New Mexico Water Leaders Workshop

December 6–8, 2023
Las Cruces, New Mexico

REFERENCE BOOK

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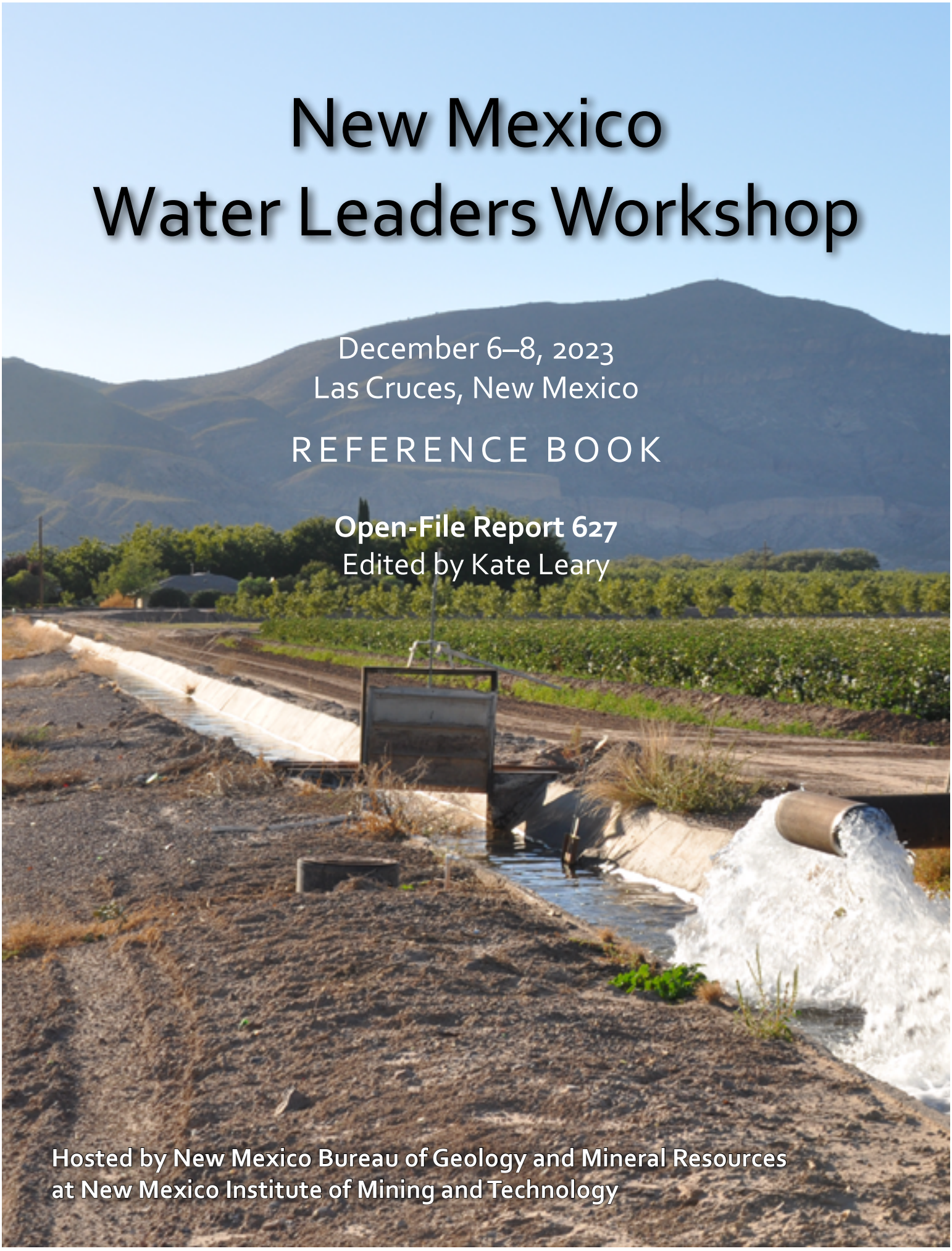

Hosted by New Mexico Bureau of Geology and Mineral Resources at New Mexico Institute of Mining and Technology

