621	801	12	404	3,099	1,743	1,786	676.9		
Santa Maria	312OFC	Oso Flaco Creek	Total Dissolved Solids	mg/L	263	1282	1245.7	1346	1198	1467	1020	1065	1246	2014	1053	520	12	263	2,014	1,143	1,222	441.1		
Santa Maria	312OFC	Oso Flaco Creek	Total Suspended Solids	mg/L	1340	31	40.3	124	243	51	21.3	17.9	430	9.44	105	143	12	9.44	1340.00	213.00	78.0	375.1		
Santa Maria	312OFC	Oso Flaco Creek	Turbidity, Field	NTU	1000	29.5	34.2	47.9	156	54.4	22.8	20.3	28.7	24.8	184	250	12	20	1,000	154	41	277		
Santa Maria	312OFC	Oso Flaco Creek	Water Temperature	Deg C	10.3	20.2	19.8	21.7	21.6	24.3	26.3	19.8	19.7	15.2	15.4	9.6	12	9.60	26.30	18.66	19.8	5.1		
Santa Maria	312OFN	Little Oso Flaco	Air Temperature	Deg C	9	21	19	14	17	20	21	19	18	19	26	14	12	9.00	26.00	18.08	19.0	4.3		
Santa Maria	312OFN	Little Oso Flaco	Algae Toxicity, Cell Growth	%Control Growth	161.5			41.8					116.9			101	4	41.80	161.50	105.30	109.0	49.5		
Santa Maria	312OFN	Little Oso Flaco	Ammonia as N	mg/L	0.103	0.105	0.0873	0.0942	0.116	0.216	4.24	0.0501	0.023	1.63	2.34	0.0919	12	0.02	4.24	0.76	0.1	1.3		
Santa Maria	312OFN	Little Oso Flaco	Ammonia as N, Unionized	mg/L	0.00091	0.00585	0.00221	0.0022	0.00272	0.00306	0.19814	0.00229	0.00324	0.27154	0.25036	0.00046	12	0.0005	0.2715	0.0619	0.0029	0.1	<0.025	25%
Santa Maria	312OFN	Little Oso Flaco	Chlorophyll a, Field	ug/L	1	17	3	2	3	6	73	6	10	168	199	6	12	1.00	199.00	41.17	6.0	69.6		
Santa Maria	312OFN	Little Oso Flaco	Discharge	cfs	5.6334	0.344925	0.221	0.305	0.1443	0.363	0.34825	0.518	0.244625	0.22733	0.150375	0.6375	12	0.14	5.63	0.76	0.32	1.5		
Santa Maria	312OFN	Little Oso Flaco	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0			94.9					100			0	4	0.00	100.00	48.73	47.5	56.3		
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			116.6					116.2			17	4	0.00	116.60	62.45	66.6	62.7		
Santa Maria	312OFN	Little Oso Flaco	Invertebrate Toxicity, Survival	%Control Survival	0			100					100			0	4	0.00	100.00	50.00	50.0	57.7		
Santa Maria	312OFN	Little Oso Flaco	Nitrate + Nitrite as N	mg/L	3.77	23.8	30.7	28.2	27	18.7	28.2	18.3	5.22	9.24	16.6	5.82	12	3.8	30.7	18.0	18.50	9.9	<10	67%
Santa Maria	312OFN	Little Oso Flaco	Nitrogen, Total	mg/L	7.76	24.265	31.62	28.91	27.845	21.86	44.3	20.35	5.897	20.14	22.15	7.21	12	5.90	44.30	21.86	22.0	11.1		
Santa Maria	312OFN	Little Oso Flaco	Nitrogen, Total Kjeldahl	mg/L	3.99	0.465	0.92	0.71	0.845	3.16	16.1	2.05	0.677	10.9	5.55	1.39	12	0.47	16.10	3.90	1.7	4.9		
Santa Maria	312OFN	Little Oso Flaco	OrthoPhosphate as P	mg/L	0.958	2.76	5.14	4.56	3.76	4.31	3.8	1.11	0.479	3.29	1.51	1.08	12	0.48	5.14	2.73	3.03	1.6		
Santa Maria	312OFN	Little Oso Flaco	Oxygen, Dissolved	mg/L	10.57	12.62	10.7	10.11	9.41	6.87	11.47	8.74	8.46	19.74	20.76	9.01	12	6.87	20.76	11.54	10.34	4.3	>5	0%
Santa Maria	312OFN	Little Oso Flaco	Oxygen, Saturation	%	92.8	125.5	108.4	107	101.4	75.9	131.6	99	90.6	200.3	206.7	78.3	12	75.90	206.70	118.13	104.20	43.1	>85	No
Santa Maria	312OFN	Little Oso Flaco	pH	none	7.73	8.41	8.02	7.93	7.9	7.64	8.11	8.12	8.05	8.9	8.72	7.49	12	7.49	8.90	8.09	8.04	0.42	7-8.3	25%
Santa Maria	312OFN	Little Oso Flaco	Phosphorus as P	mg/L	4.28	3.09	5.13	4.78	4.15	5.2	18	1.63	0.648	5.34	2.76	1.44	12	0.65	18.00	4.70	4.2	4.5		
Santa Maria	312OFN	Little Oso Flaco	Salinity	ppt	0.19	0.97	0.77	1.067	0.97	0.98	0.9	0.93	0.85	0.67	0.94	0.32	12	0.19	1.07	0.80	0.9	0.3		
Santa Maria	312OFN	Little Oso Flaco	Sediment Invertebrate Toxicity, Growth	%Control Growth				88.22					104.1				2	88.22	104.10	96.16	96.2	11.2		
Santa Maria	312OFN	Little Oso Flaco	Sediment Invertebrate Toxicity, Survival	%Control Survival				90					97.5				2	90.00	97.50	93.75	93.8	5.3		
Santa Maria	312OFN	Little Oso Flaco	Specific Conductivity	uS/cm	400.8	1889	1250	2064	1901	1918	1777	1832	1084	1330	1837	652	12	401	2,064	1,495	1,805	547.5		
Santa Maria	312OFN	Little Oso Flaco	Total Dissolved Solids	mg/L	260	1228	986.7	1342	1236	1247	1155	1191	1093	865	1194	424	12	260	1,342	1,018	1,173	341.9		
Santa Maria	312OFN	Little Oso Flaco	Total Suspended Solids	mg/L	943	122	11.2	8.78	23	89.5	240	75.1	49.4	120	102	72.1	12	8.78	943.00	154.67	82.3	256.1		
Santa Maria	312OFN	Little Oso Flaco	Turbidity, Field	NTU	1000	10.8	12.9	11.2	12.1	9.78	155	28.1	22.2	106	33.6	160	12	10	1,000	130	25	280		
Santa Maria	312OFN	Little Oso Flaco	Water Temperature	Deg C	9.6	15	15.8	17.8	18.7	19.9	21.8	21.2	18.5	15.9	14.9	9.6	12	9.60	21.80	16.56	16.9	4.0		
Santa Maria	312ORC	Orcutt Solomon Creek	Air Temperature	Deg C	9	21	16	10	15	19	21	22	16	18	21	15	12	9.00	22.00	16.92	17.0	4.3		
Santa Maria	312ORC	Orcutt Solomon Creek	Algae Toxicity, Cell Growth	%Control Growth	285			218.7					121.7			125.55	4	121.70	285.00	187.74	172.1	78.8		
Santa Maria	312ORC	Orcutt Solomon Creek	Ammonia as N	mg/L	0.868	0.155	0.143	0.228	0.12	0.34	0.0968	0.0268	0.0641	0.0932	0.208	0.107	12	0.03	0.87	0.20	0.1	0.2		
Santa Maria	312ORC	Orcutt Solomon Creek	Ammonia as N, Unionized	mg/L	0.00609	0.01024	0.01111	0.00165	0.01209	0.02898	0.00155	0.00124	0.00103	0.00285	0.00379	0.00098	12	0.0010	0.0290	0.0068	0.0033	0.0	<0.025	8%
Santa Maria	312ORC	Orcutt Solomon Creek	Chlorophyll a, Field	ug/L	2	7	20	4	11	15	5	29	4	14	39	6	12	2.00	39.00	13.00	9.0	11.4		
Santa Maria	312ORC	Orcutt Solomon Creek	Discharge	cfs	203.52	0.9561	0.50175	0.375125	0.4925	0.1095	0.5105	0.0052	0.2075	0.395425	0.059365	0.75525	12	0.01	203.52	17.32	0.44	58.6		
Santa Maria	312ORC	Orcutt Solomon Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											5	2	0.00	5.00	2.50	2.5	3.5		
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	60.6											92.59	2	60.60	92.59	76.60	76.6	22.6		
Santa Maria	312ORC	Orcutt Solomon Creek	Invertebrate Toxicity, Survival	%Control Survival	100			94					100			100	4	94.00	100.00	98.50	100.0	3.0		
Santa Maria	312ORC	Orcutt Solomon Creek	Nitrate + Nitrite as N	mg/L	21.9	48.2	34.3	31.5	17.1	16.9	10.4	0.476	19.3	10.4	18.7	30.9	12	0.5	48.2	21.7	19.00	12.8	<10	92%
Santa Maria	312ORC	Orcutt Solomon Creek	Nitrogen, Total	mg/L	26.81	49.22	35.78	33.25	19.25	18.03	11.79	2.686	20.48	12.11	19.653	32.92	12	2.69	49.22	23.50	20.1	12.7		
Santa Maria	312ORC	Orcutt Solomon Creek	Nitrogen, Total Kjeldahl	mg/L	4.91	1.02	1.48	1.75	2.15	1.13	1.39	2.21	1.18	1.71	0.953	2.02	12	0.95	4.91	1.83	1.6	1.1		
Santa Maria	312ORC	Orcutt Solomon Creek	OrthoPhosphate as P	mg/L	0.836	0.321	0.14	0.281	0.15	0.121	0.296	0.0774	0.236	0.222	0.158	0.657	12	0.08	0.84	0.29	0.23	0.2		
Santa Maria	312ORC	Orcutt Solomon Creek	Oxygen, Dissolved	mg/L	8.59	17.3	17.22	8.95	16.08	17.63	7.96	12.29	7.8	13.49	5.51	10.26	12	5.51	17.63	11.92	11.28	4.3	>7	8%
Santa Maria	312ORC	Orcutt Solomon Creek	Oxygen, Saturation	%	78.5	190.4	203.6	86.9	198.2	232.3	95.3	145.6	79.3	140.6	54.4	90.6	12	54.40	232.30	132.98	117.95	60.3	None	N/A
Santa Maria	312ORC	Orcutt Solomon Creek	pH	none	7.61	8.35	8.32	7.59	8.39	8.17	7.58	8.1	7.66	8.11	7.94	7.8	12	7.58	8.39	7.97	8.02	0.31	7-8.3	25%
Santa Maria	312ORC	Orcutt Solomon Creek	Phosphorus as P	mg/L	2.99	0.416	0.388	0.566	0.343	0.424	0.511	0.184	0.403	0.506	0.336		11	0.18	2.99	0.64	0.4	0.8		
Santa Maria	312ORC	Orcutt Solomon Creek	Salinity	ppt	0.73	1.84	1.72	2.42	2.09	1.2	1.56	2.48	2.01	2.12	1.41	1.34	12	0.73	2.48	1.74	1.8	0.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				56.2					142				2	56.20	142.00	99.10	99.1	60.7		
Santa Maria	312ORC	Orcutt Solomon Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				100					94.9				2	94.90	100.00	97.45	97.5	3.6		
Santa Maria	312ORC	Orcutt Solomon Creek	Specific Conductivity	uS/cm	1452	3495	3173	4500	3962	2357	2994	4632	3775	3981	2705	2574	12	1,452	4,632	3,300	3,334	937.8		
Santa Maria	312ORC	Orcutt Solomon Creek	Total Dissolved Solids	mg/L	944	2272	2130	2925	2575	1532	1946	3010	2454	2587	1758	1674	12	944	3,010	2,151	2,201	608.9		
Santa Maria	312ORC	Orcutt Solomon Creek	Total Suspended Solids	mg/L	729	44.3	95	83.6	54	70	35.8	32.3	31.8	75	40.3	114	12	31.80	729.00	117.09	62.0	194.5		
Santa Maria	312ORC	Orcutt Solomon Creek	Turbidity, Field	NTU	713	41.1	78.2	201	48	58.3	49.1	14.6	19.8	139	322	31.5	12	15	713	143	54	201		
Santa Maria	312ORC	Orcutt Solomon Creek	Water Temperature	Deg C	11.1	20	23.3	13.3	25.3	29.3	24	23.1	15.6	16.7	14.4	9.5	12	9.50	29.30	18.80	18.4	6.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Air Temperature	Deg C	9	24	21	10	17	19	21	23	12	21	26	9	12	9.00	26.00	17.67	20.0	6.1		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Algae Toxicity, Cell Growth	%Control Growth	245			204.6					175.6			106.68	4	106.68	245.00	182.97	190.1	58.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Ammonia as N	mg/L	0.529	0.106	0.946	0.922	3.01	0.368	0.19	5.08	0.154	0.682		0.378	11	0.11	5.08	1.12	0.5	1.5		

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	312ORI	Orcutt Solomon at Hwy 1	Ammonia as N, Unionized	mg/L	0.00354	0.00487	0.10611	0.00768	0.43707	0.03578	0.02644	0.34052	0.00679	0.03187		0.00105	11	0.0011	0.4371	0.0911	0.0264	0.2	<0.025	55%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Chlorophyll a, Field	ug/L	2	6	6	6	38	8	8	6	4	23		6	11	2.00	38.00	10.27	6.0	10.7		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Discharge	cfs	65.607	0.4155	0.2825	0.4479	0.159	0.46025	0.1566	0.082025	0.11575	0.00895	0	25.6	12	0.00	65.61	7.78	0.22	19.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											0	2	0.00	0.00	0.00	0.0	0.0		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity, Growth	%Control Growth													0	N/A	N/A	N/A	N/A	N/A		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity, Reproduction	%Control Repro	18.2											3.24	2	3.24	18.20	10.72	10.7	10.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Invertebrate Toxicity, Survival	%Control Survival	90			88					0			100	4	0.00	100.00	69.50	89.0	46.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Nitrate + Nitrite as N	mg/L	26.7	63.4	105	69.6	69.3	80.8	72.3	40.9	44.6	74.4		19.1	11	19.1	105.0	60.6	69.30	25.3	<10	100%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Nitrogen, Total	mg/L	30.69	65.57	107.35	71.11	78.39	82.84	75.11	46.04	46.67	75.135		22.08	11	22.08	107.35	63.73	71.1	25.0		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Nitrogen, Total Kjeldahl	mg/L	3.99	2.17	2.35	1.51	9.09	2.04	2.81	5.14	2.07	0.735		2.98	11	0.74	9.09	3.17	2.4	2.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	OrthoPhosphate as P	mg/L	0.848	0.301	0.178	0.243	0.0655	0.177	0.174	0.345	0.439	0.141		0.813	11	0.07	0.85	0.34	0.24	0.3		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Oxygen, Dissolved	mg/L	10.65	15.15	14.65	9.16	14.45	12.59	12.04	6.85	11.38	14.51		10.47	11	6.85	15.15	11.99	12.04	2.6	>7	9%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Oxygen, Saturation	%	94.6	167.5	173.1	87.1	173.4	168.5	160.8	90.8	108.6	159.9		90.6	11	87.10	173.40	134.08	159.90	38.6	None	N/A
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	pH	none	7.62	8.19	8.5	7.67	8.6	8.23	8.42	8.05	8.1	8.2		7.25	11	7.25	8.60	8.08	8.19	0.41	7-8.3	27%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Phosphorus as P	mg/L	2.46	0.455	0.343	0.599	0.617	0.55	0.715	0.514	0.598	0.315		1.42	11	0.32	2.46	0.78	0.6	0.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Salinity	ppt	0.58	1.75	1.61	1.97	1.71	1.97	2.06	1.38	2.22	1.69		0.39	11	0.39	2.22	1.58	1.7	0.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Sediment Invertebrate Toxicity, Growth	%Control Growth				56.7					0				2	0.00	56.70	28.35	28.4	40.1		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Sediment Invertebrate Toxicity, Survival	%Control Survival				77.22					0				2	0.00	77.22	38.61	38.6	54.6		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Specific Conductivity	uS/cm	1168	3320	2982	3708	3274	3767	3939	2694	4164	3218		786	11	786	4,164	3,002	3,274	1091.0		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Total Dissolved Solids	mg/L	759	2158	2010	2410	2129	2449	2560	1751	2707	2093		511	11	511	2,707	1,958	2,129	709.5		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Total Suspended Solids	mg/L	954	40	19.6	125	38.2	144	27.5	42.5	21.9	37.3		301	11	19.60	954.00	159.18	40.0	276.8		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Turbidity, Field	NTU	1000	35.2	11.8	158	30.8	125	23.3	11.8	23.8	6.68		463	11	7	1,000	172	31	306		
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	Water Temperature	Deg C	10	19.7	23.1	12.5	24.1	30	29.6	29.7	12.6	19.6		9.3	11	9.30	30.00	20.02	19.7	8.0		
Santa Maria	312SMA	Santa Maria R, estuary	Air Temperature	Deg C	9	21	18	10	15	20	22	19	16	18	21	17	12	9.00	22.00	17.17	18.0	4.2		
Santa Maria	312SMA	Santa Maria R, estuary	Algae Toxicity, Cell Growth	%Control Growth	275			231					87.4			126.21	4	87.40	275.00	179.90	178.6	87.7		
Santa Maria	312SMA	Santa Maria R, estuary	Ammonia as N	mg/L	0.663	0.39	0.278	0.502	0.141	0.0477	0.113	0.192	0.0873	0.0522	0.309	0.386	12	0.05	0.66	0.26	0.2	0.2		
Santa Maria	312SMA	Santa Maria R, estuary	Ammonia as N, Unionized	mg/L	0.00458	0.01879	0.01595	0.00596	0.00904	0.00069	0.00096	0.00797	0.00421	0.00511	0.01386	0.00554	12	0.0007	0.0188	0.0077	0.0058	0.0	<0.025	0%
Santa Maria	312SMA	Santa Maria R, estuary	Chlorophyll a, Field	ug/L	2	5	10	5	4	4	4	5	8	10	25	8	12	2.00	25.00	7.50	5.0	6.1		
Santa Maria	312SMA	Santa Maria R, estuary	Discharge	cfs	109.0755	2.3305	0.691	0.5544	0.396625	0.40875	0.3918	0.0474	0.19675	0.199875	0.1221	1.3573	12	0.05	109.08	9.65	0.40	31.3		
Santa Maria	312SMA	Santa Maria R, estuary	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											15	2	0.00	15.00	7.50	7.5	10.6		
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	33.8											89.23	2	33.80	89.23	61.52	61.5	39.2		
Santa Maria	312SMA	Santa Maria R, estuary	Invertebrate Toxicity, Survival	%Control Survival	90			100					100			100	4	90.00	100.00	97.50	100.0	5.0		
Santa Maria	312SMA	Santa Maria R, estuary	Nitrate + Nitrite as N	mg/L	22.3	37.1	24.1	17.5	6.5	16.3	0.231	0.005	10	3.54	4.46	21.1	12	0.0	37.1	13.6	13.15	11.4	<10	50%
Santa Maria	312SMA	Santa Maria R, estuary	Nitrogen, Total	mg/L	25.36	38.51	28.08	19.55	7.36	17.011	2.411	1.3	12.31	4.56	9.98	22.71	12	1.30	38.51	15.76	14.7	11.5		
Santa Maria	312SMA	Santa Maria R, estuary	Nitrogen, Total Kjeldahl	mg/L	3.06	1.41	3.98	2.05	0.86	0.711	2.18	1.3	2.31	1.02	5.52	1.61	12	0.71	5.52	2.17	1.8	1.4		
Santa Maria	312SMA	Santa Maria R, estuary	OrthoPhosphate as P	mg/L	0.701	0.28	0.0812	0.211	0.192	0.111	0.0687	0.262	0.0841	0.065	0.0545	0.455	12	0.05	0.70	0.21	0.15	0.2		
Santa Maria	312SMA	Santa Maria R, estuary	Oxygen, Dissolved	mg/L	8.58	12.41	15.78	8.86	9.31	5.68	4.13	1.31	15.83	19.58	14.97	10.65	12	1.31	19.58	10.59	9.98	5.4	>7	25%
Santa Maria	312SMA	Santa Maria R, estuary	Oxygen, Saturation	%	77.9	135.7	186.4	88.2	118.1	67.1	45.1	17.5	167	220.1	162.4	104.2	12	17.50	220.10	115.81	111.15	60.6	None	N/A
Santa Maria	312SMA	Santa Maria R, estuary	pH	none	7.61	8.23	8.18	7.76	8.12	7.54	7.46	7.83	8.26	8.52	8.21	7.85	12	7.46	8.52	7.96	7.99	0.33	7-8.3	8%
Santa Maria	312SMA	Santa Maria R, estuary	Phosphorus as P	mg/L	1.69	0.333	0.654	0.439	0.285	0.152	0.463	0.405	0.784	0.151	0.292		11	0.15	1.69	0.51	0.4	0.4		
Santa Maria	312SMA	Santa Maria R, estuary	Salinity	ppt	0.74	1.85	1.63	2.16	1.84	1.25	1.85	2.05	1.83	1.84	1.84	1.37	12	0.74	2.16	1.69	1.8	0.4		
Santa Maria	312SMA	Santa Maria R, estuary	Sediment Invertebrate Toxicity, Growth	%Control Growth				57.88					108.8				2	57.88	108.80	83.34	83.3	36.0		
Santa Maria	312SMA	Santa Maria R, estuary	Sediment Invertebrate Toxicity, Survival	%Control Survival				101.27					60.8				2	60.80	101.27	81.04	81.0	28.6		
Santa Maria	312SMA	Santa Maria R, estuary	Specific Conductivity	uS/cm	1461	3508	3011	4049	3519	2418	3512	3913	3468	3499	3488	2637	12	1,461	4,049	3,207	3,494	723.3		
Santa Maria	312SMA	Santa Maria R, estuary	Total Dissolved Solids	mg/L	950	2280	2026	2632	2288	1573	2283	2544	2254	2274	2267	1714	12	950	2,632	2,090	2,271	468.7		
Santa Maria	312SMA	Santa Maria R, estuary	Total Suspended Solids	mg/L	428	22	55.6	54	9.2	13.8	85.8	25.9	38.7	21	367	38.4	12	9.20	428.00	96.62	38.6	142.7		
Santa Maria	312SMA	Santa Maria R, estuary	Turbidity, Field	NTU	820	17.3	31.5	69.5	14.6	8.17	12.4	12.6	12.2	116	41.4	35	12	8	820	99	24	229		
Santa Maria	312SMA	Santa Maria R, estuary	Water Temperature	Deg C	10.9	19.2	23.2	14.6	27	23.6	19.1	30.2	17.4	20.5	18.8	13.9	12	10.90	30.20	19.87	19.2	5.5		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Air Temperature	Deg C	8	21	21	16	0	19	21	21	22	22	26	9	12	0.00	26.00	17.17	21.0	7.6		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Algae Toxicity, Cell Growth	%Control Growth	279											99.05	2	99.05	279.00	189.03	189.0	127.2		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Ammonia as N	mg/L	0.229											0.571	2	0.23	0.57	0.40	0.4	0.2		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Ammonia as N, Unionized	mg/L	0.00258											0.00475	2	0.0026	0.0048	0.0037	0.0037	0.0	<0.025	0%
Santa Maria	312SMI	Santa Maria R, Hwy 1	Chlorophyll a, Field	ug/L	1											4	2	1.00	4.00	2.50	2.5	2.1		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Discharge	cfs	3.528	0	0	0	0	0	0	0	0	0	0	1.8593	12	0.00	3.53	0.45	0.00	1.1		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	0											0	2	0.00	0.00	0.00	0.0	0.0		
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	42.5											72.26	2	42.50	72.26	57.38	57.4	21.0		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Invertebrate Toxicity, Survival	%Control Survival	30											100	2	30.00	100.00	65.00	65.0	49.5		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Nitrate + Nitrite as N	mg/L	4.11											22	2	4.1	22.0	13.1	13.06	12.7	<10	50%
Santa Maria	312SMI	Santa Maria R, Hwy 1	Nitrogen, Total	mg/L	9.03											28.09	2	9.03	28.09	18.56	18.6	13.5		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Nitrogen, Total Kjeldahl	mg/L	4.92											6.09	2	4.92	6.09	5.51	5.5	0.8		

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	312SMI	Santa Maria R, Hwy 1	OrthoPhosphate as P	mg/L	0.527											0.432	2	0.43	0.53	0.48	0.48	0.1		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Oxygen, Dissolved	mg/L	11.25											10.48	2	10.48	11.25	10.87	10.87	0.5	>7	0%
Santa Maria	312SMI	Santa Maria R, Hwy 1	Oxygen, Saturation	%	99.1											96.7	2	96.70	99.10	97.90	97.90	1.7	None	N/A
Santa Maria	312SMI	Santa Maria R, Hwy 1	pH	none	7.83											7.65	2	7.65	7.83	7.74	7.74	0.13	7-8.3	0%
Santa Maria	312SMI	Santa Maria R, Hwy 1	Phosphorus as P	mg/L	4.43											4.54	2	4.43	4.54	4.49	4.5	0.1		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Salinity	ppt	0.14											0.36	2	0.14	0.36	0.25	0.3	0.2		
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	Specific Conductivity	uS/cm	289.9											725	2	290	725	507	507	307.7		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Total Dissolved Solids	mg/L	188											471	2	188	471	330	330	200.1		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Total Suspended Solids	mg/L	1450											1390	2	1390.00	1450.00	1420.00	1420.0	42.4		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Turbidity, Field	NTU	1000											1000	2	1,000	1,000	1,000	1,000	0		
Santa Maria	312SMI	Santa Maria R, Hwy 1	Water Temperature	Deg C	9.7											11.6	2	9.70	11.60	10.65	10.7	1.3		

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	Percent Exceedance
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Air Temperature	Deg C	9	19	12	13	17	25	22	19	20	21	24	6	12	6.00	25.00	17.3	19.0	6.0		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Algae Toxicity, Cell Growth	%Control Growth	203			0					240.7				3	0.00	240.70	147.9	203.0	129.5		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Ammonia as N	mg/L	0.103	0.127	0.0764	0.198				0.0234	0.157				6	0.02	0.20	0.1	0.1	0.1		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Ammonia as N, Unionized	mg/L	0.00066	0.00964	0.00768	0.00954				0.0016	0.00639				6	0.00	0.01	0.0	0.0	0.0	<0.025	0%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Chlorophyll a, Field	ug/L	1	4	7	2				2	1				6	1.00	7.00	2.8	2.0	2.3		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Discharge	cfs	14.9735	0.07475	0.0781	0.03985	0	0	0	0.12825	0.0125	0	0	0	12	0.00	14.97	1.28	0.01	4.3		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	27.5			52.1					86.7				3	27.50	86.70	55.4	52.1	29.7		
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	29.1			87.6					70.5				3	29.10	87.60	62.4	70.5	30.1		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Invertebrate Toxicity, Survival	%Control Survival	100			100					90				3	90.00	100.00	96.7	100.0	5.8		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Nitrate + Nitrite as N	mg/L	4.49	0.739	2.03	12.8				1.5	1.18				6	0.74	12.80	3.8	1.8	4.6	<10	17%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Nitrogen, Total	mg/L	13.5	1.849	2.484	15.25				1.782	3.8				6	1.78	15.25	6.4	3.1	6.2		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Nitrogen, Total Kjeldahl	mg/L	9.01	1.11	0.454	2.45				0.282	2.62				6	0.28	9.01	2.7	1.8	3.3		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	OrthoPhosphate as P	mg/L	1.03	0.29	0.112	0.358				0.127	0.129				6	0.11	1.03	0.3	0.2	0.4		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Oxygen, Dissolved	mg/L	10.04	8.79	12.48	8.75				9.13	6.1				6	6.10	12.48	9.2	9.0	2.1	>7	17%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Oxygen, Saturation	%	89.2	91.4	127.9	90.3				95.8	63.4				6	63.40	127.90	93.0	90.9	20.6	None	N/A
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	pH	none	7.57	8.47	8.65	8.28				8.41	8.18				6	7.57	8.65	8.3	8.3	0.4	7-8.3	50%
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Phosphorus as P	mg/L	6.5	0.375	0.233	1.4				0.253	0.382				6	0.23	6.50	1.5	0.4	2.5		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Salinity	ppt	0.15	0.56	0.51	0.73				0.61	0.63				6	0.15	0.73	0.5	0.6	0.2		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Sediment Invertebrate Toxicity, Growth	%Control Growth				119.6					43.06				2	43.06	119.60	81.3	81.3	54.1		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Sediment Invertebrate Toxicity, Survival	%Control Survival				92.21					94.59				2	92.21	94.59	93.4	93.4	1.7		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Specific Conductivity	uS/cm	303.7	1114	838	1447				1216	1253				6	303.70	1447.00	1028.6	1165.0	407.3		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Total Dissolved Solids	mg/L	197	724	663.59	940				790	814				6	197.00	940.00	688.1	757.0	258.0		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Total Suspended Solids	mg/L	2920	8.97	195	175				114	296				6	8.97	2920.00	618.2	185.0	1131.6		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Turbidity, Field	NTU	1000	26.8	29.1	210				243	25.6				6	25.60	1000.00	255.8	119.6	377.6		
San Antonio	313SAE	San Antonio Creek at San Antonio Road East	Water Temperature	Deg C	10.1	17.1	15.6	16.7				17.5	17.3				6	10.10	17.50	15.7	16.9	2.8		

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 Ynez	314SYF	Santa Ynez R, Floradale	Air Temperature	Deg C	9	19	12		17		18		19	20			7	9.00	20.00	16.29	18.0	4.2		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Algae Toxicity, Cell Growth	%Control Growth	227								122.5				2	122.50	227.00	174.75	174.8	73.9		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Ammonia as N	mg/L	0.0814	0.217	0.16		0.122		0.0881		0.107	0.164			7	0.08	0.22	0.13	0.1	0.0		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Ammonia as N, Unionized	mg/L	0.05208	0.00536	0.00096		0.00095		0.0008		0.00183	0.00299			7	0.0008	0.0521	0.0093	0.0018	0.019	<0.025	14%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Chlorophyll a, Field	ug/L	1	2	3		2		1		3	2			7	1.00	3.00	2.00	2.0	0.8		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Discharge	cfs	900	9.340775	3.9484		3.6315		3.101		2.399	1.7442			7	1.74	900.00	132.02	3.63	338.65		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	90								105.1				2	90.00	105.10	97.55	97.6	10.7		
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	39.6								92.3				2	39.60	92.30	65.95	66.0	37.3		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Invertebrate Toxicity, Survival	%Control Survival	90								100				2	90.00	100.00	95.00	95.0	7.1		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Nitrate + Nitrite as N	mg/L	1.27	2.25	4.02		4.39		4.85		4.64	4.37			7	1.3	4.9	3.7	4.4	1.37	<10	0%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Nitrogen, Total	mg/L	4.41	3.27	5.08		6.17		6.2		6.06	5.81			7	3.27	6.20	5.29	5.8	1.1		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Nitrogen, Total Kjeldahl	mg/L	3.14	1.02	1.06		1.78		1.35		1.42	1.44			7	1.02	3.14	1.60	1.4	0.7		
Santa Ynez	314SYF	Santa Ynez R, Floradale	OrthoPhosphate as P	mg/L	0.278	2.05	4.74		5.2		4.9		4.03	4.9			7	0.28	5.20	3.73	4.74	1.86		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Oxygen, Dissolved	mg/L	8	8.38	5.71		4.93		4.83		5.33	5			7	4.83	8.38	6.03	5.33	1.51	>7	71%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Oxygen, Saturation	%	89.4	82.3	59.7		53.5		55.7		61.2	54.9			7	53.50	89.40	65.24	59.70	14.48	None	NA
Santa Ynez	314SYF	Santa Ynez R, Floradale	pH	none	9.99	8.06	7.34		7.4		7.37		7.66	7.75			7	7.34	9.99	7.94	7.66	0.94	7-8.3	14%
Santa Ynez	314SYF	Santa Ynez R, Floradale	Phosphorus as P	mg/L	1.65	2.22	4.86		5.42		5.1		4.32	4.13			7	1.65	5.42	3.96	4.3	1.5		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Salinity	ppt	0.12	0.79	0.69		0.78		0.81		0.5	0.77			7	0.12	0.81	0.64	0.8	0.3		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Sediment Invertebrate Toxicity, Growth	%Control Growth									158.97				1	158.97	158.97	158.97	159.0	N/A		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Sediment Invertebrate Toxicity, Survival	%Control Survival									97.3				1	97.30	97.30	97.30	97.3	N/A		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Specific Conductivity	uS/cm	221.1	1556	1160		1550		1614		1563	1535			7	221	1,614	1,314	1,550	506		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Total Dissolved Solids	mg/L	198	1011	886.4		1007		1049		1016	998			7	198	1,049	881	1,007	305	<1000	No
Santa Ynez	314SYF	Santa Ynez R, Floradale	Total Suspended Solids	mg/L	1480	11.5	14.9		10.7		15.2		7.23	5.41			7	5.41	1480.00	220.71	11.5	555.3		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Turbidity, Field	NTU	1000	7.61	10.9		13.4		15.7		17.2	18.2			7	8	1000	155	16	372.8		
Santa Ynez	314SYF	Santa Ynez R, Floradale	Water Temperature	Deg C	10.7	14.3	17.2		19		22.1		21.7	19.7			7	10.70	22.10	17.81	19.0	4.1		
Santa Ynez	314SYL	Santa Ynez R, River Park	Air Temperature	Deg C	9	24	12	13	17	23	18	19	19	20	24	12	12	9.00	24.00	17.50	18.5	5.0		
Santa Ynez	314SYL	Santa Ynez R, River Park	Algae Toxicity, Cell Growth	%Control Growth	216												1	216.00	216.00	216.00	216.0	N/A		
Santa Ynez	314SYL	Santa Ynez R, River Park	Ammonia as N	mg/L	0.135	0.0274	0.017										3	0.02	0.14	0.06	0.0	0.1		
Santa Ynez	314SYL	Santa Ynez R, River Park	Ammonia as N, Unionized	mg/L	0.00357	0.00188	0.00068										3	0.0007	0.0036	0.0020	0.0019	0.001	<0.025	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	Chlorophyll a, Field	ug/L	1	3	1										3	1.00	3.00	1.67	1.0	1.2		
Santa Ynez	314SYL	Santa Ynez R, River Park	Discharge	cfs	1260	18.3627	10.2248	0	0	0	0	0	0	0	0	0	12	0.00	1260.00	107.38	0.00	363.03		
Santa Ynez	314SYL	Santa Ynez R, River Park	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	95												1	95.00	95.00	95.00	95.0	N/A		
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	53												1	53.00	53.00	53.00	53.0	N/A		
Santa Ynez	314SYL	Santa Ynez R, River Park	Invertebrate Toxicity, Survival	%Control Survival	100												1	100.00	100.00	100.00	100.0	N/A		
Santa Ynez	314SYL	Santa Ynez R, River Park	Nitrate + Nitrite as N	mg/L	2.17	0.005	0.005										3	0.0	2.2	0.7	0.0	1.25	<10	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	Nitrogen, Total	mg/L	13.27	0.11	0										3	0.00	13.27	4.46	0.1	7.6		
Santa Ynez	314SYL	Santa Ynez R, River Park	Nitrogen, Total Kjeldahl	mg/L	11.1	0.11	0.025										3	0.03	11.10	3.75	0.1	6.4		
Santa Ynez	314SYL	Santa Ynez R, River Park	OrthoPhosphate as P	mg/L	0.235	0.0396	0.0244										3	0.02	0.24	0.10	0.04	0.12		
Santa Ynez	314SYL	Santa Ynez R, River Park	Oxygen, Dissolved	mg/L	10.39	11.09	11.06										3	10.39	11.09	10.85	11.06	0.40	>7	0%
Santa Ynez	314SYL	Santa Ynez R, River Park	Oxygen, Saturation	%	92.8	113.2	110.7										3	92.80	113.20	105.57	110.70	11.13	None	N/A
Santa Ynez	314SYL	Santa Ynez R, River Park	pH	none	8.19	8.46	8.25										3	8.19	8.46	8.30	8.25	0.14	7-8.3	33%
Santa Ynez	314SYL	Santa Ynez R, River Park	Phosphorus as P	mg/L	8.76	0.0468	0.0499										3	0.05	8.76	2.95	0.0	5.0		
Santa Ynez	314SYL	Santa Ynez R, River Park	Salinity	ppt	0.16	0.76	0.66										3	0.16	0.76	0.53	0.7	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	338.5	1493	1071										3	339	1,493	968	1,071	584		
Santa Ynez	314SYL	Santa Ynez R, River Park	Total Dissolved Solids	mg/L	220	971	859.5										3	220	971	684	860	405	<1000	No
Santa Ynez	314SYL	Santa Ynez R, River Park	Total Suspended Solids	mg/L	7770	4.4	3.1										3	3.10	7770.00	2592.50	4.4	4483.8		
Santa Ynez	314SYL	Santa Ynez R, River Park	Turbidity, Field	NTU	1000	6.92	3.68										3	4	1000	337	7	574.3		
Santa Ynez	314SYL	Santa Ynez R, River Park	Water Temperature	Deg C	10.3	16.2	15										3	10.30	16.20	13.83	15.0	3.1		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Air Temperature	Deg C	9	19	12	14	17	25	18	18	20	21	24	13	12	9.00	25.00	17.50	18.0	4.8		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Algae Toxicity, Cell Growth	%Control Growth	209			104					245.2			122.2	4	104.00	245.20	170.10	165.6	67.9		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Ammonia as N	mg/L	0.0564	0.0403	0.0923	0.19	0.0257	0.678	0.315	0.264	0.332	0.744	0.449	0.0953	12	0.03	0.74	0.27	0.2	0.2		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Ammonia as N, Unionized	mg/L	0.00125	0.00455	0.001	0.00452	0.00133	0.01089	0.00651	0.00312	0.00117	0.00379	0.00836	0.00488	12	0.0010	0.0109	0.0043	0.0042	0.003	<0.025	0%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Chlorophyll a, Field	ug/L	2	11	3	17	105	11	18	53	29	4	55	6	12	2.00	105.00	26.17	14.0	30.8		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Discharge	cfs	2250	7.8465	0.752	0.8805	2.2885	21.67525	0.6281	-0.5337	-0.0275	0.048	-0.465	-0.096	12	-0.53	2250.00	190.25	0.69	648.68		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	100			86.5								94.74	3	86.50	100.00	93.75	94.7	6.8		
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	42.2			104								127.27	3	42.20	127.27	91.16	104.0	44.0		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Invertebrate Toxicity, Survival	%Control Survival	90			100					102			100	4	90.00	102.00	98.00	100.0	5.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Nitrate + Nitrite as N	mg/L	0.645	1.47	1.1	0.928	0.005	0.038	0.472	0.191	0.61	1.49	6.6	0.276	12	0.0	6.6	1.2	0.6	1.79	<10	0%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Nitrogen, Total	mg/L	2.145	2.302	1.945	2.208	9.64	2.398	2.982	1.981	3.13	3.08	8.64	1.426	12	1.43	9.64	3.49	2.4	2.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Nitrogen, Total Kjeldahl	mg/L	1.5	0.832	0.845	1.28	9.64	2.36	2.51	1.79	2.52	1.59	2.04	1.15	12	0.83	9.64	2.34	1.7	2.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	OrthoPhosphate as P	mg/L	0.338	1.4	2.42	2.23	0.894	1.12	0.591	0.646	0.388	0.519	0.797	0.798	12	0.34	2.42	1.01	0.80	0.68		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Oxygen, Dissolved	mg/L	9.62	15.45	10.78	13.22	25.08	9.98	8.52	9.59	2.55	5.74	11.85	7.93	12	2.55	25.08	10.86	9.80	5.58	>7	17%
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Oxygen, Saturation	%	87.2	156.9	109.5	142.7	276.3	119.2	95	112.2	27.1	65.5	132.9	72.8	12	27.10	276.30	116.44	110.85	61.81	None	N/A
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	pH	none	8.08	8.73	7.67	7.99	8.24	7.63	7.82	7.54	7.13	7.24	7.96	8.47	12	7.13	8.73	7.88	7.89	0.47	7-8.3	17%

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	Phosphorus as P	mg/L	1.13	1.52	2.38	2.5	2.57	1.64	1.06	1.2	1.22	0.73	1.03	0.838	12	0.73	2.57	1.48	1.2	0.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Salinity	ppt	0.09	0.84	0.77	1.07	1.37	3.03	2.54	3.39	2.2	5.42	12.68	0.52	12	0.09	12.68	2.83	1.8	3.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Sediment Invertebrate Toxicity, Growth	%Control Growth				181.8					166.66				2	166.66	181.80	174.23	174.2	10.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Sediment Invertebrate Toxicity, Survival	%Control Survival				100					108.11				2	100.00	108.11	104.06	104.1	5.7		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Specific Conductivity	uS/cm	185	1632	1241	2085	2632	5608	4587	6211	4128	9583	21073	1043	12	185	21,073	5,001	3,380	5,725		

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	Total Dissolved Solids	mg/L	120	1074	990.9	1355	1711	3645	2997	4038	2683	6300	13699	677	12	120	13,699	3,274	2,197	3,716	<1000	Yes
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Total Suspended Solids	mg/L	573	4.91	20.4	6.15	116	17.2	23.6	11	47.1	10.1	23.6	18.6	12	4.91	573.00	72.64	19.5	160.4		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Turbidity, Field	NTU	1000	4.59	9.83	53	66.4	14.9	16	20.5	16.9	21.1	43.9	221	12	5	1000	124	21	282.1		
Santa Ynez	314SYN	Santa Ynez R, Vandenberg	Water Temperature	Deg C	11	15.3	15.1	16.2	19.6	23.3	20.5	22	17.7	20.5	17.1	11.5	12	11.00	23.30	17.48	17.4	3.9		
South Coast	315APF	Arroyo Paredon	Air Temperature	Deg C	12	16	12	14	17	17	20	20	17	18	18	13	12	12.00	20.00	16.17	17.0	2.8		
South Coast	315APF	Arroyo Paredon	Algae Toxicity, Cell Growth	%Control Growth	235			183.8								104.81	3	104.81	235.00	174.54	183.8	65.6		
South Coast	315APF	Arroyo Paredon	Ammonia as N	mg/L	0.019	0.0094	0.0255	0.0106	0.0116						0.0409	0.142	7	0.01	0.14	0.0370	0.0	0.0		
South Coast	315APF	Arroyo Paredon	Ammonia as N, Unionized	mg/L	0.00066	0.00034	0.00064	0.00048	0.00035						0.00153	0.00508	7	0.0003	0.0051	0.0013	0.0006	0.002	<0.025	0%
South Coast	315APF	Arroyo Paredon	Chlorophyll a, Field	ug/L	1	2	2	2	4						6	5	7	1.00	6.00	3.14	2.0	1.9		
South Coast	315APF	Arroyo Paredon	Discharge	cfs	0.034	0.035625	0.01675	0.032125	0.00155	0	0	0	0	0	0.0114	0.02025	12	0.00	0.04	0.01	0.01	0.01		
South Coast	315APF	Arroyo Paredon	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	102.8			64.9								100	3	64.90	102.80	89.23	100.0	21.1		
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	82.6			68.1								94.7	3	68.10	94.70	81.80	82.6	13.3		
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	Nitrate + Nitrite as N	mg/L	0.005	0.005	0.005	0.005	0.013						0.005	0.88	7	0.0	0.9	0.1	0.0	0.33	<10	0%
South Coast	315APF	Arroyo Paredon	Nitrogen, Total	mg/L	0.275	0.121	0.184	0.267	0.442						0.214	1.381	7	0.12	1.38	0.41	0.3	0.4		
South Coast	315APF	Arroyo Paredon	Nitrogen, Total Kjeldahl	mg/L	0.275	0.121	0.184	0.267	0.429						0.214	0.501	7	0.12	0.50	0.28	0.3	0.1		
South Coast	315APF	Arroyo Paredon	OrthoPhosphate as P	mg/L	0.0205	0.0082	0.00375	0.00375	0.00375						0.00375	0.0376	7	0.004	0.038	0.012	0.004	0.013		
South Coast	315APF	Arroyo Paredon	Oxygen, Dissolved	mg/L	10.84	11.13	9.95	10.35	8.86						8.92	11.18	7	8.86	11.18	10.18	10.35	0.98	>7	0%
South Coast	315APF	Arroyo Paredon	Oxygen, Saturation	%	97	100.5	91.1	102.5	89.8						82.4	95.6	7	82.40	102.50	94.13	95.60	6.91	None	N/A
South Coast	315APF	Arroyo Paredon	pH	none	8.36	8.37	8.18	8.33	8.11						8.34	8.43	7	8.11	8.43	8.30	8.34	0.11	7-8.3	71%
South Coast	315APF	Arroyo Paredon	Phosphorus as P	mg/L	0.0271	0.0116	0.0271	0.0163	0.012						0.0351	0.0462	7	0.012	0.05	0.03	0.0	0.0		
South Coast	315APF	Arroyo Paredon	Salinity	ppt	1.04	1.13	0.86	1.05	1.06						1.11	1.07	7	0.86	1.13	1.05	1.1	0.1		
South Coast	315APF	Arroyo Paredon	Sediment Invertebrate Toxicity, Growth	%Control Growth				114.8									1	114.80	114.80	114.80	114.8	N/A		
South Coast	315APF	Arroyo Paredon	Sediment Invertebrate Toxicity, Survival	%Control Survival				96.2									1	96.20	96.20	96.20	96.2	N/A		
South Coast	315APF	Arroyo Paredon	Specific Conductivity	uS/cm	1242	2189	1237	2039	2060						2157	2094	7	1,237	2,189	1,860	2,060	427		
South Coast	315APF	Arroyo Paredon	Total Dissolved Solids	mg/L	1322	1423	1099.7	1325	1339						1403	1360	7	1,100	1,423	1,325	1,339	106		
South Coast	315APF	Arroyo Paredon	Total Suspended Solids	mg/L	2.3	4.95	11.5	5	67.3						10.1	1.55	7	1.55	67.30	14.67	5.0	23.5		
South Coast	315APF	Arroyo Paredon	Turbidity, Field	NTU	3.19	2.35	2.08	3.39	7.74						3.97	27.2	7	2	27	7	3	9		
South Coast	315APF	Arroyo Paredon	Water Temperature	Deg C	10.2	10.5	11	14.7	15.7						11.8	8.5	7	8.50	15.70	11.77	11.0	2.6		
South Coast	315BEF	Bell Creek	Air Temperature	Deg C	11	18	13	16	19	19	22	20	19	19	18	13	12	11.00	22.00	17.25	18.5	3.3		
South Coast	315BEF	Bell Creek	Algae Toxicity, Cell Growth	%Control Growth	230			194								224.3	3	194.00	230.00	216.10	224.3	19.4		
South Coast	315BEF	Bell Creek	Ammonia as N	mg/L	0.0268	0.0121	0.0828	0.0192	0.016	0.0129					0.0286	0.0375	8	0.01	0.08	0.0295	0.0	0.0		
South Coast	315BEF	Bell Creek	Ammonia as N, Unionized	mg/L	0.00047	0.00049	0.0009	0.00028	0.00015	0.00014					0.000195	0.00049	8	0.0001	0.0009	0.0004	0.0004	0.000	<0.025	0%
South Coast	315BEF	Bell Creek	Chlorophyll a, Field	ug/L	1	4	3	5	7	4					23	5	8	1.00	23.00	6.50	4.5	6.9		
South Coast	315BEF	Bell Creek	Discharge	cfs	6.99825	0.100375	0.039775	0.0087	0.0035	0.00675	0	0	0	0	0.00038	0.011885	12	0.00	7.00	0.60	0.01	2.02		
South Coast	315BEF	Bell Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	94.9												1	94.90	94.90	94.90	94.9	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	90.7												1	90.70	90.70	90.70	90.7	N/A		
South Coast	315BEF	Bell Creek	Invertebrate Toxicity, Survival	%Control Survival	90			102.3								100	3	90.00	102.30	97.43	100.0	6.5		
South Coast	315BEF	Bell Creek	Nitrate + Nitrite as N	mg/L	3.94	4.76	3.62	4.18	2.58	2.37					1.4	5.88	8	1.4	5.9	3.6	3.8	1.43	<10	0%
South Coast	315BEF	Bell Creek	Nitrogen, Total	mg/L	5.34	5.21	4.164	4.814	4.05	3.141					2.346	6.742	8	2.35	6.74	4.48	4.5	1.4		
South Coast	315BEF	Bell Creek	Nitrogen, Total Kjeldahl	mg/L	1.4	0.45	0.544	0.634	1.47	0.771					0.946	0.862	8	0.45	1.47	0.88	0.8	0.4		
South Coast	315BEF	Bell Creek	OrthoPhosphate as P	mg/L	0.285	0.00375	0.0307	0.00375	0.00375	0.00375					0.00375	0.111	8	0.004	0.285	0.056	0.004	0.100		
South Coast	315BEF	Bell Creek	Oxygen, Dissolved	mg/L	10.45	14.98	9.01	7.83	7.27	7.41					7.52	10.37	8	7.27	14.98	9.36	8.42	2.61	>5	0%
South Coast	315BEF	Bell Creek	Oxygen, Saturation	%	93.7	141.9	82.9	77.1	71.3	77.1					67.9	94.7	8	67.90	141.90	88.33	80.00	23.69	>85	Yes
South Coast	315BEF	Bell Creek	pH	none	8.03	8.37	7.82	7.88	7.7	7.68					7.69	7.91	8	7.68	8.37	7.89	7.85	0.23	7-8.3	13%
South Coast	315BEF	Bell Creek	Phosphorus as P	mg/L	0.663	0.0045	0.0589	0.0244	0.0458	0.0234					0.0308	0.14	8	0.005	0.66	0.12	0.0	0.2		
South Coast	315BEF	Bell Creek	Salinity	ppt	0.5	1.8	1.34	2.73	2.89	3.05					3.22	1.78	8	0.50	3.22	2.16	2.3	1.0		
South Coast	315BEF	Bell Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				135.9									1	135.90	135.90	135.90	135.9	N/A		
South Coast	315BEF	Bell Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				94.81									1	94.81	94.81	94.81	94.8	N/A		
South Coast	315BEF	Bell Creek	Specific Conductivity	uS/cm	1011	3414	1886	5048	5330	5598					5916	3378	8	1,011	5,916	3,948	4,231	1,821		
South Coast	315BEF	Bell Creek	Total Dissolved Solids	mg/L	657	2219	1671.7	3281	3464	3639					3845	2199	8	657	3,845	2,622	2,750	1,120		
South Coast	315BEF	Bell Creek	Total Suspended Solids	mg/L	216	2.78	18.3	4.17	29.5	22.3					121	3	8	2.78	216.00	52.13	20.3	76.8		
South Coast	315BEF	Bell Creek	Turbidity, Field	NTU	367	34.6	1.5	4.91	26.4	8.57					6.78	42	8	2	367	61	17	124		
South Coast	315BEF	Bell Creek	Water Temperature	Deg C	10.4	12.4	11.1	14.2	13.7	16.5					9.9	11.1	8	9.90	16.50	12.41	11.8	2.2		
South Coast	315FMV	Franklin Creek	Air Temperature	Deg C	11	16	11	14	16	17	20	20	16	18	18	13	12	11.00	20.00	15.83	16.0	3.1		
South Coast	315FMV	Franklin Creek	Algae Toxicity, Cell Growth	%Control Growth	159			119					88.4			103.57	4	88.40	159.00	117.49	111.3	30.4		
South Coast	315FMV	Franklin Creek	Ammonia as N	mg/L	0.0929	0.111	0.0282	0.131	0.182	0.126	0.0505	0.0782	0.0723	0.0397	0.0664	0.155	12	0.03	0.18	0.0944	0.1	0.0		
South Coast	315FMV	Franklin Creek	Ammonia as N, Unionized	mg/L	0.00158	0.00448	0.00046	0.00399	0.00418	0.00223	0.00196	0.00606	0.00262	0.00055	0.00121	0.00141	12	0.0005	0.0061	0.0026	0.0021	0.002	<0.025	0%
South Coast	315FMV	Franklin Creek	Chlorophyll a, Field	ug/L	5	33	78	31	7	5	9	28	11	6	21	4	12	4.00	78.00	19.83	10.0	21.3		
South Coast	315FMV	Franklin Creek	Discharge	cfs	0.07525	0.05375	0.111	0.27528	0.0359	0.09692	0.01685	0.0079025	0.03025	0.05503	0.036905	0.067625	12	0.01	0.28	0.07	0.05	0.07		
South Coast	315FMV	Franklin Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	102.7			97.3					94.4			92.1	4	92.10	102.70	96.63	95.9	4.6		
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	91.5			3.2					45.6			79.55	4	3.20	91.50	54.96	62.6	39.6		
South Coast	315FMV	Franklin Creek	Invertebrate Toxicity, Survival	%Control Survival	100			88.9					100			88.89	4	88.89	100.00	94.45	94.5	6.4		
South Coast	315FMV	Franklin Creek	Nitrate + Nitrite as N	mg/L	12.1	26.5	22.2	28.6	25.8	28.3	24.4	25.4	22.3	21.4	22.7	28.6	12	12.1	28.6	24.0	24.9	4.56	<10	100%
South Coast	315FMV	Franklin Creek	Nitrogen, Total	mg/L	13.06	28.11	22.2	31.33	28.01	29.91	24.4	27.08	23.63	22.62	23.135	29.233	12	13.06	31.33	25.23	25.7	4.9		
South Coast	315FMV	Franklin Creek	Nitrogen, Total Kjeldahl	mg/L	0.96	1.61	0.025	2.73	2.21	1.61	0.065	1.68	1.33	1.22	0.435	0.633	12	0.03	2.73	1.21	1.3	0.8		
South Coast	315FMV	Franklin Creek	OrthoPhosphate as P	mg/L	3.98	5.73	0.675	6.62	5.64	6.59	1.11	3.77	5.01	5.53	0.534	2.23	12	0.534	6.620	3.952	4.495	2.280		
South Coast	315FMV	Franklin Creek	Oxygen, Dissolved	mg/L	13.62	14.31	12.99	12.18	10.89	9.53	13.97	14.84	10.44	12.36	14.64	11.63	12	9.53	14.84	12.62	12.68	1.74	>7	0%
South Coast	315FMV	Franklin Creek	Oxygen, Saturation	%	124.5	133.9	124.7	124.3	110.8	103.5	160.1	163.6	113.5	122.4	142.5	107.9	12	103.50	163.60	127.64	124.40	19.35	None	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
South Coast	315FMV	Franklin Creek	pH	none	7.97	8.36	7.93	8.1	7.98	7.76	8.03	8.41	8.08	7.79	7.94	7.69	12	7.69	8.41	8.00	7.98	0.22	7-8.3	17%
South Coast	315FMV	Franklin Creek	Phosphorus as P	mg/L	4.36	5.56	0.629	6.92	5.32	6.84	2.15	7.1	5.69	5.05	0.656	2.03	12	0.63	7.10	4.36	5.2	2.4		
South Coast	315FMV	Franklin Creek	Salinity	ppt	0.54	0.89	0.83	0.94	0.92	0.88	0.92	0.9	0.9	0.87	0.86	0.78	12	0.54	0.94	0.85	0.9	0.1		
South Coast	315FMV	Franklin Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				114.7					96.49				2	96.49	114.70	105.60	105.6	12.9		
South Coast	315FMV	Franklin Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				96.2					34.62				2	34.62	96.20	65.41	65.4	43.5		
South Coast	315FMV	Franklin Creek	Specific Conductivity	uS/cm	975	1738	1259	1851	1812	1723	1801	1774	1773	1717	1696	1535	12	975	1,851	1,638	1,731	263		
South Coast	315FMV	Franklin Creek	Total Dissolved Solids	mg/L	672	1130	1064	1203	1177	1120	1172	1154	1153	1115	1102	993	12	672	1,203	1,088	1,125	142		
South Coast	315FMV	Franklin Creek	Total Suspended Solids	mg/L	3.2	36	4	37.7	5.17	8.61	6.62	38.9	3.96	18.1	97.8	2.14	12	2.14	97.80	21.85	7.6	27.9		
South Coast	315FMV	Franklin Creek	Turbidity, Field	NTU	8.74	38.9	2.93	6.56	7.43	4.29	14.9	5.2	17.2	6.6	3.38	165	12	3	165	23	7	46		
South Coast	315FMV	Franklin Creek	Water Temperature	Deg C	11.7	12	12.8	16.1	15.9	19.1	21.7	19.7	19.1	14.7	13.9	12.1	12	11.70	21.70	15.73	15.3	3.4		
South Coast	315GAN	Glen Annie	Air Temperature	Deg C	12	18	14	16	19	19	22	21	19	19	18	13	12	12.00	22.00	17.50	18.5	3.1		
South Coast	315GAN	Glen Annie	Algae Toxicity, Cell Growth	%Control Growth	196			81.7					229.1			93.62	4	81.70	229.10	150.11	144.8	73.5		
South Coast	315GAN	Glen Annie	Ammonia as N	mg/L	0.116	0.0035	0.0825	0.248	0.0478	0.0547	0.0676	0.0836	0.0348	0.0645	0.0669	0.368	12	0.00	0.37	0.1032	0.1	0.1		
South Coast	315GAN	Glen Annie	Ammonia as N, Unionized	mg/L	0.00107	0	0.0006	0.00223	0.0004	0.00052	0.00076	0.00095	0.00032	0.00043	0.00056	0.00293	12	0.0000	0.0029	0.0009	0.0006	0.001	<0.025	0%
South Coast	315GAN	Glen Annie	Chlorophyll a, Field	ug/L	5	4	3	3	2	3	4	4	3	3	16	5	12	2.00	16.00	4.58	3.5	3.7		
South Coast	315GAN	Glen Annie	Discharge	cfs	3.9784	0.2025	0.0714	0.149625	0.08515	0.025	0.05625	0.062875	0.03255	0.02195	0.05475	0.116125	12	0.02	3.98	0.40	0.07	1.13		
South Coast	315GAN	Glen Annie	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	94.4			78.4					86.8			86.84	4	78.40	94.40	86.61	86.8	6.5		
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	114.8			100.6					75.3			106.82	4	75.30	114.80	99.38	103.7	17.1		
South Coast	315GAN	Glen Annie	Invertebrate Toxicity, Survival	%Control Survival	100			100					90			100	4	90.00	100.00	97.50	100.0	5.0		
South Coast	315GAN	Glen Annie	Nitrate + Nitrite as N	mg/L	10.5	13.3	12.4	8.71	11.6	9.91	4.34	3.82	3.78	3.91	4.71	15.4	12	3.8	15.4	8.5	9.3	4.25	<10	42%
South Coast	315GAN	Glen Annie	Nitrogen, Total	mg/L	12.11	13.848	12.559	9.661	12.242	10.482	5.103	4.229	4.496	4.557	5.28	16.61	12	4.23	16.61	9.26	10.1	4.3		
South Coast	315GAN	Glen Annie	Nitrogen, Total Kjeldahl	mg/L	1.61	0.548	0.159	0.951	0.642	0.572	0.763	0.409	0.716	0.647	0.57	1.21	12	0.16	1.61	0.73	0.6	0.4		
South Coast	315GAN	Glen Annie	OrthoPhosphate as P	mg/L	0.218	0.0249	0.0636	0.0422	0.049	0.1	0.122	0.117	0.117	0.0988	0.0839	0.0934	12	0.025	0.218	0.094	0.096	0.050		
South Coast	315GAN	Glen Annie	Oxygen, Dissolved	mg/L	10.02	8.6	7.55	5.58	7.33	8.08	6.72	6.72	6.6	7.38	6.88	8.48	12	5.58	10.02	7.50	7.36	1.17	>7	42%
South Coast	315GAN	Glen Annie	Oxygen, Saturation	%	90.2	79	70	54.5	72.1	82.4	71.4	68.5	67	68.7	62.5	75.5	12	54.50	90.20	71.82	70.70	9.29	None	N/A
South Coast	315GAN	Glen Annie	pH	none	7.74	7.8	7.6	7.64	7.6	7.6	7.61	7.68	7.59	7.58	7.71	7.71	12	7.58	7.80	7.66	7.63	0.07	7-8.3	0%
South Coast	315GAN	Glen Annie	Phosphorus as P	mg/L	0.474	0.0808	0.101	0.0807	0.0888	0.137	0.163	0.172	0.207	0.183	0.135	0.223	12	0.08	0.47	0.17	0.2	0.1		
South Coast	315GAN	Glen Annie	Salinity	ppt	0.5	1.33	0.75	1.22	1.24	1.24	1.38	1.36	1.35	1.31	1.27	1.06	12	0.50	1.38	1.17	1.3	0.3		
South Coast	315GAN	Glen Annie	Sediment Invertebrate Toxicity, Growth	%Control Growth				148.1					92.31				2	92.31	148.10	120.21	120.2	39.4		
South Coast	315GAN	Glen Annie	Sediment Invertebrate Toxicity, Survival	%Control Survival				100					101.3				2	100.00	101.30	100.65	100.7	0.9		
South Coast	315GAN	Glen Annie	Specific Conductivity	uS/cm	1004	2583	1113	2355	2393	2398	2650	2606	2602	2521	2450	2058	12	1,004	2,650	2,228	2,424	569		
South Coast	315GAN	Glen Annie	Total Dissolved Solids	mg/L	652	1660	968.6	1530	1556	1558	1722	1694	1692	1639	1592	1337	12	652	1,722	1,467	1,575	330		
South Coast	315GAN	Glen Annie	Total Suspended Solids	mg/L	51.8	4.14	3.13	1.67	0.6	2.81	19	8.58	6.95	18.8	1.71	16.7	12	0.60	51.80	11.32	5.5	14.5		
South Coast	315GAN	Glen Annie	Turbidity, Field	NTU	63.8	3.68	2.7	9.23	14.5	4.11	5.06	4.45	6.76	6.97	2.29	13.5	12	2	64	11	6	17		
South Coast	315GAN	Glen Annie	Water Temperature	Deg C	10.5	11.2	11.8	13.9	14.2	16	17.9	16	15.7	11.8	10.8	10.1	12	10.10	17.90	13.33	12.9	2.6		
South Coast	315LCC	Los Carneros Creek	Air Temperature	Deg C	12	16	14	16	17	19	22	21	19	18	18	14	12	12.00	22.00	17.17	17.5	2.9		
South Coast	315LCC	Los Carneros Creek	Algae Toxicity, Cell Growth	%Control Growth	236			97.2									2	97.20	236.00	166.60	166.6	98.1		
South Coast	315LCC	Los Carneros Creek	Ammonia as N	mg/L	0.0293	0.0294	0.0361	0.0123	0.0272								5	0.01	0.04	0.0269	0.0	0.0		
South Coast	315LCC	Los Carneros Creek	Ammonia as N, Unionized	mg/L	0.00043	0.00045	0.0007	0.00005	0.00009								5	0.0001	0.0007	0.0003	0.0004	0.000	<0.025	0%
South Coast	315LCC	Los Carneros Creek	Chlorophyll a, Field	ug/L	5	15	31	6	10								5	5.00	31.00	13.40	10.0	10.6		
South Coast	315LCC	Los Carneros Creek	Discharge	cfs	0.36225	0.02055	0.0735	0.0051	0.005875	0	0	0	0	0	0	0	12	0.00	0.36	0.04	0.00	0.10		
South Coast	315LCC	Los Carneros Creek	Invertebrate Toxicity (Chironomus), Survival	%Control Survival	72.2			83.8									2	72.20	83.80	78.00	78.0	8.2		
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	119.7			60.6									2	60.60	119.70	90.15	90.2	41.8		
South Coast	315LCC	Los Carneros Creek	Invertebrate Toxicity, Survival	%Control Survival	100			90									2	90.00	100.00	95.00	95.0	7.1		
South Coast	315LCC	Los Carneros Creek	Nitrate + Nitrite as N	mg/L	1.88	2.08	1.89	0.005	0.005								5	0.0	2.1	1.2	1.9	1.07	<10	0%
South Coast	315LCC	Los Carneros Creek	Nitrogen, Total	mg/L	2.647	2.39	2.166	0.277	0.393								5	0.28	2.65	1.57	2.2	1.1		
South Coast	315LCC	Los Carneros Creek	Nitrogen, Total Kjeldahl	mg/L	0.767	0.31	0.276	0.277	0.393								5	0.28	0.77	0.40	0.3	0.2		
South Coast	315LCC	Los Carneros Creek	OrthoPhosphate as P	mg/L	0.227	0.0446	0.0367	0.022	0.0273								5	0.022	0.227	0.072	0.037	0.087		
South Coast	315LCC	Los Carneros Creek	Oxygen, Dissolved	mg/L	9.24	9.65	9.91	2.9	2.29								5	2.29	9.91	6.80	9.24	3.85	>7	40%
South Coast	315LCC	Los Carneros Creek	Oxygen, Saturation	%	82.6	89	89.2	27.9	22.3								5	22.30	89.20	62.20	82.60	34.03	None	N/A
South Coast	315LCC	Los Carneros Creek	pH	none	7.97	7.97	8.09	7.28	7.23								5	7.23	8.09	7.71	7.97	0.42	7-8.3	0%
South Coast	315LCC	Los Carneros Creek	Phosphorus as P	mg/L	0.302	0.0834	0.0736	0.2	0.207								5	0.07	0.30	0.17	0.2	0.1		
South Coast	315LCC	Los Carneros Creek	Salinity	ppt	0.85	1.58	0.95	1.46	1.47								5	0.85	1.58	1.26	1.5	0.3		
South Coast	315LCC	Los Carneros Creek	Sediment Invertebrate Toxicity, Growth	%Control Growth				269									1	269.00	269.00	269.00	269.0	N/A		
South Coast	315LCC	Los Carneros Creek	Sediment Invertebrate Toxicity, Survival	%Control Survival				103.9									1	103.90	103.90	103.90	103.9	N/A		
South Coast	315LCC	Los Carneros Creek	Specific Conductivity	uS/cm	1669	3011	1342	2787	2822								5	1,342	3,011	2,326	2,787	763		
South Coast	315LCC	Los Carneros Creek	Total Dissolved Solids	mg/L	1085	1951	1207.3	1808	1834								5	1,085	1,951	1,577	1,808	399		
South Coast	315LCC	Los Carneros Creek	Total Suspended Solids	mg/L	5.3	1.74	1.96	8.98	6.99								5	1.74	8.98	4.99	5.3	3.2		
South Coast	315LCC	Los Carneros Creek	Turbidity, Field	NTU	11.6	6.17	2.6	5.77	63.2								5	3	63	18	6	26		
South Coast	315LCC	Los Carneros Creek	Water Temperature	Deg C	10.1	11.3	10.3	13.6	13.9								5	10.10	13.90	11.84	11.3	1.8		

Appendix B.2. Summary of Loading Estimates

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
305BRS	1/28/2021	257.4881811	1364.175794	8422.125
305BRS	2/26/2021	5.741660846	3.578136469	6.47955
305BRS	3/30/2021	3.773114722	5.006098157	15.7575
305BRS	4/28/2021	2.067524157	0.617317639	4.5126
305BRS	5/25/2021	2.004158529	1.728418597	4.12965
305BRS	6/30/2021	0.114527839	0.05726392	0.2968
305BRS	7/27/2021	6.258532896	1.266451814	4.38858
305BRS	8/31/2021	1.012627467	0.971850522	1.492344
305BRS	9/29/2021			
305BRS	10/28/2021	7.598528843	2.009199012	14.30919
305BRS	11/9/2021	76.45677185	58.78676236	533.736
305BRS	12/13/2021	135.3568035	288.4389027	2452.14
305CAN	1/27/2021	1.44479701	0.993654861	2.76969
305CAN	1/28/2021			
305CAN	2/26/2021	1.790807727	1.029598758	4.50921
305CAN	3/30/2021	1.614879617	0.7608359	5.5941
305CAN	4/27/2021	0.452032122	0.265675483	0.92598
305CAN	5/25/2021	0.081338139	0.003559892	0.030336
305CAN	6/30/2021	0	0	0
305CAN	7/27/2021	0	0	0
305CAN	8/31/2021	0	0	0
305CAN	9/28/2021	0	0	0
305CAN	10/28/2021	0	0	0
305CAN	11/9/2021	0	0	0
305CAN	12/14/2021	34.33163575	1861.872409	18516.5
305CHI	1/27/2021	32.48302585	188.9921504	2263.2961
305CHI	1/28/2021			
305CHI	2/26/2021	45.18781302	167.2392099	736.75095
305CHI	3/30/2021	37.17972354	177.4272883	856.4869
305CHI	4/27/2021	32.30283441	120.5972485	600.48798
305CHI	5/25/2021	16.04514577	20.09014051	143.38805
305CHI	6/30/2021	7.223794022	8.303987521	53.1708
305CHI	7/27/2021	5.3111836	4.341989513	28.98
305CHI	8/31/2021	5.568210501	3.642864476	22.50792
305CHI	9/28/2021	3.921436814	1.730841077	16.09494
305CHI	10/28/2021	44.80278058	42.94887242	367.08495
305CHI	11/9/2021	7.278079004	3.860546254	37.694573
305CHI	12/13/2021	0.644533733	1.061584972	23.2806
305COR	1/28/2021	54.63049852	13160.98374	84857.856
305COR	2/26/2021	0.578813261	20.42870332	75.749175
305COR	3/30/2021	0.622930133	6.748409772	35.619717
305COR	4/28/2021	0.534129211	68.12872584	329.8204
305COR	5/25/2021	1.389262695	4.00814176	23.57784
305COR	6/30/2021	0.028595439	0.233162814	0.83781
305COR	7/27/2021	0	0	0

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
305COR	8/31/2021	0	0	0
305COR	9/28/2021	0	0	0
305COR	10/28/2021	0.026148576	0.334526469	0.832
305COR	11/9/2021	1.595063109	167.5261813	1986.465
305COR	12/13/2021	7.406547507	740.6547507	4953.0325
305FRA	1/27/2021	0.073902707	97.01695745	433.783
305FRA	1/28/2021			
305FRA	2/26/2021	0.807735455	105.3153602	641.421
305FRA	3/30/2021	0.003770924	122.9321061	1080.5676
305FRA	4/27/2021	0.002390679	37.58146994	184.667
305FRA	5/25/2021	0.00010074	0.513774	3.756335
305FRA	6/30/2021	0	0	0
305FRA	7/27/2021	4.21E-07	0.013400162	0.056625
305FRA	8/31/2021	0	0	0
305FRA	9/28/2021	0	0	0
305FRA	10/28/2021	0.0306771	0.087547723	0.76125
305FRA	11/9/2021	2.74E-05	0.717625014	0.6069375
305FRA	12/14/2021	1.623250082	1.082166722	6.05151
305FUF	1/27/2021	9.493764564	293.6443458	3089.648
305FUF	1/28/2021			
305FUF	2/26/2021	5.315700887	1.372662001	9.1317
305FUF	3/30/2021	4.662993337	8.428415186	48.31536
305FUF	4/27/2021	2.200994825	4.919870785	28.7366
305FUF	5/25/2021	1.303046335	3.668576605	21.0512
305FUF	6/30/2021	2.217246384	3.061911673	25.0038
305FUF	7/27/2021	1.777288453	3.342775692	37.082375
305FUF	8/31/2021	0.353070945	7.433072523	47.8135
305FUF	9/28/2021	0	0	0
305FUF	10/28/2021	0.196679539	0.096121579	0.87984
305FUF	11/9/2021	0	0	0
305FUF	12/14/2021	15.34121758	720.3099902	13498.284
305LCS	1/27/2021	279.098681	1107.926496	4270.4
305LCS	1/28/2021			
305LCS	2/26/2021	16.59007108	1.318875943	9.2968365
305LCS	3/30/2021	21.73026524	1.911542005	22.387239
305LCS	4/27/2021	19.19930674	1.165086136	6.57144
305LCS	5/25/2021	7.891329961	0.963260934	7.797405
305LCS	6/29/2021	3.180251114	0.258818309	7.210866
305LCS	7/27/2021	1.216063835	0.11741306	5.49093
305LCS	8/31/2021	0	0	0
305LCS	9/28/2021	0	0	0
305LCS	10/28/2021	0.000348573	0.005175777	0.16685
305LCS	11/9/2021	0	0	0
305LCS	12/14/2021	145.1262799	6609.465433	95571
305PJP	1/28/2021	152.8348845	45850.46534	224182

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
305PJP	2/26/2021	31.5386937	139.4063268	511.80535
305PJP	3/30/2021	24.19717939	332.2529368	395.5951
305PJP	4/28/2021	22.90126183	78.86527254	492.6332
305PJP	5/25/2021	2.336712899	3.237866752	18.277
305PJP	6/30/2021	1.025168558	1.047535872	7.8127125
305PJP	7/27/2021	0.434227044	0.225751991	2.49075
305PJP	8/31/2021	0.555585875	0.143993587	3.24891
305PJP	9/29/2021	0.381919105	0.146725984	3.331547
305PJP	10/28/2021	3.87500854	2.177262324	26.439861
305PJP	11/9/2021	2.855828984	79.52006568	781.05585
305PJP	12/13/2021	3.806365102	1018.951107	5756.575
305SJA	1/27/2021	5.106826246	55.85832641	319.36233
305SJA	1/28/2021			
305SJA	2/26/2021	4.472788576	1.042448305	4.3228
305SJA	3/30/2021	8.920192694	8.798664183	29.74125
305SJA	4/27/2021	7.818394876	1.274624733	6.918964
305SJA	5/25/2021	0.21433966	0.139168405	0.43618
305SJA	6/30/2021	5.711840008	2.772737868	38.3285
305SJA	7/27/2021	6.245273197	2.299905998	15.3088
305SJA	8/31/2021	5.408372698	1.688467574	19.7886
305SJA	9/28/2021	1.342510795	2.102089271	2.9475
305SJA	10/28/2021	30.41794237	8.865122243	56.45484
305SJA	11/9/2021	4.178258077	27.57186938	122.3394
305SJA	12/13/2021	0.789628549	36.61005092	289.7505
305TSR	1/27/2021	2.593634172	3.749011286	11.206935
305TSR	1/28/2021			
305TSR	2/26/2021	1.546080883	2.69834871	10.1244
305TSR	3/30/2021	1.731464957	2.417193652	10.60292
305TSR	4/27/2021	3.569645767	5.328349292	19.60244
305TSR	5/25/2021	0.744228689	0.814909626	4.6435
305TSR	6/30/2021	0.364428214	4.791470829	2.214
305TSR	7/27/2021	1.59E-05	0.834883452	2.302375
305TSR	8/31/2021	0.262654407	0.938354051	1.913275
305TSR	9/28/2021	0.344055473	0.263957903	4.2687
305TSR	10/28/2021	0.725396546	4.730847036	33.4645
305TSR	11/9/2021	0.304937676	1.382222469	6.85165
305TSR	12/14/2021	0.863877244	8.374589798	77.70055
305WCS	1/28/2021	15.66702411	357.3180938	1883.4354
305WCS	2/26/2021	2.860482239	6.347642567	17.00055
305WCS	3/30/2021	2.901959252	1.301275379	4.452756
305WCS	4/28/2021	0.885684954	0.039963833	0.682452
305WCS	5/25/2021	1.013243257	2.046432247	2.272
305WCS	6/30/2021	2.263969966	2.529343735	1.48338
305WCS	7/27/2021	0.476472669	0.058124676	1.02453
305WCS	8/31/2021	1.460140055	1.829276586	2.09145

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
305WCS	9/29/2021	0.071939485	0.928673347	1.6878
305WCS	10/28/2021	8.967287099	0.922560401	4.25278
305WCS	11/9/2021	4.022111639	6.657604882	52.7094
305WCS	12/13/2021	3.919738898	233.9530023	2255.4805
305WSA	1/28/2021	0.184062599	0.85541913	6.6675
305WSA	2/26/2021	3.604390673	68.48342279	288.1494
305WSA	3/30/2021	2.124286905	19.90403277	82.21005
305WSA	4/28/2021	2.210547314	11.48113721	50.1966
305WSA	5/25/2021	0.138462719	0.032572787	0.31411
305WSA	6/30/2021	0	0	0
305WSA	7/27/2021	0	0	0
305WSA	8/31/2021	0	0	0
305WSA	9/29/2021	0	0	0
305WSA	10/28/2021	0	0	0
305WSA	11/9/2021	0	0	0
305WSA	12/14/2021	1.095597223	3.028396098	36.01017
309ALG	1/28/2021	2168.567557	474652.2697	3207600
309ALG	2/25/2021	0.00113494	0.004511669	0.023775
309ALG	3/23/2021	1.96041276	41.39363335	39.8398
309ALG	4/27/2021	7.03567373	23.40159297	82.693145
309ALG	5/26/2021			
309ALG	6/29/2021	4.392259503	2.271858364	2.3328
309ALG	7/27/2021			
309ALG	8/25/2021	83.0641472	148.3288343	41.184
309ALG	9/28/2021	503.778659	163.9707841	187.2
309ALG	10/27/2021	827.2299088	15561.178	53539.2
309ALG	11/28/2021	604.0354665	362.1920444	2407.2
309ALG	12/28/2021	302.0514444	61747.49579	337050
309ASB	1/28/2021	2945.001582	4190.96379	8473.5
309ASB	2/26/2021	0.470269827	4.837542663	1.20375
309ASB	3/24/2021	2.01922739	2.732958772	4.0602
309ASB	4/28/2021	10.83777213	18.16131617	16.353005
309ASB	5/27/2021	1.100347117	0.678358326	1.85748
309ASB	6/30/2021	9.775353371	10.50556049	9.22328
309ASB	7/28/2021	0.124225399	3.046921471	0.6105
309ASB	8/26/2021	13.22648215	6.558359408	34.5543
309ASB	9/30/2021	2.46596687	7.735348708	16.247
309ASB	10/28/2021	2.567437277	14.94328728	22.6695
309ASB	11/29/2021	1.413124309	5.089926422	8.1205
309ASB	12/29/2021	1073.698494	1380.469492	1620
309BLA	1/28/2021	4821.024225	13521.52169	33799.5
309BLA	2/26/2021	48.00303136	38.08623746	71.94375
309BLA	3/24/2021			
309BLA	4/29/2021	60.11566286	15.86607017	16.67372
309BLA	5/27/2021	112.3776331	31.391438	30.5805

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
309BLA	6/30/2021	47.73466293	11.78132106	3.6153
309BLA	7/28/2021	194.5945979	35.27394524	1.961925
309BLA	8/26/2021	34.30141375	5.103500758	2.83855
309BLA	9/30/2021	22.11818897	2.816669048	2.2295
309BLA	10/28/2021	12.17249341	1.733424695	3.7708
309BLA	11/29/2021	16.284989	4.467563355	10.90125
309BLA	12/29/2021	449.2405738	1022.712479	2144.1024
309CCD	1/28/2021	960.766313	41127.54041	194250
309CCD	2/24/2021	0	0	0
309CCD	3/24/2021	0	0	0
309CCD	4/27/2021	0	0	0
309CCD	5/26/2021	0.536141314	1.519864885	7.63605
309CCD	6/29/2021	0.024991161	0.014293506	0.0892
309CCD	7/27/2021	0	0	0
309CCD	8/25/2021	0	0	0
309CCD	9/28/2021	0	0	0
309CCD	10/27/2021	0	0	0
309CCD	11/28/2021	0	0	0
309CCD	12/27/2021	316.1629103	234396.6404	519750
309CRR	1/28/2021	1.522039475		3515.1
309CRR	2/24/2021	0	0	0
309CRR	3/24/2021	0	0	0
309CRR	4/27/2021	0	0	0
309CRR	5/26/2021	0.07854686		0.7635
309CRR	6/29/2021	0	0	0
309CRR	7/27/2021	0	0	0
309CRR	8/25/2021	3.671003804		9.7908
309CRR	9/28/2021	0	0	0
309CRR	10/27/2021	0	0	0
309CRR	11/28/2021	0	0	0
309CRR	12/27/2021	0.157318461		420000
309ESP	1/27/2021	414.646514	571740.234	9.00E+05
309ESP	2/25/2021	0.006325326	204.9405565	420.4863
309ESP	3/24/2021	0.018190509	0.659726202	2.421075
309ESP	4/28/2021	3.375424891	42.19281113	152.65944
309ESP	5/27/2021	0.174946781	2.205211521	7.074165
309ESP	6/30/2021	1.820466752	3.944344629	11.4049
309ESP	7/28/2021	0.562132571	1.98783112	7.3225
309ESP	8/26/2021	3.029481596	25.61369279	6.4059
309ESP	9/30/2021	4.977735886	5.240322871	13.716
309ESP	10/28/2021	7.956277764	1131.711923	9079.4025
309ESP	11/29/2021	0.140319077	1.133973938	3.5211
309ESP	12/29/2021	190.8890964	16914.54377	103500
309GAB	1/29/2021	0.053584466	39.826292	164.859
309GAB	2/25/2021	0	0	0

