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Water, Climate and Uncertainty: Implications for  
Western Water Law, Policy, and Management  
(Summer Conference, June 11-13)

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### AGENDA: Water, Climate and Uncertainty: Implications for Western Water Law, Policy, and Management

University of Colorado Boulder. Natural Resources Law Center

United States. National Oceanic and Atmospheric Administration

National Center for Atmospheric Research (U.S.)

Western Water Assessment (Program)

University of Colorado Boulder. Cooperative Institute for Research in Environmental Sciences

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# Water, Climate and Uncertainty:

*Implications for Western Water Law, Policy, and Management*  
24th Annual Conference, June 11-13, 2003

"If you come to a fork in the road, take it!" -Yogi Berra



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## BIOGRAPHIES OF SPEAKERS, MODERATORS AND HOSTS

**STAN BRADSHAW** is counsel for Trout Unlimited's Montana Water Project. Previously, he was the Resource Director for Montana Trout Unlimited, where he was responsible for working with various state agencies on resource issues related to cold-water fisheries, including instream flows and drought planning. Earlier, Stan worked for the Montana Department of Health and Environmental Sciences on subdivision and water quality issues, and as chief counsel for the Montana Department of Fish, Wildlife and Parks. In his current position with Trout Unlimited, he negotiates instream leases, assist water users with instream conversions, and works on other instream projects—including the groundbreaking work in the Blackfoot River Basin.

**DANIEL R. CAYAN** is a researcher based at the Scripps Institution of Oceanography, Climate Research Division, and affiliated with the U.S. Geological Survey, Water Resources Division. He is a key member of the California Applications Program (CAP), a collective of university, federal and private agency scientists studying the impacts of climate variability and attempting to improve climate and extended weather forecasts in the California region. He has a Bachelor's degree in Meteorology and Oceanography from the University of Michigan; Master's degrees in Oceanography and Meteorology from the Universities of Michigan and California-Davis, respectively; and a Ph.D. in Oceanography from the University of California-San Diego.

**MARTYN CLARK** is a Research Scientist for the Center for Science and Technology Policy Research, located at the University of Colorado within the Cooperative Institute for Research in Environmental Sciences (CIRES). One of his primary responsibilities is Director of the CIRES-NOAA Western Water Assessment program, which seeks to understand the decision processes of the individuals, groups, and organizations who manage and use water in the Interior western United States, in order to increase the relevance and value of scientific information and improve decision-making strategies. Martyn hold a Bachelor's and Masters degree from University of Canterbury (Christchurch, New Zealand), and a Ph.D. from the University of Colorado.

**BONNIE COLBY** is a professor at the University of Arizona, where she has been a faculty member since 1983. Her expertise is in the economics of inter-jurisdictional water disputes, water rights valuation, water transactions and water policy. She has authored over one hundred publications, including the books *Water Markets in Theory and Practice* and *Indian Water Rights: Negotiating the Future*. She has provided invited testimony on these matters to tribal councils, state legislatures and to Congress. She has developed water acquisition and water pricing plans for many inter-jurisdictional water settlements and court cases, beginning in the mid-1980s.

**MICHAEL DETTINGER** is a member of the Climate Research Division of the U.S. Geological Survey, currently serving as a Research Associate based at the Scripps Institution of Oceanography. As a hydrologist, much of Mike's work focuses on the

impact of climate change and variability on streamflows in selected western basins. In recent years, he has been closely involved with assessing science needs in the CALFED program. He has a Bachelor's degree in Physics from UC-San Diego; Master's degrees in Civil Engineering and Atmospheric Sciences from MIT and UCLA, respectively; and a Ph.D. in Atmospheric Sciences from UCLA.

**DENISE FORT** is a Professor of Law at the University of New Mexico School of Law, where she teaches environmental law and related subjects. Her research focuses on water policy, river restoration, and environmental federalism. Denise's extensive experience in environmental and natural resources law and policy includes chairing the congressionally-established Western Water Policy Review Advisory Commission, serving as the Director of the State of New Mexico's Environmental Improvement Division, and her role as the Governor's representative to the National Governors Association. She also serves on the board of several nongovernmental organizations, including the Alliance for the Rio Grande Heritage and the Kenney Foundation, and was recently appointed by Governor Richardson to New Mexico's Water Trust Board.

