

Snapshot Day Report

May 6th 2006



Results of a Sanctuary-Wide Water Quality Monitoring Event

Author:

Bridget Hoover, Monterey Bay Sanctuary Citizen Watershed Monitoring Network

This report is available for download at www.montereybay.noaa.gov/monitoringnetwork/events.html



Executive Summary

Snapshot Day (SSD) is a one-day event that utilizes citizen volunteers to collect and analyze water samples from streams that enter the Monterey Bay National Marine Sanctuary (MBNMS). SSD began on Earth Day 2000 and has become a widely recognized volunteer event in which important water quality information is gathered.

SSD is a partnership between The Monterey Bay Sanctuary Citizen Watershed Monitoring Network (Network) and the Coastal Watershed Council. The Coastal Watershed Council coordinates San Mateo and Santa Cruz counties while the Network coordinates Monterey County, south to Morro Bay in San Luis Obispo County.

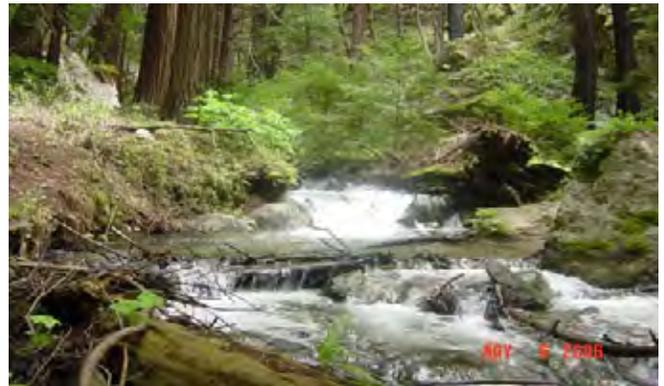
On the morning of May 6th, 2006, volunteers gathered at four centralized hubs strategically placed in each of the four counties bordering the Sanctuary (San Mateo, Santa Cruz, Monterey, and San Luis Obispo). The hubs facilitated the tracking of equipment, lab sample chain of custody, verification of complete and accurate data sheets, post calibration measurements, and provided a place for volunteers to gather and exchange information.

One hundred and seventy-nine volunteers monitored 189 sites, 26 more sites than in 2005. As in the past events, results show that the majority of sites met the water quality objectives (WQO) intended to support cold water fish habitat. One hundred and three sites or 54% (53% in 2005) had no exceedances of the WQOs for any of the parameters measured. Similar to 2005, transparency and dissolved oxygen were the most common field measurement to not meet the WQOs at 19% and 18% of the sites respectively. In contrast to 2004, the number of dissolved oxygen exceedances was down from 23%.

E. coli (bacteria from warm-blooded animals) and orthophosphate were the parameters analyzed in the lab that most commonly exceeded their water quality objectives. The *E. coli* WQO was exceeded at 18% (16% in 2005) of the sites, and orthophosphate WQO was exceeded at 21% (18% in 2005) of the sites. In 2004, the percentage of exceedances for *E. coli* and orthophosphate was 24%.

Monterey County had the majority of exceedances of WQO's including 74% for nitrate, 71% for orthophosphate and 58% for *E. coli*.

This year, 26 Areas of Concern (sites that exceeded 3 or more WQOs) were identified on 10 waterbodies along the Central Coast. In 2004 and 2005, 18 Areas of Concern were identified on up to 13 different waterbodies. Eight of the 13 waterbodies have had sites designated as Areas of Concern for the last three years. The Tembladero Slough, Alisal Slough and Natividad Creek have had at least one Area of Concern every year for the last six years.



One of the many beautiful streams along the Central Coast.

As we have reported for the past few years, a pattern is emerging from year to year with the data collected by volunteers in this program. The same sites continue to be Areas of Concern and the same pollutants continue to be problematic.

This information is now being used, along with other water quality data, to target available resources for implementing best management practices, educating the local population and revising public policy, with the goal of improving water quality.

The volunteers collecting the data were well trained, and the rigorous quality assurance gives confidence that the results presented in this report are accurate. For the majority of sites, Snapshot Day is the only time these waterbodies are ever monitored. We are grateful to the volunteers and all of our partners listed on the following page for making this event possible.

Central Coast Snapshot Day 2006 was organized by:

The **Monterey Bay Sanctuary Citizen Watershed Monitoring Network** (Network) supports citizen monitoring programs throughout the Monterey Bay National Marine Sanctuary. (831) 883-9303.
www.montereybay.noaa.gov/monitoringnetwork/welcome.html

The **Coastal Watershed Council** is a public education non-profit advocating the preservation and protection of coastal watersheds through establishment of community-based watershed stewardship programs.

(831) 464-9200. <http://www.coastal-watershed.org/>

The **California Coastal Commission** is proud to help support the Central Coast Snapshot Day as an important educational program linking land and water quality stewardship with coastal resource protection.

(831) 427-4863. <http://www.coastal.ca.gov/>

The **Monterey Bay National Marine Sanctuary (MBNMS) Water Quality Protection Program** works to protect the watersheds along nearly 300 miles of the Sanctuary's coastline. (831) 647-4201

<http://www.mbnms.nos.noaa.gov/>

Participating Agencies and Organizations

Arana Gulch Watershed Alliance
Big Creek Reserve
California Coastal Commission
Carmel River Watershed Conservancy
Central Coast Regional Water Quality Control Board
City of Capitola
City of Monterey
City of Pacifica
City of Pacific Grove
City of Santa Cruz
City of Watsonville
Coastal Watershed Council
Creek Environmental Laboratory
Crystal Springs Drinking Water
Earth Systems Science and Policy Program (CSUMB)
Elkhorn Slough National Estuarine Research Reserve
Garrapata Watershed Council
Gayle's Bakery
Gulf of the Farallones National Marine Sanctuary
Monterey Bay Analytical Services
Monterey Bay National Marine Sanctuary
Monterey Bay Sanctuary Foundation
Monterey County Community Links
Monterey Regional Water Pollution Control Agency
Morro Bay Volunteer Monitoring Program
Natural Resource Conservation Service, Monterey Cty
Odwalla
Peet's Coffee
San Gregorio Environmental Resource Center
San Gregorio General Store
San Lorenzo Valley High School
San Luis Obispo County Environmental Health
San Mateo County Environmental Health
Santa Cruz County Environmental Health
Santa Cruz Safeway - Mission Street
Scott Creek Watershed Council
Sewer Authority Mid-Coastside (SAM)
Starbuck's Coffee
Surfrider Foundation
The Buttery
The Ocean Conservancy
Trader Joe's
United States Environmental Protection Agency
Univ. of California at Santa Cruz Environmental Studies Dept.
Upper Crust Pizza
Upper Salinas Las Tablas RCD
Upper Salinas Watershed Coalition
Watershed Institute, CSUMB
Whole Foods Market



Santa Cruz County Hub

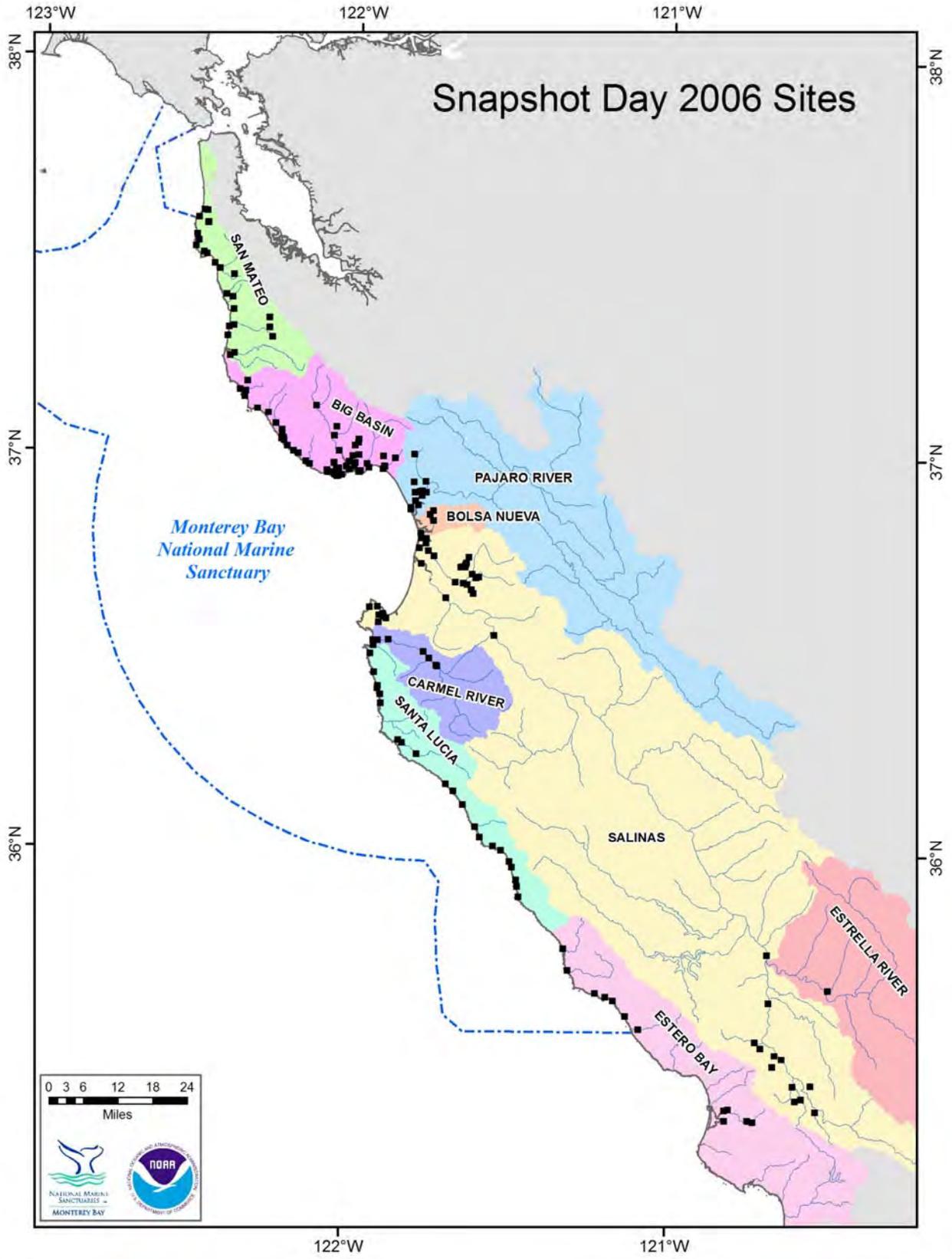


Figure 1. Map of Central Coast monitoring sites

Methods

Teams of trained volunteers measured dissolved oxygen, water and air temperature, conductivity, pH, and transparency or turbidity. They also collected water samples for lab analysis of nitrate, orthophosphate, total coliform and *E. coli*. Monitoring teams were provided with a bucket “kit” that included either a YSI dissolved oxygen meter, Winkler, or CHEMets kit; two bulb thermometers (for air and water) or one digital thermometer; Oakton conductivity meter, Machery-Nagel non-bleeding pH strips and a transparency tube or dual cylinder turbidity kit. The bucket also included distilled water, gloves, paper towels, trash bag, pens/pencils, sample bottles and clipboard with data sheets, instruction, maps, and photo documentation forms.



