

Program

Emerging Challenges and Opportunities for Irrigation Managers

Energy, Efficiency and Infrastructure



USCID

The U.S. society for irrigation and drainage professionals

**April 26-29, 2011
Albuquerque, New Mexico**

Program

Tuesday, April 26

7:00 a.m. - 5:30 p.m. **Registration**

8:00 a.m. - 11:30 a.m. **Field Tour**

The Field Tour will visit the City of Albuquerque diversion works and the Middle Rio Grande Conservancy District.

12:00 noon - 1:15 p.m. **Lunch with Speaker**

Moderator — **Jerrold D. Gregg**, President, USCID; and Bureau of Reclamation, Boise, ID

Conference Opening Keynote Address

Michael Connors, Commissioner, Bureau of Reclamation, Washington, DC

1:30 p.m. - 5:00 p.m. **Opening Plenary Session**

Moderator — **Rhonda Skaggs**, Conference Chairman, and New Mexico State University, Las Cruces, NM

Water for Energy

Mike Hightower, Water for Energy Project Lead, Sandia National Laboratories, Albuquerque, NM

Emerging Opportunities and Challenges in New Small Hydropower Development

Kerry L. McCalman, Bureau of Reclamation, Denver, CO

Low Head Hydro Regulatory Issues

Ann Miles, Director, Division of Hydro Licensing, Federal Energy Regulatory Commission, Washington, DC

3:00 p.m. - 3:30 p.m. **Break**

Progress of Yuma Desalting Plant Pilot Run

Michael D. Norris, Bureau of Reclamation, Yuma, AZ

El Paso Desalination Plant

Ed Archuleta, El Paso Water Utilities, El Paso, TX

Indian Water Rights

Regis Pecos, former Governor, Cochiti Pueblo, Cochiti, NM

5:00 p.m. - 5:30 p.m. **Meet the Exhibitors**

5:30 p.m. - 7:30 p.m. **Networking Reception and Exhibition**

Wednesday, April 27

7:00 a.m. - 5:30 p.m. **Registration**

7:00 a.m. - 8:00 a.m. **Continental Breakfast in Exhibit Hall**

8:00 a.m. - 9:30 a.m. **Plenary Session 1 — Infrastructure/Urbanization/Water Conservation**

Moderators — **Randy Hopkins**, Provost & Pritchard Engineering Group, Inc., Fresno, CA; and **Tomas B. Stockton**, Stockton Engineering, Albuquerque, NM

Verifying Conservation Estimates for On-Farm Agricultural Water Conservation Programs

John McLeod, **Stacy Pandey** and **Ana Ramirez**, Lower Colorado River Authority, Austin, TX

Improving Irrigation System Performance in the Middle Rio Grande through Scheduled Water Delivery

Subhas Shah and **David Gensler**, Middle Rio Grande Conservancy District, Albuquerque, NM; **Kristoph-Dietrich Kinzli**, Florida Gulf Coast University, Fort Myers, FL; and **Ramchand Oad**, Colorado State University, Fort Collins, CO; and **Nabil Shafike**, New Mexico Interstate Stream Commission, Albuquerque, NM

Urbanization of Irrigation Districts in the Texas Rio Grande River Basin

Gabriele Bonaiti and **Guy Fipps**, Texas A&M University, College Station, TX

9:30 a.m. - 10:30 a.m. **Break in Exhibit Hall**

10:30 a.m. - 12:00 noon **Plenary Session 1 — Infrastructure/Urbanization/Water Conservation (continued)**

Urbanization Issues in the Middle Rio Grande Conservancy District

Rhonda Skaggs, **Leeann DeMouche**, **Tyler Holmes**, **Zohrab Samani** and **A. Salim Bawazir**, New Mexico State University, Las Cruces, NM

From Canyons to Canals: Applying Regulated River Research to Canal Bank Analysis

Brent Travis and **Brian Wahlin**, WEST Consultants, Inc., Tempe, AZ

The History of Hydro-Power Flowmetering

Robert DiNatale, Accusonic Technologies, Oakland, CA

12:00 noon - 1:15 p.m. **Buffet Lunch in Exhibit Hall**

1:30 p.m. - 3:00 p.m. **Plenary Session 2 —
Planning and Endangered Species**

Moderators — **Brian T. Wahlin**, WEST Consultants, Inc., Tempe, AZ; and **Mark Stone**, University of New Mexico, Albuquerque, NM

