

## Spring 2007 KRWW Sampling Results

KRWW ID#	Collection Date	Stream Name	Location	Flow	Rainfall	Turbidity	Dissolved Oxygen (mg/L)	pH	Temp. (°C)
<b>Water Quality Standard or State Average</b> <b>DWS=Drinking Water Standard</b> <b>WAH=Warmwater Aquatic Habitat</b>				N/A	N/A	N/A	< 5.0 mg/L	>6 or <9	31.7°C
K005	21-May-07	Cane Run Ceeek	0.2mi upstream of 460 Br	3	0	0	8.4	8.5	17
K017	18-May-07	Sandlick Creek	near mouth at Caudilltown behind Cookie'	3		1	1 ?	7.9	12
K062	19-May-07	North fork of Ky River	Mayking, at Old Regular Baptist Church	3	0	1			
K064	19-May-07	Cram Cr	At Mouth of Cram Cr & Pert Fk	3	0	1			
K082	18-May-07	KY Rv N Fk - Perry	Perry Co Park	3	0.1	1	8.68	7.96	16.3
K083	18-May-07	Lotts Cr - Perry	upstream - below Elk Fork Branch	3	0.1	1	9.03	7.62	13.5
K104	19-May-07	Rockhouse Cr	above Blair Br	3	0	0	9.2	8.05	12.3
K109	18-May-07	Crases Cr	mouth of Crases Br	2		0	8.2	7.7	12.5
K112	18-May-07	North Fork	North Fork below Crafts Colley Creek	3	0.1	0	9	7.5	14.5
K113	19-May-07	North Fork Ky	North Fork above Colly Creek	3		1	8.5	7.5	13
K114	18-May-07	Colley Creek	Mouth of Colley Creek	3		0	10.3	7.6	12
K115	19-May-07	Allen Branch	mouth of Allen Branch	3		0		5	10
K141	18-May-07	Carr Fk Rt Fk	Downstream from Vicco, Hwy 15 pullover.			1	9.84	7.97	12.9
K441	19-May-07	Scuddy Branch	where Scuddy Branch and Carr Creek inter	3	0.1	1	16.7	6	10
K445	18-May-07	Kingdom Come Creek	at mouth of creek near bend in road	3	0.1	0		7.3	10
K446	18-May-07	North Fork of KY River	below confluence with Kingdom Come Creek	3	0.1	0		7.3	15
K452	18-May-07	North Fork KY River	behind Heritage Building and downstream	3	0.1	0		7.8	
K454	19-May-07	Red River	confluence of KY and Red River on Clark	3	0	0	9	7	19
K473	18-May-07	Fishpond lake	inflow at fishpond lake	3	0.1	0		7.61	13.3
K476	18-May-07	Dry Fork	A the mouth of Dry Fork 20 ft above gara	3		1	9	7	13
K477	18-May-07	North Fork KY River	Where the KY River intersects with mills	3	0.1	0		8.18	12.5
K478	18-May-07	Millstone Creek	Between Whitesburg and Neon at the inter	3	0.1	0		8.18	12.2
K479	19-May-07	Rockhouse Creek	Below confluence with Camp Branch.	3	0	1	9.2	8.06	12
K481	18-May-07	Little Dry Fork	At the mouth, via Lion Drive.	3		2	9	7	14
K483	18-May-07	Henry Ison Hollow	upstream of the intersect of Kingdom Com	3	0.1	0	10.3	7.3	14
K492	19-May-07	Carr Fork	1/2 mile upstream from the intersect of	3	0.5	0		7.75	11.5
K523	19-May-07	trib to Hickman	at Tates Creek high school, near Greentr	2	0.1	0	6.4	8	19
K524	19-May-07	KY River	cummins ferry road	3	0	2			22
K525	23-May-07	philips creek	1/2 mile upstream from lock 10.	1	0	0			
K526	21-May-07	trib to South Elkhorn	at Stonewall School , cornwall Drive.	3	0	1	8.5	8	15

