

# Green Valley Creek Water Quality 2004-2006

Site Topographical Assessment - 1375 Gossage Ave. Petaluma, CA



0 1000 FEET 0 500 1000 METERS  
Printed from TOPO! ©2000 National Geographic Holdings (www.topo.com)



# Project Description

Community Clean Water Institute's Volunteer Citizen Water Quality Monitoring Program supports community members in investigating Sonoma County's surface waters. The program objective is to involve local citizens in gathering baseline indicators, investigate potential source of pollution, and identify streams of concern in need of further study. The program produces useful data along with providing education and stewardship opportunities to the public. CCWI acts as custodian of water quality equipment, data management, trainer and coordinator of the monitoring program. Our volunteers are field operators who use standardized procedures to perform water quality tests at 50 sites throughout Sonoma County. The volunteers for Green Valley Creek include Bob Burke, Larry Hanson, Bob Pakes and Tom Veader.

Field sampling includes dissolved oxygen, pH, conductivity, turbidity and water and air temperature, with some sites additionally measured for flow. A grab sample at the time of field testing is returned to CCWI for total phosphorous and nitrate-nitrogen analysis. Less frequently performed analysis includes total coliforms, e. coli, and ammonia. See method description below. For a detailed account of methods for sample collection and handling, data management, record keeping and field and laboratory analysis, please contact our office.

Our goal was monthly monitoring of each site. Due to the challenge of coordinating between volunteer monitors' schedules and absences some fluctuation in time of day, month, and number of sampling events per year occurred. Monthly testing is useful in identifying streams or areas that fall outside the norm or the expected for the season, and for indicating where ecosystem, fish or human health may be at risk. However monthly monitoring misses the daily fluctuations in temperature, dissolved oxygen, bacteria, nutrients and turbidity that occur. Nutrients and turbidity in particular may spike to troubling levels during rain events, then fall back to baseline within days or even hours. The resolution of monthly monitoring can miss most or all of these events during a given rainy season.

The data for Green Valley Creek shows some issues with high temperatures and low dissolved oxygen in summer. Some of the sites have low, slow flows in summer which is a contributing factor. Turbidity and nitrate spike during storms, but regularly fall at normal levels. Phosphate is generally somewhat higher than usually seen in the Russian River watershed, and occasionally tops recommended levels.

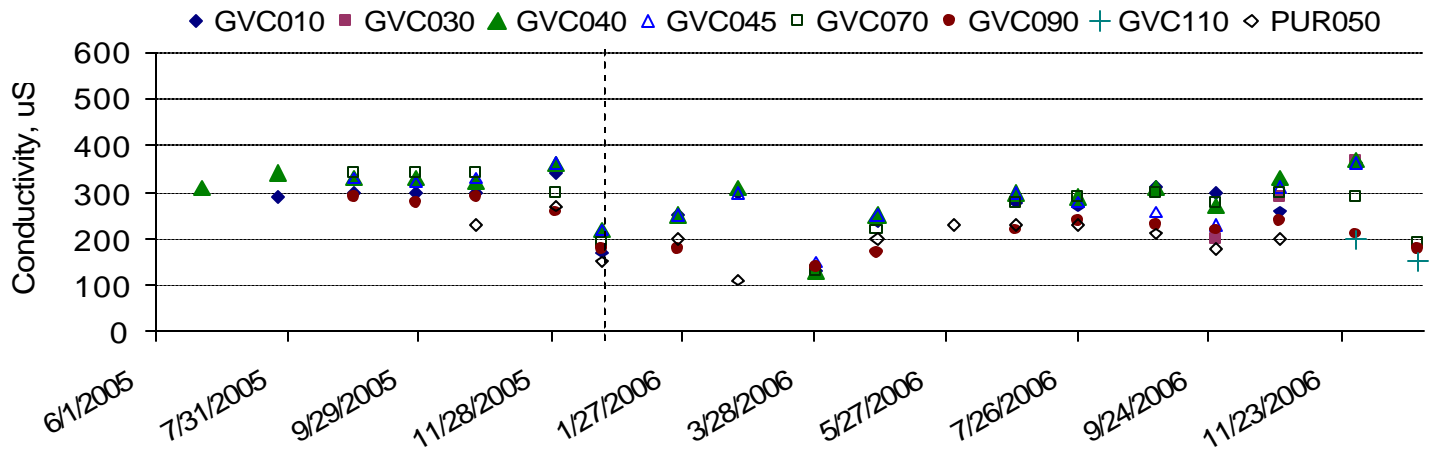
Green Valley Creek is currently monitored at seven sites between Green Valley Road and the confluence with the Russian. There is a wastewater treatment plant, a gravel mine, unincorporated towns roads and agriculture occurring along Green Valley Creek that may be impacting water quality. Data from 2004 to 2006 is displayed here graphically and in a summary chart. The metadata is available for download at our website by calendar year in Microsoft Excel format, [www.ccwi.org/issues/data.htm](http://www.ccwi.org/issues/data.htm).