Monterey County Hub

The sample collection and field measurements were taken using the protocols developed by the State Water Resources Control Board’s Clean Water Team and detailed in the 2003 California Coast Wide Snapshot Day Monitoring Plan. The results were compared with general Water Quality Objectives (WQOs) designated by the Central Coast Ambient Monitoring Program (CCAMP), the General Basin Plan or the US Environmental Protection Agency (see Table 1). In order to ensure valuable data, a state approved Quality Assurance Project Plan and Monitoring Plan was developed specifically for this event.

Table 1. Water Quality Objectives

<u>Parameter (reporting units)</u>	<u>Water Quality Objectives</u>	<u>Source of Objective</u>
Dissolved Oxygen (ppm)	Not lower than 7 or greater than 12	Basin Plan Objective for Cold Water Fish
pH	Not less than 6.5 or more than 8.5	General Basin Plan objective
Water Temperature (°C)	Not more than 22	Basin Plan Objective for Cold Water Fish
Transparency (cm)	Not less than 25	Central Coast Ambient Monitoring Program (CCAMP)
Nitrate as N (ppm)	Not to exceed 2.25	Central Coast Ambient Monitoring Program (CCAMP)
Orthophosphate as P (ppm)	Not to exceed 0.12	Central Coast Ambient Monitoring Program (CCAMP)
<i>E. coli</i> (MPN/100ml)	Not to exceed 400	EPA Ambient Water Quality Criteria



Kelly Young measuring pH at Chorro Creek.

Results

On Snapshot Day, 179 volunteers monitored 189 sites on 123 water bodies. This year, more waterbodies and sites were monitored than ever before. It was a mostly sunny day on the coast with air temperatures ranging between 10.0 °C (50.0 °F) and 27.0°C (80.6 °F).

Most stations met the water quality objectives as detailed in Table 1. One hundred and three sites, compared to 86 sites in 2005, and 87 sites in 2004, had no exceedance for any of the water quality objectives. Once again, orthophosphate and *E. coli* were two parameters that most often exceeded their water quality objectives at 21% and 18% of the sites. This was similar to 2005 (18% and 16% respectively), yet down from 2004 in which 24% of the sites exceeded each of those parameters.

All of the data from Snapshot Day 2006 can be found in tabular form in Attachment 3, which lists the results of every parameter by site. The data is also reported visually in Figures 4, 5 and 6.

The following describes the parameters measured during this event and their importance in the aquatic ecosystem. Please refer to Table 2 for statistical summaries.

Table 2. Snapshot Day Statistics

Parameter	WQO	Stations Sampled	Number of Exceedences	Percent of Sites with Exceedences	Minimum Result	Maximum Result	Average Result	Median Result
Air Temp (°C)	none	183	N/A	N/A	10.0	27	15.49	15.3
Water Temp (°C)	≤ 22	185	0	0%	10.0	24	14.17	13.60
Dissolved Oxygen (mg/L)	≥ 7, ≤ 12	172	33	19%	0.6	16.89	8.79	9.20
pH	≥ 6.5, ≤ 8.5	189	3	2%	6	9	7.3	7.0
Conductivity (µS)	none	176	N/A	N/A	180	8600	N/A	N/A
Transparency (cm)	≥ 25	114	20	18%	1	130	84	116
Turbidity (JTU)	≤ 20	69	6	9%	0	70	9.14	5.00
<i>E. coli</i> (MPN/100 ml)	≤ 400	187	33	18%	1	5723	N/A	N/A
Total coliform (MPN/100 ml)	≤ 10000	187	40	21%	52	>241,960	N/A	N/A
Nitrate-N (mg-N/L)	≤ 2.25	180	30	17%	<0.05	42.8	2.70	0.21
Orthophosphate (mg-P/L)	≤ 0.12	180	38	21%	<0.05	1.93	0.10	0.00

Water Temperature

Water temperature is an important environmental factor for fish and other aquatic life, as many species need specific temperatures to survive and reproduce. Temperature also affects the concentration of dissolved oxygen in the water column and the rate of photosynthesis for aquatic plants. Human activities such as water diversions that decrease flows or removal of streamside vegetation that shades the water, can lead to elevated water temperatures.

It is important to keep in mind that much of the data was collected in the morning hours; therefore water temperature results likely do not reflect the maximum daily or annual temperature for the water body.

The Basin Plan Objective for Cold Water Fish is water temperature less than 22 degrees Celsius (22°C). Temperatures above 22°C can be stressful for coho and steelhead and other aquatic organisms. The average temperature for Central Coast sites was 14.17°C and the median 13.6°C. This year, no sites exceeded the temperature water quality objective (WQO).

Dissolved Oxygen

All aquatic animals require dissolved oxygen to breath. The concentration of dissolved oxygen in the water column affects a wide range of behaviors such as feeding, spawning, and incubation. Lowered dissolved oxygen is mainly a result of excessive nutrients which promote plant growth. In the

process of breaking down plant matter, organisms deplete available oxygen through respiration.

The General Basin Plan Objective for dissolved oxygen is not less than 5 milligrams per liter (mg/l), however, on the Central Coast we use the WQO for Cold Water Fish, which is not less than 7 mg/l or greater than 12 mg/l, based on the amount of dissolved oxygen needed by migrating steelhead trout. The average dissolved oxygen level for Central Coast sites was 8.8 mg/l, very similar to 8.9 mg/l in 2005, 8.5 mg/l in 2004 and 8.9 in 2003. Twenty-nine sites ranged from 6.9 mg/l to as low as 0.6 mg/l. Four sites had saturated dissolved oxygen concentrations between 12.9 and 16.9 mg/l. They were Santa Rita Creek, Laguna Creek, Branciforte Creek, and Beach Road. The total number of exceedences was up from 2005 (21) but down from 2004 (37).

Conductivity

Conductivity is a measure of the ability of water to conduct electrical current. Measuring conductivity gives an indication of the amount of total solids (such as salts, mineral, acids, and metals) dissolved in the water. Conductivity varies with water source and geographic region.

There is no water quality objective for conductivity. However, once a baseline of conductivity values is established, variations may signal a change in the waterbody's composition. For example, a decline in conductivity may be caused by rainwater and an increase in conductivity may signal sources of pollution such as agricultural runoff or municipal wastewater. Snapshot Day volunteers measured conductivity to establish a baseline for future comparisons.

Alkalinity/Acidity (pH)

pH is a measure of the percent of hydrogen ions in a water column. Water with a pH value of 7 is neutral, above 9 is alkaline and below 5 is acidic. Many chemical reactions in aquatic organisms that are critical for survival and growth, occur only within a very narrow pH range. Also, fish gills and fins can be damaged in extreme pH conditions.

The General Basin Plan Objective for pH falls between 8.5 and 6.5. The average pH level for all Central Coast sites was 7.3 and median 7.0. The average in 2004 and 2005 was 7.2. Just one site in Salinas had a pH value of 6.0, down from fourteen sites in 2005. Two of the three Moro Cojo Slough sites had a pH of 9.0. The Moro Cojo sites have exceeded this water quality objective for the last 4 years.



Stephanie Hee at the Salinas River filling the transparency tube

Turbidity/Transparency

Turbidity is a measure of the amount of suspended particles in water. Natural turbidity levels vary from stream to stream. Excessive turbidity may indicate erosion, nutrient loading, or artificial algae growth. Approximately 60% of the Snapshot Day teams assessed area water bodies using a transparency tube. The other teams used the dual cylinder method or turbidimeters.

Twenty sites (18%) where transparency tubes were used (up from seventeen sites in 2005 and thirteen sites in 2004) did not meet the CCAMP Action Level of 25 cm (see Table 2). That means that the water was so turbid that a miniature secchi disc could not be viewed through 25 centimeters of water. For the last three years, fifteen of the twenty sites were located in the lower Salinas Valley watershed.

The “Dual Cylinder” method does not have an established water quality objective, however, a typical turbidity value for muddy water after a storm is between 20-50 Jackson Turbidity Units (JTU). Six sites (9%) (up from one site in 2005 and down from ten sites in 2004) reported turbidity above this range. Two creeks in San Mateo County and four sites in the Watsonville Slough area exceeded this WQO.

Volunteers also recorded turbidity by a visual analysis, classifying water clarity at a given site as: clear, cloudy, or turbid. Based on the completed data sheets, 67% of the sites were described as having clear water, which is down from 75% for the last three years.

Nutrients

Nitrate and orthophosphate are nutrients that occur naturally in water bodies and promote aquatic plant growth. Excessive nutrient levels can lead to algal and aquatic weed growth that in turn depletes the available oxygen in the water column. Runoff containing detergents, fertilizers, animal waste, industrial waste, or sewage, contributes to elevated nutrient levels as does excess vegetative material from dumping “green waste” into waterways.



Lesley Hasegawa, Thomas Smith and Robin Lee at Santa Rita Creek in Salinas

Nitrate – Thirty (17%) of the sites exceeded the CCAMP action level for nitrate as N of 2.25 mg/l (see

Table 2). This is up from eighteen (11%) sites in 2003 and 2005, and 23 sites in 2004. Nitrate results ranged from non-detect at many of the sites to 42.8 mg-N/l. The average nitrate concentration was 2.70 mg-N/l and the median was 0.21 mg-N/l, very similar to 2005. All nitrate exceedances were found between the Watsonville Slough and the Lower Salinas Valley except for two sites in Morro Bay and two sites in the city of Santa Cruz. The highest concentrations were at the Alisal Slough (42.8 mg-N/l), Tembladero Slough (32.8 and 36.3 mg-N/l), and Gabilan Creek (29.0 mg-N/l). The Tembladero Slough and Gabilan Creek had very similar results in 2005.

