

COLORADO

WATER RESOURCES RESEARCH INSTITUTE

About CWRRI

As a headwaters' state, the heavens are Colorado's water supply. And there are thirsty states downstream! As a result, Colorado water managers and users contend with the fickle nature of weather (and climate); the allocation of limited water among competing sectors of Colorado's economy and environment; and satisfying agreements with downstream states.

CWRRI, working closely with Colorado water managers and users, develops sound science to assist water managers in reducing conflict among water users.

CWRRI facilitates the transfer of new water knowledge to water managers and also assists in educating the next generation of Colorado water managers by working with all Colorado institutions of higher education.

Research

CWRRI awarded two Water Fellowships for 2006:

- 🔹 Kathleen DeJong, Colorado School of Mines, "Occurrence and Fate of Pharmaceuticals, Endocrine Disrupting Compounds and other Organic Wastewater Contaminants in Onsite Wastewater Systems"
- 🔹 Jenny Thorvaldson, Colorado State University, "Colorado's Evolving Irrigated Agriculture: Economic Accounting and Impact Analysis"

CWRRI thanks the Colorado School of Mines and the Agricultural Experiment Station for their additional support of the Fellows.



Outreach/Information Transfer

CWRRI publications include research reports, the *WATER IN THE BALANCE* series which provides a reader-friendly summary of project results, and *COLORADO WATER*, a bimonthly newsletter containing information on research, faculty, conferences and other events with a water focus. Outreach activities are conducted in conjunction with CSU Cooperative Extension, the U.S. Department of Agriculture, the Colorado Department of Agriculture, the Environmental Protection Agency, and Cooperative State Research, Education and Extension Service.

2006 HIGHLIGHTS RESPONSE TO STATE NEEDS

🔹 **Interbasin Water Roundtables**

CWRRI, CSU Cooperative Extension and the Colorado Institute of Public Policy are collaborating with the Department of Natural Resources to facilitate the dialog between the various sectors of society engaged in a state mandated Interbasin Water Roundtable process. One result of these efforts, the paper "Living in the Rocky Mountain West, Water 2025: Beliefs and Values as a Means for Cooperation" is available at www.cipp.colostate.edu/publications.html

🔹 **Colorado River Flow Forecasting**

A unique partnership between a professor in the CSU College of Engineering and the Colorado River Water Conservation District generated a project to conduct "Hydrologic Analysis, Forecasting, and Simulation of the Upper Colorado River System". Publication will be available soon at www.cwrri.colostate.edu.

🔹 **Produced Water Workshop**

In collaboration with the Bureau of Reclamation and the National Institute of Water Resources, CWRRI hosted a national workshop on the opportunities and impediments for putting oil and gas product water to beneficial use. Scientific, social and policy gaps and needs were explored and key agencies discussed mechanisms for cooperation. Available online at www.cwrri.colostate.edu.

🔹 **Arkansas Valley Salinity**

CWRRI water researchers are working with local legislators and water leaders to find ways to alleviate crop yield reductions due to salinity.

🔹 **Lysimeter**

State of Colorado, USDA/ARS, and Colorado State University are working together to install and instrument two scientifically sound large weighing lysimeters in the Arkansas Valley in support of the Arkansas River Compact settlement.

**Colorado Water Resources Research Institute
Advisory Committee on Water Research Policy
2006**

Don Ament
Commissioner, Department of Agriculture

Fred Anderson
Former President of the Colorado Senate

Jim Broderick
Executive Director, Southeastern Colorado Water Conservancy
District

Representative Kathleen Curry
Colorado State House of Representatives
Chair, House Agriculture, Livestock and Natural Resources Committee

Ralph Curtis
Manager, Rio Grande Water Conservation
District

Sara Duncan
Public Relations, Denver Water

Russell George
Executive Director, Department of Natural
Resources

Steve Gunderson
Director, Water Quality Division, Department of
Public Health and Environment

Senator Jim Isgar
Colorado State Senate
Chair, Senate Agriculture, Natural Resources and Energy Committee

Jim Kircher
Director, Colorado Water Science Center, USGS

Frank McNulty
Assistant Director for Water, Department of Natural
Resources

David Merritt
Chief Engineer, Colorado River Water Conservation
District

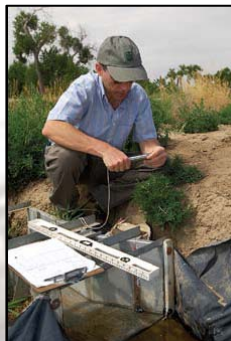
John Porter
Retired Manager, Dolores Water Conservancy District

David Robbins Esq.
Attorney, Hill and Robbins

Ex Officio Members:
Jeff Jahnke
Director, Colorado State Forest Service

Marc Johnson
Interim Director, Cooperative Extension

Lee Sommers
Director, Colorado Agricultural Experiment Station



Recent Publications

💧 ***Economic Impact Analysis of Reduced Irrigated Acreage in Four River Basins in Colorado***, by Jennifer Thorvaldson and James Pritchett (Dec. 2006).