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
309GAB	3/23/2021	0	0	0
309GAB	4/27/2021	0	0	0
309GAB	5/27/2021	0	0	0
309GAB	6/29/2021	0	0	0
309GAB	7/27/2021	0	0	0
309GAB	8/25/2021	0	0	0
309GAB	9/28/2021	0	0	0
309GAB	10/27/2021	0	0	0
309GAB	11/28/2021	0	0	0
309GAB	12/28/2021	3.888415669	584.3364984	2190.9228
309GRN	1/29/2021	2744.640791	18248941.43	19488000
309GRN	2/24/2021	1898.069701	14390.59381	23000
309GRN	3/22/2021			
309GRN	3/23/2021	159.520919	669.0529389	1326
309GRN	4/27/2021	192.5335238	50599.0107	107611.2
309GRN	5/26/2021	114.139038	21314.85349	33363
309GRN	6/29/2021	112.9320121	56246.29396	34412.4
309GRN	7/27/2021	42.35406256	34359.13839	30068.5
309GRN	8/25/2021	0	0	0
309GRN	9/28/2021	0	0	0
309GRN	10/27/2021	0	0	0
309GRN	11/28/2021	0	0	0
309GRN	12/27/2021	0	0	0
309JON	1/28/2021	1084.148934	323626.5475	1640400
309JON	2/26/2021	1.557248246	14.05465822	37.45217
309JON	3/24/2021	1.425934527	11.34266101	39.83525
309JON	4/28/2021	9.417532533	29.5082686	85.76352
309JON	5/27/2021	9.667156476	40.0620899	162.17712
309JON	6/30/2021	2.824181005	13.9963088	42.042
309JON	7/28/2021	3.021458354	5.237194481	15.08738
309JON	8/26/2021	1.255747416	2.300247604	7.36302
309JON	9/22/2021	1.224368227	1.17459716	4.739244
309JON	10/28/2021	12.13778559	62.71639771	1323.135
309JON	11/29/2021	2.747134289	6.460597221	16.891875
309JON	12/15/2021	59.18320488	15149.76776	139860
309MER	1/27/2021	4058.276906	81432.53002	226551.6
309MER	2/26/2021	40.04878526	54.3422911	203.4
309MER	3/24/2021	0.029935456	0.069444863	0.258
309MER	4/28/2021	0.145631946	0.319904842	1.134
309MER	5/27/2021	1.702073373	2.967250908	5.64975
309MER	6/30/2021	0.877735877	1.428406674	3.48975
309MER	7/28/2021	5.050596807	255.8672391	24.849
309MER	8/26/2021	4.440875402	20.98313627	7.0395
309MER	9/29/2021	2.764124682	98.66109268	24.0597
309MER	10/28/2021	182.9501326	299.4556898	1530.9

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
309MER	11/29/2021	0.112875995	0.095368698	0.1886
309MER	12/29/2021	1374.334072	19557.83102	188806.8
309MOR	1/27/2021			
309MOR	2/25/2021	0.004182873	35.47076411	50.62464
309MOR	3/24/2021			
309MOR	4/28/2021			
309MOR	5/27/2021	0.00011237	0.188332671	0.59
309MOR	6/30/2021			
309MOR	7/28/2021	2.855067563	7.002143548	0.80404
309MOR	8/26/2021	8.75391607	8.201424874	1.6389
309MOR	9/29/2021	0.046496145	8.555290726	31.0332
309MOR	10/28/2021			
309MOR	11/29/2021	0.152310789	0.401011498	107.7146
309MOR	12/29/2021	0.305879677	1.277569734	10.87734
309NAD	1/29/2021	12.67699124	312.7547182	1302.561
309NAD	2/25/2021	0	0	0
309NAD	3/23/2021	0	0	0
309NAD	4/27/2021	0.02730599	0.096481164	0.297
309NAD	5/27/2021	0	0	0
309NAD	6/29/2021	0	0	0
309NAD	7/28/2021	3.249749915	24.33941326	367.8
309NAD	8/25/2021	0	0	0
309NAD	9/28/2021	0	0	0
309NAD	10/27/2021	0	0	0
309NAD	11/28/2021	0	0	0
309NAD	12/28/2021	29.05447227	217.1893719	1176
309OLD	1/27/2021			
309OLD	2/25/2021	8.391204875	60.65381785	172.07616
309OLD	3/24/2021	2.361125353	4.667157781	16.24928
309OLD	4/28/2021	62.01525181	620.1525181	1450.66336
309OLD	5/27/2021			
309OLD	6/30/2021	10.94754131	34.22321973	43.261
309OLD	7/28/2021	10.5835455	25.46338175	173.91498
309OLD	8/26/2021	4.434414558	10.35847672	42.14016
309OLD	9/30/2021	6.022779946	26.39394741	103.2542
309OLD	10/28/2021			
309OLD	11/29/2021	0.081198463	0.611409207	2.35121
309OLD	12/29/2021	925.1269394	4258.520832	31069.17
309QUI	1/28/2021	12.50546917	892.0568011	5531.941
309QUI	2/24/2021	1.975020903	67.70143767	483.34
309QUI	3/23/2021	1.664536065	389.8913305	1805.5785
309QUI	4/27/2021	3.257784393	77.19532584	287.394
309QUI	5/26/2021	0	0	0
309QUI	6/29/2021			
309QUI	7/27/2021	0	0	0

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
309QUI	8/25/2021	0.004126238	0.048330479	0.045135
309QUI	9/28/2021	0	0	0
309QUI	10/27/2021	0	0	0
309QUI	11/28/2021	0	0	0
309QUI	12/28/2021	0.686020859	54.69625764	528.825
309RTA	1/28/2021	395.0940768	112370.329	573000
309RTA	2/25/2021	0	0	0
309RTA	3/24/2021	0	0	0
309RTA	4/27/2021	0	0	0
309RTA	5/27/2021	0	0	0
309RTA	6/29/2021	0	0	0
309RTA	7/28/2021	0	0	0
309RTA	8/26/2021	0	0	0
309RTA	9/28/2021	0	0	0
309RTA	10/27/2021	0	0	0
309RTA	11/28/2021	0	0	0
309RTA	12/28/2021	2.148419557	57.39134761	597.639
309SAC	1/29/2021	1341.674759	6095870.102	21219030
309SAC	2/24/2021	0	0	0
309SAC	3/23/2021	0	0	0
309SAC	5/26/2021	61.69760336	52434.6924	112019.2
309SAC	7/27/2021	3.083756465	55227.27487	71476.02
309SAC	9/28/2021	0	0	0
309SAC	10/27/2021	0	0	0
309SAG	1/28/2021	380.6556132	1910003.43	11856285
309SAG	2/24/2021	198.2212604	2770.692728	6566
309SAG	3/23/2021	0	0	0
309SAG	5/27/2021	76.82085172	38592.46579	40743
309SAG	7/27/2021	55.38868361	78155.81123	44906.4
309SAG	9/28/2021	0	0	0
309SAG	10/27/2021	0	0	0
309SSP	1/29/2021	1142.132024	1527786.993	8758200
309SSP	2/24/2021	0.153385499	3957.345876	16270.8
309SSP	3/23/2021	0.13194524	33.56276987	255.93
309SSP	4/27/2021	26.99584784	16172.33775	48020
309SSP	5/26/2021	17.15220702	1970.076608	8532
309SSP	6/29/2021	4.296142418	3253.930091	9274.8
309SSP	7/27/2021	5.052450918	4820.687114	21676.875
309SSP	8/25/2021	0	0	0
309SSP	9/28/2021	0	0	0
309SSP	10/27/2021	0	0	0
309SSP	11/28/2021	0	0	0
309SSP	12/27/2021	18.43949903	131882.504	478018.2
309TEH	1/27/2021	102.3879009	44579.00181	106729.1484
309TEH	2/25/2021	93.99044018	241.2302172	589.95678

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
309TEH	3/24/2021	6.94532911	65.04893605	212.40675
309TEH	4/28/2021	46.92777092	214.6574436	627.44175
309TEH	5/27/2021	50.81436619	260.0640911	322.08904
309TEH	6/30/2021	54.17751125	90.29585209	183.1635
309TEH	7/28/2021	56.6200152	81.67873341	333.7961
309TEH	8/26/2021	1.761022848	2.95383389	5.7707
309TEH	9/22/2021			
309TEH	9/29/2021	1.270065644	5.449736216	10.686
309TEH	10/28/2021	681.6687658	27411.97966	155372.4437
309TEH	11/29/2021	133.1301719	447.3532377	1679.38584
309TEH	12/15/2021	1246.937369	71729.7635	719636.055
310CCC	1/27/2021	1.445504943	114.9950808	87.2898
310CCC	2/22/2021	1.225195272	1.205533162	126.3108
310CCC	3/24/2021	0.884961289	4.731139199	31.1987
310CCC	4/20/2021	0.397002125	1.87495063	9.75942
310CCC	5/19/2021	0.491997754	1.775630991	4.2796
310CCC	6/23/2021	0.071253464	5.45968099	1.14260625
310CCC	7/21/2021	0	0	0
310CCC	8/25/2021	0	0	0
310CCC	9/22/2021	0	0	0
310CCC	10/10/2021	0	0	0
310CCC	10/20/2021			
310CCC	11/22/2021	0.121528511	0.188369192	65.43075
310CCC	12/14/2021	21.53991305	2964.826405	41175.692
310LBC	1/27/2021	0.078407746	4.542772816	14.1037
310LBC	2/22/2021	0	0	0
310LBC	3/24/2021	0	0	0
310LBC	4/20/2021	0	0	0
310LBC	5/19/2021	0	0	0
310LBC	6/23/2021	0	0	0
310LBC	7/21/2021	0	0	0
310LBC	8/25/2021	0	0	0
310LBC	9/22/2021	0	0	0
310LBC	10/10/2021	0	0	0
310LBC	10/20/2021			
310LBC	11/22/2021	0	0	0
310LBC	12/14/2021	0	0	0
310PRE	1/27/2021	0.678559648	36.66411004	2203.6026
310PRE	2/22/2021	0.898121652	4.10348686	22.392825
310PRE	3/24/2021	0.775420445	1.195106768	16.984675
310PRE	4/20/2021	0.690306213	0.837674956	7.89462
310PRE	5/19/2021	0.751673897	1.339189128	5.7666
310PRE	6/23/2021	0.419097559	1.637290755	6.5241
310PRE	7/21/2021	0.358615297	1.277701207	5.398575
310PRE	8/25/2021	0.569505862	2.301894953	13.42899

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
310PRE	9/22/2021	0.244601889	1.709674102	7.04242
310PRE	10/20/2021	0.370532844	1.353364645	7.83431
310PRE	11/22/2021	0.322486663	2.041548632	8.33184
310PRE	12/14/2021	5.865181009	110.4247042	799.03616
310SLD	1/27/2021	0	0	0
310SLD	2/22/2021	0	0	0
310SLD	3/24/2021	0	0	0
310SLD	4/20/2021	0	0	0
310SLD	5/19/2021	0	0	0
310SLD	6/23/2021	0	0	0
310SLD	7/21/2021	0	0	0
310SLD	8/25/2021	0	0	0
310SLD	9/22/2021	0	0	0
310SLD	10/10/2021	0	0	0
310SLD	10/20/2021			
310SLD	11/22/2021	0	0	0
310SLD	12/14/2021	0	0	0
310USG	1/27/2021	2.926595323	132.2387516	2664.7075
310USG	2/22/2021	2.151583906	4.750379247	12.66903
310USG	3/24/2021	3.126887793	28.82946192	25.754436
310USG	4/20/2021	1.155796256	2.626076609	11.43376
310USG	5/19/2021	1.43725359	2.362608641	12.860414
310USG	6/23/2021	1.845949646	4.245207196	26.31776
310USG	7/21/2021	1.456095622	3.337328652	40.43466
310USG	8/25/2021	1.084765847	2.951408377	23.56956
310USG	9/22/2021	0.476004085	1.844926177	11.963133
310USG	10/20/2021	0.849377988	3.115787571	13.0594055
310USG	11/22/2021	0.604777111	4.294793974	11.492
310USG	12/14/2021	4.106497261	545.8219277	2877.8652
310WRP	1/27/2021	3.597367415	101.1272326	1229.0012
310WRP	2/22/2021	3.116287675	0.8256556	558.9345
310WRP	3/24/2021	1.625759874	0.475832158	1.86318
310WRP	4/20/2021	1.232369893	0.064207507	1.385472
310WRP	5/19/2021	0.655175203	0.058797775	0.4716725
310WRP	6/23/2021	0.467679691	0.024286037	0.16549
310WRP	7/21/2021	0.100124211	1.280111551	0.40066
310WRP	8/25/2021	0.368692668	0.255114358	0.9019
310WRP	9/22/2021	0.076201129	0.087016774	0.3040625
310WRP	10/20/2021	0.068913464	0.305898443	1.45022
310WRP	11/22/2021	0.000467461	0.009978485	0.248
310WRP	12/14/2021	6.872850247	49.04465937	587.16
312BCC	1/29/2021	22.70776013	6878.898019	16456
312BCC	2/22/2021	0	0	0
312BCC	3/25/2021	0	0	0
312BCC	4/20/2021	0	0	0

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
312BCC	5/20/2021	0	0	0
312BCC	6/24/2021	0	0	0
312BCC	7/22/2021	0	0	0
312BCC	8/26/2021	0	0	0
312BCC	9/22/2021	0	0	0
312BCC	10/21/2021	0	0	0
312BCC	11/23/2021	0	0	0
312BCC	12/14/2021	27.96694099	1455.602204	7192.099
312BCJ	1/29/2021	60.00494662	28276.66732	59070
312BCJ	2/22/2021	2.770683177	2.925531737	0.777597
312BCJ	3/25/2021	0.177741768	3.791824382	0.734635
312BCJ	4/20/2021	0.889056064	1.606590057	4.63008
312BCJ	5/20/2021	0.955769991	4.287566315	10.9830065
312BCJ	6/24/2021	0.427791595	1.728781328	5.296181
312BCJ	7/22/2021	5.693298904	8.328326934	40.39875
312BCJ	8/26/2021	1.584574463	1.780469657	10.11114
312BCJ	9/22/2021	0.689998768	1.337875519	4.30185
312BCJ	10/21/2021	1.447762463	3.22011224	2.03574
312BCJ	11/23/2021	4.551550063	145.7439347	2098.7
312BCJ	12/17/2021	0.731694341	0.611502475	7.80624
312GVS	1/29/2021	26.27221888	7968.5958	21489
312GVS	2/22/2021	0	0	0
312GVS	3/25/2021	0	0	0
312GVS	4/22/2021	0	0	0
312GVS	5/20/2021	0	0	0
312GVS	6/23/2021	0	0	0
312GVS	7/21/2021	0	0	0
312GVS	8/25/2021	0	0	0
312GVS	9/21/2021	0	0	0
312GVS	10/20/2021	0	0	0
312GVS	11/22/2021	0	0	0
312GVS	12/15/2021	0	0	0
312MSD	1/29/2021	35.92254677	8082.573024	47520
312MSD	2/22/2021	0.910165954	7.888104933	37.663605
312MSD	3/25/2021	0.307242954	0.462516274	3.25605
312MSD	4/20/2021	0.468886323	0.633196915	4.359924
312MSD	5/20/2021	0.091017764	0.053733379	1.2003324
312MSD	6/23/2021	0.62585329	0.911736891	6.11964
312MSD	7/22/2021	0.34690968	2.3840489	8.908
312MSD	8/26/2021	0.266759969	0.381642	1.680816
312MSD	9/21/2021			
312MSD	10/4/2021			20.4088
312MSD	10/20/2021	4.815306823	5.750317856	79.77567
312MSD	11/23/2021	3.1084667	15.93762984	279.825
312MSD	12/15/2021	1.923308077	58.88542351	810.55

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
312OFC	1/27/2021	85.54528406	14455.31912	48000
312OFC	2/22/2021	1.027098518	1.007596648	4.2664375
312OFC	3/24/2021	3.700523489	2.196334265	8.2935
312OFC	4/20/2021	2.280921031	11.54425338	19.842575
312OFC	5/19/2021	4.232226175	42.85129002	122.4054
312OFC	6/23/2021	2.708727234	4.898762019	23.25056
312OFC	7/21/2021	4.824193068	2.987073034	14.2272
312OFC	8/25/2021	9.042906711	3.844846322	19.401725
312OFC	9/21/2021			
312OFC	10/4/2021			5.0763125
312OFC	10/20/2021	0.012489962	0.02068513	0.2418
312OFC	11/22/2021	12.88385873	47.63398473	371.41872
312OFC	12/15/2021	10.00045361	118.1871791	919.375
312OFN	1/27/2021	4.773023666	1193.888943	5633.4
312OFN	2/22/2021	1.844944381	9.457277918	3.72519
312OFN	3/24/2021	1.524797942	0.556278077	2.8509
312OFN	4/20/2021	1.932994399	0.601833008	3.416
312OFN	5/19/2021	0.875612078	0.74589177	1.74603
312OFN	6/23/2021	1.525562061	7.301486867	3.55014
312OFN	7/21/2021	2.207099343	18.7838242	53.97875
312OFN	8/25/2021	2.130406593	8.742816129	14.5558
312OFN	9/21/2021			
312OFN	10/4/2021			5.430675
312OFN	10/20/2021	0.472074315	6.130835254	24.09698
312OFN	11/22/2021	0.561003249	3.447128398	5.0526
312OFN	12/15/2021	0.833844026	10.32992342	102
312ORC	1/29/2021	1001.68889	33343.89044	145109.76
312ORC	2/23/2021	10.35695298	9.51894226	39.29571
312ORC	3/24/2021	3.867792343	10.71254439	39.23685
312ORC	4/22/2021	2.655633939	7.047968168	75.400125
312ORC	5/19/2021	1.892709637	5.9769778	23.64
312ORC	6/23/2021	0.415893825	1.722637144	6.38385
312ORC	7/21/2021	1.193193101	4.107337792	25.06555
312ORC	8/25/2021	0.000556278	0.037747441	0.07592
312ORC	9/21/2021			
312ORC	10/4/2021			4.1085
312ORC	10/20/2021	0.924227977	6.665105602	54.964075
312ORC	11/22/2021	0.249490335	0.537671685	19.11553
312ORC	12/17/2021	5.244823302	19.34983354	23.790375
312ORI	1/29/2021	393.6797613	14066.31057	65607
312ORI	2/23/2021	5.920275731	3.735189736	14.6256
312ORI	3/24/2021	6.666369768	1.244389023	3.3335
312ORI	4/22/2021	7.006029314	12.58266759	70.7682
312ORI	5/19/2021	2.476349888	1.365029809	4.8972
312ORI	6/23/2021	8.357700538	14.89491185	57.53125

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
312ORI	7/21/2021	2.544554183	0.967845644	3.64878
312ORI	8/25/2021	0.753965016	0.78345998	0.967895
312ORI	9/21/2021			
312ORI	10/4/2021			2.75485
312ORI	10/20/2021	0.149650309	0.075026298	0.059786
312ORI	11/22/2021	0	0	0
312ORI	12/15/2021	109.8891921	1731.761614	11852.8
312SMA	1/29/2021	546.655502	10491.86345	89441.91
312SMA	2/23/2021	19.43142564	11.52267828	40.31765
312SMA	3/24/2021	3.742628652	8.634446184	21.7665
312SMA	4/22/2021	2.180433864	6.728195923	38.5308
312SMA	5/19/2021	0.579395463	0.820067424	5.790725
312SMA	6/23/2021	1.497362727	1.267705867	3.3394875
312SMA	7/21/2021	0.020340333	7.554980845	4.85832
312SMA	8/25/2021	5.33E-05	0.275905116	0.59724
312SMA	9/21/2021			
312SMA	10/4/2021			2.40035
312SMA	10/20/2021	0.159016938	0.943320819	23.1855
312SMA	11/22/2021	0.122386121	10.0707862	5.05494
312SMA	12/17/2021	6.436354447	11.71355501	47.5055
312SMI	1/29/2021	3.25875752	1149.68331	3528
312SMI	2/22/2021	0	0	0
312SMI	3/24/2021	0	0	0
312SMI	4/20/2021	0	0	0
312SMI	5/19/2021	0	0	0
312SMI	6/23/2021	0	0	0
312SMI	7/21/2021	0	0	0
312SMI	8/25/2021	0	0	0
312SMI	9/21/2021	0	0	0
312SMI	10/20/2021	0	0	0
312SMI	11/22/2021	0	0	0
312SMI	12/14/2021	9.192926719	580.8258245	1859.3
313SAE	1/28/2021	15.10954255	9826.250388	14973.5
313SAE	2/23/2021	0.01241473	0.150690297	2.0033
313SAE	3/25/2021	0.035631058	3.422687851	2.27271
313SAE	4/21/2021	0.114635715	1.567285164	8.3685
313SAE	5/20/2021	0	0	0
313SAE	6/24/2021	0	0	0
313SAE	7/22/2021	0	0	0
313SAE	8/26/2021	0.043234484	3.28582079	31.16475
313SAE	9/23/2021	0.003314925	0.831540435	0.32
313SAE	10/21/2021	0	0	0
313SAE	11/23/2021	0	0	0
313SAE	12/17/2021	0	0	0
314SYF	1/28/2021	256.8785721	299354.5565	9.00E+05

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
314SYF	2/24/2021	4.723316819	24.14139708	71.08329775
314SYF	3/25/2021	3.567211376	13.22175361	43.03756
314SYF	5/20/2021	3.582879621	8.732758985	48.6621
314SYF	7/22/2021	3.380065785	10.59319586	48.6857
314SYF	9/23/2021	2.501669171	3.898075023	41.2628
314SYF	10/21/2021	1.713007905	2.120680267	31.74444
314SYL	1/28/2021	614.4859071	2200255.99	1260000
314SYL	2/24/2021	0.020634226	18.15811923	127.069884
314SYL	3/25/2021	0.011489641	7.123577668	37.627264
314SYL	4/21/2021	0	0	0
314SYL	5/20/2021	0	0	0
314SYL	6/24/2021	0	0	0
314SYL	7/22/2021	0	0	0
314SYL	8/26/2021	0	0	0
314SYL	9/23/2021	0	0	0
314SYL	10/21/2021	0	0	0
314SYL	11/23/2021	0	0	0
314SYL	12/16/2021	0	0	0
314SYN	1/28/2021	326.1548799	289746.8933	2250000
314SYN	2/24/2021	2.592238532	8.658429383	36.015435
314SYN	3/25/2021	0.185905472	3.447701486	7.39216
314SYN	4/21/2021	0.183636491	1.216987519	46.6665
314SYN	5/20/2021	0.002571595	59.66100352	151.9564
314SYN	6/24/2021	0.185109778	83.78653109	322.961225
314SYN	7/22/2021	0.066627335	3.331366732	10.0496
314SYN	8/26/2021			
314SYN	9/23/2021			
314SYN	10/21/2021	0.016073452	0.108954271	1.0128
314SYN	11/23/2021			
314SYN	12/16/2021			
315APF	1/28/2021	3.82E-05	0.017574719	0.10846
315APF	2/24/2021	4.00E-05	0.03963161	0.08371875
315APF	3/25/2021	1.88E-05	0.043290669	0.03484
315APF	4/21/2021	3.61E-05	0.036098968	0.10890375
315APF	5/20/2021	4.53E-06	0.023443822	0.011997
315APF	6/24/2021	0	0	0
315APF	7/22/2021	0	0	0
315APF	8/26/2021	0	0	0
315APF	9/23/2021	0	0	0
315APF	10/21/2021	0	0	0
315APF	11/23/2021	1.28E-05	0.025876639	0.045258
315APF	12/16/2021	0.004004879	0.007054047	0.5508
315BEF	1/28/2021	6.196797761	339.7229229	2568.35775
315BEF	2/24/2021	0.107377715	0.062712195	3.472975
315BEF	3/25/2021	0.032359396	0.163584792	0.0596625

SiteID	Date	Nitrate Loading (Lbs/hr)	TSS Loading (Lbs/hr)	Turbidity Loading (NTU/CFS)
315BEF	4/21/2021	0.008172919	0.008153366	0.042717
315BEF	5/20/2021	0.002029408	0.023204473	0.0924
315BEF	6/24/2021	0.003595289	0.033829088	0.0578475
315BEF	7/22/2021	0	0	0
315BEF	8/26/2021	0	0	0
315BEF	9/23/2021	0	0	0
315BEF	10/21/2021	0	0	0
315BEF	11/23/2021	0.000119562	0.010333575	0.0025764
315BEF	12/16/2021	0.015705731	0.008013128	0.49917
315FMV	1/28/2021	0.204631988	0.05411755	0.657685
315FMV	2/24/2021	0.320114975	0.434873173	2.090875
315FMV	3/25/2021	0.553805929	0.099784852	0.32523
315FMV	4/21/2021	1.769384998	2.332371134	1.8058368
315FMV	5/20/2021	0.208159292	0.04171254	0.266737
315FMV	6/24/2021	0.616426767	0.187541854	0.4157868
315FMV	7/22/2021	0.092399874	0.025069146	0.251065
315FMV	8/26/2021	0.045110731	0.069086908	0.041093
315FMV	9/23/2021	0.151604429	0.026921683	0.5203
315FMV	10/21/2021	0.264664038	0.223851359	0.363198
315FMV	11/23/2021	0.188275025	0.81115848	0.1247389
315FMV	12/16/2021	0.434665288	0.032523906	11.158125
315GAN	1/28/2021	9.388136455	46.31480651	253.82192
315GAN	2/24/2021	0.605282777	0.188411331	0.7452
315GAN	3/25/2021	0.198976389	0.050225492	0.19278
315GAN	4/21/2021	0.292889611	0.056156791	1.38103875
315GAN	5/20/2021	0.221985338	0.011482	1.234675
315GAN	6/24/2021	0.055679498	0.015788031	0.10275
315GAN	7/22/2021	0.054864813	0.240191578	0.284625
315GAN	8/26/2021	0.053978773	0.121240281	0.27979375
315GAN	9/23/2021	0.027651866	0.050841394	0.220038
315GAN	10/21/2021	0.019288255	0.09274148	0.1529915
315GAN	11/23/2021	0.057954435	0.021040782	0.1253775
315GAN	12/16/2021	0.401909337	0.435836749	1.5676875
315LCC	1/28/2021	0.15305513	0.431485208	4.2021
315LCC	2/24/2021	0.009606315	0.008036052	0.1267935
315LCC	3/25/2021	0.031219849	0.032376139	0.1911
315LCC	4/21/2021	5.73E-06	0.010292673	0.029427
315LCC	5/20/2021	6.60E-06	0.009229256	0.3713
315LCC	6/24/2021	0	0	0
315LCC	7/22/2021	0	0	0
315LCC	8/26/2021	0	0	0
315LCC	9/23/2021	0	0	0
315LCC	10/21/2021	0	0	0
315LCC	11/23/2021	0	0	0
315LCC	12/16/2021	0	0	0

Appendix B.3. TMDL Exceedances

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	8%	100%	N/A	N/A	100%	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	60%	57%	N/A	N/A	N/A	33%	N/A	N/A	N/A
Pajaro	305CAN	Carnadero Creek	0%	33%	100%	N/A	N/A	N/A	20%	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%	43%	Yes	No	Yes	42%	N/A	N/A	N/A
Pajaro	305COR	Salsipuedes Creek	11%	0%	50%	N/A	N/A	N/A	0%	N/A	N/A	N/A	N/A	N/A	N/A	50%	71%	N/A	N/A	N/A	33%	N/A	N/A	N/A
Pajaro	305FRA	Miller Canal	11%	11%	N/A	N/A	N/A	N/A	N/A	N/A	100%	14%	100%	N/A	N/A	N/A	29%	N/A	N/A	N/A	67%	N/A	N/A	N/A
Pajaro	305FUF	Furlong Creek	0%	70%	100%	N/A	N/A	N/A	100%	N/A	N/A	N/A	N/A	100%	N/A	N/A	33%	N/A	N/A	N/A	80%	N/A	N/A	N/A
Pajaro	305LCS	Llagas Creek	0%	67%	100%	N/A	N/A	N/A	50%	N/A	N/A	N/A	N/A	0%	N/A	N/A	17%	Yes	Yes	Yes	22%	N/A	N/A	N/A
Pajaro	305PJP	Pajaro River at Main St.	0%	0%	N/A	N/A	N/A	40%	0%	N/A	N/A	N/A	N/A	N/A	N/A	100%	29%	Yes	Yes	Yes	25%	N/A	N/A	N/A
Pajaro	305SJA	San Juan Creek	33%	75%	N/A	N/A	100%	N/A	57%	N/A	N/A	N/A	N/A	N/A	100%	N/A	86%	N/A	N/A	N/A	42%	N/A	N/A	N/A
Pajaro	305TSR	Tequisquita Slough	8%	50%	N/A	80%	N/A	N/A	43%	N/A	N/A	N/A	N/A	N/A	40%	N/A	43%	N/A	N/A	N/A	N/A	25%	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	33%	N/A	67%	0%
Pajaro	305WSA	Watsonville Slough	0%	33%	N/A	N/A	N/A	N/A	20%	100%	N/A	N/A	N/A	N/A	N/A	100%	80%	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	42%	N/A	N/A	N/A	N/A	100%	71%	N/A	N/A	N/A	100%	86%	No	58%	N/A	N/A	N/A
Lower Salinas	309ASB	Alisal Slough	0%	N/A	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A	100%	57%	No	N/A	58%	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%	71%	No	17%	N/A	N/A	N/A
Lower Salinas	309CCD	Chualar Creek, South Branch	75%	75%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100%	N/A	N/A
Lower Salinas	309CRR	Chualar Creek, North Branch	N/A	50%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100%	N/A	N/A
Lower Salinas	309ESP	Espinosa Slough	8%	N/A	N/A	N/A	N/A	100%	14%	N/A	N/A	N/A	40%	57%	N/A	75%	N/A	N/A	N/A
Lower Salinas	309GAB	Gabilan Creek	0%	N/A	N/A	N/A	N/A	N/A	0%	N/A	N/A	N/A	N/A	100%	N/A	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	43%	0%	0%
Lower Salinas	309JON	Salinas Rec Canal, d/s Salinas	8%	N/A	N/A	N/A	N/A	100%	29%	N/A	N/A	N/A	100%	71%	No	58%	N/A	N/A	N/A
Lower Salinas	309MER	Merrit Ditch	0%	N/A	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A	40%	29%	No	N/A	75%	N/A	N/A
Lower Salinas	309MOR	Moro Cojo Slough	0%	N/A	N/A	N/A	N/A	N/A	N/A	60%	14%	N/A	0%	14%	N/A	N/A	17%	0%	N/A
Lower Salinas	309NAD	Natividad Creek	25%	N/A	N/A	100%	N/A	N/A	100%	N/A	N/A	100%	N/A	100%	Yes	N/A	100%	N/A	N/A
Lower Salinas	309OLD	Old Salinas River	0%	N/A	N/A	N/A	100%	N/A	86%	N/A	N/A	100%	N/A	86%	No	N/A	83%	N/A	N/A
Lower Salinas	309QUI	Quail Creek	29%	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	309RTA	Santa Rita Creek	0%	N/A	N/A	N/A	N/A	N/A	50%	N/A	N/A	N/A	N/A	100%	N/A	N/A	100%	N/A	N/A
Lower Salinas	309SAC	Salinas R, Chualar	0%	N/A	0%	N/A	N/A	N/A	0%	N/A	N/A	0%	N/A	0%	N/A	N/A	100%	N/A	N/A
Lower Salinas	309SAG	Salinas R, Gonzales	0%	N/A	0%	N/A	N/A	N/A	0%	N/A	N/A	0%	N/A	0%	N/A	N/A	100%	N/A	N/A
Lower Salinas	309SSP	Salinas R, Spreckles	0%	N/A	0%	N/A	N/A	N/A	0%	N/A	N/A	0%	N/A	0%	Yes	N/A	100%	N/A	N/A
Lower Salinas	309TEH	Tembladero Slough	0%	N/A	N/A	N/A	N/A	100%	71%	N/A	N/A	N/A	100%	86%	No	83%	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	25%	0%	0%
Estero Bay	310LBC	Los Berros Creek	0%	N/A	N/A	0%	N/A	N/A
Estero Bay	310PRE	Prefumo Creek	N/A	N/A	0%	17%	N/A	N/A
Estero Bay	310SLD	Davenport Creek	N/A	N/A	N/A	N/A	N/A	N/A
Estero Bay	310USG	Arroyo Grande	N/A	N/A	N/A	17%	0%	0%
Estero Bay	310WRP	Warden Creek	N/A	75%	N/A	50%	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	50%	N/A	N/A	N/A	50%	N/A	N/A	100%	N/A	No	No	N/A	100%
Santa Maria	312BCJ	Bradley Channel	83%	N/A	92%	N/A	N/A	N/A	N/A	N/A	No	Yes	No	N/A	75%
Santa Maria	312GVS	Green Valley Creek	0%	N/A	N/A	N/A	0%	N/A	N/A	100%	N/A	No	No	N/A	100%
Santa Maria	312MSD	Main Street Ditch	58%	N/A	83%	N/A	N/A	N/A	N/A	N/A	No	No	No	N/A	100%
Santa Maria	312OFC	Oso Flaco Creek	42%	92%	75%	N/A	N/A	N/A	33%	N/A	No	No	No	50%	N/A
Santa Maria	312OFN	Little Oso Flaco	25%	83%	67%	N/A	N/A	N/A	100%	N/A	Yes	No	No	N/A	50%
Santa Maria	312ORC	Orcutt Solomon Creek	8%	N/A	N/A	80%	100%	40%	N/A	43%	Yes	Yes	No	N/A	83%
Santa Maria	312ORI	Orcutt Solomon at Hwy 1	55%	N/A	N/A	100%	100%	40%	N/A	50%	No	No	No	N/A	55%
Santa Maria	312SMA	Santa Maria R, estuary	0%	N/A	N/A	60%	71%	40%	N/A	29%	No	Yes	No	N/A	50%
Santa Maria	312SMI	Santa Maria R, Hwy 1	0%	N/A	N/A	N/A	50%	N/A	N/A	100%	N/A	No	No	N/A	100%

			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	100%	17%	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	14%	0%	14%
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	42%	0%	0%
South Coast	315APF	Arroyo Paredon	0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14%	N/A	0%
South Coast	315BEF	Bell Creek	N/A	0%	N/A	N/A	N/A	N/A	N/A	N/A	50%	N/A	0%
South Coast	315FMV	Franklin Creek	N/A	N/A	100%	100%	100%	100%	100%	N/A	17%	N/A	0%
South Coast	315GAN	Glen Annie	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42%	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%

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APPENDIX C – BOX PLOTS

Appendix C. Box Plots of Water Quality Data

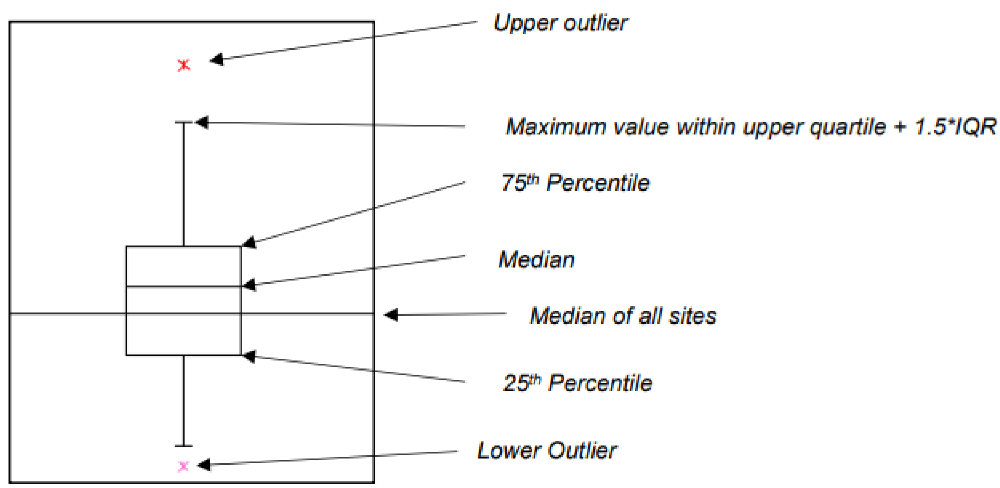
Box and whisker plots are provided for all CMP water quality parameters with results. Box plots illustrate the distribution of results for core sites within a hydrologic unit. Any data below detection are represented at the detection limit for the analyte. Plots are organized by Hydrologic Unit and Analyte.

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*).

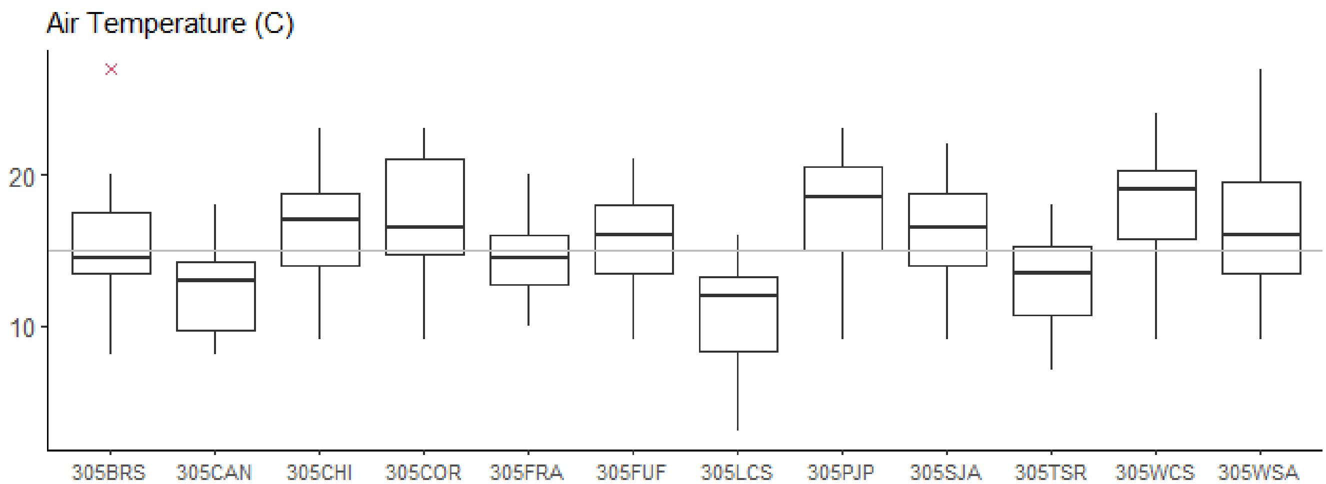
If the Minimum or Maximum values are outside this range, they are shown as outliers.

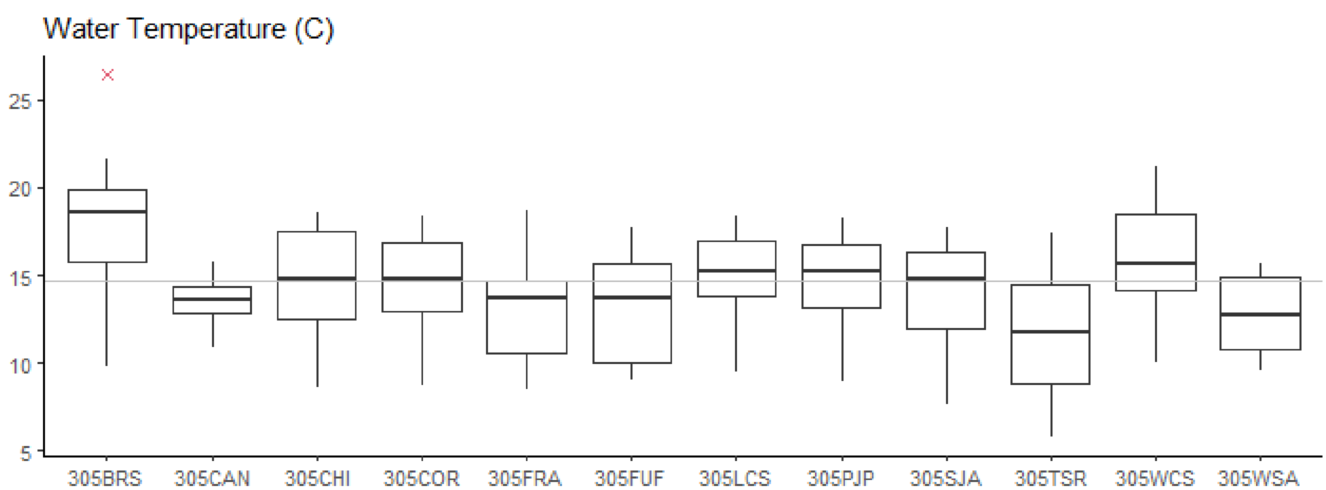


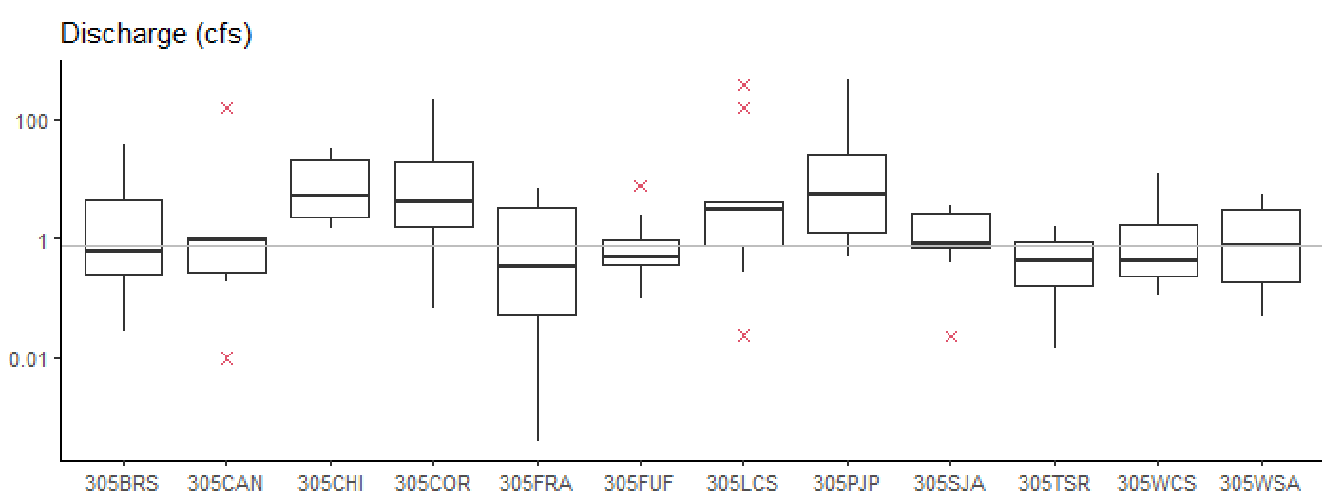
Notes:

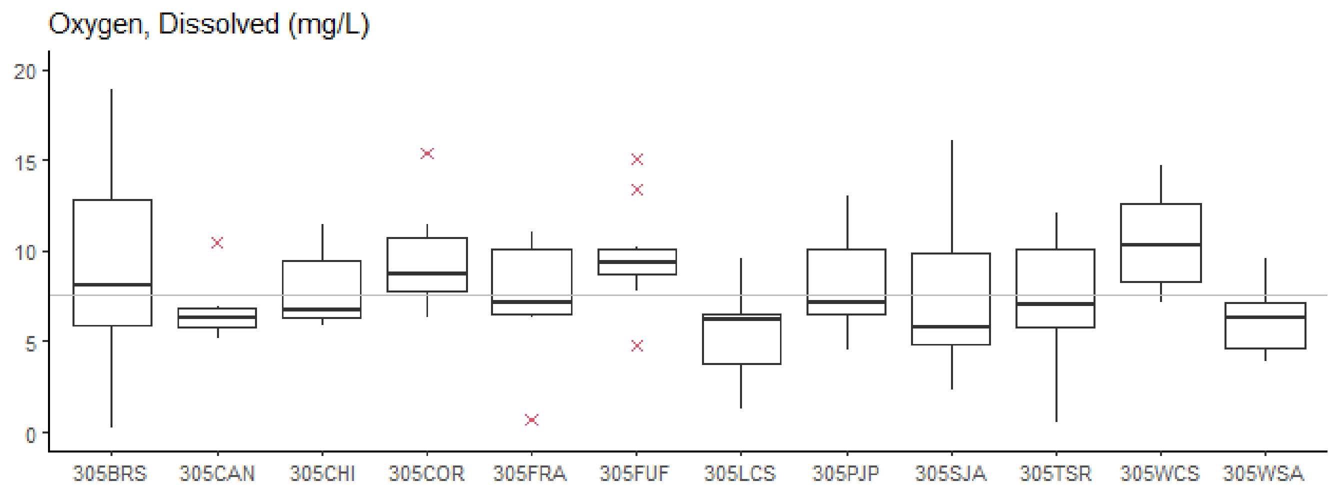
- Some extreme values are not displayed to allow comparison between sites and more clear illustration of broad differences in distributions in an untransformed scale for most parameters.
- Some parameters are displayed in log-scale to allow adequate visualization of distributions and comparisons between 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.

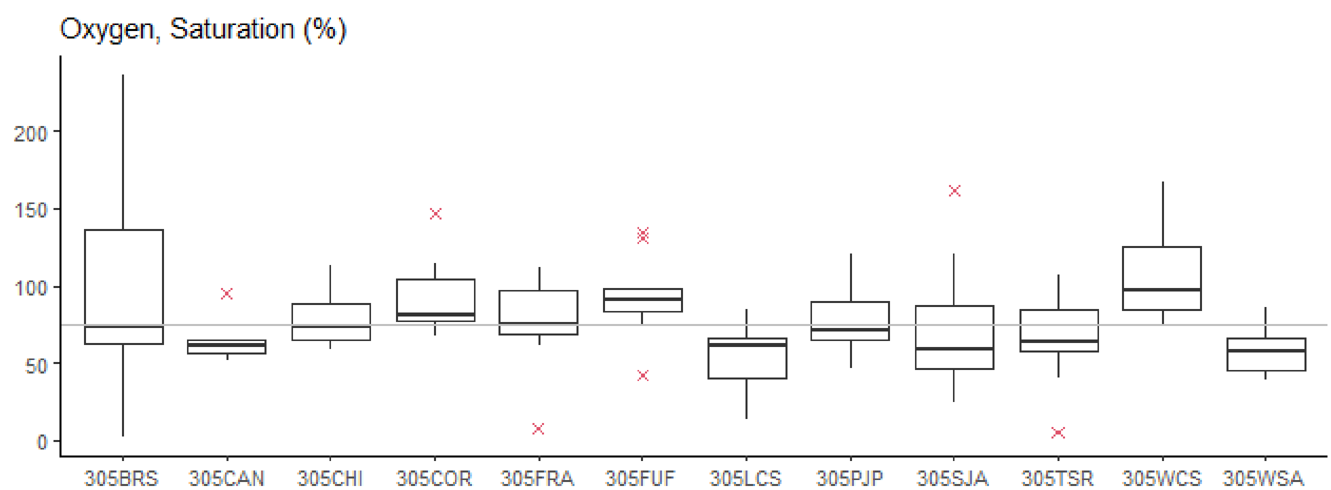
Pajaro River Hydrologic Unit, HUC 305

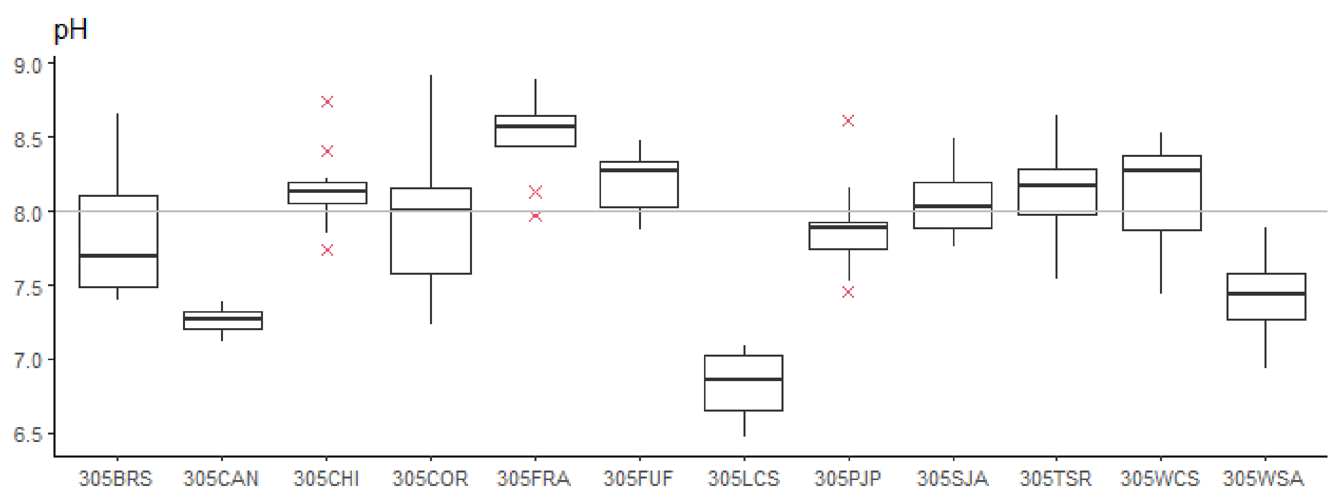


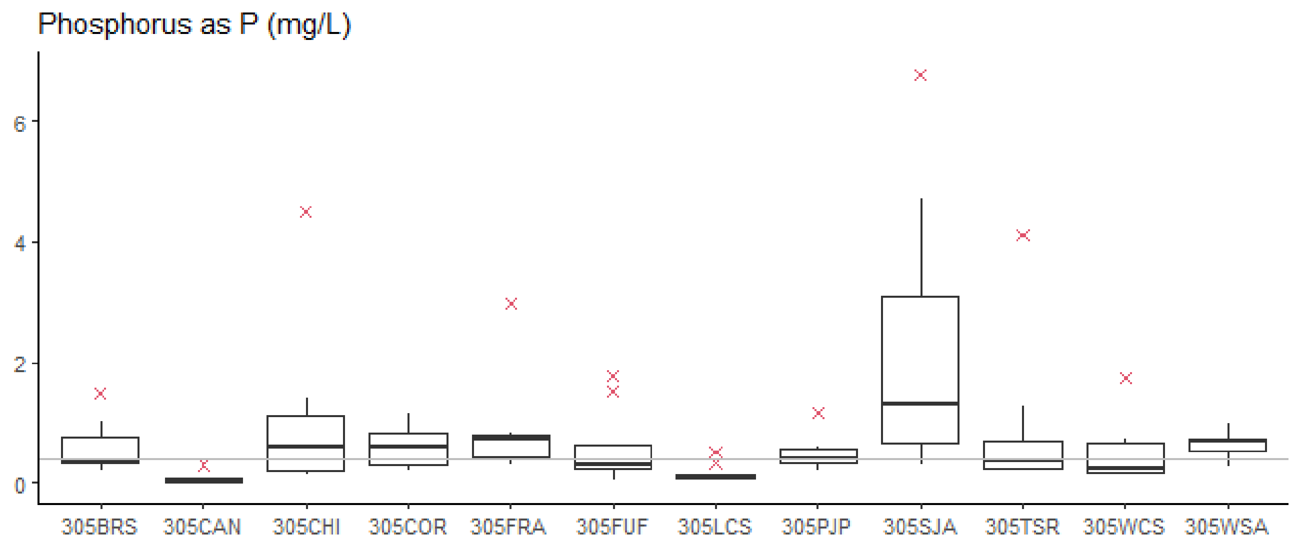


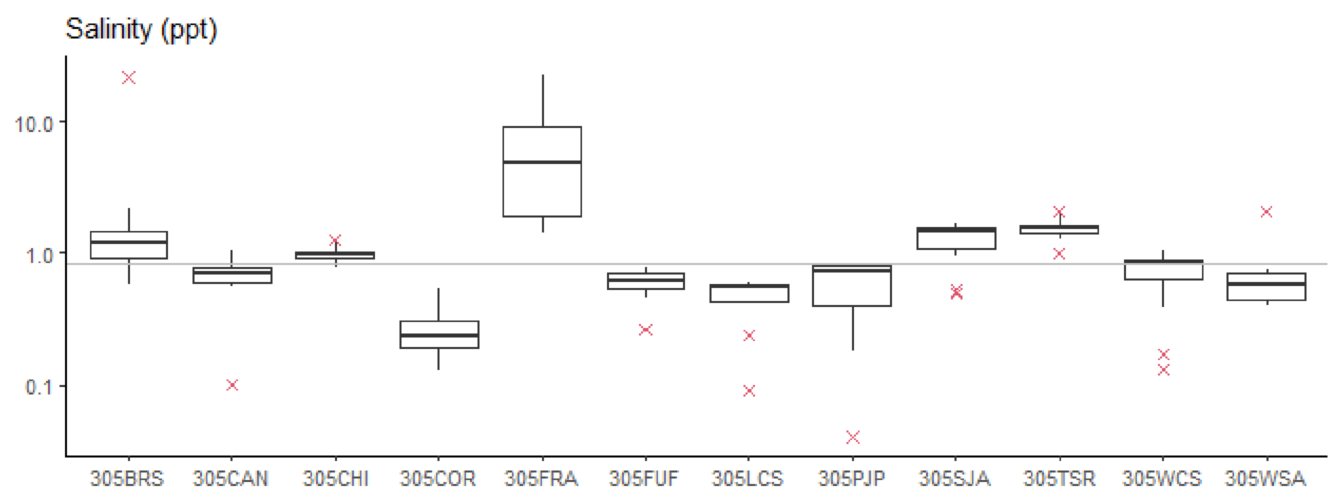


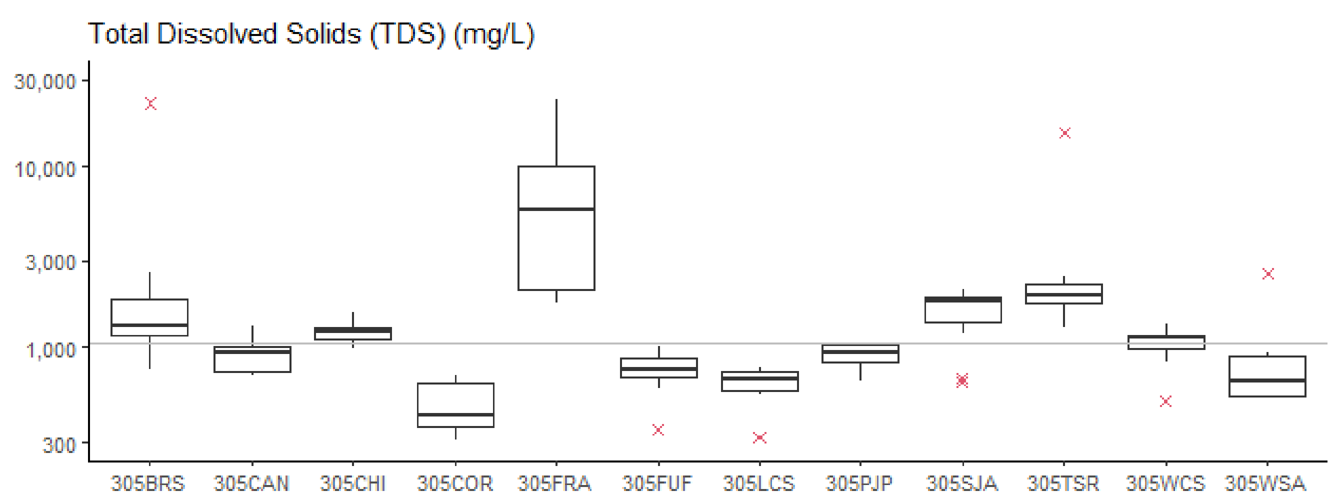

Oxygen, Dissolved (mg/L)
20
15
10
5
0
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

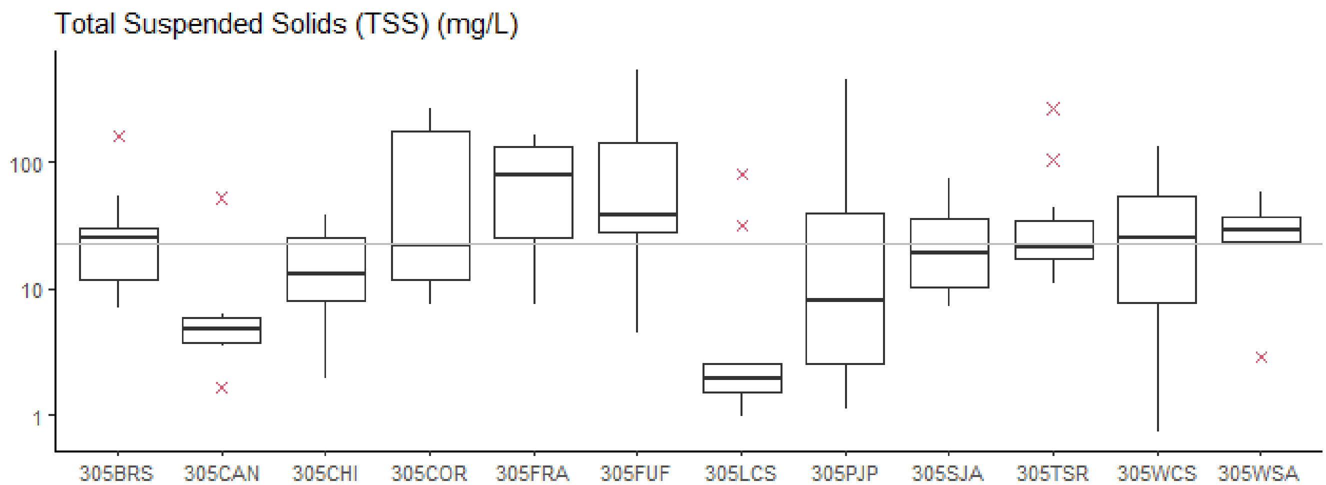

Oxygen, Saturation (%)
200
150
100
50
0
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

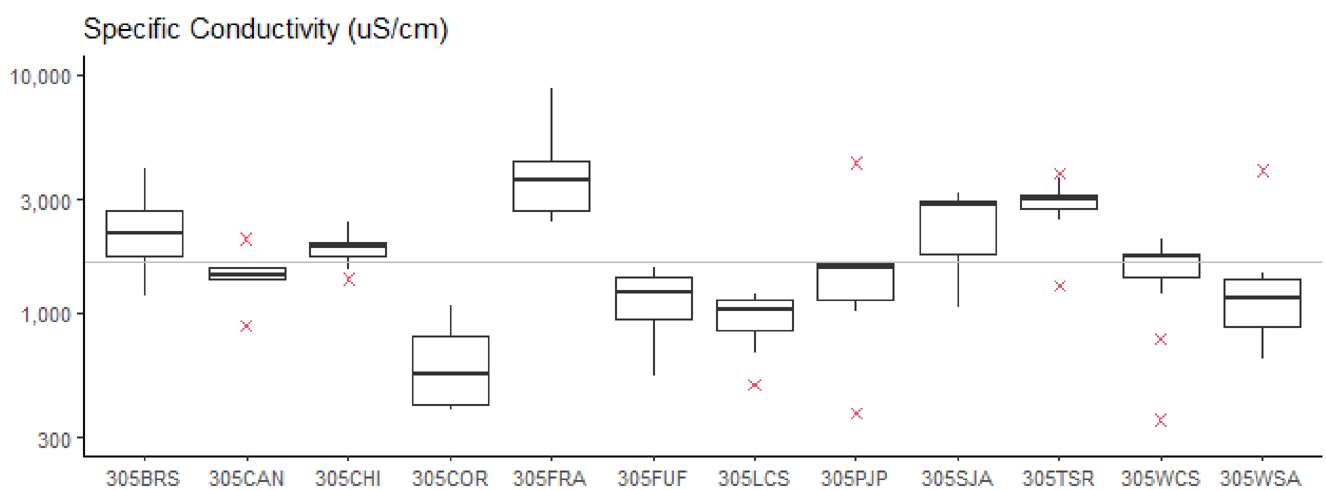

pH
9.0
8.5
8.0
7.5
7.0
6.5
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

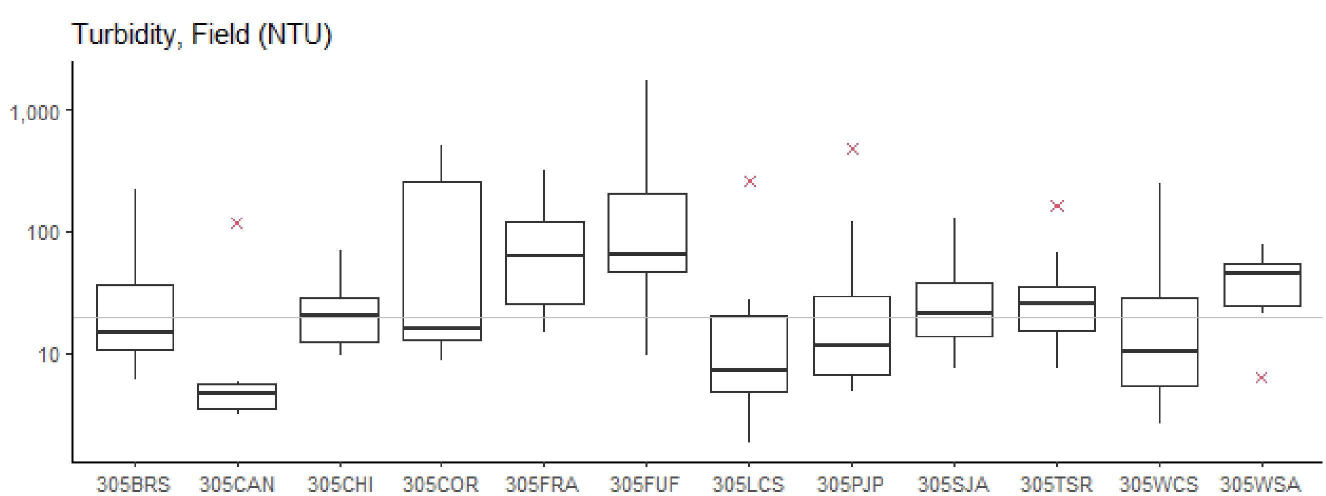

Phosphorus as P (mg/L)
0
2
4
6
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

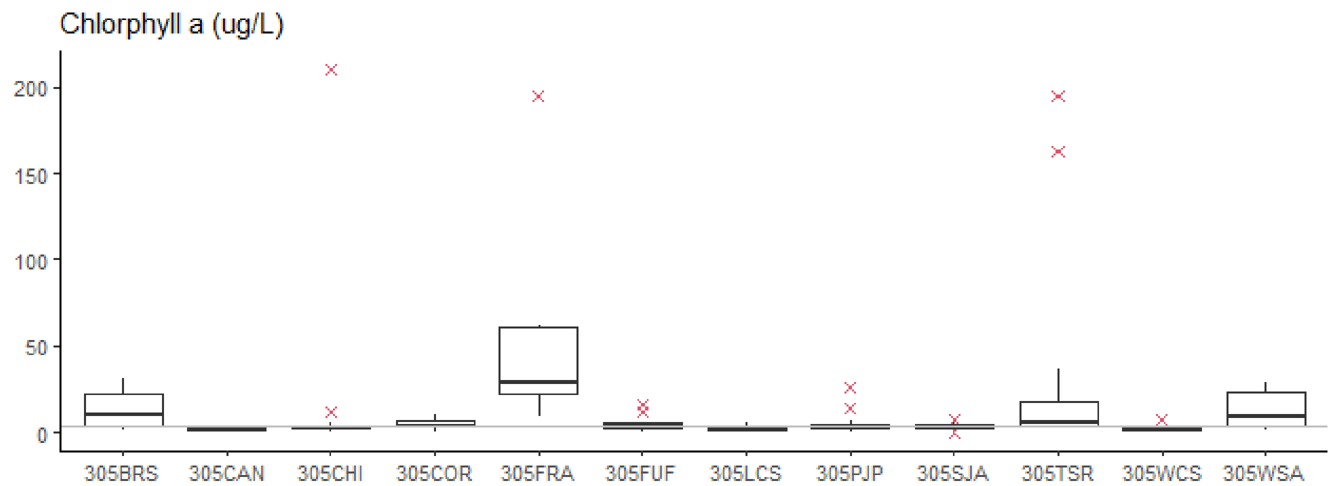

Salinity (ppt)
0.1
1.0
10.0
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

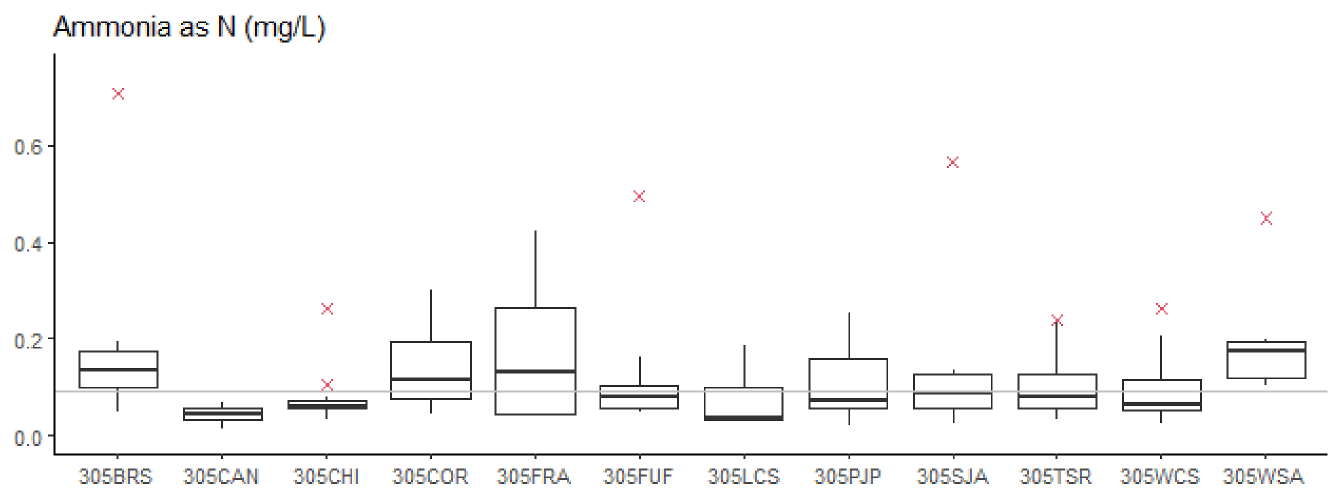

Total Dissolved Solids (TDS) (mg/L)
300
1,000
3,000
10,000
30,000
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

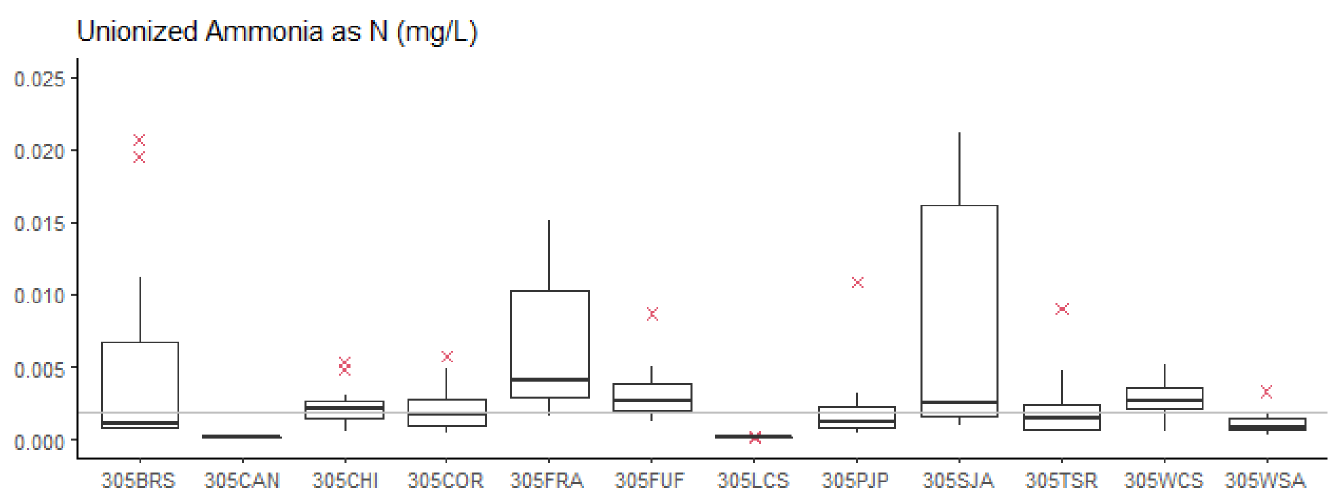

Total Suspended Solids (TSS) (mg/L)
100
10
1
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

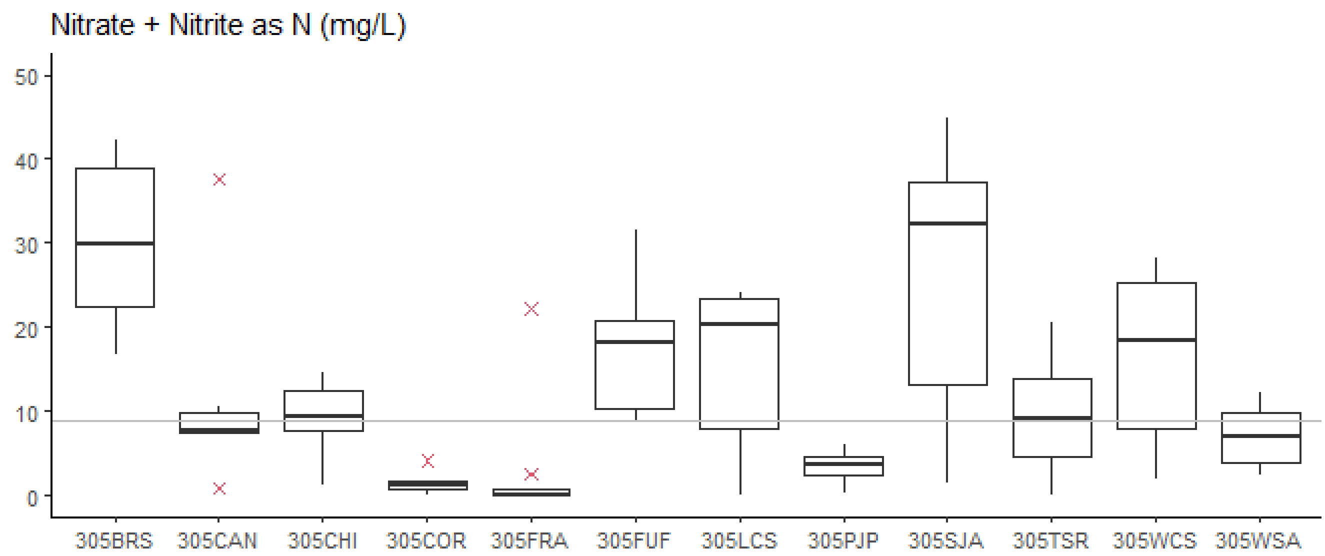

Specific Conductivity (uS/cm)
10,000
3,000
1,000
300
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

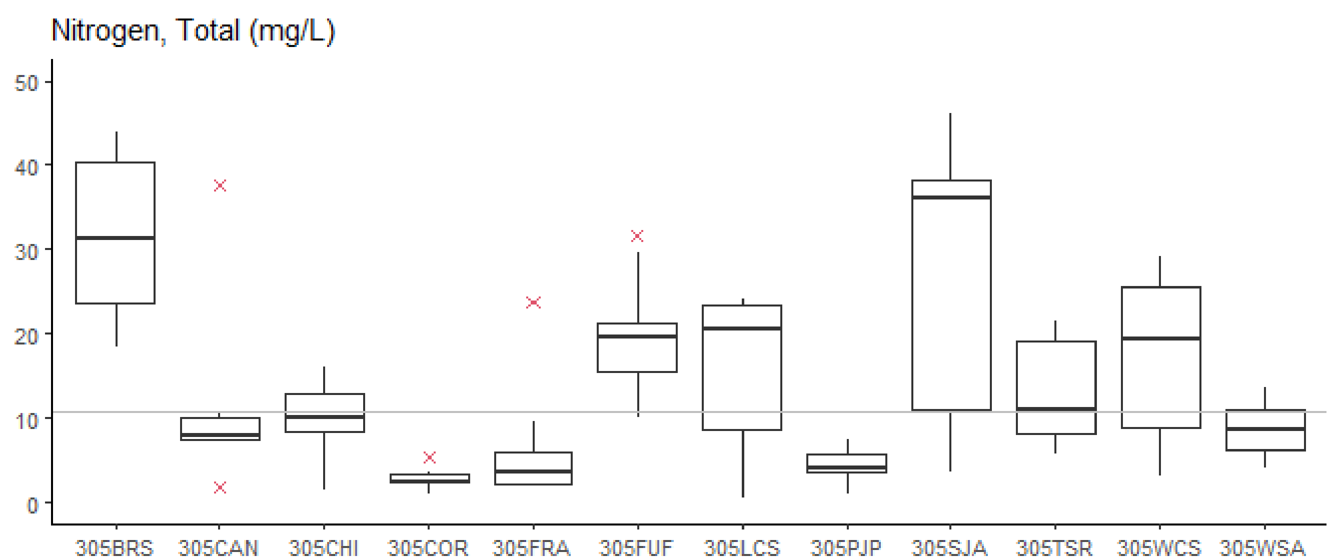

Turbidity, Field (NTU)
1,000
100
10
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

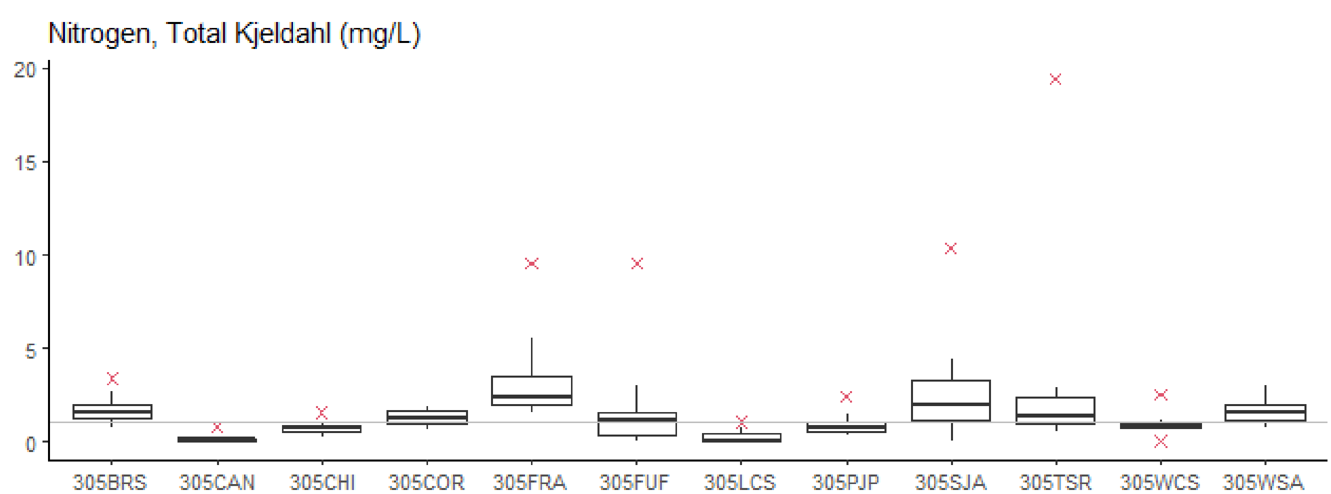

Chlorphyll a (ug/L)
0
50
100
150
200
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

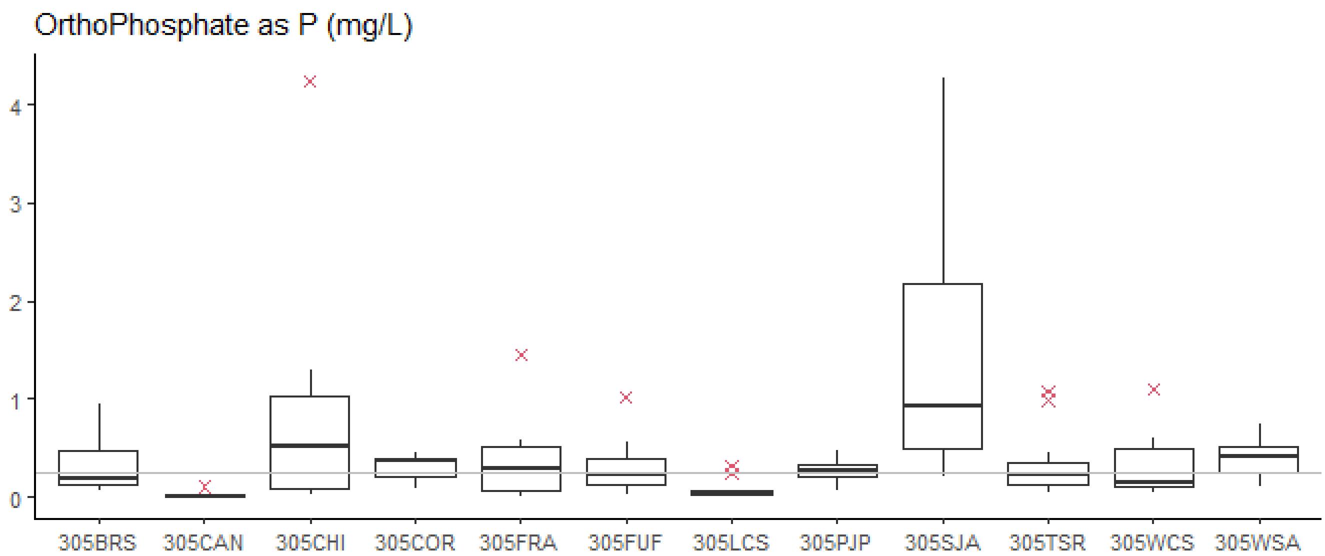

Ammonia as N (mg/L)
0.0
0.2
0.4
0.6
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

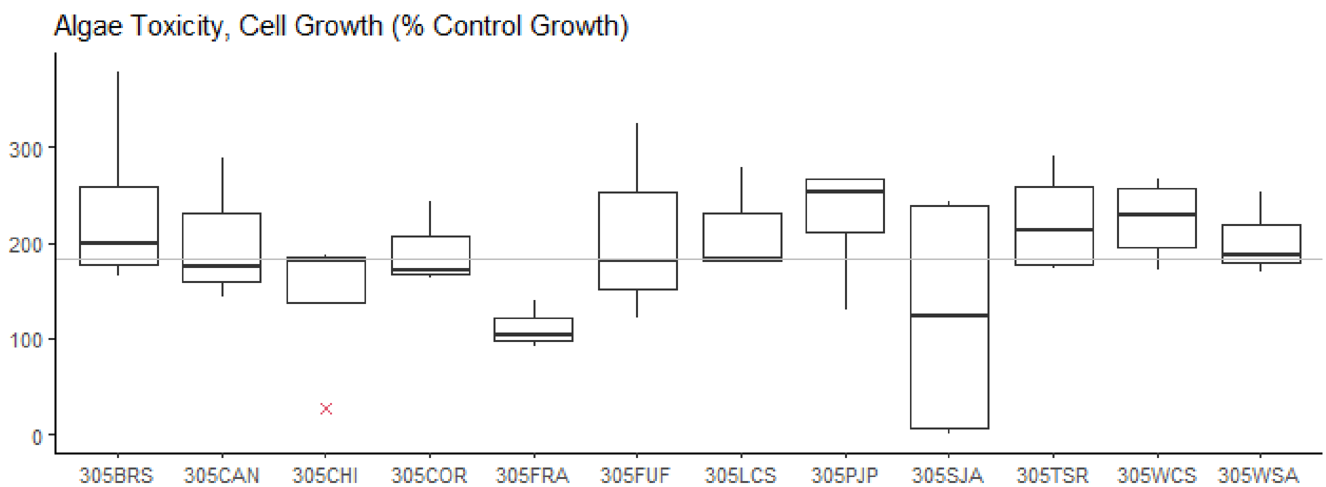

Unionized Ammonia as N (mg/L)
0.000
0.005
0.010
0.015
0.020
0.025
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

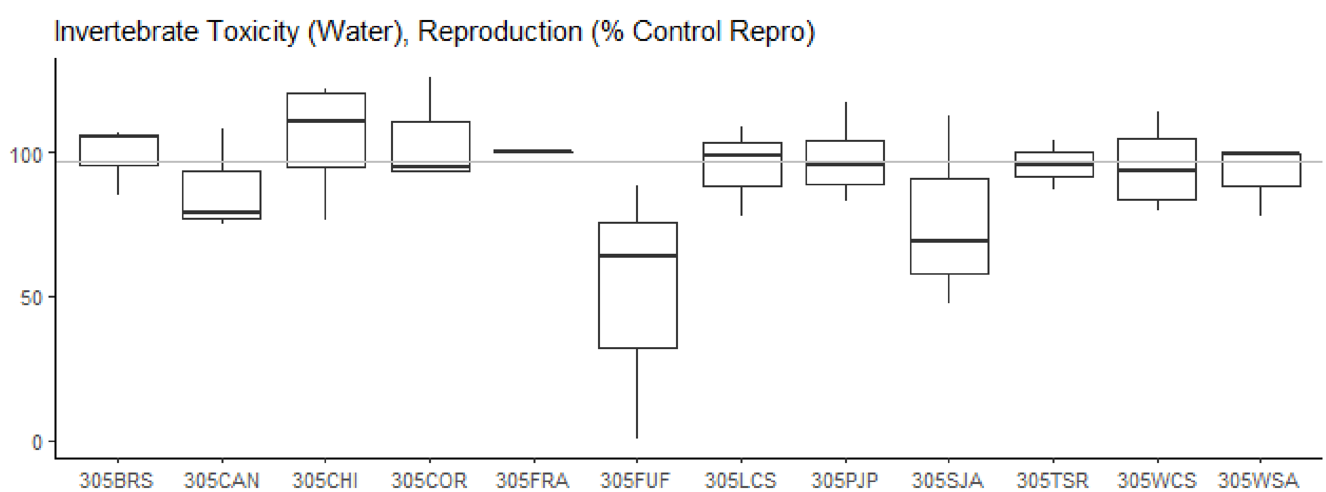

Nitrate + Nitrite as N (mg/L)
50
40
30
20
10
0
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA


Nitrogen, Total (mg/L)
50
40
30
20
10
0
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

