

David Andrew Keiser

ELECTRONIC ADDRESS

e-mail: dkeiser@umass.edu

OFFICE ADDRESS

Department of Resource Economics
University of Massachusetts Amherst
Amherst, MA 01003

EMPLOYMENT

2021 – present Professor, Department of Resource Economics, UMass Amherst
2020 – 2021 Associate Professor, Department of Resource Economics, UMass Amherst
2019 – 2020 Assistant Professor, Department of Resource Economics, UMass Amherst
2018 – 2019 Division Director, Resource and Enviro. Econ., CARD, Iowa State
2014 – 2019 Assistant Professor, Department of Economics, Iowa State University
2007 Environmental Litigation Consultant, Gilbert Randolph, LLP
2004 – 2007 Environmental Litigation Consultant, KCIC, LLC

ACADEMIC AFFILIATIONS

2022 – present Research Economist, National Bureau of Economic Research
2021 – present Faculty Associate, UMass Computational Social Science Institute
2019 – present Collaborator, CARD, Iowa State University
2018 – present Fellow, Center for Behavioral and Experimental Agri-Environmental Research (CBEAR)
2020 – 2023 Adjunct, Dyson School of Applied Economics, Cornell University
2014 – 2019 Faculty Affiliate, CARD, Iowa State University

APPOINTMENTS

2021– present EPA Science Advisory Board
-Economic Analysis Committee, 2021 – present
-Scientific and Technological Achievements Awards Panel
-Member, 2021 – 2023; Chair, 2024 – present
-Greenhouse Gas Rules Workgroup, 2023 – 2024
-Waters of the U.S. Workgroup, 2022
-PFAS Review Panel, 2021 – 2022
2024 – present Features Editor (with Margaret Walls), *Review of Environmental Economics and Policy*
2020 – present Editorial Board, *Land Economics*
2019 – 2020 Co-chair, E-EEAC Review Committee on the Clean Water Rule

EDUCATION

2014 Ph.D. Environmental and Natural Resource Economics, School of Forestry and Environmental Studies, Yale University
2012 M.Phil. Environmental and Natural Resource Economics, School of Forestry and Environmental Studies, Yale University
2009 M.S. Agricultural and Applied Economics, University of Georgia
2003 B.A. Mathematics/Religious Studies, University of Virginia

JOURNAL ARTICLES

Greenhill, S., H. Druckenmiller, S. Wang, D.A. Keiser, M. Giroto, J.K. Moore, N. Yamaguchi, A., Todeschini, J.S. Shapiro. 2024. "Machine Learning Predicts Which Rivers, Streams, and Wetlands the Clean Water Act Regulates" *Science*, 383(6681): 406-412.

Andarge, T., Y. Ji., B. Keeler, D.A. Keiser, and C. McKenzie. 2024. "Environmental Justice and the Clean Water Act: Implications for Economic Analyses of Clean Water Regulations." *Environmental and Energy Policy and the Economy*, 5:77-103.

Moore, C., J. Corona, C. Griffiths, M.T. Heberling, J. Hewitt, D.A. Keiser, C.L. Kling, M. Massey, M. Papenfus, D.J. Phaneuf, D. Smith, C.A. Vossler, and W. Wheeler. 2023 "Measuring the Social Benefits of Water Quality Improvements to Support Regulatory Objectives: Progress and Future Directions." *Proceedings of the National Academy of Sciences*, 120(18): e2120247120.

Vossler, C.A., C.L. Dolph, J.C. Finlay, D.A. Keiser, C.L. Kling, and D.J. Phaneuf. 2023. "Valuing Improvements in Ecological Integrity in Local and Regional Watersheds: The Biological Condition Gradient Ladder." *Proceedings of the National Academy of Sciences*. 120(18): e2120251119.

Christensen, P., D.A. Keiser, and G.E. Lade. 2023. "Economic Effects of Environmental Crises: Evidence from Flint, Michigan." *American Economic Journal: Economic Policy*, 15(1): 196-232.

Keiser, D.A., S.M. Olmstead, K.J. Boyle, V.B. Flatt, B.L. Keeler, D.J. Phaneuf, J.S. Shapiro, and J.P. Shimshack. 2022. "The Evolution of the "Waters of the United States" and the Role of Economics." *Review of Environmental Economics and Policy*, 16(1).

