

Welcome to Montana AWRA 2025

Groundwater – Surface Water Interactions: Implications for Water Management and Water Quality in Montana

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Great Falls, Montana
8-10 October 2025

Judith River Watershed, 2023



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Section 104 of the [Water Resources Research Act of 1984](#) (modifying the [original 1964 act](#)) re-authorized the **Water Resources Research Act (WRR) Program**, as a Federal-State partnership that plans, facilitates, and conducts research to aid in the resolution of State and regional water problems.

The Montana Water Center is one of 54 state **Water Resources Research Institutes (WRR)** funded by the **WRR program**, which comprise the **National Institutes for Water Resources (NIWR)**.

The NIWR cooperates with the USGS to support, coordinate and facilitate research through WRRRA:

Annual Base Grants (104b): help each Center to plan and conduct applied and peer reviewed research on water resource issues, help train new scientists, disseminate research results to water managers and the public, and cooperate with other colleges and universities in their respective states and with institutes and organizations in their regions to promote regional coordination.

National Competitive Grants (104g): promote collaboration between the USGS and university scientists in research on: “water problems and issues of a regional or interstate nature beyond those of concern only to a single State and which relate to specific program priorities”; promote the dissemination of results of the research funded under this program; and assist in the training of scientists in water resources.

→ *Special 104g topics, FY25 funds (1:1 match required, no IDCs allowed):*

1. General

Priority 1. Economic value of Information of the USGS streamgauge network and associated National Water Information System (NWIS) **(Nelson)**

Priority 2. Model advancement and machine learning integration

2. Aquatic invasive species

3. Per- and Polyfluoroalkyl Substances (PFAS) **(Colman)**

Coordination Grants: avenue for funding from other federal agencies.

NIWR-USGS Student Internship Program: provides undergraduate and graduate students with career enhancing field, laboratory, and research experience through participation in USGS activities as interns.



Montana Water Center funding



Annual Base Grant (104b) \$147k

- Montana Water Center operations
- AWRA and other water related meetings
- Faculty Seed Grants (Hagerty & Cheu; Sun selected for MWC proposal)
- Graduate Student Fellowships (five selected for MWC proposal)
- Foster water research capacity building & communication
- Delayed approval this year – *three month gap in funding*

National Competitive Grants (104g) ~\$200-\$300k

- Promote collaboration between USGS and university scientists to address water resources issues identified by congress (Nelson, Colman proposals)
- Delayed approval this year

