AERE NEWSLETTER

Association of Environmental and Resource Economists (AERE) *Vol. 33, No. 1* *May 2013*

FROM THE PRESIDENT…

AERE Elections and the Board

In the election last fall, AERE elected two new Board members: Max Auffhammer (University of California, Berkeley) and Nick Flores (University of Colorado). Cathy Kling and I are very grateful for the service of the retiring Board members: Chris Costello (University of California, Santa Barbara) and Paul Ferraro (Georgia State University). Please take the opportunity to thank all four of them at our conference or elsewhere for their service to AERE.

Now that I have assumed duties as president of AERE, I want to thank Cathy Kling for her years of service, her humor and wisdom, her deft hand at running meetings, and all the hard work of a president that frankly scares me! Fortunately, during 2013 I still have claim to her expertise and energy in her role as past-president, and I have already made much use of it thanks to her gracious and supportive attitude.

The AERE Board will be meeting in Banff on Friday evening, June 7th—please contact me with any issues or ideas you may have.

AERE Summer Conference in Banff

This year we will be convening the third annual AERE Summer Conference in the spectacular Canadian Rockies at The Banff Centre in Banff, Alberta, Canada. The organizing committee, co-chaired by Vic Adamowicz (University of Alberta) and Ujjayant Chakravorty (Tufts University), with support from Carolyn Fischer (Resources for the Future) and Brian Murray (Duke University), has put together an outstanding program of selected papers, sponsored sessions, and graduate student sessions.

Events begin on Thursday, June 6th, with a pre-conference workshop: "Recent Advances in Program and Policy Evaluation" with Paul Ferraro (Georgia State University) and Dan Millimet (Southern Methodist University). On the evening of June 6th there will be a Welcome Reception where I hope to greet many long-standing AERE members and new professionals in the AERE family.

The committee received 519 abstract submissions, of which nearly 250 papers were accepted for the general

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sessions. These papers are spread over ten parallel sessions during the two-day conference which begins on Friday morning, June 7th, and they represent the full range of environmental and natural resource economics. Since we had a cap on available rooms, we were not able to accommodate all strong papers but I am confident that regardless of interests and focus, all attendees will find much to choose from in this broad program.

The theme of the sponsored sessions is: "Mixing Oil and Water: The Nexus between Energy and Water Resources" and that theme will also be reflected in the Keynote Address on Friday, June 7th, by Prof. James Salzman (Duke University and the Nicholas School of the Environment). His talk is entitled "Drinking Water - A History." Dr. Salzman has examined a wide range of topics including trade and environment, ecosystem services and wetlands mitigation banking and has recently completed "Drinking Water: A History."

Immediately following the keynote, we will hold the AERE Awards Program to present the 2012 awards for AERE Fellows, the Publication of Enduring Quality (PEQ) Award, and The Ralph C. d'Arge and Allen V. Kneese Award for Outstanding Publication in the *Journal of Environmental Economics and Management* (*JEEM)*. The recipients have been notified but you will have to come to Banff to hear the announcements and congratulate the winners yourselves at the luncheon in the beautiful Vistas Dining Room immediately following the program! I want to take this opportunity to thank the AERE Officers and Board members for the selection of the AERE Fellows, the members of the PEQ Committee for their work: Chair Frank Asche (University of Stavanger, Norway), James Wilen (University of California, Davis), Klaas Van't Veld (University of Wyoming), and the committee members who selected the best *JEEM* paper, Chair Dan Phaneuf (University of Wisconsin, Madison), David Popp (Syracuse University), and JunJie Wu (Oregon State University).

The AERE Summer Conference Organizing Committee is continuing with the set of graduate student sessions initiated last year. These sessions, sponsored by Sustainable Prosperity and the Environment Canada Economics and Environmental Policy Network, will target graduate students and junior faculty and will provide our newest colleagues ample space on the program to give them a chance to engage in quality interaction with more experienced members of the profession. I encourage senior members attending the conference to take time to attend one or more of these sessions to support the future leaders in our field.

Sustainable Prosperity is also sponsoring this year's pre-conference workshop and The Centre for Applied Business Research in Energy and the Environment (CABREE) at the University of Alberta is sponsoring the Keynote Address. The following U.S. Government agencies have contributed to the conference in support of the Sponsored Sessions: The National Oceanic and Atmospheric Administration (NOAA) and the Economic Research Service (ERS), U.S. Department of Agriculture Norman Meade (NOAA) and Marca Weinberg (ERS) worked with the Organizing Committee in planning the Sponsored Sessions. I also want to express appreciation to the Center for Agricultural and Rural Development (CARD) at Iowa State University for their assistance with the conference program. All this generous support is very much appreciated. Please be sure to thank representatives of all our sponsors when you get an opportunity; their funding really makes a big difference to the depth and breadth of programming we can provide.

To learn more about all aspects of the conference visit http://www.aere.org/summer/. The program will soon be posted and many other details are provided.

AERE Sessions at National and Regional Meetings

Once again, thanks to the generous volunteer efforts of various AERE members, we have the opportunity to present papers at a number of meetings this year. The Program Committee with Chair Antonio Bento (Cornell University), Josh Graff Zivin (University of California, San Diego) and Meredith Fowlie (University of California, Berkeley) has pulled together AERE sessions for the Agricultural and Applied Economics Association (AAEA) and CAES joint annual meeting on August 4 - 6, 2013, in Washington, DC and will finalize the program for the Allied Social Science Associations (ASSA) meeting in Philadelphia, Pennsylvania, on January 3 - 5, 2014. Trudy Ann Cameron (University of Oregon) has organized the AERE sessions for the Western Economic Association International (WEAI) conference in Seattle, Washington−AERE sessions are scheduled for June 29 - 30, 2013. John Whitehead (Appalachian State University) and Lea-Rachel Kosnik (University of Missouri, St Louis) have organized sessions for the Southern Economic Association's annual meeting on November 23 - 25, 2013 in Tampa, Florida. And I'm very pleased to announce a new regional opportunity, thanks to Lea-Rachel Kosnik (University of Missouri, St. Louis), who has stepped forward to organize AERE sessions at next year's Midwest Economic Association annual meeting in Evanston, Illinois, March 21st - March 23rd. See the Call for Papers for details.

The World Congress in Istanbul – 2014

AERE and the European Association of Environmental and Resource Economists (EAERE), in cooperation with the East Asian Association of Environmental and Resource Economics (EAAERE), have begun planning for the Fifth World Congress of Environmental and Resource Economists (WCERE) 2014 in Istanbul, Turkey from June 28 - July 2, 2014. The WCERE will be organized by the Istanbul Technical University, with Prof. Ozgur Kayalica chairing the Local Organizing Committee. He will be in Banff, so be on the look-out. He will also be attending part of the Board meeting. The Program Committee co-chairs are: Mark Cohen (Vanderbilt University), Timo Goeschl (University of Heidelberg), and Prof. Erinç Yeldan (Bilkent University) and the Call for Papers will be posted soon. Charlie Kolstad (Stanford University) has graciously agreed to represent AERE at the EAERE Council meeting in Toulouse during the discussion about the WCERE 2014.

Planning for AERE Summer Conference 2015 To Begin

AERE remains a vibrant and engaging organization and I hope to see many of you in Banff! However, for those of you who cannot join us this year, make a commitment to attend the 2015 AERE Summer Conference. (We skip a year because of the World Congress in 2014.) At present, this is just a gleam in the eye of several AERE members but your input would be appreciated. We will be looking for volunteers to handle the site selection and/or serve on the Organizing Committee—please contact me if you are interested. Future announcements will be posted on the AERE web page

The Possibility of a New, AERE-Sponsored Journal

Let's start by reviewing the steps the Board and its relevant subcommittees have taken so far. Since the AERE Summer conference in Asheville, the Board developed a website for member input and then formed a subcommittee to write a goals statement for *JEEM* or JAERE to guide discussions with Elsevier and to provide input into the development of an RFP seeking bids from potential publishers (take a look if you're interested: http://www.card.iastate.edu/temp/GOALS-FOR-AERE-journal.pdf). We also appointed a subcommittee to begin developing just such an RFP. Then, we went through several rounds of negotiations with Elsevier and learned among other things that they do subscribe to programs that make *JEEM* available to developing countries at zero or low costs. We also hired Morna Conway, a journal consultant with extensive experience in negotiating with publishers for academic journals, to help guide us in RFP writing, solicitation of bidders, review of bids and negotiations.

With all these pieces in place, we sent out an RFP to more than a dozen possible bidders – both commercial and University presses. We received several very credible bids. Our consultant characterized the bids, we held a conference call to examine the bids in great detail, and sent a series of emails back to the bidders with clarifying questions. We also drafted an email to Elsevier containing further items we want from them, in light of the bids we received. As of this writing, we are awaiting a response from Elsevier and have received responses from the bidders. Ultimately, and on or before the June 7th Board meeting, the Board will make a decision about the future of *JEEM*.

In closing, I want to voice my appreciation to the Board members who have served and continue to serve on the various committees looking into this matter, as well as to our consultant, for their intelligence, patience and diligence in pursuing the best long-term outcome for AERE. I also want to again thank all of you, the members of AERE, for providing input into this process and hope you will realize that the Board is acting in the interest of AERE, whatever the decision.

Have a great summer.
Alan

Dr. Alan Krupnick
AERE President
Resources for the Future
1616 P Street NW
Washington, DC 20036
Krupnick@rff.org
Office phone: 202-328-5107

AERE NEWS

AERE BOARD OF DIRECTORS MEETING

The AERE Board of Directors is meeting on Friday, June 7, from 5:30 pm – 8:30 pm in the Kinnear Centre (KC) Room 208. Anyone with matters to be brought before the Board should contact the AERE president:

Dr. Alan J. Krupnick
Resources for the Future
Krupnick@rff.org
Office phone: 202-328-5107

NOMINATIONS FOR AERE OFFICERS AND BOARD MEMBERS

This year, AERE members will vote for a President Elect who will serve for one year before taking office in January 2015, a Vice President who will serve for two years beginning January 2014, and two new members of the Board of Directors who will serve for three years beginning in January 2014. The nominations are being handled by a committee chaired by AERE Vice President Don Fullerton (University of Illinois) with committee members Kathleen Segerson (University of Connecticut) and Jay Shogren (University of Wyoming). Elections will occur in the fall of 2013.

Nominations may also be made by the membership through petitions, each of which contains signatures of 5% of the association's members who are then in good standing. Such petitions should be sent to arrive at the AERE Secretary's (Sarah Stafford) address no later than **August 1, 2013**.

Dr. Sarah L. Stafford
Department of Economics
College of William and Mary
P.O. Box 8795
Williamsburg, VA 23187-8795
slstaf@wm.edu

AERE PUBLICATION OF ENDURING QUALITY AWARD 2013 CALL FOR NOMINATIONS

The AERE Board of Directors will present the annual award (to co-authors if appropriate) for a publication of enduring quality that appeared at least five years prior to the year of the award. Nominated works are to be evaluated on their seminal nature and enduring value. Place and type of publication are unrestricted but posthumous awards will not be given. Nominees may include individuals who are not members of AERE.