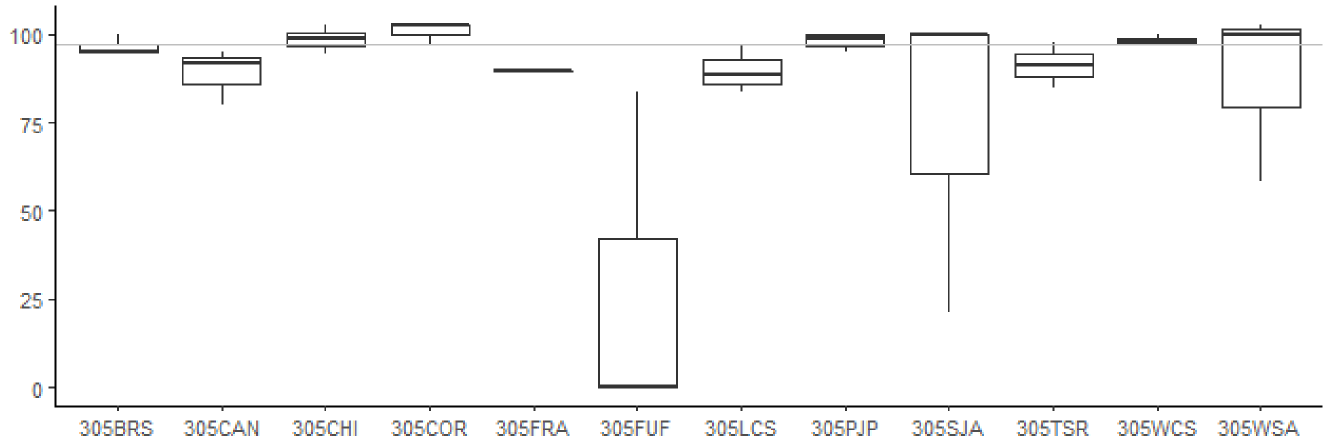

Nitrogen, Total Kjeldahl (mg/L)
20
15
10
5
0
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA


OrthoPhosphate as P (mg/L)
0
1
2
3
4
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

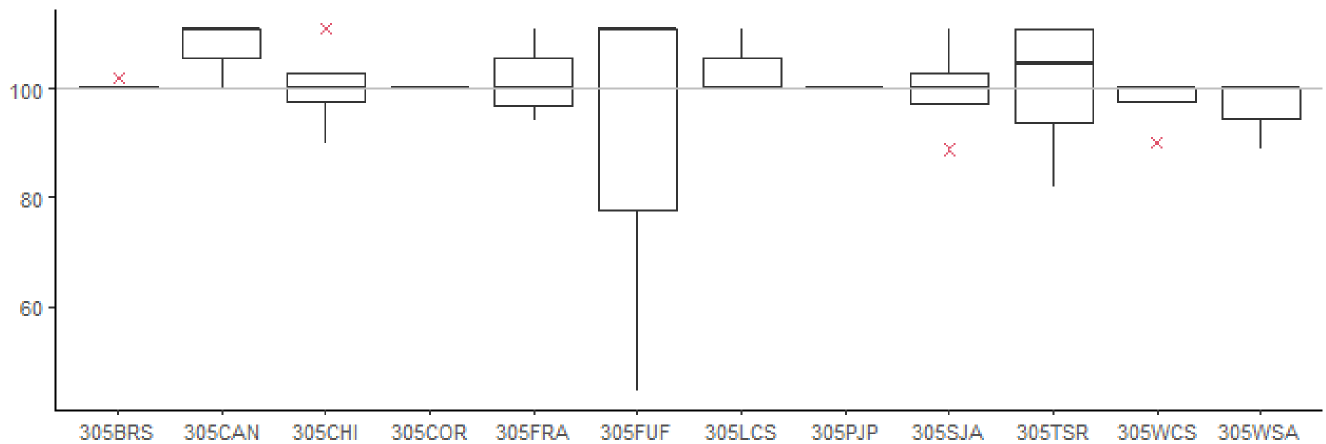

Algae Toxicity, Cell Growth (% Control Growth)
0
100
200
300
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA


Invertebrate Toxicity (Water), Reproduction (% Control Repro)
0
50
100
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

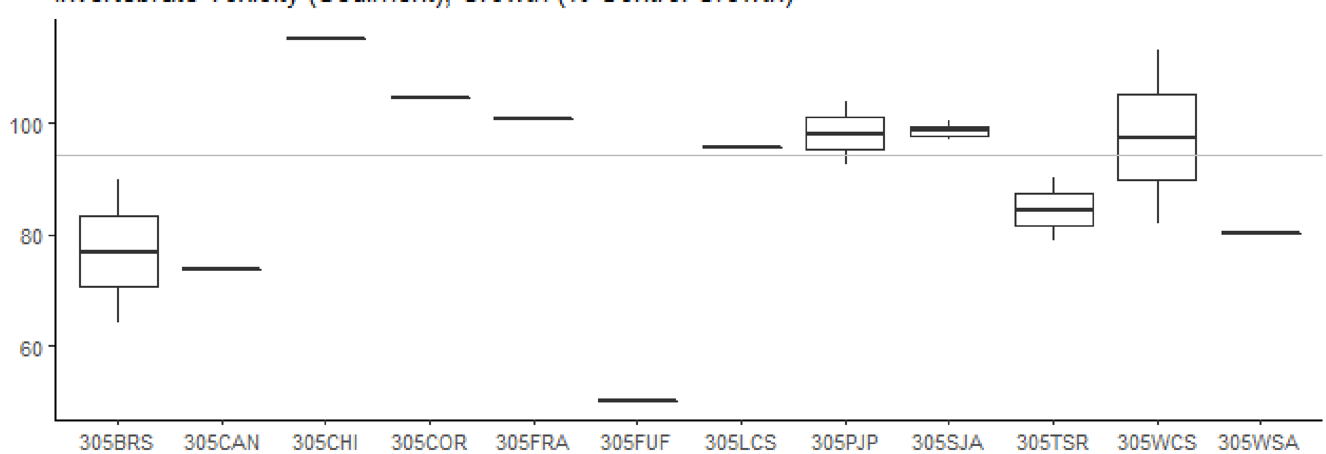
Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)

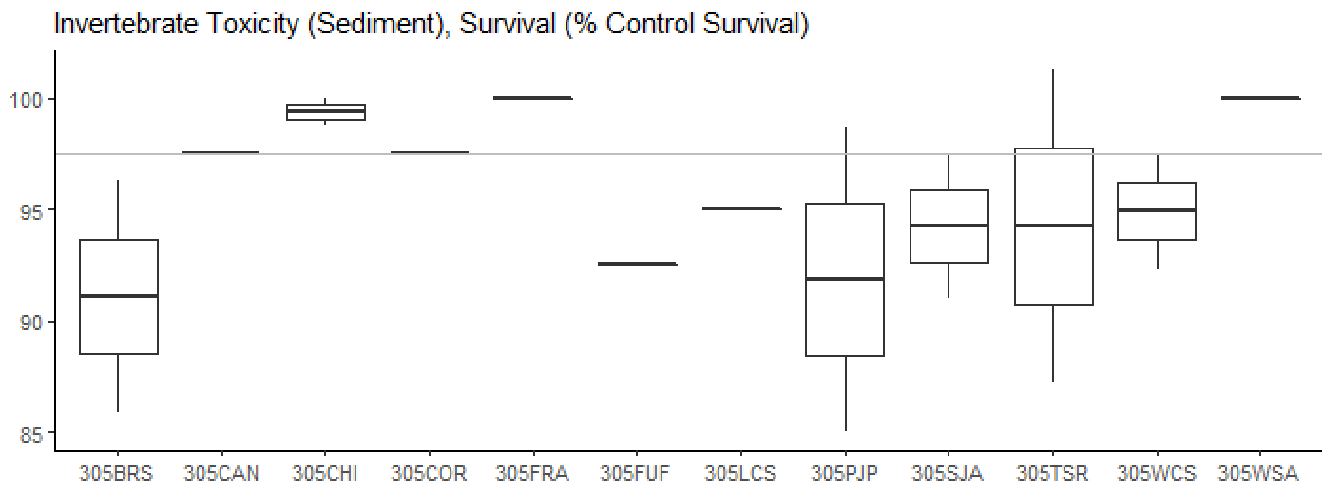


Invertebrate Toxicity (Water), Survival (% Control Survival)

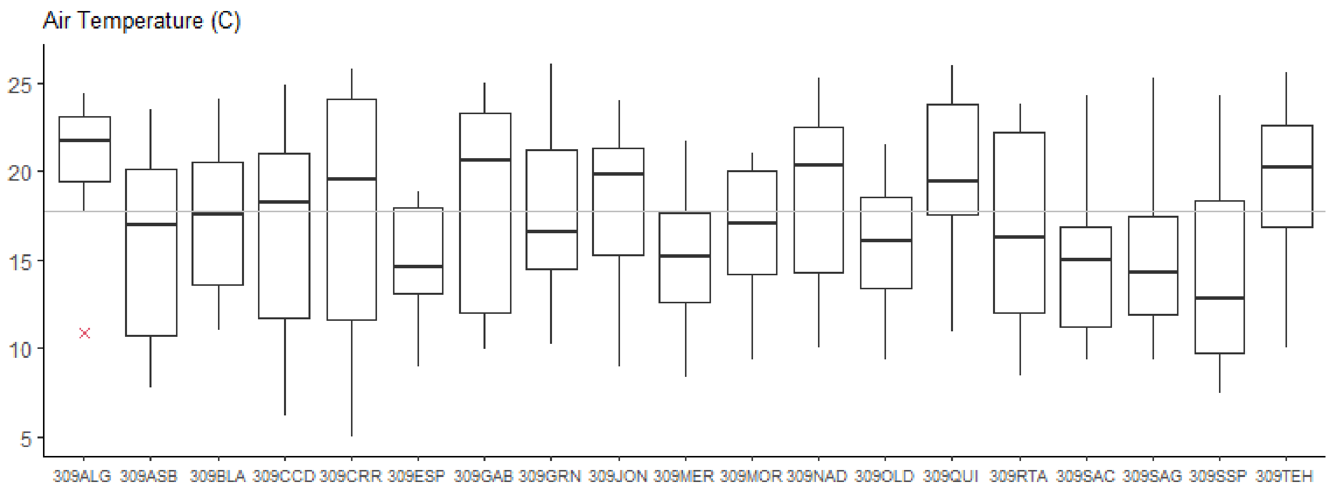


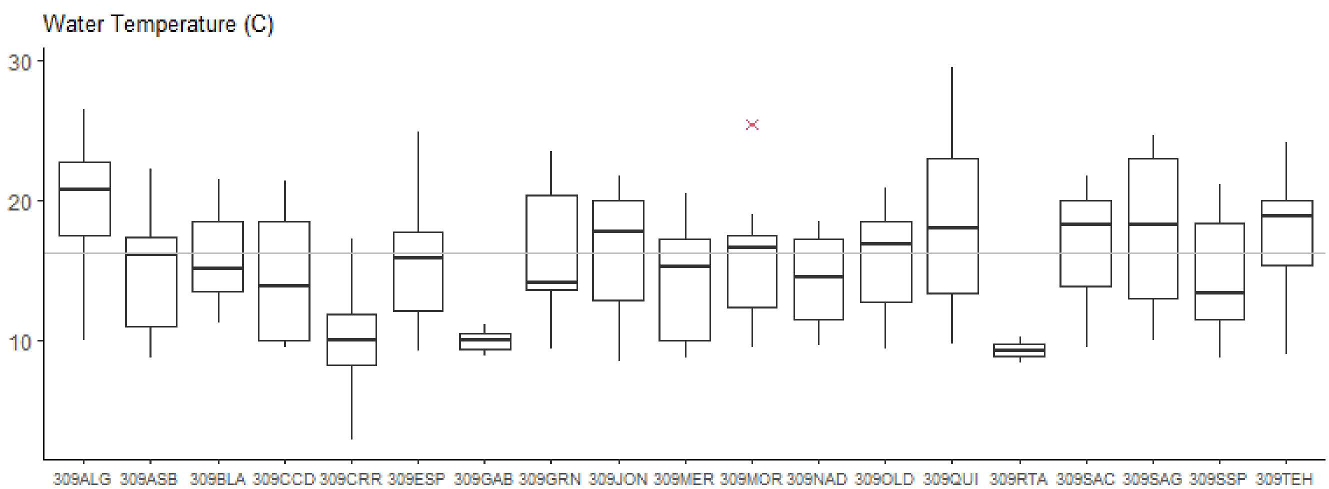
Invertebrate Toxicity (Sediment), Growth (% Control Growth)

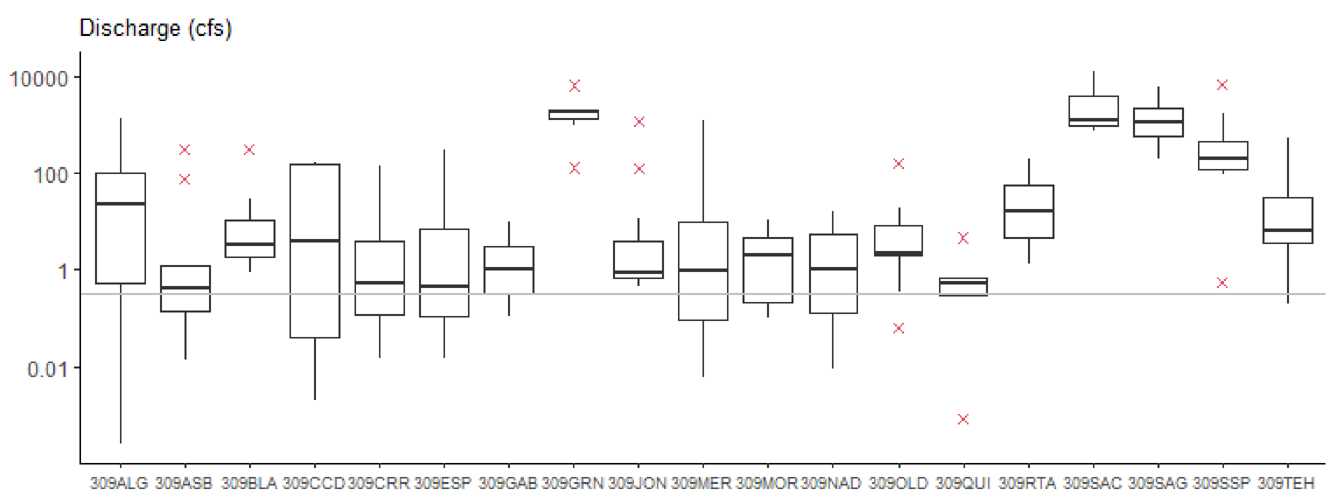


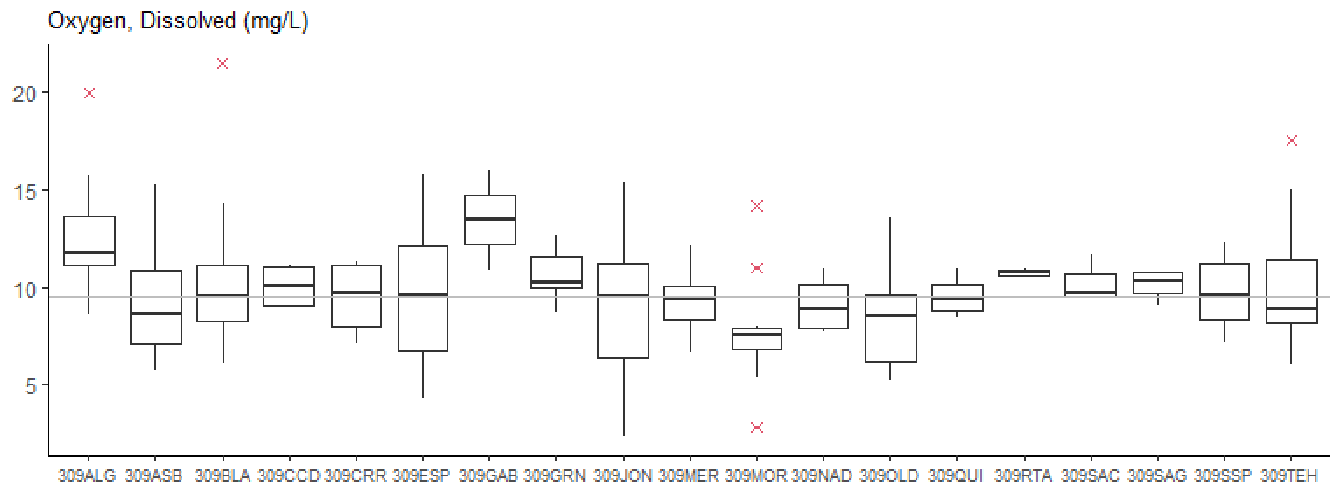

Invertebrate Toxicity (Sediment), Survival (% Control Survival)
100
95
90
85
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA

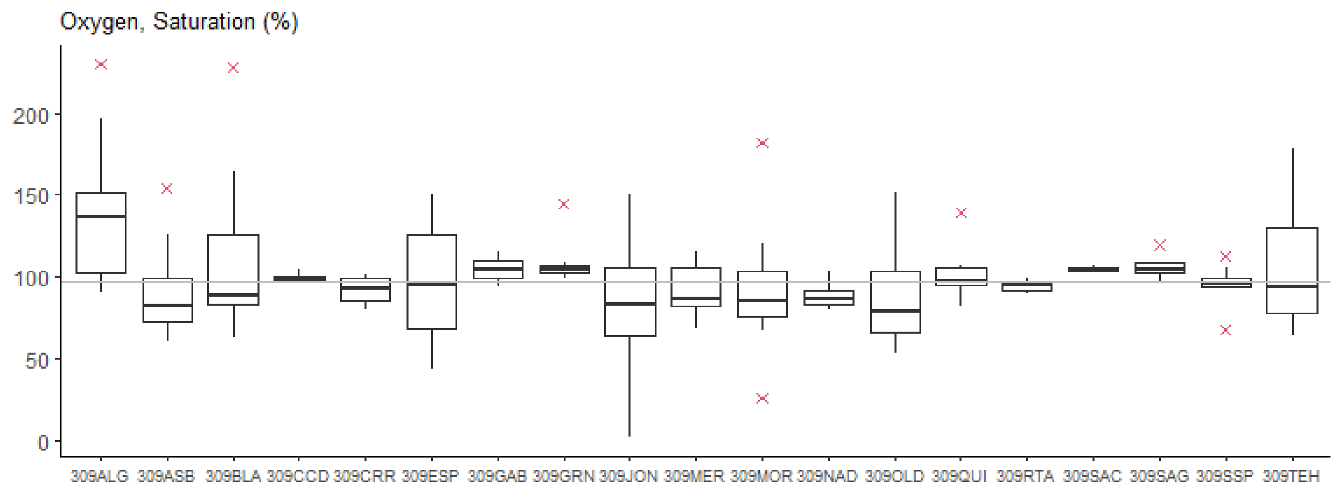
Salinas River Hydrologic Unit, HUC 309

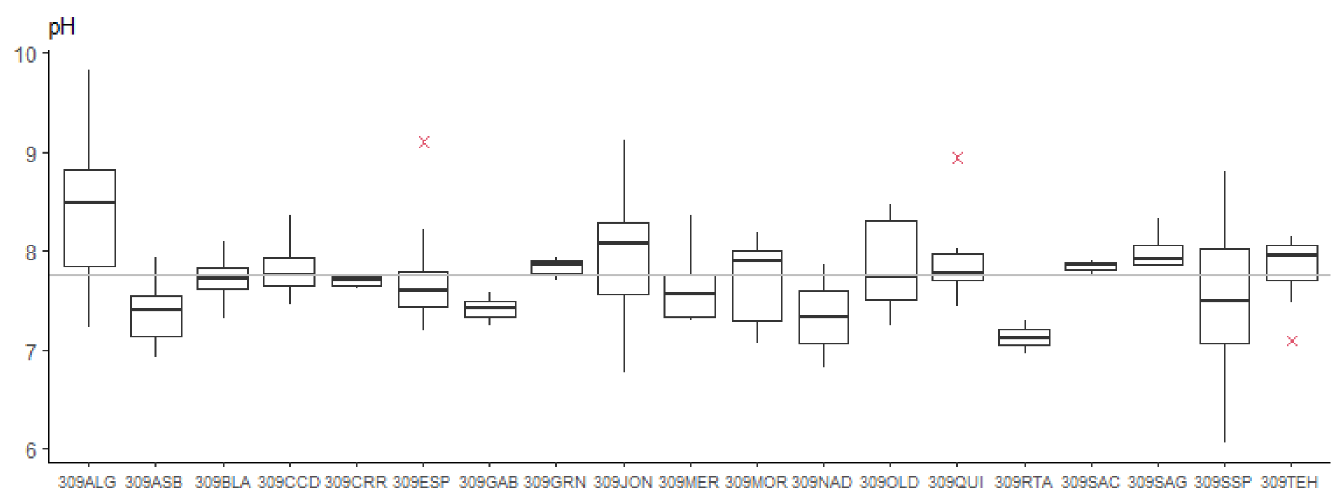


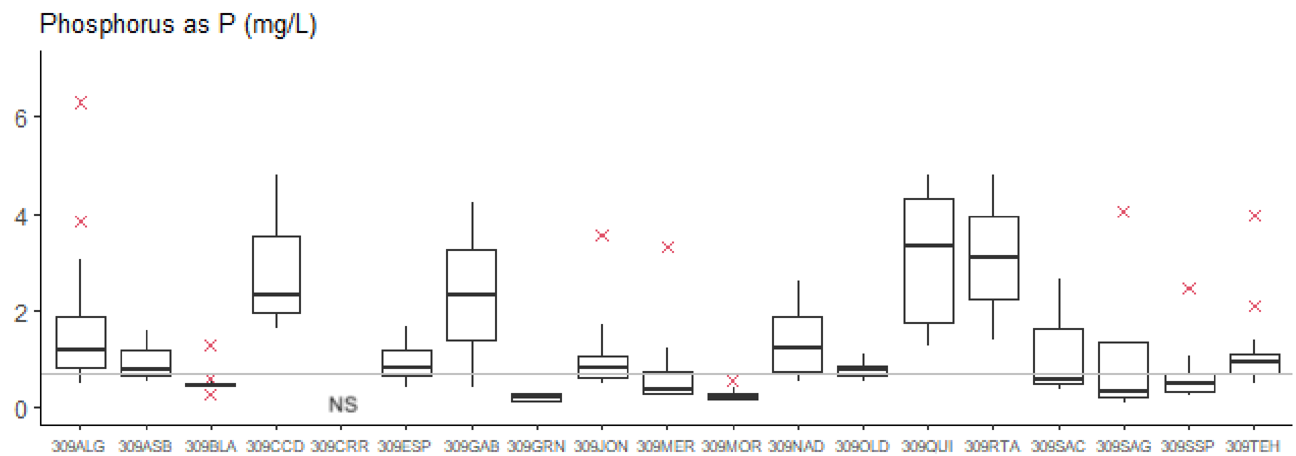


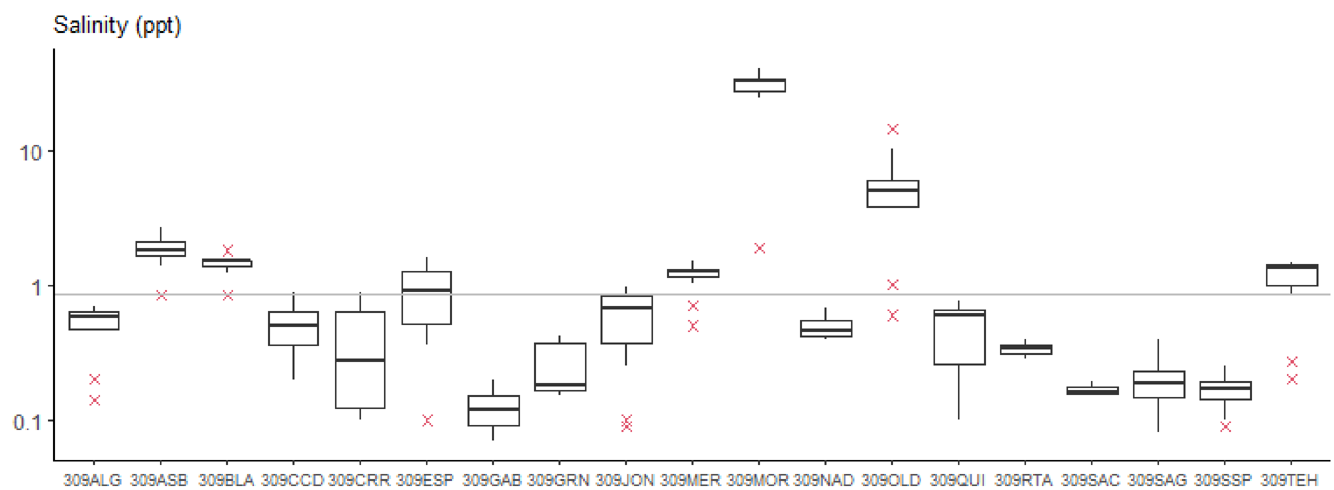


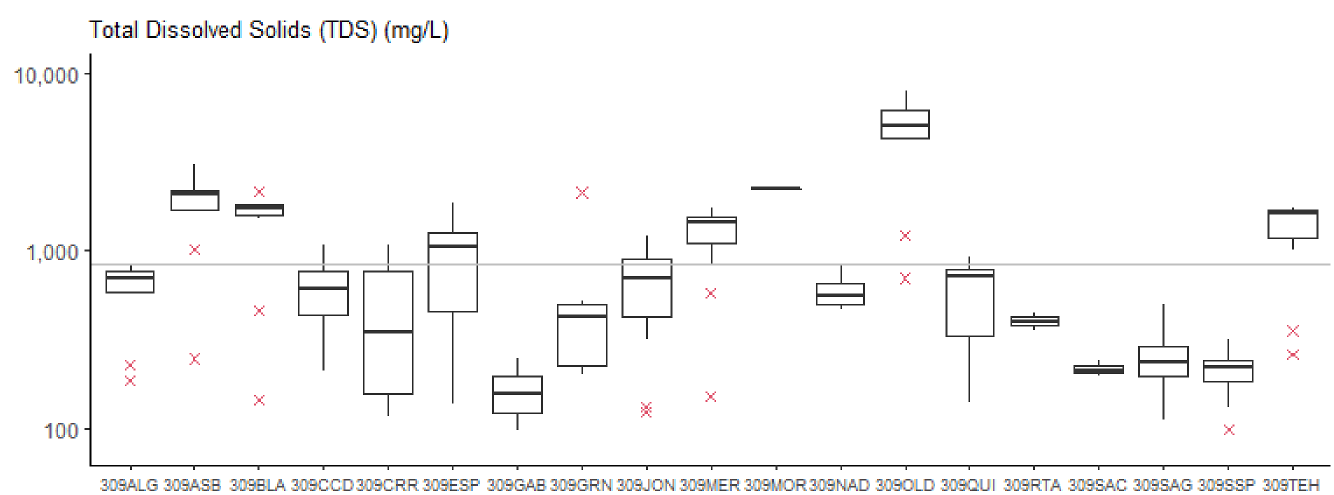

Oxygen, Dissolved (mg/L)
20
15
10
5
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH


Oxygen, Saturation (%)
200
150
100
50
0
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

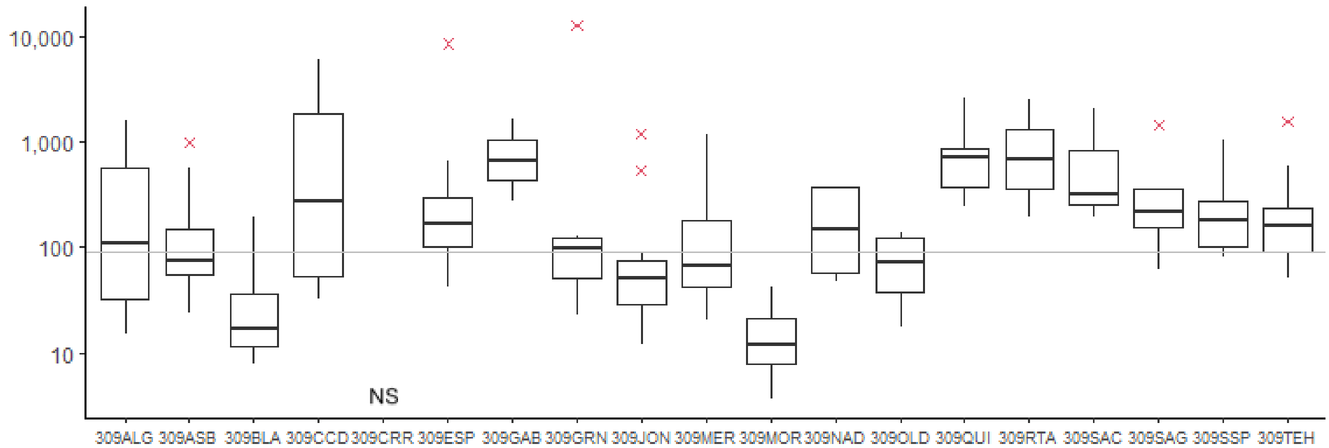

pH
10
9
8
7
6
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH


Phosphorus as P (mg/L)
0
2
4
6
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

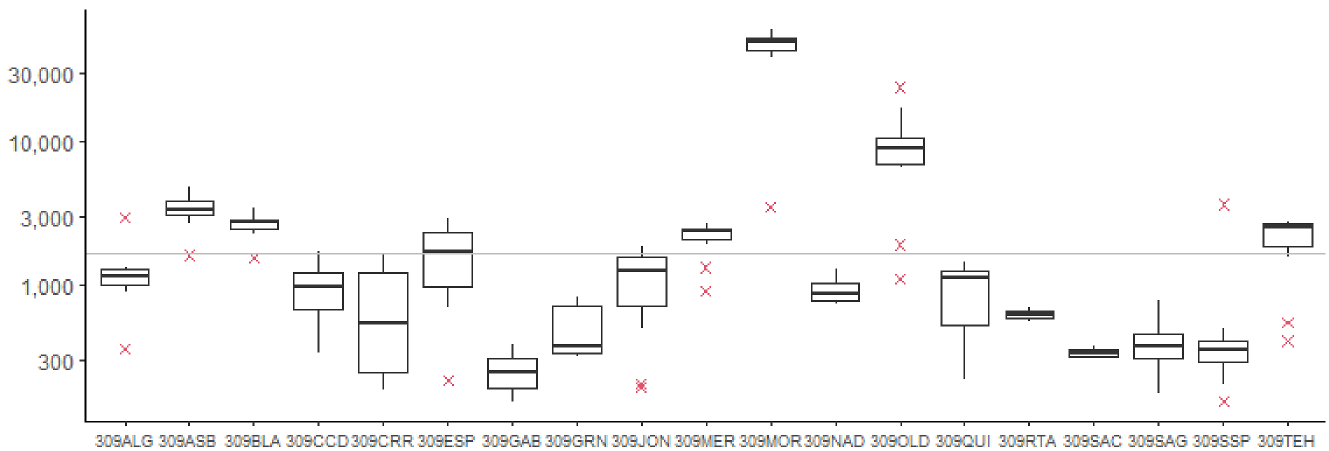

Salinity (ppt)
0.1
1
10
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH


Total Dissolved Solids (TDS) (mg/L)
100
1,000
10,000
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

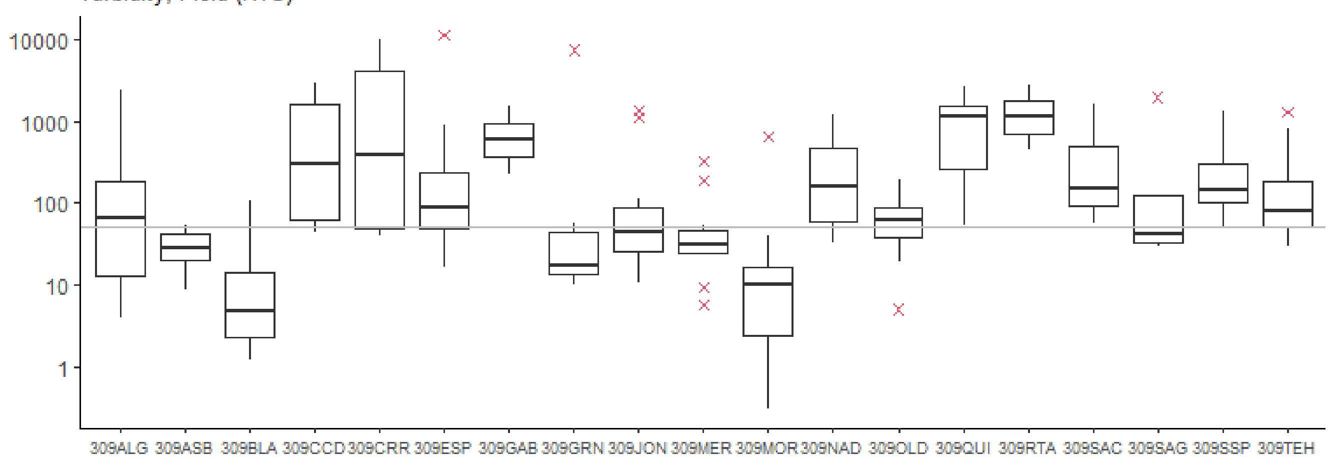
Total Suspended Solids (TSS) (mg/L)

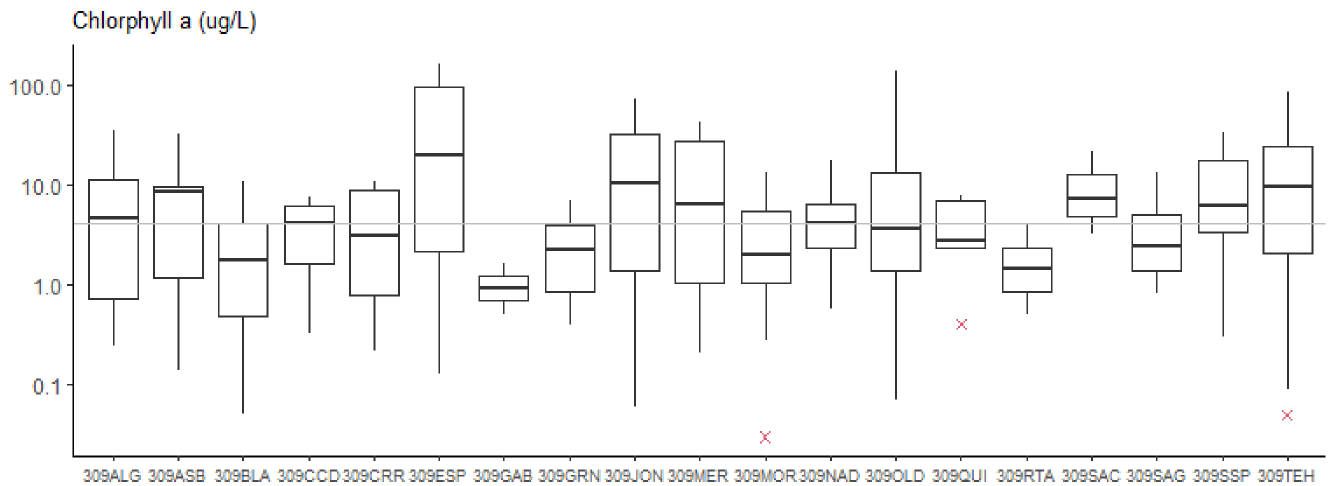


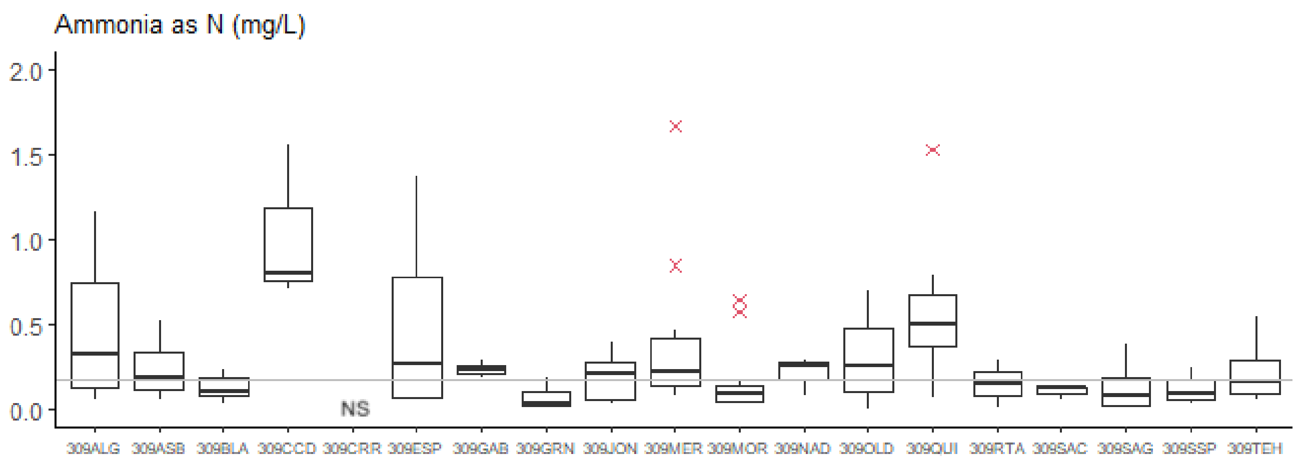
Specific Conductivity (uS/cm)

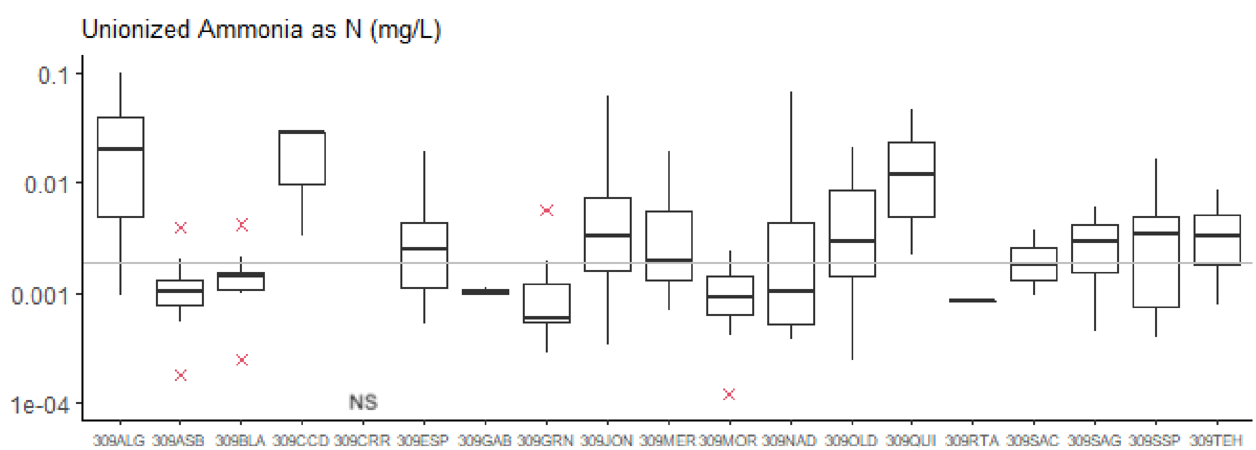


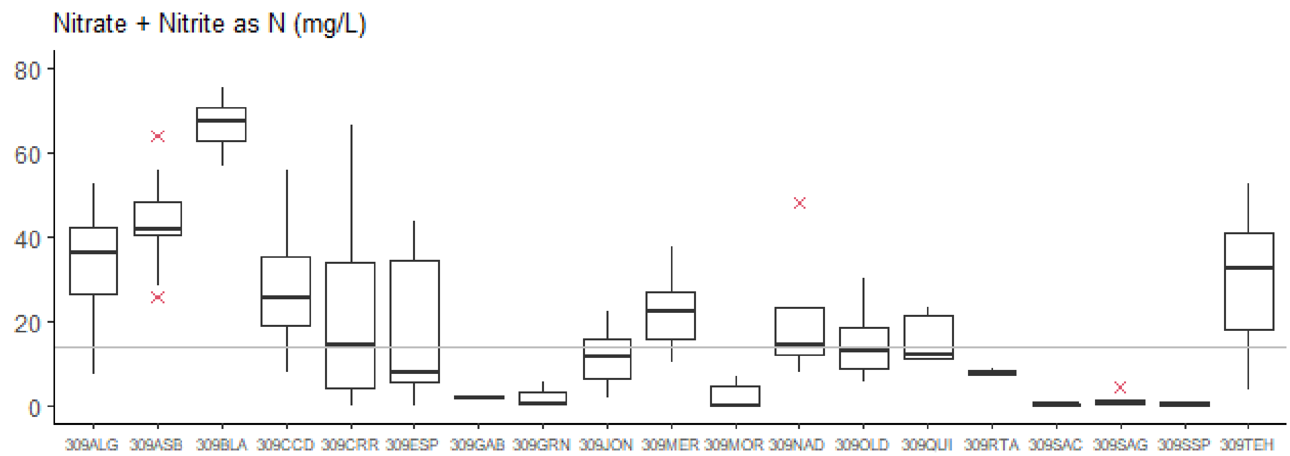
Turbidity, Field (NTU)

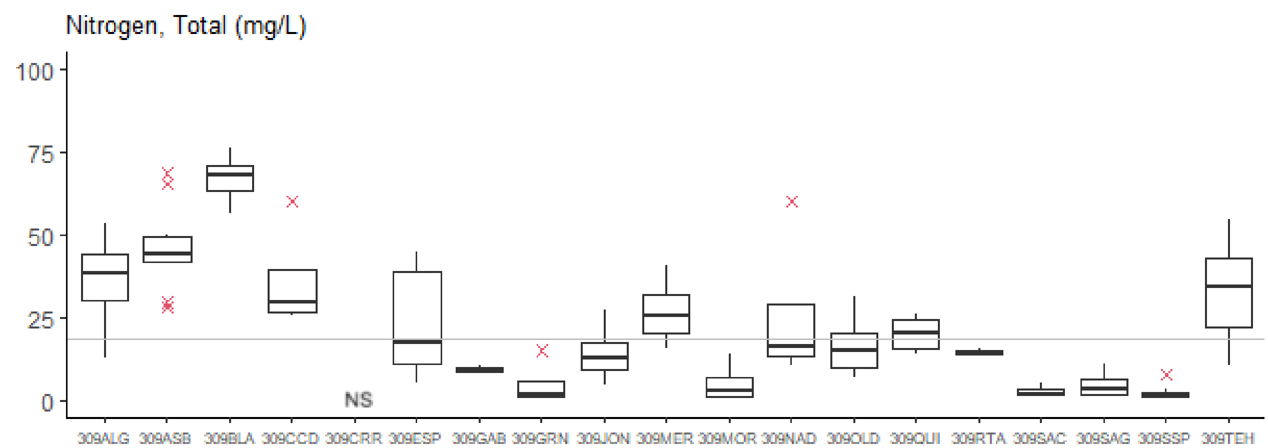


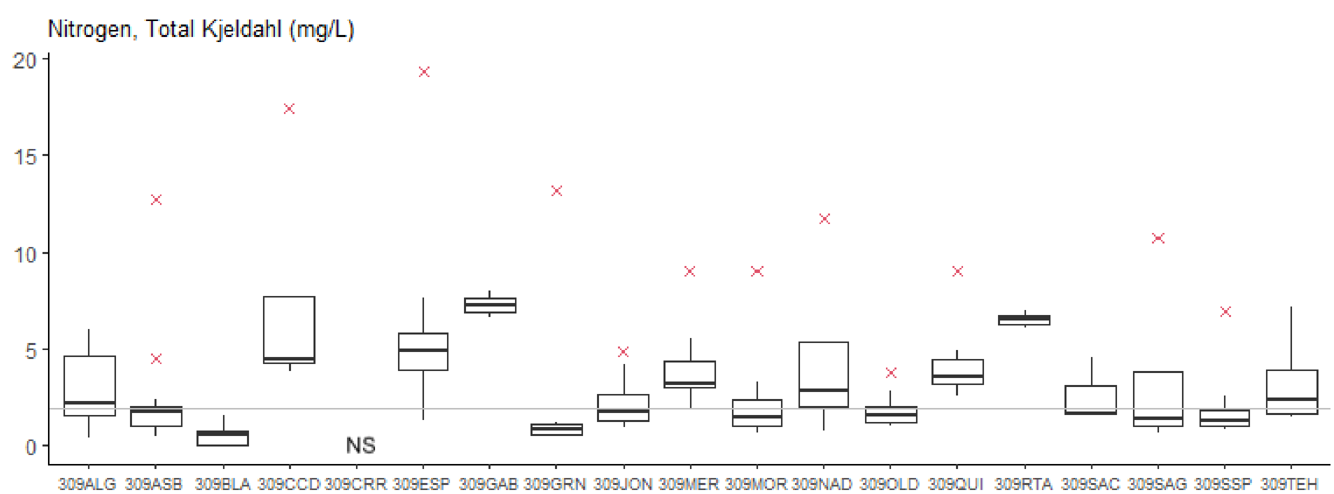

Chlorphyll a (ug/L)
100.0
10.0
1.0
0.1
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

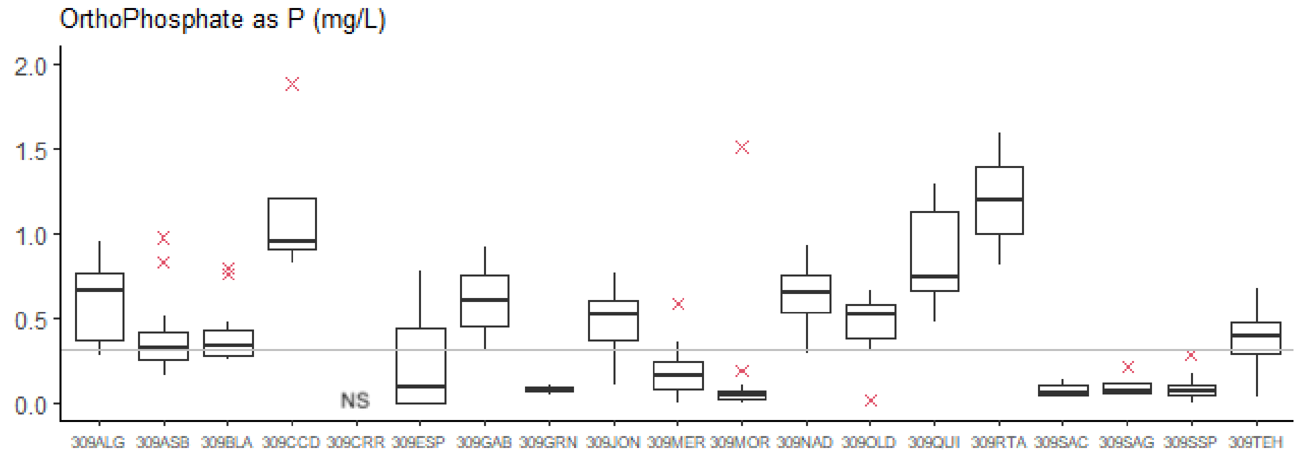

Ammonia as N (mg/L)
2.0
1.5
1.0
0.5
0.0
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

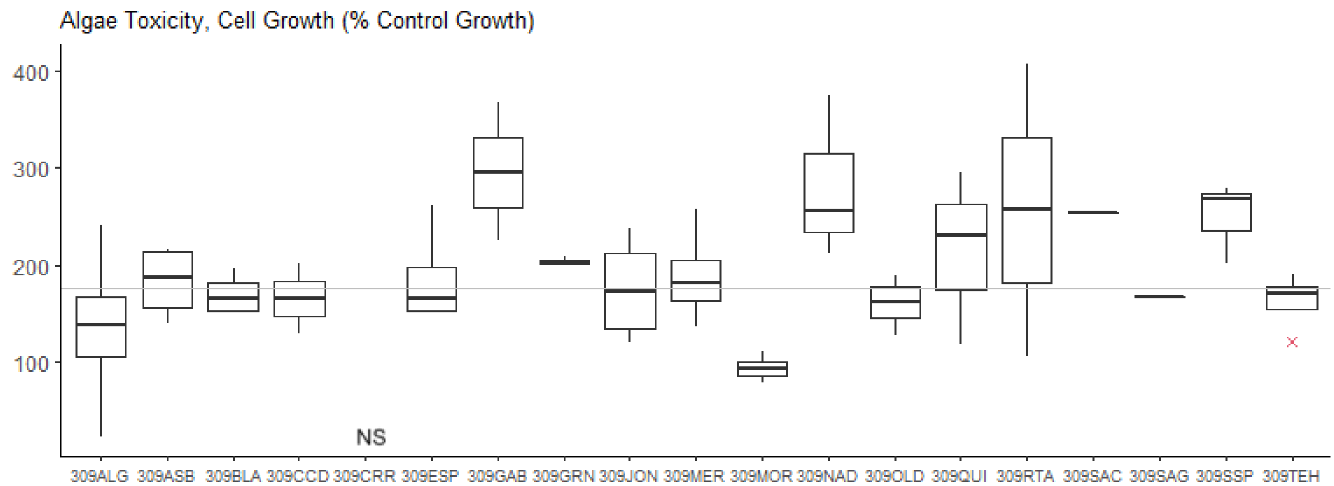

Unionized Ammonia as N (mg/L)
0.1
0.01
0.001
1e-04
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

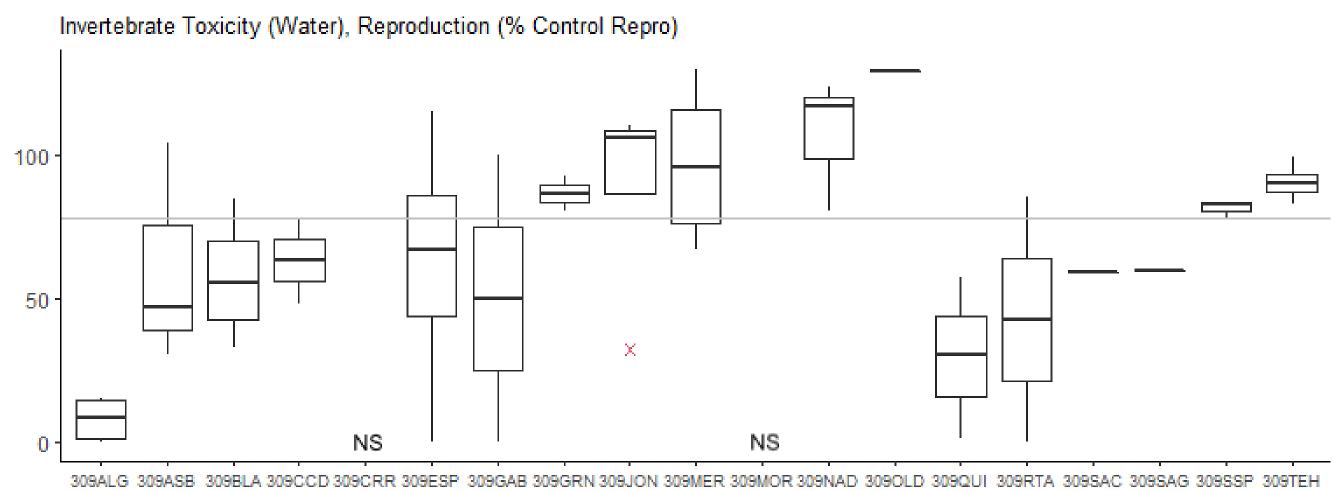

Nitrate + Nitrite as N (mg/L)
80
60
40
20
0
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

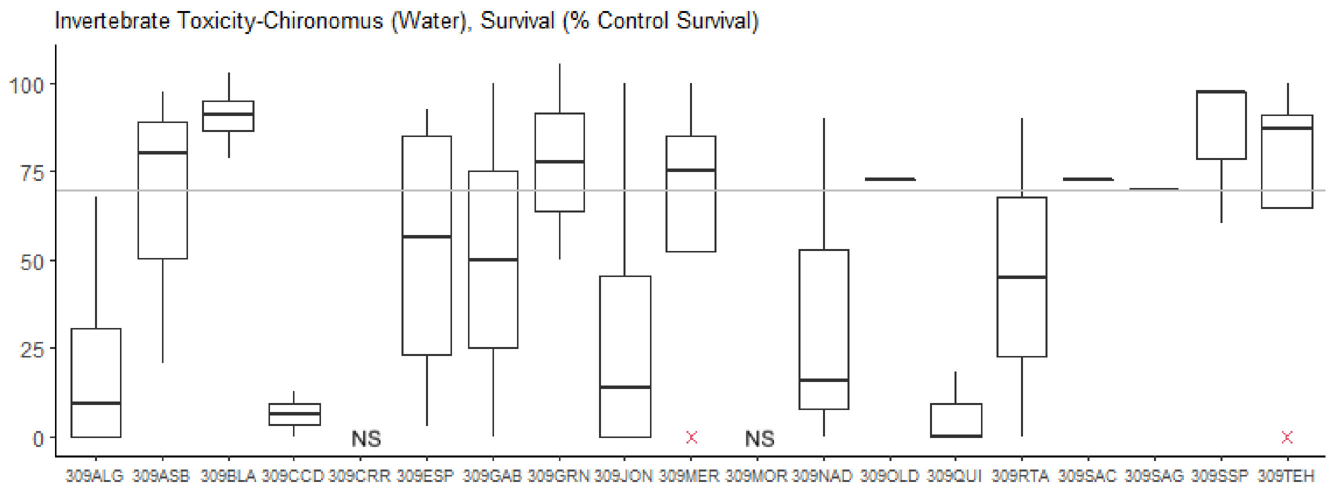

Nitrogen, Total (mg/L)
100
75
50
25
0
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

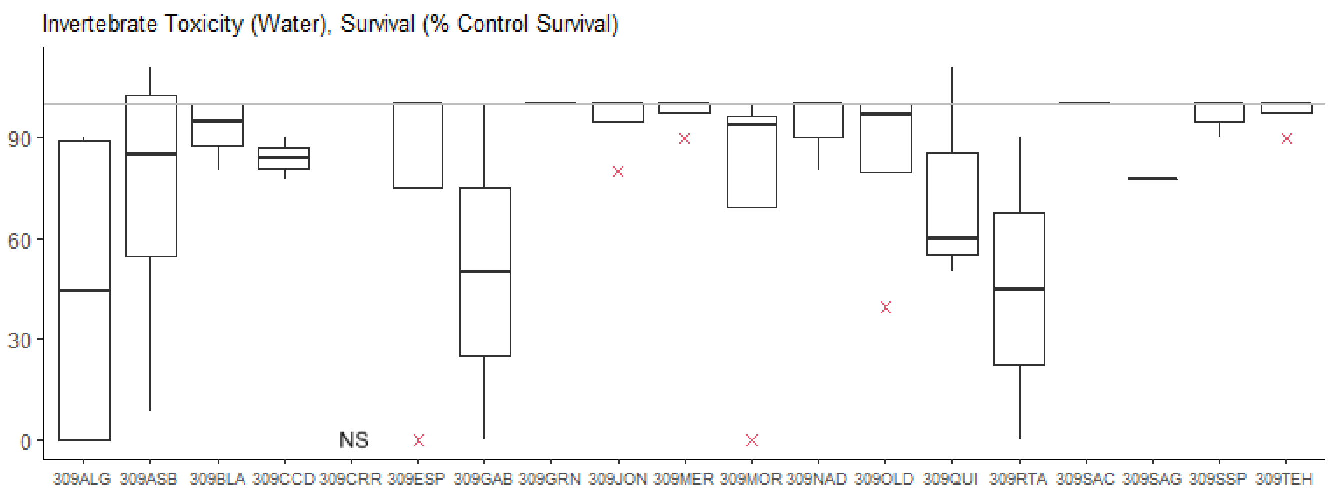

Nitrogen, Total Kjeldahl (mg/L)
20
15
10
5
0
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

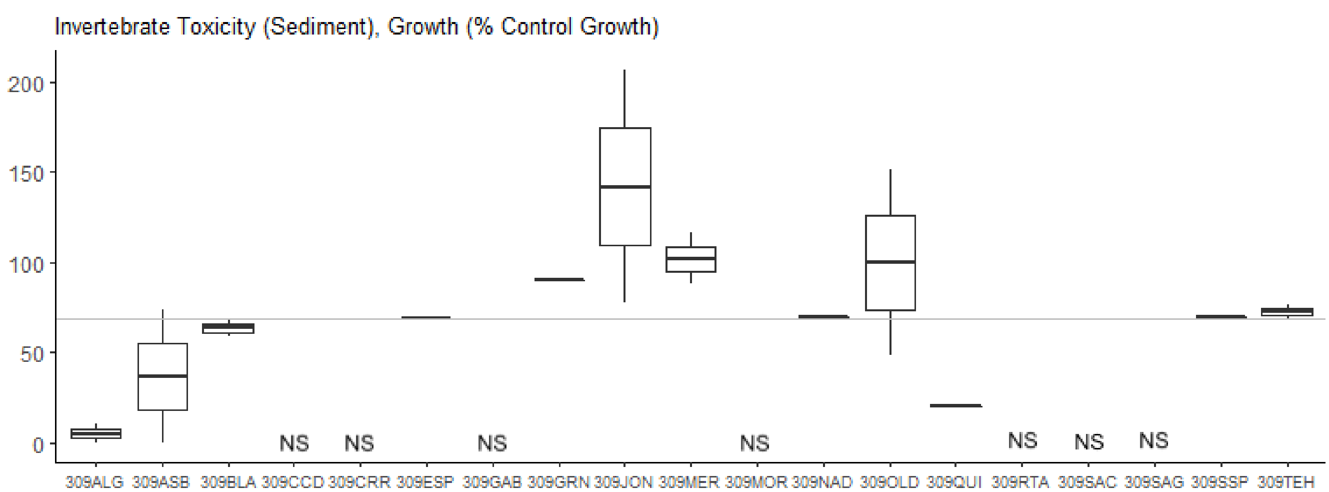

OrthoPhosphate as P (mg/L)
2.0
1.5
1.0
0.5
0.0
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

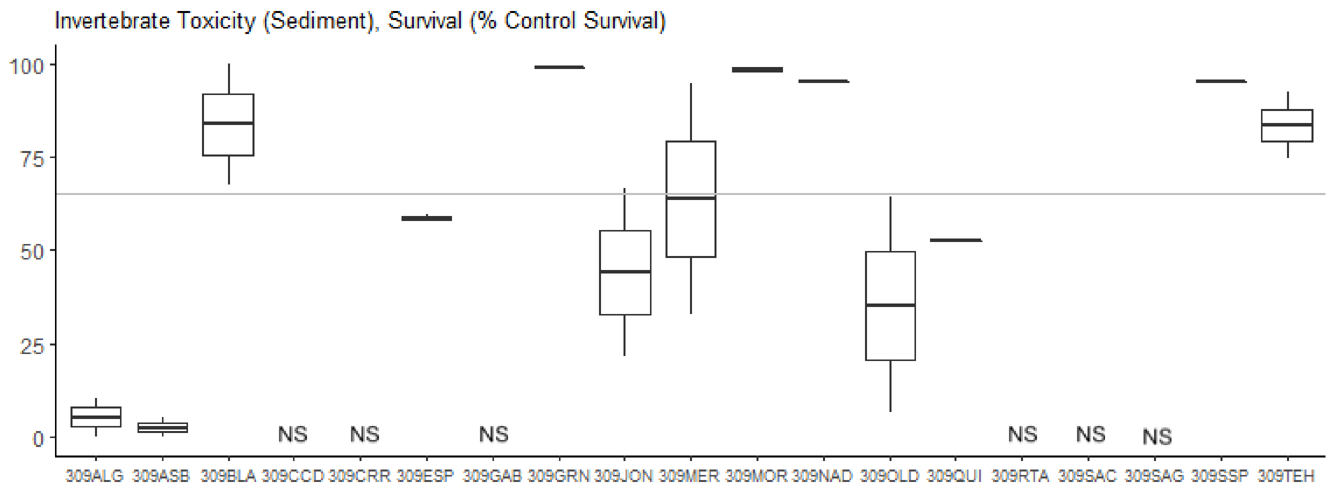

Algae Toxicity, Cell Growth (% Control Growth)
400
300
200
100
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH


Invertebrate Toxicity (Water), Reproduction (% Control Repro)
100
50
0
NS
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

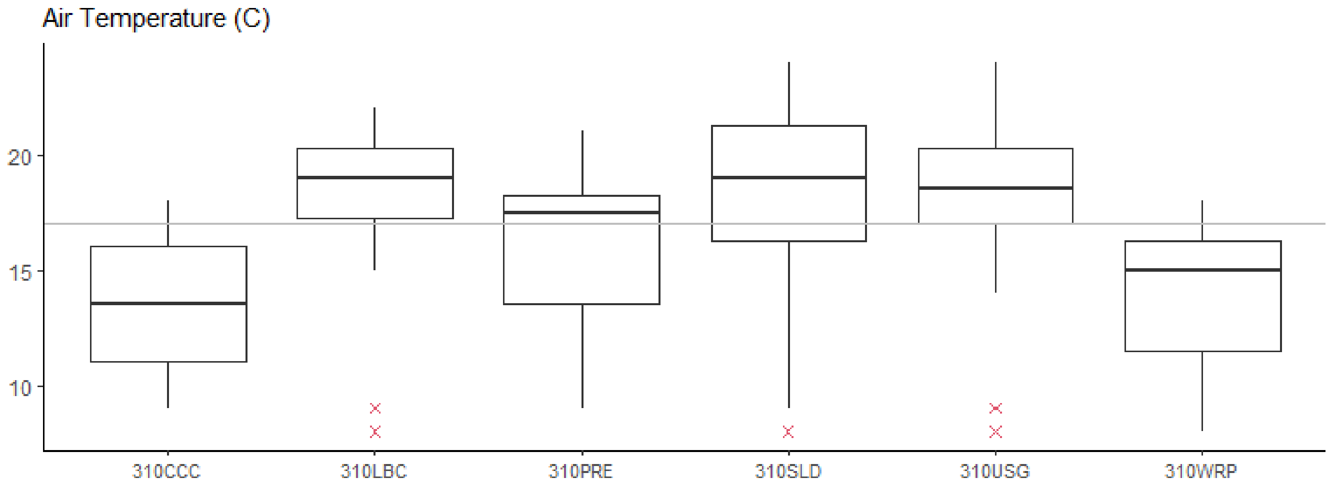

Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)
0
25
50
75
100
NS
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

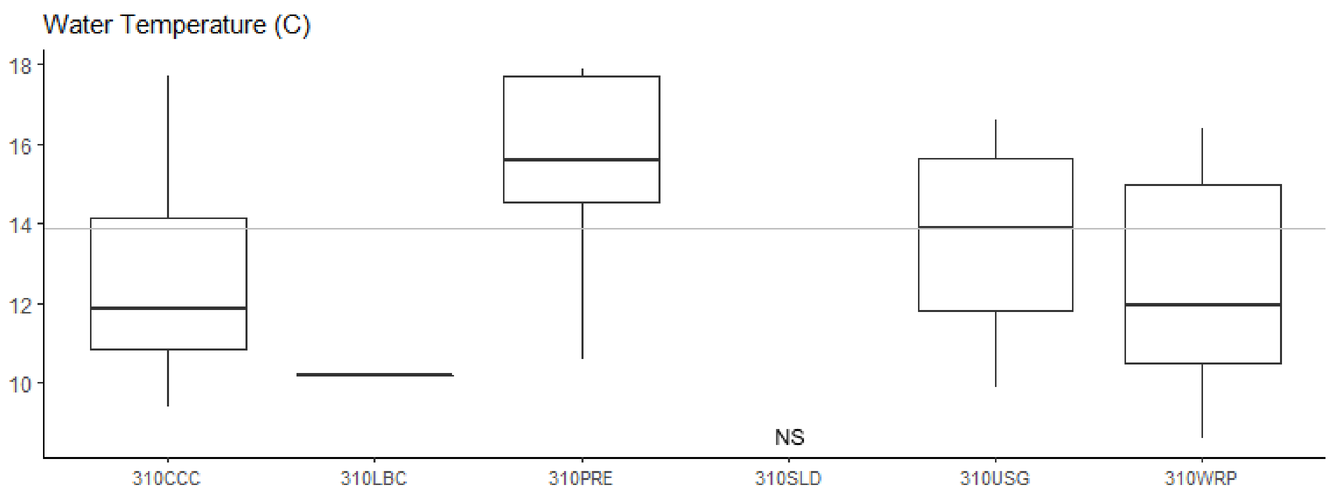

Invertebrate Toxicity (Water), Survival (% Control Survival)
0
30
60
90
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

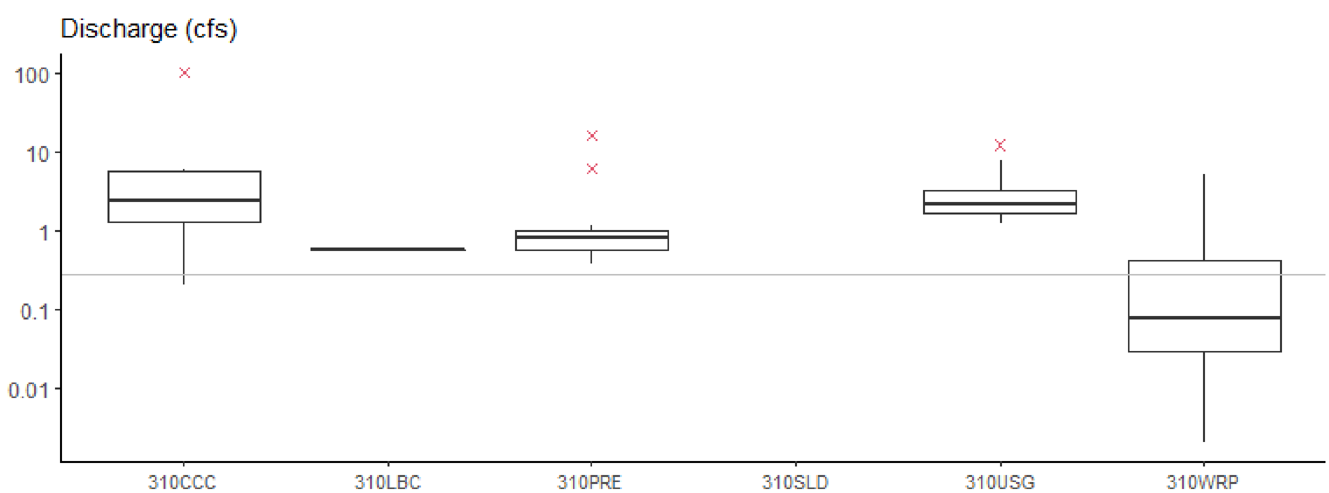

Invertebrate Toxicity (Sediment), Growth (% Control Growth)
0
50
100
150
200
NS
NS
NS
NS
NS
NS
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

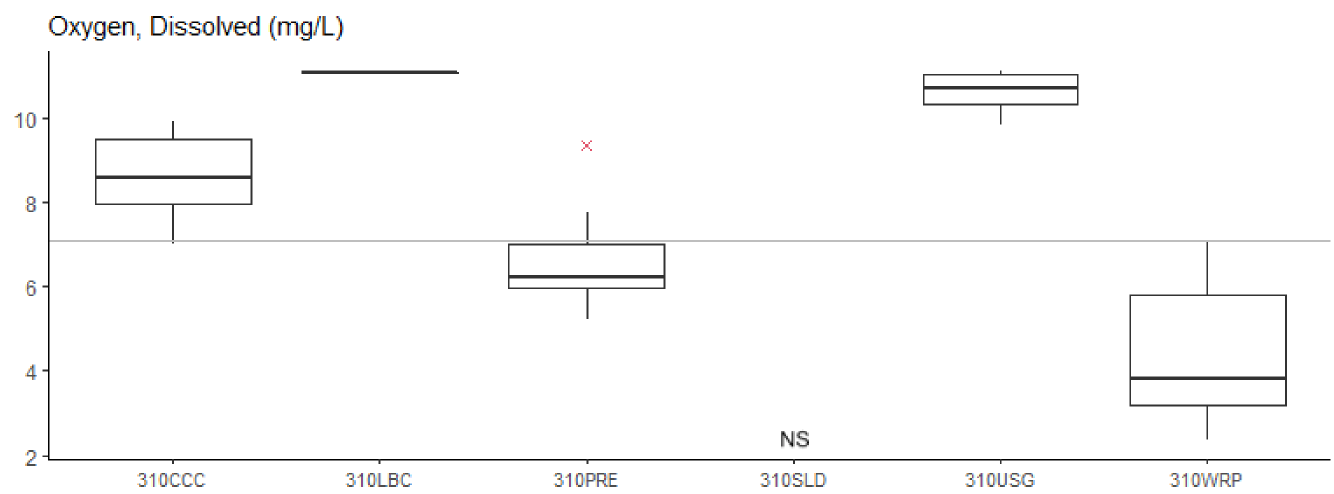

Invertebrate Toxicity (Sediment), Survival (% Control Survival)
100
75
50
25
0
NS
NS
NS
NS
NS
NS
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH

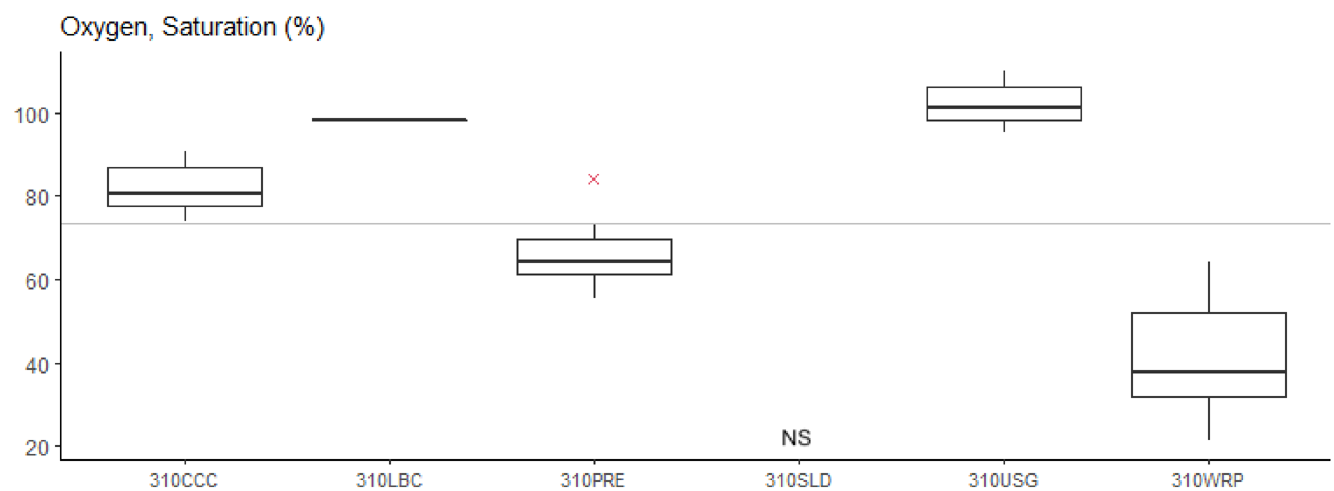
Estero Bay Hydrologic Unit, HUC 310

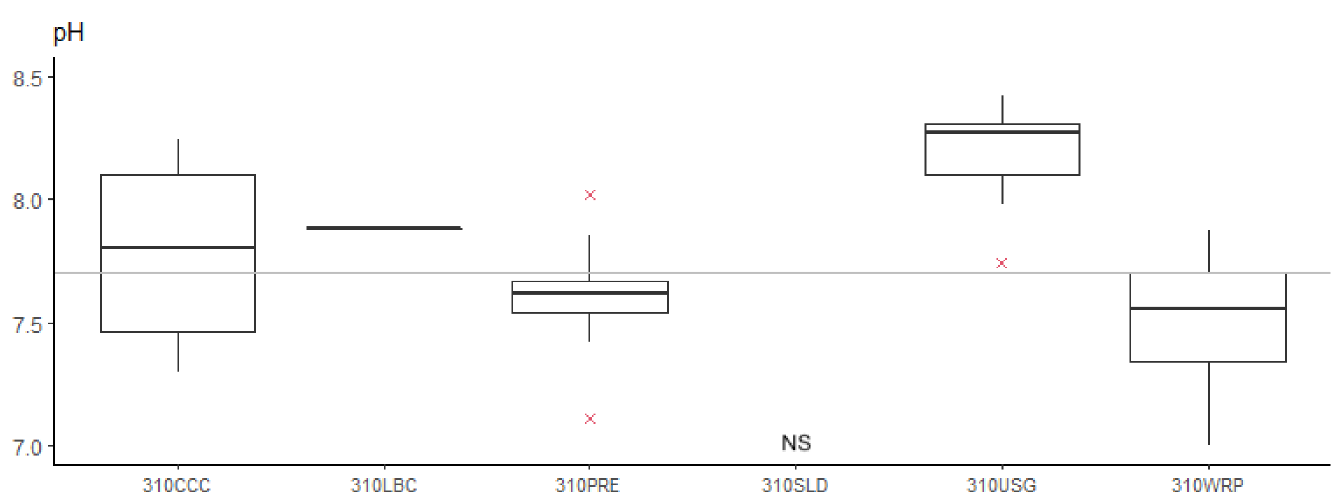


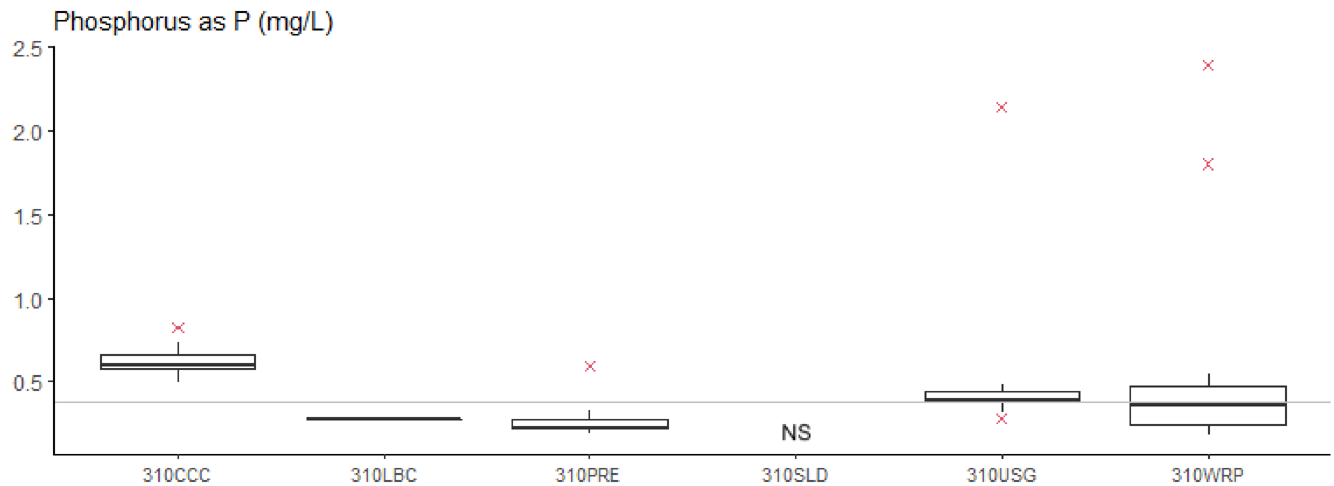


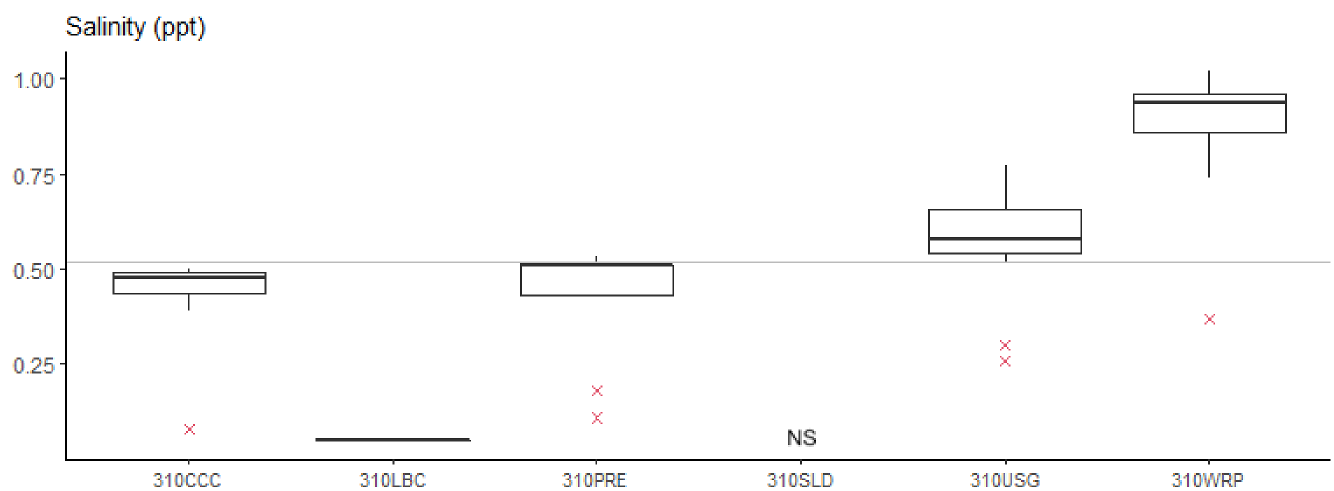


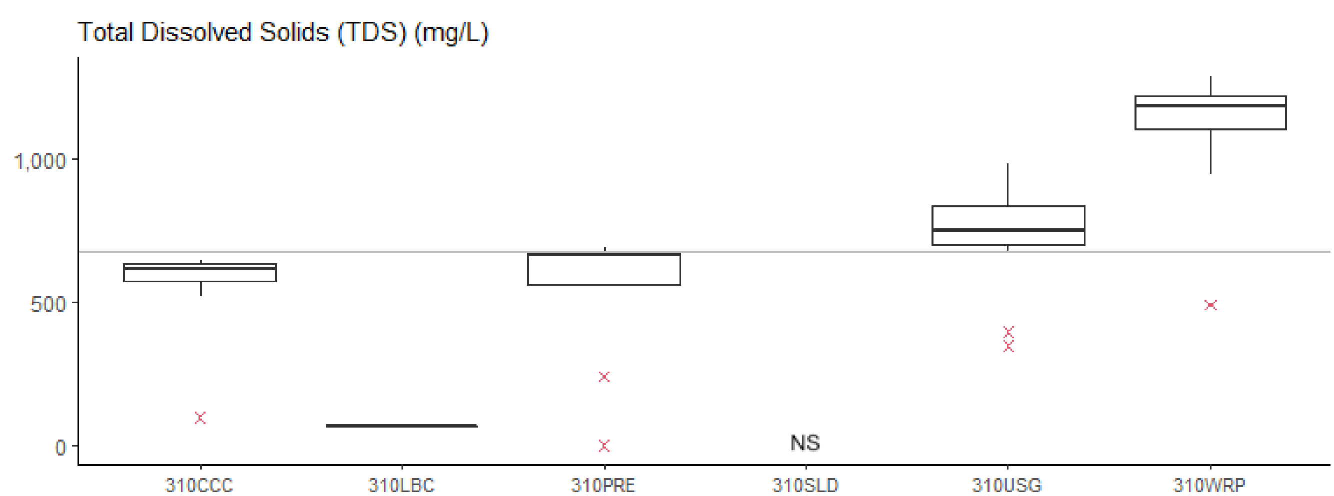

Oxygen, Dissolved (mg/L)
10
8
6
4
2
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

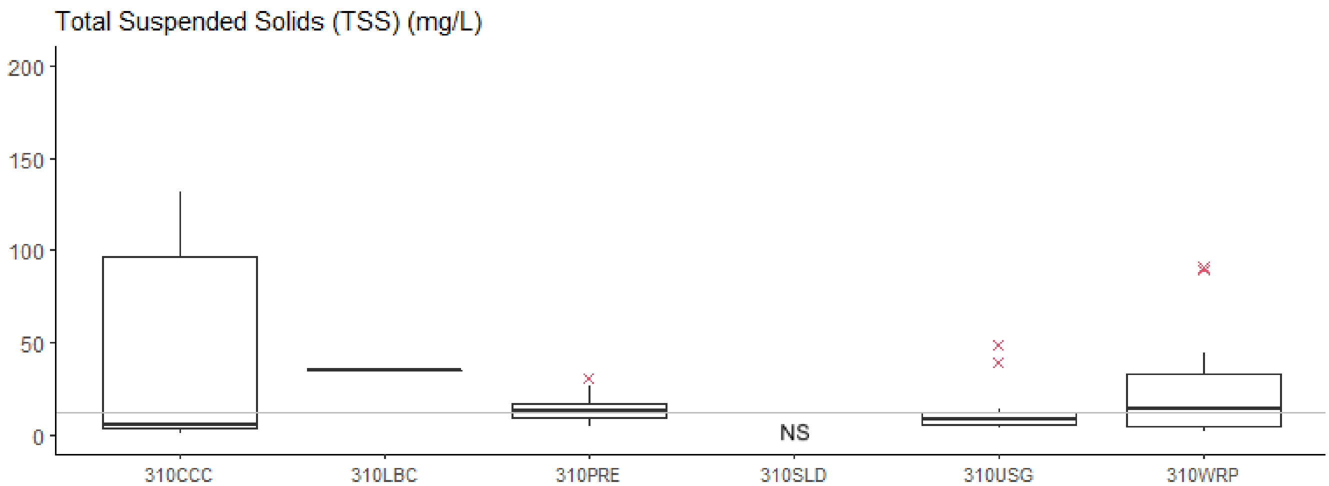

Oxygen, Saturation (%)
100
80
60
40
20
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