**DAVID GETCHES** is currently the Raphael J. Moses Professor of Natural Resources Law at the University of Colorado of Law, but in July 2003, will become Dean of the school. David is the author of several significant books and articles on western water, and has consulted widely on issues of western, national and international water law and policy, often focusing on issues of environmental protection and policies concerning indigenous peoples. David's considerable administrative experience includes a stint as the Executive Director of the Colorado Department of Natural Resources (1983-1987), as well as the Natural Resources Law Center and the Native American Rights Fund. David's law degree is from the University of Southern California.

**HARVEY HILL** is the Program Manager of the Regional Integrated Science Assessments (RISA) program, within the NOAA Office of Global Programs. His professional interests include climate and development issues from an economics perspective. He has studied and worked for varying periods of time in Australia, Brazil, Canada, the United States, and Zambia. He received his undergraduate degree in Agricultural Economics from the University of Saskatchewan in 1984. His Masters and Doctorate degrees in Agricultural Economics were obtained at Texas A&M University.

**GREGORY J. HOBBS JR.** is a Colorado Supreme Court justice, a post he has held since 1996. He has practiced law for 25 years, with emphasis on water, environment, land use, and transportation. Other affiliations include former senior partner, Hobbs, Trout & Raley P.C.; Partner, Davis, Graham & Stubbs; First Assistant Attorney General, Natural Resources Section, State of Colorado; Enforcement Attorney, U.S. Environmental Protection Agency; and Law Clerk for Judge William E. Doyle, U.S. Tenth Circuit Court of Appeals. Greg also has classroom experience, ranging from teaching sixth grade in New York City to being an adjunct professor in the Master's Program in Environmental Policy and Management, University of Denver. He has a History degree from the University of Notre Dame, and a J.D. from the University of California at Berkeley (Boalt Hall).

**MARTIN HOERLING** is a research meteorologist with the NOAA-CIRES Climate Diagnostics Center, based in the National Oceanic and Atmospheric Administration facilities in Boulder. His research focuses on several aspects of ocean-atmosphere interactions, most recently on the relationship between global ocean conditions and the current drought in the American West and elsewhere. He is the Principal Investigator on a wide variety of studies examining global climate variations, and was named a NOAA Research Employee of the Year in 2001. Marty has Bachelors, Masters, and Ph.D. degrees from the University of Wisconsin-Madison.

**KATHARINE L. JACOBS** is currently Special Assistant for Policy and Planning for the Arizona Department of Water Resources (ADWR), and is working on rural water resources issues and developing a drought plan for the state. She was the Director of the Tucson Active Management Area of the ADWR from 1988 through 2001, a position where she honed her expertise in groundwater management. In 2001-2002 she worked on a special project at the National Oceanic and Atmospheric Administration focused on the interface between scientific information, policy and decision-making. Additionally, Kathy served on the Synthesis Team for the U.S. National Assessment of the Consequences of Climate Variability and Change, and most recently, on the NRC panel reviewing the U.S. Climate Change Science Program Strategic Plan. She has a M.L.A. degree in environmental planning from the University of California, Berkeley.

**DOUG KENNEY** is a Research Associate with the Natural Resources Law Center and a Management Team member of the Western Water Assessment, University of Colorado. His research and publications are highly interdisciplinary, focused primarily on issues of western water, public lands, and natural resources governance. He has a Bachelor's degree in Biology from the University of Colorado, a Master's degree 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.

**JEFFREY KIGHTLINGER** is general counsel for the Metropolitan Water District of Southern California. As general counsel, he is responsible for directing Metropolitan's legal staff and consulting attorneys; leading the district's legal strategies in pending and potential litigation; and protecting Metropolitan's interests in all legal matters. Prior to joining Metropolitan in 1995, he worked in private practice representing numerous public agencies including municipalities, redevelopment agencies and special districts. He holds a Bachelor's degree in History from the University of California, Berkeley, and a law degree from the University of Santa Clara. Additionally, he spent a year specializing in environmental law at George Washington University in Washington D.C., while working for the U.S. Environmental Protection Agency.

**JAMES S. LOCHHEAD** is a shareholder in the law firm Brownstein, Hyatt & Farber. In his practice, he represents ski areas, real estate developers, municipalities, and special districts in various aspects of land use, real estate, and natural resource development and permitting. His experience includes due diligence, water and Endangered Species Act issues, land use permitting, and final development. Prior to this position, Jim was Executive Director of the Colorado Department of Natural Resources (1994 to 1998), and

from 1988 to 1999, was Colorado's lead representative on interstate Colorado River issues. He continues to be heavily involved in Colorado River issues, representing several Colorado municipalities and regional water agencies as well as water officials in New Mexico.

