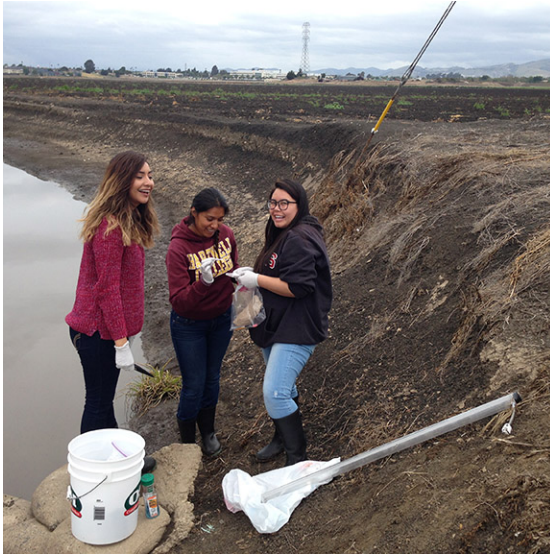


# Snapshot Day

May 6<sup>th</sup>, 2016

Final Report



**Central Coast Snapshot Day 2016  
organized by:**

**The Monterey Bay Sanctuary Citizen Watershed  
Monitoring Network:**

Supporting citizen monitoring programs throughout the  
Monterey Bay National Marine Sanctuary.

(831) 647-4227

[www.montereybay.noaa.gov](http://www.montereybay.noaa.gov)

**The Coastal Watershed Council**

A public education non-profit advocating the preservation  
and protection of coastal watersheds through the  
establishment of community-based stewardship programs.

(831) 464-9200

[www.coastal-watershed.org](http://www.coastal-watershed.org)

**The Monterey Bay National Marine Sanctuary  
(MBNMS) Water Quality Protection Program**

Promoting clean water in the watersheds along nearly 300  
miles of the Sanctuary's coastline.

(831) 647-4201

[www.montereybay.noaa.gov](http://www.montereybay.noaa.gov)

With assistance from:

**San Mateo County Resource Conservation District**

Helping people help the land since 1939.

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[www.sanmateorcd.org](http://www.sanmateorcd.org)

**Watsonville Wetlands Watch**

Advocating for wetlands, teaching school students, restoring  
habitats and preserving what remains.

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[www.watsonvillewetlandwatch.org](http://www.watsonvillewetlandwatch.org)

Morro Bay NEP Volunteer Program

## **Executive Summary**

Since Earth Day 2000, volunteers have assembled on a springtime Saturday morning each year to collect water quality samples from the water bodies entering Monterey Bay National Marine Sanctuary (MBNMS). Snapshot Day (SSD) has become an annual event that has created partnerships, drawn over 2000 volunteers to date, and has helped foster an ethic of watershed stewardship for local citizens. The seventeen years of data collected by volunteers has become a valuable source of water quality data for the region. Monterey Bay National Marine Sanctuary's Citizen Watershed Monitoring Network and the Coastal Watershed Council organize Snapshot Day.

This year, volunteers gathered on the morning of May 7<sup>th</sup> at one of four hubs located in the four counties bordering the Sanctuary (San Mateo, Santa Cruz, Monterey, and San Luis Obispo). At the hubs, volunteers picked up sample equipment and containers, received last minute instructions, and met fellow team members.

In 2016, 143 citizen scientists donated between four and six hours of their time to monitor 111 sites. This year, 31% of the sites with flowing water met all of the water quality objectives (WQO) that were measured, indicating vibrant healthy water bodies.

Results reveal that dissolved oxygen is the most common **field** measurement to not meet the Water Quality Objectives (WQO) and *E. coli* was the most common **lab** measurement to not meet the WQOs. Dissolved oxygen did not meet the WQO at 29% of the sites in 2016, as compared to 28% of sites in 2015, 36% in 2014 and 28% of sites in 2013. *E. coli* exceeded the WQO at 44% of the sites in 2016, up from 33% of sites in 2015, 31% of sites in 2014, and 29% in 2013. Nitrate the other most common analyte to exceed the WQO at 21% of the sites in 2016, up from 13% of sites in 2015, 16% in 2014 and 11% in 2013. This year, orthophosphate had an exceedance rate of 19% in 2016, which is similar to 20% in 2015, and up from 9% in 2014 and 11% in 2013.

Twenty-one Areas of Concern (sites that exceeded three or more WQOs) were identified this year, compared to 13 in 2015, 14 in 2014 and 16 in 2013. The twenty-one Areas of Concern for 2016 spanned fourteen water bodies in just two counties, Santa Cruz and Monterey. The Santa Cruz County Areas of Concern were on 5 water bodies: Woodrow Street, Arana Gulch, San Lorenzo River, Struve Slough, Pajaro River. Monterey County's Areas of Concern were on 9 water bodies: Pajaro River, Elkhorn Slough, Moro Cojo Slough, Alisal Slough, Santa Rita Creek, Natividad Creek, Tembladero Slough, Lower Salinas River, Hartnell Gulch, and the Salinas Reclamation Ditch,

Seventeen years of data gathered by trained SSD volunteers is used to help resource managers focus attention on areas that need it the most. Programs such as SSD are an important link for residents to their local waterways and actions to help improve water quality. SSD data is used to inform public policy through incorporation into the 303(d) listing of impaired water bodies by the Central Coast Regional Water Quality Control Board.

We would like to thank our volunteers and all of our partners for making this event a success.

**Figure 1. Map of Snapshot Day 2016 monitoring sites**



## Methods

Each year, trainings are conducted in all four counties bordering the sanctuary and cover Snapshot Day (SSD) program and history, how to take field measurements and how to collect lab samples. Many volunteers have never taken field measurements or collected water samples before, so the training is important in developing the skills necessary to proficiently participate.

