

## **Bill Provencher**

*Curriculum Vitae*

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Department of Agricultural & Applied Economics  
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### **I. Fields of Specialization**

Environmental and resource economics, with a focus on three research areas: the demand-side management of energy, the valuation of ecosystem services, and the dynamic allocation of resources.

### **II. Education**

Ph.D., Agricultural Economics, University of California, Davis, 1991.  
M.S., Environmental Studies, Duke University, 1985.  
B.S., Natural Resources, Cornell University, 1981.

### **III. Professional Employment**

2009-present Associate Director, Energy Practice, Navigant Consulting  
2006-present Professor, Department of Agricultural & Applied Economics, University of Wisconsin  
1997-2006 Associate Professor, Department of Agricultural & Applied Economics, University of Wisconsin  
1991-1997 Assistant Professor, Department of Agricultural & Applied Economics, University of Wisconsin  
1990-1991 Instructor, Department of Agricultural & Applied Economics, University of Wisconsin  
1989-1990 Graduate Research Assistant, University of California

### **IV. Selected Professional Service and Recognition**

2010 CJAE Outstanding Journal Article Award  
Board of Directors, Association of Environmental and Resource Economics, 2001-2004  
Co-Editor, Journal of Environmental Economics and Management, 2002-2005  
Editorial Board, Land Economics, 1997-2012  
Editorial Council, Journal of Environmental Economics and Management, 1997-2002, 2005-2008

## V. Selected Completed and Current Consulting Analyses (Navigant Consulting), 2011-present

**PacifiCorp Home Energy Report Program (Current).** Program developed by Opower (<http://opower.com/>); involves reports mailed to residential customers showing how their energy use compares to their past energy use and to the current energy use of their neighbors. This is an application of using social norms to encourage energy saving behavior (sometimes called “social proofing” or “social nudging”). Opower programs typically involve an experimental design in which households are randomly assigned to either a treatment group receiving the reports or a control group that does not. Similar evaluations of the Opower program are recently completed or currently underway for over a dozen other utilities including AEP-Ohio, BG&E, ComEd, National Grid, Potomac Energy, and many others. Recent evaluations concern persistence effects (Do savings generated by the reports persist over time after reports are terminated?)

**ComEd/CUB Energy Savers Program (Current).** Program developed by C3 Energy (<http://www.c3energy.com/>) under the direction of Commonwealth Edison (ComEd) and Illinois Citizens Utility Board (CUB). It involves a web-based, opt-in program for ComEd’s residential customers, introduced in June 2010, designed to generate energy savings by providing customers with information about their energy savings, tips on how to reduce energy consumption, and reward points for saving energy that can be redeemed at local retailers.

**DTE Insight Mobile App Program (Current).** In this program ([www.dteenergy.com/dteInsight](http://www.dteenergy.com/dteInsight)), residential customers with smart meters and smart phones are able to remotely monitor their home energy use on an hourly basis, and can use their phones to monitor the energy use of particular appliances. The app allows the customer to access energy efficiency tips with investment details (“project cards”), set goals, compare home energy use to past use, and accumulate rewards points for energy savings. The program was initiated in April 2014.

**Southern California Gas (SCG) Nest Thermostat Pilot Study (Current).** The Nest learning thermostat (<https://nest.com/>) is a smart thermostat designed to “learn” how to set indoor temperatures based on the history of thermostat settings used by building occupants. This study involves data on several thousand Nest recipients and similar control customers to evaluate the energy savings from a Nest thermostat.

**AEP-Ohio Residential Remote Home Energy Audit Program (Current).** This opt-in program developed by Apogee Interactive (<http://www.apogee.net/>) presents customers with a remote energy audit web tool that combines customer-specific energy consumption data provided by the utility with a residence’s structural details provided by the customer to conduct a remote home energy audit, generating detailed recommendations on ways to save energy based on the audit.

**National Grid-Rhode Island Rewards Program (Current).** An opt-in, rewards-based behavioral program designed to mitigate self-selection bias in evaluating program savings via a random encouragement design (RED), a quasi-experimental approach in which a random set of customers are encouraged to enroll in the program. Customers who access the web portal for the program are granted points towards gift cards and charitable contributions for agreeing to take energy-saving actions.

**DTE and CE C&I Programmable Thermostat Program (2014).** Consumers are often told that programmable thermostats can provide energy savings of 10-30%, though the empirical evidence from a number of studies indicates that savings in the residential sector are usually lower—in the neighborhood of 5-10%. This study examines this question for commercial and industrial customers using data for a large sample of C&I customers of two large Midwestern U.S. utilities (Detroit Edison and Consumers Energy) who received programmable thermostats.

