

Jason C. Kinnell, Principal Economist
Veritas Economic Consulting, LLC
1851 Evans Road, Cary, NC 27513

PRACTICE AREAS

- Fisheries Economics
- Regulatory Impact Analysis
- 316(a)&(b) Compliance
- Policy Analysis
- Exposure Assessment
- NRDA
- Restoration Evaluation and Planning
- Water Resource Economics

EXPERTISE

- Nonmarket Valuation
- Benefit-Cost Analysis
- Statistical Analysis
- Survey Design and Administration

EDUCATION

M.S., Economics,
Department of Agricultural,
Environmental, and
Development Economics,
The Pennsylvania State
University, University Park,
PA, 1997

B.A., Economics,
Hampden-Sydney College,
Hampden-Sydney, VA,
1993

RECENT PUBLICATIONS

- Kinnell, J.C., M.F. Bingham, E.A. Hastings, R. Ray, V. Craven, and M. Freeman. 2007. "A Survey Methodology for Collecting Fish Consumption Data in Urban and Industrial Water Bodies (Part 1)." *Journal of Toxicology and Environmental Health, Part A* 70:477-495.
- Kinnell, J.C., et al. 2006. "Estimating Site-Choice Decisions for Urban Recreators." *Land Economics* 82(2):257-272.

Mr. Kinnell specializes in conducting socioeconomic fishing impact assessments for 316(a) and (b) compliance, regulatory impact assessments, policy analysis, exposure assessments, natural resource damage assessments, and restoration projects. His specific areas of expertise include evaluating and supporting regulatory compliance strategies, estimating the economic benefits of environmental regulations and restoration decisions, estimating the potential natural resource damages and exposure frequencies associated with hazardous substance releases, designing and administering complex surveys, and conducting statistical analysis.

Mr. Kinnell has presented research results to, or prepared regulatory submittals for, the U.S. Environmental Protection Agency (USEPA), the U.S. Army Corps of Engineers (USACE), the U.S. Department of the Interior (DOI), the U.S. Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration (NOAA), the California Regional Water Quality Control Board, Pennsylvania Department of Environmental Protection (PADEP), Texas Commission on Environmental Quality (TCEQ), Texas Parks & Wildlife, the Michigan Department of Natural Resources (MDNR), the New Jersey Department of Environmental Protection (NJDEP), and the New Jersey Office of Maritime Resources (NJOMR).

KEY PROJECTS and EXPERIENCE

Strategic Assessments, Proposals for Information Collection (PICs), Comprehensive Demonstration Study (CDS) Development for 316(b) Compliance at 4 Consumers Energy, 7 Exelon, 12 Dominion, 2 PPL, 1 AEP, 1 Southern Company, and 1 AEHS generating stations

Conducted a Benefit Valuation Study, Comprehensive Cost Evaluation, and Population Dynamics Model for the Huntington Beach CDS; conducted a Benefit Valuation Study for a West Coast and an East Coast nuclear plant

Reviewed EPA 316(b) Benefit Cost Analysis and Comments on Benefit Estimation of EPA's Proposed Phase II 316(b) Rule as Summarized in the Notice of Data Availability (UWAG)

Conducted IM&E Characterization Studies and Baseline Evaluation Reports for 2 Exelon facilities in Texas and 4 Exelon fossil facilities

Prepared a national analysis of the economic and reliability impacts associated with a required closed-cycle cooling retrofit of existing once-through cooled systems (Electric Power Research Institute)

Ongoing Evaluation of Potential Economic Benefits Resulting from Alternative Restoration Projects: confidential client

Evaluating and Comparing the Benefits and Costs of Alternative Restoration Projects to Mitigate 316(a) Thermal Impacts: confidential client

Experience

Veritas Economic Consulting, Cary, NC
Principal Economist

Triangle Economic Research (TER), Durham, NC
Senior Economist, 2000 to 2006
Economist, 1998 to 2000

Department of Agricultural, Environmental, and Development Economics,
The Pennsylvania State University, University Park, PA
Instructor and Graduate Assistant, 1995 to 1998

Burlington Industries, Clarksville, VA
Assistant Administrative Manager, 1993 to 1995