Orthophosphate – Thirty-eight (21%) sites reported concentrations above the General Basin Plan Objective for orthophosphate set at 0.12 mg-P/l (see Table 2). Orthophosphate results ranged from non-detect at many sites to 1.93 mg-P/l in Elkhorn Slough. The average orthophosphate concentration was 0.10 mg-P/l and the median was 0.00 mg-P/l. Many of the exceedances were in the lower Salinas Valley and Watsonville Slough watersheds. The total number of exceedances was up from twenty-eight (18%) in 2005 and down from thirty-nine (24%) sites in 2004.

Coliform

Most coliform bacteria originate from the feces of warm-blooded animals and indicate the presence of human sewage or wildlife contamination, as well as feces-born organisms that can cause diseases such as hepatitis A, bacterial meningitis, and encephalitis.

The EPA Water Quality Criteria of 400 MPN/100 ml was used as the water quality objective. *E. coli* concentrations exceeded the water quality objective at 33 sites (18%), up from 26 sites (16%) in 2005 and down from 40 sites in 2004 and 41 sites in 2003 (see Table 2). The highest concentrations were found in Santa Rita Creek with concentrations of 4,324 MPN/100 ml, 5653 MPN/100 ml, and 5723 MPN/100 ml at three different sites.

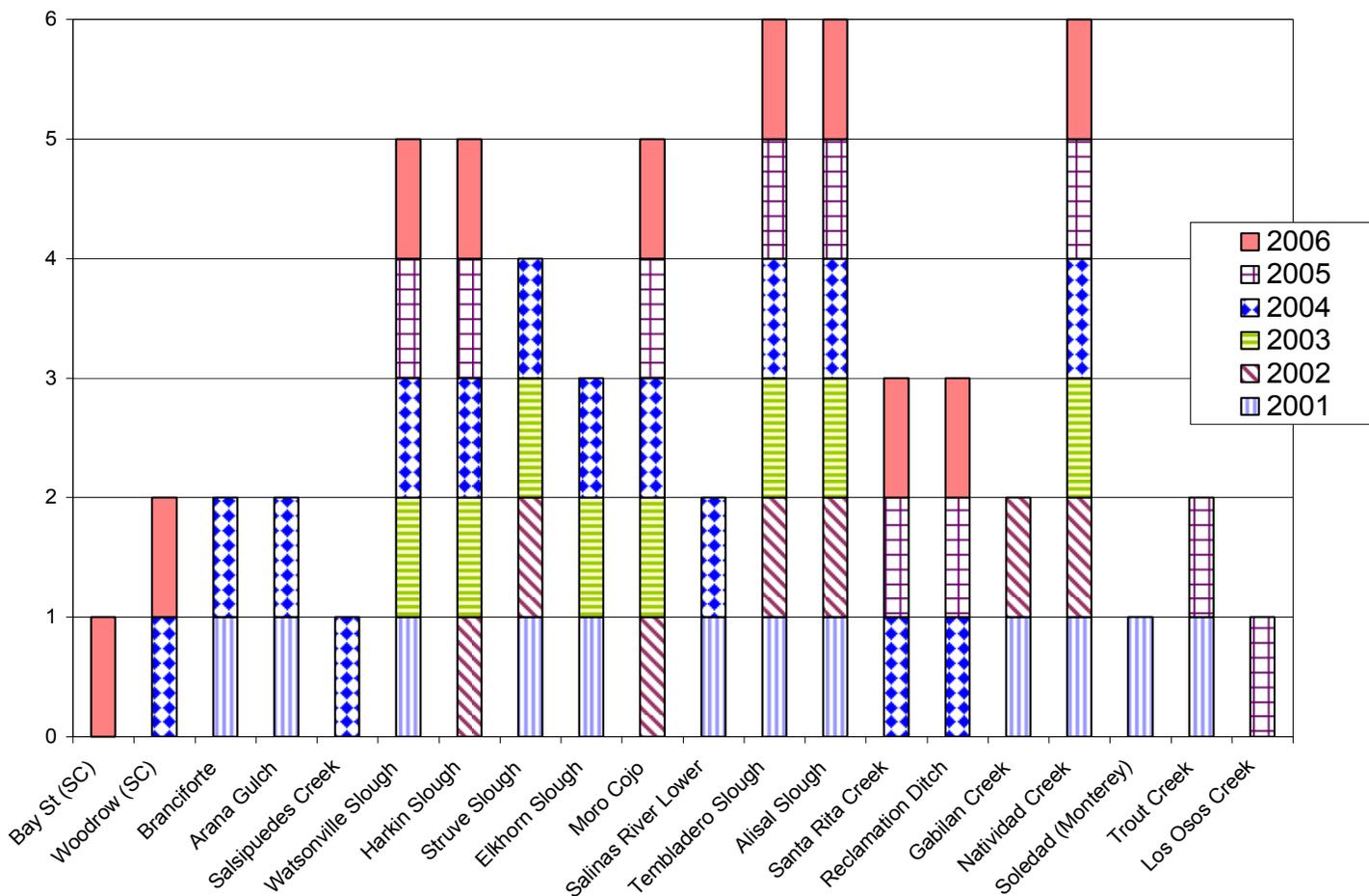


Figure 2. Depicts the number of times a waterbody has been designated an Area of Concern on Snapshot Day for the years 2001-2006 (Soledad has not been monitored since 2003).

Areas of Concern

Sites that exceed three or more of the seven parameters are identified as “Areas of Concern”. In several situations there is more than one site on a particular waterbody. For example, on Santa Rita Creek and the Reclamation Ditch, five sites on each waterbody are Areas of Concern, therefore, this year the graph in Figure 2 represents waterbodies and not individual sites. This water monitoring model has been implemented over the last six years and provides trend information as well as highlights persistent problem areas.

This year, 26 Areas of Concern were identified on 10 waterbodies along the Central Coast. In 2004 and 2005, there were 18 Areas of Concern, up from 14

identified in 2003, 11 identified in 2002, and 17 identified in 2001. Ten of the 20 waterbodies with Areas of Concern in 2006 were also Areas of Concern in 2005. Of the 20 waterbodies identified as Areas of Concern during the previous six Snapshot events, the Tembladero Slough, Alisal Creek, and Natividad Creek have been Areas of Concern every year (see Figure 2). Santa Rita Creek has been an Area of Concern for each year it was monitored.

The 2006 Central Coast Areas of Concern were compared with California’s list of impaired water bodies (2002 “303(d) list”) and the 2005 proposed revisions. The 303(d) list was generated by the Regional and State Water Quality Control Board

and identifies impaired waterways in the state of California. The methodology for this listing is available on the State Board web site (www.swrcb.ca.gov). This comparison between the Snapshot Day sampling events and the 303(d) list is intended to compare Snapshot Day results with other studies to determine whether the results are similar and also to identify areas where further investigation is warranted. Of the 10 waterbodies identified as Areas of Concern in 2006, 5 were on the 2002 303(d) list. Two of the waterbodies, Natividad Creek and Santa Rita Creek in Salinas, are proposed to be added to the revised 303(d) list for

excessive nitrate concentrations.

Two urban streams in Santa Cruz near Bay Street and Woodrow (Bethany Creek) as well as Harkin Slough are not listed. At least one site on Harkin Slough has been an area of concern for the last five years. For those waterbodies that are listed on the 303(d) list, the Snapshot Day results do correlate well with the impairments for which they are listed.

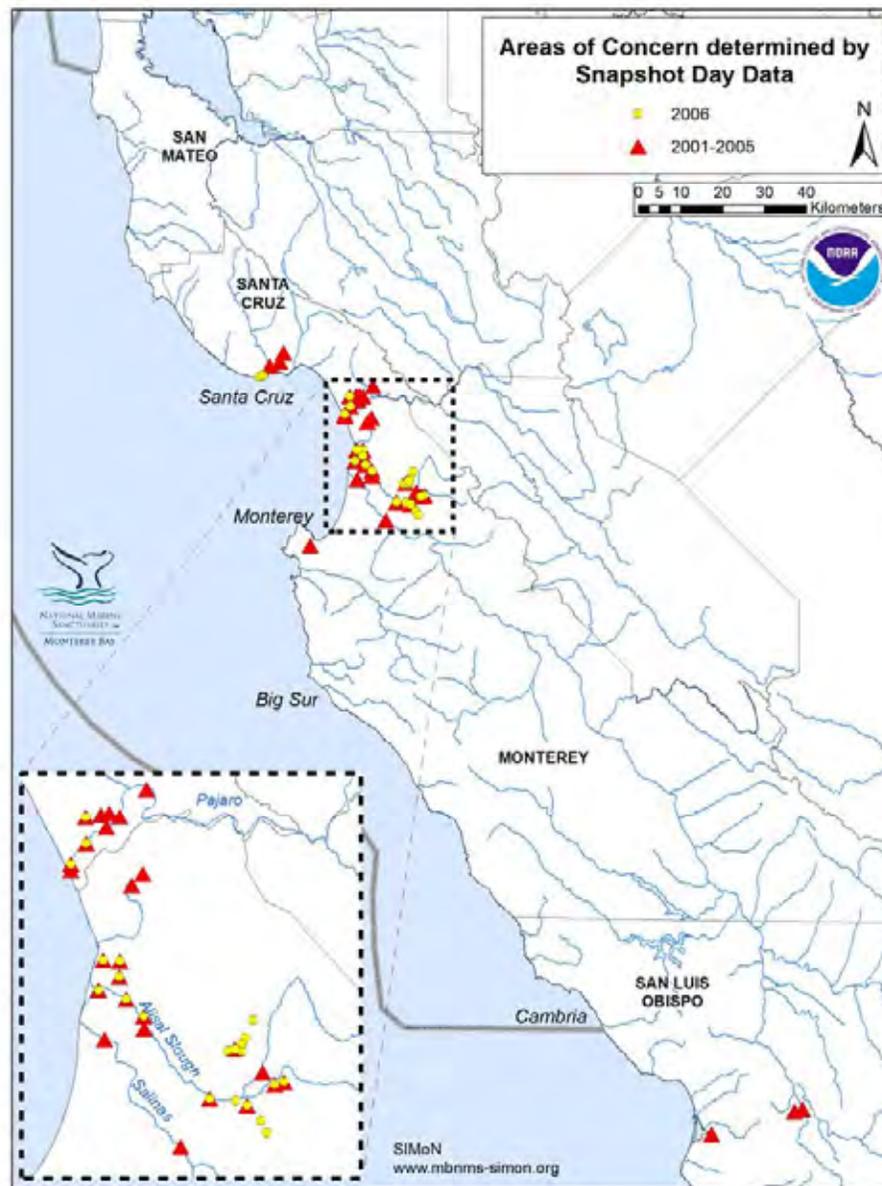


Figure 3. Map of Central Coast Areas of Concern for 2001-2006.

