

Water Quality Study Van Wert County

Results from samples collected January – December 2005

Town Creek Nutrient Data

Nitrogen and Phosphorus concentrations at four locations in Town Creek

Town Creek Pesticide Data

Pesticide concentrations for samples collected in June and November at three locations in Town Creek.

Municipal and Township Well Pesticide Samples

Pesticide concentrations for June samples of six area municipalities and twelve rural wells.

Van Wert County Ecoli Results

Ecoli Levels from streams leaving Van Wert County and Township wells.

Rainfall Data

Amount of rainfall recorded prior to sampling day, and monthly totals for each year.

A Grant from the Van Wert County Foundation

Total Nitrogen and Phosphorus 2005

Month	Nitrate (ppm)					Phosphate (ppm)				
	TC-1	TC-2	TC-3	TC-4	AVG.	TC-1	TC-2	TC-3	TC-4	AVG.
January	N/S	5.7	4.1	4.73	4.84	N/S	0.39	0.29	0.31	0.33
February	N/S	3.85	3.42	3.34	3.54	N/S	0.22	0.28	0.28	0.26
March	N/S	4.28	4.58	4.11	4.32	N/S	0.26	0.21	0.24	0.23667
April	N/S	3.06	3.48	2.12	2.89	N/S	*	*	*	0
May	N/S	5.45	5.08	4.47	5.00	N/S	*	*	*	0
June	1.51	1.58	5.97	1.74	2.70	0.10	*	0.22	0.17	0.13
July	N/S	10.54	3.53	2.76	5.61	N/S	0.12	0.23	0.24	0.19667
August	N/S	0	10.1	0	3.37	N/S	0.21	0.37	0.16	0.24667
September	N/S	0	3.03	2.38	1.80	N/S	0.22	0.20	0.22	0.21333
October	N/S	9.96	4.88	5.72	3.5	N/S	0.34	0.25	0.19	0.26
November	6.31	14.59	6.99	3.49	2.6	0.10	0.23	0.14	*	0.0925
December	N/S	9.54	8.9	7.17	8.54	N/S	*	*	*	0

Nitrogen = nitrates + nitrites

Phosphorus=Total Phosphorus

N/S=Not sampled

Shaded boxes indicate values that exceed EPA's HAL of 10ppm Nitrogen.

Comments:

Nitrogen concentrations were average comparing to other years of the study. Levels exceeded the EPA's HAL level in July, August and November.

Phosphorus concentrations throughout 2005 were about average compared to the last couple of years. This year however we didn't have any site experience a level higher than the EPA's HAL of 1.0 ppm

Town Creek Pesticide Data 2005

Location	Date	Alachlor	Acetochlor	Atrazine	Carbofuran	Cyanazine	Fluchloralin	Metolachlor	Metribuzin	Pendimethalin	Propachlor	Simazine	Trifluralin
TC-1	Jun-05	*	*	1.4	*	*	*	*	*	*	*	*	*
TC-2	Jun-05	*	*	1.8	*	*	*	*	*	*	*	*	*
TC-3	Jun-05	*	*	2.3	*	*	*	*	*	*	*	*	*
TC-1	Nov-05	*	*	*	*	*	*	*	0.5	*	*	*	*
TC-2	Nov-05	*	*	*	*	*	*	0.5	1.1	*	*	*	*
TC-3	Nov-05	*	*	*	*	*	*	*	1.5	*	1.3	*	*

Only pesticides detected throughout the study are included

- = Sample was below the detection limit
Sample results are in parts per million (ppm)

Comments:

Town Creek Pesticide samples for 2005 followed a similar pattern as previous years, with some pesticides present in the June samples, and no detectable levels in November. The concentrations found in the June 2005 samples are slightly below average with amounts of Atrazine, Metolachlor, and Metribuzin were present. The November Samples however showed small concentrations of Metochlor, Metribuzin, and Propachlor. These concentrations might be the result of lower than normal levels of precipitation during the summer.