Areas of Specialization

Regulatory Compliance and Policy Analysis

- Evaluating the economic impacts of retrofitting existing power plants with closed-cycle cooling.
- Evaluating potential economic benefits of alternative restoration decisions for an urban river.
- Conducted strategic assessments and develops PICs and CDSs to identify cost-effective 316(b) compliance options at facilities throughout the United States.
- Extensively evaluated USEPA's methodology for determining the biological effects of impingement and entrainment (I&E) reductions and the corresponding estimates of the economic benefits associated with I&E changes.
- Worked with the Utility Water Act Group (UWAG) and other industry groups to provide comments on the development of the Phase II and Phase III 316(b) rule.
- Assisted in the valuation of more than 100 fisheries throughout the United States, including marine, estuary, lake, and river environments using state-of-the-art economic-valuation methods.
- Assisted in performing transfer-based fishery valuation assessments at dozens of sites throughout the United States.
- Assisted in conducting dozens of habitat equivalency analyses (HEAs) to relate environmental impacts to habitat offset requirements.

Statistical Analysis

- Developed a comprehensive analytical model designed to identify cost-effective 316(b) compliance options. The model examines and accounts for both the range of uncertainty and interactions between impingement and entrainment (I&E); alternative baseline configurations; technological, operational, and restoration costs and effectiveness; and economic and ecological benefits.
- Developed a statistical method for evaluating and supporting the "significantly greater" determination in assessing 316(b) compliance options.
- Developed statistical models to quantify and account for the uncertainties in 316(b) compliance decisions.

- Used random utility modeling to examine the site-choice decisions of urban recreators and anglers.
- Developed statistical models to develop population estimates using count and intercept data.
- Developed a weighting technique to account for participation decisions in contingent valuation studies.
- Applied count data modeling techniques to estimate the potential levels of interviewer-induced deterrence present in intercept surveys.

Natural Resource Damage Assessment

- Assessing natural resource damages as a result of hazardous substance releases including PCBs, dioxin, and mercury.
- Analyzing survey data using random utility modeling.
- Performing fishery valuation for Consumers Energy's Ludington Pumped Storage Facility
- Researching the historical degradation of natural resources to develop proper estimates of baseline.
- Reviewing/critiquing trustee assessments of natural resource damages as a result of hazardous substance releases.
- Developing guidance and providing training on assessing natural resource damages.
- Collecting and evaluating existing information on the characteristics and use of recreation areas.
- Identifying and evaluating relevant valuation studies in the economic literature for transfer to natural resource damage applications.
- Estimating nonmarket values for recreation activities.
- Analyzing contingent-valuation and travel-cost data on the value of recreation activities.
- Evaluating conceptual and empirical issues associated with estimating nonuse values.

Survey Design and Administration

- Managed the design, pretesting, and training for an exposure assessment survey for a river in the Northeast.
- Managed the design, pretesting, training, and administration of the Passaic River Creel/Angler Survey.
- Managed the design, pretesting, and administration of the 2000 New Jersey Outdoor Recreation Survey.
- Participated in design, pretesting, and administration of a telephone-mail survey of Wisconsin residents.
- Managed the design, pretesting, and administration of a mail survey of Pennsylvania duck hunters.

Honors and Awards

Award Recipient, Society for Risk Analysis, 1997

Scholarship Recipient, 6th International Symposium on Society & Resource Management, 1996

Gamma Sigma Delta, 1996

Outstanding Paper Award, Virginia Association of Economists, 1994

Honors Thesis in Economics, Hampden-Sydney College, 1993

Graduated Magna Cum Laude, Hampden-Sydney College, 1993
Phi Beta Kappa, 1993
Omicron Delta Kappa, 1992
Omicron Delta Epsilon, 1992
Pi Mu Epsilon, 1992
Hobbie Scholar in Business Ethics, 1991

Membership

Association of Environmental and Resource Economists
American Economic Association
American Water Resources Association
American Fisheries Society

