

DAVID L. SUNDING

Principal

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David Sunding has extensive consulting, research, and expert witness experience in environmental economics, natural resources, damages, antitrust and product liability. He has testified before state and federal courts, regulatory bodies, and legislative committees.

Prof. Sunding has played a central role in some of the most important environmental and natural resource cases of the past two decades, including the release of hydrocarbons from the rig *Deepwater Horizon* into the Gulf of Mexico, the development of the Clean Water Rule by the Obama Administration, and EPA's novel exercise of its ex post veto authority in *Arch Coal*. He has served as an economic expert in cases of original jurisdiction before the U.S. Supreme Court, including *Kansas v. Colorado*, *Texas v. New Mexico*, *North Carolina v. South Carolina* and *Florida v. Georgia*. He was a member of the team that negotiated the 2003 amendments to the Colorado River Quantification Settlement Agreement on behalf of the San Diego County Water Authority.

In these and other cases, Prof. Sunding has authored testimony on environmental impacts, health risks, natural resource damages, remediation costs, optimal penalties, resource valuation and other topics. He has employed econometric techniques to analyze issues such as natural resource demands, the impacts of environmental contamination on property values, patterns of subsistence and recreational fishing, and the value of avoiding or reducing health risks. He has implemented surveys to generate environmental and economic data, and has employed survey-based techniques to measure consumer preferences for relevant product characteristics.

Prof. Sunding has testified in cases concerning antitrust, bankruptcy and commercial damages. He has developed testimony on class certification, price fixing, valuation and damages for breach of contract and other causes of action. He has particular industry expertise in oil and gas, chemicals, water, utilities, agriculture, food markets, mining, forestry and land development.

He holds the Thomas J. Graff Chair in the College of Natural Resources at the University of California, Berkeley. He has won numerous awards for his research, including awards from the National Science Foundation, the U.S. Environmental Protection Agency, and private foundations. He served as a senior economist at President Clinton's Council of Economic Advisers where he was responsible for the areas of environment, resources, energy and agriculture. He has been appointed to panels of the U.S. Environmental Protection Agency's Science Advisory Board and the National Academy of Sciences. He taught in the Department of Economics and the School of Law at Boston College, and as a visiting professor in the Woods Institute of the Environment at Stanford University.

An avid mountain biker, he lives in Marin County with his wife and two daughters.

AREAS OF EXPERTISE

- Environmental Economics
- Natural Resources
- Product Liability
- Damages
- Antitrust
- Survey Research
- Econometrics
- Regulation
- Law and Economics

INDUSTRY EXPERTISE

- Oil and Gas
- Mining
- Chemicals
- Water
- Utilities
- Agriculture
- Food Markets
- Forest Products
- Land Development

PROFESSIONAL WORK EXPERIENCE

The Brattle Group

Principal, San Francisco, CA, 2011 - Present

University of California, Berkeley

Thomas J. Graff Professor of Natural Resource Economics, 2009 – Present

Department Chair, 2013 – Present

Energy and Resources Group, Affiliated Faculty, 2013 – Present

Berkeley Water Center, Director, 2005 – 2013

Professor, 2002 – Present

Associate Professor (with tenure), 2000 – 2002

Center for Sustainable Resource Development, Director, 1997 – 2004

College of Natural Resources, Specialist, 1997 – 2015

Visiting Assistant Professor, 1992 - 1996

DAVID L. SUNDING

Stanford University

Woods Institute of the Environment
Visiting Professor, 2010 – 2011

The White House

President's Council of Economic Advisers
Senior Economist, 1996 – 1997

Boston College

Department of Economics and School of Law
Assistant Professor, 1989 – 1992

U.S. Department of State

Freetown, Sierra Leone, 1985

EDUCATION

University of California, Berkeley

Ph.D. in Agricultural and Resource Economics, 1989

University of California, Los Angeles

M.A. in African Area Studies, 1986

Claremont McKenna College

B.A. in Economics, 1983

TESTIMONY IN THE PAST FOUR YEARS

Florida v. Georgia, No. 142 Original, U.S. Supreme Court.

U.S. v. BP Exploration & Prod. Co., No. 2:10-cv-04536, U.S. District Court for the Eastern District of Louisiana.

Stockton East Water District and Central San Joaquin Water District v. United States, No. 04-541L, U.S. Court of Federal Claims.

