

Sheila M. Olmstead

Professor of Public Affairs
Lyndon B. Johnson School of Public Affairs
The University of Texas at Austin
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EDUCATION

Ph.D., Public Policy, John F. Kennedy School of Government, Harvard University, 2002
M.P.Aff., Lyndon B. Johnson School of Public Affairs, University of Texas at Austin, 1996
B.A., Political and Social Thought, with High Distinction, University of Virginia, 1992

RESEARCH AND TEACHING FOCUS

Environmental and natural resource economics and policy, with a focus on water resources

ACADEMIC AND RESEARCH APPOINTMENTS

Current Appointments

The University of Texas at Austin

Professor, Lyndon B. Johnson School of Public Affairs, 2017-
Associate Professor, Lyndon B. Johnson School of Public Affairs, 2013-2017
Faculty Affiliate, Environmental Science Institute, 2013-
Faculty Affiliate, The Energy Institute, 2013-

University Fellow, Resources for the Future, Washington, DC, 2017-

Senior Fellow, Property and Environment Research Center, Bozeman, MT, 2015-

Editor, *Journal of the Association of Environmental and Resource Economists*, 2017-

Member, Science Advisory Board (SAB), U.S. Environmental Protection Agency, 2021-

Member, Economic Analysis Committee, SAB, U.S. Environmental Protection Agency, 2021-

Prior Appointments

Senior Economist for Energy and the Environment, President's Council of Economic Advisers, 2016-17

Resources for the Future

Visiting Fellow, 2013-2017
Senior Fellow, April – July 2013
Fellow (with tenure), July 2010 – March 2013
Visiting Scholar, July 2009 – June 2010

Yale University, School of Forestry and Environmental Studies

Associate Professor of Environmental Economics (untentured), December 2007 – June 2010
Secondary joint appointment, Department of Economics, December 2007 – June 2010
Assistant Professor of Environmental Economics, July 2002 – November 2007

Member, Board of Directors, Association of Environmental and Resource Economists, 2012-2014
Vice President, Board of Directors, Association of Environmental and Resource Economists, 2015-2016

Editorial Council member, *Journal of the Association of Environmental & Resource Economists*, 2014-2016
Co-Editor, *Environmental and Resource Economics*, 2014-2016
Associate Editor, *Water Resources Research*, 2015-2016
Associate Editor, *Water Resources and Economics*, 2012-2014
Book Review Editor, *Water Economics and Policy*, 2013-2015

Deputy Director, Center for Reinventing Aging Infrastructure for Nutrient Management
The University of South Florida, Tampa, FL, 2013-2016

OTHER PROFESSIONAL EXPERIENCE

Texas Water Development Board, Austin, Texas
Research Specialist, Office of Project Finance and Construction Assistance, 1998

The University of Texas, Austin, Texas
Assistant Director, Center for Environmental Resource Management in Latin America, 1996-1997
Research Associate, LBJ School of Public Affairs, 1996

Texas Natural Resource Conservation Commission, Austin, Texas
Intern, Office of Border Affairs, 1995-1996

National Policy Association (formerly National Planning Association), Washington, D.C.
Aid and Development Project Coordinator, 1993-1994; *Research Assistant*, 1992-1993

AWARDS AND DISTINCTIONS

Teaching award: “Pivot” award for best quick adaptation of a course after the TX freeze, LBJ School, 2020-21
Teaching award: “Best Transition Online,” LBJ School of Public Affairs, 2019-20
Teaching award: “Best Class,” LBJ School of Public Affairs, 2017-18
Teaching award: “Best Class,” LBJ School of Public Affairs, 2015-16
Julian Simon Fellow, Property Environment Research Center, 2015-16
Teaching award: “Most Engaging Teaching Style,” LBJ School of Public Affairs, 2014-15
Lone Mountain Fellow, Property Environment Research Center, 2014
Teaching award: “Best Lecture Course,” Yale School of Forestry & Environmental Studies, 2004, 2007, 2008
Savitz Fellow Award, Best Doctoral Paper in Environmental Policy, Harvard University, 2002
Certificate of Excellence in Teaching, President and Fellows of Harvard College, 2001-2002
Pre-doctoral Fellow, Environmental Economics Program at Harvard University, 2001-2002
Joseph Crump Fellow, Kennedy School of Government, Harvard University, 2000-2001
Graduate Departmental Fellowship, Kennedy School of Government, Harvard University, 1997-1999
Emmette S. Redford Award for Outstanding Research, LBJ School of Public Affairs, 1996
Claudia Taylor Johnson Merit Fellowship, LBJ School of Public Affairs, 1994-1996
Phi Beta Kappa, 1992

PUBLICATIONS AND MANUSCRIPTS

Published Journal Articles

Keiser, David A., Sheila M. Olmstead, Kevin J. Boyle, Victor B. Flatt, Bonnie L. Keeler, Daniel J. Phaneuf, Joseph S. Shapiro, and Jay P. Shimshack. 2022. The evolution of WOTUS and the role of economics. *Review of Environmental Economics and Policy* (in press).

Zhu, Qianru, Benjamin D. Leibowicz, Joshua W. Busby, Sarang Shidore, David E. Adelman, and Sheila M. Olmstead. 2022. Enhancing policy realism in energy system optimization models: politically feasible decarbonization pathways for the United States. *Energy Policy* (in press).

Keiser, David, Sheila Olmstead, Kevin Boyle, Victor Flatt, Bonnie Keeler, Cathy Kling, Dan Phaneuf, Joe Shapiro, and Jay Shimshack. 2021. A water rule that turns a blind eye to transboundary pollution. *Science* 372(6539): 241-243.

Downing, John, Steve Polasky, Sheila Olmstead, and Steve Newbold. 2021. Protecting local water quality has global benefits. *Nature Communications* 12: 2709.

