



**GETCHES-WILKINSON CENTER**

for Natural Resources, Energy, and  
the Environment at Colorado Law

## 40<sup>th</sup> Annual GWC Summer Conference



*Gates of Lodore*

### ***Charting a Better Course for the Colorado River: Identifying the Data and Concepts to Shape the Interim Guidelines Renegotiation***

**Thursday, June 6<sup>th</sup> and Friday, June 7<sup>th</sup>, 2019**  
**Wolf Law Building, Wittemyer Courtroom**  
**University of Colorado School of Law**



**COLORADO LAW**  
UNIVERSITY OF COLORADO BOULDER

# Conference Sponsors

---



Center for **Climate  
Adaptation Science  
and Solutions**



**ROCKY MOUNTAIN**  
MINERAL LAW FOUNDATION



Southern Nevada  
Water Authority

WALTON FAMILY  
FOUNDATION



# **40th Annual Summer Conference at Colorado Law**

Founded in 1983 as the Natural Resources Law Center (NRLC) and now known as the Getches-Wilkinson Center for Natural Resources, Energy and the Environment, the Center is the oldest and preeminent law school institute in the country dedicated to natural resources law. The Getches-Wilkinson Center has expanded upon the legacy of the NRLC with a broader agenda and aspirations for deeper influence in law, policy and practice.

This year marks the 40<sup>th</sup> annual summer conference at Colorado Law. Over its rich history, the summer conference has addressed many different natural resource issues. In more recent years, the Center's summer conference has largely focused on water law and policy.

The Getches-Wilkinson Center is proud to convene thought leaders and practitioners to address the most pressing issues of the day—and want to thank our sponsors whose generous support allows us to ensure our events are accessible to all.

## **Conference Introduction**

On June 6-7, 1869, John Wesley Powell's expedition down the Colorado was prepping for passage through the Canyon of Lodore, an arduous journey that ultimately cost the expedition a ship and a third of the expedition's provisions. Please join us exactly 150 years later to gear up for a journey through Colorado River rapids of a different kind: How best to navigate through the upcoming negotiation of the new Interim Guidelines. The existing Interim Guidelines (IG)—which expire after 2026—have been instrumental in slowing reservoir declines, delaying curtailments, and establishing a collaborative environment for subsequent innovations, but truly sustainable water management is still an unrealized goal. With the help of emerging drought contingency plan (DCP) programs, is the new negotiation (IG 2.0) the last best opportunity to craft a lasting solution to the river's broken water budget? If so, what data, concepts, frameworks, and principles are key to success?



# Thursday, June 6<sup>th</sup>

**8:00-8:15**

## **Welcome and Introduction**

Doug Kenney, Getches-Wilkinson Center

**8:15-9:30**

## **Session One: The Pre-Amble to IG 2.0**

The Interim Guidelines introduced major changes in river management, and established an operational framework and collaborative environment supporting additional reforms, including the recent DCPs (Drought Contingency Plans). How does this background inform and influence the path forward to new rules?

### ***How the 2007 Deal Came Together***

Pat Mulroy, Senior Fellow for Climate Adaptation and Environmental Policy  
University of Nevada Las Vegas

Against the backdrop of sharply declining reservoirs and simmering disputes about allocations, priorities, and past injustices, how did “the network” come together to hammer out the 2007 Interim Guidelines?

### ***The Next Step Forward***

Terry Fulp, Regional Director Lower Colorado River Office, Bureau of Reclamation

Building on the IG agreement, the key parties got together a decade later to draft the DCPs. From a basin-wide perspective, how big a step forward are the DCPs? What challenges await in the IG 2.0 negotiations? What will be the federal role in that process?

**9:30-10:00**

## **Morning Networking Break (Refreshments provided in Boettcher Hall)**



**10:00-12:00**

**Session Two: The Storm Before the Storm: DCPs, Looming Curtailments, and the 2019 to 2026 On-Ramp**

Establishing new Guidelines to manage the river post-2026 is a formidable challenge that will be shaped largely by how well the DCPs can, or cannot, provide the time, regional cohesion, and perhaps, a partial roadmap, for moving forward. What challenges await?

***What Does the Road Forward Look Like in Arizona?***

Tom Buschatzke, Director, Arizona Department of Water Resources

Nowhere was the DCP road more turbulent, and the upcoming implementation more salient, than in Arizona. What should we expect in the near-term, and how will it shape Arizona's thinking as IG 2.0 negotiations commence?