	METHODNAME	METHODDESCR	Res	Reporting Limit	Units
Field	EPA170.1B	Temperature by Bulb	0.3	NA	Deg C
Field	EPA170.1T	Temperature by Thermocouple	0.1	NA	Deg C
Field/LAB	EPA150.1	pH	0.1	NA	pH Units
Field/LAB	EPA120.1	Specific Conductance	--	10	micro Siemens
Field/LAB	EPA180.1	Hach 2100P Turbidimeter	--	0.01	NTU
Field	ICM-DO	Dissolved Oxygen (polarographic)	0.1	NA	mg/L
Field	Hach10360	Dissolved Oxygen (luminescent)	0.1	NA	mg/L
LAB	IDEXX9223	Bacteria	--	1	MPN
LAB	IDEXX9223	<i>E. coli</i> Bacteria	--	1	MPN
LAB	HachNI-14	NO2+NO3-N (color wheel)	--	0.02	mg/L
LAB	LaMotte3649-SC	NO2+NO3-N (colorimeter)	--	0.02	mg/L
LAB	EPA300.0M	NO3-N (Ion Chromatography)	--	0.02	mg/L
LAB	HachPO-24	PO4-P (color wheel)	--	0.03	mg/L
LAB	LaMotte3653-SC	PO4-P (colorimeter)	--	0.03	mg/L
LAB	EPA300.0M	PO4-P (Ion Chromatography)	--	0.03	mg/L