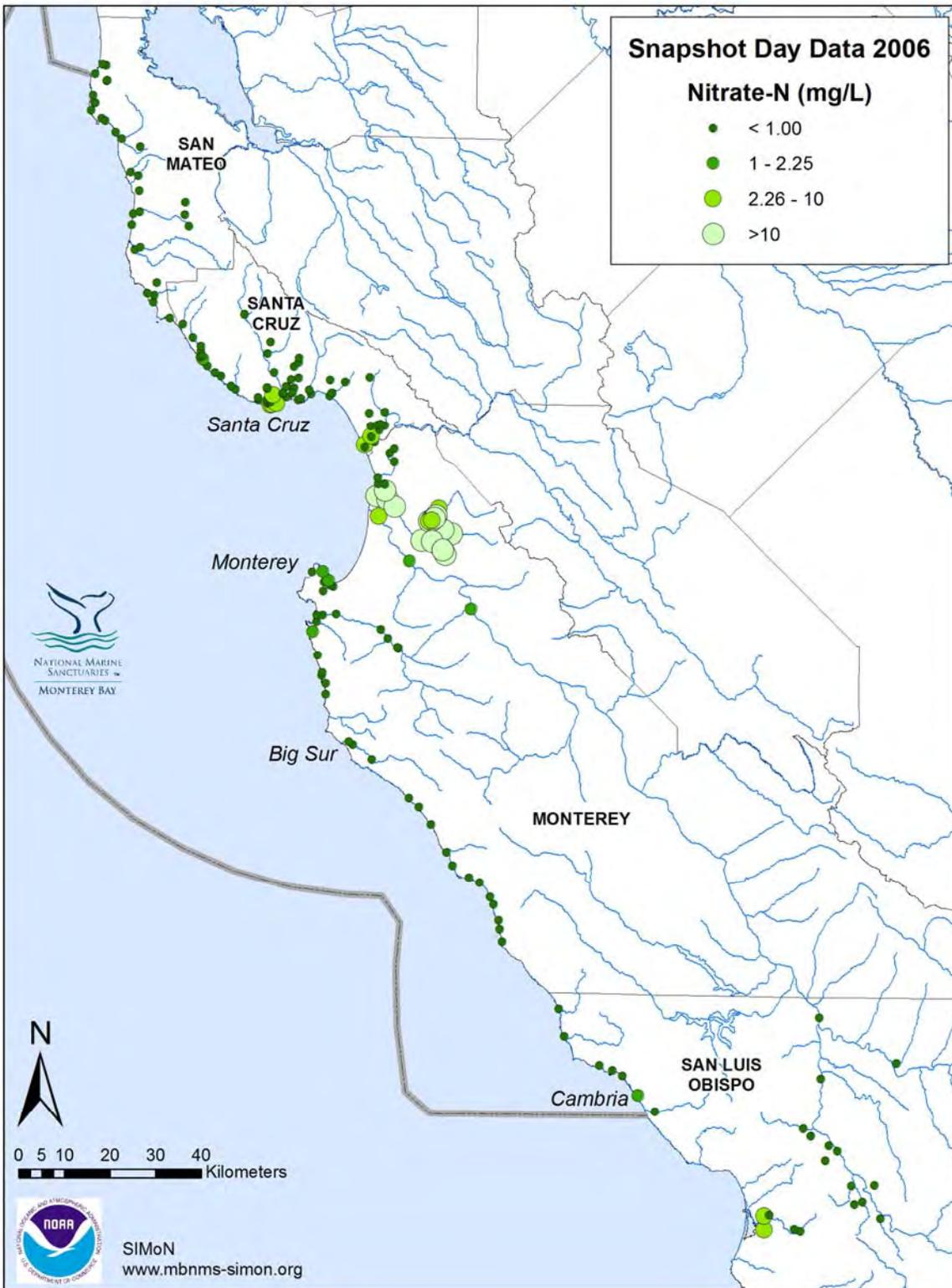


Figure 4. Snapshot Day Nitrate-N Results

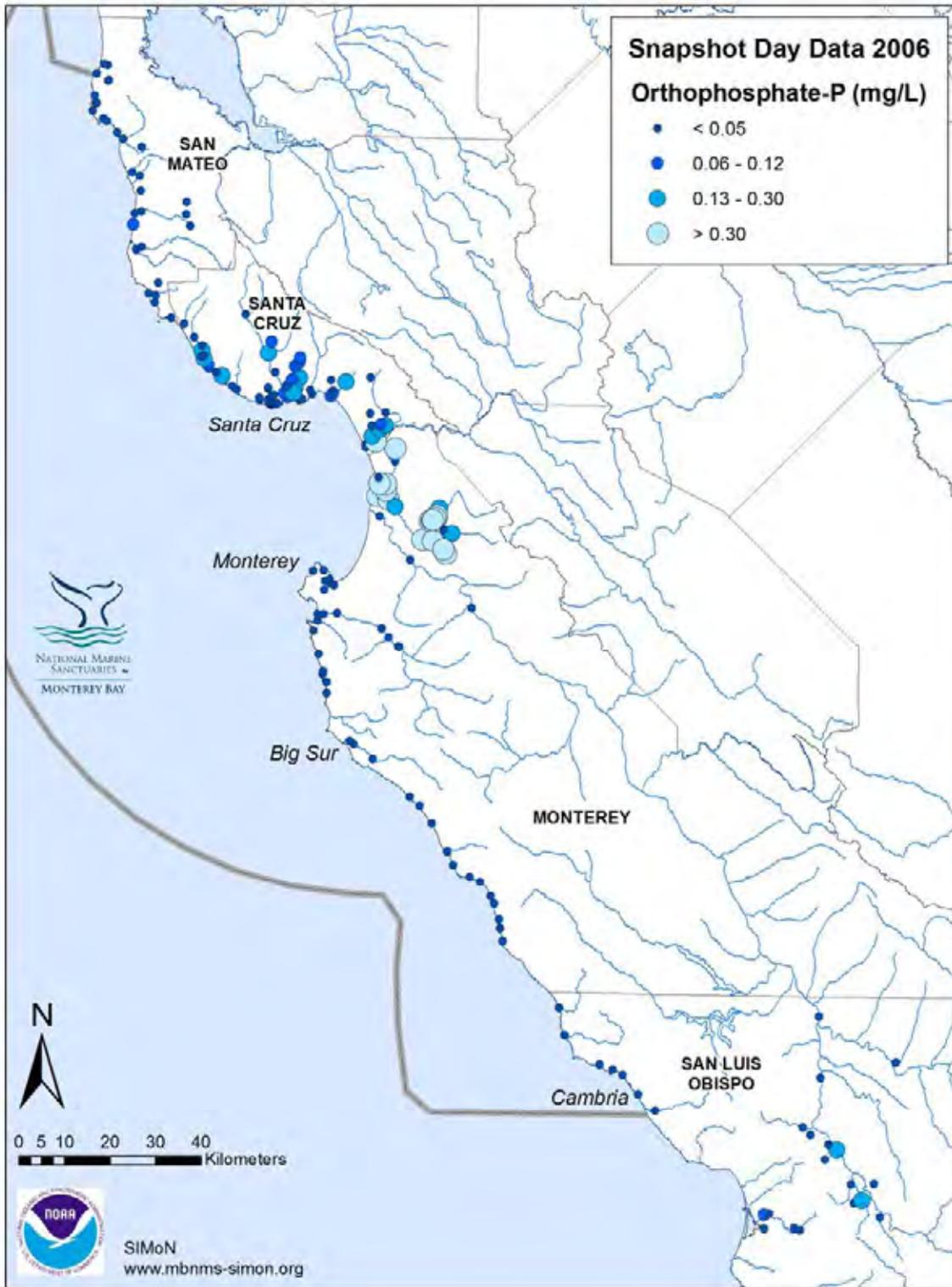


Figure 5. Snapshot Day Orthophosphate-P Results

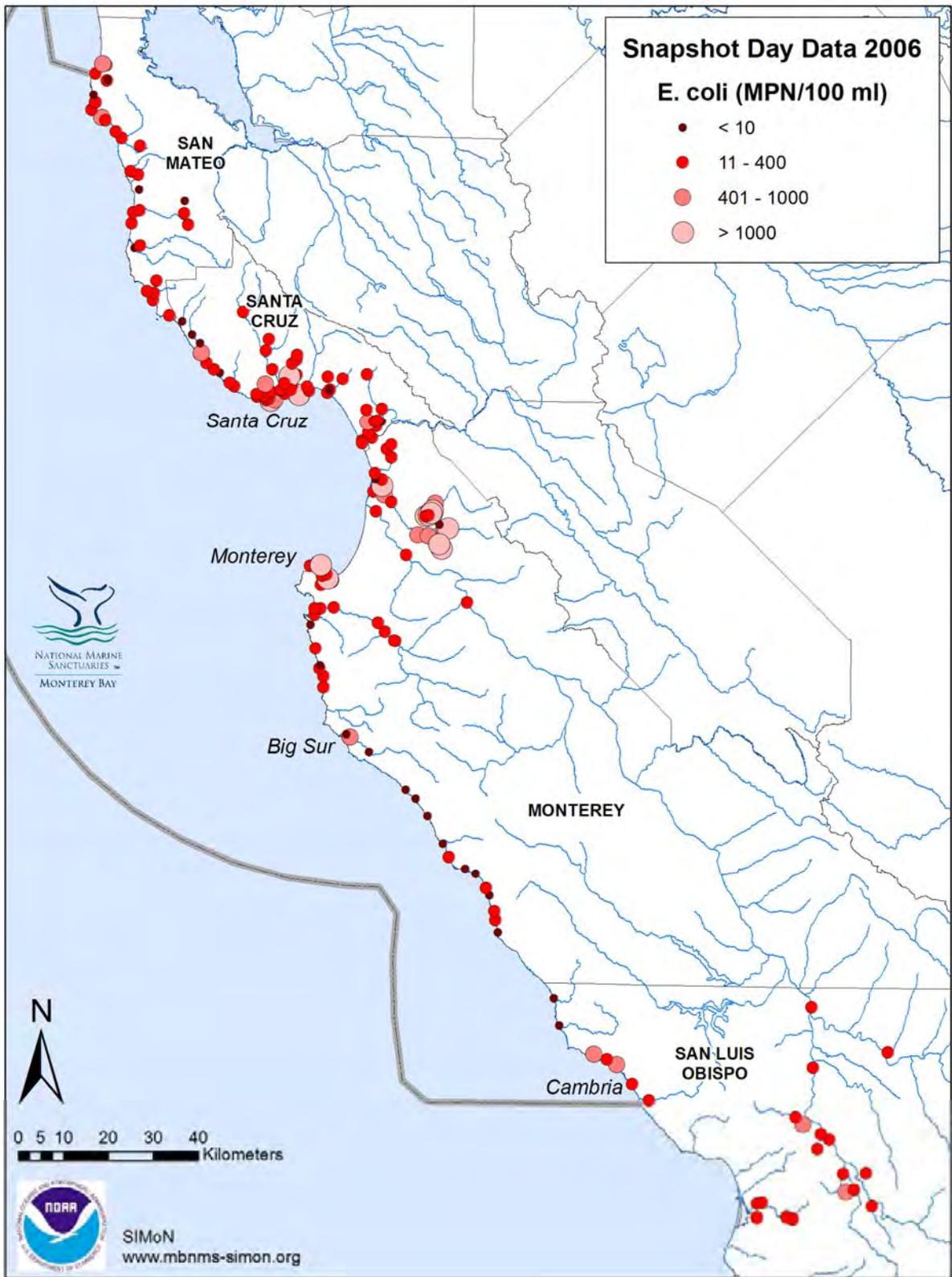


Figure 6. Snapshot Day *E. coli* Results

Conclusion

The Snapshot Day annual event has provided an annual glimpse of the state of water quality in creeks throughout the sanctuary for the last seven years. The 179 volunteers who monitored 189 sites on 123 water bodies made it possible. That amount of effort to accomplish this on one day, could only be done by a large group of dedicated volunteers.



Santa Cruz County training event.

Overall, the results are similar to previous years. More than half of the waterbodies monitored, revealed very good water quality for cold water fish. However, the same constituents continue to exceed water quality objectives at many of the same sites. Waterbodies throughout the lower Salinas watershed north to the Watsonville Slough continue to have high nutrient, turbidity and *E. coli* concentrations. Whereas, waterbodies along the San Mateo Coast and Big Sur coast have few exceedences.

The poor water quality conditions continue to be associated with the same waterbodies identified in previous years as Areas of Concern. The majority of them are identified year after year. Most are located in the more agricultural areas. An example is Santa Rita Creek: the creek has been monitored for the last three events and has been an Area of Concern each year. As a result of the Snapshot Day findings, a grant from the Central Coast Regional Water Quality Control Board, through the

Community Foundation of Monterey County, was received to conduct monthly monitoring at five locations on both Santa Rita Creek and on the Reclamation Ditch for a period of 18 months. These additional sites were monitored on Snapshot Day and account for eleven additional sites identified as Areas of Concern.

This year, two urban sites, Bay Street and Woodrow (Bethany Creek) identified as Areas of Concern, had very low dissolved oxygen and high *E. coli* and nitrate concentrations. Both of these sites are on urban streams within the City of Santa Cruz. High *E. coli* and nitrate have been detected at these locations in other citizen monitoring programs and warrant follow up.

Sites not identified as Areas of Concern and not in the lower Salinas Valley/Watsonville Slough areas that warrant further follow up include:

- The Library site in Monterey and Greenwood Park in Pacific Grove had high bacteria concentrations on Snapshot Day and throughout the year when monitored during the Urban Watch season and for the First Flush.
- Arana Creek in Santa Cruz and Trout Creek in Atascadero had orthophosphate concentrations that were double the WQO.
- Moore Creek, at two locations, had a transparency reading of 1 cm and 26 cm.

Overall, the concentrations of most parameters were up from 2005 yet still below 2004 levels. It rained several days prior to the Snapshot Day event so that may account for some of the elevated concentrations.

Thanks again to all of the volunteers that made this event possible. Snapshot Day is becoming a valuable long term data set that is enabling resource managers to identify where efforts should be made to improve water quality.

Attachment 1 Snapshot Day Participants

Hub Participants	
Allison Dorantes	Heather Vaughn
Alyson Tom	Holly Price
Anne Jensen	Josh Fodor
Bridget Hoover	Kirsten Liske
Chris Coburn	Lucy Kemnitzer
Debie Chirco-Macdonald	Maris Sidenstecker
Donna Meyer	Rachel Saunders
Gerry Doan	Ross Clark
	Tamara Doan
Team Leader	Team Members
Alicia Decastro	Traci Miller, Nick Warrington, Clinton Kuska
Annie Gillespie	Kelly Young
Annie Gillespie	Sarah Eminhizer, Elizabeth Curren
Annie Schmidt	Teresa File, Bruce Allen
Art Evjen	Fran Horvath, Kristy Meyer
Barry Antler	Micayela and Ileana
Bonnie Van Hise	Dorothy Winslow, Ruth Reyes, Katherine Borneto, John Fischer
Brad Macdonald	Gina Sharpe, Sierra Macdonald
Carey Cooper	Brandy Dolecki, Angel Vidrio, Juan Carlos Vasquez
Celia Scott	Gabriel Stocker, Marie Brayman, Joe Issel
Cheryl Lambert	Stefanie Hee
Chris Berry	Caitlyn Christensen, Clyde Christensen, Julie Christensen
Chuck Kozak	Jean Fife, Lisa Sniderman
Claude Albanese	Jessica Viramontes
Colleen Sutter	Chris Goodson
D.J. Funk	Holly Sletteland, Doug Anderson
Daniel Frost	Jim Brock
David Norris	Kris Wibbenhorst, Dennis Long
Deborah Taylor	Kendra Hauser, Emily Fultz
Dennis Davie	Liz Hightower, Anne Hightower, Alexis Chiapella
Don Hoover	Tera Hoover, Kevin Dunaven, Brian Hoover
Elise McCandless	Anthony McCandless, Janet Schwind
Ellen Perryess	Callie Ford, Bobby Jo Close

Attachment 1 Snapshot Day Participants cont.