Ji, Y., D.A. Keiser, C.L. Kling, and D.J. Phaneuf. 2021. "Revenue and Distributional Consequences of Alternative Outdoor Recreation Pricing Mechanisms: Evidence from a Micro Panel Dataset." *Land Economics*, 090721-0107.

Keiser, D.A., S.M. Olmstead, K.J. Boyle, V.B. Flatt, B.L. Keeler, C.L. Kling, D.J. Phaneuf, J.S. Shapiro, and J.P. Shimshack. 2021. "A Water Rule That Turns a Blind Eye to Transboundary Pollution." *Science*, 372(6539): 241-243.

Keiser, D.A. 2020. "The Effectiveness of Phosphate Bans." *Review of Environmental Economics and Policy*, 14(2): 331-338.

Ji, Yongjie, D.A. Keiser, and C.L. Kling. 2020. "Temporal Reliability of Welfare Estimates from Revealed Preferences." *Journal of the Association of Environmental and Resource Economists*, 7(4): 659-686.

Keiser, D.A. and J.S. Shapiro. 2019. "U.S. Water Pollution Regulation Over the Last Half Century: Burning Waters to Crystal Springs?" *Journal of Economic Perspectives*, 33(4): 51-75.

Keiser, D.A., C.L. Kling, and J.S. Shapiro. 2019. "The Low but Uncertain Measured Benefits of U.S. Water Quality Policy" *Proceedings of the National Academy of Sciences*, 116(12): 5262-5269.

Keiser, D.A. 2019. “The Missing Benefits of Clean Water and the Role of Mismeasured Pollution.” *Journal of the Association of Environmental and Resource Economists*, 6(4): 669-707.

Keiser, D.A. and J.S. Shapiro. 2019. “Consequences of the U.S. Clean Water Act and the Demand for Water Quality.” *Quarterly Journal of Economics*, 134(1):349-396.

*Selected as Editors’ Choice, *Science*, 2018, 362(6414): 555.

*Named as one of the top 5 cited papers in 2019 in the *Quarterly Journal of Economics*.

Keiser, D.A., G.E. Lade, and I. Rudik. 2018. “Air Pollution and Visitation at U.S. National Parks.” *Science Advances*, 4(7): eaat1613.

Cohen, A.W. and D.A. Keiser. 2017. “The Effectiveness of Incomplete and Overlapping Pollution Regulation: Evidence from Bans on Phosphate in Automatic Dishwasher Detergent.” *Journal of Public Economics*, 150: 53-74.

Keiser, D.A. and N.Z. Muller. 2017. “Air and Water: Integrated Assessment Models for Multiple Media.” *Annual Review of Resource Economics*, 9: 165-184.

Kling, C.L., R.W. Arritt, G. Calhoun, and D.A. Keiser. 2017. “Integrated Assessment Models of the Food, Energy, and Water (FEW) Nexus: A Review and Research Needs.” *Annual Review of Resource Economics*, 9: 143-163.

Keiser, A.D., D.A. Keiser, M.S. Strickland, and M.A. Bradford. 2014. “Disentangling the mechanisms underlying functional differences among microbial communities.” *Journal of Ecology*, 102(3): 603-609.

WORKING PAPERS

Keiser, D.A., B. Mazumder, D. Molitor, J.S. Shapiro, and B. Walker. “Do Earmarks Target Low-Income and Minority Communities? Evidence from US Drinking Water.” For *AEA Papers and Proceedings*.

Keiser, D.A., B. Mazumder, D. Molitor, and J. Shapiro. 2023. “Water Works: Causes and Consequences of Safe Drinking Water in America.” Revise and resubmit at *Quarterly Journal of Economics*.

Vossler, C., D.A. Keiser, C.L. Kling, and D. Phaneuf. 2023. “Information Scripts and the Incentive Compatibility of Discrete Choice Experiments.” Revise and resubmit at *Journal of the Association of Environmental and Resource Economists*.

Chen, C-T., G.E. Lade, J. Crespi, and D.A. Keiser. 2024. “Size-Based Regulations and Environmental Quality: Evidence from the U.S. Livestock Industry.” Revise and resubmit at *American Journal of Agricultural Economics*.