Evaluation of nominated works and final selection for the 2013 award will be undertaken by a committee chaired by James Wilen (University of California, Davis). Nomination packages should consist of four copies each of a cover letter, a document supporting the nomination, and the publication itself. The supporting document (not to exceed three pages) should include quantitative as well as qualitative information (e.g., number of citations or copies printed). Nominations should be sent to arrive no later than **November 1, 2013**. This is an important award for AERE and for the recipients. Please give serious consideration to nominating a publication and to observing the submission requirements.

Prof. James E. Wilen
University of California, Davis
wilen@primal.ucdavis.edu
Subject Line: AERE PEQ Award

AERE FELLOWS 2013
CALL FOR NOMINATIONS

This program recognizes outstanding contributions to the field by members of the association. The 2013 AERE Fellows will be announced at the World Congress of Environmental and Resource Economists (WCERE) in Istanbul, Turkey in 2014. (Note: There is no AERE Summer Conference in years when the WCERE is held.)

Criteria: Awardees will have demonstrated a significant contribution to the advancement of the profession of environmental and resource economics. A candidate must be living at the time of nomination; membership in AERE is not required.

Nomination Process: Any member of AERE may nominate a candidate for Fellow. A nomination packet should include a vita of the nominee, a two-page nomination letter outlining what contributions the individual has made that warrant the award, and at least one additional letter of support from a second individual.

In addition, members of the AERE Board of Directors may consider candidates that have not been otherwise nominated that they feel are especially worthy.

Selection Process: Nomination packages are to be submitted **by November 1, 2013,** to:

Dr. Alan Krupnick
AERE President
Resources for the Future
1616 P Street NW
Washington, DC 20036
Krupnick@rff.org
Office phone: 202-328-5107

The president will distribute copies to each of the Board members who will select newly appointed Fellows from the set of nominations. Newly elected Fellows will be notified in advance to provide ample time to make travel arrangements to attend the Awards Program. In future years, a separate Fellows Committee may be impaneled to aid in the initial screening of candidates.

Maximum Number of Awards: Three for 2013

AERE Fellows 2011
Trudy Ann Cameron
William D. Nordhaus
Jim Wilen

AERE Fellows 2010
Alan J. Krupnick
Stephen Polasky
Martin L. Weitzman

AERE Fellows 2009
Richard T. Carson
Charles D. Kolstad
Robert N. Stavins

AERE Fellows 2008
Thomas Crocker
A. Myrick Freeman III
Alan Randall

AERE Fellows 2007
Daniel W. Bromley
Gardner M. Brown, Jr.
Charles W. (Chuck) Howe
Kenneth E. (Ted) McConnell
Kathleen Segerson
David Zilberman

AERE Fellows 2006
Richard C. Bishop
Nancy E. Bockstael
Ronald G. Cummings
Anthony (Tony) C. Fisher
Geoffrey M. Heal
Clifford S. (Cliff) Russell

Inaugural AERE Fellows 2005
Maureen L. Cropper
W. Michael Hanemann
Karl-Göran Mäler
Wallace E. Oates
V. Kerry Smith
Tom Tietenberg

NOMINATIONS FOR BEST *JEEM* PAPER 2013

The Ralph C. d'Arge and Allen V. Kneese Award for Outstanding Publication in the *Journal of Environmental Economics and Management*" recognizes an exemplary research paper published in *JEEM* during the past calendar year.

Criteria: Any article published in 2013, that is, v64 (January, March, May issues) and v65 (July, September, November issues) of *JEEM* is eligible for this award. There is no requirement that the author(s) be a member of AERE.

Nomination Process: Any current member of AERE may nominate an article. The nomination should be submitted in a letter that briefly describes why the nominator believes the paper is deserving of this award. Letters of nomination should be submitted by **December 31, 2013** to:

Dr. Daniel J. Phaneuf
University of Wisconsin-Madison
Department of Agricultural and Applied Economics
Taylor Hall
Madison, WI 53706-1503
dphaneuf@wisc.edu
Subject Line: Best *JEEM* Paper

Selection Process: The winner of the award will be selected by a three-person selection committee comprised of the editor of *JEEM*, Dan Phaneuf (University of Wisconsin, Madison), one AERE representative, Junjie Wu (Oregon State University), and one associate editor of *JEEM* (TBA). The author(s) will be notified in advance to provide ample time to make travel arrangements to attend the Awards Program.

5TH WORLD CONGRESS OF ENVIRONMENTAL AND RESOURCE ECONOMISTS (WCERE)

June 28 – July 2, 2014
Istanbul, Turkey

The 5th World Congress of Environmental and Resource Economists (WCERE) will take place in Istanbul, Turkey, from June 28-July 2, 2014. After Venice (1998), Monterey (2002), Kyoto (2006), and Montréal (2010), the profession will convene in this unique World Heritage city that straddles Europe and Asia. Over 1100 economists from more than 40 countries attended the last World Congress in Montreal – and an equal if not greater number is anticipated at Istanbul next year. Confirmed keynote speakers include Professors Robert H. Frank (Cornell), Eswaran Somanathan (Indian Statistical Institute), and Matthew Kahn (UCLA Institute of the Environment).

Hosted by Istanbul Technical University (ITU), one of Turkey's most distinguished universities, WCERE 2014 is jointly organized by the Association of Environmental and Resource Economists (AERE) and the European Association of Environmental and Resource Economists (EAERE), in cooperation with the East Asian Association of Environmental and Resource Economists (EAAERE).

The location of the 5th World Congress acknowledges the importance of Istanbul and Turkey in matters of environment, energy and education. Istanbul is Turkey's cultural, economic and financial center, with a rich history, distinct culture, and beautiful cityscapes. Easily accessible by air from many major European and American cities, Istanbul offers not only a cosmopolitan experience, but is also regarded by many as one of the best conference destinations of the world. Located in the heart of the city, ITU has a 240 year distinguished history, with currently over 30,000 full-time undergraduate, Masters and PhD. students. Among its research institutes and departments are the Energy Institute, Energy Economics Research Group, Environmental Engineering and the Department of Economics.

Turkey is situated close to several major oil exporting countries and at some of the most vital energy crossroads. Tanker traffic and natural gas pipelines make Turkey an important east-west route for energy transfer. In addition to its geographical significance, Turkey is currently going through a major revision in its policies and perspectives towards the environment and natural resources – making this conference especially valuable to both participants and local policy makers.

Please bookmark the Congress website, www.wcere2014.org, where you will soon find detailed information on paper submission, registration, accommodation, etc. The Chair of the Local Organizing Committee (LOC) is M. Özgür Kayalıca (Istanbul Technical University). The official call for papers is planned for early fall 2013. The co-chairs of the Program Committee (PC) are Mark Cohen (Vanderbilt University), Timo Goeschl (Heidelberg University), and Erinç Yeldan (Yaşar University).

INSTITUTIONAL AND UNIVERSITY MEMBERSHIP PROGRAM

Colleges, universities, university research and research institutions plus nonprofit organizations, government agencies, and corporations are invited to become University and Institutional Members of AERE respectively.

Intellectual entrepreneurship is a distinguishing characteristic of AERE. Equally important, AERE research activities also display a remarkable degree of involvement with other disciplines because the issues require it. But the dues of its individual members are not sufficient to support the growing needs of the organization. AERE needs the help of organizations involved in the same fields of interest to help with its programs and outreach to students and young professionals in both the U.S. and overseas. In addition, financial support will help with the increasing costs of managing membership services including the membership database, journal subscriptions, and workshop and annual meeting registrations among other association costs.

To become a **University Member** of AERE, a contribution of $350 is required. Benefits include:

- one staff member to receive an individual membership or up to four student memberships) in AERE (which includes an electronic subscription to *REEP*, the bi-annual *AERE Newsletter*, reduced subscription rate for *JEEM*, and a reduced fee for submitting articles to *JEEM*), and
- sponsorship listing on the AERE Web Page, in the *AERE Newsletter*, and every issue of *JEEM*, and
- one free advertisement in 2013 on the AERE Web Page and/or in the *AERE Newsletter* (a savings of $250).

To become an **Institutional Member** of AERE, a contribution of $1,000 is required. Benefits include the above plus:

- two nontransferable tickets for institution staff to the annual AERE luncheon at the ASSA meeting, and
- one nontransferable ticket for an institution staff member to the annual AERE Summer Conference, and
- recognition at the annual AERE luncheons and business meetings.

AERE MEMBERSHIP SERVICES

Please direct any questions or requests regarding your membership, subscriptions to *REEP*, luncheon or AERE Conference registrations, receipts, or related membership matters to:

AERE Membership Services
VanDer Management
13006 Peaceful Terrace
Silver Spring, MD 20904
info@aere.org
Telephone: 202-559-8998
Fax: 202-559-8998

Marilyn M. Voigt, AERE Executive Director, can be reached at:

AERE
1616 P Street NW, Suite 600
Washington, DC 20036-1400
voigt@rff.org
Telephone: 202-328-5125

AERE Newsletter

Co-Editors
John Loomis
Colorado State University
Dept. of Agricultural and Resource Economics
jloomis@lamar.colostate.edu

Marilyn M. Voigt
AERE Executive Director
voigt@rff.org

Assistant Editor
Kathleen Meaney Stobie
kmstobie@verizon.net

Publisher
Association of Environmental and Resource Economists
1616 P Street NW, Suite 600
Washington, DC 20036
202-328-5125

2013 INSTITUTIONAL AND UNIVERSITY MEMBERS OF AERE

Institutional Members

Environmental Defense Fund – EDF

Fondazione Eni Enrico Mattei – FEEM

Resources for the Future

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Stratus Consulting

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Iowa State University
Department of Economics

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Department of Economics

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Department of Agricultural Economics

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Agriculture and Resource Economics

University of Connecticut
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University of Delaware
School of Marine Science and Policy

University of Hawaii at Manoa
Department of Economics

University of Maine
School of Economics

University of Maryland – College Park
Department of Agricultural & Resource Economics

University of Michigan
ERB Institute for Global Sustainable Enterprise

University of North Carolina at Greensboro
The Bryan School of Business and Economics

University of Oregon
Department of Economics

University of Tennessee
Department of Economics

Virginia Tech
Department of Agricultural & Applied Economics

CALLS FOR PAPERS/PROPOSALS

AERE NEWSLETTER

The *AERE Newsletter* is soliciting essays from AERE members about natural resource and environmental economics issues of general interest to the membership. These essays can be relatively short (6-10 double spaced pages) and address a topic that does not fit into the traditional journal outlet. There is currently no backlog, so your essay would likely be published in the November AERE Newsletter. Marilyn Voigt and I need your essay by August for the November issue. If you wish to float an idea by me, feel free to contact me.

