

# Water Quality Report Card for Santa Cruz County Snapshot Day Results: May 4, 2013



Prepared by:  
Debie Chirco-Macdonald  
Monitoring Coordinator  
**Coastal Watershed Council**  
345 Lake, Suite F, Santa Cruz, CA 95062  
(831) 464-9200, [djchirco@coastal-watershed.org](mailto:djchirco@coastal-watershed.org)  
[www.coastal-watershed.org](http://www.coastal-watershed.org)



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*Preserving and protecting  
our coastal watersheds*

## Introduction

Snapshot Day is an annual community event where volunteers are trained to monitor water quality in local streams. The event is held the first Saturday of each May, and 2013 was the fourteenth year information was gathered on creeks flowing into Monterey Bay. The Coastal Watershed Council (CWC) and Monterey Bay National Marine Sanctuary (MBNMS) train hundreds of community volunteers to monitor sites covering more than 300 miles of coast from Pacifica to Morro Bay. A total of 182 sites were monitored by 210 volunteers in 2013 across all four counties.

These report cards show the results for samples collected at 70 sites in Santa Cruz County. CWC teams follow scientific protocols to ensure that our data are reliable, and can be compared to water quality objectives. Water quality objectives, or “WQO” is a term regulators use to determine if water in a river is safe to swim in, or use for drinking water, irrigation, etc. When the WQO is exceeded, the water is considered no longer safe for various “beneficial” uses.

CWC encourages everyone to learn more about water quality in the river or creek nearest your home. More information and actual data is available on the CWC website at <http://coastal-watershed.org/>.

## Methods

### Training

Since 2000, the Snapshot Day event has trained citizen volunteers to collect water samples and conduct water quality assessments. Volunteers are trained to perform basic field water quality tests including measurements of temperature, dissolved oxygen, pH, electrical conductivity and transparency/turbidity. They also receive training in collecting water samples for laboratory analysis of nutrients (nitrate and orthophosphate) and bacteria (*Escherichia coli* and total coliform).

All CWC trainings for water quality monitoring focus on imparting to volunteer teams the knowledge and skill required to follow quality assurance protocols consistent with USEPA and State Water Resources Control Board procedures. CWC’s training sessions always stress the importance of volunteer safety above all other considerations.

Prior to Snapshot Day, volunteers were trained in the classroom on field monitoring techniques, including how to use a dissolved oxygen kit, conductivity meter, pH strips, transparency tube/turbidity kit, and thermometer. Volunteers were also taught how to properly collect and preserve water samples for laboratory analysis using appropriate containers, and while wearing nitrile gloves. Volunteers also learn about teamwork, proper techniques for recording data, and chain of custody procedures.

Volunteers in Santa Cruz County received the training led by CWC staff on Saturday, April 27, 2013; Monterey, San Mateo and San Luis Obispo volunteers received trainings from CWC and MBNMS staff on April 28, 29 and 30, 2013, respectively.

## Monitoring

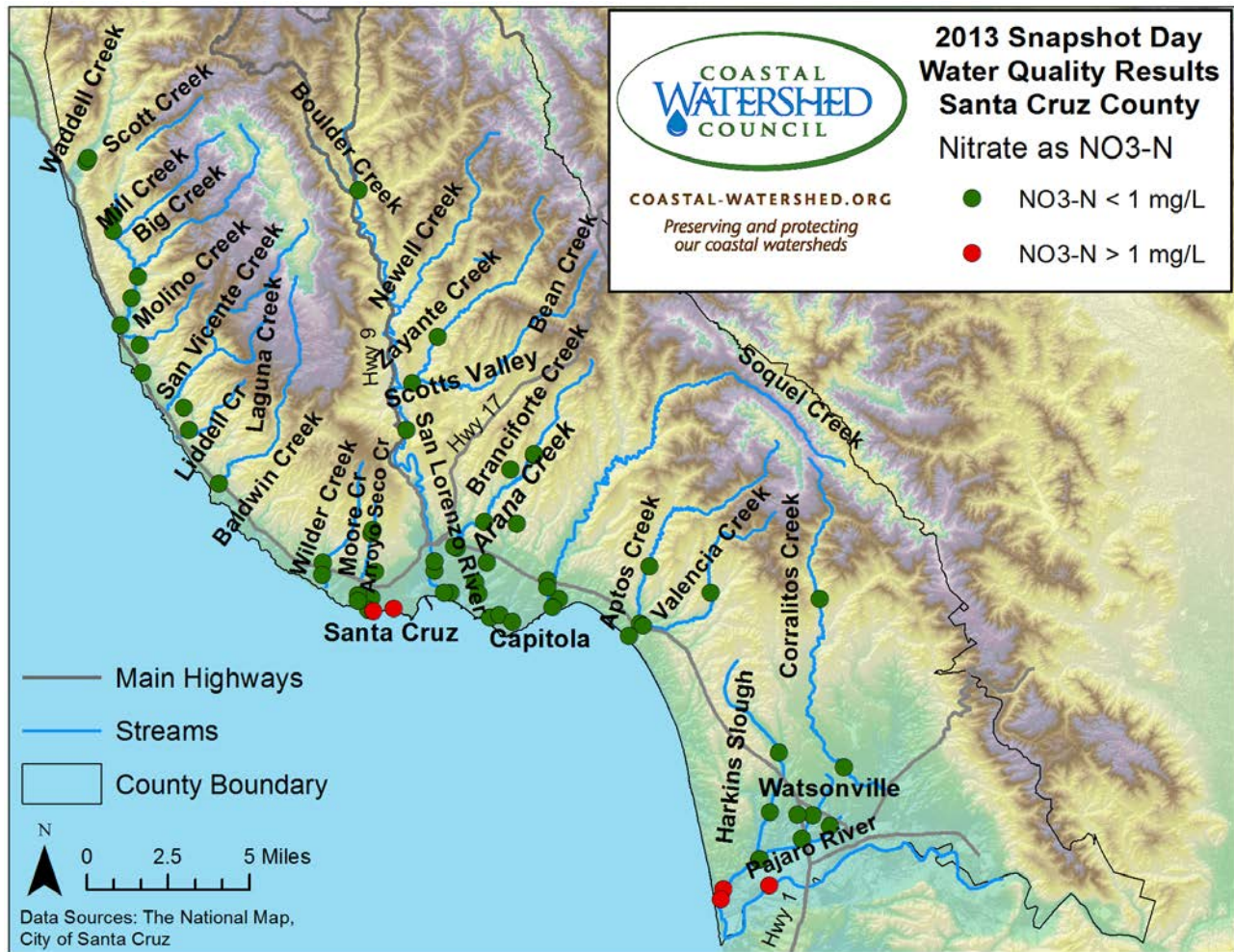
Dissolved oxygen was measured using a CHEMetrics colorimetric method test kit; conductivity was measured using an Oakton EC Testr; water temperature was measured using a spirit bulb or digital thermometer; pH was measured using Macherey-Nagel non-bleeding pH strips; and transparency was measured using 120 cm transparency tubes. Physical observations such as flow, weather conditions and site conditions (e.g., trash, wildlife) were also recorded on field data sheets. Sample containers were filled with creek, river or slough water for laboratory analysis of nitrate, orthophosphate, *E.coli*, and total coliform. All collected water samples were analyzed as a grab sample rather than a composite of samples.

