



HAPPY EARTH DAY



# STREAM LINE

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A PUBLICATION OF THE **KINGS RIVER WATERSHED PARTNERSHIP**

## SEGMENT OF KINGS RIVER ON IMPAIRED WATERS LIST, TEMPORARILY

Every two years, the Arkansas Department of Environmental Quality is required to produce a list of impaired waterbodies in the state (commonly called the 303d list). Once a body of water is added to the list, the state has 13 years to address the impairment, either by studying all of the causes for impairment or by changing the water quality standards so that the waterbody no longer qualifies for the list.

The recently released 2004 303d list includes a 19 mile segment of the Kings River, starting at its confluence with the Osage River and ending at Table Rock Lake. The cause of impairment has been listed as Total Dissolved Solids with the source being the municipal treatment plant. No action will be taken by the state as a result of the listing because the Kings was placed under category 5b-waters not currently attaining standards but ones that will soon be de-listed with ADEQ's upcoming revisions in its assessment methodology.

Total Dissolved Solids are dissolved ions like sodium, calcium, magnesium, potassium, iron, chloride, bicarbonate, or sulfate. Dissolved solids are different than the particles that cause turbidity in water, which are suspended solids like silt. Many factors can contribute to a high TDS reading, including the

type of soil and rock that rainwater runs through before reaching the river.

TDS readings below wastewater treatment plants tend to be high because of the phosphorus, nitrogen, and other ions left in the water after treatment. Extremely high TDS renders water unsuitable for drinking or irrigation and can harm aquatic life.

The Arkansas Pollution Control and Ecology Commission has set a standard of 150 mg/L TDS for the Kings based on a comparison of testing results of the eco-region. Interestingly, the EPA set a recommended standard of 500 mg/L TDS for drinking water.

Some of you might question why the Kings would be put on the impaired waters list while the Osage is left off. According to an ADEQ official, streams directly receiving water from municipal treatment plants are exempt from certain standards, but the exemption does not currently extend past the Osage to the Kings. ADEQ plans to change the way it assesses waterbodies below treatment plants, allowing more exceedences over the set standards for a certain time period. Once these changes are finalized, the Kings will once again join the Osage in its absence from the impaired waters list.



AR Game & Fish Commission made some improvements to the Rockhouse put-in this month, including this sign.

## KRWP HOLDS MADISON COUNTY PUBLIC MEETING

On May 10, at 7:00 pm the Kings River Watershed Partnership will hold its first Madison County Public Meeting at the Marble fire-station. The KRWP Board of Directors would like to invite everyone to come for refreshments, a short presentation, and a question and answer session. The purpose of the meeting is primarily to

introduce the Partnership's mission, goals, and projects to Madison County residents. Because the majority of the Kings River runs through Madison County, the support and input of its residents is vital to the success of the Kings River Watershed Plan. Together we can protect our streams without the need for outside regulations.

### *Become a trained volunteer water quality monitor*

*Saturday, April 30 or  
Saturday, May 21  
11:00 AM*

*C.R. 306 Bridge over  
Lower Osage Creek*

*CR 306 turn-off is just east  
of the Kings River on Hwy 62  
between Berryville and Eureka  
Springs. Go south for about a  
mile to Osage Creek*

*For more information call  
Sam Davis at*

*(870) 423-4261*



**KINGS RIVER**  
WATERSHED PARTNERSHIP

**WATER QUALITY MONITORING REPORT — SAM DAVIS**

Monthly chemical and physical stream testing has continued during the first quarter of 2005. Those volunteers that have been wading in the shivering cold waters of our local streams during the winter months are eagerly awaiting the warming temperatures of spring in the Ozarks. A total of nine different sites were tested at least once since 2005 began. We collect and record twelve different measurements each time we take a water sample. This table includes five key indicators of stream water quality.

Work is underway to develop a biological testing program during this year. Assessing the biological diversity in our watershed over time plays an important role in helping the stakeholders make the best possible decisions about water quality in our watershed. Whether you want to get wet and kick up some river critters, learn more about what lives in the creek down the hill from you, or if you are interested in participating in the planning this new program, please contact Shawna Miller or Sam Davis. Everyone is welcome.