Integrated Water Supply Planning for Sustainability — A Case Study of the Albuquerque Bernalillo County Water Utility Authority

John M. Stomp III, Albuquerque Bernalillo County Water Utility Authority, Albuquerque, NM; and **Greg Gates**, CH2M Hill, Inc., Albuquerque, NM

Water for Irrigation, Streams and Economy: Evaluating Past and Future Climate Change to Secure a Reliable Water Supply for Multiple Needs

Ted Shannon, HDR Engineering, Minneapolis, MN; **Steve Mason**, Watershed Systems Consulting, Ashland, OR; and **Ronan Igloria** and **Anders Rasmussen**, HDR Engineering, Portland, OR

An Assessment of the Pecos River Flow and Water Quality Between Santa Rosa and Puerto de Luna, New Mexico

Peter W. Burck, U.S. Fish and Wildlife Service, Albuquerque, NM; and **F. Emile Sawyer**, New Mexico Interstate Stream Commission, Santa Fe, NM

3:00 p.m. - 3:30 p.m. **Break in Exhibit Hall**

3:30 p.m. - 5:00 p.m. **Plenary Session 2 —
Planning and Endangered Species (continued)**

Irrigation Management Strategies to Foster Conservation of Endangered Native Species

David E. Cowley, New Mexico State University, Las Cruces, NM

Lower Rio Grande River Restoration for the Southwest Willow Fly Catcher

Beth Bardwell, New Mexico Audubon Society

Farmers Irrigation District Fish Screening Technology

Jer Camarata, Farmers Conservation Alliance, Hood River, OR

6:30 p.m. - 7:00 p.m. **Reception**

7:00 p.m. - 9:30 p.m. **Dinner with Speaker**

Moderator — **Jerrold D. Gregg**

Speaker — **Lowell Catlett**, Dean, College of Agriculture, New Mexico State University, Las Cruces, NM

Thursday, April 28

7:00 a.m. - 5:00 p.m. **Registration**

7:00 a.m. - 8:00 a.m. **Continental Breakfast and
Poster Session**

Riparian Evapotranspiration Research at Bosque del Apache National Wildlife Refuge, New Mexico

A. Salim Bawazir, **Sam Monger**, **Julian Silva**, **Steve Fox**, **Juan Solis**, New Mexico State University, Las Cruces, NM; and **Gina Dello Russo**, U.S. Fish and Wildlife Service, Socorro, NM

The Energy Farm

Joe E. Blankenship, Praxis Energy, Inc., Phoenix, AZ

Using NARR to Estimate Agricultural Water Use in the Mesilla Valley, New Mexico

Max Bleiweiss, **A. Salim Bawazir** and **Juan Solis**, New Mexico State University, Las Cruces, NM

New Mexico Hydrologic Information System (NMHIS)

Stephen W. Brown, **Julia A. Coonrod**, **Karl Benedict**, **Renzo Sanchez-Silva** and **Hays Barrett**, University of New Mexico, Albuquerque, NM

Application of HEC-HMS 3.4 in Estimating Streamflow of the Rio Grande under Climate Change Impacts

Chi Bui and **Julia A. Coonrod**, University of New Mexico, Albuquerque, NM

Evaluation of Starvation Draw Dams for Sediment Control and Restoration of Upstream Habitat

Jessica Bush, New Mexico State University, Las Cruces, NM; **Dan Carter**, U.S. Bureau of Land Management, Las Cruces, NM; and **A. Salim Bawazir**, New Mexico State University, Las Cruces, NM

Yield Potential and Water Use in Irrigated Cropping Systems: Field Experiments, Instrumentation, and Modeling

Kendall DeJonge, Colorado State University, Fort Collins, CO

Spatial Estimates of Evaporation from Caballo Reservoir, New Mexico

Santosh Devkota, **A. Salim Bawazir**, **Jimmy Moreno**, and **Max Bleiweiss**, New Mexico State University, Las Cruces, NM; and **Brent Tanzy**, Bureau of Reclamation, Truth or Consequences, NM

Using Eddy Covariance Method to Measure Evapotranspiration of Alfalfa in the Mesilla Valley, New Mexico