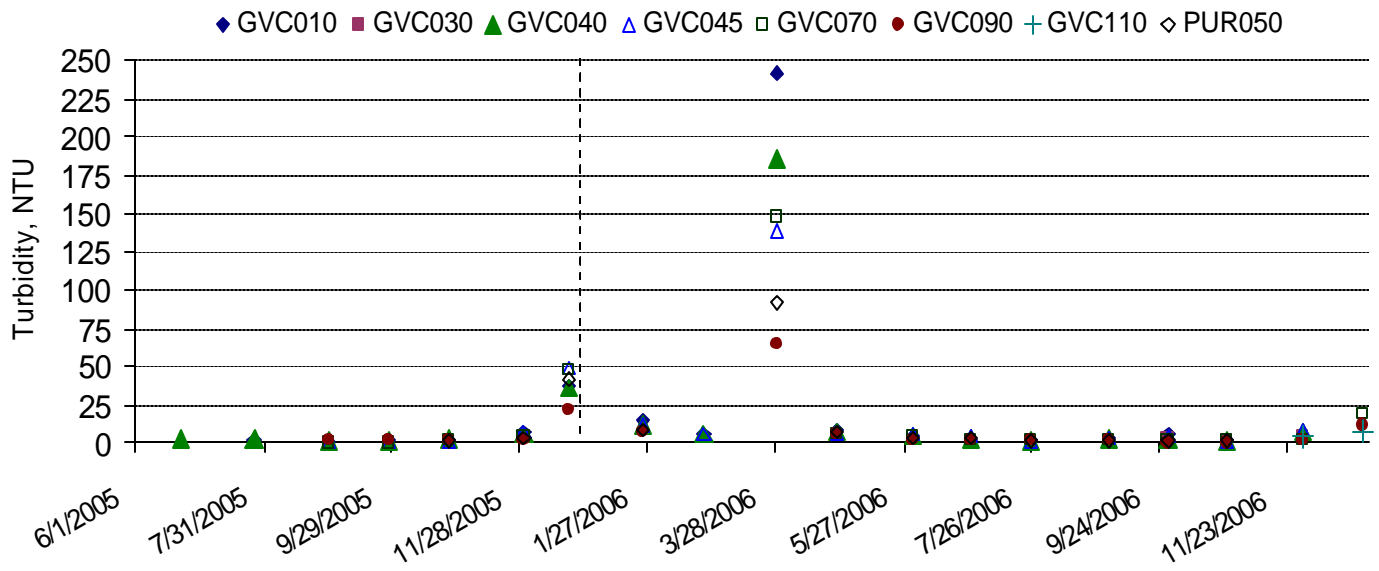


## Green Valley Creek Conductivity



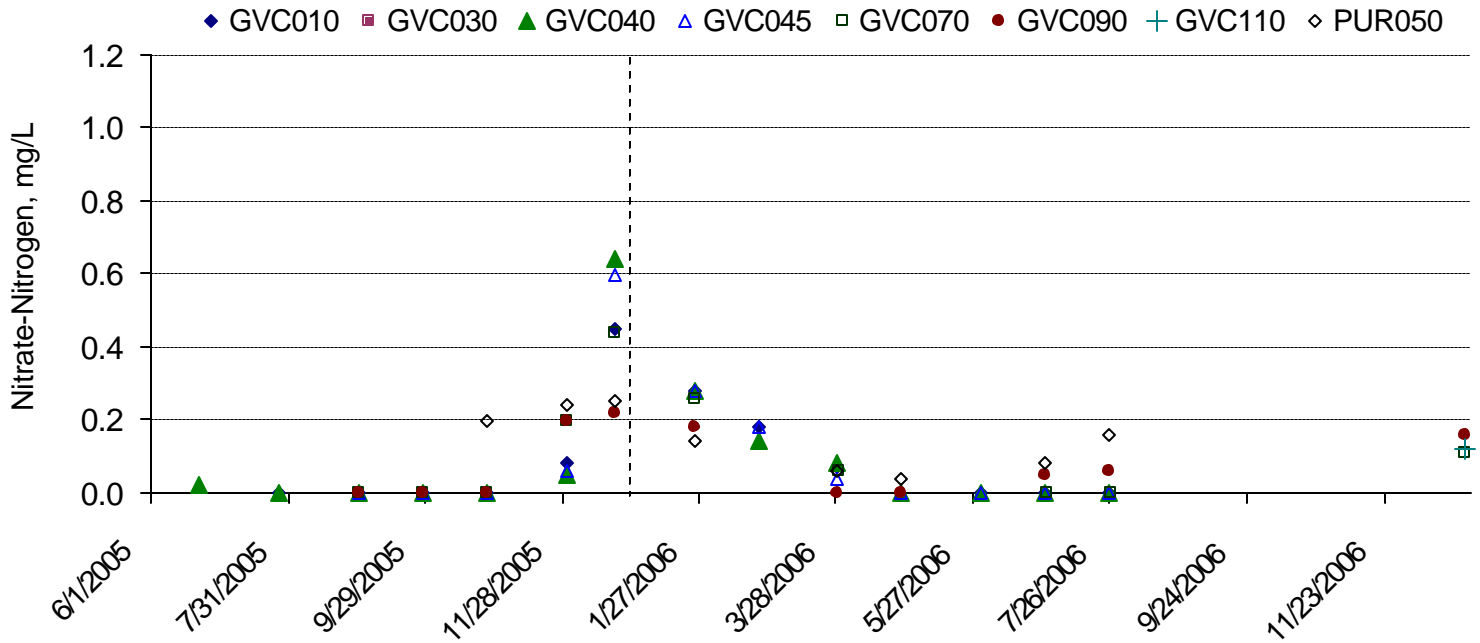
conductivity									
	GVC010	GVC030	GVC040	GVC045	GVC070	GVC090	GVC110	PUR050	ALL
mean	275	287	295	283	271	222	175	203	260
median	295	290	310	300	290	220	175	205	270
std. dev.	58	85	58	57	64	46	35	42	64
min	130	200	130	150	130	140	150	110	110
max	360	370	370	360	340	290	200	270	370
n	16	3	17	15	13	14	2	12	92
violations	na	na	na	na	na	na	na	na	na

