

ReVA-MAIA Conference:

USING SCIENCE TO ASSESS ENVIRONMENTAL VULNERABILITIES



ReV A-MAIA

May 13-15, 2003
Hilton Valley Forge



AGENDA

ReVA MAIA Conference
Using Science to Assess Environmental Vulnerabilities
Hilton Valley Forge – King of Prussia, PA
May 13 - 15, 2003

~ Agenda ~

Monday

May 12, 2003

4:00 - 6:00pm Conference Organizing Committee Meeting

Closed meeting

5:00 - 9:00pm Registration Table

Grand Ballroom Foyer

7:00 - 9:00pm Networking Dinner

Washington Suite A

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Tuesday

May 13, 2003

- 7:00 - 2:00 **Registration** Grand Ballroom Foyer
- 7:00 - 8:30 **Continental Breakfast** Grand Ballroom Foyer
- 8:30 - 8:45 **Welcome, Overview and Goals of Conference**
Donald S. Welsh, Regional Administrator, U.S. EPA, Region 3, Philadelphia, PA
- 8:45 - 9:15 **Invited Keynote Address** Grand Ballroom
Planning and Environmental Science: Closing the Gap
William R. Klein, AICP, Director of Research, APA, Chicago, IL

Session One

Grand Ballroom

Assessing Current Impacts and Vulnerabilities
M. Patricia Bradley and Peter R. Claggett, Moderators

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- 9:15 - 9:30 **Introduction by M. Patricia Bradley**
U.S. EPA, ORD, MAIA, Ft. Meade, MD
- 9:30 - 9:50 **Regional-Scale Ground-Water Vulnerability Assessments in the Mid-Atlantic Region Based on Statistical Probability Models**
Earl A. Greene, USGS, Baltimore, MD
- 9:50 - 10:10 **Assessing Wetland Condition on a Watershed Basis in the Mid-Atlantic Region Using Synoptic Land Cover Maps**
Robert P. Brooks, Pennsylvania State University, Cooperative Wetlands Center, University Park, PA
- 10:10 - 10:30 **Evaluating Shoreline Condition at Different Spatial Scales - Implications as an Ecological Indicator**
Marcia R. Berman, Virginia Institute of Marine Sciences, Gloucester Point, VA
- 10:30 - 11:00 **Coffee Break**
- 11:00 - 11:20 **Using Regional Models to Assess the Relative Effects of Stressors on Stream Ecological Integrity**
Lester L. Yuan, U.S. EPA, ORD, Washington, DC

- 11:20 - 11:40 **Invasive Species: An Important Stressor in the Mid-Atlantic Area**
Daniel A. Kluza, U.S. EPA, ORD, Washington, DC
- 11:40 - 12:00 **Environmental Indicators for Water Quality and Aquatic Ecosystem Management: Interviews of Government Officials in the Atlantic Slope**
M. Jennison Kipp, Pennsylvania State University, Atlantic Slope Consortium, University Park, PA
- 12:00 - 2:00 **Lunch - Ticket Required** **Jefferson Room**

Invited Speaker: Rochelle Araujo
U.S. EPA, Acting Associate Director for Ecology, ORD, NERL, Research Triangle Park, NC
- 2:00 - 2:20 **Identification of Lands Important for Protecting Water Quality and Watershed Integrity in the Chesapeake Bay Watershed**
Albert Todd, USDA, Forest Service, Northeastern Area State and Private Forestry, Annapolis, MD
- 2:20 - 2:40 **Landscape Ecological Assessment of the Chesapeake Bay Watershed**
Ted Weber, Maryland Department of Natural Resources, Annapolis, MD
- 2:40 - 3:00 **The Effect of Broad-Scale Habitat Condition on the Location and Quality of Migratory Bird Pathways**
Roger Tankersley, Jr., Tennessee Valley Authority, Norris, TN
- 3:00 - 3:20 **SmartConservation™ - An Opportunity to Integrate ReVA/MAIA with a 'Bottom Up' Conservation Assessment Web-Tool**
Clare Billett, Natural Lands Trust, Media, PA
- 3:20 - 3:50 **Break**
- 3:50 - 4:10 **Exploring Connections Between Ecological Conditions and Human Health: County-Level Aggregation for Maryland**
John F. Paul, U.S. EPA, ORD, Research Triangle Park, NC
- 4:10 - 4:30 **Connecting Socio-Economic Well-Being to Regional Scale Ecological Assessments**
Lisa A. Wainger, King & Associates, Solomons, MD
- 4:30 - 5:10 **ReVA's Web-Based Application: A Tool to Facilitate Environmental Decision-Making**
Michael O'Connell, Waratah Corporation, Durham, NC

