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Katharine Jacobs is the Executive Director of the Arizona Water Institute, a consortium of the three state universities (Arizona State University, the University of Arizona, and Northern Arizona University) focused on water-related research, education and technology transfer in support of water supply sustainability. She is also an Associate Director of the NSF Center for Sustainability of Arid Region Hydrology and Riparian Areas at the University of Arizona, and Professor and Specialist at the Department of Soil, Water and Environmental Science. She has more than twenty years of experience as a water manager for the state of Arizona Department of Water Resources, including 14 years as director of the Tucson Active Management Area. Her research interests include water policy, connecting science and decision-making, stakeholder engagement, use of climate information for water management applications, climate change adaptation and drought planning. Ms. Jacobs earned her M.L.A. in environmental planning from the University of California, Berkeley. She was a co-author of the National Assessment of the Impacts of Climate Change and part of the National Assessment Synthesis Team, and has served on numerous National Research Council panels.

EDUCATION:

University of California, Berkeley. MLA in Environmental Planning, 1981.

Professional Project: Coastal Management Plan for Anchorage, Alaska.

Middlebury College, Middlebury, Vermont. B.A. in Biology, 1977.

Cornell University, Ithaca, New York. Junior year exchange student in Biology.

CURRENT EMPLOYMENT:

Executive Director of the Arizona Water Institute, January, 2006 – present. Responsible for program development, building collaborative partnerships, project management, inter-university and inter-agency coordination, grant writing and fundraising, outreach, education, and technology transfer for a tri-university collaboration of Arizona's three universities. I facilitate workshops, manage research projects and give public lectures and presentations.

Professor and Specialist, Department of Soil, Water and Environmental Science and Water Resources Research Center, University of Arizona, October 2003 – present.

This position involves serving as a water management extension specialist (multiple outreach and education activities) and engaging in research focused on water policy, drought planning, stakeholder engagement, Colorado River management, and analysis of knowledge systems for sustainable development.

Joint Appointments, Departments of Hydrology and Water Resources and Geography and Regional Development, University of Arizona, September 2005 – present. Supervise graduate students and ensure coordination between departments; participation in interdisciplinary projects of various kinds.

PRIOR EXPERIENCE:

Deputy Director, Center for Sustainability of semi-Arid Hydrology and Riparian Areas, University of Arizona, September 2004 – February 2008. Assisted in management and strategic planning for a NSF Science and Technology Center involving 14 universities and laboratories and over 250 researchers. The current federal budget was just under \$4 million annually; developed and managed SAHRA's water management-focused stakeholder engagement program.

Associate Staff Scientist, Institute for the Study of the Planet Earth, University of Arizona, October 2003- June 2005. With support from NOAA (the National Oceanic and Atmospheric Administration) I worked with the CLIMAS (Climate Assessment for the Southwest) project on water-related projects, including drought planning, regional climate vulnerability assessments and climate change impacts on the water sector.

Special Assistant for Policy and Planning, Arizona Department of Water Resources, August, 2002 to October, 2003. In this position, I was the lead staff person for the development of the Arizona Drought Plan and worked on statewide and rural water resource issues.

Visiting Scientist, National Oceanic and Atmospheric Administration (NOAA-UCAR), September, 2001 to July 2002. I worked closely with scientists and researchers to improve the effectiveness of water and climate related research and applications within NOAA, including developing climate science decision support tools.

Special Assistant, Governor Hull's Water Management Commission, Arizona Department of Water Resources. March, 2001 to July, 2001. I was the lead staff person supporting a 49-person Commission and multiple working groups established by the Governor.

Director, Tucson Active Management Area, Arizona Department of Water Resources, February, 1988, to March, 2001. My responsibilities included managing the groundwater rights in the greater Tucson area, overseeing and managing all aspects of the Tucson office of the Arizona Department of Water Resources, and developing water management policy and regulations, including mandatory conservation requirements, the Assured Water Supply Rules, recharge and recovery activities, and consensus building relative to major water conflicts.

Unit Supervisor, Water Resource Specialist II and III, Tucson Active Management Area, September, 1981 to February, 1988. I served as lead planner for municipal, turf and industrial water conservation programs for the second management plan, as well as supervising

Operations and Compliance for the Tucson office. I developed and implemented mandatory conservation requirements for municipal and industrial water use, verified water rights applications, and prepared reports for hearings.