***A New Partner in DCP Implementation: CRIT***

Margaret Vick, Special Counsel for Water Resources, Colorado River Indian Tribes

Unlike almost all previous deals in the basin, the Lower Basin DCPs are highly reliant on tribal participation. One critical partner is the Colorado River Indian Tribes (CRIT). How did this arrangement evolve? Is this a stepping stone to further collaborations?

***California's Moment in the Spotlight***

Chris Harris, Executive Director, Colorado River Board of California

For the first time, the DCPs provide a commitment (and schedule) for California to share the pain of curtailments, while further delaying progress on the Salton Sea issues that threaten to undermine the cooperative agreements between rural and municipal sectors. Is this California's biggest Colorado River challenge since the QSA? Is California ready?

**Prospects and Options for Building a Real Demand Management Program in the Upper Basin.**

Amy Haas, Executive Director, Upper Colorado River Commission

While the DCP process in the Upper Basin lacked the drama of the Lower Basin effort, much of Upper Basin's "heavy lifting" remains, especially the development of the demand management programs. What are the main challenges moving forward with UB DCP?

**12:00-1:00 Lunch**

**(Lunch provided in Schaden Commons, 2<sup>nd</sup> floor-West End)**

### **Session Three: Hydroclimatic Variability: Getting the Assumptions Right**

Whatever the format of IG 2.0, how well it works will have a lot to do with what future hydrologic conditions look like. Historically in this basin, we've gotten into trouble basing management on poor hydrologic assumptions. How can we avoid repeating that mistake?

**1:00-2:30**

#### ***The History of Getting it Wrong***

Many of the current problems in the Colorado River Basin can be traced to a long history of decisions based on poor assumptions.

#### ***Part A. Allocation: Reviewing the "Mistake" in the Colorado River Compact***

John Fleck, Director of the Water Resources Program, University of New Mexico

Drawing on new historical research, this presentation focuses on how politically favorable hydrology was used for the compact allocations. How/why was this done?

#### ***Part B. Development: The Systematic Construction of the Structural Deficit***

John Berggren, Water Policy Analyst, Western Resource Advocates

Questionable assumptions mixed with science and politics throughout the basin's water development era, resulting in the "structural deficit" problem. How does this legacy shape current opportunities and constraints?

#### ***Part C. Management When Hydrology and Management Collide***

Brad Udall, Senior Water and Climate Research Scientist, Colorado State University

Beginning with the precipitous (and unexpected) drop in storage from 2000 to 2004, this century has provided a series of (often cryptic) lessons of how rules, reservoirs and climate intertwine in the basin. What have we learned?

**2:30-3:00 Afternoon Networking Break  
(Refreshments provided in Boettcher Hall)**

## **Session Three continued**

**3:00-5:00**

### ***Looking Forward (and the Necessity of Getting it Right)***

Any room in the water budget for poor assumptions and flawed decisions is now gone. How can we do better in the future where stationarity is dead?

### ***The Emerging Focus on “Stress Testing”***

Jim Prairie, Upper Colorado Region, Bureau of Reclamation

Reclamation and others (including the Colorado River District) are now modeling system performance using just the recent (1988 to present) hydrology. What is being learned, and how can (and should) it influence decision-making?

### ***The “Full Suite” of Assumptions***

Jonathan Overpeck, Dean, School for Environment and Sustainability  
University of Michigan

From megadroughts to megafloods, science increasingly challenges (and warns) us to think about the unthinkable. Are we prepared to do that?

### ***This is What We Should Do: A Panel Discussion***

Panelists:

Peter Culp, Partner, Culp and Kelly LLP

Kathy Jacobs, Director of the Center for Climate Adaptation Science and Solutions  
University of Arizona

Laurna Kaatz, Climate Scientist, Denver Water

Moderator:

Brad Udall, Colorado State University

**5:00 Conference Reception  
(Refreshments provided in Boettcher Hall)**

## Friday, June 7<sup>th</sup>

---

**8:00-10:00**

**Session Four: New Tools, New Numbers, New Bargains: The Search for Lasting Solutions**

The IG 2.0 could take a variety of forms, from merely tweaking the numbers (e.g., elevation tiers, shortage levels, etc.) in the existing reservoir operations framework to more fundamental (and controversial) changes in how water (and risk) is allocated and managed. What ideas have merit?

***The Opportunities and Challenges of Considering Alternative Management Paradigms (AMPs)***

Jack Schmidt, Professor, Utah State University

Can we achieve better outcomes for both water users and the environment by considering outside-the-box solutions?

