




18<sup>th</sup> ANNUAL  
**MONTANA WATER CONFERENCE**  
 "Fires, Drought and Water Quality"



Holiday Inn- Parkside  
 Missoula, Montana

October 4 & 5, 2001

Thursday	October 4, 2001	
8:00 - noon	Field Trip - <b>Glacial Lake Missoula</b> - Led by Norm Smyers. Lolo National Forest. Leave from the Holiday Inn Parking lot. <b>Seating is limited so register early. Extra fee.</b>	
8:00 - noon	Groundwater Steering Committee Biannual Meeting - Holiday Inn Boardroom	
12:00 -1:00	REGISTRATION AT HOLIDAY INN	
1:00 - 1:20	Opening Remarks	
<b>Session A.</b>	<b>DROUGHT AND FIRE</b>	
<b>Moderator:</b>	<b>Phil Farnes</b>	
1:20 - 1:40	<b>Impact of the 2000 Fires on Snowmelt Runoff in Bitterroot River Drainage</b> Phil Farnes, Hydrologist, Snowcap Hydrology	
1:40 - 2:00	<b>Fire Recovery Allowing Natural Processes</b> David W. Salo, North Zone Hydrologist, Beaverhead-Deerlodge NF	
2:00 - 2:20	<b>Ground-Water Monitoring and Drought: Is the Well Dry?</b> Tom Patton, Hydrogeologist, Montana Bureau of Mines and Geology	
2:20 - 2:40	<b>Drought Monitoring Utilizing the Internet</b> Duane Anderson, Manager of GIS & Information System Development - NRIS, and the Montana Drought Advisory Committee	
2:40 - 3:00	<b>Blackfoot Drought Plan 2001</b> Tina Bernd-Cohen, Land Lindbergh, Jim Stone, and Harry Poett, Blackfoot Challenge	
3:00 - 3:20	<b>BREAK</b>	

**Session B. GROUNDWATER**

**Moderator: Joanna Thamke**



- 3:20 - **Preliminary Results of Continuous Coring in the Coarse-Grained Missoula Valley Aquifer**  
S  
Natalie J. Morrow, MS Graduate Student - Geology, UM
- 3:40 - **Noble and Ignoble Gases in the Missoula Valley Aquifer**  
4:00  
John LaFave, Asst. Research Hydrogeologist, MBMG UM
- 4:00 - **Using Sulfur Isotopes to Determine the Origin of H<sub>2</sub>S in Flooded Mine Workings on Butte Hill**  
4:20  
Chris Gammons, Associate Professor, Amber Roesler, Simon Poulson, John Metesh, Ted Duaine, and Mike Kerschen - Geological Engineering - MT Tech of UM
- 4:20 - **The Milltown Dam**  
4:40  
Robin Bullock, ARCO
- 4:40 - **Balancing Act, Conceptualizing Arsenic Fate at Milltown, Western Montana**  
5:00  
William Woessner, Professor and Johnnie Moore — Geology, UM
- 5:00 - **Milltown Dam and the Two Rivers Restoration Project**  
5:20  
Peter Nielsen, Environmental Health Missoula City-County Health Dept

**Session C. WATERSHED/HABITAT ASSESSMENT**

**Moderator: Jim Bauermeister**



- 3:20 - **Streambank Restoration Using Temporary Concrete Blocks**  
3:40  
Tom Hughes, DNRC Trust Lands Management Division
- 3:40 - **Condition of the Tobacco River and its Riparian Areas**  
4:00  
S  
Jeff Dunn, MS Student, and Vicki Watson - Environmental Studies, UM
- 4:00 - **Milk River Basin Streams - Characterization and Criteria**  
4:20  
S  
John Lhotak, MS Student, Vicki Watson - UM and Mike Suplee, MT DEQ
- 4:20 - **North Fork Blackfoot River Hydrologic Study**  
4:40  
Mike Roberts and Kirk Waren - MT DNRC
- 4:40 - **Upper Willow Creek - A Basin Assessment**  
5:00  
S  
Michael Sanctuary, MS Student, Vicki Watson - Environmental Studies, UM and Eric Reiland - MT FWP
- 5:00 - **Deciphering the Water Budget for Wetlands Supporting Threatened Water Howellia, Swan Valley, Montana**  
5:20  
William Woessner - Geology, UM and D. Matt Reeves, MS Graduate Student