Coastal Management Planner, Municipality of Anchorage Planning Department. Anchorage, Alaska. 1980. As part of a three-member team, I prepared the Coastal Management Plan for a 25 mile segment of the Anchorage shoreline, including public access, resource protection, and scenic area elements.

Teaching Assistant, University of California, Berkeley. 1979 and 1980. I taught three field courses in site planning and field ecological analysis.

Administrative Assistant, Shoals Marine Laboratory, Cornell University. Organized classes in marine biology at a field station off the coast of Maine.

HONORS—Academic:

Award for Excellence as a Teaching Assistant, Berkeley, 1981
American Society of Landscape Architects Honor Award for the
Outstanding Graduate Student in Landscape Architecture, Berkeley, 1981
Newhouse Grant and Heller Fellowship, Berkeley, 1980
Cum laude, Departmental Honors in Biology, Middlebury College, 1977
Elected to Mortar Board, Senior Honor Society, Middlebury College, 1977
Dean's List and College Scholar, Middlebury College, 1973-1977

HONORS—Professional:

Appointed to National Academy of Sciences Panels, 1994, 2002, 2003 and 2005 (2 panels)
Special Achievement Award, Dept. of Water Resources, 2002
Employee of the Year, Dept. of Water Resources, 2000
Tucson Regional Water Council Community Leadership Award, 1999
Special Achievement Award, Dept. of Water Resources, 1996
Special Achievement Award, Dept. of Water Resources, 1993
Special Achievement Award, Dept. of Water Resources, 1991
Division of the Year, Dept. of Water Resources, 1989
Supervisor of the Year, Dept. of Water Resources, 1988

RESEARCH AND TEACHING:

My research focuses on water management, planning and policy, climate variability and change, drought planning, connecting science and decision-making and water-related decision support. I assisted in the development of Arizona's first drought plan in cooperation with the Arizona Department of Water Resources and the Climate Assessment for the Southwest. I am the project manager on a major project with the US Bureau of Reclamation focusing on incorporation of climate information into modeling activities associated with managing the Colorado River, and have been involved in four National Academy panels over the past two years. I have co-taught a graduate seminar on Arizona Water Policy and regularly give lectures in classes.

PARTICIPATION/MEMBERSHIPS

University of Arizona Campus Sustainability Steering Committee (current)
California Water Plan Climate Change Technical Advisory Group (current)
Trustee, Board of the Arizona Chapter of The Nature Conservancy; Chair, Conservation and Public Policy Committee (current)
University Council on Water Resources Delegate (current)
ASU Decision Center for a Desert City, Science and Technology Policy/Boundary Organizations Knowledge Team (current)
Arizona Town Hall (current)
Arizona Hydrologic Society (current)
American Water Works Association (current)
American Water Resources Association (current)
Arizona Water & Pollution Control Association (current)
National Research Council Panel, Analysis of Global Change Assessments (Co-chair, 2006-2007)
Steering Committee, Understanding the Consequences of Thresholds in Global Change: Documentation and Implications for Decision-Making, Heinz Center (2006-2007)
Chair, University of Arizona, Water Sustainability Education and Outreach Committee, (2003-2006)
Chair, National Research Council Panel Reviewing the GAPP Water Cycle Research Program (2005)
National Research Council - Committee to Review the US Climate Change Strategic Plan (2002- 2004)
National Research Council - Committee on Endangered Species in the Platte River (2003-2004)
U.S. National Assessment: The Potential Consequences of Climate Variability and Change, National Assessment Synthesis Team (1998-2001)
Southern AZ Water Resources Association and Tucson Regional Water Council Board of Directors (1988-2001)
National Research Council – Committee on Valuing Ground Water (1995-1997)
Citizens CAP Oversight Committee – City of Tucson (1994-1995)

PUBLICATIONS

Garfin, G., K. Jacobs, J. Buizer, 2008. “Beyond Brainstorming: Exploring Climate Change Adaptation Strategies.” *EOS*, (June 18).
Goddard, L., A. Wood, N. Mantua, K. Jacobs, 2008. “Decadal Climate Prediction: Learning from the Oceans.” *California Drought: An Update*. California Department of Water Resources.
Gries, C., K. Jacobs, W.D. Otte, R. Vasquez, J. Abraham, R. Aguilar, J. McGill, S. Bhargav, H. Nguyen, 2008. “The Arizona Hydrologic Information System.” AWRA Spring Specialty Conference, March, 2008, San Mateo, CA.
Saliba, G & Jacobs, K. (submitted). “Collaboration and Spatial Management in the Upper San Pedro River Basin.” *Environment*.
Garrick, D., K. L. Jacobs and G.M. Garfin (2008), Decision Making under Uncertainty:

- Shortage, Stakeholders and Modeling in the Colorado River Basin, *Journal of the American Water Resources Association*.
- National Research Council, (2007), Analysis of Global Change Assessments: Lessons Learned, Committee Report (Co-chair), National Academy Press, Washington, D.C.
- Colby, B., and K.L. Jacobs, eds, (2006), Arizona Water Policy: Management Innovations in an Urbanizing, Arid Region, Resources for the Future Press, Washington, DC.
- Holway, J.M., and K.L. Jacobs (2006), Managing for Sustainability in Arizona, USA: Linking Climate, Water Management and Growth, in *Water Resources Sustainability*, L. Mays, ed., McGraw-Hill.
- Garrick, D. and K. L. Jacobs, (2006), Water Management on the Colorado River: From Surplus to Shortage in Five Years, *Southwest Hydrology*, Vol. 5, No. 3, p 8-9.
- Wilhite, D.A., D.M. Diodaso, K. Jacobs, R. Palmer, K. Redmond, D. Sada, K. Helm Smith, J. Warwick, O. Wilhelmi, (2006), Managing Drought: A Roadmap for Change in the United States. Conference Report, The Geological Society of America.
- National Research Council, (2005), Review of the GEWEX Americas Prediction Project Science Implementation Plan, Committee Report (Chair). National Academy Press, Washington, D.C.
- Jacobs, K., B.Colby, D. Meko, and B. Nijssen, 2005, Enhanced Water Supply Reliability Through Improved Predictive Capacity and Response, American Geophysical Union Fall Meeting, December 7, 2005. San Francisco.
- Jacobs, K.L., G.M. Garfin and M. Lenart, (2005) More than Just Talk: Connecting Science and Decisionmaking, *Environment*, Volume. 47, No. 9, p 6-22.
- Jacobs, K.L., G. M. Garfin and B. J. Morehouse, (2005), Climate Science and Drought Planning: The Arizona Experience, *Journal of the American Water Resources Association*, Volume 41, No.2, p 437-445.
- Pulwarty, R.S, K.L. Jacobs and R.M. Dole, (2005), The Hardest Working River: Drought and Critical Water Problems in the Colorado River Basin in Don Wilhite, ed., *Drought and Water Crises: Science, Technology, and Management Issues*, Marcel Dekker.
- Jacobs, K.L. and B. Morehouse, (2005), Why Sustainability is Not a Four-Letter Word, *Southwest Hydrology*, Volume 4, No. 1, p 14-15, 26.
- Leake, S.A., C. Filippone, K.L. Jacobs and B.J. Morehouse, (2004), Sustainability and the Time Scale of Human Alterations to Water Resources, Proceedings of the Geological Society of America Annual Meeting, November, 2004, Denver, Colorado.
- Jacobs, K.L. and G.M. Garfin, (2004), Arizona's Drought Planning: Focusing on Adaptation *Water Resources Impact*, AWRA, Vol 6, No. 4, p 14-17.
- Jacobs, K.L. and J.M. Holway, (2004), Managing for Sustainability in an Arid Climate: Lessons Learned From 20 Years of Groundwater Management in Arizona, *Hydrogeology Journal*, Vol 12, No. 1, pp.52-65.
- Jacobs, K.L., B.G. Colby, D.A. de Kok, G. Woodard, R.P. Maguire, S.B. Megdal and M.A. Worden, (2004), Arizona's Water Future: Challenges and Opportunities, Background Report for the 85th Arizona Town Hall, 234 pp. (Authored or co-authored eight chapters).
- Stitzer, L.S., K.L. Jacobs and ADWR Staff, (2004), Rural Water Resources Study, Arizona Department of Water Resources, 28 pp.
- National Research Council, (2004), Endangered and Threatened Species of the Platte River (Committee Report), National Academy Press, Washington, DC.
- National Research Council, (2004), Implementing Climate and Global Change Research: A