***Fill Mead First***

Eric Balken, Executive Director, Glen Canyon Institute

If water in the basin were primarily stored in Lake Mead, with Lake Powell used mostly for back-up storage in flood years, would this provide expanded benefits to a spectrum of water interests in the basin?

***The “Upper Basin Demand Cap”: A New Interbasin Grand Bargain?***

Kevin Wheeler, Water Balance Consulting

One type of new “grand bargain” between the Upper and Lower Basins would entail limiting Upper Basin consumption to a negotiated level well below the 7.5 maf/year apportionment, in exchange for waiving a potential compact call (and resulting Upper Basin curtailment) in periods where downstream flows fail to reach the compact standard of 75maf/10-years. Is this a bargain worth considering?

**10:00-10:30**

**Morning Networking Break**

**(Refreshments provided in Boettcher Hall)**



**10:30-12:00**

**Session Four continued**

***A Role for the Tribes, Finally?***

Darryl Vigil, Jicarilla Apache and Ten Tribes Partnership

With the completion of the Tribal Study and the key role of GRIC and CRIT in the Lower Basin DCP, there finally appears to be an appetite for involving the tribes in new solution strategies. How might this expanded tribal role be achieved?

***US-Mexico Cooperation: Life after Minute 323***

Jennifer Pitt, Director of the Colorado River Program, Audubon

Minute 323 is the latest in a series of important cooperative agreements between the US and Mexico. However, like the Interim Guidelines and the DCPs, it expires at the end of 2026. Can new guidelines continue and build upon the cross-border cooperation? What features should be featured in the new rules?

***Solving the Salton Sea Problem (Finally)***

Mike Cohen, Senior Researcher, Pacific Institute

Much of the planning and decision-making regarding the Colorado River Basin has been done without fully acknowledging the hydrologic and political connections between the river and the Salton Sea. With an environmental and public health crisis looming, is now the time to integrate Salton Sea issues within the larger framework of Colorado River management?

**12:00-1:00 Lunch**

**(Lunch provided in Schaden Commons, 2<sup>nd</sup> floor-West End)**



**1:00-3:30**

**Session Five: My Vision for Sustainable Colorado River Management**

In this concluding panel, participants will be charged with: (1) reacting to ideas/thoughts presented in Session 4 (and elsewhere); (2) identifying issues and questions that require and/or merit additional study; and (3) if they choose, accept the offer to play “king/queen for a day” by listing actions they would take if they had complete decision-making power. Audience participation will be encouraged.

**Panelists:**

Anne Castle, Senior Fellow, Getches-Wilkinson Center

John Entsminger, GM, Southern Nevada Water Authority

Ted Kowalski, Senior Program Officer, Walton Family Foundation

Eric Kuhn, former General Manager, Colorado River District

Kathryn Sorensen, Director, Phoenix Water

Pat Tyrrell, Wyoming Representative, Upper Colorado River Commission

**Moderators:**

Doug Kenney, University of Colorado

John Fleck, University of New Mexico



## Speaker Biographies (Alphabetical by last name)

---



### **Eric Balken**

Eric Balken is the Executive Director of Glen Canyon Institute. He grew up in Salt Lake City, falling in love with Utah's mountains, rivers, and deserts at a young age. As a teenager, he volunteered for the Southern Utah Wilderness Alliance, gaining experience in public land surveys, cataloging records, and grassroots organizing. Eric has a degree in Environmental Studies and Geography from the University of Utah.



### **John Berggren**

John Berggren is a Water Policy Analyst for Western Resource Advocates in Boulder, Colorado. His work entails supporting water conservation and efficiency policies at the state and local levels by working with municipalities, water managers, state officials, and other stakeholders throughout the region. Shortly before joining WRA, John earned a Ph.D. from the University of Colorado – Boulder, where he focused on sustainable and equitable water management in the Colorado River Basin. His experience also includes researching municipal drivers of climate change adaptation, the co-production and usability of climate and hydrologic science, and understanding changes in wildfire mitigation and policy.