John Loomis
***AERE* Newsletter Co-Editor**
jloomis@lamar.colostate.edu
Telephone: 970-491-2485

CANADIAN RESOURCE AND ENVIRONMENTAL ECONOMICS (CREE) 2013 CONFERENCE

September 27 – 29, 2013
Brock University
St. Catherines, Ontario, Canada

Hello Fellow Resource and Environmental Economists!

CREE 2013 conference takes place this year at Brock University in the beautiful Niagara wine region. The dates are: September 27-29, 2013, coinciding serendipitously with the Annual Niagara Wine Festival.

On behalf of the program committee, we encourage you to submit extended 2 page abstracts (and or completed papers). You can do this directly via the following link: http://economics.ca/cree/2013/call.php.

Deadline for submission of abstracts: Friday, June 7, 2013.

We are looking forward to a great conference. Please pass this on to your colleagues and students who are nearing completion of their studies. (Apologies for cross-listing).

Looking forward to welcoming you to the Niagara Region.

Further information about accommodations, registration, etc. is on the website http://economics.ca/cree/2013/. In time, this will be updated to include program and participant information.

Diane Dupont and Steven Renzetti (co-organizers)

THE ECONOMICS OF LOW-CARBON MARKETS CONFERENCE

December 16 - 17, 2013
University of São Paulo
Department of Economics
Ribeirão Preto, Brazil

The Economics of Low-Carbon Markets Conference aims at stimulating discussions among international researchers in the field of Environmental and Energy Economics and closely related areas such as Industrial Organization and Transport Economics.

The scientific committee welcomes theoretical, empirical and policy-oriented contributions addressing environmental choices, energy efficiency and related topics. The social program will include a visit to a sugar cane plantation and a sugar cane mill in one of the leading countries when it comes to biofuels, Brazil, allowing participants to learn how they are produced.

Submission Details

All interested researchers are invited to submit their papers written in English in pdf format to econ.low.carbon@gmail.com

Deadline: June 30, 2013

Decisions will be announced in late August 2013 and paper presenters must register by September 15th to have their papers included in the conference program.

Conference Venue

Website: http://fearp.usp.br/lcm/

Local Organization and Contact Bruno Ledo, Claudio Lucinda, or Rudinei Toneto Jr.
E-mail: econ.low.carbon@gmail.com

MIDWEST ECONOMIC ASSOCIATION (MEA) ANNUAL MEETING

March 21 – 23, 2014
Hilton Orrington Hotel
Evanston, Illinois

Call for Papers: AERE Sessions (*New!*)

The 2014 MEA Meeting will be held March 21 – 23, 2014 at the Hilton Orrington Hotel in Evanston, Illinois. Authors wishing to have a paper considered for the AERE sessions should send a .pdf file by e-mail to:

Dr. Lea-Rachel Kosnik
University of Missouri-St. Louis
kosnikl@umsl.edu
Subject Line:
AERE MEA Abstract Submission

Deadline to submit is **August 1, 2013**. Files should be sent by the proposed presenter who will be the contact for correspondence. The file should contain the following information:

1. Author's (and co-author's) name, address, affiliation, telephone number, and e-mail address.
2. Title of paper.
3. Abstract of no more than 150 words.
4. JEL codes.

Papers submitted without all the required information will not be considered. Electronic acknowledgements of submissions will be sent to all submitters. Proposals for complete sessions are also encouraged. Organizers of proposed sessions should submit abstracts for each of the papers following the above instructions. Papers may be accepted or rejected on an individual basis unless the organizer specifically requests the session be considered only in its entirety.

All selected presenters must be 2014 AERE members and priority consideration for discussants will be given to current AERE members.

Note: An evening networking opportunity will be available for AERE attendees at the MEA meeting–an informal dinner on Saturday, March 22nd, at a restaurant near the conference to be organized by Lea-Rachel Kosnik (kosnikl@umsl.edu).

NEW DIRECTIONS IN ENERGY

December 2 - 3, 2013
Hobart, Tasmania, Australia

Energy industries have entered a new paradigm in which the focus of policy has shifted from the promotion of competition to increased emphasis on decarbonization and security of supply. At the same time, new technologies for exploiting shale gas and oil are changing both the economics and geopolitics of hydrocarbons. Against this backdrop, governments are struggling to forge policies which balance environmental impacts, economic growth and employment.

Current estimates from the International Energy Agency suggest that world primary energy demand will rise by 60% between 2010 and 2030, and that this will require US $16 trillion of new investment to maintain and expand energy supply. To effectively satisfy this voracious appetite for energy, greater emphasis must be given to creating a favorable environment for innovation and investment in technologies that are not only cost-competitive, but that can address environmental imperatives.

A two day workshop organized by the NCER and the University of Tasmania is planned to address this paradigm shift in energy policy which has yet to be translated into a coherent framework.

Keynote Presenters:
Professor David Newberry (Cambridge)
Professor Adonis Yatchew (University of Toronto)

Policy Forum: A round table policy forum will feature politicians, regulators and market participants and commentators.

Topics: Research papers are invited dealing with all aspects of energy economics and energy policy. Areas of interest include, but are not limited to: energy use and climate change; energy conservation and investment finance; coal, shale, oil versus solar, hydro and wind power. It is hoped that eligible research papers will be considered for publication in a Special Issue of the *Energy Journal*.

Paper Submission Procedure: Submissions should be sent to:mardi.dungey@utas.edu.au **by August 30, 2013**.

CONFERENCES AND MEETINGS

AGRICULTURAL & APPLIED ECONOMICS ASSOCIATION (AAEA)

August 4 - 6, 2013
Washington Marriott Wardman Park
Washington, DC

AERE Sessions for the AAEA Meetings
Note: Presenters are in bold font

Session I - Climate and Environmental Policy

Session Chair: Garth Heutel (UNC, Greensboro)

The Distributional Consequences of Climate Change Mitigation Policies in Developing Countries: Macroeconomic Decomposition Approach
Zeynep Akgul (Purdue University)

Climate Change Adaptation: How Does Heterogeneity in Adaptation Costs Affect Climate Coalitions?
Itziar Lazkano (University of Wisconsin, Milwaukee) with Walid Marrouch (Cirano) and Bruno Nkuiya (University of Laval)

Border Tax Adjustments versus Punitive Tariffs: Their Comparison in Terms of Creditibility and Effectiveness in International Environmental Agreements
Zeynep Burcu Irfanoglu (Purdue University) with Juan P. Sesmero (Purdue University), and Alla Golub (Purdue University)

Incidence and Environmental Effects of Distortionary Subsidies
Garth Heutel (UNC, Greensboro) with David Kelly (University of Miami)

Session II – Topics in Resources and Energy

Session Chair: Amy Ando (University of Illinois)

Optimal Capital Deployment in Renewable Energy
Linda Nøstbakken (University of Alberta) with Andrew Leach (University of Alberta)

Measuring the Impact of Fracking on Surrounding Homes
Beia Spiller (Environmental Defense Fund) with Lucija Muehlenbachs (Resources for the Future), and Christopher Timmins (Duke University)

Land Conservation in the Floodplain: Assessing the Benefits and Costs of "Green Infrastructure" Investments
Carolyn Kousky (Resources for the Future) with Margaret Walls (Resources for the Future)

Leakage and Conservation Planning
Amy Ando (University of Illinois) with Michael Bode (University of Melbourne), Morena Mills, Anna Renwick, and Ayesha Tulloch (University of Queensland), and Oscar Venter (James Cook University)

Session III – Topics in Environmental Economics and Policy

Session Chair: Stephen Hamilton (California Polytechnic, San Luis Obispo)

Third Party Verification and the Effectiveness of Voluntary Pollution Abatement Programs: Evidence from Responsible Care
Neha Khanna (Binghamton University) with Martina Vidovic (Rollins College), and Michael Delgado (Purdue University)

No Free Polluting Anymore: The Impact of a Vehicle Pollution Charge on Air Qualtity
Davide Cerruti (University of Maryland)

Expressing Value for Environmental Improvements in WTP and Willingness to Help
Amy Ando (University of Illinois) with Catalina Londoño (University of Illinois, Urbana-Champaign), and Noelwah Netusil (Reed College)

Environmental Policy with Collective Waste Disposal
Stephen F. Hamilton (California Polytechnic, San Luis Obispo) with David Sunding and David Zilberman (UC, Berkeley) Thomas Sproul (University of Rhode Island)

ALLIED SOCIAL SCIENCE ASSOCIATIONS (ASSA) ANNUAL MEETING

January 3 - 5, 2014
Philadelphia, Pennsylvania

AERE will sponsor sessions at the 2014 winter meeting of the ASSA in Philadelphia, Pennsylvania scheduled for January 3-5, 2014 and will hold a members' luncheon and Fellow's Talk on January 4th. The AERE Program Committee is organizing the AERE sessions. The Call for Papers is now closed.

Website: http://www.aeaweb.org/Annual_Meeting

EAERE 20th ANNUAL CONFERENCE

June 26 - 29, 2013
University Toulouse 1 - Arsenal area
Toulouse, France

Organization: EAERE and Toulouse School of Economics (TSE)

Website: : http://www.eaere.org/

EAERE 21st ANNUAL CONFERENCE

June 24 – 27, 2015
Helsinki, Finland

Organization: EAERE and University of Helsinki

For conference information: E-mail: **eaere@eaere.org**

EAERE 22nd ANNUAL CONFERENCE

June 2016
Dates and Venue to be decided

Call and **Guidelines** for Expressions of Interest, Local Organizing Committee and Conference Venue

Deadline: December 15, 2013
E-mail: **eaere@eaere.org**

8TH ANNUAL GREEN ECONOMICS INSTITUTE CONFERENCE

July 17 – 20, 2013
Worcester College, Oxford University

Balancing the Global Economy! Greening the Global Economy! Healing the Global Economy! Reclaiming the Commons!

This conference explores the very latest thinking in global change and social and environmental justice and science and also provides professional accreditation and training for people coming together to think right outside the box and to create policy change together for the global economy and local communities.

Website: http://www.greeneconomics.org.uk/

INTERNATIONAL CHOICE MODELLING CONFERENCE 2013

July 3 – 5, 2013
The Sebel Pier One Sydney
Sydney, Australia

The International Choice Modelling Conference brings together leading researchers and practitioners from across different areas of study, with presentations looking both at state of the art methodology as well as innovative real world applications of choice models.
Following on from the success of the second Conference held in Leeds 2011, the third International Choice Modelling Conference will be organized jointly by the Centre for the Study of Choice (CenSoC) at the University of Technology Sydney (UTS) and the Institute of Transport and Logistics Studies (ITLS) at the University of Sydney.