Edwards et al. v. National Milk Producers Federation et al., U.S. District Court for the Northern District of California, No. 3:11-CV-04766-JSW [consolidated with 11-CV-04791-JSW and 11-CV-05253-JSW].

City of Riverside v. Rubidoux Community Services District, et al.; Case No. CIV DS 1310520, San Bernardino County Superior Court.

DAVID L. SUNDING

Klamath Irrigation District v. United States, No. 01-591 L, U.S. Court of Federal Claims.

City of Cerritos et al. v. Water Replenishment District of Southern California, No. BS128136, Los Angeles County Superior Court.

PUBLICATIONS

Working Papers

“Incentive Effects and the Certainty of Environmental Permits: An Economic Analysis of *Arch Coal*.” With Steve Hamilton.

“Multimarket Effects of Environmental Regulations.” With Stephen Hamilton.

“Regulation by Permits.” With Stephen Hamilton and Cyrus Ramezani.

“Economics of Penalties for Environmental Violations.” With Stephen Hamilton.

“A Markov Model of Supply Response to Resource Availability.” With David McLaughlin and Steven Buck.

Papers under Review

“Economic Impacts of Critical Habitat Designation: Evidence from the Market for Vacant Land.” With Maximillian Auffhammer and Maya Oren.

“Forecasting Urban Water Demand: Rethinking Model Selection.” With Hilary Soldati, Maximillian Auffhammer and Steven Buck.

“The Welfare Consequences of the 2015 California Drought Mandate: Evidence from an Econometric Model of Monthly Residential Water Demand.” With Steven Buck and Mehdi Nemati.

Publications

“The Value of Urban Water Supply Reliability.” With Maximillian Auffhammer, Steven Buck and Stephen Hamilton. *Journal of the Association of Environmental and Resource Economists* (2016), DOI: 10.1086/687761.

“Optimal Recycling Policy for Used Lubricating Oil: The Case of California’s Used Oil Management Policy.” With Stephen Hamilton. *Environmental and Resource Economics* (2015), DOI: 10.1007/s10640-014-9812-x.

DAVID L. SUNDING

“The Impact of Water Price Uncertainty on the Adoption of Precision Irrigation Systems.” With Karina Schoengold. *Agricultural Economics* (2014), DOI: 10.1111/agec.12118.

“Potential Economic Impacts of Environmental Flows Following a Potential Listing of Endangered Texas Freshwater Mussels,” With Brad Wolaver, Cassandra Cook, Stephen Hamilton, Bridget Scanlon, Michael Young, Xianli Xu and Robert Reedy. *Journal of the American Water Resources Association* (2014), DOI: 10.1111/jawr.12171.

“Land Markets and the Value of Water Supply: Hedonic Analysis using Panel Data.” With Steven Buck and Maximillian Auffhammer. *American Journal of Agricultural Economics* 96(2014): 953-969.

“Conserving Endangered Species through Regulation of Urban Development: The Case of California Vernal Pools.” With Jonathan Terhorst. *Land Economics* 90(2014): 290-305.

“Environmental Policy with Collective Waste Disposal.” With Stephen Hamilton, Thomas Sproul and David Zilberman. *Journal of Environmental Economics and Management* 66(2013): 337-346.

Water and the California Economy. With Ellen Hanak, Jay Lund, Barton Thompson, et al. Public Policy Institute of California, 2012.

“Hedonic Analysis with Locally Weighted Regression: Measuring the Shadow Value of Housing Regulation in Southern California.” With Aaron Swoboda. *Regional Science and Urban Economics* 40(2011): 550-573.

“On The Spatial Nature of the Groundwater Pumping Externality.” With Nicholas Brozovic and David Zilberman. *Resource and Energy Economics* 32(2010): 154-164.

Economic Impacts of Water Supply Disruptions Caused by Seismic Events in the Bay-Delta Estuary. September 2010.

“Improving Groundwater Management to Cope with Reduced Surface Water Imports: The Case of Los Angeles County.” With Steve Hamilton and Newsha Ajami. In A. Findikakis, ed., *Groundwater Management Practices*, Leiden: CRC Press, 2010.

Economic Impacts of Residential Water Shortages in California. With Steve Hamilton. April 2010.

“The Economics of Federal Land Use Controls.” *Rebuilding the Ark: Strategies for Reforming the Endangered Species Act*. Jonathan Adler, ed., Washington, DC: AEI-Brookings Joint Center for Regulation, 2009.