### **Tom Buschatzke**

Tom Buschatzke was appointed Director of the Arizona Department of Water Resources in January 2015. Prior to this appointment, he served as the Assistant Director of the Department's Water Planning Division, overseeing the Colorado River Management, Active Management Areas, Planning and Data Management, Assured and Adequate Water Supply and Recharge Permitting, and Statewide Planning programs and Tribal Liaison. In that role he was responsible for multiple planning and policy, regulatory and permitting programs for the management of the state's water supplies. Mr. Buschatzke serves as Arizona's principal negotiator on matters relating to the Colorado River, is the Chairman of the Arizona Water Banking Authority and Co-Chair of the Drought Inter-Agency Coordinating Council and represents the State in Indian water right negotiations. Currently, Mr. Buschatzke chairs the Governor Ducey's Water Augmentation Council which is tasked with investigating long-term water augmentation strategies and other opportunities to secure water supplies for Arizona's future. Mr. Buschatzke's career in Arizona water resources began with a 1982 Arizona Department of Water Resources internship in the Phoenix Active Management Area and he ultimately became a Program Manager in the Adjudications Division. He holds a Bachelor of Science in Geology from the State University of New York at Cortland.



### **Anne Castle**

Anne Castle is a senior fellow at the Getches-Wilkinson Center for Natural Resources, Energy, and the Environment at the University of Colorado, focusing on western water policy issues. From 2009 to 2014, she was Assistant Secretary for Water and Science at the U.S. Department of the Interior where she oversaw water and science policy for the Department and had responsibility for the U.S. Bureau of Reclamation and the U.S. Geological Survey. While at Interior, Castle spearheaded the Department's WaterSMART program, which provides federal leadership on the path toward sustainable water supplies, and was the driving force behind the 2010 federal MOU addressing sustainable hydropower. Castle also provided hands-on leadership on Colorado River issues and was the Chair of the Glen Canyon Dam Adaptive Management Work Group and a champion of Minute 319 between the US and Mexico. Castle is a recovering lawyer, having practiced water law for 28 years with the Rocky Mountain law firm of Holland & Hart.



### **Mike Cohen**

Michael Cohen is a Senior Associate at the Pacific Institute, a non-profit organization based in California, with an office in Boulder. He has been a leading Salton Sea advocate for more than 21 years, developing revitalization proposals, promoting timely intervention, and writing articles, reports, and opinion pieces. Mr. Cohen is the lead author of three Pacific Institute reports on the Salton Sea: *Haven or Hazard: The Ecology and Future of the Salton Sea* (1999); *Hazard: The Future of the Salton Sea With No Restoration Project* (2006); and *Hazard's Toll: The Costs of Inaction at the Salton Sea* (2013). He served on the Natural Resources Agency's Salton Sea Advisory Committee from 2004-2007 and is a member of the Salton Sea Task Force's Agency Stakeholder Committee and several of its workgroups. Mr. Cohen has a Master's degree in Geography, with a concentration in Resources and Environmental Quality, from San Diego State University, and a B.A. in Government from Cornell University.



### **Peter Culp**

Peter Culp is the managing partner of Culp & Kelly, LLP, a specialty law firm focused on water and natural resources law and policy in the Western United States. Previously, Peter was a partner in the Phoenix office of Squire Patton Boggs LLP, where he managed the firm's Western water and natural resources law and policy practice. His experience includes representing municipalities, industrial and energy concerns,

investment firms, and non-profit organizations and foundations on a broad range of water law and policy, natural resources law and policy, U.S. environmental law, and federal Indian law matters, as well as in the development of investment strategies and policy solutions related to water resource scarcity. Among other work, Peter has been closely involved in issues surrounding the management of the Colorado River, including work on a series of domestic and international agreements between and among the U.S. federal government, state governments, major water users, and the government of Mexico.



### **John Entsminger**

John J. Entsminger oversees the operations of the Las Vegas Valley Water District (LVVWD), which serves nearly 400,000 customer accounts, and the Southern Nevada Water Authority (SNWA), which is responsible for acquiring, treating and delivering water to local agencies that collectively serve 2.1 million residents and 43 million annual visitors. He was appointed general manager by both agencies' Boards of Directors in early 2014, having previously served as director of environmental and water resource law and senior deputy general manager. Entsminger joined the organization in 1999 as an attorney.

Entsminger has spent his career addressing the unique water challenges facing Southern Nevada. He has been instrumental in developing inter basin and international agreements protecting Lake Mead water elevations, including the 2007 Colorado River Interim Guidelines and Minutes 319 and 323 to the 1944 U.S. - Mexico Water Treaty. In April 2014, he was appointed by Governor Sandoval to serve as Nevada's lead negotiator on Colorado River matters. More recently, Entsminger was integrally involved with the completion of Drought Contingency Plans designed to significantly reduce the likelihood of Lake Mead reaching critically low elevations by incrementally curtailing water use in the Lower Colorado River Basin in a manner that does not unduly impact any single user community. The plans were codified in bipartisan legislation as the Colorado River Drought Contingency Plan Authorization Act, passed by the U.S. House of Representatives and Senate within weeks, and quickly signed into law by the president.

