Andrew G. Keeler

Department of Economics East Carolina University A-110 Brewster Building, Mail Stop 580 East Carolina University Greenville, NC 2858 keelera@ecu.edu

Education

Ph.D., Agricultural and Resource Economics, University of California, Berkeley, 1991. Major field: Resource and Environmental Economics. Minor fields: Economic Analysis of Institutions, Environmental Law. Dissertation subject: economic aspects of the incomplete enforcement of environmental regulation.

M.A. Agricultural and Resource Economics, 1989, University of California, Berkeley.

B.A. with Honors in Economics, 1979, University of North Carolina, Chapel Hill. Honors thesis title: "The Market for Recycled Aluminum: Deviations from the Competitive Optimum."

Faculty Appointments

<u>August 2010 – present:</u> Program Head, Coastal Public Policy, UNC Coastal Studies Institute, and Professor, Department of Economics, East Carolina University

<u>August 2004 – August 2010:</u> Professor (Associate Professor until 2008), John Glenn School of Public Affairs, The Ohio State University.

<u>September 1997 – September 2004:</u> Associate Professor, Department of Agricultural and Applied Economics, University of Georgia.

<u>September 1991 – September 1997:</u> Assistant Professor, Department of Agricultural and Applied Economics, University of Georgia.

Other Professional Experience

<u>July 2000 – July 2001</u>: Senior Staff Economist, President's Council of Economic Advisers, Executive Office of the President, Washington, DC. Responsible for matters relating to environmental policy and climate change negotiations.

<u>September 1999 – June 2000</u>: Senior Economist, Innovative Strategies and Economics Group, Office of Air Quality Programs and Standards, US EPA, Durham, NC. Worked on EPA economic analysis and policy development.

<u>October - November 1996</u>: Visiting Lecturer, University of the West Indies, St. Augustine, Trinidad and Tobago. Worked with faculty and students on economic assessment of competing land uses in the Nariva wetland.

August 1987- August 1991:

Graduate Research Assistant, Department of Agricultural and Applied Economics, University of California - Berkeley. Worked on research projects in fisheries management and pollution regulation.

<u>September 1986 - July 1987</u>: Economist, Sigma One Corporation. Worked on USAID-funded project on the effects of macroeconomic policies on the agricultural sector in Ecuador.

<u>November 1985 - January 1986</u>: Consultant, World Bank. Provided data and analysis of Tanzania's marketing system and policies for a study of agricultural policies in Africa.

<u>May 1982-January 1985</u>: Economist, United Nations Food and Agriculture Organization, posted to Marketing Development Bureau, Ministry of Agriculture, United Republic of Tanzania. Worked as a marketing economist and price policy analyst in a unit staffed by FAO experts and Tanzanian professionals.

<u>May 1981-May 1982</u>: Vice-President, Sigma One Corporation. Had organizational and planning responsibilities in the start-up of a consulting firm specializing in agricultural and nutritional policy analysis. Served as economist on studies of food consumption and agriculture in the U.S., Panama, and Tanzania.

Research Interests: My research interests lie in the broad area of environmental economics and policy. Particular areas include policies toward water resource management and climate change; efficiency and equity aspects of implementing and enforcing environmental regulation; the effect of improved ecological information on the formation of efficient environmental policies; and the environmental and public finance consequences of alternative waste management strategies.

Recent Government Service

Member of US negotiating team, COP-6 Climate Negotiations, The Hague, November 2000 Co-leader, US diplomatic delegation to OECD talks on coordinating sustainability policies, Paris, February – March 2001 Member of White House Climate Change Task Force under President Clinton (July 2000 – January 2001) and President Bush (March – July 2001) Member of Advisory Group and Water Rights Working Group, Joint Georgia Legislative Study Committee on Water, July 2001- August 2002

Professional Affiliations

Association of Environmental and Resource Economists American Economic Association Association for Public Policy and Management American Agricultural Economics Association

Refereed Publications

"Hybrid Institutions": Applications of Common Property Theory Beyond Discrete Property Regimes" *The International Journal of the Commons 4:1*, 2010, pp. 571-596. Joint with Laura German.