- Review of the Final U.S. Climate Change Science Program Strategic Plan (Committee Report), National Academy Press, Washington, DC.
- Jacobs, K. and R. Pulwarty, (2003), Water Resource Management: Science, Planning and Decision-Making In: Water: Science, Policy, and Management, Lawford, R., D. Fort, H. Hartmann, and S. Eden (Eds.), American Geophysical Union, Washington, DC.
- Jacobs, K. L., S. Luoma and K. Taylor, (2003), CALFED: An Experiment in Science and Decision-making, *Environment*, Jan/Feb, pp 30-41.
- Jacobs, K. L. and B. J. Morehouse, (2003), Improved Drought Planning for Arizona. Proceedings of the University of Colorado Natural Resources Law Center conference on Water, Climate and Uncertainty: Implications for Western Water Law, Policy and Management. June 11-13.
- National Research Council, (2003), Planning Climate and Global Change Research: A Review of the Draft U.S. Climate Change Science Program Strategic Plan (Committee Report), National Academy Press, Washington, DC.
- Jacobs, K.L., (2002), Connecting Science, Policy and Decision-Making: A Handbook for Researchers and Science Agencies, National Oceanic and Atmospheric Administration, Office of Global Programs, Silver Spring, Maryland.
- Jacobs, K.L. and Staff (2002), Arizona Department of Water Resources, Transition Report for Governor Napolitano: November 1, 2002.
- U.S. Global Change Research Program, (2000), U.S. National Assessment of the Impact of Climate Variability and Change, Water Sector Chapter, National Synthesis Team Report to Congress, Cambridge University Press.
- Jacobs, K.L., (1999), Post Decision Assessment – Decision-Maker Response in Tools to Aid Environmental Decision Making, V. Dale and M. English, eds. University of Tennessee, National Center for Decision Making Research.
- Jacobs, K.L., L.G. Wilson and G. Matlock, (1998), Hydrologic Uncertainties and Policy Implications: The Water Consumer Protection Act of Tucson, Arizona, USA, *Hydrogeology Journal*, Volume 6, Number 1, June.
- National Research Council, (1997), Valuing Ground Water: Economic Concepts and Approaches, Water, Science and Technology Board, National Academy Press, Washington, DC.
- Jacobs, K.L. and S. Eden, (1997), Regional Recharge Planning in the Tucson Active Management Area, *Proceedings of the 8th Biennial Symposium on the Artificial Recharge of Groundwater*.
- Jacobs, K.L., (1996), Regional Recharge Committee Technical Report, Arizona Department of Water Resources, Tucson Active Management Area.
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- Jacobs, K.L., (1992), Assured Water Supply Program: Consistency with the Management Goal. Arizona Department of Water Resources, February.
- Jacobs, K.L., and T.C. Richmond, (1991), Evaluation of Potential Agricultural Requirements for Future Management Periods, Arizona Department of Water Resources, October.
- Jacobs, K.L., (1991), How to Handle Your Friendly Local Regulator, *Proceedings of the International Golf Course Superintendents Conference*, February.
- Woodard, G. and K.L. Jacobs, K.L. (1990), Salvaging Arizona's Groundwater Code, *Arizona Review*, Spring.
- Jacobs, K.L., (1990), Water Conservation Planning in Arizona: A Guide to the Second Management Plan. *Proceedings of Conserv 90*, August.

- Jacobs, K.L., and P. Dos Santos, (1990), Santa Cruz County Water Issues Report, Arizona Department of Water Resources, April.
- Jacobs, K.L., (1988), Arizona's Second Management Plan: A Strategy for the 1990's, *Proceedings of the Arizona-Nevada Academy of Science*.
- Jacobs, K.L., and T. Carr, (1988), Groundwater Management in Arizona: An Evolving Perspective, *Proceedings of the Western States Water Council Symposium*.
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- Jacobs, K.L., (1986), Review of The Florida Water Atlas, *Economic Geography*.
- Jacobs, K.L., (1985), Turf and Landscape Regulations for the Tucson and Phoenix Active Management Areas, *Proceedings of the Arizona Turf, Landscape and Irrigation Conference*, May.
- Jacobs, K.L., (1980), Celia Thaxter and Her Island Garden. *Landscape*, Volume 24, Number 3, September.
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