## Green Valley Creek Turbidity



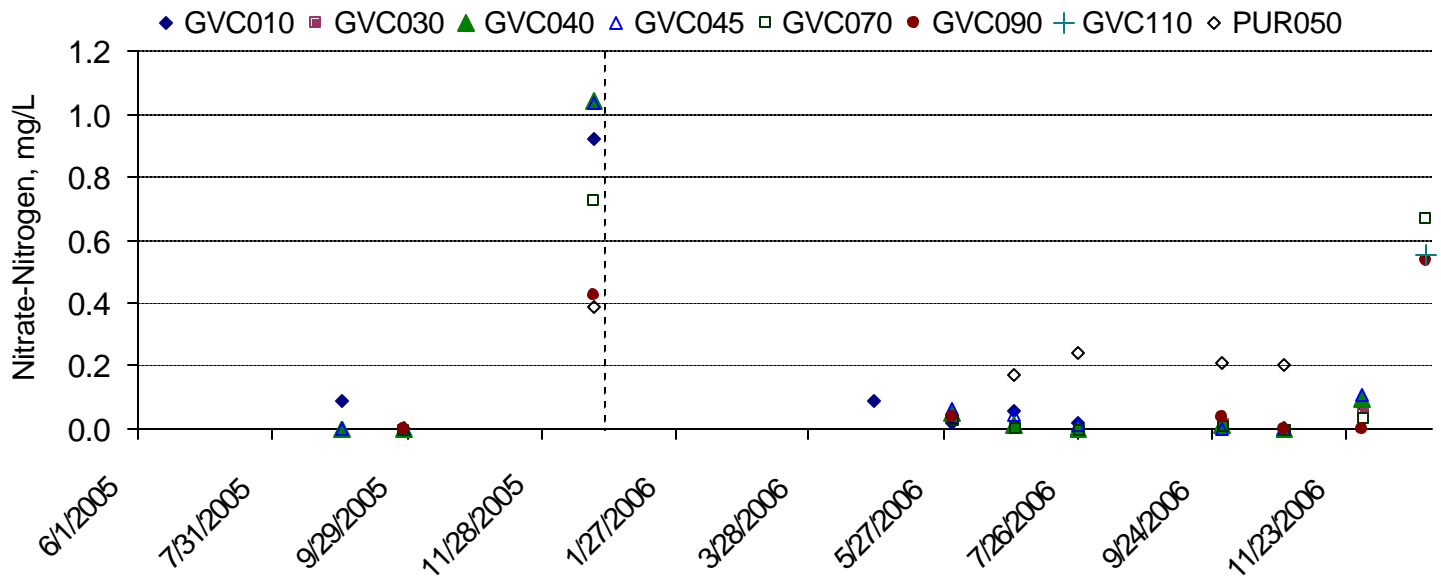
Turbidity									
	GVC010	GVC030	GVC040	GVC045	GVC070	GVC090	GVC110	PUR050	ALL
mean	19.80	2.72	15.98	15.64	15.73	7.45	5.88	13.94	14.31
median	3.64	2.28	3.06	4.60	1.28	1.28	5.88	2.54	2.87
std. dev.	57.67	1.42	43.16	34.49	38.34	15.99	1.34	27.08	37.41
min	0.50	1.58	1.39	1.84	0.66	0.29	4.93	1.22	0.29
max	241	4.31	186	138	147	63.8	6.82	91.9	241
n	17	3	18	16	15	16	2	12	99
violations	2	0	2	2	2	1	0	2	11