	Month	Stream Depth (ft)	Dissolved Oxygen (mg/L)	Nitrates (mg/L) NO 3- -N	Phosphorus (mg/L) Reactive	Total Dissolved Solids (ppm)
Site 1- Upper Osage @ CR 705 above Berryville	Jan	4.6	12.6	1.5	0.40	75
	Feb	4.6	12.7	1.0	0.33	83
	March	4.3	12.9	1.0	0.27	82
Site 2- Lower Osage @ CR 306 below Berryville	Jan	2.0	12.2	1.6	0.20	147
	Feb	2.6	11.6	1.4	0.17	128
	March	1.8	11.7	1.2	0.24	90
Site 3- Kings R. just above Osage confluence	Jan	2.2	11.6	1.5	0.16	106
	Feb	3.0	10.8	1.3	0.28	89
	March	2.5	11.1	1.3	0.14	86
Site 4- Upper Kings, Hwy 74 bridge south of Kingston	Jan	3.0	15.4	1.7	0.38	22
	Feb	3.1	11.7	1.3	0.37	21
	March	2.6	13.4	2.6	0.41	26
Site 5- Kings R. at Stoney Pt. below Grandview	Jan	-	14.1	1.7	0.50	115
	Feb	3.9	11.8	0.9	0.68	113
	March	3.6	12.8	1.6	0.22	105
Site 7- Piney Ck. @ CR 501 low water bridge	Jan	-	-	-	-	-
	Feb	3.1	11.1	2.0	0.35	122
	March	-	-	-	-	-
Site 8-Dry Fork Cr. @ CR 543 at confluence with White Oak Ck.	Jan	-	-	-	-	-
	Feb	1.3	11.7	0.5	0.21	145
	March	-	-	-	-	-

**WATER QUALITY SUMMIT DELEGATES ADOPT RESOLUTIONS**

The Arkansas Upper White River Basin Water Quality Summit, held in Eureka Springs on March 29-30, resulted in the adoption of seventeen resolutions by the summit's delegates. The delegates were asked to take the resolutions back home to their constituents, Boards, or other interest groups to gain widespread support within the Basin. The resolutions range from very general ideas to specific tasks assigned to certain groups or people.

The primary organizational resolution is to create a task force to plan a watershed wide coalition representing a broad range of stakeholders to drive legislative water quality efforts. These efforts would be backed by research found in another resolution, calling for a comprehensive watershed assessment of the UWRB-AR including sources of water quality impairment and a needs assessment/gap analysis. This compilation of information would be coupled with a physical, chemical, and biological

monitoring program that follows set standards and protocol.

Many delegates decided that more regulations are not necessarily needed, but that state and local officials need to enforce existing regulations in a constant, predictable, and balanced way. In addition, outreach and education can be used to encourage voluntary steps among the public and insure that decision makers are including water quality as a priority element. Resolutions regarding education relating specifically to septic tanks, urban run-off, and agriculture were all passed as well.

Resolutions detailing specific actions to directly improve water quality were also passed. Examples include the development of basic services at all landing points and supporting green space conservation programs.

A copy of all 17 resolutions can be obtained by contacting the UWRB Foundation at (417) 334-7644.

**Satisfaction  
Prestige  
Rewards**

See anything that you might be interested in? Become a member of the KRWP and you will gain the satisfaction of knowing that you are helping to insure the health, purity, and economic viability of the Kings River Watershed. For only \$20 per year you will gain prestige from your community and enjoy the rewards for years to come.



## BERRYVILLE CITY COUNCIL WEIGHS WASTEWATER TREATMENT ALTERNATIVES

As the only municipal wastewater treatment facility in the Kings River Watershed, the Berryville plant has received quite a bit of attention regarding the effect that its effluent has on the quality of waters sent downstream. Although the plant operates within current wastewater regulations, population increases and forthcoming EPA and ADEQ restrictions regarding phosphorus loads and the land applications of sludge necessitate an upgrade in the plant's infrastructure and operations.

At Thursday night's city council meeting, the consulting engineers of USI-Arkansas, Inc presented upgrade alternatives for removing phosphorus from the influent and reducing the overall volume of sludge.

Currently the plant receives an average of 9 mg/L or 164 pounds per day of phosphorus in its influent. In order to meet EPA's water quality recommendations for streams, almost all of this phosphorus would have to be removed before the water is released as effluent.

USI-Arkansas Inc. suggested that this goal be met with a combination of biological and chemical means. The biological process consists of using sludge microorganisms that are capable of removing and storing large amounts of phosphorus from water when presented with specific environmental conditions. This process can remove as much as 60% of the phosphorus loads. The engineers suggested that the other 40% be precipitated out by adding either liquid alum or iron salts. This chemical process is costly (alum costs about \$0.70/gallon) and would increase sludge volume by as much as 30%.

