

# COLORADO AQUIFER MANAGEMENT

## Sustainable groundwater for Colorado:

Denver Basin, Ogallala, Rio Grande, Arkansas, South Platte and Front Range

The American Ground Water Trust's Annual Colorado Groundwater Conference



Thursday  
December 4, 2014  
8:30 – 4:45



Holiday Inn  
Denver East – Stapleton,  
3333 East Quebec Street,  
Denver, CO 80207

Conference Organizer: American Ground Water Trust (501(c)(3) non-profit education organization)

### Cooperating Organizations



Satisfying the rising water demand in Colorado's Front Range, the water supply needs in the state's major river basins and fulfilling interstate compact commitments are bringing greater focus on the importance of the use of groundwater. However, questions arise about the sustainability of stored groundwater if pumped on a frequent basis. There is also a big uncertainty factor with regard to future snow-melt volumes, rainfall and temperatures.

Step one in water planning and in developing water management strategies is to have an accurate assessment of the volumes of accessible groundwater in storage and step two is to have science-based calculations about how recharge can be achieved. There is not a one-size-fits-all management solution. If aquifers can be recharged, where will the recharge water come from?

- How important are Colorado's aquifers in providing water supply security for citizens and the state's economy?
- Over what time period and under what pumping conditions are Colorado's groundwater resources sustainable?
- Do the different conditions in the aquifers of the major river basins, the fractured rock of the Front Range, the Ogallala in eastern Colorado and the geologically defined Denver Basin require different strategies to achieve sustainability?
- What legislation may be needed to be certain that oversight of pumping withdrawals and aquifer recharge activities result in basin-wide sustainability objectives that optimize beneficial use and also ensure that the state's groundwater savings accounts are maintained?

7:30 – 8:15

**REGISTRATION**

**Session Moderator: 8:15 – 10:00**

**Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH**

8:15 – 8:30 **What does sustainability mean? Is it a useful concept in water resources issues?**



Andrew is a hydrogeology graduate from University College London. For 12 years he lectured at Rhodes University, South Africa. Since 1989 he has worked in the US as a groundwater consultant, as adjunct professor and as groundwater educator, advocate and outreach specialist for the non-profit AGWT. He is a recipient of the National Ground Water Association "Oliver Award" for his work in promoting groundwater education.

8:30– 9:00

**The potential consequences of climate change on water resources sustainability in Colorado**  
**Jeff Lukas, Senior Research Associate, Western Water Assessment, CIRES, University of Colorado, Boulder, Co**



Jeff's position with the Western Water Assessment carries a broad mandate to help resource managers to more effectively incorporate climate into their planning and operations. He also serves as the lead editor/writer for the WWA Intermountain West Climate Summary. Jeff is the lead author of the August 2014 report on *Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation*.

9:00 – 9:30

**Colorado's agriculture industry needs sustainable water delivery**  
**Don Shawcroft, President, Colorado Farm Bureau, Centennial, CO**



Donald Shawcroft of Alamosa, Colorado is a fourth generation rancher with 20 years of experience as a member of the Farm Bureau Board of Directors. The Mission of the Farm Bureau is to correlate and strengthen the member county Farm Bureaus; support the free enterprise system and protect individual freedom and opportunity; promote, protect and represent the business, economic, social and educational interests of farmer/rancher members and their communities; and to enhance the agricultural industry in Colorado.

9:30– 10:00

**The State Water Plan: The role of groundwater in achieving sustainability in Colorado**  
**Dick Wolfe, Colorado State Engineer, Division of Water Resources, Denver, CO**



As State Engineer, Mr. Wolfe is responsible for the direction and management of the CO Division of Water Resources with responsibility for distribution and administration of water in accordance with statutes and interstate compacts. He is also responsible for the permitting of the use of groundwater, the collection and dissemination of data on water use and streamflow and conducting studies concerning water resources. He has a B.S. and M.S. in Agricultural Engineering from Colorado State University and is a registered professional engineer.