DAVID L. SUNDING

Economic Impacts of Flow Requirements for Delta-Dependent Species. With Newsha Ajami, David Mitchell, Steve Hatchett and David Zilberman. December 2008.

The Economics of Stormwater Regulation. June 2008.

Strategies to Reduce the Economic Impacts of Drought-Induced Water Shortage in the San Francisco Bay Area. April 2007.

“Sustainable Management of Water Resources under Hydrologic Uncertainty.” With Newsha Ajami and George Hornberger. *Water Resources Research* 44(2008): W11406, doi:10.1029/2007WR006736.

“Estimating Business and Residential Water Supply Interruption Losses from Catastrophic Events.” With Nicholas Brozovic and David Zilberman. *Water Resources Research* 43(2007): 418-428.

Management of Saline Wastewater Discharges in the San Joaquin Valley. Report to the Central Valley Regional Water Quality Control Board. With Yoram Rubin, Gretchen Miller, Pascual Benito, Ulrich Meyer, Michael Kavanaugh, Todd Anderson, Mark Berkman, David Zilberman, and Steve Hamilton. September 2007.

“Consideration of Economics under the California Porter-Cologne Act.” With David Zilberman. *Hastings West-Northwest Journal of Environmental Law & Policy* (2007): 73-116.

“Water Markets and Trading.” With Howard Chong. *Annual Review of Environment and Resources* 31(2006): 239-264.

“Panel Estimation of an Agricultural Water Demand Function.” With Karina Schoengold and Georgina Moreno. *Water Resources Research* 42(2006): 411-421.

“Fat Taxes and Thin Subsidies: Prices, Diet and Health Outcomes.” With Sean Cash and David Zilberman. *Acta Agriculturae Scand. C* 2(2006): 167-174.

“Economic Impacts.” *The Endangered Species Act at Thirty.* M. Scott, D. Goble and F. Davis, eds. Washington, DC: Island Press, 2006.

“The Economics of Environmental Regulation of Housing Development.” *Housing and Society* 32(2005): 23-38.

“Joint Estimation of Technology Adoption and Land Allocation with Implications for the Design of Conservation Policy.” With Georgina Moreno. *American Journal of Agricultural Economics* 87(2005): 1009-1019.

DAVID L. SUNDING

“Factor Price Risk and the Adoption of Conservation Technology.” With Georgina Moreno. *Frontiers in Water Resource Economics*. D. Berga and R. Goetz, eds. New York: Springer-Verlag, 2005.

“Optimal Management of Groundwater over Space and Time.” With Nicholas Brozovic and David Zilberman. *Frontiers in Water Resource Economics*. D. Berga and R. Goetz, eds. New York: Springer-Verlag, 2005.

“Response to ‘Environmental Regulation and the Housing Market: A Review of the Literature’ by Katherine Kiel.” *Cityscapes* 8(2005): 277-282.

A Guide to Consideration of Economics under the California Porter-Cologne Act. With David Zilberman. March 2005.

“Water Allocation and Water Market Activity in California.” With Richard Howitt. *California Agriculture: Dimensions and Trends*. Jerome Siebert, ed. Giannini Foundation, 2004.

“The Economics of Climate Change in Agriculture.” With Xuemei Liu, David Roland-Holst and David Zilberman. *Mitigation and Adaptation Strategies for Global Change* 9(2004): 365-382.

“Wetlands Regulation ... An Opening for Meaningful Reform?” *Regulation* 26(2003): 30-35.

“Government Regulation of Product Quality in Markets with Differentiated Products: Looking to Economic Theory.” *American Journal of Agricultural Economics* 85(2003): 720-724.

Fiscal Costs and Economic Impacts of Recovering the Coho Salmon in California. With Alix Peterson Zwane. California Department of Fish and Game. October 2003.

Economic Impacts of Critical Habitat Designation for the Coastal California Gnatcatcher. July 2003.

The Economic Impacts of Critical Habitat Designation: Framework and Application to the Case of California Vernal Pools. With Aaron Swoboda and David Zilberman. January 2003.

Non-Federal and Non-Regulatory Approaches to Wetland Conservation: A Post-SWANCC Evaluation of Conservation Alternatives. National Center for Housing and the Environment. December 2002.

DAVID L. SUNDING

Economic Impacts of Earthquake-Induced Water Supply Shortages in the San Francisco Bay Area. With Nicholas Brozovic and David Zilberman. Bay Area Economic Forum. October 2002.

