Snapshot Day Report
May 7th 2005

Results of a Sanctuary-Wide Water Quality Monitoring Event

Author:

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

NATIONAL MARINE SANCTUARIES
MONTEREY BAY

Monterey Bay Sanctuary Citizen Watershed Monitoring Network

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.

On the morning of May 7th, 2005, 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 provides a place for volunteers to gather and feel part of a larger event.

On Snapshot Day, 161 volunteers monitored 163 sites. 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. Eighty-six sites (53%) had no exceedances of the WQOs for any of the parameters measured. However, transparency and dissolved oxygen were the most common field measurement to not meet the WQOs at 16% and 15% of the sites respectively. In contrast to 2004, the number of dissolved oxygen exceedances was down from 23%.

Similar to last year, *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 16% of the sites, and orthophosphate WQO was exceeded at 18% of the sites.

In 2004, the percentage of exceedances for *E. coli* and orthophosphate was 24% so there was a significant decrease in 2005. Sites with orthophosphate exceedances were found throughout the sanctuary except on the Big Sur coast. *E. coli* exceedances were found primarily around the Monterey Bay and in San Luis Obispo County. Just one site in San Mateo County exceeded the *E. coli* WQO.

This year, as in 2004, 18 Areas of Concern (sites that exceeded 3 or WQOs) were identified. Twelve of the 18 sites were Areas of Concern last year. Of the 34 sites identified as Areas of Concern over the past five years, 5 have been Areas of Concern four times, and 1 (Alisal Creek, Salinas) has been an Area of Concern every year.

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. However, this year, the percentage of sites that exceeded water quality objectives for each parameter went down from previous years.

There is tremendous opportunity to take this information and target available resources towards implementing management programs and 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 2005 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) 426-9012. 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 & 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) 420-1670 http://www.mbnms.nos.noaa.gov/

The Ocean Conservancy (Center for Marine Conservation) is the largest national nonprofit organization committed solely to protecting ocean environments and conserving the global abundance and diversity of marine life through science-based advocacy, research, and public education, as well as informed citizen participation. (831) 425-1363 http://www.cmc-ocean.org/

Volunteers at the San Mateo Hub in San Gregorio

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
DeAnza College
Earth Systems Science and Policy Program (CSUMB)
Elkhorn Slough National Estuarine Research Reserve
Garrapata Watershed Council
Gulf of the Farallones National Marine Sanctuary
Harmony Foods Inc.
Kelly's French Bakery
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
New Leaf Market
Odwalla
San Gregorio Environmental Resource Center
San Gregorio General Store
San Lorenzo Urban Restoration Project
San Lorenzo Valley High School
San Luis Obispo County Environmental Health
San Mateo County Environmental Health
Santa Cruz Coffee Roasting Company
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 Ocean Conservancy
Trader Joe's
United States Environmental Protection Agency
University of California at Santa Cruz Environmental Studies Dept.
Upper Salinas Las Tablas RCD
Upper Salinas Watershed Coalition
Watershed Institute, CSUMB
Whole Foods

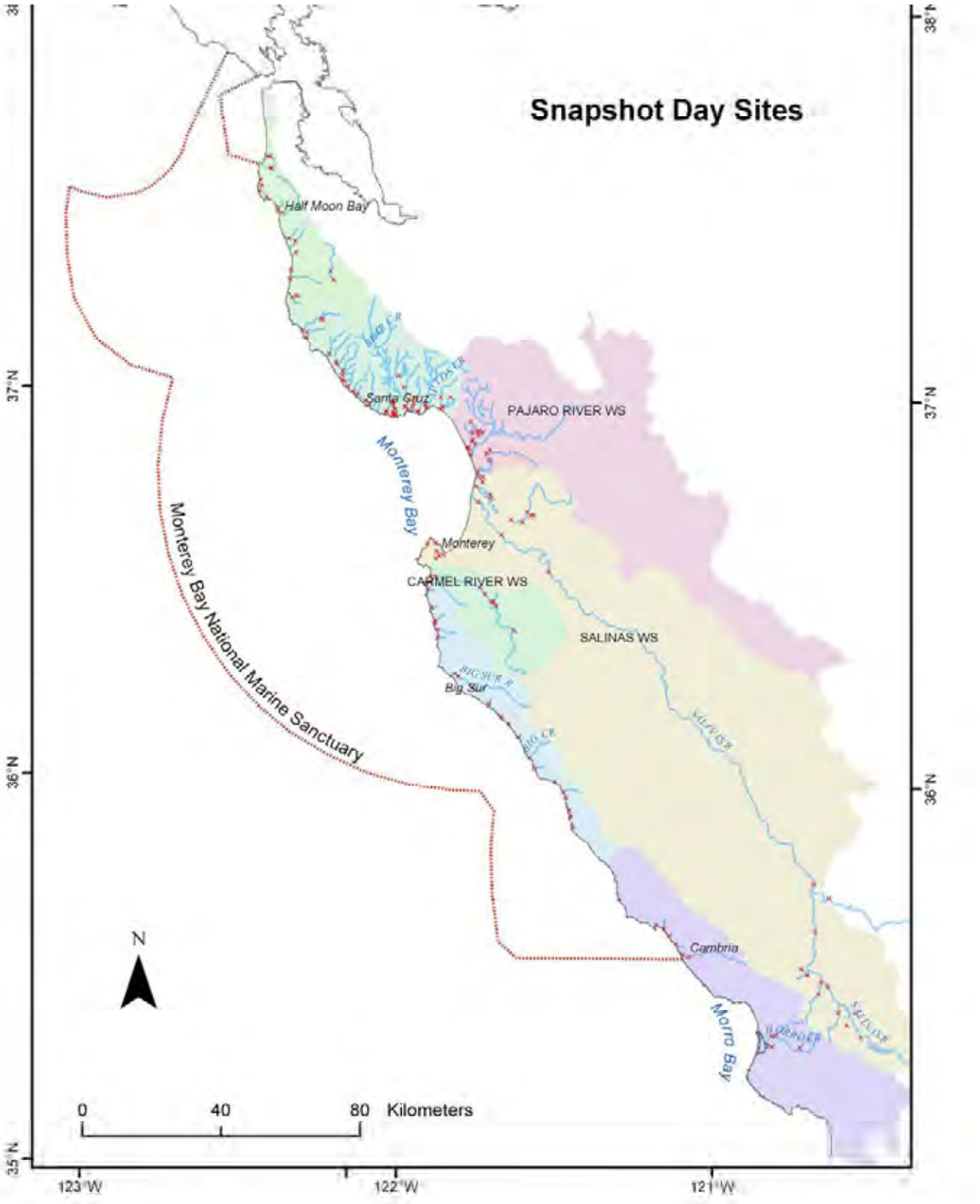


Figure 1. Map of Central Coast monitoring sites

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 Winkler or CHEMets Dissolved Oxygen 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.

Denyse Frischmuth records observations while Robert Frischmuth, Vicky Pearse, and Louise Pearse prepare to monitor at the mouth of the Carmel River. Photo by Warren Yogi

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. The volunteers collecting the data were well trained, and the rigorous quality assurance gives confidence that the results presented in this report are accurate.

Table 1. Water Quality Objectives

Parameter (reporting units)	Water Quality Objectives	Source of Objective
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)
E. coli (MPN/100ml)	Not to exceed 400	EPA Ambient Water Quality Criteria

Jenny Snook measures pH at Natividad Creek in Salinas

Results

On the Central Coast, 161 volunteers monitored 163 sites on 107 water bodies. This year, there were 50 fewer volunteers than in 2004, but they were still able to monitor more waterbodies than previous years. It was a mostly sunny day on the coast with air temperatures ranging between 10.8 °C (51.4 °F) and 17.0°C (62.6 °F).

Most stations met the water quality objectives as detailed in Table 1. Eighty-six sites, compared to 87 sites in 2004, had no exceedance for any of the water quality objectives. Once again, orthophosphate and *E. coli* were the two parameters that most often exceeded their water quality objectives at 18% and 16% of the sites. This was down significantly from 2004 in which 24% of the sites exceeded each of those parameters.

All of the data from Snapshot Day 2005 can be found in tabular form in Attachment 3, which lists the results of every parameter by site. The data is also reported visually on the maps found on pages 10-12. Map #1 shows nitrate-N results. Map #2 shows orthophosphate-P results. Map # 3 shows *E. coli* results.

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

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 15.2°C and the median 14.2°C. This year, just four sites exceeded the temperature WQO with values between 22.6 and 30.0 °C. This is down from twelve sites in 2004. Stations with elevated temperatures from lowest to highest were Santa Rita Creek, Harkin Slough and two sites on Moro Cojo Slough.

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.