## Data Analysis

Nitrate and orthophosphate results were compared to the Central Coast Ambient Monitoring Program's (CCAMP) attention levels or evaluation guidelines. *E.coli* and total coliform results were compared to Water Quality Objectives (WQOs) in the Central Coast Regional Water Quality Control Board's Basin Plan. All WQOs are established for receiving waters and *not* for end of pipe discharges. WQOs apply only to ambient concentrations within "receiving waters," i.e., a stream, lake, or ocean. The standards do not apply to end-of-pipe water such as storm drain discharges. Dilution via mixing with ambient water usually occurs in the receiving waters within a short distance of each storm drain outfall. Absent any applicable standard for those sites, these ambient water quality standards provide some means of comparison for the results.

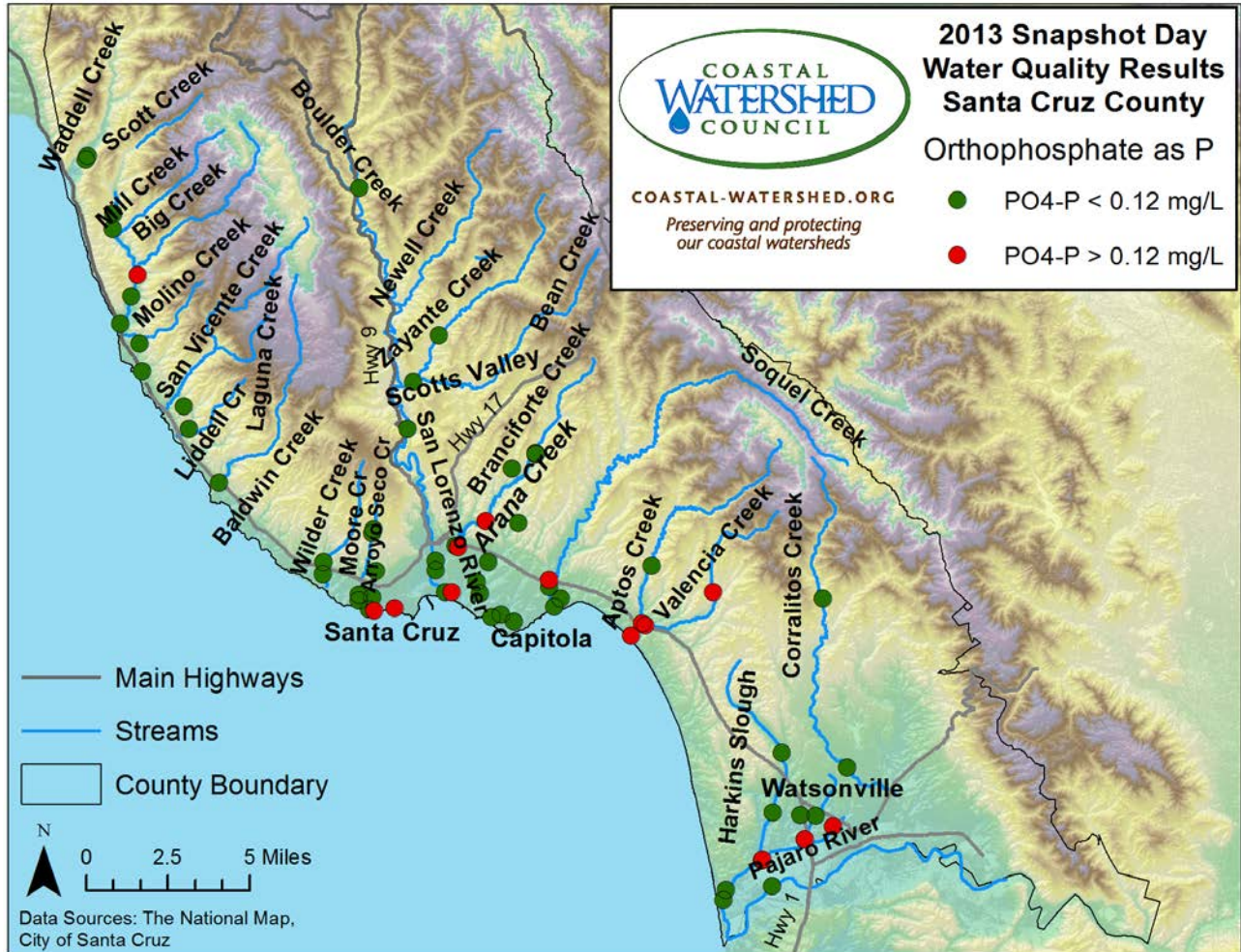
## **Results/Discussion**

The following report cards are designed toward public education and awareness and to engage residents in best management practices in our local watersheds. The Snapshot Day Report Card can be viewed online at: <http://coastal-watershed.org/cwc-reports/>