Website:
http://www.icmconference.org.uk./index.php/icmc/ICMC2013

NORTHEAST AGRICULTURAL AND RESOURCE ECONOMICS ASSOCIATION (NAREA) ANNUAL MEETING

June 23 - 25, 2013
Holiday Inn Ithaca
Ithaca, New York

The Northeast Agricultural and Resource Economics Association (NAREA) will hold its 2013 annual meeting at the Holiday Inn in Ithaca, NY on June 23-25, 2013. NAREA will sponsor selected paper sessions, symposia, plenary talks, and workshop paper sessions.

The pre-conference workshop on Beverage Marketing and Policy Issues will be held immediately prior to the annual meeting beginning at noon on June 22 and concluding at noon on June 23. The workshop will feature a field trip to selected wineries in the beautiful Finger Lakes region on Sunday afternoon.

Conference Website: http://www.narea.org/2013/

SOUTHERN ECONOMIC ASSOCIATION (SEA)

November 23 - 25, 2013
Tampa Marriott Waterside Hotel and Marina
Tampa, Florida

AERE Sessions at the Southern Economic Association (SEA) Annual Meeting

AERE members will be participating in the Southern Economic Association's (SEA) annual meeting at the Tampa Marriott Waterside Hotel and Marina in Tampa, Florida on November 23 - 25, 2013. John C. Whitehead (Appalachian State University) and Lea-Rachel Kosnik (University of Missouri, St Louis), organized the SEA sessions which are intended to provide an accessible conference option for our regional members. See the November 2013 *AERE Newsletter* for the list of papers.

For details, visit http://www.southerneconomic.org

WESTERN ECONOMIC ASSOCIATION INTERNATIONAL (WEAI) 88th ANNUAL CONFERENCE

AERE SESSIONS
June 29 - 30, 2013
Grand Hyatt
Seattle, Washington

NOTE: Due to some withdrawn papers, we have a couple of short sessions. There should be at least three, and preferably four, papers per session. If you are an AERE member with an appropriate paper, and you plan to attend these meetings anyway, you are invited to submit a stand-by paper for consideration as a late addition. We'd like to give every AERE member who is attending an opportunity to hear a full slate of papers and to present appropriate research. Submit stand-by abstracts to Dr. Trudy Ann Cameron:
cameron@uoregon.edu
Subject Line: AERE WEAI

Note: Presenters are in bold

WEAI/AERE Session 1
Time: Saturday June 29, 8:15 am - 10:00 am
Session Name: Ecosystems Services, Protection
Chair: Timothy Fitzgerald, Montana State University

Ecosystem Service Valuation for Decision Makers
Author(s): **Margrethe Winslow**, Ph.D. (new Presenter), (University of San Francisco); Jennifer Sant'Anna (MPA, Presidio Graduate School)

Do Trees Shed Money? Assessing the Economic Costs and Benefits of Reducing Deforestation and Forest Degradation in India: A Case Study of Nagaland
Author(s): **Sakshi Gupta** (TERI University, New Delhi); Kavita Sardana (TERI University)

Can Legal Horn Trade Save Rhinos?
Author(s): **Timothy Fitzgerald** (Montana State University); Michael 't Sas-Rolfes, Property and Environmental Research (PERC)

WEAI/AERE Session 2
Time: Saturday June 29, 10:15 am - 12:00 pm
Session Name: Water I
Chair: John Janmaat (University of British Columbia, Okanagan)

Groundwater Conservation via Desalination: Welfare Implications
Author(s): **Eric C. Edwards** (University of California, Santa Barbara); Oscar Cristi (Universidad del Desarrollo); Gary D. Libecap (University of California, Santa Barbara)
How Much is Clean Water Worth? Valuing Water Quality Improvement Using a Meta Analysis
Author(s): **Jiaqi Ge** (Iowa State University); Catherine L. Kling (Iowa State University); Joseph A. Herriges (Iowa State University)

Water Rights, Water Supply, and Agricultural Output under the Prior Appropriate Doctrine: A Case in Idaho
Author(s): **Wenchao Xu** (Boise State University); Scott E. Lowe (Boise State University); Richard M. Adams (Oregon State University)

Water Conservation: What is It? How Can It be Encouraged? Evidence from Kelowna, British Columbia
Author(s): **John Janmaat** (University of British Columbia, Okanagan)

WEAI/AERE Session 3
Time: Saturday June 29, 12:30 pm - 2:15 pm
Session Name: Water II
Chair: Jason K. Hansen (Naval Postgraduate School)

Estimating Water Demand at the Intensive and Extensive Margin: The Role of Landscape Dynamics
Author(s): **Daniel Brent** (University of Washington)

Impact of Decentralization of Irrigation on Water Use Efficiency
Author(s): Anita M. Chaudhry (California State University, Chico); **Aatika Nagrah**, International Water Management Institute (IWMI)

Within Our Means: Growth and Development under Water Scarcity
Author(s): **Jason K. Hansen** (Naval Postgraduate School); Janie M. Chermak (University of New Mexico)

WEAI/AERE Session 4
Time: Saturday June 29, 2:30 pm - 4:15 pm
Session Name: Crops, Fisheries &Conservation
Chair: Duncan Knowler (Simon Fraser University, School of Resource and Environmental Management)

Conservation Clubs
Author(s): **Arthur J. Caplan** (Utah State University)

Governance, Institutions and the Performance of Protected Areas
Author(s): **Ryan Abman** (University of California, Santa Barbara)

Alliance Theory, Crop Protection and Wildlife Conservation in Nepal
Author(s): **Duncan Knowler** (Simon Fraser University); Reed Bailey (Simon Fraser University)

WEAI/AERE Session 5
Time: Saturday June 29, 4:30 pm - 6:15 pm
Session Name: Mobile Source, Energy Codes, Boomtowns
Chair: Grant Jacobsen, University of Oregon

Consumer Welfare Effects of Conversion from HOV to HOT Lane
Author(s): **Austin Gross** (new Presenter) (University of Washington); Daniel Brent (University of Washingon)

Does Obesity Matter for Vehicle Emissions?
Author(s): **Hocheol Jeon** (Iowa State University); Joseph A. Herriges (Iowa State University)

Energy Codes and the Landlord-Tenant Problem
Author(s): **Maya Papineau** (University of California, Berkeley)

The Effect of Oil and Gas Drilling on Communities: Evidence from Boomtowns
Author(s): **Grant Jacobsen** (University of Oregon); Dominic Parker (University of Wisconsin, Madison)

WEAI/AERE Session 6
Time: Sunday June 30, 8:15 am - 10:00 am
Session Name: Pollution
Chair: Brian Vander Naald (University of Alaska, Southeast)

Impacts on Industrial Activity of Environmental Regulations in China
Author(s): **Chunhua Wang** (University of International Business and Economics)

Investment in Pollution Abatement under a Cap and Trade System
Author(s): **Gizem Keskin** (Rice University)

Technology Spillovers Embodied in International Trade. A CGE Analysis
Author(s): **Ramiro Parrado**, Fondazione Eni Enrico Mattei (FEEM), EuroMediterranean Centre on Climate Change and Enrica De Cian, FEEM, EuroMediterranean Centre on Climate Change

Effects of PCE Regulation on Dry Cleaning Firm Exits
Author(s): **Brian Vander Naald** (University of Alaska, Southeast); Trudy Ann Cameron (University of Oregon)

WEAI/AERE Session 7
Time: Sunday June 30, 2:30 pm - 4:15 pm
Session Name: Politics, Policy, Hypocrisy, Green Paradox
Chair: Arthur J. Caplan, Utah State University

Political Influence in Market-Based Environmental Regulation
Author(s): **Ashwin Rode** (University of California, Santa Barbara)

The Relationship between Policy Choice and the Size of the Policy Region
Author(s): **Megan Accordino** (University of California, Los Angeles); Deepak Rajagopal (University of California, Los Angeles)

Measuring the Environmental Cost of Hypocrisy
Author(s): **Arthur J. Caplan** (Utah State University)

WEAI/AERE Session 8
Time: Sunday June 30, 4:30 pm - 6:15 pm
Session Name: Renewables
Chair: TBD

Optimal Contracts for Intermittent Renewable Power Sources such as Wind
Author(s): **Timothy Dittmer**, (new Presenter) (Central Washington University) and Charles Wassell, Jr. (Central Washington University)

Do Renewable Portfolio Standards Increase Electricity Prices?
Author(s): **Karen Maguire** (Oklahoma State University); Abdul Munasib (Oklahoma State University)

Evaluation of Alberta's Specified Gas Emitters Regulation
Author(s): **Deepak Rajagopal** (University of California, Los Angeles)

ESSAY

What Do Environmental and Resource Economists Think? Preliminary Results From a Survey of AERE Members

Timothy C. Haab, Ohio State University
John C. Whitehead, Appalachian State University

Introduction

Are environmental and resource economists one-handed? In other words, are we able to provide consensus opinion on climate and other environmental policies? In order to begin to provide some sort of answer for this question we conducted a survey of AERE members in which we ask about opinions on a number of environmental and natural resource economic issues. The idea to survey economists is not new. A large number of papers present the views of surveyed economists. Such surveys are important to the extent that they clarify the opinions of economists and determine when economists agree. The first such survey may be Bell (1945), who, along with an AEA committee, asked AEA members to "indicate which of the following government activities you consider appropriate or suitable postwar functions of government and which ones you do not favor." Of 43 potential government activities, only two dealt with environmental or natural resource problems. Fifty-four of 60 economists who responded were in favor of the Boulder and Grand Coulee Dams.

Another early survey of economists was motivated by an editorial in *Business Week* that observed, following the 1977 AEA meetings, that the economics profession was more concerned with unimportant models than economic policies of importance to society. Kearl et al. (1979) surveyed AEA members and found that there is more agreement on microeconomic, relative to macroeconomic, issues and more agreement on positive, relative to normative, issues. In the context of opinions toward environmental issues, Kearl et al. find that 81% of their respondents agree, 31% agree with provisions and 19% disagree with the statement "effluent taxes represent a better approach to pollution control than imposition of pollution ceilings." They conclude that economists had reached consensus on this issue.

Alston, Kearl and Vaughan (1992) conducted a similar survey of AEA members in 1990. In general, consensus is found on dimensions similar to the findings of Kearl et al. In terms of questions of most interest to AERE members, they find that 56% agree, 23% agree with provisions and 21% disagree with the statement "pollution taxes or marketable pollution permits are a more economically efficient approach to pollution control than emission standards." In response to the statement "reducing the regulatory power of the Environmental Protection Agency (EPA) would improve the economic efficiency of the U.S. Economy" 11% agreed, 25% agreed with provisions and 62% disagreed. Most recently, Fuller and Geide-Stevenson (2003) conducted another follow-up survey of AEA members in 2000. They find that 82% agree with the statement about pollution taxes or marketable pollution permits while 59% disagreed with the statement about the EPA.