Economic Impacts of Organophosphate Use in California Agriculture, Parts 1 and 2. With Mark Metcalfe, Bruce McWilliams, Brent Hueth, Robert Van Steenwyk and David Zilberman. California Department of Food and Agriculture. February 2002.

“The Economics of Environmental Regulation by Licensing: Observations on Recent Changes to the Federal Wetland Permitting Program.” With David Zilberman. *Natural Resources Journal* 42(Winter 2002): 59-90.

*Cited in the U.S. Supreme Court’s plurality and dissenting opinions in the consolidated cases of *Rapanos v. United States* and *Carabell v. United States*.

“Trading Patterns in an Agricultural Water Market.” With Nicholas Brozovic and Janis Carey. *Water Resources Update* (2002): 3-16.

“Public Goods and the Value of Product Quality Regulations: The Case of Food Safety.” With Stephen Hamilton and David Zilberman. *Journal of Public Economics* 87(2003): 799-817.

“Regulating Pollution with Endogenous Monitoring.” With Katrin Millock and David Zilberman. *Journal of Environmental Economics and Management* 44(2002): 221-241.

“Transactions Costs and Trading Behavior in an Immature Water Market.” With Janis Carey and David Zilberman. *Environment and Development Economics* 7(2002): 733-750.

“Measuring the Costs of Reallocating Water from Agriculture: A Multi-Model Approach.” With David Zilberman, Richard Howitt, Ariel Dinar and Neal MacDougall. *Natural Resource Modeling* 15(Summer 2002): 201-225.

“Voluntary Development Restrictions and the Cost of Habitat Preservation.” With Sabrina Lovell. *Real Estate Economics* 29(March 2001): 191-206.

“Emerging Markets in Water: A Comparative Institutional Analysis of the Central Valley and Colorado-Big Thompson Projects.” With Janis Carey. *Natural Resources Journal* 41(2001): 283-328.

“Risk Management and the Environment.” With Mark Metcalfe and David Zilberman. In Richard Just and Rulon Pope (eds.). *A Comprehensive Assessment of the Role of Risk in U.S. Agriculture*. Norwell, MA: Kluwer Academic Publishers, 2002.

DAVID L. SUNDING

“A Comparison of Policies to Reduce Pesticide Poisoning Combining Economic and Toxicological Data.” With Joshua Zivin. In: Joe Moffitt (ed.). *Advances in the Economics of Environmental Resources: Volume 4*. Greenwich: JAI Press, 2001.

“The Impact of Climate Change on Agriculture: A Global Perspective.” With David Zilberman and Xuemei Liu. In: Charles Moss, Gordon Rausser, Andrew Schmitz, Tim Taylor and David Zilberman (eds.), *Agricultural Globalization, Trade, and the Environment*. New York: Kluwer, 2001.

“The Agricultural Innovation Process: Research and Technology Adoption in a Changing Agricultural Sector.” With David Zilberman. In: Bruce Gardner and Gordon Rausser (eds.), *Handbook of Agricultural and Resource Economics*. Amsterdam: North Holland, 2001, 207-261.

Water Pricing and Water Use Efficiency. U.S. Department of the Interior, Bureau of Reclamation. January 2001.

Economic Impacts of Critical Habitat Designation for the California Red-Legged Frog. Home Builders Association of Northern California. With David Zilberman. January 2001.

A Proposal for Management of the Confined Aquifer in the Western San Joaquin Valley. With David Purkey. July 2000.

Analysis of the Army Corps of Engineers’ NWP 26 Replacement Permit Proposal. Foundation for Economic and Environmental Progress. With David Zilberman. February 2000.

“Insect Population Dynamics, Pesticide Use and Farmworker Health.” With Joshua Zivin. *American Journal of Agricultural Economics* 82(August 2000): 527-540.

* Winner of the AAEA Outstanding Journal Article Award.

“Product Liability, Entry Incentives and Market Structure.” With Stephen Hamilton. *International Review of Law and Economics* 20(September 2000): 269-283.

“Climate Change Policy and the Agricultural Sector.” With David Zilberman. In: R. Lal, J.M. Kimble, R.F. Follett and B.A. Stewart (eds.), *Assessment Methods for Soil Carbon*. Boca Raton, FL: CRC Press, 2000, 629-643.

