# **CURRICULUM VITAE**

### **KATHARINE L. JACOBS**

Professor, Environmental Science
Director, Center for Climate Adaptation Science and Solutions
The University of Arizona
jacobsk@email.arizona.edu

### **CURRENT POSITION:**

Katharine Jacobs is the Director of the Center for Climate Adaptation Science and Solutions (CCASS) within the Institute of the Environment at the University of Arizona. CCASS builds and supports climate change adaptation and assessment capacity at regional, national and international scales, based on climate science and service investments across the United States. We connect science with decision-making and work with stakeholders to build collaborative, practical solutions to climate-related problems. Jacobs is a full professor in Environmental Science; she holds joint appointments in Geography and Regional Development and Hydrology and Water Resources. Current activities include managing projects to enhance resilience among the largest water utilities in the country; leading multiple projects related to use of climate information to support Colorado River management; providing science support for the Lower Santa Cruz River Basin Study under the Secure Water Act; planning and executing a wide range of workshops, events and symposia; giving public presentations and keynote addresses to multiple audiences; teaching climate adaptation and climate assessment classes; and participating on multiple national and international advisory groups.

#### PRIOR EXPERIENCE:

Director, National Climate Assessment; Assistant Director, Energy and Environment Division, Office of Science and Technology Policy, Executive Office of the President. December 2009 – December 2013

Managed the third National Climate Assessment (NCA3) report development and initiation of an ongoing assessment process; led a USGCRP working group that supported all of the Assessment activities; developed and supported the 60 member federal advisory committee; hired and managed the NCA3 staff in the US Global Change Research Program (USGCRP) office; conducted 70 workshops and listening sessions; briefed agencies and congressional staff on a regular basis; gave public presentations; worked with the Federal Advisory Committee chairs to manage the development of the report; edited and reviewed the 840 page report.

As lead water advisor to Dr. John Holdren, President Obama's Science Advisor, Jacobs was the liaison to the Subcommittee on Water Availability and Quality, and developed a new interagency water initiative that was adopted by the Committee on Environment, Natural Resources and Sustainability of the National Science and Technology Council. In her role as lead adaptation advisor at OSTP, Jacobs supported the development of the President's Climate Action Plan and associated Executive Orders and was the lead OSTP staff for the White House Adaptation Task Force and the USGCRP Interagency Working Group on Adaptation. She worked on multiple federal reports on adaptation and agency adaptation plans for federal agencies.

Professor and Specialist, Department of Soil, Water and Environmental Science; Director Arizona Water Institute; Deputy Director, NSF Science and Technology Center (STC) for Sustainability of semi-Arid Hydrology and Riparian Areas (SAHRA); Water Management Extension Specialist, Water Resources Research Center, University of Arizona, October 2003 – December 2009

Research, teaching, management of a multi-university center, stakeholder outreach and engagement activities focused on water policy, water sustainability, drought planning, stakeholder engagement, Colorado River management, climate change adaptation, and analysis of knowledge systems for sustainable development. Jacobs also served as a water management extension specialist (multiple outreach and education activities) and as an Associate Director of the SAHRA Science and Technology Center (see below).

### Executive Director of the Arizona Water Institute, January 2006 – July 2009.

Initiated and led an innovative partnership that combined the expertise of Arizona water managers, the three Arizona state universities, and three state agencies—Water Resources (ADWR), Environmental Quality (ADEQ), and Commerce (ADoC)—to support water resources management and technology development in real-world applications. Responsible for program development, building collaborative partnerships with communities, agencies and tribes, project management, inter-university and inter-agency coordination, grants administration and management, grant writing and fundraising, outreach, education, and technology transfer; also facilitated workshops, supervised employees and students, managed 40 research projects over three years, and gave public lectures and presentations.

Deputy Director, NSF Center for Sustainability of semi-Arid Hydrology and Riparian Areas (SAHRA), University of Arizona, September 2004 – February 2008.

Member of the management team for an NSF Science and Technology Center at the University of Arizona, working with Dr. Jim Shuttleworth, who was the director at the time. The Center coordinated the work of researchers within 14 universities and laboratories, and engaged over 250 researchers. The budget was just under \$3 million annually; Jacobs also developed and managed SAHRA's water management-focused stakeholder engagement program. Duties changed to **Associate Director for Science Implementation**, March 2008 to 2010. Managed stakeholder engagement activities and facilitated use of science outputs in management applications.