WATER LEADERS WORKSHOP 2023

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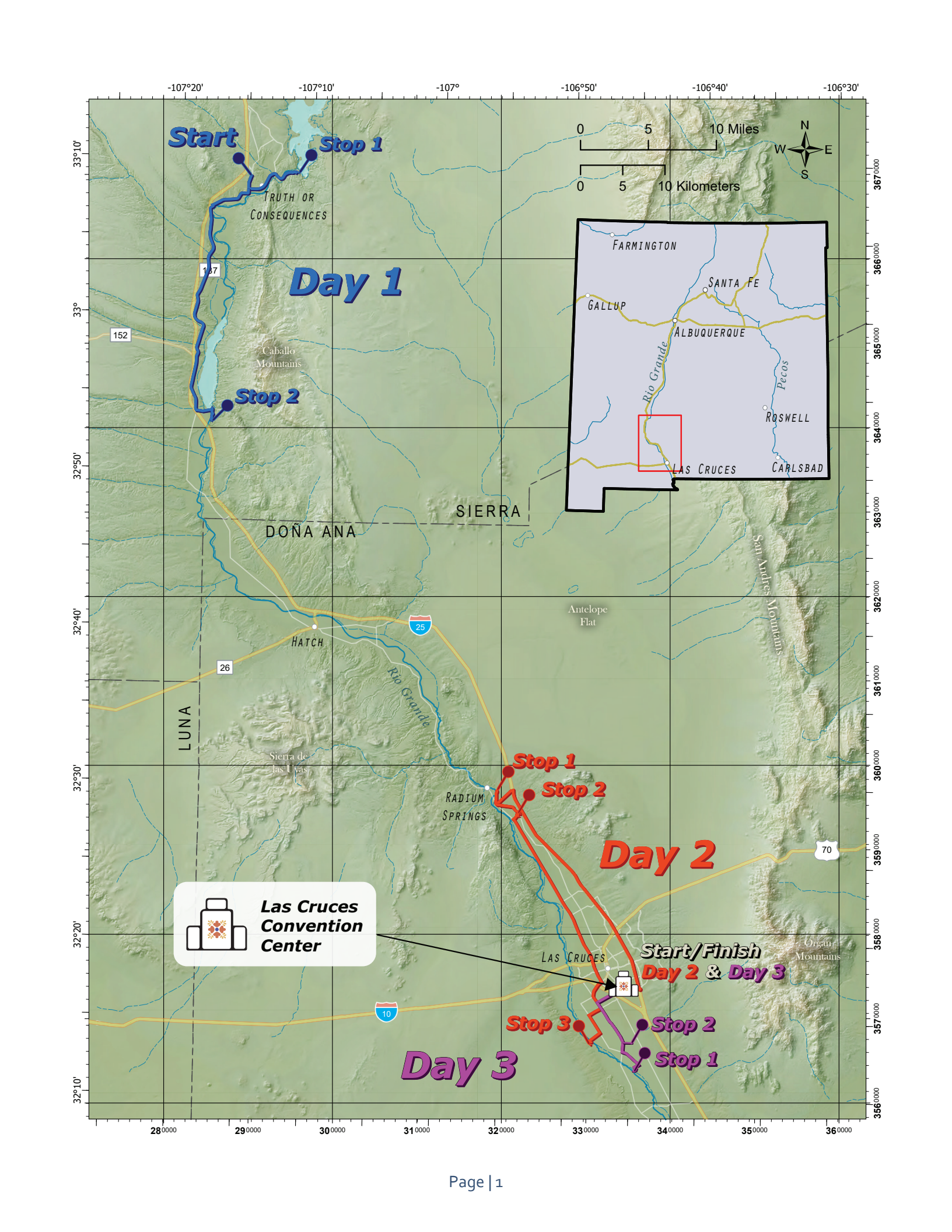
Start
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Truth or Consequences
Day 1
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DOÑA ANA
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Rio Grande
Sierra de las Uvas
Radium Springs
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Stop 2
Day 2
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Las Cruces
Start/Finish
Day 2 & Day 3
Organ Mountains
Stop 3
Stop 2
Stop 1
Day 3
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Santa Fe
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Albuquerque
Rio Grande
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Las Cruces
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-106°40'
-106°30'
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AGENDA

DAY 1: WEDNESDAY, DECEMBER 6, 2023

AFTERNOON FIELD SESSION

11:30 am–4:30 pm: Optional field trip with box lunches

Meet at Sierra County Administration Offices at 11:30 am; depart at 12:00 pm

Drive 10 min (in vans) to stop 1: Elephant Butte overlook

On site 12:10–1:10 pm

10-min presentations

- History of Elephant Butte Dam and overview of BOR role/project—Michelle Estrada-Lopez, Bureau of Reclamation
- Geology around dam placement—Dan Koning, NM Bureau of Geology and Mineral Resources
- Rio Grande Compact overview: Credits and debits—Page Pegram, NM Interstate Stream Commission
- MRGCD and EBID overview and coordination—Jason Casuga, Middle Rio Grande Conservancy District, and Gary Esslinger, Elephant Butte Irrigation District
- Q&A

Drive 10 min (in vans) back to Sierra County Administration Offices

In personal vehicles and vans, caravan to Caballo stream gage

Drive 40 min to stop 2: Caballo Dam and stream gage

On site 2:30–3:40 pm

10-min presentations

- Management of Caballo Reservoir—Michelle Estrada-Lopez, Bureau of Reclamation
- Stream gages in the Compact/Consent Decree—John Longworth, NM Office of the State Engineer/ NM Interstate Stream Commission
- USIBWC background and involvement in the region—Gilbert Anaya, U.S. International Boundary and Water Commission
- Gage maintenance and monitoring practices—Matthew Pedroza, Bureau of Reclamation
- Effects of water delivery on recreation and park management in light of climate change—Alex Mares, New Mexico State Parks
- Q&A

Drive 60 min to Las Cruces Convention Center

SOCIAL HOUR AND DINNER

5:30–8:00 pm: Welcome! Hosted social hour and dinner, Las Cruces Convention Center

DAY 2: THURSDAY, DECEMBER 7, 2023

BREAKFAST

7:30–8:00 am: Las Cruces Convention Center

MORNING SESSION

8:00–8:20 am: Opening remarks

8:20–9:40 am: Statewide water perspectives, part 1

10-min presentations

- Climate change report—Nelia Dunbar, NM Bureau of Geology and Mineral Resources
- New Mexico's big water challenges—Tanya Trujillo, Special Advisor to the Governor and Deputy State Engineer
- Aquifers of New Mexico—Katie Zemlick, NM Office of the State Engineer
- Fresh and brackish water characterization and data needs—Stacy Timmons, NM Bureau of Geology and Mineral Resources
- Aquifer storage and management—Adrian Oglesby, Utton Transboundary Resources Center
- Q&A

Thursday, continued

9:40–10:30 am: Lower Rio Grande and the Rio Grande Compact

10-min presentations

- Rio Grande Compact, update on accounting, storage, flows in the Rio Grande—Hannah Riseley-White, NM Interstate Stream Commission
- Overview of lower Rio Grande water management project—Jennifer Faler, Bureau of Reclamation
- Historical perspectives on Rio Grande Compact flexibilities—Mike Hamman, NM State Engineer
- Q&A

10:30–11:30 am: Lower Rio Grande status report: Hydrologic and legal

20-min presentations

- Surface water/groundwater of the lower Rio Grande—Peggy Barroll
- Potential Consent Decree legal implications—Nat Chakeres, NM Office of the State Engineer
- Q&A

11:30–11:40 am: 10-min break and load vans

AFTERNOON FIELD SESSION

11:40 am–5:00 pm: Afternoon field trip (travel by van)

Drive 30 min to stop 1: Leasburg Dam

On site 12:10–1:30 pm

Working lunch (provided) and 10-min presentations

- Regional geology—Shari Kelley, NM Bureau of Geology and Mineral Resources
- Dam operations and challenges—Gary Esslinger, Elephant Butte Irrigation District
- Agricultural needs of the Mesilla Valley and history of EBID—Greg Daviet, Elephant Butte Irrigation District/Dixie Ranch
- Q&A