Olmstead, Sheila, and Jiameng Zheng. 2021. Policy instruments for water pollution control in developing countries. *Review of Environmental Economics and Policy* 15(2): 261-280.

Waxman, Andrew, Sean Corcoran, Andrew Robison, Benjamin Leibowicz, and Sheila Olmstead. 2021. Leveraging scale economies and policy incentives: carbon capture, utilization and storage in Gulf clusters. *Energy Policy* 156: 112452.

Rimsaite, Renata, Karen Fisher-Vanden, Sheila Olmstead, and Danielle Grogan. 2021. How well do U.S. western water markets convey economic information? *Land Economics* 97(1): 1-16.

Kuwayama, Yusuke, Sheila Olmstead, Derek Wietelman, and Jiameng Zheng. 2020. Trends in nutrient pollution as a potential source of water quality damages: a case study of Texas, USA. *Science of the Total Environment* 174: 137962.

Waxman, Andrew, Achmad Khomaini, Benjamin Leibowicz, and Sheila M. Olmstead. 2020. Emissions in the stream: estimating the greenhouse gas impacts of an oil and gas boom. *Environmental Research Letters* 15: 014004.

Fitzgerald, Timothy, Yusuke Kuwayama, Alexandra Thompson, and Sheila M. Olmstead. 2020. Dynamic impacts of U.S. energy development on agricultural land use. *Energy Policy* 137: 111163.

Kuwayama, Yusuke, and Sheila M. Olmstead. 2020. Hydroeconomic modeling of resource recovery from wastewater: implications for water quality and water quantity management. *Journal of Environmental Quality* 49(3): 593-602, <https://doi.org/10.1002/jeq2.20050>.

Rhodes, Joshua D., Carey King, Gürcan Gulen, Sheila M. Olmstead, James S. Dyer, Robert E. Hebner, Fred C. Beach, Thomas F. Edgar, and Michael E. Webber. 2018. Corrigendum to “A geographically resolved method to estimate levelized power plant costs with environmental externalities” [*Energy Policy* 102: 491-499]. *Energy Policy* 118: 514-515.

Rhodes, Joshua D., Carey King, Gürcan Gulen, Sheila M. Olmstead, James S. Dyer, Robert E. Hebner, Fred C. Beach, Thomas F. Edgar, and Michael E. Webber. 2017. A geographically resolved method to estimate levelized power plant costs with environmental externalities. *Energy Policy* 102: 491-499.

- Olmstead, Sheila M., Karen A. Fisher-Vanden, and Renata Rimsaite. 2016. Climate change and water resources: some adaptation tools and their limits. *Journal of Water Resources Planning and Management* 10.1061/(ASCE)WR.1943-5452.0000642.
- Olmstead, Sheila M., and Hilary Sigman. 2015. Damming the commons: an empirical analysis of international cooperation and conflict in dam location. *Journal of the Association of Environmental and Resource Economists* 2(4): 497-526.
- Mason, Charles F., Lucija A. Muehlenbachs, and Sheila M. Olmstead. 2015. The economics of shale gas development. *Annual Review of Resource Economics* 7: 269-289.
- Shih, Jhih-Shyang, James E. Saiers, Shimon C. Anisfeld, Ziyang Chu, Lucija A. Muehlenbachs, and Sheila M. Olmstead. 2015. Characterization and analysis of liquid waste from Marcellus Shale gas development. *Environmental Science and Technology* 49(16): 9557-9565.
- Kuwayama, Yusuke, Alan Krupnick, and Sheila M. Olmstead. 2015. Water quality and quantity impacts of hydraulic fracturing. *Current Sustainable/Renewable Energy Reports*, doi: 10.1007/s40518-014-0023-4.
- Olmstead, Sheila M., and Nathan Richardson. 2014. Managing the risks of shale gas development using innovative legal and regulatory approaches. *William & Mary Environmental Law and Policy Review* 39(1): 177-199.
- Small, Mitchell J., Paul C. Stern, Elizabeth Bomberg, Susan M. Christopherson, Bernard D. Goldstein, Andrei L. Israel, Robert B. Jackson, Alan Krupnick, Meagan S. Mauter, Jennifer Nash, D. Warner North, Sheila M. Olmstead, Aseem Prakash, Barry Rabe, Nathan Richardson, Susan Tierney, Thomas Webler, Gabrielle Wong-Parodi, and Barbara Zielinska. 2014. Risks and risk governance in unconventional shale gas development. *Environmental Science and Technology* 48(15): 8289-8297.
- Olmstead, Sheila M. 2014. Climate change adaptation and water resource management: A review of the empirical literature. *Energy Economics* 46: 500-509.
- Kousky, Carolyn, Sheila M. Olmstead, Margaret A. Walls, and Molly Macauley. 2013. Strategically placing green infrastructure: benefits and costs of land conservation in the floodplain. *Environmental Science and Technology* 47(8): 3563-3570.
- Olmstead, Sheila M., Lucija Muehlenbachs, Jhih-Shyang Shih, Ziyang Chu, and Alan Krupnick. 2013. Shale gas development impacts on surface water quality in Pennsylvania. *Proceedings of the National Academy of Sciences*, 110(13): 4962-4967.
- Fisher-Vanden, Karen A., and Sheila M. Olmstead. 2013. Moving pollution trading from air to water: potential, problems, and prognosis. *Journal of Economic Perspectives* 27(1): 147-172.
- Mansur, Erin T., and Sheila M. Olmstead. 2012. The value of scarce water: measuring the inefficiency of municipal regulations. *Journal of Urban Economics* 71: 332-346.
- Olmstead, Sheila M., and Robert N. Stavins. 2012. Three key elements of a post-2012 international climate policy architecture. *Review of Environmental Economics and Policy* 6(1): 65-85.
- Akram, Agha Ali, and Sheila M. Olmstead. 2011. The value of household water service quality in Lahore, Pakistan. *Environmental and Resource Economics* 49(2): 173-198.
- Olmstead, Sheila M. 2010. The economics of managing scarce water resources. *Review of Environmental Economics and Policy* 4(2): 179-198. Reprinted in: Robert N. Stavins, ed., 2012, *Economics of the*

Environment: Selected Readings, 6th edition, New York: W. W. Norton & Company: 398-420.

