



**50th Anniversary of the Clean Water Act:  
The Role of Environmental Economics in Improving Regulatory Analysis**

**Hall of the States – Washington, D.C.  
September 7-9, 2022**

**September 7, 2022**

<b>5:30 pm to 8:00 pm</b>	Gathering Reception: heavy hors d'oeuvres and beverages Room 285, Hall of the States
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**September 8, 2022**

<b>8:00 am to 9:00 am</b>	<b>Breakfast</b> Rooms 383-385, Hall of the States
<b>9:00 am to 9:30 am</b>	<b>Welcome and Motivation for Symposium (Cathy Kling)</b> Rooms 383-385, Hall of the States <i>Economists at the US EPA have led and enabled the development of nonmarket valuation methods to support regulatory and policy decisions since the early days of the Clean Water Act. The goal of this daylong workshop is to highlight EPA's historical and continuing leadership role in the evolution of stated preference (SP) methods from their nascent beginnings to their currently mature option in the nonmarket valuation (NMV) toolkit. Primary focus will be on current and evolving regulatory needs and the role that SP can play in informing actions related to environmental justice, emerging water quality concerns, and legacy water pollution problems for which adequate valuation estimates still do not exist.</i>
<b>9:30 am to 10:30 am</b>	<b>Morning Speakers</b> (Moderator: Cathy Kling)  <b>Maureen Cropper:</b> Historical Perspective on NMV and SP in Policy Analysis <b>Al McGartland:</b> Role of Benefit-cost Analysis and Why NMV and SP Methods Are Needed
<b>10:30 am to 10:45 am</b>	<b>Break</b>
<b>10:45 am to 11:45 am</b>	<b>Panel: Historical Perspective, Challenges, and Opportunities for the Future</b> (Moderator: Daniel Phaneuf) <b>Richard Carson:</b> Regulatory Analysis; <i>From E.O. 12291 to Today</i> <b>Daniel Phaneuf:</b> From Exxon to BP: Status and Developments in Stated Preference Validity over Three Decades <b>Chris Moore:</b> Challenges in Implementation and Potential Ways Forward
<b>11:45 to Noon</b>	<b>Discussion with Panel and Audience</b>

<p><b>Noon to 1:00 pm</b></p>	<p style="text-align: center;"><b>Lunch</b> (Moderator: <i>Tihitina Andarge</i>)</p> <p><b>Sally Katzen:</b> A Legal and Regulatory Perspective on the Role of Nonmarket Valuation and Stated Preference Approaches in Benefit Cost Analysis and Regulatory Review</p>
<p><b>1:00 pm to 1:10 pm</b></p>	<p style="text-align: center;"><b>Break</b></p>
<p><b>1:10 pm to 2:25 pm</b></p>	<p style="text-align: center;"><b>Highlights of New Research on the Value of Water Quality Improvements</b> (Moderator: <i>David Keiser</i>)</p> <p><b>“Measuring the Social Benefits of Water Quality Improvements to Support Regulatory Objectives: Progress and Future Directions”</b> Chris Moore, Joel Corona, Charles Griffiths, Matthew Heberling, <b>Julie Hewitt</b>, David Keiser, Catherine Kling, Matthew Massey, Chris Moore, Michael Papenfus, Daniel Phaneuf, David Smith, Christian Vossler, William Wheeler</p> <p><b>“Spatial Dimensions of Water Quality Value in New England River Networks”</b> Elena Besedin, Stefano Crema, <b>Robert J. Johnston</b>, Klaus Moeltner, Tom Ndebele, Seth Peery, Robert Stewart, Wilfred M. Wollheim, Zhenyu Yao</p> <p><b>“Disentangling Water Quality Indices to Enhance the Valuation of Divergent Ecosystem Services”</b> <b>Frank Lupi</b>, Joseph A. Herriges, and Jan R. Stevenson</p>
<p><b>2:25 pm to 2:35 pm</b></p>	<p style="text-align: center;"><b>Break</b></p>
<p><b>2:35 pm to 3:50 pm</b></p>	<p style="text-align: center;"><i>(Moderator: Mainul Hoque)</i></p> <p><b>“Estimating the Benefits of Stream Water Quality Improvements in Urbanizing Watersheds: An Ecological Production Function Approach”</b> <b>Roger von Haefen</b> George Van Houtven, Alexandra Naumenko, Daniel Obenour, Jonathan Miller, and Melissa Kenney</p> <p><b>“Valuing Improvements in Ecological Integrity in Local and Regional Watersheds: The Biological Condition Gradient Ladder”</b> <b>Christian Vossler</b>, Christine Dolph, Jacques Finlay, David Keiser, Catherine L. Kling, Daniel Phaneuf</p> <p><b>“Improving models of biological condition to support existence valuation of freshwater ecosystems”</b> <b>Ryan Hill</b>, Jessie Doyle, Scott Leibowitz, Chris Moore, Paul L. Ringold</p>
<p><b>3:50 pm to 4:00 pm</b></p>	<p style="text-align: center;"><b>Break</b></p>
<p><b>4:00 pm to 5:00pm</b></p>	<p style="text-align: center;"><b>Invited Perspectives and Discussion</b> (Moderator: <i>Cathy Kling</i>)</p> <p><b>Ian Bateman</b> <b>Bonnie Keeler</b> <b>Sheila Olmstead</b> <b>John Whitehead</b></p>
<p><b>5:15pm</b></p>	<p style="text-align: center;"><b>Convene</b></p>