Entsminger is a graduate of the University of Northern Colorado and of the University of Colorado School of Law, where he was awarded the Charles N. Woodruff Natural Resources Law Fellowship. He and his family have been in Las Vegas for 20 years.



### **John Fleck**

John Fleck is Professor of Practice in Water Policy and Governance in the University of New Mexico Department of Economics and director of the university's Water Resources Program. A former journalist, he is the author, with Eric Kuhn, of the forthcoming book *Science Be Dammed: How Ignoring Inconvenient Science Drained the Colorado River*, being published fall 2019 by the University of Arizona Press.



### **Terry Fulp**

Dr. Terrance (Terry) Fulp, Ph.D., is the Regional Director of the Bureau of Reclamation's Lower Colorado Region. Headquartered in Boulder City, Nevada, the Region encompasses the last 700 miles of the Colorado River to the Mexican border, which includes most of Arizona, southern Nevada, and southern California. A Reclamation employee since 1989, Terry is responsible for implementing the Secretary of the Interior's water master functions in the Lower Basin, including water delivery, accounting, and contracting. Terry oversees hydropower operations and maintenance of Regional facilities including Hoover Dam, as well as the implementation of the

Lower Colorado River Multi-Species Conservation Program, a multi-agency effort to conserve and work towards the recovery of endangered species and to protect and maintain wildlife habitat on the lower Colorado River. Terry has been instrumental in the negotiation and execution of several major water policy initiatives in his career. These include guidelines for the coordinated operation of Lake Powell and Lake Mead, in place through 2026, and binational agreements pursuant to the 1944 Treaty with Mexico for Colorado River management, also in place through 2026. In 2018, Terry was the recipient of the Presidential Rank Award, the most prestigious award in Federal career civil service.



### **Amy Haas**

Amy I. Haas is the Executive Director and Secretary of the Upper Colorado River Commission. Previously, Amy worked as General Counsel and Deputy Director of the Commission. Before joining the Commission staff, Amy was both General Counsel and Acting Director of the New Mexico Interstate Stream Commission. From March 2015 through May 2017, Amy served as New Mexico's Upper Colorado River Commissioner and its Colorado River Basin States Representative. Amy began her law career in New Mexico as an attorney in private practice, concentrating on water and land use law.

**Chris Harris**

Chris Harris is currently the Executive Director of the Colorado River Board of California, and has been with the Board since August 2000. Chris is involved in the Board's major programs and activities associated with protecting and managing California's rights and interests in its Colorado River water and hydropower supplies. Major programs that the Board is currently working on include drought contingency planning; binational negotiations and discussions with Mexico; Colorado River operations, management and water use accounting; and Basin States discussions and negotiations, including those related to implementation of the Lower Colorado River Multi-Species Conservation Program, Glen Canyon Dam Adaptive Management Program, and Colorado River Basin Salinity Control Program.

**Kathy Jacobs**

Kathy Jacobs is the director of the Center for Climate Adaptation Science and Solutions and a professor at the University of Arizona. From 2010 to 2013, Jacobs worked in the White House, leading the National Climate Assessment and advising on water science and climate adaptation. Prior to her work in DC, Jacobs was the executive director of the Arizona Water Institute from 2006-2009, and she has more than 20 years of experience as a water manager for the Arizona's Department of

Water Resources. Her research interests include water policy, connecting science and decision making, stakeholder engagement and climate change adaptation. She is currently leading the Colorado River Conversations Project funded by the Walton Family Foundation.

**Laurna Kaatz**

Laurna Kaatz directs Denver Water's climate science, policy, and adaptation program. Her primary responsibility is to lead climate investigations and implement findings to inform planning, policy, and research. Laurna's work incorporates many areas of water resource planning, including climate and drought planning, operational and water rights analysis, and long range integrated resource planning. As chair of the Water Utility Climate Alliance and lead practitioner of the Decision Making under Deep Uncertainty Society, Laurna is extensively engaged in climate adaptation, resilience, and long-range planning. Before her career at Denver Water, Laurna was a Professor of Physics at Sweet Briar College and went on to work as a climate scientist with Aurora

Water. Laurna has a Master's degree in physics and a Bachelor's in physics and mathematics.



