Each year, the Montana Section of the American Water Resources Association (Montana AWRA) holds their annual meeting to encourage water managers, academics, consultants, students, and others to share experiences, research, and concerns. If you work in water resource management, protection, or are simply interested in “all things water” in Montana, please join us!

Montana AWRA 2019 Conference: Groundwater Uncovered

Melissa Schaar, President

Hello! We are excited to host this year’s annual AWRA conference in Red Lodge, Montana on October 9 - 11, 2019. To register for the conference, please visit: MT AWRA Conference Registration.

This year’s conference will undoubtedly be a year of firsts for Montana AWRA. The conference will be held for the first time in the destination town of Red Lodge, Montana at the picturesque Rock Creek Resort. Red Lodge is the perfect area for a unique field trip experience with topics and destinations that have never been discovered by past conference attendees.

Montana AWRA has never hosted a conference with a theme solely dedicated to “groundwater”. Although, I would be remiss in not mentioning that fourteen years ago, in Bozeman, “groundwater” did share center stage with intense discussions on interactions with “surface water,” under the leadership of our recently retired, Chuck Dalby. Since that conference, the themes have focused on many exciting aspects of water quality, quantity, policy, and management. The 2019 Montana AWRA conference provides a great opportunity to return the focus to Montana’s valuable groundwater resource. We hope to uncover some of the mystery behind groundwater and that the theme resonates within the AWRA community. We can continue the conversation of groundwater/surface interaction, throw in some groundwater quality discussions, and review the implications for groundwater policy and management. We hope to hear some great conversations among peers throughout the conference activities. Presenters are encouraged to focus on groundwater issues and topics in their talks and posters. But do not fret if you are not a groundwater professional or researcher. There is a wide variety of water topics covered in the conference break-out sessions that cover many interests in our great water community.
Another first is our new annual Henderson Award. The award honors our recently departed friend and colleague Tom Henderson. This award is available to students and career professionals who best exemplify the qualities of passion, excellence, and vibrancy. The Henderson Award will be given at the 2019 AWRA social hour. Nominations will begin August 1 at the following link: Henderson Award.

We will commence the first Red Lodge AWRA field trip beginning on Wednesday, October 9th. The field trip is optional and leaves from the Rock Creek Resort at 1:00 p.m. and will return to the lodge at 5:00 p.m. This year the field trip is organized by AWRA Treasurer Hannah Riedl. More details on the field trip are provided later in the newsletter.

Our final Montana AWRA conference “first” is a community night hosted by Red Lodge Ales, Wednesday, October 9th, after the annual Hydrophile 5K run. All conference attendees, family and friends are encouraged to attend the community night regardless of whether you participated in the Hydrophile. The Hydrophile follows the field trip at 5:30 p.m. More details on the Hydrophile course will be provided closer to the conference. The Hydrophile 5K is free and is open to everyone who attends!

Nancy Hystad, who has been with AWRA for 16 years, is back again for another great year of running the registration and merchandise desk. The registration desk will be open Wednesday from 10:00 a.m. until 7:00 p.m., Thursday from 7:00 a.m. to 5:00 p.m., and Friday 7:00 a.m. to noon.

The conference will start with our Plenary Session at 8:00 a.m. Thursday, October 10th, with opening announcements by Montana AWRA officers and the Water Center followed by a legislative update. We are proud to welcome our keynote speaker, Alfonso Rivera, Chief Hydrogeologist of the Geological Survey of Canada discussing global transboundary issues from his recent publications in the Journal of Hydrology. Additional keynotes will include Joanna Thamke, USGS Groundwater and Surface Water Chief, Wyoming-Montana Water Science Center and John LaFave, Groundwater Assessment Program Manager, Montana Bureau of Mines and Geology.

Prior to lunch, attendees will experience a lively panel discussion on the implications of land use change on the West Billings Aquifer with various stakeholders from Yellowstone County. Thursday afternoon includes a conference sponsored lunch and technical sessions followed by a poster session and conference sponsored evening social. The poster session and social will start at 5:30 pm and include posters, photo contest, and the first annual Henderson Award. As usual, the social will have local craft beer, wine, and hors d’oeuvres for everyone to enjoy.