“Methyl Iodide as an Alternative to Methyl Bromide.” With Brent Hueth, Bruce McWilliams and David Zilberman. *Review of Agricultural Economics* (Spring/Summer 2000): 43-54.

DAVID L. SUNDING

“Using Water Markets to Improve Environmental Quality: Two Innovative Programs in Nevada.” With Sabrina Ise Lovell and Katrin Millock. *Journal of Soil and Water Conservation* 55(First Quarter 2000): 19–26.

“The Price of Water...Market-Based Strategies are Needed to Cope with Scarcity.” *California Agriculture* 54(March-April 2000): 56–63.

“Designing Environmental Regulations with Empirical Microparameter Distributions: The Case of Seawater Intrusion.” With Gareth Green. *Resource and Energy Economics* 22(January 2000): 63–78.

“The Economics of Inter-District Water Transfers in California.” In *Proceedings of the American Society of Civil Engineers*. New York: ASCE, 1999.

Economic Valuation of Increased Water Supply Reliability and Trading Opportunities in Westside Agriculture. With Georgina Moreno, Daniel Osgood and David Zilberman. CalFed Bay-Delta Program. December 1999.

Costs of Implementing the Food Quality Protection Act of 1996 on California Agriculture. With Bruce McWilliams, Yuria Tanimichi and David Zilberman. September 1999.

Economic Impact of Restricting Use of Compound 1080 in California's Intermountain Region. With Brent Hueth and Michelle McGregor. California Department of Pesticide Regulation. April 1999.

Downstream Economic Impacts of Reducing Federal Water Subsidies: The Case of Alfalfa and Dairy. With Gergina Moreno. Natural Resources Defense Council. August 1998.

Economic Importance of Organophosphates in California Agriculture. With Brent Hueth, Grazyna Michalska, and David Zilberman. California Department of Food and Agriculture. August 1998.

An Environmentally Optimal Alternative for the San Francisco Bay-Delta. With John Cain, David Fullerton, David Purkey and Greg Thomas. Natural Heritage Institute. July 1998.

Water Trading and Environmental Quality in the Western United States. With David Zilberman. U.S. Environmental; Protection Agency. April 1998.

Impact of Endangered Species Legislation on California Agriculture. With David Zilberman, Jerome B. Siebert, Joshua Zivin, Sabrina Isé and Brent Hueth. California Resources Agency. January 1998.

DAVID L. SUNDING

Economic Impacts of Banning Methyl Bromide in California. With Bruce McWilliams, Brent Hueth, Lori Lynch, David Zilberman and Jerome Siebert. California Department of Food and Agriculture. January 1998.

“Returns to Public Investment in Agriculture with Imperfect Downstream Competition.” With Stephen Hamilton. *American Journal of Agricultural Economics* 80(November 1998): 830–838.

“Reallocating Water from Agriculture to the Environment under a Voluntary Purchase Program.” With Sabrina Ise. *Review of Agricultural Economics* 20(Summer 1998): 214–226.

“Allocating Product Liability in a Multimarket Setting.” With David Zilberman. *International Review of Law and Economics* 18(March 1998): 1–11.

“Resolving Trans-Boundary Water Disputes: Economists’ Influence on Policy Choices in the United States.” In: Richard Just and Sinaia Netanyahu (eds.), *Conflict and Cooperation on Trans-Boundary Water Resources.* Norwell: Kluwer, 1998.

“Economics and Pesticide Regulation.” With Erik Lichtenberg, Douglas Parker and David Zilberman. *Choices* (Fourth Quarter 1997): 26–29.

“The Effect of Farm Supply Shifts on Concentration and Market Power in the Food Processing Sector.” With Stephen Hamilton. *American Journal of Agricultural Economics* 79(May 1997): 524–531.

“Land Allocation, Soil Quality and the Demand for Irrigation Technology.” With Gareth Green. *Journal of Agricultural and Resource Economics* 22(November 1997): 367–375.

“Water Marketing in the ’90s: Entering the Electronic Age.” With Janis Carey, David Zilberman and Douglas Parker. *Choices* (Third Quarter 1997): 15–19.

“Modeling the Impacts of Reducing Agricultural Water Supplies: Lessons from California’s Bay/Delta Problem.” With David Zilberman, Neal MacDougall, Richard Howitt and Ariel Dinar. In: Doug Parker and Yacov Tsur (eds.), *Decentralization and Coordination of Water Resource Management.* New York: Kluwer, 1997.