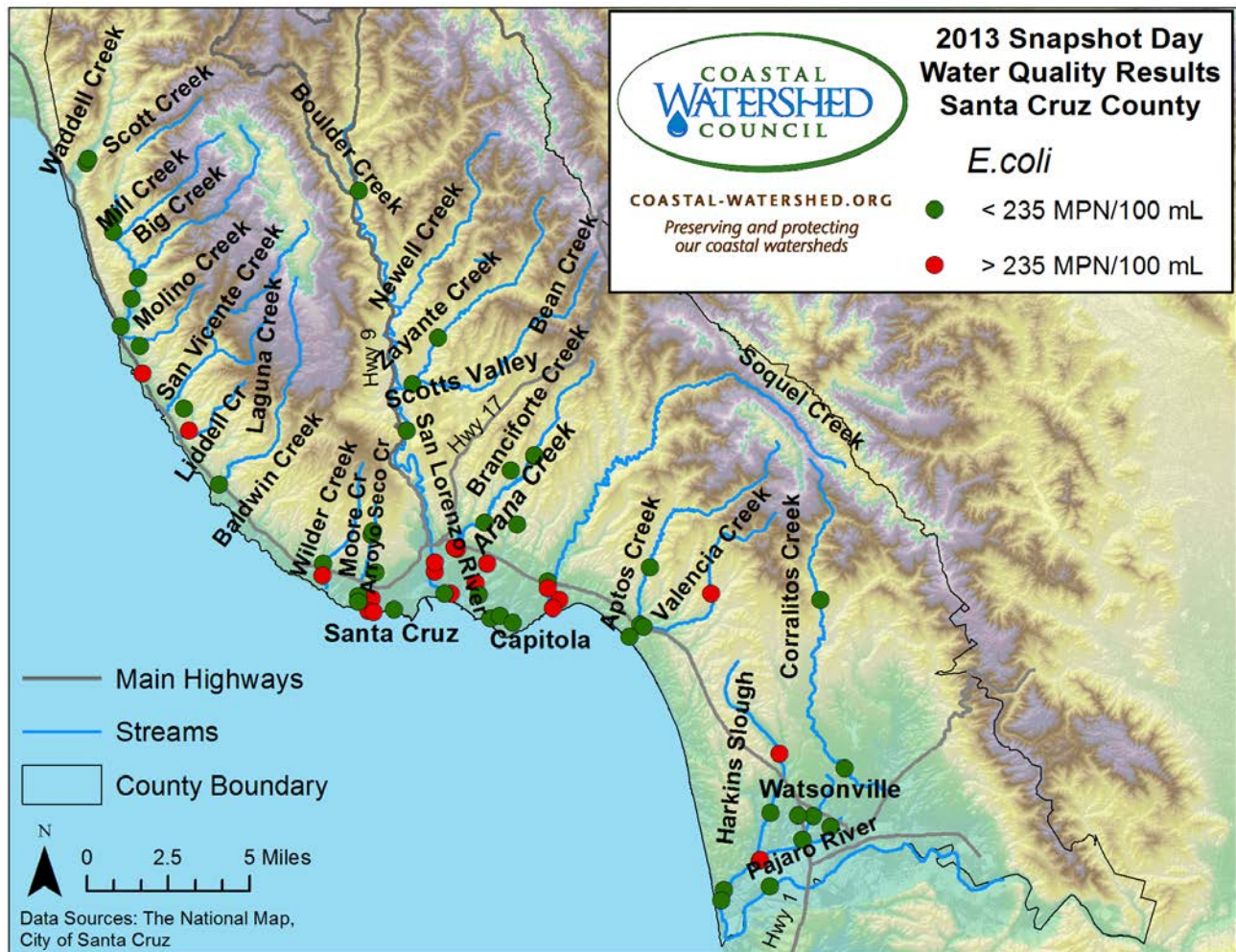
### About Nitrate:

- 93% of sites met the Water Quality Objective (WQO); 7% exceeded the WQO
- Nitrate is necessary for healthy plant growth, but too much can lead to algal blooms that deplete oxygen in water
- Sources: runoff containing detergents, fertilizers, animal waste, industrial waste or sewage; excess dumping of vegetative material
- What you can do: limit the use of chemical fertilizers; wash pets & cars where water won't run into a storm drain (use the lawn); place cut/dead vegetation in yard waste can or compost it
- Learn more at: <http://coastal-watershed.org/stewardship/>



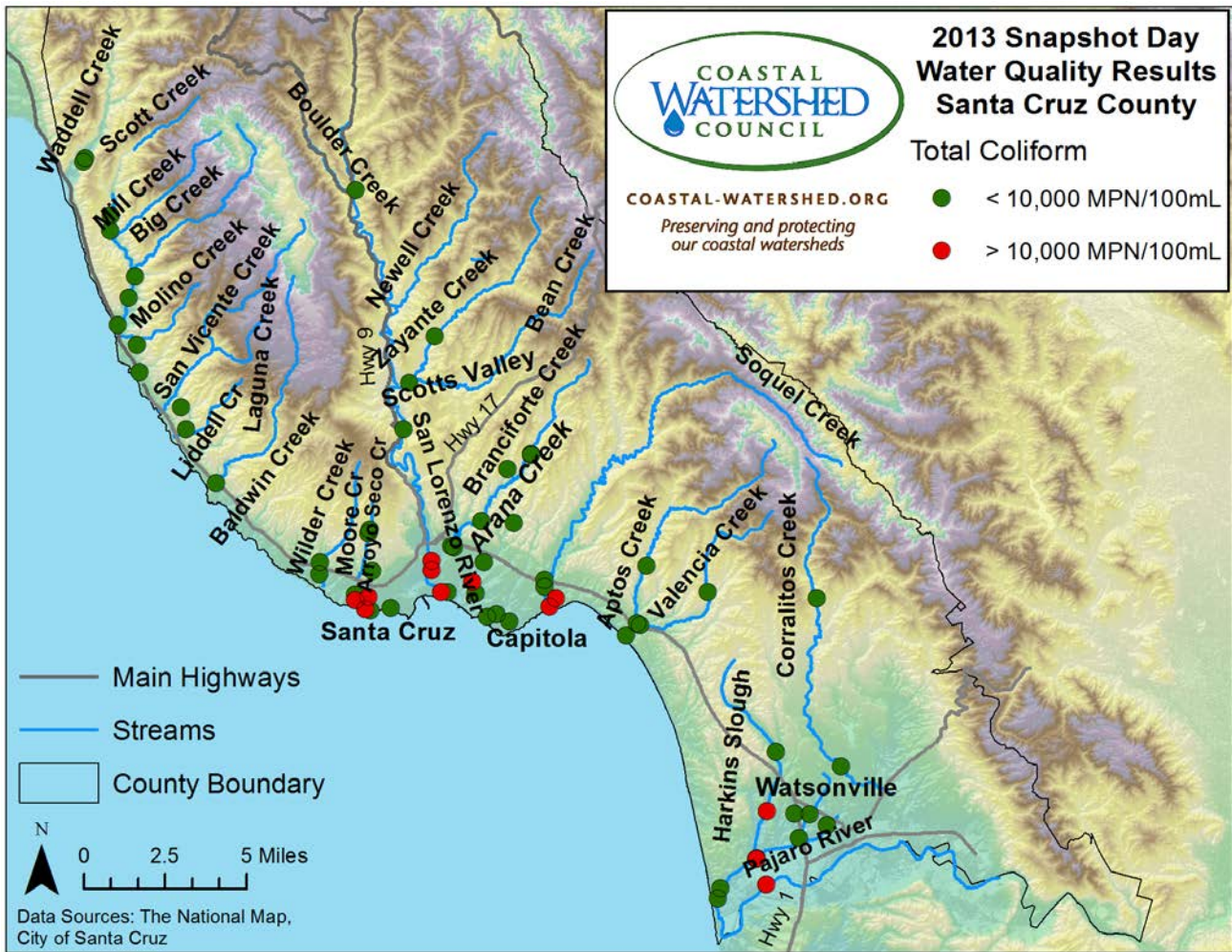
### About Orthophosphate:

- 80% of sites met the Water Quality Objective (WQO); 20% exceeded the WQO
- Orthophosphate is a necessary nutrient for aquatic plants, but excess amounts can cause algal blooms, oxygen depletion, and death of fish, invertebrates & other aquatic species
- Sources: runoff from fertilized lawns, field, or animal manure storage areas; wastewater treatment plants; failing septic systems; commercial cleaning products
- What you can do: maintain septic systems, limit the use of chemical fertilizers (especially before a rain)
- Learn more at: <http://coastal-watershed.org/stewardship/>



**About *E.coli*:**

- 71% of sites met the Water Quality Objective (WQO); 29% exceeded the WQO
- *E.coli* is a type of bacterium found naturally in the intestines of animals & humans; it is an indicator of fecal pollution in water
- Sources: leaky sewer pipes, failing septic systems, pets, and wildlife (esp. birds)
- What you can do: maintain septic systems, clean up after pets, report leaking sewer lines
- Learn more at: <http://coastal-watershed.org/stewardship/>



### About Total Coliform:

- 80% of sites met the Water Quality Objective (WQO); 20% exceeded the WQO
- Total Coliform is an “indicator” bacteria that indicates the possible presence of human sewage or wildlife contamination
- Sources: feces of warm-blooded animals, waste water treatment plants, leaky sewer pipes, failing septic systems
- What you can do: clean up after pets, maintain septic systems, report leaking sewer lines
- Learn more at: <http://coastal-watershed.org/stewardship/>

## Conclusion

This report summarizes results for the Santa Cruz County 2013 Snapshot Day event conducted on Saturday, May 4, 2013. Non-compliance with water quality objectives or attention levels was documented for nutrients (nitrate and orthophosphate) and bacteria (*E.coli*, total coliform) at 70 sites. For nutrients, nitrate levels were relatively low with the exception of 5 sites; exceedance levels ranged from 2.44 to 26.0 mg/L NO<sub>3</sub>-N. For orthophosphate the 14 exceedances of the water quality attention level of <0.12 mg/L ranged from 0.12 to 0.63 mg/L PO<sub>4</sub>-P. For pathogens, *E.coli* exceeded the WQO at 29% of all sites and at 20% of all sites for total coliform.

The volunteers collecting this valuable information play a key role in our community as stewards of our watersheds. The information they provide is used by resource agencies, local governments and community groups to protect and improve the health of our local streams.

CWC hopes that the results in this report and from other monitoring programs will aid in pollution prevention efforts by identifying which constituents are of greatest concern. Environmental data, by its very nature, is extremely variable, and conclusions are often difficult to make based on limited data points. Nonetheless, these results are of use in shaping regional programs to inform the public about environmental stewardship.

CWC's mission is to preserve and protect coastal watersheds through community stewardship, education and monitoring. CWC staff welcome every possible opportunity to assist local leaders and the community in achieving our goals together. More information is available at <http://coastal-watershed.org/monitoring/snapshot-day/> or by contacting Debie Chico-Macdonald at (831) 464-9200 or [djchirco@coastal-watershed.org](mailto:djchirco@coastal-watershed.org).



Table 1 provides a list of the 2013 Santa Cruz County Snapshot Day sites.

Appendices A and B provide the summary of results for each parameter at each site. Results that exceed the applicable attention level or WQO are shaded in order to highlight these results.

**Table 1: 2013 Santa Cruz County Snapshot Day Sites**

StationID	Description	StationID	Description
304-APTOS-21	Aptos Creek in Nisene Marks State Park at Steele Bridge	304-SANLO-26	San Lorezno River, upper. Highway 9 south from Felton. At edge of Toll House Creek to SLR.
304-APTOS-22	Aptos Creek upstream of Aptos/Valencia confluence	304-SANLO-27	San Lorenzo River at Junction Park (confluence of Boulder & San Lorenzo River) off Hwy 9
304-APTOS-23	Aptos Creek at mouth	304-SANVI-21	San Vicente Creek - Davenport Ave & right on Marine View, left on San Vicente Stree - through gate
304-ARANA-21	Arana Gulch at Harbor High Fish Ladder	304-SCOTT-21	Scott's Creek - 4.5 mi. up Swanton Rd.
304-ARANA-22	Arana Gulch - North Harbor	304-SCOTT-22	Scott's Creek - 4.0 mi. up Swanton Rd. at small turn out
304-ARANA-23	Arana Gulch at Paul Sweet Road	304-SCOTT-23	Scott's Creek - Swanton Pacific Ranch parking area,
304-ARROY-21	Arroyo Seco - Meder St. between Western Dr. and Nobel Dr., between city park and cemetery	304-SCOTT-24	Scott's Creek - MM 2.18 Archibald Cr. Park. On Scott Ck.50 ft. u/s from Archibald Creek trib.
304-ARROY-22	Arroyo Seco - Delaware Ave. between Swift Street and Swanton Blvd.	304-SCOTT-25	Scott Creek @ Hwy 1, 2 mi N. of Davenport
304-ARROY-23	Arroyo Seco - Auburn Ave. or Sacramento Ave. at pool along pedestrian walkway parallel to West Cliff Drive	304-SCSD2	Merced at West Cliff: 30 inch outfall in riprap at ocean
304-BRANC-21	Branciforte Creek at confluence of San Lorenzo River	304-SCSD3	Bay at Escolona; shunted to North side of street, collect at NW corner
304-BRANC-22	Branciforte Creek at Delaveaga Park, George Washington picnic area	304-SCSD4	Woodrow at West Cliff: inland side of culvert under West Cliff
304-BRANC-23	Branciforte Creek at 434 Market Street	304-SOQUE-22	Capitola Village Beach, mouth of Soquel Creek
304-BRANC-24	Branciforte Creek at 3125 Branciforte Drive	304-SOQUE-26	Soquel Creek @ Creekside Plaza
304-BRANC-25	Branciforte Creek at 4055 Branciforte Drive.	304-SOQUE-28	Soquel Creek at Nob Hill Foods.
304-CARBO-21	Carbonera Ck 25' above confluence with Branciforte Ck.	304-VALEN-21	upper Valencia Creek: culvert off of Valencia Cr. Rd, below Flume Rd.
304-CORCO-21	Corcoran Lagoon slightly to east of 2-2130 East Cliff.	304-VALEN-22	At Valencia Creek upstream of Aptos/Valencia confluence
304-CORCO-22	Corcoran Lagoon approx 50 yds. East of Live Oak Library at sm bridge on Portola Dr.	304-WADDE-21	Waddell Creek ~1.5 mi. s up valley. Site is just below historic "Brown House" shed
304-CSD-08	Noble Gulch at Monterey Ave.	304-WADDE-22	At forks of Waddell Creek just below steel foot bridge.
304-FERRA-21	Ferrari Creek from Hwy 1, right at Cement Plant Rd., & up 0.1 mi.	304-WILDE-21	Wilder Creek - Wilder Ranch State Park, at Cow Barn
304-GRANI-21	Granite Creek at 620 Granite Creek Road	304-WILDE-22	Wilder Ranch State Park, at mouth of Wilder Creek
304-LAGUN-21	Laguna Creek - Coast Rd/Laguna Rd to dead end at bridge	304-ZAYAN-21	Zayante Creek at Bean Creek - downstream of confluence - E. Zayante Road to Olympia Station Rd.
304-LEONA-21	Leona Creek at 7 <sup>th</sup> Ave. and Brommer at Sorrento Oaks Mobile Home Park	304-ZAYAN-22	Zayante Creek at Quail Hollow Fish Ladder, on E. Zayante Road
304-LIDEL-21	Lidel Creek - 0.3 mi. s from Hwy 1/Bonny Doon Rd. jct. Take trail to creek at NP sign	305-BEACH-21	W. Beach near Pajaro Dunes
304-LITTL-21	Little Creek above confluence with Scott Creek, at "Little Creek" sign on right side of road	305-CORRA-21	Thicket Lane & Green Valley Rd.
304-MOLIN-21	Molino Creek, Davenport, Hwy 1 to Swanton Rd. up 0.7 mi	305-CORRA-22	Las Colinas Rd & Eurekda Canyon Rd.
304-MOORE-21	Outlet of Antonelli Pond	305-HARKI-21	Harkins Slough at Harkins Slough Road
304-MOORE-22	Moore Creek, UCSC Arboretum, past wood shingled building	305-HARKI-22	Harkins Slough at Pajaro Valley Water Management Assn. Pump Station
304-MOORE-25	Moore Creek - UCSC Arboretium	305-HARKI-23	Harkins Slough at Buena Vista Drive
304-MOORE-26	Moore Creek at Natural Bridges Interpretive Center; ~75' down path from parking lot.	305-PAJAR-21	Pajaro River under Thurwachter Bridge (access from Monterey Co-LB-side of River)
304-NEWYE-11	At Ano Nuevo State Park, mouth of New Year Creek	305-STRUV-21	Struve Slough at Harkins Slough Road
304-PILKI-21	Pilkington Creek @ SC Natural History Museum	305-STRUV-22	Struve Slough at Lee Road
304-PILKI-22	Pilkington Creek - upstream at Brook & Murray Streets	305-WATSO-21	Watsonville Slough at Harkins Slough Road
304-ROBSC-21	Rob's Creek, 641 34th Avenue, under bridge	305-WATSO-22	Watso Slough at Pajaro Valley Water Management Assn. Pump Station
304-SANLO-21	San Lorezno River near Royal Taj Restaurant	305-WATSO-23	W. Beach near Pajaro Dunes
304-SANLO-22	At Trestle Bridge, mouth of San Lorenzo River	305-WSTRU-21	West Branch of Struve Slough at Harkins Slough Rd/Green Valley Road junction (DFG Site)