Other studies survey economists with a different set of questions. Klein and Stern (2006) present the policy views of a random sample of AEA members from a 2003 survey. Amongst 18 propositions, 56% strongly support and 24% mildly support air and water regulation. Whaples (2009) surveyed a random sample of AEA members in 2007. He finds that 82% disagree that "the U.S. should ban genetically modified crops" and 58% disagree that "laws mandating municipal curbside recycling should be eliminated."

Interest in the opinions of economists is still strong, including opinions toward environmental policies. A session at the most recent ASSA meetings titled "What do economists think about major public policy issues?" featured two papers, both presenting results from a survey of the Chicago Economic Expert Panel which includes equal representation from the "top seven departments" (Gordon and Dahl 2013).[1] Eighty-seven percent of the panel agrees with the statement: "The Brookings Institution recently described a US carbon tax of $20 per ton, increasing at 4% per year, which would

[1] Results to the survey questions are available here: http://www.igmchicago.org/igm-economic-experts-panel.

raise an estimated $150 billion per year in federal revenues over the next decade. Given the negative externalities created by carbon dioxide emissions, a federal carbon tax at this rate would involve fewer harmful net distortions to the US economy than a tax increase that generated the same revenue by raising marginal tax rates on labor income across the board." Ninety percent of the panel agreed with the statement: "A direct disincentive to emit carbon-dioxide, for example through a carbon tax or an emissions permit market, is more efficient than requiring the use of corn-based ethanol fuels."

In this essay we present some preliminary results from a survey of AERE members. The purpose of this study is to fill a void in the literature given the scant attention to environmental and resource economic issues and thin coverage of environmental and resource economists in previous surveys. In short, we are interested in what environmental and resource economists think about environmental and resource economic issues. The issues considered span the discipline including air and water pollution, sustainability, fishery, forestry and energy economics. The essay concludes with our plans for analysis of these data and a request for participation from environmental and resource economics teachers.

Data

We reviewed a number of economist surveys and surveys of the general public to collect a set of environmental opinion questions. We also wrote a set of questions that state some results from first principles (e.g., negative externalities, public goods, common property resources, Hotelling's rule). A draft survey was reviewed by a number of environmental and resource economists and revised in response to their suggestions.[2] In the end, we developed a survey that posed thirty-three questions that were randomly ordered in nine randomly assigned groups of mostly similar questions. These questions were in the form: "Please indicate how much you agree or disagree with each of these statements" with Likert scale responses "disagree completely, disagree mostly, neither agree nor disagree, agree mostly and agree completely."

On September 26, 2012, we sent an email to 996 AERE members with a link to an internet survey using SurveyMonkey. After a reminder email on October 8th and another on October 23rd we received 405 responses, of which 352 were complete.[3] After deleting 19 bounced email addresses, our response rate is 41% and completion rate is 36%.[4] These rates are about at the upper bound of similar economist surveys.

About the Respondents

In terms of political views, thirty percent of the respondents describe their political views as "moderately liberal," 28% are "somewhat liberal," and 12% are very liberal. Eighteen percent describe themselves as "moderate" and 12% are "very conservative," "somewhat conservative," or "moderately conservative." Twenty-five percent of the sample has worked between 1 and 5 years as an environmental or natural resource economist. Twenty-four percent has worked between 6 and 10 years, 17% between 11 and 15 years, 9% between 16 and 20 years, 7% between 20 and 25 years and 12% has worked for more than 25 years. About 5% of the sample has not worked as an environmental or natural resource economist or is a student. In terms of work activities 98% of the working sample engages in research, 73% teach, 32% perform conduct policy, 23% are administrators and 6% engage in extension.

Eighty-five percent of the sample reports that their field of study from Journal of Economic Literature classification codes is environmental economics (Q5), 43% has a field of renewable resources and conservation (Q2), 30% are energy economists (Q4), 22% are agricultural economists (Q1), 16% have a field in nonrenewable resources and conservation (Q3) and 14% report their field as general (Q0).

Seventy-eight percent of the sample works at an academic institution, 14% work for government and 8% work in the private sector. Of those who work at an academic institution, 48% are at institutions with more than 20,000 students, 25% are at institutions with between 10,000 and 20,000 students, 15% are at institutions with between 3000 and 10,000 students and 12% are at institutions with less than 3000 students.

[2] We thank Jill Caviglia-Harris, Paul Chambers, Chris Dumas, Sherry Larkin, Lynne Lewis, Shelley Norman, George Parsons, Dan Petrolia, Peter Schwarz and Will Wheeler for their reviews of the survey.

[3] We especially thank those AERE members who completed the survey!

[4] We offered a chance at a $50 Amazon.com gift card to each survey respondent as an incentive. One-hundred ninety three respondents registered for the sweepstakes.

Seventy percent of the respondents work in a department that offers the PhD degree, 14% offer masters degrees and 16% only offer bachelor's degrees. Twenty five percent of these departments are in agricultural colleges, 24% are in business schools, 19% are in colleges of arts and sciences, 17% are in colleges or social sciences and 15% are in colleges of environment and/or natural resources.

Seventy-two percent of the sample is male and 87% is white. Forty-two percent are between the ages of 30 and 39, 23% are in their fifties, 21% are in their forties, 9 percent are in their twenties and 6% are 60 or older. Eight-six percent of the sample have the doctoral degree.

Results

For each statement we have summed the percentage that agree and disagree to some extent. To summarize the results we report the largest percentage response among agree, disagree and neither agree nor disagree. As described above, the questions were presented in random order amongst nine randomly ordered pages. Our presentation generally follows the construction of the pages except where clear patterns exist.

Market Failures

A group of three questions presented statements that typically appear in a market failure section of the principles of microeconomics course: negative externalities, public goods and common pool resources. Seventy-eight percent of respondents disagree with the statement: "Unregulated markets provide optimal quantities of goods whose production and consumption generate negative externalities." Almost all, 96%, respondents disagreed with the public goods statement "Unregulated markets provide public goods in optimal quantities." Eighty-six percent agree that "Unregulated common-pool resources face the 'tragedy of the commons' problem." Included on another page was a statement that embraced "free market environmentalism." Sixty percent disagreed that "The free market, property rights, and tort law provide the best tools to preserve the health and sustainability of the environment." In all, survey respondents feel that market outcomes are inefficient when confronted with inadequate property rights.

One of the major contributions of the field of environmental economics is incentive-based regulatory policy in response to the purported inefficiency of command and control regulation. One group of statements addressed these issues. Surprisingly to us, only 56% agree that "emissions standards are rigid, and insensitive to geographical and technological differences." Nevertheless, 86% agree that "emissions taxes or marketable emissions permits are a more economically efficient approach to pollution control than emissions standards." Recall, 82% of the Fuller and Geide-Stevenson (2003) AEA sample agree with this statement. There is little agreement about the macroeconomic policy of incentive-based policy revenue. Forty-nine percent agree that "emissions tax or permit auction revenues should be returned to the public through dividends or lower income taxes." Forty-seven percent of respondents have no opinion ("neither agree nor disagree") with the statement "emissions tax or permit auction revenues should be used to reduce the national debt."

Renewable Natural Resources

Two sets of questions concerned renewable resource use. One group considered some of the basic tenets of forestry economics. The greatest agreement among respondents, 83%, was with the statement: "forests should be managed to provide multiple uses." Two statements reinforce the principle of multiple use management. Sixty-four percent agree that "the optimal forest rotation is when the harvest generates the maximum economic yield of timber and nonmarket resources" while 63% disagree with the statement that "forests should be managed to achieve the maximum sustainable yield of timber resources." These results suggest that AERE survey respondents feel that nonmarket economic values are important, in addition to market values.

The second group of renewable resource questions concerned fishery economics. No clear agreement arose concerning the appropriate management goals. Fifty-five percent disagree that "ocean fisheries should be managed to achieve the maximum sustainable yield from commercial catch" while 46% agree that "ocean fisheries should be managed to achieve the maximum economic yield from commercial and recreational catch." In contrast, a property rights approach to fisheries management is preferred by most. Eighty-seven agree that "individual transferable quotas are a more economically efficient approach to fishery regulation than open access regulations."

Our coverage of nonrenewable resource economics was limited to two questions. In response to our statement of Hotelling's Rule, 36% disagreed that "nonrenewable resource prices tend to rise at the rate of interest over time (adjusted for new discoveries, etc)." Eighty-four

percent agree that "the U.S. should increase energy taxes."

Economic Growth and Sustainability

A number of questions concerned economic growth and sustainability. In response to the sustainable development statement developed by the Bruntlandt Commission, "the management of resource use should aim to meet the needs of the present generation without compromising the ability of future generations to meet their own needs," 83% agree. There is less agreement about other statements concerning economic growth. Seventy-eight percent disagree that "economic growth always harms the environment." Seventy-five percent disagree that "some pollution is inevitable if we are going to continue to make improvements in our standard of living." Forty-eight percent agree that "there exists a maximum level of economic growth that can be sustained without undermining the resource base upon which it depends." Forty-six percent agree that "economic growth is needed in order to protect the environment." Only 40% agree that "population growth inevitably degrades the environment." One conclusion from these results is that there is little support for sustainable development that does not involve economic growth.

Other Topics

We presented the two environmental policy statements from the Whaples (2009) survey. Sixty-two percent of the AERE sample disagrees that "the U.S. should ban genetically modified crops." This is lower than the AEA sample where 82% disagree. About the same number, 66% compared to 58%, disagree that "laws mandating municipal curbside recycling should be eliminated." In contrast, 56% of the AERE sample agrees that "local governments should provide more incentives for people to recycle." The other environmental question from the Fuller and Geide-Stevenson (2003) survey of AEA members was included. Eighty percent disagree with the statement: "reducing the regulatory power of the Environmental Protection Agency (EPA) would improve the economic efficiency of the U.S. economy." Only 59% of the AEA sample disagreed.

Several questions addressed the role of environmental policy in the macroeconomy. Eight-eight percent disagree that "we should wait until the economy gets better before we make the environment a major policy priority." Eighty-four percent disagree that "we worry too much about the future of the environment and not enough about prices and jobs today." Seventy-three percent disagree that "if business is forced to spend a lot of money on environmental protection, it won't be able to invest in research and development to keep us competitive in the international market." Our sample of AERE members evidently does not feel that environmental policy is a drag on macroeconomic performance.

Two questions were especially troublesome where the most common response was ambivalence. Forty-five percent could neither agree nor disagree with "discussion of pollution in trade negotiations is likely to lead to 'green protectionism' by high-income countries." Fifty-eight percent could neither agree nor disagree with "a manufacturer that voluntarily reduces the environmental impact of its production process and products is making a smart business decision."