“The Changing Nature of Agricultural Markets: Implications for Privatization of Technology, Information Transfer and Land Grant Research and Extension.” With David Zilberman and Madhu Khanna. In: Stephen Wolf (ed.), *Privatization of Information and Agricultural Industrialization.* Boca Raton: CRC Press, 1997.

“Changes in Irrigation Technology and the Impact of Reducing Agricultural Water Supplies.” With Ariel Dinar and David Zilberman. In: Darwin Hall (ed.), *Advances in the Economics of Environmental Resources: Volume 1.* Greenwich: JAI Press, 1996.

DAVID L. SUNDING

“Measuring the Marginal Cost of Nonuniform Environmental Regulations.” *American Journal of Agricultural Economics* 78(November 1996): 1098–1107.

“Explaining Irrigation Technology Choices: A Microparameter Approach.” With Gareth Green, David Zilberman and Douglas Parker. *American Journal of Agricultural Economics* 78(November 1996): 1064–1072.

“How Does Water Price Affect Irrigation Technology Adoption?” With Gareth Green, David Zilberman, Douglas Parker, Cliff Trotter and Steve Collup. *California Agriculture* 50(March–April 1996): 36–40.

“Strategic Participation and the Median Voter Result.” *Economic Design* 1(April 1996): 355–363.

Economic Incentives for Improving Water Quality in Nevada’s Truckee River Basin. With Sabrina Ise and Katrin Millock. U.S. Environmental Protection Agency. October 1996.

“Social Choice by Majority Rule with Rational Participation.” *Social Choice and Welfare* 12(December 1995): 3–12.

“Water Markets and the Cost of Improving Water Quality in the San Francisco Bay/Delta Estuary.” With David Zilberman and Neal MacDougall. *Hastings West-Northwest Journal of Environmental Law & Policy* 2(Spring 1995): 159–165.

“Flexible Technology and the Cost of Improving Groundwater Quality.” With David Zilberman, Gordon Rausser and Alan Marco. *Natural Resource Modeling* 9(April 1995): 177–192.

Managing Seawater Intrusion in Monterey County through Agricultural Water Conservation. With Gareth Green and Larry Dale. Monterey County Water Resources Agency. May 1995.

“Water for California Agriculture: Lessons from the Drought and New Water Market Reform.” With David Zilberman, Richard Howitt, Ariel Dinar and Neal MacDougall. *Choices* (Fourth Quarter 1994): 25–28.

“Methyl Bromide Regulation...All Crops Should Not Be Treated Equally.” With Cherisa Yarkin, David Zilberman and Jerry Siebert. *California Agriculture* 48(May–June 1994): 10–15.

“Cancelling Methyl Bromide for Postharvest Use to Trigger Mixed Economic Results.” With Cherisa Yarkin, David Zilberman and Jerry Siebert. *California Agriculture* 48(May–June 1994): 16–21.

DAVID L. SUNDING

“Who Makes Pesticide Use Decisions? Implications for Policymakers.” With David Zilberman, Michael Dobler, Mark Campbell and Andrew Manale. In: Walter Armbruster (ed.), *Pesticide Use and Product Quality*. Glenbrook: Farm Foundation, 1994.

Conclusions and Recommendations on a Framework for Comparative Cost Effectiveness Assessment of CVP Yield Augmentation Alternatives. With Greg Thomas. U.S. Department of the Interior, Bureau of Reclamation. December 1994.

Economic Impacts of USFWS’ Water Rights Acquisition Program for Lahontan Valley Wetlands. U.S. Department of the Interior, Fish and Wildlife Service. June 1994.

Market Implementation of Bay/Delta Water Quality Standards. U.S. Environmental Protection Agency. March 1994.

Economic Impacts of Mevinphos Cancellation in California. California Department of Pesticide Regulation. March 1994.

Economic Impacts of Federal Worker Protection Standards. With Cheryl Brown, Valerie Brown and Bob Chavez. California Department of Food and Agriculture. October 1993.

Water Quality Regulation in the San Francisco Bay and Delta. With David Zilberman, Richard Howitt, Neal MacDougall and Linda Fernandez. U.S. Environmental Protection Agency. May 1993.

The Economic Consequences of Enforcing the Delaney Clause. With Alan Marco. U.S. Environmental Protection Agency. March 1993.