## Appendix A: Field Measurements

<b>Air Temperature °C No WQO</b>	<b>Site ID</b>	<b>Result</b>	<b>Site ID</b>	<b>Result</b>
	304-APTOS-21	14.5	304-SANLO-26	19.3
	304-APTOS-22	13.6	304-SANLO-27	18.4
	304-APTOS-23	14.3	304-SANVI-21	15.7
	304-ARANA-21	16.0	304-SCOTT-21	16.8
	304-ARANA-22	13.5	304-SCOTT-22	15.3
	304-ARANA-23	17.0	304-SCOTT-23	13.2
	304-ARROY-21	13.7	304-SCOTT-24	14.2
	304-ARROY-22	14.2	304-SCOTT-25	14.9
	304-ARROY-23	11.9	304-SCSD-02	14.2
	304-BRANC-21	15.3	304-SCSD-03	16.5
	304-BRANC-22	NA	304-SCSD-04	12.4
	304-BRANC-23	NA	304-SOQUE-22	14.5
	304-BRANC-24	17.3	304-SOQUE-26	14.2
	304-BRANC-25	17.3	304-SOQUE-28	16.4
	304-CARBO-21	NA	304-VALEN-21	14.5
	304-CORCO-21	13.5	304-VALEN-22	13.1
	304-CORCO-22	13.4	304-WADDE-21	18.0
	304-CSD-08	16.3	304-WADDE-22	13.8
	304-FERRA-21	12.3	304-WILDE-21	11.9
	304-GRANI-21	18.0	304-WILDE-22	13.4
	304-LAGUN-21	13.3	304-ZAYAN-21	20.1
	304-LEONA-21	14.0	304-ZAYAN-22	19.0
	304-LIDEL-21	12.3	305-BEACH-21	13.0
	304-LIITTL-21	14.6	305-CORRA-21	16.3
	304-MOLIN-21	13.5	305-CORRA-22	20.0
	304-MOORE-21	15.0	305-HARKI-21	15.0
	304-MOORE-22	16.3	305-HARKI-22	15.4
	304-MOORE-25	17.3	305-HARKI-23	14.8
	304-MOORE-26	14.3	305-PAJAR-21	14.0
	304-NEWYE-11	11.9	305-STRUJ-21	17.5
	304-PILKI-21	13.0	305-STRUJ-22	17.2
	304-PILKI-22	13.2	305-WATSO-21	16.5
	304-ROBSC-21	14.5	305-WATSO-22	15.4
	304-SANLO-21	14.6	305-WATSO-23	13.7
304-SANLO-22	12.7	305-WSTRU-21	18.0	

	Site ID	Result	Site ID	Result
	<b>Water Temperature °C WQO: &lt;22 °C</b>	304-APTOS-21	12.3	304-SANLO-26
304-APTOS-22		13.0	304-SANLO-27	14.3
304-APTOS-22		13.5	304-SANVI-21	11.4
304-APTOS-23		15.0	304-SCOTT-21	12.6
304-ARANA-21		12.5	304-SCOTT-22	12.5
304-ARANA-22		13.7	304-SCOTT-23	11.4
304-ARANA-23		12.2	304-SCOTT-24	12.6
304-ARROY-21		13.3	304-SCOTT-25	14.0
304-ARROY-22		14.5	304-SCSD-02	17.5
304-ARROY-23		14.1	304-SCSD-03	15.6
304-BRANC-21		17.2	304-SCSD-04	15.7
304-BRANC-22		NA	304-SOQUE-22	15.8
304-BRANC-23		13.4	304-SOQUE-26	13.9
304-BRANC-23		NA	304-SOQUE-28	14.2
304-BRANC-24		13.2	304-SOQUE-28	14.8
304-BRANC-25		12.8	304-VALEN-21	12.3
304-CARBO-21		NA	304-VALEN-22	13.3
304-CORCO-21		19.0	304-WADDE-21	14.0
304-CORCO-22		21.0	304-WADDE-22	13.1
304-CSD-08		14.2	304-WILDE-21	11.3
304-FERRA-21		12.7	304-WILDE-22	11.8
304-GRANI-21		12.8	304-ZAYAN-21	15.4
304-LAGUN-21		12.0	304-ZAYAN-22	14.8
304-LEONA-21		13.1	305-BEACH-21	18.2
304-LIDEL-21		10.6	305-CORRA-21	14.5
304-LIITTL-21		12.6	305-CORRA-22	12.7
304-MOLIN-21		11.5	305-HARKI-21	20.9
304-MOORE-21		20.4	305-HARKI-22	19.0
304-MOORE-22		13.0	305-HARKI-23	13.8
304-MOORE-25		13.4	305-PAJAR-21	18.6
304-MOORE-26		18.4	305-SALSI-22	18.9
304-NEWYE-11		11.4	305-STRUV-21	21.6
304-PILKI-21		13.1	305-STRUV-22	22.4
304-PILKI-22		13.0	305-WATSO-21	22.6
304-ROBSC-21	16.0	305-WATSO-22	17.9	
304-SANLO-21	16.6	305-WATSO-23	18.2	
304-SANLO-21	17.6	305-WSTRU-21	12.6	
304-SANLO-22	17.6			