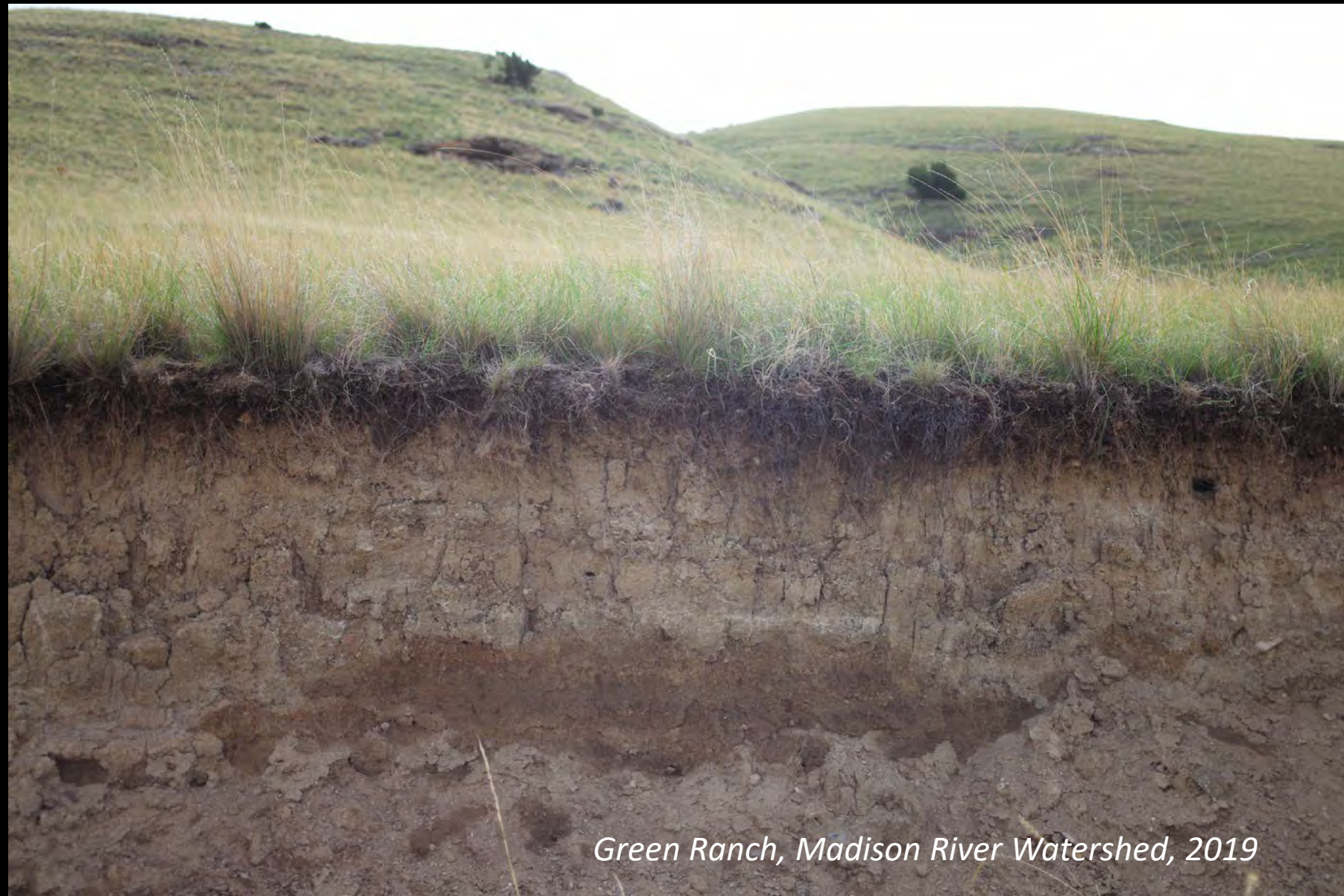
Additional support from the MSU Research Development Office