Several questions ventured outside the realm of positive and normative economic principles and considered environmental behavior. Sixty-three percent disagree with "I just don't have the time to worry about how all of my actions affect the environment." Forty-three percent agree with "I would be embarrassed if people I know caught me not recycling my trash." Ninety percent disagree with "I am very confused about what's good and what's bad for the environment." Eighty-six percent agree with "I feel good when I take steps to help the environment." Forty-seven percent disagree that "New technologies will surely come along to solve environmental problems before they get out of hand." These results suggest that AERE members are good environmental stewards, or, at least, attempt to be adequate stewards with a feeling of personal responsibility.

Conclusions and Future Research

In this essay we have presented some preliminary results from a survey of AERE members. Ultimately, we hope these results will encourage discussion between academics, policy makers and the general public. Understanding how environmental and resource economists feel about these issues could help avoid misperceptions in the media and in political debates.

Our future analysis will consider entropy analysis to determine issues where there is consensus and multivariate analysis of the determinants of opinions. The literature suggests that ideology, gender and research might play a role. We will also consider issues of environmental concern and perceptions of worsening and improving environmental quality. We also have information on differences between survey respondents

and nonrespondents over several key variables (e.g., Google Scholar scores, gender, age, employment type, country of residence). Further analysis will also consider nonresponse and sample selection bias.

These results could help to improve classroom teaching of environmental and resource economics. During the spring 2013 semester we explored use of the survey as a classroom discussion tool in two undergraduate classes. A comparison of survey results between students and AERE members sparked some interesting classroom discussions. Comparison of survey results at the beginning and the end of the semester shows how the course changes student thinking. We hope to provide the survey to a larger number of participating professors in the 2013-14 academic year. Contact the authors if you would like to participate in this effort.

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ESSAY

Valuing Ecosystem Services Using Stated Preference Methods: Challenges and Practical Solutions

Heather Hosterman, Megan Lawson, Colleen Donovan, David Chapman, Richard Bishop
Stratus Consulting

Introduction

In June 2012, the National Oceanic and Atmospheric Administration's (NOAA's) Offices of Habitat Conservation and Response and Restoration and Stratus Consulting convened a workshop focused on valuing ecosystem services. A small group of researchers gathered for a one and a half day workshop to discuss past and present challenges involved with developing and conducting ecosystem service valuation studies using stated preference methods. A list of the participants can be found in the appendix of this essay. The overarching goal of the workshop was to develop information on lessons learned and best practices to inform development of ecosystem valuation study of the Elwha River in western Washington State.

This essay describes the findings of this workshop. We first discuss the conceptual frameworks presented at the workshop and then provide a synopsis of the specific case studies presented, including a summary of the main themes from the case studies. We close with a discussion on the lessons learned based on the empirical evidence presented at the workshop.

Where We Are Now

A number of published studies have sought to identify ecosystem services and measure how actions (e.g. protection, restoration, and management) translate into changes in the benefits provided by these services. A review of 70 of these studies found that there is no standard conceptual framework to guide ecosystem valuation studies (Boyd and Krupnick, 2009). Two theoretical frameworks, Boyd and Krupnick and the Millennium Ecosystem Assessment, have evolved as approaches that focus on valuing ecological systems as whole rather than individual components.

Boyd and Krupnick Conceptual Framework

Boyd and Krupnick (2009) proposed a conceptual framework with the goal of decomposing complex ecosystem processes (e.g. wetland hydrologic processes) and clearly distinguishing them from ecological endpoints (what people value, e.g. fish catch). The decomposition of these processes and endpoints explicitly references the larger ecological system, which allows for a clear understanding of production linkages involved in getting from ecosystems to endpoints.

Millennium Ecosystem Assessment Conceptual Framework

The Millennium Ecosystem Assessment (MEA; 2005) provided another framework to evaluate the effect of ecosystem change on human well-being. MEA uses the valuation of ecosystem services as a tool to assess tradeoffs between ecosystem management options and social actions that alter ecosystems and their services. Ecosystem valuation should be combined with notions of intrinsic value and other societal objectives, such as equity between different groups or generations, when making management decisions. In addition, the interactions between human well-being and ecosystems occur at different temporal and spatial scales, and assessments must be conducted at the appropriate scale.
These theoretical frameworks were applied in varying degree to the ecosystem valuation case studies presented at the workshop and described below.

Ecosystem Valuation Case Studies

Eight empirical ecosystem valuation case studies were presented at the workshop. These case studies reflected recent research in various stages of design, implementation, and analysis. Below is a brief summary of each of the case studies, all of which were designed as choice experiments. The survey instruments for these case studies can be found at http://stratusconsulting.com/2013/03/valuing-ecosystem-services. Following these summaries, Table 1 provides additional details on each case study instrument and Table 2 summarizes the ecological endpoints, the method for communicating ecological change, the level of ecosystem function, and the conceptual framework applied to each study.

Klamath River Basin Restoration (Klamath River): This study, presented by George Van Houtven of RTI

International, estimated the value of restoring the Klamath River Basin in northern California and southern Oregon. The Klamath River has been the subject of many years of conflict over hydroelectricity production, salmonid and endangered species management, and water sharing for agricultural uses. These conflicts have recently been resolved with formal agreements among stakeholders. This study was designed to estimate the total value of the environmental benefits resulting from these agreements, which could then inform the Secretary of the Interior's decision as to whether the agreements are in the public interest. For additional information about this case study, see Mansfield et al., 2012.

Rhode Island Pawtuxet Watershed Restoration (Pawtuxet Watershed): This study, which was presented by Robert Johnston of Clark University, estimated the value of restoring migratory fish passage in Rhode Island's Pawtuxet Watershed. Twenty-two dams blocked fish passage in this watershed. Restoration can increase fish passage to some (225 to 900 acres) of the 4,347 acres of historical but currently inaccessible habitat, with ancillary benefits for ecosystem services that rely on fish migration. This study was particularly innovative in its use of a multi-metric index that is widely used in ecology (i.e. an Index of Biotic Integrity or IBI) to characterize the overall condition of the ecosystem. For additional information about this case study, see Johnston et al., 2011, 2012.

U.S. Environmental Protection Agency 316(b) study (EPA Cooling Water Intakes): Erik Helm of USEPA presented a study that estimated the value of a reduction in fish losses at cooling water intake structures. It was conducted as part of the EPA's Final 316(b) Existing Facilities Rulemaking. Five versions of this survey were conducted (four regional and one national). Similar to Pawtuxet watershed study, this survey included a multi-metric index to characterize ecosystem condition. For additional information about this case study, see Helm, 2012.

Chesapeake Bay Restoration (Chesapeake Bay): The recently implemented Chesapeake Bay Total Maximum Daily Load (TMDL) identified necessary pollution reductions of nitrogen, phosphorus and sediment across the District of Columbia and parts of Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia. Pollution limits are set for the Bay and upstream rivers and streams. This study, presented by Alan Krupnick of Resources for the Future, will estimate the value of improving water quality, wildlife habitat, and recreation through implementation of the TMDL. Two versions of the survey have been developed to test a final good approach against an intermediate good approach: (1) an input survey with intermediate and final endpoints and (2) an output survey with only final endpoints. This study will compare results from the input survey and output survey. At the time of this workshop, this study was in the qualitative research phase.

Santa Cruz Restoration (Santa Cruz River): Matt Weber of the USEPA presented a case study on the Santa Cruz River in southern Arizona. The study was designed to improve the understanding of how to communicate and elicit the values of final ecosystem services. The survey presented was a side project of a separate, qualitative study, which will compare the full set of ecosystem services of the Santa Cruz River with a very different river, the Willamette River in western Oregon. The Santa Cruz is in an arid region, and most of the in-stream flows come from water treatment effluent. The Willamette River, where qualitative data collection is in progress, is perennial and in a rainy region. This presentation focused on the qualitative research process for developing the Santa Cruz River Restoration survey.

Puget Sound Eelgrass Restoration (Marine Community Interactions): The Puget Sound Eelgrass Project is a joint effort of natural and social scientists to conduct research promoting the restoration of Puget Sound. The research, presented by Mark Plummer of NOAA, addresses the question of how eelgrass coverage affects the overall structure and services of the ecosystem, as well as how eelgrass restoration will affect the larger community. To do this, the research team developed a detailed food web model showing the direct and indirect links among the biological components of the ecosystem. The team is incorporating economic data and modeling to link the biological components to ecological endpoints and, subsequently, ecosystem service values. Ecosystem service values are being estimated using several methods. For example, changes in commercial harvests of fish are measured using market values, changes in recreational fishing are measured using non-market valuation, and changes to endangered species are measured using existence values.

Payments for Ecosystem Services on California Rangeland (California Rangeland): This study, presented by Frank Casey of USGS, estimated California ranchers' willingness to accept payments to alter management practices for the purpose of providing ecosystem services. The survey was innovative in that it asked those on the supply side of ecosystem services about what payments they are willing to accept to alter management practices for the purpose of providing ecosystem services (including additional wildlife habitat, improved water quality, increased carbon storage, and

restoration of native plants). For additional information about this case study, see Cheatum et al., 2011.

Elwha River Restoration Study (Elwha River): This study, presented by David Chapman and Rich Bishop, of Stratus Consulting, is being designed to estimate the value of restoring the Elwha River ecosystem after the removal of two dams. The Elwha River is in western Washington State, and lies mostly within Olympic National Park. The dams, which were constructed in the early Twentieth Century, had been blocking the passage of salmon runs, inundating 800 acres of important wildlife habitat, and disrupting many other natural processes. At the time of the workshop, one dam had been removed and the other was scheduled for removal by summer 2013. Scientists predict that removing the dams will allow salmon runs to slowly return to the river, and allow native forests to eventually regrow at the former reservoir sites. The survey is being designed to estimate the values people place on ecosystem services from return of anadromous fish runs and restoration of native forests after dam removal. At the time of the workshop, this study was nearing the end of its qualitative research phase.

Table 1. Comparison of choice experiment survey instruments

Survey topic	Survey mode	Sample size	Payment vehicle	Payment Period	Qualitative research
Klamath River	Mail-out survey, with follow up through web-based survey	3,300	Taxes and utility bills	20-years	FG; SM; CI
Pawtuxet Watershed	Mixed mode – dual telephone and mail-out survey	6,000	Taxes and fees	Per year; unclear length of payment period	FG; SM; CI
EPA Cooling Water Intakes	Mail-out survey	2,288	Cost of household living	Per year; unclear length of payment period	FG; SM; CI
Chesapeake Bay	Mail-out and web-based survey (likely)	2,000 (likely)	Cost of household living	Permanent, yearly cost	FG; CI
Santa Cruz River	Mail-out survey	To be determined	Wastewater portion of water bills	Permanent, yearly cost	FG; CI
Marine Community Interactions	Mail-out survey	8,000	Fishing costs, defined as bait, ice, tackle, boat fuel, etc.	Daily fishing cost (per person per day)	FG; CI
California Rangeland	Mail-out and web-based survey	400	Payment for enrolling land in conservation program	Per year for length of contract (choice of 5-, 15-, and 30-year contracts).	FG
Elwha River	Mail-out survey (likely)	To be determined	Electricity bills	1-year	FG; SM; CI

CI = Cognitive Interviews; FG = Focus Groups; SM = Stakeholder Meetings.

