

DIVINING ROD

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2005 New Mexico Water Research Symposium draws record crowd

by Sara Ash, WRRI

The New Mexico Water Research Symposium provides a forum for water specialists to meet, share their expertise, and collaborate for future work. Students meet with experts and professionals in their areas of study, and interested members of the community gather knowledge about current water research advances.

On August 16, over 200 professionals, students, and interested persons gathered at the Macey Center in Socorro for the 2005 symposium. The one-day event focused on advances in hydrologic methods and instruments. Participants came from multiple institutions and organizations throughout New Mexico, Texas, and Arizona. A record 62 undergraduate and graduate students attended.

Approximately 30 presenters introduced the findings of their research to symposium participants in 20 minute talks. Issues discussed included: rainfall and runoff modeling, surface-water riparian zone processes and issues, vadose-zone and shallow groundwater processes, remote sensing and GIS applications, water management issues and models, water treatment technologies, evaluation of groundwater chemistry, and improvement of hydrologic models.

Several presenters addressed the removal of arsenic from drinking water—an issue of particular concern due to the new EPA standard of 10 ppb of arsenic in drinking water set for 2006. Proposed solutions to the problem involved improving adsorption and purification technologies and lowering the cost of existing technologies.

In addition to oral presentations, 30 posters were displayed throughout the day, and participants perused them between presentation sessions, during breaks, and throughout lunch. Poster authors stayed on hand to offer additional information, answer questions, and demonstrate their research. Over ten university students presented posters at this year's symposium. Presentation and poster abstracts as well as some posters are available on WRRI's website at wri.nmsu.edu.

The New Mexico Water Resources Research Institute, Sandia National Laboratories, Los Alamos National Laboratory, and the American Water Research Association—New Mexico Section contributed financially to this event, keeping the cost of registration low. Other support came from the University of New Mexico, New Mexico State University, New Mexico Tech, the New Mexico Interstate Stream Commission, the New Mexico Office of the State Engineer, and U.S. Geological Survey.

Photos from this year's symposium follow on the next two pages and were taken by Steve Nowaczek.



NMSU environmental engineering doctoral student Veera Ganeswar Gude gives his presentation about desalination at the symposium.

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Photo by Peggy Risner.







Reports Available

USGS recent publications

The U.S. Geological Survey has recently published several reports of interest to New Mexico water experts. Copies are available for inspection at the USGS District Office in Albuquerque (5338 Montgomery Blvd NE, Suite 400; 505-830-7923). The Water Resources Research Institute library also has the reports on file. They may be ordered from the USGS, Federal Center, Box 25286, MS 517, Denver, CO 80225. You may call 1-888-ASK-USGS for price information or go to www.usgs.gov.

Channel and Hillslope Processes Revisited in the Arroyo de los Frijoles Watershed near Santa Fe, New Mexico by Allen C. Gellis, William W. Emmett, and Luna B. Leopold (PP 1704)

A report published in 1966 documented the processes and rates of sediment production and deposition in several watersheds outside of Santa Fe. The sites were resurveyed in the mid 1990s to determine subsequent channel and hillslope changes and whether trends documented in 1966 had continued.

This report provides those findings. Over the last three or four decades, “the net change in channel geometry has been small.” Erosion measurements confirm that the average values of surface erosion range from 0.019 to 0.096 centimeters per year. Some trends documented in the 1950s and 1960s did not continue into the 1990s. “More than 30 years of geomorphic change” are discussed in this paper.

Streamflow and Water-Quality Trends of the Rio Chama and Rio Grande, Northern and Central New Mexico, Water Years 1985 to 2002 by Jeff B. Langman and Emma O. Nolan (SIR 2005-5118)

Streamflow and water-quality trends in the Rio Chama and the Rio Grande for the water years 1985 through 2002 are examined in this report. Water constituents were broken into six categories: basic water chemical and physical properties; major ions; nutrients, organic carbon, and bacteria; trace elements; radionuclides; and anthropogenic compounds.

The years during the study were a “period of larger than average precipitation and streamflow compared to the stations’ historical averages.” Major ion concentrations decreased throughout the study period. Almost all nitrogen and phosphorous concentrations were below 2 mg/L. Trace elements and radionuclide concentrations did not exceed accepted drinking water standards, nor did anthropogenic compounds.