**Arizona Public Service Low Income Pre-Pay Program (2014).** Arizona Public Service (APS) has installed interval meters (smart meters) in substantial portions of its territory and is in the process of developing DR programs that take advantage of the technology. One example is a pre-pay program for low income households in which households may opt to participate in a program in which they maintain a financial account with the utility that is drawn down as the household consumes energy, with the household being notified by email and telephone if the account falls below a critical threshold. The purpose of the analysis is to examine how the program—in particular the “critical balance alerts”—affects electricity usage.

**Western Massachusetts Electric Company (WMECO) Personal Energy Efficiency Rewards (PEER) program (2013).** This is a residential energy efficiency information and rewards program involving 50,000 treatment households. Households are provided energy conservation information through an energy savings report sent via mail and email, and an online rewards component in which households receive point towards purchases at a number of online retailers for reducing their monthly energy bills compared to the same month in the previous year.

**Commonwealth Edison Residential Real Time Pricing Program (2011).** ComEd offers real-time pricing rates to their residential customers through the Residential Real Time Pricing program. The program involved 11,000 participants as of Summer 2011. Innovative analysis involved the development of a system of hourly residential electricity demand equations to determine both own-price and cross-price demand elasticities, thereby providing the opportunity to determine (a) the effect of peak and off-peak electricity prices on energy consumption and energy shifting; and (b) the impact on electricity consumption of a system of high price alerts communicated via email and text message.

**Evaluation Workshop, BC Hydro (2011).** Co-presenter of a 2-day workshop for program managers at BC Hydro, the provincial utility of British Columbia, CA, focusing on the econometric methods used in the evaluation of energy savings attributable to demand response programs. The focus of the workshop was on establishing the program baseline (the program “counterfactual”), with several case studies used to illustrate the variety of possible approaches and the circumstances under which each approach is most applicable.

## VI. Selected Energy-Related Conference Presentations and Papers

Bill Provencher and Jennifer Hampton. “Behavioral Effects of a Smart Phone App to Provide Real-Time Energy Information”. Conference on Behavior, Energy, and Climate Change (BECC), Washington, DC (Forthcoming, December 2014).

Carly McClure and Bill Provencher. “Energy savings over a 3-year opt-in rewards-based residential behavioral program.” International Energy Program Evaluation Conference (IEPEC), Berlin, September 2014.

Brian Eakin and Bill Provencher. “Energy Savings from Programmable Thermostats in the C&I Sector.” International Energy Program Evaluation Conference (IEPEC), Berlin, September 2014.

Bill Provencher and Bethany Glinsmann. “Some Insights on Matching Methods in Estimating Energy Savings from an Opt-In, Behavior-Based Energy Efficiency Program.” International Energy Program Evaluation Conference (IEPEC), Chicago, August 2013.

Bethany Glinsmann and Bill Provencher. “I can’t use a Randomized Controlled Trial – Now What? Comparison of Methods for Assessing Impacts from Opt-In Behavioral Programs”. International Energy Program Evaluation Conference (IEPEC), Chicago, August 2013.

Bethany Glinsmann and Bill Provencher. “Behavioral insights from a real-time pricing program”. Association of Energy Service Professionals (AESP) Conference on Customer Behavior and the Smart Grid, October 4, 2011.

Bill Provencher and Peter Millburg. “Four years and 11,000 customers – hourly residential electric pricing in Ameren Illinois”. National Town Hall Meeting on Demand Response and Smart Grid, Washington, DC, July 14, 2011.

Bill Provencher and Mary Klos. “Using social nudges to reduce energy demand: evidence for the long term”. Conference on Behavior, Energy, and Climate Change (BECC), Sacramento, CA, November 17, 2010.

Bethany Glinsmann, Bill Provencher, and Mary Klos. “Hourly residential demand in a real time pricing program”. Conference on Behavior, Energy, and Climate Change (BECC), Sacramento, CA, November 17, 2010.

Bethany Glinsmann, Bill Provencher, and Mary Klos. “An hourly demand system approach to estimating the effects of residential real time pricing programs”, Heartland Environmental and Resource Economics Workshop,

University of Illinois, Oct 17, 2010. Co-authored with Bethany Vittetoe-Glinsmann and Mary Klos, Navigant Consulting.

## VII. University Research

### Articles in Refereed Journals

Robinson, Brian E., Bill Provencher, and Dave Lewis. 2013. "Managing wild resources: institutional choice and the recovery of resource rent in southwest China." *World Development*. 48: 120-132.

Gaeta, J.W., B. Beardmore, A.W. Latzka, B. Provencher, S.R. Carpenter. 2013. "Catch-and-release rates of sport fishes in northern Wisconsin from an angler diary survey." *North American Journal of Fisheries Management* 33(3): 606-614.

Provencher, Bill, Dave Lewis and Kathryn Anderson. 2012. "Disentangling preferences and expectations in stated preference analysis with respondent uncertainty: the case of invasive species prevention", *Journal of Environmental Economics and Management* 64(2): 169-182.