The City of Berryville is very interested in reducing its sludge volume in order to eliminate or greatly reduce the need for land application. Because the Kings River watershed is within

a designated nutrient surplus area, sites eligible for sludge application could be limited in the near future. In addition, land application of sludge can be restricted by inclement weather, necessitating a storage facility. In an average month the Berryville plant has to deal with about 2,552 pounds of sludge per day, of which 97% is water and only 3% is solids.

USI-Arkansas Inc. offered two options for greatly reducing the sludge volume. The dewatering option would use either a belt-filter press, container filter, or rotary fan press to remove water, resulting in a Class B sludge that is 10% to 20% solids and 80% to 90% water. This sludge could only be land applied on permitted areas or in landfills.

The next option would add a municipal drying system to further remove water after the dewatering process. Heat drying would not only reduce the percentage of water to 10% (90% solids) but it would also kill some of the bacteria, resulting in a Class A biosolid that can be applied almost anywhere without permits. This option would almost totally eliminate the expensive transportation costs and environmental concerns inherent in land application of sludge.

All of the options for upgrading the plant will require a large initial investment by the City of Berryville. The City Council has not yet decided which option they will adopt or how they will pay for the improvements, but increases in water and sewer rates are likely. There has not been a rate increase for water or sewer since Mayor McKinney took office in 1991. The KRWP applauds the city's efforts to voluntarily reduce the impact that its wastewater treatment plant has on the water quality of the Kings River and subsequently on Table Rock Lake.

## NOW IS THE TIME TO GET IN THAT BOAT AND GO FOR A FLOAT !



The weather is warm, the fish and wildlife are out in full force, and the river is still flowing high. Conditions could not be more perfect for taking a float down the Kings River. It is a good time to take advantage of the reaches that will be too shallow later in the season. The 11 mile stretch between Marble and Marshall Ford can be floated into June, depending upon rainfall amounts. This stretch has it all; bluffs, waterfalls, springs, gravel bars, wildflowers, and lots of surprises. The winding path of this river segment is enough to keep even experienced boaters interested. Call Shawna Miller or any Kings R. outfitter for directions and recommendations regarding this and other stream segments.

The KRWP would like to thank the Carroll Electric Cooperative for printing this newsletter free of charge. This publication would not be possible without their generous gift.



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The Kings River Watershed Partnership is a cooperative effort, organized exclusively for charitable, scientific, and educational purposes; more specifically to protect the health, purity, and economic viability of the Kings River watershed, now and for future generations.

Founded in 2001, the Partnership strives to represent a broad range of watershed stakeholders, primarily utilizing voluntary management improvements and collaborative agreements to protect and enhance water resources.

In October of 2004, the Kings River Watershed Partnership became a certified 501 (c)(3) non-profit organization. Feel free to give generously; your gifts are now tax-deductible!

## Looking for more information?

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**KINGS RIVER**  
WATERSHED PARTNERSHIP

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## HOW SAFE IS YOUR DRINKING WATER? - MIKE FITZPATRICK

The natural water resources of the Ozarks are significant because of both their quality and quantity. Land and water use affects these resources daily. You can never be too safe when it comes to the drinking water for you and your family.

It will cost you \$10 and two trips to the County Department of Health to confirm that your well water is safe to drink.

On the first visit to the D. of H. ask for a water testing kit. They will give you a plastic bottle, a mailing container and a set of instructions. Take the kit home and follow the instructions by drawing a sample from your well or inside faucet. Fill in the return address form and details of the collection source. Enclose a check for \$10 and return everything to the mailing container. Take the container back to the D. of H. **Hint:**

Make this visit during the morning and not on a Friday. All samples for each day are sent to the State testing lab by courier service, which departs in the afternoon. Samples must be tested within 48 hours of collection, so stay clear of weekends.

Within a few days you will receive the test results in the mail, advising whether there was any COLIFORM or E.COLI bacteria detected in the sample.

Carroll County D. of H. is in Berryville. Take Hwy 62E from the square for about ½ mile. Turn left between the GM dealership and the new County Jail. The D. of H. is up the hill on the left. Madison County D. of H. is in Huntsville. From the square, take North College Street, which runs parallel to Hwy 23N). The D. of H. is about ½ mile on the left.