REGISTRATION

10:00 am – 12:00 pm  REGISTRATION
Preconference registration available through the [MT AWRA website](https://www.mtawra.org)

FIELD TRIP and HYDROPHILE RUN

1:00 pm – 5:00 pm  Groundwater in Action, Revised Plan
Presentations, Conference Room, Rock Creek Resort

4:30 pm – 5:00 pm  Hydrophile 5k Run/Walk - Carpool and meet at Red Lodge Ales

5:00 pm – 7:00 pm  Montana AWRA Community night at Red Lodge Ales

THURSDAY, OCTOBER 10, 2019

REGISTRATION

7:30 am  REGISTRATION, COFFEE, BREAKFAST AND CONVERSATION

OPENING DAY PLENARY SESSION

8:00 am  WELCOME WITH INTRODUCTIONS, LOGISTICS AND ANNOUNCEMENTS
Melissa Schaar -- AWRA Montana Section President

8:10 A MESSAGE FROM THE MONTANA WATER CENTER
Wyatt Cross -- Montana Water Center, Director

8:20 KEYNOTE SPEAKER 1:  Alfonso Rivera, Ph.D., Chief Hydrogeologist, Geological Survey of Canada
Title: Issues and challenges for the assessment and management of transboundary aquifers at the global scale

9:20 KEYNOTE SPEAKER 2: Joanna Thamke, Supervisory Hydrologist, Montana-Wyoming Science Center, United States Geological Survey
Title: Assessing groundwater at a national scale from the USGS perspective

9:50 KEYNOTE SPEAKER 3: John LaFave, Hydrogeologist, Groundwater Assessment Program Manager, Montana Bureau of Mines and Geology
Title: Assessing groundwater at a state scale from the MBMG perspective

10:20 BREAK

10:40 Special Speaker: Jason Mohr, Research Analyst - Legislative Update

11:00 PANEL DISCUSSION: West Billings Aquifer -- Land use change and consequences to groundwater resources

12:00 Water Legend Presentation: Congratulations to Joanna Thamke!

12:30 LUNCH - Provided to all conference attendees
THURSDAY, OCTOBER 10, 2019 (continued)

TECHNICAL SESSIONS: ORAL PRESENTATIONS  (Blue text indicates student presenters)

SESSION 1 (Concurrent)
GROUNDWATER/SURFACE WATER INTERACTION

Moderator: Elliot Barnhart

1:30 pm  Kimberly Bolhuis. Controls on magnitude and spatio-temporal distribution of bedrock infiltration in a semi-arid, mountainous catchment.


2:10  Jeremy Crowley. Insights into seasonal geothermal spring and river interactions using unmanned aerial vehicle photogrammetry and thermal data, LaDuke Hot Springs, MT.


3:10  BREAK

SESSION 3 (Concurrent)
HYDROLOGY

Moderator: Katherine Zodrow

3:30 pm  Haley Tupen. Hydraulic and Hydrologic Characteristics and Resulting Fish Passage at the Huntley Diversion Dam Nature-like Fish Bypass.

SESSION 2 (Concurrent)
WATER QUALITY

Moderator: Christine Sudnas

1:30 pm  Mark Petersen. Variability in range cattle water quality and precipitation in the Northern Great Plains over 10 years.


2:10  Miranda Margetts. Montana’s first wastewater based epidemiology investigation.

2:30  Meryl Storb. Using diel and seasonal variation in dissolved metabolites and conservative tracers to explore the influence of nutrient loading on stream ecosystem function.

2:50  Elizabeth Mohr. Simulation and Experimental Investigation of Linked Elemental Cycling in Freshwater Ecosystems.

3:10  BREAK

SESSION 4 (Concurrent)
MANAGEMENT & RESTORATION

Moderator: James Rose

3:30 pm  Tera Ryan. Saline seeps: how land-use management connects to both their development AND reclamation.
THURSDAY, OCTOBER 10, 2019 (continued)

TECHNICAL SESSIONS: ORAL PRESENTATIONS (continued)

SESSION 3 (Concurrent)  
HYDROLOGY (continued)

3:50  Abaye Abebe. How do variations in the sources of recharge influence the general nature of groundwater storage in intermountain basin aquifer?

4:10  Mike Roberts. Water Distribution Foot Soldiers: What Water Commissioners Can Do For You.

4:30  Ronald Breitmeyer. Immediate Post-wildfire Soil Hydrologic Changes in a Sagebrush Steppe Ecosystem.

4:50  Chuck Parrett. Are Increasing Temperatures in Montana Affecting High and Low Streamflows?

5:10  BREAK & POSTER SET UP

SESSION 4 (Concurrent)  
MANAGEMENT & RESTORATION (continued)


4:10  Kimberly Bray. Primary controls on nutrient use: ecosystem metabolism and disturbance in a small headwater stream, western Montana.

4:30  S. Katie Fogg. Shading Beyond the Channel: Effects of Vegetative Shade on Hyporheic Water Temperatures in the Broader Floodplain.


5:10  BREAK & POSTER SET UP

6:00 - 9:00 PM  POSTER SESSION and EVENING SOCIAL: Heavy hors d’oeuvres and Photo Contest

7:00 PM  HENDERSON AWARD PRESENTATION

AWRA 2019 POSTER PRESENTATIONS

Brianna Whitehead. Quantifying a Parafluvial Soil Response to Beaver Mimicry Restoration.


Megan Guinn. Development and Hydraulics Testing of a Modified Denil Fishway.