Moore, Rebecca., Bill Provencher, and Richard C. Bishop. "Valuing a Spatially-Variable Environmental Resource: Reducing Nonpoint Source Pollution in Green Bay, WI". *Land Economics* 87(1): 45-59 (2011).

Moore, Rebecca., Richard C. Bishop, Bill Provencher, and Patricia Champ. "Accounting for Respondent Uncertainty to Improve Willingness-to-Pay Estimates". *Canadian Journal of Agricultural Economics* 58(3): 381-401 (2010). (Winner of 2010 CJAEE Outstanding Journal Article Award)

Lewis, David, Bill Provencher, and Van Butsic. "The Dynamic Effects of Open-Space Conservation Policies Residential Development Density". *Journal of Environmental Economics and Management* 57: 239-252 (2009).

Provencher, Bill, Helen Sarakinos, and Tanya Meyer. "Does Small Dam Removal Affect Local Property Values? An Empirical Analysis". *Contemporary Economic Policy* 26(2): 187-197 (April 2008).

Liu, Jianguo, Thomas Dietz, Stephen R. Carpenter, Marina Alberti, Carl Folke, Emilio Moran, Alice N. Pell, Peter Deadman, Timothy Kratz, Jane Lubchenco, Elinor Ostrom, Zhiyun Ouyang, William Provencher, Charles L. Redman, Stephen H. Schneider, William W. Taylor. "Complexity of Coupled Human and Natural Systems". *Science* 317 (Sept. 14): 1513-1516 (2007).

Carpenter, S.R., B.J. Benson, R. Biggs, J.W. Chipman, J.A. Foley, S.A. Golding, R.B. Hammer, P.C. Hanson, P.T.J. Johnson, A.M. Kamarainen, T.K. Kratz, R.C. Lathrop, K.D. McMahon, B. Provencher, J.A. Rusak, C.T. Solomon, E.H. Stanley, M.G. Turner, M.J. Vander Zanden, C.-H. Wu and H. Yuan. "Understanding regional change: Comparison of two lake districts." *BioScience* 157(4): 323-335 (2007).

Liu, Jianguo, Thomas Dietz, Stephen R. Carpenter, Carl Folke, Marina Alberti, Charles L. Redman, Stephen H. Schneider, Elinor Ostrom, Alice N. Pell, Jane Lubchenco, William W. Taylor, Zhiyun Ouyang, Peter Deadman, Timothy Kratz and William Provencher. "Coupled Human and Natural Systems" *Ambio* 36(8): 639-649 (2007).

MacPherson, Alex, Rebecca Moore and Bill Provencher. "A Dynamic Principal-Agent Model of Human-Mediated Aquatic Species Invasions", submitted to *Agricultural and Resource Economics Review*, 35(1):144-154 (2006).

Provencher, Bill, and Rebecca Moore. "A Discussion of 'Using Angler Characteristics and Attitudinal Data to Identify Environmental Preference Classes: A Latent-Class Model'", *Environmental and Resource Economics*, 34:117-124 (2006).

- Baerenklau, Kenneth A. and Bill Provencher. "Static modeling of dynamic recreation behavior: implications for prediction and welfare estimation", *Journal of Environmental Economics and Management*, 50(3): 617-636 (2005).
- Provencher, Bill, and Richard C. Bishop. "Does accounting for preference heterogeneity improve the forecasting of a random utility model? A case study", *Journal of Environmental Economics and Management* 48(1):793-810 (2004).
- McGough, Bruce, Andrew Plantinga and Bill Provencher. "The Dynamic Behavior of Efficient Timber Prices", *Land Economics* 80(1): 95-108 (2004).
- Provencher, Bill, Ken Baerenklau, and Richard C. Bishop. 2002. "A Finite-Mixture Logit Model of Salmon Angling with Serially-Correlated Random Utility. *American Journal of Agricultural Economics* 84: 1066-1075 (November 2002).
- Swait, Joffre, Wiktor Adamowicz, Michael Hanemann, Bill Provencher, Adele Diederich, Jon Krosnick, David Layton, David Schkade, and Roger Tourangeau. "Context Dependence and Aggregation in Disaggregate Choice Analysis". *Marketing Letters* 13, 195-205 (2002).
- Spalatro, Fiorenza, and Bill Provencher. "An Analysis of Minimum Frontage Zoning to Preserve Lakefront Amenities". *Land Economics* 77:1-14 (2001).
- Provencher, Bill, and Richard C. Bishop. "An Estimable Dynamic Model of Recreation Behavior with an Application to Great Lakes Fishing", *Journal of Environmental Economics and Management* 33, 107-127 (1997).
- Provencher, Bill. "Structural versus Reduced-Form Estimation of Optimal Stopping Problems", *American Journal of Agricultural Economics* 79, 357-368 (May 1997).
- Provencher, Bill. "An Investigation of the Harvest Decisions of Timber Firms in the South-East United States", *Journal of Applied Econometrics* 10, 57-74 (1995).
- Provencher, Bill. "Structural Estimation of the Stochastic Dynamic Decision Problems of Resource Users: An Application to the Timber Harvest Decision", *Journal of Environmental Economics and Management* 29, 321-338 (1995).
- Provencher, Bill, and Oscar Burt. "A Private Property Rights Regime for the Commons: the Case of Groundwater", *American Journal of Agricultural Economics* 76 (November 1994): 875-888.
- Provencher, Bill, and Oscar Burt. "Approximating the Optimal Groundwater Pumping Policy in a Multiaquifer Stochastic Conjunctive Use Setting", *Water Resources Research* 30 (March 1994): 833-843.
- Provencher, Bill. "A Private Property Rights Regime to Replenish a Groundwater Aquifer", *Land Economics* 69 (November 1993), 325-340.
- Provencher, Bill, and Oscar Burt. "The Externalities Associated with the Common Property Exploitation of Groundwater", *Journal of Environmental Economics and Management* 24 (1993), 139-158.
- Provencher, Bill. "A New Approach to Increasing Timber Supply from Nonindustrial Private Forests of the South", *Land Economics* 66 (1990), 102-106.
- Provencher, Bill. "Privatizing the Groundwater Resource: Individual Use and Alternative Specifications", *Water Resources Bulletin* 24 (1988), 1117-1119.