### **Doug Kenney**

Doug Kenney is Director of the Western Water Policy Program within the University of Colorado Law School in the Getches-Wilkinson Center for Natural Resources, Energy and the Environment. He is also founder and current chair of the Colorado River Research Group. He has written extensively on several water-related issues, including law and policy reform, river basin and watershed-level planning, climate change adaptation, and water resource economics. Dr. Kenney has served as a consultant to a variety of local, state, multi-state, and federal agencies, including several Interior Department agencies, EPA, and the US Forest Service; and national governments and NGOs in Asia and Africa. Additionally, he has made presentations in 21 states (and the District of Columbia), 8 nations, and 5 continents. He has a B.A. in biology from the University of Colorado, a M.S. in Natural Resources Policy and Administration from the University of Michigan, and a Ph.D. in Renewable Natural Resource Studies from the University of Arizona.



### **Ted Kowalski**

Ted Kowalski is a Senior Program Officer, leading the Walton Family Foundation's Colorado River Initiative. In this role, Ted supports work that promotes sustainable management of the Colorado River in order to benefit rivers and communities. Prior to joining the Foundation, Ted was the Chief of the Interstate, Federal and Water Information Section, for the Colorado Water Conservation Board. In this role, Ted represented the State of Colorado in State, Federal, inter-State, and international negotiations. Ted is recognized for his deep expertise in Colorado River water management issues. He has testified before the U.S. Congress and before the Colorado General Assembly, and he has spoken at dozens of conferences. Ted started his career in the Colorado Attorney General's office working on water law issues. Ted has a law degree from the University of Colorado and an undergraduate degree from Cornell University.





### **Eric Kuhn**

Eric Kuhn retired in 2018 after working 37 years for the Colorado River District, including 22 years as General Manager. During that time he also served as an at-large member of the Colorado Inter Basin Compact Commission (IBCC) from 2005-2017 and represented the Colorado River Basin on the Colorado Water Conservation Board (CWCB) from 1994-2001.

Eric has served Colorado as an engineering advisor to the Upper Colorado River Commission since the early 1980s and is currently the Chairperson of the Engineering Advisory Committee.

With coauthor John Fleck, Eric is currently completing a book on the history of our understanding of the hydrology of the Colorado River. *Science Be Dammed* will be published in the Fall of 2019.



### **Pat Mulroy**

Pat Mulroy serves as a Non-resident Senior Fellow for Climate Adaptation and Environmental Policy for The Brookings Institution and also as a Practitioner in Residence for the Saltman Center for Conflict Resolution at the UNLV William S. Boyd School of Law. Mulroy also serves on the Wynn Resorts Ltd Board of Directors.

Between 1989 and early 2014, Pat Mulroy served as General Manager of both the Las Vegas Valley Water District and the Southern Nevada Water Authority (SNWA). Mulroy was a principal architect of the SNWA, helping to guide Southern

Nevada through one of the worst droughts in the history of the Colorado River.

At UNLV's Boyd School of Law, Mulroy's focus is on helping communities in water-stressed areas throughout both the American Southwest and the world develop strategies to address increased water resource volatility and identify solutions that balance the needs of all stakeholders.



### **Jonathan Overpeck**

Professor Jonathan Overpeck is an interdisciplinary climate scientist, William B. Stapp Collegiate Professor of Environmental Education and the Samuel A. Graham Dean of the School for Environment and Sustainability at the University of Michigan. He also holds appointments in the Departments of Climate and Space Science and Engineering, as well as Earth and Environmental Sciences. He has written over 210 published works on climate and the environmental sciences, served as a Working Group 1 Coordinating Lead Author for the Nobel Prize winning IPCC 4<sup>th</sup> Assessment (2007), and also as a Working Group 2 Lead Author for the IPCC 5<sup>th</sup> Assessment (2014). Other awards include the US Dept. of Commerce Gold and Bronze Medals, a Guggenheim Fellowship, the Walter Orr Roberts award of the American Meteorological Society, and the Quivira Coalition's Radical Center Award for his work with rural ranchers and land managers. Overpeck has active climate research programs on five continents, focused on understanding drought and megadrought dynamics (and risk) the world over, and has also served as the lead investigator of Climate Assessment for the Southwest and the SW Climate Science Center – two major programs focused on regional climate adaptation. He has appeared and testified before Congress multiple times, is a Fellow of AGU and the American Association for the Advancement of Science, and tweets about environmental and climate-related issues @GreatLakesPeck.