"State Commission Electricity Regulation Under Federal Greenhouse Gas Cap-and-Trade Policy" *The Electricity Journal 21:4*, 2008, pp. 19-31.

"Life Cycle Cost-Benefit Analysis of Extensive Vegetated Roof Systems" *Journal of Environmental Management* **87 (3)**, 2008, pp. 350-363. Joint with Tim Carter.

"State Greenhouse Gas Reduction Policies: A Move in the Right Direction?" *Policy Sciences* **40**(**4**), 2007, pp, 353-365.

"Farm Level Irrigation and the Marginal Cost of Water Use: Evidence from Georgia," *Journal of Environmental Management* **80**, 2006, pp. 311-317. Joint with Yassert Alvarez-Gonzalez and Jeffrey Mullen.

"Coastal Erosion Management from a Community Economics Perspective: the Feasibility and Efficiency of User Fees" *Journal of Agricultural and Applied Economics* 37:2, 2005, pp. 451-46. Joint with Warren Kriesel and Craig Landry.

"Sequestration Rental Policies and the Price Path of Carbon"." Climate Policy 4 (4), 2005, 419-425.

"Tax Interaction Effects, Environmental Regulation, and "Rule of Thumb" Adjustments to Social Cost." *Environmental and Resource Economics* **30**, 2005, 73-92. Joint with Brian Murray and Walter Thurman.

"Pooling of Uncertainty: Enforcing Tradable Permits Regulation when Emissions are Stochastic," *Environmental and Resource Economics* **29** (4), 2004, pp. 459-481. Joint with Janusz Mrozek.

"Contract-Based Trading Programs in Environmental Regulation." *Contemporary Economic Policy* **22**, 2004, pp. 526-533.

"Financing Beach Improvements: Comparing Two Approaches on the Georgia Coast," *Coastal Management Journal* **32** (4), 2004, pp. 433-447. Joint with Warren Kriesel and Craig Landry.

"An Economic Evaluation of Beach Erosion Alternatives." *Marine Resource Economics* **18** (2), 2003, pp. 105-127. Joint with Warren Kriesel and Craig Landry.

"Expanding the National Flood Insurance Program to Cover Coastal Erosion Damage." *Journal of Agricultural and Applied Economics* **35** (3), 2003, pp. 447-455. Joint with Warren Kriesel and Craig Landry.

"Biophysical and economic tradeoffs of intercropping timber trees with food crops in the Philippine uplands." *Agricultural Systems* **67**, 2001, pp. 49-69. Joint with David Midmore and Todd Nissen.

"Public vs. Private Garbage Disposal: The Economics of Solid Waste Flow Controls," *Growth and Change* **30:3**, 1999, pp. 430-444. Joint with Mitch Renkow.

"The Adoption of Best Management Practices to Reduce Agricultural Water Contamination," *Limnologica* **29**,1999, pp 366-373. Joint with Terry Centner, Jack Houston, and Clement Fuchs.

"Penalty Functions for Environmental Violations: Evidence from Water Quality Enforcement." *Journal of Regulatory Economics* 14, 1998, pp. 255-264. Joint with Neda Oljaca and Jeffery Dorfman.

"The Economics Of Land Application Of Fresh And Composted Broiler Litter With An Environmental Constraint." *Journal of Environmental Management* 55, 1998, pp. 265-272. Joint with Willem VerVoort.

"Environmental Justice and Toxic Releases: Establishing Evidence of Discriminatory Effect Based on Race and Not Income." *Wisconsin Environmental Law Journal* **3**, 1996, pp. 119-158. Joint with Terrence Centner and Warren Kriesel.

"The Value of Incorporating Bioindicators in Economic Approaches to Water Pollution Control." *Ecological Economics* **19:3**, 1996, pp. 237-246. Joint with Donna MacLemore.

"An Econometric Approach to Environmental Justice." *Growth and Change* **27**, 1996, pp. 476-496. Joint with Terrence Centner and Warren Kriesel.

"Valuing Risk-reducing Interventions with Hedonic Models: The Case of Erosion Protection." *Journal of Agricultural and Resource Economics* **21**(1), 1996, pp. 109-119. Joint with Jeffrey Dorfman and Warren Kriesel.

"Landfills: Why are Local Governments Down in the Dumps?", *Choices*. 2nd quarter 1996. Joint with Mitch Renkow.