## Book Chapters

Provencher, Bill, and Kenneth A. Baerenklau. "Estimation of Discrete Dynamic Decision Processes", in *Application of Simulation Methods in Environmental and Resource Economics*, Anna Alberini and Ricardo Scarpa, editors. Springer, 2005.

Provencher, Bill. "Issues in the Conjunctive Use of Surface Water and Groundwater", in *Handbook of Environmental Economics*, Daniel W. Bromley, editor. Blackwell Publishing, Cambridge MA (1995).

Loomis, John, and Bill Provencher. "Evaluating the Transferability of Regional Recreation Demand Equations," *Economic Valuation of Natural Resources: Issues, Theory, and Applications*, Rebecca L. Johnson and Gary V. Johnson, eds., Westview Press, Boulder CO (1990), 205-218.

## Other Publications and Unpublished Staff Papers

Moore, R., B. Provencher and R. Bishop. "Valuing a Spatially Variable Environmental Resource: Reducing Non-Point Source Pollution in Green Bay, WI". Staff Paper no. 538, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 2009.

Moore, R., R. Bishop, and B. Provencher. "Accounting for Respondent Uncertainty to Improve Willingness-to-Pay Estimates". Staff Paper no. 537, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 2009.

Lewis, D.J. and B. Provencher. "The dynamic effects of open-space conservation policies on residential development density. Staff Paper no. 522, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 2008.

Lewis, D.J. and B. Provencher. "The implications of heterogeneous preferences for environmental zoning." Staff Paper no. 501, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 2006.

Provencher, Bill. "Three Myths". *Lake Tides* 25 (3), Wisconsin Department of Natural Resources, Summer 2000.

Provencher, Bill. "Issues in the Estimation of Dynamic Microeconomic Models of Forest Use". In the Proceedings of the Seventh Symposium on Systems Analysis in Forest Resources. USDA Forest Service General Technical Report NC-205, 1997.

Provencher, Bill. "The Calculation of Welfare Values from Travel Cost Data when the Underlying Decision Problem is Dynamic". Staff Paper no. 404, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 1996.

Provencher, Bill and Richard C. Bishop. "An Estimable Dynamic Model of Recreation Behavior". Staff Paper no. 387, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 1995.

Behr, Christopher, and Bill Provencher. "The Optimal Rate of Waste Disposal in a Landfill: an Application to Rusk County, Wisconsin", Staff Paper no. 370, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 1994.

Provencher, Bill, and Stephen Swallow. "Taking Stock of the Timber Harvest Decision of Private Forest Owners: Some New Considerations", Staff Paper no. 344, Department of Agricultural & Applied Economics, University of Wisconsin, Madison, 1992.

### Papers Invited/Selected for Presentation at Professional Conferences

Katherine Zipp, Dave Lewis, Bill Provencher. “The effects of open-space conservation on ecosystems: An application of a joint ecological-economic model”. Selected paper, Annual Meeting of the American Agricultural Economics Association, Seattle, WA, August 2012.

Katherine Zipp, Dave Lewis, Bill Provencher. “Does open space conservation increase neighboring development?” Heartland Environmental and Resource Economics Workshop, University of Illinois – Urbana-Champaign, October 2011.