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
AirTemp (°C)	none	150	N/A	N/A	10.8	27	17.3	17.0
WaterTemp (°C)	≤ 22	156	4	3%	10.5	30	15.2	14.2
Dissolved Oxygen (mg/L)	≥ 7, ≤12	143	21	15%	1.8	19	8.9	9.0
pH	≥ 6.5, ≤ 8.5	160	17	11%	5	9.5	7.2	7.3
Conductivity (µS)	none	159	N/A	N/A	30	16200	N/A	N/A
Transparency (cm)	≥ 25	106	17	16%	6	>120	87	117
Turbidity (JTU)	≤ 20	40	1	3%	0	30	6.0	5.0
E. coli (MPN/100 ml)	≤ 400	160	26	16%	1	24192	N/A	N/A
Total coliform (MPN/100 ml)	≤ 10000	160	17	11%	61	>24196	N/A	N/A
Nitrate-N (mg-N/L)	≤ 2.25	160	18	11%	<0.01	39.80	2.86	0.24
Orthophosphate-P (mg-P/L)	≤ 0.12	160	28	18%	<0.01	2.38	0.26	0.10

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 Water Quality Objective 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 8.9 mg/l, very similar to 8.5 mg/l last year and 8.9 in 2003. Fifteen sites ranged from 6.6 mg/l to as low as 1.8 mg/l. Six sites had saturated dissolved oxygen concentrations between 12.2 and 19.0 mg/l. They were Tembladero Slough, Pomponio Creek, San Lorenzo River, and three sites in the Moro Cojo. The total number of exceedances was down from 37 in 2004.

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 fall between 8.5 and 6.5. The average pH level for all Central Coast sites was 7.2 and median 7.3. The average remained the same as last year and down from 7.6 in 2003. Fourteen sites in San Mateo, Santa Cruz and San Luis Obispo counties had pH values between 6.3 and 5.0. Rinconada Creek in the upper Salinas River watershed had the lowest pH value of 5.0. The three Moro Cojo Slough sites had a pH of 9.0 or greater. The Moro Cojo sites also exceeded this water quality objective in 2003 and 2004.

Carissa Carter at San Vicente Creek in Davenport 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 2/3 of the Snapshot Day teams assessed area water bodies using a transparency tube. The other teams used the dual cylinder method or turbidimeters.

Seventeen (16%) sites where transparency tubes were used (up from thirteen (14%) sites in 2004) did not meet the CCAMP Action Level for transparency 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. As was the case in 2003 and 2004, thirteen of the seventeen sites were located in the lower Salinas Valley watershed.

There is not an established water quality objective for turbidity measured by the dual cylinder method, however, a typical turbidity value for muddy water after a storm is between 20-50 Jackson Turbidity Units (JTU). One site (3%) (down from ten sites in 2004) reported turbidity above this range. Waddell Creek in Santa Cruz County was the only site to exceed the WQO with a value of 30 JTU.

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, 75% of the sites were described to have clear water, which is exactly the same as in 2003 and 2004.

Nutrients
Nitrate and orthophosphate are nutrients that occur naturally in water bodies and promote aquatic plant growth. Excessive nutrient levels can lead to excessive 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.

Nitrate - Eighteen (11%) sites exceeded the CCAMP action level for nitrate as N of 2.25 mg/l (see Table 2). Nitrate results ranged from non-detect at many of the sites to 39.8 mg-N/l. The average nitrate concentration was 2.86 mg-N/l and the median was 0.24 mg-N/l. All nitrate exceedances were found between the Watsonville Slough and the Lower Salinas Valley except for one site in Morro Bay on Los Osos Creek. The highest concentrations were at the Reclamation Ditch (39.8 mg-N/l), Elkhorn Slough (32.3 mg-N/l), Gabilan Creek (28.6 mg-N/l) and three Tembladero Slough sites (28.4, 27.3, 20.6 mg-N/l). The number of nitrate exceedances was down from twenty-three sites in 2004 and eighteen in 2003.

Orthophosphate - Twenty-eight (18%) 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 2.38 mg-P/l in Elkhorn Slough. The average orthophosphate concentration was 0.26 mg-P/l and the median was 0.10 mg-P/l. Many of the exceedances were in the lower Salinas Valley and Watsonville Slough watersheds. Other locations with exceedances included; two sites in San Mateo County, one site in Santa Cruz County, and five sites in San Luis Obispo County. The total number of exceedances was 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. Excessive coliform counts pose potential problems for both aquatic and human health.

E. coli. is a member of the fecal coliform group. 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 26 sites (16%), down from 40 sites in 2004 and 41 sites in 2003 (see Table 2). The highest concentrations were found in Corcoran Lagoon (>24,192 MPN/100 ml), Watsonville Slough (4,611 MPN/100 ml) and Graves Creek in San Luis Obispo (4,352 MPN/100 ml).

Becky Stamski and Ty Kennedy-Bowdoin streamside in Lidell Creek near Davenport

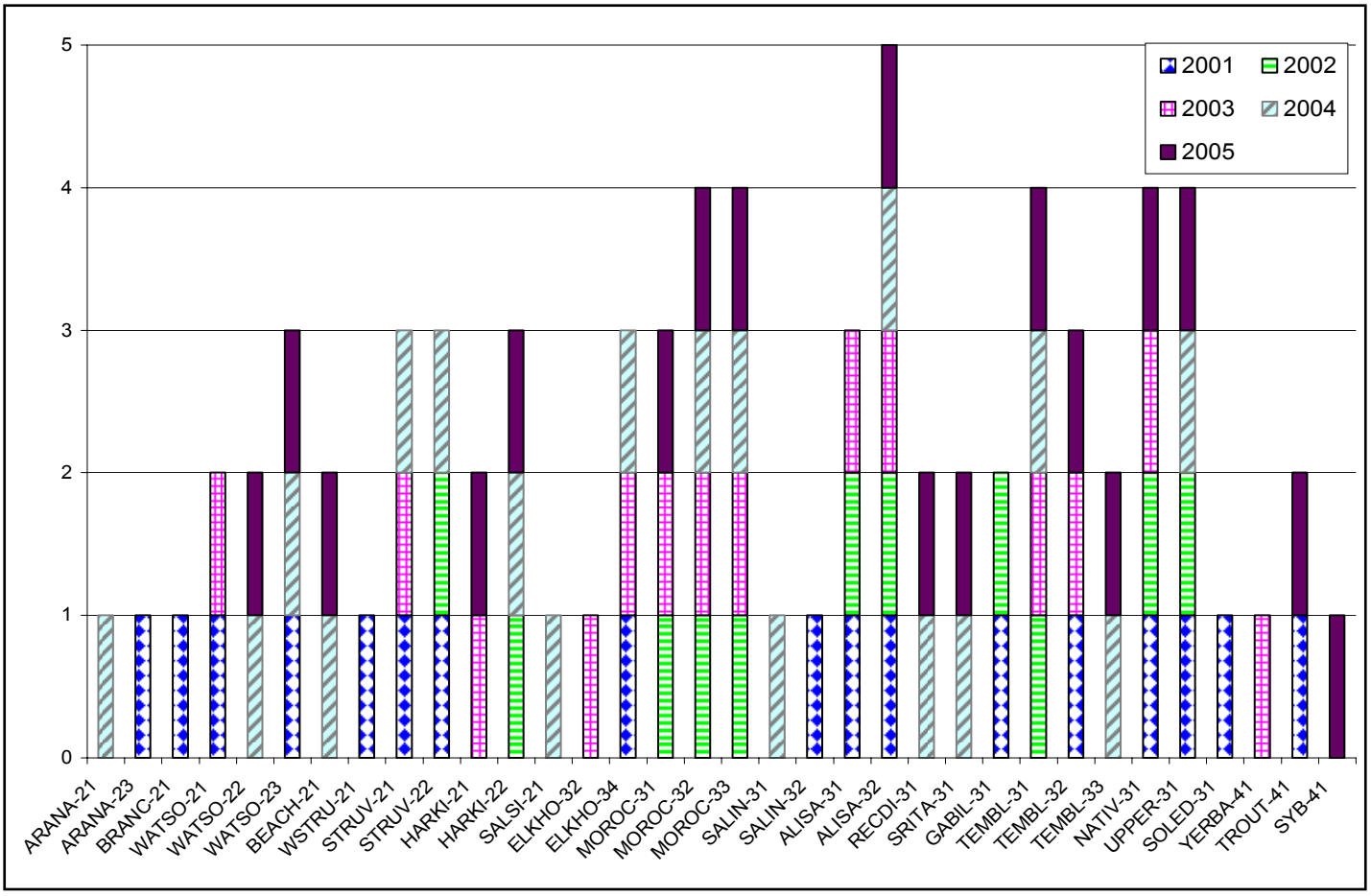


Figure 3. Depicts the number of times a site has been designated an Area of Concern on Snapshot Day for the years 2001-2005 (ALISA-31and SOLED-31 have not been monitored since 2003).