Team Leader	Team Members
Heather Vaughn	Alison Dorantes, Bruce Dau
Jackie McCloud	Citlallin Buelna, Teomah Buelna, Enrique Buelna
Jamie Lien	John Neil
Jason Nachamkin	Camryn Kelly, Cole Davis
Jeff Johnsen	Darrell McDonnell, Jr, Kim Hu, Darrell McDowell, Harrell McDonnell
Jessica Sharkey	Mike McCullough, Bree Candiloro, Diane Parkerson
Jessica Viramontes	Erica K., Amelie Charnaux
Jon Toal	Travis Baggett, Jennifer Neithardt, Caitlyn Neithardt, Jack Neithardt, Matthew Della Corte
Julia Villaire	Steve Land, Bob Montonye
Julianne Rhodes	Alex Mandel, Carol Foote
Ken Ekelund	Brenda Wood
Kevin Israel	Marco Harding, Susan Harding
Kurt Merg	
Lisa Emanuelson	David Parara
Loro Paterson	Karl Lusebrink, Rita Jaramillo
Mark Meibeyer	Susan Perry
Mary Scannell	Jonathan Greening, Lani Clough
Michele Parker	Krisyt Pannke
Michele Roest	Greg Saunders
Mike Pirolo	Dominique Richard
Natalie Zayas	Fabiola Garcia, Trevor McAlister, Robert LaForgia, Christy Crosby
Neil Panton	Sue Henkin-Haas, Suzana Gulmert
Rachel Garrett	Lucy Kemnitzer, Vai Campbell
Rick Rollins	Mary Panton, Sally Rayn
Robert Frischmuth	Denise Frischmuth, Warren Yogi
Robin Lee	Barbara Murray, Kevin Pelley, Thomas Smith, Chris Hasegawa, Lesley Hasegawa
Robin Martin	Tony Pullin, Leonard Woren
Sarah Bailly	Kerri Johnson
Steve Siebuhr	Chris Siebuhr, Lisa Harper-Henderson
Susan Ferrel	Gary Smith, Alejandro Valencia
Tamara Myers	Gail Olson
Tony Pullin	Chris Lewenhaupt, Dave Fichtner

Attachment 2

DOC_ID# : _____																			
Monterey Bay National Marine Sanctuary																			
Field Data Sheet			GPS Coordinates:																
			W: _____																
			N: _____																
			GPS_ID: _____																
			Hydrologic Unit ID: _____																
Watershed: _____			Station (Site) ID: _____																
Watershed Group Name: _____			Waterbody: _____																
<small>Site map is attached to this data sheet, please update if necessary.</small>			Waterbody Type: _____																
Flow discharge (circle one):			Volunteer Monitors																
Stagnant (NOT Flowing) Trickle (< 1 quart/sec)			TEAM LEADER (list full name & phone #):																
Moderate (< 5 gal/sec) High (> 5 gal/sec)			_____ 2)																
Weather Conditions (circle):			Phone: () -- _____ 3)																
Has it rained within the last 24 hours? Y / N			4) _____ 5)																
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">SKY</td> <td style="text-align: center;">PRECIPITATION</td> <td style="text-align: center;">WIND</td> </tr> <tr> <td>no clouds</td> <td>none</td> <td>none</td> </tr> <tr> <td>partly cloudy</td> <td>foggy</td> <td>breezy</td> </tr> <tr> <td>heavy clouds</td> <td>misty</td> <td>windy</td> </tr> <tr> <td>overcast</td> <td>rain</td> <td>blustery</td> </tr> </table>			SKY	PRECIPITATION	WIND	no clouds	none	none	partly cloudy	foggy	breezy	heavy clouds	misty	windy	overcast	rain	blustery	_____ (list additional names on back)	
SKY	PRECIPITATION	WIND																	
no clouds	none	none																	
partly cloudy	foggy	breezy																	
heavy clouds	misty	windy																	
overcast	rain	blustery																	
Time of Field Measurements: _____																			
INSTRUMENT ID	PARAMETER	RESULT	Replicate	UNITS	<small>(circle appropriate unit)</small>														
	Air Temperature			F or C	Water Clarity (circle one): clear cloudy murky <small>(water itself, not scum)</small>														
	H2O Temperature			F or C															
	pH			pH units															
	Dissolved Oxygen			mg/l (ppm)															
	Conductivity			µS mS	Sampling device used? Y N If so, what kind? Kemmerer bottle														
	Turbidity			JTU NTU															
	Transparency			cm	other: _____														
				UNIT _____															
				UNIT _____															
				UNIT _____															
Notes and Observations :					Fish or Wildlife Observed:														
<small>(include any equipment comments/problems or observations such as water color, trash composition, etc...)</small>					<small>(describe number seen, length of fish, and behavior)</small>														
Sample Collection:																			
Sample ID:	Time Collected:	Collected by:	Type:	Container type :															
			Bacteria																
			Nutrient																

Sample Custody:																			
Relinquished By:			Received By:																
Date /Time:			Date /Time:																
<small>This event sponsored by the California Coastal Commission and Monterey Bay National Marine Sanctuary In collaboration with the MBS Citizen Watershed Monitoring Network, Coastal Watershed Council and The Ocean Conservancy.</small>																			
Do not jeopardize your personal safety to complete this datasheet.																			