K529	20-May-07	Elkhorn Creek	At Elkhorn Campground and Georgetown Roa	2	0	0			
K533	21-May-07	Benson Creek	at 129 Apple Tree Court.	2	0	1	7.1	7.3	18
K535	18-May-07	Sturgill Branch	Sturgill Branch at mouth behind communit	3	0	1	7	6.5	11
K536	18-May-07	Ran Day Hollow	at mouth of Long Branch	3	0.1	0	8.8	8	10
K543	19-May-07	Clarks Run	off hwy 34 at Cross Pike	3	0.5	0	8.8	7.5	12
K548	19-May-07	Cane Run	Cain Run Main channel N. of Royalty	3	0	2	10	8.25	20
K549	19-May-07	Curds Creek	above Dix Dam on Donamar Road, 100 yds u	3	0	2	11	8.25	20
K550	18-May-07	Herrington Lake	Jewett dock at Hardin Heights	3	0	2	11	8.2	20
K551	17-May-07	unnamed trib to South E	on Stone Road at Montessori Middle Schoo	3		0	10.9	7.5	18
K552	19-May-07	Silver Creek	at Silver Creek Elementary School and 10	3	0	1	9.5	7.4	16
K553	19-May-07	Brushy Creek	on highway 25.	2	0	0	8.8	7.2	15
K555	19-May-07	Rocky Fork	near Dix River Dam on Ron Clar Lane.	4	0	2	10	8	20
K556	21-May-07	Cane Run	at intersect of Coleman Lane and Hwy 25.	3	0	0	17.4	8	19
K557	19-May-07	Herrington Lake	off highway 152 at commercial docks.	3	0	1	8.5	7.5	20.5
K558	19-May-07	Mock's Creek	off highway 33	3	0	1	9.5	8	19
K559	19-May-07	Tanyard Branch	off highway 1853.			1	9	8.5	19
K560	18-May-07	Dix River	off highway 34	3	0	2	7.5	8	19
K561	19-May-07	South Rocky Fork	at headwaters	3	0.1	0	9.5	8	10
K562	19-May-07	?	N37.07352 W083.32660	2	0.5	0	13.7	7.2	11
K563	19-May-07	Lower Bad	37.07052 W083.36816	3	0.5	1	13.5	7.8	11
K565	19-May-07	Rockhouse Creek AMD	off of Hwy 7 beside Dylan's Diner	3	0	0	7	4.4	12

**NOTE: The laboratory's maximum detection level for Metolachlor was 0.08 micrograms/liter and the maximum detection level for Triazines was 0.06 micrograms/liter. For those sites with undetectable levels, a value of half the MDL was entered (0.04 for Metolachlor and 0.03 for Triazines).**

### Explanation of Sampling Parameters:

**Flow** - Lesser flows can indicate more concentrated (higher) levels of pollutants and result in lower dissolved oxygen levels. Flows were estimated by volunteers according to the following scale: 0 = dry; 1 = ponded; 2 = low; 3 = normal; 4 = bank full; 5 = flooded.

**Dissolved Oxygen** - A dissolved oxygen value less than 5.0 mg/L is problematic for aquatic organisms, causing increased susceptibility to environmental stresses, reduced growth rates, mortality and an alteration in the distribution of aquatic life.

**pH** - A pH value less than 6 signifies acidic conditions in which toxic heavy metals are more soluble, and therefore more available for uptake by aquatic life. At pH values greater than 9, toxic ammonia concentrations increase.

**Water Temperature** - In a warm water stream, temperatures should not exceed 89°F (31.7°C). Cold water streams (which are uncommon in the Kentucky River Basin) should not exceed 68°F (20°C). Water temperature affects instream dissolved oxygen levels, as well as the solubility and toxicity of many other parameters. Generally, the solubility of solids increases with increasing temperatures, while gases tend to be more soluble in colder water. Thus, "the warmer the water, the less dissolved oxygen, and vice-versa.

**Chlorides** - Chlorides are salts resulting from the combination of the gas chlorine with a metal. Sodium chloride in water can impart a salty taste at

250 mg/L. Chlorides can also corrode metals and affect the taste of food products, necessitating a recommended maximum chloride level for water used in industry or processed for other uses. In addition, fish and other aquatic communities cannot survive in high levels of chlorides. Public drinking water standards require chloride levels not to exceed 250 mg/L. Criteria for protection of aquatic life require levels of less than 600 mg/L for chronic (long-term) exposure and 1,200 mg/L for short-term exposure. The average value in Kentucky is 13.2 mg/L.

**Conductivity** - Conductivity is a measure of the ability of an aqueous solution to carry an electrical current. This measurement is used to determine a variety of water quality applications, including the amount of total dissolved solids in the water and as a quick indicator of variation or changes in water and wastewater. The state of Kentucky does not have water quality criteria for conductivity, but the upper limit set for the Ohio River is 800 umho/cm. The average in Kentucky is 335 umho/cm.

**Nitrate (NO<sub>3</sub>-N)** - Drinking water that is high in nitrates can cause a condition known as "blue baby" disease when used for feeding babies, and can cause digestive disturbances in children and adults. High nitrate levels in waterbodies stimulates the growth of algae and plankton, which provide food for other organisms. However, an excess of nitrogen can cause their overproduction. As they die and decompose, they use up the oxygen, which causes other oxygen-dependent organisms to die. Kentucky's water quality standard for nitrate in drinking water sources is 10 mg/L.

