Importance of River-floodplain Connections for Sympatric Gar Species in a Temperate Floodplain River

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Abstract: The middle Brazos River, located in east central Texas, is a meandering lowland river with a broad floodplain and many oxbow lakes. Floods in the Brazos River are aseasonal and may occur at intervals of months or years apart, allowing for faunal exchange between the main river channel and oxbows during river-floodplain connections. Patterns of resource use associated with river-floodplain connectivity was studied among three sympatric gar species (*Atractosteus spatula*, *Lepisosteus oculatus*, *L. osseus*) for a period of two years (May 2003 to May 2005), where the first year was a relatively dry year with few lateral connections and the second year was a relatively wet year with more frequent lateral connections. This presentation focuses on the importance of river-floodplain connections to patterns of resource use which are important for each species of gar, but play a different role for each of the species. For *L. oculatus* (spotted gar), which are found predominantly in oxbow habitats, lateral connections refill and replenish prey fish communities in desiccating oxbows. *L. osseus* (longnose gar), found predominately in the main river channel, take advantage of lateral connections by moving into oxbow habitats to exploit the abundant prey found in these highly productive habitats. Spotted and longnose gars both utilize allochthanous and autochthanous pulsed food resources caused by these river-floodplain connections. For alligator gar, river-floodplain connections allow access to possible spawning habitats and nursery habitats for juveniles.

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