5:30 -  
7:00

**POSTER SESSION AND HAPPY HOUR - pop, snacks and partially-hosted bar**

7:00

**BANQUET** with Gary Frank and Bruce Sims to speak on the 2000 Fires

Friday Oct. 5 - Concurrent Sessions

 <b>Session D</b> <b>Moderator: Bill Woessner</b>	<b>EFFLUENT IMPACTS</b>	<b>Session E</b> <b>Moderator: Eric Regensburger</b>	<b>WATER QUALITY</b>	
8:00 - 8:20	<b>Preliminary Impact Assessment of Septic System Effluent Discharge on the Groundwater and Surface Water in Lolo, MT</b> Brian Boer, MS Graduate Student, John Harvala, and William Woessner - <i>Geology, UM</i>	8:00 - 8:20	<b>Seasonal Water Quality Monitoring Along The Big Hole River, Southwest Montana, 2000-2001</b> Rebecca Ridenour, Graduate Student and Chris Gammons -- <i>Geological Engineering, MT Tech of UM</i>	
<b>S</b>		<b>S</b>		
8:20 - 8:40	<b>Trends in Groundwater Nitrate Concentrations in Relation to Three Decades of Urban On-site Wastement System Installations</b> Vivian Drake -- <i>Drake Engineering Inc.</i>	8:20 - 8:40	<b>Diurnal Fluctuations in pH, Dissolved Oxygen and Other Parameters in the Big Hole River and its Tributaries</b> Adam Wenz, Undergraduate Student, Chris Gammons and Rebecca Ridenour -- <i>Geological Engineering, MT Tech of UM</i>	
<b>S</b>		<b>S</b>		
8:40 - 9:00	<b>The Fate of Sewage Effluent Nutrients Applied to Coarse-grained Soils by Sprinkler Irrigation: Preliminary Results</b> Molly M. Johnson, MS Graduate Student and William Woessner - <i>Geology, UM</i>	8:40 - 9:00	<b>Influence of Mine Reclamation Amendments on Metal Mobility and Water Pollution Potential</b> Thomas H. DeLuca -- <i>Forestry, UM</i> and Aimee Vitateau, MS Graduate Student	
<b>S</b>		<b>WC</b>		
9:00 - 9:20	<b>Public Sewer Extension and Reduction of Septic Systems to Improve Groundwater and Surface Water Quality in the Missoula Valley</b> Peter Nielsen, Environmental Health Missoula City-county Health Dept.	9:00 - 9:20	<b>Evaluating Progress Towards Achieving Nutrient and Algal Targets in the Clark Fork River</b> Vicki Watson, Professor -- <i>Watershed Health Clinic, Environmental Studies - UM</i> and Bruce Anderson and Gary Ingman -- <i>Land and Water Consulting</i>	
9:20 - 9:40	<b>Constructed Wetlands, Startup and Effluent introduction: A Western Montana Pilot Study</b> Paul T. Miller -- Ph.D. Student - <i>Chemistry - UM</i> and the Missoula City Wastewater Treatment Plant	9:20 - 9:40	<b>Experimental Investigation of the Causes of Diurnal Cycling of Zinc in a Stream Impacted by Mine Drainage</b> Ying Xie, MS Student and Christopher Gammons -- <i>Geological Engineering, MT Tech of UM</i>	
<b>S</b>		<b>S</b>		
9:40 - 10:00	<b>Examination of Septic Effluent Denitrification in Natural and Sawdust Augmented Soils of the Missoula Valley, Western Montana</b> Lea Jordan, Missoula Valley Water Quality District	9:40 - 10:00	<b>Baseline Watershed Assessment of Cottonwood Creek, Near Deer Lodge, MT</b> John Lhotak, MS Student, Jeff Dunn, and others, <i>Watershed Health Clinic, Environmental Studies - UM</i> and Nancy Sweeney, <i>NRCS, Deer Lodge, MT</i>	
10:00-10:20	<b>BREAK</b>	10:00-10:20	<b>BREAK</b>	

Friday Oct 5 Continued - General Session



<b>Session F.</b>	<b>REGULATORY UPDATES</b>
<b>Moderator:</b>	<b>Rich Moy</b>
10:20 - 10:40	<b>Public Water Supplies in Sensitive Settings -- Observations from Source Water Delineation and Assessment Efforts</b> Jim Stimson, Water Quality Specialist -- Source Water Protection Program, DEQ
10:40 - 11:00	<b>Watershed Approach to Completing Source Water Delineation and Assessment Reports for Source Water Protection</b> James Swierc, Water Quality Specialist -- Source Water Protection Program - - DEQ
11:00 - 11:20	<b>Montana's New Septic Pumper Rules</b> F. Patrick Crowley, Solid Waste Regulatory Prg. Mgr. - - DEQ
11:20 - 11:40	<b>Montana TMDL Update</b> Bob Bukantis, DEQ
11:40 - 12:00	<b>Nutrient Reduction in the Flathead Basin: Tales of Trying to Meet Interim TMDL Targets</b> Scott Payne, Kirk Environmental and the Flathead Basin Commission VNRS Coordinator
12:00 - 12:15	<b>BUSINESS ANNOUNCEMENTS --- ADJOURN</b>

**POSTERS - Authors will be present during the Thursday 5:30 p.m. happy hour  
During the Poster Session - Vote for the best poster!!!**



<b>Geology of the Tertiary Aquifers and Confining Units in the Bitterroot Valley, Ravalli County, Montana</b> Larry Smith, and Camela Carstarphen ---- MBMG	<b>Lake Basin Water Resources</b> Clarence Schwartz and Dan Story ---- MGMG
<b>Montana's Approach for Source Water Delineation and Assessment</b> Joe Meek, Carolyn DeMartino, Jeffery Herick, Perri Phillips, Jim Stimson, and James Swierc - Source Water Protection Program - DEQ	<b>Using Diverse Stratigraphic Data And GIS To Map Lower Cretaceous Aquifers In The Big Spring Creek Watershed, Fergus County, Montana</b> Jon Reiten, Assistant Research Hydrologist and Shawn Reddish -- MBMG
<b>The 2000 Sula Fires</b> Gary Frank, Sula State Forest	<b>The Bitterroot Watershed Partnership</b> Josette L. Hackett
<b>Characterization of the Eagle Aquifer, Yellowstone County, Montana</b> John Olson, Asst Research Hydrologist -- MBMG	<b>Watershed Issues Field Trip for Secondary Students</b> Carolyn Durgin, School of Forestry - UM

**"Glacial Lake Missoula' by Dave Alt - Books available for sale - \$15. Rob Williams, Mountain Press**

Notes: **S** - Student Research Project      **WC** - Research funded through the Montan Water Center

**THANKS TO ALL WHO MAKE THIS EVENT POSSIBLE:**

**AWRA 2001 Officers - Donna Rise (MT Dept. of Ag), Larry Dolan (MT DNRC), John LaFave (MBMG)  
The Water Center - Kathy Stephens and May Mace, Secretary  
Field Trip Leaders, Guest Speakers, Student Volunteers, and Mountain Press**