Olmstead, Sheila M. 2010. The economics of water quality. *Review of Environmental Economics and Policy* 4(1): 44-62.

Mendelsohn, Robert O., and Sheila M. Olmstead. 2009. The economic valuation of environmental amenities and disamenities: Methods and applications. *Annual Review of Environment and Resources* 34: 325-347.

Bennear, Lori S., Katrina K. Jessoe, and Sheila M. Olmstead. 2009. Sampling out: Regulatory avoidance and the Total Coliform Rule. *Environmental Science and Technology* 43(14): 5176-5182.

Olmstead, Sheila M., and Robert N. Stavins. 2009. Comparing price and non-price approaches to water conservation. *Water Resources Research*, 45(4), W04301. Reprinted in R. Quentin Grafton et al., eds., *Water Security, Governance and Economics*, Prahran, Australia: Tilde University Press, 2013, pp. 306-323.

Olmstead, Sheila M. 2009. Reduced-form vs. structural models of water demand under non-linear prices. *Journal of Business and Economic Statistics* 27(1): 84-94.

Bennear, Lori S., and Sheila M. Olmstead. 2008. The impact of the “right to know”: Information disclosure and the violation of drinking water standards. *Journal of Environmental Economics and Management* 56(2): 117-130.

Olmstead, Sheila M., W. Michael Hanemann, and Robert N. Stavins. 2007. Water demand under alternative price structures. *Journal of Environmental Economics and Management* 54(2): 181-198.

Olmstead, Sheila M., and Robert N. Stavins. 2007. A meaningful second commitment period for the Kyoto Protocol. *The Economists' Voice* 4(3). Reprinted in J. E. Stiglitz, A. Edlin and J. Bradford Delong, eds., *The Economists' Voice: Top Economists Take on Today's Problems*, Columbia University Press, New York: 28-36.

Olmstead, Sheila M., and Robert N. Stavins. 2006. An international policy architecture for the post-Kyoto era. *American Economic Review, Papers and Proceedings* 95(2): 35-38.

Olmstead, Sheila M. 2004. Thirsty *colonias*: Rate regulation and the provision of water service,” *Land Economics* 80(1), February 2004: 136-150.

Olmstead, Sheila M. 2003. Water supply and poor communities: What's price got to do with it? *Environment* 45(10): 22-35.

Hahn, Robert W., Sheila M. Olmstead, and Robert N. Stavins. 2003. Environmental regulation in the 1990s: A retrospective analysis. *Harvard Environmental Law Review* 27(2):377-415. Reprinted in R. N. Stavins, ed., *The Political Economy of Environmental Regulation*, Edward Elgar, Cheltenham, UK, pp. 533-571; and R. N. Stavins, ed., *Economics of the Environment: Selected Readings*, 5th edition, W. W. Norton & Company, New York: 616-648.

Books

Keohane, Nathaniel O., and Sheila M. Olmstead. 2007, 2016. *Markets and the Environment: An Introduction to Environmental and Resource Economics*, Island Press, Washington, D.C. First edition 2007 (274 pp.), Second edition 2016 (307 pp.).

Olmstead, Sheila M., ed. 2015. *Wastewater and Shale Formation Development*, Apple Academic Press, Waretown, N.J. (269 pp.).

Book Chapters

Olmstead, Sheila M. 2009, 2012, 2015, 2018, 2021. Applying market principles to environmental policy. In: *Environmental Policy: New Directions for the Twenty-First Century*, 6th, 7th, 8th, 9th, and 10th editions. Ed. Norman J. Vig and Michael E. Kraft, Congressional Quarterly Press, Washington, DC.

Kuwayama, Yusuke, and Sheila M. Olmstead. 2015. Water quality and economics: willingness to pay, efficiency, cost-effectiveness, and new research frontiers. In: *The Handbook on the Economics of Natural Resources*. Ed. David Layton and Robert Halvorsen, Elgar, Amsterdam: 474-501.

Olmstead, Sheila M. 2012. The role of market incentives in environmental policy. In: *The Oxford Handbook of U.S. Environmental Policy*. Ed. Sheldon Kamieniecki and Michael E. Kraft, Oxford University Press, New York: 553-581.

Kousky, Carolyn, Sheila M. Olmstead, and Roger Sedjo. 2011. In harm's way: Homeowner behavior and wildland fire policy. In: *Wildfire Policy: Law and Economics Perspectives*. Ed. Dean Lueck and Karen Bradshaw, Taylor and Francis, Washington, DC: 178-199.

Olmstead, Sheila M. 2007. The whole and the sum of its parts: Comments on David Victor's "Fragmented carbon markets and reluctant nations." In: *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*. Ed. J. Aldy and R. Stavins, Cambridge University Press, Cambridge, UK: 173-84.