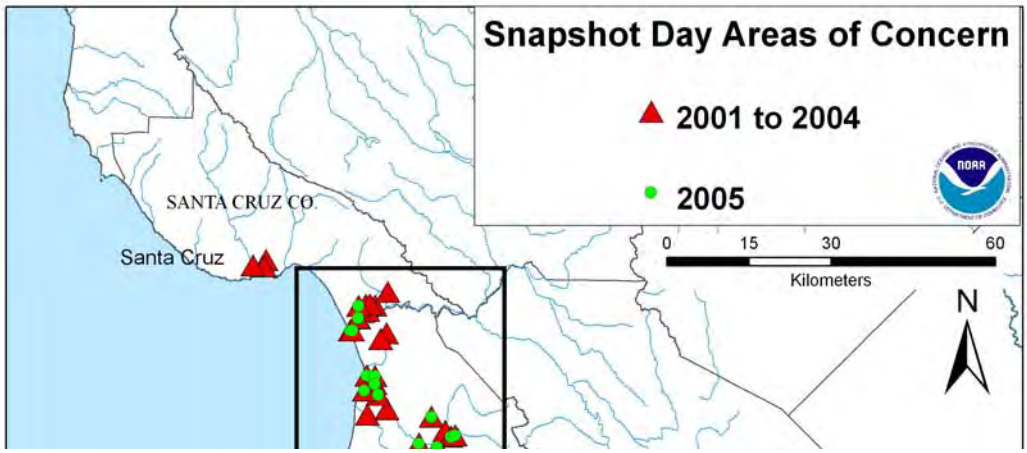
Areas of Concern

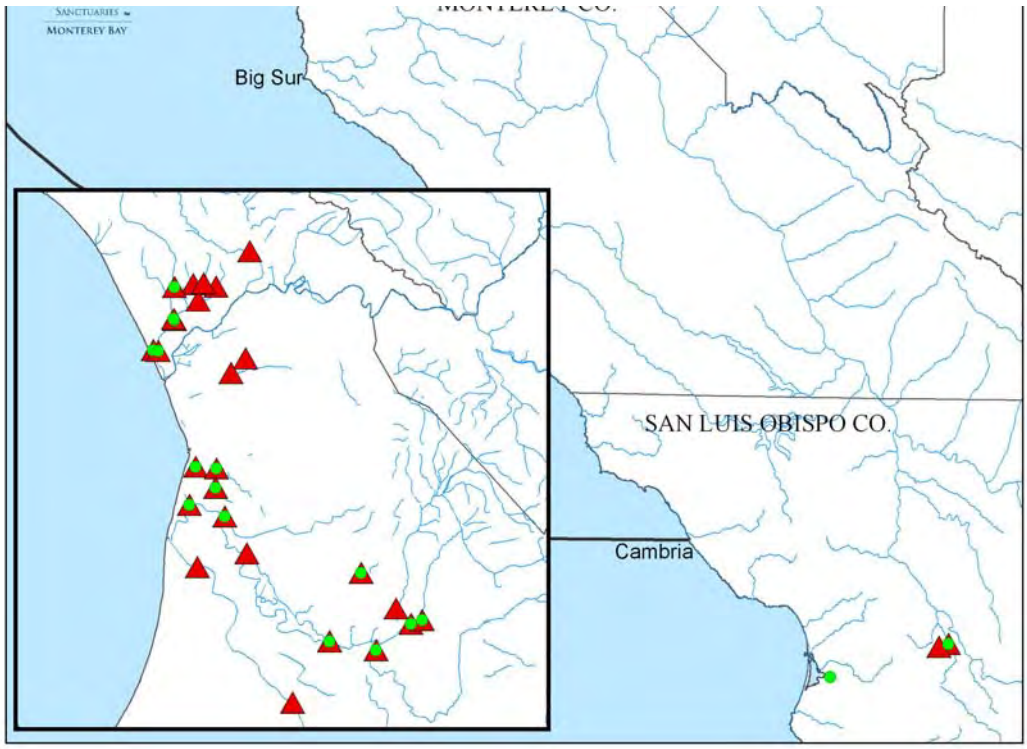
Stations that exceed three or more of the seven parameters are identified as "Areas of Concern". This directs attention to a subset of water bodies that may require additional monitoring or follow up. This water monitoring model has been implemented over the last six years and provides trend information as well as highlights persistent problem areas.

This year, eighteen Areas of Concern were identified on the Central Coast. In 2004, there were also 18 Areas of Concern, up from 14 identified in 2003, 11 identified in 2002, and 17 identified in 2001. Twelve of the 18 Areas of Concern in 2005 were also Areas of Concern in 2004. Of the 34 stations identified as Areas of Concern during the previous five Snapshot events – Los Osos Creek is new this year, nine were Areas of Concern twice, eight were Areas of Concern three times, five were Areas of Concern four times and Alisal Creek was an Area of Concern every year (see Figure 3).

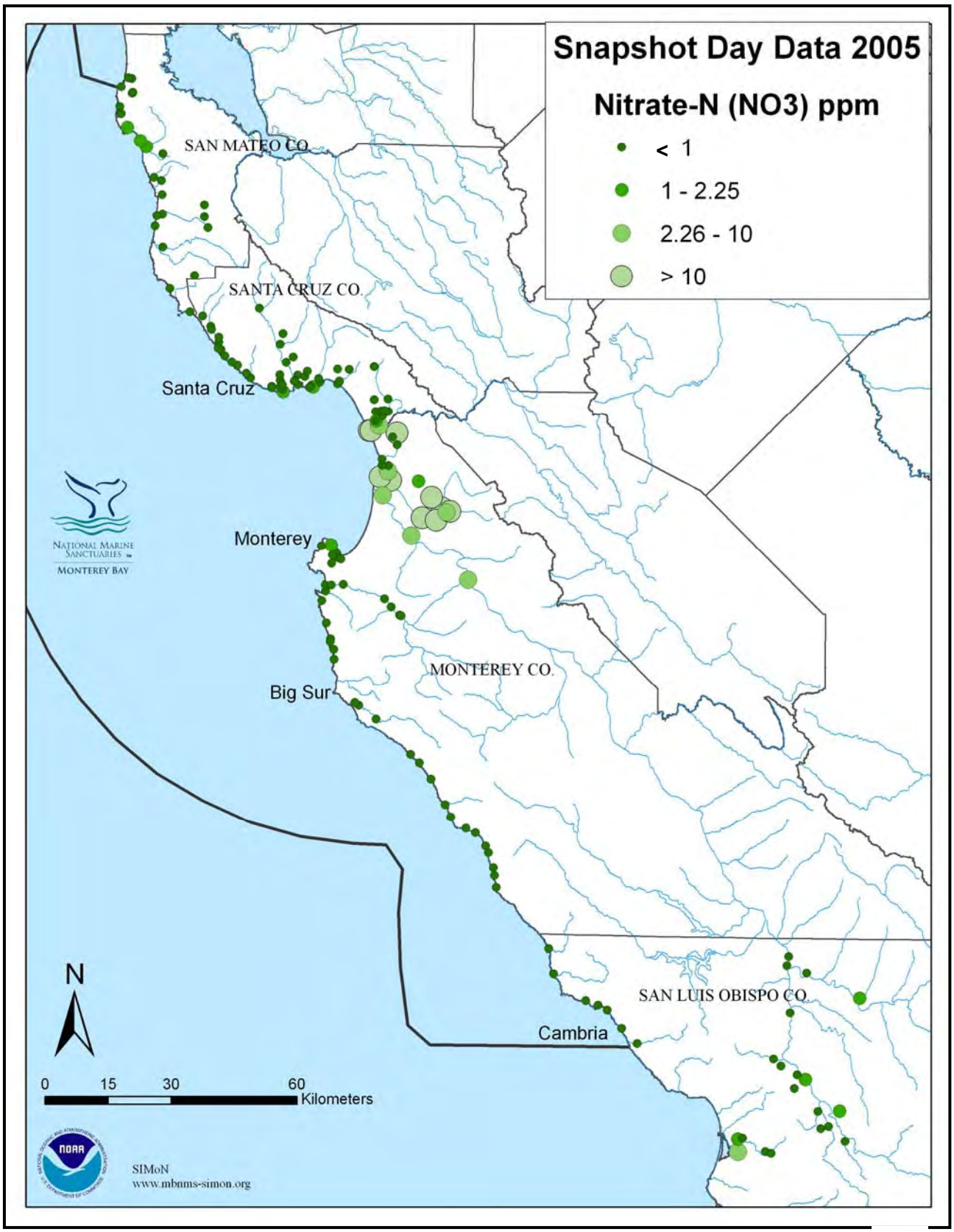
The 2005 Central Coast Areas of Concern were compared with California's list of impaired water bodies (2002 "303(d) list") and the 2005 proposed revisions. The 303(d) list was generated by the Regional and State Water Quality Control Board and identifies impaired waterways in the state of California. 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 the18 Areas of Concern identified in 2005 on the Central Coast, all but four (77%) 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. Trout Creek in San Luis Obispo and Harkin Slough, which have been areas of concern for at least two years, are not listed. 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.