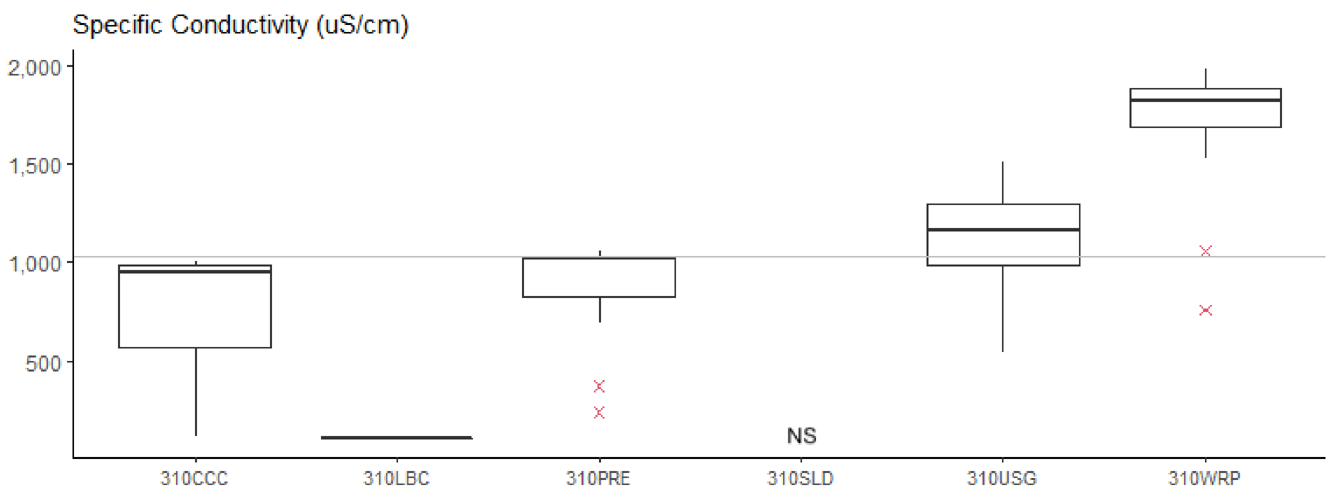

pH
8.5
8.0
7.5
7.0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

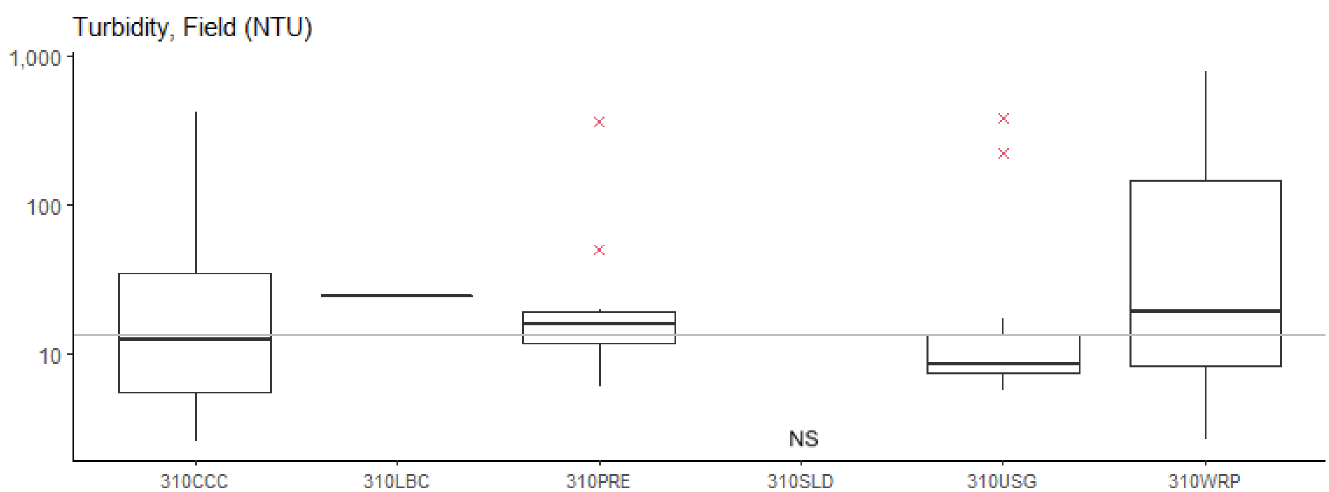

Phosphorus as P (mg/L)
2.5
2.0
1.5
1.0
0.5
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

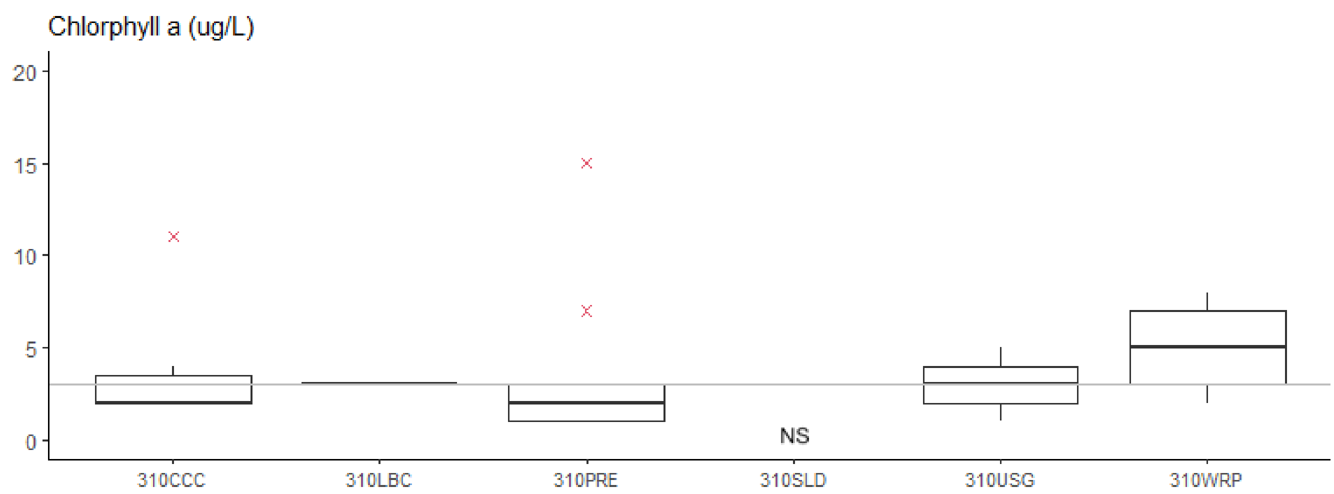

Salinity (ppt)
1.00
0.75
0.50
0.25
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

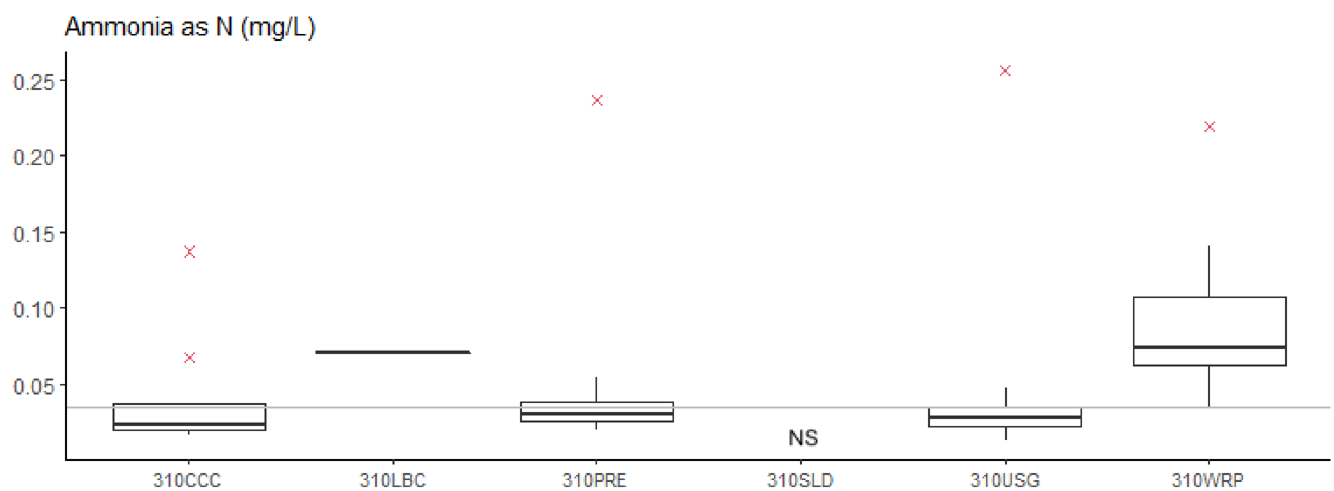

Total Dissolved Solids (TDS) (mg/L)
1,000
500
0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

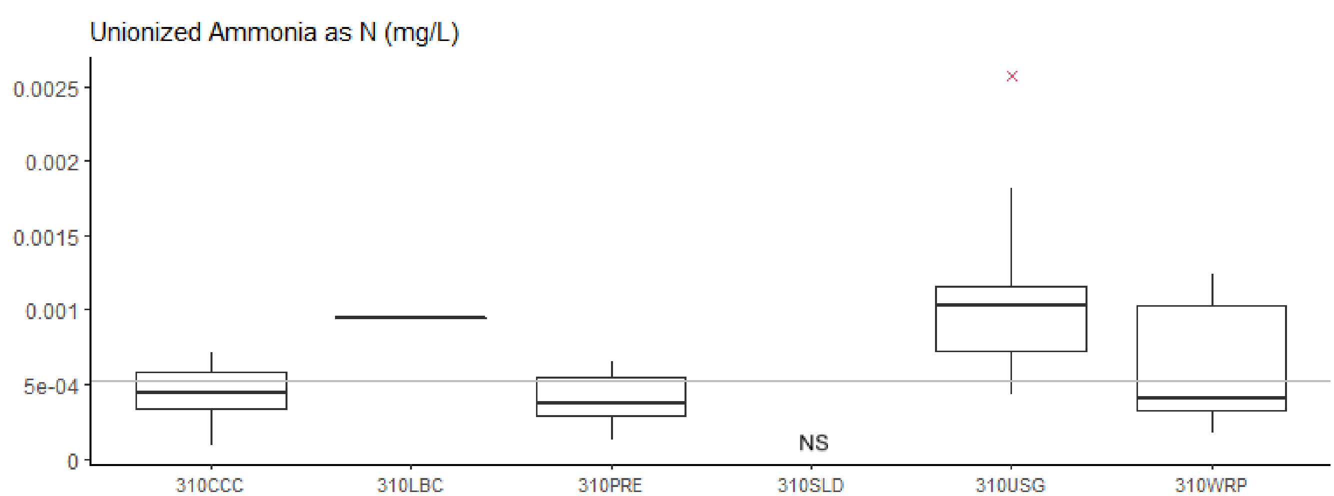

Total Suspended Solids (TSS) (mg/L)
200
150
100
50
0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

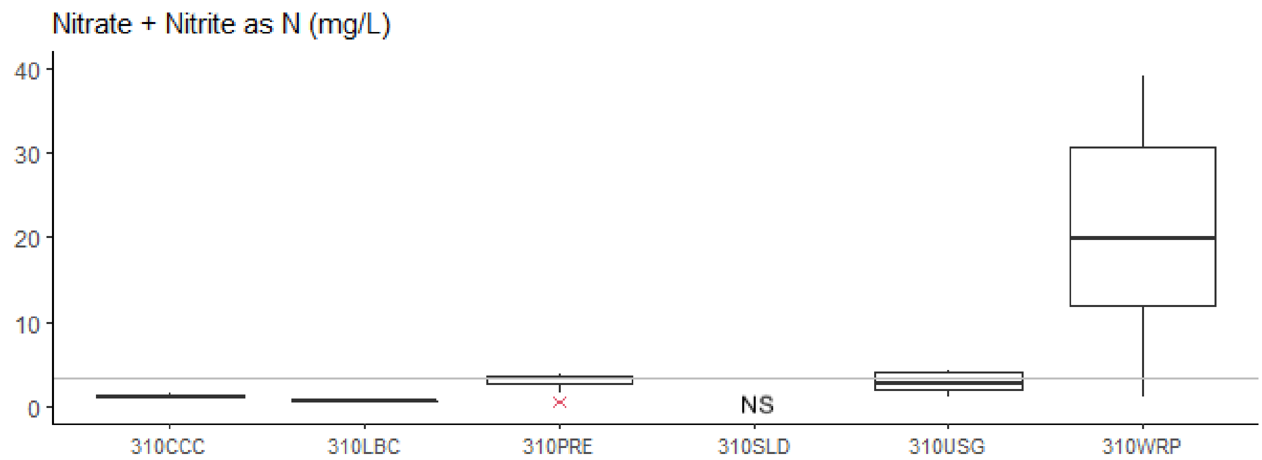

Specific Conductivity (uS/cm)
2,000
1,500
1,000
500
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

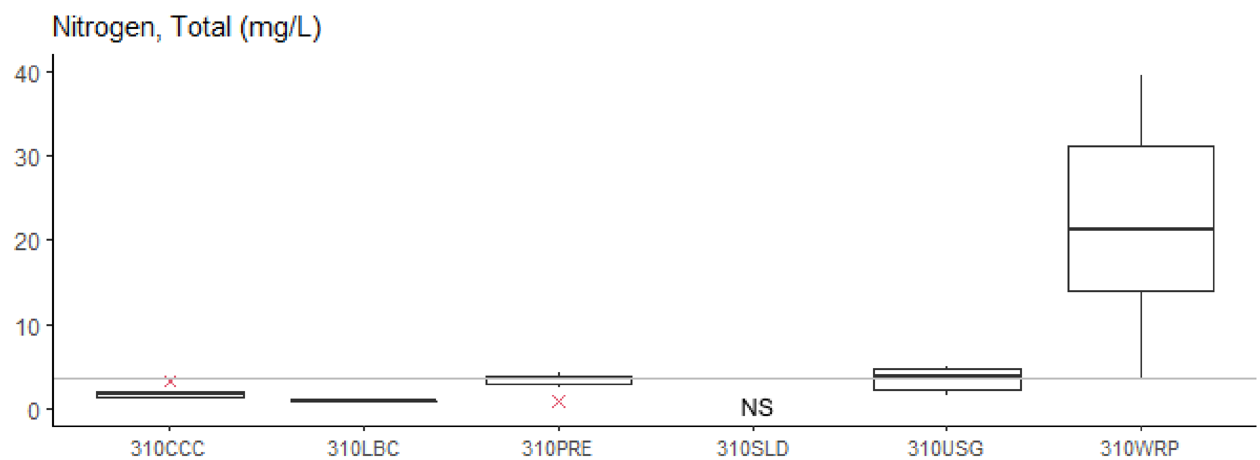

Turbidity, Field (NTU)
1,000
100
10
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

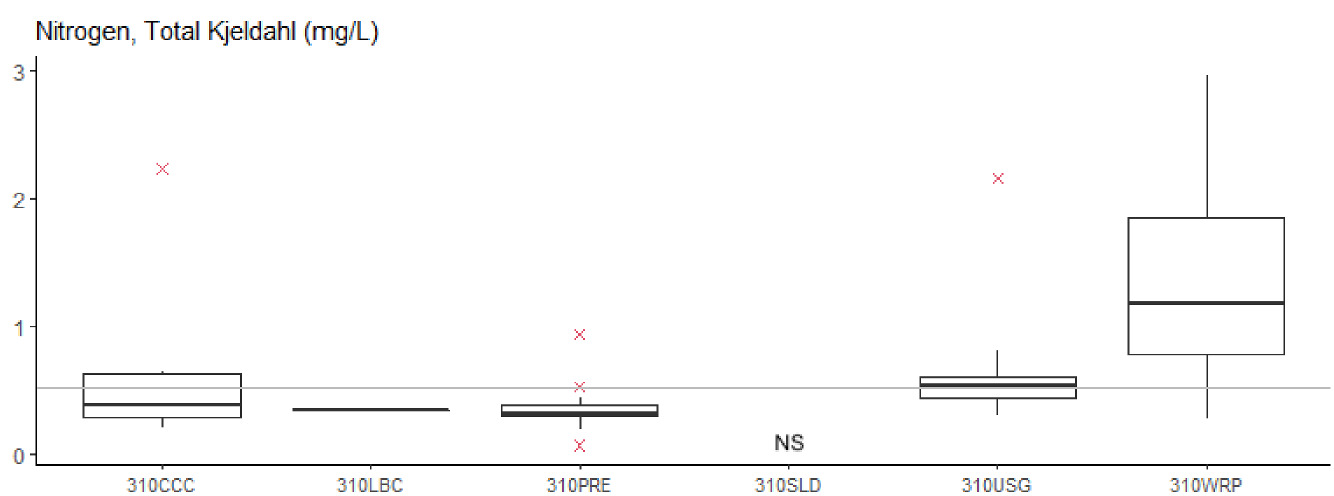

Chlorphyll a (ug/L)
20
15
10
5
0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

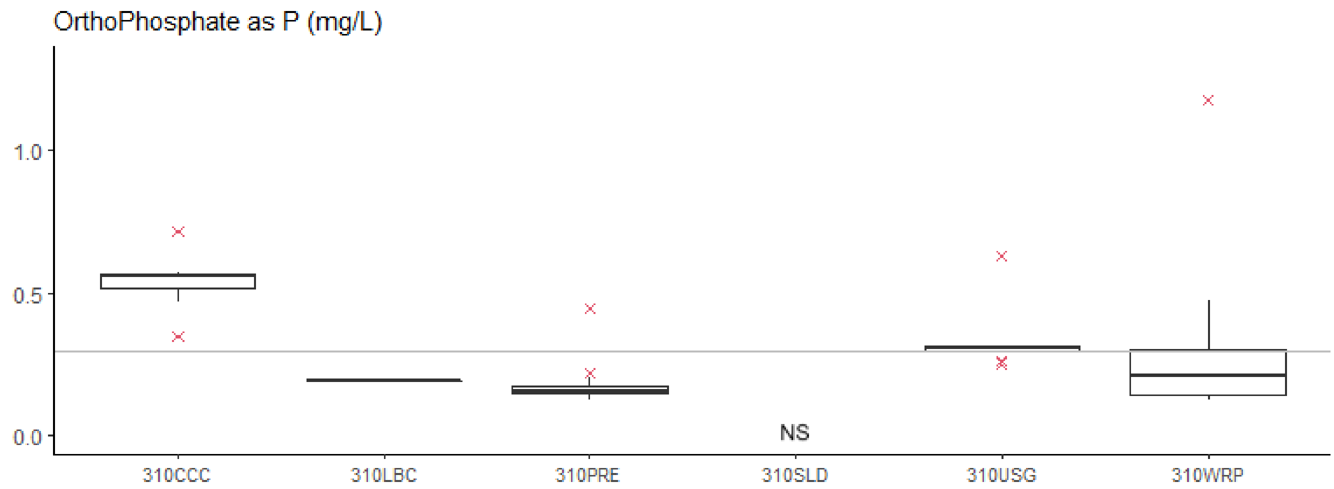

Ammonia as N (mg/L)
0.25
0.20
0.15
0.10
0.05
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

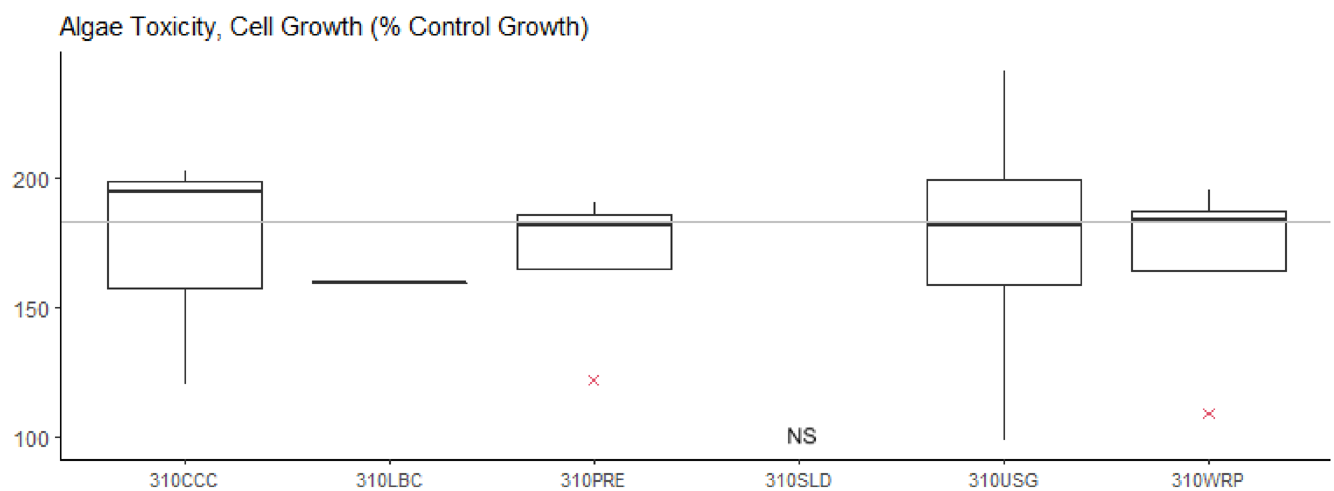

Unionized Ammonia as N (mg/L)
0.0025
0.002
0.0015
0.001
5e-04
0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

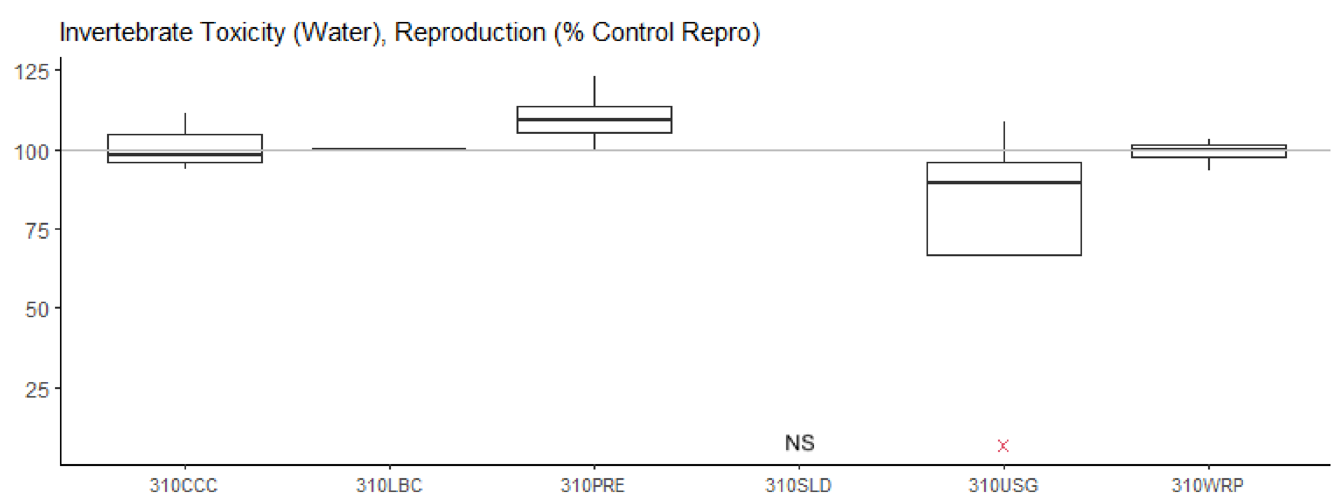

Nitrate + Nitrite as N (mg/L)
0
10
20
30
40
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

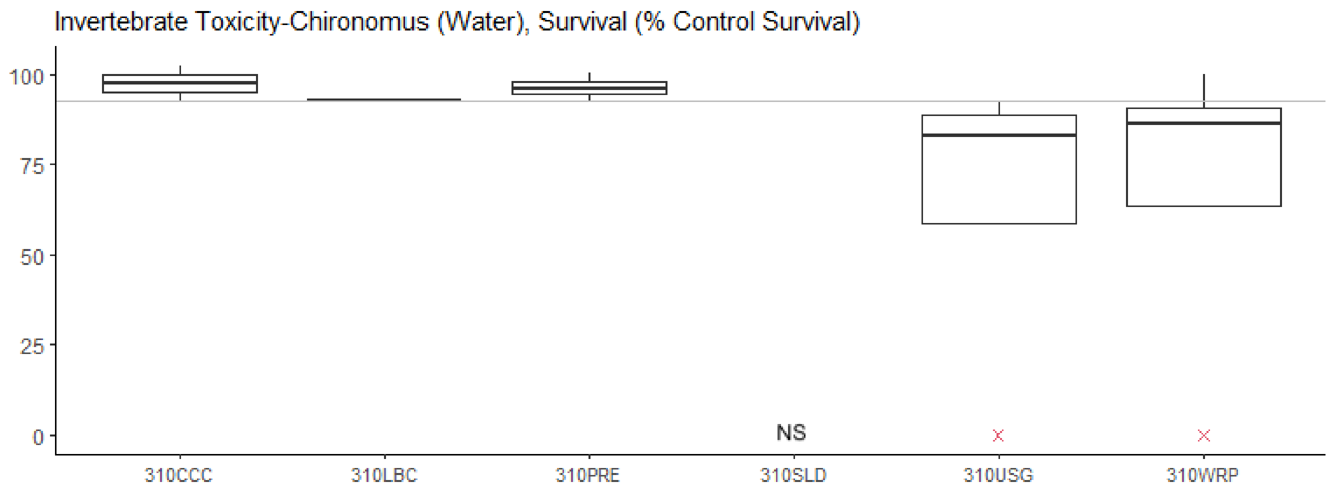

Nitrogen, Total (mg/L)
0
10
20
30
40
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

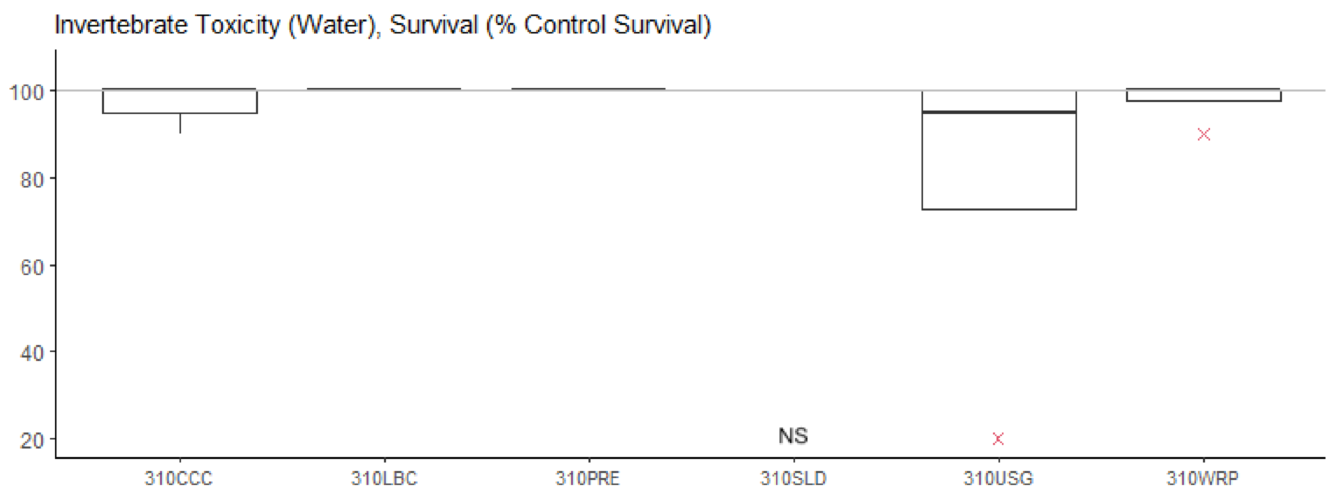

Nitrogen, Total Kjeldahl (mg/L)
0
1
2
3
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

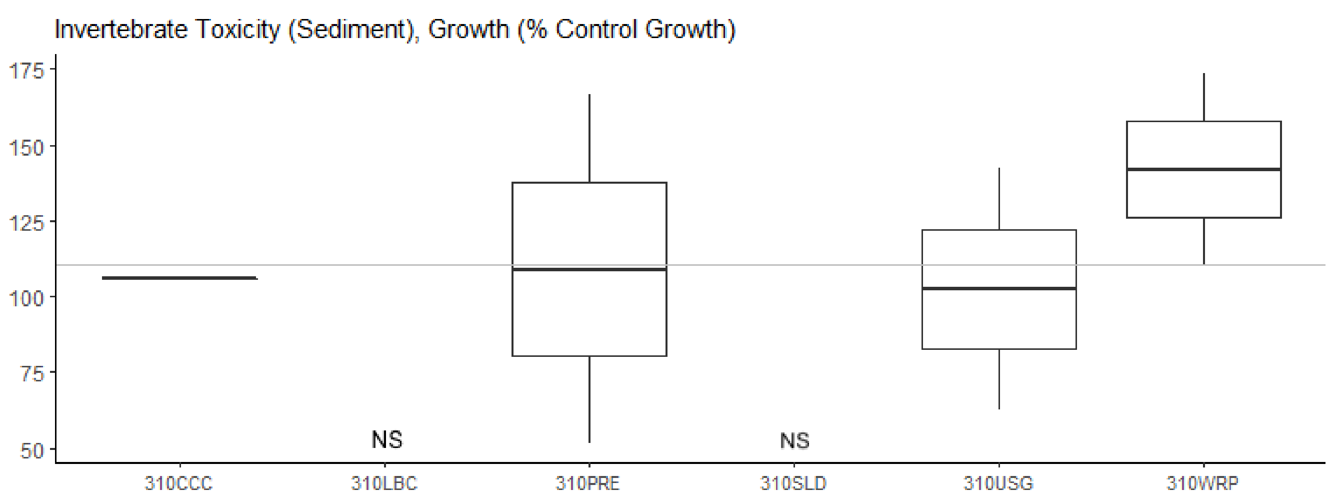

OrthoPhosphate as P (mg/L)
1.0
0.5
0.0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

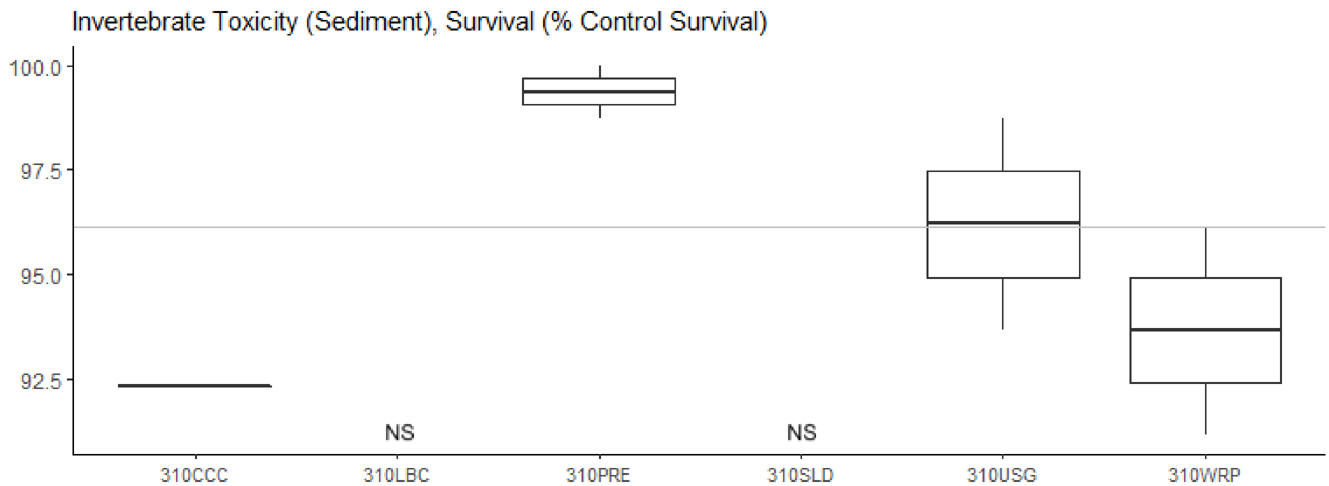

Algae Toxicity, Cell Growth (% Control Growth)
200
150
100
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP


Invertebrate Toxicity (Water), Reproduction (% Control Repro)
125
100
75
50
25
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

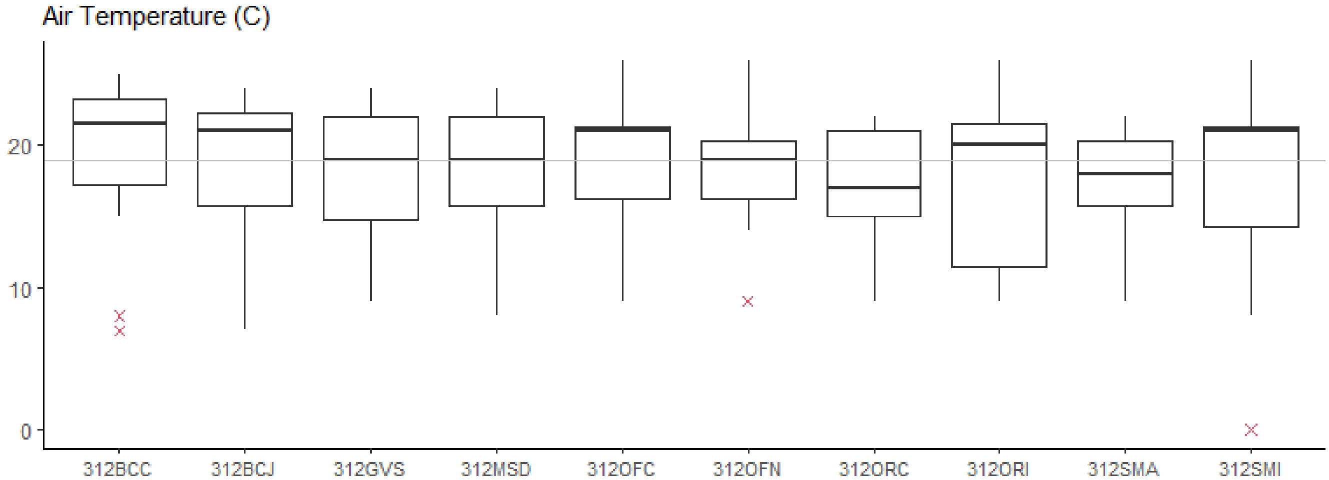

Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)
100
75
50
25
0
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

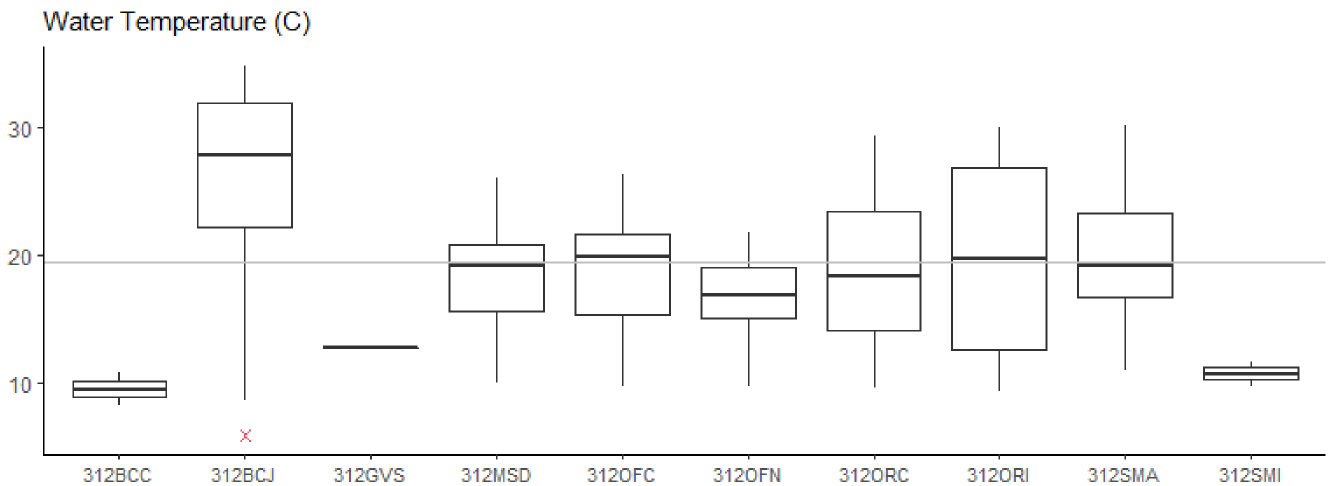

Invertebrate Toxicity (Water), Survival (% Control Survival)
100
80
60
40
20
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

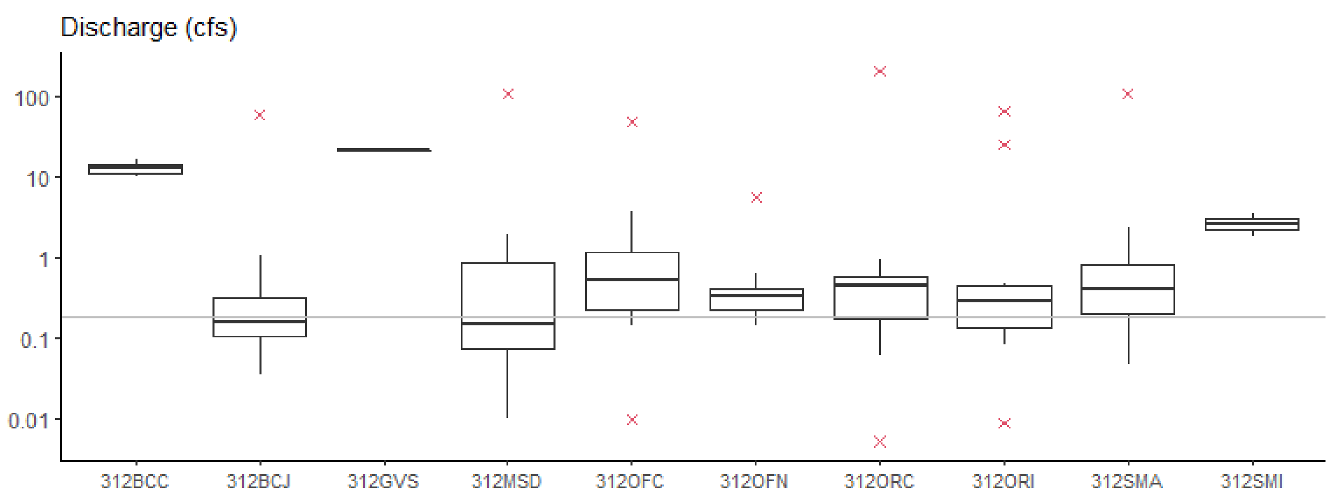

Invertebrate Toxicity (Sediment), Growth (% Control Growth)
175
150
125
100
75
50
NS
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

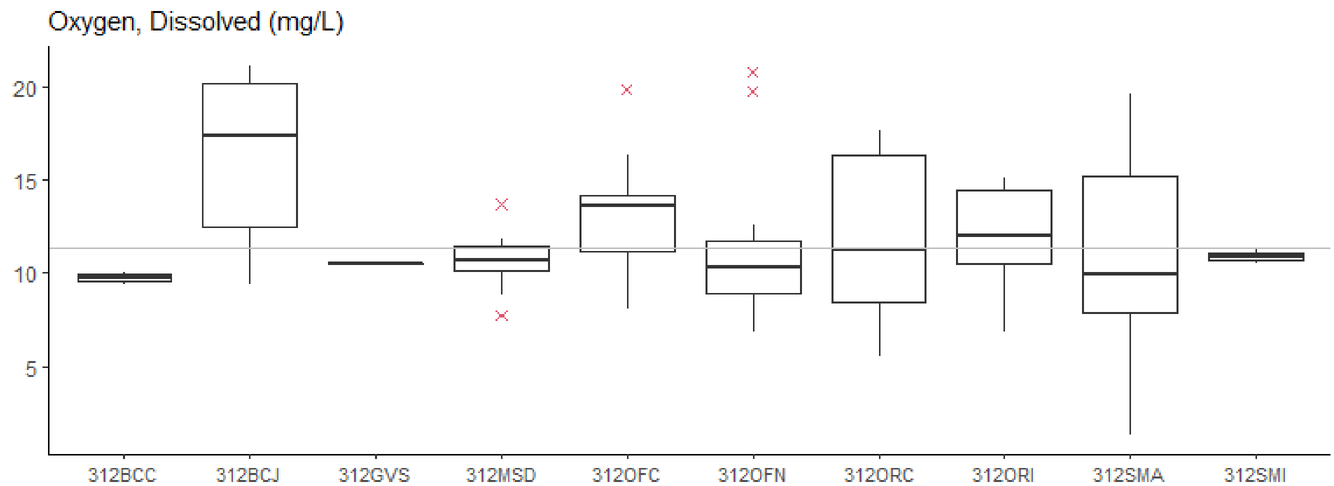

Invertebrate Toxicity (Sediment), Survival (% Control Survival)
100.0
97.5
95.0
92.5
NS
NS
310CCC
310LBC
310PRE
310SLD
310USG
310WRP

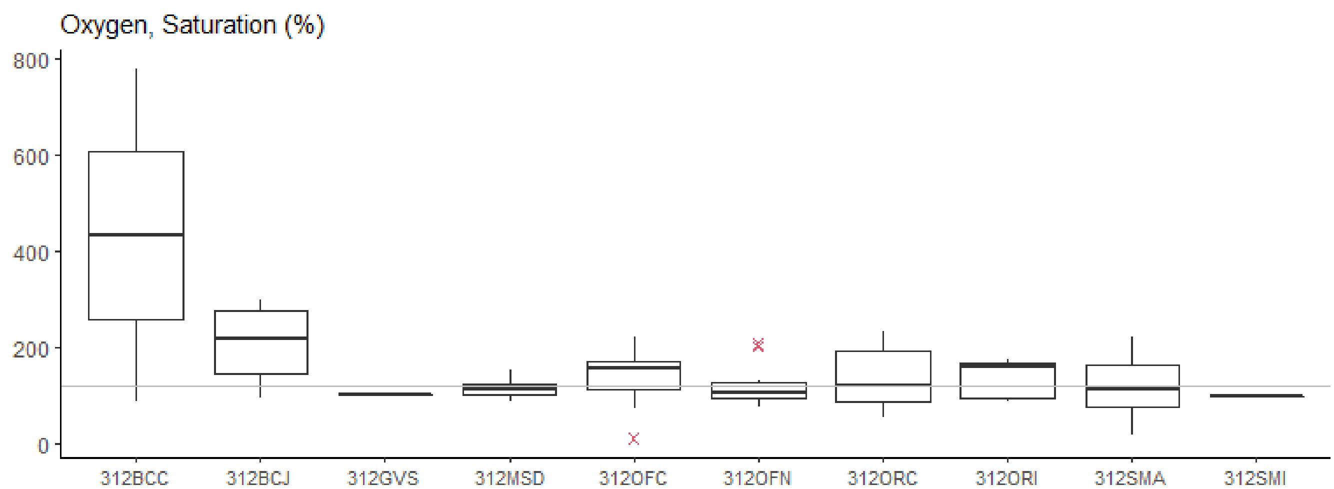
Santa Maria Hydrologic Unit, HUC 312

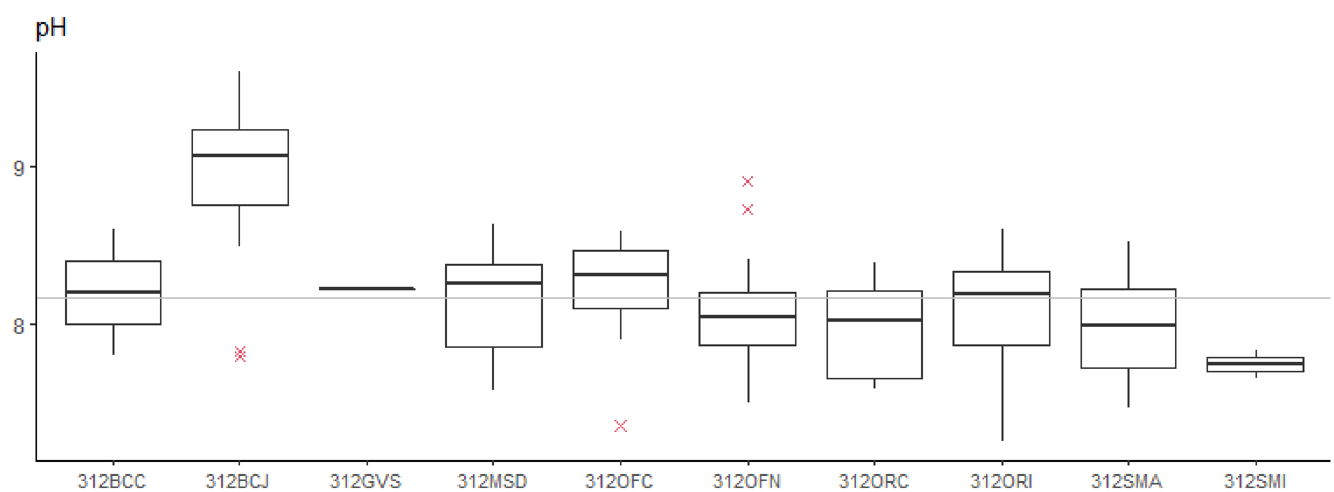


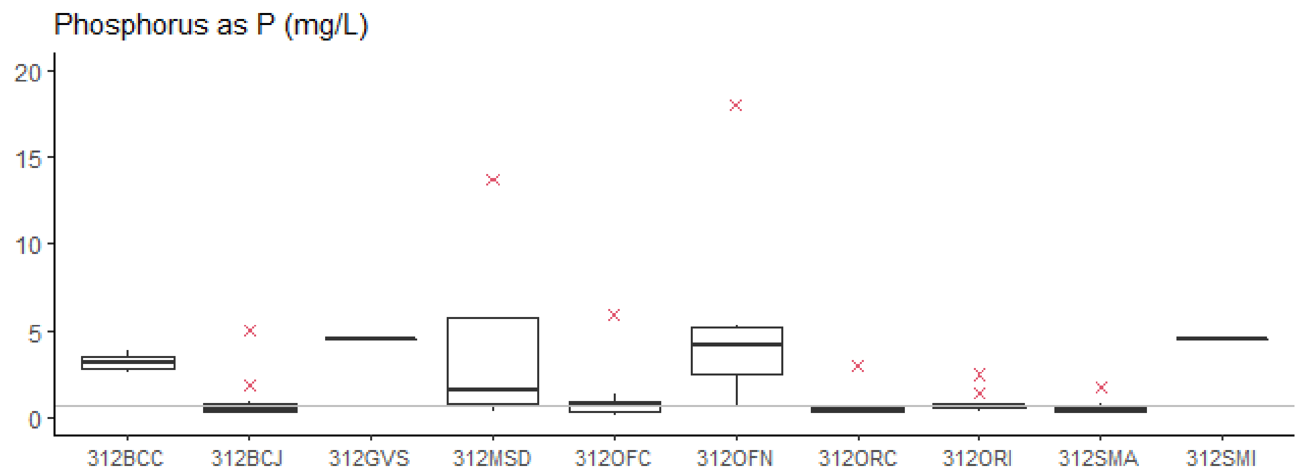


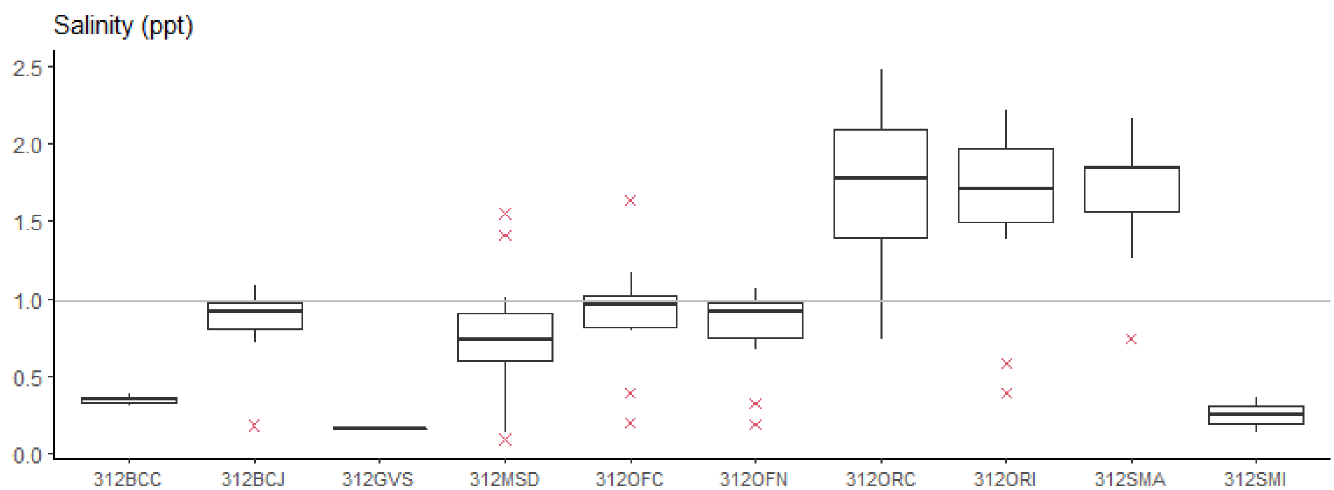


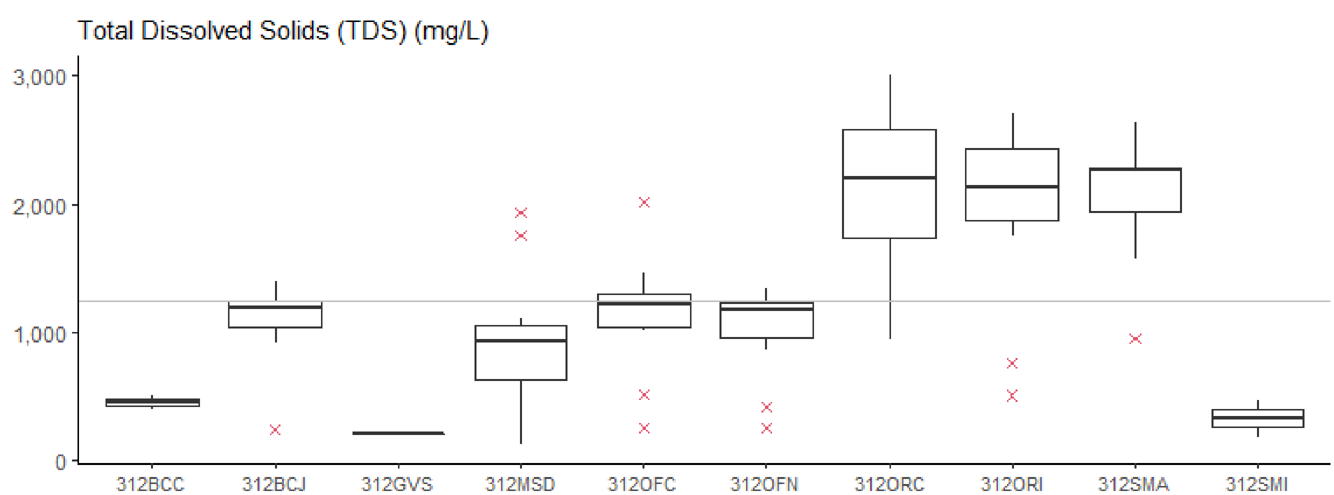

Oxygen, Dissolved (mg/L)
20
15
10
5
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

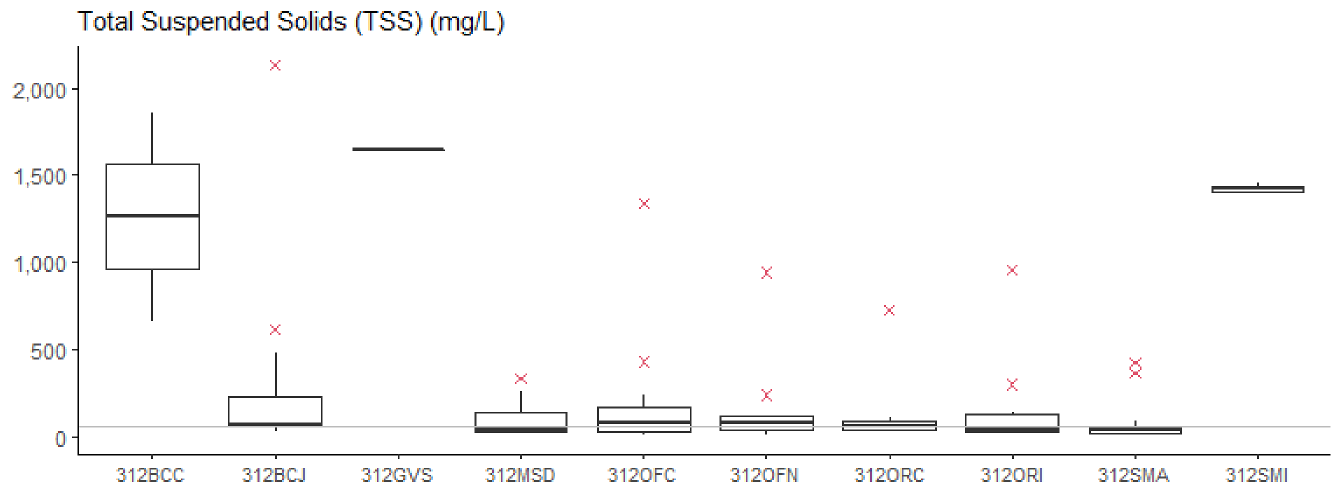

Oxygen, Saturation (%)
800
600
400
200
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

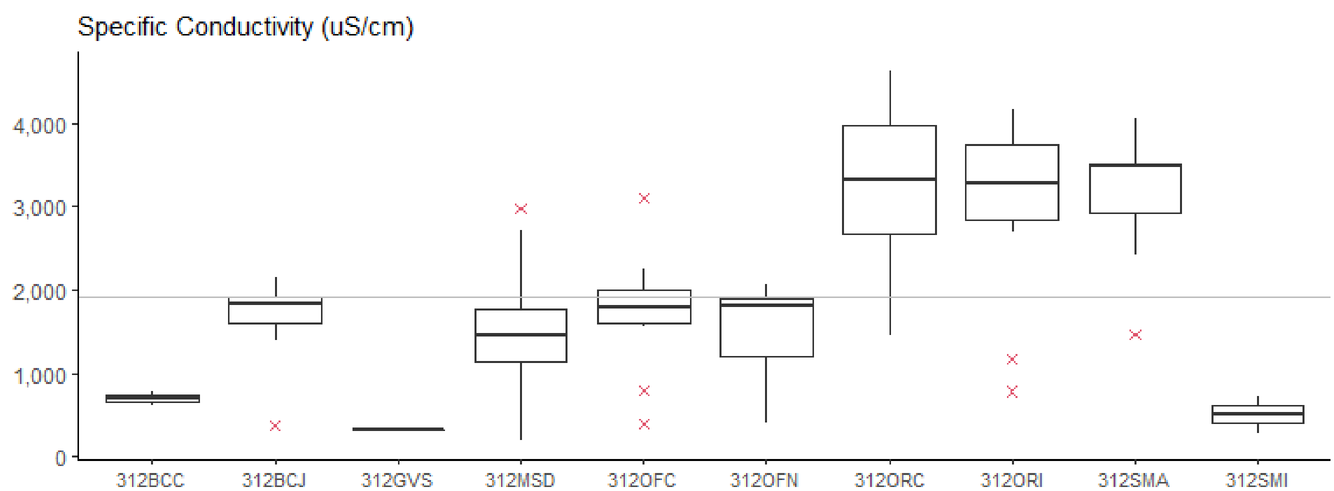

pH
9
8
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

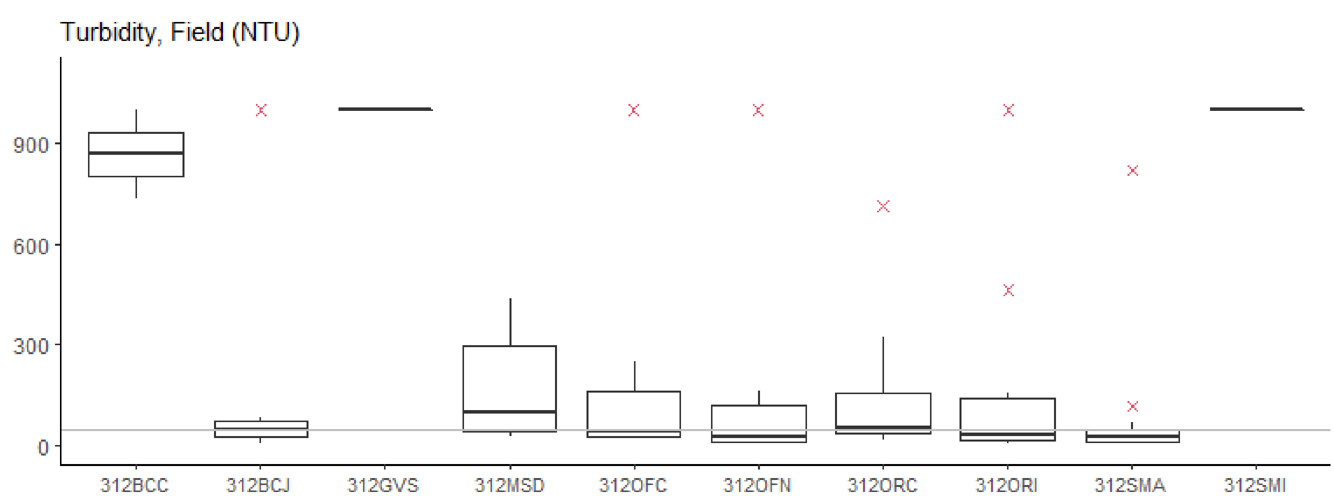

Phosphorus as P (mg/L)
0
5
10
15
20
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

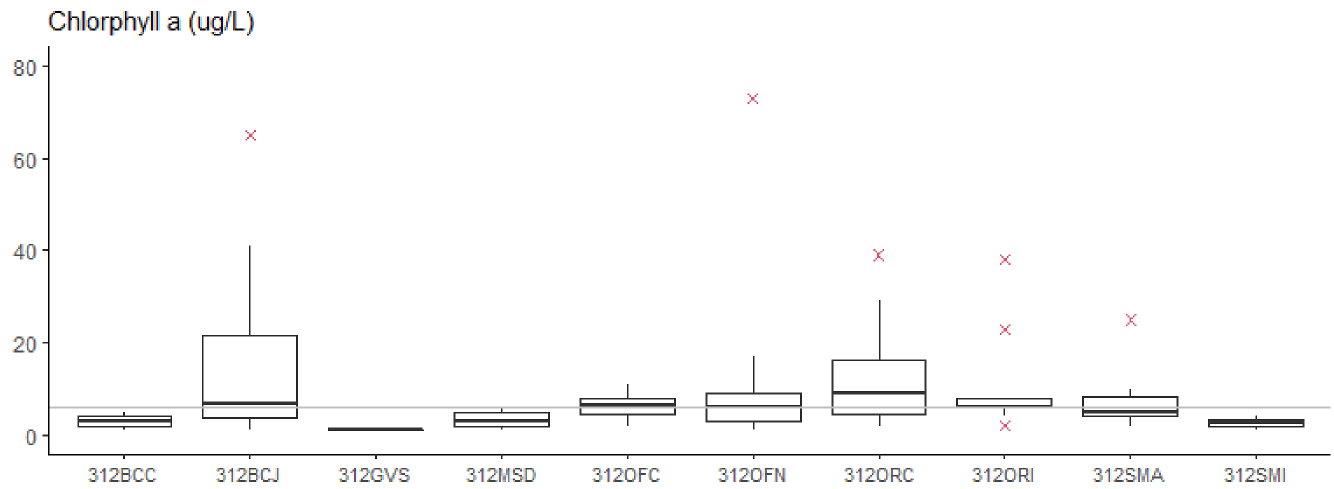

Salinity (ppt)
0.0
0.5
1.0
1.5
2.0
2.5
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

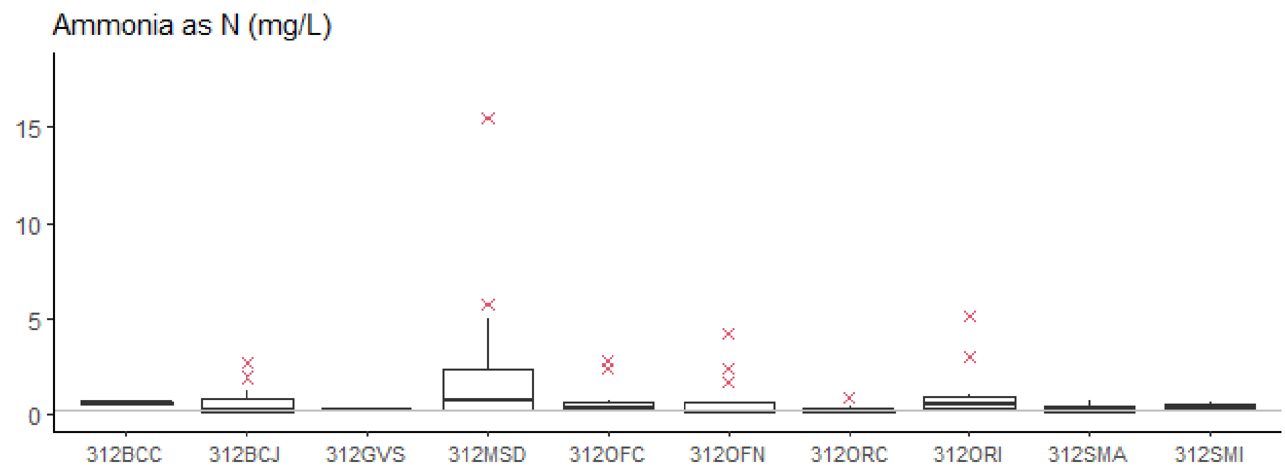

Total Dissolved Solids (TDS) (mg/L)
0
1,000
2,000
3,000
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

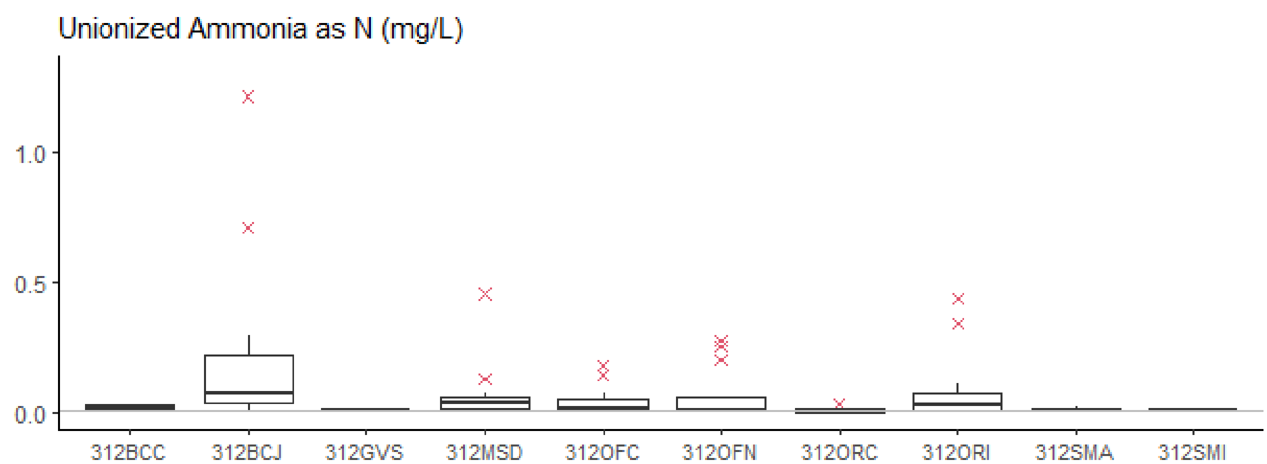

Total Suspended Solids (TSS) (mg/L)
2,000
1,500
1,000
500
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

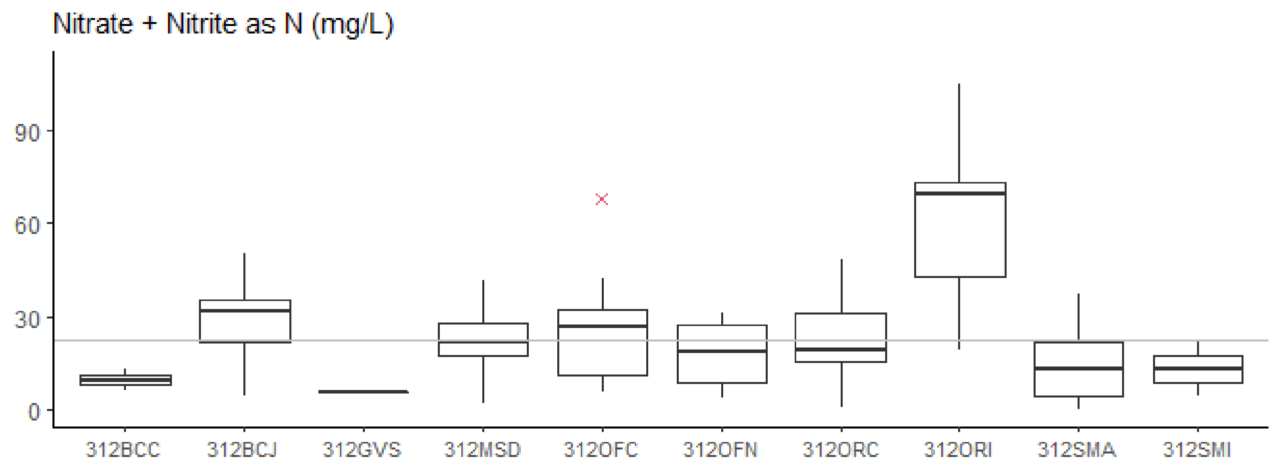

Specific Conductivity (uS/cm)
4,000
3,000
2,000
1,000
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

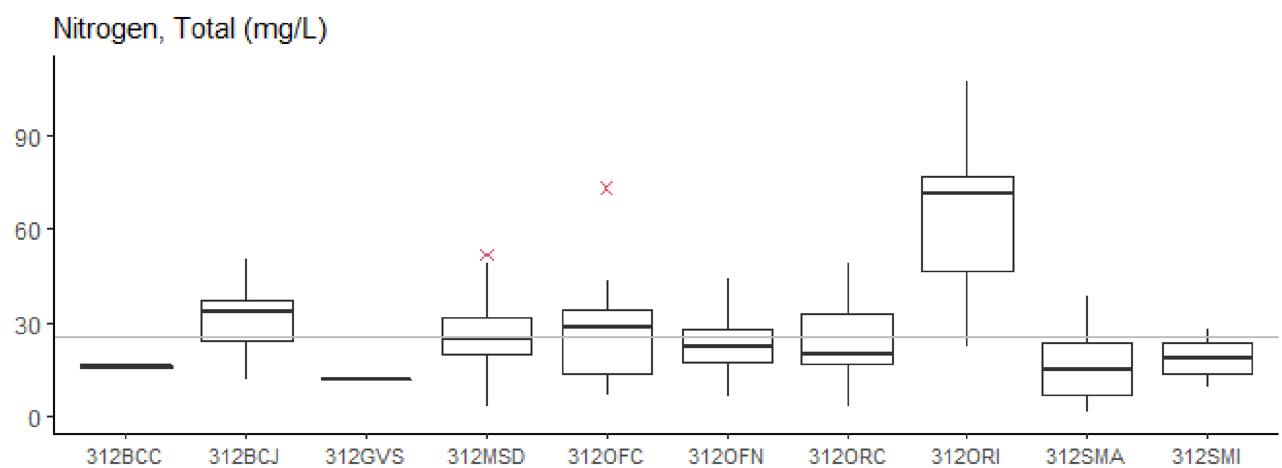

Turbidity, Field (NTU)
900
600
300
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

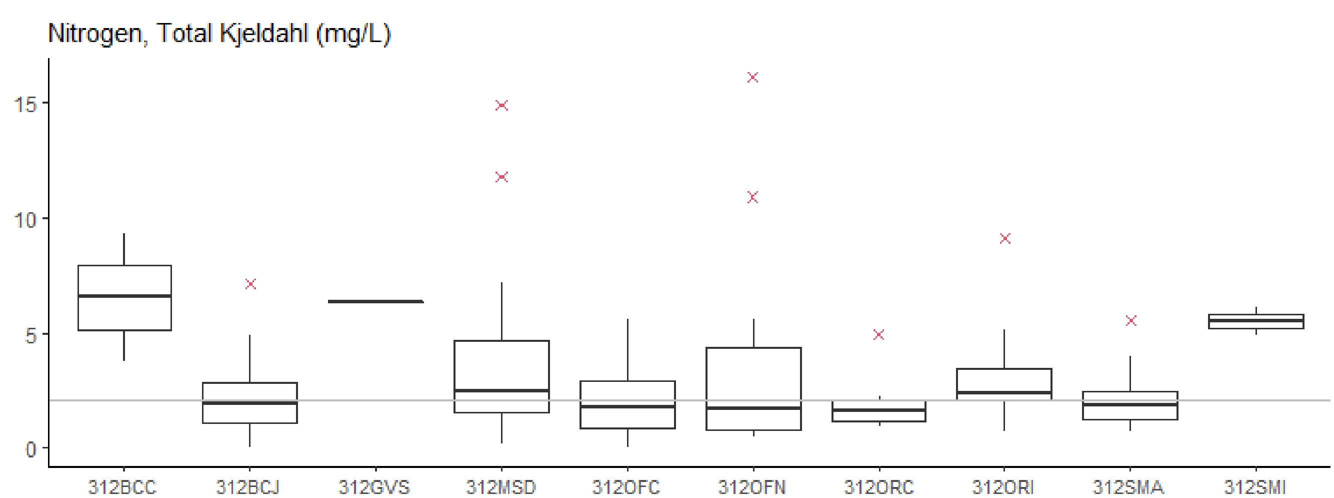

Chlorphyll a (ug/L)
0
20
40
60
80
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

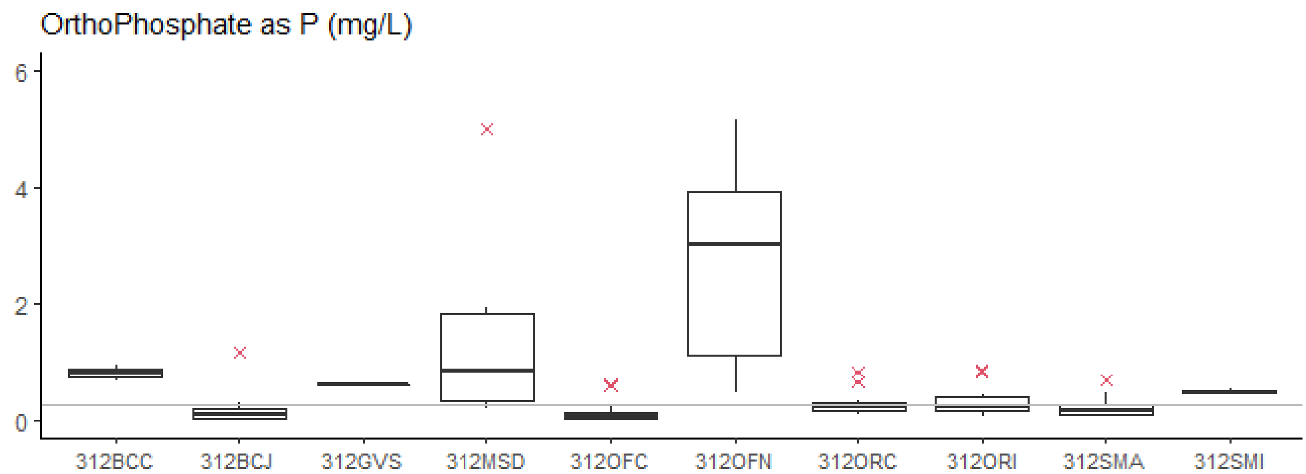

Ammonia as N (mg/L)
0
5
10
15
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

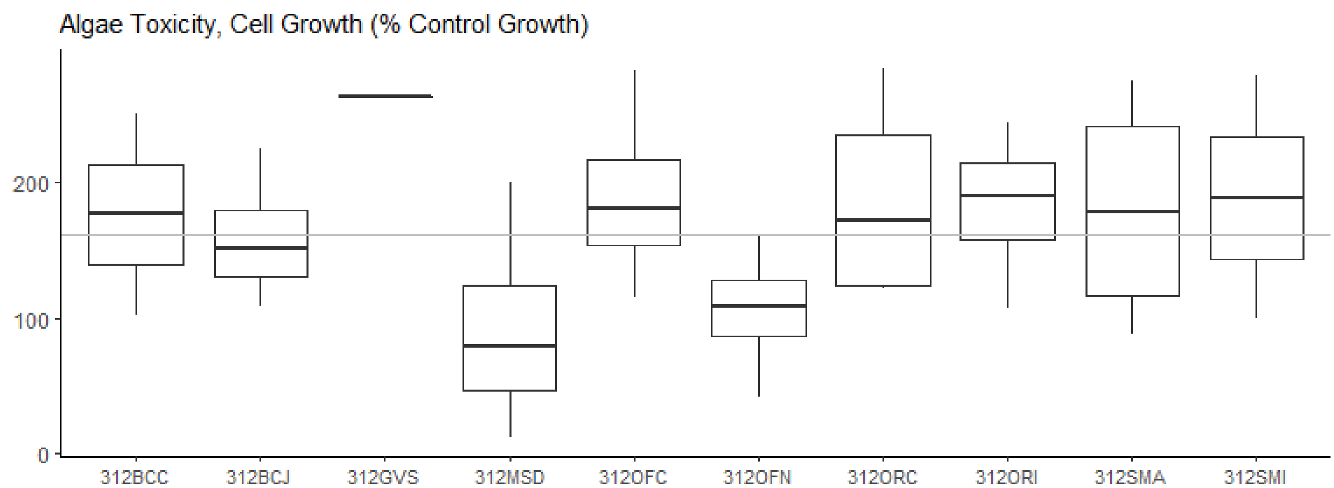

Unionized Ammonia as N (mg/L)
0.0
0.5
1.0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

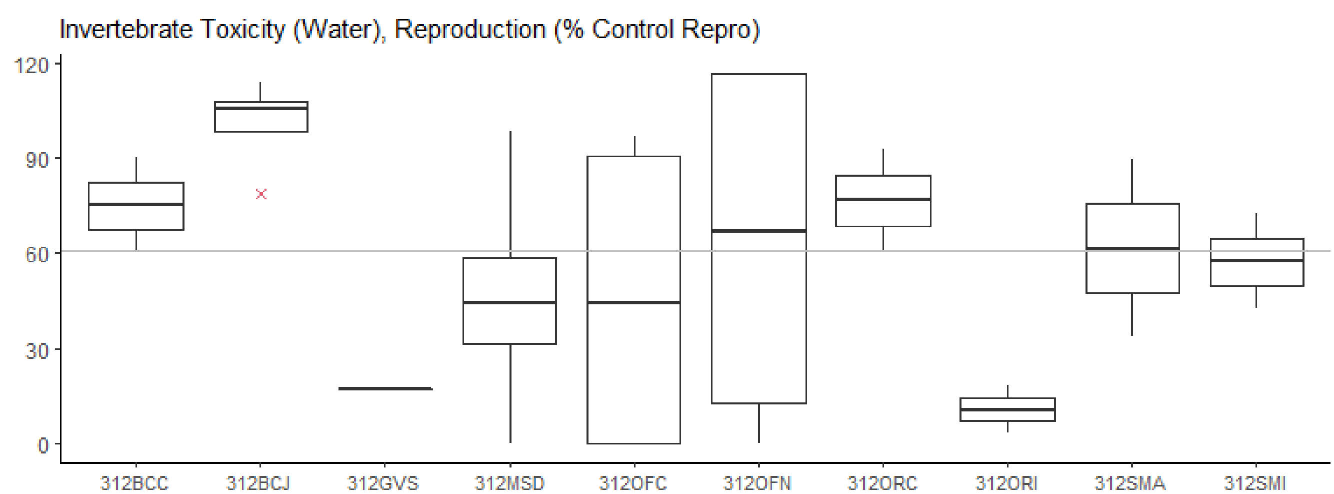

Nitrate + Nitrite as N (mg/L)
0
30
60
90
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

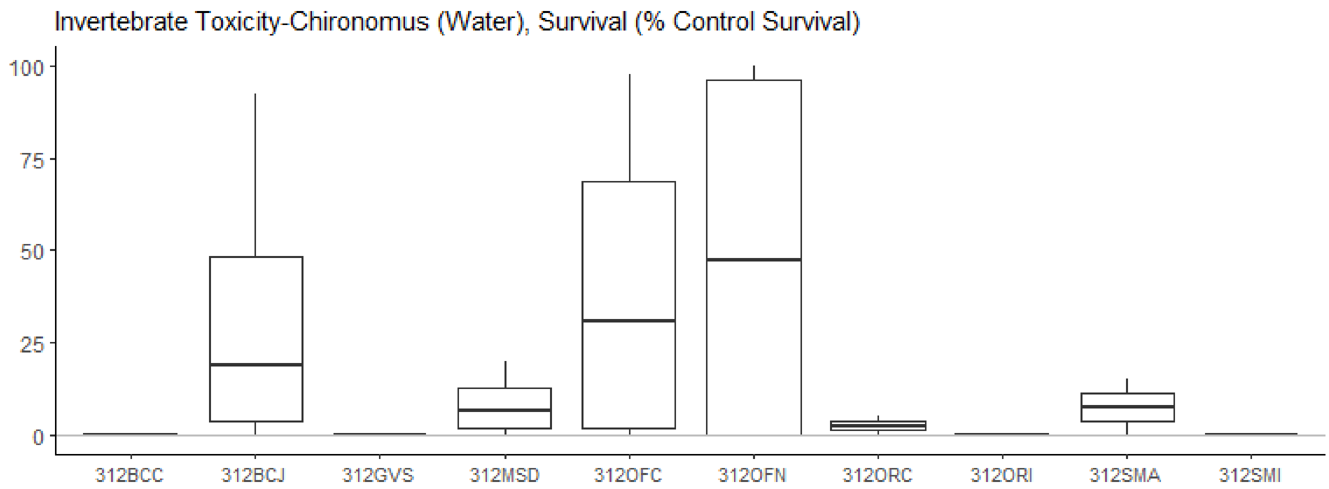

Nitrogen, Total (mg/L)
0
30
60
90
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

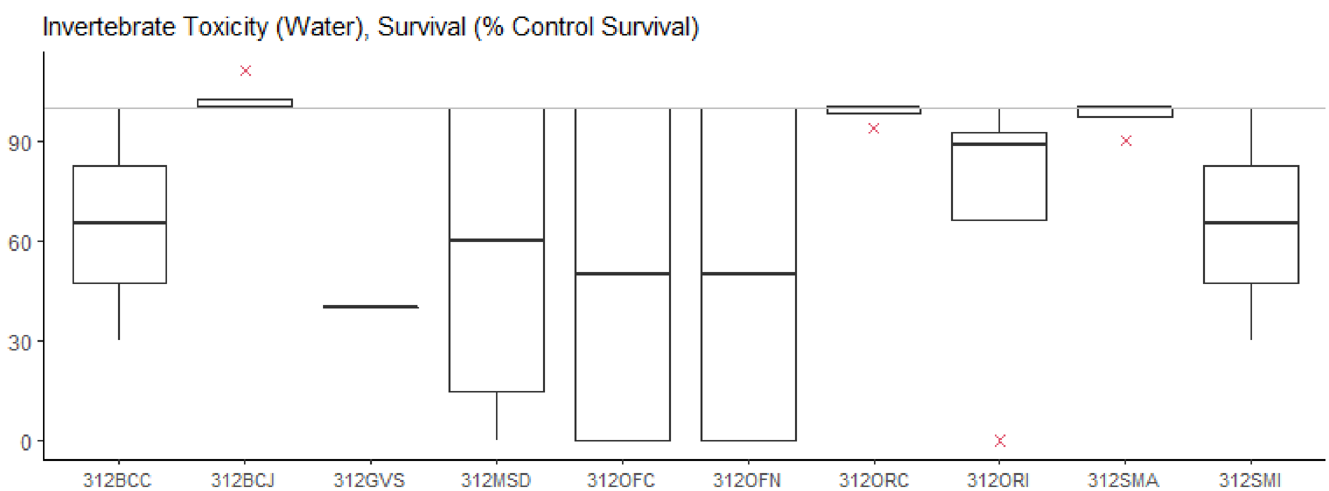

Nitrogen, Total Kjeldahl (mg/L)
0
5
10
15
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

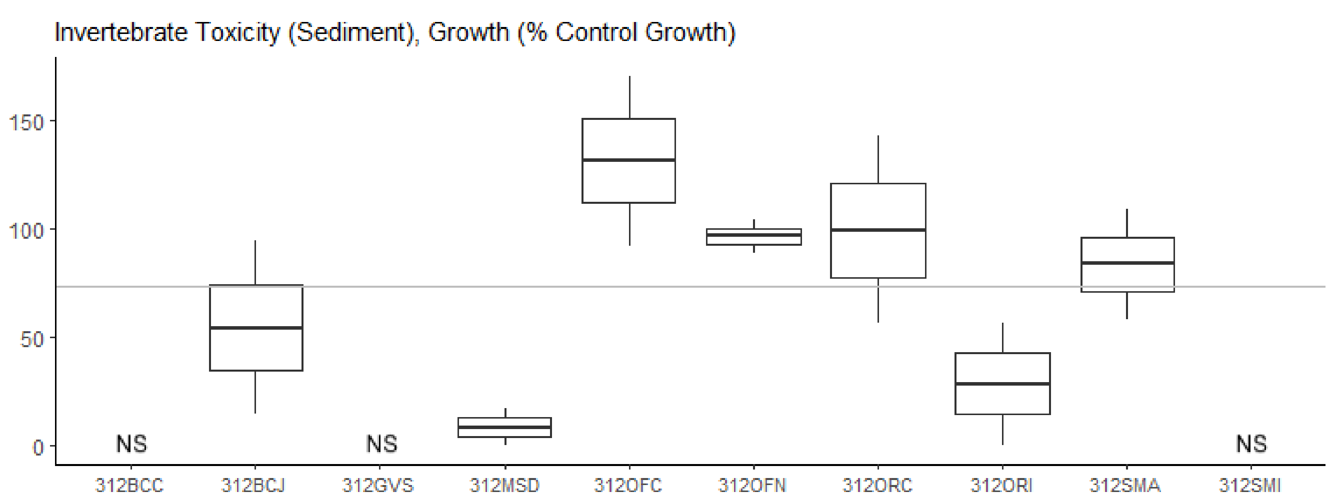

OrthoPhosphate as P (mg/L)
6
4
2
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