Other (Non-refereed) Publications

Duggan, Mark and Sheila Olmstead. 2021. A tale of two states: Contrasting economic policy in California and Texas. SIEPR Policy Brief. Stanford Institute for Economic Policy Research, Palo Alto, CA. September. <https://siepr.stanford.edu/research/publications/tale-two-states-contrasting-economic-policy-california-and-texas>

Keiser, David A., Sheila M. Olmstead, Kevin J. Boyle, Victor B. Flatt, Bonnie L. Keeler, Daniel J. Phaneuf, Joseph S. Shapiro, and Jay P. Shimshack. 2020. Report on the repeal of the Clean Water Rule and its replacement with the Navigable Waters Protection Rule to define Waters of the United States (WOTUS). Report to the External Environmental Economics Advisory Committee (E-EEAC). December. <https://www.e-eeac.org/wotusreport>.

Olmstead, Sheila M. and David B. Spence. 2017. Through the looking glass with the Clean Power Plan. UT Austin Energy Institute, 18 October. <https://energy.utexas.edu/news/through-looking-glass-clean-power-plan>.

Olmstead, Sheila M. 2015. Markets and the environment: progress and future challenges. *Annual proceedings of the Wealth and Well-Being of Nations, 2014-2015. Volume VII: Economic policy and the challenges of climate change: ideas and influence of Robert N. Stavins*. Beloit, WI: Beloit College Press, pp. 49-68.

von Hippel, Paul, and Sheila M. Olmstead. 2014. Should we all take a bit of Lithium?! RFF Common Resources Blog, 5 November. <http://www.rff.org/blog/2014/should-we-all-take-bit-lithium>.

Olmstead, Sheila M., and Hilary Sigman. 2014. Exporting the cost of dams. RFF Common Resources Blog, 8 August. <http://www.rff.org/blog/2014/exporting-cost-dams>.

Olmstead, Sheila M., and Nathan Richardson. 2014. Managing the risks of shale gas development using innovative legal and regulatory approaches. RFF Common Resources Blog, 23 June. <http://www.rff.org/blog/2014/managing-risks-shale-gas-development-using-innovative-legal-and-regulatory-approaches>.

Griffin, Ron, and Sheila Olmstead. 2014. Making the most of Texas SWIFT water rescue. *Austin American-Statesman*, Op-Ed, 2 April. <http://www.mystatesman.com/news/news/opinion/making-the-most-of-texas-swift-water-rescue/nfPzT/>.

Krupnick, Alan, Hal Gordon, and Sheila Olmstead. 2013. Pathways to dialogue: what the experts say about the environmental risks of shale gas development. RFF Report, February, Resources for the Future, Washington, DC. http://www.rff.org/files/sharepoint/Documents/RFF-Rpt-PathwaystoDialogue_FullReport.pdf.

Hanak, E., J. Lund, B. B. Thompson, W. B. Cutter, B. Gray, D. Houston, R. Howitt, K. Jessoe, G. Libecap, J. Medellín-Azuara, S. Olmstead, D. Sumner, D. Sunding, B. Thomas, and R. Wilkinson. 2012. Water and the California Economy. Public Policy Institute of California Report, May, San Francisco, CA. http://www.ppic.org/content/pubs/report/R_512EHR.pdf.

Olmstead, Sheila M., and Carolyn Kousky. 2012. Unnatural disasters? *Resources* 179: 21-23, February. http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Resources-179_Featurette-OlmsteadKousky.pdf.

Kousky, Carolyn, Sheila Olmstead, Margaret Walls, Adam Stern, and Molly Macauley. 2011. The role of land use in adaptation to increased precipitation and flooding: A case study in Wisconsin's Lower Fox River Basin. RFF Report, November, Resources for the Future, Washington, DC. <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Rpt-Kousky%20etal%20GreatLakes%20%282%29.pdf>.

Mansur, Erin T., and Sheila M. Olmstead. 2011. Use prices to conserve water when supplies are scarce. RFF Weekly Policy Commentary, 8 August. <http://www.rff.org/blog/2011/use-prices-conserve-water-when-supplies-are-scarce>.

Olmstead, Sheila M., and Jhih-Shyang Shih. 2010. A case study in economic analysis of the National Water Quality Assessment Program: Salinity control in the upper Colorado River Basin. RFF Report, November, Resources for the Future, Washington, DC.

Olmstead, Sheila M., and Robert N. Stavins. 2009. The essential pillars of a new climate pact. *The Boston Globe*, Op-Ed, 20 September. http://www.boston.com/bostonglobe/editorial_opinion/oped/articles/2009/09/20/the_essential_pillars_of_a_new_climate_pact/.

Benbear, Lori S., and Sheila M. Olmstead. 2008. Information disclosure and drinking water quality. RFF Weekly Policy Commentary, 1 December. Reprinted 2009 in *Resources* 173: 6-7. http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Resources-173_WPC.pdf.

Working Papers and Work in Progress

“Impacts of information disclosure on drinking water violations” with Jonathan Baker and Lori Benbear (in revise and resubmit at the *Journal of the Association of Environmental and Resource Economists*).

“A more comprehensive estimate of the value of water quality,” with Yusuke Kuwayama and Jiameng Zheng (in revise and resubmit at the *Journal of Public Economics*).

“Learning from historical water transfers in the United States: are gains from trade higher or lower under water stress?” with Karen Fisher-Vanden and Renata Rimsaite (working paper available).

“U.S. Counties with More Drinking-Water Lithium Do Not Have Less Suicide,” with Paul von Hippel and Jiameng Zheng (working paper available).

“Droughts, dams and economic activity,” with Hilary Sigman (in progress)

“Floods, shifting risk perceptions, and property prices,” with Doug Wrenn and Julian Plough (in progress)

“Induced development in risky locations: Fire suppression and land use in the American West,” with Carolyn Kousky (in progress).

RESEARCH GRANTS

External Grants

Co-Investigator, “Understanding Multi-Stressor and Multi-Scale Drivers of Feedbacks, Cascading Failures, and Risk Management Pathways within Complex MSD Systems,” U.S. Department of Energy, \$553,037 subcontract to the University of Texas at Austin (2021-2025). PI: Karen Fisher-Vanden, Pennsylvania State University.

