

# MUDDY WATERS

## Fisheries News from the Kansas Cooperative Fish and Wildlife Research Unit

Volume 3 Issue 1

MAY 2008



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### COOPERATORS



## CHANGE

Change-it's inevitable. By definition change is going from the same to something different (at least according to Wikipedia!). Change is also universal-from the retiring of Brett Favre (luckily many of the fisheries group and friends watched Brett in his last season when Green Bay played at Kansas City last year) to transitions of graduate students and research projects. In fact, since the last newsletter we have seen two students

graduate and another three arrive. This change is predictable and good. That means we are training young professionals to work for our stakeholders as natural resources professionals. However, some change is unpredictable. A few months ago, Phil Gipson, the Kansas Unit Leader, announced he was leaving to become the Department Chair at Texas Tech University. In addition, construction of a new elevator in Leasure Hall has displaced some students for the summer. To be successful we all have to *adapt* to these changes. By definition, adapt is to 'make fit' to a new situation. Although some of the changes were unexpected, we need to 'make these changes fit' and still provide the educational training of our students and technical assistance to our cooperators. In May 2008 I became the



Students and spouses (Alyssa and Tim Riley, Kristen Pitts, Josh Schloesser, Jeff Eitzmann), and Craig Paukert at the Green Bay-Kansas City football game in November 2007.

Acting Unit Leader of the Kansas Unit. Although there has been a bit of administration associated with my new position, I do not anticipate this will affect meeting the needs of the cooperators. One of my goals for the Kansas Unit is to continue to ensure our science is relevant to our cooperators and stakeholders, and to increase the visibility of our work. Unfortunately, one theme that hasn't changed in recent years is the tight budgets of the Cooperative Research Units. This means that the Unit Leader position will not be filled in the immediate future, but I will continue in that role in the interim as long as the cooperators agree to it. Change does happen. As long as we adapt to these changes we will be fine.

*Craig Paukert*

### UNIT STUDENTS AND STAFF WIN AWARDS:

**Josh Schloesser** was awarded the American Fisheries Society (AFS) Skinner Memorial Award in 2008. This is an international award given to students to attend the Annual AFS Meeting, and is considered by many to be the highest award given to fisheries students. Josh was one of 10 award winners recognized at the AFS meeting in Ottawa in August 2008. **Wes Bouska** received an honorable mention for the AFS Skinner Memorial Award in 2008. Wes was one of five honorable mentions selected in 2008.

**Josh Schloesser** was selected as the winner of the 2008 Tiemeier-Cross Award from the Kansas Chapter of the AFS. This award is given to the outstanding graduate student in fisheries and aquatic sciences in Kansas.

**Joe Gerken** was awarded the best student presentation at the Kansas Chapter of the AFS annual meeting in Wichita in February 2008. His presentation was based on his MS work on grotto sculpin in Missouri.

**Craig Paukert** was a coauthor on the best professional presentation at the Kansas Chapter of the AFS annual meeting in Wichita in February 2008. Nate Davis, a biologist with KDWP, was lead author on the presentation on the effects of gravel mining on Neosho madtom.

## STAFF AND STUDENT UPDATES AT THE KANSAS UNIT

There have been a lot of changes in personnel since the last newsletter. It is always sad to see students leave, but there are always new student to fill the gaps. Since December 2007, **Jeff Eitzmann** defended his MS thesis and moved to Miami, FL where he is an Environmental Scientist for Dade County. Jeff's leaving was somewhat of the end of an era. Jeff received his BS at KSU and had been at KSU longer than me. Jeff moved to Miami to be with his significant other (and soon to be wife) Marja Paulson. We miss both Jeff and Marja and wish them well in Miami. With Jeff's departure we had several



new additions. **Joe Gerken** arrived in January 2008 to begin his PhD working on recruitment of Kansas River fishes. Joe is an Ohio native but received his MS from

Central Arkansas working on the ecology of the grotto sculpin in Missouri. **Andrea Severson** began in January to evaluate the effects of zebra mussels on fishes in Kansas reservoirs. However, Andrea is no stranger to KSU. She was a Research Experience for Undergraduates student last summer where she evaluated the effects of flooding on fish assemblages on the Kansas River. Andrea received



her MS from Utah State University. **Mackenzie Shardlow** joined the group in late winter 2007 and started her MS program to evaluate factors that affect river otters in eastern Kansas. Mackenzie came to us

from the University of Idaho. **Katie White** has also joined us through the Research Experience for Undergraduates Program in May 2008. She will spend the summer working on



the influence of large woody debris on fishes in the Kansas River. Katie came to us from Cornell University where she is completing her BS degree in applied ecology. There have been a lot of changes over the last several months with more this summer as **Josh Schloesser** and **Kristen Pitts** are scheduled to graduate.