10:00 – 10:20

**BREAK**



**Session Moderator: 10:20 – 12:20**

**Lori Saine, State Representative, (District 63), Firestone, CO**

10: 20 – 10:50

**Conflict between Colorado water law and management to achieve water system sustainability  
Charles Howe, Professor Emeritus of Economics, Institute of Behavioral Science, University of Colorado, Boulder, CO**



Dr. Howe is currently faculty research associate at the Environment and Behavior Program, Institute of Behavioral Science, University of Colorado-Boulder. He has focused his research on environmental and natural resource economics with emphasis on water resources, including water resources development, water rights, and river basin and watershed management. He frequently contributes his expertise in water issues as a consultant in the United States and overseas.

10:50 – 11:20

**The planning dilemma for Front Range areas where additional development will likely compromise water sustainability from bedrock aquifers**

**Roy Laws, Environmental Engineer, Jefferson County Public Health, Lakewood, CO**



Prior to his work as a professional engineer for Jefferson County Public Health Roy worked as a staff geologist for an environmental consulting firm, and in gold exploration . He earned a bachelor of science in geological engineering in 1979 and a master of science in environmental sciences and engineering in 1992 from the Colorado School of Mines. His focus at Jefferson County Public Health is onsite wastewater treatment systems, land use planning cases, groundwater monitoring, and environmental compliance.

11:20 – 11:50

**Is the Denver Basin Aquifer an asset or a liability? Will conjunctive use of the aquifer with renewable surface water lead to a sustainable water supply for the South Metro area?**

**Eric Hecox, Executive Director, South Metro Water Supply Authority, Greenwood Village, CO**



As the Executive Director of SMWSA, Eric Hecox is responsible for assisting SMWSA in its efforts to bring renewable water sources to the south-metro area. Before coming to SMWSA, Hecox was the Section Chief of the Water Supply Planning Section at the Colorado Water Conservation Board. SMWSA was founded in 2004 in order to bring many smaller water entities in south Denver together to create a regional water authority.

11:50 – 12:20

**The role of west to east water diversions in securing future supply for the Front Range and the Eastern Plains**

**James Eklund, Director, Colorado Water Conservation Board, Denver, CO**



As director of the CWCB, James leads the state's water policy and planning efforts and is heading up the development of the Colorado Water Plan. Prior to leading CWCB, James was senior deputy legal counsel to Governor John Hickenlooper, where he focused on key legislative and legal matters, often pertaining to water and natural resources including state water rights, the reorganization of state wildfire responsibilities and groundwater concerns in the South Platte River Basin.

12:20 – 1:30

**LUNCH**



**Session Moderator: 1:30 – 3:00**  
**Joe Meigs, Senior Project Manager, Lyle Water Solutions, Highlands Ranch, CO**

1:30– 2:00

**Colorado’s Attempt at Sustainability, the Story of HB 1141, the requirement that subdivisions have sufficient water**  
**Steve Sims, Attorney, Brownstein Hyatt Farber Schreck, Denver, CO**



A well known expert on western water law, Steve focuses on water related litigation, appeals, administrative and transactional matters. His work involves complex water rights transactions, water court representation as well as state and local permitting. He also represents clients on water and land use matters. His experience includes representation for investors, lenders and water rights developers in water right purchase transactions.

2:00 – 2:30

**Groundwater management strategies to achieve Rio Grande Basin supply sustainability for agriculture and Compact obligations**  
**Steve VanDiver, General Manager, Rio Grande Water Conservation District, Alamosa, CO**



Steve has a Civil Engineering degree from the University of Colorado. For 24 years he was the Division Engineer for the Rio Grande Basin. He was appointed to the Rio Grande Water Conservation District (RGWCD) in 2005. The RGWCD is the leading entity in improved total water management in the San Luis Valley with a goal of efficiency and good water conservation efforts. The RGWCD is a statutorily Special District created to protect, enhance and develop water resources in the Rio Grande River basin.