Principal Investigator, “The economics of scaling carbon capture, utilization and storage,” Alfred P. Sloan Foundation, \$849,981 (2021-2024). Co-investigators: Andrew Waxman, Ben Leibowicz, Chuck Mason, Susan Hovorka, Vanessa Nuñez-Lopez.

Co-PI, “A Scoping Study on the Economic Cost of Water Pollution in Texas,” Cynthia and George Mitchell Foundation, \$13,008 subcontract to the University of Texas at Austin (2019). PI: Yusuke Kuwayama, Resources for the Future.

Co-Investigator, “Project on Coupled Human and Earth Systems,” U.S. Department of Energy, \$672,235 subcontract to the University of Texas at Austin (2016-2022). PIs: John Weyant, Stanford University and Karen Fisher-Vanden, Pennsylvania State University.

Co-Investigator, “Integrated assessment model development, comparison, and diagnostics project,” U.S. Department of Energy, \$133,400 subcontract to the University of Texas at Austin (2013-2016). PIs: John Weyant, Stanford University and Karen Fisher-Vanden, Pennsylvania State University.

Co-Investigator, “Reinventing aging infrastructure for nutrient management,” U.S. Environmental Protection Agency, Science to Achieve Results (STAR) Program, \$2,220,649 (\$206,187 subcontract to the University of Texas at Austin) (2014-2018). PI: Jim Mihelcic, University of South Florida.

Co-Investigator, “Regulating risks from shale gas development,” Alfred P. Sloan Foundation, \$1,171,667 (2011-2013). PI: Alan Krupnick; Co-Investigators: Lucija Muehlenbachs, Juha Siikamäki, Jih-Shyang Shih.

Principal Investigator, “Damming the commons: an analysis of international cooperation and conflict over water,” World Bank Knowledge for Change Program, \$42,285 (2011-2012). Co-PIs: Hilary Sigman and Fan Zhang.

Co-Investigator, “The role of land use in adaptation to increased precipitation and flooding,” \$128,250 (2011) National Oceanic and Atmospheric Administration, PI: Carolyn Kousky.

Principal Investigator, “Wildland fire suppression and land development in the wildland/urban interface,” Joint Fire Science Program, \$149,949 (2010-2012). Co-PIs: Carolyn Kousky and Roger Sedjo.

Principal Investigator, “Collaborative research: the impact of the ‘Right to Know’: information disclosure and drinking water quality,” National Science Foundation, Social, Behavioral and Economic Sciences, \$116,445 (2007-2010). Co-PI: Lori Bennear.

Co-Investigator, “Collaborative research: modeling and analyzing the use, efficiency, value and governance of water as a material in the Great Lakes region through an integrated approach,” National Science Foundation, Materials Use: Science, Engineering, and Society (MUSES), \$921,000 (2007-2012). PI: Julie Zimmerman; Co-Investigators: Alex Mayer, Jim Mihelcic, David Watkins, Qiong Jane Zhang.

Co-Investigator, “Analysis of future climate impacts on China’s Yellow River,” Yale University, School of Forestry and Environmental Studies, \$21,000 (2007-08). Co-PIs: Robert Mendelsohn, Jim Saiers.

Principal Investigator, “Does public information disclosure reduce drinking water violations? Evidence from Massachusetts,” Hixon Center for Urban Ecology, Yale University, \$3,600 (2006).

Co-Investigator, “Water in, water out: an analysis of water and nitrogen use in the City of New Haven,” Hixon Center for Urban Ecology, Yale University, \$14,510 (2002-06). Co-PI: Shimon Anisfeld.

Co-Investigator, “Climate change response strategies for water resources: price and non-price demand management,” National Science Foundation, Social, Behavioral and Economic Sciences, \$237,918 (2001-04). Co-PIs: Robert Stavins, W. Michael Hanemann.

Internal Grants

Principal Investigator, “The value of water quality: separating amenity and recreational benefits,” LBJ School of Public Affairs Policy Research Institute, \$12,000 (2018).

Principal Investigator, “Perceived flood risk, actual flood risk, climate change and welfare,” LBJ School of Public Affairs Policy Research Institute, \$7,500 (2018).

INVITED ACADEMIC SEMINARS (SINCE 2008)

2013-2021: American University; Beloit College; Harvard Kennedy School; Indiana University (SPEA) (virtual); Iowa State University; Johns Hopkins University; Oregon State University; Pennsylvania State University; Property and Environment Research Center (4); Seminar in Water Economics OnLLine (SWELL) (virtual); Texas A&M University; Triangle Resource and Environmental Economics Seminar (Duke-NC State-UNC); University of Houston; University of Miami; University of Tennessee, Knoxville; University of Virginia; University of Waterloo, Ontario, Canada; University of Wisconsin, Madison; U.S. Federal Reserve Board, Applied Micro Seminar (virtual)

2008-2012: Arizona State University; Colby College; Environmental Defense Fund (2); Federal Reserve Bank of Atlanta; Harvard Business School; Harvard Kennedy School; George Mason University; Pennsylvania State University; Resources for the Future (2); Rutgers University; Triangle Resource and Environmental Economics Seminar (Duke-NC State-UNC); University of California, San Diego; University of Connecticut; University of Maryland, College Park; University of Maryland, Baltimore County; University of Massachusetts, Amherst; University of Pennsylvania Law School-Wharton Risk Regulation Seminar; University of Texas at Austin, LBJ School of Public Affairs; University of Virginia; Virginia Tech; Yale University; Williams College