Economic Impacts of Cancelling Methyl Bromide in California. With Cherisa Yarkin, David Zilberman, Jerome Siebert and Alan Marco. California Department of Food and Agriculture. February 1993.

Economic Impact of the Silverleaf Whitefly. With Jerome Siebert, David Zilberman and Michael Roberts. California Department of Food and Agriculture. January 1993.

“Managing Groundwater Quality under Uncertainty.” With David Zilberman and Gordon Rausser. In: Michelle Marra (ed.), *Quantifying Long-Run Agricultural Risks*. Orono: University of Maine, 1993.

“Natural Resource Cartels.” With David Teece and Elaine Mosakowski. In: Allen Kneese and James Sweeney (eds.), *Handbook of Natural Resource and Energy Economics*, Volume III. Amsterdam: Elsevier, 1993.

“Joan Robinson as a Development Economist.” With Irma Adelman. In: George Feiwel (ed.), *Joan Robinson and Modern Economic Theory*. London: Basil Blackwell, 1988.

DAVID L. SUNDING

“Economic Policy and Income Distribution in China.” With Irma Adelman. *Journal of Comparative Economics* 11(September 1987): 444–461. Reprinted in Bruce Reynolds (ed.), *China's Economic Development: How Far, How Fast?* New York: Academic Press, 1989. Reprinted in Joseph C. H. Chai (ed.), *The Economic Development of Modern China*. London: Edward Elgar, 1999.

LEGISLATIVE AND ADMINISTRATIVE TESTIMONY

“Statewide Economic Benefits of the Bay Delta Conservation Plan,” California State Senate, Committee on Natural Resources and Water. August 2013.

“The Economic Implications of EPA’s After the Fact Veto of a Discharge Permit.” Subcommittee on Water and Energy, Committee on Transportation & Infrastructure, U.S. House of Representatives. June 2011.

“Cost Benefit Analysis as a Tool for Regulation of Once Through Cooling.” State of California Water Resources Control Board. May 2010.

“Economic Impacts of the Proposed Construction General Permit for Stormwater Discharges.” State of California Water Resources Control Board. June 2008.

“Climate Change, Energy Prices and Commodity Markets.” Subcommittee on Energy and Environment, Committee on Science and Technology, U.S. House of Representatives, May 2008.

“Consideration of Economic Impacts of TMDL for PCBs in th San Francisco Bay.” San Francisco Regional Water Quality Control Board. February 2008.

“Economic Impacts of Sediment Quality Objectives for Enclosed Bays and Estuaries.” State of California Water Resources Control Board. February 2008.

“Economic Aspects of the Proposed TMDL for PCBs in the San Francisco Bay.” San Francisco Regional Water Quality Control Board. September 2007.

“Economic Impacts of Drought-Induced Water Shortage in the San Francisco Bay Area.” San Francisco Public Utilities Commission. June 2007.

“Economic Considerations Relating to the Designation of Critical Habitat.” Committee on Resources, U.S. House of Representatives, April 2004.

“Fiscal and Socioeconomic Impacts of Implementing the California Coho Salmon Recovery Plan.” California Fish and Game Commission, February 2004.

DAVID L. SUNDING

“Economic Impacts of Critical Habitat Designation.” Subcommittee on Fisheries, Wildlife and Water, Committee on Environment and Public Works, U.S. Senate, April 2003.

“Performance of the Federal Wetlands Permitting Program.” Subcommittee on Water and Wetlands, Committee on Transportation and Infrastructure, U.S. House of Representatives. September 2001.

“Economic Observations on Water Infrastructure Investment in California.” Subcommittee on Water and Power, Committee on Transportation and Infrastructure, U.S. House of Representatives. July 2001.

“Economic Impacts of Reduced Water Supplies on Westside Agriculture.” Bay-Delta Advisory Committee. June 1998.

“Economic Impacts of the Central Valley Project Improvement Act.” Subcommittee on Water and Power, Committee on Transportation and Infrastructure, U.S. House of Representatives. April 1998.

“Forest Service Losses on Below-Cost Timber Sales.” Committee on Energy and Natural Resources, U.S. Senate. February 1997.

“Benefits and Costs of Enhanced Flood Protection in the American River Valley.” Committee on Transportation and Infrastructure, U.S. House of Representatives. February 1996.

“Economic Impacts of Banning Methyl Bromide Use in California.” Committee on Appropriations, California Senate. February 1996.

“Economic Impacts on Leeward Agriculture of Eliminating Waiahole Ditch Diversions.” Hawaii Water Commission. January 1996.

