

**Project Summary**  
**Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** Environmental Tracers for Groundwater Discharge and Transit Time Distribution

**Discipline:** Natural

**Type of Project:** Technical Assistance/Research

**Funding Agency:** USGS

**Other Partners/Cooperators:** University of Montana

**Student Participation:** Yes

**Effective Dates:** 06/15/2016 - 06/14/2019

**Funding Amount:** \$10,326

**Investigators and Agency Representative:**

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**Project Abstract:** As part of this project we will collect samples, perform analysis, and interpret  $^{222}\text{Rn}$ , CFCs and SF<sub>6</sub> to measure the distributed groundwater discharge along a 3 km study reach of the Little Wind River in central Wyoming. These measurements will augment the spatially limited point discharge measurements from seepage meters, hydro-acoustic meters, or linear measurements from fiber optic cables. Synoptic measurements of these tracers in stream water at different times during the annual hydrograph will provide information on the seasonal changes in groundwater discharge, and can be used to help interpret time series data on groundwater discharge derived from seepage meters and vertical temperature profiles. The overall objective is to provide an integrated measurement of groundwater discharge along the reach at several points in time, and provide information on the distribution of groundwater sources discharging to the river on the annual time scale.

**Keywords:** Groundwater, discharge, transit, environmental tracers, Little Wind River, USGS, University of Montana