During the SSD event, volunteers take field measurements for air and water temperature, dissolved oxygen, conductivity, pH, and transparency or turbidity. Grab samples are also collected for lab analysis of bacteria (*E. coli*) and nutrients (nitrate as N, phosphate as P). Each monitoring team is equipped with a bucket “kit” that includes a digital thermometer, a CHEMets dissolved oxygen kit, an Oakton conductivity meter, Machery-Nagel non-bleeding pH strips, and a transparency tube or turbidity kit. The kits also include distilled water, gloves, paper towels, trash bags, pencils, sample bottles, clipboard with data sheets, instructions, and directions with maps to each site. Each team monitors two or more sites.

All monitoring results (lab and field) are compared with receiving water standards established for beneficial uses in a stream, lake, or the ocean. Water Quality Objectives (WQOs) and Action Levels are designated by the Central Coast Ambient Monitoring Program (CCAMP), the Water Quality Control Plan for the Central Coast Basin (Basin Plan), or the US Environmental Protection Agency (U.S.EPA) (Table 1). Because there are no numerical water quality objectives in the RWQCB Basin Plan for *E. coli*, enterococcus, nitrate, orthophosphate, turbidity and total suspended solids (TSS), those results are compared with the U.S. EPA WQO and CCAMP’s Action Levels. The U.S. EPA objectives are for the protection of human health while CCAMP’s Action Levels are benchmarks that are set for receiving water concentrations at which pollutants may impact cold-water fish. Action Levels typically represent existing regulatory standards; levels derived from the literature or other agency references; or from data that shows levels are elevated relative to the data distribution for that parameter on the Central Coast. For this event a state approved Quality Assurance Project Plan and Monitoring Plan (QAPP) is followed.



**Measuring the transparency at Santa Rita Creek.**



**Good teamwork makes for good data at Tembladero Slough.**



**Snapshot Day sites are an adventure to discover.**

**Table 1: Water Quality Objectives**

<b>Parameter (reporting units)</b>	<b>Water Quality Objectives</b>	<b>Source of Objective</b>
Dissolved Oxygen (mg/L)	Not lower than 7 or greater than 12	Water Quality Control Plan for the Central Coast Basin
<i>E. coli</i> (MPN/100ml)	Not to exceed 235 <sup>1</sup>	EPA Ambient Water Quality Criteria
Nitrate as N (ppm)	Not to exceed 2.25 <sup>2</sup>	Central Coast Ambient Monitoring Program (CCAMP)
Orthophosphate as P (ppm)	Not to exceed 0.12 <sup>3</sup>	Central Coast Ambient Monitoring Program (CCAMP)
pH	Not lower than 7 or greater than 8.5	Water Quality Control Plan for the Central Coast Basin
Transparency (cm)	Not less than 25	Central Coast Ambient Monitoring Program (CCAMP)
Turbidity (NTU)	Not to exceed 25	Central Coast Ambient Monitoring Program (CCAMP)
Water Temperature (°C)	Not more than 21 <sup>4</sup>	Central Coast Ambient Monitoring Program (CCAMP)

<sup>1</sup> Environmental Protection Agency, Updated WQO.

<sup>2</sup> Central Coast Ambient Monitoring Program, Pajaro River Watershed Characterization Report 1998, rev 2003.

<sup>3</sup> Williamson, The Establishment of Nutrient Objectives, Sources, Impacts and Best Management Practices for the Pajaro River and Llagas Creek, 1994.

<sup>4</sup> Moyle, P. 1976. Inland Fisheries of California. University of California Press.

## **Results**

On May 7<sup>th</sup> 2016, 143 volunteers gathered at four hubs across the central California coastline. From those four hubs the volunteers spread out to monitor 111 sites along creeks and rivers that flow into MBNMS (Figure 1). This year, 31% of sites met the water quality objectives for all lab and field parameters.

### **Water Temperature**

Just as temperature on land impacts terrestrial plants and animals, the temperature of the water can affect the life and health of aquatic organisms. Many fish species and other aquatic life need specific temperatures within which to survive and reproduce. Water temperature can also affect the amount of dissolved oxygen: increasing temperature causes a decrease in dissolved oxygen. Slowing water flow or removing streamside vegetation which provides shade can also cause water temperatures to rise to undesirable levels that may harm aquatic life. SSD data is collected during the morning hours, so temperatures do not necessarily reflect the daily maximum temperatures for the water body.

The Basin Plan Objective sets the upper limit of acceptable water temperature at 21 degrees Celsius (°C). Temperatures above 21°C can harm cold water fish such as salmon and steelhead, as well as other aquatic organisms. In 2016, no sites exceeded the WQO for water temperature. The highest result was 20.7 °C in Santa Ysabella Creek along Turri Road near Chumash Trail (San Luis Obispo County).

### **Dissolved Oxygen**

Aquatic organisms rely on sufficient amounts of dissolved oxygen to perform regular behaviors like feeding, spawning, and incubating. Excessive nutrients in water can cause an increase in plant growth, which uses up oxygen in the water once plants die, decomposition further depletes the oxygen available to aquatic organisms.

The Basin Plan Objective for dissolved oxygen is not less than 7 milligrams per liter (mg/l), for Cold Water Fish. This year, twenty-nine (29%) of the sites did not meet the WQO for dissolved oxygen. All of the sites that did not meet the WQO were below 7 mg/L, indicating an oxygen-deprived environment. The lowest dissolved oxygen result was in Leona Creek between Salerno and Pompeii Streets (Santa Cruz County) with a result of 3.0 mg/L.

