

## Public Abstract

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Large rivers and their associated fish communities have undergone major alterations from human activities. Habitat fragmentation caused by both large and small dams, channelization to promote river transportation, and increased sedimentation from land use changes have all altered large river habitat and affected large-river fishes. Paddlefish are one species of large-river, migratory fish that have experienced population declines as a result of over harvest and large-river habitat alteration. Using paddlefish as a model organism may serve as an indicator of overall river health and condition. We captured and tagged adult paddlefish with radio and acoustic transmitters to understand spawning movements and identify areas of potential spawning in the lower Osage River.

We found that adult paddlefish were common in the lower Osage River, but had restricted spawning movements from a low-head lock and dam. High flow events were required for upstream movement and increased spawning movements. Potential spawning below Bagnell Dam was likely limited by altered flow releases due to electric generation and flood control operations. Successful management of altered river systems for societal and biological benefits requires a more comprehensive understanding of specific species requirements and how these requirements are disrupted by human activity. Application of our results can lead to better management of hydroelectric dams to provide electricity but also maintain flows needed for reproductive success of large river fishes.