Publications

- Deason, Jonathan P., G. Edward Dickey, Jason C. Kinnell, and Leonard A. Shabman. 2010. "An Integrated Planning Framework for Urban River Rehabilitation." *Journal of Water Resource Planning and Management* 136(6):678–687.
- Santoianni, D.A., M.F. Bingham, D.M. Woodard, and J.C. Kinnell. 2008. "Power from Animal Waste—Economic, Technical, and Regulatory Landscape in the United States." *Journal of EUEC* Volume 2, Paper #01. Available at <http://www.euec.com/journal/documents/pdf/Santoianni.pdf>.
- Kinnell, J.C., M.F. Bingham, E.A. Hastings, R. Ray, V. Craven, and M. Freeman. 2007. "A Survey Methodology for Collecting Fish Consumption Data in Urban and Industrial Water Bodies (Part 1)." *Journal of Toxicology and Environmental Health, Part A* 70:477–495.
- Ray, R., V. Craven, J. Kinnell, M. Bingham, M. Freeman, and B. Finley. 2007. "A Statistical Method for Analyzing Data Collected by a Creel/Angler Survey (Part 2)." *Journal of Toxicology and Environmental Health, Part A* 70:496–511.
- Ray, R., V. Craven, M. Bingham, J. Kinnell, E. Hastings, and B. Finley. 2007. "Human Health Exposure Factor Estimates Based Upon a Creel/Angler Survey of the Lower Passaic River (Part 3)." *Journal of Toxicology and Environmental Health, Part A* 70:512–528.
- Kinnell, J.C., M.F. Bingham, A.F. Mohamed, W.H. Desvousges, T.B. Kiler, E.K. Hastings, and K.T. Kuhns. 2006. "Estimating Site-Choice Decisions for Urban Recreators." *Land Economics* 82(2):257–272.
- Finley, B., Iannuzzi, T., Wilson, N., Kinnell, J., Craven, V., Lemeshow, S., Teaf, C., Edward J., Calabrese, E. and Kostecki, P. 2003. "The Passaic River Creel/Angler Survey: Expert Panel Review, Findings, and Recommendations." *Journal of Human and Ecological Risk Assessment* 9(3):829–856.
- Iannuzzi, T.J., D.F. Ludwig, J.C. Kinnell, J.M. Wallin, W.H. Desvousges, and R.W. Dunford. 2002. *A Common Tragedy: History of an Urban River*. Amherst, MA: Amherst Scientific Publishers.
- Kinnell, J., J. Lazo, A. Fisher, J. Shortle, and D. Epp. 2002. "Perceptions and Values for Preventing Ecosystem Change: Pennsylvania Duck Hunters and the Prairie Pothole Region." *Land Economics* 78(2):228–244.
- Lazo, J., J. Kinnell, and A. Fisher. 2000. "Expert and Lay Perceptions of Ecosystem Risk." *Risk Analysis* 20(2):179–193.

Lazo, J.K., J. Kinnell, T. Bussa, A. Fisher, and N. Collamer. 1998. "Expert and Lay Mental Models of Ecosystems: Inferences for Risk Communication." *RISK: Health, Safety, and the Environment* 10(1):45–64.

Kinnell (Schwandt), J. 1994. "A Contingent Valuation Study for Chalgrove Pond." *Papers and Proceedings of the Twenty-First Annual Meeting, Virginia Association of Economists*, 97–117.

Carilli, A.C., and J.C. Kinnell (Schwandt). 1993. "And You Thought All You Needed Was a Garden Hose: Estimating the Production Function for Volunteer Fire Departments: The Case of the Hampden-Sydney Volunteer Fire Department." In *Papers and Proceedings of the Twentieth Annual Meeting, Virginia Association of Economists*, 47–58.

Working Papers

Bingham, M.F., K.E. Mathews, J.C. Kinnell, and A.R. Morton. 2006. "What Is Significantly Greater? Properties of Benefit-Cost Comparisons under Section 316(b) of the Clean Water Act." Veritas Working Paper No. 2006-01. Cary, NC: Veritas Economic Consulting, LLC.

Whaley, J.S., M.F. Bingham, J.C. Kinnell, and R.W. Blye. "Estimating Annual Impingement and Entrainment from Sample Counts." Veritas Working Paper No. 2006-03. Cary, NC: Veritas Economic Consulting, LLC.

Selected Reports

Bingham, M.F., K.E. Mathews, and J.C. Kinnell. 2009. *Economic Issues Regarding BTA for Canal Generating Station*. Cary, NC: Veritas Economic Consulting.