Bill Provencher, Dave Lewis, and Mike Papenfus. “Disentangling Expectations and Preferences in Welfare Analysis using Contingent Valuation”. Selected paper, Annual Meeting of the Association of Environmental and Resource Economists, Milwaukee Wisconsin, July 2009.

Lewis, David J., Bill Provencher, and Van Butsic. “Modeling the Effects of Land Conservation Policies on Lakefront Development” Heartland Environmental and Resource Economics Workshop, Iowa State University, September 2007.

Provencher, Bill, and Dave Lewis. “Effects of environmental zoning on household sorting: empirical evidence and ecological implications”. Selected paper, Annual Meeting of the American Agricultural Economics Association, Portland, OR, July 2007.

Moore, Rebecca, Bill Provencher and Richard C. Bishop. “Application of GIS in Valuing a Spatially Diverse Resource: The Benefits of Reduced Non-Point Source Pollution in Green Bay, WI”. Selected paper, Annual Meeting of the American Agricultural Economics Association, Portland, OR, July 2007.

Lewis, Dave, Bill Provencher, and Van Butsic. “Do Zoning Policies Increase Short-Run Development? A Structural Econometric Model of Lakefront Land Conversion”. Selected paper, Annual Meeting of the American Agricultural Economics Association, Portland, OR, July 2007.

Lewis, D., and B. Provencher. The implications of heterogeneous preferences for environmental zoning. Selected paper, Annual Meeting of the American Agricultural Economics Association, Long Beach, CA, July 2006.

MacPherson, Alex, Rebecca Moore, and Bill Provencher. A dynamic principal-agent model of human-mediated aquatic species invasions. Annual Meeting of the Northeastern Agricultural and Resource Economics Association (NAREA), Annapolis, MD, June 2005.

Provencher, Bill, and Michael Papenfus. The implications of lakeshore development restrictions for long-run lakeshore property values. Invited Paper, International Symposium on Society and Natural Resources, Ostersund, Sweden, June 2005.

Van Auken, Paul M., Roger B. Hammer, Kenneth M. Johnson, John Cromartie, and Bill Provencher. “The influence of natural and built amenities on net migration in the rural United States”. Selected Paper, International Symposium on Society and Natural Resources, Ostersund, Sweden, June 2005.

Provencher, Bill, Richard C. Bishop, Michael Bennett and Kenneth C. Baerenklau. “The economic value of Lake Michigan recreational salmon fishing”. Selected Paper, Annual Meeting of the American Fisheries Society, Madison, WI, September 2004.

Baerenklau, Kenneth A., and Bill Provencher. “Static Modeling of Dynamic Recreation Behavior: Implications for Prediction and Welfare Estimation”. Selected Paper, Annual Meeting of the American Agricultural Economics Association, Denver, CO, August 2004.

Tim Kratz, Stephen Carpenter, and Bill Provencher. "Divergent Dynamics of Riparian Land, People and Lakes". Invited Paper, Annual Meeting of the American Association for the Advancement of Science (AAAS), Seattle, WA, February 2004.

Martin D. Smith and Bill Provencher. "Spatial Search in Commercial Fishing: A Discrete Choice Dynamic Programming Approach". Selected Paper, Annual Meeting of the American Association of Agricultural Economics, Montreal, CA, August 2003. Paper also presented at the summer workshop of the Association of Environmental and Resource Economists, Madison, June 2003.

Bennett, Michael, and Bill Provencher. "On the Source of the Disparity between Recreation Trip Decisions and Retrospective Evaluations of Trip Utility". Selected Paper, Heartland Workshop for Environmental and Resource Economics, Iowa State University, Ames, Iowa, September 2002.

Kling, Catherine, Stephen Polasky and Bill Provencher. "Ecology and Economics: Towards Interdisciplinary Understanding". Selected Paper, Heartland Workshop for Environmental and Resource Economics, Iowa State University, Ames, Iowa, September 2002.

Provencher, Bill and Richard C. Bishop. "Mental Accounts and Their Consequences for Realistic Modeling of Recreation Behavior". Selected Paper, Second World Congress of Environmental and Resource Economists. Monterey, CA, June 2002.

Papenfus, Michael, and Bill Provencher. "An Economic Analysis of Ecology-Based Restrictions on Lakefront Development". Selected Paper, Second World Congress of Environmental and Resource Economists. Monterey, CA, June 2002.

Bennett, Michael, and Bill Provencher. "Experience and Expectations: Exploring the Linkages Between Ex Ante and Retrospective Fishing Trip Valuations Using Combined Revealed and Stated Preference Data", Selected Paper, Second World Congress of Environmental and Resource Economists. Monterey, CA, June 2002.

Provencher, Bill. "Using Static Recreation Demand Models to Forecast Angler Responses to Interseasonal Changes in Catch Rates". Selected Paper, Annual Meeting of the American Agricultural Economics Association, Tampa, August 2000.