Other reports available

Rainwater Harvesting – Supply from the Sky

Published by the City of Albuquerque, this guide, in large part, duplicates a rainwater harvesting guide published by the Arizona Department of Water Resources in September, 1998. This guide was revised to incorporate New Mexico-specific data and reformatted to accommodate the needs of the City of Albuquerque. The draft production was handled by Kevin Bean, Doug Bennett, and Eva Khoury. Albuquerque residents can obtain copies via the City of Albuquerque at <http://www.cabq.gov>. Those who live outside Albuquerque should contact the Office of the State Engineer and place orders by phone at 1-800-WATERNM.



New Mexico Gray Water Guide

This publication was prepared through a joint effort by the Water Conservation Alliance of Southern Arizona, New Mexico Environment Department, New Mexico Construction Industries Division, New Mexico Office of the State Engineer, and New Mexico Cooperative Extension Service. The 24-page half-sized booklet provides information that “will help you decide whether use of your gray water for landscape irrigation is right for you...and assist you in determining whether it is possible or feasible for you to make economical use of your gray water.” Contact the New Mexico Office of the State Engineer at 1-800-WATERNM for copies.



Agricultural Water Security Listening Session Final Report

The U.S. Department of Agriculture has documented the Agricultural Water Security Listening Session held in Park City, UT during late 2004. According to James Dobrowolski of USDA, during the session, participants established a desired future state for water availability to 2025 and suggested bold steps to help guide USDA’s efforts in water conservation, irrigation efficiency and management, drought preparedness, water reuse, water-relevant biotechnology, and water marketing and institutions. The report is on the web at <http://www.csrees.usda.gov/water> and is downloadable as a PDF.



Call for Papers

UCOWR/NIWR
2006 Annual Conference
July 18-20, 2006
Santa Fe, New Mexico

Increasing Freshwater Supplies

The Universities Council on Water Resources, the National Institutes for Water Resources, Sandia National Laboratories, and Los Alamos National Laboratory will host the joint UCOWR/NIWR 2006 annual conference at La Fonda in Santa Fe.

December 1, 2005 is the deadline for abstracts for panels and presentations. Abstracts should be submitted electronically at <http://wrrri.nmsu.edu/ucowr>. Presentation topics include but are not limited to the following:

Ocean, Groundwater and Brackish Surface Water Desalination	Innovative Treatments
Interbasin Transfer	Weather Modification
Aquifer Storage and Recovery	Alternative Water Management Policies
Conservation and Reclaimed Water Use	Water Storage and Infrastructure
Water Resources Education	

For more information and online registration, visit the UCOWR website at: www.ucowr.siu.edu.

Upcoming Meetings

September 19-23 Riparian Assessment Workshop, New Mexico Riparian Council, Rancho del Chaparral Girl Scout Camp, Jemez Mountains, NM www.ripariancouncil.org

September 21-24 Arizona Hydrological Society's Annual Symposium (including a water conservation forum), Flagstaff, AZ <http://www.azhydrosoc.org/symposia.html>

October 18-20 WRRRI's 50th Annual New Mexico Water Conference, *New Mexico Water: Past, Present, and Future or Guns, Lawyers, and Money*, New Mexico State University, Las Cruces, NM wrrri.nmsu.edu

October 18-19 Association of State Wetland Manager's Workshop, Albuquerque, NM www.aswm.org/calendar/

October 30-November 3 New Mexico Environmental Health Conference, Sheraton Old Town Hotel, Albuquerque, NM www.nmehc.net

November 7-10 8th Biennial Conference of Research on the Colorado Plateau: Preservation and Restoration of Colorado Plateau Natural and Cultural Landscapes, Northern Arizona University, Flagstaff, AZ www.usgs.nau.edu/conf2005/

November 7-10 American Water Resources Association 2005 Annual Conference, Seattle, Washington www.awra.org

December 5-6 Land Use Law, Albuquerque, NM www.cle.com

December 14-16 Colorado River Water Users Association 60th Annual Conference, Caesars Palace, Las Vegas, NV crwua.com

July 18-20, 2006 UCOWR/NIWR Annual Conference, *Increasing Freshwater Supplies*, Santa Fe, NM www.ucowr.siu.edu (see announcement for Call for Papers above)



USGS announces National Competitive Grants Program awards for 2005

The U.S. Geological Survey received 49 proposals this year requesting a total of \$6.8 million. With slightly less than \$1 million available for the National Competitive Grants Program (104G), many excellent proposals could not be funded. Eight proposals received funding. Abstracts for these proposals are available at <http://water.usgs.gov/wrri/05grants/national/nationalindex.html>.