Drive 10 min to stop 2: Selden Drain

On site 1:40–2:20 pm

10-min presentations

- Stormwater management and getting water back to river/system—Gary Esslinger, Elephant Butte Irrigation District
- Habitat improvement—John Douglas, Elephant Butte Irrigation District
- Q&A

Drive 40 min to stop 3: Mesilla Dam

On site 3:00–4:00 pm

10-min presentations

- Dam overview and operations—Michelle Estrada-Lopez, Bureau of Reclamation
- Growing pecans and other agricultural/water topics—Richard Heerema, New Mexico State University
- Mesilla Basin Hydrogeology and Managed Aquifer Recharge—Shari Kelley, NM Bureau of Geology and Mineral Resources
- Lower Rio Grande regional research overview—Andrew Robertson, U.S. Geological Survey
- Q&A

Drive 15 min to Las Cruces Convention Center

DINNER AND KEYNOTE ADDRESS

5:30–8:30 pm: Las Cruces Convention Center

Dinner served at 6:30 pm

Special remarks by State Senator Mimi Stewart, President Pro Tempore

Keynote presentation: Dr. Rosario Sanchez, Texas A&M University

DAY 3: FRIDAY, DECEMBER 8, 2023

BREAKFAST

7:30–8:00 am: Las Cruces Convention Center

MORNING SESSION

8:00–9:20 am: Statewide water perspectives, part 2

10-min presentations

- ISC update on the Water Security Planning Act—Andrew Erdmann, NM Interstate Stream Commission
- Clean Water Act changes in New Mexico—Rachel Conn, Amigos Bravos
- Moving toward primacy in New Mexico—Shelly Lemon, NM Environment Department
- Evolving water permitting processes at NMED—John Rhoderick, NM Environment Department
- Human health impacts of water scarcity and heat—Chelsea Eastman Langer, NM Department of Health
- Q&A

9:20–10:10 am: Lower Rio Grande: Water conservation efforts

10-min presentations

- Implementation efforts related to potential Consent Decree, including outcomes of the Lower Rio Grande Groundwater Conservation Program—John Longworth, NM Office of the State Engineer/ NM Interstate Stream Commission
- OSE metering program—Ryan Serrano, NM Interstate Stream Commission
- Q&A

10:10–11:00 am: Regional water providers, successes and challenges, water conservation efforts

10-min presentations

- City of Las Cruces smart meter program—Carl Clark, City of Las Cruces Utilities Department
- Successes and challenges of regionalization—Karen Nichols, Lower Rio Grande Public Water Works Authority
- Q&A

11:00–11:30 am: Conference recap

- Ana Pinheiro Privette

LUNCH

12:00–1:00 pm: La Posta de Mesilla

AFTERNOON FIELD SESSION

1:00–4:30 pm: Optional field trip

Drive 15 min to stop 1: Leyendecker Plant Science Research Center

On site 1:30–2:30 pm

- Leyendecker weather station—Dave DuBois, New Mexico State University
- ISC crop cover testing project—Manoj Shukla and Hui Yang, New Mexico State University
- Q&A

Drive 15 min to stop 2: Local farm

On site 3:00–3:30 pm

- Field overview of EBID SCADA system—Patrick Lopez, Elephant Butte Irrigation District
- USGS data collection—TBD, U.S. Geological Survey

Drive 20 min to Las Cruces Convention Center

PRESENTER BIOS AND CONTACT INFORMATION

GILBERT ANAYA
Environmental Management Division Chief, U.S. International Boundary and Water Commission
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Gilbert Anaya joined the U.S. International Boundary and Water Commission in 1999 and is currently the division chief of the Environmental Management Division. He has worked on water quality studies along the international reach of the Rio Grande and continues to work with and support local, state, and federal partners to evaluate and address water quality concerns. Gilbert has led binational technical work groups on issues dealing with water resources, conservation, and the environment, and is currently working on sanitation issues, transboundary aquifer studies, and salinity concerns. Gilbert earned a BS in microbiology from the University of Texas at El Paso and an MS in environmental science from the University of Texas at San Antonio. He also served in the United States Army. Before joining USIBWC, Gilbert worked in the water and wastewater field for 10 years with El Paso Water in El Paso, Texas, and the Cibolo Creek Municipal Authority in Schertz, Texas. He has worked with federal, state, and local agencies from the U.S. and Mexico on a variety of environmental resource issues all along the United States–Mexico border and is currently working on his PhD in environmental science and engineering at UTEP.

PEGGY BARROLL
Water Resource Hydrologist
pbarroll@gmail.com

Dr. Peggy Barroll worked for over 25 years as a water resource hydrologist and groundwater modeler at the New Mexico Office of the State Engineer, specializing in regional-scale groundwater models. She authored or participated in the development of several groundwater models and studied and modeled the operations and hydrologic impacts of large surface water irrigation districts. Her work with the OSE included technical support for litigation and negotiation in several water rights adjudications. She is an expert in the hydrology and water management of the Rio Grande and Pecos stream systems. Since her retirement from the state in 2017, she has worked for New Mexico as a technical expert and expert witness in the *Texas v. New Mexico* litigation. She worked closely with the litigation team and wrote several technical reports describing, analyzing, and critiquing the distribution of water by the Rio Grande Project. She was part of the team that represented New Mexico in settlement talks. Dr. Barroll received her BA in physics from Swarthmore College and advanced degrees in geoscience from New Mexico Tech. She has lived in New Mexico for over 40 years and resides in Santa Fe. In 2020, she received the New Mexico Earth Science Achievement Award.

JASON CASUGA

Chief Engineer/CEO, Middle Rio Grande Conservancy District

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Jason Casuga is the chief engineer/CEO for the Middle Rio Grande Conservancy District, located in Albuquerque. As a professional engineer with over 17 years of experience in water resources spanning both the private and public sectors, Jason has spent the last 13 years working within the Middle Rio Grande Valley. He was previously MRGCD's chief operations officer, responsible for the agency's technical services and field maintenance divisions. Before joining MRGCD in June 2016, Jason was a river maintenance engineer and project manager at the Bureau of Reclamation. In that role, he was responsible for managing river maintenance and habitat restoration projects along the Rio Grande from Velarde, New Mexico, to Elephant Butte Reservoir. Jason was raised in Dexter, New Mexico, and has an undergraduate degree in civil engineering from New Mexico State University.