Baarenklau, Ken, and Bill Provencher. "Finite-Mixture, Markov-Logit Model of Recreational Angling", Selected Paper, Heartland Environmental Workshop, Iowa State University, Ames, Iowa, September 1999.

Provencher, Bill. "Theory and Application of Minimum Frontage Zoning to Preserve Lakefront Amenities", Selected Paper, Heartland Environmental Workshop, Iowa State University, Ames, Iowa, September 1999.

Baarenklau, Ken, and Bill Provencher. "Heterogeneous Preferences in Random Utility Models", Selected Paper, annual meetings of the American Agricultural Economics Association, Nashville, August 1998.

Provencher, Bill, and Richard Bishop. "Issues in the Estimation of Welfare Values from Travel Cost Data When the Underlying Decision Problem is Dynamic", Paper Presented at the Sixth Joint Italian/Minnesota Conference on Food, Agriculture, and the Environment, Minneapolis, August 1998.

Provencher, Bill. "The Calculation of Welfare Values from Travel Cost Data When the Underlying Decision Problem is Dynamic", Selected Paper, annual meetings of the American Agricultural Economics Association, Toronto, Canada, July 1997. Abstract, *American Journal of Agricultural Economics* 79, forthcoming.



Provencher, Bill. "Issues in the Structural Estimation of Timber Harvesting Behavior". Selected Paper, Seventh Symposium on Systems Analysis in Forest Resources, Traverse City, MI, May 1997.

Bishop, Richard, and Bill Provencher. "Structural Estimation of Dynamic Recreational Trip Decisions". Selected Paper, annual meeting of the Allied Social Sciences Association, New Orleans, January 1997.

Provencher, Bill. "A Dynamic Structural Model of the Timber Harvest Decision." Selected Paper, Annual Meeting of the Northeast Agricultural Economics Association, Burlington, Vermont, June 1995.

Provencher, Bill. "A Structural Dynamic Behavioral Model of the Timber Harvest Decision", Selected Paper, annual meetings of the American Agricultural Economics Association, San Diego, CA, August 1994. Abstract, *American Journal of Agricultural Economics* 76 (1994): 1261.

Provencher, Bill. "Structural Modeling of the Timber Harvest Decision", Selected Paper, (First) Computational Economics Conference, Amsterdam, Netherlands, June 1994.

Provencher, Bill. "Approximating the Solution of Stochastic Dynamic Games: an Application to Groundwater", Selected Paper, annual meetings of the American Agricultural Economics Association, Orlando, FL, August 1993. Abstract, *American Journal of Agricultural Economics* 75 (1993): 1314.

Provencher, Bill, and Oscar Burt. "An Analysis of Private Property Rights in Groundwater", Selected Paper, annual meetings of the American Agricultural Economics Association, Baltimore, MD, August 1992. Abstract, *American Journal of Agricultural Economics* 74, 1295.

Provencher, Bill, and Oscar Burt. "A Quantitative Analysis of a Private Property Rights Regime to Restore Groundwater Stocks to Optimal Levels", Selected Paper, Conference on Water Quantity and Quality Issues, Washington, D.C., May 3-4, 1992.

Provencher, Bill. "Timber Supply from Nonindustrial Private Forests: Reconsidering the Conventional Wisdom", Selected Paper, annual meetings of the American Agricultural Economics Association, Vancouver, BC, August 1990. Abstract, *American Journal of Agricultural Economics* 72, 1359.

Provencher, Bill. "The Value of Groundwater as a Buffer Against Drought: Implications for Managing a Common Property Resource", Selected Paper, annual meetings of the American Agricultural Economics Association, Baton Rouge, LA, August 1989. Abstract, *American Journal of Agricultural Economics* 71, 1341.

## VIII. Research Support

2010 NSF: Social-ecological dynamics of aquatic species invasions on a lake-rich landscape (\$1.5 million over 4 years, lead PI with Steve Carpenter, Jake Vander Zanden and Dave Lewis).

2009 USDC (Sea Grant): An Economic Spatial-Dynamic Model of Great Lakes Coastal Development (\$342,000 over three years, lead PI with Dave Lewis and Volker Radeloff).