Kaitlin Perkins. Examining the Abundance and Composition of Submicron Particles in a Mine-waste Contaminated Intermountain West River.


Allison Kelly. Pesticides Enhance Bacterial Growth and May Exacerbate Reverse Osmosis Biofouling

Caleb Lockyer. Investigation of spatial and temporal distributions of metals in a stormwater retention pond after storm events.


Holly Nesbitt. Hydro-social and socio-hydrological modeling: Challenges with data, scale, and perspective.


Spruce Schoenemann. Precipitation Isotope Ratios and Tree-ring based Snowpack Relationships to inform Paleoclimate Reconstructions from Lake Sediment δ18O.

Bill Kleindl. Floodplain Ecological Assessment Across Temporal and Spatial Scales: Does the Portfolio Effect Apply to Rapid Assessment Tools?

Lacey Gunther. Cottonwood Restoration in the Upper Missouri River Breaks National Monument.

James Berglund. You Con-duit! Modeling conduit flow and geometry using high-resolution temperature monitoring and dye tracing

Zach Lenning. Research and conservation seed increase at The Bridger Plant Materials Center.

Anthony Sammartano. Restoration focused on Community Educational Opportunities.

Claudia Macfarlane. Macroinvertebrate and Water Quality Education Program in the Ruby Valley.


Natalie Poremba. Aquatic Invasive Species Education and Monitoring in the Flathead Valley.

Mitchell Hoffman. Musselshell Cooperative Weed Management Area.

Ryan Schaner. Inventorying Headcuts on Mesic Sites Adjacent to Sage Grouse Leks on the Matador Ranch.

Julia Nave. How Can a Water Fund Work in Montana?


Meg Desmond. Holistic Planning and Grazing Management.

Emilie Lahneman. The Bitter Root Water Forum: Building Community around a River.

Caroline Provost. From Headwaters to Flat-water, Montana’s Birds Call Water-based habitats Home.


Grant Flaming. Upper Overwhich Creek Fish Removal Project.

Lauren Odom. Lake County Junior Conservationist Education Program.

Valerie Bednarski. Upper Gallatin Nuisance Algae Investigation.


Haley Gamertsfelder. Mapping the Spread of Lepidium latifolium (Perennial Pepperweed) and Iris pseudacorus (Yellow Flag Iris) on the Clark Fork and Bitterroot Rivers in Missoula County.

Shawn Kuzara. Groundwater Recharge in Flood to Pivot Irrigation Conversions.

Mark Werley. Utilizing ArcGIS Online to Create Interactive Tools and Stories for the Charles M. Russel Community Working Group.

Lauren Herbine. Developing field protocol for characterizing stable isotope composition of winter recharge water to a western basin: A collaboration of BSWC, UM, USFS, MBMG, in the Lolo Basin.
SESSION 5 (Concurrent)
MODELING

Moderator: David Donohue

8:00 am  Paul Hegedus. Combining data intensive precision agriculture and transport modeling to limit nitrate loss to groundwater from conventional dryland wheat farming.

8:20  Patrick Wurster. Validation of the SMAP Level 4 Carbon Product using a continuous crop condition survey index.

8:40  Christine Sundnas. Gallatin County Interactive Water Quality Mapper Demos.

9:00  David Ketchum. High Resolution Irrigated Lands Mapping in the Western United States.


10:00 BREAK

SESSION 5 (Concurrent)
ECOLOGY, CLIMATE & COLLABORATION

Moderator: Payton Gardner

8:00 am  Robert Ray. Strategically Implementing Montana’s Nonpoint Source Management Plan.

8:20  Zach Hoylman. An evaluation of gridded drought indices to enhance the Upper Missouri Drought Early Warning System.


9:00  Heather Nold. Low Head Dam Feasibility Study for the Sourdough Watershed.


10:00 BREAK

TECHNICAL SESSIONS: ORAL PRESENTATIONS (continued next page)
SESSION 7 (Concurrent)  GROUNDWATER

Moderator: Robert Ray

10:20  David Donohue. The Importance of Perfecting Your Water Reservation - Now is the Perfect Time.

10:40  John Reiten. The Tale of Two Aquifers: A Study in Aquifer Sustainability.

11:00  Kevin Chandler. Great View, But Where's the Water?


12:00  Katherine Zodrow. Pesticides in Groundwater Impact Bacterial Growth and Biofilm Formation.

12:20  BREAK

12:30  CLOSING PLENARY: Announcements - New Officer, Student Awards, Next Year’s Location

ADJOURN

SESSION 8 (Concurrent)  HYDROGEOCHEMISTRY

Moderator: Willis Weight


10:40  James Rose. Assessing the increase of nitrate and chloride in groundwater at Meadow Village, Big Sky, MT.

11:00  Joe Griffin. Cumulative gain-loss analysis – a technique used to locate stream reaches where metal contaminated groundwater inflow is degrading water quality in Silver Bow and Blacktail Creeks within the Butte Superfund Site.

11:20  Adam Sigler. Denitrification Patterns Across a Dryland Agroecosystem in the Northern Great Plain.

11:40  Joe Naughton. Practical implications of the Biotic Ligand Model as a water quality standard.

12:00  Ben Colman. Colloidal and truly dissolved metal(loid)s in wastewater lagoons and their removal with floating treatment wetlands.

12:20  BREAK

12:30  CLOSING PLENARY: Announcements - New Officer, Student Awards, Next Year’s Location

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