"Determining the Optimal Landfill Size: Is Bigger Always Better?" *Journal of Environmental Management* **46**, 1996, pp. 67-75. Joint with Mitch Renkow.

"Regulatory Objectives and Enforcement Decisions." *Environmental and Resource Economics* **6**, 1995, pp. 73-85.

"The Future(s) of Pollution Control: The Case of the Acid Rain Program", *Journal of Agribusiness* **12**, 69-84, 1994. Joint with Donna MacLemore and Steven Turner.

School Choice in Rural Georgia: An Empirical Analysis," *Journal of Agricultural and Applied Economics* **26**, 1994, pp. 1-7. Joint with Warren Kriesel.

"Haul Trash or Haul Ash: Energy Recovery as a Component of Local Solid Waste Disposal." *Journal of Environmental Economics and Management* **27**, 1994, pp.205-217. Joint with Mitch Renkow.

"Incomplete Enforcement with Endogenous Regulatory Choice." *Journal of Public Economics* 55, 1994, pp. 141-162. Joint with Devon Garvie.

"Noncompliant Firms in Transferable Discharge Markets: Some Extensions." *Journal of Environmental Economics and Management*, **21**(1), 1991, pp. 180-189.

"Integrating Fishery and Water Management: A Biological Model of a California Salmon Fishery." *Journal of Environmental Economics and Management*, **20**, 1991, pp. 234-261. Joint with Anthony Fisher and Michael Hanemann.

Chapters in Edited Volumes

"Industrialized-Country Mitigation Policy and Resource Transfers to Developing Countries: Improving and Expanding Greenhouse Gas Offsets", in **Post-Kyoto International Climate Policy: Implementing Architectures for Agreement,** Joseph Aldy and Robert Stavins, editors, Cambridge University Press: Cambridge, MA. 2009. Joint with Alex Thompson.

"Integrating Fishery and Water Management: A Biological Model of a California Salmon Fishery,"in **Environmental and Resource Economics: Selected Essays of Anthony C. Fisher,** Edward Elger, UK: 1995. Joint with Anthony Fisher and Michael Hanemann.

"Economic Aspects of Enforcing Agricultural Water Policy." in **The Economics and Management of Water and Drainage in Agriculture**, David Zilberman and Ariel Dinar, editors, Kluwer Academic Publishers, Norwell, Mass: 1991.

Selected Non-refereed Publications

"Industrialized-Country Mitigation Policy and Resource Transfers to Developing Countries: Improving and Expanding Greenhouse Gas Offsets", Discussion Paper 08-05, Harvard Project on International Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School. Joint with Alexander Thompson.

"Climate Change and State Utility Commissions: What is the Public Interest?" essay published by National Regulatory Research Institute, November, 2008, available at <u>http://nrri.org/pubs/electricity/climate change and utility commissions keeler.pdf</u>

Final Report of Florida Cap-and-Trade Project Phase I", report for the Florida Department of Environmental protection, available at

"http://www.cefa.fsu.edu/uploaded%20current%20projects/Phase%201%20Report%20DEP%20Final%2 0 06-08-09 .pdf

"State Commission Electricity Regulation Under Federal Greenhouse Gas Cap-and-Trade Policy", report prepared for the National Regulatory Research Institute, available at <u>http://nrri.org/pubs/electricity/08-01.pdf</u>

Keeler, Andrew, "Air Quality Issues in Ohio," The Ohio Environment Report, Ohio State University Extension, September 2005.

"An Evaluation of State Carbon Dioxide Reduction Policies", paper prepared for the Center for Climate Policy, January 2004, <u>http://www.cpc-inc.org</u>

"Water -- A Public Resource Or A Commodity": What Are The *Real* Policy Questions?," November 2003, (<u>http://www.cviog.uga.edu/water/whitepapers/index.html</u>) . Joint with Ron Cummings and Ben Thompson

"Designing a Carbon Dioxide Trading System: The Advantages of Upstream Regulation," July 2002 (http://www.cpc-inc.org)

"Integrated Assessment Modeling: Modules for Cooperation," FEEM Working Paper No. 53.2002. Joint with Carlo Jaeger, Marian Leimbach, Carlo Carraro, Klaus Hasselmann, Jean-Charles Hourcade, and Rupert Klein.