Chemolithotrophic Denitrification: The Missing Link in the Biogeochemical Cycle of Arsenic by Reyes Sierra and James A. Field, University of Arizona with collaboration by Ronald Oremland (USGS, Branch of Regional Research, Water Resources Discipline, Western Region); Water Resources Research Center, The Univ. of Arizona; \$121,163 (2 years)

Model Development for Conjunctive Use Planning and Aquifer Protection in Semi-arid Regions by William Yeh, Univ. of California, Los Angeles in collaboration with Tracy Nishikawa (USGS, Water Resources Discipline, San Diego, California); Center for Water Resources, Univ. of California, Riverside; \$98,534 (3 years)

Development of Characterization Approaches and a Management Tool for the Groundwater-Surface Water System in the Vicinity of Sutherland Reservoir and Gerald Gentlemen Station, Lincoln County, Nebraska by Eileen Poeter, Colorado School of Mines in collaboration with Matthew Landon (USGS, Water Resources Discipline, Lincoln, Nebraska, and Peter McMahon, U.S. Geological Survey, Water Resources Discipline, Lakewood, Colorado); Colorado Water Resources Research Institute, Colorado State Univ.; \$132,731 (2 years)

Coastal Groundwater Management in the Presence of Positive Stock Externalities by Kao Duarte and James Roumasset, Univ. of Hawaii at Manoa; Water Resources Research Center, Univ. of Hawaii at Manoa; \$148,021 (3 years)

Saltwater Intrusion Management with Conjunctive Use of Surface Water and Ground Water by Frank Tsai and Vijay Singh, Louisiana State Univ.; Louisiana Water Resources Research Institute, Louisiana State Univ.; \$172,842 (3 years)

Assessing the Ecotoxicology of Alkylphenol Mixtures Across the Aquatic Food Chain by Heiko Schoenfuss and Matthew Julius, St. Cloud State Univ. in collaboration with Larry Barber (USGS, Branch of Regional Research, Water Resources Discipline, Central Region); Water Resources Center, Univ. of Minnesota; \$63,014 (2 years)

The Impact of Rural Water Supply Systems on Property Values by Steven Shultz and Jay Leitch, North Dakota State Univ.; North Dakota Water Resources Research Institute, North Dakota State Univ.; \$62,728 (2 years)

Assessing the Effectiveness of Local Water Institutions in Water Management by Robert Hearne, North Dakota State Univ. in collaboration with Nina Burkardt and Berton Lee Lamb (USGS Fort Collins Science Center, Fort Collins, Colorado); North Dakota Water Resources Research Institute, North Dakota State Univ.; \$150,392 (3 years)

2006 USGS National Competitive Grants Program Research Priorities

The 104G announcement for the 2006 USGS National Competitive Grants Program will be available in early October, 2005. Check the WRRI website for updated information on the program.

The priorities for the 2006 competition will remain the same as those employed in 2004 and 2005. The goal is to hold the priorities steady for at least three years to provide faculty with a consistent target for refining proposal development efforts. Water supply and availability remain key concerns of both Congress and the current administration and these remain 104G program priorities.

Problems that could be addressed:

Development of indicators of status and trends in water availability based on hydrologic data collected by the USGS and others;

Development and assessment of management options under drought or flood conditions;

Development of cost effective strategies for annually compiling and reporting water availability information to Congress and the public;

Improved methods of characterizing and quantifying water cycle components;

Improvements in the methodology and understanding of assessments of water availability, incorporating technological, institutional, cultural, and economic factors that influence water use and water availability;

Effects of water regulation on availability of water for use in alternative purposes;

Developing cost effective methods for compiling and reporting source water quality conditions for the nation;

Effectiveness of BMPs in sustaining urban raw water supply quality; and

Identification and evaluation of the characteristics of watershed planning and management organizations that have a demonstrated capability to protect water supply quality.



2005 WRII Seed Money Research Program funds nine projects

The WRII Seed Money Research Program is designed to provide funds for water-related research projects having the potential for attracting more substantial outside funding if the initial research proves successful. The New Mexico WRII was able to fund nine projects this fiscal year using USGS, Section 104B funding and state funding allocations. Awards were made for a one-year period with funding at about \$30,000 for most projects.