Steve Fox, **A. Salim Bawazir**, **Zohrab Samani**, **Rhonda Skaggs**, **Leeann DeMouche** and **Max Bleiweiss**, New Mexico State University, Las Cruces, NM

Badger Creek Hydrologic Study

Satya Gala and **Stuart Robertson**, Robertson-Bryan, Inc., Elk Grove, CA

The Impact of Agriculture on the Micro-Climature of a Peri-Urban Community in NM

Bradley Griggs, Zorab Samani, Rhonda Skaggs, Vienn Tran and Leeann DeMouch, New Mexico State University, Las Cruces, NM

Enhanced Dust Production Forecasts Using Soil Moisture Models from Dry Playas in Four Corner Areas

Lijuan Jia, University of New Mexico, Albuquerque, NM

City of Santa Fe Hydro Project

Dale W. Lyons, City of Santa Fe, Santa Fe, NM

Using the Advance Research Weather Forecasting Model (ARW) and Satellite Data to Estimate Bulk Aerodynamic Inputs at Elephant Butte Reservoir, New Mexico

Jimmy Moreno, Max Bleiweiss, A. Salim Bawazir and Zohrab Samani, New Mexico State University, Las Cruces, NM; and **Brent Tanzy**, Bureau of Reclamation, Truth or Consequences, NM

The Effects of Groundwater Pumping on Travertine Spring Discharge in Death Valley, CA

Ryan Morrison, University of New Mexico, Albuquerque, NM

Flow Within Open Channels with Submerged Vegetation: Momentum and Mass Exchange Between Main Channel and Floodplains

Abdou Harissou Ouro Bang'na Nassam, University of New Mexico, Albuquerque, NM

Estimating Water Use and the Relation Between Fractional Cover and Evapotranspiration in Pecan Orchards Using Remote Sensing

Aldo R. Pinon-Villarreal, Salim Bawazir, Zohrab Samani, Max P. Bleiweiss, Rhonda K. Skaggs and Leeann DeMouche, New Mexico State University, Las Cruces, NM

Using Long-Term Climatic Data to Determine the Effect of Climate Change on the Growing Period of Pecan Orchard in Dona Ana County, New Mexico

Bridgette Quintero, Julian Silva, Leeann DeMouche and A. Salim Bawazir, New Mexico State University, Las Cruces, NM

Quantifying the Contribution of Specific Yield Due to a Decrease in Stream Stage

Jeffrey Samson, University of New Mexico, Albuquerque, NM

Consumptive Water Use by Alfalfa in the Albuquerque South Valley, New Mexico

Aquiles Saz, A. Salim Bawazir, Zohrab Samani, Rhonda Skaggs and Leeann DeMouche, New Mexico State University, Las Cruces, NM

Physical Modeling of Two Supercritical Stormwater Best Management Practices

Kyle Shour, Kent Steinhaus and Julie Coonrod, University of New Mexico, Albuquerque, NM

Two-Dimensional Sediment Transport Modeling of a Restoration Channel in Albuquerque, New Mexico

Kyle Shour, Julie Coonrod and Mark Stone, University of New Mexico, Albuquerque, NM

Agricultural Water Conservation Clearinghouse: An Online Tool For Water Resources Professionals, Managers and Academia

Faith Sternlieb, Julie Kallenberger, Reagan Waskom and Troy Bauder, Colorado State University; and **Jim Bauder**, Montana State University

Optimization of Water Depth for Reducing Evaporation Losses and Minimizing the Spread of Riparian Invasive Plants in Caballo Reservoir, New Mexico

Dung Tri Tran, A. Salim Bawazir and Jimmy Moreno, New Mexico State University, Las Cruces, NM; **Brent Tanzy**, Bureau of Reclamation, Truth or Consequences, NM; and **Leeann DeMouche**, New Mexico State University, Las Cruces, NM

The Impact of Dust Storms on the Snowpack Runoff Patterns

Ryan Webb, University of New Mexico, Albuquerque, NM

Understanding the Effect of Climate on New Mexico Vineyards

Timothy Woo, A. Salim Bawazir and Zack Libbin, New Mexico State University, Las Cruces, NM; and **Bernd Maier**, Cooperative Extension Service, New Mexico State University, Las Cruces, NM