"Concepts and Definition Related to Water Use in Georgia," January 2002 (<u>http://www.cviog.uga.edu/water/whitepapers/index.html</u>). Joint with Todd Rasmussen and David Newman.

"Report on the Parallel Market for Grain in Tanzania", Ministry of Agriculture, United Republic of Tanzania", Dar es Salaam, Tanzania, 1984.

"Price Policy Recommendations for Cassava, Millet, Sorghum, and Beans - 1985-86 Marketing Year," Ministry of Agriculture, United Republic of Tanzania , Dar es Salaam, Tanzania, 1984.

"Price Policy Recommendations for Maize, Rice, and Wheat - 1984-85 Marketing Year," Ministry of Agriculture, United Republic of Tanzania", Dar es Salaam, Tanzania, 1983.

"Price Policy Recommendations for Cassava, Millet, Sorghum, and Beans - 1984-85 Marketing Year," Ministry of Agriculture, United Republic of Tanzania , Dar es Salaam, Tanzania, 1983.

"The Consumption Effects of Agricultural Policies in Tanzania", Sigma One Corporation, Raleigh, North Carolina, 1982 (technical report for USAID). Joint with Grant Scobie, Mitchell Renkow, and David Franklin.

Papers in Proceedings

"Essential Decisions for an Instream Flow Policy", 2005. *Proceedings of the Georgia Water Resources Conference*, Kathryn J. Hatcher (ed.), Institute of Ecology, The University of Georgia, Athens, GA. Joint with Todd Rasmussen.

"Water Quality Trading in Georgia: Addressing Two Potential Impediments to Success," 2005. *Proceedings of the Georgia Water Resources Conference*, Kathryn J. Hatcher (ed.), Institute of Ecology, The University of Georgia , Athens, GA. Joint with Nanette Nelson.

"The Response of Agricultural Water Use to Changes in Pumping Costs." 2003. *Proceedings of the Georgia Water Resources Conference*, Kathryn J. Hatcher (ed.), Institute of Ecology, The University of Georgia , Athens, GA. Joint with Yassert Alvarez-Gonzalez and Jeffrey Mullen.

"The Economics of Flow Enhancement vs. Sediment Controls in Meeting TMDLs: A Case Study of Spring Creek." 2003. *Proceedings of the Georgia Water Resources Conference*, Kathryn J. Hatcher (ed.), Institute of Ecology, The University of Georgia , Athens, GA. Joint with Leslie Marbury.

"Financing Better Beaches - The Recreational Benefits of Beach Improvements" *Proceedings of the 1999 National Conference on Beach Preservation Technology* Florida Shore and Beach Preservation Association: Tallahassee, FL. Joint with Craig Landry and Warren Kriesel.

Beneficial Use of Naive Swamp: A Preliminary Economic Analysis", Proceedings of the 1997 Annual

Meeting of the Caribbean Academy of Science. Joint with Carlisle Pemberton.

"Econometric Tests for the Cause of Racially Disparate Exposure to Environmental Risks." *Proceedings of the Forty-second North American Meetings of the Regional Science Association*, Cincinnati, Ohio, November 10-12, 1995. Joint with Warren Kriesel and Terrence Centner.

Economic Value of Biological Indicators in Water Pollution Policy, 1995, *Proceedings of the 1995 Georgia Water Resources Conference*. Joint with Donna MacLemore.

Professional Presentations

"Economics, Climate Change, and Managing High Altitude Natural Environments," invited presentation to UNEP/FAO conference on Mountain Environments and Global Change, Turin, Italy, August 2008

"Adaptation to Climate Change in Africa: Research in the Kilimanjaro Region," presentation to the Ohio State University African Studies Center Seminar Series," April 2008 (joint with David Kraybill)

"Rich Country Mitigation Policy and Resource Transfers to Poor Countries" invited presentation at the Harvard Belfer Center for Science and International Affairs Workshop on Post-2012 International Policy Architecture for Global Climate Change, Cambridge, MA, March 2008.