- 5:10 - 5:45 **Moderated Discussion, Question and Answer Period**
Facilitated by Kent Thornton, FTN Associates, Ltd., Little Rock, AR
- 6:00 - 8:00 **Poster Session reception with cash bar and light hors d'oeuvres**
Grand Ballroom Foyer
List of Posters on page ten

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Wednesday

May 14, 2003

7:00 - 2:00 **Registration**

Grand Ballroom Foyer

Session Two

Grand Ballroom

Forecasting Environmental Condition and Vulnerabilities
Elizabeth Smith and John F. Paul, Moderators

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- 9:00 - 9:10 **Introduction by Elizabeth Smith**
U.S. EPA, ORD, ReVA Program, Research Triangle Park, NC
- 9:10 - 9:30 **Modeling Heat and Air Quality Impacts of Changing Urban Land Uses and Climate**
Joyce E. Rosenthal, Columbia University, New York City, NY
- 9:30 - 9:50 **Life-History Traits and Landscape Patterns: Predicting Population Persistence in the Mid-Atlantic Region**
Joshua L. Lawler, U.S. EPA, NRC, Corvallis, OR
- 9:50 - 10:10 **Vulnerability of Mid-Atlantic Forested Watersheds to Timber Harvest Disturbance**
Rex H. Schaberg, North Carolina State University, Department of Forestry, Raleigh, NC
- 10:10 - 10:30 **SmartConservation™: Automating a Conservation Value Assessment Model for Southeast Pennsylvania**
Robert M. Cheetham, Avencia, Inc., Philadelphia, PA
- 10:30 - 11:00 **Break**
- 11:00 - 11:20 **Scenario Analysis for the San Pedro River, Analyzing Hydrological Consequences for a Future Environment**
William Kepner, U.S. EPA, ORD, Las Vegas, NV
- 11:20 - 11:40 **Environmental Influences on Genetic Diversity of Creek Chubs in the Mid-Atlantic Region of the USA**
Mark J. Bagley, U.S. EPA, Ecological Exposure Research Division, Cincinnati, OH

- 11:40 - 12:00 **Assessing the Vulnerability of Resource Lands in the Chesapeake Bay Watershed**
Peter R. Claggett, USGS, Chesapeake Bay Program, Annapolis, MD
Claire A. Jantz, University of Maryland, Department of Geography, College Park, MD
- 12:00 - 12:20 **The Effect of Land-Cover Change on Nutrient Export Variance**
James D. Wickham, U.S. EPA, ORD, Research Triangle Park, NC
- 12:20 - 2:00 **Lunch: Ticket Required** **Jefferson Room**
- Invited Speaker: Ann Bartuska**
Executive Director, Invasive Species Initiative, The Nature Conservancy and President, Ecological Society of America, Arlington, VA
- 2:00 - 2:30 **Making a Difference: Climate Impacts Assessment and Advances in Regional Resource Management**
Joel D. Scheraga, U.S. EPA, ORD, Washington, DC
- 2:30 - 2:50 **Urban Areas and Contributions to Regional Environmental Quality**
Steward T. A. Pickett, Institute of Ecosystem Studies, Millbrook, NY
- 2:50 - 3:10 **Web Data Presentation and Analysis – Made Easy?**
Intertwining Technology, Environmental Evaluation, and Culture
Cynthia Curtis, U.S. EPA, Region 5, Chicago, IL
- 3:10 - 3:30 **A Site Prioritization Procedure for Monitoring Plots: Combining Ecological and Social Criteria**
Lorne P. Bennett, University of Guelph, Department of Geography, Guelph, Ontario, Canada
- 3:30 - 4:00 **Break**
- 4:00 - 4:20 **Modeling and Multiobjective Risk Decision Tools for Assessment and Management of Ecosystems**
Benjamin F. Hobbs, John Hopkins University, Department of Geography and Environmental Engineering, Baltimore, MD
- 4:20 - 4:40 **Building a Regional Monitoring Framework: Integrating Local Programs and the Ontario Niagara Escarpment Monitoring Program**
Robert Milne, Wilfrid Laurier University, Department of Geography and Environmental Studies, Waterloo, Ontario, Canada

