

Aquatic ecologist says dams are boxing in fish, causing them to disappear from Kansas

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The peppered chub is one of the small species of fish disappearing from Kansas rivers.

Call them the canary in the coal mine for water quality; small fish species are being extirpated from Kansas rivers, according to Kansas State University ecologists.

Keith Gido, professor in the Division of Biology; Josh Perkin, 2012 Kansas State University doctoral graduate; and several co-authors have published "Fragmentation and dewatering transform Great Plains stream fish communities" in the journal *Ecological Monographs*.

The article documents a reduction in water flow in Great Plains streams

and rivers because of drought, damming and groundwater withdrawals. This is causing a decrease in aquatic diversity in Kansas from stream fragmentation—or stretches of disconnected streams.

"Fish are an indication of the health of the environment," Gido said. "A while back there was a sewage leak in the Arkansas River and it was the dead fish that helped identify the problem. Children play and swim in that water, so it's important that we have a good understanding of [water quality](#)."

Several species of fish—including the peppered chub and the plains minnow—were found to be severely declining in the Great Plains during the ecologists' field research, which compared historic records to 110 sampling sites in Kansas between 2011-2013. Both fish species swim downstream during droughts and return during normal [water flow](#), but the construction of dams, or stream fragmentation, prevents fish from returning upstream.

"The Great Plains region is a harsh environment and drought has always been a problem. Historically, fish were able to recover from drought by moving," Gido said. "They could swim downstream and when the drought was over, they could swim back. Now, there are dams on the rivers and the fish are not able to recover."

Streams in the Great Plains region have more than 19,000 man-made barriers. Gido estimates that on average, stretches of streams in the Great Plains are about six miles long. In surveying Kansas' streams and rivers, the researchers discovered numerous small dams that do not allow enough habitat for the fish to complete their reproductive cycles. Moreover, the fish are unable to migrate in search of suitable habitat.

"Groundwater extraction exasperates the drought, and the damming of the rivers inhibits the fish from being able to recover from those

conditions," Gido said. "This is unfortunate, but there are some things we can do to help."

Gido suggested a renewed focus to conserve [water](#), reduce dams and make fish passageways like the one on the Arkansas River under Lincoln Street in Wichita. During the planning for the reconstruction of the Lincoln Street Bridge and the dam over the river, the city worked with wildlife agencies to build a passage that would allow fish as well as canoes and kayaks to navigate through the structure.

Similar structures could be constructed on the Kansas River to help fish migrate.

"The plains minnow is still found in the Missouri River and could recolonize the Kansas River—where they used to be the most abundance species—if there was a [fish](#) passage through some of the dams."

Provided by Kansas State University

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