	Site ID	Result	Site ID	Result
	<b>Electrical Conductivity uS No WQO</b>	304-APTOS-21	840	304-SANLO-26
304-APTOS-22		820	304-SANLO-27	391
304-APTOS-22		840	304-SANVI-21	370
304-APTOS-23		1550	304-SCOTT-21	280
304-ARANA-21		40	304-SCOTT-22	230
304-ARANA-22		28350	304-SCOTT-23	400
304-ARANA-23		370	304-SCOTT-24	250
304-ARROY-21		680	304-SCOTT-25	260
304-ARROY-22		630	304-SCSD-02	790
304-ARROY-23		630	304-SCSD-03	570
304-BRANC-21		1300	304-SCSD-04	720
304-BRANC-22		700	304-SOQUE-22	100
304-BRANC-23		600	304-SOQUE-26	900
304-BRANC-23		560	304-SOQUE-28	900
304-BRANC-24		720	304-SOQUE-28	820
304-BRANC-25		710	304-VALEN-21	840
304-CARBO-21		500	304-VALEN-22	13400
304-CORCO-21		18400	304-WADDE-21	370
304-CORCO-22		OR	304-WADDE-22	370
304-CSD-08		700	304-WILDE-21	520
304-FERRA-21		430	304-WILDE-22	540
304-GRANI-21		580	304-ZAYAN-21	391
304-LAGUN-21		395	304-ZAYAN-22	512
304-LEONA-21		630	305-BEACH-21	2100
304-LIDEL-21		410	305-CORRA-21	810
304-LIITTL-21		390	305-CORRA-22	550
304-MOLIN-21		340	305-HARKI-21	NA
304-MOORE-21		483	305-HARKI-22	1300
304-MOORE-22		370	305-HARKI-23	420
304-MOORE-25		480	305-PAJAR-21	2000
304-MOORE-26		9898	305-SALSI-22	890
304-NEWYE-11		470	305-STRUV-21	500
304-PILKI-21		660	305-STRUV-22	700
304-PILKI-22		670	305-WATSO-21	600
304-ROBSC-21		600	305-WATSO-22	1300
304-SANLO-21		1900	305-WATSO-23	2100
304-SANLO-21		450	305-WSTRU-21	700
304-SANLO-22		6300		

	Site ID	Result	Site ID	Result
	<b>Dissolved Oxygen</b> <b>mg/L</b> <b>WQO: &gt;7.0 mg/L</b>	304-APTOS-21	10.0	304-SANLO-26
304-APTOS-22		10.0	304-SANLO-27	9.4
304-APTOS-23		9.0	304-SANVI-21	10.0
304-ARANA-21		8.7	304-SCOTT-21	6.0
304-ARANA-22		8.1	304-SCOTT-22	3.0
304-ARANA-23		9.9	304-SCOTT-23	3.5
304-ARROY-21		5.0	304-SCOTT-24	2.5
304-ARROY-22		5.0	304-SCOTT-25	4.5
304-ARROY-23		12.0	304-SCSD-02	6.0
304-BRANC-21		8.0	304-SCSD-03	9.0
304-BRANC-22		8.0	304-SCSD-04	9.0
304-BRANC-23		9.0	304-SOQUE-22	5.0
304-BRANC-24		8.0	304-SOQUE-26	7.0
304-BRANC-25		9.0	304-SOQUE-28	7.0
304-CARBO-21		9.0	304-VALEN-21	10.0
304-CORCO-21		7.0	304-VALEN-22	8.0
304-CORCO-22		4.5	304-WADDE-21	9.0
304-CSD-08		6.0	304-WADDE-22	9.0
304-FERRA-21		8.0	304-WILDE-21	9.0
304-GRANI-21		9.0	304-WILDE-22	6.0
304-LAGUN-21		10.0	304-ZAYAN-21	9.5
304-LEONA-21		5.5	304-ZAYAN-22	9.5
304-LIDEL-21		7.0	305-BEACH-21	10.0
304-LIITTL-21		5.5	305-CORRA-21	5.0
304-MOLIN-21		8.0	305-CORRA-22	9.0
304-MOORE-21		7.2	305-HARKI-21	8.0
304-MOORE-22		6.0	305-HARKI-22	9.0
304-MOORE-25		9.0	305-HARKI-23	6.0
304-MOORE-26		6.4	305-PAJAR-21	7.0
304-NEWYE-11		9.0	305-STRUV-21	6.0
304-PILKI-21		5.0	305-STRUV-22	9.0
304-PILKI-22		4.5	305-WATSO-21	4.5
304-ROBSC-21	12.0	305-WATSO-22	5.0	
304-SANLO-21	5.5	305-WATSO-23	9.0	
304-SANLO-22	7.0	305-WSTRU-21	3.5	