Lade, G.E., J. Comito, J. Benning, C. Kling, and D.A. Keiser 2024. “Improving Private Well Testing Programs: Experimental Evidence from Iowa”

Meyer, K., and D.A. Keiser. 2018. “Adapting to Climate Change Through Tile Drainage: Evidence from Micro Level Data.”

Ji, Y., D.A. Keiser, and C.L. Kling. 2017. “Water-based Recreation and Water Quality

Indices: A Revealed Preference Approach.”

SELECTED WORK IN PROGRESS

“The Social Costs of Nutrient Pollution in the United States” (with Tina Andarge, Jeff Arnold, Mainul Hoque, Yongjie Ji, Catherine Kling, Dan Phaneuf, Nilesh Shinde, Yau-Huo Shr, and Mike White)

“The Impact of Chemical Disclosures and Regulations in Consumer Products: Evidence from Bisphenol A” (with Xibo Wan)

“Threshold-based Regulations and Reporting Behavior: Evidence from the Lead and Copper Rule” (with Tihitina Andarge, Dalia Ghanem, and Gabriel Lade)

OTHER PUBLICATIONS

Shapiro, J.S., H. Druckenmiller, S. Greenhill, D.A. Keiser, and S. Wang. 2024. “Federal Swings in Water Regulations Dramatically Changed Policy for Energy Projects.” Energy Institute Blog, UC Berkeley.

Lade, G.E., J. Comito, J. Benning, D.A. Keiser, and C.L. Kling. 2022. “The Iowa Rural Drinking Water Survey: Water Quality Perceptions and Avoidance Behaviors Among Rural Iowa Households.” Center for Agricultural and Rural Development, Iowa State University.

Keiser, D.A., B.A. Davis Noll, C.L. Kling, R. Rothschild. 2022. “Measuring the Benefits of Power Plant Effluent Regulation: The Steam Electric Reconsideration Rule and Potential Future Methods.” Institute for Policy Integrity, New York University School of Law. June 2022.

Keiser, D.A., C.L. Kling, and D.J. Phaneuf. 2020. “Introduction the Special Issue: Integrated Assessment Models and the Social Cost of Water Pollution Workshop.” *Land Economics*, 96(4): iii-iv.

Keiser, D.A., S.M. Olmstead, K.J. Boyle, V.B. Flatt, B.L. Keeler, D.J. Phaneuf, J.S. Shapiro, and J.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).” A Report for the External Environmental Economics Advisory Committee. December 2020.

Keiser, D.A., and J.S. Shapiro. 2019. “The Clean Water Rule and Economic Research on U.S. Water Pollution Regulation.” VoxEU. October 2019.

Keiser, D.A., C.L., Kling, and D.J. Phaneuf. “The Social Cost of Water Pollution.” Resources, Issue 201, May 2019.

Tang, C., Y-H Shr, G.E. Lade, D.A. Keiser, and C.L. Kling. "The Costs and Benefits of Nutrient Reduction Programs." CARD Agricultural Policy Review, Fall 2018.

Keiser, D.A., and J.S. Shapiro. “How the Clean Water Act has served the environment and the economy.” VoxEU. October 2018.

Keiser, D.A., G.E. Lade, I. Rudik. "Ozone Pollution in U.S. National Parks is Nearly the Same as in Large Cities." The Conversation. July 2018.

Tang, C., G.E. Lade, D.A. Keiser, C.L. Kling, Y. Ji, and Y-H. Shr. 2018. “Economic Benefits of Nitrogen Reductions in Iowa.” Mimeo, Iowa State.

Kling, C.L., R.W. Arritt, G. Calhoun, and D.A. Keiser. 2016. “Research Needs and Challenges in the Food, Energy, and Water System: Findings from an NSF Funded Workshop.” CARD Agricultural Policy Review, Spring 2016.