### **pH**

pH is a measure of the percent of hydrogen ions in water. A value of 7 is neutral, above 9 is alkaline (or basic) and below 5 is acidic. Many aquatic organisms require a very specific range of pH to carry out necessary chemical and biological reactions, extremely low or high pH levels impede essential functions for survival or damage tissues.

The Basin Plan Objective for pH is between 7 and 8.5. In 2016, nine (9%) of the sites did not meet the WQO. The lowest pH result of 6.0 was found in a number of sites in San Mateo and Monterey Counties; no sites were above 8.5.

## **Transparency/Turbidity**

Transparency and turbidity are a measure of the amount of suspended solids in a liquid. Normal transparency/turbidity measurements vary for different water bodies, but in general, low transparency or high turbidity levels can indicate problems such as erosion, nutrient loading, or extraordinary algae growth. While transparency and turbidity are describing similar characteristics, the way in which they are measured is different. Transparency measures the ability to see a secchi disk through a column of water. CCAMP's Action Level for transparency is not less than 25 centimeters. Transparency was measured at 92 sites with 19 (21%) not meeting the Action Level for transparency. The lowest transparency measurement of 2.9 cm was taken in Santa Rita Creek at Russell Road (Monterey County).

Turbidity is determined using a turbidity meter that measures the amount of light that can penetrate a sample tube of water. CCAMP's Action Level for turbidity is not greater than 25 Nephelometric Turbidity Units (NTU's). Turbidity was measured at 6 sites; none exceeded the water quality objective.

One site did not have transparency or turbidity measurements taken, this sites was on Whitehouse Creek in San Mateo County.

## **Nutrients**

Nitrate (as N) and orthophosphate (as P) are measured for SSD. While these nutrients are naturally occurring in streams and rivers, other sources can come from fertilizers, pesticides, detergents, animal waste, sewage, or industrial wastes. Heightened levels of nutrients can lead to excessive algal or aquatic plant growth, which ultimately deplete the amount of oxygen available in the waterway.

### **Nitrate**

Twenty-one of the sites (21%) exceeded the CCAMP Action Level of 2.25 mg-N/l for nitrate as N (Figure 2). The highest result for nitrate as N was 40.0 mg-N/L in Tembladero Slough at Molera Road (Monterey County). A total of 16 sites (16%) had non-detectable levels of nitrate.

### **Orthophosphate**

Nineteen sites (19%) exceeded the CCAMP Action Level of 0.12 mg/l for orthophosphate-P. The highest concentration of orthophosphate was from Natividad Creek at Las Casitas Road (Monterey County) with a concentration of 1.0 mg-P/L. A total of 75 sites (75%) had non-detectable levels of orthophosphate (Figure 3).



## Bacteria

### *E. coli*

Coliform bacteria generally originate from the feces of warm-blooded animals such as humans or wildlife. While coliform bacteria are usually not the cause of sickness, their presence can indicate that other illness causing pathogens are present. The EPA has set a WQO for *E. coli* at 235 MPN/100ml. Forty-four (44%) sites exceeded the *E. coli* WQO on Snapshot Day 2016 (Figure 4). The highest result for *E. coli* was from Santa Rita Creek at Van Buren (Monterey County) with a result of 241,957 MPN/100 ml (Figure 8). Thirty-seven sites (37%) had results less than 100 MPN/ 100 ml.