Friday technical sessions start at 8:00 a.m. and run until noon. We will conclude the conference with a brief closing plenary which will include final remarks, notice of where the 2020 AWRA Conference will be held, the student presentation and poster awards, the announcement of the incoming AWRA Treasurer, and the passing of the AWRA gavel to the next President.
2019 Field Trip: Red Lodge Groundwater and Surface Water Dynamics
Hannah Riedl, Treasurer and Field Trip Leader

The 2019 pre-conference field trip takes place on October 9. Yellow school busses will load outside the Rock Creek Resort, leaving at 1:00 pm and returning at 5:00 pm. This year’s field trip takes us around Red Lodge see groundwater in action. Attendees will gain an understanding of how changes in land management affects groundwater and surface water in different geologic setting, which will be an excellent precursor to the conference plenary discussions. Additionally, attendees will experience the industrial side of managing groundwater.

Stop 1: The first stop is an overlook of the West Fork of Rock Creek. Here, Jon Reiten, with the Montana Bureau of Mines and Geology, will introduce a Red Lodge resident familiar with the history of Red Lodge’s drinking water sources and problems with Giardia in the late 1970’s and early 1980’s. Jon will point out the nearby Palisades and introduce mountain front recharge and how the Beartooth Front does not fit the standard mountain-front recharge model. In addition, he will initiate a discussion of the West Bench of Rock Creek hydrogeology. Take note of the subdivisions en route to the next stop.

Stop 2: At the Palisades Campground Kevin Chandler of the Montana Bureau of Mines and Geology will discuss groundwater recharge along the Beartooth Front. Willow Creek, near the campground, has been shown as a major source of recharge to the “West Bench aquifer” of Rock Creek.

Stop 3: Our third stop is at the Beartooth Billings Clinic where Paul Lemire will discuss how simple engineering helped address erosion and excess water issues caused by a groundwater slump. Additionally, he will highlight the groundwater heat pump system installed at the hospital.

Stop 4: At the final stop, the group will split and rotate through the two topics. One group will tour Inflatable Packers International’ facilities and learn from Joel Adams about this world-renown technology. With the second group, Jon Reiten will tie the field trip together by discussing the Hydrogeology of the Rock Creek Benches; and how changes in land management, such as the conversion of irrigated lands to subdivisions; can affect water availability. This can leave homeowners struggling to access their drinking water. Similar problems have been identified in West Billings and these will be discussed later in the conference.

2019 Photo Contest
Kim Snodgrass, Vice-President

Once again, it is the time of year where we ask you for your latest and greatest water resources photos! We are looking for any and all photos related to Montana’s water resources and water resource professionals. These can be scenic photos, technical photos, recreational photos, or humorous and embarrassing photos! There will be prizes for the winners of each photo category. Please send your water resources photos to Kim Snodgrass at ksnodgrass@waterenvtech.com. If possible, please submit photos by September 23rd, although late entries may be accepted!

Revisiting the 2018 MT AWRA Conference
We convened for the 35th annual conference at the Holiday Inn in West Yellowstone, MT, October 17-19, 2018. Our theme was "Collaborative Science" in which we investigated the more human elements of larger scale, interdisciplinary projects. Students and professionals from private sector, public sector and academics participated.

The Montana State Professional Development Center led a pre-field trip training on Effective Presentations. The workshop focused on effective communicating styles and PowerPoint techniques. One highlight was that during a Q&A session of a PowerPoint presentation, instead of flipping back through slides to answer a question, the presenter may type in the number of the slide (for example use the number pad to type in 23 and then push enter), your twenty-third slide will populate the screen.

After lunch, we headed out on a field trip exploring the west side of Yellowstone National Park! The first stop hosted two speakers while watching fly fisherman ply the waters of the Madison River.

Peter Brown, Stewardship Director with the Gallatin Valley Land Trust (GVLT) discussed how private land conservation strategies helps with water conservation and natural infrastructure preservation. GVLT recently approved a new Conservation Easement on the South Fork of the Madison River just west of West Yellowstone. It’s part of a broader series of protected parcels on the river that are a representation of water resource protections in the West Yellowstone area. We were not able to see the conservation easement due to the travel time to see thermal features in the Park, but a photo of the area is shown below.