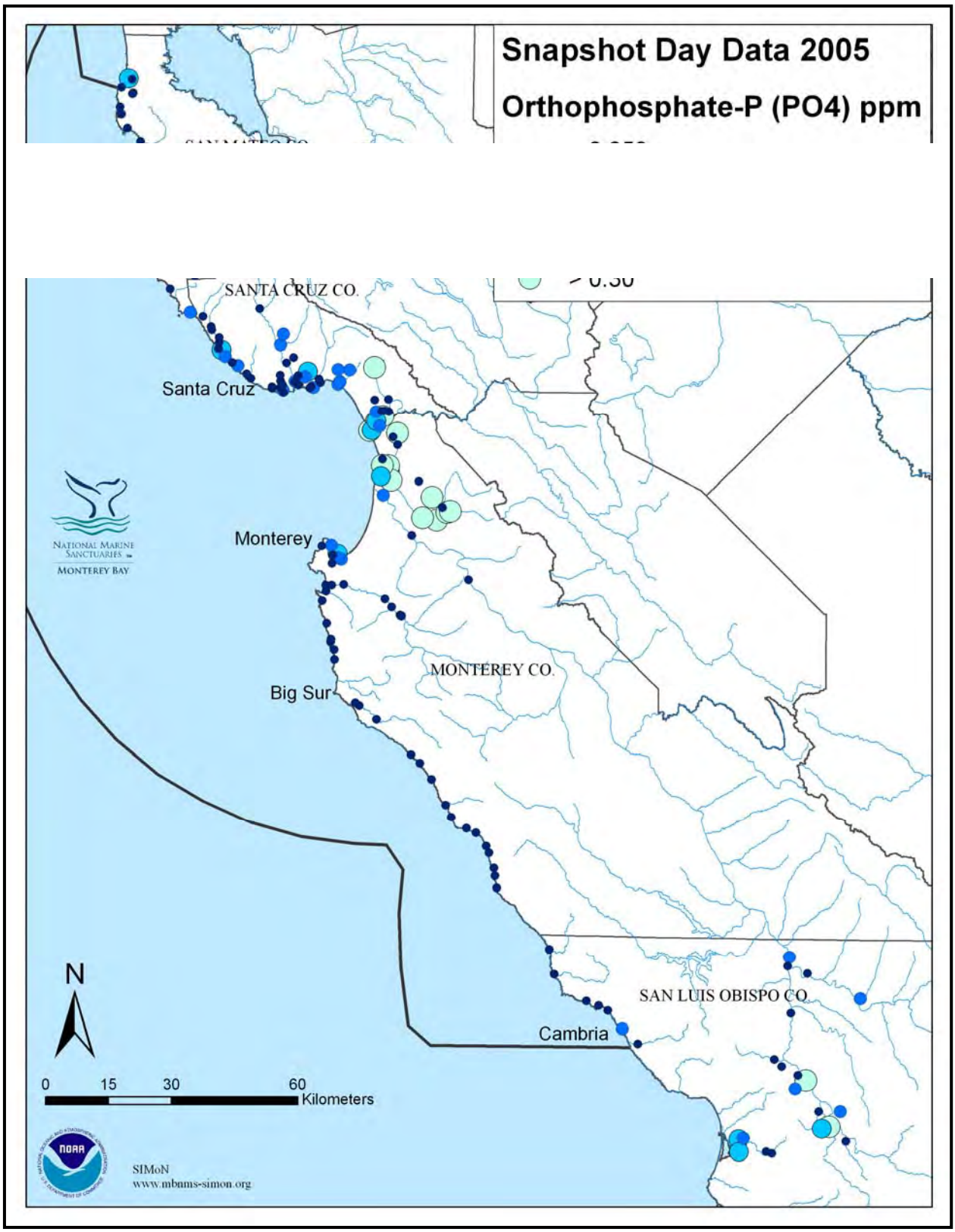




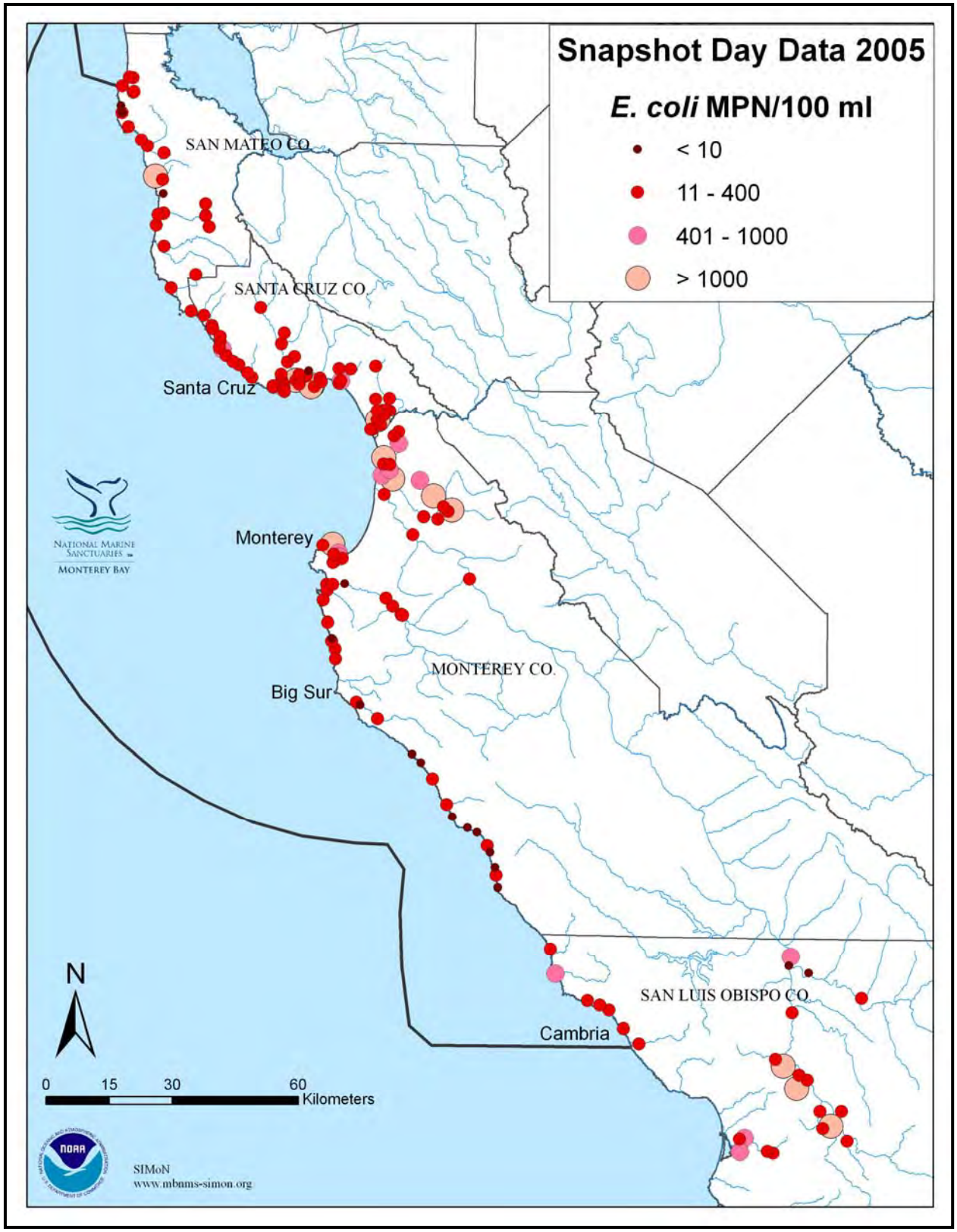
#1 Snapshot Day Nitrate-N Results



#2 Snapshot Day Orthophosphate-P Results



#3 Snapshot Day *E. coli* Results



Conclusion

Based on the results from this year's event, the number of exceedances for water temperature, dissolved oxygen, turbidity, *E.coli*, nitrate and orthophosphate were down this year compared to 2004. Eighty-six of the sites (53%) did not have a single exceedance for any of the water quality objectives, which is almost exactly the same as in 2004. Many of the water bodies along the San Mateo Coast and Big Sur Coast were, overall, in very good condition. In contrast, the water bodies in more urban and agricultural areas seem to be more impacted by the surrounding land use.

Dave Parrara collecting water from the Reclamation Ditch in Salinas. Photo by Lisa Emanuelson

There were 18 Areas of Concern in both 2004 and 2005. Of the 18, twelve were identified as Areas of Concern both years and are located between the Watsonville Slough and Lower Salinas River. It is important to acknowledge that there is an inherent bias toward the identification of Areas of Concern that are impacted by agriculture. This is partly because of an experimental design that is biased towards water quality parameters that represent the major issues on the central coast (ie. nutrients and turbidity), and partly based on the greater ability of citizen groups to monitor certain parameters (ie. water temperature, turbidity and dissolved oxygen) over other contaminants (ie. metals, oil and grease). The number of sites defined as Areas of Concern within agricultural areas is also influenced by the strong agriculture presence on the central coast. Fortunately, many efforts are currently underway to address agriculture impacts to local rivers and streams. It is possible that the fewer number of exceedances that were detected during this event may be a result of the best management practices (BMPs) being implemented by the agriculture community and local resource agencies. However, in general, the AOCs indicated that additional work and efforts are required to improve water quality.

There are other monitoring sites that were not Areas of Concern but somehow stood out from the other sites. These locations include:

- Rinconada Creek in the upper Salinas River watershed had the lowest pH value of 5.0
- Waddell Creek in Santa Cruz County had the highest turbidity value of 30 JTU.
- Graves Creek in San Luis Obispo reported an *E. coli* concentration of 4,352 MPN/100 ml
- *E. coli* concentrations in three urban drainages in Monterey and Pacific Grove ranged from 816 to >2,420 MPN/100 ml
- Purisma Creek was the only site in San Mateo County to exceed the water quality objective for *E. coli* with a value of 3,076 MPN/100 ml
- The nutrient values for Calera Creek in San Mateo were much lower this year than in the previous two Snapshot Day events. The orthophosphate results went from 2.72 mg-P/l in 2004 and 1.6 mg-P/l in 2003 to 0.15 in 2005.

Overall, water quality conditions seemed better for the 2005 Snapshot Day event than previous years. The number of exceedances for orthophosphate, *E. coli* and dissolved oxygen all dropped by about 8%. For sites primarily in San Mateo and Santa Cruz counties, the turbidity exceedances dropped by 12%.

This one day event continues to demonstrate the value of citizens collecting important water quality information. They are able to document water quality impairments and consistent results over the time span of six years. We are grateful to all of the people that volunteered their time for this event!