4:40 - 5:00 **Environmental Impacts of Dispersed Development from Federal Infrastructure Projects**

Mark T. Southerland, Versar, Inc., Columbia, MD

5:00 - 5:30 **Moderated Discussion, Question and Answer Period**

Facilitated by Kent Thornton, FTN Associates, Ltd., Little Rock, AR

• • • **Dinner on your own** • • •

Thursday

May 15, 2003

Session Three

Grand Ballroom

Developing Management Strategies to Optimize the Future
Jeffrey Frithsen, Moderator

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- 9:00 - 9:20 **Introduction by Jeffrey Frithsen**
U.S. EPA, ORD, Washington, DC
- 9:20 - 9:40 **Sustainable Environment for Quality of Life (SEQL): Charlotte Region=s Integrated Environmental Initiative**
Eric Ginsburg, U.S. EPA, Emissions Monitoring and Analysis Division, Research Triangle Park, NC
- 9:40 - 10:00 **Sustainability Indicators as a Communicative Tool - Building Bridges in Pennsylvania**
Kathi K. Beratan, Nicholas School of the Environment and Earth Sciences, Duke University, Durham, NC
- 10:00 - 10:20 **Strategic Partnership to Assess State-Level Vulnerabilities: Highlights of the Maryland DNR - ReVA Cooperative Agreement**
Bill Jenkins, Maryland Department of Natural Resources, Annapolis, MD
- 10:20 - 10:40 **Criteria for Prioritization of Ecosystem Restoration**
Barbara H. Wilson, Dynamac Corporation, Ada, OK
Eric E. Jorgensen, U.S. EPA, ORD, Ada, OK
- 10:40 - 11:10 **Break**
- 11:10 - 11:30 **Geospatial Data for Environmental Assessments and Vulnerability Studies**
John M. Morgan, III, Towson University, Center for Geographic Information Sciences, Towson, MD
- 11:30 - 11:50 **Using the Mike 11 Hydrologic Model to Delineate Flood Prone Areas in Smithfield, WV**
Edward A. Watson, Canaan Valley Institute, Davis, WV
- 11:50 - 12:10 **The Mid-Atlantic Highlands Action Program: Transforming the Legacy**
Jennifer Newland, Canaan Valley Institute, Davis, WV
- 12:10 - 12:30 **Assessing the Effectiveness of Restoration Technologies**
Elise A. Striz, U.S. EPA, ORD, Ada, OK
- 12:30 - 2:00 • • • **Lunch on your own** • • •

Thursday

May 15, 2003

Session Four:

Grand Ballroom

**Assessing and Responding to Environmental Vulnerability:
A Panel Discussion**

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2:00 - 4:00 Facilitated Panel Discussion

The panel speakers represent a variety of potential ReVA clientele and perspectives. Panel questions will be generated from conference presentations and discussions, planning committee requests and the audience. Please attend the panel discussion to hear a synthesis of what was presented at the conference. Discussions may encompass technology tools and strategies to improve environmental decision-making.

Panel speakers include:

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|---------------|--|
| Bill Jenkins | Director, Watershed Management and Analysis Division, Maryland
Department of Natural Resources, Annapolis, MD |
| Vicki Binetti | Associate Director, Office of Municipal Assistance, Region 3, U.S. EPA,
Philadelphia, PA |
| Clare Billett | Landscape Conservation Program Manager, Natural Lands Trust, Media, PA |

We look forward to your attendance and participation.

Panel Discussion Facilitated by Kent Thornton, FTN Associates, Ltd.