TEACHING

University of Texas at Austin, Courses Taught

Environmental and Energy Economics (doctoral), Spring 2018

Environmental and Resource Economics and Policy (master's)
Fall 2013, Fall 2014, Fall 2015, Spring 2018, Spring 2019, Spring 2021, Spring 2022

Applied Microeconomics for Policy Analysis (master's)
Spring 2014, Fall 2018, Spring 2020, Fall 2021

Microeconomics (master's)
Fall 2014, Fall 2015, Fall 2017, Fall 2018, Fall 2021

Economics of Water and Sanitation (master's), Spring 2016

Yale University Courses Taught

Economics of Natural Resource Management (master's)
Fall 2002, Fall 2003, Spring 2005, Fall 2005, Fall 2006, Spring 2009

Economics of Water Quality and Water Scarcity (master's)
Spring 2003, Spring 2005, Spring 2006, Spring 2008

Principles of Microeconomics with Environmental Applications (undergraduate)
Spring 2007, Fall 2008

PROFESSIONAL AFFILIATIONS AND SERVICE

Ad-Hoc Referee and Review Panelist:

American Association for the Advancement of Science, American Economic Review, American Economic Journal: Economic Policy, American Journal of Agricultural Economics, Applied Economic Perspectives and Policy, Cambridge University Press, Contemporary Economic Policy, Ecological Economics, Econometrica, Economics Letters, Environmental Economics and Policy Studies, The Environmental Forum, Environmental and Resource Economics, Environmental Research Letters, Environmental Science & Technology, Journal AWWA, Journal of the American Water Resources Association, Journal of the Association of Environmental and Resource Economists, Journal of Applied Econometrics, Journal of Benefit-Cost Analysis, Journal of Development Economics, Journal of Environmental Economics and Management, Journal of Hydrology, Journal of Industrial Economics, Journal of Policy Analysis and Management, Journal of Public Economics, Journal of Regional Science, Journal of Urban Economics, Journal of Water Resources Planning and Management, Journal of Sustainable Forestry, Land Economics, MIT Press, National Science Foundation, Natural Resource Modeling, Natural Resources Forum, PLoS-One, Public Finance and Management, Quarterly Journal of Economics, Resource and Energy Economics, Review of Environmental Economics and Policy, Scandinavian Journal of Economics, Science, Science Advances, Society and Natural Resources, Southern Economic Journal, U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Geological Survey, W.W. Norton, Water Resources Management, Water Resources Research, World Bank Economic Review.

Conference Presenter:

Association of Environmental and Resource Economists, Summer Conference, Lake Tahoe, NV, June 2019
Cornell University, Social Cost of Water Pollution conference, Ithaca, NY, April 2019
Arizona State University, New Economics of Water Conference, Tempe, AZ, October 2018
American Economic Association Annual Meeting, San Francisco, CA, January 2016
Climate Change Impacts and Integrated Assessment (CCI/IA) Workshop, Snowmass Village, CO, July 2015

American Chemical Society National Meeting, Denver, CO, March 2015
Association of Environmental and Resource Economists, Summer Conference, Asheville, NC, June 2012
NBER Integrated Assessment Modeling Conference, Cambridge, MA, May 2012
Association of Environmental and Resource Economists, Summer Conference, Seattle, WA, June 2011
Water and Health: Where Science Meets Policy. University of North Carolina, Chapel Hill, October 2010
International Water Resource Economics Consortium. University of California, Berkeley, November 2009.
Occasional CA Workshop on Environmental and Resource Economics, UC Santa Barbara, October 2005
Camp Resources XIII, Wilmington, NC, August 2005.
Ecological Engineering for Integrated Water Management. Harvard Graduate School of Design, October 2003
NBER Environmental Economics Working Group, April 2003
American Economics Association Annual Meeting, Atlanta, Georgia, January 2002

Paper Discussant:

American Economic Association Annual Meeting, January 2020
National Bureau of Economic Research, Environmental and Energy Economics Program, March 2019
American Economic Association Annual Meeting, January 2018
National Bureau of Economic Research, Environmental and Energy Economics Program, April 2016
American Economic Association Annual Meeting, January 2016
American Economic Association Annual Meeting, January 2012
Association of Environmental and Resource Economists, Summer Conference, June 2011
U.S. Environmental Protection Agency Workshop: Benefits of Environmental Disclosure, January 2011
American Economic Association Annual Meetings, January 2011
Wildfire: Economics, Law and Policy Symposium, University of Arizona, November 2010
American Economic Association Annual Meetings, January 2010
University of Pennsylvania Law School, Climate Change Law and Policy Workshop, October 2009
National Bureau of Economic Research Summer Institute in Environmental Economics, July 2009
Northeastern Conference in Environmental and Resource Economics, November 2007
Harvard Climate Policy Architecture Workshop, May 2006

Invited Panelist/Keynote Speaker:

SIEPR-LBJ School Policy Forum, “A tale of two states: Contrasting economic policy in California and Texas”
Online event, 24 September 2021 (co-organizer and moderator).
UT LBJ School of Public Affairs, “A Review of Biden’s First 100 Days,” Austin, TX, 29 April 2021
(panelist).
UT Institute for Historical Studies, “The EPA at the Half-century Mark,” Austin, TX, 29 March 2021
(panelist).
American WaterWorks Association, “Improving the Evaluation of Household-Level Affordability in SDWA
Rulemaking: New Approaches and Expanded Data,” June 2020-March 2021 (expert panelist).
<https://www.awwa.org/Portals/0/AWWA/Government/ImprovingtheEvaluationofHouseholdLevelAffordabilityinSDWARulemakingNewApproaches.pdf>
UT Energy Symposium, “Ask UT Anything About Energy,” Austin, TX, 11 February 2020 (panelist).
Texas Energy Summit, “The Permian Boom: Making High Production and Clean Air Coexist,” Austin, TX,
13 November 2019 (panelist).
Mullen Lecture, Economics Department, University of Maryland at Baltimore County, “Some thoughts on the
economic costs of water pollution,” Baltimore, MD, 10 October 2019.
UT Energy Week, “Unconventional oil and gas development: environmental impacts,” Austin, TX, 5
February 2019 (panelist).
Colorado Energy and Water Institute, Western Water and Energy Forum, “Water and energy in conflict:
managing operational risks with diverse stakeholder interests,” Steamboat Springs, CO, 25 January 2019
(panelist)
Austin Forum on Diplomacy, “Climate change and local air pollution: global challenge and regional

opportunities,” Austin, TX, 18 January 2019, (speaker)