## RECENT PUBLICATIONS

Fischer, J. R., and C. P. Paukert. In press. Habitat relationships with fish assemblages in least disturbed Great Plains regions. *Ecology of Freshwater Fish*.

Brinkley, P., J. R. Fischer, and C. P. Paukert. In press. Effects of fixative on total length of small bodies stream fishes. *Journal of Freshwater Ecology*.

Doyle, W., C. P. Paukert, A. Starostka, and T. D. Hill. In press. A comparison of four sampling gears used to collect shovelnose sturgeon in the Lower Missouri River. *Journal of Applied Ichthyology*.

Paukert, C. P., and A. S. Makinster. In press. Longitudinal patterns in flathead catfish relative abundance and length at age within a large river: effects of an urban gradient. *River Research and Applications*.

Petersen, J. H., D. L. DeAngelis, and C. P. Paukert. 2008. Developing bioenergetics and life history models for rare and endangered species. *Transactions of the American Fisheries Society* 137:244-253.

Fischer, J. R., and C. P. Paukert. 2008. Historical and current environmental influences of an endemic Great Plains fish. *American Midland Naturalist* 159:364-377.

Makinster, A. S., and C. P. Paukert. 2008. Effects and utility of minimum length limits and mortality caps for flathead catfish in discrete reaches of a large prairie river. *North American Journal of Fisheries Management* 28:97-108.

## CURRENT PROJECTS AT THE KANSAS UNIT

### Recruitment of Large River Fishes.

The objectives of this project are to identify recruitment bottlenecks for large river fishes and aid in the development of minimum flow requirements for fishes in the Kansas River. **Joe Gerken**, Ph.D. student, started on this project in January and field work has already begun. Part of Joe's work will include assessing the importance of backwaters for recruitment of river fishes. In addition, Joe will continue to sample the 36 long-term monitoring sites on the Kansas River, which began in 2004. The study is funded by K-State and KDWP, and will build on previous studies funded by KDWP on the Kansas River.

### Influence of Large Woody Debris on Kansas River Fishes.

Large woody debris is known to be important for fishes and invertebrates in rivers and streams. However, removing these snags from rivers is a common practice. This study, which is funded by KDWP and the National Science Foundation Research Experience for Undergraduates Program, will evaluate if fish assemblages relate to large woody debris in the Kansas River. **Katie White** and **Joe Gerken** will be working on this summer on this project.

### Effects of Road Crossings on Fish Passage.

This is funded by Kansas Department of Transportation to evaluate fish passage at different road crossings. **Wes Bouska**, the MS student on the project, has tagged over 6,000 fish at 12 crossings in 2007. Preliminary analyses suggest that box culverts pass fish almost as efficiently as natural riffles, and higher flows ( $>0.6$  m/s may reduce movement). However, vented fords and corrugated pipe may be more of a barrier.



We just began the second phase of this project which will include experimentally testing crossing designs in a controlled facility at Konza Prairie in summer 2008.

### Evaluation of Sampling Methodologies for Missouri River Fishes.

This project is using data collected by the USFWS, Nebraska Game and Parks Commission, and Missouri Department of Conservation that was funded by the US Army Corps of Engineers to determine microhabitat use of fishes in the Missouri River. **Josh Schloesser** just defended his MS thesis in May. However, his stint at KSU is not over. Josh has been working on several side projects using Missouri River data and has been busy helping Missouri River cooperators with some of their sampling questions. Josh's data analysis was funded by USGS-Science Support Partnership, but the field work was funded by the US Army Corps of Engineers.