**Snapshot Day volunteers are one of a kind!**

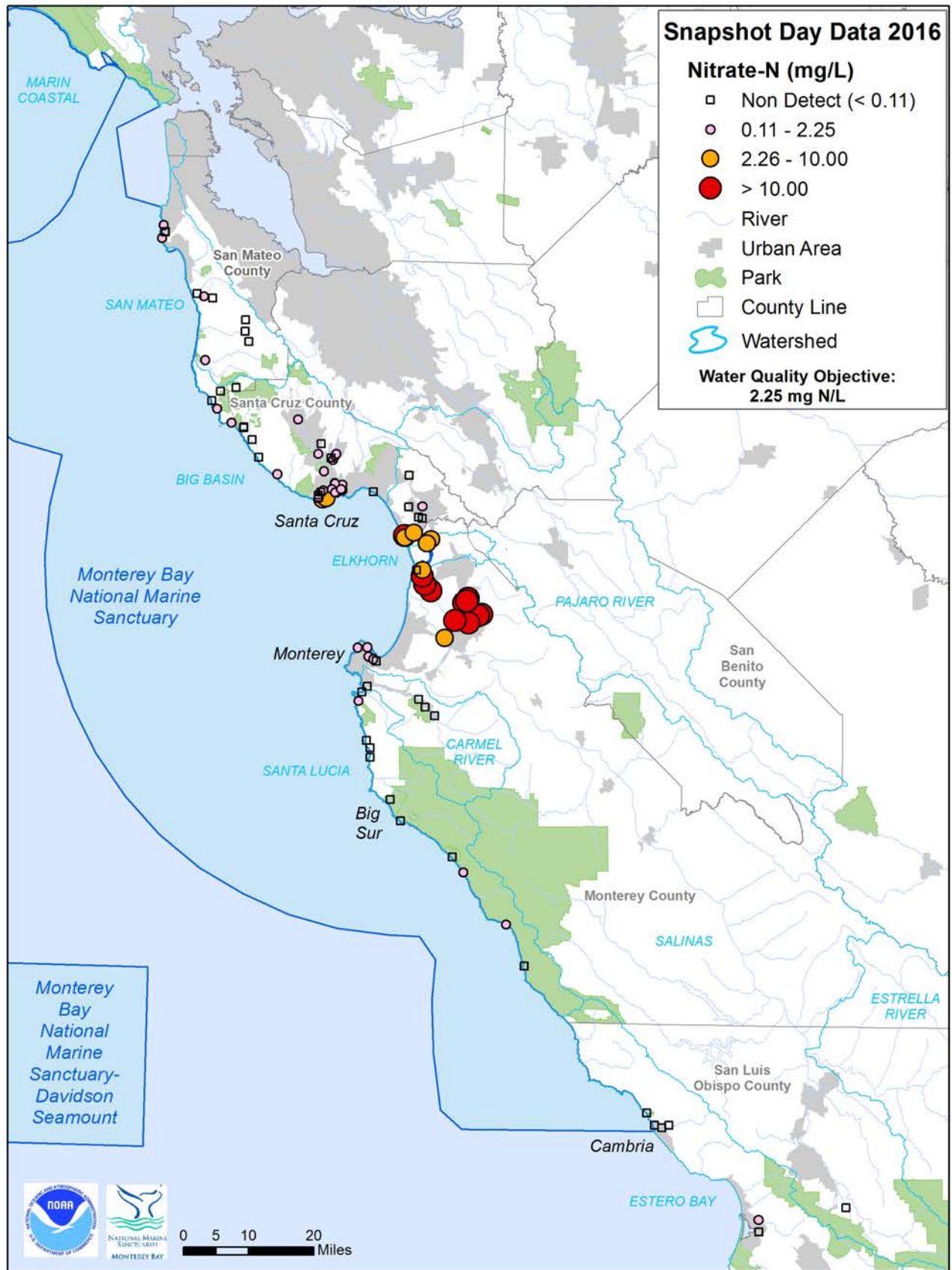


Figure 2. Nitrate as N Results for Snapshot Day 2016.



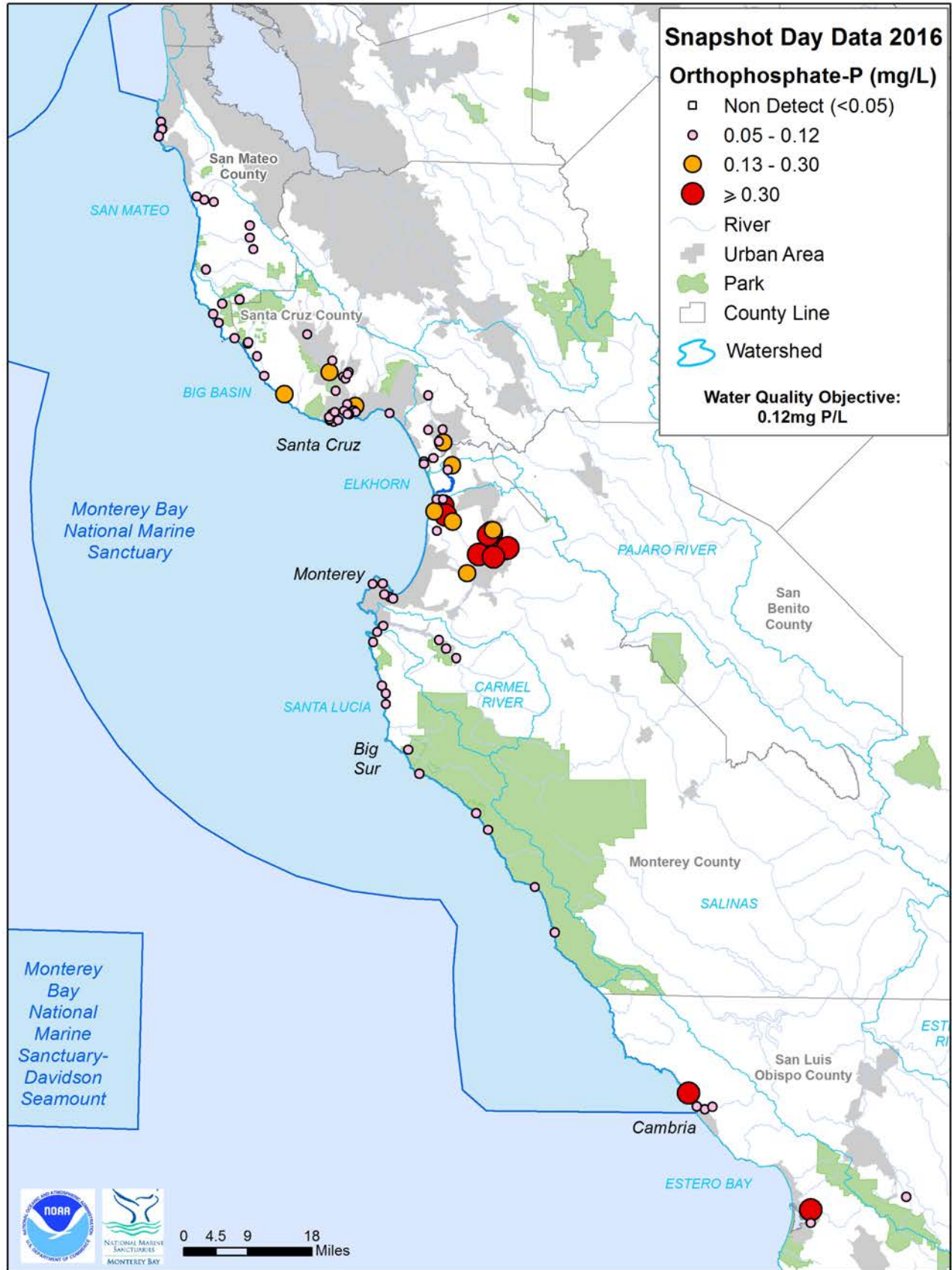


Figure 3. Orthophosphate-P Results for Snapshot Day 2016.