	Site ID	Result	Site ID	Result
	<p>pH <math>-\log[H^+]</math>  WQO:  &lt;6.5 and &gt;8.5</p>	304-APTOS-21	7.5	304-SANLO-26
304-APTOS-22		7.5	304-SANLO-27	6.5
304-APTOS-23		7.0	304-SANVI-21	7.0
304-ARANA-21		7.3	304-SCOTT-21	6.5
304-ARANA-22		7.4	304-SCOTT-22	6.0
304-ARANA-23		7.5	304-SCOTT-23	7.0
304-ARROY-21		6.5	304-SCOTT-24	6.5
304-ARROY-22		6.5	304-SCOTT-25	6.5
304-ARROY-23		6.5	304-SCSD-02	7.0
304-BRANC-21		6.5	304-SCSD-03	7.0
304-BRANC-22		7.0	304-SCSD-04	7.0
304-BRANC-23		7.0	304-SOQUE-22	7.0
304-BRANC-24		6.5	304-SOQUE-26	7.5
304-BRANC-25		7.0	304-SOQUE-28	7.0
304-CARBO-21		7.0	304-VALEN-21	7.5
304-CORCO-21		8.0	304-VALEN-22	7.3
304-CORCO-22		8.5	304-WADDE-21	7.0
304-CSD-08		6.5	304-WADDE-22	7.0
304-FERRA-21		6.5	304-WILDE-21	6.5
304-GRANI-21		6.5	304-WILDE-22	6.5
304-LAGUN-21		6.5	304-ZAYAN-21	7.0
304-LEONA-21		6.4	304-ZAYAN-22	7.0
304-LIDEL-21		6.5	305-BEACH-21	8.0
304-LIITTL-21		6.5	305-CORRA-21	7.0
304-MOLIN-21		7.5	305-CORRA-22	7.0
304-MOORE-21		7.6	305-HARKI-21	7.5
304-MOORE-22		6.5	305-HARKI-22	7.5
304-MOORE-25		7.0	305-HARKI-23	6.5
304-MOORE-26		7.2	305-PAJAR-21	7.0
304-NEWYE-11		7.2	305-STRUV-21	7.0
304-PILKI-21		6.4	305-STRUV-22	7.5
304-PILKI-22		7.0	305-WATSO-21	4.5
304-ROBSC-21		6.5	305-WATSO-22	7.0
304-SANLO-21		6.5	305-WATSO-23	8.0
304-SANLO-22	6.5	305-WSTRU-21	7.0	

<b>Transparency cm</b>	<b>Site ID</b>	<b>Result</b>	<b>Site ID</b>	<b>Result</b>
	304-APTOS-21	120	304-SANVI-21	>120
	304-APTOS-22	120	304-SCOTT-21	>120
	304-APTOS-23	120	304-SCOTT-22	>120
	304-ARANA-21	72	304-SCOTT-23	>120
	304-ARANA-22	13	304-SCOTT-24	>120
	304-ARANA-23	115	304-SCOTT-25	>120
	304-ARROY-21	120	304-SCSD-02	117
	304-ARROY-22	>120	304-SCSD-03	>120
	304-ARROY-23	100	304-SCSD-04	116
	304-BRANC-21	71	304-SOQUE-22	>120
	304-BRANC-22	>120	304-SOQUE-26	120
	304-BRANC-23	>120	304-SOQUE-28	>120
	304-BRANC-24	>120	304-VALEN-21	120
	304-BRANC-25	>120	304-VALEN-22	120
	304-CARBO-21	>120	304-WADDE-21	120
	304-CORCO-21	>120	304-WADDE-22	120
	304-CORCO-22	84	304-WILDE-21	>120
	304-CSD-08	>120	304-WILDE-22	<120
	304-FERRA-21	>120	305-BEACH-21	77
	304-GRANI-21	>120	305-CORRA-21	115
	304-LAGUN-21	>120	305-CORRA-22	>120
	304-LEONA-21	>120	305-HARKI-21	10
	304-LIDEL-21	>120	305-HARKI-22	19
	304-LIITTL-21	>120	305-HARKI-23	>120
	304-MOLIN-21	>120	305-PAJAR-21	120
	304-MOORE-21	120	305-STRUV-21	7
	304-MOORE-22	53	305-STRUV-22	8
	304-MOORE-25	35	305-WATSO-21	116
	304-MOORE-26	84	305-WATSO-22	80
	304-NEWYE-11	120	305-WATSO-23	65
	304-PILKI-21	72	305-WSTRU-21	29
	304-PILKI-22	58	304-SANLO-26	3.4*
	304-ROBSC-21	107	304-SANLO-27	1.55*
304-SANLO-21	>120	304-ZAYAN-21	1.87*	
304-SANLO-22	71	304-ZAYAN-22	5.12*	

\*Results in Turbidity NTU units; Basin Plan WQO: >10 NTU



## Appendix B: Laboratory Results

	Site ID	Result	Site ID	Result
	<b><i>E. coli</i></b> <b>MPN/100 ml WQO</b> <b>&lt;235 MPN/100 mL</b>	304-APTOS-21	82	304-SANLO-26
304-APTOS-22		150	304-SANLO-27	82
304-APTOS-23		20	304-SANVI-21	<20
304-ARANA-21		320	304-SCOTT-21	<20
304-ARANA-22		422	304-SCOTT-22	20
304-ARANA-23		40	304-SCOTT-23	<20
304-ARROY-21		<20	304-SCOTT-24	20
304-ARROY-22		1768	304-SCOTT-25	<20
304-ARROY-23		398	304-SCSD-02	962
304-BRANC-21		390	304-SCSD-03	<20
304-BRANC-22		62	304-SCSD-04	102
304-BRANC-23		290	304-SOQUE-22	1024
304-BRANC-24		82	304-SOQUE-26	172
304-BRANC-25		20	304-SOQUE-28	312
304-CARBO-21		290	304-VALEN-21	524
304-CORCO-21		40	304-VALEN-22	126
304-CORCO-22		82	304-WADDE-21	<20
304-CSD-08		5818	304-WADDE-22	20
304-FERRA-21		2842	304-WILDE-21	40
304-GRANI-21		126	304-WILDE-22	322
304-LAGUN-21		<20	304-ZAYAN-21	82
304-LEONA-21		62	304-ZAYAN-22	82
304-LIDEL-21		270	305-BEACH-21	20
304-LITTL-21		<20	305-CORRA-21	<20
304-MOLIN-21		82	305-CORRA-22	<20
304-MOORE-21		<20	305-HARKI-21	62
304-MOORE-22		<20	305-HARKI-22	180
304-MOORE-25		20	305-HARKI-23	244
304-MOORE-26		40	305-PAJAR-21	20
304-NEWYE-11		<20	305-STRUV-21	40
304-PILKI-21		2966	305-STRUV-22	<20
304-PILKI-22		400	305-WATSO-21	<20
304-ROBSC-21		20	305-WATSO-22	448
304-SANLO-21		264	305-WATSO-23	60
304-SANLO-22	126	305-WSTRU-21	<20	