Kling, C.L., R.W. Arritt, G. Calhoun, D.A. Keiser, J.M. Antle, J.G. Arnold, M. Carriquiry, I. Chaubey, P. Christensen, B. Ganapathysubramanian, P. Gassman, W. Gutowski, T.W. Hertel, G. Hoogenboom, E. Irwin, M. Khanna, P. Mérel, D. Phaneuf, A. Plantinga, S. Polasky, P. Preckel, S. Rabotyagov, I. Rudik, S. Secchi, A. Smith, A. Vanloocke, C. Wolter, W. Zhang, and J.Zhao. 2016. “Research Needs and Challenges in the FEW System: Coupling economic models with agronomic, hydrologic, and bioenergy models for sustainable food, energy, and water systems.” Working Paper 16-WP 563, March 2016, Center for Agricultural and Rural Development, Iowa State University.

Cohen, A., and D.A. Keiser. 2015. “The Unintended Consequences of Household Phosphate Bans.” CARD Agricultural Policy Review, Fall 2015.

GRANTS AND CONTRACTS

Total Awards: \$7,868,971 Principal Investigator: \$2,274,547; Co-Principal Investigator: \$5,594,424

UMass Office of Research Development, LIRA Track 2, 2023 (Co-Investigator), \$60,000

NIH, “Drinking Water, the Health of Older Americans, and Inequality” (Co-Investigator), 2022 – 2027, \$3,374,632

USDA, “Measuring the Social Costs of Nutrient Pollution through Integrated Assessment Modeling” (Principal Investigator), 2022 – 2025, \$649,697

USEPA, “Valuing Water Quality Improvements in Nationwide Ecosystems: Total Value Based on the Biological Condition Gradient” (Co-Principal Investigator), 2022-2025, \$741,864

NSF, “DISES: Coproducing Actionable Science to Understand, Mitigate, and Adapt to Cyanobacterial Harmful Algal Blooms (CHABS)”, 2022 – 2025, \$1,599,997 – Withdrew from award before start of project due to personal conflict.

USDA-AFRI, “Integrated Assessment Models for Water Quality Valuation: Application to NRCS Conservation Initiatives” (Co-Principal Investigator), 2019-2024, \$496,265

USDA-AFRI, “Rural Drinking Water Habits, Information Provision, and Pollution Exposure” (Co-Principal Investigator), 2019-2023, \$500,000

USDA-NRCS, “Monetization of Water Quality Benefits of EQIP” (Current Principal Investigator, Co-Principal Investigator until 2018), 2017 – 2021, \$150,000

USEPA, “Valuing Water Quality Improvements in Midwestern Ecosystems: Spatial Variability, Validity and Extent of the Market for Total Value” (Current Principal Investigator; Co-Principal Investigator until 2018), 2015 – 2023, \$800,000

Iowa DNR, “Community Fishing Survey” (Principal Investigator), 2018, \$14,850

Leopold Center for Sustainable Agriculture, “Information Provision, Rural Drinking Water Habits, and Pollution Exposure” (Co-Principal Investigator), 2017 – 2018, \$35,000

Iowa Economic Development Authority and HUD, “Iowa Watershed Approach for Urban and Rural Resilience” (Co-Principal Investigator), 2017 – 2020, \$195,000

USDA, “Nudging in the Face of Risk and Ambiguity Aversion: Adopting Cover Crops to Reduce Nutrient Pollution” (Co-Principal Investigator), 2015 – 2018, \$75,000

NSF - SESYNC, “The Value of Water Quality to Lake Recreation: Evidence from Geotagged Social Media” (Co-Principal Investigator), 2015-2016, \$70,741

NSF, “FEW: Coupling Economic Models with Agronomic, Hydrologic, and Bioenergy Models for Sustainable Food, Energy, and Water Systems” (Co-Principal Investigator), 2015, \$45,922

USDA-NIFA, “The Value of Water Quantity Versus Quality: Assessing The Tradeoffs Between Agricultural Yields and Downstream Uses of Water Resources” (Principal Investigator), 2014 – 2017, \$660,000

CONFERENCES AND INVITED PRESENTATIONS

2024 – present and planned: Caltech Innovations in the Science & Policy of Water Quality Measurement Workshop; National University of Singapore; Oregon State

2021 – 2023: AERE Summer Conference (2021, 2022); Case Western Reserve University, Clean Water Act Symposium (2022); Cornell; Huazhong Agricultural University; Indiana University; The Social Cost of Water Pollution Workshop; UC Berkeley; UConn; USEPA (x3); Yale University