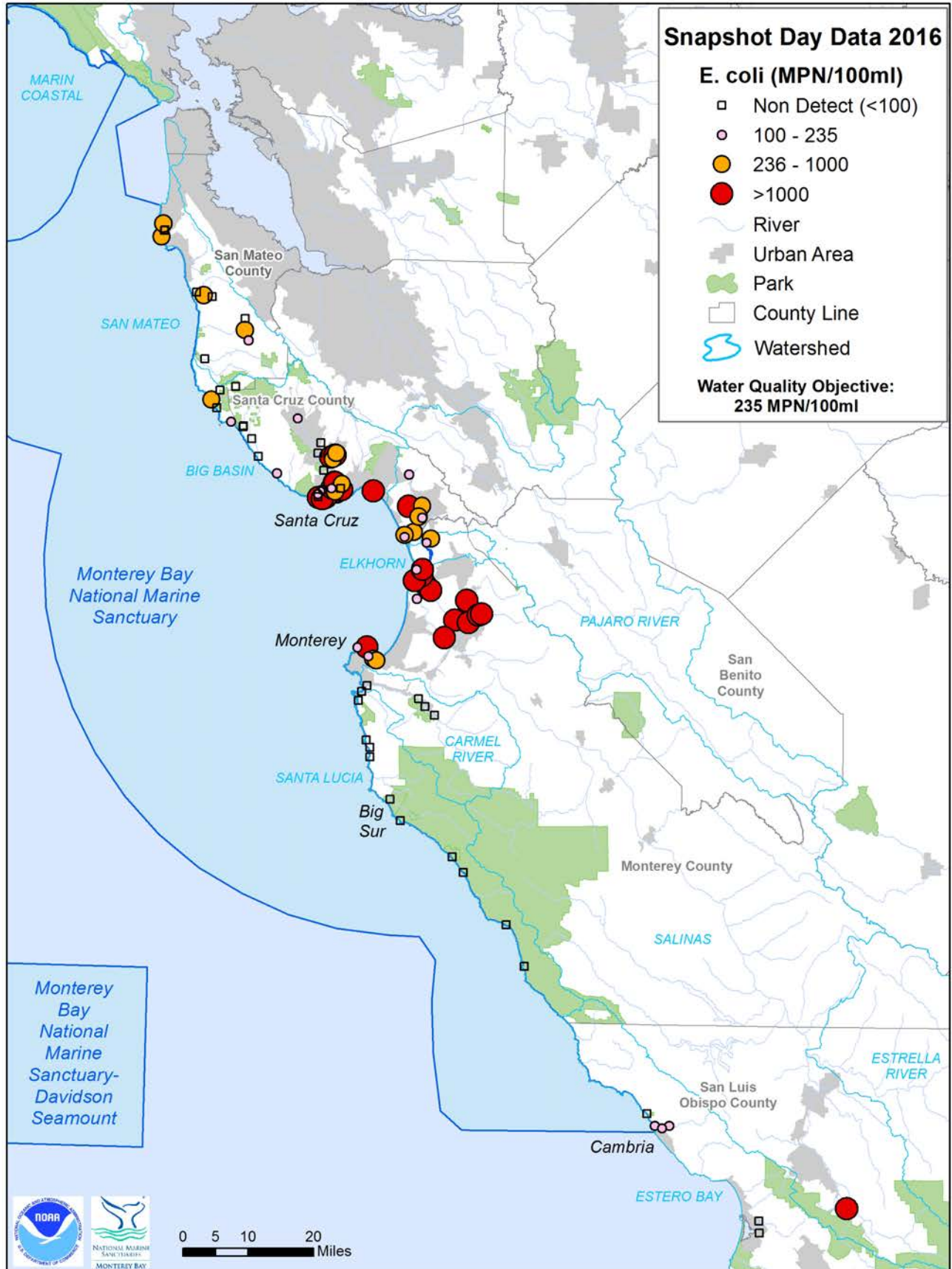


Figure 4. *E. coli* Results for Snapshot Day 2016.

## Areas of Concern

When lab and/or field results for a single site exceed three or more Water Quality Objectives or Action Levels, the site is labeled an Area of Concern (AoC). Over the past several years, a trend has emerged of more than one AoC per water body. For example, the Tembladero and Moro Cojo Sloughs have more than one site that is an AoC along the same waterway. For this reason we have chosen to display the AoC data two ways: by water body (Figure 5) and by site (Figure 6).

In 2016, twenty-one sites (21%) were designated Areas of Concern on fourteen water bodies (Figure 5). The 2016 Areas of Concern include nine of the ten most common Areas of Concern: Struve Slough, Elkhorn Slough, Moro Cojo Slough, Tembaldero Slough, Alisal Slough, Lower Salinas River, Santa Rita Creek, Salinas Reclamation Ditch and Natividad Creek. This year San Lorenzo River is on the list for the first time due to exceedances in *E. coli*, dissolved oxygen and transparency at the lowest site in the watershed below the train trestle. Hartnell Gulch (Monterey County) is also on the AoC list for the first time due to exceedances in *E. coli*, pH and transparency (Figure 6). The Woodrow Street (Santa Cruz County), Arana Gulch (Santa Cruz County), Pajaro River (Santa Cruz and Monterey County), and Elkhorn Slough (Monterey County) are all back on the AoC list after many years without this designation. This year for the first time in five years there are no sites from San Mateo County listed as AoC. All data is available in Appendix 1.