<b>Total Coliform MPN/100 ml WQO: &lt;10,000 MPN/100</b>	<b>Site ID</b>	<b>Result</b>	<b>Site ID</b>	<b>Result</b>
	304-APTOS-21	928	304-SANLO-26	1,466
	304-APTOS-22	506	304-SANLO-27	1,092
	304-APTOS-23	8,704	304-SANVI-21	336
	304-ARANA-21	4,718	304-SCOTT-21	432
	304-ARANA-22	28,272	304-SCOTT-22	40
	304-ARANA-23	4,128	304-SCOTT-23	40
	304-ARROY-21	4,494	304-SCOTT-24	170
	304-ARROY-22	>48,392	304-SCOTT-25	350
	304-ARROY-23	18,416	304-SCSD-02	5,818
	304-BRANC-21	48,392	304-SCSD-03	346
	304-BRANC-22	798	304-SCSD-04	338
	304-BRANC-23	5,226	304-SOQUE-22	>48,392
	304-BRANC-24	8,212	304-SOQUE-26	2,028
	304-BRANC-25	512	304-SOQUE-28	1,560
	304-CARBO-21	2,628	304-VALEN-21	2,044
	304-CORCO-21	9,768	304-VALEN-22	2,618
	304-CORCO-22	3,444	304-WADDE-21	<20
	304-CSD-08	39,726	304-WADDE-22	60
	304-FERRA-21	5,206	304-WILDE-21	1,970
	304-GRANI-21	4,718	304-WILDE-22	3,700
	304-LAGUN-21	432	304-ZAYAN-21	946
	304-LEONA-21	5,510	304-ZAYAN-22	804
	304-LIDEL-21	3,700	305-BEACH-21	5,226
	304-LITTL-21	194	305-CORRA-21	498
	304-MOLIN-21	862	305-CORRA-22	326
	304-MOORE-21	1,288	305-HARKI-21	34,658
	304-MOORE-22	5,226	305-HARKI-22	11,588
	304-MOORE-25	492	305-HARKI-23	3,744
	304-MOORE-26	>48,392	305-PAJAR-21	12,976
	304-NEWYE-11	192	305-STRUV-21	1,466
	304-PILKI-21	28,727	305-STRUV-22	2,290
	304-PILKI-22	7,308	305-WATSO-21	584
304-ROBSC-21	4,718	305-WATSO-22	>48,392	
304-SANLO-21	48,392	305-WATSO-23	8,212	
304-SANLO-22	12,262	305-WSTRU-21	646	

	Site ID	Result	Site ID	Result
	<p style="text-align: center;"><b>Nitrate</b>  <b>mg/L NO<sub>3</sub>-N</b>  <b>WQO: &lt;2.25 mg/L</b></p>	304-APTOS-21	0.18	304-SANLO-26
304-APTOS-22		ND	304-SANLO-27	0.40
304-APTOS-23		0.19	304-SANVI-21	0.30
304-ARANA-21		0.60	304-SCOTT-21	0.16
304-ARANA-22		0.30	304-SCOTT-22	0.18
304-ARANA-23		0.40	304-SCOTT-23	ND
304-ARROY-21		ND	304-SCOTT-24	0.17
304-ARROY-22		1.00	304-SCOTT-25	0.15
304-ARROY-23		1.20	304-SCSD-02	3.95
304-BRANC-21		0.40	304-SCSD-03	1.87
304-BRANC-22		0.37	304-SCSD-04	2.44
304-BRANC-23		0.72	304-SOQUE-22	ND
304-BRANC-24		0.40	304-SOQUE-26	ND
304-BRANC-25		0.40	304-SOQUE-28	ND
304-CARBO-21		0.96	304-VALEN-21	0.18
304-CORCO-21		ND	304-VALEN-22	0.79
304-CORCO-22		ND	304-WADDE-21	0.29
304-CSD-08		0.40	304-WADDE-22	0.32
304-FERRA-21		ND	304-WILDE-21	0.30
304-GRANI-21		0.40	304-WILDE-22	0.30
304-LAGUN-21		0.30	304-ZAYAN-21	0.70
304-LEONA-21		0.28	304-ZAYAN-22	0.40
304-LIDEL-21		0.60	305-BEACH-21	26.00
304-LITTL-21		0.19	305-CORRA-21	0.91
304-MOLIN-21		0.40	305-CORRA-22	0.22
304-MOORE-21		ND	305-HARKI-21	ND
304-MOORE-22		0.30	305-HARKI-22	0.23
304-MOORE-25		0.20	305-HARKI-23	0.17
304-MOORE-26		ND	305-PAJAR-21	12.00
304-NEWYE-11		0.65	305-STRUV-21	ND
304-PILKI-21		0.43	305-STRUV-22	ND
304-PILKI-22		0.46	305-WATSO-21	ND
304-ROBSC-21		0.20	305-WATSO-22	0.44
304-SANLO-21		0.50	305-WATSO-23	25.60
304-SANLO-22		0.40	305-WSTRU-21	ND

	Site ID	Result	Site ID	Result
	<b>Orthophosphate</b> <b>mg/L PO<sub>4</sub>-P</b> <b>WQO: &lt;0.12 mg/L</b>	304-APTOS-21	ND	304-SANLO-26
304-APTOS-22		0.17	304-SANLO-27	ND
304-APTOS-23		0.12	304-SANVI-21	ND
304-ARANA-21		ND	304-SCOTT-21	ND
304-ARANA-22		ND	304-SCOTT-22	ND
304-ARANA-23		ND	304-SCOTT-23	ND
304-ARROY-21		ND	304-SCOTT-24	ND
304-ARROY-22		ND	304-SCOTT-25	ND
304-ARROY-23		ND	304-SCSD-02	0.14
304-BRANC-21		ND	304-SCSD-03	ND
304-BRANC-22		0.20	304-SCSD-04	0.12
304-BRANC-23		0.15	304-SOQUE-22	ND
304-BRANC-24		ND	304-SOQUE-26	0.20
304-BRANC-25		ND	304-SOQUE-28	ND
304-CARBO-21		ND	304-VALEN-21	0.22
304-CORCO-21		ND	304-VALEN-22	0.16
304-CORCO-22		ND	304-WADDE-21	ND
304-CSD-08		ND	304-WADDE-22	ND
304-FERRA-21		ND	304-WILDE-21	ND
304-GRANI-21		ND	304-WILDE-22	ND
304-LAGUN-21		ND	304-ZAYAN-21	ND
304-LEONA-21		ND	304-ZAYAN-22	ND
304-LIDEL-21		ND	305-BEACH-21	ND
304-LITTL-21		0.15	305-CORRA-21	ND
304-MOLIN-21		ND	305-CORRA-22	0.10
304-MOORE-21		ND	305-HARKI-21	ND
304-MOORE-22		ND	305-HARKI-22	ND
304-MOORE-25		ND	305-HARKI-23	ND
304-MOORE-26		ND	305-PAJAR-21	0.10
304-NEWYE-11		ND	305-STRUV-21	ND
304-PILKI-21		ND	305-STRUV-22	0.63
304-PILKI-22		0.27	305-WATSO-21	0.35
304-ROBSC-21		ND	305-WATSO-22	0.38
304-SANLO-21		ND	305-WATSO-23	ND
304-SANLO-22	ND	305-WSTRU-21	ND	