2019 – 2020: AERE-AAEA joint session at AAEA Annual Meetings (2019); Industrial Economics; Jinan University; Penn State; The World Bank; University of Alabama; University of California, Davis; UConn; University of Massachusetts, Amherst; University of Virginia; University of Wisconsin, Madison; Williams College

2017 – 2018: AERE Session at AEA Annual Meetings (2017); AERE Summer Conference (Discussant and Presenter, 2017); AERE Summer Pre-Conference Workshop (2017); Cornell University; Economics of Water and Energy Workshop; Iowa State University; NBER EEE Summer Institute (Egg Timer, 2017); National Academy of Sciences Sackler Colloquium on Economics, Environment, and Sustainable Development; RDG Design Residency; TREE Workshop (Duke/NC State/RTI); University of California, Davis; University of Wisconsin-Madison; University of Minnesota; USDA-NIFA (2018)

2015 – 2016: AAEA Annual Meeting (2016); AERE Session at AEA Annual Meetings (2016); AERE Summer Conference (2015); Heartland Environmental and Resource Economics Workshop (2016); Iowa State University; NSF Workshop on Food, Energy, and Water (2015); University of Illinois at Urbana-Champaign; University of Minnesota; US EPA National Center for Environmental Economics

2009 – 2014: AAEA Annual Meeting (2009); AERE Summer Conference (2013); Connecticut Academy of Science and Engineering; Heartland Environmental and Resource Economics Workshop; Northeast Agricultural and Resource Economics Association Annual Meeting (2013); USDA SERA 30 Natural Resource Economics Meeting (2009); Yale University Environmental Economics Seminar; Yale University School of Forestry and Environmental Studies Doctoral Student Research Conference

OTHER RESEARCH ACTIVITIES

Principal Investigator, “Benefits and Costs of Natural Resources Policies Affecting Ecosystem Services on Public and Private Lands”, USDA-NIFA, Hatch Multistate Project W3133, 2014 – 2019

Study Committee Member, “Methods to Measure Phosphorus and Make Future Projections”, Prepared by the Connecticut Academy of Science and Engineering for the Connecticut Department of Energy and Environmental Protection, 2013 – 2014

Consultant, Pacific Adaptation to Climate Change Project, UNDP, 2011 – 2012

Research Assistant, Dr. Robert Mendelsohn, Yale University, 2011 – 2013

Research Assistant, Dr. Nathan Smith, University of Georgia, 2007 – 2009

INTERNATIONAL COLLABORATIONS

Katrin Bieger, Researcher, Aarhus University

Yau-Huo Shr, Assistant Professor, National Taiwan University

Chuan Tang, Associate Professor, Huazhong Agricultural University

SERVICE

University of Massachusetts Amherst

Department Personnel Committee (Chair), 2020 – 2023

Department Executive Committee, 2020 – 2023

iCONS Steering Committee for Food, Water, Climate, 2021 – 2022

Computer Committee Member, 2019 – 2020

Undergraduate Studies Committee Member, 2019 – 2020

Faculty Recruiting Committee Member, 2019 – 2020

Environmental and Natural Resource Economics Seminar, 2023 – present

Iowa State University

Recruiting and Admission Committee Member, 2018 – 2019

Curriculum Committee Member, 2016 – 2019

Faculty Awards Committee Member, 2014 – 2016

Professional

AERE Oates Dissertation Award Committee, 2022 – Present

AERE Conference Program Committee for 2023 Summer Conference (2022 – 2023)

Guest Editor, *Proceedings of the National Academy of Sciences*, 2021 – 2023

Co-founder and Organizer, Workshop on Integrated Assessment Models and the Social Cost of Water Pollution, 2018 – Present