NAT CHAKERES

General Counsel, New Mexico Office of the State Engineer

Nathaniel.Chakeres@ose.nm.gov

Nat Chakeres is the general counsel to the state engineer. He has worked for the Office of the State Engineer/Interstate Stream Commission since 2018. He received his bachelor's degree from Harvard University and his law degree from the University of New Mexico School of Law. After law school, he clerked for the Tenth Circuit Court of Appeals, and then became an honors attorney in the Environmental Enforcement Section of the U.S. Department of Justice. At DOJ, he was one of the core trial attorneys in the Clean Water Act enforcement case stemming from the Deepwater Horizon oil spill, which ultimately resulted in the largest environmental settlement in U.S. history. He currently oversees all stream system adjudications, general litigation, and rulemaking for OSE.

CARL CLARK

Assistant Director, Las Cruces Utilities Department

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Carl Clark has been a licensed professional engineer in New Mexico since 2004. He is a lifelong resident of Las Cruces and a graduate of New Mexico State University. Starting in 2014, Mr. Clark was the deputy director of the Utilities Support and Project Management Section and the Regulatory Compliance Section of the Las Cruces Utilities Department. Mr. Clark was recently promoted to assistant utilities director, where he now oversees water, wastewater, and gas utilities staff along with environmental and technical support staff. Mr. Clark is directly in charge of all capital improvement plans and projects for the Las Cruces Utilities Department, where he has worked to help complete projects such as the advanced metering infrastructure project, the city's first cogeneration project at the Jacob A. Hands Wastewater Treatment Facility, and the Jorge A. Garcia Water Quality Laboratory, and has worked on a variety of projects in natural gas, water, wastewater, and solid waste. He has been with the City of Las Cruces for over 20 years, and has also worked for top engineering firms such as Bohannan Huston Inc. and the Benham Group.

RACHEL CONN

Deputy Director, Amigos Bravos

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Rachel Conn is the deputy director for Amigos Bravos, a conservation organization dedicated to protecting and restoring the waters of New Mexico. Rachel works to provide hands-on support to New Mexico communities and watershed groups and advocates for state and federal water quality policy reform. Rachel leads ongoing campaigns to protect New Mexico's waters from degradation through Outstanding Waters designations, restore and protect Wetland Jewels, protect New Mexico's waters from degradation caused by mining, and advocate for strong water quality protections throughout the state.

GREG DAVIET

Board President, Elephant Butte Irrigation District

greg@dixieranch.com

Greg Daviet came to Las Cruces in 1994 to run his family's pecan farm and has been in production agriculture ever since. He earned a degree in agricultural economics in 1996 from New Mexico State University. Greg has been an active leader in the ag community, volunteering in many positions and on many boards over the years. He is currently the president of the Elephant Butte Irrigation District, and has served as a board member for local, state, and national agricultural organizations as well as on the Doña Ana County Planning and Zoning Commission. Greg has been a longtime believer that if farmers can get the water right, the rest becomes much easier. In keeping with that, he has devoted significant personal time and energy to this topic, including developing his own software program to schedule his pecan irrigations. He strives to continue to learn more every day.

JOHN DOUGLAS

Avian Ecologist and Elephant Butte Irrigation District Consultant

jlddouglas@zianet.com

For over 35 years, I've been involved in bird survey work of various types, including long-term surveys along the Florida coast of herons, egrets, and other species that utilize those habitats, as well as inland surveys of birds. The coastal bird counts included high numbers of birds (12,000 or more). Since moving to New Mexico 20 years ago, I've performed a number of projects, including surveys at Mesilla Valley Bosque State Park and the Broad Canyon area (involving New Mexico State Parks, federal, and private lands). In Florida and New Mexico, I've participated in and also compiled National Audubon Society Christmas Bird Counts from 1987 to the present. I'm a member and former director of the Florida Ornithological Society and Mesilla Valley Audubon Society. From 2011 to the present, I have been a consultant to the Elephant Butte Irrigation District on wetland projects and other issues as requested by staff.

DAVID DUBOIS

State Climatologist, New Mexico State University

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As the state climatologist, Dr. David DuBois assesses the effects of climate on the natural environment, agricultural production, land and natural resources, and human health in New Mexico. A significant part of his duties includes providing climatological data services and assessments. He also provides climate information and education to the public through speaking engagements, school demonstrations, and tours. Dr. DuBois also manages the New Mexico Climate Center, which maintains archives of meteorological data collected throughout New Mexico from many public and private networks. The center operates a network of automated surface weather stations throughout the state, with most of these located at NMSU Agricultural Science Centers.

NELIA DUNBAR

State Geologist and Director, New Mexico Bureau of Geology and Mineral Resources

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With a background in geochemistry, Dr. Nelia Dunbar is the director of the New Mexico Bureau of Geology and Mineral Resources and state geologist for New Mexico. She completed a BA (summa cum laude) in geology at Mount Holyoke College and then went on to a PhD in geochemistry at New Mexico Tech. She is a Geological Society of America fellow, received the New Mexico Tech Distinguished Research Award in 2021, and is a Phi Beta Kappa and Sigma Xi member. Dunbar has worked for the Bureau of Geology since 1992. Her professional interests include research on various topics broadly focused on volcanic and igneous processes in New Mexico and elsewhere. These include studies of volcanic eruption processes, geochemical evolution of magmas, chronology and chemistry of volcanic ashes, fluid migration within magmas, and geochemical alteration caused by fluids interacting with volcanic rocks. Dunbar has spent 23 field seasons in Antarctica, working on National Science Foundation-funded projects related to Antarctic volcanism and interactions between volcanism, ice, and climate. This interest in climate provided a useful background for Dunbar's role as the convening author of a 2022 report on the impact of climate change on New Mexico's water resources.

ANDREW ERDMANN

Water Planning Program Manager, New Mexico Interstate Stream Commission

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Andrew Erdmann is the manager of the State Water Planning Program at the New Mexico Interstate Stream Commission. The responsibilities for the State Water Planning Program include the 50-Year Water Plan, the State Water Plan, and regional water plans. Andrew has over 15 years of experience working with water management in New Mexico, including work for the U.S. Forest Service, the Office of the State Engineer, the City of Santa Fe, and now the Interstate Stream Commission.