"Central Questions in Economic Modeling of Adaptation to Climate Change", selected paper presentation at the Global Change Research Network Conference, Kampala, Uganda, July 2007

"Biofuels and Federal Climate Policy," invited presentation to "The Future of Alternative Energy in Ohio" Conference, April 2007

"The Use of Science in Public Policy Formation," invited presentation to the Purdue Pugwash Conference on the Integrity of Science in the 21st Century, West Lafayette, IN, April, 2006.

"Informing State and Local Policy Design for Climate Change Policy: Should Global Thinking Lead to Local Action?" Association of Public Policy and Management Annual Meeting, Washington, DC November 2005.

"Beyond Kyoto: Background and Economic Issues," invited luncheon keynote at Heartland Environmental Economics Conference, Ames, Iowa, September, 2005.

"Sequestration Rental Policies and the Price Path of Carbon," invited presentation at the Clusters of Research on Interdisciplinary Themes Climate Seminar Series, April 2005

"Essential Decisions for an Instream Flow Policy", presentation at the 2005 Georgia Water Resources Conference, April 2005, Athens, GA. Joint with Todd Rasmussen.

"Water Quality Trading in Georgia: Addressing Two Potential Impediments to Success," presentation at the 2005 Georgia Water Resources Conference, April 2005, Athens, GA. Joint with Nanette Nelson.

"Climate Change and US Policy: Prospects for the Next Four Years," invited presentation at the Mershon Center, The Ohio State University, January 2005 "An Evaluation of State Climate Policies," invited seminar at the Climate Policy Center, Washington, DC, November 2004

"An Economic Perspective on Water Allocation in Georgia" invited presentation to the Georgia Association of County Commissioners and Governments Water Law Seminar of The Future of the South – The Role of Water, August 2003

"An Economist's Perspective on Georgia's Water Allocation Planning," invited presentation to the Red Clay Environmental Law Conference, Athens, GA, March 2003

"An Economic Perspective on Water Legislation in Georgia." invited presentation to Jones Center Conference for Media and Water Issues, Albany, GA, March 2003

"US National Climate Change Policy", Invited lecture at the 2002 MIT Symposium on Greenhouse Gas Reduction Programs and Technologies, Boston, Mass., August 2002

"Designing a CO2 Trading System: The Advantages of Upstream Regulation," invited seminar at Americans for Equitable Climate Solutions, Washington, DC, December 2002

"Enforcing Climate Agreements when Emissions are Unpredictable" invited seminar at the Stanford University Seminar Series on Environmental Science and Policy, Menlo Park, CA, May 2002

"Economics, Institutions, and Ecosystem Complexity," invited lecture to National Science Foundation Conference on Biocomplexity, Clemson, SC March 2002

"Emerging Climate Policies in the US and the World" Electric Power Research Institute BiAnnual Meeting (October 2001)

"Emerging Climate Policies", invited session keynote at Stanford / Duke / FEEM Alternatives to Kyoto conference in Venice, Italy, September 2001

"The Importance of Carbon Sequestration in Climate Policy," invited presentation at the Western Economic Association Annual Meetings, San Francisco, CA July 2001.

"An Insider's View of the Kyoto Protocol", University of Georgia Institute of Ecology Lecture Series, November 2001.

"Environmental Ethics and Professional Responsibility: Trying to do the Right Thing in Public Service," University of Georgia Environmental Ethics Lecture series, November 2001.

"The Importance of Carbon Sequestration in Climate Policy", Warnell School of Forestry, University of Georgia October 2001.

"Information and Enforcement in Limited Environmental Trading Programs," invited plenary presentation at the SOM Conference on Environmental Regulation Under Incomplete Information and Enforcement," Copenhagen, Denmark, November 1999

"Penalty Functions for Environmental Violations," invited seminar, US Environmental Protection Agency, Research Triangle Park, NC, January 1999. Joint with Neda Oljaca. "Beneficial Use of Nariva Swamp: A Preliminary Economic Analysis", presented to the 1997 Annual Meeting of the Caribbean Academy of Science in Bridgetown, Barbados.

"Flow Control and the Political Economy of Solid Waste Management," presented at the Annual Meeting of the Southern Regional Science Association, Memphis, TN April 1997. Joint with Mitch Renkow.