Kinnell, J.C., M.F. Bingham, C.M. Spagnardi, G.S. Crownfield, D.M. Woodard, and V.R. Satyan. 2008. *Estimation and Comparison of the Benefits and Costs of Alternative IM&E Reduction Options: Salem Harbor Generating Station*. Cary, NC: Veritas Economic Consulting.

Bingham, M.F., J.C. Kinnell, K.E. Mathews, and D.M. Woodard. 2008. *Assessing the Economic and Community Impacts Associated with a Theoretical Closure of Buckeye Technology's Foley Plant: Preliminary Results*. Cary, NC: Veritas Economic Consulting.

Kinnell, J.C., M.F. Bingham, C.M. Spagnardi, J.S. Whaley, D.A. Santoianni, R.W. Blye, Jr., G.B. Waterfield, B.W. Lees, and J.S. Raulli. 2008. *Development of Annual Current and Baseline Impingement Mortality and Entrainment Estimates: Eddystone Generation Station, Eddystone, PA*. Cary, NC: Veritas Economic Consulting.

EPRI and Veritas Economic Consulting, LLC. 2007. *Huntington Beach Generating Station Benefit Valuation Study*. Palo Alto, CA: EPRI.

Desvousges, W.H., M.F. Bingham, J.C. Kinnell, J. Whaley, and K.E. Mathews. 2005. *Evaluation of the EPA's 316(b) Phase III Rule Willingness to Pay Survey: Final Report*. Prepared for The Utility Water Act Group, American Chemistry Council, American Forest and Paper Association, American Iron and Steel Institute, American Petroleum Institute, and American Public Power Association. August 8.

Kinnell, J.C., M.F. Bingham, R. Blye, J. Raulli, P. Jacobsen A.F. Mohamed, and K. Kuhns. 2005. *Proposal for Information Collection Clean Water Act Section 316(b): Handley Generation Station, Fort Worth, TX*. Prepared for Exelon Generation Company, LLC. June 1.

Kinnell, J.C., M.F. Bingham, R. Blye, J. Raulli, P. Jacobsen, A.F. Mohamed, and K. Kuhns. 2005. *Proposal for Information Collection Clean Water Act Section 316(b): Eddystone Generation Station, Eddystone, PA*. Prepared for Exelon Generation Company, LLC. April 28.

Desvousges, W.H., M.F. Bingham, J.C. Kinnell, A.F. Mohamed, and K. Kuhns. 2005. *Review and Response to the EPA's Response to Comments from the American Chemistry Council et al. and Accompanying Triangle Economic Research (TER) Report*. Prepared for The Utility Water Act Group, American Chemistry Council, American Forest and Paper Association, American Iron and Steel Institute, American Petroleum Institute, and American Public Power Association. April 20.

M.F. Bingham, J. Kinnell, A.F. Mohamed, and M. Hrebren. 2005. *Proposal for Information Collection: Brunner Island*. Prepared for PPL. April 15.

M.F. Bingham, J. Kinnell, A.F. Mohamed. 2005. *Proposal for Information Collection: Karn-Weadock Generating Stations*. Prepared for Consumers Energy Company. April 8.

Desvousges, W.H., M.F. Bingham, J.C. Kinnell, and A.F. Mohamed. 2005. *Comments on Potential Nonuse Values for Proposed Phase III Cooling Water Intake Regulations: Final Report*. Prepared for the Utility Water Act Group, American Chemistry Council, American Forest and Paper Association, American Iron and Steel Institute, American Petroleum Institute, and American Public Power Association. January 24. Durham, NC: Triangle Economic Research.

M.F. Bingham, J. Kinnell, A.F. Mohamed. 2004. *Proposal for Information Collection: J.H. Campbell Plant*. Prepared for Consumers Energy Company. October 1.

Desvousges, W.H., J.C. Kinnell, K.S. Lievense, and E.A. Keohane. 2001. *Passaic River Study Area Creel/Angler Survey: Data Report*. TER Working Paper No. G-0101. Durham, NC: Triangle Economic Research.