GARY ESSLINGER

Treasurer/Manager, Elephant Butte Irrigation District
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Gary L. Esslinger has been the treasurer/manager of the Elephant Butte Irrigation District since 1987. Gary is a third-generation member of a pioneer farming family living in the Mesilla Valley. His grandfather, J.L. Esslinger, Sr., settled in La Mesa in 1913 prior to the completion of the Elephant Butte Dam. Gary's father, J.L. Esslinger, Jr., also farmed for over 50 years. Gary kept his roots in farming as well as other agricultural industries and lives on the family farm with his wife, Tina. They have three daughters and one adopted son. Gary earned a bachelor's degree in business administration from Northern Arizona University in 1973. He returned to the Mesilla Valley and began working for EBID in 1978, where he has continued his career for more than 40 years. Gary was also appointed to the Doña Ana County Flood Commission as flood commissioner, a position he held from 2002 until 2006. He is a member of the advisory board of the Family Farm Alliance and is a board member of the National Water Resources Association representing the state of New Mexico.

MICHELLE ESTRADA-LOPEZ

Special Projects Officer, Albuquerque Area Office, Bureau of Reclamation
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Michelle Estrada-Lopez is the special projects officer for the Bureau of Reclamation's Albuquerque Area Office. Her role is to lead high-profile, complex assignments, such as the *Texas v. New Mexico* U.S. Supreme Court lawsuit, and to provide program oversight for Bipartisan Infrastructure Law and Inflation Reduction Act projects in the lower Rio Grande. Michelle was called as the first witness for the United States for *Texas v. New Mexico*, and presented direct testimony on the Rio Grande Project and Reclamation's role in the project's water allocation, operations, and accounting. She assisted with settlement discussions throughout the course of the litigation, including serving alongside engineers, hydrologists, and water administrators on the technical committee created by the mediator. Prior to her current position, she was a civil engineer for Reclamation for 14 years, with most of her time focused on water operations and project management. Michelle has served as the Reclamation representative on the Rio Grande Project Operating Agreement Committee since 2014, made operation decisions on storage and releases, accounted for water delivery and movement of both native and imported water, developed the San Juan-Chama water routing loss rates from Cochiti Dam to Elephant Butte that were adopted by the Rio Grande Compact Commission for Compact accounting, and led the development of the annual reporting and water accounting data submitted to the Compact Commission for Reclamation. Michelle grew up in Las Cruces and then headed to New Mexico State University, earning a BS and MS in civil engineering with a concentration in water resources.

JENNIFER FALER

Albuquerque Area Office Manager, Bureau of Reclamation

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Jennifer Faler has more than 30 years of experience working on water resource and environmental issues in both the federal government and private sector. After completing her master's degree in civil and environmental engineering at the University of California–Davis, Jennifer worked for the U.S. Army Corps of Engineers as an environmental engineer and project manager, the U.S. Department of Agriculture's Rural Development Program as a state engineer and environmental and GIS coordinator, the Natural Resources Conservation Service as a wetland team engineer, and as the president of Integrated Technical Services Corp. At the Bureau of Reclamation, she served as the implementation branch chief and acting executive director for the Trinity River Restoration Program before coming to the Albuquerque Area Office in 2011 to serve as the deputy area manager and area manager. Jennifer is a registered professional engineer in California.

EMILY GEERY

Water Planning Consultant to the New Mexico Bureau of Geology and Mineral Resources, Water + Planning

emilygeery@waterandplanning.org

Emily Geery is a water planning consultant with a versatile background in water resources, community and regional planning, and communications. Prior to consulting, she worked in a range of roles for the New Mexico Interstate Stream Commission, Office of the State Engineer, and Environment Department for eight years. She has contributed to numerous water projects, from regional water plans to state water plans, the Water Data Initiative, source water protection plans, and water conservation plans. Holding two master's degrees in water resources and community and regional planning from the University of New Mexico, she combines her academic knowledge with practical experience to design events and educational opportunities dedicated to the discourse of present and future water challenges and solutions. Beyond her professional pursuits, her personal passion for rafting reflects her genuine enthusiasm for rivers and adventures.

MIKE HAMMAN

State Engineer, New Mexico Office of the State Engineer
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Mike Hamman served as the governor's state water advisor prior to being appointed as the state engineer. Hamman served as the chief engineer and chief executive officer for the Middle Rio Grande Conservancy District, overseeing river flood control, drainage, and irrigation, including managing 30,000 acres of bosque lands and coordinating with multiple jurisdictions at the local, state, and tribal levels to deliver water to 60,000 acres of irrigated farmlands. Prior to that, he worked for 17 years at the Bureau of Reclamation, ending his tenure there managing multiple federal water projects from the San Luis Valley in Colorado to Fort Quitman in Texas. He also worked for the New Mexico Interstate Stream Commission, the City of Santa Fe, and the Jicarilla Apache Nation, where he was instrumental in the development of the Nation's $45 million water and wastewater treatment and delivery systems project. Hamman has served on the Interstate Stream Commission since 2019. He was raised in Taos, New Mexico, and is a registered professional engineer with a civil engineering degree from the University of New Mexico.

RICHARD HEEREMA

Extension Pecan and Pistachio Specialist, New Mexico State University
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Richard Heerema received his PhD in plant biology (pomology) from the University of California–Davis in 2005. For the past 18 years, he has served as the extension pecan and pistachio specialist at New Mexico State University. His research focuses on tree nut production issues such as alternate bearing, fertilizer usage, irrigation efficiency, and rootstock performance. Dr. Heerema's extension responsibilities include relaying research to tree nut producers and directly assisting orchardists with production problems through such outlets as articles in trade publications, a pecan production short course, the Western Pecan Growers Association conference, and a webinar series.