Table 2. Overview of choice experiment survey studies

Topic and presenter	Ecological endpoints	Communicated change method	Level of ecosystem function	Conceptual framework
Klamath River	▸ Percent increase in wild salmonid populations ▸ Extinction risk for suckers and coho salmon ▸ River and lake water quality ▸ Free-flowing river condition	Comparison of values for each of the attributes (shown with text, graphs, and pictures) at baseline (current condition) and after implementation of policy.	Bundles of ecosystem resources; discrete ecosystem components	MEA, 2005; Boyd and Krupnick, 2009
Pawtuxet Watershed	▸ Fish habitat ▸ Population survival score ▸ Catchable fish abundance or water clarity (depending on the survey version) ▸ Fish-dependent wildlife ▸ Aquatic ecological condition score (IBI) ▸ Public access	Comparison of values for each of the attributes (shown with text and icons) at baseline (current condition) and after implementation of policy. Uses both relative (large, bold font) and cardinal numbers (small font).	Discrete ecosystem components	Other
EPA Cooling Water Intakes	▸ Number of fish saved ▸ Commercial fish population change ▸ Change in the population of all fish ▸ Aquatic ecological condition score (IBI)	Comparison of values for each of the attributes (shown with text and icons) at baseline (current condition) and after implementation of policy. Uses both relative (large, bold font) and cardinal numbers (small font).	Discrete ecosystem components	Other

Table 2. Comparison of survey instruments (cont.)

Topic and presenter	Ecological endpoints and other attributes	Communicated change method	Level of ecosystem function	Conceptual framework
Chesapeake Bay	Input survey with final and intermediate services: ▸ Dissolved oxygen in the bay ▸ Water clarity in the bay ▸ Aquatic grasses in the bay ▸ Lake condition (i.e., color, visibility, fish type) Output survey with final services: ▸ Water clarity in the bay ▸ Blue crab population in the bay ▸ Tons of oysters in the bay ▸ Average lake condition (i.e., color, visibility, fish type)	Comparison of values for each of the attributes at baseline (current condition) and after implementation of policy. Uses both relative (small font) and cardinal numbers (large, bold font).	Whole ecosystem function; discrete ecosystem components	Boyd and Krupnick, 2009
Santa Cruz River	▸ Wet river habitat ▸ Irrigated forest ▸ Multi-use path ▸ Garbage removal ▸ Swimming safety (under revision based on continuing qualitative research)	Comparison of values for each of the attributes at baseline (current condition) and after implementation of policy. Uses photographs to convey before and after policy implementation.	Bundles of ecosystem resources; discrete ecosystem components	Boyd and Krupnick, 2009
Marine community interactions	▸ Fish and other species biomass	N/A	Bundles of ecosystem resources; discrete ecosystem components	MEA, 2005; Boyd and Krupnick, 2009
California Rangeland	▸ Carbon storage ▸ Water quality ▸ Wildlife habitat ▸ Restoration of native plants	Comparison of values for each of the attributes at baseline (with no program) and after implementation of the program.	Discrete ecosystem components	Boyd and Krupnick, 2009
Elwha River	▸ Salmon population (keystone species) ▸ Recovery of riparian ecosystem ▸ Recovery of native forest at old reservoir sites	Comparison of length of time to return attributes at baseline (current condition) to historical levels after policy implementation. Uses both relative and cardinal numbers in same font.	Discrete ecosystem components	Boyd and Krupnick, 2009

Overall, the case studies focused on a number of different ecological endpoints, attributes, and natural resource commodities, including increased carbon storage, fish biomass, risk of wild salmon extinction, water clarity, riparian forests, and populations of anadromous fish and blue crab. Most of the studies attempted to value discrete ecosystem components (e.g., water clarity in feet or aquatic grasses in acres); however, a few of the studies bundled ecological resources (e.g., condition of aquatic ecosystems through an Index of Biotic Integrity) or the whole ecosystem function. The studies also used different types of conceptual frameworks, including the Boyd and Krupnick (2009) framework, the MEA (2005) framework, or frameworks designed specifically for their study.

Main Themes from the Ecosystem Valuation Case Studies

Five themes emanated from the workshop case studies: the use of metrics; choosing how to describe ecosystem conditions; describing substitutes, complements, and scarcity of resources; choosing a payment vehicle; and dealing with policy constraints. Each of these themes is explored below.

Use of metrics

Metrics (also referred to as indices or indicators) can be used in ecosystem valuation surveys to convey losses from injuries to ecosystems or gains from restoration efforts. The use of appropriate metrics is complicated and often involves a tradeoff between the complex ecology underlying the metric and simplified version that can be easily understood by the survey respondent.

The use of metrics in valuation surveys has come a long way. Metrics are now more grounded in ecology and science than they have been in the past. In the Rhode Island Pawtuxet Watershed case study, for instance, a multi-metric index for aquatic ecological condition that is widely used in ecology (i.e. an IBI) was used to convey ecological information to the respondents. Nevertheless, there remain some uncertainties about the use of metrics. In particular, it is unclear how survey respondents understand these metrics. Debrief questions that verify comprehension of the metrics could improve the understanding of how these metrics are interpreted by respondents.

Johnston et al. (2012) developed five guidelines for using metrics or indicators in stated preference valuation:

1. Indicators should be empirically precise and measurable according to standards of ecological research

2. Understanding the quantitative basis and general implications of indicators, including units, definitions, and baselines, should be shared by respondents and scientists

3. Indicators should be ecologically and economically relevant, as demonstrated by conceptual models that coordinate ecological and economic systems

4. Indicators should furnish a comprehensive depiction of primary, welfare-relevant ecological outcomes

5. Scenarios must be defined in terms of ecosystem outcomes that have a direct (final) effect on a utility.

Choosing how to describe ecosystem conditions

Once suitable metrics have been determined, the next step is to decide how best to describe them in a survey. Some researchers have found that using both relative and cardinal values help to ensure that respondents understand the conditions of the ecosystem in question under various futures. For instance, the Pawtuxet Watershed, EPA Cooling Water Intakes, and Chesapeake Bay studies conveyed the ecological attributes with a relative score that represents the percentage of progress toward the reference condition (i.e., 25% of fish saved per year through the EPA policy) and a cardinal number for the relative score (i.e., 0.7 billion fish saved per year through the EPA policy). These studies presented relative scores and cardinal numbers in varying fonts and bold type, and ordered them according to relative versus cardinal numbers for clarity. These visual differences may help respondents better understand the ecosystem conditions. However, these differences may also signify different levels of importance in the material based on what is bolded or italicized, which could result in biases.

In the Elwha River case study, one issue was how to convey salmon recovery. Restoring fish to levels in effect before the dams went in will not possible because of (1) changes to the habitat, only some of which can be reversed to return the habitat to its previous condition; and (2) recreational and commercial fishing that would put pressure on Elwha River salmon once they left the river for salt water. The researchers debated whether to describe the fish populations relative to historical levels of fish returning to the Elwha River (approximately 300,000 fish per year) or the number of fish that could

return to the river given current constraints (approximately 120,000 fish). The main concern was balancing the ecological integrity of the survey information with the respondents' ability to understand the information presented.

Potential areas of research include studies that provide insight on how people understand information with different font sizes and bolded text, and whether the ordering of the information (e.g., relative score versus cardinal number presented first) matters. In addition, when restoration to historical conditions cannot be achieved for technical reasons, it is important to understand how this can be effectively conveyed this to survey respondents.

Describing substitutes, complements, and scarcity of resources

Describing substitutes, complements, and scarcity of resources is an important feature of ecosystem valuation. The stated values of an ecological endpoint may change based on its spatial scarcity, its abundance, its spatial substitutes, or complementary ecosystem services. Historically, few studies explicitly reference the substitutes and complements of the affected resource (Boyd and Krupnick, 2009). Putting substitutes, complements, and scarcity of resources into a format that people will understand, while challenging, helps respondents to accurately consider the broader context in which ecosystem services are being provided.

For example, in the EPA Cooling Water Intakes case study, survey respondents were told that the cooling water used by industrial facilities, including factories and power plants, is not the only source of fish loss, and that commercial and recreational fishing and natural processes cause additional losses. Commercial and recreational fishing was used as a substitute for fish loss from cooling water.

Choosing a payment vehicle

A payment vehicle – the mechanism by which a respondent would pay for the change in provision of the ecological good or service – should be appropriate for the ecological services being valued. A large variety of payment vehicles were used in the workshop case studies presented (e.g., taxes, electricity bills, fish bait, general cost of living). In order to be effective, payment vehicles should be adequately specific and realistic.

In some instances, problems could arise if respondents believe they can avoid paying. For instance, respondents may think they can get around gasoline price increases by driving less. Therefore, it is worth exploring what people actually think they will pay when they agree to a program described in a valuation study. Asking debriefing questions after respondents vote on the program, such as "When you voted, did you think you would pay the same, more, or less than the stated amount?", followed by a question asking them to explain their answer, can help provide insights into how respondents interpret the payment vehicle.

In some regions, it is difficult to find a realistic payment vehicle. The Elwha River case study is a regional study focused in Washington and Oregon. Because there is no sales tax in Oregon and no income tax in Washington, a payment vehicle through taxes will not be feasible. Ultimately, an electricity surcharge is being proposed as the study's payment vehicle. The way the electricity surcharge was described was important, but the most recent form was acceptable to many focus group and cognitive interview participants, since the dams being removed were hydroelectric facilities.

Dealing with policy constraints

Ecosystem valuation studies are often limited by policy constraints. Researchers seeking to do applied studies must tailor their scenarios to real policy issues and how they do this may affect results. In addition, approval of the survey by the Office of Management and Budget (OMB) under the Paperwork Reduction Act can restrict many aspects of study design; five of the eight case studies required OMB approval. There were difficulties in obtaining OMB approval for some of these studies. For instance, some researchers could not provide incentives, e.g. two-dollar bills with the survey, in follow-up mail surveys (a common practice in survey design), because the public might complain about wasted funds.

Workshop Lessons Learned

The workshop resulted in four lessons learned. Researchers should: integrate valuation studies with good science, know their audience and stakeholders, report qualitative research, and design studies with benefits transfer in mind.

Integrating valuation studies with good science

Integration of economics with ecology is necessary in valuing ecological goods and services. Ecological models and data are necessary for adequately describing changes in ecosystem services. These changes are then

defined and valued through economic methods. Sound ecological and economic methods are critical to ensuring a study's validity.