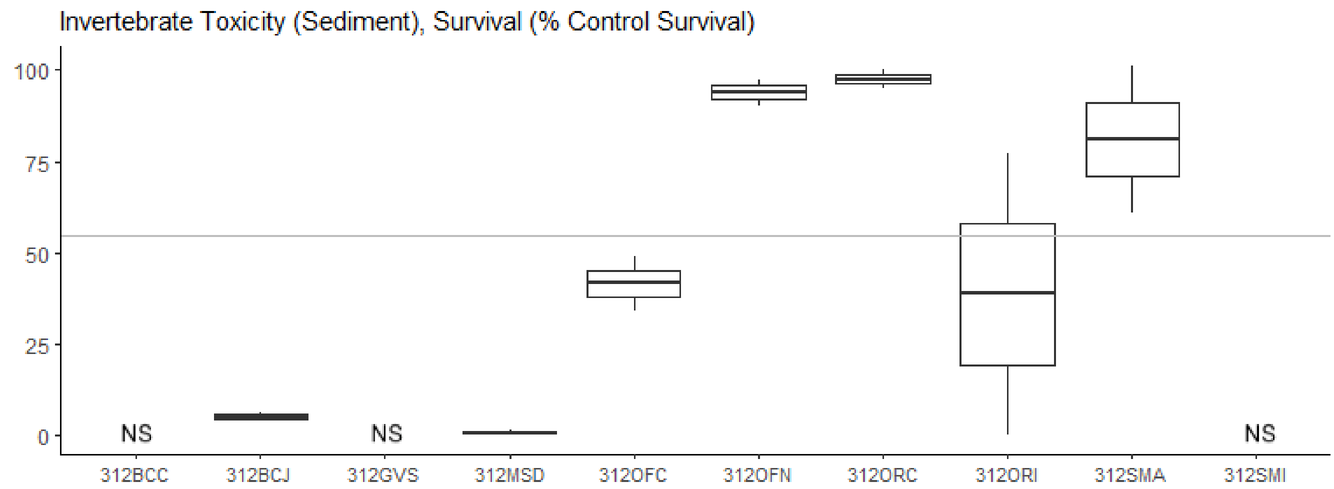

Algae Toxicity, Cell Growth (% Control Growth)
200
100
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI


Invertebrate Toxicity (Water), Reproduction (% Control Repro)
120
90
60
30
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

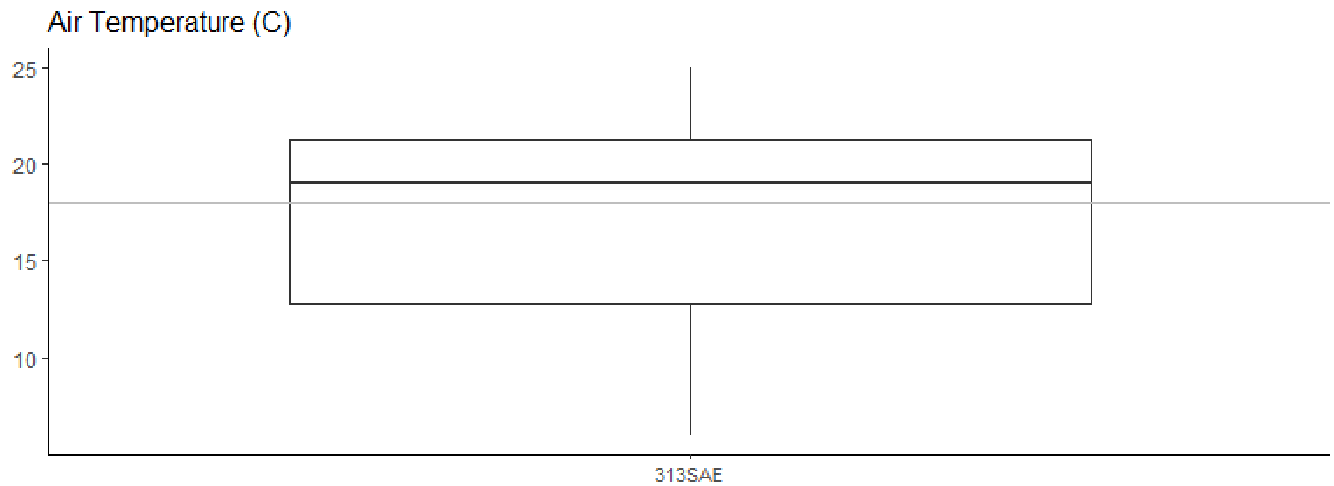

Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)
100
75
50
25
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

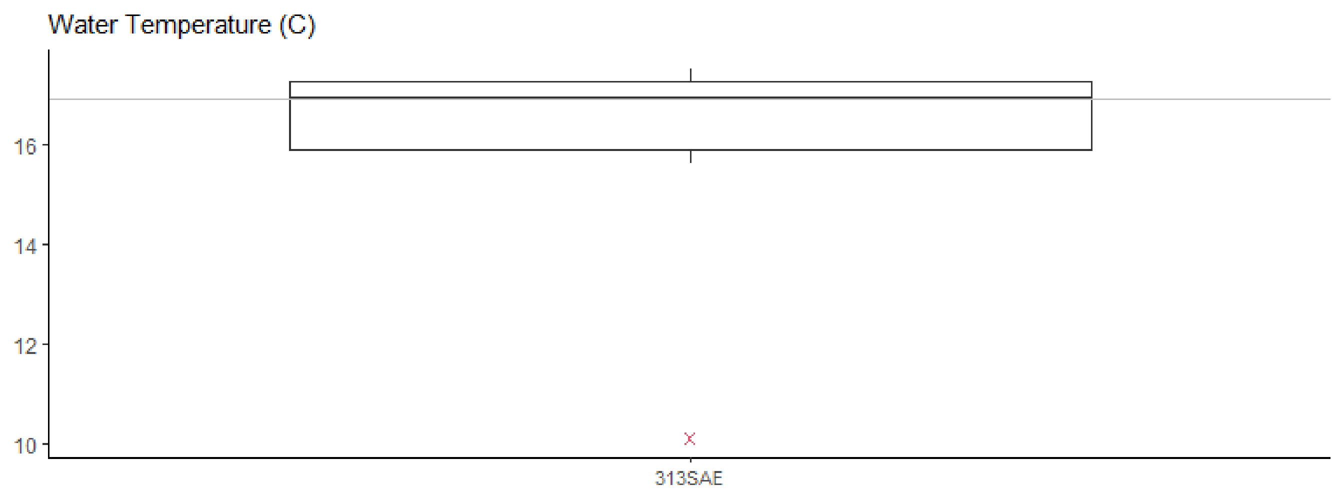

Invertebrate Toxicity (Water), Survival (% Control Survival)
90
60
30
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

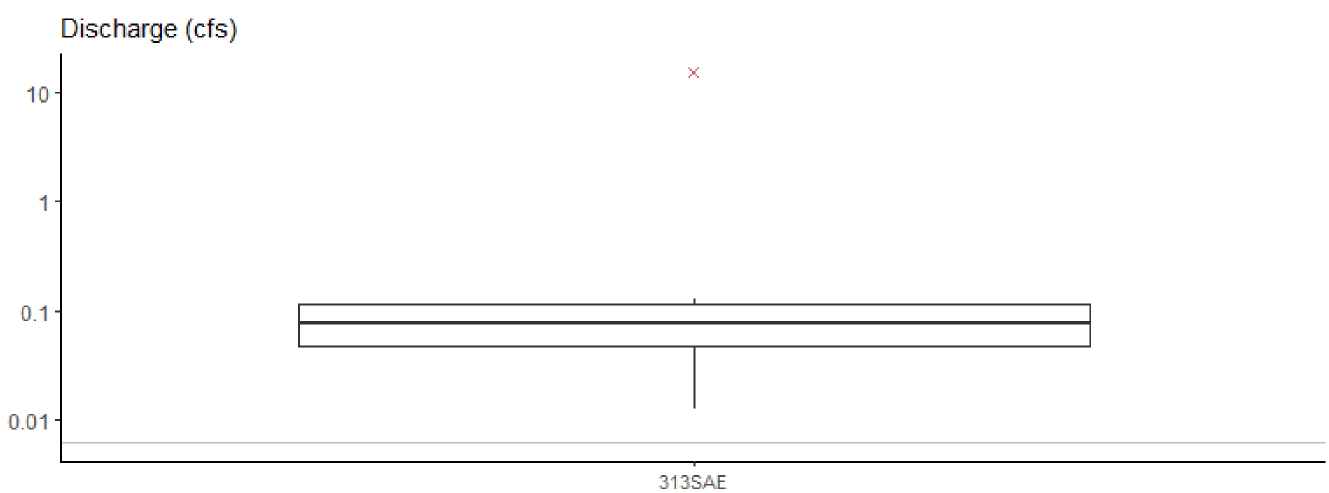

Invertebrate Toxicity (Sediment), Growth (% Control Growth)
150
100
50
0
NS
NS
NS
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI


Invertebrate Toxicity (Sediment), Survival (% Control Survival)
100
75
50
25
0
NS
NS
NS
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI

San Antonio Creek Hydrologic Unit, HUC 313

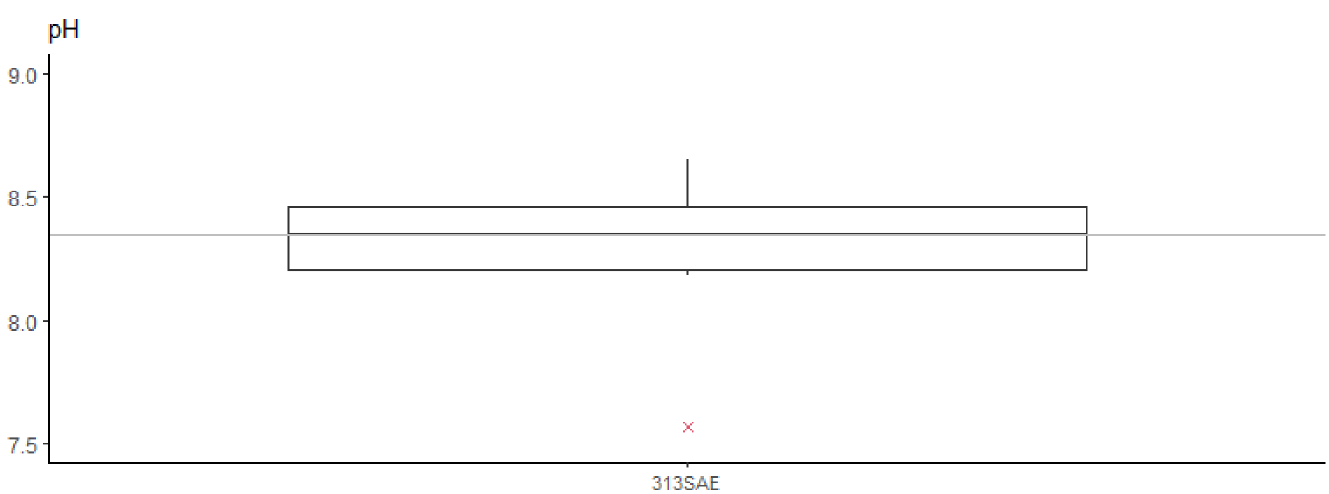


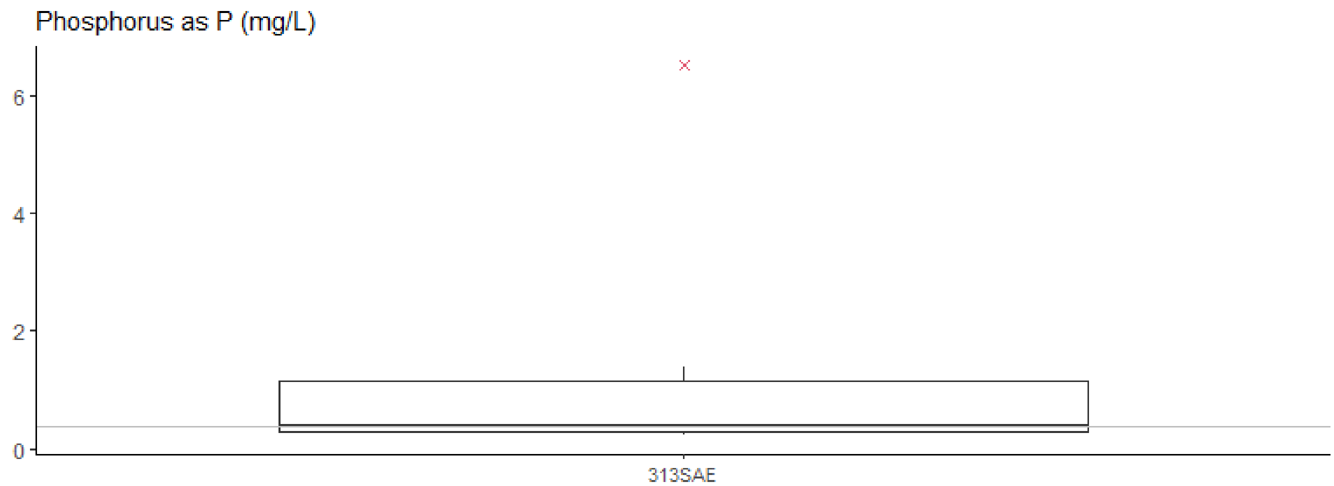


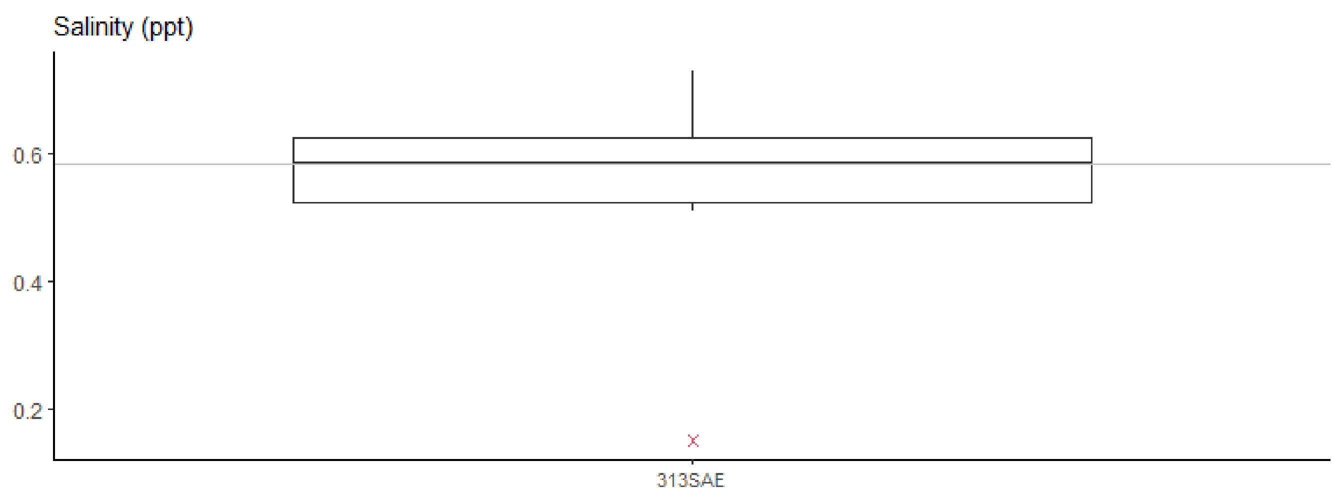


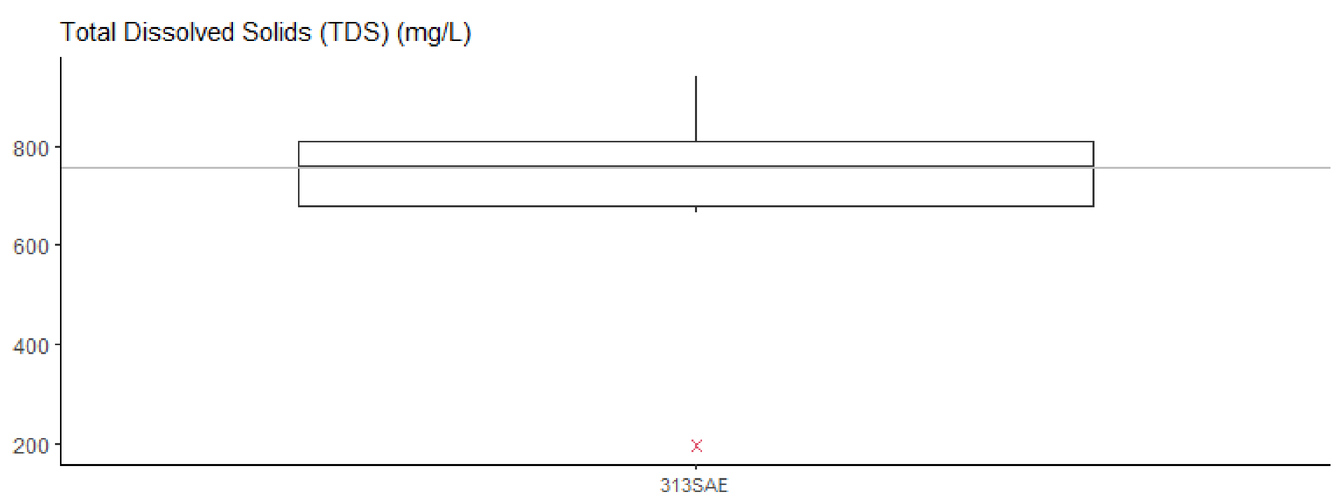

Oxygen, Dissolved (mg/L)
12
10
8
6
313SAE

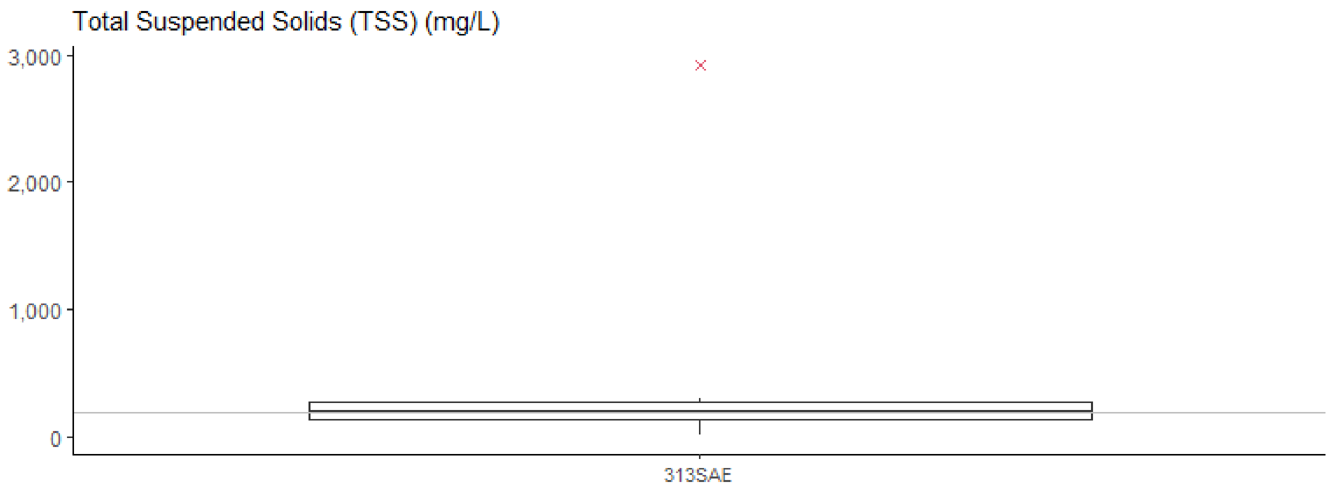

Oxygen, Saturation (%)
120
100
80
313SAE


pH
9.0
8.5
8.0
7.5
313SAE


Phosphorus as P (mg/L)
6
4
2
0
313SAE


Salinity (ppt)
0.6
0.4
0.2
313SAE

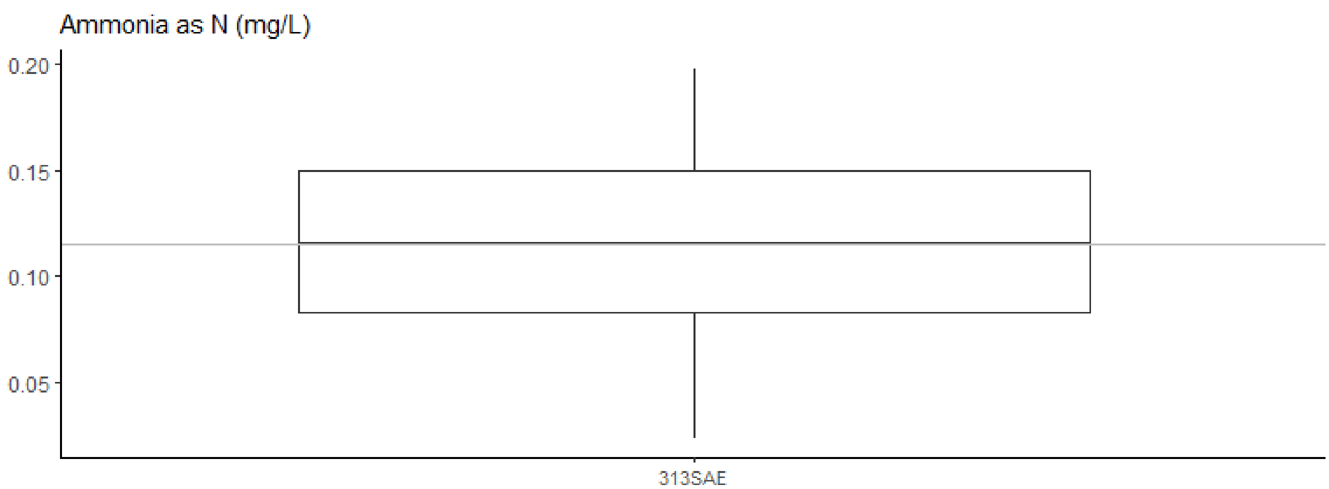

Total Dissolved Solids (TDS) (mg/L)
800
600
400
200
313SAE

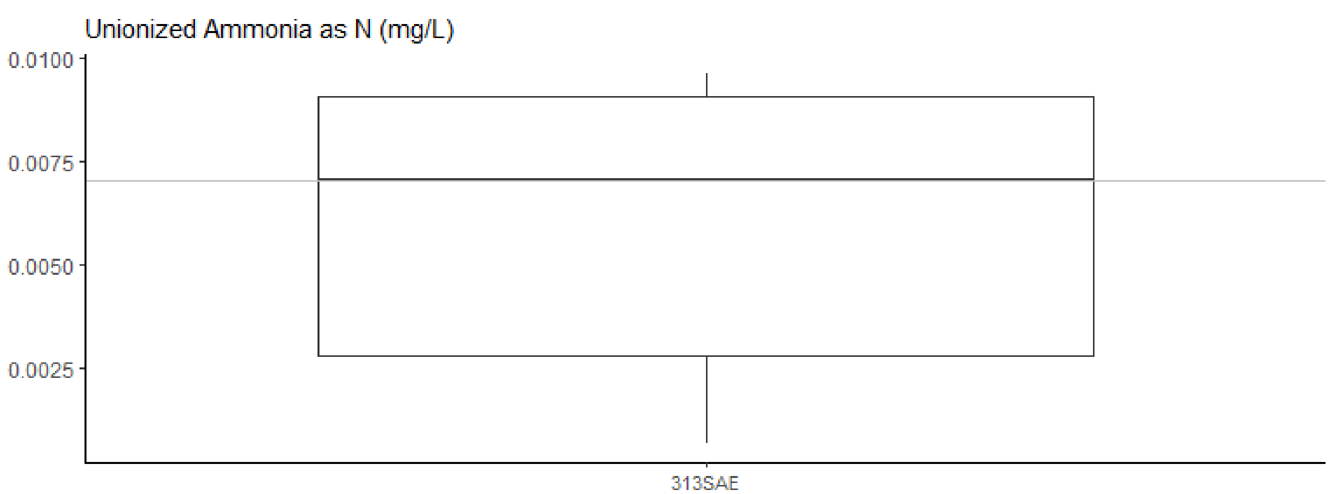

Total Suspended Solids (TSS) (mg/L)
3,000
2,000
1,000
0
313SAE


Specific Conductivity (uS/cm)
1,500
1,250
1,000
750
500
250
313SAE


Turbidity, Field (NTU)
1,000
750
500
250
0
313SAE


Chlorphyll a (ug/L)
6
4
2
313SAE


Ammonia as N (mg/L)
0.20
0.15
0.10
0.05
313SAE

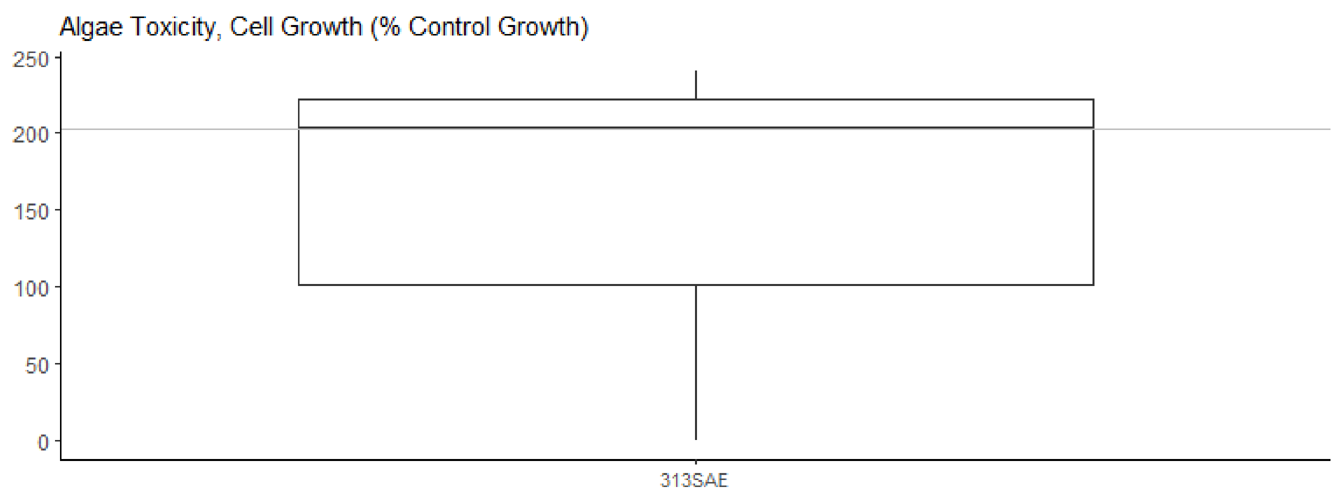

Unionized Ammonia as N (mg/L)
0.0100
0.0075
0.0050
0.0025
313SAE

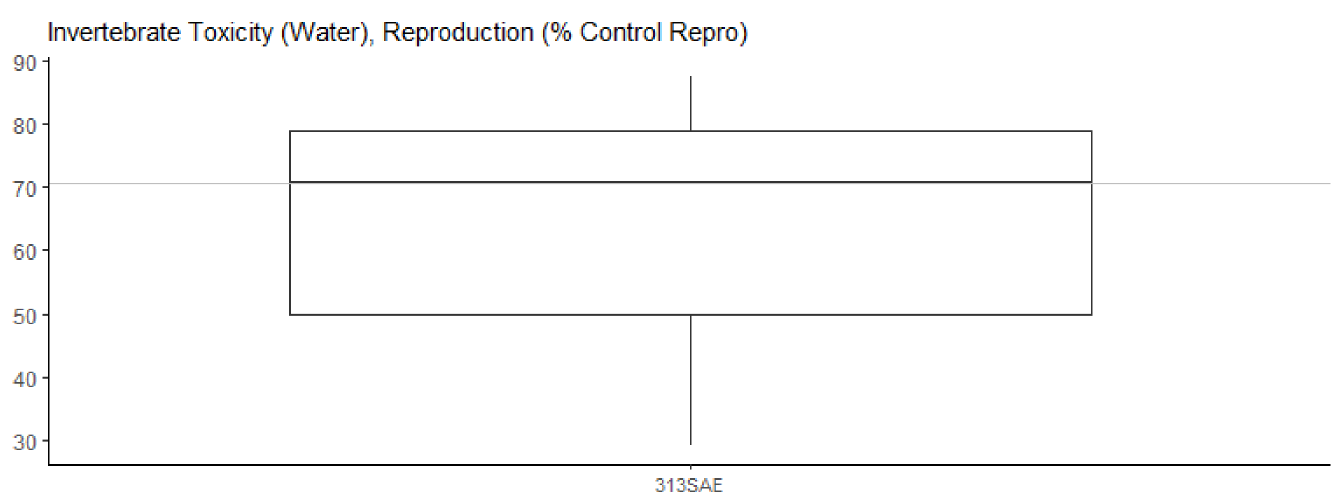

Nitrate + Nitrite as N (mg/L)
10
5
313SAE

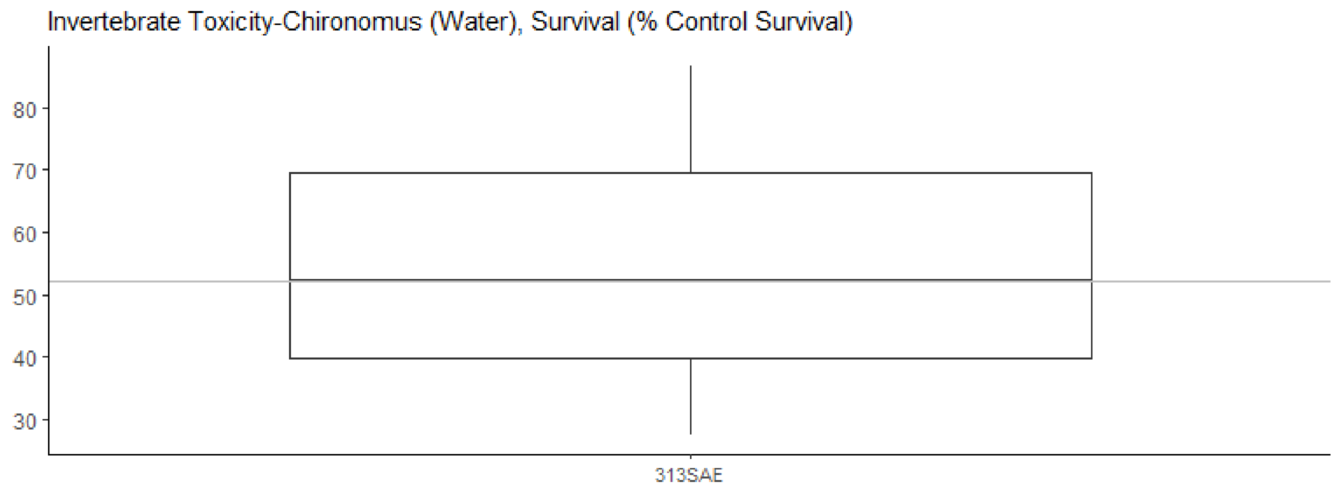

Nitrogen, Total (mg/L)
12
8
4
313SAE

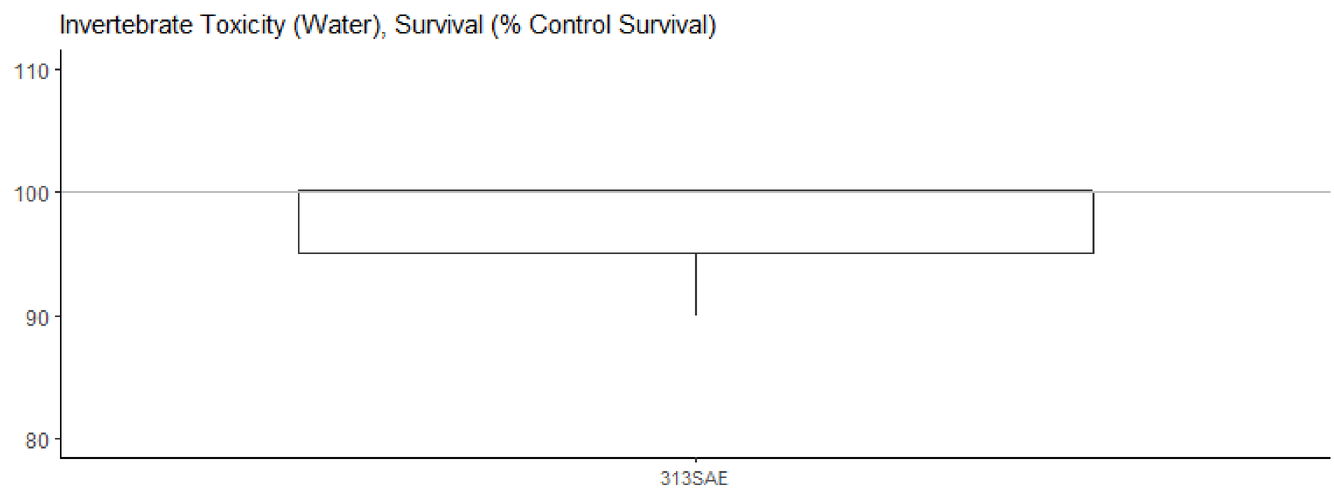

Nitrogen, Total Kjeldahl (mg/L)
7.5
5.0
2.5
0.0
313SAE

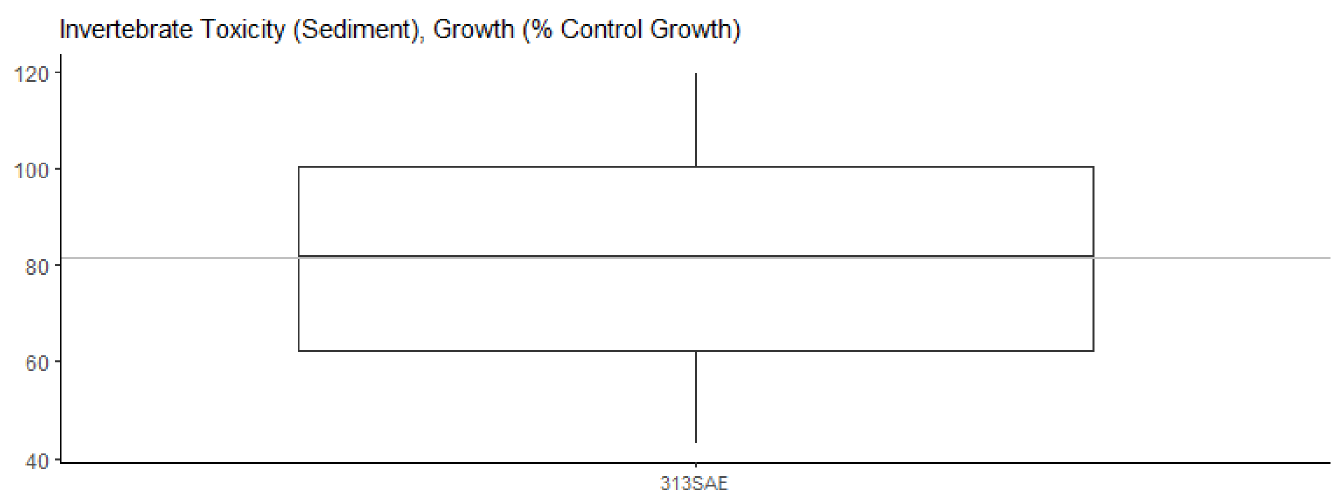

OrthoPhosphate as P (mg/L)
1.00
0.75
0.50
0.25
313SAE


Algae Toxicity, Cell Growth (% Control Growth)
250
200
150
100
50
0
313SAE

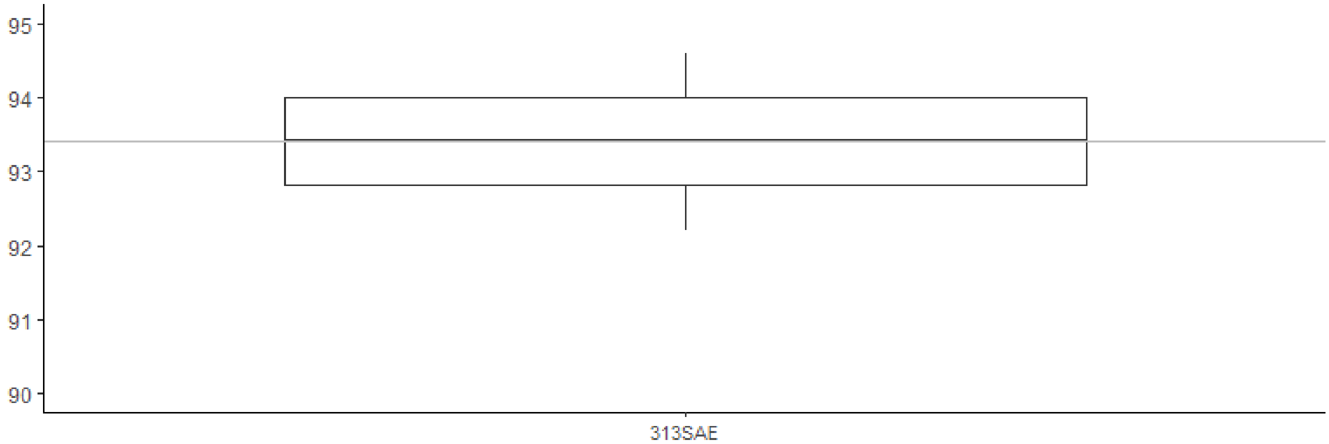

Invertebrate Toxicity (Water), Reproduction (% Control Repro)
90
80
70
60
50
40
30
313SAE


Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)
80
70
60
50
40
30
313SAE

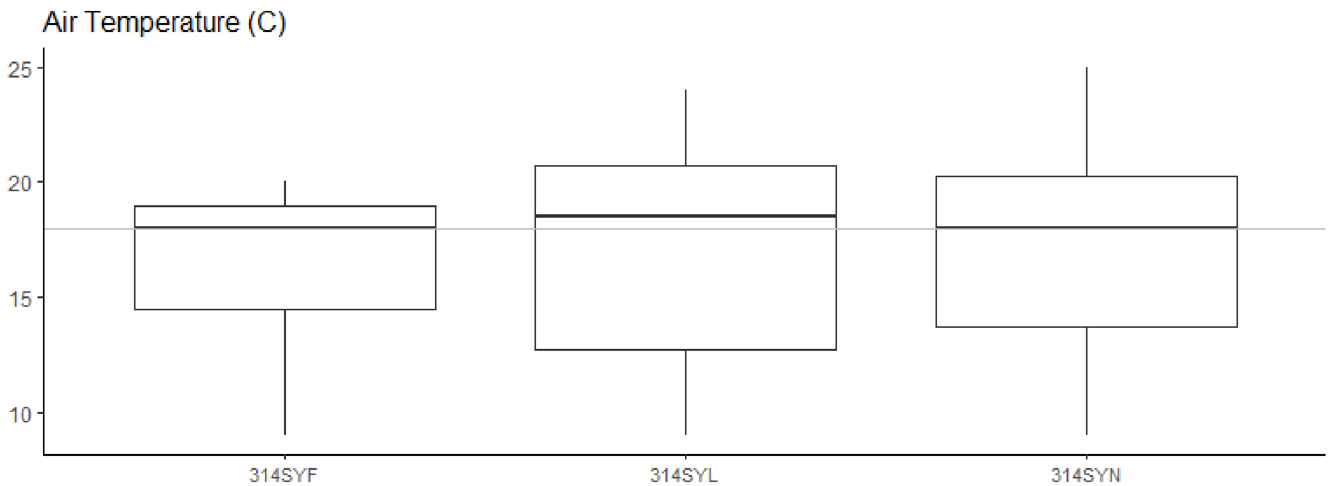

Invertebrate Toxicity (Water), Survival (% Control Survival)
110
100
90
80
313SAE

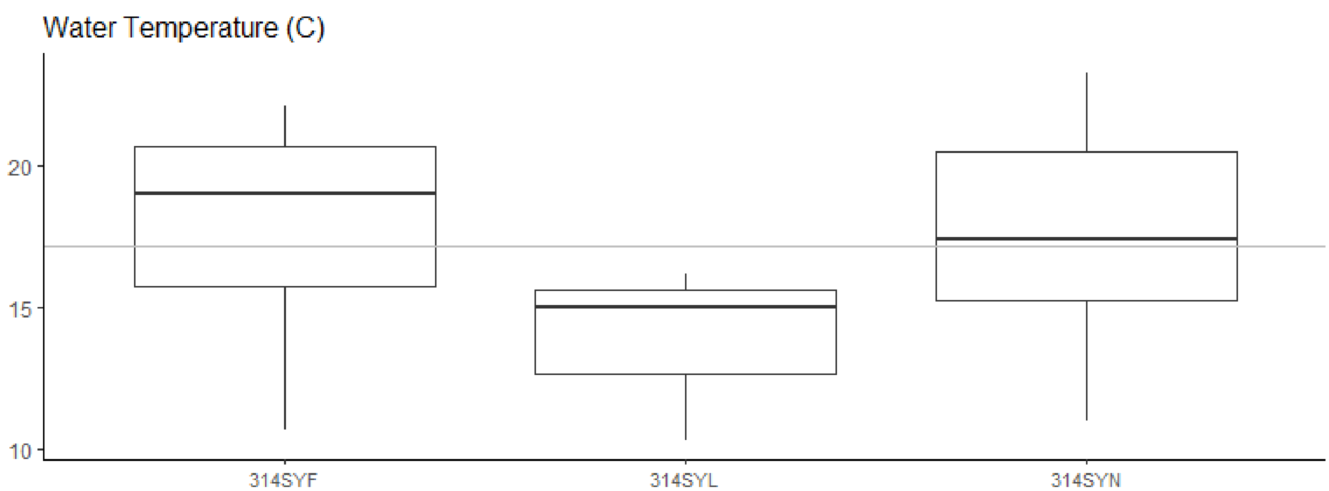

Invertebrate Toxicity (Sediment), Growth (% Control Growth)
120
100
80
60
40
313SAE

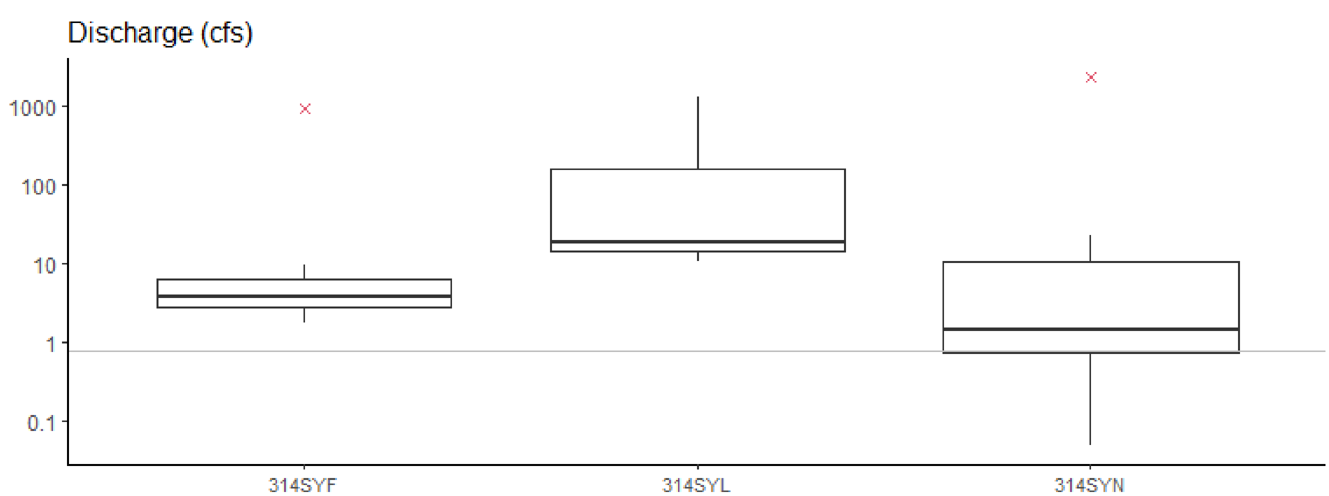
Invertebrate Toxicity (Sediment), Survival (% Control Survival)



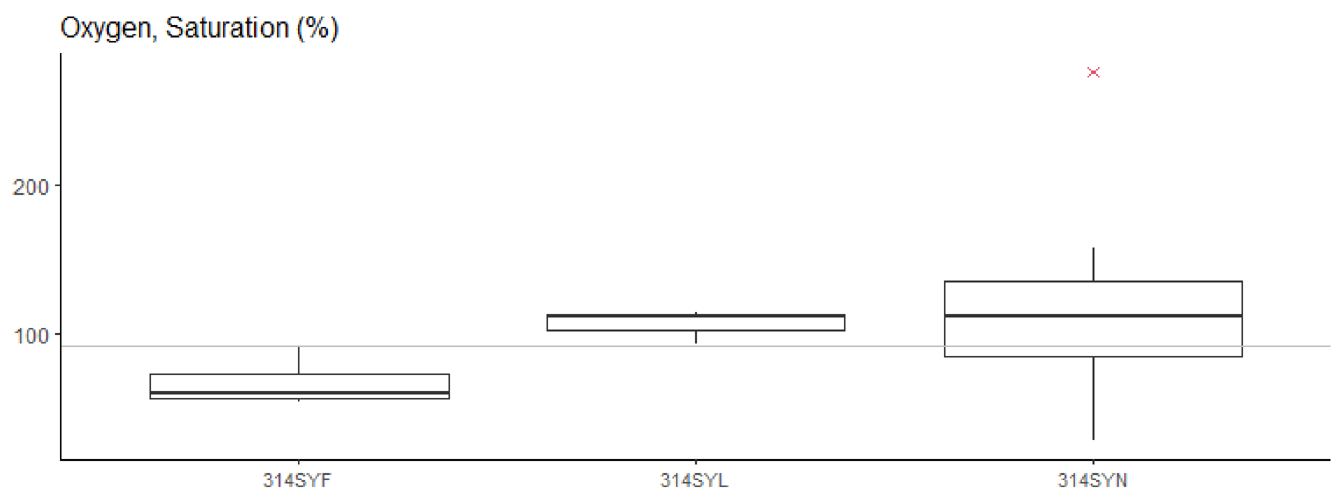
Santa Ynez Hydrologic Unit, HUC 314

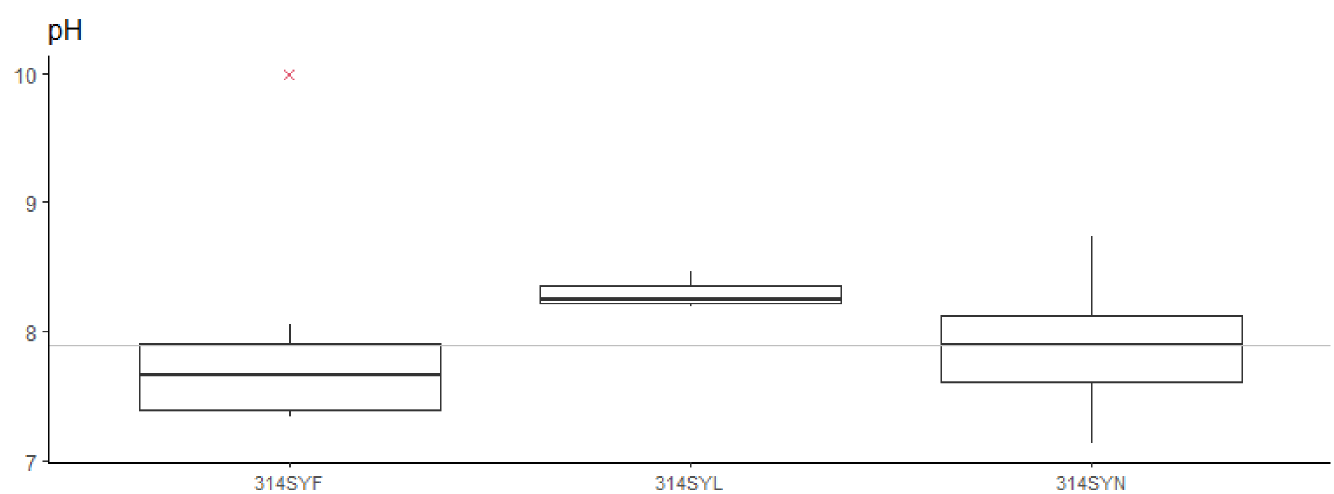


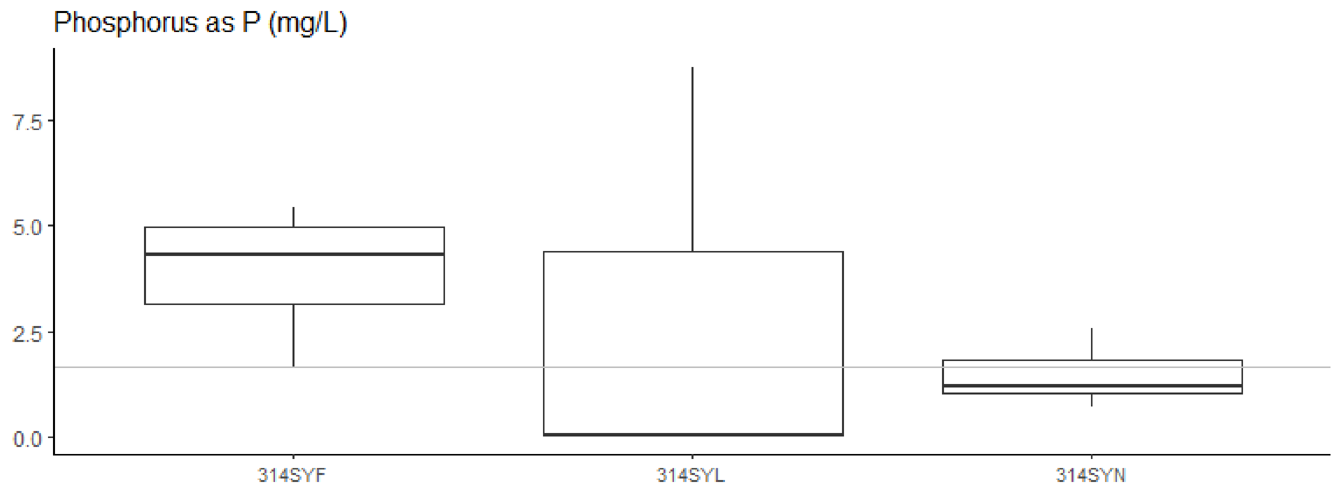


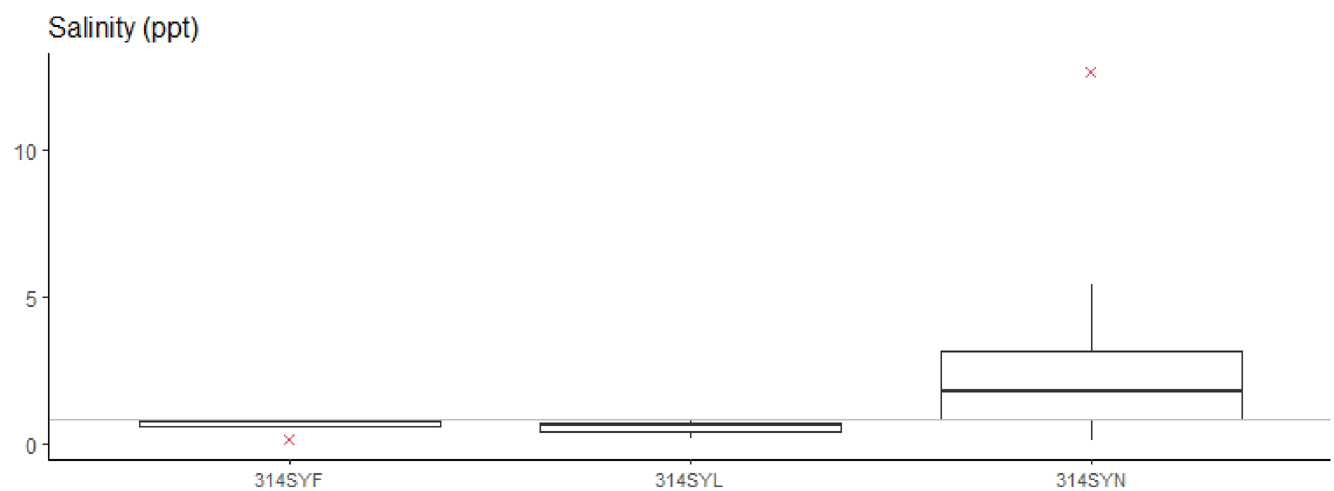


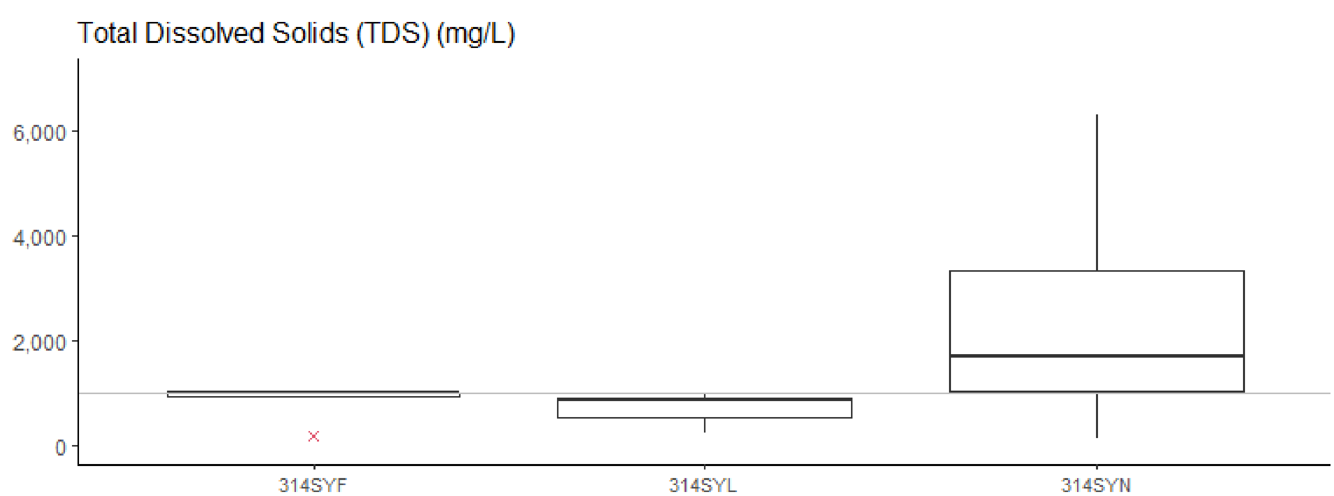

Oxygen, Dissolved (mg/L)
25
20
15
10
5
314SYF
314SYL
314SYN

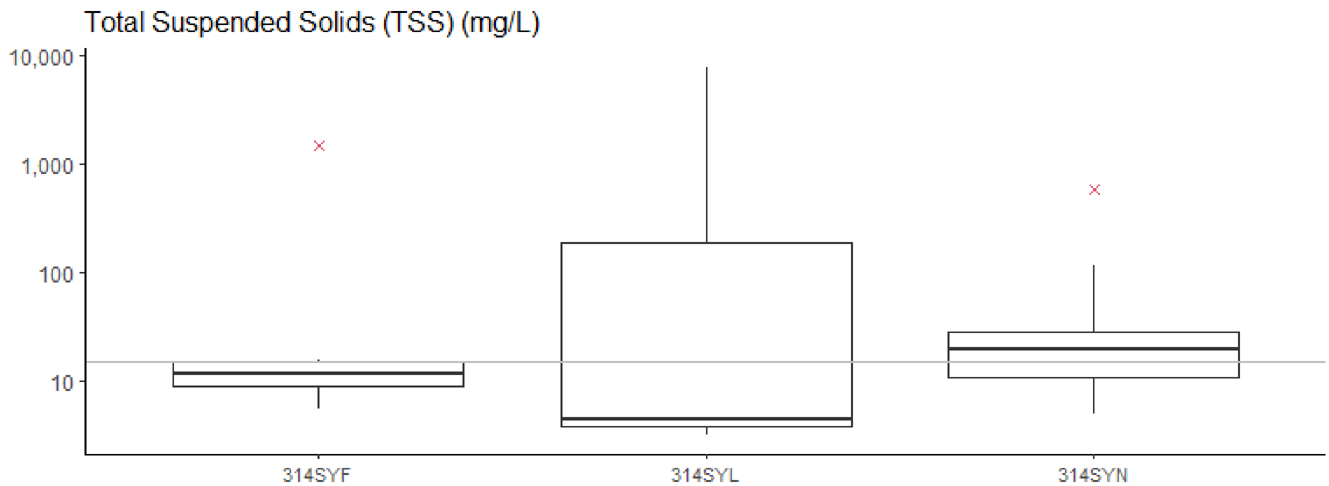

Oxygen, Saturation (%)
200
100
314SYF
314SYL
314SYN

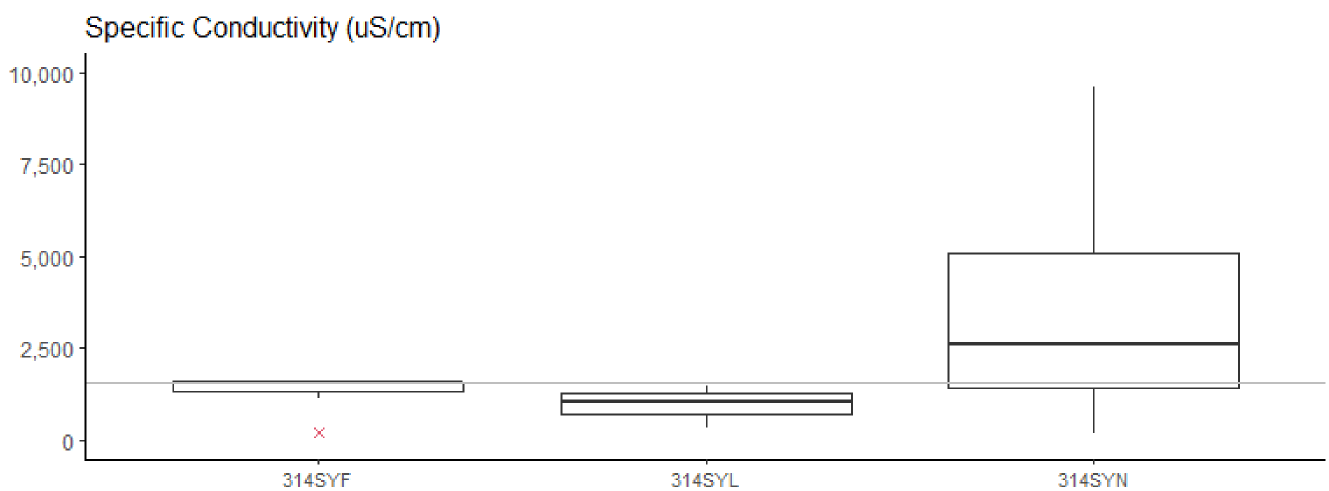

pH
10
9
8
7
314SYF
314SYL
314SYN

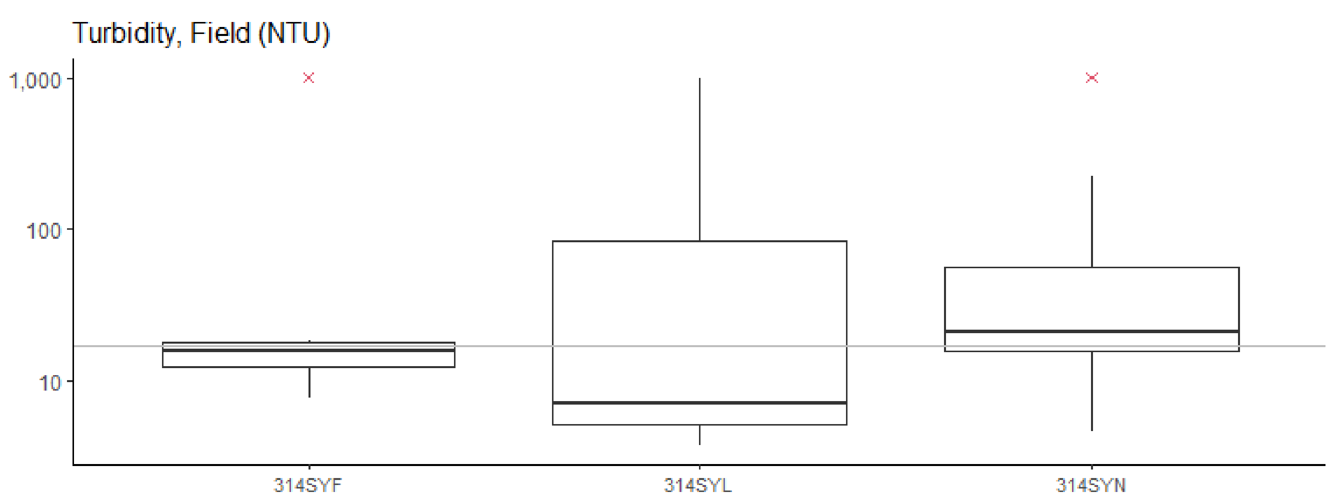

Phosphorus as P (mg/L)
7.5
5.0
2.5
0.0
314SYF
314SYL
314SYN

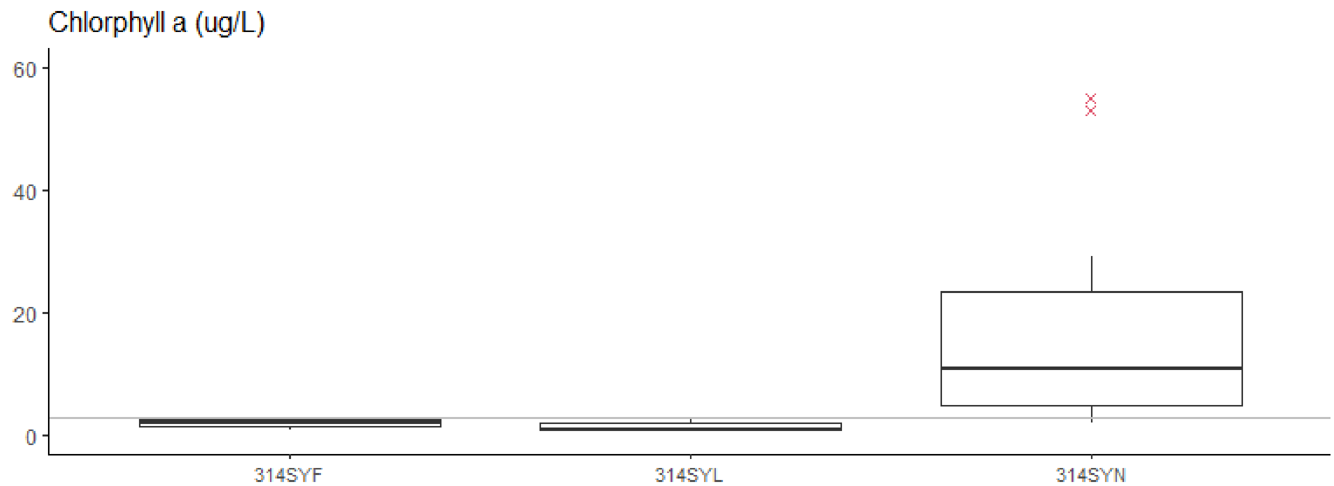

Salinity (ppt)
10
5
0
314SYF
314SYL
314SYN

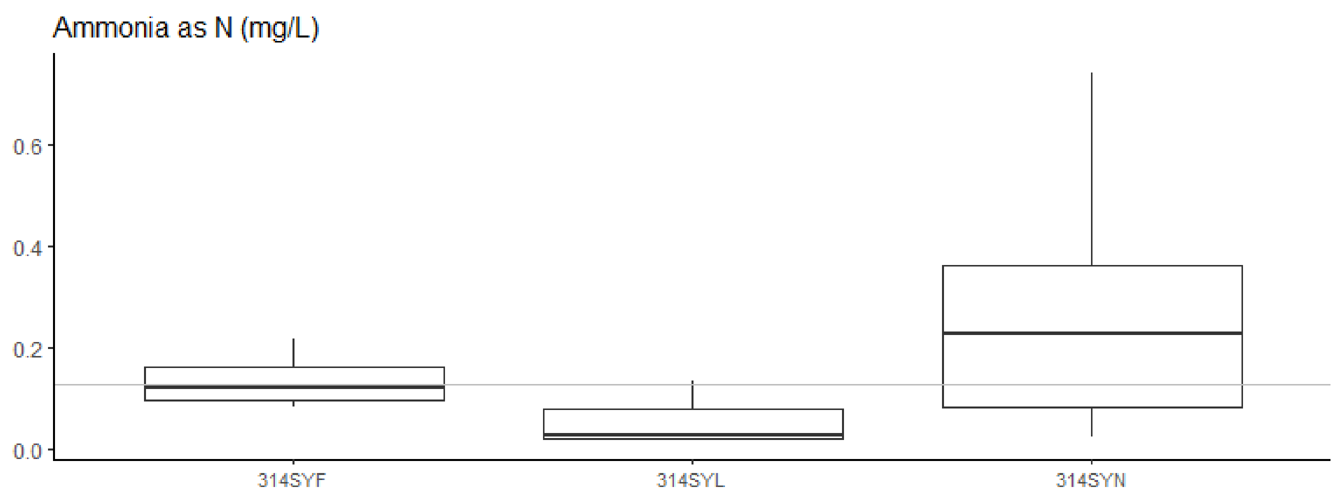

Total Dissolved Solids (TDS) (mg/L)
6,000
4,000
2,000
0
314SYF
314SYL
314SYN

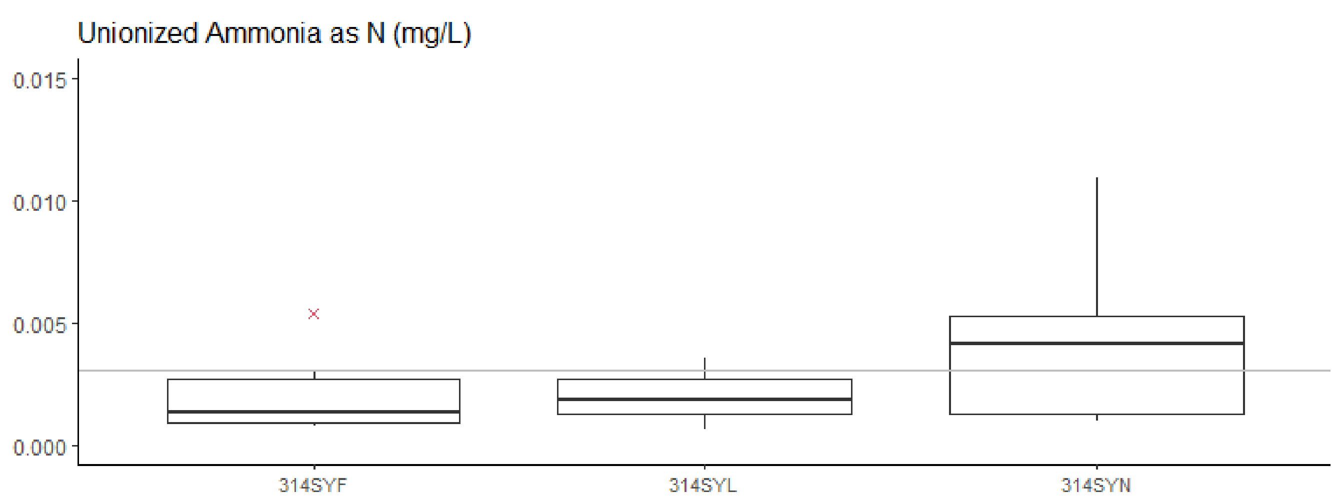

Total Suspended Solids (TSS) (mg/L)
10,000
1,000
100
10
314SYF
314SYL
314SYN

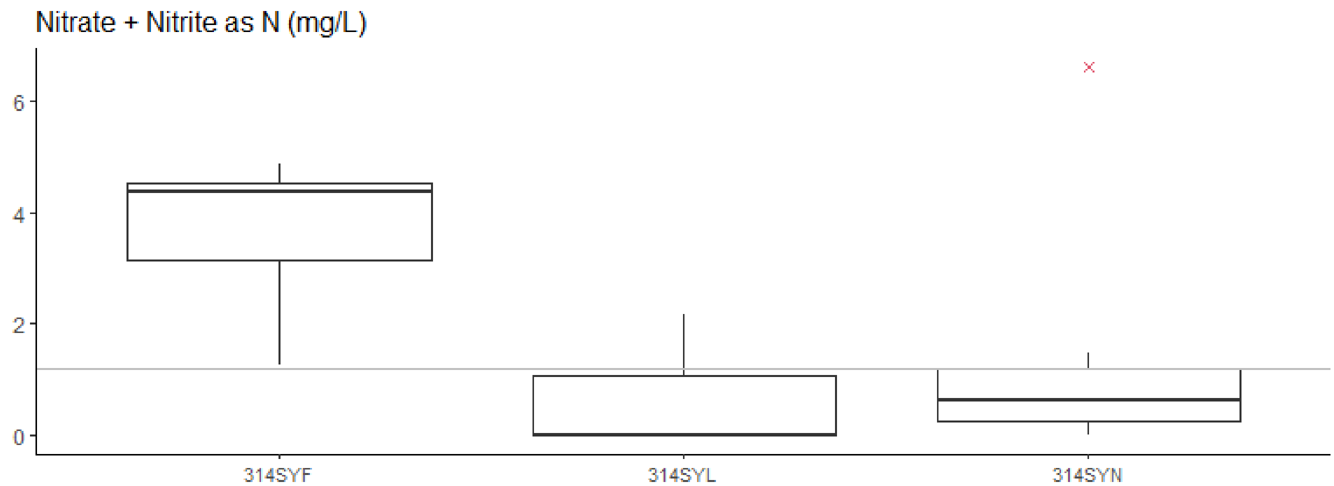

Specific Conductivity (uS/cm)
10,000
7,500
5,000
2,500
0
314SYF
314SYL
314SYN

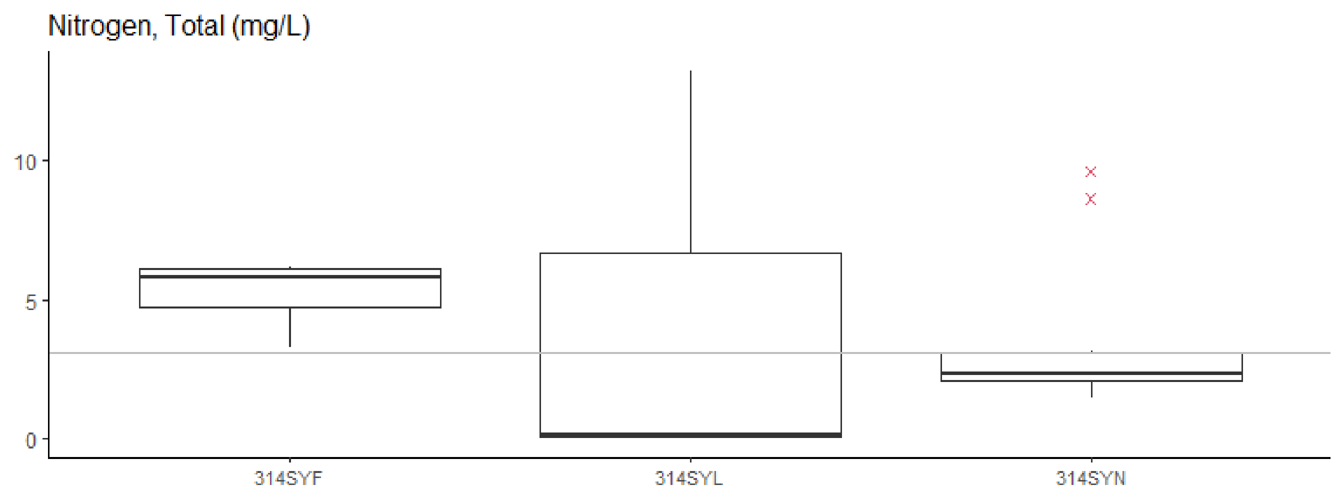

Turbidity, Field (NTU)
1,000
100
10
314SYF
314SYL
314SYN

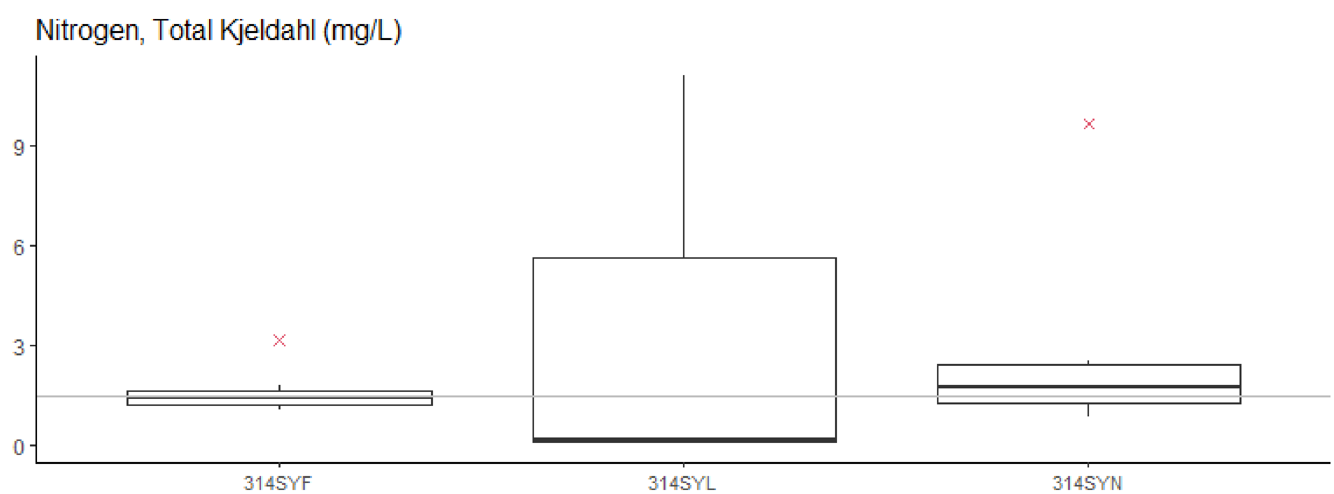

Chlorphyll a (ug/L)
60
40
20
0
314SYF
314SYL
314SYN

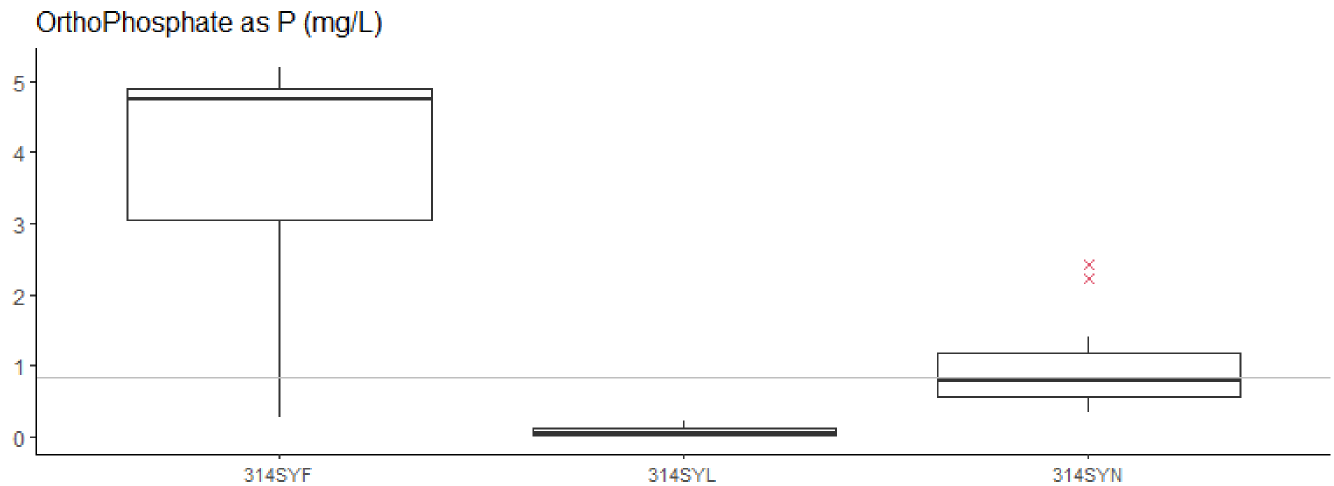

Ammonia as N (mg/L)
0.6
0.4
0.2
0.0
314SYF
314SYL
314SYN

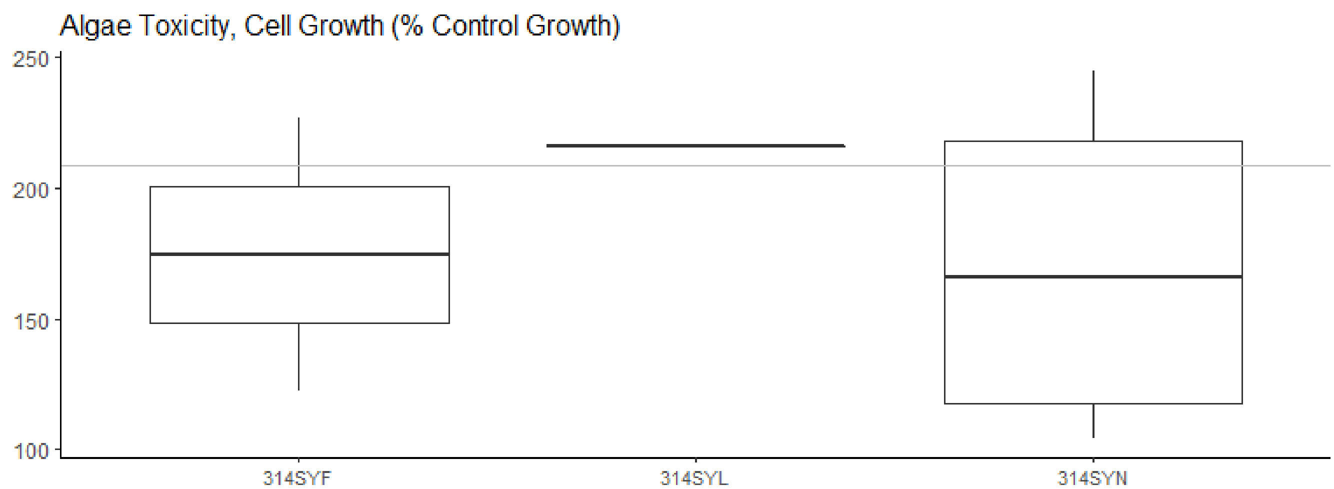

Unionized Ammonia as N (mg/L)
0.015
0.010
0.005
0.000
314SYF
314SYL
314SYN

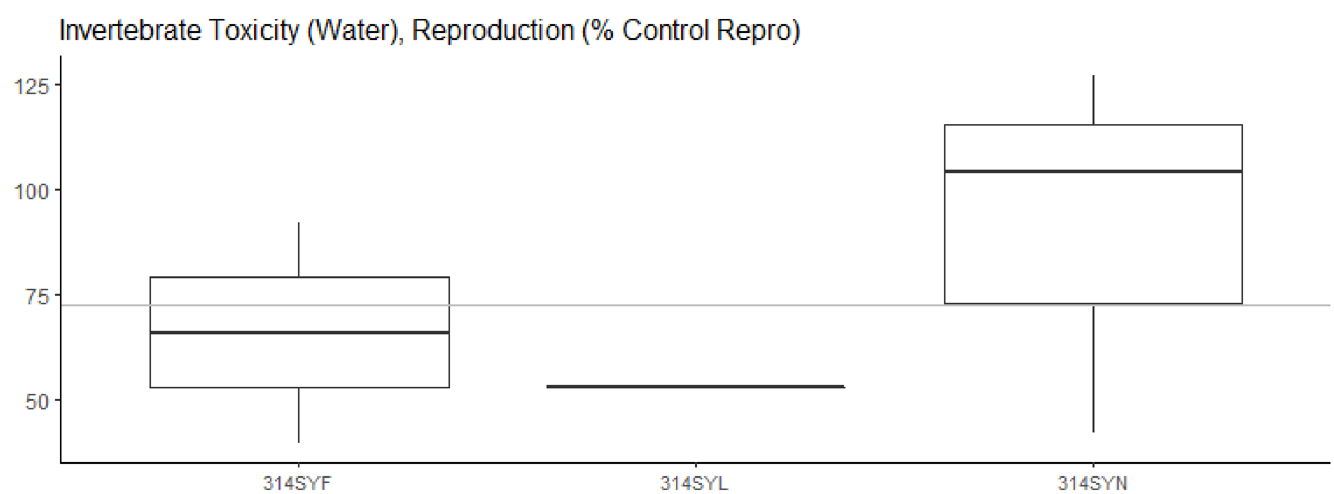

Nitrate + Nitrite as N (mg/L)
0
2
4
6
314SYF
314SYL
314SYN


Nitrogen, Total (mg/L)
0
5
10
314SYF
314SYL
314SYN

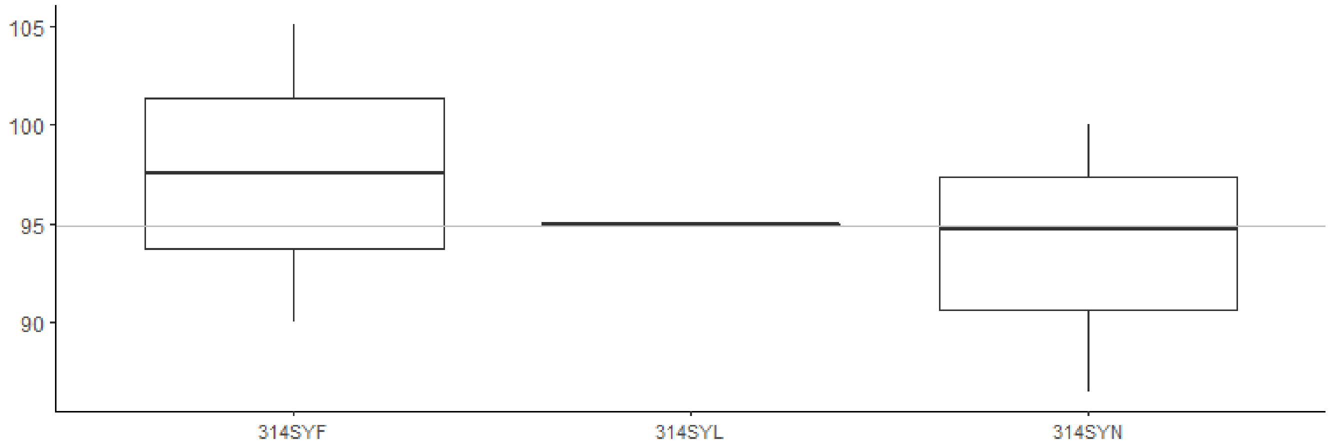

Nitrogen, Total Kjeldahl (mg/L)
0
3
6
9
314SYF
314SYL
314SYN


OrthoPhosphate as P (mg/L)
0
1
2
3
4
5
314SYF
314SYL
314SYN

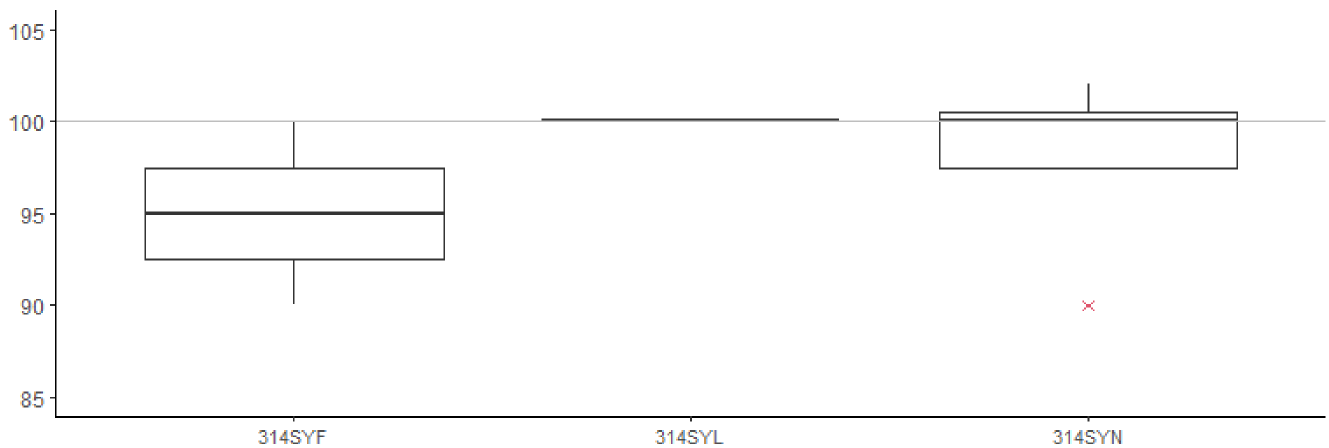

Algae Toxicity, Cell Growth (% Control Growth)
100
150
200
250
314SYF
314SYL
314SYN