Municipal Pesticide Samples – 2005

Location	Atrazine	Alachlor	Metolachlor	Metribuzin	Propachlor	Propazine	Simazine	Nitrates (ppm)
Convoy	*	*	*	N/T	*	*	*	*
Delphos	*	*	*	N/T	*	*	*	*
Middle Point	*	*	*	N/T	*	*	*	*
Ohio City	*	*	*	N/T	*	*	*	*
Van Wert	1.3	*	*	N/T	*	*	*	0.35
Willshire	*	*	*	N/T	*	*	*	*

Results in ppm

Similar to other years, the 2005 samples were void of any detectable levels with the exception of nitrates in the Van Wert sample. However the concentration of nitrates present did not exceed the EPA's HAL of 10ppm.

Township Wells Pesticide Samples – 2005

Location	Alachlor	Atrazine	Metolachlor	Metribuzin	Propachlor	Propazine	Simazine	Nitrates (ppm)
Union	*	*	*	N/T	*	*	*	*
Pleasant	*	*	*	N/T	*	*	*	*
Tully	*	*	*	N/T	*	*	*	*
Harrison	*	*	*	N/T	*	*	*	*
Willshire	*	*	*	N/T	*	*	*	*
Liberty	*	*	*	N/T	*	*	*	*
York	*	*	*	N/T	*	*	*	*
Jennings	*	*	*	N/T	*	*	*	*
Ridge	*	*	*	N/T	*	*	*	*
Washington	*	*	*	N/T	*	*	*	*
Jackson	*	*	*	N/T	*	*	*	*
Hoaglin	*	*	*	N/T	*	*	*	*

Results in ppm

The samples collected in June 2005, contained no detectable levels of pesticides. This information coincides with previous years, confirming the high quality of well water.

Township wells E.coli and Coliform Bacteria

Location	Coliform 02	Ecoli 02	Coliform03	Ecoli 03	Coliform04	Ecoli 04	Coliform05	Ecoli 05	Year Dug	Depth	Casing
Harrison	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	N/A	N/A	N/A
Hoaglin	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1970's	40'	Metal
Jackson	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1987	52'	PVC
Jennings	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1979	38'	Metal
Liberty	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1974	108'	Metal
Pleasant	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1975	140'	Metal
Ridge	Present	Absent	Absent	Absent	Present	Absent	Absent	Absent	1939	85'	Galvanized
Tully	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1978	105'	Iron
Union	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	N/A	N/A	N/A
Washington	Present	Absent	Absent	Absent	Present	Absent	Absent	Absent	1952	35'	Steel
Willshire	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	1979	88'	Steel
York	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	N/A	N/A	Steel

It appears that all wells that are less than one hundred and five feet and have a metal casing have a good chance of having coliform bacteria in them. Lab personal indicated that this is normal and that the bacteria that were found are a natural occurring bacterium that feeds on the metal casing of the well. However, lab personal did recommend shocking the wells with bleach if the household has very young children. The 2005 year test showed no bacteria or E. Coli.

Town Creek E. coli Test

Location	1-Jun-02	3-Nov-02	3-Jun-03	3-Nov-03	1-Jun-04	1-Nov-04	1-Jun-05	1-Nov-05
TC1	390	630 *		300	2000	1920	4400	500
TC2	290	0	400	140	2000	1760	3800	500
TC3	660	2390	1000	308	6000	2840	5200	14000
TC4	230	20	200	90	4000	3000	5600	300

E. coli levels are hard to predict. The only factor that appears is that the E. coli levels downstream of Van Wert appear to be higher than those taken upstream of Van Wert.