Attachment 1 Snapshot Day Participants

Hub Participants
Anne Jensen
Bridget Hoover
Debie Chirco-Macdonald
Donna Meyer
Erica Burton
Gerry Doan
Holly Price
John Laird, 27th Dist. Assemblyman
Kirsten Liske
Kelley Higgason
Mike Rotkin, Mayor,City of Santa Cruz
Rachel Saunders
Tamara Doan

Team Leader	Team Members
Ann Kitajima	Annie Gillespie
Annie Schmidt	John Fischer, Lauren Clayton, Susan Lynch, Frank Hicks
Becky Stamski	Carissa Carter, Ty Kennedy-Bowdoin
Ben Bouldin	Greg Sanders, Pat Bouldin
Bobby Jo Close	Philip La Follette
Brenda Donald	Deborah Hirst, Susan Danielson, Alfield Donald
Breta Holgers	Gregg Kerlin, Laura Kahn
Carey Cooper	Julia Davenport, Kyrrha Sevco
Chantile Royer	CeCe Bayer, Magali Blanco
Cheryl Lambert	Sonya Morrison
Chris Berry	Matt Baldzikowski, George McMenamin
Chris Coburn	Rosalie Hackett
Chuck Kozak	
Claude Albanese	Art Chapman, Ken Eberle
David Norris	Jeff Johnson, Kim Ha
DJ Funk	Marti Johnson, Adriana Morales
Don Hoover	Tera Hoover
Ed Niland	Julia Niland

Attachment 1 Snapshot Day Participants cont.

Team Leader	Team Members
Gabriela Carvalho	Timba Harris
Gary Smith	Alejandro Valencia, Susan Ferrel
Gregg Kerlin	Chantell Royer
Huff McGonigal	Shane Coker, Summer Rogers
Jackie McCloud	Dave Fichtner, Rachel Niederer
Jaime Lien	Jim Patterson
Jason Nachamkin	Clive Sanders, Hal Titus, Karen Finlen
Jeff Hayes	Talia Reyes, Jan Reyes
Jonathan Toal	Jim Spaulding
Julia Villaire	Tracy Maxwell
Justin Dennis	Jenine Beecher, Lilian Dennis
Justin Morgan	Anne Jurek
Kelly Chapin	Art Evjen, Fran Horvath
Ken Ekelund	Steve Mack, Dennis Long
Kurt Merg	
Lisa Emanuelson	Dave Parara
Loro Paterson	Andrea Zurr
Maris Sidenstecker	Enid Irwin, Karen Harris
Mark Meibeyer	Stacey Couture, Sam Couture, Jeff Kwasny
Mary Scannell	Shane Anderson
Melanie Lindberg	Julianne Rhodes, Duncan Lindberg
Michelle Parker	Kristy Pannke
Michelle Roest	Lucille Bosco, Carole Adams, Phil Adams
Mike Lacey	Bob Croyle
Natalie Zayas	Heather Cott, Edward Murray, Jonathan Lepe, Ana Martinez
Neil Panton	Mary Panton, Julien Gulmert, Suzana Gulmert
Rachael Peavler	Jason Parke
Rachel Garrett	Robin Kimmy
Robert Frischmuth	Denyse Frischmuth, Louise Pearse, Vicky Pearse, Warren Yogi
Robin Lee	Claudia Pineda, Brad Snook, Jenny Snook
Sarah Bally	Kelly Young
Tom LaHue	Devi Tong, Brian Tong

Attachment 2

Monterey Bay National Marine Sanctuary
Field Data Sheet

DOC_ID# :

GPS Coordinates: Datum; W:; N:

GPS_ID:

Please **Use one sheet for each Station**. Use back for comments.

Hydrologic Unit ID:

Watershed:

Station (Site) ID:

Watershed Group Name:

Waterbody:

Waterbody Type:

Site map is attached to this data sheet, please update if necessary.

Flow discharge (circle one):
Stagnant (NOT Flowing); Trickle (< 1 quart/sec);
Moderate (< 5 gal/sec); High (> 5 gal/sec)

Weather Conditions (circle):
Has it rained within the last 24 hours? Y / N

-- SKY--	-- PRECIPITATION--	-- WIND--
no clouds	none	none
partly cloudy	foggy	breezy
heavy clouds	misty	windy
overcast	rain	blustery

Volunteer Monitors

TEAM LEADER (list full name & phone #):

2)

Phone: ( ) – 3)

4) 5)

(list additional names on back)

Time of Field Measurements:

INSTRUMENT ID	PARAMETER	RESULT	Replicate	UNITS	(circle appropriate unit)
	Air Temperature			F or C	Water Clarity (circle one):
	H2O Temperature			F or C	clear cloudy murky (water itself, not scum)
	pH			pH units	
	Dissolved Oxygen			mg/l (ppm)	
	Conductivity			µS mS	Sampling device used? Y N If so, what kind?
	Turbidity			JTU NTU	Kemmerer bottle
	Transparency			cm	other:
				UNIT	
				UNIT	
				UNIT	

Notes and Observations :
(include any equipment comments/problems or observations such as water color, trash composition, etc...)

Fish or Wildlife Observed:
(describe number seen, length of fish, and behavior)

Sample Collection:

Sample ID:	Time Collected:	Collected by:	Type:	Container type :
			Bacteria	
			Nutrient	

Sample Custody:

Relinquished By:	Received By:
Date /Time:	Date /Time:

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.

Do not jeopardize your personal safety to complete this datasheet.