Invertebrate Toxicity (Water), Reproduction (% Control Repro)
50
75
100
125
314SYF
314SYL
314SYN

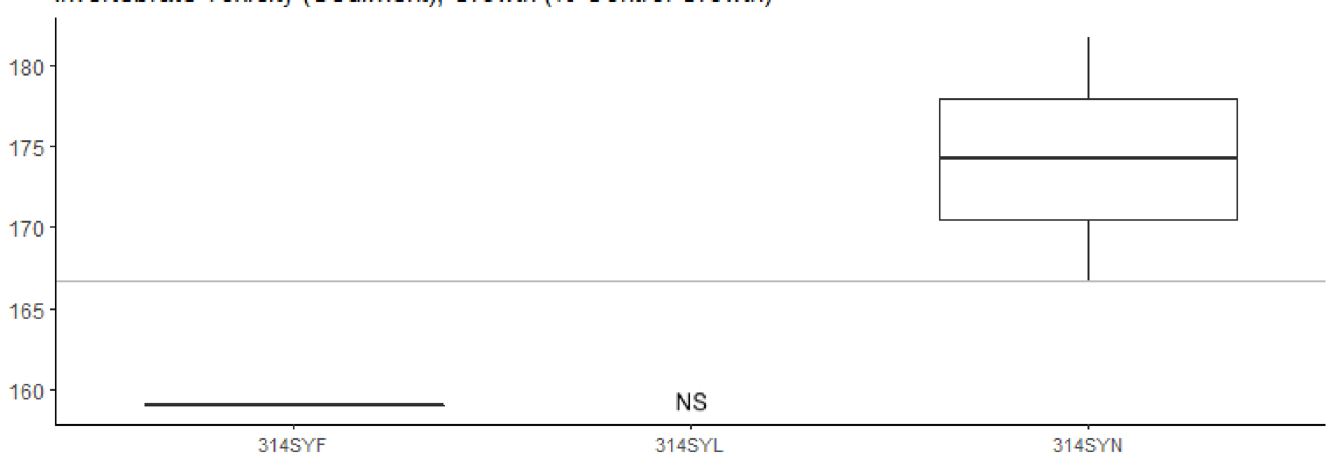
Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)

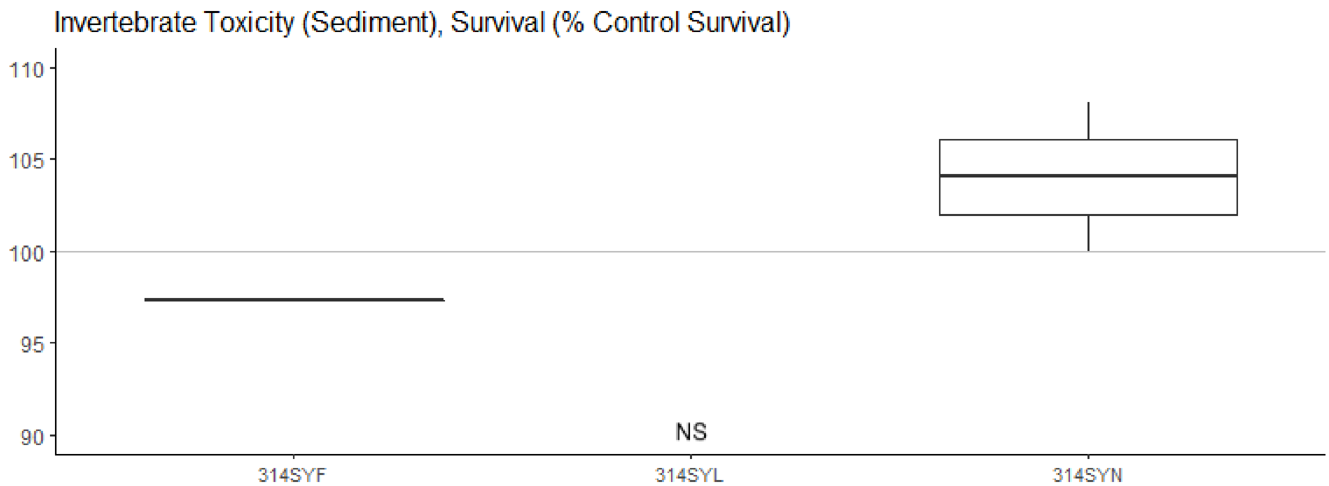


Invertebrate Toxicity (Water), Survival (% Control Survival)

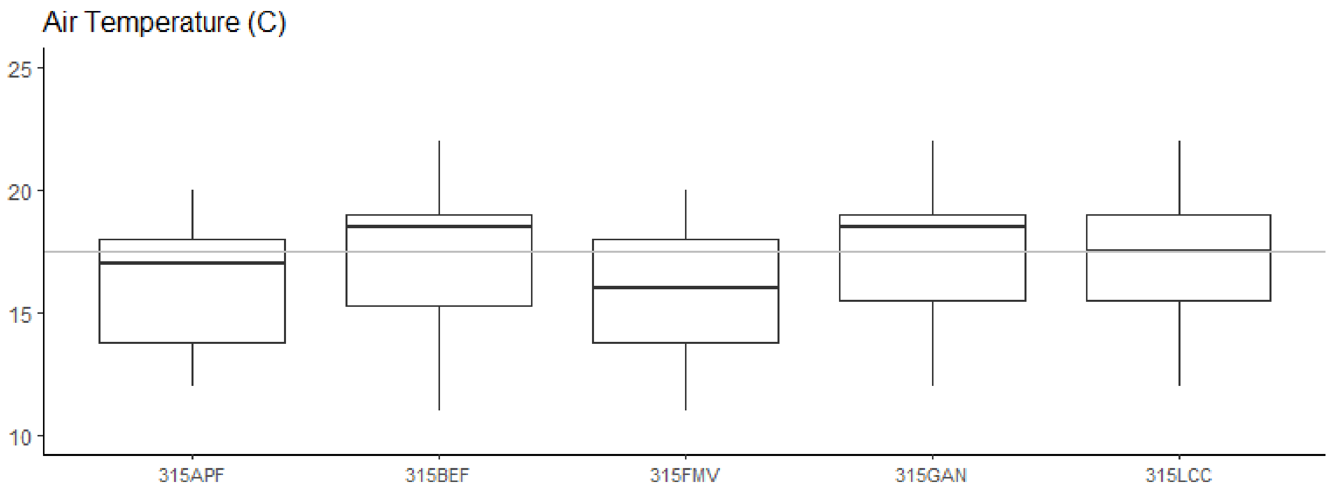


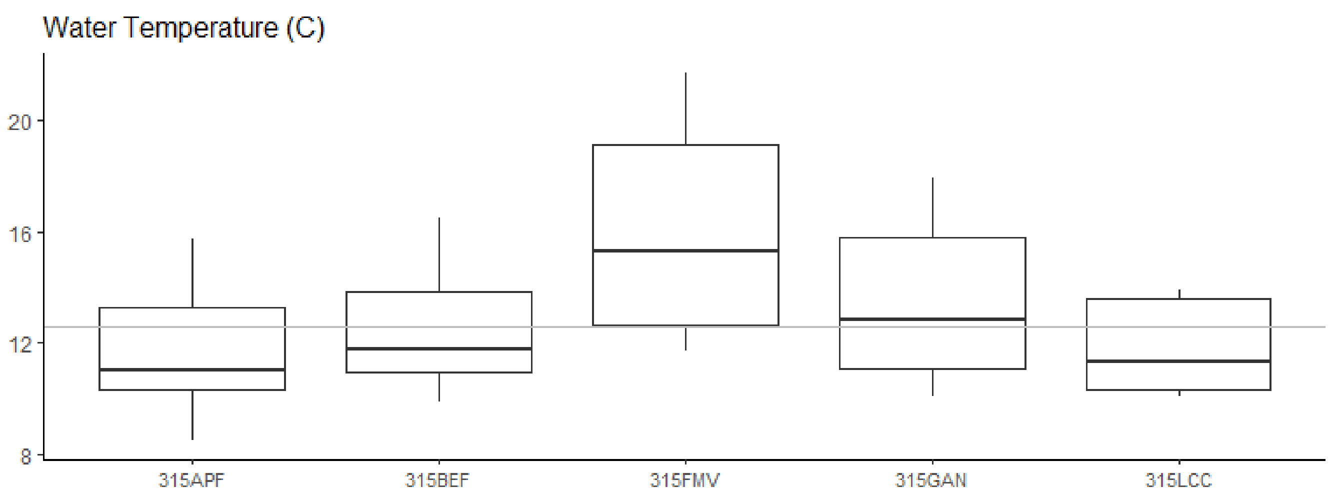
Invertebrate Toxicity (Sediment), Growth (% Control Growth)

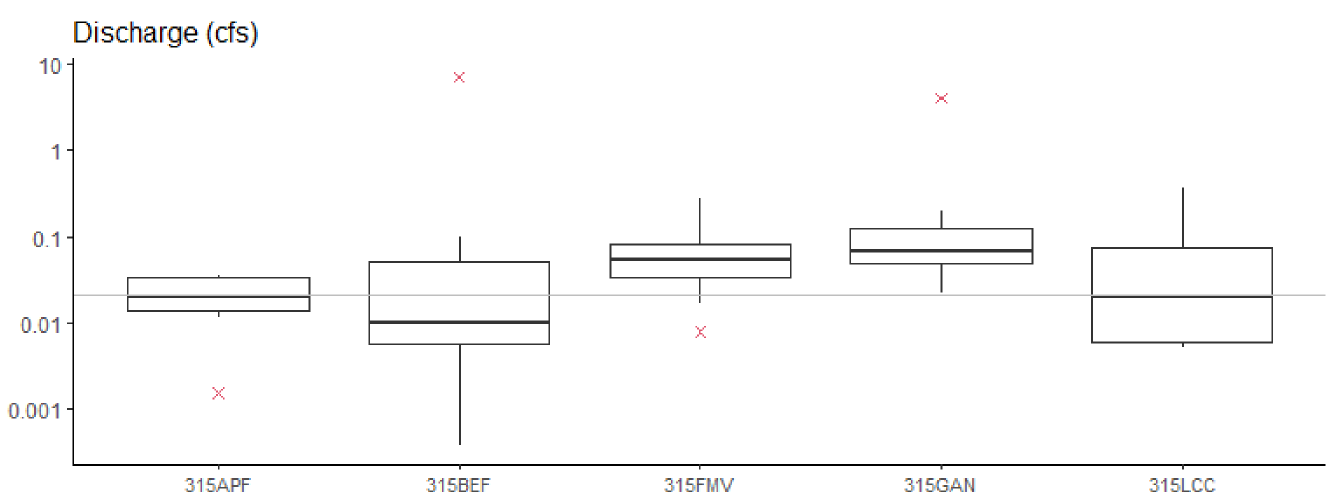


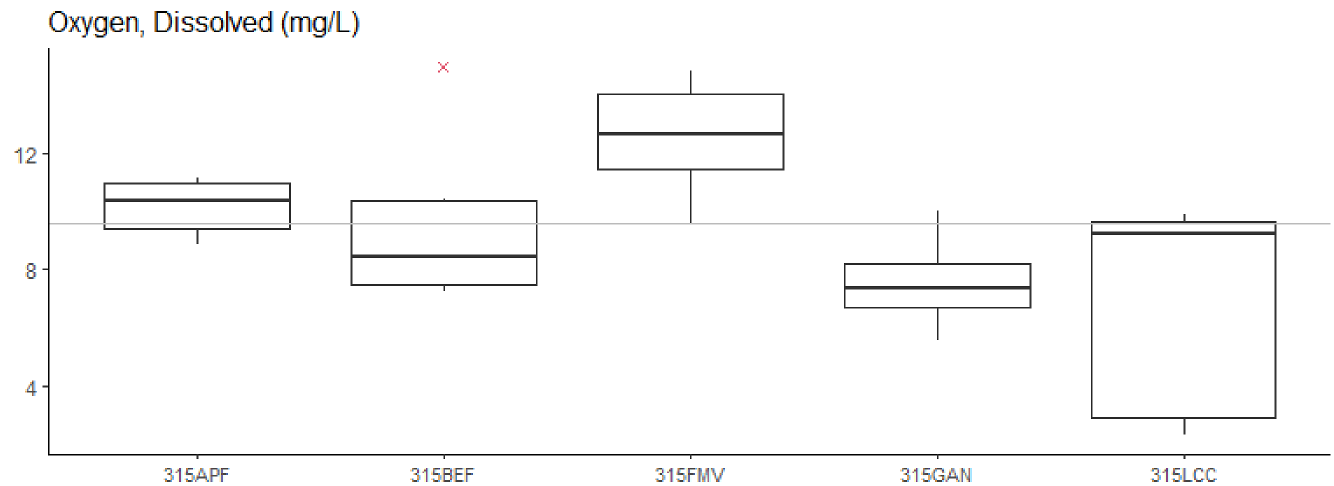

Invertebrate Toxicity (Sediment), Survival (% Control Survival)
110
105
100
95
90
NS
314SYF
314SYL
314SYN

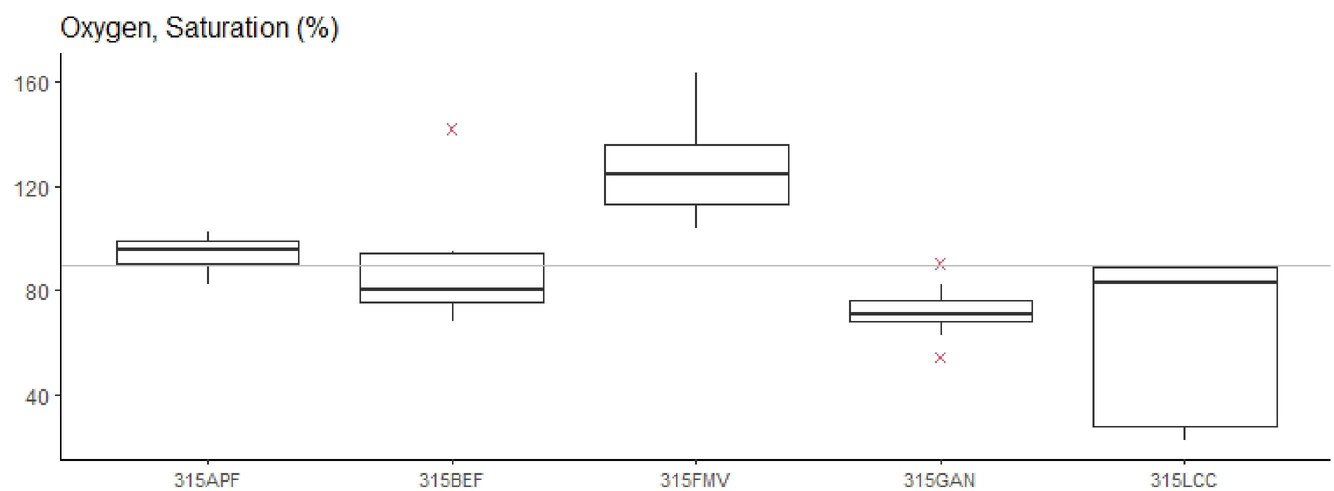
South Coast Hydrologic Unit, HUC 315

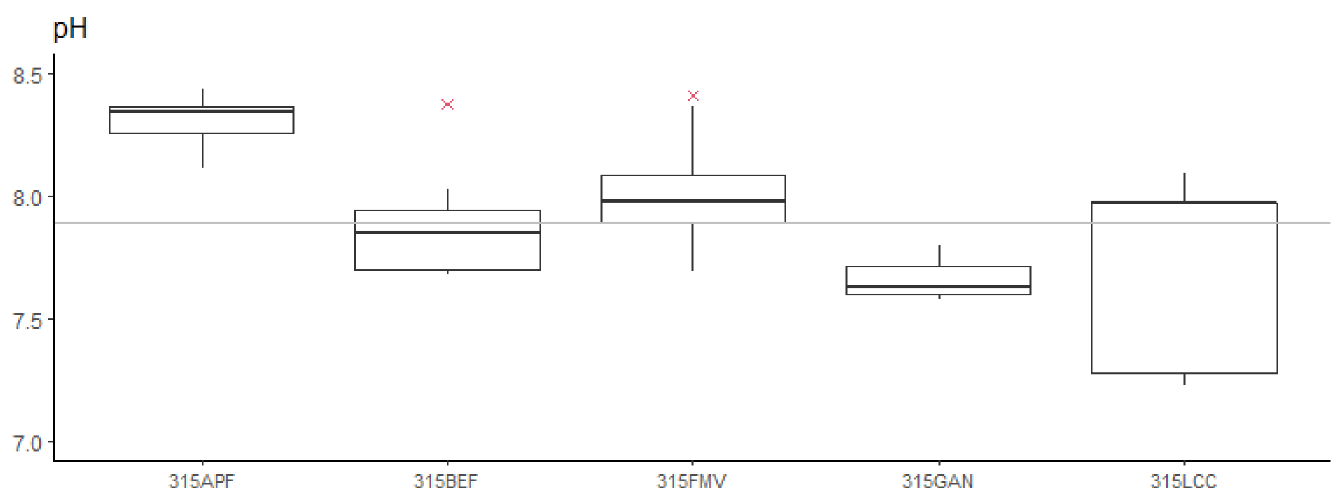


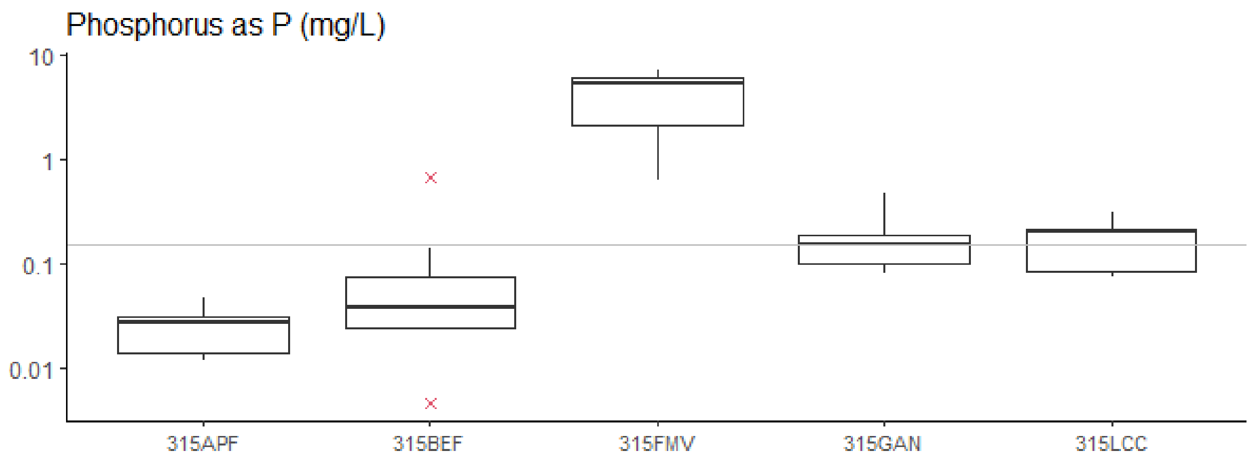


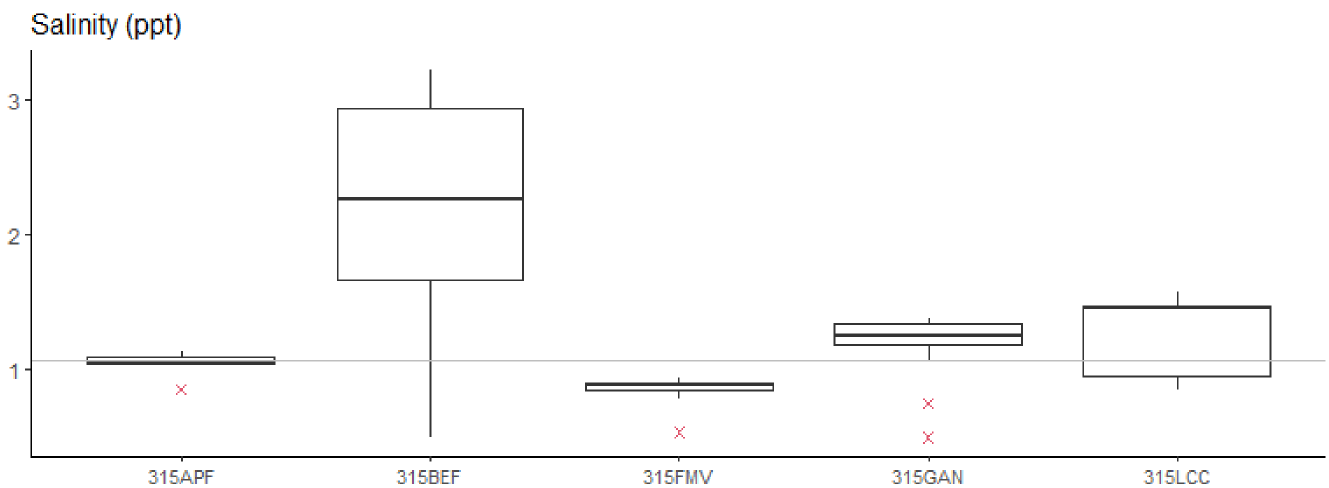


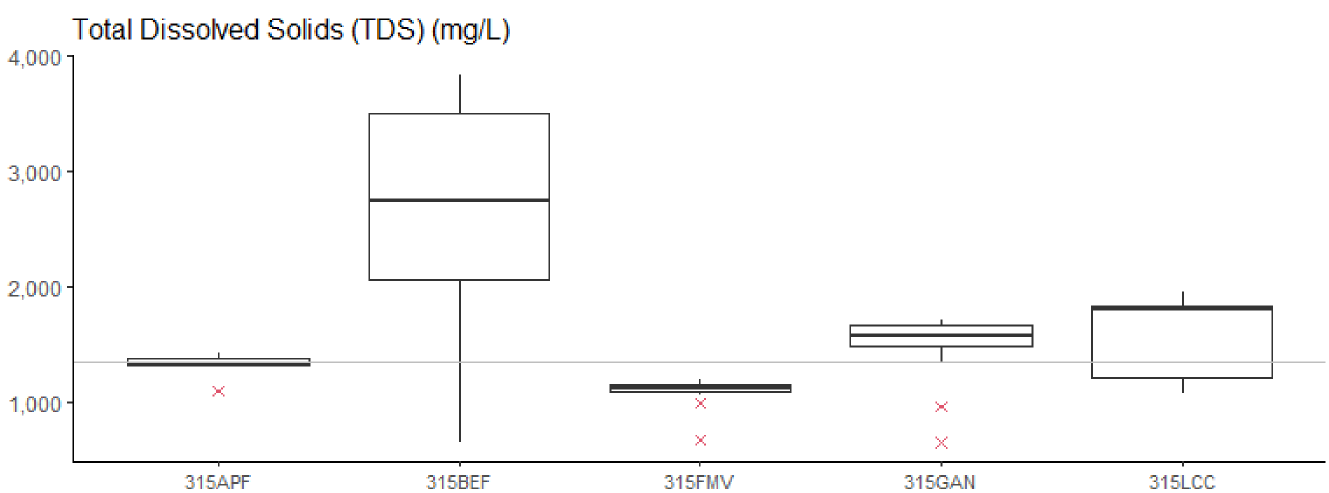

Oxygen, Dissolved (mg/L)
12
8
4
315APF
315BEF
315FMV
315GAN
315LCC

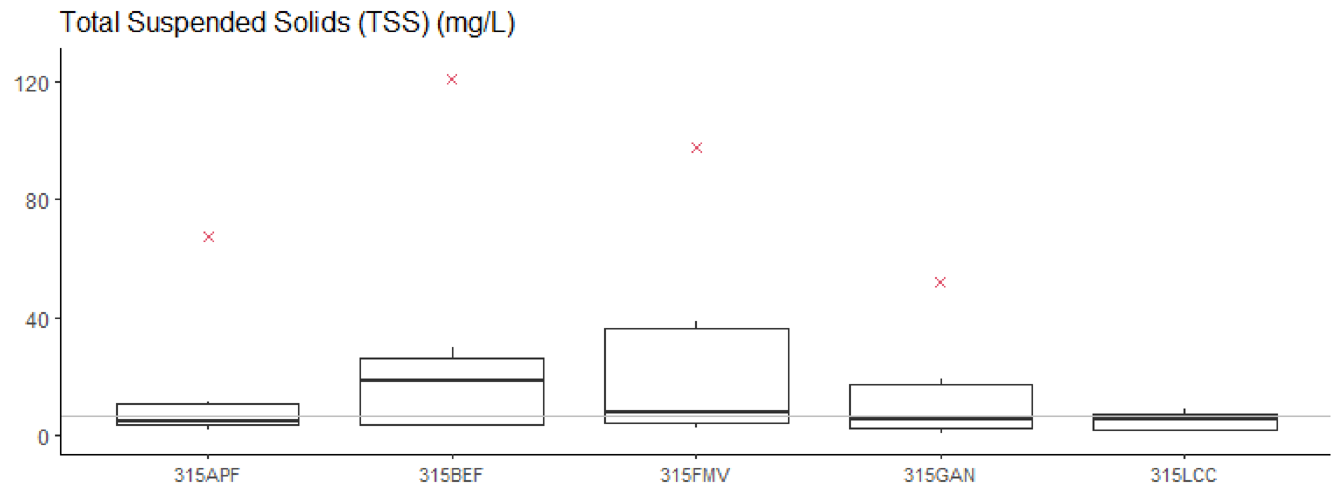

Oxygen, Saturation (%)
160
120
80
40
315APF
315BEF
315FMV
315GAN
315LCC

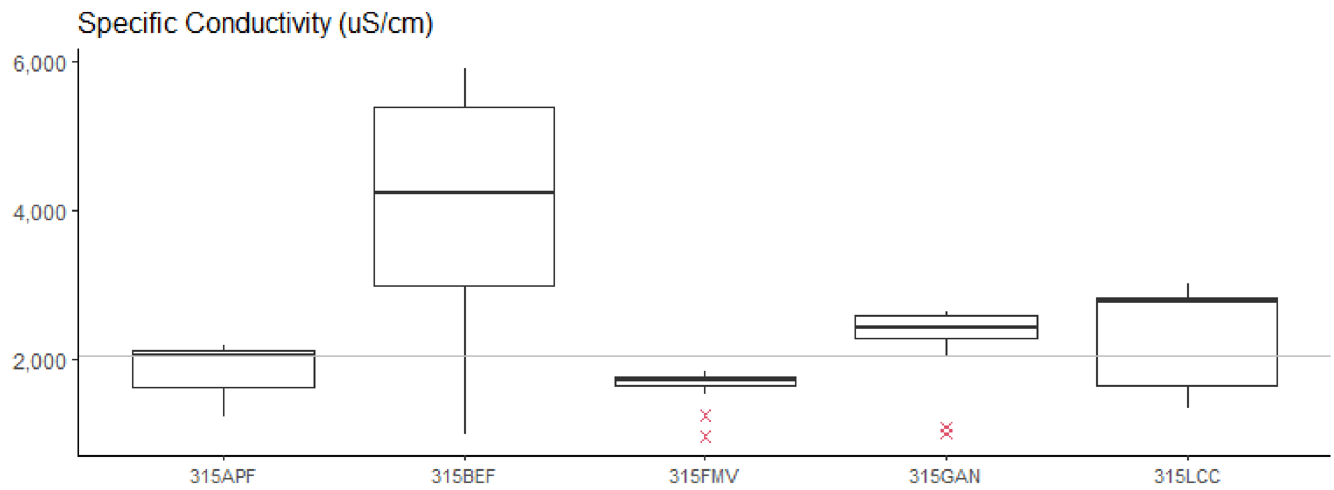

pH
8.5
8.0
7.5
7.0
315APF
315BEF
315FMV
315GAN
315LCC

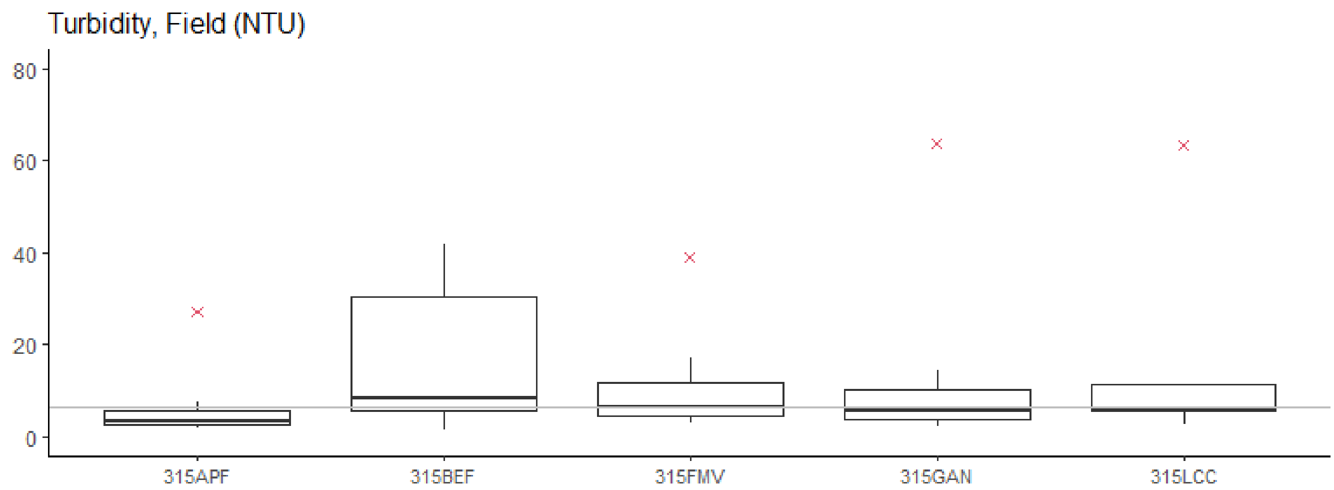

Phosphorus as P (mg/L)
10
1
0.1
0.01
315APF
315BEF
315FMV
315GAN
315LCC

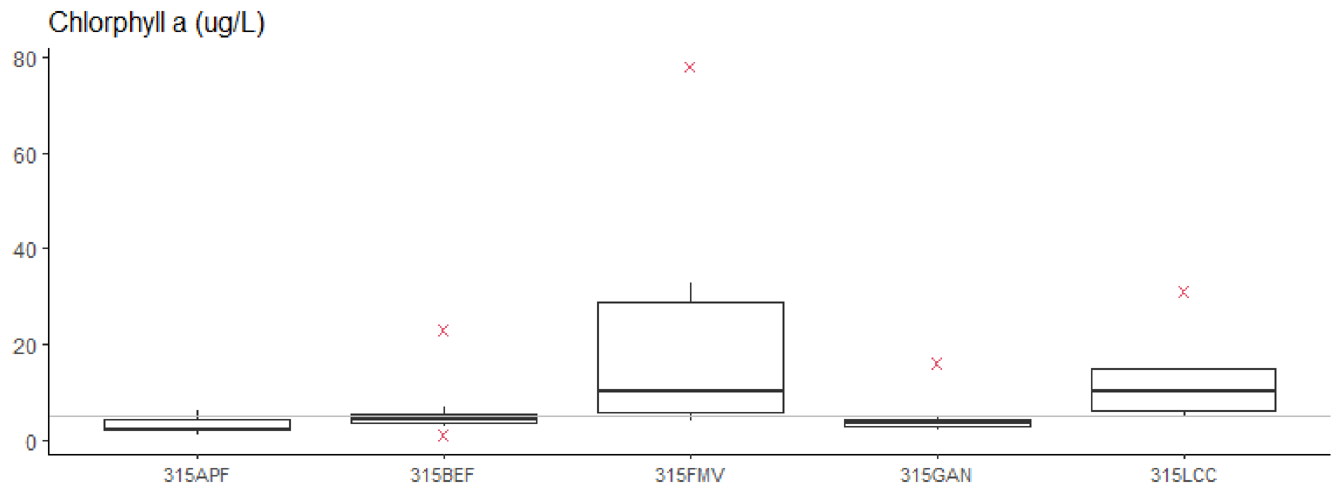

Salinity (ppt)
3
2
1
315APF
315BEF
315FMV
315GAN
315LCC

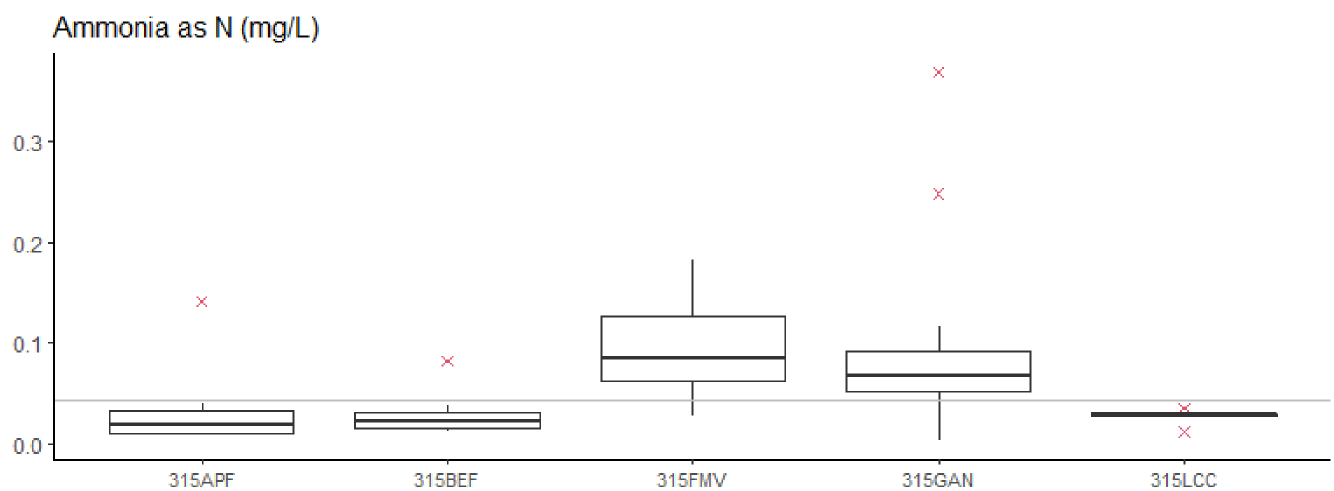

Total Dissolved Solids (TDS) (mg/L)
4,000
3,000
2,000
1,000
315APF
315BEF
315FMV
315GAN
315LCC

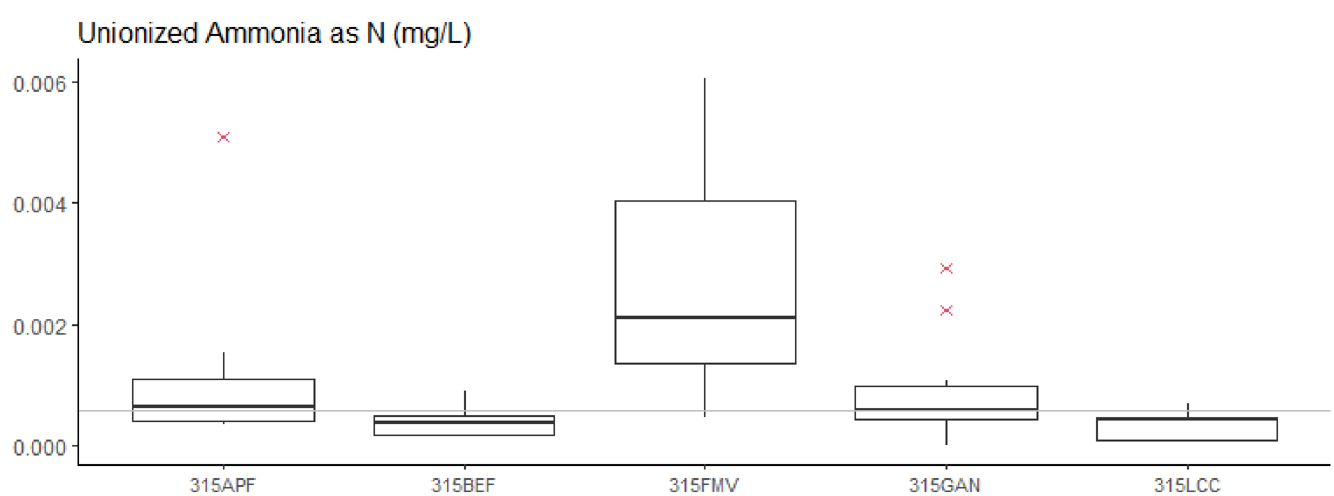

Total Suspended Solids (TSS) (mg/L)
120
80
40
0
315APF
315BEF
315FMV
315GAN
315LCC

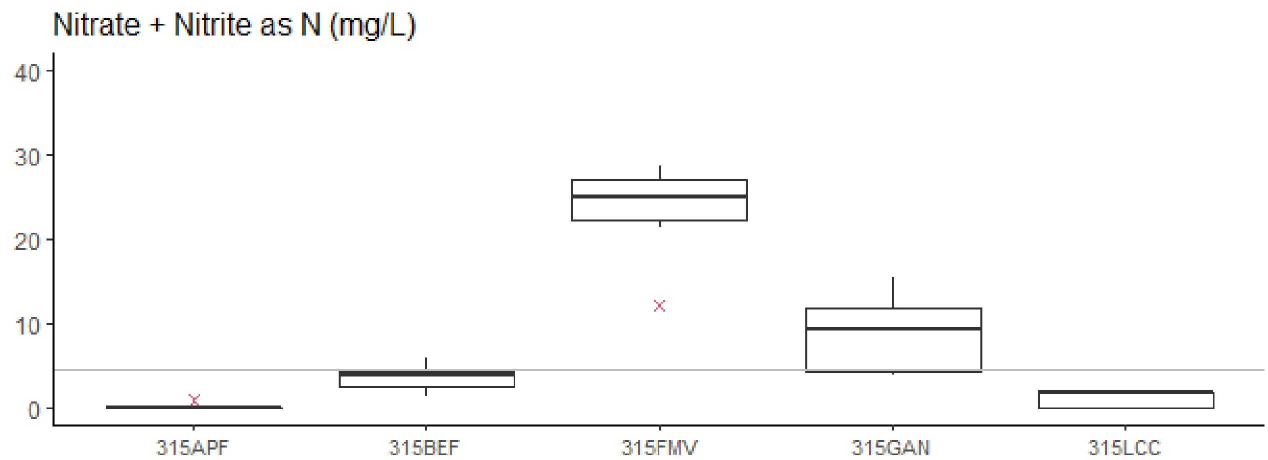

Specific Conductivity (uS/cm)
6,000
4,000
2,000
315APF
315BEF
315FMV
315GAN
315LCC

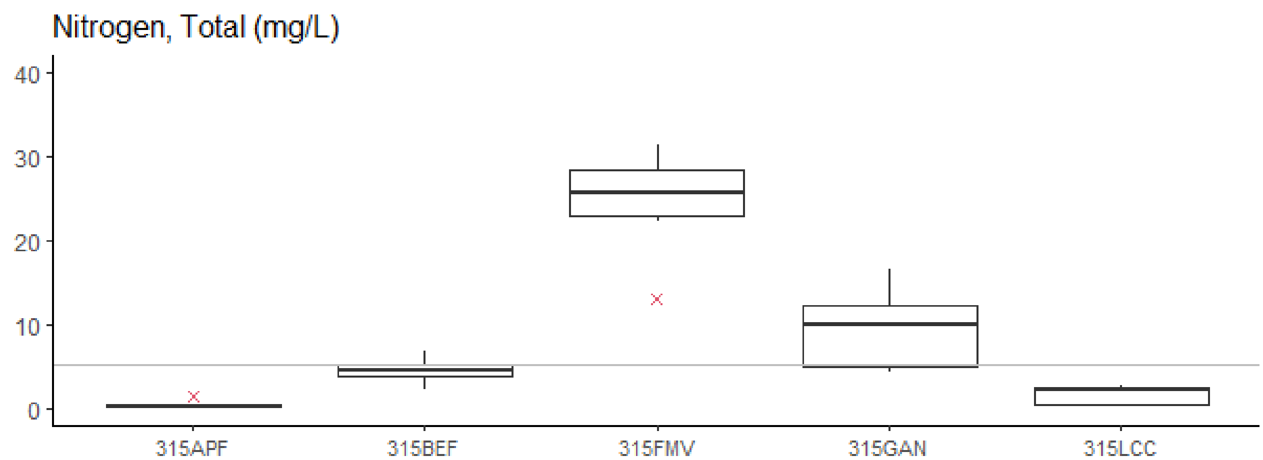

Turbidity, Field (NTU)
80
60
40
20
0
315APF
315BEF
315FMV
315GAN
315LCC

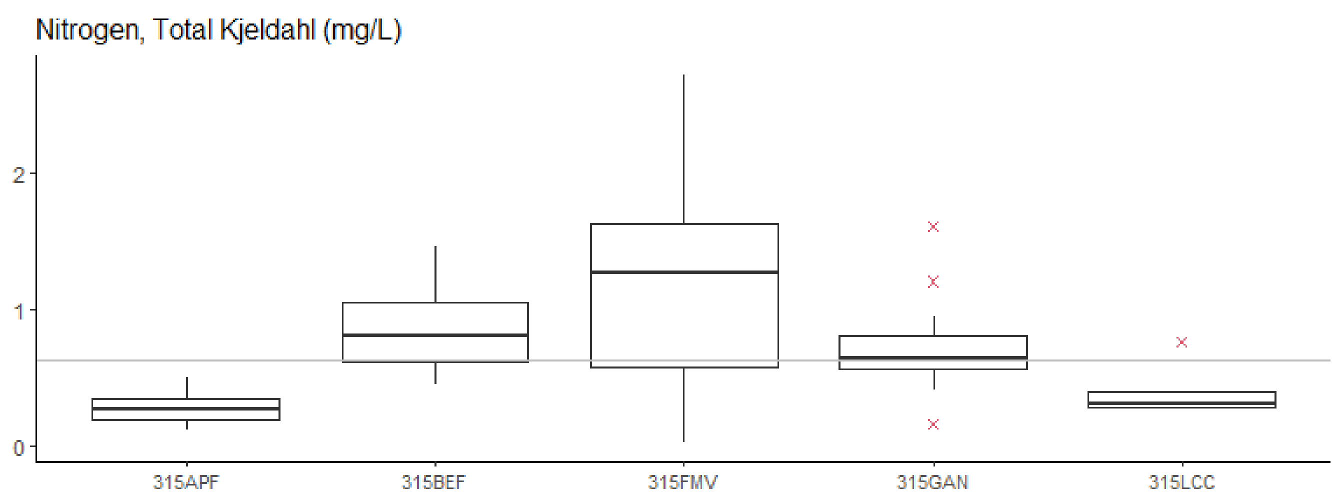

Chlorphyll a (ug/L)
80
60
40
20
0
315APF
315BEF
315FMV
315GAN
315LCC

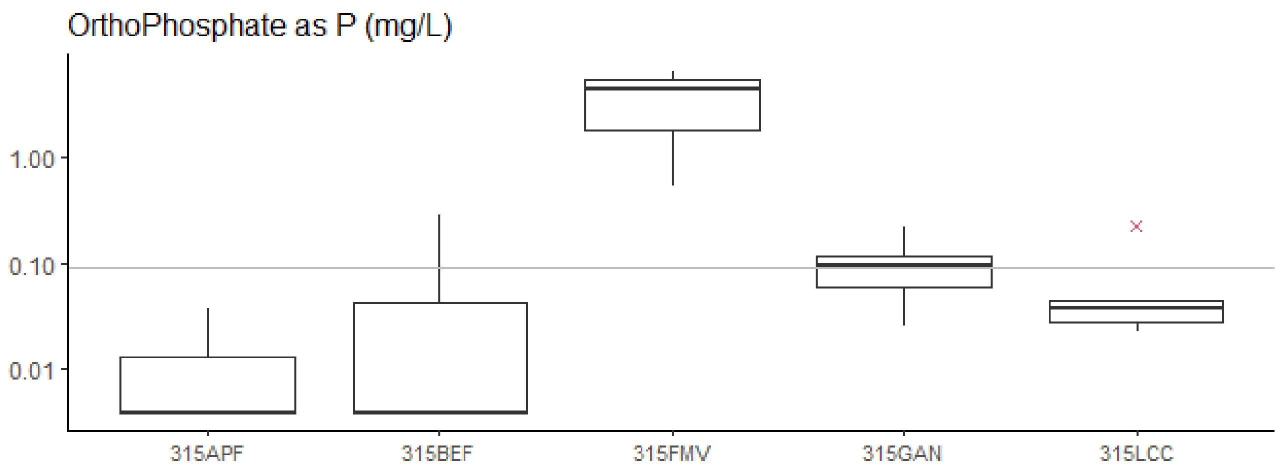

Ammonia as N (mg/L)
0.3
0.2
0.1
0.0
315APF
315BEF
315FMV
315GAN
315LCC

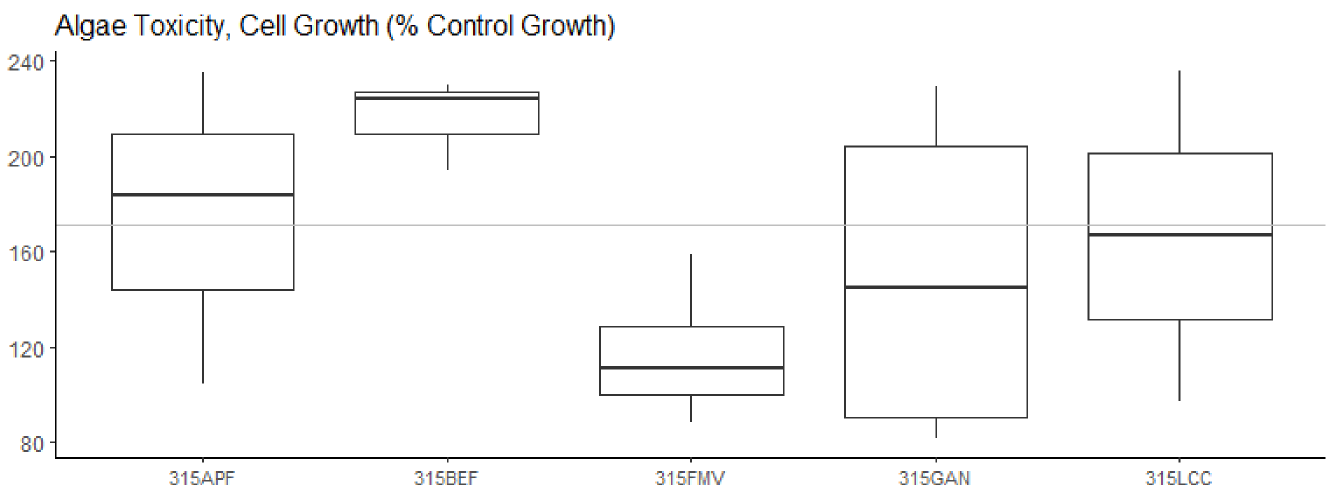

Unionized Ammonia as N (mg/L)
0.006
0.004
0.002
0.000
315APF
315BEF
315FMV
315GAN
315LCC

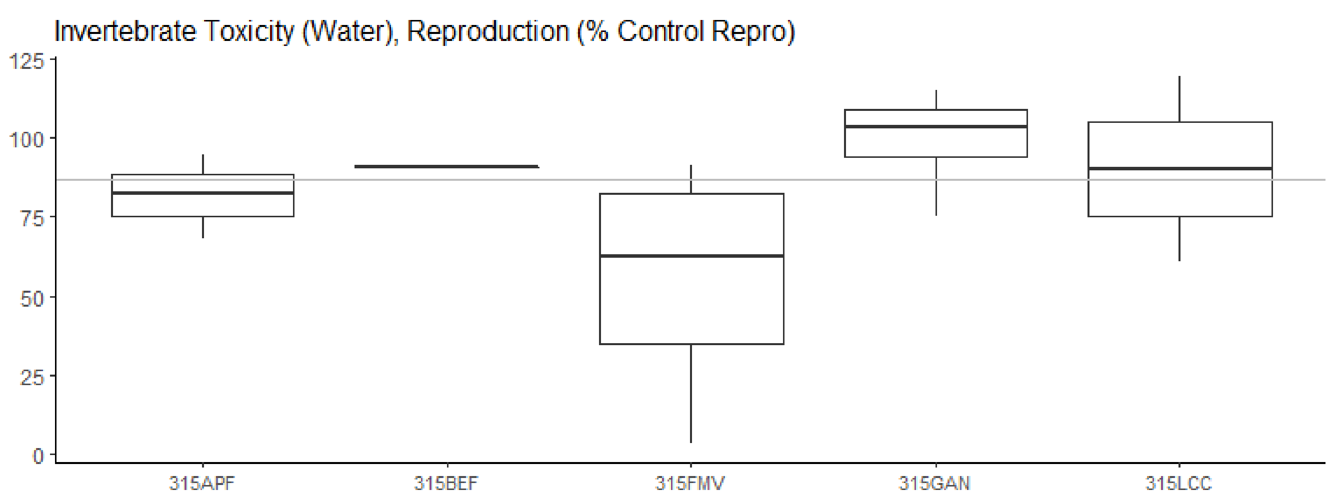

Nitrate + Nitrite as N (mg/L)
40
30
20
10
0
315APF
315BEF
315FMV
315GAN
315LCC

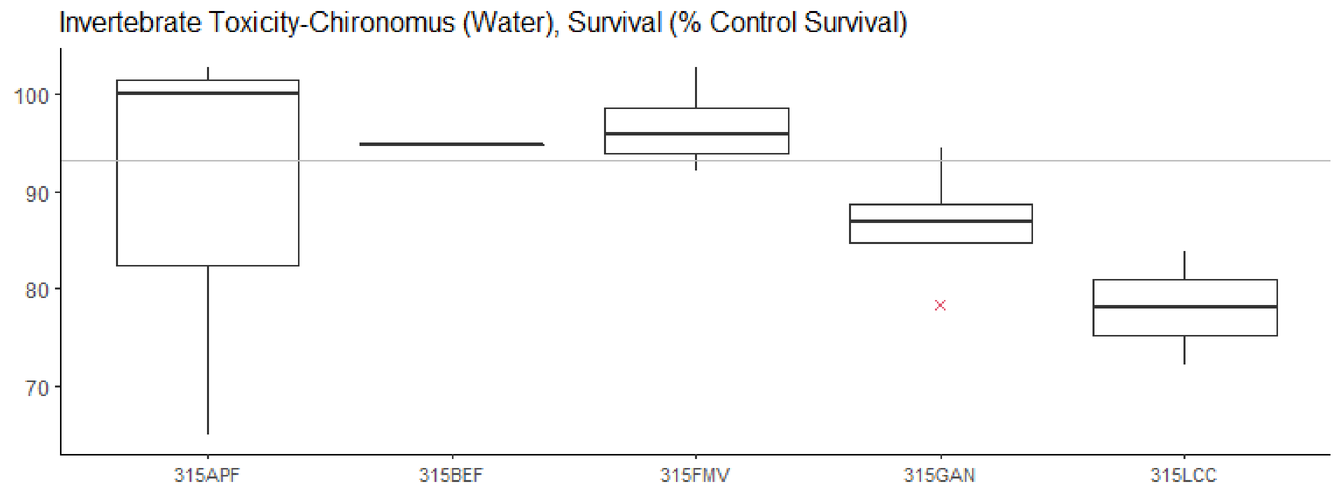

Nitrogen, Total (mg/L)
40
30
20
10
0
315APF
315BEF
315FMV
315GAN
315LCC

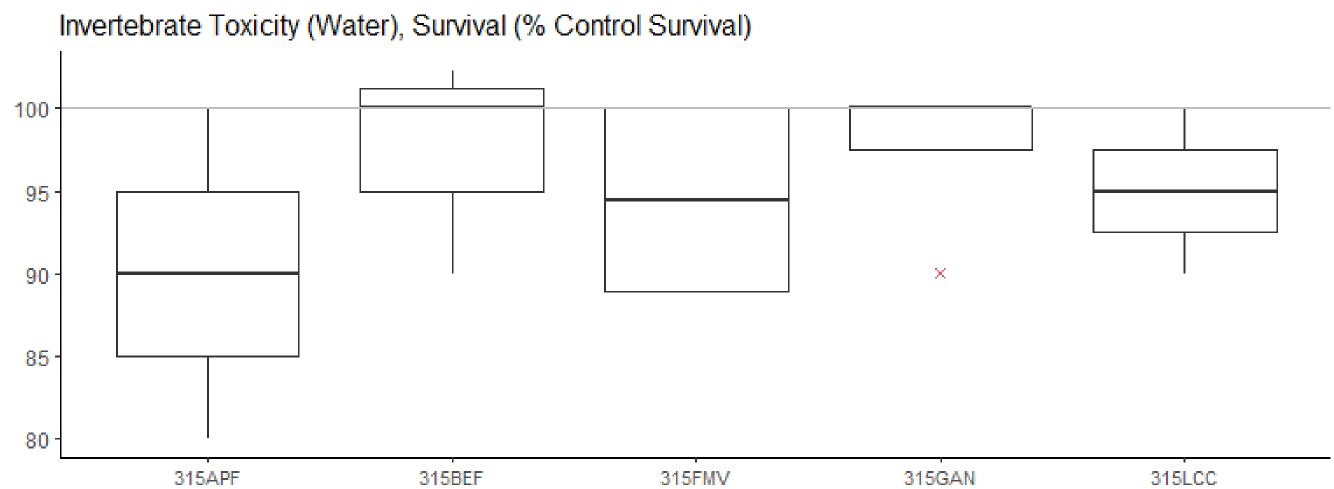

Nitrogen, Total Kjeldahl (mg/L)
2
1
0
315APF
315BEF
315FMV
315GAN
315LCC

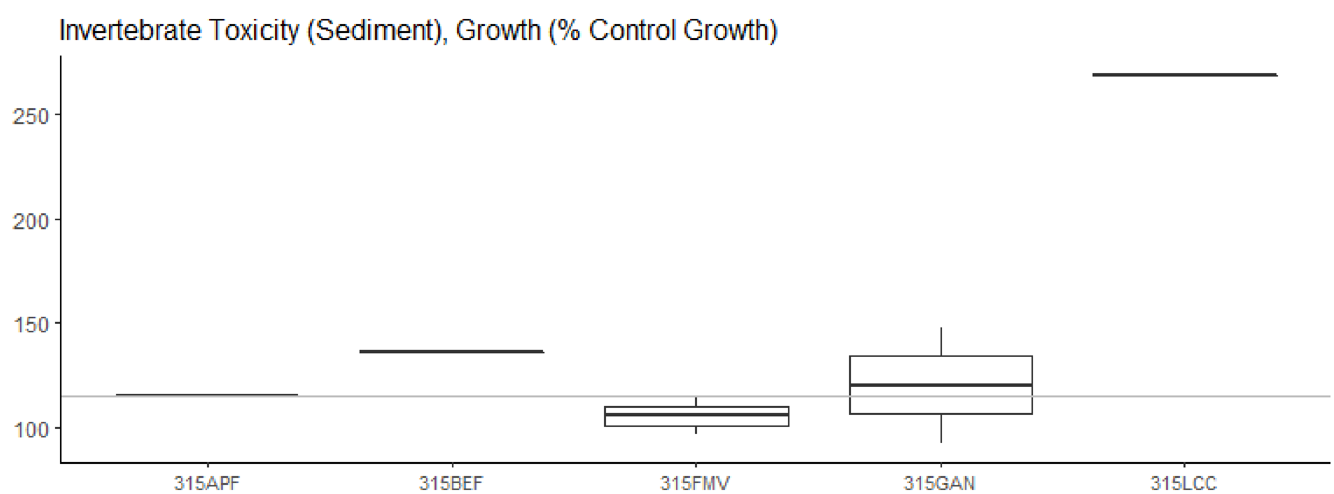

OrthoPhosphate as P (mg/L)
1.00
0.10
0.01
315APF
315BEF
315FMV
315GAN
315LCC

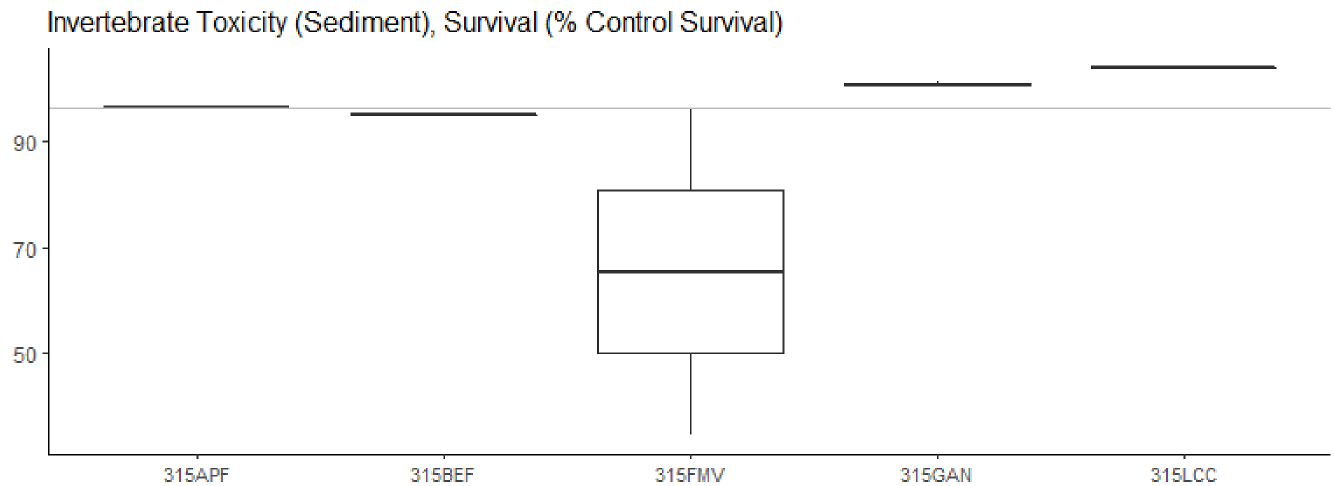

Algae Toxicity, Cell Growth (% Control Growth)
240
200
160
120
80
315APF
315BEF
315FMV
315GAN
315LCC


Invertebrate Toxicity (Water), Reproduction (% Control Repro)
125
100
75
50
25
0
315APF
315BEF
315FMV
315GAN
315LCC

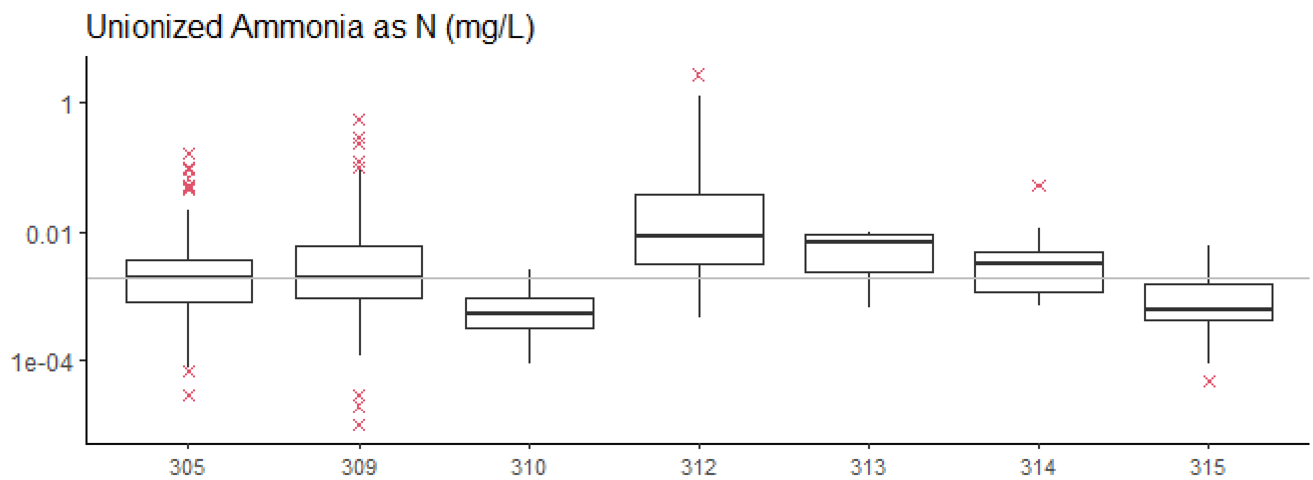

Invertebrate Toxicity-Chironomus (Water), Survival (% Control Survival)
100
90
80
70
315APF
315BEF
315FMV
315GAN
315LCC

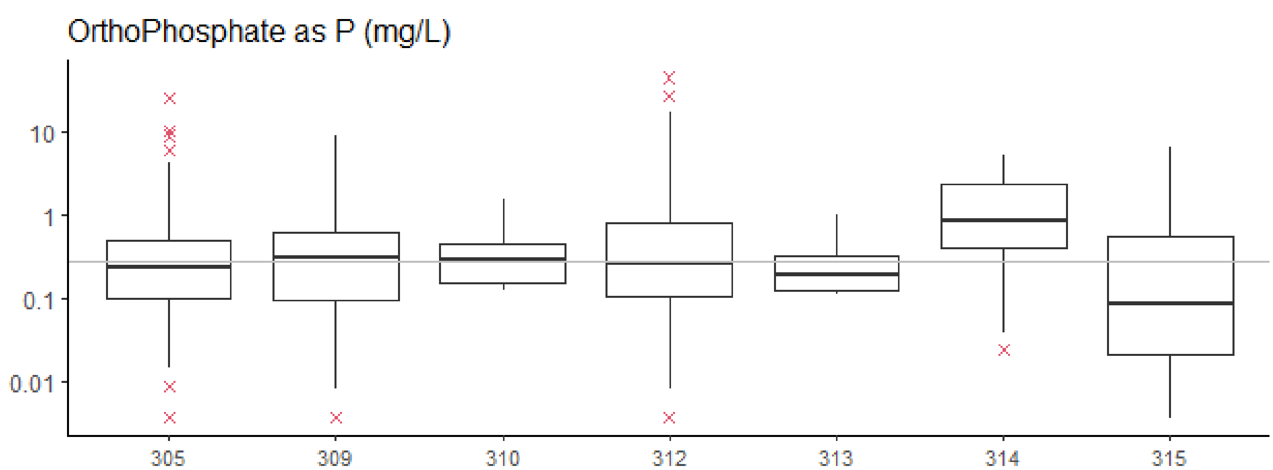

Invertebrate Toxicity (Water), Survival (% Control Survival)
100
95
90
85
80
315APF
315BEF
315FMV
315GAN
315LCC

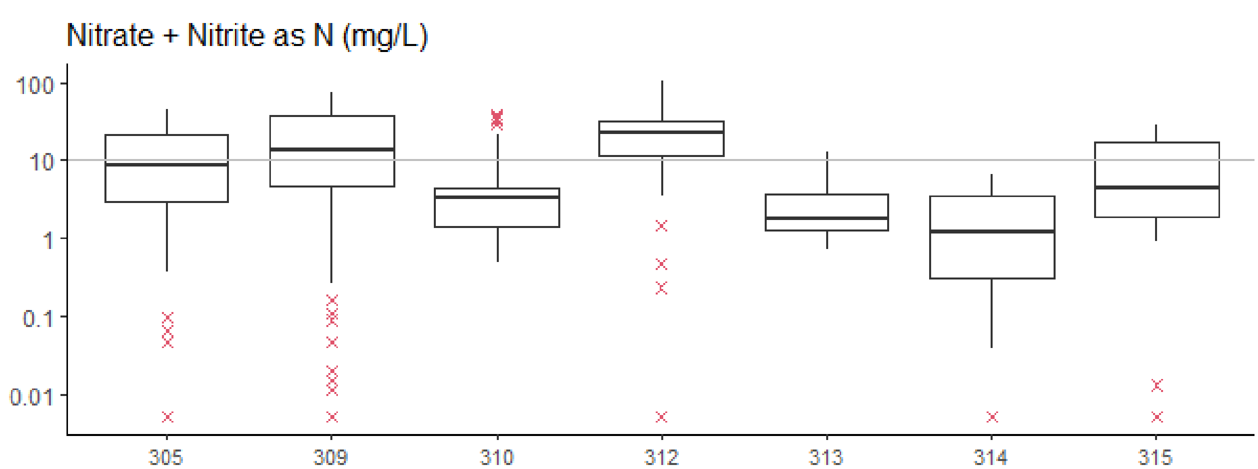

Invertebrate Toxicity (Sediment), Growth (% Control Growth)
250
200
150
100
315APF
315BEF
315FMV
315GAN
315LCC

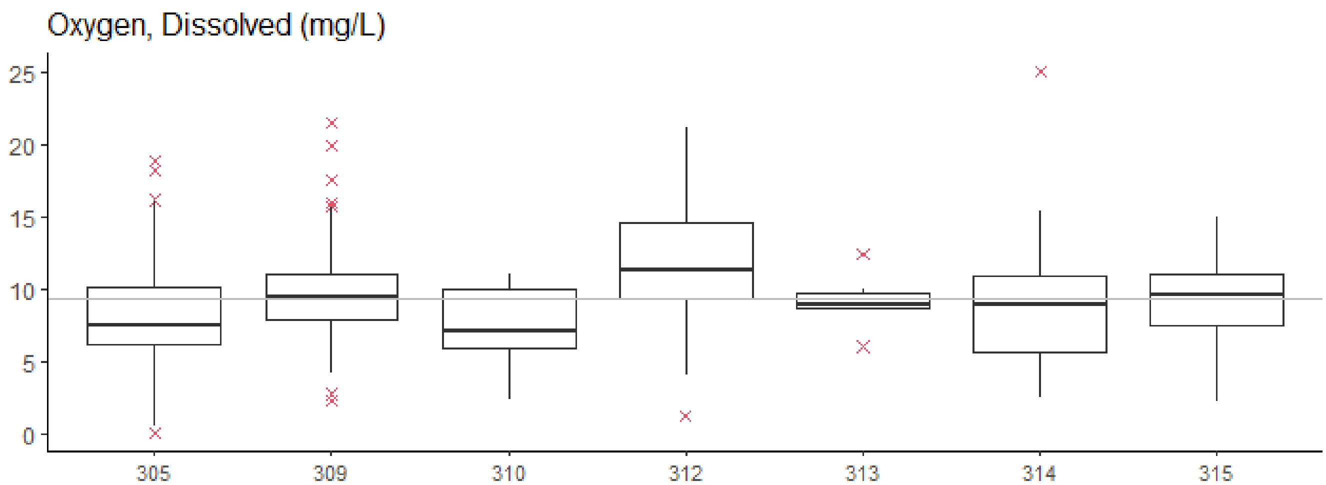

Invertebrate Toxicity (Sediment), Survival (% Control Survival)
90
70
50
315APF
315BEF
315FMV
315GAN
315LCC

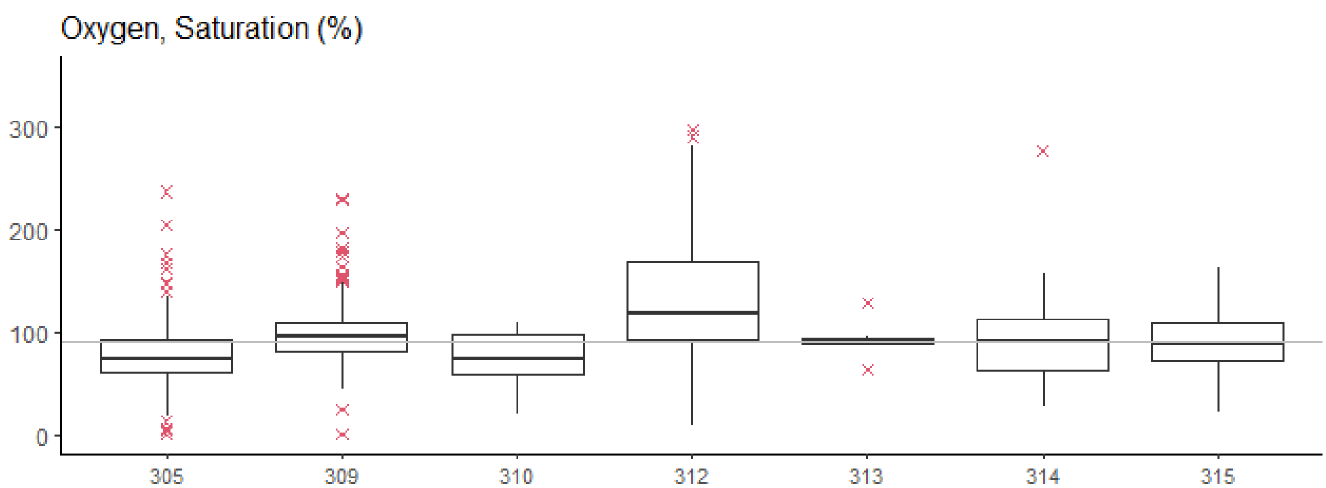
Box Plots for Select Parameters by Hydrologic Unit

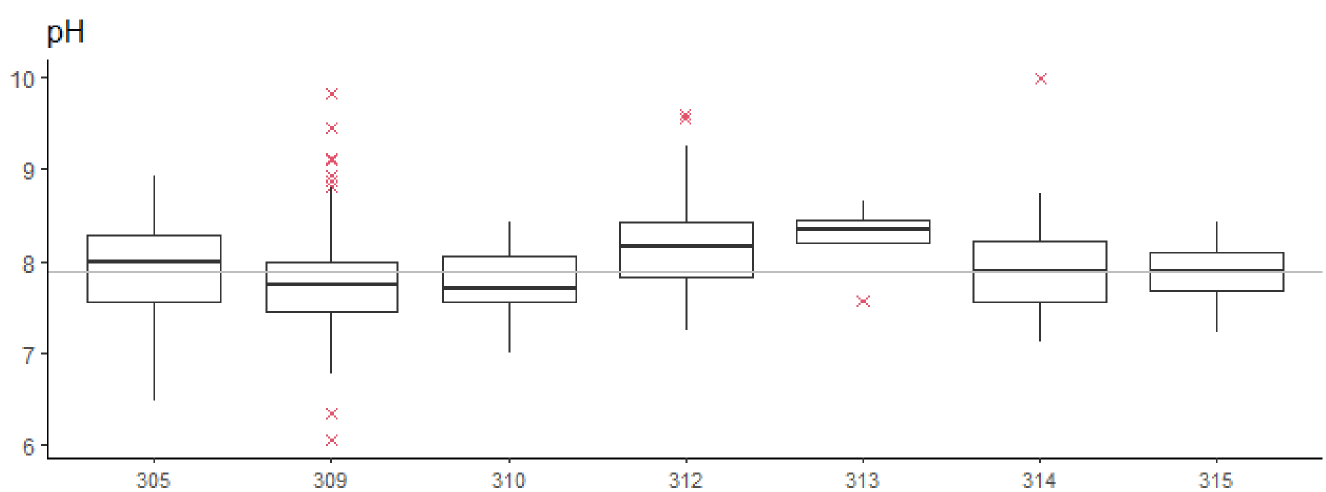


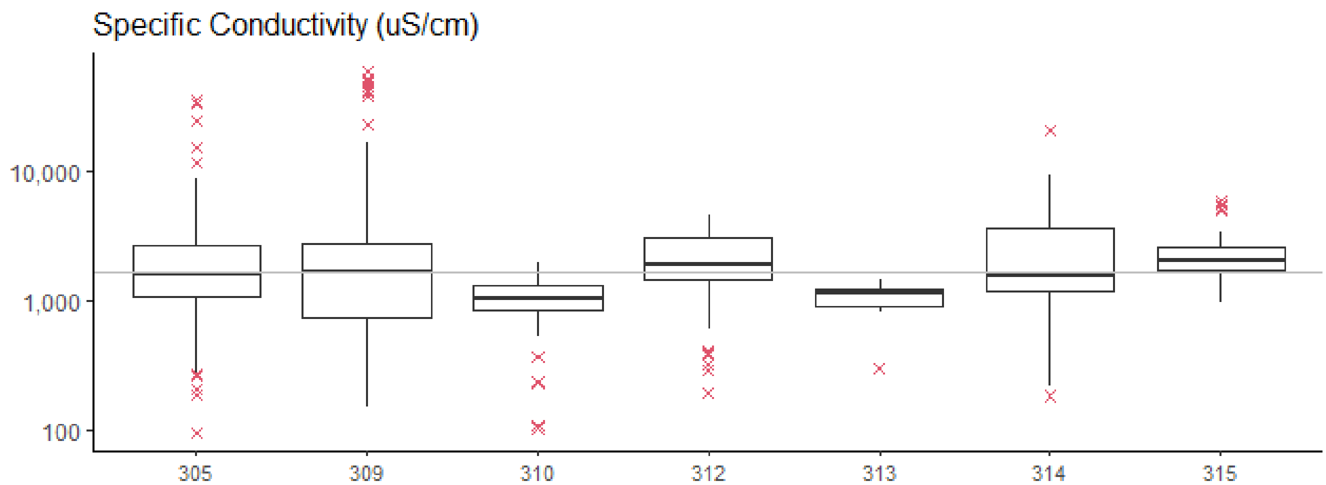


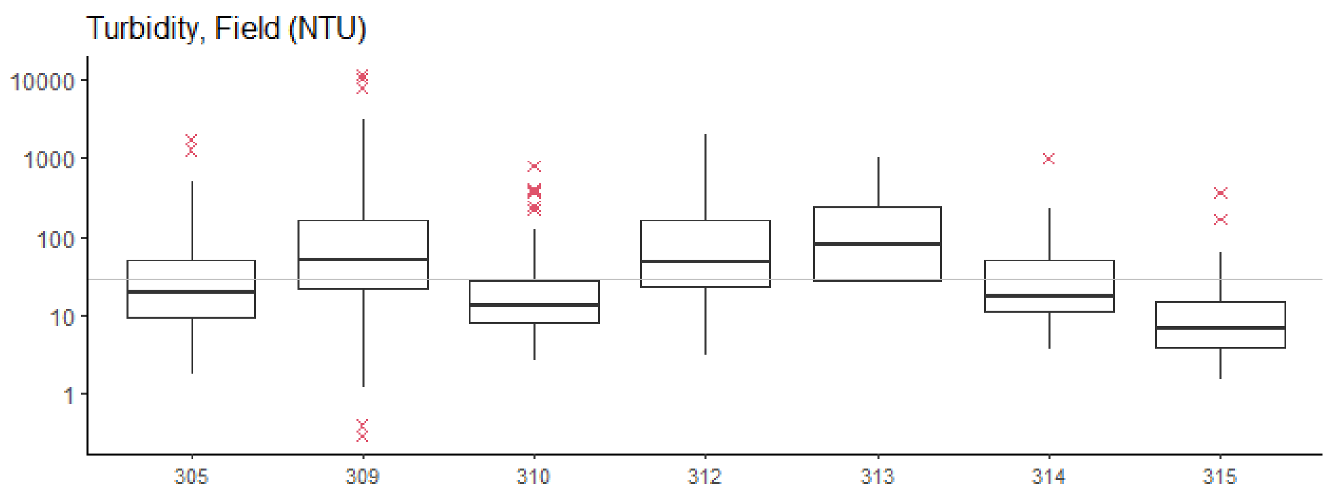



Oxygen, Dissolved (mg/L)
0
5
10
15
20
25
305
309
310
312
313
314
315


Oxygen, Saturation (%)
0
100
200
300
305
309
310
312
313
314
315


pH
6
7
8
9
10
305
309
310
312
313
314
315


Specific Conductivity (uS/cm)
10,000
1,000
100
305
309
310
312
313
314
315


Turbidity, Field (NTU)
10000
1000
100
10
1
305
309
310
312
313
314
315

APPENDIX D – WET-DRY WEATHER COMPARISON

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Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Algae Toxicity, Growth	305	19	26	211.91	167.62	76.05	77.97	1.90	0.06529
	309	23	33	176.77	194.15	60.75	78.57	-0.93	0.3555
	310	7	9	197.34	149.05	20.46	36.66	3.34	0.005361
	312	14	19	144.16	177.16	79.02	71.34	-1.23	0.2277
	313	2	1	120.35	203.00	170.20	NP	NP	NP
	314	3	3	157.23	217.33	76.74	9.07	-1.35	0.3072
	315	7	9	141.89	175.81	59.28	61.36	-1.12	0.2833
Ammonia, Total	305	94	27	0.23	0.46	0.51	1.57	-0.74	0.4681
	309	107	42	0.38	0.49	0.78	1.16	-0.55	0.5867
	310	35	10	0.04	0.11	0.03	0.09	-2.33	0.04351
	312	67	19	1.80	0.37	6.49	0.22	1.80	0.07568
	313	4	1	0.13	0.10	0.07	NP	NP	NP
	314	16	3	0.24	0.09	0.22	0.04	2.52	0.02206
	315	35	9	0.06	0.11	0.05	0.11	-1.38	0.2011
Ammonia, Unionized	305	94	27	0.01	0.01	0.02	0.02	0.87	0.3878
	309	107	42	0.02	0.00	0.06	0.01	2.21	0.02895
	310	35	10	0.01	0.00	0.00	0.00	-0.51	0.6231
	312	67	19	0.18	0.00	0.54	0.01	2.59	0.01195
	313	4	1	0.01	0.00	0.00	NP	NP	NP
	314	16	3	0.00	0.02	0.00	0.03	-0.92	0.454
	315	35	9	0.00	0.00	0.00	0.00	-0.68	0.5072
Chl-a	305	94	27	11.28	0.00	32.74	0.00	3.34	0.001208
	309	109	44	16.60	3.12	28.03	6.35	4.73	5.79E-06
	310	35	10	4.40	4.90	6.11	3.00	-0.36	0.7238
	312	67	19	16.13	3.37	32.58	2.36	3.18	0.00223
	313	4	1	2.25	1.00	1.26	NP	NP	NP
	314	16	3	19.94	1.33	28.58	0.58	2.60	0.02
	315	35	9	11.37	4.00	14.88	1.73	2.86	0.006969
Flow	305	117	27	2.45	60.37	5.86	118.30	-2.54	0.01727
	309	163	55	93.02	748.40	355.60	2227.83	-2.17	0.03416
	310	62	10	0.63	15.87	1.03	29.90	-1.61	0.1415
	312	98	20	0.26	34.30	0.38	52.86	-2.88	0.009598
	313	10	1	0.03	14.97	0.04	NP	NP	NP
	314	25	3	2.87	1470.00	5.74	699.07	-3.64	0.06805
	315	50	9	0.04	1.30	0.05	2.50	-1.51	0.1687
Nitrate	305	94	27	15.16	7.42	12.67	7.88	3.87	0.0002492
	309	109	44	24.16	15.61	21.02	19.58	2.39	0.01897
	310	35	10	8.41	2.56	11.04	3.59	2.68	0.01052
	312	67	19	51.62	14.07	86.07	10.35	3.48	0.0008446
	313	4	1	4.06	4.49	5.84	NP	NP	NP
	314	16	3	2.09	1.36	2.15	0.77	1.04	0.3227
	315	35	9	17.43	8.80	42.59	9.15	1.10	0.276

Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Nitrate Loading	305	116	27	4.57	46.14	9.03	78.75	-2.74	0.01097
	309	108	35	41.89	687.39	198.03	1219.30	-3.12	0.00365
	310	62	10	0.47	4.82	0.72	6.28	-2.18	0.05666
	312	98	20	1.81	117.64	3.12	252.04	-2.06	0.05388
	313	10	1	0.02	15.11	0.04	NP	NP	NP
	314	25	3	0.87	399.17	1.48	189.66	-3.64	0.06796
	315	50	9	0.12	1.87	0.28	3.46	-1.51	0.1682
Nitrogen, Total Kjeldahl	305	94	27	1.53	1.98	2.30	2.41	-0.86	0.3929
	309	107	42	2.28	5.15	1.99	4.25	-4.19	0.0001178
	310	35	10	0.60	1.32	0.50	1.04	-2.11	0.06069
	312	67	19	2.86	3.78	3.24	2.33	-1.38	0.1739
	313	4	1	1.62	9.01	1.12	NP	NP	NP
	314	16	3	2.03	5.25	2.13	5.14	-1.07	0.3918
	315	35	9	0.75	0.91	0.63	0.43	-0.92	0.3686
Orthophosphate as P	305	94	27	0.68	1.37	1.62	4.79	-0.74	0.4672
	309	107	42	0.40	0.67	0.91	0.43	-2.50	0.01345
	310	35	10	0.28	0.59	0.15	0.46	-2.14	0.05889
	312	67	19	7.15	0.75	42.29	0.35	1.24	0.2198
	313	4	1	0.23	1.03	0.12	NP	NP	NP
	314	16	3	2.01	0.28	1.78	0.05	3.86	0.00152
	315	35	9	1.64	0.80	3.73	1.38	1.07	0.2897
Oxygen, Dissolved	305	94	27	8.05	8.63	3.82	1.77	-1.11	0.2689
	309	109	44	9.75	9.72	3.18	2.23	0.06	0.9512
	310	35	10	7.08	9.15	2.75	2.00	-2.64	0.0156
	312	67	19	12.73	10.14	4.43	1.04	4.38	3.45E-05
	313	4	1	8.19	10.04	1.41	NP	NP	NP
	314	16	3	9.52	9.34	5.46	1.22	0.12	0.9065
	315	35	9	9.30	10.65	3.14	1.47	-1.86	0.0729
Oxygen, Saturation	305	94	27	80.99	77.80	40.10	14.77	0.64	0.5262
	309	109	44	103.73	89.38	36.44	20.56	3.07	0.002559
	310	35	10	69.06	83.93	26.27	19.37	-1.97	0.0638
	312	67	19	147.58	122.33	60.31	160.57	0.67	0.5094
	313	4	1	85.23	89.20	14.74	NP	NP	NP
	314	16	3	103.63	89.80	59.05	2.82	0.93	0.3661
	315	35	9	91.67	95.74	32.95	14.12	-0.56	0.5798
pH	305	94	27	7.99	7.63	0.50	0.46	3.57	0.0008695
	309	109	44	7.88	7.50	0.53	0.41	4.67	9.17E-06
	310	35	10	7.82	7.63	0.33	0.47	1.21	0.2491
	312	67	19	8.29	11.81	0.44	17.97	-0.86	0.4035
	313	4	1	8.34	7.57	0.13	NP	NP	NP
	314	16	3	7.79	8.75	0.44	1.07	-1.53	0.2582
	315	35	9	7.88	7.98	0.31	0.27	-0.95	0.358

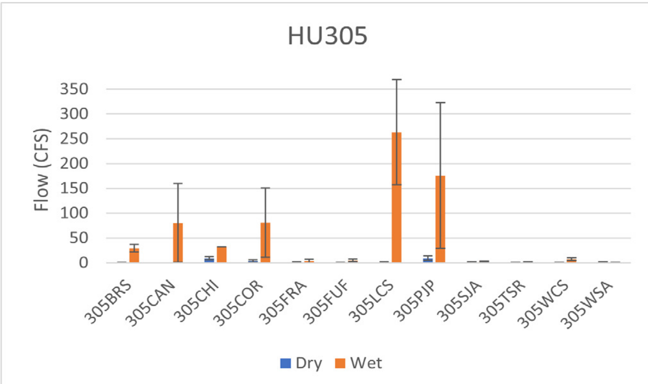
Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Phosphorus	305	94	25	0.91	1.92	1.80	5.93	-0.84	0.4107
	309	107	42	0.92	2.78	1.53	3.15	-3.67	0.0006017
	310	35	10	0.36	0.97	0.15	0.82	-2.33	0.04392
	312	67	16	10.34	3.12	61.45	1.54	0.96	0.3401
	313	4	1	0.60	6.50	0.53	NP	NP	NP
	314	16	3	2.32	3.85	1.62	4.26	-0.61	0.5995
	315	35	9	3.20	0.92	12.00	1.43	1.09	0.2806
Salinity	305	94	27	1.72	0.80	3.50	1.30	2.09	0.03857
	309	109	44	3.98	1.99	8.76	6.34	1.57	0.1205
	310	35	10	0.64	0.33	0.18	0.29	3.23	0.007902
	312	67	19	1.34	0.47	0.51	0.38	8.09	7.91E-10
	313	4	1	0.63	0.15	0.07	NP	NP	NP
	314	16	3	2.36	0.12	3.06	0.04	2.92	0.01064
	315	35	9	1.34	0.90	0.65	0.41	2.55	0.01926
Sediment Toxicity, Invertebrate Growth	305	18	0	91.52	NP	17.62	NP	NP	NP
	309	20	0	71.68	NP	48.56	NP	NP	NP
	310	7	0	116.01	NP	47.78	NP	NP	NP
	312	14	0	71.51	NP	52.21	NP	NP	NP
	313	2	0	81.33	NP	54.12	NP	NP	NP
	314	3	0	169.14	NP	11.62	NP	NP	NP
	315	7	0	138.76	NP	60.77	NP	NP	NP
Sediment Toxicity, Invertebrate Survival	305	18	0	95.21	NP	5.09	NP	NP	NP
	309	22	0	58.72	NP	37.11	NP	NP	NP
	310	7	0	95.82	NP	3.50	NP	NP	NP
	312	14	0	51.14	NP	42.53	NP	NP	NP
	313	2	0	93.40	NP	1.68	NP	NP	NP
	314	3	0	101.80	NP	5.63	NP	NP	NP
	315	7	0	89.58	NP	24.45	NP	NP	NP
Specific Conductivity	305	94	27	3037.35	1655.16	5572.34	2321.33	1.90	0.06037
	309	109	44	6505.35	3318.91	13345.58	9678.21	1.64	0.1033
	310	35	10	1243.11	605.43	372.05	577.67	3.30	0.006894
	312	67	19	2551.73	924.17	951.97	728.56	7.99	1.34E-09
	313	4	1	1257.50	303.70	139.34	NP	NP	NP
	314	16	3	4255.69	248.20	5060.79	80.26	3.17	0.006385
	315	35	9	2504.31	1662.89	1205.71	775.35	2.56	0.01915
TDS	305	94	27	2118.09	981.33	3876.76	1478.80	2.32	0.0224
	309	109	44	4290.23	2056.99	8790.51	6210.00	1.77	0.07885
	310	35	10	828.31	417.56	227.45	380.10	3.25	0.007751
	312	67	19	1654.58	600.74	635.49	473.70	7.89	1.49E-09
	313	4	1	817.00	197.00	90.40	NP	NP	NP
	314	16	3	2784.06	179.33	3287.51	52.55	3.17	0.006362
	315	35	9	1671.75	1141.89	750.11	494.58	2.55	0.0198

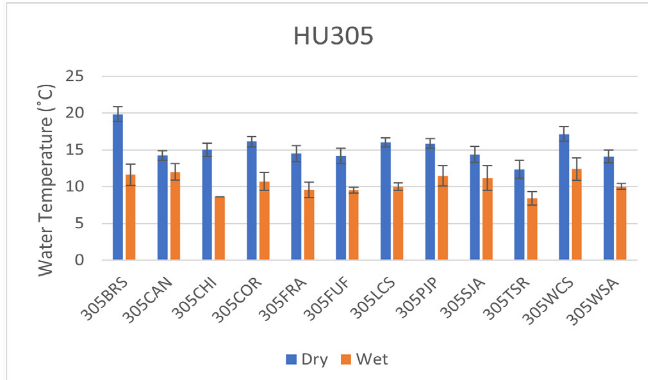
Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Total Nitrogen	305	94	27	16.38	9.39	12.43	8.12	3.46	0.000972
	309	107	42	26.05	21.36	20.86	18.90	1.32	0.19
	310	35	10	9.01	3.88	11.18	4.29	2.21	0.03333
	312	67	19	54.48	17.84	86.07	9.78	3.41	0.00108
	313	4	1	5.67	13.50	6.46	NP	NP	NP
	314	16	3	4.12	6.61	2.65	5.88	-0.72	0.5419
	315	35	9	18.17	9.71	42.83	9.23	1.08	0.2882
TSS	305	94	27	29.01	115.60	42.62	140.69	-3.16	0.003857
	309	107	42	154.53	1192.23	304.90	2393.88	-2.80	0.007714
	310	35	10	24.56	86.58	65.28	90.47	-2.02	0.06639
	312	67	19	82.31	773.92	103.04	682.39	-4.40	0.00033
	313	4	1	148.49	2920.00	119.89	NP	NP	NP
	314	16	3	20.91	3274.33	27.53	3919.68	-1.44	0.2871
	315	35	9	18.31	33.55	26.99	70.31	-0.64	0.5397
TSS Loading	305	117	27	14.89	2752.49	44.33	9037.75	-1.57	0.1276
	309	163	55	3341.68	611894.31	12753.73	2733197.00	-1.56	0.1257
	310	62	10	1.48	406.26	3.83	912.54	-1.40	0.1942
	312	98	20	5.52	6494.75	16.57	9649.14	-3.01	0.007239
	313	10	1	0.58	9826.25	1.08	NP	NP	NP
	314	25	3	10.36	929785.80	21.20	1100270.00	-1.46	0.2809
	315	50	9	0.11	43.00	0.35	112.31	-1.15	0.2851
Turbidity	305	94	27	29.64	242.68	48.60	394.36	-2.80	0.009446
	309	109	44	104.05	1427.93	310.22	2458.08	-3.56	0.0009082
	310	35	10	40.63	195.80	131.84	160.41	-2.80	0.01531
	312	67	19	92.42	639.98	247.55	382.07	-5.91	5.60E-06
	313	4	1	126.35	1000.00	116.43	NP	NP	NP
	314	16	3	21.63	1000.00	17.44	0.00	-224.40	< 2.2E-16
	315	35	9	9.92	78.00	12.70	119.44	-1.71	0.1259
Water Temperature	305	94	27	15.36	10.67	3.28	1.94	9.30	5.46E-14
	309	109	44	17.60	11.54	4.36	3.05	9.75	2.20E-16
	310	35	10	14.30	10.96	2.46	2.30	3.98	0.001136
	312	67	19	21.63	10.11	5.59	1.73	14.58	< 2.2E-16
	313	4	1	17.15	10.10	0.34	NP	NP	NP
	314	16	3	18.77	10.67	2.84	0.35	10.98	4.65E-09
	315	35	9	14.14	10.52	2.95	1.05	5.94	7.22E-07
Water Toxicity, Invertebrate Reproduction	305	14	25	90.74	97.15	20.71	27.60	-0.82	0.4182
	309	18	30	68.89	69.21	37.87	40.59	-0.03	0.9782
	310	7	9	99.56	93.06	8.21	33.76	0.56	0.5914
	312	8	19	85.29	48.44	41.59	37.27	2.17	0.05112
	313	2	1	79.05	29.10	12.09	NP	NP	NP
	314	2	3	98.15	44.93	8.27	7.11	7.45	0.01791
	315	6	8	58.90	97.55	32.79	14.70	-2.69	0.03321

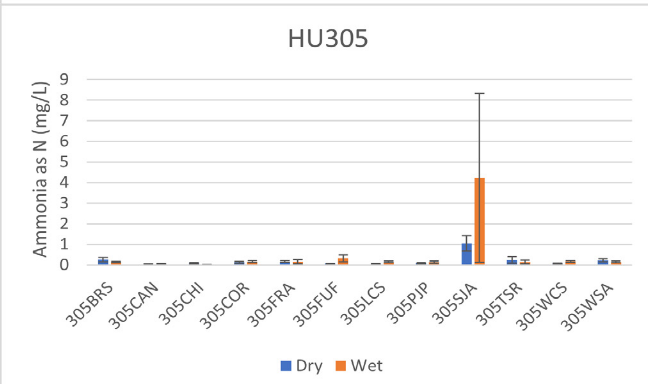
Variable	HU	n-Dry	n-Wet	Mean-Dry	Mean-Wet	Standard Deviation-Dry	Standard Deviation-Wet	t-value	P-value
Water Toxicity, Invertebrate Survival - C. dilutus	305	14	25	96.36	84.10	6.12	30.73	1.93	0.06442
	309	18	30	71.21	42.26	36.69	40.29	2.55	0.01486
	310	7	9	91.03	73.74	4.57	42.40	1.21	0.2585
	312	8	19	49.04	7.66	44.56	21.35	2.51	0.0352
	313	2	1	69.40	27.50	24.47	NP	NP	NP
	314	2	3	95.80	95.00	13.15	5.00	0.08	0.9461
	315	6	8	84.27	93.24	11.74	10.11	-1.50	0.1644
Water Toxicity, Invertebrate Survival- C. dubia	305	19	26	99.68	99.81	6.16	13.35	-0.04	0.9672
	309	23	32	81.98	80.00	29.34	36.46	0.22	0.8247
	310	7	9	98.57	88.89	3.78	26.19	1.09	0.3041
	312	14	19	85.22	63.16	36.42	43.60	1.58	0.1242
	313	2	1	95.00	100.00	7.07	NP	NP	NP
	314	3	3	100.67	93.33	1.15	5.77	2.16	0.1542
	315	7	9	94.46	95.43	5.96	7.38	-0.29	0.7744

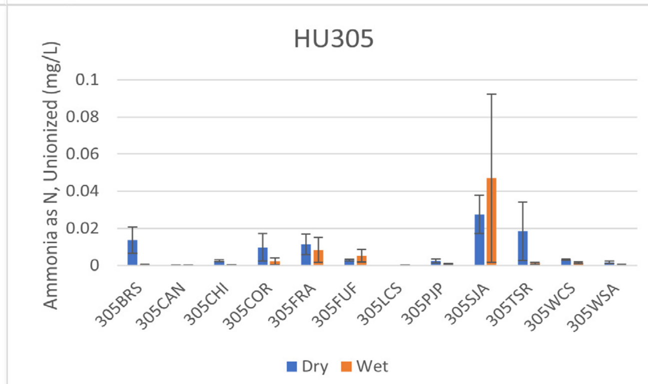
Comparison of Wet vs Dry sampling results from Pajaro Hydrologic Unit (305)

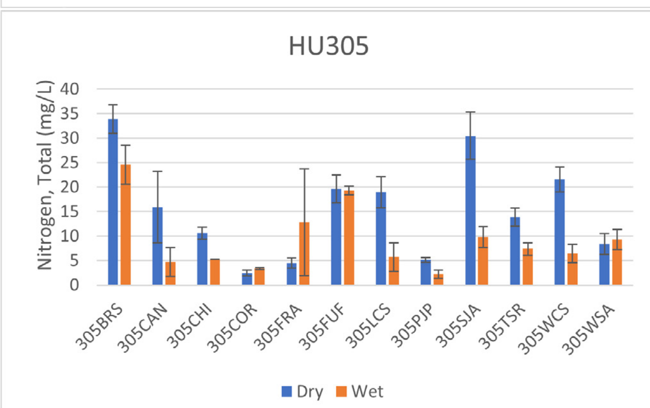
Bars represent the average result of all the 2021 samples at each site (or single result for sample size of one). **Note:** in some instances, no wet and/or dry results are depicted due to dry conditions or because of alternative toxicity test species analyzed and their associated end points. Additionally, no sediment toxicity samples were collected during wet events; therefore, no sediment toxicity bar charts are depicted.

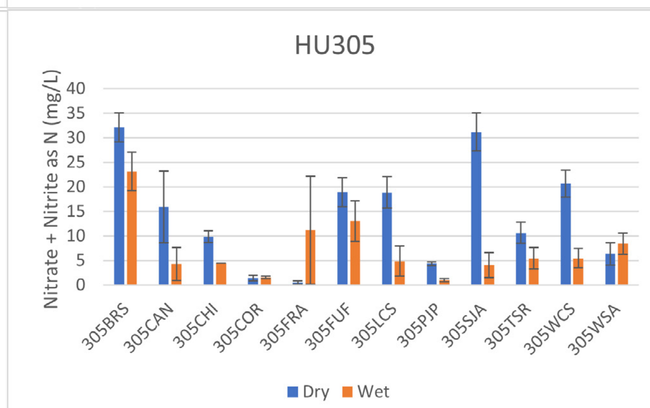


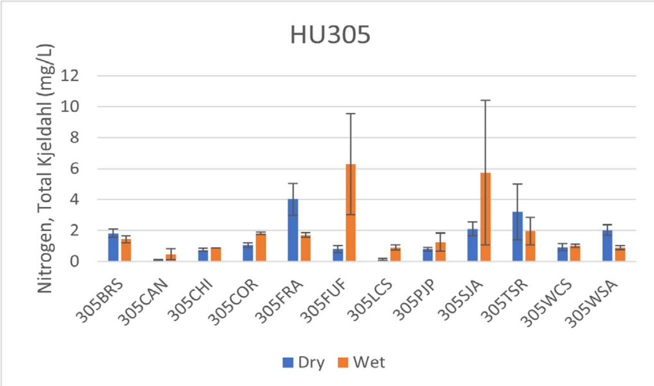


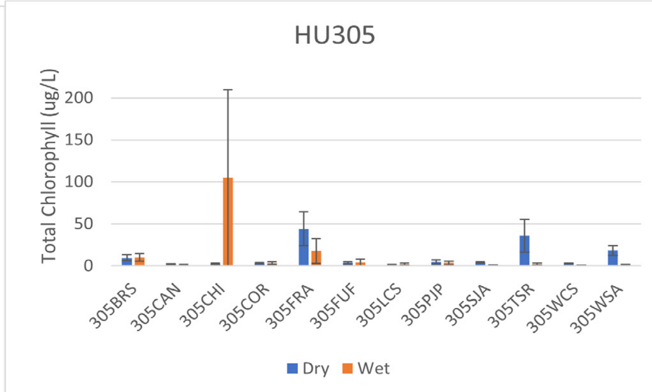


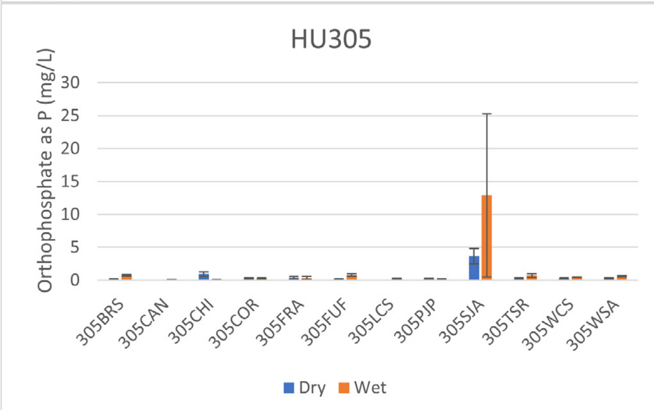


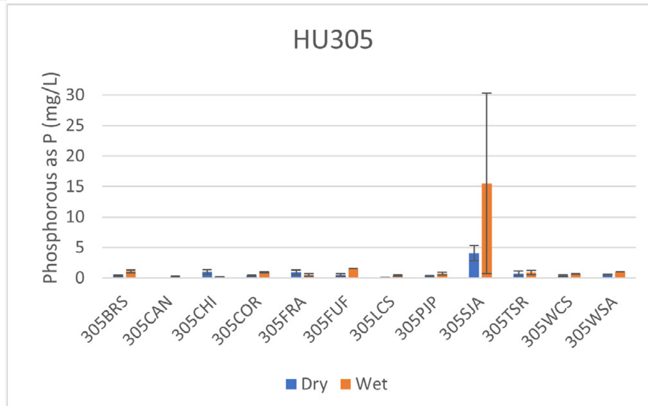


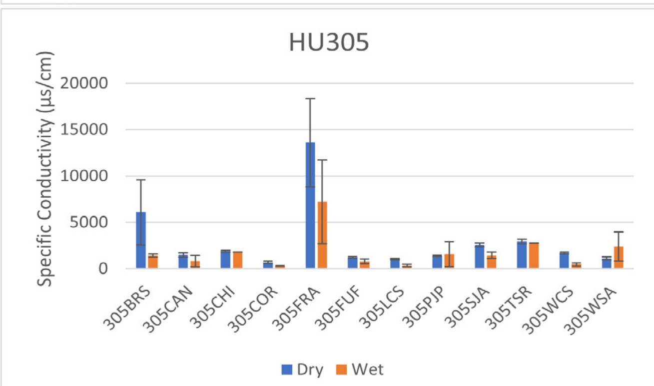


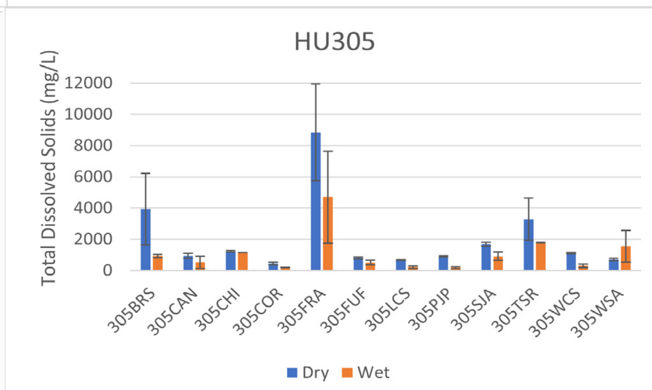

HU305
Nitrogen, Total Kjeldahl (mg/L)
0
2
4
6
8
10
12
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

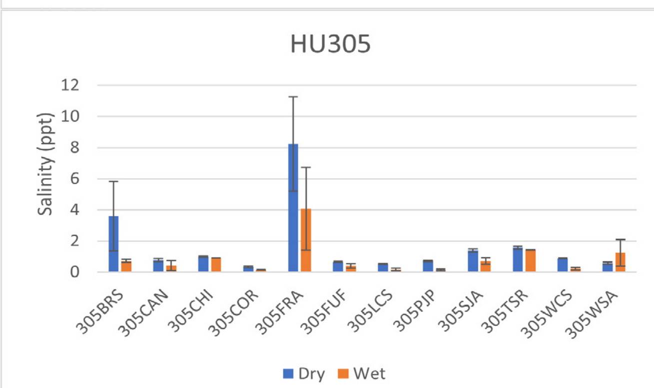

HU305
Total Chlorophyll (ug/L)
0
50
100
150
200
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

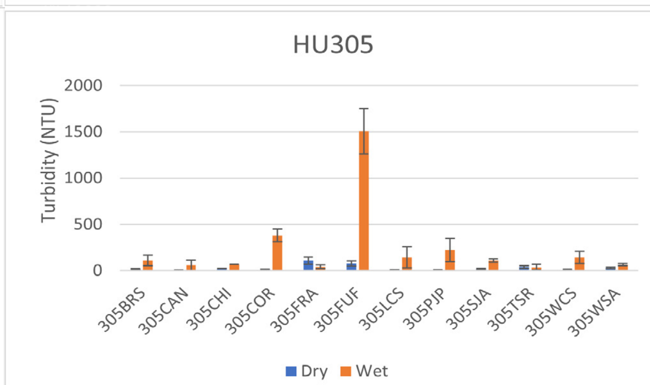

HU305
Orthophosphate as P (mg/L)
0
5
10
15
20
25
30
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

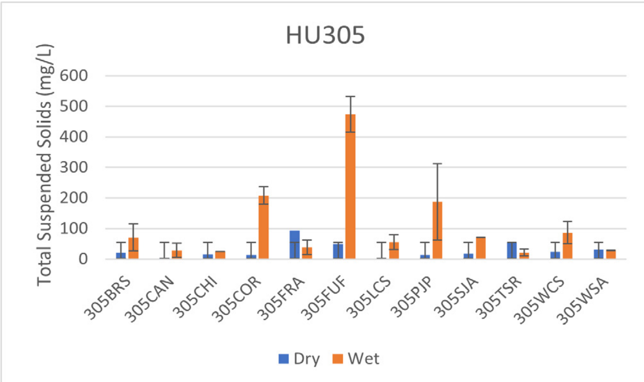

HU305
Phosphorous as P (mg/L)
0
5
10
15
20
25
30
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

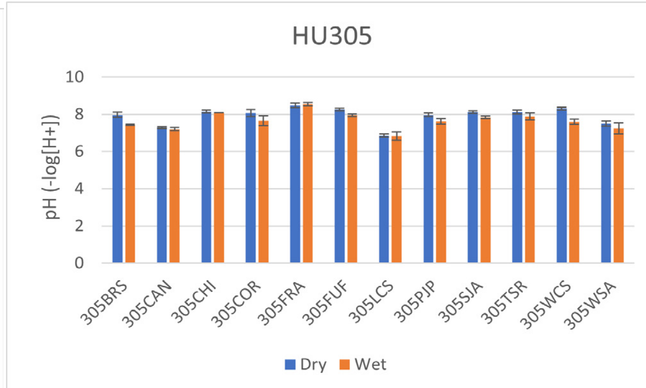

HU305
Specific Conductivity (µs/cm)
0
5000
10000
15000
20000
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

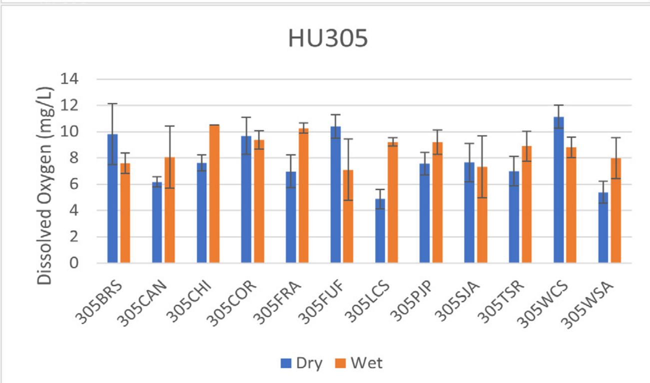

HU305
Total Dissolved Solids (mg/L)
0
2000
4000
6000
8000
10000
12000
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

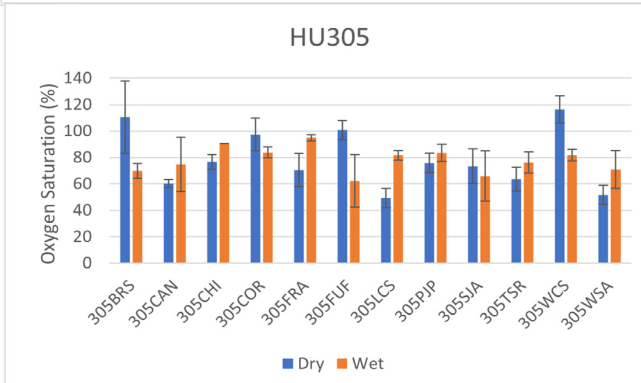

HU305
Salinity (ppt)
0
2
4
6
8
10
12
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

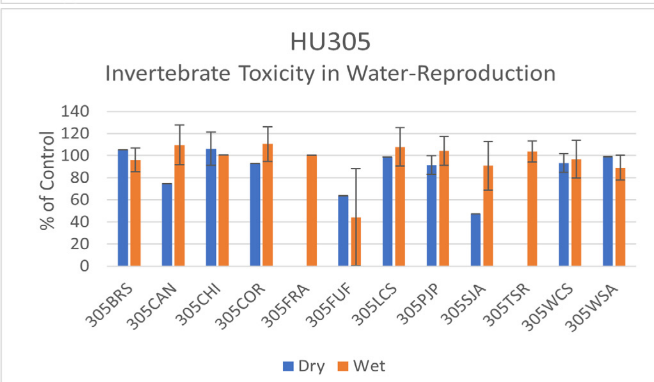

HU305
Turbidity (NTU)
0
500
1000
1500
2000
305BRS
305CAN
305CHI
305COR
305FRA
305FUF
305LCS
305PJP
305SJA
305TSR
305WCS
305WSA
Dry
Wet

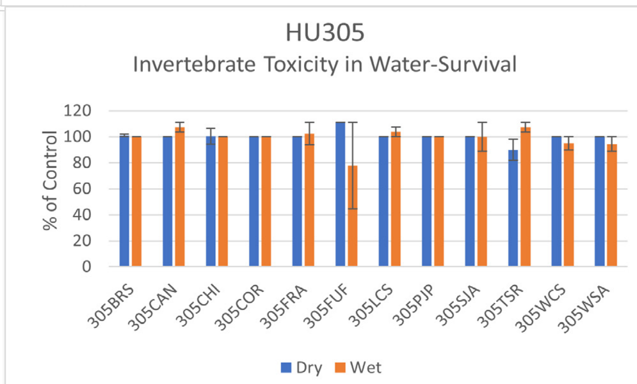

HU305
Total Suspended Solids (mg/L)
Dry
Wet

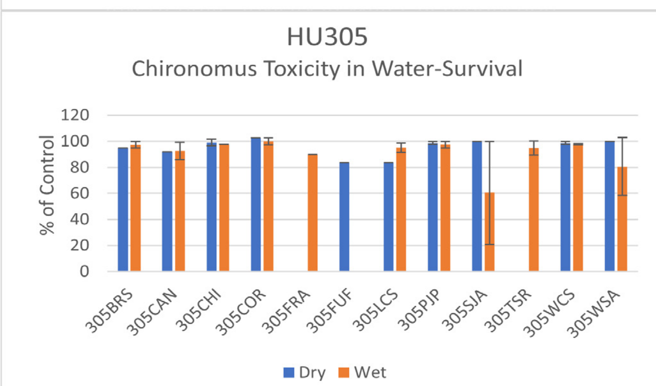

HU305
pH (-log[H+])
Dry
Wet

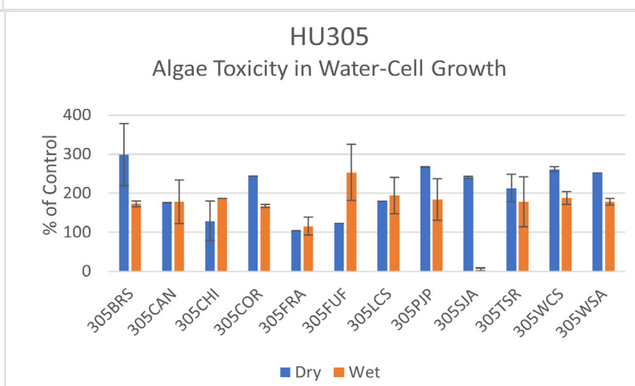

HU305
Dissolved Oxygen (mg/L)
Dry
Wet


HU305
Oxygen Saturation (%)
Dry
Wet


HU305
Invertebrate Toxicity in Water-Reproduction
% of Control
Dry
Wet

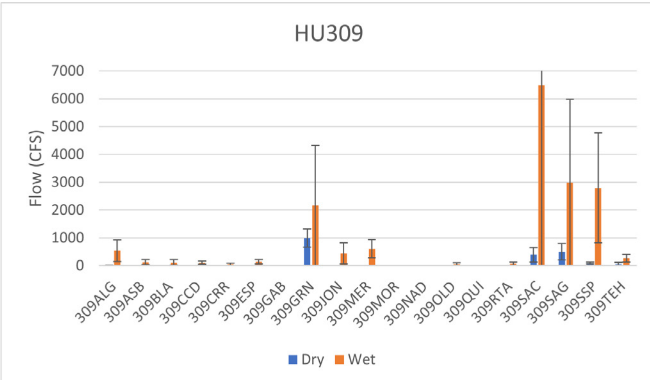

HU305
Invertebrate Toxicity in Water-Survival
% of Control
Dry
Wet

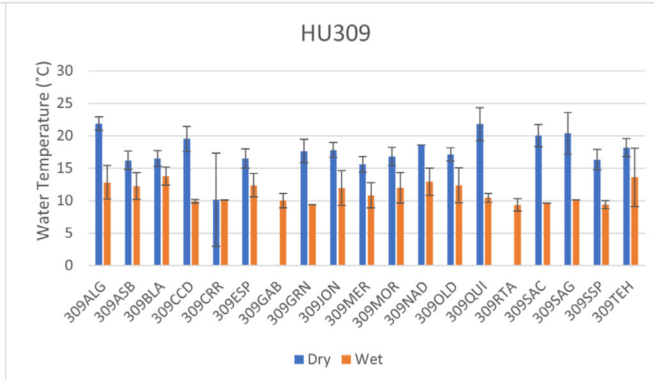

HU305
Chironomus Toxicity in Water-Survival
% of Control
Dry
Wet

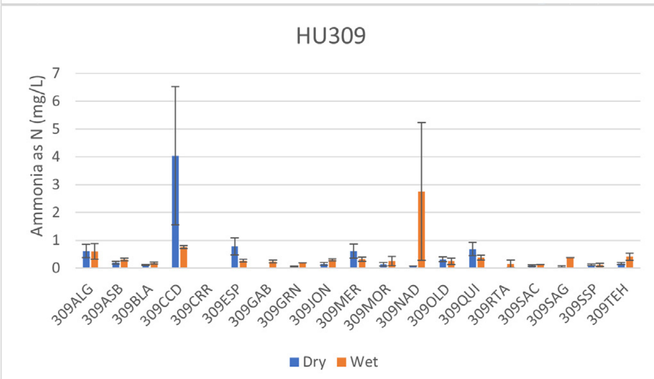

HU305
Algae Toxicity in Water-Cell Growth
% of Control
Dry
Wet

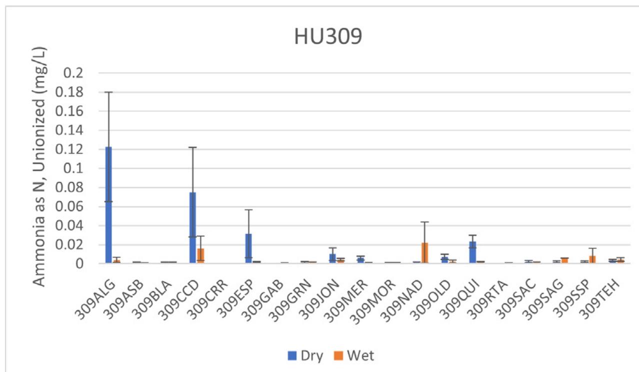
Comparison of Wet vs Dry sampling results from Salinas Hydrologic Unit (309)

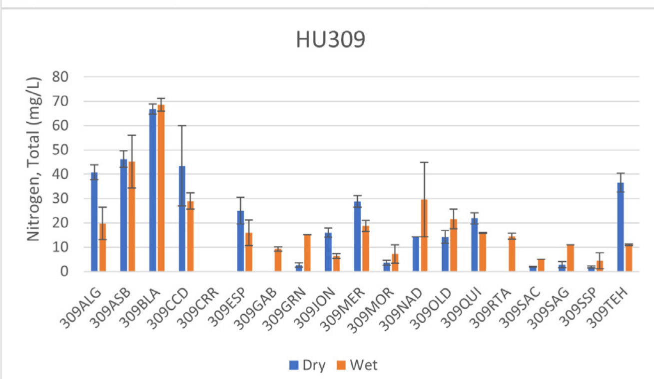
Bars represent the average result of all the 2021 samples at each site (or single result for sample size of one). **Note:** in some instances, no wet and/or dry results are depicted due to dry conditions or because of alternative toxicity test species analyzed and their associated end points. Additionally, no sediment toxicity samples were collected during wet events; therefore, no sediment toxicity bar charts are depicted.

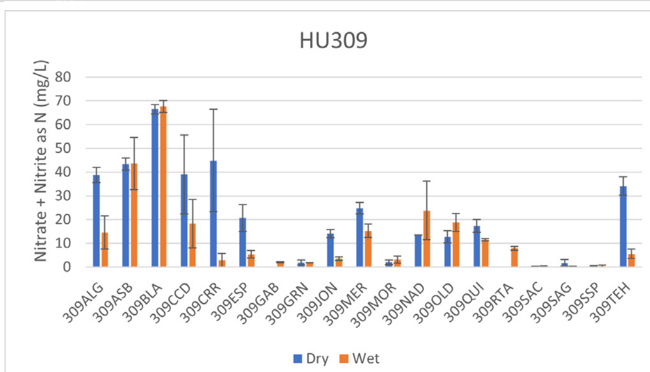


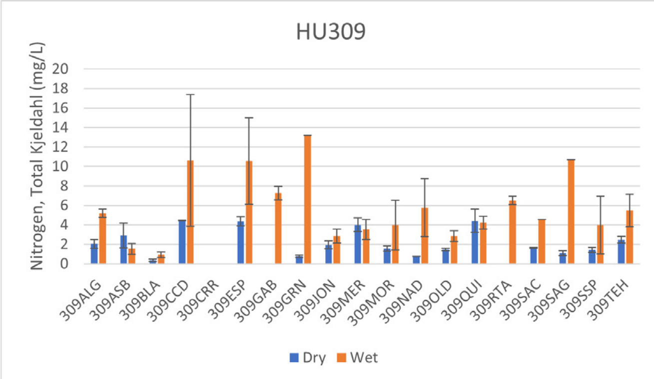


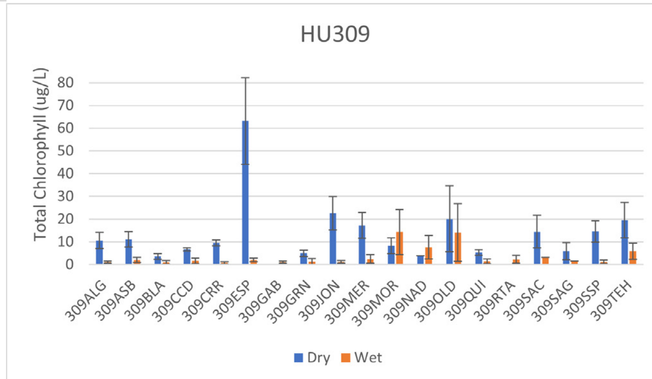


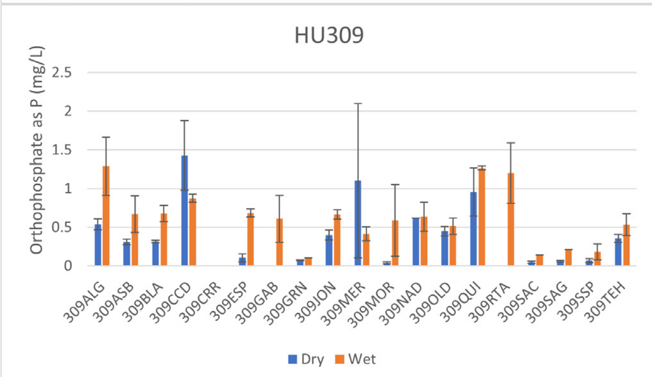


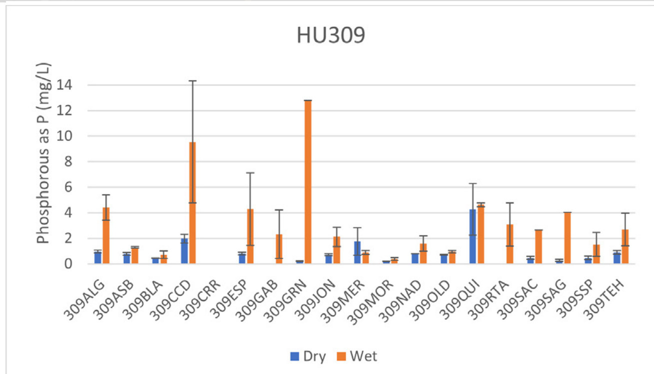


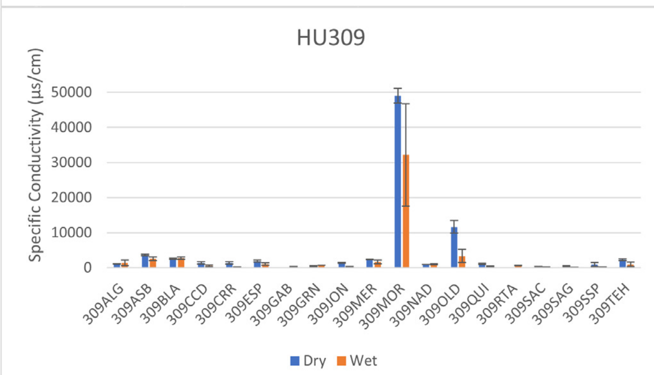


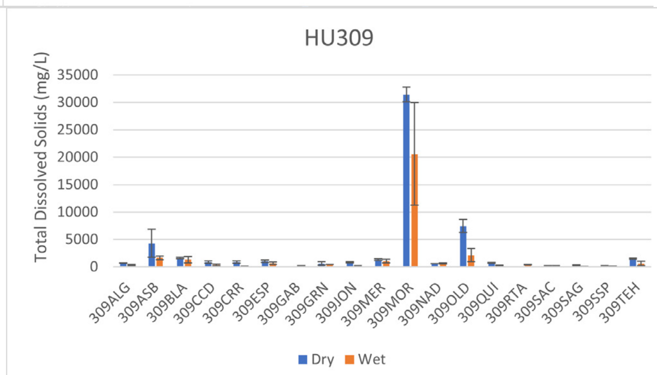

HU309
Nitrogen, Total Kjeldahl (mg/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

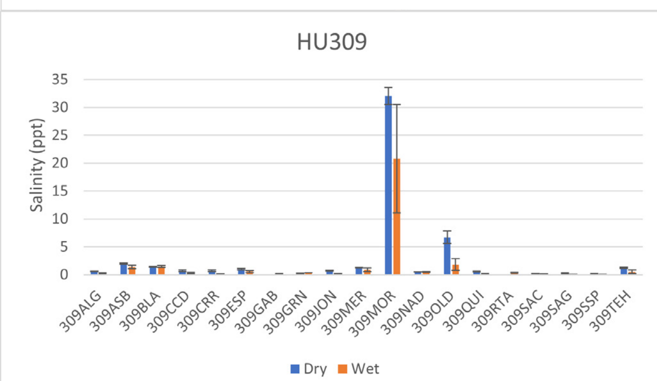

HU309
Total Chlorophyll (ug/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

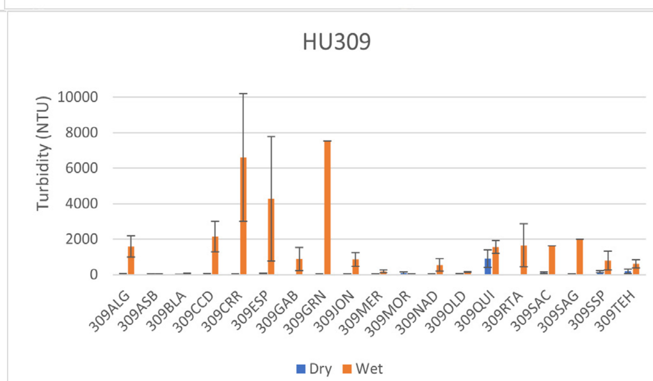

HU309
Orthophosphate as P (mg/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

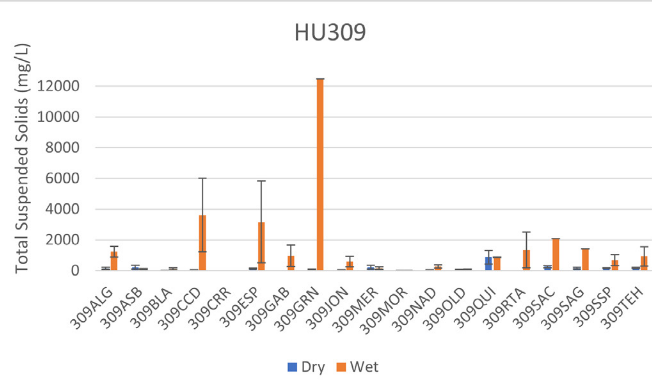

HU309
Phosphorous as P (mg/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

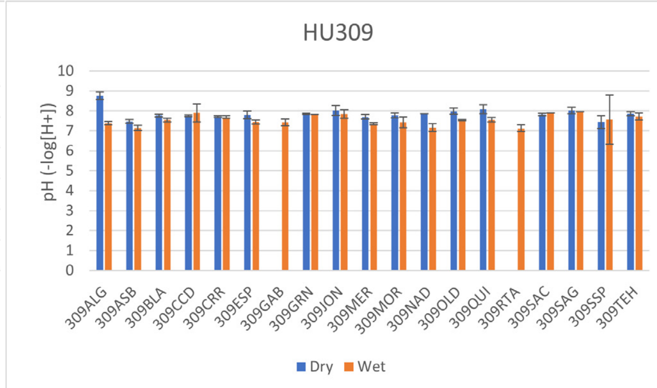

HU309
Specific Conductivity (µs/cm)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

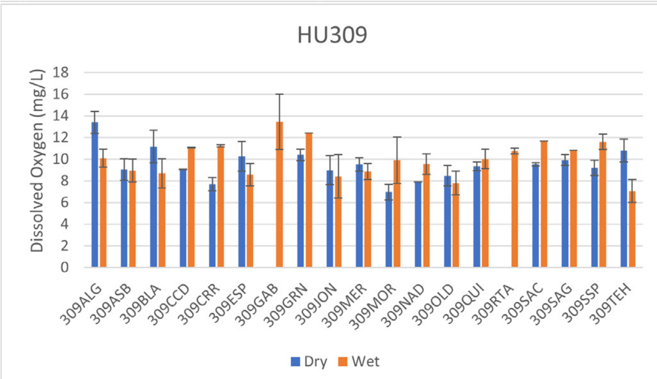

HU309
Total Dissolved Solids (mg/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

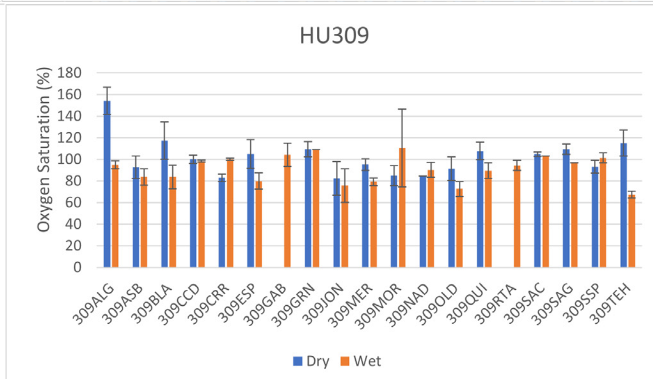

HU309
Salinity (ppt)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

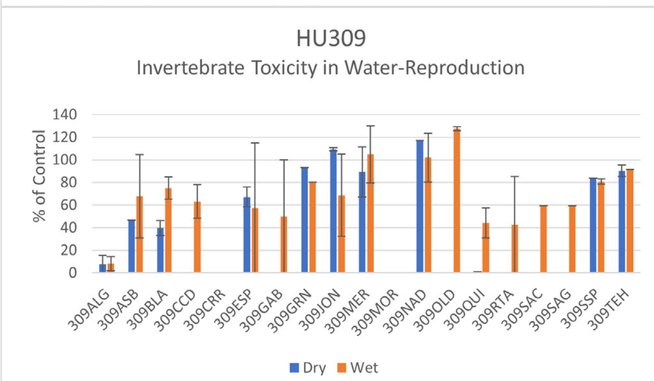

HU309
Turbidity (NTU)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

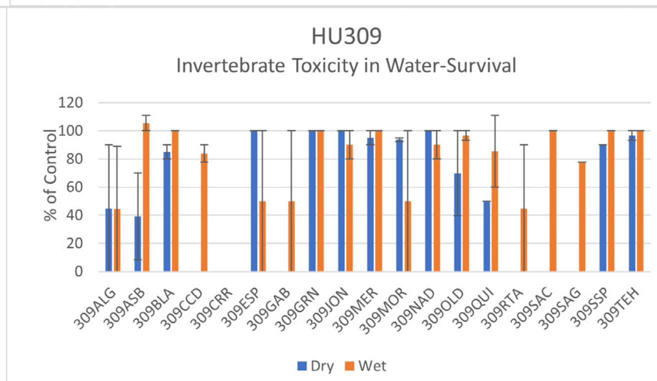

HU309
Total Suspended Solids (mg/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

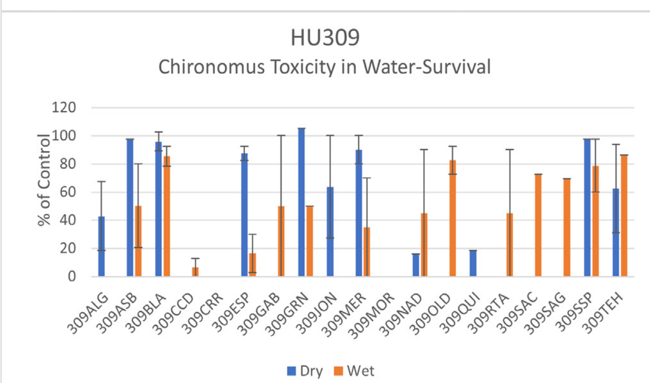

HU309
pH (-log[H+])
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

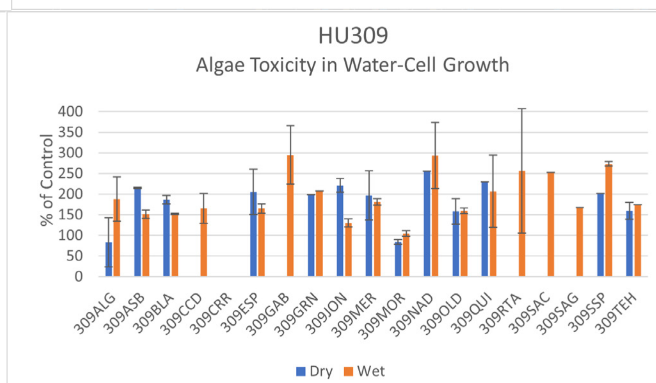

HU309
Dissolved Oxygen (mg/L)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet


HU309
Oxygen Saturation (%)
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet


HU309
Invertebrate Toxicity in Water-Reproduction
% of Control
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

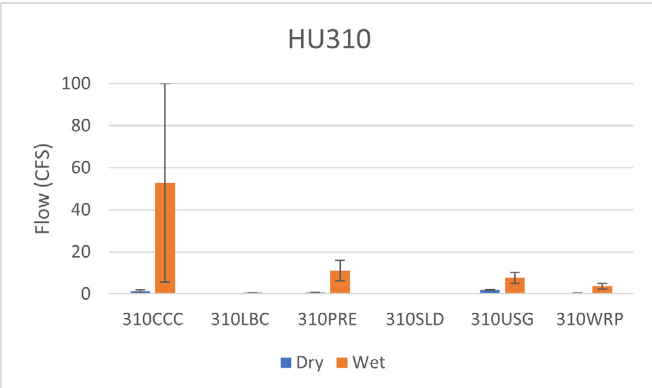

HU309
Invertebrate Toxicity in Water-Survival
% of Control
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

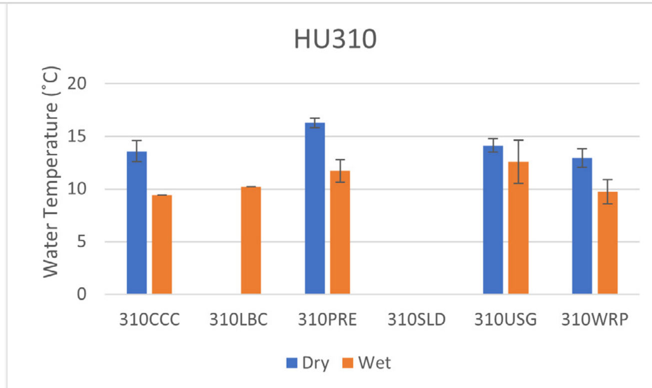

HU309
Chironomus Toxicity in Water-Survival
% of Control
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

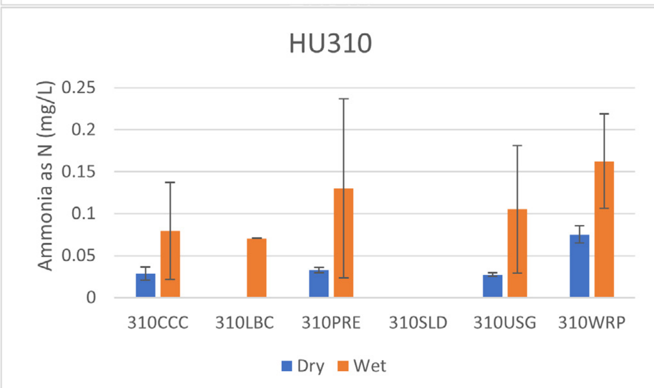

HU309
Algae Toxicity in Water-Cell Growth
% of Control
309ALG 309ASB 309BLA 309CCD 309CRR 309ESP 309GAB 309GRN 309JON 309MER 309MOR 309NAD 309OLD 309QUI 309RTA 309SAC 309SAG 309SSP 309TEH
Dry Wet

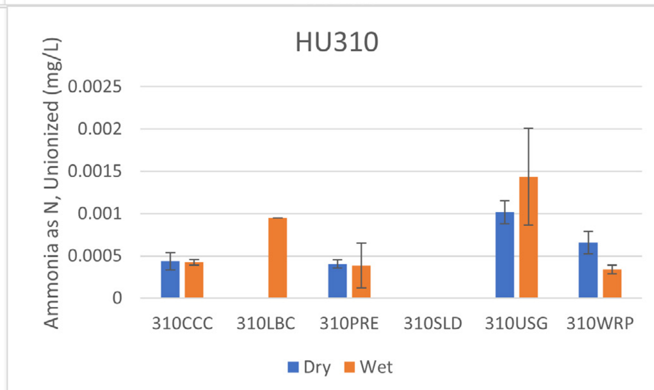
Comparison of Wet vs Dry sampling results from Estero Bay Hydrologic Unit (310)

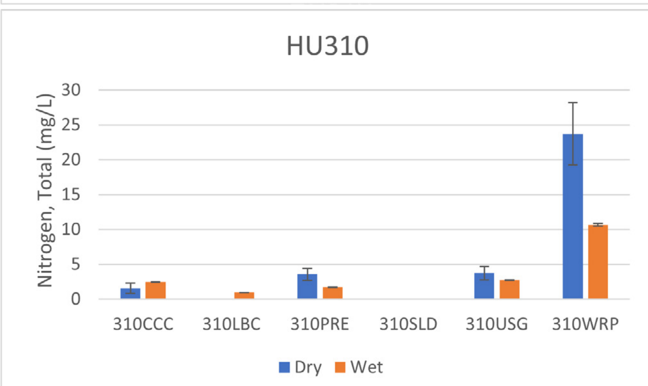
Bars represent the average result of all the 2021 samples at each site (or single result for sample size of one). **Note:** in some instances, no wet and/or dry results are depicted due to dry conditions or because of alternative toxicity test species analyzed and their associated end points. Additionally, no sediment toxicity samples were collected during wet events; therefore, no sediment toxicity bar charts are depicted.

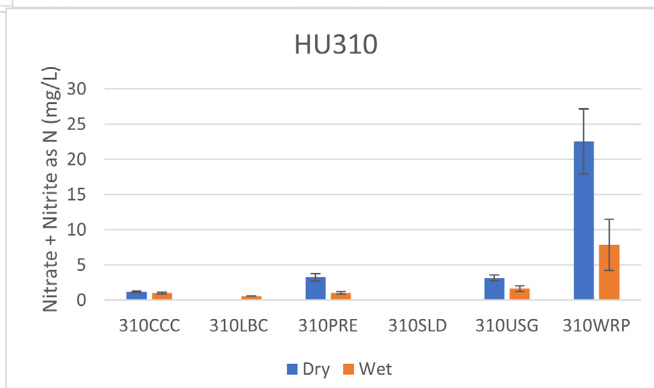


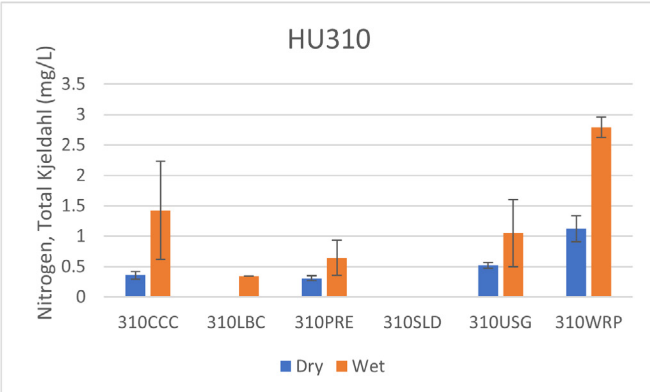


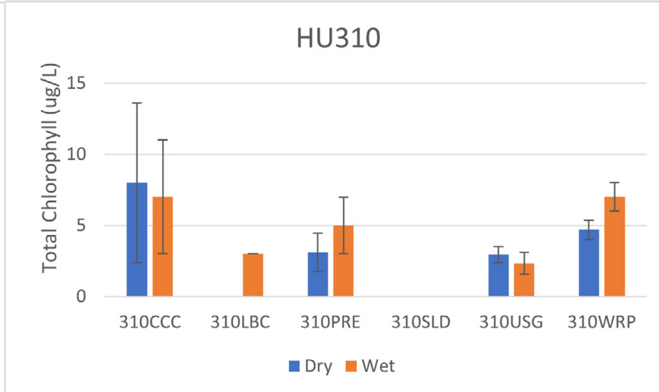


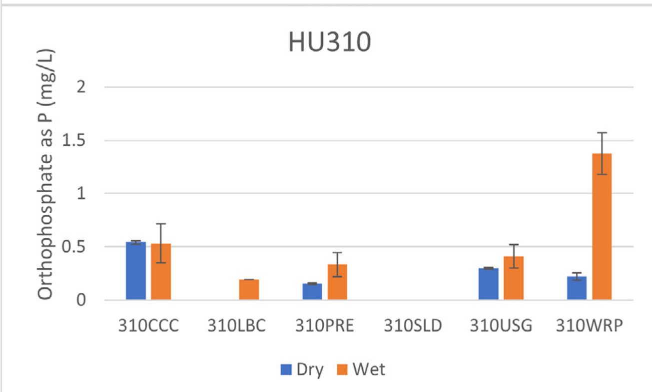


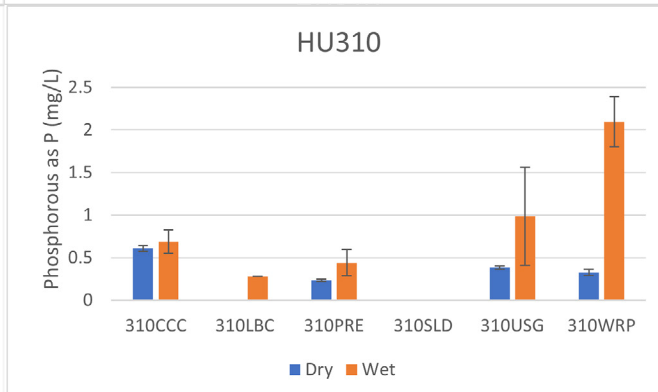


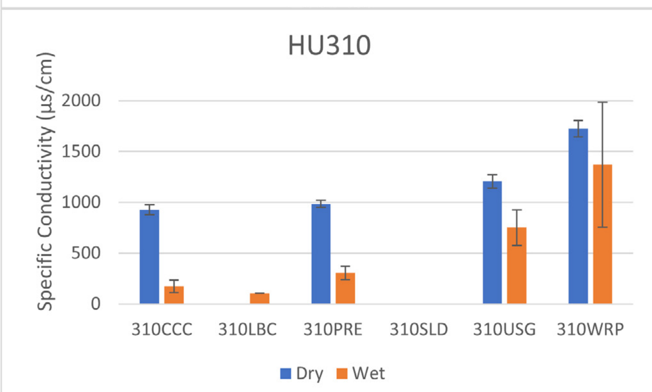


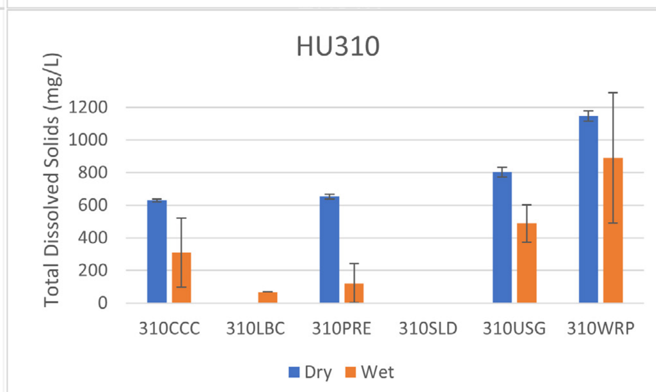

HU310
Nitrogen, Total Kjeldahl (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

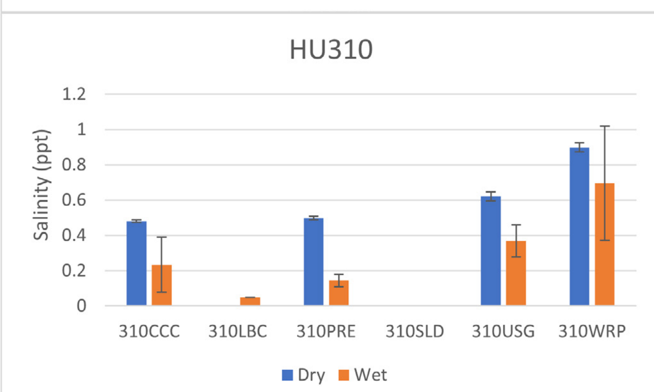

HU310
Total Chlorophyll (ug/L)
15
10
5
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

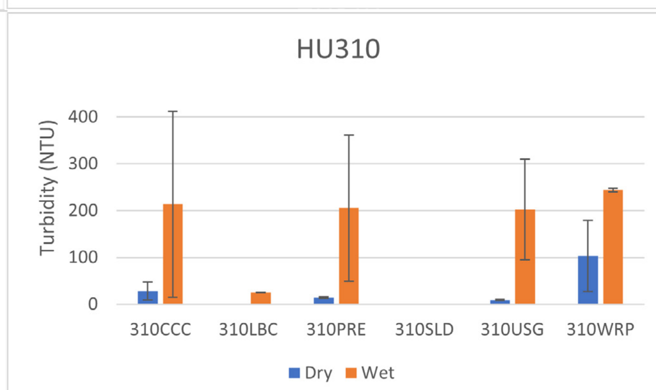

HU310
Orthophosphate as P (mg/L)
2
1.5
1
0.5
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

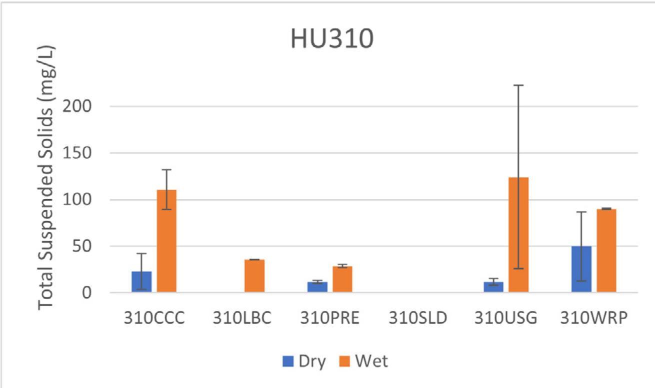

HU310
Phosphorous as P (mg/L)
2.5
2
1.5
1
0.5
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

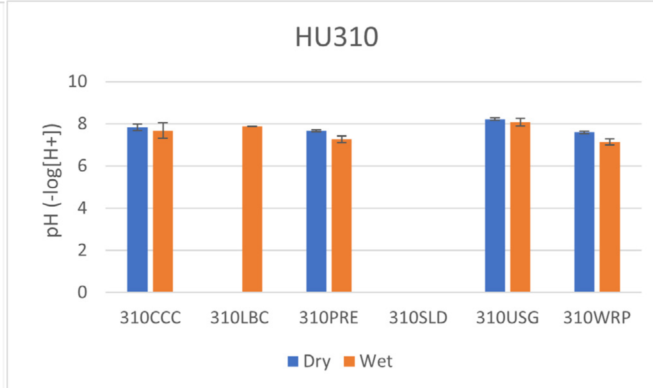

HU310
Specific Conductivity (µs/cm)
2000
1500
1000
500
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

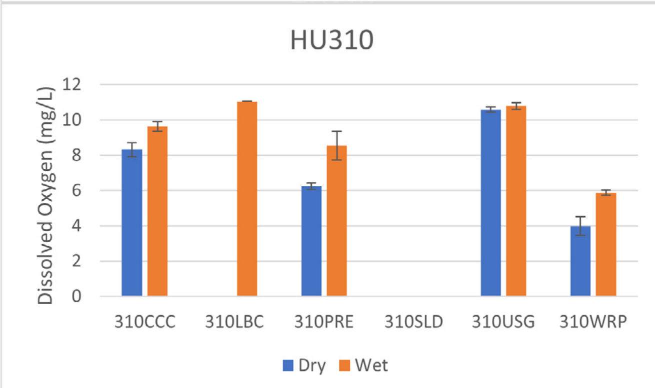

HU310
Total Dissolved Solids (mg/L)
1200
1000
800
600
400
200
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

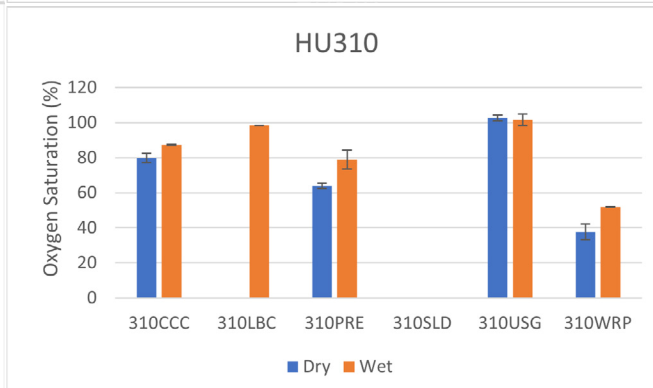

HU310
Salinity (ppt)
1.2
1
0.8
0.6
0.4
0.2
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

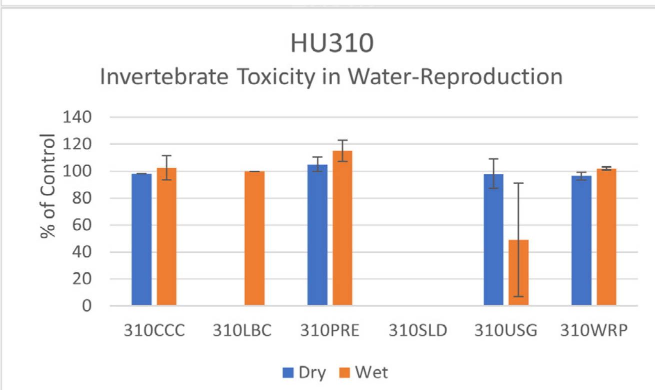

HU310
Turbidity (NTU)
400
300
200
100
0
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

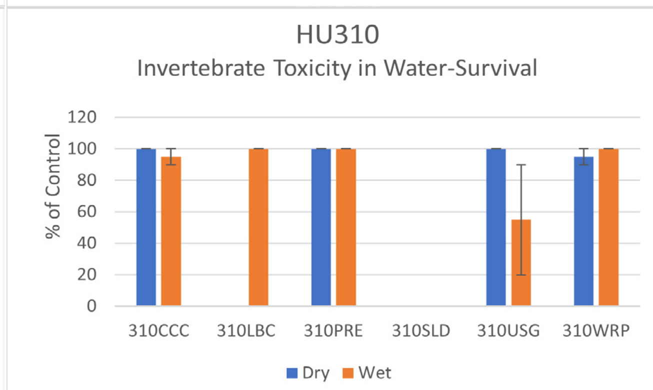

HU310
Total Suspended Solids (mg/L)
0
50
100
150
200
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

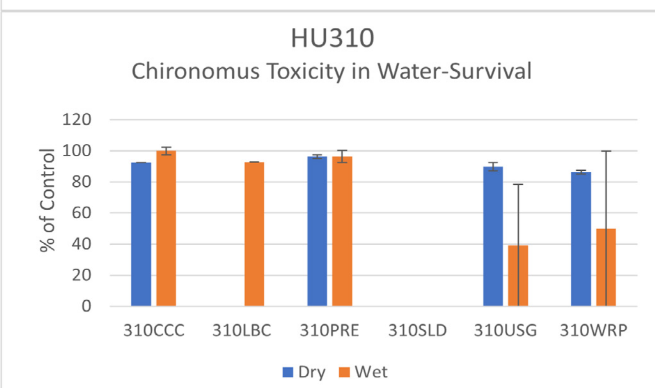

HU310
pH (-log[H+])
0
2
4
6
8
10
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

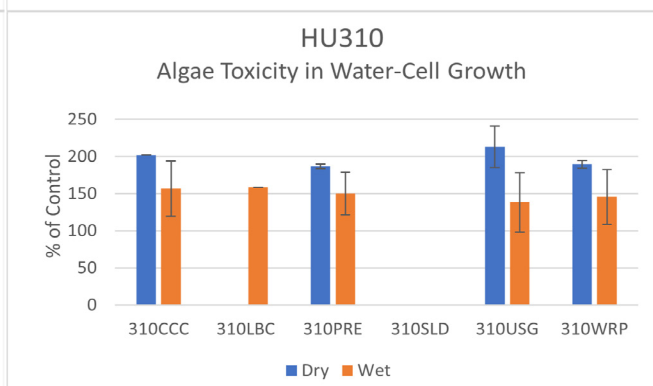

HU310
Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet


HU310
Oxygen Saturation (%)
0
20
40
60
80
100
120
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet


HU310
Invertebrate Toxicity in Water-Reproduction
% of Control
0
20
40
60
80
100
120
140
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

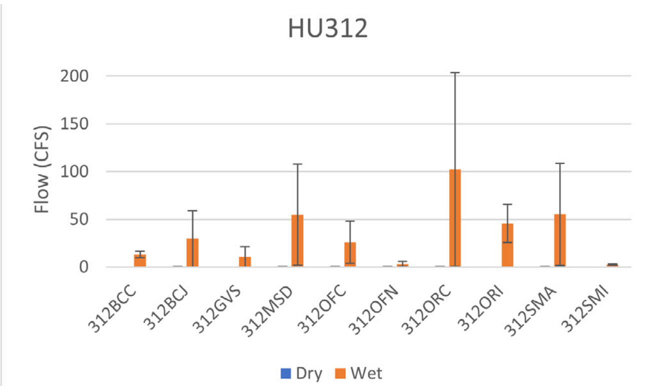

HU310
Invertebrate Toxicity in Water-Survival
% of Control
0
20
40
60
80
100
120
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

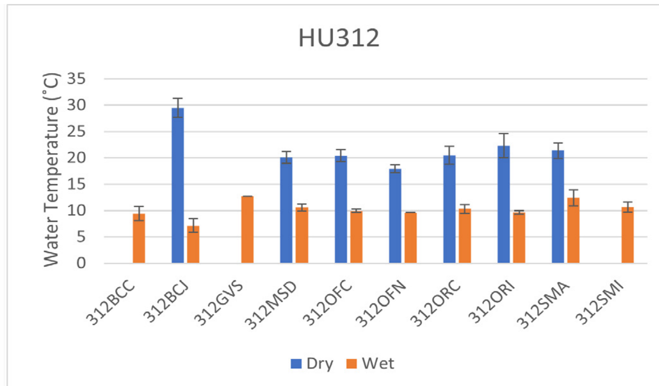

HU310
Chironomus Toxicity in Water-Survival
% of Control
0
20
40
60
80
100
120
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

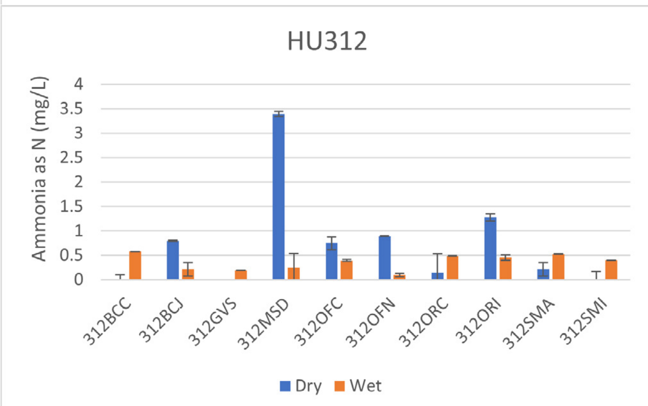

HU310
Algae Toxicity in Water-Cell Growth
% of Control
0
50
100
150
200
250
310CCC
310LBC
310PRE
310SLD
310USG
310WRP
Dry
Wet

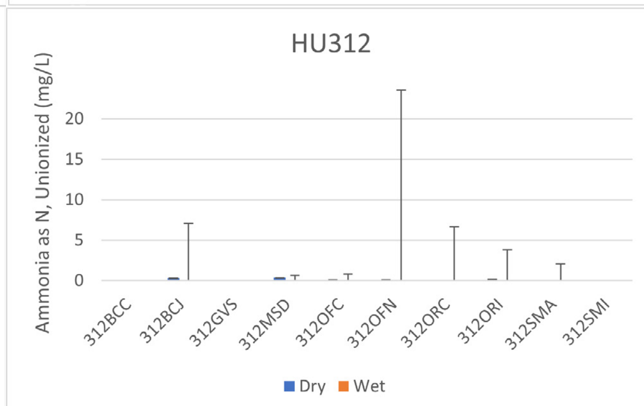
Comparison of Wet vs Dry sampling results from Santa Maria Hydrologic Unit (312)

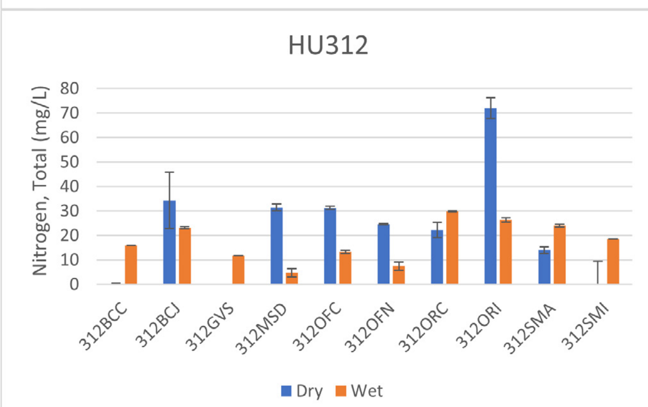
Bars represent the average result of all the 2021 samples at each site (or single result for sample size of one). **Note:** in some instances, no wet and/or dry results are depicted due to dry conditions or because of alternative toxicity test species analyzed and their associated end points. Additionally, no sediment toxicity samples were collected during wet events; therefore, no sediment toxicity bar charts are depicted.

