

Groundwater-Surface Water Interactions and the Hyporheic Zone

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Interactions between groundwater and surface water (GW-SW) take many forms and occur at micro- to continental-scales. Although they are largely invisible, and are difficult to quantify and characterize, these interactions can vary spatially and temporally in magnitude, duration, and direction, and are vital components of nearly every part of Earth's water cycle. They also play an important role in nutrient transformation and transport and processes that occur in zones of interaction are important parts of interconnected hydrologic, biological, and geological/geochemical systems.

Nearly all of my work over the past 12+ years has had caves and karst research as a central feature. With karst research as a background, I will outline my research accomplishments since arriving at TX State University, and will present more detail about two of the broad topics/questions that link much of my work under the umbrella of karst: 1) how are groundwater-surface water systems affected by environmental, geologic, and biological conditions and properties, and 2) what are the characteristics and properties of biological communities that inhabit groundwater and groundwater-dependent systems and hyporheic zones (and are they connected in karst systems)?