### Lower Colorado River Aquatic GAP.

This project will develop conservation priorities for fishes in the Lower Colorado River Basin. The project is funded by USGS, but works with various stakeholders from throughout the Southwest. **Kristen Pitts** is finishing her MS focused on development of a threat assessment for aquatic biota in the Lower Colorado River. **Jodi Whittier** is the primary researcher and Co-PI on this project and is developing methodologies in GIS to answer conservation related questions.

### Effects of Zebra Mussels on Reservoir Fishes.

Zebra mussels have been established in El Dorado Reservoir since 2003, and previous studies sampled age 0 largemouth bass and invertebrates in this reservoir in 2001 and 2002. **Andrea Severson**, the MS student on the project, will determine the littoral fish abundance before and after zebra mussel invasions. In addition, she will analyze long-term data from various reservoirs before and after zebra mussel establishment to attempt and identify zebra mussel effects at a larger spatial scale. The project is jointly funded by Kansas State University and KDWP.

### Status of River Otters in Eastern Kansas.

River otters were extirpated from Kansas in 1904, but reintroduction efforts have been established throughout the Midwest. The objectives of this project, which is funded by KDWP, is to determine the factors that affect distribution of river otters in eastern Kansas. We will also use occupancy modeling to determine detection probabilities and occupancy based in local and landscape-level metrics. **Mackenzie Shardlow** is the MS student on the project and has one field season under her belt.



### KANSAS UNIT STUDENTS ACTIVE IN THE K-STATE STUDENT SUBUNIT OF THE AMERICAN FISHERIES SOCIETY

Kansas Unit students are active in the Kansas State University Student SubUnit of the American Fisheries Society (KSU-AFS). **Josh Schloesser** will be ending his term as president, but **Kyle Steinert** and **Kirk Mammoliti**, undergraduate technicians with the Kansas Unit, were elected President and Vice President for 2008-2009. In addition, **Andrea Severson**, one of the newest graduate students in the Unit, was elected Secretary-Treasurer. Without the strong support from Kansas Unit students, the Kansas AFS Student Subunit surely would be severely diminished. Recent activities by the KSU-AFS include participating in the National Park Service kids fishing day, Tuttle Creek river pond surveys, and our annual fishing tournament.



## FISHERIES STAFF AND STUDENTS CONTINUE TECHNICAL ASSISTANCE

In addition to the technical assistance **Josh Schloesser** has been conducting (see below), other fisheries staff and students continue technical assistance to cooperators. **Craig Paukert** has been working with Nate Davis, a biologist in the Environmental Services Section of KDWP, on the effects of gravel mining of the federally threatened Neosho madtom. Nate and Craig presented their results at the Kansas Natural Resources Conference; a manuscript is in review in a peer reviewed journal. **Joe Gerken** will continue working with these data at the request to the US Fish and Wildlife Service. **Josh Schloesser** and **Jeff Eitzmann** provided a fish aging software demonstration to KDWP Region 2 biologists. Josh and Jeff showed the biologists several software packages and discussed the pros and cons of each. Kansas Unit staff are also aging walleyes from Milford Reservoirs for KDWP.

## JOSH SCHLOESSER HELPS MISSOURI RIVER BIOLOGISTS

**Josh Schloesser** has been working with numerous state and federal agencies on issues related to sampling Missouri River fishes. In the last several months, Josh has given three presentations related to occupancy modeling and the evaluation of a push trawl as a new sampling technique.

## RECENT PRESENTATIONS

Whittier, J., C. Paukert, K. Pitts, and J. Olden. Development and classification of watershed boundaries to aid conservation efforts in the Lower Colorado River Basin. Western Division of the American Fisheries Society Meeting, Portland, OR. May 2008.

Pitts, K.L., C. Paukert, and J. Whittier. Evaluation of an ecological risk index in quantifying threats to fishes. Western Division of the American Fisheries Society Meeting, Portland, OR. May 2008.

Whittier, J., C. Paukert, K. Pitts, and J. Olden. Spatial patterns in the distribution and conservation of imperiled fishes in the Lower Colorado River Basin. Western Division of the American Fisheries Society Meeting, Portland, OR. May 2008.

Gerken, J., and C. Paukert. Effects of a low-head dam on the fish community of a large Great Plains river. Southwestern Association of Naturalists, Memphis, TN. Apr. 2008.