Attachment 3. Results by County/Station (Yellow represents exceedance of WQOs)

County	StationID	Time of Field Measurements	Flow	AirTemp (Deg C)	Conductivity (uS)	Dissolved Oxygen (ppm)	pH	Transparency (cm)	Turbidity (JTU)	WaterTemp (Deg C)	E. Coli (MPN/100 ml)	Total coliform (MPN/100ml)	Nitrate-N (mg/L)	Ortho-phosphate-P (mg/L)
San Mateo	202-ALPIN-11	12:20:00 PM	Not Recorded	11.5	900	10.0	7.5	120		11.0	74	576	0.18	0.00
San Mateo	202-BUTAN-11	10:45:00 AM	high (>5 gal/sec)	13.0	300	10.0	7.5	42.4		11.5	10	933	0.48	0.00
San Mateo	202-CALER-11	12:05:00 PM	moderate (<5 gal/sec)	14.1	400	9.0	7.0		0	13.2	216	2098	0.30	0.00
San Mateo	202-CALER-12	11:35:00 AM	moderate (<5 gal/sec)	15.2	500	9.6	7.3		0.5	12.5	487	1723	0.25	0.00
San Mateo	202-DEERC-11	10:00:00 AM	moderate (<5 gal/sec)	14.0	300	9.6	7.5		35	11.0	41	3873	0.09	0.00
San Mateo	202-DENNI-11	12:00:00 PM	high (>5 gal/sec)	14.0	200	9.2	7.0		1.5	11.0	754	2909	0.20	0.00
San Mateo	202-FRENC-11	11:30:00 AM	moderate (<5 gal/sec)	11.0	300	9.8	7.0		30	16.0	135	3873	0.26	0.00
San Mateo	202-GAZOS-11	12:50:00 PM	high (>5 gal/sec)	11.5		9.8	7.5	115	5	12.0	31	336	0.51	0.00
San Mateo	202-GAZOS-15	1:30:00 PM	high (>5 gal/sec)	12.5		9.2	7.5	120	4.5	12.0	41	243	0.45	0.00
San Mateo	202-LAHON-11	11:25:00 AM	high (>5 gal/sec)	12.0	700	10.4	7.5	89.8		11.0	146	2187	0.83	0.00
San Mateo	202-LOBIT-11	11:50:00 AM	moderate (<5 gal/sec)	12.0	750	10.4	8.0		5	11.0	156	2282	0.15	0.00
San Mateo	202-MARTI-11	9:06:00 AM	high (>5 gal/sec)	13.0	200	10.0	7.0		1.5	13.0	10	2143	0.27	0.00
San Mateo	202-MILLC-11	1:00:00 PM	high (>5 gal/sec)	17.0	600	9.4	7.5		5	11.5	109	2481	0.27	0.00
San Mateo	202-MONTA-11	10:14:00 AM	moderate (<5 gal/sec)	13.0	200	9.2	7.0			12.0	52	2484	0.11	0.00
San Mateo	202-MONTA-12	10:47:00 AM	moderate (<5 gal/sec)	13.0	200	9.2	7.0			12.0	108	1935	0.42	0.00
San Mateo	202-PESCA-11	11:35:00 AM	Not Recorded	12.3	500	9.3	7.5	83.2		12.5	122	717	0.36	0.00
San Mateo	202-PILAR-11	12:15:00 PM	high (>5 gal/sec)	18.0	500	9.4	7.5		20	11.5	74	1850	0.61	0.00
San Mateo	202-POMPO-11	9:45:00 AM	Not Recorded	13.0	800	9.1	7.5	41		13.0	211	3255	0.32	0.06
San Mateo	202-PURIS-11	12:25:00 PM	moderate (<5 gal/sec)	11.0	630	10.4	8.5		10	12.0	41	880	0.29	0.00
San Mateo	202-SANGR-11	9:35:00 AM	trickle (<1 quart/sec)	13.0	830	11.2	8.5		15	12.0	240	1296	0.30	0.00
San Mateo	202-SANGR-12	12:25:00 PM	high (>5 gal/sec)	13.0	720	9.6	7.0		10	12.0	341	1396	0.70	0.00
San Mateo	202-SANGR-14	10:10:00 AM	high (>5 gal/sec)	10.1	500	10.0	7.0	64.5		10.0	10	345	0.27	0.00
San Mateo	202-SANPE-11	11:00:00 AM	moderate (<5 gal/sec)	15.0	400	10.4	7.0		0.5	13.0	171	3255	0.04	0.00
San Mateo	202-SANPE-12	10:40:00 AM	moderate (<5 gal/sec)	13.5	300	10.0	7.0		0	12.0	10	243	0.19	0.00
San Mateo	202-SANPE-13	9:10:00 AM	moderate (<5 gal/sec)	14.0	500	9.8	7.5		0.5	12.0	98	5172	0.04	0.00
San Mateo	202-SANVI-11	11:24:00 AM	moderate (<5 gal/sec)	13.0	200	9.0	7.0		2	12.0	41	1968	0.40	0.00
San Mateo	202-TUNIT-11	10:55:00 AM	moderate (<5 gal/sec)	11.0	600	10.8	8.0		5	10.0	10	52	0.11	0.00
San Mateo	202-WHITE-11	10:45:00 AM	high (>5 gal/sec)	11.5	260	10.0	7.5		15	13.0	20	496	0.00	0.00
San Mateo	202-WHITE-12	11:53:00 AM	high (>5 gal/sec)	13.0	280	9.8	7.5	38		12.5	85	717	0.29	0.00
Santa Cruz	304-APTOS-21	11:02:00 AM	Not Recorded	13.7	5100		7.5		0	11.9	52	504	0.00	0.00
Santa Cruz	304-APTOS-22	12:05:00 PM	Not Recorded	15.9	510		7.0		0	12.8	10	785	0.00	0.00
Santa Cruz	304-APTOS-23	1:11:00 PM	Not Recorded	20.3	490		7.0		5	14.9	201	1565	0.10	0.09
Santa Cruz	304-ARANA-21	10:20:00 AM	moderate (<5 gal/sec)	16.4	410	10.0	7.0		10	13.4	288	4884	0.24	0.12
Santa Cruz	304-ARANA-22	1:45:00 PM	moderate (<5 gal/sec)	15.8		9.0	7.0		5	20.9	146	2247	0.42	0.13
Santa Cruz	304-ARANA-23	11:50:00 AM	moderate (<5 gal/sec)	14.3	250	10.0	7.0		5	13.4	265	670	0.11	0.27
Santa Cruz	304-ARROY-21	12:10:00 PM	moderate (<5 gal/sec)	16.5	560	8.0	7.0	35.4		13.5	354	4106	0.39	0.00
Santa Cruz	304-ARROY-22	9:45:00 AM	trickle (<1 quart/sec)	15.6	580	10.0	7.0		10	15.0	288	6867	0.93	0.00
Santa Cruz	304-ARROY-23	11:40:00 AM	stagnant	16.6	630	10.0	7.0		10	15.7	554	6131	2.31	0.00
Santa Cruz	304-BRANC-21	12:15:00 PM	high (>5 gal/sec)	25.0	390	14.1	8.5	116		16.0	175	2481	0.26	0.08
Santa Cruz	304-BRANC-22	10:45:00 AM	high (>5 gal/sec)	14.2	390	10.0	7.0	120		12.9	2046	4611	0.25	0.10
Santa Cruz	304-BRANC-23	10:39:00 AM	moderate (<5 gal/sec)	17.0	400	9.8	7.0	117		12.0	295	2143	0.49	0.08
Santa Cruz	304-BRANC-24	11:25:00 AM	high (>5 gal/sec)	14.9	380	9.6	7.5	120		13.1	121	2143	0.30	0.08