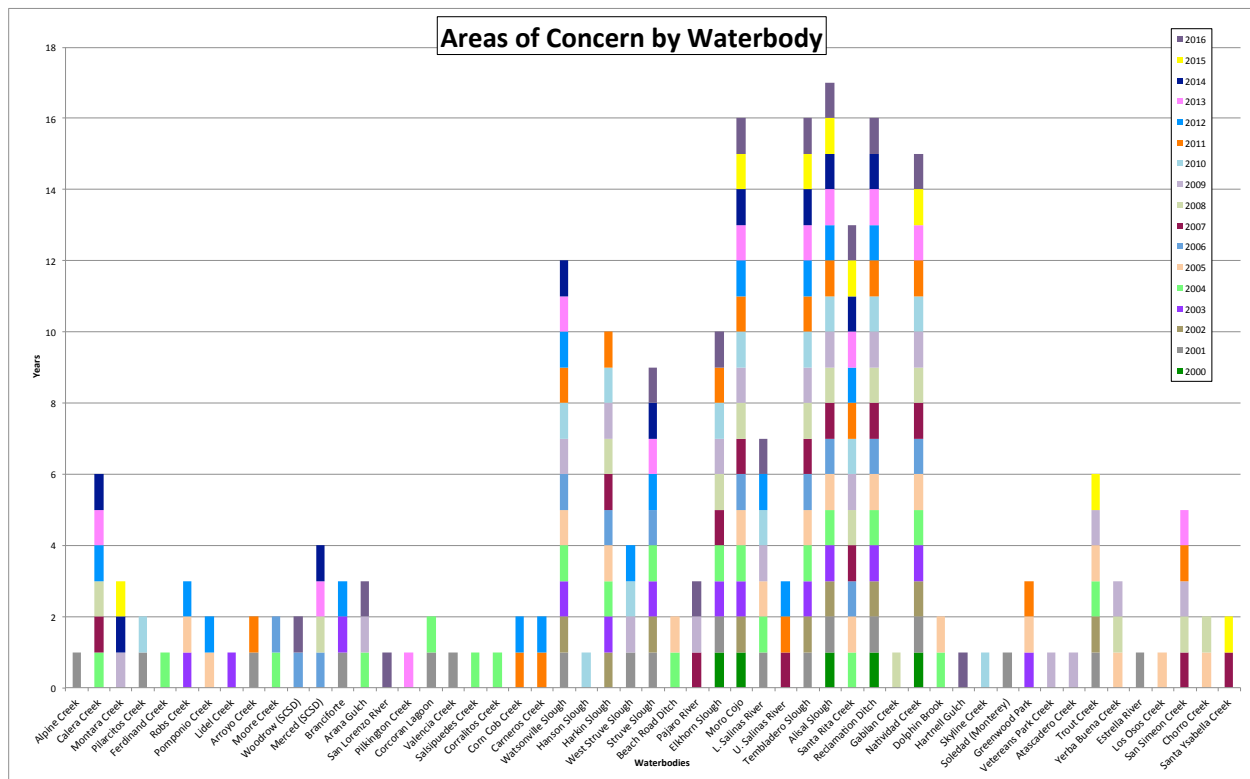


Figure 5. Areas of Concern by water body 2000-2016.

**Figure 6. Areas of Concern for Snapshot Day 2016.**



## Conclusion

In its seventeenth year, Snapshot Day 2016 brought together 143 committed citizens to monitor the water quality of 111 different sites along creeks and rivers draining into the MBNMS. Many of the sites monitored (31%) had no exceedances for any parameter and provided good conditions for cold-water fish, one beneficial use by which Snapshot Day data is compared.

The number of Areas of Concern (sites with three or more exceedances) is up to 21 after a four year dip. Snapshot Day sites at the bottom of large rivers or creeks that have urban areas and agricultural influences show the most significant problems in regards to nutrients, bacteria, and dissolved oxygen. In comparison creeks and rivers on the San Mateo County and Big Sur coast have few to no exceedances. Of the fourteen water bodies listed as Areas of Concern, eleven of those water bodies are listed on the 303(d) list for impaired waterways by the Regional Water Quality Control Board. Those water bodies are: San Lorenzo River Lagoon, Struve Slough, Pajaro River, Elkhorn Slough, Lower Salinas River, Alisal Slough, Moro Cojo Slough, Tembladero Slough, Salinas Reclamation Ditch, Natividad Creek and Santa Rita Creek. The 303(d) list was created to identify impaired state waterways. The methodology for this listing can be found at the State Board web site, [www.swrcb.ca.gov](http://www.swrcb.ca.gov).

Snapshot Day 2016 results reveal that *E. coli* is still a problem at many sites and should be addressed. Additionally nitrate (as N) and dissolved oxygen continue to be issues at many sites. Trash is noted at many sites but not quantified for Snapshot Day. The presence of trash in the water and on the banks is a persistent issue in many watersheds, not just in urban areas. It is our hope that we will continue to see improvements in water quality through efforts focused on both urban and agricultural management measures that control trash, nitrate, *E. coli* and conditions that impact dissolved oxygen levels.

Once more, the Network would like to thank all of the volunteers who made this event possible. A monitoring effort of this magnitude could only be completed by a large group of dedicated volunteers. The data generated by volunteers is a valuable resource for identifying long-term trends in central California coastal water bodies. Snapshot Day is a successful annual event due in large part to continued interest and support by volunteers and partner organizations.



The McWay Creek team takes a sample in Big Sur, Monterey County.



A volunteer carefully collects a sample at Moro Cojo Slough in Monterey County.