RFF/Sloan Foundation, Energy Research Insights for Decision-making conference, “Why research matters,” Washington, DC, 29 November 2018 (panelist)

UT Energy Institute, Energy Journalism Workshop, “Swinging with the pendulum: energy and environmental policy in the Obama-Trump transition,” Austin, TX, 26 September 2018 (keynote)

UT Jackson School of Geosciences, Training workshop on Electricity and Renewables for Foregoing U.S. State Department Officers, “Externalities in the electricity system and some solutions,” Austin, TX, 17 September 2018 (panelist)

Texas Water Research Network 2018 Meeting, “Water markets: potential benefits and a look at how well they work in the western U.S.,” Austin, TX, September 14, 2018 (panelist)

ExxonMobil Longer Range Research Meeting, “Economic growth and the environment: what are the tradeoffs?” Austin, TX, May 15, 2018 (panelist)

UT Energy Week, “Economic growth and the environment: what are the tradeoffs?” Austin, TX, January 30, 2018 (keynote lunch speaker)

UT Jackson School of Geosciences, Training workshop for U.S. State Department, “Externalities in the electricity system and some solutions,” Austin, TX, September 14, 2017 (panelist)

Resources for the Future Center for Energy and Climate Economics 2016 Summit, “Emerging priorities in climate and energy policy research,” Washington, DC, September 27, 2016 (panelist)

UT Energy Institute, Energy Journalism Workshop, Austin, TX, January 11-12, 2016 (panelist)

National Socio-Environmental Synthesis Center, Post-doc Economics Immersion Program, Annapolis, MD, November 2-5, 2015 (Distinguished Scholar-Lecturer)

George and Cynthia Mitchell Foundation/Carnegie Mellon/University of California, Davis Workshop on “Accelerating Water Conservation in Texas,” Austin, TX, October 12, 2015 (panelist)

UT Energy Week, “Assessment of the Full Cost of Electricity,” Austin, TX, February 19, 2015 (panelist)

Academy of Medicine, Engineering and Science of Texas, 2014 Texas Water Summit, “Water prices and water values: Applying economics to Texas water management,” Austin, TX, May 19, 2014 (panelist)

Upstate New York Society for Risk Analysis, “Shale gas development and Pennsylvania rivers and streams: impacts and policy implications,” webinar through EPA Region 3, May 2014 (presenter)

University of Texas at Austin School of Law, “Water Conservation and Reuse Projects in the Age of SWIFT: New Funds and New Priorities,” Austin, TX, February 2014 (panelist)

Heartland Environmental and Resource Economics Workshop, “Unconventional oil and gas development and water resources,” Champaign-Urbana, IL, November 2013 (panelist)

National Research Council Workshop on Shale Gas Risk Governance, “Managing risks from shale gas development using innovative legal and regulatory approaches,” Washington, DC, August 2013 (panelist)

North America Gas Summit, “RFF’s shale gas study: Summary and preliminary outcomes,” Washington, DC, November 2012 (panelist)

Center for Strategic and International Studies, “Water management concerns for unconventional gas development: an overview,” Washington, DC, November 2012 (panelist)

Yale University, School of Forestry and Environmental Studies, “Hydraulic fracturing: bridge to a clean energy future?” New Haven, CT, September 2012 (panelist)

Camp Resources XIX, Wrightsville Beach, NC, August 2012 (lunch speaker and faculty mentor)

Foundation Executives Group, “The environmental implications of shale gas development,” Washington, DC, May 2012 (panelist)

Arizona State University, “Understanding residential water use: new approaches to analyzing projecting and managing demand,” Phoenix, AZ, May 2012 (panel chair)

Lehigh University, “Shale gas development: communities, people, health, economics,” Bethlehem, PA, April 2012 (panelist)

MIT Club of Washington, “Economics and water resources: pricing, markets, and access to drinking water,” Washington, DC, March 2012 (keynote dinner speaker)

Hudson Institute, “Energy, water and debt” Washington, DC, January 2012 (panelist)

Ground Water Protection Council Annual Forum, “Natural gas development seminar: groundwater protection and hydraulic fracturing,” Atlanta, GA, September 2011 (panelist)

Resources for the Future, First Wednesday Seminar, “Water conflicts and resolution: economy vs.

environment?” Washington, DC, March 2011 (moderator)
 Center for Water Policy, University of Wisconsin, Milwaukee, Roundtable 2011, May 2011 (panelist)
 The Atlantic Council, “Energy-water nexus in electric power production,” Washington, DC, May 2011 (panelist)
Atlantic Monthly Green Intelligence Forum, “The future of fresh water,” Washington DC, Oct. 2010 (panelist)
 Resources for the Future, First Wednesday Seminar, “Coming clean: an economic perspective on water quality policy,” Washington, DC, June 2010 (panelist and convener)
 Organization for Economic Cooperation and Development, Expert Meeting on Water Economics and Financing, Paris, France, March 2010 (panelist)
 The Energy and Resources Institute and Yale Climate and Energy Institute, COP 15 Side Event, “Climate change and water vulnerability.” Copenhagen, Denmark, December 2009 (panelist)
 Water Policy Institute, Symposium on Water and Economics, Washington, DC, October 2009 (panelist)
 Federal Reserve Bank of Atlanta, Public Affairs Symposium and Forum, June 2009 (keynote dinner speaker)
 North Carolina State University, Water Resources Research Institute, November 2008 (keynote speaker)
 Texas Water Matters Conference, Environmental Defense Fund, Austin, TX, April 2008 (panelist)