## Green Valley Creek Nitrate-Nitrogen colorimetric



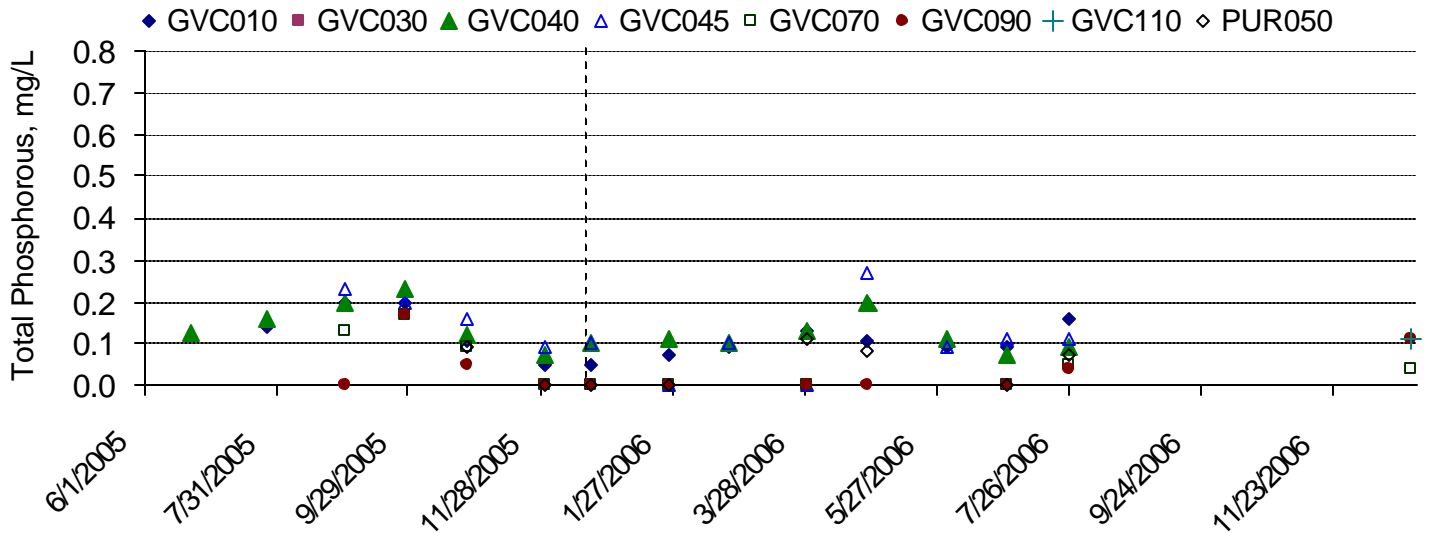
nitrate-nitrogen colorimetric									
	GVC010	GVC030	GVC040	GVC045	GVC070	GVC090	GVC110	PUR050	ALL
mean	0.09		0.09	0.10	0.11	0.08	0.12	0.15	0.10
median	0.00		0.00	0.00	0.03	0.05	0.12	0.15	0.04
std. dev.	0.14		0.18	0.18	0.15	0.09		0.08	0.14
min	0.00		0.00	0.00	0.00	0.00	0.12	0.04	0.00
max	0.45		0.64	0.60	0.44	0.22	0.12	0.25	0.64
n	12		14	12	10	11	1	8	68
violations	0		0	0	0	0	0	0	0