Therefore, scientists (e.g. ecologists, hydrologists) should play a central role in the design and implementation of valuation studies. This role may vary across studies. Scientists may be closely involved in the study, including observing focus groups to understand how respondents are interpreting ecological information and being team members in the study design and implementation. They can also check the validity of the scenario, including verifying facts and figures. In cases of uncertain science, scientists may be able to put bounds on the changes in ecosystem services under the different scenarios.

Knowing the audience and stakeholders

It is important for the researchers' to know their audience and conduct stakeholder outreach as part of designing and implementing ecosystem valuation studies. This includes both the respondents participating in the study and those impacted by some aspect of the study, and may include ranchers or farmers, conservation organizations, tribal members, and governmental organizations. It is often valuable to receive local knowledge from stakeholders and the intended audience on environmental or institutional arrangements as well as input on the survey design and implementation.

Knowing the audience was a key component of the California ranchland case study, in which an introductory letter from an organization considered respected by ranchers helped the survey obtain a higher response rate. This is also critical when working with tribes. The Klamath River study involved tribe members in discussions of survey design, and asked them to review the work. The Elwha River study plans to involve a tribal component in qualitative research and, perhaps, in a valuation survey similar to that administered to general public survey. Taking into consideration the tribe's decision-making structure, the Elwha team is considering a workshop with leaders and elders to obtain qualitative information about the subject matter and how to design and implement a tribal version of the Elwha River survey.

Reporting qualitative research

The qualitative research phase of ecological valuation studies has been refined over the years, and study teams tend to learn much during this phase of a project. This research, however, is rarely made available through research reports or publications, which is a result of researchers not wanting to share failures and the lack of outlets for qualitative research. It is critical to share the results of the qualitative research phase of valuation studies through public sources, including appendices of research reports, qualitative research journals, and newsletters.

Designing studies for benefits transfer

There is growing interest in designing ecosystem service valuation surveys in such a way that the values can be transferred to other settings. Such benefit transfers can significantly reduce costs and the time associated with valuation studies that inform policy. To date, however, ecosystem service valuation studies are often too heterogeneous to allow for benefit transfers. There are a number of ways, however, to improve valuation studies to increase transferability of results to other studies. For example, valuation studies that provide ancillary material that describes issues of transferability (i.e., definitions of commodities and a description of the study site) can help researchers to discern whether the results from one study can be transferred to another study. Protocols can also be developed to facilitate benefits transfers.

Conclusions

This workshop successfully accomplished the goals set by NOAA and Stratus Consulting. Workshop participants provided valuable insight into the challenges of developing and conducting ecosystem valuation research. While ecosystem service valuation has evolved, additional empirical examples are critical in further advancing this field. Empirical evidence can advance a systems-based approach to valuation and, when reported, lessons learned can improve the design and implementation of future studies. The field can also progress through systematic studies that evaluate respondents' understanding of metrics and how to describe ecosystem conditions, and assess how to structure willingness to pay questions appropriately given the knowledge level of respondents. The workshop culminated in a set of recommendations for future ecosystem valuation research: integrate valuation studies with good science, know your audience and stakeholders, report qualitative research, and design studies for benefit transfer. From this workshop, it is clear that bringing ecosystem service valuation researchers together to discuss lessons learned will continue to advance this field.

Appendix – Workshop Participants

Seven representatives and 10 Elwha team members actively participated in the workshop, and are listed below with their affiliations.

- Workshop participants
  - Frank Casey, U.S. Geological Survey
  - Erik Helm, U.S. Environmental Protection Agency
  - George Van Houtven, RTI International
  - Robert Johnston, Clark University
  - Alan Krupnick, Resources for the Future
  - Mark Plummer, National Oceanic and Atmospheric Administration Conservation Biology Division
  - Matthew Weber, U.S. Environmental Protection Agency
- Elwha team
  - Anthony Dvarskas, National Oceanic and Atmospheric Administration Office of Response and Restoration
  - Peter Edwards, National Oceanic and Atmospheric Administration Office of Habitat Conservation
  - Richard Bishop, University of Wisconsin
  - Jim Boyd, Resources for the Future
  - John Duffield, University of Montana
  - John Loomis, Colorado State University
  - David Chapman, Stratus Consulting
  - Megan Lawson, Stratus Consulting
  - Colleen Donovan, Stratus Consulting
  - Heather Hosterman, Stratus Consulting

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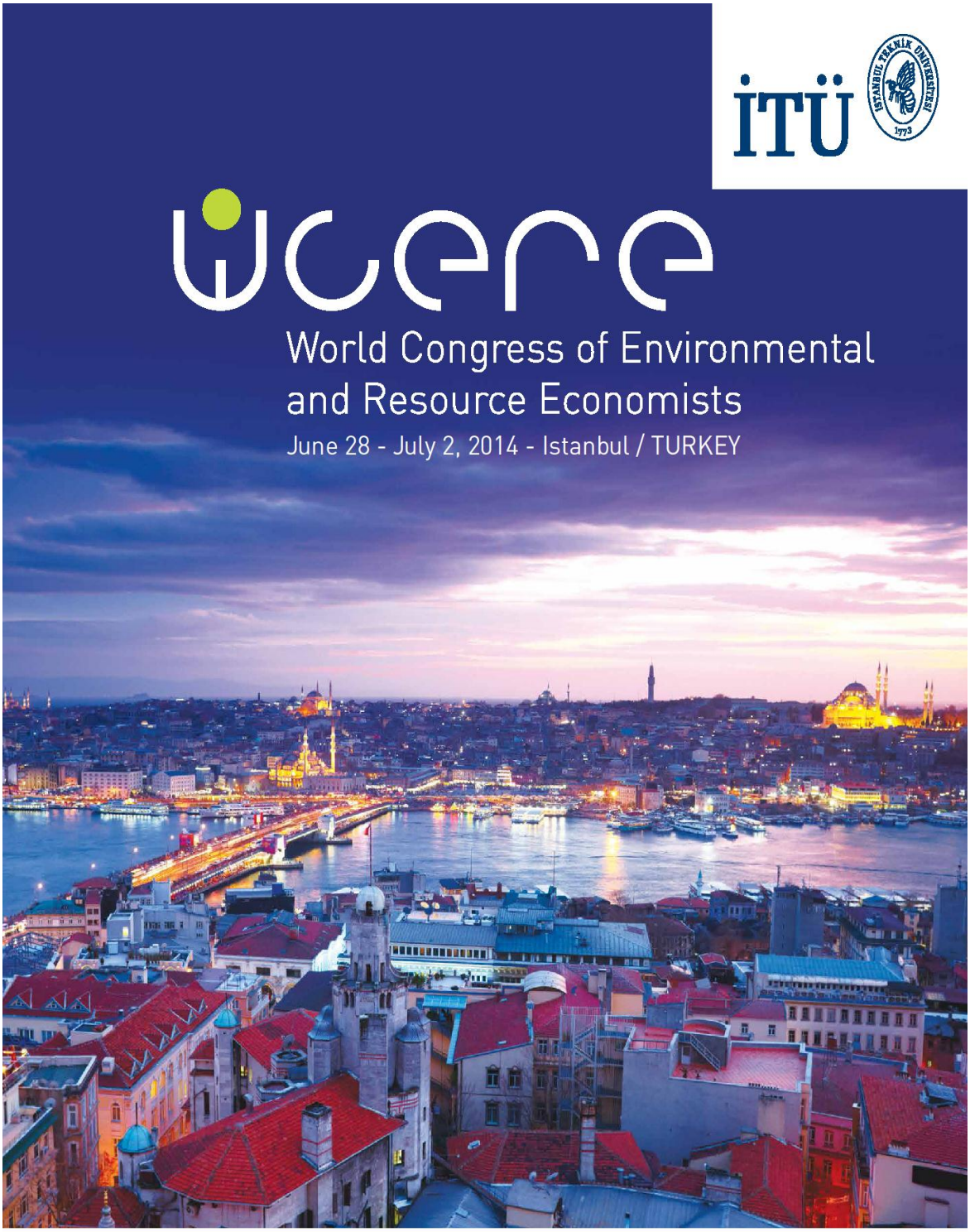

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Assistant/Associate Professor, Natural Resource and Policy Economics

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Qualifications: Ph.D. in natural resource economics, economics or agricultural economics. Preference will be given to candidates with economic expertise and technical experience in conducting and implementing research in one or more of the following areas: economic analyses of water management institutions and alternatives, natural resources valuation, and economic impact analysis of water and natural resource policy alternatives. Demonstrated communication skills, research leadership, ability to work as a team member and success in generating external funding support are important qualifications.

Administrative Relationships: This position reports to the Resident Director of the El Paso Texas A&M AgriLife Research and Extension Center who will conduct an annual performance review jointly with the Head of the Department of Agricultural Economics, Texas A&M University. Promotion decisions are the joint responsibility of the Resident Director, Department Head, Director of Texas A&M AgriLife Research and the Vice Chancellor of Agriculture.

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Dr. Ari M. Michelsen
Chair, Faculty Search Committee
Texas A&M AgriLife Research and Extension Center at El Paso
Texas A&M University
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Water quality, quantity, allocation, conservation and management, and use at local, national, or global scales are largely influenced by the design, implementation, and success of policy decisions. We are seeking applicants for a 9-month, tenure-track research and teaching position in Water Resource Policy as part of a cluster hire of seven new faculty positions at Virginia Tech.

Responsibilities: Teach undergraduate- and graduate-level course(s) in water and natural resource policy; support graduate students and research programs with external grants and contracts; advise undergraduate students and supervise graduate students; actively collaborate with other water resource experts on campus; conduct innovative research relating to water resource challenges leading to significant and peer-reviewed publications; participate in department, college, and university service and governance.

Qualifications: Required: Ph.D. with strong disciplinary focus in economics, political science, or legal aspects of water or related areas
Preferred: Interest and experience in exploring water conservation and management challenges, valuation, transboundary issues, climate change, water-energy nexus, and policy analysis

Salary: Commensurate with education and experience

Starting Date: Negotiable, with a target of August, 2013

Application Procedure: Online application is required.
http://www.hr.vt.edu/employment/
Search for Posting Number TR0122527.
Requests for confidentiality will be respected.
Review of applications will begin on or about March 20, 2013, and continue until a suitable applicant is selected.

For additional information about this position, please contact:
Dr. Greg Amacher, Search Committee Co-Chair
Department of Forest Resources and Environmental Conservation
Virginia Tech
540- 231-5943
gamacher@vt.edu

Virginia Tech has a strong commitment to the principle of diversity and, in that spirit, seeks a broad spectrum of candidates, including women, minorities, and people with disabilities. Individuals with disabilities desiring accommodations in the application process should notify Janaki Alavalapati, Department Head (540-231-5483 Voice/1-800-828-1120 VTRS), by the application deadline.

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Career Information for Environmental Economists from the Department of Agricultural Economics, Michigan State University

- **LINK TO JOBS**
- **http://www.aere.org/jobs/**

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