8:00 a.m. - 9:30 a.m. **Concurrent Session 3A — Low Head Hydro I**

Moderators — **Gary Esslinger**, Elephant Butte Irrigation District, Las Cruces, NM; and **George V. Sabol**, Stantec Consulting, Inc., Aztec, NM

Low-Head Hydro, as Easy as 1-2-3

Ed Gerak, Buckeye Water Conservation & Drainage District, Buckeye, AZ

Energy Production Within an Irrigation System

Joe E. Blankenship, NaTel Energy, Inc., Scottsdale, AZ

Examining the Feasibility of Hydropower Generation in the Middle Rio Grande Conservancy District

Ramchand Oad, Colorado State University, Fort Collins, CO; **Kristoph-Dietrich Kinzli**, Florida Gulf Coast University, Fort Myers, FL; and **Subhas Shah and David Gensler**, Middle Rio Grande Conservancy District, Albuquerque, NM

8:00 a.m. - 9:30 a.m. **Concurrent Session 3B — Flow Measurement**

Moderators — **Blair L. Stringam**, New Mexico State University, Las Cruces, NM; and **John McLeod**, Lower Colorado River Authority, Austin, TX

Flow Measurement Capabilities of Diversion Works in the Rio Grande Project Area

Brian Wahlin, WEST Consultants, Inc., Tempe, AZ

Acoustic Doppler Current Profiler (ADCP) Experiences in New Mexico

Peter W. Burck, U.S. Fish and Wildlife Service, Albuquerque, NM; and **Anders Lundahl**, New Mexico Interstate Stream Commission, Albuquerque, NM

Open-Channel and Pipe Flow Measurement at Mohave Valley Irrigation and Drainage District Using Venturi Technology with Bubbler Sensors

Tom Gill, Bureau of Reclamation, Denver, CO; **Mark Niblack**, Yuma County Water Users Association, Yuma, AZ; and **Alan Jackson**, Bureau of Reclamation, Yuma, AZ

9:30 a.m. - 10:30 a.m. **Break with Poster Papers**

10:30 a.m. - 12:00 noon **Concurrent Session 3A — Low Head Hydro I** (continued)

Development of the Carter Lake Hydropower Project

Carl Brouwer, Northern Colorado Water Conservancy District, Berthoud, CO

Low Head Hydro Potential in Colorado

Lindsay George, Applegate Group, Inc., Glenwood Springs, CO; and **Daniel Zimmerle**, Colorado State University, Fort Collins, CO

Optimal Placement of Hydroelectric Dams in Canals

Brent Travis and **Brian Wahlin**, WEST Consultants, Inc., Tempe, AZ

10:30 a.m. - 12:00 noon **Concurrent Session 3B — Flow Measurement** (continued)

Using an ADCP to Determine Canal Seepage Loss in the Middle Rio Grande Conservancy District

Kristoph-Dietrich Kinzli, Gulf Coast University, Fort Myers, FL; **Matthew Martinez**, Middle Rio Grande Conservancy District, Albuquerque, NM; **Ramchand Oad**, Colorado State University, Fort Collins, CO; **Adam Prior**, Clearwater Solutions, Windsor, CO; and **David Gensler**, Middle Rio Grande Conservancy District, Albuquerque, NM

What's in Your Radio Communication Tackle Box?

Dan Steele, FreeWave Technologies, Inc., Boulder, CO

Venturi Meters Constructed with Pipe Fittings: An Under-Appreciated Option for Measuring Agricultural Water

Tom Gill, Bureau of Reclamation, Denver, CO; **Brian Wahlin**, WEST Consultants, Inc., Tempe, AZ; and **John Replogle**, Consultant, Tempe, AZ

12:00 noon - 1:15 p.m. **Lunch with Speaker**

Moderator — **Jerrold D. Gregg**

Speaker — **Thomas C. Turney**, Consultant and former New Mexico State Engineer, Santa Fe, NM

1:30 p.m. - 3:00 p.m. **Concurrent Session 4A — Low Head Hydro II**

Moderator — **Joe E. Blankenship**, NatEl Energy, Inc., Scottsdale, AZ

Prototype Hydropower Generation Design and Construction for Low-Head Applications