Severson, A., J. Schloesser, K. Pitts, J. Eitzmann, and C. Paukert. Abundance and size structure of fishes in main and secondary channels of the Kansas River. Midwest Student Fisheries Colloquium, Lincoln, NE. Mar. 2008.

Pitts, K., C. Paukert, and J. Whittier. Utility of an ecological risk index to assess threats to native fishes: insights from the Verde River Basin, Arizona. Midwest Student Fisheries Colloquium, Lincoln, NE. Mar. 2008.

Bouska, W. and C. Paukert. Effects of road crossing design on movement and species composition of Great Plains stream fishes. First Annual Midwest Student Fisheries Colloquium, Lincoln, NE. Mar. 2008.

Schloesser, J., and C. Paukert. The use of occupancy modeling to aid the Missouri River pallid sturgeon monitoring program. Missouri River Natural Resources Conference, Nebraska City, NE. Feb. 2008.

Severson, A., J. Schloesser, K. Pitts, J. Eitzmann, and C. Paukert. Abundance of fishes in main and secondary channels of the Kansas River. Kansas Natural Resources Conference, Wichita, KS. Feb. 2008.

Schloesser, J.T., C. Paukert, W. Doyle, T. Hill, G. Mestl, and V. Travnicek. Comparison of sampling gear detection probabilities and variability for Missouri River fishes. Kansas Natural Resources Conference, Wichita, KS. Feb. 2008.

Pitts, K.L., C. Paukert, and J. Whittier. Utility of an ecological risk index to assess threats to native fishes: insights from the Verde River Basin, Arizona. Kansas Natural Resources Conference, Wichita, KS. Feb. 2008.

Eitzmann, J., and C. Paukert. Effects of anthropogenic changes on food web dynamics in a Great Plains river. Kansas Natural Resources Conference, Wichita, KS. Feb. 2008.

Davis, N. and C. Paukert. An assessment of Neosho madtom related to gravel harvest from the Neosho River, Kansas. Kansas Natural Resources Conference, Wichita, KS. Feb. 2008.

Bouska, W., and C. Paukert. Effects of road crossing design on movement and species composition of Great Plains stream fishes. Kansas Natural Resources Conference, Wichita, KS. Feb. 2008.

Fischer, J., and C. Paukert. Habitat relationships with fish assemblages in minimally disturbed Great Plains regions. Dakota and Iowa American Fisheries Society Joint Annual Meeting, Sioux Falls, SD. Feb. 2008.

Paukert, C., and J. Eitzmann. Food web dynamics of a Great Plains river: effects of habitat alteration. AZ/NM AFS Meeting, Prescott, AZ. Feb. 2008.

Pitts, K., C. Paukert, and J. Whittier. Alteration of flow regime and its influence on fish assemblages within the Lower Colorado River Basin. AZ/NM AFS Meeting, Prescott, AZ. Feb. 2008.

Pitts, K.L., C. Paukert, and J. Whittier. Evaluation of an ecological risk index in quantifying threats to fishes. AZ/NM AFS Meeting, Prescott, AZ. Feb. 2008.



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## COLLABORATORS AND COOPERATORS

There are many cooperators and collaborators at the Kansas Unit. These relationships may be through direct funding of projects, providing data, intellectual ideas, services, staff, and/or equipment. We thank them for their support.

Kansas State University  
 Division of Biology  
 Department of Geography  
 Landscape Architecture  
 Kansas Department of Wildlife and Parks  
 Kansas Department of Transportation  
 Kansas Biological Survey  
 US Geological Survey  
 National GAP Program  
 Science Support Program  
 Arizona Cooperative Fish & Wildlife Research Unit  
 Nebraska Cooperative Fish & Wildlife Research Unit  
 US Fish and Wildlife Service  
 Missouri Fish and Wildlife Conservation Office  
 Arizona Fish and Wildlife Conservation Office  
 Kansas Ecological Services  
 US Army Corps of Engineers, Pallid Sturgeon Monitoring Program  
 Environmental Protection Agency

US Forest Service  
 National Science Foundation  
 Arizona Game and Fish Department  
 Minnesota Department of Natural Resources  
 Nebraska Game and Parks Commission  
 Utah Division of Wildlife Resources  
 University of Arizona  
 University of Nebraska  
 University of Washington  
 In Fisherman, Inc.



*Matt Jeffres (left) and Race looking for river otter sign*