💧 ***Produced Waters Workshop***, ed. by Ranil Wickramasinghe and Reagan Waskom (Nov. 2006).

💧 ***Toward Optimal Water Management in Colorado's Lower Arkansas River Valley: Monitoring and Modeling to Enhance Agriculture and Environment***, by Timothy Gates, Luis Garcia, and John Labadie (July 2006).

💧 ***Urban Landscape Irrigation with Recycled Wastewater***, by Yaling Qian (March 2006).

💧 ***Salt Chemistry Effects on Salinity Assessment in the Arkansas River Basin, Colorado***, by Curtis Allen Cooper, Grant Cardon, and Jessica Davis (March 2006).

💧 ***Effectiveness of Forestry Related Best Management Practices in the Trout Creek Watershed, Colorado***, by Nani Bay Teves and John D. Stednick (June 2005).

💧 ***South Platte Mapping and Analysis Program (SPMAP): Implementation of a User-Centered Decision Support Tool***, by Luis A. Garcia, David A. Patterson, Leslie A. Patterson in cooperation with Jon Altenhofen and James R. Hall (May 2005).

💧 ***Irrigation, Settlement, and Change on the Cache la Poudre River***. Rose Laflin (June 2005).

💧 ***Determination of Ecosystem Response Thresholds To Nutrient Enrichment Of Flowing Waters In Montane Colorado***. William M. Lewis, Jr. (Feb 05).



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FY07 Research Projects

Effects of Pine Beetle Infestations on Water Yield and Water Quality at the Watershed Scale in Northern Colorado. John D. Stednick, Dept of Forest, Range and Watershed Stewardship, Colorado State University.

Development of Oilseed Crops for Biodiesel Production Under Colorado Limited Irrigation Conditions. Jerry J. Johnson, Dept. of Soil & Crop Sciences, Colorado State University.

Predictability of the Upper Colorado River Streamflows. Jose D. Salas, Colorado State University and Balaji Rajagopalan, University of Colorado.

Occurrence and Fate of Steroid Hormones in Sewage Treatment Plant Effluents, Animal Feedlot Wastewater, and the Cache la Poudre River of Colorado. Thomas Borch, Dept. of Soil & Crop Sciences, Colorado State University.

Detecting Trends in Evapotranspiration in Colorado. Nolan Doesken, Colorado Climate Center.

Evaluation of Engineered Treatment Units for the Removal of Endocrine Disrupting Compounds and Other Organic Wastewater Contaminants During Onsite Wastewater Treatment. Robert L. Siegrist, Environmental Science and Engineering, Colorado School of Mines.

Direct Determination of Crop Evapotranspiration in the Arkansas Valley with a Weighing Lysimeter. Abdel Berrada, Arkansas Valley Research Center, Colorado State University.

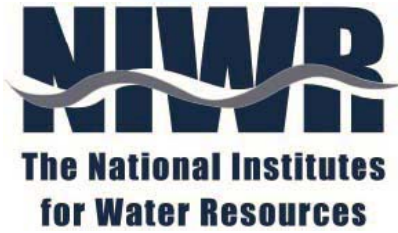
Refining Water Accounting Procedures Using the South Platte Mapping and Analysis Program. Luis Garcia, Dept of Civil and Environmental Engineering, Colorado State University.

Characterizing Non-Beneficial Evaporative Upflux from Shallow Groundwater Under Uncultivated Land in an Irrigated River Valley. Jeffrey D. Niemann, Luis Garcia, Dept of Civil and Environmental Engineering, Colorado State University.

Simultaneous Water Quality Monitoring and Fecal Pollution Source Tracking in the Big Thompson Watershed. Lawrence Goodridge, Dept. of Animal Sciences, Colorado State University.

CWRRI Staff and Contact Information

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What are the Water Resources Research Institutes?

The Water Resources Research Institutes represent cooperative agreements between public universities and federal and state government that engender lasting partnerships among state universities; federal, state, and local governments; businesses and industries; and non-governmental organizations aimed at solving problems of water supply and water quality at local, state, regional, and national levels.

At the land grant university of each state, a small federal grant provides base support for a program that identifies water resources research needs, finds university researchers capable of conducting useful research, and leverages federal funds with state and other resources to sponsor the needed investigations. More importantly, the modest federal grant creates an environment that encourages the other partners to incorporate science into their efforts and fund additional research in ways that might not occur without the aegis of the federal grant. Some of these programs are free-standing university institutes, others are subunits within university departments or cross-discipline research entities. NIWR networks these separate institutes into a coordinated unit, represented by 8 regional groupings as indicated in the map below and functioning through NIWR.

The State Water Resources Research Institute Program is administered by the U.S. Department of the Interior through the U.S. Geological Survey. Program contact:

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