SHARI KELLEY

Senior Geophysicist and Field Geologist, New Mexico Bureau of Geology and Mineral Resources
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Shari Kelley works as a geophysicist and field geologist at the New Mexico Bureau of Geology and Mineral Resources, a research division of the New Mexico Institute of Mining and Technology in Socorro. She is responsible for the geothermal program at the bureau. In recent years, she has evaluated the geothermal potential of the Raton Basin, the Acoma Basin, southwestern New Mexico, and the San Juan Basin. She serves as faculty for the Summer of Applied Geophysical Experience (SAGE) field program, teaching undergraduate and graduate students about geothermal exploration methods. She has also made geologic maps of the Jemez Mountains volcanic field, Mt. Taylor, the northeastern Tularosa Basin, and, most recently, the southern Jornada del Muerto near Las Cruces.

DANIEL J. KONING

Senior Field Geologist, New Mexico Bureau of Geology and Mineral Resources
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Daniel J. Koning is a senior field geologist with the New Mexico Bureau of Geology and Mineral Resources. He earned a bachelor's degree from the University of California–Riverside before joining a firm called EMCON, where he worked in a group that specialized in environmental geology at solid waste facilities in California. Mr. Koning then earned a master's degree from the University of New Mexico, completing a thesis titled "Segmentation and paleoseismicity of the southern Alamogordo fault, N.M." His career since has largely focused on mapping the stratigraphy and structures of the Santa Fe Group in New Mexico, but he also has experience mapping middle Cenozoic volcanic rocks and Cretaceous strata. He has been a lead author of 36 geologic maps (1:24,000 and 1:12,000 scale) and has participated in hydrogeologic studies of aquifers in the Plains of San Agustin and the Albuquerque, Española, and Tularosa basins. Mr. Koning has studied and mapped the geology in the larger Truth or Consequences (TorC) area and written two papers that used outcrops near the city to interpret the evolution of the ancient Rio Grande. He is also preparing a paper on how fault systems have evolved in the TorC area over the past several million years.

CHELSEA EASTMAN LANGER

Advanced Epidemiologist, New Mexico Department of Health
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Chelsea Eastman Langer is an epidemiologist with the New Mexico Environmental Public Health Tracking Program in the Department of Health. She is an active member of the New Mexico Climate Health and Adaptation Work Group as well as the City of Albuquerque's Urban Heat Cohort. Her publications include research on the respiratory health of dairy workers, heat-related illness in agricultural workers, and potential associations between brain tumor risk and electromagnetic fields. She earned her MPH and PhD in environmental epidemiology from the University of California–Davis.

KATE LEARY

Water Education Program Manager, New Mexico Bureau of Geology and Mineral Resources
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Dr. Kate Leary is the Water Education Program manager at the New Mexico Bureau of Geology and Mineral Resources. Kate has a BA in geology and religion from Whitman College and a PhD in geology from Arizona State University. Before joining NMBGMR, Kate was an assistant professor of hydrology at the New Mexico Institute of Mining and Technology. Kate's passion is rivers—both the processes of how rivers evolve through time as well as how society interacts with and utilizes river systems. As an assistant professor, Kate studied the nitty gritty details of sediment transport in sand-bedded river systems such as the Rio Grande. As Water Education Program manager, Kate is dedicated to building educational experiences for New Mexico water policy and decision makers to explore, digest, and discuss present and future water challenges facing our state.

SHELLY LEMON

Surface Water Quality Bureau Chief, New Mexico Environment Department

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Shelly Lemon has worked for the Surface Water Quality Bureau of the New Mexico Environment Department for over 19 years. The mission of the SWQB is to preserve, protect, and improve New Mexico's surface water quality for present and future generations. As bureau chief, Ms. Lemon currently manages and oversees three technical teams that fulfill the state's responsibilities under both the federal Clean Water Act and state Water Quality Act, such as developing and revising water quality standards, collecting and assessing water quality data, managing and reducing nonpoint source pollution, protecting and restoring wetlands, and implementing surface water protection regulations related to point source discharges. Ms. Lemon also represents EPA Region 6 states (AR, LA, NM, OK, TX) as a board member for the Association of Clean Water Administrators. Prior to joining NMED, Ms. Lemon was a science teacher, outdoor educator, and dive master. She earned a bachelor's degree in biology and a master's degree in hydrology from the University of Arizona.

JOHN W. LONGWORTH

Senior Advisor to the NM State Engineer and NM Interstate Stream Commission Director

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John Longworth currently serves as the senior advisor to the state engineer and Interstate Stream Commission director. Before that, he was appointed as the director of the Interstate Stream Commission from 2017 through 2019 and was the deputy state engineer. Mr. Longworth is a registered professional engineer in New Mexico and has more than 25 years of water resource management and supervisory experience. He has held numerous positions within the New Mexico Office of the State Engineer, including director of the Water Resources Allocation Program Technical Division, chief of the Water Use and Conservation Bureau, and senior staff engineer in the Interstate Stream Commission. Mr. Longworth graduated from New Mexico State University with an MS in environmental engineering. He also holds a BS in civil engineering from the State University of New York at Buffalo.

PATRICK LOPEZ

SCADA Systems Director, Elephant Butte Irrigation District

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Patrick Lopez is the SCADA (supervisory control and data acquisition) systems director for the Elephant Butte Irrigation District in Las Cruces. He began working at EBID in 2002 as a remote telemetry unit (RTU) technician before becoming department director 10 years ago. Prior to his role as director, he was the Hydrology Department SCADA supervisor for nine years. He is a graduate of New Mexico State University, with a degree in business management, and is also a licensed radio operator and tower climber. His department manages approximately 450 RTU field sites, including diversion dams, river stations, EBID main canal diversions, lateral headings, drains, spillways, weather stations, rain gauges, flood control dams, groundwater monitoring wells, and farm irrigation pumps. He also directs and conducts all instream metering for the EBID portion of the Rio Grande Compact, oversees EBID's water quality program, and investigates all illegal dumping and hazardous spills into EBID facilities.

ALEX MARES

Interpreter, Mesilla Valley Bosque State Park, New Mexico State Parks

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Alex Mares served as lead ranger for the world-renowned Sacred Site in Texas known as Hueco Tanks for nearly 15 years and continues to serve there as a certified volunteer interpretive guide. He served as Native American liaison for the New Mexico Wilderness Alliance for two years in a successful effort to establish the Organ Mountains-Desert Peaks National Monument in southern New Mexico. Alex recently completed 20 years of service with New Mexico State Parks, where he has worked as both a park ranger law enforcement and interpreter at four different state parks. He has previously held both certified interpretive guide and certified interpretive trainer certifications through the National Association for Interpretation. On occasion, he presents traditional Diné Winter/Coyote storytelling in collaboration with western astronomy academics. Currently, Alex serves as a park ranger interpreter at Mesilla Valley Bosque State Park.