Santa Cruz	304-BRANC-25	12:40:00 PM	high (>5 gal/sec)	17.2	400	9.4	7.5	120		13.6	86	1236	0.20	0.09
Santa Cruz	304-CARBO-21	11:31:00 AM	moderate (<5 gal/sec)	17.5	400		7.0	120		14.0	121	2247	0.65	0.00
Santa Cruz	304-CORCO-21	11:45:00 AM	stagnant	20.0	4100		7.5		5	24.0	161	2481		
Santa Cruz	304-CORCO-22	11:15:00 AM	moderate (<5 gal/sec)	17.0	1400	6.0	7.5		10	18.0	1106	7701		
Santa Cruz	304-FERRA-21	10:00:00 AM	moderate (<5 gal/sec)	14.5	380	10.0	7.0	120		12.0	231	2909	0.15	0.09
Santa Cruz	304-GRANI-21	1:30:00 PM	moderate (<5 gal/sec)	17.2	350	9.4	7.5	120		13.1	369	1553	0.34	0.12
Santa Cruz	304-LAGUN-21	10:05:00 AM	moderate (<5 gal/sec)	14.0	290	13.6	7.0		0	12.5	216	749	0.13	0.00
Santa Cruz	304-LIDEL-21	12:53:00 PM	moderate (<5 gal/sec)	14.5	400	10.0	7.0	120		12.5	5	6867	0.80	0.13
Santa Cruz	304-LITTL-21	12:40:00 PM	moderate (<5 gal/sec)	17.0	290		7.0	120		11.0	10	472	0.08	0.00
Santa Cruz	304-MAJOR-21	10:45:00 AM	Not Recorded	14.0	280	12.0	7.5		0	11.0	201	908	0.14	0.00
Santa Cruz	304-MOLIN-21	11:07:00 AM	moderate (<5 gal/sec)	13.5	280	10.0	7.0	120		12.0	5	1553	1.07	0.16
Santa Cruz	304-MOORE-21	12:28:00 PM	high (>5 gal/sec)	16.0	400	5.4	7.0		1	18.0	10	24192	0.00	0.00
Santa Cruz	304-MOORE-22	10:45:00 AM	trickle (<1 quart/sec)	15.0	360	8.0	7.0	59		13.5	5	1956	0.30	0.00
Santa Cruz	304-MOORE-24	12:45:00 AM	trickle (<1 quart/sec)	17.1	520	8.4	7.0		10	13.2	259	2882	0.16	0.00
Santa Cruz	304-MOORE-25	11:10:00 AM	trickle (<1 quart/sec)	16.5	480	9.0	7.5	85.5		13.5	495	3448	0.30	0.00
Santa Cruz	304-MOORE-26	1:10:00 PM	moderate (<5 gal/sec)	17.0	500	8.6	7.0	26		19.0	20	12997	0.15	0.00
Santa Cruz	304-NEWYE-11	2:17:00 PM	high (>5 gal/sec)	15.5	300	10.0	7.5		25	12.5	20	1872	0.26	0.00
Santa Cruz	304-ROBSC-21	10:16:00 AM	stagnant	15.0	400	6.0	7.0		5	14.0	1467	24192		
Santa Cruz	304-SANLO-21	11:38:00 AM	moderate (<5 gal/sec)	18.0	390	10.4	7.5	120		14.5	262	1500	0.21	0.00
Santa Cruz	304-SANLO-22	10:02:00 AM	moderate (<5 gal/sec)	15.5	770	6.5	7.0	95		15.0	199	1354	0.12	0.11
Santa Cruz	304-SANLO-26	10:19:00 AM	high (>5 gal/sec)	14.1	330	10.0	7.0		2.57	13.3	134	991	0.19	0.00
Santa Cruz	304-SANLO-27	12:18:00 PM	Not Recorded	16.9	360	10.5	7.0		1.54	12.3	52	959	0.03	0.00
Santa Cruz	304-SANVI-21	12:07:00 PM	high (>5 gal/sec)	14.0	290	10.0	7.0	120		11.5	20	644	0.12	0.00
Santa Cruz	304-SCOTT-22	1:02:00 PM	moderate (<5 gal/sec)	14.0	180		7.0	120		13.0	5	345	0.00	0.00
Santa Cruz	304-SCOTT-23	11:36:00 AM	moderate (<5 gal/sec)	18.0	340		7.0	120		14.0	402	2481	0.05	0.00
Santa Cruz	304-SCOTT-24	12:15:00 PM	trickle (<1 quart/sec)	20.0	280		7.0	100		16.0	5	1650	0.43	0.16
Santa Cruz	304-SCOTT-25	10:30:00 AM	moderate (<5 gal/sec)	15.0	180	10.2	7.0	120		13.0	20	624	0.00	0.00
Santa Cruz	304-SCSD2	10:11:00 AM	trickle (<1 quart/sec)	16.5	800	3.2	7.0		0	16.0	2809	24192	4.08	0.00
Santa Cruz	304-SCSD3	1:49:00 PM	high (>5 gal/sec)	17.0	500	1.0	7.0		0	15.5	20	4106	2.44	0.00
Santa Cruz	304-SCSD4	12:30:00 PM	trickle (<1 quart/sec)	16.0	600	0.6	7.0		5	16.0	880	24192	4.25	0.00
Santa Cruz	304-SOQUE-21	11:14:00 AM	high (>5 gal/sec)	15.0	530	9.6	7.0	130		13.5	98	990	0.00	0.00
Santa Cruz	304-SOQUE-22	10:02:00 AM	high (>5 gal/sec)	15.0	580	9.6	7.0	130		13.0	275	1658	0.03	0.00
Santa Cruz	304-VALEN-21	9:45:00 AM	Not Recorded	13.0	5100	9.5	7.0		10	11.9	52	419	0.08	0.13
Santa Cruz	304-VALEN-22	12:31:00 PM	Not Recorded	19.3	460		7.0		10	13.3	238	1850	0.41	0.12
Santa Cruz	304-WADDE-21	12:47:00 PM	high (>5 gal/sec)	15.5	2600	10.0	7.0	120		13.0	10	350	0.03	0.00
Santa Cruz	304-WILDE-21	12:05:00 PM	moderate (<5 gal/sec)	16.0	390	11.4	7.0		0	12.5	187	1224	0.29	0.00
Santa Cruz	304-WILDE-22	12:55:00 PM	moderate (<5 gal/sec)	15.5	490	11.6	7.5		0	15.0	135	496	0.22	0.00
Santa Cruz	304-ZAYAN-21	11:10:00 AM	high (>5 gal/sec)	15.5	410	11.1	7.0		3.65	12.8	107	1483	0.32	0.14
Santa Cruz	304-ZAYAN-22	11:42:00 AM	high (>5 gal/sec)	18.4	450	10.0	7.5		3.71	12.4	134	743	0.11	0.08
Santa Cruz	305-BEACH-21	11:02:00 AM	moderate (<5 gal/sec)	16.0		16.9	7.5		5	18.5	20	12996	6.07	0.00
Santa Cruz	305-CORRA-21	11:48:00 AM	high (>5 gal/sec)	19.0	470	9.0	7.5		10	13.0	203	2359	0.92	0.00
Santa Cruz	305-CORRA-22	10:25:00 AM	high (>5 gal/sec)	18.0		9.0	7.5		5	11.5	41	379	0.04	0.00
Santa Cruz	305-HARKI-21	1:15:00 PM	stagnant	19.0	210	4.8	7.0		50	20.0	408	3448	0.00	0.00
Santa Cruz	305-HARKI-22	12:30:00 PM	trickle (<1 quart/sec)	17.0	310	3.0	7.5		40	19.0	110	24192	0.09	0.18
Santa Cruz	305-HARKI-23	12:35:00 PM	moderate (<5 gal/sec)	18.0	320	9.0	7.0		25	15.0	216	3873	0.	