Estimating Water Use through Satellite Remote Sensing

Max Bleiweiss, Zohrab Samani, and Rhonda Skaggs, New Mexico State University

Solar Desalination of Brackish Water Using Membrane Distillation Process

Shuguang Deng, New Mexico State University

Mitigation of Membrane Biofouling by Harnessing Bacterial Cannibalism

Frank Huang and Snezna Rogelj, New Mexico Tech

Sustainable Recovery of Potable Water from Saline Waters

Nirmala Khandan, New Mexico State University

Utilization of Saline and Other Impaired Waters for Turfgrass Irrigation

Bernd Leinauer and Ryan Goss, New Mexico State University

Land Application of Industrial Effluent on a Chihuahuan Desert Ecosystem

John Mexal and Ted Sammis, New Mexico State University

Predicting Land Use Change and its Effect on Nonpoint Source Pollution

Jennifer Thacher and Janie Chermak, University of New Mexico

Development of Geospatial Modeling Tools for Watershed-Based Water Resources Management in New Mexico

Enrique Vivoni, New Mexico Tech

A Physically-Based Parsimonious Approach for Spatial Disaggregation and Recovery of NERX RAD Precipitation Data in Mountainous Terrains

John Wilson, New Mexico Tech

EPA Quality System Assessment gives WRII high scores

In late June, the WRII was evaluated by a review committee from the U.S. Environmental Protection Agency, Region 6. As a recipient of EPA funding, the WRII must undergo periodic Quality System Assessments (QSA). The QSA is a process for assessing an organization's practices as they relate to its quality system. The focus of this assessment was on the processes within the WRII and the interfaces between other entities that perform work for the WRII.

In its draft findings, the EPA indicated, "The WRII is an extremely cohesive and ably led organization, with exceptionally competent staff and managers. The openness and candor of all staff was greatly appreciated. The WRII

staff and managers exhibit high levels of interest in their work and display an enthusiasm in work accomplishment and pride in their profession that is indicative of a positive work environment. Staff and management demonstrate an intimate knowledge of technical and administrative aspects of each of the projects under their oversight. Their level of commitment to, and passion for, all types of water quality projects is at an intensity level that is unique within EPA Region 6."

Congratulations to WRII staff for their high marks!



Baxter Black to entertain at water conference

WRRI's 50th Annual New Mexico Water Conference, *New Mexico Water: Past, Present, and Future or Guns, Lawyers, and Money*, will feature Cowboy Poet Baxter Black at its evening banquet on October 19.

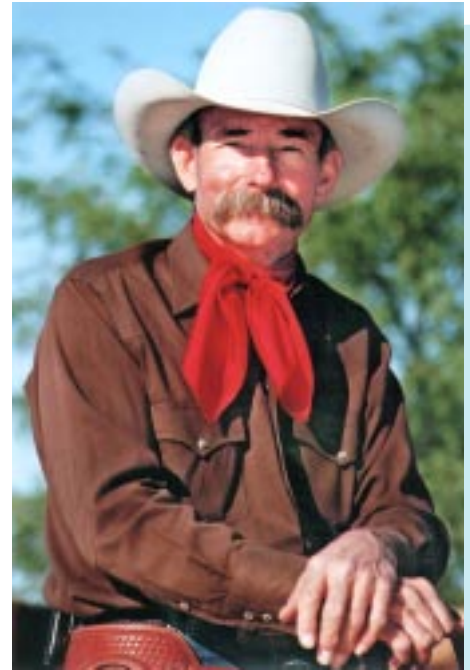
Baxter Black had water conference participants doubled over in laughter at its 34th annual water conference in Roswell in 1989. We expect Baxter to get the same reception at this year's conference.

According to Baxter Black, he is able to "...shoe a horse, string a bob wire fence, and bang out a Bob Will classic on his flat top guitar. Cowboy poet, ex-veterinarian and sorry team roper, he has more hair around his lip than on his head.

Raised in New Mexico, he spent his workin' life in the mountain west tormenting cows. He's now living in Arizona and travels the country tormenting cowboys."

Black stands as the best selling cowboy poet in the world and has achieved notoriety as a syndicated columnist and radio commentator. From the Tonight Show and PBS to NPR and NFR, Baxter's wacko verse has been seen and heard by millions. His works are prominently displayed in both big city libraries and small town feed stores.

Don't miss it! Register for the conference at: <http://wrri.nmsu.edu/conf/conf05/regis.html>.



CLE has approved 12.4 general credit continuing legal education credits for the 50th Annual New Mexico Water Conference

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