KAREN NICHOLS

Projects Manager, Lower Rio Grande Public Water Works Authority

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Karen Nichols grew up in Tulsa, Oklahoma, and attended North Texas State University and New Mexico State University, becoming a New Mexico resident in 1975. She joined the board of the Desert Sands Mutual Domestic Water Consumers Association in 1978 while the water system was still under construction, and was an employee from 1980 until Desert Sands merged with four other water associations to form the Lower Rio Grande Public Water Works Authority in southern Doña Ana County in 2010. She was part of the team that put together the regionalization effort that resulted in the formation of LRGPWWA and worked to get the state legislation passed that established it. As projects manager for the LRGPWWA, she supervises a staff of two project specialists and is responsible for water and wastewater infrastructure projects as well as board meeting support and other projects. Governor Lujan Grisham appointed her as a public member to the New Mexico Board of Licensure for Professional Engineers and Professional Surveyors in August 2021, and she serves on its Professional Engineering Committee, currently as chair.

ADRIAN OGLESBY

Director, Utton Transboundary Resources Center

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Adrian Oglesby is the director of the Utton Transboundary Resources Center at the University of New Mexico. He is a graduate of the UNM School of Law and has practiced water law since 2000. Adrian's legal career has been focused on river and riparian restoration, agricultural preservation, efficient water management, government accountability, and fish and wildlife conservation. He has advised irrigation districts, acequias, Pueblo and tribal governments, farmers, environmental organizations, and local water providers. He is a past vice chair of the Middle Rio Grande Conservancy District and past chair of the Bosque Ecosystem Monitoring Program. He currently serves on the board of Rio Grande Return and is a commissioner on the Acequia del Llano.

MATTHEW PEDROZA

Engineering Technician, Elephant Butte Field Division, Bureau of Reclamation

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Matthew Pedroza is the Bureau of Reclamation's civil engineering technician-hydrology for the Elephant Butte Field Division. Over the past three years in this role, Matthew has implemented various enhancements to the monitoring capacities and data analysis of the Lower Rio Grande Rehabilitation Project. Prior to his role with Reclamation, Matthew spent nearly a decade with the U.S. Geological Survey, working primarily in arid hydrology of New Mexico and Texas. Additional work specialties have included hydroacoustics, geomorphic and bathymetric surveys, and the Mesilla groundwater monitoring program. Matthew has also provided training instruction for USGS workshops, courses, and local support.

PAGE PEGRAM

Rio Grande Basin Bureau Chief, New Mexico Interstate Stream Commission
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Page Pegram is a hydrogeologist with 25 years of experience in groundwater and surface water management in both the private sector and state government. She is currently chief of the Rio Grande Basin Bureau for the New Mexico Interstate Stream Commission, and coordinates all aspects of Rio Grande Compact and Endangered Species Act compliance in the Rio Grande basin for the state of New Mexico. She is also New Mexico's engineer advisor for the Rio Grande Compact. She has a BS in geology from Brown University and an MS in hydrology from New Mexico Tech.

ANA PINHEIRO PRIVETTE

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Dr. Ana Pinheiro Privette is currently a consultant with Pinheiro Privette LLC. Most recently, she worked at Amazon as the global lead for the Amazon Sustainability Data Initiative, a tech-for-good program enabling global innovation for sustainability through open data and cloud computing. Ana was trained as an engineer and scientist at the New University of Lisbon (Portugal) and at MIT, and she spent half of her career as a research scientist at NASA and NOAA. Later, Ana worked on the U.S. National Climate Assessment and led projects for the White House climate portfolio, including President Obama's Climate Data Initiative.

JOHN RHODERICK

Director, Water Protection Division, New Mexico Environment Department
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John Rhoderick is the director of the Water Protection Division of the New Mexico Environment Department. The division portfolio includes the Construction Programs Bureau, Drinking Water Bureau, Surface Water Quality Bureau, and Ground Water Quality Bureau, which houses the Superfund Oversight Section, Mining and Environmental Compliance Section, Pollution Prevention Section, and Brownfields Program Section. John has been with NMED for 16 years, and previously served as a district manager in the Environmental Health Bureau. He worked in local government before joining NMED, overseeing public works maintenance, operations, and construction. Before entering public service, he worked in environmental remediation of numerous listed CERCLA sites around the U.S. as a health and safety professional and project manager.

HANNAH RISELEY-WHITE

Director, New Mexico Interstate Stream Commission

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Hannah Riseley-White was recently appointed director of the New Mexico Interstate Stream Commission after previously serving as NMISC deputy director and chief of NMISC's Pecos River Bureau. The NMISC works to support New Mexico in complying with eight interstate compacts as well as federal environmental regulations, including the Endangered Species Act. In addition, NMISC conducts statewide and regional water planning. Hannah holds a master's in environmental science and management from the University of California–Santa Barbara. She is a native New Mexican and enjoys spending time with family and exploring our beautiful outdoor landscapes.

ANDREW ROBERTSON

Hydrologist, U.S. Geological Survey

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Andrew Robertson is a hydrologist and unit chief for the Hydrologic Assessment and Modeling program area at the New Mexico Water Science Center. Andrew received an MS degree in water resources from the University of New Mexico. Since joining the USGS in 2008, Andrew's work has been focused on using geochemical and isotopic tracers to answer questions relating to groundwater hydrology and groundwater/surface water interactions.