**JERRY MAHLMAN** is currently a Senior Research Fellow at the National Center for Atmospheric Research. Much of his research career has been directed toward understanding the many interactive processes that shape the atmosphere, particularly the stratosphere and troposphere, and assessing their implications for climate and chemical change. Jerry is a lecturer in Atmospheric and Oceanic Sciences at Princeton University, as well as director of the Geophysical Fluid Dynamics Laboratory at the National Oceanic and Atmospheric Administration. His Ph.D. is from Colorado State University.

**JIM MARTIN** has been Director of the Natural Resources Law Center since 2002. He has two decades of experience in natural resources issues, having worked previously as a senior attorney at Environmental Defense and staff member for Senator Tim Wirth. Jim's primary fields of research, writing and professional practice include energy, air quality, water resources allocation and endangered species issues in the western United States. Jim has a Bachelor's degree in Biology from Knox College, and a law degree, with a certificate in environmental and natural resources law, from the Northwestern School of Law of Lewis and Clark College.

**DOUG MCCHESENEY** is the Section Manager of the Policy and Planning Section of the Water Resources Program of the Washington Department of Ecology (Ecology). His present work is focused on Washington's ground water exemption, public water supply, climate change, and watershed management issues. Doug also tracks general water supply conditions for Washington and the Pacific Northwest and serves as Drought Coordinator for the state of Washington. A geologist by training, Doug received his education at San Diego State College and The Evergreen State College. He has worked for Ecology since 1979 and has experience with virtually all facets of the water resources management in Washington State.

**SHAUN MCGRATH** has been with the Western Governors' Association since 1995, first as a Senior Legislative Assistant in the Washington D.C. Office, and more recently, in the Denver Office where he is the Program Manager for Water Policy. Prior to coming to WGA, Shaun was a Legislative Assistant to Congressman Jim Slattery of Kansas, was Executive Director of the Kansas Natural Resource Council, and Trade Manager for the Kansas Department of Commerce's European Office in Stuttgart, Germany. Shaun has a Bachelor of Arts in German and Political Science from Kansas State University and a Master's of Public Administration from the University of Kansas.

**KATHRYN MUTZ** is a Staff Attorney with the Natural Resources Law Center. She has a background in both law and natural resources management. For the twelve years prior to entering law school, she worked throughout the West for government and private industry on a variety of public policy and scientific issues, including work on wetlands, endangered species, and reclamation of disturbed lands. More recently, her legal research

has focused on environmental justice, forestry and mineral development. Kathryn holds a Bachelor's degree in Geography from the University of Chicago, a Master's degree in Biology/Ecology from Utah State University, and a J.D. from the University of Colorado, concentrating in natural resources and environmental law.

**DENNIS S. OJIMA** is a Senior Research Scientist with the Natural Resources Ecology Laboratory, Colorado State University. His work primarily involves ecosystem functioning, including the analysis of how changing climatic regimes impact land use and vegetation of the Asian and North American grasslands. He holds a Bachelor's degree from Pomona College, a Master's degree from the University of Florida, and a Ph.D. from Colorado State University.

**ROGER A. PIELKE, JR.** is the Director of the CIRES Center for Science and Technology Policy Research and Associate Professor in Environmental Studies at the University of Colorado. His research and writings primarily focus on the relationships between science, policy and decision-making. Roger serves on a variety of professional committees, including the Advisory Panel of the NSF Program on Societal Dimensions of Engineering, Science and Technology, and the Science Steering Committee of the World Meteorological Organization's World Weather Research Programme. He has a Bachelor's degree in Mathematics, a Masters degree in Public Policy, and a Ph.D. in Political Science, all from the University of Colorado.

**ROGER PIELKE, SR.** is a Professor in the Department of Atmospheric Sciences at Colorado State University, and since 1999, has served as the Colorado State Climatologist. Specializing primarily in the study of mesoscale meteorology, he is a prolific researcher and writer, having published over 200 scientific papers, 4 books, and 40 book chapters, and has edited/co-edited 9 books. He has a Bachelor's degree in Mathematics from Towson State College, and a Master's and Ph.D. in Meteorology from Pennsylvania State University.

**ROGER S. PULWARTY** is a Research Associate with the NOAA-CIRES Climate Diagnostics Center, where his research and publications focus on the relationship between climate and society. Prior to returning to Boulder, he was Program Manager for NOAA's Regional Integrated Sciences and Assessments (RISA) program, which fosters regional projects in applied climate research. He has a Bachelor's degree in Atmospheric Science from York University, and a Masters and Ph.D. in Geography/Climatology from the University of Colorado.