<p><b>8:00 am to 9:00 am</b></p>	<p style="text-align: center;"><b>Breakfast</b> Rooms 383-385, Hall of the States</p>
	<p style="text-align: center;"><b>Papers at the Forefront of IAMs and Water Quality and Audience Discussion</b> Rooms 383-385, Hall of the States <i>(Moderator: Daniel Phaneuf)</i></p> <p><i>Each presentation will be allocated 15 minutes. After completion of the 3<sup>rd</sup> presentation, there will be a short break for 15 minutes. The last 30 minutes will be allocated for Q&amp;A.</i></p>
<p><b>9:00 am to 11:30 am</b></p>	<p><b>Alyssa Le:</b> “HAWQS/SWAT As a Policy Analysis Tool: Integrating Water Quality Modeling with Meta-regression and Benefit Transfer”</p> <p><b>Charles Griffiths:</b> “Valuing the Impact of Climate Change on Water-based Recreation Using Integrated Assessment Modeling”</p> <p><b>Xinxin Fan:</b> “Designing Payments for Multiple Ecosystem Services with Advanced Biofuels in the Mississippi River Basin under the Renewable Fuel Standard”</p> <p><b>Taiwo Akinyemi:</b> “Relocation of Nutrient Runoff from Agricultural Production”</p> <p><b>David Keiser:</b> “An Integrated Assessment Model for the Social Cost of Nutrient Pollution”</p>
<p><b>11:30 am to Noon</b></p>	<p style="text-align: center;"><b>Egg Timer Presentations (5 minutes per paper)</b> <i>(Moderator: David Keiser)</i></p> <p><b>Yongjie Ji:</b> “An Integrated Assessment Framework to Evaluate Conservation Practices’ Environmental and Economic Benefits: A Case for Three Central Iowa Watersheds”</p> <p><b>Chunyu Guo:</b> “Regulator Preference and Underinvestment in Water Infrastructure”</p> <p><b>Weizhe Weng:</b> “Housing Market Capitalization of Freshwater Lake Fisheries: Evidence from Oneida Lake, NY”</p> <p><b>Amarpreet Kaur:</b> “Piped Water Quality and House Prices: A Household Production Function Approach”</p> <p><b>Syedul Islam:</b> “Non-compliance of Water and Air Quality and Its Impact on Lung and Bronchus Cancer Incidence: A Spatial Panel Data Analysis”</p>
<p><b>Noon to 1:00 pm</b></p>	<p style="text-align: center;"><b>Lunch</b> <i>(Moderator: Joel Corona)</i></p> <p><b>Kenneth Bagstad:</b> Natural Capital Accounting in the US</p>
<p><b>1:00pm to 1:30 pm</b></p>	<p style="text-align: center;"><b>Break</b></p>

**2 Split/Parallel Sessions on Economics of Water Quality**

*(Moderator: Chris Moore)*

*Each paper will be allocated 25 minutes total, 15-20 minutes for presentation followed by 5-10 minutes for questions and discussion.*

**Session 1: Rooms 383-385, Hall of the States**

**Bonnie Keeler:** “Missing Benefits, Missing Values: A Retrospective Analysis of Clean Water Act Economic Analyses”

**Pat Lloyd-Smith:** “Assessing Temporal Reliability and Dynamics of Water Quality Value Estimates Using Recreation Demand Models”

**Klaus Moeltner:** “Locally-weighted Meta-regression and Benefit Transfer to Estimate Societal Benefits of Watershed-level Cleanup”

**Kristen Swedberg:** “Spatial Heterogeneity in Hedonic Price Effects for Lake Water Quality”

**Ewa Zawojkska:** “Understanding Household Preferences for Price versus Quantity Instruments on Lawn-Care Practices: Implications for Nonpoint Nutrient Reductions”

**Session 2: Room 337, Hall of the States**

*(Moderator: Tihitina Andarge)*

**Aaron Smith:** “Agriculture’s Nitrogen Legacy”

**Sandy Sum:** “The Disproportionate Effects of Drought on Drinking Water Quality: Evidence from California”

**Wes Austin:** “Extreme Precipitation and Drinking Water Quality”

**Laura Grant:** “Do Water Groups Mitigate Free-riding in Transboundary Pollution?”

**Youngho Kim:** “Payments and Penalties in Ecosystem Services Programs”

**Rooms 383-385, Hall of the States**

**Wrap-Up**

**1:30pm to 3:35pm**

**1:30pm to 3:35pm**

**3:35pm to 4:00pm**