ROSARIO SANCHEZ

Senior Research Scientist, Texas Water Resources Institute, and Associate Graduate Faculty, Water Management and Hydrological Science Program, Texas A&M University
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Dr. Rosario Sanchez is a senior research scientist at the Texas Water Resources Institute and associate graduate faculty of the Water Management and Hydrological Science Program at Texas A&M University. She is co-chair of the Transboundary Aquifers Commission of the International Association of Hydrogeologists and the founder and director of the Permanent Forum of Binational Waters. She is the principal investigator of the Transboundary Aquifer Assessment Program (TAAP) for the state of Texas, founder of the Transboundary Water Portal, and leader of the transboundary groundwater research team. She published the first complete map of transboundary aquifers between Mexico and the United States in 2021 and coined the term "transboundariness," which defines the strategic value of an aquifer that happens to be located at the border between two or more countries. She has 25 years of academic and work experience on transboundary issues between Mexico and the United States, both in academia and the public sector. She is associate editor of the *Journal of the American Water Resources Association* and the *Texas Water Journal*. She serves on international panels and committees at UNESCO, the International Groundwater Resources Assessment Center, and the International Water Resources Association. She has a bachelor's degree in international relations from Monterrey Tech, a master's degree in diplomacy from the Institute of Diplomatic Studies Matías Romero (Foreign Service Academy), and a PhD in water management and hydrological science from Texas A&M University. She is passionate about science and policy, science diplomacy, water as a tool for peace and cooperation, international water law, and negotiation skills over shared waters.

RYAN SERRANO

Lower Rio Grande Program Manager, New Mexico Interstate Stream Commission
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Ryan Serrano is the lower Rio Grande program manager for the New Mexico Interstate Stream Commission in Las Cruces. Previously, he was the lower Rio Grande water master for the New Mexico Office of the State Engineer in the District IV office in Las Cruces. He has worked for OSE for over 16 years. He graduated from New Mexico State University with a BS in geography with a minor in geographic information systems. In his professional career, he has represented the state as a witness in the U.S. Supreme Court case *Texas v. New Mexico and Colorado*. He has participated in complex settlement negotiations with water users, enforced OSE rules and regulations, and worked closely with local stakeholders to gain voluntary compliance on several issues, including apportionment, distribution, metering and measurement, overuse, illegal use, waste of water, and repayment. He has also worked closely with NMISC on several projects, including the recent development and implementation of a groundwater conservation program in the lower Rio Grande that awards grants to compensate irrigators for temporarily conserving groundwater by not irrigating with groundwater for a designated time period.

MANOJ SHUKLA

Professor, Department of Plant and Environmental Sciences, New Mexico State University
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Dr. Manoj Shukla serves as the faculty fellow for the International Program of New Mexico State University. He is also a Nakayama Research Excellence Professor of Soil Physics and director of the Global Initiatives Program and Aggies Go Global for NMSU's College of Agricultural, Consumer, and Environmental Sciences. Dr. Shukla has served as an executive board member for the International Arid Lands Consortium and on the U.S.-Mexico Border Health Commission as an expert panel member. Dr. Shukla is a fellow of the Soil Science Society of America, having authored four books and co-authored 165 refereed journal articles. He has garnered more than $20 million in external grants. His current research focus is on developing novel methods to increase water use efficiencies; managing soil health in uncultivated lands; modeling the impact of abiotic stresses caused by brackish groundwater irrigation across soil, plants, and atmosphere continuum; and modeling surface and groundwater interactions.

STACY TIMMONS

Associate Director of Hydrogeology Programs, New Mexico Bureau of Geology and Mineral Resources
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Stacy Timmons is an associate director of hydrogeology programs at the state geological survey—the New Mexico Bureau of Geology and Mineral Resources in Socorro. As a hydrogeologist working with the Bureau of Geology since 2004, Stacy's experience has grown from collecting water data and reporting on a wide range of hydrogeologic research to working toward building programs and applied science projects to respond to the state's greatest hydrogeologic science needs. Building from the bureau's Aquifer Mapping and Monitoring Program, Stacy launched the implementation of the Water Data Initiative in 2019 and the Water Leaders Education Program in 2022. Additionally, since 2019, Stacy's service to the state of New Mexico has broadened to include appointments as a commissioner on the Interstate Stream Commission (2020–present) and the Water Quality Control Commission (2019–2022).

TANYA TRUJILLO

Special Advisor to the Governor and Deputy State Engineer
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Tanya Trujillo is a water lawyer with more than 20 years of experience working on complex natural resources management issues and interstate and transboundary water agreements. She currently serves as a special advisor to the governor and deputy state engineer. Before that, Tanya served as the assistant secretary for water and science at the U.S. Department of the Interior, a project director with the Colorado River Sustainability Campaign, and the executive director of the Colorado River Board of California. She has served as senior counsel to the U.S. Senate Committee on Energy and Natural Resources and as counselor to the assistant secretary for water and science at Interior. A native New Mexican, Tanya attended Stanford University and the University of Iowa College of Law.

HUI YANG

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Dr. Hui Yang is a postdoc in the Department of Plant and Environmental Sciences at New Mexico State University, where she is currently working on the uncultivated agricultural land project with Dr. Manoj Shukla. She earned her PhD from China Agricultural University in 2020. Her research area includes physiologic mechanisms of plant tolerance to water deficit and salt stress, fruit quality improvements for greenhouse tomato under controlled irrigation management, and soil organic carbon sequestration potential under conservation agriculture. Dr. Yang has authored six and co-authored nine journal articles. She also serves as a reviewer for journals such as *Irrigation Science*, *HortScience*, *Agriculture*, *Land*, and *Sustainability*.

KATIE ZEMLICK

Hydrology Bureau Chief, New Mexico Office of the State Engineer
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Dr. Katie Zemlick is the Hydrology Bureau chief for the New Mexico Office of the State Engineer. Bureau hydrologists develop and utilize groundwater models and other technical analyses in support of water rights administration, settlements, and adjudications. With more than 100 years of collective experience, the Hydrology Bureau employs their expertise and the best available science and technology to better understand New Mexico's water resources, now and into the future. Dr. Zemlick holds a BA in environmental studies from Prescott College, and a master's degree in water resources and a PhD in civil engineering, both from the University of New Mexico. Her research used computational modeling, spatial analysis, and big data to understand interdependencies between water and a variety of energy sources and applications, including oil and gas development, uranium mining, and electricity transmission planning. Prior to joining the Hydrology Bureau, she worked as an environmental scientist at Sandia National Laboratories, a research assistant in civil engineering and economics at the University of New Mexico, and a postdoctoral scholar with the National Science Foundation.

WATER LEADERS WORKSHOP

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