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Tuesday

May 13, 2003

List of Posters

6:00 - 8:00

Grand Ballroom Foyer

Linking Land Use to Larval Walleye Survival

Richard M. Anderson, NRC Research Associate, Baltimore, MD

Montgomery County, Maryland Uses Biological Monitoring to Better Understand and Manage Watersheds

Brenda Ortigoza Bateman, University of Maryland, Baltimore County, Rockville, MD

Innovative Environmental Education Contributes to Improved Management Practices in the Mid-Atlantic

M. Patricia Bradley, U.S. EPA, ORD, MAIA, Ft. Meade, MD

Eric S. Walbeck, TPMC, Ft. Meade, MD

Key Messages from an Emergy Analysis of West Virginia

Daniel E. Campbell, U.S. EPA, ORD, Narragansett, RI

A Regional Perspective on Ambient Monitoring Reassessment and Analysis

Alice H. Chow, U.S. EPA, Region 3, Philadelphia, PA

Watersheds and Wetlands: Large-Scale Disturbances and Small Scale Responses

Charles Andrew Cole, Pennsylvania State University, Cooperative Wetlands Center, State College, PA

Calvert County Maryland's Success at Controlling Sprawl

Robert Costanza, University of Vermont, School of Natural Resources, Burlington, VT

A Small Watershed Characterization, Classification, and Assessment for West Virginia Utilizing EMAP Design and Tools

Naomi E. Detenbeck, U.S. EPA, ORD, Duluth, MN

June Bugs Invade Links: Pesticide Use Reduction with Geographic Information Systems

Jill A. Engle-Cox, University of Maryland Baltimore County, Baltimore, MD

A Bayes Likelihood Information Theoretic Approach for the Exogenous Aggregation of Regional Ground Water Quality Data

Barton R. Faulkner, U.S. EPA, ORD, Ada, OK

A Regional Approach to Projecting Land-Use Change and Resulting Ecological Vulnerability

Laura E. Jackson, U.S. EPA, ORD, Research Triangle Park, NC

Mapping and Modeling Land Use Change in the Chesapeake Bay Watershed: Utilizing Impervious Surface Maps to Assess Environmental Vulnerabilities

Claire A. Jantz, University of Maryland, Department of Geography, College Park, MD

Selecting Vital Sign Indicators for the National Capitol Network

Marcus Koenen, National Park Service, Washington, DC

An Overview of Data Integration Methods for Regional Assessment

Nicholas W. Locantore, Waratah Corporation, Durham, NC

Can Landscape Characteristics of Watersheds Help Find Impaired Bottom Communities in Estuaries?

Matthew C. Nicholson, U.S. EPA, ORD, Narragansett, RI

Strategic Planning and Indicators for Targeting Environmental Outcomes

Richard Paiste, U.S. EPA, Region 3, Philadelphia, PA

Impacts of Anthropogenic Nitrogen Deposition on Forest Carbon Sequestration and N Dynamics in the Mid-Atlantic Region

Yude Pan, USDA, Forest Service, Newton Square, PA

Empirical, Geographically-Based Water Quality Criteria Development Using Conditional Probabilities: A Proposed Approach with Application to Sediments in Mid-Atlantic Streams

John F. Paul, U.S. EPA, ORD, Research Triangle Park, NC

Contaminant Exposure and Effects Terrestrial Vertebrates Database: Analysis for the Northeast

Barnett A. Rattner, USGS, Patuxent Wildlife Research Center, Laurel, MD

Waquoit Bay Watershed Ecological Risk Assessment: Using Science to Support Management

Victor B. Serveiss, U.S. EPA, ORD, Washington, DC

Watershed Planning and Restoration in an Urbanized County

Steven L. Stewart, Baltimore County, Maryland, Department of Environmental Protection and Resource Management, Towson, MD

A Fuzzy Decision Analysis Method for Regional Environmental Assessment of the Mid-Atlantic Region

Liem T. Tran, Pennsylvania State University, Department of Environmental Science, University Park, PA

An Integrated Framework for Uncertainty Analysis in Regional Environmental Assessment

Liem T. Tran, Pennsylvania State University, Department of Environmental Science, University Park, PA

CrEAM: Getting the Best Ecosystems to Float to the Top

Mary L. White, U.S. EPA, Region 5, Chicago, IL

Biosketches for Invited Speakers:

Donald Welsh

U.S. EPA

Regional Administrator, Region 3

Mr. Welsh returns to the Agency's Region 3 office where he worked as Chief of Government Affairs from 1991 to 1995 and Executive Assistant to the Regional Administrator from 1985 to 1991. He will manage Agency programs in Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia and West Virginia. Mr. Welsh has been Deputy Secretary for State/Federal Relations of the Pennsylvania Department of Environmental Protection since August 1997 and served as special assistant to the Secretary for two years prior to that. In both jobs he was involved in direct relationships with the federal EPA. Mr. Welsh is an alumnus of the University of Pennsylvania.