**Appendix 1: 2016 Results by County/Station**

	SITE ID	DATE	E.Coli (MPN/100 ml)	Nitrate as N-N (mg N/L)	o-Phosphate-P, (mg P/L)	Oxygen, Dissolved( mg/L)	pH (pH units)	Transparency (cm)	Water Temperature (°C)	Turbidity (NTU)
San Mateo County	202-ALPIN-11	5/7/16	121	0.1	0.10	8	7.5	>120	12.1	
	202-BEARG-11	5/7/16	5	0.05	0.05	9	6.25	120	12.5	
	202-GAZOS-11	5/7/16	256	0.1	0.05	8	6.5	120	13.2	
	202-GAZOS-15	5/7/16	5	0.05	0.05	7	6	120	12.9	
	202-LAHON-11	5/7/16	459	0.1	0.10	8	7.5	120	12.1	
	202-LOBIT-11	5/7/16	556	0.2	0.05	8	7	105	12.8	
	202-MARTI-11	5/7/16	657	0.2	0.05	8	6.5	42	13	
	202-MONTA-11	5/7/16	20	0.1	0.05	6	6	120	13.7	
	202-MONTA-12	5/7/16	52	0.1	0.05	6	6	120	13.7	
	202-PESCA-11	5/7/16	97	0.2	0.05	5	7	120	14.1	
	202-PURIS-11	5/7/16	41	0.1	0.10	7	7	>120	13.2	
	202-SANGR-14	5/7/16	20	0.1	0.05	8	7.25	104	11.6	
	202-SANVI-11	5/7/16	717	0.5	0.05	7	6	120	13.8	
	202-TUNIT-11	5/7/16	<10	0.05	0.05	7	6.5	120	12.5	
	202-WHITE-12	5/7/16	20	0.2	0.05	8	6		12.9	
304-NEWYE-11	5/7/16	170	0.9	0.05	7.0	7.5	>120	13.1		
Santa Cruz County	304-APTOS-23	5/7/16	1725	0.1	0.05	8	7.5	>120	14.1	
	304-ARANA-21	5/7/16	413	0.3	0.20	6.0	7.5	120	13.2	
	304-ARANA-22	5/7/16	83	0.2	0.05	6.0	8.0	76	14.4	
	304-ARROY-21	5/7/16	126	0.05	0.05	7.0	6.5	82	14.3	
	304-BRANC-21	5/7/16	1973	0.3	0.05	12.05	7.5	>120	14.9	
	304-BRANC-23	5/7/16	1866	0.3	0.05	8.29	7.0	>120	13.7	
	304-CAMPE-21	5/7/16	20925	0.1	0.05	6.0	7.0	120	17.9	
	304-CARBO-21	5/7/16	2375	0.5	0.05	8.53	7.25	>120	13.7	
	304-CARBO-23	5/7/16	976	0.6	0.05	6.0	7.0	120	13.4	
	304-CARBO-24	5/7/16	1866	0.2	0.05	5.5	7	101	13.6	
	304-CARBO-25	5/7/16	690	0.2	0.10	5.5	7.0	84.8	13.4	
	304-LEONA-21	5/7/16	1639	0.3	0.05	3.0	7.5	59	14.1	
	304-LIDEL-21	5/7/16	202	0.4	0.20	7.0	7.5	>120	12.7	
	304-MOORE-21	5/7/16	<100	0.05	0.05	4.5	7.0	>120	18.3	
	304-MOORE-24	5/7/16	100	0.05	0.05	6.0	7.0	78.3	12.4	
	304-MOORE-26	5/7/16	3051	0.2	0.1	10.0	7.5	31.9	17.2	
	304-PILKI-21	5/7/16	12976	0.4	0.05	4.0	7.0	51	13.9	
	304-PILKI-22	5/7/16	8803	0.4	0.05	4.5	7.0	44	14.2	
	304-SANLO-21	5/7/16	126	0.3	0.05	9.33	7.5	>120	14.2	
	304-SANLO-22	5/7/16	487	0.3	0.05	5.0	7.0	10.3	14.9	
304-SANLO-26	5/7/16	61	0.3	0.05	7.0	7.5		12.3	1.17	
304-SANLO-27	5/7/16	104	0.2	0.05	6.9	7.5		11.2	0.66	