Streams Leaving Van Wert County (E. Coli Test)

E. Coli tests for seven creeks at county line - 2005 * values given in colonies/100ml	sample date											
	3-Mar-03	3-Jun-03	3-Sep-03	1-Dec-03	1-Mar-04	1-Jun-04	1-Sept-04	1-Dec-04	1-Mar-05	3-Jun-05	3-Sep-05	1-Dec-05
Town Creek	110	200	17600	9400	500	4000	420	2400	16000	5600	1900	3200
Madox Creek	280	*	5000	1800	300	6000	170	2000	17000	400	4200	5900
Hoaglin Creek	200	*	5400	2000	1300	4000	190	1000	10000	2000	9400	8500
Hagerman Creek	300	1600	4400	600	500	1000	120	700	9000	600	6000	7200
Upper Prairie Creek	200	*	2600	400	1300	2000	100	700	27000	3200	12400	3200
Middle Creek	200	*	2200	800	300	1000	300	700	6000	3200	22800	5800
Blue Creek	200	400	3200	2200	800	3000	1000	300	5000	4400	5600	2600

The levels of E. Coli are sporadic and somewhat inconsistent. The only consistency observed so far is the E. Coli levels are inconsistent

Rainfall (inches) Recorded prior to Sampling

2005	January	February	March	April	May	June	July	August	September	October	November	December
24 Hours	0.00	0.05	0.00	0.04	0.10	0.15	0.88	0.00	1.80	0.00	0.00	0.00
48 Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.41	0.00	1.20
72 Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96 Hours	0.00	0.00	0.00	0.00	0.31	0.15	0.00	0.05	0.00	0.00	0.00	0.00
Totals	0.00	0.05	0.00	0.04	0.41	0.30	1.10	0.05	1.80	0.41	0.00	1.20

Comments:

Rainfall data is reported because it may help explain pesticide and nutrient levels in Town Creek. High levels can increase run-off and the amount of nitrogen, phosphorus and pesticides entering the stream.

Total Rain Fall

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average
January	3.82	1.81	1.89	2.75	1.98	2.97	2.70	2.29	1.71	3.82	1.65	0.65	1.63	1.45	2.54	6.01	2.48
February	6.40	0.94	1.20	1.60	0.70	0.75	0.36	3.70	1.53	1.94	1.45	2.18	2.51	2.42	0.41	1.07	1.82
March	1.87	2.38	2.24	1.34	0.72	1.86	1.97	2.50	3.15	1.26	1.53	0.61	3.42	1.76	1.95	1.14	1.86
April	1.89	3.87	4.09	5.21	4.43	4.70	4.37	0.78	5.03	5.11	1.51	3.43	3.71	2.07	0.64	3.26	3.38
May	5.28	3.94	2.53	3.04	1.77	4.24	5.21	4.58	3.23	2.13	4.98	5.78	5.56	8.18	5.69	1.31	4.22
June	3.47	0.12	2.09	8.68	5.27	4.95	4.65	3.79	7.56	3.64	9.23	2.61	2.4	4.55	5.54	2.91	4.47
July	8.95	2.87	6.79	5.65	4.39	2.19	8.30	8.33	4.28	3.19	1.86	3.65	3.03	8.81	9.45	3.04	5.30
August	5.21	3.89	2.22	1.25	2.31	3.50	1.77	3.01	4.31	2.71	3.04	1.71	2.23	6.51	5.85	3.21	3.30
September	3.28	1.66	1.66	4.11	0.62	0.43	2.42	5.53	0.80	1.59	5.32	6.29	2.77	4.79	2.31	5.06	3.04
October	3.37	2.21	2.61	1.82	0.80	4.08	2.40	1.61	2.70	2.08	2.3	7.79	1.45	1.73	3.25	1.28	2.59
November	2.31	1.05	5.51	4.13	3.56	2.63	5.56	2.74	1.89	1.25	1.9	7.76	2.91	2.99	3.66	3.19	3.32
December	7.10	1.10	1.33	1.56	2.59	1.10	0.00	1.73	0.93	2.51	3.2	0.37	2.198	2.86	2.16	2.99	2.11
total for year	52.95	25.84	34.16	41.14	29.14	33.40	39.71	40.59	37.12	31.23	37.97	42.83	33.82	48.12	43.45	34.47	36.53

Comments:

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