### **Jennifer Pitt**

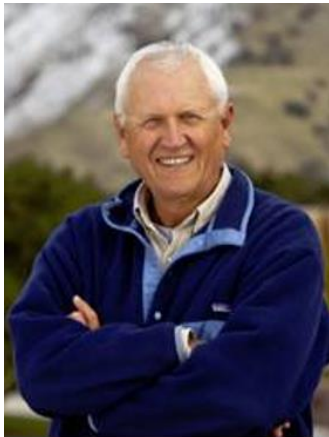
Jennifer Pitt is the Colorado River Program Director for the National Audubon Society, where she focuses on efforts to protect and restore freshwater and riparian habitats and reform water policy in the Colorado River Basin. She works with water users throughout the Colorado Basin to develop practical programs to restore river habitats and to dedicate water to critical environmental resources. Her expertise includes U.S.-Mexico border environmental issues, the legal and policy framework for Colorado River management, water markets, and the science of river restoration. Jennifer studied at Harvard College for her A.B. and Yale University for her M.E.S.



### **Jim Prairie**

James Prairie, Ph.D. is a Hydrologic Engineer working for the Bureau of Reclamation since 2000. He is stationed at the University of Colorado's Center for Advanced Decision Support for Water and Environmental Systems (CADSWES). Dr. Prairie has extensive experience directing and coordinating research, development, and modeling projects. He leads applied research in mid-term operations and long-term water resource planning, climate variability, and decision support under uncertainty. He directs river basin modeling technical teams; and oversees the consumptive use, natural flow and natural salinity development programs for the upper Colorado River basin.

Dr. Prairie received his Ph.D in Civil Engineering for the University of Colorado, Boulder and a B.S in Environmental Resource Engineering from the State University of New York College of Environmental Science and Forestry.



### **Jack Schmidt**

Jack Schmidt is the Janet Quinney Lawson Chair in Colorado River Studies in the Department of Watershed Sciences and Director of the Center for Colorado River Studies at Utah State University. For more than 30 years, he and his graduate students have studied the geomorphic processes and conditions of the Colorado River, especially in Grand Canyon and in the national parks of the Green River. Jack served as Chief of the USGS/Grand Canyon Monitoring and Research Center between 2011 and 2014.



### **Kathryn Sorenson**

Kathryn Sorenson oversees one of the largest potable water utilities in the United States, which treats and reliably delivers high quality tap water to 1.6 million customers throughout approximately 540 square miles. Phoenix Water Services also reclaims wastewater for 2.5 million residents in the Valley of the Sun. Kathryn has a PhD in Resource Economics and a Bachelor of Arts in Economics. She serves as a member of the Arizona Water Banking Authority Commission, an Advisory Committee member of Arizona State University's Decision Center for a Desert City, as a member of the State of Arizona's Colorado River Advisory Committee, on the Board of Advisors of the Kyl Center for Water

Policy at Morrison Institute, as an Advisory Committee member of the Water Resources Research Center, on the Board of Directors of the Water Research Foundation, on the Board of Directors of the Association of Metropolitan Water Agencies, and as a member of the Rates and Charges Subcommittee of the American Water Works Association.



### **Patrick Tyrrell**

Patrick Tyrrell is a Wyoming native who grew up in Cheyenne but has also lived in Casper, Gillette and Laramie, Wyoming, and Minneapolis, Minnesota. His experience was entirely within the private sector until taking the appointment as State Engineer in January of 2001. He is past board member and past President of the Wyoming Water Association. In his role as State Engineer, Pat served as Wyoming's Commissioner to the Upper Colorado River Commission, and he represented Wyoming on the North Platte Decree Committee, the Colorado

River Basin Salinity Control Forum (and its related Advisory Council), and was Chairman of the Western States Water Council from July 2014 until July 2016. Pat was Wyoming's Commissioner on the Bear and Yellowstone River Commissions from 2001-2012, and was reappointed to both compact commissions in 2016. Since he retired on April 1, 2019, Pat still serves Wyoming on the Upper Colorado River Commission, and the Bear and Yellowstone River Commissions. He also still represents Wyoming on the Colorado River Salinity Control Forum and Advisory Council, and is the Governor's Representative to the Colorado River Basin States.



### **Brad Udall**

Brad Udall is a Senior Water and Climate Research Scientist/Scholar at Colorado State University's Colorado Water Institute. Brad's expertise includes climate change, hydrology and related policy issues of the American West. He is a contributing author to the 4<sup>th</sup> National Climate Assessment due released in 2018, a contributing author to the 2014 Intergovernmental Panel on Climate Change assessment report, and the lead author of the water sector chapter of the 2009 Global Climate Change Impacts in the United States. He has provided congressional testimony, input to several National Academy of Science panels, and has given hundreds of talks on climate change impacts to water resources, water

law, and water policy. He is a co-investigator with the Department of Interior Southwest Climate Science Center and a collaborator with the new USDA Northern Plains Climate Hub. Brad was formerly the Director of the Getches-Wilkinson Center for Natural Resources, Energy and Environment at the University of Colorado Law School and Director of the University of Colorado - NOAA Western Water Assessment.