William R. Klein, AICP

American Planning Association

Director of Research

Mr. Klein joined the American Planning Association as research director in 1991. He directs a team of 18 research professionals in APA's Chicago office. Mr. Klein came to the field of community and regional planning via an educational concentration in sociology, environmental psychology, and urban affairs. For the first five years of his career, he was Director of Community Development for Local Government Research Corporation (1969-74). LGR was a private research organization providing a wide variety of research services to municipalities, councils of government, counties, regions, and state government. For 17 years (1974 to 1991), Mr. Klein served as Director of the Nantucket Planning & Economic Development Commission, a regional planning agency of Massachusetts. His tenure there gave him a unique opportunity to do comprehensive planning in a place that was often a leader in growth management, economic development, land conservation, historic preservation, and affordable housing. From 1990 to 1991 Mr. Klein was a Loeb Fellow in Advanced Environmental Studies at Harvard University's Graduate School of Design. He holds a B.A. in liberal arts (sociology and anthropology) from Colgate University (1969) and a master's degree in regional planning from Pennsylvania State University (1971).

Ann Bartuska

Executive Director, Invasive Species Initiative

The Nature Conservancy

President, Ecological Society of America

Ms. Bartuska is Executive Director, Invasive Species Initiative for The Nature Conservancy (TNC). She is an ecosystem ecologist with degrees from B.S. in Biology from Wilkes College in 1975, a M.S. in Botany from Ohio University in 1977, and a Ph.D. in Biology from West Virginia University in 1981. She was a research program manager at North Carolina State University for the National Acid Precipitation Assessment Program (NAPAP) and has spent the last 14 years with the US Forest Service in positions managing research, protecting our forest lands from insects and diseases, and overseeing the vegetation management efforts of the FS. Prior to joining TNC, she was Director of Forest and Rangelands for the Forest Service, responsible for the vegetation management activities of 192 million acres of public land. She is active in the Ecological Society of America, serving as Vice-President for Public Affairs from 1996 – 1999, and became President-Elect in August, 2001.

Conference Organizers

Elizabeth Smith	U.S. EPA, NERL, Research Triangle Park, NC
Patricia Bradley	U.S. EPA, MAIA, Ft. Meade, MD
Jeffrey Frithsen	U.S. EPA, ORD, Washington, DC
Joseph Williams	U.S. EPA, Ground Water and Ecosystem Restoration Division, ORD, NRMRL, OK
Jennifer Newland	Canaan Valley Institute, Davis, WV
John F. Paul	U.S. EPA, ORD, Research Triangle Park, NC
Elise Striz	U.S. EPA, Ground Water and Ecosystem Restoration Division, ORD, NRMRL, OK
Ronald Landy	U.S. EPA, ORD, Ft. Meade, MD
Peter Claggett	USGS, Chesapeake Bay Program, Annapolis, MD
Sarah Voorhees	TPMC, Scituate, MA

List of Acronyms

AICP	American Institute of Certified Planners
APA	America Planning Association
EMAP	Environmental Monitoring and Assessment Program
MAIA	Mid-Atlantic Integrated Assessment
NOAA	National Oceanic and Atmospheric Administration
NERL	National Exposure Research Lab
NERS	Northeastern Research Station
NPS	National Park Service
NRMRL	National Risk Management Research Laboratory
NRC	National Research Council
OAR	Office of Oceanic and Atmospheric Research
ORD	Office of Research and Development
ReVA	Regional Vulnerability Assessment
TNC	The Nature Conservancy
TPMC	Technology Planning and Management Corporation
U.S. EPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USGS	United States Geological Survey