“Least-Cost Implementation of Bay/Delta Water Quality Standards.” State of California Water Resources Control Board. July 1994.

“The Potential for Agricultural Water Conservation.” State of California Water Resources Control Board. June 1992.

“Economic Impacts of the Central Valley Project Improvement Act.” Committee on Energy and Natural Resources, U.S. Senate. April 1992.

GOVERNMENT BRIEFINGS

“Economic Impacts of the Clean Water Rule,” White House Office of Management and Budget, December 2014.

DAVID L. SUNDING

“Economic Analysis of Draft Guidance for Defining Waters of the United States,” Briefings for U.S. House of Representatives and Senate Staff. February 2014.

“Assessment of the Government’s Economic Analysis of the Waters of the United States Rule.” White House Office of Management and Budget. December 2013.

“Economic Benefits Analysis of the Bay-Delta Conservation Plan,” BDCP Finance Committee Meeting. Sacramento, CA. July 2012.

“Employment Impacts of Constructing an Isolated Conveyance Facility,” California State Senate Town Hall Meeting. Fresno, CA. November 2011.

“System Integration and California Water Management.” California Assembly and Senate Members and Staff. Sacramento, CA. August 2006.

“The Endangered Species Act at 30: Lessons for Reform.” Organized with U.S. Senate Committee on Energy and Natural Resources. Washington, DC. December 2004.

“Non-Federal and Non-Regulatory Approaches to Wetland Conservation.” House Transportation and Infrastructure Committee Staff. Washington, DC. February 2003.

“Removing Barriers to Water Marketing.” California Senate Committee on Agriculture and Water and the California Foundation for Environment and Economy. Berkeley, CA. January 2003.

“Agricultural Water Pricing and Water Use Efficiency.” U.S. Bureau of Reclamation. Sacramento, CA. May 2002.

“Assessing Recent Changes to the Wetlands Permitting Process.” Congressional Real Estate Caucus. Washington, DC. September 2000.

“Water Markets in California.” California Assembly and Senate Staff. Sacramento, CA. May 2000.

“Economic Analysis of Proposed Changes in Wetlands Permitting Policies.” U.S. House of Representatives and Senate Staff. Washington, DC. March 2000.

“Groundwater Implications of Water Trading.” California Assembly Water Parks and Wildlife Committee and Senate Agriculture and Water Committee. Sacramento, CA. November 1999.

“Economic Aspects of the 1996 Food Quality Protection Act.” Office of Policy, U.S. Environmental Protection Agency. Washington, DC. October 1998.

DAVID L. SUNDING

“Innovative Approaches to Water Conservation: The Westside Case.” Joint U.S. Bureau of Reclamation and the California Department of Water Resources Water Conservation Information Committee. San Diego, CA. August 1998.

“Climate Variability and U.S. Agriculture: Mitigating the Impacts.” U.S. Environmental Protection Agency. Washington, DC. May 1998.

“New Approaches to Agricultural Water Conservation.” Congressional Water Caucus. Washington, DC. February 1996.

COURSES TAUGHT

Advanced Topics in Environmental and Resource Economics (Graduate)

Risk, Technology and the Environment (Graduate)

Environmental and Resource Economics (Graduate)

Economics of Water Resources (Undergraduate)

Natural Resource Economics (Undergraduate)

Economics of Public Law (UC Berkeley School of Law)

Environmental Policy (Undergraduate)

Public Finance (Graduate)

Microeconomic Theory (Graduate and Undergraduate, UC Berkeley and Boston College)

Law and Economics (Boston College School of Law)

ACADEMIC SEMINARS

American Economic Association University of Arizona, Boston College, Boston University, UC Berkeley, UC Davis, UC Irvine, UCLA, UC Riverside, UC Santa Barbara, University of Colorado, Harvard University, Hebrew University of Jerusalem, Johns Hopkins University, Kansas State University, University of Maryland, Massachusetts Institute of Technology, University of Massachusetts, Montana State University, Ohio State University, University of Pennsylvania, Purdue University, Stanford University, U.S. Department of Agriculture, U.S. Department of the Interior, U.S. Environmental Protection Agency, U.S. Department of Housing and Urban Development, University of Wisconsin, University of Wyoming.

PROFESSIONAL ASSOCIATIONS

American Economic Association

Association of Environmental and Resource Economists

Econometric Society