

Only 22 days until Spring!

STREAM LINE

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

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KRWP Mission Statement

The KRWP 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.

JOURNEY THROUGH TIME AND SPACE ON THE KINGS

Attendees of the 2007 KRWP annual meeting were temporarily removed from the bitter cold outside with a journey through time and space down the Kings River by Board member Page Shurgar. Shurgar used current and historic photos, aerial photos, and maps to illustrate the changes that the Kings River has undergone in the last century. The photo at right was taken around 1916 at the Moreland swimming hole



Photo submitted by Walter Karnes

near Grandview. Although laughter and fun continue on our river, the river has changed and this spot is now only about two feet deep.

Surveys, photos, and personal accounts all show that the Kings is getting wider and more shallow. The vegetated zones on the banks are disappearing, gravel bars are building up, and stream-bank erosion has increased tremendously. What is causing all these changes? River systems are extremely complicated with numerous factors working on them all the time, so the answer is not simple. We do know that the Kings River has been destabilized by land use changes in our watershed as well as activities downstream such as the dredging and straightening of the Mississippi.

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Flooding of the Kings River—Kingston, 1927. Photo courtesy of "Grandpa" Little

www.kingsriverwatershed.org



ASIAN CLAM INVADING A WATERWAY NEAR YOU

Every little kid who has explored our area streams and lakes has seen and collected these harmless looking plentiful little clams. However, question an old timer and they probably cannot remember seeing them when they were young.

Asian clams, *Corbicula fluminea*, were first introduced to the United States from Asia in the early 1900s. They probably did not make it to Arkansas until the 1970s, but they quickly became the most widespread and invasive mollusk in our state. This clam continues to move up waterways and spread across the county and is currently found in 38 states. The species was human spread because of its use as bait, food stock, and in aquariums. Asian clams can also passively move utilizing water currents.

Corbicula fluminea are extremely prolific. In warmer waters they can reproduce year-round, but in our watershed the clams take a break in the winter. The sexes are usually separate, but hermaphrodites (both sexes in the same individual) do occur. Because of this, a new population can become established from the release of a single individual. A single clam can release hundreds, or even thousands, of juveniles per day—up to 70,000 per year.

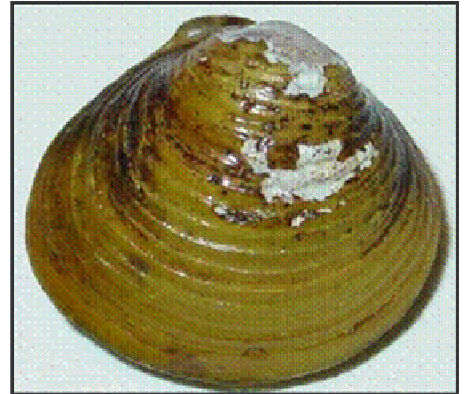
Why are Asian clams considered to be so troublesome? These clams have been shown to outcompete native clams for both food and space, and may be able to completely displace the native species over time. This has dire implications for those fish and invertebrate species which feed on native clams. Asian clams also seem to better tolerate polluted environments.

Asian clams can be an expensive nuisance for water suppliers, power plants, and other industries. Juveniles are readily taken up through intake pipes, where they grow into dense colonies. Colonies of both living and dead

Asian clams can readily clog up piping and cause millions of dollars worth of damage.

Like our native mussels, Asian clams are filter feeders and remove food particles from the water column. Their primary food source is plankton. Unlike our native mussels, Asian clams have two sets of lateral teeth instead of only one. Natural predators of the Asian clam include birds, musk and map turtles, muskrats, raccoons, crayfish, flatworms, catfish, carp, and sunfish.

During the KRWP biological survey, Asian clams were found at 3 out of the 10 sites. These include Marshall Ford (which had a large population), Rockhouse put-in, and Lower Osage Creek.



MONITORING PROGRAM IN JEOPARDY—FUNDING NEEDED

Volunteers with the KRWP monitoring program have been faithfully collecting samples for over four years. These volunteers donate their time, energy, and gas money to obtain water quality measurements all over the watershed. All they ask in return is that we supply them with the proper tools and chemicals needed. The KRWP desperately needs funding to continue monitoring for 2008. Now is the time for members to step up and make a donation to help continue this valuable program.

In 2007, the costs for water quality monitoring supplies was \$1,800. Tyson Foods generously donated the entire amount. Recently we have been able to purchase a new piece of equipment—a YSI probe—which allows us to collect data on five different measurements of water quality without the use of any chemicals or reactions. This purchase dropped our yearly

costs to only \$1,000.

The Kings River Watershed Partnership remains the only organization that is sampling monthly at seven different sites in the watershed. Our program has passed a rigorous quality control check so we can be assured that our data is accurate and defensible.

Please consider donating to this important program. Any and all amounts will be very appreciated. Send your tax-deductible donation to: KRWP, P.O. Box 961, Berryville, AR 72616. Please write “water monitoring” in the memo field. Thank you very much.



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.