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

County	StationID	Waterbody Name	Collection Time	Flow Discharge	AirTemp deg C)	WaterTemp (deg C)	Conductivity (uS)	pH	Dissolved Oxygen (ppm)	Transparency (cm)	Turbidity (JTU)	NO3-N (mg-N/L)	PO4-P (mg-P/L)	Total coliform (MPN/100 ml)	E. coli (MPN/100ml)
San Mateo	202-MARTI-11	Martins Creek	11:00 AM	moderate (<5 gal/sec)	14.5	17.5	240	8.0	9.6		5.0	0.26	< 0.01	833	10
San Mateo	202-TUNIT-11	Tunitas Creek	10:06 AM	moderate (<5 gal/sec)	14.0	12.0	570	8.5	10.5		5.0	< 0.01	< 0.01	110	10
San Mateo	202-MONTA-11	Montara Creek	12:12 PM	moderate (<5 gal/sec)	17.0	14.0	270	8.0			15.0	0.11	< 0.01	581	10
San Mateo	202-SANPE-13	San Pedro Creek	9:44 AM	moderate (<5 gal/sec)	16.0	14.0	410	7.5	9.9		5.0	0.38	< 0.01	359	20
San Mateo	202-MONTA-12	Montara Creek	12:45 PM	moderate (<5 gal/sec)	17.0	15.0	290	8.0	7.2		20.0	0.11	< 0.01	985	41
San Mateo	202-SANGR-14	San Gregorio Creek	10:14 AM	moderate (<5 gal/sec)	12.5	11.5	640	7.5	9.5	122.0		0.12	< 0.01	201	52
San Mateo	202-GAZOS-11	Gazos Creek	10:15 AM	moderate (<5 gal/sec)	16.0	12.0	480	8.3	8.2	120.0		0.08	< 0.01	231	86
San Mateo	202-GAZOS-13	Gazos Creek	1:15 PM	high (>5 gal/sec)	15.0	12.0	300	6.3	7.2	120.0		< 0.01	< 0.01	187	86
San Mateo	304-NEWYE-11	Ano Nuevo Creek	12:25 PM	moderate (<5 gal/sec)	10.6	15.0	360	7.0	7.0		20.0	0.35	0.09	2098	97
San Mateo	202-PESCA-11	Pescadero Creek	2:00 PM	high (>5 gal/sec)	15.0	14.5	500	8.5	5.8	120.0		0.16	0.08	432	98
San Mateo	202-FRENC-11	Frenchman's Creek	10:15 AM	high (>5 gal/sec)	16.0	12.4	213	7.5	10.4	45.0		1.14	< 0.01	639	109
San Mateo	202-ALPIN-11	Alpine Creek	12:30 PM	moderate (<5 gal/sec)	13.0	12.0	950	7.5	10.0	122.0		0.14	0.15	689	109
San Mateo	202-CALER-12	Calera Creek	12:00 PM	not recorded	19.0	15.0	510	7.5	8.0		5.0	0.24	0.15	1401	110
San Mateo	202-SANGR-11	San Gregorio Creek	11:07 AM	stagnant	15.5	15.5	1300	7.5	0.4	89.2		9.06	< 0.01	216	110
San Mateo	202-LOBIT-11	Lobitos Creek	11:16 AM	moderate (<5 gal/sec)	14.0	13.0	680	8.4	9.3		10.0	0.15	0.10	863	171
San Mateo	202-POMPO-11	Pomponio Creek	11:55 AM	stagnant	17.0	22.0	1200	7.5	12.5	38.1		0.08	0.13	332	134
San Mateo	202-SANGR-12	San Gregorio Creek	9:58 AM	high (>5 gal/sec)	15.0	12.5	700	7.0	9.6	120.0		0.10	0.09	594	135
San Mateo	202-DENNI-11	Dennison Creek	9:45 AM	high (>5 gal/sec)	16.0	13.2	101	7.0	9.6			2.20	< 0.01	3448	135
San Mateo	202-PILAR-11	Pilarcitos Creek	10:59 AM	high (>5 gal/sec)	14.0	12.1	260	7.5	9.5	80.0		1.50	< 0.01	3078	219
San Mateo	202-SANPE-12	San Pedro Creek	10:43 AM	high (>5 gal/sec)	15.0	12.0	280	7.0	9.4		5.0	0.18	< 0.01	1354	228
San Mateo	202-CALER-11	Calera Creek	11:43 AM	trickle (<1 quart/sec)	16.0	14.0	380	7.5	9.6		5.0	0.31	< 0.01	1935	278
San Mateo	202-SANPE-11	San Pedro Creek	11:15 AM	moderate (<5 gal/sec)	21.0	15.0	430	7.5	9.9		10.0	0.39	< 0.01	2481	337
San Mateo	202-LAHON-11	La Honda Creek	11:52 AM	moderate (<5 gal/sec)	15.0	12.0	800	7.5	10.2	122.0		0.10	0.05	766	345
San Mateo	202-MILLC-11	Mill Creek	11:30 AM	high (>5 gal/sec)	15.5	12.3	518	7.5	7.5	120.0		0.25	< 0.01	942	393
San Mateo	202-PURIS-11	Purisma Creek	12:02 PM	moderate (<5 gal/sec)	16.0	14.0	560	8.2	9.4		10.0	0.15	0.11	3076	3076
Santa Cruz	304-APTOS-21	Aptos Creek	10:00 AM	high (>5 gal/sec)	11.9	11.5	590	7.5	10.4		0.0	< 0.01	0.06	663	41
Santa Cruz	304-APTOS-22	Aptos Creek	11:10 AM	high (>5 gal/sec)	16.3	12.9	550	7.5	9.4		0.0	< 0.01	0.06	1376	85
Santa Cruz	304-APTOS-23	Aptos Creek	10:45 AM	high (>5 gal/sec)	17.7	16.4	1010	7.5	10.3		5.0	0.07	0.08	2613	259
Santa Cruz	304-ARANA-21	Arana Creek	1:30 PM	moderate (<5 gal/sec)	19.1	13.9	470	7.0	9.0		5.0	0.17	0.07	7270	327
Santa Cruz	304-ARANA-22	Arana Creek	10:59 AM	moderate (<5 gal/sec)	15.5	12.2	310	7.0	9.6		0.0	0.11	0.15	932	10
Santa Cruz	304-ARROY-21	Arroyo Seco Creek	2:20 PM	trickle (<1 quart/sec)	18.0	18.0	400	6.8		122.0		0.03	< 0.04	1860	121
Santa Cruz	304-ARROY-22	Arroyo Seco Creek	1:05 PM	trickle (<1 quart/sec)	18.9	20.2	490	7.5			0.0	0.61	0.10	5475	63
Santa Cruz	304-ARROY-23	Arroyo Seco Creek	11:50 AM	trickle (<1 quart/sec)	15.9	17.0	540	7.5			0.0	1.71	< 0.04	7701	52
Santa Cruz	304-BRANC-21	Branciforte Creek	12:00 PM	moderate (<5 gal/sec)	18.0	19.0	40	7.0	10.0	122.0		0.38	0.07	4884	364
Santa Cruz	304-BRANC-23	Branciforte Creek	11:05 AM	moderate (<5 gal/sec)	17.0	15.0	400	7.0	9.1	122.0		0.40	< 0.04	2419	99
Santa Cruz	304-CARBO-21	Carbonera Creek	11:28 AM	moderate (<5 gal/sec)	16.8	15.0	30	7.0	8.2	122.0		0.66	<0.04	2909	171
Santa Cruz	304-CORCO-21	Corcoran Lagoon	1:40 PM	trickle (<1 quart/sec)	20.0	20.0	200	8.0	7.4	54.1		0.11	< 0.04	2419	2419
Santa Cruz	304-CORCO-22	Corcoran Lagoon	12:40 PM	stagnant	16.5	19.0	1400	7.5	7.2	42.0		0.88	< 0.04	24192	24192
Santa Cruz	304-FERRA-21	Ferrari Creek	12:25 PM	moderate (<5 gal/sec)	17.2	14.4	400	7.0	8.4	120.0		0.05	0.11	4884	345
Santa Cruz	304-LAGUN-21	Laguna Creek	10:40 AM	moderate (<5 gal/sec)	15.6	12.5	350	7.0	8.7		0.0	0.08	< 0.04	1421	197
Santa Cruz	304-LIDEL-21	Lidell Creek	1:46 PM	moderate (<5 gal/sec)	16.9	14.6	400	7.5	9.3	120.0		0.84	0.10	6488	354
Santa Cruz	304-LITTL-21	Little Creek	12:15 PM	moderate (<5 gal/sec)	15.0	12.5	300	6.5		46.5		0.06	< 0.04	601	20
Santa Cruz	304-MAJOR-21	Majors Creek	11:05 AM	moderate (<5 gal/sec)	17.1	12.0	310	7.0	10.5		0.0	0.11	< 0.04	1313	240
Santa Cruz	304-MOLIN-21	Molino Creek	10:45 AM	moderate (<5 gal/sec)	16.1	13.5	200	7.3	8.4	122.0		0.72	0.12	4106	571
Santa Cruz	304-MOORE-23	Moore Creek	2:00 PM	trickle (<1 quart/sec)	16.5	15.0	400	5.5		91.8		0.30	0.05	2613	341
Santa Cruz	304-MOORE-24	Moore Creek	11:00 AM	trickle (<1 quart/sec)	16.8	12.3	470	7.0			5.0	0.08	< 0.04	3873	697
Santa Cruz	304-MOORE-25	Moore Creek	11:20 AM	trickle (<1 quart/sec)	15.0	14.0	400	7.5	9.2		0.0	0.14	0.04	3076	86
Santa Cruz	304-ROBSC-21	Rob's Creek	11:00 AM	trickle (<1 quart/sec)	18.0	15.0	400	7.0	5.2	122.0		1.27	0.07	8664	328
Santa Cruz	304-SANLO-21	San Lorenzo River	12:35 PM	moderate (<5 gal/sec)	17.0	15.0	380	7.5	10.0		5.0	< 0.01	< 0.04	259	2613
Santa Cruz	304-SANLO-22	San Lorenzo River	10:35 AM	high (>5 gal/sec)	18.0	14.0	1810	7.5	9.2		5.0	< 0.01	< 0.04	1515	122
Santa Cruz	304-SANLO-26	San Lorenzo River	10:54 AM	high (>5 gal/sec)	16.5	13.3	340	6.5	13.3			0.12	< 0.04	1607	187
Santa Cruz	304-SANLO-27	San Lorenzo River	11:50 AM	high (>5 gal/sec)	18.5	12.1	400	6.8	11.2			0.05	< 0.04	1233	231
Santa Cruz	304-SANVI-21	San Vicente Creek	1:10 PM	high (>5 gal/sec)	16.8	13.7	300	7.3		120.0		0.09	< 0.04	601	52
Santa Cruz	304-SCOTT-21	Scott Creek	11:45 AM	moderate (<5 gal/sec)	15.0	12.0	200	6.5		46.5		0.06	< 0.04	631	120
Santa Cruz	304-SCOTT-22	Scott Creek	11:21 AM	moderate (<5 gal/sec)	16.0	12.0	200	6.5		46.0		< 0.01	< 0.04	435	73
Santa Cruz	304-SCOTT-23	Scott Creek	12:45 PM	moderate (<5 gal/sec)	16.5	14.0	200	6.0		46.5		0.07	< 0.04	419	41
Santa Cruz	304-SCOTT-24	Scott Creek	1:05 PM	moderate (<5 gal/sec)	17.0	14.0	200	6.0		46.5		< 0.01	< 0.04	404	31
Santa Cruz	304-SOQUE-21	Soquel Creek	12:45 PM	high (>5 gal/sec)	17.9	14.1	590	7.5	10.0		5.0	< 0.01	< 0.04	1789	203
Santa Cruz	304-SOQUE-22	Soquel Creek	11:00 AM	stagnant	16.1	14.1	650	7.5	9.9		5.0	< 0.01	< 0.04	1281	121
Santa Cruz	304-VALEN-21	Valencia Creek	12:10 PM	high (>5 gal/sec)	17.5	12.8	530	7.0	9.8		0.0	0.05	0.11	1274	20
Santa Cruz	304-VALEN-22	Valencia Creek	11:30 AM	high (>5 gal/sec)	16.4	13.4	480	7.0	9.7		15.0	0.33	0.10	4611	496
Santa Cruz	304-WADDE-22	Waddell Creek	1:45 PM	moderate (<5 gal/sec)	22.0	15.0	270	7.0			30.0	< 0.01	< 0.04	789	31
Santa Cruz	304-WILDE-21	Wilder Creek	11:50 AM	moderate (<5 gal/sec)	17.0	13.3	410	7.0	10.6		0.0	0.19	< 0.04	1565	74
Santa Cruz	304-WILDE-22	Wilder Creek	1:05 PM	moderate (<5 gal/sec)	17.7	14.0	410	7.0	10.6		0.0	0.17	< 0.04	1313	158
Santa Cruz	304-ZAYAN-21	Zayante Creek	12:35 PM	high (>5 gal/sec)	16.0	12.8	440	6.8	10.8			0.24	0.11	1904	158
Santa Cruz	304-ZAYAN-22	Zayante Creek	12:45 PM	high (>5 gal/sec)	20.0	12.3	490	7.0	11.7			0.09	0.07	988	63
Santa Cruz	305-BEACH-21	Watsonville Slough	11:15 AM	trickle (<1 quart/sec)	18.0	21.0	3200	8.0	7.8	17.0		11.70	0.20	24192	173
Santa Cruz	305-CORRA-21	Corralitos Creek	11:11 AM	moderate (<5 gal/sec)	16.0	13.0	40	7.5	8.4	120.0		0.99	< 0.04	4884	218
Santa Cruz	305-CORRA-22	Corralitos Creek	12:48 PM	moderate (<5 gal/sec)	16.5	12.5	40	7.5	7.6	120.0		0.07	0.68	2909	74
Santa Cruz	305-HARKI-21	Harkins Slough	2:17 PM	stagnant	20.0	23.0	300	7.0	6.6	21.2		0.05	0.07	1153	20
Santa Cruz	305-HARKI-22	Harkins Slough	12:35 PM	stagnant	18.5	19.0	500	6.0	1.8	35.0		0.25	0.16	24192	51
Santa Cruz	305-HARKI-23	Harkins Slough	1:41 PM	trickle (<1 quart/sec)	18.5	15.8	200	7.0	9.8	74.0		0.31	< 0.04	3654	148
Santa Cruz	305-PAJAR-21	Pajaro River	10:08 AM	moderate (<5 gal/sec)	16.0	17.0	1200	7.5	8.2	42.2		4.65	0.10	2602	119
Santa Cruz	305-STRUV-21	Struve Slough	11:20 AM	trickle (<1 quart/sec)	19.0	20.0	250	7.0			5.0	< 0.01	< 0.04	10462	41
Santa Cruz	305-STRUV-22	Struve Slough	1:40 PM	moderate (<5 gal/sec)	27.0	21.0	330	7.5			5.0	0.06	0.36	1112	31
Santa Cruz	305-WATSO-21	Watsonville Slough	12:30 PM	trickle (<1 quart/sec)	27.0	19.0	320	7.5			5.0	< 0.01	< 0.04	2187	74
Santa Cruz	305-WATSO-22	Watsonville Slough	12:55 PM	moderate (<5 gal/sec)	18.5	20.0	600	7.0	5.8	45.0		1.46	0.67	24192	4611
Santa Cruz	305-WATSO-23	Watsonville Slough	11:38 AM	trickle (<1 quart/sec)	16.5	21.0	3200	7.0	8.0	23.8		13.14	0.98	24192	146
Santa Cruz	305-WSTRU-21	Struve Slough	2:11 PM	stagnant	21.0	15.0	490	6.5			5.0	< 0.01	< 0.04	5172	98

