



Figure 1: E. coli in Wolf Creek

Month/Year	Above WWTP MPN/100 ml	Below WWTP MPN/100 ml	Change MPN	% Change
Jun 05	104.6	160.7	56	54%
Aug 05	27.8	19.5	(8)	-30%
Nov 05	129.6	98.5	(31)	-24%
Aug 06	17.5	20.3	3	16%
Apr 07	71.2	89.2	18	25%
Aug 07	9.7	30.8	21	218%
Jan 08	39.3	24.3	(15)	-38%
Feb 08	307.6	38.9	(269)	-87%
Mar 08	1968.3	>2419.6	451	>23%
Jun 08	29.2	42.6	13	46%
Jul 08	48.1	44.1	(4)	-8%
Aug 08	23.1	26.5	3	15%
Sep 08	39.1	51.2	12	31%
Oct 08	209.8	218.7	9	4%
Nov 08	79.8	56.3	(24)	-29%
Jan 09	1299.7	816.4	(483)	-37%
Feb 09	27.9	44.3	16	59%
May 09	50.4	36.4	(14)	-28%
Jun 09	21.6	18.9	(3)	-13%
Sep 09	30.9	24.6	(6)	-20%
Nov 09	98.8	82.3	(17)	-17%
Average				

Red text indicates bacteria in excess of the one-time threshold, and orange indicates excess of multiple-reading threshold.

Red text indicates an increase in bacteria, green indicates a decrease, black indicates a change of less than 10%. The green cells are summer months.

The one-time reading threshold for E. coli bacteria is 235 MPN (most probable number/100ml). The multiple-reading threshold is 120 MPN/100ml. All our tests were one-time only, and we do not know if levels were sustained or of short duration.

Table 1: E. coli in Wolf Creek

As is true in most communities, citizens of Grass Valley are curious about the effects of a Waste Water Treatment Plant in their community. People are aware that the water that goes down their drains and toilets gets cleaned somehow, and back into the waterways where they live. Some people are also aware of an unpleasant smell coming from the WWTP. Residents that live downstream of a WWTP wonder if the water is safe and clean enough to drink and to swim in. Regulations require that the water that leaves the WWTP meet stringent water-quality standards.

Despite regulations and good intentions, problems do occur. Wolf Creek Community Alliance (WCCA) was formed when a group of concerned citizens gathered in response to a sewage spill from the plant. WCCA has received numerous questions over the years about potential bacterial contamination from the WWTP. In response to these concerns, WCCA has sampled Wolf Creek above and below the plant, in an attempt to answer the question “Does the WWTP increase the bacteria levels of Wolf Creek?”

Wolf Creek Community Alliance tested Wolf Creek for E. coli bacteria at sites just above and just below the Grass Valley Waste Water Treatment Plant (WWTP) 21 times between Aug 2005 and Nov 2009. E. coli is a species of fecal coliform bacteria that is specific to fecal material from humans and other warm-blooded animals. EPA has recommended E. coli as the best indicator of health risk from water contact in recreational waters; some states have changed their water quality standards and are monitoring accordingly. The results of our testing are shown in Figure 1, and delineated in Table 1, above.

If there was an increase or decrease in bacteria levels of less than 10%, the bacteria level was considered unchanged. Of the 21 tests:

- E. coli level increased below the WWTP 9 times, an average of 54% (ranging from 15 to 218 %.)
- The level decreased 10 times, an average of 32% (ranging from 13 to 87%).
- The level was considered unchanged in two of the tests.
- The average test result was a decrease in E. coli levels of 7.2%.
- The average level decreased (7.2%), and the levels decreased slightly more often (10 of 21 tests) than they increased (9 of 21 tests).

If we look at the summer data (June, July, Aug, Sept, Oct) values increase and average of 29%. In August 2007 there was an increase of 218%, but the levels above and below the plant were still well below those considered hazardous.

The E. coli level exceeded the one-time threshold (235 MPN/100ml) just two (2) times below the WWTP. One time it increased and one time decreased from above the plant. One other occasion that levels tested above the one-time threshold, it was 308 MPN/100 ml above the plant and 39 MPN/100ml below the plant.

In conclusion, the water in Wolf Creek below the treatment plant exceeded the one-time human health threshold 10% of the time, and only during the winter (non-swimming) season. The E. coli level exceeded the sustained threshold below the plant twice during the summer months (out of 11 tests). Further testing is indicated.