Special Assistant for Policy and Planning, Arizona Department of Water Resources, August 2002 – October 2003. In this position, Jacobs 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 – July 2002, Jacobs 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 July 2001. Jacobs was the lead staff supporting a 49-person Governor's Commission and multiple working groups.
- Director, Tucson Active Management Area, Arizona Department of Water Resources, February 1988 March 2001. Her 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 – February 1988. Jacobs 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. Jacobs also 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, Jacobs prepared the Coastal Management Plan for a 25-mile segment of the Anchorage shoreline, including public access, resource protection, and scenic area elements.

#### **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 – Biology.

### **CURRENT PARTICIPATION/MEMBERSHIPS/ADVISORY COMMITTEES**

Board of Directors, University Corporation for Atmospheric Research (UCAR)

Board on Environmental Change and Society (BECS), Division of Behavioral and Social Sciences and Education, National Academies of Sciences

Board of Directors, Resources Legacy Fund

Convening Board, Sustained National Climate Assessment/Science for Climate Action Network Chair, External Advisory Board, Western Water Assessment (WWA NOAA RISA, Colorado)

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External Advisory Board, Alaska Center for Climate Assessment and Policy (ACCAP RISA)

Independent Science Panel for the Deep South National Science Challenge (New Zealand)

Tucson Audubon Advisory Board

Chair, Tucson Audubon Conservation Action Committee

Board of Directors, Water Solutions Network

Project Advisory Committee, Long-term Vulnerability Assessment and Adaptation Plan for the San Francisco PUC Water Enterprise

Design Team Member, Arizona Institutes for Resilient Environment and Communities, University

of Arizona

Steering Committee, Ecological Society of America, Intergovernmental Platform for Biodiversity and Ecosystem Services

Advisory Board, Institute for Energy Solutions, University of Arizona

Advisory Committee, Open Rivers Fund

Advisory Group, Multiple Benefits Project, Pacific Institute

### PREVIOUS PARTICIPATION/MEMBERSHIPS

Science Advisory Committee, Oak Ridge National Laboratory Energy and Environmental Science Directorate (2015-2017)

Board of Directors, American Meteorological Society – Board on Global Strategies (2014-2017)

Board of Directors, California Water Foundation (2014-2016)

Advisory Board, Joint Global Change Research Institute (2015-2018)

US Global Change Research Program Executive Committee (2010-2013)

Co-Chair, US Global Change Research Program, Social Science Task Force (2012-2013)

White House Adaptation Task Force (2010-2013)

White House Hurricane Sandy Recovery Task Force (2013)

National Research Council - America's Climate Choices Panel and Adapting to the Impacts of Climate Change Panel (2009-2010)

University Corporation for Atmospheric Research – Trustee (2010)

Colorado River Hydrology Advisory Board – US Bureau of Reclamation (2008-2010)

Board of Directors, Water Education Foundation (2007-2010)

Trustee, Board of the Arizona Chapter of The Nature Conservancy; Chair, Conservation and Public Policy Committee (2006-2010)

California Water Plan Climate Change Technical Advisory Group (2006-2010)

University of Arizona Campus Sustainability Steering Committee (2006-2010)

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)

National Oceanic and Atmospheric Administration (NOAA) Climate Services Development Review Panel (2005)

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 and 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)

#### **HONORS—Professional:**

Appointed to Board on Environmental Change and Society, Division of Behavioral and Social Sciences and Education, National Academies of Sciences, 2017

Appointed to National Academy of Sciences Panels, 1994, 2002, 2003, 2004, 2005, 2008 (2 panels), 2015

Senior Fellow, National Council for Science and the Environment, 2014

National Council for Science and the Environment Award for Outstanding Contributions, 2013