CONTINUED—JOURNEY THROUGH TIME & SPACE

A destabilized river system with excess energy will first erode down into its streambed, becoming deeper with higher banks and limited access to the floodplain. If the river hits bedrock, like in the Kings, it will next start moving back and forth, blasting out banks and widening the stream channel. Eventually the river will get so wide that it loses its energy, and thus drops all of the gravel and sediment that it has been carrying. A new, more narrow channel is formed as the river meanders through these wide gravel sections. Most of the Kings River is between these last two phases. The good news is that the river is adjusting to these changes and in places it is beginning once again to stabilize.

Carroll County Representative Bryan King showed his support once again for the KRWP. "This is a diverse group working towards a common goal, and that is better than the government doing it," King stated. He also pledged to work hard during the next legislative session to secure funding and support for the KRWP. Thanks again to Representative King for the generous donation of his prize money received for the Tyson Foods Environmental Stewardship Award.

Board members Glen Crenshaw, James Sanders, and Ray Warren were all reelected for one final term of three years. No other nominations for the positions were received and the vote was unanimous. Award winners are pictured on page 4.



Store up some good luck—renew your membership for 2008.

We still have not received renewals from many of our regular members. Please send your \$20 dues to:

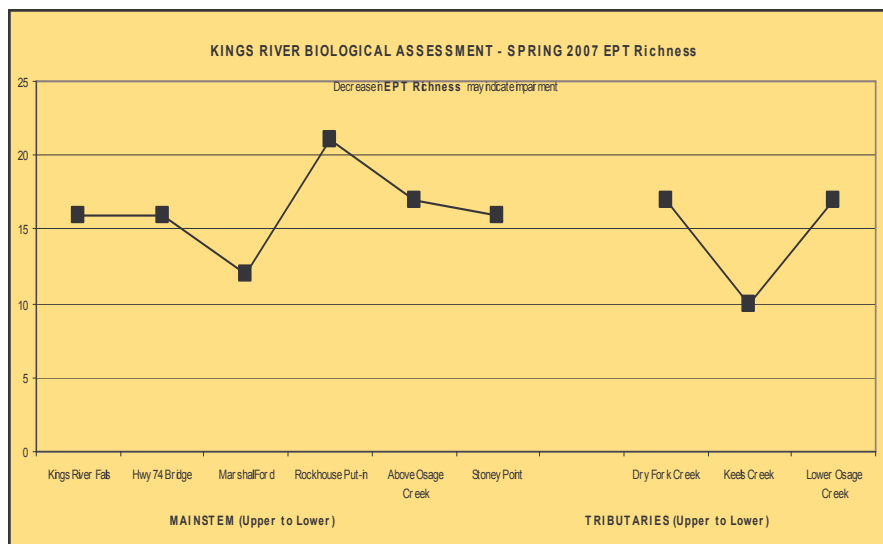


BUGS GALORE FOUND IN BIOLOGICAL SURVEY

Crayfish, water mites, and snails...oh my! The KRWP has finished its first year of biological sampling on the Kings River and three tributaries. We sampled at 10 locations in the watershed during the months of June and October. For the June samples alone we classified 7,549 organisms and found 90 different types represented. This illustrates the huge amount of diversity in our streams.

This biological survey is going to be used to establish a baseline of organisms that we can expect to find in certain stream segments. In the future we will be able to observe how the river's ecosystem has changed since 2007.

Macroinvertebrates can also be used to track water quality changes. EPT richness is a term used for the number of sensitive river bugs found versus non-sensitive river bugs. Mayflies, Stoneflies, and Caddisflies, the bugs used to determine EPT richness, are more sensitive to water pollution than other organisms. The higher the EPT richness, the higher percentage of bugs that need great water quality to survive. The chart above shows the EPT richness for sites in our watershed.



Rockhouse put-in had the highest number of sensitive species, while Keel's Creek had the lowest. These results are only based on the 1st sampling event and should not yet be used to draw any conclusions.

We look forward to continuing our study and collecting data never before collected on the Kings R.



Congratulations!!!!

2007 Volunteer of the Year
Gray Squires—**Carroll County**



2007 Land Steward of the Year
Murray Settlege—**Madison County**



KINGS RIVER
WATERSHED PARTNERSHIP

P.O. Box 961

Berryville, AR

KINGS RIVER ON THE IMPAIRED WATERS LIST AGAIN

Four segments of the Kings and its tributaries are included on the 2006/2008 Arkansas Department of Environmental Quality's Impaired Waters List, otherwise known as the 303 (d) listing. ADEQ updates this list every two years to ascertain which waters of the state are not meeting their designated uses. Segments and reasons for listing are:

- 037—Kings from confluence with Osage Ck. to MO state line.
Total Dissolved Solids
- 042—Kings from headwaters to confluence with Dry Fork
Creek. Beryllium and Total Dissolved Solids
- 047— Osage Ck. upper section. Beryllium
- 043— Dry Fork Ck. Beryllium

All segments are listed in category 5d, for segments which require more data verification, and represent a low priority for the state. ADEQ has stated that it is unlikely that any of our river segments actually have toxic levels of Beryllium. ADEQ discovered faults in their Beryllium testing procedures, which it will soon be changing. Once these changes are in place, all segments in our watershed listed for Beryllium will likely be removed from the list.

Comments on the 2006 303(d) list will be accepted until March 4th. For more information:

www.kingsriverwatershed.org or www.adeq.state.ar.us