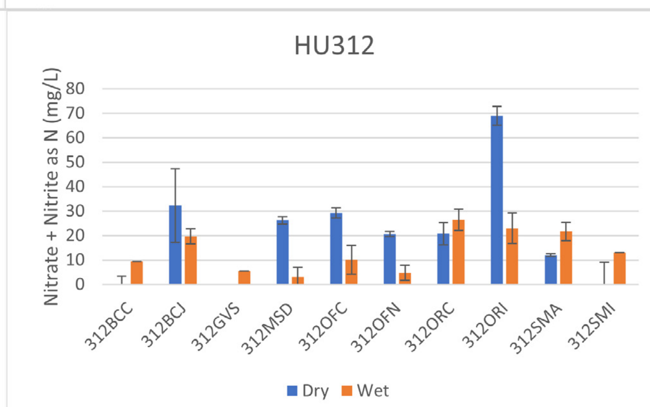


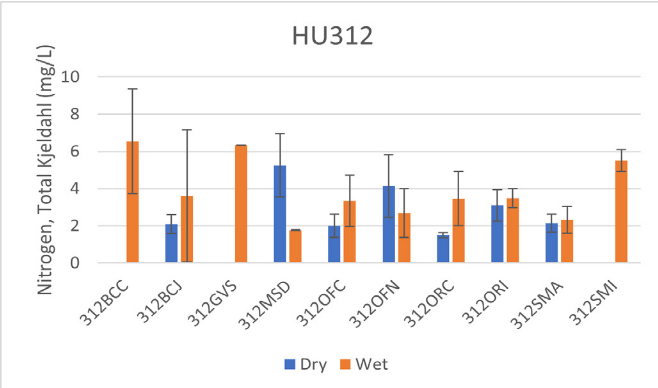


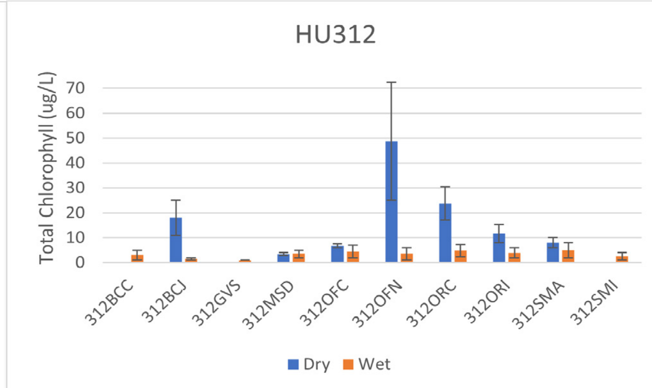


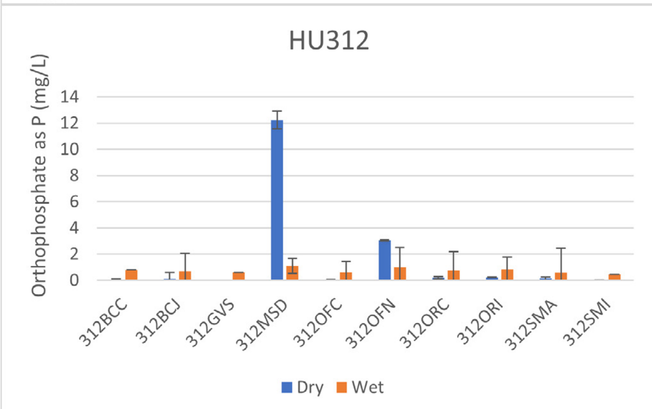


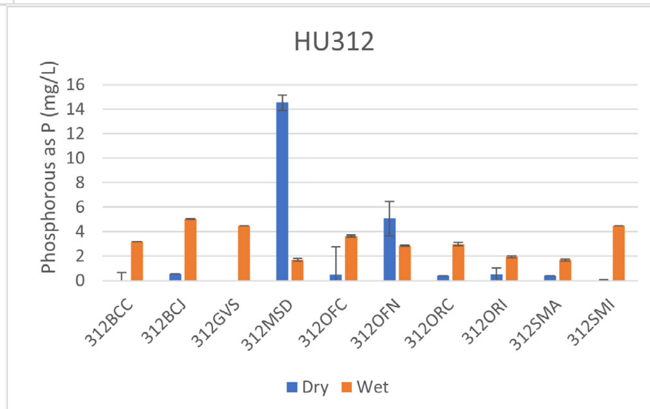


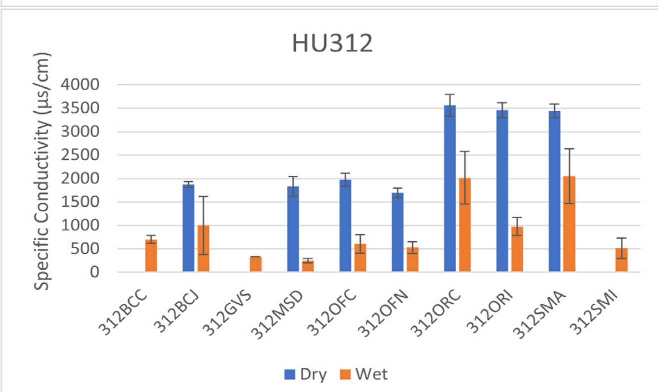


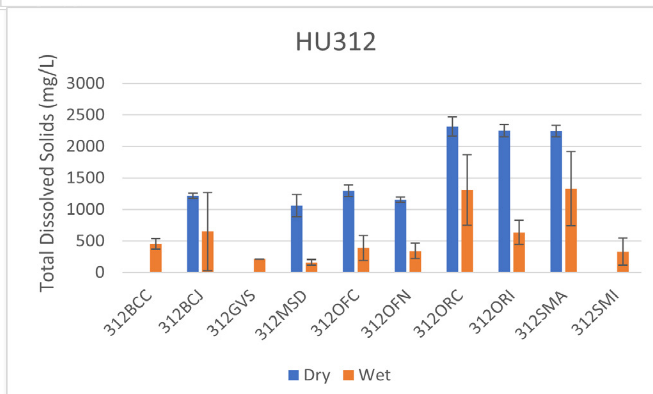

HU312
Nitrogen, Total Kjeldahl (mg/L)
10
8
6
4
2
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

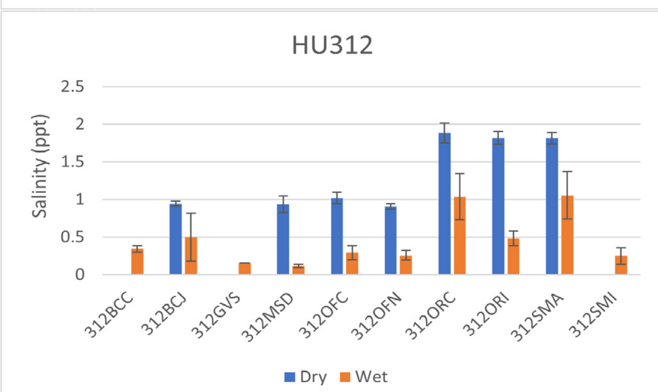

HU312
Total Chlorophyll (ug/L)
70
60
50
40
30
20
10
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

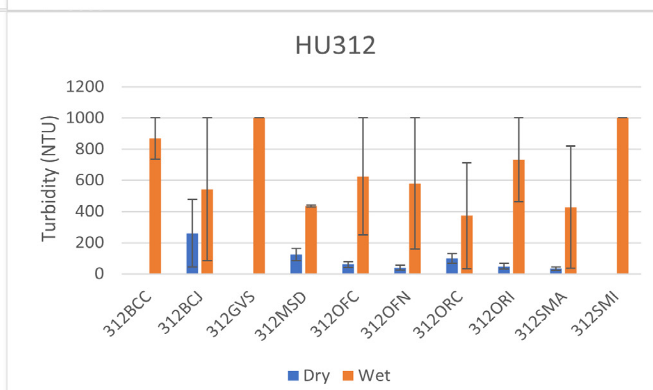

HU312
Orthophosphate as P (mg/L)
14
12
10
8
6
4
2
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

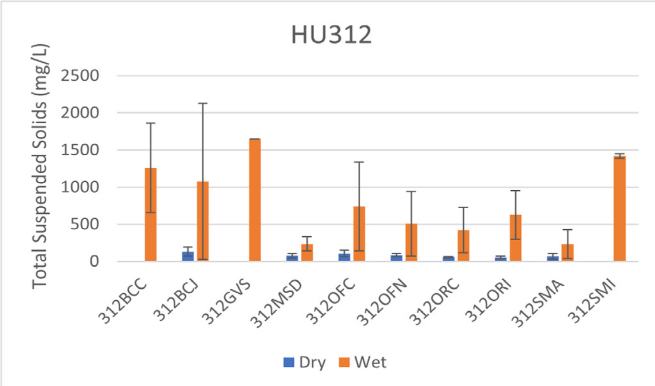

HU312
Phosphorous as P (mg/L)
16
14
12
10
8
6
4
2
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

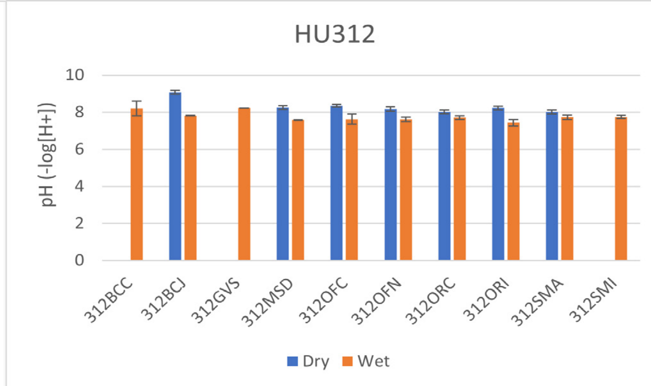

HU312
Specific Conductivity (µs/cm)
4000
3500
3000
2500
2000
1500
1000
500
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

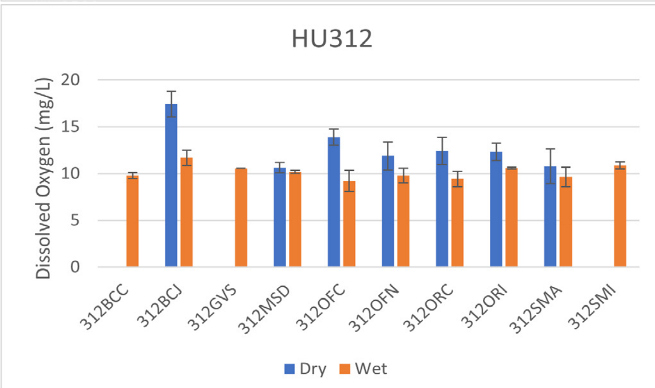

HU312
Total Dissolved Solids (mg/L)
3000
2500
2000
1500
1000
500
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

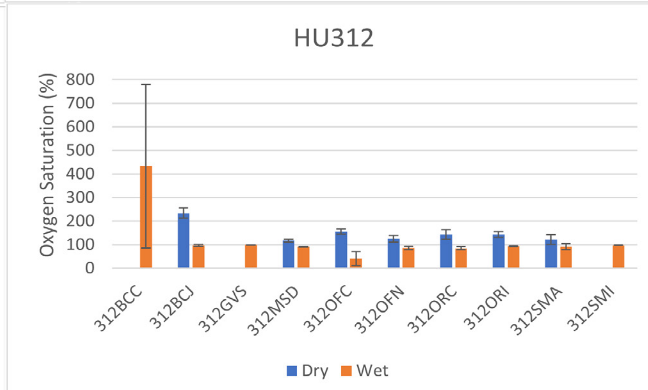

HU312
Salinity (ppt)
2.5
2
1.5
1
0.5
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

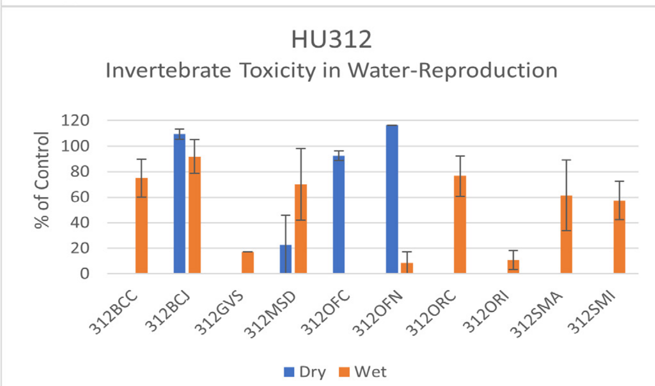

HU312
Turbidity (NTU)
1200
1000
800
600
400
200
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

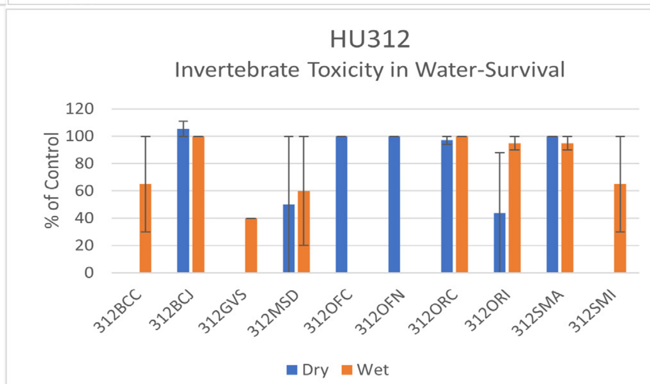

HU312
Total Suspended Solids (mg/L)
2500
2000
1500
1000
500
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

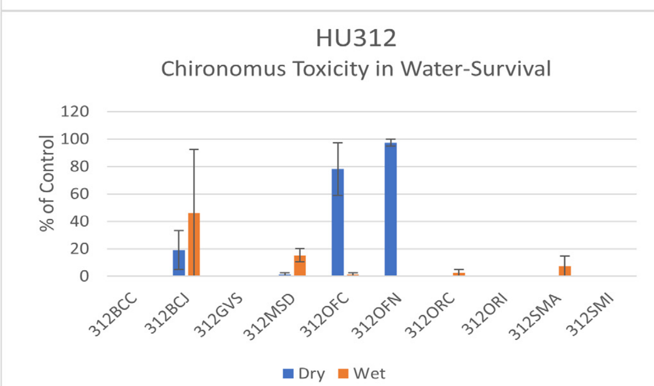

HU312
pH (-log[H+])
10
8
6
4
2
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

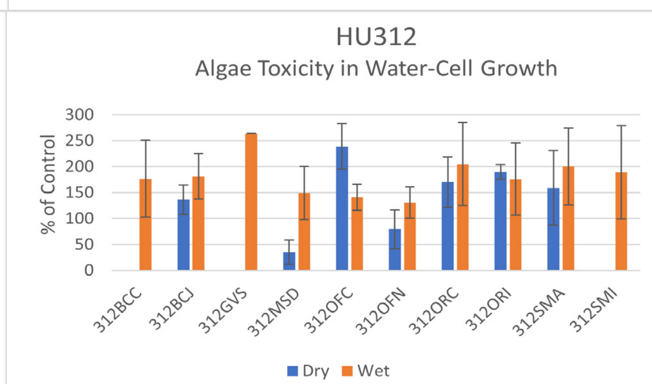

HU312
Dissolved Oxygen (mg/L)
20
15
10
5
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet


HU312
Oxygen Saturation (%)
800
700
600
500
400
300
200
100
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet


HU312
Invertebrate Toxicity in Water-Reproduction
% of Control
120
100
80
60
40
20
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

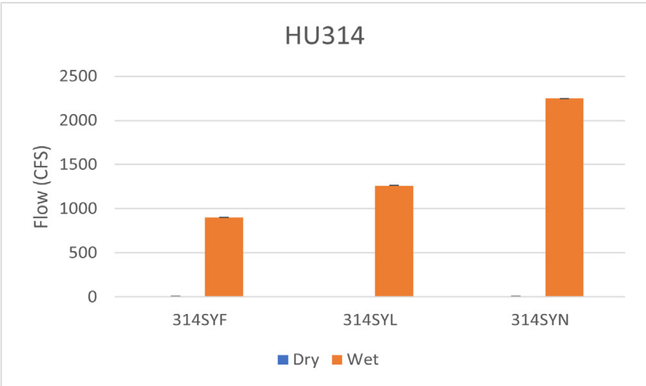

HU312
Invertebrate Toxicity in Water-Survival
% of Control
120
100
80
60
40
20
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

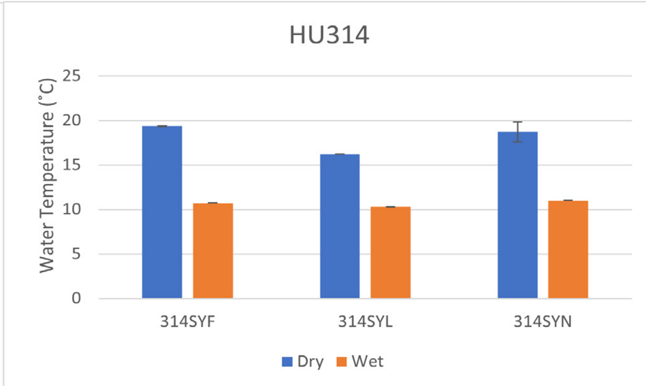

HU312
Chironomus Toxicity in Water-Survival
% of Control
120
100
80
60
40
20
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

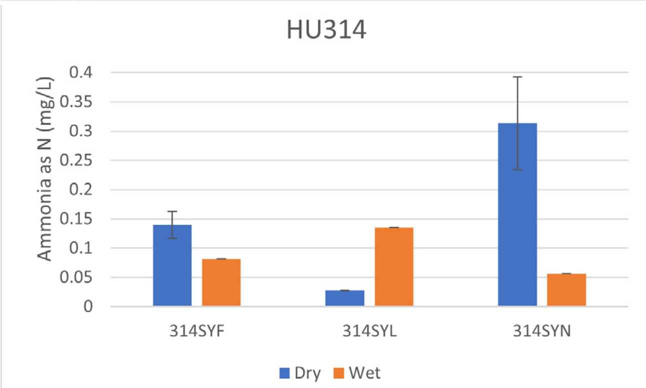

HU312
Algae Toxicity in Water-Cell Growth
% of Control
300
250
200
150
100
50
0
312BCC
312BCJ
312GVS
312MSD
312OFC
312OFN
312ORC
312ORI
312SMA
312SMI
Dry
Wet

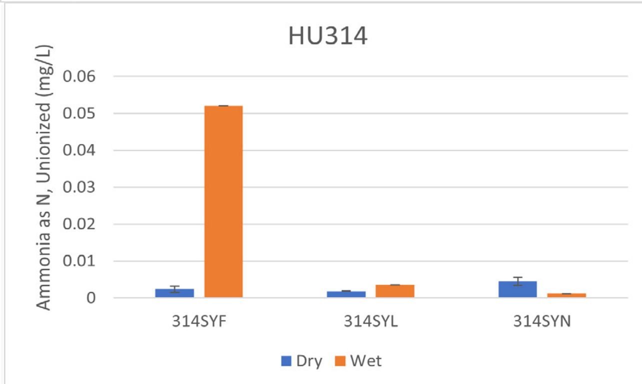
Comparison of Wet vs Dry sampling results from Santa Ynez Hydrologic Unit (314)

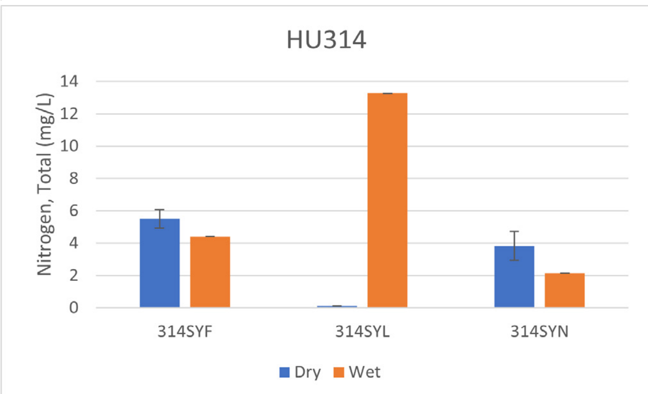
Bars represent the average result of all the 2021 samples at each site (or single result for sample size of one). **Note:** in some instances, no wet and/or dry results are depicted due to dry conditions or because of alternative toxicity test species analyzed and their associated end points. Additionally, no sediment toxicity samples were collected during wet events; therefore, no sediment toxicity bar charts are depicted.

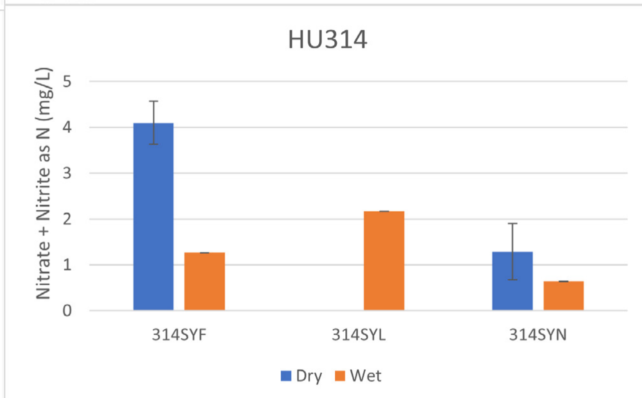


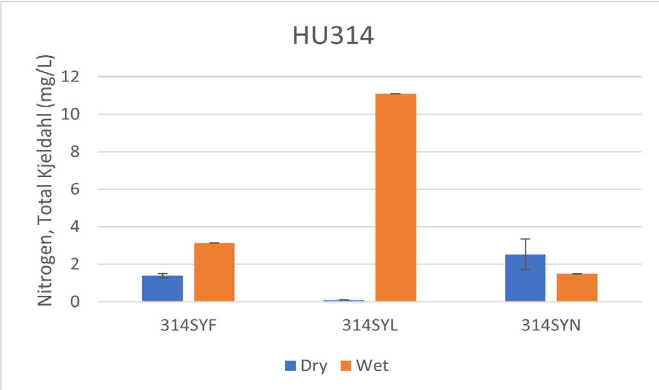


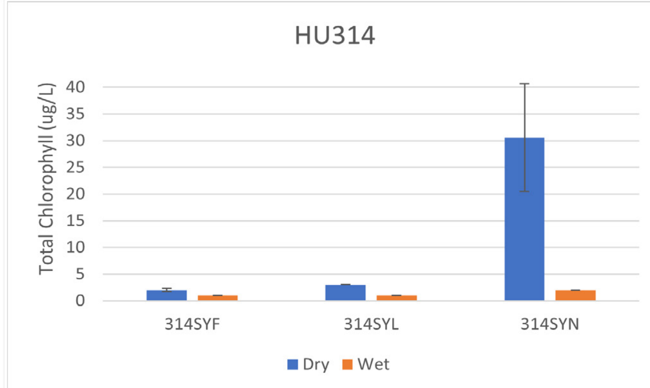


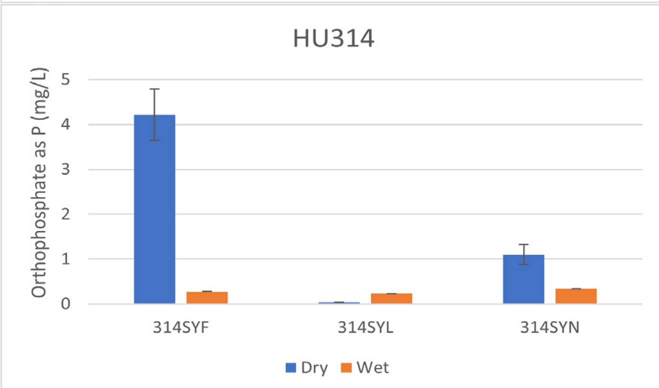


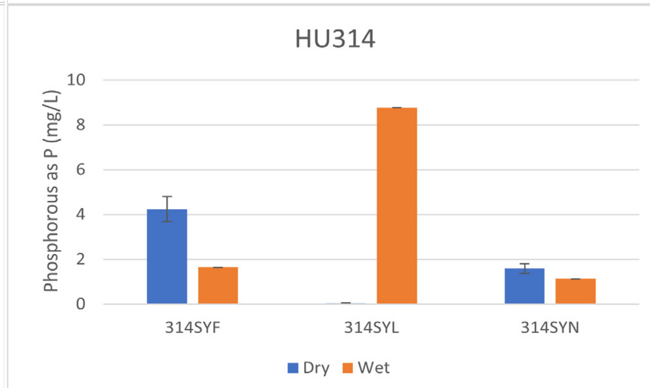


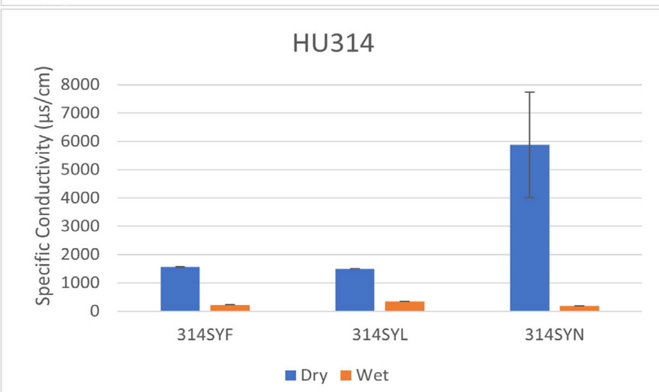


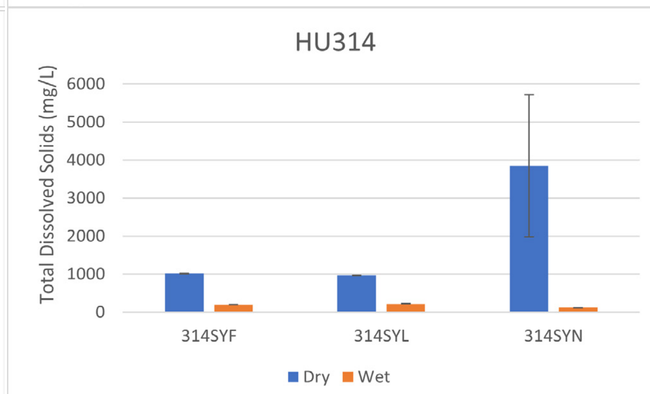

HU314
Nitrogen, Total Kjeldahl (mg/L)
0
2
4
6
8
10
12
314SYF
314SYL
314SYN
Dry
Wet

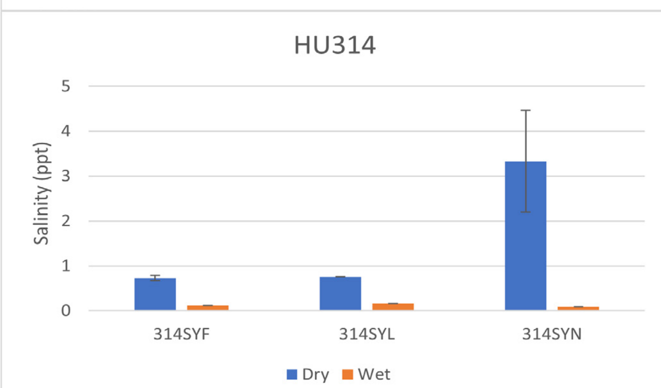

HU314
Total Chlorophyll (ug/L)
0
5
10
15
20
25
30
35
40
314SYF
314SYL
314SYN
Dry
Wet

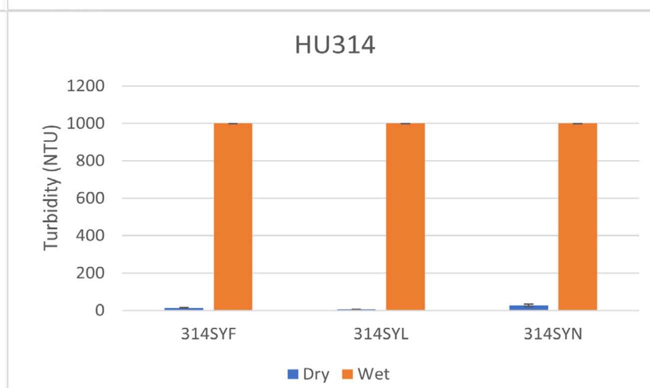

HU314
Orthophosphate as P (mg/L)
0
1
2
3
4
5
314SYF
314SYL
314SYN
Dry
Wet

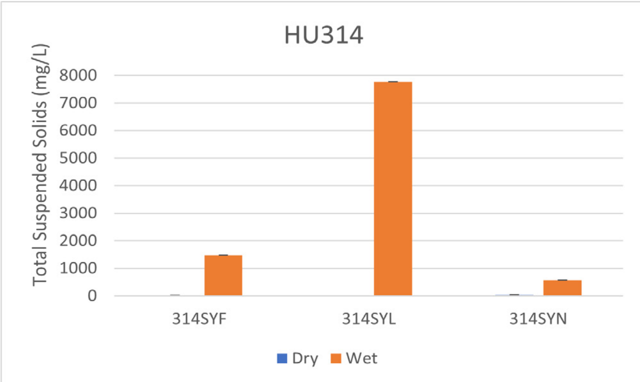

HU314
Phosphorous as P (mg/L)
0
2
4
6
8
10
314SYF
314SYL
314SYN
Dry
Wet

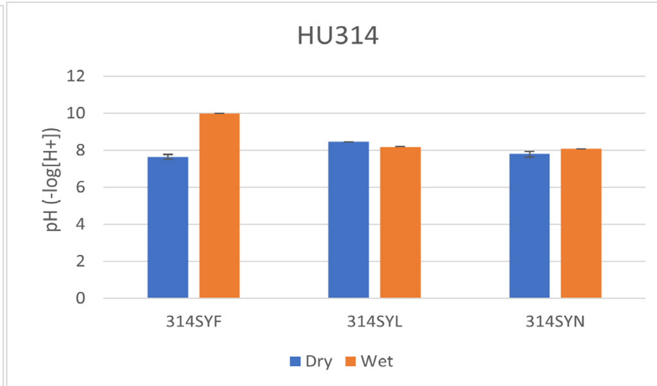

HU314
Specific Conductivity (µs/cm)
0
1000
2000
3000
4000
5000
6000
7000
8000
314SYF
314SYL
314SYN
Dry
Wet

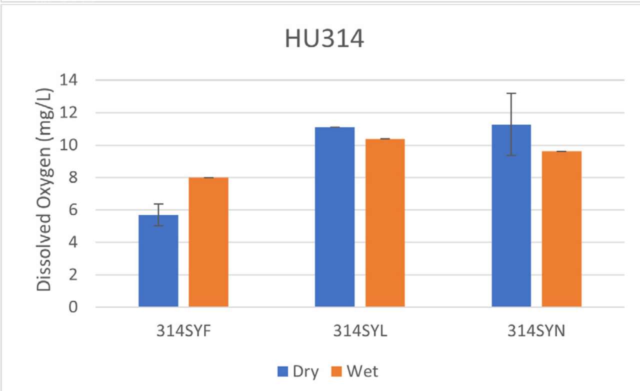

HU314
Total Dissolved Solids (mg/L)
0
1000
2000
3000
4000
5000
6000
314SYF
314SYL
314SYN
Dry
Wet

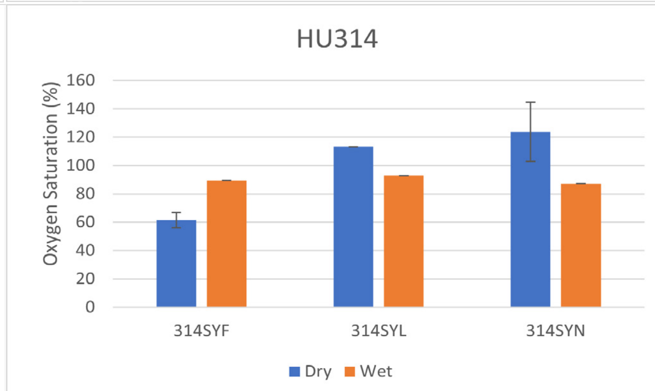

HU314
Salinity (ppt)
0
1
2
3
4
5
314SYF
314SYL
314SYN
Dry
Wet

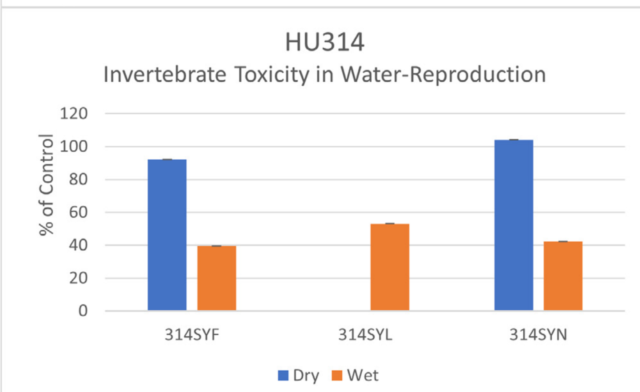

HU314
Turbidity (NTU)
0
200
400
600
800
1000
1200
314SYF
314SYL
314SYN
Dry
Wet

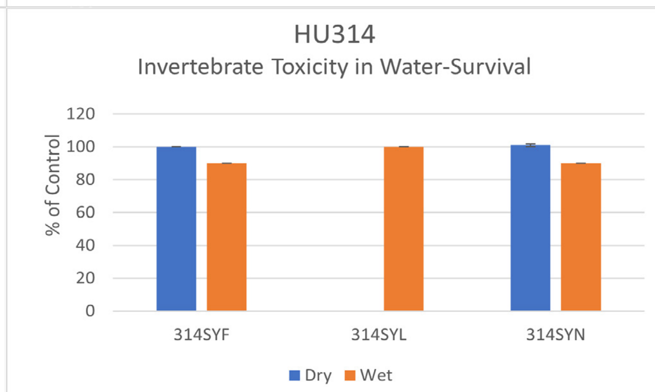

HU314
Total Suspended Solids (mg/L)
8000
7000
6000
5000
4000
3000
2000
1000
0
314SYF
314SYL
314SYN
Dry
Wet

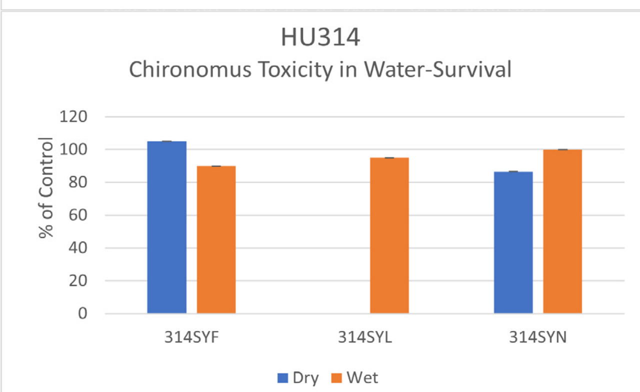

HU314
pH (-log[H+])
12
10
8
6
4
2
0
314SYF
314SYL
314SYN
Dry
Wet

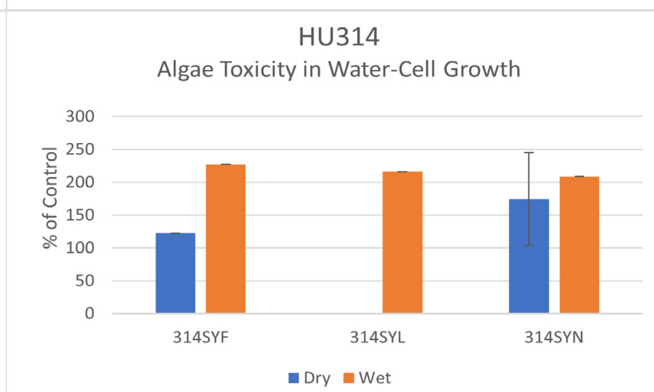

HU314
Dissolved Oxygen (mg/L)
14
12
10
8
6
4
2
0
314SYF
314SYL
314SYN
Dry
Wet


HU314
Oxygen Saturation (%)
160
140
120
100
80
60
40
20
0
314SYF
314SYL
314SYN
Dry
Wet


HU314
Invertebrate Toxicity in Water-Reproduction
% of Control
120
100
80
60
40
20
0
314SYF
314SYL
314SYN
Dry
Wet

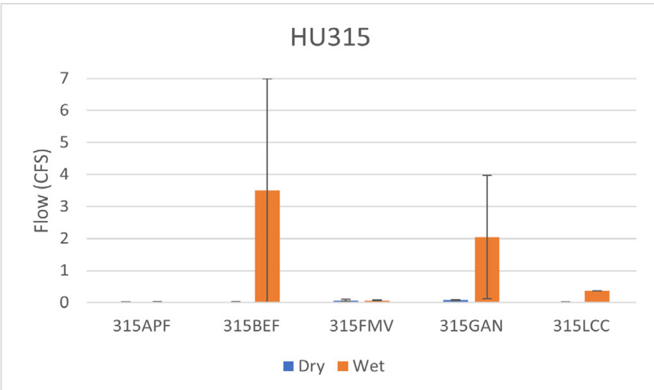

HU314
Invertebrate Toxicity in Water-Survival
% of Control
120
100
80
60
40
20
0
314SYF
314SYL
314SYN
Dry
Wet

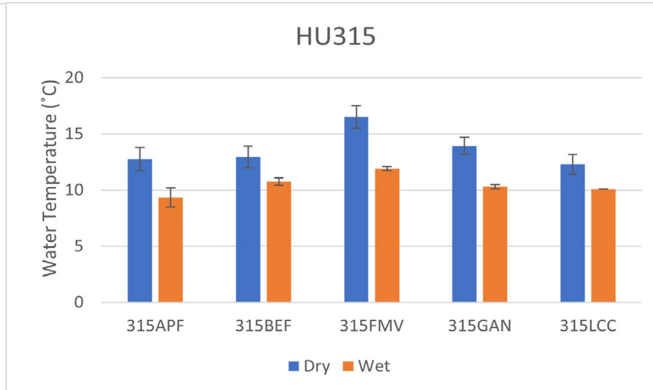

HU314
Chironomus Toxicity in Water-Survival
% of Control
120
100
80
60
40
20
0
314SYF
314SYL
314SYN
Dry
Wet

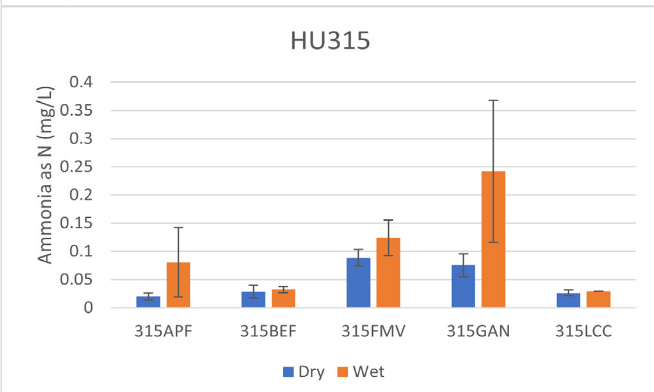

HU314
Algae Toxicity in Water-Cell Growth
% of Control
300
250
200
150
100
50
0
314SYF
314SYL
314SYN
Dry
Wet

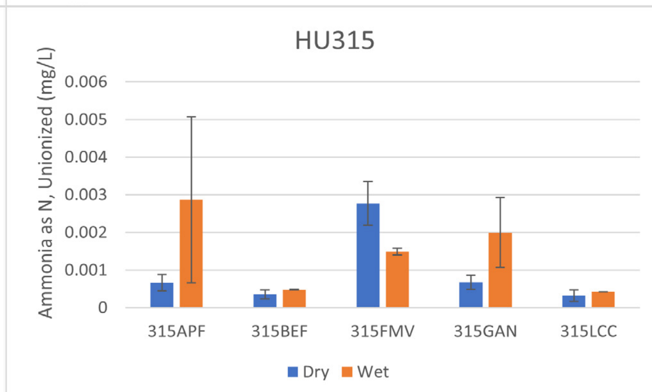
Comparison of Wet vs Dry sampling results from South Coast Hydrologic Unit (315)

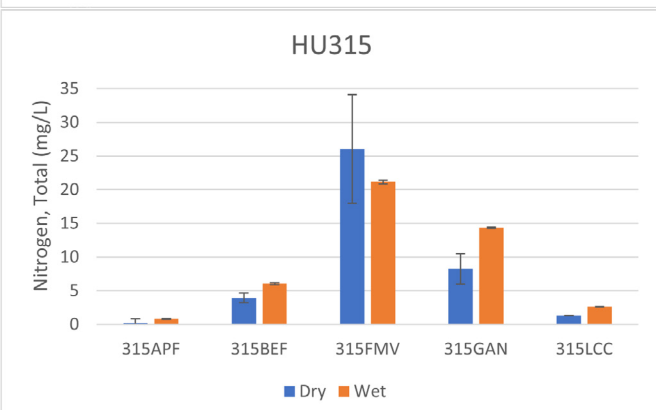
Bars represent the average result of all the 2021 samples at each site (or single result for sample size of one). **Note:** in some instances, no wet and/or dry results are depicted due to dry conditions or because of alternative toxicity test species analyzed and their associated end points. Additionally, no sediment toxicity samples were collected during wet events; therefore, no sediment toxicity bar charts are depicted.

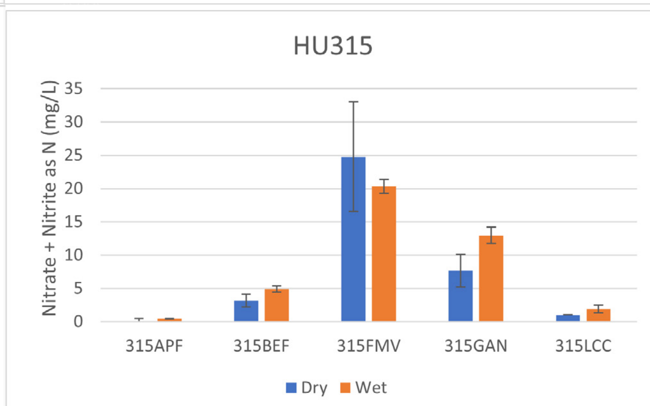


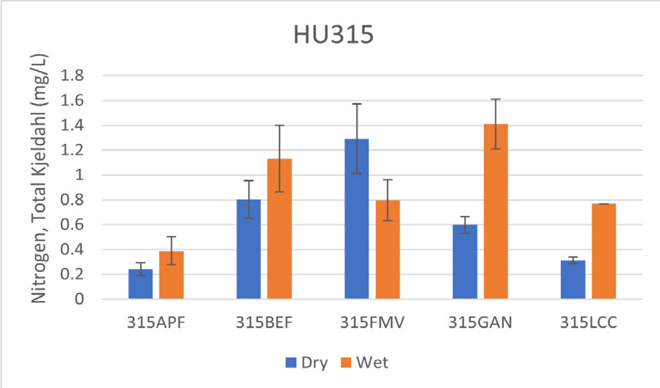


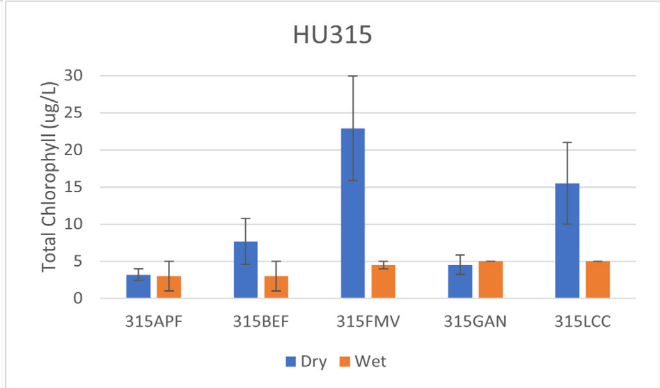


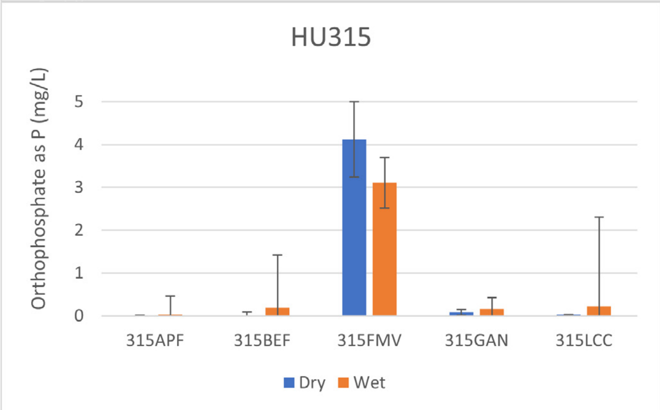


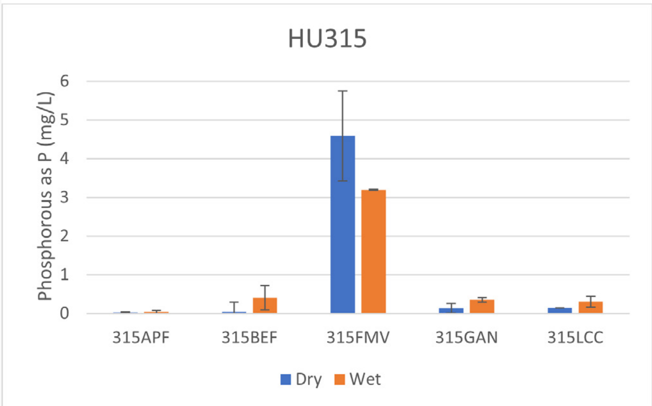


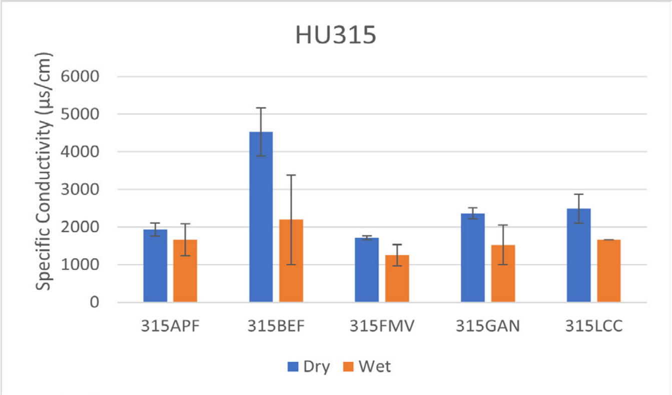


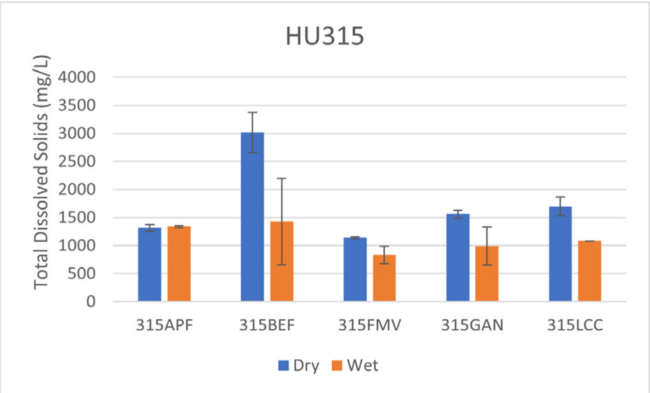

HU315
Nitrogen, Total Kjeldahl (mg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

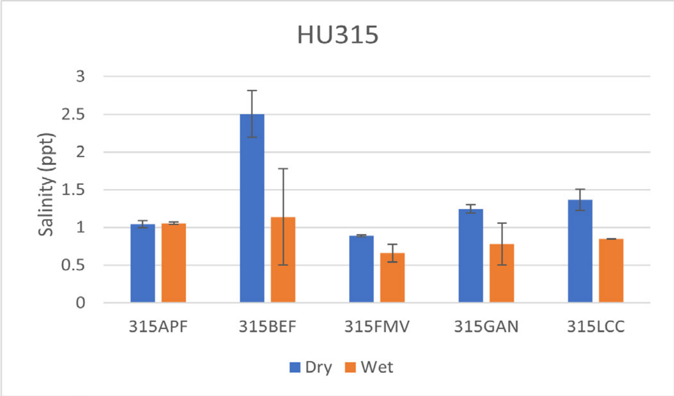

HU315
Total Chlorophyll (ug/L)
30
25
20
15
10
5
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

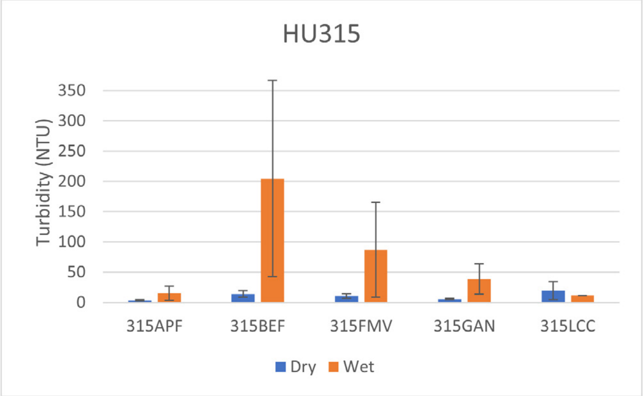

HU315
Orthophosphate as P (mg/L)
5
4
3
2
1
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

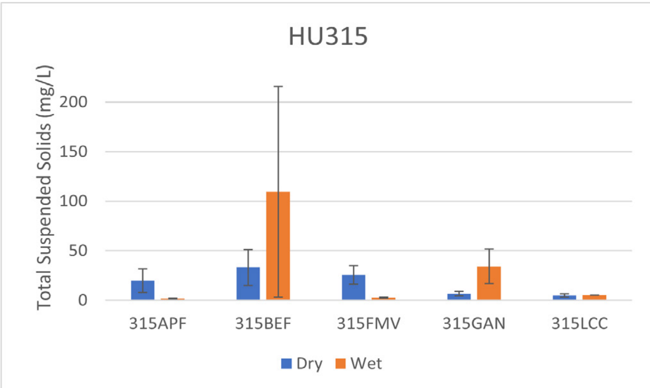

HU315
Phosphorous as P (mg/L)
6
5
4
3
2
1
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

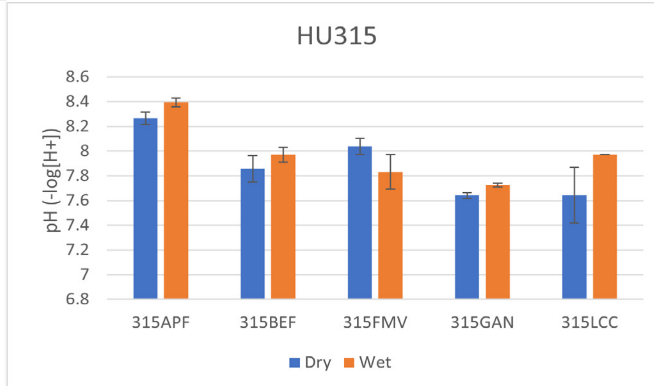

HU315
Specific Conductivity (µs/cm)
6000
5000
4000
3000
2000
1000
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

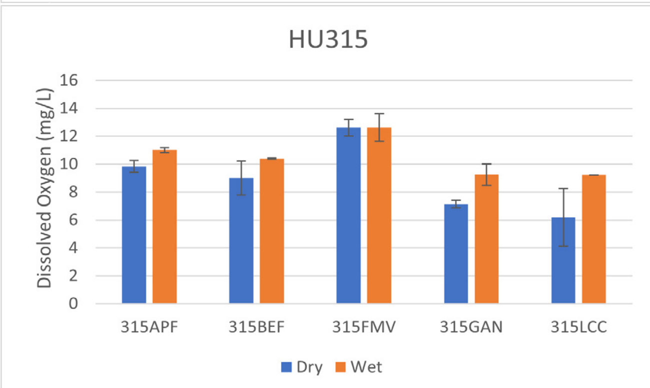

HU315
Total Dissolved Solids (mg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

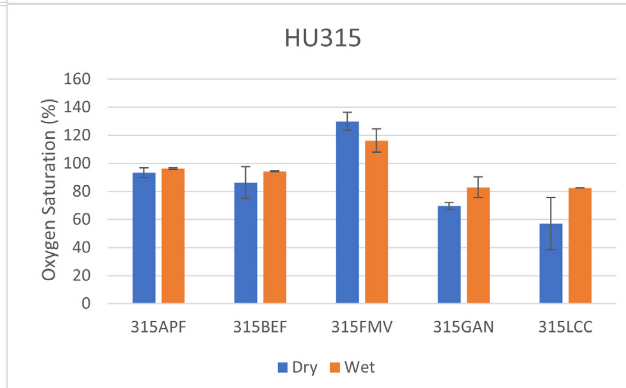

HU315
Salinity (ppt)
3
2.5
2
1.5
1
0.5
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

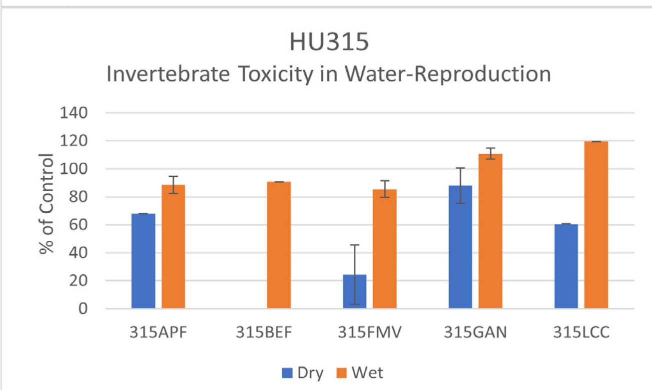

HU315
Turbidity (NTU)
350
300
250
200
150
100
50
0
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

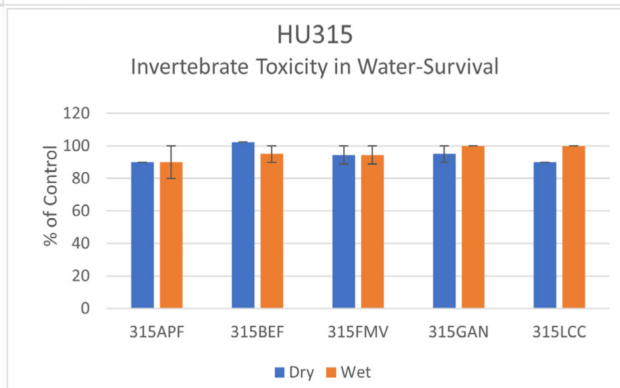

HU315
Total Suspended Solids (mg/L)
0
50
100
150
200
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

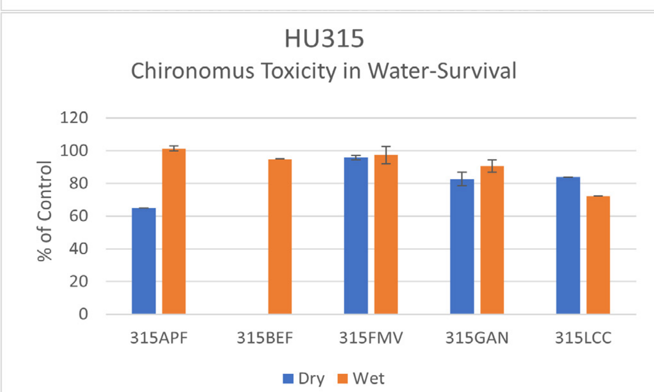

HU315
pH (-log[H+])
6.8
7
7.2
7.4
7.6
7.8
8
8.2
8.4
8.6
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

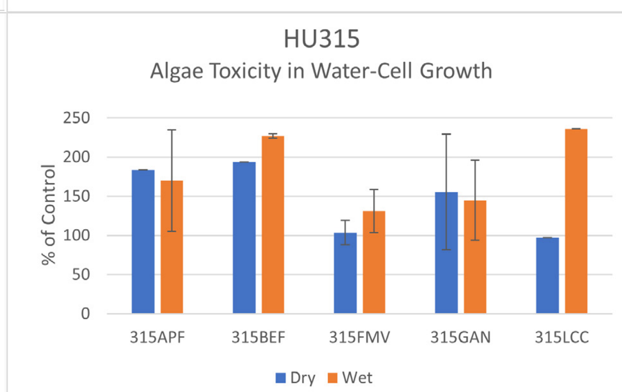

HU315
Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet


HU315
Oxygen Saturation (%)
0
20
40
60
80
100
120
140
160
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet


HU315
Invertebrate Toxicity in Water-Reproduction
% of Control
0
20
40
60
80
100
120
140
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet


HU315
Invertebrate Toxicity in Water-Survival
% of Control
0
20
40
60
80
100
120
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet


HU315
Chironomus Toxicity in Water-Survival
% of Control
0
20
40
60
80
100
120
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet


HU315
Algae Toxicity in Water-Cell Growth
% of Control
0
50
100
150
200
250
315APF
315BEF
315FMV
315GAN
315LCC
Dry
Wet

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APPENDIX E – MANN-KENDALL TREND TEST SUMMARY

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	Ammonia as N, Total		Ammonia as N, Unionized		Chlorophyll a		Specific Conductivity (uS)		Dissolved Solids, Total		Flow		Nitrate/Nitrite as N		Nitrate Loading		Nitrogen, Total		Nitrogen, Total Kjeldahl		Orthophosphate as P		Oxygen, Dissolved		Oxygen, Saturation	
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
305BRS	0.078	0.200	0.297	0.120	0.003	-0.333	0.301	0.120	0.248	0.133	0.261	0.145	0.076	0.200	0.122	0.197	0.100	0.187	0.045	0.227	0.248	0.133	0.045	0.227	0.059	0.213
305CAN	0.060	0.133	0.306	-0.072	0.870	0.012	0.018	0.159	0.033	0.164	0.448	-0.038	0.815	0.018	0.911	0.006	0.608	0.055	0.237	-0.121	0.067	-0.129	0.005	-0.188	0.028	-0.150
305CHI	0.001	0.172	0.006	0.150	0.021	-0.120	0.001	0.178	0.010	0.148	2.29E-04	-0.192	0.137	0.081	0.038	-0.114	0.008	-0.193	4.57E-05	0.292	5.08E-05	0.217	0.070	-0.094	0.109	-0.084
305COR	0.001	0.208	0.037	0.127	0.360	0.054	0.826	-0.013	0.387	-0.058	0.326	0.052	0.347	-0.058	0.056	0.105	0.014	0.208	2.77E-04	0.309	1.56E-06	0.288	0.608	0.030	0.453	0.044
305FRA	0.027	0.132	0.961	0.004	0.008	-0.150	7.49E-13	0.407	1.04E-10	0.419	3.78E-05	-0.216	0.677	0.026	0.026	-0.123	2.85E-07	0.441	1.21E-05	0.378	0.006	0.164	0.041	-0.117	0.027	-0.127
305FUF	0.627	0.066	0.185	0.164	0.001	-0.405	0.105	-0.197	0.079	-0.213	0.094	0.187	0.728	-0.049	0.292	0.123	0.835	-0.033	0.164	0.172	0.145	-0.180	0.043	0.244	0.001	0.402
305LCS	0	0.225	0.030	-0.125	0.070	0.100	0.011	0.140	0.395	0.053	0.016	-0.125	0.243	-0.067	0.202	-0.070	0.080	0.138	0.464	-0.059	0.405	-0.048	0.005	-0.154	0.004	-0.161
305PJP	1.96E-05	0.232	0.001	0.187	0.206	-0.068	0.638	-0.025	0.144	-0.086	0.132	-0.081	2.13E-04	-0.202	0.325	-0.056	0.873	-0.014	0.001	0.244	2.82E-05	0.228	0.025	-0.117	0.290	-0.056
305SJA	4.69E-04	0.188	0.009	0.141	0.945	-0.004	0.685	-0.021	0.019	-0.136	3.14E-05	-0.216	0.003	0.160	0.018	-0.128	0.776	0.022	5.99E-06	0.322	2.01E-04	0.199	0.817	-0.012	0.339	-0.050
305TSR	0.513	-0.037	2.93E-05	-0.230	0.014	0.131	0	0.455	8.59E-11	0.382	1.91E-13	0.381	6.76E-05	0.219	0	0.533	3.42E-08	0.417	0.003	0.226	0.432	-0.044	0.284	-0.057	0.026	-0.119
305WCS	0.320	0.117	0.418	0.097	0.002	-0.345	0.289	0.124	0.263	0.131	0.696	-0.052	0.025	-0.255	0.361	-0.111	0.046	-0.228	0.053	0.221	0.803	-0.034	0.071	-0.207	0.152	-0.166
305WSA	0.260	0.081	0.132	0.108	0.184	0.091	2.59E-04	0.244	0.045	0.162	6.15E-06	0.183	0.005	-0.199	1.28E-10	0.253	0.893	-0.020	0.712	0.047	0.621	-0.036	0.971	-0.004	0.882	0.011
309ALG	0.942	0.004	0.266	-0.059	1.44E-08	0.297	0.846	-0.011	0.957	-0.004	0.261	0.059	0.001	0.175	0.014	0.129	4.44E-09	0.433	0.008	0.194	0.165	-0.073	0.017	0.124	0.009	0.137
309ASB	0.274	0.058	0.013	-0.131	2.46E-11	0.351	0.033	0.112	0.118	0.086	0.033	-0.112	0.012	0.132	0.560	-0.031	0.618	0.039	0.001	0.241	0.020	-0.122	0.003	-0.154	0.005	-0.146
309BLA	0.115	0.081	0.560	-0.031	1.31E-07	0.274	2.48E-06	-0.242	0	-0.474	0.090	-0.089	0.295	0.055	0.565	0.031	0.047	-0.144	0.005	0.200	0.366	-0.047	1.10E-04	0.199	2.47E-05	0.217
309CCD	0.005	0.252	0.005	0.252	0.801	0.025	1	0	0.666	-0.041	0.829	-0.017	0.086	0.155	0.746	0.024	0.006	0.245	0.001	0.294	0.001	-0.300	0.348	-0.085	0.019	-0.208
309CRR	0.090	-0.389	0.240	-0.278	0.004	0.434	0.105	-0.238	0.019	-0.422	0.144	-0.066	0.490	0.111	0.161	-0.063	NP	NP	NP	NP	0.896	-0.056	0.499	-0.105	0.310	-0.152
309ESP	0.233	0.062	0.158	-0.074	6.09E-08	0.283	0.231	-0.062	0.267	-0.060	0.592	0.028	0.005	-0.145	0.368	-0.047	0.196	-0.096	3.11E-07	0.372	5.49E-05	-0.210	0.906	-0.007	0.767	-0.016
309GAB	0.950	-0.017	0.658	0.070	0.207	0.183	1	-0.009	0.715	-0.064	0.598	-0.020	0.283	-0.157	0.575	-0.021	0.786	0.091	0.175	0.333	0.044	-0.287	0.114	0.226	0.130	0.217
309GRN	0.505	-0.047	0.282	-0.075	4.42E-07	0.349	0.248	-0.080	0.459	0.055	0.538	-0.033	0.003	0.208	0.967	-0.003	0.009	0.297	0.063	0.212	0.175	0.094	0.449	0.053	0.044	0.138
309JON	0.186	0.069	0.163	-0.072	2.96E-06	0.241	0.732	0.018	0.240	0.064	3.44E-04	-0.186	0.085	0.090	0.080	-0.091	0.011	0.183	0.288	0.078	0.183	0.069	0.560	-0.031	0.395	-0.044
309MER	0.111	0.083	0.108	-0.083	1.41E-07	0.273	0.416	-0.042	0.928	0.006	0.015	0.127	0.081	0.091	0.003	0.153	0.314	0.074	3.61E-04	0.257	1	0	0.723	-0.019	1	0.001
309MOR	0.099	-0.089	7.31E-07	-0.265	0.013	0.128	0.082	-0.090	0.021	-0.124	0.576	0.037	3.26E-06	0.249	0.158	0.093	0.816	-0.019	0.517	-0.048	0.558	0.032	3.39E-05	0.212	3.57E-05	0.212
309NAD	0.008	0.174	0.004	0.190	6.41E-06	0.298	0.126	-0.100	0.371	-0.063	5.54E-06	-0.223	0.054	-0.127	2.69E-06	-0.230	0.037	-0.228	0.070	0.198	0.789	0.019	0.299	0.068	0.110	0.105
309OLD	0.005	0.200	0.622	-0.037	0.129	0.095	0.650	-0.029	0.245	0.085	0.119	0.107	0.409	0.061	0.094	0.132	0.128	0.111	6.21E-05	0.289	0.121	-0.113	0.147	0.090	0.070	0.112
309QUI	0.941	-0.006	0.402	0.055	6.42E-08	0.354	0.569	0.038	0.343	0.065	1.84E-07	-0.257	0.032	-0.140	8.57E-07	-0.243	0.798	-0.029	0.005	0.272	0.001	-0.224	0.003	0.191	7.83E-05	0.256
309RTA	1	0	0.284	-0.286	0.284	-0.286	0.646	-0.143	0.646	-0.143	0.179	-0.123	0.284	0.286	0.232	-0.110	0.092	0.429	0.535	0.179	0.646	0.143	0.215	0.321	0.878	0.071
309SAC	0.978	0.004	0.697	0.034	2.21E-04	0.302	0.003	-0.244	0.083	-0.153	0.782	-0.018	0.956	-0.007	0.402	-0.052	0.185	0.238	0.850	-0.048	0.050	0.161	1	-0.002	0.764	-0.026
309SAG	0.362	-0.082	0.588	-0.050	3.54E-04	0.318	0.024	-0.200	0.128	-0.149	1	-0.001	0.401	0.076	0.665	-0.030	0.032	0.463	0.633	0.122	0.007	0.241	0.179	0.121	0.051	0.174
309SSP	0.018	0.178	0.897	0.012	1.99E-06	0.355	1.28E-05	-0.324	1.63E-06	-0.384	0.947	0.004	0.266	-0.085	0.403	-0.043	0.018	0.327	0.432	0.115	0.679	0.033	0.190	-0.099	0.091	-0.127
309TEH	0.934	-0.005	0.071	-0.094	4.44E-05	0.210	0.322	0.052	0.075	0.096	0.704	0.020	0.896	0.007	0.574	0.030	0.039	-0.150	4.24E-06	0.328	0.405	-0.043	0.288	0.055	0.046	0.103
310CCC	0.008	-0.155	0.002	-0.181	1.66E-09	0.350	0.011	-0.148	0.585	0.034	0.213	-0.067	0	-0.483	0.003	-0.161	0.041	-0.166	0.686	0.035	1.16E-05	0.256	2.94E-09	-0.344	9.86E-11	-0.374
310LBC	0.026	-0.296	0.360	-0.125	0.002	0.405	0.652	0.063	0.818	-0.039	1.01E-04	-0.155	0.023	-0.303	5.91E-05	-0.160	0.045	-0.538	0.280	-0.308	0.116	0.211	0.652	0.063	0.293	0.139
310PRE	0.090	-0.091	0.666	0.024	1.37E-08	0.310	0.175	0.073	0.002	0.174	0.020	-0.125	3.44E-05	-0.222	2.48E-09	-0.322	0.015	-0.176	0.028	0.157	0.241	0.063	0.004	-0.153	0.011	-0.135
310SLD	0	0	0	0	0	0	0	0	0	0	0.724	0.014	0	0	0.724	0.014	0	0	0	0	0	0	0	0	0	0
310USG	3.42E-04	-0.191	0.018	-0.127	1.18E-14	0.413	7.57E-07	0.263	0.017	0.132	3.38E-07	-0.272	0.716	0.020	2.91E-04	-0.195	9.86E-07	0.353	0.016	0.174	0.001	0.186	0.740	0.018	0.662	-0.024
310WRP	0.007	0.182	0.048	0.134	4.86E-07	0.341	0.086	0.117	0.002	0.229	0.146	-0.077	0.590	0.038	0.253	-0.061	0.176	-0.134	0.003	0.291	0.131	0.103	0.045	-0.136	0.024	-0.152
312BCC	0.495	0.087	0.394	0.107	0.114	0.192	0.782	0.038	0.678	0.067	2.53E-05	-0.172	0.426	-0.100	5.32E-05	-0.165	0.462	0.400	0.221	0.600	0.609	-0.067	0.956	0.013	0.506	0.083
312BCJ	0.615	0.027	0.079	0.094	6.05E-06	0.244	0.001	0.182	0.023	-0.125	0.008	-0.138	0.547	0.032	0.061	-0.099	0.499	0.052	0.001	0.248	1.92E-05	-0.226	1.65E-06	0.253	1.13E-06	0.257
312GVS	0.148	-0.105	0.659	-0.033	2.47E-05	0.306	0.903	0.010	0.048	-0.154	0	-0.602	0.864	-0.014	0	-0.604	0.108	-0.389	0.212	0.306	0.011	0.184	0.001	0.245	0.001	0.248
312MSD	0.750	-0.018	0.543	0.034	6.98E-05	0.216	0.747	0.018	0.423	-0.046	0.002	-0.169	0.947	-0.004	0.006	-0.148	4.71E-05	0.299	3.56E-06	0.338	0.318	0.054	0.015	0.131	0.004	0.156
312OFC	0.667	0.023	0.046	0.104	7.99E-06	0.236	0.768	0.016	9.63E-06	-0.237	0	-0.451	0.001	-0.174	4.44E-16	-0.423	0.001	-0.235	3.56E-05	0.294	0.049	-0.102	0.003	0.151	8.27E-05	0.203
312OFN	0.622	0.026	0.171	0.072	0	0.448	3.23E-04	-0.187	8.88E-16	-0.436	2.71E-08	-0.293	3.73E-13	-0.381	1.65E-11	-0.357	0.557	-0.045	3.44E-10	0.450	7.49E-13	0.375	0.220	-0.064	0.263	-0.059
312ORC	0.487	-0.036	0.332	0.051	1.13E-09	0.314	9.15E-06	0.229	0.586	-0.030	0	-0.589	0.002	-0.159	0	-0.563	0.815	0.019	0.001	0.242	0.585	0.029	0.005	0.146	2.84E-04	0.188
312ORI	0.154	0.074	0.028	0.114	1.23E-10	0.333	2.50E-04	0.189	0.270	-0.060	0	-0.478	0.003	0.156	5.80E-14	-0.394	0.006	0.199	4.05E-09	0.418	0.953	0.004	0.090	0.088	0.006	0.144
312SMA	0.456	0.040	0.406	0.044	5.21E-12	0.364	1.35E-04	0.201	0.100	-0.089	0	-0.585	1.96E-07	-0.274	0	-0.561	0.008	-0.194	1.42E-05	0.312	0.826	-0.012	0.019	0.124	0.001	0.176
312SMI	0.293	0.226	0.179	0.283	0.446	-0.170	0.057	-0.396	0.055	-0.459	2.45E-05	-0.127	0.924	-0.038	5.40E-06	-0.137	0.734	-0.333	0.734	-0.333	0.128	0.321	1	-0.019	1	0
313SAE	0.620	-0.100	0.344	-0.183	0.111	-0.300	0.685	0.083	0.685	0.083	0.002	0.253	0.300	-0.200	0.001	0.267	0.224	-0.233	0.964	-0.017	0.444	-0.150	0.822	0.050	0.558	0.117
314SYF	1.24E-04	-0.263	0.006	-0.188	1.31E-06	0.335	0.001	-0.220	0.002	-0.221	0.006	-0.192	1.35E-06	-0.331	2.82E-09	-0.420	0.228	0.150	0.111	0.196	0.147	0.100	0.145	0.101	0.157	0.098
314SYL	0.029	-0.235	0.323	-0.109	0.006	0.318	0.078	-0.191	0.013	-0.299	0.030	-0.096	0.248	0.126	0.045	-0.088	0.766	-0.120	0.551	-0.200	0.712	-0.043	0.040	0.222	0.268	0.122
314SYN	0.764	0.023	0.058	0.136	2.69E-04	0.260	0.182	0.097	0.097	0.128	0.001	-0.196	4.37E-04	-0.253	1.67E-05	-0.252	0.204	0.135	0.161	0.149	0.065	-0.133	0.069	0.131	0.076	0.128
315APF	0.005	-0.221	0.202	-0.101	1.18E-11	0.520	0.160	0.110	7.44E-06	0.376	0.957	-0.004	0.076	0.139	0.854	0.012	0.136	-0.250	0.091	-0.281	0.320	-0.076	0.076	0.138	0.009	0.202
315BEF	3.25E-05	-0.251	2.86E-05	-0.252	2.02E-09	0.361	2.41E-08	0.336	2.83E-05	0.266	5.41E-13	-0.386	0	-0.596	0	-0.466	6.60E-08	-0.490	0.124	0.141	0.004	-0.171	0.025	-0.135	0.057	-0.115
315FMV	0.724	-0.019	0.168	-0.074	3.87E-06	0.247	0.055	0.103	0.317	-0.056	1.30E-11	-0.361	0.029	-0.117	1.01E-13	-0.402	0.010	0.187	3.85E-05	0.291	0	0.443	0.797	0.014	0.486	0.038
315GAN	0.979	-0.002	0.734	0.019	7.99E-15	0.415	1.34E-10	0.342	0.178	0.075	1.34E-12	-0.387	3.45E-06	-0.249	3.11E-15	-0.437	0.028	-0.159	1.78E-04	0.267	0.606	-0.028	3.59E-05	-0.220	2.71E-05	-0.224
315LCC	0.095	-0.400	0.437	-0.200	0.759	0.100	0.048	-0.467	0.048	-0.467	0.387	0.099	1	-0.033	0.464	0.085	0.879	0.067	1	0	1	0	0.879	0.067	0.879	-0.067

	pH		Phosphorus as P		Salinity		Sediment Toxicity, Growth		Sediment Toxicity, Survival		Suspended Solids		Toxicity, Algae Growth		Toxicity, Invertebrate Reproduction		Toxicity, Invertebrate Survival		Toxicity, Invertebrate Survival-Chiron		TSS Loading		Turbidity (NTU)		Turbidity Loading		Water Temperature	
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	1	0.007	0.429	0.093	0.534	0.076	1	-0.022	0.210	-0.333	0.248	-0.133	0.280	0.308	0.743	-0.077	0.112	-0.387	0.306	-0.255	0.673	0.060	0.670	-0.053	0.779	0.043	0.761	-0.040
305CAN	8.61E-05	-0.264	0.195	0.134	0.150	0.101	0.005	-0.636	0.336	-0.227	0.032	0.219	0.916	0.038	0.178	0.208	0.174	0.179	0.230	-0.500	1.51E-04	0.192	0.280	-0.074	0.848	-0.010	0.482	0.048
305CHI	0.306	0.053	0.003	0.213	1.51E-04	0.198	0.224	-0.233	0.620	0.100	4.68E-04	0.254	1	-0.009	0.702	-0.047	0.442	0.073	0.728	-0.136	0.090	0.127	7.72E-06	-0.231	1.97E-05	-0.224	0.733	0.018
305COR	0.716	-0.022	7.16E-05	0.338	0.879	-0.010	0.675	-0.076	0.327	0.170	0.011	0.219	1	-0.013	0.471	0.097	0.946	0.014	1	0	3.22E-07	0.337	0.537	-0.037	0.314	0.054	0.008	0.152
305FRA	0.062	-0.106	0.725	0.033	3.81E-13	0.419	0.880	0.033	0.944	-0.018	0.598	0.048	0.711	-0.068	0.839	-0.042	0.863	0.025	0.831	-0.083	0.004	0.205	4.93E-11	-0.374	3.40E-06	-0.244	3.03E-04	-0.204
305FUF	0.043	0.244	0.047	-0.246	0.066	-0.220	0.466	0.222	0.602	0.167	0.367	0.115	0.845	-0.111	0.170	-0.444	0.444	0.222	0.810	-0.167	0.094	0.192	0.589	0.071	0.151	0.161	0.735	0.047
305LCS	6.29E-08	-0.297	0.399	0.068	0.241	0.066	0.059	-0.322	0.779	0.053	0.026	0.176	0.823	0.043	0.278	0.131	0.220	0.120	0.689	0.167	0.003	0.211	0.009	0.145	0.919	0.006	0.009	-0.143
305PJP	0.638	-0.025	0.011	0.188	0.277	-0.058	0.206	-0.211	0.871	0.032	0.978	0.004	0.122	0.225	0.616	-0.059	0.163	0.114	1	0	0.381	0.067	0.006	-0.143	0.300	-0.057	0.015	0.127
305SJA	0.702	0.020	0.002	0.220	0.106	-0.085	0.135	0.247	0.270	0.184	0.003	0.218	0.808	0.031	0.616	-0.101	0.461	-0.079	0.308	-0.667	0.022	0.170	0.002	0.163	0.395	0.045	0.303	-0.053
305TSR	4.67E-05	-0.214	0.709	0.030	2.22E-16	0.442	0.035	-0.347	0.770	-0.053	0.039	-0.158	0.044	0.230	0.546	-0.101	0.087	0.188	0.806	-0.200	0	0.488	1.18E-10	-0.340	1.02E-12	0.369	1.45E-11	-0.356
305WCS	0.575	-0.069	0.755	0.041	0.132	0.172	0.754	-0.111	0.602	-0.167	0.171	0.159	0.643	-0.154	0.440	0.231	0.663	0.115	0.685	-0.188	0.434	0.096	0.003	0.338	0.151	0.170	0.950	0.014
305WSA	0.101	0.110	0.402	-0.103	0.001	0.226	0.298	-0.220	0.476	0.154	0.024	-0.263	0.739	-0.055	0.823	-0.044	0.350	0.119	0.528	-0.164	7.60E-11	0.254	0.067	-0.124	1.66E-05	0.175	0.098	0.111
309ALG	0.159	-0.074	0.037	0.155	0.808	-0.013	0.760	0.043	0.594	0.071	0.111	0.119	0.967	-0.009	0.094	0.174	0.019	0.230	1	-0.045	2.80E-13	0.485	0.040	-0.108	0.875	0.009	0.932	-0.005
309ASB	5.95E-12	-0.359	0.506	-0.051	0.021	0.120	0.270	-0.184	0.001	-0.526	0.760	0.025	0.155	0.159	0.877	-0.074	0.654	-0.049	0.368	0.333	0.002	0.232	2.81E-07	-0.269	1.05E-05	-0.231	0.217	-0.065
309BLA	0.002	-0.160	0.004	-0.211	4.29E-07	-0.259	0.139	-0.238	0.545	0.100	4.28E-06	-0.331	0.053	0.208	0.632	-0.062	0.447	-0.076	0.377	0.273	0.132	-0.111	6.88E-15	-0.404	1.41E-11	-0.355	0.004	0.146
309CCD	0.183	0.119	0.971	-0.006	0.857	-0.019	0.479	0.182	0.386	0.218	0.360	0.084	0.585	0.115	0.372	0.173	0.098	0.288	0.734	0.333	0.871	-0.013	0.221	-0.110	0.066	-0.130	0.040	-0.182
309CRR	0.007	-0.390	NP	NP	0.119	-0.229	0.452	0.333	0.707	0.200	NP	NP	0.732	0.091	0.815	-0.055	1	-0.018	NP	NP	0	0	0.019	-0.333	0.107	-0.072	0.224	-0.181
309ESP	2.06E-04	-0.192	0.061	0.138	0.192	-0.068	0.019	0.367	0.029	0.343	0.014	0.180	0.132	0.166	0.459	0.086	0.199	0.128	0.230	-0.364	3.81E-10	0.405	0.058	-0.099	0.596	0.028	0.669	-0.023
309GAB	0.313	-0.148	0.786	0.091	0.658	0.070	1	0.167	1	0.167	0.278	0.273	0.089	1	1	0	0.400	0.231	0.915	-0.056	0.001	0.111	0.032	-0.304	0.386	-0.033	1	-0.009
309GRN	1.78E-05	-0.291	0.382	0.103	0.289	-0.072	0.189	-0.275	0.381	-0.187	0.001	0.388	0.401	0.161	0.490	0.111	0.258	0.131	0.685	0.188	0.012	0.159	0.001	-0.233	0.011	-0.133	0.106	0.111
309JON	2.07E-06	-0.244	0.661	-0.033	0.768	-0.016	0.195	0.222	0.861	-0.035	0.007	0.194	0.264	0.122	0.014	0.259	0.001	0.298	1	0.045	0.754	0.024	0.013	-0.129	7.30E-05	-0.206	0.555	0.031
309MER	8.06E-05	-0.203	0.098	0.120	0.288	-0.055	0.192	0.210	0.467	0.119	0.115	0.115	0.192	0.141	0.716	-0.043	0.893	0.017	1	0	0	0.565	0.001	-0.179	0.113	0.083	0.376	0.046
309MOR	1.20E-06	-0.249	0.408	0.061	0.079	-0.090	0.452	0.333	0.055	0.316	0.034	-0.154	0.318	0.115	0	0	0.541	-0.072	NP	NP	6.12E-11	0.538	3.49E-05	-0.217	0.833	0.015	0.659	0.023
309NAD	0.874	0.011	0.379	0.099	0.192	-0.086	0.625	-0.099	0.807	-0.055	0.023	0.248	0.689	0.063	0.627	-0.072	0.702	-0.054	0.624	-0.121	0.210	0.071	0.026	-0.147	2.92E-06	-0.230	0.049	0.129
309OLD	0.081	-0.108	0.032	0.156	0.428	-0.050	0.686	0.067	0.852	0.033	0.008	0.193	1	0	0.454	0.222	0.738	-0.039	1	0.067	0.001	0.256	0.001	-0.208	0.488	-0.049	0.642	0.030
309QUI	0.038	0.135	0.041	0.205	0.530	0.041	0.303	0.187	0.303	0.187	3.40E-04	0.356	0.578	0.083	0.316	0.117	0.107	0.175	0.785	-0.073	0.009	0.147	0.001	-0.224	1.04E-06	-0.242	0.001	0.213
309RTA	0.168	-0.357	0.646	-0.143	0.646	-0.143	0.558	-0.200	0.558	-0.200	0.646	0.143	0.089	1	0.371	0.500	0.371	0.500	0.085	-0.372	0.135	-0.135	0.757	0.107	0.179	-0.123	0.092	-0.429
309SAC	3.97E-08	-0.444	0.449	0.143	0.004	-0.235	0.276	-0.273	0.276	-0.273	0.130	0.270	0.897	-0.053	0.225	0.226	0.323	0.177	0.764	-0.143	0.002	0.235	1	0.002	0.836	-0.014	0.398	0.070
309SAG	2.76E-08	-0.488	0.812	0.073	0.016	-0.212	0.474	-0.200	0.088	-0.444	0.056	0.415	0.697	-0.105	0.512	-0.138	0.263	-0.207	0.902	-0.071	0.001	0.301	0.198	-0.119	0.469	-0.050	0.712	0.035
309SSP	2.49E-05	-0.313	0.027	0.308	2.84E-07	-0.378	0.017	-0.450	0.191	-0.250	1.32E-05	0.596	1	0.021	0.318	0.177	0.271	0.165	0.224	0.438	3.71E-10	0.353	0.003	0.224	0.881	0.008	0.207	-0.095
309TEH	2.01E-04	-0.192	0.098	0.120	0.315	0.052	0.103	0.262	0.227	0.195	8.16E-07	0.356	0.198	0.140	0.146	0.157	0.001	0.314	0.728	-0.136	6.44E-15	0.505	0.001	-0.166	0.924	-0.006	2.80E-04	0.187
310CCC	2.66E-06	-0.272	0.535	-0.052	2.68E-06	-0.271	0.441	-0.135	0.647	-0.082	0.055	0.156	0.942	0.023	0.888	-0.022	0.389	0.091	1	0	1.38E-05	0.300	4.39E-06	0.275	0.005	0.152	0.088	-0.099
310LBC	0.801	0.038	0.877	0.077	0.687	0.057	0.711	-0.143	0.711	0.143	0.440	0.231	1	0.067	0.324	0.333	0.247	0.286	0.386	-0.286	0.016	0.068	0.485	0.102	0.002	-0.120	0.120	0.203
310PRE	1.61E-04	0.200	2.11E-05	0.305	0.311	-0.054	0.163	-0.232	0.134	-0.247	0.032	0.155	0.912	-0.023	0.564	0.065	0.457	0.069	0.325	0.250	5.46E-05	0.292	0.591	0.029	0.519	-0.035	0.657	0.024
310SLD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.724	0.014	0	0	0.724	0.014	0	0
310USG	0.539	0.033	1.04E-06	0.350	0.001	0.171	0.381	-0.147	0.974	0.011	3.54E-06	0.335	0.442	-0.116	0.848	-0.024	0.831	0.024	0.206	-0.313	0.006	0.199	1.92E-07	0.283	0.125	0.084	0.225	-0.065
310WRP	0.278	0.074	0.028	0.215	0.758	0.022	0.244	-0.273	1	-0.015	0.028	0.215	0.704	-0.067	0.423	0.125	0.128	0.198	0.810	0.167	3.82E-05	0.257	1.25E-04	0.266	0.463	0.040	0.967	0.004
312BCC	1	0	0.462	0.400	0.470	0.090	0.649	-0.190	0.879	-0.095	0.086	0.800	0.785	0.097	0.061	0.452	0.053	0.419	1	0	0.008	0.085	0.769	-0.042	3.79E-05	-0.168	0.542	0.077
312BCJ	0.083	0.092	1	0.002	0.113	0.084	0.009	0.379	0.025	0.326	0.010	0.190	1	-0.004	0.137	0.151	0.003	0.283	0.871	-0.071	0.023	0.165	0.027	-0.118	0.041	-0.109	1.60E-07	0.277
312GVS	2.38E-04	0.264	0.108	0.389	0.524	-0.047	0.161	0.345	0.876	0.055	0.035	0.500	0.226	0.182	0.341	0.164	0.126	0.212	1	0.167	1.02E-05	-0.248	0.880	0.013	0	-0.553	0.524	0.047
312MSD	0.009	0.141	0.008	0.195	0.959	0.003	0.051	0.287	0.088	0.251	0.004	0.212	0.294	-0.117	0.816	0.030	0.612	0.054	0.860	0.091	0.097	0.122	0.319	0.054	0.030	-0.117	0.039	0.111
312OFC	8.17E-07	0.254	0.002	0.218	0.351	-0.048	0.501	0.110	0.760	0.052	1.45E-06	0.348	0.219	0.131	0.516	0.069	0.937	-0.012	0.535	-0.179	0.015	0.178	0.003	-0.152	1.48E-08	-0.294	5.54E-08	0.280
312OFN	0.047	0.104	0	0.665	5.06E-08	-0.283	0.142	0.232	0.082	0.274	3.31E-07	0.374	0.703	0.044	0.541	-0.068	0.685	-0.044	0.256	-0.286	0.028	0.167	0.100	-0.086	3.05E-04	-0.192	0.107	0.084
312ORC	1.89E-06	0.246	0.003	-0.218	0.001	0.176	0.004	0.462	1.76E-04	0.595	0.002	-0.226	0.881	0.019	0.801	0.039	0.076	0.169	0.089	-1	7.16E-05	-0.292	3.97E-05	-0.213	3.55E-15	-0.414	1.47E-04	0.196
312ORI	0.023	0.118	3.62E-04	0.258	0.003	0.154	0.037	0.329	0.112	0.252	1.60E-05	0.313	1	-0.004	0.771	-0.070	0.969	0.008	0.470	-0.500	0.154	0.107	0.322	0.052	1.27E-05	-0.231	1.61E-07	0.271
312SMA	0.011	0.134	0.031	-0.158	0.007	0.142	0.069	0.300	0.038	0.342	0.001	-0.231	0.848	-0.024	0.229	0.153	0.025	0.223	0.149	-0.833	3.32E-05	-0.313	3.26E-05	-0.220	0	-0.474	0.001	0.175
312SMI	0.293	0.226	1	0	0.057	-0.396	0	0	0	0	1	0	0.144	0.400	0.097	0.480	0.461	0.200	0.089	-1	0.004	0.046	0.337	0.208	2.90E-04	-0.106	0.849	0.057
313SAE	0.685	0.083	0.260	-0.217	0.718	0.075	0	0	0	0	0.620	-0.100	0.764	-0.143	0.548	0.238	0.846	-0.095	1	0.048	0.002	0.253	0.392	-0.167	0.002	0.253	0.718	0.075
314SYF	4.59E-06	0.314	0.170	-0.170	7.97E-06	-0.304	0.511	0.143	1	0	0.001	0.386	0.575	-0.081	0.957	0.015	0.502	0.088	1	0.083	0.027	0.297	0.064	0.133	0.471	0.055	0.002	-0.216
314SYL	0.459	0.083	0.551	-0.200	0.008	-0.283	0.266	-0.357	0.108	-0.500	0.551	0.200	0.031	0.447	0.498	0.163	0.409	0.140	1	0.036	0.004	0.113	1	0	0.030	-0.096	0.176	-0.148
314SYN	0.021	0.165	0.430	-0.086	0.248	0.083	0.858	0.067	0.589	0.156	0.001	0.360	0.288	0.172	0.655	0.090	1	1.15E-02	1	-0.083	1.88E-04	0.254	0.004	0.218	0.018	-0.142	0.765	0.023
315APF	1.58E-04	0.290	0.059	-0.313	0.672	0.034	0.100	-0.359	0.625	0.115	0.619	-0.094	0.594	0.101	0.606	0.093	1	0	0.621	-0.250	9.09E-08	0.409	0.030	0.176	0.236	0.074	0.026	0.172
315BEF	0.163	-0.084	0.011	-0.231	5.59E-08	0.327	0.004	-0.582	0.089	-0.352	0.038	0.190	0.021	0.281	0.751	0.087	0.917	-0.018	0.272	0.381	0.617	0.038	0.011	0.160	1.47E-04	-0.211	0.136	0.090
315FMV	0.001	-0.172	1.28E-10	0.463	0.234	-0.064	0.325	-0.176	0.271	0.196	0.001	0.231	0.442	0.116	0.400	-0.094	0.825	-0.026	0.206	0.313	0.669	-0.033	0.530	0.035	0.002	-0.168	0.279	0.058
315GAN	0.617	0.027	0.366	0.067	5.14E-08	0.290	0.008	-0.524	0.621	-0.105	0.188	0.096	0.217	0.135	0.245	0.128	0.445	0.073	1	0	0.136	0.115	0.029	0.120	0.007	-0.153	0.522	0.035
315LCC	0.759	0.100	0.649	-0.133	0.048	-0.467	0.368	-0.333	0.368	0.333	1	0	0.322	0.200	0.373	0.212	0.798	-0.057	0.945	-0.030	0.162	0.155	1	-0.033	0.054	0.211	0.095	-0.400

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 (p-value >0.05) trend, 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 give 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 2021 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 2021 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 2021 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 2021 is provided on the attached USB flash drive.

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