2008 NSF-LTER: Comparative Study of a Suite of Lakes in Wisconsin (\$3 million over five years; co-PI with five other UW faculty)

2008 NSF LTER (Social Science Supplement) The Impact of Lake Shoreline Development Restrictions on the Development of Nearby Non-Shoreline Forest Parcels (\$20,000 over one year, with Dave Lewis)

2007 NSF LTER (Social Science Supplement) Survey of Lakeshore Property Owners (\$20,000 over one year, with Dave Lewis)

- 2004 USDA (NRI): The Influence of Amenities and Proximate Population Concentrations on Population and Economic Growth in the Rural United States (\$140,000 over two years; co-PI with two other faculty, one at UW-Madison and one at Loyola University in Chicago).
- 2003 USDA-Hatch: The Economic Effects of Rural Land Use Restrictions to Preserve Environmental Amenities (\$94,000 over 3 years)
- 2002 NSF-LTER: Comparative Study of a Suite of Lakes in Wisconsin (\$3 million over five years; co-PI with five other UW faculty)
- 2002 USDC (Sea Grant): Using Survey Data in Hedonic Price Analysis: An Application to the Economic Valuation of Cleaner Water in Green Bay, Lake Michigan (\$110,000 over two years; co-PI with Rich Bishop and Jean Paul Chavas)
- 2000 NSF: Divergent Dynamics: Complex Interactions of Riparian Land, People, and Lakes. (\$6 million over six years; co-PI with eleven other UW faculty)
- 2000 USDC (Sea Grant): Combining Stated and Revealed Preference Data to Estimate the Economic Value of Recreational Salmon Fishing (\$121,000 over two years; co-PI with Richard C. Bishop)
- 1999 USDA (Hatch): The Economic Value of Preserving Natural Amenities in Remote Areas: Lake Shore Protection in Wisconsin's North Woods (\$130,000 over three years; co-PI with David Marcouiller)
- 1999 USDA (Hatch): An Investigation of the Theoretical Foundations of Cost Sharing with an Application to Wisconsin's Priority Watershed Program (\$84,000 over three years; co-PI with Richard Bishop)
- 1998 USEPA (STAR Fellowship): \$90,000 over three years, applied to graduate student support
- 1998 USDC (NOAA Sea Grant): A Dynamic Economic Model of Recreation: An Application to Wisconsin's Southern Lake Michigan Salmon and Trout Fishery (\$120,000 over three years; co-PI with Richard Bishop)
- 1996 USDA (Hatch): An Empirical Investigation of Timber Harvesting and Short-Run Timber Supply Under Uncertainty (\$48,000 over two years)
- 1996 USDC (NOAA Sea Grant): A Dynamic Economic Model of Recreation: An Application to the Lake Michigan Salmonid Fishery (\$101,000 over two years; co-PI with Richard Bishop)
- 1995 Graduate School, Univ of Wisconsin: Estimation of a Stochastic Dynamic Behavioral Model of Recreation: An Application to Sportfishing (\$11,000)
- 1992 USDA (Hatch): Analysis of Wisconsin Natural Resources in a Stochastic Dynamic Setting (\$88,000 over four years).

## **IX. Teaching and Graduate Advising**

Major professor for 7 Ph.D dissertations (Baerenklau, Bennett, McPeak, Papenfus, Robinson, Zipp, McClure (Current)) and 7 Master's theses (Anderson, Behr, Brown, McPherson, Obert, Spalatro, Vittetoe).

Served as a committee member for 29 PhD dissertations (AAE, unless otherwise indicated: Butsic (FWE), Champ, Demeke, Grover (Economics), Hseu (Forestry), Kim, Latska (Zoology, current), Lin, Lyke, Mehta, Moore, Mullarkey, Okidi, Park, Prager (current), Prestoman (Forestry), Rauniker (Forestry), Shively, Steele, Swinton (Economics), Takasaki, Trieman, Tsai, Turner (Forestry), Useche, Woodward, Yamasaki, Zegarra, Zipp (current)). Served on the graduate committees of approximately 20 IES students.

Served as a committee member for 8 Master's theses (AAE, unless otherwise indicated: Butsic, Chambers, Chandrakashan, Fumero, Gaeta (Zoology), Horsch, Ludwig, Nemeč (FEW))

Taught an undergraduate course in environmental economics with an enrollment that averages about 150 students, and four graduate courses. The course descriptions follow:

Environmental Economics (AAE 343). Microeconomic principles underlying the use of natural resources such as air, water, forests, fisheries, minerals and energy. These principles are applied in the examination of pollution control, preservation vs. development, deforestation, and other environmental issues.

Dynamic Natural Resource Economics (AAE 760, graduate). Applications of optimal control theory, dynamic programming, and associated approximation methods in natural resource economics. Theoretical results characterize the efficient allocation of resources. Numerical applications examine issues in resource management.

Nonmarket Valuation (AAE 761, graduate). Methods in the valuation of nonmarket goods and services; hedonic valuation, contingent valuation, travel cost modeling.

Environmental Economics (AAE 762, graduate). Microeconomic principles underlying the use of natural resources such as air, water, forests, fisheries, minerals and energy. These principles are applied in the examination of fisheries management, air pollution control, preservation vs. development, land economics, watershed pollution management, and other issues.

Applied Microeconomic Theory (AAE635, graduate). A mathematical treatment of canonical intermediate microeconomics: optimization, producer and consumer theory, markets and general equilibrium.