"Ethics and Economics in Environmental Decision-Making" University of Georgia Environmental Ethics Lecture series, April 1997.

"Penalty Functions for Environmental Violations: Evidence from Water Quality Enforcement, presented at the American Agricultural Economics Association Annual Meeting, Toronto, August 1997. Joint with Neda Oljaca.

"Flow Control and the Economics of Solid Waste Management," presented at the American Agricultural Economics Association Annual Meeting, Toronto, August 1997. Joint with Mitch Renkow.

"Pooling of Uncertainty: Tradable Permits Regulation When Emissions are Stochastic," presented at the Annual Meeting at the Southern Economic Association, November 1997. Joint with Janusz Mrozek.

"Cherry Pickers and Sore Losers: The Economics of Solid Waste Flow Control" accepted to the invited papers sessions an the 1996 American Agricultural Economics Association annual meeting, San Antonio, Texas, August 1996. Joint with Mitch Renkow

"Flow Control and the Political Economy of Solid Waste Management," presented at the Annual Meeting of the Southern Agricultural Economics Association, Greensboro, NC, February 1996. Joint with Mitch Renkow

"Using Ecological Information in Economic Models", presented at the Dept. of Agricultural Economics, Extension, Agricultural Development, and Human Ecology, The University of the West Indies, Trinidad and Tobago, November 1996.

"Nariva Swamp: An Exercise in Environmental Economics", presented at the Dept. Of Agricultural Economics, Extension, Agricultural Development, and Human Ecology, The University of the West Indies, Trinidad and Tobago, November 1996.

"The Value of Incorporating Bioindicators in Economic Approaches to Water Pollution Control," invited seminar at North Carolina State University, March 1995.

"Economic Analysis in Policy Evaluation, Damage Assessment, and Compensation: A Comparison of Similarities and Differences," 1995 Association of Environmental and Resource Economists Workshop, Annapolis, MD, June 1995. Joint with Michael Hanemann.

"The Value of Incorporating Bio-indicators in Economic Approaches to Water Pollution Control," presented in an invited paper session at the summer meeting of the Association of Environmental and Resource Economists, Indiana, August 1995

"Economic Value of Biological Indicators in Water Pollution Policy", 1995 Georgia Water Resources Conference, Athens, Georgia, April 1995. Joint with Donna MacLemore.

"Is Bigger Always Better? Determining the Optimal Landfill Size", selected paper presented at the Southern Agricultural Economics Association Meetings in New Orleans, La., February 1995. Joint with Mitch Renkow.

"The Value of Incorporating Bio-indicators in Economic Approaches to Water Pollution Control," selected paper presented at the III International Conference of Ecological Economics in San Jose, Costa Rica October 1994.

"A Sulfur Dioxide Futures Contract? "selected paper presented at the Southern Agricultural Economics Association Meetings in Nashville, Tennessee, February 1994. Joint with Donna MacLemore and Steven Turner.

"Towards Modeling Option Price in a Dynamic Setting: Some Theoretical Considerations" selected paper presented at the 1993 American Agricultural Economics Association annual meeting. Joint with Jeffery Dorfman and Warren Kriesel.

"School Choice in Rural Georgia: An Empirical Analysis" selected paper presented at the 1993 American Agricultural Economics Association annual meeting. Joint with Warren Kriesel.

"Regulatory Motives and Enforcement Decisions," selected paper presented at the Association of Environmental and Resource Economists annual meetings, 1993.

"Haul Trash of Haul Ash: Local Government Decision-Making for Municipal Solid Waste Disposal," selected paper presented at the 1992 American Agricultural Economics Association annual meeting. Joint with Mitch Renkow.

"Marketable Permits with Incomplete Enforcement," selected paper presented at the 1990 American Agricultural Economics Association annual meeting

"The Consumption Effects of Agricultural Policies in Tanzania", selected paper presented at the Annual Meeting of the Tanzania Agricultural Economics Association, Morogoro, Tanzania, December 1981. Joint with Grant Scobie, Mitch Renkow, and David Franklin.