Gary Esslinger, **Henry Magallanez** and **Zachary L. Libbin**, Elephant Butte Irrigation District, Las Cruces, NM; **Mathew B. Haines**, Intern, Ibaraki, Japan; and **Fernando Cadena**, Environmental Engineer, Las Cruces, NM

River Restoration on the Lower Rio Grande

James Phillip King, New Mexico State University, Las Cruces, NM

Blue is the New Green

Ed Gerak, Buckeye Water Conservation & Drainage District, Buckeye AZ

1:30 p.m. - 3:00 p.m. **Concurrent Session 4B — Crop Issues and Water Banking**

Moderators — **Charles Caruso**, AGRIMEX, Albuquerque, NM

Improving Crop Water Use Determination Using Adjusted Eddy Covariance Heat Fluxes

Stuart L. Joy and **José L. Chávez**, Colorado State University, Fort Collins, CO; and **Terry A. Howell**, Agricultural Research Service, USDA, Bushland, TX

Evaluation of Alfalfa ET Derived from a Large Aperture Scintillometer Using Measured ET from a Large Weighing Lysimeter in Southeastern Colorado

Evan H. Rambikur and **José L. Chávez**, Colorado State University, Fort Collins, CO; and **Lane H. Simmons** and **Michael E. Bartolo**, Colorado State University, Rocky Ford, CO

Performance Evaluation of TDT Soil Water Content and Watermark Soil Water Potential Sensors

Jordan L. Varble, **José L. Chávez**, **Allan A. Andales** and **Greg L. Butters**, Colorado State University, Fort Collins, CO; and **Thomas J. Trout**, Agricultural Research Service, USDA, Fort Collins, CO

3:00 p.m. - 3:30 p.m. **Break with Poster Papers**

3:30 p.m. - 5:30 p.m. **Concurrent Session 4A — Low Head Hydro II** (continued)

Low-Head Hydro Case Study — SEC Project

Donovan Neese, Stantec Consulting Services, Phoenix, AZ; and **Jennifer M. Torpey**, K. R. Saline & Associates, PLC, Mesa, AZ

The Fresno Low-Head Hydropower Project — A Case Study

Owen Kubit and **Brian Ehlers**, Provost & Pritchard Consulting Group, Inc., Clovis, CA; and **Brock Buche**, City of Fresno, Fresno, CA

Creating Hydroelectric Opportunities with Irrigation Canal Piping Projects

Dick Haapala, CH2M Hill, Inc., Richland, WA; **Brady Fuller**, CH2M Hill, Inc., Bend, OR; and **Jason Smesrud**, CH2M Hill, Inc., Portland, OR

Case Study of Small Hydropower Plant by Orange Cove Irrigation District

Fergus Morrissey, Orange Cove Irrigation District, Orange Cove, CA; and **James Chandler** and **Brian E. Ehlers**, Provost & Pritchard Consulting Group, Inc., Clovis, CA

3:30 p.m. - 5:00 p.m. **Concurrent Session 4B —
Crop Issues and Water Banking (continued)**

Meeting Water Challenges in Idaho through Water Banking

Jerrold D. Gregg, Bureau of Reclamation, Boise, ID; and
Richard M. Rigby, Idaho Department of Water Resources,
Boise, ID

*Water Banking in Arizona: Enabling a Future, Robust Water
Credit Market*

James LaBar, Salt River Project, Phoenix, AZ

*Water Transfers in California: 20 Years of Progress, View to
the Future*

Steven Macaulay, West Yost Associates, Davis, CA

*Transferring Water Among Uses and Users in Central
Oregon: The Deschutes River Conservancy*

Mark Svendsen, Consultant, Philomath, OR; and **Zachary
Tillman**, Deschutes River Conservancy, Bend, OR

Friday, April 29

8:00 a.m. - 5:00 p.m. **Field Tour**

This day-long tour will begin with a visit to Cochiti Dam and Reservoir, and Middle Rio Grande Conservancy District diversion works. Other stops will include the Otowi Gage and *acequias* (historic communal waterways) north of Albuquerque.

The tour will arrive in Santa Fe by mid-afternoon, where participants will have an opportunity to enjoy the sights of New Mexico's capital city. Return to Albuquerque on the USCID-chartered motor coach, or enjoy dinner in Santa Fe and return on your own on the Rail Runner.

(Updated April 20, 2011)