## X. Service

### Professional Service (see page 1 for other professional service)

1. Refereed well over 100 journal manuscripts. Journals include: *American Journal of Agricultural Economics*, *Canadian Journal of Agricultural Economics*, *Canadian Journal of Forest Research*, *Ecological Applications*, *Ecological Economics*, *Ecosystems*, *Environmental and Resource Economics*, *European Review of Agricultural Economics*, *Forest Science*, *Frontiers in Ecology and the Environment*, *Journal of Agricultural and Resource Economics*, *Journal of the American Water Resources Association*, *Journal of Applied Econometrics*, *Journal of Economic Dynamics and Control*, *Journal of Environmental Economics and Management*, *Journal of Environmental Management*, *Journal of Forest Economics*, *Journal of Regional Analysis and Policy*, *Journal of Water Resources Planning and Management*, *Land Economics*, *Marine Resource Economics*, *Resource and Energy Economics*, *Review of Agricultural Economics*, *Society and Natural Resources*, *Water Resources Bulletin*, *Water Resources Research*.
2. Publication of Enduring Quality Award Committee, Association of Environmental and Resource Economists (AERE), 1997-2000 (Chair in 2000).
3. I have reviewed: NSF grant proposals; USDA Hatch proposals at Wisconsin, Rhode Island and Ohio State; USDC-NOAA Sea Grant proposals; Selected papers (approximately 6 per meeting) for the annual meeting of the American Association of Agricultural Economists, 1992, 1993, 1994, 2001; Credentials for tenure/promotion for colleagues at Brandeis University, Oregon State University, University of Minnesota, Iowa State University, and Resources for the Future.
4. Presenter at various workshops and conferences for nonprofessional audiences: Sustainable Coastal Communities Workshop (sponsored by USDC-NOAA and others, Traverse City, MI, September 1998); Wisconsin Groundwater Association Technical Conference (sponsored by Wisconsin Groundwater Professionals Association, Wisconsin Dells, WI, November 1998); Workshop on Current Research on

- Water Resources (sponsored by the Wisconsin Association of Lakes, Rhinelander, WI, August 2002); Annual Meeting of the Wisconsin Land Information Association (Lac de Flambeau, WI, June 2004); Northwoods All Science Meeting, September 2004; Workshop on Valuation of Ecosystem Services in Agriculture (sponsored by NSF-LTER, Kalamazoo, MI, October 2005); Wisconsin Working Lands Steering Committee (Madison, December 2005); Wisconsin Buffer Initiative (Madison, WI, July 2000); Governor's Conference on Wisconsin Shoreland and Shallows (Stevens Point, WI, June 2006); Lower Green Bay RAC Scientific and Technical Advisory Committee (Green Bay, WI, Dec 2006); Wisconsin Association of Lakes (Green Bay, April 2010); Wisconsin Department of Natural Resources Science and Enforcement Services (Madison, WI, February 2011); Wisconsin Invasive Species Conference (Madison, WI, January 2012).
5. Department seminars at the University of Wisconsin (AAE, Forestry, IES, Soil Science), University of Rhode Island, Iowa State University, University of Minnesota, University of California-Davis, Oregon State University.

### University Service

#### *University:*

- Social Sciences Internal Review Board, 2003-2006
- Land Use Cluster Committee, 2002-2004, 2005-2006
- Kemper Knapp Bequest Committee, 2001-2005 (Chair, 2004)
- Moderator for the UW Undergraduate Research Symposium, 2000-2001

#### *Institute for Environmental Studies:*

- Water Resources Management Graduate Admissions Committee, 1995-1997.
- Water Resources Management Executive Committee, 1997-2002

#### *CALS:*

- Search Committee for Human Dimensions Faculty Position, FEW 2007
- Committee on Environmental Science Major, 2007
- Honorary Recognition Committee, 2007-2009
- Academic Planning Council, 2001
- Curriculum Committee, 1997-1999
- Ad-Hoc Committee on Natural Resources Courses and Degree Requirements, 1997
- Instructional Improvement Committee, 1997-1998
- Natural Resources Core Curriculum Committee, 1993-94.

#### *Departmental:*

- Director of Graduate Studies, 1997-1999, 2004-2006
- Graduate Committee, 1992-2002, 2004-2006, 2007-2011
- Personnel Committee, 2003, 2006-2007
- Undergraduate Committee, 2011-present
- Natural Resources Prelim Committee, 1992-present (chair about once every three years)
- Information Services Committee, 1995-2003
- Ad Hoc Committee on Natural Resources Hiring, 1994 (chair)
- Research and Library Committee, 1992
- Computer Committee, 1992
- Ad Hoc Space Committee, 1991
- Information Services Committee, Chair 1998-2000
- Information Services Committee, 2001-2004