Partners in Conservation Award, Secretary of the Interior, 2009

Outstanding Diversity by a Graduate Program Award, Univ. of Arizona, 2008

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

## **PUBLICATIONS**

- Black, M., K. Jacobs and A. Leinberger. "Final Conference Report, Colorado River Conversations Conference." University of Arizona, Tucson, AZ. February, 2020.
- Gerlak, A.K., S.J. Mason, M. Daly, D. Liverman, Z. Guido, M.B. Soares, C. Vaughan, C. Knudson, C. Greene, J. Buizer, **K. Jacobs** (accepted). "The Gnat and the Bull: Do Climate Outlook Forums Make a Difference?" *Bulletin of the American Meteorological Society*.
- Ruckelshaus, M.H., S.T. Jackson, H.A. Mooney, K.L. Jacobs, K.S. Kassam, M.T.K. Arroyo, A. Baldi, A.M. Bartuska, J. Boyd, L.N. Joppa, A.Kovacs-Hostyanszki, J.P. Parsons, R.J. Scholes, J.F. Shogren, Z. Ouyang, 2020 (accepted). The IPBES Global Assessment: Pathways to Action. *Trends in Ecology and Evolution*.
- Moss, R., ... **K. Jacobs** et al., "Evaluating Knowledge to Support Climate Action: A Framework for Sustained Assessment, Report of an Independent Advisory Committee on Applied Climate Assessment. *Weather, Climate and Society*, Weather, Climate, and Society, July 2019, Vol. 11, No. 3
- **Jacobs, K.** "Water, Climate Change and Law: The Case for More Protection" *Arizona Journal of Environmental Law and Policy*, Spring, 2019, Vol 10, No. 3, 12 pp.
- Wasley, E., **K. Jacobs,** and J. Weiss, 2019. "Mapping Climate Exposure and Climate Information Needs
  - to Utility Business Functions." Water Research Foundation Project 4729. 80 p.
- **Jacobs, K.**, 2018. "Through the Looking Glass: Climate Change and the Future of Water in the Tucson Region." *Sonorensis.* Vol. 38, No. 1.
- **Jacobs, K.**, and M. Black. 2018. "Colorado River: Building a Science Agenda, Decision-Makers and Interested Parties Workshop," Final Report from April 3-4, 2018 Workshop. University of Arizona, 92 pp.
- Black, M. and **K. Jacobs**, 2018. "Colorado River: Building a Science Agenda. Final Workshop Report, October 10-12, 2017. NSF Award 1644884. University of Arizona, 94 pp.