University of Texas at Austin Service:

LBJ School Budget Council chair (2020-)
 UT Austin University Faculty Gender Equity Council member (2021-)
 LBJ School Dean Search Committee chair (2020-2021)
 UT Austin Energy Institute Faculty Advisory Council (2019-2021)
 UT Austin Texas Federal Statistical Research Data Center advisory committee member (2018-)
 UT Austin Planet Texas 2050 advisory committee member (2018-)
 LBJ School microeconomics program coordinator (2014-)
 LBJ School MPAff graduate studies committee chair (2017-2019)
 LBJ School academic policies committee member (2017-2019)
 LBJ Foundation grants committee member (2016-2018)
 LBJ School faculty annual review committee member (2017-2018)
 LBJ School economics faculty search committee chair (2017-2018)
 LBJ School strategic faculty recruitment committee co-chair (2015-2016)
 UT Austin Environmental Science Initiative, Science Meets Society Seminar Series, co-organizer (2015-16)
 UT Austin Faculty Council, LBJ School representative (2014-2016)
 LBJ School faculty search committee, international trade (2014-2016)
 LBJ School PhD admissions committee (2013-2014)
 LBJ School DC Program curriculum committee (2014-2015), admissions committee (2015)
 LBJ School information technology services committee (2013-2015)
 LBJ School diversity committee (2014-2015)

Resources for the Future Service:

Junior hiring committee (2010-11, 2011-12, 2012-13)

Yale University Service:

Co-Organizer, Yale Environmental Economics Seminar, Fall 2007 – Spring 2009
 Co-Organizer, Northeastern Conference in Environmental and Resource Economics, Fall 2007

Yale University Committee Memberships:

Climate and Energy Initiative, Executive Committee member, 2009-2010

Undergraduate Environmental Studies Major Faculty Advisory Committee member, 2005-2010

Yale School of Forestry and Environmental Studies committee memberships:

Doctoral Studies Committee (2006-2010)
Student Academic Standing Committee (2006-2010)
Yale College Committee (2002-2010)
Curriculum Committee (2003-2006)
Disciplinary Committee (2002-2005)
Senior Target of Opportunity Search Committee (2007-2009)
Economics Search Committee (2008-2009)

Other Professional Service:

Session chair, “Water, health and development,” American Economic Association Annual Meetings, 2018
Advisory committee member, Energy and Environment Program, Alfred P. Sloan Foundation, 2015-
Advisory committee member, International Water Resource Economics Consortium, 2009-
Summer conference program committee, Association of Environmental and Resource Economists, 2011-2021
Conference program committee, World Congress of Environmental and Resource Economists, 2014

Membership in Professional Societies:

American Economic Association
Association of Environmental and Resource Economists
International Water Resource Economics Consortium

DOCTORAL STUDENT ADVISEES

University of Texas at Austin (year finished in parentheses)

Julian Plough, LBJ School of Public Affairs, dissertation committee chair
Justin Thompson, Geological Sciences, dissertation committee member
Maria Elena Giner, LBJ School of Public Affairs, dissertation committee member (2021)
Qianru Zhu, Operations Research & Industrial Engineering, dissertation committee member (2021)
Jiameng Zheng, LBJ School of Public Affairs, dissertation committee chair (2021)
Andres Méndez-Ruiz, Economics Department, dissertation committee member (2020)
Bruk Berhanu, Civil & Environmental Engineering, dissertation committee member (2019)
Katherine Keisler, Department of Economics, dissertation committee member (2019)
Jessie Coe, Department of Economics, dissertation committee member (2019)
Carlos Galdeano, Civil & Environmental Engineering, dissertation committee member (2018)
Amelia Altz-Stamm, LBJ School of Public Affairs, dissertation committee member (2016)
Sean DeRosa, Civil & Environmental Engineering, dissertation committee member (2016)
Roger Miranda, LBJ School of Public Affairs, dissertation committee member
Pamela Torres, Civil & Environmental Engineering, dissertation committee member (2016)
Alison Wood, Civil & Environmental Engineering, dissertation committee member (2016)
Nour El Imane Bouhou, Civil & Environmental Engineering, dissertation committee member (2015)

Yale University, School of Forestry and Environmental Studies

Agha Ali Akram, dissertation committee co-Chair (2014)
Yaniv Stopnitzky, dissertation committee co-Chair (2012)
Seth Binder, dissertation committee member (2011)
Qiong (Juliana) Wang, dissertation committee member (2010)

Steven Wallander, dissertation committee Chair (2009)
Katrina Jessoe, dissertation committee Chair (2009)
Pradeep Kurukulasuriya, dissertation committee member (2006)

Other Institutions

Jonathan Baker, Harvard University, Harvard Kennedy School, dissertation committee member (2017)
Renata Rimsaite, Pennsylvania State University, Agricultural and Resource Economics Department,
dissertation committee member (2017)
James Nachbaur, University of California, Santa Barbara, Bren School of Environmental Science and
Management, dissertation committee member (2007)
Erez Braude, Ben Gurion University of the Negev, Department of Economics, dissertation reader (2008)
Atheendar Venkataramani, Yale University School of Public Health, dissertation reader (2008)