Attachment 3. Results by County/Station cont. (Yellow represents exceedance of WQOs)

County	StationID	Time of Field Measurements	Flow	AirTemp (Deg C)	Conductivity (uS)	Dissolved Oxygen (ppm)	pH	Transparency (cm)	Turbidity (JTU)	WaterTemp (Deg C)	E. Coli (MPN/100 ml)	Total coliform (MPN/100ml)	Nitrate-N (mg/L)	Ortho-phosphate-P (mg/L)
Monterey	306-ELKHO-31	11:14:00 AM	moderate (<5 gal/sec)	15.3	1990	5.0	7.5	83.2		16.4	26	1359	0.00	0.00
Monterey	306-ELKHO-32	10:51:00 AM	moderate (<5 gal/sec)	15.4	1990	7.0	7.5	60.2		17.3	56	13013	0.00	0.00
Monterey	306-ELKHO-33	11:40:00 AM	moderate (<5 gal/sec)	24.6	1990	11.0	8.0	99		17.6	153	539	0.00	0.00
Monterey	306-ELKHO-34	10:20:00 AM	moderate (<5 gal/sec)	21.5	1500	11.0	7.5	76.4		15.2	101	13776	0.23	1.93
Monterey	306-MOROC-31	10:15:00 AM	trickle (<1 quart/sec)	15.7	4200	11.0	8.0	10.5		17.0	3692	241957	24.40	0.55
Monterey	306-MOROC-32	11:18:00 AM	high (>5 gal/sec)	15.9	4300	11.0	9.0	7.5		20.1	306	81641	0.20	0.38
Monterey	306-MOROC-33	12:00:00 PM	high (>5 gal/sec)	15.9	8600	11.0	9.0	16		20.8	5	10497	0.12	0.81
Monterey	307-CARME-33	10:30:00 AM	high (>5 gal/sec)	14.1	270	9.0	7.5	120		13.5	61	653	0.00	0.00
Monterey	307-CARME-35	12:00:00 PM	high (>5 gal/sec)	15.4	270	9.0	7.5	120		14.5	38	461	0.07	0.00
Monterey	307-CARME-36	10:15:00 AM	high (>5 gal/sec)	13.2	270	9.0	7.5	120		13.8	83	851	0.00	0.00
Monterey	307-CARME-37	11:05:00 AM	high (>5 gal/sec)	17.0	270	8.0	7.5	120		14.4	20	550	0.08	0.00
Monterey	307-CARME-38	11:35:00 AM	high (>5 gal/sec)	12.4	310	9.0	7.5	120		14.7	12	1507	0.06	0.00
Monterey	307-CARME-39	10:15:00 AM	moderate (<5 gal/sec)	15.5	570	5.5	7.0	125		15.5	374	3587	0.09	0.00
Monterey	307-GARZA-31	11:25:00 AM	high (>5 gal/sec)	16.0	180	9.0	7.0	120		13.0	20	1466	0.00	0.00
Monterey	308-BIGCR-31	11:16:00 AM	high (>5 gal/sec)	13.3	330	9.0	7.0	117		11.9	1	426	0.06	0.00
Monterey	308-BIGSU-31	10:30:00 AM	high (>5 gal/sec)	17.0	260	8.0	7.0	120		13.0	2	316	0.00	0.00
Monterey	308-BIGSU-32	11:12:00 AM	high (>5 gal/sec)	18.0	240	10.0	7.0	120		12.0	856	856	0.00	0.00
Monterey	308-DANIC-31	10:16:00 AM	high (>5 gal/sec)	15.5	370	9.0	7.0	117		11.6	1	373	0.00	0.00
Monterey	308-DOUD-31	10:32:00 AM	moderate (<5 gal/sec)	12.3	230	12.0	7.0	120		11.6	6	2039	0.29	0.00
Monterey	308-GARRA-31	10:57:00 AM	high (>5 gal/sec)	14.8	190	11.6	7.0	117.5		11.8	13	423	0.00	0.00
Monterey	308-HOTSP-31	1:00:00 PM	high (>5 gal/sec)	27.0	350	10.0	7.0	120		13.0	4	258	0.12	0.00
Monterey	308-LIMEK-31	10:00:00 AM	high (>5 gal/sec)	15.3	340	9.0	7.5	117		12.8	1	490	0.16	0.00
Monterey	308-MALPA-31	10:12:00 AM	high (>5 gal/sec)	14.4	230	11.2	7.0	117.5		12.3	5	1573	1.09	0.00
Monterey	308-MCWAY-31	12:44:00 PM	high (>5 gal/sec)	20.0	320	10.0	7.0	120		13.0	1	545	0.06	0.00
Monterey	308-MILLC-31	9:36:00 AM	high (>5 gal/sec)	15.9	400	9.0	7.0	117		12.3	50	668	0.15	0.00
Monterey	308-PALOC-31	11:15:00 AM	moderate (<5 gal/sec)	15.0	390	11.0	7.5	41		11.5	50	2602	0.08	0.00
Monterey	308-PARTI-31	12:19:00 PM	high (>5 gal/sec)	15.0	320	8.0	7.5	120		13.0	3	480	0.00	0.00
Monterey	308-PLASK-31	8:42:00 AM	high (>5 gal/sec)	12.5	340	9.0	7.0	117		11.3	153	675	0.00	0.00
Monterey	308-PREWI-31	8:57:00 AM	high (>5 gal/sec)	13.3	270	9.0	7.0	117		11.7	50	1585	0.00	0.00
Monterey	308-ROCKY-32	11:45:00 AM	high (>5 gal/sec)	13.3	200	11.4	7.0	116		11.9	145	465	0.08	0.00
Monterey	308-SANJO-31	11:10:00 AM	high (>5 gal/sec)	18.1	220	6.0	6.5	100		12.8	83	1024	0.15	0.00
Monterey	308-SOBER-31	11:40:00 AM	high (>5 gal/sec)	17.0	2500	6.0	7.0	115		12.9	20	3315	0.27	0.00
Monterey	308-SYCAM-31	11:40:00 AM	moderate (<5 gal/sec)	17.0	260	8.0	7.0	120		13.0	1	101	0.00	0.00
Monterey	308-VICEN-31	10:40:00 AM	high (>5 gal/sec)	15.3	310	9.0	7.5	117		11.7	50	798	0.07	0.00
Monterey	308-WILDC-31	9:17:00 AM	high (>5 gal/sec)	14.3	370	8.0	7.0	117		11.7	1	1103	0.08	0.00
Monterey	308-WILLO-31	8:07:00 AM	high (>5 gal/sec)	11.7	290	10.0	7.0	117		12.3	1	1441	0.00	0.00
Monterey	309-ALISA-32	10:58:00 AM	moderate (<5 gal/sec)	18.7	1200	8.0	7.0	14.8		16.7	306	241957	42.80	0.68
Monterey	309-ASILO-31	11:13:00 AM	moderate (<5 gal/sec)	14.4	1570	6.0	7.0	120		14.4	261	32441	0.70	0.00
Monterey	309-BELLI-31	9:49:00 AM	trickle (<1 quart/sec)	16	1500		7	17.2		16.5	5723	120980	0	0.18
Monterey	309-BEVER-31	9:45:00 AM	high (>5 gal/sec)	16.5	870		6.5			14.8	1265	120980	30.1	1.17
Monterey	309-BOLIV-31	10:47:00 AM	trickle (<1 quart/sec)	14.9	750		7	116.2		16.5	369	120980	2.58	0.28
Monterey	309-CENTR-31	10:40:00 AM	high (>5 gal/sec)	14.4	1360	8.0	7.0	120		14.8	1681	14547	1.39	0.00
Monterey	309-DOLPH-31	10:35:00 AM	moderate (<5 gal/sec)	13.1	1490	7.0	7.0			12.5	50	3224	1.31	0.00
Monterey	309-GABIL-31	10:30:00 AM	moderate (<5 gal/sec)	13.2	800	7.5	7.5	122			8	9675	29.00	0.02
Monterey	309-GRAVE-41	8:44:00 AM	Not Recorded	13.0	870	8.6	7.5	60		14.0	422	4884		
Monterey	309-LIBRA-31	10:58:00 AM	trickle (<1 quart/sec)	12.8	1540	6.0	7.0			12.5	2691	64983	0.66	0.00
Monterey	309-MAJOR-31	11:21:00 AM	trickle (<1 quart/sec)	16.0	1400	9.0	7.0			12.8	405	4196	0.11	0.00
Monterey	309-NATIV-31	11:35:00 AM	moderate (<5 gal/sec)		1030	5.0	7.0	19.6			852	12963	11.30	0.27
Monterey	309-RECDI-31	10:40:00 AM	high (>5 gal/sec)	19	1210	4.45	7			15.7	875	40821	22.5	0.4
Monterey	309-RECDI-33	9:40:00 AM	moderate (<5 gal/sec)	15	800	3.51	7			14.1	100	41058	23.6	0.68
Monterey	309-RECDI-34	10:08:00 AM	high (>5 gal/sec)	17	1240	5.72	7			16.2	662	52312	27.2	0.49
Monterey	309-RECDI-35	9:15:00 AM	trickle (<1 quart/sec)	14	940	4.94	7			13.5	1449	241960	26.1	1.04
Monterey	309-RUSSE-31	10:18:00 AM	moderate (<5 gal/sec)	17	1000		6	14.8		16.3	1	241960	0.17	0.2
Monterey	309-SALIN-31	10:10:00 AM	high (>5 gal/sec)	17.5	800	8.0	7.5	40.8		17.0	15	4434	2.94	0.00
Monterey	309-SALIN-32	11:47:00 AM	high (>5 gal/sec)	19.5	700	9.0	7.5	21.8		18.5	22	1867	1.82	0.00
Monterey	309-SALIN-33	10:10:00 AM	high (>5 gal/sec)	16.5	530	9.0	7.0	22.6		17.0	101	3664	1.39	0.00
Monterey	309-SHERW-31	10:08:00 AM	Not Recorded	17	1060		7.5			14.8	61	3328	3.18	0.67
Monterey	309-SKYL-31	9:53:00 AM	trickle (<1 quart/sec)	13.7	590	8.0	7.0	52.9		12.4	50	798	0.27	0.04
Monterey	309-SRITA-32	9:49:00 AM	moderate (<5 gal/sec)	18.5	830	9.8	7.5	18.6		15.0	4324	77656	23.7	0.6
Monterey	309-SRITA-33	9:16:00 AM	trickle (<1 quart/sec)	13	920	7.04	7.5	5.4		14.6	969	141361	5.72	0.17
Monterey	309-SRITA-34	10:42:00 AM	moderate (<5 gal/sec)	17	840	9.71	7	7.6		15.0	5653	48444	15.4	0.57
Monterey	309-SRITA-35	11:14:00 AM	moderate (<5 gal/sec)	18	820	8.83	7	16.8		19.9	2109	54750	13.8	0.49
Monterey	309-SRITA-36	10:47:00 AM	moderate (<5 gal/sec)	14.9	900	12.91	7	7.8		20.0	2157	41058	11.9	0.35
Monterey	309-TEMBL-31	10:00:00 AM	moderate (<5 gal/sec)	18.0	1990	8.0	7.5	14		16.0	100	17934	36.60	0.40
Monterey	309-TEMBL-32	11:20:00 AM	trickle (<1 quart/sec)	17.0	1790	6.0	7.5	10		16.0	100	24809	15.30	0.21
Monterey	309-TEMBL-33	10:51:00 AM	moderate (<5 gal/sec)	17.0	1840	10.0	8.0	11.2		16.0	632	32554	32.80	0.42
Monterey	309-UPPER-31	11:07:00 AM	trickle (<1 quart/sec)	1070		6.0	6.5	15			1350	20142	10.50	0.14
Monterey	309-VANBU-31	11:14:00 AM	trickle (<1 quart/sec)	19	890		6.5			15.5	203	16277	4.58	0.74
Monterey	309-VETER-31	10:00:00 AM	trickle (<1 quart/sec)	13.9	770	5.0	7.0	120		13.6	153	3099	0.00	0.00
San Luis Obispo	309-ATASC-41	7:10:00 AM	high (>5 gal/sec)	13.5	470	7.2	7.5	60		14.0	193	2382		
San Luis Obispo	309-ATASC-42	8:06:00 AM	high (>5 gal/sec)	16.0	760	8.8	7.5	60		15.5	52	798		
San Luis Obispo	309-PASOR-41	11:05:00 AM	high (>5 gal/sec)	18.5	770	9.0	8.2	60	2.8	15.1	74	5172	0.00	0.00
San Luis Obispo	309-RINCO-41	10:30:00 AM	moderate (<5 gal/sec)	12.0	720	9.0	7.0	60		14.0	135	983	0.29	0.00
San Luis Obispo	309-SALIN-44	8:21:00 AM	high (>5 gal/sec)	13.0	820	9.6	7.0	60		14.5	189	3255		
San Luis Obispo	309-SALIN-45	11:10:00 AM	moderate (<5 gal/sec)	19.0	430	7.2	7.5	60		17.0	20	2987	0.00	0.00
San Luis Obispo	309-SALIN-46	8:45:00 AM	high (>5 gal/sec)	14.5	634	8.9	8.3	60	5	15.4	63	2481	0.96	0.20
San Luis Obispo	309-SALIN-47	10:25:00 AM	high (>5 gal/sec)	16.5	686	9.6	8.4	60	5.1	15.4	98	1250	0.37	0.00
San Luis Obispo	309-SMARG-41	8:40:00 AM	moderate (<5 gal/sec)	13.5	660	7.8	7.0	60		15.0	265	2310	0.23	0.00
San Luis Obispo	309-TROUT-41	10:00:00 AM	moderate (<5 gal/sec)	15.0	650	9.2	7.0	60		13.0	20	683	0.20	0.24
San Luis Obispo	309-YERBA-41	9:30:00 AM	trickle (<1 quart/sec)	14.0	870	5.6	7.7	60		15.0	723	1989	0.10	0.02
San Luis Obispo	310-ARROY-41	10:45:00 AM	moderate (<5 gal/sec)	12.6	650	9.0	7.5	120		13.6	41	601	0.00	0.00
San Luis Obispo	310-ARROY-42	10:45:00 AM	high (>5 gal/sec)	17.0	490	9.5	7.5	120		14.9	10	419	0.00	0.00
San Luis Obispo	310-BRIZZO-41	12:12:00 PM	moderate (<5 gal/sec)	15.2	710	9.2	7.5	117		14.5				
San Luis Obispo	310-CARPO-41	8:50:00 AM	high (>5 gal/sec)	14.2	410	10.0	7.5	120		13.7	10	281	0.00	0.00
San Luis Obispo	310-DAL-41	9:00:00 AM	moderate (<5 gal/sec)	16.9	780	10.0	7.5		0.99	13.9	233	1450	0.00	0.00
San Luis Obispo	310-LAGUN-41	9:20:00 AM	trickle (<1 quart/sec)	12.0	630	8.6	7.0	47		13.8	537	2143</		