- Gerlak, A.K., Z. Guido, C. Vaughan, V. Rountree, C. Greene, D. Liverman, A. Trotman, R. Mahon, S. Cox, S.J. Mason, **K.L. Jacobs**, J.L. Buizer, C. Van Meerbeeck, and W.E. Baethgen, 2018. Building a framework for process-oriented evaluation of Regional Climate Outlook Forums, *Water, Climate and Society.* doi: 10.1175/WCAS-D-17-0029.1
- **Jacobs, K.** "National Council for Science and the Environment: 2018 National Conference Report". University of Arizona, Institute of the Environment. 28 p.
- **Jacobs, K**. and P. Fleming, 2017. "Climate Change: A Strategic Opportunity for Water Managers" in *The Water Problem: Climate Change and Water Policy in the United States*. P. Mulroy, Ed. Brookings Institution Press: ISBN 9780815727842
- Jackson, S.T., C.S. Duke, S.E. Hampton, **K.L. Jacobs**, L.N. Joppa, K.S. Kassam, H.A. Mooney, L.A. Ogden, M. Ruckelshaus, J.F. Shogren, 2016. Towards a National, Sustained U.S. Ecosystem Assessment. *Science Policy*. Vol. 354, No. 6314, p 838-339.
- **Jacobs, K.**, S. Moser and J. Buizer, eds., 2016. *The US National Climate Assessment: Innovations in Science and Engagement.* Springer Climate doi10.1007/978-3-319-41802-5.
- National Research Council, 2016. (**Jacobs** panel member), *Attribution of Extreme Weather Events in the Context of Climate Change.* Washington, DC: the National Academies Press.
- Asrar, G.R., R. Moss, and **K.L. Jacobs**, 2016. Challenges and Opportunities in Earth-Human Systems Research, *Eos*, 97, doi:10.1029/2016E0050919. Published on 25 April 2016.
- Joppa, L.N., J.W. Boyd, C.S. Duke, S. Hampton, S.T. Jackson, **K.L. Jacobs,** K.S. Kassam, H.A. Mooney, L.A. Ogden, M. Ruckelshaus, J.F. Shogren, 2016. Government: Plan for Ecosystem Services. *Science Letters*, Vol. 351, No. 6277, p. 1037.
- **Jacobs, K.L.**, 2016. Contributions of the Third U.S. National Climate Assessment. *Proceedings of the U.S.-Iran Symposium on Climate Change: Impacts and Mitigation,* Mar 30-Apr 1, 2015, Irvine, CA.
- Howden, Mark and **K.L. Jacobs**, 2015. Innovations in Assessment and Adaptation. *Climatic Change* doi 10.1007/s10584-015-1519-7
- Moser, S.C., J.M. Melillo, **K.L. Jacobs**, R.H. Moss, J.L. Buizer, 2015. Aspirations and common tensions: larger lessons from the third national climate assessment. *Climatic Change* doi 10.1007/s10584-015-1530-z
- **Jacobs, K**., and J.L. Buizer, 2015. Foreword to *Climate in Context: Science and Society Partnering for Adaptation*. New York, Wiley.
- Garfin G, Sagarin R, Falk D, Haworth A, **Jacobs K**, Overpeck J, O'Connor C, Weiss J, Zuñiga-Teran A (2015) Climate Change Impacts and Adaptation on Southwestern DoD Facilities. Prepared by Project RC-2232 for the Strategic Environmental Research and Development Program.
- **Jacobs, K**., California enters an era of limits. *Journal of Extreme Events, 2(1).* doi: 10.1142/S2345737615020030.
- Buizer, J.L., K. Dow, M.E. Black, **K.L. Jacobs**, R.H. Moss, S. Moser, A. Luers, D.L. Gustafson, T.C. Richmond, S.L. Hays, C.B. Field, 2015. Building a sustained climate assessment process. *Climatic Change* doi: 10.1007/s10684-015-1501-4
- **Jacobs**, **K.L.** and J.L. Buizer, 2015. Building community, credibility and knowledge: the third U.S. National Climate Assessment. *Climatic Change* doi:10.1007/s10584-015-1445-8
- **Jacobs, K.L.** and L. Snow. Adaptation in the Water Sector: Science and Institutions, 2015. *Daedalus* (Journal of the American Academy of Arts and Sciences) *144*(3): 59-71.
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- Ma, X., P. Fox, C. Tilmes, **K. Jacobs,** and A. Waple, 2014. Capturing provenance of global change information. *Nature Climate Change*, *4*: 409-413. doi:10.1038/nclimate2141
- Grimm, N. and **K. Jacobs**, 2013. Evaluating climate impacts on people and ecosystems. Guest editorial, *Frontiers in Ecology and the Environment*, *11*(9): 455. http://dx.doi.org/10.1890/1540-9295-11.9.455
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- **Jacobs, K.**, L. Lebel, J. Buizer, L. Addams, P. Matson, E. McCullough, P.Garden, G. Saliba, and T. Finan, 2010. Linking knowledge with action in the pursuit of sustainable water resources management. *Proceedings of the National Academy of Sciences Early Edition*. www.pnas.org/cgi/doi/10.1073/pnas.0813125107
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- **Jacobs, K.,** G. Garfin, and J. Buizer, 2009. The science-policy interface: Experience of a workshop for climate change researchers and water managers. *Science and Public Policy*, 36(10): 712-798. 10.3152/030234209X481969
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- Garfin, G., **K. Jacobs**, and J. Buizer, 2009. Climate change adaptation lessons from the land of dry heat, in *Planning for an Uncertain Future—Monitoring, Integration, and Adaptation: Proceedings of the Third Interagency Conference on Research in the Watersheds: U.S. Geological Survey Scientific Investigations Report, ed. by R.M.T. Webb and D.J. Semmens, pp. 53-57. http://pubs.usgs.gov/sir/2009/5049/pdf/Garfin.pdf*
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- Garrick, D., and **K. L. Jacobs**, 2006. Water management on the Colorado River: From surplus to shortage in five years, *Southwest Hydrology*, *5*(3): 8-9.
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- National Research Council, 2005. Review of the GEWEX Americas Prediction Project Science Implementation Plan, Committee Report (**K**. **Jacobs**, Chair). National Academy Press, Washington, D.C.
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- **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*, *41*(2): 437-445.
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- **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 85<sup>th</sup> 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, **Jacobs** member), 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 **Jacobs** member), 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,* R. Lawford, 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*, 45(1): 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< Jacobs member), National Academy Press, Washington, DC.
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- U.S. Global Change Research Program, 2000. U.S. National Assessment of the Impact of Climate Variability and Change, Water Sector Chapter, **Jacobs** lead author, National Synthesis Team Report to Congress, Cambridge University Press.
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- National Research Council, 1997. Valuing Ground Water: Economic Concepts and Approaches, Water, Science and Technology Board, (Committee Report, Jacobs member), National Academy Press, Washington, DC.
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- Jacobs, K.L., 1980. Celia Thaxter and her island garden. Landscape, 24(3), September.
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