### **Margaret Vick**

Margaret J. Vick has more than 20 years experience working with and advising Native American Tribes and tribal organizations in the Western United States including her service as General and Special Counsel to the Havasupai Tribe, Special Counsel to the Colorado River Indian Tribes and legal advisor to Inter Tribal Council of Arizona. She specializes in cross-jurisdictional issues.

Dr. Vick has a doctorate of juridical sciences in the law of international water resources and works with all levels of government on complex water allocation and management issues. She brings a wide range of expertise and a broad perspective to issues of water use and governance.



### **Darryl Vigil**

T. Darryl Vigil is the water administrator for the Jicarilla Apache Nation, and official spokesperson and former Chairman of the Colorado River Ten Tribes Partnership. Member tribes of the Ten Tribes Partnership are the Chemehuevi Indian Tribe, the Cocopah Indian Community, the Colorado River Indian Tribes, the Fort Mojave Indian Tribe, the Jicarilla Apache Tribe, the Navajo Nation, the Northern Ute Tribe, the Quechan Indian Tribe, the Southern Ute Indian Tribe and the Ute Mountain Ute Indian Tribe. In 2014, the Partnership and the Bureau of Reclamation began work on a tribally focused water supply and demand study (Tribal Water Study), following on the 2012 Basin Study.



### **Kevin Wheeler**

Dr. Kevin Wheeler is a Professional Engineer, researcher at the Environmental Change Institute at the University of Oxford and Principal of Water Balance Consulting. His work focuses on the shared management of trans-boundary rivers and increasing water security through multi-stakeholder negotiations. His methods emphasize collaborative risk-based modelling, particularly when facing deep uncertainties of future climate changes. Dr. Wheeler has worked on a variety of water-related issues ranging from community-based water development projects as a Peace Corps Volunteer to international disputes over shared waters. Since 2000, he has consulted for numerous stakeholders on the Colorado River including the Bureau of Reclamation, the State of Colorado, Environmental Defense Fund, The Nature Conservancy, and now he works with Utah State University on the *Futures of the Colorado* project. He holds a BS and MS in Civil/Water Resource Engineering from the University of Colorado, an MSc in Water Science, Management and Policy from Oxford, and a PhD in Geography and Environment from the University of Oxford.

# Conference Sponsors

---



Center for **Climate  
Adaptation Science  
and Solutions**



**ROCKY MOUNTAIN**  
MINERAL LAW FOUNDATION



Southern Nevada  
Water Authority

WALTON FAMILY  
FOUNDATION



# University of Colorado Law School

---



Established in 1892, the University of Colorado Law School is one of the top public law schools in the United States. Colorado Law School's diverse student body is selected from among the statistically best applicants from every corner of the nation representing over 100 undergraduate institutions, and its highly published faculty is dedicated to interacting with students both inside and outside the classroom. The school's state-of-the-art green building is located at the base of the Rocky Mountains in beautiful Boulder, Colorado. With about 500 students and a low student to faculty ratio, Colorado Law School is a thriving academic community where the study of law is embraced to create leaders who recognize the civic responsibilities essential to the legal profession.

## Getches-Wilkinson Center for Natural Resources, Energy, and the Environment

---



The Getches-Wilkinson Center for Natural Resources, Energy and the Environment endeavors to serve the people of the American West, the nation, and the world through creative, interdisciplinary research, bold, inclusive teaching and innovative problem solving in order to further true sustainability for our use of the lands, waters, and environment. Major programs and initiatives focus on natural resources, water and public lands issues in Colorado and the West; energy and environmental security in the developing world; electricity regulation and energy policy; climate change law and policy; and native communities and environmental justice. The name comes from the contributions of two iconic figures in the law school's environmental law history, David Getches and Charles Wilkinson.

<https://www.getches-wilkinsoncenter.cu.law/>

## Upcoming Events

---

### 12th Annual Schultz Lecture in Energy

Hannah Wiseman

Professor of Law, Florida State University College of Law

Thursday, October 17<sup>th</sup>, 2019

University of Colorado School of Law

Wittemyer Courtroom

More information coming soon to: <https://www.getches-wilkinsoncenter.cu.law/>



**for Natural Resources, Energy, and  
the Environment at Colorado Law**