Theme 1: Soil moisture



*Red Bluff Ranch, Madison
River Watershed, July 2025*



Green Ranch, Madison River Watershed, 2019

Theme 2: Water quality challenges



Upper Yellowstone Watershed

Theme 3: Understanding groundwater



Payton Gardner, Deer Lodge Valley

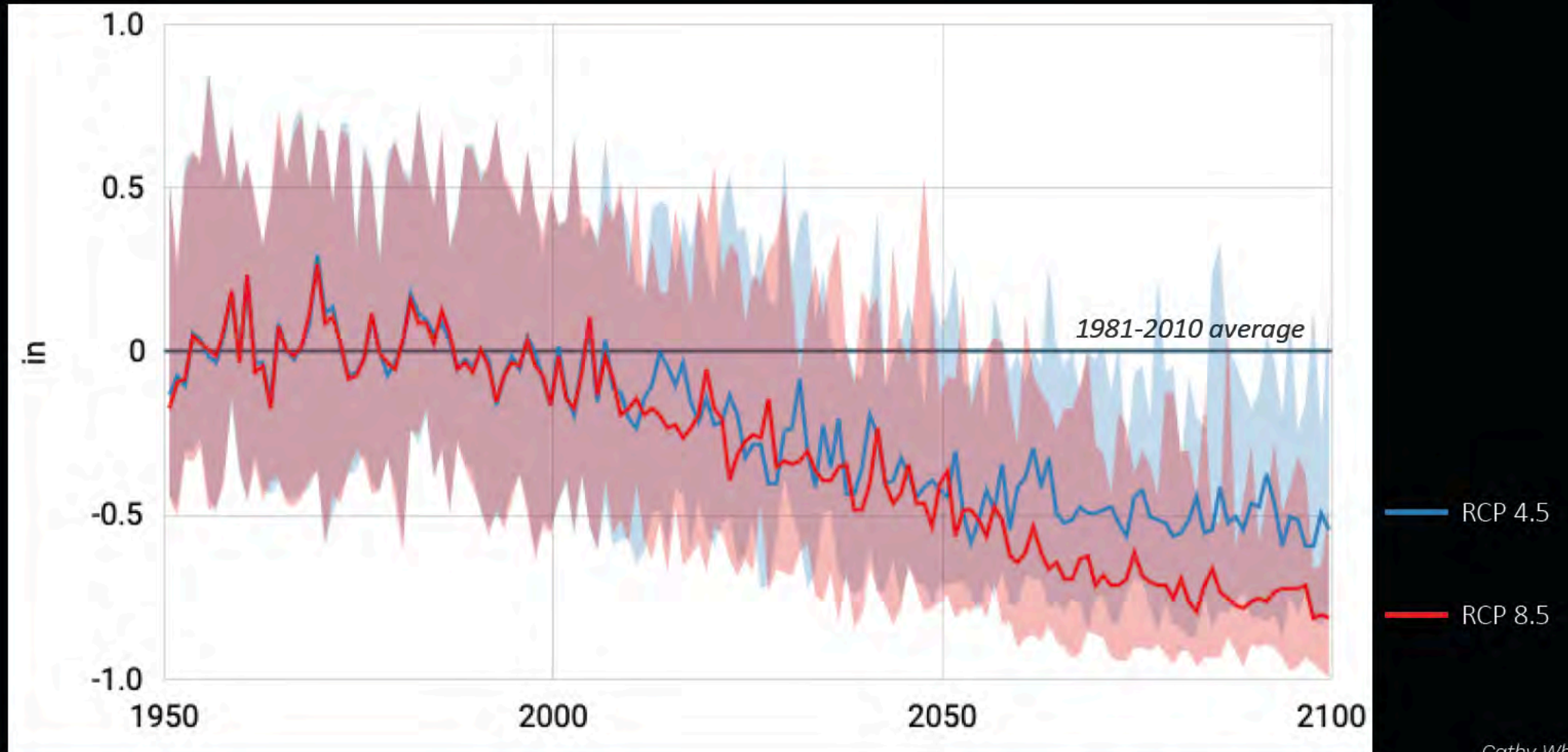
Theme 4: Professional development



Working group SUNA demo
Judith River Watershed

Theme 5: Water scarcity

April 1 Snow Water Equivalent





2025 Montana Water Center Faculty and Student Investigators

2025 MWC faculty seed grant proposal: Irrigation economics



Nick Hagerty & Sungmin Cheu
MSU, Agricultural Economics & Economics

*Economic Modeling of Irrigation Water Demand
to Advance Watershed Planning in Montana*

2025 MWC faculty seed grant proposal: Regional groundwater

Muchen Sun
Montana Tech



Using ambient noise tomography and machine learning techniques to track groundwater levels across western Montana

2025 Graduate Student Grantees Proposed

Cora Steinbach (Hall, UM) *Green ribbons in a blue-ribbon fishery: predicting nuisance algal blooms using river metabolism*

Safal Adhikari (Sapkota, MSU) *UAS-derived CWSI and ET for irrigation scheduling in wheat in Montana*

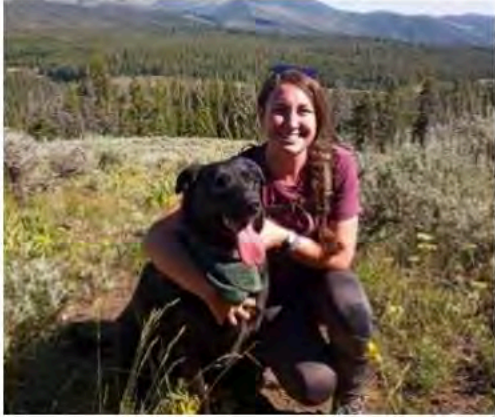
Marina Barbosa Santos (Wilcox, UM) *Understanding Hydrologic Connectivity in Gravel-Bed Rivers: Integrating UAV and SWOT Observations to Analyze Connectivity Dynamics*

Josie Grigsby (Gammons/Shaw, MTech) *Hydrology and geochemistry of natural acid rock drainage at the headwaters of the South Boulder River, Tobacco Root Mountains, Montana*

Nick Hudson (Cline, MSU) *Evaluating Effects of Flow on Juvenile Trout Production and Survival in Southwest Montana Watersheds*



Thank you to the AWWRA officers!



Sara Edinberg, President



Ron Breitmeyer, Vice President



Danika Holmes, Treasurer



Troy Blandford, Secretary



Nancy Hystad, Executive Secretary



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