Public Policy Talks to Government, Civic and Business Groups

"Federal GHG Legislation and Commission Interests: Key Issues," invited presentation to NARUC Climate Change Conference, Portland, OR, July 2008

"Issues for Ohio in Federal GHG Cap-and-Trade Policies", invited presentation to Ohio EPA and Governor's Environmental and Energy Senior Advisers, March 2008

"Design Issues for National and Regional Climate Policy" invited keynote presentation at Oregon Utilities Commission Workshop on GHG Regulation, January 2008

"What Commissioners Need to Know about Federal Climate Policy", invited luncheon keynote to the National Association of Regulatory Utility Commissioners Annual Meeting, Anaheim. CA November 2007

"Climate Policy: What Tools are Available?", invited presentation to Southeastern Ohio EPA Annual Symposium, May 2007

"Climate Change and Public Policy", invited presentation to the Battelle Series of Science and Policy, April 2007

The US Role in International Climate Policy, invited luncheon speech to the Columbus Council on World Affairs, April 2007

"Climate Change and Public Policy", invited presentation to the John Glenn School of Public Affairs Food for Thought Series, April 2007

"Why is a National Climate Change Policy Important?" invited presentation to the American Electric Power Corporation Luncheon Policy Series, May 31, 2006.

Works in Progress

"Rich Country Mitigation Policy and Resource Transfers to Poor Countries" (joint with Alex Thompson)

"Hybrid Institutions": Applications of Common Property Theory Beyond Discrete Tenure Regimes (joint with Laura German)

Grants and Contracts

Co-Principal Investigator, OSU Climate, Water, and Carbon Targeted Investment in Excellence Program, Designing Incentives for Ecosystems Services, \$654,038 (May 2008- May 2011)

Principal Investigator, Mershon Center for International Security Studies, Designing Effective Climate Change Mechanisms for Developing Countries, \$18, 520 (began May 2008)

Travel Grant, Global Change Research Network for Mountain Regions, \$900, August 2007 Principal Investigator, OSU Climate, Water, and Carbon Targeted Investment in Excellence Seed Grant, \$49, 000 (June 2007- June 2008)

Co-Principal Investigator on USDA \$598,000 study on watershed trading, watershed modeling, and uncertainty (began 11/2003)

Co-Principal Investigator on \$973,000 NSF/EPA/USDA study on the impact of lawn care practices on aquatic ecosystems in suburban watersheds

Co-Principal Investigator on \$48,689 Sea Grant Coastal Erosion Management Options Study

Co-Principal Investigator on \$174, 549 study of National Flood Insurance Program

Co-investigator on \$13,000 Project Development Grant with Georgia Sea Grant College Program

Co-investigator on \$40,000 contract with U.S. Forest Service to study visitor impact on Florida Bay -Florida Keys Marine Sanctuary Ecosystem - 1995.

Co-investigator on \$426,755 contract with the Electric Power Research Institute to study economically attractive and environmentally sound methods of utilizing fly ash, in combination with organic wastes, as a soil amendment to enhance agricultural productivity - 1994.

Co-investigator on \$15,000 grant from Southern Rural Development Center to study educational choice in rural areas - 1994.

Co-investigator on \$15,000 grant from USDA to study water pollution management in Georgia - 1994.

Co-investigator on grant from von Humboldt Foundation, Germany, to study agricultural water pollution - 1994.

Travel grant from the office of Vice-president for Research to attend international meeting in Costa Rica - \$696 - 1994.

Grant from the office of Vice-president for Academic Affairs for "Developing Contacts with International Ecological Economics Community and with Costa Rican Institutions that Perform Research and Instructional Programs in Ecological Economics" - \$1,000 - 1994.

Service as Reviewer

<u>Member of Editorial Council</u> Journal of Environmental Economics and Management 1995 - 2002

Editorial Reviewer

Environmental and Resource Economics American Journal of Agricultural Economics Rand Journal of Economics Journal of Public Economics Journal of Agricultural and Applied Economics Journal of Environmental Economics and Management Journal of Agribusiness **Ecological Economics Energy and Resource Economics Contemporary Economic Policy** Forest Science Freshwater Biology **Energy and Resource Economics** Journal of Water Resources Planning and Management Journal of Agricultural and Resource Economics **Climate Policy**

<u>Grant Reviewer</u> National Science Foundation US Environmental Protection Agency Indiana Sea Grant Program