	SITE ID	DATE	<i>E. Coli</i> (MPN/100 ml)	Nitrate as N-N (mg N/L)	o-Phosphate-P, (mg P/L)	Oxygen, Dissolved (mg/L)	pH (pH units)	Transparency (cm)	Water Temperature (°C)	Turbidity ( NTU)
Santa Cruz County	304-SCOTT-22	5/7/16	<20	0.1	0.05	8.0	7.0	>120	12.8	
	304-SCOTT-25	5/7/16	61	0.1	0.05	8.0	7.0	>120	12.6	
	304-SCSD-02	5/7/16	2161	4.2	0.10	7.0	7.5	>120	18.4	
	304-SCSD-03	5/7/16	61	1.6	0.05	7.0	8.0	>120	15.7	
	304-SCSD-04	5/7/16	4500	2.6	0.05	6.0	7.5	53.0	16.3	
	304-WADDE-21	5/7/16	<20	0.1	0.05	9.0	7.0	>120	13.1	
	304-WADDE-22	5/7/16	20	0.1	0.05	9.0	7.0	>120	13.0	
	304-ZAYAN-21	5/7/16	61	0.4	0.20	7.0	7.5		12.1	1.13
	304-ZAYAN-22	5/7/16	20	0.1	0.05	9.1	7.5		11.3	0.8
	305-BEACH-21	5/7/16	413	20.8	0.05	8.0	8.0	40	17.8	
	305-CORRA-21	5/7/16	991	1.3	0.05	9.0	7.5	110	14.1	
	305-CORRA-22	5/7/16	104	0.1	0.05	5.5	7.5	120	12.7	
	305-HARKI-23	5/7/16	2917	0.1	0.05	9.0	7.0	92	13.2	
	305-PAJAR-21	5/7/16	860	4.2	0.05	6.0	7.5	54	17.2	
	305-STRUV-21	5/7/16	632	0.05	0.05	4.5	7.0	12.0	18.1	
	305-WATSO-21	5/7/16	100	0.05	0.20	4.5	7.5	59.0	18.1	
	305-WATSO-23	5/7/16	100	9.7	0.05	8.0	8.0	17.5	17.3	
	Monterey County	306-ELKHO-32	5/7/16	100	3.6	0.05	6	7.5	19.2	18.8
306-ELKHO-34		5/7/16	413	8.2	0.20	12	7	102	16.3	
306-MOROC-31		5/7/16	4479	14.5	0.70	9	7	10.5	16.7	
306-MOROC-33		5/7/16	202	0.05	0.05	9	8.5	6.9	17.7	
306-MOROC-34		5/7/16	1829	8.7	0.05	7	7.5	7.4	17.9	
307-CARME-33		5/7/16	<20	0.05	0.05	9	7.5	>120	14.6	
307-CARME-35		5/7/16	61	0.1	0.05	8	7.5	>120	14.6	
307-CARME-36		5/7/16	40	0.1	0.05	9	7.25	>120	14.6	
307-CARME-38		5/7/16	61	0.05	0.05	9	7.5	>120	14.6	
308-BIGSU-31		5/7/16	40	0.05	0.05	10	6	120	13.8	
308-GARRA-31		5/7/16	20	0.1	0.05	7	7.5	120	12.6	
308-HOTSP-31		5/7/16	<20	0.2	0.05	9.1	7	>120	13.4	
308-LIMEK-31		5/7/16	<20	0.2	0.05	9	7.25	>120	15.9	
308-MALPA-31		5/7/16	<20	0.5	0.05	11	6.5	120	12.9	
308-MCWAY-31		5/7/16	<20	0.1	0.05	9.14	7	>120	13.3	
308-PALOC-31		5/7/16	40	0.1	0.05	8	6.5	28.2	12.8	
308-PLASK-31		5/7/16	<20	0.05	0.05	7	7	>120	13.7	
308-ROCKY-31		5/7/16	<20	0.1	0.05	9	7.25	87	12.2	
308-SANJO-31		5/7/16	20	0.1	0.05	10	6	72.1	12.8	
308-SYCAM-32		5/7/16	<20	0.1	0.05	8	6.5	>120	13.7	
309-ALISA-32	5/7/16	3405	15.9	0.40	5.5	7	5.6	19.1		
309-ASILO-31	5/7/16	100	0.9	0.05	9	7	120	15.3		

	SITE ID	DATE	<i>E. Coli</i> (MPN/100 ml)	Nitrate as N-N (mg N/L)	o-Phosphate- P, (mg P/L)	Oxygen, Dissolved( mg/L)	pH (pH units)	Transparency (cm)	Water Temperature (°C)	Turbidity ( NTU)
Monterey County	309-CENTR-31	5/7/16	3443	1.8	0.05	9	7	120	15.9	
	309-LIBRA-31	5/7/16	768	0.3	0.05	7	6	8	14.4	
	309-MAJOR-31	5/7/16	293	0.1	0.05	6	6.5	41.2	13.6	
	309-NATIV-31	5/7/16	3225	22.3	1.00	7	7	5.1	16.2	
	309-RECDI-31	5/7/16	41058	15.7	0.50	4.5	6.5	5.2	17.7	
	309-SALIN-31	5/7/16	100	38.6	0.05	11	7.5	>120	18.2	
	309-SALIN-32	5/7/16	34480	2.9	0.20	4	6.5	9.98	17.2	
	309-SRITA-32	5/7/16	24809	13.5	0.50	6.58	6.5	7.5	16.8	
	309-SRITA-34	5/7/16	98039	15.4	0.20	7.94	7	2.9	17.7	
	309-SRITA-35	5/7/16	241957	26.5	0.50	8.67	7.25	3.1	19.3	
	309-TEMBL-31	5/7/16	3839	40	0.20	8	7.5	8.2	16.3	
	309-TEMBL-32	5/7/16	8859	37.5	0.20	12	7.75	11	16.3	
	309-TEMBL-33	5/7/16	26125	27.3	0.50	8	7.5	5	17.5	
	309-TROUT-41	5/7/16	1017	0.05	0.05	7	6.5	>120	12.8	
	309-UPPER-31	5/7/16	2405	29.9	0.60	9	7.5	10.7	18	
309-VETER-31	5/7/16	100	0.4	0.05	8	7	>120	14.6		
San Luis Obispo County	310-SANSI-41	5/7/16	98	0.1	0.70	7	7	>120	16.4	
	310-SANTA-41	5/7/16	120	0.05	0.05	9	7.5	>120	15.4	
	310-SANTA-42	5/7/16	121	0.1	0.05	5.5	6.75	>120	15.4	
	310-SANTA-43	5/7/16	131	0.05	0.05	7	7	>120	16.1	
	310-SYB-41	5/6/16	86	0.1	0.05	4.91	7.83		20.7	16.3
	310-UCF-41	5/6/16	30	1.3	0.50	8.75	8.43		16.1	0.71

ND= Non detect; NR= Not recorded.