**Sulfate** - Sulfates can be naturally occurring in waterbodies or the result of municipal or industrial discharges. Runoff from fertilized agricultural lands and from coal mining activities can also contribute sulfates. Problems caused by sulfates are most often related to their ability to form strong acids, which lower the pH. Kentucky's water quality standard for sulfate concentrations in drinking water sources is 250 mg/L.

**Metolachlor** - Metolachlor is usually applied to crops before plants emerge from the soil and is used to control certain broadleaf and grassy weeds. Trade names include Bicep, CGA-24705, Dual, Pennant and Pimagram. Metolachlor is highly persistent in water, and moderately persistent in soils. There are no current water quality standards for the herbicide Metolachlor, although it can be slightly toxic to humans via ingestion and moderately toxic to both cold- and warmwater fish, including rainbow trout, carp and bluegill sunfish.

**Triazines** - Triazines, or Atrazine, is a selective herbicide used to control broadleaf and grassy weeds in corn, sorghum, Christmas trees, and other crops. Trade names include Aatrex, Aktikon, Alazine, Atred, Atranex, Atrataf, Atratol, Azinotox, Crisazina, Farmco Atrazine, G30027, Gesaprim, etc. Atrazine is moderately soluble in water and highly persistent in soil. Under acute conditions, Atrazine is slightly to moderately toxic to humans and other animals. The EPA's drinking water standard for Atrazine is 0.003 mg/L. The EPA has recommended an acute criterion for aquatic life of 350 micrograms/L and a chronic criterion of 12 micrograms/liter.

*For more information about KRWW sampling parameters, past sampling results, and to find the location of different sampling sites, please visit the KRWW websites at <http://www.uky.edu/otherorgs/krww> and <http://kywater.org/watch/ky.htm>.*

Chloride (mg/L)	Field Conductance	Conductivity (uU/cm)	Nitrate (mg/L)	Nitrate-N (mg/L)	Sulfate (mg/L)	Turbidity	Metolachlor (ug/L)	Triazines (ug/L)
DWS = 250 WAH = 600 (chronic) or 1,200 (acute)	State Avg = 335	State Avg = 335	N/A	DWS = 10	DWS = 250	N/A	N/A	EPA's Recommended DWS = 0.003 EPA's Recommended WAH = 350 (acute) and 12 (chronic)
	460						0.04	0.06
10.4	560	803	1.7	0.38	301	0.86		
8.5		823	1.9	0.43	265	5.96		
8.6		576	1.3	0.29	79.6	2.52		
11.7	595	696	1.1	0.25	222	2.27		
5.8	898	1132	1.3	0.29	540	3.31		
16.7	1170	1108	1.6	0.36	426	1.95		
10	220	258	2.6	0.59	27.4	2.15		
9.4	440	786	1.9	0.43	247	2.49		
9.9	900	802	2	0.45	253	2.71		
16.5	580	822	0.9	0.2	365	4.17		
11	700	631	0.8	0.18	308	1.26		
8.5	515	658	1.1	0.25	231	3.47		
6.6	1200	1180	1.3	0.29	733	13.3		
3.3	600	555	0.6	0.14	208	3.26		
4.1	620	568	0.7	0.16	210	0.77		
11.2	820	779	1.7	0.38	251	2.29		
9.1	280	221	0.7	0.16	24.3	11.4		
3.6	1331	1266	0.3	0.07	297	0.5		
11.8	1500	1412	1.1	0.25	553	31.7		
8.8	1050	1072	1.2	0.27	421	2.76		
9.3	1206	1145	0.8	0.18	475	4.35		
11	1266	1203	1.7	0.38	505	6.15		
6.1			0.4	0.09	1010	165		
3		1166	2.6	0.59	626	4.8		
9.4		657	1	0.23	226	2.87		
							0.04	0.03
							0.04	0.03
							0.04	0.03
							0.04	0.03

							0.04	0.03
2 12.3							0.04	0.03
		1443	8.5	1.92	841	1.1		
		1763	4.2	0.95	1070	2.86		
							0.04	0.03
							0.04	0.03
							0.04	0.03
							0.04	0.03
							0.04	0.06
							0.04	0.03
							0.04	0.03
							0.04	0.06
	450						0.04	0.03
							0.04	0.06
							0.04	0.08
							0.04	0.03
							0.04	0.03
							0.04	0.03
2.8	180	158	1	0.23	12.3	5.42		
4.2	1690	1666	1.6	0.36	1030	2.44		
4.1	776	745	0.4	0.09	380	9.92		