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

County	StationID	Waterbody Name	Collection Time	Flow Discharge	AirTemp deg C)	WaterTe mp (deg C)	Conductivity (uS)	pH	Dissolved Oxygen (ppm)	Transparency (cm)	Turbidity (JTU)	NO3-N (mg-N/L)	PO4-P (mg-P/L)	Total coliform (MPN/ 100 ml)	E. coli (MPN/ 100ml)
Monterey	308-ELKHO-31	Elkhorn Slough	12:00 PM	not recorded	21.0	19.0	>1990	7.5	6.0	93.9		0.12	< 0.01	1733	516
Monterey	308-ELKHO-32	Elkhorn Slough	11:26 AM	trickle (<1 quart/sec)	22.0	21.0	16200	8.0	11.0	16.6		< 0.05	< 0.01	24196	73
Monterey	308-ELKHO-33	Elkhorn Slough	12:40 PM	high (>5 gal/sec)	21.0	19.5	>1990	8.0	7.0	98.0		< 0.05	< 0.01	2420	1553
Monterey	308-ELKHO-34	Elkhorn Slough	10:30 AM	moderate (<5 gal/sec)	23.5	18.0	1500	7.5	9.0	121.0		33.30	2.38	2420	729
Monterey	308-MOROC-31	Moro Cojo Slough	10:45 AM	stagnant	17.0	20.0	15500	8.0	19.0	17.5		6.70	1.48	24196	488
Monterey	308-MOROC-32	Moro Cojo Slough	12:00 PM	moderate (<5 gal/sec)	17.5	24.0	15400	9.0	15.5	6.0		0.11	1.10	24196	13
Monterey	308-MOROC-33	Moro Cojo Slough	12:52 PM	moderate (<5 gal/sec)	21.5	30.0	15600	9.5	12.5	6.0		< 0.05	0.48	24196	41
Monterey	307-CARME-33	Carmel River	10:45 AM	high (>5 gal/sec)	17.4	13.4	260	7.3	10.0	120.0		< 0.05	< 0.01	272	20
Monterey	307-CARME-35	Carmel River	12:20 PM	high (>5 gal/sec)	17.0	14.7	270	7.3	10.0	120.0		0.05	< 0.01	435	31
Monterey	307-CARME-36	Carmel River	10:40 AM	high (>5 gal/sec)	20.0	14.0	300	7.5	9.0	120.0		0.09	< 0.01	770	20
Monterey	307-CARME-37	Carmel River	11:20 AM	high (>5 gal/sec)	20.0	15.0	320	7.5	9.0	120.0		0.07	< 0.01	687	10
Monterey	307-CARME-38	Carmel River	12:01 PM	high (>5 gal/sec)	18.0	15.0	330	7.0	8.0	120.0		0.06	< 0.01	1986	38
Monterey	307-CARME-39	Carmel River	10:20 AM	high (>5 gal/sec)	15.0	15.0	670	7.5	9.0	117.0		0.06	< 0.01	214	326
Monterey	307-GARZA-31	Garzas Creek	11:45 AM	high (>5 gal/sec)	18.0	13.7	180	7.2	10.0	120.0		< 0.05	< 0.01	517	28
Monterey	308-BIGCR-31	Big Creek	11:55 AM	high (>5 gal/sec)	19.5	12.9	360	7.5	10.0	120.0		0.05	< 0.01	196	11
Monterey	308-BIGSU-31	Big Sur River	10:30 AM	high (>5 gal/sec)	22.0	13.0	210	7.0	12.0	117.0		< 0.05	< 0.01	225	40
Monterey	308-BIGSU-32	Big Sur River	11:05 AM	moderate (<5 gal/sec)	24.0	12.0	200	7.0	8.0	117.0		< 0.05	< 0.01	172	9
Monterey	308-DANIC-31	Dani Creek	10:54 AM	moderate (<5 gal/sec)	18.0	12.7	420	7.5	10.0	120.0		< 0.05	< 0.01	112	2
Monterey	308-DIXID-31	Dixid Creek	10:50 AM	moderate (<5 gal/sec)	18.0	13.0	248	7.0	8.0	120.0		0.25	< 0.01	172	9
Monterey	308-GARRA-31	Garrapata Creek	11:45 AM	high (>5 gal/sec)	15.3	11.3	220	7.0	11.2	117.0		0.06	< 0.01	127	34
Monterey	308-HOTSP-31	Hot Springs Creek	1:10 PM	high (>5 gal/sec)	21.0	14.0	280	7.5	6.0	117.0		0.09	< 0.01	921	18
Monterey	308-LIMEK-31	Limekiln Creek	10:34 AM	high (>5 gal/sec)	15.8	13.5	350	7.5	10.0	120.0		0.13	< 0.01	179	8
Monterey	308-MALPA-31	Malpaso Creek	12:24 PM	moderate (<5 gal/sec)	17.3	12.4	260	7.0	10.6	116.0		0.82	< 0.01	129	71
Monterey	308-MCWAY-31	McWay Canyon	12:40 PM	high (>5 gal/sec)	21.0	16.0	280	7.0	10.0	117.0		< 0.05	< 0.01	649	9
Monterey	308-MILLC-31	Mill Creek	10:07 AM	high (>5 gal/sec)	14.9	13.1	400	7.5	8.0	120.0		0.24	< 0.01	225	29
Monterey	308-PALOC-31	Palo Colorado Cyn	10:15 AM	high (>5 gal/sec)	15.0	12.0	420	7.5	10.0	48.0		0.06	< 0.01	1414	122
Monterey	308-PARTI-31	Partington Canyon	12:10 PM	high (>5 gal/sec)	20.0	15.0	270	7.0	6.0	117.0		< 0.05	< 0.01	61	4
Monterey	308-PLASK-31	Plaskett Creek	8:59 AM	moderate (<5 gal/sec)	13.7	12.3	360	7.5	8.0	120.0		< 0.05	< 0.01	365	16
Monterey	308-PREWI-31	Prewitt Creek	9:24 AM	high (>5 gal/sec)	15.0	12.6	290	7.0	9.0	120.0		< 0.05	< 0.01	517	6
Monterey	308-ROCKY-31	Rocky Creek	10:38 AM	high (>5 gal/sec)	13.8	10.5	210	7.0	11.0	74.0		0.05	< 0.01	160	44
Monterey	308-SANJO-31	San Jose Creek	11:03 AM	stagnant	21.5	14.0	220	7.0	7.0	91.0		0.09	< 0.01	236	68
Monterey	308-SOBER-31	Soberanes Creek	11:40 AM	high (>5 gal/sec)	20.0	14.0	270	7.0	6.0	112.0		0.13	< 0.01	488	28
Monterey	308-SYCAM-31	Sycamore Canyon	11:40 AM	moderate (<5 gal/sec)	21.0	15.0	240	7.0	10.0			0.06	< 0.01	186	33
Monterey	308-VICEN-31	Vicente Creek	11:26 AM	high (>5 gal/sec)	15.8	13.1	320	7.5	10.0	120.0		< 0.05	< 0.01	159	5
Monterey	308-WILDC-31	Wild Cattle Creek	9:48 AM	moderate (<5 gal/sec)	14.3	12.6	410	7.0	10.0	120.0		< 0.05	< 0.01	236	1
Monterey	308-WILLO-31	Willow Creek	8:11 AM	high (>5 gal/sec)	15.0	12.8	310	7.0	9.0	120.0		< 0.05	< 0.01	517	5
Monterey	309-ALISA-32	Alisal Slough	10:30 AM	trickle (<1 quart/sec)	19.3	17.7	1300	7.0	8.0	12.0		27.30	1.17	24196	261
Monterey	309-ASILO-31	Asilomar	11:37 AM	moderate (<5 gal/sec)	16.0	17.0	1630	7.0	8.0			0.48	< 0.01	2420	276
Monterey	309-CENTR-31	Central and 13th	11:05 AM	moderate (<5 gal/sec)	16.5	15.0	1220	7.5	6.0			1.20	0.06	>2420	>2420
Monterey	309-DOLPH-31	Dolphin Brook	10:20 AM	moderate (<5 gal/sec)	14.8	14.1	1100	7.0	8.0	120.0		1.00	0.16	2420	921