2:30 – 3:00

**Long-term viability of irrigated agriculture in the Ogallala / Republican River area of eastern Colorado**  
**Deb Daniel, General Manager, Republican River Water Conservation District, Wray, CO**



Deb Daniel started working as General Manager for the RRWCD in June 2011. Previous to that she was a Groundwater District Manager for six years and was also a manager of an independent irrigation research farm. The Colorado State Legislature created the District in 2004 to assure local involvement in the State’s efforts to comply with the Republican River Compact between Colorado, Kansas, and Nebraska. The fifteen members of the Board of Directors are residents of the basin appointed by the Commissioners of local counties, Boards of ground water management districts, and the Colorado Ground Water Commission.

3:00 – 3:15

**BREAK**



**Session Moderator: 3:15 – 4:45**  
**Courtney Hemenway, President, Hemenway Groundwater Engineering, Parker, CO**

3:15 - 4:00

**Management options for the Arkansas and South Platte alluvial aquifers that conjunctively use both groundwater and surface water to maximize water availability to meet 2050 demands**  
**Jeris Danielson, General Manager, Purgatoire River Water Conservancy District, Trinidad, CO**  
**Robert Longenbaugh, Consulting Water Engineer, Fort Collins, CO**



Dr. Jeris A. Danielson, P.E. has degrees in civil engineering from Colorado School of Mines and Colorado State University. In 1979, he was appointed as Colorado State Engineer. He also served as Colorado’s Interstate Compact Commissioner on five interstate compacts. In 1992 he formed a private consulting firm. He is currently involved with the Arkansas River Roundtable in addition to serving as Purgatoire River WCD General Manager



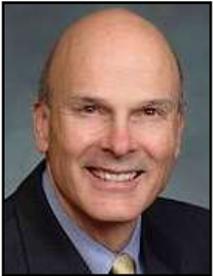
Robert Longenbaugh was a professor in the Civil Engineering Department at Colorado State University for 19 years followed by 11 years as Assistant State Engineer in the Ground Water Section at the Colorado Division of Water Resources. Since retiring from the state he has undertaken many consulting assignments related to groundwater. During his professional career he conducted hydrologic research across the state of Colorado, concentrating mainly on the Eastern Plains and the South Platte Valley

4:00 – 4:45

**PANEL - WATER MANAGEMENT FOR SUPPLY SUSTAINABILITY IN COLORADO**

**Panel Chair Randy Fischer**

**Are water management legislative changes needed or expected in the 2015 session?**



**Randy Fischer, State Rep., District 53, Fort Collins, CO**  
Engineering consultant with a background in natural resources. Chair of the House Ag., Livestock & Natural Resources Committee. Chair of Water Resources Review Committee.



**Gail Schwartz, State Senator (District 5) Snowmass, CO**  
Background in economic development and marketing. Senate Majority Whip. Committee Chair, Senate Agriculture, Natural Resources and Energy; Interbasin Compact



**KC Becker, State Rep., District 13, Boulder, CO**  
Professional work in real estate development, Law degree, worked for the Department of the Interior. Member of House Agriculture, Livestock and Natural Resources



**Mary Hodge, State Senator (District 25), Brighton, CO**  
Teacher and businesswoman. Chair, Senate Appropriations Committee. Member of the Joint Budget Committee. Member of Water Resources Review Committee.



**Perry Buck, State Rep., (District 49) Windsor, CO**  
Professional work in insurance, event planning, business and economic development. Member of Ag. Livestock, & Natural Resources Committee. Member Transportation & Energy Committee.



**Senator Vicki Marble (District 23) Fort Collins, CO**  
Business woman, served on Larimer County Rural Land Use Board. Member of Senate Economic Opportunity Task Force; Education Committee; Local Government Committee

4:45

**WRAP UP and ADJOURN**