## Green Valley Creek Nitrate-Nitrogen with ion chromatography



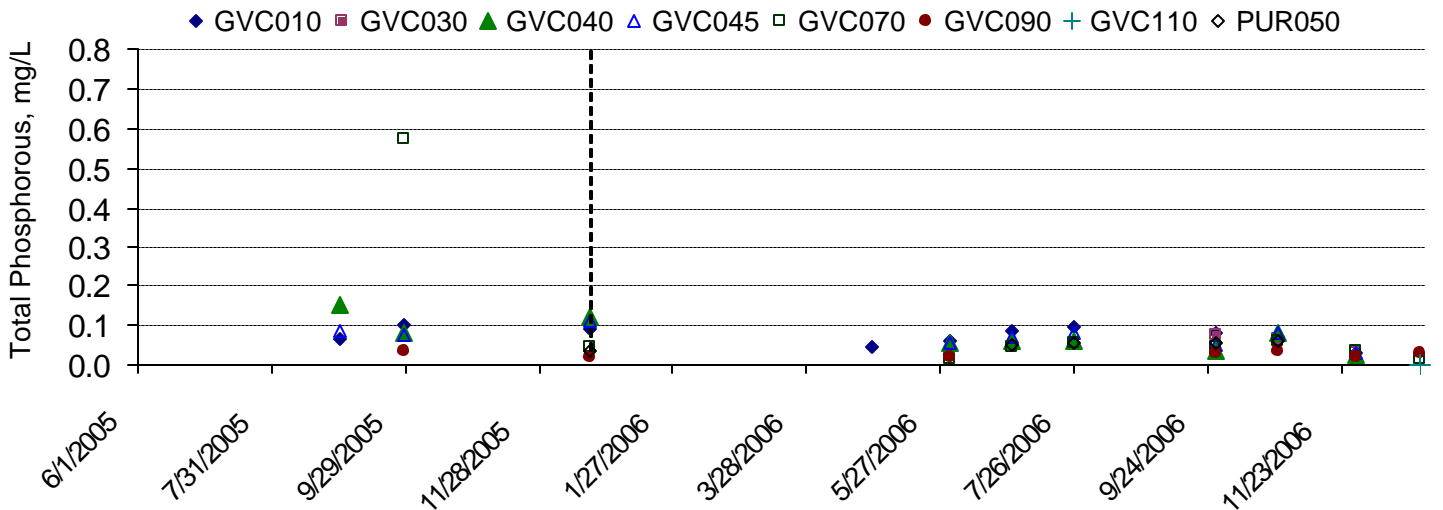
nitrate-nitrogen ion chromatography									
	GVC010	GVC030	GVC040	GVC045	GVC070	GVC090	GVC110	PUR050	ALL
mean	0.128	0.031	0.134	0.140	0.165	0.148	0.556	0.240	0.153
median	0.040	0.022	0.011	0.011	0.010	0.036	0.556	0.207	0.032
std. dev.	0.282	0.036	0.342	0.338	0.302	0.230		0.084	0.274
min	0.000	0.000	0.000	0.000	0.000	0.000	0.556	0.169	0.000
max	0.923	0.071	1.042	1.035	0.725	0.536	0.556	0.383	1.042
n	10	3	9	9	9	7	1	5	53
violations	0	0	1	1	0	0	0	0	2

## Green Valley Creek Total Phosphorous, colorimetric



total phosphorous colorimetric									
	GVC010	GVC030	GVC040	GVC045	GVC070	GVC090	GVC110	PUR050	ALL
mean	0.11		0.13	0.12	0.05	0.03	0.11	0.04	0.09
median	0.11		0.12	0.11	0.02	0.00	0.11	0.04	0.09
std. dev.	0.05		0.05	0.08	0.06	0.06		0.05	0.07
min	0.05		0.07	0.00	0.00	0.00	0.11	0.00	0.00
max	0.20		0.23	0.27	0.17	0.17	0.11	0.11	0.27
n	13		14	12	10	11	1	8	69
violations	7		11	8	2	2	1	1	32

## Green Valley Creek Total Phosphorous with ion chromatography



total phosphorous ion chromatography									
	GVC010	GVC030	GVC040	GVC045	GVC070	GVC090	GVC110	PUR050	ALL
mean	0.074	0.056	0.080	0.076	0.099	0.014	0.000	0.052	0.067
median	0.078	0.064	0.072	0.078	0.045	0.000	0.000	0.056	0.057
std. dev.	0.022	0.025	0.039	0.020	0.180	0.018		0.010	0.080
min	0.032	0.028	0.033	0.048	0.015	0.000	0.000	0.034	0.000
max	0.099	0.076	0.150	0.113	0.576	0.036	0.000	0.060	0.576
n	10	3	8	8	9	7	1	5	51
violations	0	0	2	1	1	0	0	4	8