**BENNETT W. RALEY** was appointed by the President in 2001 as the Assistant Secretary of the Interior for Water and Science, a post which includes overseeing the Bureau of Reclamation and the U. S. Geological Survey. Bennett has a long history of involvement in Colorado water issues, including serving as General Counsel to the Northern Colorado Water Conservancy District. Raley is a shareholder of Trout & Raley, P.C. From 1983 through 1990 he was an associate and then a partner at Davis, Graham & Stubbs, Denver, Colorado. During the 102<sup>nd</sup> Congress he served as Staff Counsel to U.S. Senator Hank Brown, whom he assisted during Senate Judiciary



Committee hearings, the Foreign Relations Committee hearings on BCCI, and the negotiation of the 1993 Colorado Wilderness Act. Bennett also served as Chief Counsel, U.S. Senate Judiciary Subcommittee on the Constitution, Federalism, and Property Rights for the first 100 days of the 104<sup>th</sup> Congress, and was a Co-Chair of the Federal Water Rights Task Force established pursuant to the 1996 Farm Bill. He received a B.S. in Agricultural Business from Colorado State University in 1979 and a J.D. from the University of Colorado School of Law in 1983.

**KELLY T. REDMOND** is Regional Climatologist and Deputy Director of the Western Regional Climate Center located at the Desert Research Institute in Reno. Previously, he worked in the Atmospheric Sciences Department at Oregon State University, served as State Climatologist in Oregon, and as President of the American Association of State Climatologists. His research and professional interests span every facet of climate and climate behavior, including its physical causes and behavior, how climate interacts with other human and natural processes, and how such information is acquired, used, communicated, and perceived. He has a Bachelor's degree in Physics from the Massachusetts Institute of Technology, and M.S. and Ph.D. degrees in Meteorology from the University of Wisconsin in Madison

**LEE ROZAKLIS** is a co-founder and principal engineer at Hydrosphere Resource Consultants Inc. in Boulder, where he provides planning and technical services in support of water resources management activities. Lee has extensive experience in South Platte issues, having played a lead role in technical studies associated with Colorado's Plan for Future Depletions related to Central Platte River endangered species, Colorado's Metropolitan Water Supply Investigation, and currently, the South Metro Water Supply Study. Additionally, he is currently a member of the Western Water Assessment, charged with examining the combined impacts of climate change and population growth on South Platte water systems. Lee has a Bachelor's degree in Environmental Biology from the University of Colorado and a Master's degree in Environmental Engineering from Stanford University.

**ALBERTO SZEKELY** is an internationally known attorney specializing in transboundary water issues. Based in Mexico City at Szekely Associates, Alberto holds, or has held, a variety of international posts, including Ambassador for Border Water Affairs (Mexican Foreign Service), a member of the Permanent Court of International Arbitration at The Hague, and service on the United Nation's International Law Commission. He is also affiliated with the University of New Mexico's School of Law and its Transboundary Resources Center.

**CARL ULLMAN** is the Director of the Water Adjudication Project for the Klamath Tribes in Chiloquin, Oregon. He represents the Tribes in water and other natural resource issues in state and federal court, legislative and agency proceedings. He has practiced in the fields of Indian law for twenty two years and water law for fifteen years. He previously served as Attorney General of the Federated States of Micronesia, and as Managing Attorney of the Office of the Reservation Attorney of the Quinault Indian Nation. Mr. Ullman earned his LL.M. from Yale University in 1988, his J.D. from the

University of Washington in 1976 and his B.A., *cum laude*, at Knox College in 1970. He is admitted to practice in Washington and Oregon, the Ninth Circuit, the Supreme Court of the United States, and the Supreme Court of the Federated States of Micronesia.

**JOHN VOLKMAN** is a partner in the Natural Resources group of Stoel Rives, a Portland, Oregon law firm. He works primarily on Endangered Species Act, water and energy issues, particularly those related to the Columbia River. Before joining the firm, John was a senior official in the northwest regional office of NOAA Fisheries, where he oversaw Endangered Species Act water and habitat consultations. Before joining NOAA, John was General Counsel of the Northwest Power Planning Council. He has written extensively on Columbia River water policy, the Endangered Species Act and adaptive management. In 1996-1997, he was the principal advisor on Columbia River water issues to the Western Water Policy Review Advisory Commission; and in 1990 he was a Visiting Scholar at the Western Governors Association. He has a JD from the University of Colorado Law School (1973) and a BA from Colorado College (1969).