Monterey	309-GABIL-31	Gabilan Creek	11:10 AM	moderate (<5 gal/sec)	17.7	18.4	1300	7.0	8.8	120.0		28.60	< 0.01	2420	24
Monterey	309-LIBRA-31	Storm Drain	11:22 AM	moderate (<5 gal/sec)	18.1	14.2	1300	7.0	8.0	120.0		0.40	0.08	2420	816
Monterey	309-MAJOR-31	Major Sherman	12:00 PM	moderate (<5 gal/sec)	16.3	13.3	1200	7.0	8.0	120.0		0.22	0.08	2420	260
Monterey	309-NATIV-31	Natividad Creek	11:35 AM	trickle (<1 quart/sec)	18.2	16.7	1120	6.5	3.2	24.0		7.80	0.53	2420	276
Monterey	309-RECDI-31	Reclamation Ditch	10:46 AM	trickle (<1 quart/sec)	21.0	17.8	1200	7.0	7.0	7.5		39.80	0.93	24196	106
Monterey	309-SALIN-31	Salinas River	10:27 AM	moderate (<5 gal/sec)	18.1	21.0	1070	7.5	7.0	46.0		5.00	0.09	1300	45
Monterey	309-SALIN-32	Salinas River	12:30 PM	moderate (<5 gal/sec)	20.3	21.6	720	8.0	8.0	21.0		3.00	< 0.01	980	28
Monterey	309-SALIN-33	Salinas River	12:50 PM	moderate (<5 gal/sec)	18.1	18.6	710	7.5	8.0	35.5		3.00	< 0.01	1553	23
Monterey	309-SKYLI-31	Skyline Creek	12:57 PM	trickle (<1 quart/sec)	17.4	21.3	500	7.0	9.0	19.2		0.18	< 0.01	2420	116
Monterey	309-SRITA-31	Santa Rita Creek	12:00 AM	moderate (<5 gal/sec)	19.6	22.6	1010	7.5	8.6	8.4		25.10	0.75	>24196	1664
Monterey	309-TEMBL-31	Tembladero Creek	12:46 PM	moderate (<5 gal/sec)	20.3	21.5	1990	8.0	12.2	6.4		27.30	0.58	24196	341
Monterey	309-TEMBL-32	Tembladero Slough	10:30 AM	high (>5 gal/sec)	18.2	20.3	1140	7.5	7.6	19.0		20.60	0.13	2420	488
Monterey	309-TEMBL-33	Tembladero Slough	12:15 PM	high (>5 gal/sec)	18.8	19.0	1650	7.5	8.7	8.8		28.40	0.53	2420	1414
Monterey	309-TEMBL-34	Tembladero Slough	8:30 AM	moderate (<5 gal/sec)	18.9	15.4		7.5	10.6	76.0		2.00	< 0.01	2420	461
Monterey	309-UPPER-31	Upper Natividad Ck	12:04 PM	moderate (<5 gal/sec)	18.0	16.5	1270	7.0	8.2	16.6		17.10	0.37	2420	1203
Monterey	309-VETER-31	Veteran's Park	10:25 AM	stagnant	20.0	15.0	650	6.5	5.0			0.10	< 0.01	143	17
San Luis Obispo	309-ATASC-41	Atascadero Creek	9:37 AM	moderate (<5 gal/sec)	12.0	14.0	750	6.5	9.0	122.0		0.20	0.07	24192	1529
San Luis Obispo	309-ATASC-42	Atascadero Creek	7:42 AM	moderate (<5 gal/sec)	14.0	12.0	500	6.0	9.0	122.0		< 0.05	0.01	1162	20
San Luis Obispo	309-GRAVE-41	Graves Creek	9:06 AM	moderate (<5 gal/sec)	13.0	13.0	820	6.5	8.9	122.0		0.20	0.03	11199	4352
San Luis Obispo	309-PASOR-41	Paso Robles Creek	7:48 AM	high (>5 gal/sec)		14.2	746	7.9	8.0	60.0		0.79	0.02	3448	345
San Luis Obispo	309-RINCO-41	Rinconada Creek	10:15 AM	moderate (<5 gal/sec)			710	5.0	8.0		5.0	0.40	0.03	1989	203
San Luis Obispo	309-SALIN-44	Salinas River	10:07 AM	moderate (<5 gal/sec)	17.5	15.5	760	6.0	10.2	122.0		< 0.05	0.07	12996	878
San Luis Obispo	309-SALIN-45	Salinas River	11:00 AM	moderate (<5 gal/sec)			540	6.0	8.0		5.0	< 0.05	< 0.01	1439	195
San Luis Obispo	309-SALIN-46	Salinas River	9:20 AM	high (>5 gal/sec)		16.5	853	8.2	8.0	60.0		2.15	0.31	1918	109
San Luis Obispo	309-SALIN-47	Salinas River	8:42 AM	high (>5 gal/sec)		14.0	760	8.2	8.0	60.0		1.19	0.11	1956	175
San Luis Obispo	309-SMARG-41	Santa Margarita Creek	10:52 AM	moderate (<5 gal/sec)	18.0	14.0	650	6.5	9.7	122.0		0.20	0.05	5794	350
San Luis Obispo	309-TROUT-41	Trout Creek	10:35 AM	moderate (<5 gal/sec)			620	6.0	8.0		5.0	0.30	0.33	3448	1223
San Luis Obispo	309-YERBA-41	Yerba Buena Creek	9:15 AM	moderate (<5 gal/sec)			750	7.0	6.0		10.0	0.10	0.19	8664	389
San Luis Obispo	310-ARROY-41	Arroyo del Puerto Cree	10:50 AM	moderate (<5 gal/sec)	15.8	16.1	1300	8.0	10.0	112.0		< 0.1	< 0.01	4106	189
San Luis Obispo	310-ARROY-42	Arroyo de la Cruz Cree	11:32 AM	moderate (<5 gal/sec)	16.2	17.3	500	7.5	7.8	119.0		< 0.1	< 0.01	1333	512
San Luis Obispo	310-CARPO-41	San Carpoforo	9:40 AM	high (>5 gal/sec)	15.9	14.7	500	7.5	9.8	119.0		< 0.1	< 0.01	465	31
San Luis Obispo	310-DAL-41	Dairy Creek	8:20 AM	moderate (<5 gal/sec)	17.5	13.8	730	7.4	10.2			< 0.1	0.04	3654	350
San Luis Obispo	310-LAGUN-41	Arroyo Laguna	12:05 PM	moderate (<5 gal/sec)	19.4	19.3	>1990	8.0	8.8	120.0		< 0.1	0.03	5794	278
San Luis Obispo	310-LITTLE-41	Little Pico Creek	10:40 AM	trickle (<1 quart/sec)	15.7	14.3	720	7.5	7.0	122.0		< 0.1	0.03	1515	389
San Luis Obispo	310-PENN-41	Pennington Creek	8:00 AM	moderate (<5 gal/sec)	17.0	12.7	630	7.7	9.9			0.20	0.05	2098	148
San Luis Obispo	310-SANSI-41	San Simeon Creek	9:40 AM	trickle (<1 quart/sec)	13.0	13.6	700	7.5	6.2	122.0		0.70	0.09	4352	364
San Luis Obispo	310-SANTA-41	Santa Rosa Creek	8:47 AM	moderate (<5 gal/sec)	15.1	14.4	80	7.5	10.0	120.0		0.40	0.01	5172	199
San Luis Obispo	310-SBE-41	San Bernardo Creek	10:00 AM	moderate (<5 gal/sec)		14.7	760	7.9	9.9			0.70	0.12	4352	754
San Luis Obispo	310-SYB-41	Los Osos Creek	11:20 AM	stagnant		16.4	940	7.3	8.4			4.40	0.14	3873	601
San Luis Obispo	310-UCF-41	Chorro Creek	8:06 AM	high (>5 gal/sec)		14.7	730	7.4	8.8			2.20	0.25	3609	309
San Luis Obispo	317-ESTRE-41	Estrella River		Dry											
San Luis Obispo	317-ESTRE-42	Estrella River		Dry											
San Luis Obispo	317-ESTRE-43	Estrella River	10:15 AM	high (>5 gal/sec)	17.5	16.8	2373	8.2	8.5	60.0		1.26	0.09	3654	41