Selected Presentations

Kinnell, J.C. 2009. "The Economics of NRDA: The Role of Revealed Preference Data." Faculty member presentation at The Fifth Annual Advanced Conference on Natural Resource Damages, Newark, New Jersey. November 12–13.

Bingham, M.F., J.C. Kinnell, and K.E. Mathews. 2006. "What Is Significantly Greater?" Presented at American Fisheries Society Conference, Lake Placid, New York. September 13.

Bingham, M.F., K.E. Mathews, and J.C. Kinnell. 2006. "What Is Significantly Greater? Properties of Benefit-Cost Comparisons under Section 316(b) of the Clean Water Act." Presented at the Utility Water Act Group (UWAG)/Electric Power Research Institute (EPRI) Conference, Atlanta, Georgia. September 6–7.

Kinnell, J.C., M.F. Bingham, and K.E. Mathews. 2006. "Evaluating Recreational, Commercial, and Nonuse Benefits Associated with 316(b) Compliance." Presented at the Utility Water Act Group (UWAG)/Electric Power Research Institute (EPRI) Conference, Atlanta, Georgia. September 6–7.

Whaley, J.S., K.E. Mathews, C. Spagnardi, M.F. Bingham, and J.C. Kinnell. 2006. "Approaches for Estimating Annual Impingement and Entrainment from Sample Counts." Presented at the Utility Water Act Group (UWAG)/Electric Power Research Institute (EPRI) Conference, Atlanta, Georgia. September 6.

Kuhns, K.T., M.F. Bingham, J.C. Kinnell, and A.F. Mohamed. 2005. "Cost-Benefit Analysis and Its Use in Determining Compliance with the 316(b) Phase II Rule." Presented at Camp Resources XIII, Wilmington, NC. August 12.

Kinnell, J.C. 2004. "Ecological Economics or Economical Ecology? The Integration of Economics and Ecology in Addressing Current Environmental Problems." Presented at Hollins University, Roanoke, Virginia. March 12.

Kinnell, J.C., W.H. Desvousges, M.F. Bingham, D. Ludwig, and T. Iannuzzi. 2003. "The Role of Services in Quantifying Natural Resource Damages." Presented at the Society for Environmental Toxicology and Chemistry Annual Meeting, December, Austin, Texas.

Kinnell, J.C., M.F. Bingham, and K.E. Mathews. 2002. "Critique of Current Risk Assessment Practices for Fish Consumption." Presented at the Society for Risk Analysis Annual Meeting, New Orleans, Louisiana. December.

Kinnell, J.C., and N. Wilson. 2002. "A Creel/Angler Survey for an Urban Estuarine River: Development and Outcome." Poster presentation at the Society for Risk Analysis Annual Meeting, December, New Orleans, Louisiana.

Kinnell, J.C., M.F. Bingham, E.A. Keohane, and W.H. Desvousges. 2002. "Using Intercept and Count Data to Estimate the Population of Anglers in an Urban and Industrial River." Presented at the 2002 W-133 Conference, Monterey, CA. February.

Kinnell, J., D. MacNair, and W.H. Desvousges. 2001. "Using RP and SP Data for Valuing Recreational Access in a Compensatory Restoration Framework." Paper presented at the 2001 W-133 Conference, Miami, Florida. February.

Kinnell, J. 1999. "Which Bird Gets the Worm: Sequencing Effects in Valuing Multiple Environmental Programs." Presented at the American Agricultural Economics Association meeting, 8-11 August, Nashville, Tennessee.

Kinnell, J. 1998. "Analyzing Perceptions and Values for Preventing Ecosystem Change: A Case Study of Pennsylvania Duck Hunters and the Prairie Pothole Region." Presented at Camp Resources, Wilmington, NC. August.

Kinnell, J. 1997. "Analyzing Perceptions and Values for Preventing Ecosystem Change: A Case Study of Pennsylvania Duck Hunters and the Prairie Pothole Region." Presented at the Risk Analysis Meetings, Washington, D.C.

Fisher, A., J. Lazo, T. Bussa, and J. Kinnell (Schwandt). 1996. "Do You See What I See? Comparing Expert and Lay Perceptions of Ecological Risk." Presented at the Risk Analysis Meetings, New Orleans, LA.