Alan English, Hydrogeologist with the Montana Bureau of Mines and Geology, discussed the Yellowstone Controlled Groundwater Area. Alan explained the history of the control zone, the temperature requirements, how it is monitored and enforced.
We then made our way to the Porcelain Basin of the Norris Geyser Basin to hear about geothermal features and the current research on geochemical processes manifesting in the basin. Host speakers were Dr. Alysia Cox, Assistant Professor of Chemistry and
Geochemistry at Montana Tech of the Laboratory Exploring Geobiochemical Engineering and Natural Dynamics (LEGEND) and Dr. Brian St. Clair, postdoc with the Center for Advanced Mineral, Metallurgical and Materials Processing - starting Fall 2019 as Assistant Professor of Chemistry and Geochemistry - at Montana Tech. Small groups were able to walk with Alysia or Brian to view the features and to ask detailed questions!

Porcelain Basin Tour inside Yellowstone National Park

After the field trip the Annual Hydrophile 5K run/walk was led by Russ Gates and utilized the trails just south of the Holiday Inn!

Attendees gathered on Thursday and Friday to take in excellent presentations and posters. The first speakers, Andy Ray, National Park Service, Tom Henderson, MDEQ, and Brian Ertel, National Park Service spoke about a large collaborative project at Soda
Butte Creek. This engaging project discussed the amazing recovery of the creek after remediation and restoration at the McLaren Mill and Tailings, water quality response and delisting, and using rotenone to restock Soda Butte Creek with native fish after years of trying to repopulate with electroshocking methods.

Tom Henderson’s portion of the presentation summarized what he called “the high point of his career.” It was special for AWRA members to hear this because shortly after he passed. The AWRA community comforted one another throughout the conference with dialogues of admiration for Tom’s spirit, his love of science, and support for one another.

Tom Henderson

Concurrent sessions on the afternoon of the 18th and the morning of the 19th covered special topics of surface water, policy, communication, forestry, groundwater, restoration, water quality, water data systems, models, water quality, and geochemistry. The conference concluded on Friday with the MT AWRA elections and student award presentations. Hannah Riedl, a Water Quality Specialist in the Watershed Protection Section of MDEQ, was elected the new Treasurer of MT AWRA. She joined Vice President Kim Snodgrass and President Melissa Schaar.

Awards were presented to the following students for their outstanding work:

**Oral Presentations**

**First Place:** Robin Welling, University of Montana, *Influence of large wood on sediment routing in a mixed bedrock-alluvial stream.*

**Second Place:** Robert Rader, Montana Tech, *Geochemistry of metals and nutrients in fine-sediment pore water in Blacktail and Silver Bow Creeks, Butte, Montana.*

**Third Place:** Nolan Platt, Montana State University, *Assessing Connectivity Benefits of Denil Fishways, an Integrated Approach.*

**Poster Presentations**

**First Place:** Evan Norman, Montana Tech, *Monitoring the Impacts of Beaver Mimicry on Groundwater and Surface Water Interactions in the Blacktail Creek.*

**Second Place:** Lauren Sullivan, University of Montana, *Exploring the size of contaminants in wastewater.*

**Third Place:** Ross Monasmith, Montana Tech, *Evaporative effects of solar absorbers: passive solar evaporation islands (PSEI) reduce water treatment volumes.*
Thank you to all the attendees, presenters, field trip leaders, speakers, sponsors, and volunteers who helped make the 2018 Montana Section American Water Resources Association conference a huge success.

**Montana AWRA 2019 Treasurer Nominations**

Time for nominating our next treasurer! The elected treasurer serves for one year as Treasurer, one year as Vice-President, and one year as President. Serving as a MT AWRA officer is a great way to get more involved in the community of water professionals in Montana and the U.S. Please note that self-nominations are encouraged. This is a great way to give back to your community of professionals. Other benefits include membership in the National AWRA and paid MT AWRA conference expenses. Nominations can be entered on the conference registration form or emailed to the Montana AWRA Executive Secretary Nancy Hystad at nancy.hystad@montana.edu.

**Montana AWRA membership**

Montana AWRA membership is included in conference registration. For those unable to attend the conference, membership dues are $15 for students and $35 for professionals. Membership dues support our Montana AWRA, student discounts and scholarships, and communication among water professionals.