AAEA Galbraith Forum and Award Committee, 2017 – 2019

Review Service

Agricultural and Applied Economics Association Annual Meetings; American Economic Journal: Applied Economics; American Economic Journal: Economic Policy; American Economic Review: Insights; American Journal of Agricultural Economics; Communications Earth & Environment; Ecological Economics; Energy Economics; Environmental and Resource Economics; Environmental Science & Technology; Global Environmental Change; Journal of Benefit-Cost Analysis; Journal of Development Economics; Journal of Environmental Economics and Management; Journal of Environmental Economics and Policy; Journal of the European Economic Association; Journal of Health Economics; Journal of Human Resources; Journal of Policy Analysis and Management; Journal of Public Economics; Journal of the Association of Environmental and Resource Economists; Land Economics; Pedosphere; National Science Foundation; Nature - Human Behaviour; Nature – Sustainability; Proceedings of the National Academy of Sciences; Quarterly Journal of Economics; Resource and Energy Economics; Review of Economics and Statistics; Science; Science of the Total Environment; South Asian Network for Development and Environmental Economics; U.S. Department of Agriculture; U.S. Environmental Protection Agency; Water Policy; Water Resources Research

Technical Reviews:

A Method for Predicting the Outcome of the Secondary Test in EPA’s Interim Economic Guidance for Water Quality Standards (2021)

Other Service

Finance Committee Member, Town of Pelham, MA 2024, – Present

TEACHING

University of Massachusetts Amherst

Managerial Economics (Undergraduate), Fall 2019, Spring 2021
Econometrics (Graduate), Spring 2020 – 2024
Economics of Water Policy (Undergraduate), Fall 2021 – 2023
Environmental Economics (Graduate), Spring 2023

Iowa State University

Intermediate Environmental & Resource Economics (Undergraduate), Fall 2018
Advanced Environmental Economics (Graduate), Fall 2014 – 2018
Principles of Microeconomics (Undergraduate), Fall 2014 – 2017

Yale University, *Teaching Assistant*

Economics of Pollution Management (Graduate), Spring 2012
Economics of the Environment (Graduate), Fall 2011
Economics of Natural Resources (Undergraduate/Graduate), Fall 2010

Guest Lectures

Indiana University, Water Policy and Economics, October 2020
University of Wisconsin, Resource & Energy Demand Analysis, March 2019

ADVISING

Postdoctoral Students (Advisor or Co-Advisor)

Nilesh Shinde, Current Postdoctoral Student at UMass Amherst
Tina Andarge, August 2022 – Assistant Professor, UMass Amherst
Jimmy Shr, June 2018 – Assistant Professor, National Taiwan University
Chuan Tang, June 2018 – Bayer (2018) and then Assistant Professor, Huazhong Agricultural University (2020)

Doctoral Students (Chair or Co-Chair)

Aniket Ganvir, Current PhD Student at UMass Amherst
Yingyi Jin, Current PhD Student at UMass Amherst
Taehyun Kim, Current PhD Student at UMass Amherst
Gayan Udugama, Current PhD Student at UMass Amherst
Xibo Wan (Chair at Iowa State), May 2021 – Postdoctoral Associate, MIT Sloan then Postdoctoral Associate, UConn
Xianjun Qiu, June 2018 – Buddhist Ministry
Kevin Meyer, June 2017 – Assistant Professor, Saginaw Valley State

Master's Students (Chair or Co-Chair)

Ashley Taylor, May 2019 – Utility Analyst, Office of Consumer Advocate of Iowa
Jennifer Duncan, June 2018
Ananyo Chakravarty, May 2015 – Business/Finance Manager, Ethos Group

FELLOWSHIPS AND HONORS

UMass SBS Outstanding Research Award, 2022

Yale University Doctoral Fellowship, 2009 – 2014

Nominee for the Conference of Southern Graduate Schools Master's Thesis Award in Social Sciences, Business, and Education, University of Georgia, 2010

Claudia DePalma Davis Outstanding M.S. Student, University of Georgia, 2009

Research Assistantship, University of Georgia, 2007 – 2009

University of Virginia Class of 2003 Trustee, 2002 – 2008

Valedictorian, Cave Spring High School, Roanoke, VA, 1999

CONSULTING AND EXPERT WITNESS

Affiliate, applEcon, 2024 – present.

Expert Witness, Class Plaintiffs in re Flint Water Cases; Carthan et al. v. Snyder, et al., No. 16-cv-10444-JEL-MKM, 2020 – 2024.

Consultant, Research Mentor for Central Bank of Brazil, Inter-American Development Bank, 2022

Consultant, 2020 Steam Electric Reconsideration Rule, Center for Applied Environmental Law and Policy, 2021 – 2022

Co-chair, Review of Clean Water Rule and Navigable Waters Protection Rule, External

